

FED. RD. DIST. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
6	BR 2018(505)	1	
STATE	STATE DIST.	COUNTY	
TEXAS	TYLER	GREGG	
CONT.	SECT.	JOB	HIGHWAY NO.
0910	07	072	HIGH ST

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2-3	SUPPLEMENTAL INDEX OF SHEETS

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

PROJECT NO. BR 2018(505)
CSJ: 0910-07-072

HIGH ST
GREGG COUNTY

FUNCTIONAL CLASS: URBAN PRINCIPAL ARTERIAL
DESIGN SPEED: 35 MPH
AADT: (2018) = 13,617
AADT: (2030) = 20,000

FINAL PLANS

DATE CONTRACT LETTING: _____
 DATE CONTRACTOR BEGAN WORK: _____
 DATE WORK COMPLETED & ACCEPTED: _____
 CONTRACTOR: _____
 USED _____ OF _____ ALLOTTED DAYS: _____
 FINAL CONTRACT COST: \$ _____

FINAL AS BUILT PLANS

THE CONSTRUCTION WAS PERFORMED UNDER MY SUPERVISION
IN ACCORDANCE WITH THE PLANS AND CONTRACT

DATE _____ AREA ENGINEER _____

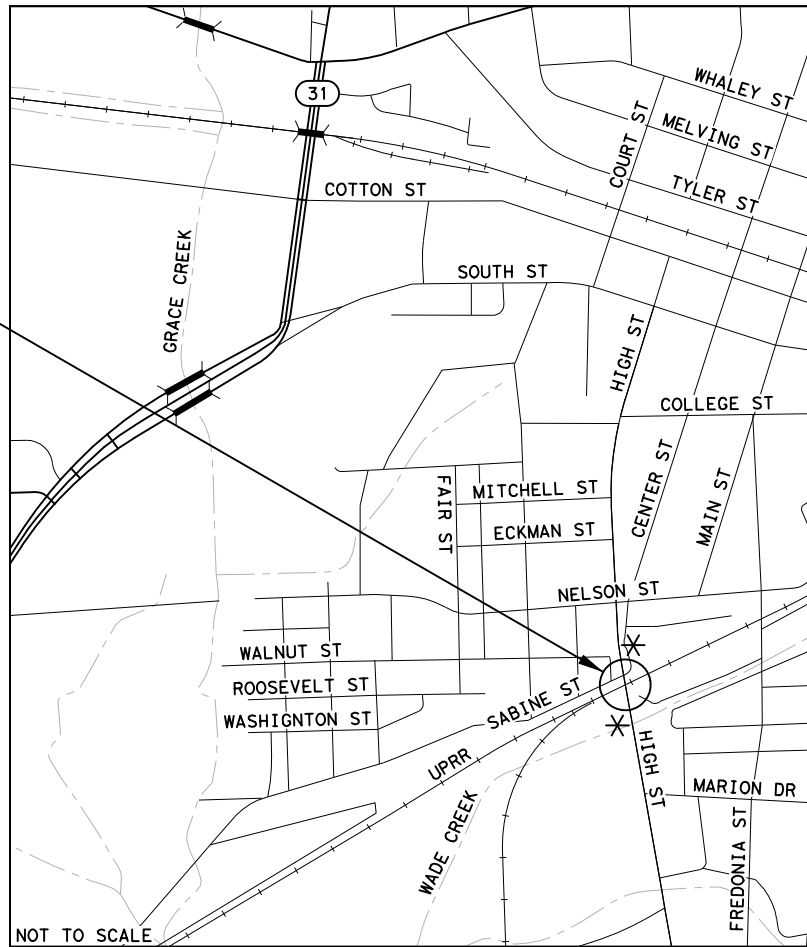
**REGISTERED ACCESSIBILITY SPECIALIST (RAS)
INSPECTION REQUIRED
TDLR NO. TABS2021016876**

NET LENGTH OF PROJECT = 1286.97 FT = 0.244 MI. [ROADWAY: 975.97 FT = 0.185 MI
 BRIDGE: 311.00 FT = 0.059 MI
 TOTAL PROJECT: 1286.97 FT = 0.244 MI

LIMITS: FROM AT UPRR AND SABINE ST
TO STR#001, IN LONGVIEW

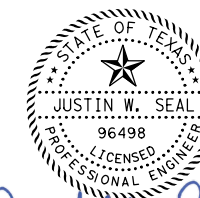
FOR CONSTRUCTION OF: BRIDGE REPLACEMENT
CONSISTING OF: REPLACE BRIDGE AND APPROACHES

PROJECT NO. BR 2018(505)
CSJ: 0910-07-072
HIGH ST PROJECT LOCATION
EXIST STRUCTURE:
NBI# 10-093-0-E004-69-001
PROPOSED STRUCTURE:
NBI# 10-093-0-E004-69-011
BEGIN STA: 154+88.03
END STA: 167+75.00



NOT TO SCALE

EXCEPTIONS: NONE
EQUATIONS: NONE
RR X-ING'S: STA 160+97.38



Justin W. Seal
Texas Department of Transportation

SUBMITTED FOR LETTING: 12/20/2021

DocuSigned by:
Gilbert Ortega
DISTRICT DESIGN ENGINEER

APPROVED FOR LETTING: 12/20/2021

DocuSigned by:
Vernon M. Webb
DISTRICT ENGINEER

* SIGNING IN ACCORDANCE WITH THE STANDARD BC SHEETS AND PART 6 OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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 1, 2012).

DRAWING DATE: 7/22/2021 FILENAME: pw: \\jmt-pw.bentley.com: jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\1. General\HIGH ST*TITLE01.dgn

DATE: 8/25/2021
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5-8	TYPICAL SECTIONS	103	RETAINING WALL A - ABUTMENT DETAIL
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SHEET NO.	DESCRIPTION
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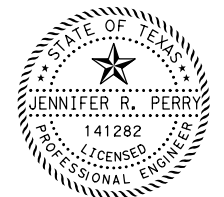
- *RW(MSE)DD
- *RW(EM)
- *RW(MSE)
- *RW(TRF)
- *RW(LB)

V. DRAINAGE DETAILS

HYDROLOGIC & HYDRAULIC DATA
 DRAINAGE PLAN AND PROFILE

STANDARDS

- *PB
- *PDD
- *CGT-PCO
- *CCO



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

Jennifer R. Perry, P.E. 08/25/21
 JENNIFER R. PERRY, P.E. DATE



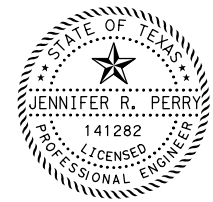
SUPPLEMENTAL INDEX OF SHEETS

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DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
JMT	6	(SEE TITLE SHEET)	HIGH ST	
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	
JMT	0910	07	072	2

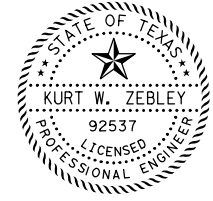
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Jennifer R. Perry, P.E. 07/23/21
 JENNIFER R. PERRY, P.E. DATE




**THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.
Kurt W. Zebley, P.E. 7/23/2021
 KURT W. ZEBLEY, P.E. DATE



*THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.
Kristi D. Flagg, P.E. 7/23/2021
 KRISTI D. FLAGG, P.E. DATE



**THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.
Clifford R. Mouser, P.E. 7-23-2021
 CLIFFORD R. MOUSER, P.E. DATE



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SUPPLEMENTAL INDEX OF SHEETS

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DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
JMT	6	(SEE TITLE SHEET)	HIGH ST	
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	
JMT	0910	07	072	3

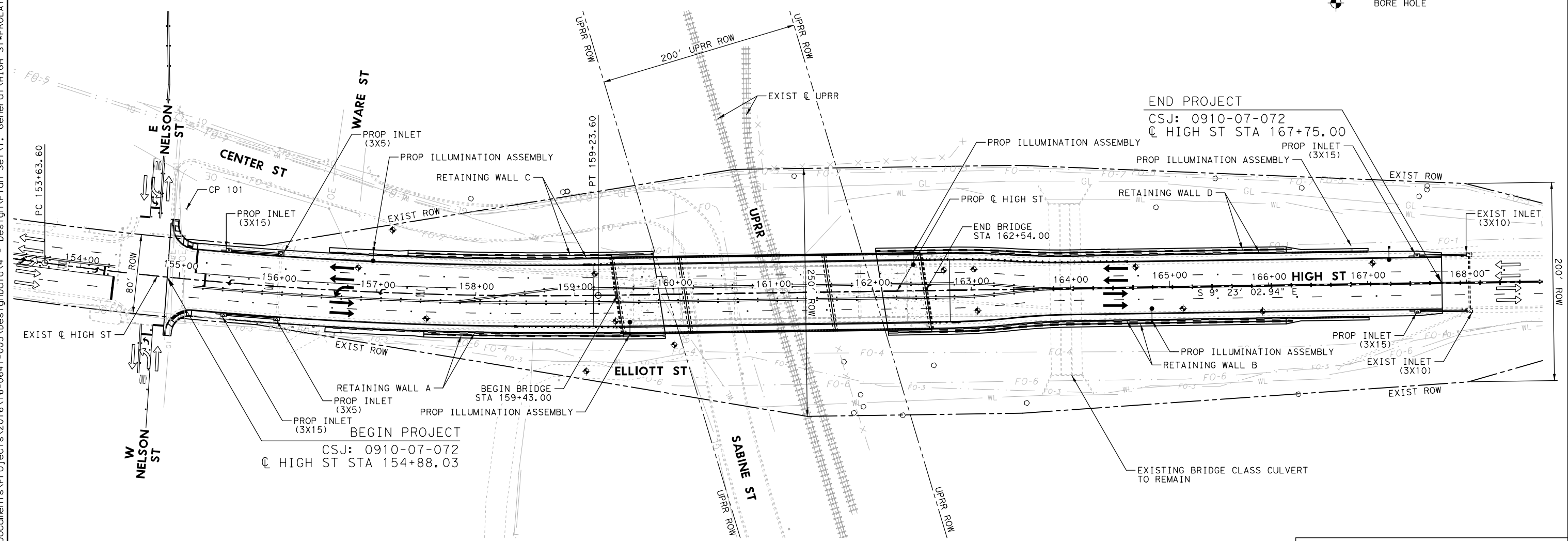
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0' 25' 50' 100'
 SCALE IN FEET

LEGEND

- x-x- EXIST FENCE
- o TREE (GREATER THAN 18" DIA)
- ⊕ BORE HOLE



STATE OF TEXAS
 JENNIFER R. PERRY
 141282
 LICENSED PROFESSIONAL ENGINEER
Jennifer R. Perry 07/23/21



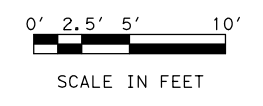
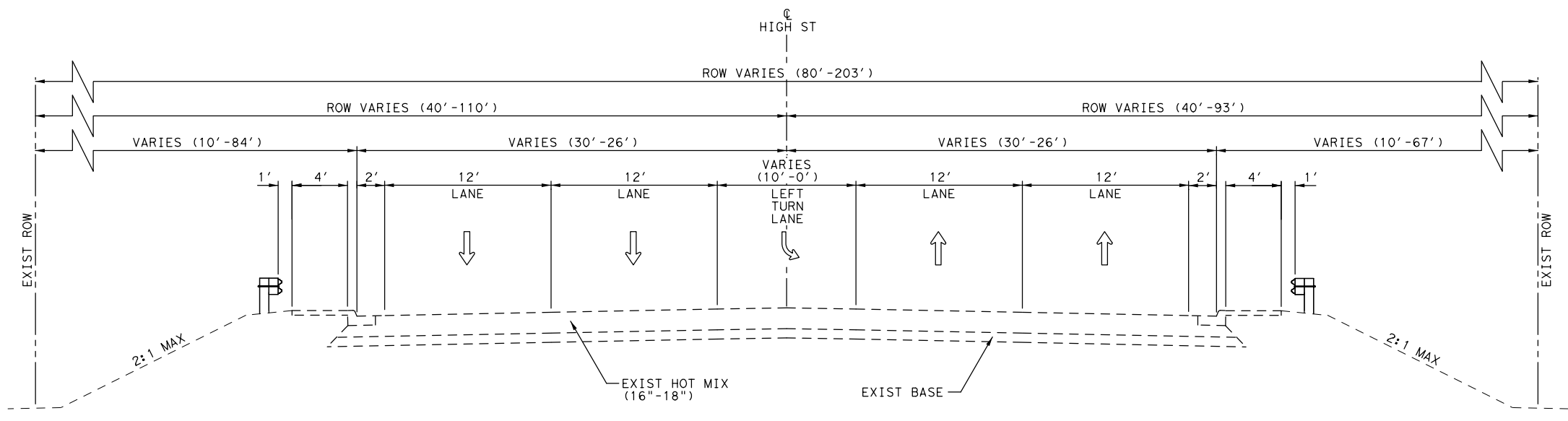
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S HIGH ST AT UPRR AND SABINE ST

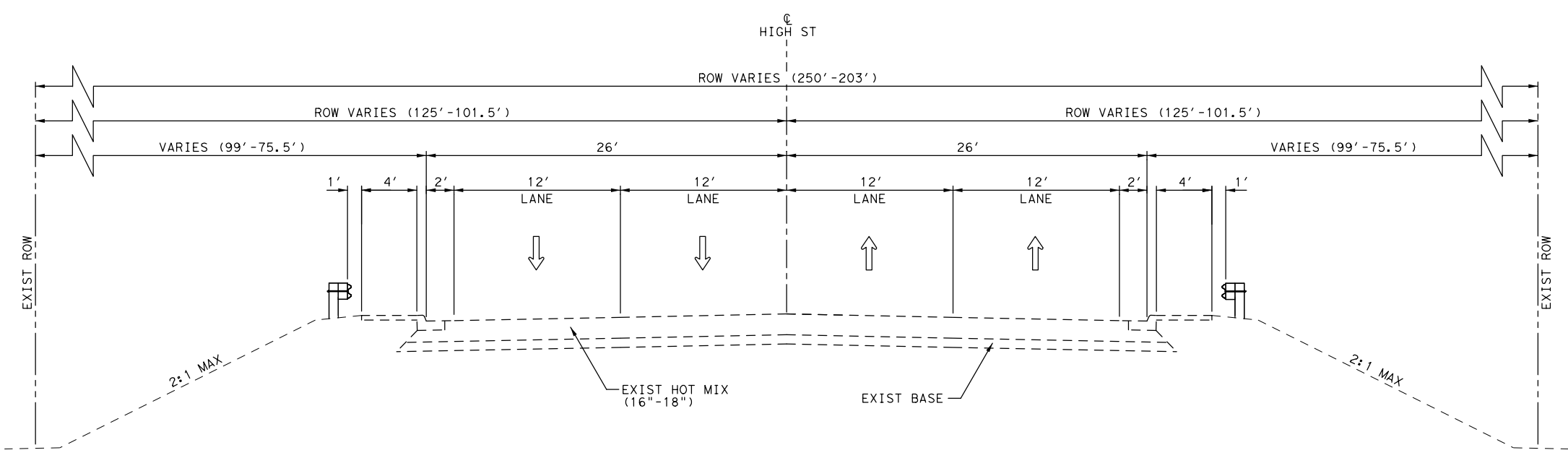
PROJECT LAYOUT

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
CHECK	TEXAS	TYLER	GREGG
JMT	CONTROL	SECTION	JOB
CHECK	0910	07	072
JMT			4

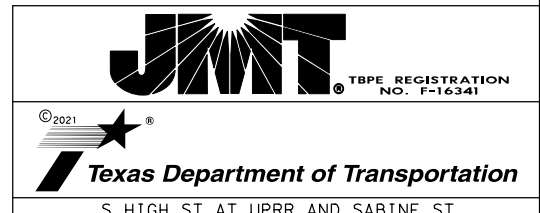
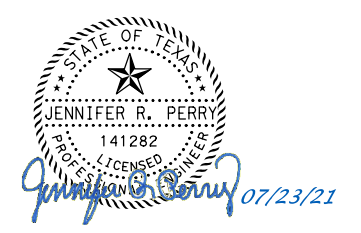
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EXISTING TYPICAL SECTION
 STA 154+88.03 - STA 159+59.10
 (EXIST BRIDGE STA 159+59.10 - STA 162+35.21)



EXISTING TYPICAL SECTION
 STA 162+35.21 - STA 167+75.00

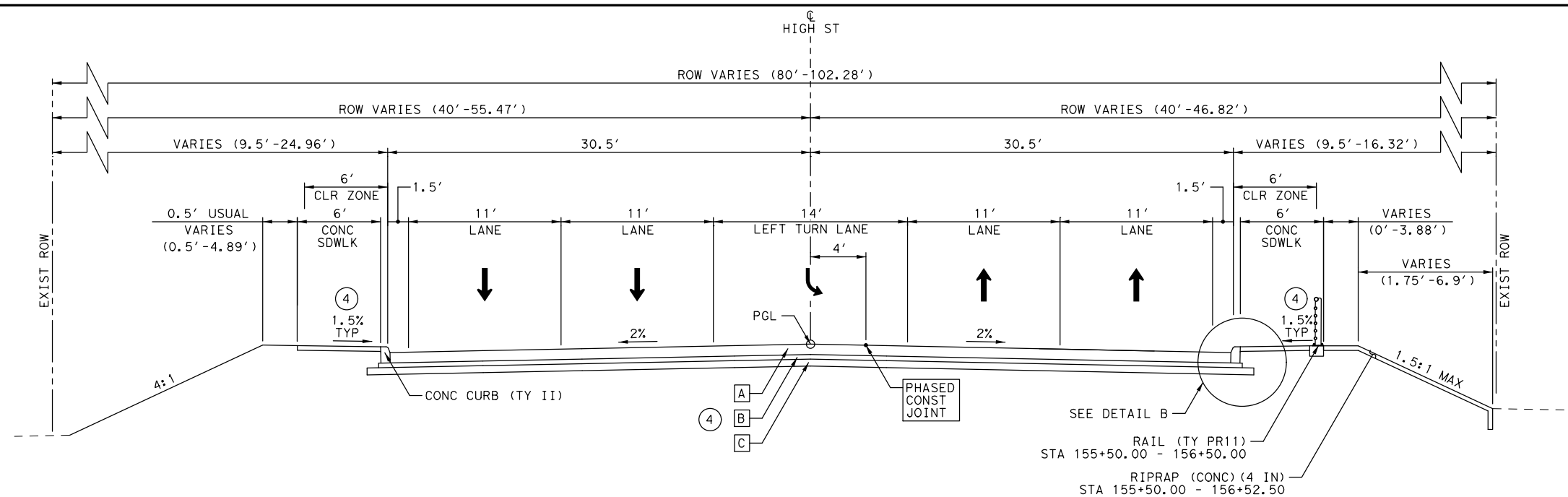


S HIGH ST AT UPRR AND SABINE ST

TYPICAL SECTIONS

				SHEET 1 OF 4				
DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST	
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG	
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072	
CHECK	JMT						SHEET NO.	5

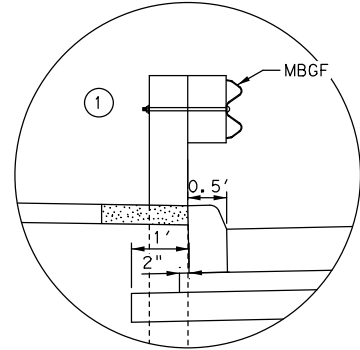
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PROPOSED TYPICAL SECTION

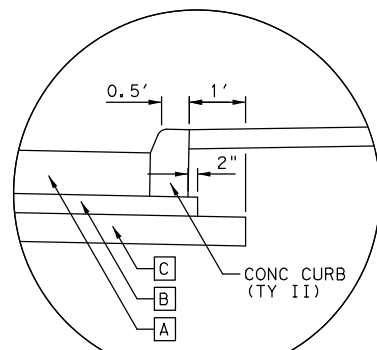
STA 154+88.03 - STA 156+50.00*

*EXIST HOT MIX TO PROP CRCP TRANSITION FROM STA 154+88.03 - STA 155+03.03



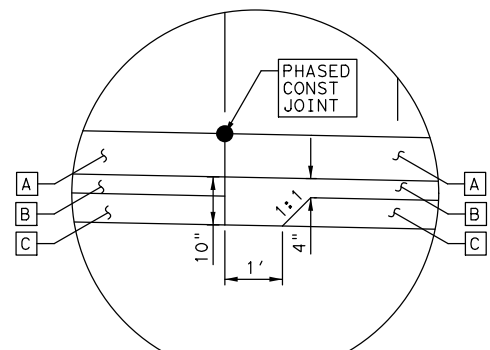
DETAIL A

NTS
 STA 158+39.42 - STA 159+49.91 (RT)
 STA 159+08.45 - STA 159+41.21 (LT)
 STA 162+55.93 - STA 162+88.60 (RT)
 STA 162+47.23 - STA 164+58.30 (LT)



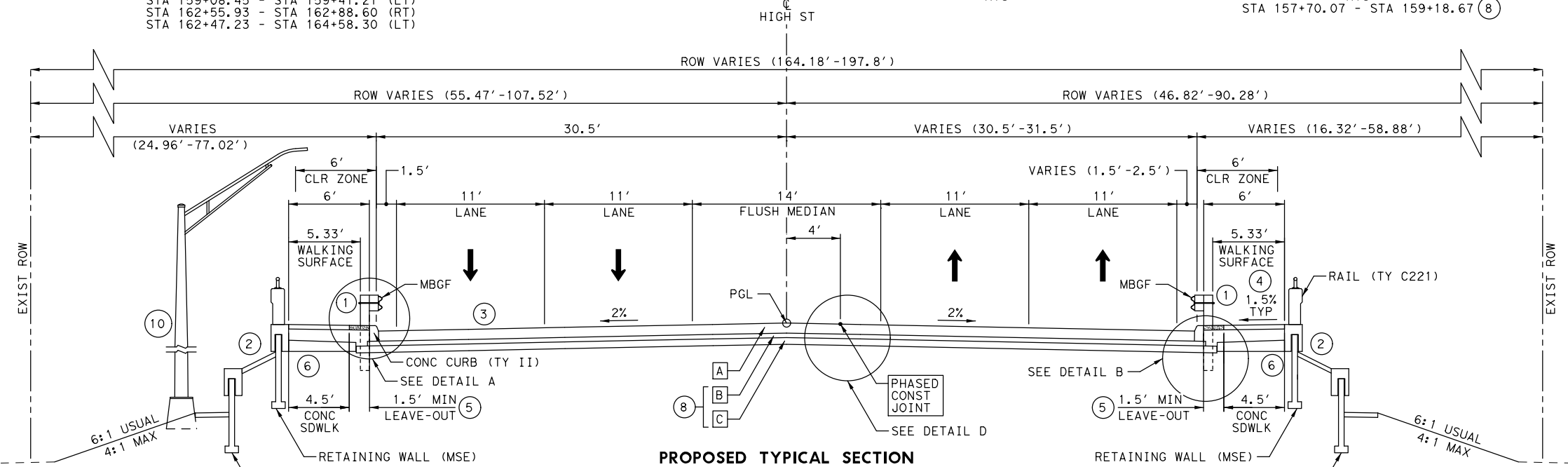
DETAIL B (LT/RT)

NTS



DETAIL D

NTS
 STA 157+70.07 - STA 159+18.67



PROPOSED TYPICAL SECTION

STA 156+50.00 - STA 159+43.00#

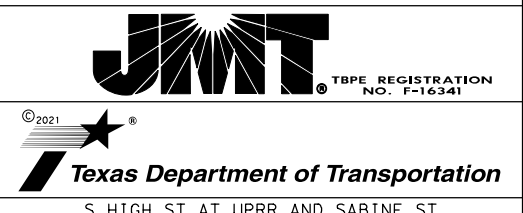
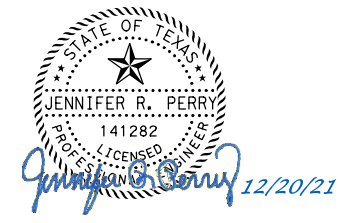
#BRIDGE APPROACH SLAB FROM STA 159+18.67 - STA 159+43.00

LEGEND

- A CONC PVMT (CONT REINF - CRCP) (9")
- B 4" SP MIXES SP-C PG70-22\TACK COAT
- C LIME TRT (SUBGRADE) (6")\CEMENT TREAT (SUBGRADE) (6")
- D SEAL COAT: ASPH (AC-20XP, AC-10-2TR, OR AC-20-5TR) AGGR (TY-PD GR-3 OR TY PL GR-3)
- E PRIME COAT & BLOTTER (MC-30)

NOTES:

- 1 SEE PLAN & PROFILE SHEETS FOR LIMITS OF MBGF.
- 2 SEE RETAINING WALL LAYOUTS FOR ADDITIONAL INFORMATION.
- 3 SEE BRIDGE LAYOUT FOR LIMITS OF BAS-C.
- 4 SEE MISCELLANEOUS ROADWAY DETAILS SHEET FOR MORE INFORMATION.
- 5 SEE GF (31)MS-19 STANDARD SHEET FOR PROPER INSTALLATION.
- 6 SEE RW (TRF) STANDARD SHEET FOR PROPER INSTALLATION.
- 7 SEE PHASED BRIDGE CONSTRUCTION - TYPICAL SECTIONS SHEET FOR ADDITIONAL INFORMATION.
- 8 SEE TRAFFIC CONTROL PLAN - PHASE 1 - TEMPORARY WALL SHEETS FOR ADDITIONAL INFORMATION.
- 9 SEAL COAT TO BE INSTALLED AS DIRECTED BY THE FIELD ENGINEER.
- 10 SEE ILLUMINATION PLAN FOR ADDITIONAL INFORMATION.



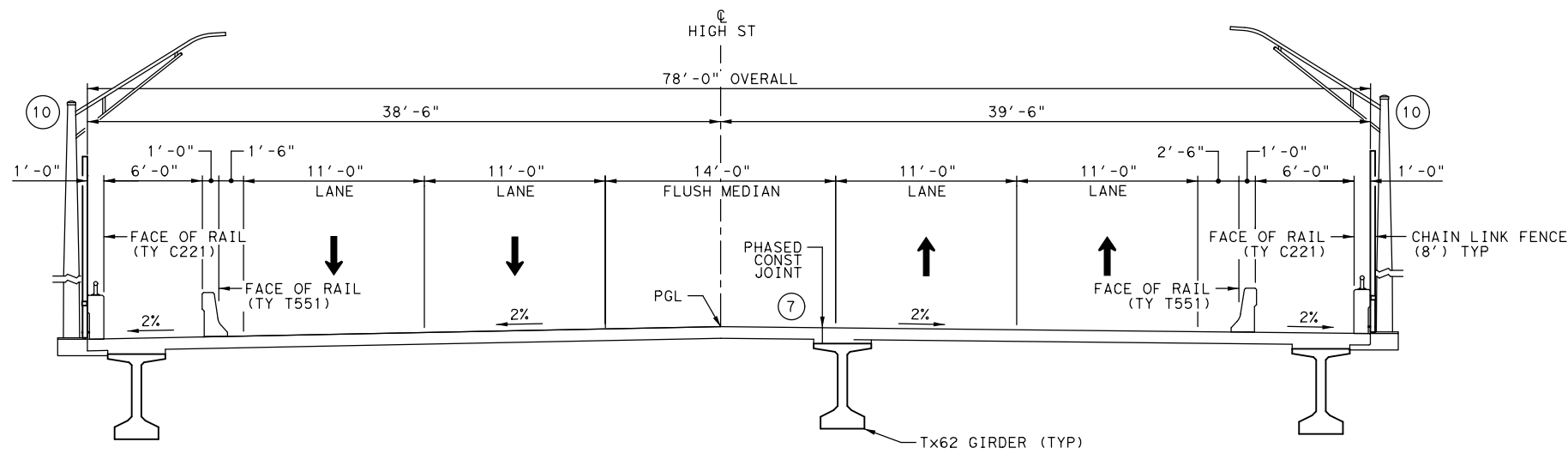
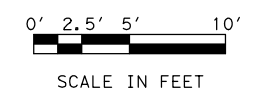
TYPICAL SECTIONS

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	Texas	Tyler	Gregg
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			
JMT			

SHEET 2 OF 4

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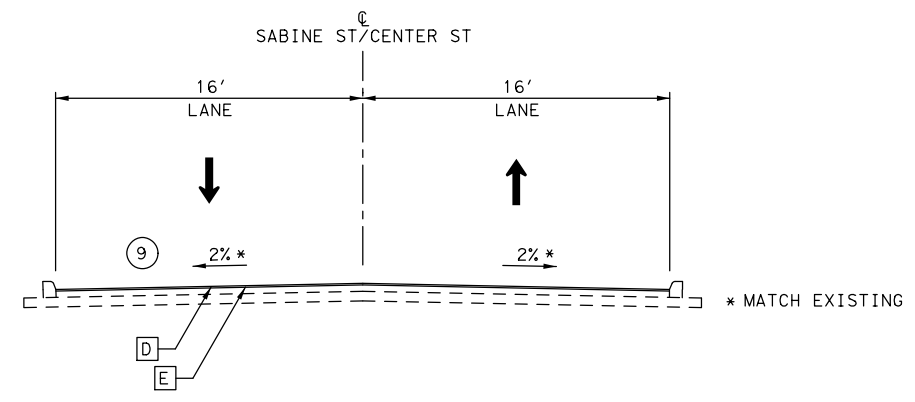
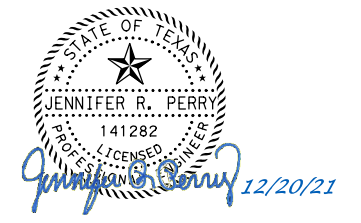
PROPOSED TYPICAL SECTION
 STA 159+43.00 - STA 162+54.00

LEGEND

- [A] CONC PVMT (CONT REINF - CRCP) (9")
- [B] 4" SP MIXES SP-C PG70-22\TACK COAT
- [C] LIME TRT (SUBGRADE) (6")\CEMENT TREAT (SUBGRADE) (6")
- [D] SEAL COAT:
 ASPH (AC-20XP, AC-10-2TR, OR AC-20-5TR)
 AGGR (TY-PD GR-3 OR TY PL GR-3)
- [E] PRIME COAT & BLOTTER (MC-30)

NOTES:

- ① SEE PLAN & PROFILE SHEETS FOR LIMITS OF MBGF.
- ② SEE RETAINING WALL LAYOUTS FOR ADDITIONAL INFORMATION.
- ③ SEE BRIDGE LAYOUT FOR LIMITS OF BAS-C.
- ④ SEE MISCELLANEOUS ROADWAY DETAILS SHEET FOR MORE INFORMATION.
- ⑤ SEE GF (31)MS-19 STANDARD SHEET FOR PROPER INSTALLATION.
- ⑥ SEE RW (TRF) STANDARD SHEET FOR PROPER INSTALLATION.
- ⑦ SEE PHASED BRIDGE CONSTRUCTION - TYPICAL SECTIONS SHEET FOR ADDITIONAL INFORMATION
- ⑧ SEE TRAFFIC CONTROL PLAN - PHASE 1 - TEMPORARY WALL SHEETS FOR ADDITIONAL INFORMATION
- ⑨ SEAL COAT TO BE INSTALLED AS DIRECTED BY THE FIELD ENGINEER.
- ⑩ SEE ILLUMINATION PLAN FOR ADDITIONAL INFORMATION.



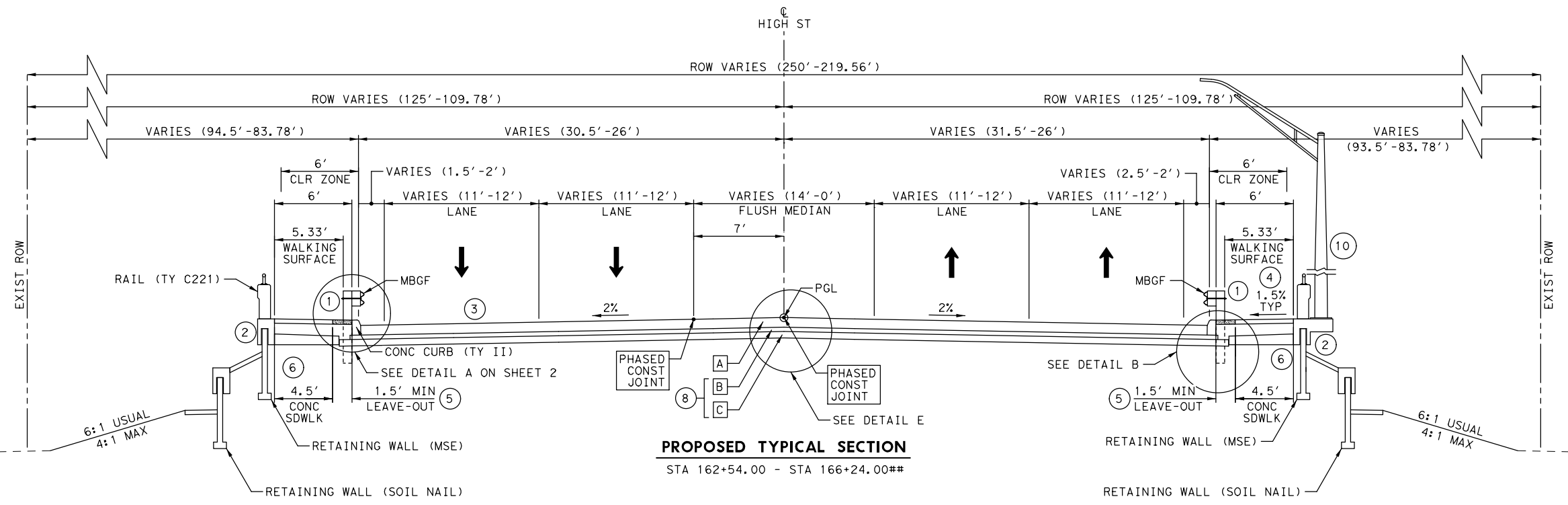
PROPOSED TYPICAL SECTION
 FROM ELLIOTT ST TO WARE ST

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Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

TYPICAL SECTIONS

			SHEET 3 OF 4
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
			7

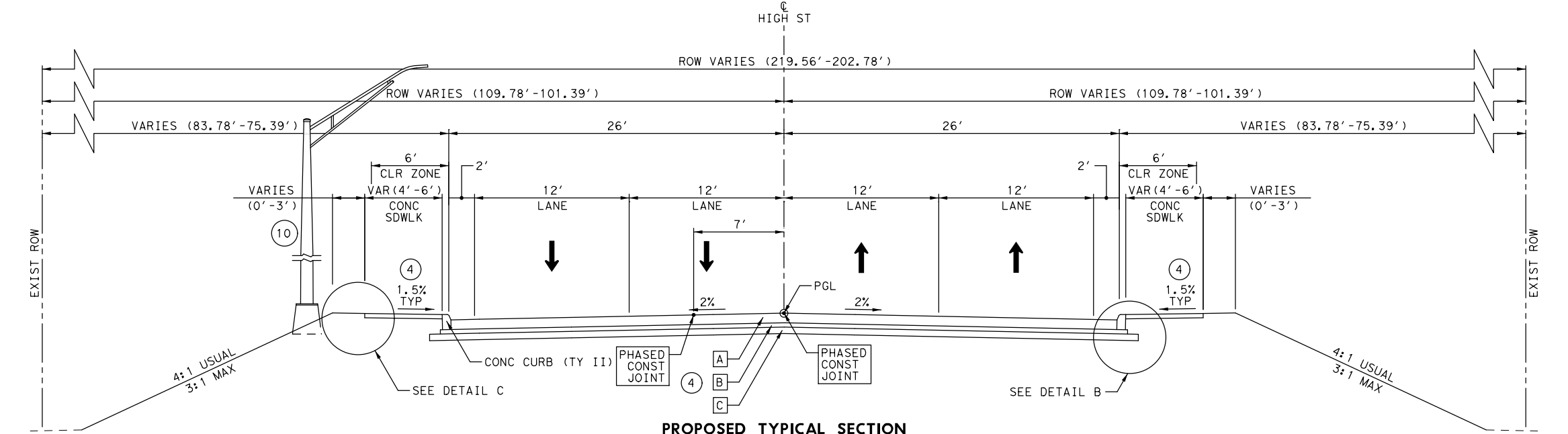
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PROPOSED TYPICAL SECTION

STA 162+54.00 - STA 166+24.00##

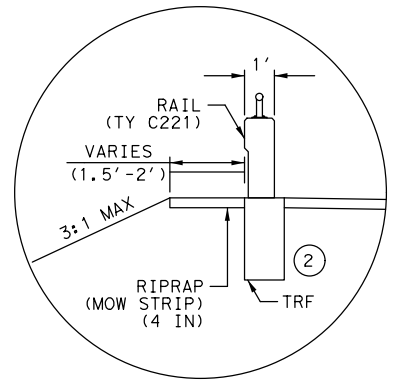
##BRIDGE APPROACH SLAB FROM STA 162+54.00 - STA 162+78.43 (3)



PROPOSED TYPICAL SECTION

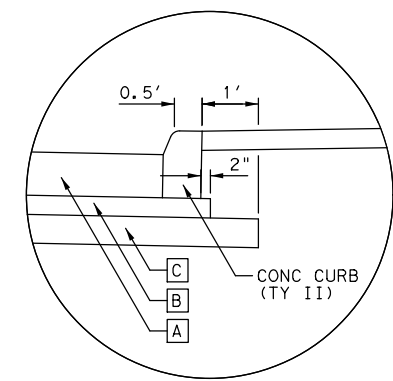
STA 166+24.00 - STA 167+75.00**

**EXIST HOT MIX TO PROP CRCP TRANSITION FROM STA 167+60.00 - STA 167+75.00 (4)



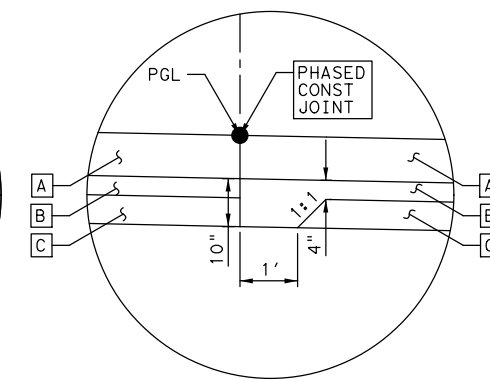
DETAIL C

NTS
 RAIL (TY C221)
 STA 166+24.00 - STA 167+00.00 (LT/RT)



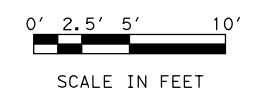
DETAIL B (LT/RT)

NTS



DETAIL E

NTS
 STA 162+78.43 - STA 165+53.44 (8)

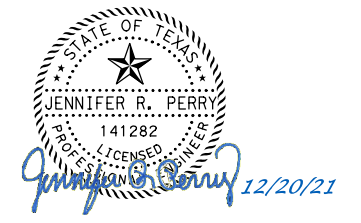


LEGEND

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- (B) 4" SP MIXES SP-C PG70-22\TACK COAT
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NOTES:

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- (2) SEE RETAINING WALL LAYOUTS FOR ADDITIONAL INFORMATION.
- (3) SEE BRIDGE LAYOUT FOR LIMITS OF BAS-C.
- (4) SEE MISCELLANEOUS ROADWAY DETAILS SHEET FOR MORE INFORMATION.
- (5) SEE GF(31)MS-19 STANDARD SHEET FOR PROPER INSTALLATION.
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- (7) SEE PHASED BRIDGE CONSTRUCTION - TYPICAL SECTIONS SHEET FOR ADDITIONAL INFORMATION.
- (8) SEE TRAFFIC CONTROL PLAN - PHASE 1 - TEMPORARY WALL SHEETS FOR ADDITIONAL INFORMATION.
- (9) SEAL COAT TO BE INSTALLED AS DIRECTED BY THE FIELD ENGINEER.
- (10) SEE ILLUMINATION PLAN FOR ADDITIONAL INFORMATION.



JMT TBPE REGISTRATION NO. F-16341
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Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

TYPICAL SECTIONS

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK	SHEET NO. 8		

SHEET 4 OF 4

GENERAL NOTES:

GENERAL.

Contractor questions on this project are to be addressed to the following individuals:

Will Buskell Will.Buskell@txdot.gov

Stacy Wylie Stacy.Wylie@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:

<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.

All stockpiles within TxDOT right of way, must not exceed 12 ft. in height and must have 3:1 slope unless otherwise directed. Place stockpiles in a manner that will be outside the horizontal clear zone, will not obstruct traffic or sight distance, and will not interfere with roadway drainage.

Do not haul with loaded scrapers on the surfaced areas of any highway except as approved.

PROJECT MOWING

Mow the highway right of way in the project limits a maximum of 2 cycles per year, as directed. Mowing will not be measured or paid for directly, but will be subsidiary to pertinent Items.

Provide approved mowing equipment capable of mowing on slopes without unduly marring finished slope surfaces or damaging existing growth. The minimum cutting width should not be less than 5 ft. unless otherwise approved.

Mow all areas of existing vegetation and vegetation placed during the project, as directed. The mowing height should be 5 in. unless otherwise directed. Repair portions of sod or grass which are damaged during mowing operations in an acceptable manner.

Mow as close as possible to all fixed objects, exercising extreme care not to damage trees, plants, shrubs, signs, delineators or other appurtenances which are part of the facility. Hand trim around such objects, unless otherwise specified.

Use safety chains or other manufacturer's safety devices to prevent injury to people or damage to property caused by flying debris propelled out from under rotary mowers. Chains should be a minimum size of 5/16 in. and links spaced side by side around the front, sides and rear of mower. When mowing at the specified cutting height, the chains should be long enough to drag the ground. If at any time it is determined that mowing or trimming equipment is defective to the point that it may affect the quality of work or create unsafe conditions, then immediately repair or replace the equipment.

LITTER PICKUP

Remove litter from the right of way in the project limits a maximum of 3 cycles per year as directed. Litter pickup will not be measured or paid for directly, but will be subsidiary to pertinent Items.

Equipment used for litter pickup must be approved.

Collect and properly dispose of all litter deposited by construction operations or the traveling public from within the right of way as directed. This includes cans, bottles, paper, plastic items, metal scraps, lumber, etc. Do not dump or stockpile collected litter on Department property.

ITEM 4. SCOPE OF WORK

Upon completion of the work and before final acceptance, remove all foreign material, stains, and marks from concrete surfaces. Sandblast clean concrete surfaces as directed. Clean existing concrete structures that are marked or stained by the Contractor's operations. This work will not be paid for directly, but will be subsidiary to the bid items of the Contract.

During final clean up, remove all foreign material that has accumulated at bridge abutments and bent caps as approved. All work and equipment involved in the removal of this material is subsidiary to the bid items of the Contract.

ITEM 5. CONTROL OF THE WORK

If utility lines need adjustments during construction operations, modify operations and continue the work in a manner that will allow others to make the utility adjustments. Additional working time may be allowed for delays caused by these utility adjustments.

Place and maintain construction hubs near the right of way line in accordance with Article 5.9., "Construction Surveying" on both sides of the roadway until the final item of work is complete.

Establish proposed centerlines throughout the project from control points and alignment data as shown on the plans.

Use "Method C" for construction surveying in accordance with Section 5.9.3.

Refer to the horizontal and vertical alignment data summaries for satellite-control point information.

Maintain and re-establish the centerline stations throughout each project as required for each phase of work.

Utility locations shown on the plans are approximate. Contact utilities in accordance with Article 5.6., "Cooperating With Utilities."

Verify survey control for accuracy before beginning construction.

Notify the Engineer if there are conflicts with survey control accuracy.

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

ITEM 7. LEGAL RELATIONS AND RESPONSIBILITIES

This Contract requires work that crosses or is in close proximity to a railroad. Cooperate with the railroads and comply with all of their requirements including obtaining any training they require before performing work on railroad property.

Railroad flaggers will be paid for under the Railroad Force Account under control 0910-07-072.

Do not initiate activities in a project specific location (PSL) associated with a U.S. Army Corps of Engineers (COE) permit area that has not been previously evaluated by the COE as part of the permit review of this project. Such activities include haul roads, equipment staging areas, borrow pits, and disposal sites. "Associated," defined here, means "materials are delivered to or from the PSL." The permit area includes all waters of the U.S. or associated wetlands affected by activities associated with this project. Special restrictions may be required for this work. The Contractor is responsible for all consultations with the COE regarding activities (including PSL) that have not been previously evaluated by the COE. Provide the Department with a copy of all consultations or approvals from the COE before initiating activities.

Proceed with activities in PSL that do not affect a COE permit area if Contractor determines that the PSL is non-jurisdictional or proper COE clearances have been obtained in jurisdictional areas or have been previously evaluated by the COE as part of the permit review of this project. The Contractor is responsible for documenting his determination that his activities do not affect a COE permit area. Maintain copies of determination for review by the Department or any regulatory agency.

Concrete truck drivers and concrete pump operators are required to wash out only in designated areas specifically constructed for eliminating run-off. Dispose of materials in accordance with federal, state, and local requirements.

Maintain positive drainage for permanent and temporary work for the duration of the project. The Contractor will be responsible for any items associated with the temporary or interim drainage and all related maintenance. This work will be subsidiary to various bid items.

The total disturbed area for this project is 2.84 acres. The disturbed area in this project and the Contractor Project Specific Locations (PSL's) within 1 mile of the project limits for the Contract will further establish the authorization requirements for storm water discharges. The Department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction activities shown on the plans. Obtain any required authorization from the TCEQ for any Contractor PSL for construction support activities on or off the ROW. When the total area disturbed for all projects in the Contract and PSLs within 1 mile of the project limits exceed 5 acres, before disturbance, provide a copy of the Contractor NOI for PSLs on the ROW and within 1 mile of the project limits to the Engineer and to any local government that operates a Municipal Separate Storm Sewer System (MSSS).

No significant traffic generator events identified.

ITEM 8. PROSECUTION AND PROGRESS

Road closure for High Street is not allowed.

Nighttime work is allowed on this project.

The Contractor may request lane rentals for approval by the Engineer if additional lane closures are desired beyond the lane closures specified on the traffic control plans. For these requests, submit written notification to the Engineer for approval 2 weeks in advance of planned closure. The lane rental charge will be assessed not as a penalty, but for added expense incurred by the traveling public and by the Department. These assessments will be deducted from any moneys due or to become due to the Contractor, according to the following schedule:

	TIME RANGE	RATE
Daytime Period	5 A.M. to 8 P.M.	Prohibited (lane closure assessment fee applies)
Nighttime Period	8 P.M. to 5 A.M.	\$500 per lane per hour

The hourly rental rates will be prorated to a quarter hour basis for lane rentals that are less than one hour in duration.

The Contractor will be assessed a lane closure assessment fee of \$2,500 per lane per hour for each lane or lanes closed or for each lane or lanes obstructed between the hours of 5 A.M. to 8 P.M. The \$2,500 hourly lane closure assessment fee will be prorated to a quarter hour basis and be deducted from any moneys due or to become due to the Contractor.

Prepare the progress schedule as a critical path method (CPM).

ITEM 9. MEASUREMENT & PAYMENT

In accordance with Article 9.1., "Measurement of Quantities," furnish the tare and maximum gross weights as well as the volume capacity of all vehicles, trucks, truck-tractors, trailers, semi-trailers, or combination of such vehicles used to deliver materials for this Contract. Also, furnish calculations supporting these weights and capacities. Provide all measurements required for pay a minimum of 2 days before the trucks are used.

ITEM 100. PREPARING RIGHT OF WAY

Perform work as necessary off the right of way on temporary or drainage easements and at those locations where improvements have been taken or partially taken by right of way acquisition. Review these locations with the Area Engineer. The cost of this work will be included in the unit price bid for this Item.

Burning will not be permitted within the right-of-way.

ITEM 104. REMOVING CONCRETE

Blasting will not be permitted on this project.

Before removing existing curb & gutter or laydown curb, saw cut between the gutter pan and the roadbed to eliminate the possibility of damage to the pavement structure. When the existing pavement edge has to be removed to facilitate the curb & gutter transition from existing to the proposed ramp landing, remove the old and replace the new pavement structure the same day unless otherwise directed. The use of temporary material may be allowed as approved. This work will be subsidiary to Item 104.

ITEMS 110 & 132. EXCAVATION & EMBANKMENT

Before Contract letting, prospective bidders may review the earthwork cross-sections at the Area Engineer's office. The computer data is for non-construction purposes only and is the prospective bidder's responsibility to validate the data with the accompanying plans, specifications, and estimates for this Contract.

In a cut section, if the soil encountered in the subgrade is unsuitable for reasons other than excess moisture, this material will be declared "waste" and the Contractor will be required to undercut for a minimum depth of 1 ft. and a maximum depth as determined and replaced with a material having a plasticity index of 6 to 18. This required undercutting will be paid for under Item 110, "Excavation."

When excavation is required to adjust stream flow lines at culvert ends, flatten the side slopes of channels and the backslopes of parallel ditches to the maximum extent possible within the existing right of way and channel easements.

ITEM 132. EMBANKMENT

Furnish Type C embankment consisting of suitable earth material (rock, loam, clay, or other approved materials) that will form a stable embankment. The top 2 ft. of embankment material should have a plasticity index between 6 and 18.

ITEM 164. SEEDING FOR EROSION CONTROL

The rates, types of seed, asphalt, and locations for the straw mulch and broadcast seed items will be determined if temporary erosion control is needed.

Mow tall vegetation prior to placement of erosion control measures in order to provide optimal growing conditions. This work will not be paid for directly, but will be subsidiary to the bid items of the Contract.

The season and seed mixture for “Broadcast Seeding (Temporary Erosion Control) (Cool Season)” and “Broadcast Seeding (Temporary Erosion Control) (Warm Season)” is specified below:

- Cool Season - September 1 thru November 30
- Warm Season - May 15 thru August 31

Permanent Planting Mixture	
Species and Rates	
(lb. PLS/ac.)	
(Season: February 1 to May 15)	
Green Sprangletop	0.5
Bermudagrass	5.0
Weeping Lovegrass (Ermelo)	0.5
Sand Lovegrass	0.5
Lance-Leaf Coreopsis	1.0
(Season: September 1 to February 1)	
Bermuda (unhulled)	12
Crimson Clover	10

Temporary Seeding for Erosion Control	
Warm Season	
(Season: May 15 to August 31)	
Bermudagrass	10
Foxtail Millet	30
Cool Season	
(Season: September 1 to November 30)	
Tall Fescue	4.5
Oats	24
Wheat	34

Place topsoil before temporary seeding unless otherwise directed.

Do not use Bahiagrass.

Use additional temporary seeding if permanent seeding is placed outside the optimum growing season shown for this Item as directed.

Use crimping as the tacking method for hay or straw mulch.

Provide a Bonded Fiber Matrix that meets the current requirements of the Approved Products List for Item 169, “Soil Retention Blanket, Class 1, Type D, Spray Type Blanket,” for both permanent and temporary seeding. Install according to manufacturer’s recommendations based on a slope steeper than 3:1 with sandy soils. This Item will be paid for under Item 164.

ITEM 166. FERTILIZER

Place fertilizer at the rate of 1 lb. per 9 sq. yd. on areas prepared for seeding.

ITEM 168. VEGETATIVE WATERING

Apply water to all newly placed sod or seeded areas the same day of installation. Maintain the sod or seeded areas in a sufficiently watered condition. Do not allow sod or seeded areas to dry out so that water stress is evident.

ITEM 204. SPRINKLING

Apply water for dust control as directed. When dust control is not being maintained, cease operations until proper resources have been utilized to adequately minimize dust during earthwork, base construction. This Item will not be paid directly, but will be subsidiary to pertinent Items.

ITEM 260. LIME TREATMENT (ROAD-MIXED)

Prior to ACP layer placement under the proposed concrete pavement, provide for approval in an acceptable electronic format, the in-place profile of the subgrade on 50 ft. station intervals along the roadway and at the lane lines.

ITEM 275. CEMENT TREATMENT (ROAD-MIXED)

Furnish cement treated material with a 7-day unconfined compressive strength of 175 psi.

Prior to ACP layer placement under the proposed concrete pavement, provide for approval in an acceptable electronic format, the in-place profile of the subgrade on 50 ft. station intervals along the roadway and at the lane lines.

ITEM 310. PRIME COAT

A minimum curing time of 10 days is required before application of Item 316 when using bituminous material unless otherwise authorized or directed in writing.

ITEM 316. SEAL COAT

Protect all existing bridges, curbs, and other exposed concrete surfaces from asphaltic materials by any acceptable method. Removal of excessive asphaltic materials deposited on these surfaces will be at the Contractor's expense.

Furnish aggregate from the same source for each project.

After the award of the Contract and before the pre-construction meeting, the Contractor's project superintendent, knowledgeable of TxDOT seal coat operations, and the Department's project manager must drive all roadways for this Contract and review the pavement conditions in order

to set preliminary asphalt and aggregate rates. The rates may be adjusted as necessary during construction to allow for any changes in the materials, pavement, or weather conditions at the time of construction.

At the Contractor's request, usable surplus aggregate remaining in temporary stockpiles due to errors on the plans, changes in application rates, or changes in project locations will be paid for by delivered invoice price. Load and haul surplus aggregate to permanent stockpile sites as directed. Push aggregate into neat, clean stockpiles. Loading, hauling and stockpiling material will not be paid for directly. Usable aggregate left on the project more than thirty (30) days after project completion will become property of the State. Remove all contaminated material from the project before final acceptance.

Place surface treatment on crossovers and intersecting roadways prior to the roadway.

ITEM 354. PLANING AND TEXTURING PAVEMENT

Use a front-end loader or other suitable equipment at the stockpile site to properly stockpile the planed material as required.

ATTN: Vary planing locations to meet field conditions as directed. Begin and end planing at a sawed or planed vertical joint to provide a smooth transition to existing pavement. Provide a 20-ft. length per 1-in. depth temporary taper at all transverse joints in the travel lane before opening to traffic.

Before opening planed areas to traffic, bevel vertical or near vertical longitudinal faces in the pavement surface.

The City of Longview and their forces will adjust their manholes and water valves during the course of construction on this project.

Furnish a small planing machine as approved for planing small areas and street intersections.

Retain all RAP generated from this project.

ITEM 360. CONCRETE PAVEMENT

Provide sawed joints for this project. Place construction sawed and contraction joints in accordance with the pavement detail sheet and as directed. The Engineer will approve locations that are not shown on the plans.

Provide access for the Engineer to take direct depth measurements immediately following concrete placement. Provide access at the 1/4, 1/2, and 3/4 location across the width of the pavement.

ITEM 400. EXCAVATION AND BACKFILL FOR STRUCTURES

Backfill the excavation to within 10 in. of the existing finished grade when cutting existing pavement for the installation of drainage structures. Restore the remaining 10 in. of pavement with an approved asphaltic concrete pavement or other approved material; place and compact in 3 approximately equal layers. Usual testing of this material is not required, but the Engineer will approve the material at the time of placement. This work will be paid for at the unit price bid for "Cutting and Restoring Pavement."

ITEM 401. FLOWABLE BACKFILL

Use an accelerator that produces a set time in 4 hours. Provide a rheofill or equivalent air entrainment to ensure flowability. Anchor pipes to ensure no movement or displacement by the flowable fill. Furnish paper type cylinder test molds.

ITEM 403. TEMPORARY SPECIAL SHORING

Use mats during placement and removal of temporary special shoring to avoid damage to the pavement structure.

Do not allow shoring to project more than 4-in above natural ground elevation unless otherwise approved.

ITEM 416. DRILLED SHAFT FOUNDATIONS

Provide a low clearance drilling rig to avoid overhead transmission line.

ITEMS 420 & 427. CONCRETE SUBSTRUCTURES & SURFACE FINISHES FOR CONCRETE

Provide the following surface finishes as listed: Surface Area II Rub Finish.

Provide a silicone acrylic concrete stain finish that meets the following requirements:

Stain color #1 - Federal Standard 595B color 30109 (similar to H&C "Tile Red")

Stain color #2 - Federal Standard 595B color 23522 (similar to H&C "Bombay")

Do not use membrane curing for structural elements.

Provide an ordinary surface finish to the following elements: Surface Area II.

ITEM 422. CONCRETE SUPERSTRUCTURES

Once bridge beams/girders are in place, provide the Engineer in an acceptable electronic format, finished slab elevations, bottom of slab elevations with and without deflection, beam/girder field shot profiles, and the required calculated grading for the panels or PMD forms if used. Include elevations on each beam/girder across each span at 1/4, 1/2, and 3/4 points as well as at the beginning and ending of each span. Depending on conditions the Engineer may require each beam/girder edge to be included. Provide this information to the Engineer a minimum of 7 days prior to placing bridge slab concrete. Costs associated with this work will be subsidiary to pertinent Items.

ITEM 423. RETAINING WALLS

Use the approved Mechanically Stabilized Earth (MSE) wall systems listed at:

<http://www.txdot.gov/inside-txdot/division/bridge/approved-systems/mse-wall.html>

Furnish Type DS backfill. Iron ore material is not allowed. Electrochemical testing may be waived on material supplied from a source on the TXDOT QM program.

Before temporary or permanent retaining wall and associated work begins, but after the required working drawings have been approved, schedule and attend a pre-work meeting with the Engineer for discussion of the proposed work and requirements.

Utilize Pattern #1581 "Washington Dry Stack" formliner from Spec Formliners, Inc., 1038 E 4th St, Santa Ana, CA 92701 (714-429-9500) or approved equal for the MSE Retaining Walls.

Stain the MSE Retaining Wall to match Federal Standard 595B Color #33245, and submit written staining procedure to the Engineer for approval. Provide a 3 ft. x 3 ft. sample with stained concrete and approved formliner for approval prior to placement.

ITEMS 423 & 427. RETAINING WALLS & SURFACE FINISHES FOR CONCRETE

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Stain the MSE Retaining Wall to match Federal Standard 595B Color #33245, and submit written staining procedure to the Engineer for approval. Provide a 3 ft. x 3 ft. sample with stained concrete and approved formliner for approval prior to placement.

County: Gregg**Control:** 0910-07-072**Highway:** CS

Provide the following surface finish for the listed elements: surfaces of railing and the exterior vertical faces of slabs.

Provide a "form liner" finish to the striated finish area of the retaining wall. Tint the finish with Federal Standard 595B color 23522, which is similar to H&C "Bombay." Provide a "blast" finish with Federal Standard 595B color 35630, concrete gray, to the retaining wall coping and T502 railing. Provide a contrasting color between the retaining wall face and the connecting coping and railing.

Use water blasting for blast cleaning and for achieving blast finish for structures.

ITEM 432. RIPRAP

Locations and quantities may be varied as directed by the Engineer to accommodate field conditions.

ITEM 464. REINFORCED CONCRETE PIPE

Removal of portions of the existing structure, including headwalls, safety end treatments, and pipe, is subsidiary to Item 464.

ITEM 465. JUNCTION BOXES, MANHOLES, AND INLETS

Paint all iron manhole rings and covers with galvanized paint.

Payment for precast elements and inlet extensions are included in the payment for Inlet (Compl).

ITEM 496. REMOVING STRUCTURES

All materials removed under this Item are the property of the Contractor.

Submit a demolition plan for the existing bridge in accordance with Item 496.

For all bridges under this Contract, results of the asbestos and lead surveys for the existing structures are still outstanding. No bridge work can be performed until the Engineer has received the survey results.

ITEM 502. BARRICADES, SIGNS, AND TRAFFIC HANDLING

The traffic control plan for this Contract consists of: the installation and maintenance of warning signs and other traffic control devices shown on the plans; specification data, which may be

County: Gregg**Control:** 0910-07-072**Highway:** CS

included in the general notes; applicable provisions of the Texas Manual on Uniform Traffic Control Devices (TMUTCD); traffic control plan sheets included on the plans; standard BC sheets; Compliant Work Zone Traffic Control Device List, and Item 502 of the standard specifications.

Use ground-mounted sign mounts with two posts for all temporary work zone signs unless otherwise directed.

Inspect and correct deficiencies each day throughout the duration of the Contract. In accordance with Article 502.4., "Payment," no payment will be made for the month if the Contractor fails to provide or properly maintain signs and devices in compliance with Contract requirements. Temporary warning signs that are visible when conditions do not apply will be considered improper maintenance of signs.

Provide at least one employee on call nights and weekends (or any other time that work is not in progress) for maintenance of signs and traffic control devices. This employee must have an address and telephone number near the project, as approved. Notify the Engineer in writing of the name, address, and telephone number of this employee. The Engineer will furnish this information to local law enforcement officials.

In addition to providing a Contractor's Responsible Person and a phone number for emergency contact, have an employee available to respond on the project for emergencies and for taking corrective measures within 30 minutes.

Sign all roads intersecting the project in accordance with current BC standards.

Refer to the traffic control plan sheets for traffic handling through the work area. Contractor may vary the signing arrangement and spacing as necessary to fit field conditions; however, any proposed changes in the traffic control plan must be approved before implementation.

When the sequence of work is shown on the plans, the Contractor may submit an alternate proposal for approval. Submit in writing all proposed variations and revisions. High-visibility safety apparel is required for workers in accordance with the General Notes on current BC standards.

Place and maintain signs, channelizing devices, and flaggers to direct and route traffic at any location and for any period of time as may be required or directed.

When operations require a lane closure, provide cones, vertical panels, drums, signs, flaggers, and flashing arrow panels as necessary to route traffic around the closed lane as shown on the plans and as directed. Lane closures will be limited to one specific lane as directed.

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Maintain existing roadside signs within this project's limits during this Contract. In order to accommodate the grading or other operations, temporarily relocate these signs in accordance with the TMUTCD as directed. Use ground-mounted sign mounts with two posts for all relocated signs unless otherwise directed. This work will not be paid for directly, but will be subsidiary to Item 502.

Provide truck-mounted attenuators (TMA) as shown on the appropriate traffic control plan sheets. Provide a letter certifying that all TMA used on this project meet NCHRP 350 or AASHTO Manual for Assessing Safety Hardware (MASH) requirements.

Regulate all construction activities and equipment to minimize inconvenience to the traveling public. At points where it is necessary for trucks to stop, load, or unload, provide warning signs and flaggers to protect the traveling public.

The Contractor Force Account "Safety Contingency" is intended to be used for work zone enhancements that could not be foreseen in the project planning and design stage for the purpose of improving the effectiveness of the Traffic Control Plan. 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.

Nighttime work will be necessary for this project. Lane closures for various operations will only be allowed between the hours of 8 P.M. and 5 A.M. maintaining traffic as described in the construction sequences.

For nighttime work (8 P.M. – 5 A.M.), submit written notification to the Engineer for approval. State the location, nature and time of the nighttime operations. Submit a drawing showing the proposed lighting, traffic control, and protection devices during night work. Do not direct the lighting into the eyes of motorists. Provide lighting that is adequate to satisfactorily perform the required work.

For nighttime work, submit written notification to the Engineer for approval of the type of lighting to be used during construction.

Provide Balloon Lighting for nighttime construction work. Follow manufacturer's operational guidelines. Work lights must be portable and include LED lighting to diffuse glare and reduce shadows and provide 360 degrees of light. Balloon lighting is subsidiary to Item 502.

Submit a drawing showing the proposed lighting, traffic control, and protection devices during night work. Do not direct the lighting into the eyes of motorists. Provide lighting that is adequate to satisfactorily perform the required work.

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When a culvert extension, inlet construction, or safety end treatment, etc. is within 30 ft. of a travel lane, delineate these areas as shown on current BC standards. In addition, provide a 4-ft. high plastic construction fence at or around any structure or obstruction that would be a hazard to pedestrians unless otherwise approved. Erect fence using a minimum of 4-T-posts, one at each corner of the structure or obstruction.

Where there is excavation adjacent to the pavement edge, provide adequate warning signs, vertical panels, drums, and lights at the pavement edge as directed. Treat pavement drop-offs created by ACP operations in a similar manner in accordance with the details shown on the plans.

When excavation is required next to a travel lane carrying traffic and widening is not completed by the end of the day's operation, place sufficient backfill against the edge of the travel lane in order to provide a 3:1 slope, unless otherwise permitted on the plans. Provide backfill containing a durable crushed stone type of flexible base or other materials as approved. When work resumes on this excavated area, carefully remove and dispose of the backfill material. Materials and labor for this work will not be paid for directly, but will be subsidiary to the various bid items of the Contract.

Open the bridge and the adjacent approaches to thru traffic as soon as possible, but no sooner than 28 calendar days and meets the requirements of Section 421.4.1., "Classification of Concrete Mix Designs" following the completion of the bridge deck, unless otherwise authorized.

All pavement markings, warning signs, and traffic control devices shown on the traffic control plan sheets pertaining to the detour areas should be in place prior to opening the detours to the traveling public.

Prior to beginning work, the Contractor and Engineer must agree on the allowable length of lane closure.

Place Type 3 barricades and road closed signs as shown on current BC standards across the closed roadway or the new location at each road, street, closed bridge, and along the closed roadway or new location at 3/4-mi. intervals.

When operations require a sidewalk closure, use traffic control devices that control pedestrian flow as necessary to route pedestrians around the closed sidewalk as shown on sidewalk closures and bypass walkway sheet as directed.

The use of Law Enforcement Officers (LEOs) will be required for this project. Before the preconstruction meeting, coordinate with local agencies to be prepared for staffing needs.

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Provide uniformed LEOs with marked vehicles during work zone activities. The officer in marked vehicle will be located as approved to monitor or direct traffic during the closure. The Engineer will approve the method used to direct traffic at signalized intersections. Additional officers and vehicles may be provided when 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. Minimums, scheduling fees, etc. will not be paid; TxDOT will consider paying cancellation fees on a case by case basis.

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

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

Provide the Engineer 72-hour notice of lane or ramp closures to provide advance notice to the traveling public by way of media and for any dynamic message sign programming. Place Portable Changeable Message Signs (PCMS) at locations as directed a minimum of 3 days in advance of entrance ramp closures on the affected crossroad. These signs are to remain in place during the ramp closures.

All work required by these general notes, except as provided for by Item 502, will not be paid for directly, but will be subsidiary to Item 502 unless otherwise shown on the plans.

ITEM 504. FIELD OFFICE AND LABORATORY

Furnish a Type E structure as provided in the standard specifications.

Furnish a Type E field office as provided in the standard specifications. Provide a building at least 10-ft. wide by 12-ft. long and 8-ft. high. Provide floor covering and a minimum of 2 windows and 1 door. In addition, all general requirements under Item 504 will apply.

Only TxDOT employees may use the field office structure unless otherwise directed. Any hazardous materials stored or used in the structures must be approved. Remove all unauthorized hazardous materials in the structure before work begins and TxDOT employees use the facility.

Provide a printer/fax/scan copier capable of printing 8.5" x 11" and 11" x 17" paper sizes and internet connectivity with a minimum of 10 mbps.

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Provide a facility at the asphalt concrete pavement plant for use by the Engineer as a laboratory. This is an existing requirement of Item 6, Article 5, "Plant Inspection and Testing," of the Standard Specifications. Provide a facility meeting the requirements of Item 504. At a minimum meet the requirements of 504.2.2.4, "Ty D Structure (Asphalt Mix Control Laboratory)" and 504.2.2.4.1, "Asphalt Content by Ignition Method." In addition, provide the following: At least one exterior door opening with a 48-in. minimum width. If steps are required to gain access to the facility's 48-in. door, provide a landing dock with minimum dimensions of 60 in. wide by 60 in. deep. The strong floor and landing of the facility should support the weight of all equipment and personnel providing a stable, essentially zero deflection during testing operations, acceptable to the Engineer. This facility will be required of all projects with plant produced asphalt concrete pavement.

No direct payment will be made for Engineer field labs. All construction, maintenance, utilities, custodial services, security, and permits necessary to establish and maintain readiness of this facility is the responsibility of the Contractor. This building/facility is required by the standard specifications and is considered a standard part of any asphalt concrete pavement plant producing materials for Department projects.

Furnish a Superpave Gyrotory Compactor calibrated in accordance with Tex-241-F for molding production samples. The Superpave Gyrotory Compactor will not be paid for directly, but will be subsidiary to the asphalt concrete pavement Items of work.

ITEM 506. TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS

Remove dirt, silt, rocks, debris, and other foreign matter that accumulates in all structures due to project erosion and Contractor's operations. Keep stream channels open at all times. This work will not be paid for directly, but will be subsidiary to this Item.

The total disturbed area for this project is 2.84 acres. The disturbed area in this project, all project locations in the Contract, and Contractor project specific locations (PSLs) within 1 mile of the project limits for the Contract, will further establish the authorization requirements for storm water discharges. The Department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction activities shown on the plans. Obtain any required authorization from the TCEQ for any Contractor PSLs for the construction support activities on or off right of way. When the total area disturbed for all projects in the Contract and PSLs within 1 mile of the project limits exceeds 5 acres, before disturbance, provide a copy of the Contractor NOI for PSLs on the right of way to the Engineer (to the appropriate MS4 operator when on an off-State system route).

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The Engineer will provide copies of documents to meet TxDOT's posting requirements. Laminate, post, and maintain these documents at the project limits and at major roadways intersecting the project as directed. Post required Contractor documents in the same manner and location. This work will be subsidiary to Item 506.

ITEM 512. PORTABLE CONCRETE TRAFFIC BARRIER

The Department will furnish 1790 ft. of portable concrete traffic barrier. The stockpile site is located at the South Tyler Area Office, 15986 SH 155 S, Tyler, TX 75703. Notify the Area Engineer a minimum of 4 days prior to barrier collection.

Remove, transport, and stockpile barrier no longer required for the Contract at the South Tyler Area Office, 15986 SH 155 S, Tyler, TX 75703. Notify the Area Engineer a minimum of 4 days prior to barrier delivery.

Supply all dowel bars and mounting hardware necessary to connect the portable concrete traffic barrier. Upon completion of this Contract, all mounting hardware will become the property of the Department. When the PCTB is no longer necessary, remove and deliver the mounting hardware to a location as specified.

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

Provide steel reinforcement for all curb and gutter unless otherwise directed.

ITEM 531. SIDEWALKS

Provide steel reinforcement for all sidewalks unless otherwise directed.

ITEM 540. METAL BEAM GUARD FENCE

All work involved in placement of steel posts in soil cement riprap must be included in the price bid for Item 540.

ITEMS 540 & 542. METAL BEAM GUARD FENCE & REMOVING METAL BEAM GUARD FENCE

Where existing MBGF is being removed and not replaced with new MBGF due to proposed roadside safety improvements, do not remove the existing MBGF prior to completion of the planned roadside safety improvements at that location unless otherwise approved in writing.

Regardless of when the Contractor installs proposed MBGF, set the rail height to account for any subsequent surfacing work in order to be in accordance with standard MBGF upon completion of the Contract.

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When replacing guard rail, ensure that all segments of guard rail removed are replaced the same work day before opening to traffic.

ITEM 542. REMOVING METAL BEAM GUARD FENCE

All metal beam guard fence is non-salvageable and will become the property of the Contractor.

The existing bridge has MBGF elements that have been tested and confirmed to contain lead-based paint. These items are deemed non-salvageable and are required to be disposed of by the Contractor according to local, state and federal laws. Furnish written documentation detailing the removal and disposal of the lead-based paint elements.

Removal of existing ACP mow strips is incidental to removal of the existing guard rail.

ITEM 556. PIPE UNDERDRAINS

Change location and quantities to fit field conditions as directed.

Cover the pipe with a factory installed filter screen as approved.

ITEM 610. ROADWAY ILLUMINATION ASSEMBLIES

For both transformer and shoe-base type illumination poles, provide double-pole breakaway fuse holder as shown on the Texas Department of Transportation (TxDOT) Material Producer List. Category is "Roadway Illumination and Electrical Supplies." Fuse holder is shown on list under Items 610 & 620. Provide 10 amp time delay fuses.

Furnish couplings and connections that are made wrench tight. All conduit must be brought into a ground or junction box and elbowed unless otherwise shown on the plans.

Place conduit in an area not exceeding 2 ft. in any direction from a straight line between terminal points. The minimum depth of the conduit should be 2 ft. except when crossing a roadway where the depth should not be more than 3 ft. nor less than 1 ft. below the bottom of the base material when placed by the jacking or boring method.

Do not use cast iron junction boxes in concrete traffic barriers and single slope traffic barriers.

The polymer concrete barrier box will not be paid for directly, but will be considered subsidiary to Item 618, "Conduit."

Use materials from prequalified material producers list as shown on the Material Producer List found on the TxDOT web site. Category is "Roadway Illumination and Electrical Supplies."

ITEMS 618, 624, & 680. CONDT, GRND BX, & INSTL HWY TRF SIG

The location of the controller, conductors, conduits, junction boxes and ground boxes are diagrammatic only and may be shifted by the Engineer to accommodate field conditions.

ITEM 620. ELECTRICAL CONDUCTORS

For both transformer and shoe-base type illumination poles, provide double-pole breakaway fuse holder as shown on the Material Producer List found on the TxDOT web site. Category is "Roadway Illumination and Electrical Supplies."

Fuse holder is shown on list under Items 610 & 620.

Provide 10 amp time delay fuses.

ITEM 624. GROUND BOXES

All ground boxes will be precast polymer concrete of the size and type specified on the plans.

ITEM 636. SIGNS

Install signs in accordance with the Department of Transportation's "Sign Crew Field Book," latest edition, or as directed.

ITEM 644. SMALL ROADSIDE SIGN ASSEMBLIES

Sign types for which details are not shown on the plans must conform to "Standard Highway Sign Designs for Texas," latest edition.

Before construction begins, locate all Texas Reference Marker (TRM) signs and Adopt-a-Highway signs using survey control methods for accuracy. Provide the survey data to the Engineer. If either type of sign is relocated during construction activities, survey the sign location and notify the Engineer before placement of the permanent sign.

Stake all sign locations for approval prior to placement.

ITEM 658. DELINEATOR AND OBJECT MARKER ASSEMBLIES

Accept ownership of unsalvageable delineator and object marker assemblies and remove from the right of way.

ITEM 662. WORK ZONE PAVEMENT MARKINGS

For this project, Contractor may use paint and beads for work zone pavement markings (non-removable).

Dispose of all empty paint containers and unused paint in accordance with federal, state, and local requirements.

Tabs may be used before surface treatment application.

ITEM 666. RETROREFLECTORIZED PAVEMENT MARKINGS

Use the spray method for application of the thermoplastic compound for lane lines, barrier lines, edge lines and channelizing lines.

In high traffic volume areas, do not begin work before 9 A.M. and do not continue work after 4 P.M. unless otherwise approved. In other areas, the Engineer will approve and direct the time of work.

Extrude hot to the pavement surface thermoplastic compound for arrows, stop lines, yield triangles, transverse lines, crosswalk lines, words and symbols.

For lengths greater than 300-ft, provide guide markings that will not leave a permanent mark on the roadway. Have the guide marking material and equipment used for placement approved prior to use. Provide adequate notification for approval of the guide markings prior to placement of the permanent pavement markings.

Provide a crew experienced in the work of installing pilot guideline markings and in the necessary traffic control. Supply all the equipment, personnel, traffic control, and materials necessary for the placement of pilot guideline markings as directed. All work will be in conformance with Part 6 of the TMUTCD.

Correct deficiencies in the alignment of pavement markings at Contractor's expense, as directed. Use a strip seal with aggregate and asphalt types and rates as directed to eliminate the deficient pavement markings.

ITEM 672. RAISED PAVEMENT MARKERS

Provide dispensing equipment such that the bituminous material can be directly applied from the melting pot to the pavement surface without secondary handling. Dispensing material from the melting pot into a separate container and then to the pavement surface will not be permitted. Intermittent agitation of the bituminous material will be by a method approved by the Engineer

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to ensure even heat distribution and must be such that the adhesive is agitated at approved and consistent intervals.

ITEM 677. ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS

Furnish a high-pressure water blasting system for removing paint, thermoplastic, epoxy and preformed tape material from the following surfaces without causing any grooves or trenching of the surface: asphalt, concrete, permeable friction course, grooved asphalt and grooved concrete.

Use a high-pressure water blasting system that consists of a vacuum recovery system that must provide for a nearly dry surface eliminating the possibility of uncontained run-off blasting water or debris, or the need for any secondary clean-up vehicles or operations.

All components required for the complete operation of the water blasting system (ultra-high-pressure pump, vacuum system, clean water supply, vacuum recovery storage, primary truck-mounted and optional secondary tractor-mounted blasting components) must be mounted and transported on a single, fully self-contained and supporting single truck chassis, thereby eliminating the need for any additional water, vacuum or other transport vehicles.

ITEM 680. INSTALLATION OF HIGHWAY TRAFFIC SIGNALS

Traffic signal heads to be adjusted by others.

ITEM 3077. SUPERPAVE MIXTURES

When using crushed gravel as a coarse aggregate for ACP, use 1% lime as an antistripping agent.

Provide coarse aggregate for the final surface course from the same source or blended sources unless otherwise directed.

Give the State inspector at the spreading and finishing machine one weight ticket for each load of material. When directed, weigh asphaltic concrete loads on public scales to ensure the proper weight of material.

For materials paid for by the ton, provide a summary spreadsheet in accordance with Article 520.2, "Equipment."

Provide Class A coarse aggregate for the surface as listed in the Department's *Bituminous Rated Source Quality Catalog* (BRSQC).

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Use an electrical impedance (non-nuclear) measurement gauge to determine mat segregation and joint density for Part V and Part VIII of test procedure Tex-207-F. Do not use nuclear density gauges or thin lift gauges for segregation or joint density determinations. Data reporting for mat segregation and joint density must be performed on Department templates.

All RAP used on this project must be fractionated. If an existing mix design is submitted for use as Warm Mix Asphalt (WMA), then a new trial batch with passing Hamburg Wheel test results is required.

All RAP must be acquired before the work on the project ends.

Apply a tack coat with a rate of 0.10 gal/sy of residual asphalt between each layer of ACP pavement unless otherwise directed.

On Table 1, under 3077.2.1.3, the Sand equivalent, % Min is voided and not replaced. The minimum percent for the sand equivalent must be 45 for the combined aggregate.

ITEM 6001. PORTABLE CHANGEABLE MESSAGE SIGN

Provide electronic Portable Changeable Message Sign (PCMS) units adjacent to the mainlanes in advance of each lane closure. PCMS units must be in accordance with Section 6F.60 of the TMUTCD, applicable standards and special provisions. Depending on conditions, one or all message boards may have to be relocated during operations. Messages will be in accordance with current BC standards. When not in use, remove PCMS units from the right of way. Measurement and payment for the PCMS noted above will be in accordance with Item 6001. The term "operational" is defined as displaying a message in direct support of current project operations as approved and directed by the Engineer.

ITEM 6185. TRUCK MOUNTED ATTENUATOR (TMA)

Shadow vehicles with truck mounted attenuator (TMA) are required on the traffic control plan and TCP standards for this project. The Contractor will be responsible for determining if one or more of these traffic control operations will be ongoing at the same time to determine the total number of TMAs needed for the project. Additional truck mounted attenuators (TMAs) may be required as deemed necessary by the Engineer.



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DISTRICT Tyler
HIGHWAY SABINE

COUNTY Gregg

Estimate & Quantity Sheet

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PROJECT ID				A00062926			
COUNTY				Gregg			
HIGHWAY				SABINE			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	100-6002	PREPARING ROW	STA	14.000		14.000	
	100-6006	PREP ROW (TREE)(LESS THAN 24" DIA)	EA	2.000		2.000	
	100-6007	PREP ROW (TREE)(GREATER THAN 24" DIA)	EA	1.000		1.000	
	104-6015	REMOVING CONC (SIDEWALKS)	SY	1,053.000		1,053.000	
	104-6021	REMOVING CONC (CURB)	LF	52.000		52.000	
	104-6022	REMOVING CONC (CURB AND GUTTER)	LF	2,080.000		2,080.000	
	105-6061	REMOV STAB BASE & ASPH PAV (8"-20")	SY	6,060.000		6,060.000	
	110-6001	EXCAVATION (ROADWAY)	CY	13,646.000		13,646.000	
	110-6003	EXCAVATION (SPECIAL)	CY	1,217.000		1,217.000	
	132-6006	EMBANKMENT (FINAL)(DENS CONT)(TY C)	CY	7,210.000		7,210.000	
	160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	11,868.000		11,868.000	
	164-6001	BROADCAST SEED (PERM) (RURAL) (SANDY)	SY	5,934.000		5,934.000	
	164-6054	BOND FBR MTRX SEED (PERM)(RURAL)(SAND)	SY	5,934.000		5,934.000	
	164-6055	BONDED FBR MTRX SEED (TEMP)(WARM)	SY	2,967.000		2,967.000	
	164-6056	BONDED FBR MTRX SEED (TEMP)(COOL)	SY	2,967.000		2,967.000	
	164-6071	BROADCAST SEED (TEMP)(WARM OR COOL)	SY	5,934.000		5,934.000	
	168-6001	VEGETATIVE WATERING	MG	131.000		131.000	
	260-6001	LIME (HYDRATED LIME (DRY))	TON	41.000		41.000	
	260-6079	LIME TRT (SUBGRADE)(6")	SY	2,986.000		2,986.000	
	275-6001	CEMENT	TON	41.000		41.000	
	275-6019	CEMENT TREAT (SUBGRADE)(6")	SY	2,986.000		2,986.000	
	310-6021	PRIME COAT & BLOTTER (MC-30)	GAL	896.000		896.000	
	316-6406	ASPH (AC-20XP, AC-10-2TR, OR AC-20-5TR)	GAL	1,254.000		1,254.000	
	316-6407	AGGR (TY-PD GR-3 OR TY-PL GR-3)	CY	30.000		30.000	
	354-6031	PLANE ASPH CONC PAV(0" TO 12")	SY	158.000		158.000	
	360-6003	CONC PVMT (CONT REINF - CRCP) (9")	SY	5,743.000		5,743.000	
	400-6005	CEM STABIL BKFL	CY	350.200		350.200	
	401-6001	FLOWABLE BACKFILL	CY	69.000		69.000	
	403-6001	TEMPORARY SPL SHORING	SF	1,428.000		1,428.000	
	410-6001	SOIL NAIL ANCHORS	LF	79,725.000		79,725.000	
	416-6005	DRILL SHAFT (42 IN)	LF	1,324.000		1,324.000	
	416-6029	DRILL SHAFT (RDWY ILL POLE) (30 IN)	LF	28.000		28.000	
	420-6013	CL C CONC (ABUT)	CY	88.900		88.900	
	420-6029	CL C CONC (CAP)	CY	103.000		103.000	
	420-6037	CL C CONC (COLUMN)	CY	98.400		98.400	
	420-6066	CL C CONC (RAIL FOUNDATION)	CY	24.000		24.000	
	420-6074	CL C CONC (MISC)	CY	12.000		12.000	



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Tyler	Gregg	0910-07-072	10



Estimate & Quantity Sheet

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DISTRICT Tyler
HIGHWAY SABINE

COUNTY Gregg

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PROJECT ID				A00062926			
COUNTY				Gregg			
HIGHWAY				SABINE			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	422-6001	REINF CONC SLAB	SF	24,259.000		24,259.000	
	422-6015	APPROACH SLAB	CY	125.900		125.900	
	423-6001	RETAINING WALL (MSE)	SF	8,243.000		8,243.000	
	423-6003	RETAINING WALL (TEMP WALL)	SF	1,420.000		1,420.000	
	423-6022	RETAINING WALL (SOIL NAIL)(FACIA)	SF	21,125.000		21,125.000	
	425-6040	PRESTR CONC GIRDER (TX62)	LF	3,659.320		3,659.320	
	432-6001	RIPRAP (CONC)(4 IN)	CY	11.000		11.000	
	432-6008	RIPRAP (CONC)(CL B)(RR8&RR9)	CY	95.000		95.000	
	432-6009	RIPRAP (CONC) (CL B) (4")	CY	0.700		0.700	
	432-6045	RIPRAP (MOW STRIP)(4 IN)	CY	79.000		79.000	
	442-6007	STR STEEL (MISC NON - BRIDGE)	LB	340.000		340.000	
	450-6014	RAIL (TY T551)	LF	622.000		622.000	
	450-6030	RAIL (TY C221)	LF	2,104.000		2,104.000	
	450-6051	RAIL (HANDRAIL)(TY E)	LF	101.000		101.000	
	450-6119	RAIL (CLF-RO)	LF	432.000		432.000	
	454-6020	SEALED EXPANSION JOINT (4 IN) (SEJ - B)	LF	158.000		158.000	
	464-6003	RC PIPE (CL III)(18 IN)	LF	193.000		193.000	
	465-6566	INLET (COMPL)(CCO)(3FT)(BOTH)	EA	4.000		4.000	
	479-6002	ADJUSTING INLETS	EA	2.000		2.000	
	496-6010	REMOV STR (BRIDGE 100 - 499 FT LENGTH)	EA	1.000		1.000	
	496-6023	REMOVE STR (JUNCTION BOX)	EA	1.000		1.000	
	500-6001	MOBILIZATION	LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	23.000		23.000	
	506-6001	ROCK FILTER DAMS (INSTALL) (TY 1)	LF	80.000		80.000	
	506-6011	ROCK FILTER DAMS (REMOVE)	LF	80.000		80.000	
	506-6020	CONSTRUCTION EXITS (INSTALL) (TY 1)	SY	565.000		565.000	
	506-6024	CONSTRUCTION EXITS (REMOVE)	SY	565.000		565.000	
	506-6025	EXCAV (EROSN & SEDMT CONT, IN PLACE)	CY	250.000		250.000	
	506-6030	BACKHOE WORK (EROSION & SEDMT CONT)	HR	80.000		80.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	3,084.000		3,084.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	3,084.000		3,084.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	98.000		98.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	98.000		98.000	
	506-6046	TRACKHOE WORK (EROSION & SEDMT CONT)	HR	80.000		80.000	
	512-6010	PORT CTB (FUR & INST)(LOW PROF)(TY 2)	LF	80.000		80.000	
	512-6017	PORT CTB (DES SOURCE)(F-SHAPE)(TY 1)	LF	510.000		510.000	
	512-6021	PORT CTB (DES SOURCE)(LOW PROF)(TY 1)	LF	1,280.000		1,280.000	



DISTRICT	COUNTY	CCSJ	SHEET
Tyler	Gregg	0910-07-072	10A



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0910-07-072

DISTRICT Tyler
HIGHWAY SABINE

COUNTY Gregg

CONTROL SECTION JOB				0910-07-072		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00062926			
COUNTY				Gregg			
HIGHWAY				SABINE			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	512-6029	PORT CTB (MOVE)(F-SHAPE)(TY 1)	LF	360.000		360.000	
	512-6033	PORT CTB (MOVE)(LOW PROF)(TY 1)	LF	520.000		520.000	
	512-6034	PORT CTB (MOVE)(LOW PROF)(TY 2)	LF	80.000		80.000	
	512-6041	PORT CTB (STKPL)(F-SHAPE)(TY 1)	LF	510.000		510.000	
	512-6045	PORT CTB (STKPL)(LOW PROF)(TY 1)	LF	1,280.000		1,280.000	
	512-6046	PORT CTB (STKPL)(LOW PROF)(TY 2)	LF	80.000		80.000	
	512-6099	PCTB(FUR & INST)(F-SHP TO LOW PROF)TY T	LF	20.000		20.000	
	512-6102	PORT CTB(MOVE)(F-SHAPE)(TY T)	LF	20.000		20.000	
	512-6103	PORT CTB(REMOVE)(F-SHAPE)(TY T)	LF	20.000		20.000	
	529-6002	CONC CURB (TY II)	LF	1,878.000		1,878.000	
	529-6008	CONC CURB & GUTTER (TY II)	LF	196.000		196.000	
	531-6001	CONC SIDEWALKS (4")	SY	1,311.000		1,311.000	
	531-6005	CURB RAMPS (TY 2)	EA	2.000		2.000	
	531-6008	CURB RAMPS (TY 5)	EA	1.000		1.000	
	540-6002	MTL W-BEAM GD FEN (STEEL POST)	LF	225.000		225.000	
	540-6007	MTL BEAM GD FEN TRANS (TL2)	EA	2.000		2.000	
	540-6016	DOWNSTREAM ANCHOR TERMINAL SECTION	EA	2.000		2.000	
	540-6018	MTL BM GD FEN TRANS (NON - SYM)	EA	2.000		2.000	
	542-6001	REMOVE METAL BEAM GUARD FENCE	LF	2,122.000		2,122.000	
	542-6002	REMOVE TERMINAL ANCHOR SECTION	EA	1.000		1.000	
	544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA	2.000		2.000	
	556-6008	PIPE UNDERDRAINS (TY 8) (6")	LF	525.000		525.000	
	610-6274	IN RD IL (TY SA) 50B-12 (400W EQ) LED	EA	3.000		3.000	
	610-6290	IN RD IL (TY SA) 50T-12 (400W EQ) LED	EA	2.000		2.000	
	618-6023	CONDT (PVC) (SCH 40) (2")	LF	563.000		563.000	
	618-6047	CONDT (PVC) (SCH 80) (2") (BORE)	LF	157.000		157.000	
	618-6070	CONDT (RM) (2")	LF	984.000		984.000	
	620-6007	ELEC CONDR (NO.8) BARE	LF	1,779.000		1,779.000	
	620-6008	ELEC CONDR (NO.8) INSULATED	LF	3,558.000		3,558.000	
	624-6002	GROUND BOX TY A (122311)W/APRON	EA	4.000		4.000	
	628-6009	ELC SRV TY A 120/240 060(NS)SS(E)SP(O)	EA	2.000		2.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA	4.000		4.000	
	644-6084	IN SRSS & AM (RAIL)(90 MPH)(T MOUNT)	EA	3.000		3.000	
	658-6080	INSTL DEL ASSM (D-SW)SZ 1(WFLX)GND	EA	82.000		82.000	
	658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	4.000		4.000	
	662-6016	WK ZN PAV MRK NON-REMOV (W)24"(SLD)	LF	61.000		61.000	
	662-6046	WK ZN PAV MRK REMOV (REFL) TY I-A	EA	205.000		205.000	

DISTRICT	COUNTY	CCSJ	SHEET
Tyler	Gregg	0910-07-072	10B



CONTROLLING PROJECT ID 0910-07-072

DISTRICT Tyler
HIGHWAY SABINE

COUNTY Gregg

Estimate & Quantity Sheet

CONTROL SECTION JOB				0910-07-072		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00062926			
COUNTY				Gregg			
HIGHWAY				SABINE			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	662-6048	WK ZN PAV MRK REMOV (REFL) TY I-C	EA	1,384.000		1,384.000	
	662-6050	WK ZN PAV MRK REMOV (REFL) TY II-A-A	EA	463.000		463.000	
	662-6056	WK ZN PAV MRK REMOV (TRAF BTN) TY W	EA	1,518.000		1,518.000	
	662-6058	WK ZN PAV MRK REMOV (TRAF BTN) TY Y	EA	1,987.000		1,987.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	550.000		550.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	249.000		249.000	
	666-6167	REFL PAV MRK TY II (W) 4" (BRK)	LF	1,121.000		1,121.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	550.000		550.000	
	666-6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	249.000		249.000	
	666-6207	REFL PAV MRK TY II (Y) 4" (SLD)	LF	5,848.000		5,848.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	1,121.000		1,121.000	
	666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	5,848.000		5,848.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	6.000		6.000	
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	5.000		5.000	
	668-6101	PREFAB PAV MRK TY C (Y) (4") (SLD)	LF	243.000		243.000	
	672-6007	REFL PAV MRKR TY I-C	EA	86.000		86.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	306.000		306.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	5,983.000		5,983.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")	LF	376.000		376.000	
	677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	281.000		281.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	107.000		107.000	
	677-6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	6.000		6.000	
	677-6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	4.000		4.000	
	678-6001	PAV SURF PREP FOR MRK (4")	LF	1,121.000		1,121.000	
	678-6004	PAV SURF PREP FOR MRK (8")	LF	550.000		550.000	
	678-6008	PAV SURF PREP FOR MRK (24")	LF	249.000		249.000	
	678-6009	PAV SURF PREP FOR MRK (ARROW)	EA	6.000		6.000	
	678-6016	PAV SURF PREP FOR MRK (WORD)	EA	5.000		5.000	
	690-6021	REMOVAL OF TIMBER POLES	EA	1.000		1.000	
	740-6004	ANTI - GRAFFITI COATING(PERMNET-TY II)	SF	29,368.000		29,368.000	
	3077-6021	SP MIXESSP-CPG70-22	TON	1,375.000		1,375.000	
	3077-6075	TACK COAT	GAL	604.000		604.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	4.000		4.000	
	6027-6004	JUNCTION BOX (INSTALL)	EA	6.000		6.000	
	6185-6002	TMA (STATIONARY)	DAY	722.000		722.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	68.000		68.000	
	12	RAILROAD FLAGGING: RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	



DISTRICT	COUNTY	CCSJ	SHEET
Tyler	Gregg	0910-07-072	10C



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0910-07-072

DISTRICT Tyler
HIGHWAY SABINE

COUNTY Gregg

CONTROL SECTION JOB				0910-07-072		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00062926			
COUNTY				Gregg			
HIGHWAY				SABINE			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	18	LAW ENFORCEMENT: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	

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TABULATION OF SURFACE AREAS

TYPICAL SECTION SHEET NO.	FROM STA	TO STA	LENGTH FT	260 6001		260 6079		275 6001		275 6019		310 6021		316 6406		316 6407		354 6031	
				(1.) LIME (HYDRATED LIME (DRY))**		LIME TRT (SUBGRADE) (6")**		(1.) CEMENT**		CEMENT TREAT (SUBGRADE) (6")**		(1.) PRIME COAT & BLOTTER (MC-30)		(1.) ASPH (AC-20XP, AC-10-2TR, OR AC-20-5TR)		(1.) AGGR (TY-PD GR-3 OR TY-PL GR-3)		PLANE ASPH CONC PAV (0" TO 12")	
				WIDTH (FT)	AREA (SY)*	WIDTH (FT)	AREA (SY)*	WIDTH (FT)	AREA (SY)*	WIDTH (FT)	AREA (SY)*	WIDTH (FT)	AREA (SY)	WIDTH (FT)	AREA (SY)	WIDTH (FT)	AREA (SY)	WIDTH (FT)	AREA (SY)
HIGH ST-EXIST HOT MIX TO PROP CRCP TRANSITION																			
2 OF 4	154+88.03	154+98.03	10.00	94	0	94	0	94	0	94	0							89	100
2 OF 4	154+98.03	155+03.03	5.00	74	21	74	21	74	21	74	21								
HIGH ST																			
2 OF 4	155+03.03	157+70.07	267.04	64	950	64	950	64	950	64.0	950								
2 OF 4	157+70.07	158+97.43	127.36	62.5	442	62.5	442	62.5	442	62.5	442								
2 OF 4	158+97.43	159+18.67	21.24	62.7	74	62.7	74	62.7	74	62.7	74								
HIGH ST-10" HOT MIX (DETAIL D)																			
2 OF 4	157+70.07	158+97.43	127.36	62.5	0	62.5	0	62.5	0	62.5	0								
2 OF 4	158+97.43	159+18.67	21.24	62.7	0	62.7	0	62.7	0	62.7	0								
HIGH ST-PROP BRIDGE APPROACH SLAB																			
2 OF 4	159+18.67	159+43.00	24.33																
HIGH ST-PROP BRIDGE																			
3 OF 4	159+43.00	162+54.00	311.00																
HIGH ST-PROP BRIDGE APPROACH SLAB																			
4 OF 4	162+54.00	162+78.43	24.43																
HIGH ST-10" HOT MIX (DETAIL E)																			
4 OF 4	162+78.43	164+00.00	121.57	58.5	0	58.5	0	58.5	0	58.5	0								
4 OF 4	164+00.00	165+53.44	153.44	55	0	55	0	55	0	55.0	0								
HIGH ST																			
4 OF 4	162+78.43	164+00.00	121.57	58.5	396	58.5	396	58.5	396	58.5	396								
4 OF 4	164+00.00	165+53.44	153.44	55	456	55	456	55	456	55	456								
4 OF 4	165+53.44	167+60.00	206.56	55	631	55	631	55	631	55	631								
HIGH ST-EXIST HOT MIX TO PROP CRCP TRANSITION																			
4 OF 4	167+60.00	167+65.00	5.00	55	16	55	16	55	16	55	16								
4 OF 4	167+65.00	167+75.00	10.00	55	0	55	0	55	0	55	0							52	58
CENTER ST/SABINE ST																			
3 OF 4	WARE ST	ELLIOT ST	226.58									33.5	843	33.5	843	33.5	843		
3 OF 4	WARE ST	ELLIOT ST	584.16									33	2,142	33	2,142	33	2,142		
PROJECT TOTAL					2,986		2,986		2,986		2,986		2,985		2,985		2,985		158

TABULATION OF SURFACE AREAS

TYPICAL SECTION SHEET NO.	FROM STA	TO STA	LENGTH FT	360 6003		3077 6021		3077 6075			
				CONC PVMT (CONT REINF - CRCP) (9")		(1.) SP MIXES SP-C PG70-22		(1.) TACK COAT			
				WIDTH (FT)	AREA (SY)*	WIDTH (FT)	AREA (SY)*	WIDTH (FT)	AREA (SY)*		
HIGH ST-EXIST HOT MIX TO PROP CRCP TRANSITION											
2 OF 4	154+88.03	154+98.03	10.00			92	103	92	103		
2 OF 4	154+98.03	155+03.03	5.00	70	40	71.5	40	71.5	40		
HIGH ST											
2 OF 4	155+03.03	157+70.07	267.04	61	1,812	62.3	1,853	62.3	1,853		
2 OF 4	157+70.07	158+97.43	127.36	61	864	60.8	861	60.8	861		
2 OF 4	158+97.43	159+18.67	21.24	61.2	145	61	144	61	144		
HIGH ST-10" HOT MIX (DETAIL D)											
2 OF 4	157+70.07	158+97.43	127.36	SEE ABOVE - HIGH ST				1.5	21	1.5	21
2 OF 4	158+97.43	159+18.67	21.24	SEE ABOVE - HIGH ST				1.5	4	1.5	4
HIGH ST-PROP BRIDGE APPROACH SLAB											
2 OF 4	159+18.67	159+43.00	24.33								
HIGH ST-PROP BRIDGE											
3 OF 4	159+43.00	162+54.00	311.00								
HIGH ST-PROP BRIDGE APPROACH SLAB											
4 OF 4	162+54.00	162+78.43	24.43								
HIGH ST-10" HOT MIX (DETAIL E)											
4 OF 4	162+78.43	164+00.00	121.57	SEE BELOW - HIGH ST				1.5	20	1.5	20
4 OF 4	164+00.00	165+53.44	153.44	SEE BELOW - HIGH ST				1.5	26	1.5	26
HIGH ST											
4 OF 4	162+78.43	164+00.00	121.57	57	771	56.8	769	56.8	769		
4 OF 4	164+00.00	165+53.44	153.44	52	887	51.8	884	51.8	884		
4 OF 4	165+53.44	167+60.00	206.56	52	1,194	53.3	1,224	53.3	1,224		
HIGH ST-EXIST HOT MIX TO PROP CRCP TRANSITION											
4 OF 4	167+60.00	167+65.00	5.00	52	30	53.5	30	53.5	30		
4 OF 4	167+65.00	167+75.00	10.00			53.5	59	53.5	59		
CENTER ST/SABINE ST											
3 OF 4	WARE ST	ELLIOT ST	226.58								
3 OF 4	WARE ST	ELLIOT ST	584.16								
PROJECT TOTAL					5,743		6,038		6,038		

(1.) QUANTITIES INCLUDED IN BASIS OF ESTIMATE
 *AREA CALCULATED BY SHAPE RATHER THAN AVERAGE WIDTH
 **ESTIMATE 50% OF TREATED SUBGRADE AREA

BASIS OF ESTIMATE

ITEM	DESCRIPTION	RATE	CSJ 0910-07-072 AMOUNT	UNIT	CSJ 0910-07-072 QUANTITY	PAY UNIT
#166	FERTILIZER	1 LB/9 SY/2000	11,868	SY	0.66	TON
168	VEGETATIVE WATERING	11 GAL/SY	11,868	SY	131	MG
260	LIME (HYDRATED LIME(DRY)) (5%) 120 LB/CF	27 LB/SY	2,986	SY	41	TON
275	CEMENT (5%) 120 LB/CF	27 LB/SY	2,986	SY	41	TON
310	PRIME COAT & BLOTTER (MC-30)	0.30 GAL/SY	2,985	SY	896	GAL
316	ASPH (AC-20XP, AC-10-2TR, OR AC-20-5TR)	0.42 GAL/SY	2,985	SY	1,254	GAL
316	AGGR (TY-PD GR-3 OR TY-PL GR-3)	1 CY/100 SY	2,985	SY	30	CY
500	MOBILIZATION		1	LS	1	LS
502	BARRICADES, SIGNS AND TRAFFIC HANDLING		23	MO	23	MO
3077	TACK COAT	0.10 GAL/SY	6,038	SY	604	GAL
3077	SP MIXES SP-C PG70-22	440 LB/SY/2000	5,735	SY	1,262	TON
3077	SP MIXES SP-C PG70-22	640 LB/SY/2000	232	SY	74	TON
3077	SP MIXES SP-C PG70-22	1100 LB/SY/2000	71	SY	39	TON

#FOR CONTRACTOR'S INFORMATION ONLY



S HIGH ST AT UPRR AND SABINE ST

QUANTITY SUMMARY

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	11
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072

SHEET 1 OF 6

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SUMMARY OF TRAFFIC CONTROL ITEMS

LOCATION	423 6003	512 6010	512 6017	512 6021	512 6029	512 6033	512 6034	512 6041	512 6045	512 6046	512 6099	512 6102	512 6103	662 6016
	RETAINING WALL (TEMP WALL) (A) SF	PORT CTB (FUR & INST) (LOW PROF) (TY 2) LF	PORT CTB (DES SOURCE) (F-SHAPE) (TY 1) LF	PORT CTB (DES SOURCE) (LOW PROF) (TY 1) LF	PORT CTB (MOVE) (F-SHAPE) (TY 1) LF	PORT CTB (MOVE) (LOW PROF) (TY 1) LF	PORT CTB (MOVE) (LOW PROF) (TY 2) LF	PORT CTB (MOVE) (LOW PROF) (TY 2) LF	PORT CTB (STKPL) (F-SHAPE) (TY 1) LF	PORT CTB (STKPL) (LOW PROF) (TY 1) LF	PORT CTB (STKPL) (LOW PROF) (TY 2) LF	PCTB (FUR & INST) (F-SHP TO LOW PROF) TY T LF	PORT CTB (MOVE) (F-SHAPE) (TY T) LF	PORT CTB (REMOVE) (F-SHAPE) (TY T) LF
HIGH ST														
PHASE 1														
SHEET 1 OF 3	585													
SHEET 2 OF 3	835	20	360	370							20			31
SHEET 3 OF 3		20		50					160					
PHASE 2														
SHEET 1 OF 3														30
SHEET 2 OF 3			150		360	260	40	510				20	20	
SHEET 3 OF 3														
PHASE 3														
SHEET 1 OF 2				150		260	40							
SHEET 2 OF 2		40		710					1,120	80				
FINAL PHASE														
PROJECT TOTAL	1,420	80	510	1,280	360	520	80	510	1,280	80	20	20	20	61

(A) QUANTITIES ARE LOCATED ON TRAFFIC CONTROL PLAN-PHASE 1-TEMPORARY WALL SHEETS.

1. SIGNAL HEADS TO BE ADJUSTED BY OTHERS.

SUMMARY OF TRAFFIC CONTROL ITEMS

LOCATION	662 6046	662 6048	662 6050	662 6056	662 6058	677 6001	677 6003	677 6005	677 6007	677 6008	677 6012
	WK ZN PAV MRK REMOV (REFL) TY I-A EA	WK ZN PAV MRK REMOV (REFL) TY I-C EA	WK ZN PAV MRK REMOV (REFL) TY II-A-A EA	WK ZN PAV MRK REMOV (TRAF BTN) TY W EA	WK ZN PAV MRK REMOV (TRAF BTN) TY Y EA	ELIM EXT PAV MRK & MRKS (4") LF	ELIM EXT PAV MRK & MRKS (8") LF	ELIM EXT PAV MRK & MRKS (12") LF	ELIM EXT PAV MRK & MRKS (24") LF	ELIM EXT PAV MRK & MRKS (ARROW) EA	ELIM EXT PAV MRK & MRKS (WORD) EA
HIGH ST											
PHASE 1											
SHEET 1 OF 3		38	27	114	80	1,964					
SHEET 2 OF 3		286	144	358	431	2,161	316	213	91	5	3
SHEET 3 OF 3	28	59	71	175	296	1,300					
PHASE 2											
SHEET 1 OF 3	40	101	50	126	265	558	60	68	16	1	1
SHEET 2 OF 3		114	121	342	361						
SHEET 3 OF 3		22	4	66	10						
PHASE 3											
SHEET 1 OF 2	52	726	46	224	289						
SHEET 2 OF 2	85	38		113	255						
FINAL PHASE											
PROJECT TOTAL	205	1,384	463	1,518	1,987	5,983	376	281	107	6	4



S HIGH ST AT UPRR AND SABINE ST

QUANTITY SUMMARY

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	12
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						

SHEET 2 OF 6

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PORTABLE CHANGEABLE MESSAGE SIGN	
	6001 6002
LOCATION	PORTABLE CHANGEABLE MESSAGE SIGN#
	EA
HIGH ST	
PHASE 1	
SHEET 1 OF 3	
SHEET 2 OF 3	
SHEET 3 OF 3	
PHASE 2	
SHEET 1 OF 3	
SHEET 2 OF 3	
SHEET 3 OF 3	4
PHASE 3	
SHEET 1 OF 2	
SHEET 2 OF 2	
FINAL PHASE	
PROJECT TOTAL	4

#TO BE LOCATED AS DIRECTED BY THE ENGINEER

TRUCK MOUNTED ATTENUATORS		
	6185 6002	6185 6005
LOCATION	TMA (STATIONARY)	TMA (MOBILE OPERATION)
	2 TRUCKS/STATIONARY OPERATION DAY	2 TRUCKS/MOBILE OPERATION DAY
HIGH ST		
PHASE 1		
SHEET 1 OF 3	160	
SHEET 2 OF 3		16
SHEET 3 OF 3	160	
PHASE 2		
SHEET 1 OF 3	185	
SHEET 2 OF 3		16
SHEET 3 OF 3	185	
PHASE 3		
SHEET 1 OF 2	16	
SHEET 2 OF 2	16	28
FINAL PHASE		8
PROJECT TOTAL	722	68

SUMMARY OF ROADWAY ITEMS								
LOCATION	100 6002	110 6001	110 6003	132 6006	432 6001	450 6051	529 6002	529 6008
	PREPARING ROW	EXCAVATION (ROADWAY)	EXCAVATION (SPECIAL)	EMBANKMENT (FINAL) (DENS CONT) (TY C)	RIPRAP (CONC) (4 IN)	RAIL (HANDRAIL) (TY E)	CONC CURB (TY II)	CONC CURB & GUTTER (TY II)
	STA	(1.) CY	(1.) CY	(1.) CY	CY	LF	LF	LF
HIGH ST								
SHEET 1 OF 3	4.00	295		1,706	7	101	679	48
SHEET 2 OF 3	6.00	9,693	1,217	2,763			579	78
SHEET 3 OF 3	4.00	3,658		1,711			620	70
RETAINING WALL A (2.)								
MSE WALL				260				
SOIL NAIL WALL					1			
RETAINING WALL B (2.)								
MSE WALL				240				
SOIL NAIL WALL					1			
RETAINING WALL C (2.)								
MSE WALL				218				
SOIL NAIL WALL					1			
RETAINING WALL D (2.)								
MSE WALL				312				
SOIL NAIL WALL					1			
PROJECT TOTAL	14.00	13,646	1,217	7,210	11	101	1,878	196


(1.) SEE SUMMARY OF EARTHWORK FOR BREAKDOWN OF EARTHWORK QUANTITIES.
 (2.) QUANTITIES ARE LOCATED ON RETAINING WALL SHEETS.

SUMMARY OF ROADWAY ITEMS								
LOCATION	531 6001	531 6005	531 6008	540 6002	540 6007	540 6016	540 6018	544 6001
	CONC SIDEWALKS (4")	CURB RAMPS (TY 2)	CURB RAMPS (TY 5)	MTL W-BEAM GD FEN (STEEL POST)	MTL BEAM GD FEN TRANS (TL2)	DOWNSTREAM ANCHOR TERMINAL SECTION	MTL BM GD FEN TRANS (NON - SYM)	GUARDRAIL END TREATMENT (INSTALL)
	SY	EA	EA	LF	EA	EA	EA	EA
HIGH ST								
SHEET 1 OF 3	459	2	1					
SHEET 2 OF 3	387			225	2	2	2	2
SHEET 3 OF 3	465							
PROJECT TOTAL	1,311	2	1	225	2	2	2	2

(1.) SEE SUMMARY OF EARTHWORK FOR BREAKDOWN OF EARTHWORK QUANTITIES.
 (2.) QUANTITIES ARE LOCATED ON RETAINING WALL SHEETS.

SUMMARY OF REMOVAL ITEMS						
LOCATION	100 6006	100 6007	104 6015	104 6021	104 6022	105 6061
	PREP ROW (TREE) (LESS THAN 24" DIA)	PREP ROW (TREE) (GREATER THAN 24" DIA)	REMOVING CONC (SIDEWALKS)	REMOVING CONC (CURB)	REMOVING CONC (CURB AND GUTTER)	REMOV STAB BASE & ASPH PAV (8"-20")
	EA	EA	SY	LF	LF	SY
HIGH ST						
SHEET 1 OF 1	2	1	1,053	52	2,080	6,060
PROJECT TOTAL	2	1	1,053	52	2,080	6,060

SUMMARY OF REMOVAL ITEMS					
LOCATION	496 6023	542 6001	542 6002	644 6076	690 6021
	REMOVE STR (JUNCTION BOX)	REMOVE METAL BEAM GUARD FENCE	REMOVE TERMINAL ANCHOR SECTION	REMOVE SM RD SN SUP&AM	REMOVAL OF TIMBER POLES
	EA	LF	EA	EA	EA
HIGH ST					
SHEET 1 OF 1	1	2,122	1	4	1
PROJECT TOTAL	1	2,122	1	4	1



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 S HIGH ST AT UPRR AND SABINE ST

QUANTITY SUMMARY

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

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SUMMARY OF EARTHWORK				
LOCATION	STATION	110 6001	110 6003	132 6006
		EXCAVATION (ROADWAY)	EXCAVATION (SPECIAL)	EMBANKMENT (FINAL) (DENS CONT) (TY C)
		CY	CY	CY
HIGH ST				
SHEET 1 OF 3	154+88.03			
	155+00	6		21
	155+50	13		65
	156+00	6		104
	156+50	1		228
	157+00	0		294
	157+50	22		317
SHEET 1/2 OF 3	158+00	78		328
	158+50	168		350
SHEET 2 OF 3	159+00	321		401
	159+50	497	209	274
	160+00	289		486
	160+50			228
	161+00			
	161+50			
	162+00	432	504	4
	162+50	1,352	504	77
	163+00	1,940		279
	163+50	1,862		381
SHEET 2/3 OF 3	164+00	1,573		328
	164+50	1,427		304
SHEET 3 OF 3	165+00	1,326		279
	165+50	1,236		227
	166+00	834		186
	166+50	231		325
	167+00	9		434
	167+50	13		236
167+75	10		24	
RETAINING WALL A				
MSE WALL SHEET 1 OF 1	156+50			0
	157+00			18
	157+50			29
	158+00			43
	158+50			57
	159+00			73
159+50			40	
RETAINING WALL B				
MSE WALL SHEET 1 OF 1	163+00			34
	163+50			60
	164+00			49
	164+50			41
	165+00			33
	165+50			18
	166+00			5
166+24			0	
RETAINING WALL C				
MSE WALL SHEET 1 OF 1	156+50			0
	157+00			10
	157+50			23
	158+00			35
	158+50			49
	159+00			65
159+50			36	
RETAINING WALL D				
MSE WALL SHEET 1 OF 1	162+50			26
	163+00			68
	163+50			70
	164+00			55
	164+50			44
	165+00			31
	165+50			15
166+00			3	
166+24			0	
PROJECT TOTAL		13,646	1,217	7,210

SUMMARY OF RETAINING WALL ITEMS						
LOCATION	*132 6006	401 6001	403 6001	410 6001	420 6066	420 6074
	EMBANKMENT (FINAL) (DENS CONT) (TY C)	FLOWABLE BACKFILL	TEMPORARY SPL SHORING	SOIL NAIL ANCHORS	CL C CONC (RAIL FOUNDATION)	CL C CONC (MISC)
	CY	CY	SF	LF	CY	CY
HIGH ST						
RETAINING WALL A						
MSE WALL	344		132			3
SOIL NAIL WALL		34		7,980		
RETAINING WALL B						
MSE WALL	308				12	3
SOIL NAIL WALL		7		32,960		
RETAINING WALL C						
MSE WALL	236					3
SOIL NAIL WALL		14		7,800		
RETAINING WALL D						
MSE WALL	291		462		12	3
SOIL NAIL WALL		14		30,985		
BRIDGE (A)						
SHEET 1			834			
PROJECT TOTAL	1,179	69	1,428	79,725	24	12

*FOR CONTRACTOR'S INFORMATION ONLY
 (A) QUANTITIES ARE LOCATED ON TRAFFIC CONTROL PLAN-PHASE 1-TEMPORARY SPECIAL SHORING-BRIDGE ABUTMENT SHEET.

SUMMARY OF RETAINING WALL ITEMS						
LOCATION	423 6001	423 6022	432 6045	*556 6006	556 6008	740 6004
	RETAINING WALL (MSE)	RETAINING WALL (SOIL NAIL) (FACIA)	RIPRAP (MOW STRIP) (4 IN)	PIPE UNDERDRAINS (TY 6) (6")	PIPE UNDERDRAINS (TY 8) (6")	ANTI - GRAFFITI COATING (PERMNET-TY II)
	SF	SF	CY	LF	LF	SF
HIGH ST						
RETAINING WALL A						
MSE WALL	2,163		10	304	47	2,163
SOIL NAIL WALL		2,596	7	245	31	2,596
RETAINING WALL B						
MSE WALL	2,194		12	371	125	2,194
SOIL NAIL WALL		8,016	10	411	55	8,016
RETAINING WALL C						
MSE WALL	1,749		10	289	50	1,749
SOIL NAIL WALL		2,531	7	248	31	2,531
RETAINING WALL D						
MSE WALL	2,137		12	382	126	2,137
SOIL NAIL WALL		7,982	11	422	60	7,982
BRIDGE (A)						
SHEET 1						
PROJECT TOTAL	8,243	21,125	79	2,672	525	29,368

*FOR CONTRACTOR'S INFORMATION ONLY
 (A) QUANTITIES ARE LOCATED ON TRAFFIC CONTROL PLAN-PHASE 1-TEMPORARY SPECIAL SHORING-BRIDGE ABUTMENT SHEET.

SUMMARY OF DRAINAGE ITEMS			
LOCATION	464 6003	465 6566	479 6002
	RC PIPE (CL III) (18 IN)	INLET (COMPL) (CCO) (3FT) (BOTH)	ADJUSTING INLETS
	LF	EA	EA
HIGH ST			
SHEET 1 OF 1	193	4	2
PROJECT TOTAL	193	4	2

QUANTITY SUMMARY

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
JMT	6	(SEE TITLE SHEET)	HIGH ST	
GRAPHICS	STATE	DISTRICT	COUNTY	
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	
JMT	0910	07	072	
CHECK				14
JMT				

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SUMMARY OF BRIDGE ITEMS							
LOCATION	400 6005	416 6005	420 6013	420 6029	420 6037	422 6001	422 6015
	CEM STABIL BKFL	DRILL SHAFT (42 IN)	CL C CONC (ABUT)	CL C CONC (CAP)	CL C CONC (COLUMN)	REINF CONC SLAB	APPROACH SLAB
	CY	LF	CY	CY	CY	SF	CY
HIGH ST							
PHASE 1	162.6	662	42.6	45.2	49.2	10,419	52.1
PHASE 2	187.6	662	46.3	57.8	49.2	13,840	73.8
RETAINING WALL A (1.)							
MSE WALL							
RETAINING WALL B (1.)							
MSE WALL							
RETAINING WALL C (1.)							
MSE WALL							
RETAINING WALL D (1.)							
MSE WALL							
PROJECT TOTAL	350.2	1,324	88.9	103.0	98.4	24,259	125.9

(1.) QUANTITIES ARE LOCATED ON RETAINING WALL SHEETS.


SUMMARY OF STRIPING ITEMS					
LOCATION	668 6077	668 6085	668 6101	672 6007	672 6009
	PREFAB PAV MRK TY C (W) (ARROW)	PREFAB PAV MRK TY C (W) (WORD)	PREFAB PAV MRK TY C (Y) (4") (SLD)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A
	EA	EA	LF	EA	EA
HIGH ST					
SHEET 1 OF 3			40	13	62
SHEET 2 OF 3	6	5	203	57	201
SHEET 3 OF 3				16	43
PROJECT TOTAL	6	5	243	86	306

SUMMARY OF STRIPING ITEMS					
LOCATION	678 6001	678 6004	678 6008	678 6009	678 6016
	PAV SURF PREP FOR MRK (4")	PAV SURF PREP FOR MRK (8")	PAV SURF PREP FOR MRK (24")	PAV SURF PREP FOR MRK (ARROW)	PAV SURF PREP FOR MRK (WORD)
	LF	LF	LF	EA	EA
HIGH ST					
SHEET 1 OF 3	259				
SHEET 2 OF 3	561	550	249	6	5
SHEET 3 OF 3	301				
PROJECT TOTAL	1,121	550	249	6	5

SUMMARY OF BRIDGE ITEMS								
LOCATION	425 6040	432 6008	442 6007	450 6014	450 6030	450 6119	454 6020	496 6010
	PRESTR CONC GIRDER (TX62)	RIPRAP (CONC) (CL B) (RR&RR9)	STR STEEL (MISC NON - BRIDGE)	RAIL (TY T551)	RAIL (TY C221)	RAIL (CLF-RO)	SEALED EXPANSION JOINT (4 IN) (SEJ - B)	REMOV STR (BRIDGE 100 - 499 FT LENGTH)
	LF	CY	LB	LF	LF	LF	LF	EA
HIGH ST								
PHASE 1	1,674.86	45	170	311	311	216	68	1
PHASE 2	1,984.46	50	170	311	311	216	90	
RETAINING WALL A (1.)								
MSE WALL					302			
RETAINING WALL B (1.)								
MSE WALL					442			
RETAINING WALL C (1.)								
MSE WALL					285			
RETAINING WALL D (1.)								
MSE WALL					453			
PROJECT TOTAL	3,659.32	95	340	622	2,104	432	158	1

(1.) QUANTITIES ARE LOCATED ON RETAINING WALL SHEETS.

SUMMARY OF STRIPING ITEMS											
LOCATION	644 6084	658 6080	658 6099	666 6036	666 6048	666 6167	666 6178	666 6182	666 6207	666 6300	666 6315
	IN SRSS & AM (RAIL) (90 MPH) (T MOUNT)	INSTL DEL ASSM (D-SW) SZ 1 (WFLX) GND	INSTL OM ASSM (OM-2Z) (WFLX) GND	REFL PAV MRK TY I (W) 8" (SLD) (100MIL)	REFL PAV MRK TY I (W) 24" (SLD) (100MIL)	REFL PAV MRK TY II (W) 4" (BRK)	REFL PAV MRK TY II (W) 8" (SLD)	REFL PAV MRK TY II (W) 24" (SLD)	REFL PAV MRK TY II (Y) 4" (SLD)	REFL PAV MRK TY II (Y) 4" (SLD)	RE PM W/RET REQ TY I (W) 4" (BRK) (100MIL)
	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF
HIGH ST											
SHEET 1 OF 3						259			1,181	259	1,181
SHEET 2 OF 3	3	66	4	550	249	561	550	249	3,807	561	3,807
SHEET 3 OF 3		16				301			860	301	860
PROJECT TOTAL	3	82	4	550	249	1,121	550	249	5,848	1,121	5,848



JMT TBPE REGISTRATION NO. F-16341

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S HIGH ST AT UPRR AND SABINE ST

QUANTITY SUMMARY

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

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SUMMARY OF ILLUMINATION ITEMS						
LOCATION	416 6029	432 6009	610 6274	610 6290	618 6023	618 6047
	DRILL SHAFT (RDWY ILL POLE) (30 IN)	RIPRAP (CONC) (CL B) (4")	IN RD IL (TY SA) 50B-12 (400W EQ) LED	IN RD IL (TY SA) 50T-12 (400W EQ) LED	CONDT (PVC) (SCH 40) (2")	CONDT (PVC) (SCH 80) (2") (BORE)
	LF	CY	EA	EA	LF	LF
PROJECT NAME						
SHEET 1	14	0.35	3	1	300	74
SHEET 2	14	0.35		1	263	83
PROJECT TOTAL	28	0.70	3	2	563	157


SUMMARY OF ILLUMINATION ITEMS						
LOCATION	618 6070	620 6007	620 6008	624 6002	628 6009	6027 6004
	CONDT (RM) (2")	ELEC CONDR (NO. 8) BARE	ELEC CONDR (NO. 8) INSULATED	GROUND BOX TY A (122311)W/APRON	ELC SRV TY A 120/240 060 (NS)SS (E)SP (O)	JUNCTION BOX (INSTALL)
	LF	LF	LF	EA	EA	EA
PROJECT NAME						
SHEET 1	586	1000	2000	2	1	4
SHEET 2	398	779	1558	2	1	2
PROJECT TOTAL	984	1,779	3,558	4	2	6

SUMMARY OF SW3P ITEMS								
LOCATION	160 6003	164 6001	164 6054	164 6055	164 6056	164 6071	506 6001	506 6011
	FURNISHING AND PLACING TOPSOIL (4")	BROADCAST SEED (PERM) (RURAL) (SANDY)	BOND FBR MTRX SEED (PERM) (RURAL) (SAND)	BONDED FBR MTRX SEED (TEMP) (WARM)	BONDED FBR MTRX SEED (TEMP) (COOL)	BROADCAST SEED (TEMP) (WARM OR COOL)	ROCK FILTER DAMS (INSTALL) (TY 1)	ROCK FILTER DAMS (REMOVE)
	SY	SY	SY	SY	SY	SY	LF	LF
HIGH ST								
PHASE 1								
SHEET 1 OF 2	4,382	2,190	2,190	1,094	1,094	2,190	50	50
SHEET 2 OF 2	1,609	805	805	403	403	805		
PHASE 2								
SHEET 1 OF 2	4,478	2,239	2,239	1,120	1,120	2,239	30	30
SHEET 2 OF 2	1,399	700	700	350	350	700		
PROJECT TOTAL	11,868	5,934	5,934	2,967	2,967	5,934	80	80

NOTE: MULTIPLE MOVE-INS WILL BE REQUIRED TO COMPLY WITH THE GCP

SUMMARY OF SW3P ITEMS									
LOCATION	506 6020	506 6024	506 6025	506 6030	506 6038	506 6039	506 6041	506 6043	506 6046
	CONSTRUCTION EXITS (INSTALL) (TY 1)	CONSTRUCTION EXITS (REMOVE)	EXCAV (EROSN & SEDMT CONT, IN PLACE)	BACKHOE WORK (EROSION & SEDMT CONT)	TEMP SEDMT CONT FENCE (INSTALL)	TEMP SEDMT CONT FENCE (REMOVE)	BIODEG EROSN CONT LOGS (INSTL) (12")	BIODEG EROSN CONT LOGS (REMOVE)	TRACKHOE WORK (EROSION & SEDMT CONT)
	SY	SY	CY	HR	LF	LF	LF	LF	HR
HIGH ST									
PHASE 1									
SHEET 1 OF 2	161	161			1,252	1,252	28	28	
SHEET 2 OF 2	135	135	250	80	293	293	38	38	80
PHASE 2									
SHEET 1 OF 2	157	157			1,238	1,238	16	16	
SHEET 2 OF 2	112	112			301	301	16	16	
PROJECT TOTAL	565	565	250	80	3,084	3,084	98	98	80

NOTE: MULTIPLE MOVE-INS WILL BE REQUIRED TO COMPLY WITH THE GCP



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 S HIGH ST AT UPRR AND SABINE ST

QUANTITY SUMMARY

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

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SEQUENCE OF CONSTRUCTION

1. GENERAL NOTES

1. CONTRACTOR MUST COMPLETE THE WORK IN THE SEQUENCE AS SHOWN UNLESS OTHERWISE APPROVED.
2. CONTRACTOR MUST USE THE TRAFFIC CONTROL AND PHASED BRIDGE CONSTRUCTION SHEETS IN THE PLANS, TCP STANDARDS, AND TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) FOR THE PROJECT.
3. ADVANCED WARNING SIGNS MUST REMAIN IN PLACE THROUGHOUT THE DURATION OF THE PROJECT. CONTRACTOR MUST ADJUST LOCATION OF SIGNS IN ACCORDANCE WITH APPLICABLE BC STANDARDS AND THE TMUTCD.
4. ALL TRAFFIC CONTROL DEVICES MUST BE INSTALLED IN ACCORDANCE WITH THE TMUTCD AND TCP STANDARDS FOR 35 MPH POSTED SPEED.
5. CONTRACTOR MUST MAINTAIN TWO LANE TWO-WAY AND PEDESTRIAN ACCESS AT ALL TIMES.
6. EXISTING SIGNS THAT CONFLICT WITH THE PROPOSED CONSTRUCTION SEQUENCING OR TRAFFIC CONTROL DEVICES MUST BE COVERED, REMOVED, OR RELOCATED ON TEMPORARY SUPPORTS, AS DIRECTED. THIS WORK WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.
7. CONTRACTOR MUST ENSURE ADEQUATE DRAINAGE THROUGHOUT CONSTRUCTION.
8. ALL LEADING EDGES OF CONCRETE BARRIER MUST BE PROTECTED. WHEN CONNECTING BARRIERS, THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A UNIFORM FACE AND ENSURE THAT NO EDGES PROTRUDE INTO ONCOMING TRAFFIC.
9. COORDINATE WITH THE CITY OF LONGVIEW VIA TXDOT AREA OFFICE FOR SIGNAL TIMING REVISIONS, AS NECESSARY.

2. SEQUENCE OF WORK

1. THIS PROJECT WILL BE CONSTRUCTED IN 4 PHASES. BEFORE THE COMMENCEMENT OF EACH PHASE, INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS AND BARRICADES AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY.
2. PREPARING ROW / REMOVAL OF EXISTING ITEMS TO BE DONE ONLY IN AREAS WHERE WORK IS OCCURRING, AS PER THE PHASES NOTED BELOW.
3. NIGHTTIME TRAFFIC CONTROL CONSISTING OF TCP 1-2B WILL BE REQUIRED IN SOME AREA OF CONSTRUCTION INCLUDING CTB OPERATIONS, SETTING FORMS, PLACING CONCRETE, PLACING PAVEMENT STRUCTURE LAYERS, AND AS DIRECTED. NIGHTTIME OPERATIONS WILL BE RESTRICTED TO BETWEEN 9 PM UNTIL 5 AM, SUNDAY THROUGH THURSDAY. A ROAD USER COST WILL BE ASSESSED FOR TWO LANE TWO-WAY TCP'S AND ANY OBSTRUCTION THAT EXCEEDS THE AFOREMENTIONED HOURS. SEE GENERAL NOTES SHEETS FOR MORE INFORMATION.
4. A BRIEF DESCRIPTION OF THESE PHASES ARE AS FOLLOWS:

PHASE 1 STEP 1 - SOUTHBOUND CONSTRUCTION PREPARATION

1. COORDINATE WITH THE CITY OF LONGVIEW TO PREPARE ADJUSTMENTS TO THE PHASING AND TIMING PRIOR TO ANY TRAFFIC SWITCH. A MINIMUM OF TWO PRIMARY SIGNAL FACES MUST BE PROVIDED FOR THE THROUGH MOVEMENT. SIGNAL HEADS THAT ARE NOT IN OPERATION MUST BE COVERED TO INDICATE THAT THE SIGNAL IS NOT IN OPERATION.
2. INSTALL STORM WATER POLLUTION PREVENTION DEVICES NEEDED FOR THIS PHASE.
3. INSTALL ADVANCE WARNING SIGNS, WORK ZONE SIGNAGE, WORK ZONE MARKINGS, CHANNELIZING DEVICES, AND TEMPORARY TRAFFIC BARRIERS.
4. REMOVE CONFLICTING EXISTING PAVEMENT MARKINGS ON NORTHBOUND LANES.
5. SHIFT TRAFFIC TO NORTHBOUND LANES.
6. SAWCUT AND REMOVE EXISTING ROADWAY AND BRIDGE ELEMENTS FROM SOUTHBOUND LANES AS SHOWN.

PHASE 1 STEP 2 - SOUTHBOUND CONSTRUCTION

1. EXCAVATE EXISTING MATERIAL TO LIMITS AS SHOWN AND INSTALL TEMPORARY SPECIAL SHORING FOR RETAINING WALL A AS SHOWN.
2. CONSTRUCT TEMPORARY RETAINING WALL AS SHOWN IN CONJUNCTION WITH PLACING ROADWAY EMBANKMENT FOR PERMANENT SOUTHBOUND LANES.
3. CONSTRUCT PERMANENT RETAINING WALLS A & B AND TRAFFIC RAIL FOUNDATION AS SHOWN ON THE RETAINING WALL LAYOUTS.
4. ADJUST EXISTING INLET AND CONSTRUCT PERMANENT STORM DRAIN AND INLET.
5. INSTALL EARTHWORK (EXCAVATION AND EMBANKMENT).
6. CONSTRUCT THE PROPOSED ABUTMENTS AND BENTS AS SHOWN ON THE PHASE 1 BRIDGE DETAIL SHEETS.
7. CONSTRUCT THE BRIDGE HEADER SLOPE AND INSTALL TEMPORARY EARTHWORK.
8. CONSTRUCT BRIDGE TO DIMENSIONS AND TO DEPTHS AS SHOWN ON THE PHASE 1 BRIDGE DETAIL SHEETS.
9. INSTALL CEMENT STABILIZED BACKFILL AS SHOWN ON THE BRIDGE STANDARDS.
10. COMPLETE FULL DEPTH PAVEMENT CONSTRUCTION TO LIMITS AS SHOWN.
11. INSTALL CURB, MBGF, SIDEWALKS, COMBINATION RAIL, AND PEDESTRIAN RAIL.

PHASE 2 STEP 1 - NORTHBOUND CONSTRUCTION PREPARATION

1. COORDINATE WITH THE CITY OF LONGVIEW TO PREPARE ADJUSTMENTS TO THE PHASING AND TIMING PRIOR TO ANY TRAFFIC SWITCH. A MINIMUM OF TWO PRIMARY SIGNAL FACES MUST BE PROVIDED FOR THE THROUGH MOVEMENT. SIGNAL HEADS THAT ARE NOT IN OPERATION MUST BE COVERED TO INDICATE THAT THE SIGNAL IS NOT IN OPERATION.
2. INSTALL STORM WATER POLLUTION PREVENTION DEVICES NEEDED FOR THIS PHASE.
3. INSTALL ADVANCE WARNING SIGNS, WORK ZONE SIGNAGE, WORK ZONE MARKINGS, CHANNELIZING DEVICES, AND TEMPORARY TRAFFIC BARRIERS.
4. REMOVE CONFLICTING PAVEMENT MARKINGS ON SOUTHBOUND LANES.
5. SHIFT TRAFFIC TO SOUTHBOUND LANES.
6. SAWCUT AND REMOVE EXISTING ROADWAY AND BRIDGE ELEMENTS FROM NORTHBOUND LANES AS SHOWN.

PHASE 2 STEP 2 - NORTHBOUND CONSTRUCTION

1. EXCAVATE EXISTING MATERIAL TO LIMITS AS SHOWN AND INSTALL TEMPORARY SPECIAL SHORING FOR RETAINING WALL D AS SHOWN.
2. CONSTRUCT PERMANENT RETAINING WALLS C & D AND TRAFFIC RAIL FOUNDATION AS SHOWN IN CONJUNCTION WITH PLACING ROADWAY EMBANKMENT FOR PERMANENT NORTHBOUND LANES.
3. ADJUST EXISTING INLET AND CONSTRUCT PERMANENT STORM DRAIN AND INLET.
4. INSTALL EARTHWORK (EXCAVATION AND EMBANKMENT).
5. CONSTRUCT THE PROPOSED ABUTMENTS AND BENTS AS SHOWN ON THE PHASE 2 BRIDGE DETAIL SHEETS.
6. CONSTRUCT THE BRIDGE HEADER SLOPE AND INSTALL TEMPORARY EARTHWORK.
7. CONSTRUCT BRIDGE TO DIMENSIONS AND TO DEPTHS AS SHOWN ON THE PHASE 2 BRIDGE DETAIL SHEETS.
8. INSTALL CEMENT STABILIZED BACKFILL AS SHOWN ON THE BRIDGE STANDARDS.
9. COMPLETE FULL DEPTH PAVEMENT CONSTRUCTION TO LIMITS AS SHOWN.
10. INSTALL CURB, MBGF, SIDEWALKS, COMBINATION RAIL, AND PEDESTRIAN RAIL.

PHASE 3 - REMAINING CONSTRUCTION

1. COORDINATE WITH THE CITY OF LONGVIEW TO PREPARE ADJUSTMENTS TO THE PHASING AND TIMING PRIOR TO ANY TRAFFIC SWITCH. A MINIMUM OF TWO PRIMARY SIGNAL FACES MUST BE PROVIDED FOR THE THROUGH MOVEMENT. SIGNAL HEADS THAT ARE NOT IN OPERATION MUST BE COVERED TO INDICATE THAT THE SIGNAL IS NOT IN OPERATION.
2. REMOVE CONFLICTING SIGNING AND MARKINGS ON BOTH NORTHBOUND AND SOUTHBOUND LANES.
3. INSTALL WORK ZONE SIGNAGE, WORK ZONE MARKINGS, CHANNELIZING DEVICES, AND TEMPORARY TRAFFIC BARRIERS.
4. SHIFT NORTHBOUND WORK ZONE TRAFFIC ONLY TO COMPLETED NORTHBOUND LANE FROM PHASE 2 STEP 2.
5. CONSTRUCT REMAINING FULL DEPTH PAVEMENT SOUTH OF HIGH STREET BRIDGE AS SHOWN.

PHASE 4 - FINAL CONFIGURATION

1. COORDINATE WITH THE CITY OF LONGVIEW TO PREPARE ADJUSTMENTS TO THE PHASING AND TIMING PRIOR TO ANY TRAFFIC SWITCH. A MINIMUM OF TWO PRIMARY SIGNAL FACES MUST BE PROVIDED FOR THE THROUGH MOVEMENT. SIGNAL HEADS THAT ARE NOT IN OPERATION MUST BE COVERED TO INDICATE THAT THE SIGNAL IS NOT IN OPERATION.
2. REMOVE EXISTING CONFLICTING SIGNING AND MARKINGS ON BOTH NORTHBOUND AND SOUTHBOUND LANES.
3. INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN.
4. SHIFT ALL TRAFFIC TO FINAL CONFIGURATION.
5. PLACE PERMANENT SEEDING.

3. SAFETY

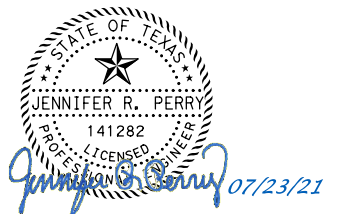
1. PROVIDE, CONSTRUCT AND MAINTAIN BARRICADES AND SIGNS IN ACCORDANCE WITH STATE STANDARDS. ANY SIGNS REQUIRED THAT ARE NOT DETAILED IN THE STANDARD SHEETS MUST BE IN CONFORMANCE WITH THE TMUTCD.
2. BARRICADES AND WARNING SIGNS MUST BE PLACED AS INDICATED ON THE PLANS. THIS MUST BE CONSIDERED THE MINIMUM REQUIRED TO PROVIDE FOR THE SAFETY OF TRAFFIC DURING CONSTRUCTION. PROVIDE AND MAINTAIN OTHER SUCH BARRICADES AND SIGNS DEEMED NECESSARY BY THE ENGINEER OR AS DIRECTED BY FIELD CONDITIONS, TO PROVIDE FOR THE PASSAGE OF TRAFFIC IN SAFETY AT ALL TIMES.
3. KEEP THE ROADWAY CLEAN AND FREE OF DIRT OR OTHER MATERIALS DURING HAULING OPERATIONS. IF A CLEAN ROADWAY IS NOT MAINTAINED, CONTRACTOR TO CEASE ALL CONSTRUCTION OPERATIONS, WHEN DIRECTED BY THE ENGINEER, AND TO CLEAN THE ROADWAY TO THE SATISFACTION OF THE ENGINEER.



4. FINAL CLEAN UP

UPON COMPLETION OF THE WORK AND BEFORE FINAL ACCEPTANCE AND FINAL PAYMENT IS MADE, CLEAR AND REMOVE FROM THE SITE ALL SURPLUS AND DISCARDED MATERIALS AND DEBRIS OF EVERY KIND AND LEAVE THE ENTIRE PROJECT IN A SMOOTH, NEAT AND SIGHTLY CONDITION.

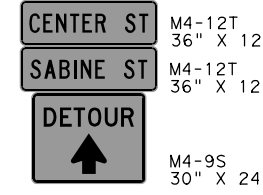
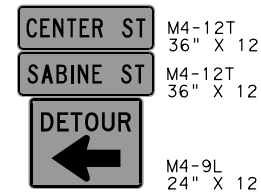
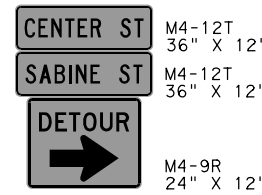
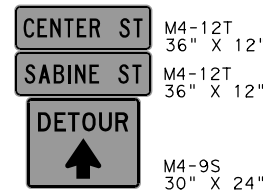
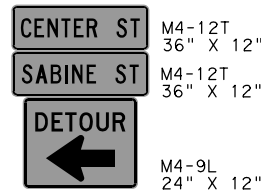
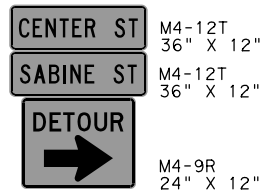
5. PAYMENT

ALL BARRICADES, SIGNS, AND FLAGGERS MUST BE SUBSIDIARY TO ITEM 502. ALL EROSION AND SEDIMENT CONTROL DEVICES WILL BE PAID FOR UNDER ITEM 506, ALL WORK ZONE PAVEMENT MARKINGS WILL BE PAID FOR UNDER ITEM 662. ALL OTHER WORK AND MATERIALS MUST BE SUBSIDIARY TO THE VARIOUS BID ITEMS UNLESS OTHERWISE INDICATED IN THE PLANS.



			
			
S HIGH ST AT UPRR AND SABINE ST			
TCP NARRATIVE			
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
			18

DATE: 7/22/2021
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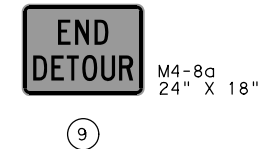
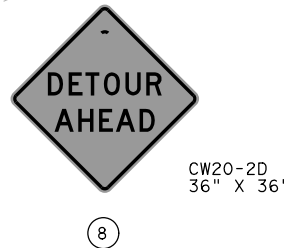
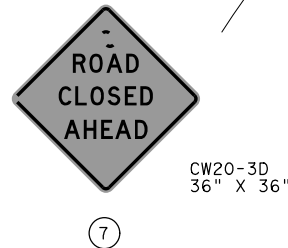
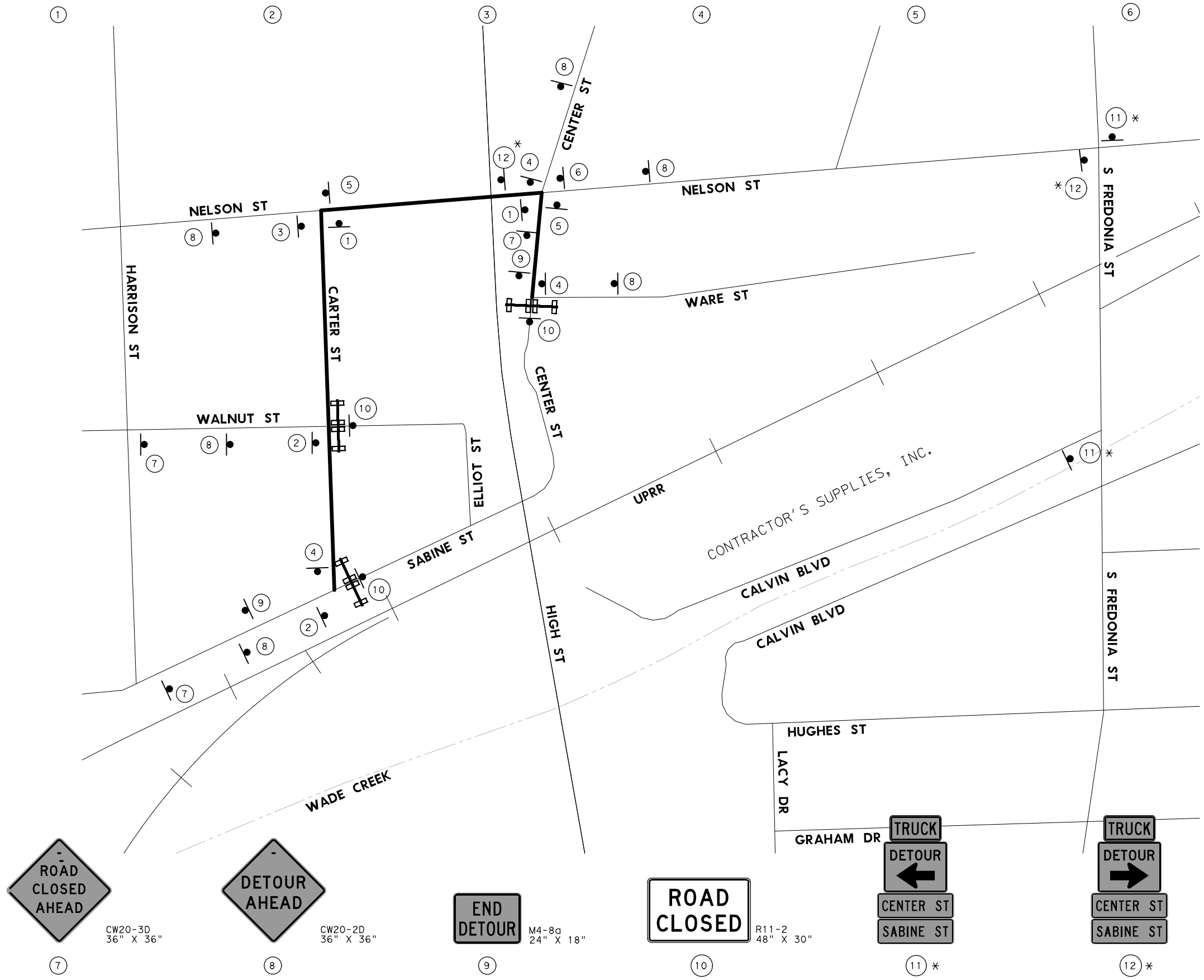
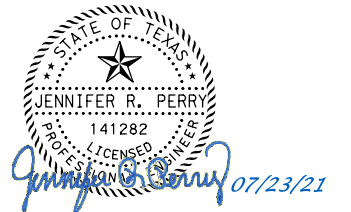


0' 50' 100' 200'
 SCALE IN FEET

LEGEND

- SIGN
- TY 3 BARRICADE
- DETOUR ROUTE

* SEE TRUCK ROUTE DETOUR LAYOUT SHEET FOR ADDITIONAL INFORMATION.



JMT TBPE REGISTRATION NO. F-16341

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 S HIGH ST AT UPRR AND SABINE ST

**DETOUR LAYOUT
 SABINE AND CENTER ST**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072




SHEET 1 OF 2
 SHEET NO. **19**

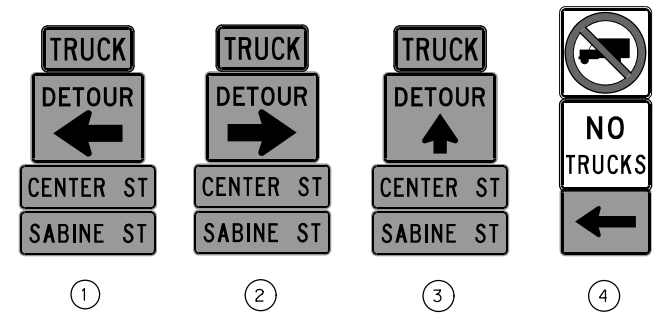
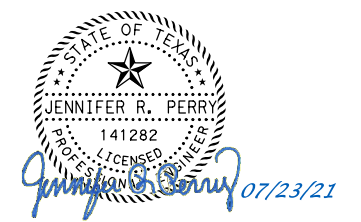
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0' 200' 400' 800'
 SCALE IN FEET

LEGEND

-  SIGN
-  TY 3 BARRICADE
-  DETOUR ROUTE



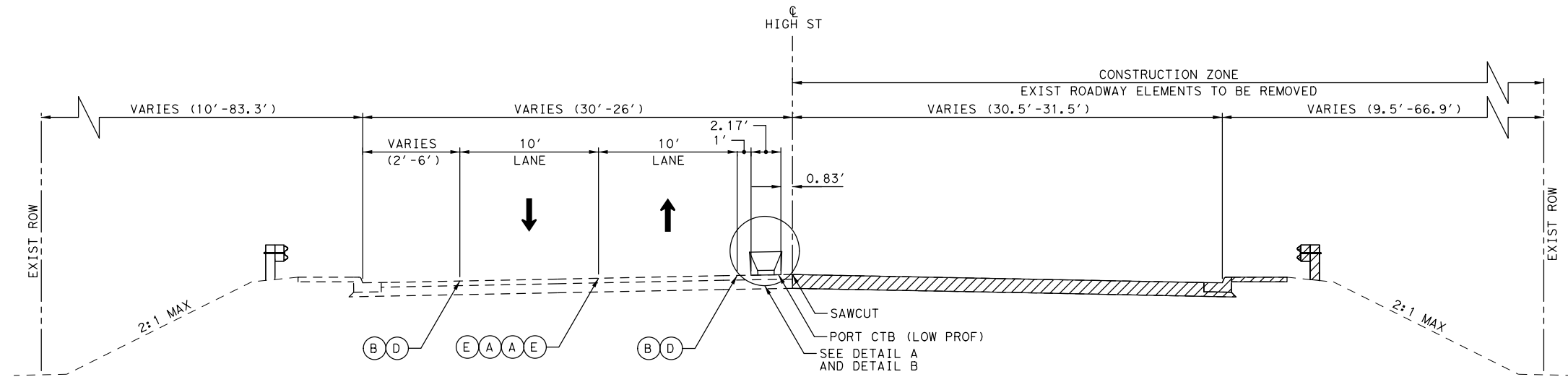
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 S HIGH ST AT UPRR AND SABINE ST

**DETOUR LAYOUT
 TRUCK ROUTE**

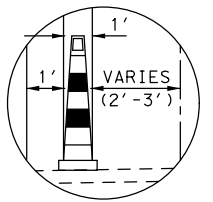
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JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
CHECK	TEXAS	TYLER	GREGG
JMT	CONTROL	SECTION	JOB
CHECK	0910	07	072
JMT			20

SHEET 2 OF 2

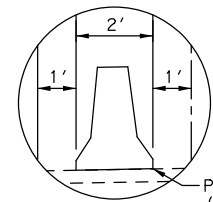
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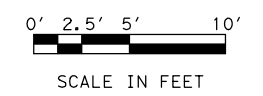
TCP PHASE 1 STEP 1 TYPICAL SECTION
 STA 154+88.03 - STA 159+59.10



DETAIL A
 NTS
 STA 154+88.03 - STA 157+29.72



DETAIL B
 NTS
 STA 159+19.82 - STA 159+59.10

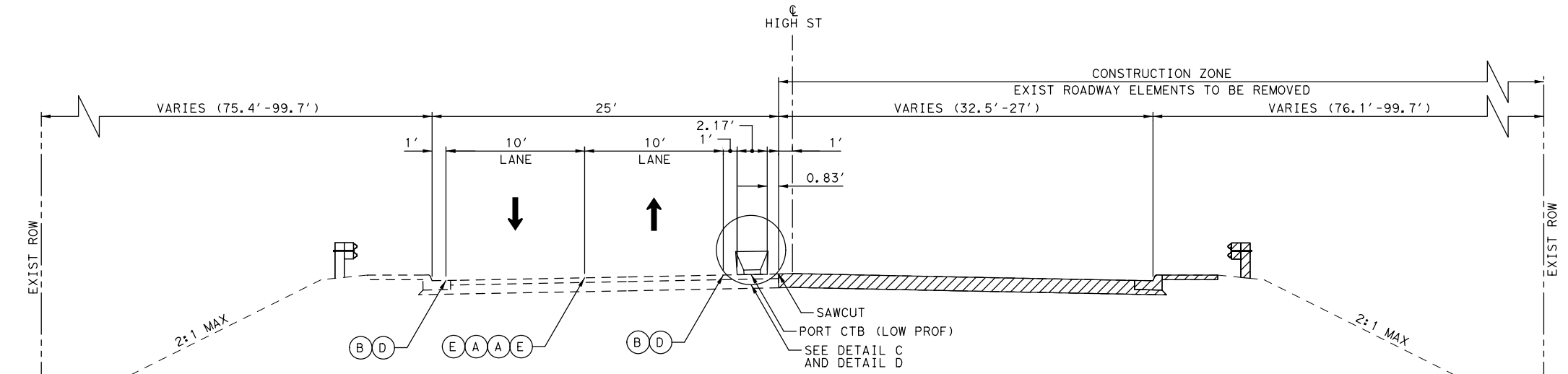


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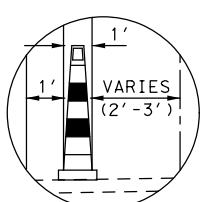
- CONSTRUCTION THIS PHASE
- CONSTRUCTION PREVIOUS PHASE
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE
- TEMPORARY WALL
- WK ZN PAV MRK REMOV (TRAF BTN) TY Y
- WK ZN PAV MRK REMOV (TRAF BTN) TY W
- WK ZN PAV MRK REMOV (REFL) TY I-A
- WK ZN PAV MRK REMOV (REFL) TY I-C
- WK ZN PAV MRK REMOV (REFL) TY II-A-A

NOTES:

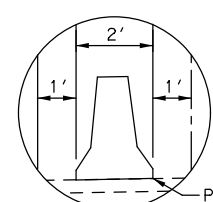
1. SEE TRAFFIC CONTROL PLAN LAYOUTS AND TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.
2. SEE TEMPORARY SPECIAL SHORING LAYOUTS LOCATED UNDER RETAINING WALL DETAILS FOR LOCATION AND LIMITS OF SHORING.
3. DUE TO SUBGRADE COMPACTION LIMITATIONS ABOVE THE TEMPORARY EARTH WALL, CONTRACTOR TO PROVIDE 10" OF HMA AT THE CONSTRUCTION JOINT INSTEAD OF THE TYPICAL PAVEMENT STRUCTURE. SEE TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.



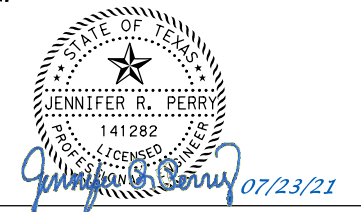
TCP PHASE 1 STEP 1 TYPICAL SECTION
 STA 162+35.21 - STA 167+75.00



DETAIL C
 NTS
 STA 165+70.21 - STA 167+75.00



DETAIL D
 NTS
 STA 162+35.21 - STA 162+80.21



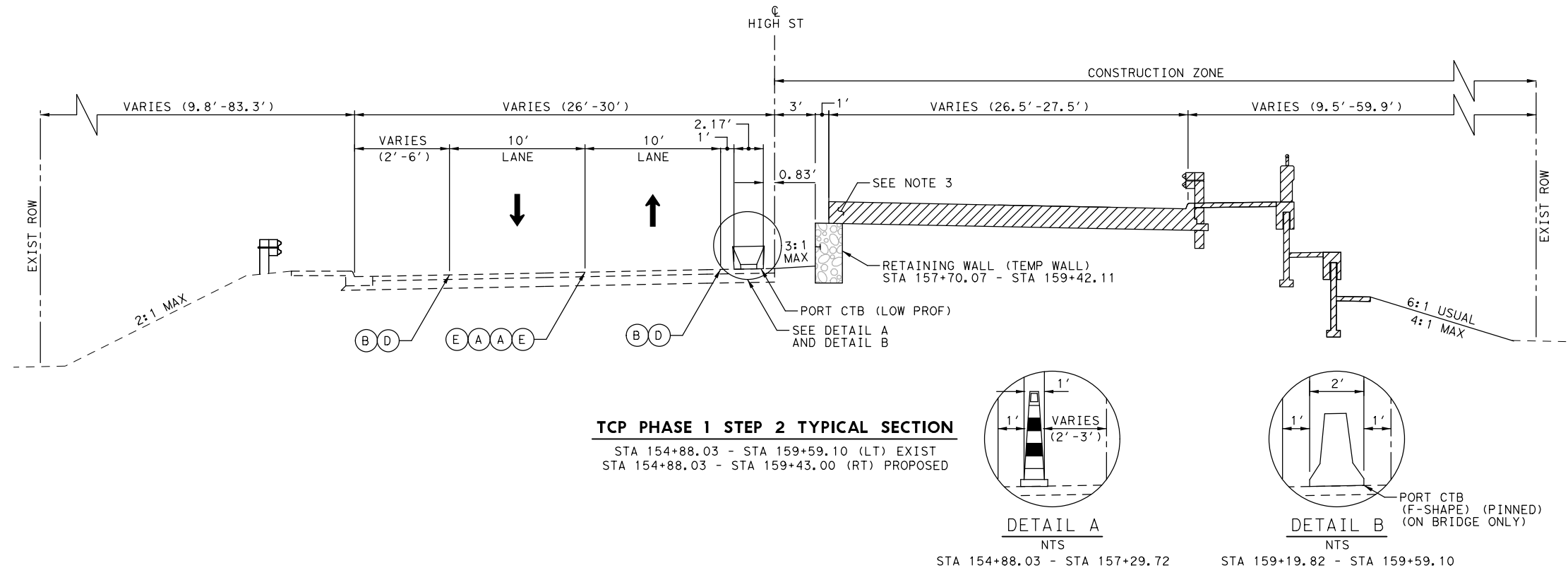
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 S HIGH ST AT UPRR AND SABINE ST

**TRAFFIC CONTROL PLAN
 PHASE 1
 TYPICAL SECTIONS**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK	SHEET NO.		
JMT	21		

SHEET 1 OF 2

DATE: 7/22/2021
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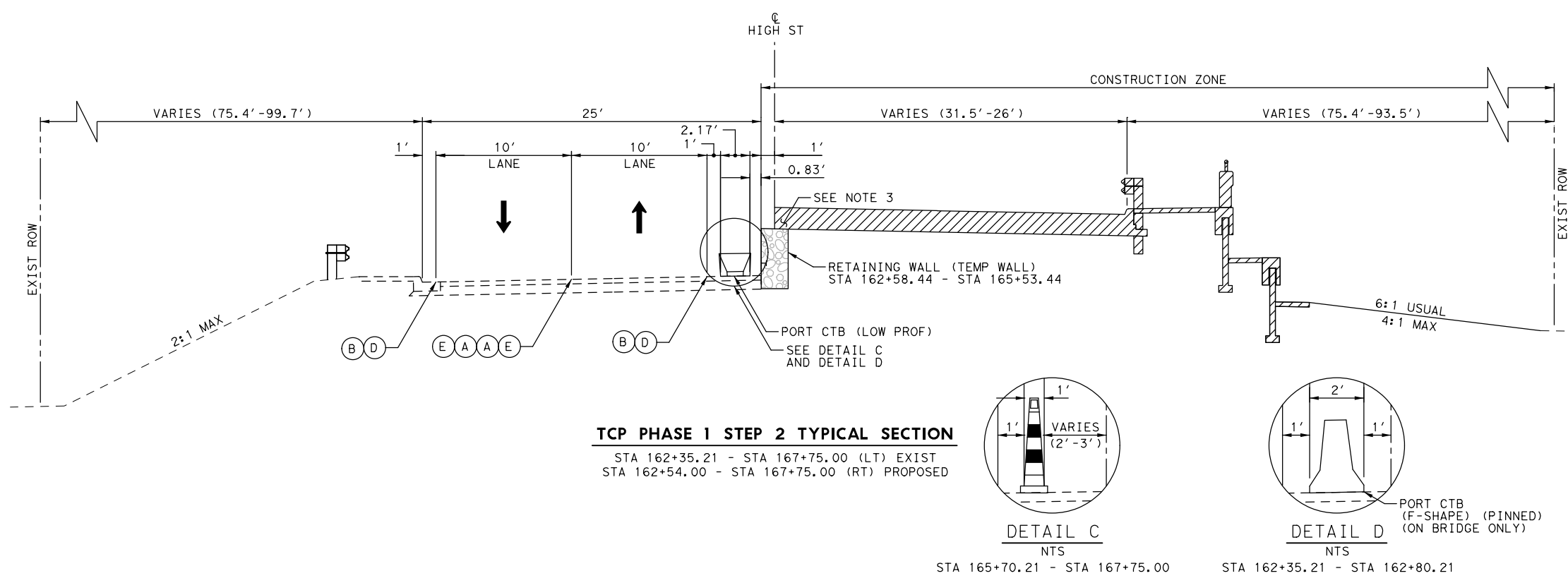


0' 2.5' 5' 10'
SCALE IN FEET

LEGEND

- CONSTRUCTION THIS PHASE
- CONSTRUCTION PREVIOUS PHASE
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE
- TEMPORARY WALL
- WK ZN PAV MRK REMOV (TRAF BTN) TY Y
- WK ZN PAV MRK REMOV (TRAF BTN) TY W
- WK ZN PAV MRK REMOV (REFL) TY I-A
- WK ZN PAV MRK REMOV (REFL) TY I-C
- WK ZN PAV MRK REMOV (REFL) TY II-A-A

- NOTES:**
- SEE TRAFFIC CONTROL PLAN LAYOUTS AND TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.
 - SEE TEMPORARY SPECIAL SHORING LAYOUTS LOCATED UNDER RETAINING WALL DETAILS FOR LOCATION AND LIMITS OF SHORING.
 - DUE TO SUBGRADE COMPACTION LIMITATIONS ABOVE THE TEMPORARY EARTH WALL, CONTRACTOR TO PROVIDE 10" OF HMA AT THE CONSTRUCTION JOINT INSTEAD OF THE TYPICAL PAVEMENT STRUCTURE. SEE TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.



STATE OF TEXAS
 JENNIFER R. PERRY
 141282
 LICENSED PROFESSIONAL ENGINEER
 07/23/21

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 S HIGH ST AT UPRR AND SABINE ST

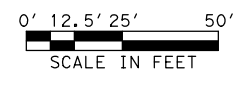
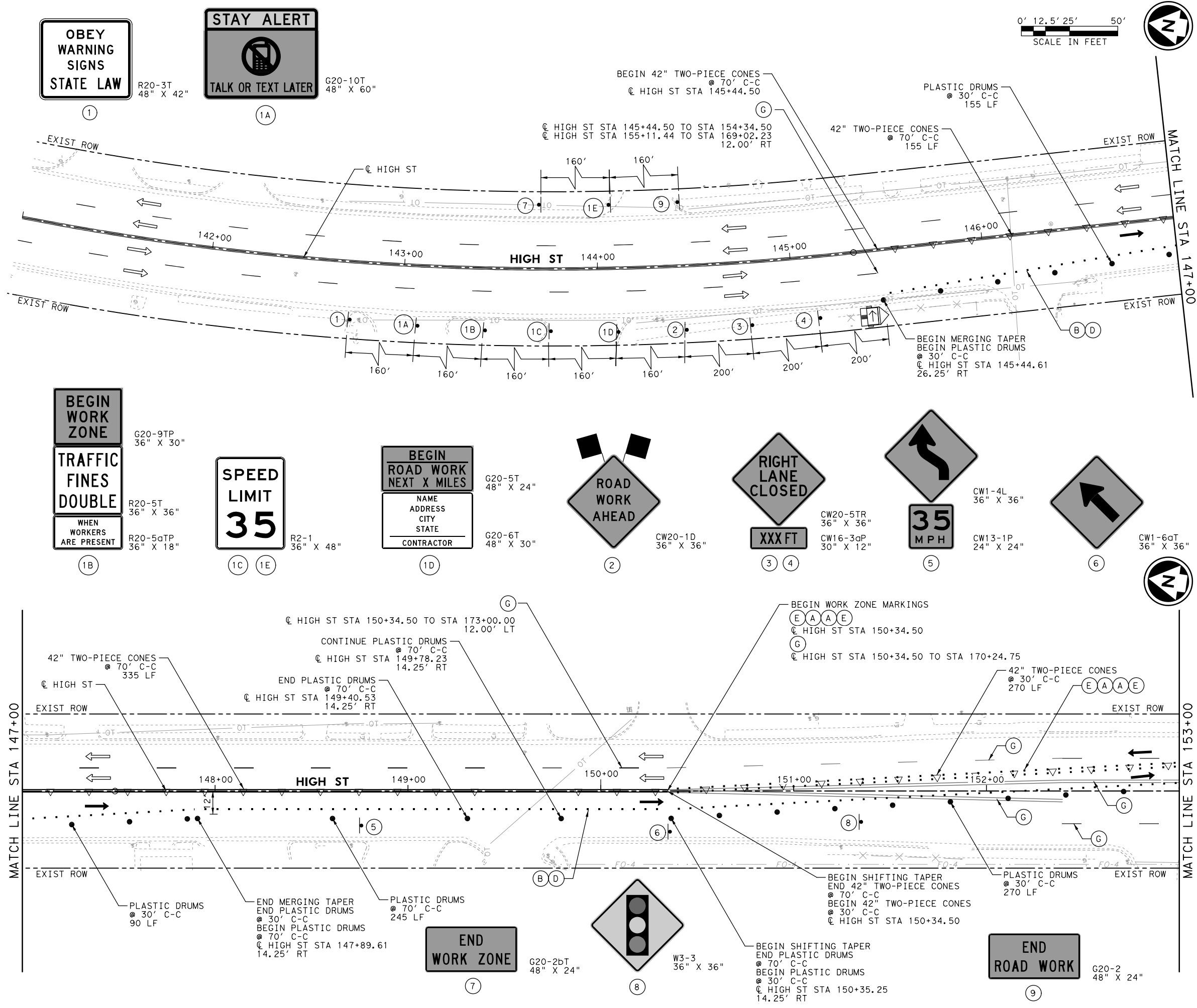
**TRAFFIC CONTROL PLAN
 PHASE 1
 TYPICAL SECTIONS**

SHEET 2 OF 2

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

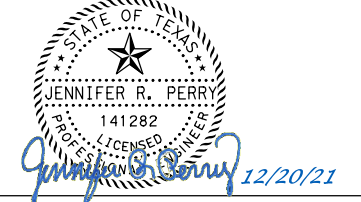
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- LEGEND**
- CONSTRUCTION THIS PHASE
 - CONSTRUCTION PREVIOUS PHASE
 - PORTABLE CONCRETE TRAFFIC BARRIER
 - LOW PROFILE CONCRETE BARRIER
 - TEMPORARY SPECIAL SHORING
 - TEMPORARY EARTH WALL
 - PORT CTB (LOW PROF)
 - PORT CTB (F-SHP TO LOW PROF)
 - PLASTIC DRUMS
 - 42" TWO-PIECE CONES
 - TYPE 3 BARRICADE
 - EXISTING DIRECTION OF TRAFFIC
 - DIRECTION OF TRAFFIC THIS PHASE
 - TRAILER MOUNTED FLASHING ARROW BOARD
 - CONSTRUCTION SIGN
 - EXISTING SIGNAL FACE
 - WK ZN PAV MRK REMOV (TRAF BTN) TY Y
 - WK ZN PAV MRK REMOV (TRAF BTN) TY W
 - WK ZN PAV MRK REMOV (REFL) TY I-A
 - WK ZN PAV MRK REMOV (REFL) TY I-C
 - WK ZN PAV MRK REMOV (REFL) TY II-A-A
 - WK ZN PAV MRK NON-REMOV (W)24" (SLD) SEE NOTE 5
 - ELIM EXT PAV MRK & MRKS
 - PERMANENT STRIPING
 - EXISTING STRIPING TO REMAIN IN PLACE

- NOTES:**
1. CHANNELIZING DEVICE SPACING MUST BE BASED ON BC (9)-21, TCP STANDARDS, AS SHOWN ON THE PLANS, OR AS DIRECTED.
 2. SEE TCP NARRATIVE, TCP TYPICAL SECTIONS, DETOUR LAYOUTS, TEMPORARY SPECIAL SHORING BRIDGE ABUTMENT LAYOUTS AND TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.
 3. ROADWAY OFFSETS FOR CONCRETE TRAFFIC BARRIERS, PLASTIC DRUMS, AND VERTICAL PANELS TO BE MEASURED FROM CENTERLINE OF CHANNELIZING DEVICE.
 4. SEE TEMPORARY SPECIAL SHORING LAYOUTS LOCATED UNDER RETAINING WALL DETAILS FOR LOCATION AND LIMITS OF SHORING.
 5. TCP RAISED PAVEMENT MARKINGS MUST BE INSTALLED BASED ON BC (12)-21 TCP STANDARD, AS SHOWN ON THE PLANS, OR AS DIRECTED.



JMT TBPE REGISTRATION NO. F-16341

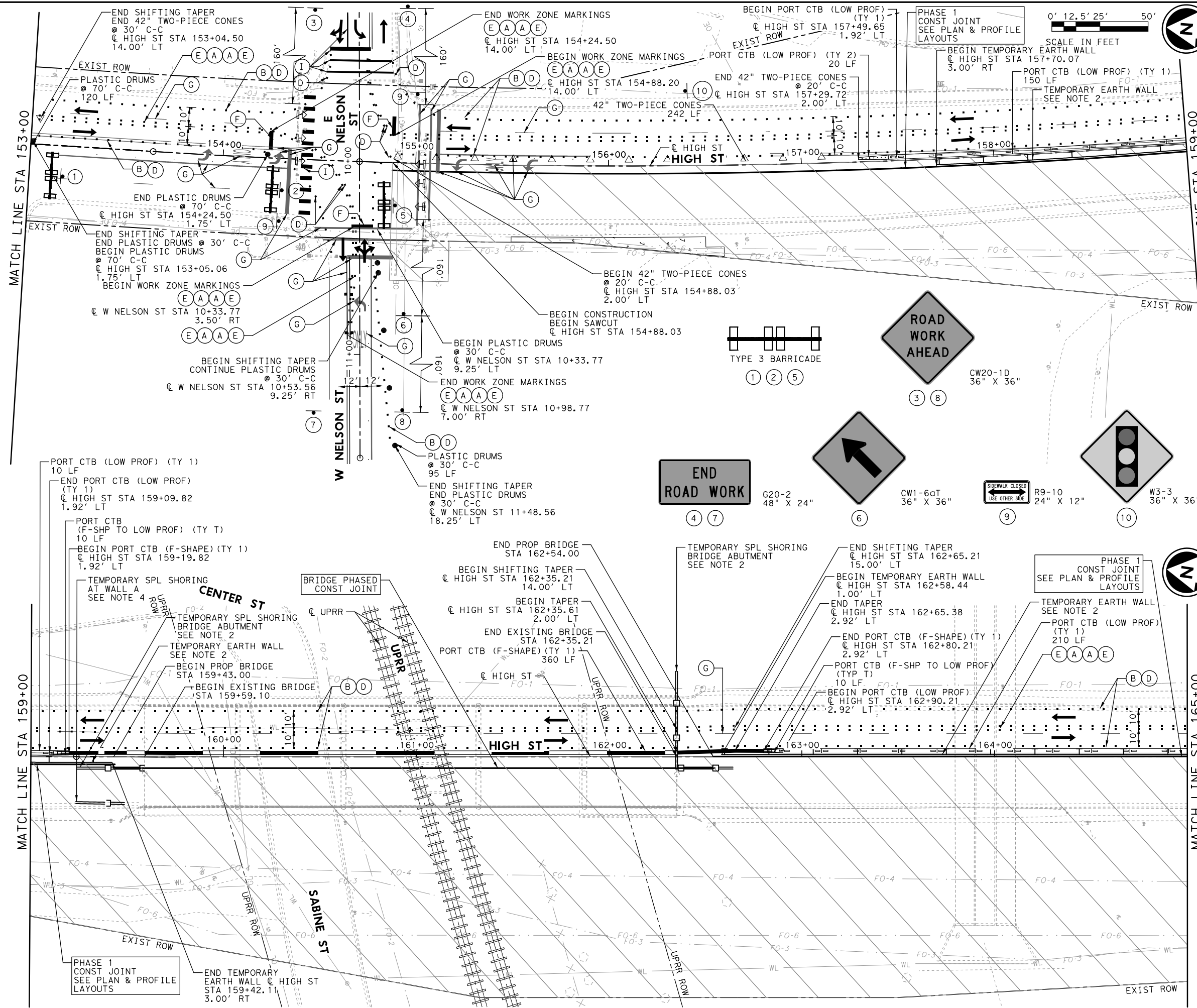
Texas Department of Transportation

S HIGH ST AT UPRR AND SABINE ST

TRAFFIC CONTROL PLAN
PHASE 1

DESIGN			SHEET 1 OF 3	
JMT	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
GRAPHICS	6	(SEE TITLE SHEET)	HIGH ST	
JMT	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	TYLER	GREGG	23
JMT	CONTROL	SECTION	JOB	
CHECK	0910	07	072	

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LEGEND

- CONSTRUCTION THIS PHASE
- CONSTRUCTION PREVIOUS PHASE
- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY SPECIAL SHORING
- TEMPORARY EARTH WALL
- PORT CTB (LOW PROF)
- PORT CTB (F-SHP TO LOW PROF)
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- TYPE 3 BARRICADE
- EXISTING DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE
- TRAILER MOUNTED FLASHING ARROW BOARD
- CONSTRUCTION SIGN
- EXISTING SIGNAL FACE
- WK ZN PAV MRK REMOV (TRAF BTN) TY Y
- WK ZN PAV MRK REMOV (TRAF BTN) TY W
- WK ZN PAV MRK REMOV (REFL) TY I-A
- WK ZN PAV MRK REMOV (REFL) TY I-C
- WK ZN PAV MRK REMOV (REFL) TY II-A-A
- WK ZN PAV MRK NON-REMOV (W)24" (SLD) SEE NOTE 5
- ELIM EXT PAV MRK & MRKS
- PERMANENT STRIPING
- EXISTING STRIPING TO REMAIN IN PLACE

- NOTES:**
1. CHANNELIZING DEVICE SPACING MUST BE BASED ON BC (9)-21, TCP STANDARDS, AS SHOWN ON THE PLANS, OR AS DIRECTED.
 2. SEE TCP NARRATIVE, TCP TYPICAL SECTIONS, DETOUR LAYOUTS, TEMPORARY SPECIAL SHORING BRIDGE ABUTMENT LAYOUTS AND TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.
 3. ROADWAY OFFSETS FOR CONCRETE TRAFFIC BARRIERS, PLASTIC DRUMS, AND VERTICAL PANELS TO BE MEASURED FROM CENTERLINE OF CHANNELIZING DEVICE.
 4. SEE TEMPORARY SPECIAL SHORING LAYOUTS LOCATED UNDER RETAINING WALL DETAILS FOR LOCATION AND LIMITS OF SHORING.
 5. TCP RAISED PAVEMENT MARKINGS MUST BE INSTALLED BASED ON BC (12)-21 TCP STANDARD, AS SHOWN ON THE PLANS, OR AS DIRECTED.

STATE OF TEXAS
 JENNIFER R. PERRY
 141282
 LICENSED PROFESSIONAL ENGINEER
 12/20/21

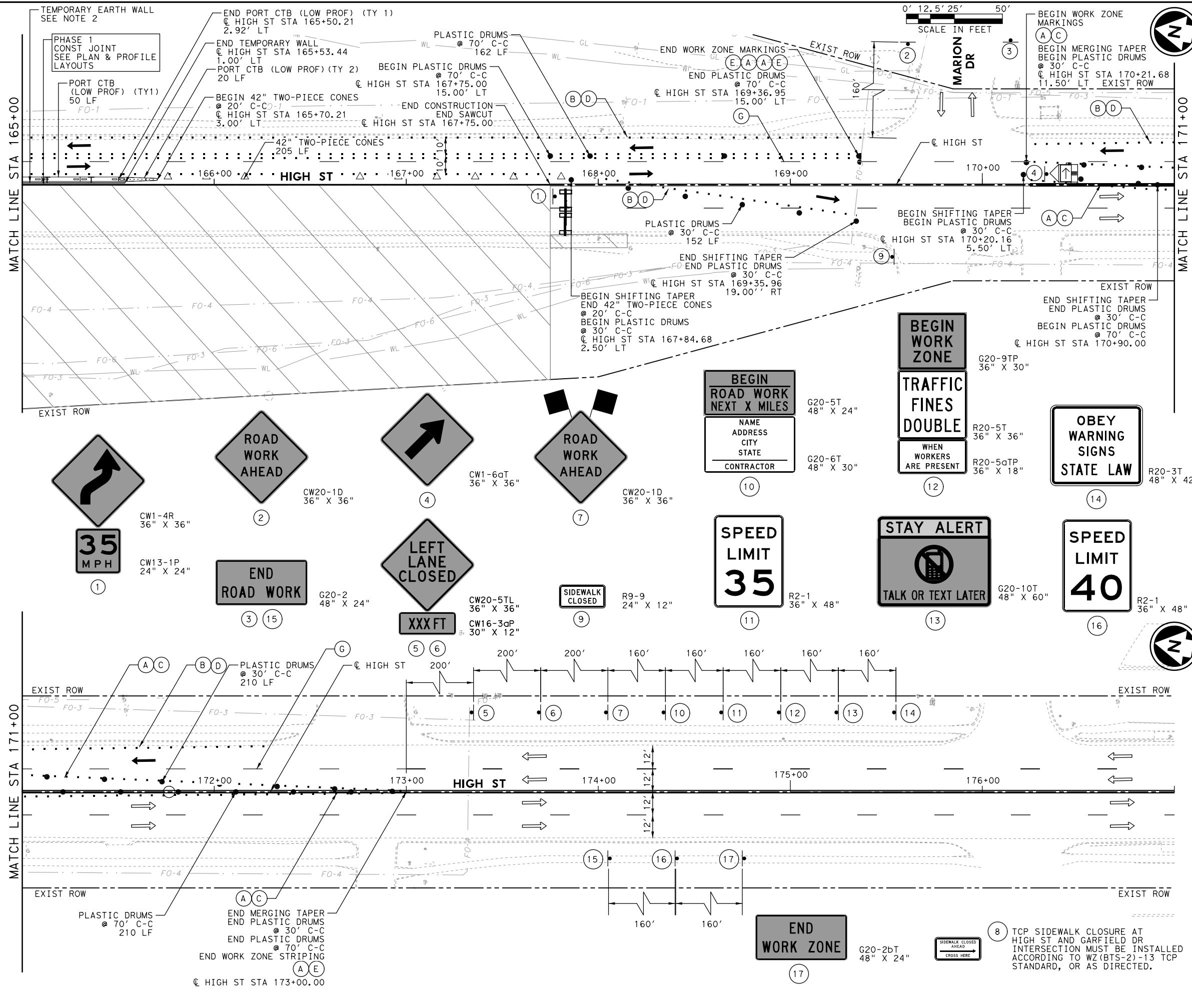
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 S HIGH ST AT UPRR AND SABINE ST

**TRAFFIC CONTROL PLAN
 PHASE 1**

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						24

SHEET 2 OF 3

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LEGEND

- CONSTRUCTION THIS PHASE
- CONSTRUCTION PREVIOUS PHASE
- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY SPECIAL SHORING
- TEMPORARY EARTH WALL
- PORT CTB (LOW PROF)
- PORT CTB (F-SHP TO LOW PROF)
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- TYPE 3 BARRICADE
- EXISTING DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE
- TRAILER MOUNTED FLASHING ARROW BOARD
- CONSTRUCTION SIGN
- EXISTING SIGNAL FACE
- WK ZN PAV MRK REMOV (TRAF BTN) TY Y
- WK ZN PAV MRK REMOV (TRAF BTN) TY W
- WK ZN PAV MRK REMOV (REFL) TY I-A
- WK ZN PAV MRK REMOV (REFL) TY I-C
- WK ZN PAV MRK REMOV (REFL) TY II-A-A
- WK ZN PAV MRK NON-REMOV (W)24" (SLD) SEE NOTE 5
- ELIM EXT PAV MRK & MRKS
- PERMANENT STRIPING
- EXISTING STRIPING TO REMAIN IN PLACE

- NOTES:**
1. CHANNELIZING DEVICE SPACING MUST BE BASED ON BC (9)-21, TCP STANDARDS, AS SHOWN ON THE PLANS, OR AS DIRECTED.
 2. SEE TCP NARRATIVE, TCP TYPICAL SECTIONS, DETOUR LAYOUTS, TEMPORARY SPECIAL SHORING BRIDGE ABUTMENT LAYOUTS AND TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.
 3. ROADWAY OFFSETS FOR CONCRETE TRAFFIC BARRIERS, PLASTIC DRUMS, AND VERTICAL PANELS TO BE MEASURED FROM CENTERLINE OF CHANNELIZING DEVICE.
 4. SEE TEMPORARY SPECIAL SHORING LAYOUTS LOCATED UNDER RETAINING WALL DETAILS FOR LOCATION AND LIMITS OF SHORING.
 5. TCP RAISED PAVEMENT MARKINGS MUST BE INSTALLED BASED ON BC (12)-21 TCP STANDARD, AS SHOWN ON THE PLANS, OR AS DIRECTED.

STATE OF TEXAS
 JENNIFER R. PERRY
 141282
 LICENSED PROFESSIONAL ENGINEER
Jennifer R. Perry 12/20/21

JMT TBPE REGISTRATION NO. F-16341
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Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

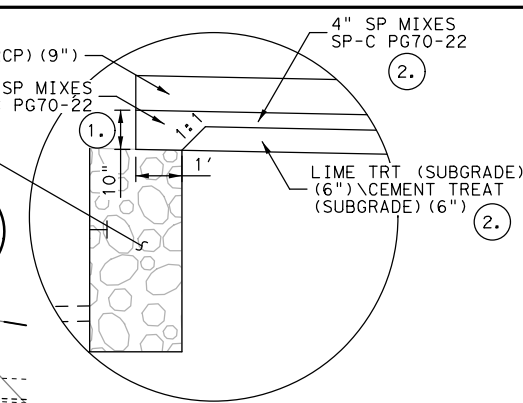
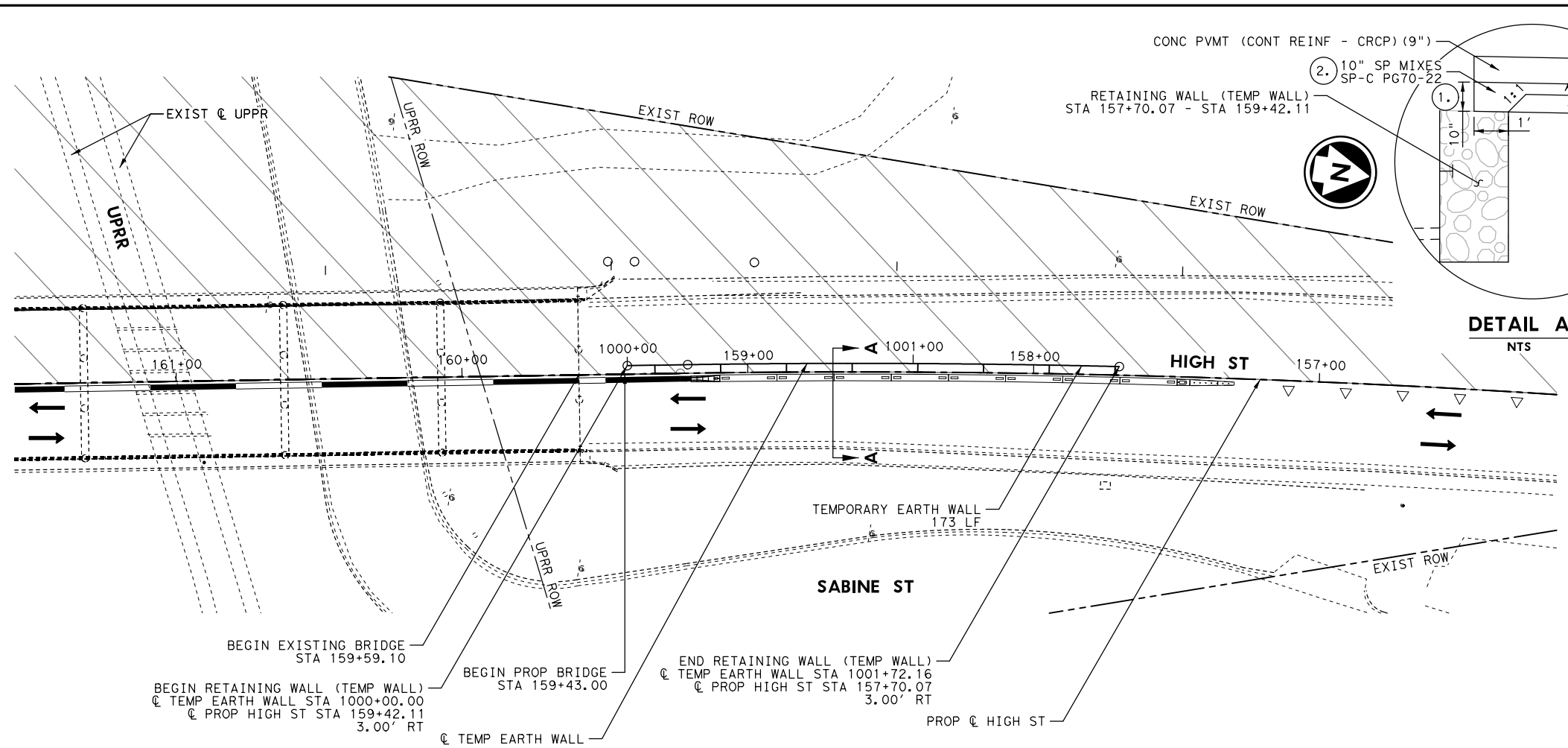
**TRAFFIC CONTROL PLAN
 PHASE I**

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST	
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG	
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072	
CHECK	JMT						SHEET NO.	25

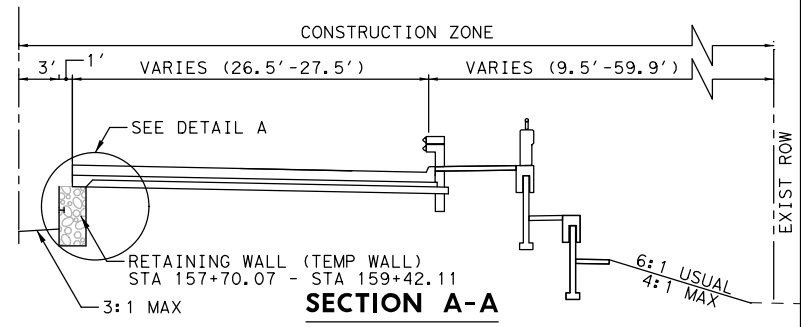
SHEET 3 OF 3

8 TCP SIDEWALK CLOSURE AT HIGH ST AND GARFIELD DR INTERSECTION MUST BE INSTALLED ACCORDING TO WZ (BTS-2)-13 TCP STANDARD, OR AS DIRECTED.

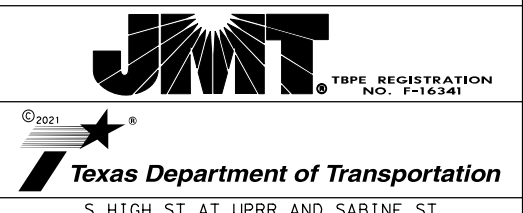
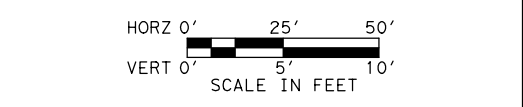
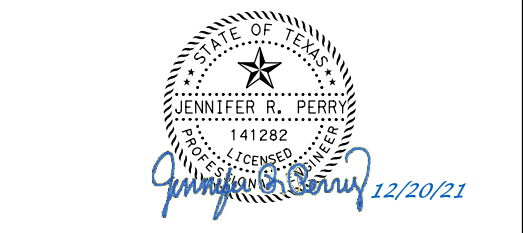
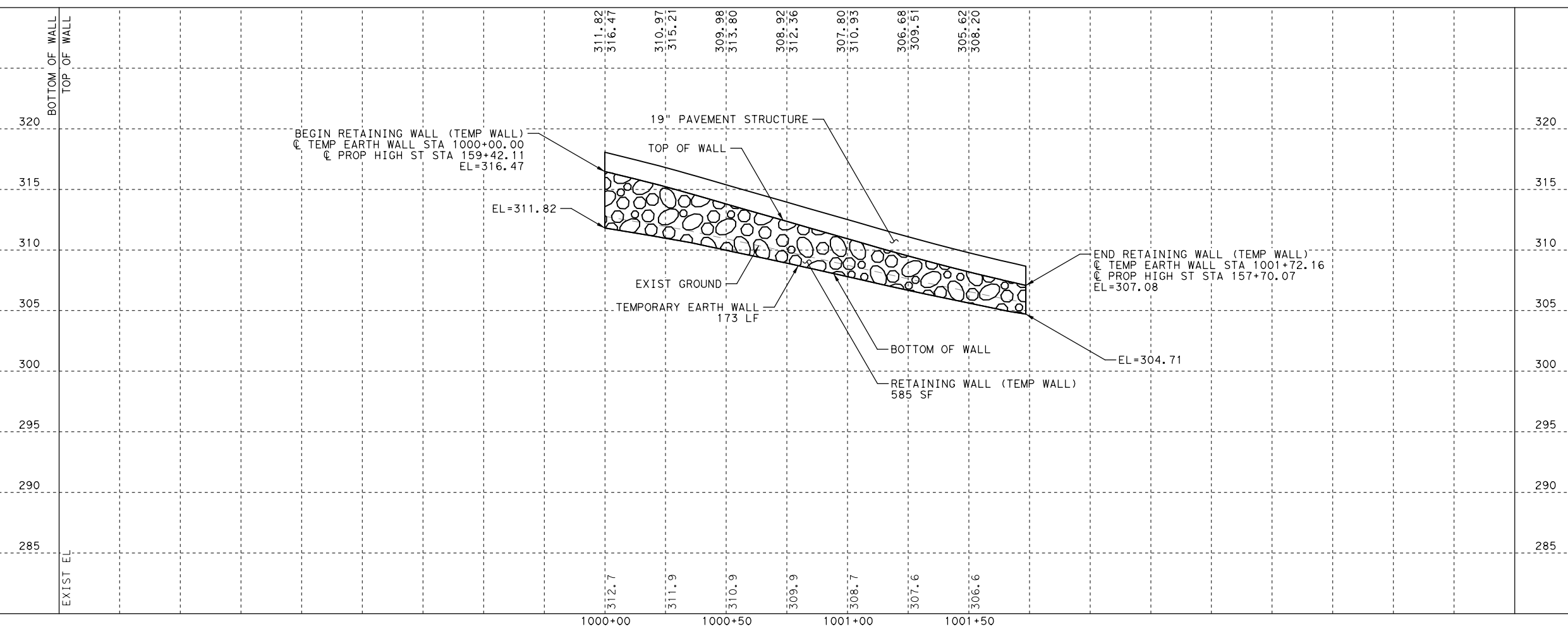
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- LEGEND**
- CONSTRUCTION THIS PHASE
 - CONSTRUCTION PREVIOUS PHASE
 - PORTABLE CONCRETE TRAFFIC BARRIER
 - LOW PROFILE CONCRETE BARRIER
 - TEMPORARY SPECIAL SHORING
 - TEMPORARY EARTH WALL
 - PORT CTB (LOW PROF)
 - PORT CTB (F-SHP TO LOW PROF)
 - PLASTIC DRUMS
 - 42\"/>



- NOTES:**
1. THE CONTRACTOR MAY BE REQUIRED TO USE HAND TAMPING TO COMPACT 10\"/>
 2. QUANTITIES FOR ITEMS 3077 6021 & 275 6019 / 260 6079 TO BE PAID FOR UNDER ROADWAY ITEMS.

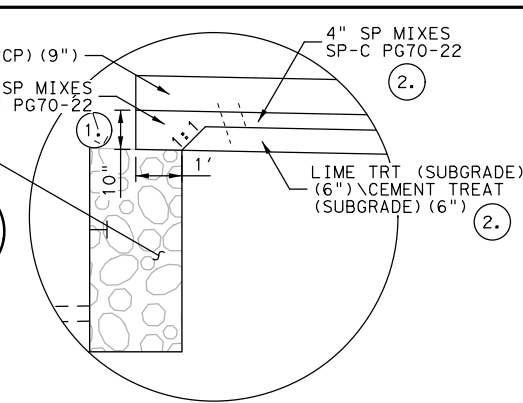
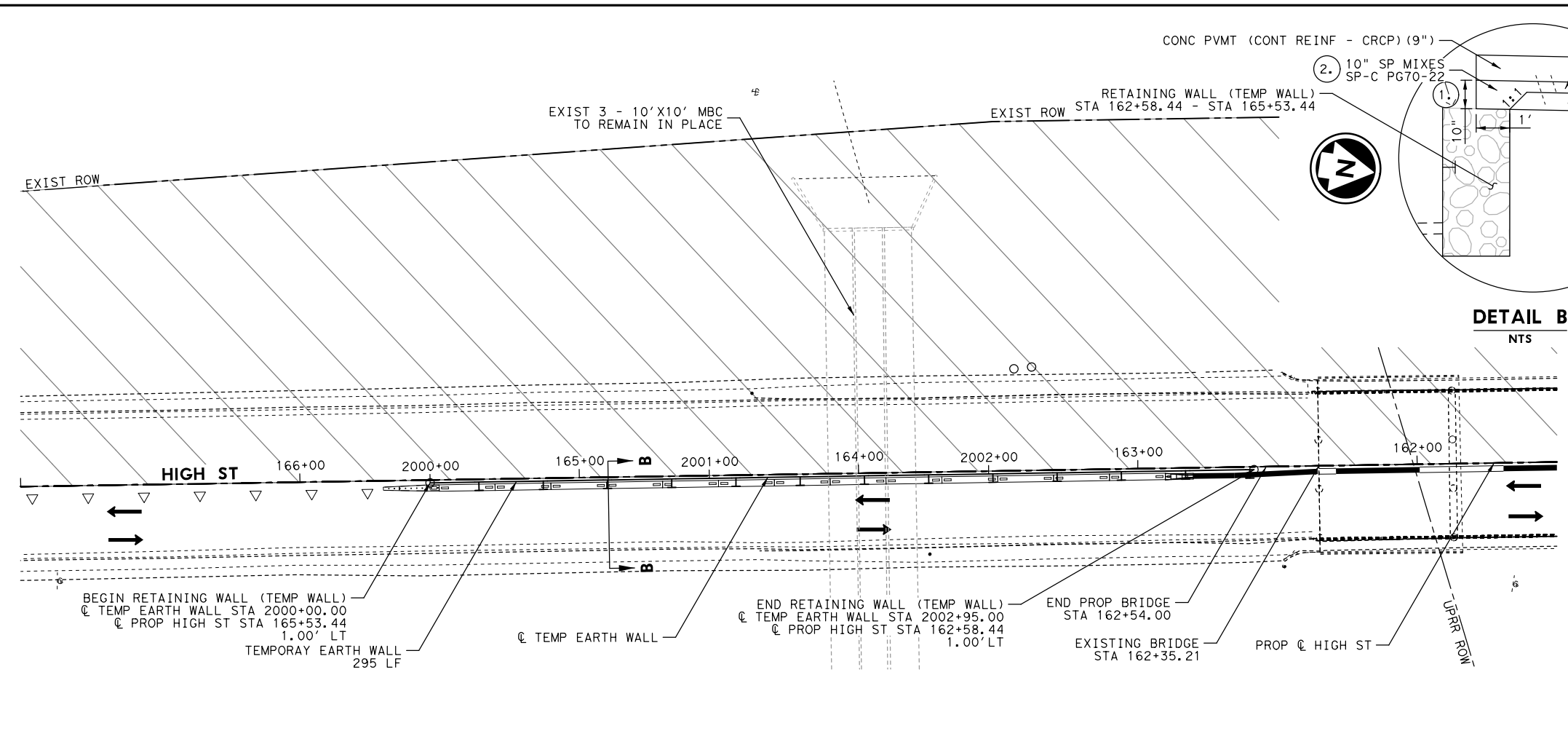


**TRAFFIC CONTROL PLAN
 PHASE 1
 TEMPORARY WALL**

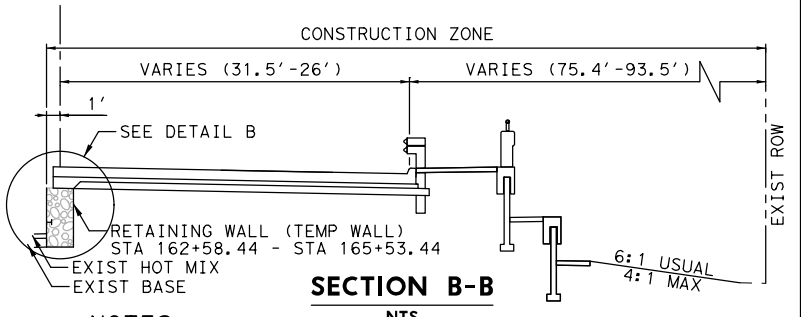
SHEET 1 OF 2

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						26

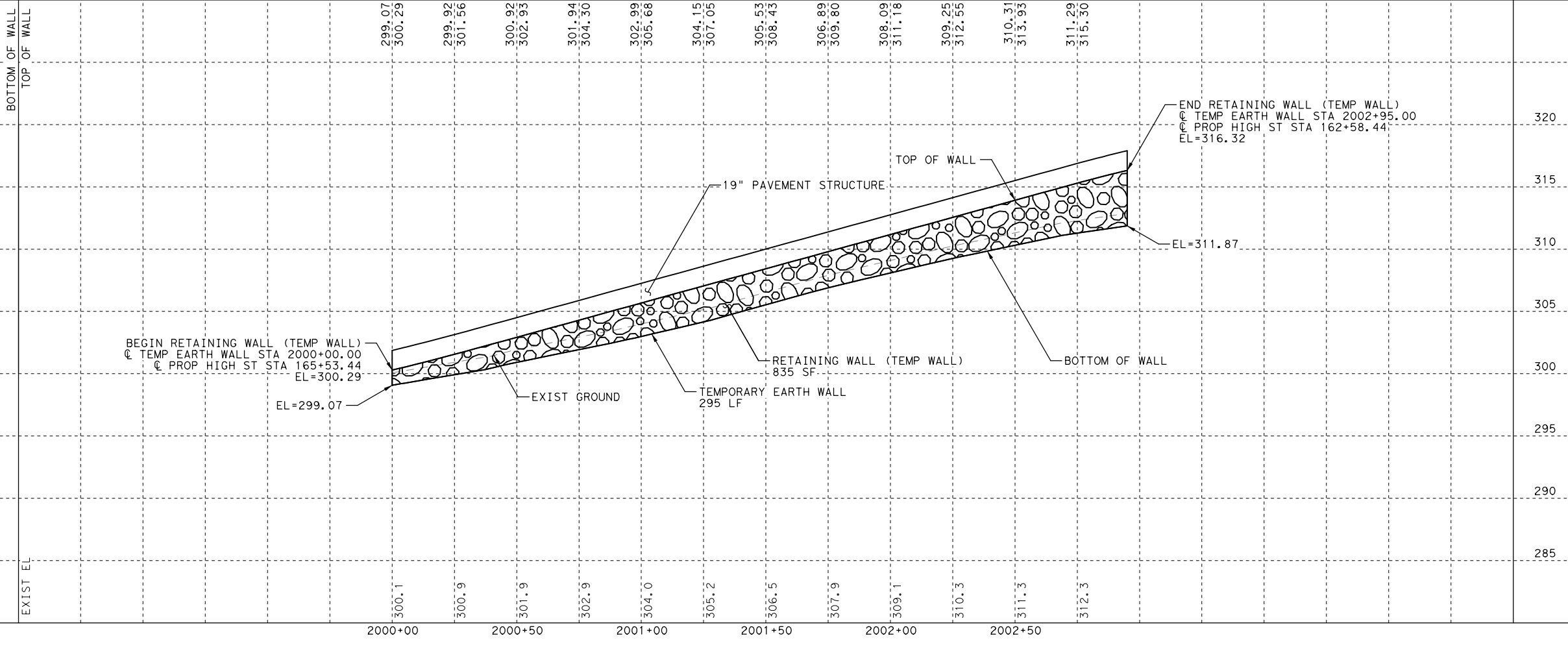
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- LEGEND**
- CONSTRUCTION THIS PHASE
 - CONSTRUCTION PREVIOUS PHASE
 - PORTABLE CONCRETE TRAFFIC BARRIER
 - LOW PROFILE CONCRETE BARRIER
 - TEMPORARY SPECIAL SHORING
 - TEMPORARY EARTH WALL
 - PORT CTB (LOW PROF)
 - PORT CTB (F-SHP TO LOW PROF)
 - PLASTIC DRUMS
 - 42" TWO-PIECE CONES
 - TYPE 3 BARRICADE
 - EXISTING DIRECTION OF TRAFFIC
 - DIRECTION OF TRAFFIC THIS PHASE



- NOTES:**
- ① THE CONTRACTOR MAY BE REQUIRED TO USE HAND TAMPING TO COMPACT 10" SP MIXES SP-C PG70-22, AS APPROVED BY THE ENGINEER. COMPACTION REQUIREMENTS ABOVE TEMPORARY EARTH WALL ARE NOT REQUIRED. 10" SP MIXES SP-C PG70-22 TO BE PLACED IN 3 EQUAL LIFTS.
 - ② QUANTITIES FOR ITEMS 3077 6021 & 275 6019 / 260 6079 TO BE PAID FOR UNDER ROADWAY ITEMS.



HORIZ 0' 25' 50'
 VERT 0' 5' 10'
 SCALE IN FEET

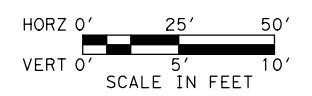
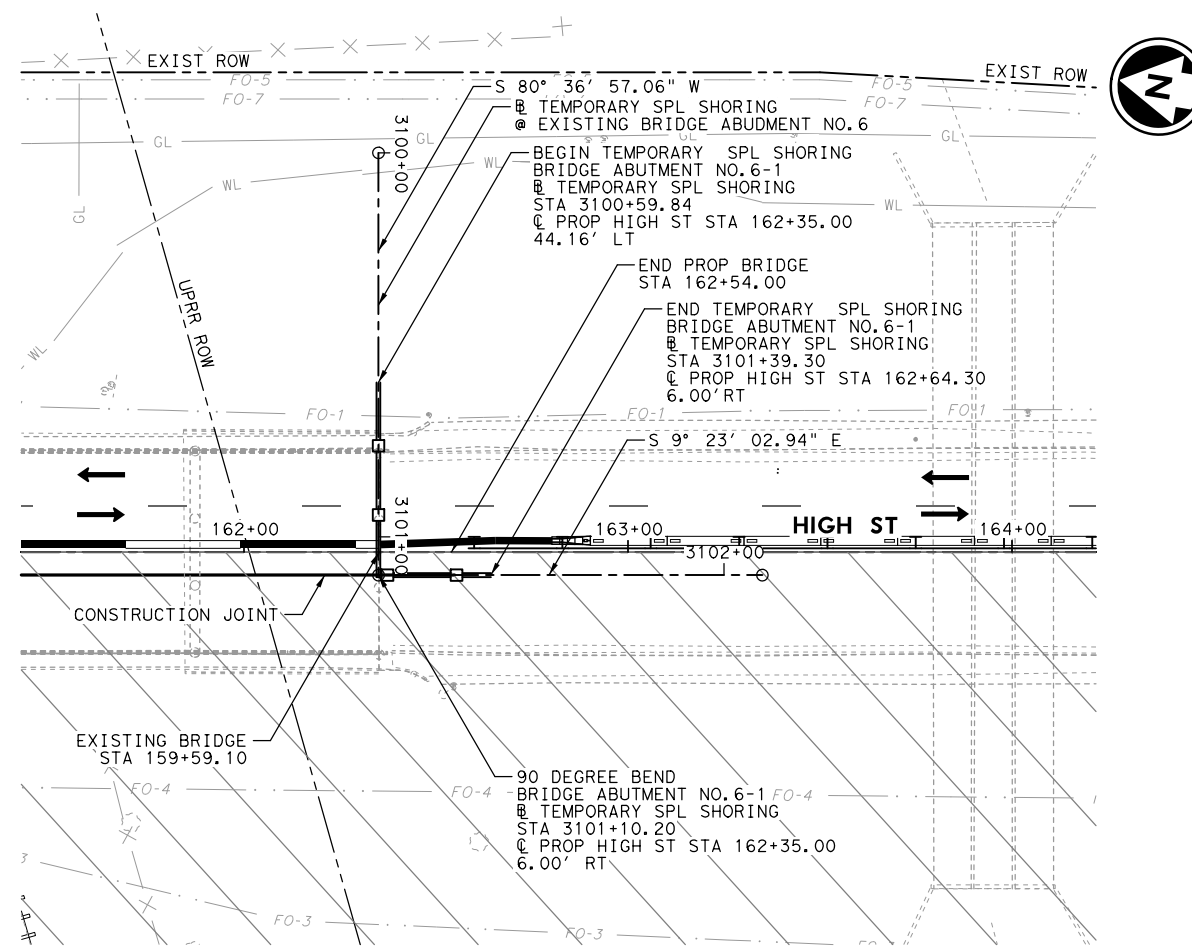
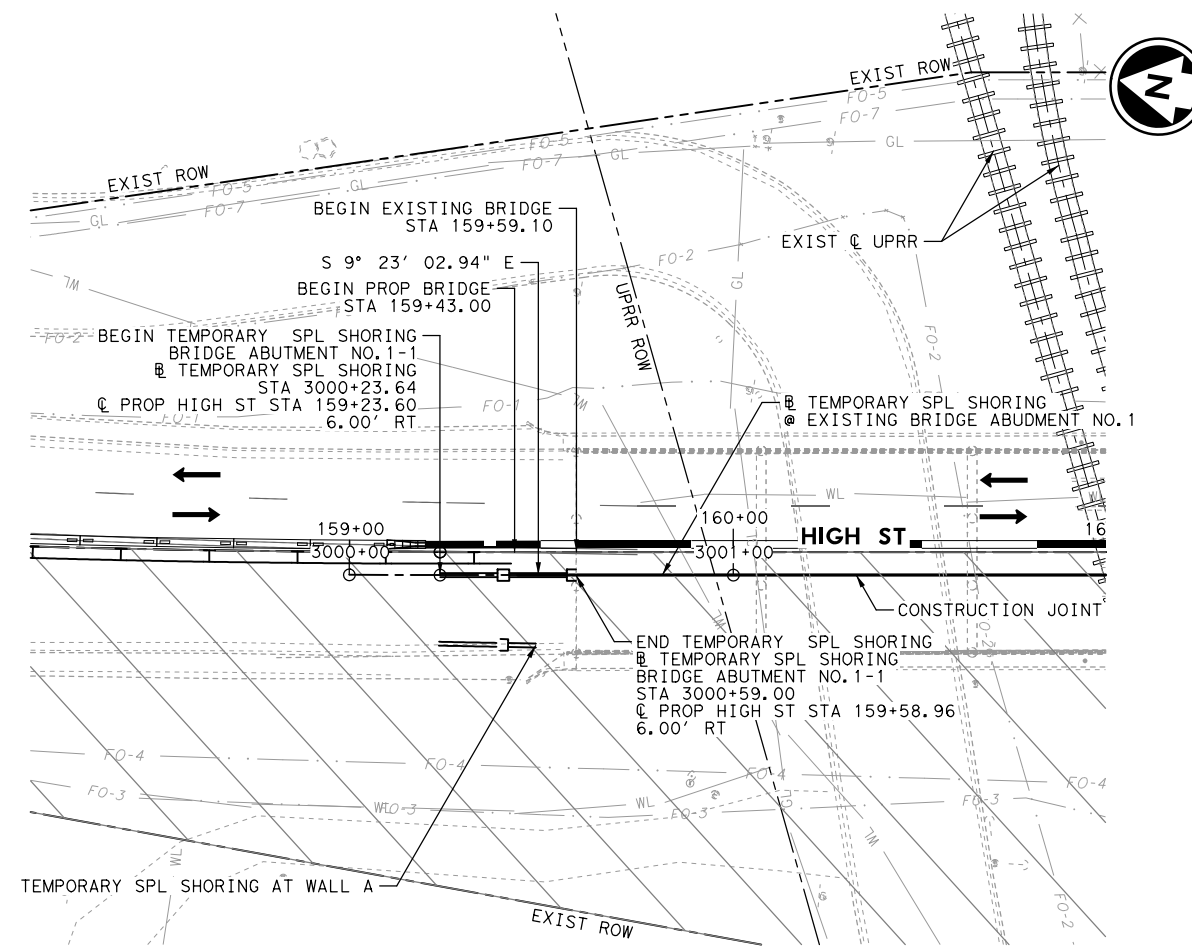
Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

**TRAFFIC CONTROL PLAN
 PHASE 1
 TEMPORARY WALL**

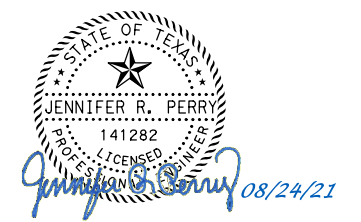
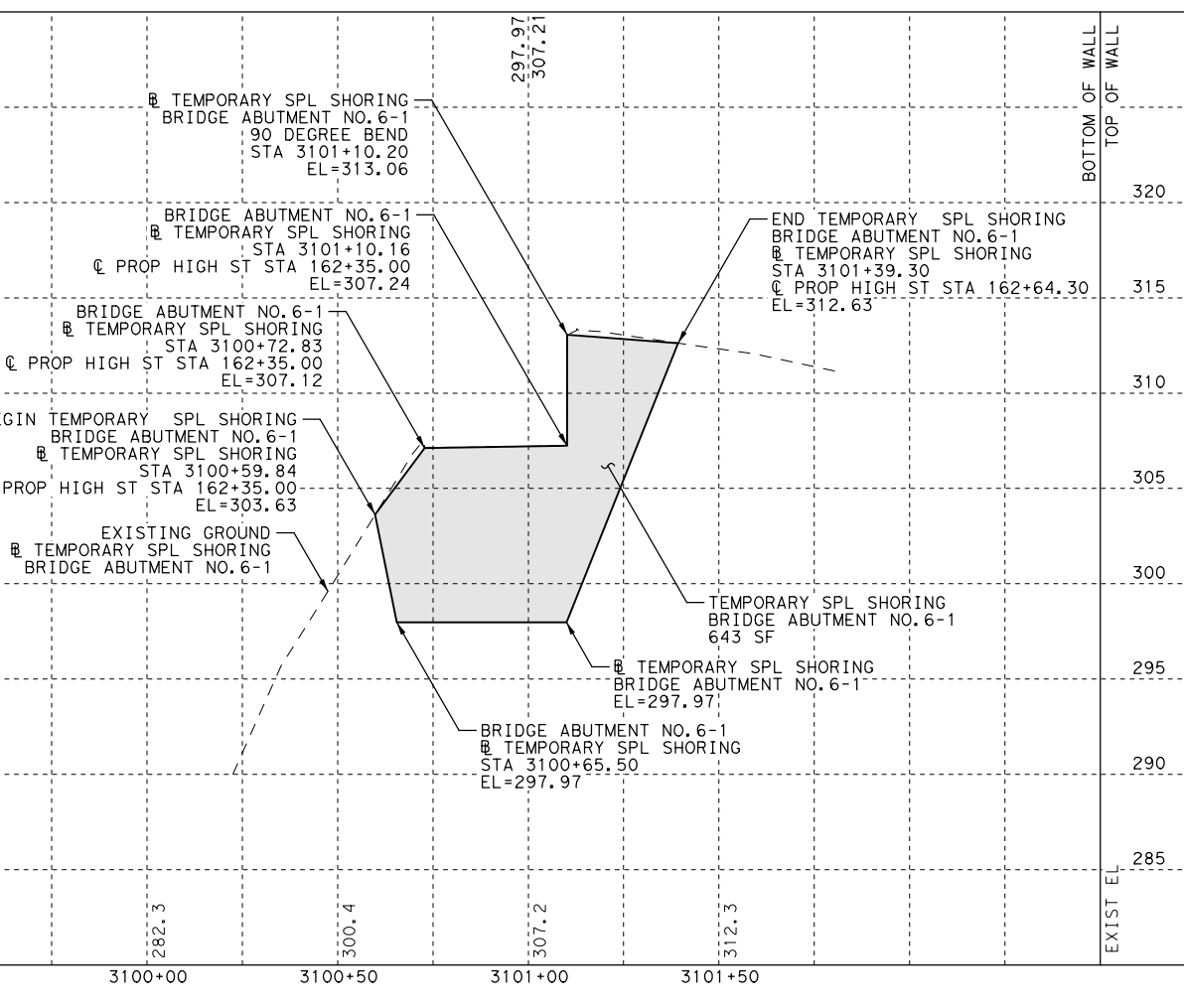
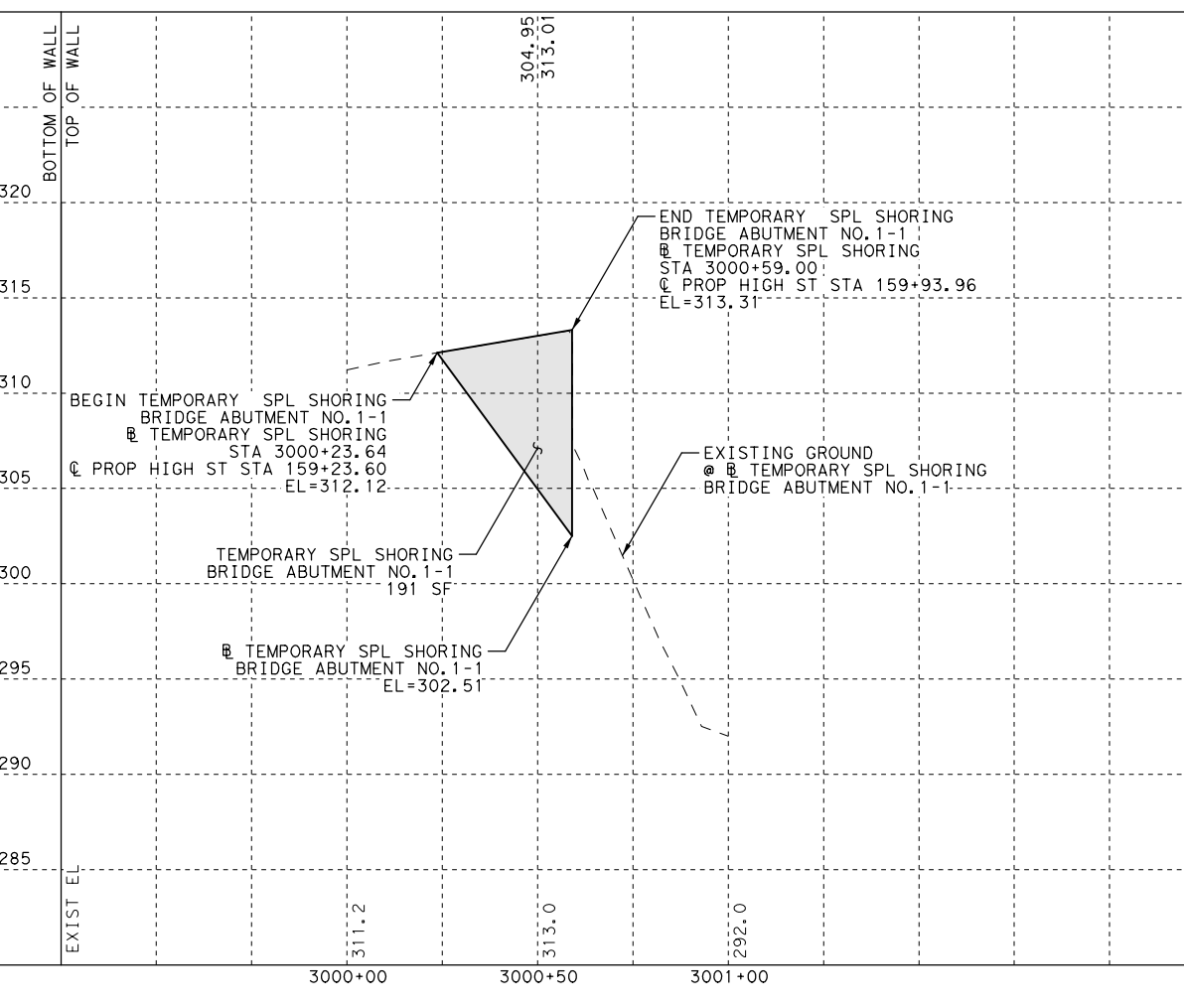
SHEET 2 OF 2

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	Texas	Tyler	Gregg
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			27
JMT			

DATE: 8/23/2021
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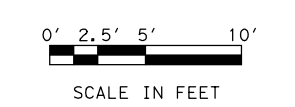
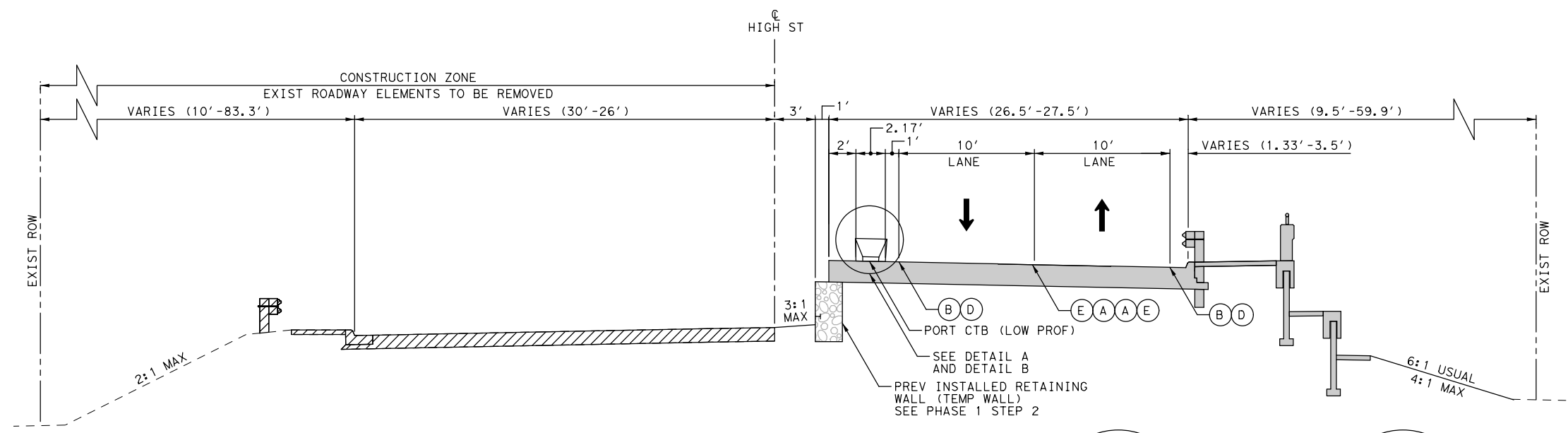
- LEGEND**
- CONSTRUCTION THIS PHASE
 - CONSTRUCTION PREVIOUS PHASE
 - PORTABLE CONCRETE TRAFFIC BARRIER
 - LOW PROFILE CONCRETE BARRIER
 - TEMPORARY SPECIAL SHORING
 - TEMPORARY EARTH WALL
 - PORT CTB (LOW PROF)
 - PORT CTB (F-SHP TO LOW PROF)
 - EXISTING DIRECTION OF TRAFFIC
 - DIRECTION OF TRAFFIC THIS PHASE



**TRAFFIC CONTROL PLAN
 PHASE I
 TEMPORARY SPECIAL SHORING
 BRIDGE ABUTMENT**

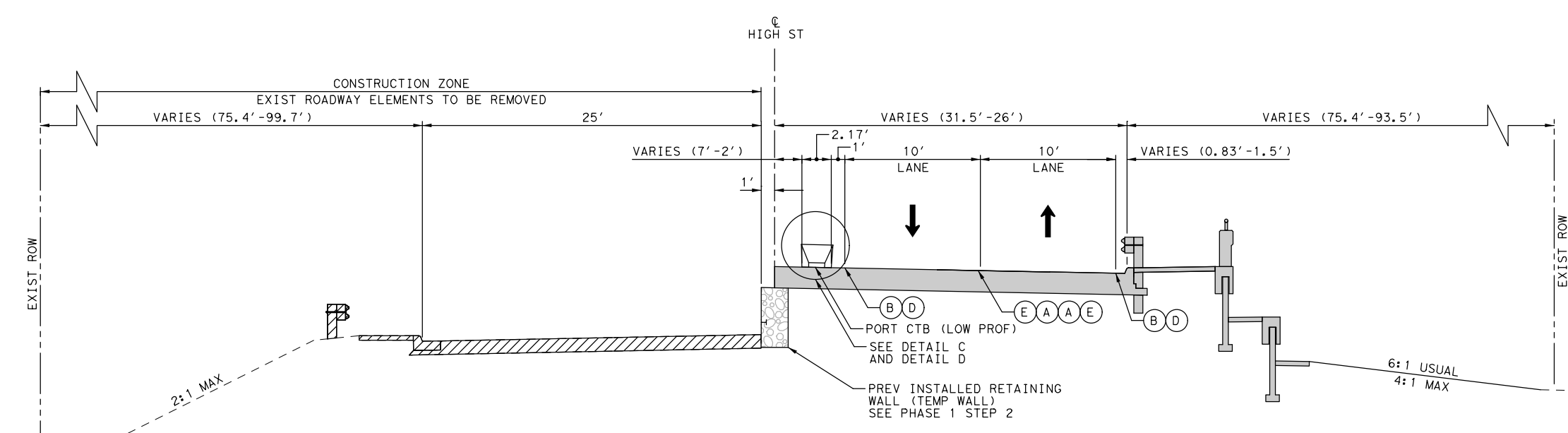
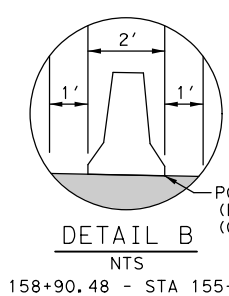
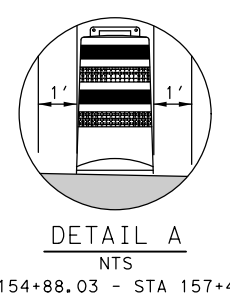
DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						28

DATE: 7/22/2021
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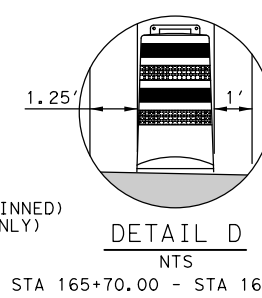
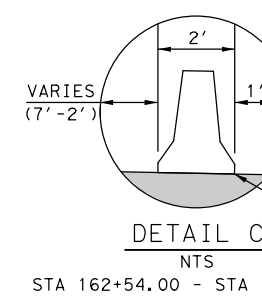


- LEGEND**
- CONSTRUCTION THIS PHASE
 - CONSTRUCTION PREVIOUS PHASE
 - PLASTIC DRUMS
 - 42" TWO-PIECE CONES
 - PORTABLE CONCRETE TRAFFIC BARRIER
 - LOW PROFILE CONCRETE BARRIER
 - DIRECTION OF TRAFFIC
 - DIRECTION OF TRAFFIC THIS PHASE
 - TEMPORARY WALL
 - WK ZN PAV MRK REMOV (TRAF BTN) TY Y
 - WK ZN PAV MRK REMOV (TRAF BTN) TY W
 - WK ZN PAV MRK REMOV (REFL) TY I-A
 - WK ZN PAV MRK REMOV (REFL) TY I-C
 - WK ZN PAV MRK REMOV (REFL) TY II-A-A

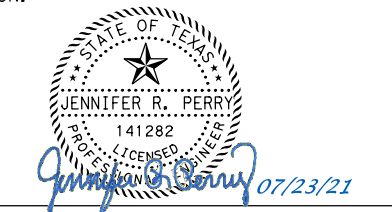
TCP PHASE 2 STEP 1 AND STEP 2 TYPICAL SECTION
 STA 154+88.03 - STA 159+59.10 (LT) EXIST
 STA 154+88.03 - STA 159+43.00 (RT) PROPOSED



TCP PHASE 2 STEP 1 TYPICAL SECTION
 STA 162+35.21 - STA 167+75.00 (LT) EXIST
 STA 162+54.00 - STA 167+75.00 (RT) PROPOSED



- NOTES:**
- SEE TRAFFIC CONTROL PLAN LAYOUTS AND TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.
 - SEE TEMPORARY SPECIAL SHORING LAYOUTS LOCATED UNDER RETAINING WALL DETAILS FOR LOCATION AND LIMITS OF SHORING.
 - DUE TO SUBGRADE COMPACTION LIMITATIONS ABOVE THE TEMPORARY EARTH WALL, CONTRACTOR TO PROVIDE 10" OF HMA AT THE CONSTRUCTION JOINT INSTEAD OF THE TYPICAL PAVEMENT STRUCTURE. SEE TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.



JMT TBPE REGISTRATION NO. F-16341

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 S HIGH ST AT UPRR AND SABINE ST

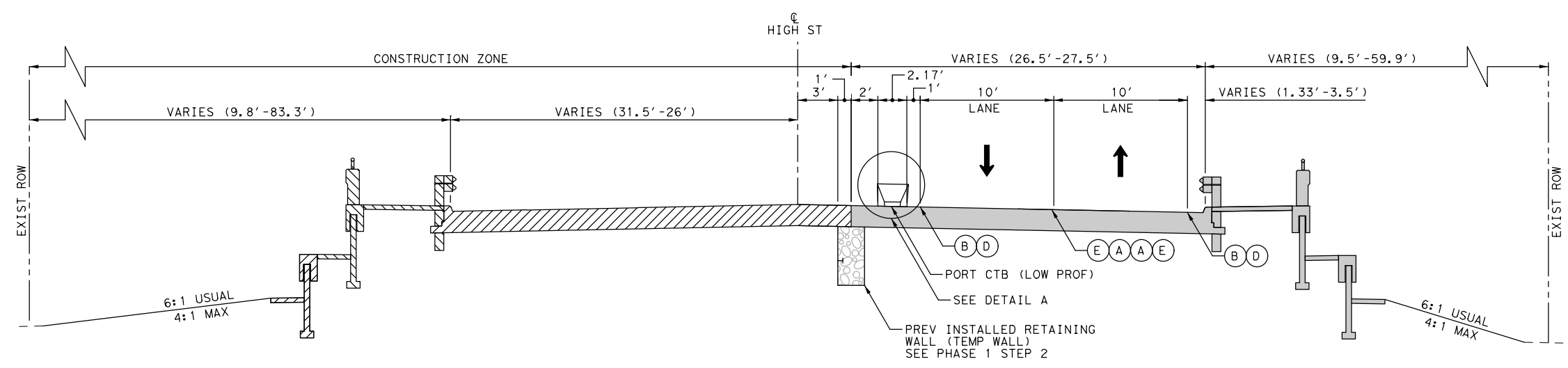
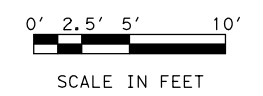
TRAFFIC CONTROL PLAN PHASE 2 TYPICAL SECTIONS

SHEET 1 OF 2

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			
JMT			

29

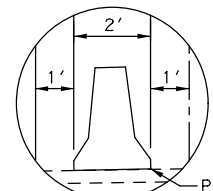
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- LEGEND**
- CONSTRUCTION THIS PHASE
 - CONSTRUCTION PREVIOUS PHASE
 - PLASTIC DRUMS
 - 42" TWO-PIECE CONES
 - PORTABLE CONCRETE TRAFFIC BARRIER
 - LOW PROFILE CONCRETE BARRIER
 - DIRECTION OF TRAFFIC
 - DIRECTION OF TRAFFIC THIS PHASE
 - TEMPORARY WALL
 - WK ZN PAV MRK REMOV (TRAF BTN) TY Y
 - WK ZN PAV MRK REMOV (TRAF BTN) TY W
 - WK ZN PAV MRK REMOV (REFL) TY I-A
 - WK ZN PAV MRK REMOV (REFL) TY I-C
 - WK ZN PAV MRK REMOV (REFL) TY II-A-A

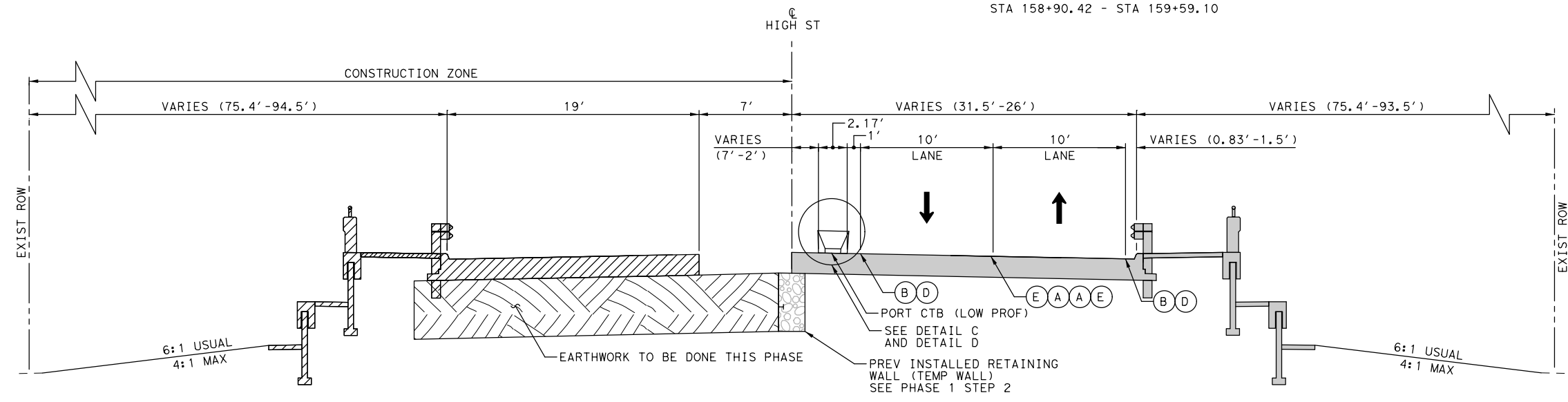
TCP PHASE 2 STEP 1 TYPICAL SECTION

STA 154+88.03 - STA 159+59.10 (LT) PROPOSED
 STA 154+88.03 - STA 159+43.00 (RT) PROPOSED



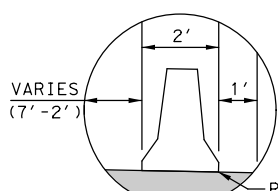
DETAIL A
NTS
PORT CTB (F-SHAPE) (PINNED) (ON BRIDGE ONLY)

STA 158+90.42 - STA 159+59.10



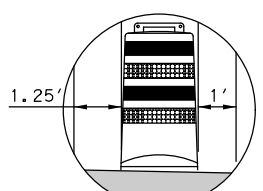
TCP PHASE 2 STEP 2 TYPICAL SECTION

STA 162+54.00 - STA 167+75.00



DETAIL C
NTS
PORT CTB (F-SHAPE) (PINNED) (ON BRIDGE ONLY)

STA 162+54.00 - STA 164+00.00

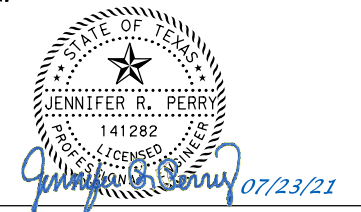


DETAIL D
NTS

STA 165+70.00 - STA 167+75.00

NOTES:

1. SEE TRAFFIC CONTROL PLAN LAYOUTS AND TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.
2. SEE TEMPORARY SPECIAL SHORING LAYOUTS LOCATED UNDER RETAINING WALL DETAILS FOR LOCATION AND LIMITS OF SHORING.
3. DUE TO SUBGRADE COMPACTION LIMITATIONS ABOVE THE TEMPORARY EARTH WALL, CONTRACTOR TO PROVIDE 10" OF HMA AT THE CONSTRUCTION JOINT INSTEAD OF THE TYPICAL PAVEMENT STRUCTURE. SEE TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.



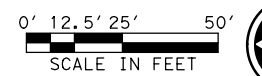
S HIGH ST AT UPRR AND SABINE ST

**TRAFFIC CONTROL PLAN
 PHASE 2
 TYPICAL SECTIONS**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
			30

SHEET 2 OF 2

DATE: 12/20/2021
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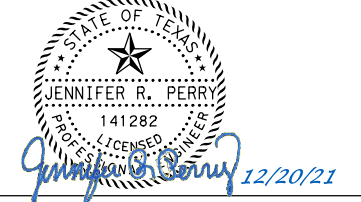


LEGEND

- CONSTRUCTION THIS PHASE
- CONSTRUCTION PREVIOUS PHASE
- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY SPECIAL SHORING
- TEMPORARY EARTH WALL
- PORT CTB (LOW PROF)
- PORT CTB (F-SHP TO LOW PROF)
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- TYPE 3 BARRICADE
- EXISTING DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE
- TRAILER MOUNTED FLASHING ARROW BOARD
- CONSTRUCTION SIGN
- EXISTING SIGNAL FACE

(A) WK ZN PAV MRK REMOV (TRAF BTN) TY Y
 (B) WK ZN PAV MRK REMOV (TRAF BTN) TY W
 (C) WK ZN PAV MRK REMOV (REFL) TY I-A
 (D) WK ZN PAV MRK REMOV (REFL) TY I-C
 (E) WK ZN PAV MRK REMOV (REFL) TY II-A-A
 (F) WK ZN PAV MRK NON-REMOV (W)24" (SLD) SEE NOTE 5
 (G) ELIM EXT PAV MRK & MRKS
 (H) PERMANENT STRIPING
 (I) EXISTING STRIPING TO REMAIN IN PLACE

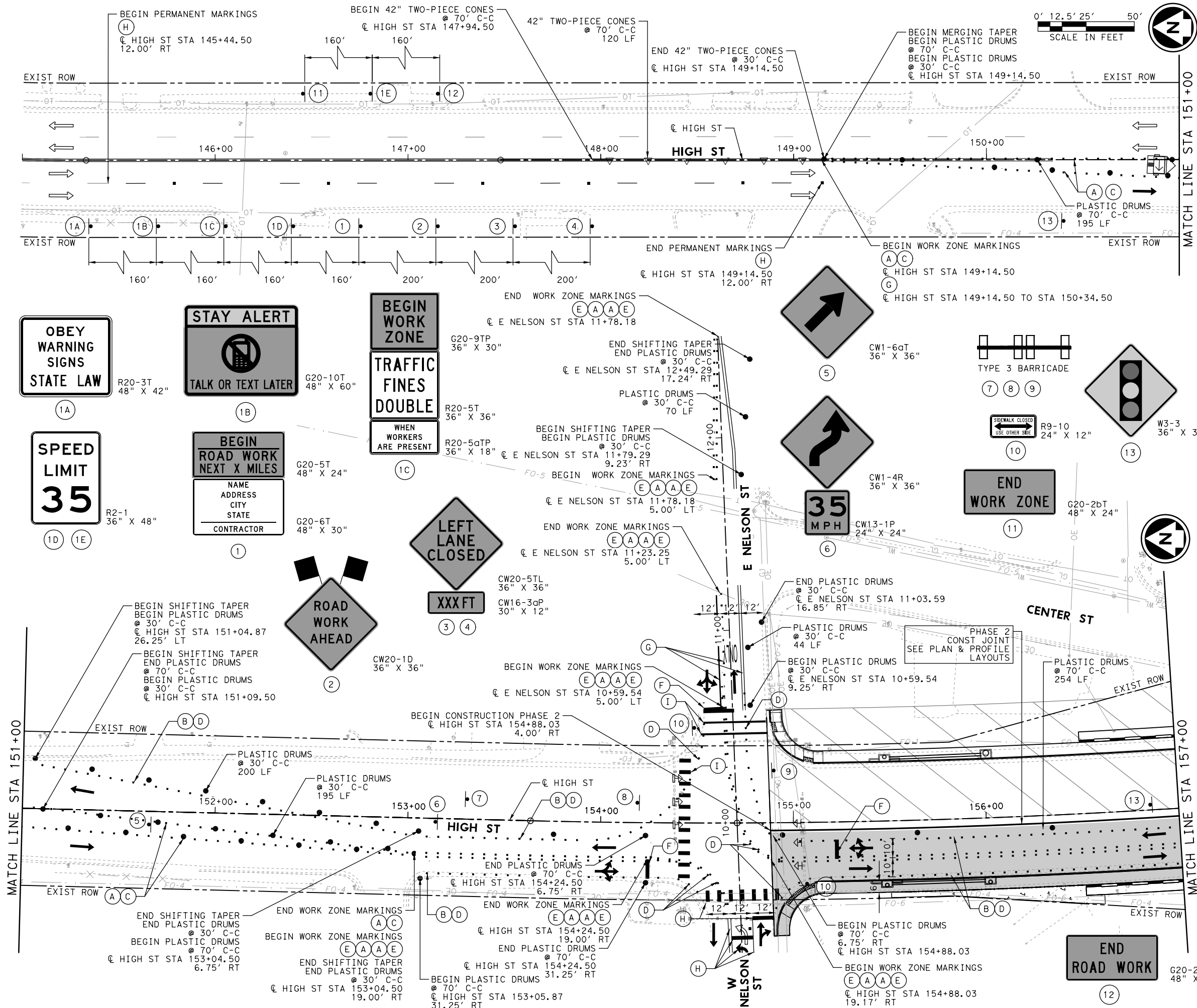
- ### NOTES:
1. CHANNELIZING DEVICE SPACING MUST BE BASED ON BC (9)-21, TCP STANDARDS, AS SHOWN ON THE PLANS, OR AS DIRECTED.
 2. SEE TCP NARRATIVE, TCP TYPICAL SECTIONS, DETOUR LAYOUTS, TEMPORARY SPECIAL SHORING BRIDGE ABUTMENT LAYOUTS AND TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.
 3. ROADWAY OFFSETS FOR CONCRETE TRAFFIC BARRIERS, PLASTIC DRUMS, AND VERTICAL PANELS TO BE MEASURED FROM CENTERLINE OF CHANNELIZING DEVICE.
 4. SEE TEMPORARY SPECIAL SHORING LAYOUTS LOCATED UNDER RETAINING WALL DETAILS FOR LOCATION AND LIMITS OF SHORING.
 5. TCP RAISED PAVEMENT MARKINGS MUST BE INSTALLED BASED ON BC (12)-21 TCP STANDARD, AS SHOWN ON THE PLANS, OR AS DIRECTED.



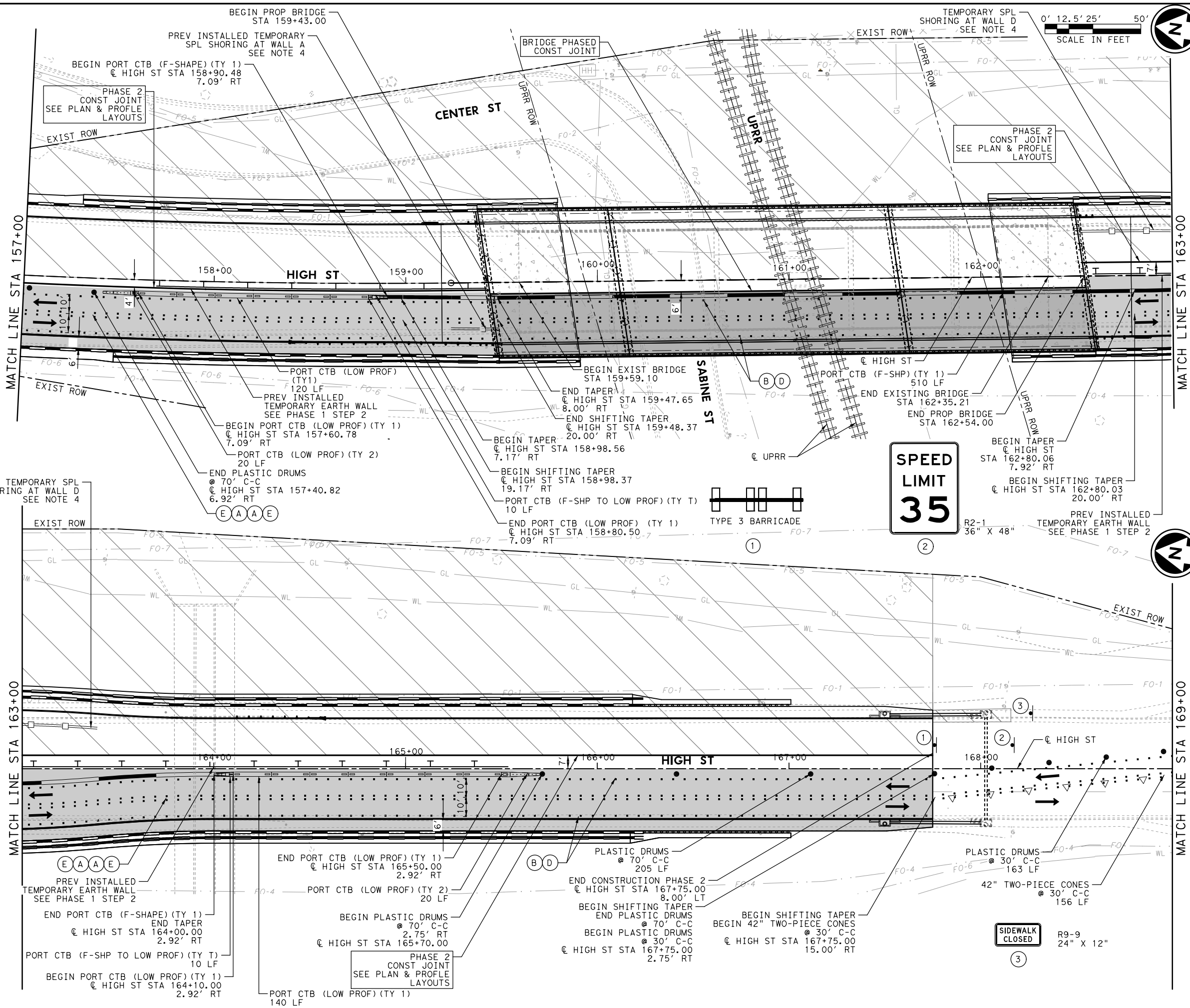
TEXAS DEPARTMENT OF TRANSPORTATION
 S HIGH ST AT UPRR AND SABINE ST

TRAFFIC CONTROL PLAN				PHASE 2	
DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER
CHECK	JMT	COUNTY	GREGG	JOB	072
CHECK	JMT	CONTROL	0910	SECTION	07
CHECK	JMT				

SHEET 1 OF 3
HIGH ST
31



DATE: 12/20/2021
 FILENAME: pw:\jmt-pw-bentley.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\2. TCP\HIGH ST*TCP*PH202.dgn



LEGEND

- CONSTRUCTION THIS PHASE
- CONSTRUCTION PREVIOUS PHASE
- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY SPECIAL SHORING
- TEMPORARY EARTH WALL
- PORT CTB (LOW PROF)
- PORT CTB (F-SHP TO LOW PROF)
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- TYPE 3 BARRICADE
- EXISTING DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE
- TRAILER MOUNTED FLASHING ARROW BOARD
- CONSTRUCTION SIGN
- EXISTING SIGNAL FACE
- WK ZN PAV MRK REMOV (TRAF BTN) TY Y
- WK ZN PAV MRK REMOV (TRAF BTN) TY W
- WK ZN PAV MRK REMOV (REFL) TY I-A
- WK ZN PAV MRK REMOV (REFL) TY I-C
- WK ZN PAV MRK REMOV (REFL) TY II-A-A
- WK ZN PAV MRK NON-REMOV (W)24" (SLD) SEE NOTE 5
- ELIM EXT PAV MRK & MRKS
- PERMANENT STRIPING
- EXISTING STRIPING TO REMAIN IN PLACE

- ### NOTES:
1. CHANNELIZING DEVICE SPACING MUST BE BASED ON BC (9)-21, TCP STANDARDS, AS SHOWN ON THE PLANS, OR AS DIRECTED.
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 3. ROADWAY OFFSETS FOR CONCRETE TRAFFIC BARRIERS, PLASTIC DRUMS, AND VERTICAL PANELS TO BE MEASURED FROM CENTERLINE OF CHANNELIZING DEVICE.
 4. SEE TEMPORARY SPECIAL SHORING LAYOUTS LOCATED UNDER RETAINING WALL DETAILS FOR LOCATION AND LIMITS OF SHORING.
 5. TCP RAISED PAVEMENT MARKINGS MUST BE INSTALLED BASED ON BC (12)-21 TCP STANDARD, AS SHOWN ON THE PLANS, OR AS DIRECTED.

STATE OF TEXAS
 JENNIFER R. PERRY
 141282
 LICENSED SURVEYOR
Jennifer R. Perry 12/20/21

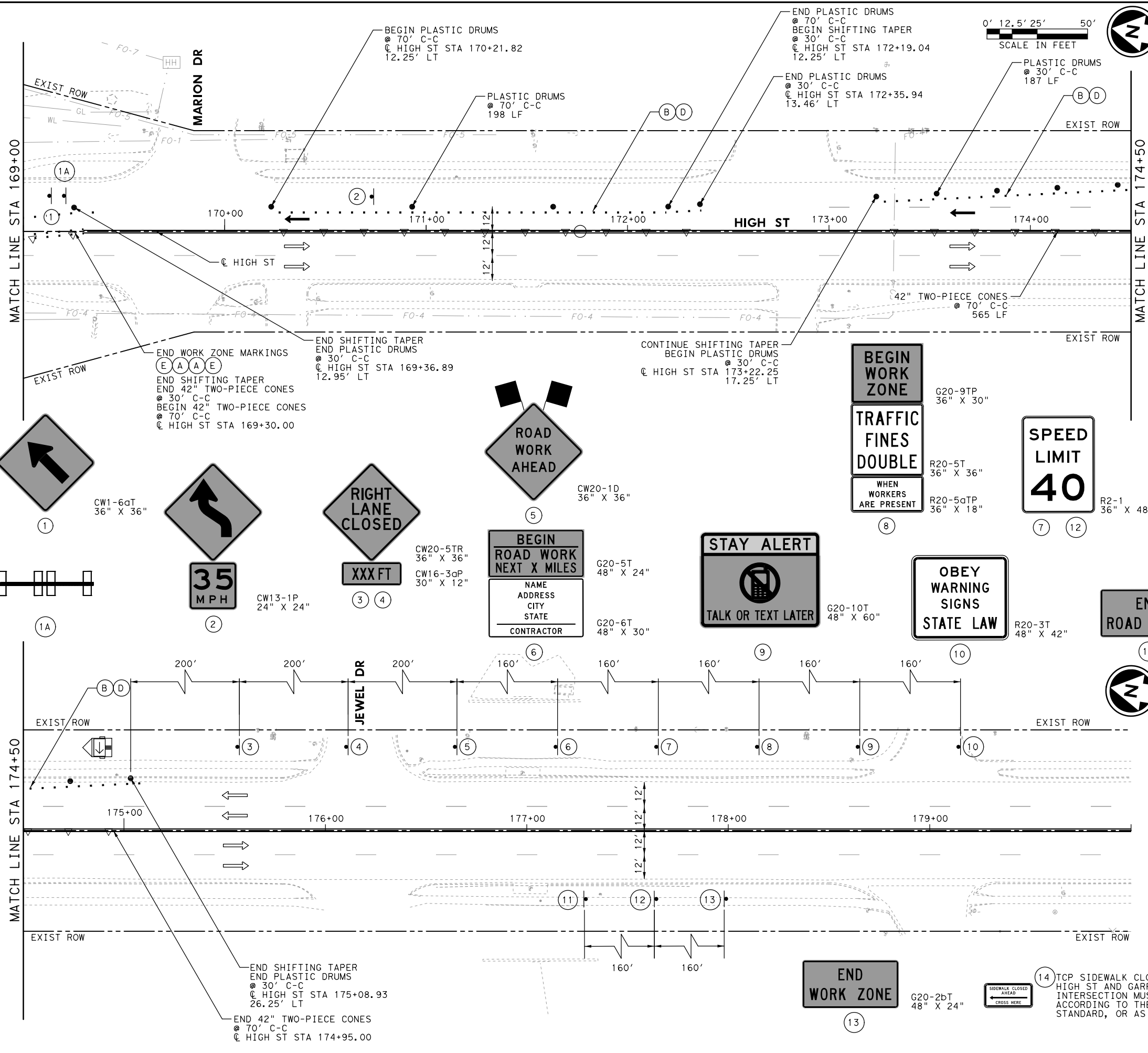
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 S HIGH ST AT UPRR AND SABINE ST

**TRAFFIC CONTROL PLAN
 PHASE 2**

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	32	
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG	
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072	
CHECK	JMT						SHEET NO.	32

SHEET 2 OF 3

DATE: 12/20/2021
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LEGEND

- CONSTRUCTION THIS PHASE
- CONSTRUCTION PREVIOUS PHASE
- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY SPECIAL SHORING
- TEMPORARY EARTH WALL
- PORT CTB (LOW PROF)
- PORT CTB (F-SHP TO LOW PROF)
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- TYPE 3 BARRICADE
- EXISTING DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE
- TRAILER MOUNTED FLASHING ARROW BOARD
- CONSTRUCTION SIGN
- EXISTING SIGNAL FACE
- WK ZN PAV MRK REMOV (TRAF BTN) TY Y
- WK ZN PAV MRK REMOV (TRAF BTN) TY W
- WK ZN PAV MRK REMOV (REFL) TY I-A
- WK ZN PAV MRK REMOV (REFL) TY I-C
- WK ZN PAV MRK REMOV (REFL) TY II-A-A
- WK ZN PAV MRK NON-REMOV (W)24" (SLD) SEE NOTE 5
- ELIM EXT PAV MRK & MRKS
- PERMANENT STRIPING
- EXISTING STRIPING TO REMAIN IN PLACE

- NOTES:**
1. CHANNELIZING DEVICE SPACING MUST BE BASED ON BC (9)-21, TCP STANDARDS, AS SHOWN ON THE PLANS, OR AS DIRECTED.
 2. SEE TCP NARRATIVE, TCP TYPICAL SECTIONS, DETOUR LAYOUTS, TEMPORARY SPECIAL SHORING BRIDGE ABUTMENT LAYOUTS AND TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.
 3. ROADWAY OFFSETS FOR CONCRETE TRAFFIC BARRIERS, PLASTIC DRUMS, AND VERTICAL PANELS TO BE MEASURED FROM CENTERLINE OF CHANNELIZING DEVICE.
 4. SEE TEMPORARY SPECIAL SHORING LAYOUTS LOCATED UNDER RETAINING WALL DETAILS FOR LOCATION AND LIMITS OF SHORING.
 5. TCP RAISED PAVEMENT MARKINGS MUST BE INSTALLED BASED ON BC (12)-21 TCP STANDARD, AS SHOWN ON THE PLANS, OR AS DIRECTED.

STATE OF TEXAS
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 141282
 LICENSED SURVEYOR
Jennifer R. Perry 12/20/21

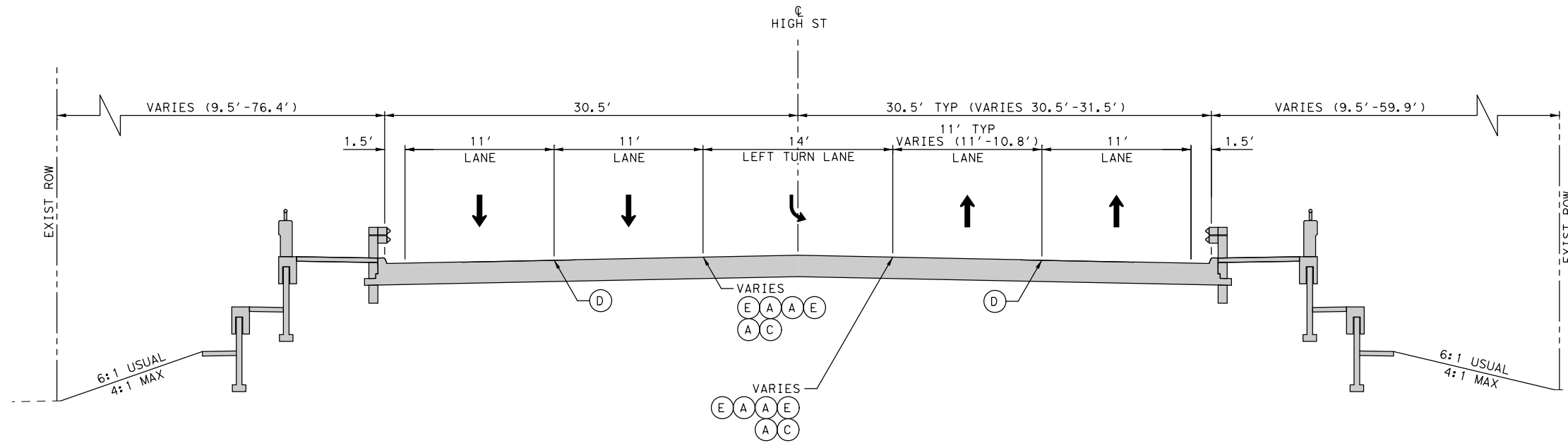
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**TRAFFIC CONTROL PLAN
 PHASE 2**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			SHEET NO.
JMT			33

14 TCP SIDEWALK CLOSURE AT HIGH ST AND GARFIELD DR INTERSECTION MUST BE INSTALLED ACCORDING TO THE WZ(BTS-2)-13 TCP STANDARD, OR AS DIRECTED.

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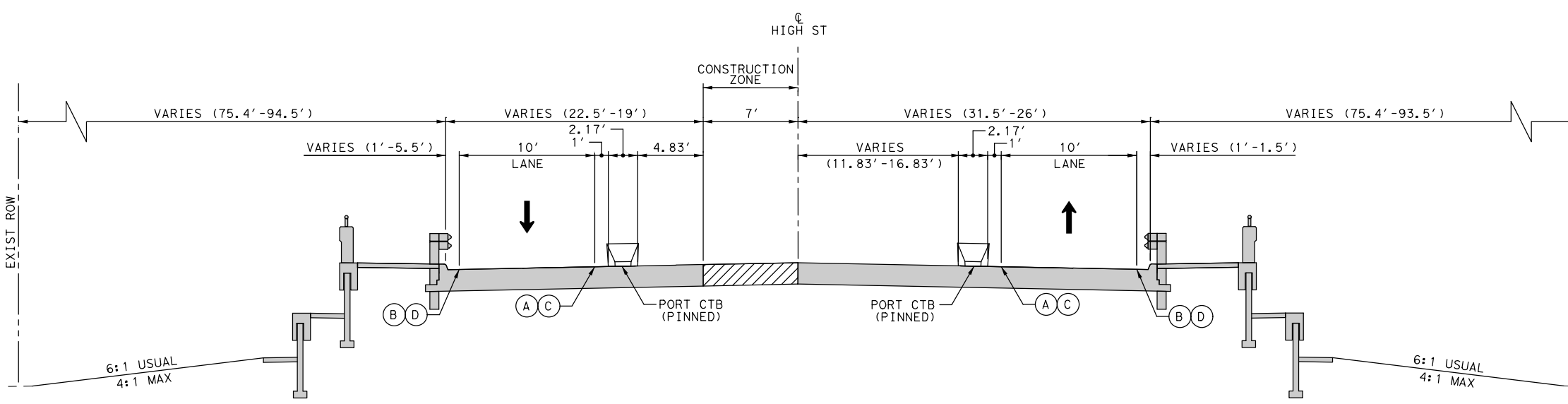
TCP PHASE 3 TYPICAL SECTION
 STA 154+88.03 - STA 159+43.00

0' 2.5' 5' 10'
 SCALE IN FEET

LEGEND

- CONSTRUCTION THIS PHASE
- CONSTRUCTION PREVIOUS PHASE
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE
- TEMPORARY WALL
- WK ZN PAV MRK REMOV (TRAF BTN) TY Y
- WK ZN PAV MRK REMOV (TRAF BTN) TY W
- WK ZN PAV MRK REMOV (REFL) TY I-A
- WK ZN PAV MRK REMOV (REFL) TY I-C
- WK ZN PAV MRK REMOV (REFL) TY II-A-A

- NOTES:**
- SEE TRAFFIC CONTROL PLAN LAYOUTS AND TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.
 - SEE TEMPORARY SPECIAL SHORING LAYOUTS LOCATED UNDER RETAINING WALL DETAILS FOR LOCATION AND LIMITS OF SHORING.
 - DUE TO SUBGRADE COMPACTION LIMITATIONS ABOVE THE TEMPORARY EARTH WALL, CONTRACTOR TO PROVIDE 10" OF HMA AT THE CONSTRUCTION JOINT INSTEAD OF THE TYPICAL PAVEMENT STRUCTURE. SEE TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.



TCP PHASE 3 TYPICAL SECTION
 STA 162+54.00 - STA 167+75.00

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 LICENSED ENGINEER
Jennifer R. Perry 07/23/21

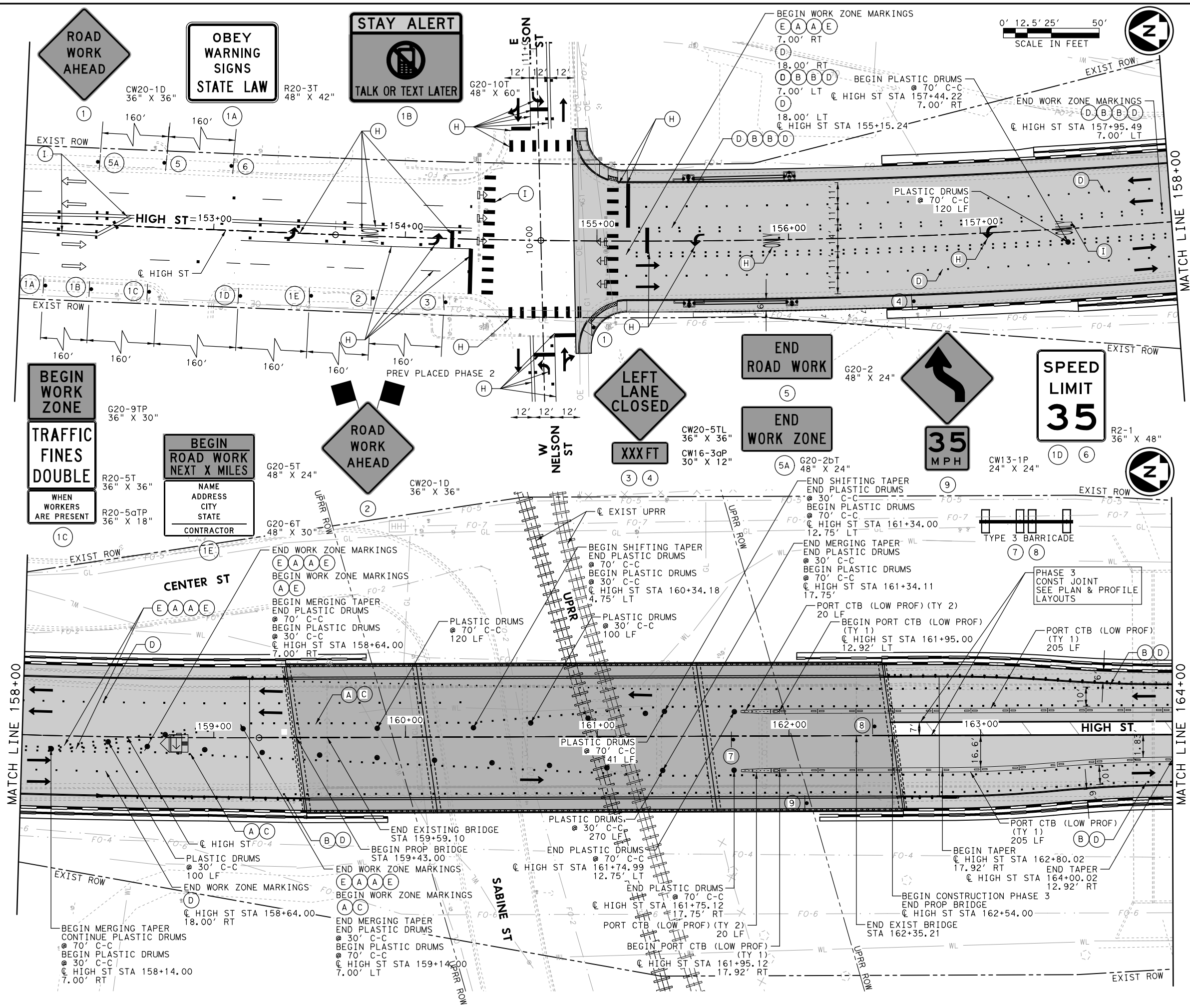
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**TRAFFIC CONTROL PLAN
 PHASE 3
 TYPICAL SECTIONS**

				SHEET 1 OF 1
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
JMT	6	(SEE TITLE SHEET)	HIGH ST	
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	34
JMT	0910	07	072	

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LEGEND

- CONSTRUCTION THIS PHASE
- CONSTRUCTION PREVIOUS PHASE
- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY SPECIAL SHORING
- TEMPORARY EARTH WALL
- PORT CTB (LOW PROF)
- PORT CTB (F-SHP TO LOW PROF)
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- TYPE 3 BARRICADE
- EXISTING DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE
- TRAILER MOUNTED FLASHING ARROW BOARD
- CONSTRUCTION SIGN
- EXISTING SIGNAL FACE
- WK ZN PAV MRK REMOV (TRAF BTN) TY Y
- WK ZN PAV MRK REMOV (TRAF BTN) TY W
- WK ZN PAV MRK REMOV (REFL) TY I-A
- WK ZN PAV MRK REMOV (REFL) TY I-C
- WK ZN PAV MRK REMOV (REFL) TY II-A-A
- WK ZN PAV MRK NON-REMOV (W)24" (SLD) SEE NOTE 5
- ELIM EXT PAV MRK & MRKS
- PERMANENT STRIPING
- EXISTING STRIPING TO REMAIN IN PLACE

- ### NOTES:
- CHANNELIZING DEVICE SPACING MUST BE BASED ON BC(9)-21, TCP STANDARDS, AS SHOWN ON THE PLANS, OR AS DIRECTED.
 - SEE TCP NARRATIVE, TCP TYPICAL SECTIONS, DETOUR LAYOUTS, TEMPORARY SPECIAL SHORING BRIDGE ABUTMENT LAYOUTS AND TEMPORARY WALL LAYOUTS FOR ADDITIONAL INFORMATION.
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 - SEE TEMPORARY SPECIAL SHORING LAYOUTS LOCATED UNDER RETAINING WALL DETAILS FOR LOCATION AND LIMITS OF SHORING.
 - TCP RAISED PAVEMENT MARKINGS MUST BE INSTALLED BASED ON BC (12)-21 TCP STANDARD, AS SHOWN ON THE PLANS, OR AS DIRECTED.

STATE OF TEXAS
 JENNIFER R. PERRY
 141282
 LICENSED PROFESSIONAL ENGINEER
Jennifer R. Perry 12/20/21

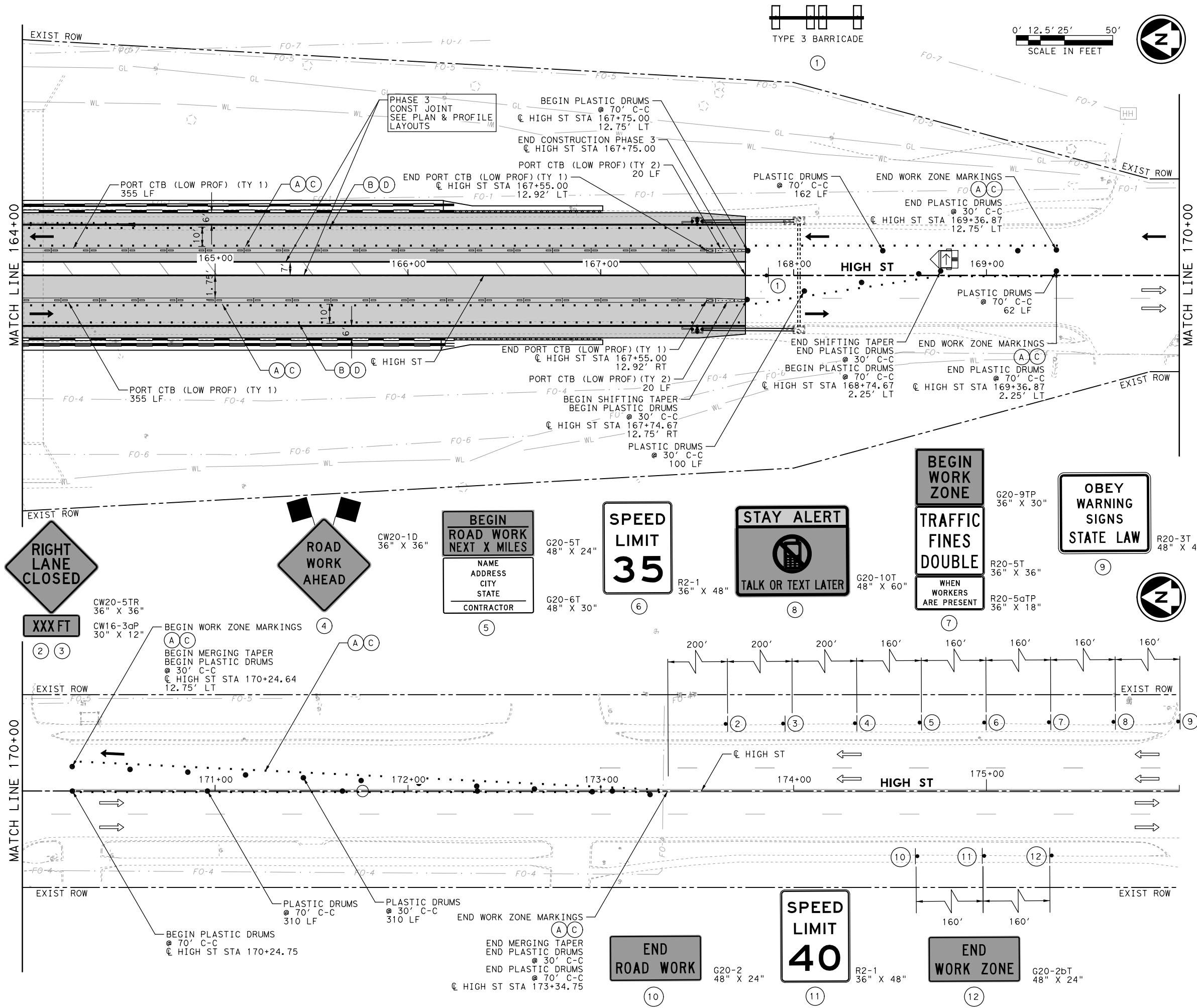
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Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

TRAFFIC CONTROL PLAN PHASE 3

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			SHEET NO.
JMT			35

SHEET 1 OF 2

DATE: 12/20/2021
 FILENAME: pw:\jmt-pw-bentley.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\2. TCP\HIGH ST*TCP*PH302.dgn



LEGEND

- CONSTRUCTION THIS PHASE
- CONSTRUCTION PREVIOUS PHASE
- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY SPECIAL SHORING
- TEMPORARY EARTH WALL
- PORT CTB (LOW PROF)
- PORT CTB (F-SHP TO LOW PROF)
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- TYPE 3 BARRICADE
- EXISTING DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE
- TRAILER MOUNTED FLASHING ARROW BOARD
- CONSTRUCTION SIGN
- EXISTING SIGNAL FACE
- WK ZN PAV MRK REMOV (TRAF BTN) TY Y
- WK ZN PAV MRK REMOV (TRAF BTN) TY W
- WK ZN PAV MRK REMOV (REFL) TY I-A
- WK ZN PAV MRK REMOV (REFL) TY I-C
- WK ZN PAV MRK REMOV (REFL) TY II-A-A
- WK ZN PAV MRK NON-REMOV (W)24" (SLD) SEE NOTE 5
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**TRAFFIC CONTROL PLAN
 PHASE 3**

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						36

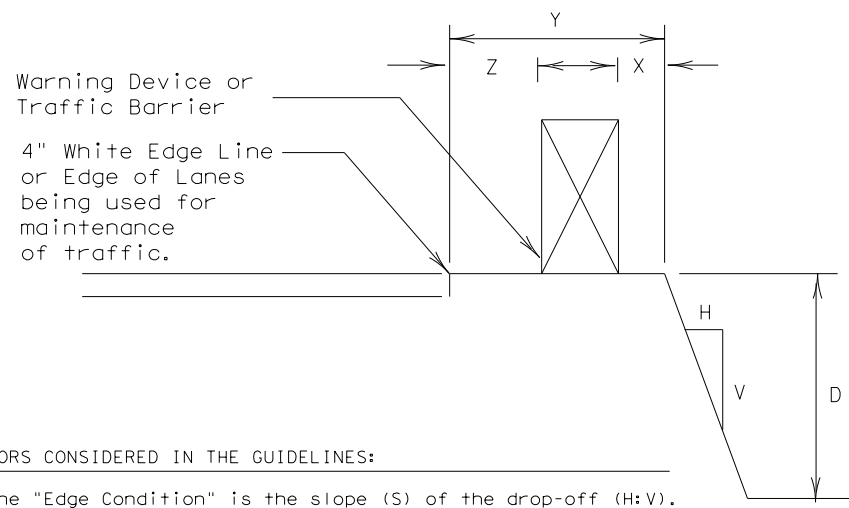
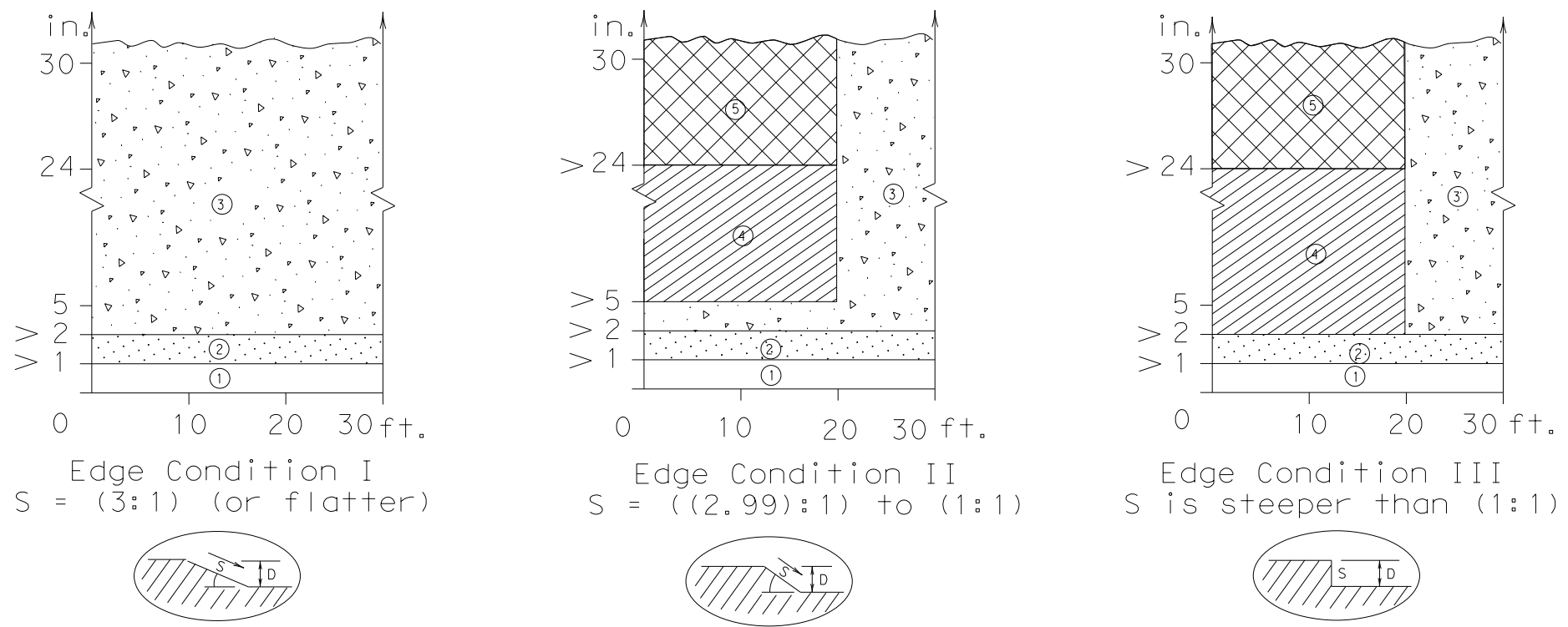
SHEET 2 OF 2

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DEFINITION OF TREATMENT ZONES FOR VARIOUS EDGE CONDITIONS

Edge Height (D) in Inches versus Lateral Clearance (Y) in Feet

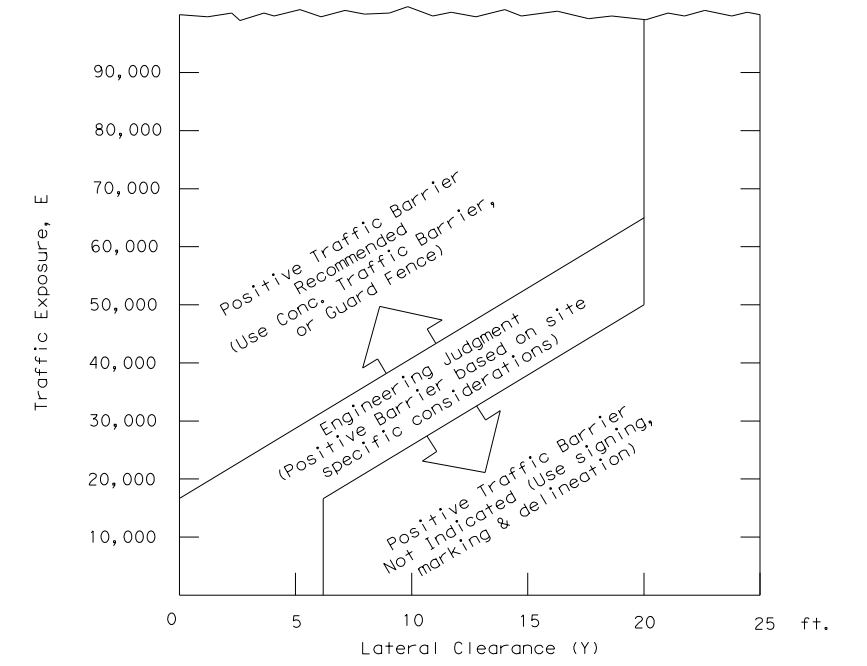


Zone	Treatment Types Guidelines:
①	No treatment.
②	CW 8-11 "Uneven Lanes" signs.
③	CW 8-9a "Shoulder Drop-Off" or CW 8-11 signs plus vertical panels.
④	CW 8-9a or CW 8-11, signs plus drums. Where restricted space precludes the use of drums, use vertical panels. An edge fill may be provided to change the edge slope to that of the preferable Edge Condition I.
⑤	Check indications (Figure-1) for positive barrier. Where positive barrier is not indicated, the treatment shown above for Zone- 4 may be used after consideration of other applicable factors.

Edge Condition Notes:

- Edge Condition I: Most vehicles are able to traverse an edge condition with a slope rate of (3 to 1) or flatter. The slope must be constructed with a compacted material capable of supporting vehicles.
- Edge Condition II: Most vehicles are able to traverse an edge condition with a slope between (2.99 to 1) and (1 to 1) so long as "D" does not exceed 5 inches. Under-carriage drag on most automobiles will occur when "D" exceeds 6 inches. As "D" exceeds 24 inches, the possibility for rollover is greater in most vehicles.
- Edge Condition III: When slopes are greater than (1 to 1) and where "D" is greater than 2 inches, a more difficult control factor may exist for some vehicles, if not properly treated. For example, where "D" is greater than 2 inches and up to 24 inches different types of vehicles may experience different steering control at different edge heights. Automobiles might experience more steering control differential when "D" is greater than 2 inches and up to 5 inches. Trucks, particularly those with high loads, have more steering control differential when "D" is greater than 5 inches and up to 24 inches. When "D" exceeds 24 inches, the possibility of rollover is greater for most vehicles.
- Milling or overlay operations that result in Edge Condition III should not be in place without appropriate warning treatments, and these conditions should not be left in place for extended periods of time.

FIGURE-1: CONDITIONS INDICATING USE OF POSITIVE BARRIER FOR ZONE 5 ([hatched box])



- $E = ADT \times T$
Where ADT is that portion of the average daily traffic volume traveling within 20 feet (generally two adjacent lanes) of the edge dropoff condition; and, T is the duration time in years of the dropoff condition.
- Figure-1 provides a practical approach to the use of positive barriers for the protection of vehicles from pavement drop-offs. Other factors, such as the presence of heavy machinery, construction workers, or the mix and volume of traffic may make the use of positive barriers appropriate, even when the edge condition alone may not justify the use of a barrier.
- An approved end treatment should be provided for any positive barrier end located within a lateral offset of 20 feet from the edge of the travel lane.

FACTORS CONSIDERED IN THE GUIDELINES:

- The "Edge Condition" is the slope (S) of the drop-off (H:V). The "Edge Height" is the depth of the drop-off "D".
- Distance "X" is to be the maximum practical under job conditions. Two feet minimum for high speed conditions. Distance "Y" is the lateral clearance from edge of travel lane to edge of dropoff. Distance "Z" does not have a minimum.
- In addition to the factors considered in the guidelines, each construction zone drop-off situation should be analyzed individually, taking into account other variables, such as: traffic mix, posted speed in the construction zone, horizontal curvature, and the practicality of the treatment options.
- The conditions for indicating the use of positive or protective barriers are given by Zone-5 and Figure-1. Traffic barriers are primarily applicable for high speed conditions. Urban areas with speeds of 30 mph or less may have a lesser need for signing, delineation, and barriers. Right-angled edges, however, with "D" greater than 2 inches and located within a lateral offset of 6 feet, may indicate a higher level of treatment.
- If the distance "Y" must be less than 3 feet, the use of a positive barrier may not be feasible. In such a case, consider either: 1) narrowing the lanes to a desired 11 to 12 feet or 10 foot minimum (see CW20-8 sign), or 2) provide an edge slope such as Edge Condition I.

These guidelines apply to temporary traffic control areas or work zones where continuous pavement edges or drop-offs exists parallel and adjacent to a lane used by traffic. The edge conditions may be present between shoulders and travel lanes, between adjacent or opposing travel lanes, or at intermediate points across the width of the paved surface. Due to the variability in construction operations, tolerances in the variables may be allowed by the engineer. These guidelines do not apply to short term operations. These guidelines do not constitute a rigid standard or policy; rather, they are guidance to be used in conjunction with engineering judgement. These guidelines may be updated on the Design Division's on-line manuals.

Engineer's Seal

Date 07/23/21

Texas Department of Transportation
Traffic Operations Division

TREATMENT FOR VARIOUS
EDGE CONDITIONS

© TxDOT August 2000		DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS					
03-01	CONC	SECT	JOB	HIGHWAY	
08-01 correct typos	0910	07	072	HIGH ST	
	DIST	COUNTY		SHEET NO.	
	TYL	GREGG		37	

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.
6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.
11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.
12. The Engineer has the final decision on the location of all traffic control devices.
13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:

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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.
2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

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

SHEET 1 OF 12



**BARRICADE AND CONSTRUCTION
GENERAL NOTES
AND REQUIREMENTS**

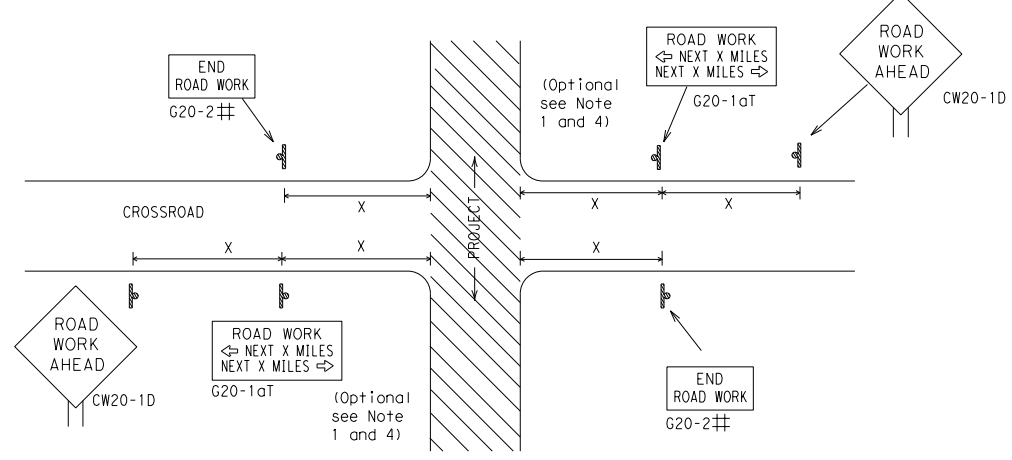
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REVISIONS		0910	07	072	HIGH ST				
4-03	7-13	DIST	COUNTY		SHEET NO.				
9-07	8-14	TYLER	GREGG		38				
5-10	5-21								

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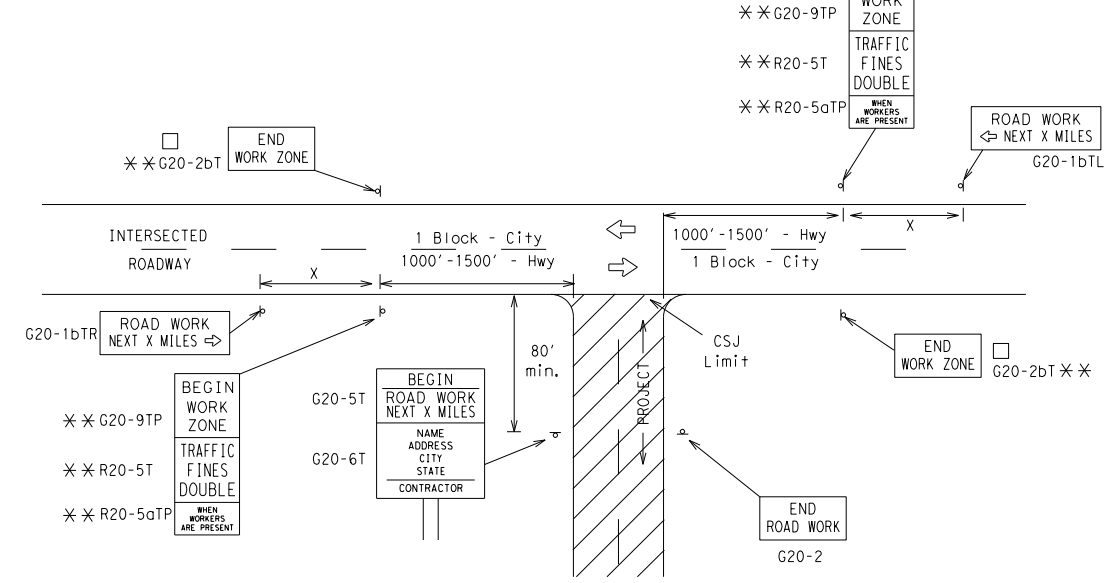
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TYPICAL LOCATION OF CROSSROAD SIGNS



- ## May be mounted on back of "ROAD WORK AHEAD" (CW20-1D) sign with approval of Engineer. (See note 2 below)
- 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^{1,5,6}

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

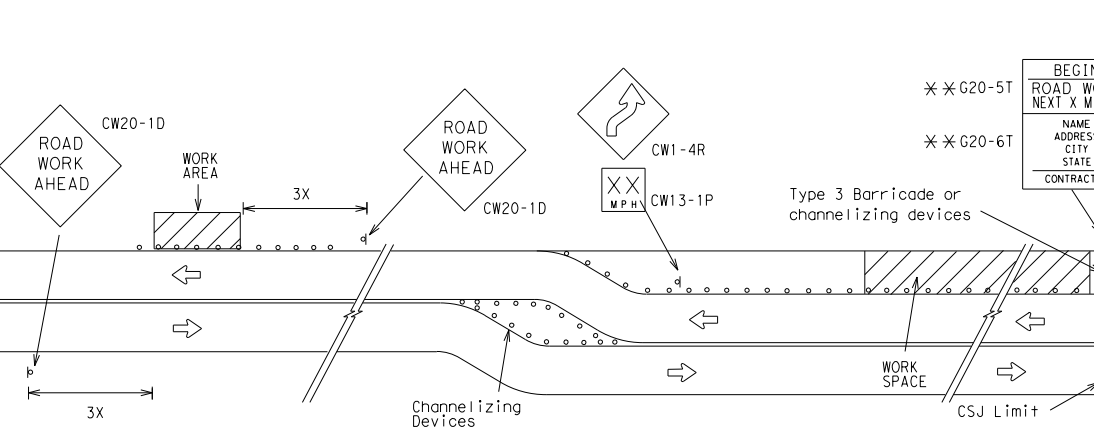
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

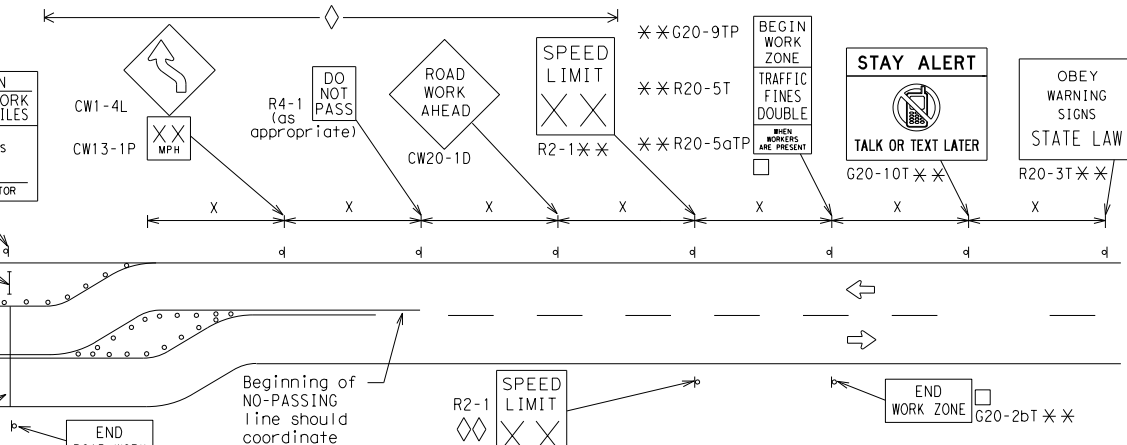
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be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

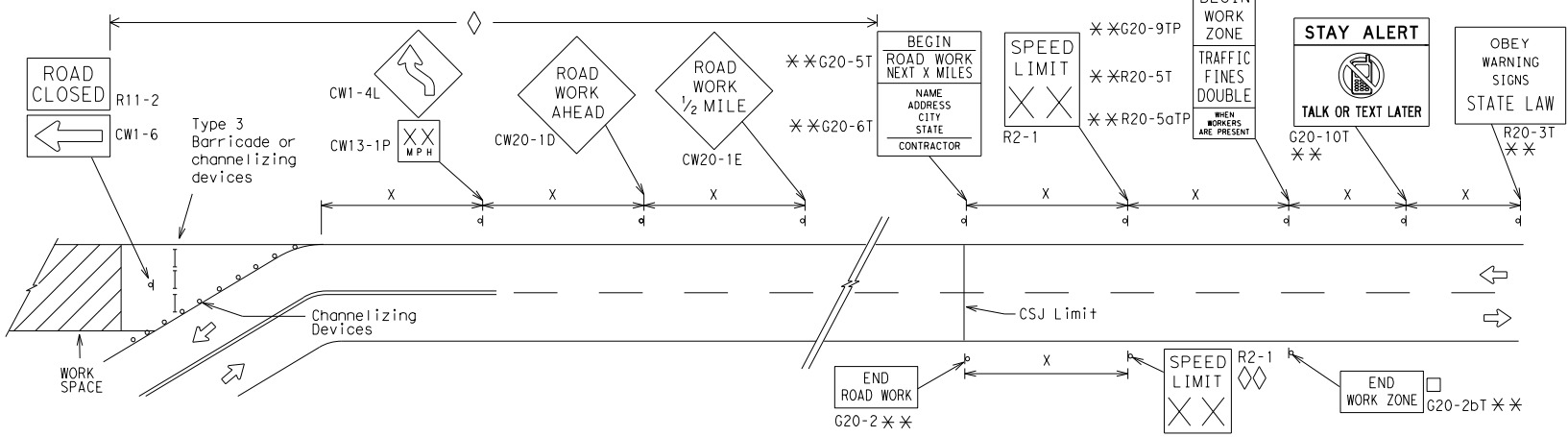


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



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



NOTES

- The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES" (G20-5T) sign for each specific project. This distance shall replace the "x" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.
- The "BEGIN WORK ZONE" (G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.
 - CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.
 - Area for placement of "ROAD WORK AHEAD" (CW20-1D) sign and other signs or devices as called for on the Traffic Control Plan.
 - Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND

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

SHEET 2 OF 12



BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

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7-13 5-21	TYLER	GREGG		39

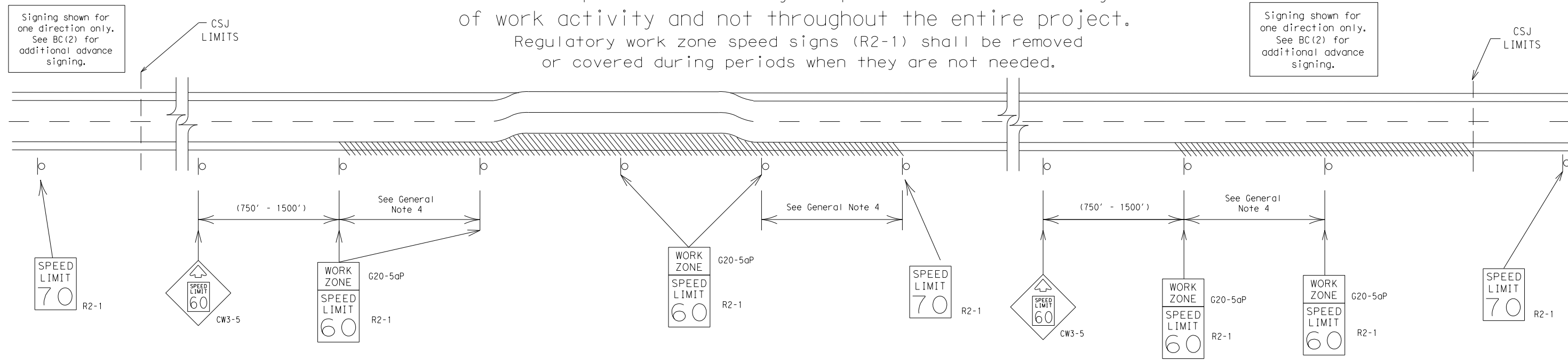
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project. Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

- 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.

SHEET 3 OF 12



BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

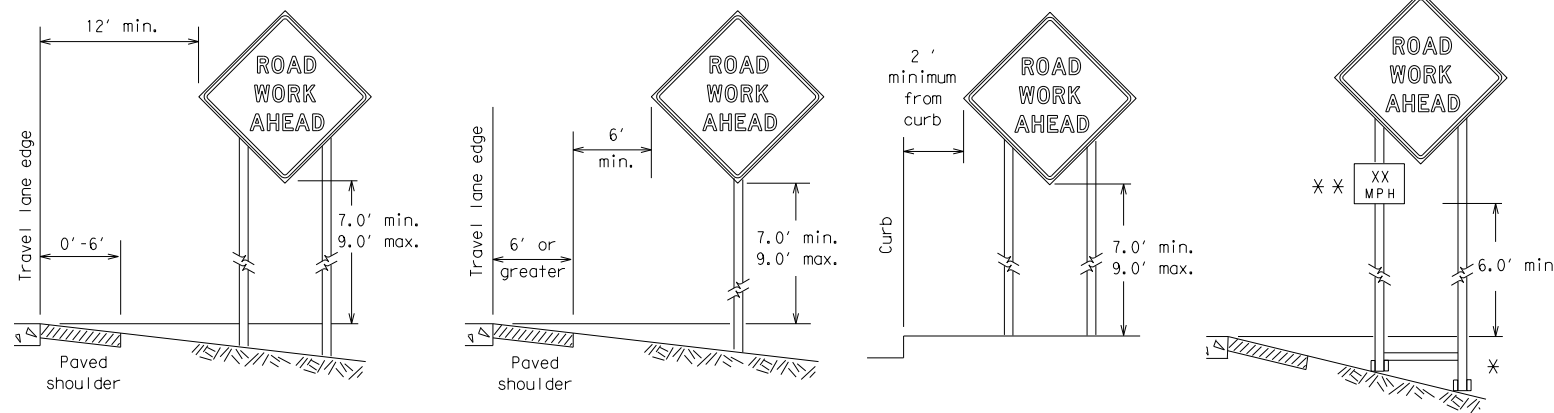
BC (3) - 21

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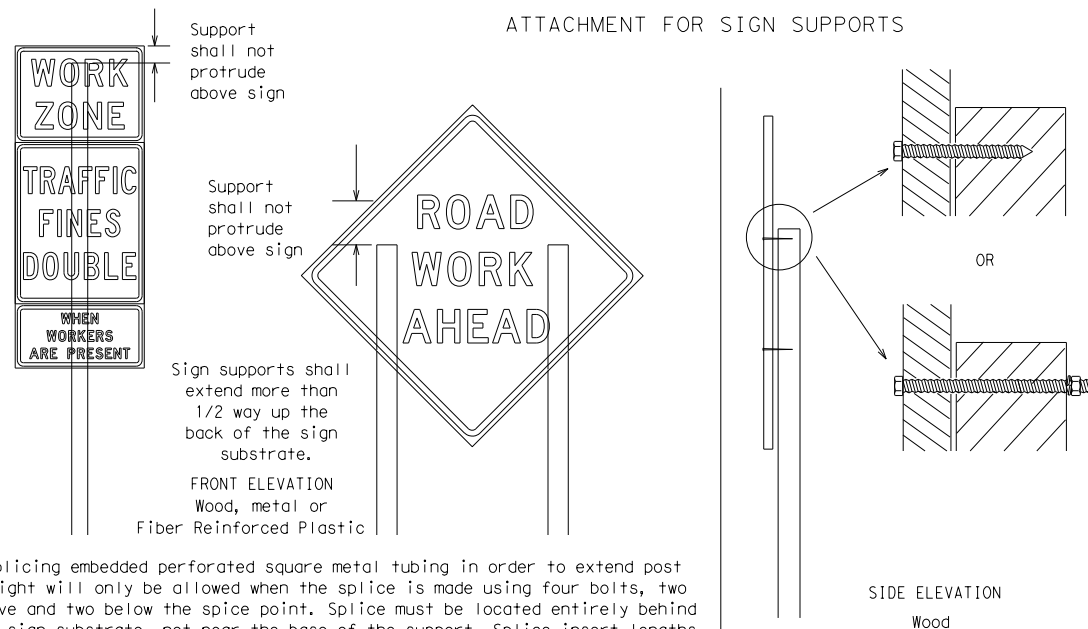
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



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

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

ATTACHMENT FOR SIGN SUPPORTS



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.

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_{FL} or Type C_{FL}, 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

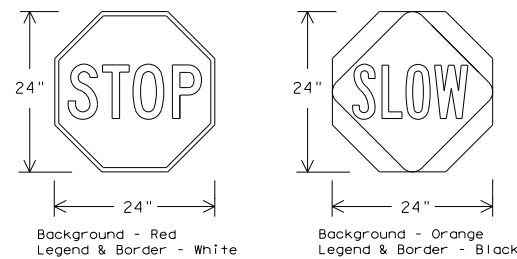
- Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
- The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
- Rock, concrete, iron, steel or other solid objects shall not 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.

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 _{FL} OR C _{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

- 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

Traffic Safety Division Standard

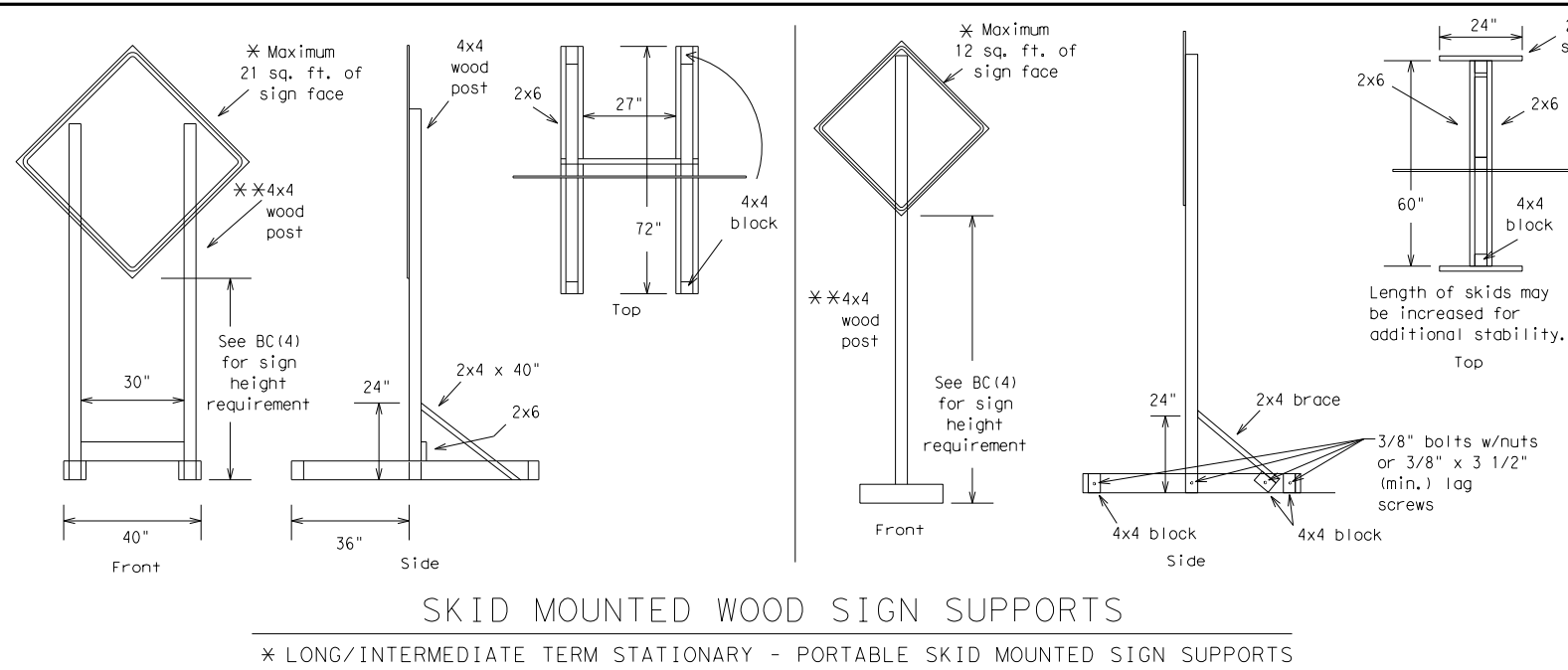
BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC (4) - 21

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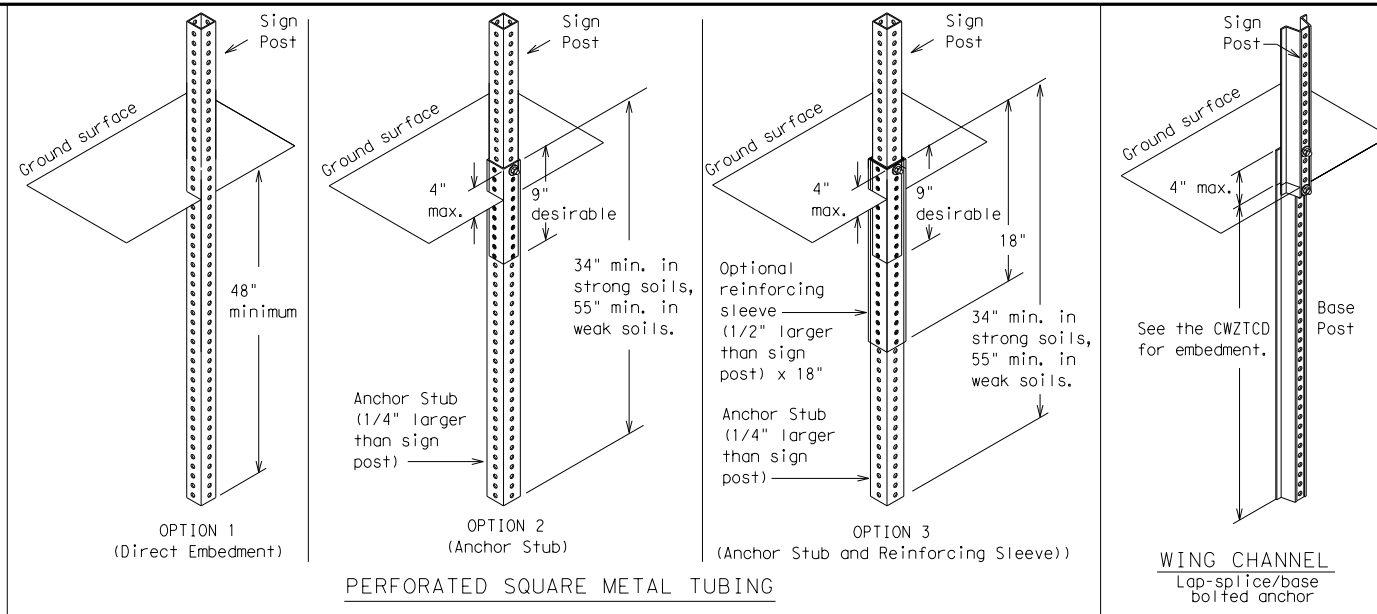
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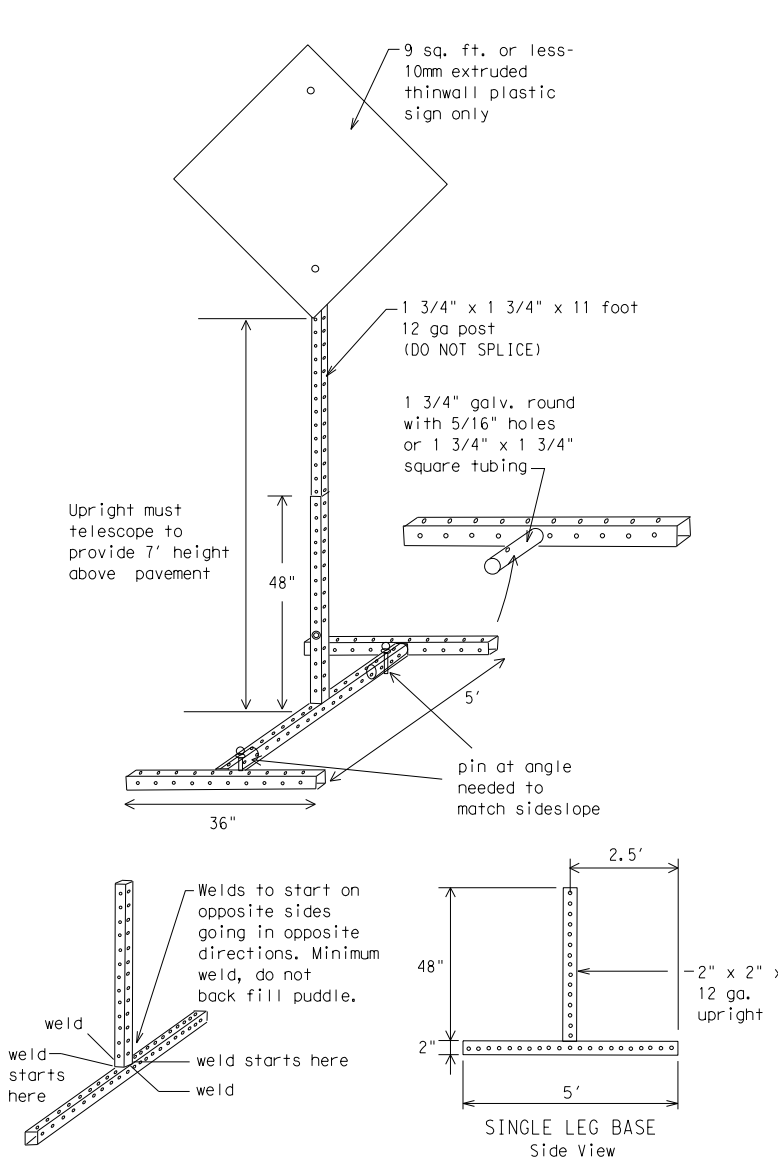
SKID MOUNTED WOOD SIGN SUPPORTS

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



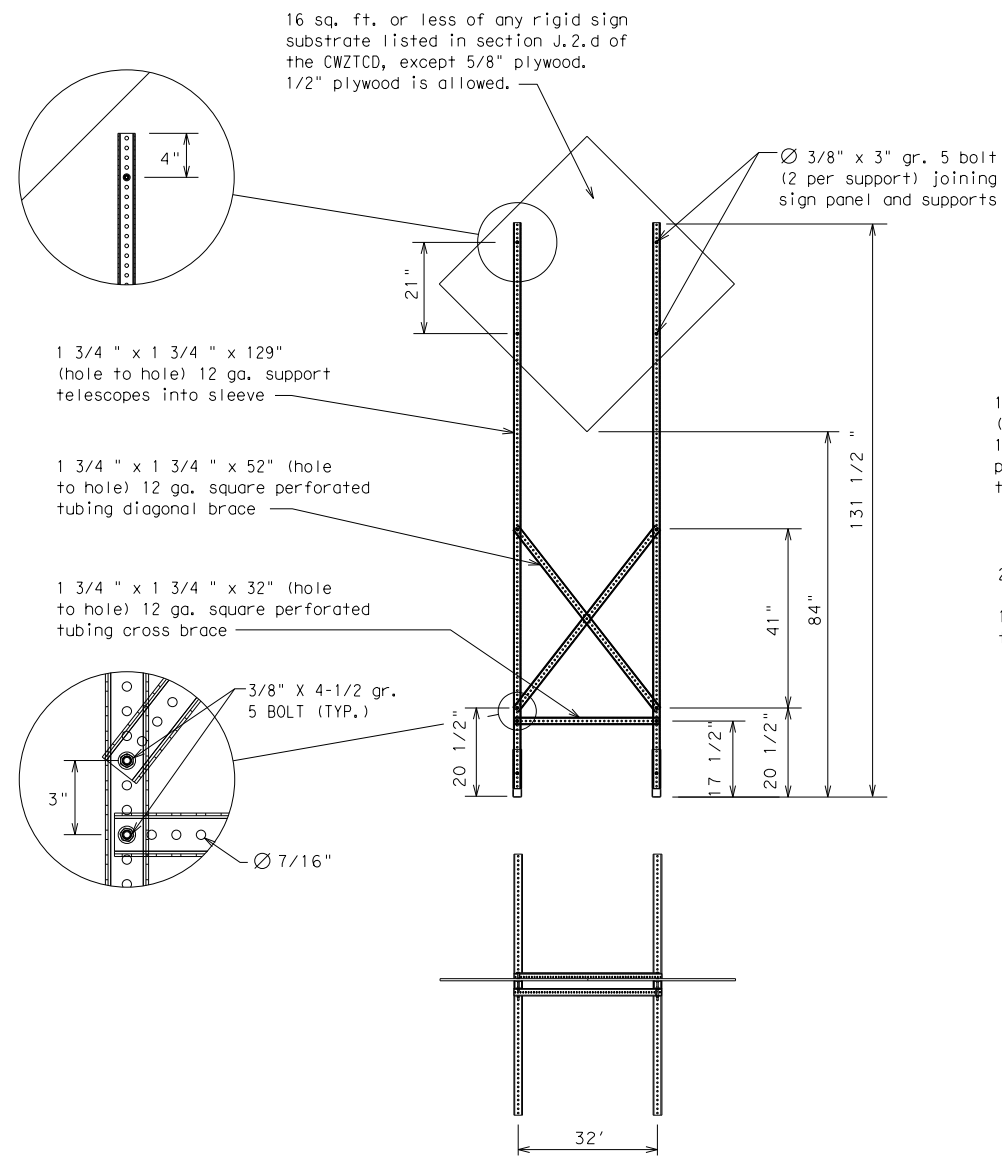
GROUND MOUNTED SIGN SUPPORTS

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



SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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



WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

- * See BC(4) for definition of "Work Duration."
- ** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.
- See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

SHEET 5 OF 12



BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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

PORTABLE CHANGEABLE MESSAGE SIGNS

- 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.

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
Cannot	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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE
ROAD CLOSED AT SH XXX
ROAD CLSD AT FM XXXX
RIGHT X LANES CLOSED
CENTER LANE CLOSED
NIGHT LANE CLOSURES
VARIOUS LANES CLOSED
EXIT CLOSED
MALL DRIVEWAY CLOSED
XXXXXXXXX BLVD CLOSED

Other Condition List

FRONTAGE ROAD CLOSED
SHOULDER CLOSED XXX FT
RIGHT LN CLOSED XXX FT
RIGHT X LANES OPEN
DAYTIME LANE CLOSURES
I-XX SOUTH EXIT CLOSED
EXIT XXX CLOSED X MILE
RIGHT LN TO BE CLOSED
X LANES CLOSED TUE - FRI

ROADWORK XXX FT
FLAGGER XXXX FT
RIGHT LN NARROWS XXXX FT
MERGING TRAFFIC XXXX FT
LOOSE GRAVEL XXXX FT
DETOUR X MILE
ROADWORK PAST SH XXXX
BUMP XXXX FT
TRAFFIC SIGNAL XXXX FT

ROAD REPAIRS XXXX FT
LANE NARROWS XXXX FT
TWO-WAY TRAFFIC XX MILE
CONST TRAFFIC XXX FT
UNEVEN LANES XXXX FT
ROUGH ROAD XXXX FT
ROADWORK NEXT FRI-SUN
US XXX EXIT X MILES
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
DETOUR NEXT X EXITS
USE EXIT XXX
STAY ON US XXX SOUTH
TRUCKS USE US XXX N
WATCH FOR TRUCKS
EXPECT DELAYS
REDUCE SPEED XXX FT
USE OTHER ROUTES
STAY IN LANE *

Location List

AT FM XXXX
BEFORE RAILROAD CROSSING
NEXT X MILES
PAST US XXX EXIT
XXXXXXXXX TO XXXXXXXX
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.

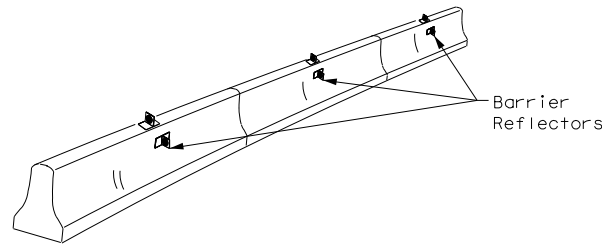
SHEET 6 OF 12

<p>BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)</p> <p>BC (6) - 21</p>			
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
©TxDOT November 2002	CONT	SECT	JOB
REVISIONS	0910	07	072
9-07 8-14	DIST	COUNTY	SHEET NO.
7-13 5-21	TYLER	GREGG	43

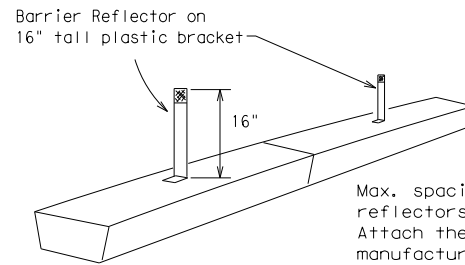
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors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



CONCRETE TRAFFIC BARRIER (CTB)



LOW PROFILE CONCRETE BARRIER (LPCB)

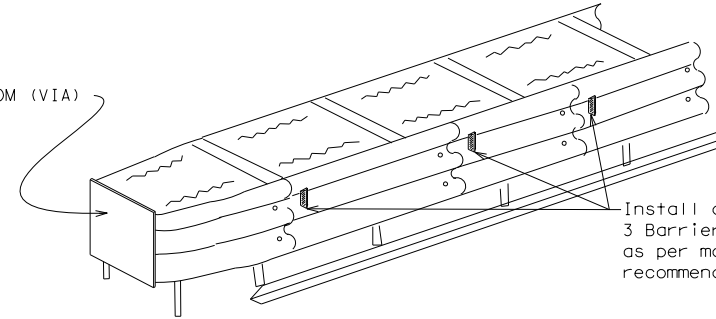
LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

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

- 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.

See D & OM (VIA)



DELINEATION OF END TREATMENTS

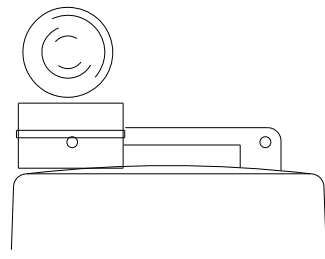
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

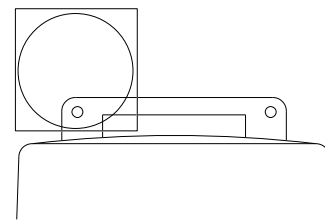
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet 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_{FL} or C_{FL} 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.



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

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.



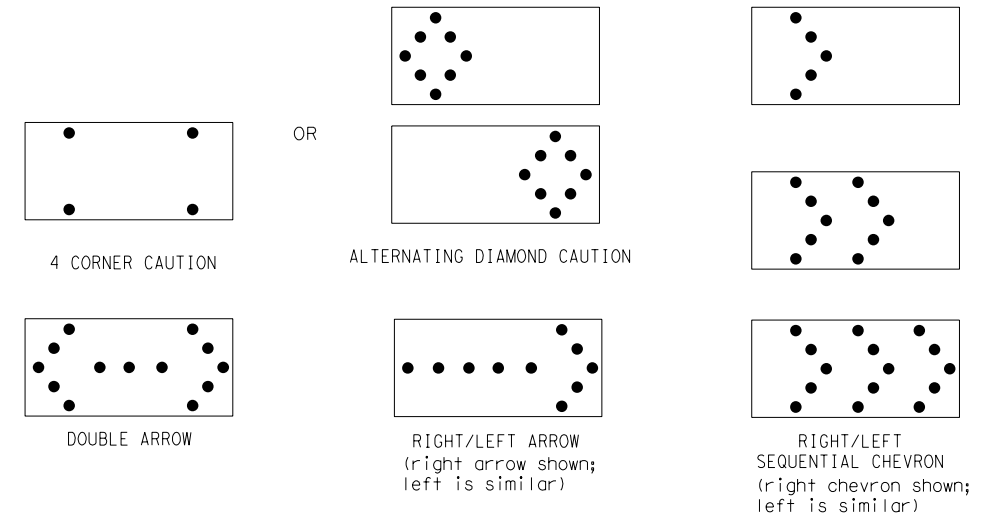
Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

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.

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

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.

SHEET 7 OF 12

Texas Department of Transportation
 Traffic Safety Division Standard

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

BC(7)-21

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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:

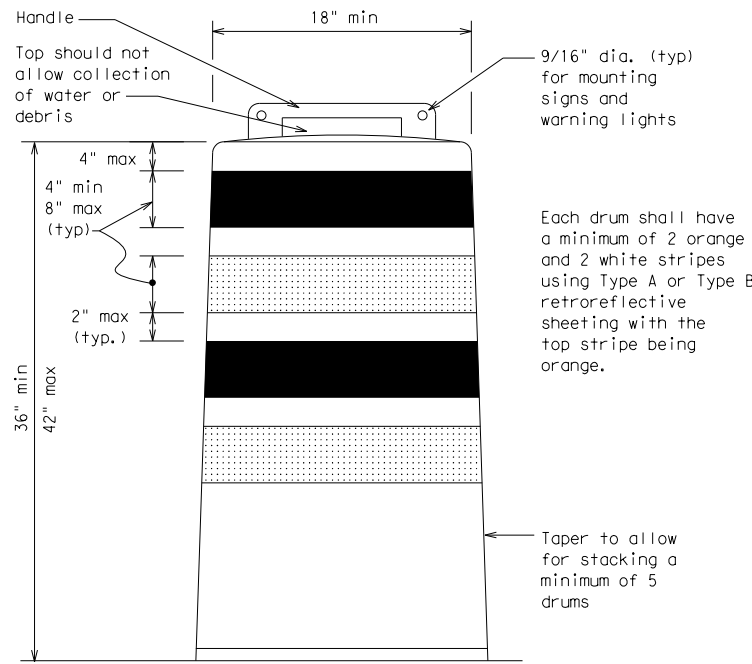
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

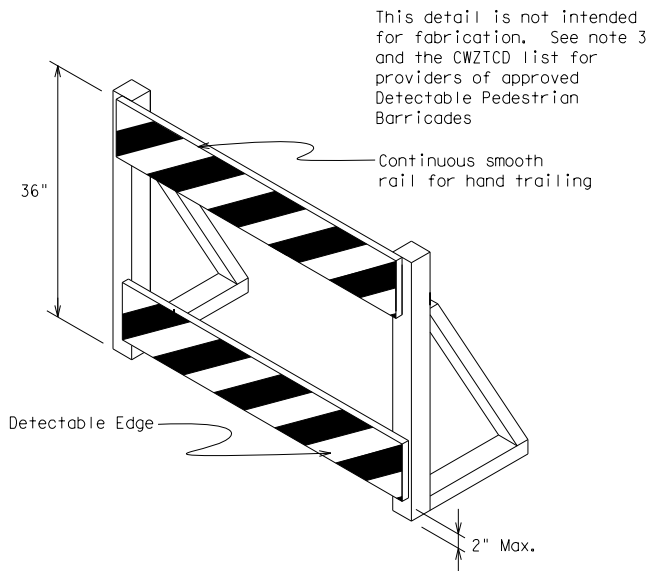
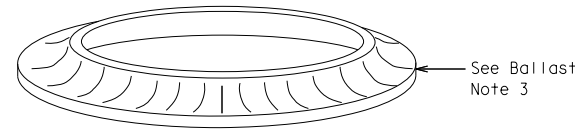
BALLAST

- 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.



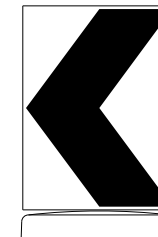
Each drum shall have a minimum of 2 orange and 2 white stripes using Type A or Type B retroreflective sheeting with the top stripe being orange.

Taper to allow for stacking a minimum of 5 drums

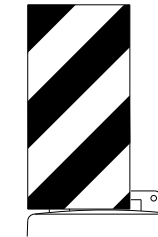


DETECTABLE PEDESTRIAN BARRICADES

- 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_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
- 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



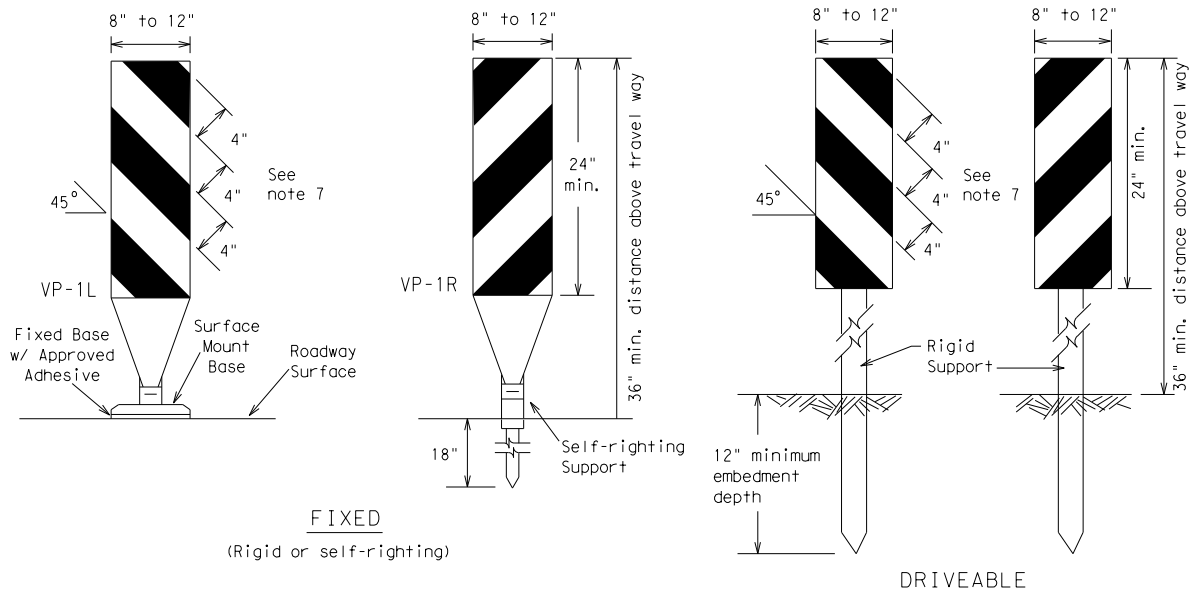
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (8) - 21

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9-07	5-21	TYLER	GREGG	45					
7-13									

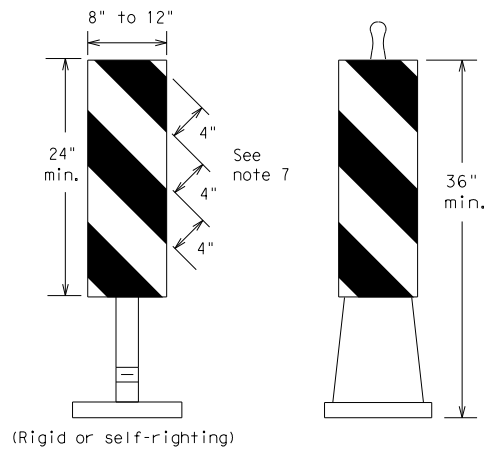
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FIXED
(Rigid or self-righting)

DRIVEABLE

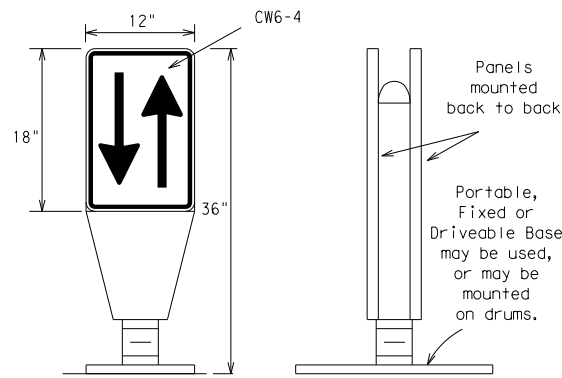


(Rigid or self-righting)

PORTABLE

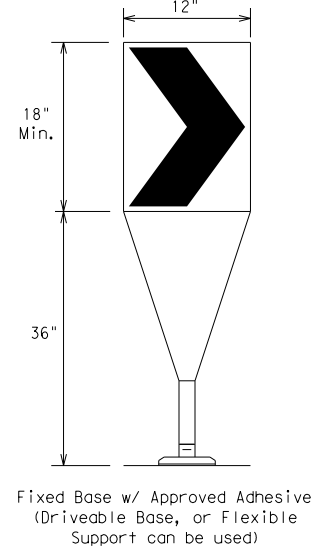
VERTICAL PANELS (VPs)

- 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)

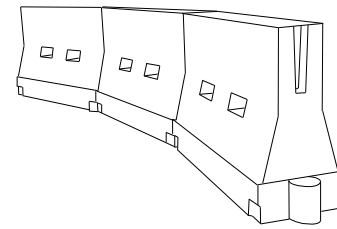
- Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base 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_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.



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

- 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_{FL} or Type C_{FL} 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 * X			Suggested Maximum Spacing of Channelizing Devices	
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent
30	L = WS ² / 60	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L = WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

*X 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

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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	TYLER	GREGG		46

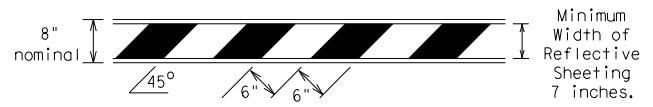
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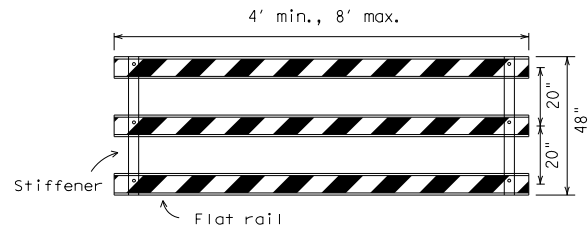
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



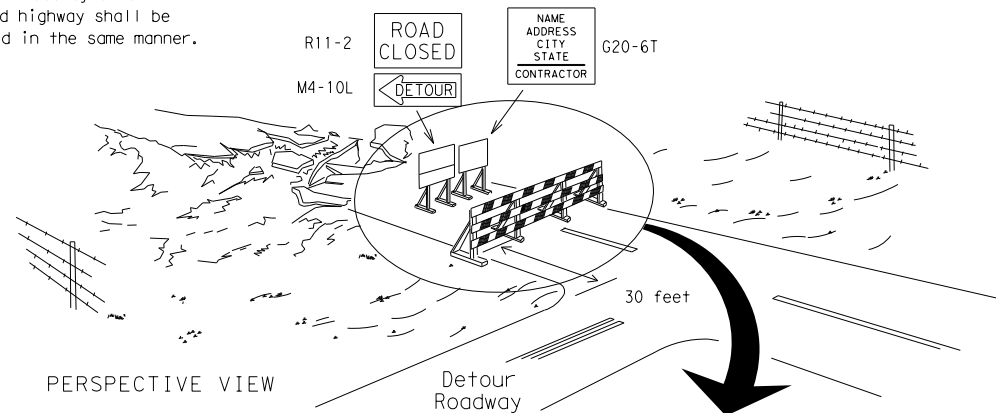
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

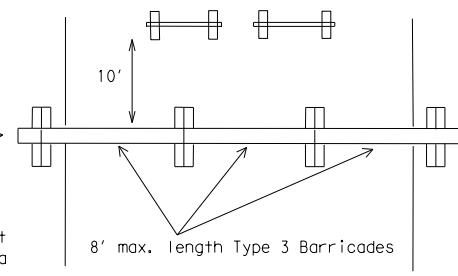
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

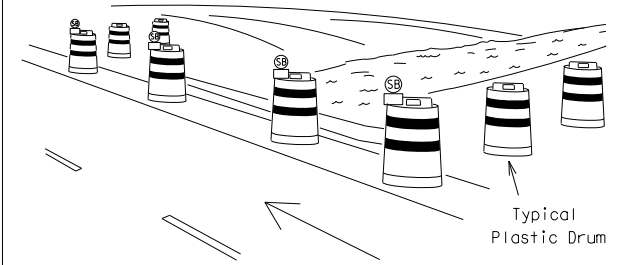
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



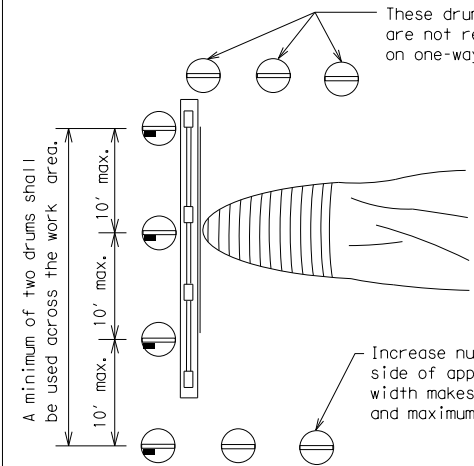
PLAN VIEW

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

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

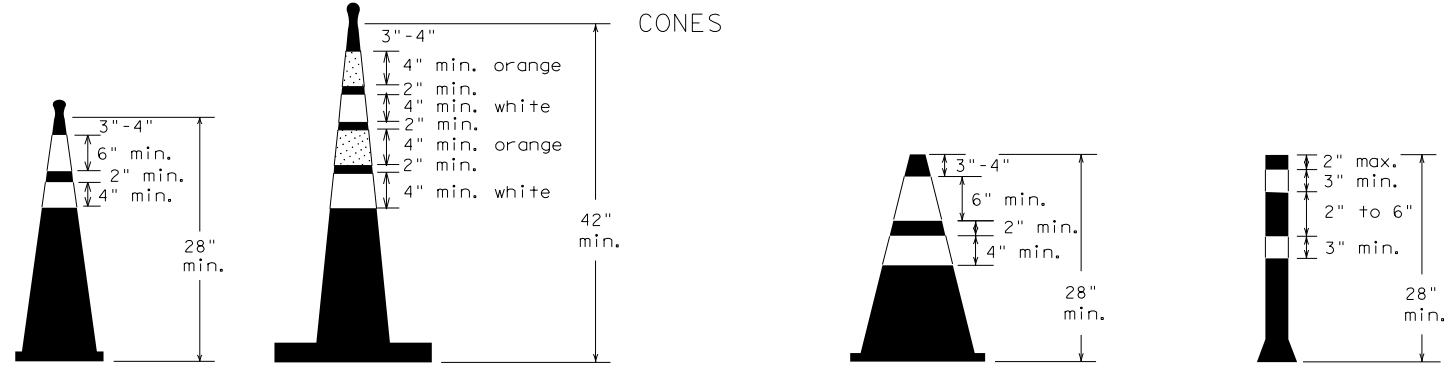


PLAN VIEW

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



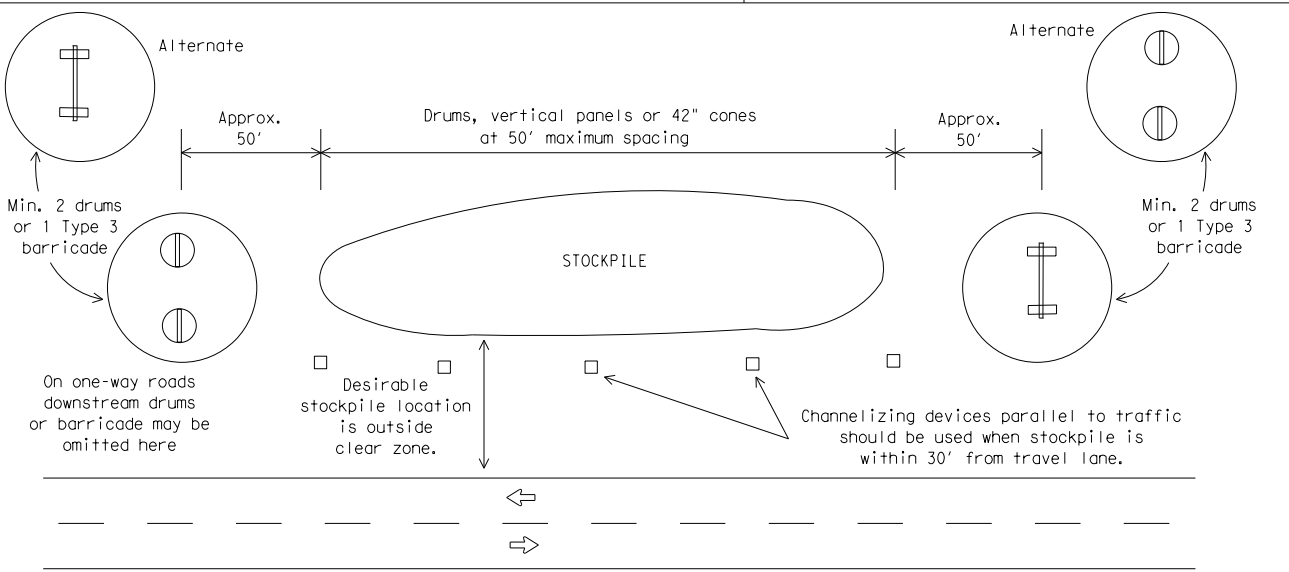
Two-Piece cones

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.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

		Traffic Safety Division Standard	
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES			
BC (10) - 21			
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT November 2002	CONT	SECT	JOB
REVISIONS	0910	07	072
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7-13 5-21	TYLER	GREGG	SHEET NO. 47

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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.

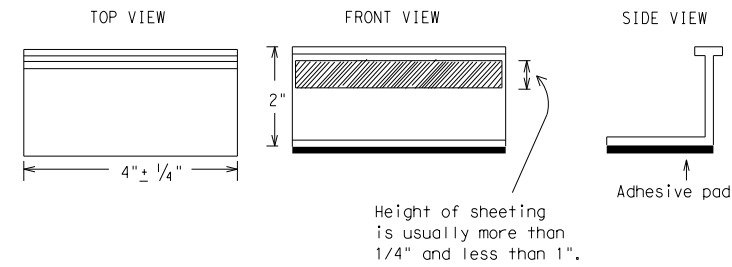
MAINTAINING WORK ZONE PAVEMENT MARKINGS

- 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

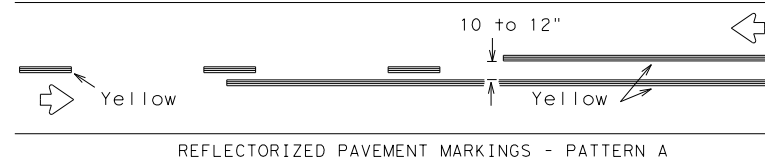
BC(11)-21

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11-02 8-14				

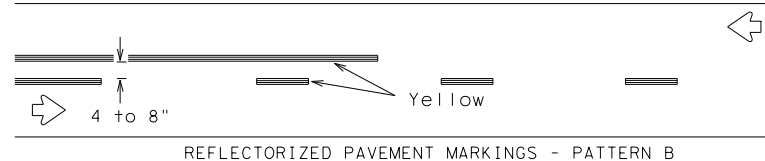
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PAVEMENT MARKING PATTERNS

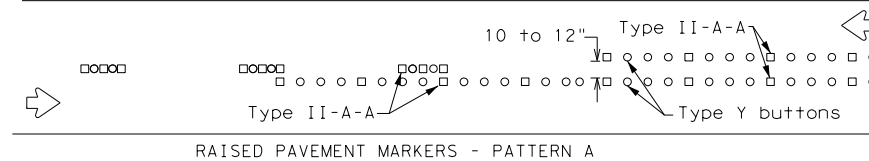


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

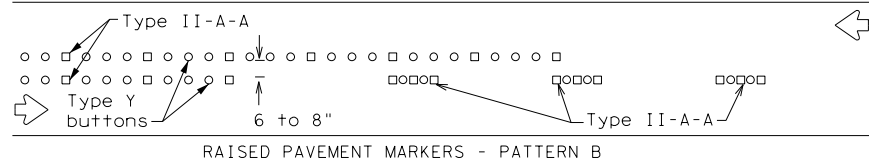


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

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.

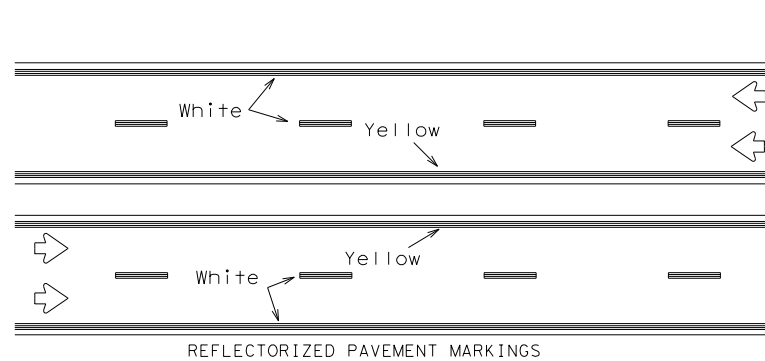


RAISED PAVEMENT MARKERS - PATTERN A



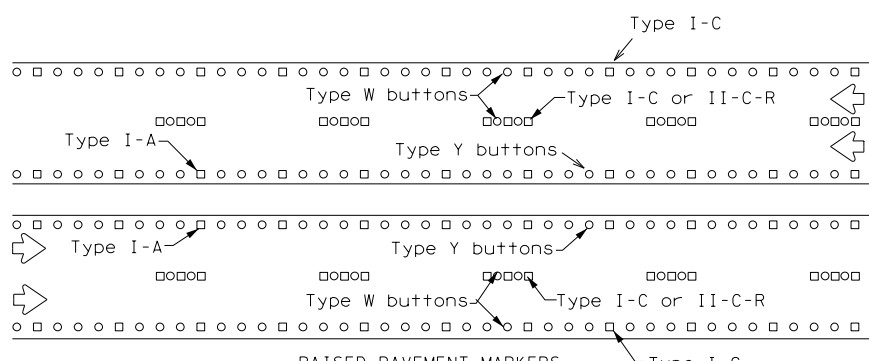
RAISED PAVEMENT MARKERS - PATTERN B

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



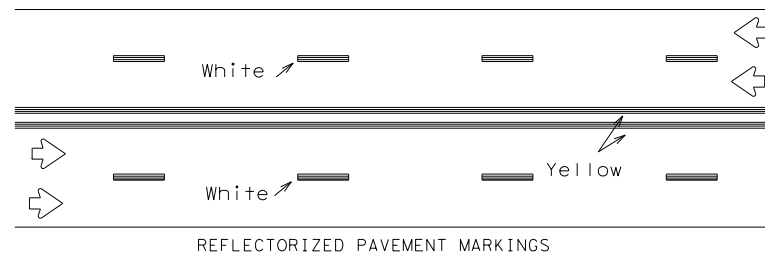
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



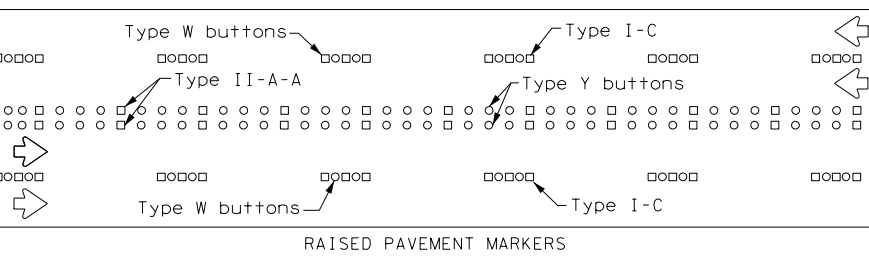
RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY



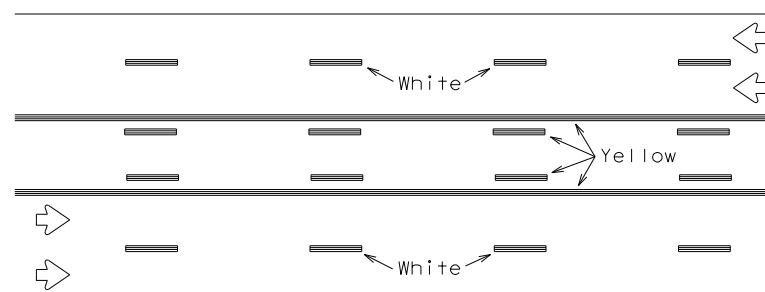
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



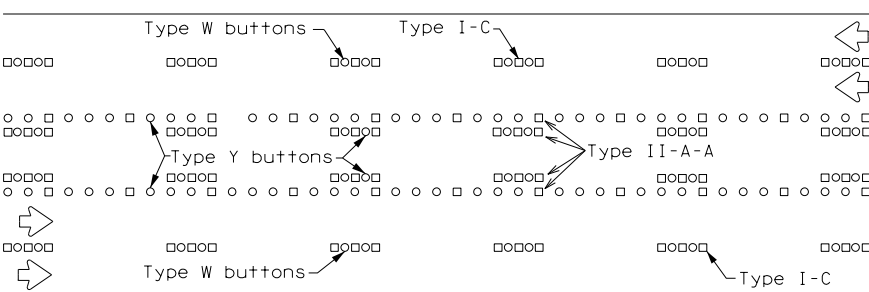
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

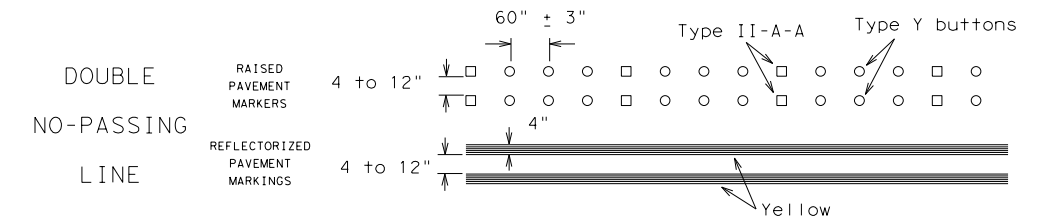
Prefabricated markings may be substituted for reflectorized pavement markings.



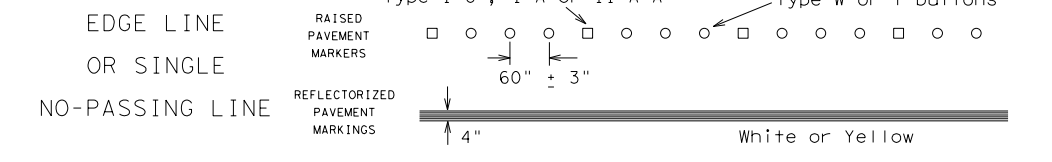
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE

STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



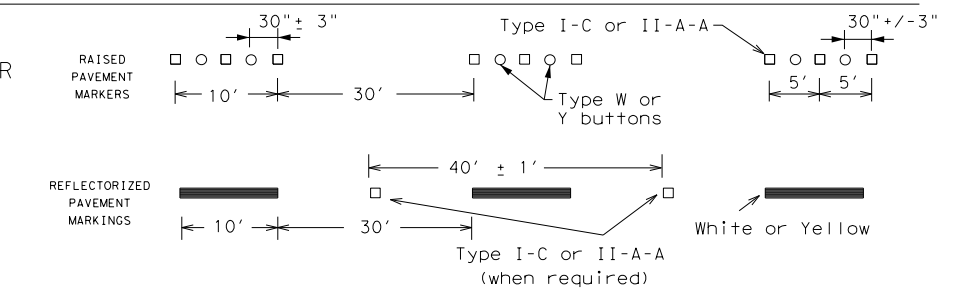
SOLID LINES



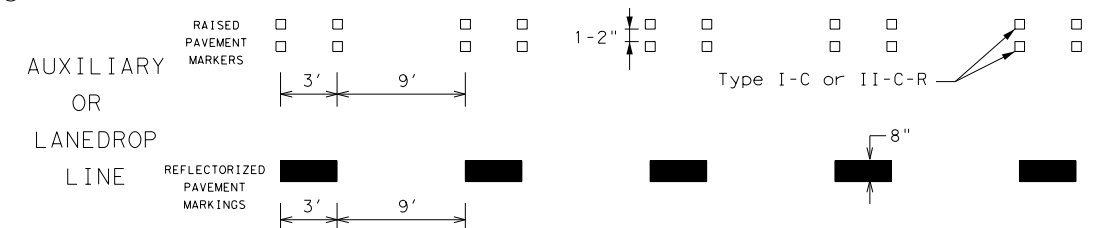
WIDE LINE



CENTER LINE OR LANE LINE

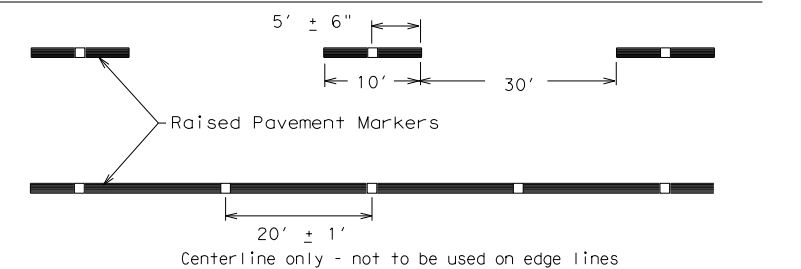


BROKEN LINES



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

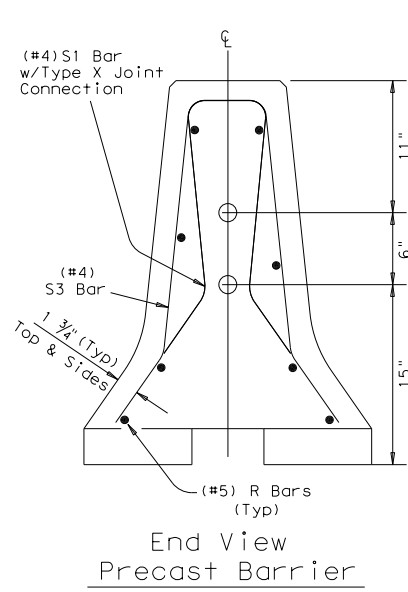
BC (12) - 21

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

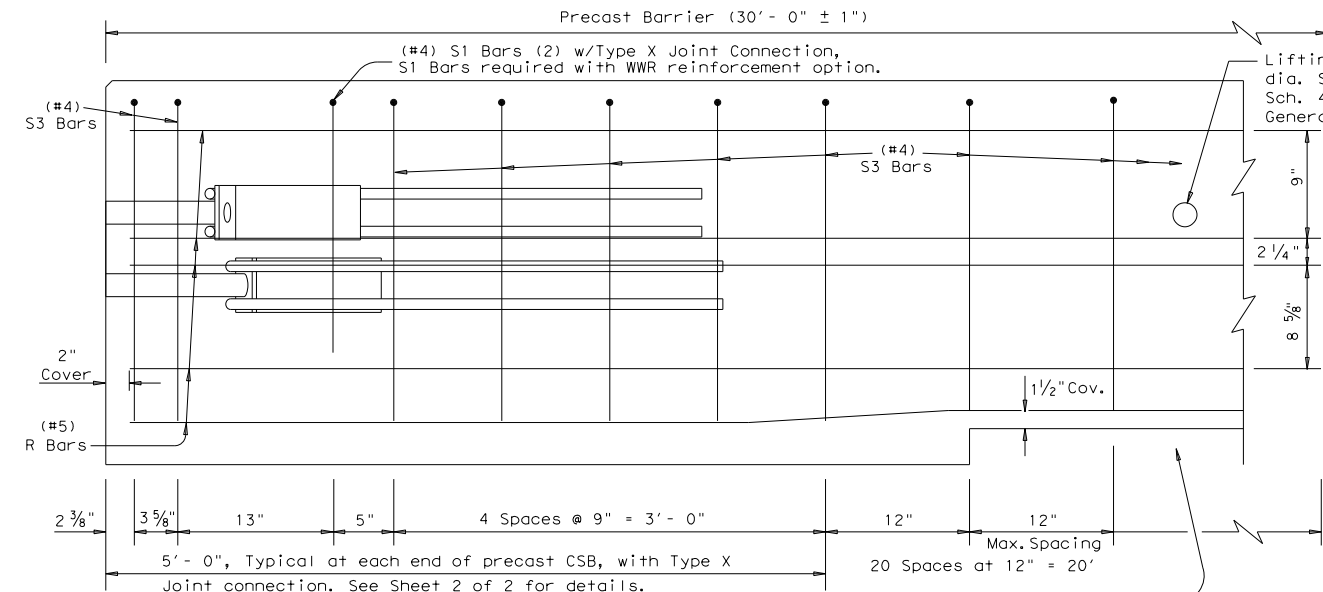
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©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
1-97 9-07 5-21				
2-98 7-13				
11-02 8-14	TYLER	COUNTY	GREGG	SHEET NO.
				49

DATE: 7/22/2021
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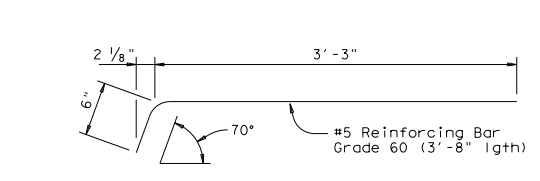
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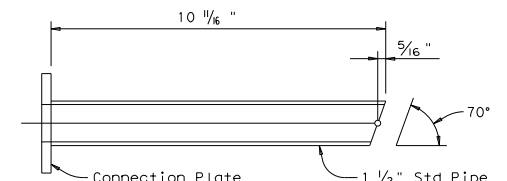
End View Precast Barrier
 See sheet 2 of 3 for Joint connection Type X



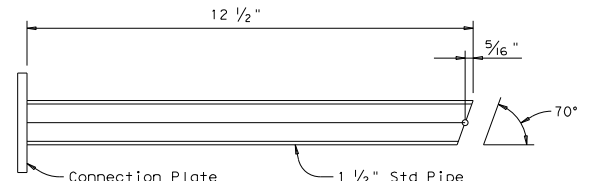
Reinforcement for Precast (CSB) Concrete Safety Barrier (Type 1)
 Showing reinforcement for Joint Type X



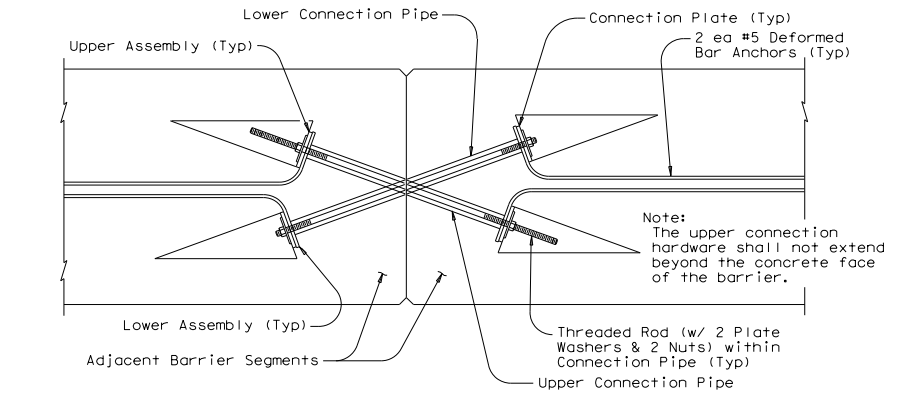
DEFORMED BAR ANCHOR DETAILS
 Two (2) Bars required per assembly. Eight (8) required per joint.



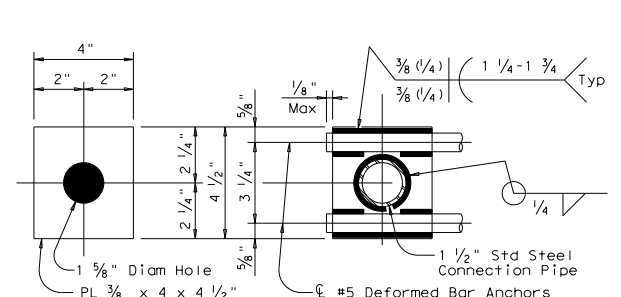
UPPER CONNECTION PIPE DETAILS
 One (1) Steel Pipe required per Upper Assembly. Two (2) required per joint.



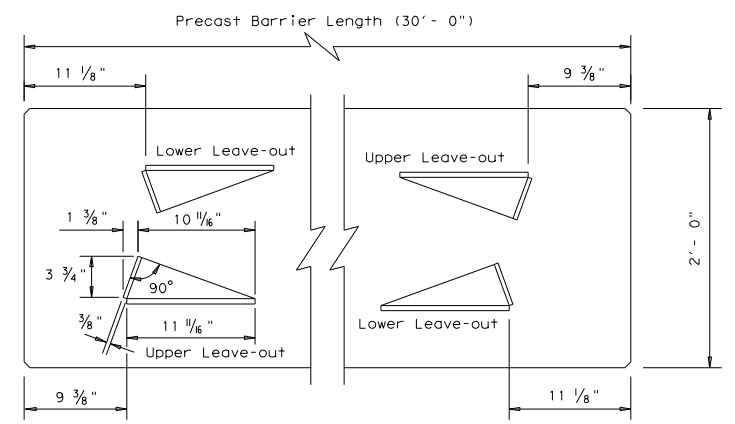
LOWER CONNECTION PIPE DETAILS
 One (1) Steel Pipe required per Lower Assembly. Two (2) required per joint.



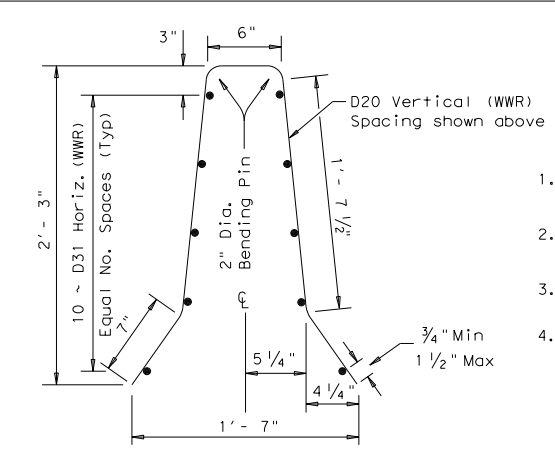
TYPE X JOINT INSTALLATION DETAIL
 Barrier reinforcing and Type X Joint Leave-Out dimensions not shown for clarity.



CONNECTION PLATE DETAILS
 One (1) Plate required per assembly. Four (4) required per joint. All steel fittings for joint Type X shall be galvanized after fabrication in accordance with Item 445.

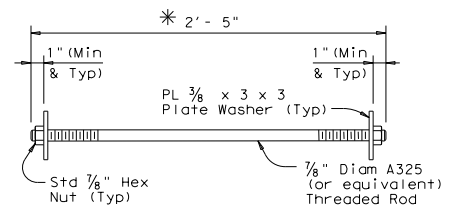


BARRIER PLAN AT END JOINTS

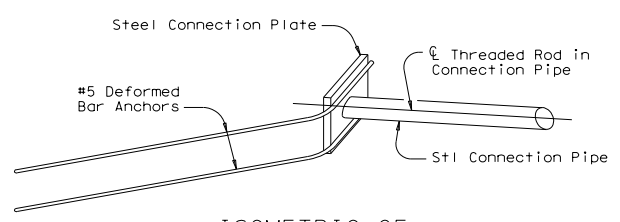


Welded Wire Reinforcement (WWR) Option for Bars R and S3
 (WWR) General Notes

1. Deformed Welded Wire Reinforcement (WWR) shall conform to ASTM A497.
2. Welded wire cage may be cut or bent to accommodate the Type X joint connection and drainage slots, as directed by the Engineer.
3. All reinforcement shall comply with Item 440, "Reinforcing Steel."
4. Combinations of reinforcing steel and WWR will be permitted, as directed by the Engineer. The dimension from the end of the barrier section to the first wire shall not exceed 3".

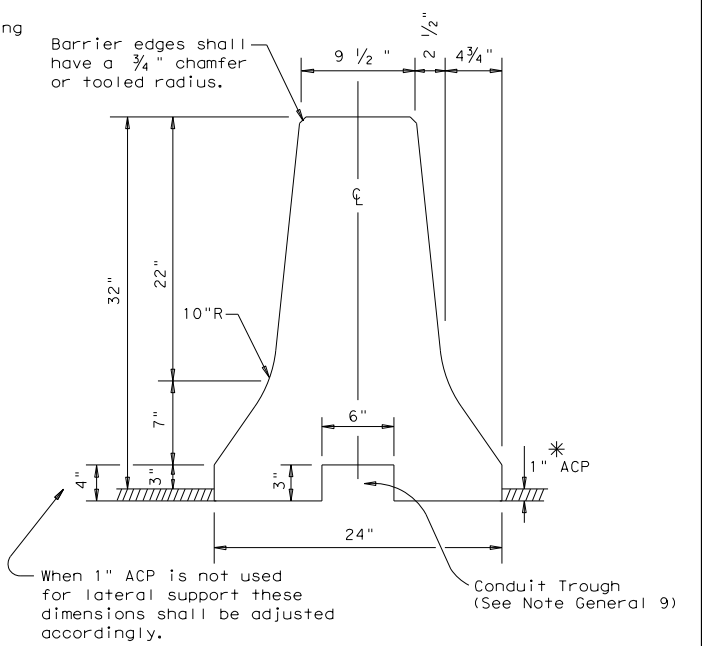


CONNECTION BOLT OR THREADED ROD DETAIL
 Two (2) Threaded Rods (or Equivalent Hex Hd. Bolts) (w/ Two (2) PL 3/8 x 3 x 3 Plate Washers & Two (2) Std Hex Nuts) required per joint.



ISOMETRIC OF TYPICAL WELDED ASSEMBLY
 Four (4) [2 Upper & 2 Lower] Assemblies required per joint.

Weight of one Precast 30 ft. (CSB) segment = Approx. 6.5 Tons or 440 lbs per ft.



Concrete Safety Barrier

* When 1" ACP is "not" used as lateral support for permanent barrier placement. A permissible method of attaining the equivalent lateral support may be used, See CSB(6) sheet.

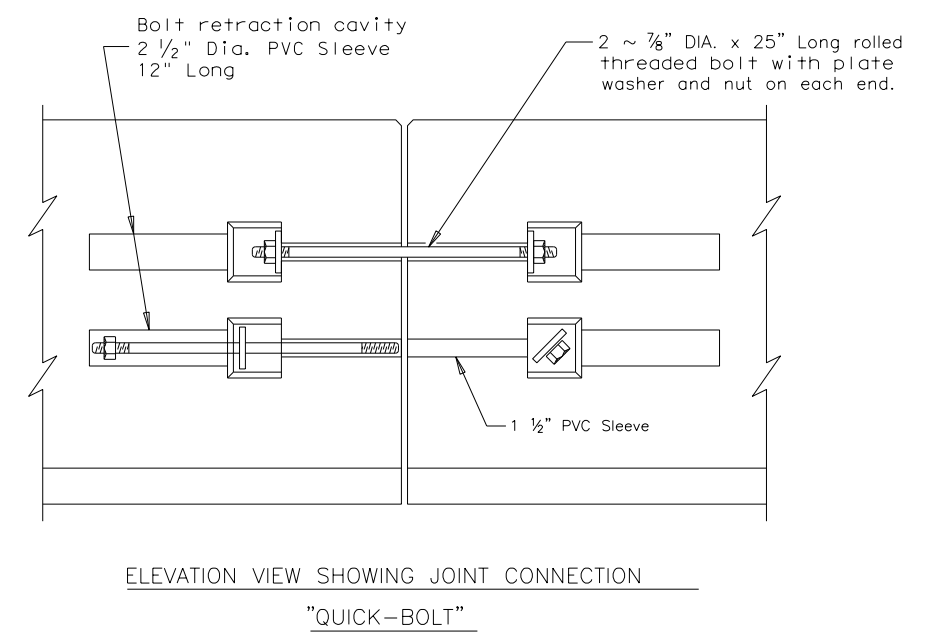
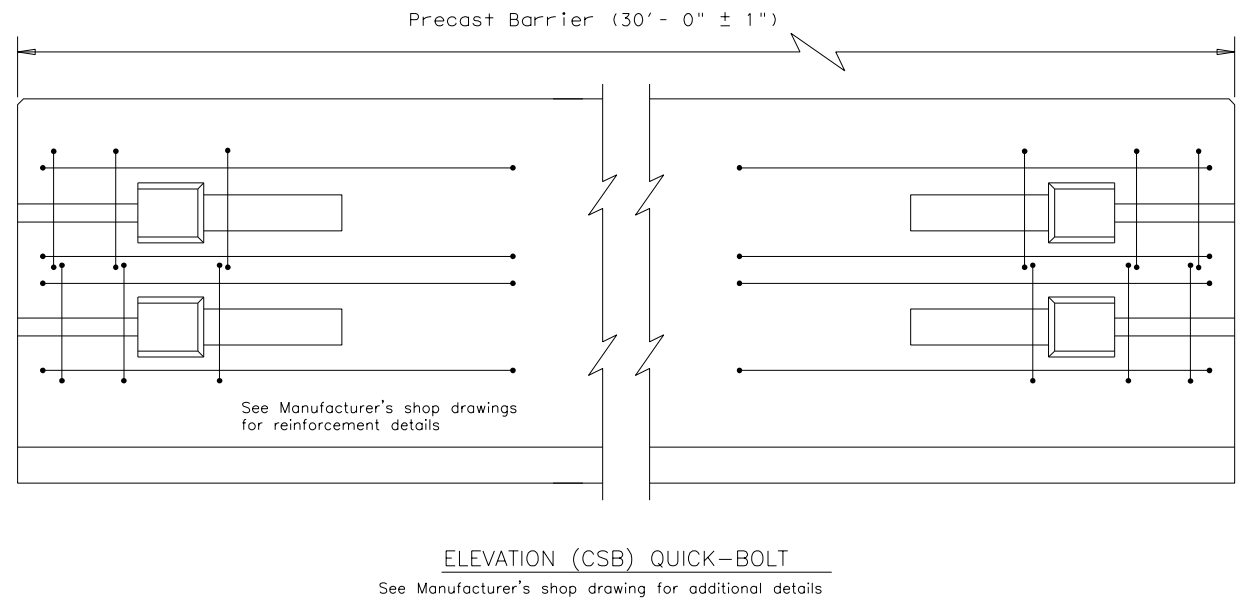
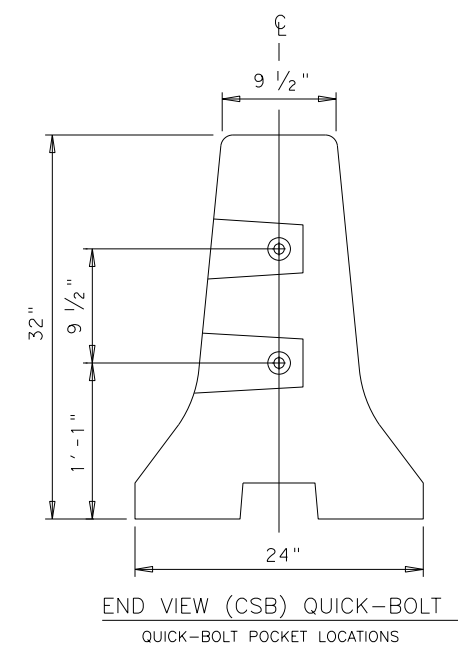
GENERAL NOTES

1. Concrete shall be Class H with a minimum compressive strength of 3,600 psi.
2. Where used, rebar reinforcement shall be Grade 60 and conform to ASTM A615.
3. Precast barrier length shall be 30 ft. unless otherwise specified on the plans.
4. All precast barrier edges shall have a 3/4 inch chamfer or tooled radius.
5. All concrete, reinforcement, joint connection systems, grout etc. as shown, are considered as part of the barrier payment.
6. All steel assemblies for joint shall be galvanized after fabrication in accordance with Item 445, "Galvanizing."
7. Regardless of the method of handling, barrier lifting points shall be approx. 7.5 feet from the ends of the barrier. Lifting devices and attachments to barrier sections shall be approved by the Engineer.
8. Surface finishing and grouting (where required) shall be two parts sand one part cement with enough water to make the mixture plastic. Grouting shall be done in a manner that will assure a smooth surface. Surface finishing shall be considered subsidiary to the various bid items involved.
9. Conduit trough when required shall be shown elsewhere on the plans, or as directed by the Engineer.

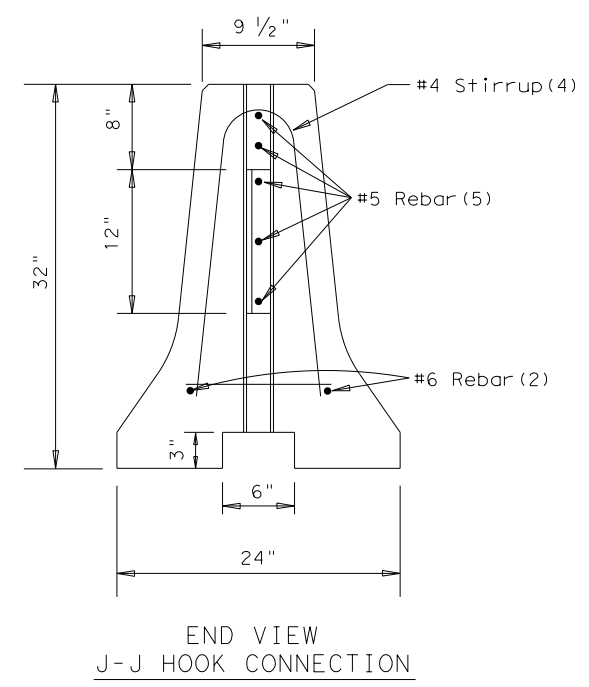
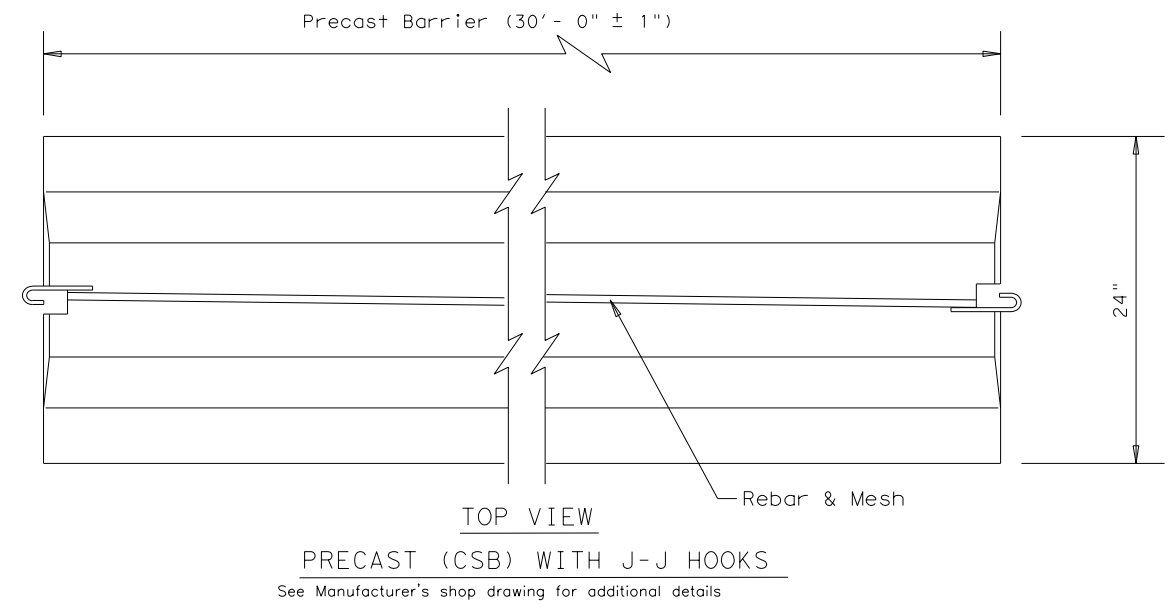
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CONCRETE SAFETY BARRIER (F-SHAPE) PRECAST BARRIER (TYPE 1) CSB(1)-10			
FILE: csb110.dgn	DN: TxDOT	CK: AM	DW: BD
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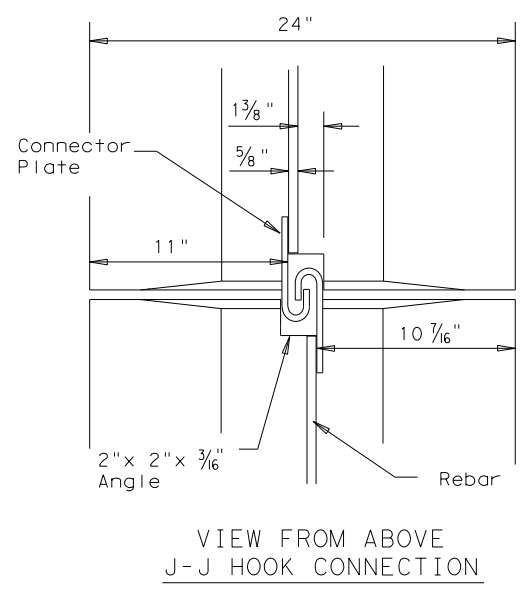
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Joint Connection (Type Q)



Joint Connection (Type J)



Proprietary Joint Connections (CSB)

Two proprietary joint connections are acceptable as alternates to the (Type X) connection shown, here on. These joint connections types are:

J-J Hooks by Easi-Set Industries, (800)547-4045
 Quick-Bolt by Bexar Concrete, (210)497-3773

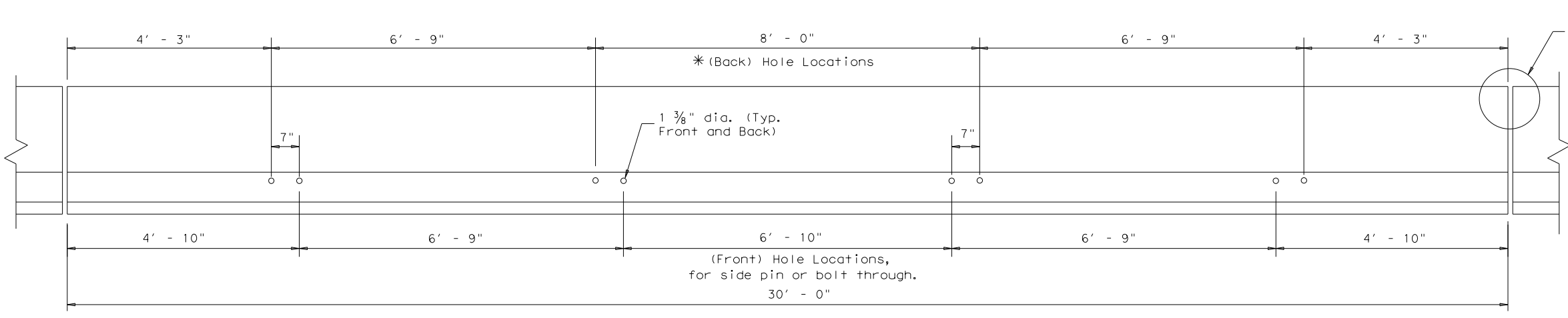
If one of these connection systems are exclusively specified in the plans, prior approval for sole source use must be obtained. Details of the connection components and barrier reinforcement for these systems, will be shown on the manufacturer's shop drawing(s) furnished to the Engineer.

SHEET 2 OF 2

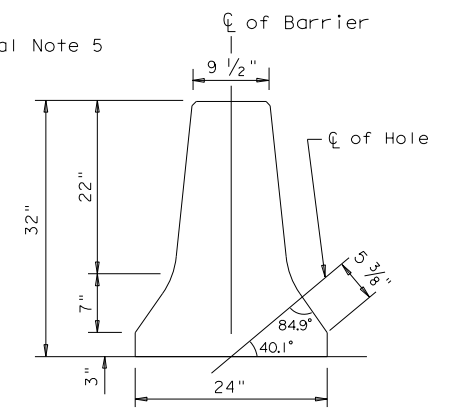
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	TYLER	GREGG	51

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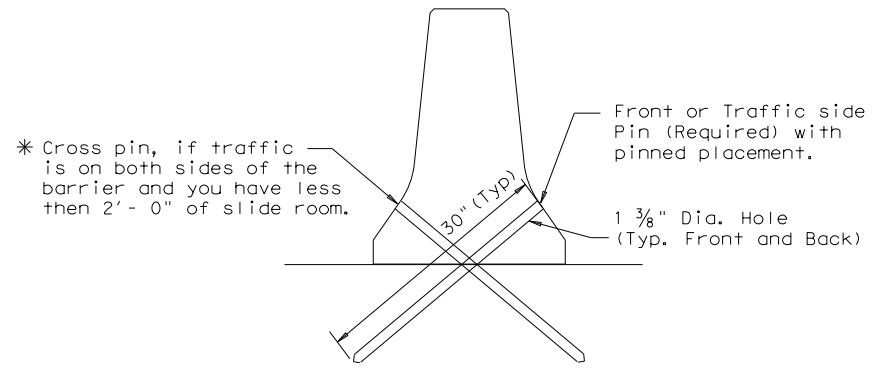
DETAIL 1



HOLE LOCATION DETAIL

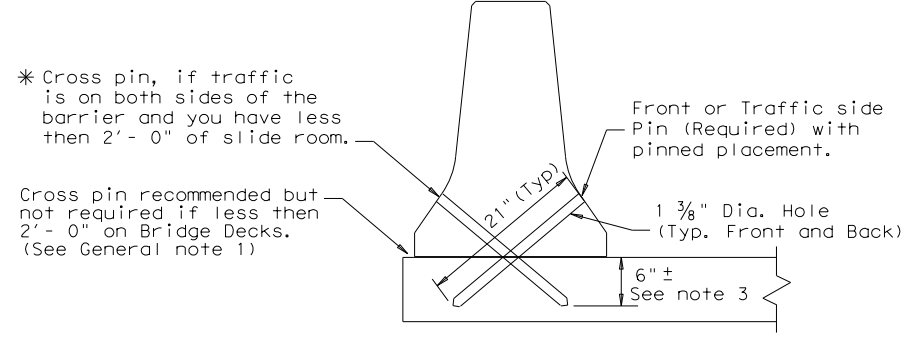
GENERAL NOTES

- These details provide a method of laterally restraining precast concrete barrier to limit deflections under normally expected passenger vehicle impacts. These details are intended for use in work zones, primarily on bridge decks, or pavement where temporary barrier must be placed less than 2 ft. from the longitudinal edge of the deck or dropoff and parallel to the direction of travel. Other applications of these details are acceptable as directed by the Engineer.
- Each precast concrete barrier section shall have a minimum of four or total of eight 1 3/8" ID, holes formed or cored through the barrier. The center lines of the holes are shown in the hole location detail. If rebar is encountered, the entry point may be shifted 2" plus or minus longitudinally along the barrier. The eight holes are spaced along the length of the barrier as shown in Detail 1.
- The drilling of the travel surface is accomplished by placing the pre-drilled barrier section on the travel surface in the desired position. Then the hole is drilled with the bit passing through the hole in the barrier. The bit is to be inserted into the hole in the barrier so that the travel surface is drilled to a point which is slightly more than the pin length.
- Note that steel washers have been welded to the top of the steel pins to aid in the removal of the pins, when the barrier is removed.
- See CSB(1) standard sheets for reinforcement requirements and joint connection types.
- The forming or coring of holes in the barrier, drilling of holes in bridge deck or pavement, fabrication and materials for the 1 1/4" pins, installation of pins, and any repair to the barrier shall be considered as subsidiary to the barrier bid items.
- The barrier and travel surface will be repaired as directed by the Engineer in accordance with Item 429, "Concrete Structure Repair."
- Provide galvanized bolts, nuts, and plate washers. All steel pins shall be galvanized after fabrication in accordance with Item 445, "Galvanizing."
- Weight of barrier is approx. 440 lbs per foot.



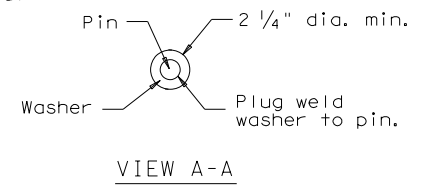
DETAIL 2

Placement on (ACP) Asphalt Concrete Pavement or Treated Base Material (30" Pin required)



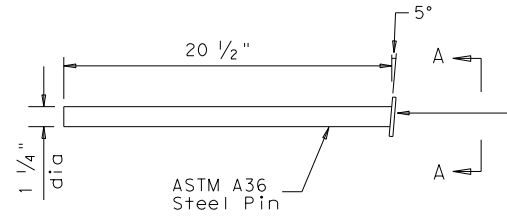
DETAIL 3

Bridge Deck or CRCP (21" pin required)

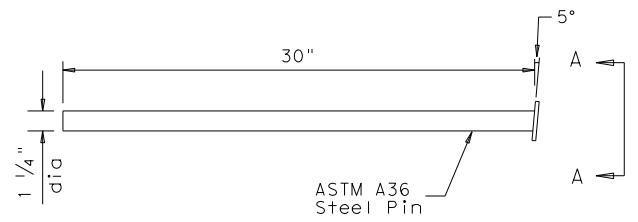


VIEW A-A

CORE DRILLING EXISTING BARRIER
 Core drilling existing concrete barrier is permitted. Holes shall be drilled with coring or masonry drilling type equipment. Percussion (star) drilling shall not be used. A special drill bit (to cut through existing reinforcing) will likely be required. Spalls in the concrete exceeding 1/2" shall be patched.



(21") PIN DETAIL
See Detail 3

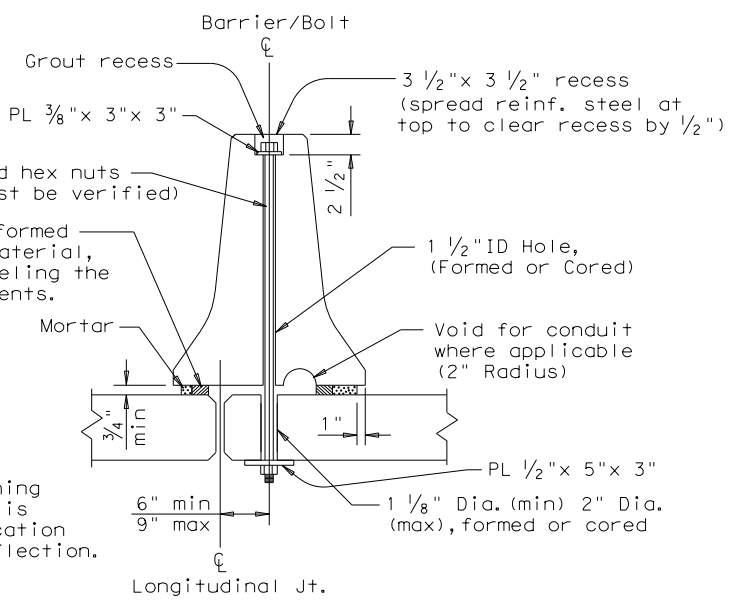


(30") PIN DETAIL
See Detail 2

Note: The "Bolt Through" method of pinning precast barrier on a bridge deck, is primarily used in a permanent location that requires limited barrier deflection.

PRECAST CSB (BOLT THROUGH) PLACEMENT OVER LONGITUDINAL EXPANSION JOINT

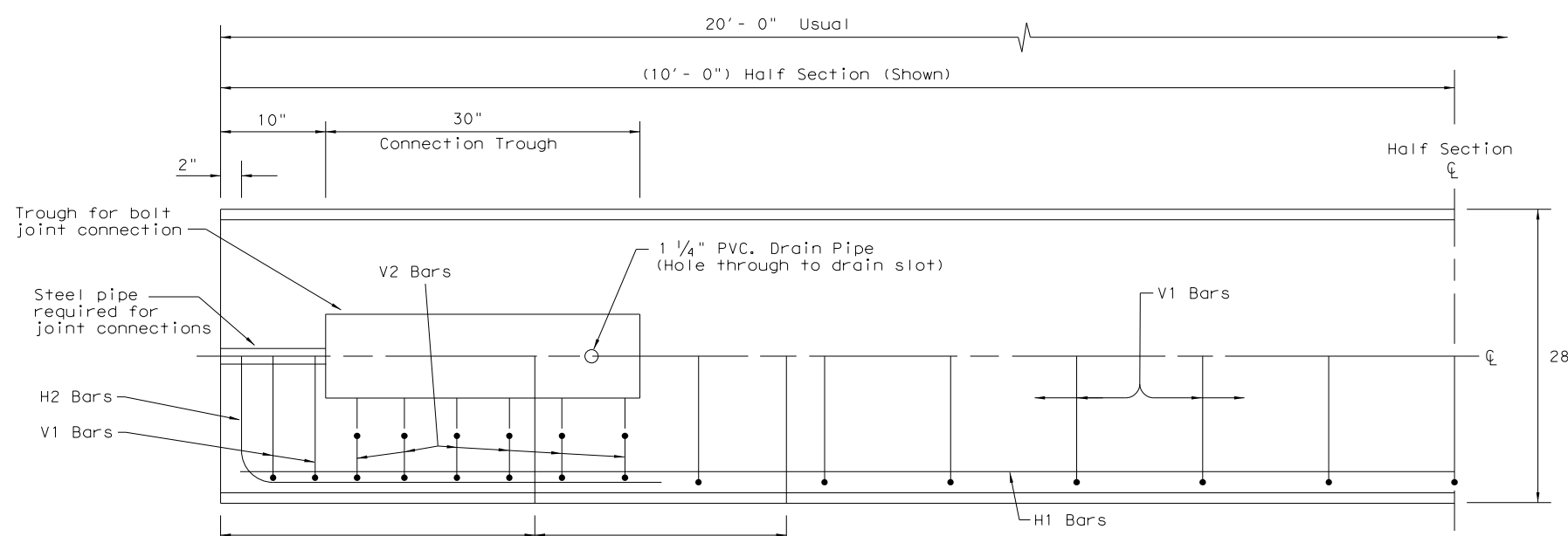
For bolt through locations, use the (Front) hole locations shown on Detail 1.



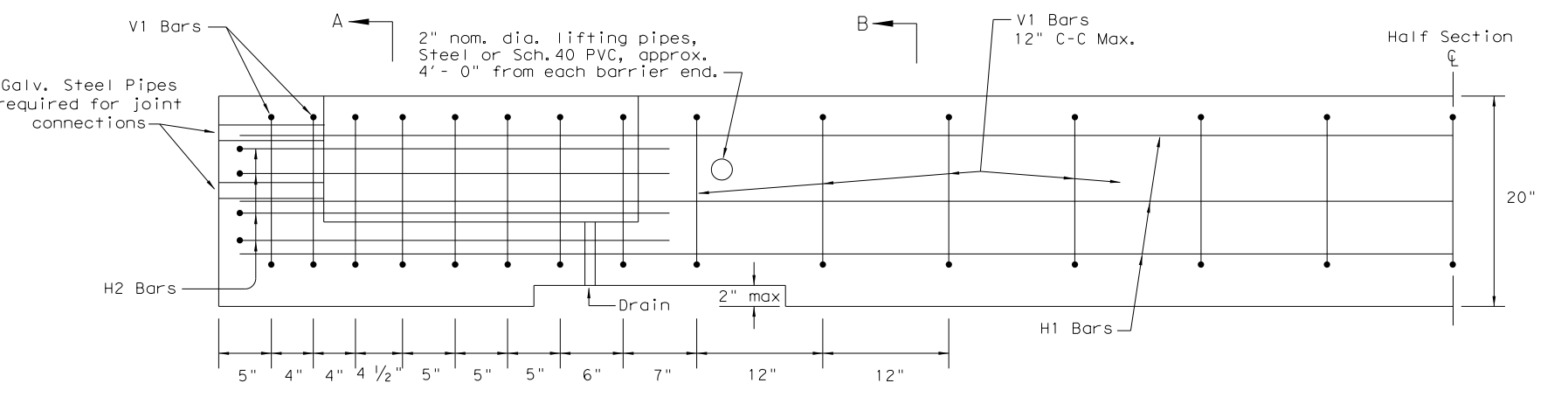
		Design Division Standard	
CONCRETE SAFETY BARRIER (F-SHAPE) PRECAST BARRIER (TYPE 1) PINNED PLACEMENT CSB(7) - 10			
FILE: csb710.dgn	DN: TxDOT	CK: AM	DW: BD
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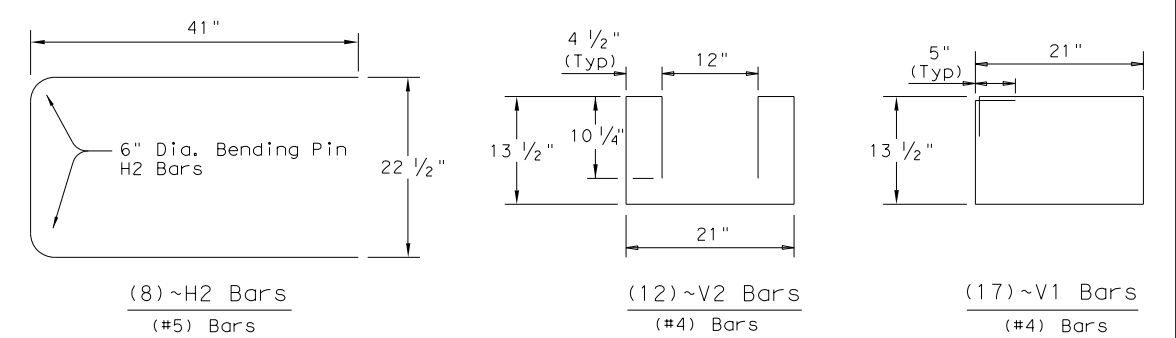
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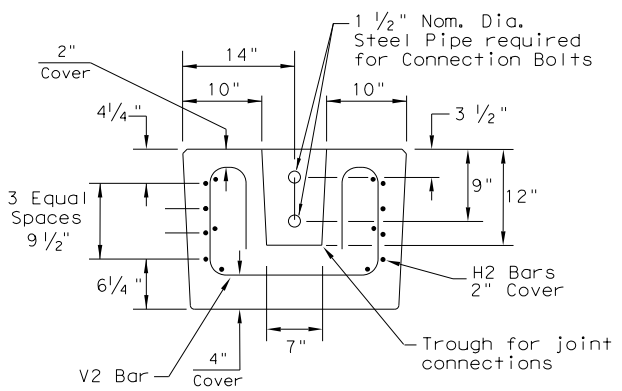
PLAN
 (TYPE 1) BARRIER SEGMENT
 (SYMMETRICAL ABOUT CENTER LINES)



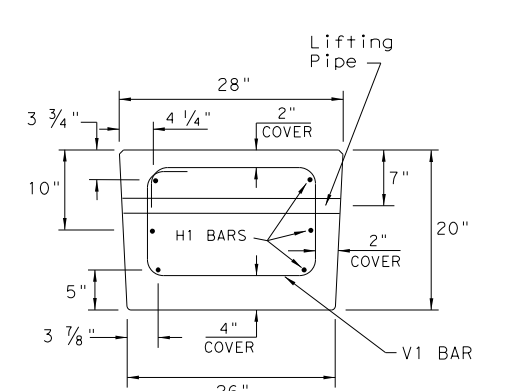
ELEVATION
 (TYPE 1) BARRIER SEGMENT
 (SYMMETRICAL ABOUT CENTER LINES)



REINFORCING STEEL DETAILS
 TYPE 1 - BARRIER SEGMENT
 Note: Use 2" Dia. Bending Pin, unless otherwise shown



SECTION A-A

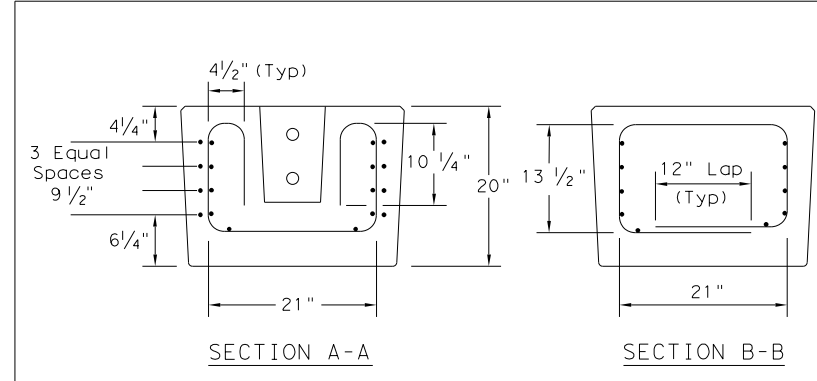


SECTION B-B

- GENERAL NOTES
1. Low Profile Concrete Barrier (LPCB), is approved for use in temporary work zone locations, where the posted speed is 45 mph, or less.
 2. Concrete shall be Class H for precast barrier with a minimum compressive strength of 3,600 psi.
 3. Where used, rebar reinforcement shall be Grade 60 and conform to ASTM A615.
 4. Precast LPCB barrier length shall be 20 ft.
 5. All barrier edges shall have 3/4" chamfer or a tooled radius.
 6. Joint connection hardware shall be in accordance with Item 449, "Anchor Bolts." and is considered subsidiary.
 7. Steel pipe required for joint connection bolts shall be galvanized in accordance with Item 445, "Galvanizing."
 8. Welded wire reinforcement (WWR) may be used in lieu of conventional reinforcement for Type 1 barrier, and shall meet the requirements shown.

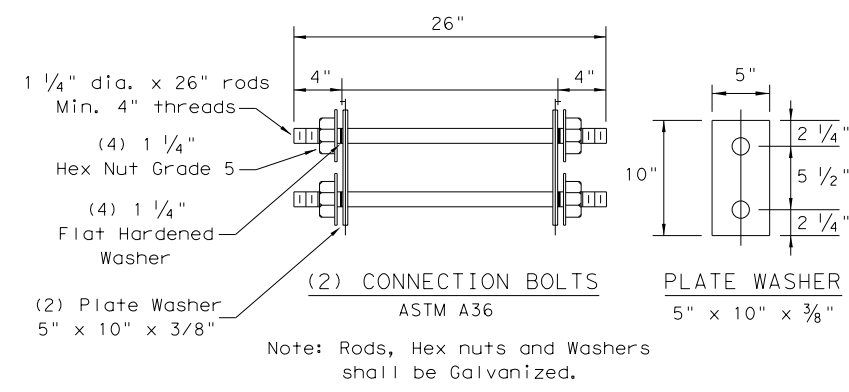
FOR CONTRACTORS INFORMATION ONLY

(TYPE 1) APPROX. QUANTITIES 20 FT. SECTION		
CONCRETE	CY	2.6
REINFORCING STEEL	LBS	330
TOTAL BARRIER WT.	LBS	11000



WELDED WIRE REINFORCEMENT (WWR) - OPTIONAL REINFORCING

- (WWR) GENERAL NOTES
1. Deformed Welded Wire Reinforcement shall conform to ASTM A497.
 2. Welded wire cage may be cut or bent, if necessary, but must be approved by the Engineer.
 3. Combinations of reinforcing steel and WWR are permitted, as directed by the Engineer. The dimensions from the end of the barrier section to the first wire shall not exceed 3".
- REQUIRED (WWR) WIRE DESIGN
- 8 ~ (D31) Horizontal Wires (Equally spaced)
 - 10 ~ (D20) Horizontal Wires (Equally spaced)
 - 29 ~ (D20) Vertical Wires (Spaced as shown in Elevation View)



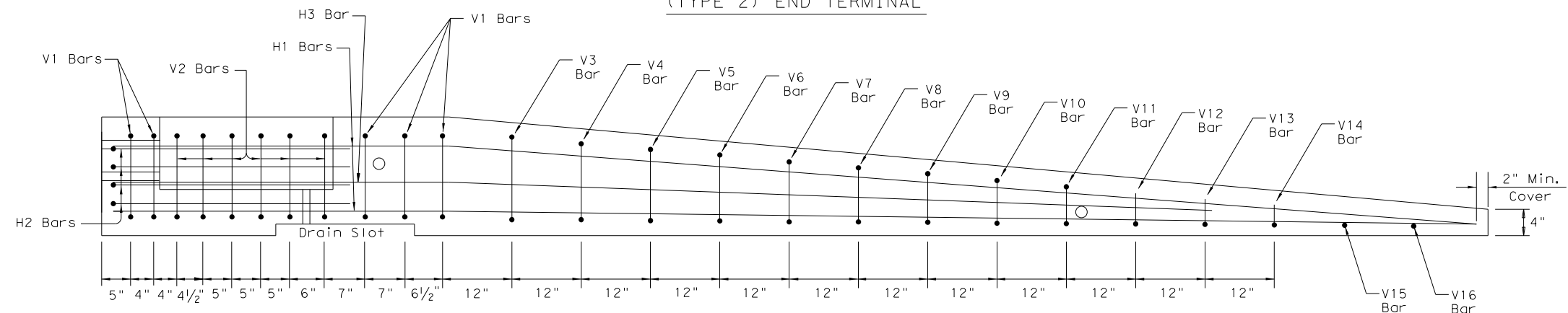
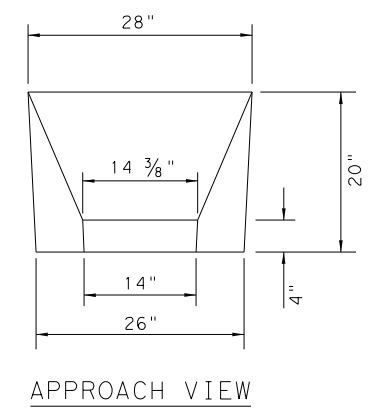
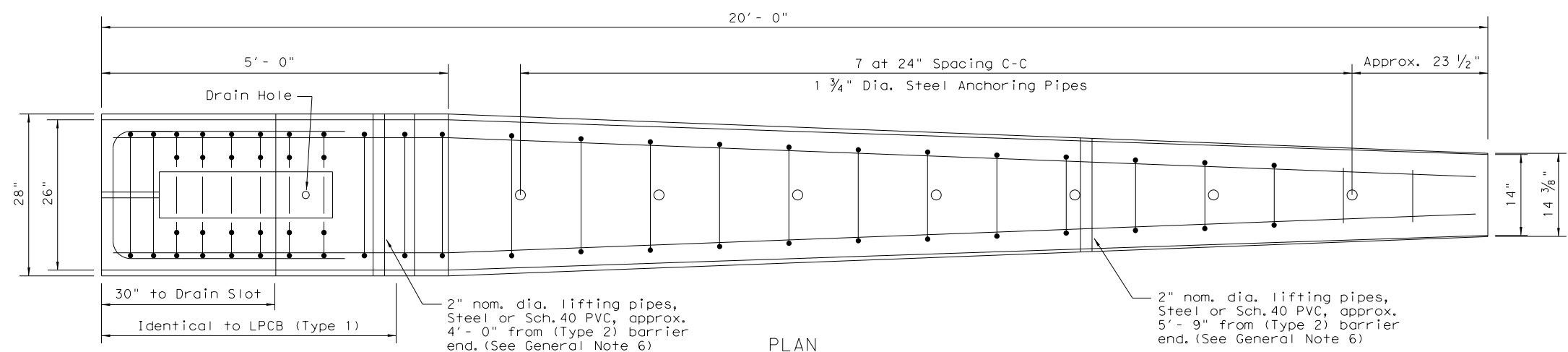
Texas Department of Transportation
 Design Division Standard

LOW PROFILE CONCRETE BARRIER PRECAST BARRIER (TYPE 1) LPCB-13

FILE: lpcb13.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
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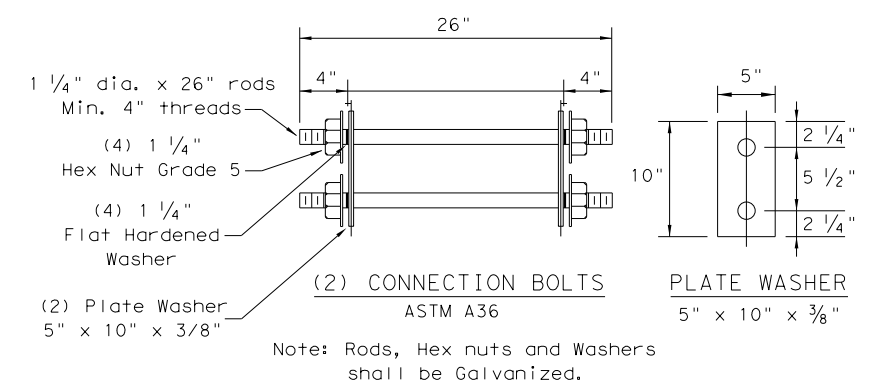
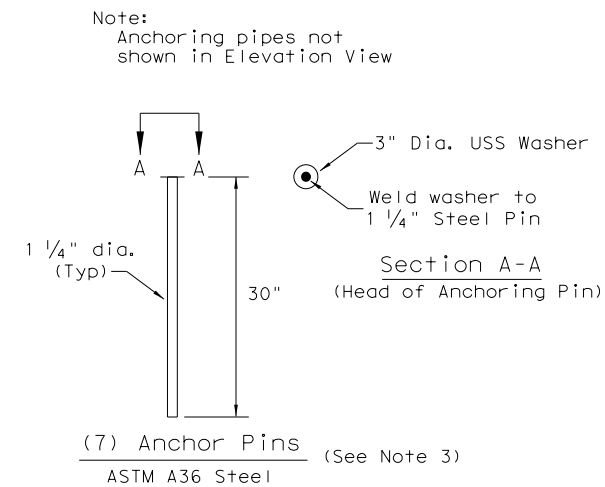
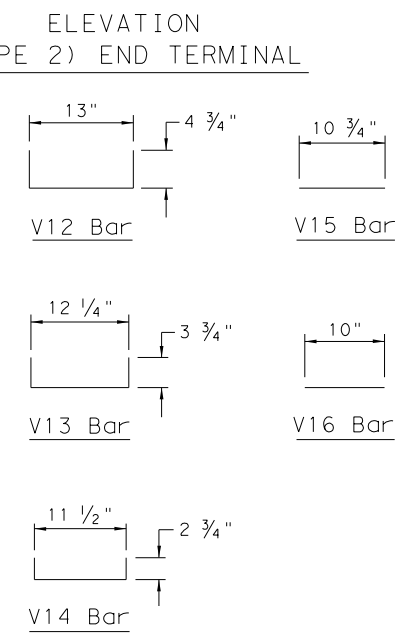
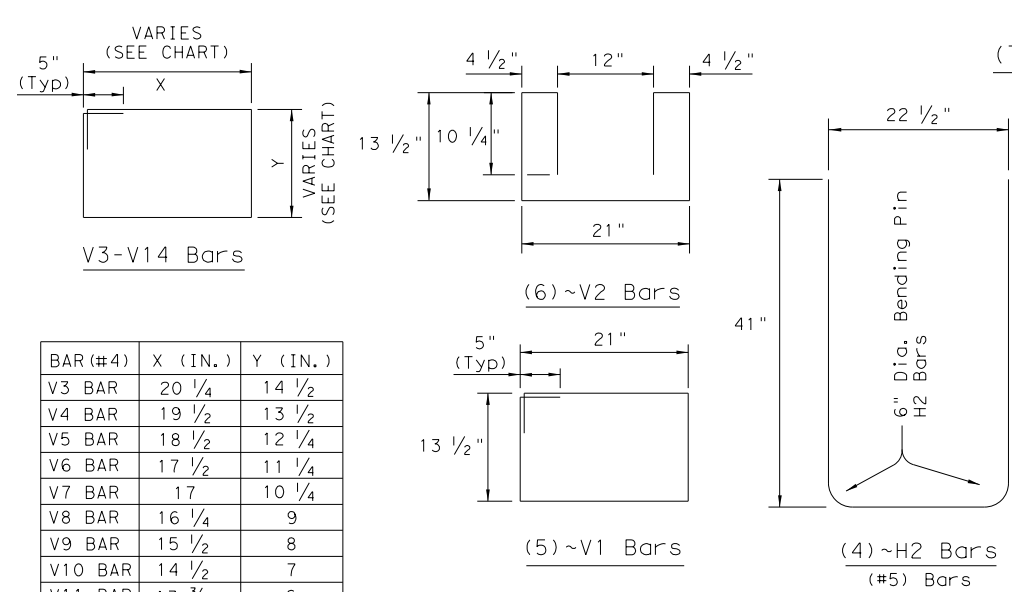
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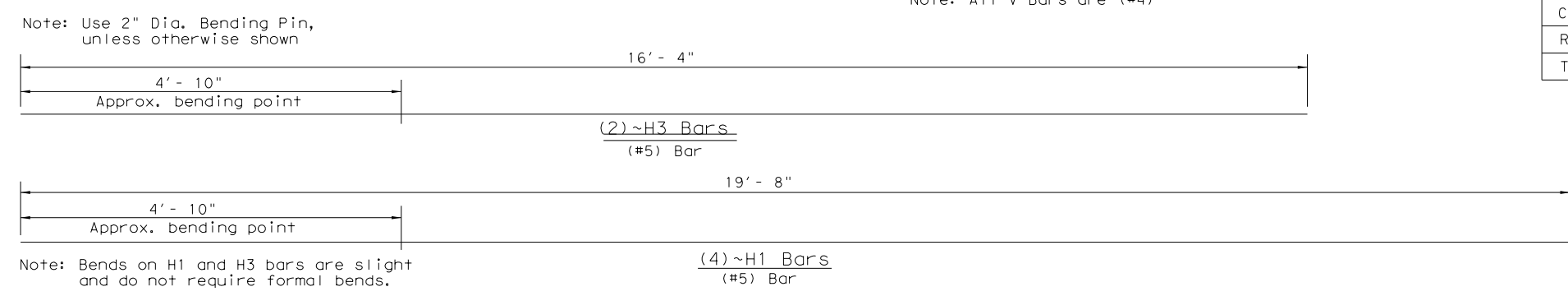
TYPE 2 - NOTES

1. Welded wire reinforcement (WWR) is "not" an option for Type 2 Barrier.
2. Type 2 Barrier shall be used as an end treatment for the Type 1 barrier segments, when applicable.
3. The end treatment can be used without the anchor pins in locations that can accommodate approximately 4 ft. of lateral displacement of the end treatment. The use of non-pinned end treatment does not affect the performance or the deflection of the Low-Profile barrier system.
4. The anchor pins are all the same length and are to be driven flush with the top of the (Type 2) barrier surface.
5. The bends in the H3 and H1 bars are slight, no formal bend is necessary.
6. The Type 2 barrier segment must be lifted from the rear first, to prevent cracking of sloped section.
7. See LPCB sheet 1 for additional information.



FOR CONTRACTORS INFORMATION ONLY

(TYPE 2) APPROX. QUANTITIES 20 FT. SECTION		
CONCRETE	CY	1.65
REINFORCING STEEL	LBS	240
TOTAL BARRIER WT.	LBS	7000



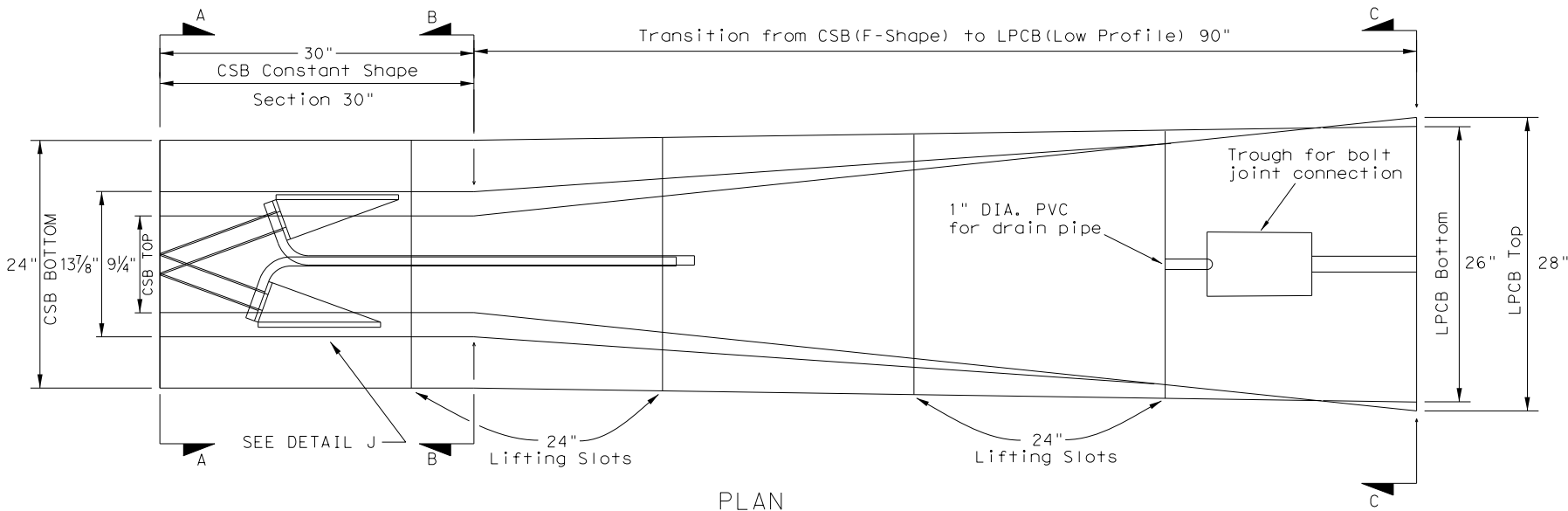
Texas Department of Transportation
 Design Division Standard

LOW PROFILE CONCRETE BARRIER PRECAST BARRIER (TYPE 2) LPCB-13

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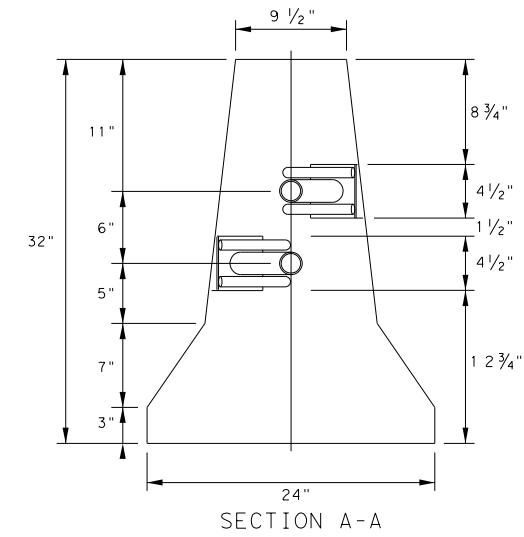
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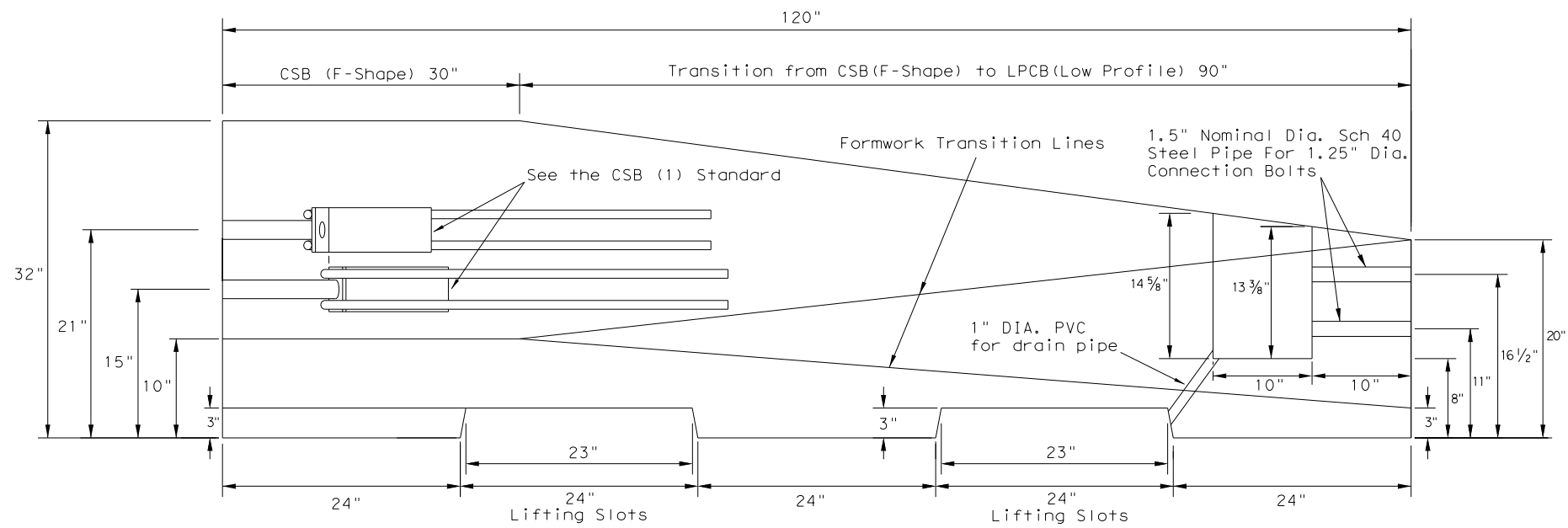
PLAN

See detail sheet 2 of 2 for reinforcement.

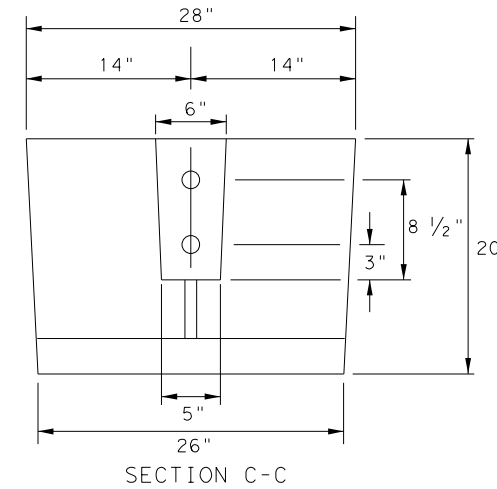


SECTION A-A

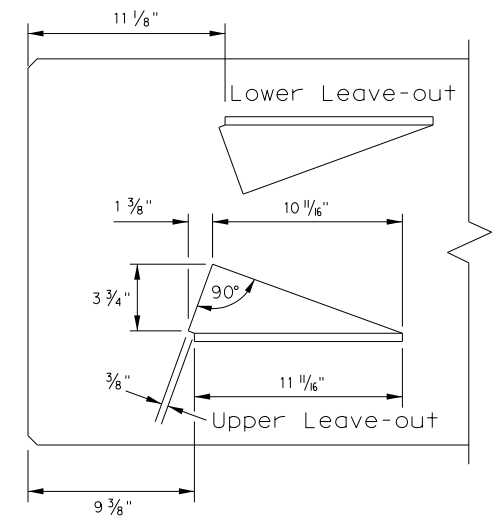
SECTION B-B



ELEVATION



SECTION C-C



DETAIL J
 CSB-Side Block-Outs

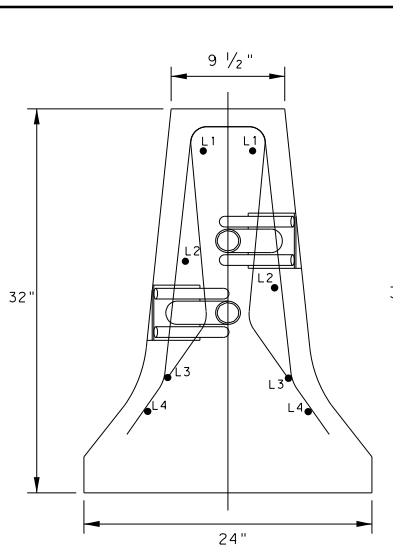
General Notes

- Concrete shall be Class H for precast barrier with a minimum compressive strength of 3600 psi.
- Where used, rebar reinforcement shall be Grade 60 and conform to ASTM A615.
- These details cover barrier per Item 512, "Portable Concrete Traffic Barrier."
- Barrier edges shall have a 3/4 inch chamfer or a tooled radius.
- Precast barrier transition length shall be 10 ft.
- Joint connection systems are considered subsidiary.
- All steel assemblies for joint connections shall be galvanized after fabrication in accordance with Item 445, "Galvanizing".
- For rebars, use 2" bending pin unless otherwise shown.

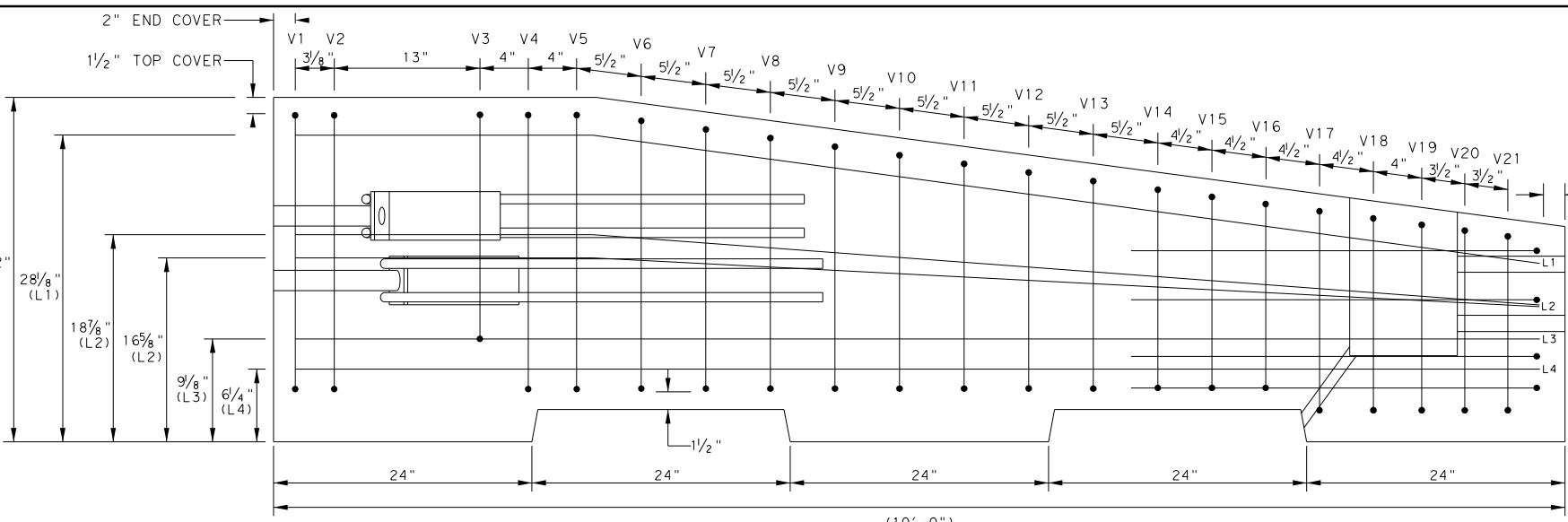
SHEET 1 OF 2

		Design Division Standard	
F-SHAPE TO LOW PROFILE PRECAST BARRIER TRANSITION (TYPE T)			
FSLP (TR) - 10			
FILE: fs\ptr10.dgn	DN: TxDOT	CK: AM	DW: VP
© TxDOT December 2010	CONT	SECT	JOB
REVISIONS	0910	07	072
DIST	COUNTY	SHEET NO.	
TYLER	GREGG	55	

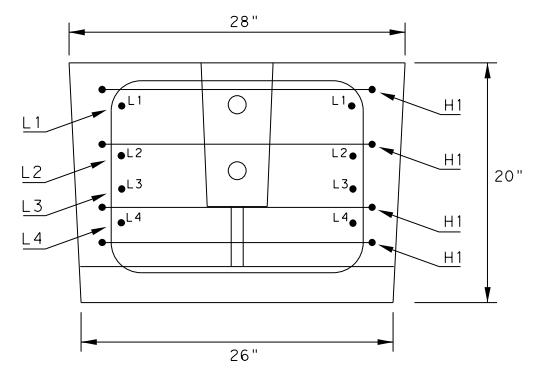
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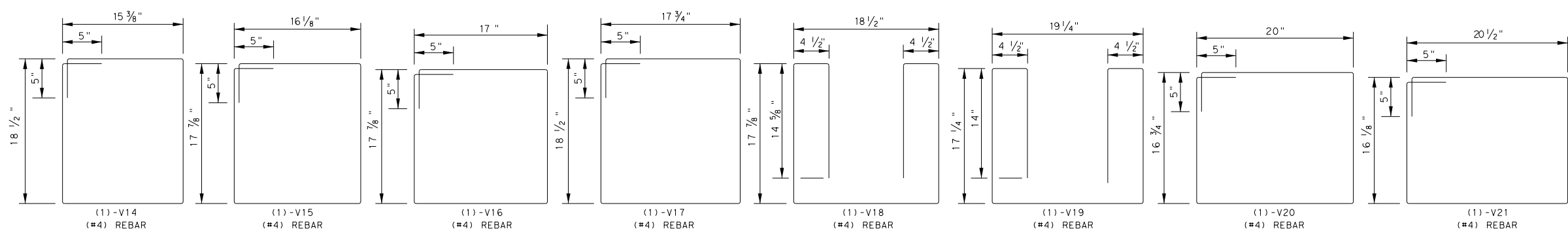
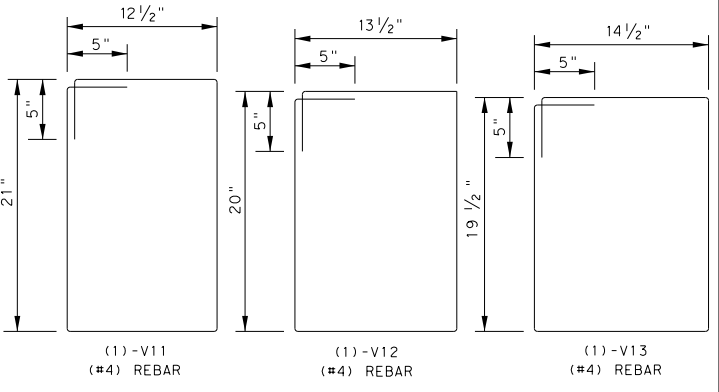
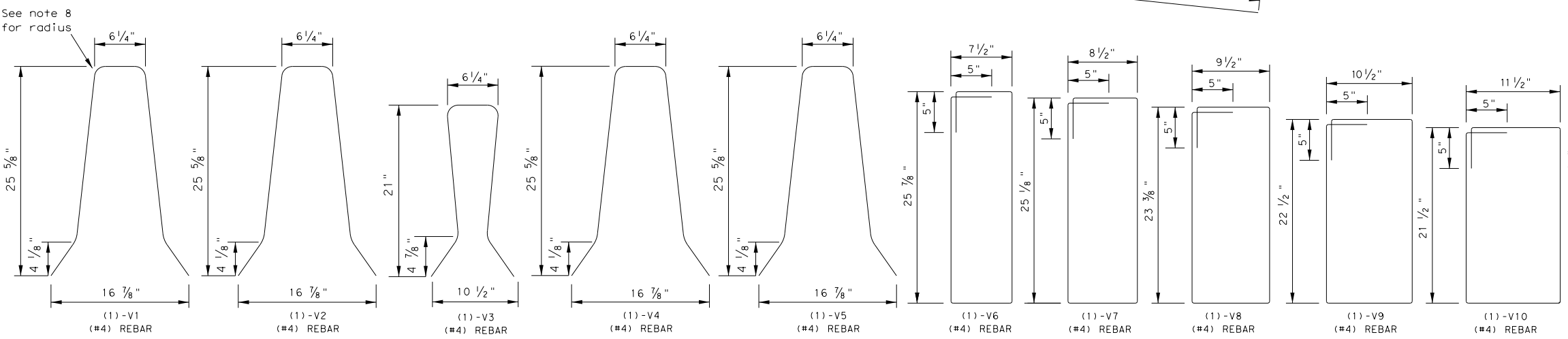
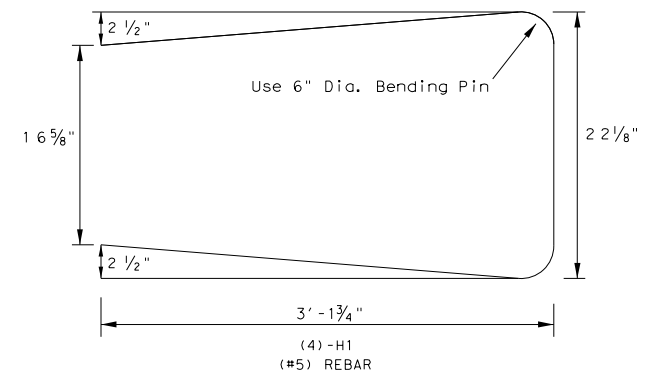
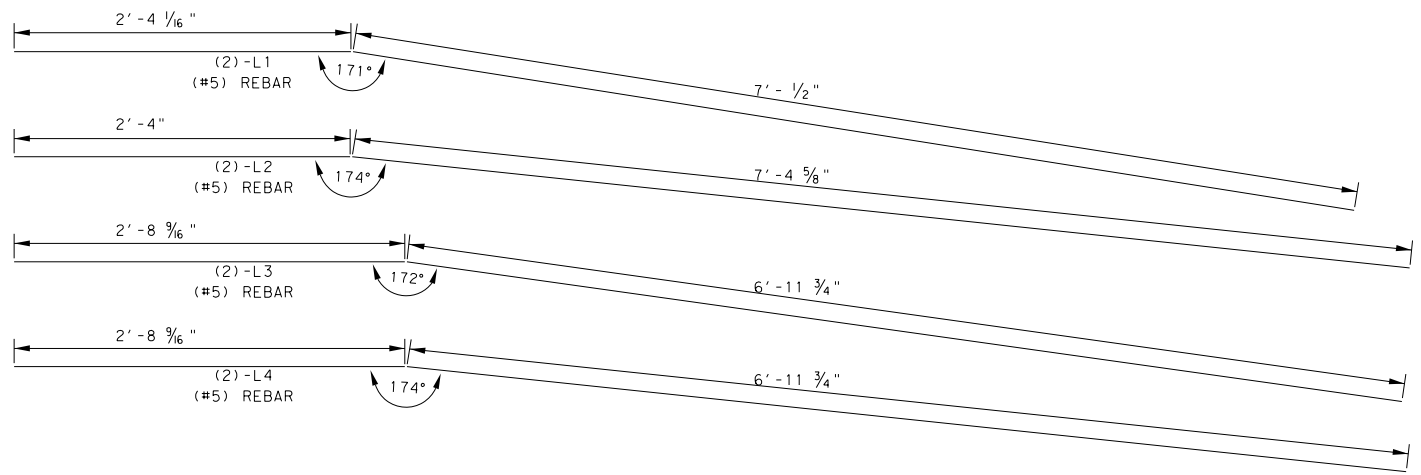
END SECTION AT CSB (F-SHAPE) BARRIER
 For Type X Connection
 (See the CSB(1) Standard)



BARRIER TRANSITION ELEVATION
 Showing Reinforcement Placement



END SECTION AT LOW PROFILE BARRIER
 For Connection Details
 (See the LPCB Standard)



SHEET 2 OF 2

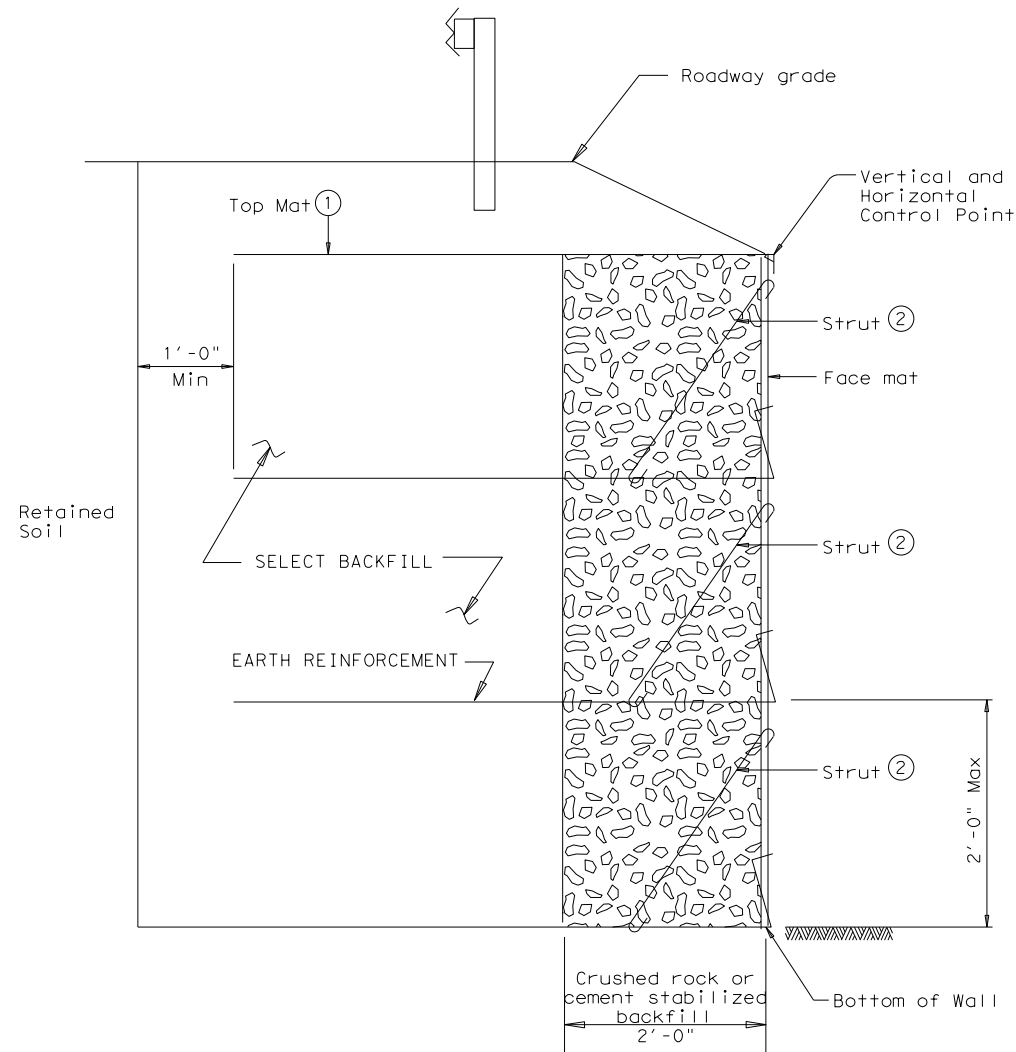


F-SHAPE TO LOW PROFILE
 PRECAST BARRIER TRANSITION
 (TYPE T)
 FSLP (TR) - 10

FILE: fslptr10.dgn	DN: TXDOT	CK: AM	DW: VP	CK:
©TXDOT December 2010	CONT	SECT	JOB	HIGHWAY
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TYLER	GREGG	56		

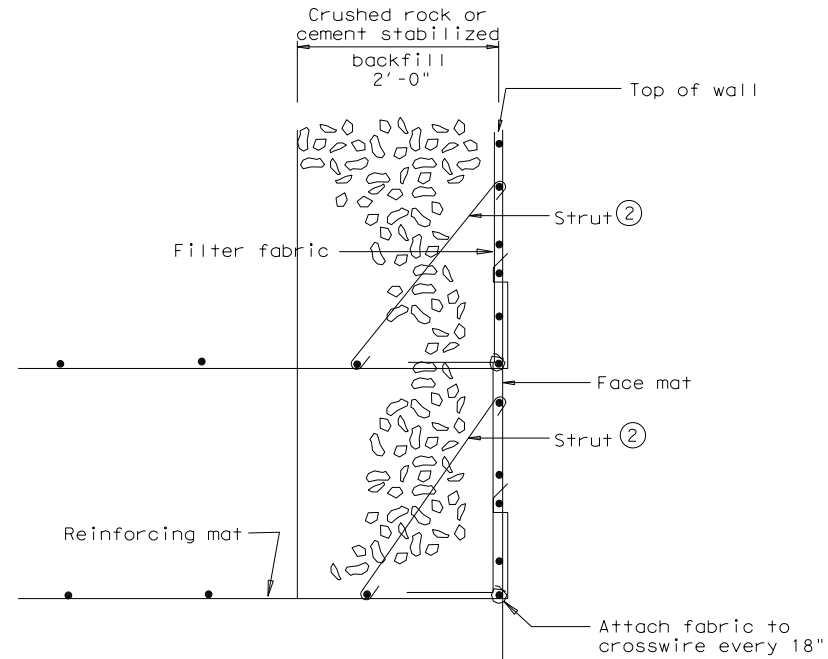
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TYPICAL SECTION
(SHOWING TOP MAT OPTION)

- ① Provide top mat to stabilize top of wall. Contractor may propose alternate method to stabilize top of wall.
- ② Provide intermediate struts as required to stabilize face.



DETAIL OF WALL FACE
(SHOWING STRUT OPTION)

EARTH REINFORCEMENTS:

The maximum vertical spacing of earth reinforcements shall be 24 inches.
The minimum length of earth reinforcements shall be 6 feet for walls 6 feet and shorter, and 8 feet for walls over 6 feet tall.
Minimum wire size for welded wire earth reinforcements shall be W4.5. Longitudinal wire spacing shall not exceed 12 inches. Transverse wire spacing shall not exceed 24 inches.
Earth reinforcement allowable stresses and pullout shall be calculated with current AASHTO Standard and Interim Specifications.
Factor of safety in pullout of the earth reinforcements shall be greater than 1.5 at each reinforcement level.
Temporary Earth Wall reinforcements that will be placed in the reinforced volume of a permanent MSE wall shall either be non-metallic or galvanized.

WALL FACE:

Minimum wire size for welded wire material used for all facing shall be W4.5. Spacing of the wire shall not exceed 6 inches in either the horizontal or vertical direction. The facing shall be designed to maintain a vertical position during wall backfilling. This may be accomplished with wire struts, external bracing, or other means which provide acceptable performance. If the face does not remain vertical during wall backfilling, work shall be stopped until the system is modified to meet this requirement.
Angled struts or a top mat shall be provided to stabilize the top basket face. Strut spacing shall not exceed 24 inches.

STABILITY CRITERIA:

Factor of safety in sliding along the base of the structure shall be greater than or equal to 1.5.
Factor of safety in overturning shall be greater than or equal to 2.0.
The base pressure resultant shall fall within the middle third of the retaining wall.

DESIGN PARAMETERS:

Structure shall be based on the following design parameters:
Random Backfill: Unit weight = 120 pcf.
(Embankment or Existing Soils) $\phi = 30^\circ$ $c = 0$ psf
Select Backfill: Unit weight = 120 pcf
 $\phi = 30^\circ$ $c = 0$ psf

GENERAL NOTES:

Sections shown are for informational purposes only. Specific geometry is to be determined based on wall layouts and other plan information.
The select backfill specified for use within the Temporary Earth Wall Select Volume shall extend horizontally from the back of the 2' backfill zone to a minimum of 1' beyond the end of the earth reinforcements.

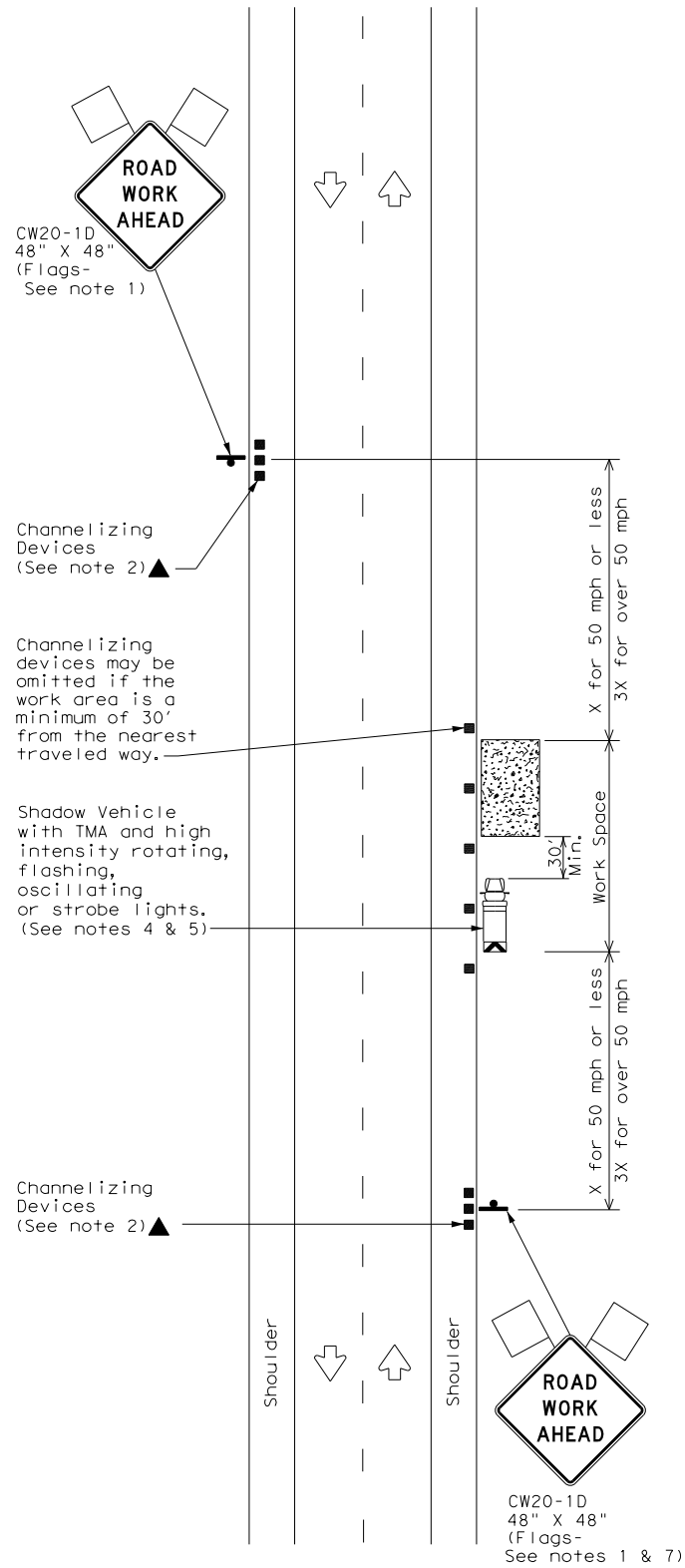
SPECIAL NOTE - FACE CONSTRUCTION

When constructing wire faced walls, it is critical that the area immediately behind the face mat be completely filled. Failure to fill and compact this area will result in bulging of the face mats and settlement of the top of wall. The filter fabric shall closely follow the contours of the face unit, with particular attention paid to the lower corner of the basket. The fabric shall be pulled into the corner and attached to the basket with hog rings or tie wire. The coarse rock or cement stabilized backfill in the two foot zone behind the face shall extend completely to the top of the face mat. Particular care shall be taken not to leave a gap or void below the next layer of earth reinforcement.

				Bridge Division Standard	
<h2>TEMPORARY EARTH RETAINING WALL</h2>					
<h3>RW(TEW)</h3>					
FILE: rwstde04.dgn	DN: TxDOT	CK: TxDOT	DW: GH0	CK: MPM	
©TxDOT March 2010	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0910	07	072	HIGH ST	
01-13: Added Struts.	DIST	COUNTY	SHEET NO.		
	TYLER	GREGG			57

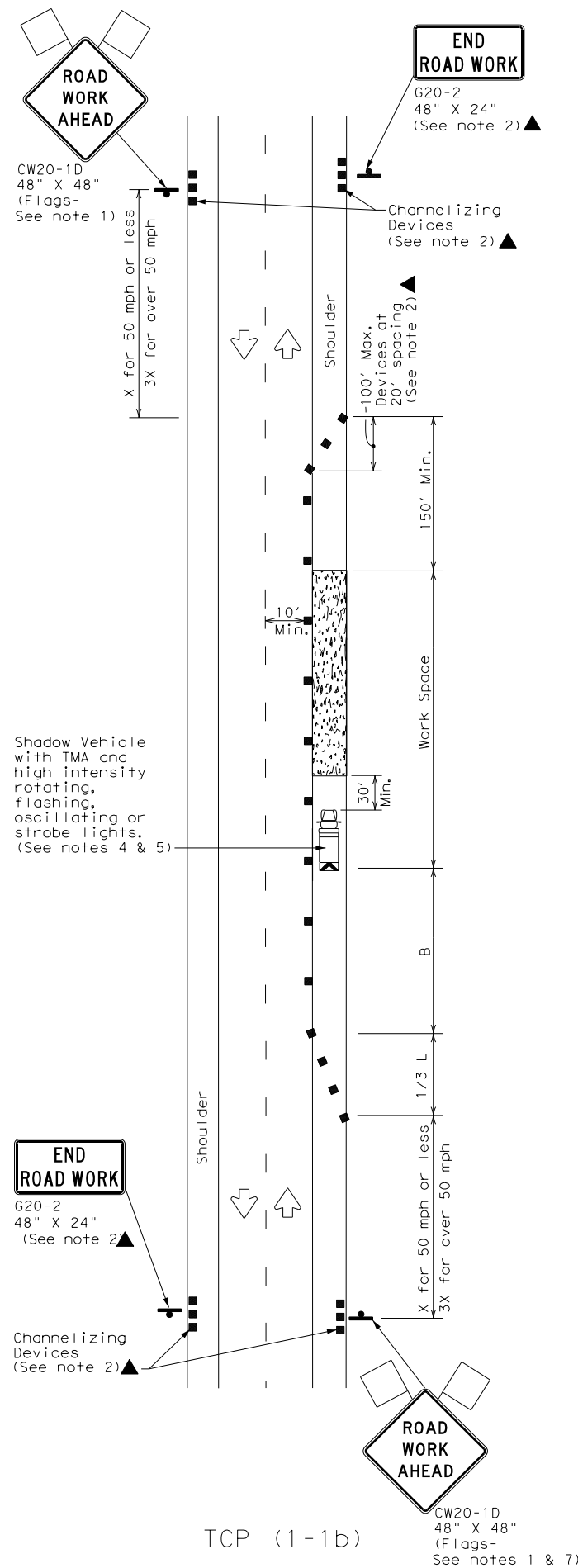
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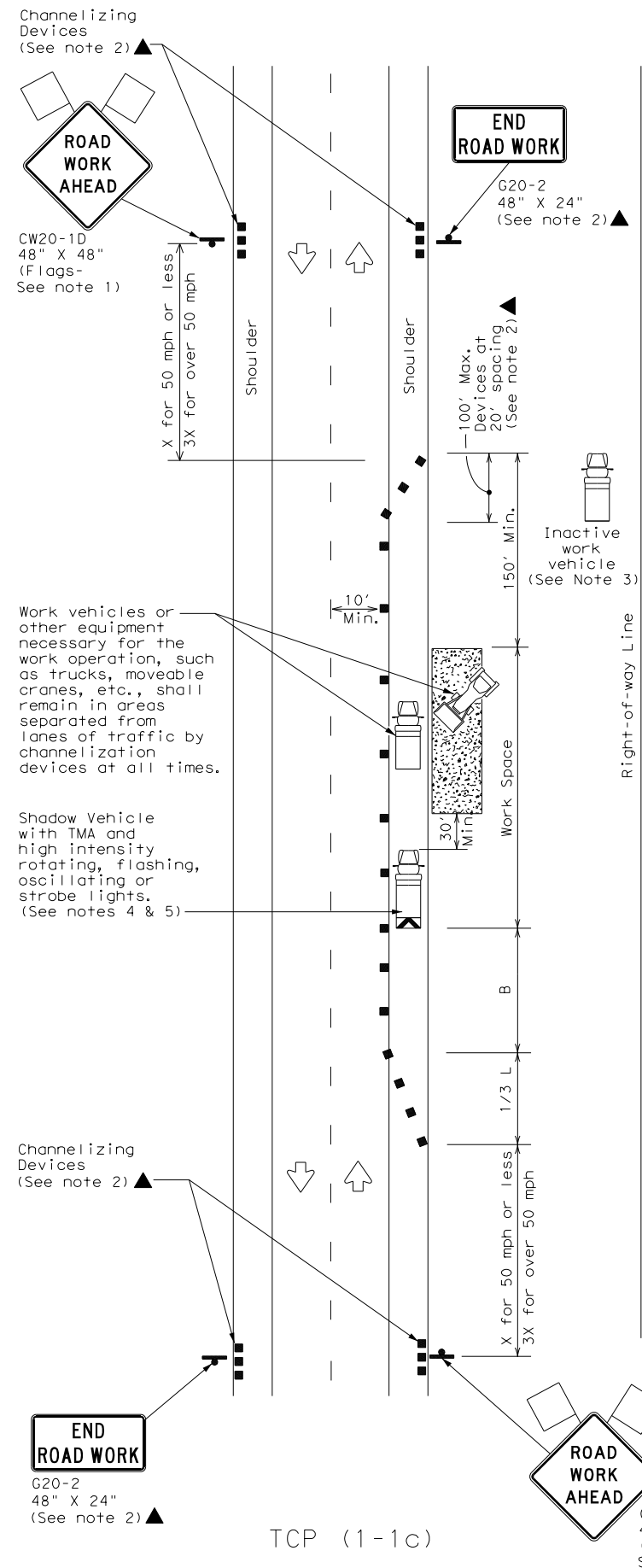
TCP (1-1a)

WORK SPACE NEAR SHOULDER
 Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
 Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
 Conventional Roads

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		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 = 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.
 - Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
 - 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 off the paved surface, next to those shown in order to protect wider work spaces.
 - See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
 - CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.



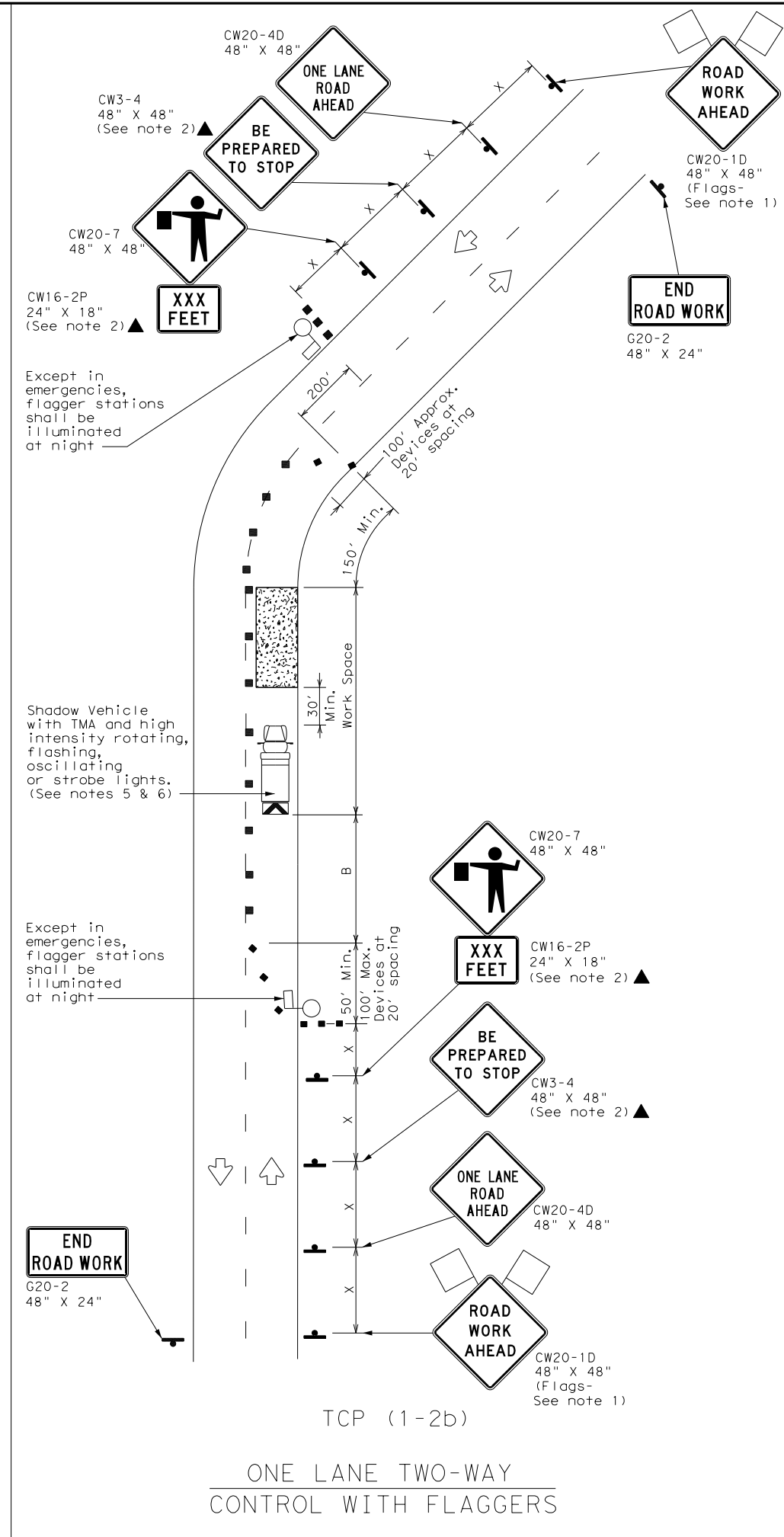
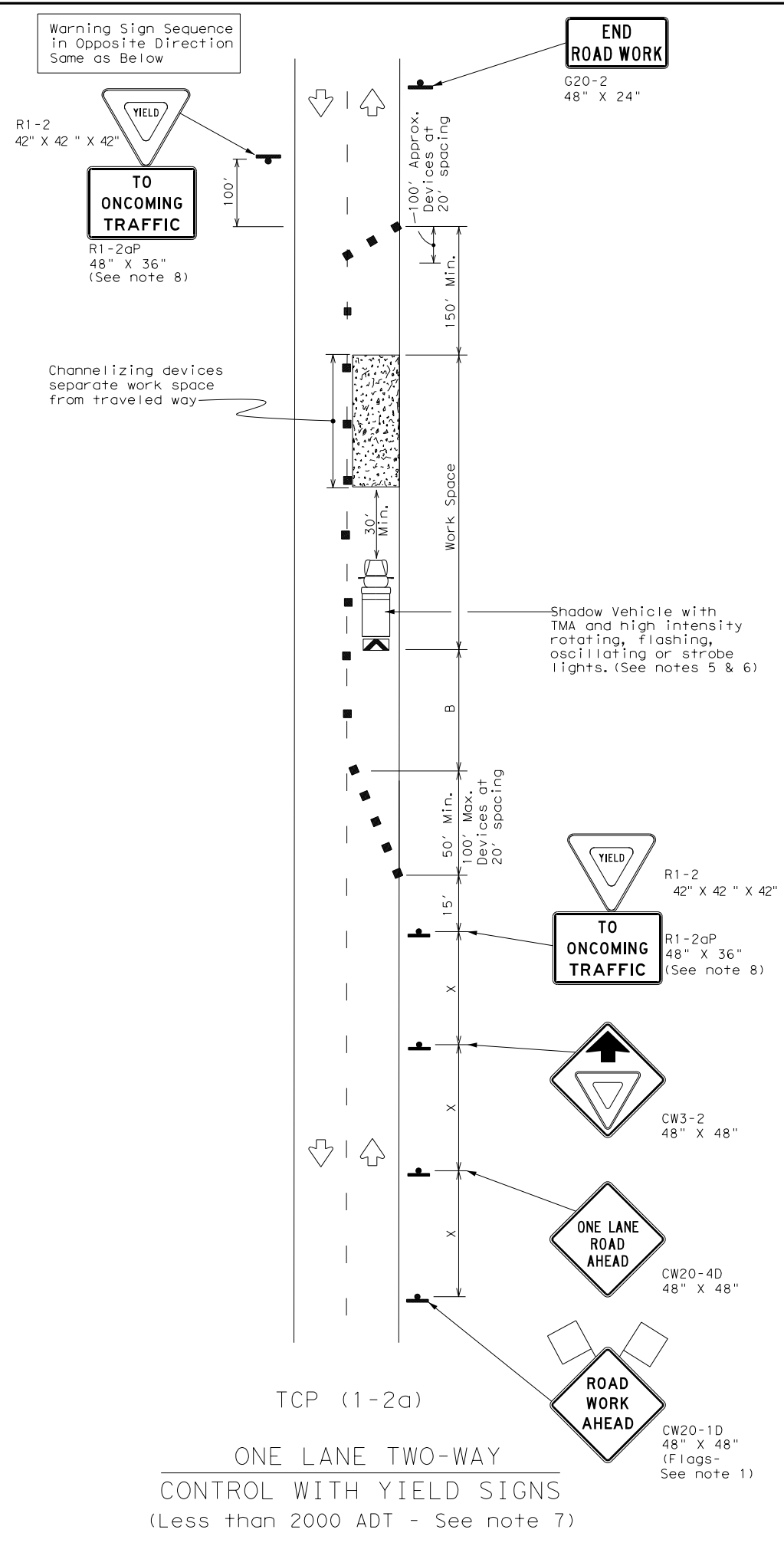
TRAFFIC CONTROL PLAN
 CONVENTIONAL ROAD
 SHOULDER WORK

TCP (1-1) - 18

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© TxDOT December 1985	CON:	SECT:	JOB:	HIGHWAY:
REVISIONS	0910	07	072	HIGH ST
2-94 4-98	DIST:	COUNTY:	SHEET NO.:	
8-95 2-12	TYLER	GREGG		58
1-97 2-18				

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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 * X	Formula L = WS ² / 60	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
30		150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45		450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

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

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

- 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.
 - The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
 - Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 150 feet.
 - 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 off the paved surface, next to those shown in order to protect wider work spaces.
- TCP (1-2a)**
- R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work spaces should be no longer than one half city block. In rural areas on roadways with less than 2000 ADT, work spaces should be no longer than 400 feet.
 - R1-2 "YIELD" sign with R1-2aP "TO ONCOMING TRAFFIC" plaque shall be placed on a support at a 7 foot minimum mounting height.
- TCP (1-2b)**
- Flaggers should use two-way radios or other methods of communication to control traffic.
 - Length of work space should be based on the ability of flaggers to communicate.
 - If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
 - Channelizing devices on the center-line may be omitted when a pilot car is leading traffic and approved by the Engineer.
 - Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation **Traffic Operations Division Standard**

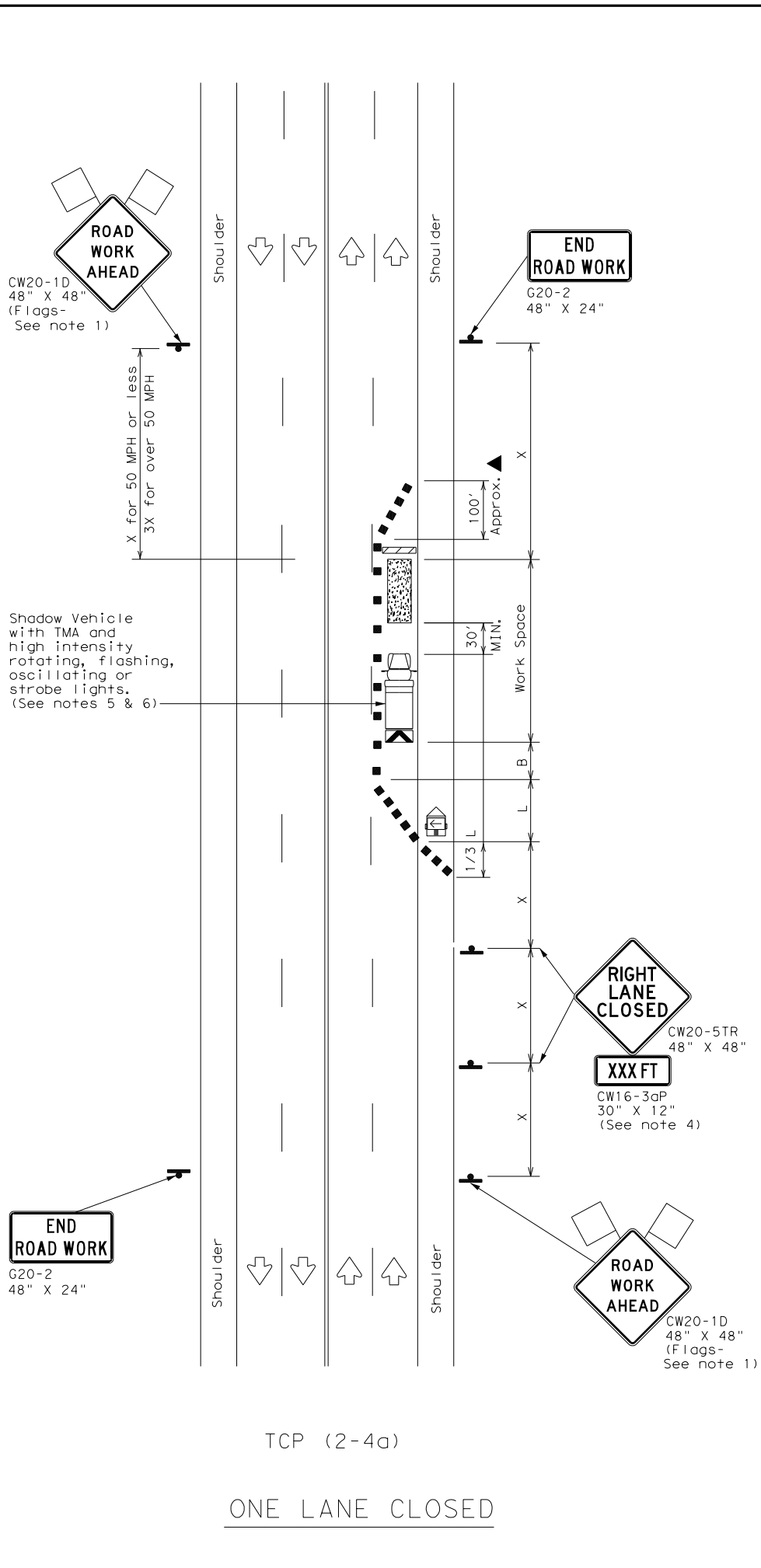
TRAFFIC CONTROL PLAN
 ONE-LANE TWO-WAY
 TRAFFIC CONTROL

TCP (1-2) - 18

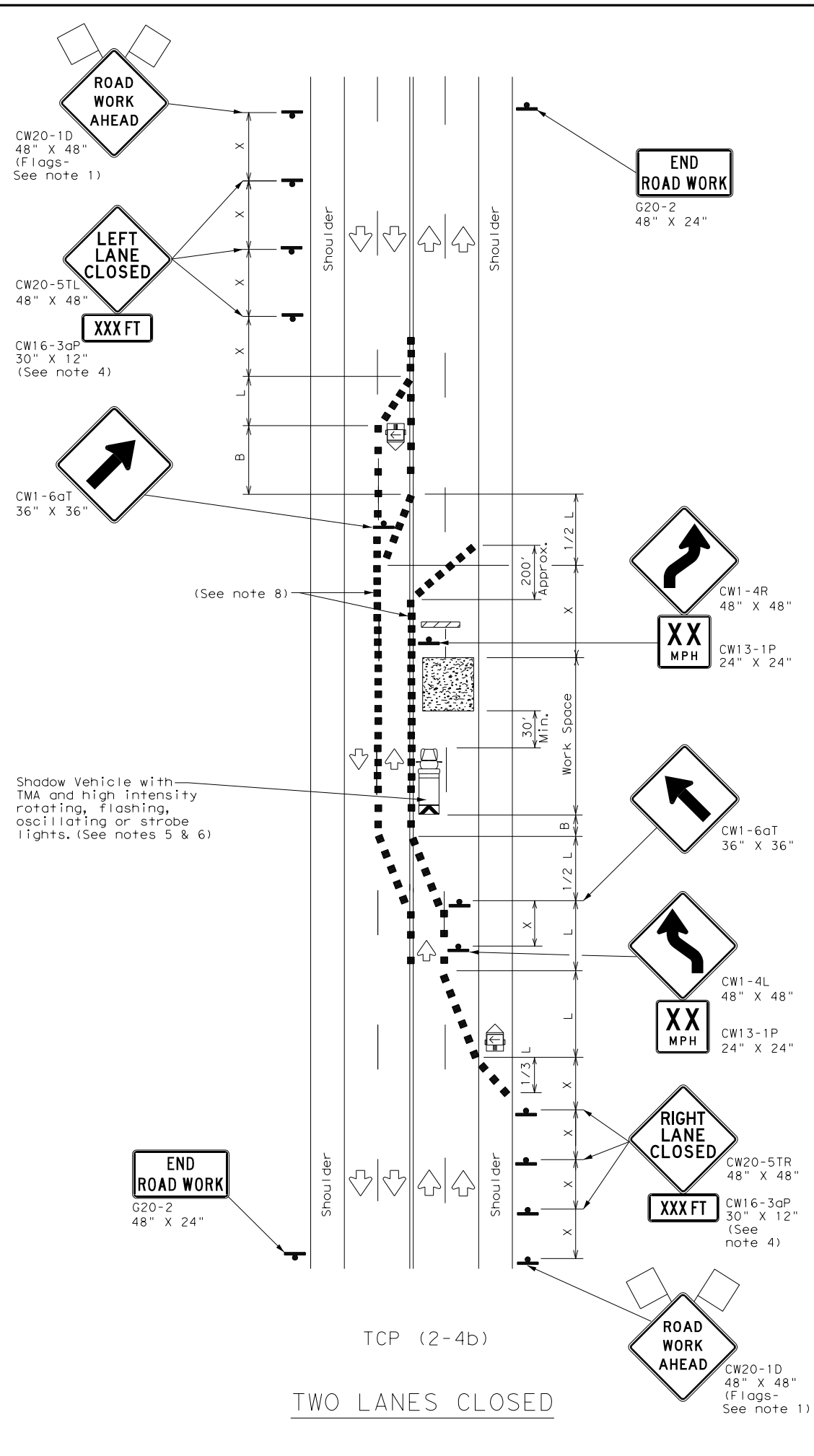
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© TxDOT December 1985	CON:	SECT:	JOB:	HIGHWAY:
REVISIONS	0910	07	072	HIGH ST
4-90 4-98	DIST:	COUNTY:	SHEET NO.:	
2-94 2-12	TYLER	GREGG	59	
1-97 2-18				

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TCP (2-4a)
 ONE LANE CLOSED



TCP (2-4b)
 TWO LANES CLOSED

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		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 = 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.
 - The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
 - For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
 - 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.
- TCP (2-4a)
- If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.
- TCP (2-4b)
- For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter devices spacing is intended for the area of conflicting markings, not the entire work zone.

Texas Department of Transportation
 Traffic Operations Division Standard

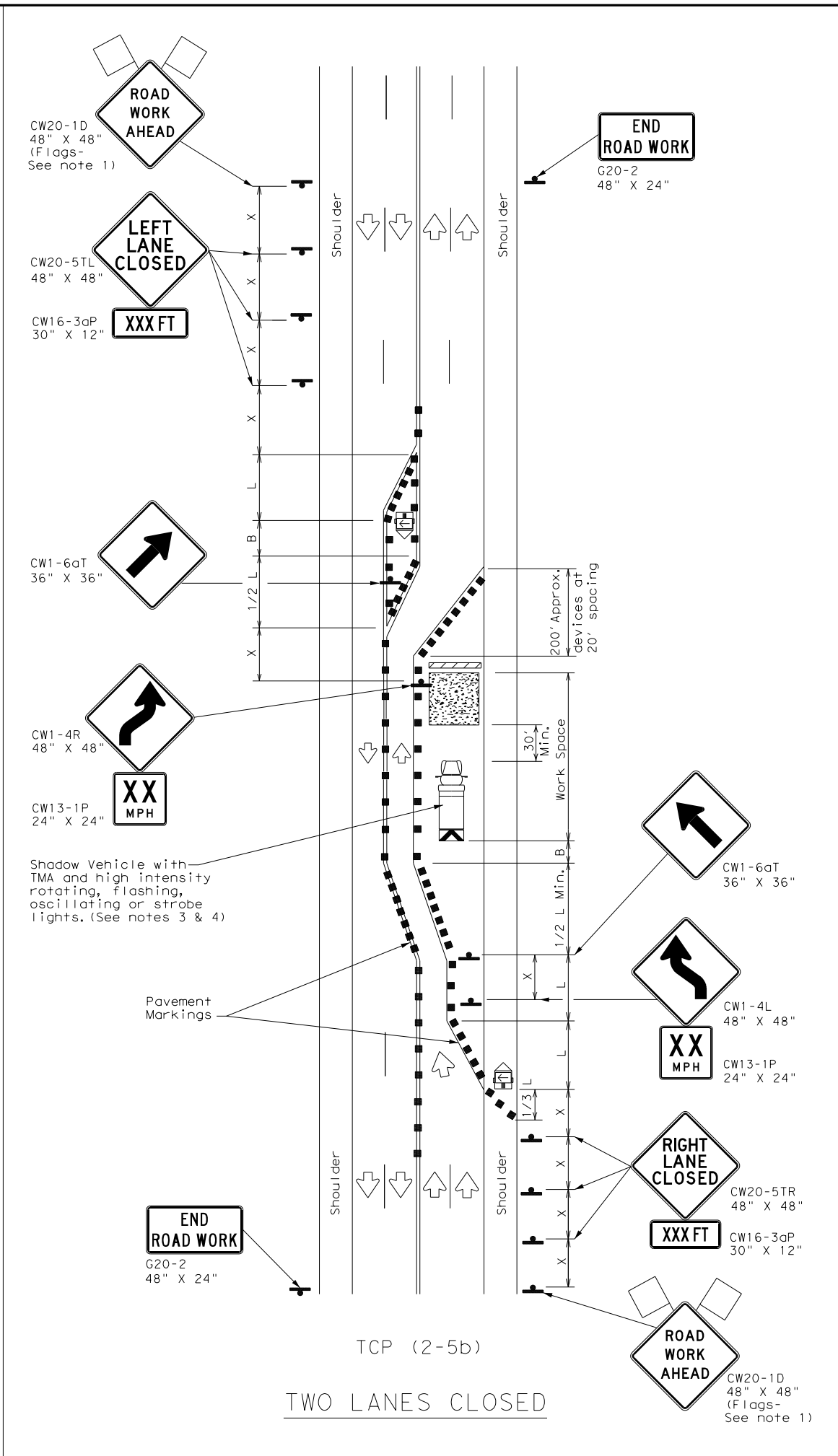
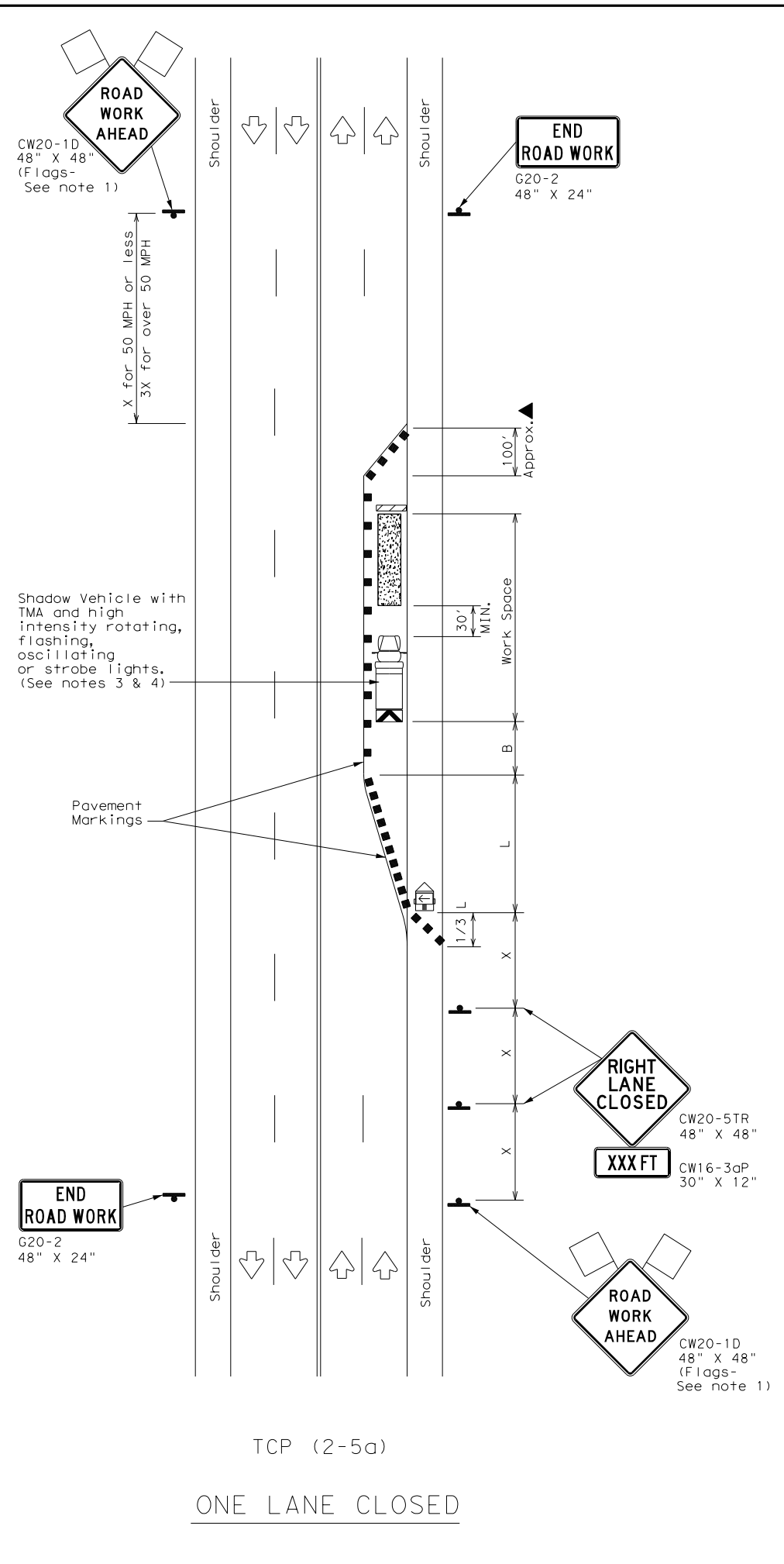
TRAFFIC CONTROL PLAN
 LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP (2-4) - 18

FILE: tcp2-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
8-95 3-03	DIST	COUNTY		SHEET NO.
1-97 2-12	TYLER	GREGG		60
4-98 2-18				

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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 X*			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)

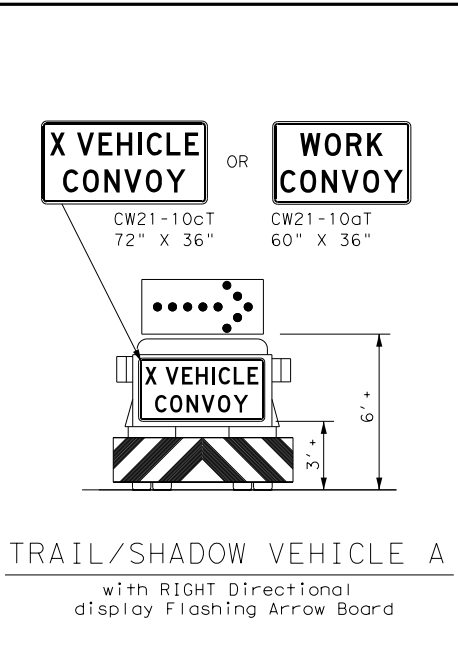
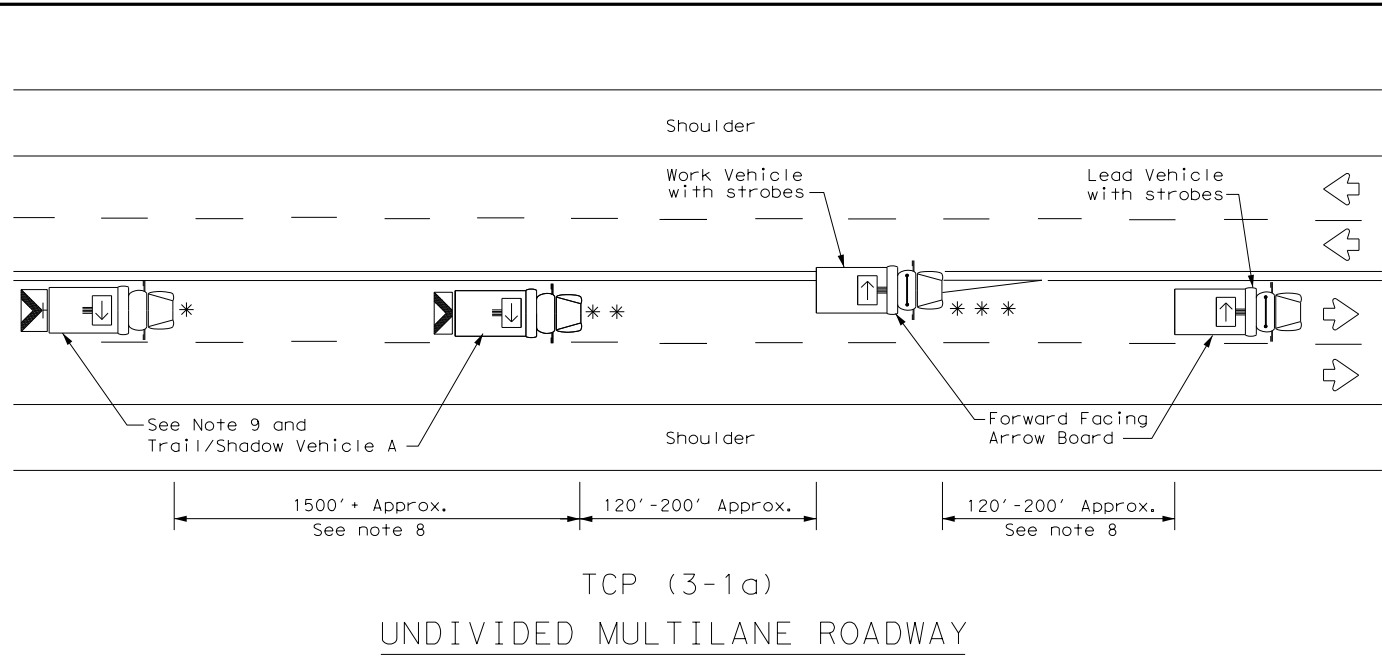
TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓

- 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.
 - 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.
 - The downstream taper is optional. When used, it should be 100 feet approximately per lane, with channelizing devices spaced at 20 feet.
- TCP (2-5a)**
- If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic, with the arrow board placed in the closed lane near the end of the merging taper.
- TCP (2-5b)**
- Conflicting pavement markings shall be removed for long-term projects.

		Traffic Operations Division Standard	
TRAFFIC CONTROL PLAN			
LONG TERM LANE CLOSURES			
MULTILANE CONVENTIONAL RDS.			
TCP (2-5) - 18			
FILE: tcp2-5-18.dgn	DN:	CK:	DW:
© TXDOT December 1985	CON:	SECT:	JOB:
8-95 2-12	0910	07	072
1-97 3-03	DIST:	COUNTY:	HIGHWAY:
4-98 2-18	TYLER	GREGG	
			SHEET NO. 61

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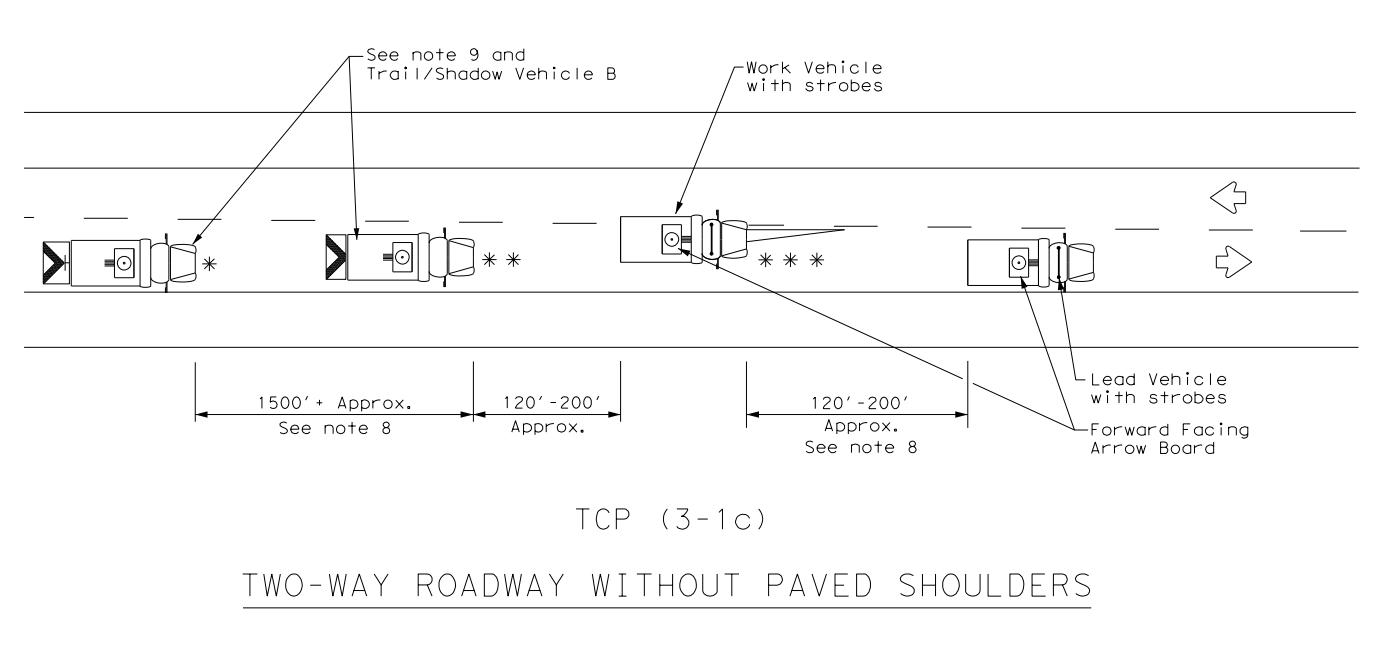
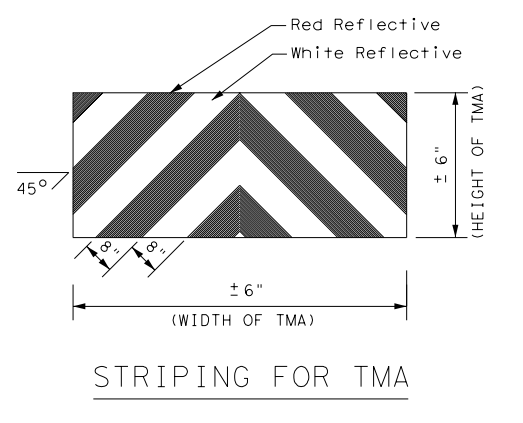
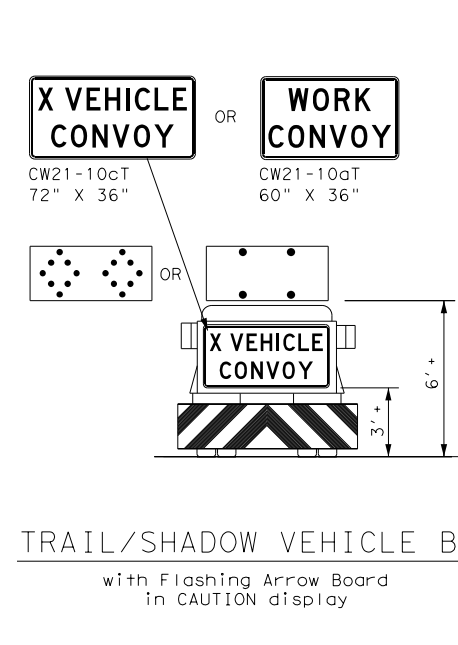
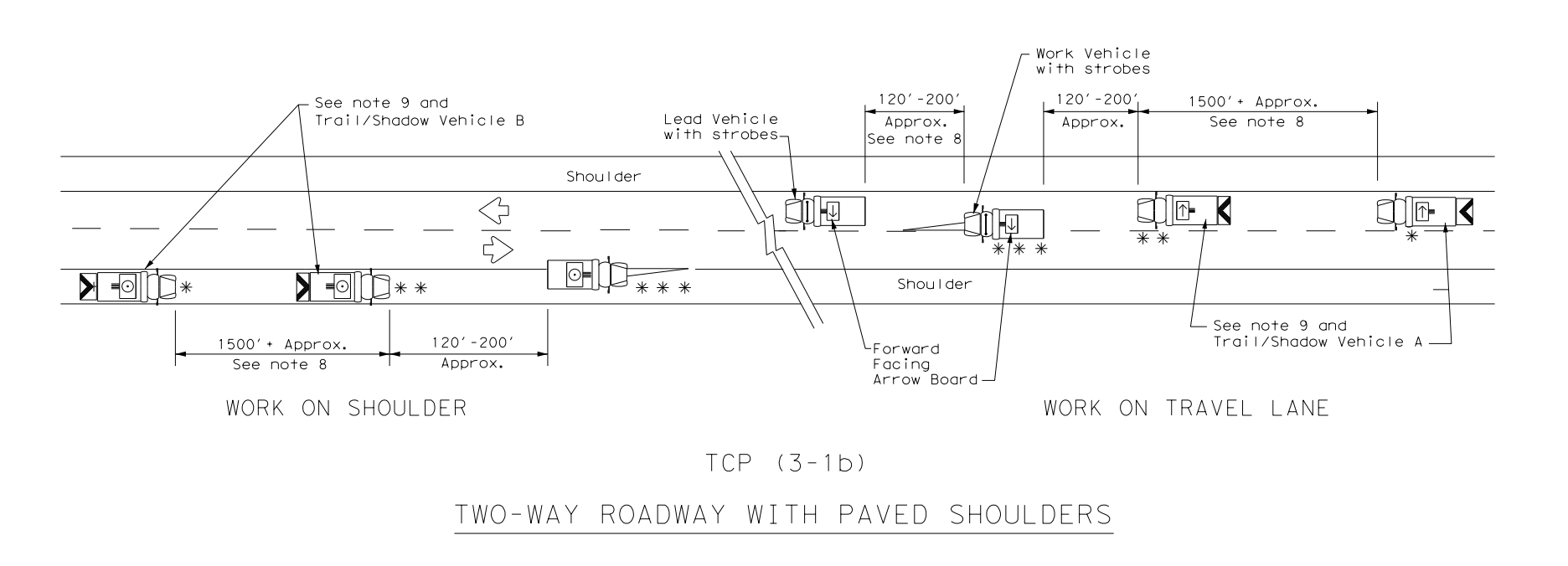


LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

- TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
- The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
- The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE and TRAIL VEHICLE are required.
- Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
- Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
- Each vehicle shall have two-way radio communication capability.
- When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
- Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
- "X VEHICLE CONVOY" (CW21-10cT) or "WORK CONVOY" (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" X 48" diamond shaped "WORK CONVOY" (CW21-10T) or "X VEHICLE CONVOY" (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The "X VEHICLE CONVOY" sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
- On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a "DO NOT PASS" (R4-1) sign should be placed on the back of the rearmost protection vehicle.



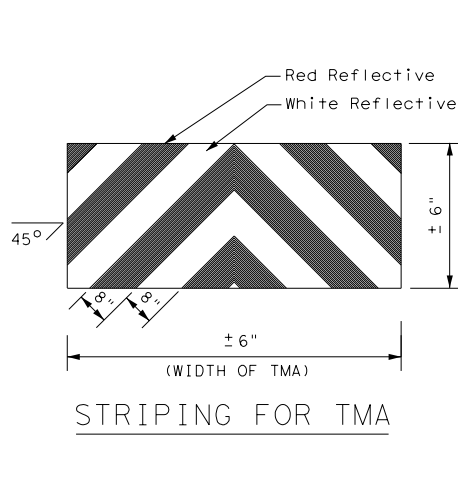
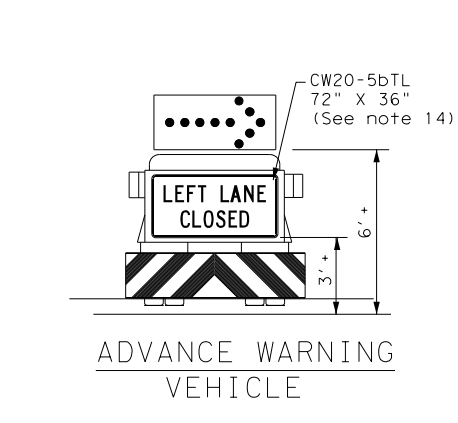
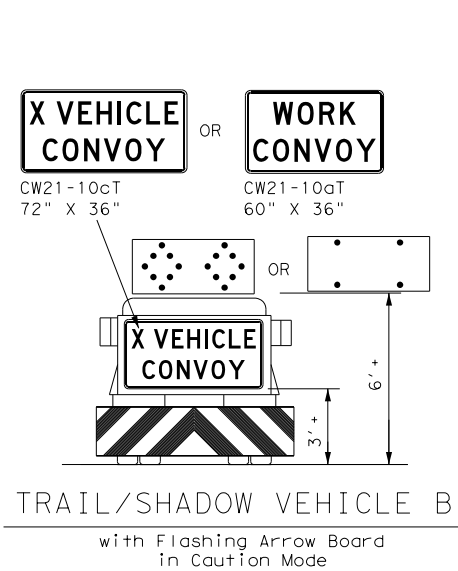
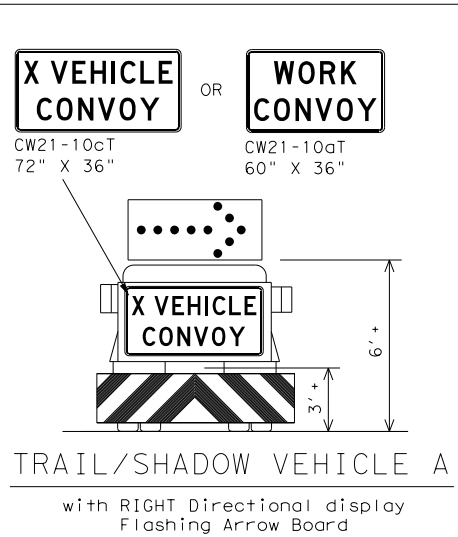
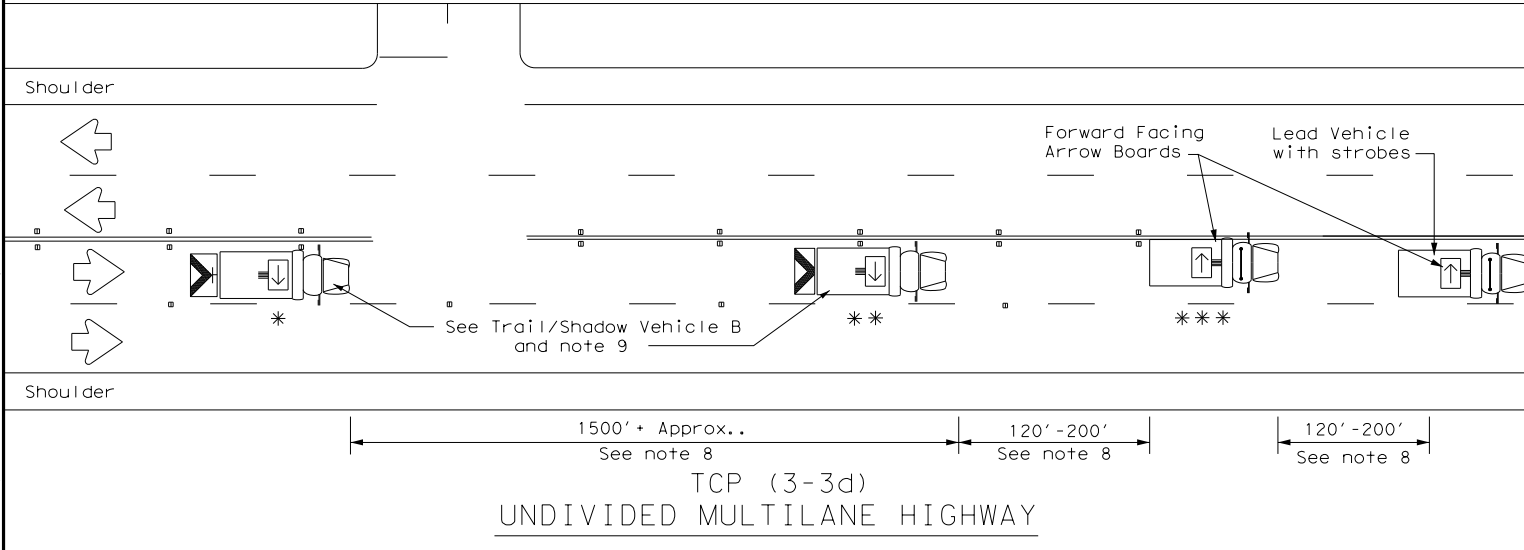
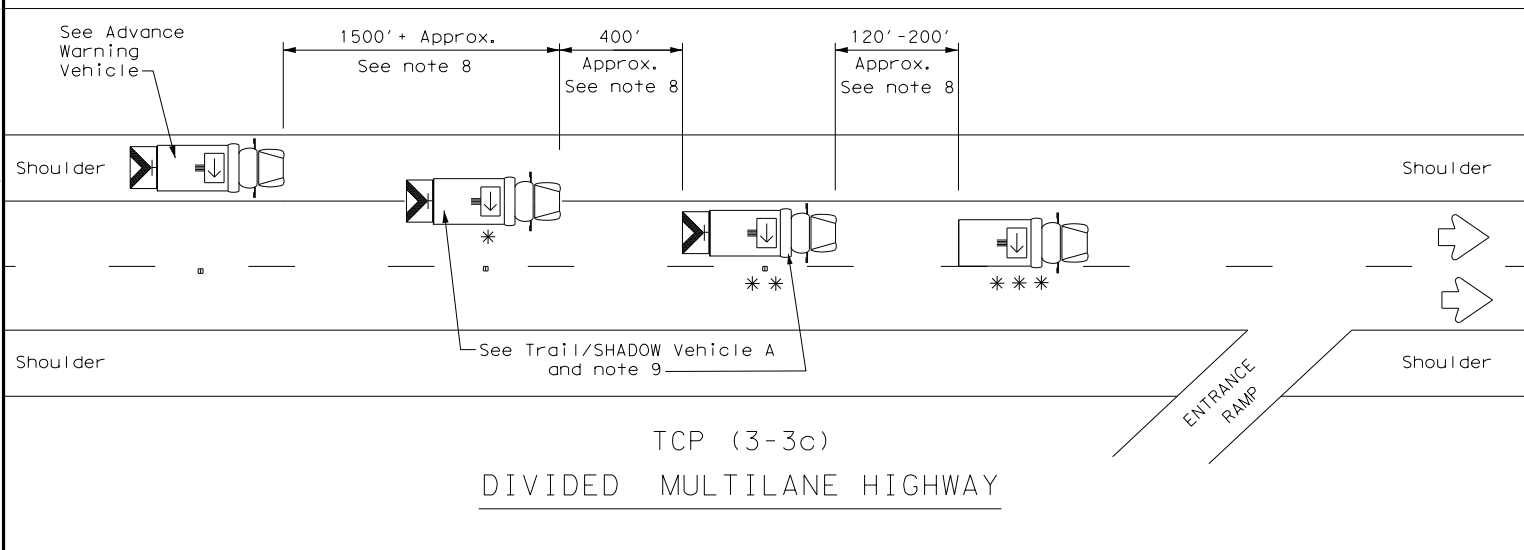
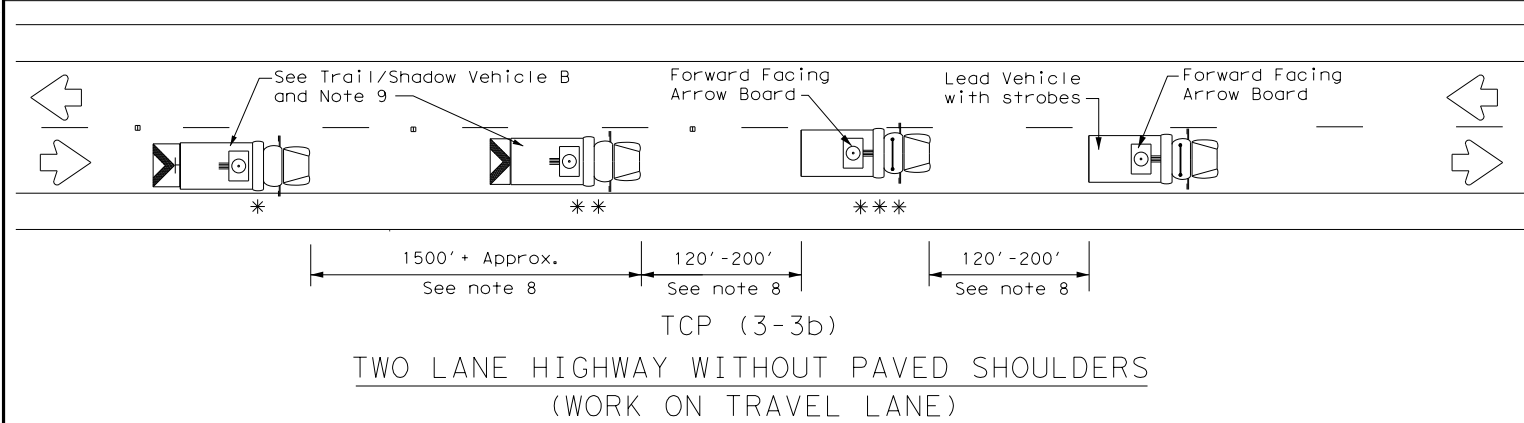
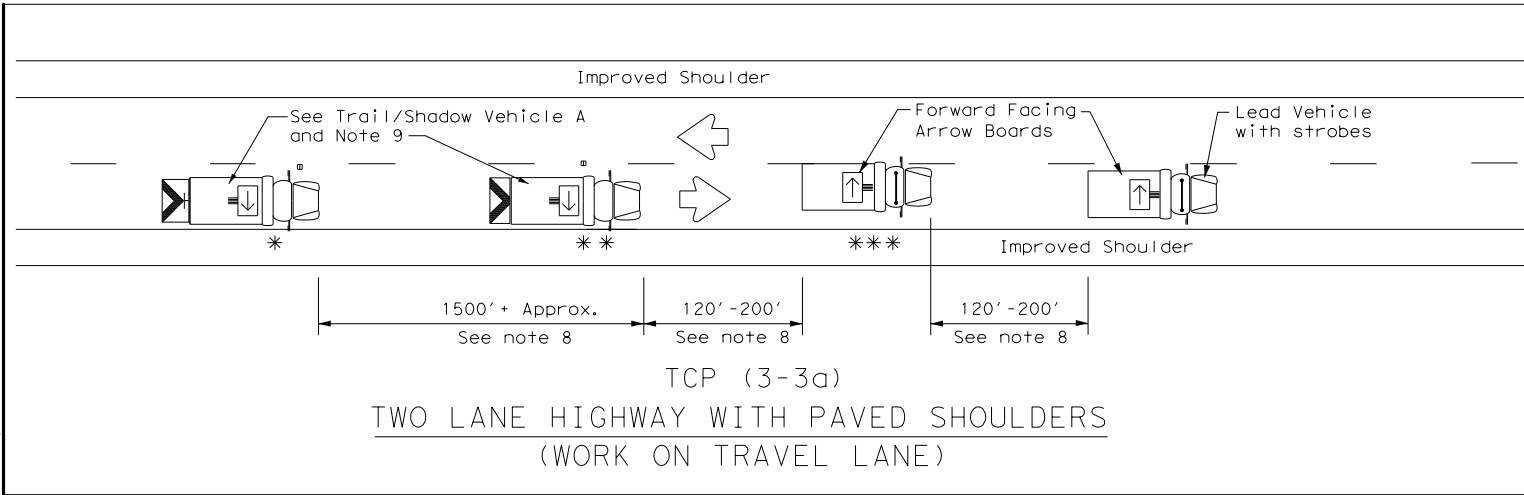
Texas Department of Transportation
 Traffic Operations Division Standard

**TRAFFIC CONTROL PLAN
 MOBILE OPERATIONS
 UNDIVIDED HIGHWAYS**

TCP (3-1) - 13

FILE:	tcp3-1.dgn	DN:	TxDOT	CK:	TxDOT	DW:	TxDOT	CK:	TxDOT
© TxDOT	December 1985	CONT	SECT	JOB	HIGHWAY				
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		TYLER	GREGG		62				

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LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

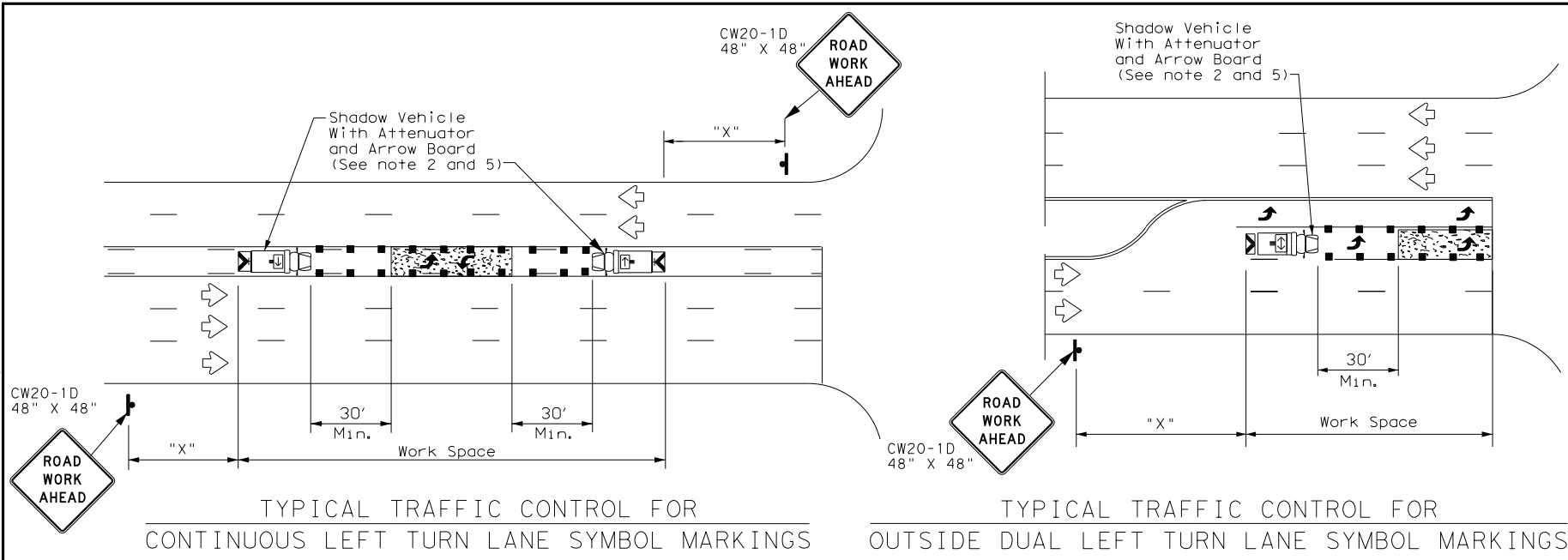
GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used on two way roads the WORK vehicle must have an arrow board. For divided roadways, the arrow board on the WORK vehicle is optional based on the type of work being performed. The Engineer will determine if the LEAD vehicle and/or TRAIL vehicle are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating, or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE, ADVANCE WARNING and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. X VEHICLE CONVOY (CW21-10cT) or WORK CONVOY (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" x 48" diamond shaped WORK CONVOY (CW21-10T) or X VEHICLE CONVOY (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The X VEHICLE CONVOY sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. For divided highways with two or three lanes in one direction, the appropriate LEFT LANE CLOSED (CW20-5bTL), RIGHT LANE CLOSED (CW20-5bTR), or CENTER LANE CLOSED (CW20-5dT) sign should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board may be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
11. A double arrow shall not be displayed on the arrow board on the Advance Warning Vehicle.
12. For divided highways with three or four lanes in each direction, use TCP(3-2).
13. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
14. The Advance Warning Vehicle may straddle the edgeline when Shoulder width makes it necessary.
15. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a DO NOT PASS (R4-1) sign should be placed on the back of the rearmost protection vehicle.

		Traffic Operations Division Standard	
TRAFFIC CONTROL PLAN MOBILE OPERATIONS RAISED PAVEMENT MARKER INSTALLATION/ REMOVAL TCP (3-3) - 14			
FILE: tcp3-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT September 1987	CONT	SECT	JOB
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8-95 7-13			
1-97 7-14			
	TYLER	GREGG	SHEET NO. 63

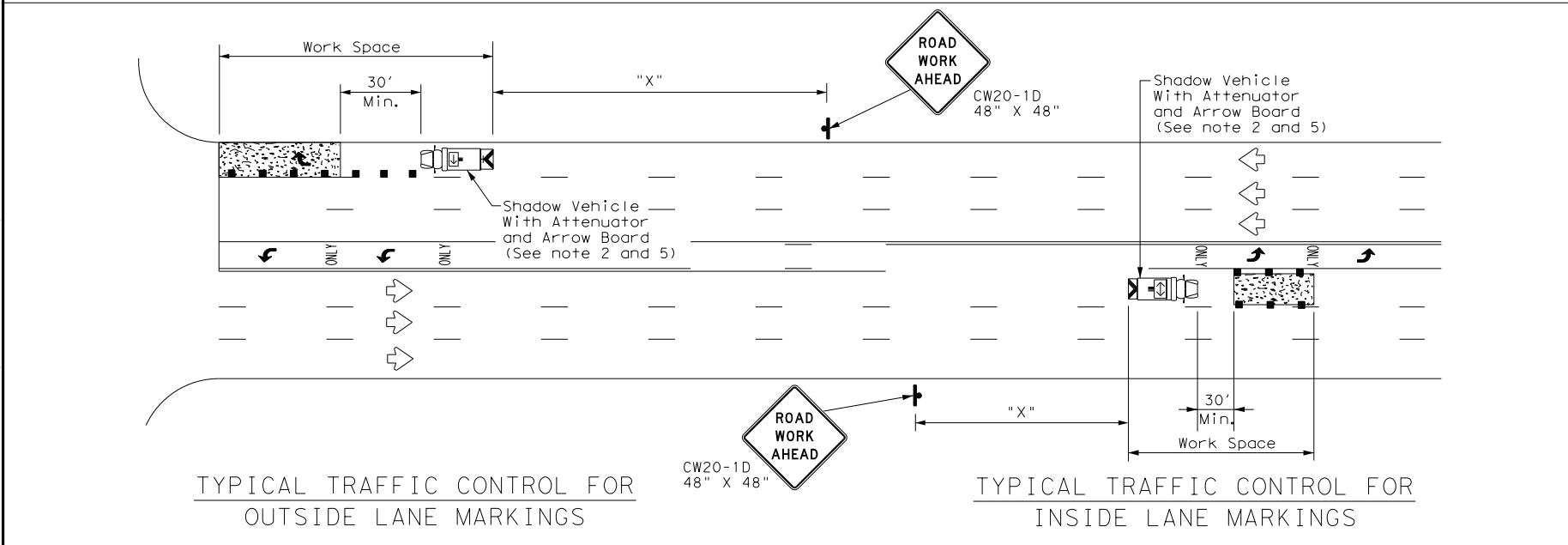
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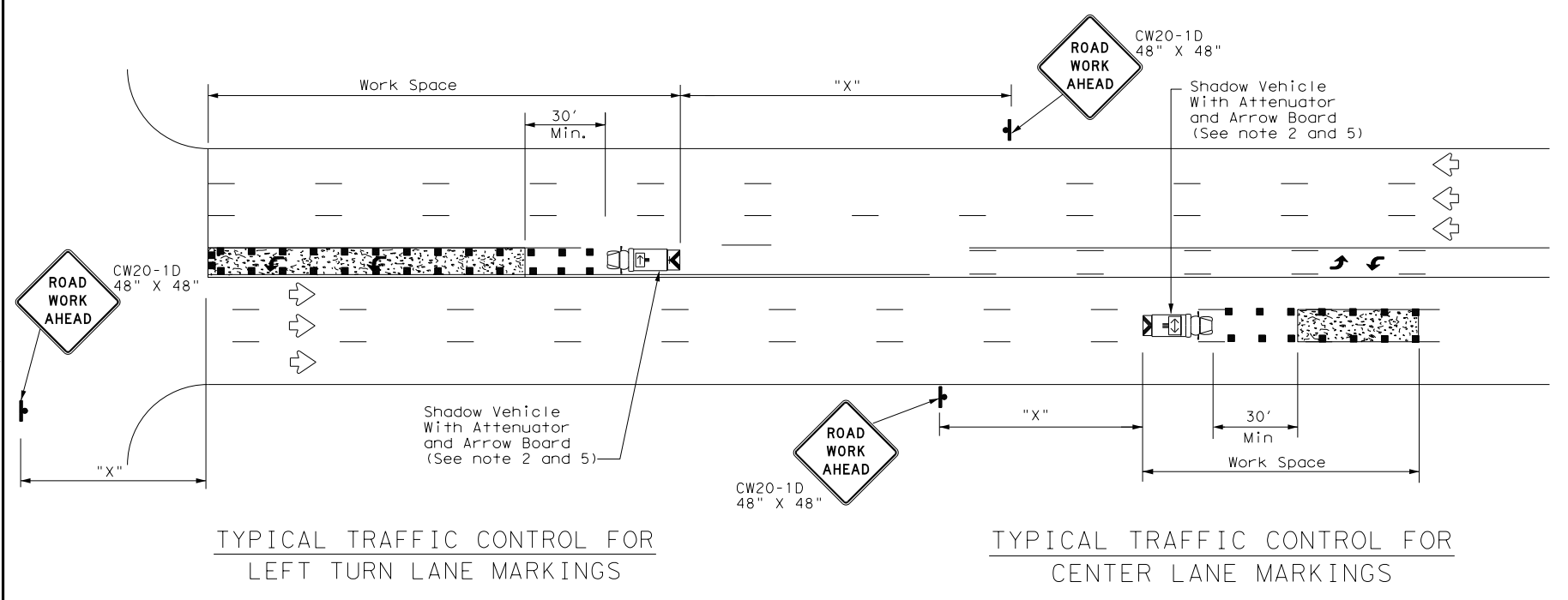
TYPICAL TRAFFIC CONTROL FOR CONTINUOUS LEFT TURN LANE SYMBOL MARKINGS

TYPICAL TRAFFIC CONTROL FOR OUTSIDE DUAL LEFT TURN LANE SYMBOL MARKINGS



TYPICAL TRAFFIC CONTROL FOR OUTSIDE LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR INSIDE LANE MARKINGS



TYPICAL TRAFFIC CONTROL FOR LEFT TURN LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR CENTER LANE MARKINGS

LEGEND		
*	Trail Vehicle	ARROW BOARD DISPLAY
**	Shadow Vehicle	
***	Work Vehicle	RIGHT Directional
	Heavy Work Vehicle	LEFT Directional
	Truck Mounted Attenuator (TMA)	Double Arrow
	Traffic Flow	Channelizing Devices

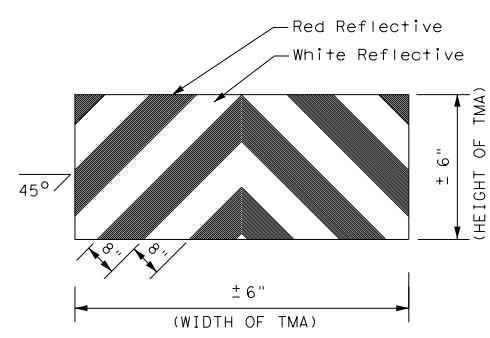
Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

1. This traffic control plan is for use on conventional roads posted at 45 mph or less and is intended for mobile operations that move continuously or intermittently (stopping up to approximately 15 minutes) such as short-line striping and in-lane rumble strips. When activities are anticipated to take longer amounts of time or traffic conditions warrant, a short duration or short-term stationary traffic control plan should be used.
2. A Truck Mounted Attenuator shall be used on Shadow Vehicle. Striping on the back panel of all truck mounted attenuators shall be 8" red and white reflective sheeting placed in an inverted "V" design. Reflective sheeting shall meet or exceed the reflectivity and color requirements of departmental material specification DMS-8300, Type A.
3. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.
4. The use of yellow rotating beacons or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the drivers side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
5. Flashing arrow board shall be used on Shadow Vehicle. Flashing arrow board shall be Type B or Type C as per BC Standards. The arrow board operation shall be controlled from inside the truck.

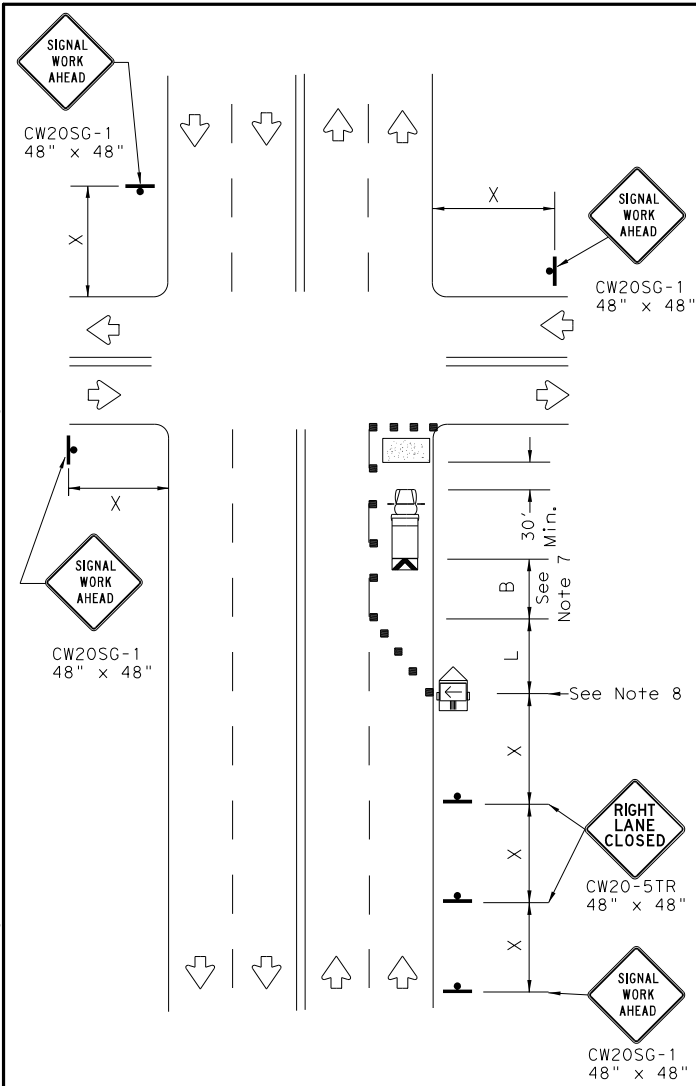


STRIPING FOR TMA

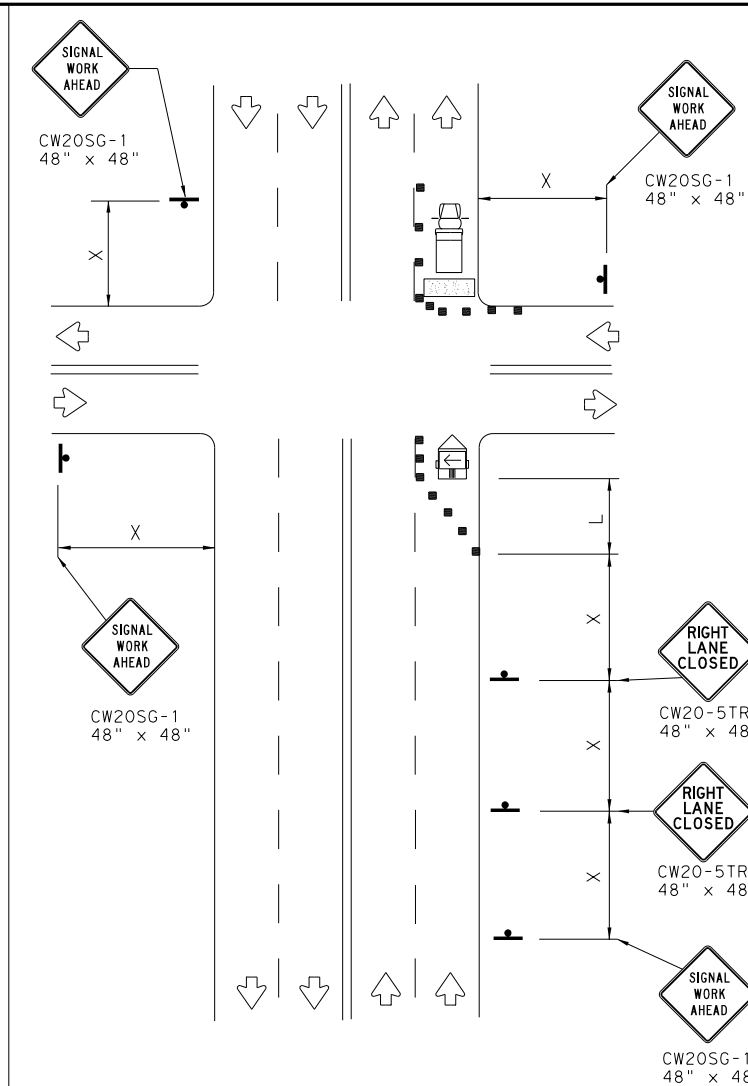
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TRAFFIC CONTROL PLAN MOBILE OPERATIONS FOR ISOLATED WORK AREAS UNDIVIDED HIGHWAYS TCP (3-4) - 13			
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		JOB	HIGHWAY
		072	072
		DIST	COUNTY
		TYLER	GREGG
		SHEET NO.	64

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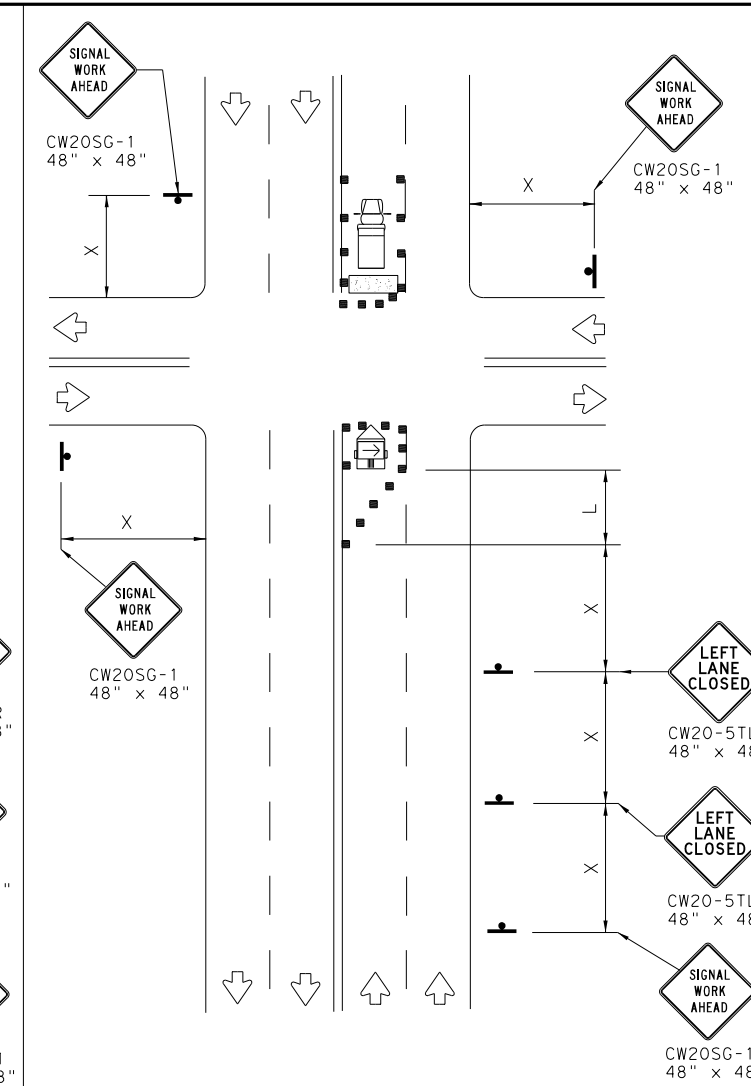
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NEAR SIDE LANE CLOSURE
 SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE RIGHT LANE CLOSURE
 SHORT DURATION OR SHORT TERM STATIONARY



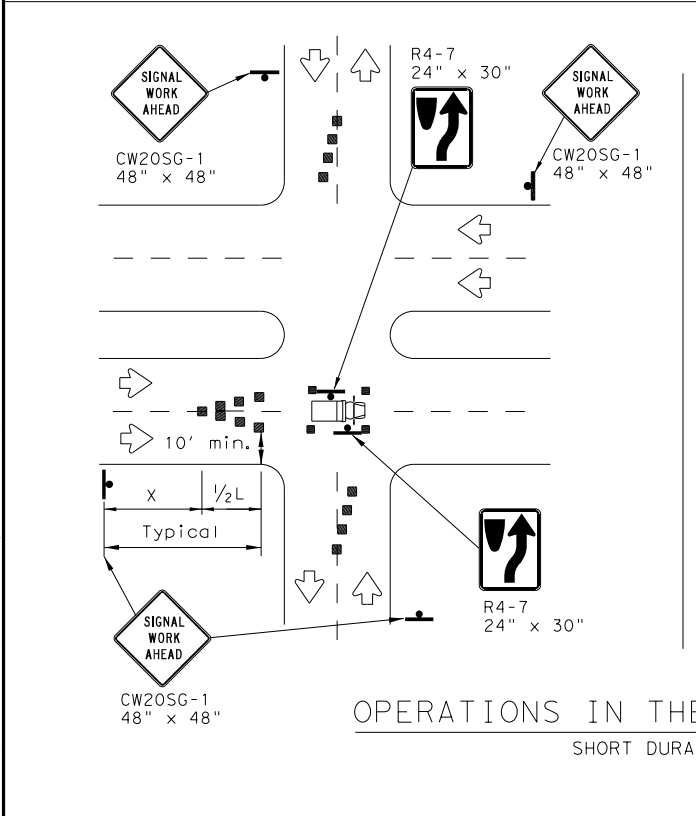
FAR SIDE LEFT LANE CLOSURE
 SHORT DURATION OR SHORT TERM STATIONARY

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

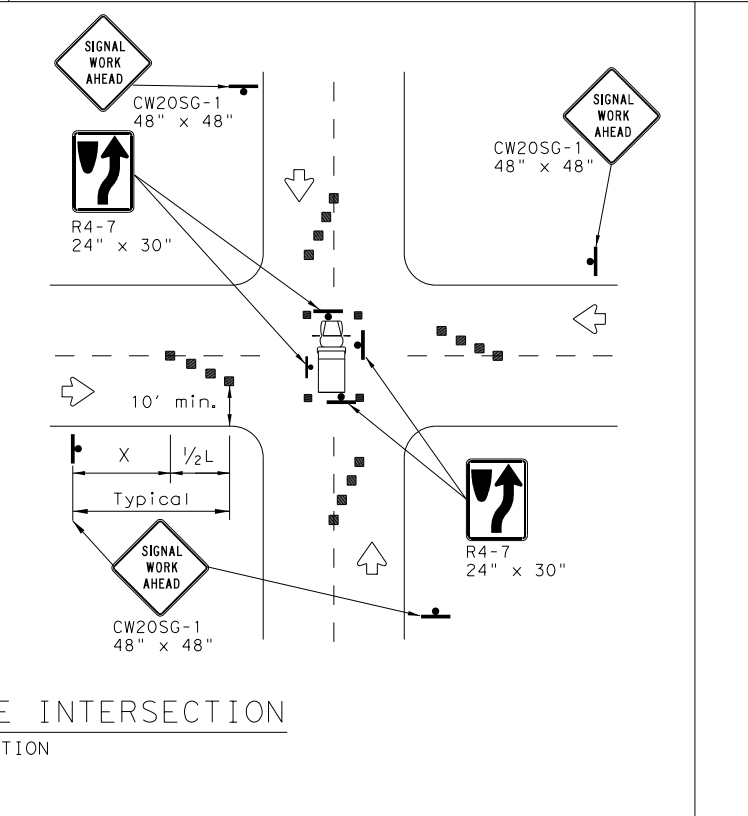
Posted Speed *	Formula	Minimum Desirable Taper Lengths * X			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
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)

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



OPERATIONS IN THE INTERSECTION
 SHORT DURATION



GENERAL NOTES

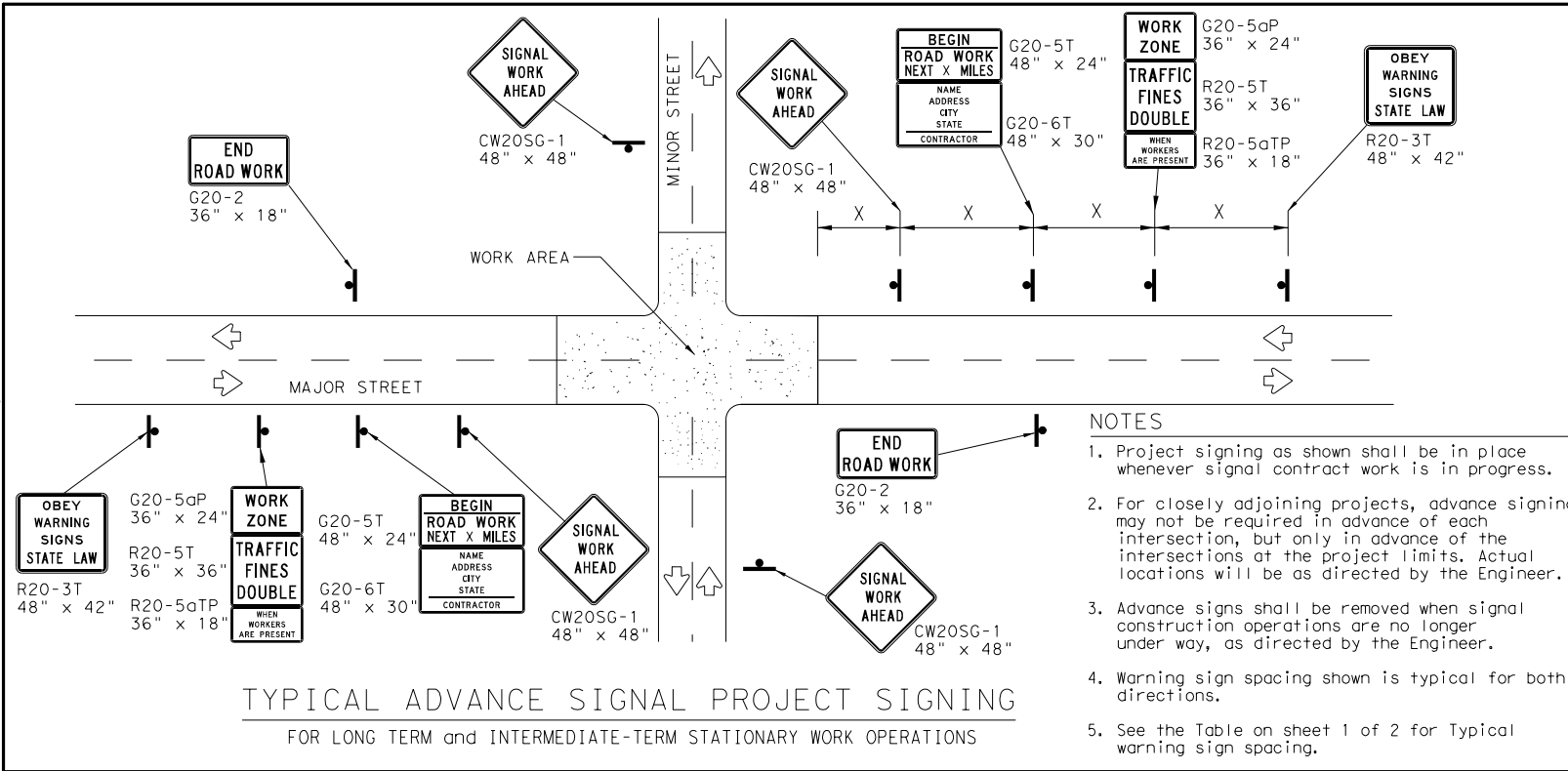
- The minimum size channelizing device is the 28" cone. 42" Two-piece cones, drums, vertical panels or barricades will be required when the device must be left unattended at night.
- Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
- Flaggers and Flagger Symbol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

SHEET 1 OF 2

		Traffic Operations Division Standard	
TRAFFIC SIGNAL WORK TYPICAL DETAILS			
WZ(BTS-1)-13			
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REVISIONS	0910	07	072
2-98 10-99 7-13	DIST	COUNTY	SHEET NO.
4-98 3-03	TYLER	GREGG	65

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- NOTES**
1. Project signing as shown shall be in place whenever signal contract work is in progress.
 2. For closely adjoining projects, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits. Actual locations will be as directed by the Engineer.
 3. Advance signs shall be removed when signal construction operations are no longer under way, as directed by the Engineer.
 4. Warning sign spacing shown is typical for both directions.
 5. See the Table on sheet 1 of 2 for Typical warning sign spacing.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Signs shall be installed and maintained in a straight and plumb condition.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer.
6. The Contractor shall furnish the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD).
7. The Contractor shall furnish sign supports and substrates listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD), installed as per the manufacturer's recommendations.
8. Temporary signs that have damaged or cracked substrates and/or damaged or marred reflective sheeting shall be replaced as directed by the Engineer.
9. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1".
10. Damaged wood posts shall be replaced. Splicing wood posts will not be allowed.

DURATION OF WORK

1. Work zone durations are defined in Part 6, Section 66.02 of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

SIGN MOUNTING HEIGHT

1. Sign height of Long-term/Intermediate-term warning signs shall be as shown on Figure 6F-1 of the TMUTCD.
2. Sign height of Short-term/Short Duration warning signs shall be as shown on Figure 6F-2 of the TMUTCD.
3. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered, unless otherwise approved by the Engineer.
2. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night without damaging the sign sheeting. Burlap, or heavy materials such as plywood or aluminum shall not be used to cover signs.
3. Duct tape or other adhesive material shall NOT be affixed to a sign face.
4. Signs and anchor stubs shall be removed and holes back filled upon completion of the work.

REFLECTIVE SHEETING

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

SIGN SUPPORT WEIGHTS

1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber, such as tire inner tubes, shall not be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

LEGEND

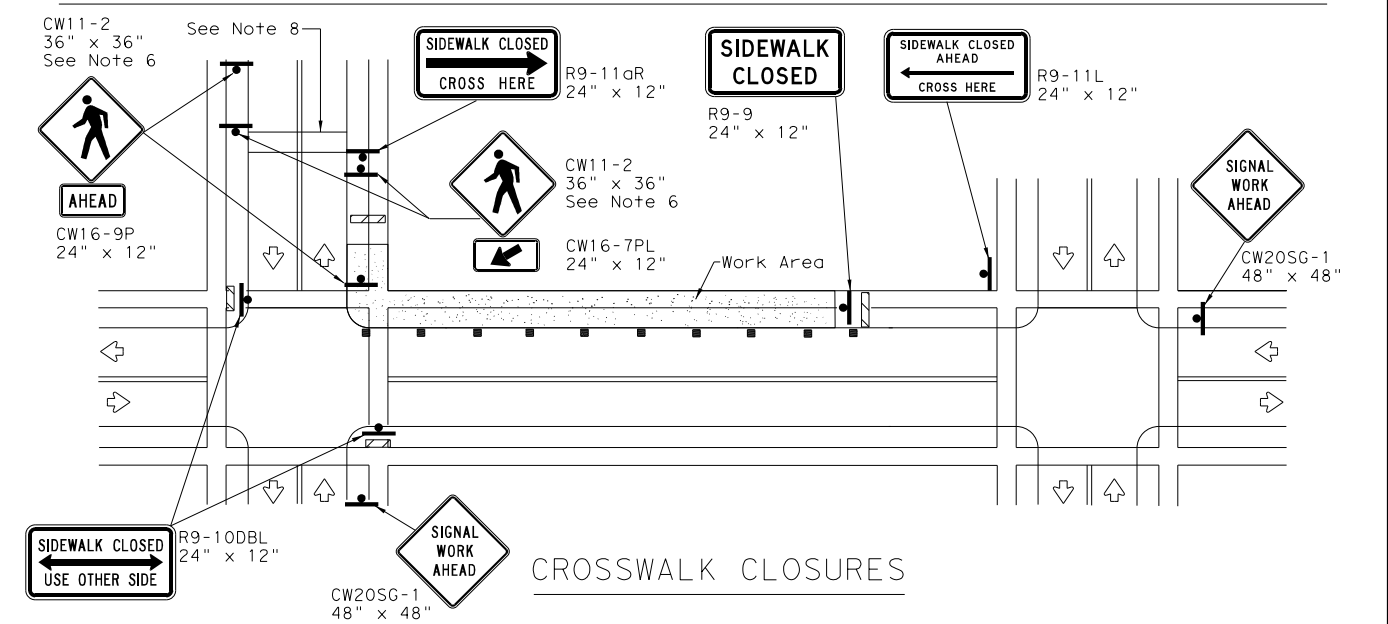
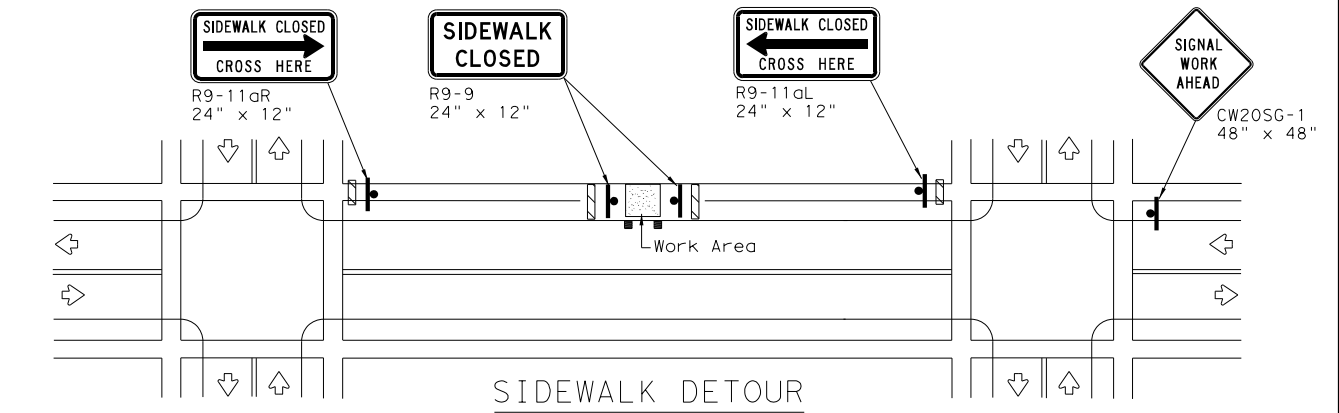
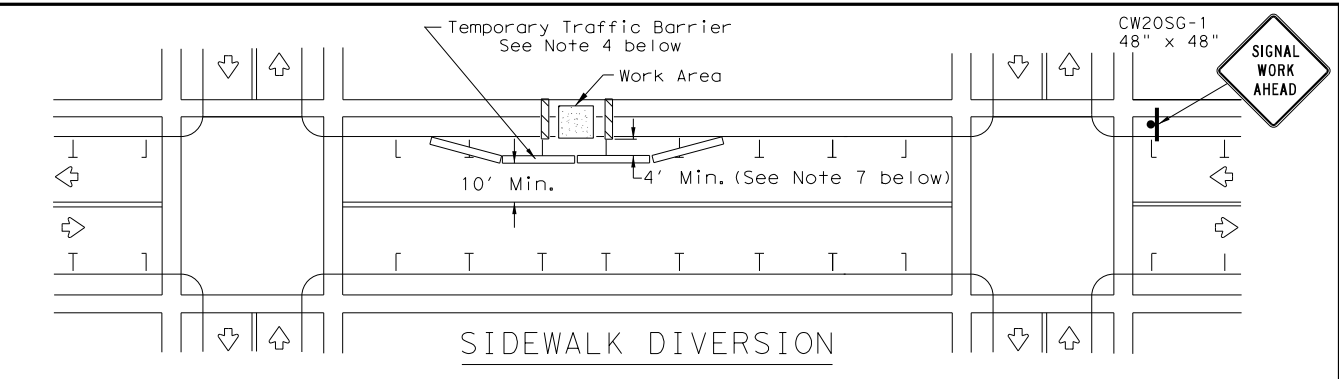
	Sign
	Channelizing Devices
	Type 3 Barricade

DEPARTMENTAL MATERIAL SPECIFICATIONS

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

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

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



PEDESTRIAN CONTROL

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

SHEET 2 OF 2



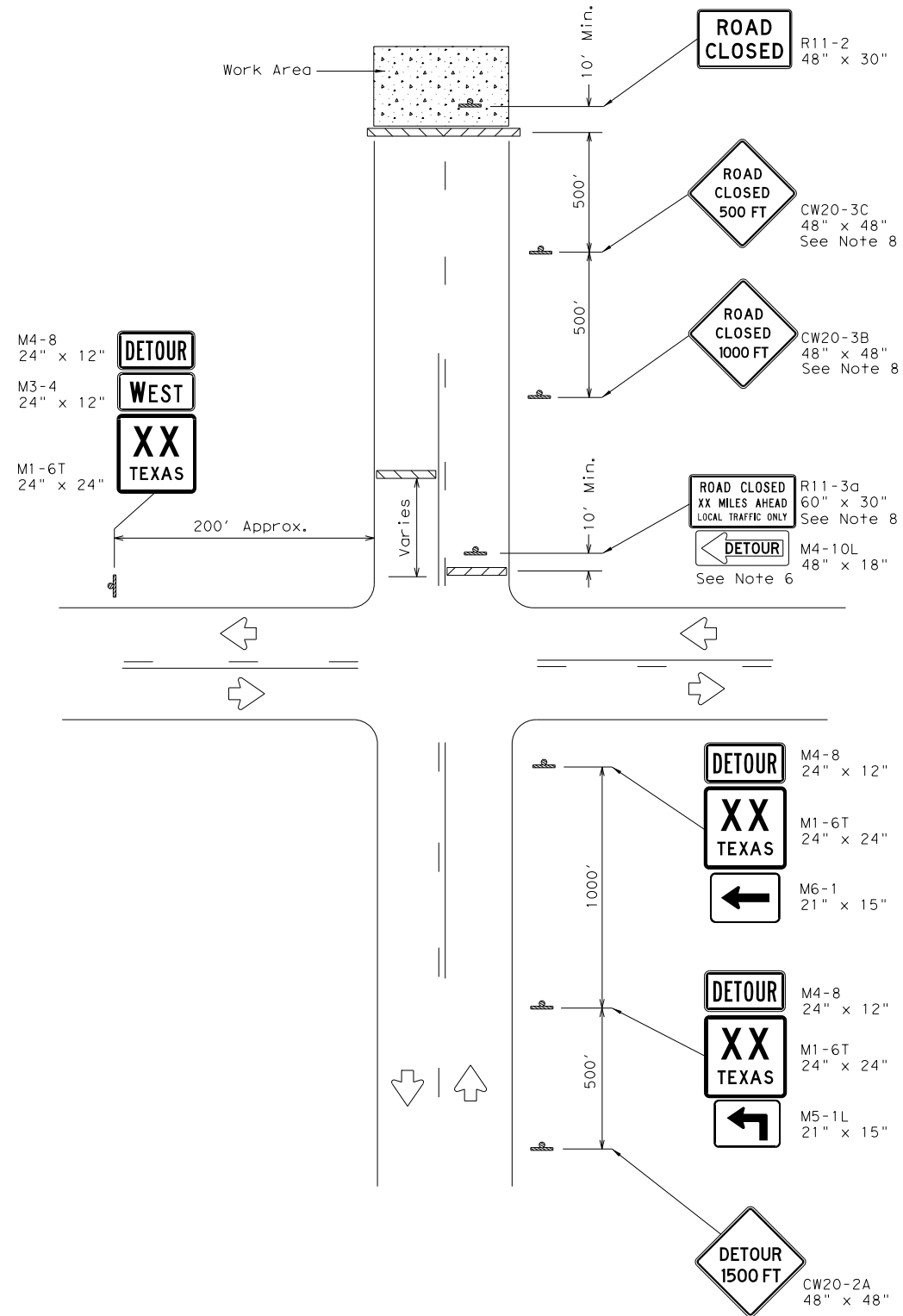
TRAFFIC SIGNAL WORK BARRICADES AND SIGNS

WZ (BTS-2) - 13

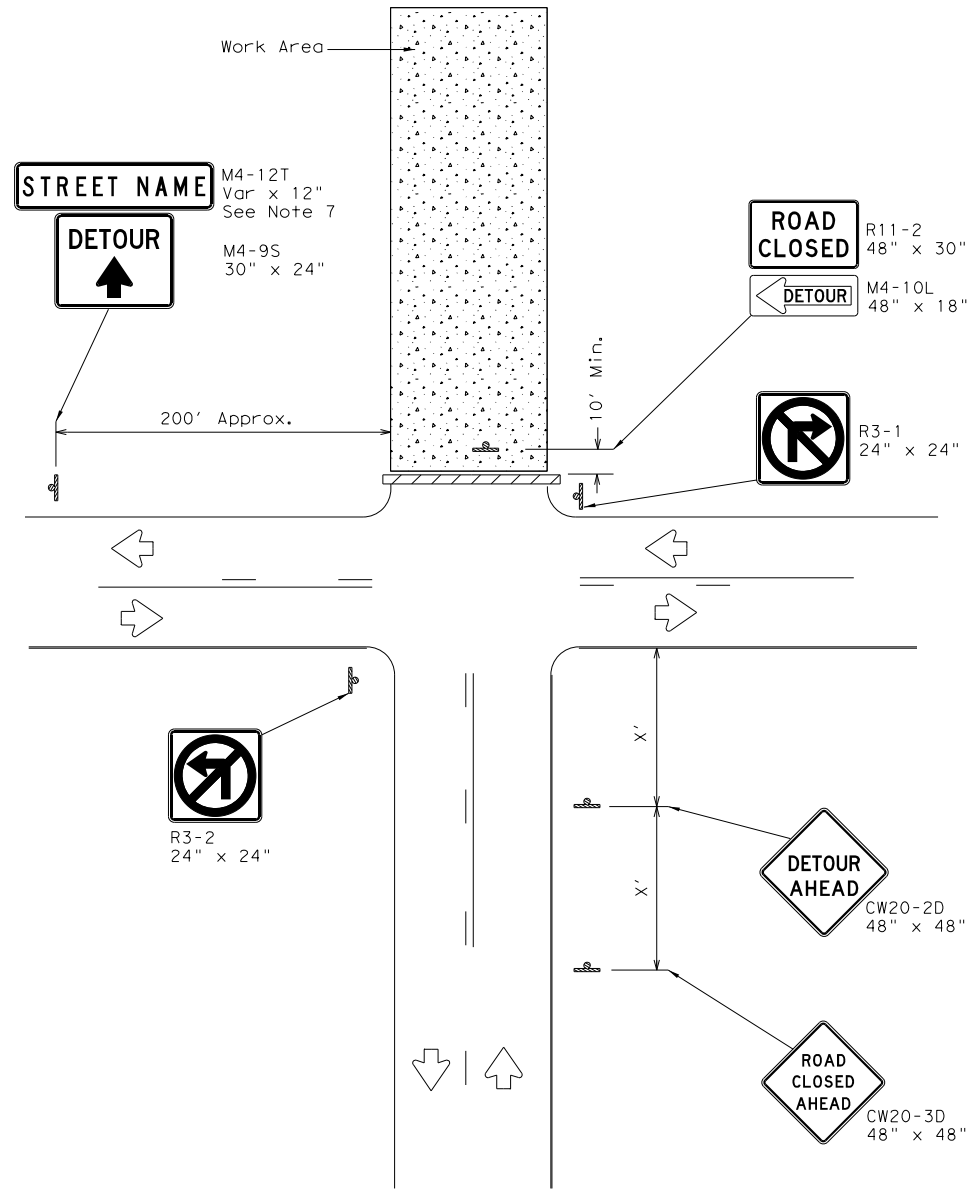
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© TxDOT	April 1992	CONT	SECT	JOB	REVISIONS	REVISIONS	REVISIONS	REVISIONS	REVISIONS
		0910	07	072					
2-98	10-99	7-13							
4-98	3-03								
		TYLER		GREGG					66

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DATE: 7/22/2021
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ROAD CLOSURE BEYOND THE INTERSECTION
 Signing for a Numbered Route with an Off-Site Detour



ROAD CLOSURE AT THE INTERSECTION
 Signing for an Un-numbered Route with an Off-Site Detour

LEGEND	
	Type 3 Barricade
	Sign

Posted Speed *	Minimum Sign Spacing "X" Distance
30	120'
35	160'
40	240'
45	320'
50	400'
55	500'
60	600'
65	700'
70	800'
75	900'

* Conventional Roads Only

GENERAL NOTES

1. This sheet is intended to provide details for temporary work zone road closures. For permanent road closure details see the D&OM standards.
2. Barricades used shall meet the requirements shown on Barricade and Construction Standard BC(10) and listed on the Compliant Work Zone Traffic Control Devices List (CWZTCD).
3. Stockpiled materials shall not be placed on the traffic side of barricades.
4. Barricades at the road closure should extend from pavement edge to pavement edge.
5. Detour signing shown is intended to illustrate the type of signing that is appropriate for numbered routes or un-numbered routes as labeled. It does not indicate the full extent of detour signing required. Detour routes should be signed as shown elsewhere in the plans.
6. If the road is open for a significant distance beyond the intersection or there are significant origin/destination points beyond the intersection, the signs and barricades at this location should be located at the edge of the traveled way.
7. The Street Name (M4-12T) sign is to be placed above the DETOUR (M4-9S) sign.
8. For urban areas where there is a shorter distance between the intersection and the actual closure location, the ROAD CLOSED XX MILES AHEAD (R11-3a) sign may be replaced with a ROAD CLOSED TO THRU TRAFFIC (R11-4) sign. If adequate space does not exist between the intersection and the closure a single ROAD CLOSED AHEAD (CW20-3D) sign spaced as per the table above may replace the ROAD CLOSED 1000 FT (CW20-3B) and ROAD CLOSED 500 FT (CW20-3C) signs.
9. Signs and barricades shown shall be subsidiary to Item 502. Locations where these details will be required shall be as shown elsewhere in the plans.

		Traffic Operations Division Standard	
WORK ZONE ROAD CLOSURE DETAILS			
WZ (RCD) - 13			
FILE: wzrcd-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT August 1995	CONT	SECT	JOB
REVISIONS	0910	07	072
1-97 4-98 7-13	DIST	COUNTY	SHEET NO.
2-98 3-03	TYLER	GREGG	67

CONTROL POINT	SURFACE COORDINATES		GRID COORDINATES		LATITUDE	LONGITUDE	ELEVATION	STATION & OFFSET	DESCRIPTION
	NORTHING	EASTING	NORTHING	EASTING					
101	6,881,652.0771	3,126,770.3767	6,880,826.3779	3,126,395.2093	32° 29' 13.28903"	94° 44' 38.28772"	303.712		SET TxDOT 3-1/4" ALUMINUM DISK ON A 5/8" IRON ROD IN CONCRETE
102	6,881,768.9048	3,127,459.6592	6,880,943.1916	3,127,084.4091	32° 29' 14.20036"	94° 44' 30.19744"	297.282		SET TxDOT 3-1/4" ALUMINUM DISK ON A 5/8" IRON ROD IN CONCRETE

NOTES:

1. ALL BEARINGS AND COORDINATES ARE REFERENCED TO THE TEXAS COORDINATE SYSTEM OF 1983 TEXAS NORTH CENTRAL ZONE (4202), NORTH AMERICAN DATUM OF 1983 (NAD83) 2010 ADJUSTMENT, EPOCH 2010 (GEOID 12A). ALL DISTANCES AND COORDINATES ARE SURFACE VALUES AND MAY BE CONVERTED TO GRID BY DIVIDING BY A COMBINED ADJUSTMENT FACTOR OF 1.00012
2. ALL HORIZONTAL CONTROL OF THIS PROJECT WAS ESTABLISHED BY TxDOT VIRTUAL REFERENCE SYSTEM NETWORK (LONGVIEW), BASED ON THREE AVERAGED 180 EPOCH OBSERVATIONS
3. UNIT OF MEASURE IS U.S. SURVEY FOOT
4. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), BASED ON THREE 180 EPOCH OBSERVATIONS UTILIZING THE TxDOT VIRTUAL REFERENCE SYSTEM NETWORK (LONGVIEW)
5. FIELD SURVEYS WERE PERFORMED DURING NOVEMBER 2017



Christopher R. Freeman
CHRISTOPHER R. FREEMAN - R.P.L.S. NO. 5701

LTRA LINA T. RAMEY & ASSOCIATES, INC.
3320 Belt Line Road
Farmers Branch, Texas 75234 - 214-979-1144
FIRM REGISTRATION NO. F-782
TBPLS REGISTRATION NO. 10140700

Texas Department of Transportation
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S HIGH ST AT UPRR AND SABINE ST

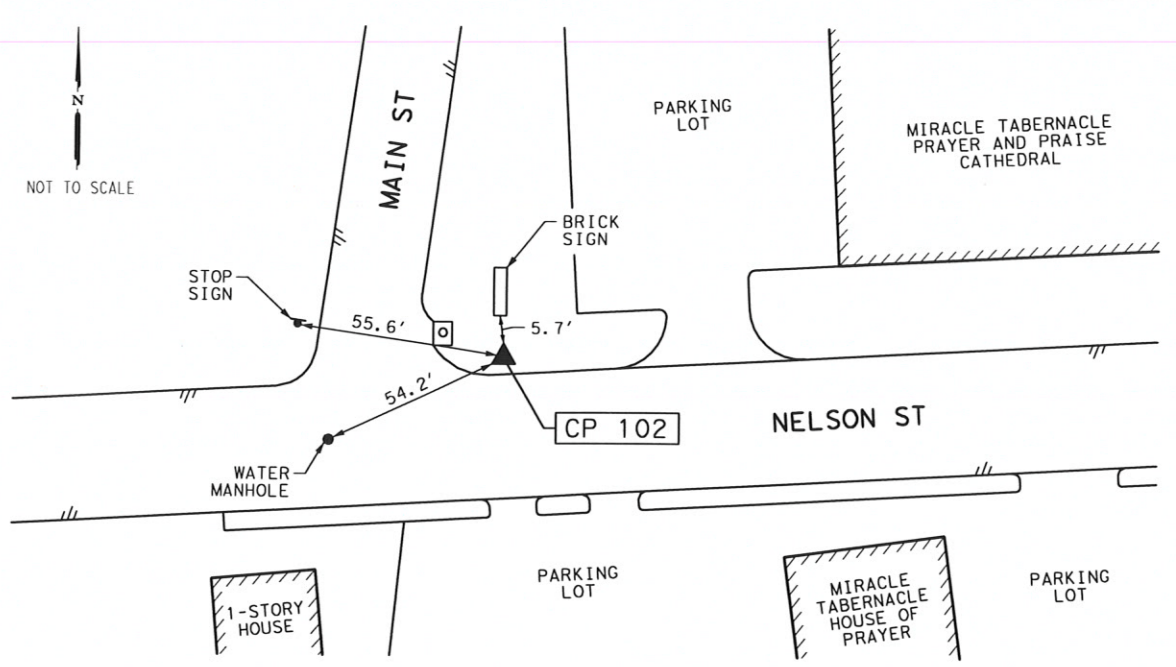
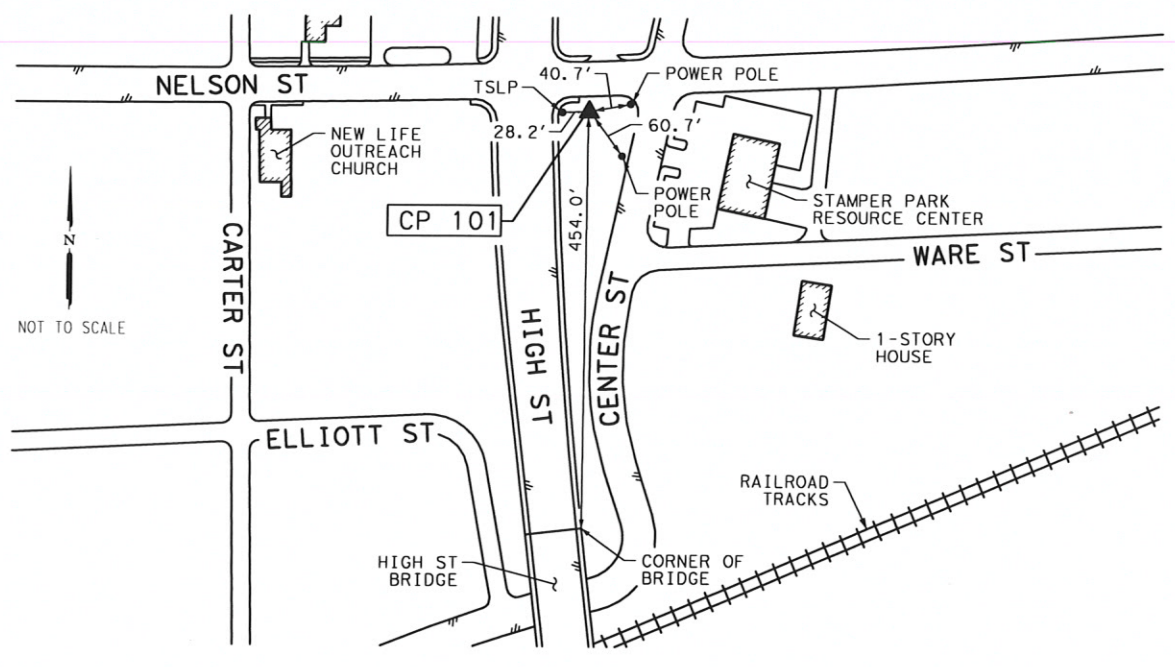
**HIGH STREET BRIDGE
SURVEY CONTROL INDEX**

STATE	CONT.	SECT.	JOB	SHEET NO.
TEXAS	0910	07	072	68
DIST	COUNTY	HIGHWAY		
TYLER	GREGG	HIGH ST		

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7/21/2021

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 7/21/2021



- NOTES:**
1. ALL BEARINGS AND COORDINATES ARE REFERENCED TO THE TEXAS COORDINATE SYSTEM OF 1983 TEXAS NORTH CENTRAL ZONE (4202), NORTH AMERICAN DATUM OF 1983 (NAD83) 2010 ADJUSTMENT, EPOCH 2010 (GEOID 12A). ALL DISTANCES AND COORDINATES ARE SURFACE VALUES AND MAY BE CONVERTED TO GRID BY DIVIDING BY A COMBINED ADJUSTMENT FACTOR OF 1.00012
 2. ALL HORIZONTAL CONTROL OF THIS PROJECT WAS ESTABLISHED BY TxDOT VIRTUAL REFERENCE SYSTEM NETWORK (LONGVIEW), BASED ON THREE AVERAGED 180 EPOCH OBSERVATIONS
 3. UNIT OF MEASURE IS U.S. SURVEY FOOT
 4. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), BASED ON THREE 180 EPOCH OBSERVATIONS UTILIZING THE TxDOT VIRTUAL REFERENCE SYSTEM NETWORK (LONGVIEW)
 5. FIELD SURVEYS WERE PERFORMED DURING NOVEMBER 2017

CONTROL POINT: 101

CP# 101 IS A TxDOT 3-1/4" ALUMINUM DISK ON A 5/8" IRON ROD SET IN CONCRETE. LOCATED ON THE SOUTHEAST CORNER OF HIGH STREET AND NELSON STREET

SURFACE COORDINATES:		GRID COORDINATES:		LATITUDE: 32° 29' 13.28903"	
NORTHING:	6,881,652.0771	NORTHING:	6,880,826.3779	LONGITUDE:	94° 44' 38.28772"
EASTING:	3,126,770.3767	EASTING:	3,126,395.2093		
ELEVATION:	303.712	ELEVATION:	303.712		

CONTROL POINT: 102

CP# 102 IS A TxDOT 3-1/4" ALUMINUM DISK ON A 5/8" IRON ROD SET IN CONCRETE. LOCATED ON THE NORTHEAST CORNER OF MAIN STREET AND NELSON STREET

SURFACE COORDINATES:		GRID COORDINATES:		LATITUDE: 32° 29' 14.20036"	
NORTHING:	6,881,768.9048	NORTHING:	6,880,943.1916	LONGITUDE:	94° 44' 30.19744"
EASTING:	3,127,459.6592	EASTING:	3,127,084.4091		
ELEVATION:	297.282	ELEVATION:	297.282		



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LTRA
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 FIRM REGISTRATION NO. F-782
 TBPLS REGISTRATION NO. 10140700

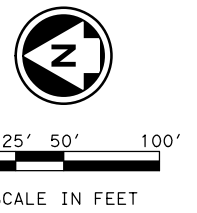


S HIGH ST AT UPRR AND SABINE ST

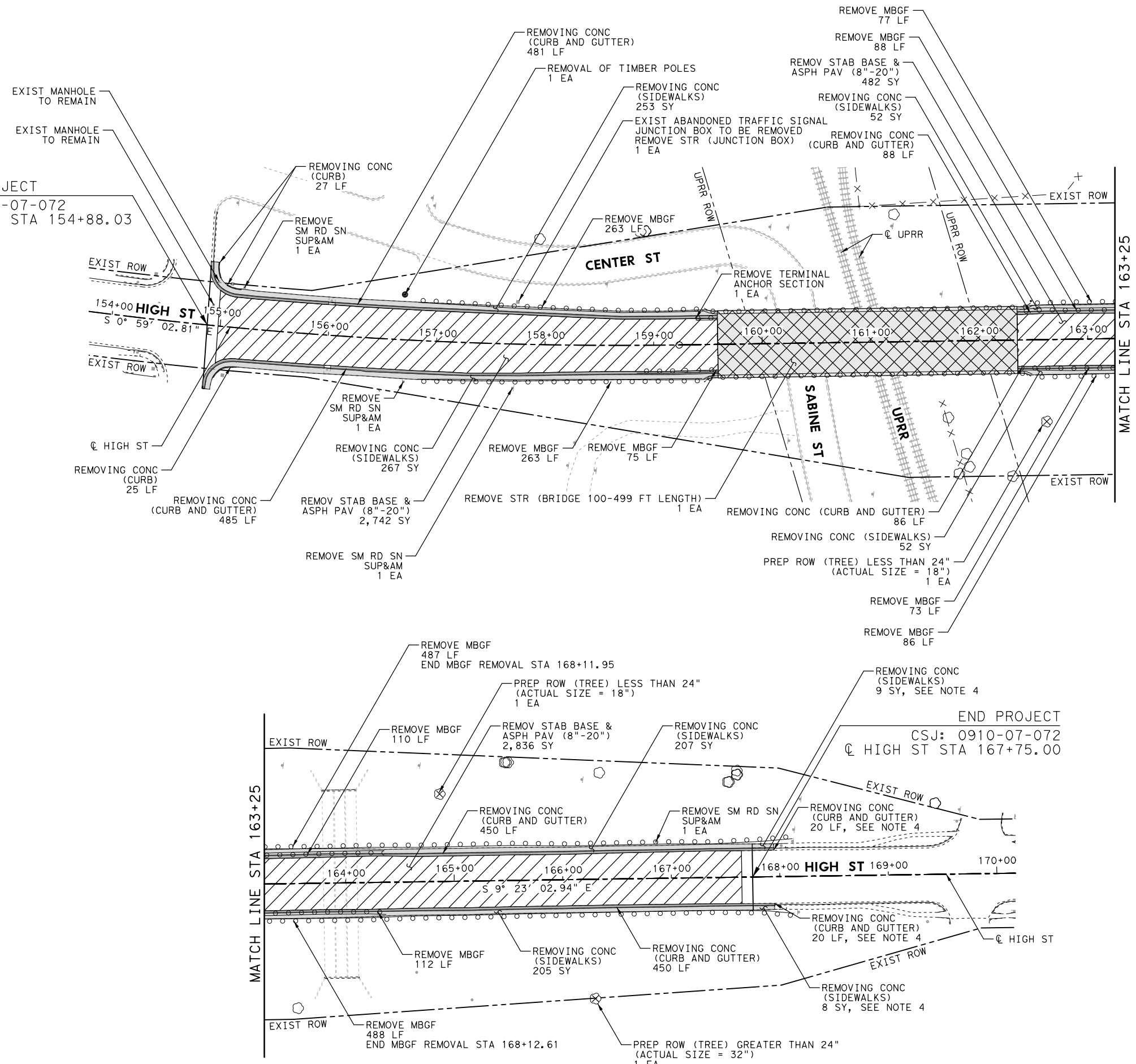
**HIGH STREET BRIDGE
 SURVEY CONTROL DATA**

STATE	CONT.	SECT.	JOB	SHEET NO.
TEXAS	0910	07	072	69
DIST	COUNTY		HIGHWAY	
TYLER	GREGG		HIGH ST	

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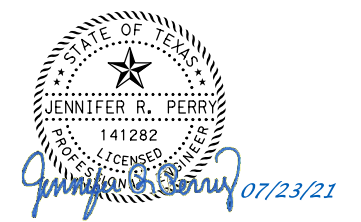


LEGEND

- ⊗ EXIST TREE TO BE REMOVED
- x— EXIST FENCE
- [Hatched Box] REMOV STAB BASE & ASPH PAV (8"-20")
- [Cross-hatched Box] REMOVE STR (BRIDGE 0-99 FT LENGTH)
- [Solid Grey Box] REMOVING CONC (CURB AND GUTTER)
- [Light Grey Box] REMOVING CONC (SIDEWALKS)
- [Diagonal Hatched Box] REMOV STR (INLET)

NOTES:

1. REMOVAL OF BRUSH AND TREES SMALLER THAN 18" IN DIAMETER WILL NOT BE PAID FOR DIRECTLY BUT WILL BE SUBSIDIARY TO PREP ROW ITEM 100-6002.
2. CONTRACTOR TO PREP ROW/REMOVE TREES IN SEQUENCE WITH THE TCP PHASES.
3. ABANDONED UTILITIES IN CONFLICT WITH THE PROPOSED PROJECT LIMITS ARE TO BE REMOVED AND PAID FOR UNDER ITEM 100 PREP ROW.
4. REFER TO THE CUT AND RESTORE DETAIL (LT/RT) ON PLAN AND PROFILE LAYOUTS FOR ADDITIONAL CONC SIDEWALK AND CONC CURB AND GUTTER QUANTITIES.



END PROJECT

CSJ: 0910-07-072
 @ HIGH ST STA 167+75.00

JMT TBPE REGISTRATION NO. F-16341

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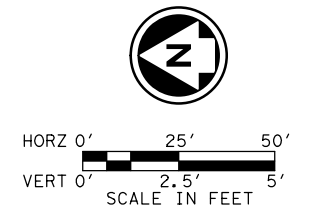
Texas Department of Transportation

S HIGH ST AT UPRR AND SABINE ST

REMOVAL LAYOUT

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JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
			70

HIGH ST CURVE-1	
PI STATION	= 156+44.10
DELTA	= 8° 24' 00.13" (LT)
DEGREE OF CURVE	= 1° 30' 00.00"
TANGENT	= 280.50
LENGTH	= 560.00
RADIUS	= 3,819.72
PC STATION	= 153+63.60
PT STATION	= 159+23.60

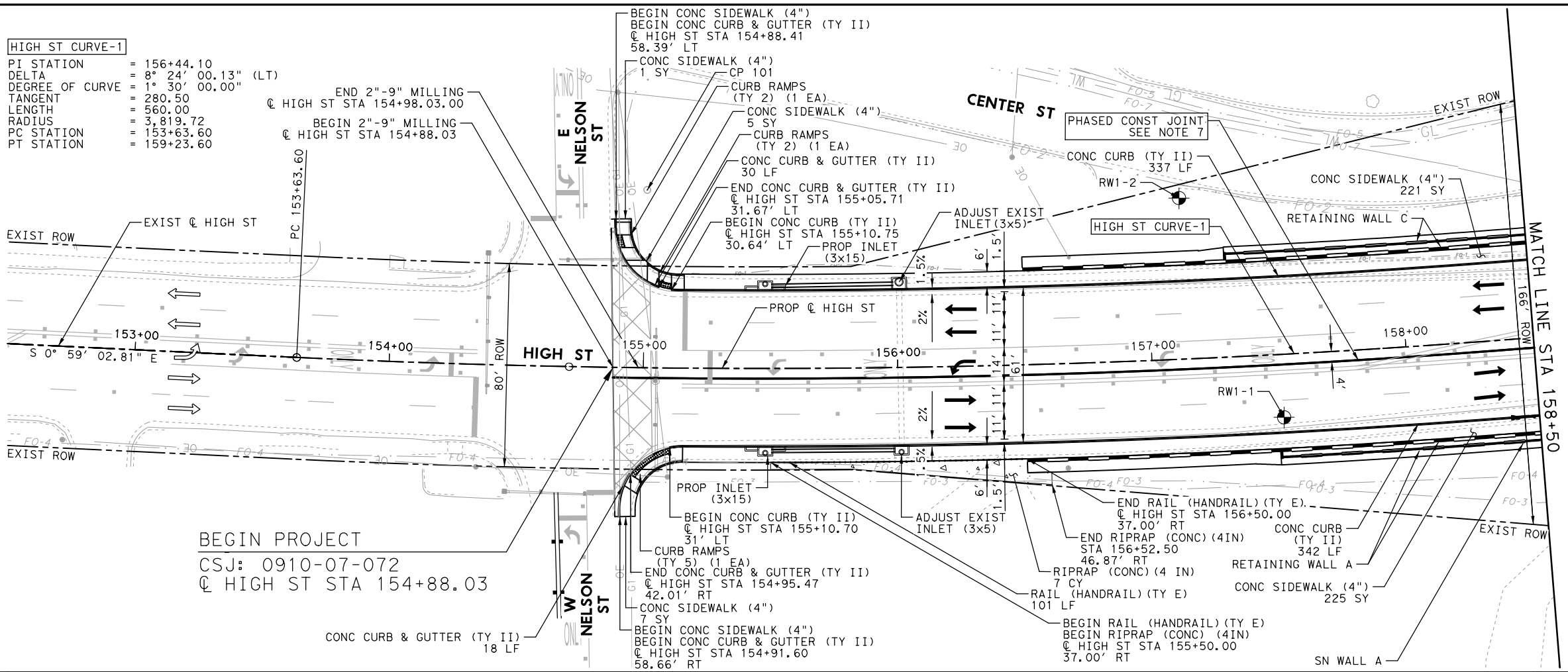


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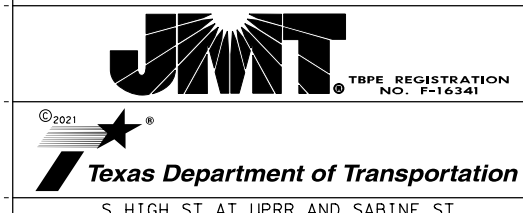
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- EXIST FENCE
- TREE (GREATER THAN 18" DIA)
- BORE HOLE

NOTES:

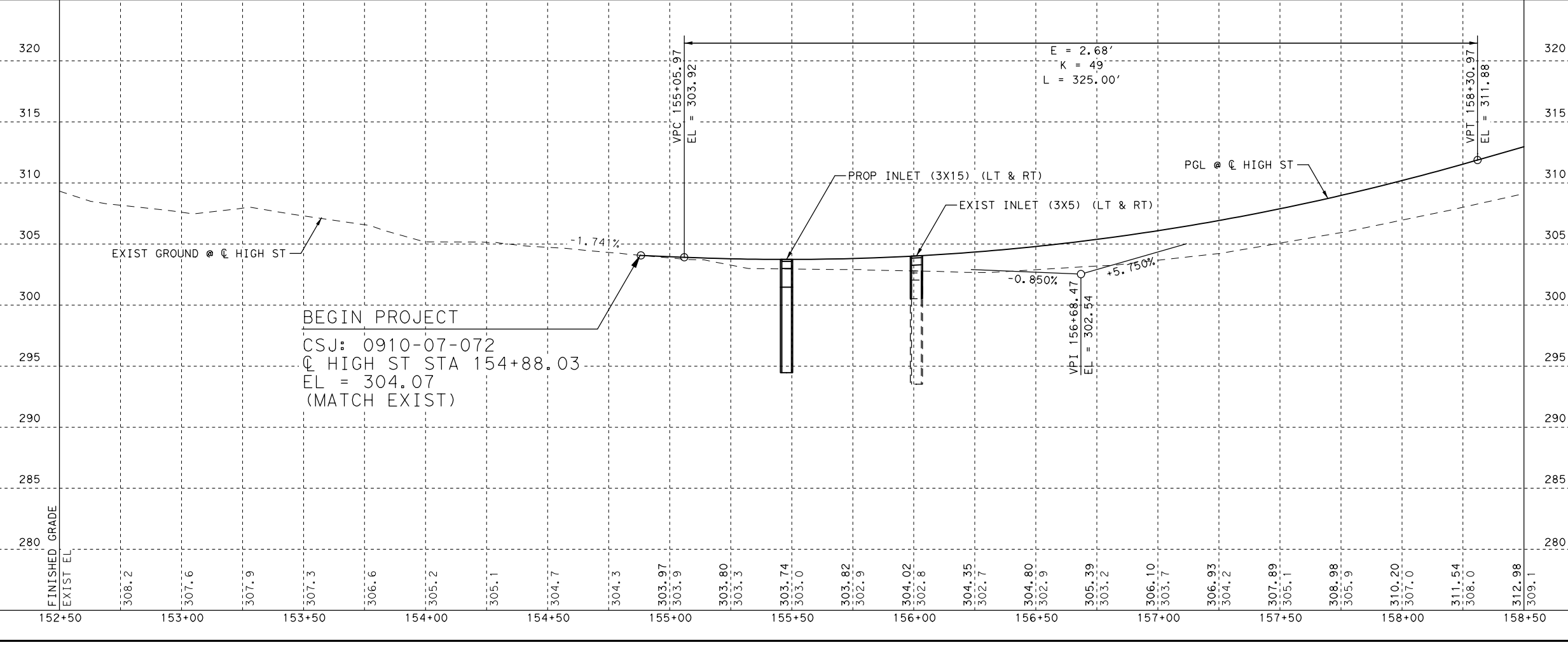
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2. SEE RETAINING WALL LAYOUTS FOR ADDITIONAL INFORMATION.
3. ALL UTILITIES TO BE LOCATED AND CONFIRMED BY THE CONTRACTOR IN THE FIELD PRIOR TO CONSTRUCTION.
4. SEE MISCELLANEOUS ROADWAY DETAILS SHEET FOR SIDEWALK TRANSITION INFORMATION.
5. CONC CURB AND GUTTER (TY II) (78LF) TO BE INSTALLED AS DIRECTED.
6. SEAL COAT (2,985 SY) TO BE INSTALLED AS DIRECTED.
7. MECHANICAL COUPLERS ARE REQUIRED WHEN TRANSVERSE REINFORCING STEEL SPLICES CANNOT MEET A MINIMUM OF 25 IN DUE TO WORK ZONE BUFFER CONSTRAINTS.



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 CSJ: 0910-07-072
 @ HIGH ST STA 154+88.03



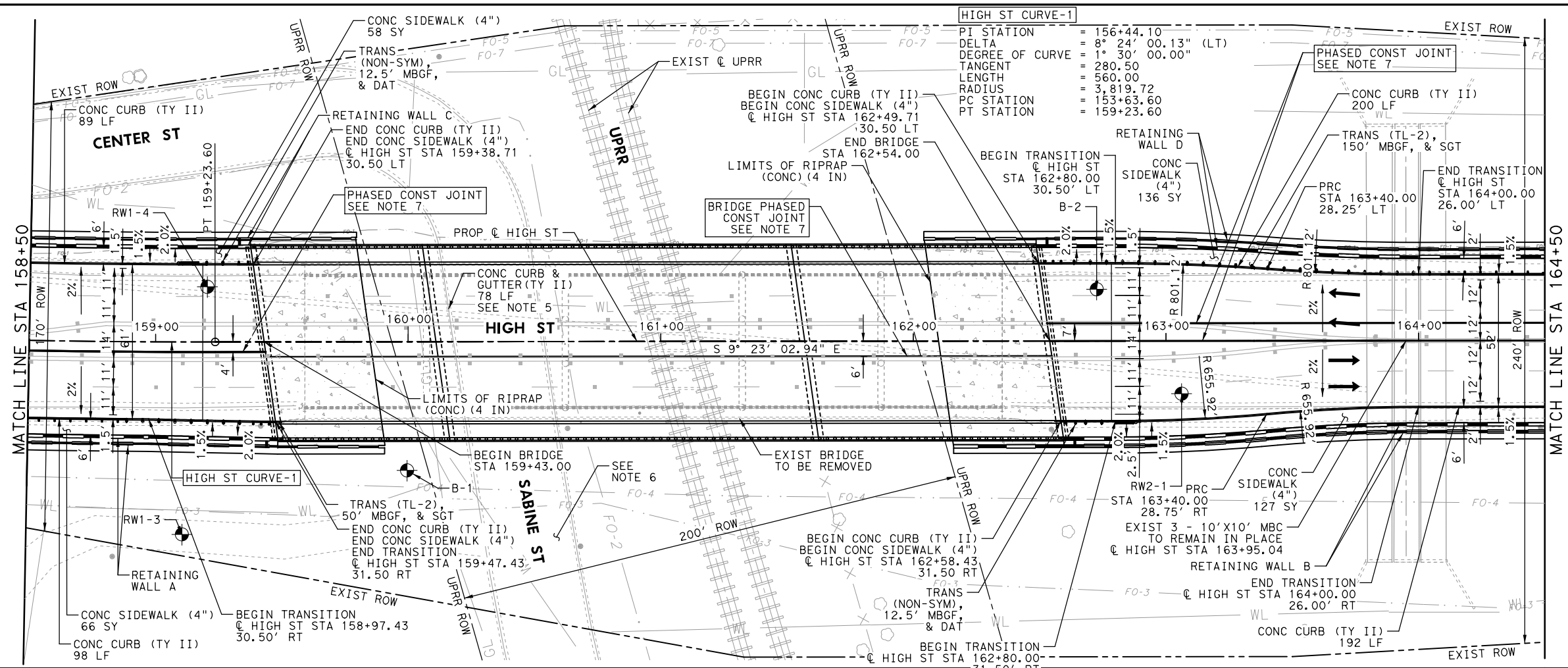
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GRAPHICS			
JMT	STATE	DISTRICT	COUNTY
CHECK	TEXAS	TYLER	GREGG
JMT	CONTROL	SECTION	JOB
CHECK	0910	07	072
JMT			71




BEGIN PROJECT
 CSJ: 0910-07-072
 @ HIGH ST STA 154+88.03
 EL = 304.07
 (MATCH EXIST)

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


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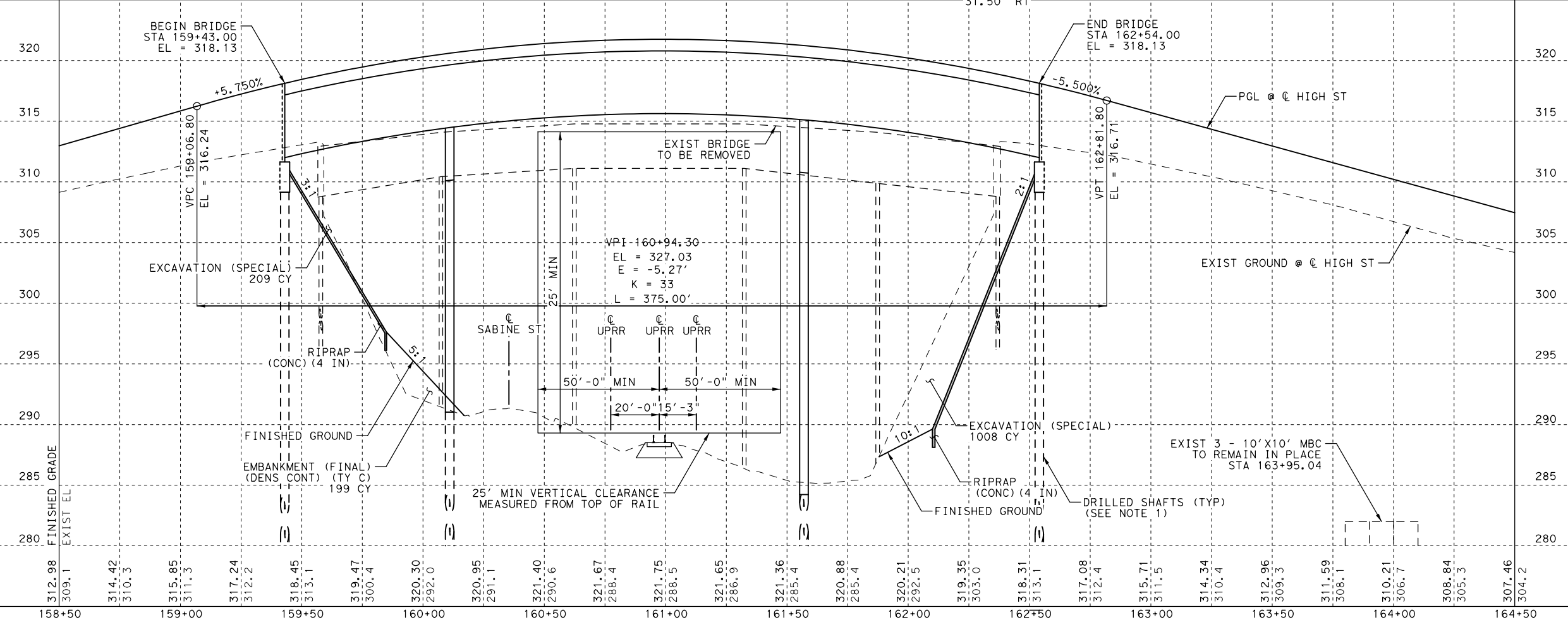
HORIZ 0' 25' 50'
 VERT 0' 2.5' 5'
 SCALE IN FEET

LEGEND


-  EXIST HOT MIX TO PROP CRCP TRANSITION. SEE MISCELLANEOUS ROADWAY DETAILS SHEET FOR MORE INFORMATION. MILLING QUANTITY TO BE PAID FOR BY ITEM 354 6031.
-  EXIST FENCE
-  TREE (GREATER THAN 18" DIA)
-  BORE HOLE

NOTES:

1. SEE BRIDGE LAYOUT FOR ADDITIONAL INFORMATION.
2. SEE RETAINING WALL LAYOUTS FOR ADDITIONAL INFORMATION.
3. ALL UTILITIES TO BE LOCATED AND CONFIRMED BY THE CONTRACTOR IN THE FIELD PRIOR TO CONSTRUCTION.
4. SEE MISCELLANEOUS ROADWAY DETAILS SHEET FOR SIDEWALK TRANSITION INFORMATION.
5. CONC CURB AND GUTTER (TYII) (78LF) TO BE INSTALLED AS DIRECTED.
6. SEAL COAT (2,985 SY) TO BE INSTALLED AS DIRECTED.
7. MECHANICAL COUPLERS ARE REQUIRED WHEN TRANSVERSE REINFORCING STEEL SPLICES CANNOT MEET A MINIMUM OF 25 IN DUE TO WORK ZONE BUFFER CONSTRAINTS.







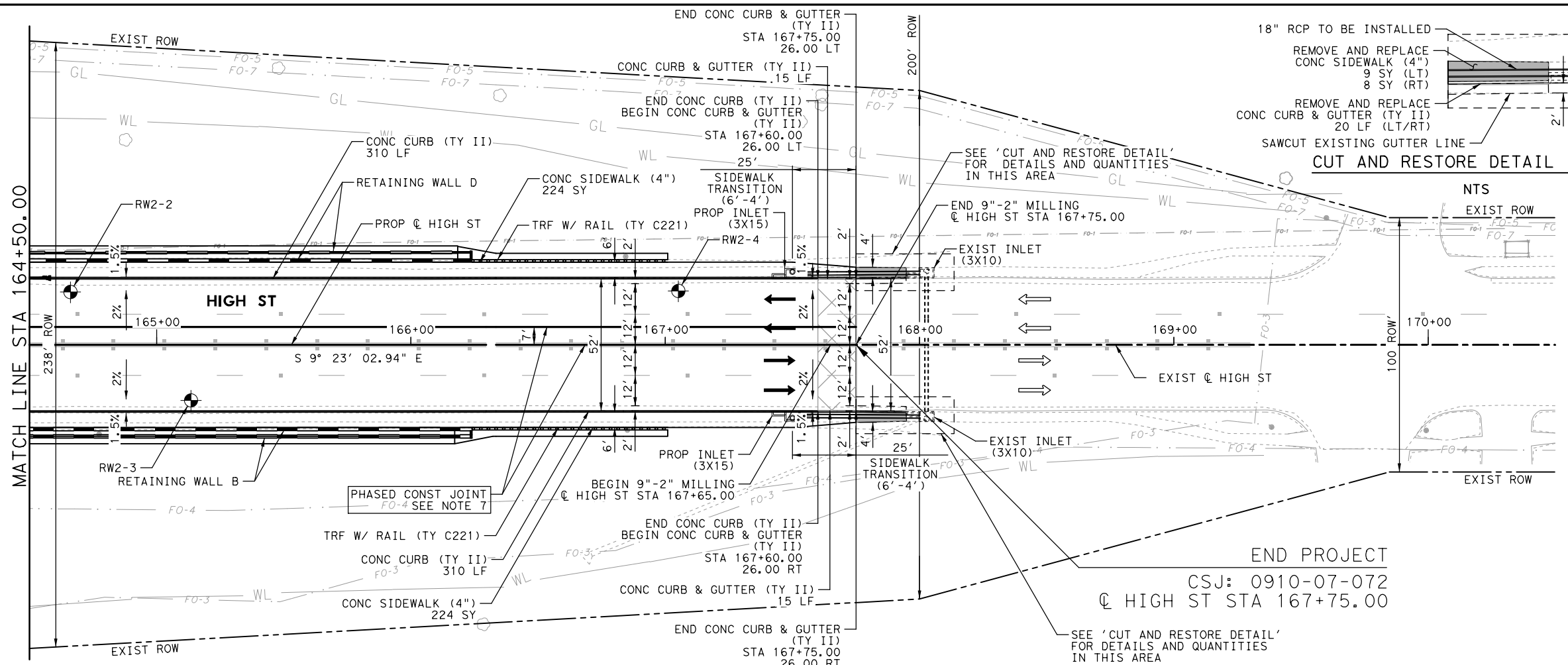
S HIGH ST AT UPRR AND SABINE ST

PLAN & PROFILE

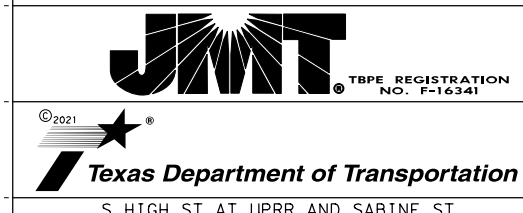
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JMT		6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	JMT	STATE	DISTRICT	COUNTY
CHECK	JMT	TEXAS	TYLER	GREGG
CHECK	JMT	CONTROL	SECTION	JOB
CHECK	JMT	0910	07	072

SHEET 2 OF 3

DATE: 8/23/2021
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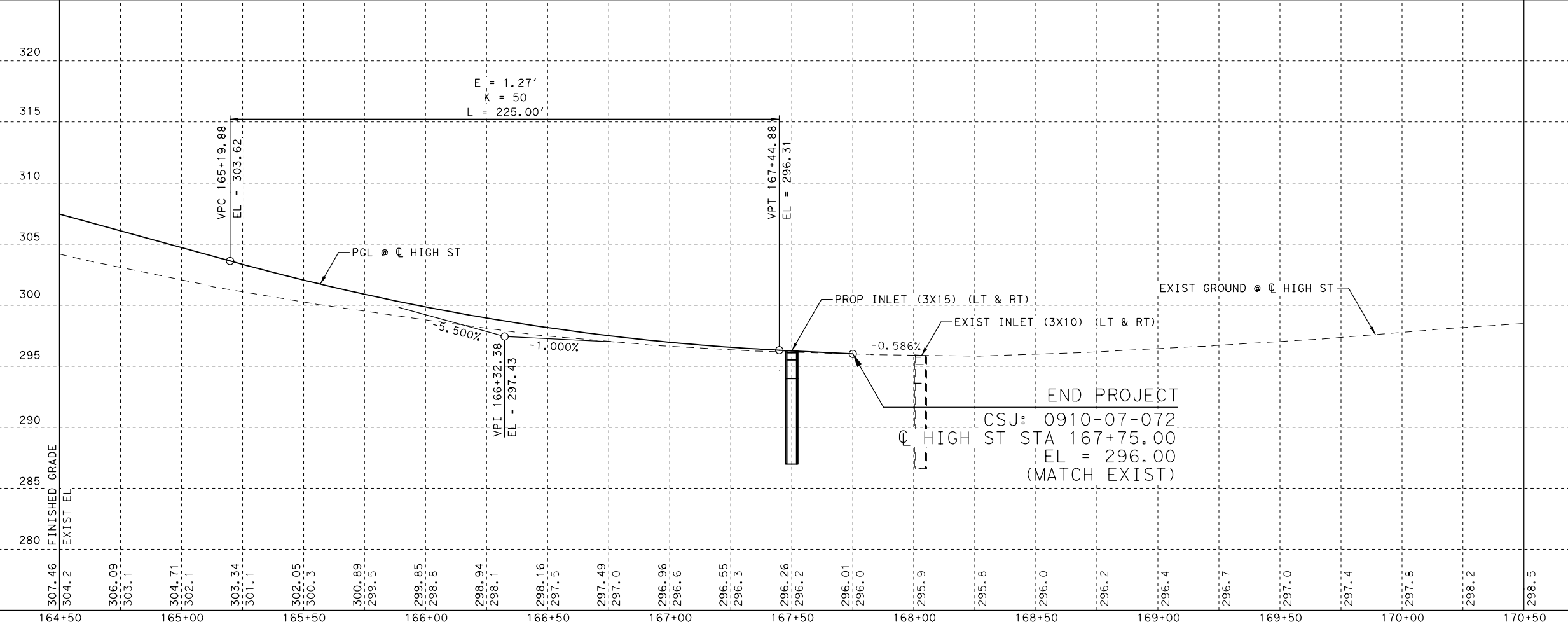


- LEGEND**
- EXIST HOT MIX TO PROP CRCP TRANSITION. SEE MISCELLANEOUS ROADWAY DETAILS SHEET FOR MORE INFORMATION. MILLING QUANTITY TO BE PAID FOR BY ITEM 354 6031.
 - EXIST FENCE
 - TREE (GREATER THAN 18" DIA)
 - BORE HOLE
- NOTES:**
1. SEE BRIDGE LAYOUT FOR ADDITIONAL INFORMATION.
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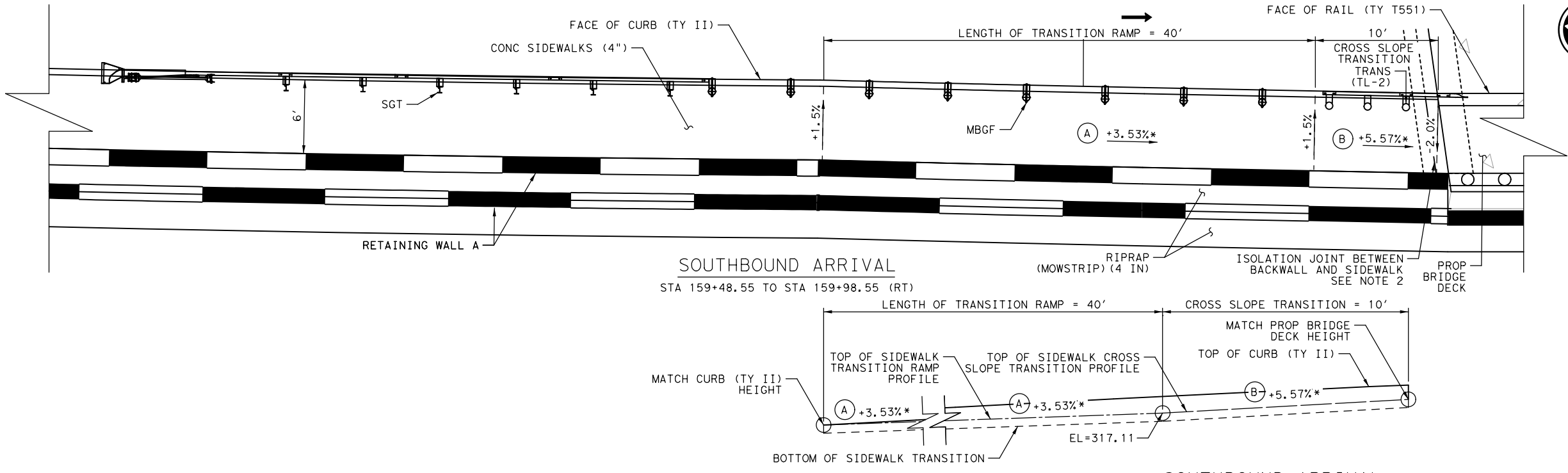


SHEET 3 OF 3

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CHECK	CONTROL	SECTION	JOB
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CHECK			SHEET NO.
JMT			73

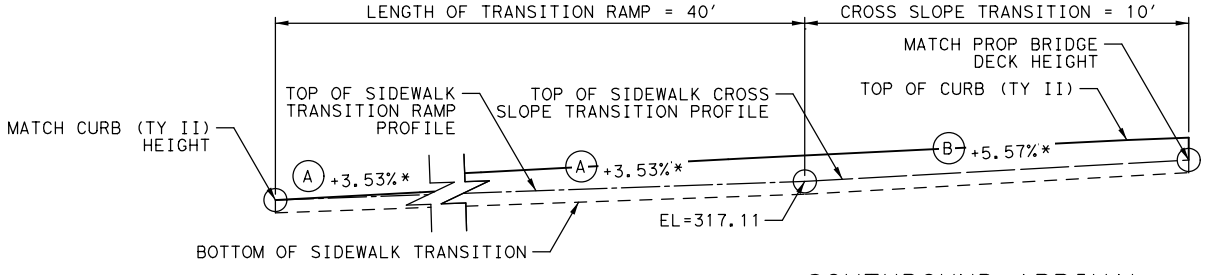


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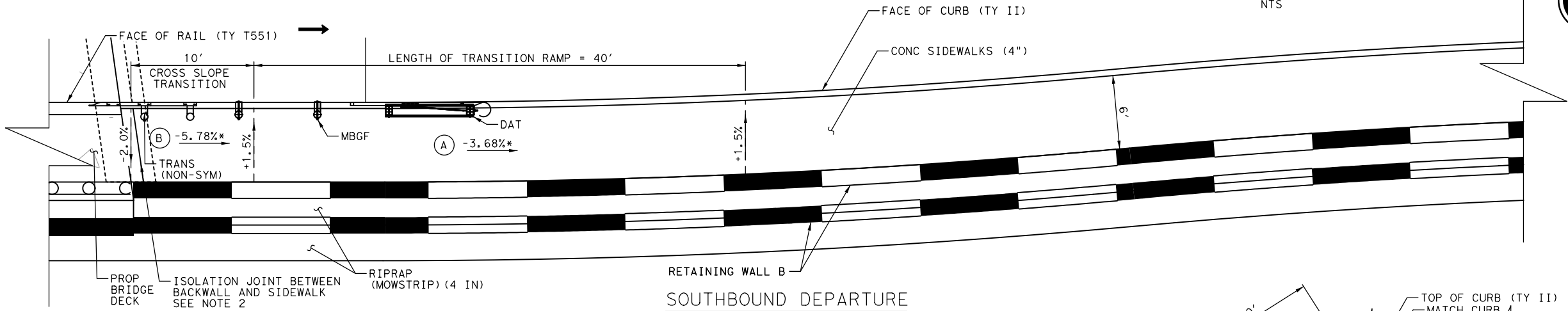


SOUTHBOUND ARRIVAL
 STA 159+48.55 TO STA 159+98.55 (RT)

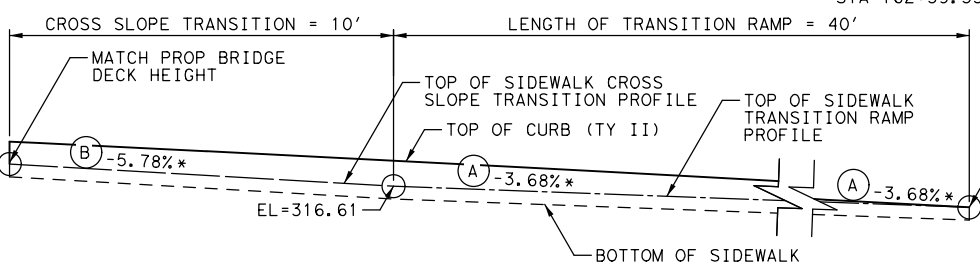
- NOTES:**
1. SIDEWALK TRANSITION RAMPS TO BE PAID FOR AS ITEM 531 CONC SIDEWALKS (4").
 2. SEE BAS-C (MOD) FOR MORE INFORMATION.
- * SLOPES SHOWN ARE FRONT FACE OF SIDEWALK. SEE RETAINING WALL LAYOUTS FOR BACK OF SIDEWALK SLOPES.



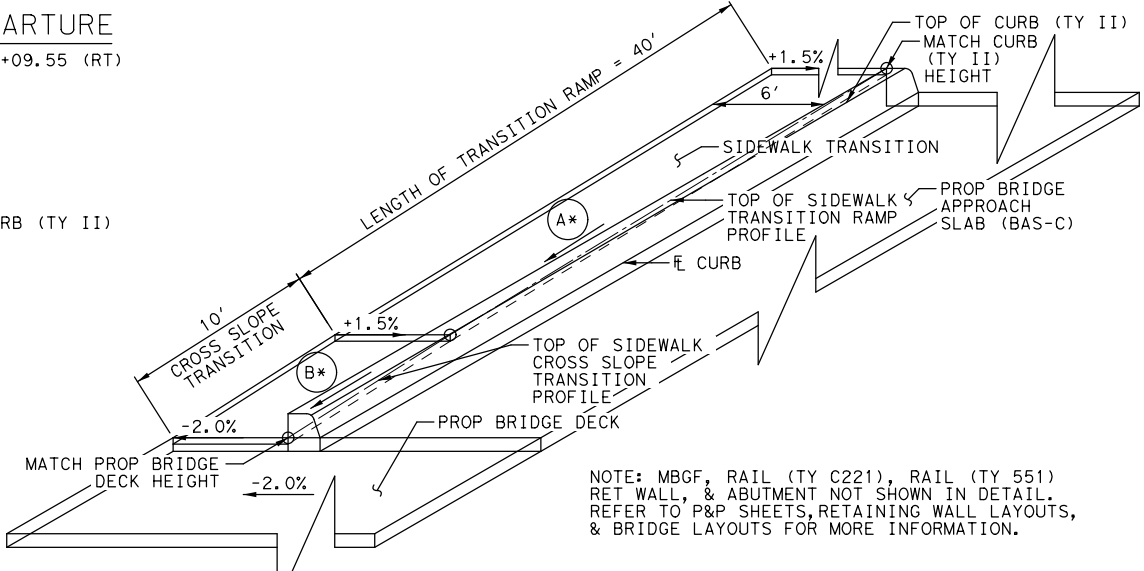
SOUTHBOUND ARRIVAL
 SIDEWALK TRANSITION
 NTS



SOUTHBOUND DEPARTURE
 STA 162+59.55 TO STA 163+09.55 (RT)

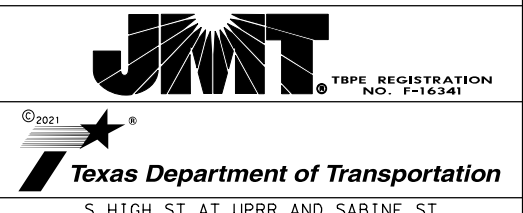
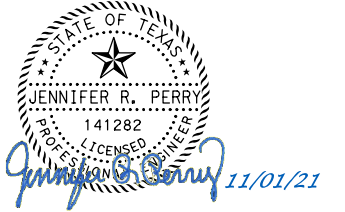


SOUTHBOUND DEPARTURE
 SIDEWALK TRANSITION
 NTS



SIDEWALK TRANSITION DETAIL

NOTE: MBSG, RAIL (TY C221), RAIL (TY 551) RET WALL, & ABUTMENT NOT SHOWN IN DETAIL. REFER TO P&P SHEETS, RETAINING WALL LAYOUTS, & BRIDGE LAYOUTS FOR MORE INFORMATION.

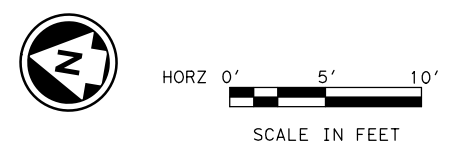
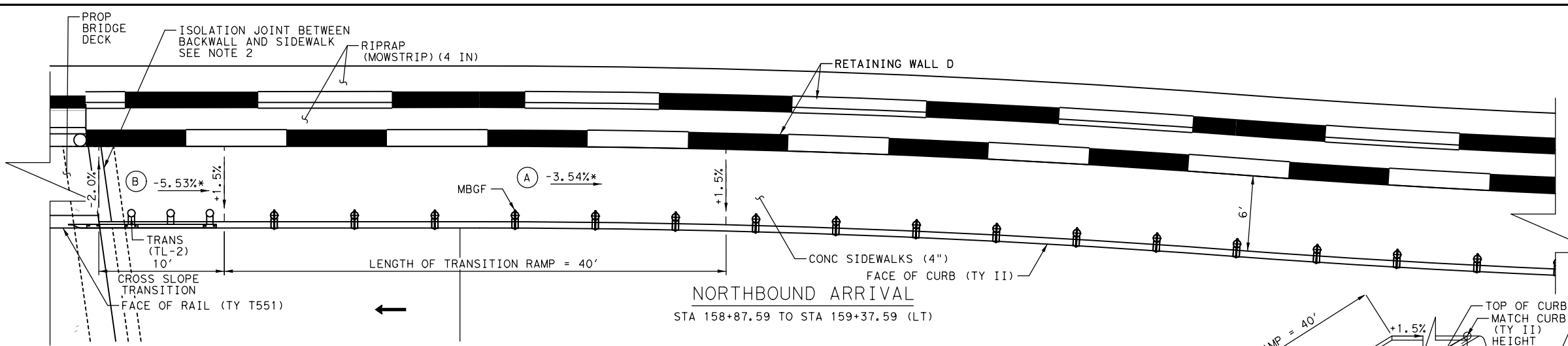


MISCELLANEOUS ROADWAY DETAILS
SIDEWALK TRANSITION

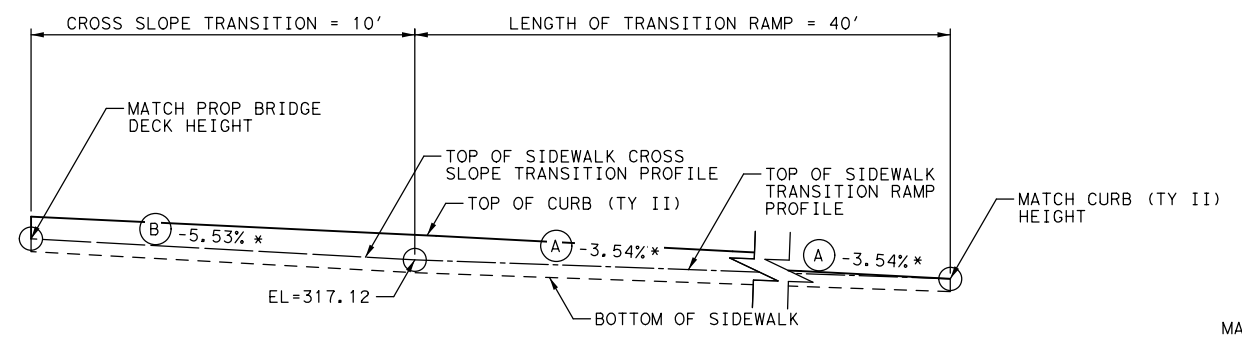
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JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			SHEET NO.
JMT			74

SHEET 1 OF 4

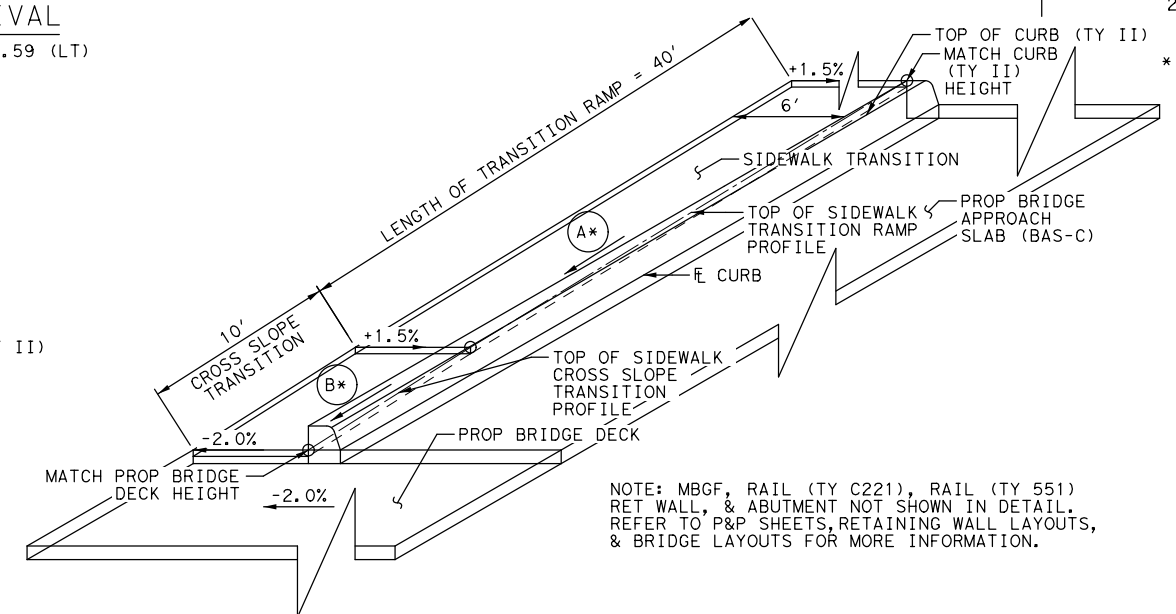
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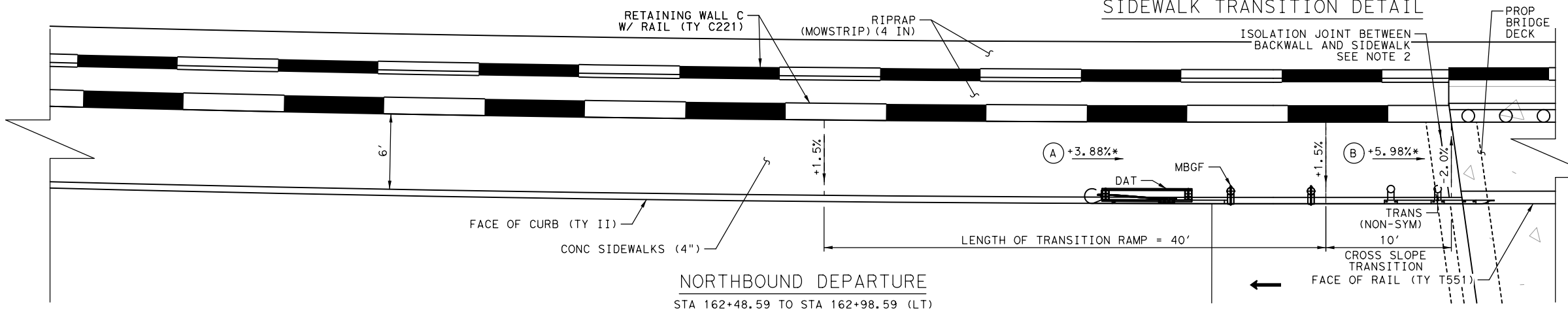
- NOTES:**
1. SIDEWALK TRANSITION RAMPS TO BE PAID FOR AS ITEM 531 CONC SIDEWALKS (4").
 2. SEE BAS-C (MOD) FOR MORE INFORMATION.
- * SLOPES SHOWN ARE FRONT FACE OF SIDEWALK. SEE RETAINING WALL LAYOUTS FOR BACK OF SIDEWALK SLOPES.



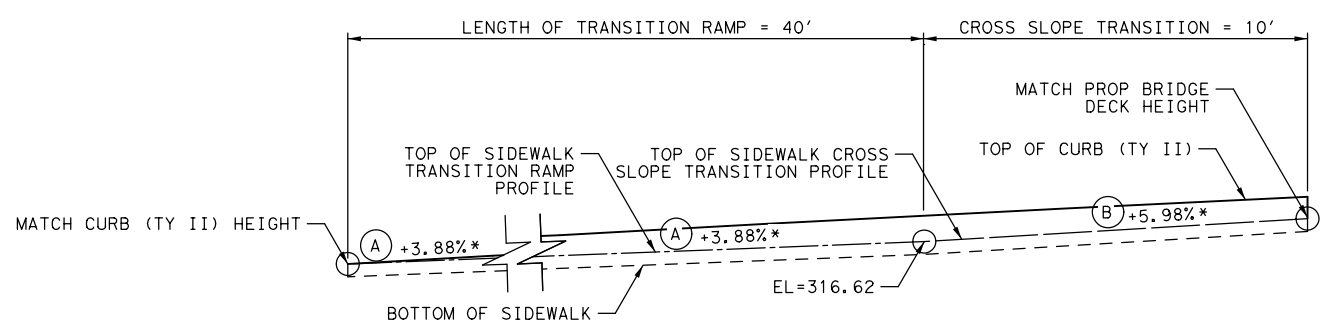
NORTHBOUND ARRIVAL
SIDEWALK TRANSITION
NTS



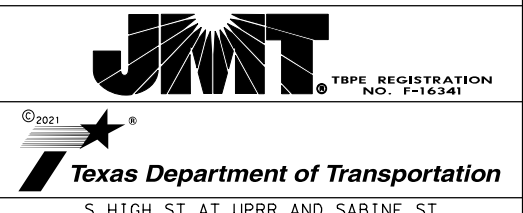
SIDEWALK TRANSITION DETAIL



NORTHBOUND DEPARTURE
STA 162+48.59 TO STA 162+98.59 (LT)



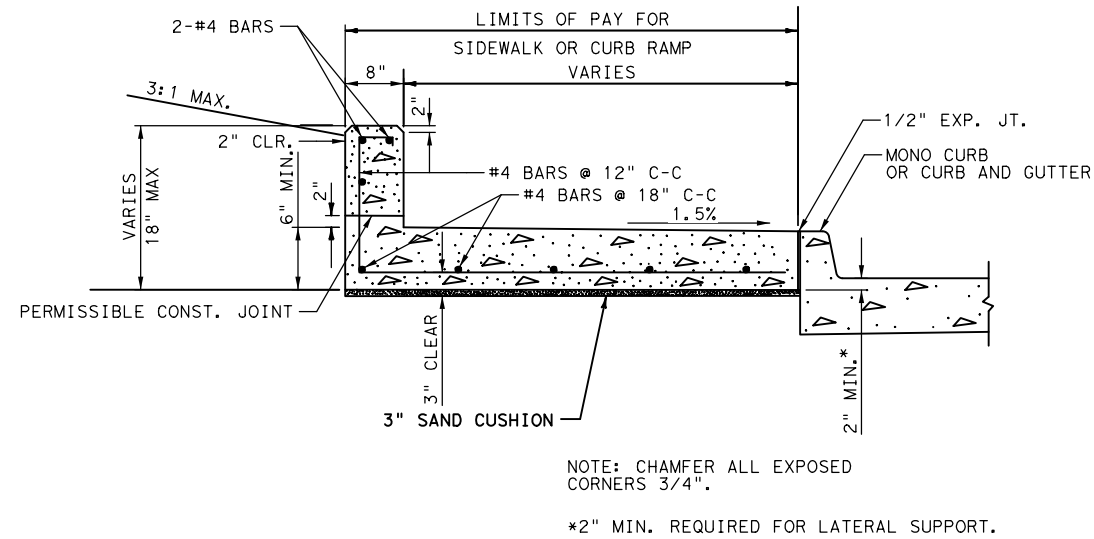
NORTHBOUND DEPARTURE
SIDEWALK TRANSITION
NTS



**MISCELLANEOUS ROADWAY DETAILS
SIDEWALK TRANSITION**

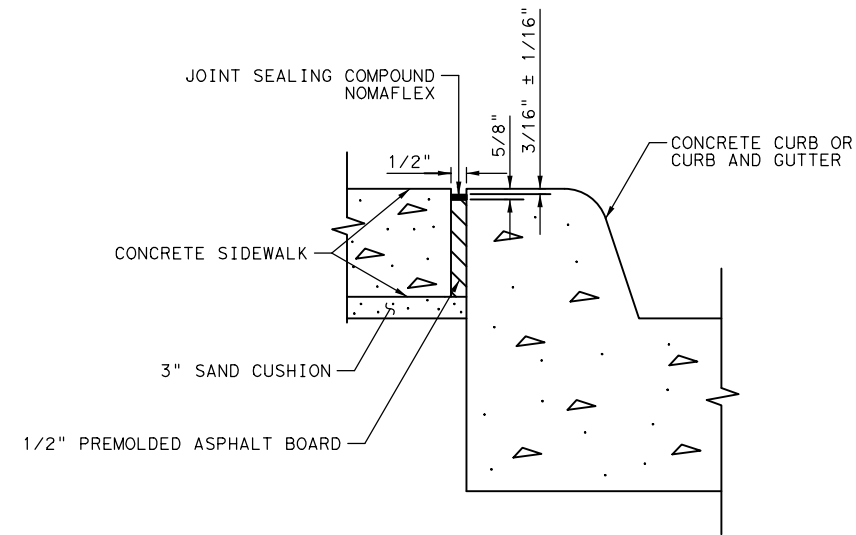
				SHEET 2 OF 4
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GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	
JMT	0910	07	072	75

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TYPE B SIDEWALK OR RAMP W/ SIDE CURB

NOT TO SCALE
 SIDE CURB SUSIDIARY TO ITEM 531, SIDEWALK OR CURB RAMP

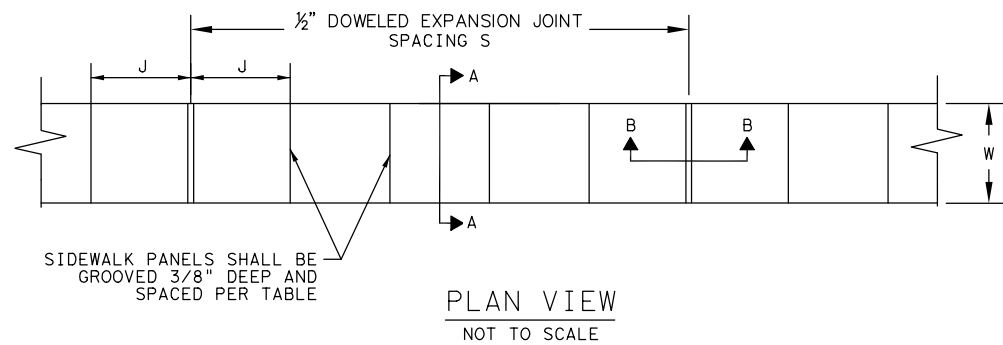


1/2" EXPANSION JOINT

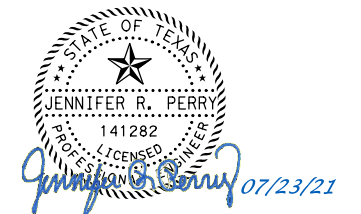
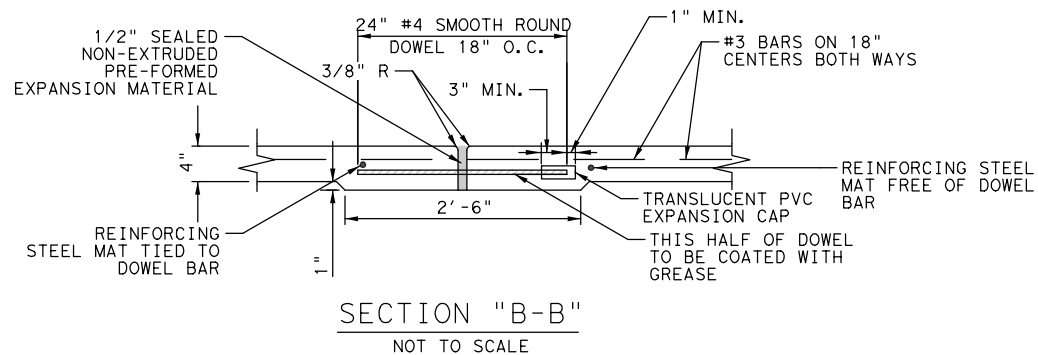
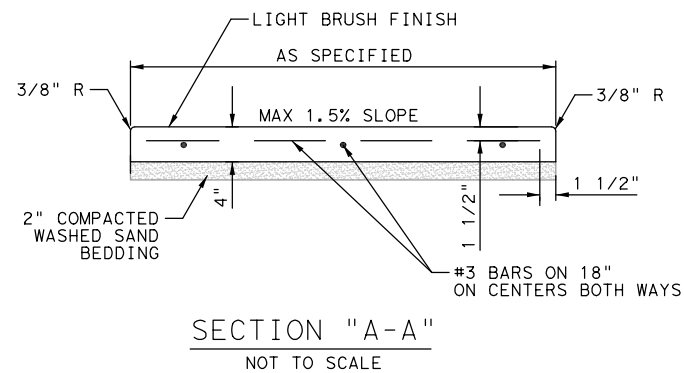
NOT TO SCALE
 (SIDEWALK ADJACENT TO CURB)



SEE PLAN SHEETS FOR LOCATIONS OF SIDEWALKS AND RETAINING WALLS.
 LOGITUDINAL SLOPE OF SIDEWALKS SHALL NOT EXCEED 5% EXCEPT IN CASES WHERE THE ADJACENT ROADWAY SLOPE EXCEEDS 5%, LOGITUDINAL SLOPE OF SIDEWALK MAY MATCH THAT OF ROADWAY.
 IF SIDEWALK WIDTH IS LESS THAN 5' PROVIDE 5' X 5' PASSING AREAS AT INTERVALS NOT TO EXCEED 200' SPACING.
 SURFACE TREATMENT OF RETAINING WALL FACE DETAILED ELSEWHERE IN THE PLANS.



MINIMUM SIDEWALK WIDTH (W)	PANEL SPACING (J)	EXPANSION JOINT (S)
6'	6'	30'



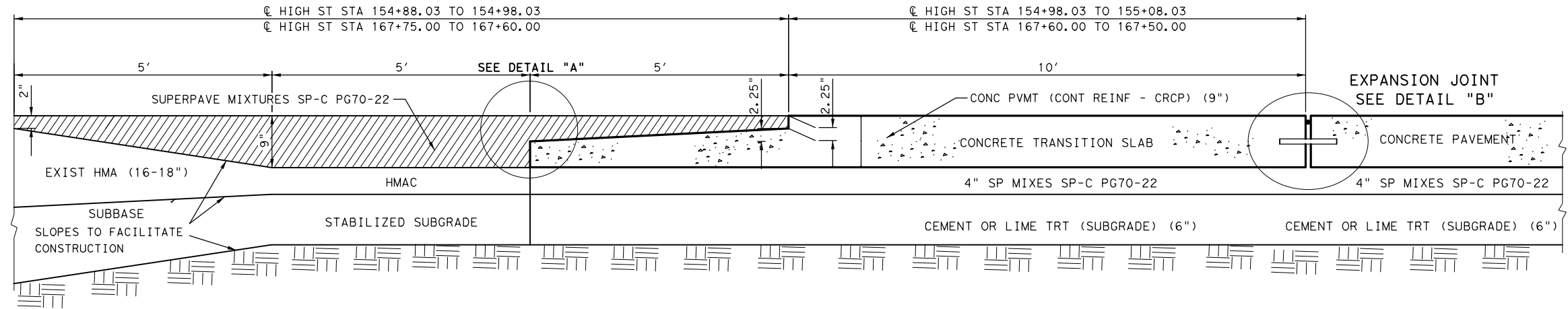
**MISCELLANEOUS ROADWAY DETAILS
 SIDEWALK JOINT DETAIL**

SCALE: NTS SHEET 3 OF 4

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

76

DATE: 8/24/2021
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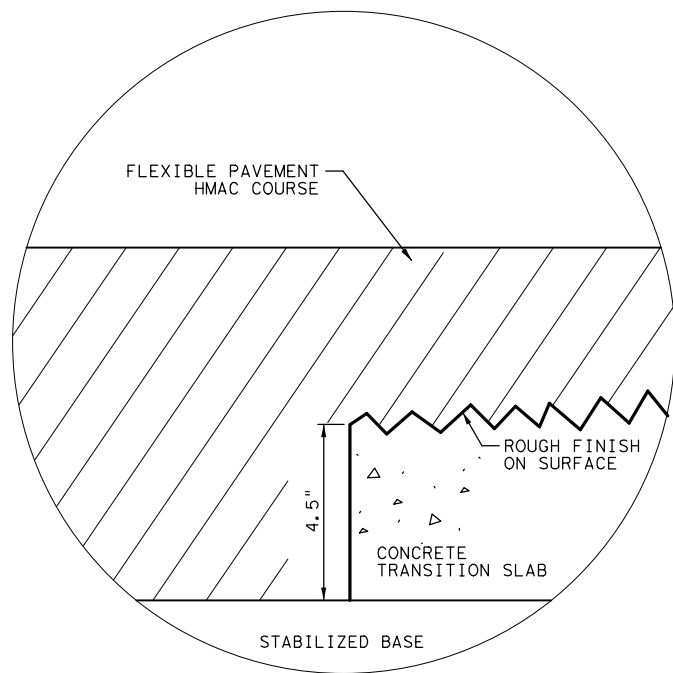


TYPICAL JUNCTION OF CONCRETE PAVEMENT WITH FLEXIBLE PAVEMENT

NTS

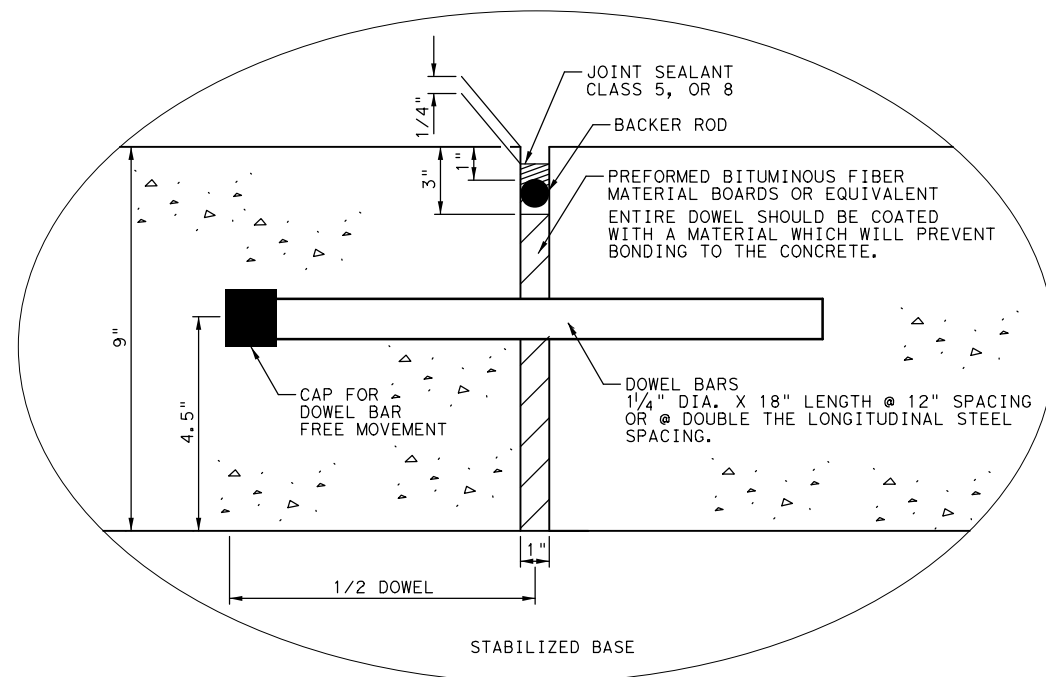
NOTES:

1. FOR FURTHER INFORMATION REGARDING THE PLACEMENT OF CONCRETE AND LOAD TRANSFER DEVICES REFER TO THE GOVERNING SPECIFICATIONS FOR "CONCRETE PAVEMENT" AND "REINFORCING STEEL."
2. DETAILS FOR PAVEMENT WIDTH AND CROSS SLOPE DATA ARE SHOWN ON TYPICAL SECTIONS AND PLAN AND PROFILE SHEETS.
3. FOR THE CONCRETE TRANSITION SLAB, THE CONTRACTOR MUST PROVIDE THE SAME AMOUNT OF THE REINFORCING STEELS AS THE ADJOINING CONCRETE PAVEMENT UNLESS OTHERWISE DIRECTED.
4. MATCH THE LONGITUDINAL JOINTS OF THE CONCRETE TRANSITION SLAB WITH ADJOINING CONCRETE PAVEMENT. PROVIDE EQUIVALENT TIEBARS OR TRANSVERSE BARS AT THESE LONGITUDINAL JOINTS.



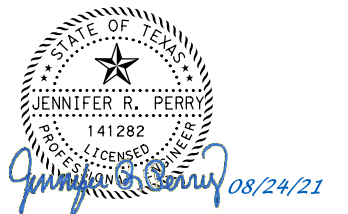
DETAIL A

NTS



DETAIL B

NTS



**MISCELLANEOUS ROADWAY DETAILS
 PAVEMENT TRANSITION**

			SHEET 4 OF 4
DESIGN JMT	FED. RD. DIV. NO. 6	FEDERAL AID PROJECT NO. (SEE TITLE SHEET)	HIGHWAY NO. HIGH ST
GRAPHICS JMT	STATE TEXAS	DISTRICT TYLER	COUNTY GREGG
CHECK JMT	CONTROL 0910	SECTION 07	JOB 072
CHECK JMT			SHEET NO. 77

DATE: 1/25/2022
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SEAL COAT MATERIAL SELECTION TABLE		
TIER I: HEAVY USE - USE ONLY THE SELECTED MATERIALS.		
TYPE	ASPHALT RUBBER (A-R) <input type="checkbox"/> A-R ONLY	ASPHALT CEMENT (AC) <input type="checkbox"/> AC ONLY
ASPHALT	<input type="checkbox"/> A-R TY II <input type="checkbox"/> A-R TY III <input type="checkbox"/> SP 300-	<input type="checkbox"/> AC-20-5TR <input type="checkbox"/> AC-20XP <input type="checkbox"/> AC-15P <input type="checkbox"/> SP 300-
TIER II: MODERATE USE - USE THESE MATERIALS OR ANY SELECTED TIER I MATERIAL COMBINATIONS OF THE ALLOWED TYPES.		
TYPE	ASPHALT CEMENT (AC) <input checked="" type="checkbox"/> AC ONLY	ASPHALT EMULSION <input type="checkbox"/> EMULSION ONLY
ASPHALT	<input checked="" type="checkbox"/> AC-10-2TR <input type="checkbox"/> AC-15P <input checked="" type="checkbox"/> AC-20XP <input type="checkbox"/> AC-10 W/2%SBR <input type="checkbox"/> AC-5 W/2%SBR <input type="checkbox"/> SP 300-	<input type="checkbox"/> CHFRS-2P <input type="checkbox"/> HFRS-2P <input type="checkbox"/> CRS-2P <input type="checkbox"/> SP 300-
TIER III: LIGHT USE - USE THESE MATERIALS OR ANY SELECTED TIER I OR TIER II MATERIAL COMBINATIONS OF THE ALLOWED TYPES.		
TYPE	ASPHALT CEMENT (AC) <input type="checkbox"/> AC ONLY	ASPHALT EMULSION <input type="checkbox"/> EMULSION ONLY
ASPHALT	<input type="checkbox"/> AC-10 <input type="checkbox"/> AC-5 <input type="checkbox"/> SP 300-	<input type="checkbox"/> CRS-2 <input type="checkbox"/> CRS-2H <input type="checkbox"/> HFRS-2 <input type="checkbox"/> SP 300-
DISTRICTWIDE SEAL COAT PROJECT SEASONS: REFER TO ITEM 316 FOR TEMPERATURE AND WEATHER RESTRICTIONS.		
SEASON 1:	AMA, CHS, LBB	MAY 15 TO AUG 31
SEASON 2:	ABL, ATL, BWD, DAL, FTW, LFK, ODA, PAR, SJT, TYL, WAC, WFS	MAY 1 TO AUG 31
SEASON 3:	AUS, BMT, BRY, ELP, HOU, SAT, YKM	MAY 1 TO SEP 15
SEASON 4:	CRP, LRD, PHR	APR 1 TO SEPT 30
NOTE: SEAL COATS ON ROUTINE MAINTENANCE CONTRACTS MUST BE COMPLETED BY AUGUST 31 UNLESS OTHERWISE SHOWN ON THE PLANS.		

INSTRUCTIONS TO THE CONTRACTOR:

1. PROVIDE MATERIALS ACCORDING TO THE ALTERNATES SELECTED FOR THE ROADWAY TIER DESIGNATIONS SPECIFIED AT VARIOUS ROADWAY LOCATIONS SHOWN ON THE PLANS;
2. ALTERNATELY, SUPPLY SELECTED BINDERS FROM A HIGHER TIER, BUT ONLY IF THE TYPE OF MATERIAL IS ALLOWED FOR THE DESIGNATED TIER; PAYMENT WILL ONLY BE MADE FOR THE TIER DESIGNATED FOR THE PAVEMENT;
3. SUPPLY THE AGGREGATE TYPE, GRADE AND SURFACE AGGREGATE CLASS SHOWN ON THE PLANS; AND
4. ADHERE TO THE APPLICATION SEASON SELECTED.

THERE ARE 357 WORKING DAYS ALLOWED FOR THIS PROJECT.
 THE LATEST ROADWAY START WORK DATE IS 05/30/2022.



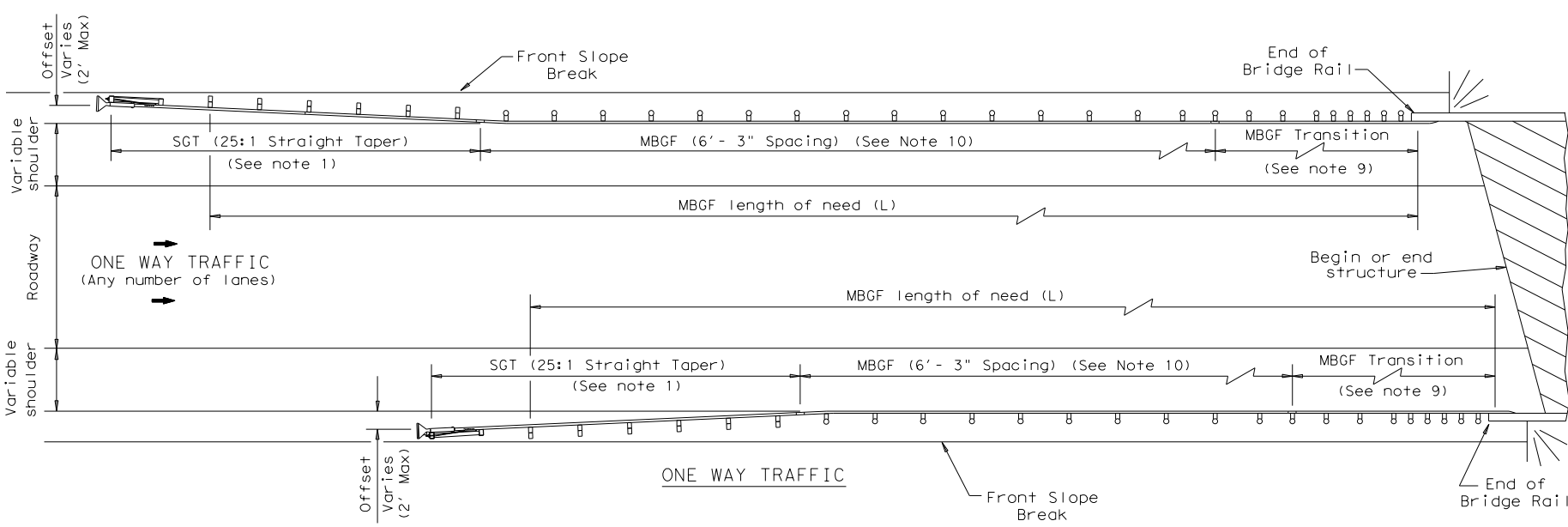
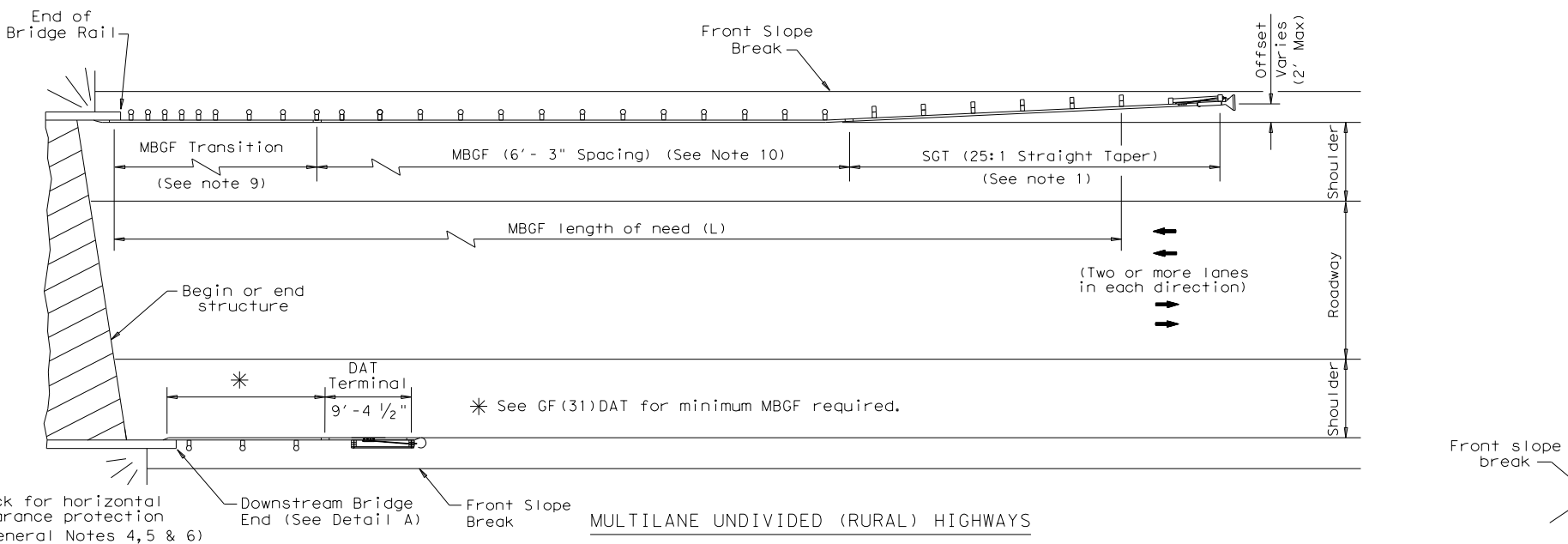
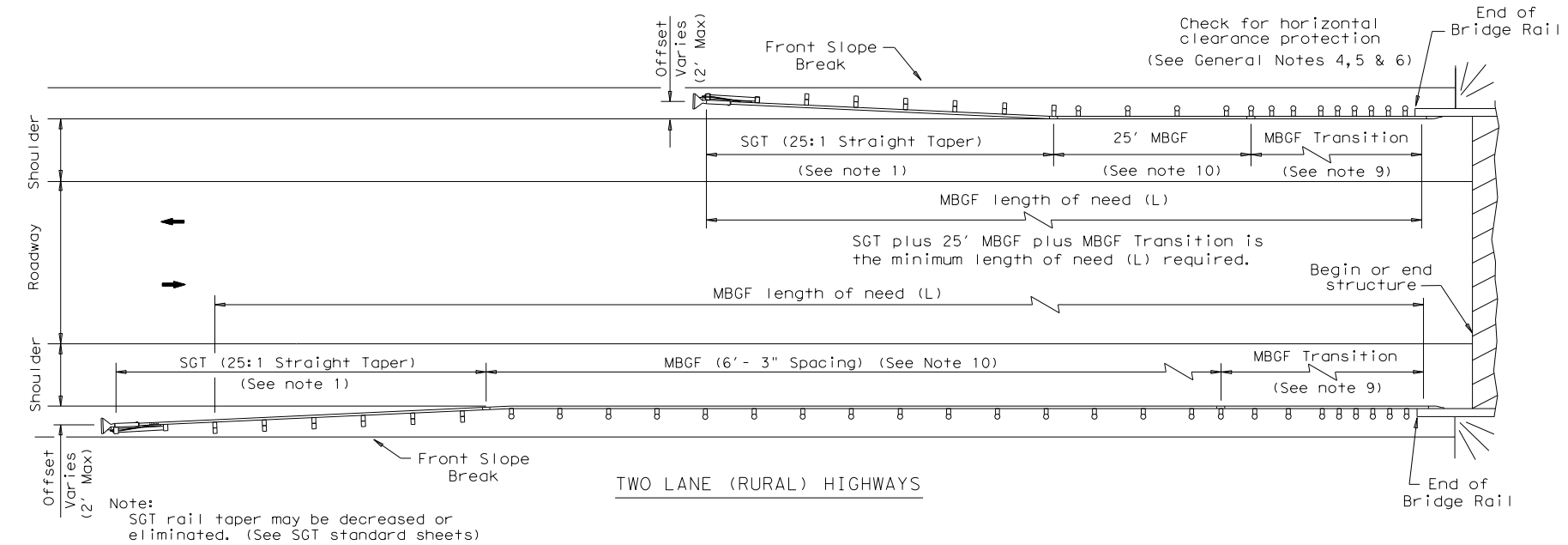
SEAL COAT MATERIAL SELECTION TABLE

SCTABLE

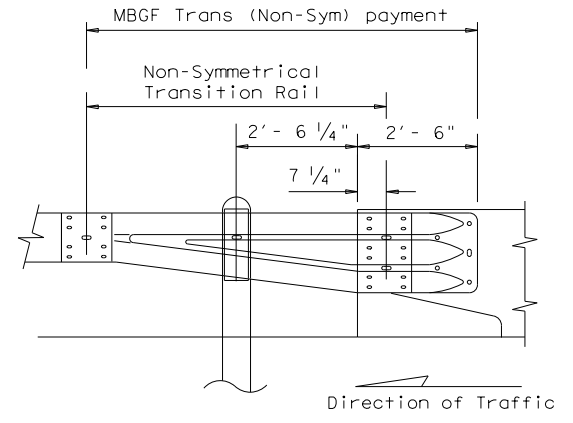
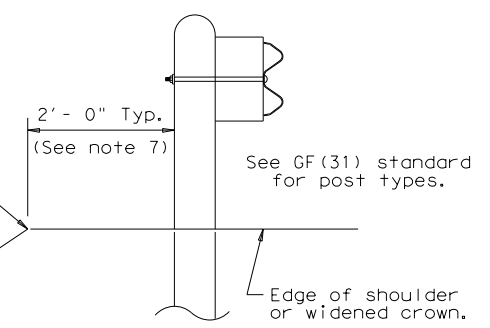
FILE: sctable.dgn	DN: TxDOT	CK:	DW:	CK:
© TxDOT: March 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY		SHEET NO.
	TYLER	GREGG		78

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DATE: 7/22/2021
 FILE: pw:\jmt-pw_bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\3. Roadway\TxDOT_Standards\bed14.dgn



- GENERAL NOTES**
- For more detail: See GF(31), SGT()31, GF(31)TR, and GF(31)TL2 standard sheets.
 - Quantities of metal beam guard fence (MBGF) at individual bridge ends are as shown in the plans.
 - Use average daily traffic (ADT) for the current year to determine MBGF length of need in accordance with the Roadway Design Manual unless otherwise specified. Where significant traffic volume growth is anticipated on low volume (0-750 ADT) highways, use length determinations for the higher volume category.
 - MBGF may not be required to shield departure end of bridge unless other obstacles within the horizontal clearance limits or opposing traffic indicate a MBGF consideration.
 - Downstream anchor terminals (DAT) are only for downstream end anchorage use, outside the horizontal clearance area of opposing traffic.
 - Direct connection of MBGF to concrete rails are only for downstream rail connections outside the horizontal clearance area of opposing traffic. (This requires a minimum of three standard line posts plus the DAT terminal, See Detail A)
 - The crown shall be widened to accommodate MBGF. Typically the "front slope" break should be 2'-0" from the back of the MBGF post. This applies to new construction on new alignment or where existing roadway cross section is to be widened to increase roadway width. This does not apply to rehabilitation work where existing roadway crown width is to be retained (See Typical Cross Section at MBGF).
 - For restrictive bridge widths: The MBGF should be properly transitioned from the existing bridge rail to the adjoining MBGF (See MBGF Transition Standards). Metal beam guard fence at these bridge location(s) shall be flared at the rate of 25:1 or flatter, and be of the length necessary to locate the terminal end at the 2 ft. "maximum" offset from the shoulder edge in the approach direction.
 - Transition length and post spacing will vary depending on the transition type. Transition type will be shown elsewhere in the plans.
 - A minimum 25' length of MBGF will be required.



Note: All rail elements shall be lapped in the direction of adjacent traffic.

Texas Department of Transportation Design Division Standard

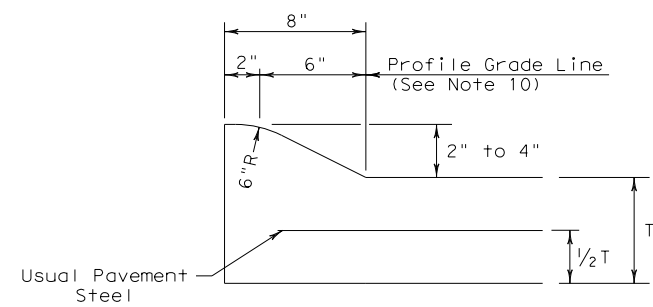
BRIDGE END DETAILS (METAL BEAM GUARD FENCE APPLICATIONS TO RIGID RAILS)

BED-14

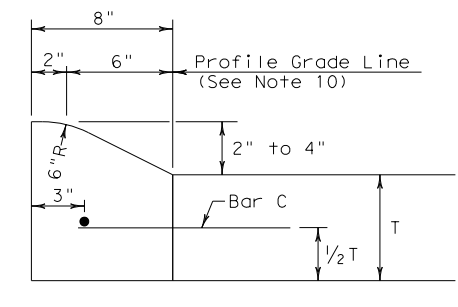
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© TxDOT: December 2011	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY		SHEET NO.
	TYLER	GREGG		79

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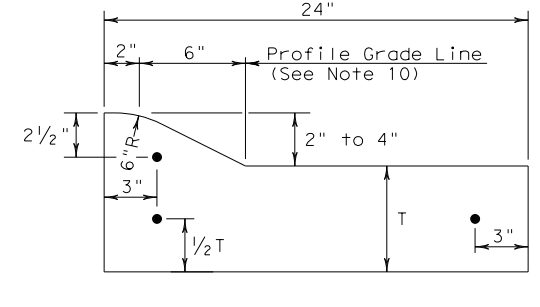
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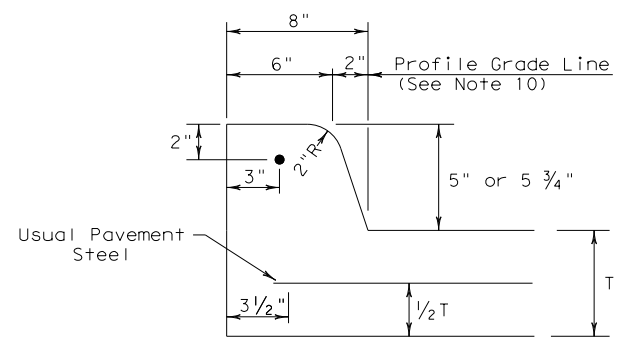
TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



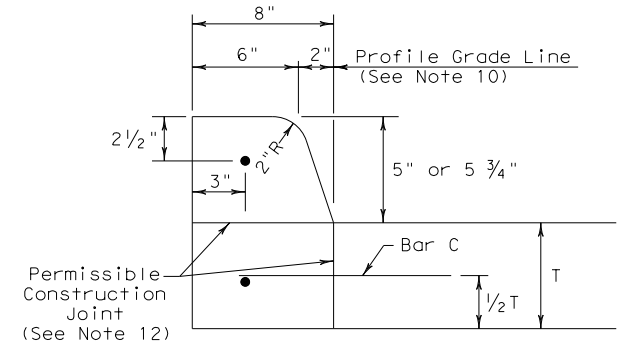
TYPE I CURB
2" - 4" HEIGHT



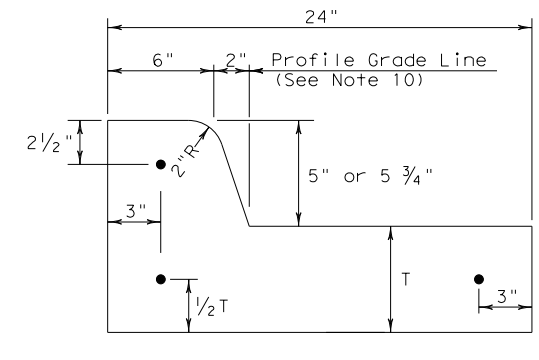
TYPE I CURB AND GUTTER
2" - 4" HEIGHT



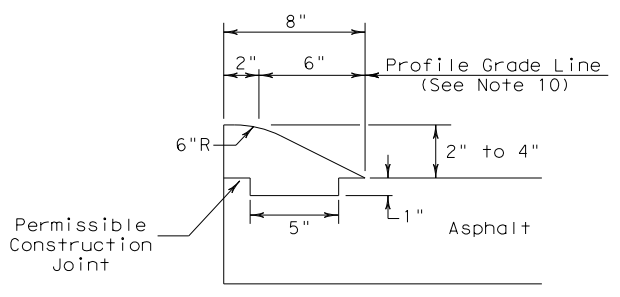
TYPE II CURB (MONOLITHIC)
5" - 5 3/4" HEIGHT



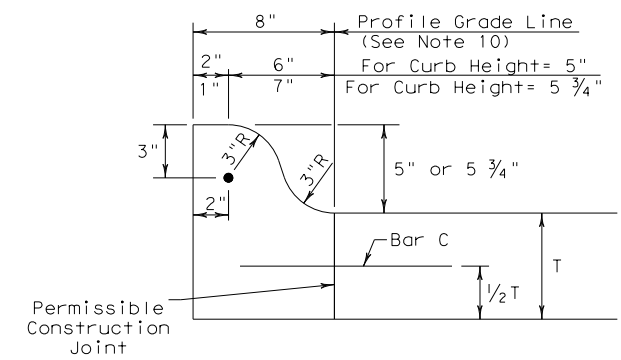
TYPE II CURB
5" - 5 3/4" HEIGHT



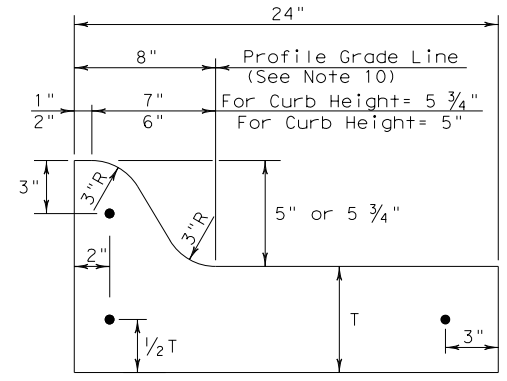
TYPE II CURB AND GUTTER
5" - 5 3/4" HEIGHT



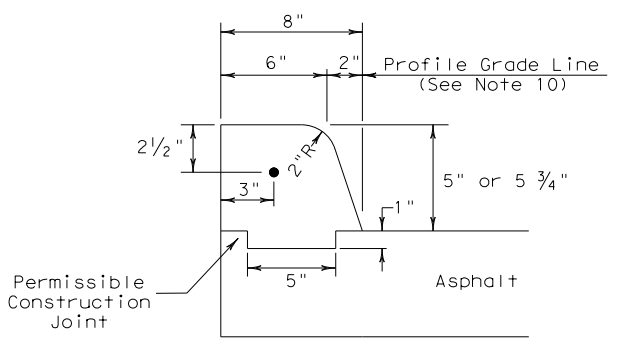
TYPE III CURB (KEYED)
2" - 4" HEIGHT



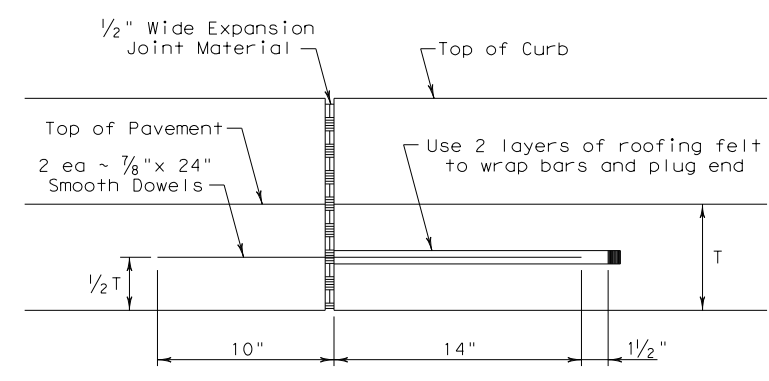
TYPE IIa CURB
5" - 5 3/4" HEIGHT



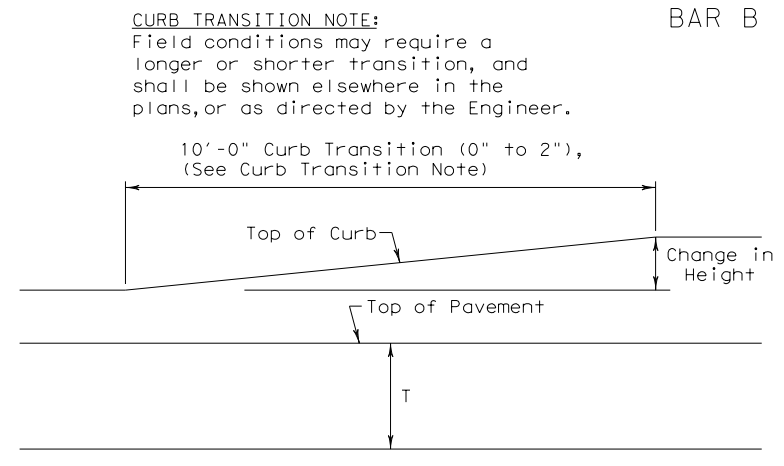
TYPE IIa CURB AND GUTTER
5" - 5 3/4" HEIGHT



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



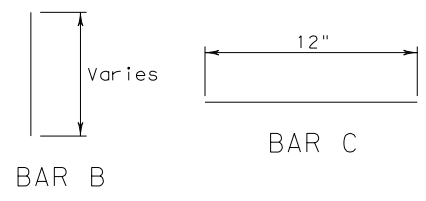
EXPANSION JOINT DETAIL



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.

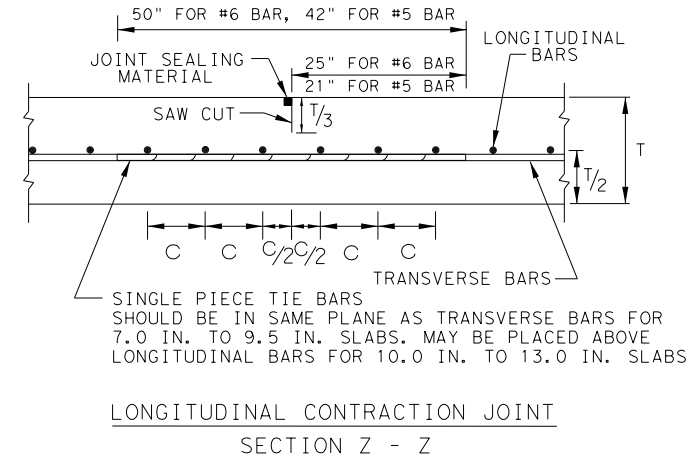
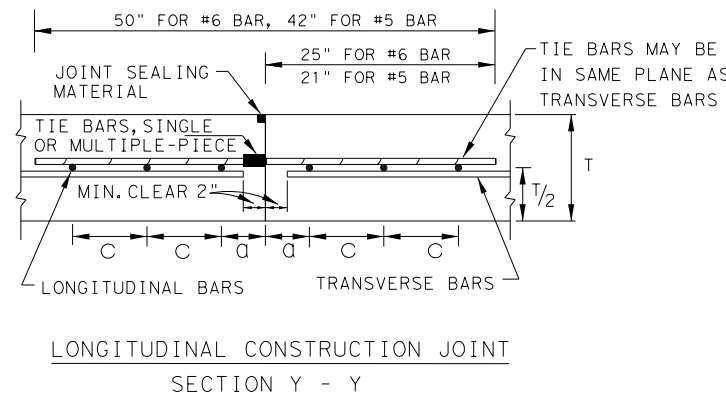
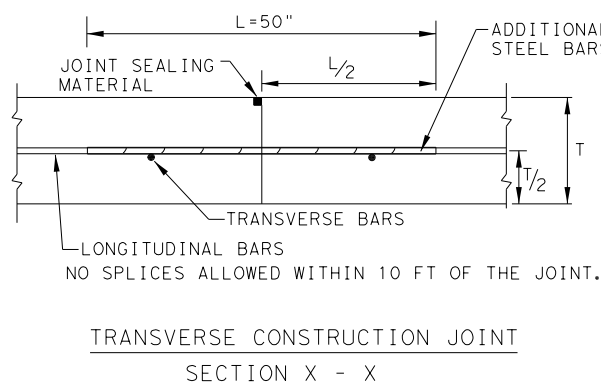
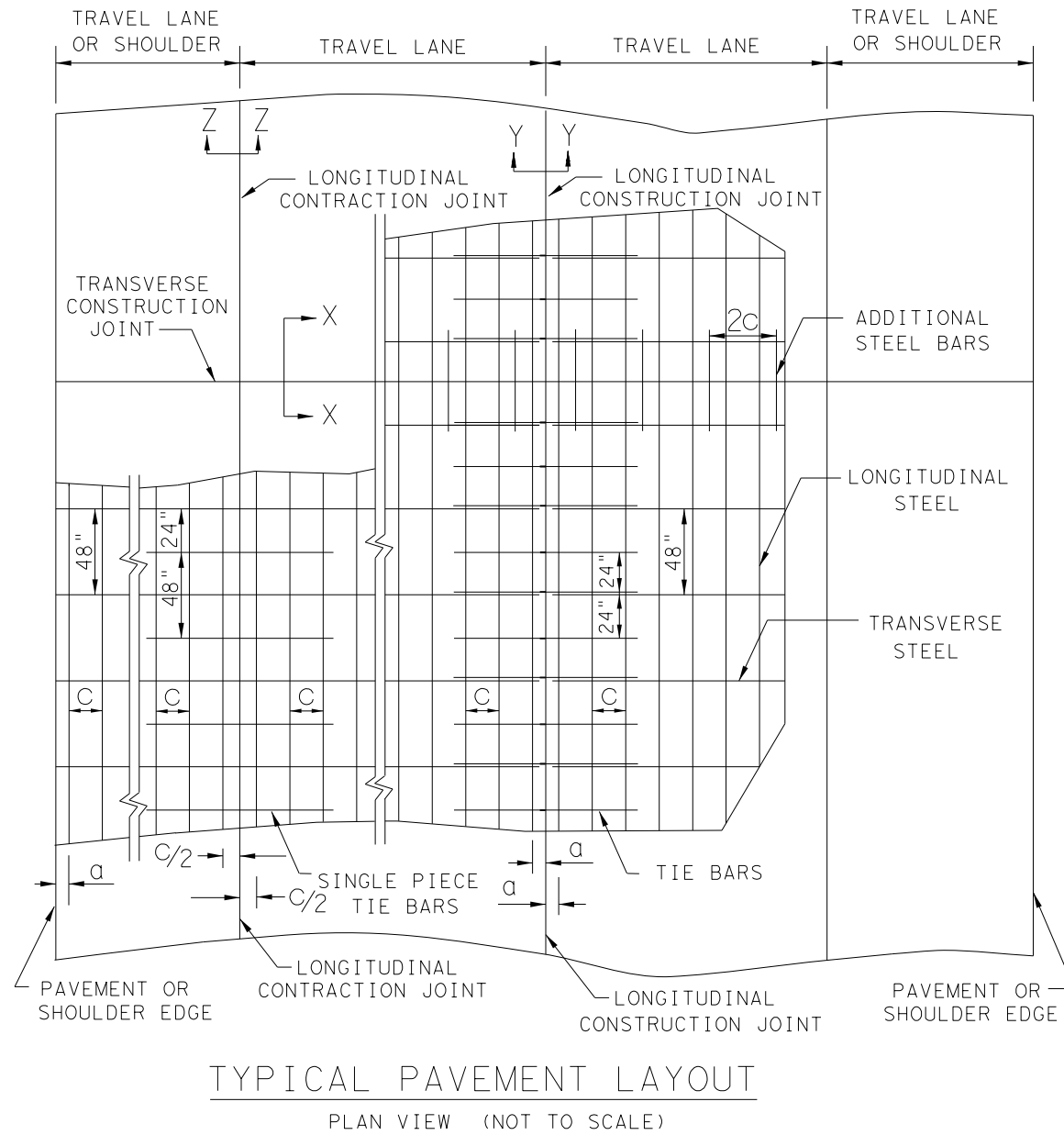
				Design Division Standard	
<h2>CONCRETE CURB AND GUTTER</h2> <h3>CCCG-21</h3>					
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© TxDOT: FEBRUARY 2021	CONT	SECT	JOB	HIGHWAY	
REVISTONS	0910	07	072	HIGH ST	
	DIST	COUNTY		SHEET NO.	
	TYLER	GREGG		80	

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TABLE NO.1 LONGITUDINAL STEEL					
SLAB THICKNESS AND BAR SIZE		REGULAR STEEL BARS	FIRST SPACING AT EDGE OR JOINT	ADDITIONAL STEEL BARS AT TRANSVERSE CONSTRUCTION JOINT (SECTION X-X)	
T (IN.)	BAR SIZE	SPACING C (IN.)	SPACING a (IN.)	SPACING 2 X C (IN.)	LENGTH L (IN.)
7.0	#5	6.5	3 TO 4	13	50
7.5	#5	6.0	3 TO 4	12	50
8.0	#6	9.0	3 TO 4	18	50
8.5	#6	8.5	3 TO 4	17	50
9.0	#6	8.0	3 TO 4	16	50
9.5	#6	7.5	3 TO 4	15	50
10.0	#6	7.0	3 TO 4	14	50
10.5	#6	6.75	3 TO 4	13.5	50
11.0	#6	6.5	3 TO 4	13	50
11.5	#6	6.25	3 TO 4	12.5	50
12.0	#6	6.0	3 TO 4	12	50
12.5	#6	5.75	3 TO 4	11.5	50
13.0	#6	5.5	3 TO 4	11	50

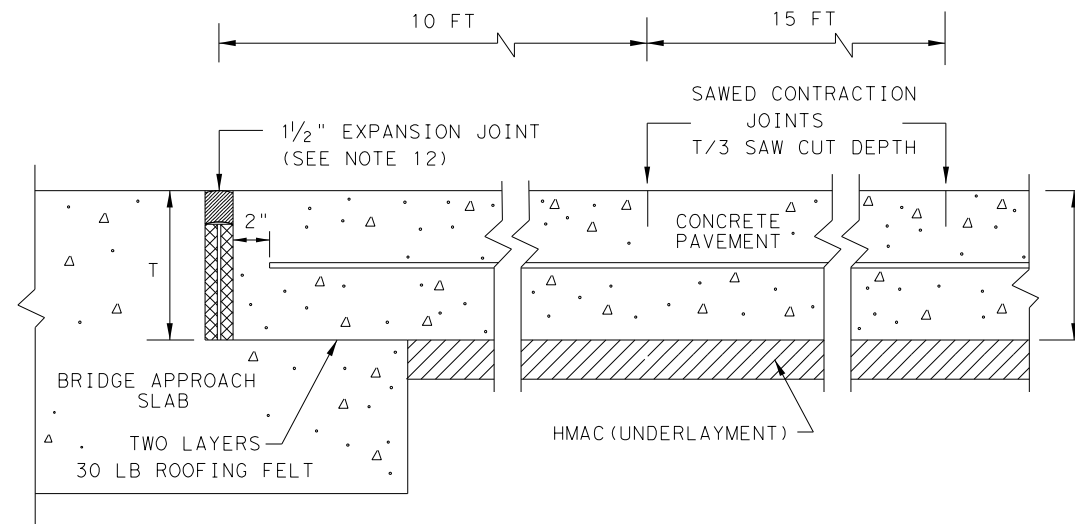
TABLE NO.2 TRANSVERSE STEEL AND TIE BARS						
SLAB THICKNESS (IN.)	TRANSVERSE STEEL		TIE BARS AT LONGITUDINAL CONTRACTION JOINT (SECTION Z-Z)		TIE BARS AT LONGITUDINAL CONTRACTION JOINT (SECTION Y-Y)	
	BAR SIZE	SPACING (IN.)	BAR SIZE	SPACING (IN.)	BAR SIZE	SPACING (IN.)
7.0 - 7.5	#5	48	#5	48	#5	24
8.0 - 13.0	#5	48	#6	48	#6	24



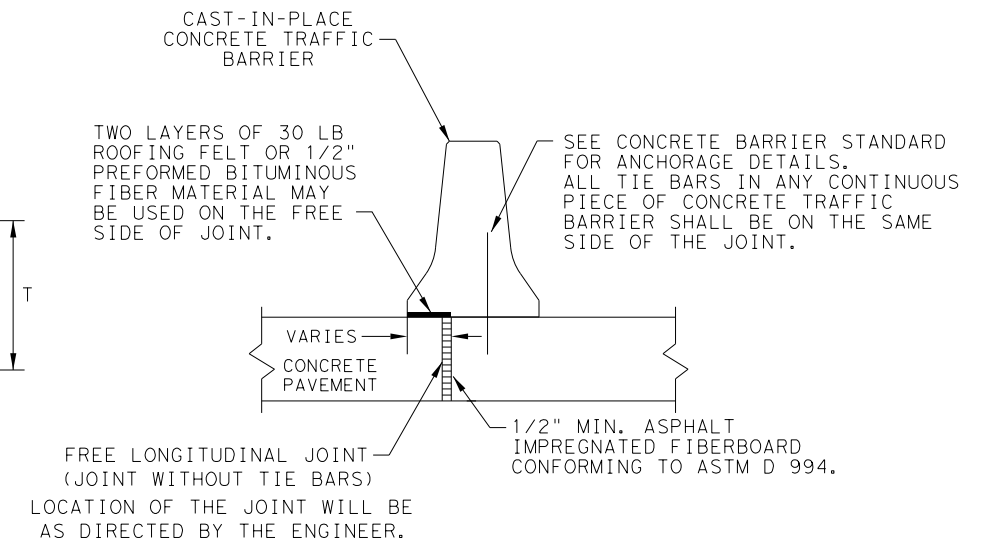
		Design Division Standard	
CONTINUOUSLY REINFORCED CONCRETE PAVEMENT ONE LAYER STEEL BAR PLACEMENT T - 7 TO 13 INCHES CRCP (1) - 20			
FILE: crcp120.dgn	DN: TxDOT	CK: KM	DW: AN
© TxDOT: APRIL 2020	CONT	SECT	JOB
10/10/2011 ADD GN #12	0910	07	072
04/09/2013 REMOVE 6" AND 6.5" ADD CTE REQUIREMENTS	DIST	COUNTY	HIGHWAY
05/05/2017 COTE AS RATED 4.3	TYLER	GREGG	SHEET NO. 81

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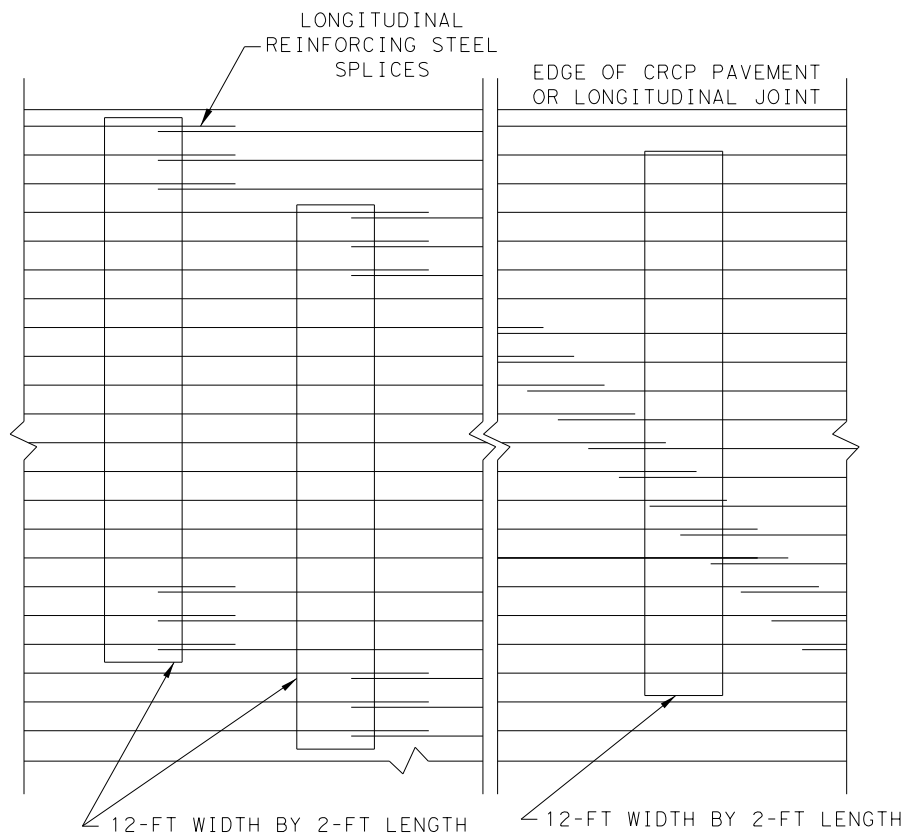
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TRANSVERSE EXPANSION JOINT DETAIL
 AT BRIDGE APPROACH

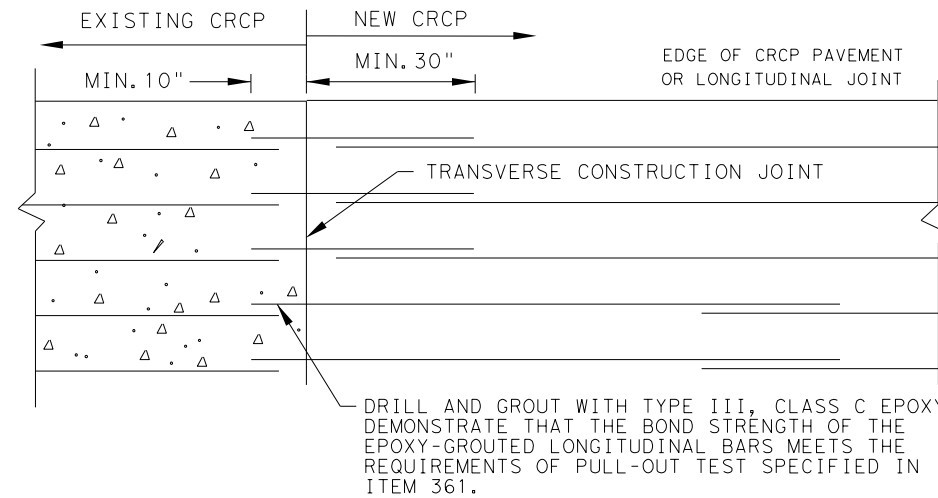


FREE LONGITUDINAL JOINT DETAIL

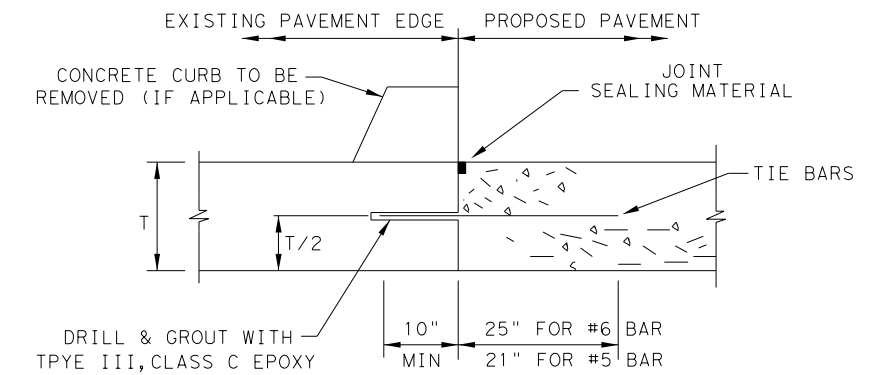


STAGGER THE LAP LOCATIONS SO THAT NO MORE THAN 1/3 OF THE LONGITUDINAL STEEL IS SPLICED IN ANY GIVEN 12-FT. WIDTH AND 2-FT. LENGTH OF THE PAVEMENT. ANY OTHER LAP CONFIGURATION MEETING THIS REQUIREMENT WILL BE ALLOWED.

EXAMPLES OF LAP CONFIGURATION
 PLAN VIEW (NOT TO SCALE)

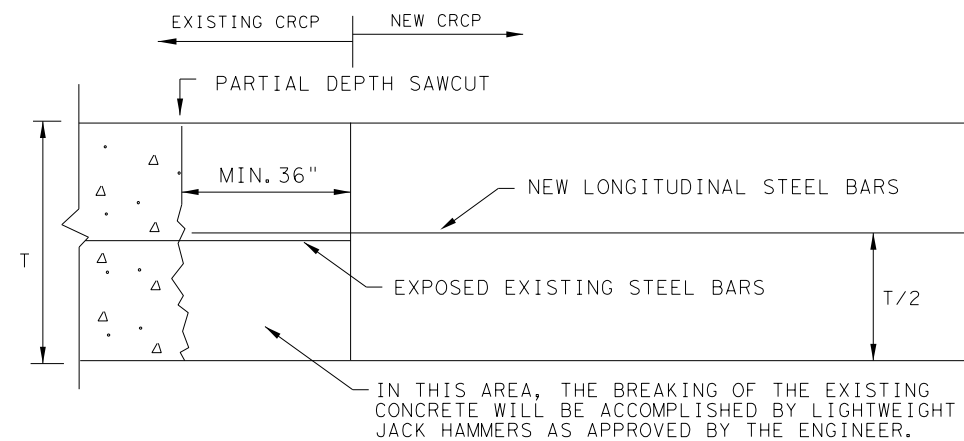


OPTION A: DRILL AND EPOXY
 PLAN VIEW (NOT TO SCALE)



1. BEFORE WIDENING WORK, DEMONSTRATE THAT THE BOND STRENGTH OF THE EPOXY-GROUTED TIE BARS MEETS THE REQUIREMENTS OF PULL-OUT TEST SPECIFIED IN ITEM 361.
2. SPACE TIE BARS AT 24" SPACING. USE #6 TIE BARS FOR 8" AND THICKER SLABS, USE #5 TIE BARS FOR LESS THAN 8" THICK SLABS.

LONGITUDINAL WIDENING JOINT DETAIL



OPTION B: BREAKBACK AND LAP
 TRANSVERSE TIE JOINT DETAIL
 EXISTING CRCP TO NEW CRCP

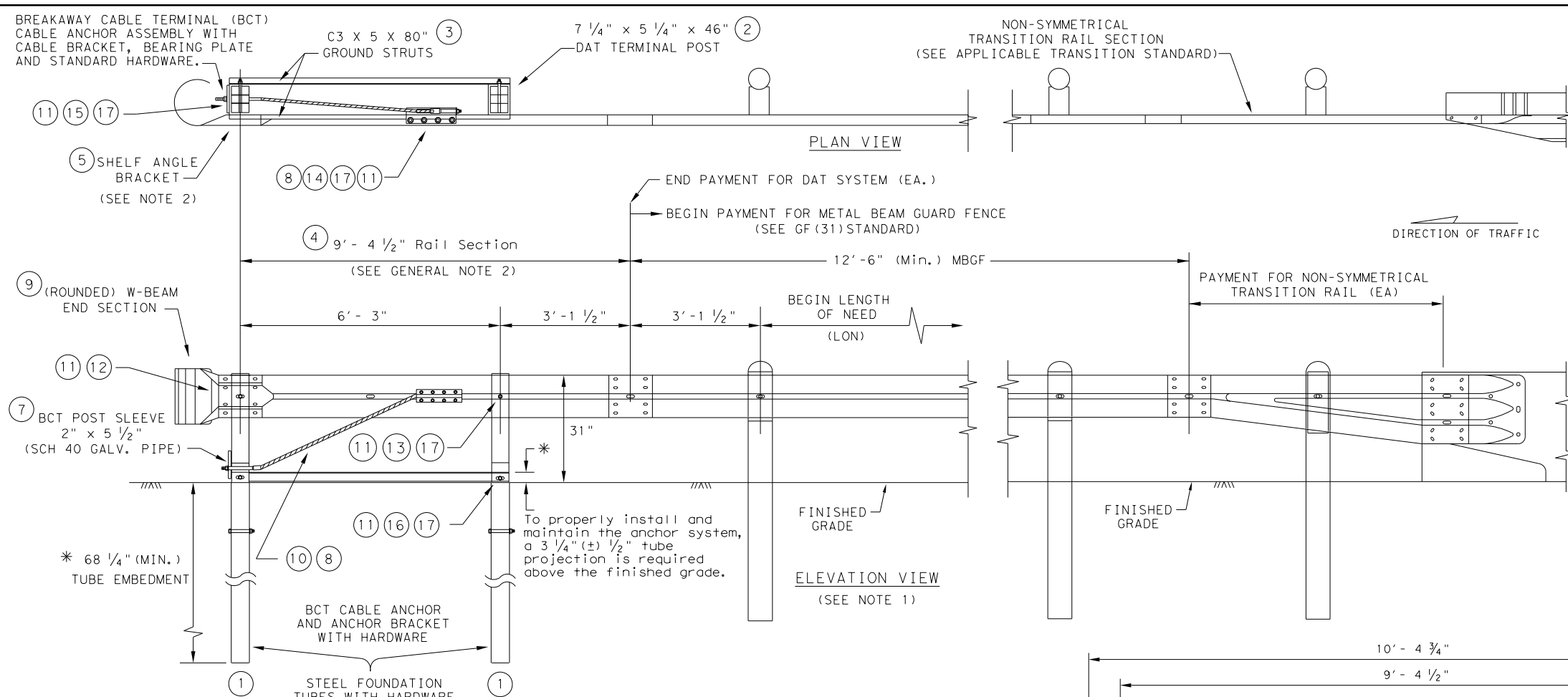
SHEET 2 OF 2



CONTINUOUSLY REINFORCED
 CONCRETE PAVEMENT
 ONE LAYER STEEL BAR PLACEMENT
 T - 7 TO 13 INCHES
 CRCP (1) - 20

FILE: crcp120.dgn	DN: TxDOT	CK: KM	DW: AN	CK: VP
© TxDOT: APRIL 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
03/16/2020 REMOVED TABLE 1A	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	82	

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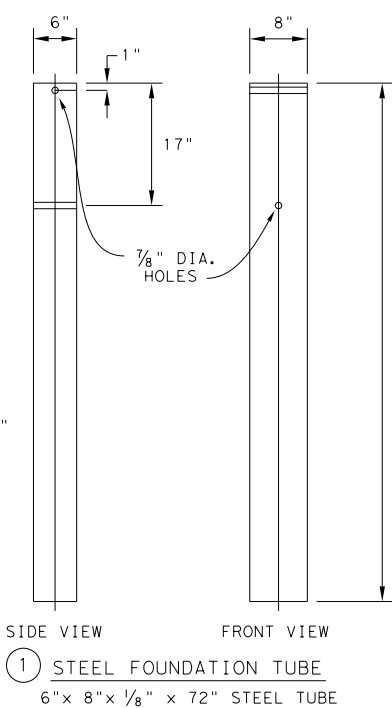
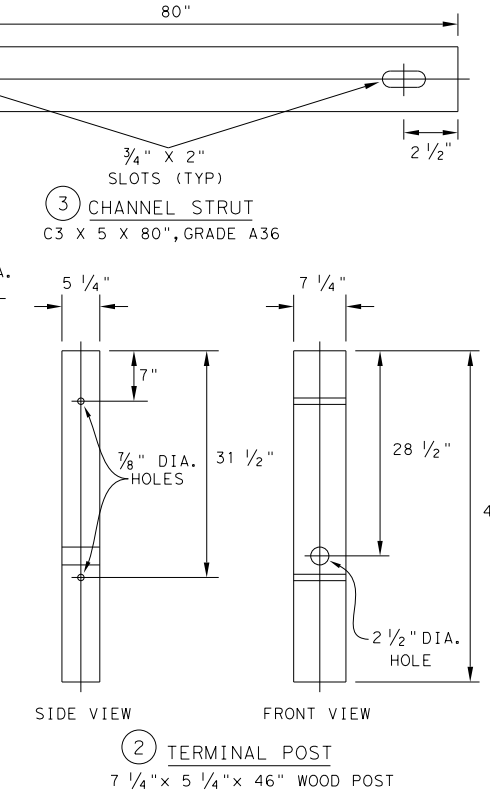
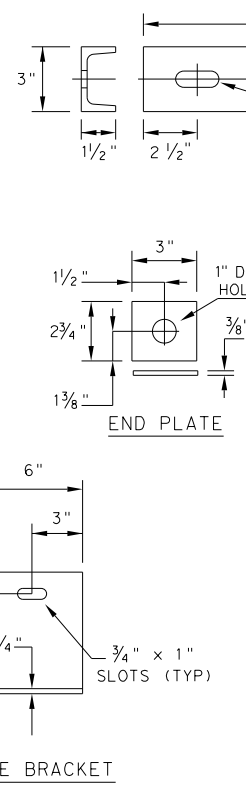
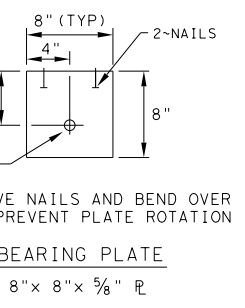
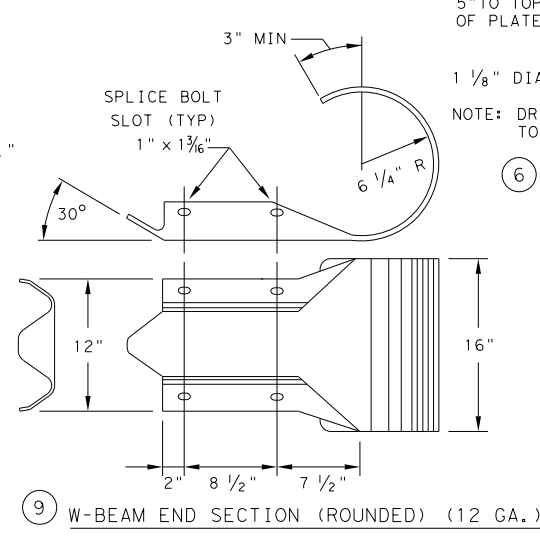
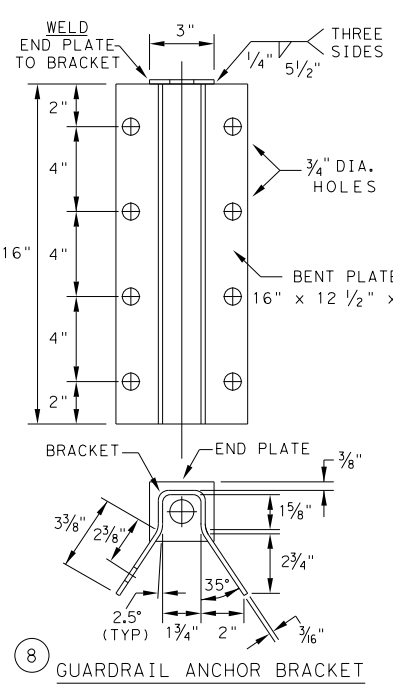
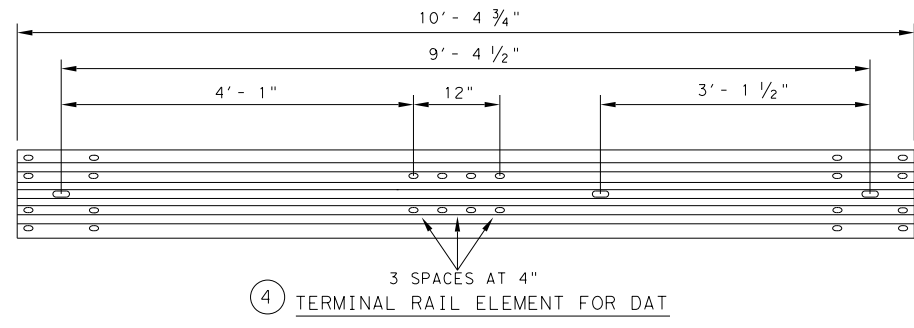
- GENERAL NOTES**
1. THE DETAIL SHOWN IS THE MINIMUM LENGTH OF NEED (LON) FOR A DOWNSTREAM ANCHOR TERMINAL (DAT) CONNECTED TO A CONCRETE RAIL.
 2. THE RAIL SECTION AT THE END POST IS SUPPORTED BY THE SHELF ANGLE BRACKET. THE RAIL ELEMENT IS NOT ATTACHED TO THE END POST.
 3. THE FOUNDATION TUBES SHALL NOT PROJECT MORE THAN 3 3/4" ABOVE THE FINISHED GRADE.
 4. ALL HARDWARE FOR DAT SHALL BE ASTM A307 UNLESS OTHERWISE SHOWN.
 5. REFER TO GF (31) SHEET FOR TERMINAL CONNECTION DETAILS.

MOW STRIP INSTALLATION

IF A MOW STRIP IS REQUIRED WITH THE DAT INSTALLATION THE LEAVE-OUT AREA AROUND THE STEEL FOUNDATION TUBES AND THE TWO CHANNEL STRUTS MAY BE OMITTED. THIS WILL REQUIRE A FULL POUR AT THE FOUNDATION TUBES.

#	(DAT) PARTS LIST	QTY
1	STEEL FOUNDATION TUBE	2
2	DAT TERMINAL POST	2
3	CHANNEL STRUT	2
4	TERMINAL RAIL ELEMENT	1
5	SHELF ANGLE BRACKET	1
6	BCT BEARING PLATE	1
7	BCT POST SLEEVE	1
8	GUARDRAIL ANCHOR BRACKET	1
9	(ROUNDED) W-BEAM END SECTION	1
10	BCT CABLE ANCHOR	1
11	RECESSED NUT, GUARDRAIL	20
12	1 1/4" BUTTON HEAD BOLT	4
13	10" BUTTON HEAD BOLT	2
14	5/8" X 2" HEX HEAD BOLT	8
15	5/8" X 8" HEX HEAD BOLT	4
16	5/8" X 10" HEX HEAD BOLT	2
17	5/8" FLAT WASHER	18

DOWNSTREAM ANCHOR TERMINAL (DAT)
 NOTE: ONLY FOR DOWNSTREAM USE, WHEN LOCATED OUTSIDE THE HORIZONTAL CLEARANCE AREA OF OPPOSING TRAFFIC.

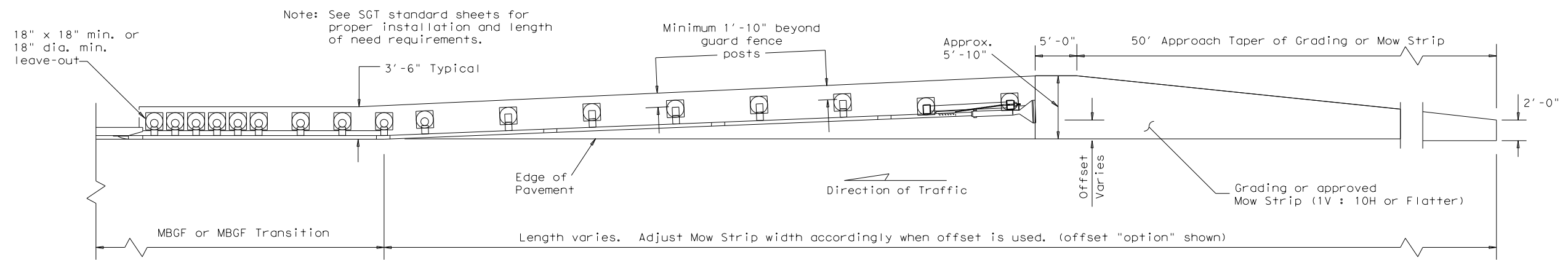


Design Division Standard

METAL BEAM GUARD FENCE
(DOWNSTREAM ANCHOR TERMINAL)
TL-3 MASH COMPLIANT
GF (31) DAT-19

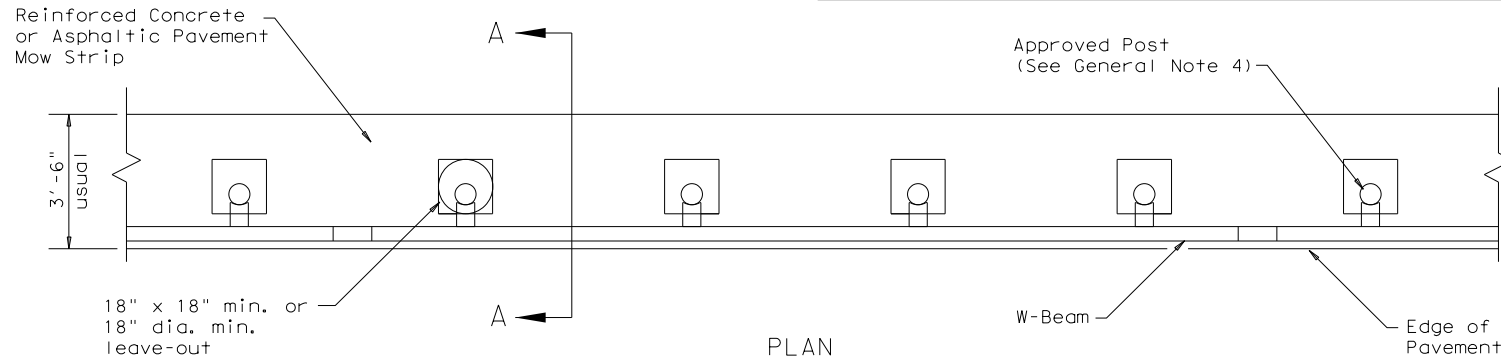
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© TXDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY		SHEET NO.
	TYLER	GREGG		83

DATE: 7/22/2021
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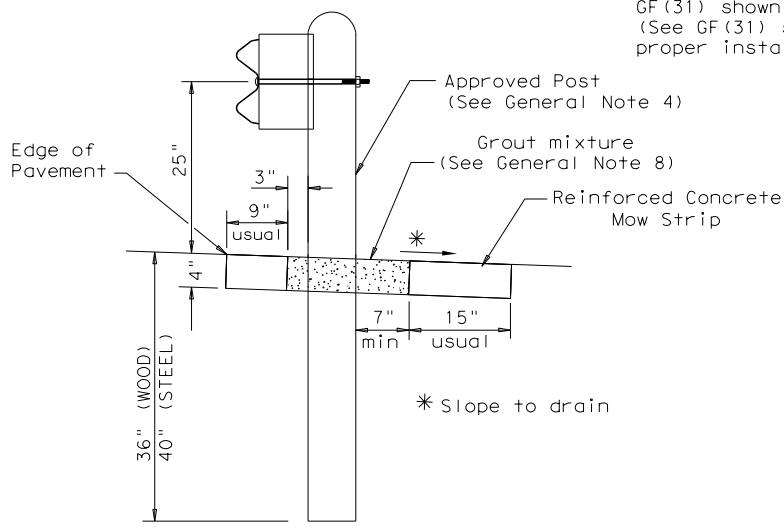
GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS

Note: Site Condition(s)
 Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.
 Approach grading or mow strip may be decreased or eliminated, as directed by the Engineer.

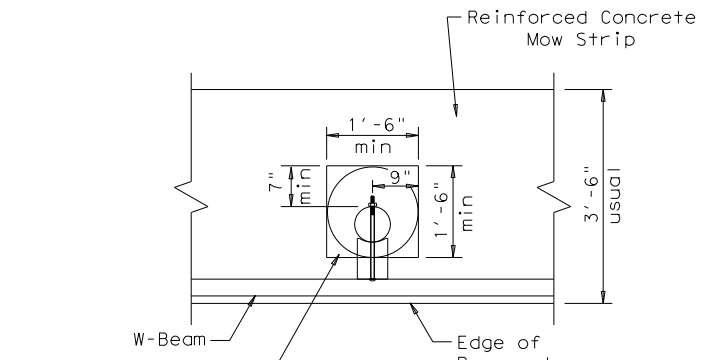


PLAN

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



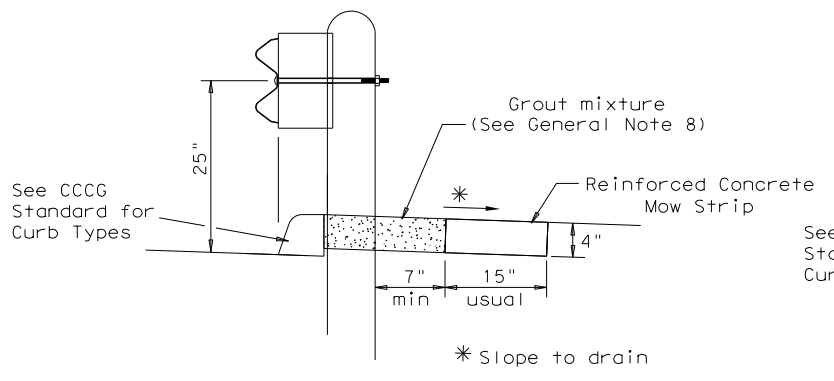
SECTION A-A
 Typical



MOW STRIP DETAIL

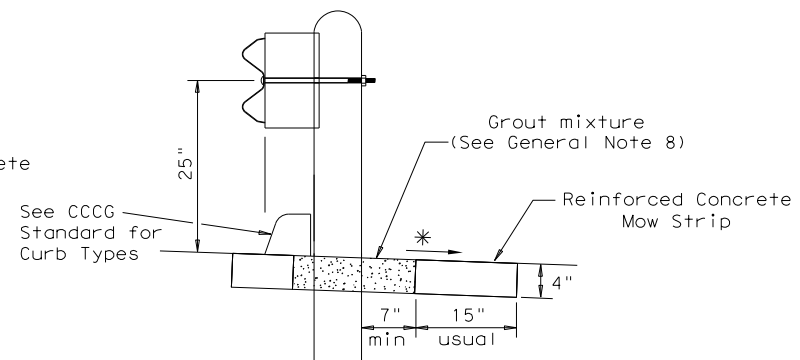
Reinforced Concrete Mow Strip with 18" x 18" Square or 18" Dia. minimum leave-out.

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



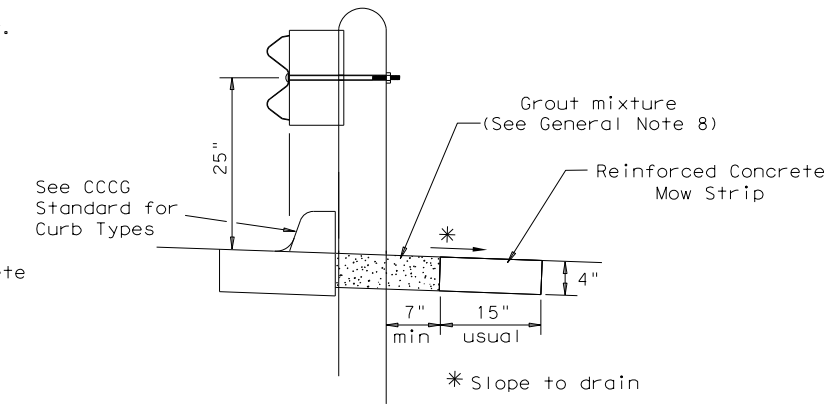
CURB OPTION (1)

This option will increase the post embedment throughout the system.



CURB OPTION (2)

Curb shown on top of mow strip



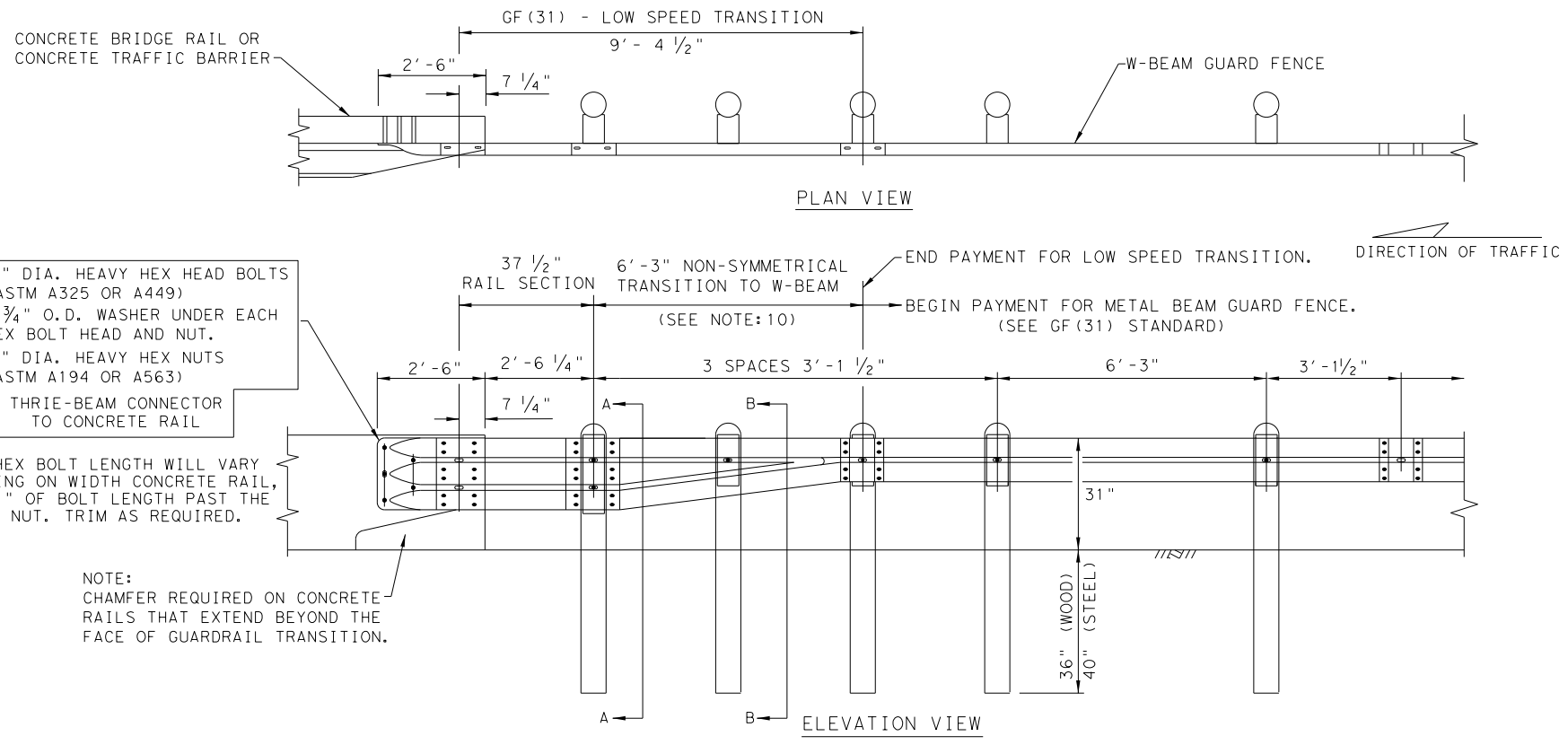
CURB OPTION (3)



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

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REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	84	

DATE: 7/22/2021
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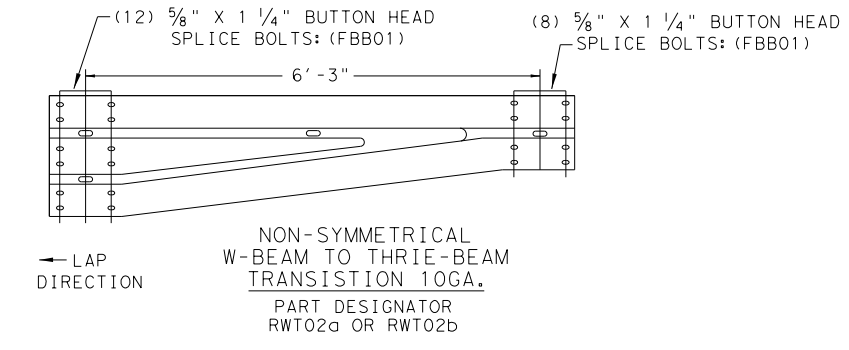
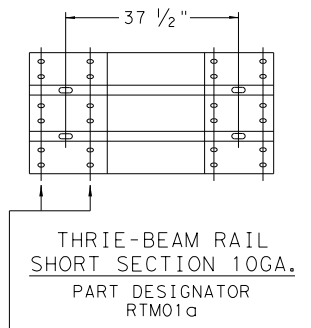
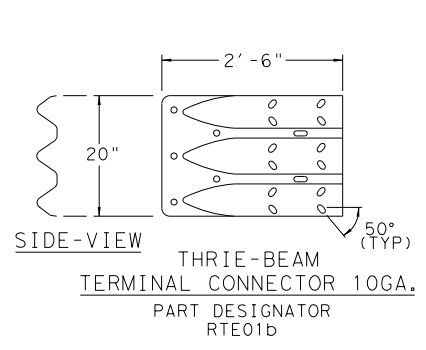


- GENERAL NOTES**
1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF TRANSITIONS SHALL BE AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. REFER TO GF(31) STANDARD SHEET.
 2. RAIL ELEMENT SHALL MEET THE REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS.
 3. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM REQUIRING CONSTRUCTION OF THE TRANSITION.
 4. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND 5/8" WASHER (FWC16a) AND NOT MORE THAN 1" BEYOND IT. TRIM BOLT LENGTH TO MEET REQUIRED LENGTH.
 5. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
 6. CROWN SHALL BE WIDENED TO ACCOMMODATE TRANSITIONS.
 7. WHERE SOLID ROCK IS ENCOUNTERED, CONTACT THE DESIGN DIVISION FOR ADDITIONAL GUIDANCE. (512) 416-2678
 8. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TxDOT, MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210. ONLY PRODUCERS ON THE MPL CAN FURNISH COMPOSITE MATERIAL BLOCKS.
 9. REFER TO GF(31) STANDARD SHEET & BRIDGE RAILING DETAILS FOR ADDITIONAL DETAILS.
 10. FOR ROUND WOOD POSTS SYSTEMS, ALL ROUND WOOD POSTS SHALL BE 7 1/2" DIA. MINIMUM THROUGHOUT THE TRANSITION.

- (5) 7/8" DIA. HEAVY HEX HEAD BOLTS (ASTM A325 OR A449)
 - (10) 1 3/4" O.D. WASHER UNDER EACH HEX BOLT HEAD AND NUT.
 - (5) 7/8" DIA. HEAVY HEX NUTS (ASTM A194 OR A563)
- THRIE-BEAM CONNECTOR TO CONCRETE RAIL

NOTE: HEAVY HEX BOLT LENGTH WILL VARY DEPENDING ON WIDTH CONCRETE RAIL, LEAVE 1" OF BOLT LENGTH PAST THE 7/8" HEX NUT. TRIM AS REQUIRED.

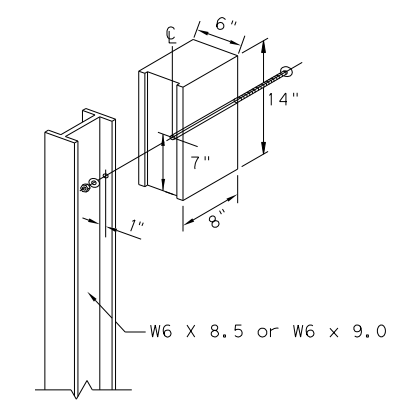
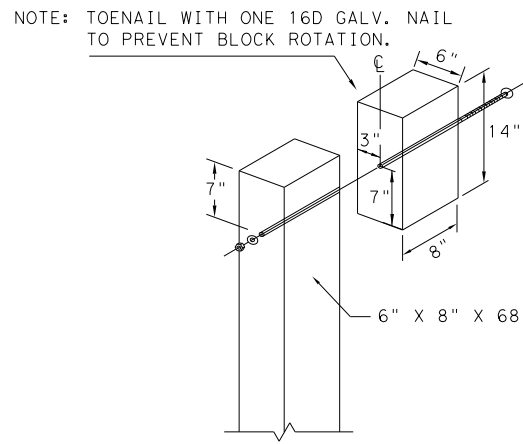
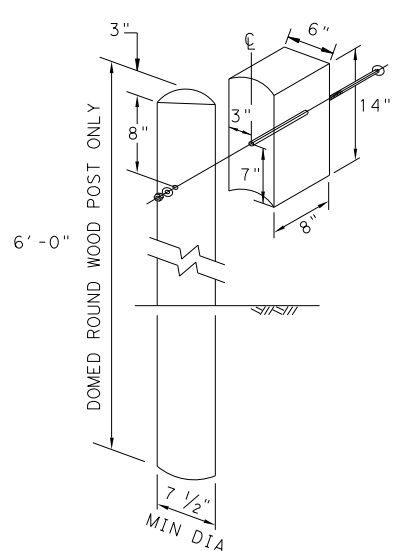
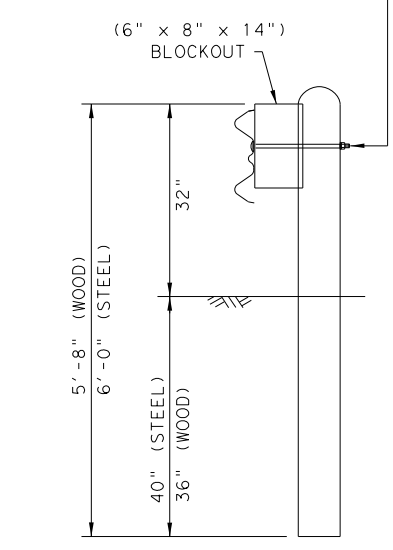
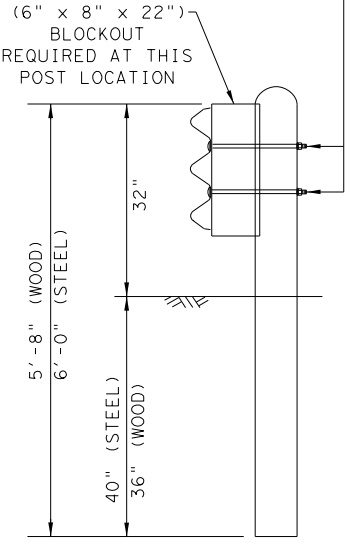
NOTE: CHAMFER REQUIRED ON CONCRETE RAILS THAT EXTEND BEYOND THE FACE OF GUARDRAIL TRANSITION.



- (2) 5/8" BUTTON HEAD POST BOLTS & NUTS: (FBB04)
- (1) 5/8" FLAT WASHER: (FWC14a) UNDER EACH NUT

- (1) 5/8" BUTTON HEAD POST BOLT & NUT: (FBB04)
- (1) 5/8" FLAT WASHER: (FWC14a) UNDER EACH NUT

BRIDGE APPROACH - UPSTREAM: THE SHORT RAIL LAPS OVER THE TERMINAL CONNECTOR. PLATE WASHERS ARE INSTALLED UNDER THE SPLICE NUTS AGAINST INSIDE OF CONNECTOR.
 BRIDGE EXIT - DOWNSTREAM: THE TERMINAL CONNECTOR LAPS OVER THE NESTED RAIL. PLATE WASHERS ARE INSTALLED UNDER THE BOLT HEAD AGAINST OUTSIDE OF CONNECTOR.



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

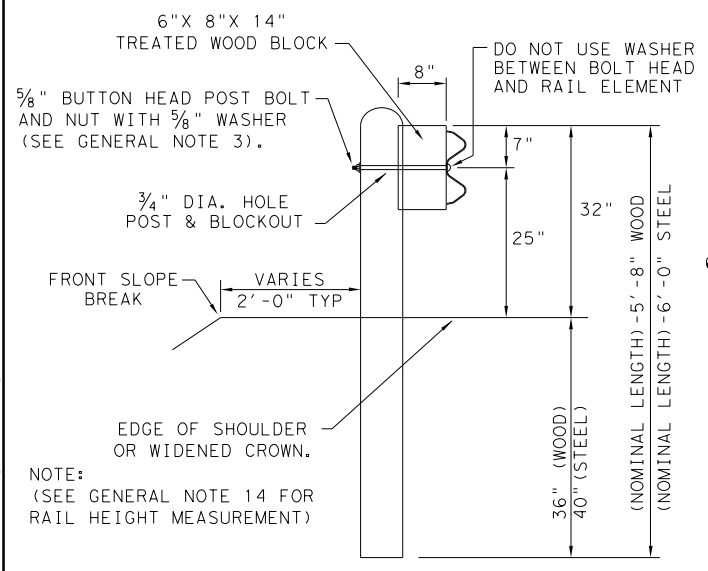
LOW-SPEED TRANSITION

Design Division Standard

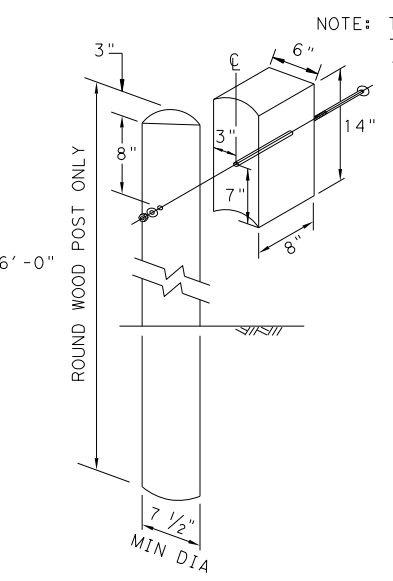
METAL BEAM GUARD FENCE
THRIE-BEAM TRANSITION
TL-2 MASH COMPLIANT
GF(31)TR TL2-19

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© TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY		SHEET NO.
	TYLER	GREGG		85

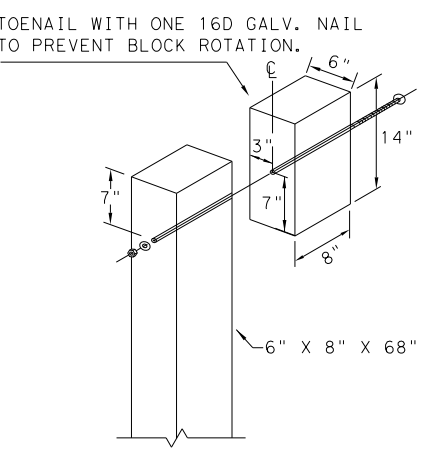
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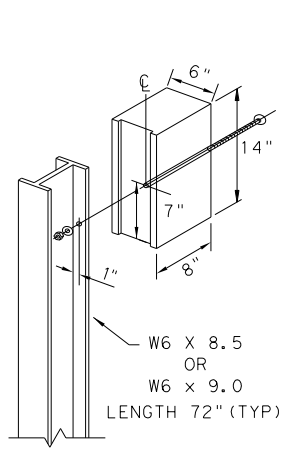
TYPICAL POST PLACEMENT



WOOD BLOCK TO ROUND WOOD POST



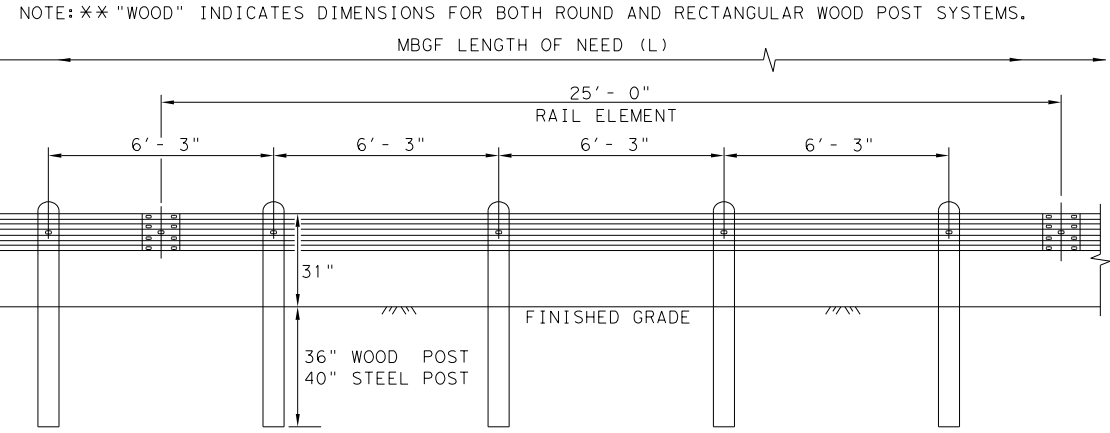
WOOD BLOCK TO RECTANGULAR WOOD POST



ROUTED WOOD BLOCK TO I-BEAM STEEL POST

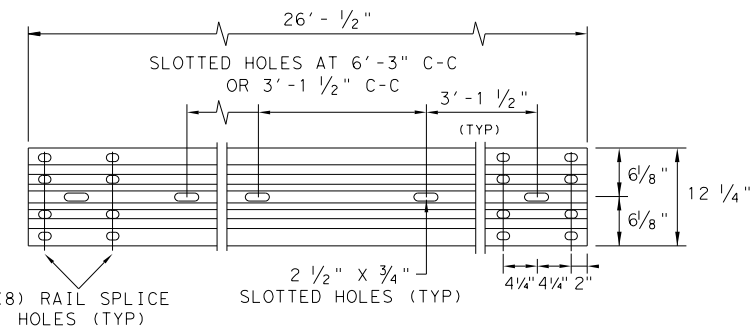
GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'-0", OR 12'-6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 1/2" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND 5/8" WASHER (FWC16G) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TxDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13. FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
14. GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL, MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.



ELEVATION MID-SPAN RAIL SPLICE

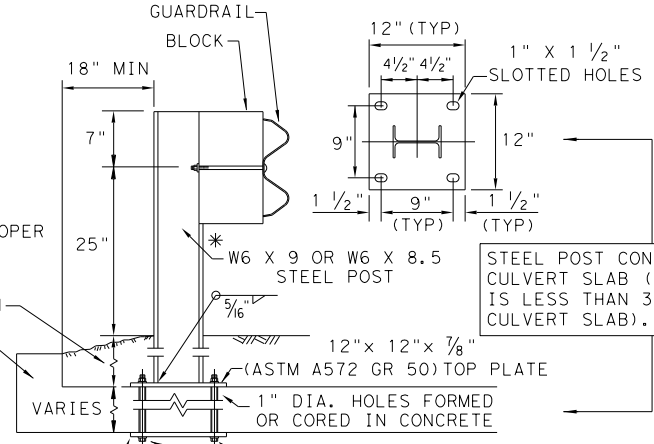
SHOWING A 25'-0" SECTION OF W-BEAM RAIL. (SEE GENERAL NOTE 2)



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

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

* POST(S) MAY REQUIRE FIELD MODIFICATION TO ENSURE PROPER GUARDRAIL HEIGHT.

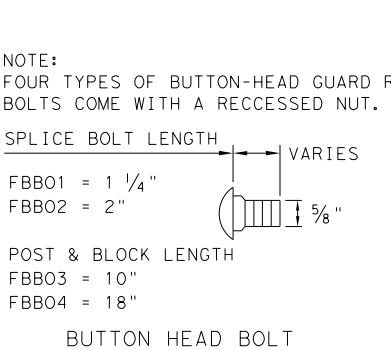


LOW FILL CULVERT POST

NOTE: TWO INSTALLATION OPTIONS.

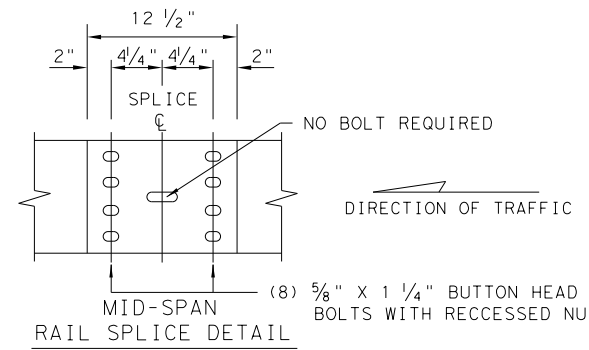
1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. 7/8" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS. NOTE: BOLT LENGTH = SLAB PLUS 2 1/4" MIN.
2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST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

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



BUTTON HEAD BOLT

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

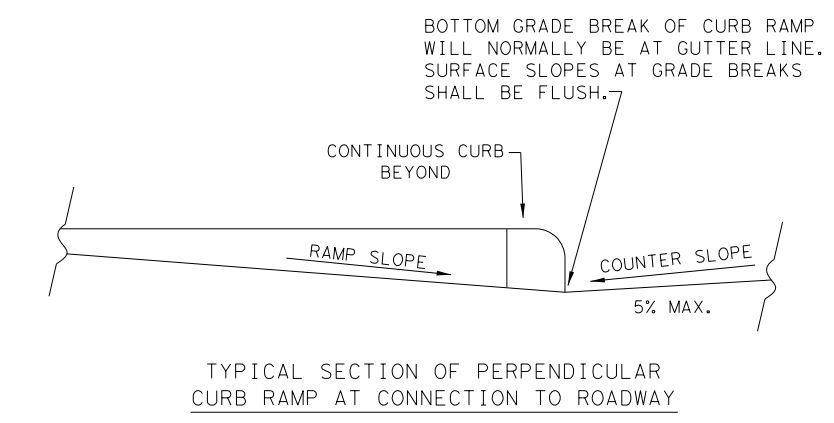
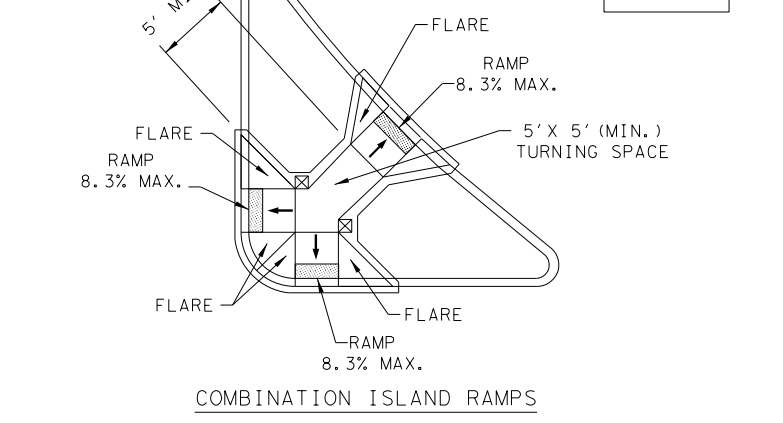
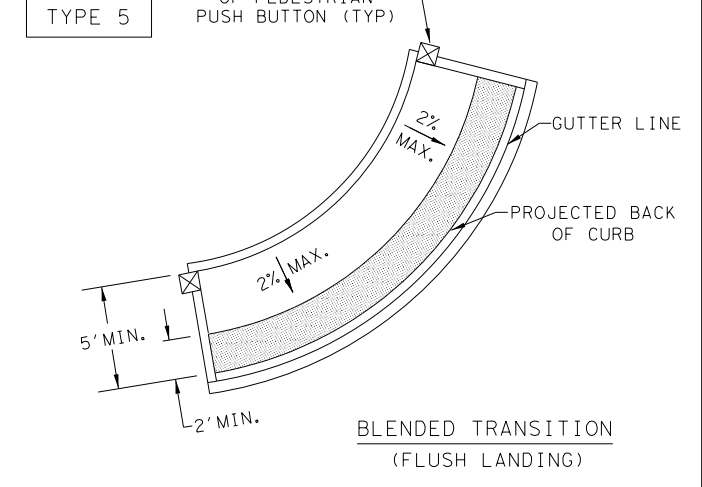
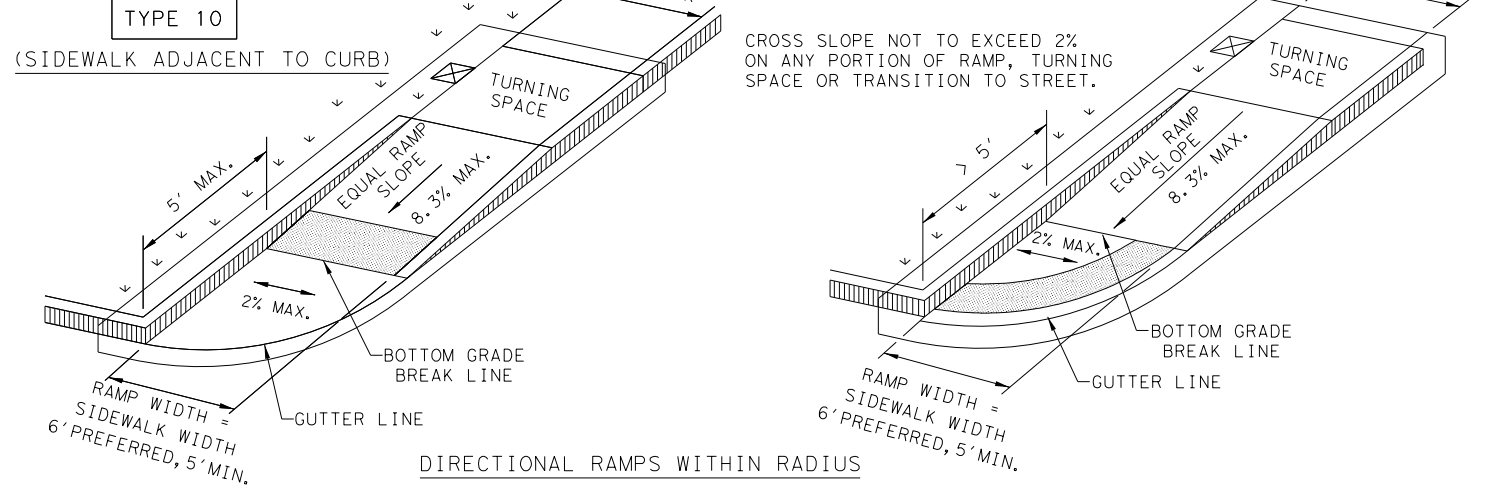
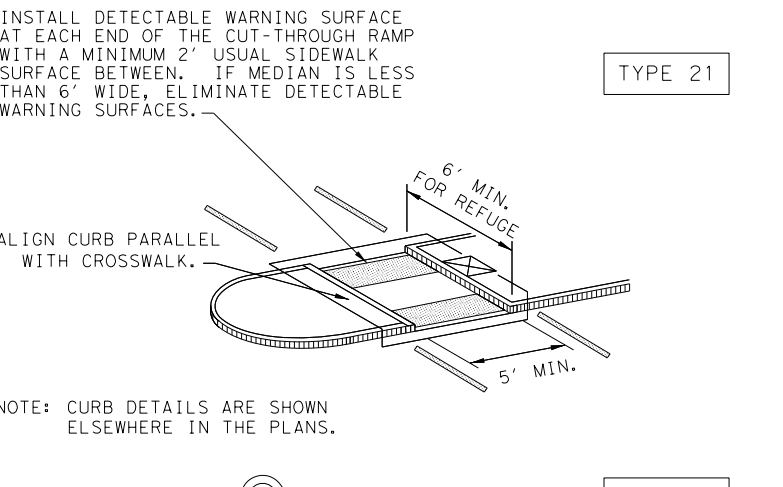
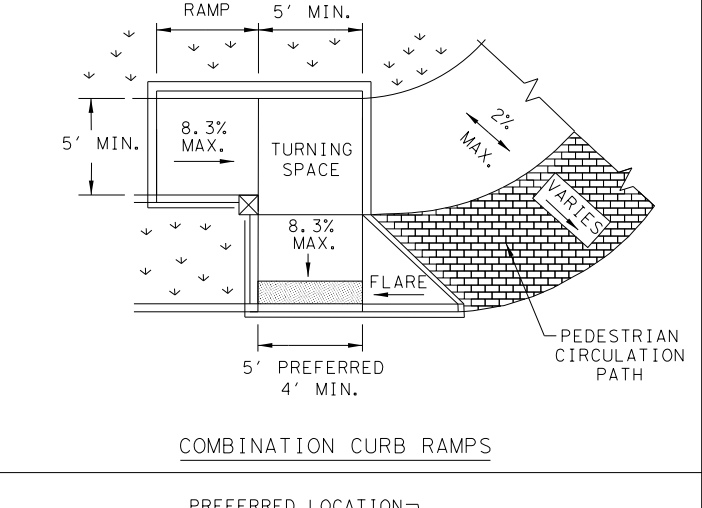
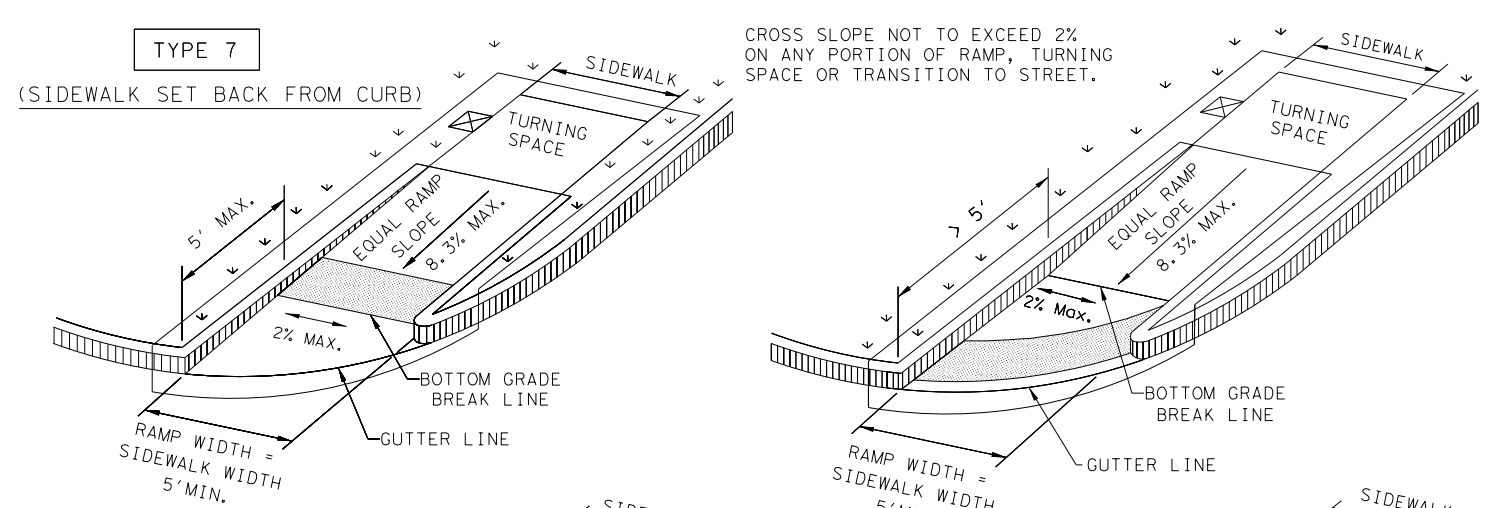
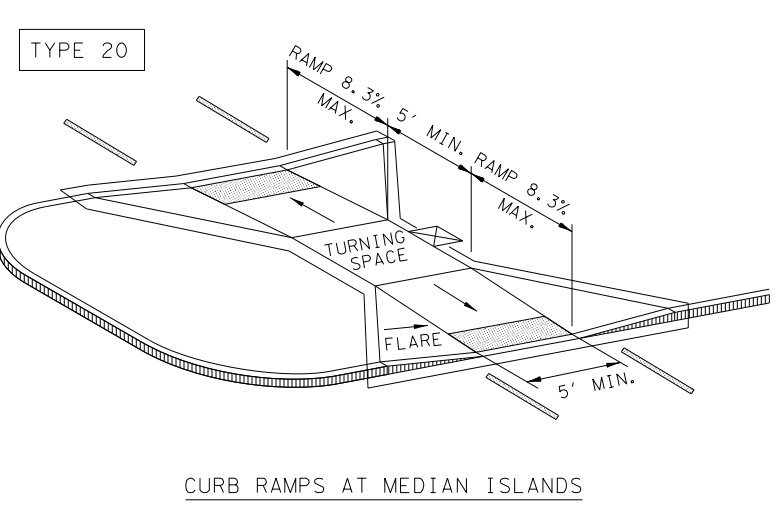
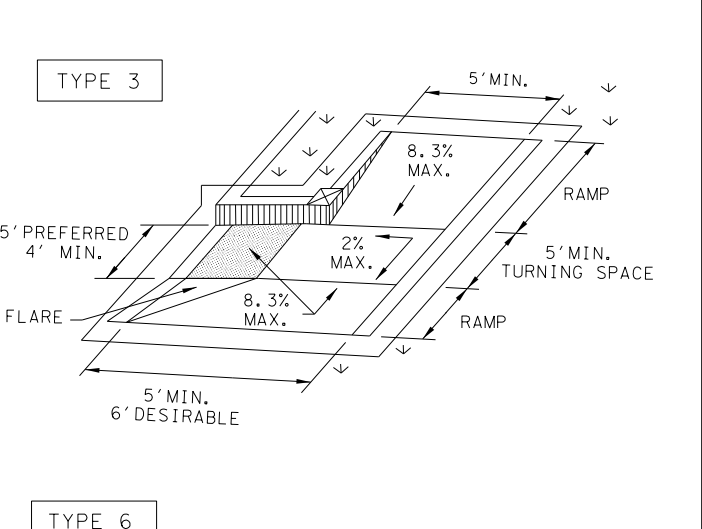
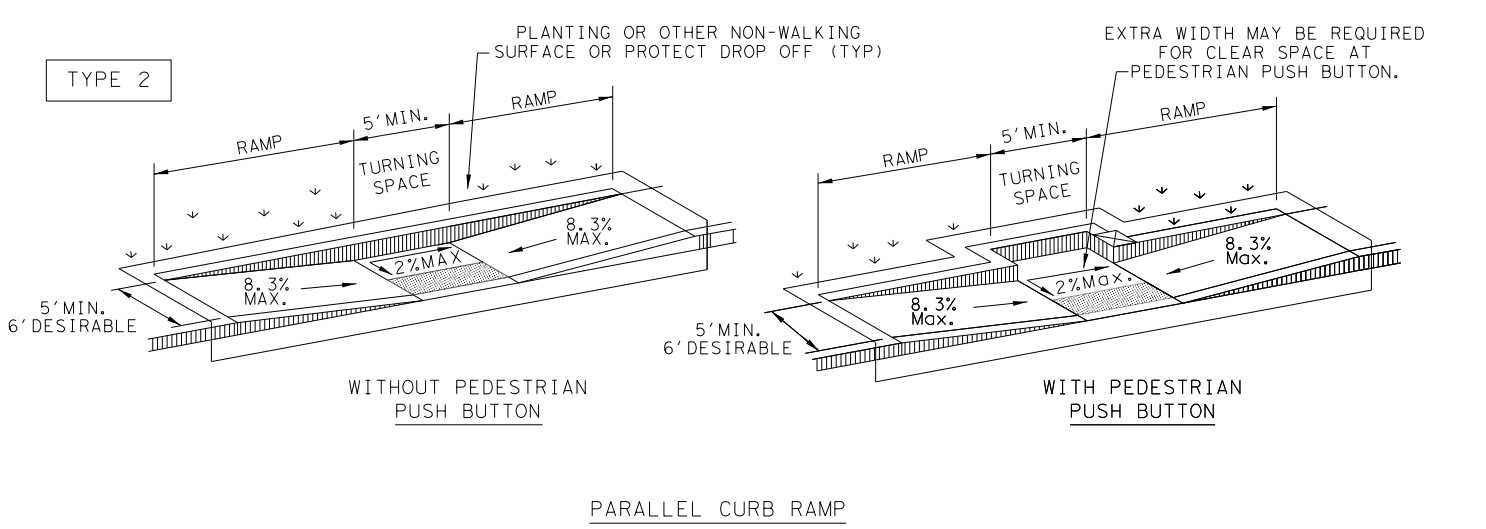
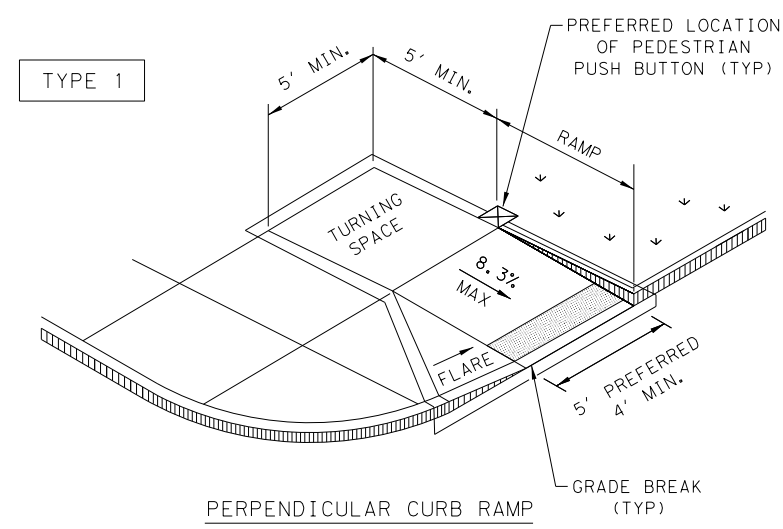


MID-SPAN RAIL SPLICE DETAIL

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

		Design Division Standard	
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FILE: gf3119.dgn	DN: TxDOT	CK: KM	DW: VP
© TxDOT: NOVEMBER 2019	CONT	SECT	JOB
REVISIONS	0910	07	072
	DIST	COUNTY	HIGHWAY
	TYLER	GREGG	
			SHEET NO. 86

DATE: 7/22/2021
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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

Gutter Line

Grade Break

Ramp Limits of Payment

SHEET 1 OF 4

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG	
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY	
REVISED 08, 2005	REVISIONS	0910	07	072	HIGH ST
REVISED 06, 2012		DIST	COUNTY		SHEET NO.
REVISED 01, 2018		TYLER	GREGG		87

DATE: 7/22/2021
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GENERAL NOTES

CURB RAMPS

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

DETECTABLE WARNING MATERIAL

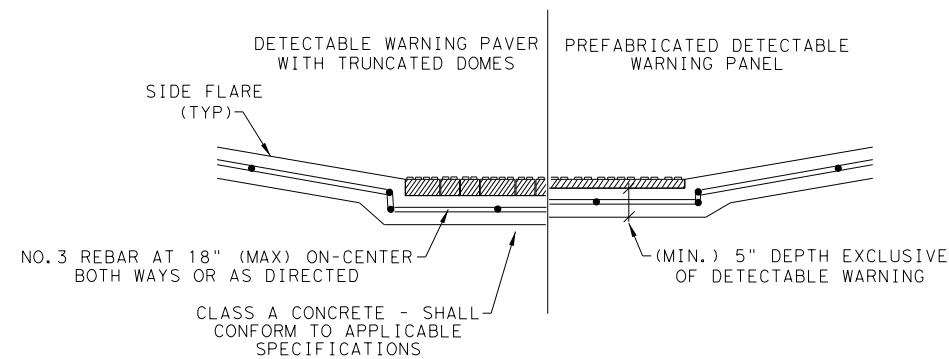
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material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

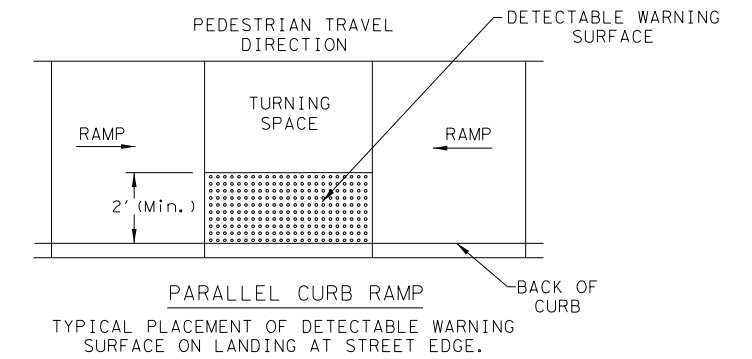
SIDEWALKS

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.

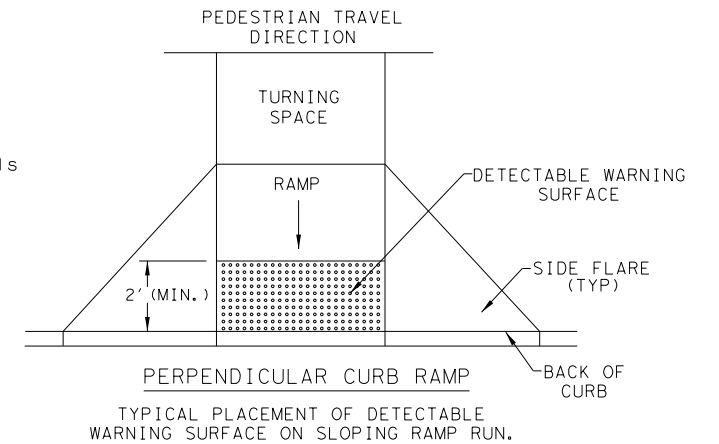


SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

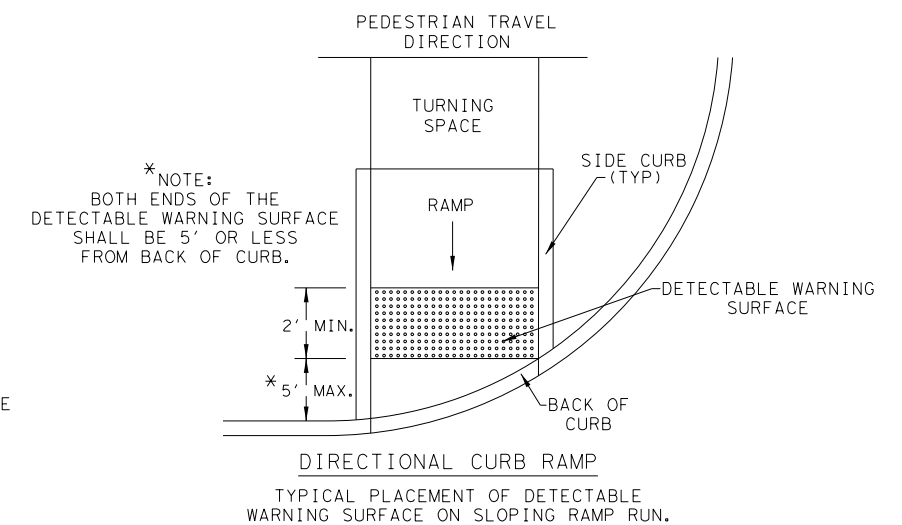
DETECTABLE WARNING SURFACE DETAILS



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.

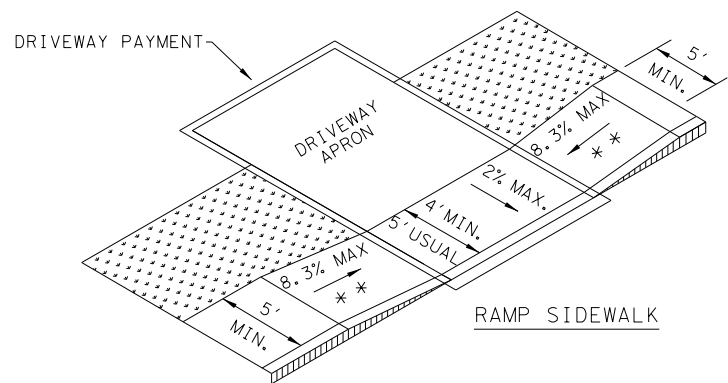
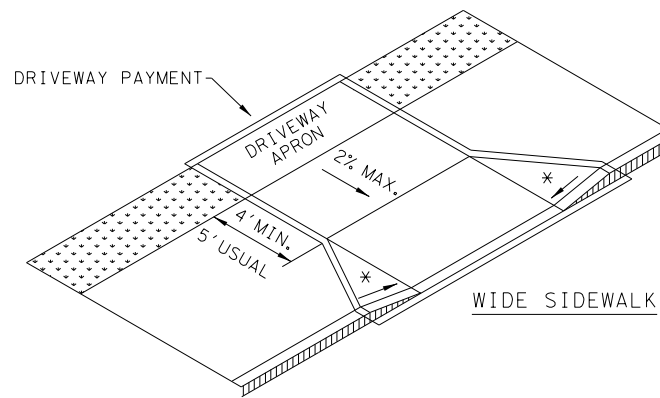
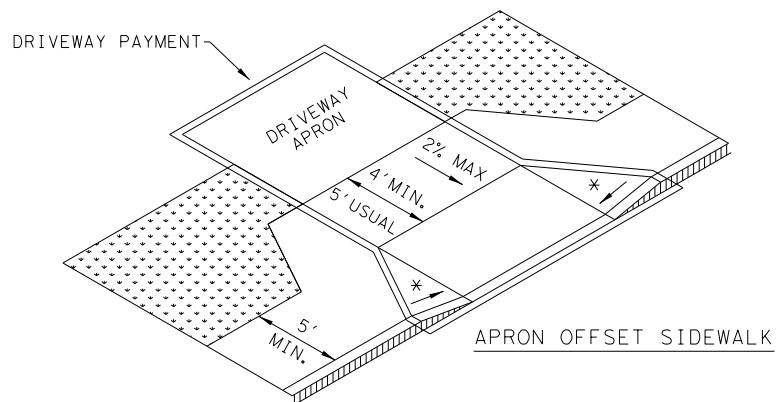
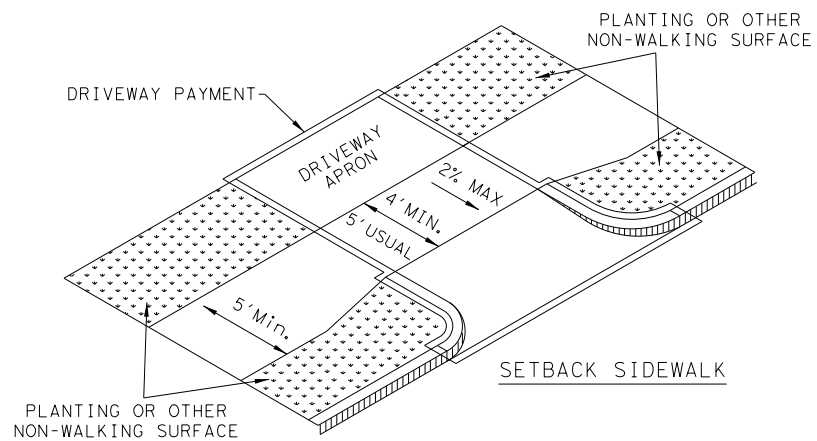
SHEET 2 OF 4

		Design Division Standard	
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© TxDOT: MARCH, 2002	CONT	SECT	JOB
REVISIONS	0910	07	072
REVISED 08, 2005	DIST	COUNTY	HIGHWAY
REVISED 06, 2012	TYLER	GREGG	SHEET NO.
REVISED 01, 2018			88

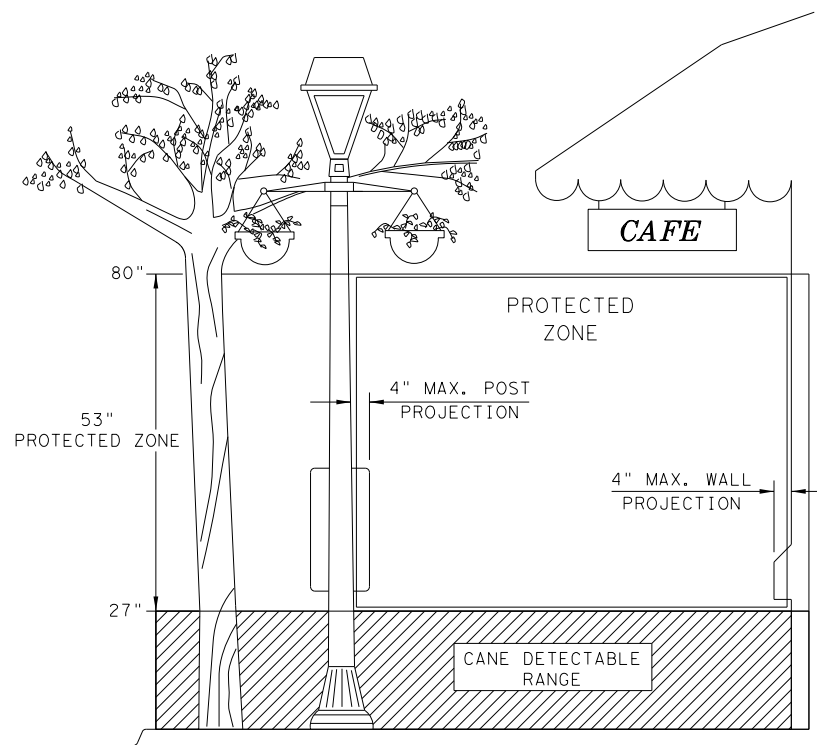
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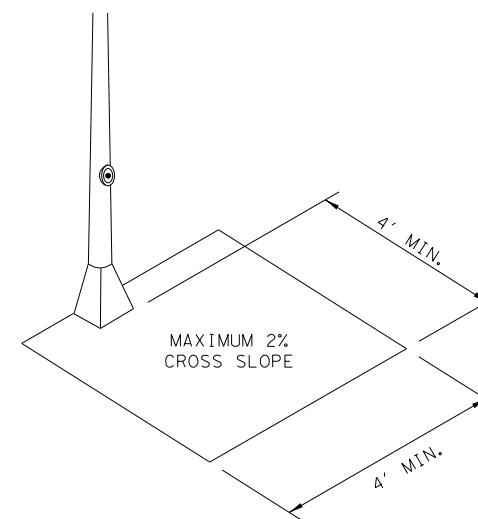
SIDEWALK TREATMENT AT DRIVEWAYS



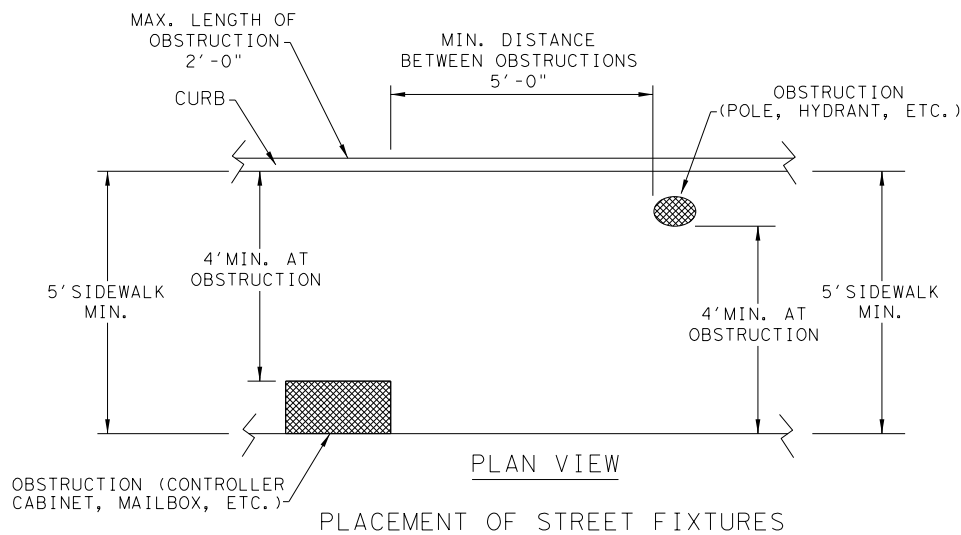
NOTES:
 * WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.
 * * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



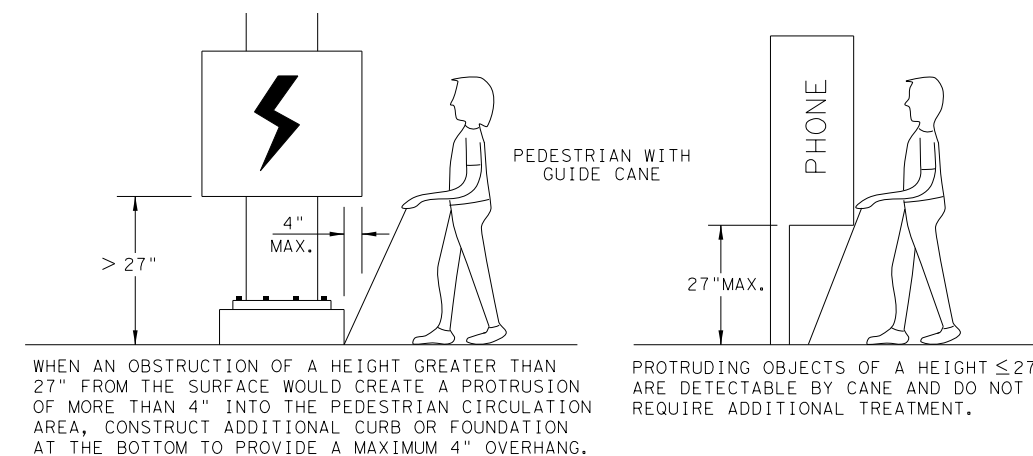
NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



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



DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

SHEET 3 OF 4



PEDESTRIAN FACILITIES
CURB RAMPS

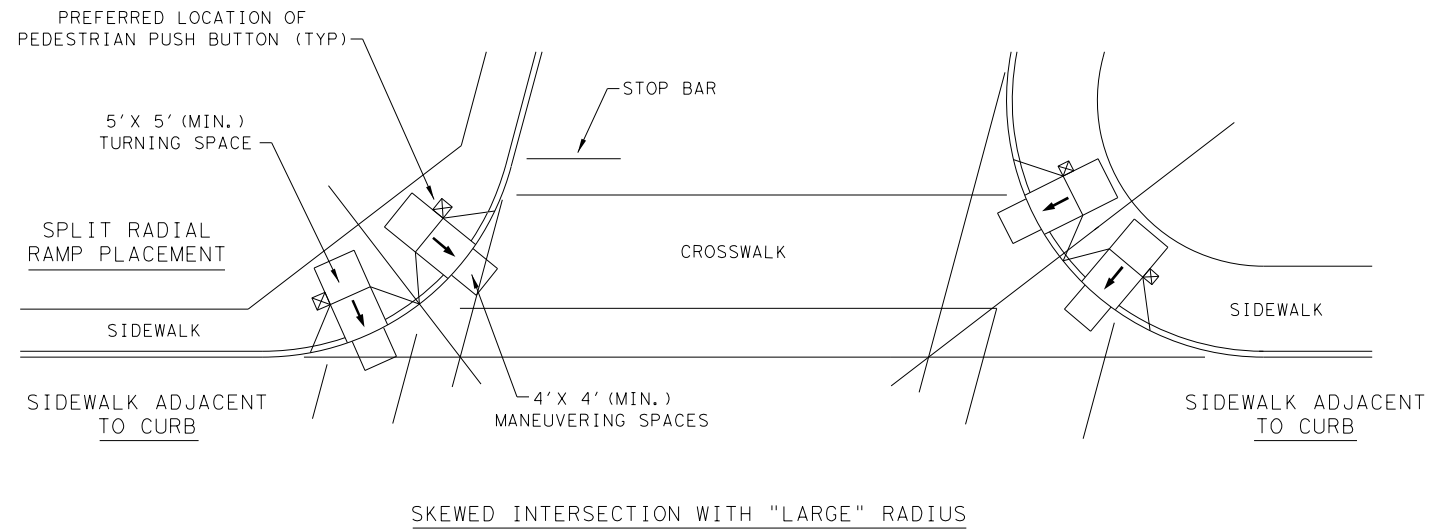
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
REVISED 08, 2005	DIST	COUNTY		SHEET NO.
REVISED 06, 2012	TYLER	GREGG		89
REVISED 01, 2018				

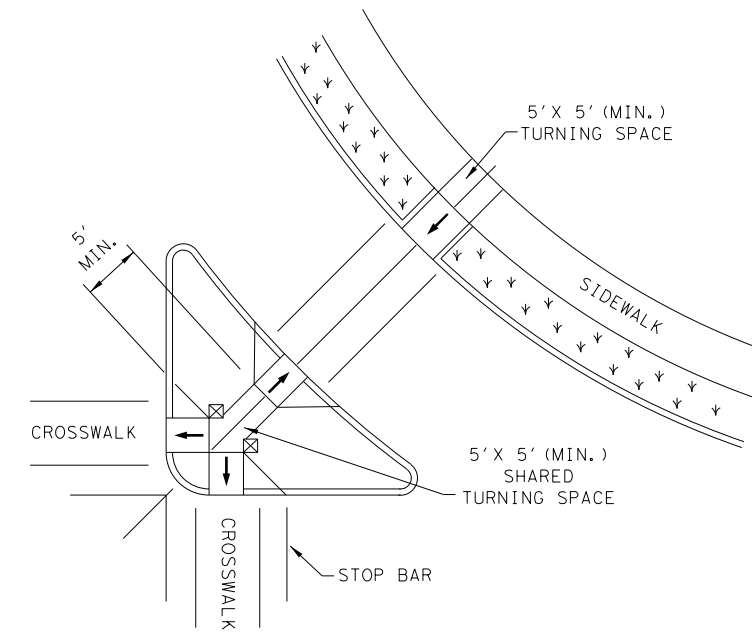
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DATE: 7/22/2021
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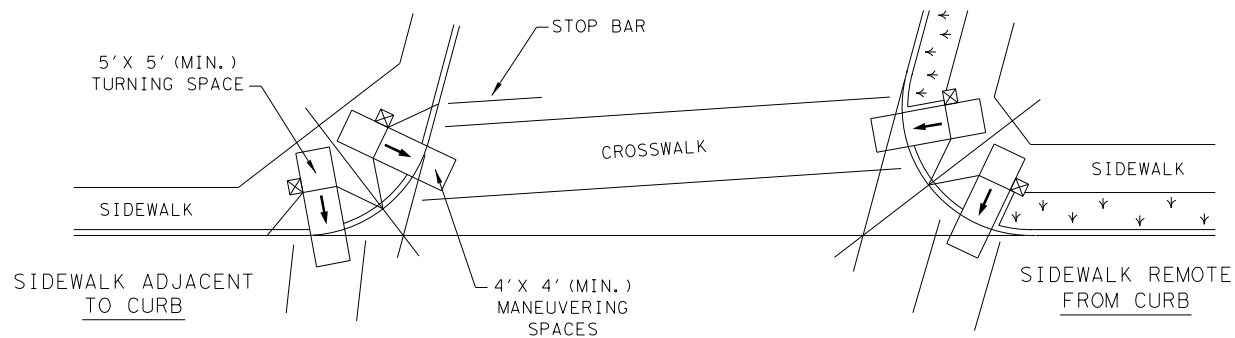
TYPICAL CROSSING LAYOUTS
 SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



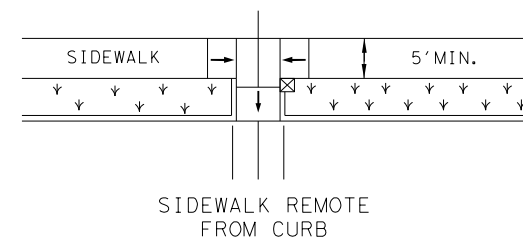
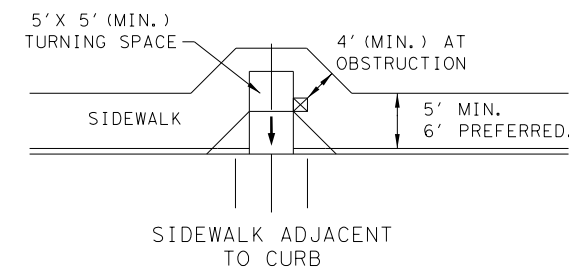
SKewed INTERSECTION WITH "LARGE" RADIUS



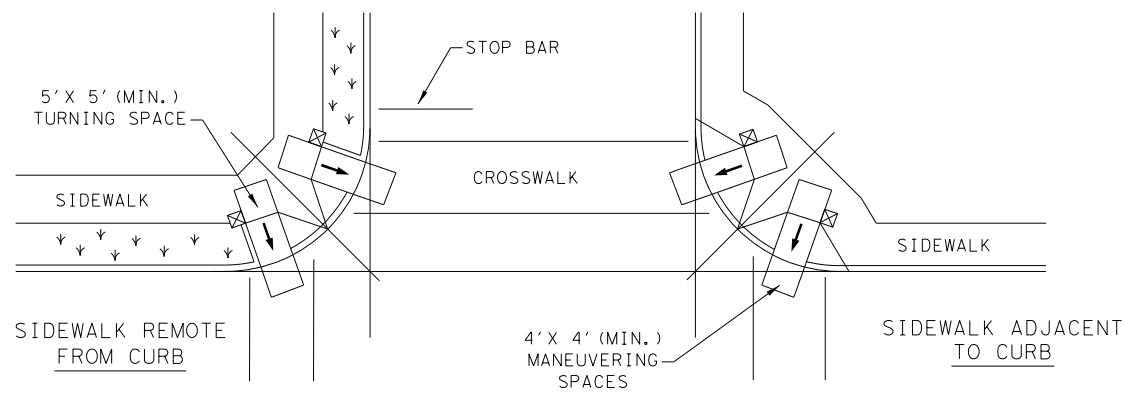
AT INTERSECTION W/FREE RIGHT TURN & ISLAND



SKewed INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

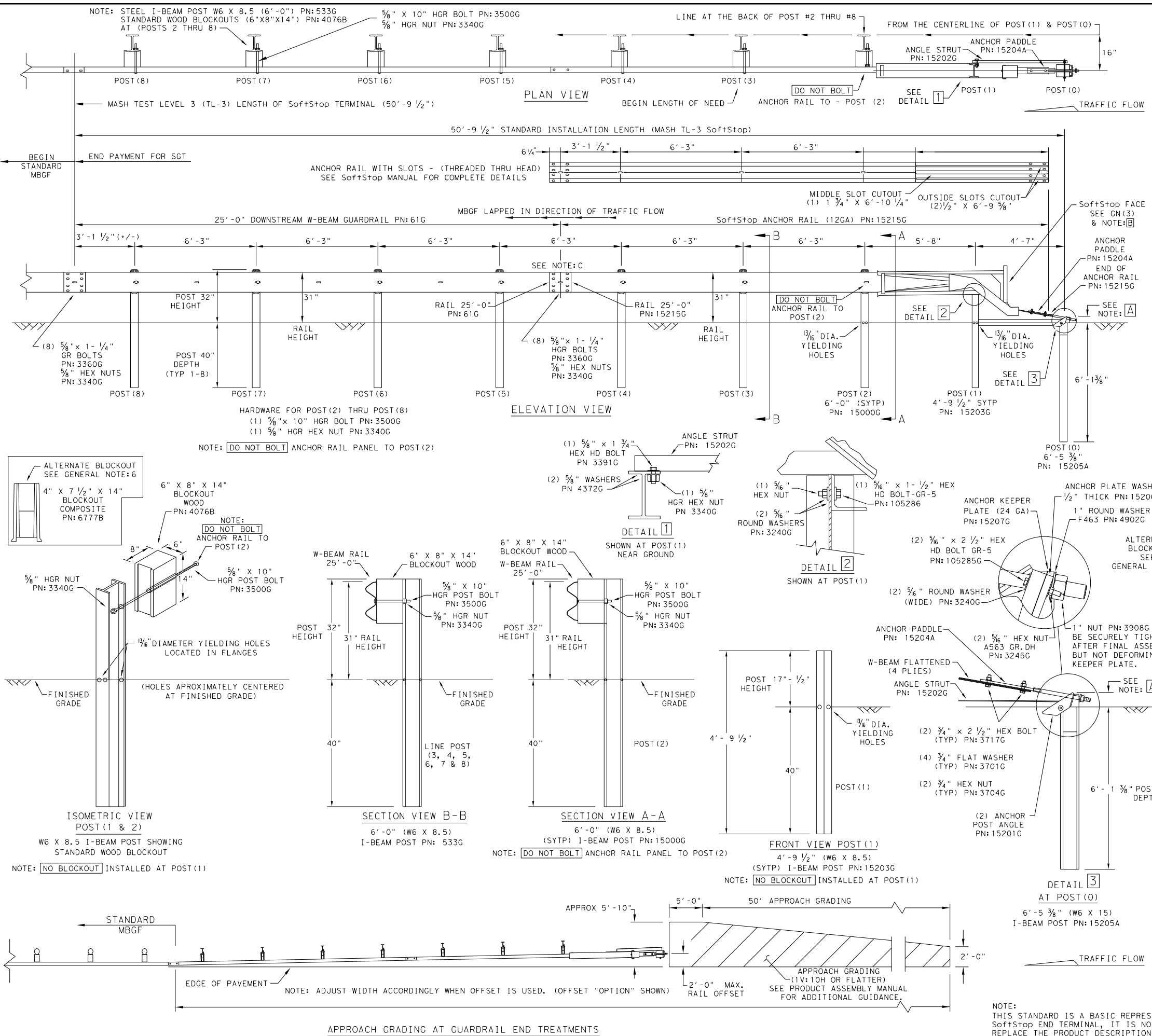
LEGEND:

- SHOWS DOWNWARD SLOPE.
- DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE).
- DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

		Design Division Standard	
PEDESTRIAN FACILITIES			
CURB RAMPS			
PED-18			
FILE: ped18	DN: TxDOT	DW: VP	CK: KM
© TxDOT: MARCH, 2002	CON: 0910	SECT: 07	JOB: 072
REVISIONS		HIGHWAY	
REVISED 08, 2005	0910	07	072
REVISED 06, 2012	DIST: TYLER	COUNTY: GREGG	SHEET NO. 90
REVISED 01, 2018			

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- GENERAL NOTES**
- FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: TRINITY HIGHWAY AT 1(888)323-6374, 2525 N. STEMMONS FREEWAY, DALLAS, TX 75207
 - FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE; SoftStop END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL. PN: 620237B
 - APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
 - FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TxDOT'S LATEST ROADWAY MOW STRIP STANDARD.
 - HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
 - A COMPOSITE MATERIAL BLOCKOUT THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS OF SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
 - IF SOLID ROCK IS ENCOUNTERED SEE THE MANUFACTURER'S INSTALLATION MANUAL AND REFER TO THE LATEST ROADWAY MBBG STANDARD FOR INSTALLATION GUIDANCE.
 - POSTS SHALL NOT BE SET IN CONCRETE.
 - IT IS ACCEPTABLE TO INSTALL THE SoftStop IMPACT HEAD PARALLEL TO THE GRADE LINE OR WITH AN UPWARD TILT.
 - DO NOT ATTACH THE SoftStop SYSTEM DIRECTLY TO A RIGID BARRIER.
 - UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE SoftStop SYSTEM BE CURVED.
 - A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCRoaching ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.

NOTE: A THE INSTALLATION HEIGHT OF FULLY ASSEMBLED ANCHOR POST WILL VARY FROM 3-3/4" MIN. TO 4" MAX. ABOVE FINISHED GRADE.

NOTE: B PART PN: 5852B RIGHT-SIDE (HIGH INTENSITY REFLECTIVE SHEETING) PART PN: 5851B LEFT-SIDE (HIGH INTENSITY REFLECTIVE SHEETING)

NOTE: C W-BEAM SPLICE LOCATED BETWEEN LINE POST (4) AND LINE POST (5) GUARDRAIL PANEL 25'-0" PN: 61G ANCHOR RAIL 25'-0" PN: 15215G LAP GUARDRAIL IN DIRECTION OF TRAFFIC FLOW.

PART	QTY	MAIN SYSTEM COMPONENTS
620237B	1	PRODUCT DESCRIPTION ASSEMBLY MANUAL (LATEST REV.)
15208A	1	SoftStop HEAD (SEE MANUAL FOR RIGHT-LEFT APPROACH)
15215G	1	SoftStop ANCHOR RAIL (12GA) WITH CUTOUT SLOTS
61G	1	SoftStop DOWNSTREAM W-BEAM RAIL (12GA) (25'-0")
15205A	1	POST #0 - ANCHOR POST (6'-5 3/8")
15203G	1	POST #1 - (SYTP) (4'-9 1/2")
15000G	1	POST #2 - (SYTP) (6'-0")
533G	6	POST #3 THRU #8 - I-BEAM (W6 X 8.5) (6'-0")
4076B	7	BLOCKOUT - WOOD (ROUTED) (6" x 8" x 14")
6777B	7	BLOCKOUT - COMPOSITE (4" x 7 1/2" x 14")
15204A	1	ANCHOR PADDLER
15207G	1	ANCHOR KEEPER PLATE (24 GA)
15206G	1	ANCHOR PLATE WASHER (1/2" THICK)
15201G	2	ANCHOR POST ANGLE (10" LONG)
15202G	1	ANGLE STRUT
HARDWARE		
4902G	1	1" ROUND WASHER F436
3908G	1	1" HEAVY HEX NUT A563 GR. DH
3717G	2	3/4" x 2 1/2" HEX BOLT A325
3701G	4	3/4" ROUND WASHER F436
3704G	2	3/4" HEAVY HEX NUT A563 GR. DH
3360G	16	5/8" x 1 1/4" W-BEAM RAIL SPLICE BOLTS HGR
3340G	25	5/8" W-BEAM RAIL SPLICE NUTS HGR
3500G	7	5/8" x 10" HGR POST BOLT A307
3391G	1	5/8" x 1 3/4" HEX HD BOLT A325
4489G	1	5/8" x 9" HEX HD BOLT A325
4372G	4	5/8" WASHER F436
105285G	2	5/8" x 2 1/2" HEX HD BOLT GR-5
105286G	1	5/8" x 1 1/2" HEX HD BOLT GR-5
3240G	6	5/8" ROUND WASHER (WIDE)
3245G	3	5/8" HEX NUT A563 GR. DH
5852B	1	HIGH INTENSITY REFLECTIVE SHEETING - SEE NOTE: B

Texas Department of Transportation
 Design Division Standard

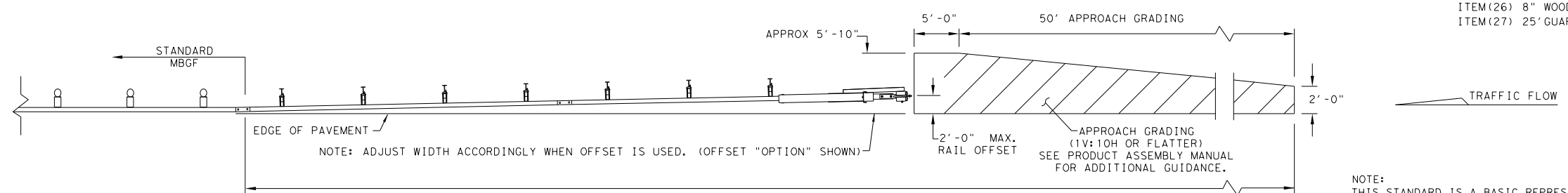
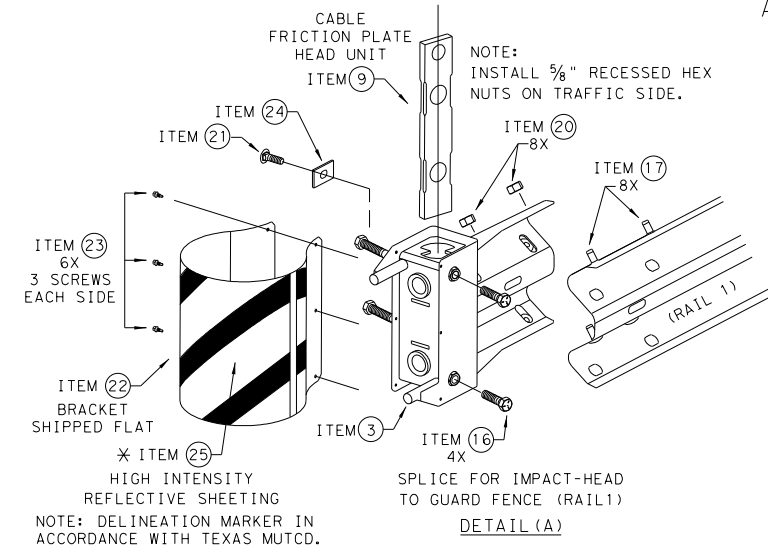
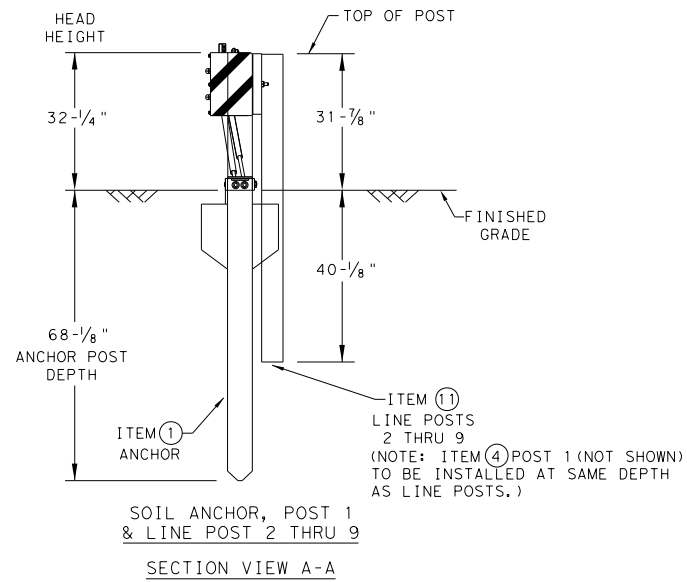
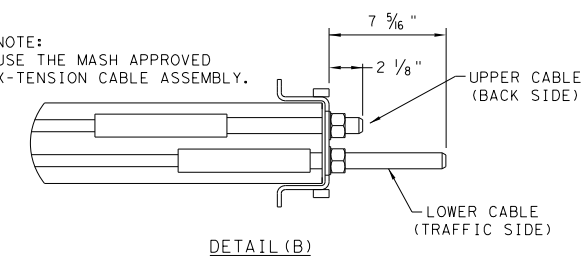
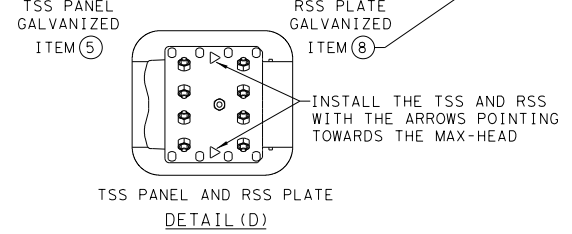
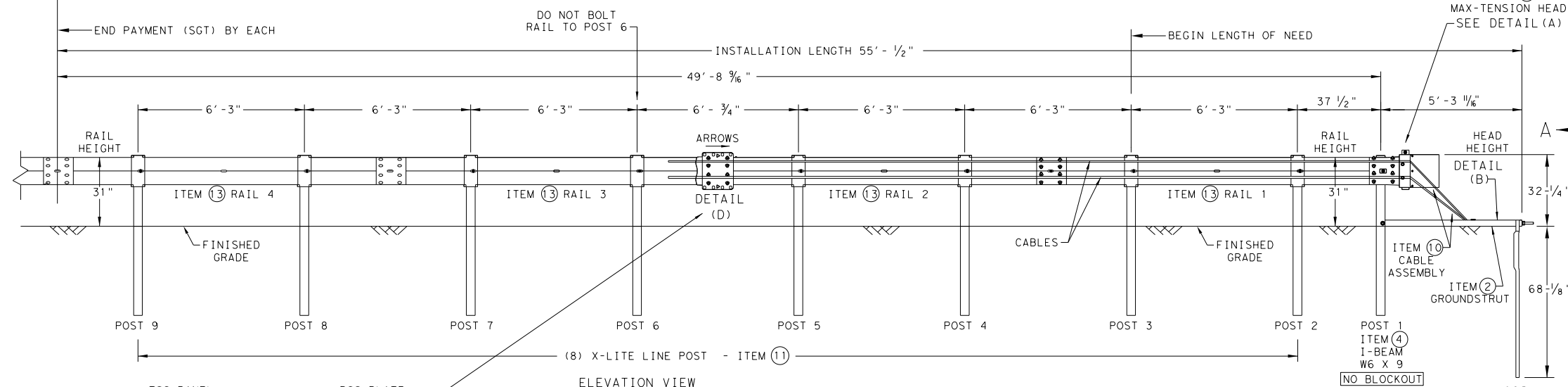
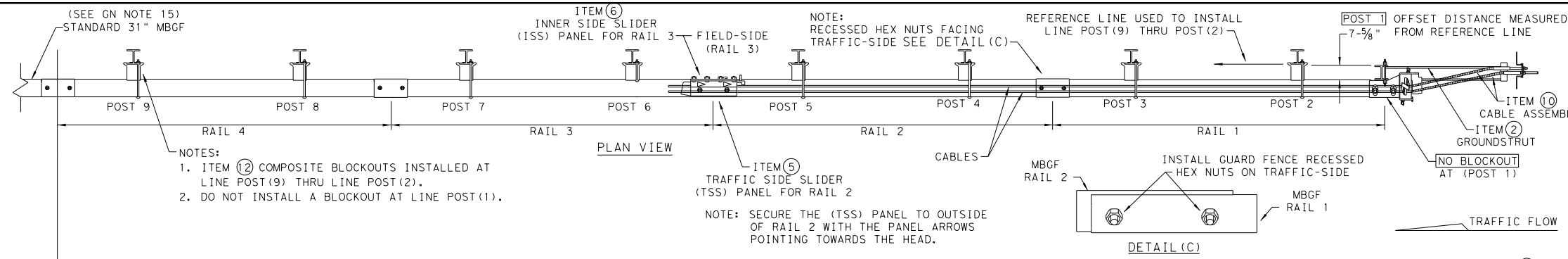
**TRINITY HIGHWAY
 SOFTSTOP END TERMINAL
 MASH - TL-3
 SGT (10S) 31-16**

FILE: sgt10s3116	DN: TxDOT	CK: KM	DW: VP	CK: MB/VP
©TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY		SHEET NO.
	TYLER	GREGG		91

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

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GENERAL NOTES

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

ITEM#	PART NUMBER	DESCRIPTION	QTY
1	BSI-1610060-00	SOIL ANCHOR - GALVANIZED	1
2	BSI-1610061-00	GROUND STRUT - GALVANIZED	1
3	BSI-1610062-00	MAX-TENSION IMPACT HEAD	1
4	BSI-1610063-00	W6x9 I-BEAM POST 6FT. -GALVANIZED	1
5	BSI-1610064-00	TSS PANEL - TRAFFIC SIDE SLIDER	1
6	BSI-1610065-00	ISS PANEL - INNER SIDE SLIDER	1
7	BSI-1610066-00	TOOTH - GEOMET	1
8	BSI-1610067-00	RSS PLATE - REAR SIDE SLIDER	1
9	B061058	CABLE FRICTION PLATE - HEAD UNIT	1
10	BSI-1610069-00	CABLE ASSEMBLY - MASH X-TENSION	2
11	BSI-1012078-00	X-LITE LINE POST - GALVANIZED	8
12	B090534	8" W-BEAM COMPOSITE-BLOCKOUT XT110	8
13	BSI-4004386	12'-6" W-BEAM GUARD FENCE PANELS 12GA.	4
14	BSI-1102027-00	X-LITE SQUARE WASHER	1
15	BSI-2001886	5/8" X 7" THREAD BOLT HH (GR.5)GEOMET	1
16	BSI-2001885	3/4" X 3" ALL-THREAD BOLT HH (GR.5)GEOMET	4
17	4001115	5/8" X 1 1/4" GUARD FENCE BOLTS (GR.2)MGAL	48
18	2001840	5/8" X 10" GUARD FENCE BOLTS MGAL	8
19	2001636	5/8" WASHER F436 STRUCTURAL MGAL	2
20	4001116	5/8" RECESSED GUARD FENCE NUT (GR.2)MGAL	59
21	BSI-2001888	5/8" X 2" ALL THREAD BOLT (GR.5)GEOMET	1
22	BSI-1701063-00	DELINEATION MOUNTING (BRACKET)	1
23	BSI-2001887	1/4" X 3/4" SCREW SD HH 410SS	7
24	4002051	GUARDRAIL WASHER RECT AASHTO FWRO3	1
25	SEE NOTE BELOW	HIGH INTENSITY REFLECTIVE SHEETING	1
26	4002337	8" W-BEAM TIMBER-BLOCKOUT, PDB01B	8
27	BSI-4004431	25' W-BEAM GUARDRAIL PANEL, 8-SPACE, 12GA.	2
28	MANMAX Rev- (D)	MAX-TENSION INSTALLATION INSTRUCTIONS	1

* TO BE PROVIDED BY DISTRIBUTOR OR CONTRACTOR.
 ** ALTERNATIVE ITEMS NOT SHOWN. ITEM(26) 8" WOOD-BLOCKOUTS ITEM(27) 25' GUARD FENCE PANELS

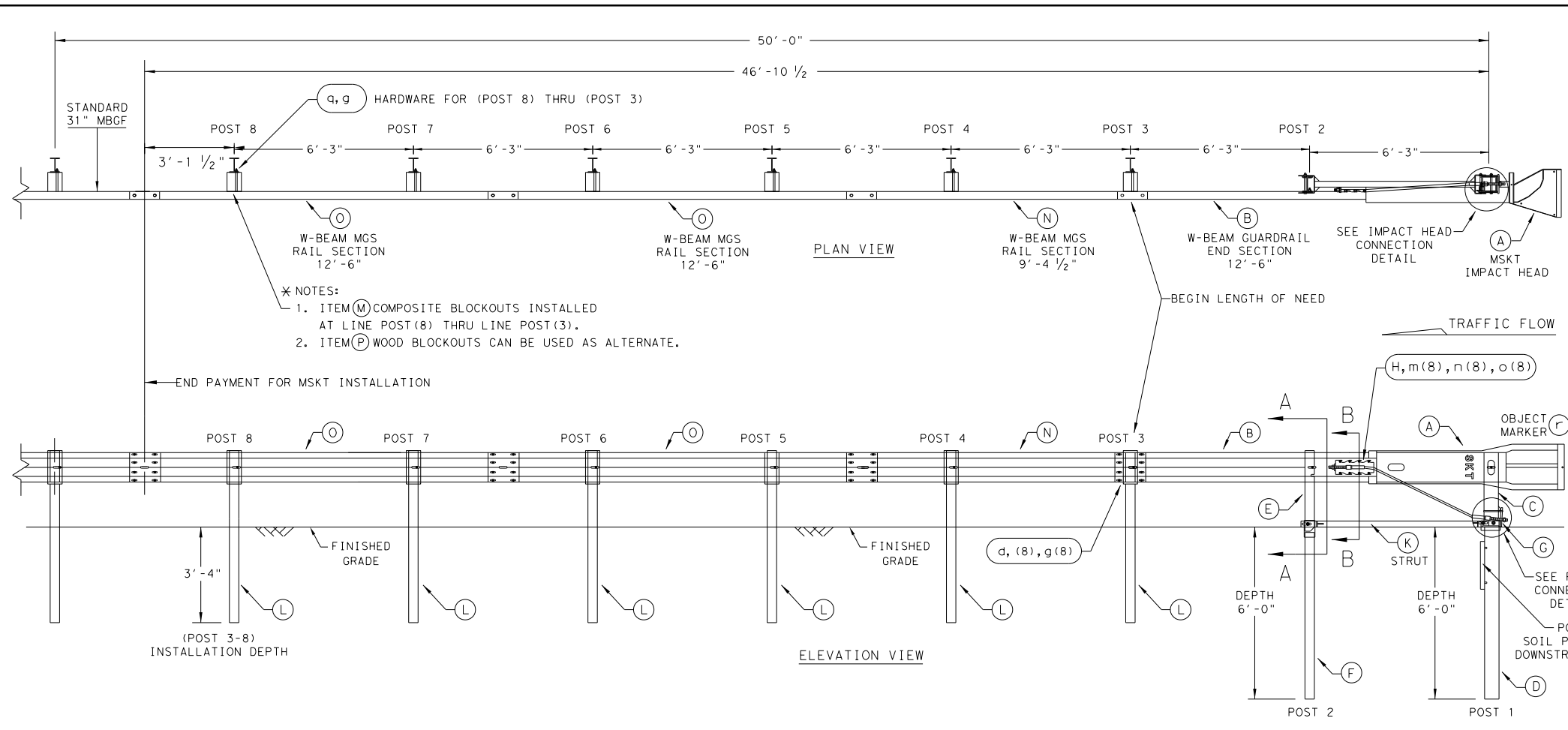
Texas Department of Transportation
Design Division Standard

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

FILE: sgt11s3118.dgn	DN: TxDOT	CK: KM	DW: TxDOT	CL: CL
© TxDOT: FEBRUARY 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY		SHEET NO.
	TYLER	GREGG		92

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

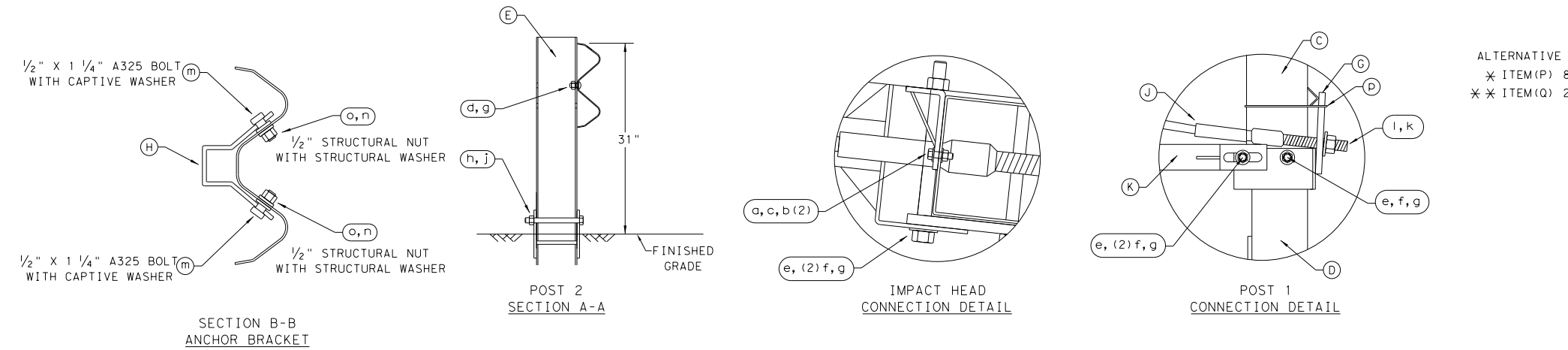
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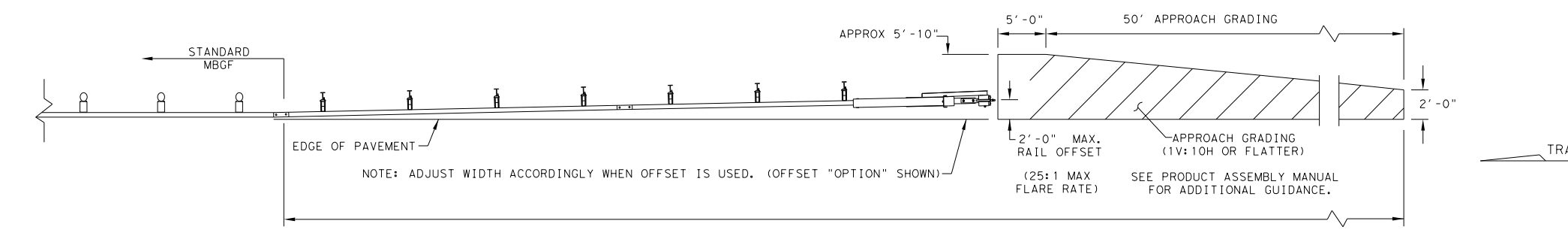
- NOTES:
- ITEM (M) COMPOSITE BLOCKOUTS INSTALLED AT LINE POST (8) THRU LINE POST (3).
 - ITEM (P) WOOD BLOCKOUTS CAN BE USED AS ALTERNATE.

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

ITEM	QTY	MAIN SYSTEM COMPONENTS	ITEM NUMBERS
A	1	MSKT IMPACT HEAD	MS3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	SF1303
C	1	POST 1 - TOP (6" X 6" X 1/8" TUBE)	MTPHP1A
D	1	POST 1 - BOTTOM (6' W6X15)	MTPHP1B
E	1	POST 2 - ASSEMBLY TOP	UHP2A
F	1	POST 2 - ASSEMBLY BOTTOM (6' W6X9)	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	GROUND STRUT	MS785
L	6	W6X9 OR W6X8.5 STEEL POST	P621
M	6	COMPOSITE BLOCKOUTS	CBSP-14
N	1	W-BEAM MGS RAIL SECTION (9'-4 1/2")	G12025
O	2	W-BEAM MGS RAIL SECTION (12'-6")	G1203A
P	6	WOOD BLOCKOUT 6" X 8" X 14"	P675
Q	1	W-BEAM MGS RAIL SECTION (25'-0")	G1209
SMALL HARDWARE			
a	2	5/8" X 1" HEX BOLT (GRD 5)	B5160104A
b	4	5/8" WASHER	W0516
c	2	5/8" HEX NUT	N0516
d	25	5/8" Dia. x 1 1/4" SPLICE BOLT (POST 2)	B580122
e	2	5/8" Dia. x 9" HEX BOLT (GRD A449)	B580904A
f	3	5/8" WASHER	W050
g	33	5/8" Dia. H.G.R NUT	N050
h	1	3/4" Dia. x 8 1/2" HEX BOLT (GRD A449)	B340854A
j	1	3/4" Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	1/2" X 1 1/4" A325 BOLT WITH CAPTIVE WASHER	SB12A
n	8	1/2" STRUCTURAL NUTS	N012A
o	8	1 1/8" O.D. x 3/8" I.D. STRUCTURAL WASHERS	W012A
p	1	BEARING PLATE RETAINER TIE	CT-100ST
q	6	5/8" X 10" H.G.R. BOLT	B581002
r	1	OBJECT MARKER 18" X 18"	E3151



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



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

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Texas Department of Transportation
 Design Division Standard

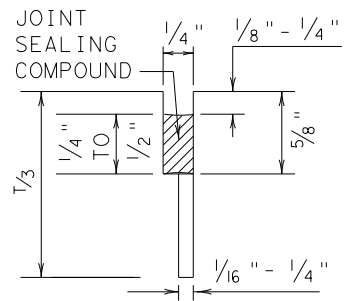
SINGLE GUARDRAIL TERMINAL
 MSKT-MASH-TL-3
 SGT (12S) 31-18

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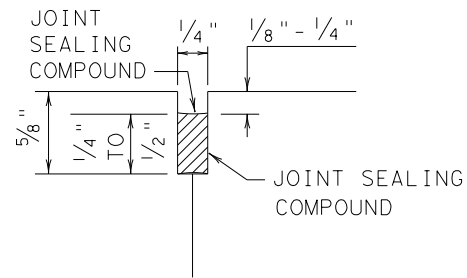
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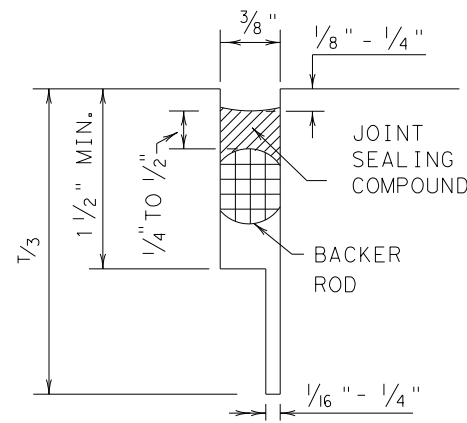
METHOD B: JOINT SEALING COMPOUND



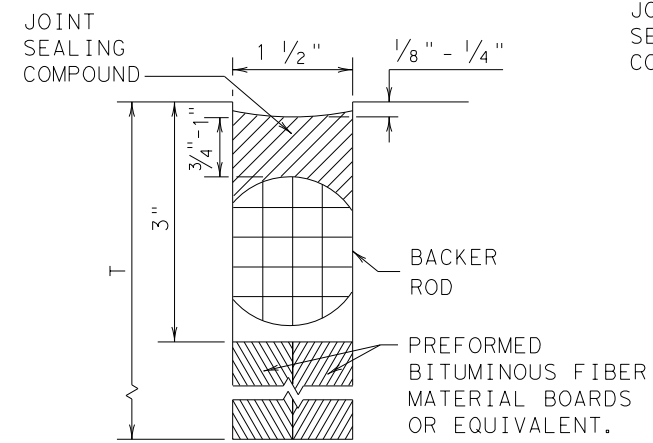
LONGITUDINAL SAWED CONTRACTION JOINT



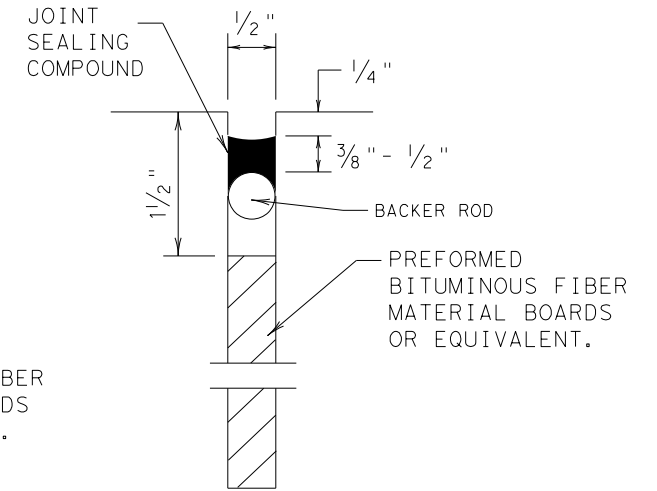
LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT

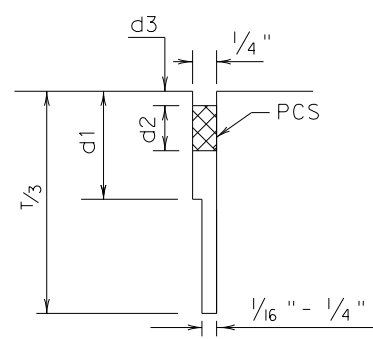


TRANSVERSE FORMED EXPANSION JOINT

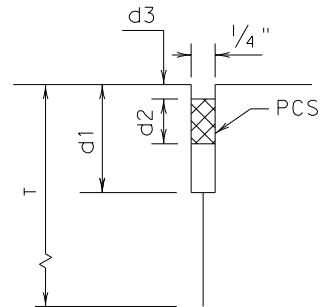


FORMED ISOLATION JOINT

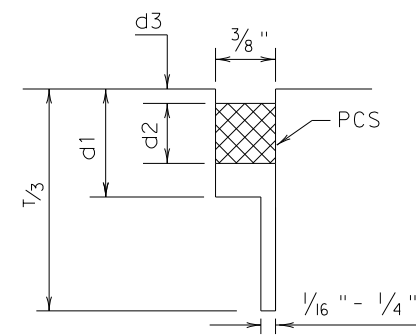
METHOD A: PREFORMED COMPRESSION SEALS (PCS) (DMS-6310 CLASS 6)



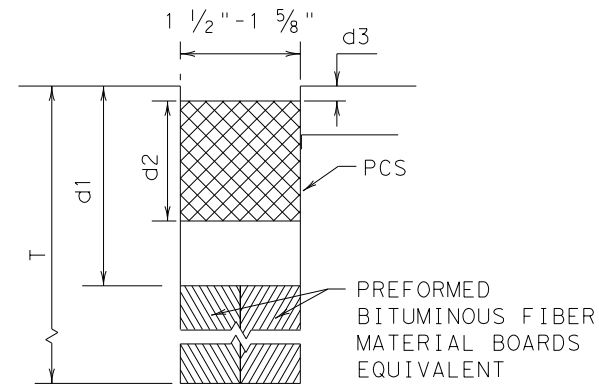
LONGITUDINAL SAWED CONTRACTION JOINT



LONGITUDINAL CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT



TRANSVERSE FORMED EXPANSION JOINT

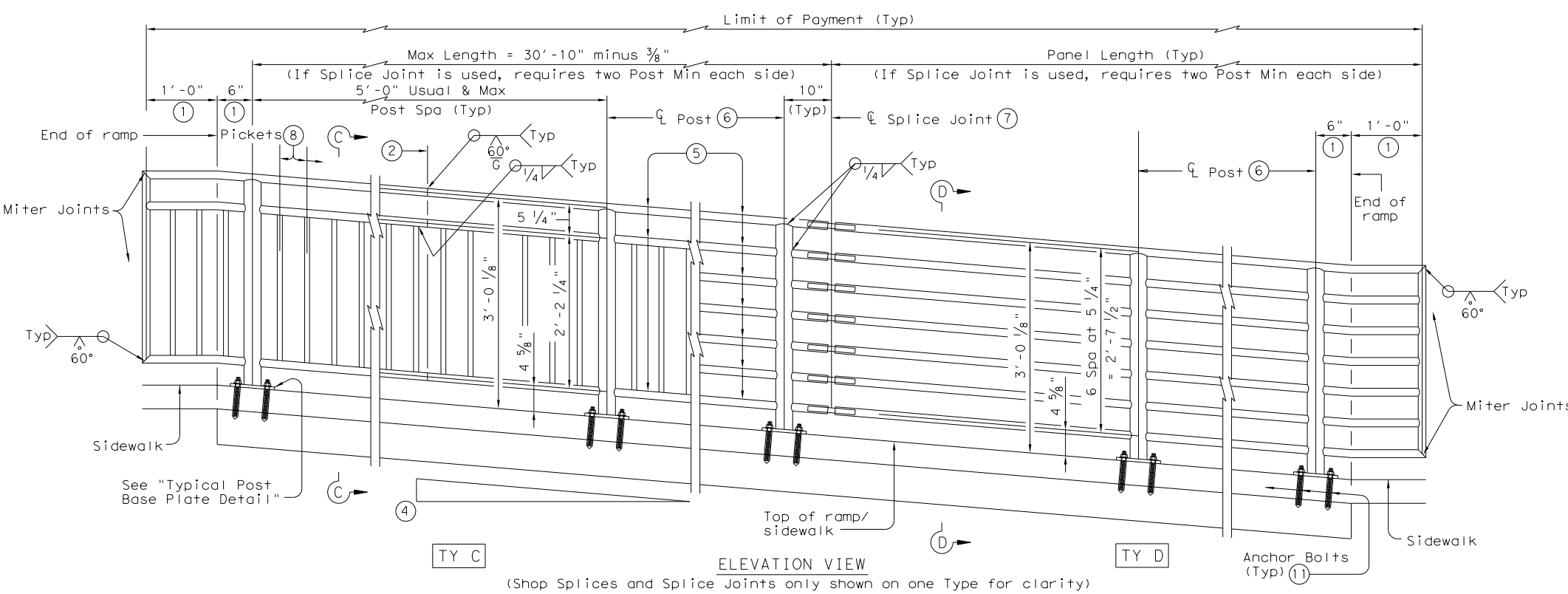
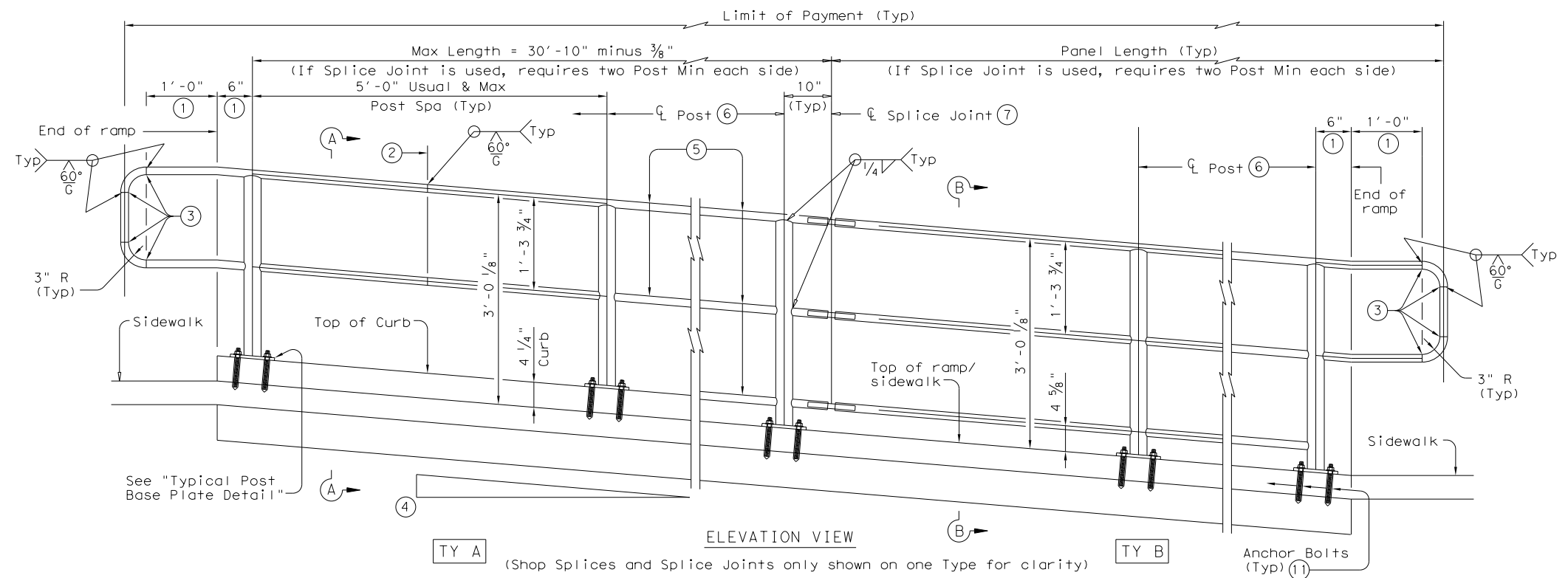
GENERAL NOTES

- UNLESS OTHERWISE SHOWN IN THE PLANS, EITHER METHOD "A" OR METHOD "B" MAY BE USED.
- THE LOCATION OF JOINTS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
- THE JOINT RESERVOIR FOR SEALANT OR PCS SHALL BE SAWED UNLESS OTHERWISE SHOWN ON THE PLANS FOR THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS AND THE SAWED JOINTS.
- DIMENSIONS d1, d2, AND d3 SHOWN IN METHOD A SHALL BE IN ACCORDANCE WITH THE PREFORMED COMPRESSION SEAL MANUFACTURER'S RECOMMENDATION.
- REFER TO DMS-6310 "JOINT SEALANTS AND FILLERS" FOR THE CLASSIFICATIONS.
- FOR SAWED LONGITUDINAL JOINT, LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT, USE JOINT SEALANT CLASS 5 OR 8 UNLESS OTHERWISE SHOWN ON THE PLAN OR APPROVED.
- FOR TRANSVERSE SAWED CONTRACTION, TRANSVERSE FORMED EXPANSION JOINT, AND ISOLATION JOINT USE JOINT SEALANT CLASS 5 OR 8 AT NEW JOINTS. USE JOINT SEALANT CLASS 4,5,7,OR 8 FOR MAINTAINING EXISTING JOINTS.
- THE JOINTS SHALL BE CLEANED IN ACCORDANCE WITH THE ITEM 438 "CLEANING AND SEALING JOINTS" OR ITEM 713 "CLEANING AND SEALING JOINTS AND CRACKS (CONCRETE PAVEMENT)".
- ISOLATION JOINTS ACCOMMODATE HORIZONTAL AND VERTICAL MOVEMENTS THAT OCCUR BETWEEN A PAVEMENT AND A STRUCTURE. ISOLATION JOINTS MAY BE USED FOR BRIDGE ABUTMENTS, INTERSECTIONS, CURB AND GUTTER, OLD AND NEW PAVEMENTS, OR AROUND DRAINAGE INLETS, MANHOLES, FOOTINGS AND LIGHTING STRUCTURES.

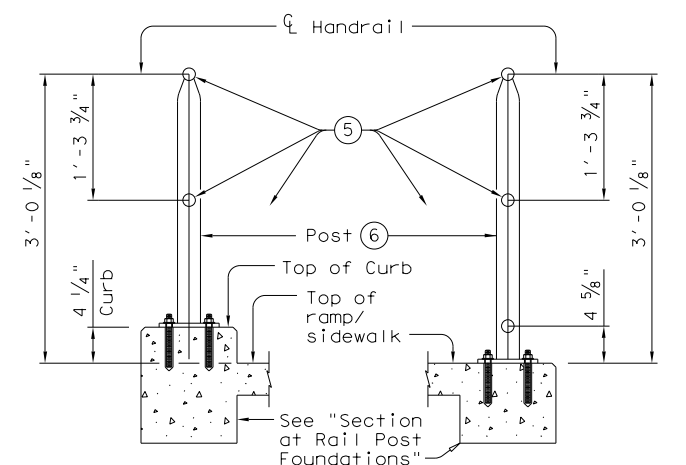
		Design Division Standard	
CONCRETE PAVING DETAILS JOINT SEALS JS-14			
FILE: js14.dgn	DN: TxDOT	DN: HC	CK: AN
© TxDOT: DECEMBER 2014	CONT	SECT	HIGHWAY
REVISIONS	0910	07	072
DIST	COUNTY	SHEET NO.	
TYLER	GREGG	94	

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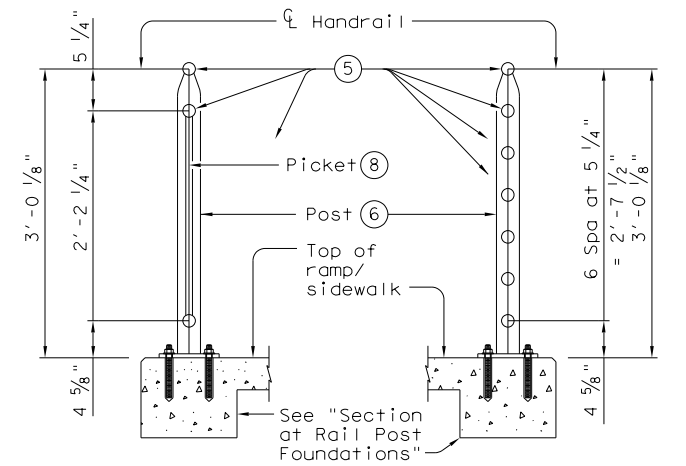
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RECOMMENDED USAGE (9) (10)	
Dropoff Height/Condition	Recommended Rail Options
< 30" dropoff	TY A, TY B, TY C, or TY D
≥ 30" dropoff, or along Bike Path	TY E or TY F



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



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

SHEET 1 OF 3

- 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 5/8" Dia. Round Bar equal spacing at 4 1/2" Max. Plumb all pickets.
- ⑨ When needed for accessibility (grade > 5 percent) or as needed for pedestrian safety.
- ⑩ Not to be used on bridges.
- ⑪ See "General Notes" for anchor bolt information.

Texas Department of Transportation
 Design Division Standard

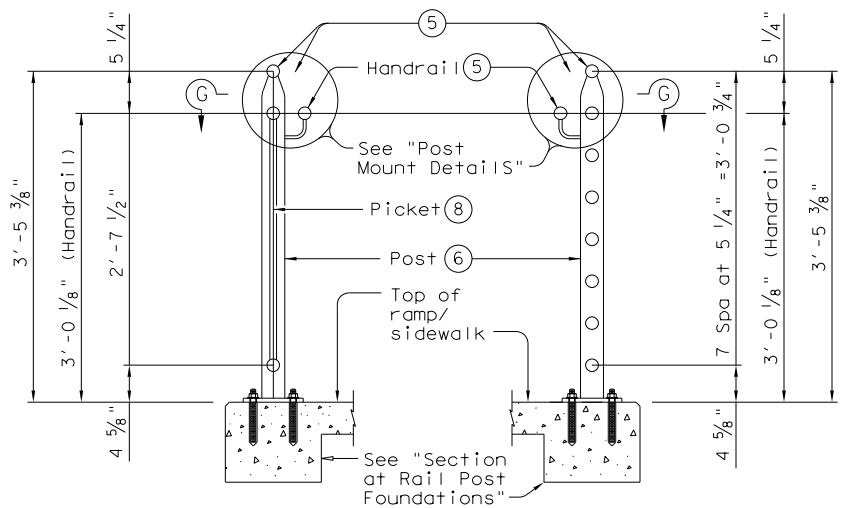
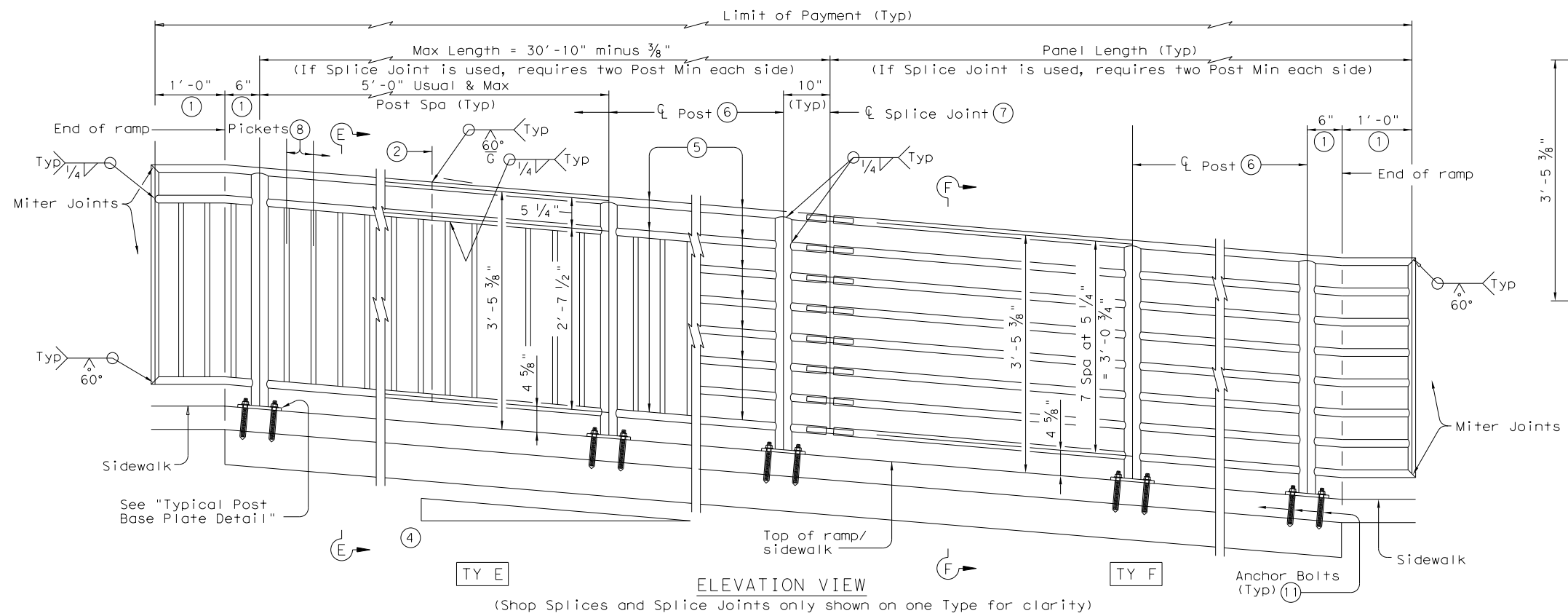
PEDESTRIAN HANDRAIL DETAILS

PRD-13

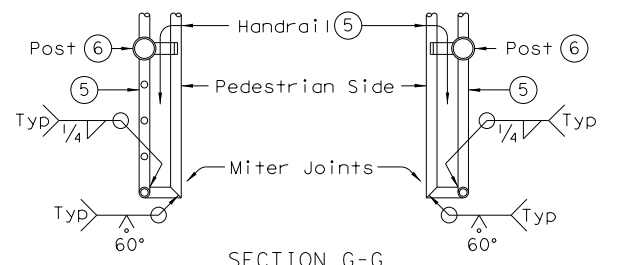
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© TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	95	

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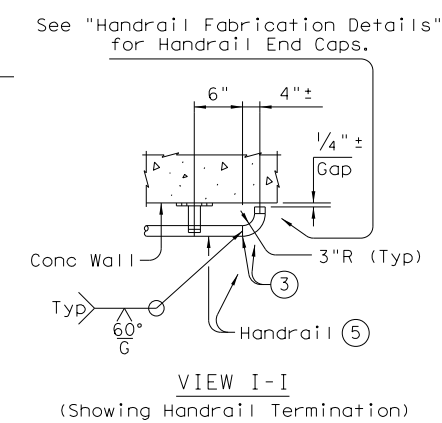
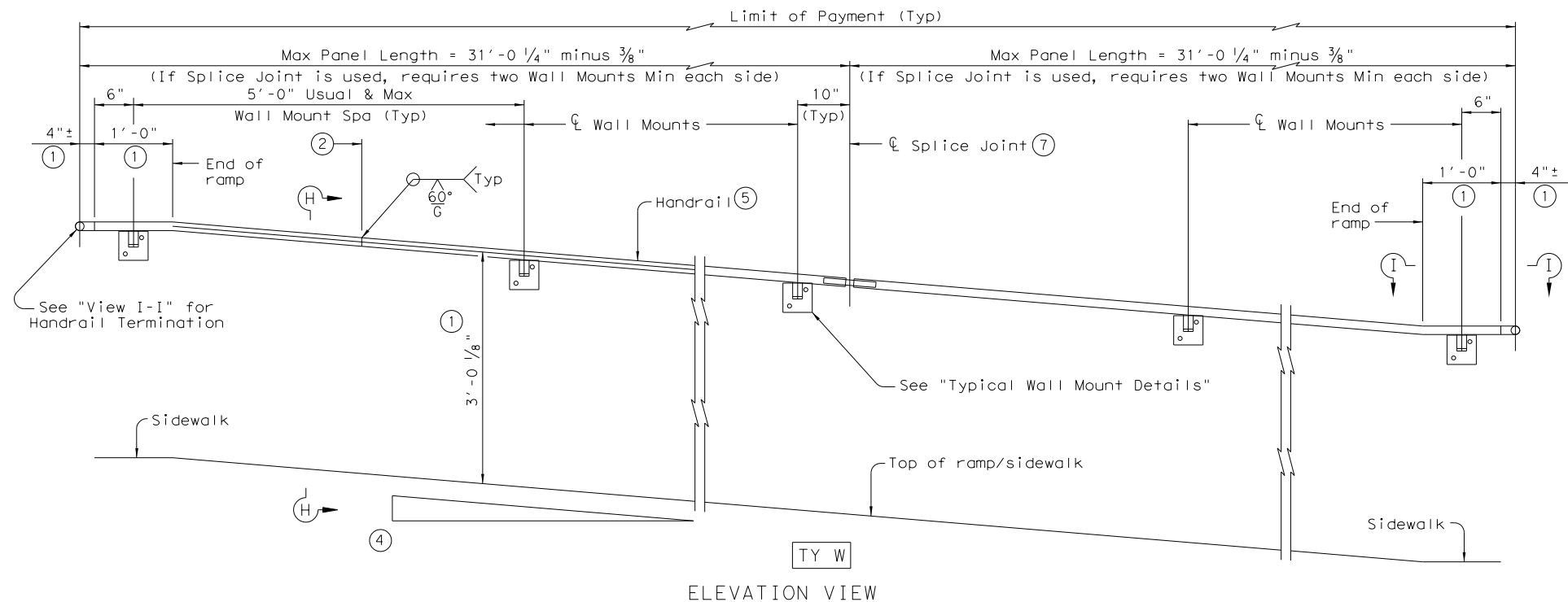
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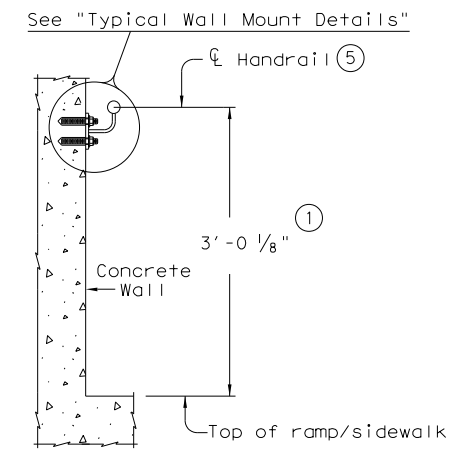
SECTION E-E (Showing Handrail TY E)
 SECTION F-F (Showing Handrail TY F)



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 5/8" Dia. Round Bar equal spacing at 4 1/2" Max. Plumb all pickets.
- ⑪ See "General Notes" for anchor bolt information.

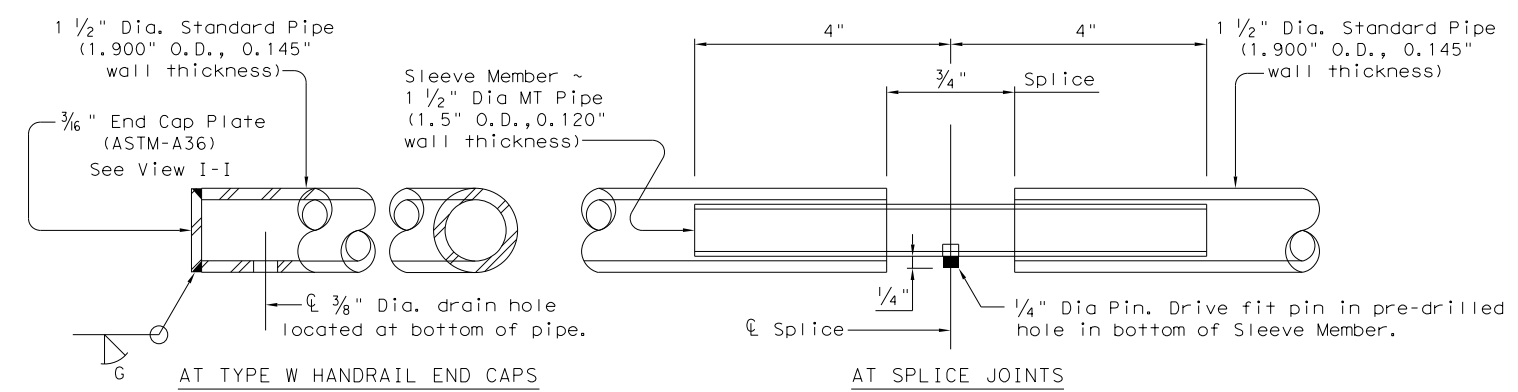
SHEET 2 OF 3



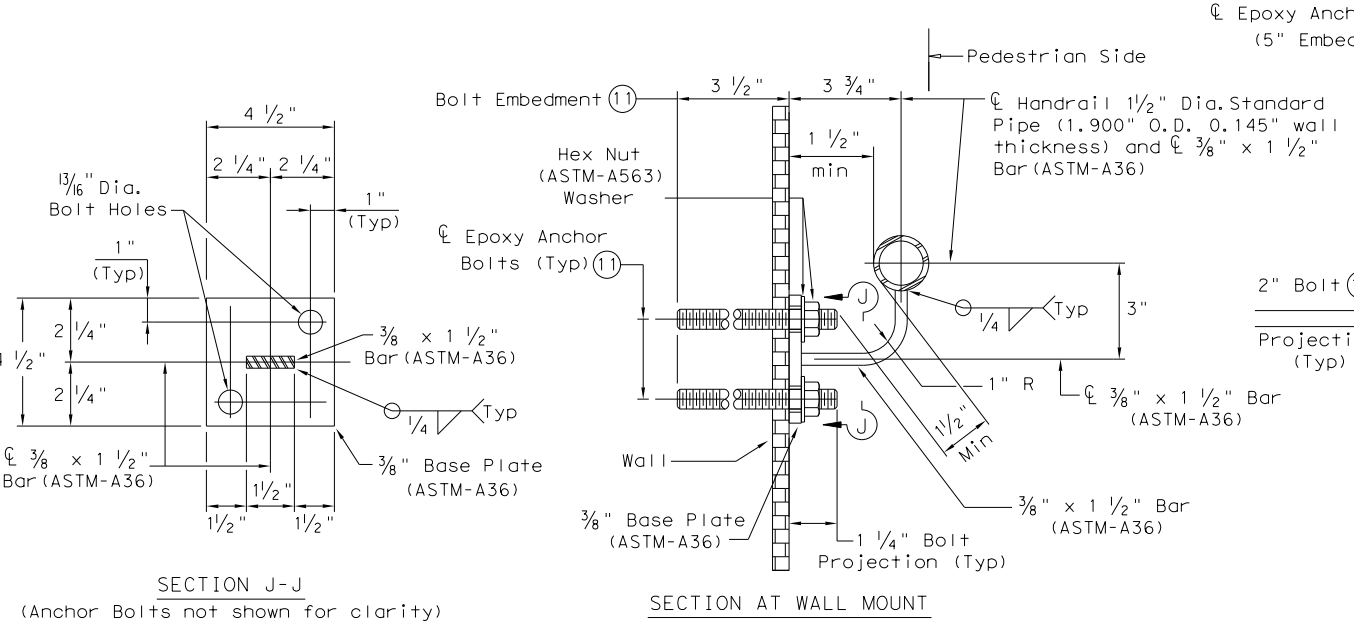
PEDESTRIAN HANDRAIL
 DETAILS
 PRD-13

FILE: prdl3.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
© TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	96	

DATE: 7/22/2021
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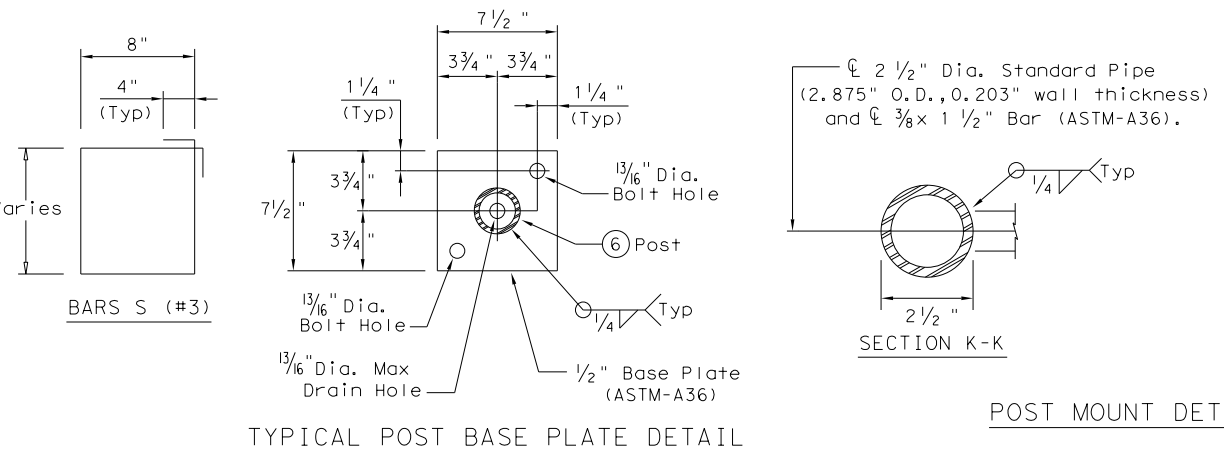


HANDRAIL FABRICATION DETAILS

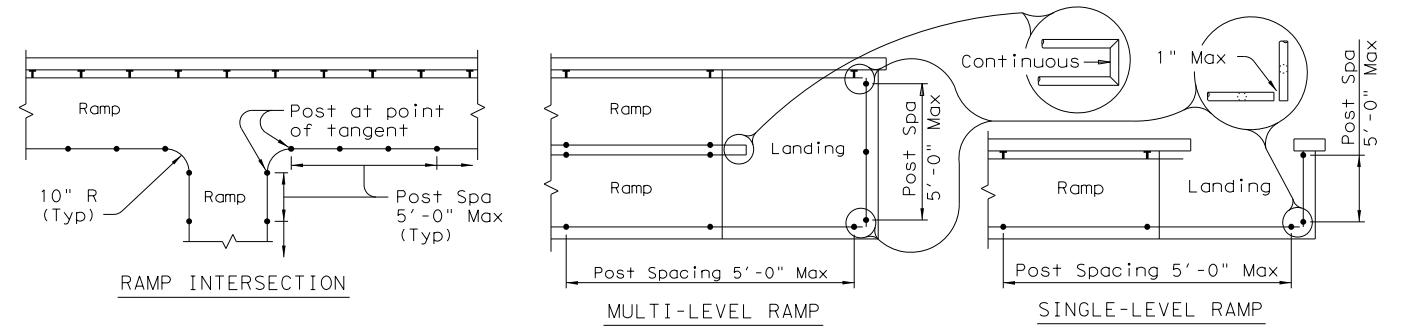


TYPICAL WALL MOUNT DETAILS

- (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. 5/8" 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.

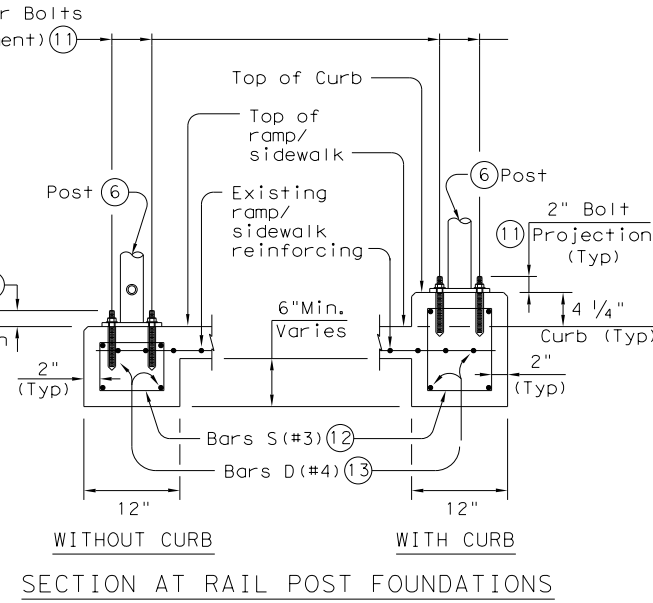
For all handrails, erection drawings will be submitted to the Engineer for approval to ensure proper installation.

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.

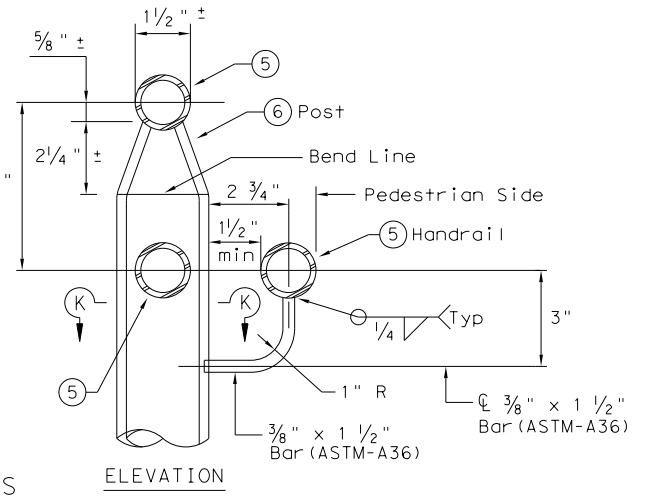
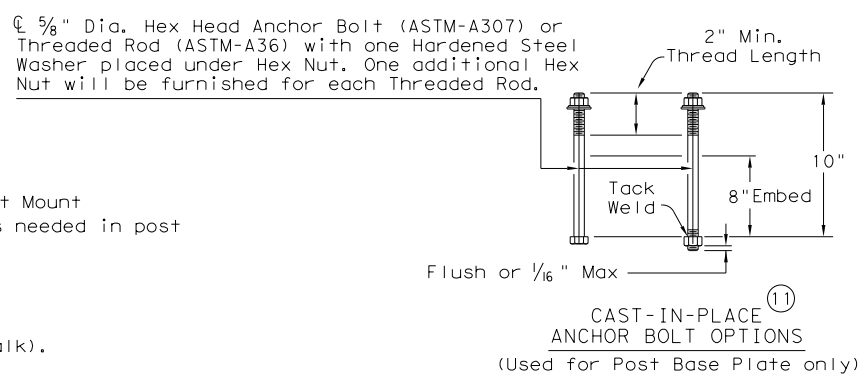
Payment for concrete sidewalks or curb ramps will be paid for in accordance with Item 531 "Sidewalks".

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.



SECTION AT RAIL POST FOUNDATIONS



		Design Division Standard	
PEDESTRIAN HANDRAIL DETAILS PRD-13			
FILE: prdl3.dgn	DN: TxDOT	CK: AM	DW: JTR
©TxDOT December 2006	CONT	SECT	JOB
REVISIONS	0910	07	072
REVISED MAY, 2013 (VP)	DIST	COUNTY	HIGHWAY
	TYLER	GREGG	SHEET NO. 97

RETAINING WALL A

HORIZONTAL ALIGNMENT

MSE WALL

RW A CURVE-1			
P.I. Station	10+49.40	N	6,881,446.4804 E
Delta	5° 57' 36.48"	(LT)	
Degree	1° 29' 06.05"		
Tangent	200.8570		
Length	401.3516		
Radius	3,858.2620		
External	5.2247		
Long Chord	401.1707		
Mid. Ord.	5.2176		
P.C. Station	8+48.55	N	6,881,647.0565 E
P.T. Station	12+49.90	N	6,881,248.0910 E
C.C. Station		N	6,881,851.0130 E
Back	3° 01' 48.71"	E	
Ahead	8° 59' 25.19"	E	
Chord Bear	6° 00' 36.95"	E	

RW A CURVE-2

P.I. Station	12+70.87	N	6,881,227.3200 E
Delta	0° 33' 01.92"	(LT)	
Degree	1° 18' 46.26"		
Tangent	20.9673		
Length	41.9342		
Radius	4,364.2327		
External	0.0504		
Long Chord	41.9341		
Mid. Ord.	0.0504		
P.C. Station	12+49.90	N	6,881,248.0910 E
P.T. Station	12+91.83	N	6,881,206.5775 E
C.C. Station		N	6,881,843.8435 E
Back	7° 50' 44.98"	E	
Ahead	8° 23' 46.90"	E	
Chord Bear	8° 07' 15.94"	E	

Course from PT RWA NW MSE 2 to 399 S 8° 14' 18.19" E Dist 9.3221
 Course from 399 to 400 S 9° 23' 02.98" E Dist 147.8425

SOIL NAIL WALL

Curve RWA_NW_SN_1

P.I. Station	10+49.54	N	6,881,446.1913 E
Delta	5° 57' 34.93"	(LT)	
Degree	1° 29' 02.05"		
Tangent	200.9932		
Length	401.6239		
Radius	3,861.1570		
External	5.2278		
Long Chord	401.4428		
Mid. Ord.	5.2208		
P.C. Station	8+48.55	N	6,881,646.9035 E
P.T. Station	12+50.17	N	6,881,247.6672 E
C.C. Station		N	6,881,851.0130 E
Back	3° 01' 48.71"	E	
Ahead	8° 59' 23.65"	E	
Chord Bear	6° 00' 36.18"	E	

Curve RWA_NW_SN_2

P.I. Station	12+71.14	N	6,881,226.8987 E
Delta	0° 33' 00.36"	(LT)	
Degree	1° 18' 43.12"		
Tangent	20.9647		
Length	41.9291		
Radius	4,367.1277		
External	0.0503		
Long Chord	41.9290		
Mid. Ord.	0.0503		
P.C. Station	12+50.17	N	6,881,247.6672 E
P.T. Station	12+92.10	N	6,881,206.1587 E
C.C. Station		N	6,881,843.8435 E
Back	7° 50' 46.34"	E	
Ahead	8° 23' 46.71"	E	
Chord Bear	8° 07' 16.53"	E	

Course from PT RWA NW SN 2 to 401 S 8° 14' 18.19" E Dist 9.3471
 Course from 401 to 402 S 9° 23' 02.98" E Dist 147.8715

VERTICAL ALIGNMENT

TOP OF MSE WALL

RWA_NW_MSE_TW

Beginning profile RWA_NW_MSE_TW description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	10+00.05	304.8464			
VPC	2	10+00.05	304.8464	2.0540		
VPI		10+91.45	306.7236	182.7864	91.3932	91.3932
VPT		11+82.84	311.9260	5.6923		
VPI	3	12+51.36	315.8266	5.6923		
VPI	4	13+01.36	317.5932	3.5332		

Ending profile RWA_NW_MSE_TW description:

FINISH GRADE OF MSE WALL

RWA_NW_MSE_FG

Beginning profile RWA_NW_MSE_FG description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	10+00.05	304.8464			
VPI	2	10+04.45	303.3794	-33.3333		
VPI	3	11+00.00	303.0928	-0.3000		
VPI	4	11+24.00	304.6927	6.6667		
VPI	5	13+01.36	309.1268	2.5000		

Ending profile RWA_NW_MSE_FG description:

BOTTOM OF MSE WALL

RWA_NW_MSE_B01

Beginning profile RWA_NW_MSE_B01 description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	10+00.05	302.8464			
VPI	2	10+04.45	301.3794	-33.3333		
VPI	3	10+99.81	301.0933	-0.3000		

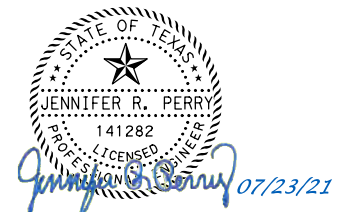
Ending profile RWA_NW_MSE_B01 description:

RWA_NW_MSE_B02

Beginning profile RWA_NW_MSE_B02 description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	11+00.00	302.0928			
VPI	2	13+01.42	307.1284	2.5000		

Ending profile RWA_NW_MSE_B02 description:



S HIGH ST AT UPRR AND SABINE ST

**RETAINING WALL A
ALIGNMENT DATA**

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
							98

SHEET 1 OF 2

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DATE: 7/22/2021
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TOP OF SOIL NAIL WALL

RWA_NW_SN_TOW

Beginning profile RWA_NW_SN_TOW description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	11+00.00	303.0928			
VPI	2	13+01.36	308.1268	2.5000		

Ending profile RWA_NW_SN_TOW description

RWA_MSE_TOWA

Beginning profile RWA_MSE_TOWA description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	13+01.36	311.0724			
VPI	2	13+43.74	296.9460	-33.3333		

Ending profile RWA_MSE_TOWA description

FINISH GRADE OF SOIL NAIL WALL

RWA_NW_SN_FG

Beginning profile RWA_NW_SN_FG description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	11+00.00	303.0928			
VPI	2	11+13.46	299.7285	-25.0000		
VPI	3	11+75.00	297.8822	-3.0000		
VPI	4	13+01.36	296.8081	-0.8500		
VPI	5	13+01.68	296.8054	-0.8500		

Ending profile RWA_NW_SN_FG description

RWA_MSE_FGA

Beginning profile RWA_MSE_FGA description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	13+01.36	296.8081			
VPI	2	13+36.94	295.2448	-4.3943		
VPI	3	13+43.74	296.9460	25.0000		

Ending profile RWA_MSE_FGA description

BOTTOM OF SOIL NAIL WALL

RWA_NW_SN_BOW

Beginning profile RWA_NW_SN_BOW description:

Feature: Geom_Secondary

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	11+00.00	300.0928			
VPI	2	11+13.46	296.7285	-25.0000		
VPI	3	11+75.00	294.8822	-3.0000		
VPI	4	13+01.36	293.8081	-0.8500		
VPI	5	13+01.68	293.8054	-0.8500		

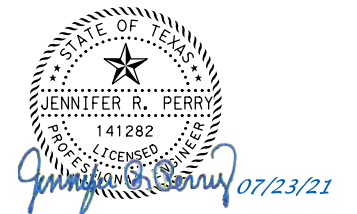
Ending profile RWA_NW_SN_BOW description

RWA_MSE_BOWA

Beginning profile RWA_MSE_BOWA description:

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VPI	1	13+01.36	293.8081			
VPI	2	13+43.74	291.9458	-4.3943		

Ending profile RWA_MSE_BOWA description



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL A ALIGNMENT DATA

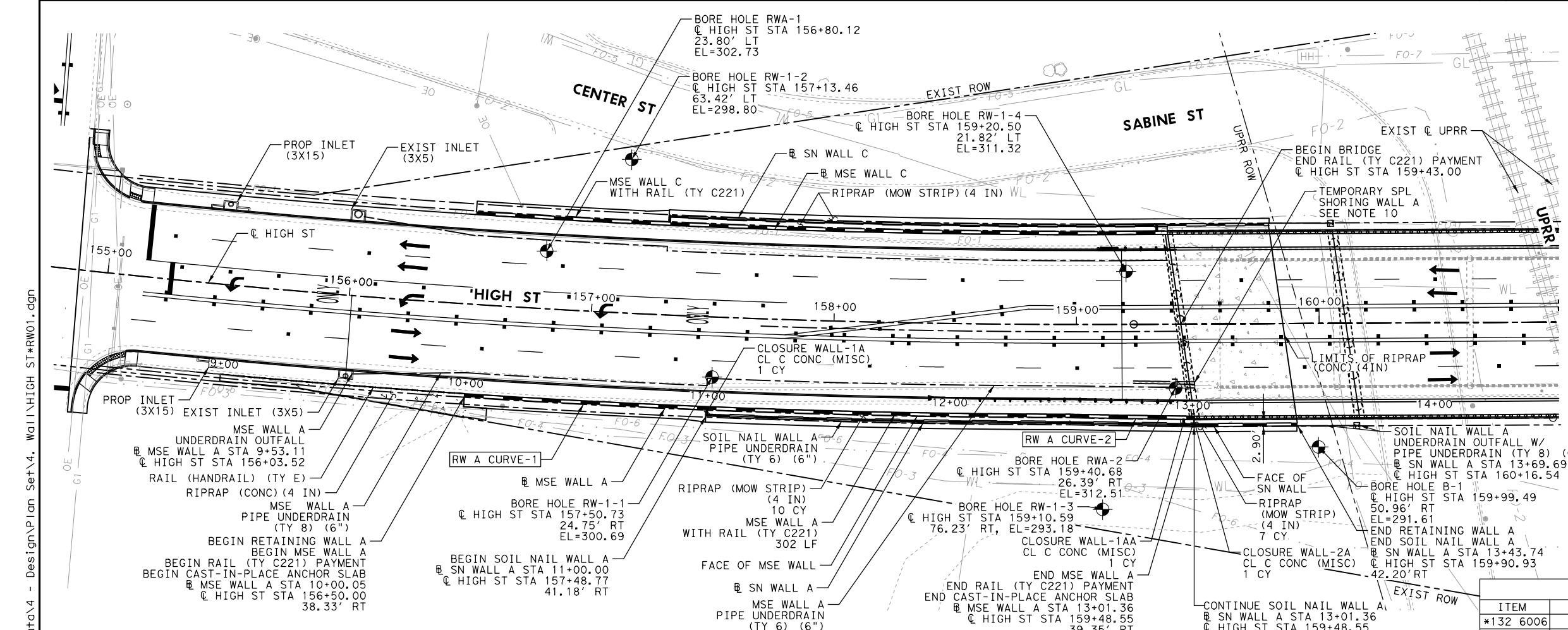
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GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	99
JMT	0910	07	072	



HORZ 0' 25' 50'
VERT 0' 5' 10'
SCALE IN FEET

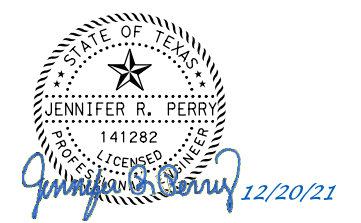
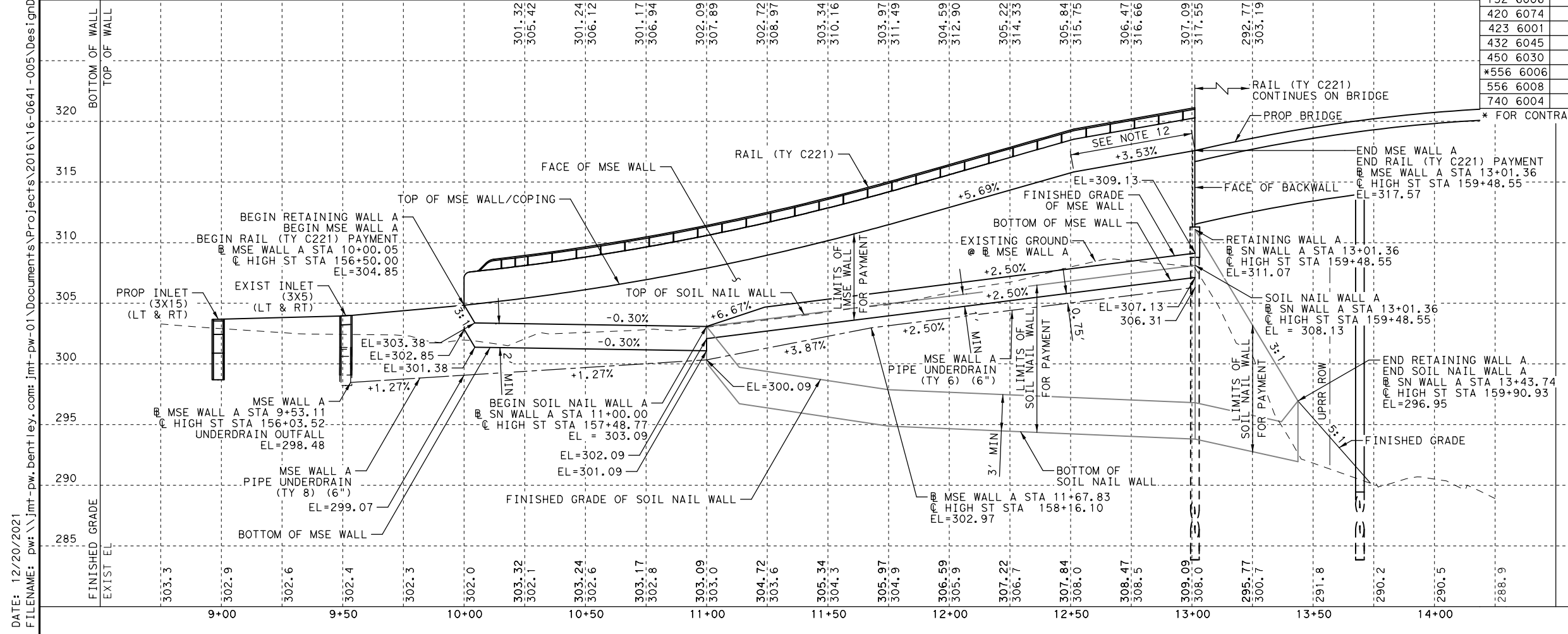
NOTES:

1. REFER TO RETAINING WALL BORING SHEETS AND PLAN AND PROFILE SHEETS FOR MORE INFORMATION.
2. WALL MANUFACTURER TO DESIGN EARTH REINFORCEMENT (STRAPS) TO ACCOMMODATE GUARDRAIL POSTS. SEE GF (31)-19 AND GF (31)MS-19 FOR STANDARD MBGF INSTALLATION.
3. COPING AND ANCHOR SLABS ARE CONSIDERED SUBSIDIARY TO ITEM 423 "RETAINING WALL".
4. POSITIVE DRAINAGE MUST BE PROVIDED DURING CONSTRUCTION AND POST CONSTRUCTION.
5. PROVIDE EMBANKMENT EARTH REINFORCEMENTS WITH A LENGTH AS SHOWN ON SHEET RW(MSE)DD.
6. SEE STANDARD SHEET RW(MSE), RW(MSE)DD, RW(EM), AND RW(TRF) FOR ADDITIONAL INFORMATION.
7. CONTRACTOR MUST LOCATE AND VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION.
8. REFER TO RETAINING WALL SOIL NAIL LAYOUT SHEETS AND TYPICAL SECTION SHEETS FOR MORE INFORMATION.
9. ALL OFFSETS ARE MEASURED FROM THE HIGH ST CENTERLINE UNLESS OTHERWISE NOTED.
10. SEE RETAINING WALL TEMPORARY SPECIAL SHORING SHEETS FOR DETAILED INFORMATION.
11. SEE RETAINING WALL DETAIL SHEETS FOR ADDITIONAL INFORMATION.
12. REFER TO MISCELLANEOUS ROADWAY DETAILS-SIDEWALK TRANSITION SHEETS FOR MORE INFO.



WALL A ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QUANTITY
*132 6006	EMBANKMENT (FINAL) (DES CONT) (TY C)	CY	344
132 6006	EMBANKMENT (FINAL) (DES CONT) (TY C)	CY	260
420 6074	CL C CONC (MISC)	CY	3
423 6001	RETAINING WALL (MSE)	SF	2163
432 6045	RIPRAP (MOW STRIP) (4 IN)	CY	10
450 6030	RAIL (TY C221)	LF	302
*556 6006	PIPE UNDERDRAINS (TY 6) (6")	LF	304
556 6008	PIPE UNDERDRAINS (TY 8) (6")	LF	47
740 6004	ANTI- GRAFFITI COATING	SF	2163

* FOR CONTRACTORS INFORMATION ONLY



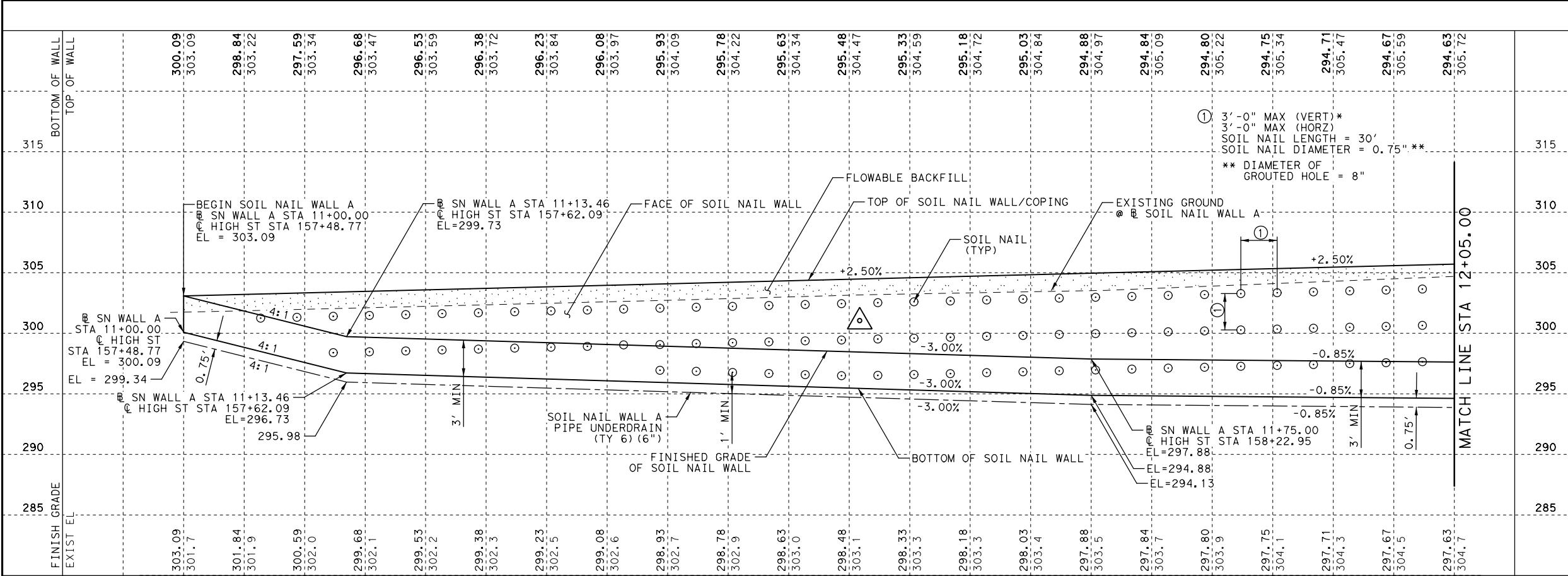
S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL A

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	100
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072

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DATE: 7/22/2021
 FILENAME: pw:\jmt-pw-bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*SN*LAY01



- ① 3'-0" MAX (VERT)*
 3'-0" MAX (HORZ)
 SOIL NAIL LENGTH = 30'
 SOIL NAIL DIAMETER = 0.75" **
 ** DIAMETER OF GROUTED HOLE = 8"
- HORIZ 0' 2.5' 5' 10'
 VERT 0' 2.5' 5' 10'
 SCALE IN FEET
- * VERTICAL SPACING FROM TOP OF SOIL NAIL WALL/COPING TO FIRST LEVEL OF NAILS IS 2'-0", ALL SUBSEQUENT NAIL LEVELS TO BE PLACED 3'-0" BELOW THE PREVIOUS LEVEL OF NAILS. THE LAST LEVEL OF NAILS MUST BE PLACED WITHIN 1'-0" ABOVE THE BOTTOM OF THE SOIL NAIL WALL.
 - 1. UNLESS OTHERWISE NOTED SOIL NAIL LENGTH TO REMAIN THE SAME THROUGHOUT THE LENGTH OF THE WALL.
 - 2. SEE RETAINING WALL TYPICAL SECTION SHEETS AND RETAINING WALL DETAIL SHEETS FOR ADDITIONAL INFORMATION.
 - 3. SEE RETAINING WALL-ABUTMENT DETAIL SHEET FOR SOIL NAIL SKEW INFORMATION AT BRIDGE ABUTMENTS.
- △ VERIFICATION TEST LOCATION

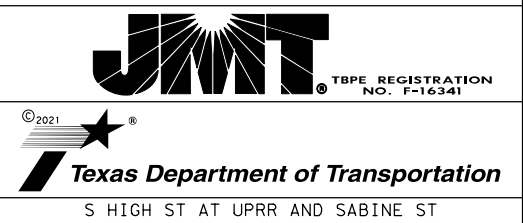
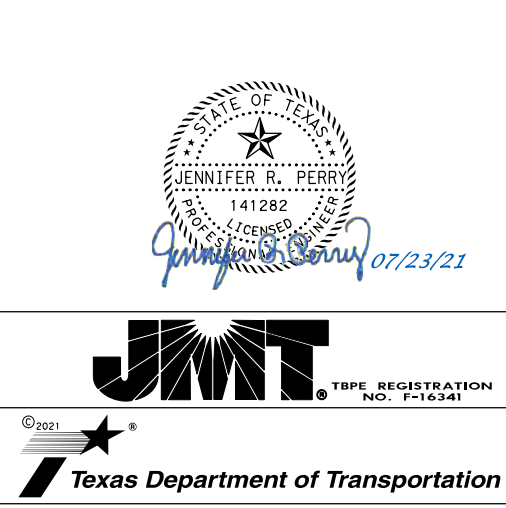
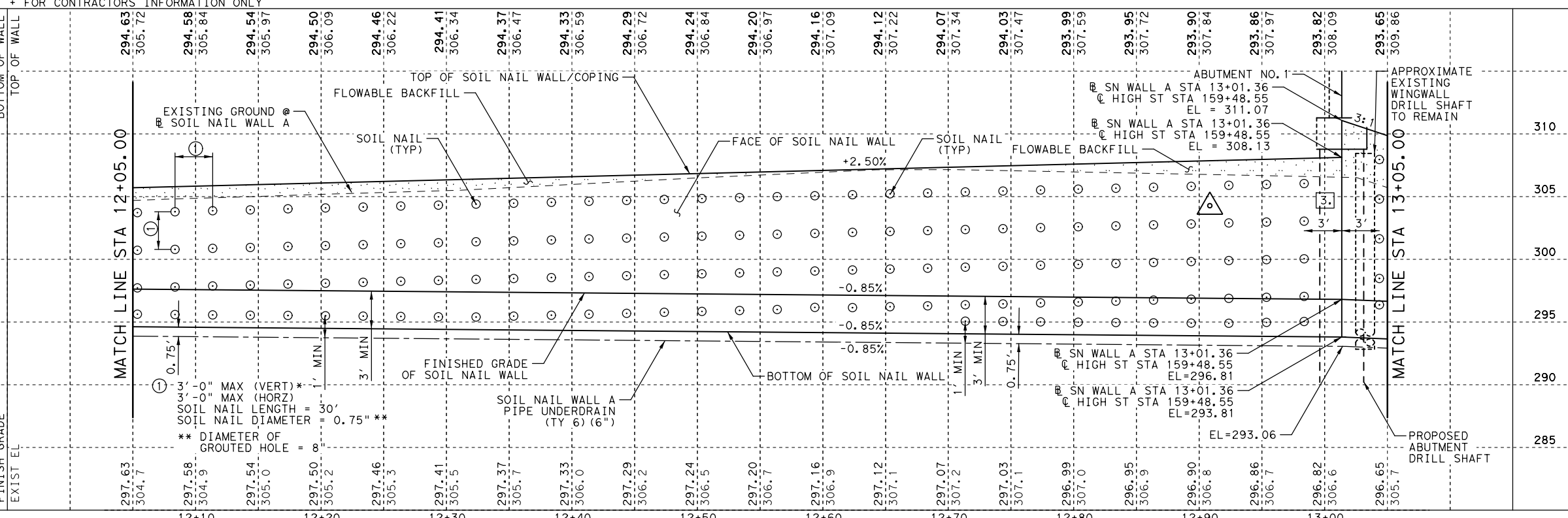
SOIL NAIL WALL A ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
410 6001	SOIL NAIL ANCHORS	LF	7980
423 6022	RETAINING WALL (SOIL NAIL) (FACIA)	SF	2596
+556 6006	PIPE UNDERDRAINS (TY 6) (6")	LF	245
556 6008	PIPE UNDERDRAINS (TY 8) (6")	LF	31

① PROFILE 11+00.00 - 12+05.00
 SOIL NAIL WALL A

SOIL NAIL WALL A ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
432 6001	RIPRAP (CONC) (4IN)	CY	1
432 6045	RIPRAP (MOW STRIP) (4IN)	CY	7
740 6004	ANTI-GRAFFITI COATING	SF	2596
401 6001	FLOWABLE BACKFILL	CY	34



RETAINING WALL A SOIL NAIL LAYOUT

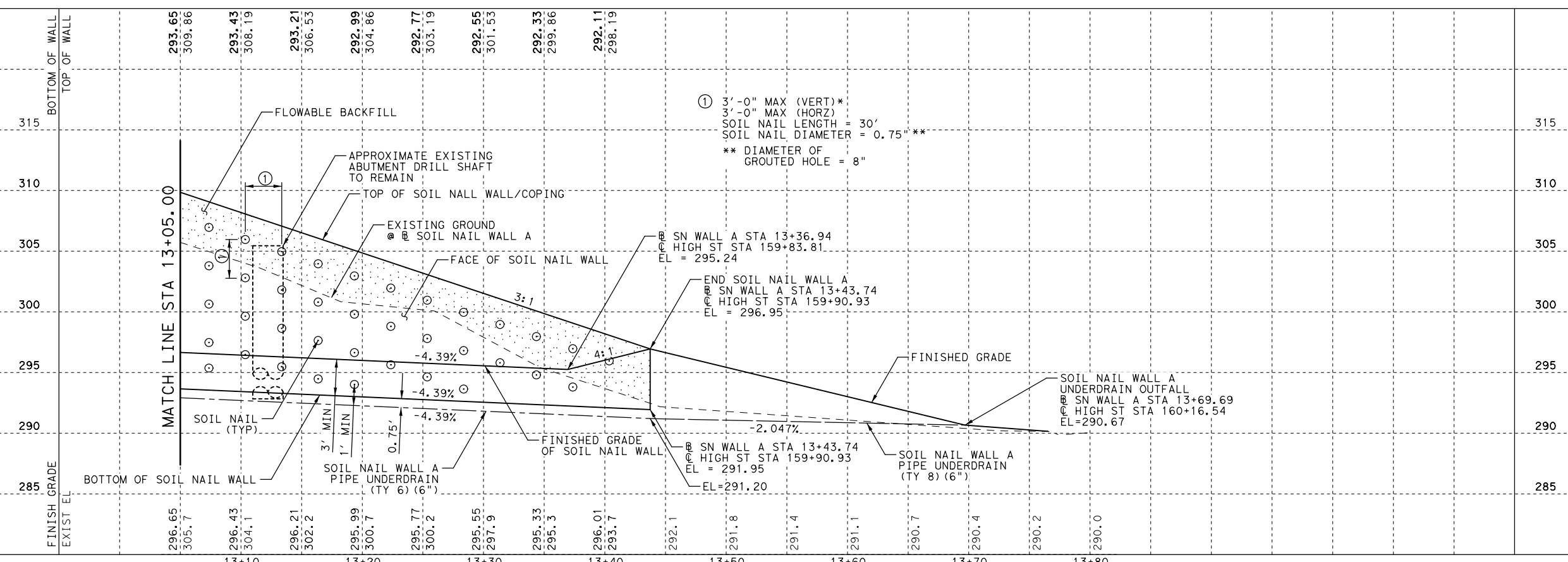
S HIGH ST AT UPRR AND SABINE ST

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	101
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072

SHEET 1 OF 2

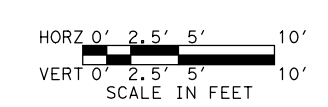
② PROFILE 12+05.00 - 13+05.00
 SOIL NAIL WALL A

DATE: 7/22/2021
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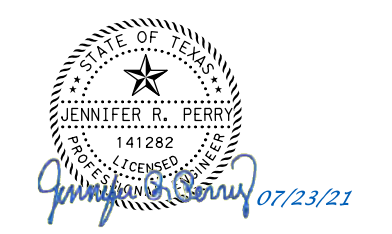
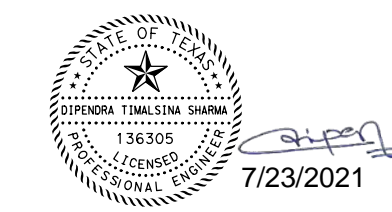


③ PROFILE 13+05.00 - 13+43.74
 SOIL NAIL WALL A

① 3'-0" MAX (VERT)*
 3'-0" MAX (HORZ)
 SOIL NAIL LENGTH = 30'
 SOIL NAIL DIAMETER = 0.75"***
 *** DIAMETER OF GROUTED HOLE = 8"



- * VERTICAL SPACING FROM TOP OF SOIL NAIL WALL/COPING TO FIRST LEVEL OF NAILS IS 2'-0", ALL SUBSEQUENT NAIL LEVELS TO BE PLACED 3'-0" BELOW THE PREVIOUS LEVEL OF NAILS. THE LAST LEVEL OF NAILS MUST BE PLACED WITHIN 1'-0" ABOVE THE BOTTOM OF THE SOIL NAIL WALL.
 - 1. UNLESS OTHERWISE NOTED SOIL NAIL LENGTH TO REMAIN THE SAME THROUGHOUT THE LENGTH OF THE WALL.
 - 2. SEE RETAINING WALL TYPICAL SECTION SHEETS AND RETAINING WALL DETAIL SHEETS FOR ADDITIONAL INFORMATION.
 - 3. SEE RETAINING WALL-ABUTMENT DETAIL SHEET FOR SOIL NAIL SKEW INFORMATION AT BRIDGE ABUTMENTS.
- △ VERIFICATION TEST LOCATION



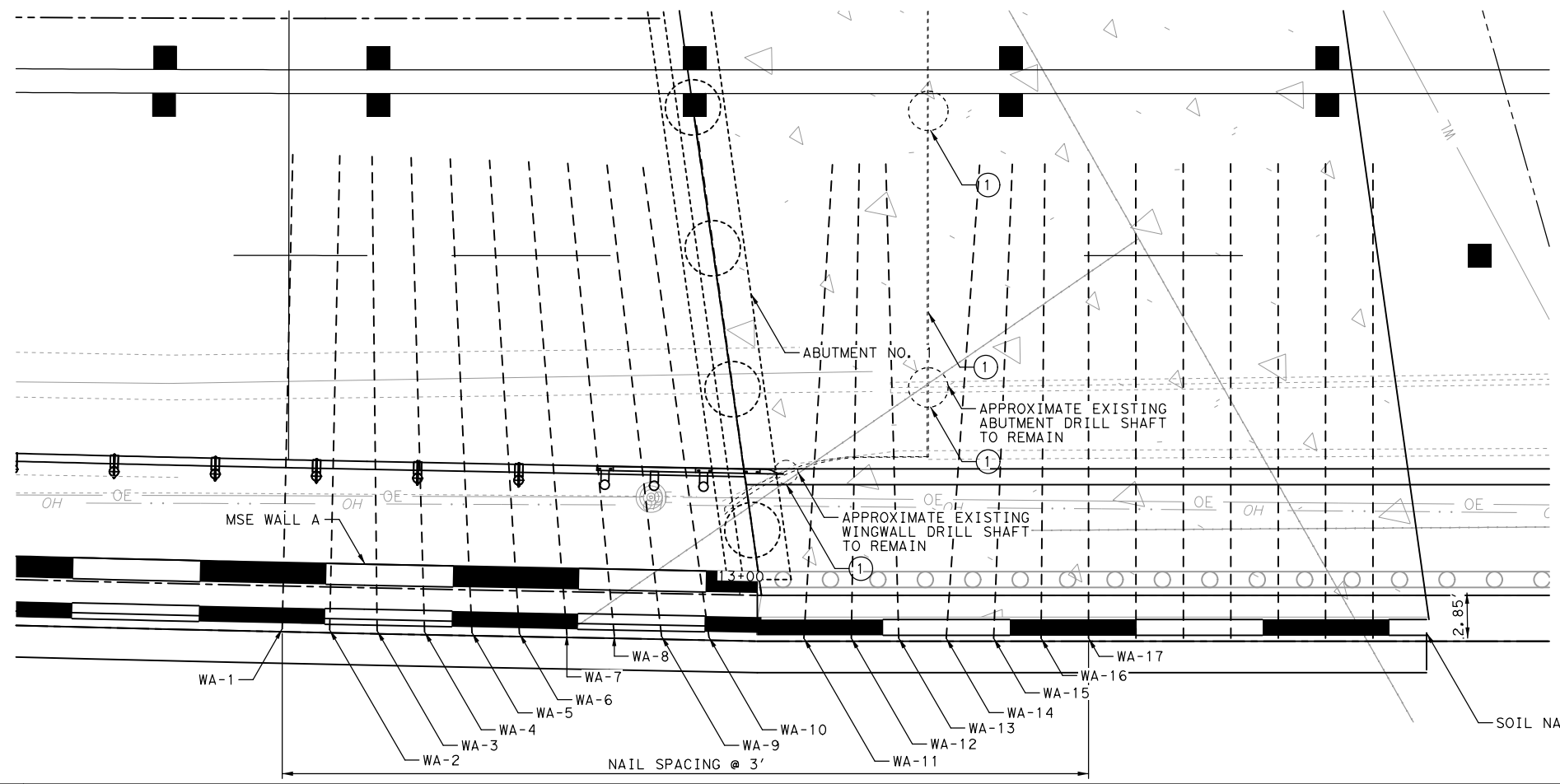
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 Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

**RETAINING WALL A
 SOIL NAIL LAYOUT**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

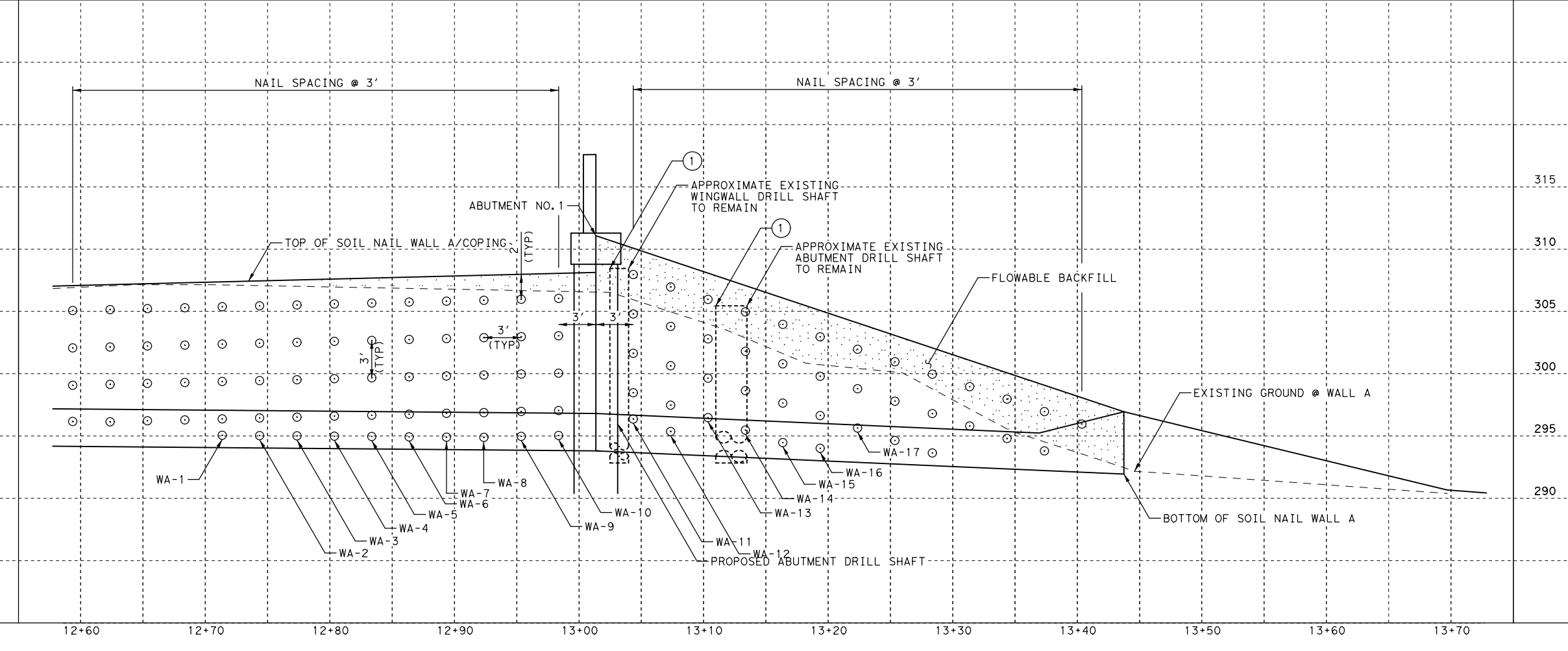
SHEET 2 OF 2
102

DATE: 7/22/2021
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WALL A AT ABUTMENT NO. 1		
NAILS	STATION	SKEW ANGLE
WA-1	12+71.36	89.98°
WA-2	12+74.36	89.99°
WA-3	12+77.36	88.19°
WA-4	12+80.36	87.23°
WA-5	12+83.36	86.27°
WA-6	12+86.36	85.31°
WA-7	12+89.36	84.35°
WA-8	12+92.36	83.39°
WA-9	12+95.36	82.23°
WA-10	12+98.36	80.85°
WA-11	13+04.36	86.55°
WA-12	13+07.36	89.04°
WA-13	13+10.36	88.43°
WA-14	13+13.36	85.94°
WA-15	13+16.36	87.74°
WA-16	13+19.36	89.52°
WA-17	13+22.36	90°

- HORZ 0' 5' 10'
 VERT 0' 5' 10'
 SCALE IN FEET
- LOCATION OF SOIL NAIL.
 - ⊕ LOCATION OF NAIL TEST (NT)
 - ① THE CONTRACTOR MUST CONFIRM EXACT LOCATION OF ALL EXISTING DRILLED SHAFTS, ABUTMENT, ETC. AND DRILL NAIL HOLES TO AVOID CONFLICTS WITH EXISTING STRUCTURES.
 - ② NAIL HOLES MUST BE DRILLED ALONG THE ALIGNMENT AS SHOWN IN THE PLANS. DEVIATIONS GREATER THAN 1 INCH ARE NOT PERMITTED DUE TO CONFLICTS WITH THE EXISTING STRUCTURES. CONTRACTOR'S SURVEYOR MUST LOCATE CENTER OF NAIL HOLE ON EXCAVATION FACE FROM VERTICAL WALL CONTROL LINE TO A MINIMUM ACCURACY OF 0.5 INCH.
 - ③ FOR ADDITIONAL NAIL DETAILS SEE RETAINING WALL-SOIL NAIL LAYOUTS.
 - ④ ALL STATIONS, OFFSETS AND SKEW ANGLES MEASURED FROM SOIL NAIL WALL.



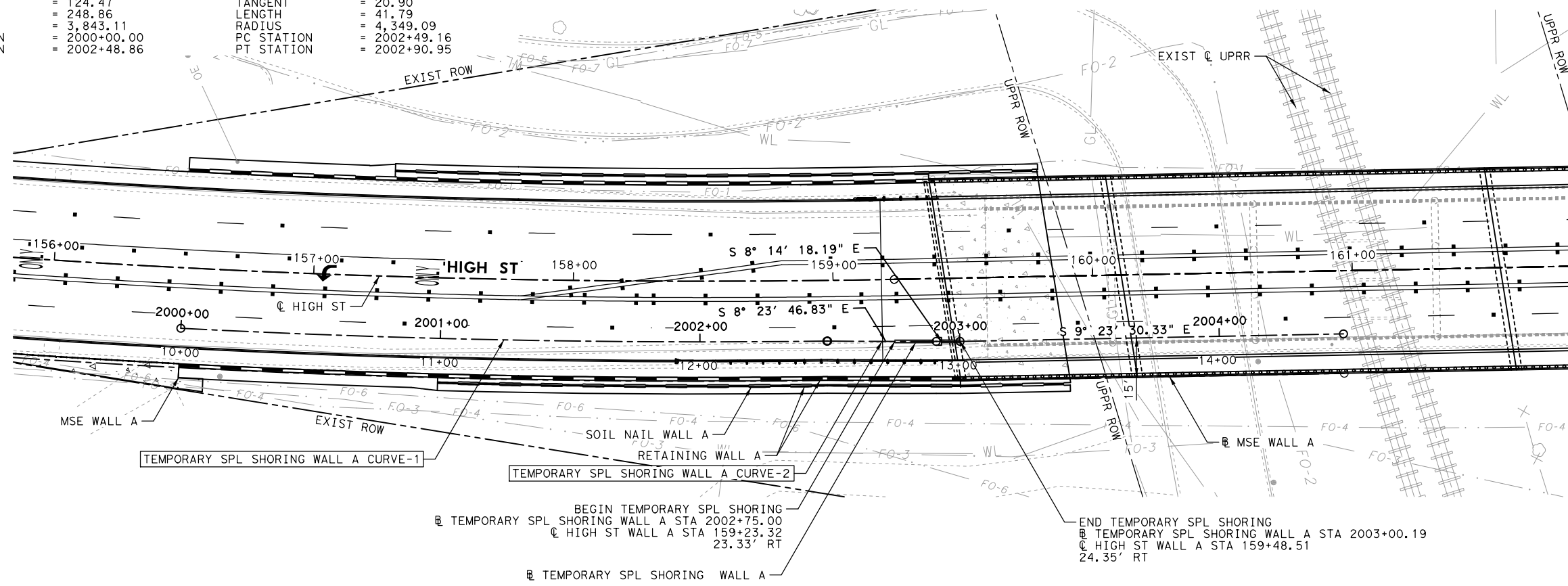
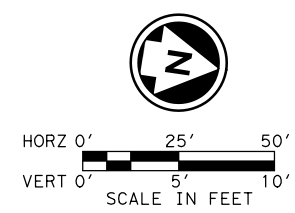
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 S HIGH ST AT UPRR AND SABINE ST

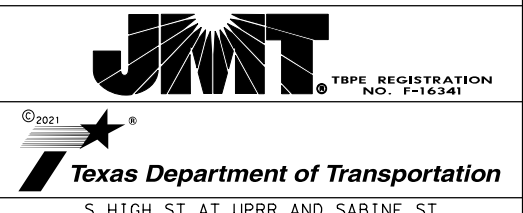
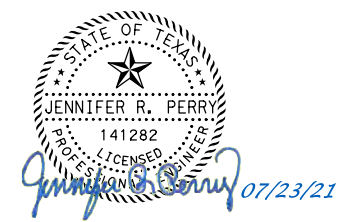
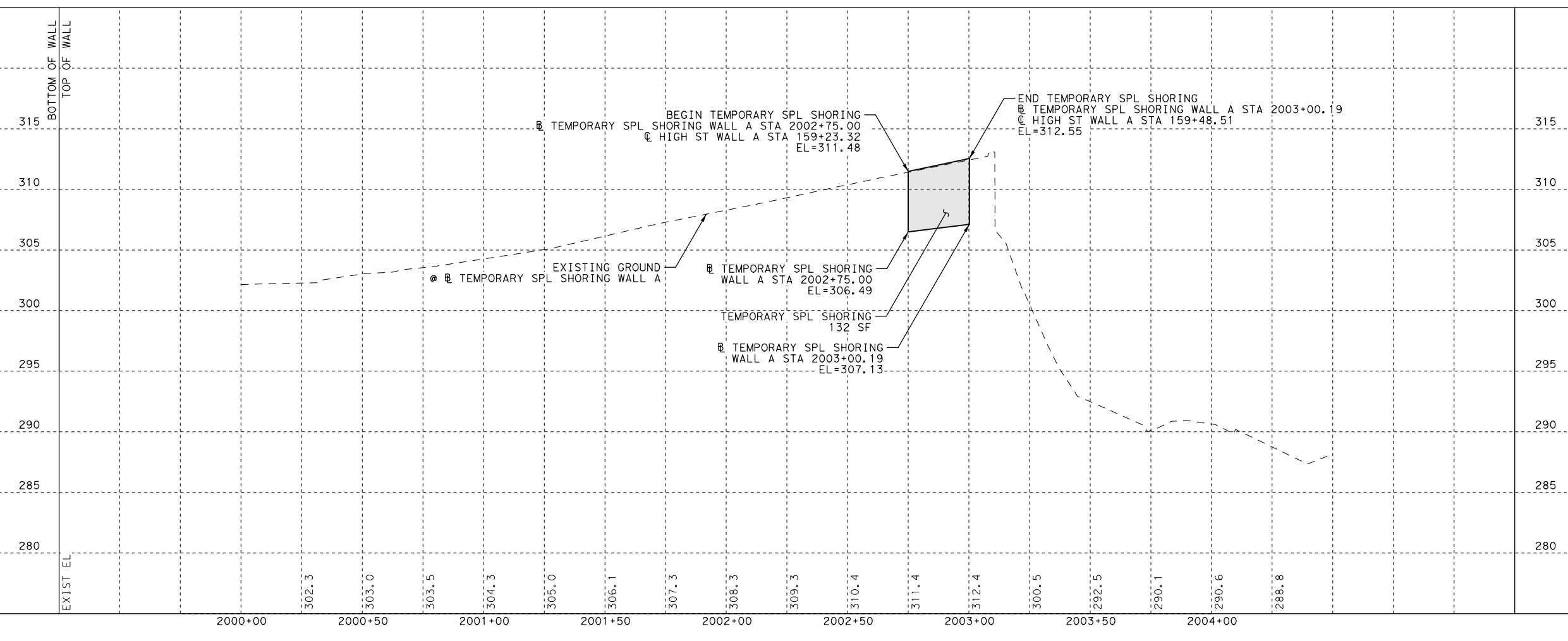
RETAINING WALL A ABUTMENT DETAIL							
DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						103

TEMPORARY SPL SHORING WALL A CURVE-1
 PI STATION = 2001+24.47
 DELTA = 3° 42' 36.69" (LT)
 DEGREE OF CURVE = 1° 29' 27.13"
 TANGENT = 124.47
 LENGTH = 248.86
 RADIUS = 3,843.11
 PC STATION = 2000+00.00
 PT STATION = 2002+48.86

TEMPORARY SPL SHORING WALL A CURVE-2
 PI STATION = 2002+70.06
 DELTA = 0° 33' 02.00" (LT)
 DEGREE OF CURVE = 1° 19' 02.72"
 TANGENT = 20.90
 LENGTH = 41.79
 RADIUS = 4,349.09
 PC STATION = 2002+49.16
 PT STATION = 2002+90.95



DATE: 7/22/2021
 FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4 - Wall\HIGH ST*TS*RW01.dgn

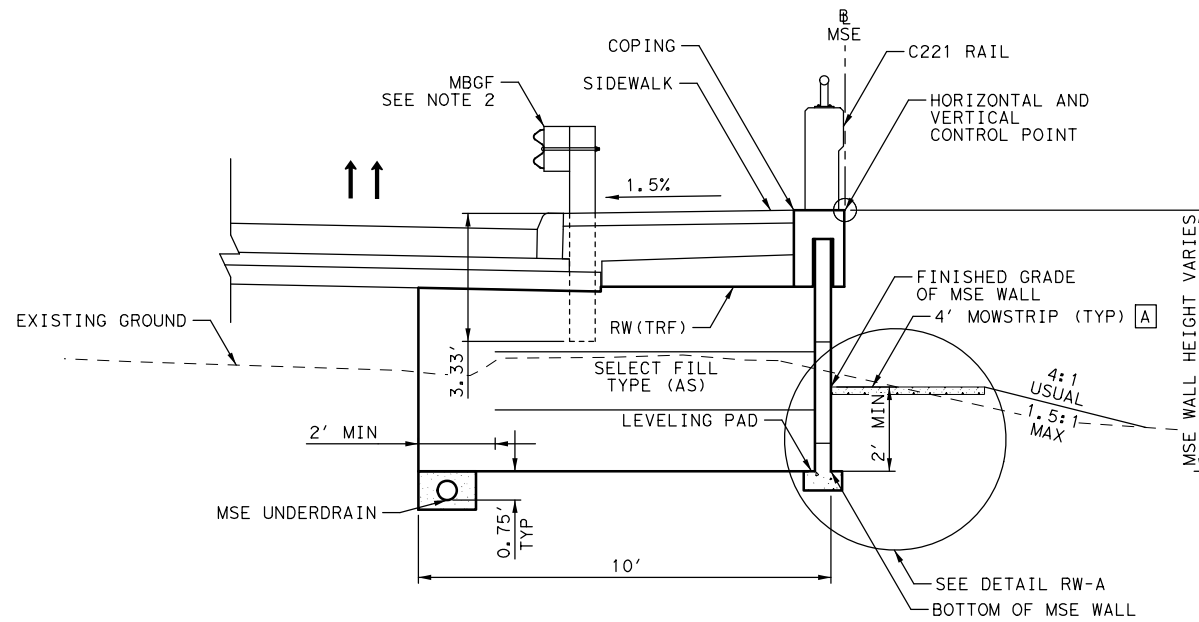


**RETAINING WALL A
 TEMPORARY SPECIAL SHORING**

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						104

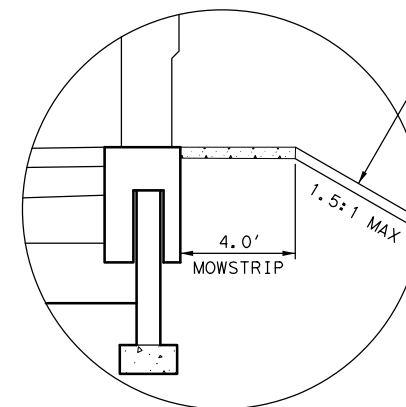
SHEET 1 OF 1

DATE: 12/20/2021
 FILENAME: pw:\jmt-pw.bentley.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*TYP*RW01



TYPICAL SECTION

Ⓜ MSE WALL A
 STA 10+00.05 - STA 11+00.00



DETAIL RW-A

NTS

NOTES:

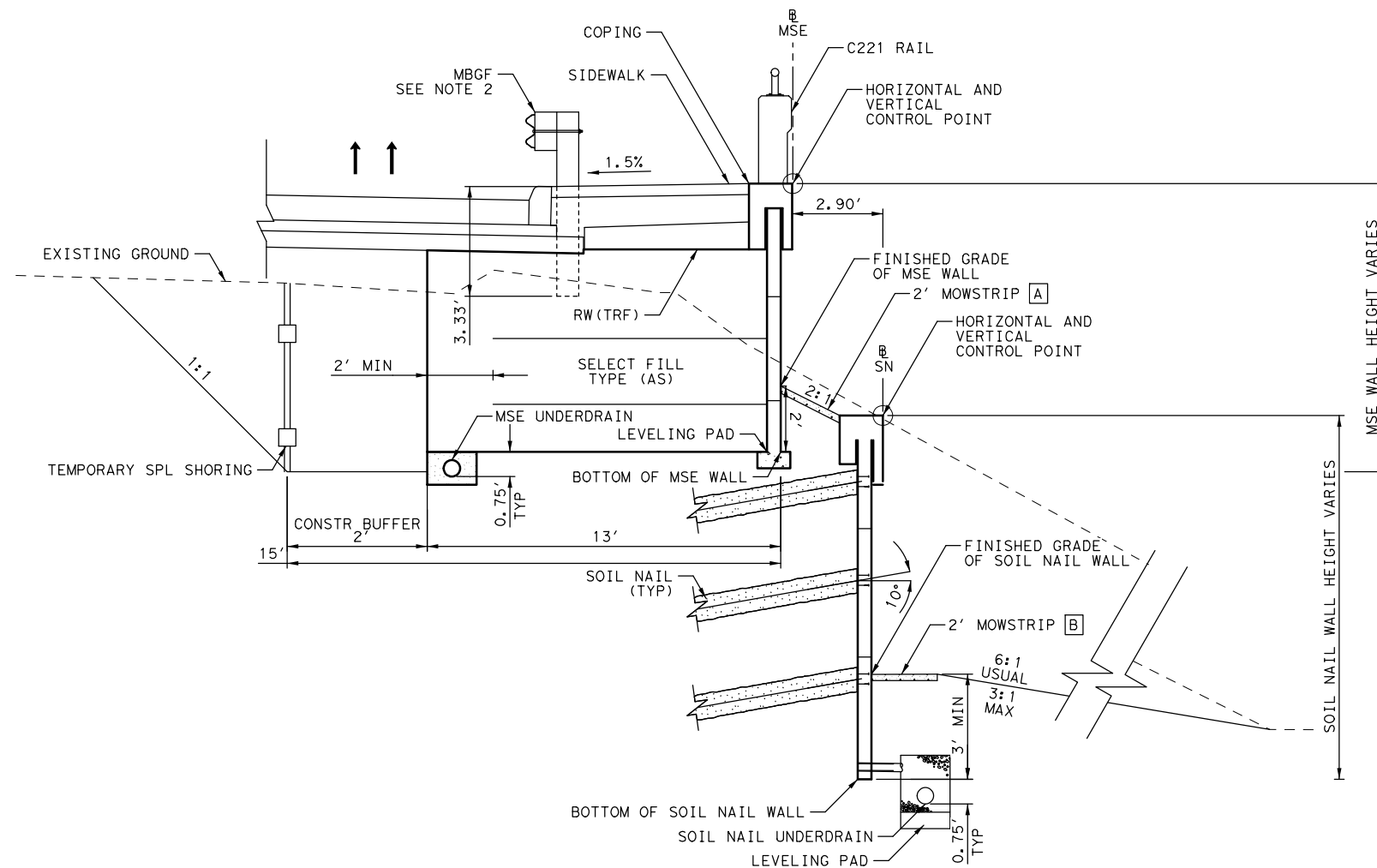
1. REFER TO RETAINING WALL AND SOIL NAIL WALL LAYOUT SHEETS FOR MORE INFORMATION.
2. WALL MANUFACTURER TO DESIGN EARTH REINFORCEMENT (STRAPS) TO ACCOMMODATE GUARDRAIL POSTS. SEE GF (31)-19 AND GF (31)MS-19 FOR STANDARD MBGF INSTALLATION.
3. SEE STANDARD SHEET RW(MSE), RW(MSE)DD, RW(EM), AND RW(TRF) FOR ADDITIONAL INFORMATION.
4. SEE ILLUMINATION PLAN FOR ILLUMINATION POLE LOCATIONS AND ADDITIONAL INFORMATION.

Ⓜ MOWSTRIP AT Ⓜ MSE WALL A*		
STATION	OFFSET 1*	OFFSET 2*
10+00.05	0.00'	4.00' RT
10+89.71	0.00'	4.00' RT
11+00.00	0.00'	4.90' RT
11+00.00	0.00'	2.00' RT
13+01.36	0.00'	2.00' RT

*OFFSET MEASURED FROM Ⓜ MSE WALL A
 **FOR CONTRACTOR'S REFERENCE ONLY.
 CONTRACTOR MAY ADJUST MOWSTRIP IN THE FIELD AS NECESSARY.

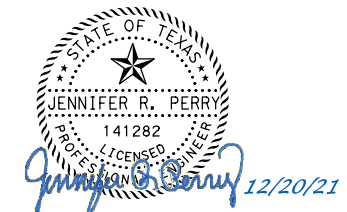
Ⓜ MOWSTRIP AT Ⓜ SOIL NAIL WALL A*		
STATION	OFFSET 1**	OFFSET 2**
11+00.00	0.00'	2.00' RT
13+01.36	0.00'	2.00' RT
13+43.74	0.00'	2.00' RT

**OFFSET MEASURED FROM Ⓜ SOIL NAIL WALL A
 **FOR CONTRACTOR'S REFERENCE ONLY.
 CONTRACTOR MAY ADJUST MOWSTRIP IN THE FIELD AS NECESSARY.



TYPICAL SECTION

Ⓜ MSE WALL A
 STA 11+00.00 - STA 13+01.36
 Ⓜ SOIL NAIL WALL A
 STA 11+00.00 - STA 13+01.36



S HIGH ST AT UPRR AND SABINE ST

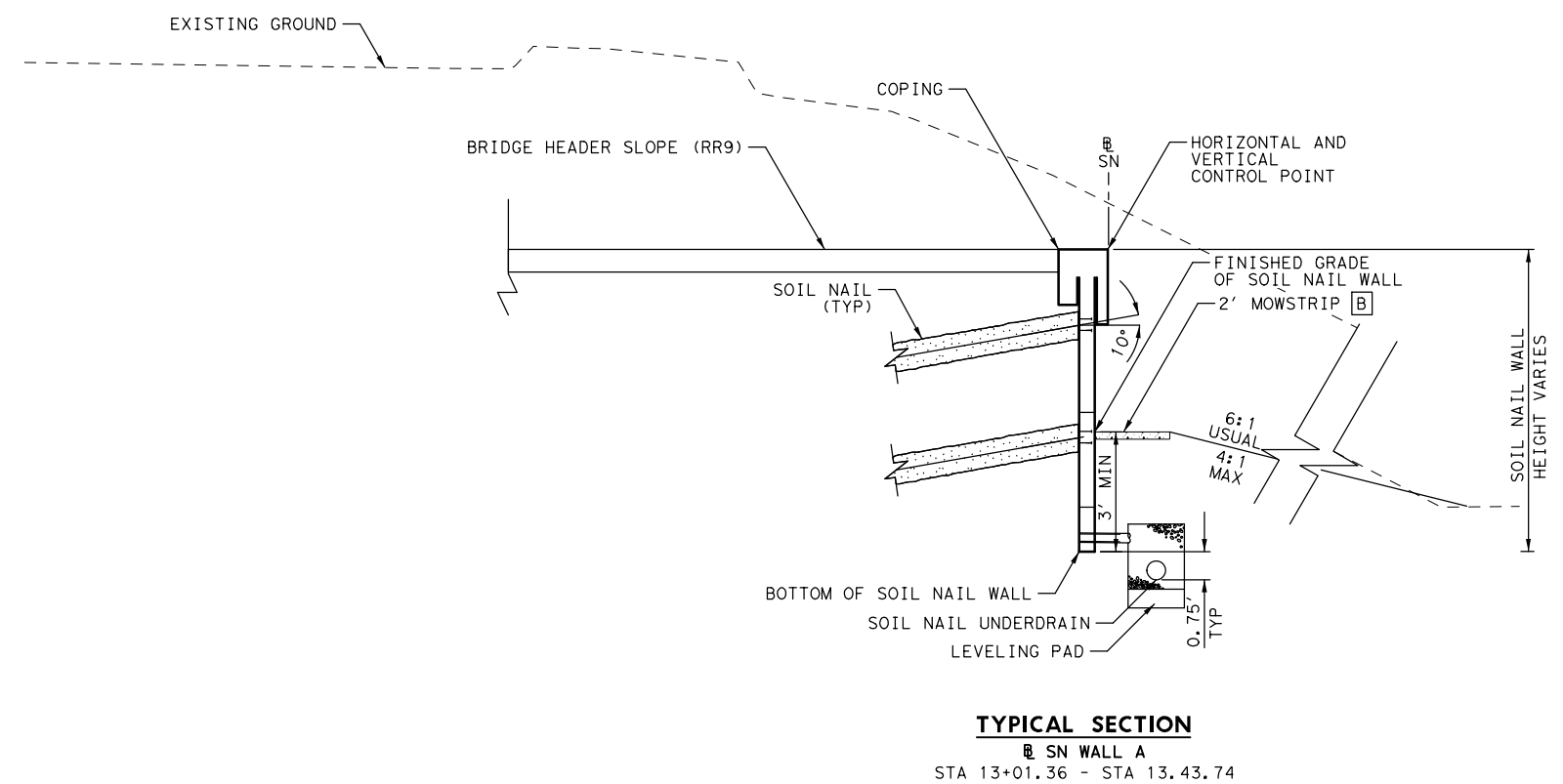
**RETAINING WALL A
 TYPICAL SECTIONS**

SCALE: NTS		SHEET 1 OF 2	
DESIGN JMT	FED. RD. DIV. NO. 6	FEDERAL AID PROJECT NO. (SEE TITLE SHEET)	HIGHWAY NO. HIGH ST
GRAPHICS JMT	STATE TEXAS	DISTRICT TYLER	COUNTY GREGG
CHECK JMT	CONTROL 0910	SECTION 07	JOB 072
CHECK JMT			105

DATE: 7/22/2021
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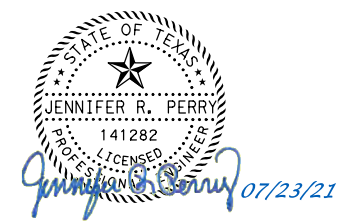
1. REFER TO RETAINING WALL AND SOIL NAIL WALL LAYOUT SHEETS FOR MORE INFORMATION.



MOWSTRIP AT SN WALL A*

STATION	OFFSET 1**	OFFSET 2**
11+00.00	0.00'	2.00' RT
13+01.36	0.00'	2.00' RT
13+43.74	0.00'	2.00' RT

**OFFSET MEASURED FROM SN WALL A
 *FOR CONTRACTOR'S REFERENCE ONLY.
 CONTRACTOR MAY ADJUST MOWSTRIP IN THE FIELD AS NECESSARY.



JMT TBPE REGISTRATION NO. F-16341

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Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

**RETAINING WALL A
 TYPICAL SECTIONS**

SCALE: NTS SHEET 2 OF 2

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

106

RETAINING WALL B

HORIZONTAL ALIGNMENT

MSE WALL

RWB CURVE-1

P.I. Station	20+43.38	N	6,880,841.7977	E	3,126,770.0461
Delta	4° 58' 41.96"	(LT)			
Degree	8° 37' 47.70"				
Tangent	28.8616				
Length	57.6868				
Radius	663.9205				
External	0.6270				
Long Chord	57.6687				
Mid. Ord.	0.6264				
P.C. Station	20+14.52	N	6,880,870.2730	E	3,126,765.3401
P.T. Station	20+72.20	N	6,880,813.8382	E	3,126,777.2053
C.C.		N	6,880,978.5273	E	3,127,420.3756
Back	= S 9° 23' 02.94" E				
Ahead	= S 14° 21' 44.90" E				
Chord Bear	= S 11° 52' 23.92" E				

Course from PT RWB_SW_MSE_3 to PC RWB_SW_MSE_6 S 14° 21' 44.90" E Dist 6.3519

RWB CURVE-2

P.I. Station	21+06.72	N	6,880,780.3991	E	3,126,785.7677
Delta	4° 58' 41.96"	(RT)			
Degree	8° 50' 34.89"				
Tangent	28.1660				
Length	56.2966				
Radius	647.9205				
External	0.6119				
Long Chord	56.2789				
Mid. Ord.	0.6113				
P.C. Station	20+78.56	N	6,880,807.6848	E	3,126,778.7810
P.T. Station	21+34.85	N	6,880,752.6100	E	3,126,790.3602
C.C.		N	6,880,646.9646	E	3,126,151.1107
Back	= S 14° 21' 44.90" E				
Ahead	= S 9° 23' 02.94" E				
Chord Bear	= S 11° 52' 23.92" E				

Course from PT RWB SW MSE 6 to 394 S 9° 23' 02.94" E Dist 349.9884

SOIL NAIL WALL

Curve RWB_SW_SN_3

P.I. Station	20+43.50	N	6,880,841.2015	E	3,126,767.2103
Delta	4° 58' 41.96"	(LT)			
Degree	8° 35' 32.82"				
Tangent	28.9874				
Length	57.9383				
Radius	666.8155				
External	0.6298				
Long Chord	57.9201				
Mid. Ord.	0.6292				
P.C. Station	20+14.52	N	6,880,869.8010	E	3,126,762.4838
P.T. Station	20+72.46	N	6,880,813.1201	E	3,126,774.4008
C.C.		N	6,880,978.5273	E	3,127,420.3756
Back	= S 9° 23' 02.94" E				
Ahead	= S 14° 21' 44.90" E				
Chord Bear	= S 11° 52' 23.92" E				

Course from PT RWB_SW_SN_3 to PC RWB_SW_SN_6 S 14° 21' 44.90" E Dist 6.3519

Curve RWB_SW_SN_6

P.I. Station	21+06.85	N	6,880,779.8029	E	3,126,782.9320
Delta	4° 58' 41.96"	(RT)			
Degree	8° 52' 57.78"				
Tangent	28.0402				
Length	56.0450				
Radius	645.0255				
External	0.6092				
Long Chord	56.0274				
Mid. Ord.	0.6086				
P.C. Station	20+78.81	N	6,880,806.9667	E	3,126,775.9764
P.T. Station	21+34.85	N	6,880,752.1380	E	3,126,787.5040
C.C.		N	6,880,646.9646	E	3,126,151.1107
Back	= S 14° 21' 44.90" E				
Ahead	= S 9° 23' 02.94" E				
Chord Bear	= S 11° 52' 23.92" E				

Course from PT RWB SW SN 6 to 384 S 9° 23' 02.94" E Dist 349.9884

VERTICAL ALIGNMENT

TOP OF MSE WALL

RWB_SW_MSE_TOW

Beginning profile RWB_SW_MSE_TOW description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	19+94.22	317.0713			
VPC	2	20+44.22	314.8061	-4.5305	K = 93.5	SSD = 1158.2
VPI		20+89.54	312.7531		90.6277	45.3139
VPT		21+34.85	310.2609	-5.5000		
VPC	3	22+54.84	303.6615	-5.5000	K = 50.3	
VPI		23+06.84	300.8015		104.0000	52.0000
VPT		23+58.84	299.0170	-3.4318		

Ending profile RWB_SW_MSE_TOW description:

FINISH GRADE OF MSE WALL

RWB_SW_MSE_FG

Beginning profile RWB_SW_MSE_FG description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	19+94.22	310.2833			
VPI	2	23+20.49	298.8641	-3.5000		
VPI	3	23+52.07	296.7589	-6.6667		
VPI	4	23+58.84	299.0170	33.3333		

Ending profile RWB_SW_MSE_FG description:

BOTTOM OF MSE WALL

RWB_SW_MSE_BOW

Beginning profile RWB SW MSE BOW description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	19+94.22	308.2833			
VPI	2	23+52.07	295.7589	-3.5000		
VPI	3	23+58.84	298.0170	33.3333		

Ending profile RWB SW MSE BOW description:

TOP OF SOIL NAIL WALL

RWB_MSE_TOWA

Beginning profile RWB_MSE_TOWA description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	19+50.60	288.7394			
VPI	2	19+94.22	310.5505	50.0000		

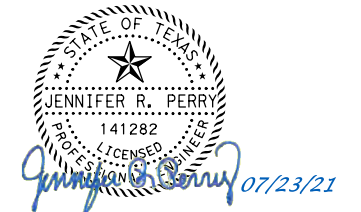
Ending profile RWB_MSE_TOWA description:

RWB_SW_SN_TOW

Beginning profile RWB_SW_SN_TOW description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	19+94.22	309.2833			
VPI	2	23+58.84	296.5218	-3.5000		

Ending profile RWB_SW_SN_TOW description:



S HIGH ST AT UPRR AND SABINE ST

**RETAINING WALL B
ALIGNMENT DATA**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

SHEET 1 OF 2

DATE: 7/22/2021
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FINISH GRADE OF SOIL NAIL WALL

RWB_MSE_FGA

Beginning profile RWB_MSE_FGA description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	19+50.60	288.7394			
VPI	2	19+94.22	291.1776	5.5895		

Ending profile RWB_MSE_FGA description:

RWB_SW_SN_FG

Beginning profile RWB_SW_SN_FG description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	19+94.22	291.1776			
VPI	2	22+52.98	285.3556	-2.2500		
VPI	3	23+21.67	286.6262	1.8500		
VPI	4	23+58.84	299.0170	33.3333		

Ending profile RWB_SW_SN_FG description:

BOTTOM OF SOIL NAIL WALL

RWB_MSE_BOWA

Beginning profile RWB_MSE_BOWA description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	19+50.60	281.7394			
VPI	2	19+94.22	284.1776	5.5895		

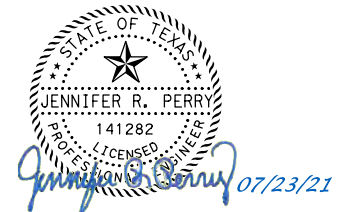
Ending profile RWB_MSE_BOWA description:

RWB_SW_SN_BOW

Beginning profile RWB_SW_SN_BOW description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	19+94.22	284.1776			
VPI	2	20+69.70	282.4794	-2.2500		
VPI	3	20+69.70	286.4794			
VPI	4	22+52.98	282.3556	-2.2500		
VPI	5	23+21.67	283.6262	1.8500		
VPI	6	23+58.84	296.0170	33.3333		

Ending profile RWB_SW_SN_BOW description:



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL B ALIGNMENT DATA

SHEET 2 OF 2

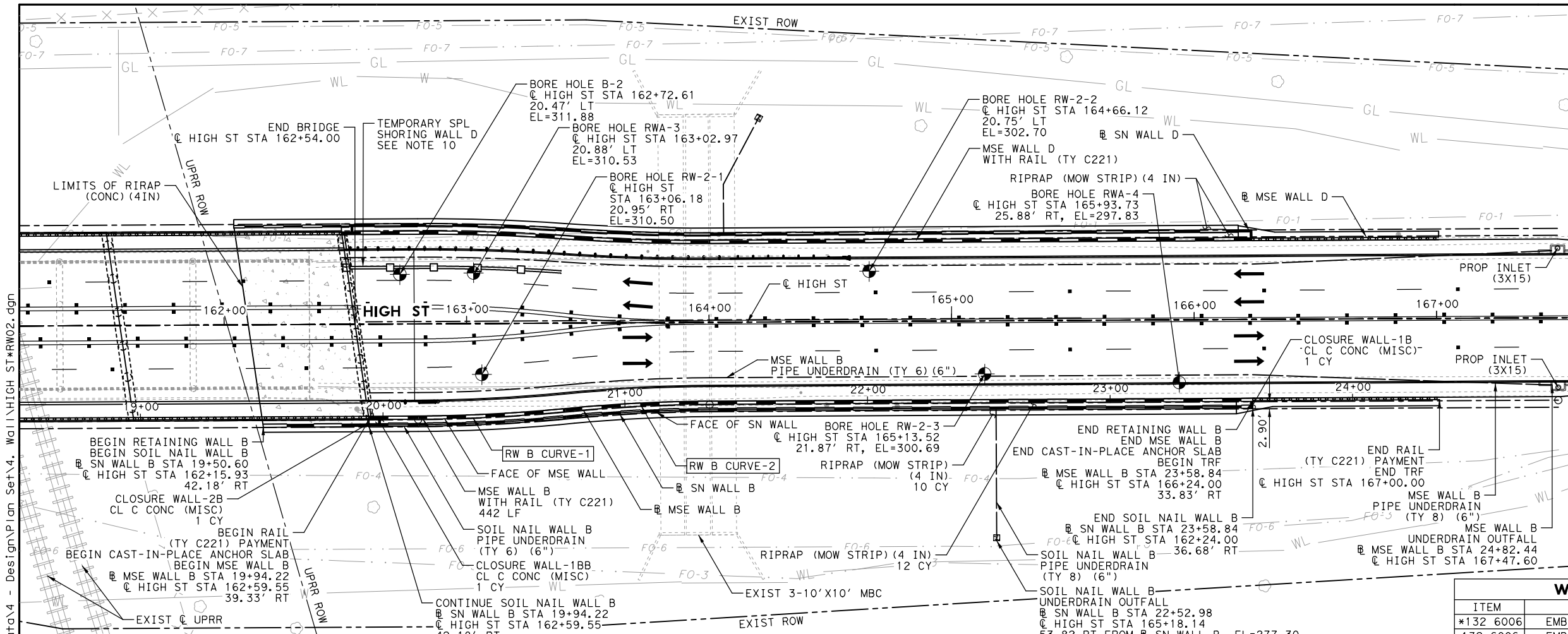
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GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						108



HORIZ 0' 25' 50'
VERT 0' 5' 10'
SCALE IN FEET

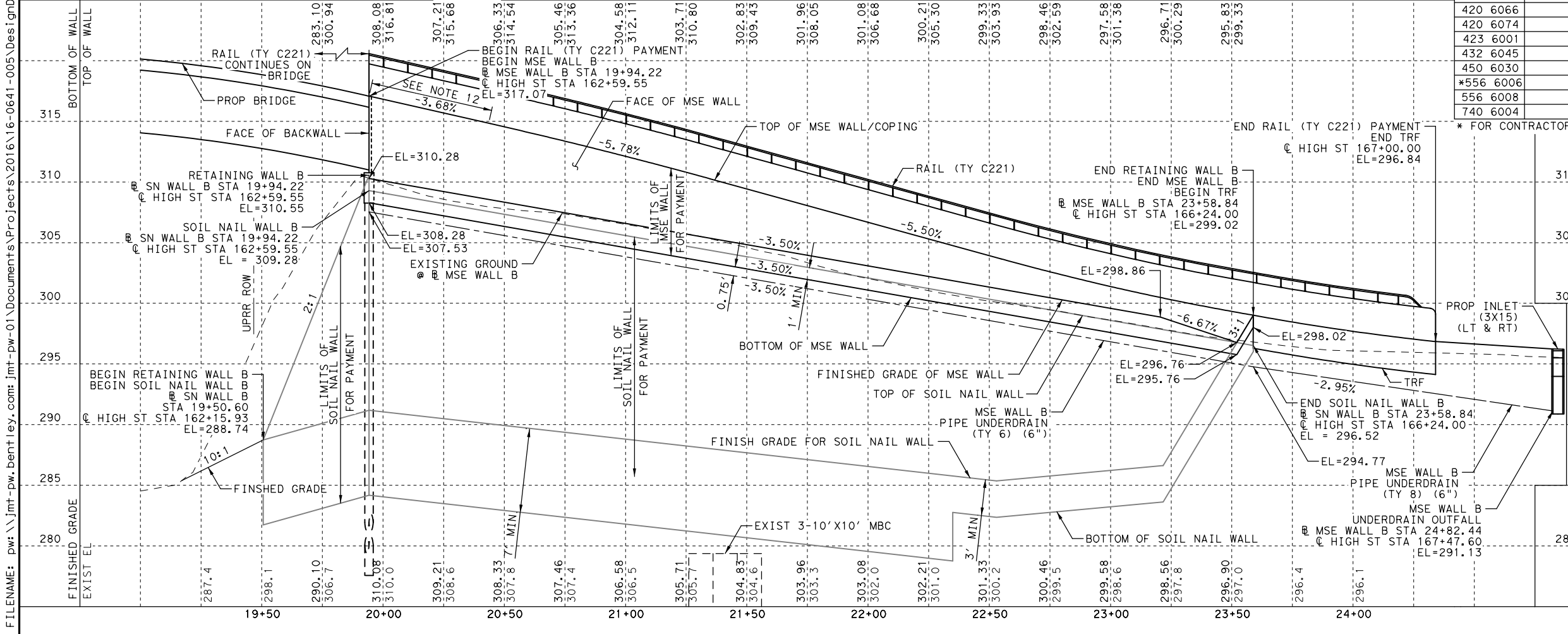
NOTES:

1. REFER TO RETAINING WALL BORING SHEETS AND PLAN AND PROFILE SHEETS FOR MORE INFORMATION.
2. WALL MANUFACTURER TO DESIGN EARTH REINFORCEMENT (STRAPS) TO ACCOMMODATE GUARDRAIL POSTS. SEE GF (31)-19 AND GF (31)MS-19 FOR STANDARD MBGF INSTALLATION.
3. COPING AND ANCHOR SLABS ARE CONSIDERED SUBSIDIARY TO ITEM 423 "RETAINING WALL".
4. POSITIVE DRAINAGE MUST BE PROVIDED DURING CONSTRUCTION AND POST CONSTRUCTION.
5. PROVIDE EMBANKMENT EARTH REINFORCEMENTS WITH A LENGTH AS SHOWN ON SHEET RW(MSE)DD.
6. SEE STANDARD SHEET RW(MSE), RW(MSE)DD, RW(EM), AND RW(TRF) FOR ADDITIONAL INFORMATION.
7. CONTRACTOR MUST LOCATE AND VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION.
8. REFER TO RETAINING WALL SOIL NAIL LAYOUT SHEETS AND TYPICAL SECTION SHEETS FOR MORE INFORMATION.
9. ALL OFFSETS ARE MEASURED FROM THE HIGH ST CENTERLINE UNLESS OTHERWISE NOTED.
10. SEE RETAINING WALL TEMPORARY SPECIAL SHORING SHEETS FOR DETAILED INFORMATION.
11. SEE RETAINING WALL DETAIL SHEETS FOR ADDITIONAL INFORMATION.
12. REFER TO MISCELLANEOUS ROADWAY DETAILS-SIDEWALK TRANSITION SHEETS FOR MORE INFO.



WALL B ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QUANTITY
*132 6006	EMBANKMENT (FINAL) (DES CONT) (TY C)	CY	308
132 6006	EMBANKMENT (FINAL) (DES CONT) (TY C)	CY	240
420 6066	CL C CONC (RAIL FOUNDATION)	CY	12
420 6074	CL C CONC (MISC)	CY	3
423 6001	RETAINING WALL (MSE)	SF	2,194
432 6045	RIPRAP (MOW STRIP) (4 IN)	CY	12
450 6030	RAIL (TY C221)	LF	442
*556 6006	PIPE UNDERDRAINS (TY 6) (6")	LF	371
556 6008	PIPE UNDERDRAINS (TY 8) (6")	LF	125
740 6004	ANTI- GRAFFITI COATING	SF	2194

* FOR CONTRACTORS INFORMATION ONLY



STATE OF TEXAS
JENNIFER R. PERRY
141282
LICENSED PROFESSIONAL ENGINEER
12/20/21



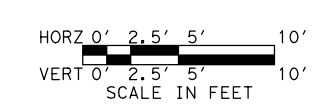
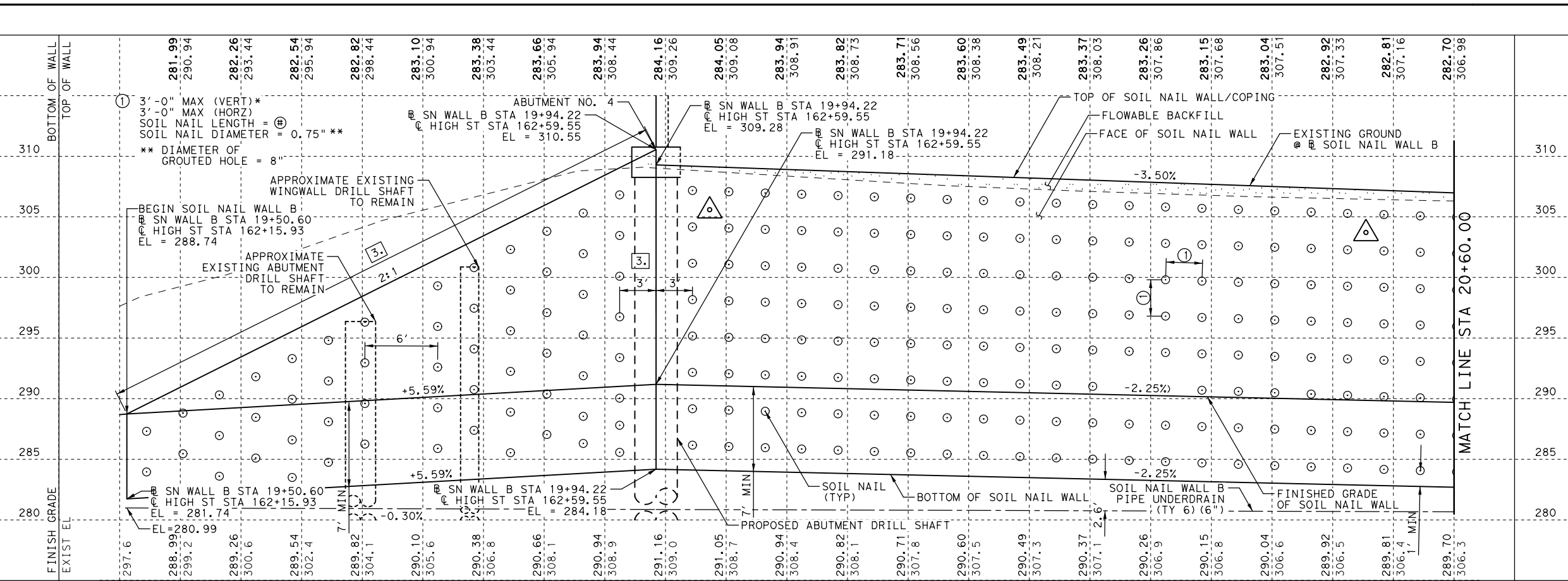
Texas Department of Transportation
S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL B

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	109
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						

DATE: 12/20/2021
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DATE: 7/22/2021
 FILENAME: pw:\jmt-pw.bentley.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*SN*LAY02



- * VERTICAL SPACING FROM TOP OF SOIL NAIL WALL TO FIRST LEVEL OF NAILS IS 2'-0", ALL SUBSEQUENT NAIL LEVELS TO BE PLACED 3'-0" BELOW THE PREVIOUS LEVEL OF NAILS. THE LAST LEVEL OF NAILS MUST BE PLACED WITHIN 1'-0" ABOVE THE BOTTOM OF THE SOIL NAIL WALL.
- 1. UNLESS OTHERWISE NOTED SOIL NAIL LENGTH TO REMAIN THE SAME THROUGHOUT THE LENGTH OF THE WALL.
- 2. SEE RETAINING WALL TYPICAL SECTION SHEETS AND RETAINING WALL DETAIL SHEETS FOR ADDITIONAL INFORMATION.
- 3. SEE RETAINING WALL-ABUTMENT DETAIL SHEET FOR SOIL NAIL SKEW INFORMATION AT BRIDGE ABUTMENTS.

△ VERIFICATION TEST LOCATION

SOIL NAIL WALL B ESTIMATED QUANTITIES

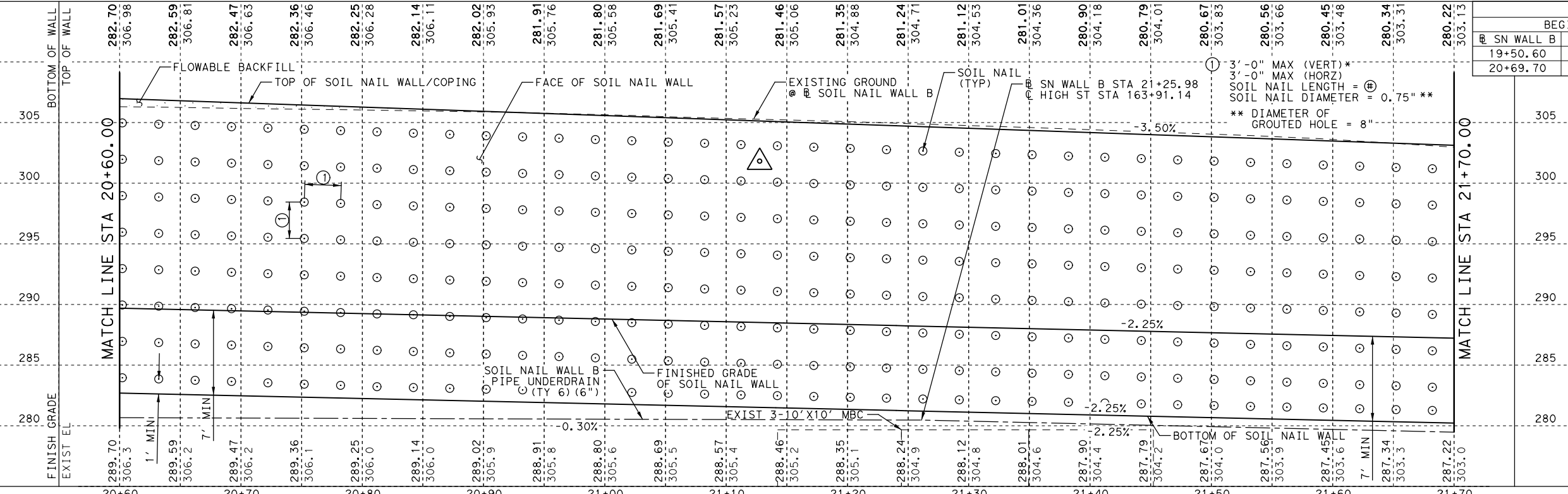
ITEM	DESCRIPTION	UNIT	QUANTITY
410 6001	SOIL NAIL ANCHORS	LF	32960
423 6022	RETAINING WALL (SOIL NAIL) (FACIA)	SF	8016
+556 6006	PIPE UNDERDRAINS (TY 6) (6")	LF	411
556 6008	PIPE UNDERDRAINS (TY 8) (6")	LF	55

① PROFILE 19+50.60 - 20+60.00
 B SOIL NAIL WALL B

SOIL NAIL WALL B ESTIMATED QUANTITIES

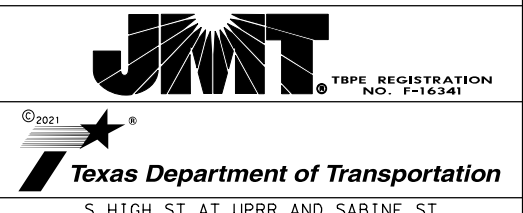
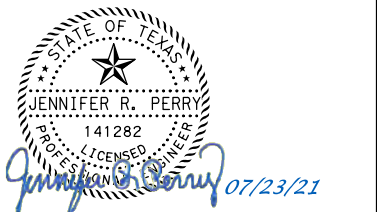
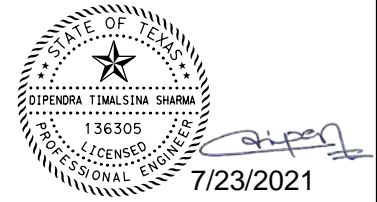
ITEM	DESCRIPTION	UNIT	QUANTITY
432 6001	RIPRAP (CONC) (4IN)	CY	1
432 6045	RIPRAP (MOW STRIP) (4IN)	CY	10
740 6004	ANTI-GRAFFITI COATING	SF	8016
401 6001	FLOWABLE BACKFILL	CY	7

+ FOR CONTRACTORS INFORMATION ONLY



SOIL NAIL LENGTH ⊕	BEGIN		END		NAIL LENGTH (FT)
	B SN WALL B	C HIGH ST	B SN WALL B	C HIGH ST	
	19+50.60	162+15.93	20+69.70	163+35.00	40
	20+69.70	163+35.00	23+58.84	166+24.00	35

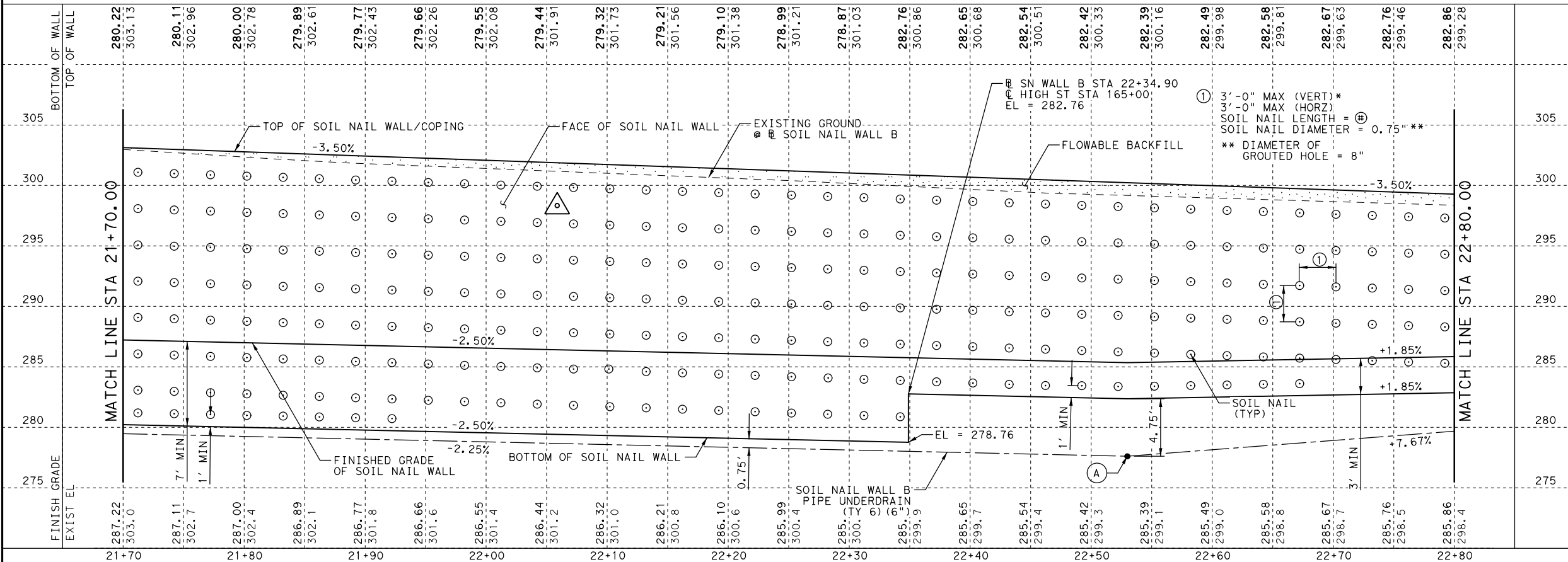
② PROFILE 20+60.00 - 21+70.00
 B SOIL NAIL WALL B



**RETAINING WALL B
 SOIL NAIL LAYOUT**

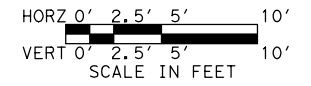
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GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG	
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072	
CHECK	JMT						SHEET NO.	110

DATE: 7/22/2021
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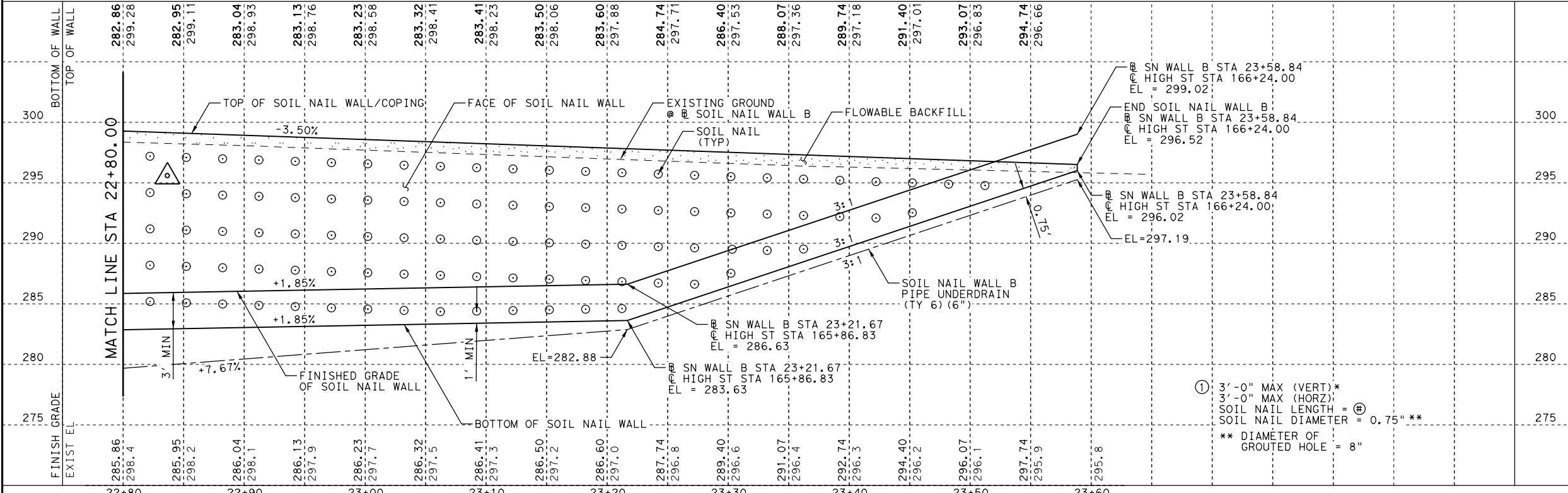


SOIL NAIL LENGTH (⊕)				
BEGIN		END		NAIL LENGTH (FT)
⊕ SN WALL B	⊕ HIGH ST	⊕ SN WALL B	⊕ HIGH ST	
19+50.60	162+15.93	20+69.70	163+35.00	40
20+69.70	163+35.00	23+58.84	166+24.00	35

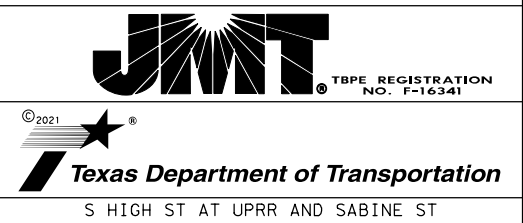
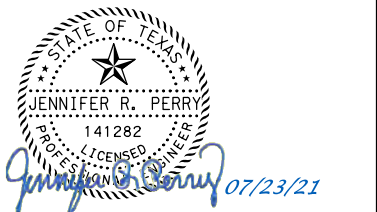
③ PROFILE 21+70.00 - 22+80.00
 ⊕ SOIL NAIL WALL B



- * VERTICAL SPACING FROM TOP OF SOIL NAIL WALL/COPING TO FIRST LEVEL OF NAILS IS 2'-0", ALL SUBSEQUENT NAIL LEVELS TO BE PLACED 3'-0" BELOW THE PREVIOUS LEVEL OF NAILS. THE LAST LEVEL OF NAILS MUST BE PLACED WITHIN 1'-0" ABOVE THE BOTTOM OF THE SOIL NAIL WALL.
 - 1. UNLESS OTHERWISE NOTED SOIL NAIL LENGTH TO REMAIN THE SAME THROUGHOUT THE LENGTH OF THE WALL.
 - 2. SEE RETAINING WALL TYPICAL SECTION SHEETS AND RETAINING WALL DETAIL SHEETS FOR ADDITIONAL INFORMATION.
 - 3. SEE RETAINING WALL-ABUTMENT DETAIL SHEET FOR SOIL NAIL SKEW INFORMATION AT BRIDGE ABUTMENTS.
- △ VERIFICATION TEST LOCATION
- ⊕ SOIL NAIL WALL B UNDERDRAIN OFFFALLS TO DITCH
 ⊕ WALL B STA 22+52.98
 ⊕ HIGH ST STA 165+18.14
 EL=277.61



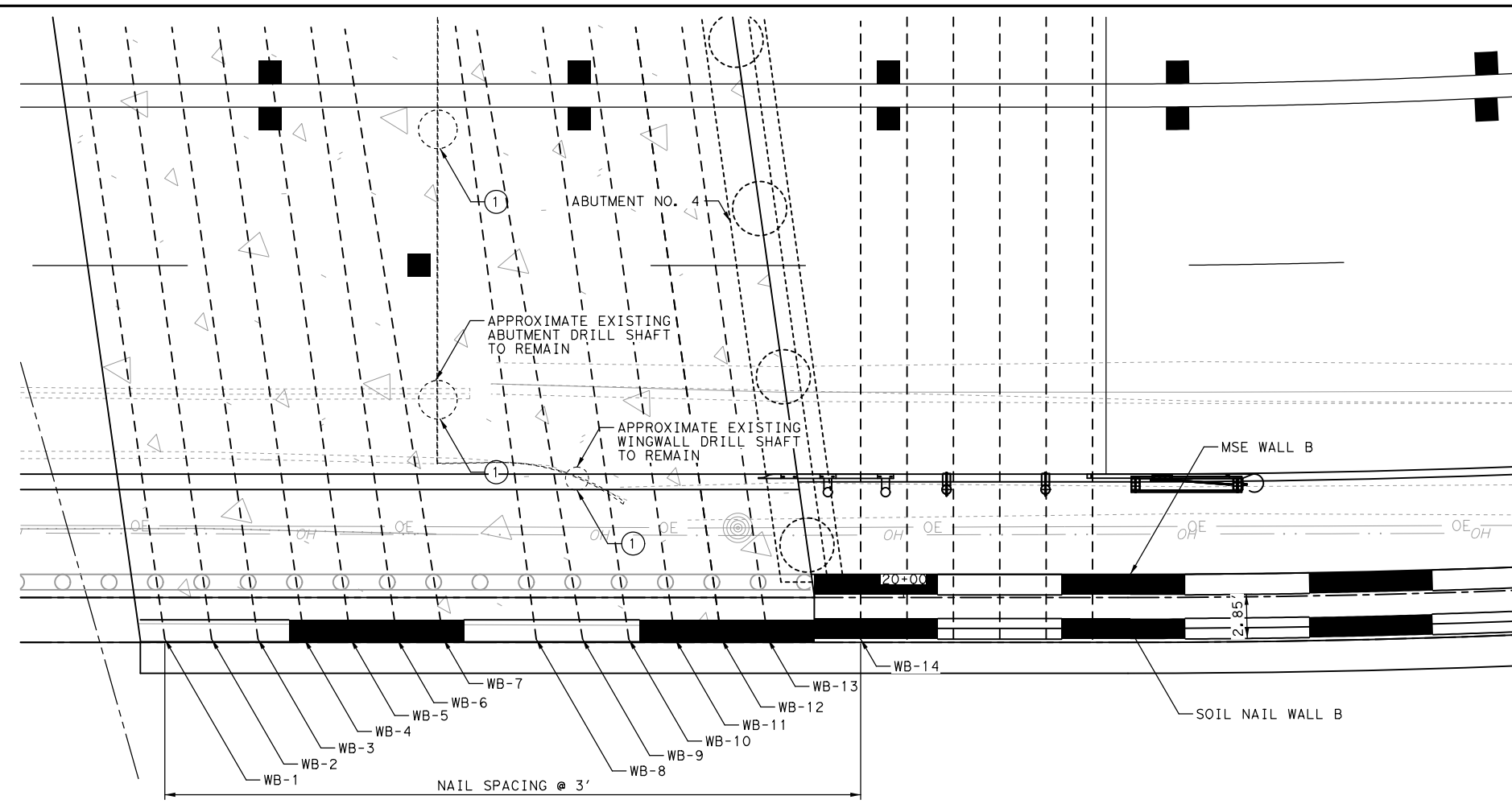
④ PROFILE 22+80.00 - 23+58.84
 ⊕ SOIL NAIL WALL B



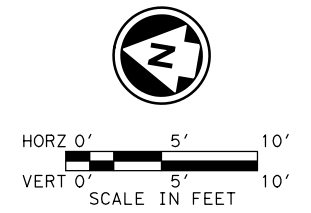
**RETAINING WALL B
 SOIL NAIL LAYOUT**

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST	
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG	
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072	
CHECK	JMT						SHEET NO.	111

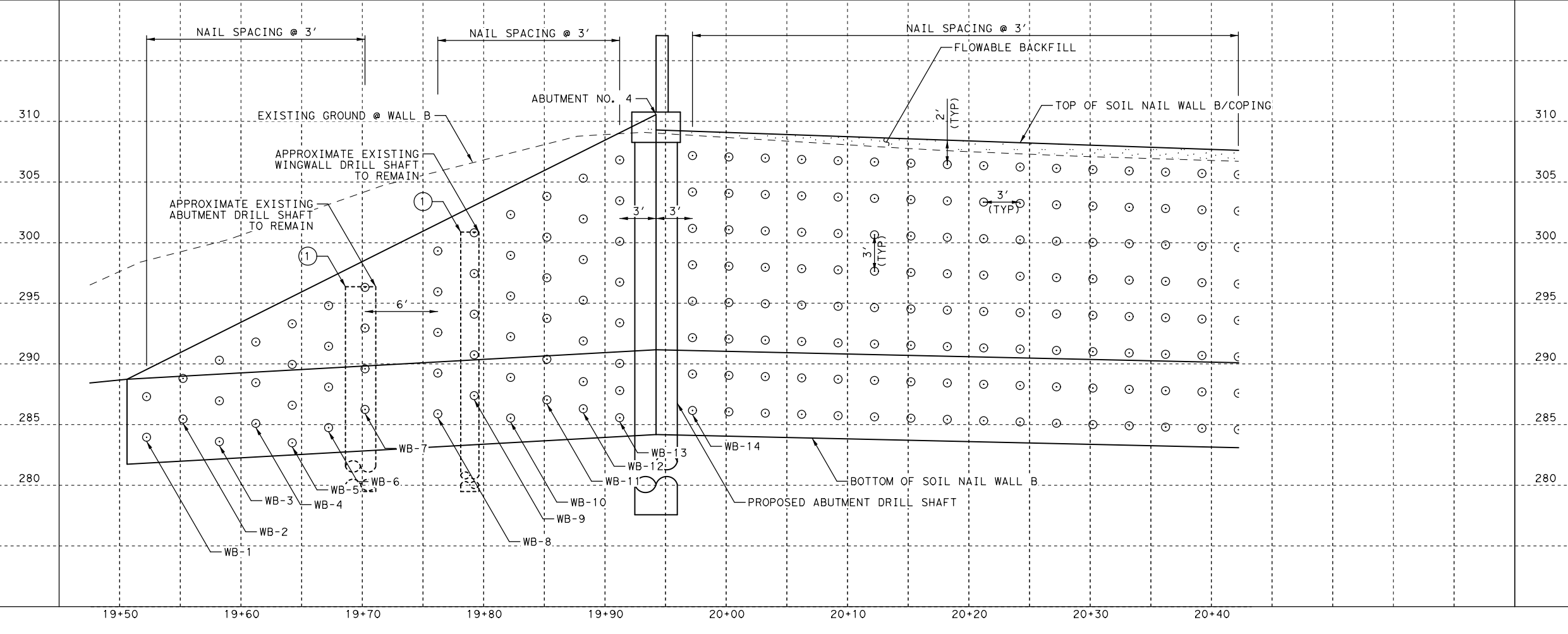
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WALL B AT ABUTMENT NO. 4		
NAILS	STATION	SKEW ANGLE
WB-1	19+52.22	82°
WB-2	19+55.22	82°
WB-3	19+58.22	82°
WB-4	19+61.22	82°
WB-5	19+64.22	82°
WB-6	19+67.22	82°
WB-7	19+70.22	80.83°
WB-8	19+76.22	82.49°
WB-9	19+79.22	80.18°
WB-10	19+82.22	82°
WB-11	19+85.22	82°
WB-12	19+88.22	82°
WB-13	19+91.22	82°
WB-14	19+97.22	90°



- ⊙ LOCATION OF SOIL NAIL.
- ⊕ LOCATION OF NAIL TEST (NT)
- ① THE CONTRACTOR MUST CONFIRM EXACT LOCATION OF ALL EXISTING DRILLED SHAFTS, ABUTMENT, ETC. AND DRILL NAIL HOLES TO AVOID CONFLICTS WITH EXISTING STRUCTURES.
- ② NAIL HOLES MUST BE DRILLED ALONG THE ALIGNMENT AS SHOWN IN THE PLANS. DEVIATIONS GREATER THAN 1 INCH ARE NOT PERMITTED DUE TO CONFLICTS WITH THE EXISTING STRUCTURES. CONTRACTOR'S SURVEYOR MUST LOCATE CENTER OF NAIL HOLE ON EXCAVATION FACE FROM VERTICAL WALL CONTROL LINE TO A MINIMUM ACCURACY OF 0.5 INCH.
- ③ FOR ADDITIONAL NAIL DETAILS SEE RETAINING WALL-SOIL NAIL LAYOUTS.
- ④ ALL STATIONS, OFFSETS AND SKEW ANGLES MEASURED FROM SOIL NAIL WALL.



STATE OF TEXAS
 JENNIFER R. PERRY
 141282
 LICENSED PROFESSIONAL ENGINEER
Jennifer R. Perry 07/23/21

STATE OF TEXAS
 DIPENDRA TIMALSINA SHARMA
 136305
 LICENSED PROFESSIONAL ENGINEER
Dipendra Timal 7/23/2021

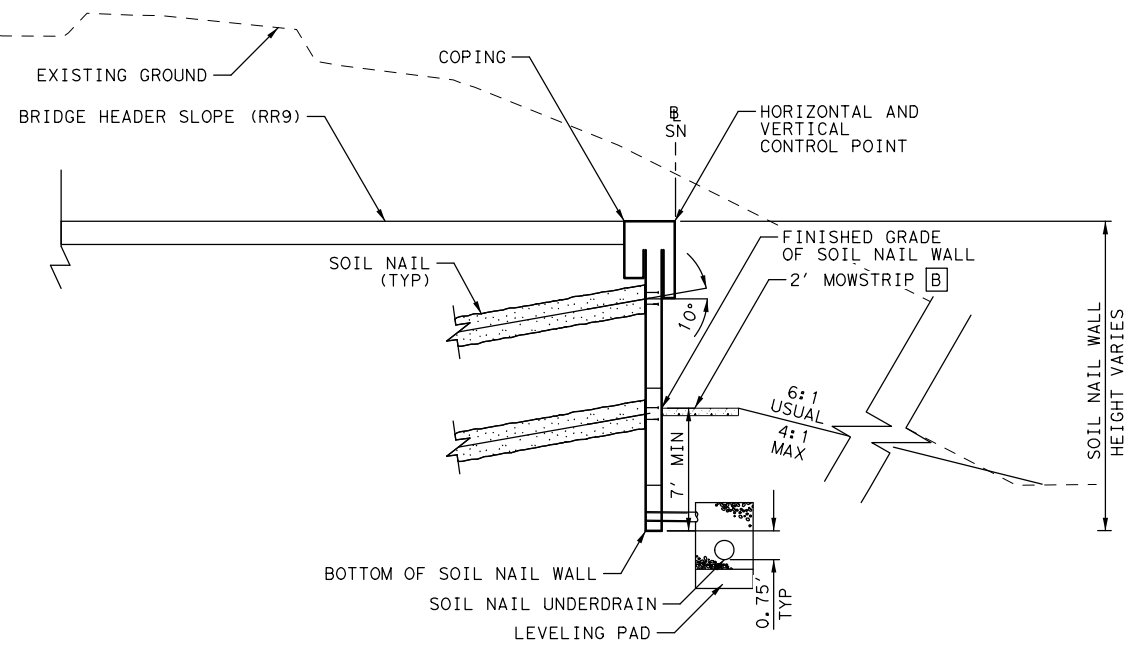
JMT TBPE REGISTRATION NO. F-16341

Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

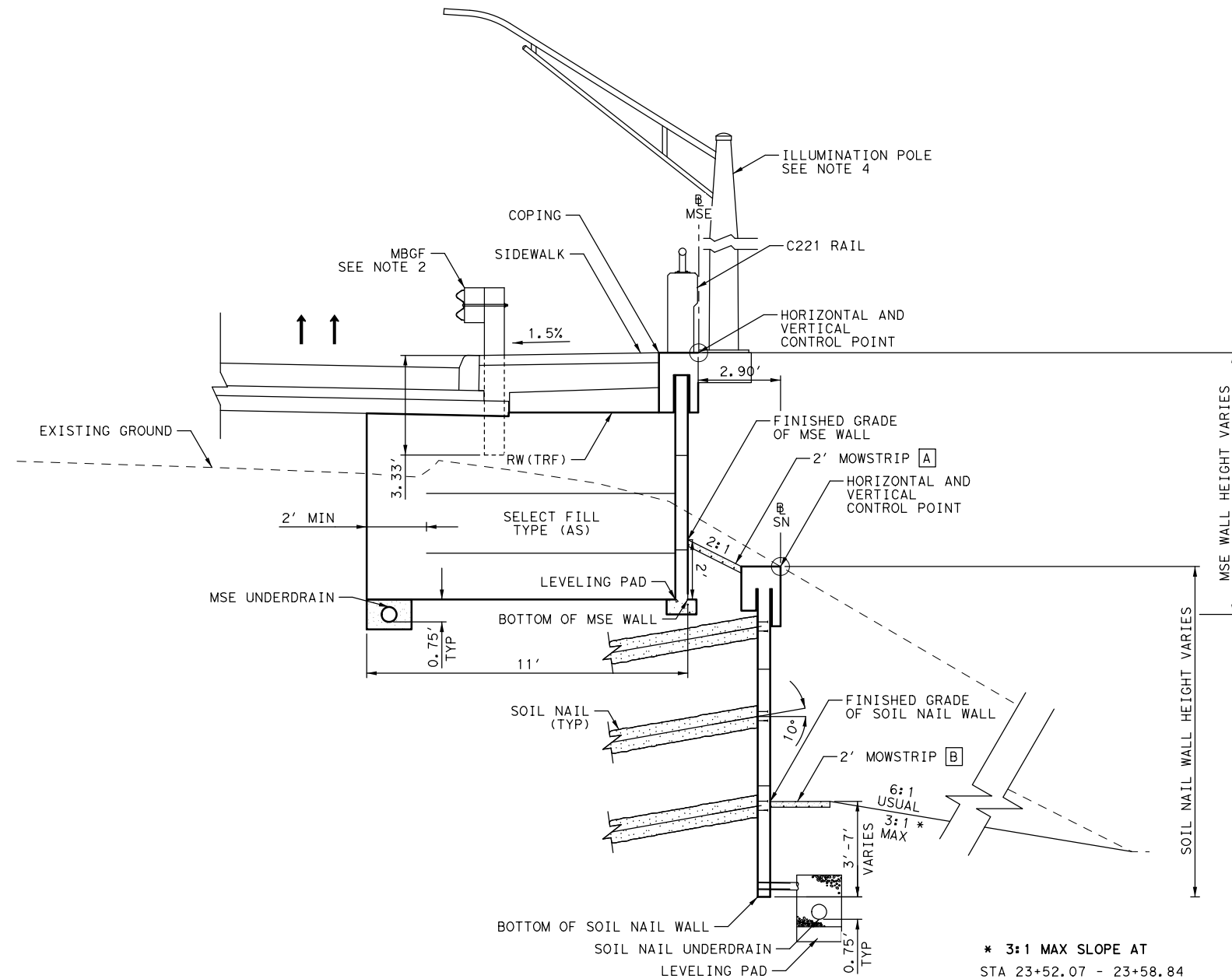
**RETAINING WALL B
 ABUTMENT DETAIL**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			
JMT			

DATE: 12/20/2021
 FILENAME: pw:\jmt-pw.bentley.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*TYP*RW02



TYPICAL SECTION
 @ SN WALL B
 STA 19+50.60 - STA 19+94.22



TYPICAL SECTION
 @ MSE WALL B
 STA 19+94.22 - STA 23+58.84
 @ SOIL NAIL WALL B
 STA 19+94.22 - STA 23+58.84

* 3:1 MAX SLOPE AT
 STA 23+52.07 - 23+58.84

NOTES:

1. REFER TO RETAINING WALL AND SOIL NAIL WALL LAYOUT SHEETS FOR MORE INFORMATION.
2. WALL MANUFACTURER TO DESIGN EARTH REINFORCEMENT (STRAPS) TO ACCOMMODATE GUARDRAIL POSTS. SEE GF (31)-19 AND GF (31)MS-19 FOR STANDARD MBGF INSTALLATION.
3. SEE STANDARD SHEET RW(MSE), RW(MSE)DD, RW(EM), AND RW(TRF) FOR ADDITIONAL INFORMATION.
4. SEE ILLUMINATION PLAN FOR ILLUMINATION POLE LOCATIONS AND ADDITIONAL INFORMATION.

A MOWSTRIP AT @ MSE WALL B*

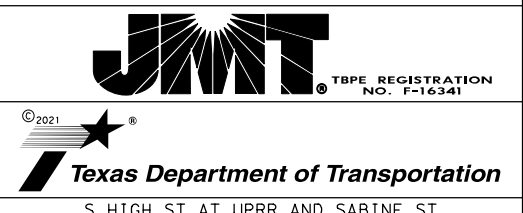
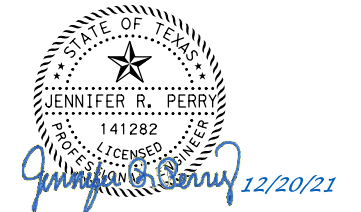
STATION	OFFSET 1*	OFFSET 2*
19+94.22	0.00'	2.00' RT
23+52.07	0.00'	2.00' RT
23+52.07	0.00'	4.85' RT
23+67.07	0.00'	2.00' RT
24+35.84	0.00'	2.00' RT

*OFFSET MEASURED FROM @ MSE WALL B
 #FOR CONTRACTOR'S REFERENCE ONLY.
 CONTRACTOR MAY ADJUST MOWSTRIP IN THE FIELD AS NECESSARY.

B MOWSTRIP AT @ SOIL NAIL WALL B*

STATION	OFFSET 1**	OFFSET 2**
19+50.60	0.00'	2.00' RT
19+94.22	0.00'	2.00' RT
23+52.07	0.00'	2.00' RT

**OFFSET MEASURED FROM @ SOIL NAIL WALL B
 #FOR CONTRACTOR'S REFERENCE ONLY.
 CONTRACTOR MAY ADJUST MOWSTRIP IN THE FIELD AS NECESSARY.



**RETAINING WALL B
 TYPICAL SECTIONS**

SCALE: NTS SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

113

RETAINING WALL C

HORIZONTAL ALIGNMENT

MSE WALL

RW C CURVE-1

```

P.I. Station      21+06.72  N      6,880,780.3991  E      3,126,785.7677
Delta            4° 58' 41.96"  (RT)
Degree           8° 50' 34.89"
Tangent         28.1660
Length          56.2966
Radius          647.9205
External        0.6119
Long Chord      56.2789
Mid. Ord.       0.6113
P.C. Station    20+78.56  N      6,880,807.6848  E      3,126,778.7810
P.T. Station    21+34.85  N      6,880,752.6100  E      3,126,790.3602
C.C.           21+34.85  N      6,880,646.9646  E      3,126,151.1107
Back            = S 14° 21' 44.90" E
Ahead           = S 9° 23' 02.94" E
Chord Bear     = S 11° 52' 23.92" E
    
```

Course from PT RWB_SW_MSE_6 to 394 S 9° 23' 02.94" E Dist 349.9884

SOIL NAIL WALL

Curve RWC_NE_SN_5

```

P.I. Station      32+13.92  N      6,881,437.7521  E      3,126,753.5481
Delta            6° 13' 42.01"  (RT)
Degree           1° 30' 59.16"
Tangent         205.5638
Length          410.7226
Radius          3,778.3236
External        5.5878
Long Chord      410.5204
Mid. Ord.       5.5796
P.C. Station    30+08.36  N      6,881,234.9393  E      3,126,787.0659
P.T. Station    34+19.08  N      6,881,643.0041  E      3,126,742.2315
C.C.           34+19.08  N      6,881,851.0064  E      3,130,514.8254
Back            = N 9° 23' 02.94" W
Ahead           = N 3° 09' 20.93" W
Chord Bear     = N 6° 16' 11.93" W
    
```

Ending chain RWC_NE_SN description

VERTICAL ALIGNMENT

TOP OF MSE WALL

RWC_NE_MSE_TOW

Beginning profile RWC_NE_MSE_TOW description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	29+94.37	317.1020			
VPI	2	30+44.37	315.1590	-3.8862		
VPC	3	30+98.37	312.0224	-5.8083	K = 49.2	
VPI		31+88.79	306.7704		180.8425	90.4213
VPT		32+79.21	304.8447	-2.1297		90.4213

Ending profile RWC_NE_MSE_TOW description

FINISH GRADE OF MSE WALL

RWC_NE_MSE_FG

Beginning profile RWC_NE_MSE_FG description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	29+94.37	309.7969			
VPI	2	31+76.00	305.2562	-2.5000		
VPI	3	32+00.00	303.6562	-6.6667		
VPI	4	32+75.36	303.8823	0.3000		
VPI	5	32+79.21	304.8448	25.0000		
VPI	6	32+79.22	304.8459	24.9940		

Ending profile RWC_NE_MSE_FG description

BOTTOM OF MSE WALL

RWC_NE_MSE_BOW

Beginning profile RWC_NE_MSE_BOW description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	29+94.37	307.7969			
VPI	2	32+00.00	301.6562	-2.9863		
VPI	3	32+00.00	301.6562			
VPI	4	32+75.36	301.8823	0.3000		
VPI	5	32+79.21	302.8448	25.0000		

Ending profile RWC_NE_MSE_BOW description

TOP OF SOIL NAIL WALL

RWC_MSE_TOWA

Beginning profile RWC_MSE_TOWA description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	29+52.35	296.5737			
VPI	2	29+94.37	310.5815	33.3333		

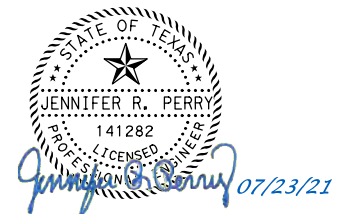
Ending profile RWC_MSE_TOWA description

RWC_NE_SN_TOW

Beginning profile RWC_NE_SN_TOW description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	29+94.37	308.7969			
VPI	2	31+99.83	303.6562	-2.5021		

Ending profile RWC_NE_SN_TOW description



S HIGH ST AT UPRR AND SABINE ST

**RETAINING WALL C
ALIGNMENT DATA**

				SHEET 1 OF 2
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
JMT	6	(SEE TITLE SHEET)	HIGH ST	
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	114
JMT	0910	07	072	

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DATE: 7/22/2021
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FINISH GRADE OF SOIL NAIL WALL

RWC_MSE_FGA

Beginning profile RWC_MSE_FGA description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	29+52.35	296.5737			
VPI	2	29+60.47	295.2204	-16.6667		
VPI	3	29+94.37	297.9203	7.9635		

Ending profile RWC_MSE_FGA description

RWC_NE_SN_FG

Beginning profile RWC_NE_SN_FG description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	29+94.37	297.9203			
VPI	2	31+00.00	298.2900	0.3500		
VPI	3	31+82.48	300.7644	3.0000		
VPI	4	31+99.83	303.6562	16.6667		

Ending profile RWC_NE_SN_FG description

BOTTOM OF SOIL NAIL WALL

RWC_MSE_BOWA

Beginning profile RWC_MSE_BOWA description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	29+52.35	291.5737			
VPI	2	29+94.37	294.9203	7.9635		

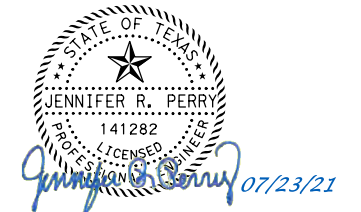
Ending profile RWC_MSE_BOWA description

RWC_NE_SN_BOW

Beginning profile RWC_NE_SN_BOW description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	29+94.37	294.9203			
VPI	2	31+00.00	295.2900	0.3500		
VPI	3	31+82.48	297.7644	3.0000		
VPI	4	31+99.83	300.6562	16.6667		

Ending profile RWC_NE_SN_BOW description



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL C ALIGNMENT DATA

SHEET 2 OF 2

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						115

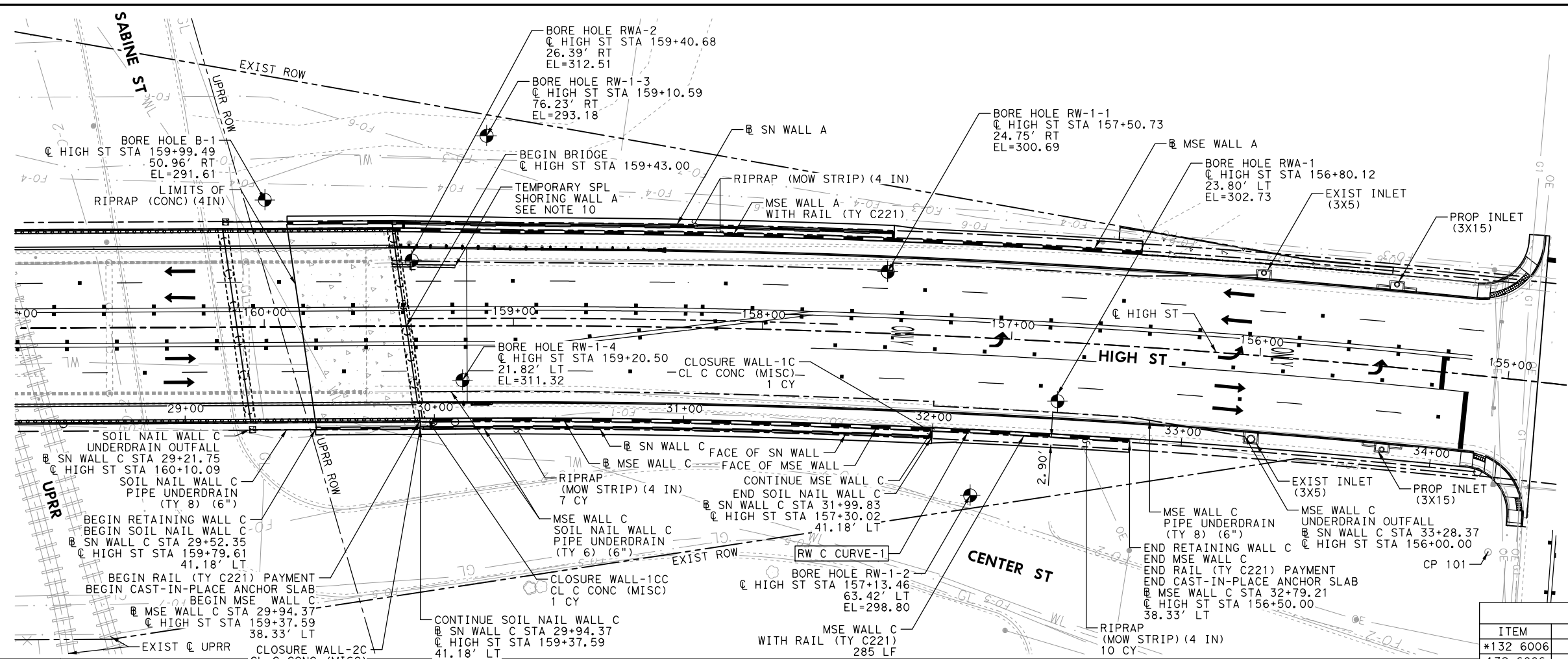


HORZ 0' 25' 50'
VERT 0' 5' 10'
SCALE IN FEET

NOTES:

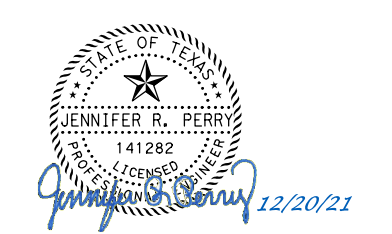
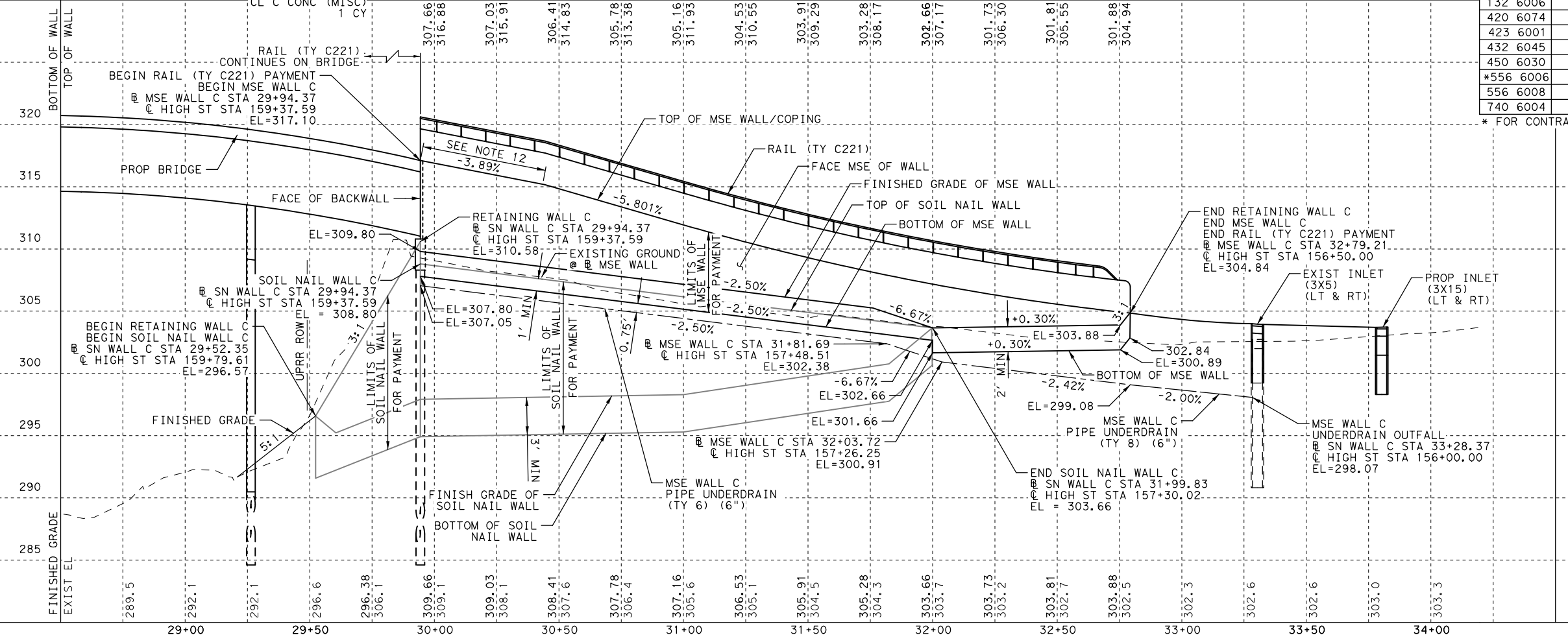
1. REFER TO RETAINING WALL BORING SHEETS AND PLAN AND PROFILE SHEETS FOR MORE INFORMATION.
2. WALL MANUFACTURER TO DESIGN EARTH REINFORCEMENT (STRAPS) TO ACCOMMODATE GUARDRAIL POSTS. SEE GF (31)-19 AND GF (31)MS-19 FOR STANDARD MBGF INSTALLATION.
3. COPING AND ANCHOR SLABS ARE CONSIDERED SUBSIDIARY TO ITEM 423 "RETAINING WALL".
4. POSITIVE DRAINAGE MUST BE PROVIDED DURING CONSTRUCTION AND POST CONSTRUCTION.
5. PROVIDE EMBANKMENT EARTH REINFORCEMENTS WITH A LENGTH AS SHOWN ON SHEET RW(MSE)DD.
6. SEE STANDARD SHEET RW(MSE), RW(MSE)DD, RW(EM), AND RW(TRF) FOR ADDITIONAL INFORMATION.
7. CONTRACTOR MUST LOCATE AND VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION.
8. REFER TO RETAINING WALL SOIL NAIL LAYOUT SHEETS AND TYPICAL SECTION SHEETS FOR MORE INFORMATION.
9. ALL OFFSETS ARE MEASURED FROM THE HIGH ST CENTERLINE UNLESS OTHERWISE NOTED.
10. SEE RETAINING WALL TEMPORARY SPECIAL SHORING SHEETS FOR DETAILED INFORMATION.
11. SEE RETAINING WALL DETAIL SHEETS FOR ADDITIONAL INFORMATION.
12. REFER TO MISCELLANEOUS ROADWAY DETAILS-SIDEWALK TRANSITION SHEETS FOR MORE INFO.

DATE: 12/20/2021
FILENAME: pw:\jmt-pw-bent\ey.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4 - Wall\HIGH ST*RW03.dgn



WALL C ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	UNIT	QUANTITY
*132 6006	EMBANKMENT (FINAL) (DES CONT) (TY C)	CY	236
132 6006	EMBANKMENT (FINAL) (DES CONT) (TY C)	CY	218
420 6074	CL C CONC (MISC)	CY	3
423 6001	RETAINING WALL (MSE)	SF	1,749
432 6045	RIPRAP (MOW STRIP) (4 IN)	CY	10
450 6030	RAIL (TY C221)	LF	285
*556 6006	PIPE UNDERDRAINS (TY 6) (6")	LF	289
556 6008	PIPE UNDERDRAINS (TY 8) (6")	LF	50
740 6004	ANTI- GRAFFITI COATING	SF	1749

* FOR CONTRACTORS INFORMATION ONLY



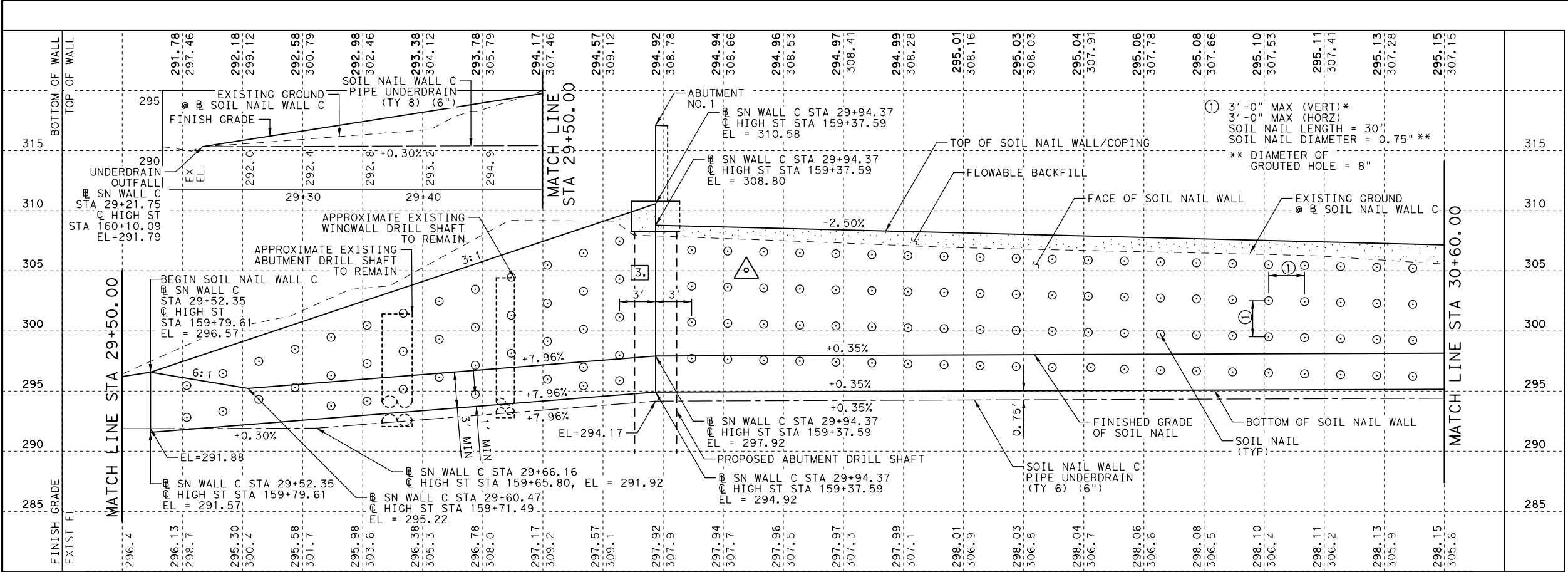
S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL C

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	116	
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG	
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072	
CHECK	JMT						SHEET NO.	116

SHEET 1 OF 1

DATE: 7/22/2021
 FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*SN*LAY04



SOIL NAIL WALL C ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
410 6001	SOIL NAIL ANCHORS	LF	7800
423 6022	RETAINING WALL (SOIL NAIL) (FACIA)	SF	2531
+556 6006	PIPE UNDERDRAINS (TY 6) (6")	LF	248
556 6008	PIPE UNDERDRAINS (TY 8) (6")	LF	31

① PROFILE 29+52.35 - 30+60.00
 SOIL NAIL WALL C

SOIL NAIL WALL C ESTIMATED QUANTITIES

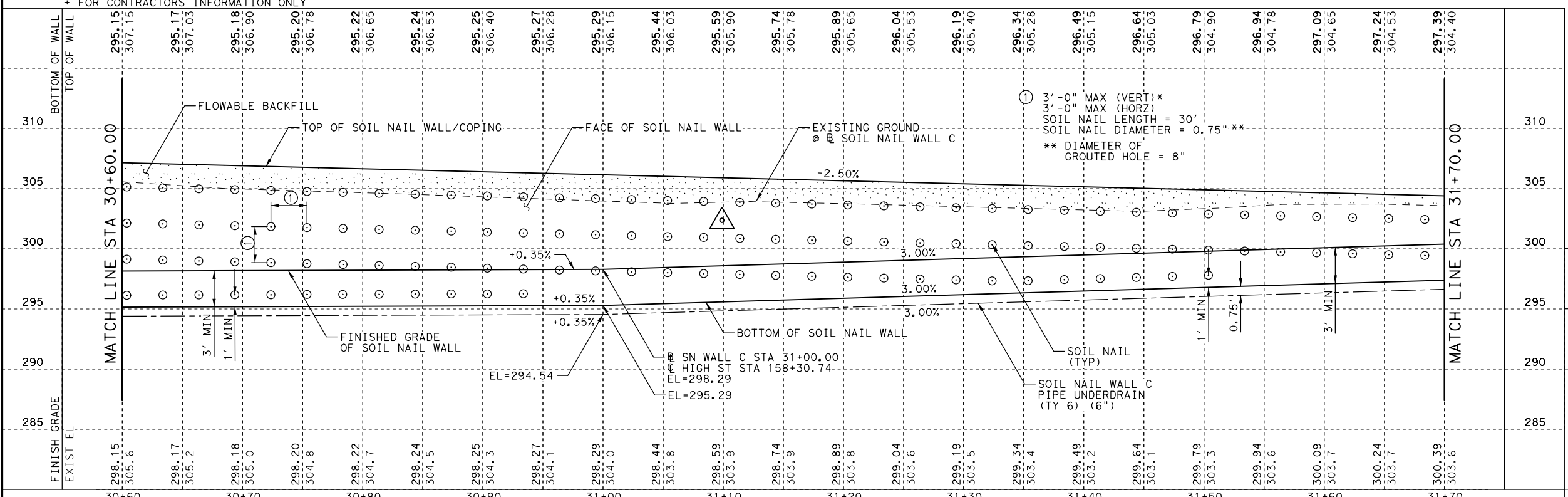
ITEM	DESCRIPTION	UNIT	QUANTITY
432 6001	RIPRAP (CONC) (4IN)	CY	1
432 6045	RIPRAP (MOW STRIP) (4IN)	CY	7
740 6004	ANTI- GRAFFITI COATING	SF	2531
401 6001	FLOWABLE BACKFILL	CY	14

HORIZ 0' 2.5' 5' 10'
 VERT 0' 2.5' 5' 10'
 SCALE IN FEET

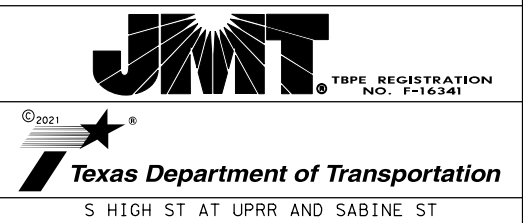
* VERTICAL SPACING FROM TOP OF SOIL NAIL WALL/COPING TO FIRST LEVEL OF NAILS IS 2'-0", ALL SUBSEQUENT NAIL LEVELS TO BE PLACED 3'-0" BELOW THE PREVIOUS LEVEL OF NAILS. THE LAST LEVEL OF NAILS MUST BE PLACED WITHIN 1'-0" ABOVE THE BOTTOM OF THE SOIL NAIL WALL.

- UNLESS OTHERWISE NOTED SOIL NAIL LENGTH TO REMAIN THE SAME THROUGHOUT THE LENGTH OF THE WALL.
- SEE RETAINING WALL TYPICAL SECTION SHEETS AND RETAINING WALL DETAIL SHEETS FOR ADDITIONAL INFORMATION.
- SEE RETAINING WALL-ABUTMENT DETAIL SHEET FOR SOIL NAIL SKEW INFORMATION AT BRIDGE ABUTMENTS.

△ VERIFICATION TEST LOCATION



② PROFILE 30+60.00 - 31+70.00
 SOIL NAIL WALL C



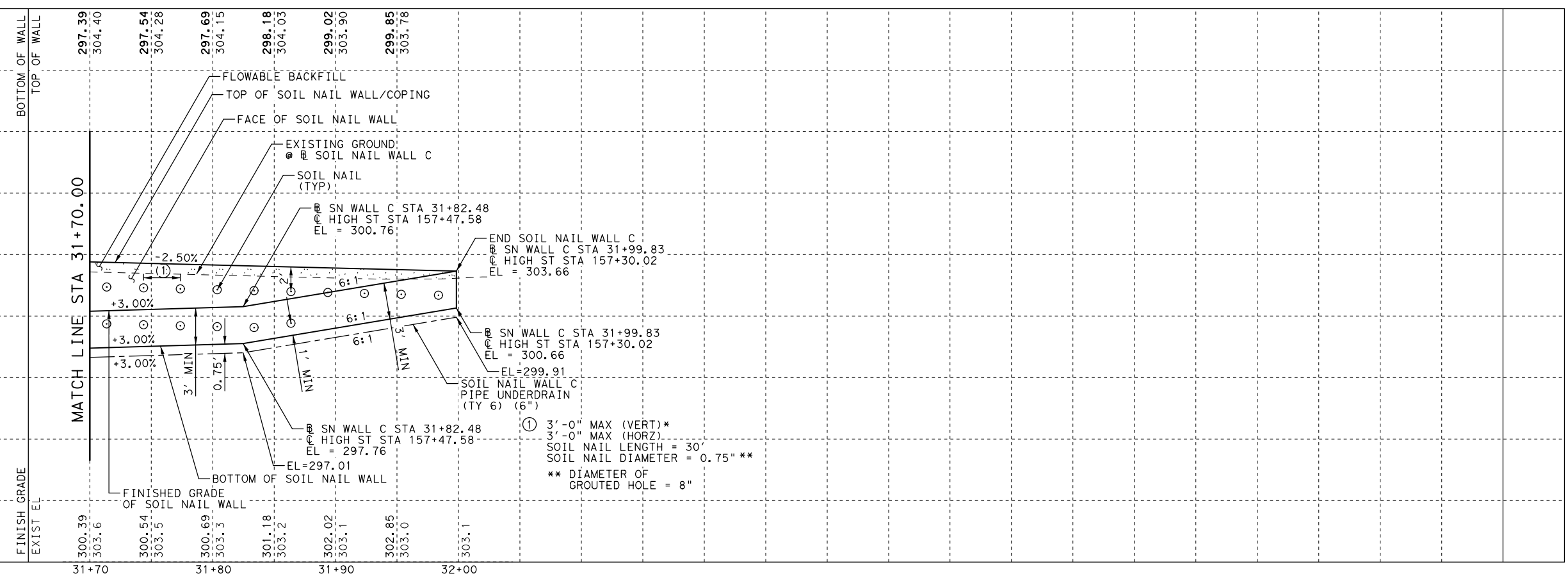
RETAINING WALL C SOIL NAIL LAYOUT

S HIGH ST AT UPRR AND SABINE ST

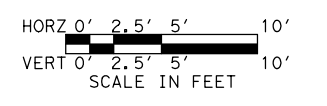
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
CHECK	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

SHEET 1 OF 2
 SHEET NO. 117

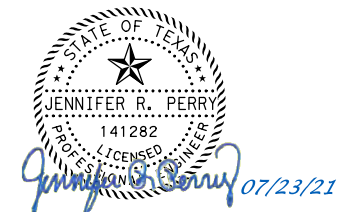
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③ PROFILE 31+70.00 - 31+99.83
 SOIL NAIL WALL C



- * VERTICAL SPACING FROM TOP OF SOIL NAIL WALL/COPING TO FIRST LEVEL OF NAILS IS 2'-0"; ALL SUBSEQUENT NAIL LEVELS TO BE PLACED 3'-0" BELOW THE PREVIOUS LEVEL OF NAILS. THE LAST LEVEL OF NAILS MUST BE PLACED WITHIN 1'-0" ABOVE THE BOTTOM OF THE SOIL NAIL WALL.
 - 1. UNLESS OTHERWISE NOTED SOIL NAIL LENGTH TO REMAIN THE SAME THROUGHOUT THE LENGTH OF THE WALL.
 - 2. SEE RETAINING WALL TYPICAL SECTION SHEETS AND RETAINING WALL DETAIL SHEETS FOR ADDITIONAL INFORMATION.
 - 3. SEE RETAINING WALL-ABUTMENT DETAIL SHEET FOR SOIL NAIL SKEW INFORMATION AT BRIDGE ABUTMENTS.
- △ VERIFICATION TEST LOCATION



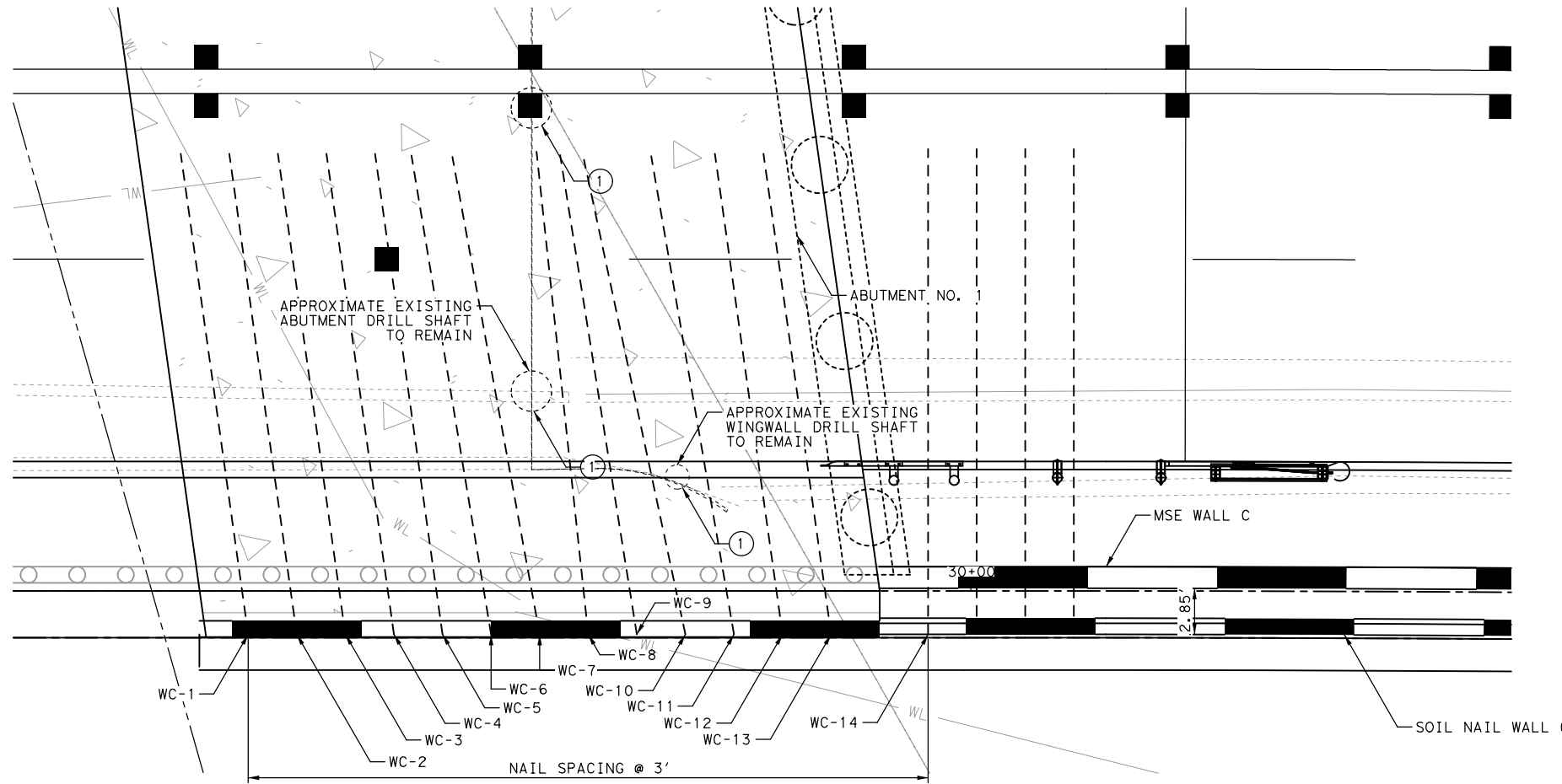


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Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

**RETAINING WALL C
 SOIL NAIL LAYOUT**

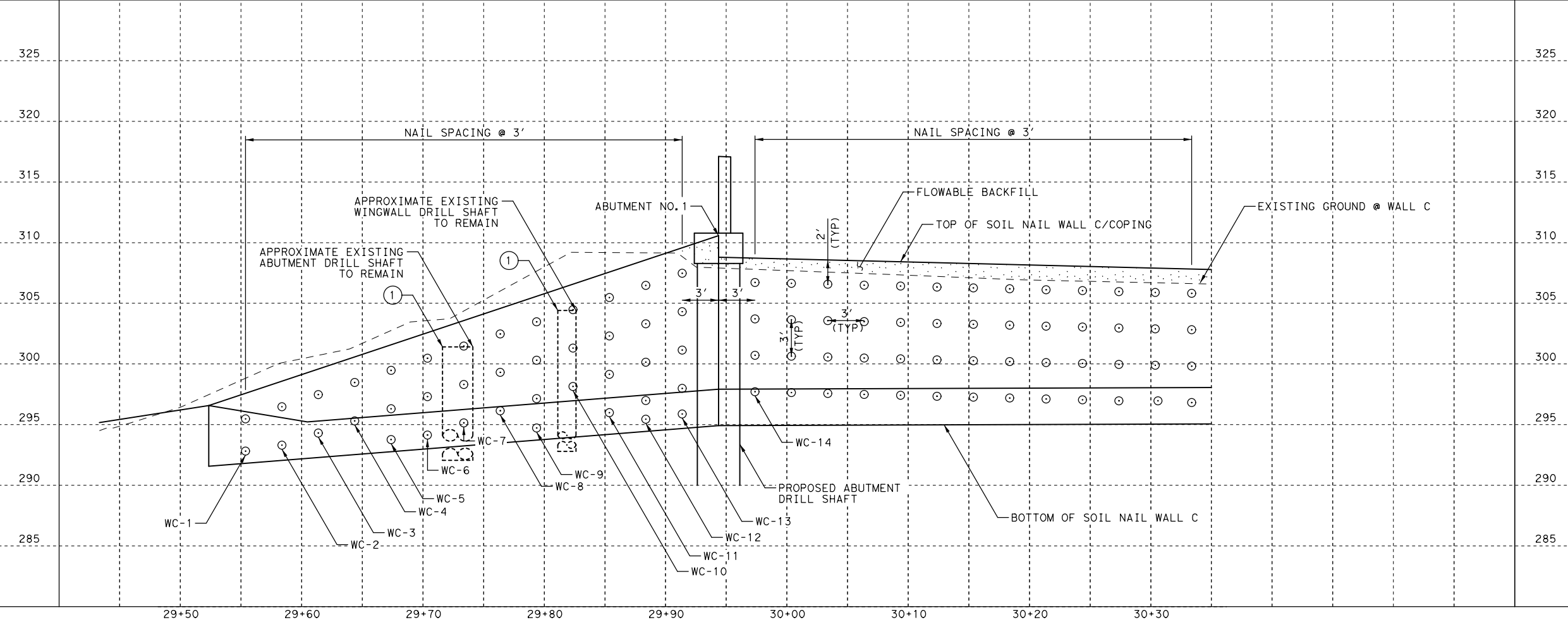
SHEET 2 OF 2			
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			SHEET NO.
JMT			118

DATE: 7/22/2021
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WALL C AT ABUTMENT NO. 1		
NAILS	STATION	SKEW ANGLE
WC-1	29+55.37	82°
WC-2	29+58.37	82°
WC-3	29+61.37	82°
WC-4	29+64.37	82°
WC-5	29+67.37	82°
WC-6	29+70.37	80.56°
WC-7	29+73.37	79.65°
WC-8	29+76.37	83.89°
WC-9	29+79.37	80.9°
WC-10	29+82.37	77.96°
WC-11	29+85.37	80.19°
WC-12	29+88.37	82°
WC-13	29+91.37	82°
WC-14	29+97.37	90°

- ⊙ LOCATION OF SOIL NAIL.
- ⊕ LOCATION OF NAIL TEST (NT)
- ① THE CONTRACTOR MUST CONFIRM EXACT LOCATION OF ALL EXISTING DRILLED SHAFTS, ABUTMENT, ETC. AND DRILL NAIL HOLES TO AVOID CONFLICTS WITH EXISTING STRUCTURES.
- ② NAIL HOLES MUST BE DRILLED ALONG THE ALIGNMENT AS SHOWN IN THE PLANS. DEVIATIONS GREATER THAN 1 INCH ARE NOT PERMITTED DUE TO CONFLICTS WITH THE EXISTING STRUCTURES. CONTRACTOR'S SURVEYOR MUST LOCATE CENTER OF NAIL HOLE ON EXCAVATION FACE FROM VERTICAL WALL CONTROL LINE TO A MINIMUM ACCURACY OF 0.5 INCH.
- ③ FOR ADDITIONAL NAIL DETAILS SEE RETAINING WALL-SOIL NAIL LAYOUTS.
- ④ ALL STATIONS, OFFSETS AND SKEW ANGLES MEASURED FROM SOIL NAIL WALL.



STATE OF TEXAS
 JENNIFER R. PERRY
 141282
 LICENSED PROFESSIONAL ENGINEER
 07/23/21

STATE OF TEXAS
 DIPENDRA TIMALSINA SHARMA
 136305
 LICENSED PROFESSIONAL ENGINEER
 7/23/2021

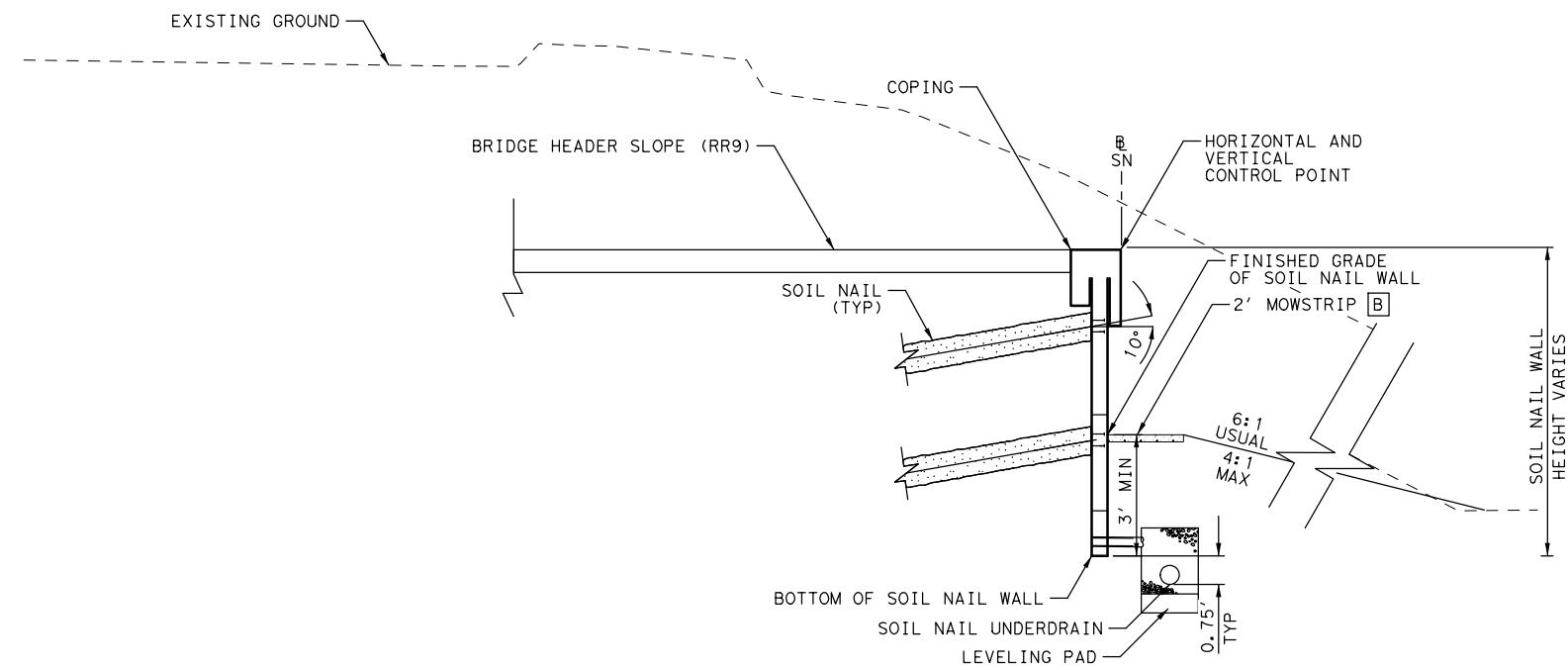
JMT TBPE REGISTRATION NO. F-16341

Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

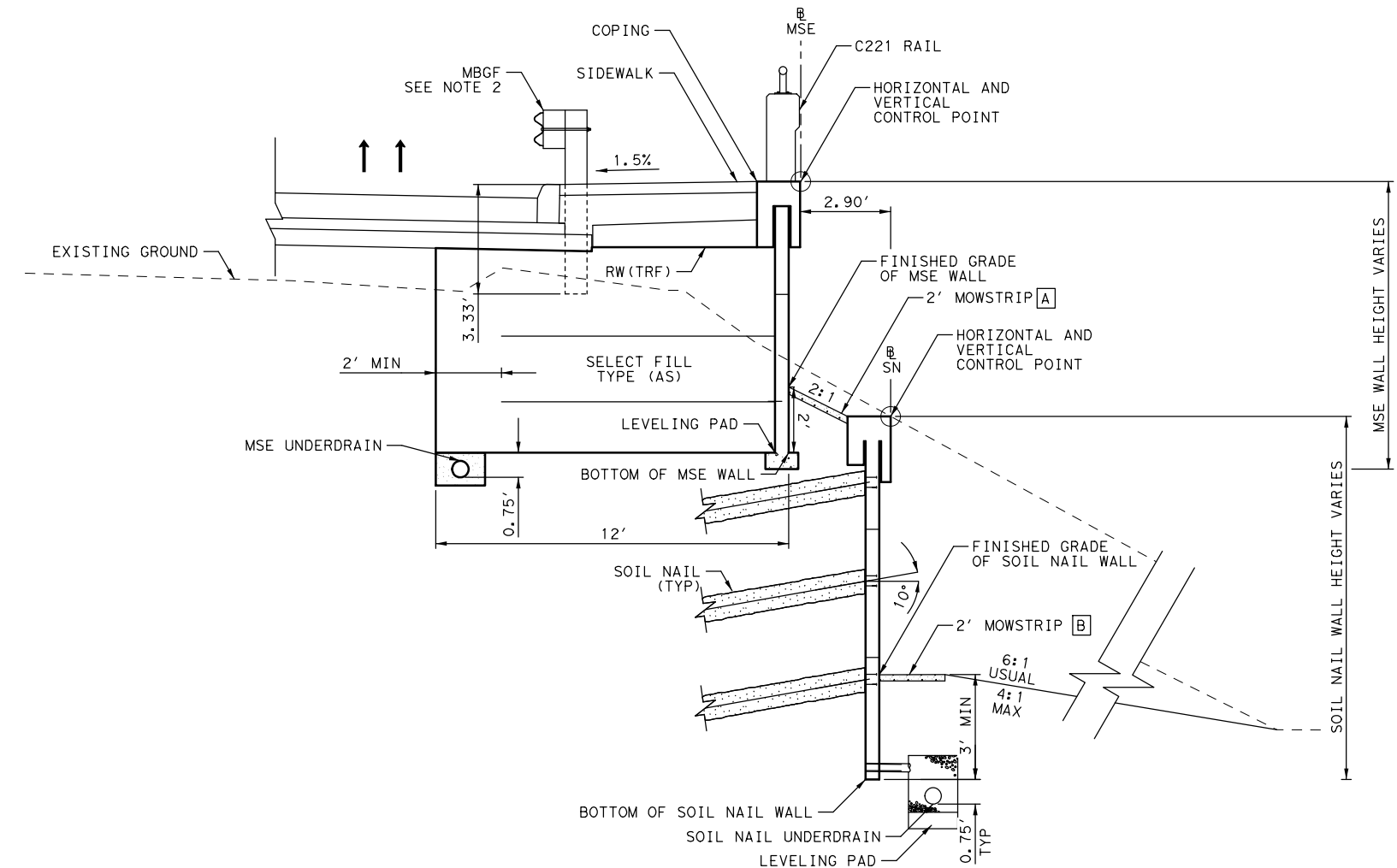
**RETAINING WALL C
 ABUTMENT DETAIL**

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						119

DATE: 12/20/2021
 FILENAME: pw:\jmt-pw.bentley.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*TYP*RW03



TYPICAL SECTION
 @ SN WALL C
 STA 29+52.35 - STA 29+94.37



TYPICAL SECTION
 @ MSE WALL C
 STA 29+94.37 - STA 31+99.83
 @ SOIL NAIL WALL C
 STA 29+94.37 - STA 31+99.83

- NOTES:**
1. REFER TO RETAINING WALL AND SOIL NAIL WALL LAYOUT SHEETS FOR MORE INFORMATION.
 2. WALL MANUFACTURER TO DESIGN EARTH REINFORCEMENT (STRAPS) TO ACCOMMODATE GUARDRAIL POSTS. SEE GF (31)-19 AND GF (31)MS-19 FOR STANDARD MBGF INSTALLATION.
 3. SEE STANDARD SHEET RW(MSE), RW(MSE)DD, RW(EM), AND RW(TRF) FOR ADDITIONAL INFORMATION.
 4. SEE ILLUMINATION PLAN FOR ILLUMINATION POLE LOCATIONS AND ADDITIONAL INFORMATION.

[A] MOWSTRIP AT @ MSE WALL C*

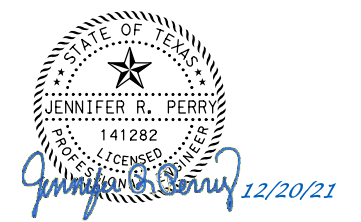
STATION	OFFSET 1*	OFFSET 2*
29+94.37	0.00'	2.00' RT
31+99.83	0.00'	2.00' RT
31+99.83	0.00'	4.90' RT
32+09.76	0.00'	4.00' RT
32+79.01	0.00'	4.00' RT

*OFFSET MEASURED FROM @ MSE WALL C
 #FOR CONTRACTOR'S REFERENCE ONLY.
 CONTRACTOR MAY ADJUST MOWSTRIP IN THE FIELD AS NECESSARY.

[B] MOWSTRIP AT @ SOIL NAIL WALL C*

STATION	OFFSET 1**	OFFSET 2**
29+52.35	0.00'	2.00' RT
29+94.37	0.00'	2.00' RT
31+99.83	0.00'	2.00' RT

**OFFSET MEASURED FROM @ SOIL NAIL WALL C
 #FOR CONTRACTOR'S REFERENCE ONLY.
 CONTRACTOR MAY ADJUST MOWSTRIP IN THE FIELD AS NECESSARY.



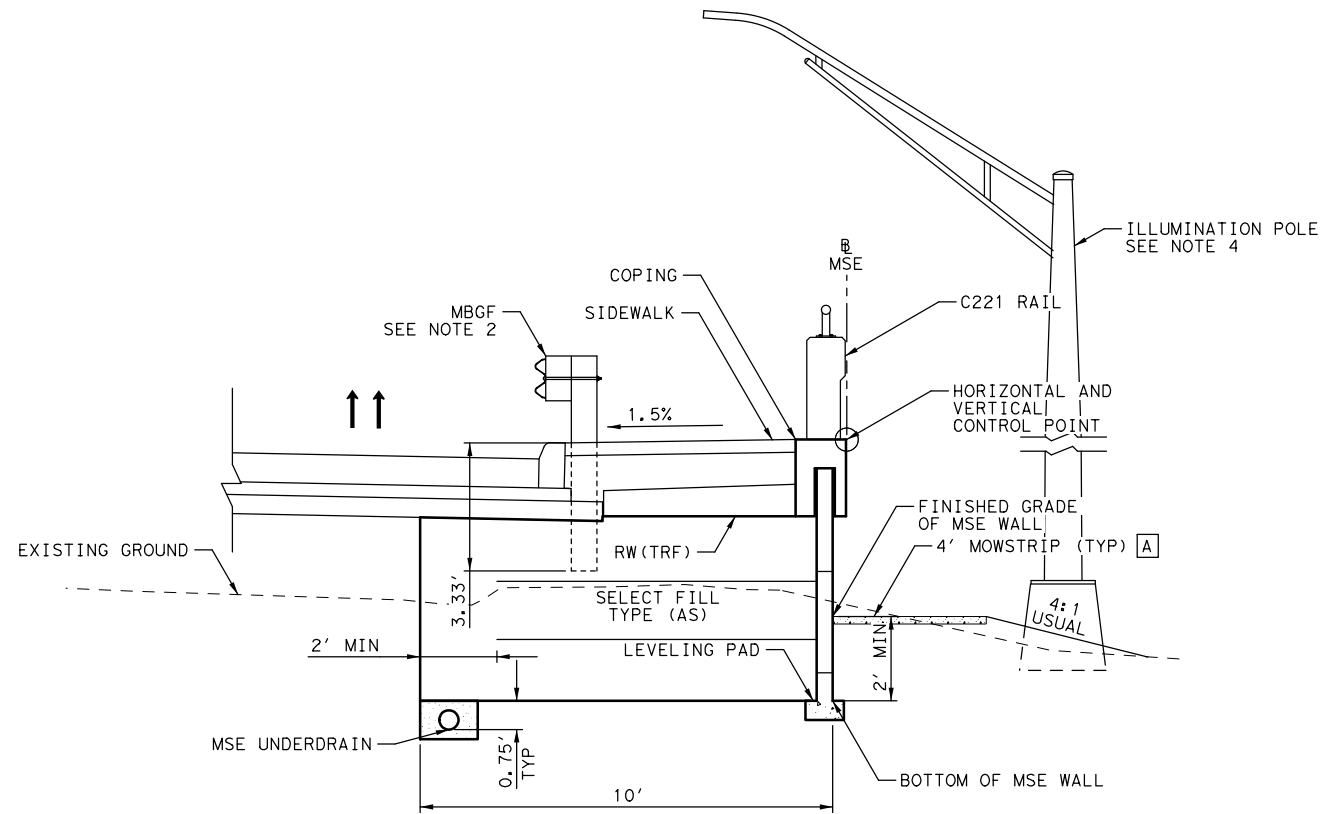
JMT TBPE REGISTRATION NO. F-16341
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Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

**RETAINING WALL C
 TYPICAL SECTIONS**

SCALE: NTS SHEET 1 OF 2

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	120
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	REGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072

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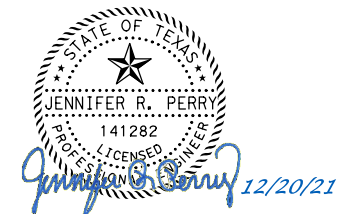
TYPICAL SECTION
 @ MSE WALL C
 STA 31+99.83 - STA 32+79.21

NOTES:

1. REFER TO RETAINING WALL AND SOIL NAIL WALL LAYOUT SHEETS FOR MORE INFORMATION.
2. WALL MANUFACTURER TO DESIGN EARTH REINFORCEMENT (STRAPS) TO ACCOMODATE GUARDRAIL POSTS. SEE GF (31)-19 AND GF (31)MS-19 FOR STANDARD MBGF INSTALLATION.
3. SEE STANDARD SHEET RW(MSE), RW(MSE)DD, RW(EM), AND RW(TRF) FOR ADDITIONAL INFORMATION.
4. SEE ILLUMINATION PLAN FOR ILLUMINATION POLE LOCATIONS AND ADDITIONAL INFORMATION.

A MOWSTRIP AT @ MSE WALL C*		
STATION	OFFSET 1*	OFFSET 2*
29+94.37	0.00'	2.00' RT
31+99.83	0.00'	2.00' RT
31+99.83	0.00'	4.90' RT
32+09.76	0.00'	4.00' RT
32+79.01	0.00'	4.00' RT

*OFFSET MEASURED FROM @ MSE WALL C
 #FOR CONTRACTOR'S REFERENCE ONLY.
 CONTRACTOR MAY ADJUST MOWSTRIP IN THE FIELD AS NECESSARY.



S HIGH ST AT UPRR AND SABINE ST

**RETAINING WALL C
 TYPICAL SECTIONS**

SCALE: NTS			SHEET 2 OF 2	
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
JMT	6	(SEE TITLE SHEET)	HIGH ST	
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	
JMT	0910	07	072	121

RETAINING WALL D

HORIZONTAL ALIGNMENT

MSE WALL

RW D CURVE-1

P.I. Station	42+53.99	N	6,880,793.2937	E	3,126,852.5590
Delta	4° 17' 42.62"	(RT)			
Degree	7° 09' 55.19"				
Tangent	29.9859				
Length	59.9438				
Radius	799.6250				
External	0.5620				
Long Chord	59.9298				
Mid. Ord.	0.5616				
P.C. Station	42+24.00	N	6,880,763.7091	E	3,126,857.4483
P.T. Station	42+83.94	N	6,880,823.1615	E	3,126,849.8992
C.C.		N	6,880,894.0904	E	3,127,646.3722
Back	= N 9° 23' 02.94" W				
Ahead	= N 5° 05' 20.32" W				
Chord Bear	= N 7° 14' 11.63" W				

RW D CURVE-2

P.I. Station	43+14.04	N	6,880,853.1413	E	3,126,847.2294
Delta	4° 17' 42.61"	(LT)			
Degree	7° 08' 18.78"				
Tangent	30.0984				
Length	60.1687				
Radius	802.6250				
External	0.5641				
Long Chord	60.1546				
Mid. Ord.	0.5638				
P.C. Station	42+83.94	N	6,880,823.1615	E	3,126,849.8992
P.T. Station	43+44.11	N	6,880,882.8369	E	3,126,842.3217
C.C.		N	6,880,751.9665	E	3,126,050.4380
Back	= N 5° 05' 20.32" W				
Ahead	= N 9° 23' 02.94" W				
Chord Bear	= N 7° 14' 11.63" W				

Course from PT RWD SE MSE 4 to 396 N 9° 23' 02.94" W Dist 189.0552

SOIL NAIL WALL

Curve RWD_SE_SN_3

P.I. Station	42+53.88	N	6,880,793.6587	E	3,126,855.4330
Delta	4° 17' 42.62"	(RT)			
Degree	7° 11' 28.92"				
Tangent	29.8774				
Length	59.7268				
Radius	796.7300				
External	0.5600				
Long Chord	59.7128				
Mid. Ord.	0.5596				
P.C. Station	42+24.00	N	6,880,764.1811	E	3,126,860.3046
P.T. Station	42+83.73	N	6,880,823.4183	E	3,126,852.7828
C.C.		N	6,880,894.0904	E	3,127,646.3722
Back	= N 9° 23' 02.94" W				
Ahead	= N 5° 05' 20.32" W				
Chord Bear	= N 7° 14' 11.63" W				

Curve RWD_SE_SN_4

P.I. Station	43+13.93	N	6,880,853.5062	E	3,126,850.1033
Delta	4° 17' 42.61"	(LT)			
Degree	7° 06' 46.42"				
Tangent	30.2070				
Length	60.3857				
Radius	805.5200				
External	0.5662				
Long Chord	60.3716				
Mid. Ord.	0.5658				
P.C. Station	42+83.73	N	6,880,823.4183	E	3,126,852.7828
P.T. Station	43+44.11	N	6,880,883.3089	E	3,126,845.1780
C.C.		N	6,880,751.9665	E	3,126,050.4380
Back	= N 5° 05' 20.32" W				
Ahead	= N 9° 23' 02.94" W				
Chord Bear	= N 7° 14' 11.63" W				

Course from PT RWD SE SN 4 to 386 N 9° 23' 02.94" W Dist 189.0552

VERTICAL ALIGNMENT

TOP OF MSE WALL

RWD_SE_MSE_TOW

Beginning profile RWD SE MSE TOW description:

		STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	40+00.00	299.0170				
VPC		40+00.00	299.0170	3.4292	K = 50.2		
VPI	2	40+52.00	300.8002		104.0001	52.0001	52.0001
VPT		41+04.00	303.6602	5.5000			
VPC		42+23.99	310.2595	5.5000	K = 103.4	SSD = 1149.3	
VPI	3	42+74.76	313.0517		101.5347	50.7674	50.7674
VPT		43+25.52	315.3453	4.5178			
VPI	4	43+75.52	317.6042	4.5178			

Ending profile RWD SE MSE TOW description

FINISH GRADE OF MSE WALL

RWD_SE_MSE_FG

Beginning profile RWD_SE_MSE_FG description:

		STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	40+00.00	299.0170				
VPI	2	40+05.62	297.1438	-33.3333			
VPI	3	40+37.20	299.2491	6.6667			
VPI	4	43+75.52	311.0904	3.5000			

Ending profile RWD_SE_MSE_FG description

BOTTOM OF MSE WALL

RWD_SE_MSE_BOW

Beginning profile RWD_SE_MSE_BOW description:

		STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	40+00.00	298.0170				
VPI	2	40+05.62	296.1438	-33.3333			
VPI	3	43+75.52	309.0904	3.5000			

Ending profile RWD_SE_MSE_BOW description

TOP OF SOIL NAIL WALL

RWD_SE_SN_TOW

Beginning profile RWD_SE_SN_TOW description:

		STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	40+00.00	296.9471				
VPI	2	43+75.52	310.0904	3.5000			

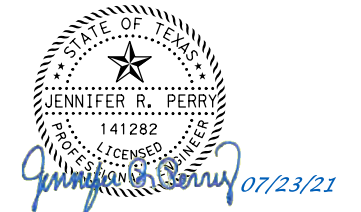
Ending profile RWD_SE_SN_TOW description

RWD_MSE_TOWA

Beginning profile RWD_MSE_TOWA description:

		STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	43+75.52	311.0837				
VPI	2	44+19.90	288.8942	-50.0001			

Ending profile RWD_MSE_TOWA description



S HIGH ST AT UPRR AND SABINE ST

**RETAINING WALL D
ALIGNMENT DATA**

SHEET 1 OF 2

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL		SECTION		JOB	
CHECK	JMT		0910		07		072

122

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FINISH GRADE OF SOIL NAIL WALL

(RWD_SE_SN_FG)

Beginning profile RWD_SE_SN_FG description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	40+00.00	299.0170			
VPI	2	40+29.18	289.2909	-33.3333		
VPC	41+67.98	288.8051	-0.3500	K = 42.6		
Low Point	41+82.87	288.7790				
VPI	3	42+17.98	288.6301	100.0000	50.0000	50.0000
VPT	42+67.98	289.6301	2.0000			
VPI	4	43+75.52	291.7810	2.0000		
VPI	5	43+77.60	291.7810	0.0000		

Ending profile RWD_SE_SN_FG description

(RWD_MSE_FGA)

Beginning profile RWD_MSE_FGA description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	43+75.52	291.7810			
VPI	2	44+19.90	288.8942	-6.5051		

Ending profile RWD_MSE_FGA description

BOTTOM OF SOIL NAIL WALL

(RWD_SE_SN_BOW1)

Beginning profile RWD_SE_SN_BOW1 description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	40+00.00	296.0170			
VPI	2	40+29.18	286.2909	-33.3333		
VPI	3	41+24.00	285.9590	-0.3500		

Ending profile RWD_SE_SN_BOW1 description

(RWD_SE_SN_BOW2)

Beginning profile RWD_SE_SN_BOW2 description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	41+24.00	281.9590			
VPC	41+67.98	281.8051	-0.3500	K = 42.6		
Low Point	41+82.87	281.7790				
VPI	2	42+17.98	281.6301	100.0000	50.0000	50.0000
VPT	42+67.98	282.6301	2.0000			
VPI	3	43+75.57	284.7819	2.0000		

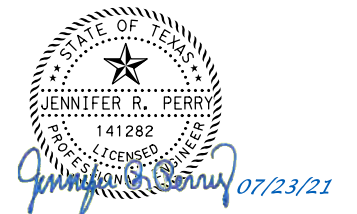
Ending profile RWD_SE_SN_BOW2 description

(RWD_MSE_BOWA)

Beginning profile RWD_MSE_BOWA description:

	STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	43+75.52	284.7810			
VPI	2	44+19.90	281.8942	-6.5051		

Ending profile RWD_MSE_BOWA description



S HIGH ST AT UPRR AND SABINE ST

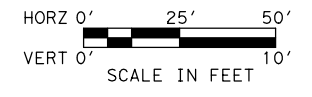
RETAINING WALL D ALIGNMENT DATA

SHEET 2 OF 2

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	TYLER
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						123

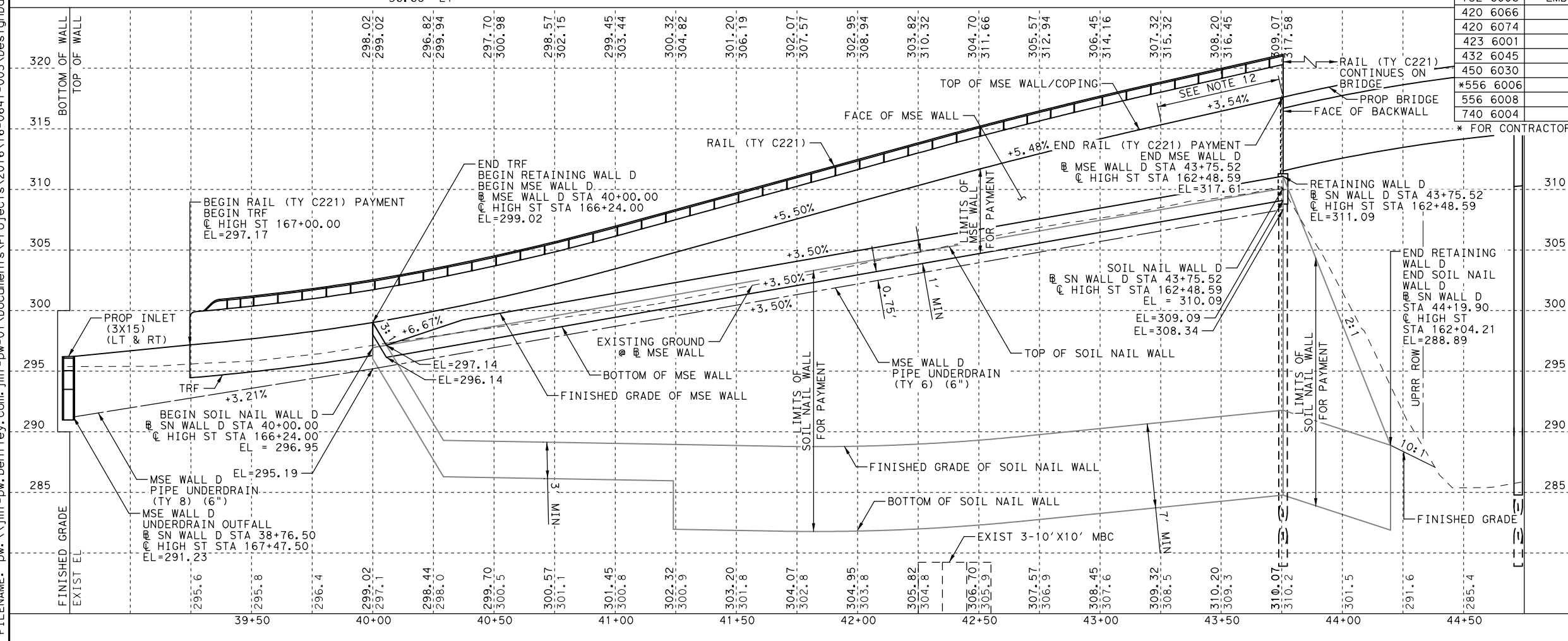
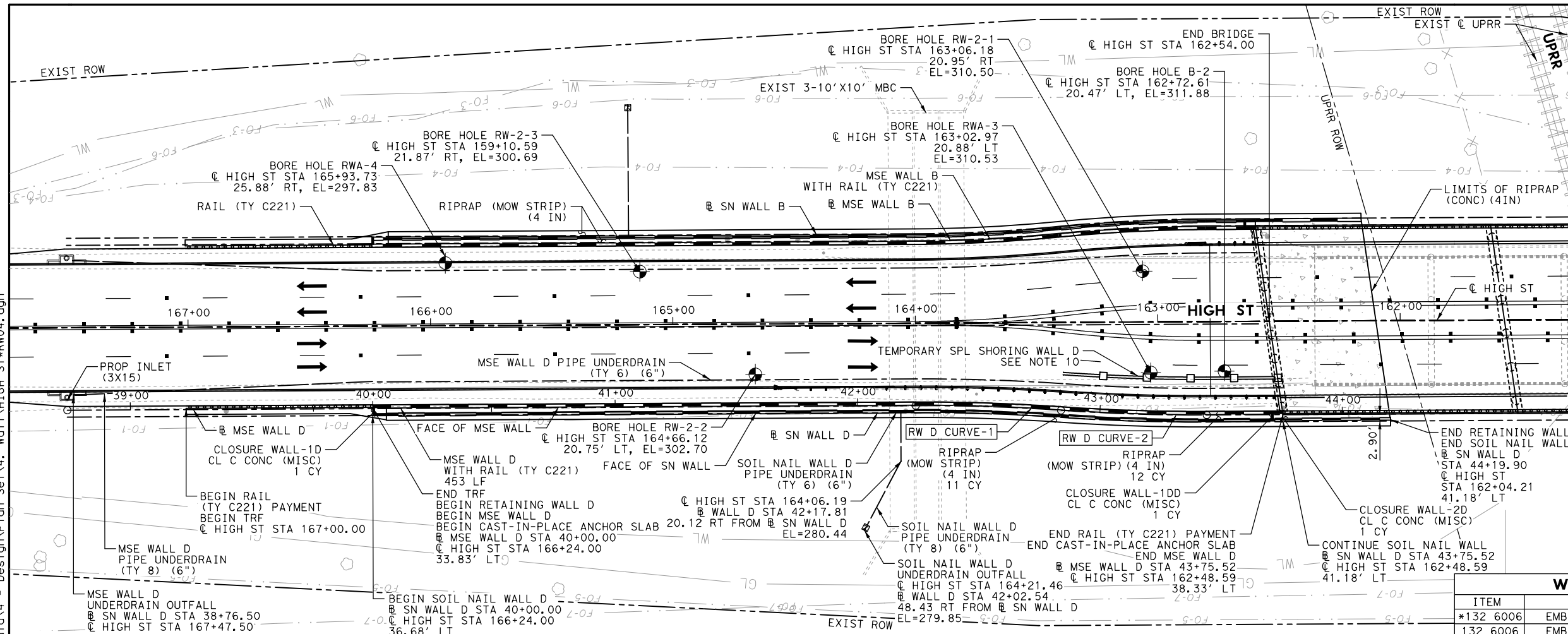
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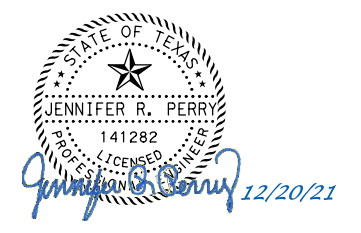
NOTES:

1. REFER TO RETAINING WALL BORING SHEETS AND PLAN AND PROFILE SHEETS FOR MORE INFORMATION.
2. WALL MANUFACTURER TO DESIGN EARTH REINFORCEMENT (STRAPS) TO ACCOMMODATE GUARDRAIL POSTS. SEE GF (31)-19 AND GF (31)MS-19 FOR STANDARD MBGF INSTALLATION.
3. COPING AND ANCHOR SLABS ARE CONSIDERED SUBSIDIARY TO ITEM 423 "RETAINING WALL".
4. POSITIVE DRAINAGE MUST BE PROVIDED DURING CONSTRUCTION AND POST CONSTRUCTION.
5. PROVIDE EMBANKMENT EARTH REINFORCEMENTS WITH A LENGTH AS SHOWN ON SHEET RW(MSE)DD.
6. SEE STANDARD SHEET RW(MSE), RW(MSE)DD, RW(EM), AND RW(TRF) FOR ADDITIONAL INFORMATION.
7. CONTRACTOR MUST LOCATE AND VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION.
8. REFER TO RETAINING WALL SOIL NAIL LAYOUT SHEETS AND TYPICAL SECTION SHEETS FOR MORE INFORMATION.
9. ALL OFFSETS ARE MEASURED FROM THE HIGH ST CENTERLINE UNLESS OTHERWISE NOTED.
10. SEE RETAINING WALL TEMPORARY SPECIAL SHORING SHEETS FOR DETAILED INFORMATION.
11. SEE RETAINING WALL DETAIL SHEETS FOR ADDITIONAL INFORMATION.
12. REFER TO MISCELLANEOUS ROADWAY DETAILS-SIDEWALK TRANSITION SHEETS FOR MORE INFO.



WALL D ESTIMATED QUANTITIES				
ITEM	DESCRIPTION	UNIT	QUANTITY	
*132 6006	EMBANKMENT (FINAL) (DES CONT) (TY C)	CY	291	
132 6006	EMBANKMENT (FINAL) (DES CONT) (TY C)	CY	312	
420 6066	CL C CONC (RAIL FOUNDATION)	CY	12	
420 6074	CL C CONC (MISC)	CY	3	
423 6001	RETAINING WALL (MSE)	SF	2,137	
432 6045	RIPRAP (MOW STRIP) (4 IN)	CY	12	
450 6030	RAIL (TY C221)	LF	453	
*556 6006	PIPE UNDERDRAINS (TY 6) (6")	LF	382	
556 6008	PIPE UNDERDRAINS (TY 8) (6")	LF	126	
740 6004	ANTI- GRAFFITI COATING	SF	2137	

* FOR CONTRACTORS INFORMATION ONLY



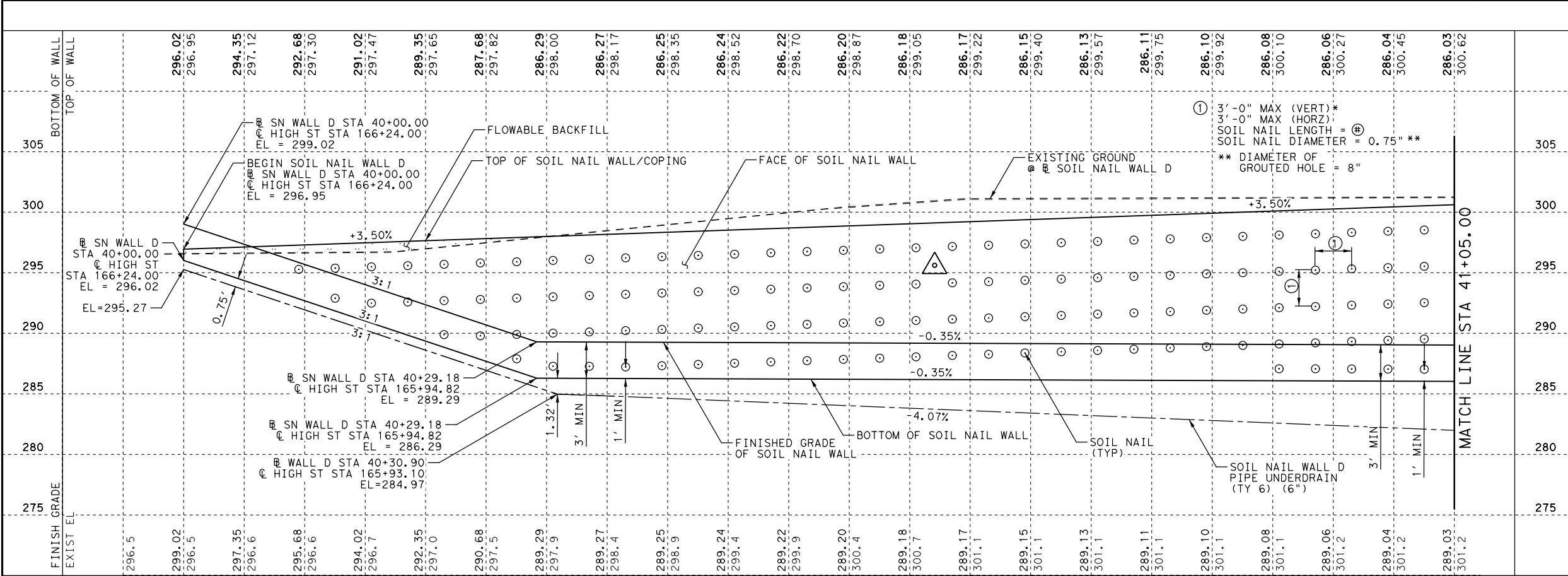
S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL D

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	124
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072

SHEET 1 OF 1

DATE: 7/22/2021
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HORIZ 0' 2.5' 5' 10'
 VERT 0' 2.5' 5' 10'
 SCALE IN FEET

* VERTICAL SPACING FROM TOP OF SOIL NAIL WALL/COPING TO FIRST LEVEL OF NAILS IS 2'-0", ALL SUBSEQUENT NAIL LEVELS TO BE PLACED 3'-0" BELOW THE PREVIOUS LEVEL OF NAILS. THE LAST LEVEL OF NAILS MUST BE PLACED WITHIN 1'-0" ABOVE THE BOTTOM OF THE SOIL NAIL WALL.

- UNLESS OTHERWISE NOTED SOIL NAIL LENGTH TO REMAIN THE SAME THROUGHOUT THE LENGTH OF THE WALL.
- SEE RETAINING WALL TYPICAL SECTION SHEETS AND RETAINING WALL DETAIL SHEETS FOR ADDITIONAL INFORMATION.
- SEE RETAINING WALL-ABUTMENT DETAIL SHEET FOR SOIL NAIL SKEW INFORMATION AT BRIDGE ABUTMENTS.

△ VERIFICATION TEST LOCATION

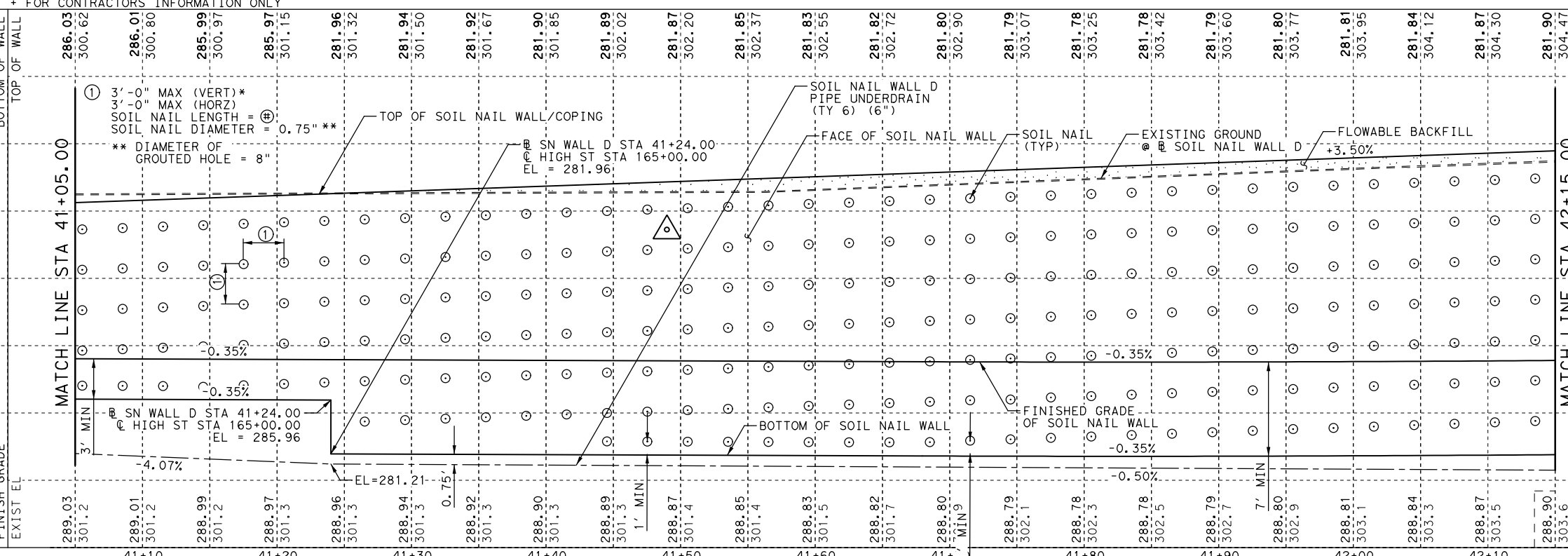
SOIL NAIL WALL D ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
410 6001	SOIL NAIL ANCHORS	LF	30985
423 6022	RETAINING WALL (SOIL NAIL) (FACIA)	SF	7982
+556 6006	PIPE UNDERDRAINS (TY 6) (6")	LF	422
556 6008	PIPE UNDERDRAINS (TY 8) (6")	LF	60

① PROFILE 40+00.00 - 41+05.00
 SOIL NAIL WALL D

SOIL NAIL WALL D ESTIMATED QUANTITIES

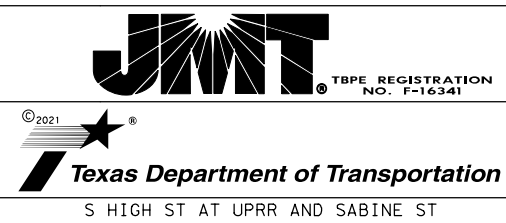
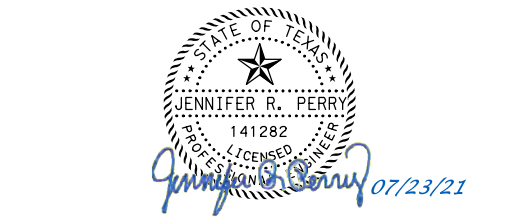
ITEM	DESCRIPTION	UNIT	QUANTITY
432 6001	RIPRAP (CONC) (4IN)	CY	1
432 6045	RIPRAP (MOW STRIP) (4IN)	CY	11
740 6004	ANTI- GRAFFITI COATING	SF	7982
401 6001	FLOWABLE BACKFILL	CY	14



SOIL NAIL LENGTH

SOIL NAIL WALL D	SOIL NAIL LENGTH		NAIL LENGTH (FT)
	BEGIN	END	
40+00.00	166+24.00	163+35.00	35
42+89.07	163+35.00	44+19.90	40

② PROFILE 41+05.00 - 42+15.00
 SOIL NAIL WALL D



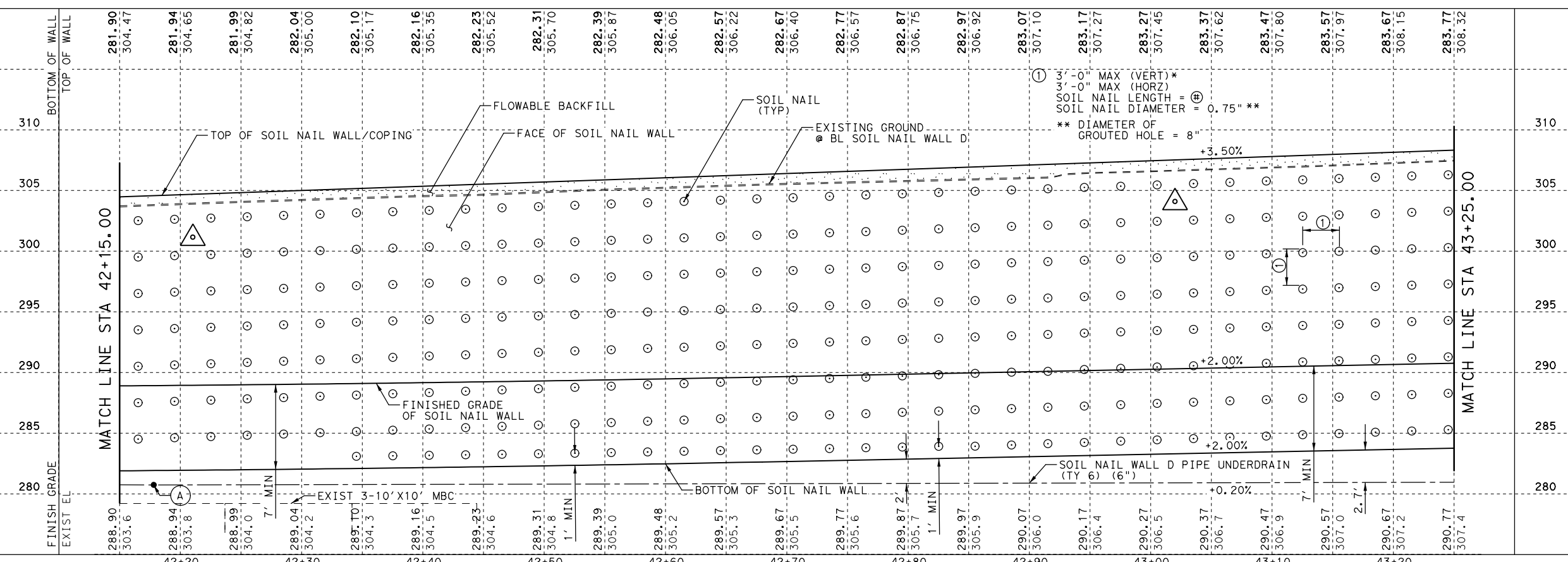
**RETAINING WALL D
 SOIL NAIL LAYOUT**

SHEET 1 OF 2

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

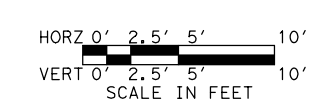
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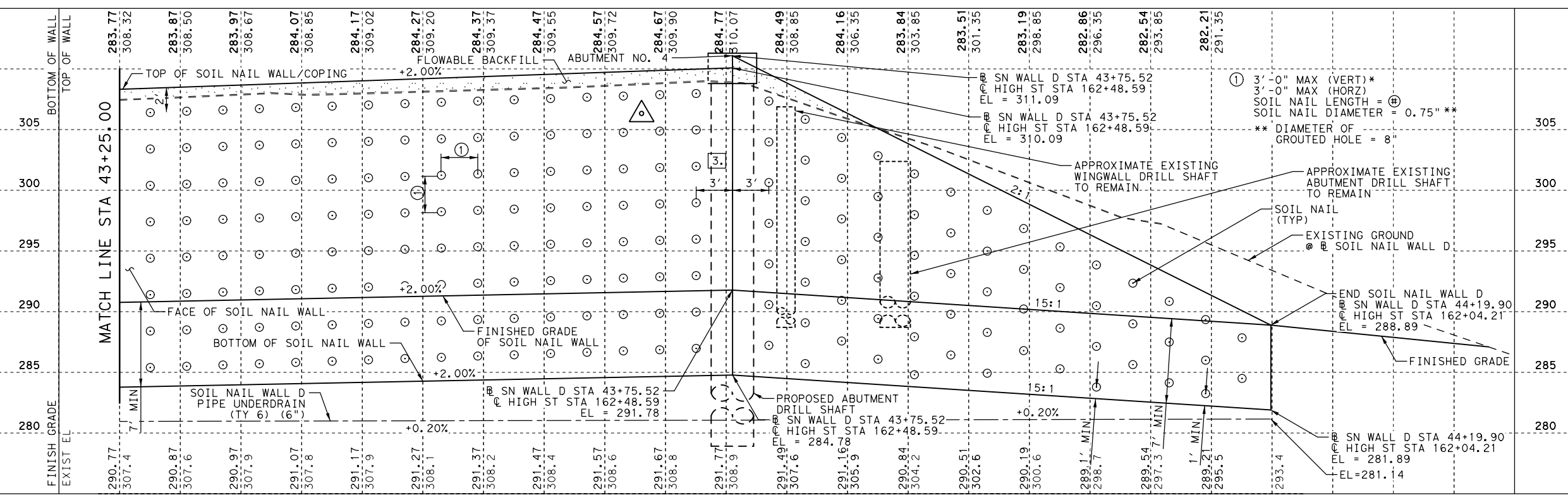


SOIL NAIL LENGTH (ft)				
BEGIN		END		NAIL LENGTH (FT)
SN WALL D	HIGH ST	SN WALL D	HIGH ST	
40+00.00	166+24.00	42+89.07	163+35.00	35
42+89.07	163+35.00	44+19.90	162+04.21	40

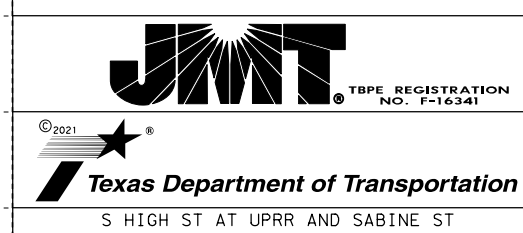
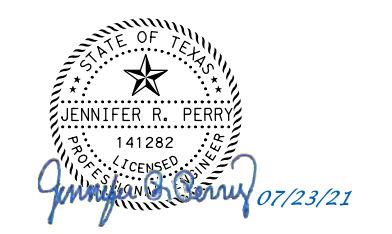
3 PROFILE 42+15.00 - 43+25.00
 SOIL NAIL WALL D



- * VERTICAL SPACING FROM TOP OF SOIL NAIL WALL/COPING TO FIRST LEVEL OF NAILS IS 2'-0", ALL SUBSEQUENT NAIL LEVELS TO BE PLACED 3'-0" BELOW THE PREVIOUS LEVEL OF NAILS. THE LAST LEVEL OF NAILS MUST BE PLACED WITHIN 1'-0" ABOVE THE BOTTOM OF THE SOIL NAIL WALL.
 - 1. UNLESS OTHERWISE NOTED SOIL NAIL LENGTH TO REMAIN THE SAME THROUGHOUT THE LENGTH OF THE WALL.
 - 2. SEE RETAINING WALL TYPICAL SECTION SHEETS AND RETAINING WALL DETAIL SHEETS FOR ADDITIONAL INFORMATION.
 - 3. SEE RETAINING WALL-ABUTMENT DETAIL SHEET FOR SOIL NAIL SKEW INFORMATION AT BRIDGE ABUTMENTS.
- △ VERIFICATION TEST LOCATION
 A SOIL NAIL WALL D UNDERDRAIN OUTFALLS TO DITCH
 WALL D STA 42+17.81
 HIGH ST STA 164+06.19
 EL=280.74



4 PROFILE 43+25.00 - 44+19.90
 SOIL NAIL WALL D

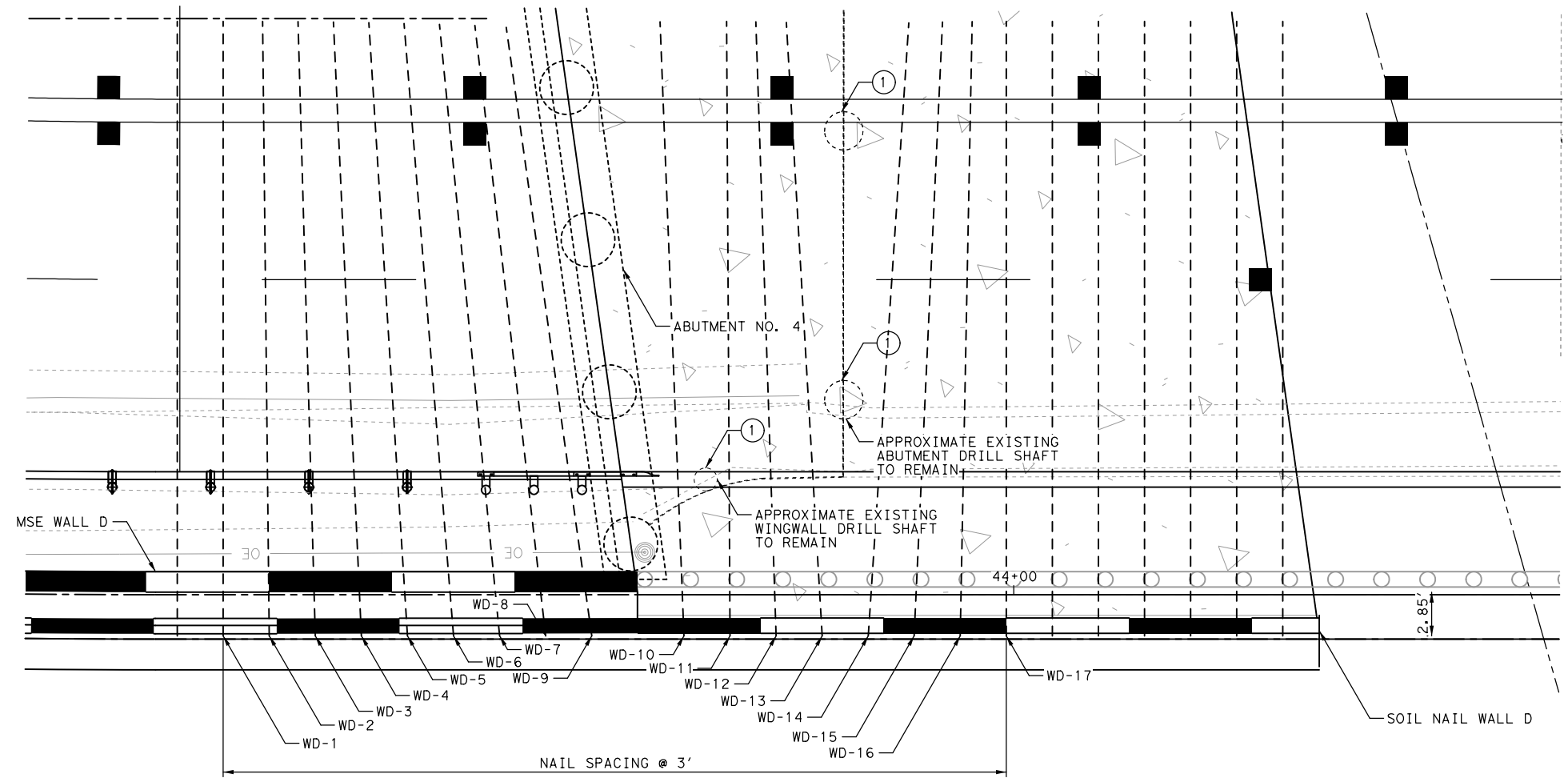


RETAINING WALL D SOIL NAIL LAYOUT

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST	
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG	
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072	
CHECK	JMT						SHEET NO.	126

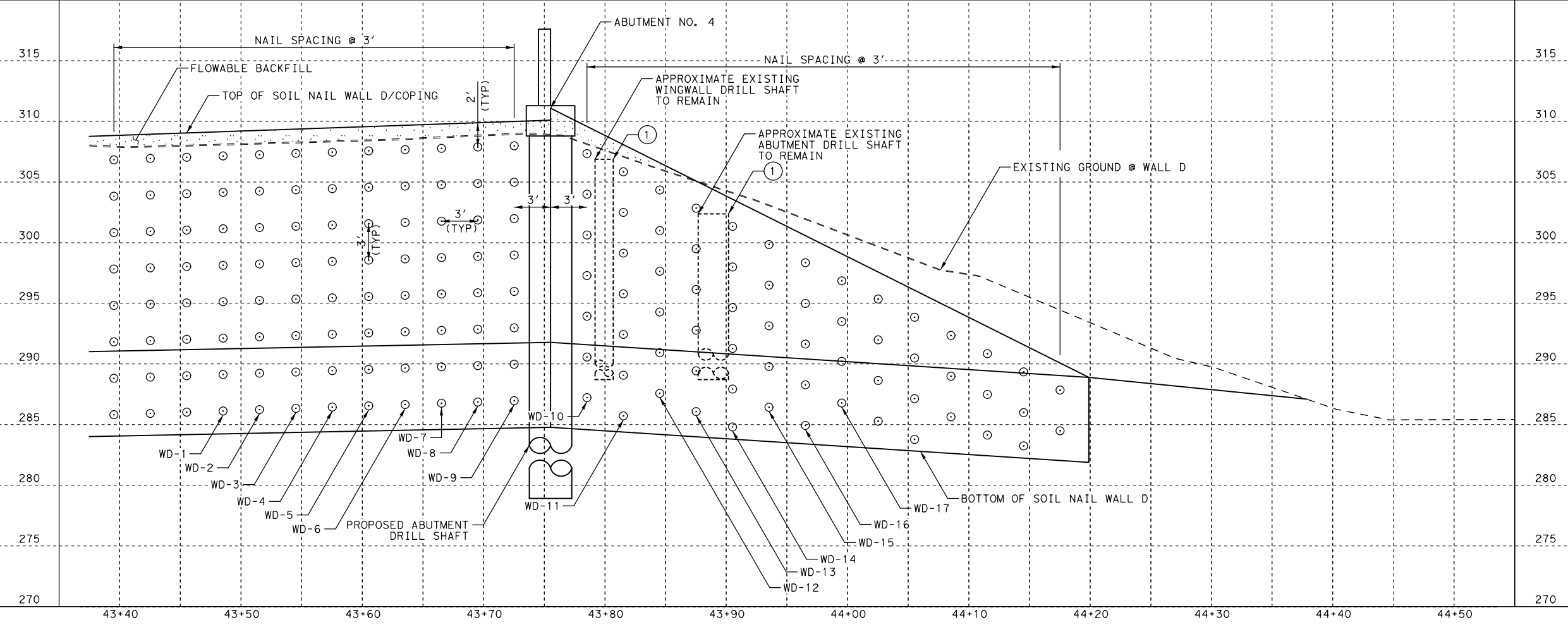
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WALL D AT ABUTMENT NO. 4		
NAILS	STATION	SKEW ANGLE
WD-1	43+48.52	90°
WD-2	43+51.52	89.39°
WD-3	43+54.52	88.39°
WD-4	43+57.52	87.39°
WD-5	43+60.52	86.39°
WD-6	43+63.52	85.39°
WD-7	43+66.52	84.39°
WD-8	43+69.52	83.39°
WD-9	43+72.52	82°
WD-10	43+75.52	87.77°
WD-11	43+78.52	89.7°
WD-12	43+81.52	88.12°
WD-13	43+84.52	86.66°
WD-14	43+87.52	86.2°
WD-15	43+90.52	87.36°
WD-16	43+93.52	88.88°
WD-17	43+96.52	90°

- ⊙ LOCATION OF SOIL NAIL.
- ⊕ LOCATION OF NAIL TEST (NT)
- ① THE CONTRACTOR MUST CONFIRM EXACT LOCATION OF ALL EXISTING DRILLED SHAFTS, ABUTMENT, ETC. AND DRILL NAIL HOLES TO AVOID CONFLICTS WITH EXISTING STRUCTURES.
- ② NAIL HOLES MUST BE DRILLED ALONG THE ALIGNMENT AS SHOWN IN THE PLANS. DEVIATIONS GREATER THAN 1 INCH ARE NOT PERMITTED DUE TO CONFLICTS WITH THE EXISTING STRUCTURES. CONTRACTOR'S SURVEYOR MUST LOCATE CENTER OF NAIL HOLE ON EXCAVATION FACE FROM VERTICAL WALL CONTROL LINE TO A MINIMUM ACCURACY OF 0.5 INCH.
- ③ FOR ADDITIONAL NAIL DETAILS SEE RETAINING WALL-SOIL NAIL LAYOUTS.
- ④ ALL STATIONS, OFFSETS AND SKEW ANGLES MEASURED FROM SOIL NAIL WALL.



STATE OF TEXAS
 JENNIFER R. PERRY
 141282
 LICENSED PROFESSIONAL ENGINEER
 07/23/21

STATE OF TEXAS
 DIPENDRA TIMALSINA SHARMA
 136305
 LICENSED PROFESSIONAL ENGINEER
 7/23/2021

JMT TBPE REGISTRATION NO. F-16341

Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

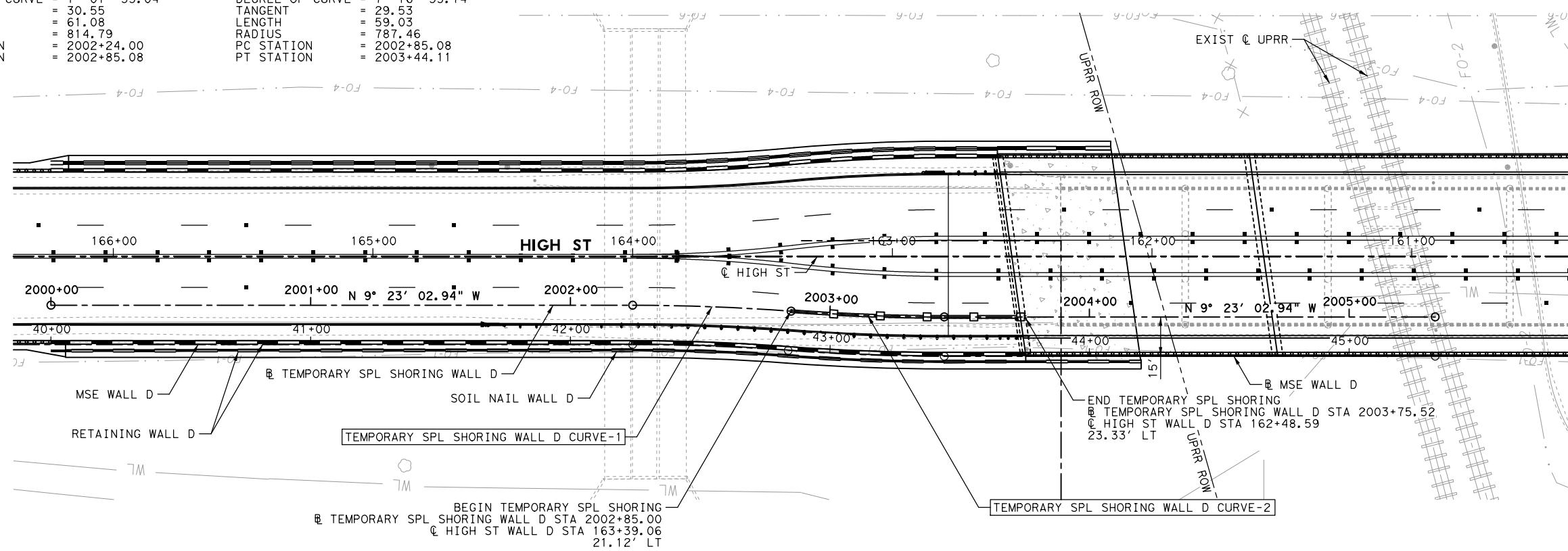
RETAINING WALL D ABUTMENT DETAIL				
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JMT	6	(SEE TITLE SHEET)	HIGH ST	
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	127
CHECK	CONTROL	SECTION	JOB	
JMT	0910	07	072	

TEMPORARY SPL SHORING WALL D CURVE-1
 PI STATION = 2002+54.55
 DELTA = 4° 17' 42.62" (RT)
 DEGREE OF CURVE = 7° 01' 55.04"
 TANGENT = 30.55
 LENGTH = 61.08
 RADIUS = 814.79
 PC STATION = 2002+24.00
 PT STATION = 2002+85.08

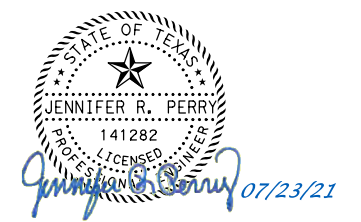
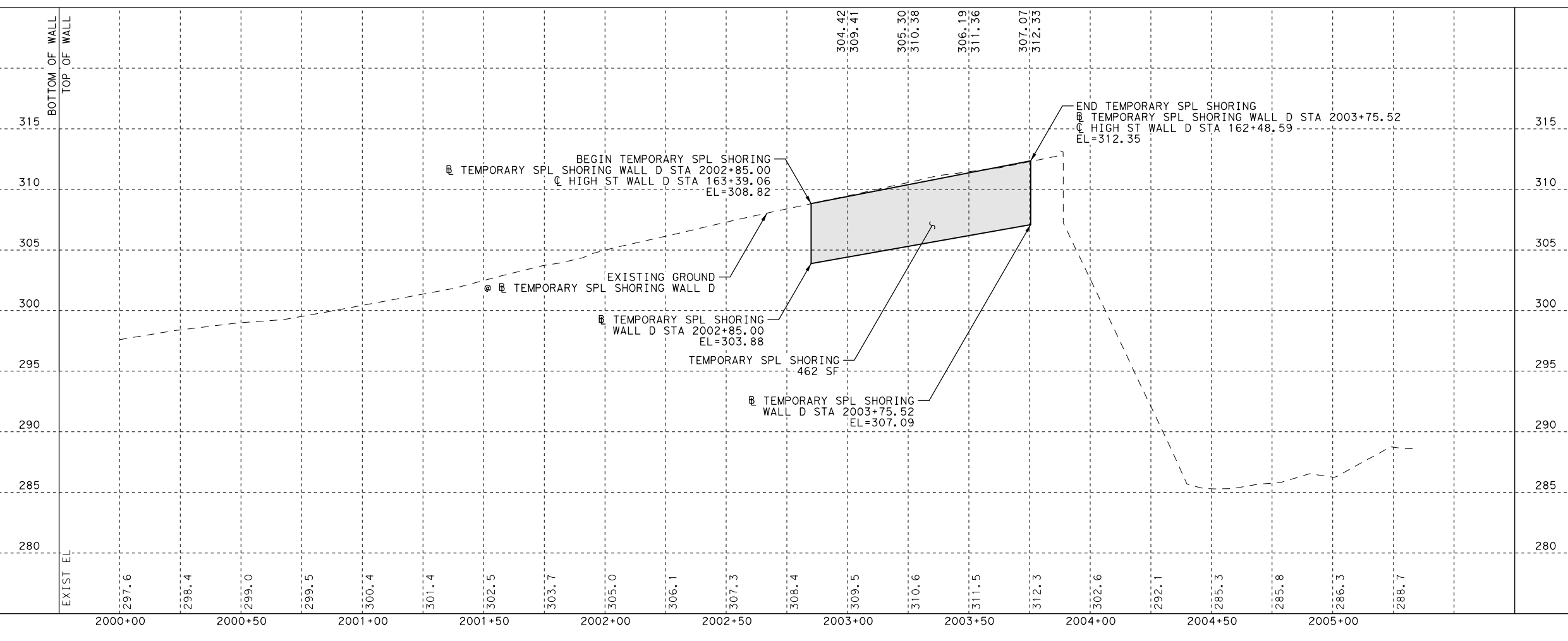
TEMPORARY SPL SHORING WALL D CURVE-2
 PI STATION = 2003+14.61
 DELTA = 4° 17' 42.61" (LT)
 DEGREE OF CURVE = 7° 16' 33.74"
 TANGENT = 29.53
 LENGTH = 59.03
 RADIUS = 787.46
 PC STATION = 2002+85.08
 PT STATION = 2003+44.11



HORIZ 0' 25' 50'
 VERT 0' 5' 10'
 SCALE IN FEET



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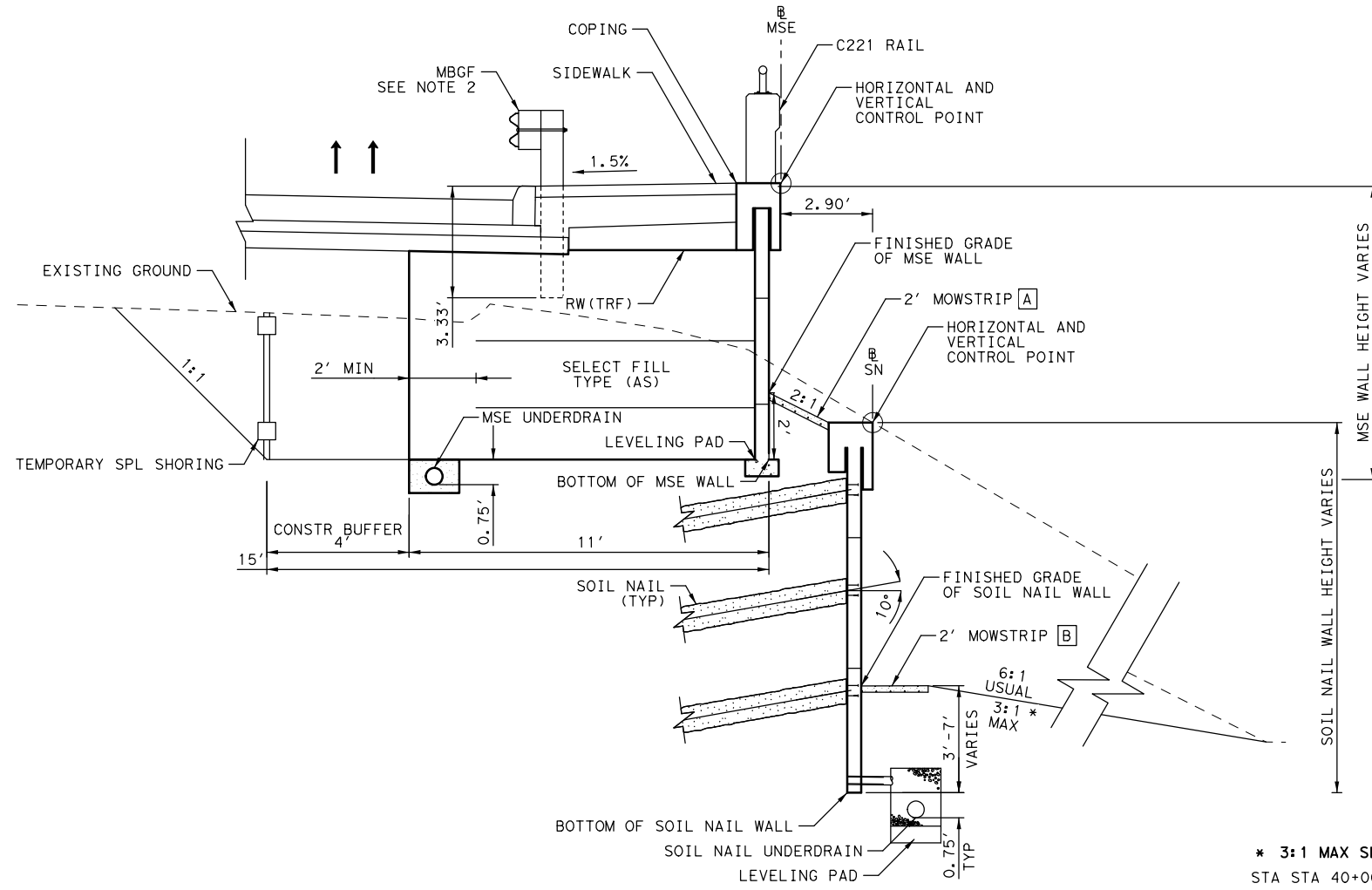
S HIGH ST AT UPRR AND SABINE ST

**RETAINING WALL D
 TEMPORARY SPECIAL SHORING**

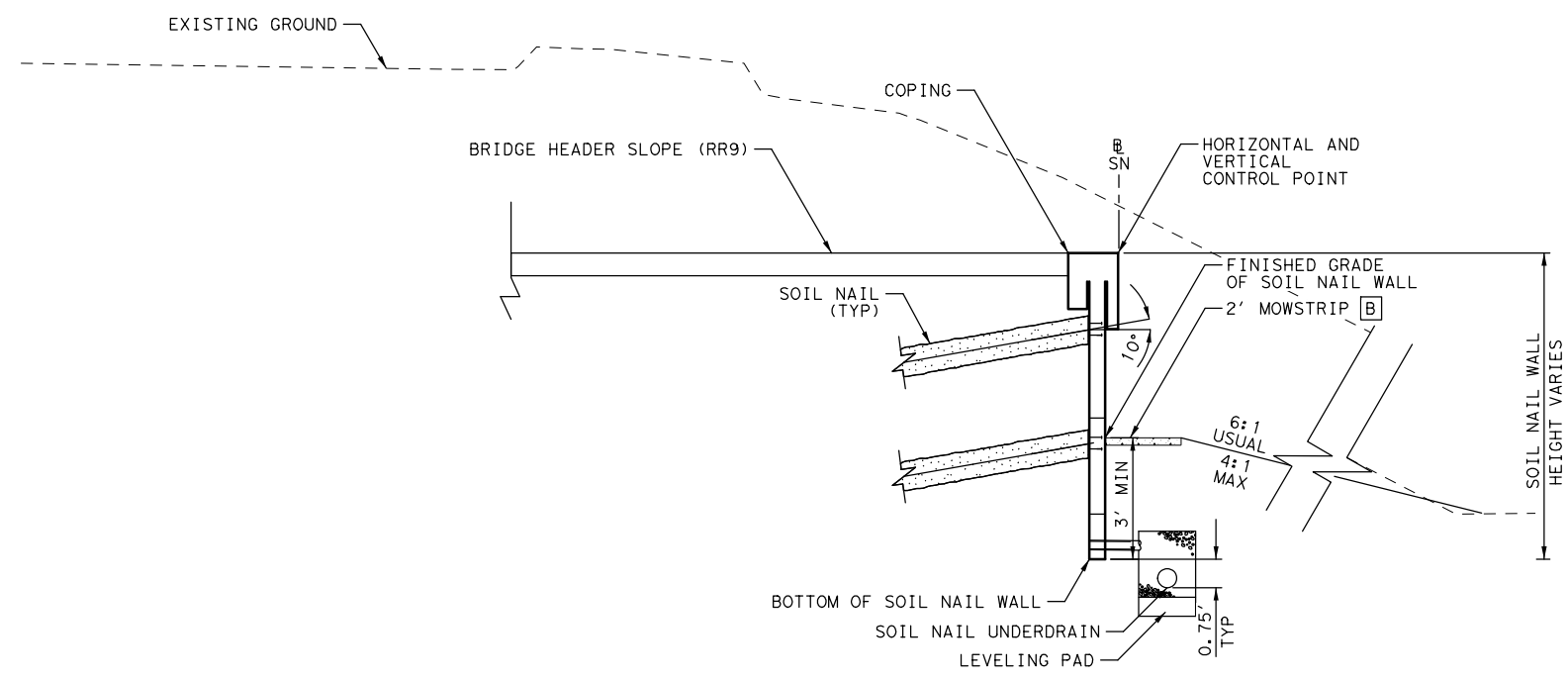
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CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072	
CHECK	JMT						SHEET NO.	128

SHEET 1 OF 1

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 FILENAME: pw:\jmt-pw.bentley.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*TYP*RW04



TYPICAL SECTION
 @ MSE WALL D
 STA 40+00.00 - STA 43+75.52
 @ SOIL NAIL WALL D
 STA 40+00.00 - STA 43+75.52



TYPICAL SECTION
 @ SN WALL D
 STA 43+75.52 - STA 44+19.90

NOTES:

1. REFER TO RETAINING WALL AND SOIL NAIL WALL LAYOUT SHEETS FOR MORE INFORMATION.
2. WALL MANUFACTURER TO DESIGN EARTH REINFORCEMENT (STRAPS) TO ACCOMODATE GUARDRAIL POSTS. SEE GF (31)-19 AND GF (31)MS-19 FOR STANDARD MBGF INSTALLATION.
3. SEE STANDARD SHEET RW(MSE), RW(MSE)DD, RW(EM), AND RW(TRF) FOR ADDITIONAL INFORMATION.
4. SEE ILLUMINATION PLAN FOR ILLUMINATION POLE LOCATIONS AND ADDITIONAL INFORMATION.

A MOWSTRIP AT @ MSE WALL D#

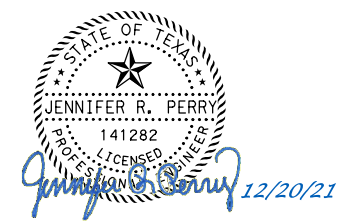
STATION	OFFSET 1*	OFFSET 2*
39+23.00	0.00'	2.00' RT
39+90.62	0.00'	2.00' RT
40+05.62	0.00'	4.85' RT
40+05.62	0.00'	2.00' RT
43+75.52	0.00'	2.00' RT

*OFFSET MEASURED FROM @ MSE WALL D
 #FOR CONTRACTOR'S REFERENCE ONLY.
 CONTRACTOR MAY ADJUST MOWSTRIP IN THE FIELD AS NECESSARY.

B MOWSTRIP AT @ SOIL NAIL WALL D#

STATION	OFFSET 1**	OFFSET 2**
40+05.62	0.00'	2.00' RT
43+75.52	0.00'	2.00' RT
44+19.90	0.00'	2.00' RT

**OFFSET MEASURED FROM @ SOIL NAIL WALL D
 #FOR CONTRACTOR'S REFERENCE ONLY.
 CONTRACTOR MAY ADJUST MOWSTRIP IN THE FIELD AS NECESSARY.



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S HIGH ST AT UPRR AND SABINE ST

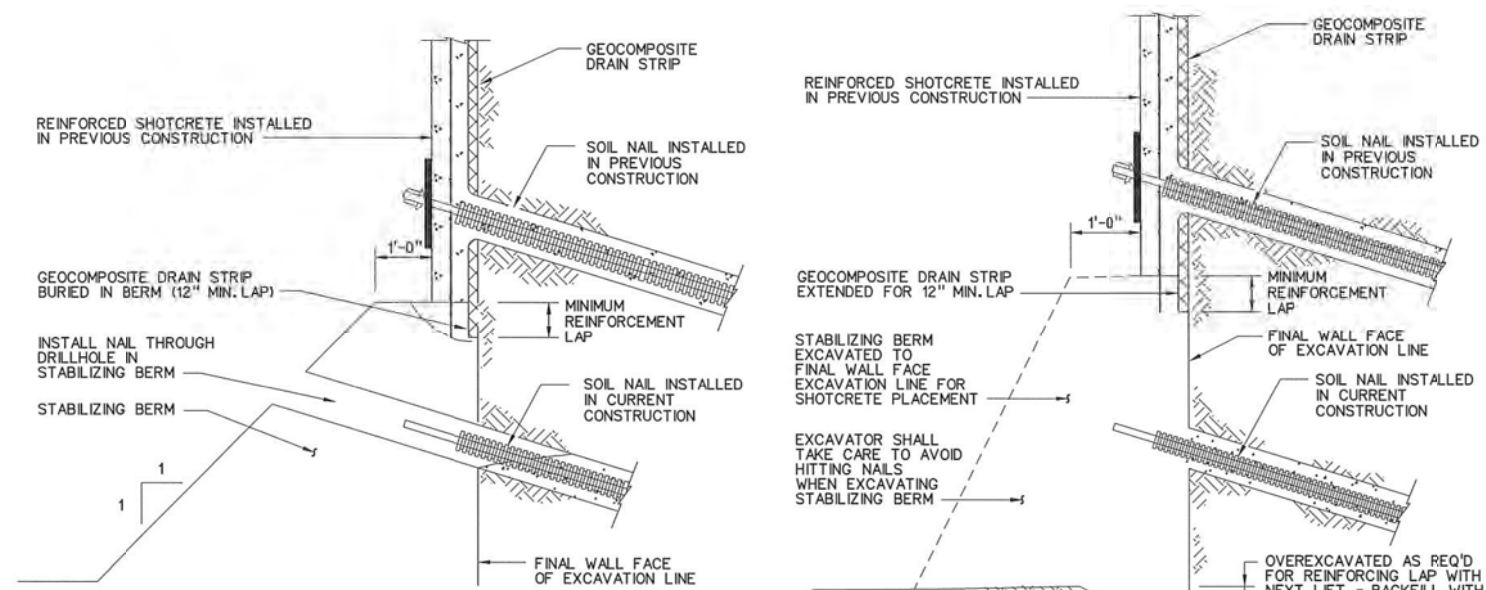
**RETAINING WALL D
 TYPICAL SECTIONS**

SCALE: NTS SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

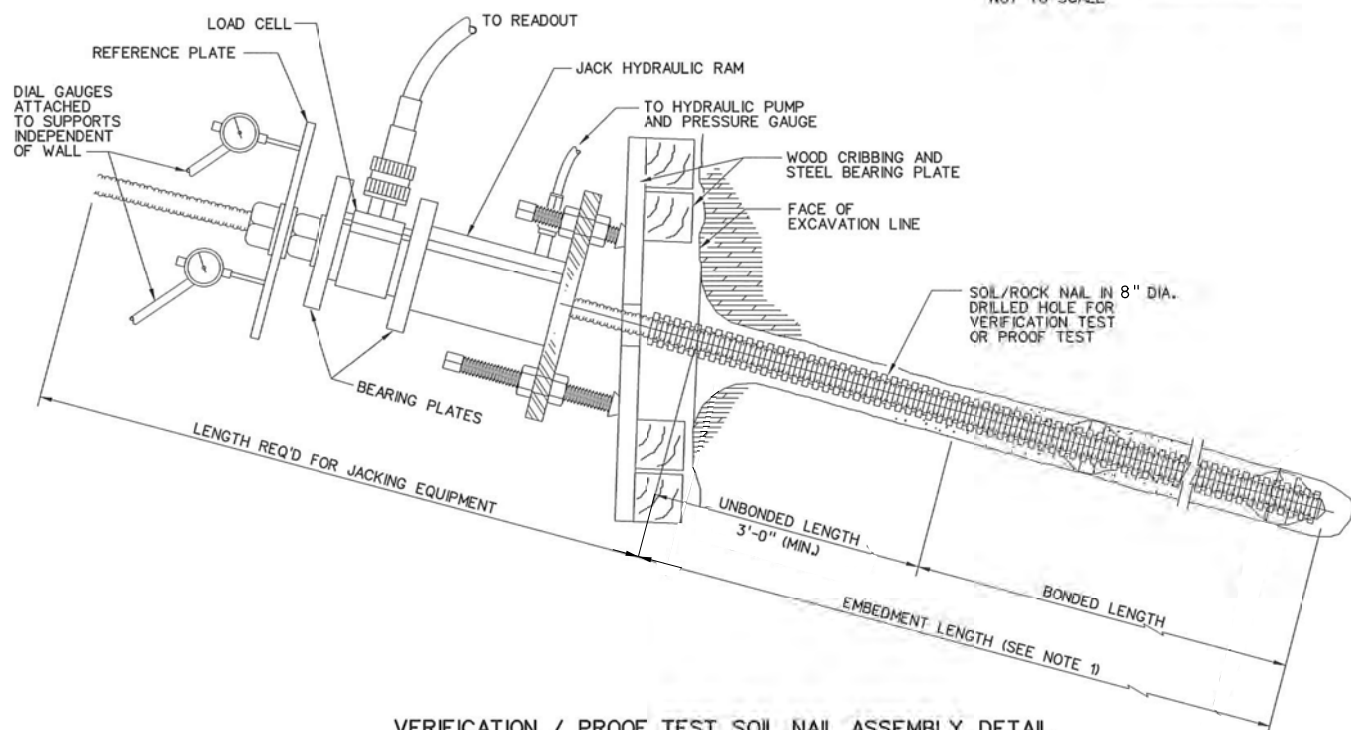
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NAIL INSTALLATION THROUGH TEMPORARY STABILIZING BERM (CONTRACTOR OPTION)
 NOT TO SCALE

EXCAVATION OF TEMPORARY STABILIZING BERM FOR SHOTCRETE PLACEMENT (CONTRACTOR OPTION)
 NOT TO SCALE



VERIFICATION / PROOF TEST SOIL NAIL ASSEMBLY DETAIL
 NOT TO SCALE

CONSTRUCTION PROCEDURE:

THE SLOPE IN FRONT OF THE RETAINING WALL MUST BE REMOVED IN LIFTS. THE DEPTH OF EACH LIFT MUST BE LIMITED TO THE AMOUNT NECESSARY TO INSTALL A SINGLE HORIZONTAL ROW OF SOIL NAILS. AT NO TIME MUST MORE THAN 5' OF UNNAILED VERTICAL SOIL BE EXPOSED. THE LENGTH OF EACH LIFT REMOVED MUST BE LIMITED TO THE AMOUNT THAT CAN BE NAILED IN ONE DAY. AT NO TIME MUST ANY UNNAILED CUT FACE BE EXPOSED FOR OVER 48 HOURS.

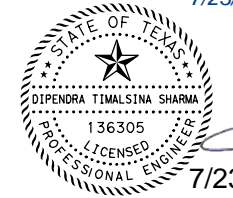
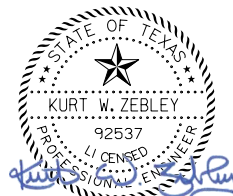
UPON COMPLETION OF EACH DAY'S INSTALLATION OF NAILS, A MINIMUM OF 2" PNEUMATICALLY PLACED CONCRETE MUST BE APPLIED TO THE CUT FACE. THE CONCRETE MUST BE REINFORCED AS SHOWN IN THE DESIGN DRAWING. ANCHOR PLATES AND NUTS MUST BE TIGHTENED UP TO THE FACE OF THE PNEUMATICALLY PLACED CONCRETE UNTIL THE CONCRETE FACIA IS INSTALLED.

THE PERMANENT CAST-IN-PLACE CONCRETE AND AESTHETIC PANELS MUST BE INSTALLED WITHIN 45 WORKING DAYS OF THE COMPLETION OF SOIL NAILING.

WALL NO.	TESTING BOND LENGTHS AND LOAD TABLES									
	STATION RANGE		PROOF LOAD TEST				VERIFICATION LOAD TEST			
	BEGIN STA	END STA	BAR SIZE	BONDED LENGTH (FT)	DESIGN LOAD	MAX TEST LOAD	BAR SIZE	BONDED LENGTH (FT)	DESIGN LOAD	MAX TEST LOAD
A	11+00.00	13+43.74	#8	27	24.4 K	36.6 K	#8	27	24.4 K	48.9 K
B	19+50.60	20+69.70	#8	37	33.5 K	50.2 K	#8	37	33.5 K	67.0 K
B	20+69.70	22+34.90	#8	32	29.0 K	43.4 K	#8	32	29.0 K	57.9 K
B	22+34.90	23+58.84	#8	32	29.0 K	43.4 K	#8	32	29.0 K	57.9 K
C	29+52.35	31+99.83	#8	27	24.4 K	36.6 K	#8	27	24.4 K	48.9 K
D	40+00.00	41+24.00	#8	32	29.0 K	43.4 K	#8	32	29.0 K	57.9 K
D	41+24.00	42+89.11	#8	32	29.0 K	43.4 K	#8	32	29.0 K	57.9 K
D	42+89.11	44+19.90	#8	37	33.5 K	50.2 K	#8	37	33.5 K	67.0 K

NOTES:

- TEST NAIL TOTAL LENGTH TO INCLUDE THE EMBEDMENT LENGTH AND REQUIRED LENGTH FOR JACKING EQUIPMENT.
- REFER TO TABLE FOR TEST NAILS REQUIRED BOND LENGTHS AND LOADS.
- THIS ASSEMBLY DETAIL IS FOR INFORMATION ONLY. CONTRACTOR TO SUBMIT DETAILED EQUIPMENT ASSEMBLY FOR ENGINEER'S REVIEW.
- A MINIMUM OF TWO VERIFICATION TESTS FOR EACH STATION RANGE LISTED IN THE "TESTING BOND LENGTHS AND LOAD TABLES" (FOR WALL A, B, C, D) MUST BE PERFORMED AND ACCEPTED PRIOR TO THE INSTALLATION OF ANY PRODUCTION NAILS. VERIFICATION TESTS ARE TO TEST THE ULTIMATE LOAD OF THE NAIL AND VERIFY PULLOUT CAPACITY OF THE NAILS. VERIFICATION TESTS ARE PERFORMED ON SACRIFICIAL TEST NAILS THAT SHOULD NOT BE A PART OF THE FINAL WALL.
- 5% OF THE NAILS OF EACH STATION RANGE LISTED IN "TESTING BOND LENGTHS AND LOAD TABLES", BUT NO LESS THAN TWELVE, MUST BE PROOF TESTED. A MINIMUM OF ONE NAIL PER LAYER OF NAILS MUST BE TESTED. PROOF TESTS ARE INTENDED TO VERIFY CONSTRUCTION PROCEDURE THROUGHOUT THE LENGTH OF THE WALL AND SHOULD BE PERFORMED ON PRODUCTION NAILS. THE ENGINEER MUST EVALUATE THE RESULTS OF ALL TESTS. ADDITIONAL TESTS REQUIRED AS RESULT OF ALL TESTS MUST BE DONE AT CONTRACTOR EXPENSE.
- IF EXCAVATION EXPOSES SOILS NOT COVERED IN THE "TESTING BOND LENGTHS AND LOADS TABLE". THE ENGINEER MUST BE NOTIFIED. ADDITIONAL VERIFICATION TESTS IN EACH OF THESE SOIL TYPES SHOULD BE PERFORMED PRIOR TO PLACING ADDITIONAL PRODUCTION NAILS IN THE NEW SOILS.
- BASED ON SITE CONDITIONS, THE ENGINEER MUST DETERMINE THE LOCATIONS AND NUMBERS OF PROOF TESTS PRIOR TO NAIL INSTALLATION IN EACH ROW.
- THE UNBONDED LENGTH MUST BE AT LEAST 3 FEET WITHIN THE DRILL HOLE FOR PROOF AND VERIFICATION TESTS.
- A TEST NAIL MUST BE CONSIDERED ACCEPTABLE UPON PASSING THE FOLLOWING CRITERIA. IF A TEST NAIL FAILS, THE ENGINEER MUST BE NOTIFIED IMMEDIATELY.
 - VERIFICATION TESTS:
 - TOTAL CREEP MOVEMENT IS LESS THAN 0.08 INCHES BETWEEN THE 6- AND 60-MINUTE READINGS AND THE CREEP RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD.
 - TOTAL MEASURED MOVEMENT AT THE MAXIMUM TEST LOAD EXCEEDS 80% OF THE THEORETICAL ELASTIC ELONGATION OF THE TEST NAIL UNBONDED LENGTH.
 - A PULLOUT FAILURE DOES NOT OCCUR AT 2.0* DTL.
 - PROOF TESTS:
 - TOTAL CREEP MOVEMENT IS LESS THAN 0.04 INCHES DURING THE 10-MINUTE READINGS OR THE TOTAL CREEP MOVEMENT IS LESS THAN 0.08 INCHES DURING THE 60-MINUTE READINGS AND THE CREEP RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD.
 - TOTAL MEASURED MOVEMENT AT THE MAXIMUM TEST LOAD EXCEEDS 80% OF THE THEORETICAL ELASTIC ELONGATION OF THE TEST NAIL UNBONDED LENGTH.
 - A PULLOUT FAILURE DOES NOT OCCUR AT 1.5* DTL.



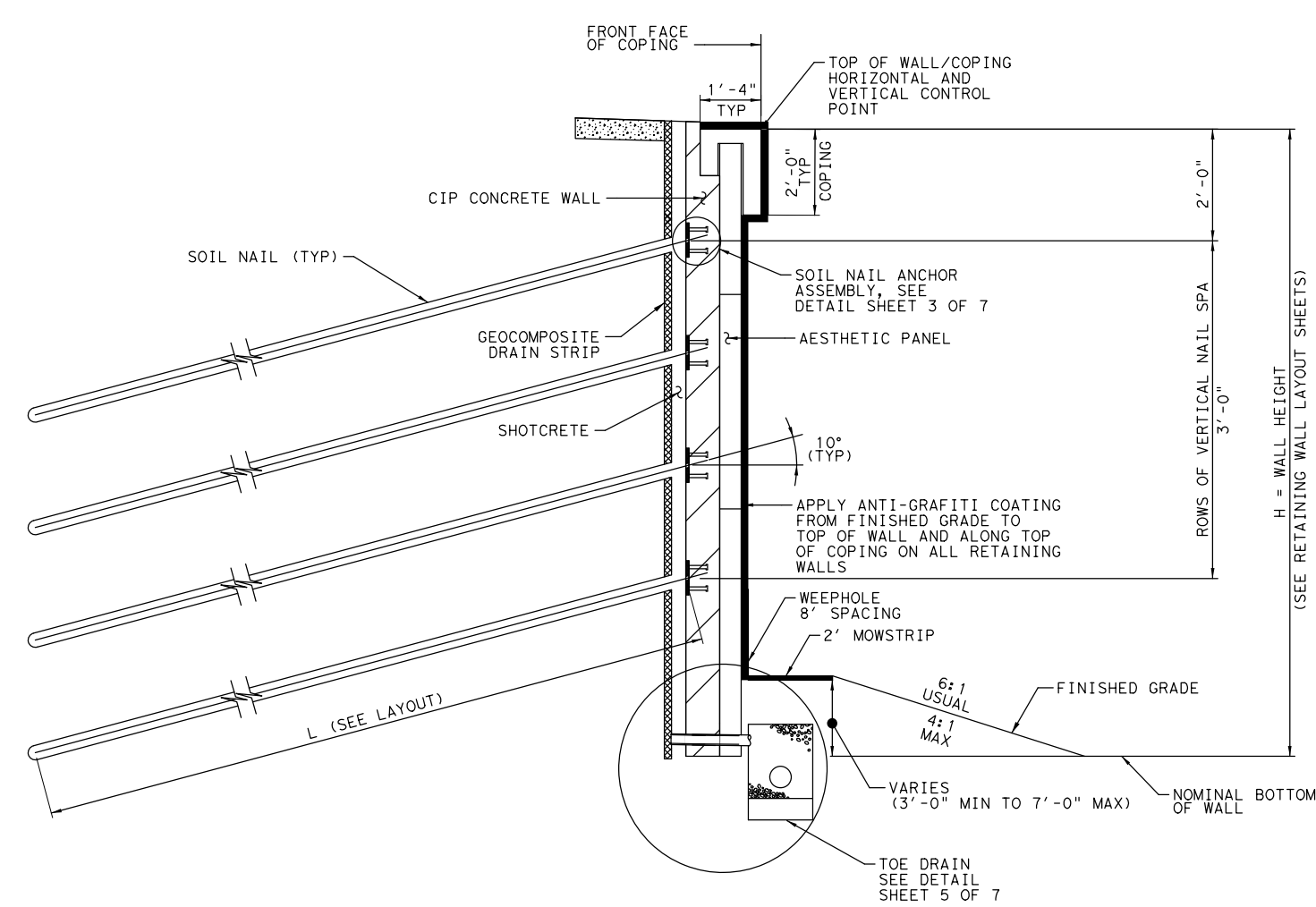
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 S HIGH ST AT UPRR AND SABINE ST

**RETAINING WALL DETAILS
 SOIL NAIL**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	S HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			
JMT			

SHEET 1 OF 7
130

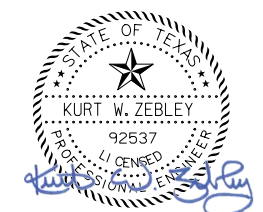
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TYPICAL SECTION
(NOT TO SCALE)

GENERAL NOTES:

- DESIGNED ACCORDING TO FHWA GEOTECHNICAL ENGINEERING CIRCULAR NO. 7, SOIL NAIL WALLS REFERENCE MANUAL, REPORT NO. FHWA-NHI-14-007, FEBRUARY 2015. THE SOIL NAIL WALLS HAVE BEEN DESIGNED USING ASD METHOD.
- ALL CONCRETE MUST BE CLASS "C" UNLESS OTHERWISE NOTED.
- ALL REINFORCING STEEL MUST BE GRADE 60.
- ANCHOR PLATE STEEL MUST BE GRADE 50. ANCHOR STUDS MUST BE GRADE 60.
- ALL WELDED WIRE REINFORCEMENT MUST BE GRADE 65.
- SOIL NAIL MUST BE GRADE 100 DYWIDAG BAR OR APPROVED EQUAL.
- SOIL NAIL MUST BE EPOXY COATED.
- SOIL NAIL TEST ANCHORS WILL BE REQUIRED ON THIS PROJECT. THE LOCATION OF THE ANCHORS MUST BE APPROVED BY THE ENGINEER. TEST ANCHORS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO THE ITEM "RETAINING WALLS (SOIL NAIL)". SEE SHEET 1 OF 7 FOR ADDITIONAL INFORMATION ON TEST ANCHORS.
- SHOTCRETE MUST COMPLY WITH REQUIREMENTS OF THE ITEM "PNEUMATICALLY PLACED CONCRETE" (TYPE III), EXCEPT THAT IT WILL NOT BE PAID FOR DIRECTLY AND STRENGTH TESTING WILL NOT BE REQUIRED.
- DRAINAGE SYSTEM MUST CONSIST OF PREFABRICATED GEOCOMPOSITE DRAIN STRIP OR SOIL DRAINAGE MATS EMPTYING INTO WEEPHOLES. FILTER FABRIC MUST MEET THE REQUIREMENTS OF D-9-6200. THE DRAINAGE SYSTEM WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO THE ITEM "RETAINING WALLS (SOIL NAIL)".
- THE PRICE BID PER SQUARE FOOT OF RETAINING WALL (SOIL NAIL) MUST INCLUDE ALL CAST-IN PLACE CONCRETE, REINFORCING STEEL, PNEUMATICALLY PLACED CONCRETE, AESTHETIC PANEL, LEVELING PAD, TOE DRAIN, DRAINAGE MATERIAL, AND ANY OTHER MATERIALS NECESSARY TO COMPLETE THE WALL.
- THE PRICE BID PER LINEAR FOOT OF SOIL NAIL MUST INCLUDE ALL DRILLING, NAIL REINFORCEMENT, GROUT, AND TEST NAILS. NAIL LENGTH EMBEDDED IN SHOTCRETE AND CAST-IN-PLACE CONCRETE IS SUBSIDIARY TO SOIL NAIL PAY ITEM AT NO ADDITIONAL COST TO THE OWNER.
- ANGLE SOIL NAILS AS NECESSARY TO CLEAR EXISTING UNDERGROUND UTILITIES.
- WEEPHOLE COVERING MUST BE ONE OF THE FOLLOWING MATERIAL TYPES:
 - GALVANIZED STEEL WIRE CLOTH WITH 1/2" TO 1/4" MESH, MINIMUM WIRE DIAMETER 0.063".
 - STAINLESS STEEL TYPE 304 OR 316 WITH 1/2" TO 1/4" MESH, MINIMUM WIRE DIAMETER 0.047".
 - POLYETHYLENE OR POLYPROPYLENE GEONET WITH 0.15" MINIMUM THICKNESS SUCH AS TENSAR DN-4 OR EQUAL.
- WEEPHOLE SPECIFICATIONS
 - RECOMMEND WEEPHOLE SPACING 8' ALONG BASE OF THE WALL.
 - DIAMETER 4".
 - LENGTH 16".



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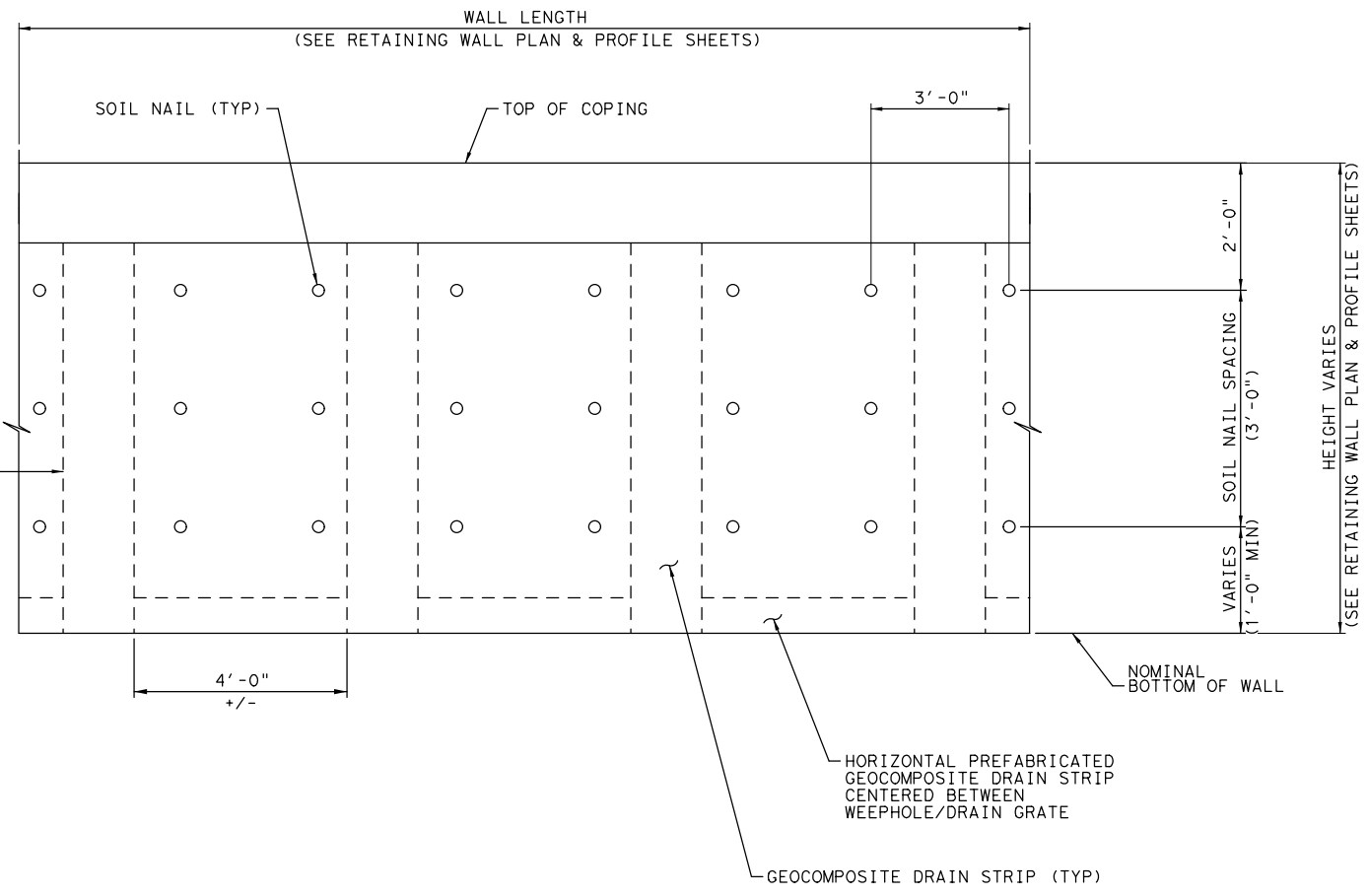
RETAINING WALL DETAILS
 SOIL NAIL

SHEET 2 OF 7

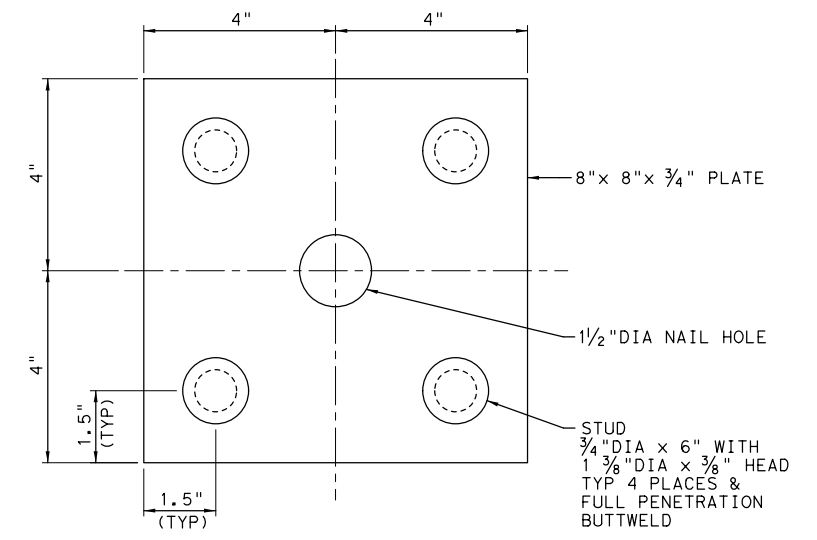
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JMT	6	(SEE TITLE SHEET)	HIGH ST
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JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

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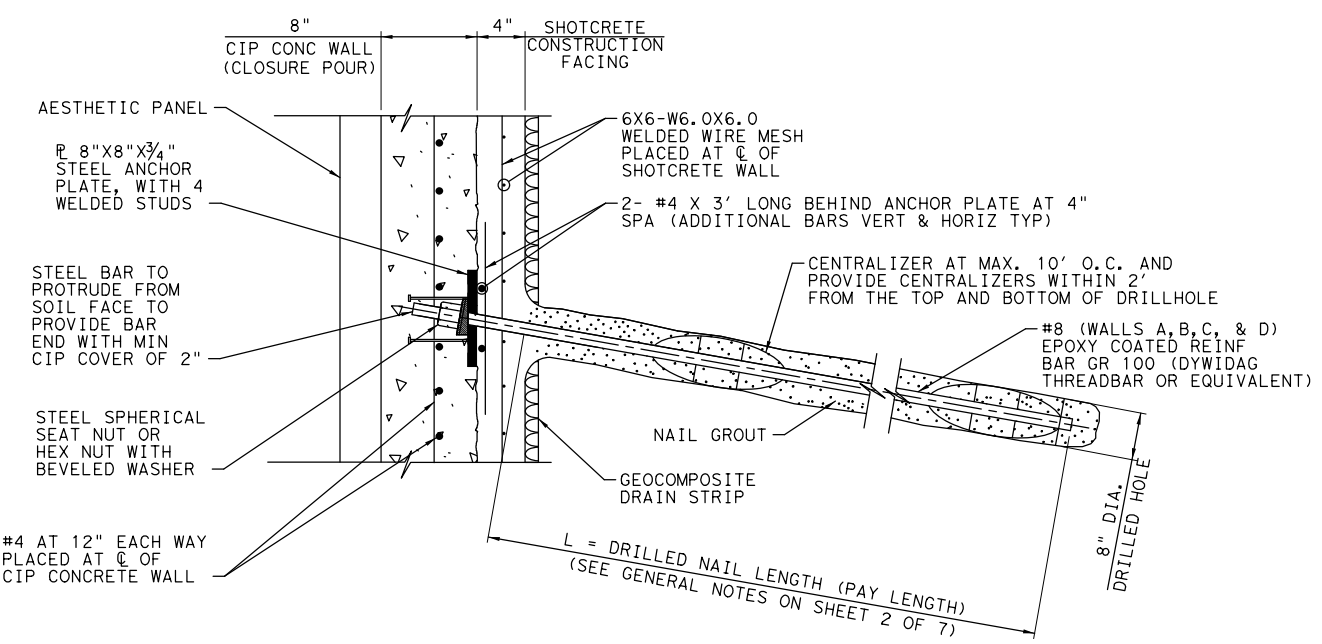
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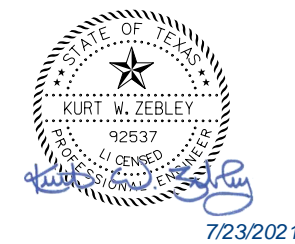
TYPICAL SOIL NAIL WALL ELEVATION
 (NOT TO SCALE)



ANCHOR PLATE WITH STUDS DETAIL
 (NOT TO SCALE)



SOIL NAIL ANCHOR ASSEMBLY
 (NOT TO SCALE)



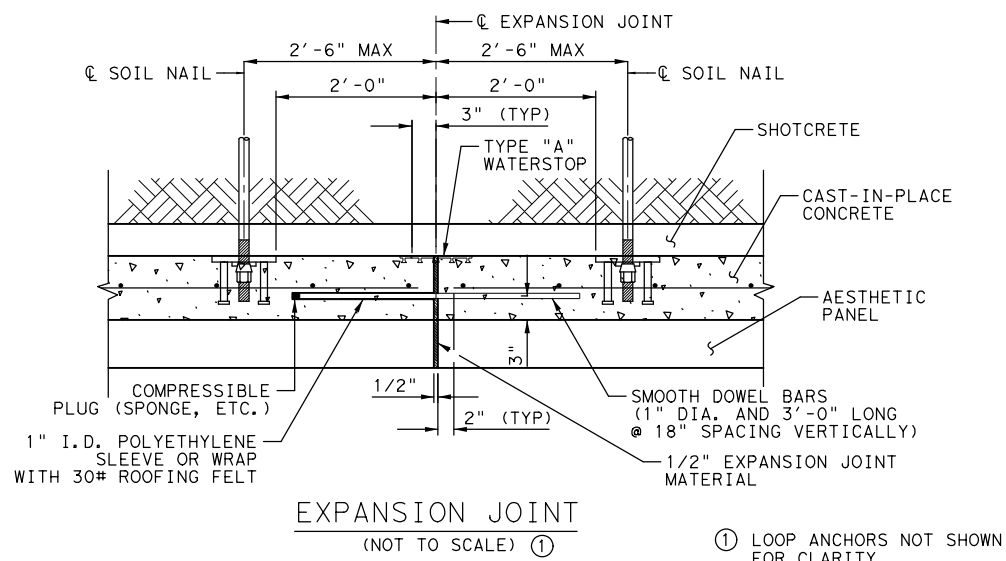
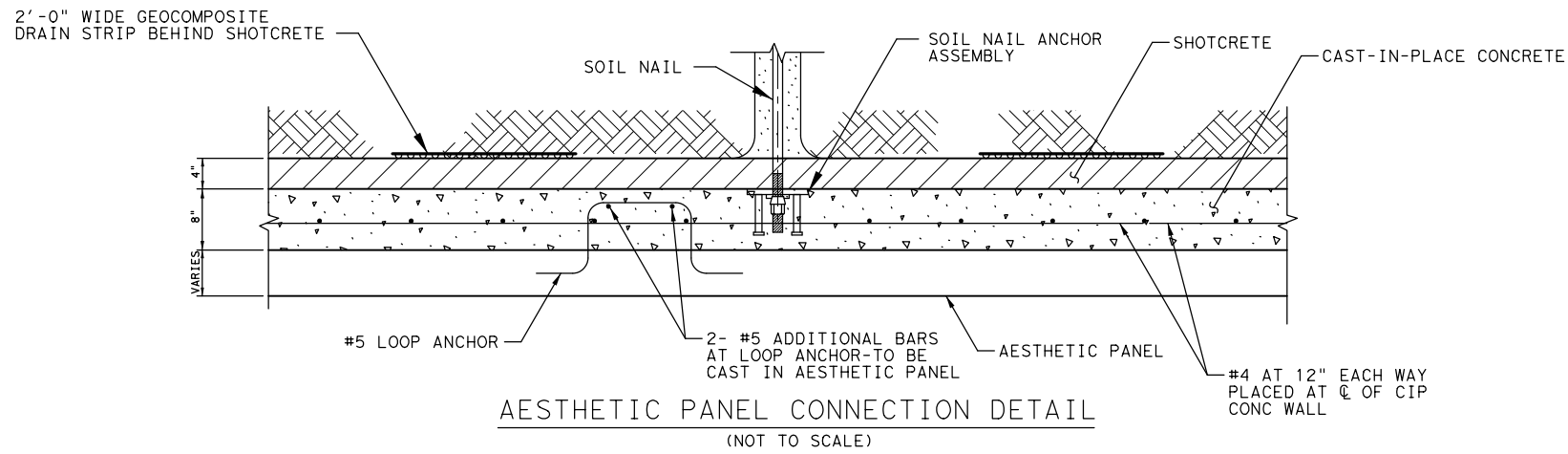
**RETAINING WALL DETAILS
SOIL NAIL**

SHEET 3 OF 7

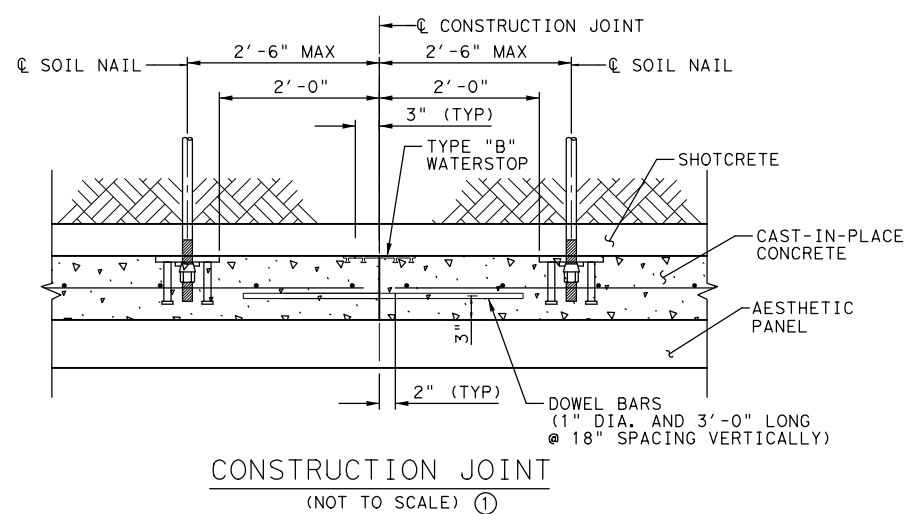
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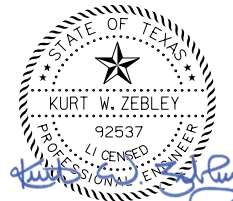
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NOTE:
 EXPANSION JOINTS IN WALL TO BE LOCATED AT A MAXIMUM SPACING OF 96 FEET CENTER TO CENTER, CENTERED BETWEEN NAILS. CONTRACTOR MUST LAYOUT EXPANSION JOINTS IN SHOP DRAWINGS FOR ENGINEER'S APPROVAL. EXPANSION JOINTS NOT REQUIRED THROUGH SHOTCRETE CONSTRUCTION FACING.




NOTE:
 CONSTRUCTION JOINTS IN WALL TO BE LOCATED AT A MAXIMUM SPACING OF 32 FEET CENTER TO CENTER. CONTRACTOR MUST LAYOUT ADDITIONAL CONSTRUCTION JOINTS AS NEEDED IN SHOP DRAWINGS FOR ENGINEER'S APPROVAL. CONSTRUCTION JOINTS NOT REQUIRED THROUGH SHOTCRETE CONSTRUCTION FACING.



7/23/2021



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S HIGH ST AT UPRR AND SABINE ST

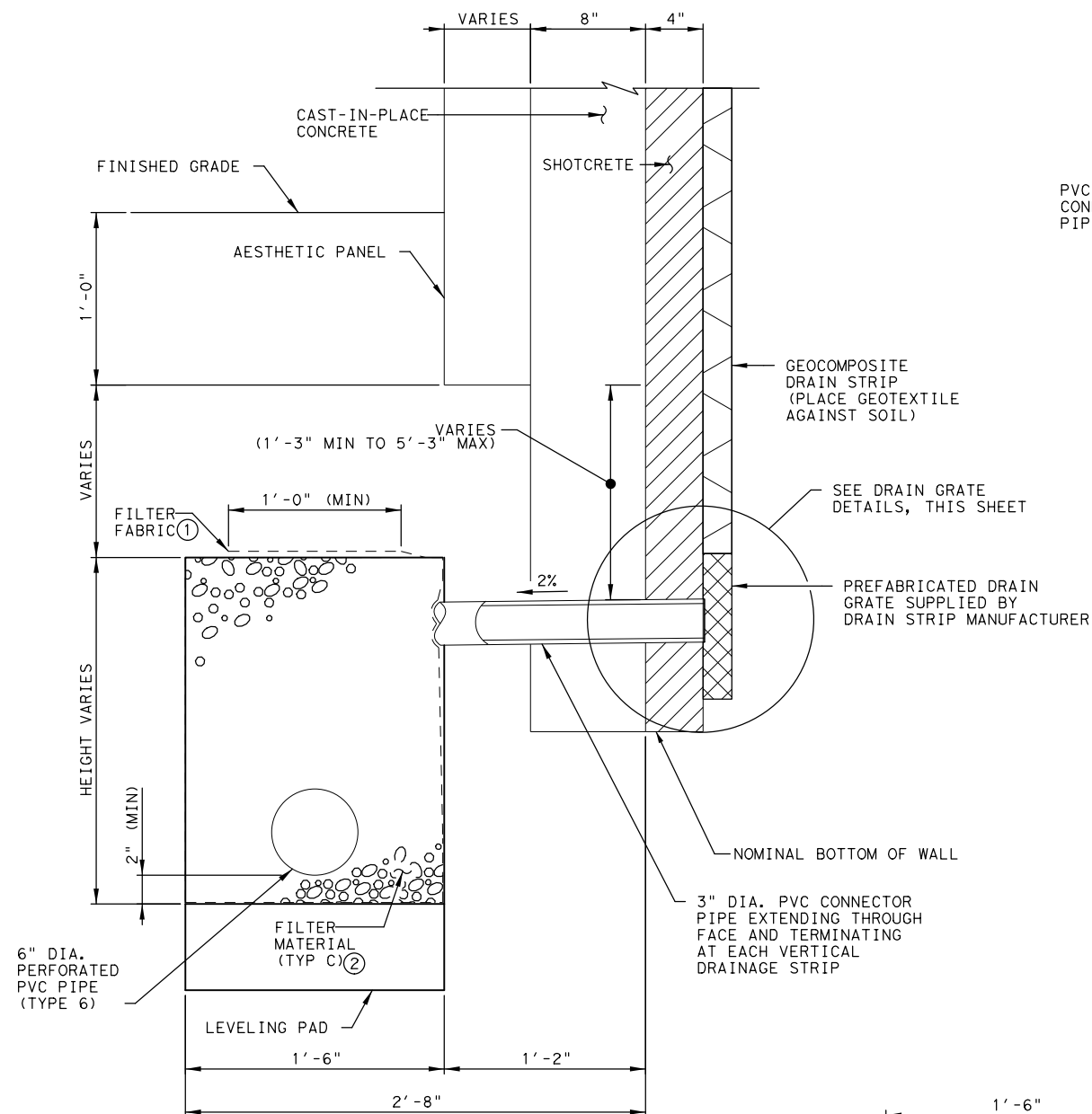
RETAINING WALL DETAILS
SOIL NAIL

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GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
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SHEET 4 OF 7

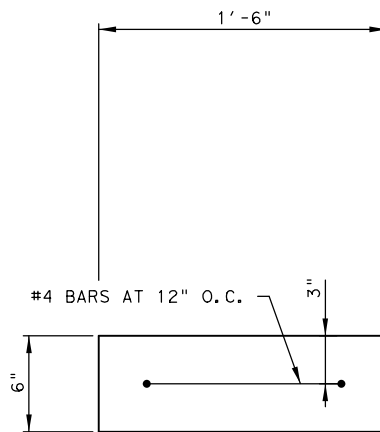
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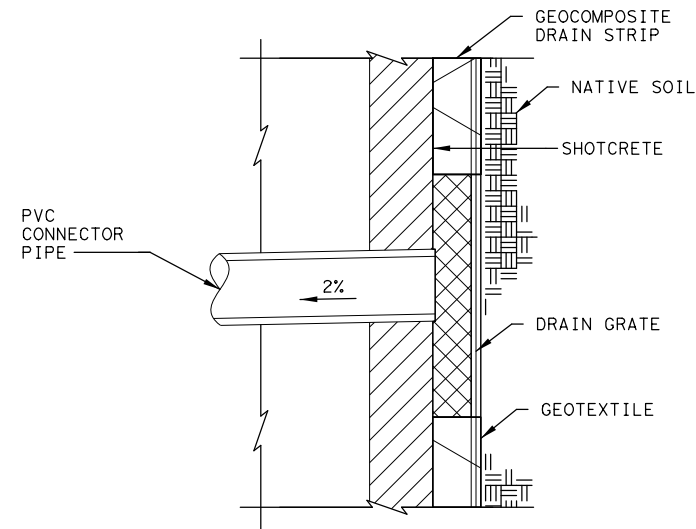


SOIL NAIL WALL TOE DRAIN DETAIL
(NOT TO SCALE)

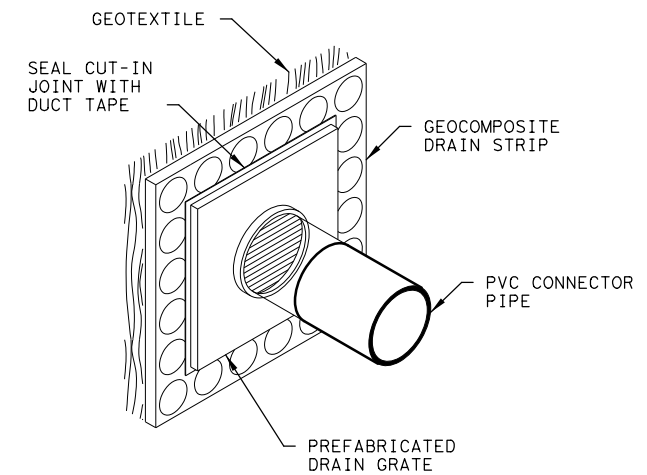
- ① FILTER MATERIAL MUST BE WRAPPED WITH FILTER FABRIC MEETING THE REQUIREMENTS OF DMS-6200 TYPE 1.
- ② PROVIDE DRAINAGE AGGREGATE CONSISTING OF CLEAN CRUSHED STONE MEETING THE GRADATION IN ACCORDANCE WITH TXDOT ITEM 421 NO. 4 COARSE AGGREGATE WITH NO FINES PASSING THE NO. 200 SIEVE FOR PIPES WITH ROUND PERFORATIONS.



LEVELING PAD REINFORCEMENT
(NOT TO SCALE)

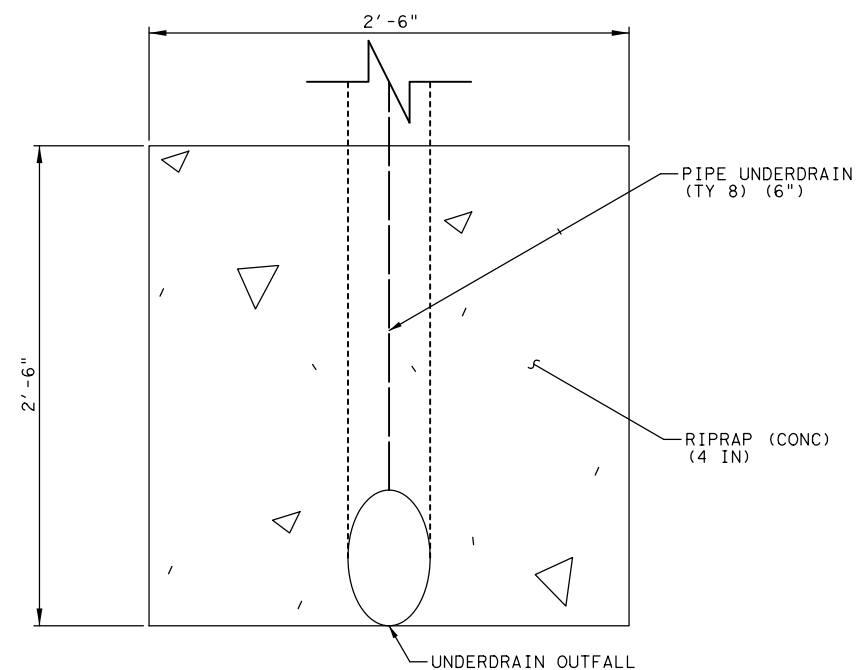


SECTION VIEW
(NOT TO SCALE)

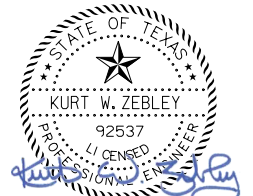


ISOMETRIC VIEW
(NOT TO SCALE)

DRAIN GRATE DETAILS
(DRAIN GRATE INSTALLATION MUST NOT DISRUPT GEOTEXTILE)



UNDERDRAIN OUTFALL RIPRAP APRON
(NOT TO SCALE)



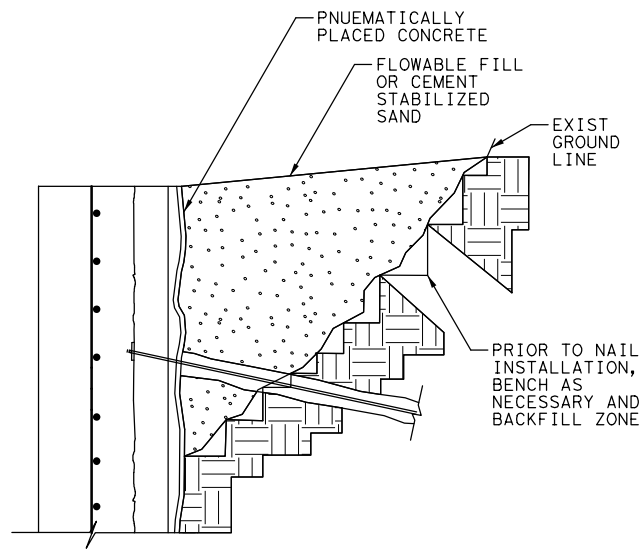
7/23/2021

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 S HIGH ST AT UPRR AND SABINE ST
RETAINING WALL DETAILS
SOIL NAIL

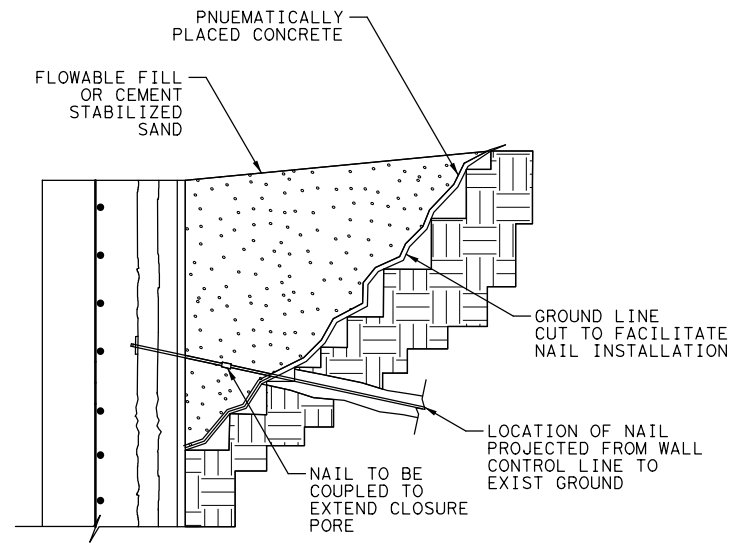
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JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK	SHEET NO.		
JMT	134		

SHEET 5 OF 7

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OPTION 1
 (WHEN EXISTING GROUND IS LOWER
 THAN THE TOP OF SOIL NAIL WALL)
SOIL NAIL ANCHOR ASSEMBLY
 (NOT TO SCALE)



OPTION 2
 (WHEN EXISTING GROUND IS LOWER
 THAN THE TOP OF SOIL NAIL WALL)
SOIL NAIL ANCHOR ASSEMBLY
 (NOT TO SCALE)



JMT TBPE REGISTRATION NO. F-16341

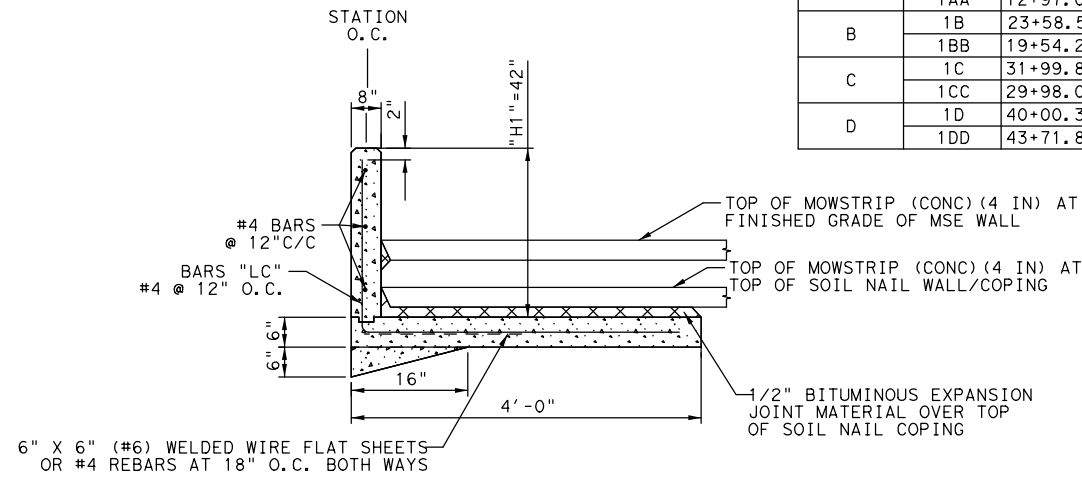
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 S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL DETAILS
SOIL NAIL

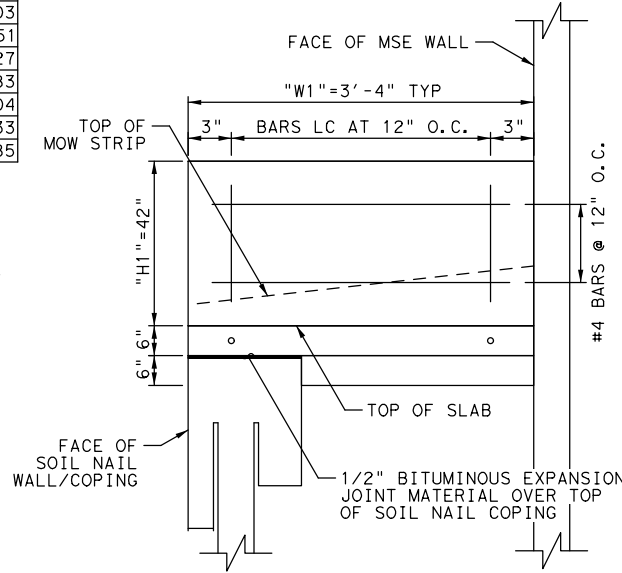
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DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)		HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
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CHECK	CONTROL	SECTION	JOB	135
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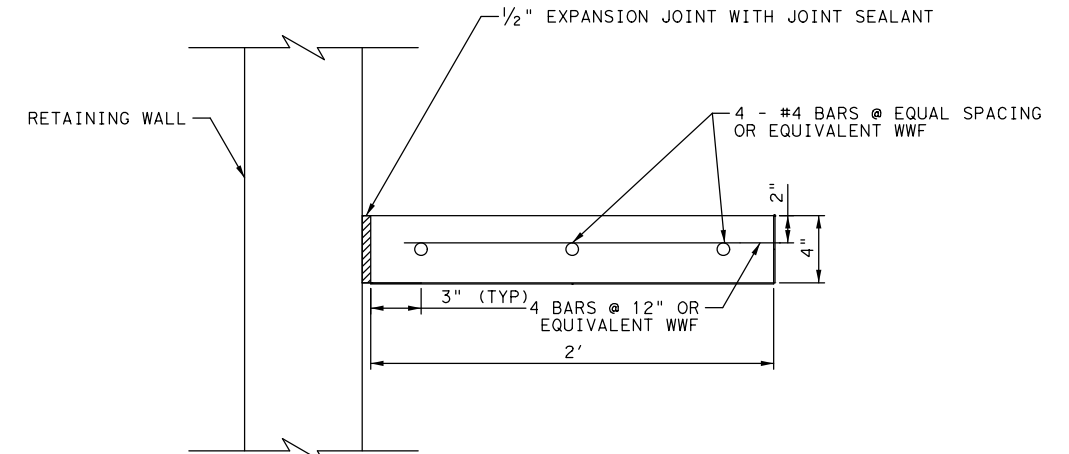
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B	1B	23+58.51
	1BB	19+54.27
C	1C	31+99.83
	1CC	29+98.04
D	1D	40+00.33
	1DD	43+71.85



CLOSURE WALL-1 SECTION
(NOT TO SCALE)



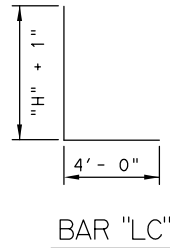
CLOSURE WALL-1 ELEVATION
(NOT TO SCALE)



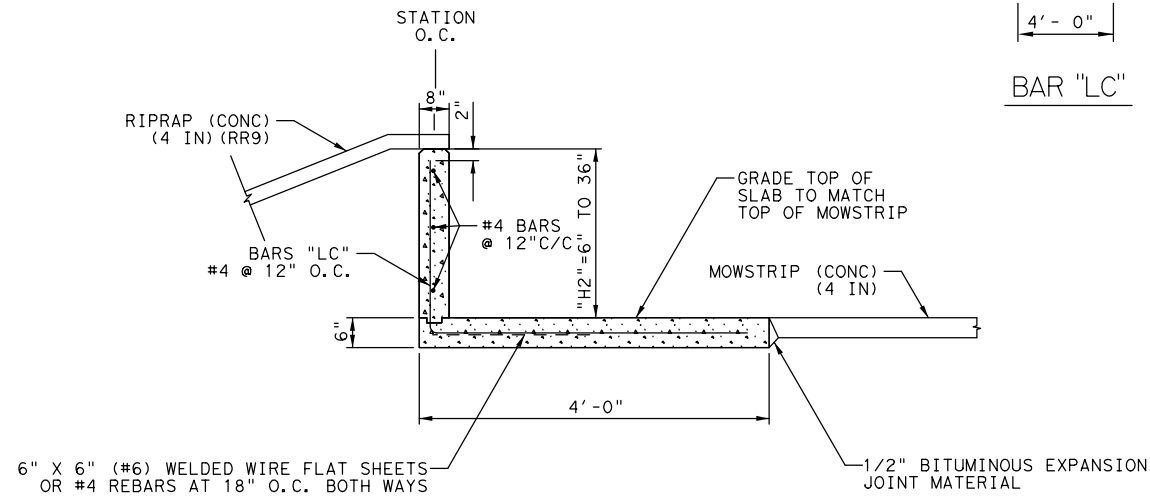
MOW STRIP DETAIL
(NOT TO SCALE)

NOTES:

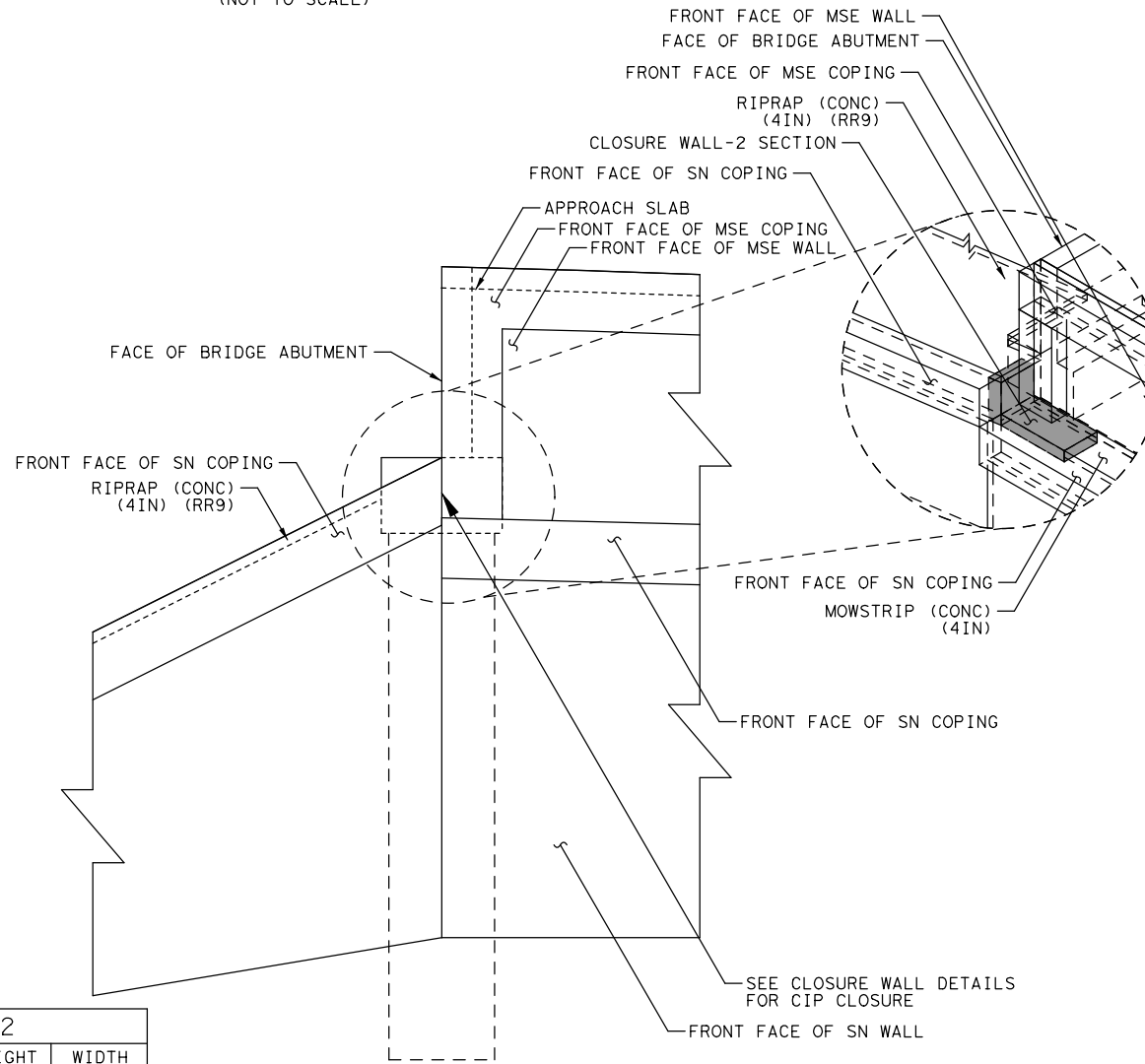
1. CLASS "C" CONCRETE PER ITEM 420.
2. ALL REINFORCING STEEL SHALL BE GRADE 60.
3. ALL LABOR AND MATERIALS WILL BE CONSIDERED SUBSIDIARY TO THE COST OF THE FLUME.
4. ALL WELDED WIRE REINFORCEMENT SHALL BE GRADE 65.



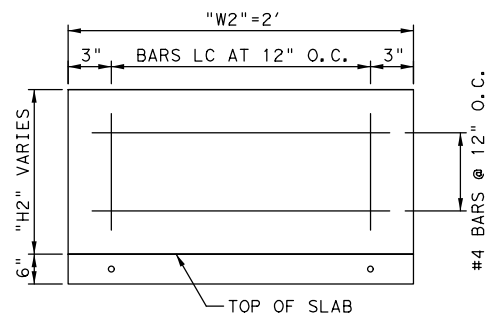
BAR "LC"



CLOSURE WALL-2 SECTION
(NOT TO SCALE)

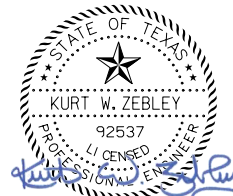


ABUTMENT COPING DETAIL
(NOT TO SCALE)



CLOSURE WALL-2 ELEVATION
(NOT TO SCALE)

RETAINING WALL	CLOSURE WALL ID	STATION O.C.	HEIGHT "H2"	WIDTH "W2"
A	2A	13+01.03	2.62'	2.00'
B	2B	19+50.27	0.94'	2.00'
C	2C	29+94.04	1.45'	2.00'
D	2D	43+75.85	0.67'	2.00'



12/20/2021



Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL DETAILS
 MISCELLANEOUS DETAILS

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	Texas	Tyler	Gregg
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

SHEET 7 OF 7

136



DRILLING LOG

1 of 2

WinCore
Version 3.1

County Gregg Hole RW1-2 District Tyler
 Highway High Street Bridge Improv. Structure Bridge Date 11/30/2017
 CSJ 0910-07-072 Station Grnd. Elev. 298.80 ft
 Offset GW Elev. 274.80 ft



DRILLING LOG

2 of 2

WinCore
Version 3.1

County Gregg Hole RW1-2 District Tyler
 Highway High Street Bridge Improv. Structure Bridge Date 11/30/2017
 CSJ 0910-07-072 Station Grnd. Elev. 298.80 ft
 Offset GW Elev. 274.80 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
297.8			PAVEMENT, 3 inch Asphalt, 8 inch base							
		3 (6) 3 (6)	CLAY, lean, soft to stiff, moist, brown, trace gravel below 4 feet (CL)							PP: 2.5 %Pass #200 Sieve:98.3
5		8 (6) 8 (6)								PP: 3.5
				0	36.1	13.9	39	16	130.3	
10		10 (6) 9 (6)								%Pass #200 Sieve:94.1
15		8 (6) 10 (6)								
281.8			CLAY, lean, sandy, soft to stiff, moist, brown (CL)							
										%Pass #4 Sieve:80.2 %Pass #200 Sieve:63.2
278.8		50 (2) 50 (1)	SAND, clayey dense to very dense, moist, gray, trace gravel (SC)							
25		50 (5) 50 (2)								
30		50 (4.5) 50 (2.5)								

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 24 feet during drilling. Northing: 6881443.2361, Easting: 3126780.7227

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
			SAND, clayey dense to very dense, moist, gray, trace gravel (SC)							
35		50 (6) 50 (3)								
261.3										
40										
45										
50										
55										
60										

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 24 feet during drilling. Northing: 6881443.2361, Easting: 3126780.7227

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

NOTES:

- 1. FOR CONTRACTOR'S INFORMATION ONLY



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS RW 1-2

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	137
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	REGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072

DATE: 7/22/2021
FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wa11\HIGH ST*BORE01.dgn



DRILLING LOG

1 of 2

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072
Hole RW1-1
Structure Bridge
Station
Offset

District Tyler
Date 12/1/2017
Grnd. Elev. 300.69 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties			Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	
299.4			PAVEMENT, 16 inches of Asphalt						
298.7			FILL, gravel, sandy, loose, moist						
		16 (6) 17 (6)	CLAY, lean, sandy, soft to stiff, red and brown, with gravel (CL)						
		8 (6) 10 (6)				12.1			%Pass #200 Sieve:65.9
5									
		5 (6) 7 (6)				8.2			%Pass #200 Sieve:59.5
10									
		8 (6) 9 (6)				14.9	31	12	PP: 1.5
15									
		10 (6) 11 (6)	CLAY, lean, with sand, very stiff to hard, red and brown, moist (CL)						PP: 2.0
280.7 20									
		31 (6) 50 (6)				25.0			%Pass #200 Sieve:79.2
25									
271.7			SAND, clayey, dense to very dense, gray, with gravel (SC)						
30		50 (4) 50 (1)							

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was not encountered during drilling. Northing: 6881396.4045, Easting: 3126697.3307

The ground water elevation was not determined during the course of this boring.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG



DRILLING LOG

2 of 2

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072
Hole RW1-1
Structure Bridge
Station
Offset

District Tyler
Date 12/1/2017
Grnd. Elev. 300.69 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties			Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	
			SAND, clayey, dense to very dense, gray, with gravel (SC)						
		50 (5.5) 50 (1.5)							25.0
35									
263.2									
40									
45									
50									
55									
60									

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was not encountered during drilling. Northing: 6881396.4045, Easting: 3126697.3307

The ground water elevation was not determined during the course of this boring.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

NOTES:

- FOR CONTRACTOR'S INFORMATION ONLY



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS RW 1-1

SHEET 2 OF 16

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)		HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	138
JMT	0910	07	072	

DATE: 7/22/2021
 FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*BORE01.dgn

DATE: 7/22/2021
 FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*BORE01.dgn



WinCore
Version 3.1

County Gregg Hole RW1-3 District Tyler
 Highway High Street Bridge Improv. Structure Bridge Date 11/30/2017
 CSJ 0910-07-072 Station Grnd. Elev. 293.18 ft
 Offset GW Elev. 270.18 ft

DRILLING LOG

1 of 2

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties			Additional Remarks	
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI		Wet Den. (pcf)
292.7			PAVEMENT, 2 inches of Asphalt CLAY, lean, with sand, very stiff, moist, brown (CL)							
		25 (6) 25 (6)								
	5					12.2			%Pass #200 Sieve:83.4	
		26 (6) 30 (6)								
287.2			SAND, clayey, slightly compact, wet, red and tan gray (SC)							
	10					22.1			%Pass #200 Sieve:39.3	
		10 (6) 10 (6)								
280.2			CLAY, lean, with sand, soft, moist, tan gray (CL)							
	15				0	16.7	18.7	33	15	130.4
		6 (6) 10 (6)								
274.2			SAND, clayey, dense, wet, dark gray (SC)							
	20					21.2				%Pass #200 Sieve:71.9 PP: 1.5
		50 (5.5) 50 (3.5)								
	25									
		46 (6) 50 (3.5)								
30										
		50 (6) 50 (2)								

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 23 feet during drilling. Northing: 6881228.8544, Easting: 3126668.8792

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\DG-16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG



WinCore
Version 3.1

County Gregg Hole RW1-3 District Tyler
 Highway High Street Bridge Improv. Structure Bridge Date 11/30/2017
 CSJ 0910-07-072 Station Grnd. Elev. 293.18 ft
 Offset GW Elev. 270.18 ft

DRILLING LOG

2 of 2

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties			Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	
			SAND, clayey, dense, wet, dark gray (SC)						
	35						19.7	38	15
		41 (6) 50 (5)							
255.7									
	40								
	45								
	50								
	55								
	60								

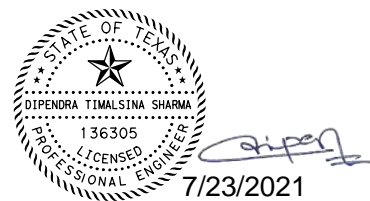
Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 23 feet during drilling. Northing: 6881228.8544, Easting: 3126668.8792

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\DG-16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

NOTES:
1. FOR CONTRACTOR'S INFORMATION ONLY



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Texas Department of Transportation

S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS
RW 1-3

SHEET 3 OF 16

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)		HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	139
JMT	0910	07	072	



DRILLING LOG

1 of 2

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072 Station Offset

Hole RW1-4
Structure Bridge

District Tyler
Date 11/29/2017
Grnd. Elev. 311.32 ft
GW Elev. 272.32 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
310.5			PAVEMENT, 9 inches of Asphalt							
			FILL, gravel, very loose, moist, reddish brown, with sand (Fill)							
308.3		2 (6) 2 (6)	FILL, clay, fat, with sand, soft, red, moist							PP: 1.5 %Pass #200 Sieve:77.8
5		4 (6) 4 (6)				34.2				PP: 2.0 PP: 2.5
		4 (6) 4 (6)				25.7	59	32		
10		4 (6) 4 (6)	CLAY, lean, with sand to trace sand, stiff, moist, red (CL)							PP: 2.0
296.3		4 (6) 4 (6)								
15		10 (6) 12 (6)				15.7				%Pass #200 Sieve:79.4
20		11 (6) 11 (6)								
25		8 (6) 9 (6)								%Pass #200 Sieve:94.8

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 39 feet during drilling. Northing: 6881234.7881, Easting: 3126767.2541

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

DATE: 7/22/2021
FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*BORE01.dgn



DRILLING LOG

2 of 2

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072 Station Offset

Hole RW1-4
Structure Bridge

District Tyler
Date 11/29/2017
Grnd. Elev. 311.32 ft
GW Elev. 272.32 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
279.3			CLAY, lean, with sand to trace sand, stiff, moist, red (CL)							
			CLAY, lean, sandy, stiff to hard, moist, red (CL)							
35		10 (6) 12 (6)								
40		50 (2) 50 (2.5)								%Pass #4 Sieve:76.0 %Pass #200 Sieve:62.4
266.3		50 (5.5) 50 (1.25)								

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 39 feet during drilling. Northing: 6881234.7881, Easting: 3126767.2541

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

NOTES:

- FOR CONTRACTOR'S INFORMATION ONLY



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS RW 1-4

				SHEET 4 OF 16
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
JMT	6	(SEE TITLE SHEET)	HIGH ST	
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	140
JMT	0910	07	072	



DRILLING LOG

1 of 3

WinCore
Version 3.1

County Gregg Hole B-1
Highway High Street Bridge Improv. Structure Bridge
CSJ 0910-07-072 Station
Offset

District Tyler
Date 11/27/2017
Grnd. Elev. 291.61 ft
GW Elev. 271.61 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
289.6			SAND, clayey with gravel (Possible fill), loose, moist, reddish brown (SC)							
			CLAY, lean, soft, moist, reddish brown, trace to few sand and gravel (CL)			16.4				%Pass #200 Sieve:88.0
5		4 (6) 5 (6)								PP: 2.5
						16.7	29	12		PP: 3.0
						16.5				%Pass #200 Sieve:85.7
281.6 10		7 (6) 8 (6)	SAND, clayey, compact to dense, wet, reddish to yellowish brown (SC)							PP: 3.0
						17.5	40	22		
15		15 (6) 11 (6)								
						23.0				%Pass #200 Sieve:33.7
20		38 (6) 30 (6)								
25		50 (5) 50 (4)								
262.6		50 (4) 50 (2)	CLAY, sandy lean, hard, moist, dark gray, with gravel (CL)							

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 20 feet during drilling. Northing: 6881145.0083, Easting: 3126708.3240

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: SK Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG



DRILLING LOG

2 of 3

WinCore
Version 3.1

County Gregg Hole B-1
Highway High Street Bridge Improv. Structure Bridge
CSJ 0910-07-072 Station
Offset

District Tyler
Date 11/27/2017
Grnd. Elev. 291.61 ft
GW Elev. 271.61 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
			CLAY, sandy lean, hard, moist, dark gray, with gravel (CL)							%Pass #200 Sieve:60.3
35		50 (4) 50 (2.5)				17.6				
40		50 (4) 50 (3)								
						15.6	46	25		
248.6			CLAY, lean, with sand, hard, moist to wet, gray (CL)							PP: 3.0
45		50 (3) 50 (2)								
						19.0				%Pass #200 Sieve:78.3
50		50 (1) 50 (0.25)								
55		50 (2) 50 (3)								
60		50 (2.5) 50 (0.5)								

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 20 feet during drilling. Northing: 6881145.0083, Easting: 3126708.3240

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: SK Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

NOTES:

- FOR CONTRACTOR'S INFORMATION ONLY



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS B-1

SHEET 5 OF 16

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						141

DATE: 7/22/2021
FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. WALL\HIGH ST*BORE01.dgn



DRILLING LOG

3 of 3

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072
Hole B-1
Station
Offset

District Tyler
Date 11/27/2017
Grnd. Elev. 291.61 ft
GW Elev. 271.61 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
65		50 (3.5) 50 (2.5)	CLAY, lean, with sand, hard, moist to wet, gray (CL)							%Pass #200 Sieve:79.2
70		50 (0.75) 50 (1.25)								%Pass #200 Sieve:74.4
75		50 (0.5) 50 (0.25)								
211.6 80		50 (2) 50 (1.5)								
85										
90										

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 20 feet during drilling. Northing: 6881145.0083, Easting: 3126708.3240

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: SK Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

NOTES:

- FOR CONTRACTOR'S INFORMATION ONLY



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS B-1

SHEET 6 OF 16

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						142

DATE: 7/22/2021
FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Pion Set\4. Wall\HIGH ST*BORE01.dgn



DRILLING LOG

1 of 2

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072
Hole RW2-1
Structure Bridge
Station
Offset

District Tyler
Date 12/1/2017
Grnd. Elev. 310.50 ft
GW Elev. 266.50 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties			Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	
309.			PAVEMENT, 18 inches of Asphalt						
		2 (6) 3 (6)	FILL, sand, clayey, with gravel, moist, brown (SC)						
		4 (6) 4 (6)				23.9			PP: 1.0 %Pass #200 Sieve:47.2
305.5		5	FILL, clay, fat, soft to stiff, moist, reddish brown, with sand and gravel (CH)						PP: 1.5 PP: 2.0
		6 (6) 5 (6)				33.6	79	48	
		5 (6) 7 (6)				31.6	70	35	PP: 1.0 %Pass #200 Sieve:88.9
294.5			CLAY, lean, with sand, soft, reddish brown, traces of gravel (CL)						PP: 4.5+
		6 (6) 7 (6)							
		5 (6) 7 (6)				32.0			PP: 1.5 %Pass #200 Sieve:89.8
285.5		25	CLAY, sandy, stiff, reddish brown, trace gravel (CL)						
		8 (6) 9 (6)							

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 44 feet during drilling. Northing: 6880847.3166, Easting: 3126787.9305

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: SK Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\DG-16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG



DRILLING LOG

2 of 2

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072
Hole RW2-1
Structure Bridge
Station
Offset

District Tyler
Date 12/1/2017
Grnd. Elev. 310.50 ft
GW Elev. 266.50 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties			Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	
			CLAY, sandy, stiff, reddish brown, trace gravel (CL)						
		7 (6) 8 (6)				11.0			%Pass #200 Sieve:56.7
35									
		4 (6) 6 (6)							
40									
		27 (6) 31 (6)							
45									
264.5									
50									
55									
60									

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 44 feet during drilling. Northing: 6880847.3166, Easting: 3126787.9305

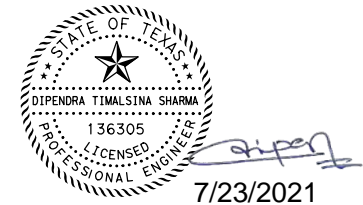
Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: SK Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\DG-16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

NOTES:

- 1. FOR CONTRACTOR'S INFORMATION ONLY



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS RW 2-1

SHEET 7 OF 16

DESIGN JMT	FED. RD. DIV. NO. 6	FEDERAL AID PROJECT NO. (SEE TITLE SHEET)		HIGHWAY NO. HIGH ST
GRAPHICS JMT	STATE	DISTRICT TYLER	COUNTY GREGG	SHEET NO.
CHECK JMT	TEXAS			143
CHECK JMT	CONTROL	SECTION 07	JOB 072	

DATE: 7/22/2021
FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Pion Set\4. Wall\HIGH ST*BORE01.dgn



DRILLING LOG

1 of 3

WinCore
Version 3.1

County Gregg Hole B-2 District Tyler
 Highway High Street Bridge Improv. Structure Bridge Date 11/28/2017
 CSJ 0910-07-072 Station Grnd. Elev. 311.88 ft
 Offset GW Elev. 266.88 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties			Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	
310.4			PAVEMENT, 18 inches of Asphalt						
			FILL, clay, fat, soft, moist, reddish brown, with calcium deposits, with gravel and sand (CH)						PP: 2.0
5		3 (6) 5 (6)				26.6	59	41	PP: 2.5
						26.4			%Pass #200 Sieve:85.3
						29.1			PP: 2.0
10		6 (6) 4 (6)							
						33.4	82	54	PP: 2.0
15		4 (6) 4 (6)							
294.9			CLAY, fat, soft, moist, reddish brown, with calcium deposits, with gravel and sand (CH)						PP: 2.0
						26.7			%Pass #200 Sieve:85.5
20		10 (6) 8 (6)							
									PP: 2.0
25		4 (6) 4 (6)							
						23.4	55	37	PP: 2.5
281.9 30		8 (6) 12 (6)							

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 45 feet during drilling. Northing: 6880887.1934, Easting: 3126823.3278

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG



DRILLING LOG

2 of 3

WinCore
Version 3.1

County Gregg Hole B-2 District Tyler
 Highway High Street Bridge Improv. Structure Bridge Date 11/28/2017
 CSJ 0910-07-072 Station Grnd. Elev. 311.88 ft
 Offset GW Elev. 266.88 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties			Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	
			SAND, clayey, loose to compact, moist, reddish brown, trace gravel at 45 feet (SC)						PP: 2.5
		7 (6) 7 (6)							
35									
274.9			SAND, clayey, dense, dark gray, trace gravel						
40		21 (6) 26 (6)				18.2			%Pass #200 Sieve:47.1
45		25 (6) 25 (6)							
50		50 (6) 50 (2)							
55		50 (2.25) 50 (1.5)							
60		50 (4.5) 50 (2.5)							

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 45 feet during drilling. Northing: 6880887.1934, Easting: 3126823.3278

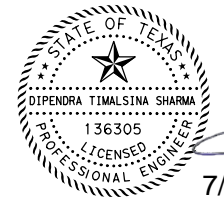
Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

NOTES:

- 1. FOR CONTRACTOR'S INFORMATION ONLY



7/23/2021



TBPE REGISTRATION NO. F-16341



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS B-2

SHEET 8 OF 16

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						144

DATE: 7/22/2021
 FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. WALL\HIGH ST*BORE01.dgn



WinCore
Version 3.1

DRILLING LOG

3 of 3

County Gregg Hole B-2 District Tyler
 Highway High Street Bridge Improv. Structure Bridge Date 11/28/2017
 CSJ 0910-07-072 Station Grnd. Elev. 311.88 ft
 Offset GW Elev. 266.88 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
246.9		50 (3) 50 (2.5)	SAND, clayey, dense, dark gray, trace gravel							
70		50 (2) 50 (2)	CLAY, lean, with sand, hard, wet, dark gray to tan gray (CL)			17.1				%Pass #200 Sieve:70.6
75		50 (2.5) 50 (1)				25.0				%Pass #200 Sieve:81.9
231.9		50 (2) 50 (1.5)								
85										
90										

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 45 feet during drilling. Northing: 6880887.1934, Easting: 3126823.3278

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\DG-16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

NOTES:

- 1. FOR CONTRACTOR'S INFORMATION ONLY



S HIGH ST AT UPRR AND SABINE ST
RETAINING WALL BORINGS
B-2

SHEET 9 OF 16

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						145

DATE: 7/22/2021
 FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. WALL HIGH ST*BORE01.dgn



DRILLING LOG

1 of 2

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072
Hole RW2-2
Station Bridge
Offset

District Tyler
Date 11/29/2017
Grnd. Elev. 302.70 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
301.3			PAVEMENT, 17 inches of Asphalt							
		3 (6) 4 (6)	FILL, fat, sandy, clay, with gravel, stiff, moist, reddish brown, weathered rocks below 4 feet							PP:3.0
5		4 (6) 4 (6)		21.5	87	60				PP:3.0
										PP:2.5
10		4 (6) 5 (6)		32.0	99	64				%Pass #4 Sieve:76.0 %Pass #200 Sieve:55.4
										PP:2.5
15		6 (6) 7 (6)								
286.7			CLAY, lean, with sand, stiff to soft (CL)							
										PP:2.5
20		11 (6) 18 (6)		22.7						%Pass #200 Sieve:76.5
										PP:2.0
25		6 (6) 7 (6)								
273.7			CLAY, lean, sandy to with sand, very stiff, moist, with gravel (CL)							
30		7 (6) 8 (6)		13.9						%Pass #200 Sieve:63.4

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was not encountered during drilling.
The ground water elevation was not determined during the course of this boring.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG



DRILLING LOG

2 of 2

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072
Hole RW2-2
Station Bridge
Offset

District Tyler
Date 11/29/2017
Grnd. Elev. 302.70 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
			CLAY, lean, sandy to with sand, very stiff, moist, with gravel (CL)							
35		50 (5.5) 50 (2)								
262.7		50 (5.5) 50 (3.25)							23.6	%Pass #200 Sieve:77.4
			SAND, clayey, very dense, wet, gray							
45		50 (1.5) 50 (1)								
255.2										
50										
55										
60										

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was not encountered during drilling.

The ground water elevation was not determined during the course of this boring.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

NOTES:

- FOR CONTRACTOR'S INFORMATION ONLY



S HIGH ST AT UPRR AND SABINE ST
RETAINING WALL BORINGS
RW 2-2

SHEET 10 OF 16

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						146

DATE: 7/22/2021
FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*BORE01.dgn



DRILLING LOG

1 of 2

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072
Hole RW2-3
Structure Bridge
Station
Offset

District Tyler
Date 12/1/2017
Grnd. Elev. 300.69 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
299.4			PAVEMENT, 16 inches of Asphalt							
297.7		3 (6) 4 (6)	CLAY, sandy, with gravel, soft, gray and red (Possible Fill) (SC)							
5		3 (6) 5 (6)	FILL, clay, fat, soft, reddish brown, moist, with sand below 14 feet (CH)			36.0				PP: 2.5 %Pass #200 Sieve:86.1
										PP: 2.0
				0	14.1	26.7	61	33	113.2	
290.7		5 (6) 3 (6)	CLAY, sandy, soft, reddish brown, moist (CH)							
15		6 (6) 6 (6)				21.6				PP: 2.5 %Pass #200 Sieve:74.5
20		7 (6) 4 (6)								PP: 3.5
25		7 (6) 7 (6)				21.2				%Pass #200 Sieve:66.7
274.7			SAND, clayey, slightly compact, moist, dark gray							
30		9 (6) 18 (6)								

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was not encountered during drilling. Northing: 6880642.5980, Easting: 3126820.8375

The ground water elevation was not determined during the course of this boring.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG



DRILLING LOG

2 of 2

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072
Hole RW2-3
Structure Bridge
Station
Offset

District Tyler
Date 12/1/2017
Grnd. Elev. 300.69 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
265.7		11 (6) 17 (6)	SAND, clayey, slightly compact, moist, dark gray							
35										
40										
45										
50										
55										
60										

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was not encountered during drilling. Northing: 6880642.5980, Easting: 3126820.8375

The ground water elevation was not determined during the course of this boring.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

NOTES:

- FOR CONTRACTOR'S INFORMATION ONLY



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS RW 2-3

SHEET 11 OF 16

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)		HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	147
JMT	0910	07	072	

DATE: 7/22/2021
FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*BORE01.dgn



DRILLING LOG

1 of 2

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072
Hole RW2-4
Structure Bridge
Station
Offset

District Tyler
Date 11/29/2017
Grnd. Elev. 295.76 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
294.3			PAVEMENT, 18 inches of Asphalt							
		4 (6) 4 (6)	FILL, clay, fat, sandy, with gravel, stiff, reddish brown (Fill)							
291.8		4 (6) 4 (6)	FILL, clay, fat, with sand, soft, reddish gray, with trace of gravel			23.9	54	32		PP: 2.5
5				0	26.97	35.9			120.3	PP: 2.5 %Pass #200 Sieve:84.3 PP: 4.5+
10		7 (6) 8 (6)								PP: 2.0
15		5 (6) 8 (6)				24.7	55	31		
279.8			CLAY, lean, sandy, soft, moist (CL)							
20		8 (6) 10 (6)				16.6				%Pass #200 Sieve:67.7
25		36 (6) 50 (6)								
269.8			SAND, clayey, dense to very dense, moist, dark gray, sandstone layer from 28 to 29 feet (SC)							
30		36 (6) 28 (6)								

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was not encountered during drilling. Northing: 6880460.5362, Easting: 3126894.5623

The ground water elevation was not determined during the course of this boring.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG



DRILLING LOG

2 of 2

WinCore
Version 3.1

County Gregg
Highway High Street Bridge Improv. Structure
CSJ 0910-07-072
Hole RW2-4
Structure Bridge
Station
Offset

District Tyler
Date 11/29/2017
Grnd. Elev. 295.76 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
			SAND, clayey, dense to very dense, moist, dark gray, sandstone layer from 28 to 29 feet (SC)							
									19.4	%Pass #200 Sieve:28.2
35		50 (5) 50 (3)								
259.3										
40										
45										
50										
55										
60										

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was not encountered during drilling. Northing: 6880460.5362, Easting: 3126894.5623

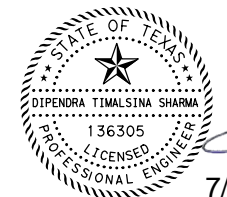
The ground water elevation was not determined during the course of this boring.

Driller: Mark Logger: BT Organization: HVJ Associates®

G:\DAL PS\GEO\PROJECTS\16\16-10081.2.3 High Street Bridge Improvements, KCI\Wincore\DG-16-10081.2.3-ALL Borings.CLG

NOTES:

- FOR CONTRACTOR'S INFORMATION ONLY



7/23/2021



TBPE REGISTRATION NO. F-16341



Texas Department of Transportation

S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS RW 2-4

SHEET 12 OF 16

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						148

DATE: 7/22/2021
FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*BORE01.dgn



DRILLING LOG

1 of 2

WinCore
Version 3.1

County Gregg
Highway High Street
CSJ 0910-07-072

Hole RWA-1
Structure Retaining Wall
Station 156+80.12
Offset 23.796 LT

District Tyler
Date 03/23/2021
Grnd. Elev. 302.72 ft
GW Elev. 279.72 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
301.2			14 inches of Asphalt over 4 inches of Base							
		3 (6) 3 (6)	CLAY, lean, sandy, very soft to stiff, moist, light grayish brown and reddish brown (CL)			23.6				SPT: 2,2,5
5		3 (6) 4 (6)				17.8	41	27		%Pass #4 Sieve: 98.5 %Pass #40 Sieve: 95.2 %Pass #200 Sieve: 63.7 PP: 3.0
		3 (6) 9 (6)				18.9	33	19		%Pass #4 Sieve: 99.6 %Pass #40 Sieve: 97.2 %Pass #200 Sieve: 68.5 PP: 1.5 Sulfate Content: 327 ppm PP: 1.0
10		12 (6) 14 (6)			0	21.1	21.5	45	30	127.6
15		12 (6) 20 (6)				27.4				PP: 1.0
20		30 (6) 50 (4.5)	SAND, clayey, dense to compact, moist to wet, light grayish brown and reddish brown, trace sandstone fragments (SC)			29.2	34	19		%Pass #4 Sieve: 98.4 %Pass #40 Sieve: 89.5 %Pass #200 Sieve: 46.7
25		50 (3.5) 50 (2.5)								SPT: 10,50=5.75"

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 23 feet during drilling. Latitude: 32.486533, Longitude: -94.744095.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Savage Logger: PM Organization: HVJ Associates®

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DRILLING LOG

2 of 2

WinCore
Version 3.1

County Gregg
Highway High Street
CSJ 0910-07-072

Hole RWA-1
Structure Retaining Wall
Station 156+80.12
Offset 23.796 LT

District Tyler
Date 03/23/2021
Grnd. Elev. 302.72 ft
GW Elev. 279.72 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
267.7		50 (4.5) 50 (3)	SAND, clayey, dense to compact, moist to wet, light grayish brown and reddish brown, trace sandstone fragments (SC)							SPT: 15,25,35

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 23 feet during drilling. Latitude: 32.486533, Longitude: -94.744095.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Savage Logger: PM Organization: HVJ Associates®

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NOTES:

- FOR CONTRACTOR'S INFORMATION ONLY



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS RWA-1

SHEET 13 OF 16

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						149

DATE: 7/22/2021
FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*BORE01.dgn



DRILLING LOG

1 of 2

WinCore
Version 3.1

County Gregg
Highway High Street
CSJ 0910-07-072

Hole RWA-2
Structure Retaining Wall
Station 159+40.68
Offset 26.3854 RT

District Tyler
Date 03/22/2021
Grnd. Elev. 312.50 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
311.8			4.5 inches of Asphalt over 3.5 inches of Base							
		3 (6) 2 (6)	FILL, sand, clayey, very loose, moist, reddish brown, (SC) [FILL]			21.8				SPT: 4,3,2
		3 (6) 3 (6)		21.9	62	42	%Pass #4 Sieve: 76.2 %Pass #40 Sieve: 62.8 %Pass #200 Sieve: 48.7			
5						19.5				
304.5			CLAY, lean, sandy, very soft to stiff, moist, reddish brown to dark brown (CL)	0	16.4	20.4	39	25	127.1	%Pass #4 Sieve: 97.6 %Pass #40 Sieve: 86.2 %Pass #200 Sieve: 66.6 PP: 2.0 Sulfate Content: 233 ppm
10		4 (6) 4 (6)								PP: 2.0
15		2 (6) 3 (6)								
20		8 (6) 14 (6)		0	10.8	15.5	40	25	120.6	%Pass #4 Sieve: 97.4 %Pass #40 Sieve: 90.4 %Pass #200 Sieve: 56.7 PP: 1.0 Sulfate Content < 100 ppm
25		7 (6) 7 (6)				17.1				PP: 2.0 Sulfate Content < 100 ppm
284.5										
30		8 (6) 8 (6)		0	22.8	21.6	39	22	130.7	%Pass #4 Sieve: 100.0

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was not encountered during drilling.
Latitude: 32.485807, Longitude: -94.744174.

The ground water elevation was not determined during the course of this boring.

Driller: Savage Logger: PM Organization: HVJ Associates®

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DRILLING LOG

2 of 2

WinCore
Version 3.1

County Gregg
Highway High Street
CSJ 0910-07-072

Hole RWA-2
Structure Retaining Wall
Station 159+40.68
Offset 26.3854 RT

District Tyler
Date 03/22/2021
Grnd. Elev. 312.50 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
277.5		26 (6) 32 (6)	CLAY, lean, with sand, soft to very stiff, moist, reddish brown and grayish brown, slight hydrocarbon odor at 30-33 feet (CL)							%Pass #40 Sieve: 99.8 %Pass #200 Sieve: 72.7 PP: 3.5
40										
45										
50										
55										
60										

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was not encountered during drilling.
Latitude: 32.485807, Longitude: -94.744174.

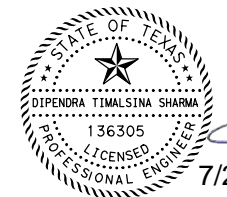
The ground water elevation was not determined during the course of this boring.

Driller: Savage Logger: PM Organization: HVJ Associates®

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NOTES:

- FOR CONTRACTOR'S INFORMATION ONLY



7/23/2021



TBPE REGISTRATION NO. F-16341



Texas Department of Transportation

S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS RWA-2

SHEET 14 OF 16

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						150

DATE: 7/22/2021
FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH ST*BORE01.dgn



DRILLING LOG

1 of 2

WinCore
Version 3.1

County Gregg
Highway High Street
CSJ 0910-07-072

Hole RWA-3
Structure Retaining Wall
Station 163+02.97
Offset 20.8755 LT

District Tyler
Date 03/23/2021
Grnd. Elev. 310.53 ft
GW Elev. 267.53 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks	
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)		
308			18 inches of Asphalt over 12 inches of Base								
			FILL, sand, clayey, loose, moist, reddish brown, (SC) [FILL]			17.5				SPT: 8,16,18	
5		4 (6) 5 (6)				18.8	50	33		%Pass #4 Sieve: 85.7 %Pass #40 Sieve: 64.5 %Pass #200 Sieve: 45.5	
						23.0					
302.5			CLAY, fat, very soft to stiff, moist, light grayish brown and reddish brown, trace sand (CH)	0	22.5	32.9	86	51	119.1	PP: 2.0	
10		3 (6) 5 (6)									
						21.4				%Pass #4 Sieve: 99.9 %Pass #40 Sieve: 98.0 %Pass #200 Sieve: 93.2 PP: 1.5 Sulfate Content: 340 ppm	
15		3 (6) 4 (6)									
						0	26.7	31.3	80	56	114.5
20		5 (6) 4 (6)								%Pass #4 Sieve: 96.0 %Pass #40 Sieve: 91.8 %Pass #200 Sieve: 86.1 PP: 1.5 Sulfate Content: 327 ppm	
										PP: 1.5	
25		6 (6) 11 (6)									
282.5			CLAY, fat, with sand, stiff to very stiff, moist, reddish brown (CH)	0	28.6	23.6	73	51	128.5	%Pass #4 Sieve: 96.8	
30		8 (6) 12 (6)									

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 43 feet during drilling.
Latitude: 32.484836, Longitude: -94.743872.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Savage Logger: PM Organization: HVJ Associates®

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DRILLING LOG

2 of 2

WinCore
Version 3.1

County Gregg
Highway High Street
CSJ 0910-07-072

Hole RWA-3
Structure Retaining Wall
Station 163+02.97
Offset 20.8755 LT

District Tyler
Date 03/23/2021
Grnd. Elev. 310.53 ft
GW Elev. 267.53 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
			CLAY, fat, with sand, stiff to very stiff, moist, reddish brown (CH)							%Pass #40 Sieve: 88.2 %Pass #200 Sieve: 72.2 PP: 1.5 Sulfate Content: 307 ppm
277										
35		4 (6) 7 (6)	SAND, clayey, loose to slightly compact, moist to wet, grayish brown to light reddish brown, trace iron oxides, argillaceous (SC)			12.1	27	13		%Pass #4 Sieve: 99.5 %Pass #40 Sieve: 97.8 %Pass #200 Sieve: 32.8 SPT: 3,3,4 Sulfate Content < 100 ppm
40		12 (6) 20 (6)				20.1				SPT: 11,13,14
265.5										
45		16 (6) 50 (4.25)				25.9				SPT: 9,18,20
50										
55										
60										

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 43 feet during drilling.
Latitude: 32.484836, Longitude: -94.743872.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Savage Logger: PM Organization: HVJ Associates®

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NOTES:

- FOR CONTRACTOR'S INFORMATION ONLY



S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS RWA-3

SHEET 15 OF 16

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						151

DATE: 7/22/2021
FILENAME: pw:\jmt-pw-bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\4. Wall\HIGH_ST*BORE01.dgn



DRILLING LOG

1 of 2

WinCore
Version 3.1

County Gregg
Highway High Street
CSJ 0910-07-072

Hole RWA-4
Structure Retaining Wall
Station 165+93.73
Offset 25.8832 RT

District Tyler
Date 03/22/2021
Grnd. Elev. 297.82 ft
GW Elev. 269.82 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
296.5			16 inches of Asphalt							
		4 (6) 4 (6)	CLAY, fat, sandy, very soft, moist, reddish brown, with gravel (CH)			24.5	54	31		%Pass #4 Sieve: 84.1 %Pass #40 Sieve: 67.5 %Pass #200 Sieve: 58.5 SPT: 9,2,2 PP: 2.5
		3 (6) 3 (6)				24.8				
291.8			CLAY, fat, with sand, soft to very soft, moist, brown (CH)	0	19.4	24.8	59	34	115.8	%Pass #4 Sieve: 98.1 %Pass #40 Sieve: 90.7 %Pass #200 Sieve: 73.0 PP: 2.5 Sulfate Content: 427 ppm PP: 2.5
		5 (6) 4 (6)		0	19.2	28.9			118.7	
284.8			CLAY, fat, sandy, soft, moist, reddish brown (CH)			22.8	57	33		%Pass #4 Sieve: 96.8 %Pass #40 Sieve: 90.2 %Pass #200 Sieve: 66.3 PP: 2.5 Sulfate Content < 100 ppm
		5 (6) 4 (6)								
274.8			CLAY, lean, sandy, very soft to hard, moist to wet, light reddish brown and grayish brown (CL)			23.5	49	30		%Pass #4 Sieve: 99.1 %Pass #40 Sieve: 89.4 %Pass #200 Sieve: 70.7 PP: 1.5 Sulfate Content < 100 ppm
		9 (6) 12 (6)								
		4 (6) 4 (6)				23.5				PP: 1.0

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 28 feet during drilling. Latitude: 32.48027, Longitude: -94.743902.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: Savage Logger: PM Organization: HVJ Associates®

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DRILLING LOG

2 of 2

WinCore
Version 3.1

County Gregg
Highway High Street
CSJ 0910-07-072

Hole RWA-4
Structure Retaining Wall
Station 165+93.73
Offset 25.8832 RT

District Tyler
Date 03/22/2021
Grnd. Elev. 297.82 ft
GW Elev. 269.82 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
			CLAY, lean, sandy, very soft to hard, moist to wet, light reddish brown and grayish brown (CL)							SPT: 1,2,1
		2 (6) 7 (6)								
		50 (3) 50 (1.5)								SPT: 17,18,25
252.8		50 (3.5) 50 (2)								SPT: 6,17,20

Remarks: PP: Pocket Penetrometer readings are in tsf. Groundwater was encountered at 28 feet during drilling. Latitude: 32.48027, Longitude: -94.743902.

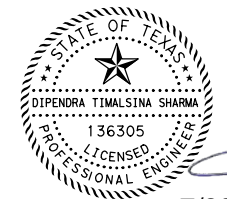
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Driller: Savage Logger: PM Organization: HVJ Associates®

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NOTES:

- FOR CONTRACTOR'S INFORMATION ONLY



7/23/2021



TBPE REGISTRATION NO. F-16341



Texas Department of Transportation

S HIGH ST AT UPRR AND SABINE ST

RETAINING WALL BORINGS RWA-4

SHEET 16 OF 16

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

152

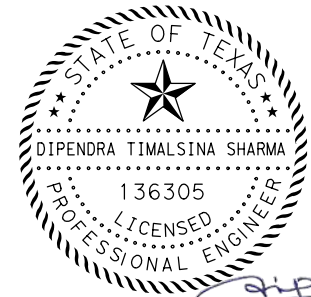
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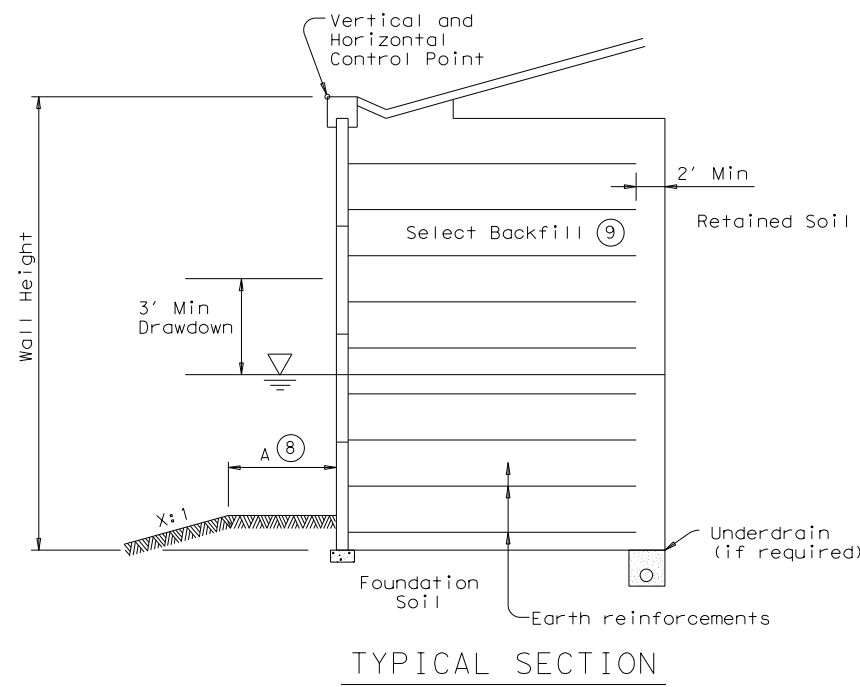
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WALL SUMMARY

MSE Retaining Wall	Begin Station ①	End Station ①	Retained Soil Friction Angle ②	Foundation Soil Friction Angle ②	Ground Improvement ③	Min Earth Reinforcement Length ④	Min Wall Embedment ⑦	Underdrain Required ⑤	Drawdown Analysis ⑥	Bench Width ⑧
WALL A	10+00.00	11+00.00	26	26	NO	8 FEET	2 FEET	YES	N/A	2 FEET
	11+00.00	13+01.36	26	26	NO	8 FT MIN OR 100% H	1 FEET	YES	N/A	2 FEET
WALL B	19+94.22	23+58.84	26	26	NO	8 FEET OR 100% H	1 FEET	YES	N/A	2 FEET
WALL C	29+94.37	31+99.83	26	26	NO	8 FEET OR 100% H	1 FEET	YES	N/A	2 FEET
	31+99.83	32+79.21	26	26	NO	8 FEET	2 FEET	YES	N/A	2 FEET
WALL D	40+00.00	43+75.52	26	26	NO	8 FT MIN OR 100% H	1 FEET	YES	N/A	2 FEET



7/23/2021



TYPICAL SECTION

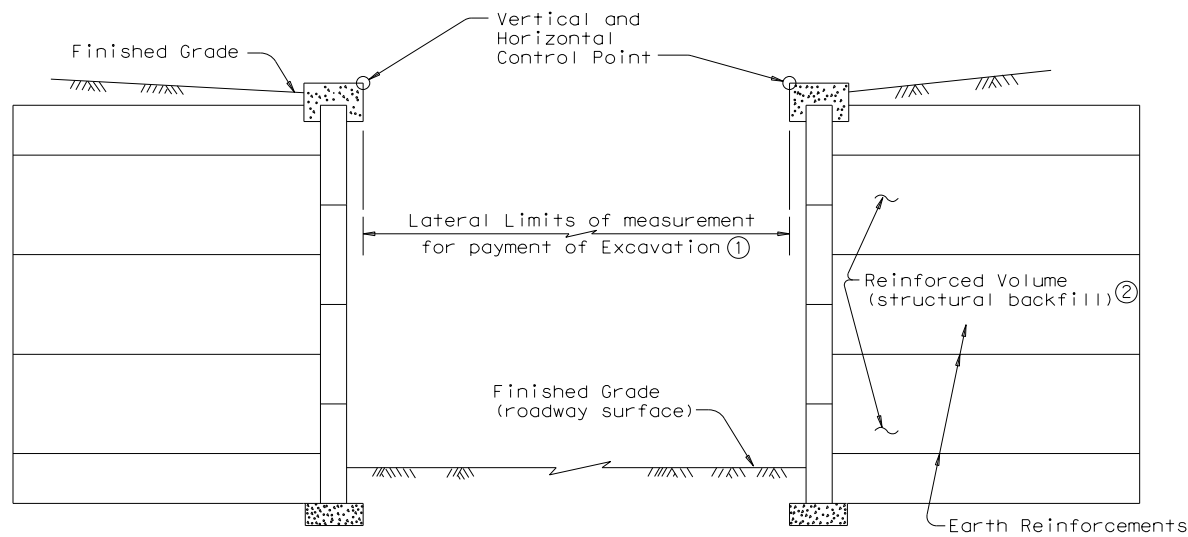
- ① Indicate limits for which the stated soil design requirements/assumptions are applicable.
- ② Retained and Foundation friction angle listed should be based on local experience or measured/correlated long term strength values.
- ③ Indicate if ground improvement is required or not required. If shown as required, refer to Ground Improvement Detail(s) for additional information.
- ④ Indicate on table minimum length and length ratio required. The minimum default length of earth reinforcements shall be either 8'-0" or 70% of the wall height, whichever is greater. Wall height and design wall height may differ depending on project geometry and loading conditions. Note: Wall height at bridge abutments is equal to the distance between the top of leveling pad and finished grade at the bridge abutment backwall.
- ⑤ Indicate if underdrain is required or not required.
- ⑥ Indicate if rapid drawdown analysis is required.
- ⑦ Guidance to wall designer of record for determination of minimum wall embedment: Unless noted elsewhere in the plans, the minimum embedment provided from the top of leveling pad to finish grade shall be 1' for level ground where there is no potential for erosion or future excavation or 2' for sloping ground (4.0H:1.0V or steeper) or where there is potential for removal of soil in front of the wall.
- ⑧ Horizontal Bench width at base of wall varies. Use the following criteria to establish base width.
 A = 2.0' Min for $X \geq 4$, or
 A = 4.0' Min for $X \leq 4$.
 Applicable to both drawdown and dry condition.
- ⑨ TY DS select backfill. Paid for under Item 132 Embankment (Final) (Dens Cont) (TY C)

SPECIAL NOTES:
 This sheet is to be filled out by the wall designer of record at time of plan preparation to provide soil strength parameters for the design of the specified walls. The completed sheet shall be signed, sealed, and dated by a licensed Professional Engineer.

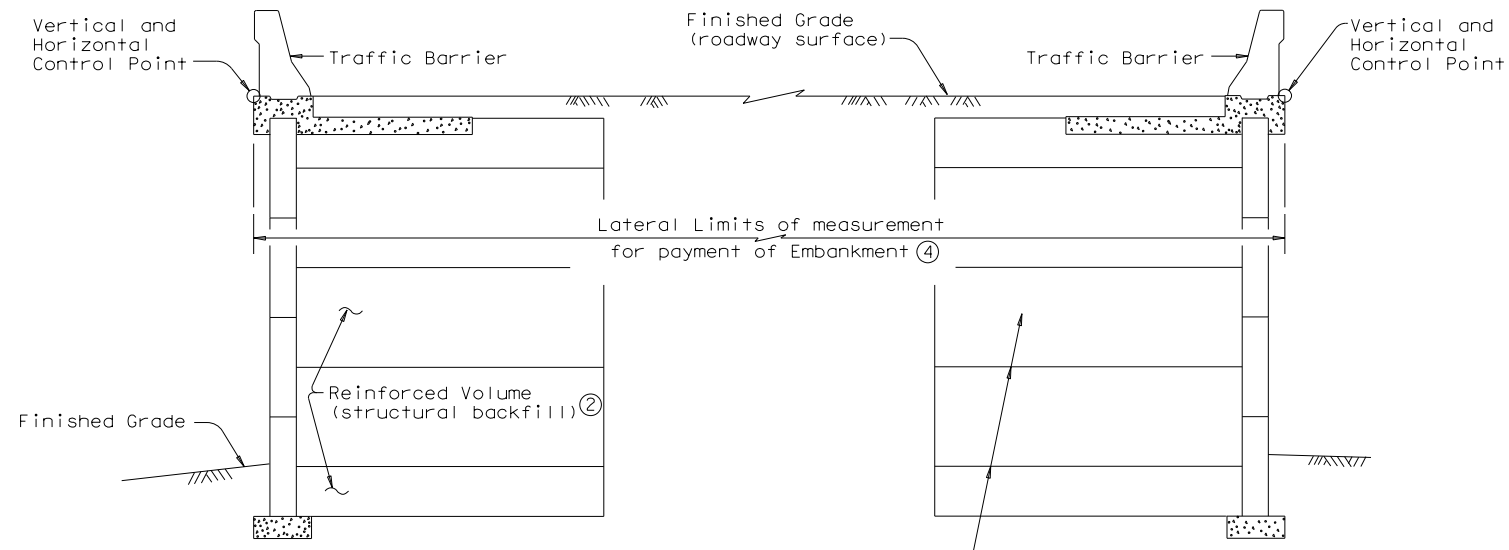
		Bridge Division Standard	
MECHANICALLY STABILIZED EARTH RETAINING WALL DESIGN DATA			
RW(MSE)DD			
FILE: rwstde16.dgn	DN: TxDOT	CK: MJG	DW: JTR
©TxDOT January 2013	CONTRACT: 0910	SECTION: 07	JOB: 072
REVISIONS	COUNTY: TYLER		HIGHWAY: 153
	COUNTY: GREGG		SHEET NO: 153

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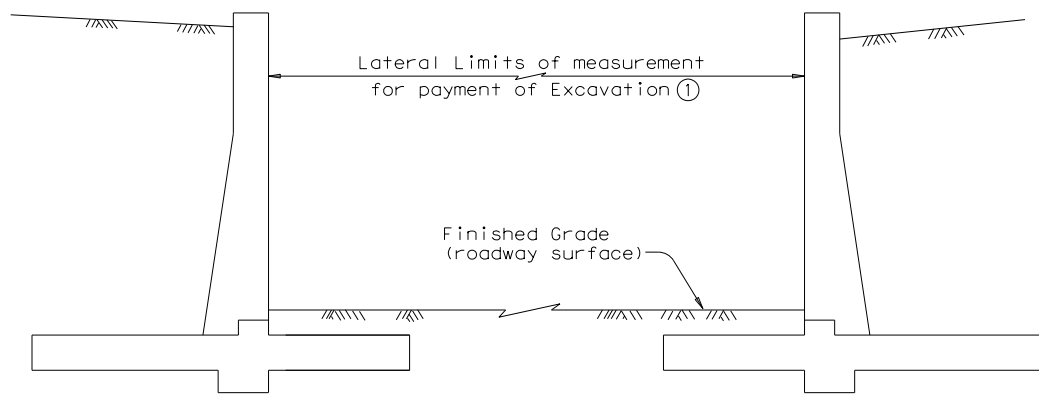
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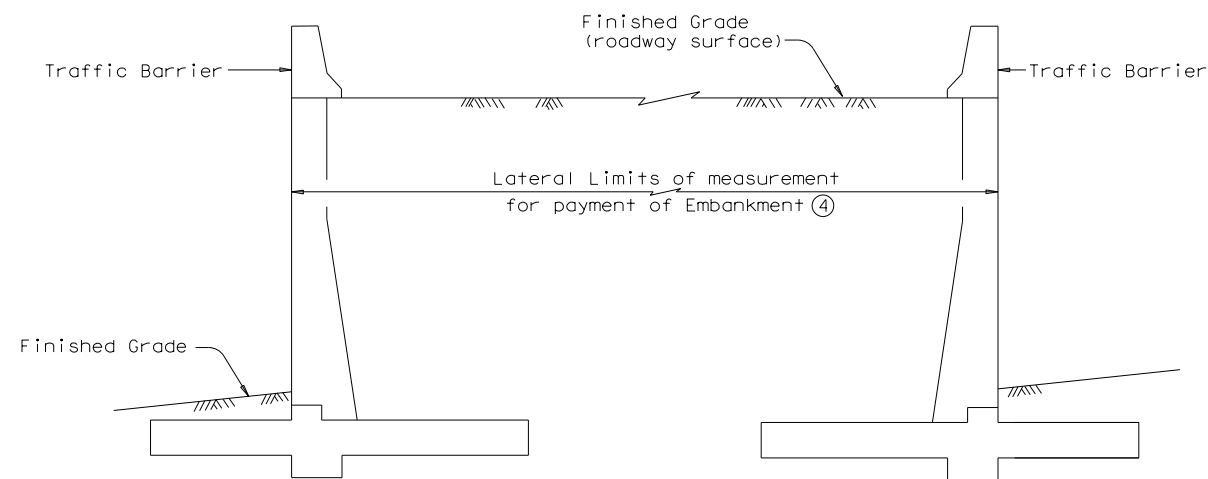
TYPICAL SECTION
 Excavation Between MSE Retaining Walls (3)



TYPICAL SECTION
 Embankment Between MSE Retaining Walls (3)

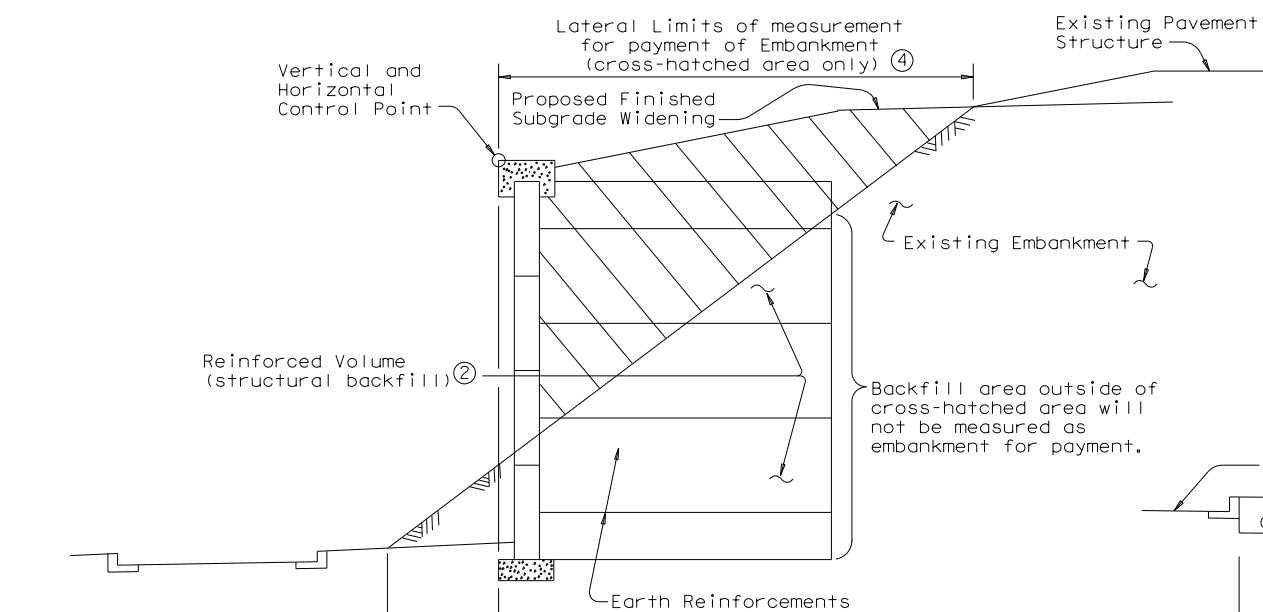


TYPICAL SECTION
 Excavation Between Conventional Retaining Walls

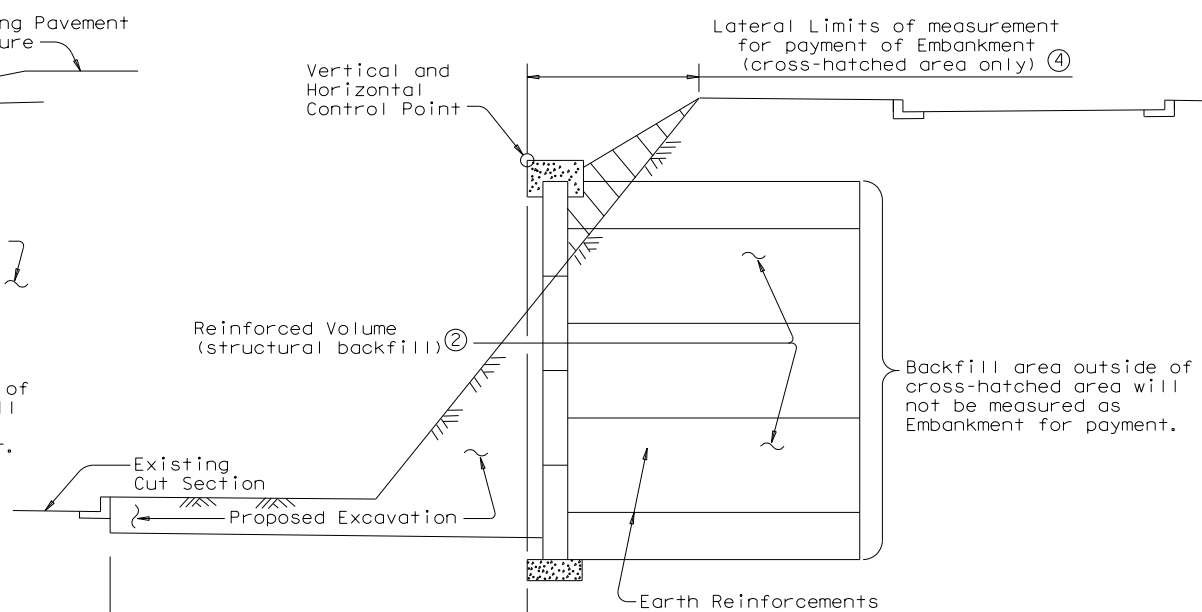


TYPICAL SECTION
 Embankment Between Conventional Retaining Walls

- ① Only the Excavation above the proposed subgrade elevation will be measured for payment.
- ② Meeting requirements of Retaining-Wall Item.
- ③ Earthwork measurement with other designs of retaining walls will be made to the outside finished face in the same manner.
- ④ Only the Embankment above the existing ground line will be measured for payment.



TYPICAL SECTION
 Widening Embankment with MSE Retaining Walls (3)

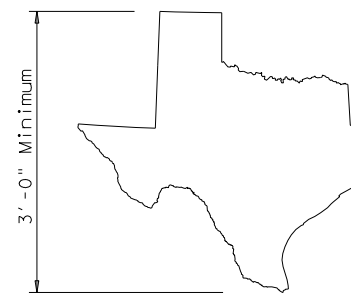
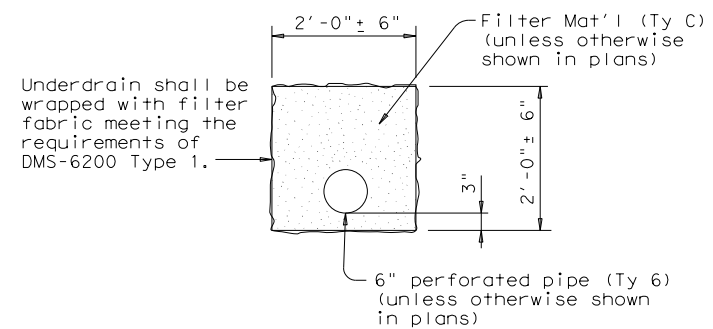
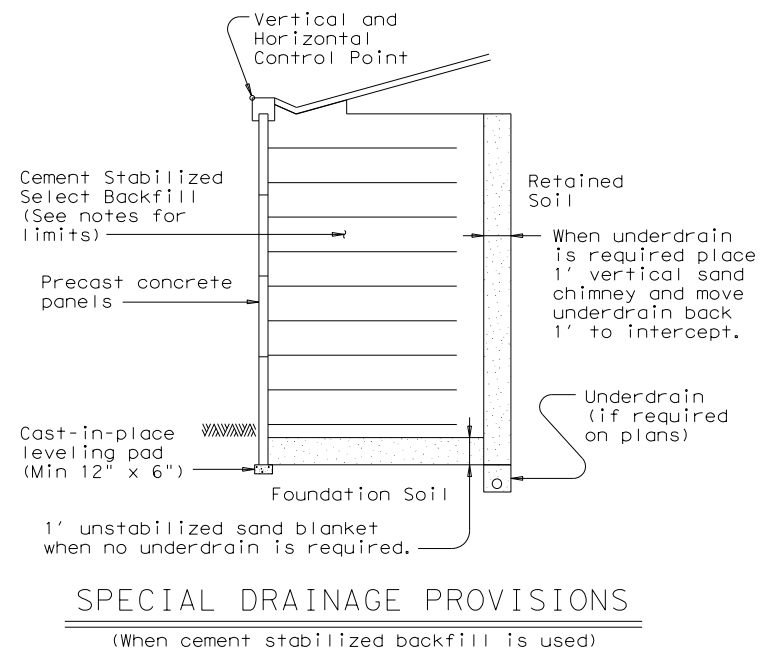
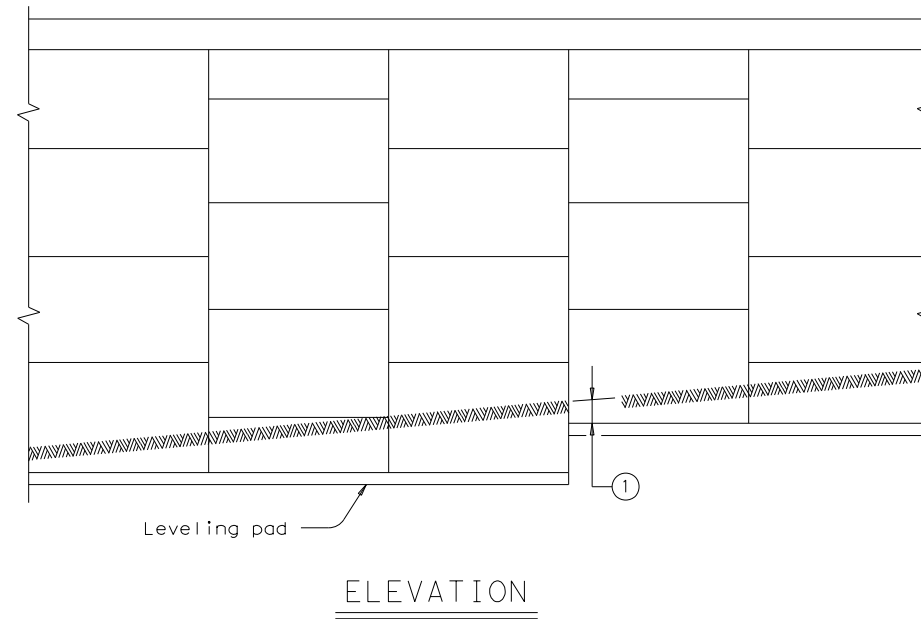
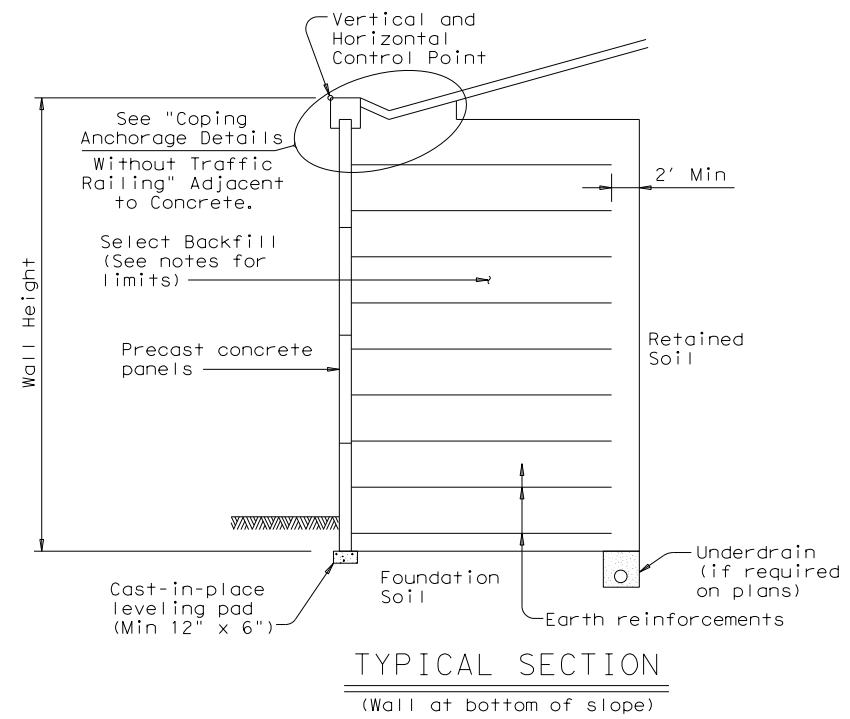


TYPICAL SECTION
 Widening Cut Section with MSE Retaining Walls (3)

		Bridge Division Standard	
<h2>EARTHWORK MEASUREMENT AT RETAINING WALLS</h2>			
<h3>RW(EM)</h3>			
FILE: rwstdel2.dgn	DN: TxDOT	CK: TxDOT	DW: BWH
©TxDOT March 2010	CONTRACT: 0910	SECTION: 07	JOB: 072
REVISIONS	COUNTY: TYLER		HIGHWAY: HIGH ST
	SHEET NO.		154

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DATE: 7/22/2021
FILE: pw:\jmt-pw_bent\ey.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\4. Wall\TxDOT_Standards\rwstde01.dgn



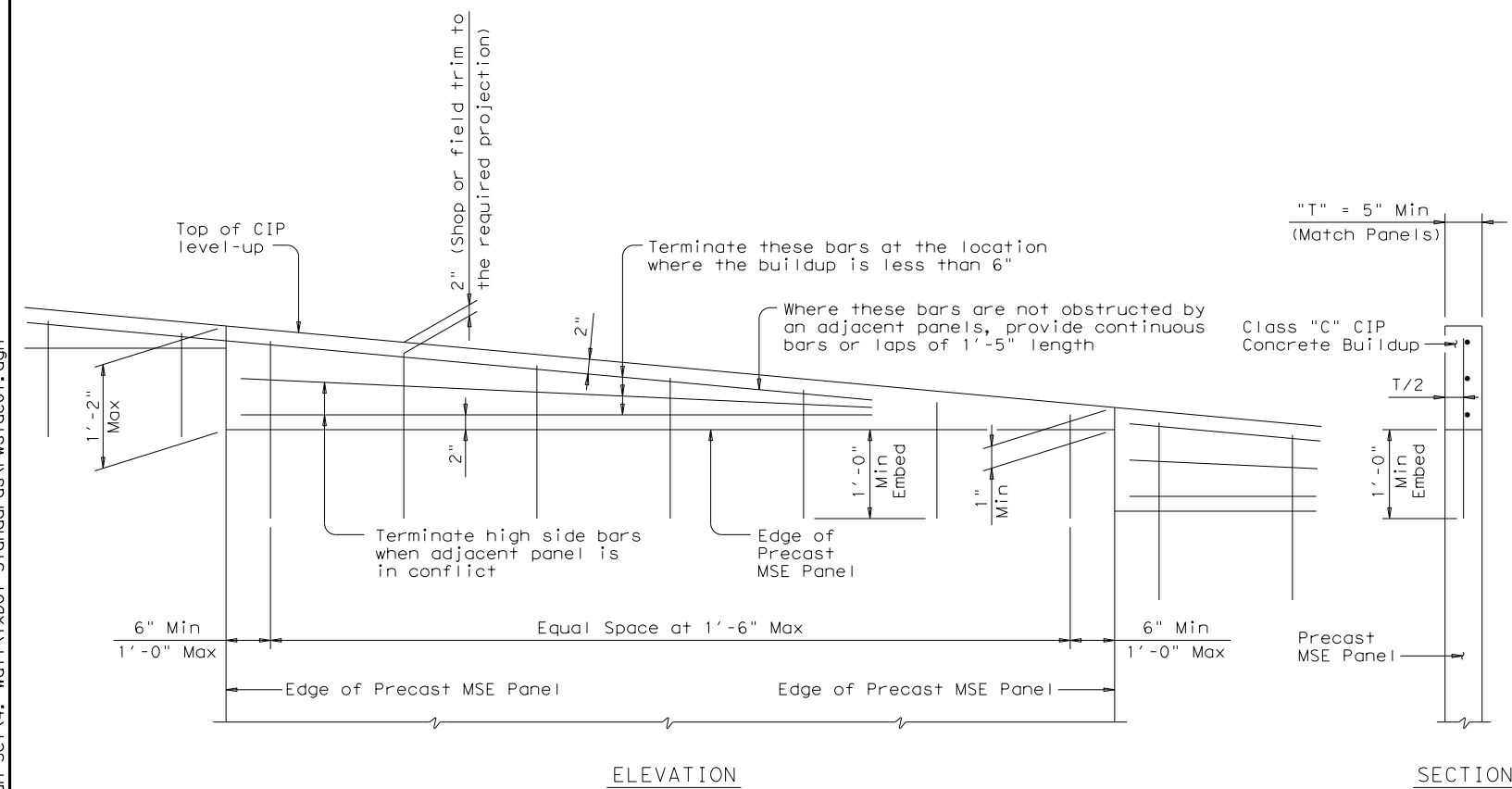
- ① Minimum embedment conforming to values given on the RW(MSE)DD standard.
- ② Map of Texas emblem shall be formed into a wall panel next to each bridge abutment. The exact location of each emblem shall be approved by the Engineer. The cost of forming the emblems will not be paid for directly, but shall be incidental to the Item "Retaining Wall". The map of Texas shall be inset a minimum of 3/4" into the face of the panel, and shall receive a smooth finish. The inset area shall be finished in a contrasting color as approved by the Engineer.

SHEET 1 OF 2

		Bridge Division Standard	
<h2>MECHANICALLY STABILIZED EARTH RETAINING WALL</h2>			
<h3>RW(MSE)</h3>			
FILE: rwstde01.dgn	DN: TxDOT	CK: TxDOT	DW: JGD
©TxDOT March 2010	CONTRACT: 0910	SECTION: 07	JOB: 072
REVISIONS 04-11: Added Table & Corrosion Criteria 01-13: Wall embed, (WS) table, retained fill, soil strength.		COUNTY: TYLER	SHEET NO: 155
		HIGHWAY: HIGH ST	

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DATE: 7/22/2021
 FILE: \\jmt-pw_bent\ey.com\jmt-pw\01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\4. Wall\TxDOT_Standards\rwstde01.dgn



ELEVATION

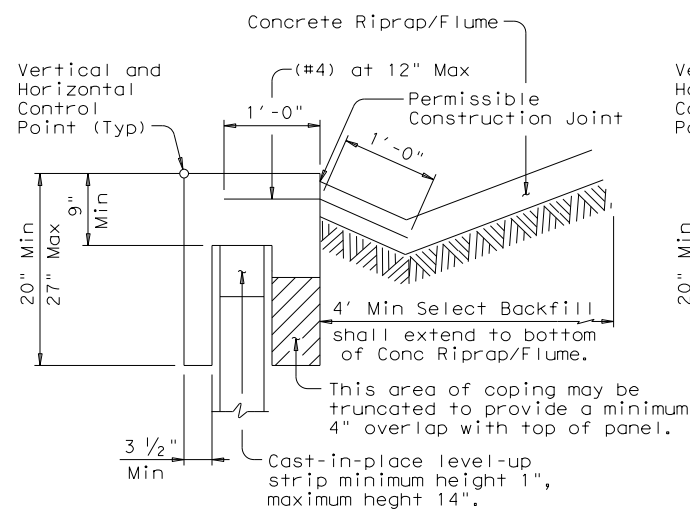
SECTION

LEVEL UP DETAIL ⑤

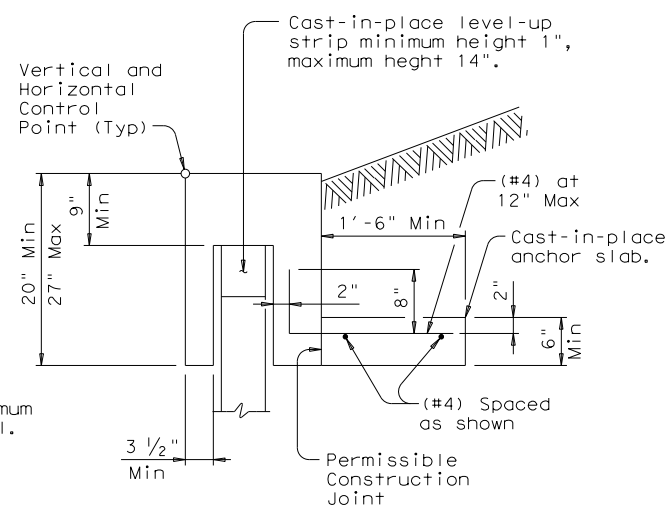
Provide Grade 60 (#4) Reinforcement

- ③ Precast coping shall be anchored to prevent rotation or displacement. Use these details to develop custom anchorage for precast copings. Details shall include coping reinforcement. Concrete flume (if required) shall be paid for separately from Item 423.
- ④ Soil design parameter must be based on long term soil strength. Design parameters must be listed on the RW(MSE)DD standard.
- ⑤ Cast vertical bars into the top of panels. At contractor's option vertical bars may be embedded 4" with a Type III Clac C epoxy anchorage system. Follow manufacturer's directions for installing the epoxied vertical bars.

Type AS, BS & DS	SELECT BACKFILL UNIT WEIGHT		
	Unit Weight	Internal Stability	External Stability
	105 PCF	Pullout	Sliding, Overturning, Eccentricity
	125 PCF	Rupture	Bearing



ADJACENT TO CONCRETE
 (Excluding Concrete Pavement)



ADJACENT TO SOIL

COPING ANCHORAGE DETAILS WITHOUT TRAFFIC RAILING ⑤

DESIGN PARAMETERS:

Design of retaining walls shall be based on the following design parameters unless stated elsewhere in the plans:

Retained Soil	Unit Weight = 125 pcf $\phi = ④$ C = 0 psf
Foundation Soil	$\phi = ④$ C = 0 psf
Select Backfill	Unit Weight = See Table ⑥ $\phi = 34$ C = 0 psf
Cement Stabilized Select Backfill	Unit Weight = 125 pcf $\phi = 45$ C = 0 psf

Stress in steel and concrete shall be in accordance with current AASHTO Standard and Interim Specifications. The minimum length of earth reinforcements are as shown on the RW(MSE)DD standard.

STABILITY CRITERIA:

Stability criteria applies to both dry and drawdown analysis. Factor of safety in sliding along the base of the structure shall be greater than or equal to 1.5. Factor of safety in overturning shall be greater than or equal to 2.0. The base pressure resultant shall fall within the middle third of the retaining wall. The factor of safety against pullout of the earth reinforcements shall be greater than or equal to 1.5 at each level. Pullout resistance shall be determined from test data evaluated at $\frac{3}{4}$ inch strain.

CORROSION CRITERIA:

The earth reinforcement elements shall be designed to have a minimum design life of 75 years, using current AASHTO corrosion rates. Stress calculations (rupture) shall be done on the calculated earth reinforcement section remaining after 75 years. Pullout calculations may be based on non-corroded section.

PRECAST COPINGS:

Wall supplier is to maximize lengths of precast coping. Precast coping is to be provided in 10' minimum lengths (typical). To optimize coping lengths at radiuses, end of runs or other wall geometric conditions favorable to shorter coping sections, shorter lengths may be used pending approval by the Engineer. This applies only to coping without railing.

JOINT SEALER:

The joints between coping segments must be sealed in accordance with the DMS-6310 "Joint Sealant's and Fillers", joint sealing material, Class 4. The joint must be sealed 3" below and 6" above the adjoining pavement surface, or as directed by the Engineer. The purpose of the joint sealing is to contain surface drainage and prevent infiltration into the retaining wall backfill.

GENERAL NOTES:

Section and elevation shown is for informational purposes only. Specific geometry is to be determined based on wall layouts and other plan information.
 The select backfill specified for use within the mechanically stabilized earth volume shall extend horizontally from the back of the panels to a minimum 2' beyond the end of the earth reinforcements. The select backfill shall extend vertically from the top of the leveling pad or 4" below the lowest earth reinforcement, whichever is lower, to the top of panels.
 The uppermost earth reinforcements shall be no more than 3.0' below the top of wall.
 The lowest level of earth reinforcements shall be no more than 2.0' above the top of the leveling pad.
 Minimum wire size for earth reinforcements shall be W7.0. If different longitudinal and cross wires are used in an earth reinforcement mesh, the smaller wire shall have at least 50% of the cross sectional area of the larger wire.
 A maximum of four wire mesh configurations (wire sizes) will be allowed on a project. Each mesh configuration shall have a unique transverse bar spacing, differing from other configurations by a minimum of 3". Earth reinforcement lengths shall be stepped in increments no finer than 12".
 Standard precast concrete panels shall have a maximum height of 6', and a maximum surface area of 50 sq ft. Top and bottom panels may exceed these limitations as necessary to achieve required wall grades. Maximum height of any panel shall be 7'-6". Minimum panel thickness shall be 5". Panels shall be arranged to provide offset horizontal joints.
 An open joint shall be provided around the perimeter of the concrete panels. The joint configuration shall be such that 1) the filter fabric and/or pad materials are not exposed at the wall face and 2) the design opening is between $\frac{3}{8}$ " and $\frac{3}{4}$ ".
 A one-piece corner panel shall be provided for wall angle changes of greater than 30 degrees. Butting of chamfered panels will be allowed for angle changes of 30 degrees or less.
 Concrete coping shall be provided along the top of wall, at the vertical steps at bridge backwalls, and at other vertical steps along the top of wall. The joints between all coping segments shall be sealed to prevent infiltration of water into the retaining wall backfill. Sealing shall be in accordance with the DMS-6310 "Joint Sealants and Fillers", using Class 4 joint sealant.

When obstructions (inlets, drilled shafts, piling, etc.) prevent placement of soil reinforcements in their normal locations, provide details and calculations that establish support for the affected panels. Furnish the same earth reinforcement coverage as that required in the absence of the obstruction. For skewed (rotated) earth reinforcements no adjustment in length is needed for skew angles between 1 and 10 degrees. For skew angles greater than 10 degrees adjust the length of earth reinforcement to provide a cosine length of the reinforcement equivalent to the stated design length for the section of wall. Provide calculations that justify any alterations made to the soil reinforcements or modifications to their normal placement. Do not use panels without any soil reinforcements connected to them unless they are connected with galvanized hardware to adjacent panels which do have supporting Soil reinforcements attached to them and as approved by the Engineer.

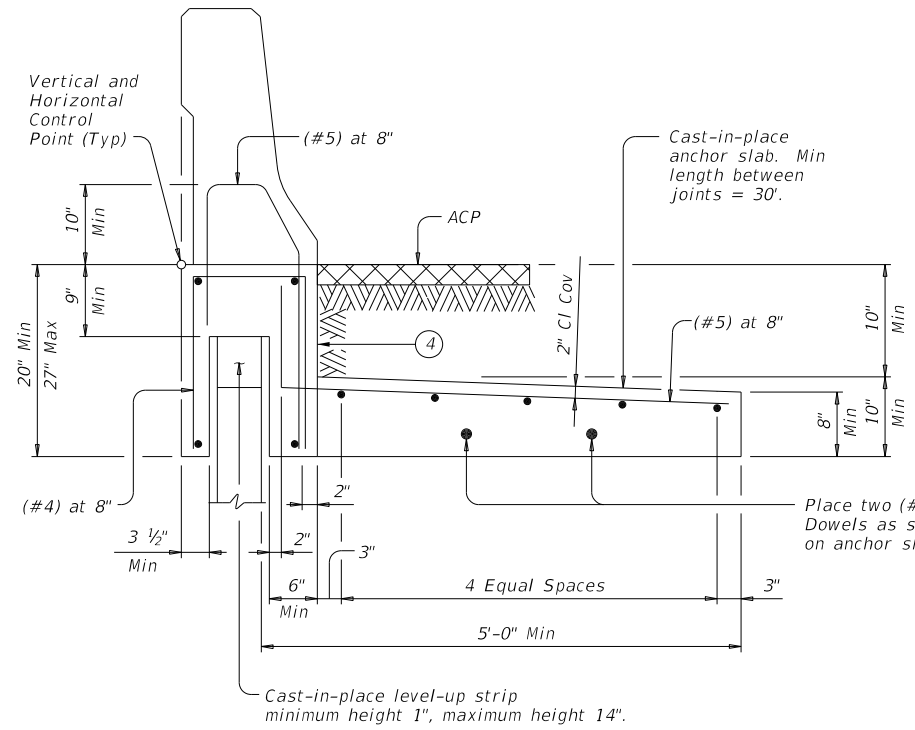
Reinforced concrete must be Class "C", Precast concrete Class "H", Unreinforced concrete Class "A".
 All reinforcing steel must be Grade 60.
 Coping and anchor slabs are considered subsidiary to the Item "Retaining Wall".
 These details are to be used in conjunction with the retaining wall layout, standard RW(MSE)DD and other applicable standards.

SHEET 2 OF 2

		Bridge Division Standard	
MECHANICALLY STABILIZED EARTH RETAINING WALL			
RW(MSE)			
FILE: rwstde01.dgn	DN: TxDOT	CK: TxDOT	DW: JGD
CON: TxDOT	SECT: HIGHWAY	JOB: 0910 07	072 HIGH ST
REVISIONS 04-11: Added Table & Corrosion Criteria 01-13: Wall embed, (WS) table, retained fill, soil strength.		DIST: TYLER	COUNTY: GREGG
		SHEET NO. 156	

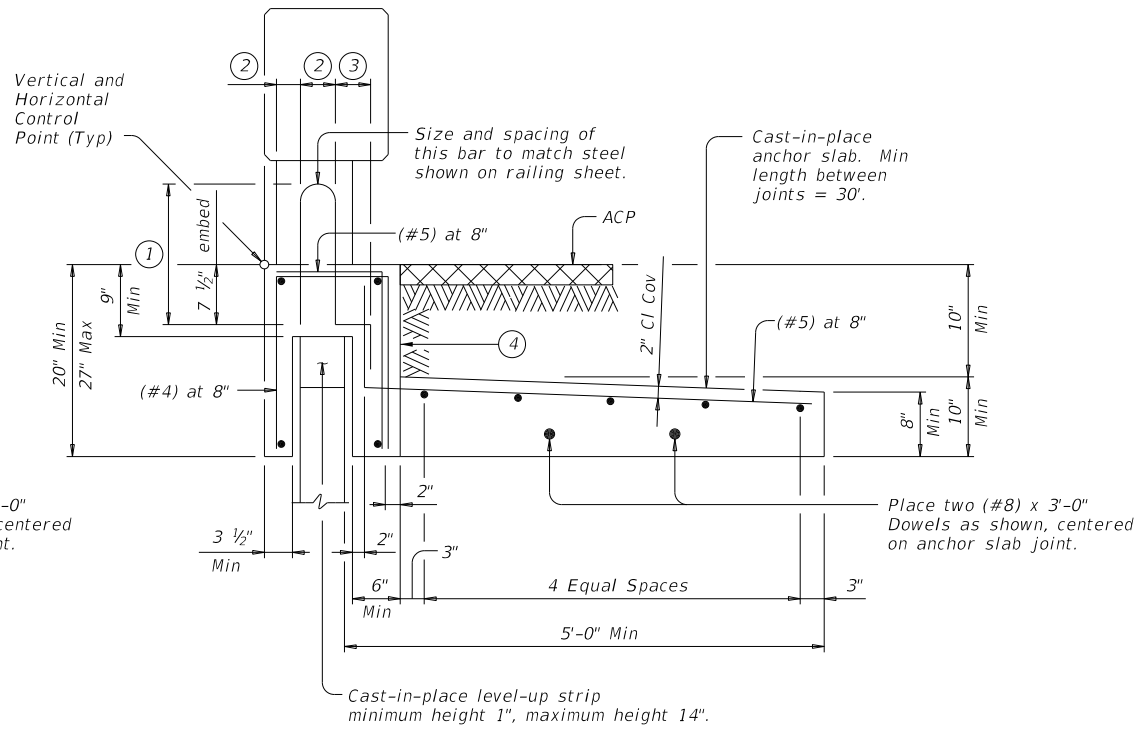
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DATE: 7/22/2021
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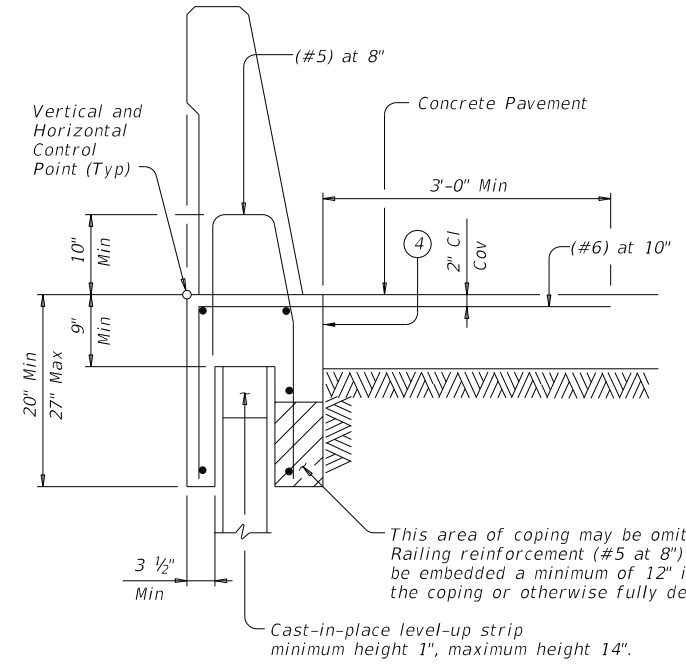
**"WIDE BASED"
ADJACENT TO ACP**

(Showing T551 Rail, other rails listed similar)



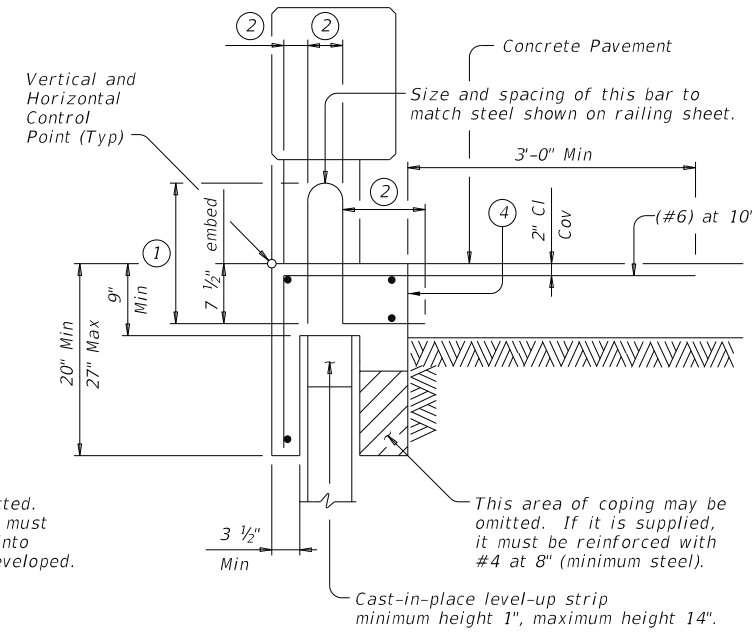
**"NARROW BASED"
ADJACENT TO ACP**

(Showing T223 Rail, other rails listed similar)



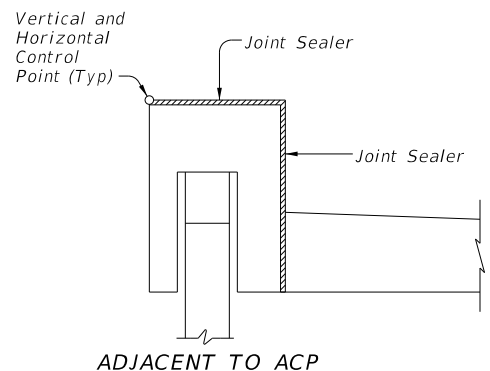
**"WIDE BASED"
ADJACENT TO CONCRETE PAVEMENT**

(Showing SSTR Rail, other rails listed similar)

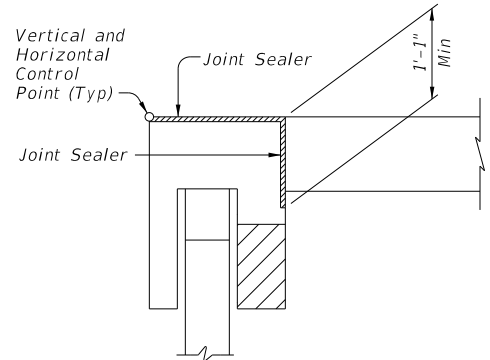


**"NARROW BASED"
ADJACENT TO CONCRETE PAVEMENT**

(Showing T223 Rail, other rails listed similar)



ADJACENT TO ACP



ADJACENT TO CONCRETE PAVEMENT

**COPING
JOINT SEALER DETAILS**

(Reinforcing steel not shown for clarity)

Rail Type ⑤	Detail	Precasting Rail with Coping Allowed
T1F/T1W/C1W/T2P/C2P	NARROW	NO
T221/C221/T222	NARROW	YES
T223/C223	NARROW	NO
T401/T402/C402	NARROW	NO
T411/C411	NARROW	NO
T551/T552	WIDE	YES
T66	NARROW	NO
SSTR	WIDE	YES

CAST-IN-PLACE COPINGS:
Provide compressible material to isolate precast panel from cast-in-place coping to prevent cracking. Attach compressible material to both sides of precast panel prior to casting concrete for coping.
When cast-in-place coping is anchored to reinforced concrete pavement, a smooth level-up strip must be provided on the top of the precast panels. The purpose of the level-up is to allow the pavement and coping to move longitudinally relative to the wall without causing damage.
Align coping and railing joints with precast panel joints. Optional rail joints are allowed as approved by Engineer. Provide railing construction joints or expansion joints at no greater than 100' spacing.

PRECAST COPINGS:
Provide a smooth level-up strip on top of the precast panels prior to installation of the coping. Shims may be used on top of the level-up strip to facilitate alignment. Total shim thickness not to exceed 1".
Provide precast coping in 10' minimum lengths.

JOINTED CONCRETE PAVEMENT:
When coping is adjacent to and anchored into jointed concrete pavement, the coping joints must coincide with the pavement joints.

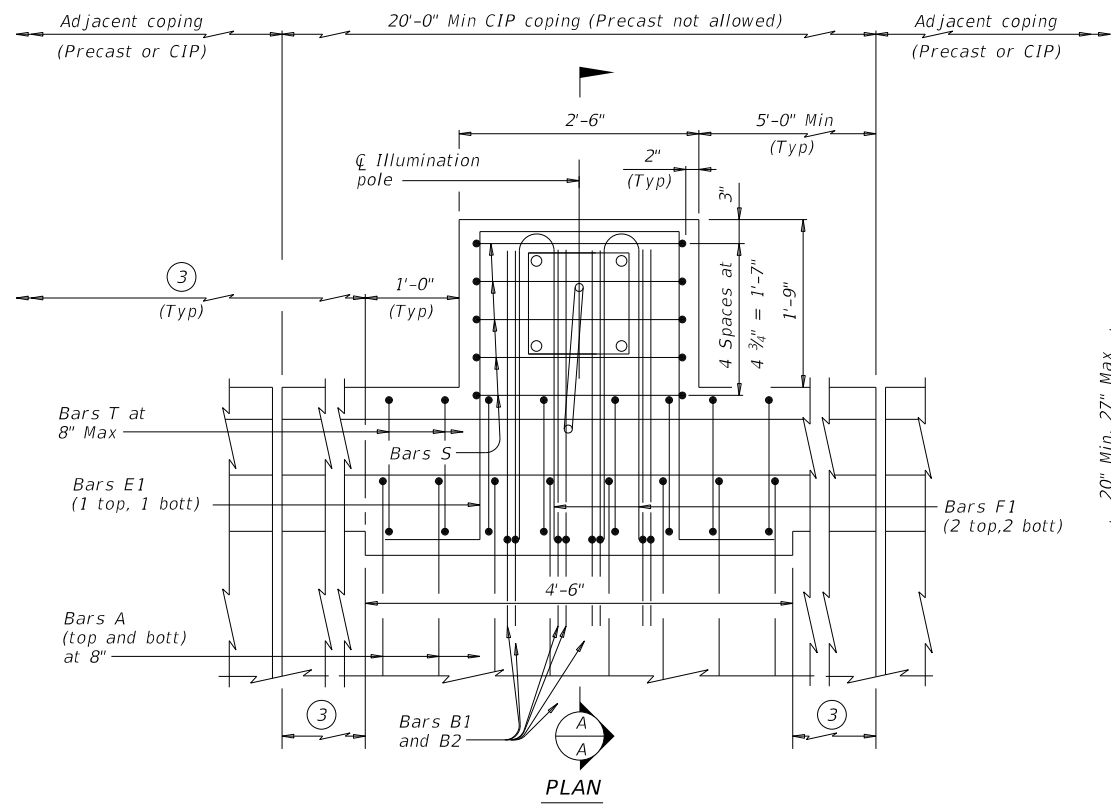
JOINT SEALER:
Seal joints between coping segments in accordance with Item 438, "Cleaning and Sealing Joints". Provide Class 4 joint seal. Place sealant flush with coping surface. The purpose of the joint sealing is to reduce surface drainage infiltration into the retaining wall backfill. Sealing coping joint is considered subsidiary to other items.

GENERAL NOTES:
Details on this sheet are to be used in development of specific details for mounting traffic railing on mechanically stabilized earth (MSE) walls.
The specific details proposed must have strengths equivalent to those shown on this sheet. Areas of particular importance are the connection of the coping to the railing, the strength of the vertical coping leg connecting the railing to the anchor slab, and the connection of the coping to the anchor slab or concrete pavement.
Submit shop drawings for the traffic railing foundations to the Engineer in accordance with Item 423 "Retaining Wall". The shop drawings must include bar bending details.
Precasting of railing with the coping will be allowed as noted in the table on this sheet.
The Contractor's attention is directed to the fact that various configurations of precast coping/railing combinations are covered by patent. The contractor must provide for use of these systems in accordance with Article 7.3.
Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide (#4) longitudinal bars, unless otherwise shown.
Coping and anchor slabs are considered subsidiary to Item 423 "Retaining Wall". Payment for traffic railing is per the linear foot for the appropriate railing type.

		Bridge Division Standard	
<h2>RETAINING WALL TRAFFIC RAILING FOUNDATIONS</h2>			
<h3>RW(TRF)</h3>			
FILE: rwstde03-20.dgn	DN: TxDOT	CK: TxDOT	DW: JTR
CONTRACT: 0910	SECTION: 07	JOB: 072	HIGHWAY: HIGH ST
REVISIONS 01-13: Precast option with Rails. 03-18: Cast-In-Place Copings, railing construction and expansion joints. 02-20: Note 5 added for precast rail option.		DIST: TYLER	COUNTY: GREGG
		SHEET NO. 157	

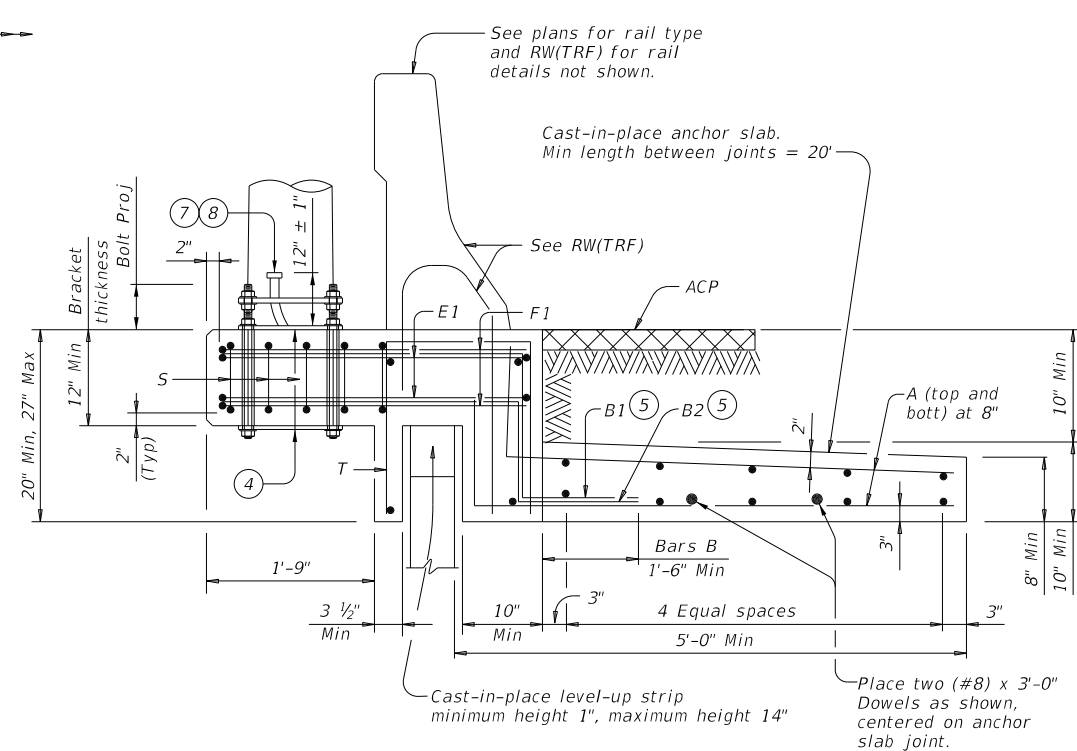
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DATE: 7/22/2021
 FILE: pw:\jmt-pw_bent\ey.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\4 - Wall\TxDOT_Standards\rwstde14-19.dgn



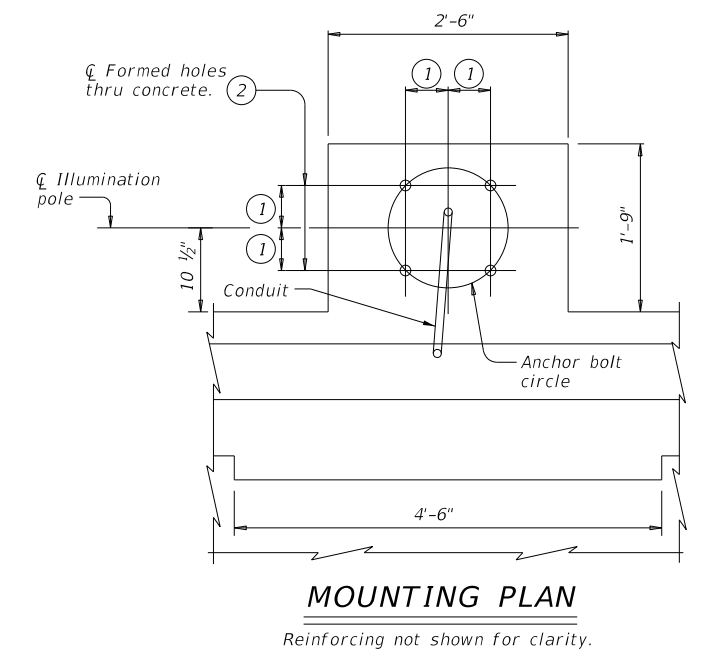
PLAN

See Mounting Plan for details not shown



SECTION A-A

Longitudinal bars are #4 unless shown otherwise



MOUNTING PLAN

Reinforcing not shown for clarity.

- ① See table for anchor bolt offset dimension.
- ② See table for hole diameter size.
- ③ See RW(TRF) for coping details and reinforcing not shown.
- ④ See "Anchor Bolt Assembly", "Anchor Bolt Plate", and table for anchor bolt and anchor bolt plate information.

- ⑤ Lap 2'-7" Min with Bars F.
- ⑥ Concrete pavement must be at least 12" thick for a minimum 6'-0" from inside edge of coping.
- ⑦ If lighting is to be placed on future contract, extend conduit only 6" and provide water tight cap.
- ⑧ Ream burrs and install bell ends or bushings on all conduit ends.

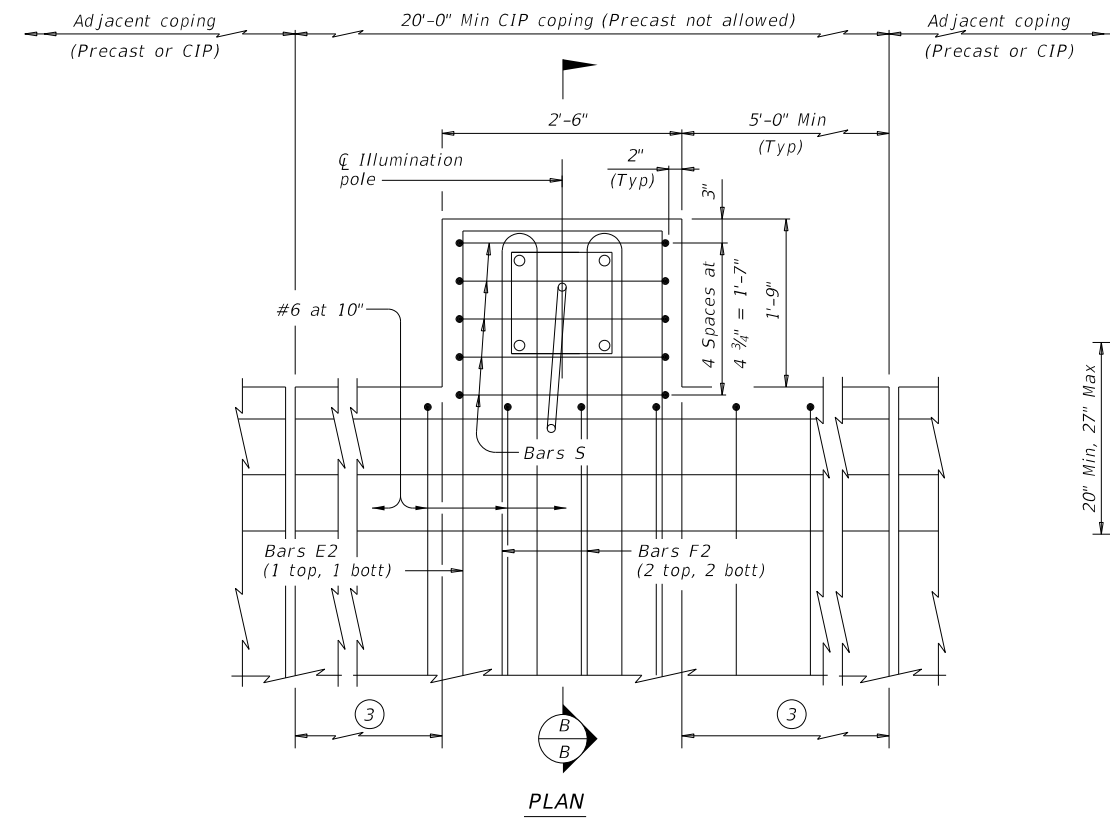
ADJACENT TO ACP

CAST-IN-PLACE COPINGS:
 Provide compressible material to isolate precast panel from cast-in-place (CIP) coping to prevent cracking. Attach compressible material to both sides of precast panel prior to casting concrete for coping.
 When cast-in-place (CIP) coping is anchored to reinforced concrete pavement, a smooth level-up strip must be provided on the top of the precast panels. The purpose of the level-up is to allow the pavement and coping to move longitudinally relative to the wall without causing damage.

JOINTED CONCRETE PAVEMENT:
 When coping is adjacent to and anchored into jointed concrete pavement, the coping joints must coincide with the pavement joints.

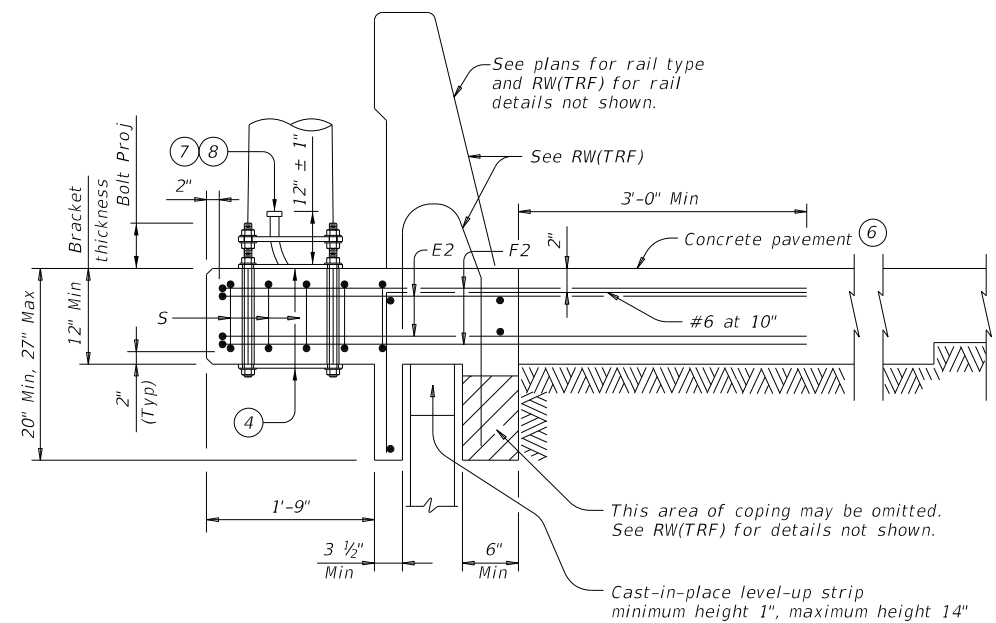
MATERIAL NOTES:
 Galvanize anchor bolts, nuts, washers, and anchor bolt plates. Repair galvanizing damage from tack welding per Item 445, "Galvanizing".
 Provide Grade 60 reinforcing steel.
 Provide Class "C" concrete (f_c=3,600 psi) for Illumination Pole Bracket and CIP coping.
 Provide (#4) longitudinal bars, unless otherwise shown.
 Cast Illumination Pole Brackets monolithically with the CIP coping.

GENERAL NOTES:
 Designed for up to 50 ft light pole with one 12 ft arm, 60 lb luminaire with 1.6 sq ft EPA at maximum design wind speed of 110 mph (3 second gusts). A special design is required if luminaire mounting height exceeds 100 ft above average surrounding terrain.
 The type and size of conduit, the anchor bolt circle diameter, and the number and location of brackets is shown elsewhere on the plans. Brackets found to conflict with other components of the retaining wall may be relocated if necessary and as directed by the Engineer.
 These details must be used in conjunction with the MSE wall RW(TRF) standard to develop specific details for submission with the shop drawings. The steel reinforcement shown is specifically for the area of the Illumination Pole Bracket.
 Do not place Illumination Pole until after the coping and pavement have been constructed.
 See RW(TRF) standard for details and notes not shown.
 See Roadway Illumination Poles standard for details and notes not shown.
 The anchor bolts, nuts, washers, and anchor bolt plates are subsidiary to the Item "Roadway Illumination Assemblies".
 The bracket quantity is considered subsidiary to the Item "Retaining Wall".
 Coping and anchor slabs is considered subsidiary to Item 423 "Retaining Wall".
 The traffic railing will be paid for by the linear foot for the appropriate railing type.
 Cover dimensions are clear dimensions, unless noted otherwise.
 Reinforcing bar dimensions shown are out-to-out of bar.



PLAN

See Mounting Plan for details not shown



SECTION B-B

Longitudinal bars are #4 unless shown otherwise

ADJACENT TO CONCRETE PAVEMENT

Texas Department of Transportation
 Bridge Division Standard

**LIGHTING BRACKET
 FOR MSE RETAINING WALL
 TRAFFIC RAIL FOUNDATION**

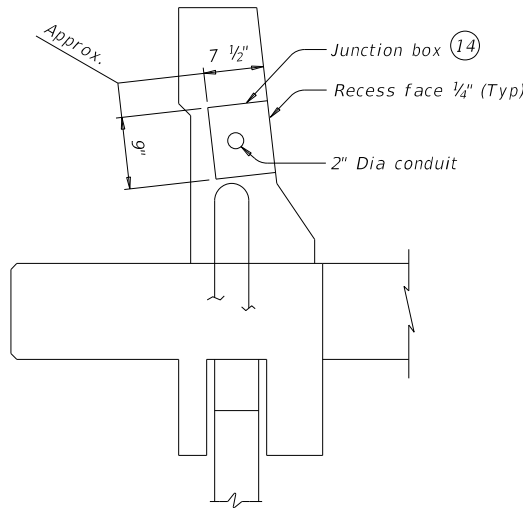
RW(LB)

FILE: rwstde14-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT March 2010	CONV	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
4-13: Tables and Junction Box Location. 4-19: Added anchor bolt information.	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	158	

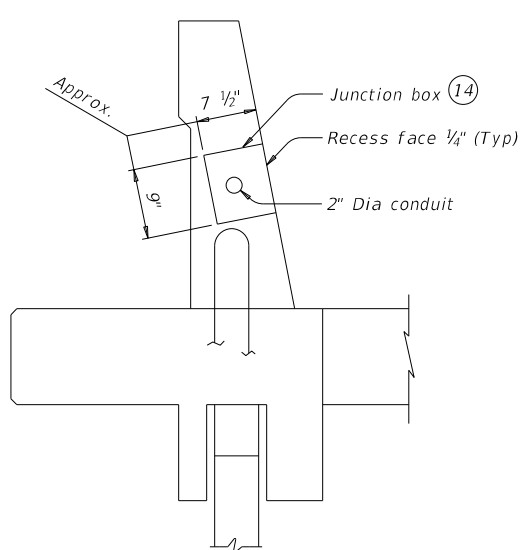
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ANCHOR BOLT CIRCLE DIAMETER	ANCHOR BOLT OFFSET	ANCHOR BOLT DIAMETER	ANCHOR BOLT HOLE SIZE		TOP AND BOTTOM ANCHOR BOLT PLATE SIZE	CENTER HOLE DIAMETER IN TOP ANCHOR BOLT PLATE
			CONCRETE	STEEL		
11	1/2	1/2	1 1/4	1 1/4	PL 1/2 X 13 X 1'-1"	9 1/2
13	4 5/8	1	1 1/4	1 1/4	PL 1/2 X 13 X 1'-1"	9 1/2
15	5 5/16	1 1/4	1 1/2	1 1/2	PL 1/2 X 15 1/2 X 1'-3 1/2"	10 1/2

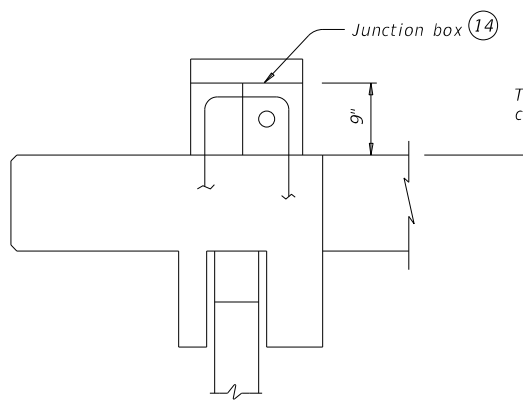
ESTIMATED QUANTITIES~ONE BRACKET		
ITEM	UNIT	QUANT
CONCRETE (11)	CY	0.2
REINFORCING STEEL (11)	LB	146
STRUCTURAL STEEL (11)(12)	LB	112
CONDUIT (13)	LF	4



SHOWING T551, T552, AND T80HT



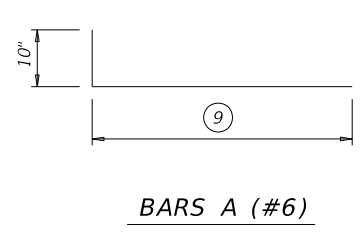
SHOWING SSTR AND T80SS



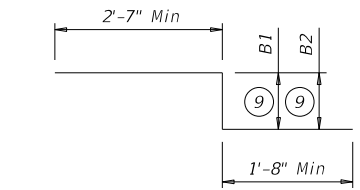
SHOWING T1F, T2P, T1W, T66, C2P, AND C1W CURB
See Elevation View for curb modifications

JUNCTION BOX LOCATION

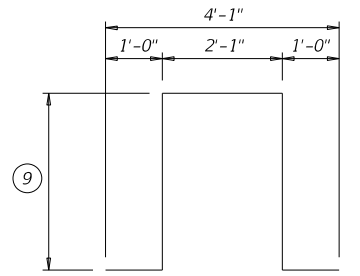
Use these details as a guide in locating junction boxes in rail types not shown.



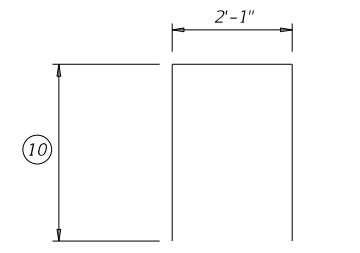
BARS A (#6)



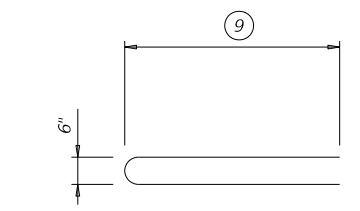
BARS B (#6)



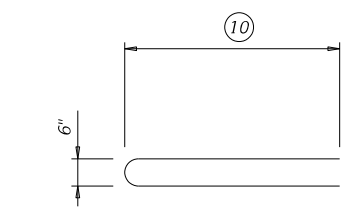
BARS E1 (#6)



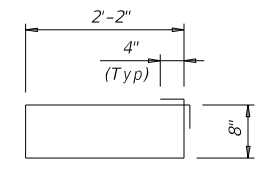
BARS E2 (#6)



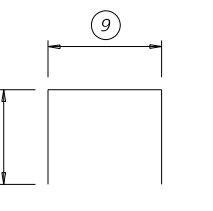
BARS F1 (#6)



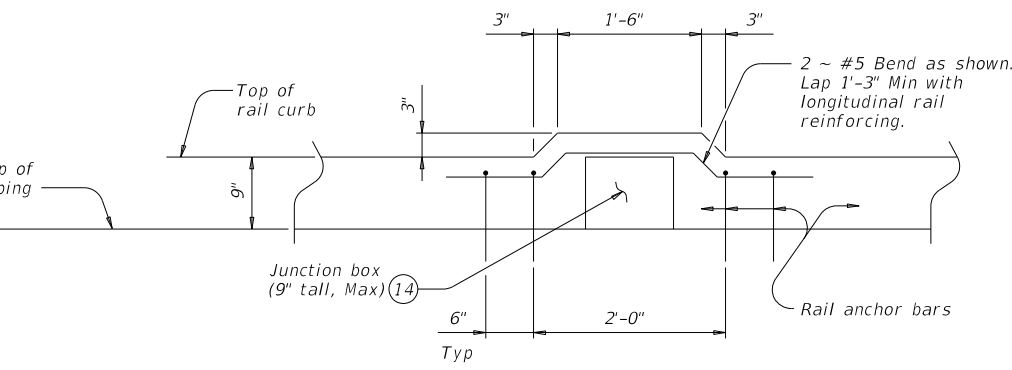
BARS F2 (#6)



BARS S (#3)

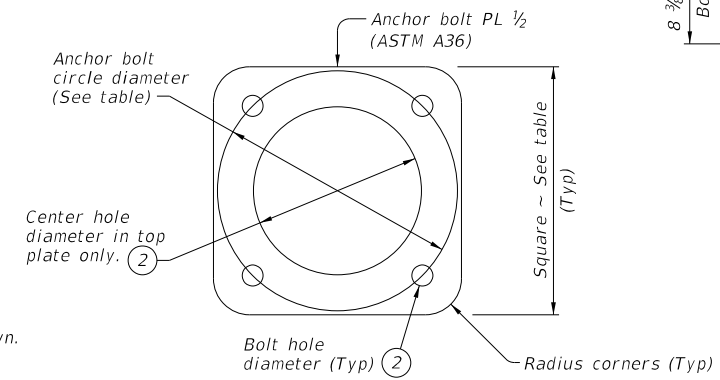


BARS T (#4)

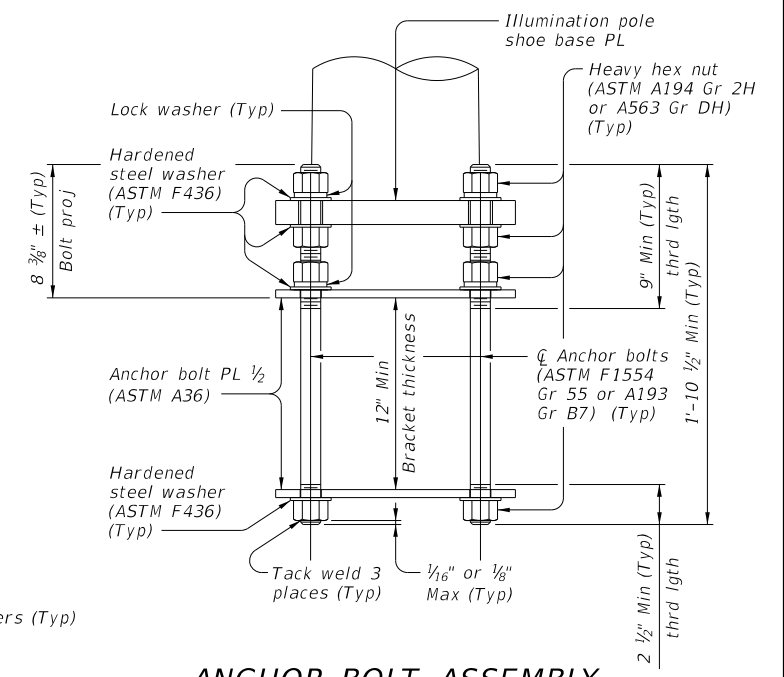


ELEVATION VIEW

For Rail Types T1F, T2P, T1W, T66, C2P, and C1W, center junction box between posts. Additional reinforcing and concrete required for this rail modification is considered subsidiary to the rail. Do not locate junction box in the same bay as a drain slot in rail curb.



ANCHOR BOLT PLATE



ANCHOR BOLT ASSEMBLY

(See table for anchor bolt diameter)

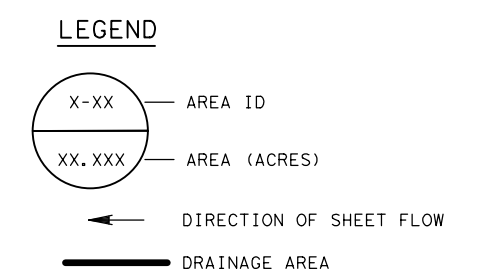
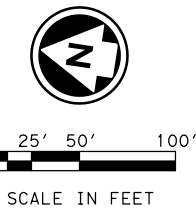
LIGHTING BRACKET FOR MSE RETAINING WALL TRAFFIC RAIL FOUNDATION

RW(LB)

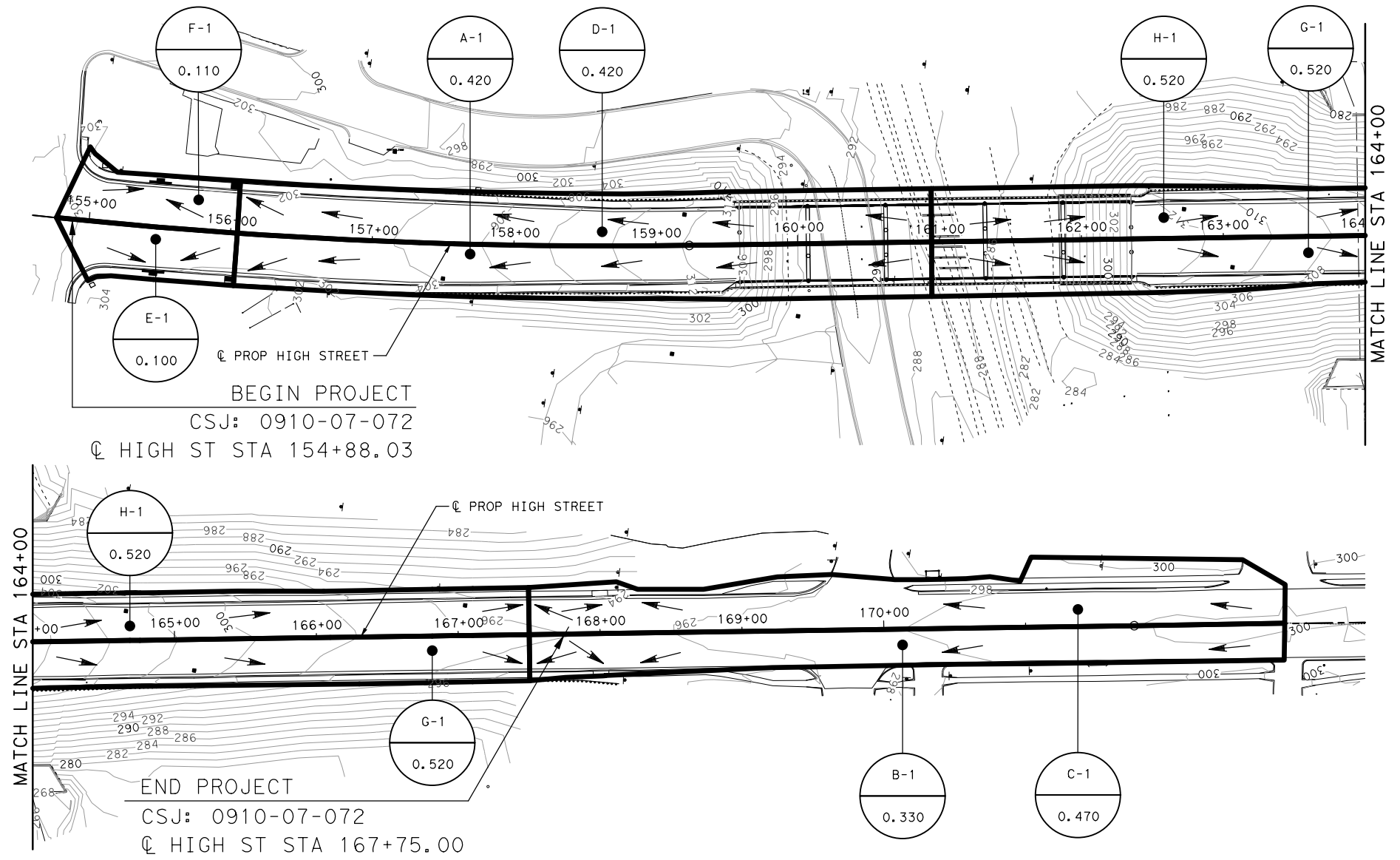
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©TxDOT March 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
4-13: Tables and Junction Box Location. 4-19: Added anchor bolt information.	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	159	

DATE: 8/25/2021
 FILENAME: pw:\jmt-pw.bentley.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\Design\Plan Set\5. Drainage\HIGH ST*DRAIN*DA01.dgn

RUNOFF COMPUTATIONS							INLET COMPUTATIONS										
AREA ID	COMPOSITE AREA (ACRES)	COMPOSITE 'C' VALUE	CALC'D Tc	DESIGN Tc	INTENSITY	DISCHARGE	INLET ID	INLET TYPE	TOTAL DISCHARGE (CFS)	CAPACITY (CFS)	BY PASS FLOW (CFS)	BY PASS NODE ID	PONDED WIDTH (FT)	ALLOWABLE PONDED WIDTH (FT)	PONDED DEPTH/HEAD (FT)	LENGTH REQ. (FT)	LENGTH USED (FT)
			(MIN)	(MIN)	(IN/HR)	(CFS)											
NETWORK A																	
-	(ACRES)	-	(MIN)	(MIN)	(IN/HR)	(CFS)	-	-	(CFS)	(CFS)	(CFS)	-	(FT)	(FT)	(FT)	(FT)	(FT)
Existing (10 YR)							Existing (10 YR)										
Ae-1	0.460	0.9	10	10	6.89	2.84	Ae-1	Curb	2.84	6.26	-	-	14.77	12.00	0.30	9.61	5.00
Be-1	0.790	0.9	10	10	6.89	4.93	Be-1	Curb	4.93	9.92	-	-	15.68	12.00	0.31	9.61	9.50
Ce-1	0.970	0.9	10	10	6.89	6	Ce-1	Curb	6	9.92	-	-	17.87	12.00	0.36	9.61	9.50
De-1	0.460	0.9	10	10	6.89	2.87	De-1	Curb	2.87	6.26	-	-	14.85	12.00	0.30	9.61	5.00
Design (10 YR)							Design (10 YR)										
A-1	0.420	0.9	10	10	6.89	2.62	A-1	Curb	2.62	0.91	1.71	E-1	9.97	11.00	0.20	8.09	5.00
B-1	0.330	0.9	10	10	6.89	2.02	B-1	Curb	2.03	9.92	-	-	8.68	12.00	0.17	14.75	9.50
C-1	0.470	0.9	10	10	6.89	2.92	C-1	Curb	2.93	9.92	-	-	11.08	12.00	0.22	14.75	9.50
D-1	0.420	0.9	10	10	6.89	2.58	D-1	Curb	2.58	1.50	1.08	F-1	9.91	11.00	0.20	13.08	5.00
E-1	0.100	0.9	10	10	6.89	0.62	E-1	Curb	2.33	13.58	-	-	7.72	11.00	0.15	11.97	14.00
F-1	0.110	0.9	10	10	6.89	0.65	F-1	Curb	1.74	13.58	-	-	6.35	11.00	0.13	16.54	14.00
G-1	0.520	0.9	10	10	6.89	3.24	G-1	Curb	3.24	3.23	0.01	B-1	10.95	12.00	0.22	14.61	14.00
H-1	0.520	0.9	10	10	6.89	3.24	H-1	Curb	3.24	3.23	0.01	C-1	10.95	12.00	0.22	14.61	14.00



LINK COMPUTATIONS															
LINK ID	US NODE	DS NODE	US INVERT	DS INVERT	ACTUAL LENGTH	HYDRAULIC LENGTH	SLOPE	PIPE SIZE	DISCHARGE	CAPACITY	US HGL	DS HGL	DS VELOCITY	DS DEPTH	
			(FT)	(FT)	(LF)	(LF)	(%)		(CFS)	(CFS)	(FT)	(FT)	(FT)	(FT)	
NETWORK A															
SS-1	E-1	A-1	298.7	298.31	48.6	53.6	0.81	18 in	0.62	11.02	299.33	299.32	0.49	1.02	
SS-2	F-1	D-1	298.3	298.01	47.68	52.68	0.62	18 in	0.65	9.63	298.71	298.28	2.94	0.28	
SS-3	A-1	D-1	298.23	297.8	62	65.5	0.7	18 in	3.21	10.22	299.32	298.4	4.84	0.6	
SS-5	H-1	C-1	290.98	290.5	47.75	52.75	1	18 in	3.24	12.24	291.97	291.05	5.49	0.55	
SS-6	C-1	B-1	287.44	287.44	53.5	56.5	0.4	18 in	6.12	7.74	289.22	288.4	5.15	0.96	
SS-7	G-1	B-1	290.88	290.5	47.75	52.75	0.8	18 in	3.24	10.95	291.88	291.08	5.09	0.58	



- NOTES:**
- STORM SEWER COMPUTATIONS WERE ANALYZED USING GEOPAK DRAINAGE V8.11.9.878
 - DESIGN STORM DISCHARGES HAVE BEEN CALCULATED USING TXDOT 10-YR DESIGN STORM
 - MANNING'S "N" VALUE OF 0.012 USED IN DESIGN OF ALL STORM SEWER LINKS.
 - A Tc OF 10 MIN. IS USED IN DESIGN PER TXDOT HYDRAULIC DESIGN MANUAL (JULY 2019).
 - STORM SEWER RUNOFF INTENSITIES, I, HAVE BEEN CALCULATED USING NOAA'S PRECIPITATION FREQUENCY ESTIMATES PER TXDOT HYDRAULIC DESIGN MANUAL (JULY 2019).
 - RUNOFF COEFFICIENT VALUES, C, BASED ON EXISTING CONDITIONS.

STATE OF TEXAS
 JUSTIN W. SEAL
 96498
 LICENSED PROFESSIONAL ENGINEER
 08/25/21
Justin W. Seal

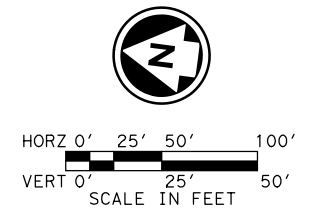
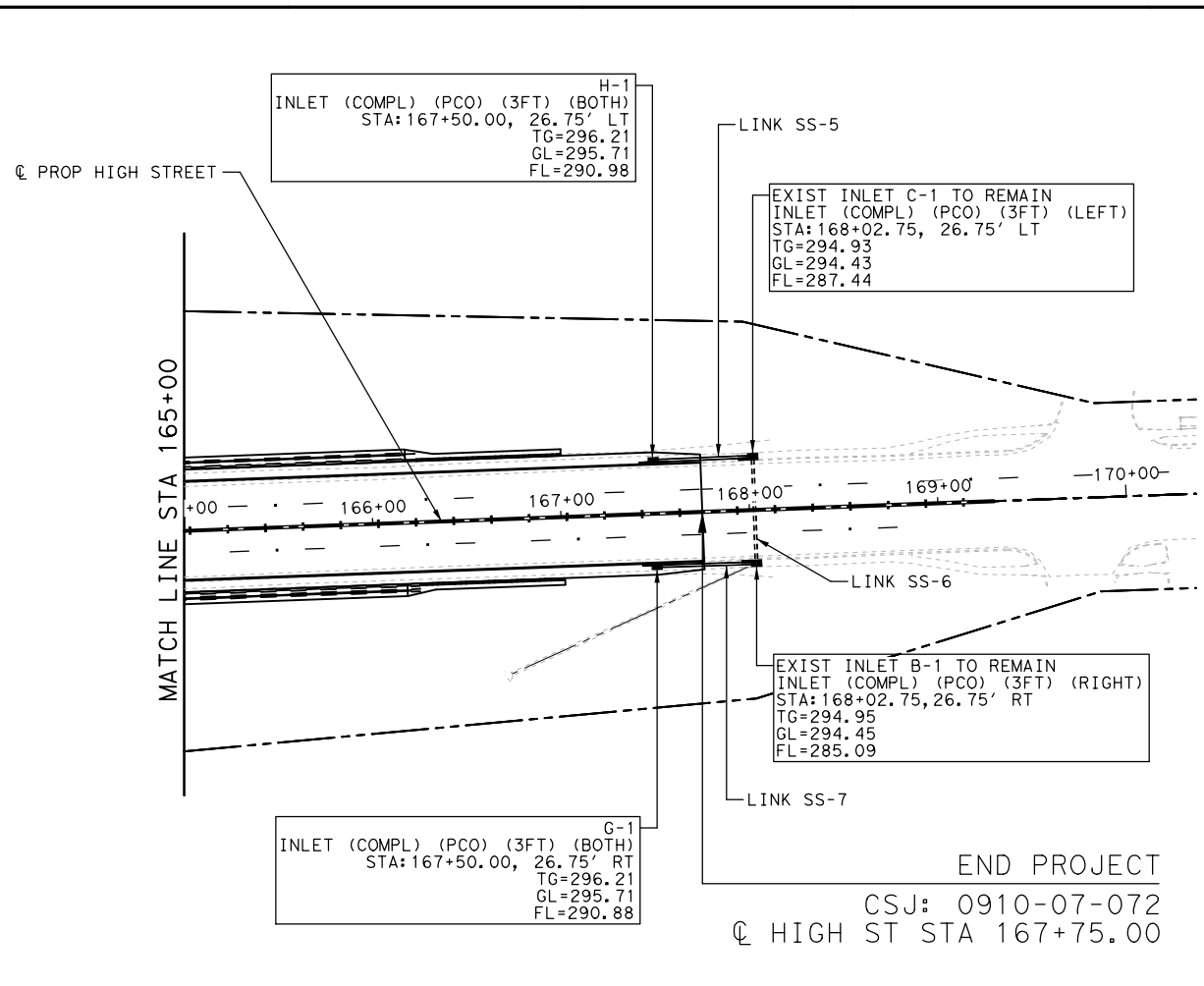
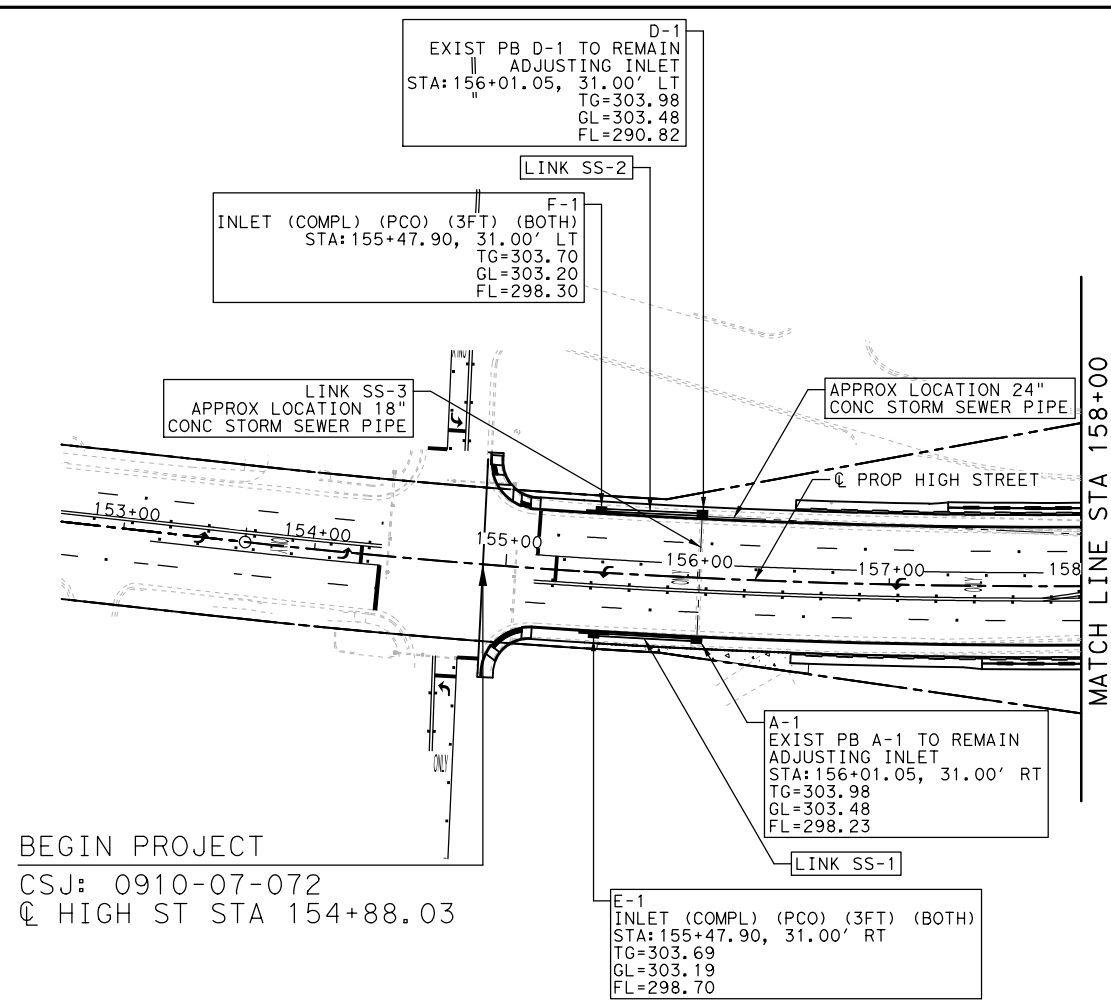
JMT TBPE REGISTRATION NO. F-16341

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Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

HYDROLOGIC & HYDRAULIC DATA

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK	JOB		
JMT	160		

DATE: 8/25/2021
 FILENAME: pw:\jmt-pw-bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\5. Drainage\HIGH ST*SS P&P.dgn



LEGEND

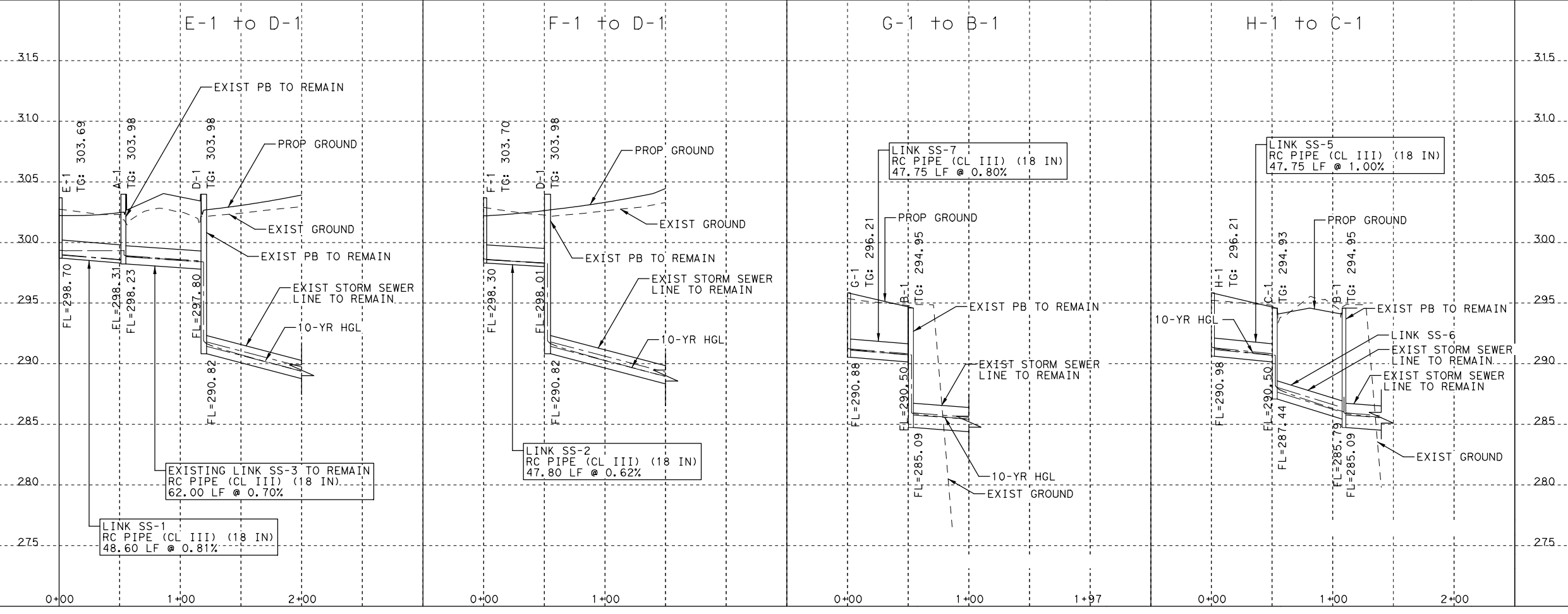
FL - FLOW LINE ELEVATION
 GL - GUTTER LINE ELEVATION
 TG - TOP OF GRATE ELEVATION

NOTES:

1. SEE HYDROLOGIC & HYDRAULIC DATA SHEET FOR ADDITIONAL INFORMATION.
2. ALL STATIONING BASED ON ϕ OF PIPE
3. ALL UTILITIES TO BE LOCATED AND CONFIRMED BY THE CONTRACTOR IN THE FIELD PRIOR TO CONSTRUCTION.

BEGIN PROJECT
 CSJ: 0910-07-072
 ϕ HIGH ST STA 154+88.03

END PROJECT
 CSJ: 0910-07-072
 ϕ HIGH ST STA 167+75.00

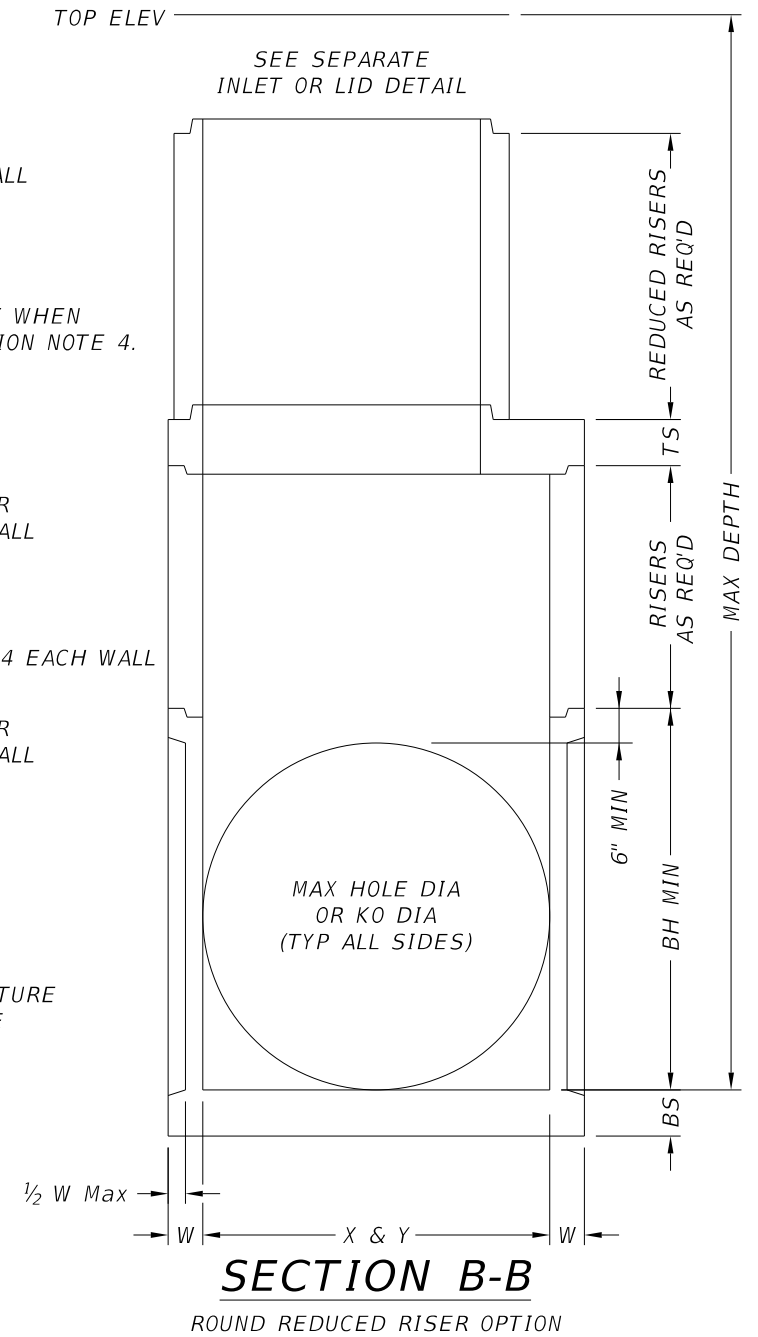
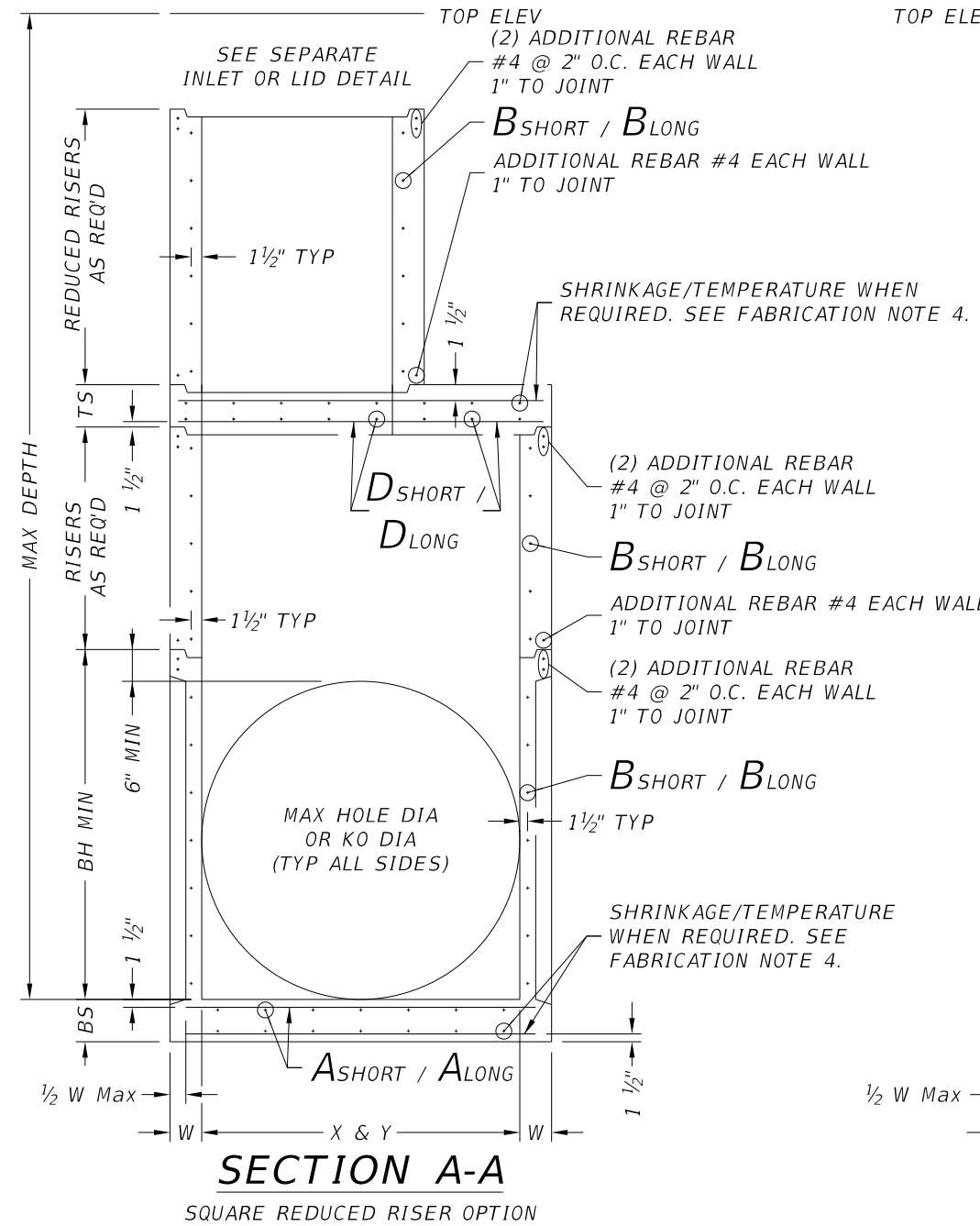
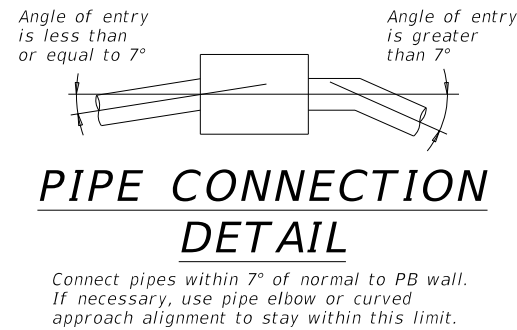
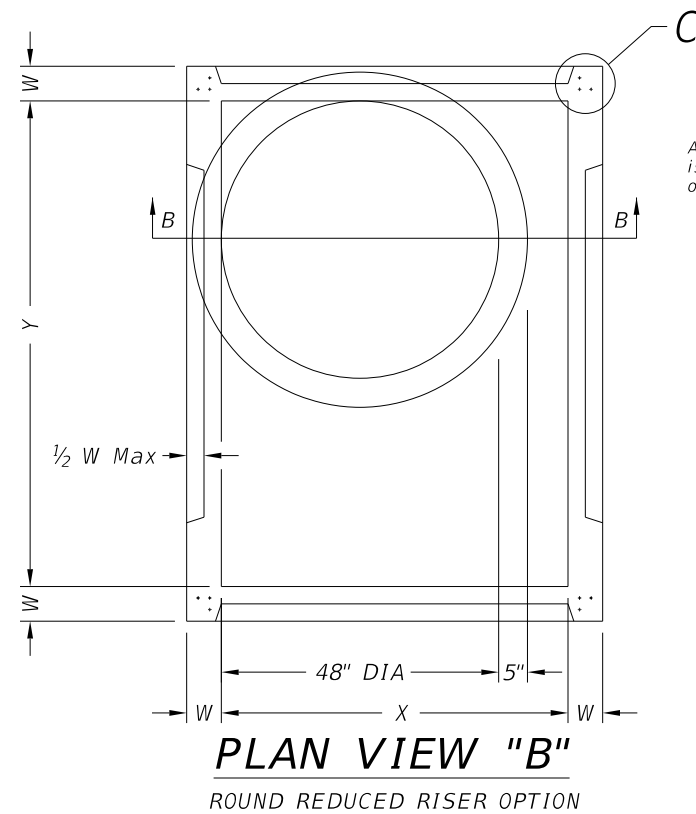
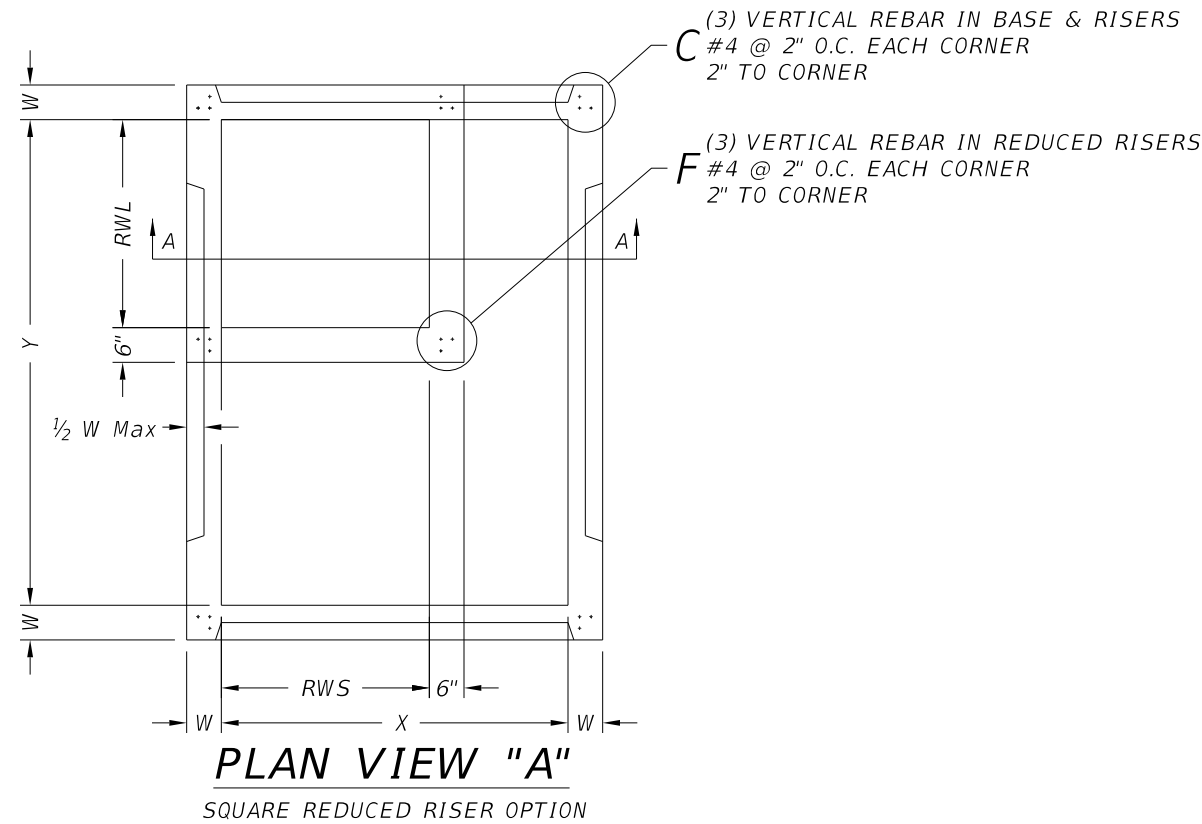


DRAINAGE PLAN & PROFILE
 S HIGH ST AT UPRR AND SABINE ST

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						161

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DATE: 7/22/2021
FILE: \\jmt-pw_bent\ey.com\jmt-pw_bent\ey.com\jmt-pw_bent\ey.com\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\5. Drainage\TxDOT_Standards\prest01-20.dgn



FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1 1/2" to reinforcing steel at interior or exterior walls.
4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
5. No substitution is allowed for vertical and horizontal #4 bars in corners.
6. Manufacture base and risers to nearest 3" increment.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is 3/4".
8. Provide lifting devices in conformance with Manufacturer's recommendations.
9. See sheet PDD for sizes, dimensions, and reinforcing steel not shown.

INSTALLATION NOTES:

1. If required elsewhere. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to specified inlet or manhole.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or 1/2 the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:

1. Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PDD for sizes.
2. Designed according to ASTM C913.
3. Payment for precast base is subsidiary to the specified inlet, per Item 465, "Junction Boxes, Manholes, and Inlets."

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING				Bridge Division Standard	
PRECAST BASE					
PB					
FILE: prest01-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0910	07	072	HIGH ST	
	DIST	COUNTY	SHEET NO.		
	TYLER	GREGG	162		

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DATE: 7/22/2021
 FILE: \\jmt-pw-bent\ey.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\5. Drawings\TxDOT_Standards\prestid10-20.dgn

Size	MAX DEPTH = 15 ft. to top of BASE SLAB											MAX DEPTH = 25 ft. to top of BASE SLAB											Min Height (See Gen Note 3)	Max HOLE DIA (See Fab Note 2)	Max KO DIA (See Fab Note 2)	
	Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)					Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)								
	Short Span Reinf. Steel Area	Long Span Reinf. Steel Area	Thickness	Short Span Reinf. Steel Area	Long Span Reinf. Steel Area	Thickness	Reduced Riser Size or ID	Short Span Reinf. Steel Area	Long Span Reinf. Steel Area	Thickness	Short Span Reinf. Steel Area	Long Span Reinf. Steel Area	Thickness	Short Span Reinf. Steel Area	Long Span Reinf. Steel Area	Thickness	Reduced Riser Size or ID	Short Span Reinf. Steel Area	Long Span Reinf. Steel Area	Thickness	RWSxRWL or ID	Dshort				Dlong
X x Y	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Dlong	TS	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Dlong	TS	BH MIN	HOLE DIA	KO DIA			
ft.	in ² /ft	in ² /ft	in.	in ² /ft	in ² /ft	in.	ft. **	in ² /ft	in ² /ft	in.	in ² /ft	in ² /ft	in.	in ² /ft	in ² /ft	in.	ft. **	in ² /ft	in ² /ft	in.	ft.	in.	in.			
Precast Junction Box (PJB)																										
3x3	0.23	0.23	6	0.19	0.19	6	N/A	0.37	0.37	9	0.29	0.29	6	0.24	0.24	6	N/A	0.37	0.37	9	3.5	36	36			
4x4	0.29	0.29	6	0.24	0.24	6	N/A	0.41	0.41	9	0.47	0.47	6	0.38	0.38	6	N/A	0.41	0.41	9	4.5	48	48			
3x5	0.29	0.18	6	0.19	0.35	6	N/A	0.48	0.48	9	0.39	0.18	6	0.23	0.59	6	N/A	0.48	0.48	9	3.5	36/60	36/60			
4x5	0.36	0.18	6	0.22	0.34	6	N/A	0.42	0.42	9	0.53	0.26	6	0.39	0.59	6	N/A	0.42	0.42	9	4.5	48/60	48/60			
5x5	0.36	0.36	6	0.34	0.34	6	N/A	0.43	0.43	9	0.62	0.62	6	0.59	0.59	6	N/A	0.43	0.43	9	5.5	60	60			
5x6	0.27	0.27	9	0.34	0.45	6	N/A	0.48	0.48	9	0.47	0.45	9	0.38	0.54	8	N/A	0.48	0.48	9	5.5	60/72	60/72			
6x6	0.27	0.27	9	0.45	0.45	6	N/A	0.56	0.56	9	0.52	0.52	9	0.54	0.54	8	N/A	0.56	0.56	9	6.5	72	72			
8x8	0.46	0.46	9	0.51	0.51	8	N/A	0.45	0.45	12	0.87	0.87	9	0.59	0.59	10	N/A	0.45	0.45	12	8.5	96	72			
Precast Base (PB)																										
3x3	0.23	0.23	6	0.19	0.19	6	N/A	N/A	N/A	N/A	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	3.5	36	36			
4x4	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	0.47	0.47	6	0.38	0.38	6	N/A	N/A	N/A	N/A	4.5	48	48			
3x5	0.29	0.18	6	0.19	0.35	6	3x3	0.30	0.34	9	0.39	0.18	6	0.23	0.59	6	3x3	0.40	0.40	9	3.5	36/60	36/60			
4x5	0.36	0.18	6	0.22	0.34	6	3x3	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	3x3	0.46	0.37	9	4.5	48/60	48/60			
4x5	0.36	0.18	6	0.22	0.34	6	4x4	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	4x4	0.39	0.39	9	4.5	48/60	48/60			
4x5	0.36	0.18	6	0.22	0.34	6	48"	0.39	0.39	9	0.53	0.26	6	0.39	0.59	6	48"	0.47	0.47	9	4.5	48/60	48/60			
4x5	0.36	0.18	6	0.22	0.34	6	3x5	0.33	0.40	9	0.53	0.26	6	0.39	0.59	6	3x5	0.48	0.48	9	4.5	48/60	48/60			
5x5	0.36	0.36	6	0.34	0.34	6	3x3	0.34	0.34	9	0.62	0.62	6	0.59	0.59	6	3x3	0.53	0.53	9	5.5	60	60			
5x5	0.36	0.36	6	0.34	0.34	6	4x4	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	4x4	0.64	0.64	9	5.5	60	60			
5x5	0.38	0.38	6	0.34	0.34	6	48"	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	48"	0.64	0.64	9	5.5	60	60			
5x5	0.36	0.36	6	0.34	0.34	6	3x5	0.34	0.40	9	0.62	0.62	6	0.59	0.59	6	3x5	0.53	0.53	9	5.5	60	60			
5x6	0.31	0.31	9	0.34	0.45	6	3x3	0.34	0.34	9	0.47	0.45	9	0.38	0.54	8	3x3	0.61	0.50	9	5.5	60/72	60/72			
5x6	0.27	0.27	9	0.34	0.45	6	4x4	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	4x4	0.74	0.57	9	5.5	60/72	60/72			
5x6	0.29	0.29	9	0.34	0.45	6	48"	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	48"	0.74	0.57	9	5.5	60/72	60/72			
5x6	0.29	0.29	9	0.34	0.45	6	3x5	0.45	0.45	9	0.47	0.45	9	0.38	0.54	8	3x5	0.61	0.61	9	5.5	60/72	60/72			
6x6	0.29	0.29	9	0.45	0.45	6	3x3	0.41	0.41	9	0.52	0.52	9	0.54	0.54	8	3x3	0.74	0.74	9	6.5	72	72			
6x6	0.27	0.27	9	0.45	0.45	6	4x4	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	4x4	0.87	0.87	9	6.5	72	72			
6x6	0.29	0.29	9	0.45	0.45	6	48"	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	48"	0.87	0.87	9	6.5	72	72			
6x6	0.29	0.29	9	0.45	0.45	6	3x5	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	3x5	0.87	0.87	9	6.5	72	72			
8x8	0.52	0.52	9	0.51	0.51	8	3x3	0.61	0.61	12	0.91	0.91	9	0.70	0.70	10	3x3	0.85	0.85	12	8.5	96	72			
8x8	0.52	0.52	9	0.51	0.51	8	4x4	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	4x4	1.01	1.01	12	8.5	96	72			
8x8	0.52	0.52	9	0.51	0.51	8	48"	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	48"	1.01	1.01	12	8.5	96	72			
8x8	0.52	0.52	9	0.51	0.51	8	3x5	0.70	0.85	12	0.87	0.87	9	0.70	0.70	10	3x5	1.01	1.01	12	8.5	96	72			

** Unless otherwise indicated.


FABRICATION NOTES:

- Maximum spacing of reinforcement is 8".
- At manufacturer's option, provide cast or cored holes or thin wall panels (KO) to the maximum diameter shown for each. When no penetration is required, it is acceptable to provide a wall with no sectional reduction.

GENERAL NOTES:

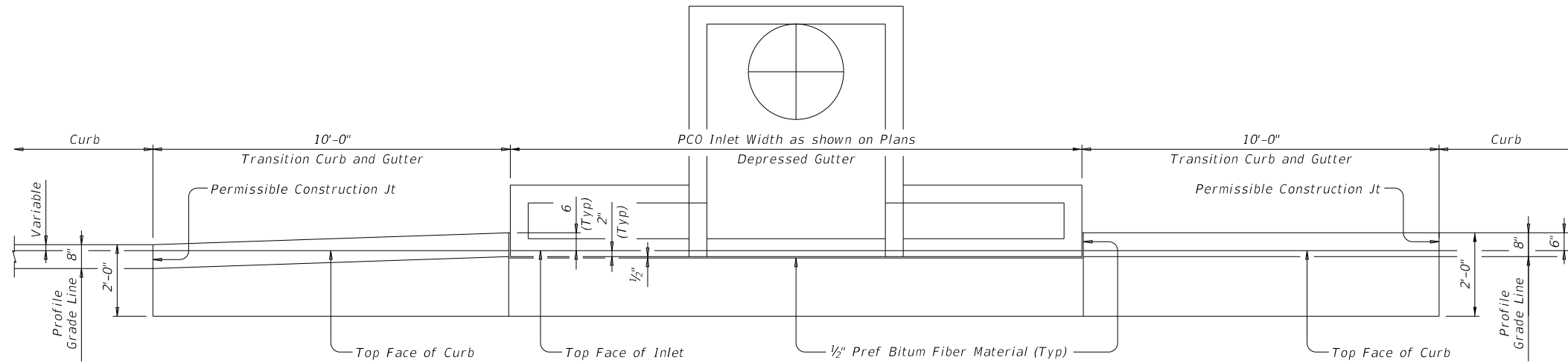
- Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PJB for details.
- Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PB for details.
- Min Height shown is for stock base units. Use stock base units whenever practical. Smaller height base units can be used in special installation circumstances, when noted elsewhere in the plans. Absolute minimum height of base units is 2'-6".

HL93 LOADING

 Texas Department of Transportation		Bridge Division Standard	
<h2>DESIGN DATA FOR PRECAST BASE AND JUNCTION BOX</h2>			
<h3>PDD</h3>			
FILE: prestid10-20.dgn	DN: TxDOT	CK: TxDOT	OW: TxDOT
©TxDOT February 2020	CONTRACT: 0910	SECTION: 07	JOB: 072
REVISIONS	DIST: TYLER	COUNTY: GREGG	SHEET NO: 163

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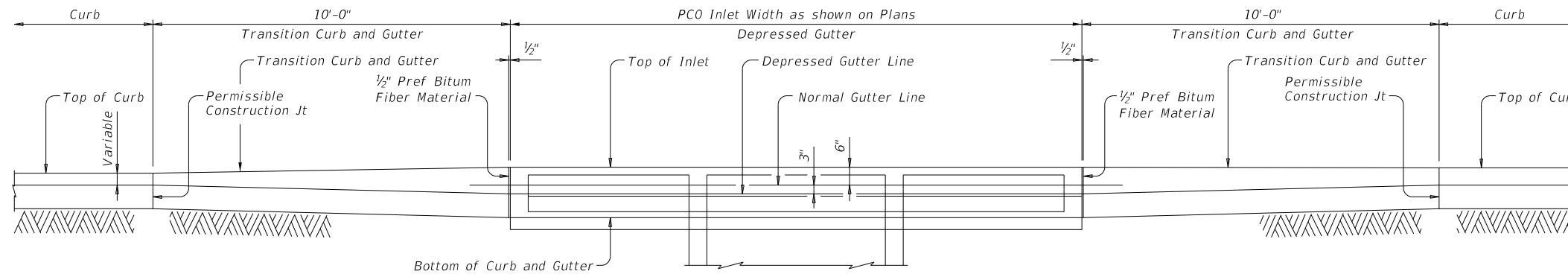
DATE: 7/22/2021
FILE: \\jmt-pw-bent\ey.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\5. Drawings\TxDOT_Standards\prest13-20.dgn



SHOWING TYPE I, IIa & III Curb and Gutter

SHOWING TYPE II & IV Curb and Gutter

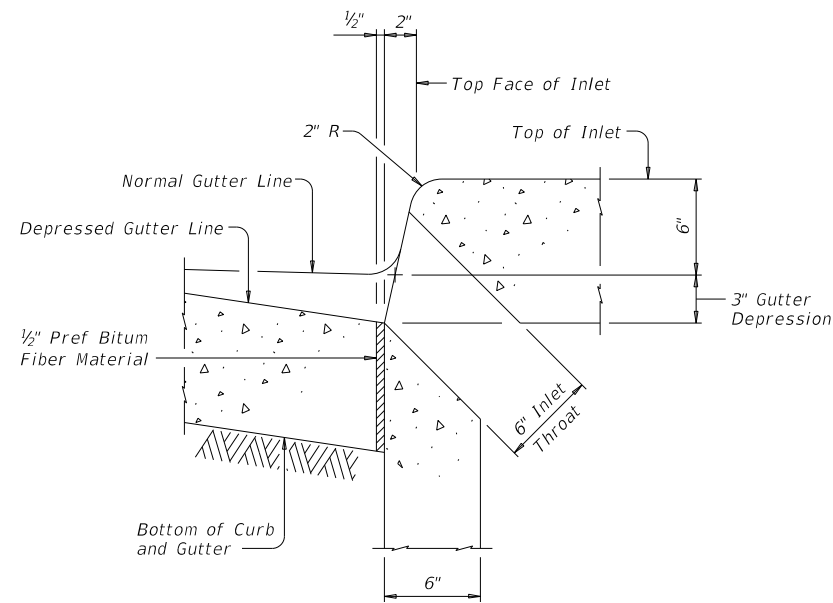
PLAN



SHOWING TYPE I, IIa & III Curb and Gutter

SHOWING TYPE II & IV Curb and Gutter

ELEVATION



SECTION AT GUTTER AND INLET

Reinforcing steel not shown for clarity.

- CONSTRUCTION NOTES:**
Align top face of curb with PCO Inlet as shown.
- MATERIAL NOTES:**
Provide 1/2" Preformed Bituminous Fiber Material.
- GENERAL NOTES:**
See Precast Curb Inlet Outside Roadway (PCO) standard for details and notes not shown.
See Concrete Curb and Curb and Gutter (CCCG-12) standard for details and notes not shown.
Curb and Gutter Transitions is paid for and in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
Preformed Bituminous Fiber Material is subsidiary to PCO Inlet.

				Bridge Division Standard	
CURB AND GUTTER TRANSITION DETAILS FOR PCO INLET					
CGT-PCO					
FILE: prest13-20.dgn	DN: TxDOT	CK: AES	DW: JTR	CK: AES	
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0910	07	072	HIGH ST	
	DIST	COUNTY	SHEET NO.		
	TYLER	GREGG	164		

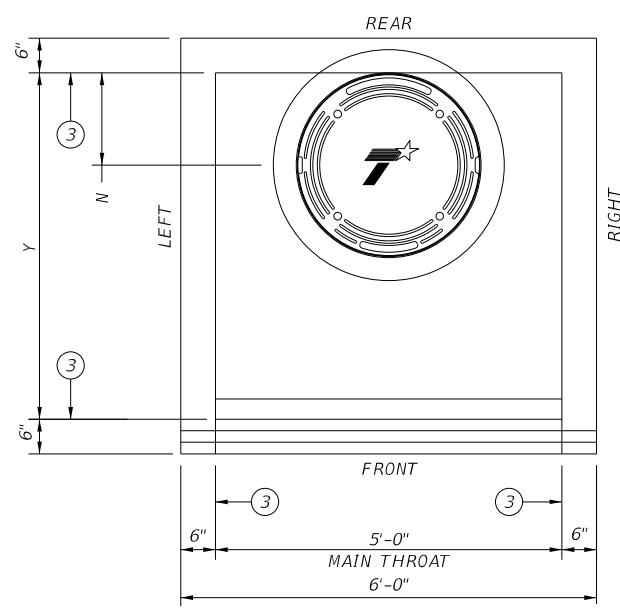
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 7/22/2021
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Size (Y)	N	MH Dia (2)
3'	9"	18"
4'	16"	32"
5'	16"	32"
6'	16"	32"

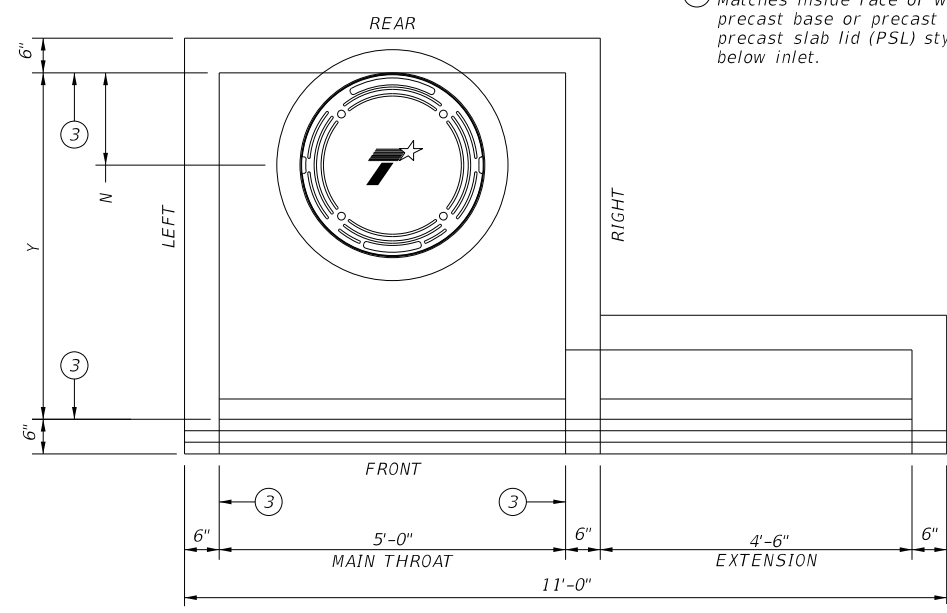
BAR TABLE	
BAR	SIZE
A1	#3
A2	#3
A3 (1)	#3
A4 (1)	#3
B1	#4
B2	#4
B3 (1)	#4
C (1)	#4
G	#4
L (1)	#5
Ra	#5
U1 (1)	#5
U2 (1)	#5

- ① Reinforcing bar used only with extension(s).
- ② Nominal ring and cover size.
- ③ Matches inside face of wall of precast base or precast riser or precast slab lid (PSL) style "S1" below inlet.



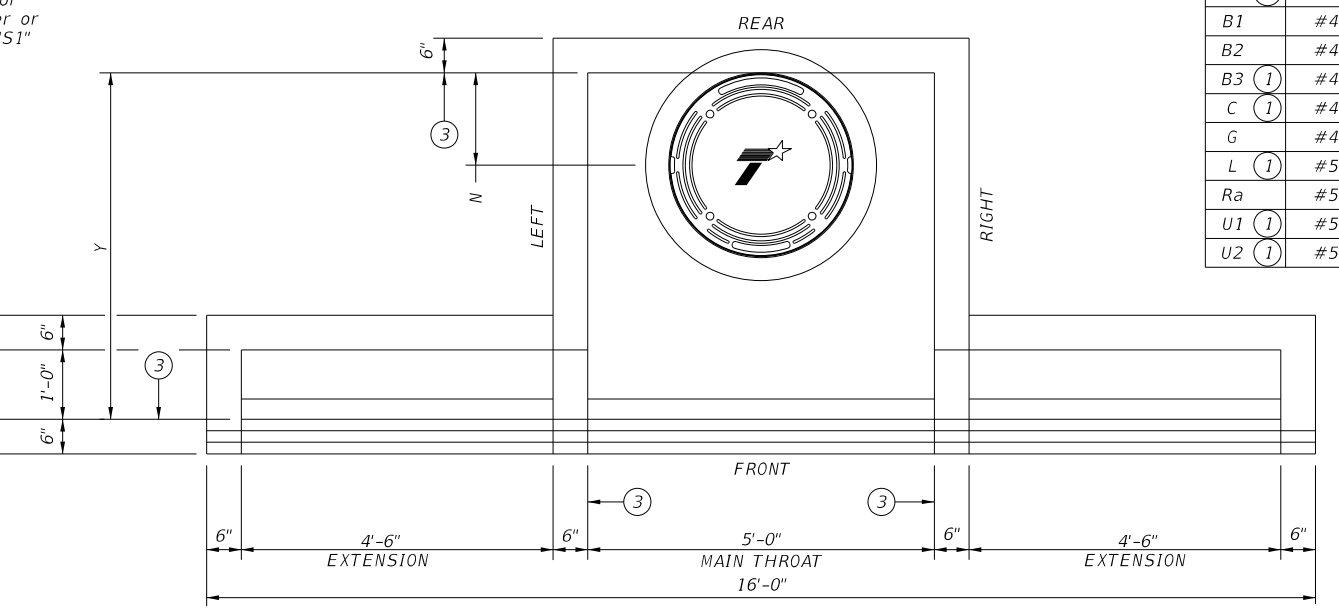
PLAN VIEW

(Shown without extensions.)
 See SHEET 2 OF 4 for details.



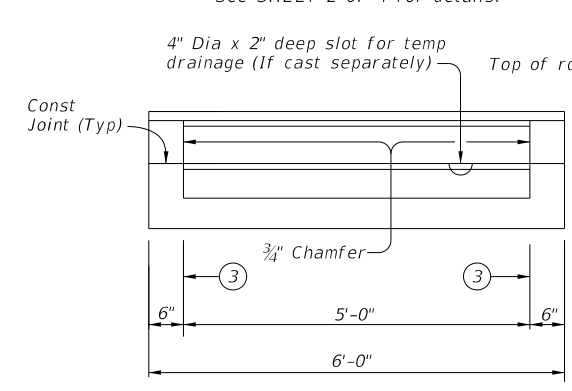
PLAN VIEW

(Showing one extension.)
 See SHEET 3 OF 4 for details.



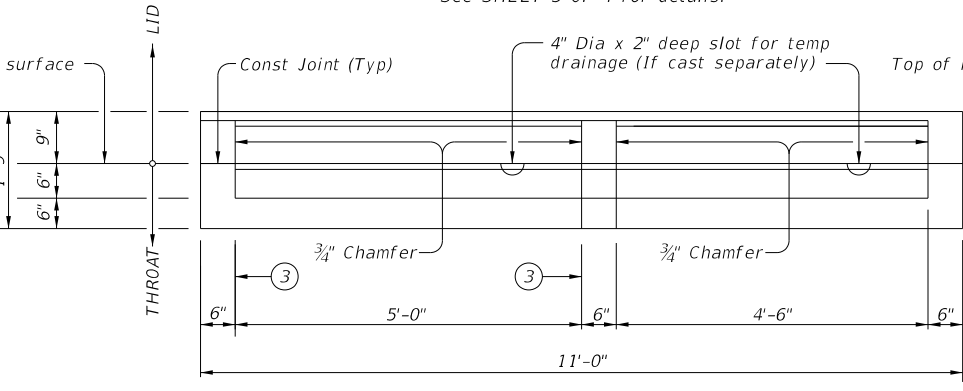
PLAN VIEW

(Showing extension on each side.)
 See SHEET 4 OF 4 for details.



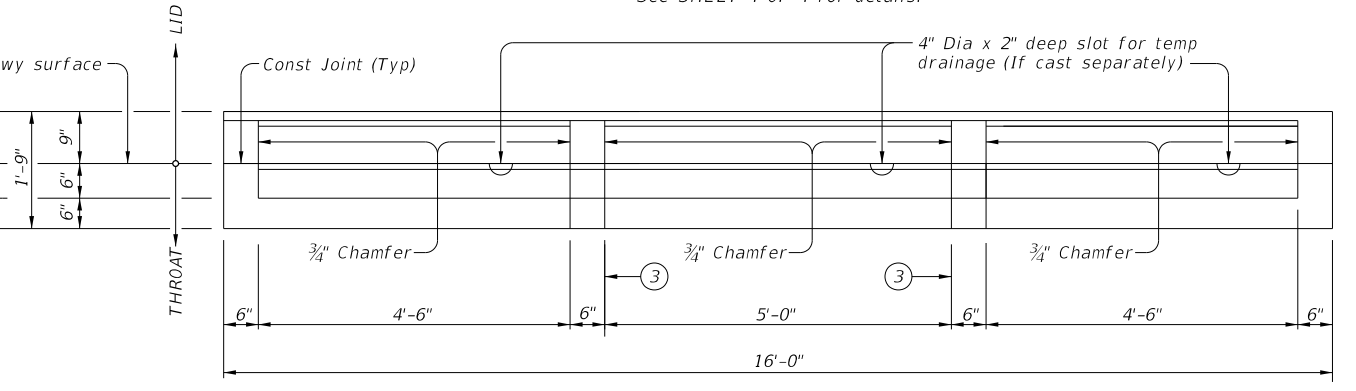
FRONT VIEW

(Shown without extensions.)
 See SHEET 2 OF 4 for details.



FRONT VIEW

(Showing one extension.)
 See SHEET 3 OF 4 for details.



FRONT VIEW

(Showing extension on each side.)
 See SHEET 4 OF 4 for details.

CONSTRUCTION NOTES:

Chamfer all vertical edges of inlet lid 3/4" as shown in Front View, Sheet 1 of 4.
 Maintain 1 1/2" clear cover to ends of all vertical reinforcing bars, unless otherwise noted.

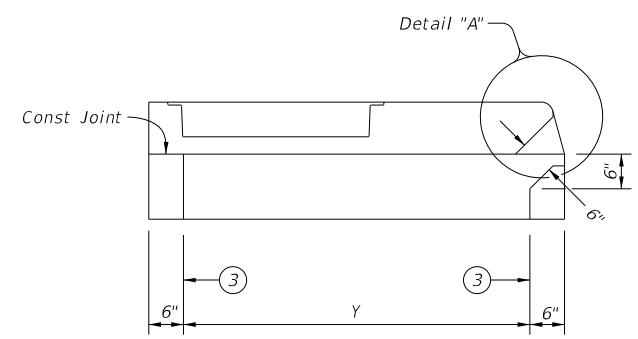
MATERIAL NOTES:

Provide Class "S" concrete (f'c = 4,000 psi).
 Provide Grade 60 reinforcing steel or equivalent area of WWR.
 Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.

GENERAL NOTES:

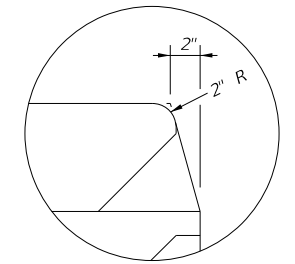
Designed according to AASHTO LRFD Bridge Design Specifications.
 The intent of this standard is to provide a cast-in-place lid to be used with precast base, precast riser or precast slab lid style "S1".
 Inlet throat and lid are not intended for direct traffic. Do not place in roadway.
 Lid and throat may be cast monolithically or separately.
 See Precast Base (PB) standard for details and notes not shown.
 See Precast Slab Lid (PSL) standard for details and notes not shown.
 See Curb & Gutter Transitions Details (CGT-PCO) standard for transition examples.
 Extensions may be right, left, both, or none. Provide extensions as specified elsewhere in the plans.
 Shop drawings for approval are not required.
 Payment for inlet is per Item 465, "Junction Boxes, Manholes, and Inlets" by type, size, and extension placement. Extensions are subsidiary to inlet.
 Open area of main throat = 360 sq in.
 Open area of one extension throat = 324 sq in.

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



LEFT SIDE VIEW

(Extensions not shown for clarity.)



DETAIL "A"



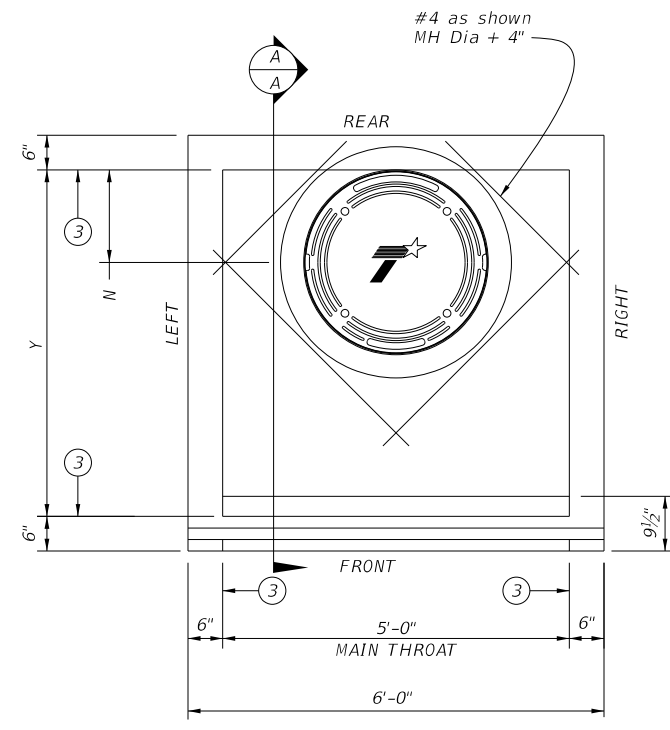
CAST-IN-PLACE CURB INLET OUTSIDE ROADWAY

CCO

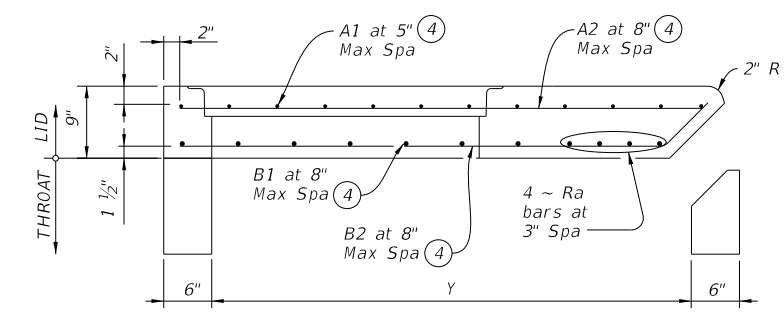
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©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	165	

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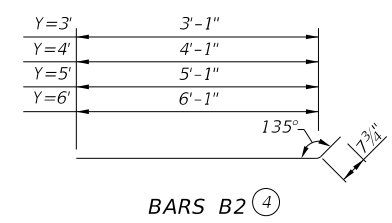
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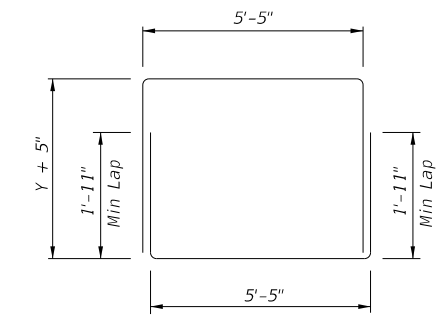
LID PLAN VIEW
 (Shown without extensions)



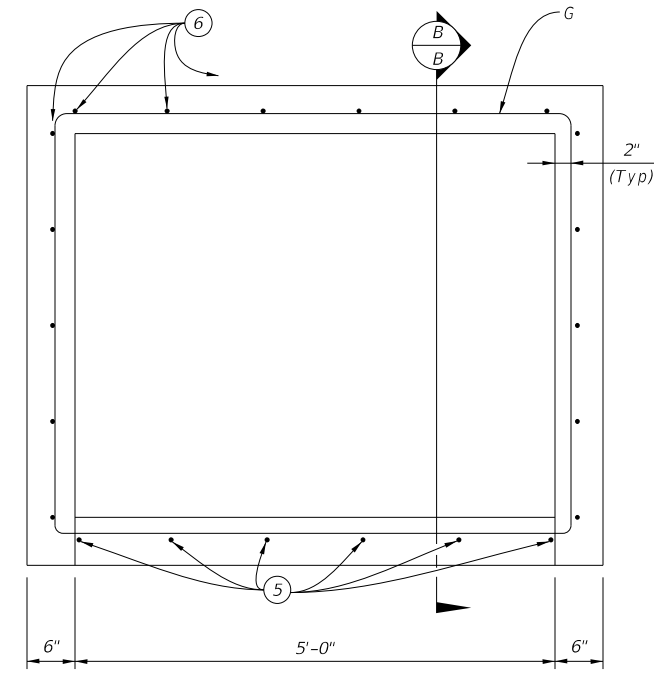
LID SECTION A-A



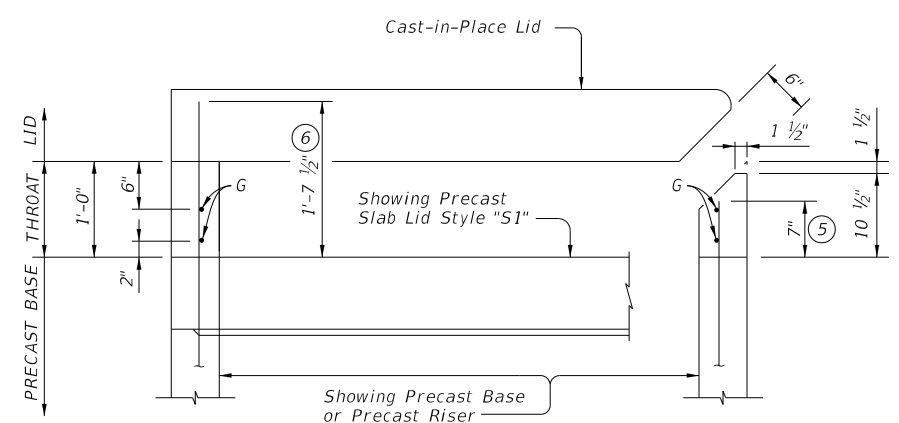
BARS B2



BARS G
 Showing one complete bar.



THROAT PLAN VIEW
 (Shown without extensions)



THROAT SECTION B-B

(Showing reinforcing bar extended from precast base or precast riser or precast slab lid style "S1".)

- ③ Matches inside face of wall of precast base or precast riser or precast slab lid style "S1" below inlet.
- ④ Cut reinforcing bars as needed to provide 1 1/2" clear to manhole.
- ⑤ Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 7".
- ⑥ Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 1'-7 1/2".

HL93 LOADING SHEET 2 OF 4



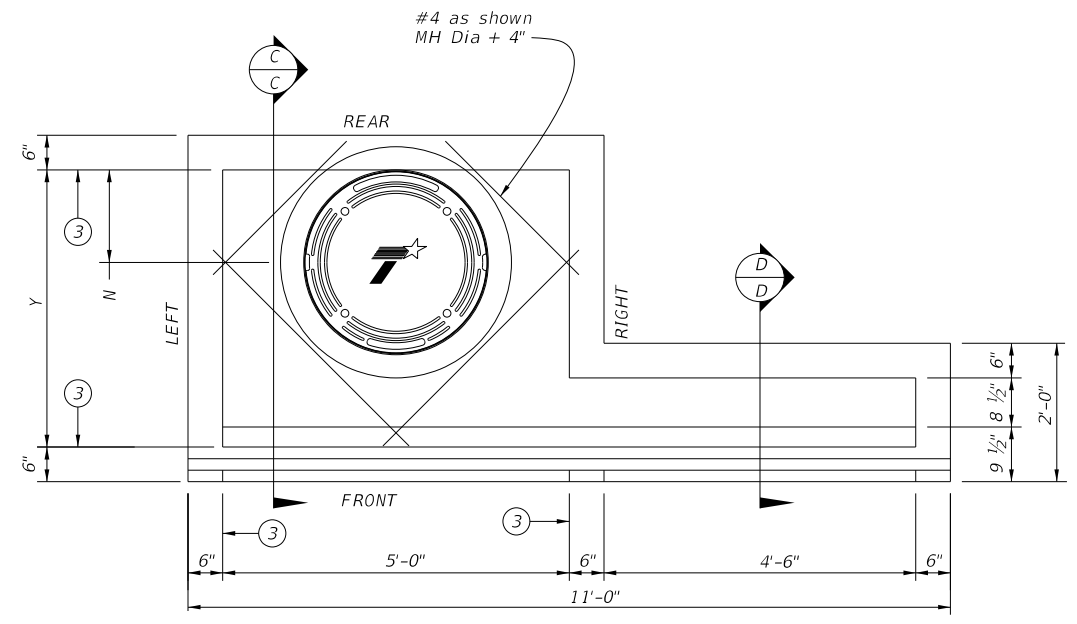
CAST-IN-PLACE CURB INLET OUTSIDE ROADWAY

CCO

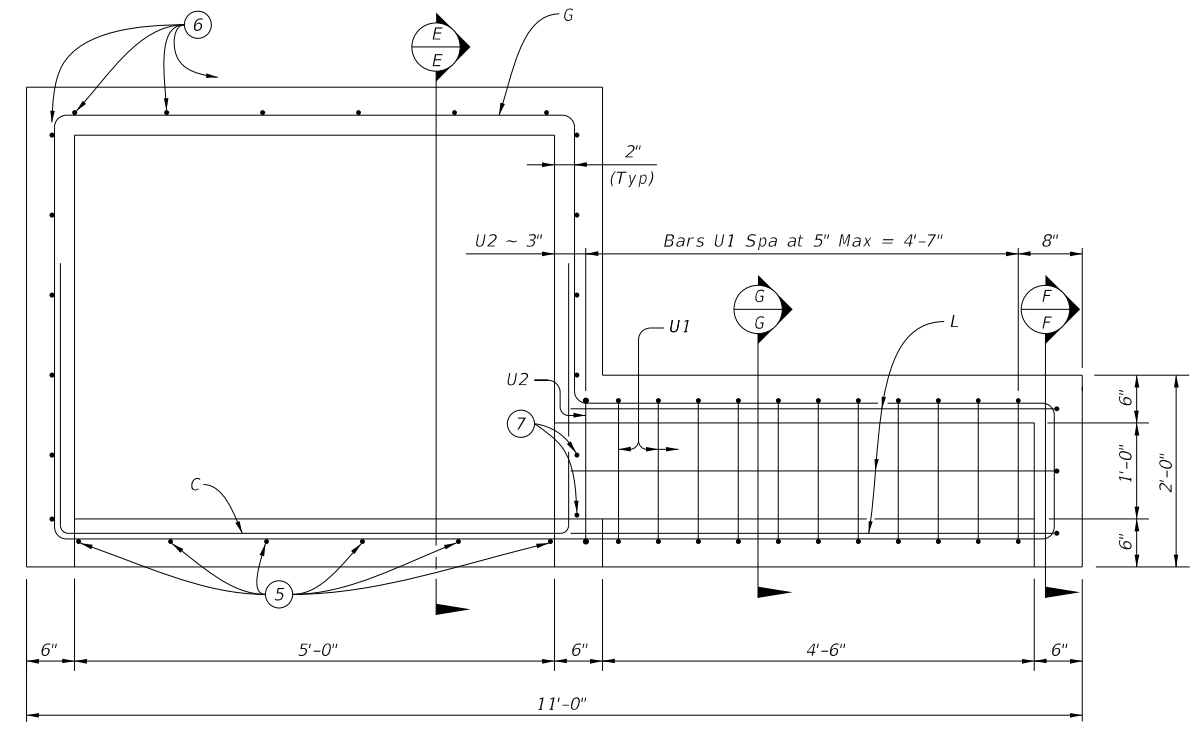
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©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
DIST	COUNTY	SHEET NO.		
TYLER	GREGG	166		

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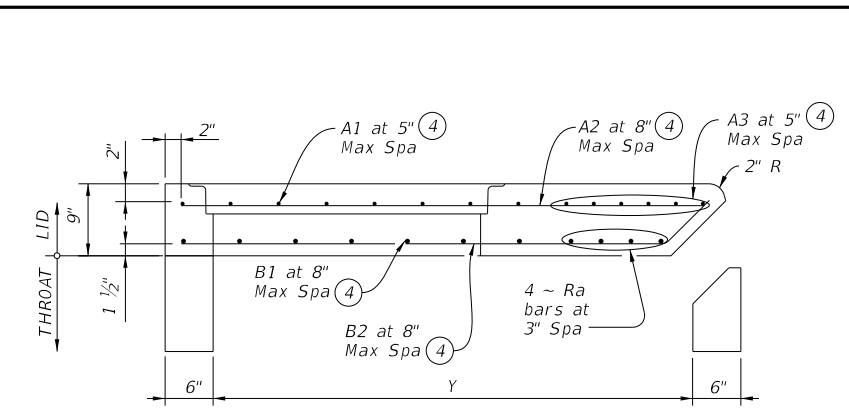
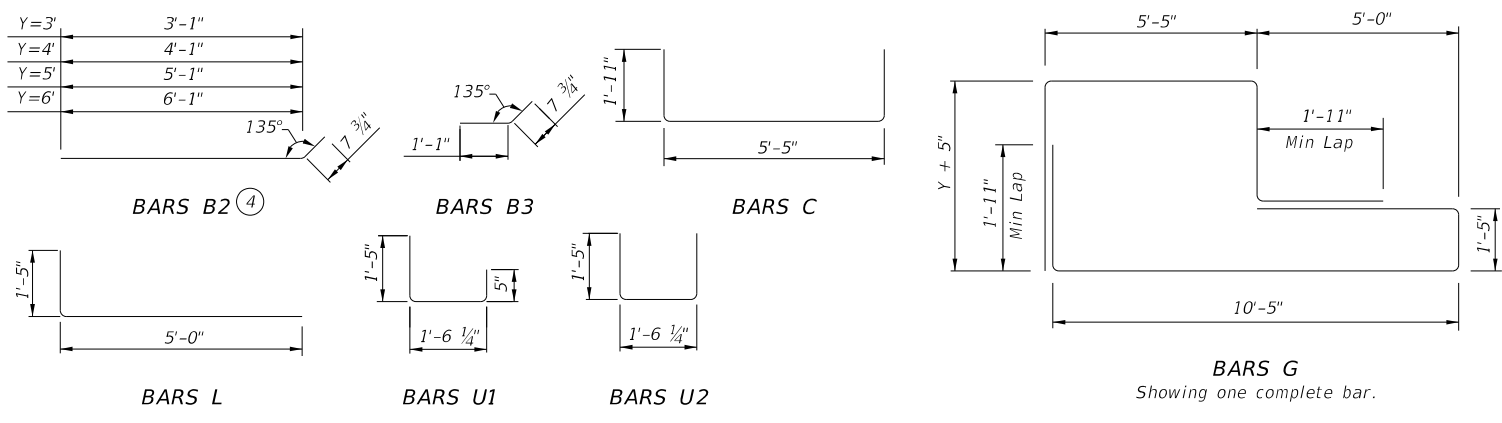
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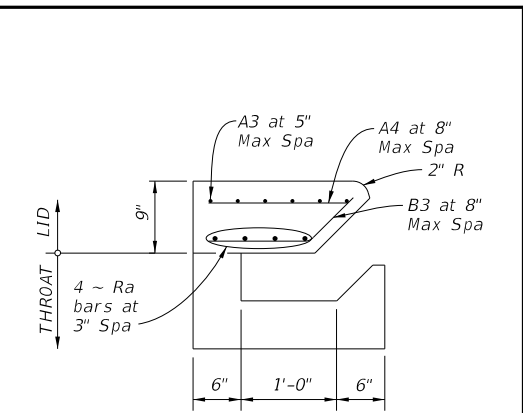
LID PLAN VIEW
 (Showing one extension.)



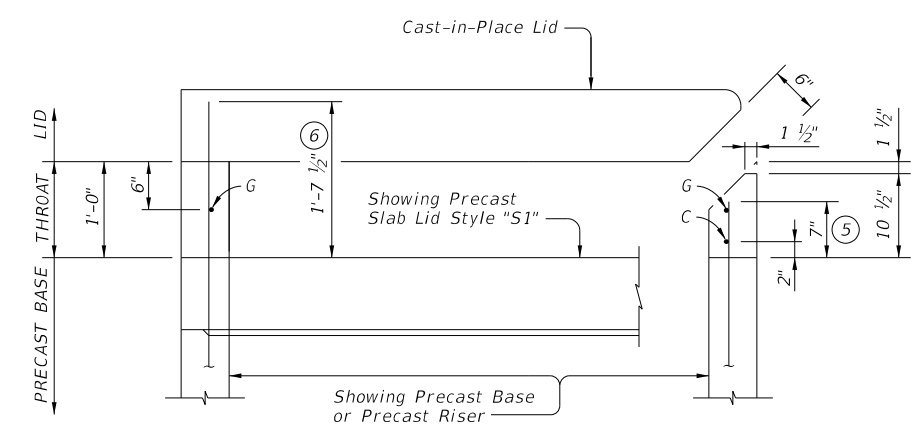
THROAT PLAN VIEW
 (Showing one extension.)



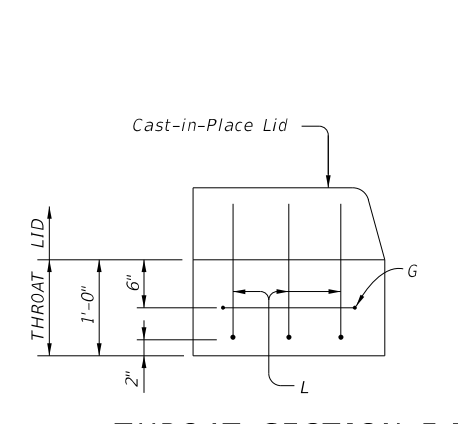
LID SECTION C-C



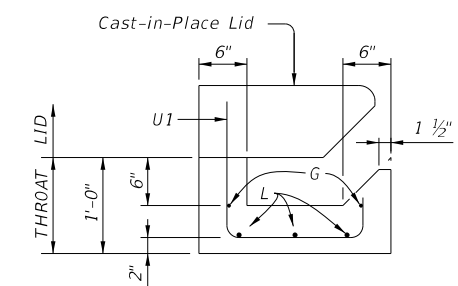
LID SECTION D-D



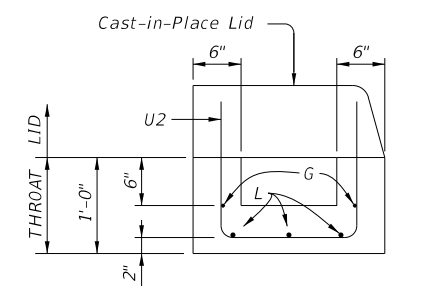
THROAT SECTION E-E
 (Showing reinforcing bar extended from precast base or precast riser or precast slab lid style "S1".)



THROAT SECTION F-F



BARS U1 LOCATION



BARS U2 LOCATION

THROAT SECTION G-G

- ③ Matches inside face of wall of precast base or precast riser or precast slab lid style "S1" below inlet.
- ④ Cut reinforcing bars as needed to provide 1 1/2" clear to manhole.
- ⑤ Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 7".
- ⑥ Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 1'-7 1/2".
- ⑦ Do not extend reinforcing bars from precast base.

HL93 LOADING SHEET 3 OF 4

Texas Department of Transportation
 Bridge Division Standard

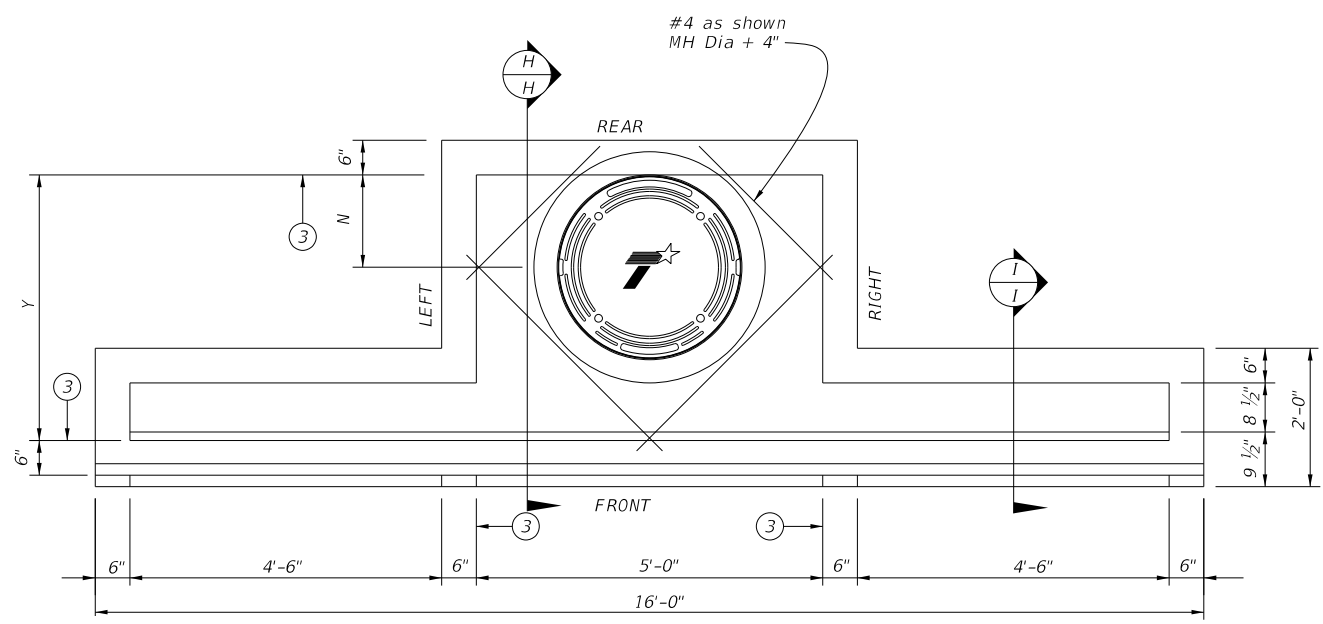
CAST-IN-PLACE CURB INLET OUTSIDE ROADWAY

CCO

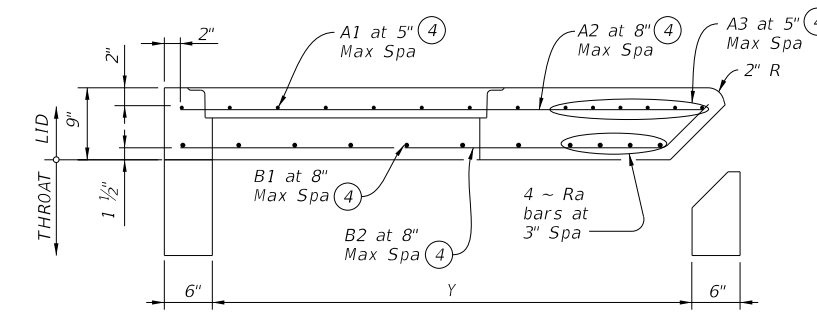
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	0910	07	072	HIGH ST
	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	167	

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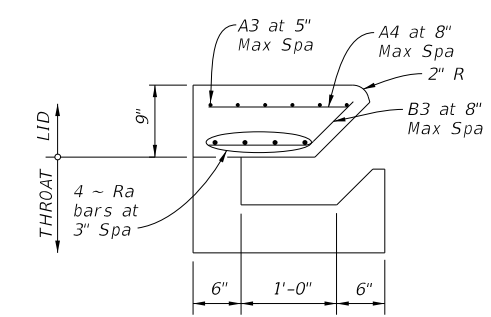
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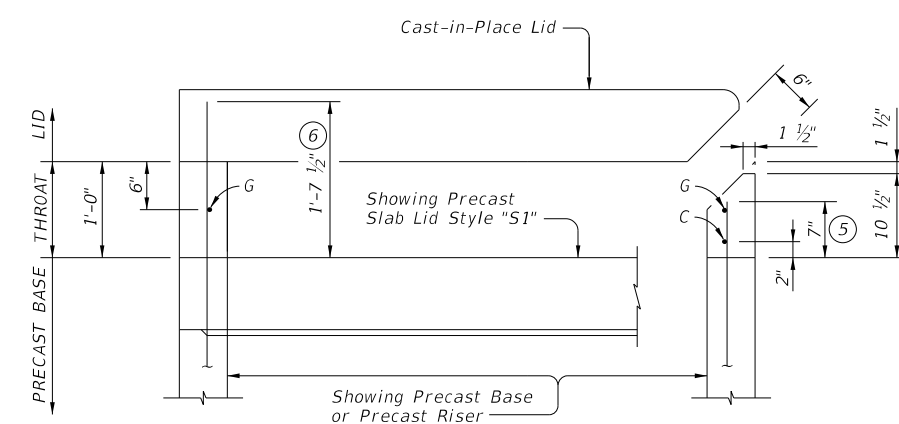
LID PLAN VIEW
 (Showing extension on each side.)



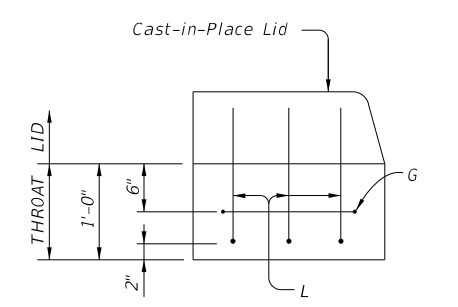
LID SECTION H-H



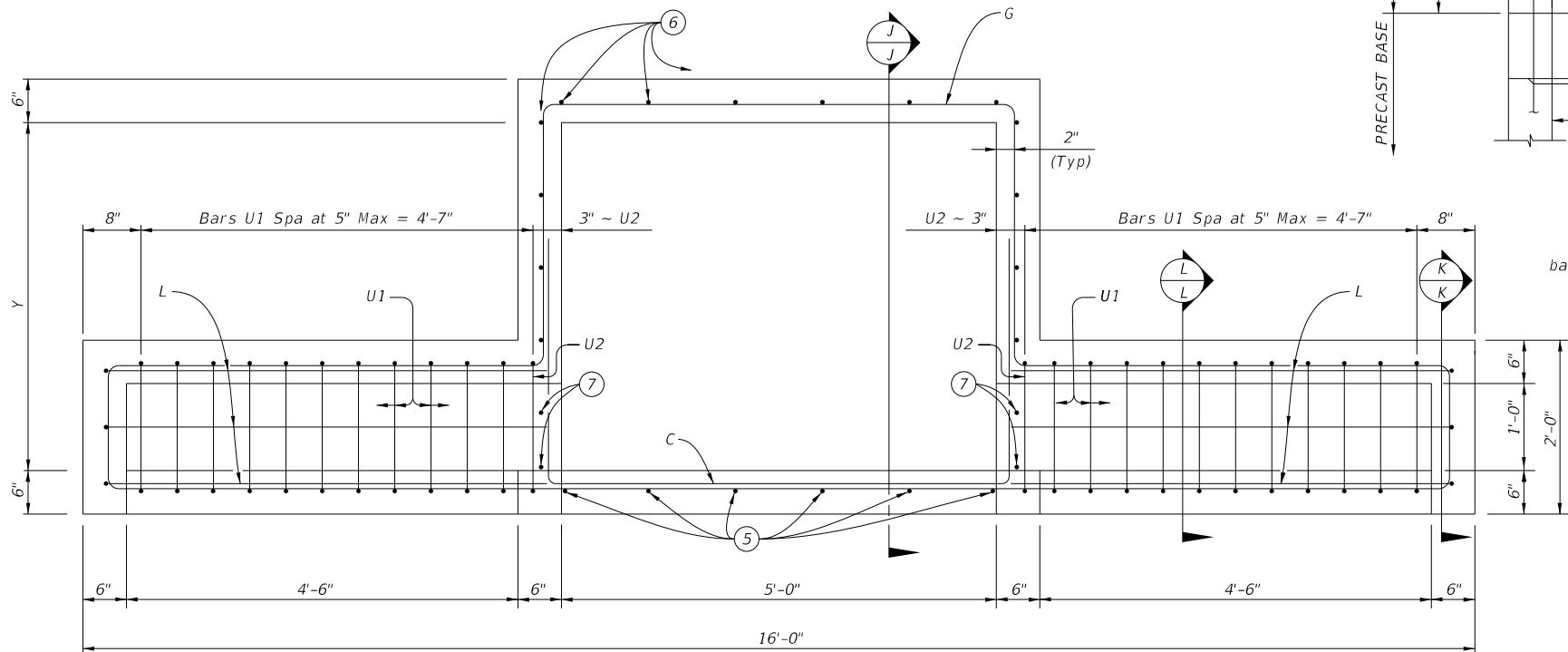
LID SECTION I-I



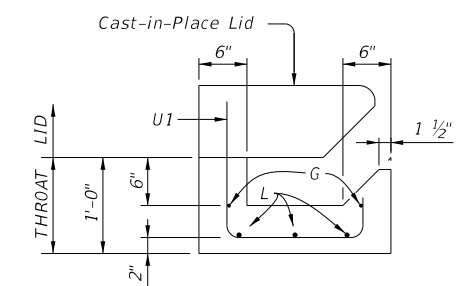
THROAT SECTION J-J
 (Showing reinforcing bar extended from precast base or precast riser or precast slab lid style "S1".)



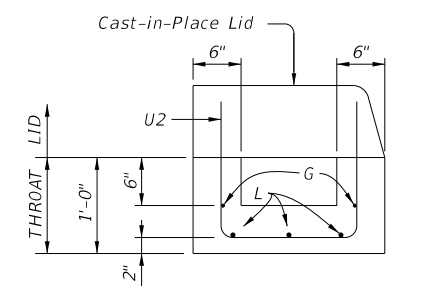
THROAT SECTION K-K



THROAT PLAN VIEW
 (Showing extension on each side.)

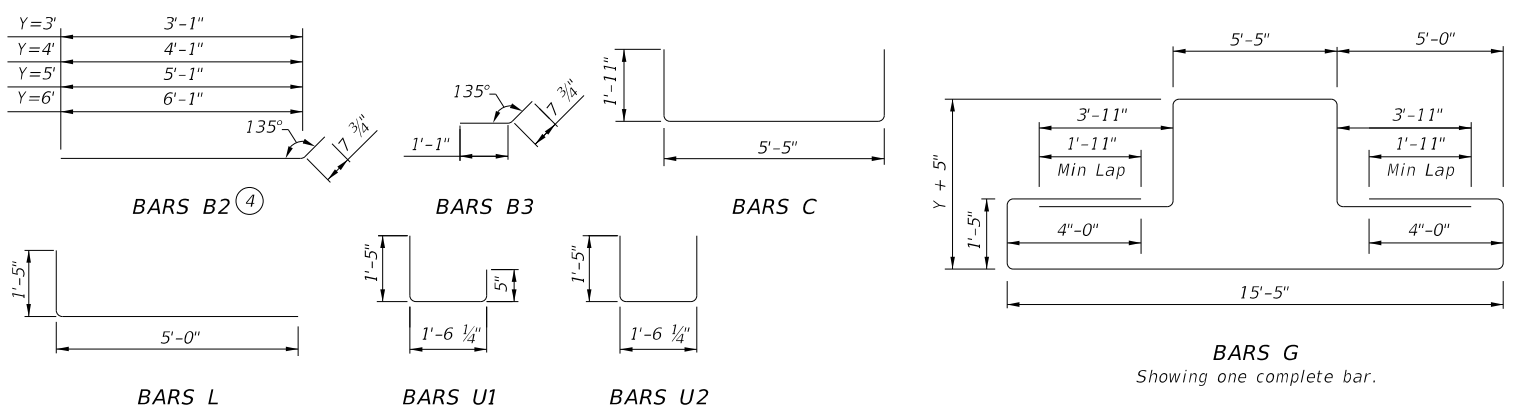


BARS U1 LOCATION



BARS U2 LOCATION

THROAT SECTION L-L



- ③ Matches inside face of wall of precast base or precast riser or precast slab lid style "S1" below inlet.
- ④ Cut reinforcing bars as needed to provide 1 1/2" clear to manhole.
- ⑤ Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 7".
- ⑥ Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 1'-7 1/2".
- ⑦ Do not extend reinforcing bars from precast base.

HL93 LOADING SHEET 4 OF 4

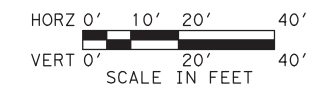
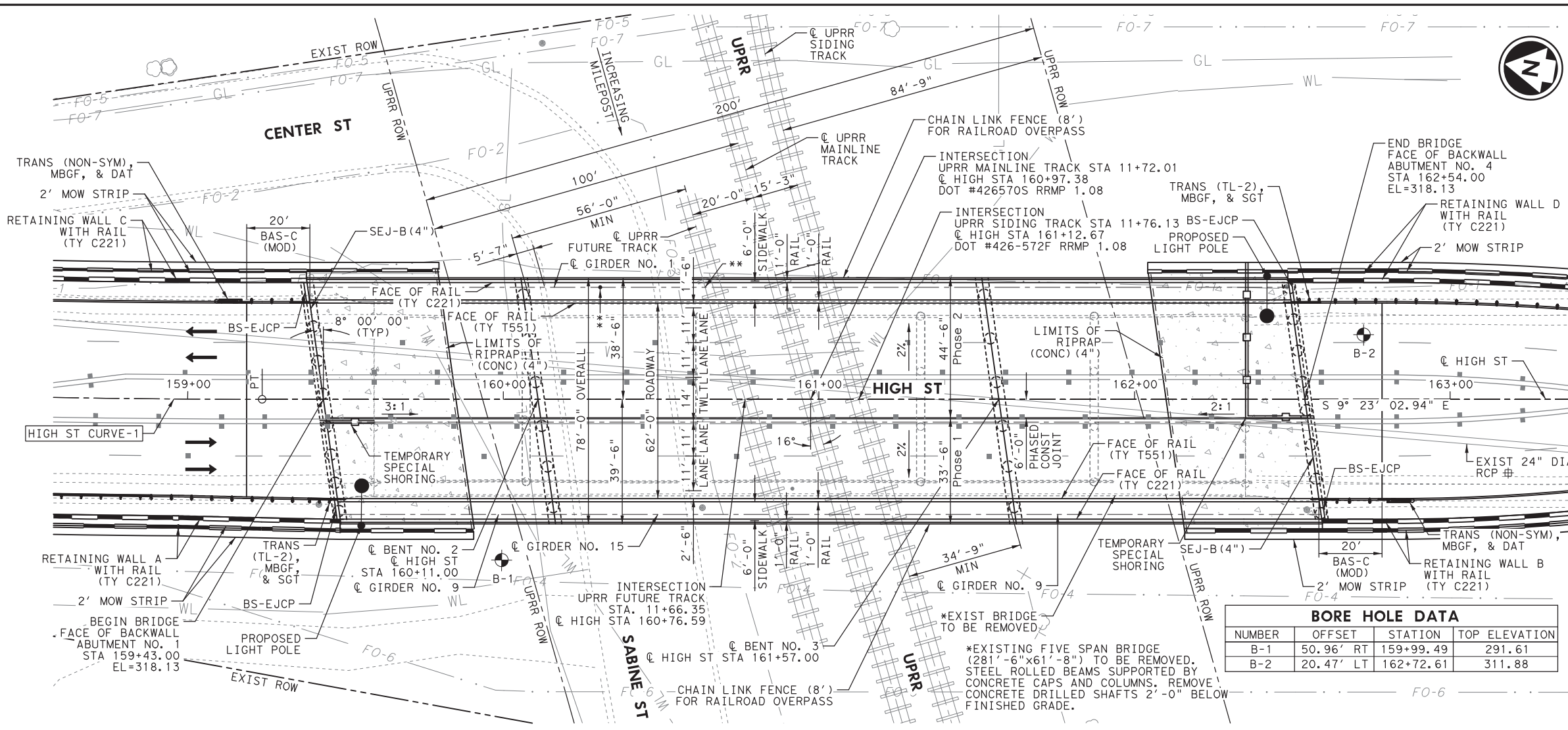
Bridge Division Standard

CAST-IN-PLACE CURB INLET OUTSIDE ROADWAY

CCO

FILE: ccostds1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONTRACT: 0910	SECTION: 07	JOB: 072	HIGHWAY: HIGH ST
REVISIONS	DIST: TYLER	COUNTY: GREGG	SHEET NO. 168	

DATE: 11/3/2021
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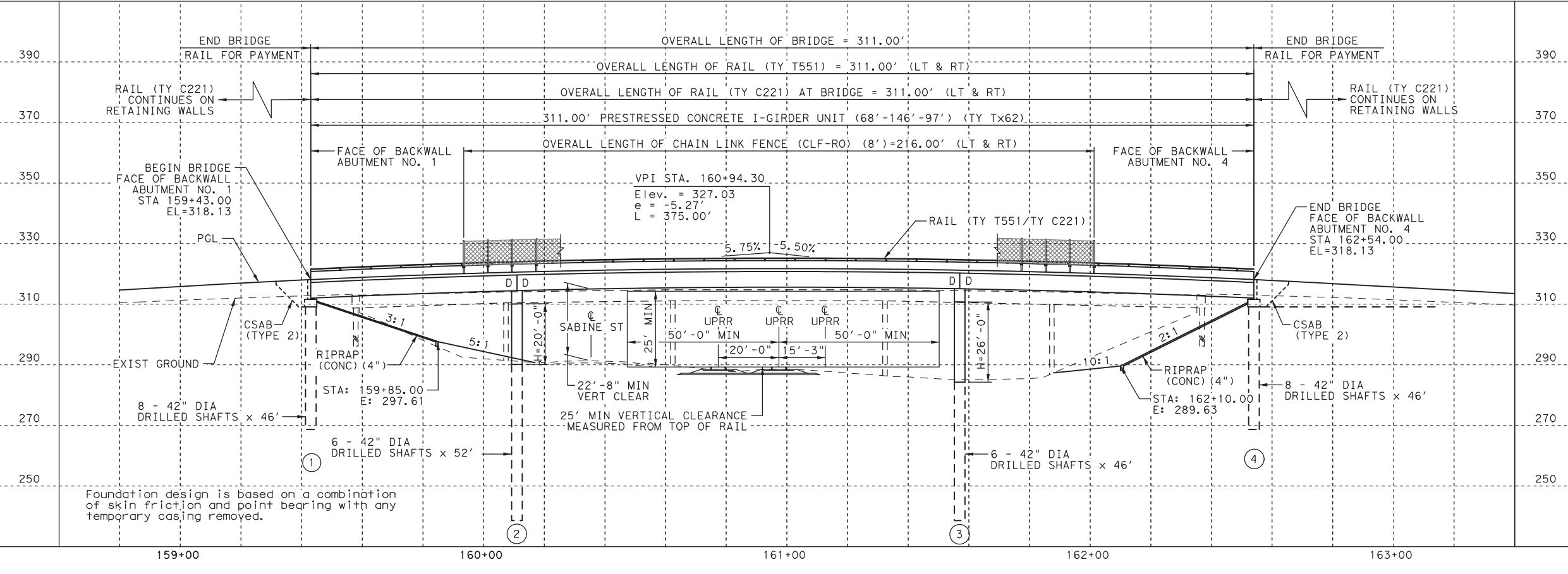
- GENERAL NOTES:**
- DESIGNED FOR HL-93 LOADING IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, EIGHTH EDITION (2017), AS MODIFIED BY THE TXDOT LRFD BRIDGE DESIGN MANUAL.
 - ALL ABUTMENTS AND BENTS ARE AT BEARING N 72° 36' 57" E.
 - THE "H" VALUE SHOWN IS AN ESTIMATED COLUMN HEIGHT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CALCULATE COLUMN HEIGHTS BASED ON FIELD CONDITIONS.
 - CLAYEY SANDS AND GROUNDWATER WERE OBSERVED IN BRIDGE BORINGS. SEE "BRIDGE BORE HOLE DATA" SHEET FOR SOIL BORING LOG INFORMATION.
 - SEE CEMENT STABILIZED ABUTMENT BACKFILL (CSAB) DESIGN STANDARD FOR ADDITIONAL INFORMATION.
 - SEE RETAINING WALL LAYOUTS AND ILLUMINATION PLANS FOR ADDITIONAL INFORMATION.
 - SEE PHASED BRIDGE TYPICAL SECTION SHEETS FOR BRIDGE TYPICAL SECTIONS.
- ** POINT OF MIN. VERT. CLEAR.
- ⊕ LOCATION IS APPROXIMATE. CONTRACTOR SHALL LOCATE EXISTING STORM SEWER PRIOR TO STARTING WORK OR ORDERING MATERIALS.

BORE HOLE DATA

NUMBER	OFFSET	STATION	TOP ELEVATION
B-1	50.96' RT	159+99.49	291.61
B-2	20.47' LT	162+72.61	311.88

HIGH ST CURVE-1

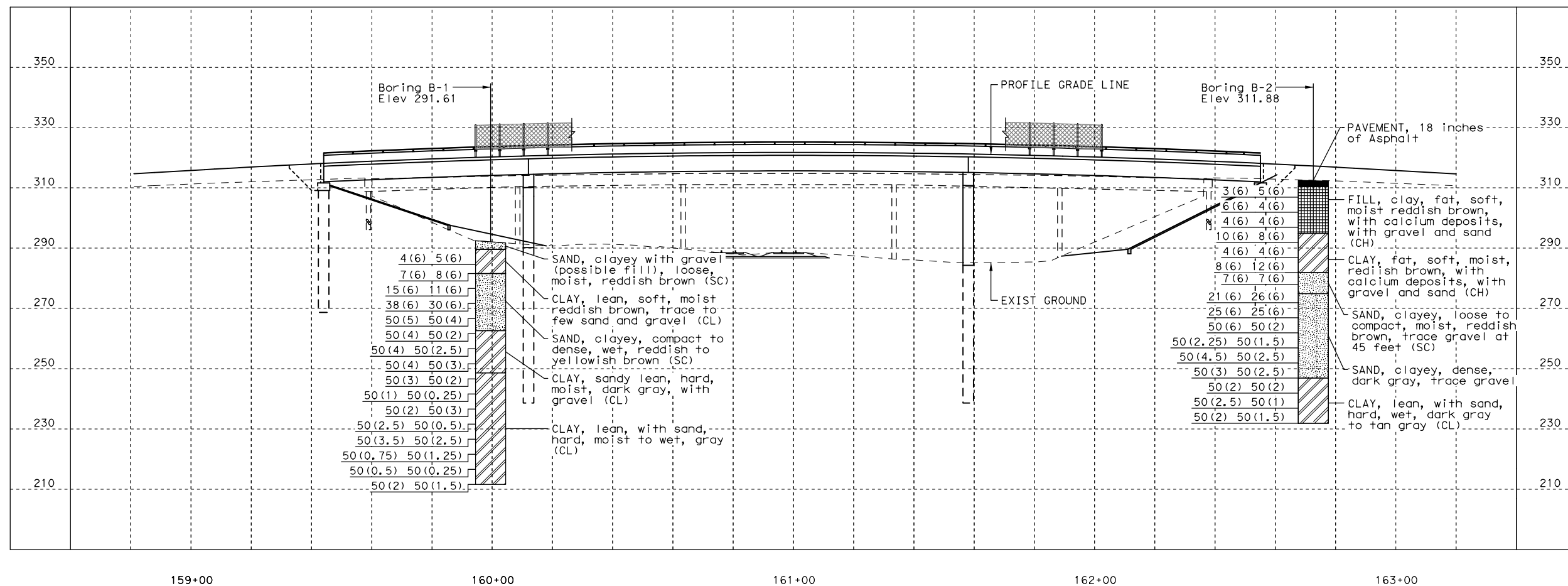
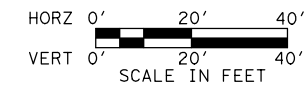
PI STATION	= 156+44.10
DELTA	= 8° 24' 00.13" (LT)
DEGREE OF CURVE	= 1° 30' 00.00"
TANGENT	= 280.50
LENGTH	= 560.00
RADIUS	= 3,819.72
PC STATION	= 153+63.60
PT STATION	= 159+23.60



BRIDGE LAYOUT

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
NBH	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
NBH	0910	07	072
CHECK			
KWZ			

169



ELEVATION

DATE: 7/21/2021
 FILENAME: pw:\jmt-pw.bentley.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\7. Bridge\Hign*ST*002-BB.dgn

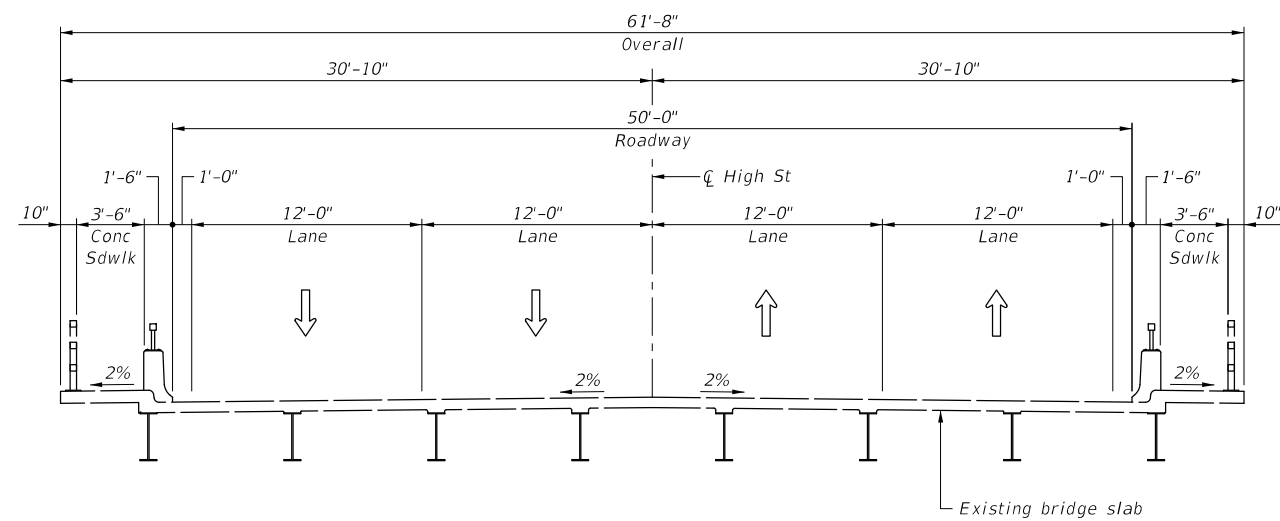


S HIGH ST AT UPRR AND SABINE ST

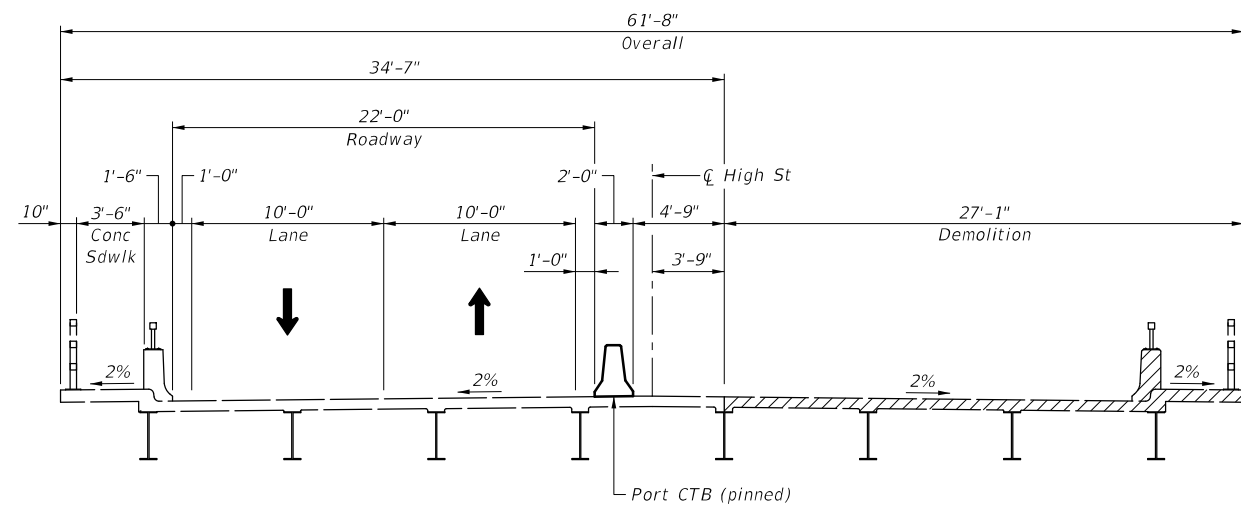
BRIDGE BORINGS

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
			170

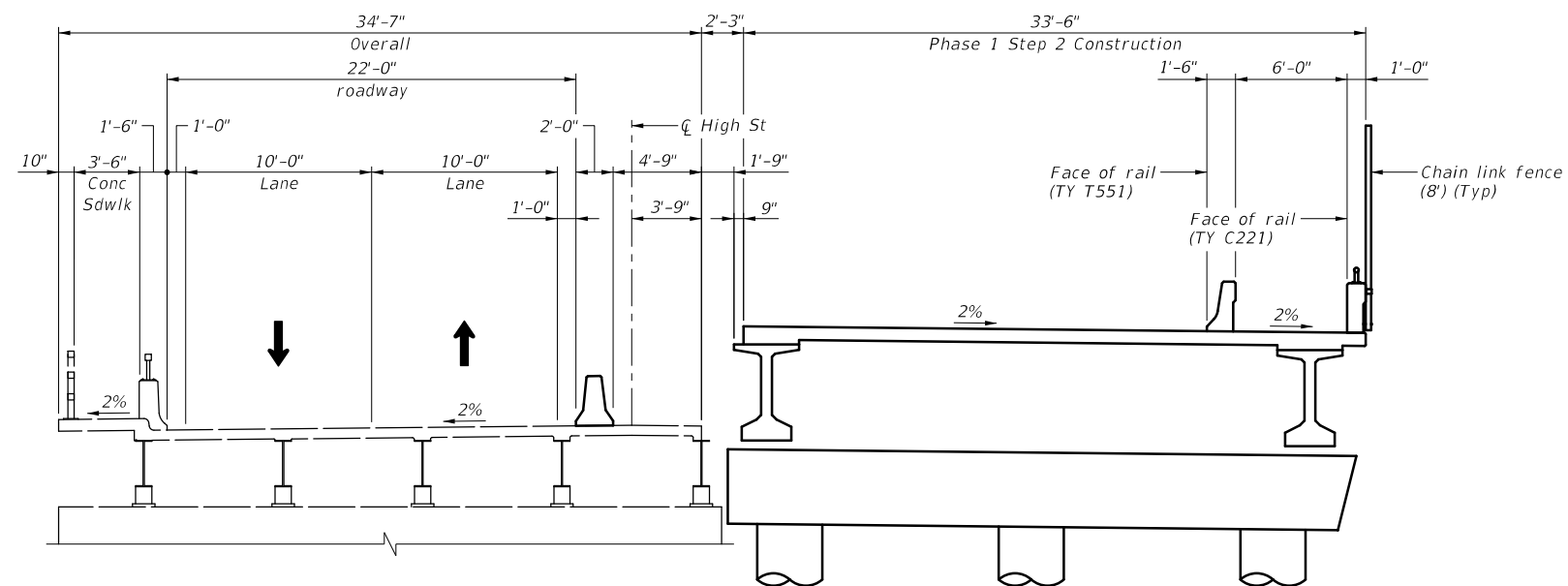
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EXISTING BRIDGE TYPICAL SECTION



TCP PHASE 1 STEP 1 TYPICAL SECTION



TCP PHASE 1 STEP 2 TYPICAL SECTION

LEGEND:



Demolition



Portable concrete traffic barrier (pinned)



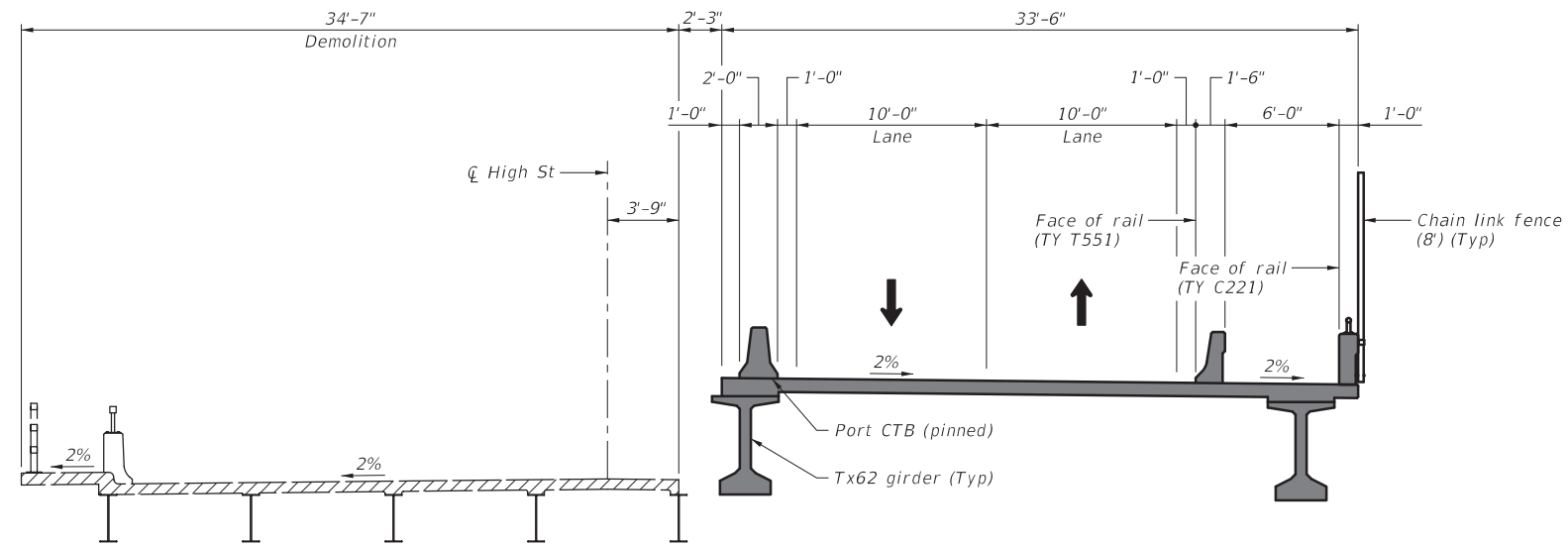
7/22/2021



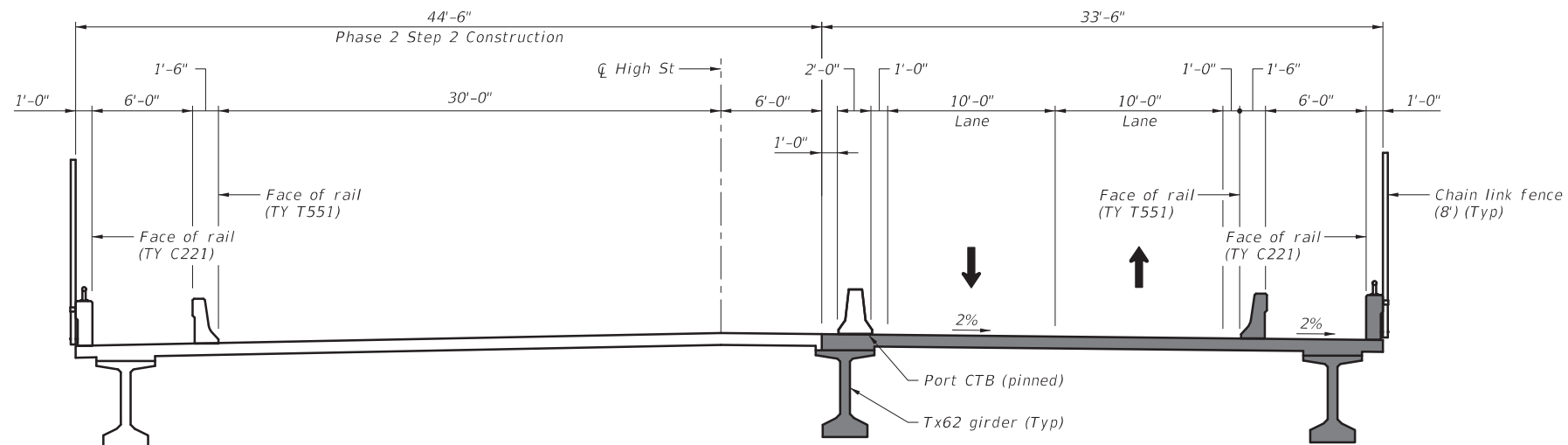
**PHASED BRIDGE CONSTRUCTION
 TYPICAL SECTIONS**

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						171

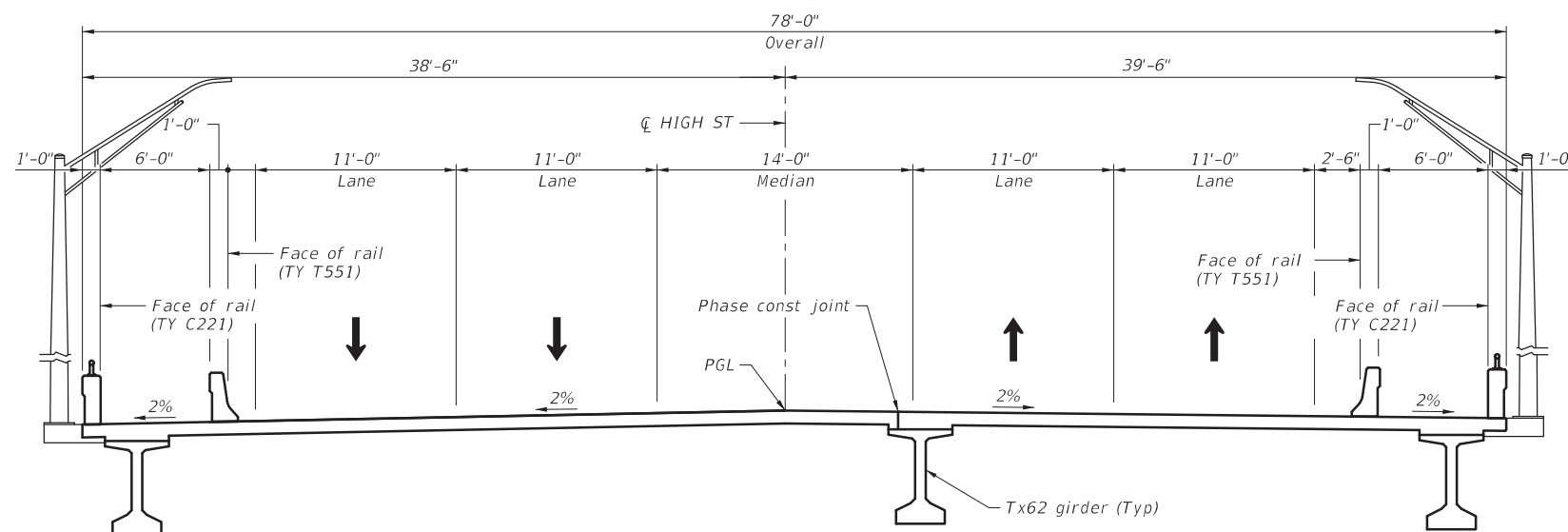
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TCP PHASE 2 STEP 1 TYPICAL SECTION



TCP PHASE 2 STEP 2 TYPICAL SECTION



COMPLETED TYPICAL SECTION

LEGEND:

- Demolition
- Construction previous phase
- Portable concrete traffic barrier (pinned)

NOTE:

Limits of chain link fence and light poles do not overlap. Refer to bridge layout for location of chain link fence and light poles. Phased Typical Sections are located within limits of the Railroad ROW. Completed Typical Section depicts light pole near either end of the bridge.



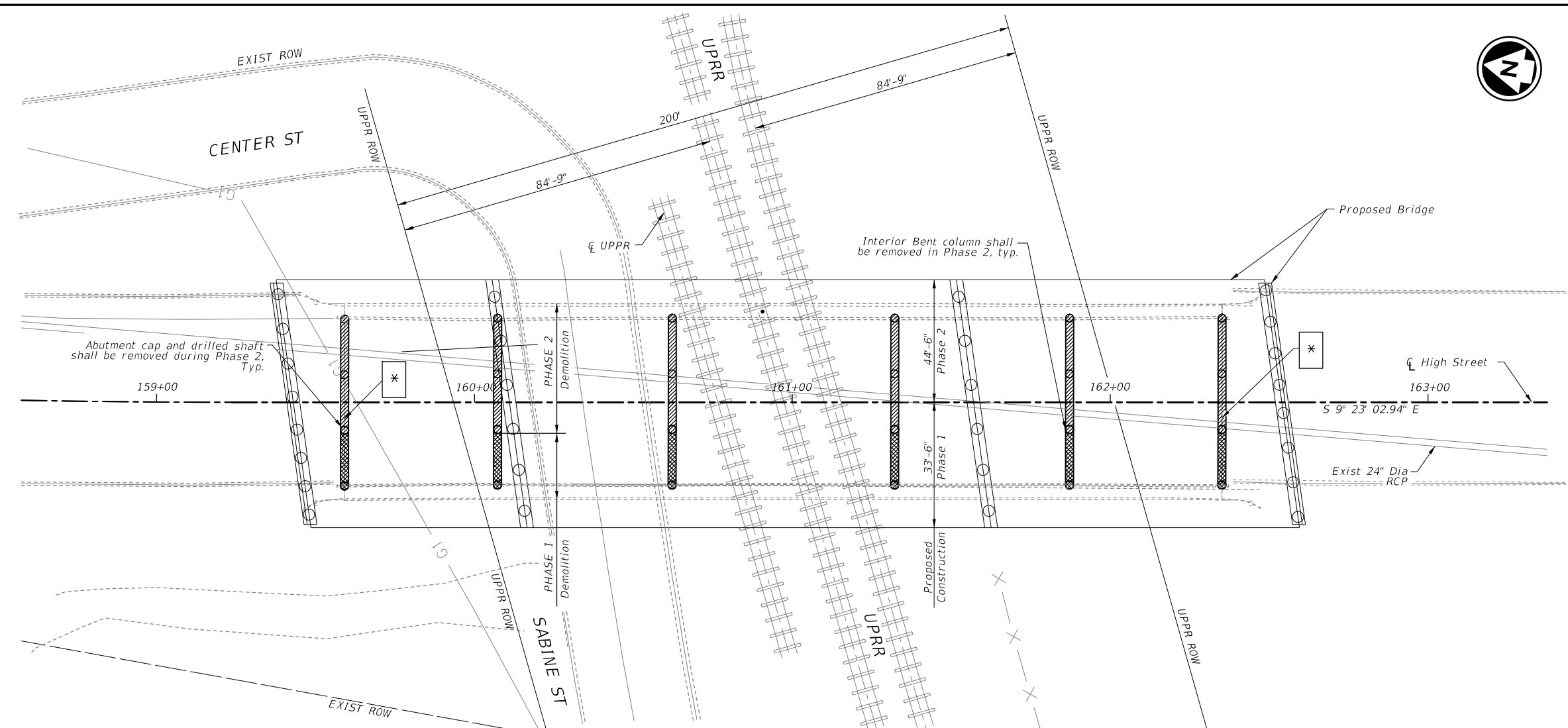
11/4/2021



**PHASED BRIDGE CONSTRUCTION
TYPICAL SECTIONS**

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						172

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 DATE: 7/21/2021



HORZ 0' 10' 20' 40'
 VERT 0' 20' 40'
 SCALE IN FEET

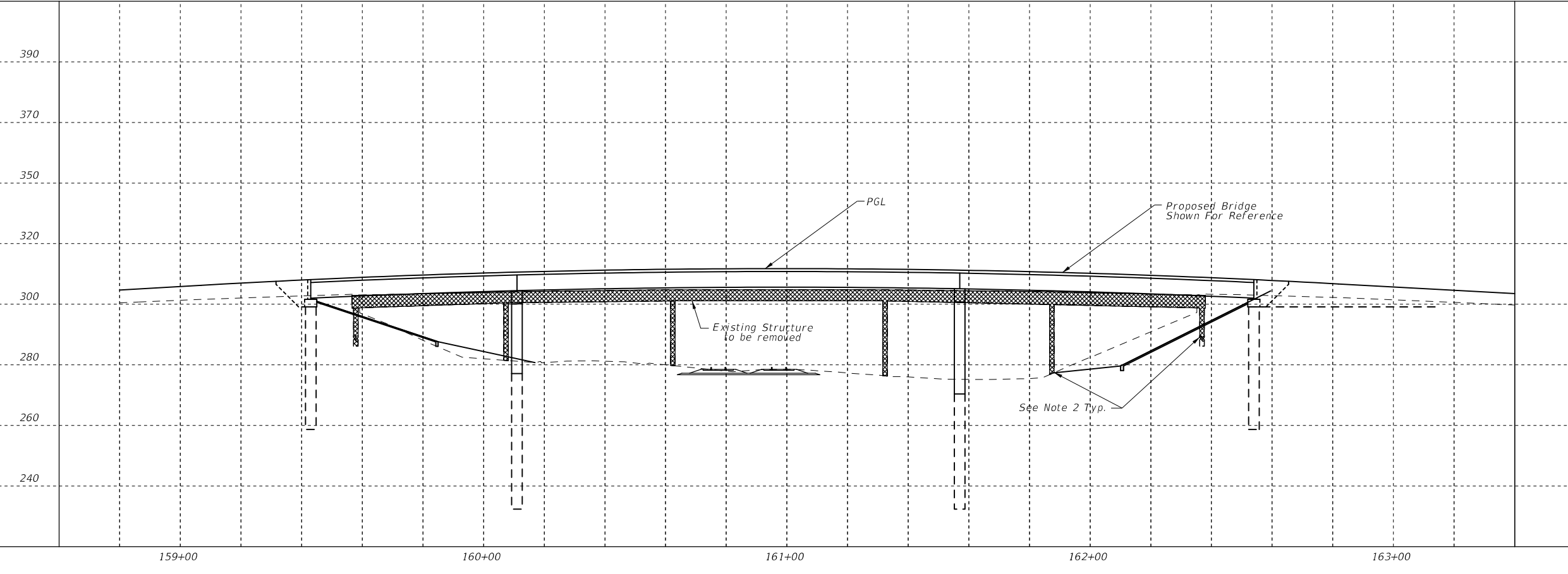
- GENERAL NOTES:**
1. Remove concrete drilled shafts 2'-0" below finished grade.
 2. Contractor shall submit a demolition plan in accordance with Section 496 of the Specifications.
 3. Refer to the Phased Bridge Construction Typical Sections for limits of superstructure removal per phase.

LEGEND

Phase 1 Demolition

Phase 2 Demolition

* Remove backwall as needed in Phase 1 to facilitate erection of Phase 1 TX I-Girders



STATE OF TEXAS
 KURT W. ZEBLEY
 92537
 LICENSED PROFESSIONAL ENGINEER
 7/22/2021

JMT TBPE REGISTRATION NO. F-16341
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Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

SUBSTRUCTURE DEMOLITION

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
KWZ	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JBW	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
KWZ	0910	07	072
CHECK	JMB		
			173

SUMMARY OF ESTIMATED QUANTITIES



BID ITEM NUMBER	400-6005	416-6005	420-6013	420-6029	420-6037	422-6001	422-6015	425-6040	432-6008	442-6007	454-6020	450-6014	450-6030	450-6119	496-6010
BID ITEM DESCRIPTION	CEM STABIL BKFL	DRILL SHAFT (42 IN)	CL C CONC (ABUT)	CL C CONC (CAP)	CL C CONC (COLUMN)	REINF CONC SLAB	APPROACH SLAB	PRESTR CONC GIRDER (TX62)	RIPRAP CONC (CLB RR8 & RR9)	STRUCTURAL STEEL (MISC NON-BRIDGE)	SEALED EXPANSION JOINT (4 IN) (SEJ-B)	RAIL (TY T551)	RAIL (TY C221)	RAIL (CLF-R0)	REMOVE STR (BRIDGE 100-499 FT LENGTH)
BRIDGE ELEMENT	CY	LF	CY	CY	CY	SF	CY	LF	CY	LB	LF	LF	LF	LF	EA
PHASE 1															
1 - ABUTMENT 1	77.5	184	20.9							85	34				
1 - INTERIOR BENT 2		156		22.6	21.4										
1 - INTERIOR BENT 3		138		22.6	27.8										
1 - ABUTMENT 4	85.1	184	21.7							85	34				
1 - 311.00' PRESTR CONC I-GIRDER UNIT						10419	52.1	1674.86	45			311	311	216	
PHASE 2															
1 - ABUTMENT 1	95.0	184	23.6							85	45				
1 - INTERIOR BENT 2		156		28.9	21.4										
1 - INTERIOR BENT 3		138		28.9	27.8										
1 - ABUTMENT 4	92.6	184	22.7							85	45				
1 - 311.00' PRESTR CONC I-GIRDER UNIT						13840	73.8	1984.46	50			311	311	216	
TOTAL	350.2	1324	88.9	103.0	98.4	24259	125.9	3659.32	95	340	158	622	622	432	1

NOTE:
SEE MAINTENANCE OF TRAFFIC QUANTITIES FOR LENGTH OF PORTABLE CONCRETE TRAFFIC BARRIER.

BEARING SEAT ELEVATIONS

	GIRDER 1	GIRDER 2	GIRDER 3	GIRDER 4	GIRDER 5	GIRDER 6	GIRDER 7	GIRDER 8	GIRDER 9	GIRDER 10	GIRDER 11	GIRDER 12	GIRDER 13	GIRDER 14	GIRDER 15
ABUTMENT 1 (FWD)	310.952	311.179	311.406	311.632	311.858	311.803	311.670	311.536	311.402						
BENT 2 (BACK)	313.456	313.659	313.862	314.064	314.266	314.188	314.027	313.866	313.705						
BENT 2 (FWD)	313.515	313.642	313.768	313.894	314.020	314.146	314.272	314.330	314.243	314.163	314.082	314.001	313.920	313.839	313.757
BENT 3 (BACK)	314.355	314.45	314.544	314.638	314.732	314.826	314.919	314.945	314.826	314.715	314.605	314.494	314.383	314.272	314.161
BENT 3 (FWD)	314.321	314.471	314.621	314.770	314.919	314.787	314.565	314.343	314.119						
ABUTMENT 4 (BACK)	311.413	311.529	311.645	311.760	311.875	311.709	311.448	311.186	310.923						



NO.	REVISION	BY	DATE
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 Texas Department of Transportation			
ESTIMATED QUANTITIES AND BEARING SEAT ELEVATIONS			
DESIGN HRA	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
GRAPHICS JBW	6	(SEE TITLE SHEET)	HIGH ST
CHECK JMT	STATE TEXAS	DISTRICT TYLER	COUNTY GREGG
CHECK JMT	CONTROL 0910	SECTION 07	JOB 072
			174

DATE: 11/3/2021
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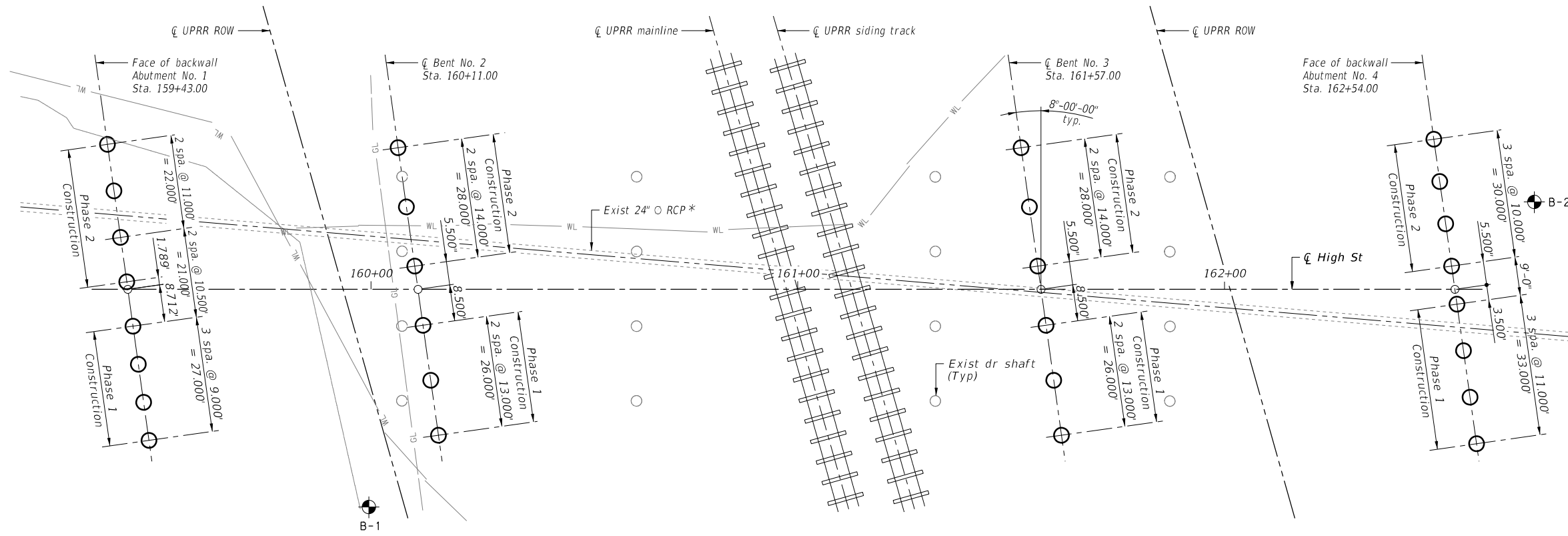
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 FILENAME: pw:\jmt-pw.bentley.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\7. Bridge\High*ST*006-FL.dgn



HORZ 0' 15' 30'
 VERT 0' 15' 30'
 SCALE IN FEET

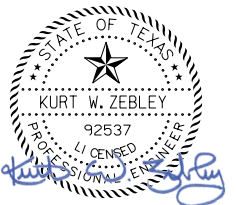
* Location is approximate. Contractor shall locate existing storm sewer prior to starting work or ordering materials.

Note :
 All abutments and bents are at bearing N 72°36'57" E.



FOUNDATION LAYOUT

BORE HOLE DATA			
NUMBER	OFFSET	STATION	TOP ELEVATION
B-1	50.96' RT	159+99.49	291.61
B-2	20.47' LT	162+72.61	311.88



7/22/2021

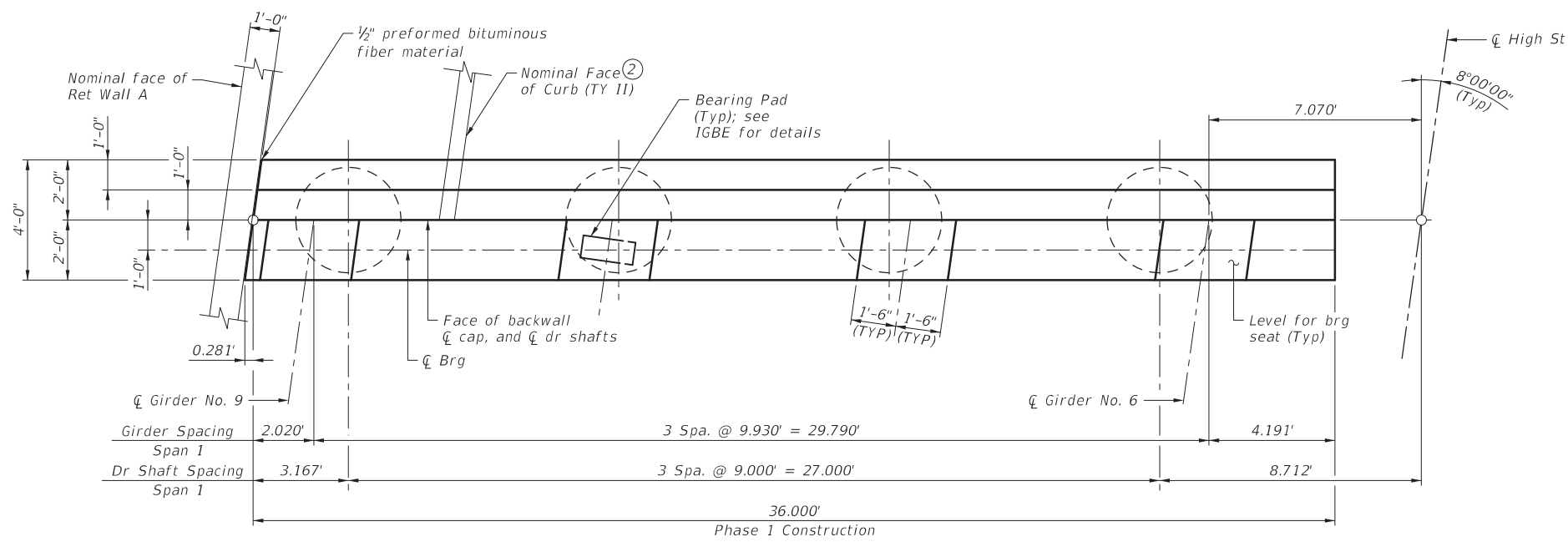
NO.	REVISION	BY	DATE



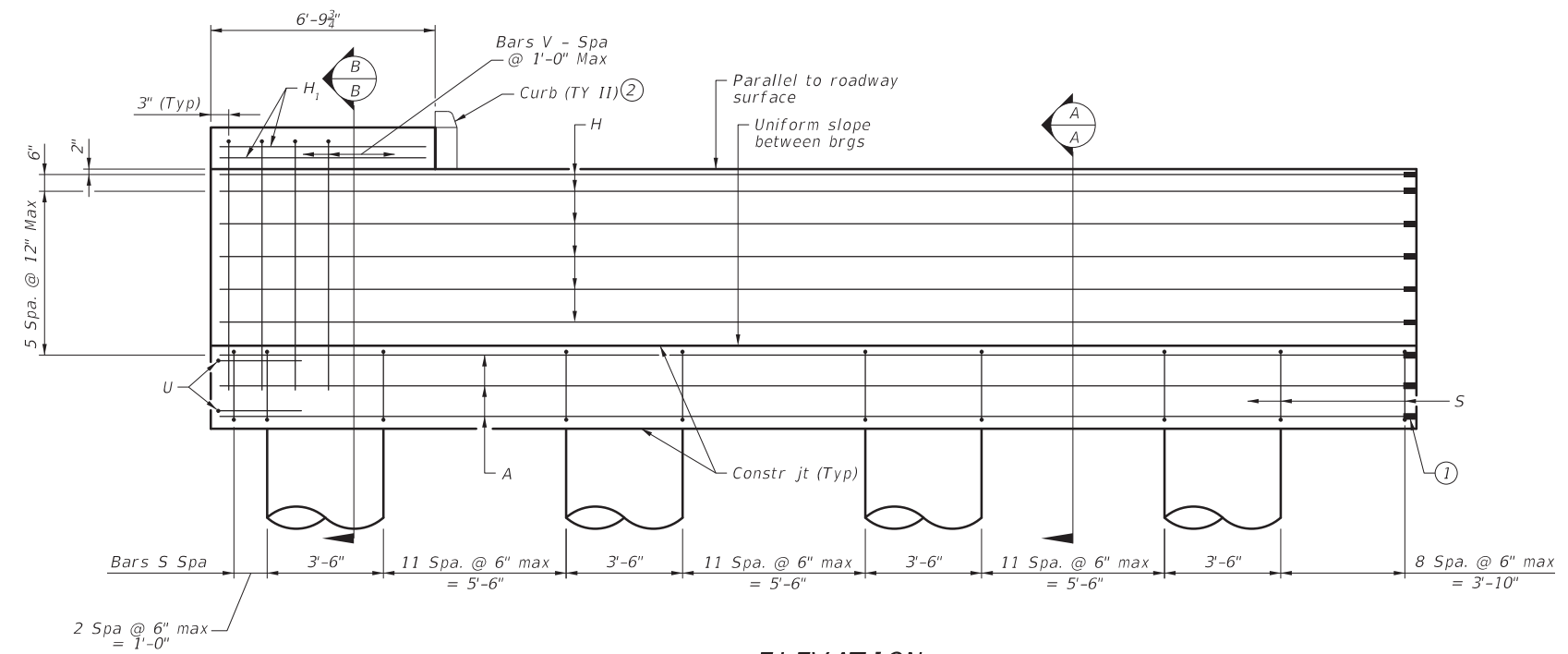
FOUNDATION LAYOUT

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
			175

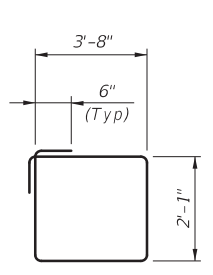
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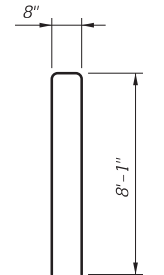
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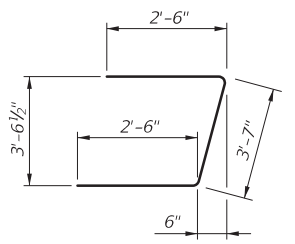
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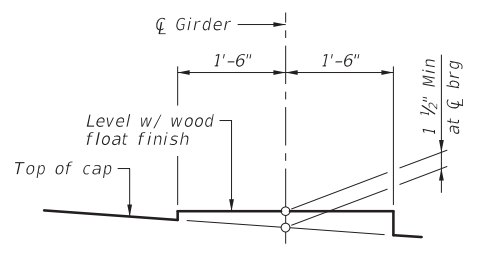
BARS S



BARS V



BARS U



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)



TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
A	16	#11	35'-1"	2983
H	12	#6	35'-9"	645
H ₁	4	#6	6'-7"	40
S	48	#5	12'-6"	626
U	2	#6	8'-7"	26
V	37	#5	16'-10"	650
Reinforcing Steel			LB	4970
Class "C" Concrete (Abut)			CY	20.9

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications, 8th Edition (2017) and current interms.

See Bridge Layout for foundation type, size and length.

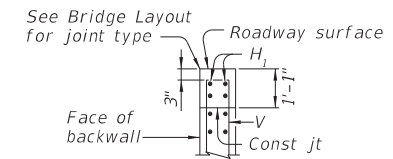
See Common Foundation Details (FD) standard sheet for all foundation details and notes.

See Riprap (CRR) standard sheet for riprap attachment details.

- ① Bars A and H splice shall be in accordance with TxDot Standard Spec Item 440 "Reinforcement For Concrete" and material Spec DMS-4510 "Mechanical Coupler for Reinforcing Steel".
- ② Not included in bridge quantities.

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

MATERIAL NOTES:
 Provide Class C concrete.
 Provide Grade 60 reinforcing steel.



SECTION B-B



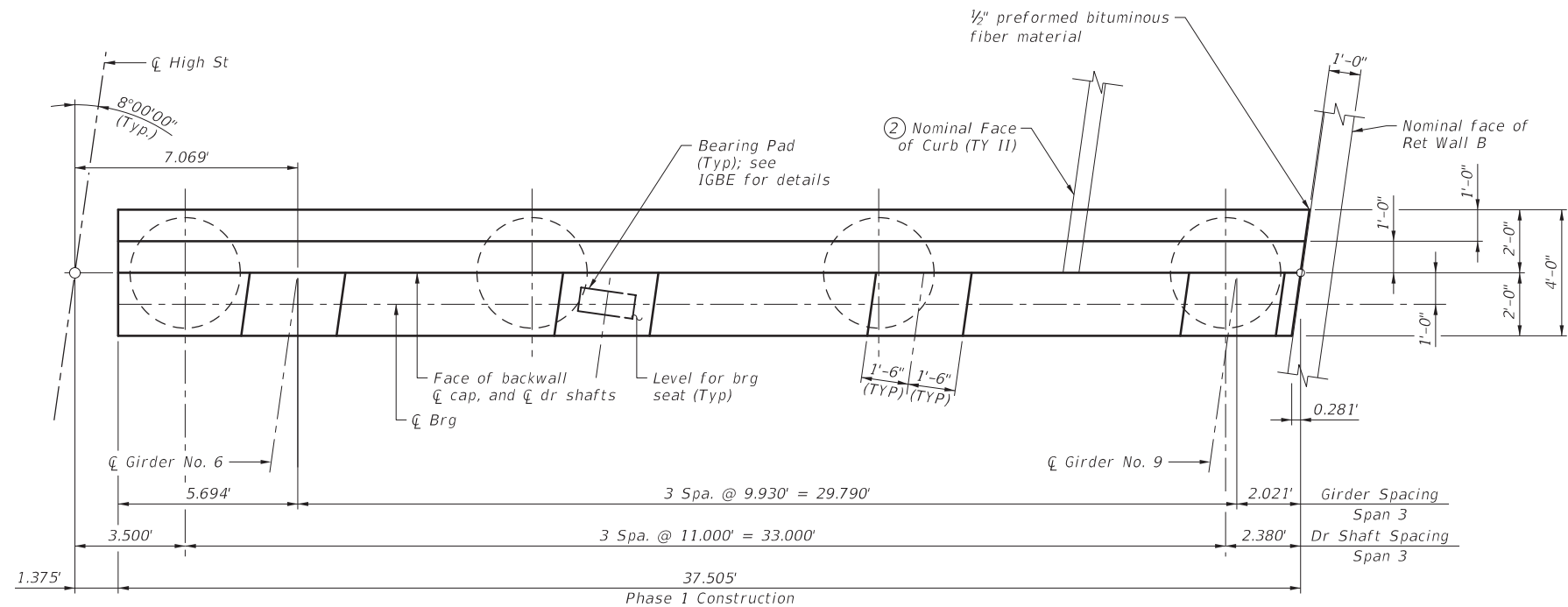
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NO.	REVISION	BY	DATE

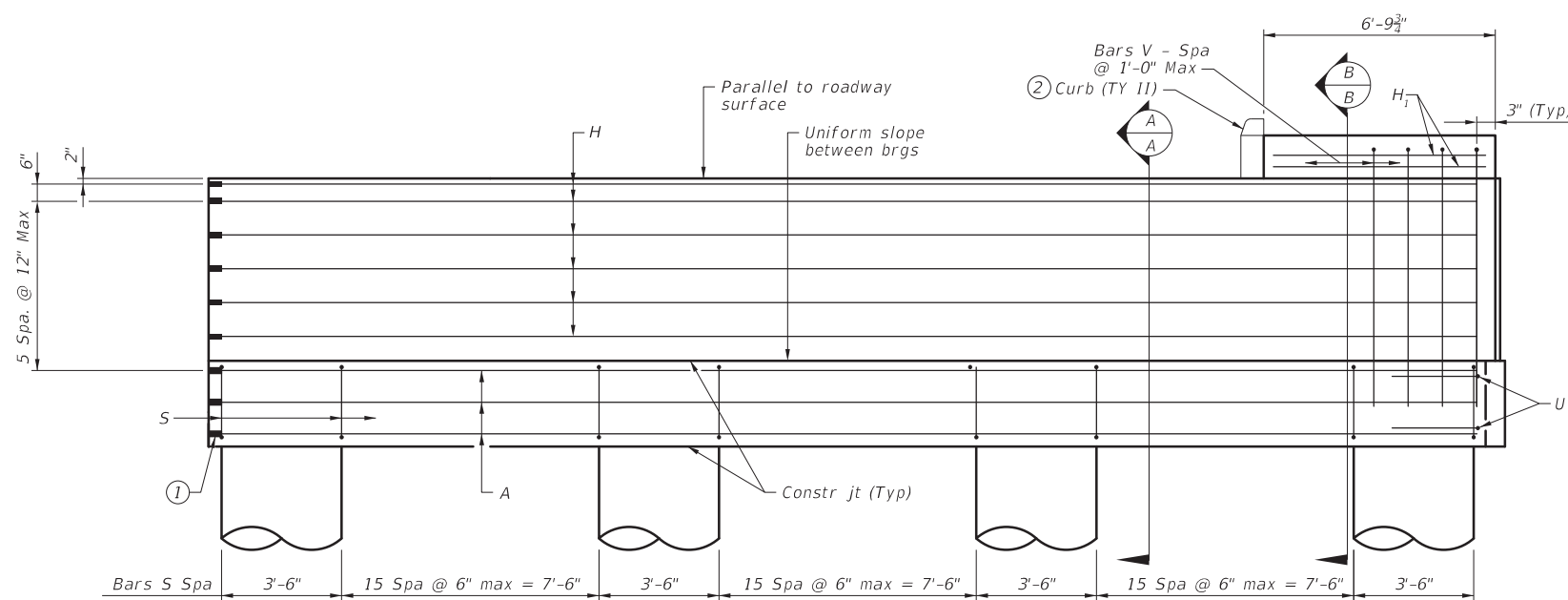
JMT TBPE REGISTRATION NO. F-16341
Texas Department of Transportation

ABUTMENT NO. 1 DETAILS (PHASE 1 CONSTRUCTION)			
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
HRA	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS			
JBW	STATE	DISTRICT	COUNTY
CHECK	TEXAS	TYLER	GREGG
JMT	CONTROL	SECTION	JOB
CHECK	0910	07	072
JMT			

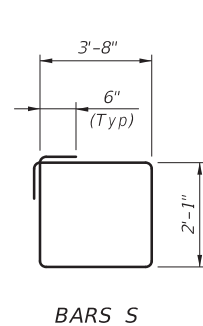
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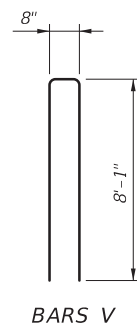
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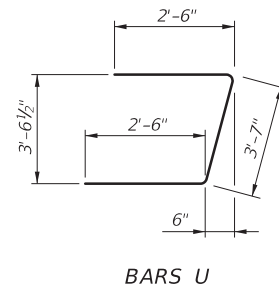
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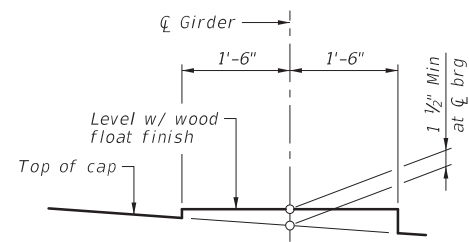
BARS S



BARS V

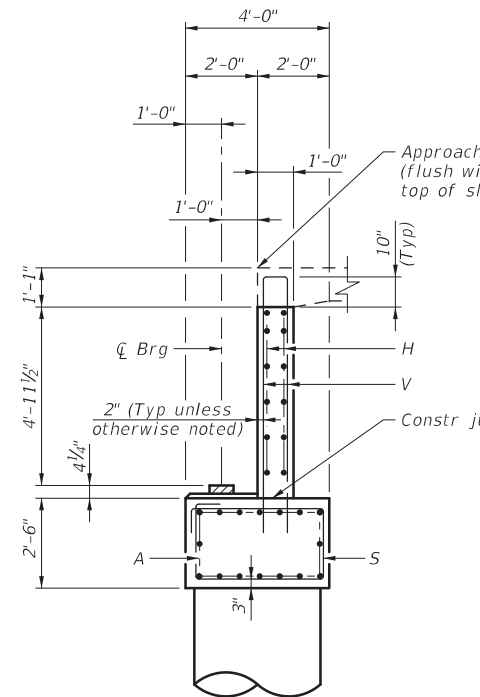


BARS U



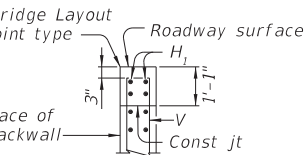
BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)



SECTION A-A

MATERIAL NOTES:
 Provide Class C concrete.
 Provide Grade 60 reinforcing steel.



SECTION B-B

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications, 8th Edition (2017) and current interms.

See Bridge Layout for foundation type, size and length.

See Common Foundation Details (FD) standard sheet for all foundation details and notes.

See Riprap (CRR) standard sheet for riprap attachment details.

① Bars A and H splice shall be in accordance with TxDot Standard Spec Item 440 "Reinforcement For Concrete" and material Spec DMS-4510 "Mechanical Coupler for Reinforcing Steel".

② Not included in bridge quantities.

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

TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
A	16	#11	36'-7"	3110
H	12	#6	37'-3"	672
H ₁	4	#6	6'-7"	40
S	50	#5	12'-6"	652
U	2	#6	8'-7"	26
V	38	#5	16'-10"	668
Reinforcing Steel			LB	5168
Class "C" Concrete (Abut)			CY	21.7



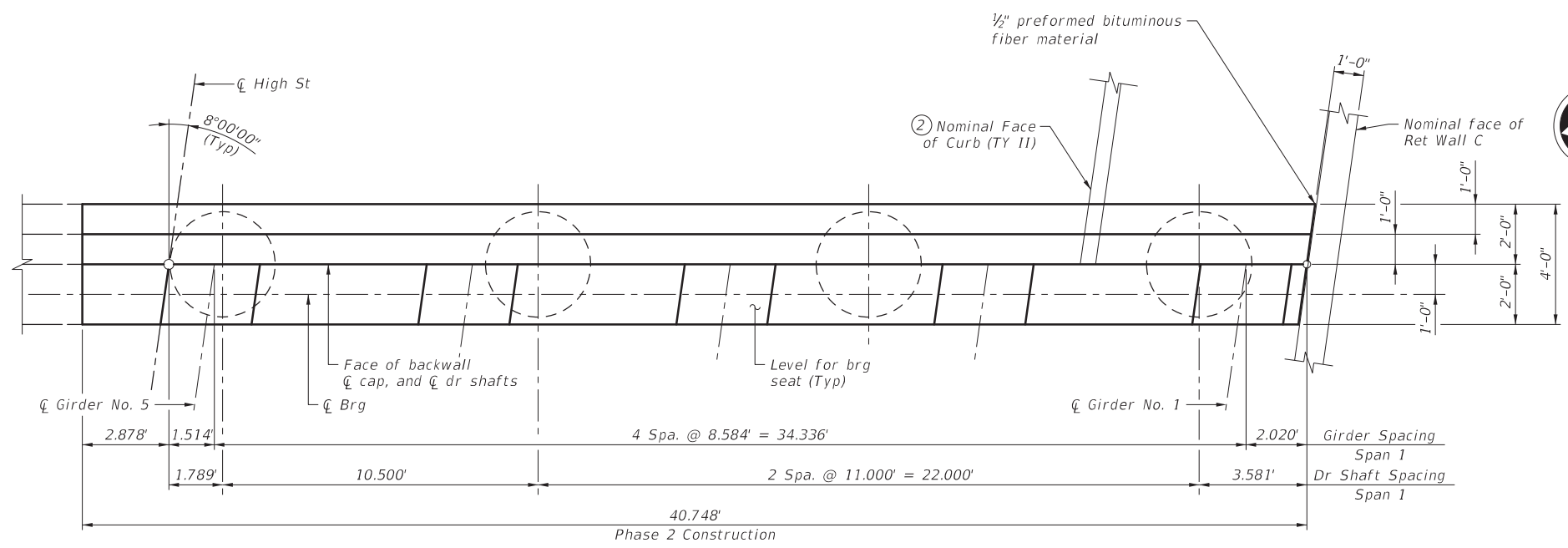
NO.	REVISION	BY	DATE



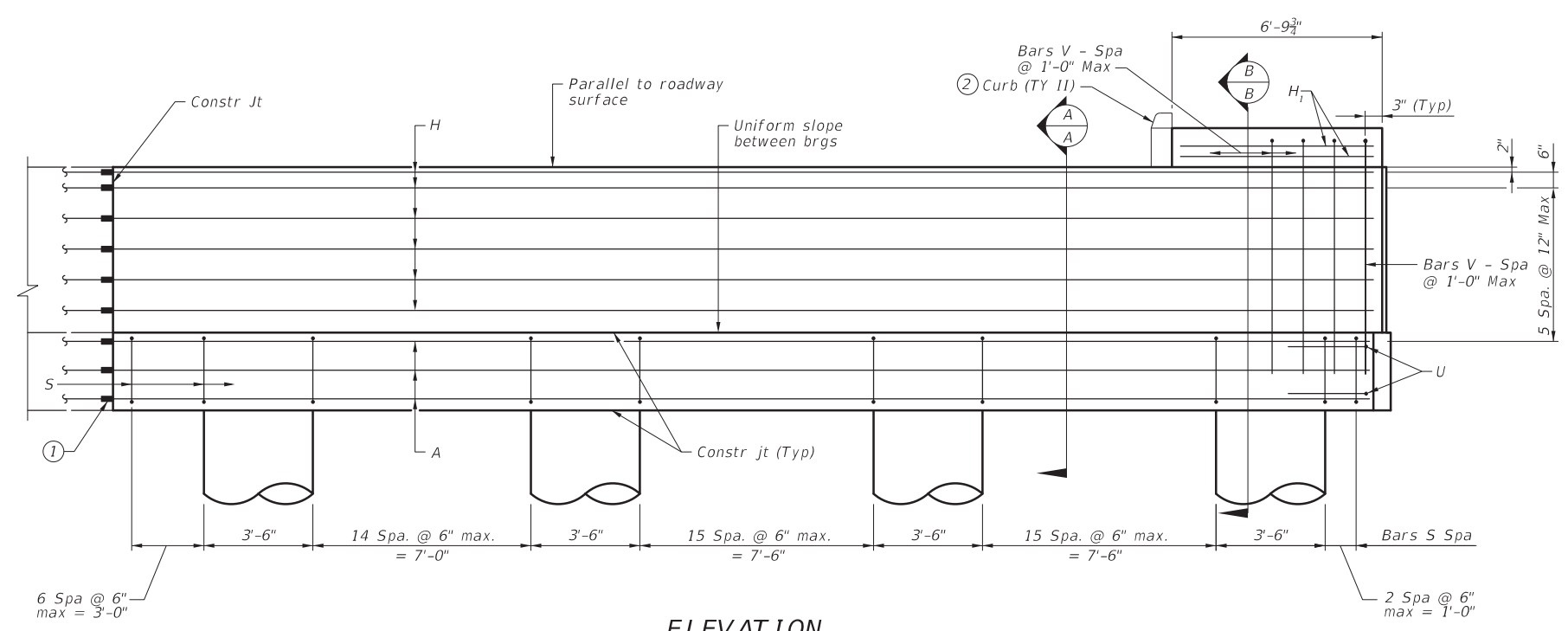
**ABUTMENT NO. 4 DETAILS
 (PHASE 1 CONSTRUCTION)**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
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GRAPHICS			
JBW	STATE	DISTRICT	COUNTY
CHECK	TEXAS	TYLER	GREGG
JMT	CONTROL	SECTION	JOB
CHECK	0910	07	072
JMT			

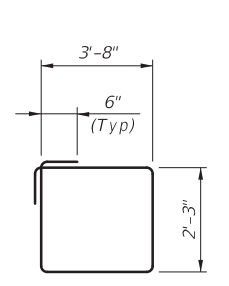
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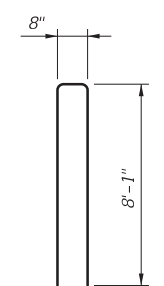
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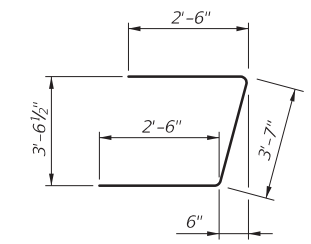
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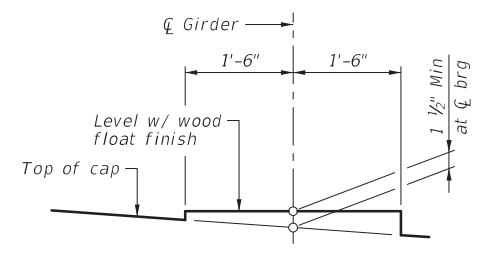
BARS S



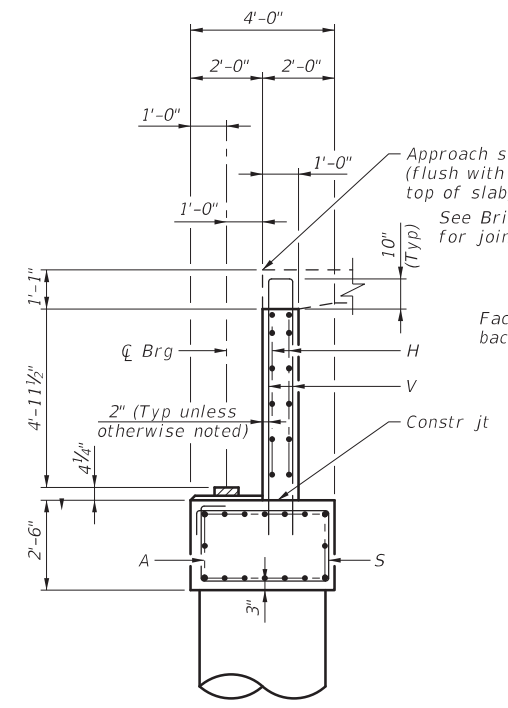
BARS V



BARS U



BEARING SEAT DETAIL
 (Bearing surface must be clean and free of all loose material before placing bearing pad.)



SECTION A-A

SECTION B-B

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications, 8th Edition (2017) and current interms.
 See Bridge Layout for foundation type, size and length.
 See Common Foundation Details (FD) standard sheet for all foundation details and notes.
 See Riprap (CRR) standard sheet for riprap attachment details.

- ① Bars A and H splice shall be in accordance with TxDot Standard Spec Item 440 "Reinforcement For Concrete" and material Spec DMS-4510 "Mechanical Coupler for Reinforcing Steel".
- ② Not included in bridge quantities.

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

MATERIAL NOTES:
 Provide Class C concrete.
 Provide Grade 60 reinforcing steel.

TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
A	16	#11	40'-2"	3415
H	12	#6	40'-8"	733
H ₁	4	#6	6'-7"	40
S	57	#5	12'-6"	744
U	2	#6	8'-7"	26
V	42	#5	16'-10"	738
Reinforcing Steel			LB	5696
Class "C" Concrete (Abut)			CY	23.6



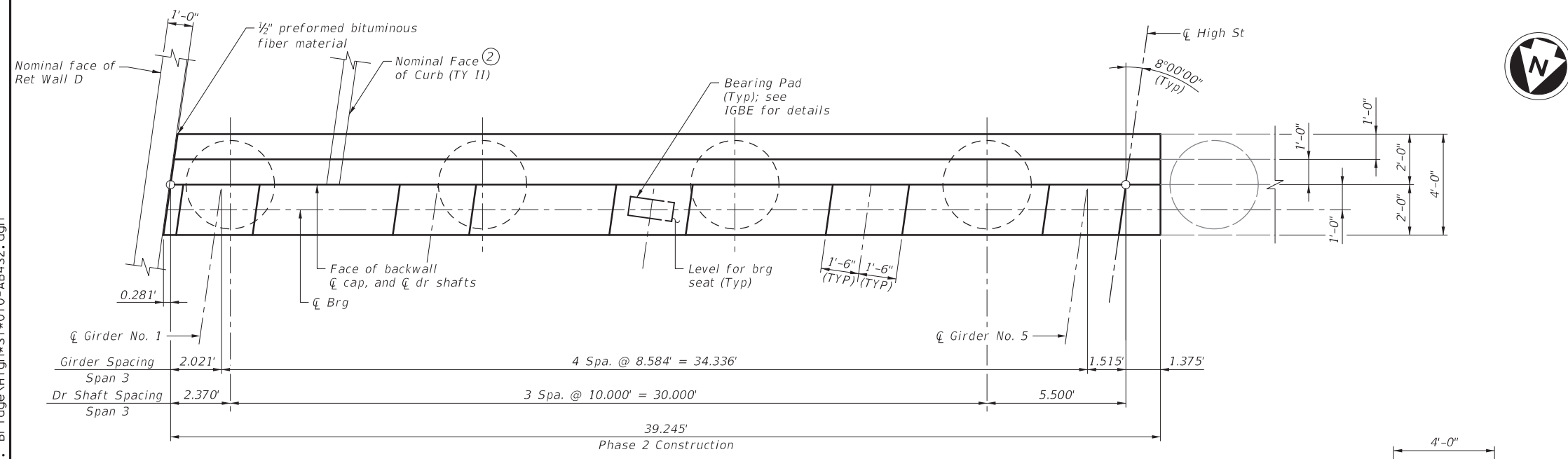
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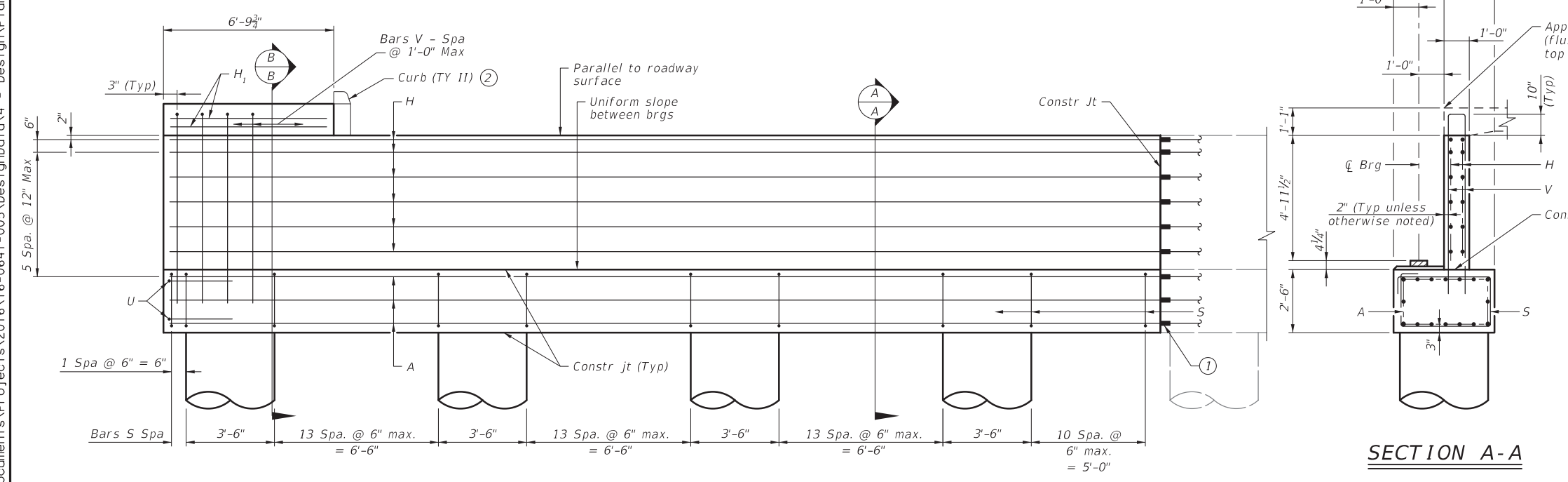
**ABUTMENT NO. 1 DETAILS
 (PHASE 2 CONSTRUCTION)**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
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GRAPHICS			
JBW	STATE	DISTRICT	COUNTY
CHECK	TEXAS	TYLER	GREGG
JMT	CONTROL	SECTION	JOB
CHECK	0910	07	072

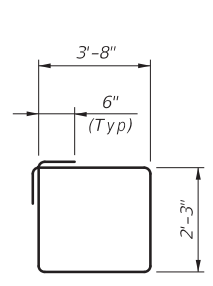
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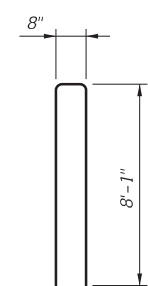
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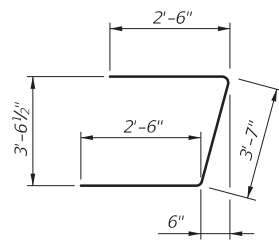
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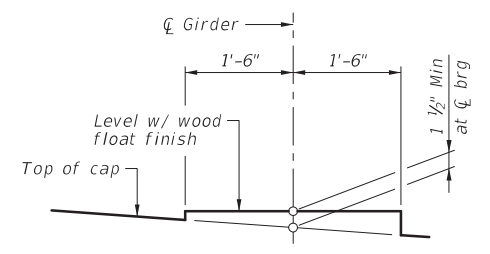
BARS S



BARS V



BARS U



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)



TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
A	16	#11	38'-8"	3287
H	12	#6	39'-2"	706
H ₁	4	#6	6'-7"	40
S	55	#5	12'-6"	718
U	2	#6	8'-7"	26
V	40	#5	16'-10"	703
Reinforcing Steel			LB	5480
Class "C" Concrete (Abut)			CY	22.7

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications, 8th Edition (2017) and current interms.

See Bridge Layout for foundation type, size and length.

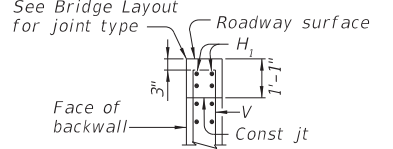
See Common Foundation Details (FD) standard sheet for all foundation details and notes.

See Riprap (CRR) standard sheet for riprap attachment details.

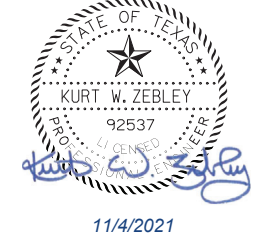
- ① Bars A and H splice shall be in accordance with TxDot Standard Spec Item 440 "Reinforcement For Concrete" and material Spec DMS-4510 "Mechanical Coupler for Reinforcing Steel".
- ② Not included in bridge quantities.

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

MATERIAL NOTES:
 Provide Class C concrete.
 Provide Grade 60 reinforcing steel.



SECTION B-B



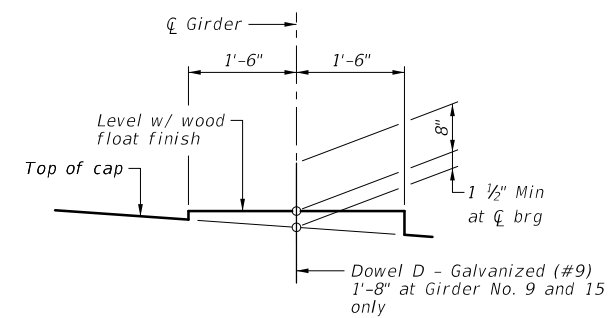
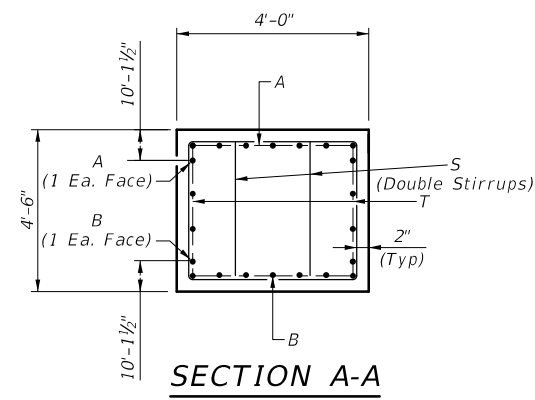
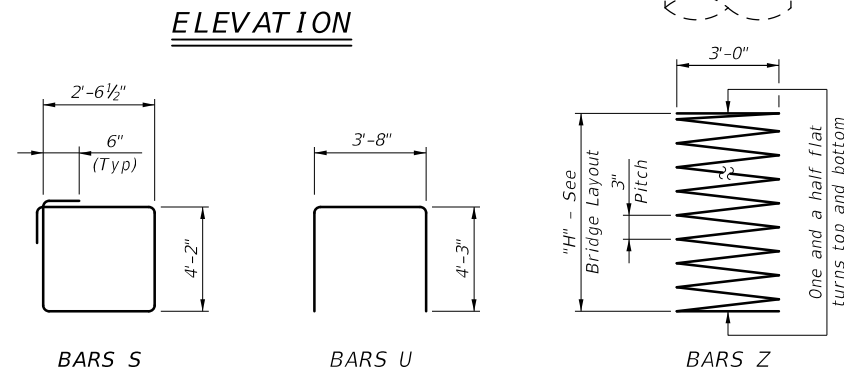
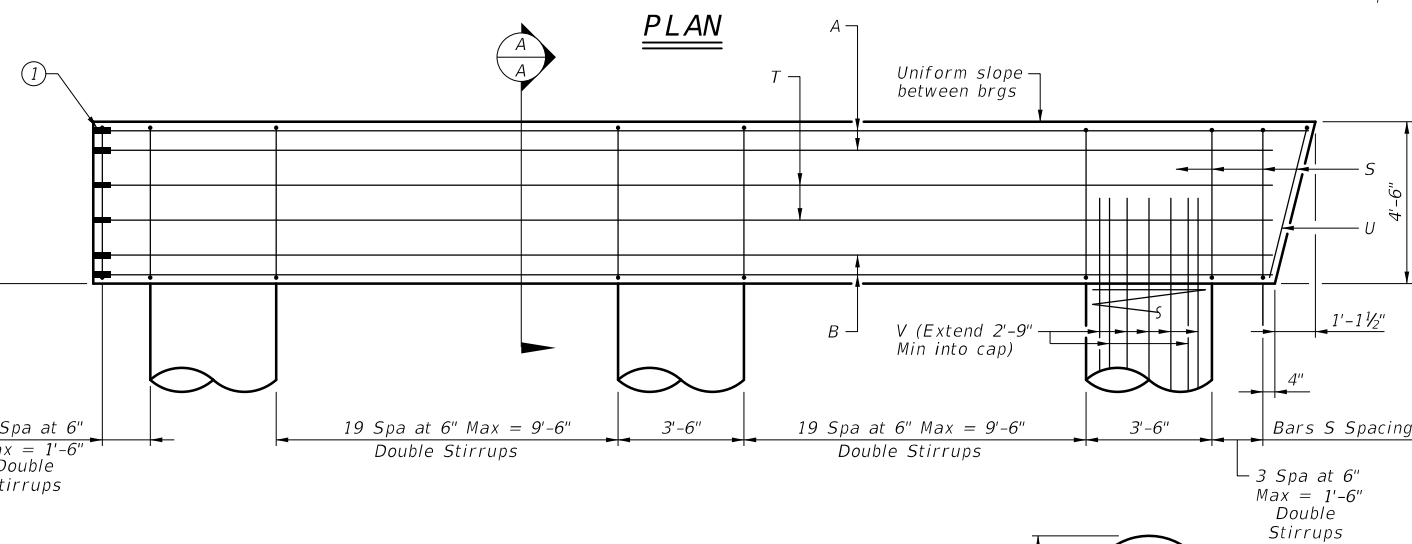
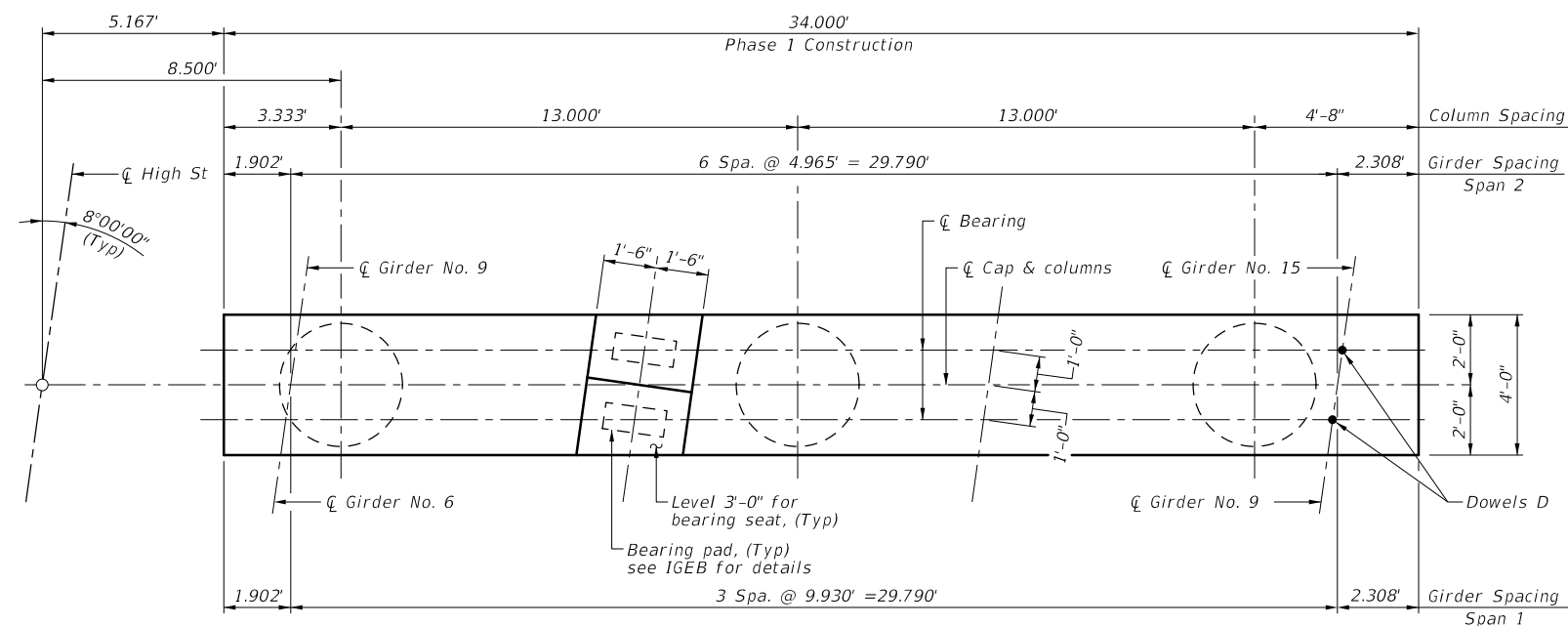
NO.	REVISION	BY	DATE



**ABUTMENT NO. 4 DETAILS
(PHASE 2 CONSTRUCTION)**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
HRA	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JBW	Texas	Tyler	Gregg
CHECK	JMT	CONTROL	SECTION
CHECK	JMT	0910	07
			JOB
			072
			179

DATE: 7/21/2021
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BEARING SEAT DETAIL
 (Bearing surface must be clean and free of all loose material before placing bearing pad.)

TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
A	9	#11	33'-5"	1598
B	9	#11	32'-7"	1558
D	2	#9	1'-8"	11
S	96	#5	14'-5"	1444
T	4	#5	33'-0"	138
U	1	#5	12'-2"	13
V	42	#9	22'-9"	4762
Z	3	#4	783'-3"	22.6
Reinforcing Steel			Lb	9581
Class "C" Concrete (Cap)			CY	22.6
Class "C" Concrete (Col)			CY	21.4

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications, 8th Edition (2017) and current interms.

See Bridge Layout for foundation type, size and length.

See Common Foundation Details (FD) standard sheet for all foundation details and notes.

For each linear foot of variation in "H" value, make the following adjustments:
 Bars V length, LF'-1'-0"
 Bars Z length, 37'-9"
 Reinforcing Steel, 219 LB
 Class C Concrete (Column) by 1.07 CY

① Bars A, B and T splice shall be in accordance with TxDot Standard Spec Item 440 "Reinforcement For Concrete" and material Spec DMS-4510 "Mechanical Coupler for Reinforcing Steel".

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

MATERIAL NOTES:
 Provide Class C concrete.
 Provide Grade 60 reinforcing steel.
 Galvanize dowel bars D.



NO.	REVISION	BY	DATE

JMT TBPE REGISTRATION NO. F-16341

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Texas Department of Transportation

**INTERIOR BENT NO. 2 DETAILS
 (PHASE 1 CONSTRUCTION)**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

180

DATE: 7/21/2021
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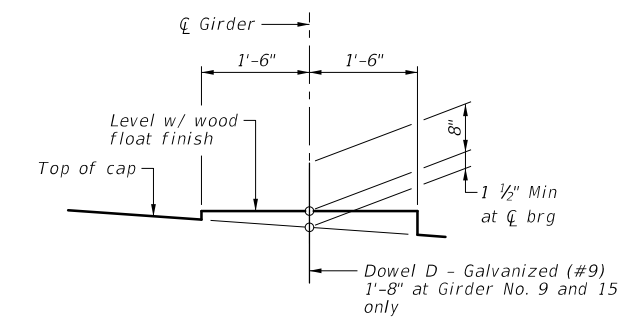
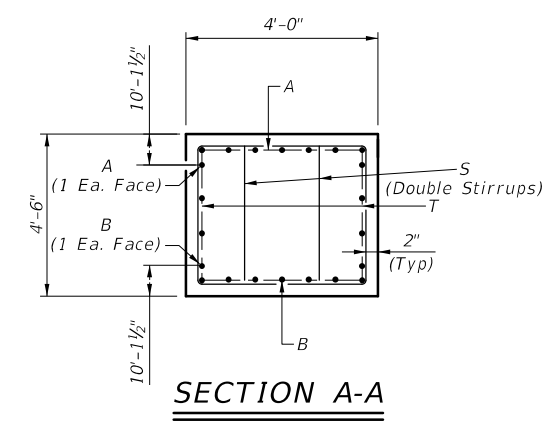
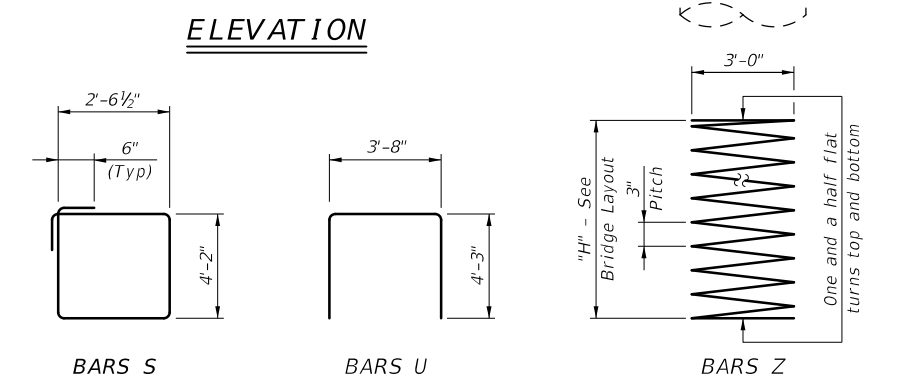
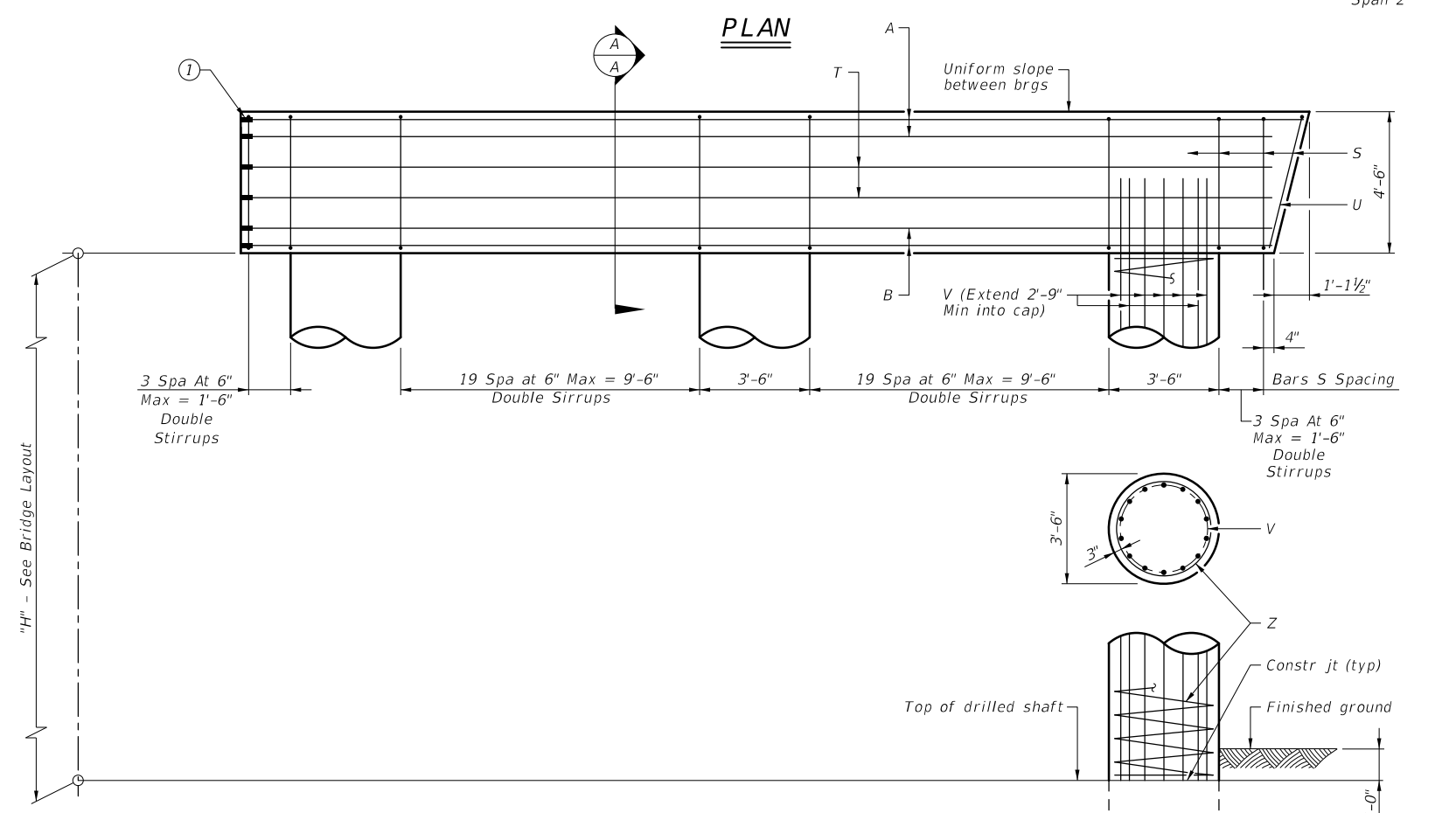
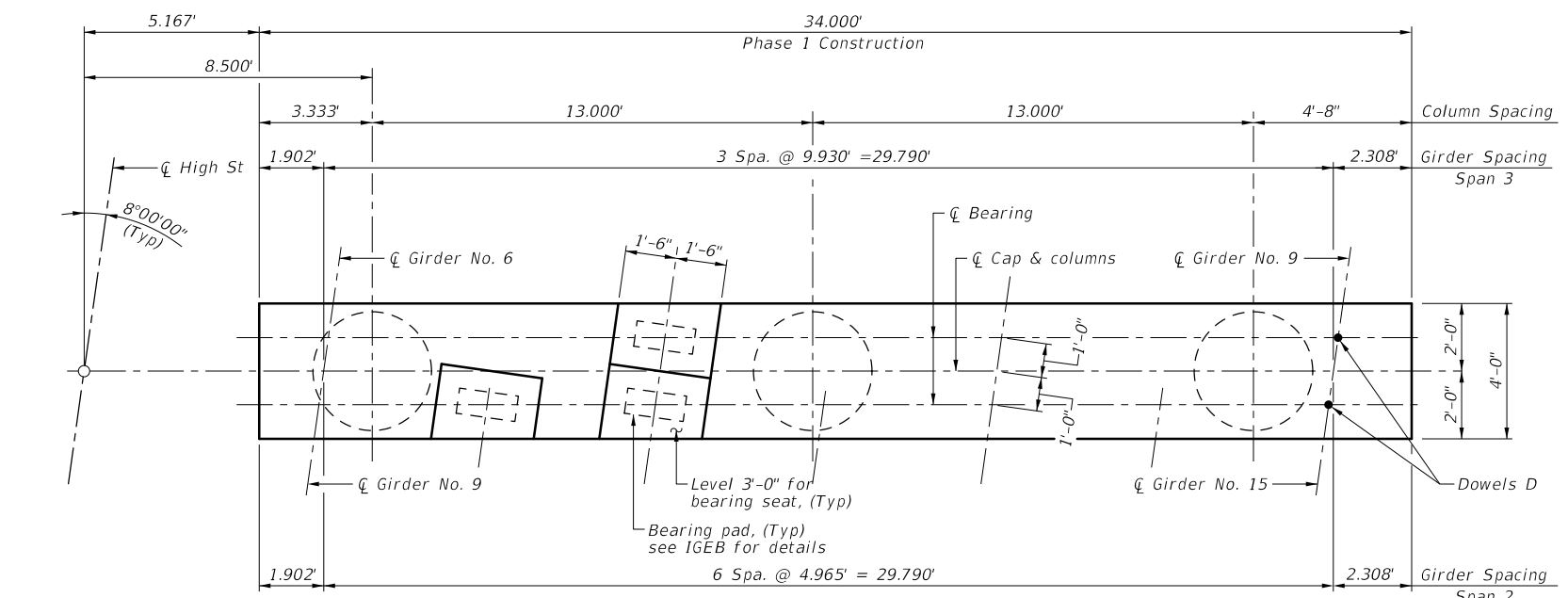


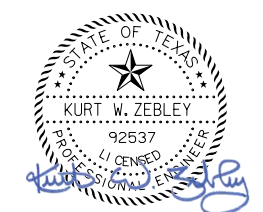
TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
A	9	#11	33'-5"	1598
B	9	#11	32'-7"	1558
D	2	#9	1'-8"	11
S	96	#5	14'-5"	1444
T	4	#5	33'-0"	138
U	1	#5	12'-2"	13
V	42	#9	28'-9"	4248
Z	3	#4	1009'-9"	2099
Reinforcing Steel			Lb	10,892
Class "C" Concrete (Cap)			CY	22.6
Class "C" Concrete (Col)			CY	27.8

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications, 8th Edition (2017) and current interms.
 See Bridge Layout for foundation type, size and length.
 See Common Foundation Details (FD) standard sheet for all foundation details and notes.
 For each linear foot of variation in "H" value, make the following adjustments:
 Bars V length, LF'-1'-0"
 Bars Z length, 37'-9"
 Reinforcing Steel, 219 LB
 Class C Concrete (Column) by 1.07 CY

① Bars A, B and T splice shall be in accordance with TxDot Standard Spec Item 440 "Reinforcement For Concrete" and material Spec DMS-4510 "Mechanical Coupler for Reinforcing Steel".

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

MATERIAL NOTES:
 Provide Class C concrete.
 Provide Grade 60 reinforcing steel.
 Galvanize dowel bars D.



NO.	REVISION	BY	DATE



**INTERIOR BENT NO. 3 DETAILS
 (PHASE 1 CONSTRUCTION)**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
CHECK	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

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DATE: 7/21/2021
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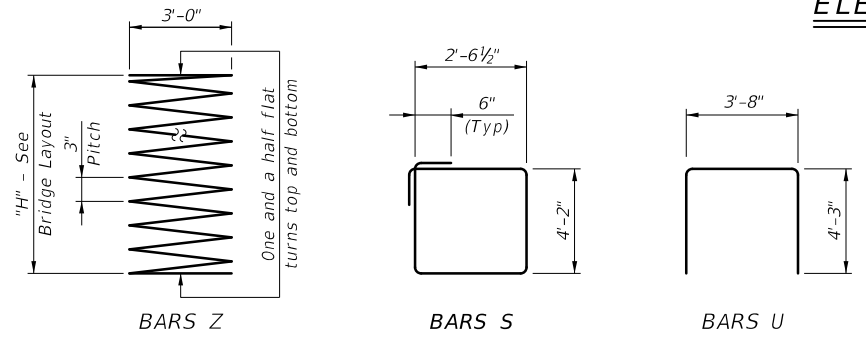
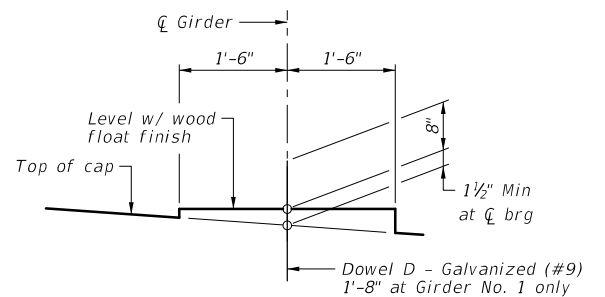
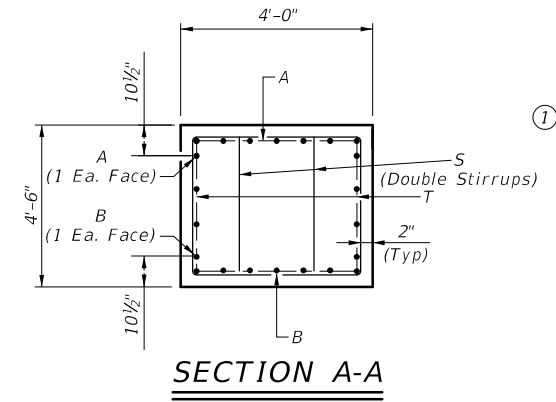
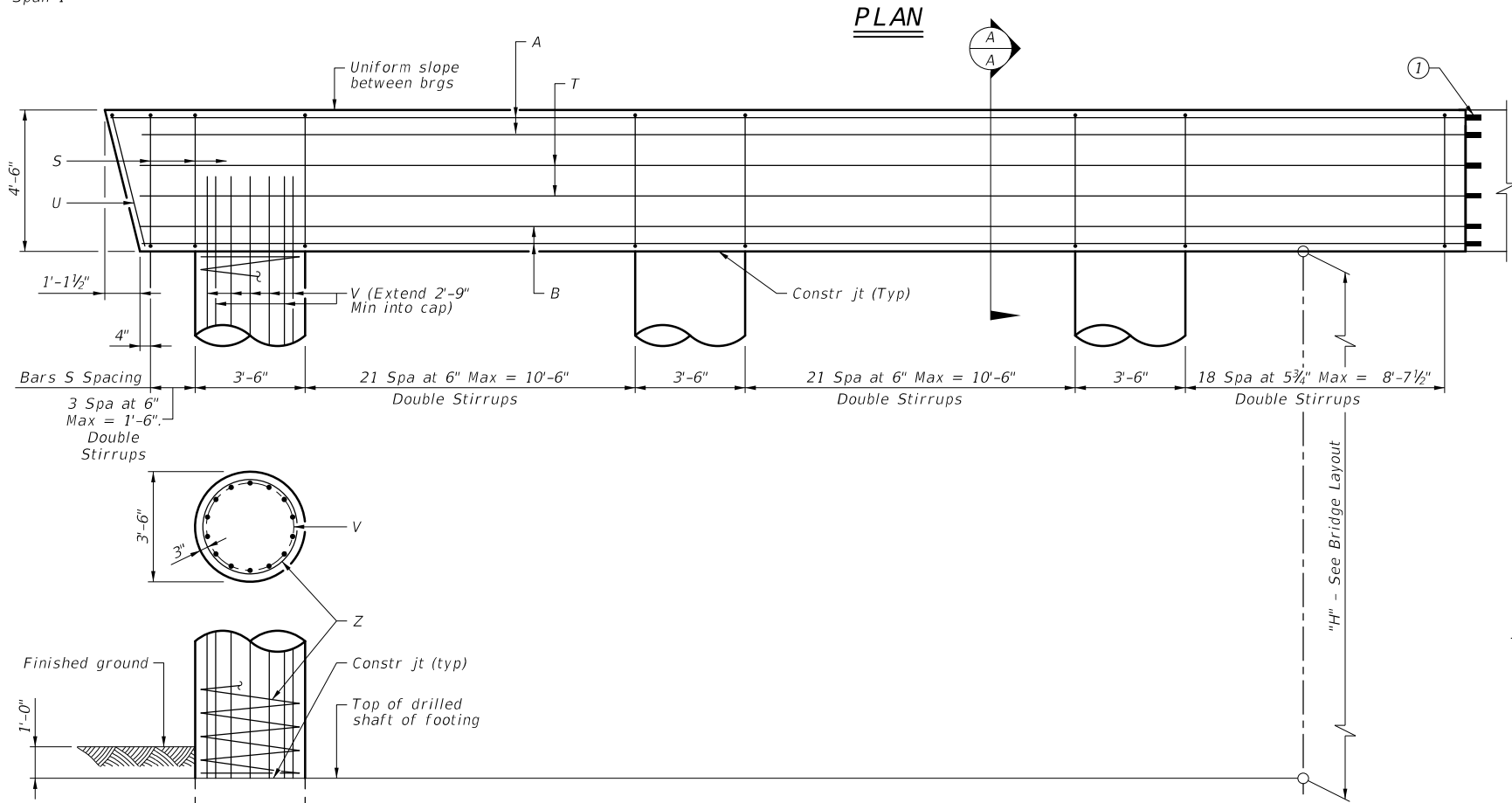
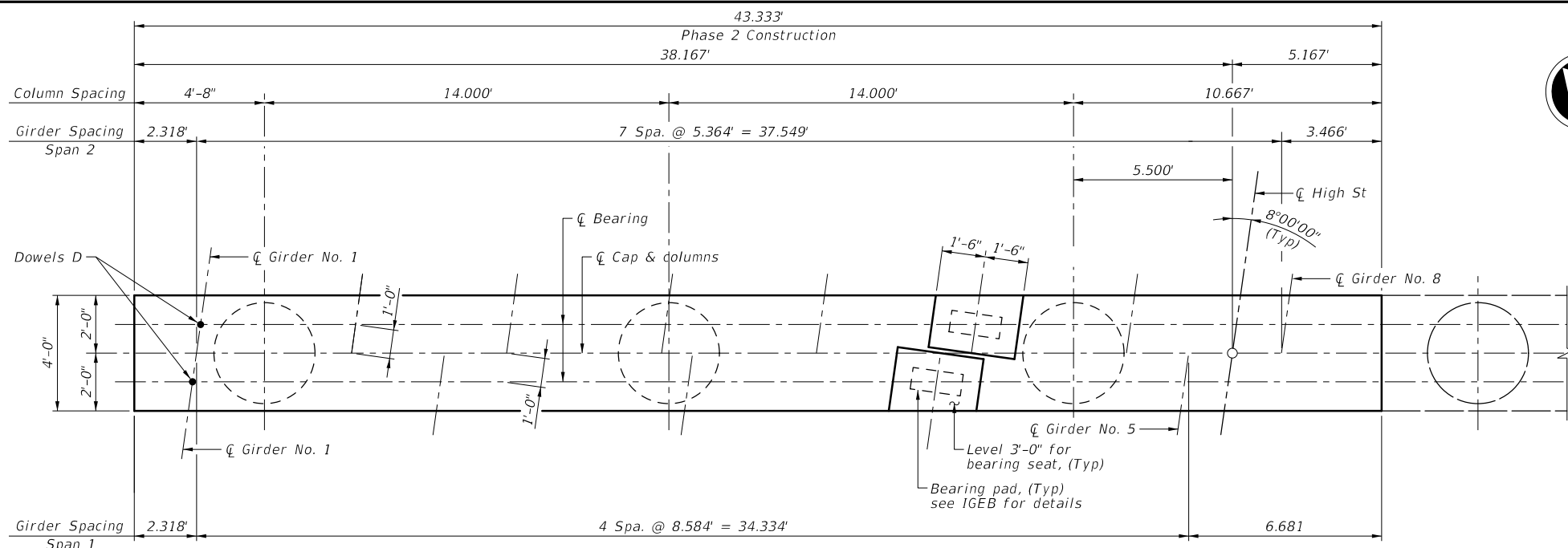


TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
A	9	#11	43'-1"	2060
B	9	#11	42'-3"	2020
D	2	#9	1'-8"	11
S	134	#5	14'-5"	2015
T	4	#5	42'-6"	177
U	1	#5	12'-2"	13
V	42	#9	22'-9"	3249
Z	3	#4	783'-3"	1570
Reinforcing Steel			Lb	11,115
Class "C" Concrete (Cap)			CY	28.9
Class "C" Concrete (Col)			CY	21.4

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications, 8th Edition (2017) and current interms.
 See Bridge Layout for foundation type, size and length.
 See Common Foundation Details (FD) standard sheet for all foundation details and notes.
 For each linear foot of variation in "H" value, make the following adjustments:
 Bars V length, LF'-1'-0"
 Bars Z length, 37'-9"
 Reinforcing Steel, 219 LB
 Class C Concrete (Column) by 1.07 CY

① Bars A, B and T splice shall be in accordance with TxDot Standard Spec Item 440 "Reinforcement For Concrete" and material Spec DMS-4510 "Mechanical Coupler for Reinforcing Steel".

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

MATERIAL NOTES:
 Provide Class C concrete.
 Provide Grade 60 reinforcing steel.
 Galvanize dowel bars D.



7/22/2021

NO.	REVISION	BY	DATE



**INTERIOR BENT NO. 2 DETAILS
 (PHASE 2 CONSTRUCTION)**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

182

DATE: 7/21/2021
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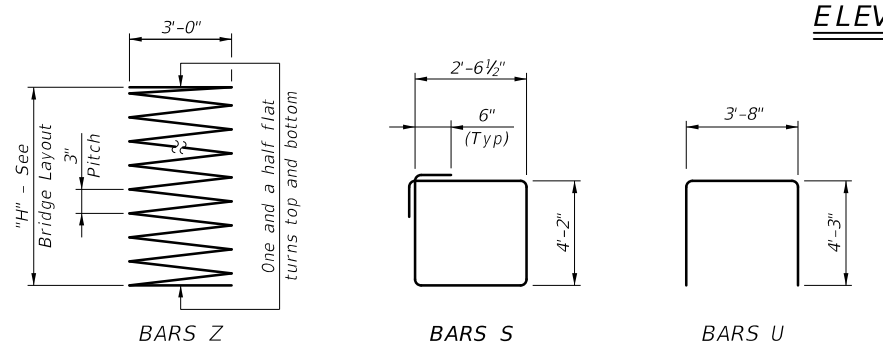
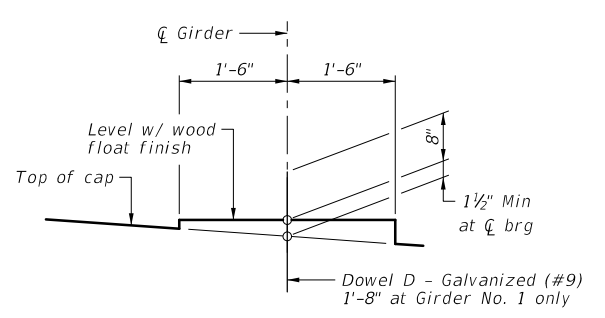
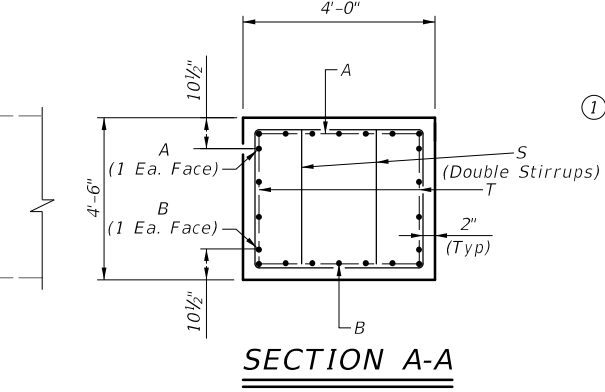
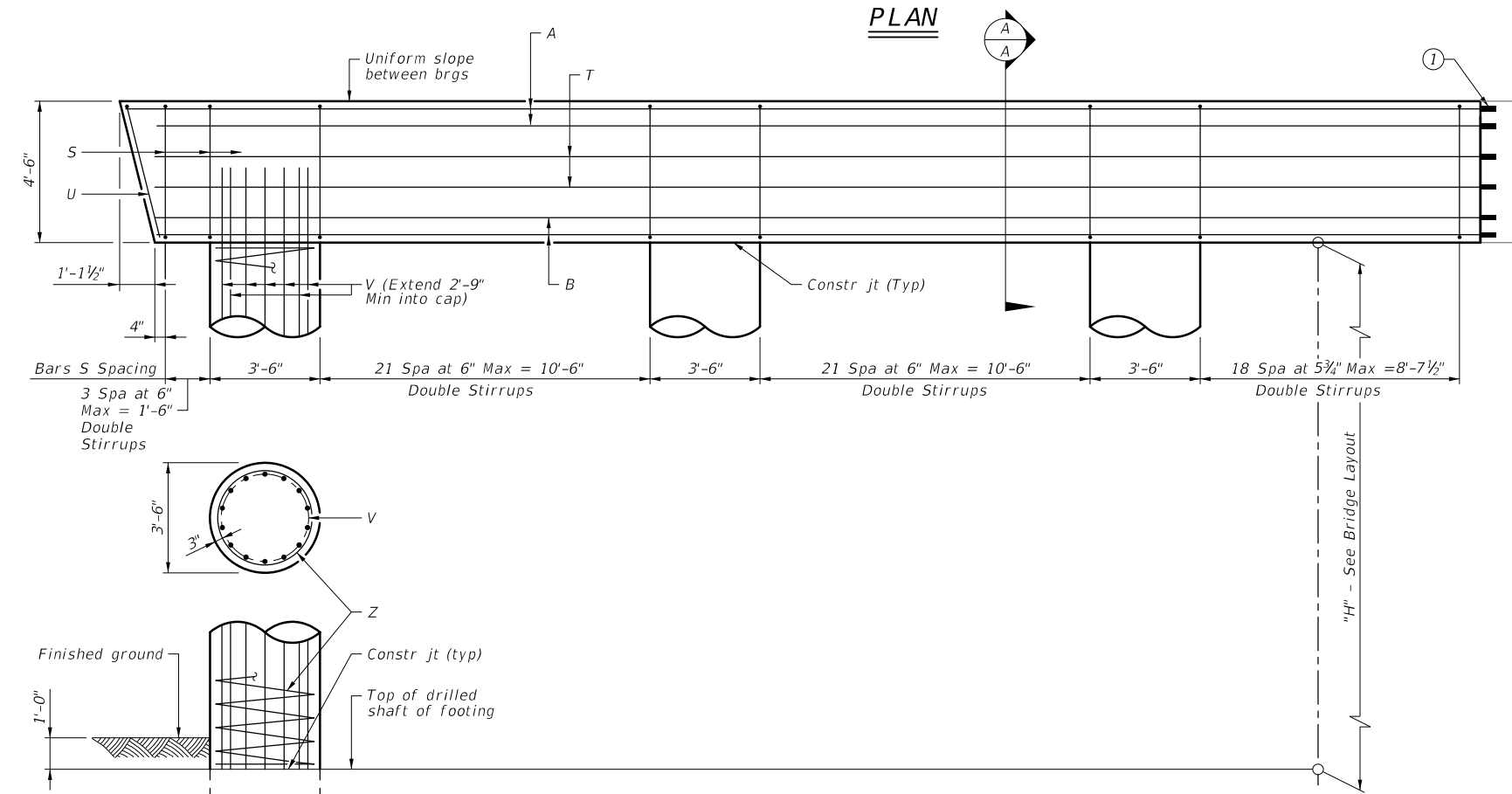
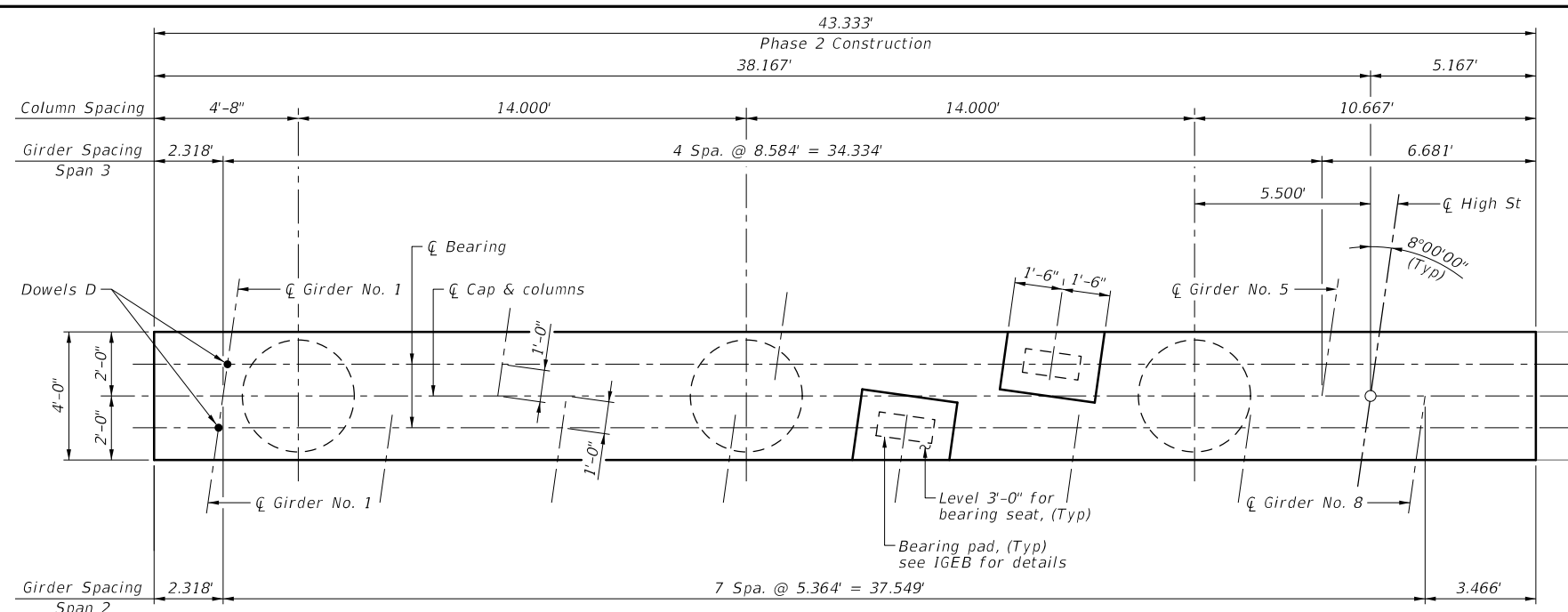


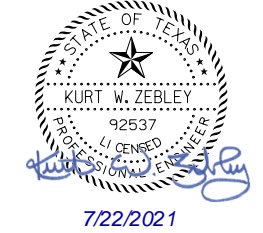
TABLE OF ESTIMATED QUANTITIES				
Bar	No.	Size	Length	Weight
A	9	#11	43'-1"	2060
B	9	#11	42'-3"	2020
D	2	#9	1'-8"	11
S	134	#5	14'-5"	2015
T	4	#5	42'-6"	177
U	1	#5	12'-2"	13
V	42	#9	28'-9"	4248
Z	3	#4	1009'-9"	6347
Reinforcing Steel			Lb	12,426
Class "C" Concrete (Cap)			CY	28.9
Class "C" Concrete (Col)			CY	27.8

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications, 8th Edition (2017) and current interims.
 See Bridge Layout for foundation type, size and length.
 See Common Foundation Details (FD) standard sheet for all foundation details and notes.
 For each linear foot of variation in "H" value, make the following adjustments:
 Bars V length, LF-1'-0"
 Bars Z length, 37'-9"
 Reinforcing Steel, 219 LB
 Class C Concrete (Column) by 1.07 CY

① Bars A, B and T splice shall be in accordance with TxDot Standard Spec Item 440 "Reinforcement For Concrete" and material Spec DMS-4510 "Mechanical Coupler for Reinforcing Steel".

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

MATERIAL NOTES:
 Provide Class C (concrete).
 Provide Grade 60 reinforcing steel.
 Galvanize dowel bars D.



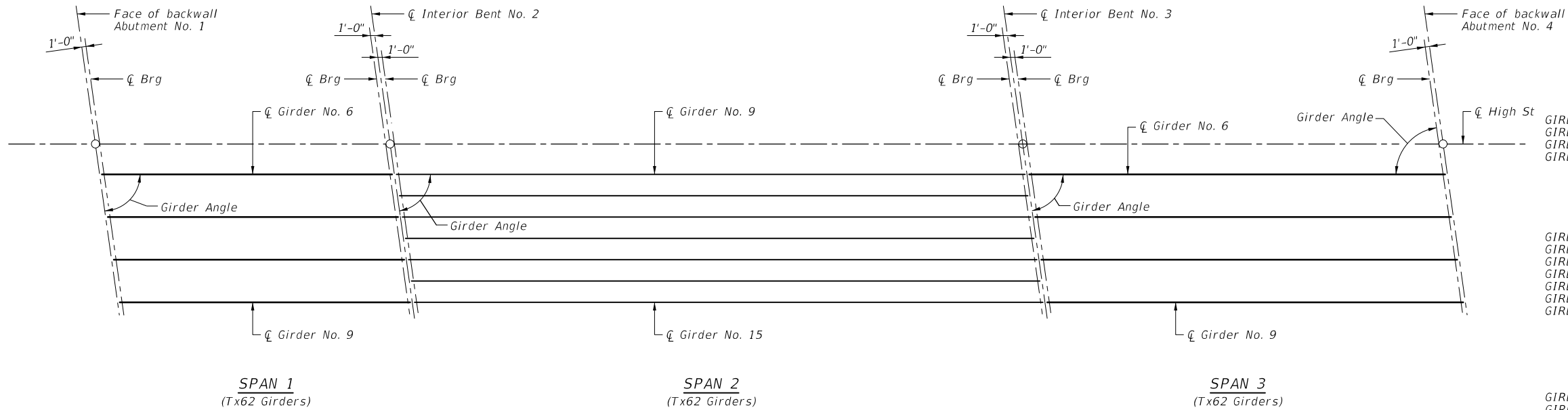
NO.	REVISION	BY	DATE



**INTERIOR BENT NO. 3 DETAILS
 (PHASE 2 CONSTRUCTION)**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

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FRAMING PLAN

GIRDER REPORT

	HORIZONTAL CL-CL BENT	DISTANCE CL-CL BRG.	TRUE DISTANCE BOT GIRDER FIG.	GIRDER SLOPE
GIRDER 6	68.000	65.990	67.542	0.036
GIRDER 7	68.000	65.990	67.541	0.036
GIRDER 8	68.000	65.990	67.540	0.035
GIRDER 9	68.000	65.990	67.539	0.035
	HORIZONTAL CL-CL BENT	DISTANCE CL-CL BRG.	TRUE DISTANCE BOT GIRDER FIG.	GIRDER SLOPE
GIRDER 9	146.000	144.000	145.501	0.004
GIRDER 10	146.000	144.000	145.501	0.004
GIRDER 11	146.000	144.000	145.501	0.004
GIRDER 12	146.000	144.000	145.501	0.003
GIRDER 13	146.000	144.000	145.501	0.003
GIRDER 14	146.000	144.000	145.501	0.003
GIRDER 15	146.000	144.000	145.501	0.003
	HORIZONTAL CL-CL BENT	DISTANCE CL-CL BRG.	TRUE DISTANCE BOT GIRDER FIG.	GIRDER SLOPE
GIRDER 6	97.000	94.990	96.548	-0.032
GIRDER 7	97.000	94.990	96.549	-0.033
GIRDER 8	97.000	94.990	96.551	-0.033
GIRDER 9	97.000	94.990	96.552	-0.034

BENT REPORT

ABUTMENT NO. 1 (N 72°36' 57.06" E)

DISTANCE BETWEEN STATION LINE
AND GIRDER 6 = 7.000 R

GIRDER SPA. (CL BENT No. 1)	GIRDER ANGLE		
	D	M	S
SPAN 1 GIRDER 6	0.000	82	0 0
GIRDER 7	9.930	82	0 0
GIRDER 8	9.930	82	0 0
GIRDER 9	9.930	82	0 0
TOTAL	29.790		

BENT REPORT

BENT NO. 2 (N 72°36' 57.06" E)

DISTANCE BETWEEN STATION LINE
AND GIRDER 6 = 7.000 R

GIRDER SPA. (CL BENT No. 2)	GIRDER ANGLE		
	D	M	S
SPAN 1 GIRDER 6	0.000	82	0 0
GIRDER 7	9.930	82	0 0
GIRDER 8	9.930	82	0 0
GIRDER 9	9.930	82	0 0
TOTAL	29.790		

DISTANCE BETWEEN STATION LINE
AND GIRDER 9 = 7.000 R

GIRDER SPA. (CL BENT No. 2)	GIRDER ANGLE		
	D	M	S
SPAN 2 GIRDER 9	0.000	82	0 0
GIRDER 10	4.965	82	0 0
GIRDER 11	4.965	82	0 0
GIRDER 12	4.965	82	0 0
GIRDER 13	4.965	82	0 0
GIRDER 14	4.965	82	0 0
GIRDER 15	4.965	82	0 0
TOTAL	29.790		

BENT REPORT

BENT NO. 3 (N 72°36' 57.06" E)

DISTANCE BETWEEN STATION LINE
AND GIRDER 9 = 7.000 R

GIRDER SPA. (CL BENT No. 3)	GIRDER ANGLE		
	D	M	S
SPAN 2 GIRDER 9	0.000	82	0 0
GIRDER 10	4.965	82	0 0
GIRDER 11	4.965	82	0 0
GIRDER 12	4.965	82	0 0
GIRDER 13	4.965		
GIRDER 14	4.965		
GIRDER 15	4.965		
TOTAL	29.790		

DISTANCE BETWEEN STATION LINE
AND GIRDER 6 = 7.000 R

GIRDER SPA. (CL BENT No. 3)	GIRDER ANGLE		
	D	M	S
SPAN 3 GIRDER 6	0.000	82	0 0
GIRDER 7	9.930	82	0 0
GIRDER 8	9.930	82	0 0
GIRDER 9	9.930	82	0 0
TOTAL	29.790		

BENT REPORT

ABUTMENT NO. 4 (N 72°36' 57.06" E)

DISTANCE BETWEEN STATION LINE
AND GIRDER 6 = 7.000 R

GIRDER SPA. (CL ABUTMENT No. 4)	GIRDER ANGLE		
	D	M	S
SPAN 3 GIRDER 6	0.000	82	0 0
GIRDER 7	9.930	82	0 0
GIRDER 8	9.930	82	0 0
GIRDER 9	9.930	82	0 0
TOTAL	29.790		



7/22/2021

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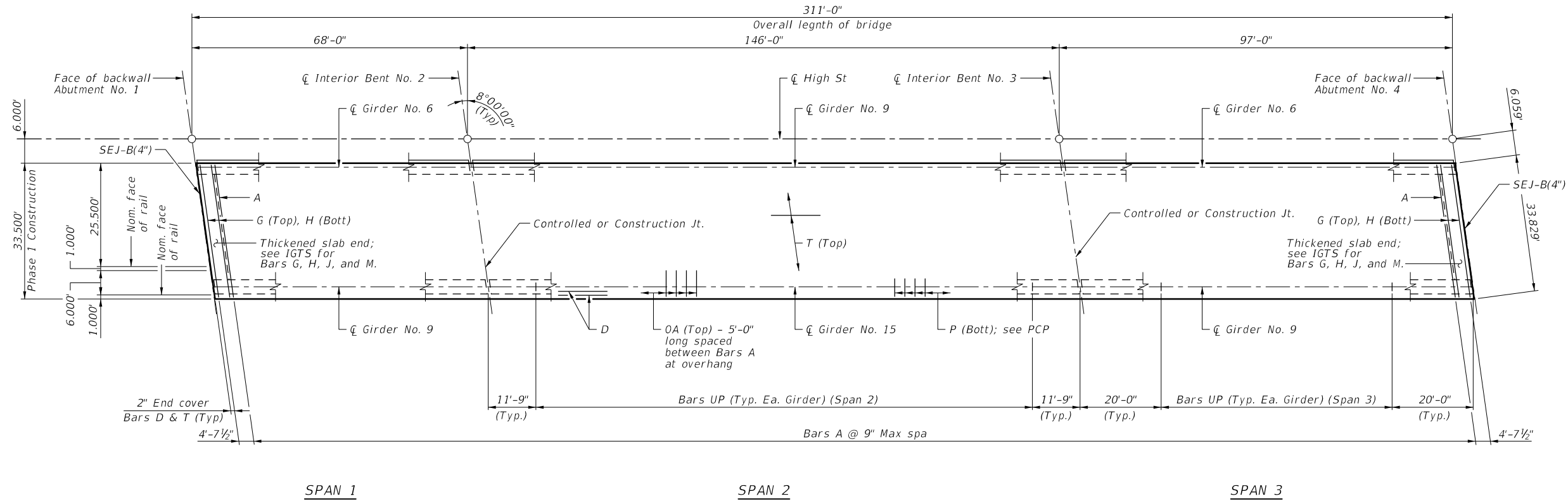
**FRAMING PLAN
(PHASE 1 CONSTRUCTION)**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	Texas	Tyler	Gregg
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
			184

DATE: 7/21/2021
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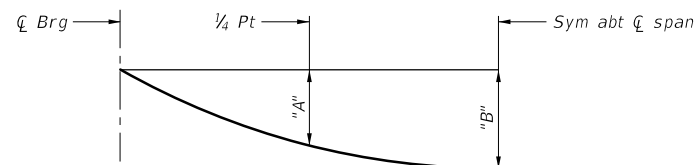


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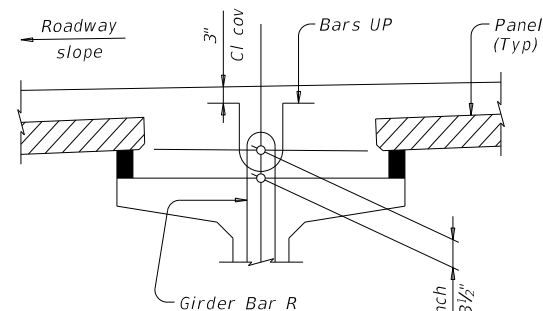
PLAN

Span	Girder	"A"	"B"
		ft.	ft.
1	6	0.003	0.005
1	7,8	0.006	0.008
1	9	0.005	0.008
2	9	0.038	0.055
2	10 - 14	0.068	0.096
2	15	0.091	0.129
3	6	0.014	0.019
3	7,8	0.026	0.036
3	9	0.024	0.033



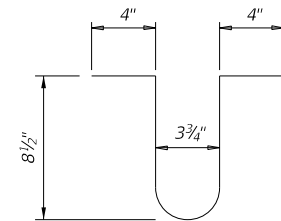
DEAD LOAD DEFLECTION DIAGRAM

Calculated deflections shown are due to the concrete slab on interior girders only ($E_c = 5000$ ksi). Adjust values as required for exterior girders and if optional slab forming is used. These values may require field verification.



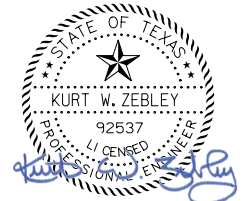
HAUNCH REINFORCING DETAIL

Showing prestressed concrete I-girders.



BARS UP (#4)

Note: Space Bars UP with Girder Bars R in all areas where measured haunch exceeds 3 1/2'.



7/22/2021

NO.	REVISION	BY	DATE

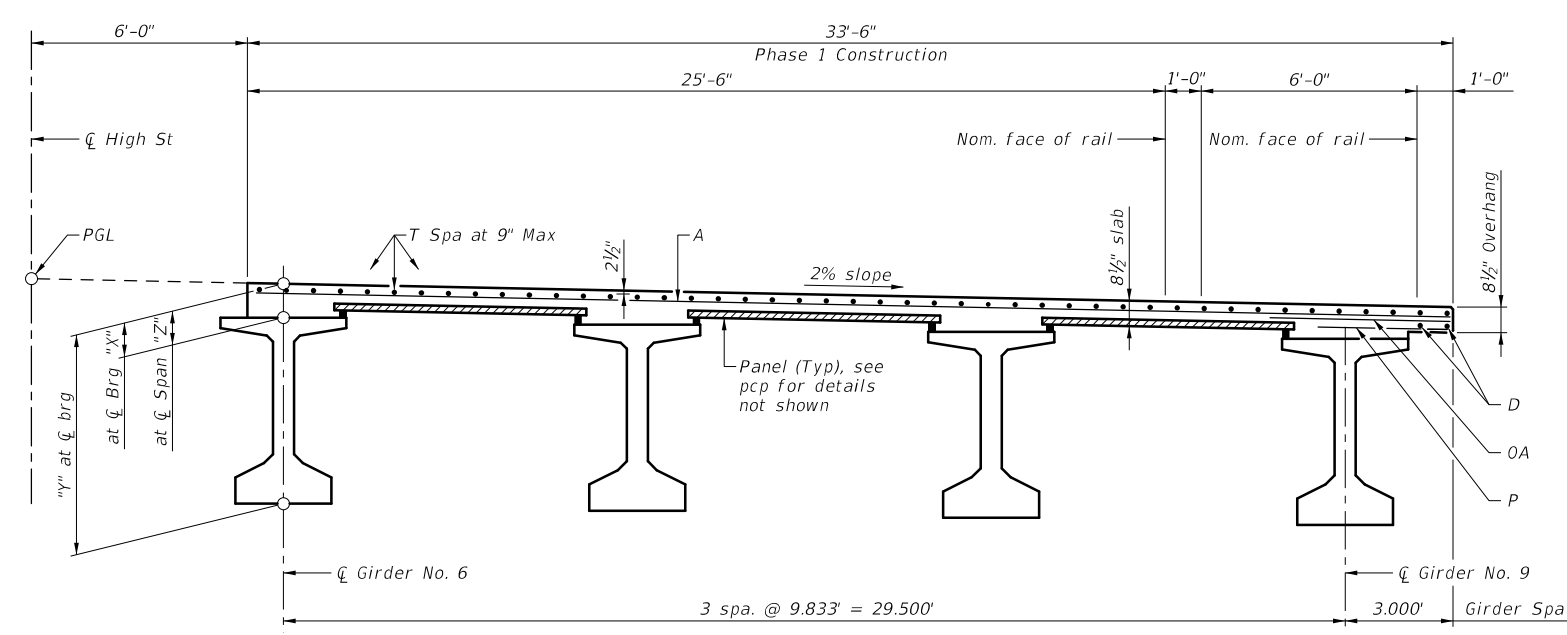


311' PRESTRESSED CONCRETE GIRDER UNIT (PHASE 1 CONSTRUCTION)

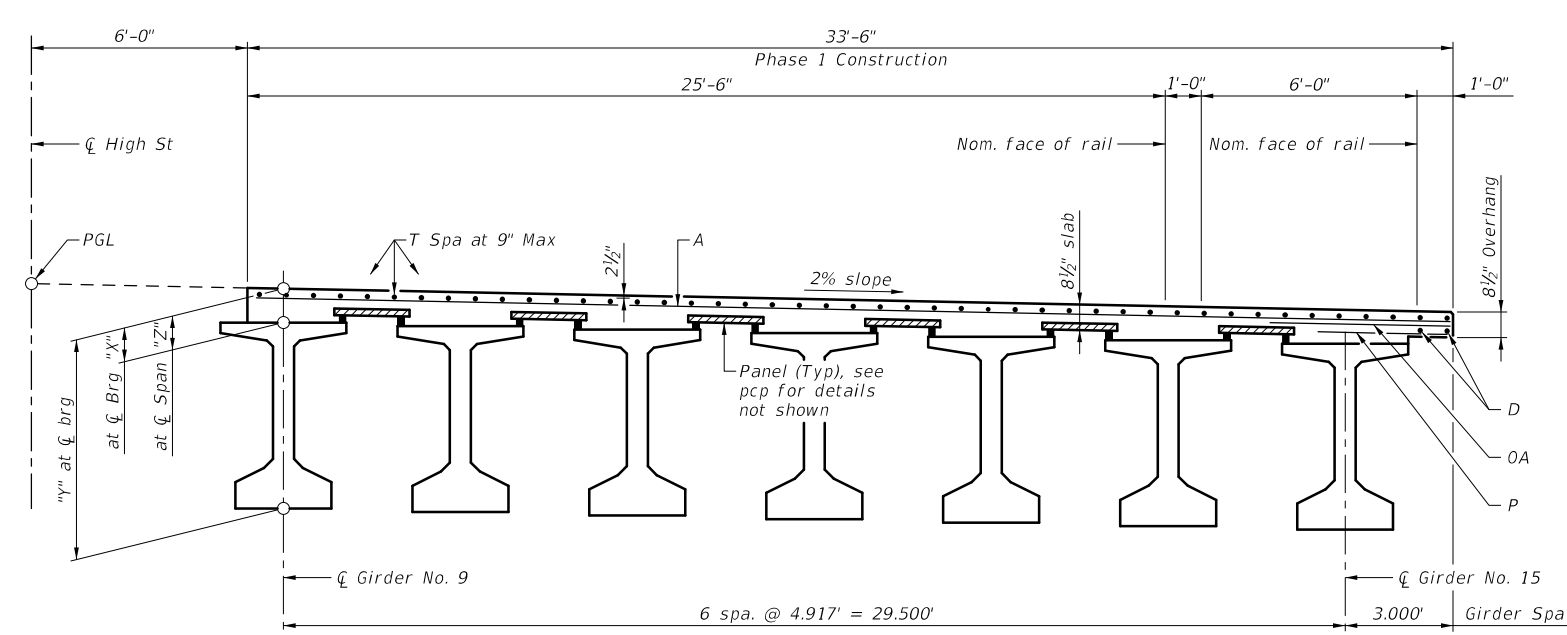
DESIGN				SHEET 1 OF 2			
JMT	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	JMT	JMT	JMT	JMT
GRAPHICS	6	(SEE TITLE SHEET)	HIGH ST	JMT	JMT	JMT	JMT
CHECK	STATE	DISTRICT	COUNTY	CHECK	CHECK	CHECK	CHECK
JMT	TEXAS	TYLER	GREGG	JMT	JMT	JMT	JMT
CHECK	CONTROL	SECTION	JOB	CHECK	CHECK	CHECK	CHECK
JMT	0910	07	072	JMT	JMT	JMT	JMT

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TYPICAL TRANSVERSE SECTION - (SPAN 1 AND 3)



TYPICAL TRANSVERSE SECTION - (SPAN 2)

SPAN	GIRDER No.	"X" at CL Brg	"Y" at CL Brg	"Z" at CL Span
1	6, 9	10 1/2'	6'-0 1/2'	11 3/4'
1	7, 8	10 1/2'	6'-0 1/2'	11 7/8'
2	9	10 1/2'	6'-0 1/2'	1'-4"
2	10 - 14	10 1/2'	6'-0 1/2'	1'-4 1/2'
2	15	10 1/2'	6'-0 1/2'	1'-4 3/8'
3	6	10 1/2'	6'-0 1/2'	1'-0 7/8'
3	7 - 8	10 1/2'	6'-0 1/2'	1'-1 1/8'
3	9	10 1/2'	6'-0 1/2'	1'-1"

Bar	Size
A	#4
D	#4
G	#4
H	#4
J	#4
M	#4
OA	#5
P	#4
T	#4
UP	#4

Span No.	Reinf Conc Slab	Prestressed Conc Girders	Reinf Steel (1)
		(Tx62)	
-	SF	LF	LB
1	2278	270.16	14807
2	4891	1018.50	31792
3	3250	386.20	21122
TOTAL	10419	1674.86	67721

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications.
 See IGTS standard for Thickened Slab End details and quantity adjustments.
 See PCP and PCP-FAB for panel details not shown.
 See PCP(0) and PCP(0)-FAB for precast overhang panel details if this option is used.
 See IGMS standard for miscellaneous details.
 See applicable rail details for rail anchorage in slab.
 See PMDF standard for details and quantity adjustments if this option is used.

Cover dimensions are clear dimensions, unless noted otherwise.

MATERIAL NOTES:
 Provide Class 5 concrete (f'c = 4,000 psi).
 Provide Grade 60 reinforcing steel.
 Provide bar laps, where required, as follows:
 Uncoated ~ #4 = 1'-7"

Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars A, D, OA, P or T unless noted otherwise.

① Reinforcing steel weight is calculated using an approximate factor of 6.5 LBS/SF.



NO.	REVISION	BY	DATE

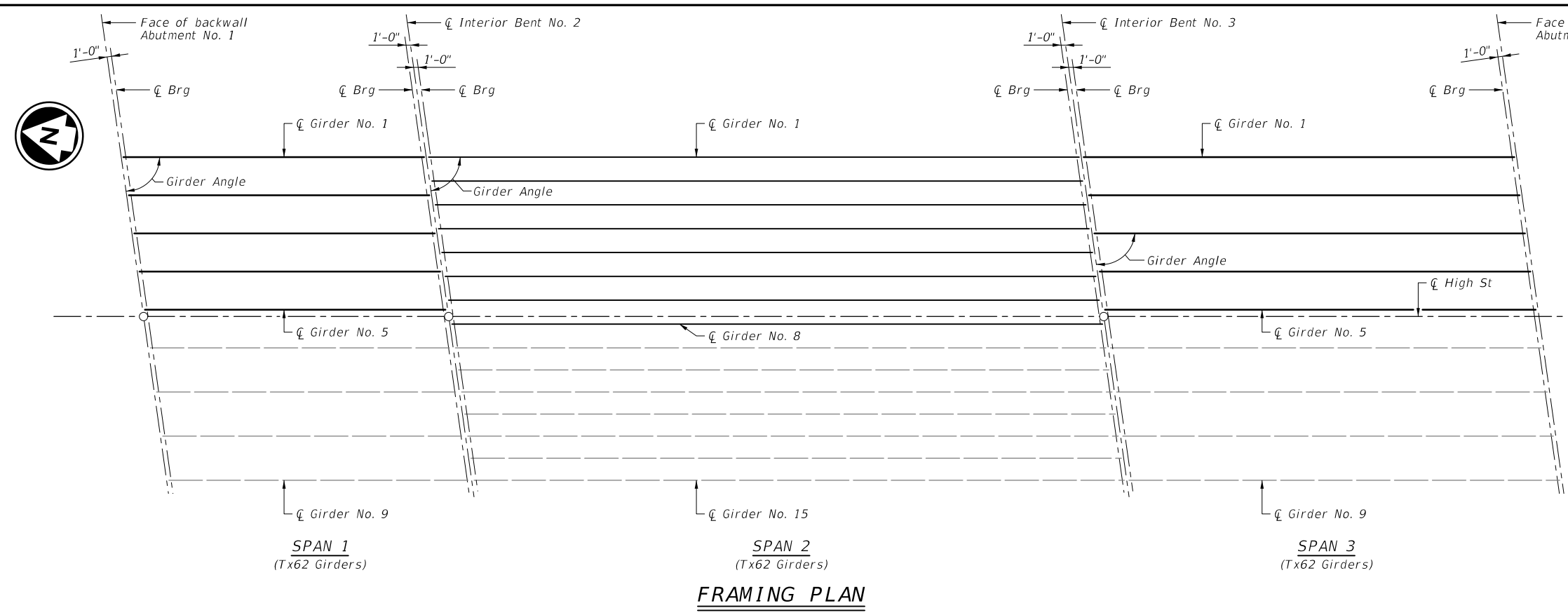


311' PRESTRESSED CONCRETE GIRDER UNIT (PHASE 1 CONSTRUCTION)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
CHECK	TEXAS	TYLER	GREGG
JMT	CONTROL	SECTION	JOB
CHECK	0910	07	072

SHEET 2 OF 2
186

DATE: 7/21/2021
 FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\7. Bridge\High*ST*019-FPS2.dgn



GIRDER REPORT

	HORIZONTAL CL-CL BENT	DISTANCE CL-CL BRG.	TRUE DISTANCE BOT GIRDER FIG.	GIRDER SLOPE
GIRDER 1	68.000	65.990	67.546	0.038
GIRDER 2	68.000	65.990	67.545	0.038
GIRDER 3	68.000	65.990	67.544	0.037
GIRDER 4	68.000	65.990	67.543	0.037
GIRDER 5	68.000	65.990	67.542	0.037

	HORIZONTAL CL-CL BENT	DISTANCE CL-CL BRG.	TRUE DISTANCE BOT GIRDER FIG.	GIRDER SLOPE
GIRDER 1	146.000	144.000	145.502	0.006
GIRDER 2	146.000	144.000	145.502	0.006
GIRDER 3	146.000	144.000	145.502	0.005
GIRDER 4	146.000	144.000	145.502	0.005
GIRDER 5	146.000	144.000	145.502	0.005
GIRDER 6	146.000	144.000	145.502	0.005
GIRDER 7	146.000	144.000	145.501	0.005
GIRDER 8	146.000	144.000	145.501	0.004

	HORIZONTAL CL-CL BENT	DISTANCE CL-CL BRG.	TRUE DISTANCE BOT GIRDER FIG.	GIRDER SLOPE
GIRDER 1	97.000	94.990	96.543	-0.031
GIRDER 2	97.000	94.990	96.544	-0.031
GIRDER 3	97.000	94.990	96.545	-0.031
GIRDER 4	97.000	94.990	96.546	-0.032
GIRDER 5	97.000	94.990	96.547	-0.032

BENT REPORT

ABUTMENT NO. 1 (N 72°36' 57.06" E)

DISTANCE BETWEEN STATION LINE AND GIRDER 1 = 35.500 L

SPAN 1	GIRDER SPA. (CL ABUTMENT No. 1)	GIRDER ANGLE D M S	GIRDER SPA. (CL BENT No. 2)	GIRDER ANGLE D M S	
					GIRDER 1
	GIRDER 2	8.584	GIRDER 2	8.584	82 0 0
	GIRDER 3	8.584	GIRDER 3	8.584	82 0 0
	GIRDER 4	8.584	GIRDER 4	8.584	82 0 0
	GIRDER 5	8.584	GIRDER 5	8.584	82 0 0
	TOTAL	34.334	TOTAL	34.334	

BENT REPORT

BENT NO. 2 (N 72°36' 57.06" E)

DISTANCE BETWEEN STATION LINE AND GIRDER 1 = 35.500 L

SPAN 1	GIRDER SPA. (CL BENT No. 2)	GIRDER ANGLE D M S	GIRDER SPA. (CL BENT No. 3)	GIRDER ANGLE D M S	
					GIRDER 1
	GIRDER 2	8.584	GIRDER 2	8.584	82 0 0
	GIRDER 3	8.584	GIRDER 3	8.584	82 0 0
	GIRDER 4	8.584	GIRDER 4	8.584	82 0 0
	GIRDER 5	8.584	GIRDER 5	8.584	82 0 0
	TOTAL	34.334	TOTAL	34.334	

BENT REPORT

BENT NO. 3 (N 72°36' 57.06" E)

DISTANCE BETWEEN STATION LINE AND GIRDER 1 = 35.500 L

SPAN 2	GIRDER SPA. (CL BENT No. 3)	GIRDER ANGLE D M S	GIRDER SPA. (CL BENT No. 3)	GIRDER ANGLE D M S	
					GIRDER 1
	GIRDER 2	5.364	GIRDER 2	5.364	82 0 0
	GIRDER 3	5.364	GIRDER 3	5.364	82 0 0
	GIRDER 4	5.364	GIRDER 4	5.364	82 0 0
	GIRDER 5	5.364	GIRDER 5	5.364	82 0 0
	GIRDER 6	5.364	GIRDER 6	5.364	82 0 0
	GIRDER 7	5.364	GIRDER 7	5.364	82 0 0
	GIRDER 8	5.364	GIRDER 8	5.364	82 0 0
	TOTAL	37.549	TOTAL	37.549	

BENT REPORT

ABUTMENT NO. 4 (N 72°36' 57.06" E)

DISTANCE BETWEEN STATION LINE AND GIRDER 1 = 35.500 L

SPAN 3	GIRDER SPA. (CL BENT No. 4)	GIRDER ANGLE D M S	GIRDER SPA. (CL BENT No. 4)	GIRDER ANGLE D M S	
					GIRDER 1
	GIRDER 2	8.584	GIRDER 2	8.584	82 0 0
	GIRDER 3	8.584	GIRDER 3	8.584	82 0 0
	GIRDER 4	8.584	GIRDER 4	8.584	82 0 0
	GIRDER 5	8.584	GIRDER 5	8.584	82 0 0
	TOTAL	34.334	TOTAL	34.334	

DISTANCE BETWEEN STATION LINE AND GIRDER 1 = 35.500 L

SPAN 2	GIRDER SPA. (CL BENT No. 2)	GIRDER ANGLE D M S	GIRDER SPA. (CL BENT No. 3)	GIRDER ANGLE D M S	
					GIRDER 1
	GIRDER 2	5.364	GIRDER 2	5.364	82 0 0
	GIRDER 3	5.364	GIRDER 3	5.364	82 0 0
	GIRDER 4	5.364	GIRDER 4	5.364	82 0 0
	GIRDER 5	5.364	GIRDER 5	5.364	82 0 0
	GIRDER 6	5.364	GIRDER 6	5.364	82 0 0
	GIRDER 7	5.364	GIRDER 7	5.364	82 0 0
	GIRDER 8	5.364	GIRDER 8	5.364	82 0 0
	TOTAL	37.549	TOTAL	37.549	

DISTANCE BETWEEN STATION LINE AND GIRDER 1 = 35.500 L

SPAN 3	GIRDER SPA. (CL BENT No. 3)	GIRDER ANGLE D M S	GIRDER SPA. (CL BENT No. 3)	GIRDER ANGLE D M S	
					GIRDER 1
	GIRDER 2	8.584	GIRDER 2	8.584	82 0 0
	GIRDER 3	8.584	GIRDER 3	8.584	82 0 0
	GIRDER 4	8.584	GIRDER 4	8.584	82 0 0
	GIRDER 5	8.584	GIRDER 5	8.584	82 0 0
	TOTAL	34.334	TOTAL	34.334	



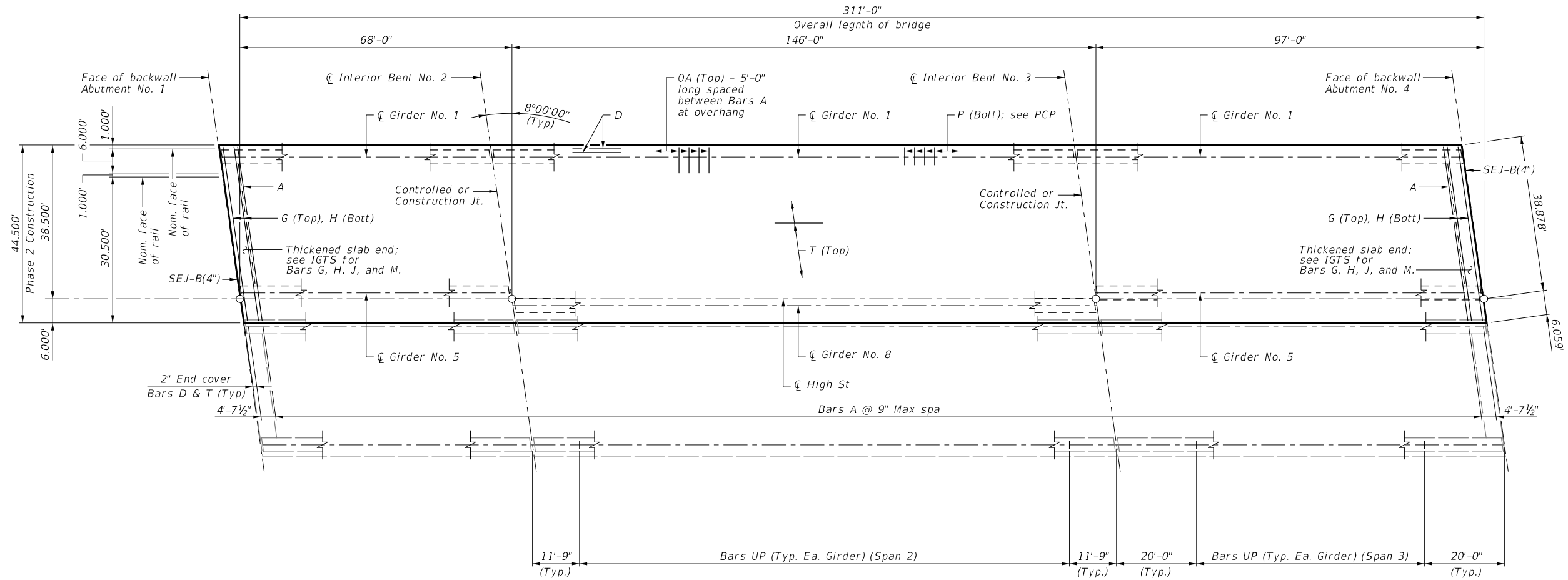
NO.	REVISION	BY	DATE



**FRAMING PLAN
(PHASE 2 CONSTRUCTION)**

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
CHECK	TEXAS	TYLER	GREGG
JMT	CONTROL	SECTION	JOB
CHECK	0910	07	072

187



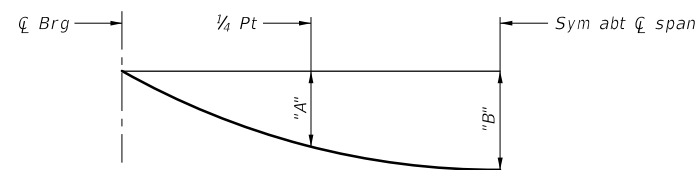
SPAN 1

SPAN 2

SPAN 3

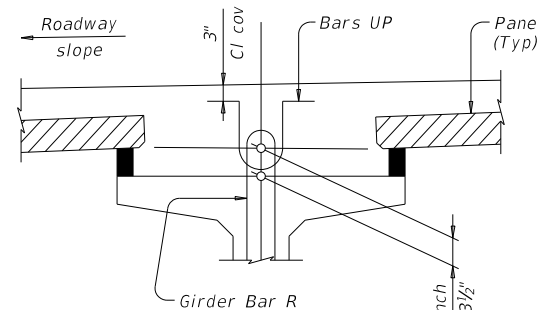
PLAN

Span	Girder	"A"	"B"
		ft.	ft.
1	1 - 5	0.005	0.007
2	1	0.093	0.133
2	2 - 8	0.073	0.104
3	1	0.022	0.031
3	2 - 5	0.022	0.032



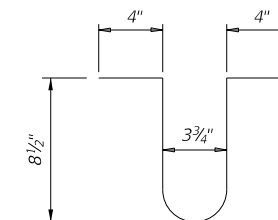
DEAD LOAD DEFLECTION DIAGRAM

Calculated deflections shown are due to the concrete slab on interior girders only ($E_c = 5000$ ksi). Adjust values as required for exterior girders and if optional slab forming is used. These values may require field verification.



HAUNCH REINFORCING DETAIL

Showing prestressed concrete I-girders.



BARS UP (#4)

Note:
Space Bars UP with Girder Bars R in all areas where measured haunch exceeds 3 1/2".



7/22/2021

NO.	REVISION	BY	DATE



311' PRESTRESSED CONCRETE GIRDER UNIT (PHASE 2 CONSTRUCTION)

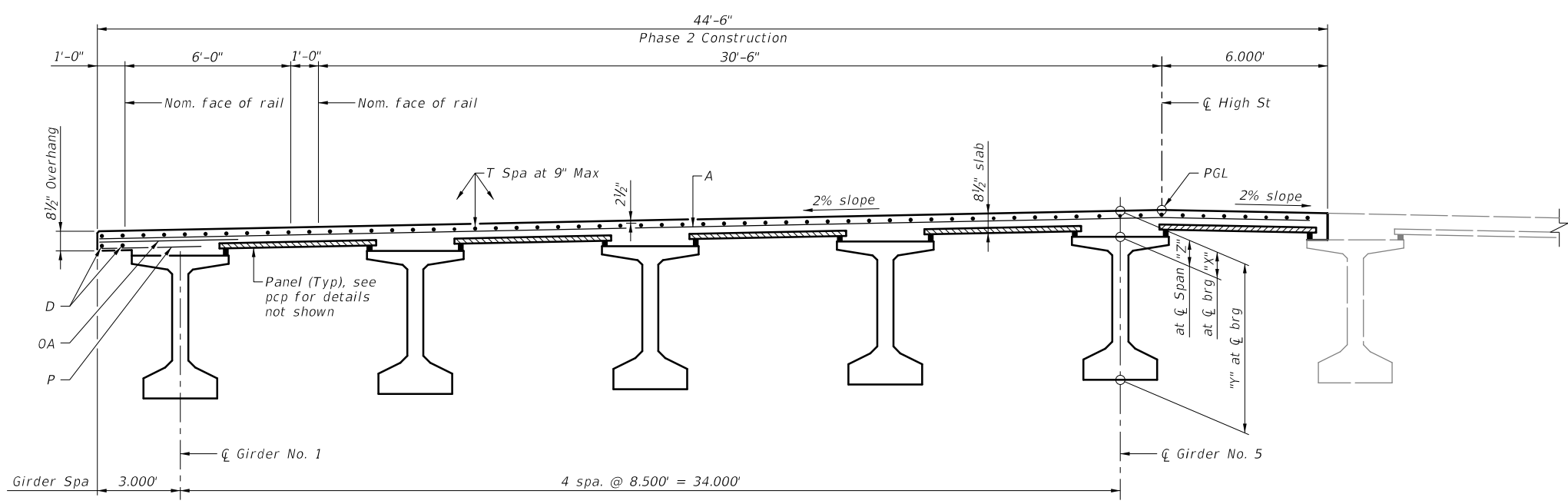
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	Texas	Tyler	Gregg
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

SHEET 1 OF 2

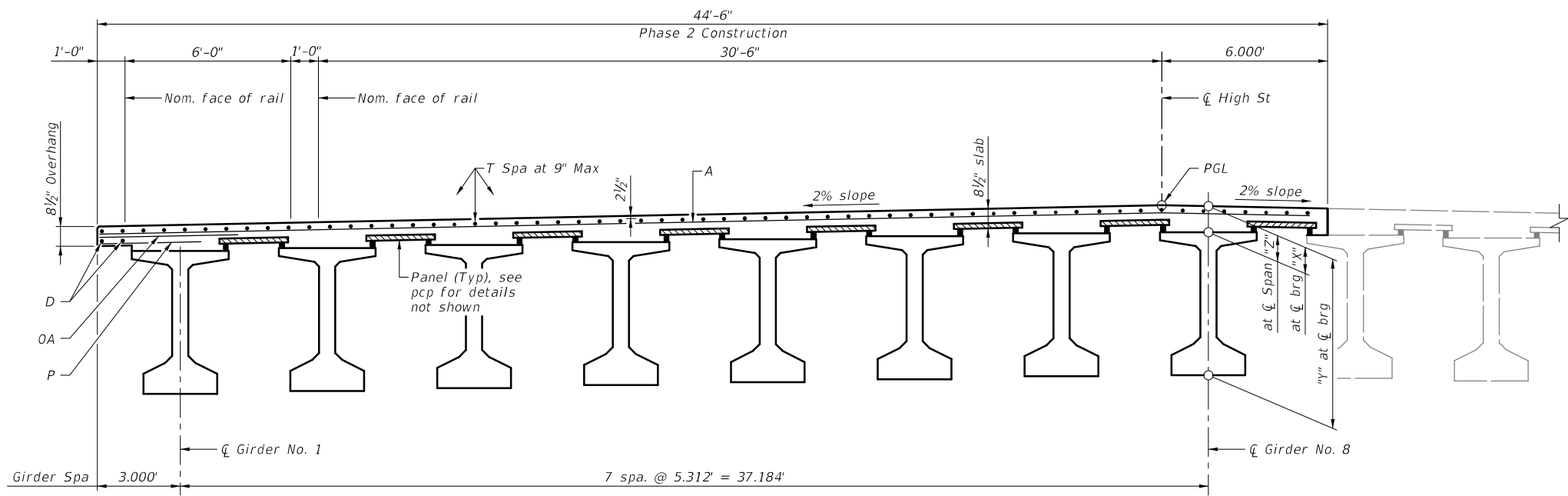
188

DATE: 7/21/2021
FILENAME: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\7. Bridge\High\ST*020-PC6SS2.dgn

DATE: 7/21/2021
 FILENAME: pw:\jmt-pw.bentley.com: jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Pion Set\7. Bridge\High*ST*021-TSS2.dgn



TYPICAL TRANSVERSE SECTION - (SPAN 1 - 3)



TYPICAL TRANSVERSE SECTION - (SPAN 2)

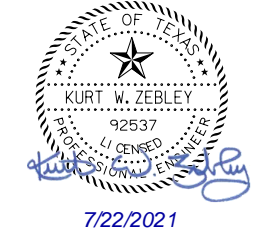
SPAN	GIRDER No.	"X" at Girder	"Y" at Girder	"Z" at Span
1	1 - 5	10 1/2"	6'-0 1/2"	11 3/4"
2	1	10 1/2"	6'-0 1/2"	1'-4 3/4"
3	2 - 8	10 1/2"	6'-0 1/2"	1'-4 3/8"
3	1 - 5	10 1/2"	6'-0 1/2"	1'-1"

Bar	Size
A	#4
D	#4
G	#4
H	#4
J	#4
M	#4
OA	#5
P	#4
T	#4
UP	#4

Span No.	Reinf Conc Slab	Prestressed Conc Girders (Tx62)	Reinf Steel
			①
-	SF	LF	LB
1	3026	337.72	19669
2	6497	1164.01	42231
3	4317	482.73	28058
TOTAL	13840	1984.46	89958

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications.
 See IGTS standard for Thickened Slab End details and quantity adjustments.
 See PCP and PCP-FAB for panel details not shown.
 See PCP(0) and PCP(0)-FAB for precast overhang panel details if this option is used.
 See IGMS standard for miscellaneous details.
 See applicable rail details for rail anchorage in slab.
 See PMDF standard for details and quantity adjustments if this option is used.
 Cover dimensions are clear dimensions, unless noted otherwise.

MATERIAL NOTES:
 Provide Class 5 concrete (f'c = 4,000 psi).
 Provide Grade 60 reinforcing steel.
 Provide bar laps, where required, as follows:
 Uncoated ~ #4 = 1'-7"
 Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars A, D, OA, P or T unless noted otherwise.
 ① Reinforcing steel weight is calculated using an approximate factor of 6.5 LBS/SF



NO.	REVISION	BY	DATE



311' PRESTRESSED CONCRETE GIRDER UNIT (PHASE 2 CONSTRUCTION)

DESIGN				SHEET 2 OF 2	
JMT	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.		SHEET NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST		
JMT	STATE	DISTRICT	COUNTY		
JMT	TEXAS	TYLER	GREGG		189
JMT	CONTROL	SECTION	JOB		
JMT	0910	07	072		

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: 7/21/2021
FILE: \\jmt-pw-bent\ey.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\7. Bridge\High_St_022-IGND.dgn

STRUCTURE	DESIGNED GIRDERS								DEPRESSED STRAND PATTERN		CONCRETE		OPTIONAL DESIGN					
	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS					NO.	TO END (in)	RELEASE STRGTH (1) f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)	DESIGN LOAD COMP STRESS (TOP ̄) (SERVICE I) fct(ksi)	DESIGN LOAD TENSILE STRESS (BOTTL ̄) (SERVICE III) fcb(ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (kip-ft)	LIVE LOAD DISTRIBUTION FACTOR (2)		
				NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" ̄ (in)								"e" END (in)	Moment	Shear
A	1	1	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.153	-1.324	4576	0.782	0.866
B	1	2	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.181	-1.368	4642	0.782	0.866
C	1	3	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.181	-1.368	4642	0.782	0.849
D	1	4	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.158	-1.296	4629	0.782	0.849
E	1	5	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.158	-1.296	4629	0.782	0.849
F	1	6	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.189	-1.348	4650	0.826	0.895
G	1	7	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.239	-1.471	4681	0.869	0.940
H	1	8	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.239	-1.471	4681	0.869	0.958
I	1	9	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.191	-1.403	4603	0.869	0.958
A	2	1	Tx62	*	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	5.023	-4.955	11104	0.500	0.635
B	2	2	Tx62	**	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.893	-4.803	10645	0.459	0.635
C	2	3	Tx62	***	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.893	-4.803	10645	0.459	0.620
D	2	4	Tx62	****	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.727	-4.442	9800	0.459	0.620
E	2	5	Tx62	*****	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.727	-4.442	9800	0.459	0.620
F	2	6	Tx62	*****	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.727	-4.442	9800	0.459	0.620
G	2	7	Tx62	*****	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.727	-4.442	9800	0.459	0.620
H	2	8	Tx62	*****	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.727	-4.442	9800	0.459	0.620
I	2	9	Tx62	*****	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.682	-4.383	9638	0.447	0.605
J	2	10	Tx62	*****	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.636	-4.324	9474	0.436	0.590
K	2	11	Tx62	*****	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.636	-4.324	9474	0.436	0.590
L	2	12	Tx62	*****	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.636	-4.324	9474	0.436	0.590
M	2	13	Tx62	*****	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.812	-4.688	10319	0.436	0.590
N	2	14	Tx62	*****	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	4.812	-4.688	10319	0.436	0.604
O	2	15	Tx62	*****	54	0.6	270	22.67	12.44	12	58.5	6.000	8.500	5.021	-4.927	11036	0.500	0.604
A	3	1	Tx62		26	0.6	270	24.85	23.01	4	16.5	4.500	6.000	2.311	-2.512	6342	0.709	0.867
B	3	2	Tx62		26	0.6	270	24.85	23.01	4	16.5	4.500	6.000	2.387	-2.607	6529	0.709	0.867
C	3	3	Tx62		26	0.6	270	24.85	23.01	4	16.5	4.500	6.000	2.387	-2.607	6529	0.709	0.849
D	3	4	Tx62		26	0.6	270	24.85	23.01	4	16.5	4.500	6.000	2.339	-2.458	6162	0.709	0.849
E	3	5	Tx62		26	0.6	270	24.85	23.01	4	16.5	4.500	6.000	2.339	-2.458	6162	0.709	0.849
F	3	6	Tx62		26	0.6	270	24.85	23.01	4	16.5	4.500	6.000	2.404	-2.553	6442	0.748	0.895
G	3	7	Tx62		26	0.6	270	24.85	23.01	4	16.5	4.500	6.000	2.511	-2.794	7088	0.787	0.940
H	3	8	Tx62		26	0.6	270	24.85	23.01	4	16.5	4.500	6.000	2.511	-2.794	7088	0.787	0.960
I	3	9	Tx62		26	0.6	270	24.85	23.01	4	16.5	4.500	6.000	2.386	-2.646	6801	0.787	0.960

NON-STANDARD STRAND PATTERNS			
PATTERN	STRAND ARRANGEMENT AT ̄ OF GIRDER	PATTERN	STRAND ARRANGEMENT AT ̄ OF GIRDER
*	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)	*****	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)
**	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)	*****	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)
***	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)	*****	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)
****	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)	*****	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)
*****	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)	*****	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)
*****	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)	*****	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)
*****	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)	*****	2.5(A-G), 4.5(A-G), 6.5(A-G), 8.5(ABCD), 10.5(A), 12.5(A)

① Based on the following allowable stresses (ksi):

Compression = 0.65 f'ci

Tension = 0.24 √ f'ci

Optional designs must likewise conform.

② Portion of full HL93.

DESIGN NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications. Optional designs for girders 120 feet or longer must have a calculated residual camber equal to or greater than that of the designed girder.

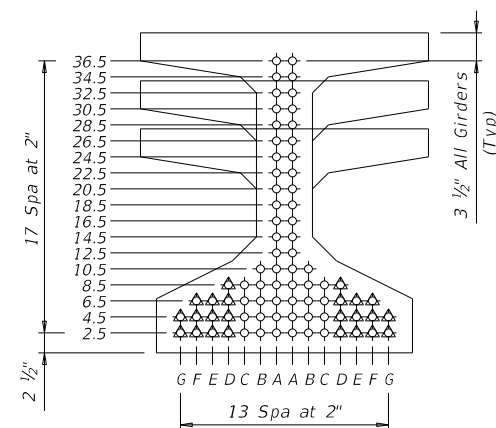
Prestress losses for the designed girders have been calculated for a relative humidity of 60 percent. Optional designs must likewise conform.

FABRICATION NOTES:

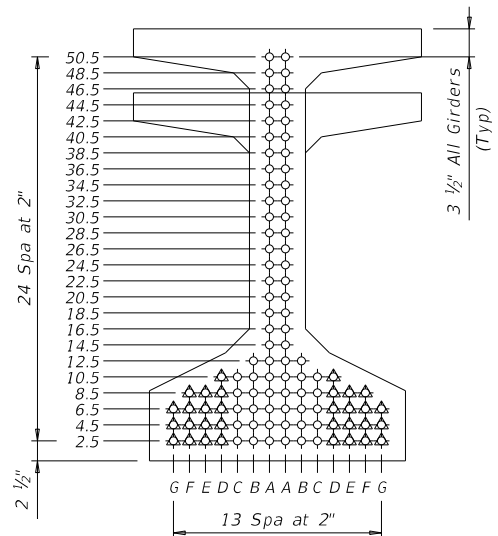
Provide Class H concrete. Provide Grade 60 reinforcing steel bars. Use low relaxation strands, each pretensioned to 75 percent of fpu. Strand debonding must comply with Item 424.4.2.2.4. Full-length debonded strands are only permitted in positions marked Δ. Double wrap full-length debonded strands in outer most position of each row. When shown on this sheet, the Fabricator has the option of furnishing either the designed girder or an approved optional design. All optional design submittals must be signed, sealed and dated by a Professional Engineer registered in the State of Texas. Seal cracks in girder ends exceeding 0.005" in width as directed by the Engineer. The fabricator is permitted to decrease the spacing of Bars R and S by providing additional bars to help limit crack width provided the decreased spacing results in no less than 1" clear between bars. The fabricator must take an approved corrective action if cracks greater than 0.005" form on a repetitive basis.

DEPRESSED STRAND DESIGNS:

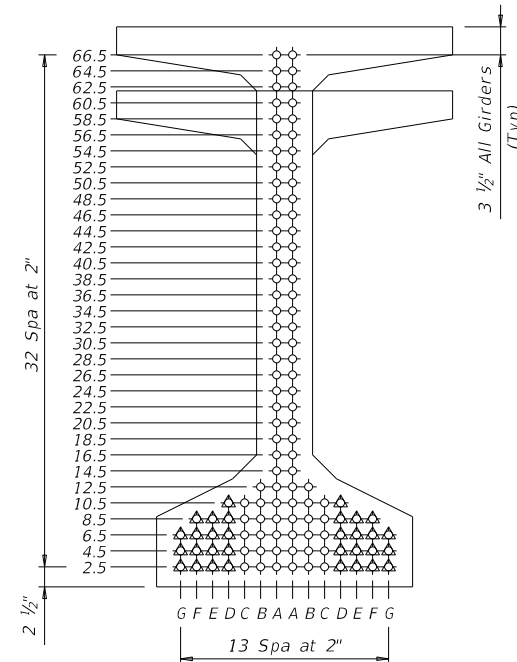
Locate strands for the designed girder as low as possible on the 2" grid system unless a non-standard strand pattern is indicated. Fill row "2.5", then row "4.5", then row "6.5", etc., beginning each row in the "A" position and working outward until the required number of strands is reached. All strands in the "A" position must be depressed, maintaining the 2" spacing so that, at the girder ends, the upper two strands are in the position shown in the table.



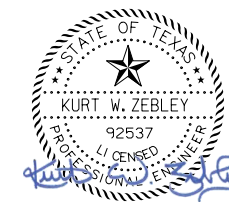
TYPE Tx28, Tx34 & Tx40



TYPE Tx46 & Tx54



TYPE Tx62 & Tx70



7/22/2021

HL93 LOADING

		Bridge Division Standard	
PRESTRESSED CONCRETE I-GIRDER DESIGNS (NON-STANDARD SPANS)			
IGND			
FILE: High_St_022_IGND.dgn	DN: TxDOT	CK: TxDOT	DW: EFC
CONT: August 2017	SECT:	JOB:	HIGHWAY:
REVISIONS:	0910	07	072 HIGH ST
10-19: Modified for depressed strands only.	DIST:	COUNTY:	SHEET NO.:
	TYLER	GREGG	190

SCOPE OF WORK

WORK TO BE DONE BY THE RAILROAD:
NONE

WORK TO BE DONE BY TXDOT:
NONE

WORK TO BE DONE BY TXDOT'S CONTRACTOR:

1. CONSTRUCT UPRR OVERPASS AT HIGH STREET.
2. RAILROAD FLAGMAN MUST BE PRESENT DURING ANY WORK IN THE RAILROAD R.O.W. COORDINATE WITH RAILROAD TO SCHEDULE FLAGGER IN ADVANCE OF WORK. GIVE RAILROAD 90 DAYS NOTICE FOR WORK.
3. TXDOT'S CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONSTRUCTION WITH UPRR, BASED ON THE RAILROADS AVAILABILITY. TXDOT'S CONTRACTOR SHALL COORDINATE WORK WITH RAILROAD FLAGGERS BASED ON TRAIN SCHEDULE.
4. WORK IN THE RAILROAD R.O.W. IS ESTIMATED TO BE 25 CONTRACT WORKING DAYS PER PHASE FOR A TOTAL OF 50 CONTRACT WORKING DAYS.

SEQUENCE OF WORK

REFER TO THE EXHIBIT A TYPICAL SECTIONS WHILE READING THROUGH THE SEQUENCE OF WORK.

PHASE 1

1. DEMOLISH 27'-1" OF THE EXISTING BRIDGE TO INCLUDE THE BRIDGE RAILS, DECK, GIRDERS, AND INTERIOR BENTS WITHIN THE RAILROAD R.O.W.
2. CONSTRUCT THE PHASE 1 WIDTH OF INTERIOR BENT NOS. 2 AND 3.
3. SET PRESTRESSED CONCRETE GIRDERS FOR SPANS 1-3 PHASE 1.
4. CONSTRUCT CONCRETE BRIDGE DECK FOR SPANS 1-3 PHASE 1.
5. CONSTRUCT BRIDGE RAIL AND INSTALL CHAINLINK FENCE FOR PHASE 1.

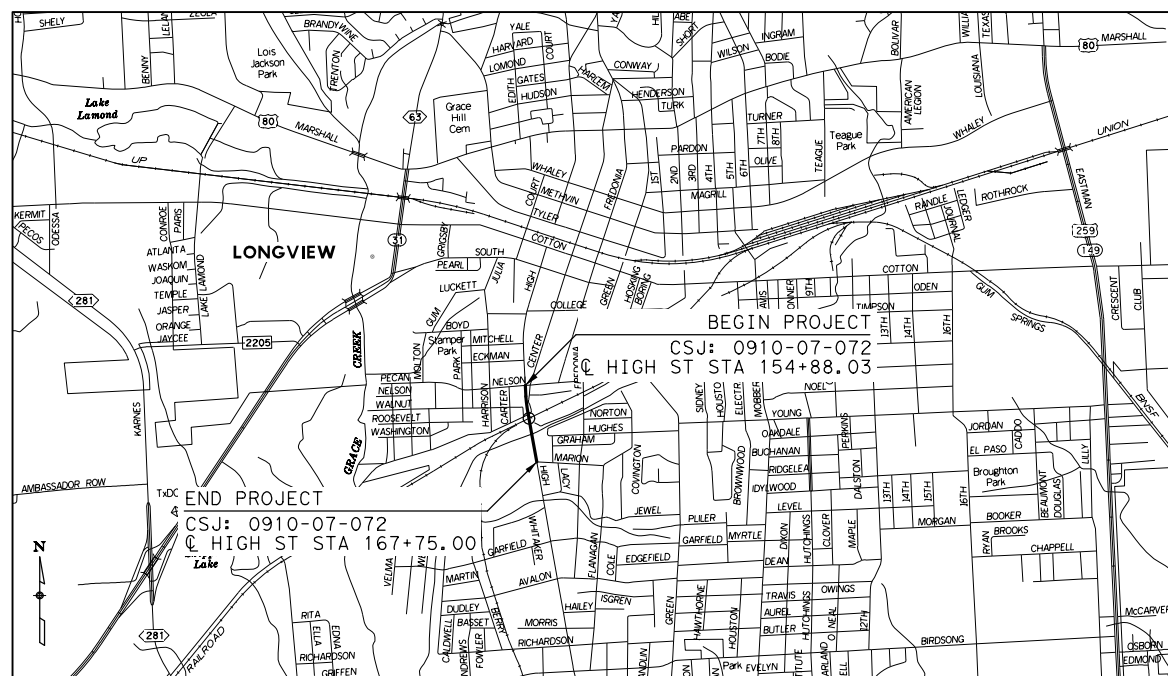
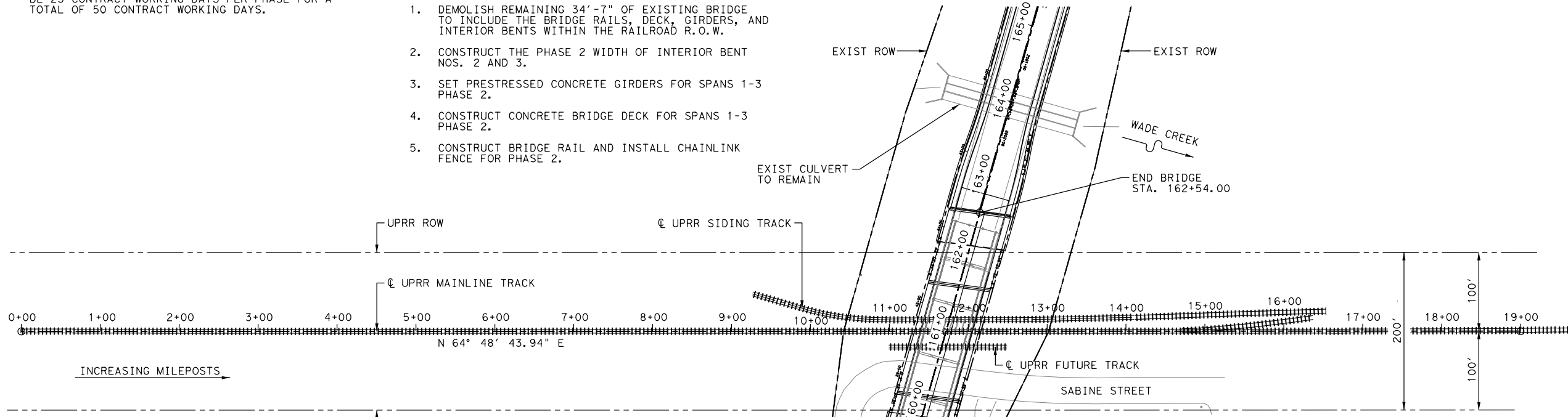
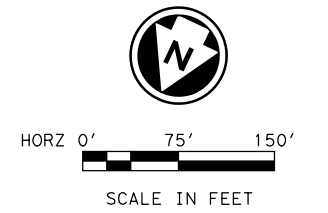
PHASE 2

1. DEMOLISH REMAINING 34'-7" OF EXISTING BRIDGE TO INCLUDE THE BRIDGE RAILS, DECK, GIRDERS, AND INTERIOR BENTS WITHIN THE RAILROAD R.O.W.
2. CONSTRUCT THE PHASE 2 WIDTH OF INTERIOR BENT NOS. 2 AND 3.
3. SET PRESTRESSED CONCRETE GIRDERS FOR SPANS 1-3 PHASE 2.
4. CONSTRUCT CONCRETE BRIDGE DECK FOR SPANS 1-3 PHASE 2.
5. CONSTRUCT BRIDGE RAIL AND INSTALL CHAINLINK FENCE FOR PHASE 2.

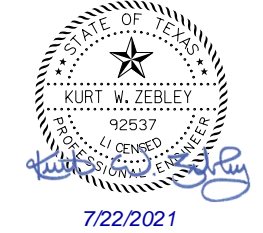
SHEET:

191	PROJECT LAYOUT
192	EXIST RAIL PLAN & PROFILE - 1
193	EXIST RAIL PLAN & PROFILE - 2
194	EXIST RAIL PLAN & PROFILE - 3
195	EXIST RAIL PLAN & PROFILE - 4
196	BRIDGE LAYOUT
197	BORING LOGS
198	TYPICAL SECTIONS - 1
199	TYPICAL SECTIONS - 2
200	RAILROAD SCOPE OF WORK
201 - 203	RAILROAD REQUIREMENTS FOR BRIDGE CONSTRUCTION

DESCRIPTION



PROJECT LOCATION MAP
NTS



JMT TBPE REGISTRATION NO. F-16341

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Texas Department of Transportation
S HIGH ST AT UPRR AND SABINE ST

EXHIBIT "A" (100% PLANS)
PROJECT LAYOUT
DOT # 426571Y (RRMP 1.08)
PALESTINE SUBDIVISION

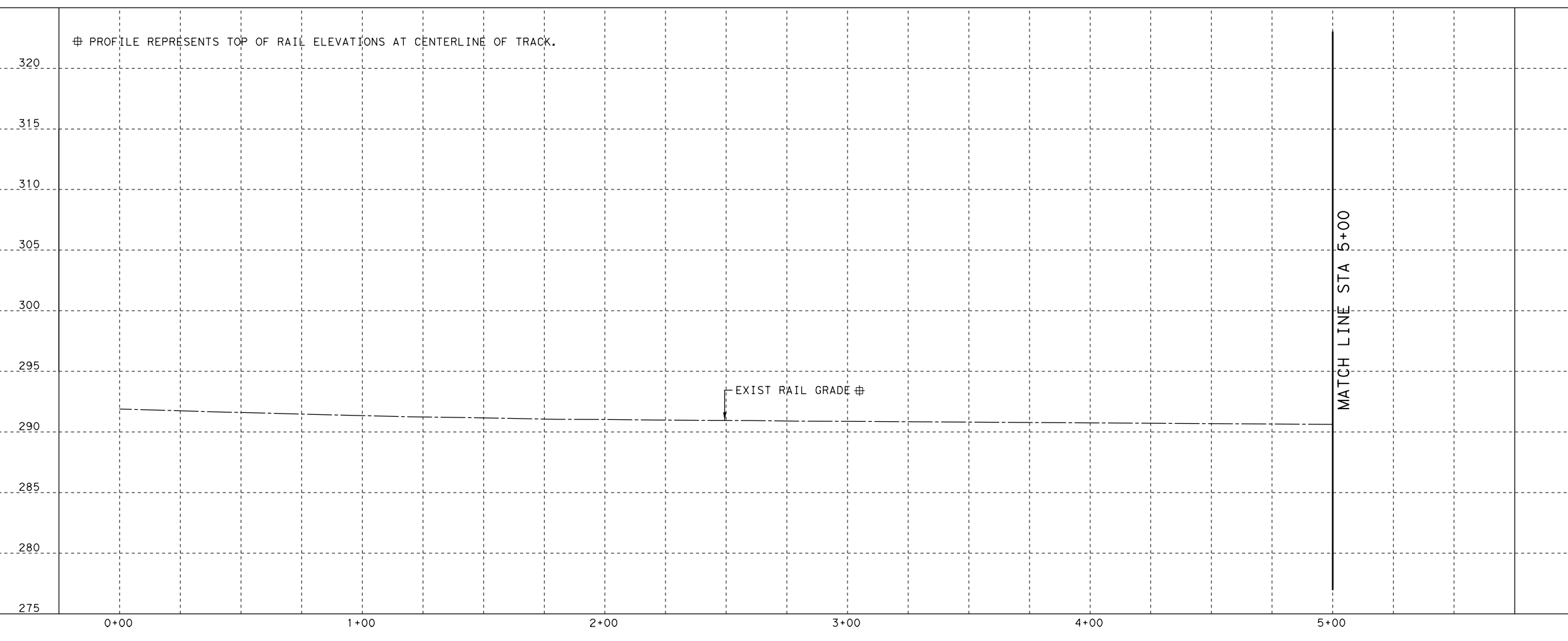
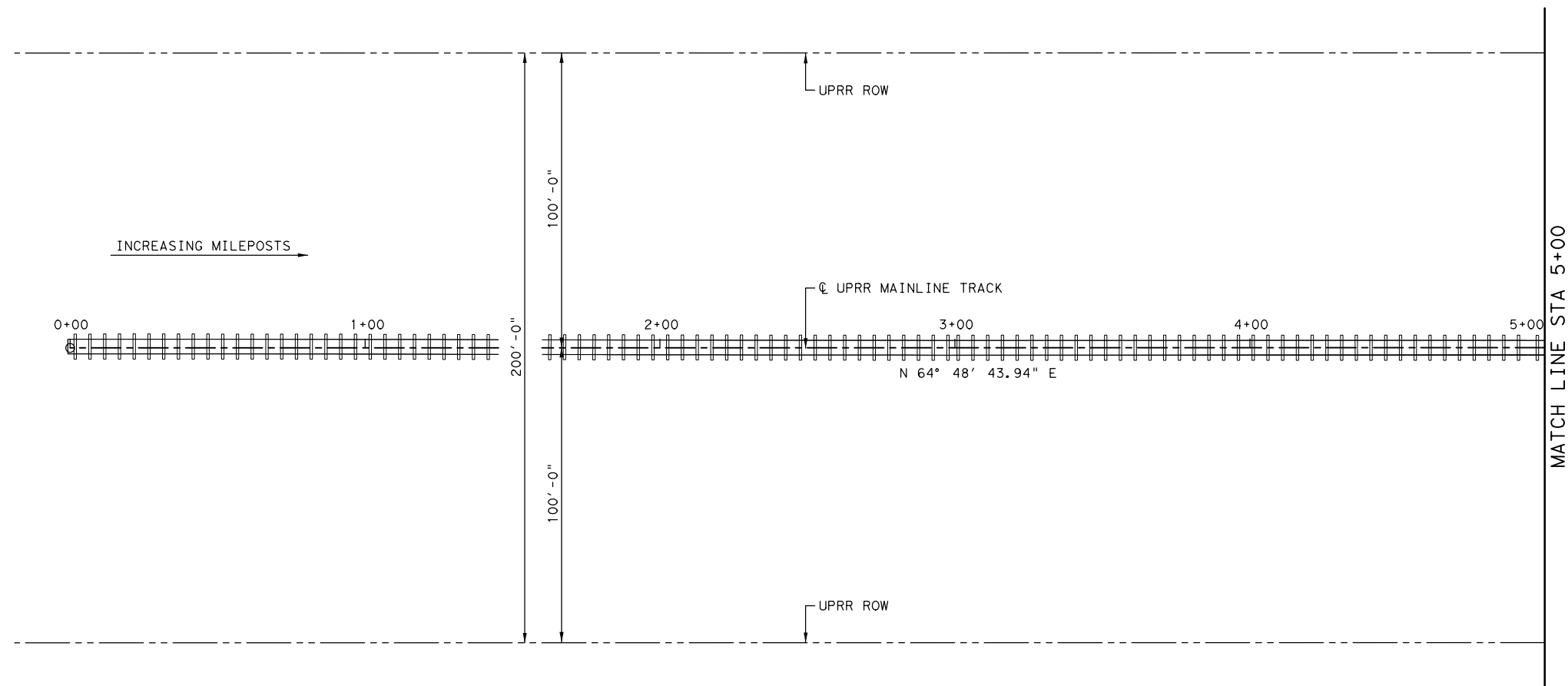
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JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			SHEET NO.
JMT			191

DATE: 7/21/2021
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DATE: 7/21/2021
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HORZ 0' 25' 50'
 VERT 0' 5' 10'
 SCALE IN FEET



⊕ PROFILE REPRESENTS TOP OF RAIL ELEVATIONS AT CENTERLINE OF TRACK.



S HIGH ST AT UPRR AND SABINE ST

EXHIBIT "A" (100% PLANS)
EXIST RAIL PLAN & PROFILE - 1

DOT # 426571Y (RRMP 1.08)
 PALESTINE SUBDIVISION

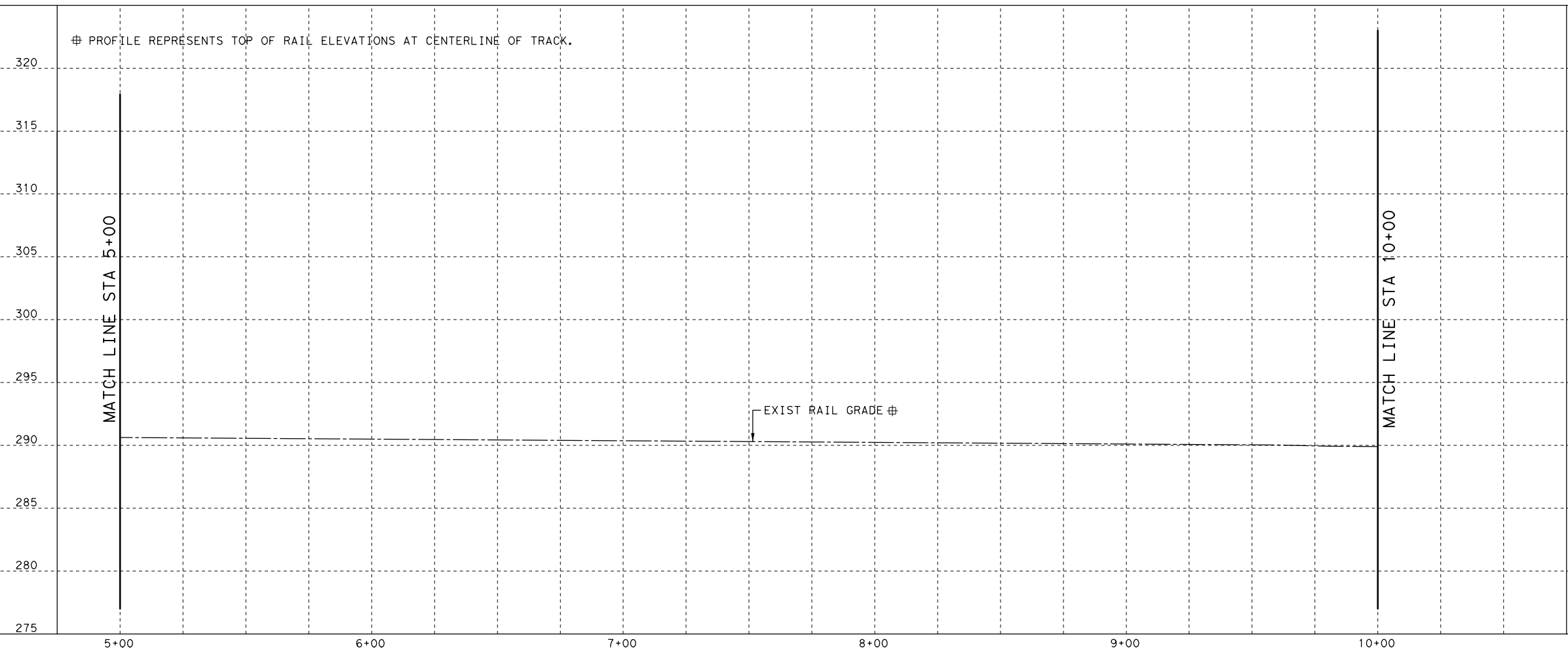
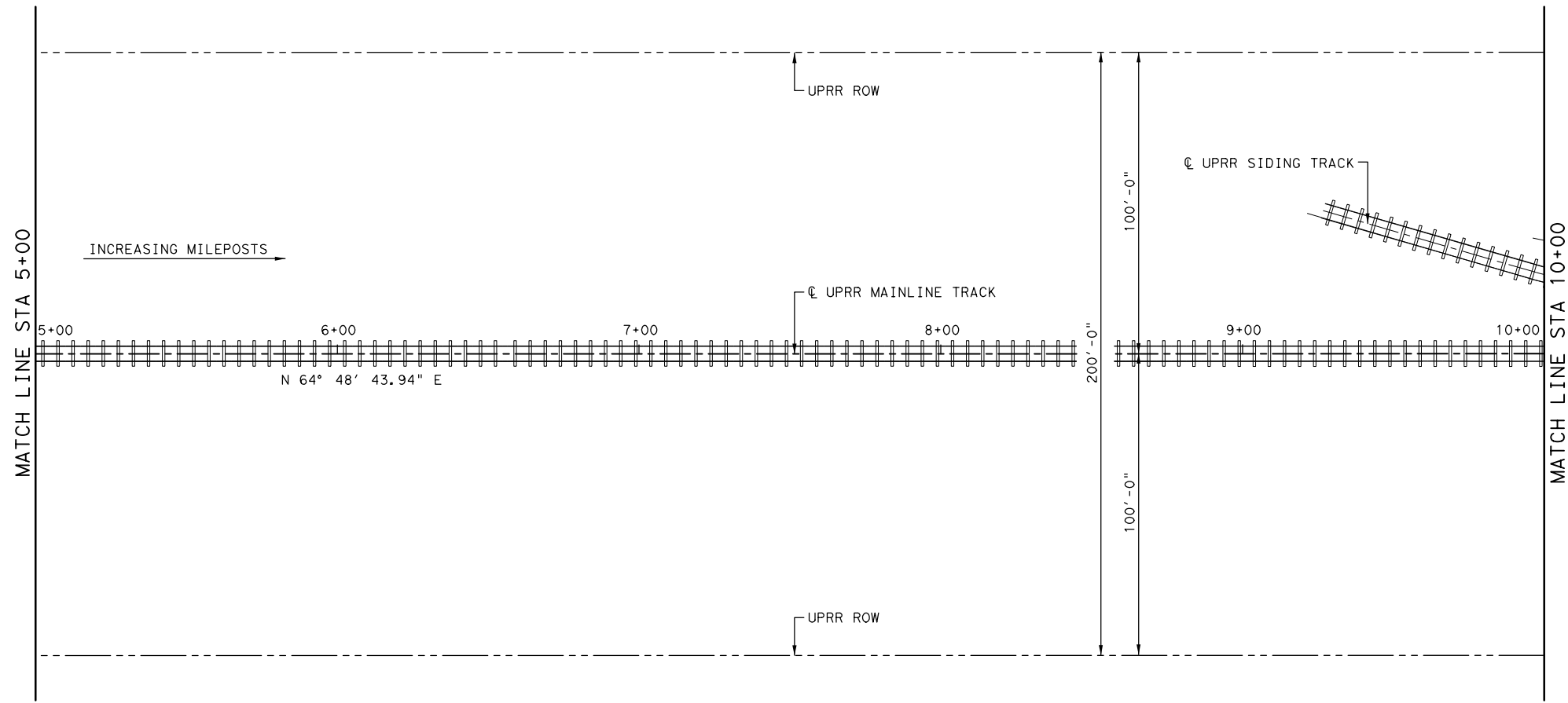
SCALE: 1" = 50' H, 1" = 10' V

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GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						192

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HORZ 0' 25' 50'
 VERT 0' 5' 10'
 SCALE IN FEET



⊕ PROFILE REPRESENTS TOP OF RAIL ELEVATIONS AT CENTERLINE OF TRACK.



S HIGH ST AT UPRR AND SABINE ST

EXHIBIT "A" (100% PLANS)
EXIST RAIL PLAN & PROFILE - 2

DOT # 426571Y (RRMP 1.08)
 PALESTINE SUBDIVISION

SCALE: 1" = 50' H, 1" = 10' V

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						193

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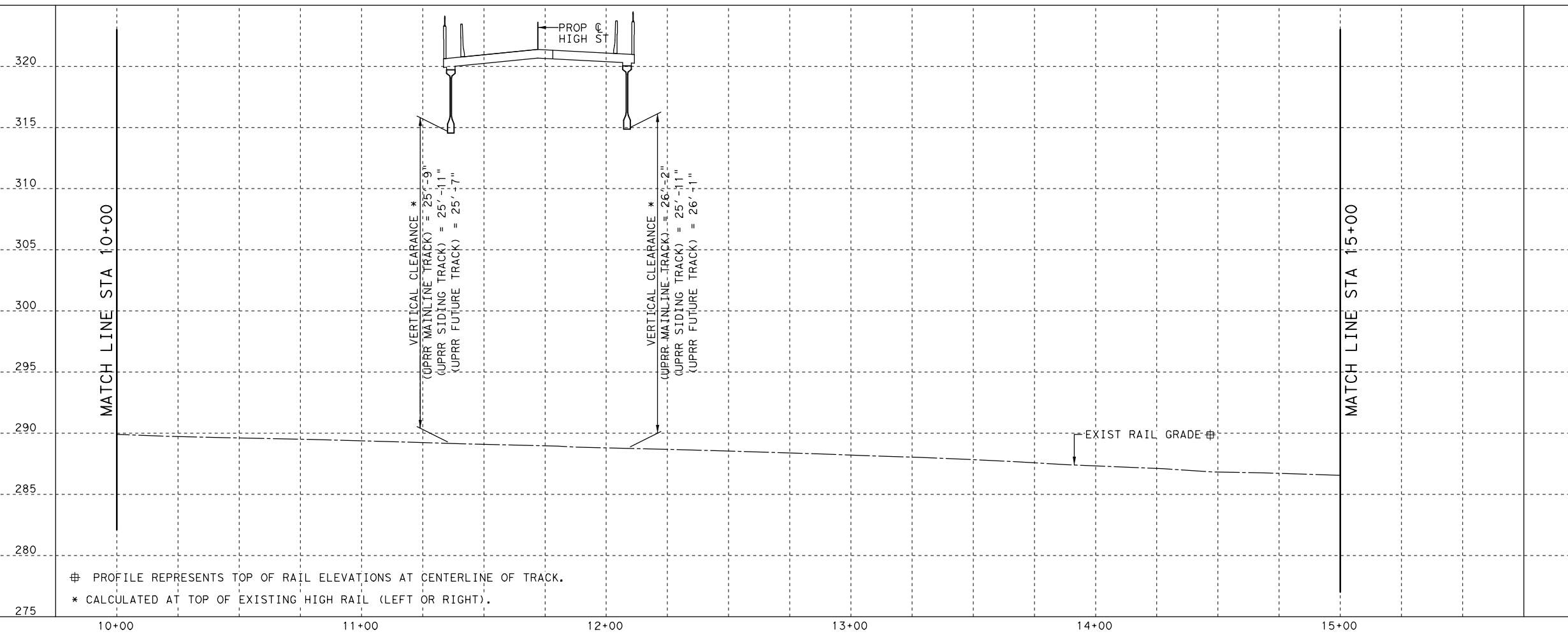
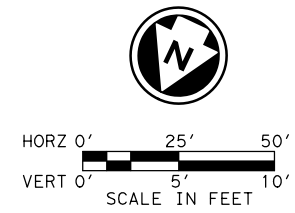
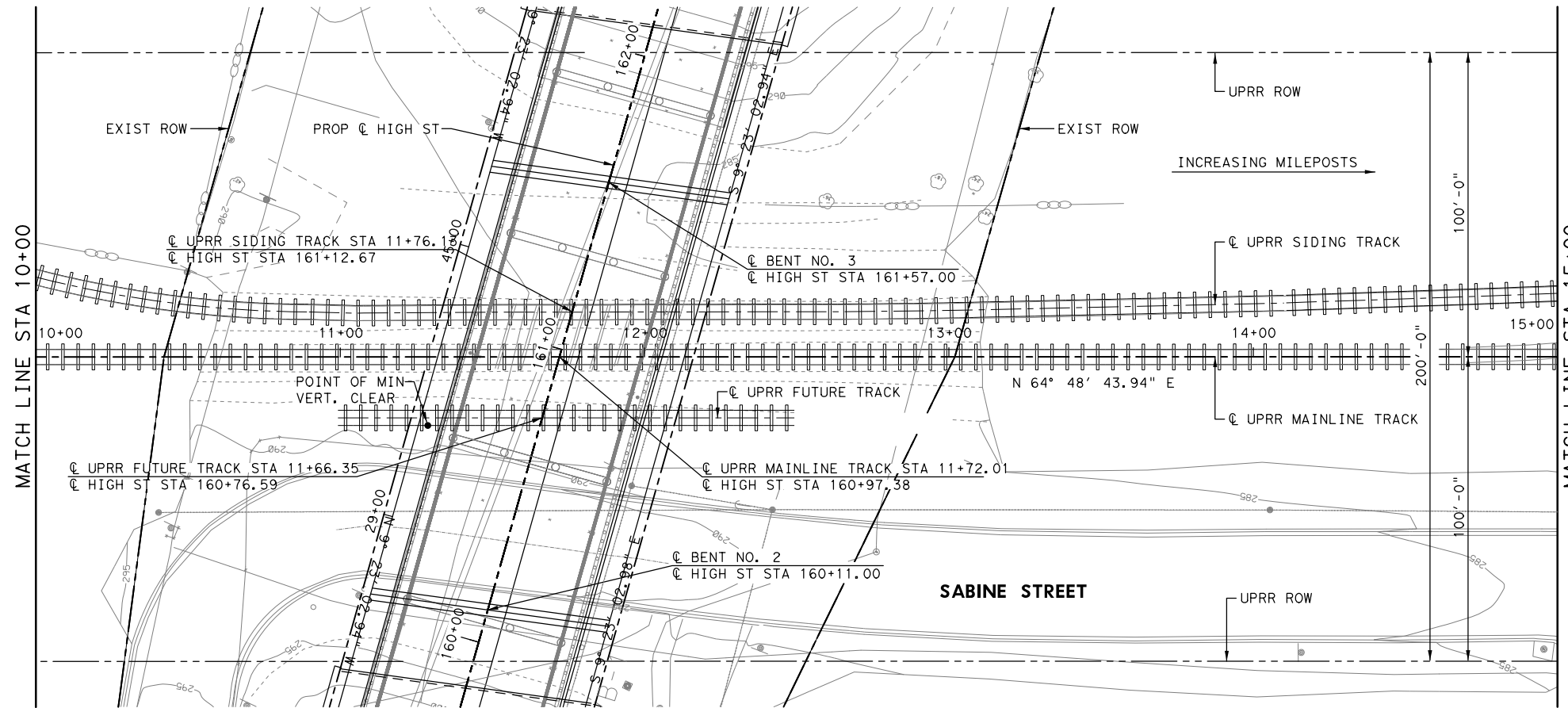


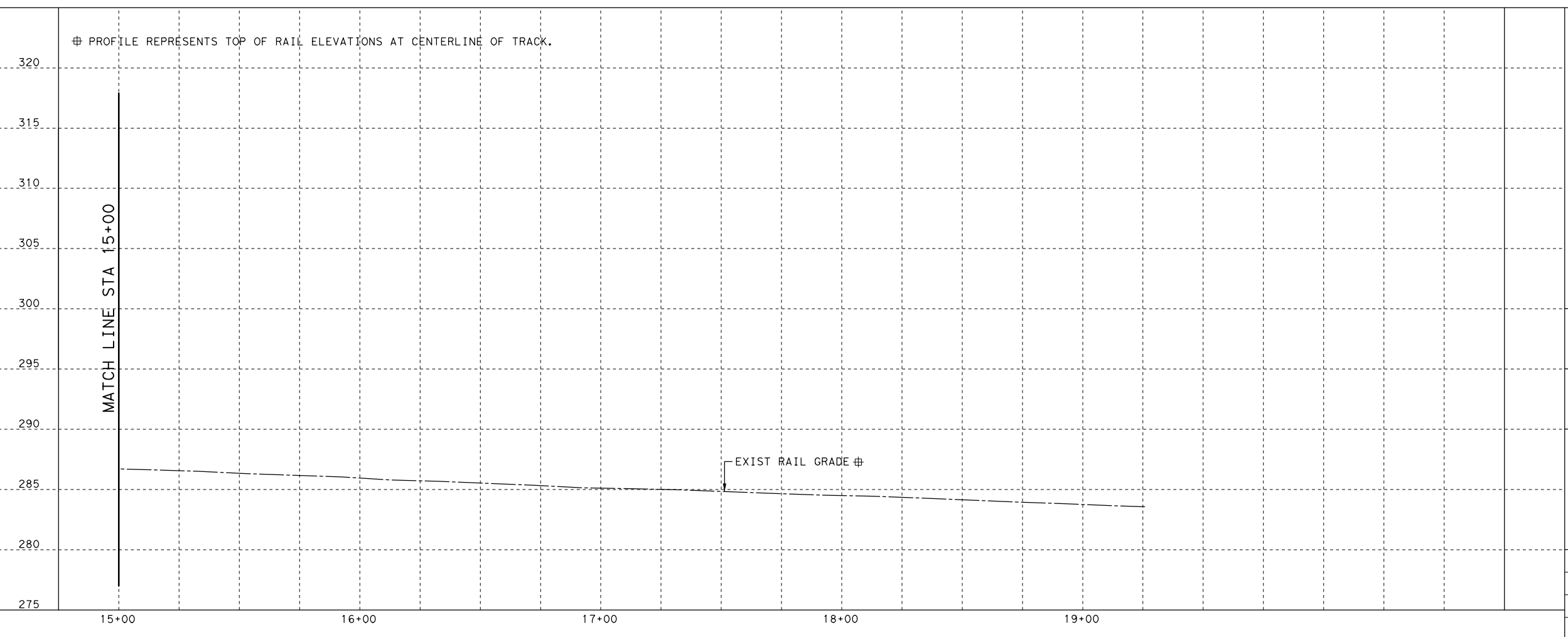
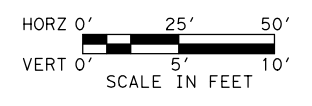
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EXIST RAIL PLAN & PROFILE - 3

DOT # 426571Y (RRMP 1.08)
 PALESTINE SUBDIVISION

SCALE: 1" = 50' H, 1" = 10' V

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			
JMT			

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S HIGH ST AT UPRR AND SABINE ST

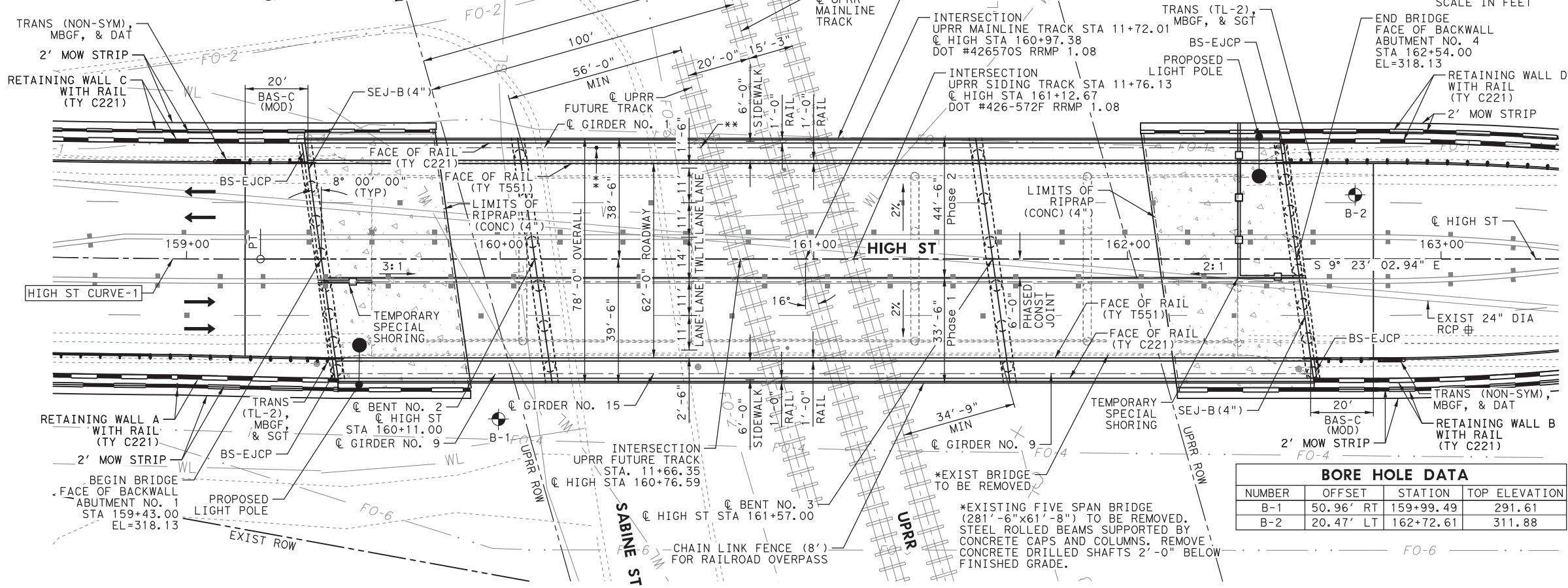
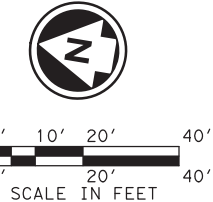
EXHIBIT "A" (100% PLANS)
EXIST RAIL PLAN & PROFILE - 4

DOT # 426571Y (RRMP 1.08)
 PALESTINE SUBDIVISION

SCALE: 1" = 50' H, 1" = 10' V

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
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CHECK	JMT						195

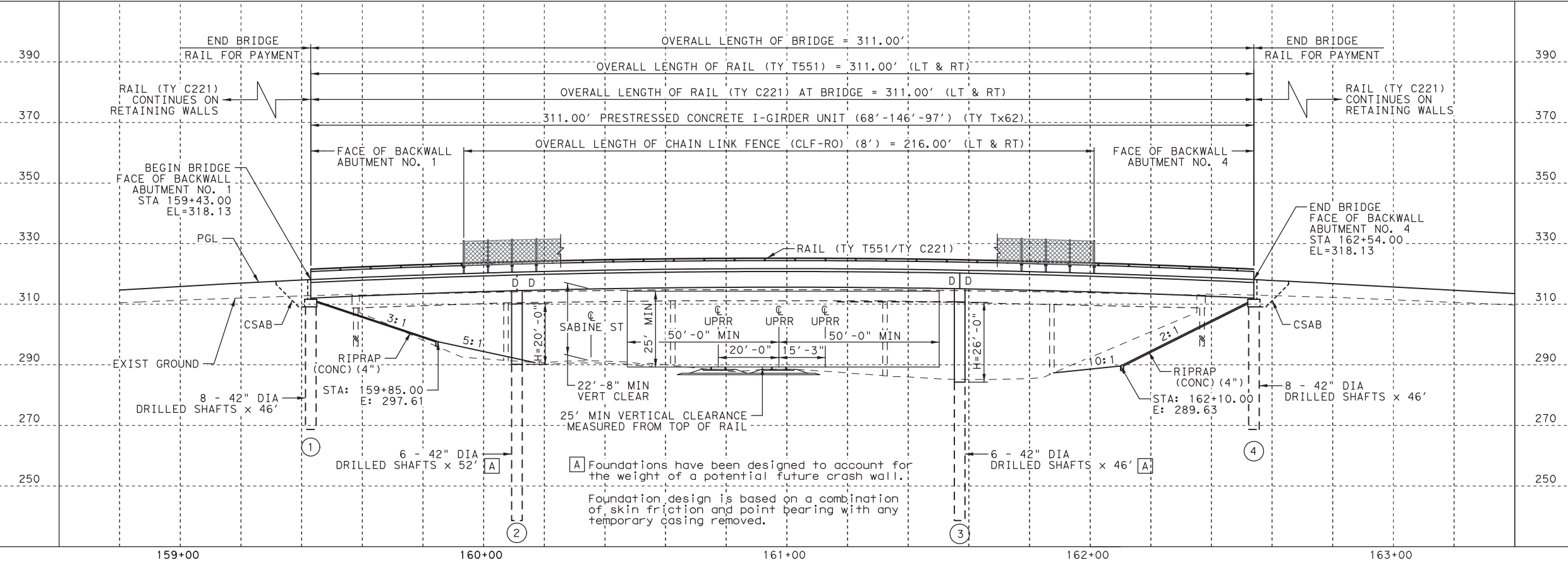
HIGH ST CURVE-1
 PI STATION = 156+44.10
 DELTA = 8° 24' 00.13" (LT)
 DEGREE OF CURVE = 1° 30' 00.00"
 TANGENT = 280.50
 LENGTH = 560.00
 RADIUS = 3,819.72
 PC STATION = 153+63.60
 PT STATION = 159+23.60



BORE HOLE DATA

NUMBER	OFFSET	STATION	TOP ELEVATION
B-1	50.96' RT	159+99.49	291.61
B-2	20.47' LT	162+72.61	311.88

- GENERAL NOTES:**
- DESIGN FOR HL-93 LOADING IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, EIGHTH EDITION (2017), AS MODIFIED BY THE TXDOT LRFD BRIDGE DESIGN MANUAL.
 - ALL ABUTMENTS AND BENTS ARE AT BEARING N 72° 36' 57" E.
 - THE "H" VALUE SHOWN IS AN ESTIMATED COLUMN HEIGHT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CALCULATE COLUMN HEIGHTS BASED ON FIELD CONDITIONS.
 - CLAYEY SANDS AND GROUNDWATER WERE OBSERVED IN BRIDGE BORINGS. SEE "BRIDGE BORE HOLE DATA" SHEET FOR SOIL BORING LOG INFORMATION.
 - SEE CEMENT STABILIZED ABUTMENT BACKFILL (CSAB) DESIGN STANDARD FOR ADDITIONAL INFORMATION.
 - SEE RETAINING WALL LAYOUTS AND ILLUMINATION PLANS FOR ADDITIONAL INFORMATION.
 - SEE PHASED BRIDGE TYPICAL SECTION SHEETS FOR BRIDGE TYPICAL SECTIONS.
 - SIDE SLOTS IN RAIL SHALL NOT BE PLACED OVER RAILROAD R.O.W.
 - MAINTAIN MINIMUM VERTICAL CONSTRUCTION CLEARANCE OF 21'-6" FEET ABOVE THE PLANE OF THE TOP RAIL. MAINTAIN HORIZONTAL CONSTRUCTION CLEARANCE OF 12 FEET FROM CENTERLINE OF TRACK.
 - DRILLED SHAFTS WITHIN THE INFLUENCE OF TRACK SURCHARGE SHALL BE DESIGNED WITH PERMANENT CASING TO PROTECT TRACK AGAINST CAVE-IN, SUBSIDENCE AND/OR DISPLACEMENT OF SURROUNDING GROUND. CASING SHALL BE DESIGNED FOR LIVE LOAD DUE TO THE RAILROAD SURCHARGE IN ADDITION TO ALL OTHER LOADS.
 - CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. UPRR CALL BEFORE YOU DIG PHONE NUMBER 1-800-336-9193.
 - THE PROPOSED BRIDGE WILL NOT CHANGE THE QUANTITY OR CHARACTER OF THE FLOW IN THE RAILROADS DITCHES AND/OR DRAINAGE STRUCTURES.
- DAILY TRAIN TRAFFIC: 22
 TRAIN SPEED: 40 MPH
 SWITCHING MOVEMENTS: 0
- FUNCTIONAL CLASS: URBAN ARTERIAL
 DESIGN SPEED: MEETS OR EXCEEDS EXISTING (35 MPH)
 ADT (2015) = 14,172
 ADT (2030) = 20,000
 EXISTING NBI#: 10-093-0-E004-69-001
 PROPOSED NBI#: TBD
- ** POINT OF MIN. VERT. CLEAR.
- ⊕ LOCATION IS APPROXIMATE. CONTRACTOR SHALL LOCATE EXISTING STORM SEWER PRIOR TO STARTING WORK OR ORDERING MATERIALS.



OVERALL LENGTH OF BRIDGE = 311.00'
 OVERALL LENGTH OF RAIL (TY T551) = 311.00' (LT & RT)
 OVERALL LENGTH OF RAIL (TY C221) AT BRIDGE = 311.00' (LT & RT)
 311.00' PRESTRESSED CONCRETE I-GIRDER UNIT (68'-146'-97') (TY Tx62)
 OVERALL LENGTH OF CHAIN LINK FENCE (CLF-RO) (8') = 216.00' (LT & RT)

END BRIDGE RAIL FOR PAYMENT

END BRIDGE RAIL (TY C221) CONTINUES ON RETAINING WALLS

FACE OF BACKWALL ABUTMENT NO. 1

FACE OF BACKWALL ABUTMENT NO. 4

BEGIN BRIDGE FACE OF BACKWALL ABUTMENT NO. 1 STA 159+43.00 EL=318.13

END BRIDGE FACE OF BACKWALL ABUTMENT NO. 4 STA 162+54.00 EL=318.13

RAIL (TY T551/TY C221)

EXIST GROUND

CSAB

8 - 42" DIA DRILLED SHAFTS x 46'

STA: 159+85.00 E: 297.61

25' MIN VERTICAL CLEARANCE - MEASURED FROM TOP OF RAIL

22'-8" MIN VERT CLEAR

6 - 42" DIA DRILLED SHAFTS x 52'

6 - 42" DIA DRILLED SHAFTS x 46'

Foundations have been designed to account for the weight of a potential future crash wall.

Foundation design is based on a combination of skin friction and point bearing with any temporary casing removed.

STATE OF TEXAS
 KURT W. ZEBLEY
 92537
 11/4/2021

JMT TBPB REGISTRATION NO. F-16341

Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

EXHIBIT "A" (100% PLANS)
BRIDGE LAYOUT
 DOT # 426571Y (RRMP 1.08)
 PALESTINE SUBDIVISION

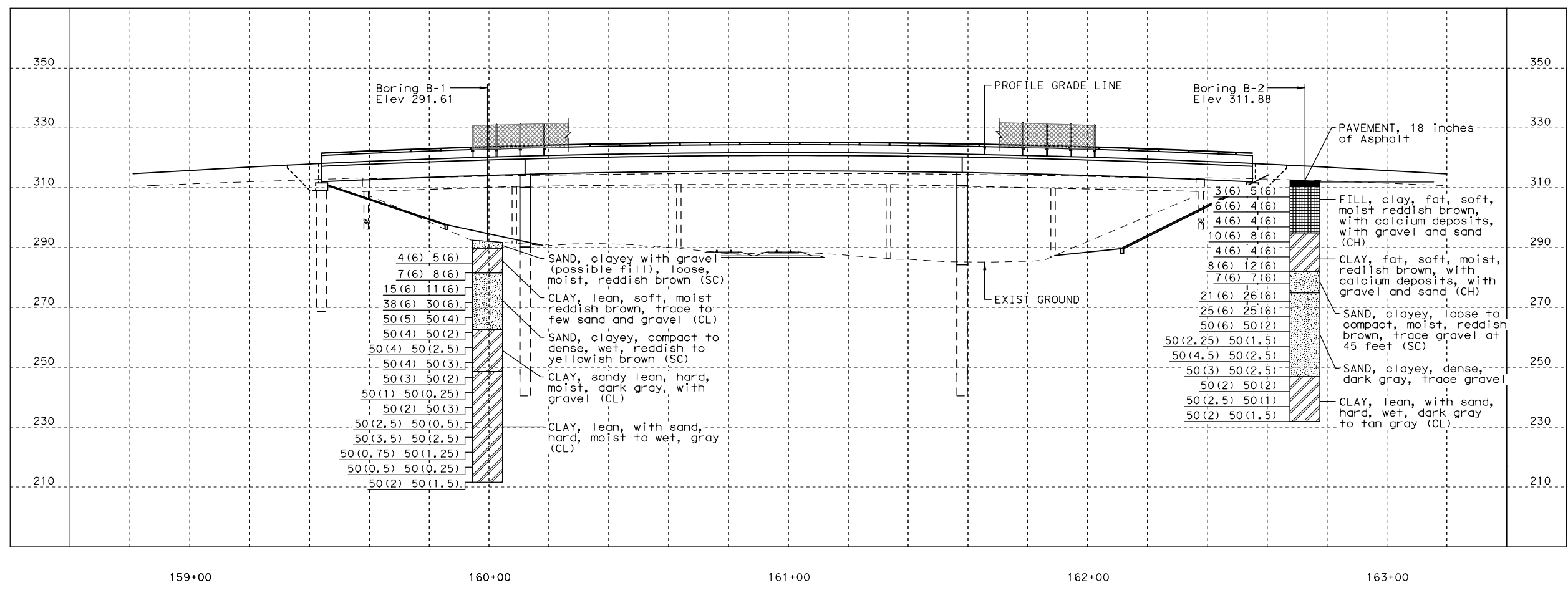
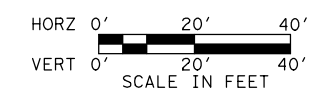
SCALE: 1" = 40' H, 1" = 10' V

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072


196

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ELEVATION



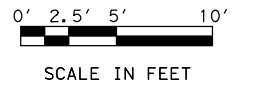
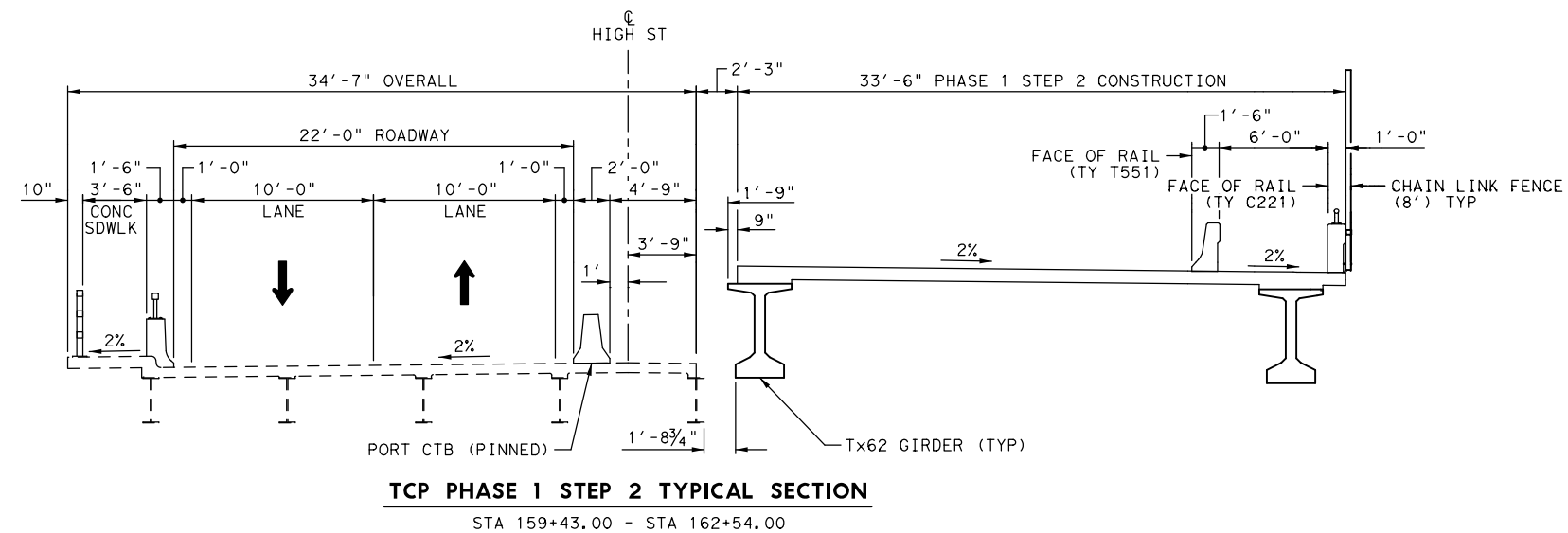
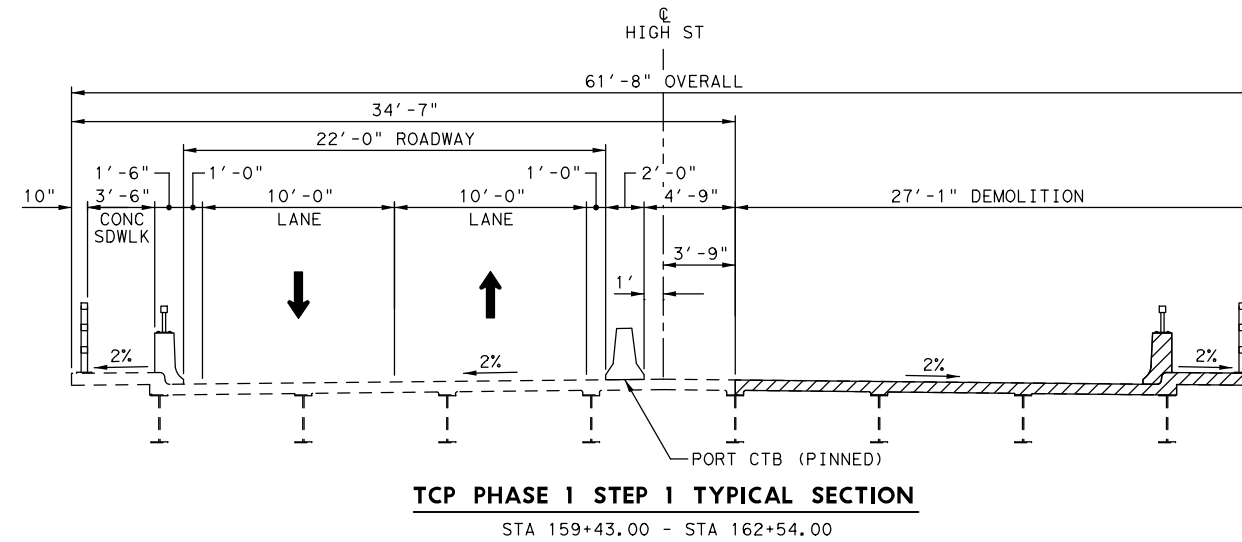
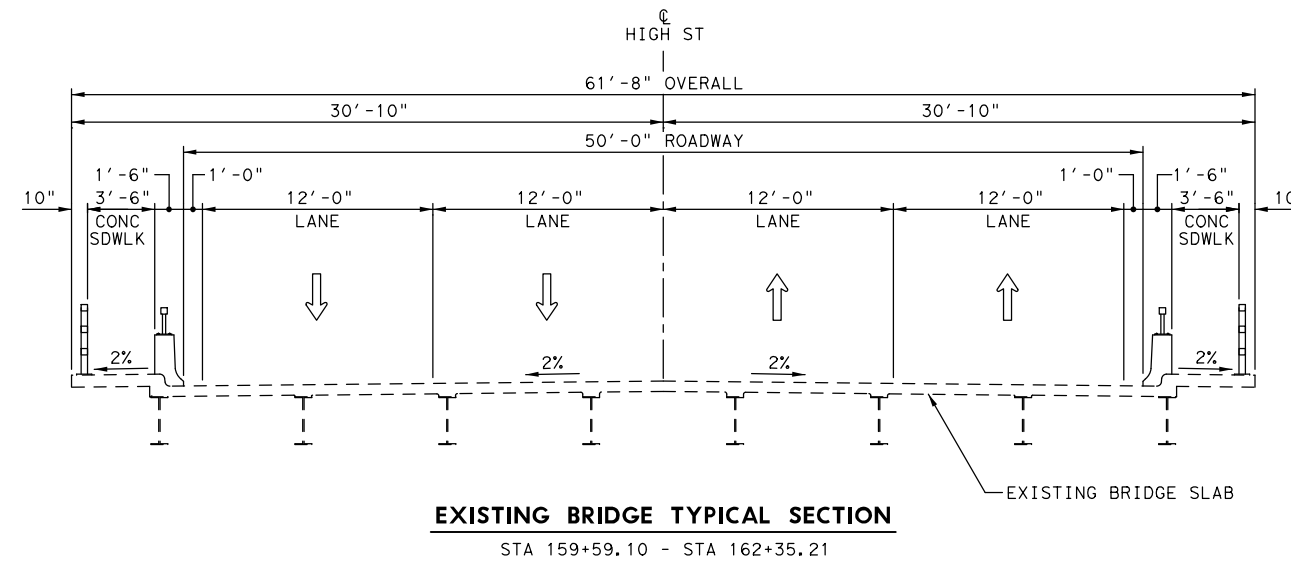
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 Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

EXHIBIT "A" (100% PLANS)
BORING LOGS
 DOT # 426571Y (RRMP 1.08)
 PALESTINE SUBDIVISION

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072

197

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LEGEND

- DEMOLITION
- CONSTRUCTION PREVIOUS PHASE
- PORTABLE CONCRETE TRAFFIC BARRIER (PINNED)



JMT TBPE REGISTRATION NO. F-16341

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Texas Department of Transportation

S HIGH ST AT UPRR AND SABINE ST

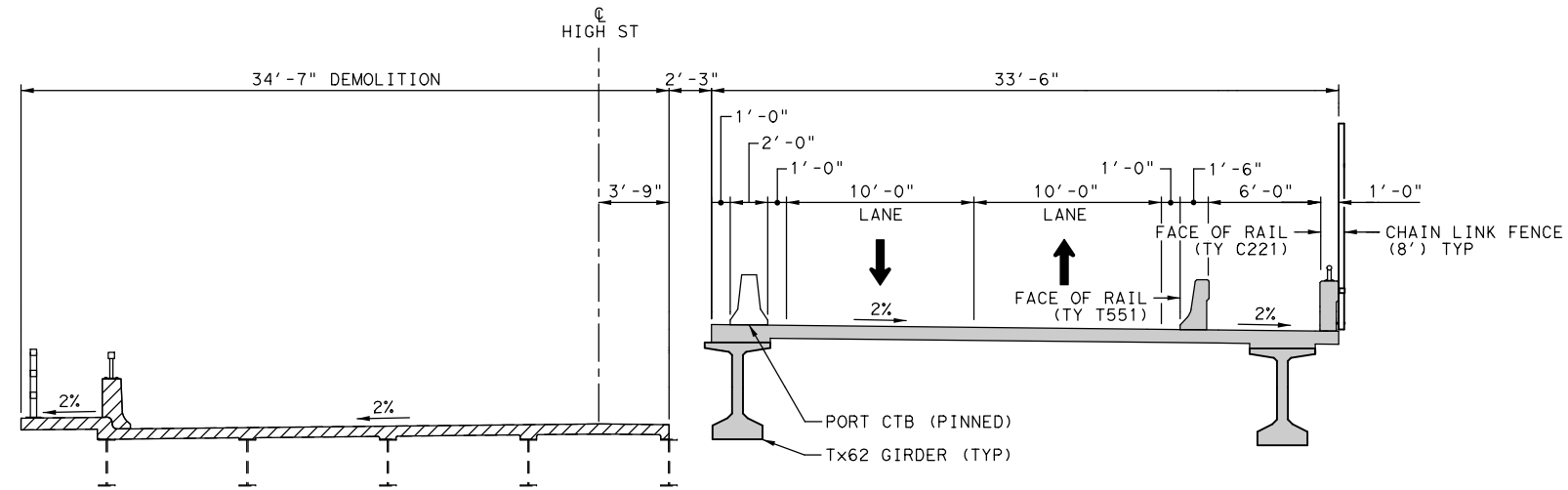
EXHIBIT "A" (100% PLANS)

TYPICAL SECTIONS - 1

DOT # 426571Y (RRMP 1.08)
 PALESTINE SUBDIVISION

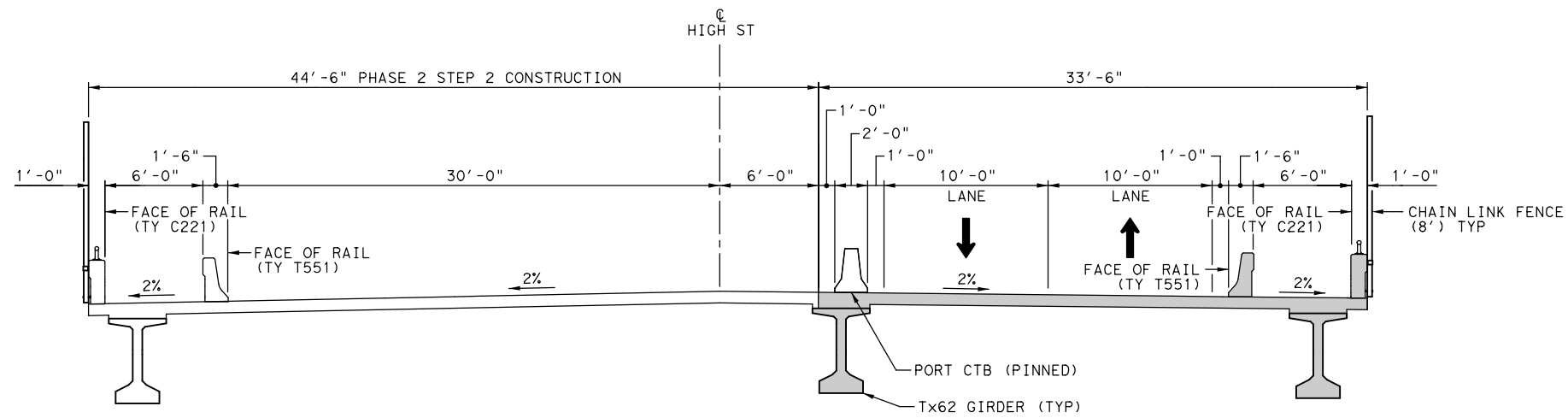
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JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
			198

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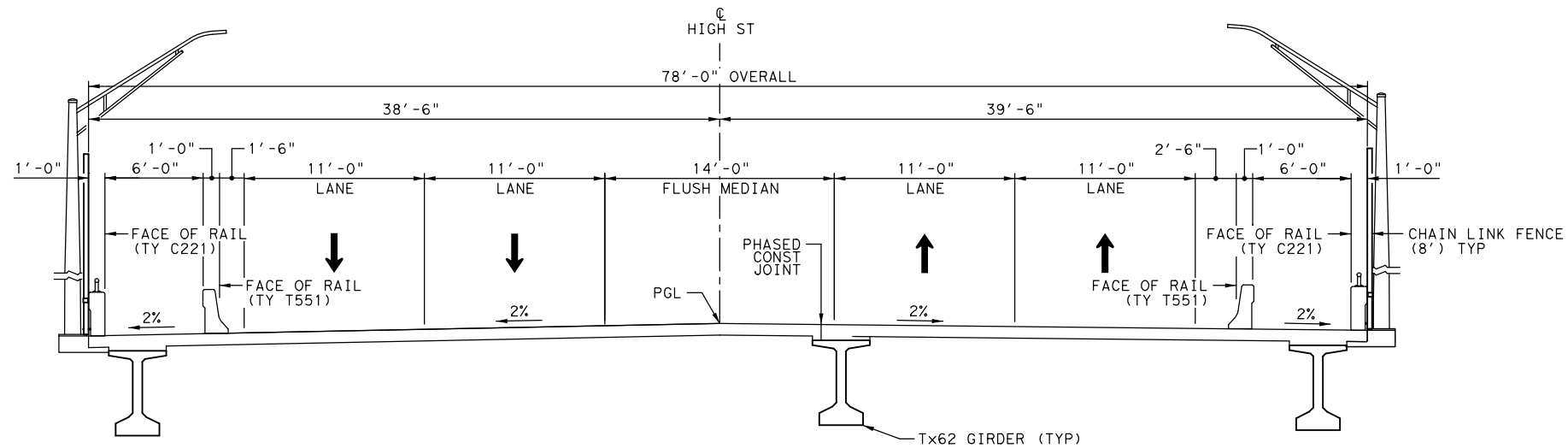
TCP PHASE 2 STEP 1 TYPICAL SECTION

STA 159+43.00 - STA 162+54.00



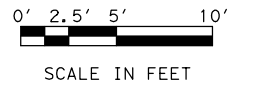
TCP PHASE 2 STEP 2 TYPICAL SECTION

STA 159+43.00 - STA 162+54.00



COMPLETED TYPICAL SECTION

STA 159+43.00 - STA 162+54.00

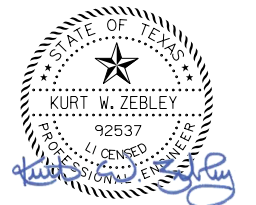


LEGEND

- DEMOLITION
- CONSTRUCTION PREVIOUS PHASE
- PORTABLE CONCRETE TRAFFIC BARRIER (PINNED)

NOTE:

LIMITS OF CHAIN LINK FENCE AND LIGHT POLES DO NOT OVERLAP. REFER TO BRIDGE LAYOUT FOR LOCATION OF CHAIN LINK FENCE AND LIGHT POLES. PHASED TYPICAL SECTIONS ARE LOCATED WITHIN LIMITS OF THE RAILROAD ROW. COMPLETED TYPICAL SECTION DEPICTS LIGHT POLE NEAR EITHER END OF THE BRIDGE.



7/22/2021



S HIGH ST AT UPRR AND SABINE ST

**EXHIBIT "A" (100% PLANS)
 TYPICAL SECTIONS - 2**

DOT # 426571Y (RRMP 1.08)
 PALESTINE SUBDIVISION

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
			199

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DATE: _____
 FILE: _____

I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

DOT #: 426571Y
 Crossing Type: Highway Overpass
 RR Company Owning Track at Crossing: Union Pacific Railroad
 Operating RR Company at Track: _____
 RR MP: 1.08
 RR Subdivision: Palestine
 City: Longview
 County: Gregg
 CSJ at this Crossing: 0910-07-072
 Highway/Roadway name crossing the railroad: High Street
 # of regularly scheduled trains per day at this crossing: _____
 # of switching movements per day at this crossing: _____
 % of estimated contract cost of work within railroad ROW: _____

Scope of Work at this Crossing to Be Performed by State Contractor:
Remove existing bridge overpass and foundations 2 feet below finished grade. Construct new bridge overpass. Reconstruct approach roadways and construct MSE retaining walls. Existing bridge demolition and bridge construction to be completed in two phases.

Scope of Work at this Crossing to Be Performed by Railroad Company:
Railroad flagging during construction.

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

III. FLAGGING

of Days of Railroad Flagging Expected: 50 days total (25 days per phase)
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:
 Railroad Company: TxDOT will pay flagging invoices
 Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The railroad requires a 30 day notice if their flaggers are to be utilized. If contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

To be provided by UPRR.

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:
 Required
 Not Required

Coordinate with TxDOT for any work to be performed by the railroad company. TxDOT must issue a work order for any work done by the railroad company prior to the work being performed.

V. RAILROAD INSURANCE REQUIREMENTS

Contractor shall provide the proper insurance as shown in the table below.

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several railroad companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

No direct compensation will be made to the contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000 combined single limit
Railroad Protective Liability	\$5,000,000/\$10,000,000

VI. CONTRACTOR'S RIGHT-OF-ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:
 Not Required
 Required: TxDOT to assist in obtaining (see Item 5, Article 8.3)

With the following railroad companies: Union Pacific Railroad
 Required: Contractor to obtain (see Item 5, Article 8.4)

With the following railroad companies: _____

To view previously approved ROE agreement templates agreed upon between the State and railroad company, see:

<http://www.txdot.gov/inside-txdot/division/traffic/samples.html>

Approved ROE agreement templates are not to be modified by the Contractor.

Contractor shall not operate within railroad rights of way without an executed Construction & Maintenance agreement between the state and the railroad and an executed ROE agreement between the contractor and the railroad if required on project.

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:
 Not Required
 Required

See Item 5, Article 8.1 for more details.

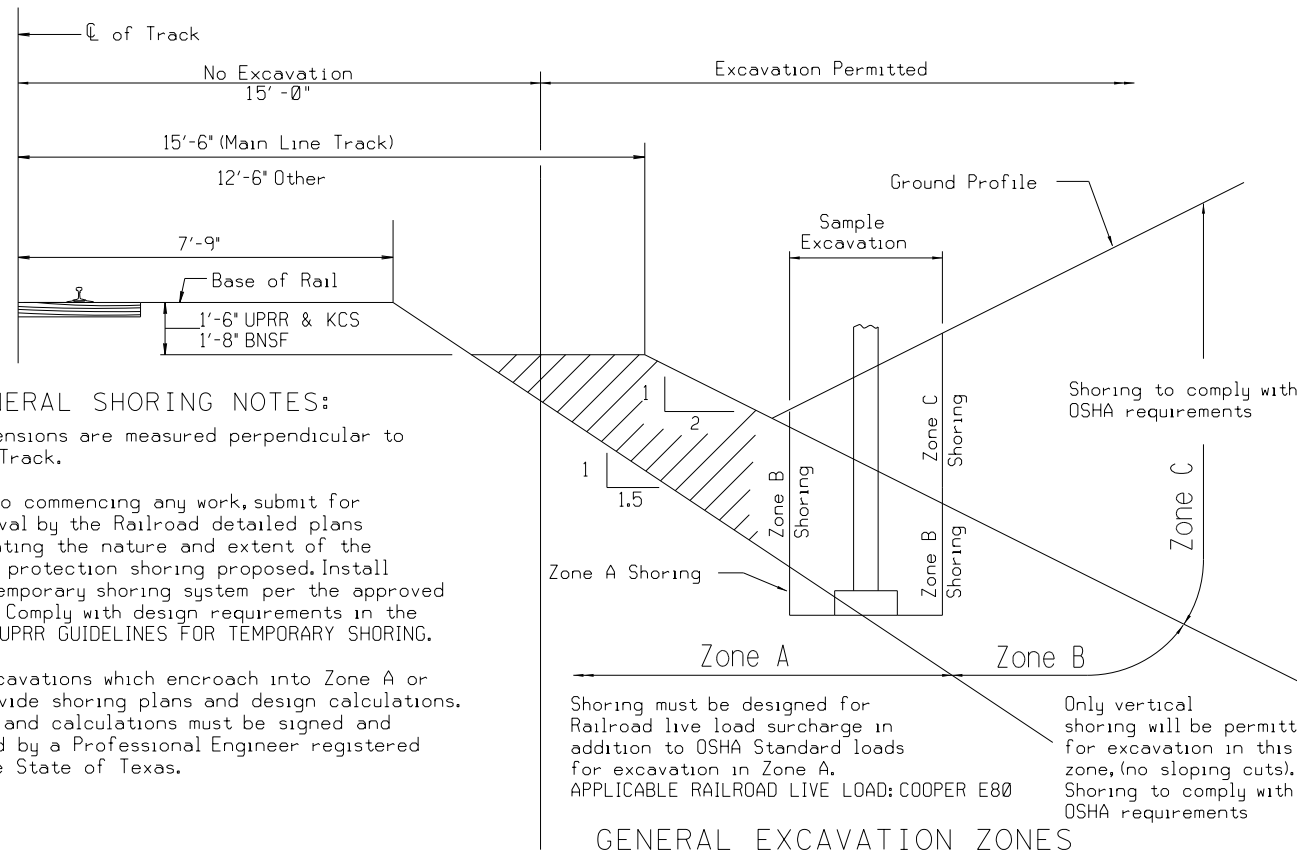
VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

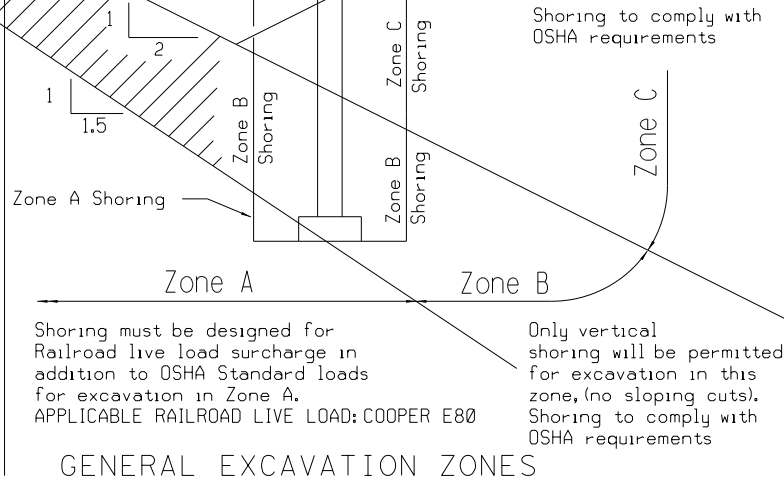
In Case of Railroad Emergency
 Call Union Pacific Railroad (UPRR) Emergency Line
 at 888-877-7267
 Location: DOT #426-572F and 426570S
 RR Milepost 1.08 Palestine Subdivision

Texas Department of Transportation					Traffic Operations Division
RAILROAD SCOPE OF WORK PROJECT SPECIFIC DETAILS					
S HIGH ST AT UPRR AND SABINE ST					
EXHIBIT "A" (100% PLANS)					
DOT # 426571Y (RRMP 1.08) PALESTINE SUBDIVISION					
FILE:	RR Scope of Work.dgn	DN: TxDOT	CK: KWZ	DW: AVB	CK: KWZ
© TxDOT	June 2014	CONT	SECT	JOB	HIGHWAY
10/2015	REVISIONS	0910	07	072	HIGH ST
DIST	COUNTY	SHEET NO.			
TYLER	GREGG	200			



GENERAL SHORING NOTES:

1. All dimensions are measured perpendicular to \bar{C} of Track.
2. Prior to commencing any work, submit for approval by the Railroad detailed plans indicating the nature and extent of the track protection shoring proposed. Install the temporary shoring system per the approved plans. Comply with design requirements in the BNSF/UPRR GUIDELINES FOR TEMPORARY SHORING.
3. For excavations which encroach into Zone A or B, provide shoring plans and design calculations. Plans and calculations must be signed and sealed by a Professional Engineer registered in the State of Texas.



GENERAL SHORING REQUIREMENTS :

RAILROAD GENERAL NOTES:

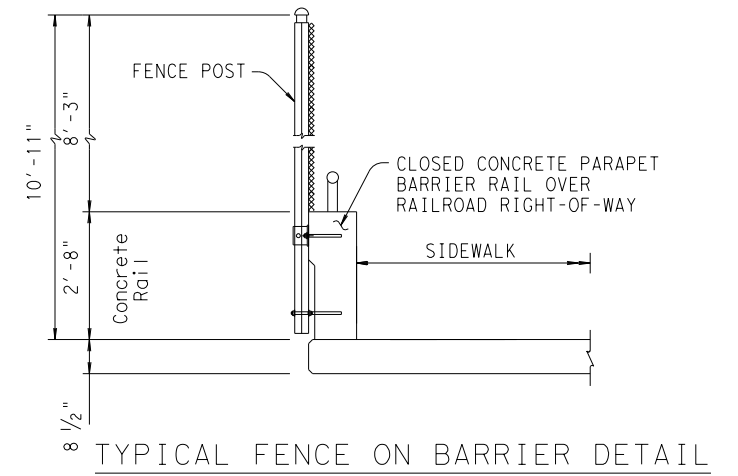
1. Railroad review and approval of shoring, erection, demolition, and falsework is required. Allow a minimum of four weeks for the review and approval of each submittal. See :
2. The proposed grade separation project shall not increase the quantity and/or characteristics of the flow in the Railroad's ditches and/or drainage structures. In the rare event that a grade separation project will increase the quantity and/or characteristics of flow in such elements, such a design must be reviewed and approved by the Railroad.
3. Verify the elevation of the existing top-of-rail profile before beginning construction. Bring all discrepancies to the attention of the Railroad prior to construction.
4. Submit a proposed method of erosion and sediment control for approval by the Railroad.
5. Design and construct all shoring systems that impact the Railroad's operations and/or support the Railroad's embankment per current Railroad Guidelines for Temporary Shoring. See :
6. Comply with Railroad Demolition Guidelines for all demolitions within the Railroad's right-of-way and/or demolition that may impact the Railroad's tracks or operations.
7. Design erection methods over the Railroad's right-of-way to cause no interruption to the Railroad's operation, enabling the track(s) to remain open to traffic per the Railroad's requirements. Coordinate construction work windows with the Railroad's Designated Representative.
8. Design all construction phasing that may impact the Railroad operations to cause no interruption to the Railroad's operations, enabling the track(s) to remain open to traffic per the Railroad's requirements. Coordinate construction work windows with the Railroad's Designated Representative.
9. Comply with minimum construction clearances for falsework outlined in the Railroad's Guidelines.
10. Verify all permanent clearances before project closing.
11. For Railroad coordination please refer to Sheets 2 and 3 and the TxDOT Standard Specifications.

⚠ For shoring/excavations in Zone A or B, TxDOT requires a predesigned and approved shoring design in the PS&E. If this is the case no Contractor submittal is required.

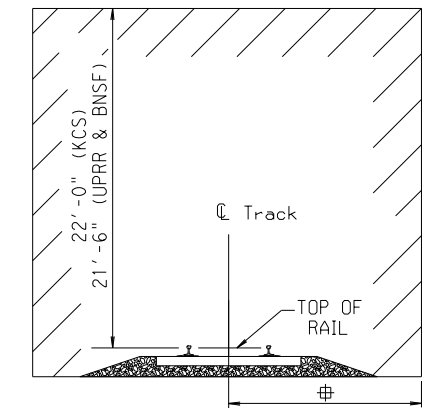
FOR THE FOLLOWING INFORMATION PLEASE REFER TO THE PLAN AND ELEVATION DRAWINGS OF THE BRIDGE PLANS. THE PLAN AND ELEVATION DRAWINGS SHALL SHOW ALL REQUIRED INFORMATION PER BNSF/UPRR GUIDELINES FOR RAILROAD GRADE SEPARATION PROJECT PLAN NO. 711100 SHEET 2.

1. Centerline of bridge and/or centerline of project.
2. Track layout and limits of Railroad right-of-way with respect to centerline of main lines.
3. Future tracks, access roadways and existing tracks as main line, siding, spur, etc.
4. Point of minimum vertical clearance and distance, measured perpendicular, from the centerline of nearest track.
5. Horizontal clearance at right angle from centerline of nearest existing or future track to the face of obstruction such as substructure above grade.
6. Horizontal clearance at right angle from centerline of nearest existing or future track to the face of nearest foundation below grade.
7. Horizontal spacing at right angle between centerlines of existing and/or future tracks.
8. Limits of shoring and minimum distance at right angle from centerline of nearest track.
9. All existing facilities and utilities and their proposed relocation, if required.
10. Toe of riprap or earth slope and/or limits of retaining wall.
11. Existing and proposed contours. (not required if the existing groundlines or drainage characteristics in Railroad ROW will not be altered).
12. Railroad Milepost and direction of increasing Milepost.
13. Direction of flow for all drainage systems within project limits.
14. Limits of barrier rail and fence with respect to centerline of track.
15. Depth of foundation below bottom of tie. (for footings only)
16. Top and bottom of pier protection wall elevation relative to top of rail elevation.
17. Controlling dimensions of drainage ditches and/or drainage structures.
18. Top of rail elevations for all tracks.
19. Minimum permanent vertical clearance above top of high rail to the lowest point under the bridge.
20. Existing and proposed groundline & roadway profile.
21. Type of riprap slope paving.
22. Location of deck drains.
23. Total width of superstructure.
24. Width of shoulder and/or sidewalk.

TABLE OF TOP OF RAIL PROFILE (STATIONS INCREASE WITH MILEPOST INCREASE)			
MAIN LINE			
ALIGNMENT:	LEFT RAIL	ALIGNMENT:	RIGHT RAIL
100' STATIONS	ELEVATION	100' STATIONS	ELEVATION
0+00	292.18	0+00	292.14
1+00	291.62	1+00	291.62
2+00	291.28	2+00	291.28
3+00	291.12	3+00	291.12
4+00	290.98	4+00	290.97
5+00	290.84	5+00	290.81
6+00	290.70	6+00	290.66
7+00	290.55	7+00	290.50
8+00	290.41	8+00	290.34
9+00	290.27	9+00	290.19
10+00	290.05	10+00	289.96
11+00	289.50	11+00	289.50
12+00	288.92	12+00	288.92
13+00	288.31	13+00	288.32
14+00	287.41	14+00	287.46
15+00	286.63	15+00	286.67
16+00	285.78	16+00	285.85
17+00	285.06	17+00	285.10
18+00	284.37	18+00	284.37
19+00	283.58	19+00	283.66



NO CONSTRUCTION ACTIVITIES OR OTHER OBSTRUCTION SHALL BE PLACED WITHIN THESE LIMITS



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

(NORMAL TO RAILROAD)
 ⚠ 15'-0" (BNSF), 14'-0" (KCS), and 15'-0" (UPRR)

GENERAL NOTES:

Design and Construction for Railroad Projects shall be in accordance with the AREMA Manual for Railway Engineering and BNSF/UPRR Guidelines for Railroad Grade Separation Projects (as annotated by TxDOT) or Kansas City Southern Guidelines for the Design and Construction of Overpasses and Underpasses, or DART Light Rail Project Design Criteria Manual, and the TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges AS APPLICABLE TO THE RAILROAD COMPANY INVOLVED.
 See BNSF/UPRR Guidelines for Grade Separation Projects Plan No. 711100 and TxDOT Railroad Fence Details Sheet for additional information. A curved top fence extending 8'-0" above top of sidewalk is acceptable only where there is a traffic rail between roadway and sidewalk.
 See Kansas City Southern Guidelines for the Design and Construction of Overpasses and Underpasses for corresponding BNSF/UPRR sheets referenced.

SHEET 1 OF 3



7/22/2021

RAILROAD REQUIREMENTS FOR BRIDGE CONSTRUCTION S HIGH ST AT UPRR AND SABINE ST EXHIBIT "A" (100% PLANS) DOT # 426571Y (RRMP 1,08) PALESTINE SUBDIVISION				
FILE:	DN: TxDOT	CK: KWZ	DW: AVB	CK: KWZ
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REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	201	

PART 1 - GENERAL

1.01 DESCRIPTION

This project includes construction work within the Right-of-Way and/or properties of the Railroad Company and adjacent to its tracks, wire lines and other facilities. These sheets describe the minimum special requirements for coordination with the Railroad when working upon, over or under Railroad Right-of-Way or when impacting current or future Railroad operations. Coordinate with the Railroad while performing the work outlined herein, and afford the same cooperation with the Railroad as with TxDOT. Complete all submittals and work in accordance with TxDOT Standard Specifications, Railroad Guidelines and AREMA recommendations as modified by these minimum special requirements or as directed in writing by the Railroad Designated Representative.

For purposes of this project, the Railroad Designated Representative is the person or persons designated by the Railroad Manager of Industry and Public Projects to handle specific tasks related to the project.

1.02 REQUEST FOR INFORMATION / CLARIFICATION

Submit Requests for Information ("RFI") involving work within any Railroad Right-Of-Way to the TxDOT Engineer. The TxDOT Engineer will submit the RFI to the Railroad Designated Representative for review and approval for RFI's corresponding to work within Railroad Right-Of-Way. Allow six (6) weeks total time for review and approval, which includes four (4) weeks for review and approval by the Railroad.

1.03 PLANS / SPECIFICATIONS

TxDOT has received written Railroad approval of the plans and specifications for this project. Any revisions or changes in the plans after award of the Contract must have the approval of TxDOT and the Railroad.

PART 2 - UTILITIES AND FIBER OPTIC

Construct all utility installations in accordance with current AREMA recommendations, Railroad, TxDOT and owning utility specifications and requirements. Railroad general guidelines can be found on the Railroad website or by contacting the Railroad Designated Representative.

PART 3 - CONSTRUCTION

3.01 GENERAL

- A. Perform all work in compliance with all applicable Railroad, FRA (Federal Railway Administration) and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of Railroad train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.
- B. Construction activities within 12 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 12 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.
- C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor machinery and materials at least 50 feet from the Railroad's nearest track.
- D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with Railroad approval.
- E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.

3.02 RAILROAD OPERATIONS

- A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.
- B. All railroad tracks within and adjacent to the Contract Site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. Railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.
- C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:

- 1. **Conditional Work Window:** A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a Railroad flag person will be required. At the direction of the Railroad flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.
- 2. **Absolute Work Window:** An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. Railroad flag persons will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

- A. Do not perform any work within Railroad Right-of-Way without a valid executed Right of Entry Agreement if required on this project.
- B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right-of-Way and observe the Railroad's rules and regulations with respect thereto.
- C. Perform all work upon Railroad Right-of-Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.18 for railroad flagging requirements.
- D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
 - 1. Exactly what the work entails.
 - 2. The days and hours that work will be performed.
 - 3. The exact location of work, and proximity to the tracks.
 - 4. The type of window requested and the amount of time requested.
 - 5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.
- E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

3.04 INSURANCE

Do not begin work upon or over Railroad Right-of-Way until furnishing the Railroad with the insurance policies, binders, certificates and endorsements required by the "Contractor's Right-of-Entry Agreement", and until the Railroad Designated Representative has advised TxDOT that such insurance is in accordance with the Agreement.

3.05 RAILROAD SAFETY ORIENTATION

- A. Complete the Railroad course "Orientation for Contractor's Safety", and maintain current registration prior to working on Railroad property. This orientation is available at www.contractororientation.com. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

"KCS/TEXMEX will not accept on-track safety training certificates from other railroads. Contractor's employees entering the KCS railroad shall hold current certificates at all times. The training can be had by contacting Larry Slater of TrackSense Inc. at 330-847-8661 or by email at lslater@neo.rr.com."
- B. Know and follow the "Contractor's Right of Entry Agreement" EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

3.06 COOPERATION

The Railroad will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of Railroad Right-of-Way in performing the work.


3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

Abide by the following minimum temporary clearances during the course of construction:
 A. 15' - 0" (BNSF), 14' - 0" (KCS), and 12' - 0" (UPRR) horizontal from centerline of track
 B. 22' - 0" (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

For construction clearance less than listed above, obtain local Railroad Operating Unit review and approval.

3.08 APPROVAL OF REDUCED CLEARANCES

- A. Maintain minimum track clearances during construction as specified in Section 3.07.
- B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.
- C. Do not commence work involving an approved infringement until receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

 Texas Department of Transportation		Traffic Operations Division		
RAILROAD REQUIREMENTS FOR BRIDGE CONSTRUCTION				
S HIGH ST AT UPRR AND SABINE ST				
EXHIBIT "A" (100% PLANS)				
DOT # 426571Y (RRMP 1.08) PALESTINE SUBDIVISION				
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3.09 CONSTRUCTION AND AS-BUILT SUBMITTALS

- A. Provide TxDOT submittals for construction materials and procedures as outlined below and indicated in TxDOT Standard Specifications. A summary of most TxDOT submittal requirements can be found at: [www.dot.state.tx.us/publications/bridge/items reviewed.pdf](http://www.dot.state.tx.us/publications/bridge/items%20reviewed.pdf)
- B. The tables below provide the Railroad's minimum submittal requirements for the construction items noted. Submittal requirements are in addition to those specified elsewhere in these bid documents. The review times indicated below represent the total time, including the Railroad's required four (4) weeks.
- C. TxDOT will forward relevant submittals to the Railroad Manager of Industry and Public Projects unless otherwise directed by the Railroad. TxDOT and the Engineer of Record will review and include comments prior to forwarding to the Railroad. Submit items in Table 1 for both railroad overpass and underpass projects, as applicable. Submit items in Table 2 for railroad underpass projects only.

TABLE 1 - RAILROAD SUBMITTAL REQUIREMENTS FOR OVERPASS & UNDERPASS PROJECTS

ITEM	DESCRIPTION	SETS	REVIEW TIME
1	Shoring design and details	6	6 weeks
2	Falsework design and details	6	6 weeks
3	Drainage design provisions	6	6 weeks
4	Erection diagrams and sequence	6	6 weeks
5	Demolition diagram and sequence	6	6 weeks

TABLE 2 - RAILROAD SUBMITTAL REQUIREMENTS FOR UNDERPASS PROJECTS

ITEM	DESCRIPTION	SETS	NOTES	REVIEW TIME
1	Shop drawings	6	Steel and Concrete members	6 weeks
2	Bearings	6	For all structures	6 weeks
3	Concrete Mix Designs	6	For all structures	6 weeks
4	Rebar & Strand certifications	6	For superstructure only	6 weeks
5	28 day concrete strength	6	For superstructure only	6 weeks
6	Waterproofing material certifications and installation procedure	6	Waterproofing & protective boards	6 weeks
7	Structural steel certifications	6	All fracture critical members & other members requiring improved notch toughness	6 weeks
8	Fabrication and Test reports	6	All fracture critical members & other members requiring improved notch toughness	6 weeks
9	Welding Procedures and Welder Certification	6	AWS requirements	6 weeks
10	Foundation Construction Reports or Notes	6	Pile driving, drilled shaft construction, bearing pressure test reports for spread footings	6 weeks
11	Compaction testing reports for backfill at abutments	6	Must meet 95% maximum dry density, Modified Procter ASTM D1557	6 weeks

- D. TxDOT shall submit As-Built Records to the Railroad when TxDOT has processed the final project plans. These records shall consist of the following items:

Overpass Projects

1. Electronic files of all structure design drawings with as-constructed modifications shown, in Microstation J or Acrobat .PDF format.
2. Hard copies of all structure design drawings with as-constructed modifications shown.

Underpass Projects

1. Electronic files of all structure design drawings with as-constructed modifications shown, in Microstation J or Acrobat .PDF format.
2. Hard copies of all structure design drawings with as-constructed modifications shown.
3. Final approved copies of shop drawings for concrete and steel members.
4. Foundation Construction Reports
5. Compaction testing reports for backfill at abutments

3.10 APPROVAL OF DETAILS

Submit details of the construction affecting Railroad tracks and property not already included in the Contract Plans to the Railroad Designated Representative through TxDOT for the Railroad's review and written approval before such work is undertaken. Allow a total six (6) weeks for review and approval of these submittals, which includes the Railroad's four (4) week review time.

3.11 MAINTENANCE OF RAILROAD FACILITIES

- A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right-of-Way and repair any other damage to the property of the Railroad, or its tenants.
- B. Perform all such maintenance and repair of damages due to the Contractor's operations at Contractor's expense.
- C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the Project Site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.12 SITE INSPECTIONS BY RAILROAD'S DESIGNATED REPRESENTATIVE

- A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
 1. Pre-construction meetings.
 2. Pile driving/drilling of caissons or drilled shafts.
 3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
 4. Erection of precast concrete or steel bridge superstructure.
 5. Placement of waterproofing (prior to placing ballast on bridge deck).
 6. Completion of the bridge structure.
- B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.
- C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.13 RAILROAD REPRESENTATIVES

Railroad representatives, conductors, flag person or watch person will be provided by the Railroad at expense of TxDOT to protect Railroad facilities, property and movements of its trains or engines. In general, the Railroad will furnish such personnel or other protective services as follows:

- A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.
- B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other Railroad facilities may be subject to settlement or movement.
- C. During any clearing, grubbing, excavation or grading in proximity to Railroad facilities, which, in the opinion of the Railroad Designated Representative, may endanger Railroad facilities or operations.
- D. During any contractor's operations when, in the opinion of the Railroad Designated Representative, Railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.
- E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.14 WALKWAYS REQUIRED

Maintain along the outer side of each exterior track of multiple operated track, and on each side of single operated track, an unobstructed continuous space suitable for trainman's use in walking along trains, extending to a line not less than twelve feet (12') from centerline of track. Remove any temporary impediments to walkways and track drainage encroachments or obstructions allowed during work hours before the close of each work day. Construct walkways with railings over open excavation areas when in close proximity of track. Do not violate allowable clearances of these railings to centerline of track: 8' - 6" horizontally for tangent track or 9' - 6" horizontally for curved track.

3.15 COMMUNICATIONS AND SIGNAL LINES

If required, the Railroad will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by the Railroad's forces in connection with its operation at expense of TxDOT. This work by the Railroad will be done by its own forces and it is not a part of the Work under this Contract.

3.16 TRAFFIC CONTROL

Coordinate any operations that control traffic across or around Railroad facilities with the Railroad Designated Representative.

3.17 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

- A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".
- B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

UPRR 1-800-336-9193
7:00 AM to 9:00 PM CST Monday-Friday except holidays,
staffed 24 hrs/day for emergencies
48 hrs notice required

BNSF 1-800-533-2891
24 hour number
5 working days notice required

KCS 1-800-344-8377
Texas One Call, a 24 hour number
48 hrs notice required, excluding weekends and holidays

If a telecommunications system is buried anywhere on or near Railroad property, coordinate with TxDOT, the Railroad and the Telecommunication Company(ies) to arrange for relocation or protective measures prior to beginning work on or near Railroad property. Refer to the project General Notes for additional information.


- C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor-assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of 1/4" vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

3.18 RAILROAD FLAGGING

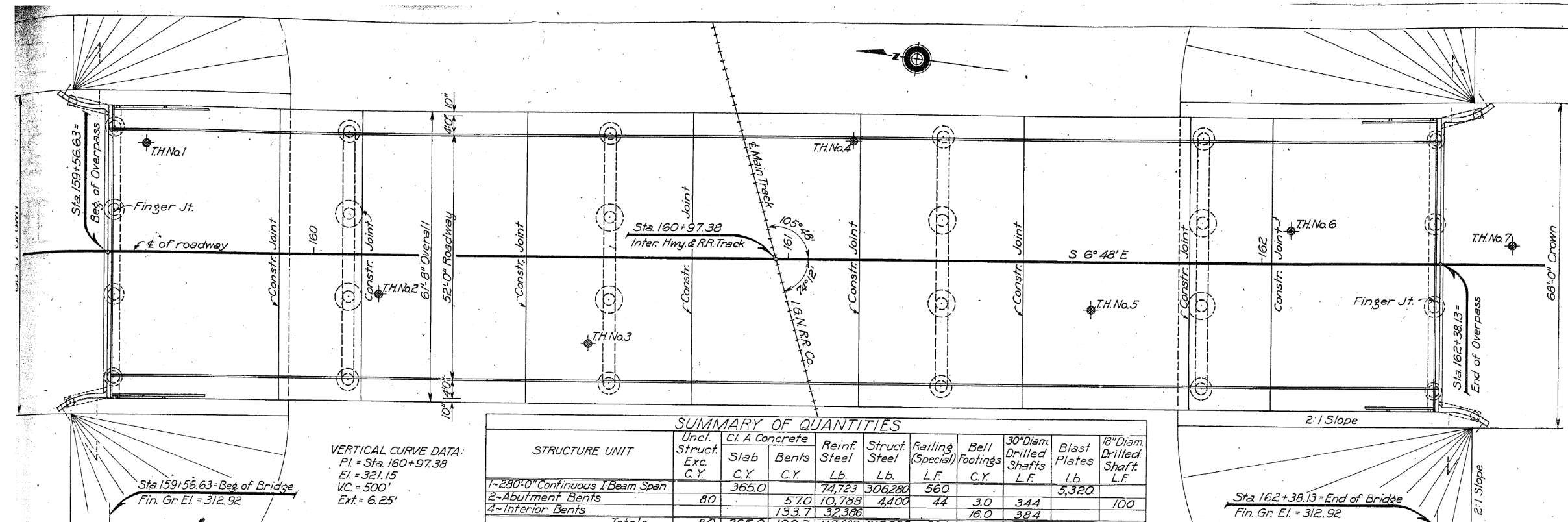
Per the RIGHT OF ENTRY agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor work and at least 30 working days in advance of any Contractor work in which any person or equipment will be within 25 feet of nearest rail.

3.19 CLEANING OF RIGHT-OF-WAY

When work is complete, remove all tools, implements, and other materials brought into Railroad Right-of-Way and leave the Right-of-Way in a clean and presentable condition to the satisfaction of TxDOT and the Railroad.

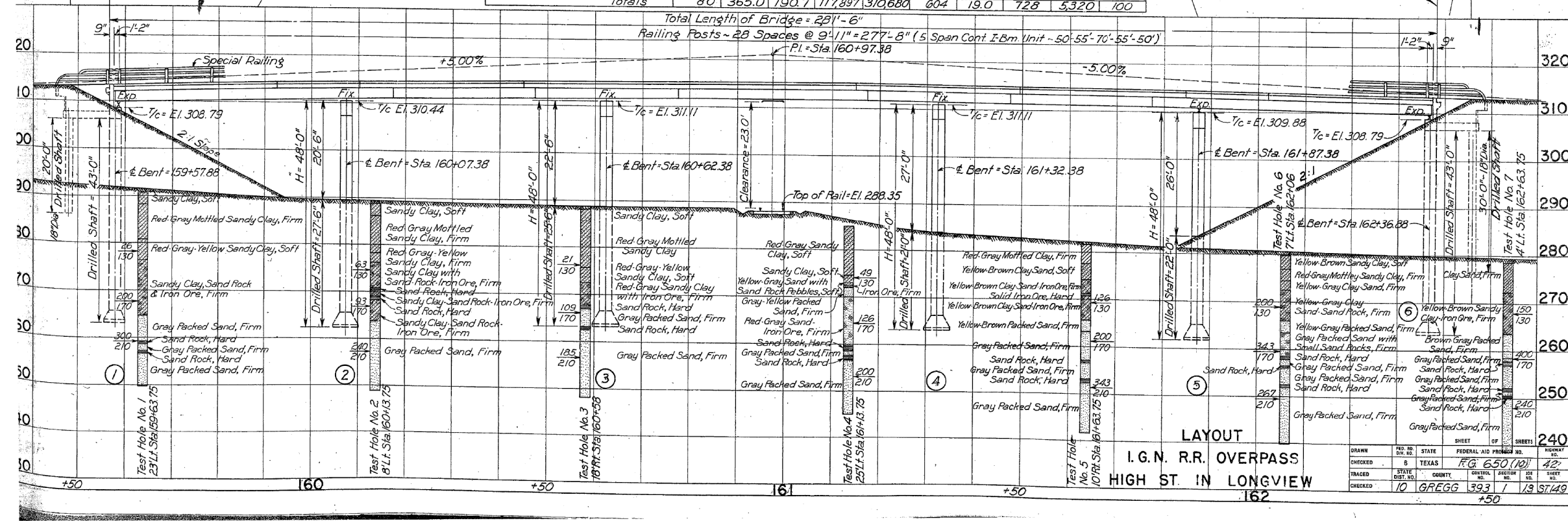
 Texas Department of Transportation		Traffic Operations Division		
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DATE: 7/22/2021
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VERTICAL CURVE DATA:
 P.I. = Sta. 160+97.38
 E.I. = 321.15
 V.C. = 500'
 Ext. = 6.25'

STRUCTURE UNIT	Uncl. Struct. Exc. C.Y.	CL A Concrete		Reinf. Steel Lb.	Struct. Steel Lb.	Railing (Special) L.F.	Bell Footings C.Y.	30" Diam. Drilled Shafts L.F.	Blast Plates Lb.	18" Diam. Drilled Shaft L.F.
		Slab	Bents							
1-280'-0" Continuous I-Beam Span	80	365.0	57.0	74,723	306,280	560	3.0	344	5,320	100
2-Abutment Bents			133.7	10,788	4,400	44	16.0	384		
4-Interior Bents			190.7	32,386	117,897	604	19.0	728		
Totals	80	365.0	190.7	117,897	310,680	604	19.0	728	5,320	100



LAYOUT
 I.G.N. R.R. OVERPASS
 HIGH ST IN LONGVIEW

DRAWN	REV. NO.	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
CHECKED	8	TEXAS	F.G. 650 (10)	42
TRACED	DATE	COUNTY	CENTRAL	SECTION
CHECKED	10	GREGG	393	1
			13	ST. 49

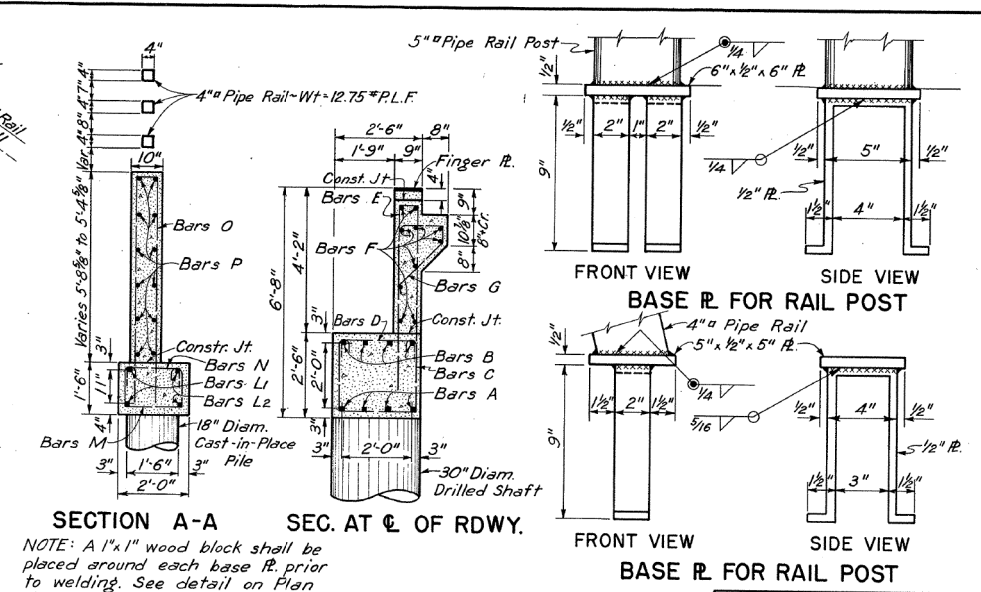
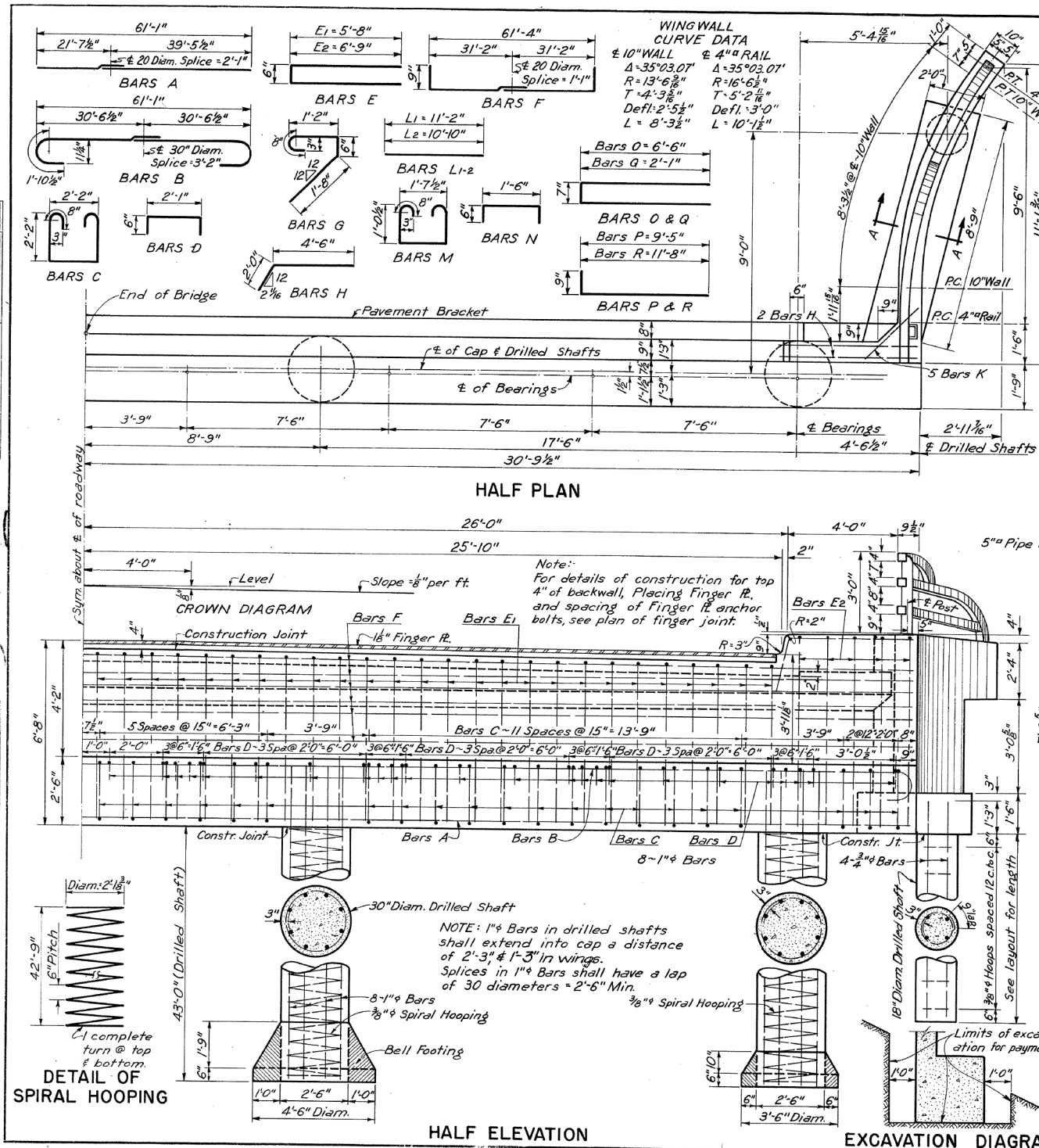
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 S HIGH ST AT UPRR AND SABINE ST

AS BUILT BRIDGE LAYOUTS

FOR CONTRACTOR'S INFORMATION ONLY

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			SHEET NO.
JMT			204

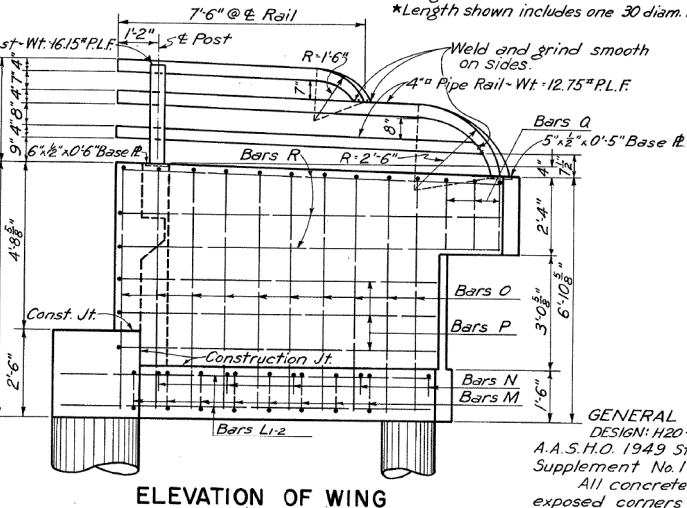
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SECTION A-A SEC. AT C OF RDWY.
 NOTE: A 1"x1" wood block shall be placed around each base R prior to welding. See detail on Plan for Bridge Railing.

**BILL OF REINFORCING STEEL
 ONE ABUTMENT BENT**

BAR NO.	SIZE	SPAC.	LENGTH	WEIGHT	
A	1/2"	~	63'-2"	13.42	
B	1/2"	~	67'-4"	14.26	
C	42	1/2"	2'-11 1/2"	2.13	
D	48	1/2"	6'-2 1/2"	3'-14	9.9
E1	52	3/8"	12"	11'-10"	6.42
E2	10	3/8"	12"	14'-0"	1.46
F	10	3/8"	~	63'-11"	6.67
G	57	1/2"	12"	3'-10"	1.46
H	4	3/8"	5"	6'-6"	2.7
K	10	3/8"	12"	2'-8"	2.8
L1	4	1"	~	11'-2"	1.52
L2	4	1"	~	10'-10"	1.47
M	16	1/2"	12"	4'-10"	5.1
N	10	1/2"	24"	2'-5"	1.7
O	20	1/2"	11'-2"	13'-7"	1.81
P	6	1/2"	12"	10'-2"	4.1
Q	6	1/2"	11'-2"	4'-9"	1.9
R	6	1/2"	12'-2"	12'-5"	5.0
TOTAL				5,394	



NOTE:
 For details of rail and post connections see plan of railing.
 Base Rs and anchors shall be included in price bid per lin. ft for railing.
 All open ends of 4" Pipe Rail shall be plugged. See plan of railing for details.

ESTIMATED QUANTITIES ~ ONE ABUTMENT BENT

ITEM	UNIT	QUANTITY
CLASS A CONCRETE	Cu. Yd.	28.5
REINFORCING STEEL	Lb.	5,394
DRILLED SHAFT, 30" DIAM.	Lin. Ft.	172
BELL FOOTING	Cu. Yd.	1.5
STRUCTURAL STEEL (Finger Joint)	Lb.	2,200
SPECIAL RAILING	Lin. Ft.	220

TEXAS HIGHWAY DEPARTMENT
ABUTMENT BENTS NO. 1 & 6
 I-G.N. RAILROAD OVERPASS

DR. - L.P.	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CK. DR. - H.K.R.	Original	June 1950	6	TEXAS	FG 650 (10)	43
DESIGNER - L.P.	COUNTY	CONTRACT SECTION	NO.	POS.	JOB REC.	ROUTE NO.
TR. - A.O.B.	10	GREGG	393	1	13	ST. 149
CR. TR. - A.B.T.						



S HIGH ST AT UPRR AND SABINE ST

AS BUILT BRIDGE LAYOUTS

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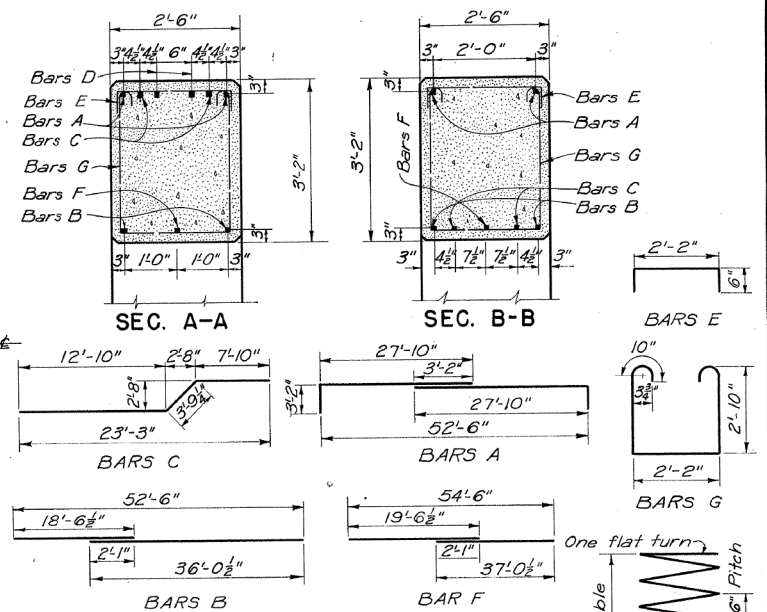
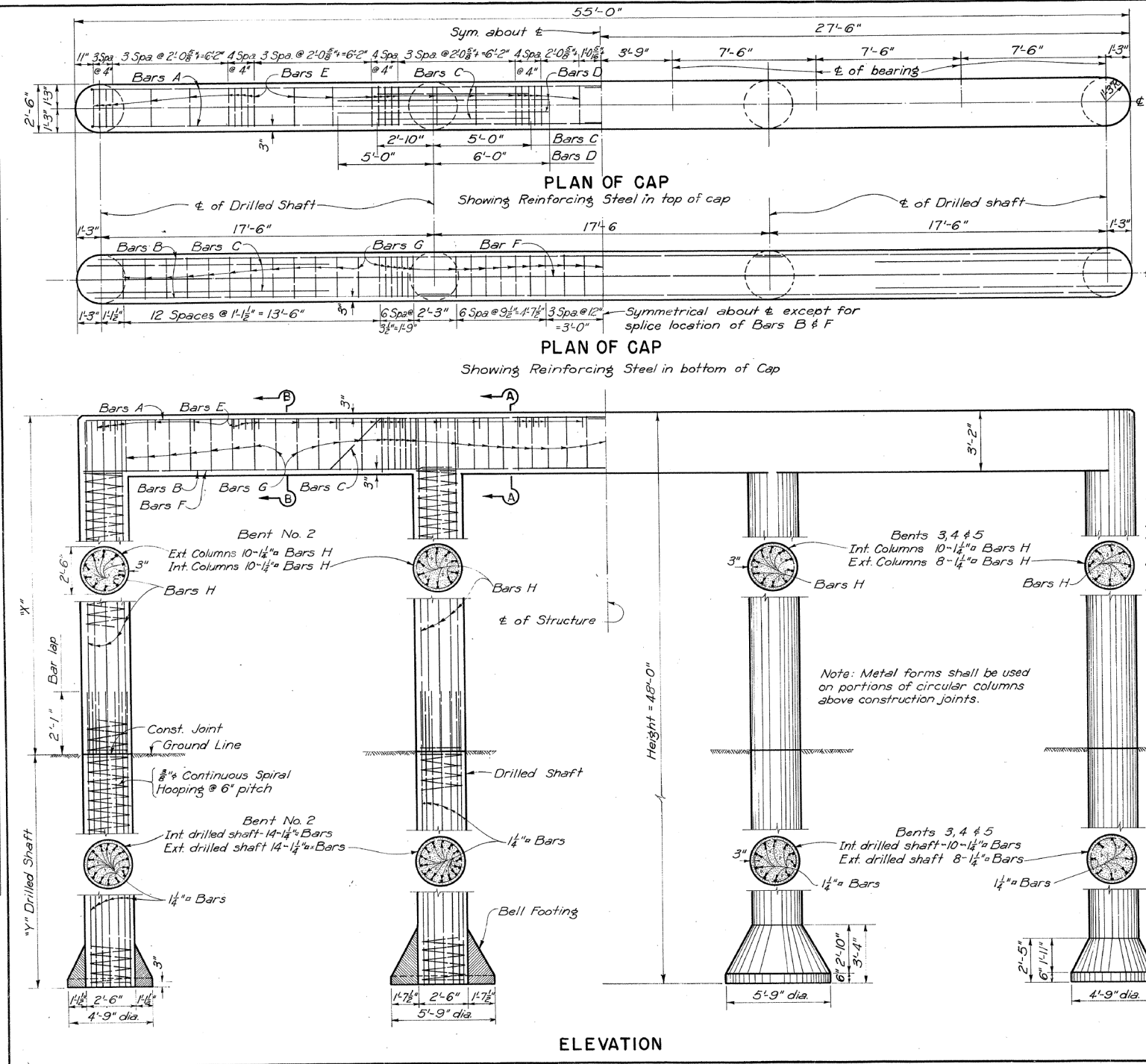
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JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
JMT			205

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543

PLAN
 CHECKED BY: []
 DATE: []
 DRAWN BY: []
 DATE: []

PROFILE
 CHECKED BY: []
 DATE: []
 DRAWN BY: []
 DATE: []



GENERAL NOTES:
 Designed for H20-44 Loading in accordance with A.A.S.H.O. 1949 Specifications as amended by T.H.D. Supplement #1.
 All concrete shall be Class A. Chamfer exposed corners 3/8" unless otherwise noted.
 Dimensions relating to reinforcing steel are to centers of bar.
 The 2'-1" bar lap in vertical bar shall be included in unit price bid for Drilled Shaft.
 Average calculated Footing Pressure = 5.5 Tons/ft².

BILL OF CONSTANT REINFORCING STEEL

Bar No.	Size	Spec.	Length	Weight
A + 2	1/4"	shown	62'-0"	659
B * 2	1/4"	shown	54'-7"	580
C 4	1/4"	shown	24'-5"	519
D 4	1/4"	shown	11'-0"	234
E 52	1/2"	shown	3'-2"	110
F 1	1/4"	shown	56'-7"	301
G 57	3/8"	shown	9'-2"	545
Total				2948

BILL OF VARIABLE REINFORCING STEEL AND TOTAL QUANTITIES

Bent No.	Variable Dimension		1/4" Bars H		3/8" Spiral Hooping		Total Quantities		Bell	
	X	Y	No	Lgth	Lgth	Wt.	Lbs	Cu Yds	Cu Yds	Wt.
2	20'-6"	27'-6"	40	20'-2"	1176'	442	76.77	30.9	4.0	
3	22'-6"	25'-6"	36	22'-2"	1287'	483	76.71	32.3	4.0	
4	27'-0"	21'-0"	36	26'-8"	1531'	576	86.25	35.6	4.0	
5	26'-0"	22'-0"	36	25'-8"	1476'	555	84.13	34.9	4.0	

NOTE:
 Reinforcing steel & concrete in drilled shaft is not included in total Quantity table above.

TEXAS HIGHWAY DEPARTMENT
INTERIOR BENTS
NOS. 2, 3, 4 & 5
 52'-0" RDWY. 9" CURBS 4'-0" SIDEWALKS
 I-G. RAILROAD OVERPASS

CON.	DATE	REV.	BY	DATE	REV.	BY	DATE	REV.	BY
1	7/22/2021	1	JMT	7/22/2021	1	JMT	7/22/2021	1	JMT

JMT TBPE REGISTRATION NO. F-16341

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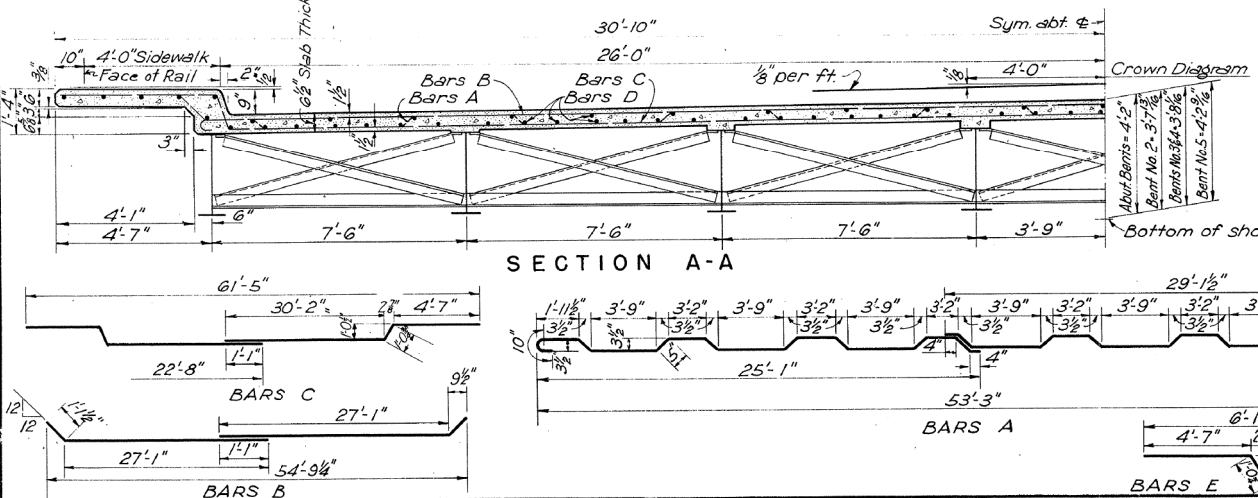
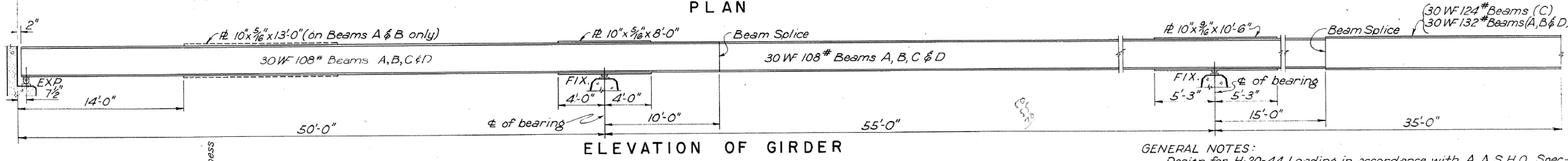
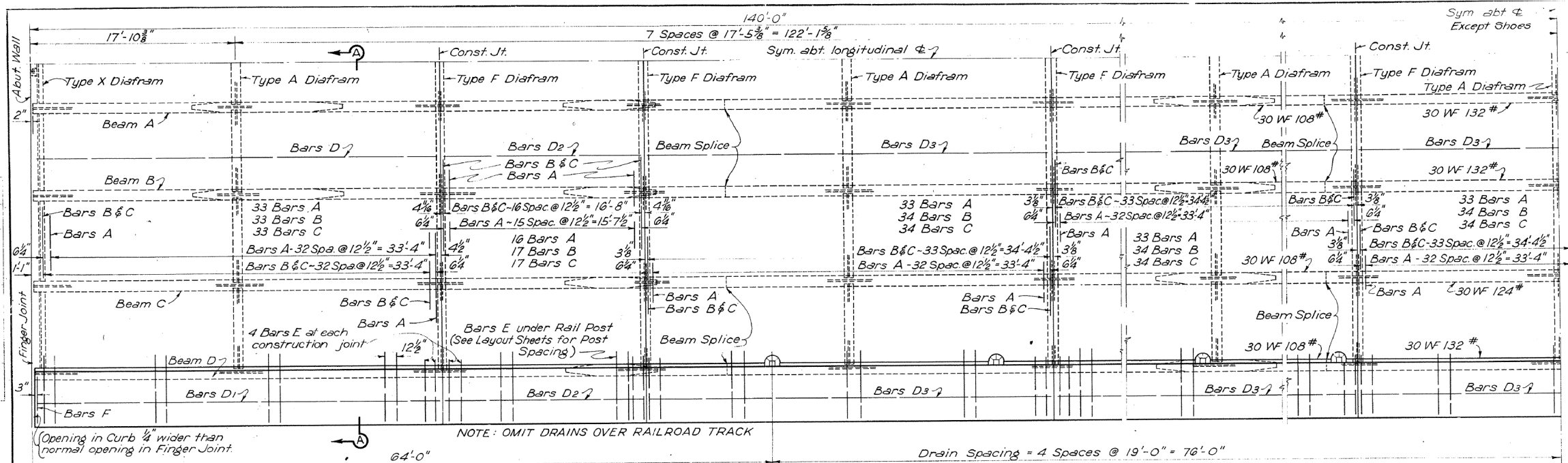
Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

FOR CONTRACTOR'S INFORMATION ONLY

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK	SECTION	JOB	SHEET NO.
JMT			206

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BILL OF REINFORCING STEEL

Bar	No.	Size	Spacing	Length	Weight
A	263	5/8"	12 1/2"	57'-5"	15,750
B	270	5/8"	12 1/2"	56'-5"	15,888
C	270	5/8"	12 1/2"	64'-1"	18,046
D	144	5/8"	Shown	34'-2"	5,132
D1	24	5/8"	Shown	34'-6"	864
D2	164	5/8"	Shown	17'-2"	2,936
D3	410	5/8"	Shown	34'-8"	14,825
E	172	5/8"	12 1/2" Stagger	7'-0"	1,256
F	4	5/8"	-	6'-4"	26
Total					Lbs. 74,723

ESTIMATED QUANTITIES

Class A Concrete	Cu.Yds.	365.0
Reinforcing Steel	Lbs.	74,723
Structural Steel	Lbs.	296,200
One Finger Joint	Lbs.	10,080
Railing	Lin.Ft.	560

GENERAL NOTES:
 Design for H-20-44 Loading in accordance with A. A. S. H. O. Specifications as amended by T. H. D. Supplement No. 1.
 All concrete shall be Class A. Chamfer all exposed corners 3/4" except as otherwise noted.
 Dimensions relating to reinforcing steel are to centers of bars.
 Each series of bearings shall be accurately aligned and set to a common elevation on beds of Portland Cement (dry or paste) of the thickness required to remove irregularities from the bearing seat.

TEXAS HIGHWAY DEPARTMENT
280' CONT. I-BEAM UNIT
 52'-0" RDWY. 9" CURBS 4'-0" SIDEWALKS
 I.G.N RAILROAD OVERPASS

Sheet 1 of 2

CHK	DATE	BY	REVISION
CK ON MFR	Original	May-1950	
DW	HMA		
CK ON A.B.C.			
TR	O.C.K.		
CK/CR	H.M.		



S HIGH ST AT UPRR AND SABINE ST

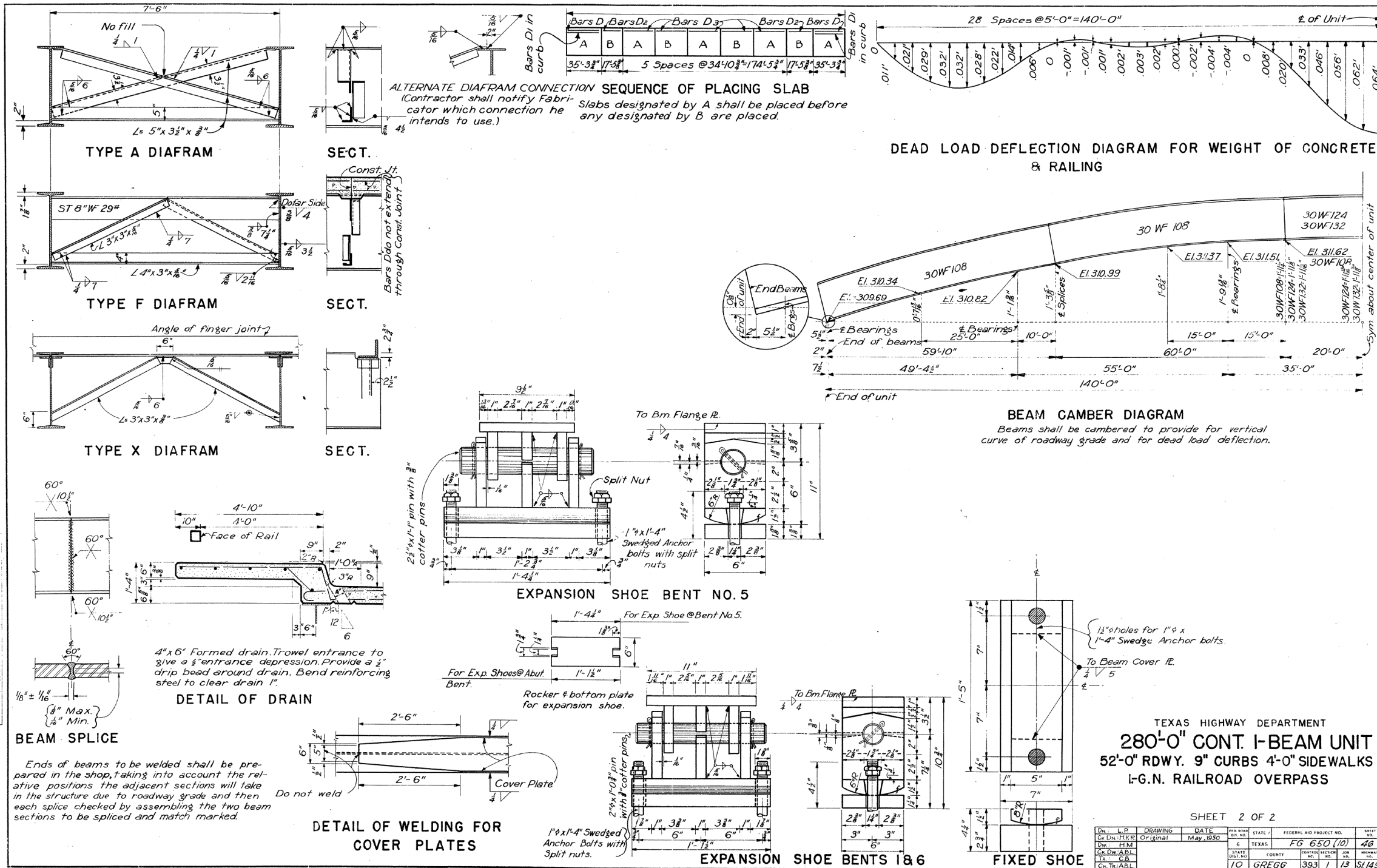
AS BUILT BRIDGE LAYOUTS

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DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK	DATE	BY	SHEET NO.
JMT			207

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TEXAS HIGHWAY DEPARTMENT
280'-0" CONT. I-BEAM UNIT
 52'-0" RDWY. 9" CURBS 4'-0" SIDEWALKS
 I-G.N. RAILROAD OVERPASS

SHEET 2 OF 2

DR. L.P.	DRAWING	DATE	REV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
CDLH/HKR	Original	May, 1950		TEXAS	FG 630 (10)	48
CDLW/ABL						
TR. G.A.						
CDLH/ABL						
CDLH/ABL						

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 S HIGH ST AT UPRR AND SABINE ST

AS BUILT BRIDGE LAYOUTS

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			
JMT			

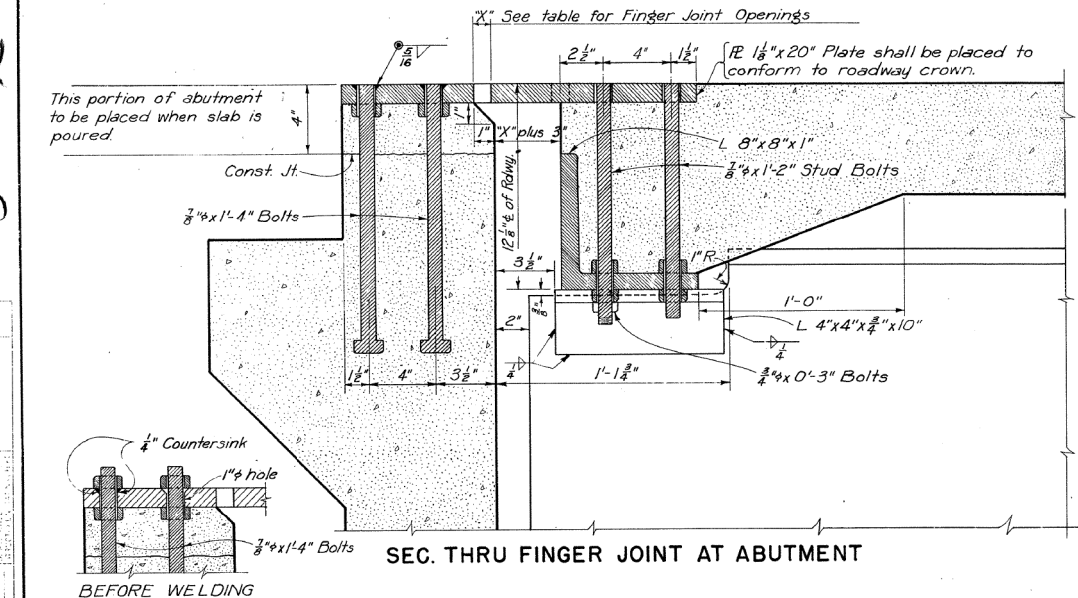
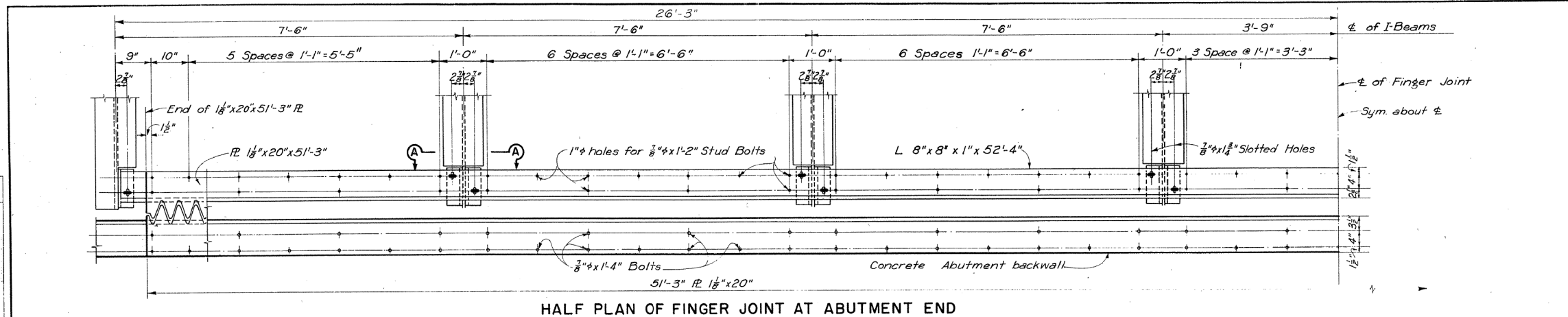
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PLAN	DATE	BY
NOTE BOOK		

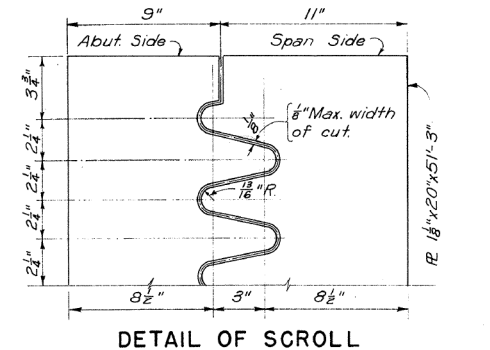
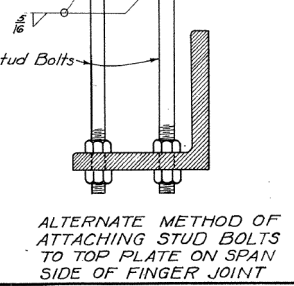
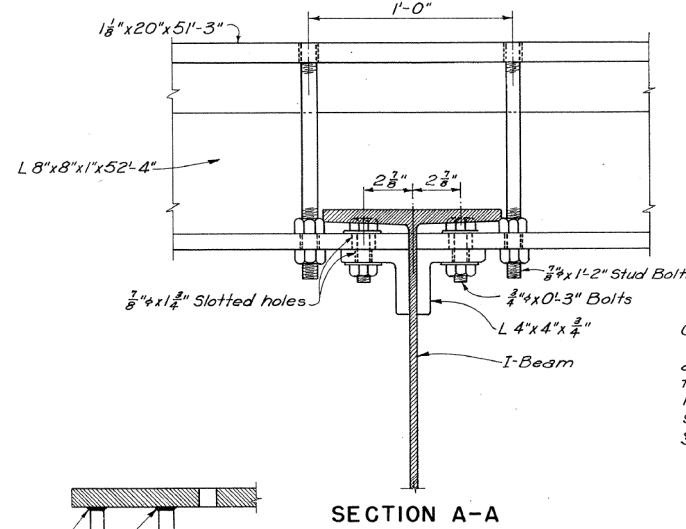
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PROFILE	DATE	BY
NOTE BOOK		



NOTE:
 The plate shall be securely positioned by nuts above and below the plate at each bolt. Then the upper nuts shall be removed, the tops of the bolts burned off flush with the top of plate and welded. The procedure being such as to securely hold the plates in place throughout cutting and welding operations. After welding grind or chip any irregularities on the surface of the plate.

At Bent Number	X" Openings at Temperature of	110° F	70° F	10° F
1		1/4"	3/4"	1 1/4"
6		1/4"	1 1/8"	2"



The scroll shall be made by a single cut of a machine guided torch. Spread as required. Grind off burrs on the roadway surface of the cut.

GENERAL NOTES:
 The Finger Joint shall be completely shop assembled, adjusted to the position it will take in the structure, and the meshing of the finger checked, fitted, and match marked for field erection. The top surface of the joint shall conform to the roadway crown, and the roadway grade.
 All metal for finger joints shall be structural steel.

TEXAS HIGHWAY DEPARTMENT
 FINGER JOINT DETAIL
 52'-0" RDWY. 9" CURBS 4'-0" SIDEWALKS
 I-G.N. RAILROAD OVERPASS

CON. L.P.	DATE	REV.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
Original	May 1950	6	TEXAS	FG 650 (10)	47
REV. H.M.					
REV. C.W.R.					
REV. H.M.					

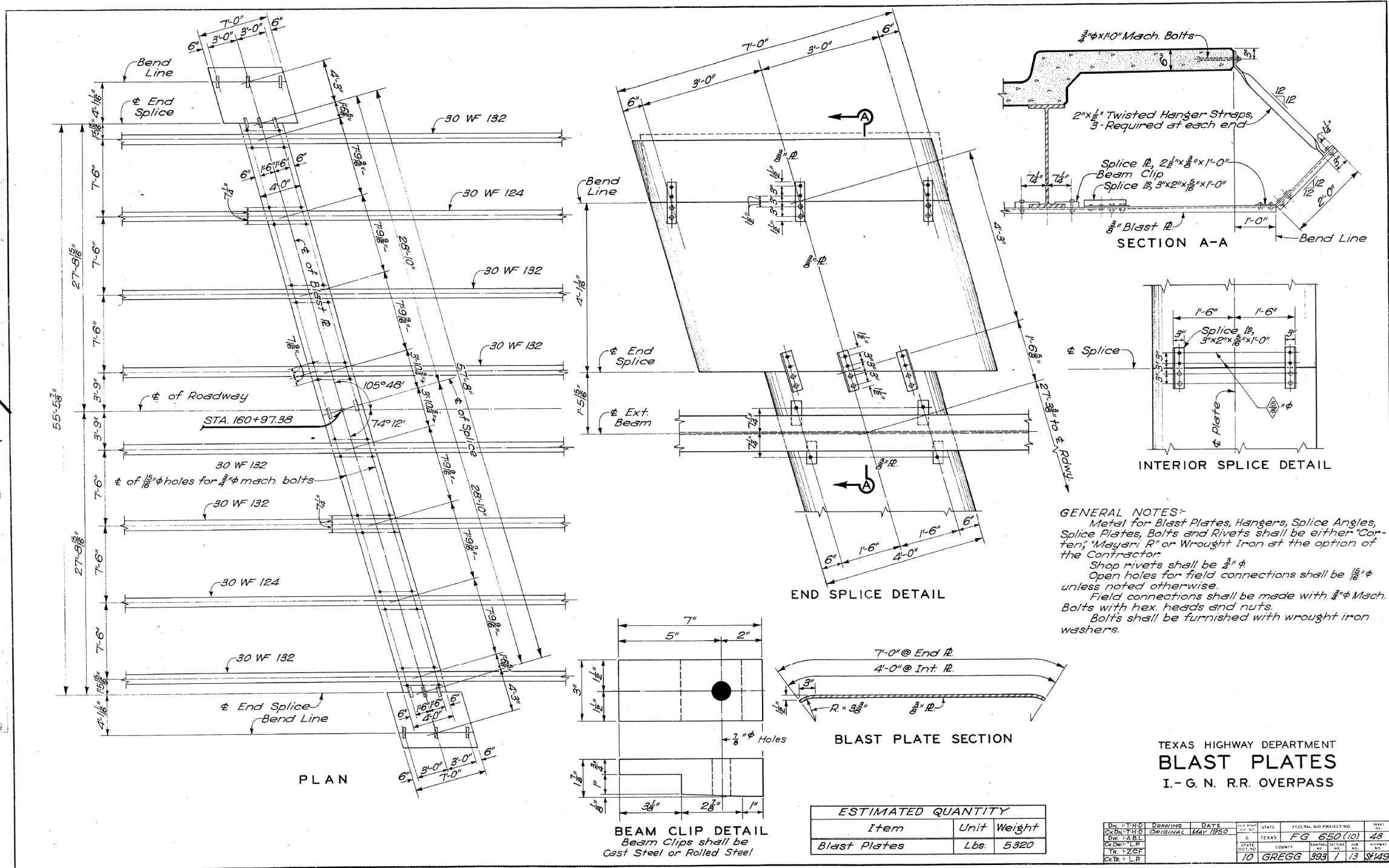
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GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			
JMT			

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BEAM CLIP DETAIL
 Beam Clips shall be Cast Steel or Rolled Steel.

ESTIMATED QUANTITY		
Item	Unit	Weight
Blast Plates	Lbs.	5320

DATE	DRAWING	DATE	STATE	FEDERAL AID PROJECT NO.	SHEET
MAY 1952	ORIGINAL	MAY 1952	TEXAS	FG 650 (10)	43
BY	CHKD	DATE	COUNTY	CONSTRUCTION NO.	NO.
ZCF			10	GREGG	393
EXTN.	L.P.				13
					3449

TEXAS HIGHWAY DEPARTMENT
BLAST PLATES
 I.- G. N. R.R. OVERPASS

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AS BUILT BRIDGE LAYOUTS

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			
JMT			

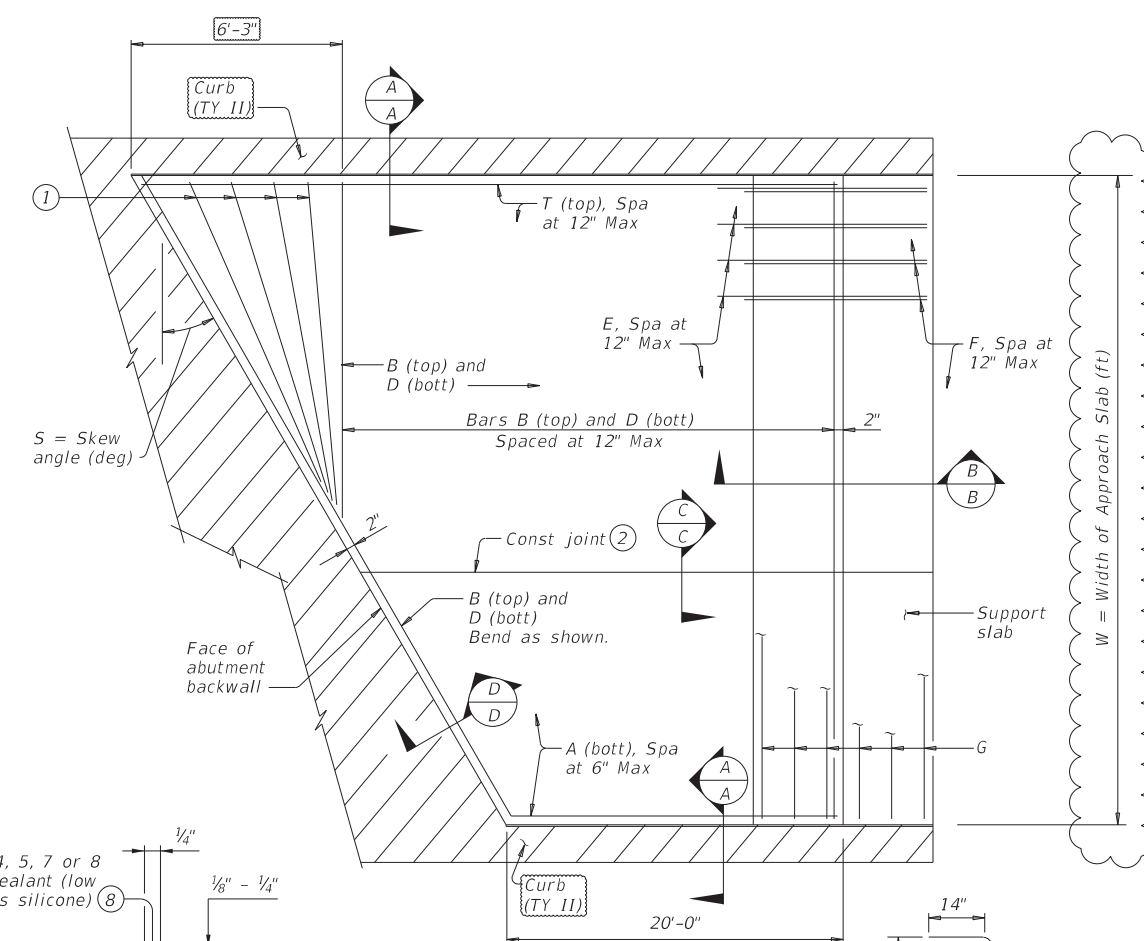
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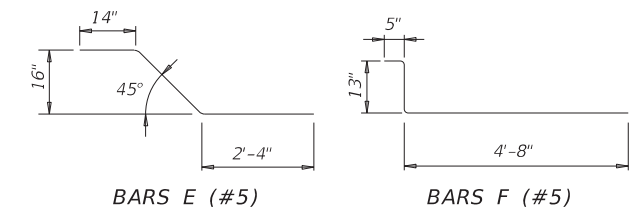
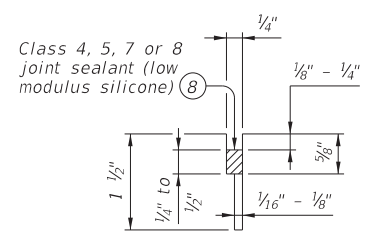
BAR TABLE	
BAR	SIZE
A	#8
B	#5
D	#5
E	#5
F	#5
G	#5
T	#5

APPROXIMATE QUANTITIES ⁽⁴⁾	
Reinf steel weight =	8.5 Lbs/SF of Approach Slab = 18.4 Lbs/LF of Support Slab
Vol of Appr Slab Conc (CY) =	$1.057W - 0.008W \times T + 0.02W^2 \tan S$ (Includes Support Slab)
W =	Width of Approach Slab (ft)
T =	Conc Pavement Thickness (in)
S =	Skew Angle (deg)

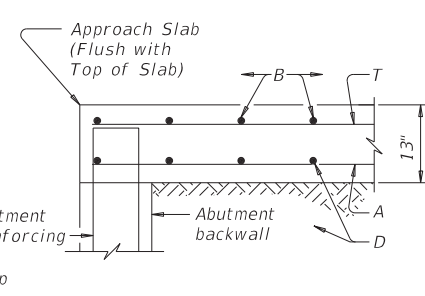
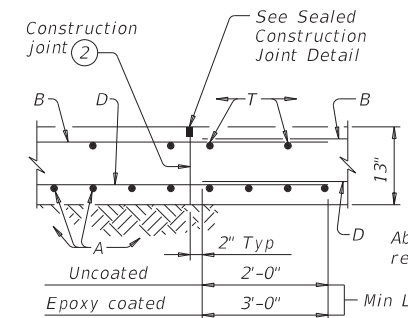
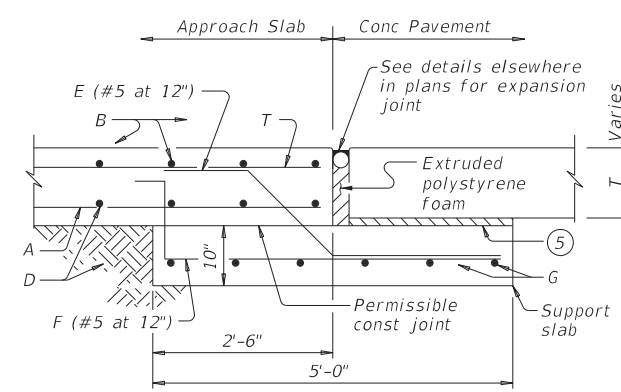
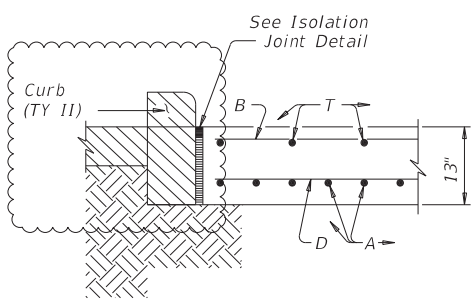


- Flare Bars B and D in this region (1'-6" Max Spa, 3" Min Spa). Minimum flared bar length = 2'-6".
- Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.
- OMITTED
- For Contractor's information only. Quantities shown are for one approach slab only.
- On portion of support slab that supports the concrete pavement, adjust top surface elevation, if required, to accommodate concrete pavement thickness. Smooth trowel finish. Oil top of support slab with 60 grade oil and apply heavy coat of powdered graphite. Press down one layer of 30# roofing felt.
- Multiple piece tie bars are acceptable at longitudinal construction joints provided minimum laps shown are achieved.
- See details elsewhere in plans for required cross-slope.
- Place in accordance with Item 438.
- Provide backer rod that is 25% larger than joint opening and compatible with the sealant.
- OMITTED

LONGITUDINAL SAW CUT JOINT DETAIL



GENERAL NOTES:
 Construct approach slab in accordance with Item 422.
 Provide Class "S" concrete with a minimum compressive strength of 4,000 psi.
 Provide Grade 60 reinforcing steel.
 Provide longitudinal joints as shown on the Longitudinal Saw Cut Joint Detail at lane lines and shoulders when width between longitudinal construction joints or edges of approach slab exceeds 16 feet. Saw cut joints within 24 hours of concrete placement to a depth of 1 1/2" and seal in accordance with Item 438. Alternately, provide a controlled joint consisting of 1 1/2" vinyl or plastic joint former (Stress Cap, Zip Strip, Stress Lock, or equal as approved by the Engineer).
 Provide rebonded recycled tire rubber joint filler that meets the requirements of DMS-6310. "Joint Sealants and Fillers."
 Construct the subgrade or subbase away from the bridge for a minimum distance of 100 feet prior to the approach slab, unless otherwise indicated on the plans.
 Compact and finish the subgrade or foundation for the approach slab to the typical cross-section and to the lines and grades shown on the plans.
 Cure for 4 days using water or membrane curing per Item 422. All details shown herein are subsidiary to bridge approach slab.
 Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions shown are out-to-out of bar.

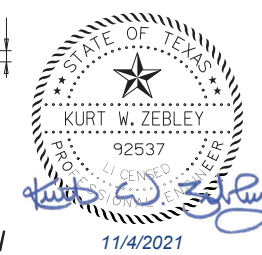
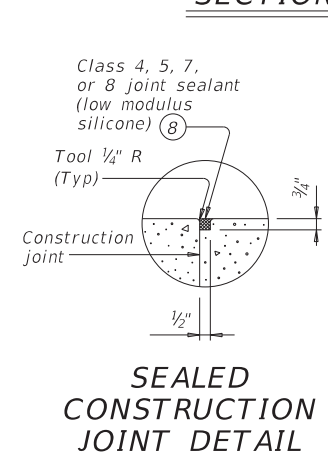
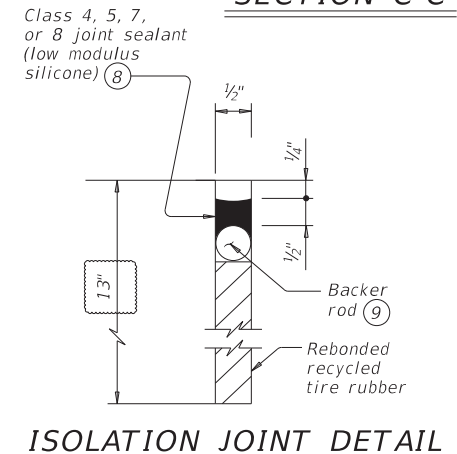
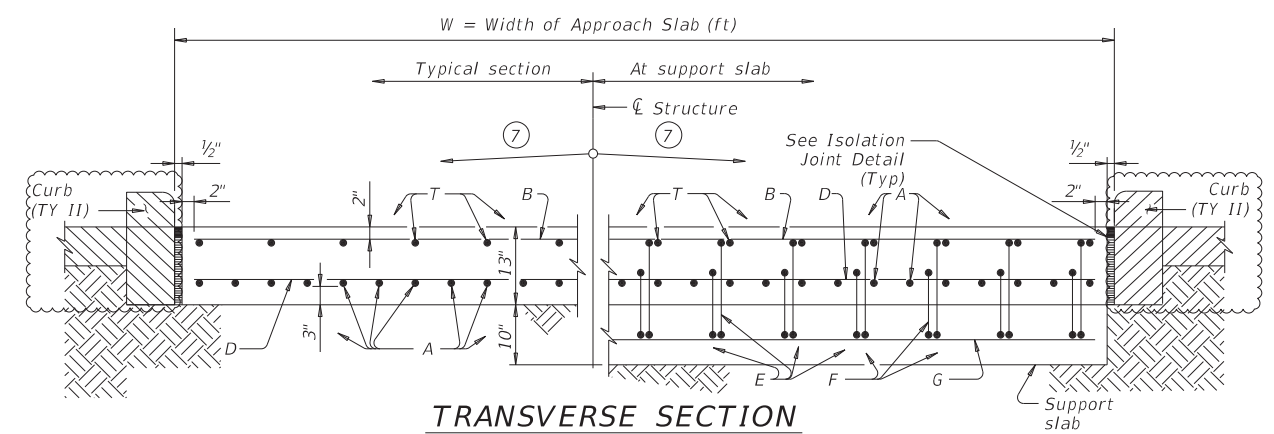


SECTION A-A

SECTION B-B

SECTION C-C

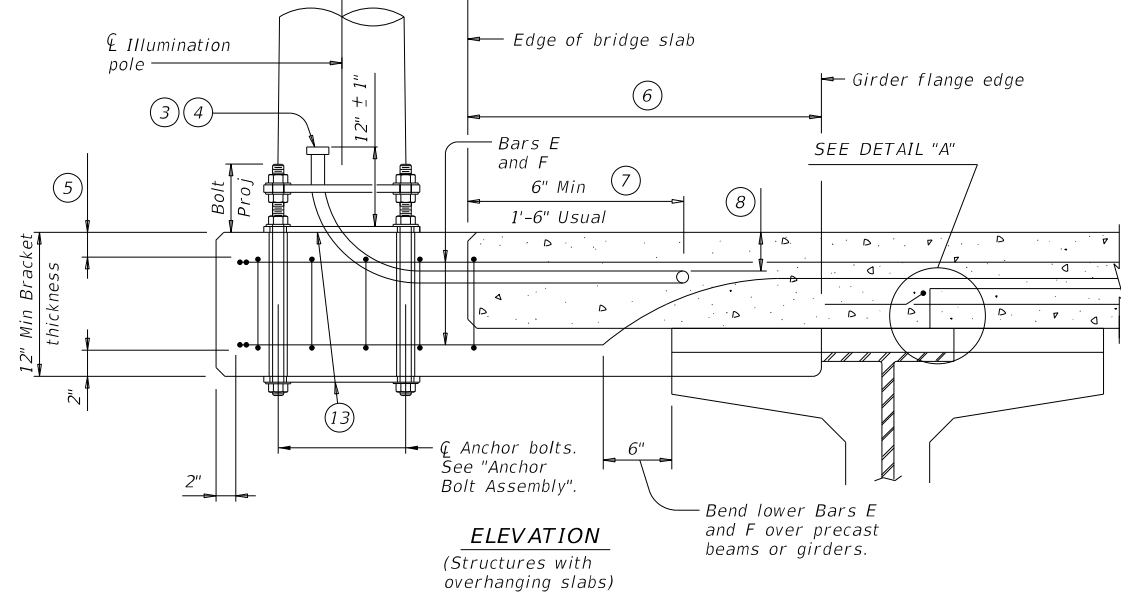
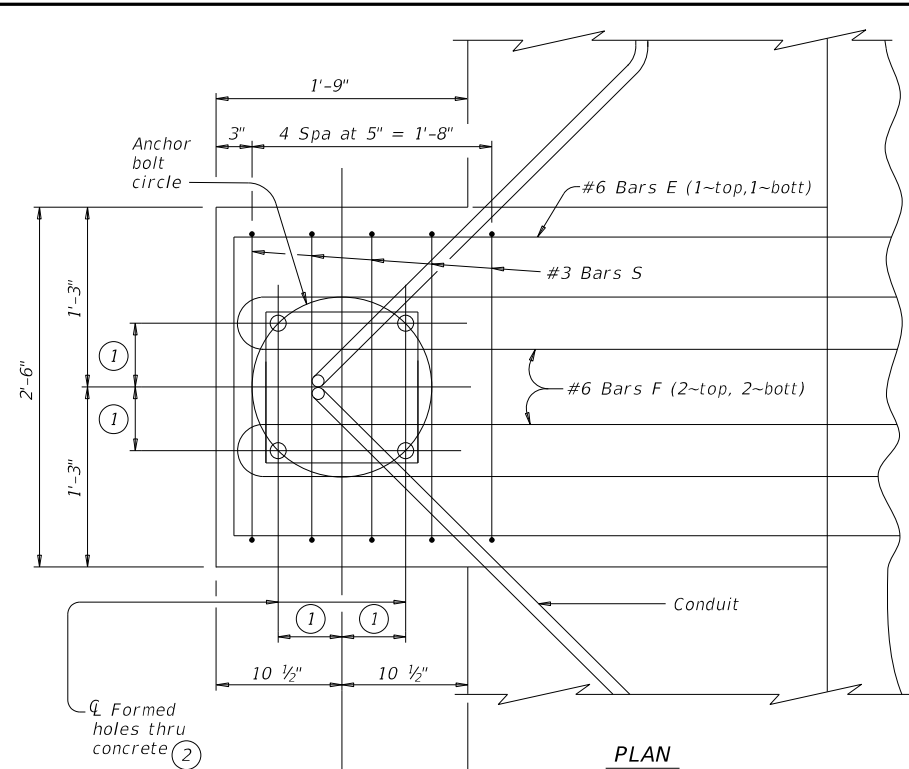
SECTION D-D



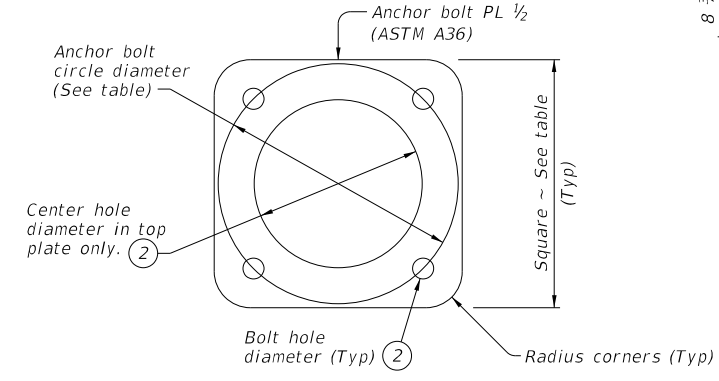
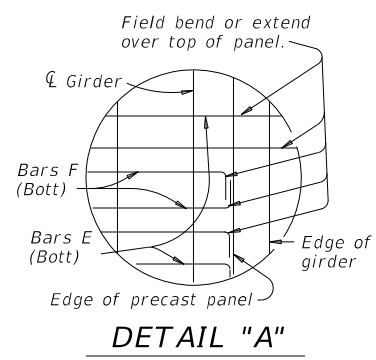
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BRIDGE APPROACH SLAB CONCRETE PAVEMENT			
BAS-C(MOD)			
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©TxDOT April 2019	CONTRACT	SECTION	JOB
REVISIONS	0910	07	072
02-20: Removed stress relieving pad.	DIST	COUNTY	SHEET NO.
11-21: Revised width and sections.	TYLER	GREGG	211

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DATE: 7/22/2021
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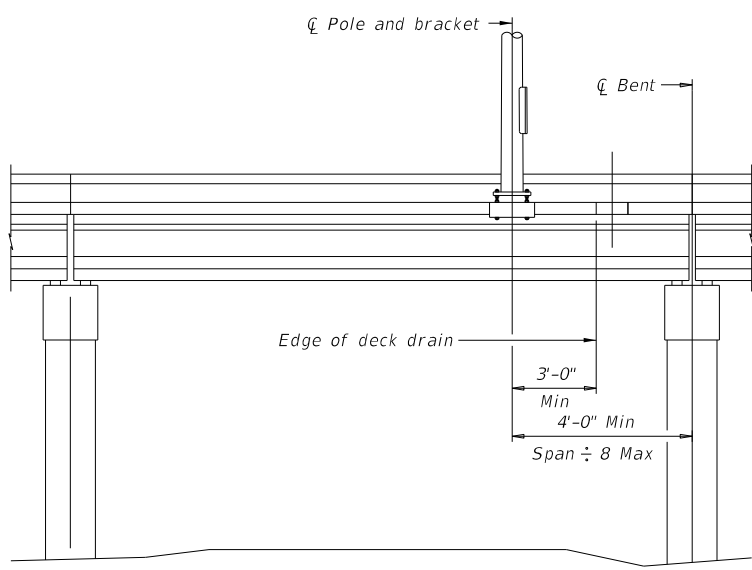


ILLUMINATION POLE BRACKET LOCATION AND REINFORCING

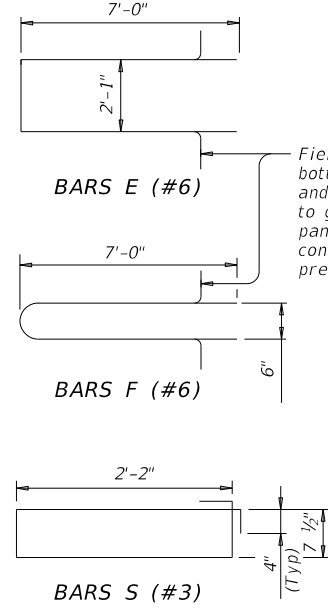


ANCHOR BOLT PLATE

TABLE OF ANCHOR BOLT AND ANCHOR BOLT PLATE INFORMATION						
ANCHOR BOLT CIRCLE DIAMETER	ANCHOR BOLT OFFSET	ANCHOR BOLT DIAMETER	ANCHOR BOLT HOLE SIZE		TOP AND BOTTOM ANCHOR BOLT PLATE SIZE	CENTER HOLE DIAMETER IN TOP ANCHOR BOLT PLATE
			CONCRETE	STEEL		
13	4 5/8	1	1 1/4	1 1/4	PL 1/2 X 13 X 1'-1"	9 1/2
15	5 5/16	1 1/4	1 1/2	1 1/2	PL 1/2 X 15 1/2 X 1'-3 1/2"	10 1/2



TYPICAL BRIDGE ELEVATION

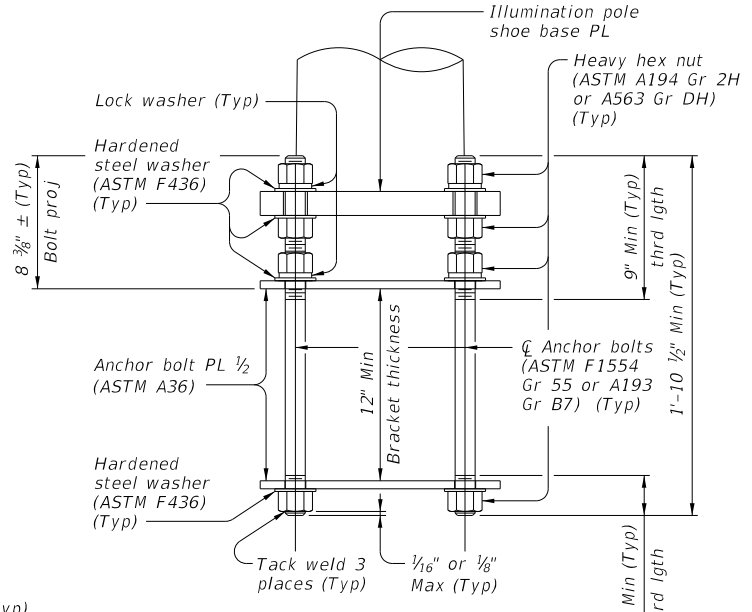


- 1 See table for anchor bolt offset dimension.
- 2 See table for hole diameter size.
- 3 If lighting is to be placed on future contract, extend conduit only 6" and provide water tight cap.
- 4 Ream burrs and install bell ends or bushings on all conduit ends.
- 5 Provide same clear cover required for bridge slab. Place Bars E and F beneath top slab reinforcing only if necessary to provide this cover.
- 6 If slab edge to girder flange edge exceeds 3'-11", lengthen Bars E and F proportionally to ensure Bars E and F extend 1'-6" Min beyond girder flange edge.
- 7 Clear rail anchors, drains, etc 1 1/2" Min.
- 8 1 1/2" Min cover and always beneath top layer slab reinforcing.
- 9 Variation due to slab thickness is insignificant.
- 10 For Contractor's information only.
- 11 Anchor bolts, nuts, washers, and 2 plates. Verify anchor bolt lengths prior to ordering.
- 12 Additional to main run (size and type as shown elsewhere on the plans).
- 13 See "Anchor Bolt Assembly", "Anchor Bolt Plate", and table for anchor bolt, and anchor bolt plate information.

MATERIAL NOTES:
 Galvanize anchor bolts, nuts, washers, and anchor bolt plates. Repair galvanizing damage from tack welding per Item 445, "Galvanizing".
 Provide Grade 60 reinforcing steel.
 Epoxy coat or galvanize all reinforcing steel if slab bars are epoxy coated or galvanized.
 Concrete for Illumination Pole Brackets must be of the same type and placed monolithically with the bridge slab. The bracket quantity is considered subsidiary to the Item "Reinforced Concrete Slab".

GENERAL NOTES:
 Designed for up to 50 ft light pole with one 12 ft arm, 60 lb luminaire with 1.6 sq ft EPA at maximum design wind speed of 110 mph (3 second gusts). A special design is required if luminaire mounting height exceeds 100 ft above average surrounding terrain.
 The anchor bolts, nuts, washers, and anchor bolt plates are subsidiary to the Item "Roadway Illumination Assemblies".
 The type and size of conduit, the anchor bolt circle diameter, and the number and location of brackets is shown elsewhere on the plans. Brackets found to conflict with other components of the bridge may be relocated as necessary.
 See Roadway Illumination Poles standard for details and notes not shown.

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



ANCHOR BOLT ASSEMBLY

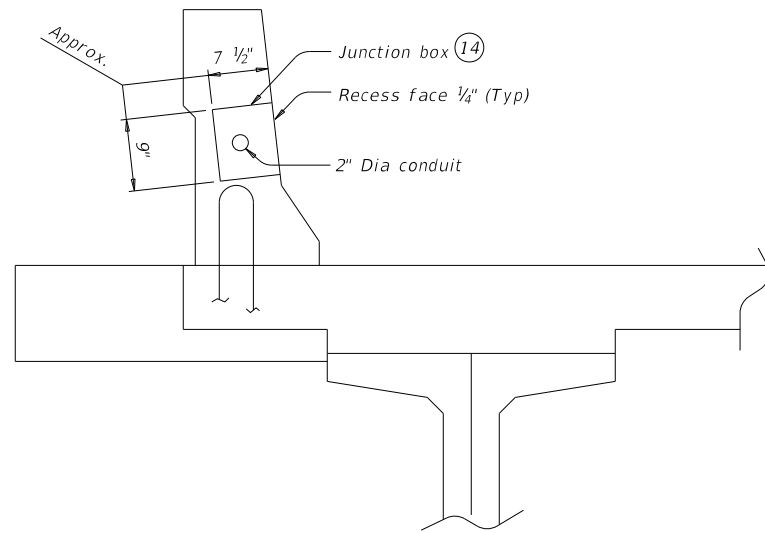
(See table for anchor bolt diameter)

SHEET 1 OF 2

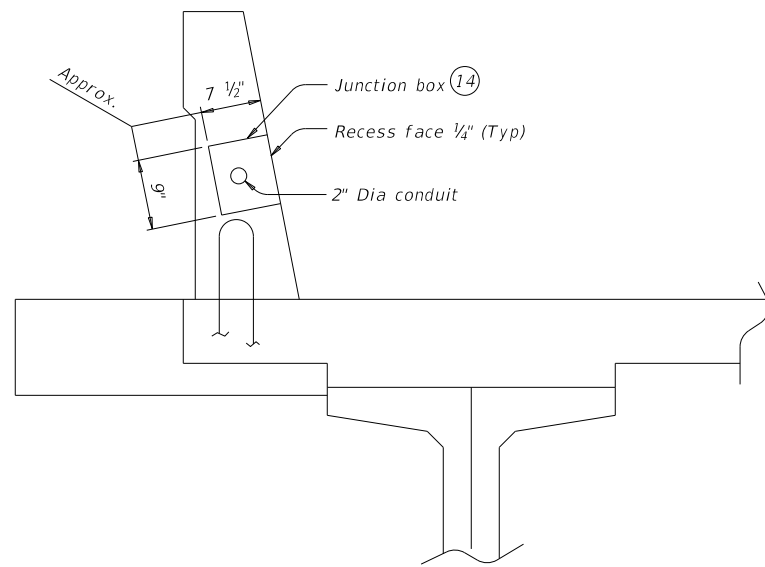
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BRIDGE LIGHTING DETAILS			
BL			
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REV: April 2019	CONT: 0910	SECT: 07	JOB: 072
TYLER		COUNTY: GREGG	SHEET NO: 212

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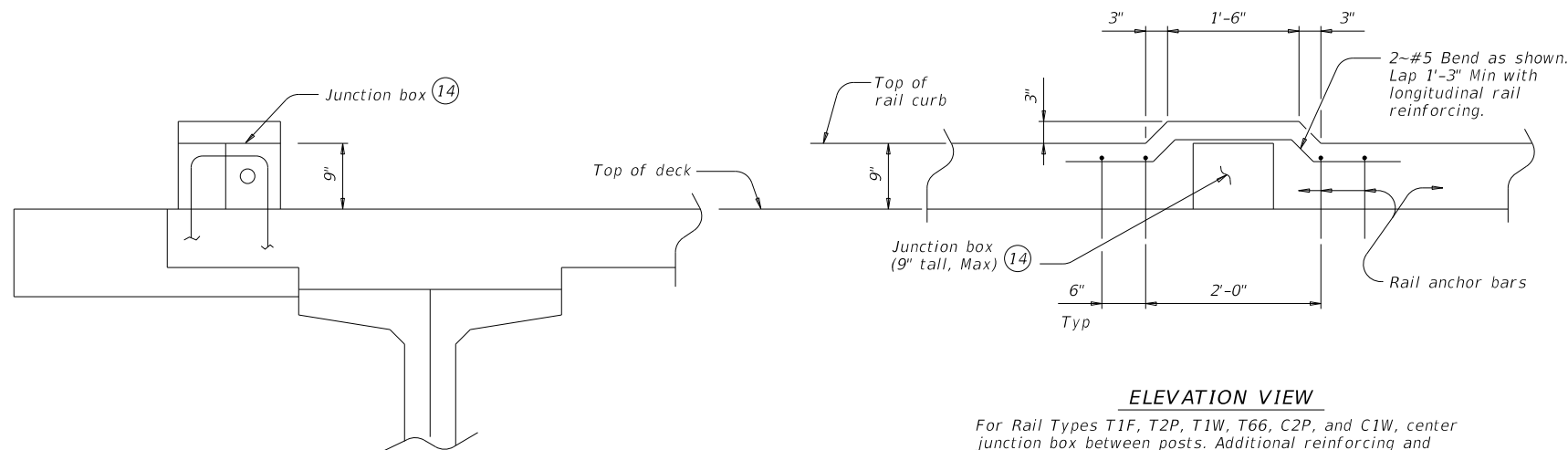
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SHOWING T551, T552, AND T80HT



SHOWING SSTR AND T80SS



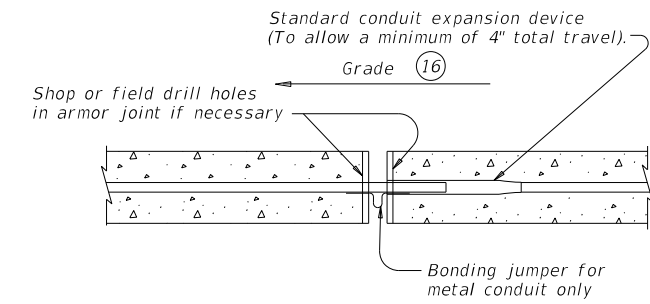
SHOWING T1F, T2P, T1W, T66, C2P, AND C1W CURB

See Elevation View for curb modifications

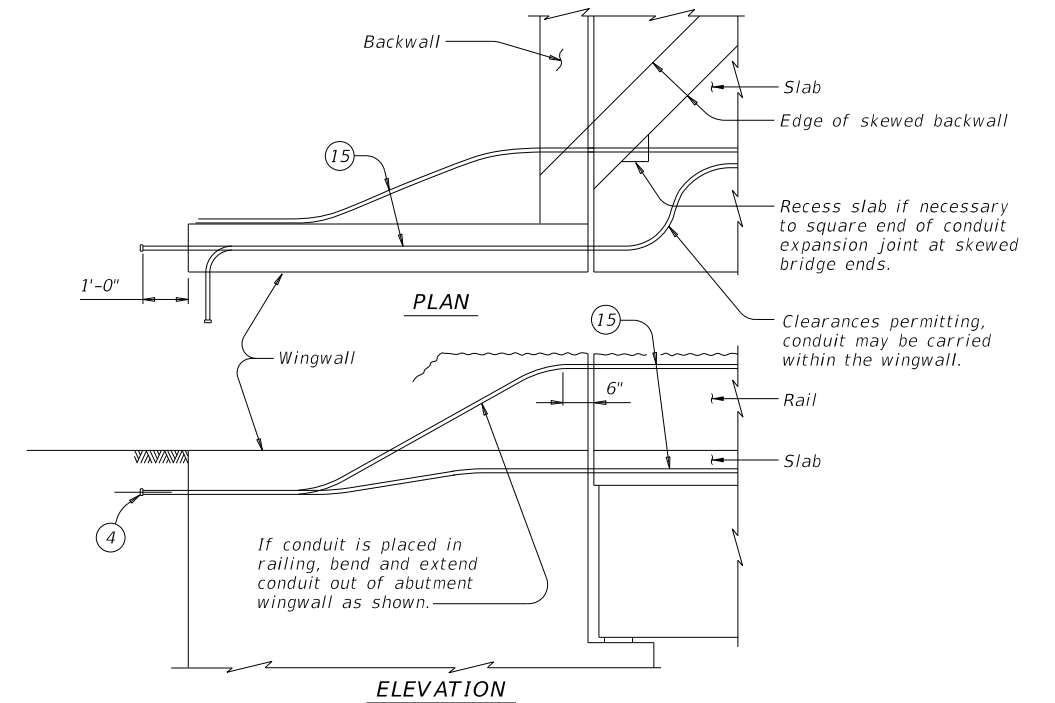
JUNCTION BOX LOCATION

Use these details as a guide in locating junction boxes in rail types not shown.

- ④ Ream burrs and install bell ends or bushings on all conduit ends.
- ⑭ Provide polymer concrete junction boxes meeting the requirements of DMS 11030.
- ⑮ Position of conduit shown elsewhere on the plans or as directed by the Engineer.
- ⑯ Place conduit expansion device on high side of expansion joint.



CONDUIT EXPANSION JOINT



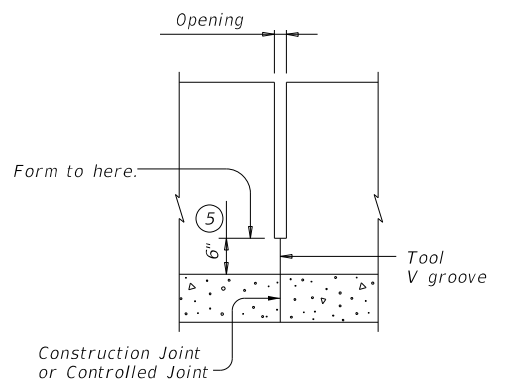
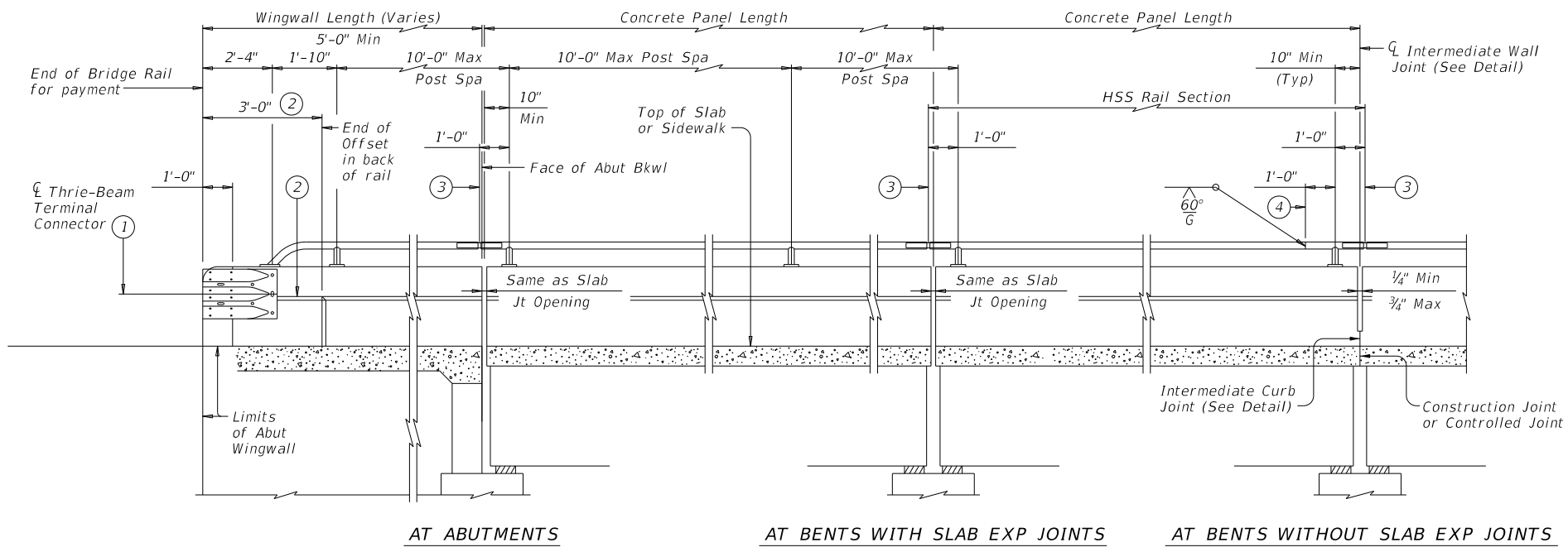
TREATMENT AT END OF BRIDGE

SHEET 2 OF 2

		Bridge Division Standard	
BRIDGE LIGHTING DETAILS			
BL			
FILE: blstd01-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
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REVISIONS	0910	07	072
	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	213

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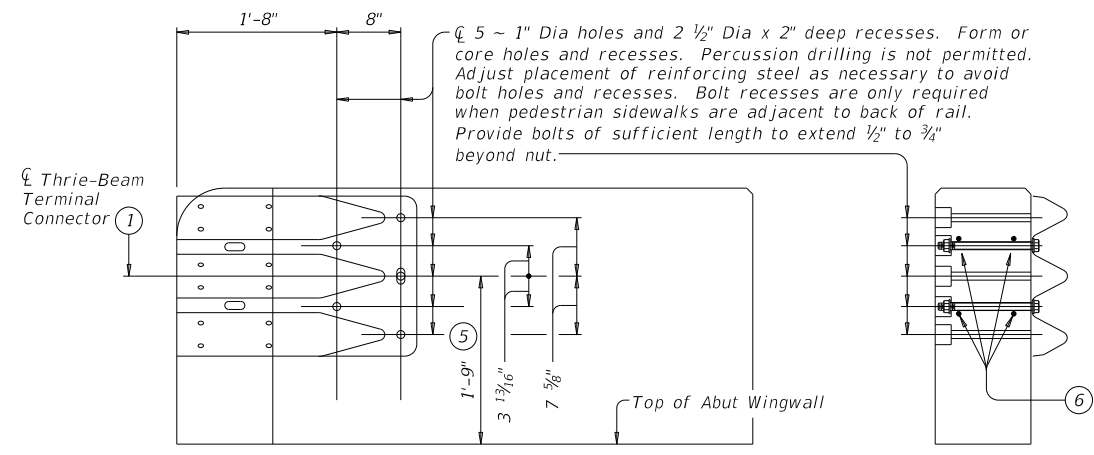
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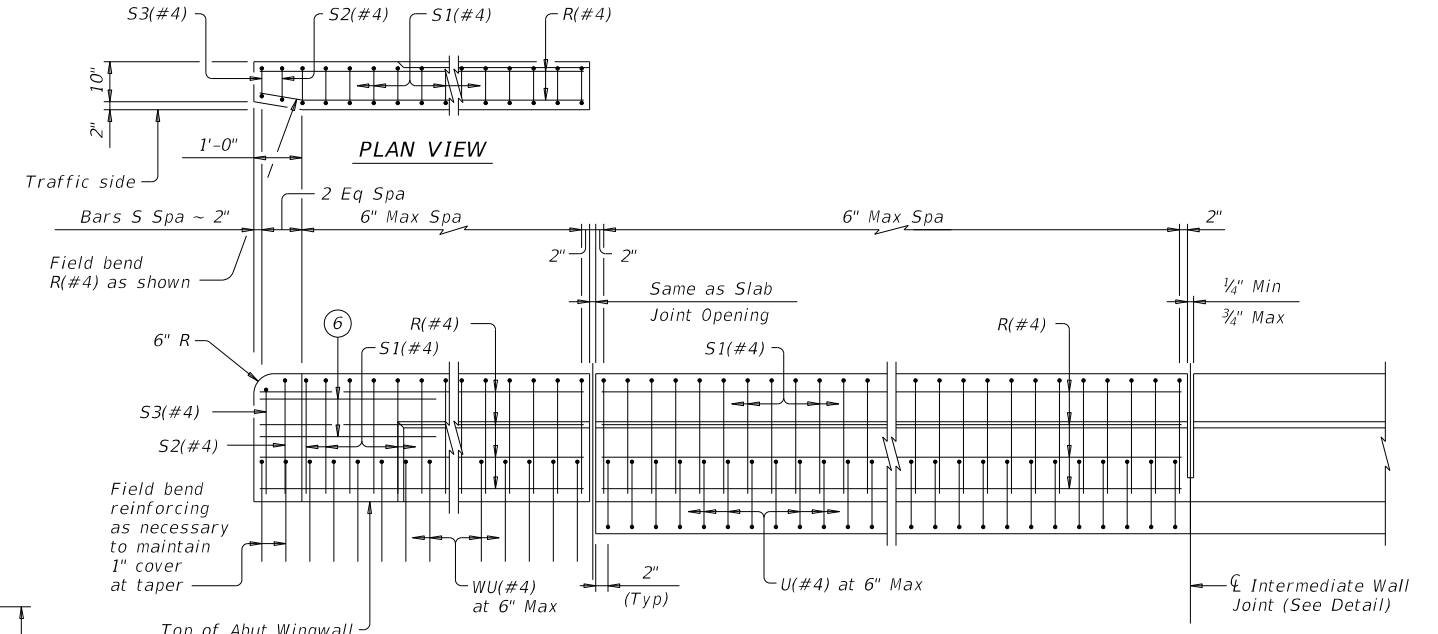
INTERMEDIATE WALL JOINT DETAIL
Provide at all interior bents without slab expansion joints.

- ① Terminal Connectors and associated hardware are to be paid for under the Item "Metal Beam Guard Fence". Attach Metal Beam Guard Fence Transitions to the bridge rail and extend along the embankment unless otherwise shown in the plans.
- ② Back of rail offset may, with Engineer's approval, be continued to the end of the railing.
- ③ Exp Joint or Splice Joint as required.
- ④ One shop splice per HSS rail section is permitted with minimum 85 percent penetration. The weld may be square groove, or single vee groove. Grind smooth.
- ⑤ Increase 2" for structures with overlay.
- ⑥ Place 4 additional Bars R(#4) 3'-8" in length inside Bars S(#4) and centered 2'-0" from end of rail when Terminal Connections are required. Field bend as needed.
- ⑦ HSS 2.875 x 0.203
- ⑧ HSS 2.375 x 0.154
- ⑨ 3/8" Dia Hole in bottom of HSS rail (Minimum 1 hole between posts ~ Typ)

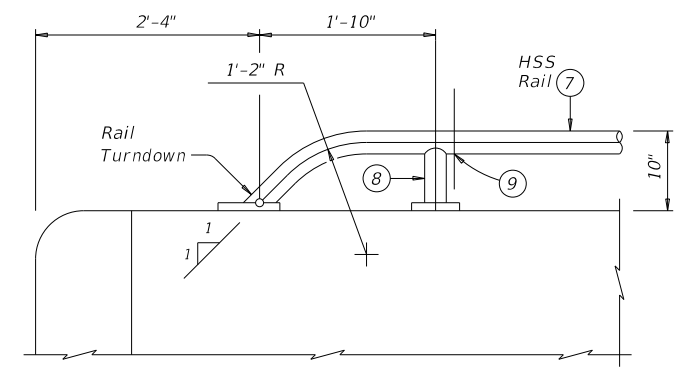
ROADWAY ELEVATION OF RAIL



TERMINAL CONNECTION DETAILS

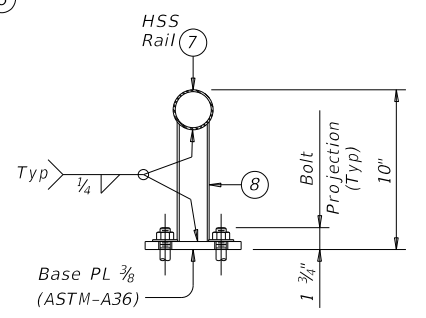


ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT
(Showing without raised sidewalk)

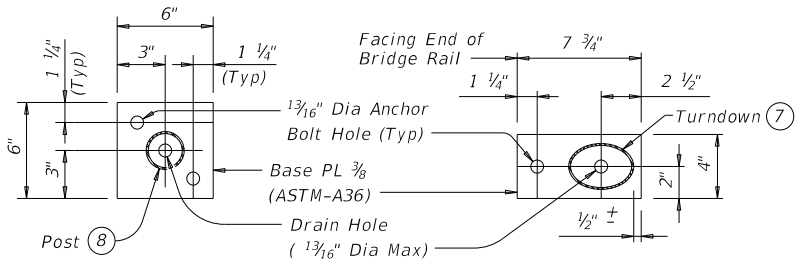


Note that at least two anchor points (as shown) are required for the Bridge Rail on the Abutment Wingwall. Longer Wingwalls may require more than two Rail anchorages.

HSS RAIL TERMINAL DETAIL



TRANSVERSE SECTION



RAIL TURNDOWN BASE PLATE PLAN
POST BASE PLATE PLAN

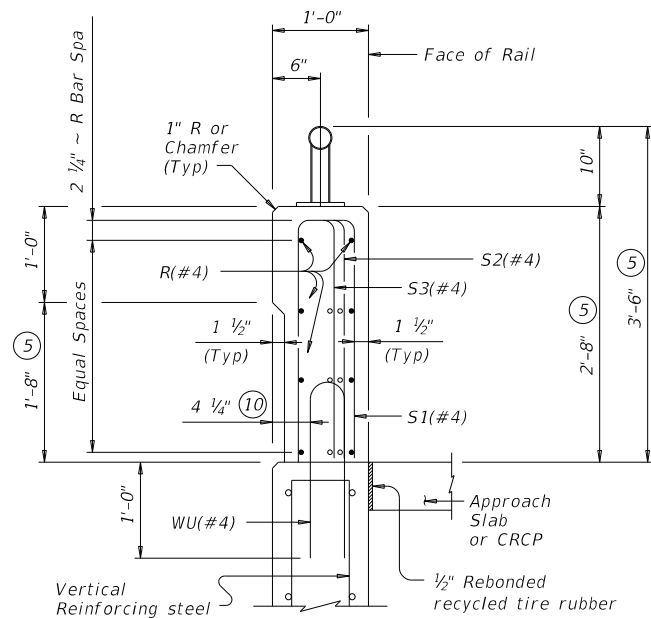
HSS RAIL DETAILS

SHEET 1 OF 3

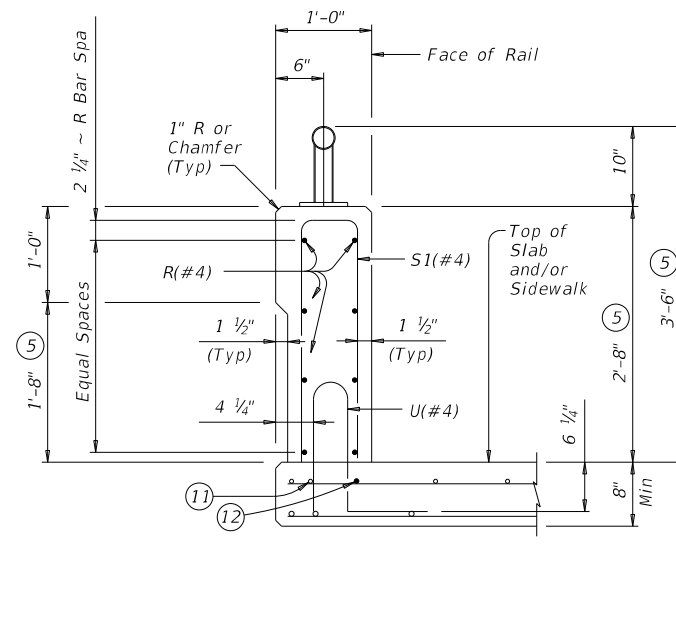
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<h1>COMBINATION RAIL</h1>			
<h2>TYPE C221</h2>			
FILE: r1std018-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR
©TxDOT September 2019	CONV	SECT	JOB
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	TYLER	GREGG	214

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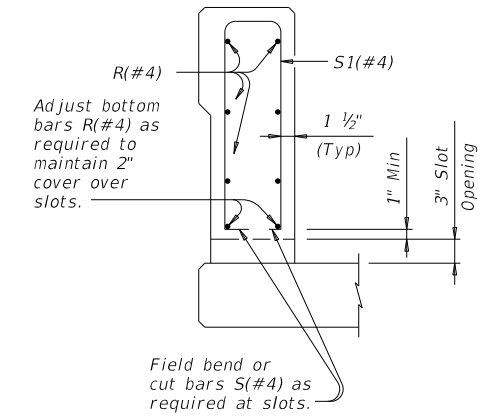


ON ABUTMENT WINGWALLS
OR CIP RETAINING WALLS

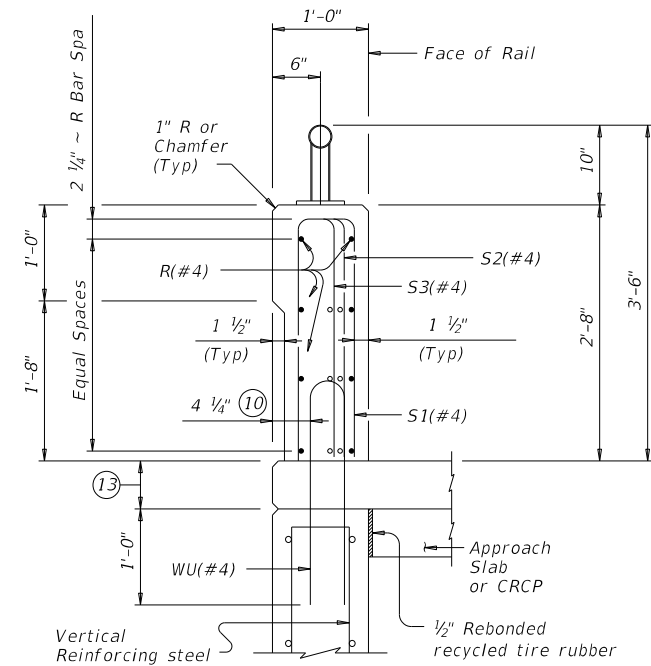


ON BRIDGE SLAB

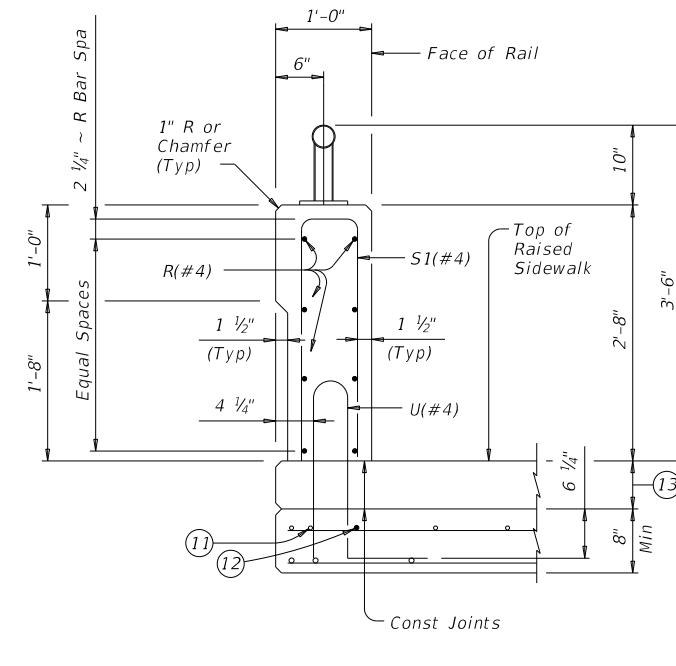
SECTIONS THRU RAIL WITHOUT RAISED SIDEWALK



SECTION THRU
OPTIONAL SIDE SLOT DRAIN

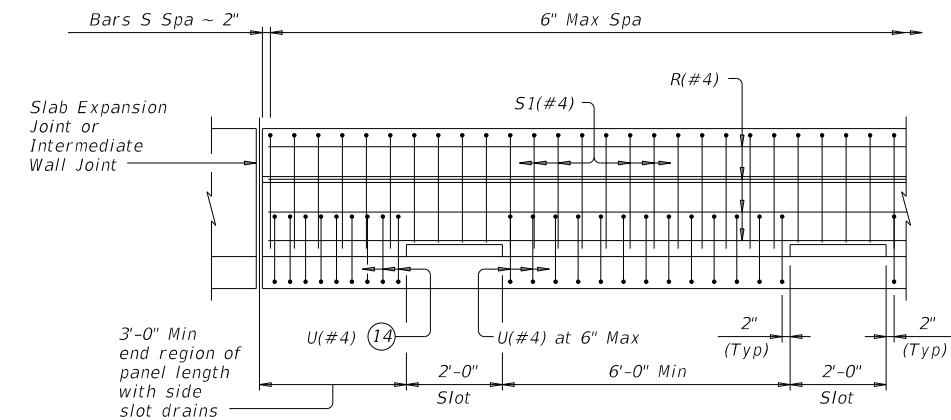


ON ABUTMENT WINGWALLS
OR CIP RETAINING WALLS



ON BRIDGE SLAB

SECTIONS THRU RAIL WITH RAISED SIDEWALK



OPTIONAL SIDE SLOT DRAIN DETAIL

Note: Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. Drains should not be placed over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.

- ⑤ Increase 2" for structures with overlay.
- ⑩ 5 1/4" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.
- ⑪ As an aid in supporting reinforcement, additional longitudinal bars may be used in the slab with the approval of the Engineer. Such bars must be furnished at the Contractors expense.
- ⑫ Top longitudinal slab bar may be adjusted laterally 3" plus or minus to tie reinforcing.
- ⑬ Raised Sidewalk
- ⑭ Space U(#4) bars at 4" Max when end region of panel length is less than 6'-0" to side slot drain. Space U(#4) bars at 6" Max when end region of panel length is 6'-0" and greater to side slot drain.

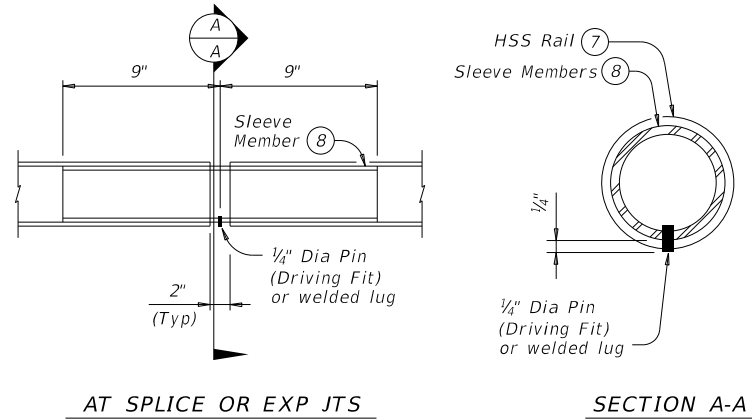
SHEET 2 OF 3

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<h3>TYPE C221</h3>			
FILE: r1std018-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR
©TxDOT September 2019	CONTRACT: 0910 07	SECTION: 072	HIGHWAY: HIGH ST
REVISIONS	DIST: TYLER	COUNTY: GREGG	SHEET NO: 215

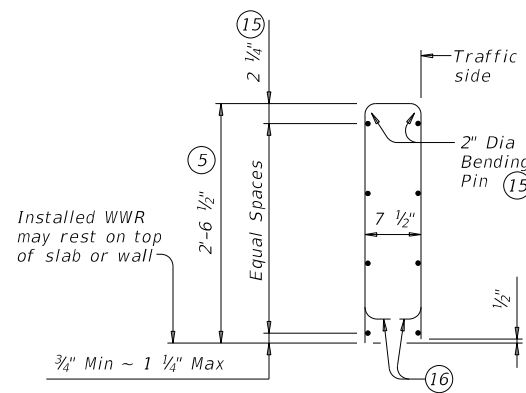
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RAIL DATA FOR HORIZONTAL CURVES			
	RADIUS TO FACE OF RAIL	MAX CHORD LENGTH	CONSTRUCT OR FABRICATE
HSS Rail	Over 2800'	29'-0"	Straight rail panels
	Over 1400' thru 2800'	14'-6"	To required radius or to chords shown
	Over 700' thru 1400'	7'-3"	
	Thru 700'	Zero	To required radius

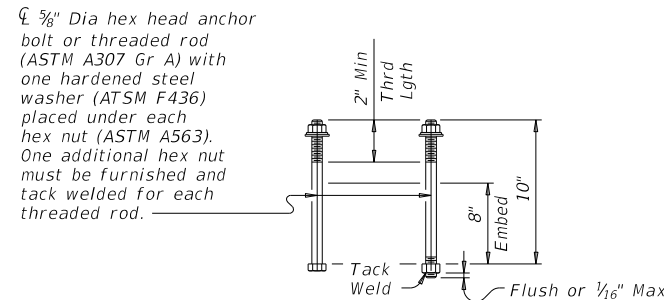
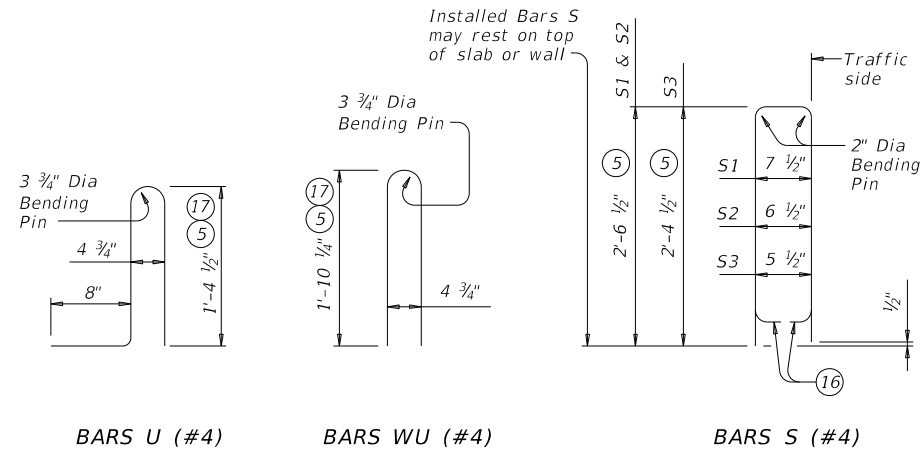


PIPE SPLICE DETAILS

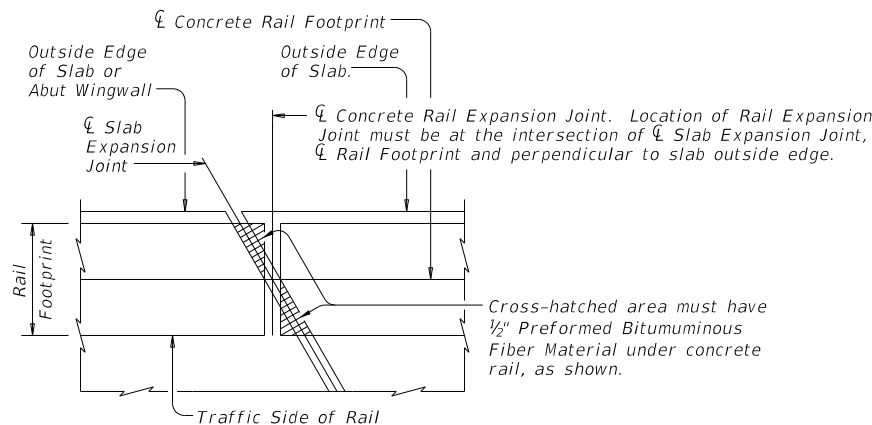


OPTIONAL WELDED WIRE REINFORCEMENT (WWR)

DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	1.067 Sq In.	0.267 Sq In. per Ft
Minimum	No. of Wires 8	Spacing 4"
Maximum	10	8"
Maximum Wire Size Differential	The smaller wire must have an area of 40% or more of the larger wire.	



CAST-IN-PLACE ANCHOR BOLT OPTIONS (18)



PLAN OF RAIL AT EXPANSION JOINTS

Example showing Slab Expansion Joints without breakbacks.

CONSTRUCTION NOTES:

This railing may be constructed by the slipform process when approved by the Engineer, with equipment approved by the Engineer and when adhesive anchor bolts are used. Slipforming parapet is not allowed if anchor bolts are cast with parapet wall. Provide sensor control for both line and grade. Tack welding to provide bracing for slipform operations is acceptable. Welding may be performed at a minimum spacing of 3 ft between the cage and the anchorage. It is permissible to weld to bars U, WU and S at any location on the cage. If increased bracing is needed, provide additional anchorage devices and weld in the upper two thirds of the cage. Paint welded areas on epoxy coated and/or galvanized reinforcing with an organic zinc rich paint in accordance with Item 445 "Galvanizing".

If rail is slipformed, apply an heavy epoxy bead 1" behind toe of traffic side of rail to concrete deck just prior to slip forming. Provide a 3/8" width x 1/4" tall heavy epoxy bead with Type III, Class C or a Type V epoxy.

Test adhesive anchors in accordance with Item 450.3.3, "Tests". Test 3 anchors per 100 anchors installed. Perform corrective measures to provide adequate capacity if any of the tests do not meet the required test load. Repair damage from testing as directed.

At the Contractor's option anchor bolts may be cast with the parapet. See "Material Notes".

Face of rail, parapet must be plumb unless otherwise approved by the Engineer. HSS rail posts must be square to the top of parapet. Use epoxy mortar under post base plates if gaps larger than 1/16" exist.

Round or chamfer exposed edges of HSS rail and HSS rail posts to approximately 1/16" by grinding.

HSS rail sections must not include less than two posts, and no more than four (except at Abutments).

Chamfer all parapet exposed corners.

MATERIAL NOTES:

Provide Class "C" concrete. Provide Class "C" (HPC) if required elsewhere.

Provide Grade 60 reinforcing steel.

Epoxy coat or galvanize all reinforcing steel if slab bars are epoxy coated or galvanized.

Provide ASTM A1085 or A500 Gr B or A53 Gr B for all HSS.

Galvanize all metal components of steel rail system. Apply additional coatings when shown elsewhere on the plans. When plans require paint over galvanizing, follow the requirements for painting galvanized steel in Item 445, "Galvanizing" and when field painting, Item 446, "Field Cleaning and Painting Steel". Sleeve members and anchor bolts must receive galvanization prior to installation and only field paint after installation unless directed otherwise by Engineer.

Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars U and WU unless noted otherwise. Deformed WWR (ASTM 1064) may be substituted for Bars R and S, as shown. Combinations of reinforcing steel and WWR or configurations of WWR other than that shown are permitted if conditions in the table are satisfied. Provide the same laps as required for reinforcing bars.

Anchor bolts must be 5/8" Dia ASTM A307 Gr A fully threaded rods with one hex nut and one hardened steel washer (ASTM F436) each. Nuts must conform to ASTM A563 requirements. Embed fully threaded rods into parapet wall with a Type III, Class C, D, E, or F anchor adhesive. Minimum adhesive anchor embedment depth is 3". Anchor adhesive chosen must be able to achieve a nominal bond strength in tension of a single anchor, Na, of 5 kips (edge distance must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

Optional cast-in-place anchor bolts must be 5/8" Dia ASTM A307 Gr A bolts (or threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer (ASTM F436) at each bolt. Nuts must conform to ASTM A563 requirements.

Provide bar laps, where required, as follows:

Uncoated or galvanized ~ #4 = 1'-7"
 Epoxy coated ~ #4 = 2'-5"

GENERAL NOTES:

This rail has been evaluated and accepted to be of equal strength to railings with like geometry, which have been crash tested to meet MASH TL-3 criteria. This rail can be used for speeds of 50 mph and greater when a TL-3 rated guard fence transition is used. When a TL-2 rated guard fence transition is used, this rail can only be used for speeds of 45 mph and less.

Do not use this railing on bridges with expansion joints providing more than 5" movement.

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

Submit erection drawings showing panel lengths, rail post spacing, and anchor bolt setting to the Engineer for approval.

Average weight of railing with no overlay: 380 plf (total)
 370 plf (Conc)
 10 plf (Steel)

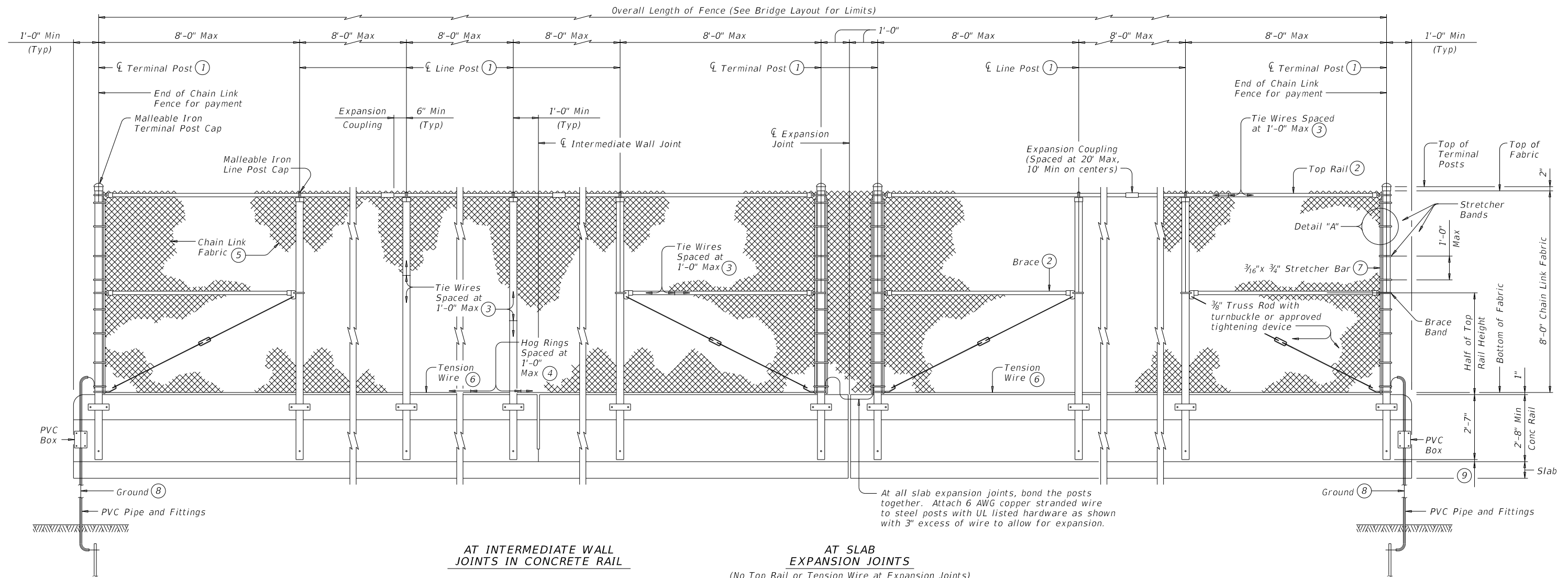
Cover dimensions are clear dimensions, unless noted otherwise.
 Reinforcing bar dimensions shown are out-to-out of bar.

- (5) Increase 2" for structures with overlay.
- (7) HSS 2.875 x 0.203
- (8) HSS 2.375 x 0.154
- (15) No longitudinal wires may be in top center of cage.
- (16) Bend or cut as required to clear drain slots.
- (17) For raised sidewalks, add sidewalk height to total bar height. Use sidewalk height at rail's location.
- (18) See "Material Notes" for anchor bolt information.

		Bridge Division Standard	
<h1>COMBINATION RAIL</h1>			
<h2>TYPE C221</h2>			
FILE: r1std018-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR
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REVISIONS	0910	07	072
	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	216

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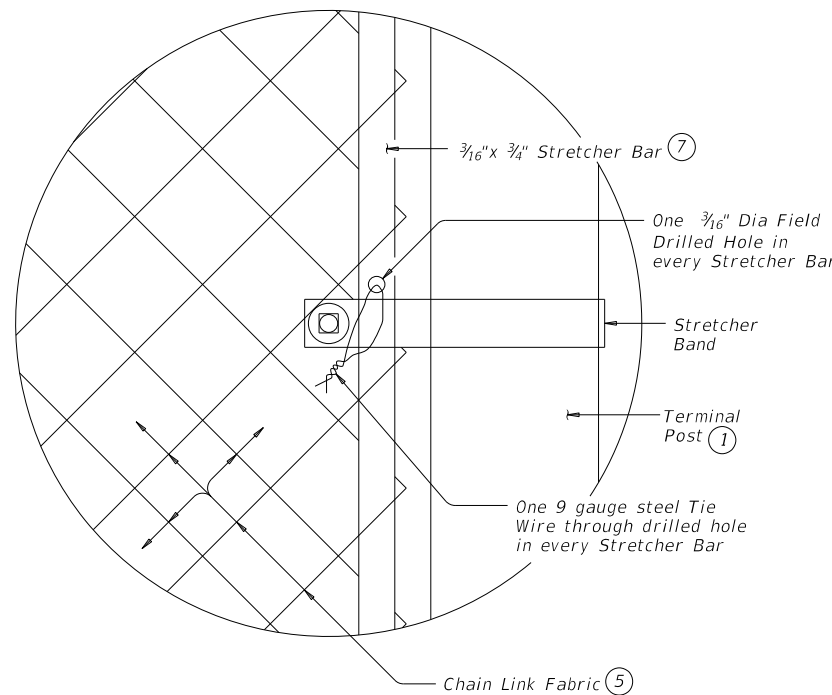
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AT INTERMEDIATE WALL JOINTS IN CONCRETE RAIL

AT SLAB EXPANSION JOINTS
(No Top Rail or Tension Wire at Expansion Joints)

OUTSIDE ELEVATION OF CHAIN LINK FENCE



DETAIL "A"

- ① HSS 3.500 x 0.216 ASTM A1085 or A500 Gr B.
- ② HSS 1.660 x 0.140 ASTM A500 Gr B or A53 Gr B.
- ③ 9 gauge steel Tie Wires attach chain link fabric to HSS.
- ④ 9 gauge steel Hog Rings attach chain link fabric to tension wire.
- ⑤ 9 gauge steel Chain Link Fabric, 2" Mesh, knuckle selvage top and bottom.
- ⑥ 7 gauge steel Tension Wire.
- ⑦ Contractor must field drill one 3/16" Dia hole in every stretcher bar and use a 9 gauge steel tie wire to tie one stretcher band and chain link fabric together. Locate drilled hole for tie wire at approximate mid-height of fence.
- ⑧ Ground terminal post at the beginning and end of fence and down the nearest bent. Attach 6 AWG copper stranded wire to steel post with UL listed hardware and run other end of copper stranded wire to 3/8" Dia minimum copper-clad steel rod 8 ft in length. Install ground rod as per Item 550 and this sheet. The 6 AWG copper stranded wire must run through 1/2" Schedule 40 PVC pipe, fittings and PVC box attached to the back of rail.
- ⑨ Dimension varies on rail types and superstructure type. T551, T221 and C221 Rails = 1" with no overlay, T222 Rail and SSTR Rail = 5" with no overlay, increased 2" for overlay. On bridges with significant beam camber variable length in dimension may be anticipated.

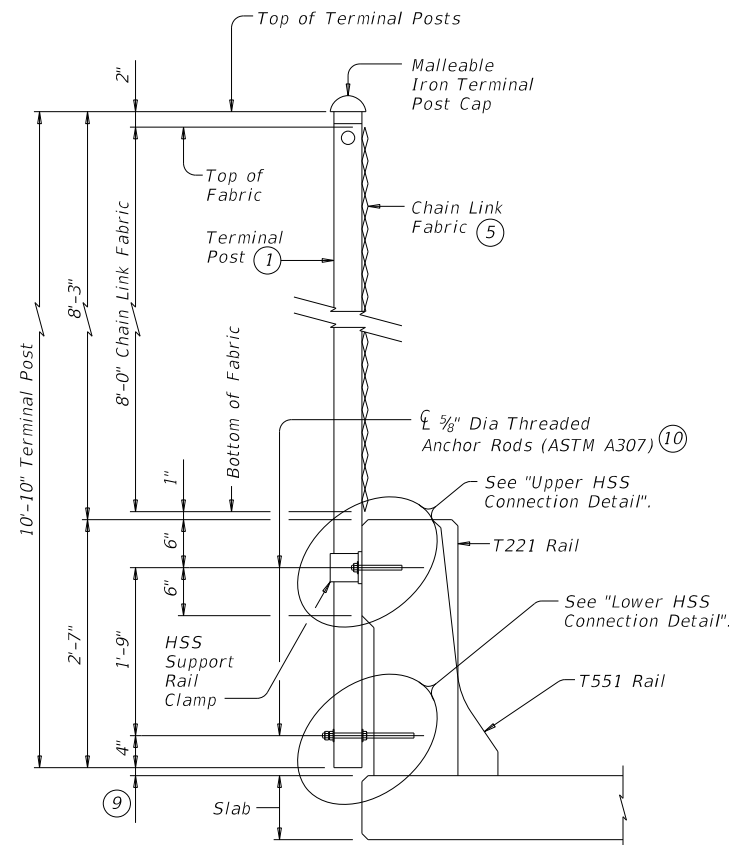
SHEET 1 OF 2

		Bridge Division Standard	
<h2>8 FT CHAIN LINK FENCE FOR RAILROAD OVERPASS</h2>			
<h3>CLF-RO</h3>			
FILE: r1std032-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR
©TxDOT September 2019	CONTRACT: 0910	SECTION: 07	JOB: 072
REVISIONS:			HIGHWAY: HIGH ST
	DIST: TYLER	COUNTY: GREGG	SHEET NO: 217

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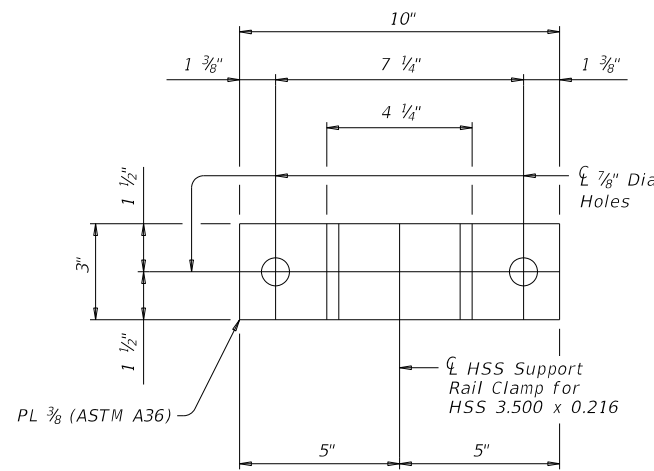
DATE: 7/22/2021
FILE: \\jmt-pw-bent\ey.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\7. Bridge\TxDOT_Standards\1std032-19.dgn

- ① HSS 3.500 x 0.216 ASTM A1085 or A500 Gr B.
- ⑤ 9 gauge steel Chain Link Fabric, 2" Mesh, knuckle selvage top and bottom.
- ⑨ Dimension varies on rail types and superstructure type. T551, T221 and C221 Rails = 1" with no overlay, T222 Rail and SSTR Rail = 5" with no overlay, increased 2" for overlay. On bridges with significant beam camber variable length in dimension may be anticipated.
- ⑩ See "Material Notes" for threaded anchor rod information.

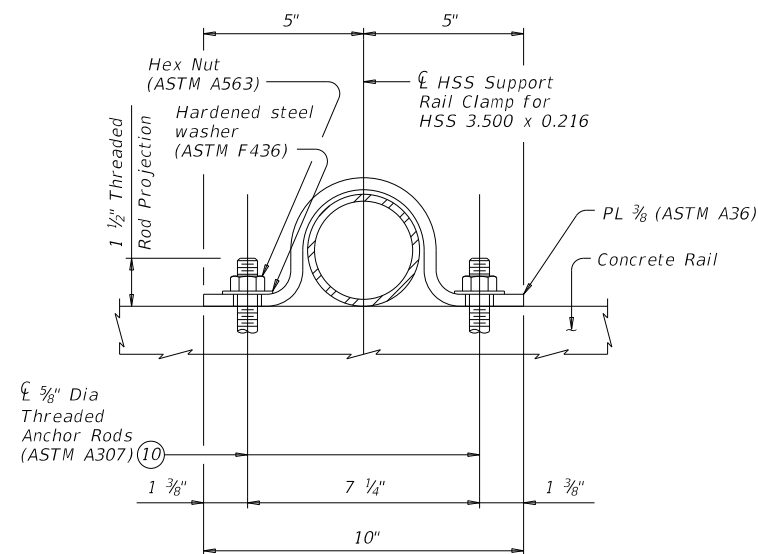


CHAIN LINK FENCE SECTION

(Showing Terminal Post on a T551 or T221 Rail, Line Post, T222 Rail and SSTR Rail similar.)



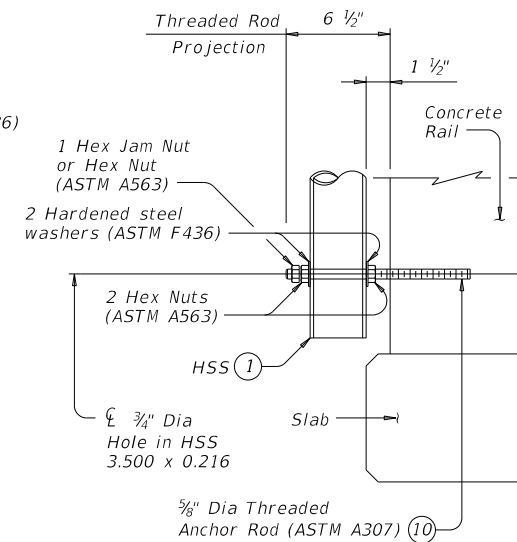
PIPE SUPPORT RAIL CLAMP ELEVATION



HSS SUPPORT RAIL CLAMP ASSEMBLY

UPPER HSS CONNECTION DETAIL

(Dimensions may vary according to Manufacturer's specifications.)



LOWER HSS CONNECTION DETAIL

(Showing Terminal Post or Line Post)

CONSTRUCTION NOTES:

Chain link fence post must be plumb unless otherwise approved.
Test adhesive anchors in accordance with Item 450.3.3, "Tests". Test 3 anchors per 100 anchors installed. Perform corrective measures to provide adequate capacity if any of the tests do not meet the required test load. Repair damage from testing as directed.

MATERIAL NOTES:

All Chain Link Fence materials must conform to standard specifications, Item "Chain Link Fence" unless shown otherwise. Galvanize all steel components unless noted otherwise. Provide ASTM A1085, A500 Gr B for HSS 3.500 x 0.216. Provide ASTM A500 Gr B or A53 Gr B for HSS 1.660 x 0.140. Provide ASTM A36 for steel plates. Anchor bolts must be 3/8" Dia ASTM A307 Gr A fully threaded rods. Hex nuts must conform to ASTM A563 requirements. Embed fully threaded rods into parapet wall with a Type III, Class C, D, E, or F anchor adhesive. Minimum adhesive anchor embedment depth is 5". Anchor adhesive chosen must be able to achieve a factored bond strength in tension of 6 kips each anchor (edge distance and anchor spacing must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

GENERAL NOTES:

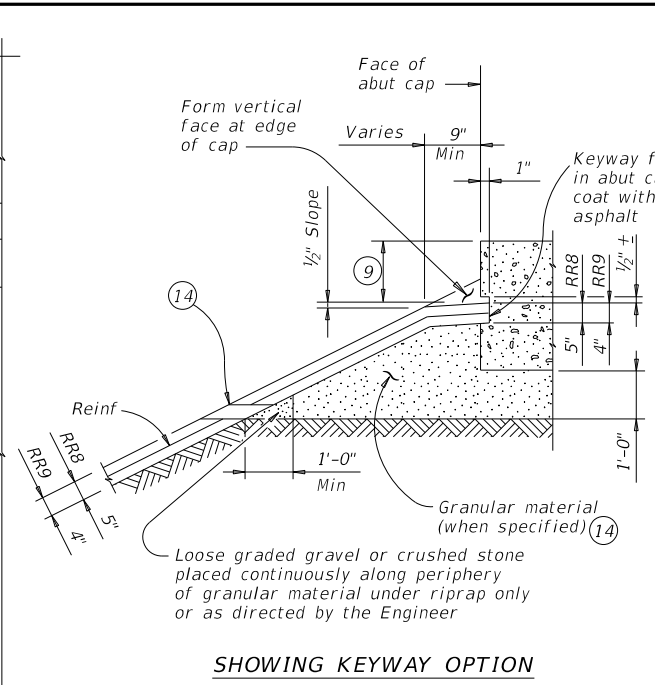
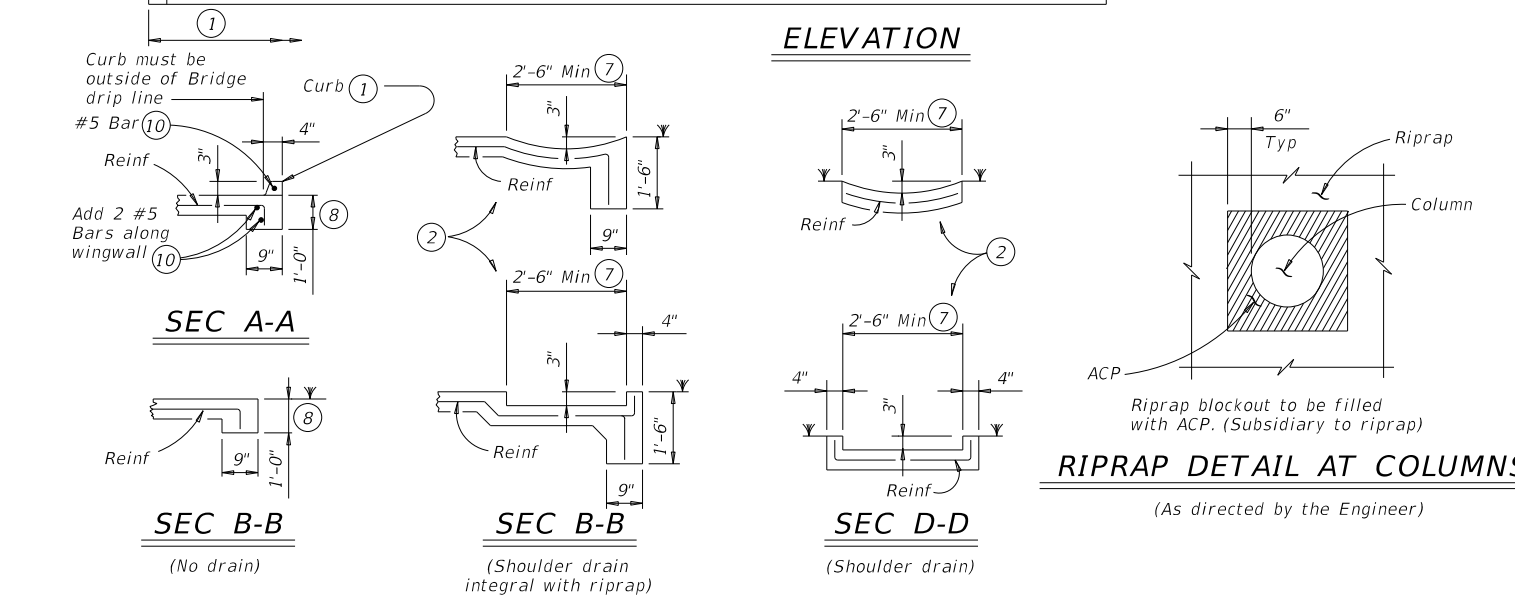
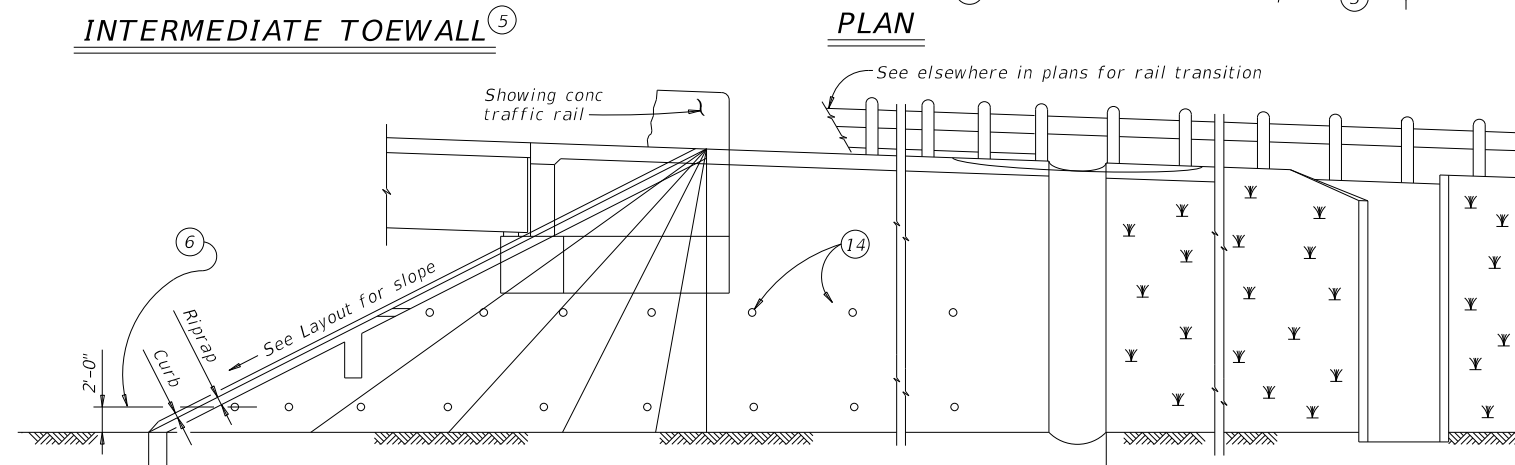
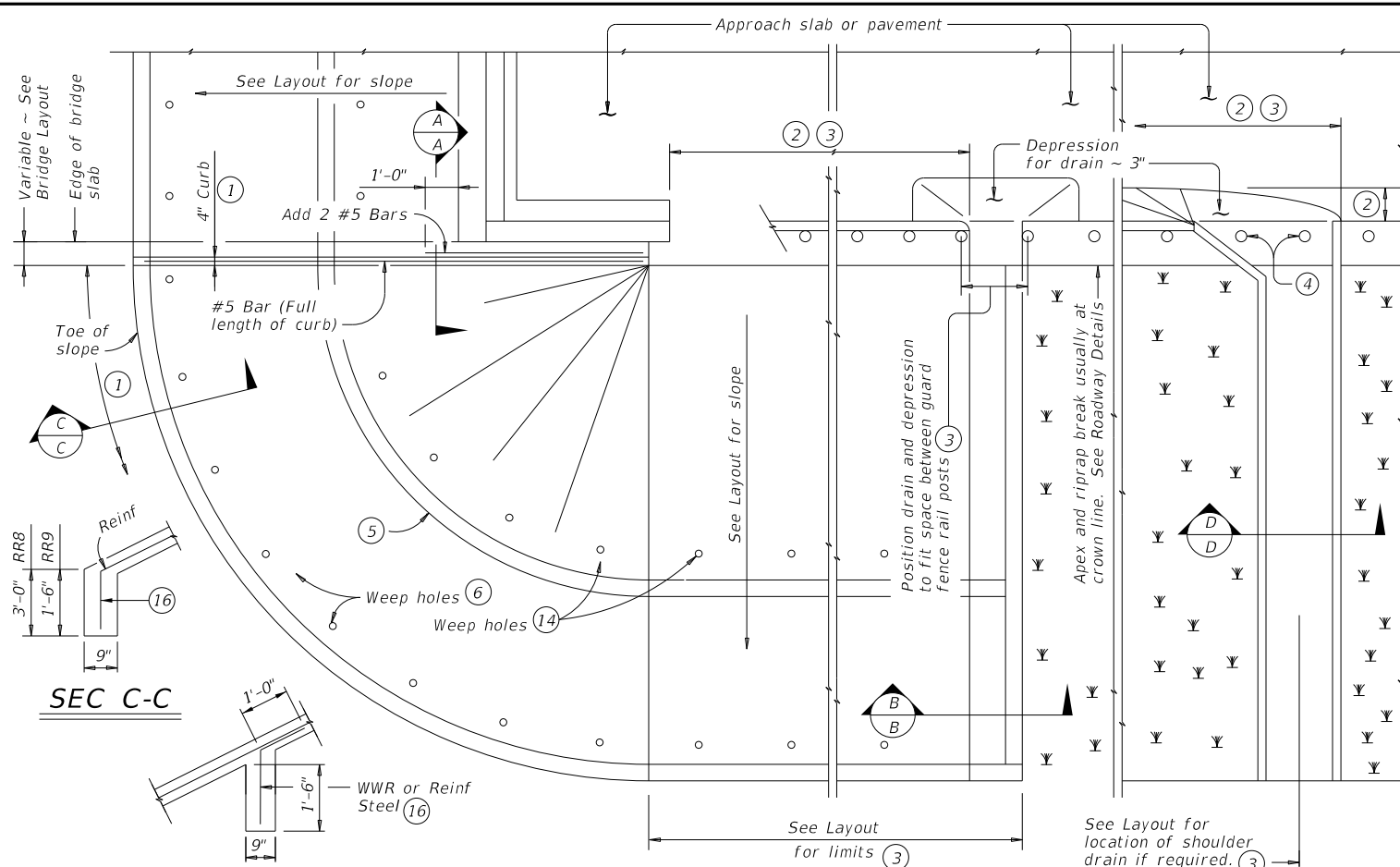
This sheet must be used with a concrete Traffic or Combination Rail. Rails that can be used with this sheet are T551, SSTR, T221, T222, and C221 Rails. Chain link fence details shown on this standard are adequate for all speeds. If used, optional side slot drains shown on rail standards must not be any closer than 6" from chain link post to edge of side slot drains. This railing cannot be used on bridges with expansion joints providing more than 5" movement. Payment for materials, fabrication, and installation of this assembly are to be included in unit price bid in accordance with Item 450, "Rail (CLF-RO)". Approximate weight of fence = 20 plf.

SHEET 2 OF 2

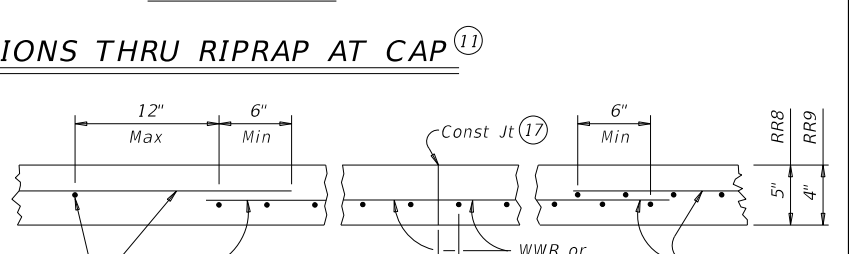
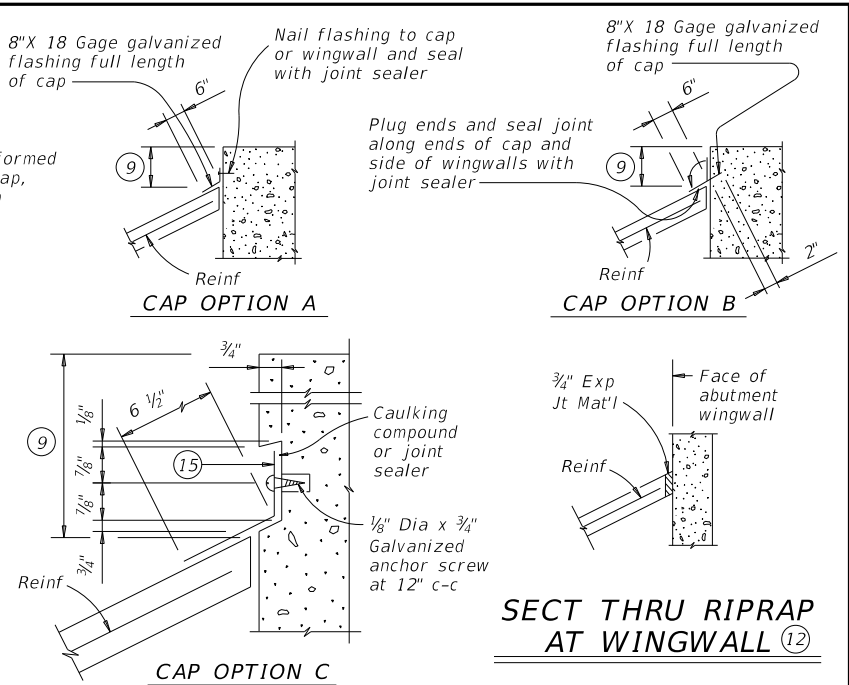
		Bridge Division Standard	
<h2>8 FT CHAIN LINK FENCE FOR RAILROAD OVERPASS</h2>			
<h3>CLF-RO</h3>			
FILE: r1std032-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR
©TxDOT September 2019	CONTRACT NO: 0910	SECTION: 07	JOB NO: 072
REVISIONS	COUNTY: GREGG		SHEET NO: 218
	DISTRICT: TYLER		

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DATE: 7/22/2021
 FILE: \\jmt-pw-bentfey.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\7. Bridge\TxDOT_Standards\crrstd1-19.dgn



- When riprap is shown extended around header on layout, extend slab and toewall as shown and eliminate 4" curb.
- Limits and configuration of drains and depressions are as shown elsewhere in plans or as directed by the Engineer.
- Location of shoulder drain must consider limitations imposed by rail transition. Do not locate shoulder drains at expansion joints between approach slab and concrete pavement.
- See details elsewhere in plans for installation of guard fence posts through concrete riprap.
- Provide intermediate toewall only when designated elsewhere in the plans or included in the specifications.
- Provide lower level of 2" Dia weep holes at 10' c-c backed by 1 CF packet of gravel and galvanized hardware cloth at all locations unless directed by the Engineer to eliminate.
- Use wider or other drain configurations if shown elsewhere in plans or if directed by the Engineer.
- Wall extension may be reduced or modified if approved by the Engineer. Increase wall extension to 1'-6" whenever the optional intermediate toewall is called for in the plans.
- Top of cap to top of riprap dimension varies as directed by the Engineer. Should be 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.
- #5 bars shown are required even when synthetic fiber reinforcing option is selected.
- Provide sealing option for joint between the face of cap and riprap as designated by the Engineer or as shown elsewhere on plans.
- Flashing (shown in Cap Option A) may be used at wingwall in addition to Exp Jt Mat'l if shown on plans or directed by the Engineer.
- Provide #3 reinforcing bars at 18" Spa c-c. Provide Welded Wire Reinforcement (WWR) as 6x6-D2.9xD2.9 or D3xD3. Combinations of WWR and reinforcing bars may be used if both are permitted. Use lap splices of a minimum 6 inches, measured from the transverse wire of WWR, and the ends of reinforcing bars.
- If granular material is specified, provide upper level of 2" Dia weep holes at 10' c-c backed by galvanized hardware cloth.
- 8" x 18 Gage Galv Sheet Metal
- Provide WWR or #3 bars, with 1'-0" extension into slope.
- WWR or reinforcing steel is continuous through riprap construction joints. Provide WWR or reinforcing steel that extends 1'-1" minimum into adjacent riprap on each side of construction joint even if synthetic reinforcing fiber is utilized.



- When riprap is shown extended around header on layout, extend slab and toewall as shown and eliminate 4" curb.
- Limits and configuration of drains and depressions are as shown elsewhere in plans or as directed by the Engineer.
- Location of shoulder drain must consider limitations imposed by rail transition. Do not locate shoulder drains at expansion joints between approach slab and concrete pavement.
- See details elsewhere in plans for installation of guard fence posts through concrete riprap.
- Provide intermediate toewall only when designated elsewhere in the plans or included in the specifications.
- Provide lower level of 2" Dia weep holes at 10' c-c backed by 1 CF packet of gravel and galvanized hardware cloth at all locations unless directed by the Engineer to eliminate.
- Use wider or other drain configurations if shown elsewhere in plans or if directed by the Engineer.
- Wall extension may be reduced or modified if approved by the Engineer. Increase wall extension to 1'-6" whenever the optional intermediate toewall is called for in the plans.
- Top of cap to top of riprap dimension varies as directed by the Engineer. Should be 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.
- #5 bars shown are required even when synthetic fiber reinforcing option is selected.
- Provide sealing option for joint between the face of cap and riprap as designated by the Engineer or as shown elsewhere on plans.
- Flashing (shown in Cap Option A) may be used at wingwall in addition to Exp Jt Mat'l if shown on plans or directed by the Engineer.
- Provide #3 reinforcing bars at 18" Spa c-c. Provide Welded Wire Reinforcement (WWR) as 6x6-D2.9xD2.9 or D3xD3. Combinations of WWR and reinforcing bars may be used if both are permitted. Use lap splices of a minimum 6 inches, measured from the transverse wire of WWR, and the ends of reinforcing bars.
- If granular material is specified, provide upper level of 2" Dia weep holes at 10' c-c backed by galvanized hardware cloth.
- 8" x 18 Gage Galv Sheet Metal
- Provide WWR or #3 bars, with 1'-0" extension into slope.
- WWR or reinforcing steel is continuous through riprap construction joints. Provide WWR or reinforcing steel that extends 1'-1" minimum into adjacent riprap on each side of construction joint even if synthetic reinforcing fiber is utilized.

GENERAL NOTES:
 Provide Class "B" concrete (f'c = 2,000 psi) unless noted elsewhere in plans.
 Provide Grade 60 reinforcing steel.
 Provide deformed welded wire reinforcement (WWR) meeting ASTM A1064, unless otherwise shown.
 Provide reinforcing bars, deformed WWR, or any suitable combination of both types for riprap reinforcing, unless specified elsewhere in the plans.
 Optionally synthetic fibers may be used if approved by the Engineer. Provide synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) in lieu of steel reinforcing in riprap concrete.
 Install construction joints or grooved joints extending the full slant slope height at intervals of approximately 20 feet unless otherwise directed by the Engineer.
 Hardware cloth, loose grade stone behind weep holes, flashing, or other sealing material are subsidiary to the bid item "Riprap".
 See Layout for limits of riprap.
 RR8 is to be used on stream crossings.
 RR9 is to be used on other embankments.

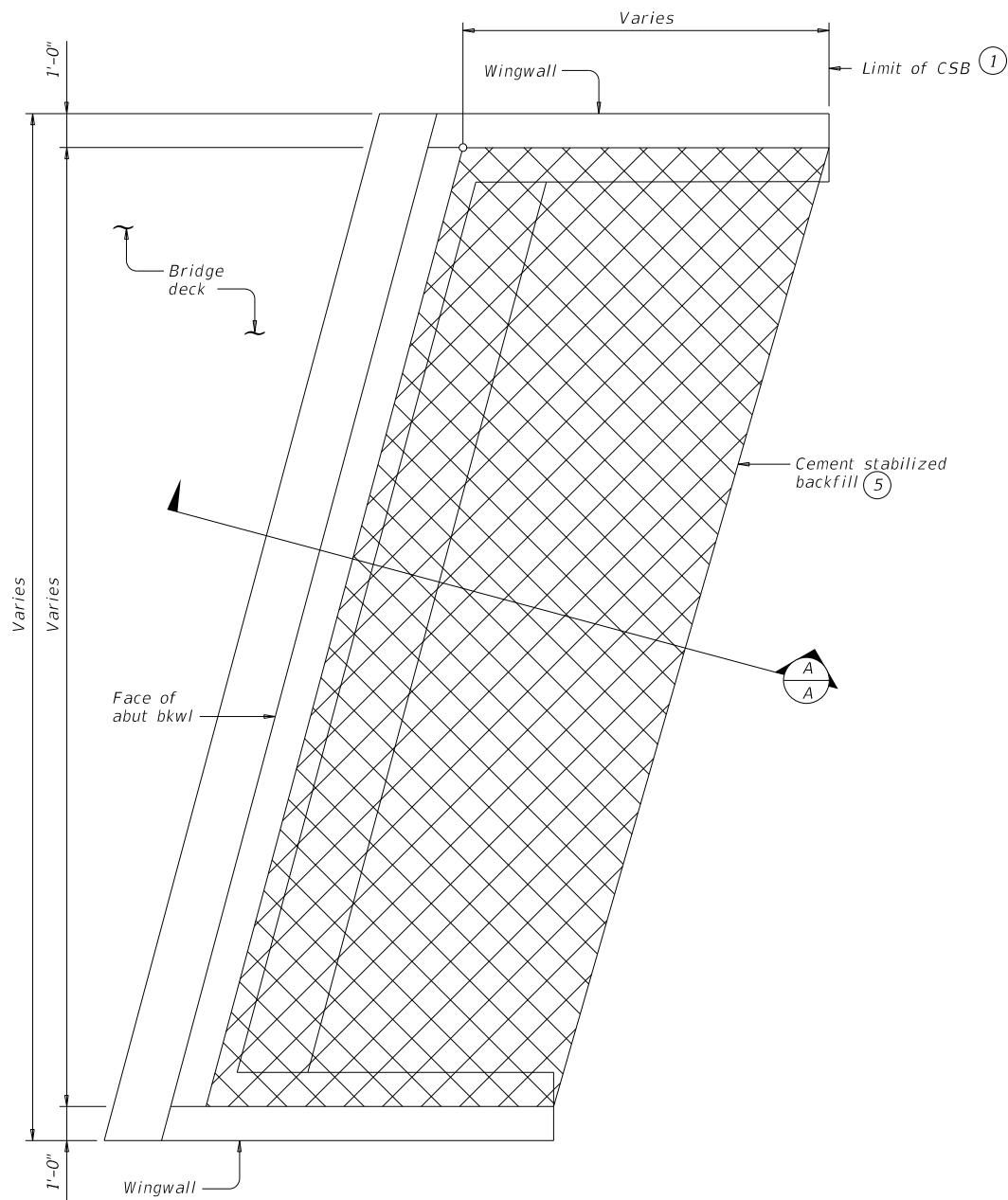
FOR CONTRACTOR'S INFORMATION ONLY:

5" of RR8	= 0.015 CY/SF
4" of RR9	= 0.012 CY/SF
#3 Reinf at 18" c-c	= 0.501 Lbs/SF
6x6-D3xD3	= 0.408 Lbs/SF

		Bridge Division Standard	
CONCRETE RIPRAP AND SHOULDER DRAINS EMBANKMENTS AT BRIDGE ENDS (TYPES RR8 & RR9)			
CRR			
FILE: crrstd1-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
REV: 01	0910	07	072
TYLER	GREGG	HIGHWAY	
		SHEET NO. 219	

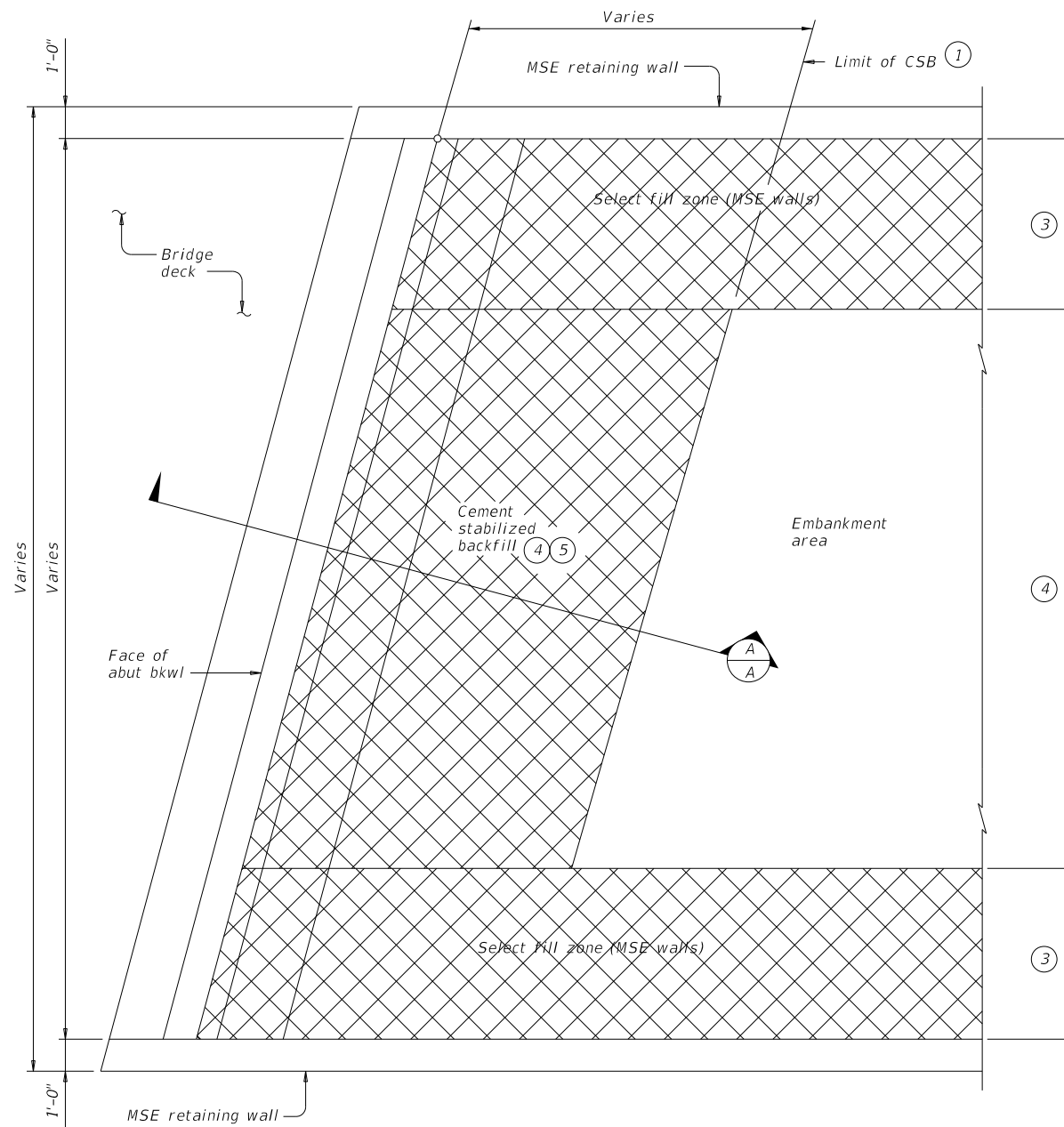
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DATE: 7/22/2021
FILE: \\jmt-pw_bent\ey.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\7. Bridge\TxDOT_Standards\csabste1-20.dgn



OPTION 1 ~ PLAN WITH WINGWALLS

Cast-in-place retaining walls similar.



OPTION 1 ~ PLAN WITH MSE RETAINING WALLS

- 1 Usual limit of Cement Stabilized Backfill is at end of wingwall. Extend CSB limits as required to maintain a slope no steeper than 1:1 at bottom of backfill.
- 2 Bench backfill as shown with 12" (approximate) bench depths.
- 3 Where MSE retaining walls are present, adjust CSB limits to accommodate the select fill zone. See retaining wall details for additional information.
- 4 When distance between select fill zones is less than 5'-0", MSE select fill may be substituted for cement stabilized backfill with approval from the Engineer.
- 5 If shown in the plans flowable backfill can be used as a substitute for cement stabilized backfill with the following constraints:
 - a. If flowable backfill is to be placed over MSE backfill then a filter fabric will be placed over the MSE backfill prior to placement of the flowable fill; and
 - b. Place flowable fill in lifts not exceeding 2 feet in height, place each successive lift when the previous lift has stiffened/hardened (i.e. has lost its flowability).

GENERAL NOTES:

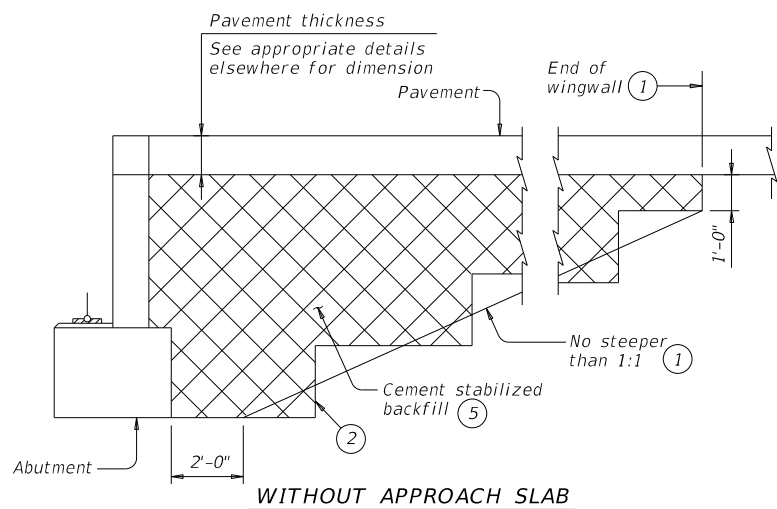
See the Bridge Layout for selected Option. Option 2 is intended for new construction requiring high plasticity embankment fill with a plasticity index (PI) greater than 30 or pavement built in poor native soil. Poor soils are defined as high plasticity clays or expansive clays. Option 1 is intended for construction only requiring PI controlled embankment fill or excavation in competent soils/rocks in order to construct the abutment.

Provide Cement Stabilized Backfill (CSB) meeting the requirements of Item 400, "Excavation and Backfill for Structures", to the limits shown at bridge abutments.

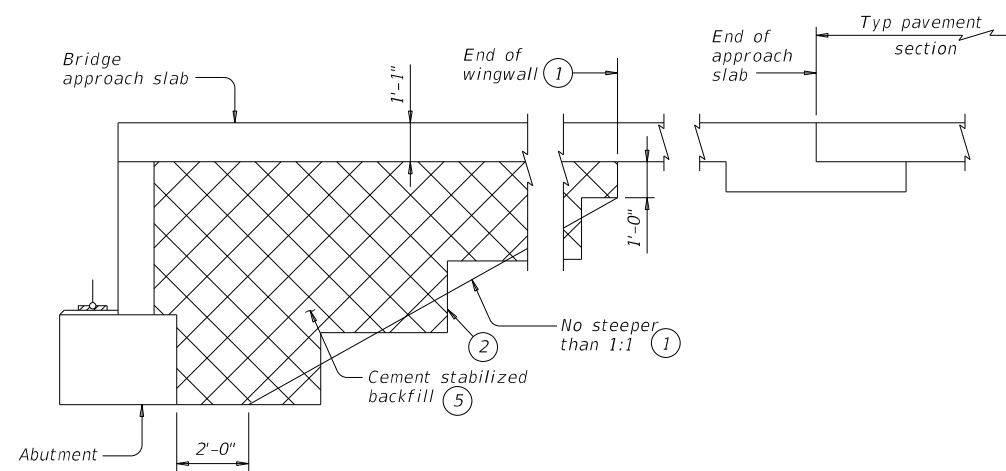
If required elsewhere in the plans, provide Flowable Backfill meeting the requirements of Item 401, "Flowable Backfill", to the limits shown at bridge abutments.

Details are drawn showing left forward skew. See Bridge Layout for actual skew direction.

These details do not apply when Concrete Block retaining walls are used in lieu of wingwalls.



WITHOUT APPROACH SLAB



WITH APPROACH SLAB

(Showing BAS-C, BAS-A similar.)

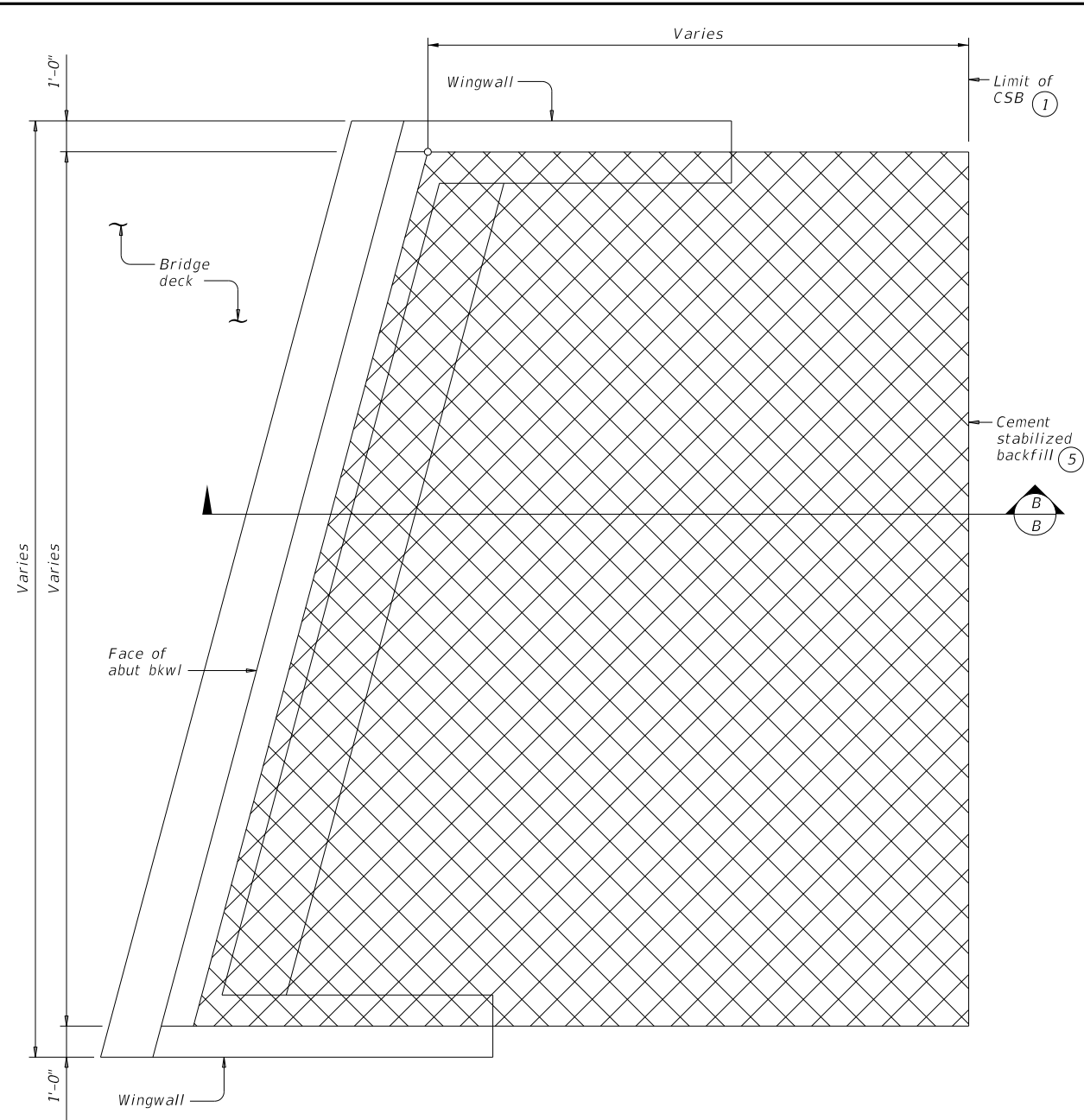
SECTION A-A

SHEET 1 OF 2

		Bridge Division Standard	
CEMENT STABILIZED ABUTMENT BACKFILL BRIDGE ABUTMENT			
CSAB			
FILE: csabste1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
©TxDOT	April 2019	CONV	SECT
0910	07	072	HIGH ST
02-20: Added Option 2.	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	220

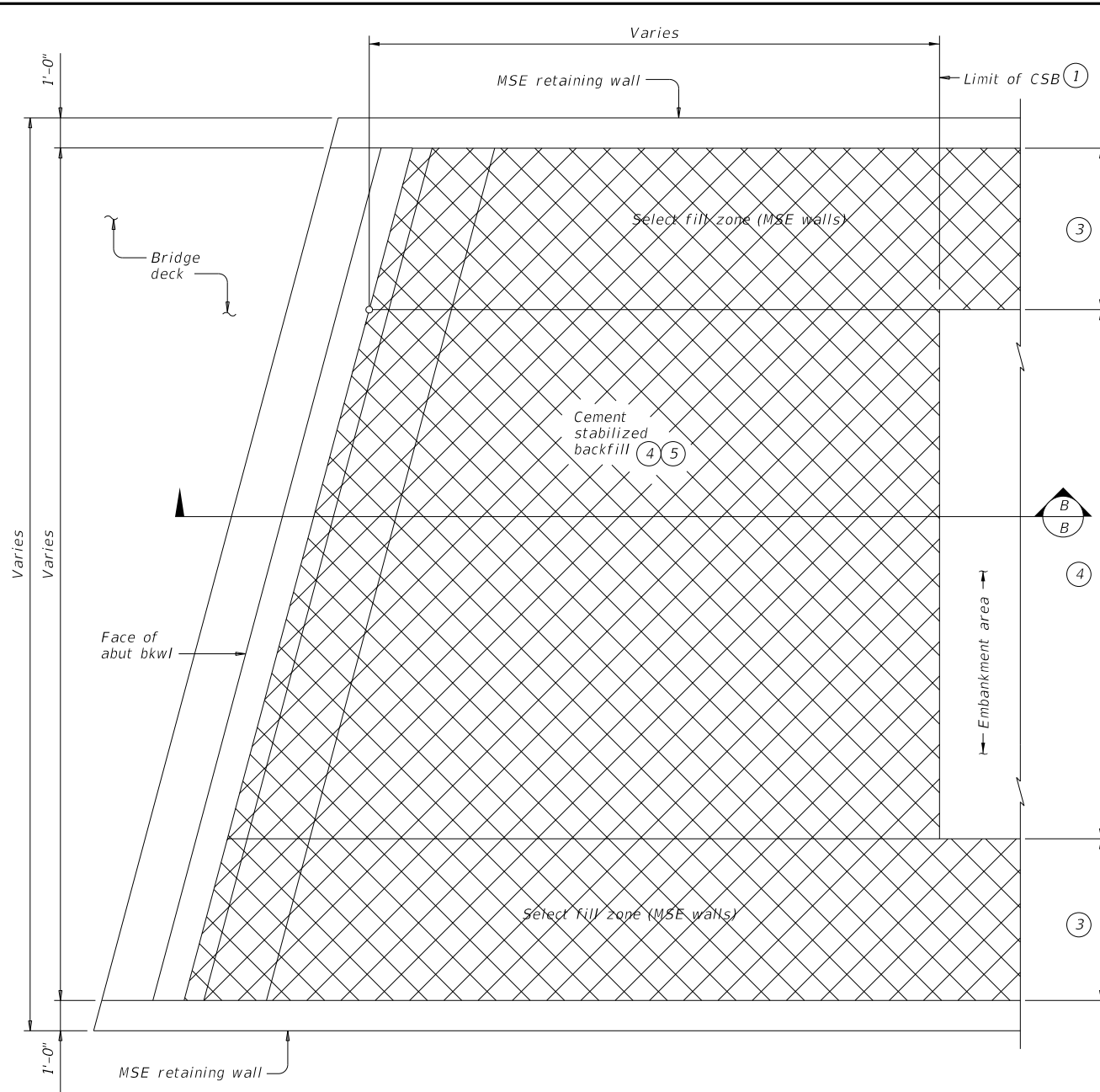
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DATE: 7/22/2021
FILE: pw:\jmt-pw_bent1ey.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\7. Bridge\TxDOT_Standards\csabste1-20.dgn



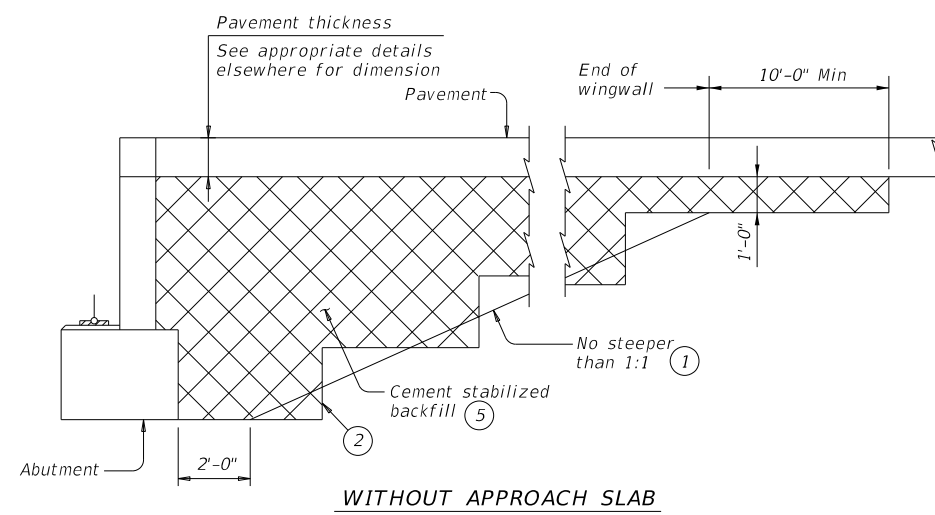
OPTION 2 ~ PLAN WITH WINGWALLS

Cast-in-place retaining walls similar.

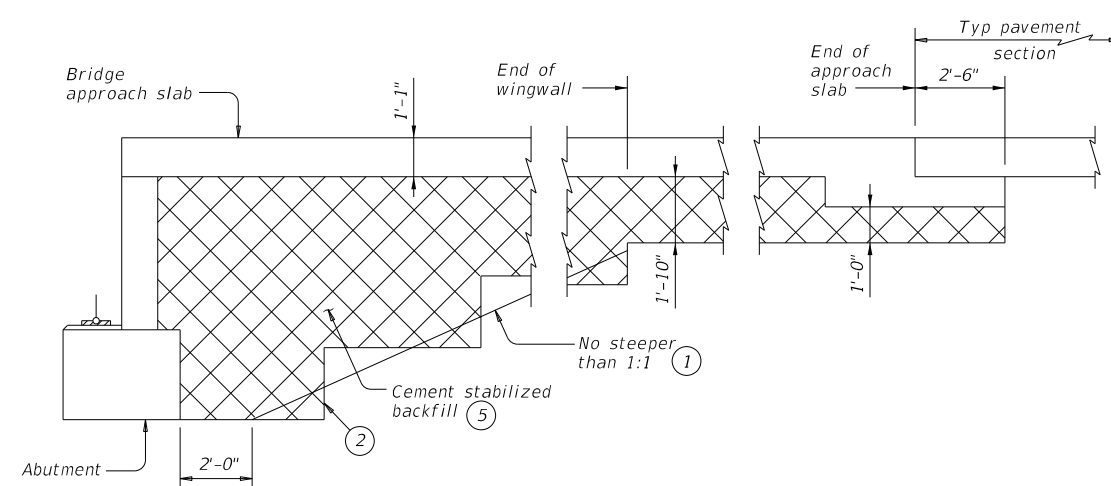


OPTION 2 ~ PLAN WITH MSE RETAINING WALLS

- ① Usual limit of Cement Stabilized Backfill is at end of wingwall. Extend CSB limits as required to maintain a slope no steeper than 1:1 at bottom of backfill.
- ② Bench backfill as shown with 12" (approximate) bench depths.
- ③ Where MSE retaining walls are present, adjust CSB limits to accommodate the select fill zone. See retaining wall details for additional information.
- ④ When distance between select fill zones is less than 5'-0", MSE select fill may be substituted for cement stabilized backfill with approval from the Engineer.
- ⑤ If shown in the plans flowable backfill can be used as a substitute for cement stabilized backfill with the following constraints:
 - a). If flowable backfill is to be placed over MSE backfill then a filter fabric will be placed over the MSE backfill prior to placement of the flowable fill; and
 - b). Place flowable fill in lifts not exceeding 2 feet in height, place each successive lift when the previous lift has stiffened/hardened (i.e. has lost its flowability).



WITHOUT APPROACH SLAB



SECTION B-B

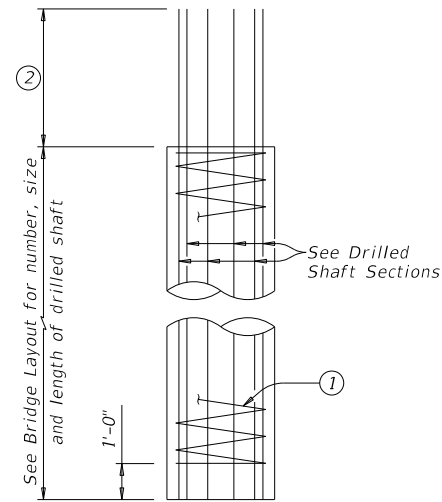
WITH APPROACH SLAB
(Showing BAS-C, BAS-A similar.)

SHEET 2 OF 2

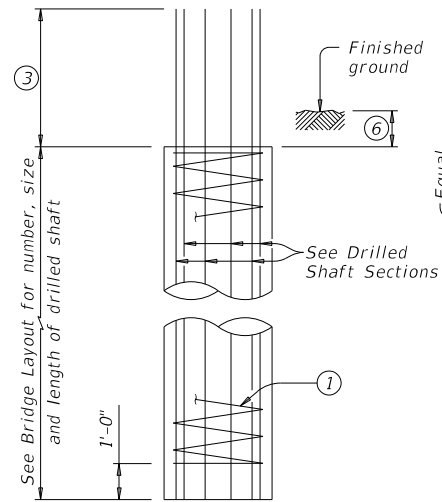
		Bridge Division Standard	
CEMENT STABILIZED ABUTMENT BACKFILL BRIDGE ABUTMENT			
CSAB			
FILE: csabste1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
©TxDOT	April 2019	CONV	SECT
REVISIONS	0910	07	072
02-20: Added Option 2.	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	221

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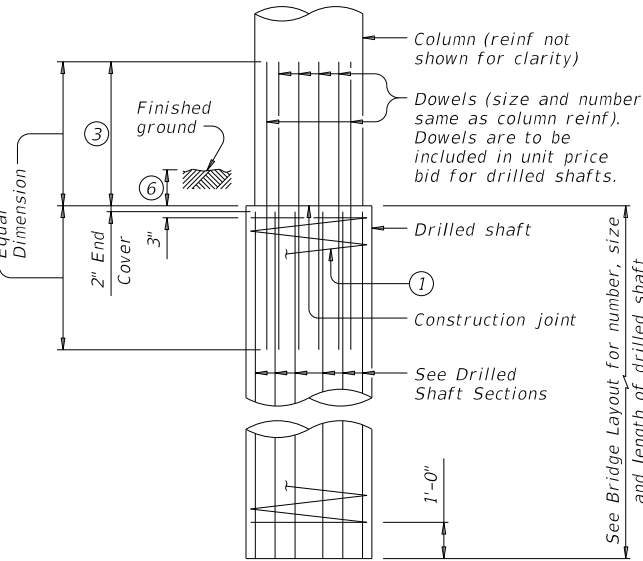
DATE: 7/22/2021
 FILE: \\jmt-pw_bent1ev.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\7. Bridge\TxDOT_Standards\fdstde01-20.dgn



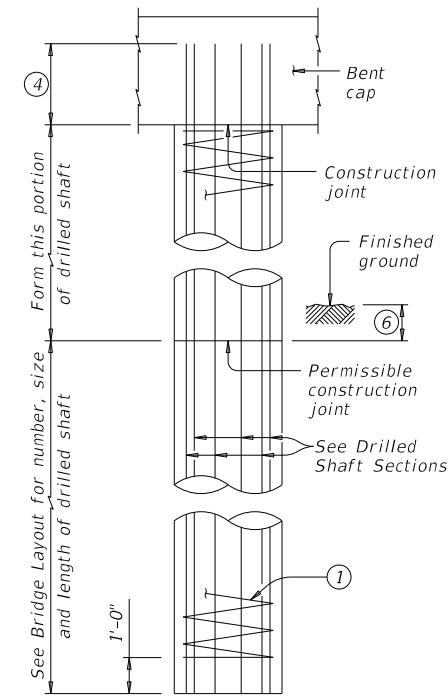
ABUTMENTS, WINGWALLS AND MULTI-DRILLED SHAFT FOOTINGS



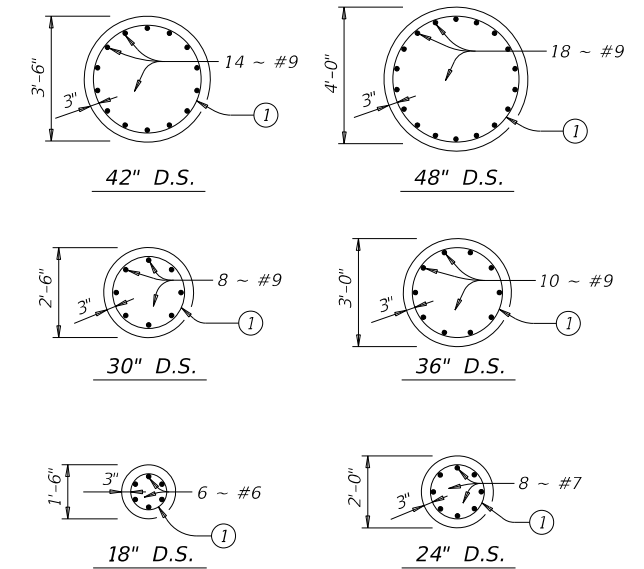
INTERIOR BENTS DRILLED SHAFT DIA EQUAL TO COLUMN DIA



INTERIOR BENTS DRILLED SHAFT DIA GREATER THAN COLUMN DIA



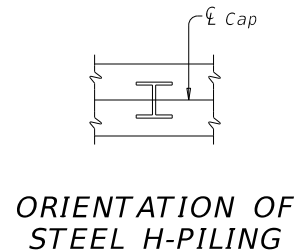
OPTIONAL INTERIOR BENT DRILLED SHAFT DETAIL ⑤



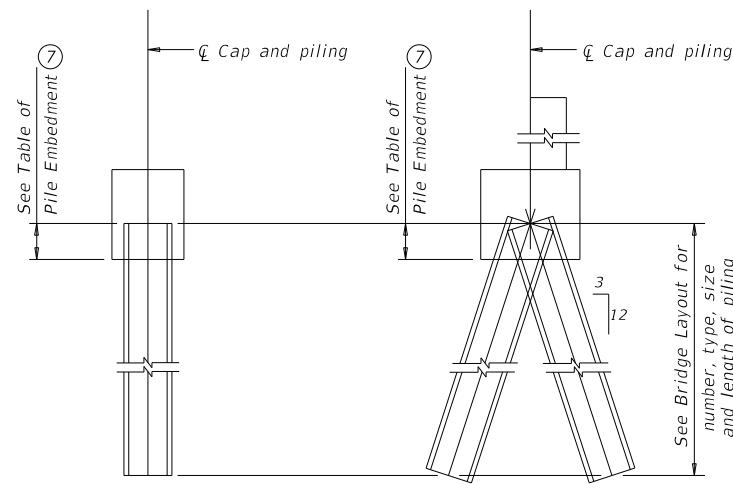
DRILLED SHAFT SECTIONS

TABLE OF PILE EMBEDMENT	
Pile Type	Embedment Depth (Ft)
16" Sq Concrete 18" Sq Concrete HP14 Steel HP16 Steel	1'-0"
20" Sq Concrete 24" Sq Concrete HP18 Steel	1'-6"

See Prestressed Concrete Piling (CP) standard for additional details on concrete pile embedment.

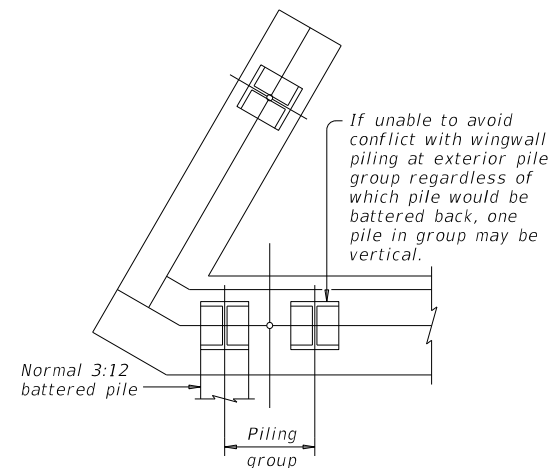


ORIENTATION OF STEEL H-PILING



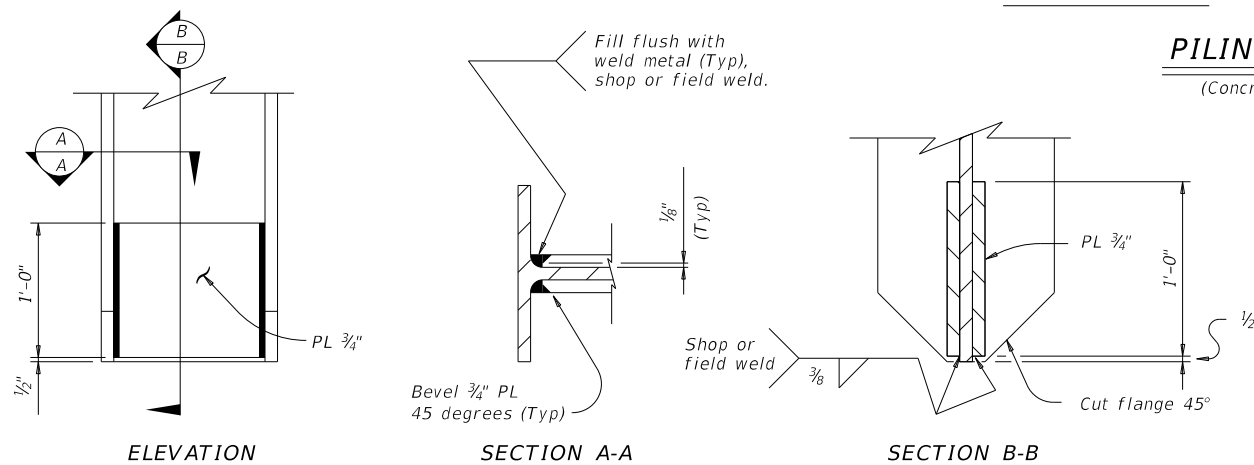
VERTICAL PILE BATTERED PILE

PILING DETAILS (Concrete or steel H)



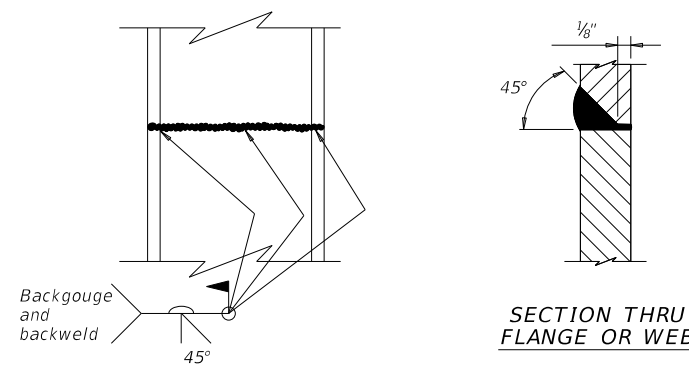
DETAIL "A"

(Showing plan view of a 30° skewed abutment)



STEEL H-PILE TIP REINFORCEMENT

See Item 407 "Steel Piling" to determine when tip reinforcement is required and for options to the details shown.



STEEL H-PILE SPLICE DETAIL

Use when required.

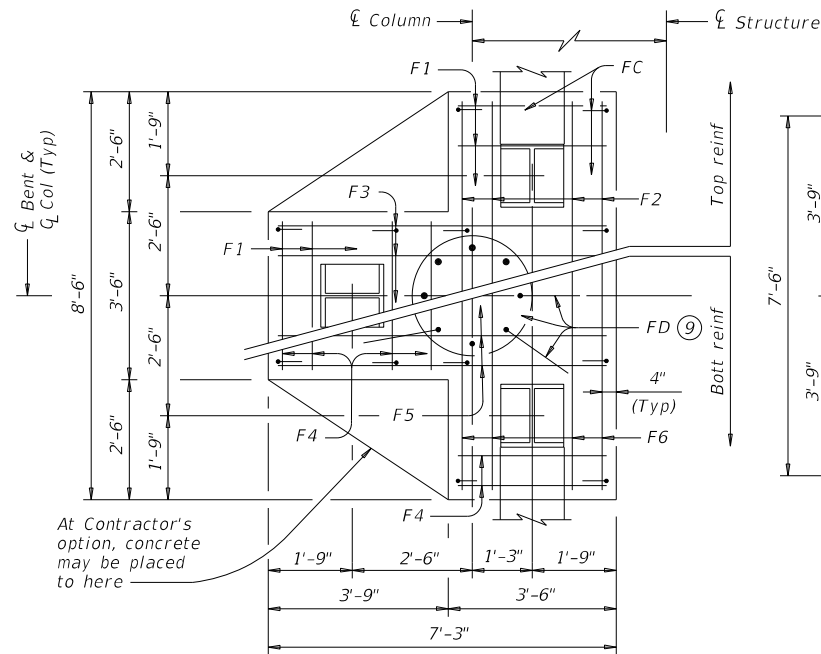
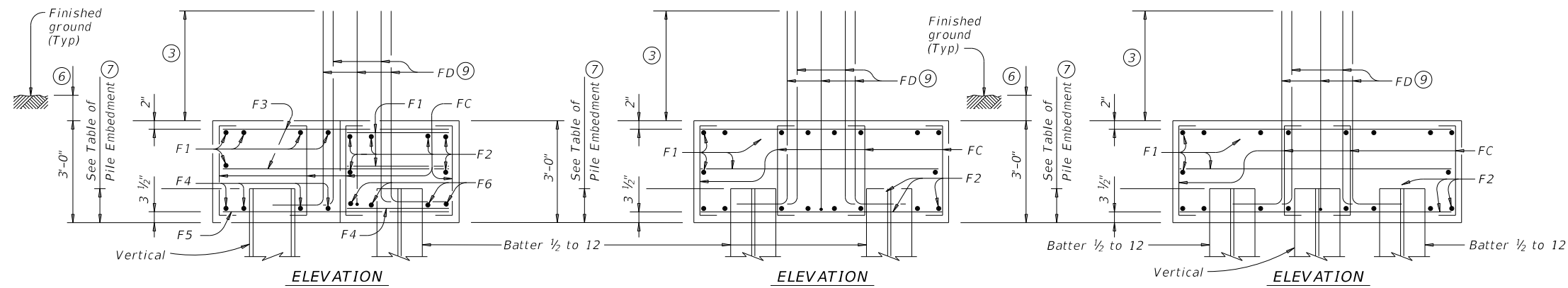
- ① #3 spiral at 6" pitch (one and a half flat turns top and bottom).
- ② Min extension into supported element:
#6 Bars = 1'-11"
#7 Bars = 2'-0"
#9 Bars = 2'-3"
- ③ Min lap with column reinf:
#7 Bars = 2'-11"
#9 Bars = 3'-9"
#11 Bars = 4'-8"
- ④ Min extension into supported element:
#6 Bars = 1'-11"
#7 Bars = 2'-3"
#9 Bars = 2'-9"
- ⑤ Drilled shafts may extend to the bottom of bent caps for "H" heights of 6 ft and less (as shown on the Bridge Layout), if approved. This option can only be used when the drilled shaft diameter equals the column diameter. Obtain approval of the forming method above the ground line prior to construction. No adjustments in payment will be made if this option is used.
- ⑥ 1'-0" Min, unless shown otherwise on plans.
- ⑦ Or as shown on plans.

SHEET 1 OF 2

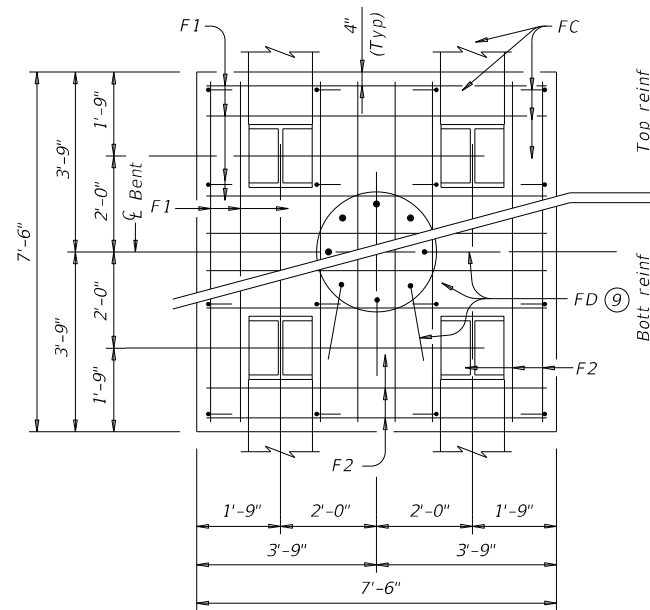
		Bridge Division Standard	
<h2>COMMON FOUNDATION DETAILS</h2>			
FD			
FILE: fdstde01-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
©TxDOT April 2019	CONTRACT: 0910	SECTION: 07	JOB: 072
REVISIONS	COUNTY: TYLER		HIGHWAY: GREGG
01-20: Added #11 bars to the FD bars.	DISTRICT: TYLER		SHEET NO.: 222

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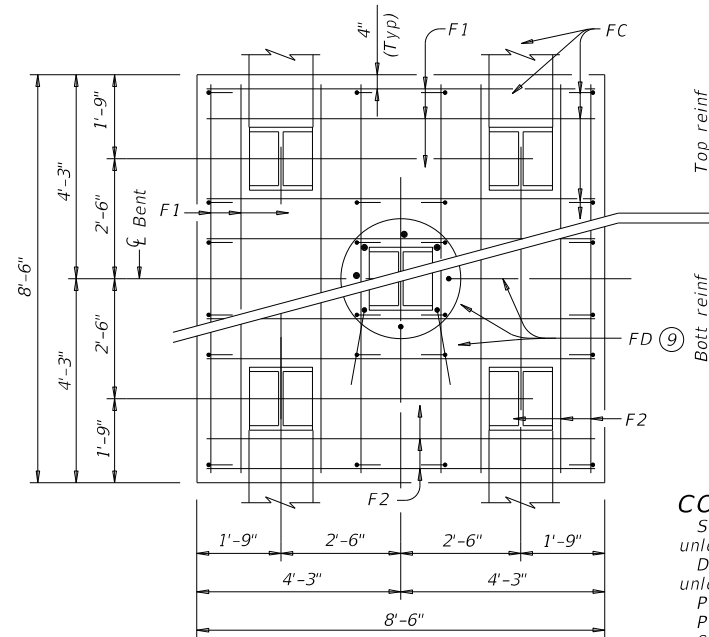
DATE: 7/22/2021
FILE: \\jmt-pw_bent.ey.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\7. Bridge\TxDOT_Standards\fdstde01-20.dgn



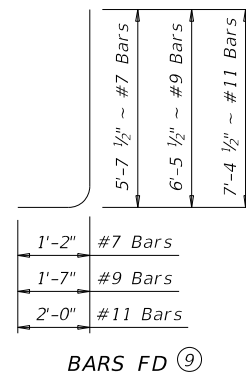
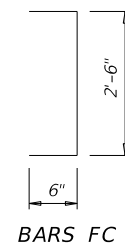
THREE PILE FOOTING^⑧
For 36" Dia and smaller columns.



FOUR PILE FOOTING^⑧
For 42" Dia and smaller columns.



FIVE PILE FOOTING^⑧
For 42" Dia and smaller columns.



- ③ Min lap with column reinforcing:
#7 Bars = 2'-11"
#9 Bars = 3'-9"
#11 Bars = 4'-8"
- ⑥ 1'-0" Min, unless shown otherwise on plans.
- ⑦ Or as shown on plans.
- ⑧ See Bridge Layout for type, size and length of piling.
- ⑨ Number and size of FD bars must match column reinforcing. Tie FD bars to the top of the bottom reinforcing mat.
- ⑩ Adjust FD quantity, size and weight as needed to match column reinforcing.

TABLE OF FOOTING QUANTITIES FOR 30" COLUMNS

ONE 3 PILE FOOTING					
Bar	No.	Size	Length	Weight	
F1	11	#4	3'- 2"	23	
F2	6	#4	8'- 2"	33	
F3	6	#4	6'- 11"	28	
F4	8	#9	3'- 2"	86	
F5	4	#9	6'- 11"	94	
F6	4	#9	8'- 2"	111	
FC	12	#4	3'- 6"	28	
FD ^⑩	8	#9	8'- 1"	220	
Reinforcing Steel				Lb	623
Class "C" Concrete				CY	4.8
ONE 4 PILE FOOTING					
Bar	No.	Size	Length	Weight	
F1	20	#4	7'- 2"	96	
F2	16	#8	7'- 2"	306	
FC	16	#4	3'- 6"	37	
FD ^⑩	8	#9	8'- 1"	220	
Reinforcing Steel				Lb	659
Class "C" Concrete				CY	6.3
ONE 5 PILE FOOTING					
Bar	No.	Size	Length	Weight	
F1	20	#4	8'- 2"	109	
F2	16	#9	8'- 2"	444	
FC	24	#4	3'- 6"	56	
FD ^⑩	8	#9	8'- 1"	220	
Reinforcing Steel				Lb	829
Class "C" Concrete				CY	8.0

CONSTRUCTION NOTES:

See Bridge Layout for foundation type required. Use these foundation details unless shown otherwise.
Drive piling under abutment wingwalls to a minimum resistance of 10 Tons/Pile unless shown otherwise.
Provide Class C Concrete ($f'_c = 3,600$ psi), unless shown otherwise.
Provide Grade 60 reinforcing steel.
Galvanize reinforcing if shown elsewhere in the plans.
Provide bar laps for drilled shaft reinforcing, where required, as follows:
Uncoated or galvanized (#6) ~ 2'-6"
Uncoated or galvanized (#7) ~ 2'-11"
Uncoated or galvanized (#9) ~ 3'-9"

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

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

DESIGNER NOTES:

Do not use the drilled shaft details shown on this standard for retaining wall, noise wall, barrier, or sign foundations without structural evaluation.
Do not use the footings shown on this standard in direct contact with salt water or exposed to salt water spray.
Maximum allowable pile loads for the footings shown are:

- 72 Tons/Pile with 24" Dia Columns
- 80 Tons/Pile with 30" Dia Columns
- 100 Tons/Pile with 36" Dia Columns
- 120 Tons/Pile with 42" Dia Columns

SHEET 2 OF 2



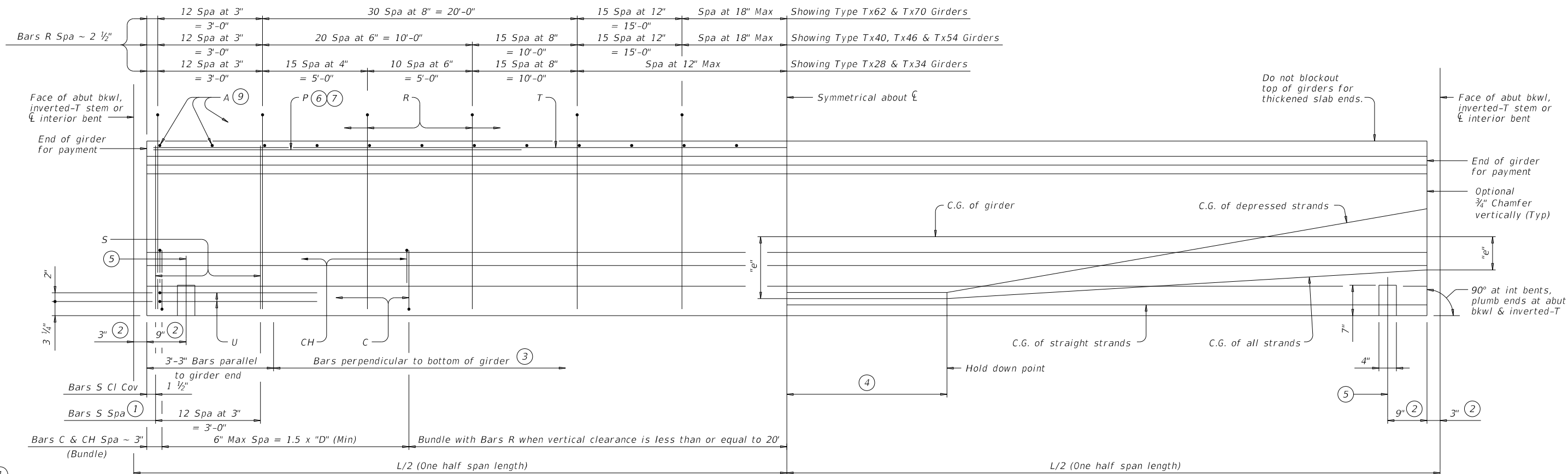
COMMON FOUNDATION DETAILS

FD

FILE: fdstde01-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONTRACT	SECTION	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
01-20: Added #11 bars to the FD bars.	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	223	

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DATE: 7/22/2021
 FILE: \\jmt-pw_bent1ey.com\jmt-pw\01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\7. Bridge\TxDOT_Standards\igdstds1-19.dgn



- ① Bundle with Bars R.
- ② Measured along $\bar{\epsilon}$ Girder at interior bents; perpendicular to abutment bkwl or inverted-T stem.
- ③ The average of the top and bottom spacing of Bars R cannot exceed the required spacing.
- ④ L/20, but not less than 5'-0" (-0,+2').

GIRDER ELEVATION

- ⑥ Bars P (#6 x 15'-0") required in Tx62 and Tx70 girders. At the fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.
- ⑦ Bars P (#6 x 15'-0") are only required in Tx28, Tx34, Tx40, Tx46, and Tx54 girders when "e" at girder ends exceeds 0.25 x "D". At the fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.
- ⑧ 1 3/8" Clear Cover to Bars S.
- ⑨ Space Bars A at 6" Max for girders requiring overhang bracket hangers. Space at 12" Max for all other girders. Tie to Bars R as necessary. See standard IGMS for "Deck Forming Notes".
- ⑩ Based on 155 pcf total weight of concrete and reinforcing steel.
- ⑪ Smooth trowel finish on the slab overhang side of exterior girder.

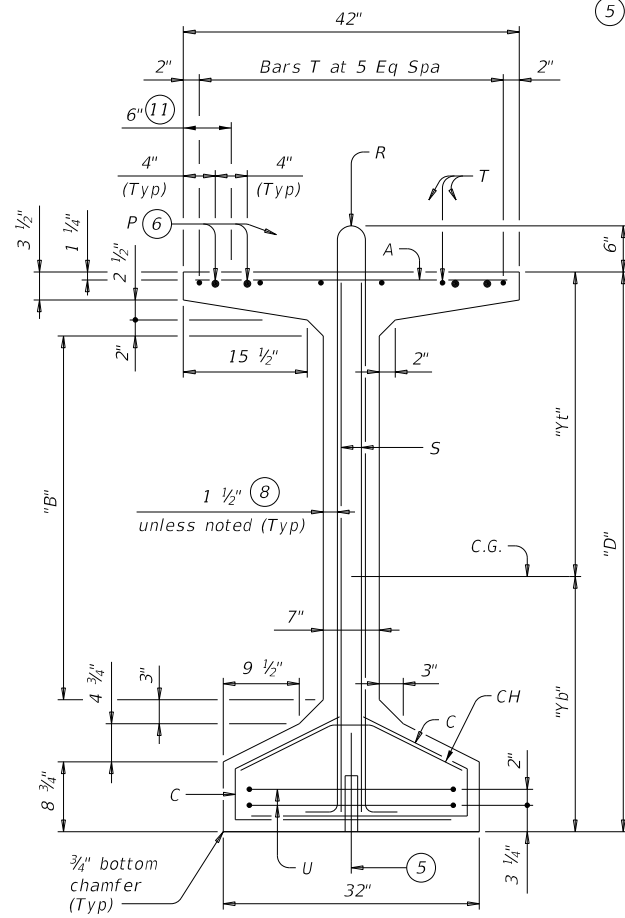
GIRDER DIMENSIONS AND SECTION PROPERTIES

Girder Type	"D" (in.)	"B" (in.)	"yt" (in.)	"yb" (in.)	Area (in. ²)	"Ix" (in. ⁴)	"Iy" (in. ⁴)	Weight (plf)
Tx28	28	6	15.02	12.98	585	52,772	40,559	630
Tx34	34	12	18.49	15.51	627	88,355	40,731	675
Tx40	40	18	21.90	18.10	669	134,990	40,902	720
Tx46	46	22	25.90	20.10	761	198,089	46,478	819
Tx54	54	30	30.49	23.51	817	299,740	46,707	880
Tx62	62	37 1/2"	33.72	28.28	910	463,072	57,351	980
Tx70	70	45 1/2"	38.09	31.91	966	628,747	57,579	1,040

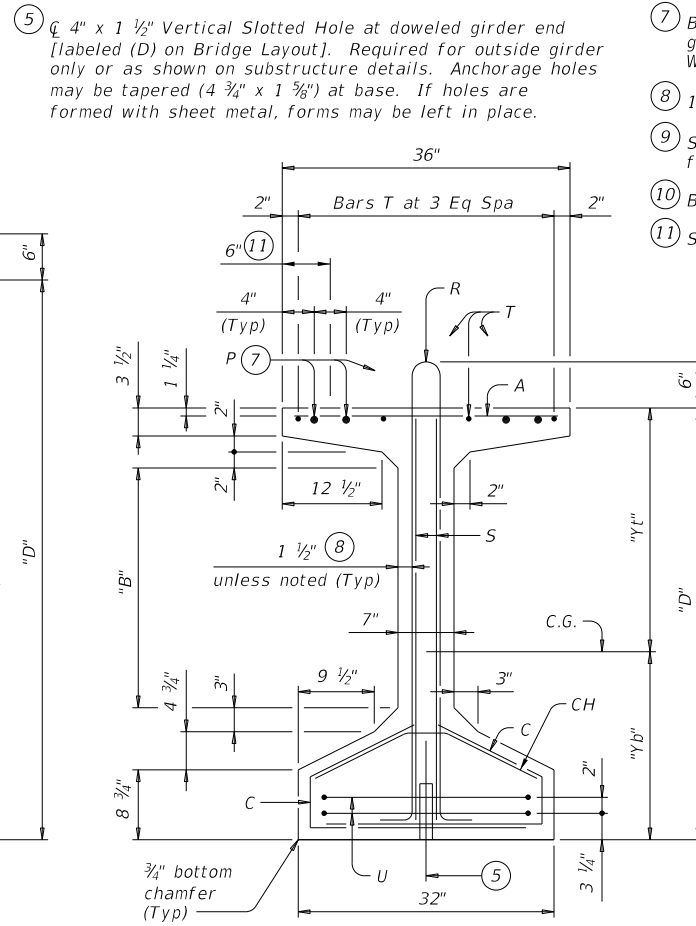
GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications. Provide Class H concrete. Provide Grade 60 reinforcing steel. An equal area of deformed Welded Wire Reinforcement (WWR) (ASTM A1064) may be substituted for Bars A, C, R or T unless otherwise noted. It is permissible for bars or strands to come in contact with materials used in forming anchor holes.

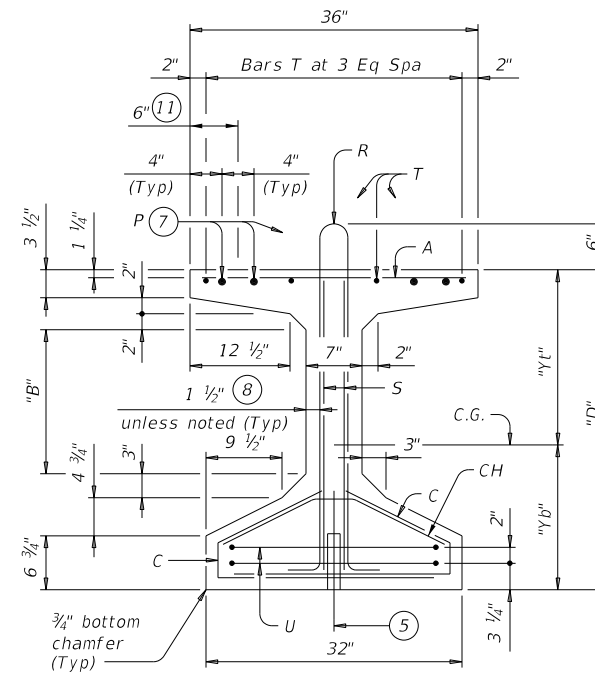
Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions shown are out-to-out of bar.



TYPE Tx62 & Tx70



TYPE Tx46 & Tx54



TYPE Tx28, Tx34 & Tx40

HL93 LOADING SHEET 1 OF 2



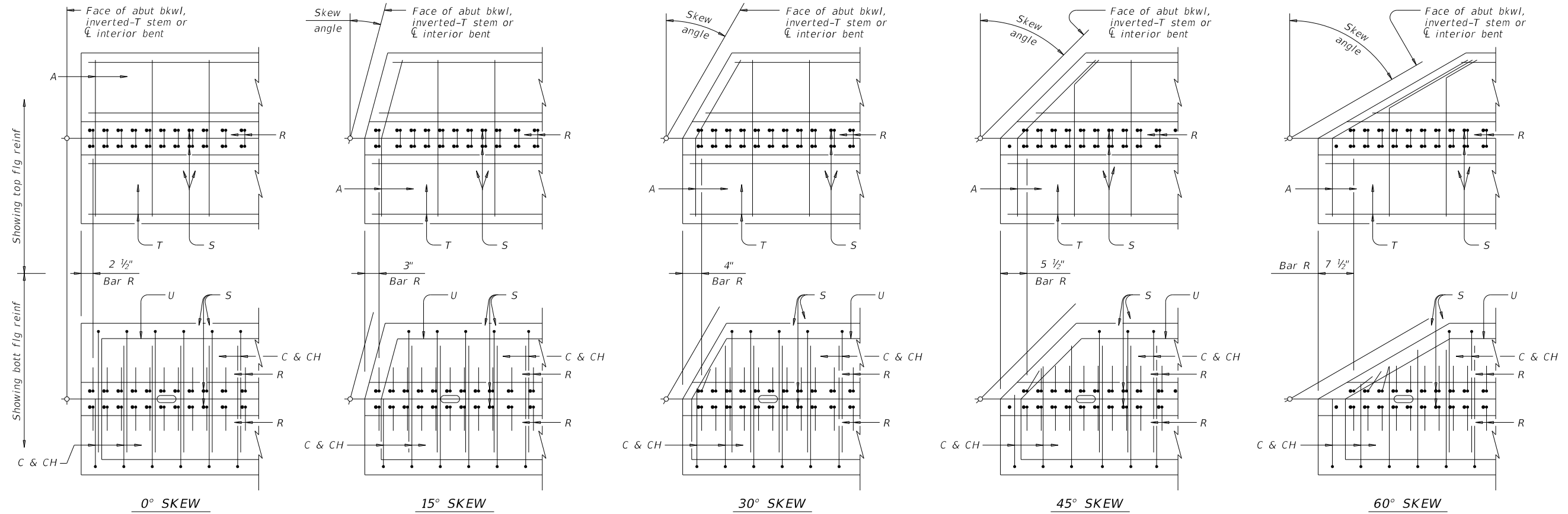
PRESTRESSED CONCRETE I-GIRDER DETAILS

IGD

FILE: igdstds1-19.dgn	DN: TxDOT	CK: JMH	DW: JTR	CK: TAR
©TxDOT August 2017	CONV	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
10-19: Added Bars C and CH full length for VC <= 20'	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	224	

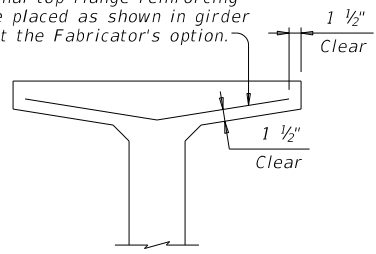
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DATE: 7/22/2021
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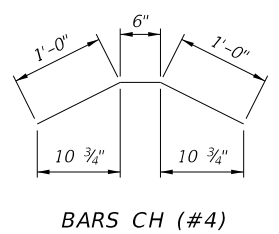


PLAN OF GIRDER ENDS (12)

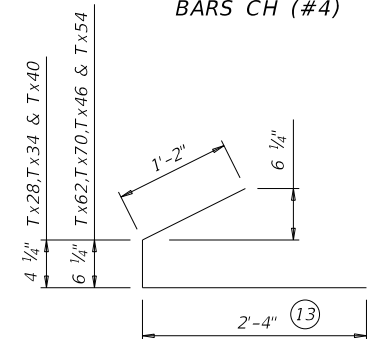
To control top flange cracking that may occur during form removal, additional top flange reinforcing may be placed as shown in girder ends at the Fabricator's option.



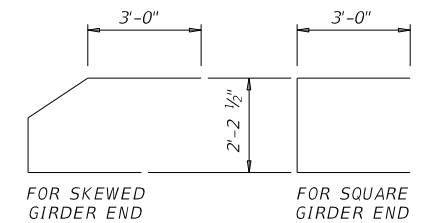
OPTIONAL TOP FLANGE REINFORCING DETAIL



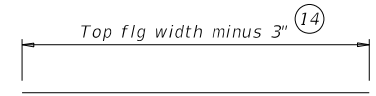
BARS CH (#4)



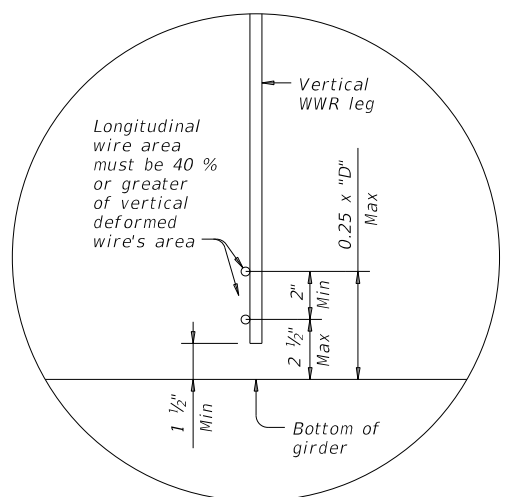
BARS C (#4)



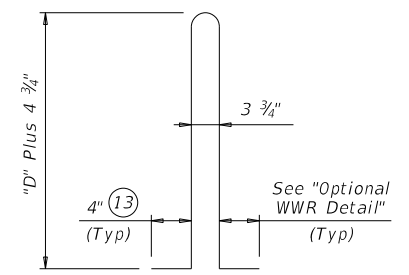
BARS U (#5)



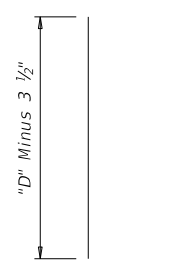
BARS A (#3)



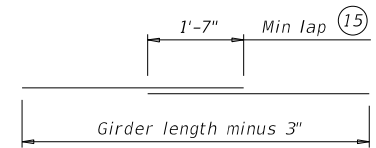
OPTIONAL WELDED WIRE REINFORCEMENT (WWR) DETAIL



BARS R (#4) (16)



BARS S (#6)



BARS T (#4)

- (12) Reinforcing patterns shown are provided as guides to determine reinforcement placement in skewed ends. Place Bars S as close to girder end as cover requirements permit, which may prevent them to be bundled with Bars R.
- (13) Bars may be cut or bent at skewed end as required.
- (14) Increase as necessary for bars at skewed end.
- (15) No portion of bar less than 10 ft.
- (16) For Welded Wire Reinforcement (WWR) option, area of Bars R may be reduced in proportion to the increase in reinforcement yield strength over 60 ksi. Yield strength of WWR is limited to 75 ksi.



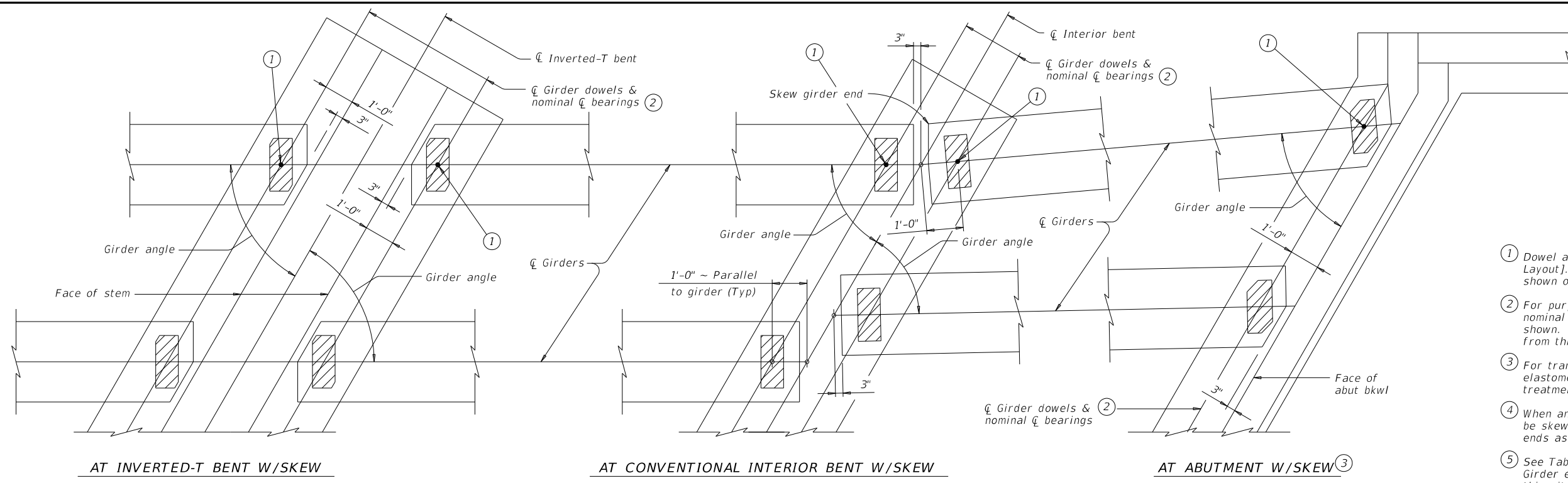
PRESTRESSED CONCRETE I-GIRDER DETAILS

IGD

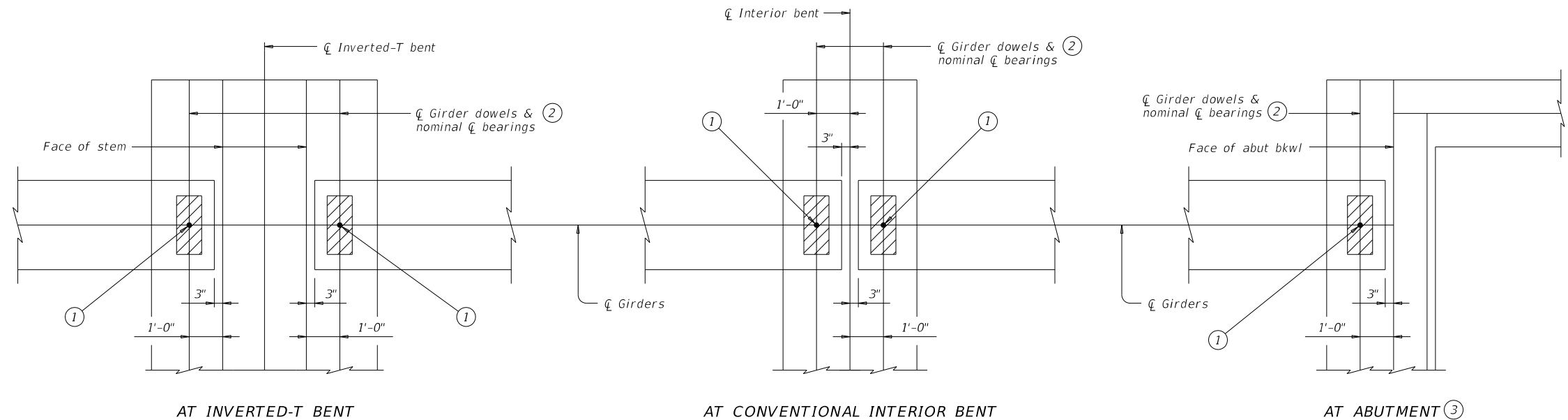
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©TxDOT August 2017	CONTRACT	SECTION	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
10-19: Added Bars C and CH full length for VC <= 20'	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	225	

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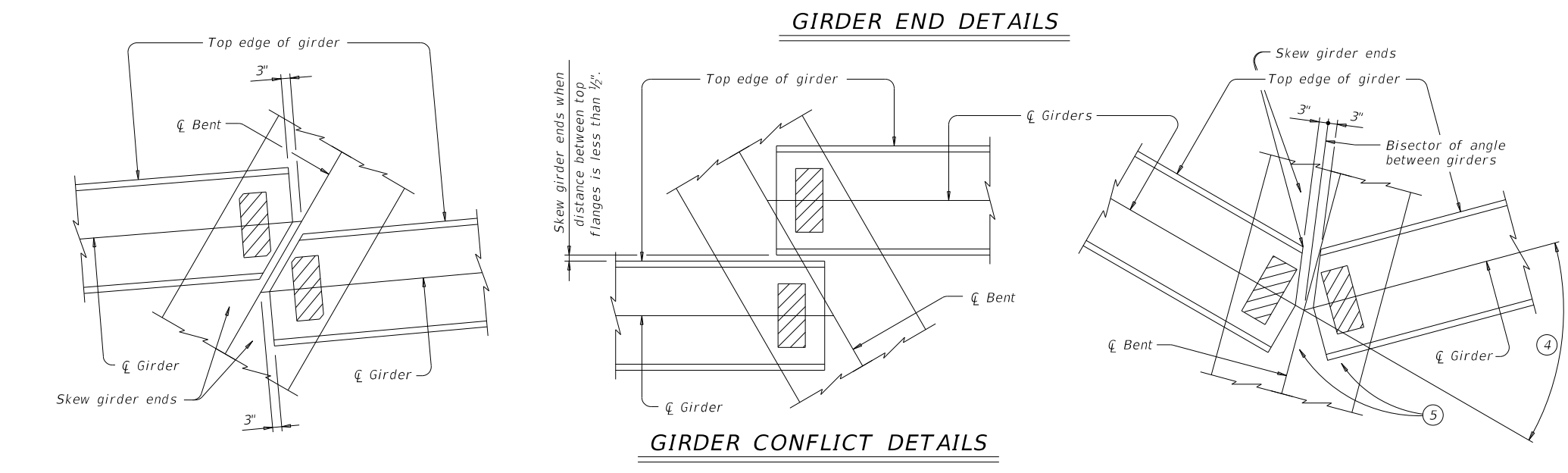
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- ① Dowel at doweled girder end [labeled (D) on Bridge Layout]. Required for outside girder only or as shown on substructure details.
- ② For purposes of computing bearing seat elevations, nominal centerline of bearing must be defined as shown. The actual center of bearing pad may vary from this line.
- ③ For transition bents with backwall, girder and elastomeric bearings must receive the same treatment as shown for abutments.
- ④ When angle exceeds 0°, one or both of girders ends must be skewed to maintain the clearance between girder ends as shown in view.
- ⑤ See Table of Bearing Pad Dimensions for bearing size. Girder end skew angles in Table not applicable for this situation. Table reflects girder conflicts of this type on radial bents only.



GENERAL NOTES:
These details accommodate skew angles up to 60°. Shop drawings for approval are required. A bearing layout which identifies location and orientation of all bearings must be developed by the bearing fabricator. Permanently mark each bearing in accordance with the bearing layout. A copy of the bearing layout is to be provided to the Engineer. Cost of furnishing and installing elastomeric bearings, including beveled and embedded steel plates, must be included in unit price bid for "Prestressed Concrete Girders".



HL93 LOADING SHEET 1 OF 3

Texas Department of Transportation
Bridge Division Standard

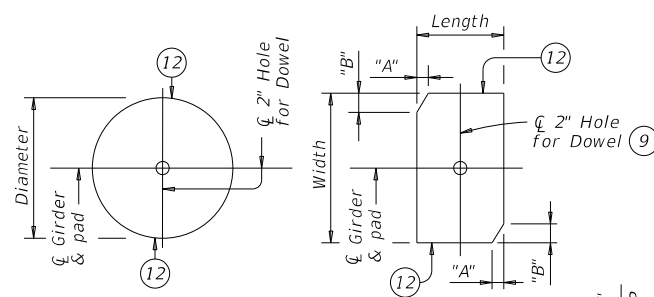
ELASTOMERIC BEARING AND GIRDER END DETAILS PRESTR CONCRETE I-GIRDERS

IGEB

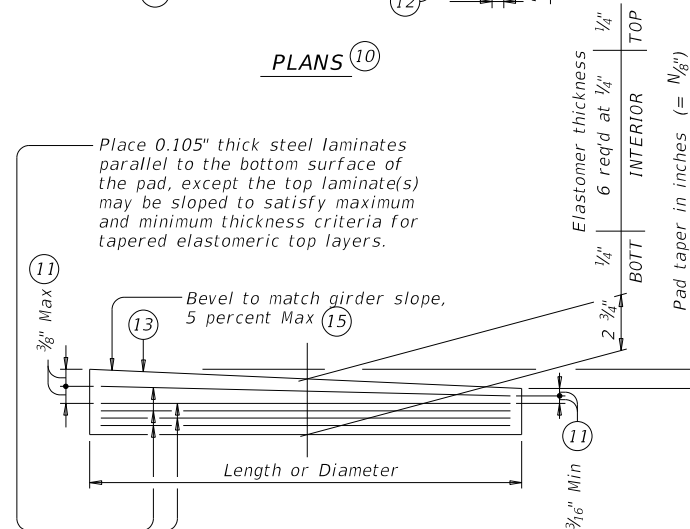
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REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	226	

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PLANS ⑨



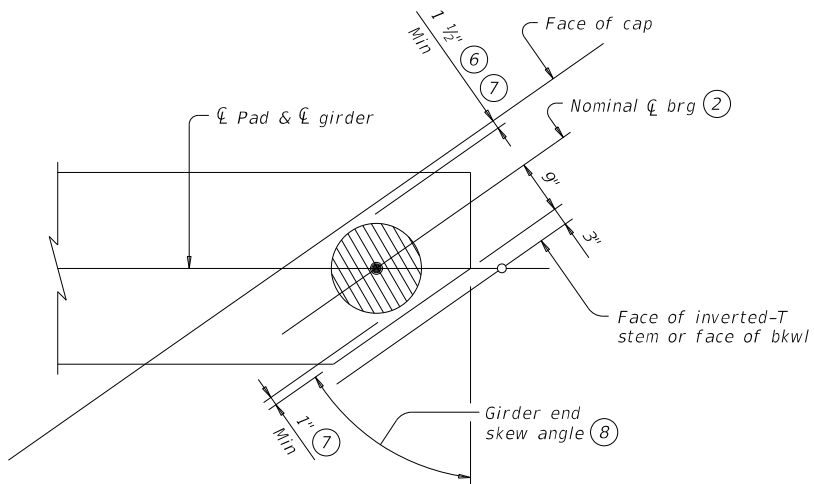
ELEVATION

LAMINATED ELASTOMERIC BEARING PAD

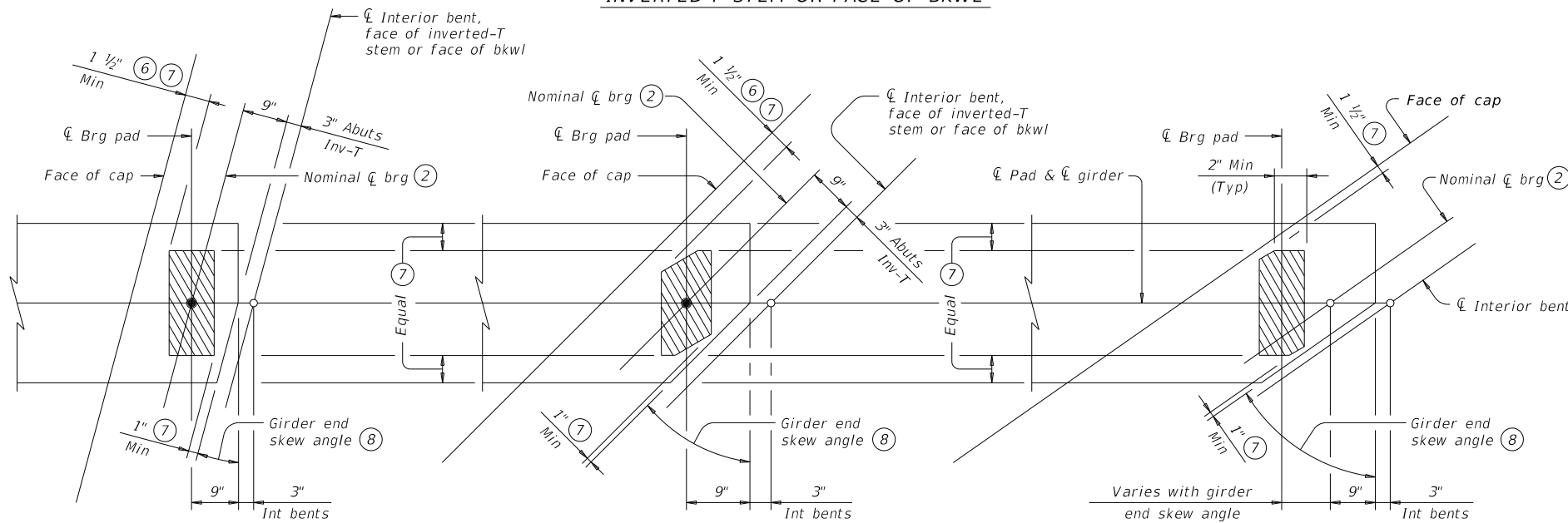
(50 DUROMETER)

Girder Type	TABLE OF MINIMUM SUBSTRUCTURE DIMENSIONS ⑭		
	Abutments Face of Bkwl to Face of Cap	Int Bents Overall Cap Width	Inv-T Bents Corbel Width
Tx28 thru Tx54	1'-9"	3'-6"	1'-10 1/2"
Tx62 & Tx70	2'-0"	4'-0"	2'-1 1/2"

Bent Type	Girder Type	Bearing Type ⑬	Girder End Skew Angle Range	Pad Size Lgth x Wdth	Pad Clip Dimensions	
					"A"	"B"
ABUTMENTS, INVERTED-T AND TRANSITION BENTS WITH BACKWALLS	Tx28, Tx34, Tx40, Tx46 & Tx54	G-1-"N"	0° thru 21°	8" x 21"	---	---
		G-2-"N"	21°+ thru 30°	8" x 21"	1 1/2"	2 1/2"
		G-3-"N"	30°+ thru 45°	9" x 21"	4 1/2"	4 1/2"
		G-4-"N"	45°+ thru 60°	15" Dia	---	---
	Tx62 & Tx70	G-5-"N"	0° thru 21°	9" x 21"	---	---
		G-6-"N"	21°+ thru 30°	9" x 21"	1 1/2"	2 1/2"
		G-7-"N"	30°+ thru 45°	10" x 21"	4 1/2"	4 1/2"
		G-8-"N"	45°+ thru 60°	10" x 21"	7 1/4"	4 1/4"
CONVENTIONAL INTERIOR BENTS	Tx28, Tx34, Tx40, Tx46 & Tx54	---	---	---	---	---
	Tx62 & Tx70	G-5-"N"	0° thru 60°	9" x 21"	---	---
CONVENTIONAL INTERIOR BENTS WITH SKEWED GIRDER ENDS (GIRDER CONFLICTS) ⑯	Tx28, Tx34, Tx40, Tx46 & Tx54	G-1-"N"	0° thru 18°	8" x 21"	---	---
		G-2-"N"	18°+ thru 30°	8" x 21"	1 1/2"	2 1/2"
		G-9-"N"	30°+ thru 45°	8" x 21"	3"	3"
		G-10-"N"	45°+ thru 60°	9" x 21"	6"	3 1/2"
	Tx62 & Tx70	G-5-"N"	0° thru 18°	9" x 21"	---	---
		G-5-"N"	18°+ thru 30°	9" x 21"	---	---
		G-11-"N"	30°+ thru 45°	9" x 21"	1 1/2"	1 1/2"
		G-12-"N"	45°+ thru 60°	9" x 21"	3"	1 3/4"



ROUND BEARINGS FOR SKEWED GIRDER ENDS AT FACE OF INVERTED-T STEM OR FACE OF BKWL



SKEWED GIRDER ENDS AT INT BENTS, FACE OF INVERTED-T STEM OR FACE OF BKWL

SKEWED GIRDER ENDS AT CONVENTIONAL INTERIOR BENTS (NO GIRDER DOWELS)

BEARING PAD PLACEMENT DIAGRAMS

- ② For purposes of computing bearing seat elevations, nominal centerline of bearing must be defined as shown. The actual center of bearing pad may vary from this line.
- ③ 3" for inverted-T.
- ⑦ Place centerline pad as near nominal centerline bearing as possible between limits shown.
- ⑧ Girder end skew angle is equal to 90° minus the girder angle except at some conflicting girders.
- ⑨ Provide 2" dia hole only at locations required. See Substructure details for location.
- ⑩ See Table of Bearing Pad Dimensions for dimensions.
- ⑪ Maximum and minimum layer thicknesses shown are for elastomer only, on tapered layers.
- ⑫ Locate Permanent Mark here.
- ⑬ Indicate BEARING TYPE on all pads. For tapered pads, locate BEARING TYPE on the high side. The Fabricator must include the value of "N" (amount of taper in 1/8" increments) in this mark.
 Examples: N=0, (for 0° taper)
 N=1, (for 1/8" taper)
 N=2, (for 1/4" taper)
 (etc.)
 Fabricated pad top surface slope must not vary from plan girder slope by more than $(\frac{0.0625"}{\text{Length or Dia}}) \text{ IN/IN}$.
- ⑭ Substructure dimensions must satisfy the minimums provided to accommodate the elastomeric bearings shown on this standard.
- ⑮ See sheet 3 of 3 for beveled plate use when slopes exceed 5 percent.
- ⑯ If girder end is skewed for a girder conflict at an interior bent and a beveled sole plate is required, use bearing type for abutments at this location. Location of bearing centerline is to be set as for abutments in this case.

HL93 LOADING

SHEET 2 OF 3



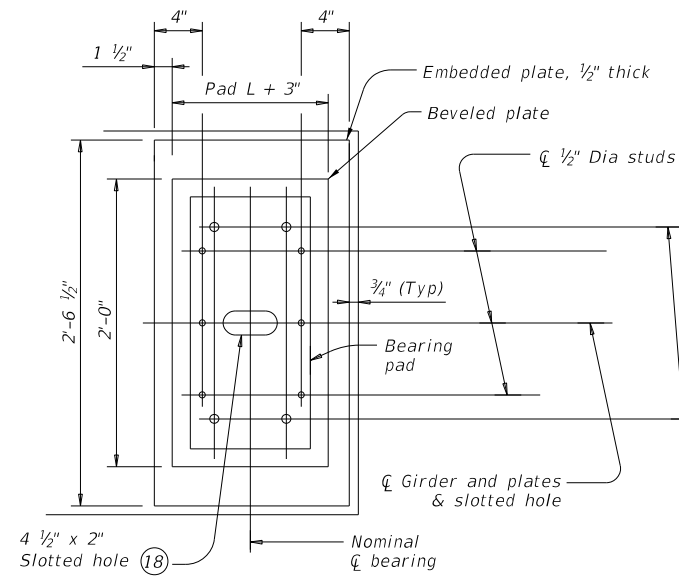
ELASTOMERIC BEARING AND GIRDER END DETAILS PRESTR CONCRETE I-GIRDERS

IGEB

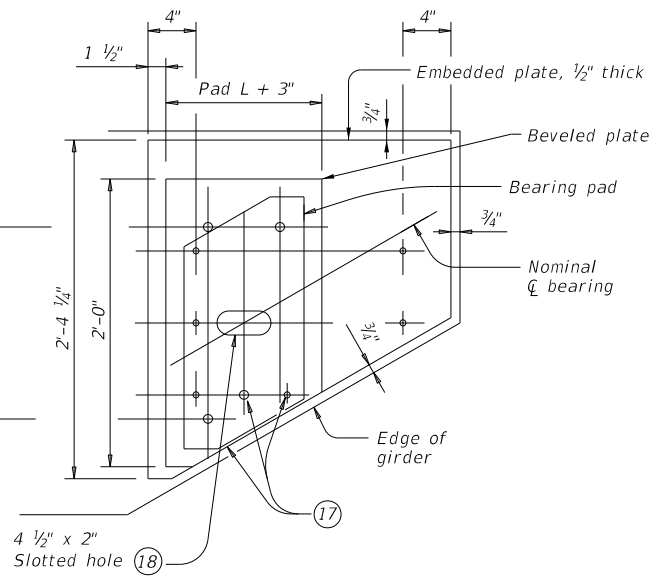
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©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG		227

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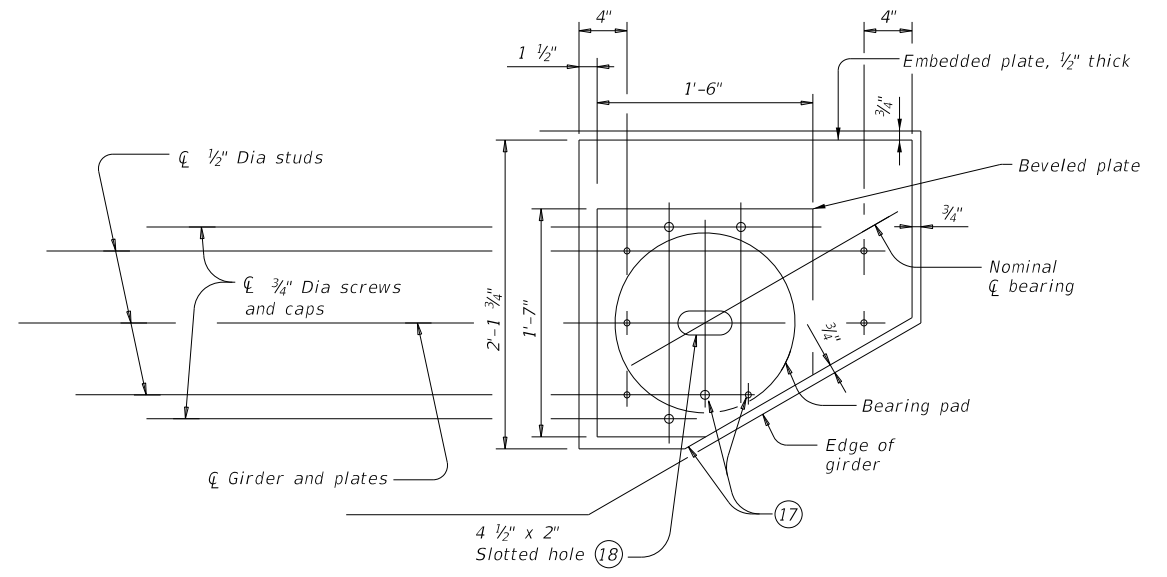
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**NORMAL GIRDER END
 RECTANGULAR BEARING PAD**

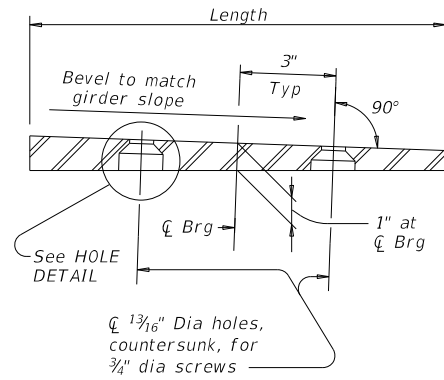


**SKEWED GIRDER END
 CLIPPED RECTANGULAR BEARING PAD**

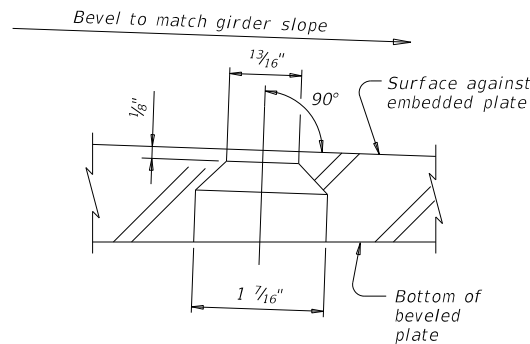


**SKEWED GIRDER END
 15" DIA BEARING PAD**

PLAN VIEW OF SOLE PLATE DETAILS



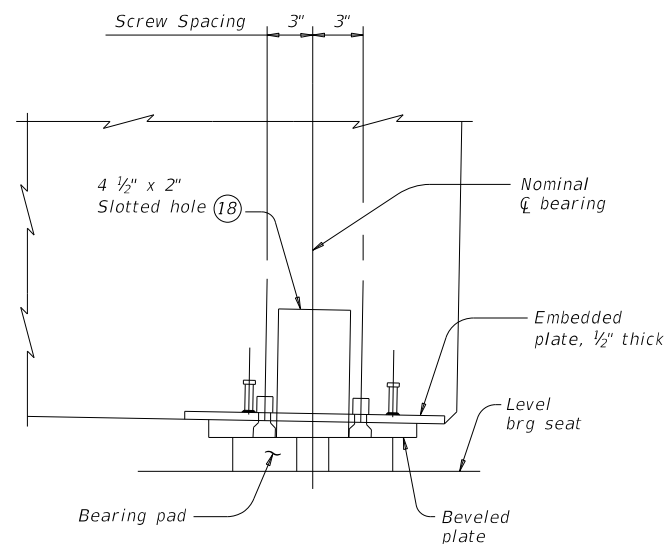
SECTION



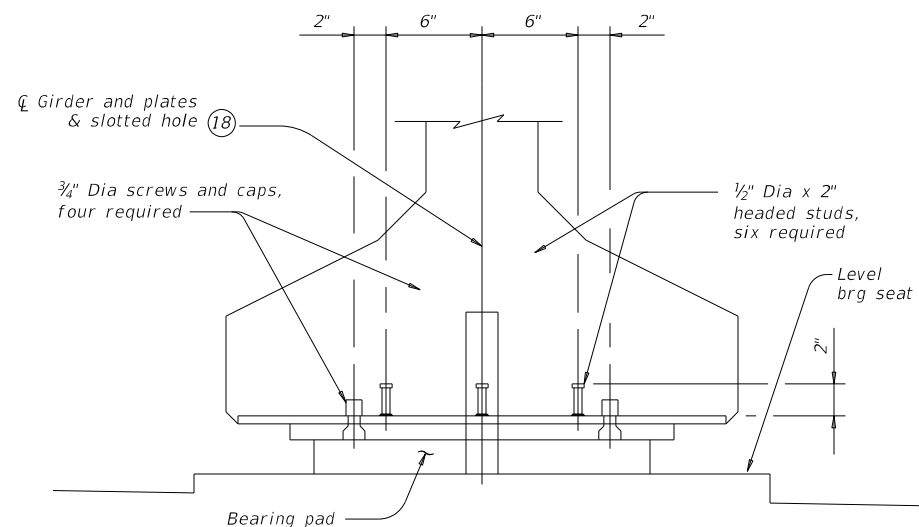
HOLE DETAIL

- (17) Cut beveled and embedded plates to match girder end skew. Adjust location of screw and stud as shown when necessary.
- (18) Slotted hole is required at doveled girder end locations.

BEVELED PLATE DETAILS



SIDE ELEVATION



**END ELEVATION
 Showing normal girder end.**

GIRDER DETAILS

SOLE PLATE NOTES:

Provide constant thickness elastomeric bearings with beveled and embedded steel sole plates in accordance with these details when the girder slope exceeds 5 percent or if otherwise required in the plans. Provide for all girders in the span.

On the shop drawings, dimension sole plates to the nearest 1/16" based on required thickness at centerline of bearing and slope of girder. Thickness tolerance variation from the approved shop drawings is 1/16" +/-, except variation from a plane parallel to the theoretical top surface can not exceed 1/16" total. Bearing surface tolerances listed in Item 424 apply to embedded and beveled plates.

Steel plate must conform to ASTM A36, A572 Gr 50, or A709 Gr 36 or Gr 50. Hot dip galvanize both the embedded plate and beveled sole plate after fabrication. Seal weld caps to embedded plate before galvanizing.

When determining if relocation of screw holes and studs are necessary for skewed girder ends, minimum clearance from screw or stud centerline to plate edge is 1.25".

Tap threads in the embedded plate only. Drill and tap prior to galvanizing.

3/4" Dia screws must be electroplated, socket flat head countersunk cap screws conforming to ASTM F835. Electroplating must conform to ASTM B633, SC 2, Type 1. Provide screws long enough to maintain a 3/4" minimum embedment into the embedded plate and galvanized cap. Provide galvanized steel caps (16 ga Min) with a nominal 1" inside diameter and deep enough to accommodate the screws, but not less than 1/2" deep or deeper than 1".

Install beveled sole plates prior to shipping girders. Installed screw heads must not protrude below the bottom of the beveled plate.

HL93 LOADING

SHEET 3 OF 3



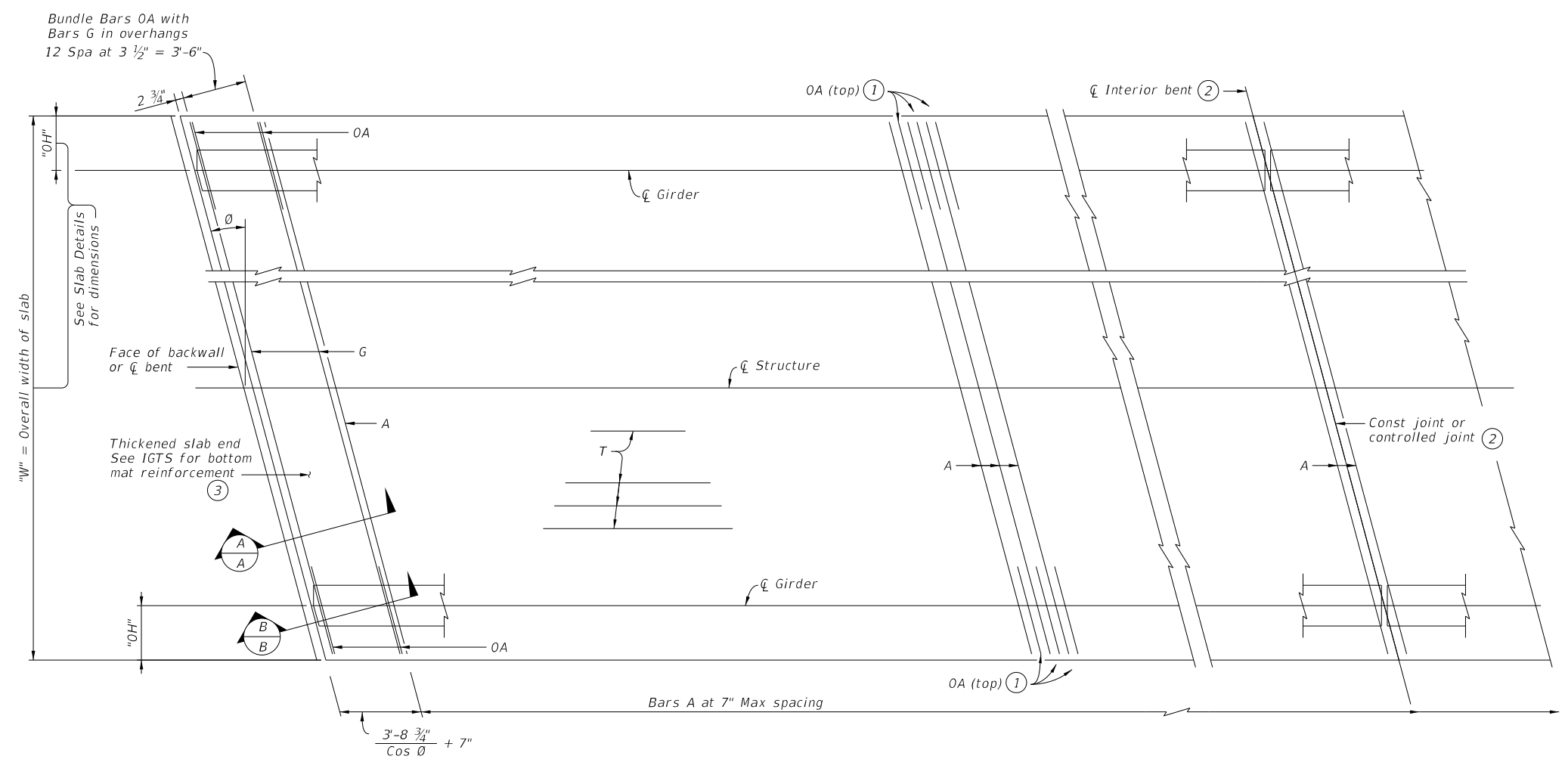
**ELASTOMERIC BEARING
 AND GIRDER END DETAILS
 PRESTR CONCRETE I-GIRDERS**

IGEB

FILE: igebsts1-17.dgn	DN: AEE	CK: JMH	DW: JTR	CK: TxDOT
©TxDOT August 2017	CONTRACT	SECTION	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	228	

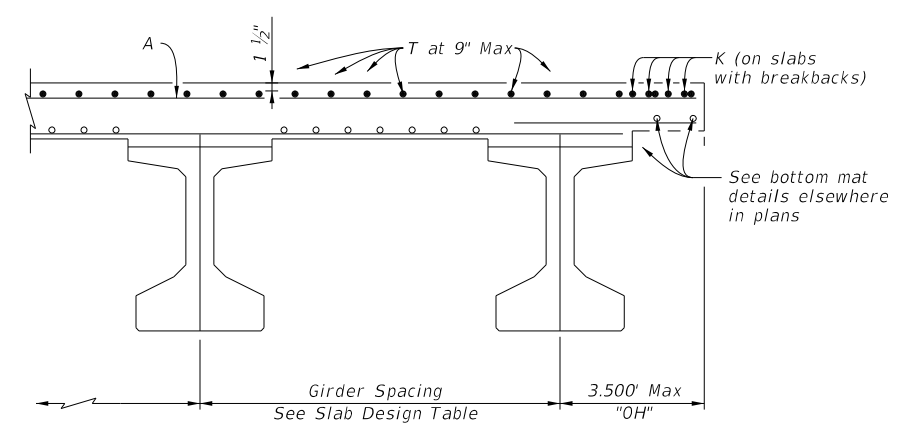
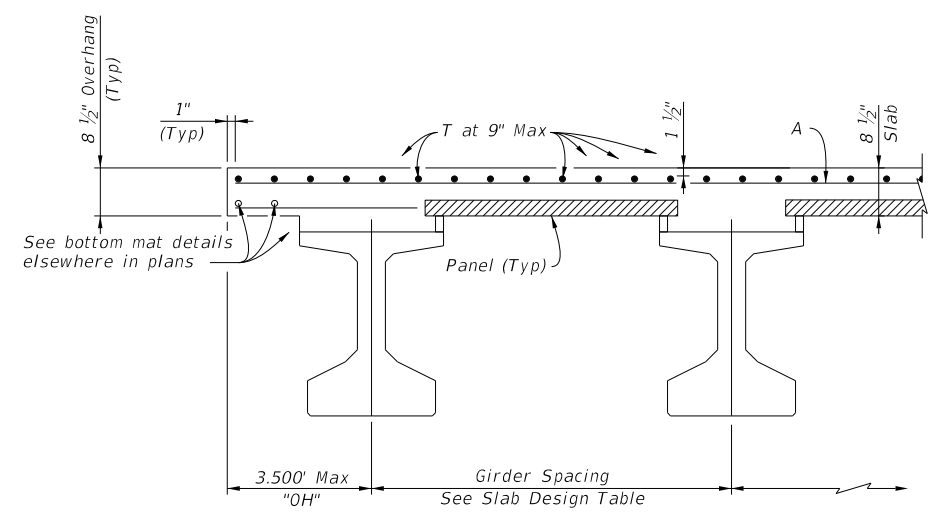
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FILE: pw:\jmt-pw_bent.ey.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\7. Bridge\TxDOT_Standards\igfrp001-19.dgn



PLAN FOR SLABS WITHOUT BREAKBACKS

Showing top mat reinforcement only.



Showing PCP Option 1. Option 2 similar.

- ① Place Bars OA midway between Bars A at overhang.
- ② Bars are continuous through joint.
- ③ Thickened slab end dimensioned perpendicular to face of bkwl, centerline interior bent or face of inverted-T stem.

HL93 LOADING SHEET 1 OF 2



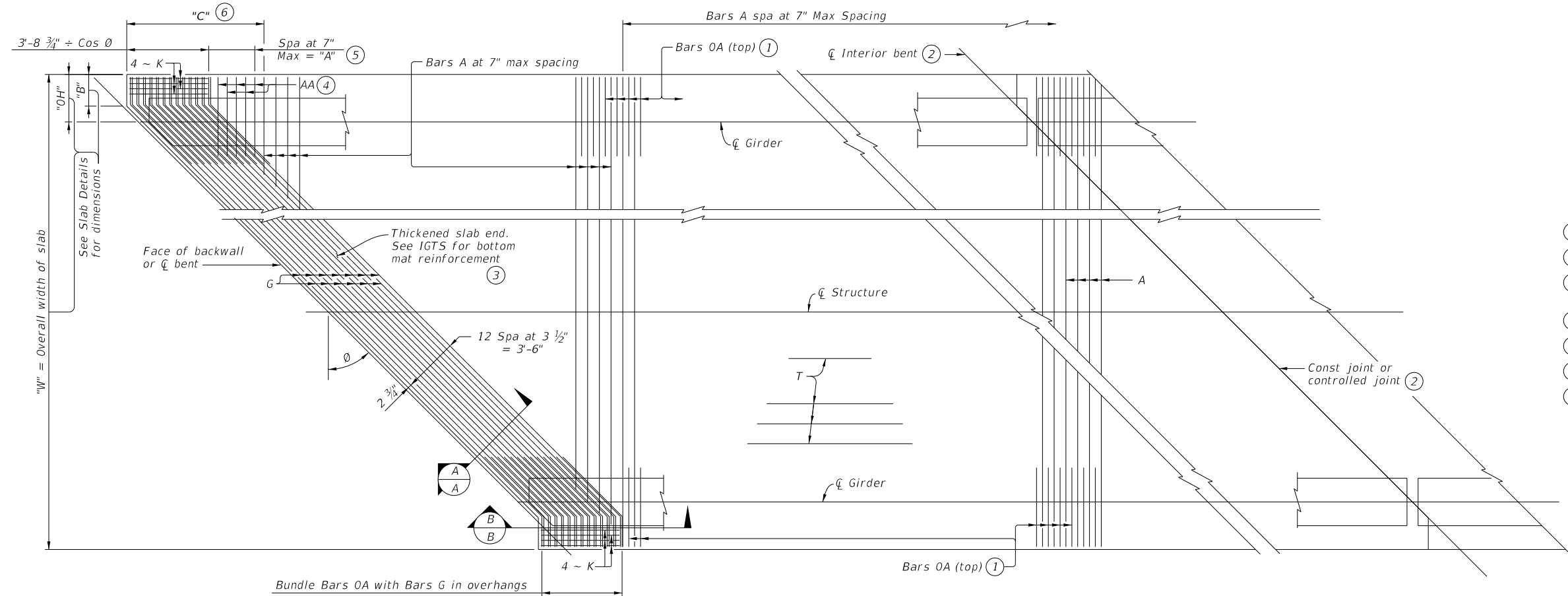
GFRP SLAB TOP MAT REINFORCEMENT PRESTRESSED CONC I-GIRDER SPANS

IGFRP

FILE: igfrp001-19.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0910	07	072	HIGH ST
10-19: Updated to latest design specification.	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	229	

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BAR TABLE	
BAR	SIZE
A	#5
AA	#5
G	#5
K	#5
OA	#5
T	#5

- ① Place Bars OA midway between Bars A at overhang.
- ② Bars are continuous through joint.
- ③ Thickened slab end dimensioned perpendicular to face of bkwl, centerline interior bent or face of inverted-T stem.
- ④ Tie Bars AA to bottom of Bars G in this location.
- ⑤ $A = ("OH" + 2.333' - "B") \times \tan \theta$
- ⑥ $C = \frac{3.729'}{\cos \theta} + "A" + \text{Bar A spacing}$
- ⑦ Only required on slabs with breakbacks.

AT THICKENED SLAB END

PLAN FOR SLABS WITH BREAKBACKS

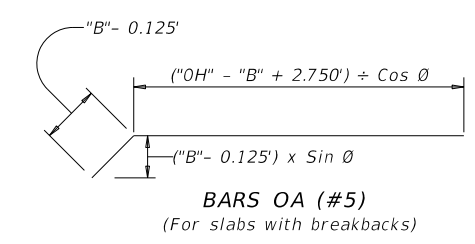
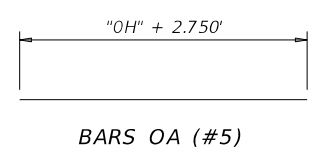
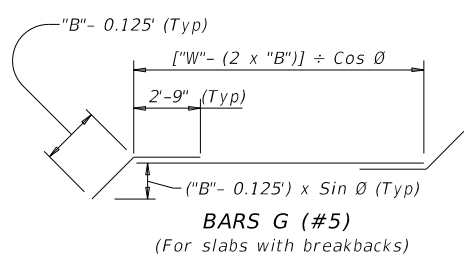
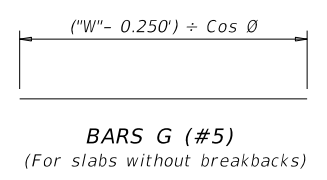
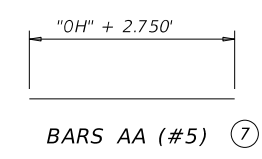
Showing top mat reinforcement only.

AT SLAB CONTINUOUS OVER INTERIOR BENTS

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications and AASHTO LRFD Bridge Design Guide Specifications for GFRP-Reinforced Concrete, 2nd Edition. These details are restricted to Prestressed Concrete I-Girder spans with an 8 1/2" slab and up to a 10'-0" girder spacing.
These details are to be used in conjunction with the Span Details and PCP Standard (if prestressed concrete panels are used).
This standard provides Glass Fiber Reinforced Polymer (GFRP) reinforcement details for the top mat of slab reinforcement. The bottom mat reinforcement and other slab details are as shown elsewhere in the plans.
The Contractor has the option to provide GFRP reinforcement, in accordance with the details shown, when epoxy-coated steel bars are specified for the deck slab. The Contractor may provide an alternate GFRP slab design with calculations signed and sealed by a Professional Engineer.

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

MATERIAL NOTES:
Provide GFRP bars, conforming to ASTM D7957/7957M, except provide a minimum modulus of elasticity of 7,500 ksi.
Provide Grade 60 steel bars for all bottom mat reinforcement as shown elsewhere in plans.
Provide bar laps, where required, as follows:
#5 GFRP bar = 2'-9"



HL93 LOADING SHEET 2 OF 2



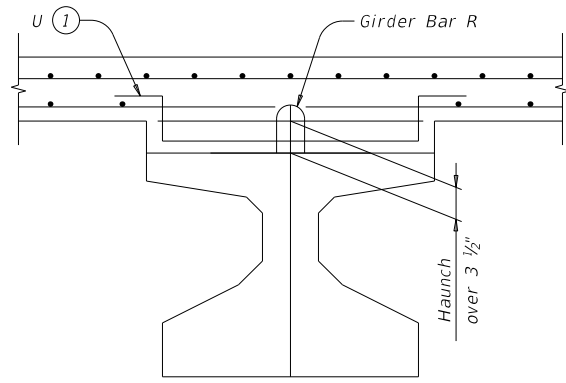
GFRP SLAB TOP MAT REINFORCEMENT PRESTRESSED CONC I-GIRDER SPANS

IGFRP

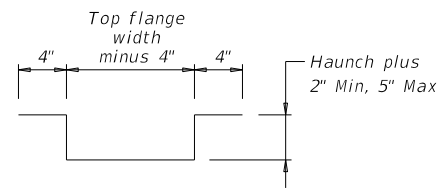
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©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
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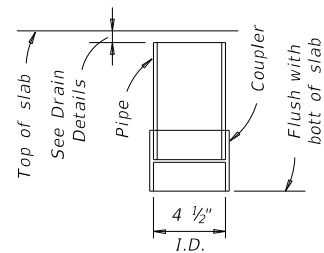
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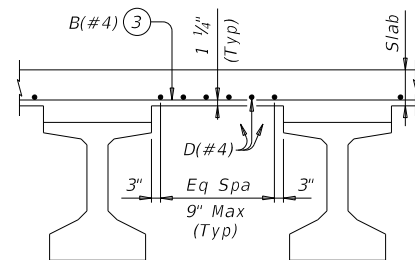
HAUNCH REINFORCING DETAIL



BARS U (#4)

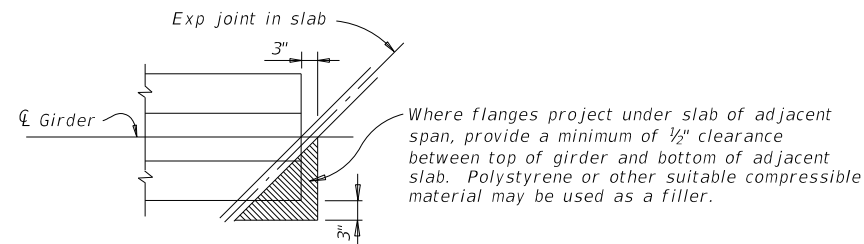


C-I-P DRAIN DETAIL ②

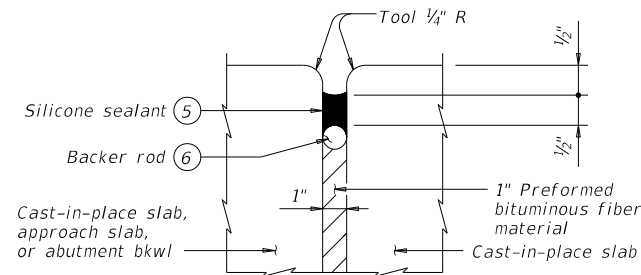


TYPICAL PART TRANSVERSE SLAB SECTION WITHOUT PCP ④

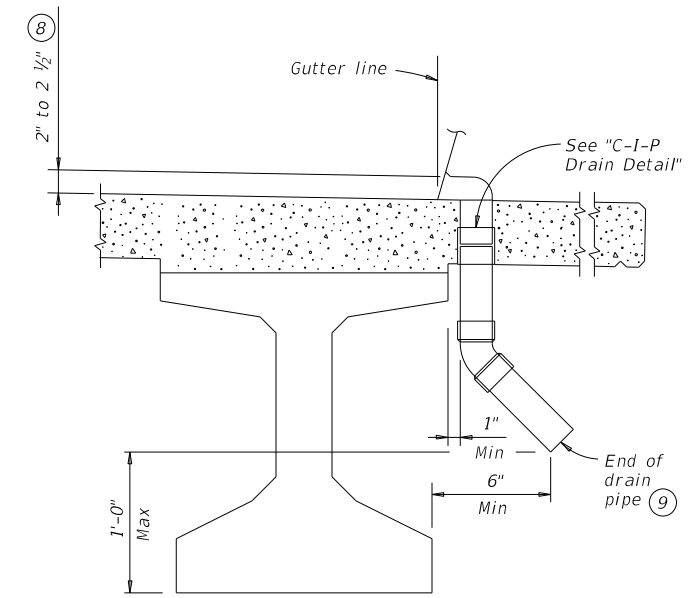
Top reinforcing steel not shown for clarity.



TREATMENT AT GIRDER END FOR SKEWED SPANS



TYPE A JOINT DETAIL ⑦



DRAIN DETAIL ⑩

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications.
 Payment for Type A joint will be as per Item 454, "Bridge Expansion Joints."
 All other items (reinforcing steel, drains, etc.) shown on this sheet are subsidiary to other bid items.

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

DECK FORMWORK NOTES:
 Overhang bracket hangers are limited to a safe working load of 3,600 lbs, applied to and along the axis of a coil rod at 45 degrees from vertical, regardless of higher loads permitted by hanger manufacturers. Do not place a hanger less than 12" from girder end. Space hangers accordingly.

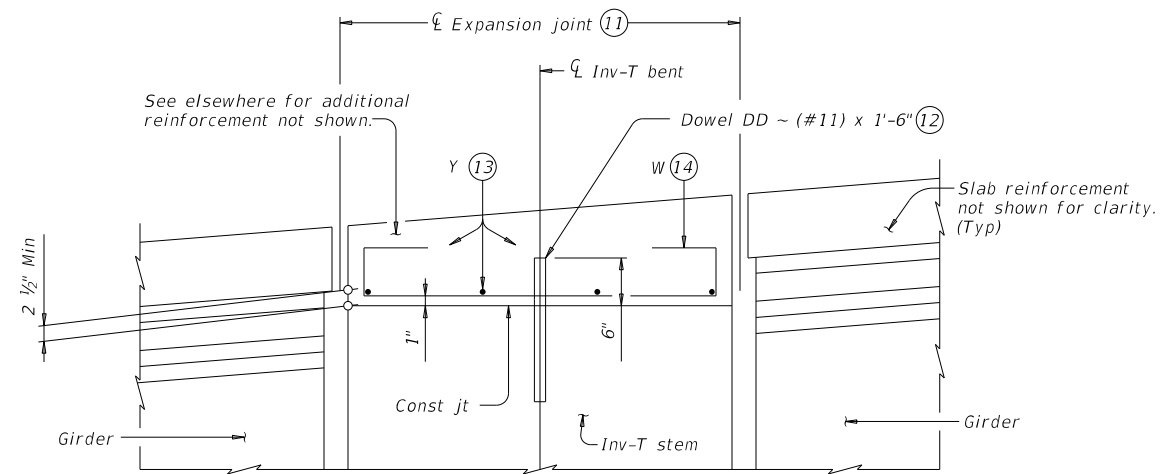
- ① Space Bars U with girder Bars R in all areas where measured haunch exceeds 3 1/2".
- ② Roughen outside of PVC with coarse rasp or equal to ensure bond with cast-in-place concrete.
- ③ Bars B(#4) spaced at 9" Max with 2" end cover. Overhang option, Contractor's may end alternating bars B(#4) at centerline outside girder.
- ④ Provide Grade 60 reinforcing steel. Provide bar laps, where required, as follows:
 Uncoated ~ #4 = 1'-7"
 Epoxy coated ~ #4 = 2'-5"
- ⑤ Class 7 silicone sealant that conforms to DMS-6310. Install when ambient temperature is between 55°F and 85°F and rising. Engineer to determine allowable hours for sealant application.
- ⑥ 1 1/4" backer rod must be compatible with joint sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.
- ⑦ The maximum distance between Type A expansion joints is 100'. See Bridge Layout for location of joints.
- ⑧ Drain entrance formed in rail or sidewalk.
- ⑨ Water may not be discharged onto girders.
- ⑩ All drain pipe and fittings to be 4" diameter (Sch 40) PVC. See Item 481 "Pipe for Drains" for pipe, connections and solvent welding. Bend reinforcing steel to clear PVC 1". Drain length and location is as directed by the Engineer. Drains are not permitted over roadways or railroads, or within 10'-0" of bent caps. Degrease outside of exposed PVC, apply acrylic water base primer, then coat with same surface finishing material as used for outside girder face. Variations of the above designs, as required for the type of rail used and its location on the structure, may be installed with the approval and direction of the Engineer.

SHEET 1 OF 2

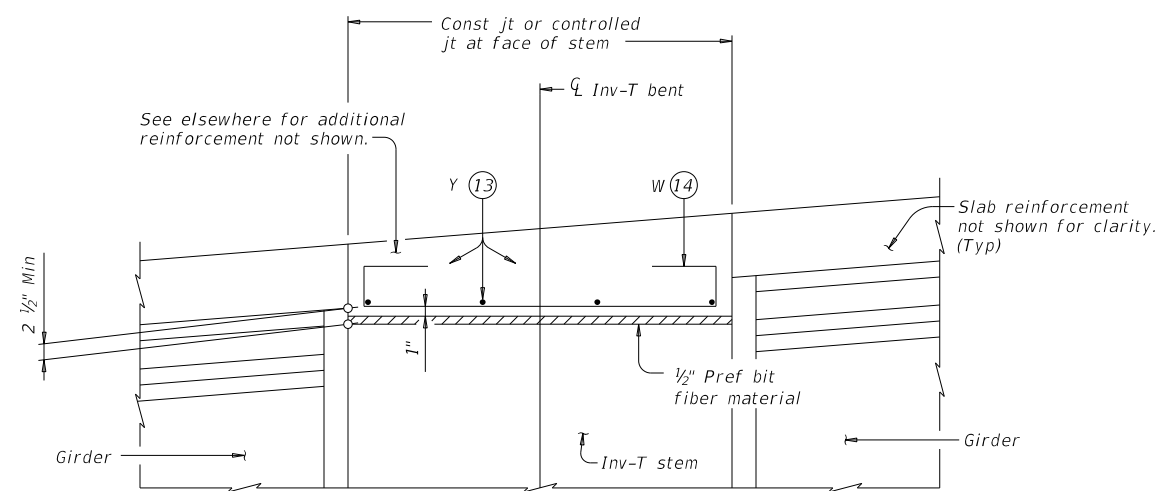
		Bridge Division Standard	
MISCELLANEOUS SLAB DETAILS PRESTR CONCRETE I-GIRDERS			
IGMS			
FILE: igmssts1-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR
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REVISIONS	0910	07	072 HIGH ST
10-19: Modified Note 7. Type A now a pay item.	DIST	COUNTY	SHEET NO.
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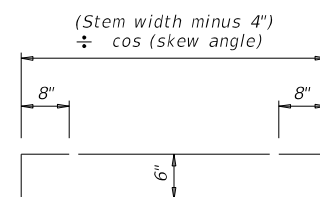
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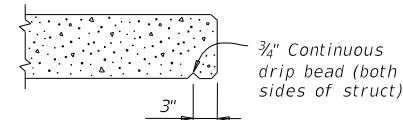
SHOWING EXPANSION JOINTS



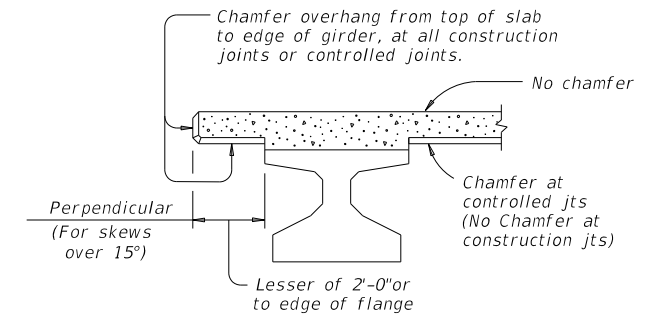
**SHOWING CONST JTS OR CONTROLLED JTS
REINFORCEMENT OVER INV-T BENTS**



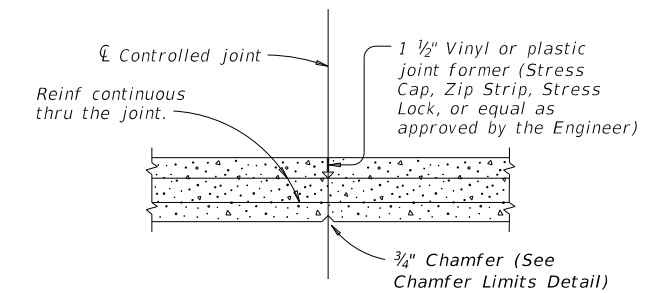
BARS W (#4)



DRIP BEAD DETAIL



CHAMFER LIMITS DETAIL (15)



CONTROLLED JOINT DETAIL

(Saw-cutting is not allowed)

- (11) See Layout for joint type.
- (12) Dowels DD (#11) spaced at 5 Ft Max. See Inv-T bents for quantity and location.
- (13) Space Bars Y (#4) at 12" Max. Use 2" end cover. Number of Bars Y must satisfy spacing limit. Place parallel to bent.
- (14) Space Bars W at 12" Max (3" from end of cap). Tilt if necessary to maintain cover requirements. Place parallel to longitudinal slab reinforcement.
- (15) See Span details for type of joint and joint locations.

SHEET 2 OF 2



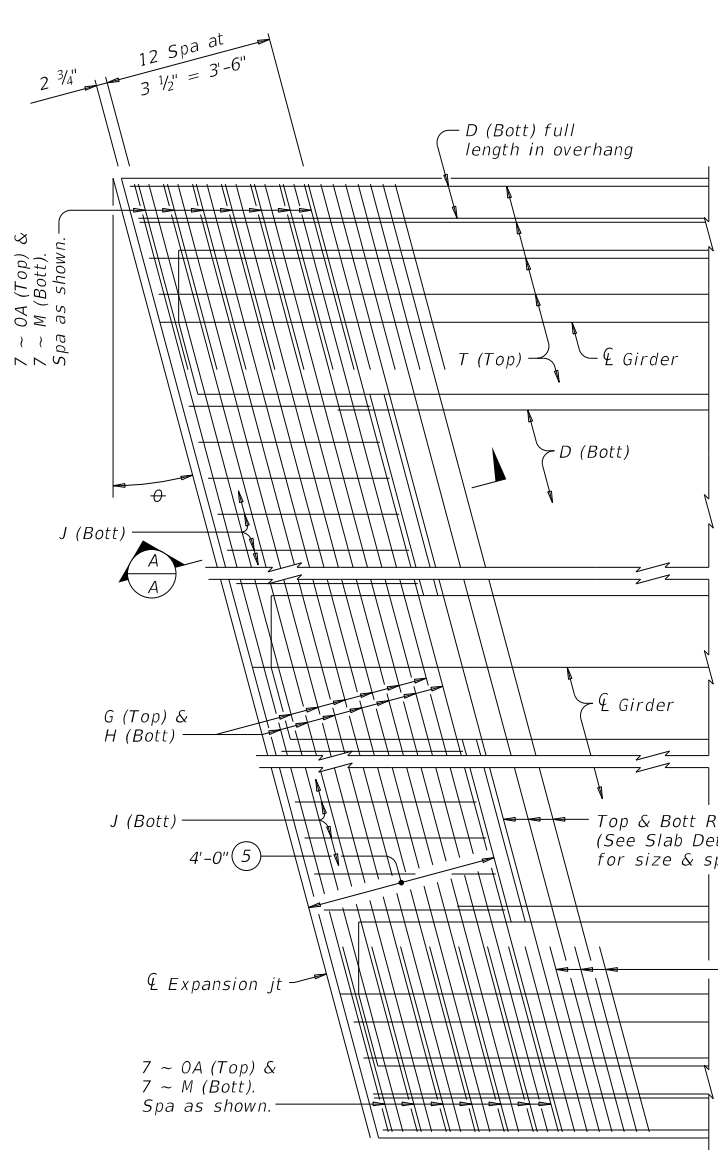
**MISCELLANEOUS
SLAB DETAILS
PRESTR CONCRETE I-GIRDERS**

IGMS

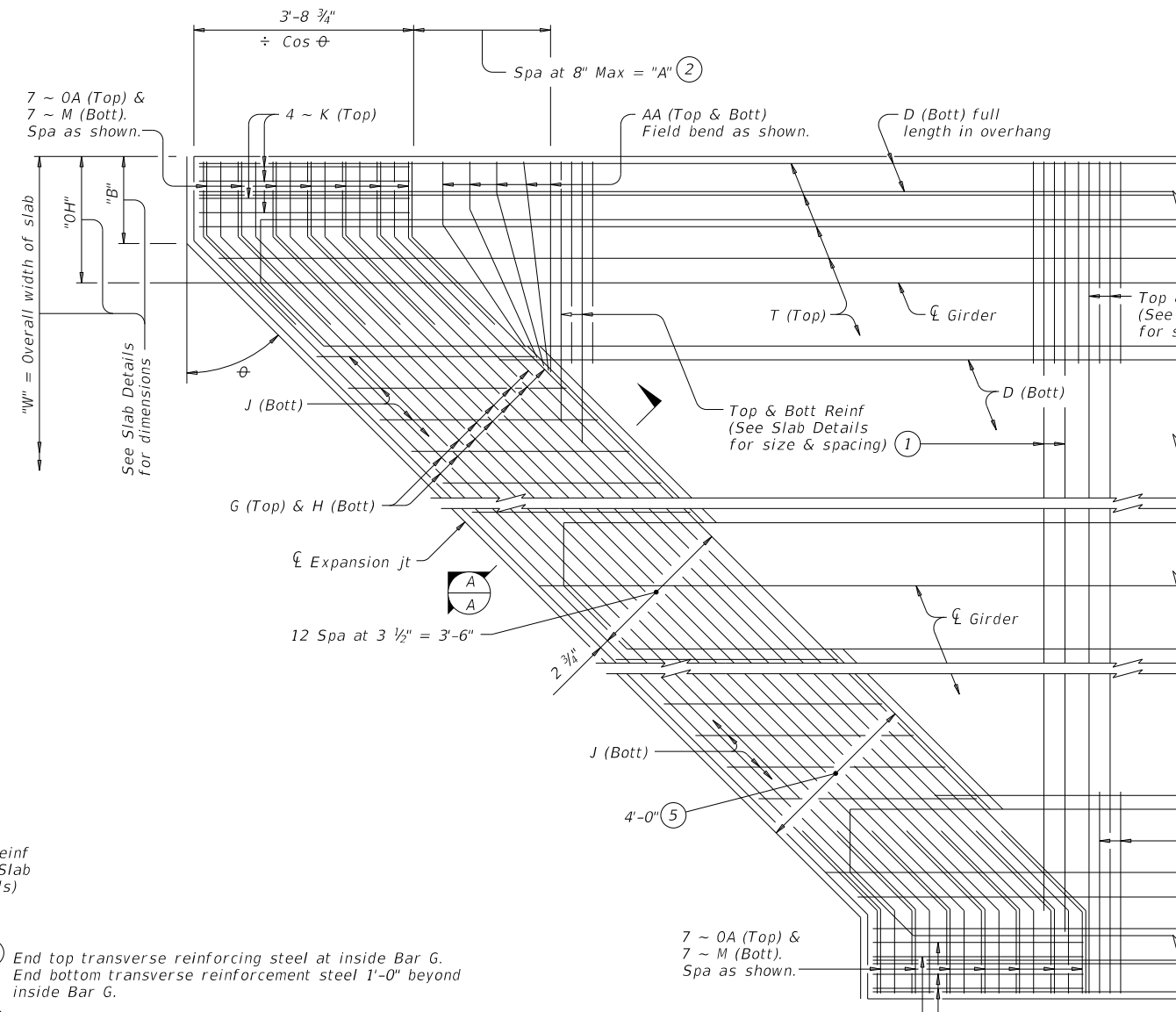
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	TYLER	GREGG	232	

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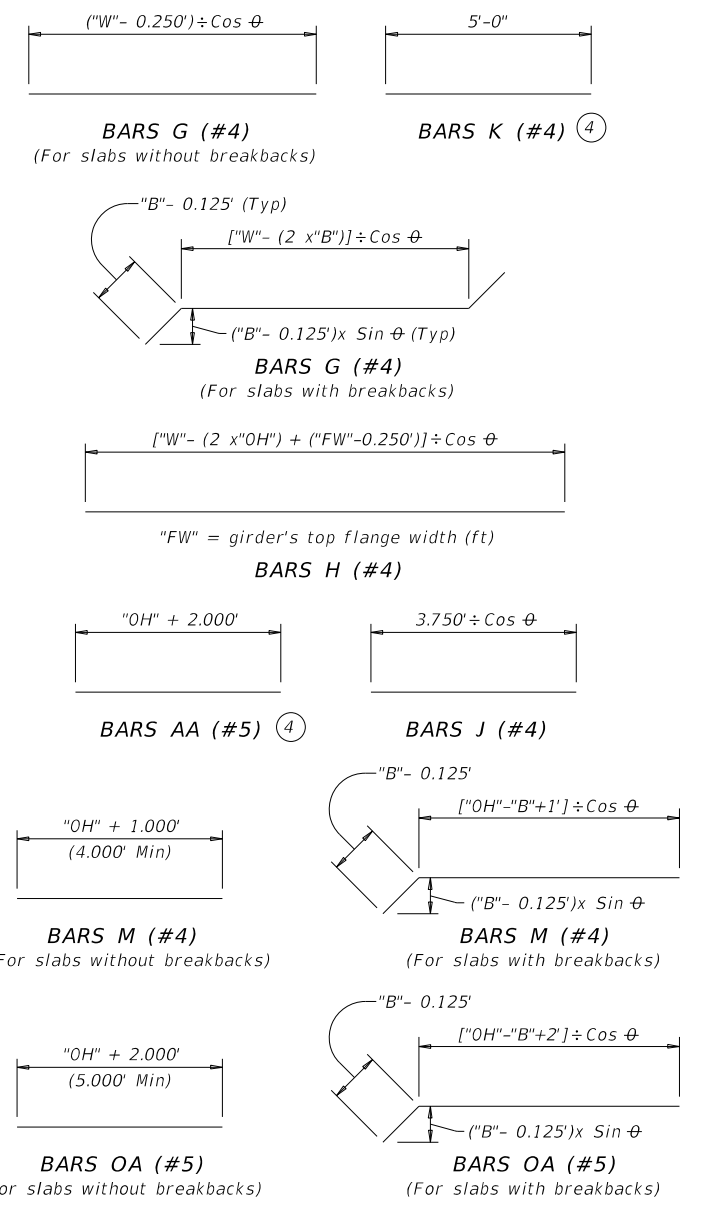


PARTIAL PLAN FOR SLABS WITHOUT BREAKBACK



PARTIAL PLAN FOR SLABS WITH BREAKBACK

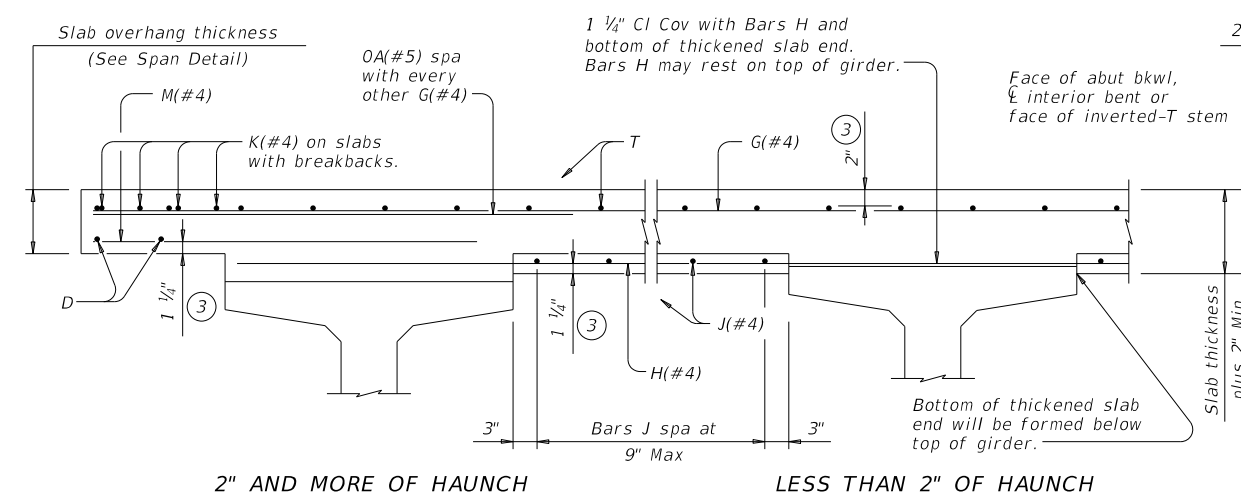
- ① End top transverse reinforcing steel at inside Bar G. End bottom transverse reinforcement steel 1'-0" beyond inside Bar G.
- ② "A" = $(\text{"OH"} + 2.333 \text{"B"}) \times \tan \theta$
- ③ Provide clear cover as indicated unless otherwise shown on Span Details.
- ④ Only required on slabs with breakbacks.
- ⑤ Thickened slab end dimensioned perpendicular to face of bkwl, centerline interior bent or face of inverted-T stem.



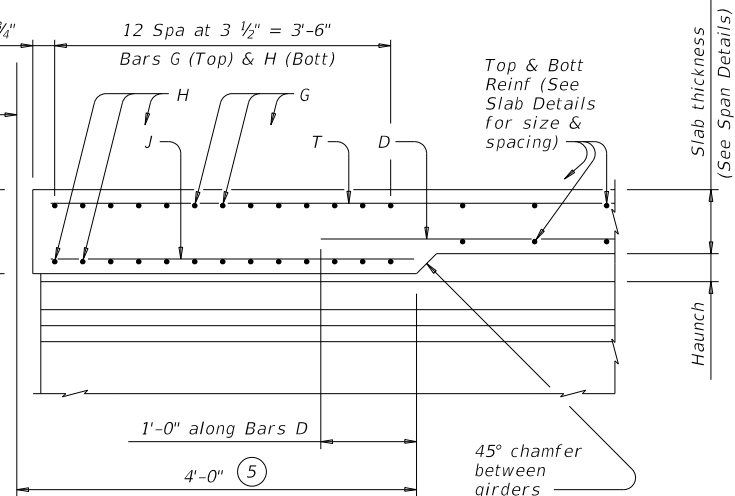
GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications. These details are restricted to Prestressed Concrete I-Girder Spans. These details are to be used in conjunction with the Span Details and PCP standard (if prestressed concrete panels are used). When Option 2 from PCP standard is used, provide Bars AA, G, K and OA in the slab.

MATERIAL NOTES:
 Provide Grade 60 reinforcing steel. If slab reinforcing steel is shown on the Slab Details to be epoxy coated, then Bars AA, G, K, H, J, M and OA must be epoxy coated. Provide bar laps, where required, as follows:
 Uncoated ~ #4 = 1'-7"
 Epoxy Coated ~ #4 = 2'-5"

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



TYPICAL TRANSVERSE SECTION
 (Showing Prestressed Conc I-Girders at $\bar{\bar{C}}$ Brg)



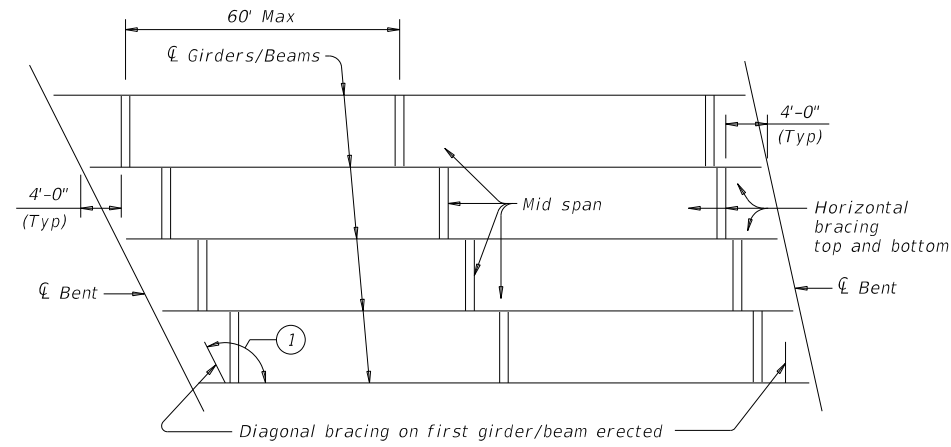
SECTION A-A
 (Showing with 2" and more of haunch)

HL93 LOADING

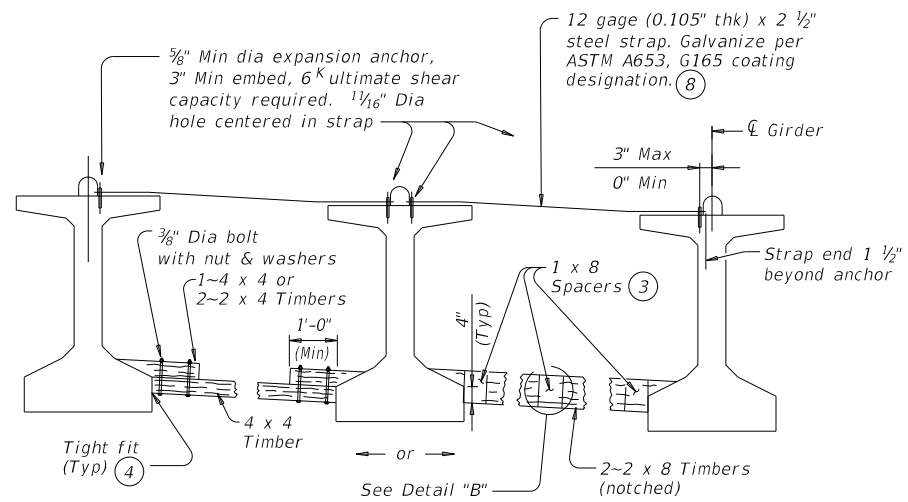
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THICKENED SLAB END DETAILS PRESTRESSED CONCRETE I-GIRDER SPANS			
IGTS			
FILE: igtss1-17.dgn	DN: TxDOT	CK: TxDOT	DW: JTR
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REVISIONS	0910	07	072 HIGH ST
	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	233

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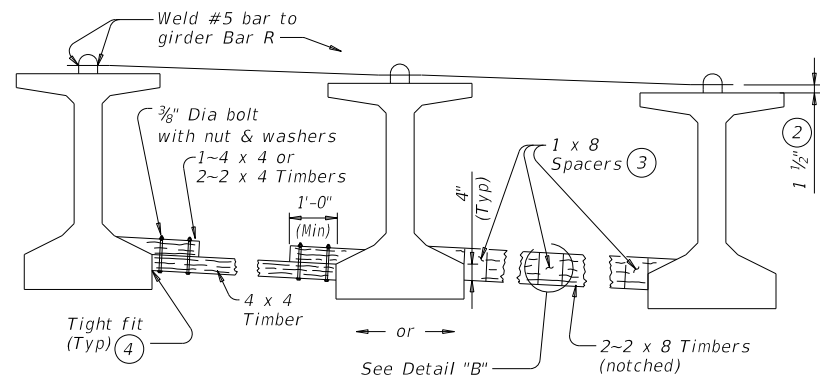


ERECTION BRACING



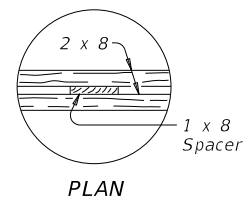
FOR ERECTION BRACING, OPTION 1

(This option is not allowed when slab is formed with PMDF or plywood.)

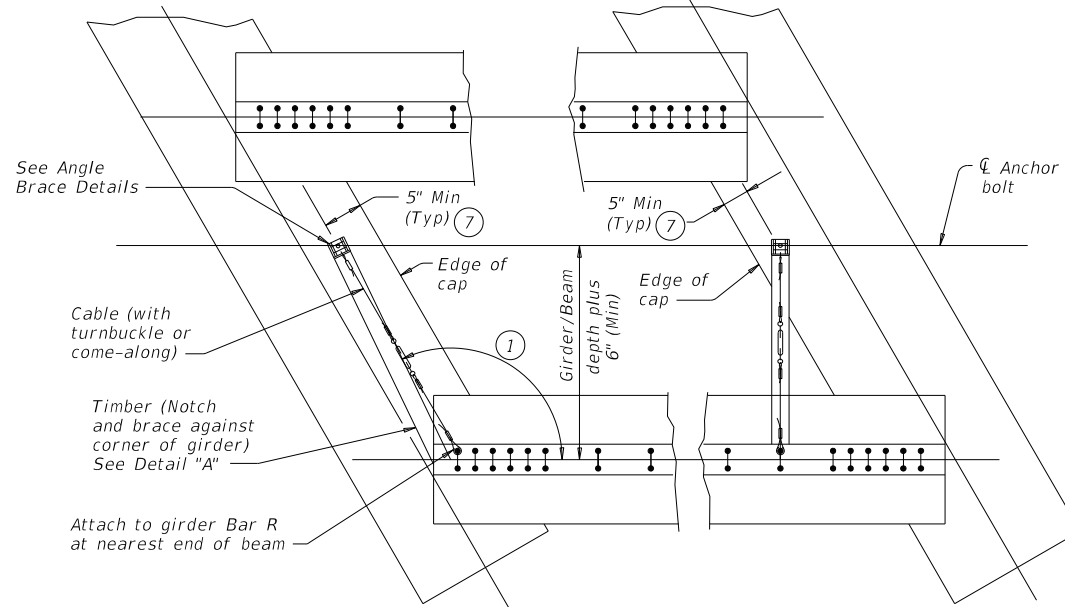


FOR ERECTION BRACING, OPTION 2

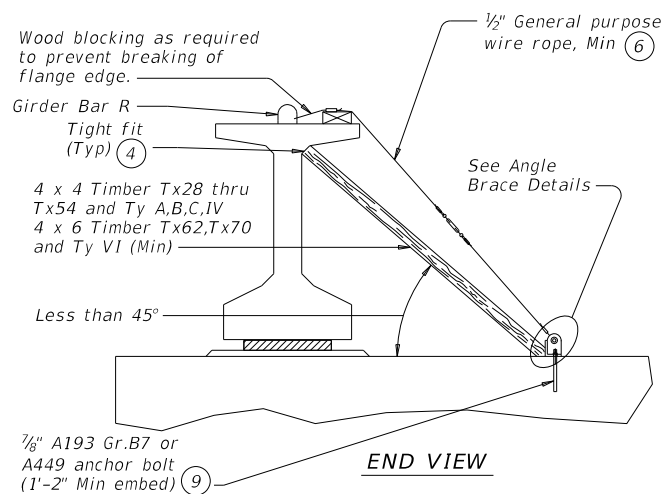
HORIZONTAL BRACING DETAILS (5)



DETAIL "B"



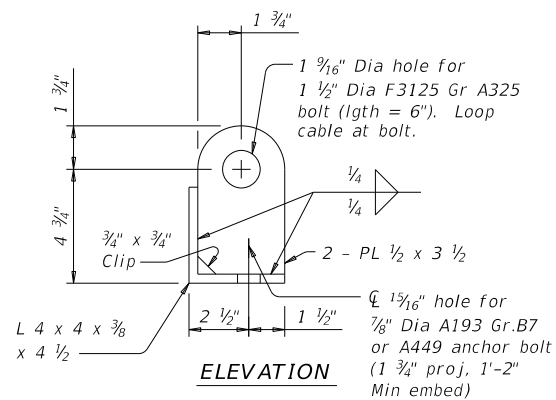
PLAN



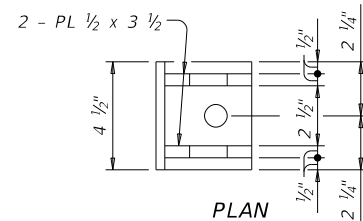
END VIEW

DIAGONAL BRACING DETAILS (5)

(To be used on both ends of the first girder/beam erected in the span in each phase.)



ELEVATION



PLAN

ANGLE BRACE DETAILS

HAULING & ERECTION:

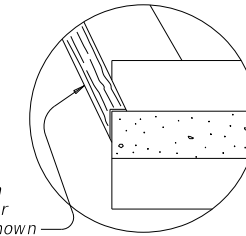
The Contractor's attention is directed to the possible lateral instability of prestressed concrete girders and beams over 130' long, especially during hauling and erection. The use of the following methods to improve stability is encouraged: Locate lifting devices at the maximum practical distance from girder ends; use external lateral stiffening devices during hauling and erection; lift with vertical lines using two machines; and take care in handling to minimize inertial and impact forces.

ERECTION BRACING:

Erection bracing details shown are considered the minimum for fulfilling the bracing requirements of Item 425. Required erection bracing must be placed immediately after erection of each girder and remain in place until additional bracing as required for slab placement is in place. This standard is needed in all cases to meet requirements for Slab Placement Bracing.

PHASED CONSTRUCTION:

Place erection and slab placement bracing for all girders in a phase as shown in these details. For phases after first, also place erection and slab placement bracing between outer girder of completed phase and adjacent girder of current phase. When the phase construction joint is between girders, top bracing can be omitted.



DETAIL "A"

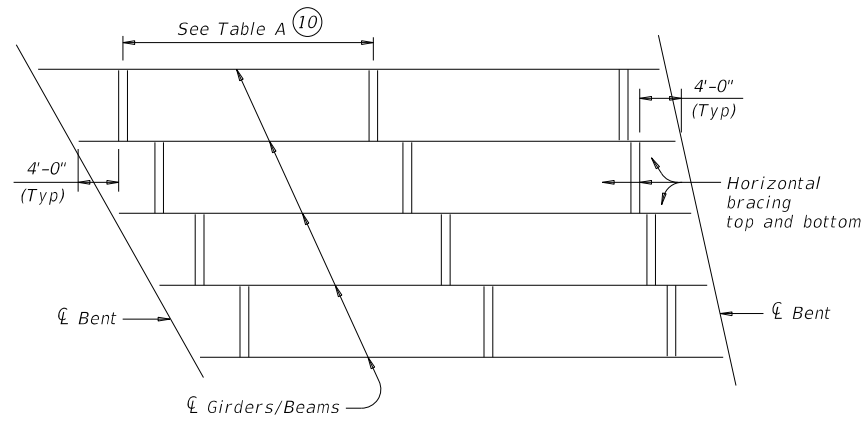
- 1 If angle shown exceeds 120 degrees, move diagonal brace to other side of girder/beam and place square to girder/beam. This may prevent exterior girder from being erected first.
- 2 Place and weld #5 bars as shown during erection. If forming deck with prestressed panels, bars can be temporarily removed, one at a time, during panel erection. Re-install bar prior to additional panel erection. Bars can rest on panels and be bent down and welded to girder Bars R (See Sheet 2 of 2).
- 3 Clear distance between spacers must not exceed 3'. Nail together with 16d nails.
- 4 Use wedges as necessary to obtain tight fit. Nail wedges to timbers.
- 5 Pressure treated landscape timbers can not be used.
- 6 All hardware used with cable must be able to develop a minimum 25 kips breaking strength. Use thimbles at all loops in cable. Install cable clamps with saddles bearing against the live end and U-bolts bearing against the dead end.
- 7 It is acceptable to tie anchor bolts to cap reinforcement.
- 8 Prior to installing, field bend strap to lay flush on both girders' top flange and slope between flange tips.
- 9 Anchor bolt may be drilled and epoxied in place. Provide 25k minimum pullout. Core drill hole.

SHEET 1 OF 2

		Bridge Division Standard	
MINIMUM ERECTION AND BRACING REQUIREMENTS PRESTRESSED CONCRETE I-GIRDERS AND I-BEAMS			
MEBR(C)			
FILE: mebcsts1-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
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REVISIONS:	DIST: TYLER	COUNTY: GREGG	SHEET NO.: 234

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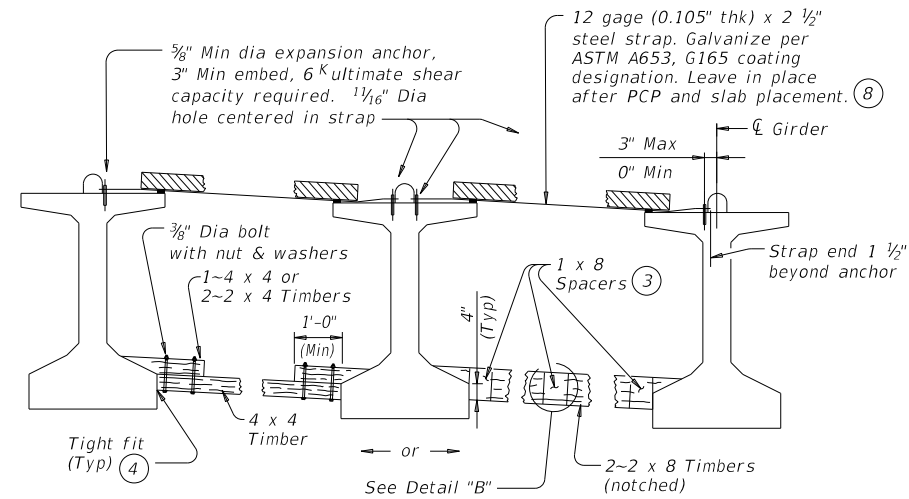
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SLAB PLACEMENT BRACING

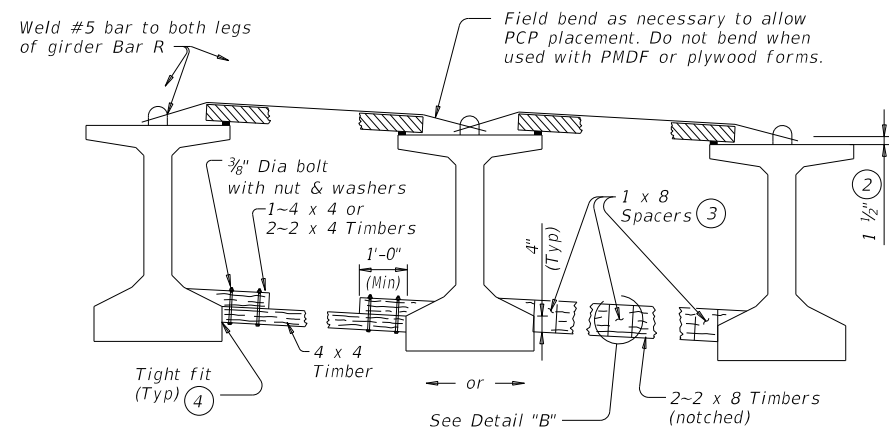
TABLE A		
Girder or Beam Type	OPTION 1-RIGID BRACING (STEEL STRAP)	
	Maximum Bracing Spacing	
	Slab Overhang less than 4'-0" (11)	Slab Overhang 4'-0" and greater (11)
Tx28	1/4 points	1/4 points
Tx34	1/4 points	1/4 points
Tx40	1/4 points	1/8 points
Tx46	1/4 points	1/8 points
Tx54	1/4 points	1/8 points
Tx62	1/4 points	1/8 points
Tx70	1/4 points	1/8 points
A	1/8 points	1/8 points
B	1/8 points	1/8 points
C	1/8 points	1/8 points
IV	1/4 points	1/8 points
VI	1/4 points	1/8 points

Girder or Beam Type	OPTION 2-FLEXIBLE BRACING (NO. 5 OVER PCP)	
	Maximum Bracing Spacing	
	Slab Overhang less than 4'-0" (11)	Slab Overhang 4'-0" and greater (11)
Tx28	1/4 points	1/8 points
Tx34	1/4 points	1/8 points
Tx40	1/4 points	1/8 points
Tx46	1/4 points	1/8 points
Tx54	1/4 points	1/8 points
Tx62	1/4 points	1/8 points
Tx70	1/4 points	1/8 points
A	2.0 ft	1.5 ft
B	3.0 ft	2.0 ft
C	4.5 ft	2.0 ft
IV	1/4 points	4.0 ft
VI	1/4 points	4.0 ft



FOR SLAB PLACEMENT BRACING, OPTION 1 - RIGID

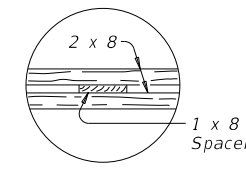
(Showing slab formed with PCP. This option is not allowed when slab is formed with PMDF or plywood.)



FOR SLAB PLACEMENT BRACING, OPTION 2 - FLEXIBLE

(Showing slab formed with PCP.)

HORIZONTAL BRACING DETAILS (5)



PLAN
DETAIL "B"

- (2) Place and weld #5 bars as shown during erection. If forming deck with prestressed panels, bars can be temporarily removed, one at a time, during panel erection. Re-install bar prior to additional panel erection. Bars can rest on panels and be bent down and welded to girder Bars R.
- (3) Clear distance between spacers must not exceed 3'. Nail together with 16d nails.
- (4) Use wedges as necessary to obtain tight fit. Nail wedges to timbers.
- (5) Pressure treated landscape timbers can not be used.
- (8) Prior to installing, field bend strap to lay flush on both girders' top flange and slope between flange tips.
- (10) Bracing spacing (1/4 and 1/8 points) measured between first and last typical brace location.
- (11) Measure slab overhang from centerline of girder or beam. When overhang varies in span, determine bracing spacing based on largest overhang.

SLAB PLACEMENT BRACING:

The details for slab placement bracing are considered minimum for fulfilling the requirements of Specification Items 422 and 425. Required slab placement bracing must remain in place until slab concrete has attained a compressive strength of 3000 psi.

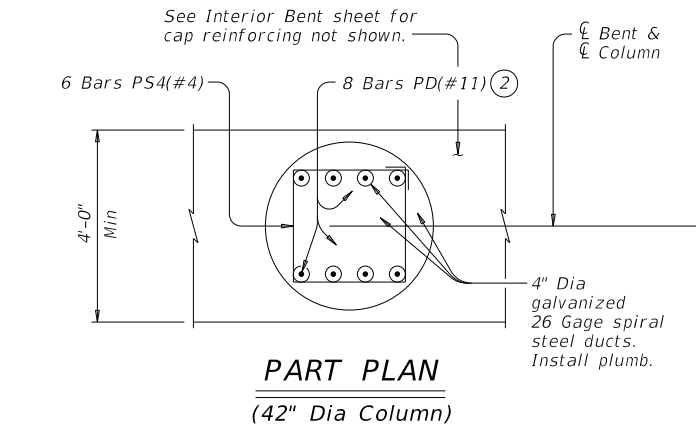
GENERAL NOTES:

Bracing details for spans longer than 150' are not provided. The Contractor must submit proposed bracing details for such conditions to the Engineer for approval prior to erection. Systems equal to or better than those shown may be used provided details of such systems are submitted to and approved by the Engineer prior to erection. Use of these systems or details does not relieve the Contractor of the responsibility for the adequacy of the bracing and the safety of the structure. Removal of bracing for short periods of time to align girders and beams is permissible. All turn-buckles, come-alongs, anchors and other connections must be capable of developing the full strength of the cable shown. Furnish anchor bolts and nuts in accordance with Item 449, "Anchor Bolts".

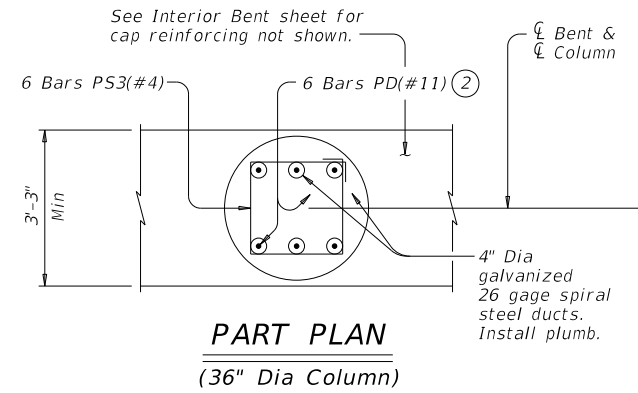
		Bridge Division Standard	
MINIMUM ERECTION AND BRACING REQUIREMENTS PRESTRESSED CONCRETE I-GIRDERS AND I-BEAMS			
MEBR(C)			
FILE: mebcsts1-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
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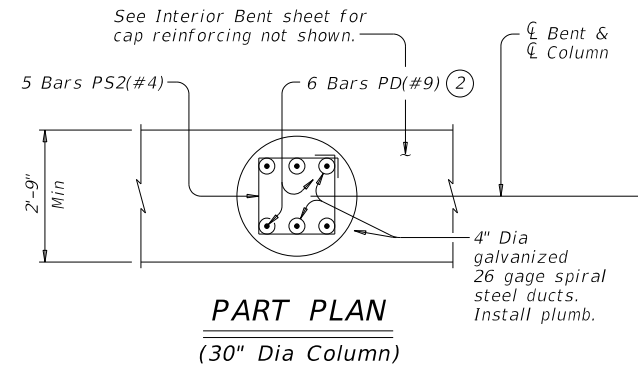
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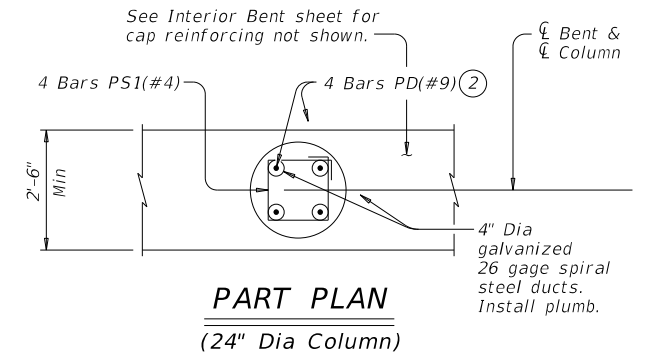
PART PLAN
(42" Dia Column)



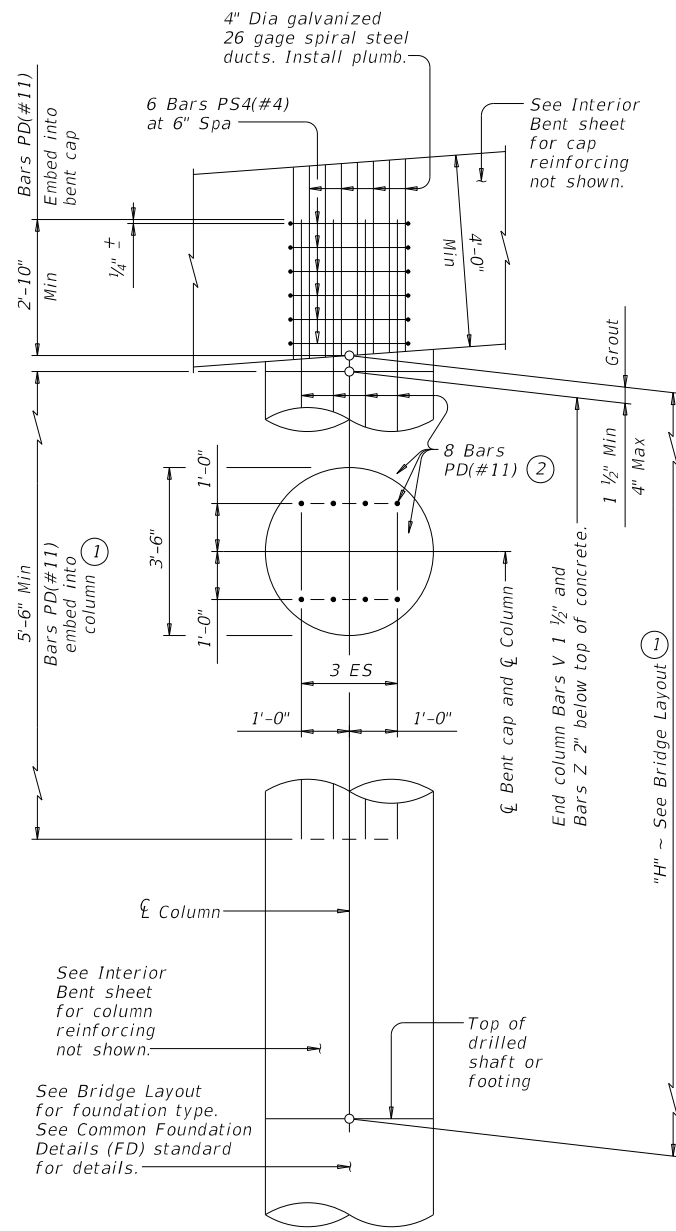
PART PLAN
(36" Dia Column)



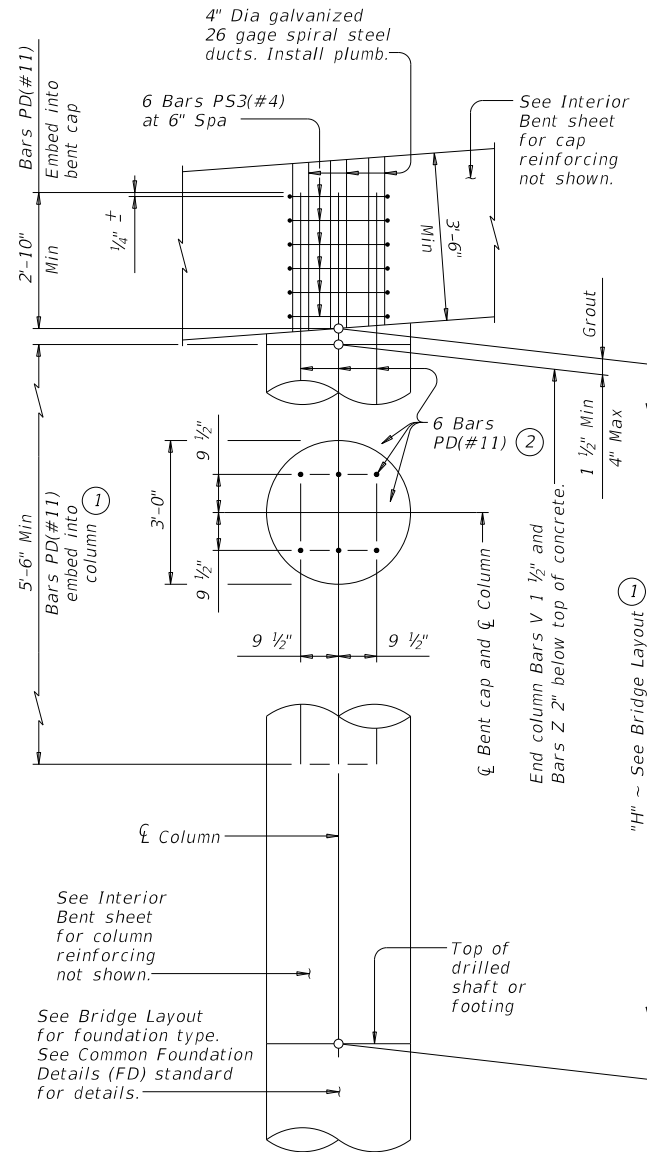
PART PLAN
(30" Dia Column)



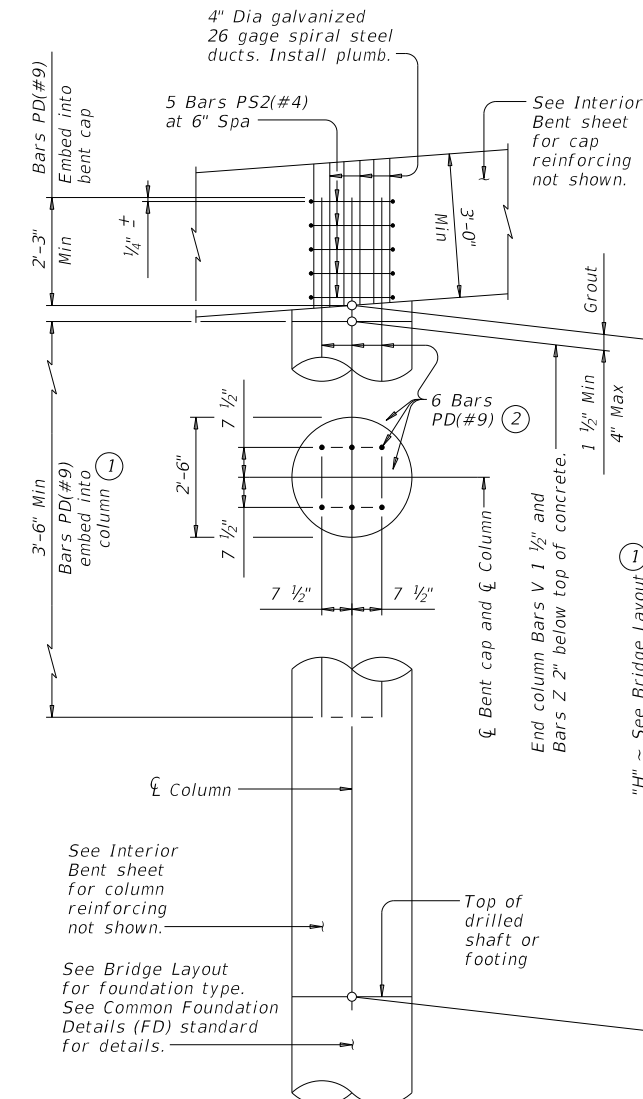
PART PLAN
(24" Dia Column)



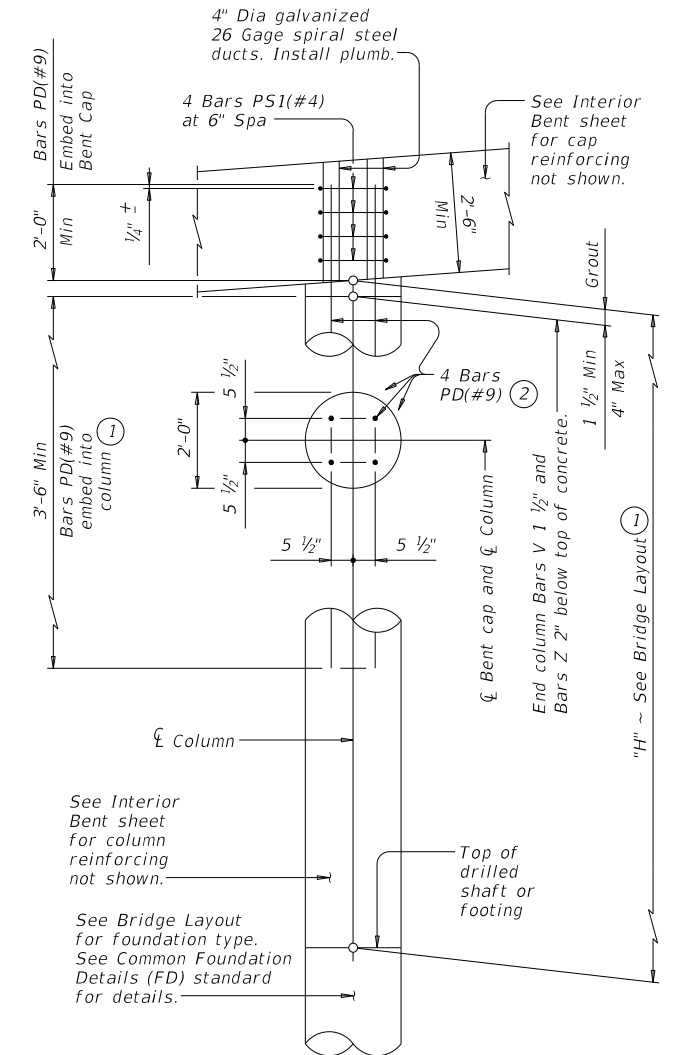
PART ELEVATION
(42" Dia Column)



PART ELEVATION
(36" Dia Column)



PART ELEVATION
(30" Dia Column)



PART ELEVATION
(24" Dia Column)

PS1	1'-4 1/4"
PS2	1'-8 1/4"
PS3	2'-0 1/4"
PS4	2'-5 1/4"

PS1	PS2	PS3	PS4
1'-4 1/4"	1'-8 1/4"	2'-0 1/4"	2'-5 1/4"

BARS PS (#4)

- ① Bars PD may need to be embedded in footing or drilled shaft for short columns.
- ② Location tolerance of dowels in columns/drilled shafts is 1/4" from plan location, transversely and longitudinally.

HL93 LOADING SHEET 1 OF 2



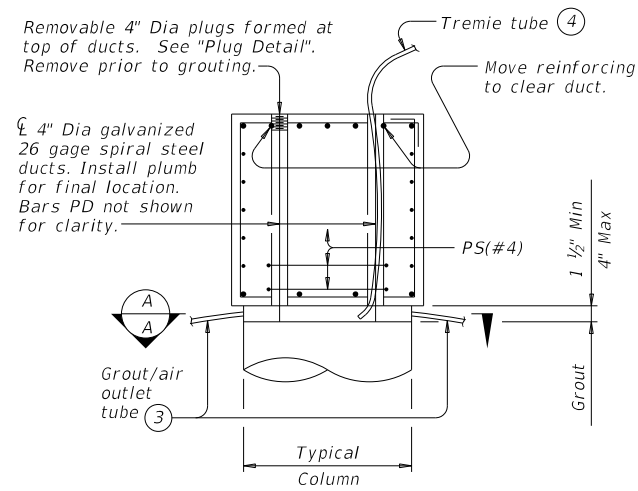
PRECAST CONCRETE BENT CAP OPTION FOR ROUND COLUMNS

PBC-RC

FILE: pbcstd01-19.dgn	DN: TxDOT	CK: JMH	DW: JTR	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
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	TYLER	GREGG	236	

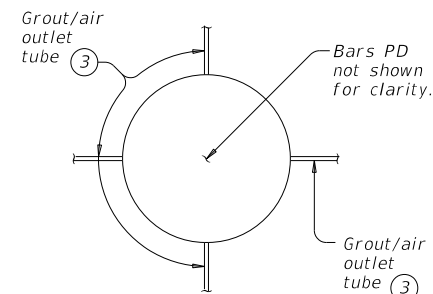
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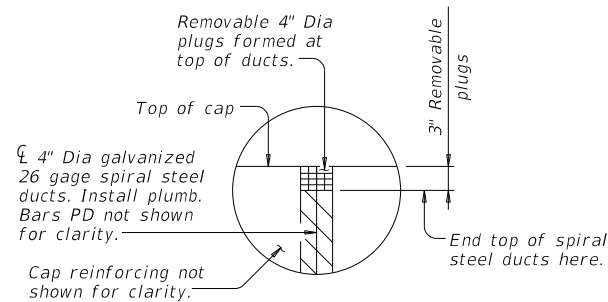


TYPICAL SECTION THRU CAP

(Showing example of ducts and cap reinforcing.)



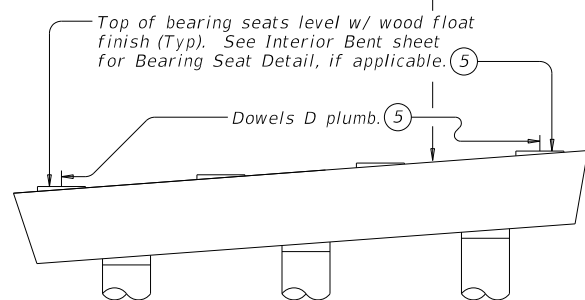
SECTION A-A



PLUG DETAIL

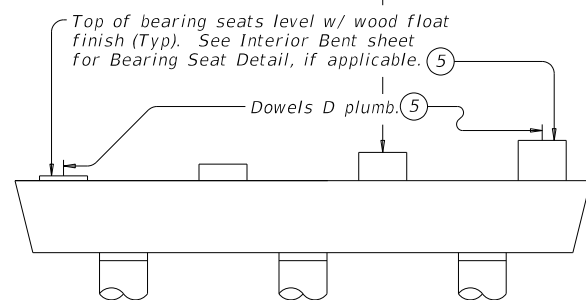
(To keep concrete out of ducts during concrete placement. Remove prior to grouting)

Slope top of cap between bearing seats in accordance with Item 420.4.9 "Treatment and Finishing of Horizontal Surfaces", unless directed otherwise by the Engineer.



CAP SET AT SLOPE

Reinforce bearing seats over 3" tall and slope top of cap between bearing seats in accordance with Item 420.4.9 "Treatment and Finishing of Horizontal Surfaces", unless directed otherwise by the Engineer.



CAP SET LEVEL

EXAMPLES OF PRECAST BENTS WITH DOWELS D

- (3) Provide at least 4 grout/air outlet tubes equally spaced around the perimeter of the column. Install at bottom of cap to avoid air entrapment. Seal off tubes sequentially when a steady flow of grout without air occurs. Secondary tubes to help drain water, located at top of column, may also be installed.
- (4) Continuous gravity-flow grouting through a tremie tube is recommended. With this method, lower a flexible tremie tube through one of the vertical ducts to the bottom of the bedding layer and fill the connection from the bottom upward with a continuous flow of grout. This method requires a sufficient amount of grout to be mixed prior to grouting and that the funnel connected to the tremie tube have adequate volume capacity (4 quarts Min is recommended). A valve may be used to stop the flow during grouting to allow refilling the funnel or to tamp the grout. The tube should remain within the grout and gradually withdraw as the level of the grout rises in the ducts. It is critical to ensure a continuous flow of grout to avoid air entrapment. Alternative methods, including pressure grouting with low pressure pumps, may be used provided they are proved effective in providing void-free connections during the mock-up phase.
- (5) Unless otherwise shown.

CONSTRUCTION NOTES:

Cap Fabrication:

Construct and cure cap in accordance with Item 420, "Concrete Substructures". Secure ducts to prevent their movement during concrete placement. Location tolerance of ducts is 1/4" from plan location, transversely and longitudinally. Seal ducts to prevent intrusion of concrete.

Bearing seats may be precast with the cap. Bearing seats over 3" in height must be reinforced as per Item 420.4.9. Do not locate lift points at bearing seats if bearing seats are precast.

Cap concrete must achieve a compressive strength of 2,500 psi prior to lifting. Limit flexural stress in cap to 250 psi during handling and storage. Store and handle caps in accordance with Item 424, "Precast Concrete Structural Members (Fabrication)". Do not stack caps. Caps that become cracked or otherwise damaged may be rejected.

Cap-to-Column Connection:

Make a trial batch of grout using the same material, equipment and personnel to be used for actual grouting operations and grout a mock-up of the connection at least one week before grouting and in the presence of the Engineer. This mock-up test must demonstrate the reliability of the Contractor's grouting procedures to provide a connection free of voids. Field test the trial batch grout to the same level required for the actual grouting.

Caps may be placed on columns/drilled shafts after column/drilled shaft concrete has achieved a flexural stress of 355 psi (or 2,500 psi compressive strength). Use plastic shims or friction collars to support the cap at the proper elevation prior to grouting. Total area of plastic shims used on top of each column may not exceed 6 percent of the column area. Column/drilled shaft curing may be interrupted a maximum of 2 hours for placement of plastic shims or friction collars and cap placement.

Surfaces in contact with grout must be clean and in a saturated, surface-dry condition, immediately prior to grouting. Provide water tight forms. Fill the forms with water and drain just prior to grouting. Ponding or free-standing water is not permitted. Use compressed air to blow out excess water.

Mix grout in accordance with the manufacturer's directions. Evidence of frothing, foaming, or segregation is cause for rejection. Transport grout from mixer to final location by wheel barrow, bucket or pumping.

Perform sampling and testing of grout by trained personnel at the Contractor's expense and while witnessed by the Engineer. Grouted connections must be free of voids.

Trowel finish top surface of cap anchorage ducts flush with top of cap. Wet mat cure these locations for at least 48 hours. Recess lifting loops 1-inch minimum using exothermic cutting rods. Do not overheat or damage the surrounding concrete. Abrade the concrete surfaces of excavation and end of the lifting loop to remove all slag with a needle gun, steel brush, or other suitable means. Coat the inside of the recessed area, including the lifting loops, with 10 mils (minimum) of neat, Type VIII epoxy and patch the recess with epoxy mortar.

Friction collars may be removed, if used, and beams placed on the cap after the grout obtains a compressive strength of 2,500 psi. Subsequent loading can occur when the grout reaches its final required 28 day compressive strength.

MATERIAL NOTES:

Provide a pre-qualified grout from TxDOT's Material Producer List "Cementitious Grouts and Mortars for Miscellaneous Applications", conforming to DMS-4675.

Provide semi-rigid spirally crimped, corrugated duct of galvanized, cold rolled steel conforming to ASTM A653. Corrugations must have a minimum amplitude of 0.094".

Grout tubes and forms must be approved prior to grouting.

Provide Grade 60 reinforcing steel. Epoxy coat or galvanize all reinforcement if column reinforcement is epoxy coated or galvanized.

GENERAL NOTES:

Designed in accordance with AASHTO LRFD Bridge Design Specifications.

The Contractor has the option to provide precast bent caps in accordance with the details shown. No additional payment will be made if the Contractor uses precast caps.

Submit shop drawings of precast caps for approval prior to construction. Indicate lifting attachments and locations on the shop drawings.

Precast Concrete Bent Cap Option shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

See Interior Bent sheet for details and notes not shown.

Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING

SHEET 2 OF 2



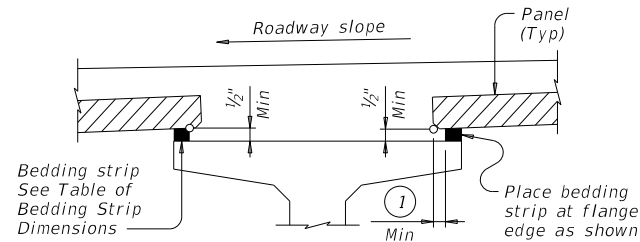
PRECAST CONCRETE BENT CAP OPTION FOR ROUND COLUMNS

PBC-RC

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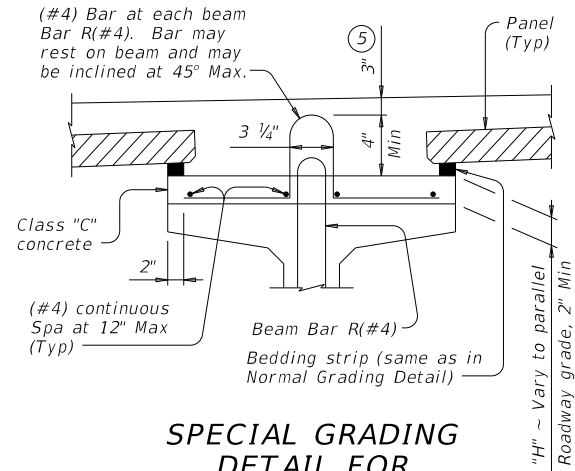
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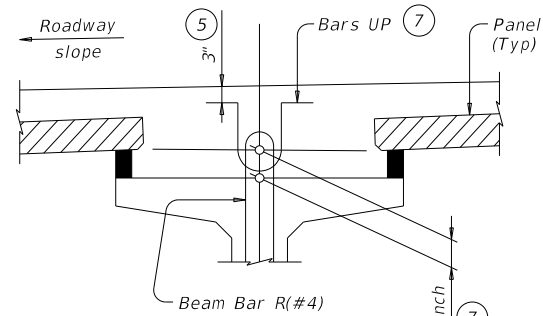
NORMAL GRADING DETAIL ③

Showing prestressed concrete I-girders.
 (Other beam types similar)



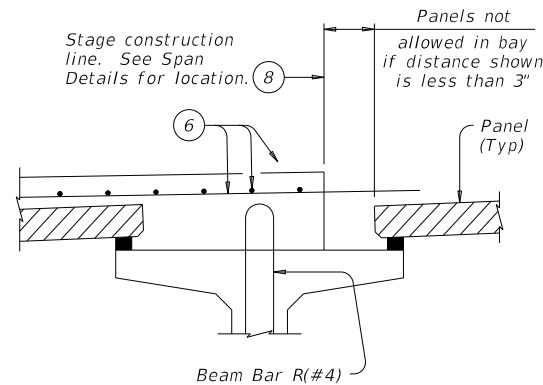
SPECIAL GRADING DETAIL FOR CONCRETE BEAMS

Showing prestressed concrete I-girders.
 (Other beam types similar)



HAUNCH REINFORCING DETAIL

Showing prestressed concrete I-girders.
 (Other beam types similar)

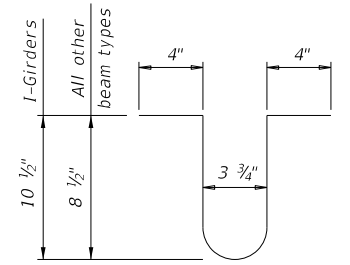


PRESTR CONC I-GIRDERS

TABLE OF BEDDING STRIP DIMENSIONS

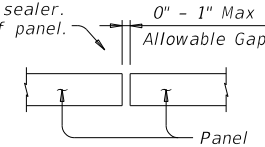
WIDTH	HEIGHT ④	
	Min	Max
1" (Min)	1/2"	2"
1 1/4"	1/2"	2 1/2"
1 1/2"	1/2"	3"
1 3/4"	1/2"	3 1/2"
2"	1/2"	4"
2 1/4"	1/2"	4 1/2" ②
2 1/2"	1/2"	5" ②
2 3/4"	1/2"	5 1/2" ②
3" (Max)	1/2"	6" ②

- ① 2" Min for I-girders, 1 1/2" Min for all other beam types.
- ② Allowed for I-girders, not allowed on other beam types.
- ③ To reduce the quantity of cast-in-place concrete, bedding strip thickness may be increased in 1/4" increments. Bedding strips must be comprised of one layer. Bond bedding strips to the beams with an adhesive compatible with bedding strips. Bedding strips over 2.5" high may need to be bonded to panels. The same thickness strip must be used under any one panel edge and the maximum change in thickness between adjacent panels is 1/4". Alternatively, bedding strips may be cut to grade. Panels may be supported by an alternate method, using a commercial product, if approved by the Engineer of Bridge Design, Bridge Division. If bedding strips exceed 6" high for I-Girders, 4" high for all other beam types, use Special Grading Detail for Concrete Beams or submit an alternate method to the Bridge Division for approval.
- ④ Height must not exceed twice the width.
- ⑤ Provide clear cover as indicated unless otherwise shown on Span Details.
- ⑥ See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.
- ⑦ Space Bars UP(#4) with Beam Bars R(#4) in all areas where measured haunch exceeds 3 1/2" with I-girders, and 3" for all other beam types. Epoxy coating for Bars UP is not required.
- ⑧ Do not locate construction joints on top of a panel.
- ⑨ Butt adjacent bedding strips together with adhesive. Cut v-notches, approx 1/4" deep, in the top of the bedding strips at 8" o.c..



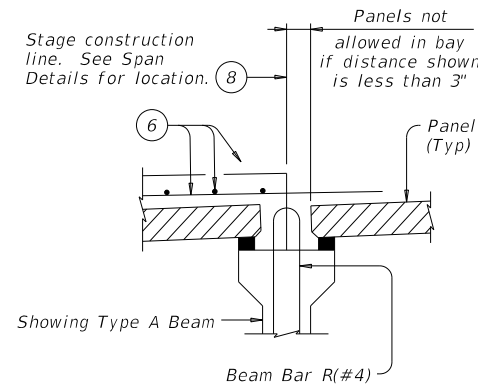
BARS UP (#4) ⑦

Seal joint between panels when gap exceeds 1/4" with polyurethane sealant or expanding foam sealer. Make seal flush with top of panel.

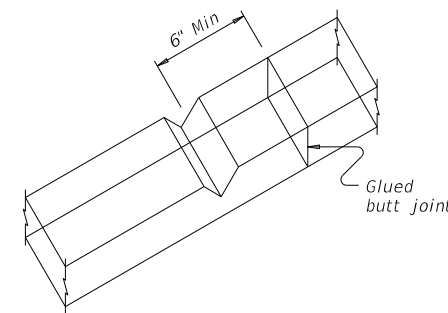


PANEL JOINTS

(Panel reinforcing not shown for clarity. The gap cannot be considered as a panel fabrication tolerance. Adjust panel placement to minimize joint openings.)



PRESTR CONC I-BEAMS



BEDDING STRIP DETAIL ⑨

CONSTRUCTION NOTES:

Erected panels must bear uniformly on bedding strips of extruded polystyrene placed along top flange edges. Placing panels to minimize joint openings is recommended. If additional blocking is needed, special grading details for supporting the panels and extra reinforcing between beam and slab will be considered subsidiary to deck construction. Bars U, shown on PCP-FAB, may be bent over or cut off if necessary. Care must be taken to ensure proper cleaning of construction debris and consolidation of concrete material under the edges of the panels. Bedding strips must be placed at beam flange edges so that adequate space is provided for the mortar to flow a minimum of 1 1/2" under the panels as the slab concrete is placed. To allow the proper amount of mortar to flow between beam and panel, the minimum vertical opening must be at least 1/2". Roadway cross-slope reduces the opening available for entry of the mortar. Bedding strips varying in thickness across the beam are therefore required. For clear span between U-beams less than or equal to 18", see Permissible Slab Forming Detail on Miscellaneous Slab Detail sheets, UBMS.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel in the cast-in-place slab. See Table of Reinforcing Steel for size and spacing of reinforcement. If the top and bottom layer of reinforcing steel is shown on the Span Details to be epoxy coated, then the D, E, P, & Z bars must be epoxy coated. Provide bar Laps, where required, as follows:
 Uncoated ~ #4 = 1'-7"
 Epoxy Coated ~ #4 = 2'-5"

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications. Panel placement may follow either Option 1 or Option 2 except Option 1 must be used if the skew exceeds 45 degrees. Use of Prestressed Concrete Panels is not permitted for horizontally curved steel plate or tub girders. See Span Details for other possible restrictions on their use. These details are to be used in conjunction with the Span Details, PCP-FAB and other applicable standard drawings. When panel support (bedding strips) deviates from what is shown herein, provide details signed and sealed by a professional Engineer. Any additional reinforcing or concrete required on this standard is considered subsidiary to the bid item "Reinforced Concrete Slab".

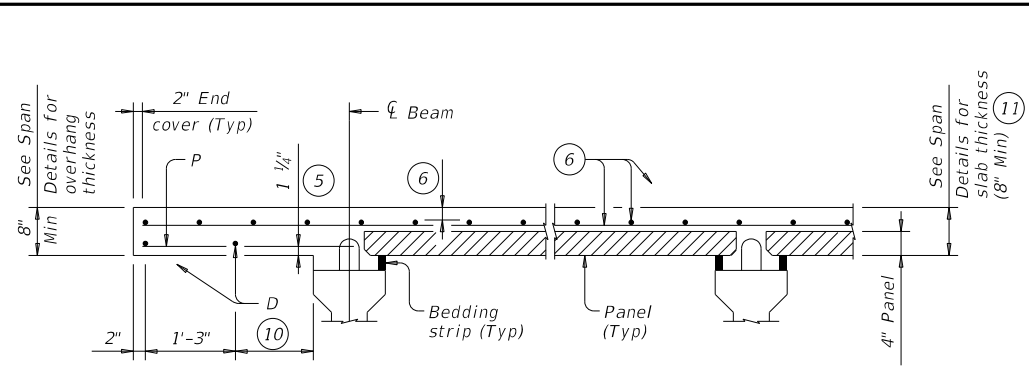
Cover dimensions are clear dimensions, unless noted otherwise.
 Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING SHEET 1 OF 4

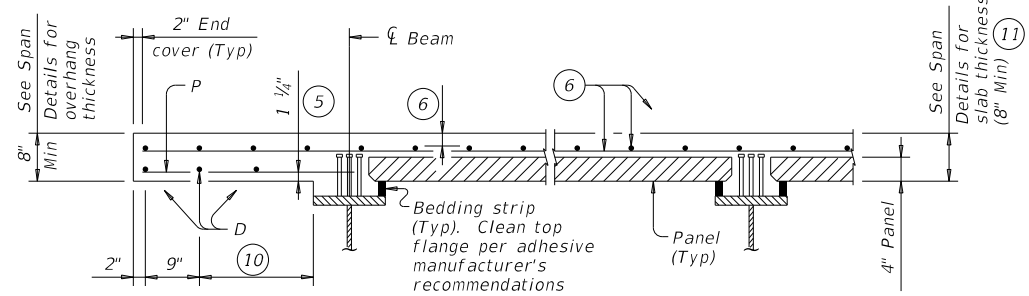
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PRESTRESSED CONCRETE PANELS DECK DETAILS			
PCP			
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REVISIONS	COUNTY: TYLER		HIGHWAY: HIGH ST
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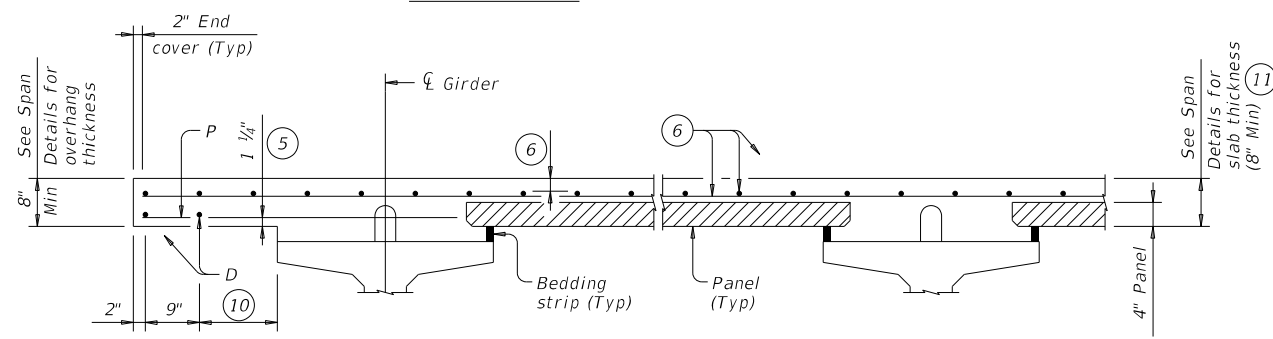
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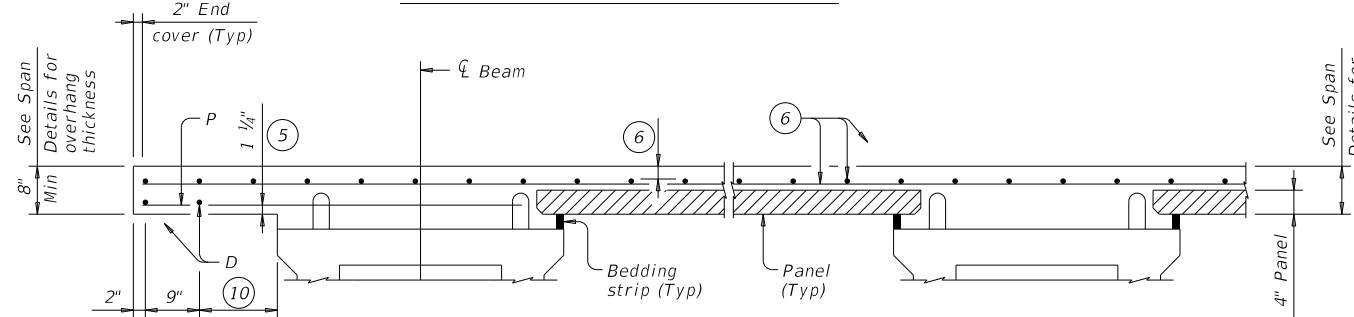
PRESTRESSED CONCRETE I-BEAMS



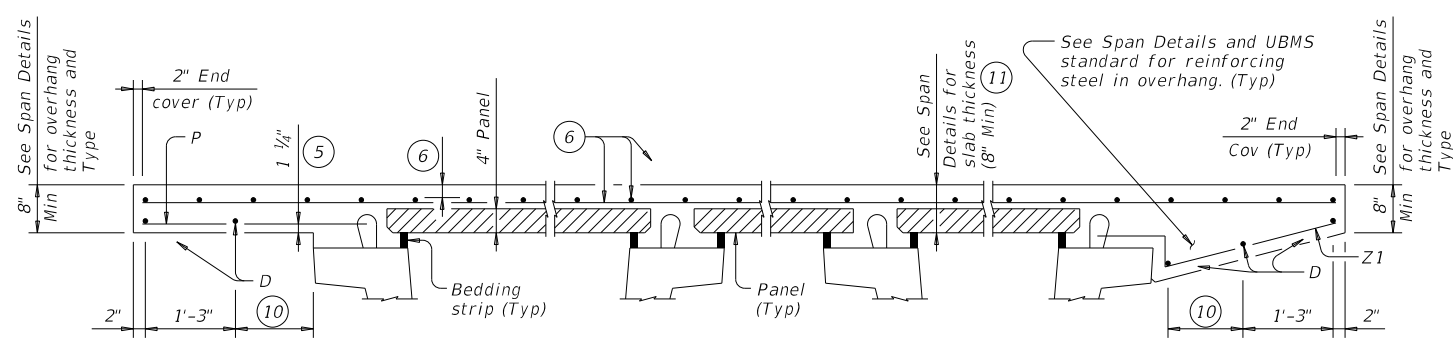
STEEL BEAMS



PRESTRESSED CONCRETE I-GIRDERS

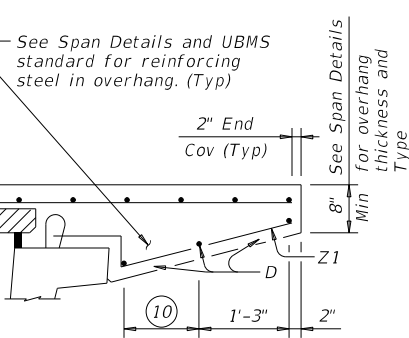


PRESTRESSED CONCRETE X-BEAMS

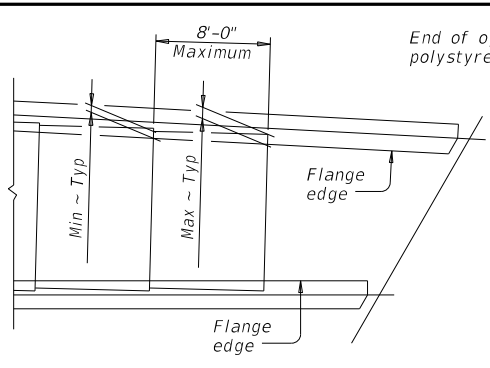


NORMAL OVERHANG WITH PRESTR CONC U-BEAMS

TYPICAL PART TRANSVERSE SECTIONS

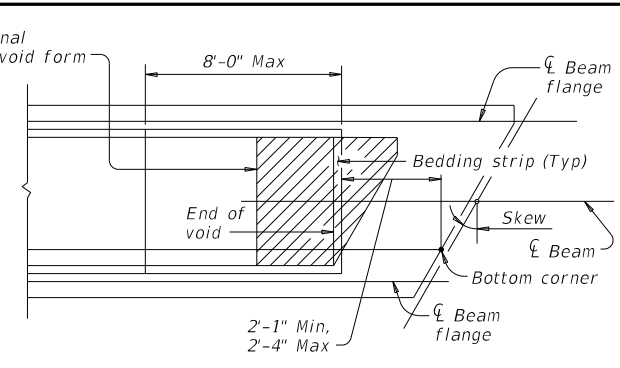


SLOPED OVERHANG WITH PRESTR CONC U-BEAMS



AT FLARED BEAMS OR GIRDERS

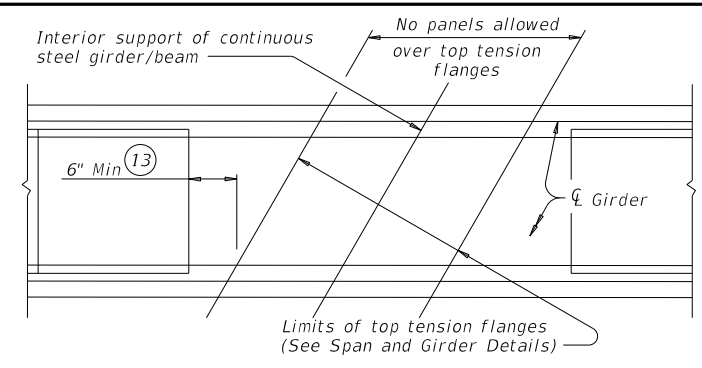
See PCP-FAB standard for Min and Max dimensions based on beam/girder type.



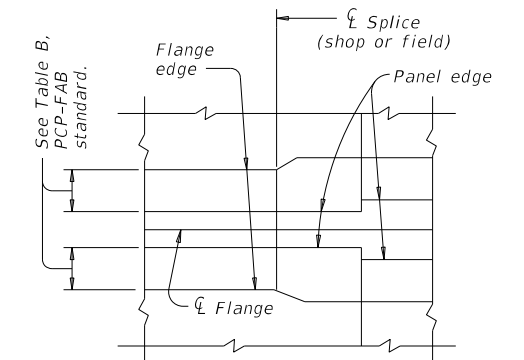
OVER CONC U-BEAMS

PART PLANS OF PANEL PLACEMENT

- 5 Provide clear cover as indicated unless otherwise shown on Span Details.
- 6 See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.
- 9 Butt adjacent bedding strips together with adhesive. Cut v-notches, approx 1/4" deep, in the top of the bedding strips at 8' o.c..
- 10 Equally space additional bar if more than 1'-3" Max.
- 11 The actual thickness constructed may exceed the slab thickness shown on the Span Details but the extra thickness may be no more than 2" (1" for prestressed concrete U-beams and steel beams). Bearing seat elevations or finished grade may be adjusted.
- 12 Field adjust Bars Z1(#4) to match actual slope of slab overhangs. Width of slab overhang will vary along span with curved slab edges. Adjust Bar Z1(#4) dimensions to maintain proper cover. Bars Z2(#4) are located at Inverted-Tee stems only.
- 13 Location of concrete placement sequence boundaries and bolted field splices should be considered by the contractor in determining panel limits.



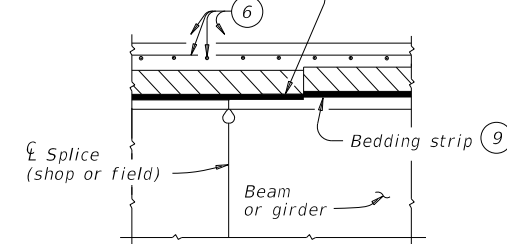
AT INT SUPPORTS OF CONTINUOUS STEEL GIRDERS



PLAN AT SPLICE

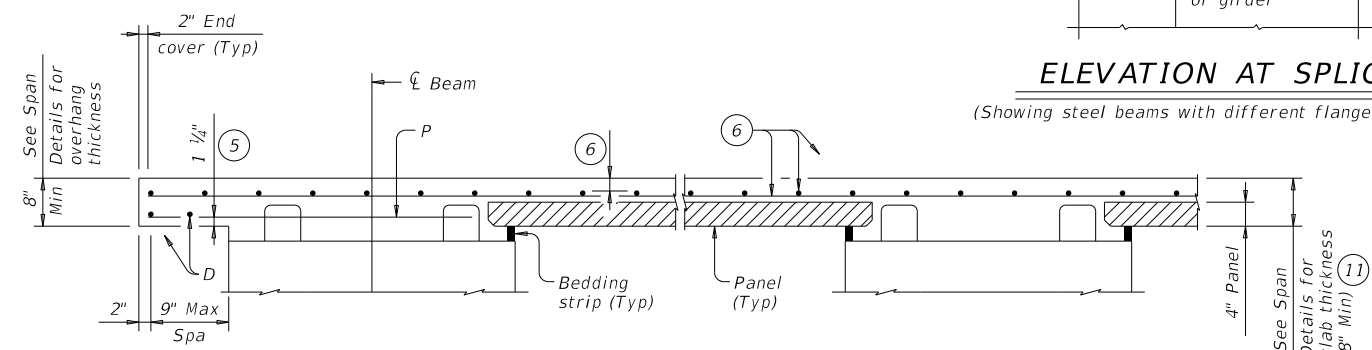
(Showing steel beams with flange width transition)

Cut bedding strip to adjust for difference in flange thickness.



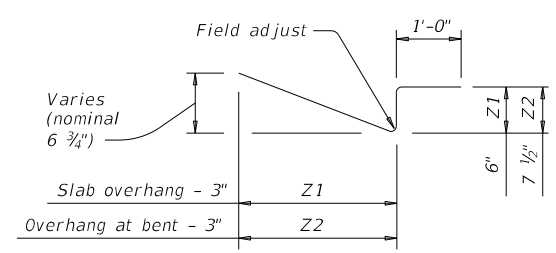
ELEVATION AT SPLICE

(Showing steel beams with different flange thickness)



PRESTRESSED CONCRETE SPREAD SLAB BEAMS

Bars P over exterior beams are still required when no overhang is used. In this case, only one Bar D, 2" from slab edge, is required.



BARS Z (#4) 12



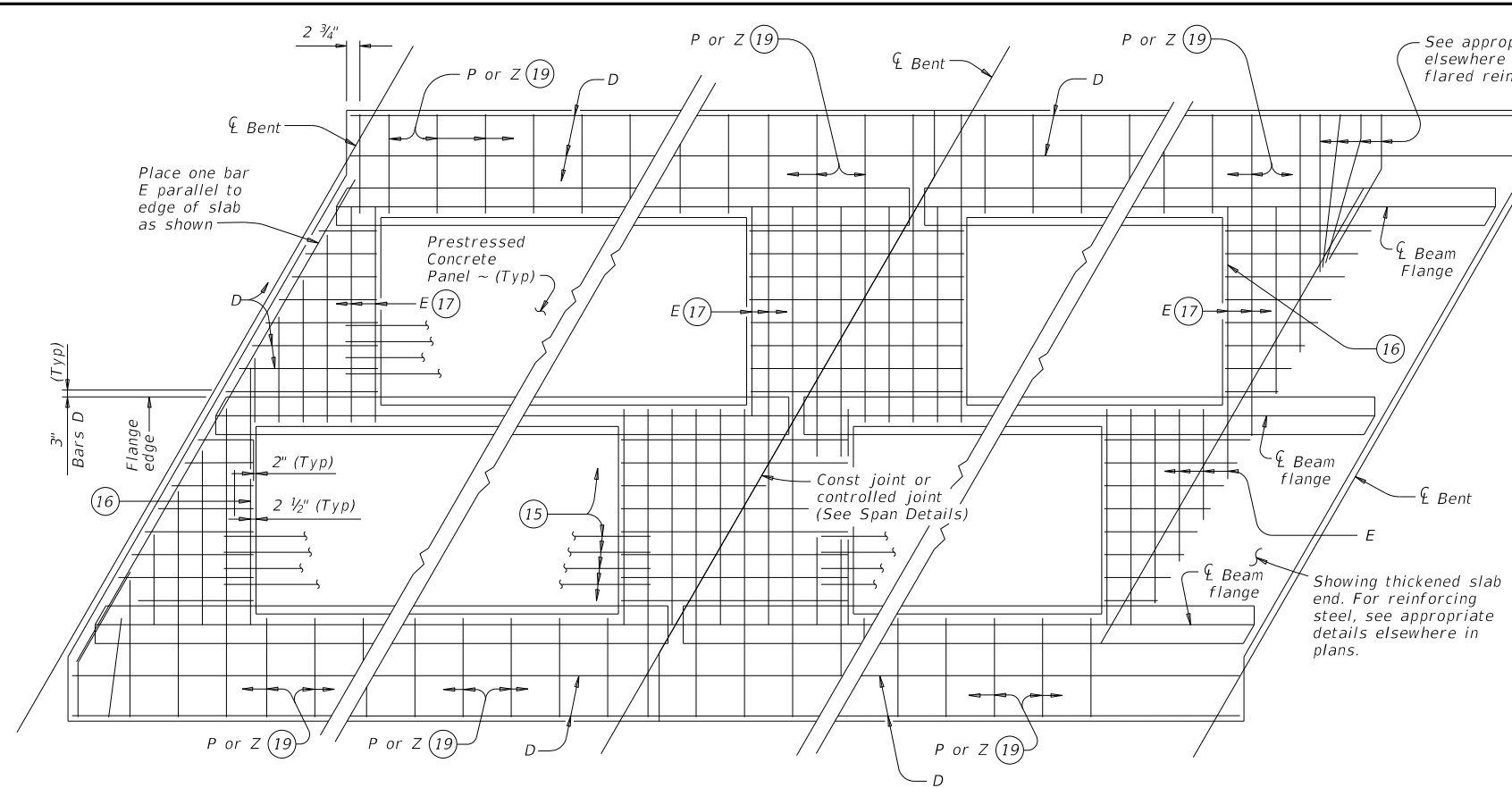
PRESTRESSED CONCRETE PANELS DECK DETAILS

PCP

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	TYLER	GREGG		239

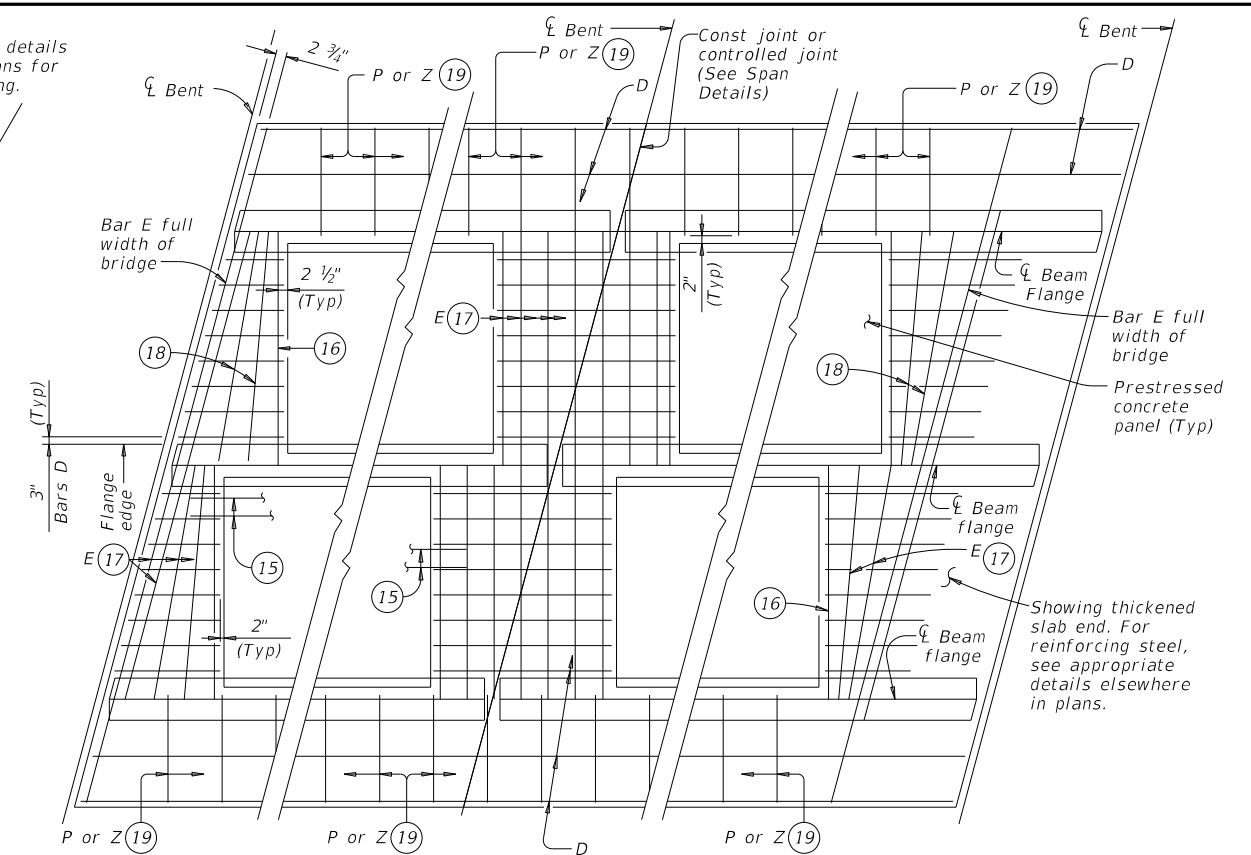
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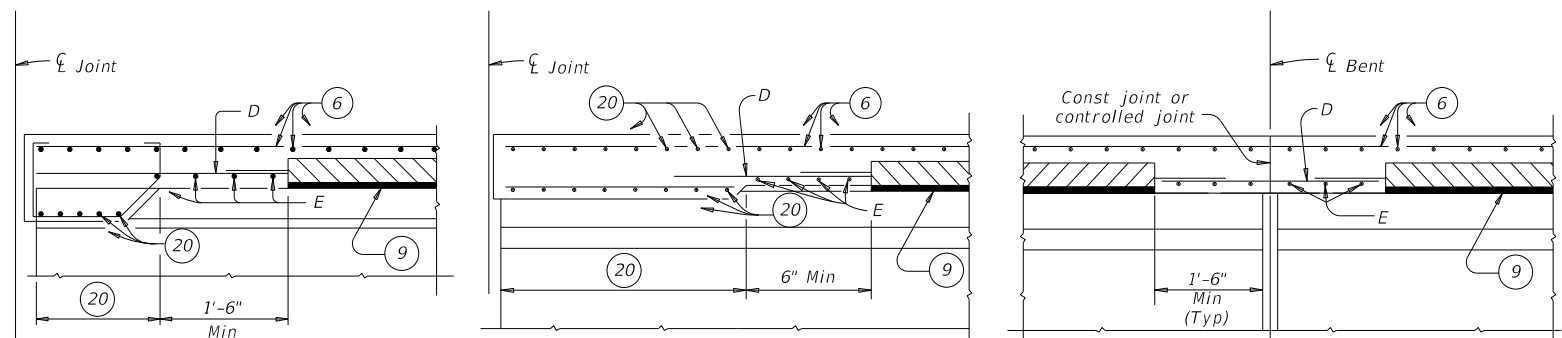
AT ALL SPAN ENDS UNLESS NOTED OTHERWISE
AT INTERIOR BENTS
AT THICKENED END SLABS

OPTION 1 ~ PLAN OF SLABS WITH NORMAL REINFORCEMENT

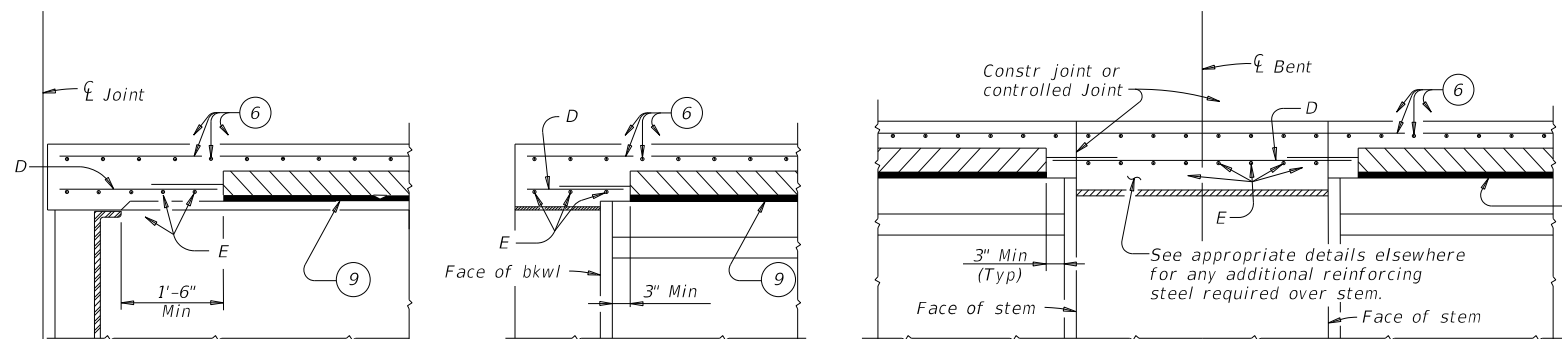


AT ALL SPAN ENDS UNLESS NOTED OTHERWISE
AT INTERIOR BENTS
AT THICKENED END SLABS

OPTION 1 ~ PLAN OF SLABS WITH SKEWED REINFORCEMENT



AT THICKENED SLAB ENDS FOR PRESTR CONC U-BMS
AT THICKENED SLAB ENDS FOR PRESTR CONC I-BMS AND STEEL BMS
AT SLAB CONTINUOUS OVER CONVENTIONAL INTERIOR BENTS FOR ALL SIMPLE SPAN BMS



AT CONVENTIONAL END DIAPHRAGMS FOR STEEL BMS
AT SLAB OVER ABUTMENT BACKWALL FOR ALL BMS
AT SLAB CONTINUOUS OVER INVERTED-T BENTS FOR ALL BMS

OPTION 1 ~ ELEVATIONS AT BEAM ENDS

- 6 See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.
- 9 Butt adjacent bedding strips together with adhesive. Cut v-notches, approx 1/4" deep, in the top of the bedding strips at 8" o.c.
- 14 Max Spacing as listed unless otherwise shown.
- 15 At connection with cast-in-place slab, extend longitudinal panel reinforcement. See PCP-FAB for details.
- 16 Maintain one Bar E(#4) parallel to panel ends (Typ).
- 17 Bars E(#4) not continuous over beam flanges must overlap beam flange 6" Min.
- 18 Add flared Bars E(#4) (Min Spa = 6", Max Spa = 12") as required at panel ends.
- 19 Where possible, Bars E(#4) may be extended into overhangs to replace Bars P(#4). Bars Z(#4) are required for sloped overhangs with U-Beams.
- 20 See appropriate thickened slab end details for reinforcing and limits of thickened slab end.

TABLE OF REINFORCING STEEL (14)		
BAR	SIZE	Max Spa (in.)
D	#4	9
E	#4	9
P	#4	18
UP	#4	~
Z	#4	18

HL93 LOADING SHEET 3 OF 4



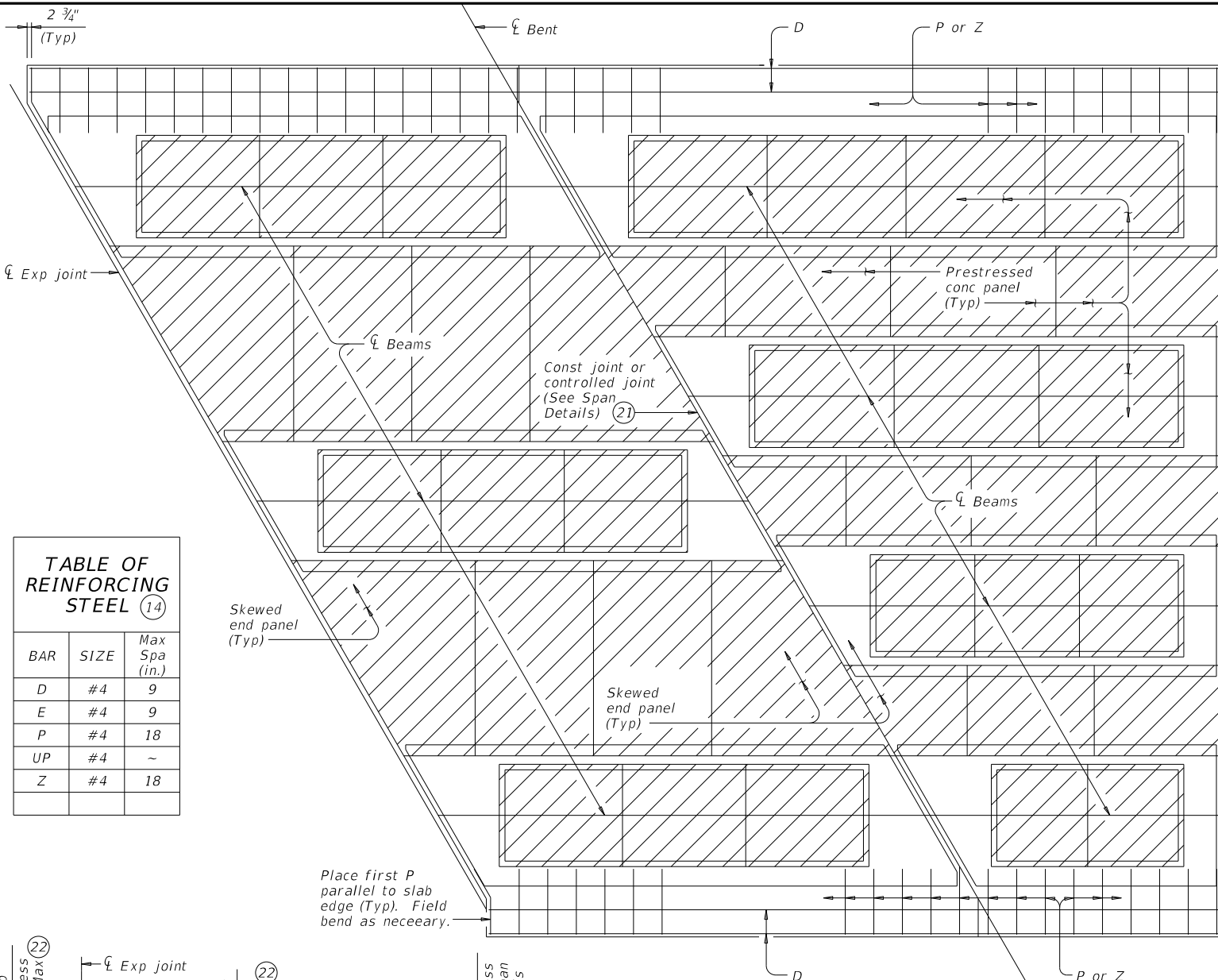
PRESTRESSED CONCRETE PANELS DECK DETAILS

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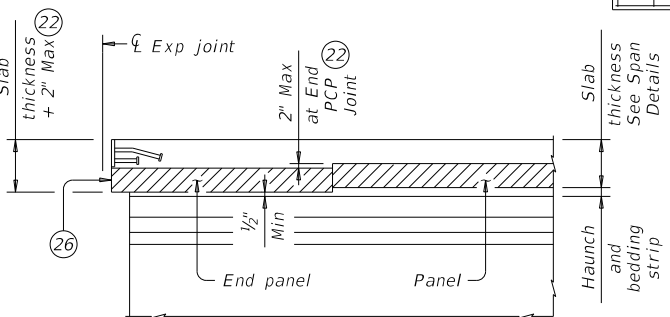
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	TYLER	GREGG		240

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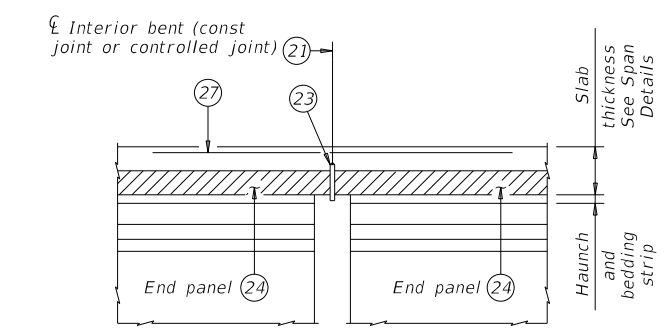
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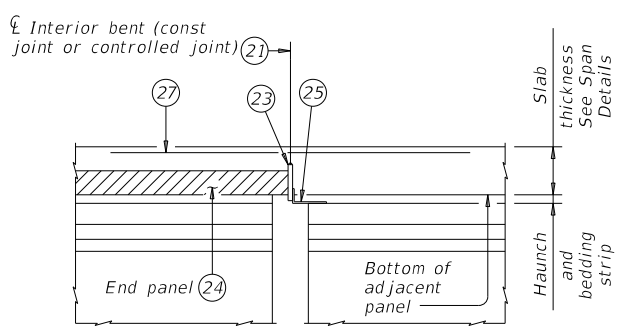
BAR	SIZE	Max Spa (in.)
D	#4	9
E	#4	9
P	#4	18
UP	#4	~
Z	#4	18



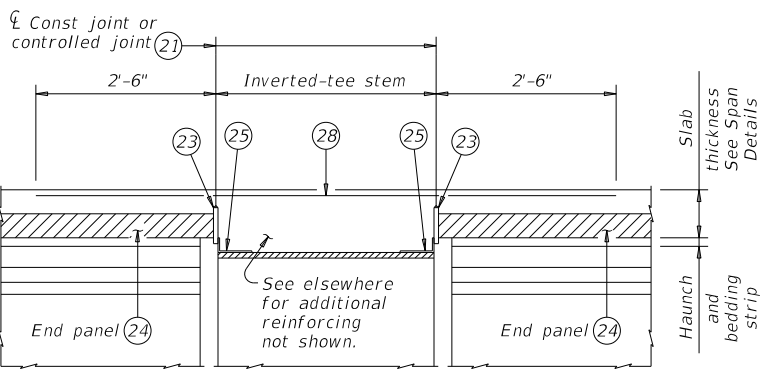
JOINTS (BETWEEN BEAMS/GIRDERS OR AT INV-T STEM)
For SEJ-A, SEJ-S(0), AJ, and Type A expansion joints only.



CONVENTIONAL INTERIOR BENT
Panel against panel between beams/girders.



CONVENTIONAL INTERIOR BENT
Panel against beam/girder end in adjacent span.



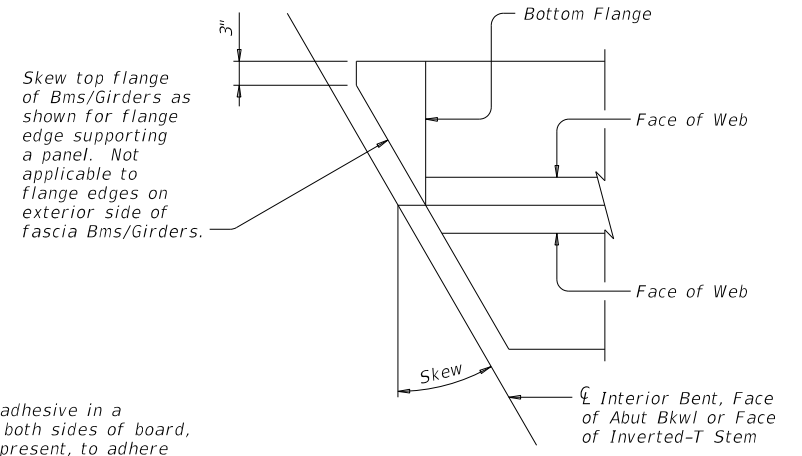
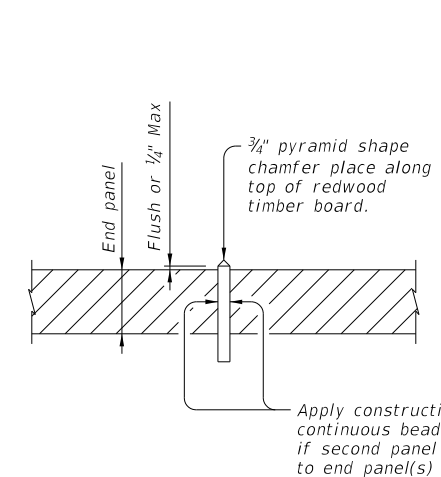
INVERTED-T BENT
Panels against inverted-tee stem

OPTION 2 ~ ELEVATIONS AT BEAM ENDS (6)

ELEVATION EXAMPLE OF END PANEL AND TIMBER BOARD (23)

See "Option 2 ~ Elevation At Beam Ends".

- (6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.
- (14) Max Spacing as listed unless otherwise shown.
- (21) 1 1/2" Vinyl or plastic joint former at controlled joints (Stress Cap, Zip Strip, Stress Lock, or equal as approved by the Engineer.)
- (22) End panel may be set up to 2" lower to accommodate expansion joint hardware, provided bedding strip is not less than 1/2" thick.
- (23) 3/4" thick redwood timber board, leave in place. Redwood timber board placed flush with top of panel or within 1/4" Max above panel. Place 3/4" pyramid shape chamfer along top of timber board. See "Elevation Example of End Panel and Timber Board". Place straight, within 1/4" of centerline of bent or face of inverted-tee, across bridge width and end board at exterior flange edge of fascia beams/girders. Do not extend into overhang.
- (24) Place panel within 1/2" of 3/4" thick board.
- (25) Permanent galvanized steel sheet form. Removable formwork is acceptable.
- (26) Place end panel within 1/2" of expansion joint opening. End panel cannot encroach on required expansion joint opening.
- (27) Place additional (#4) bar 5'-0" in length between every slab bars T. Center (#4) bar on Joint.
- (28) Place additional (#4) bar continuous 2'-6" beyond each side of Inverted-T Stem between every slab bars T.



OPTION 2 ~ SHOWING MODIFICATION TO BEAM/GIRDER TOP FLANGE FOR SKEWS OVER 5°

Showing I-Bm/I-Girder, U-Bms and Steel Bms similar.

SPECIAL OPTION 2 CONSTRUCTION NOTES:

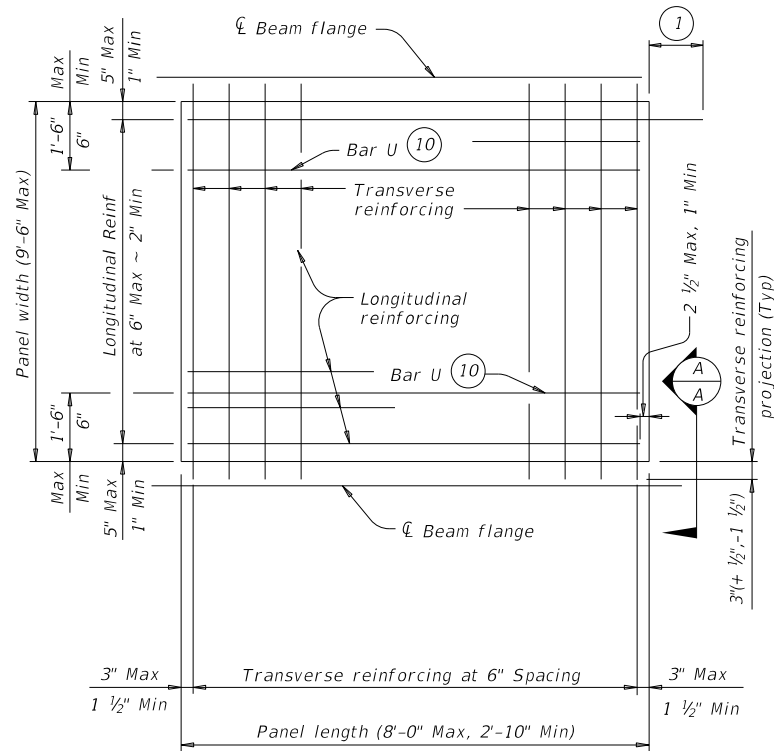
- When Option 2 is chosen bottom mat of thickened end slab reinforcing is not required. Use the same top mat as shown on the Thickened Slab End Details sheet.
- Placing panels adjacent to expansion joints and bent centerlines prior to completing interior panel placement is recommended. Saw cutting panels to fit is acceptable when approved by the Engineer. Minimum distance from a saw cut edge to a panel strand is 1 1/2".
- Do not extend the longitudinal panel reinforcement into the cast-in-place slab.
- Top flanges of beams and girders on skewed bridges must be modified as shown on this drawing. The Contractor is responsible for coordinating this modification with the beam fabricator prior to submitting shop drawings for approval.
- Fabricator may optionally skew the whole end. When electing to skew whole end, girder end details and bearing type at conventional interior bent must be changed to use condition at abutment. Fabricator must coordinate change in bearing type, bearing centerline location, and dowel location with Engineer and Contractor. Show appropriate changes on girder and bearing shop drawings.
- Bending of anchor studs of expansion joints shown on standards AJ, SEJ-A and SEJ-S(0) is permissible if necessary to clear top of end panels. The Contractor is responsible for coordinating modifications with the joint fabricator. Submit shop drawings for approval when modifications to expansion joint hardware are made.
- Bedding strips under skewed end panels must conform to the requirements of Item 422 except their minimum compressive strength must be 60 psi.
- Provide Bars AA, G, K and OA from standard IGTS in the slab.

HL93 LOADING SHEET 4 OF 4

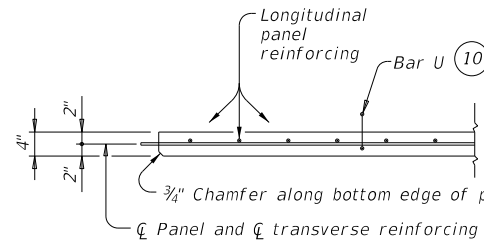
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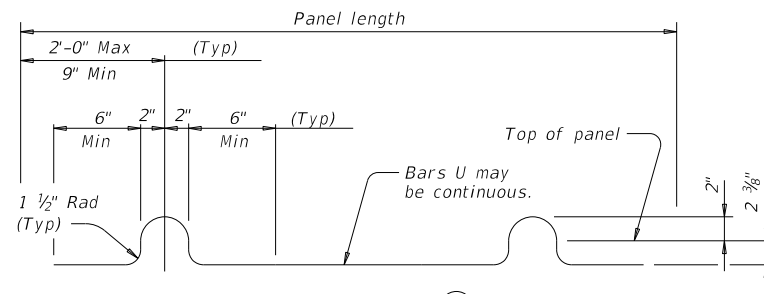


TYPICAL NON-SKEWED PANEL PLAN

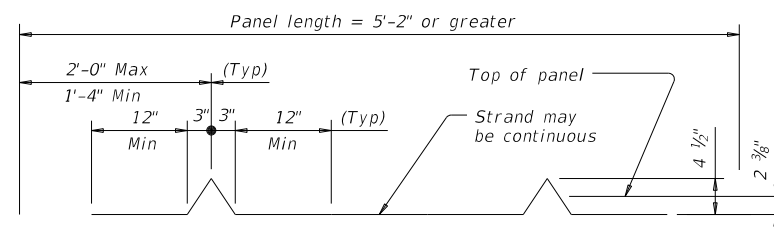


SECTION A-A

(Not showing supplemental #4 bars for skewed end panels.)



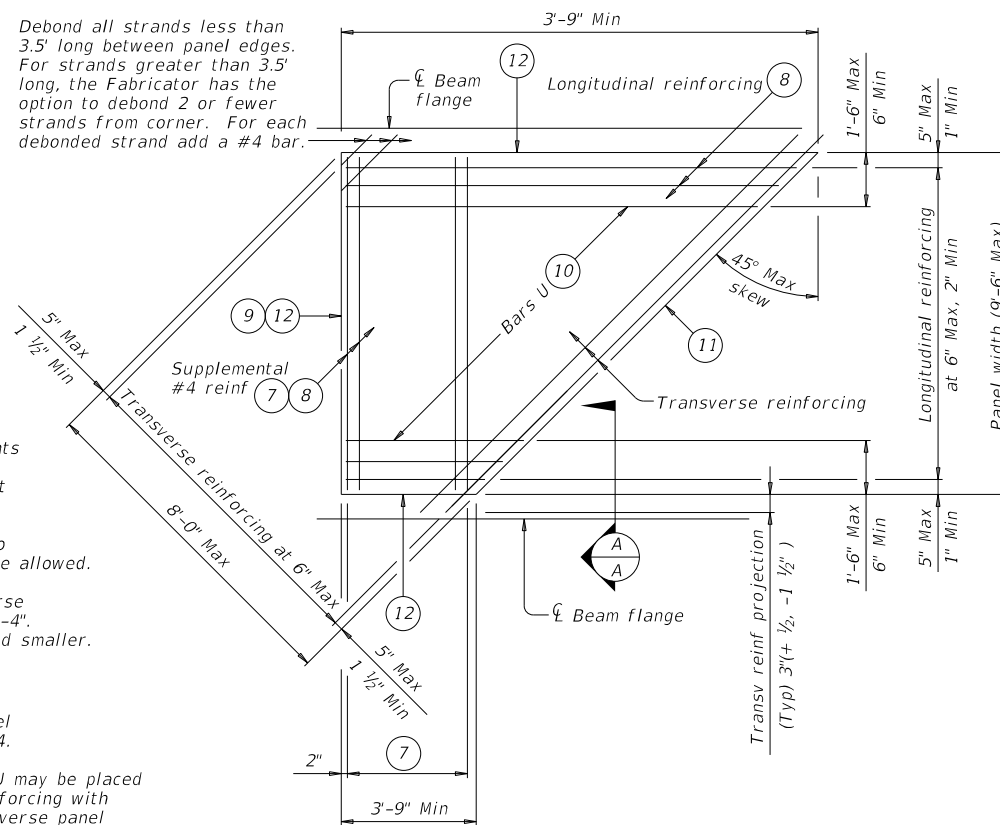
BARS U (#3) ②



OPTIONAL STRAND FOR BARS U ③

- ① At connection with cast-in-place slab, extend longitudinal panel reinforcement 1'-0" (+2", -0") past panel end. Alternatively, provide (#3) x 2'-0" dowels at 6" Max Spacing and extend dowels 1'-0" past panel end.
- ② Four loops required per panel.
- ③ Four loops required per panel. 3/8" or 1/2" strands may be used.
- ④ Normal dimensions must be used on spans with parallel beams. Maximum and Minimum dimensions apply only to spans with flared beams.
- ⑤ See Normal Grading Detail on PCP standard for lap requirements and bedding strip dimensions. Some laps shown in tables cannot utilize all bedding strip widths.
- ⑥ One Splice allowed per panel. No more than two sheets of WWR are allowed.
- ⑦ Provide (#4) bars under transverse reinforcing, 10 Spaces at 4" = 3'-4". Omit for 5 degree (1:12) skew and smaller.
- ⑧ End Cover 2 1/2" Max, 1" Min.
- ⑨ Recess strands on indicated panel edge in accordance with Item 424.
- ⑩ At the fabricator's option, Bars U may be placed parallel to transverse panel reinforcing with horizontal legs in plane of transverse panel reinforcing.
- ⑪ Use length of indicated panel edge as panel width for purpose of determining type of transverse reinforcing.
- ⑫ Timber form work permissible this edge.

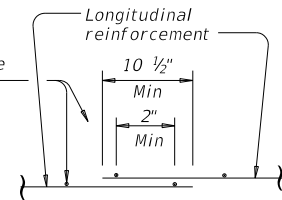
Debond all strands less than 3.5' long between panel edges. For strands greater than 3.5' long, the Fabricator has the option to debond 2 or fewer strands from corner. For each debonded strand add a #4 bar.



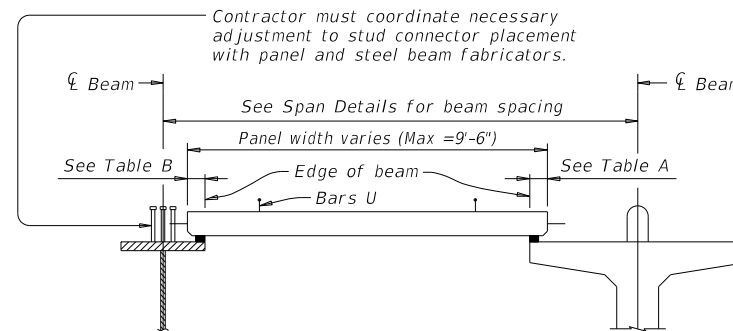
TYPICAL SKEWED END PANEL PLAN

(Only to be used with details shown elsewhere in the plans.)

No splice required for wires parallel to strands (transverse panel reinforcement)

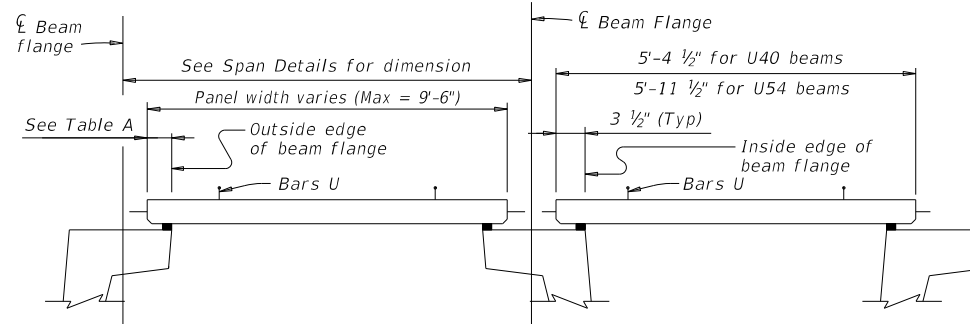


WELDED WIRE REINFORCEMENT (WWR) SPLICE DETAIL ⑥



STEEL BEAMS

PRESTRESSED CONCRETE BEAMS OR GIRDERS
 Typ unless noted otherwise



PRESTRESSED CONCRETE U-BEAMS

TYPICAL SECTIONS FOR DETERMINING PANEL WIDTH

TABLE A ④ ⑤			
Beam Type	Normal (In.)	Min (In.)	Max (In.)
A	3	2 1/2	3 1/2
B	3	2 1/2	3 1/2
C	4	3	4 1/2
IV	6	4	7 1/2
VI	6 1/2	4 1/2	8 1/2
U40 - 54	5 1/2	5 1/2	7
Tx28-70	6	5	7 1/2
XB20 - 40	4	3	4 1/2
XSB12 - 15	4	3	4 1/2

TABLE B ④ ⑤			
Top Flange Width	Normal (In.)	Min (In.)	Max (In.)
11" to 12"	2 3/4	2 1/2	2 3/4
Over 12" to 15"	3 1/4	3	3 1/4
Over 15" to 18"	4	3	4 3/4
Over 18"	5	3 1/2	6 1/4

GENERAL NOTES:

- Provide Class H concrete for panels. Release strength $f'_{ci}=3,500$ psi. Minimum 28 day strength $f'_{c}=5,000$ psi.
- Provide 3/4" chamfer along bottom edge of panel on beam side.
- Do not use epoxy-coated reinforcing steel bar or strand in panels. Remove laitance from top panel surface.
- Finish top of panel to a roughness between a No. 6 and No. 9 concrete surface profile, inclusive, as specified by the International Concrete Repair Institute (ICRI).
- Shop drawings for the fabrication of panels will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.
- A panel layout which identifies location of each panel must be developed by the Fabricator. Permanently mark each panel in accordance with the panel layout. A copy of the layout is to be provided to the Engineer.

TRANSVERSE PANEL REINFORCEMENT:

- For panel widths over 5', use 3/8" or 1/2" Dia (270k) prestressing strands with a tension of 14.4 kips per strand.
- For panel widths over 3'-6" up to and including 5', use 3/8" or 1/2" Dia (270k) prestressing strands with a tension of 14.4 kip per strand. Optionally, (#4) Grade 60 reinforcing bars may be used in lieu of prestressed strands.
- For panel widths up to 3'-6", use (#4) Grade 60 reinforcing bars (prestressed strands alone are not allowed).
- Place transverse panel reinforcement at panel centroid and space at 6" Max.

LONGITUDINAL PANEL REINFORCEMENT:

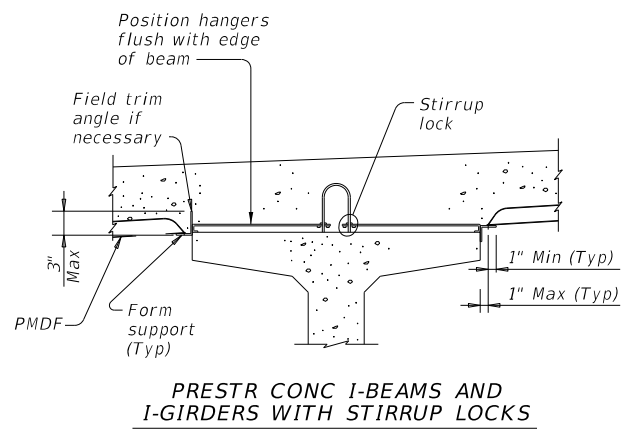
- Any of the following options may be used for longitudinal panel reinforcement:
 1. (#3) Grade 60 reinforcing steel at 6" Max Spacing. No splices allowed.
 2. 3/8" Dia prestressing strands at 4 1/2" Max Spacing (unstressed). No splices allowed.
 3. 1/2" Dia prestressing strands at 6" Max Spacing (unstressed). No splices allowed.
 4. Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) providing 0.22 sq in per foot of panel width. Wires larger than D11 not permitted. Provide transverse wires to ensure proper handling of reinforcing. One splice per panel is allowed. See WWR Splice Detail.
- No combination of longitudinal reinforcement options in a panel is allowed.
- Place longitudinal panel reinforcement above or below transverse panel reinforcement. Must be placed above transverse panel reinforcement for skewed end panels with supplemental (#4) reinforcement.

HL93 LOADING

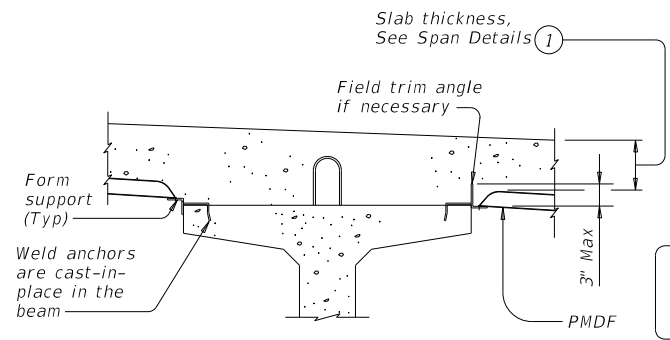
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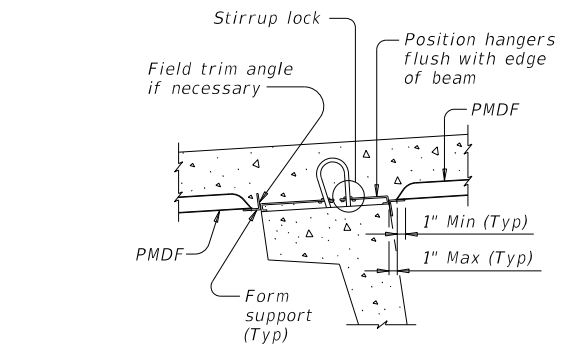
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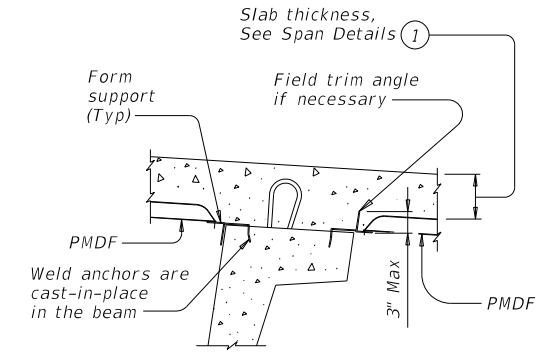
PRESTR CONC I-BEAMS AND I-GIRDERS WITH STIRRUP LOCKS



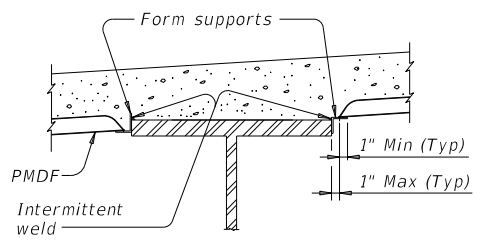
PRESTR CONC I-BEAMS AND I-GIRDERS WITH WELD ANCHORS



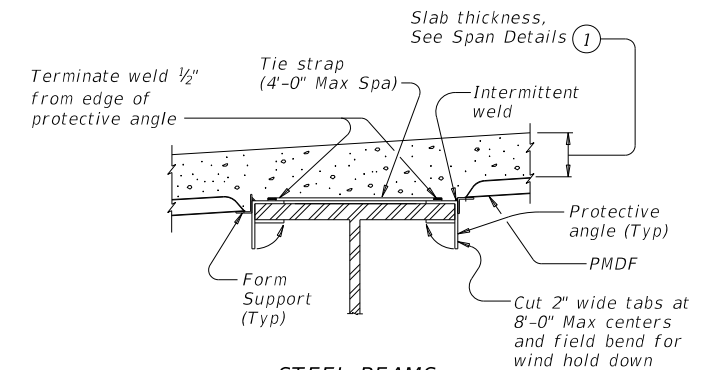
U-BEAMS WITH STIRRUP LOCKS



U-BEAMS WITH WELD ANCHORS

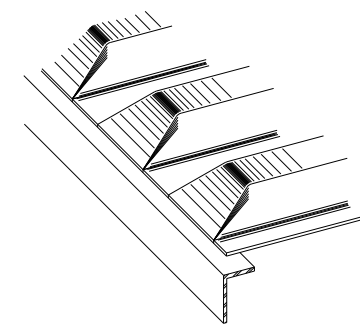


STEEL BEAMS AT COMPRESSION FLANGES

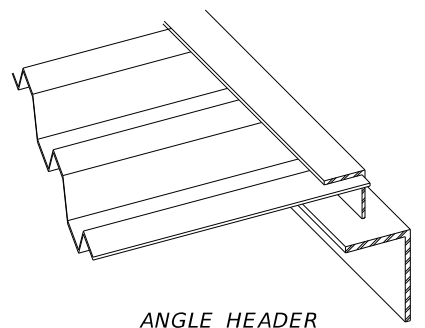


STEEL BEAMS AT TENSION FLANGES

TYPICAL TRANSVERSE SECTIONS



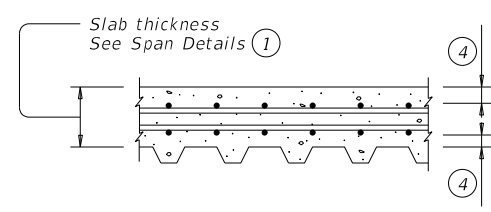
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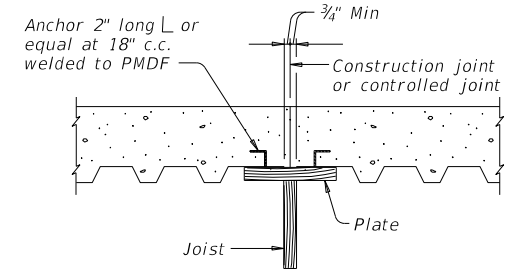
ANGLE HEADER

NOTE: This type is to be used for skewed ends only.

TYPES OF END CLOSURES



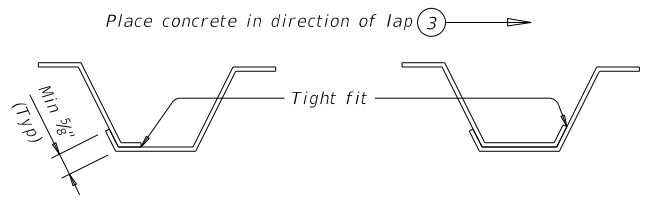
TYP LONGITUDINAL SLAB SECTION



Note: In spans where PMD forms are used, timber forms must be used at construction joints. Adequate provision must be made to support edge of metal form and to provide anchorage of metal form to slab concrete where joined to wood forms.

SECTION THRU CONSTRUCTION JOINT

FOR PRESTR CONC U-BEAM AND STEEL GIRDER BRIDGES:
 Unless shown elsewhere in the plans, size, spacing, and orientation of bottom mat of slab reinforcement must match the top mat of reinforcing shown on the span details except all bottom mat bars are to be #5. Bottom mat reinforcement and additional concrete is subsidiary to Item 422 "Concrete Superstructures."
FOR PRESTR CONC TX-GIRDER BRIDGES:
 See Miscellaneous Slab Details, Prestr Concrete I-Girders (IGMS) standard sheet for bottom mat reinforcing.



SIDE LAP DETAILS

- ① Slab thickness minus 5/8" if corrugations match reinforcing bars.
- ② Welding of form supports to tension flanges will not be permitted. Other methods of providing wind hold down resistance for PMDF in tension flange zones will be considered. At least one layer of sheet metal must be provided between the flange and the weld joint.
- ③ The direction of concrete placement will be such that the upper layer of the form overlap is loaded first.
- ④ See Span details for cover requirements.

GENERAL NOTES:

Steel for Permanent Metal Deck Forms (PMDF) and support angles shall conform to ASTM A653, structural steel (SS), with coating designation G165. Steel must have a minimum yield strength of 33 ksi. Minimum thickness of PMDF is 20 gage and that of support angles and protective angles is 12 gage.
 Submit two copies of forming plans for PMDF to the Engineer. These plans must show all essential details of proposed form sheets, closures, fasteners, supports, connectors, special conditions and size and location of welds. These plans must clearly show areas of tension flanges for steel beams and provisions for protecting the tension flanges from welding notch effects by inclusion of separating sheet metal or other positive method. These plans must be designed, signed, and sealed by a licensed professional engineer. Department approval of these plans is not required, but the Department reserves the right to require modifications to the plans. The Contractor is responsible for the adequacy of these plans. The details and notes shown on this standard are to be used as a guide in preparation of the forming plans.
 All material, labor, tools and incidentals necessary to form a bridge deck with Permanent Metal Deck Forms is considered subsidiary to Item 422, "Concrete Superstructures".

DESIGN NOTES:
 As a minimum, PMDF and support angles must be designed for the dead load of the form, reinforcement and concrete plus 50 psf for construction loads. Flexural stresses due to these design loads must not exceed 75 percent of the yield strength of the steel. Allowable stress for weld metal must be 12,400 psi.
 Maximum deflection under the weight of forms, reinforcement and concrete or 120 psf, whichever is greater, shall not exceed the following:

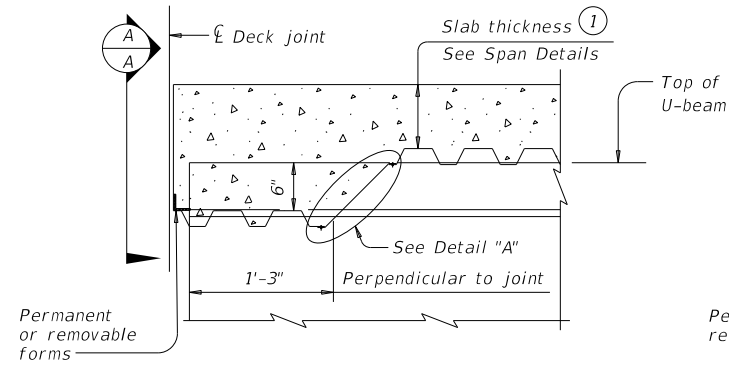
- 1/180 of the form design span, but not more than 0.50", for design spans of 10' or less.
 - 1/240 of the form design span, but not more than 0.75", for design spans greater than 10'.
- The form design span must not be less than the clear distance between beam flanges, measured parallel to the form flutes, minus 2".

CONSTRUCTION NOTES:
 Form sheets must not be permitted to rest directly on the top of beam flanges. Form sheets must be securely fastened to form supports and must have a minimum bearing length of one inch at each end. Form supports must be placed in direct contact with beam flanges.
 All attachments must be made by permissible welds, screws, bolts, clips or other means shown on the forming plans. All sheet metal assembly screws must be installed with torque-limiting devices to prevent stripping. Only welds or bolts must be used to support vertical loads.
 Welding and welds must be in accordance with the provisions of Item 448, "Structural Field Welding", pertaining to fillet welds. All welds must be made by a qualified welder in accordance with Item 448.
 All permanently exposed form metal, where the galvanized coating has been damaged, must be thoroughly cleaned and repaired in accordance with Item 445, "Galvanizing". Minor heat discoloration in areas of welds need not be touched up.
 Flutes must line up uniformly across the entire width of the structure where main reinforcing steel is located in the flute.
 Construction joints will not be permitted unless shown on the plans. The location of and forming details for any construction joint used must be shown on the forming plans. Forms below a construction joint must be removed after curing of the slab.
 A sequence for uniform vibration of concrete must be approved by the Engineer prior to concrete placement. Attention must be given to prevent damage to the forms, yet provide proper vibration to prevent voids or honeycomb in the flutes and at headers and/or construction joints.

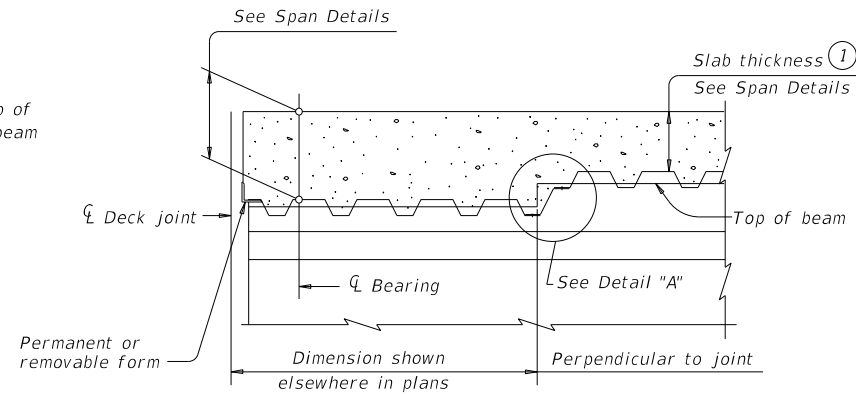
		Bridge Division Standard	
PERMANENT METAL DECK FORMS			
PMDF			
FILE: pmdfste1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
©TxDOT April 2019	CONV	SECT	JOB
REVISIONS	0910	07	072
02-20: Modified box note by adding steel beams/girders and subsidiary.	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	243

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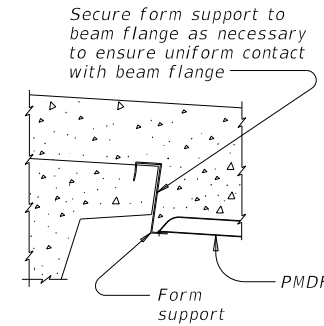
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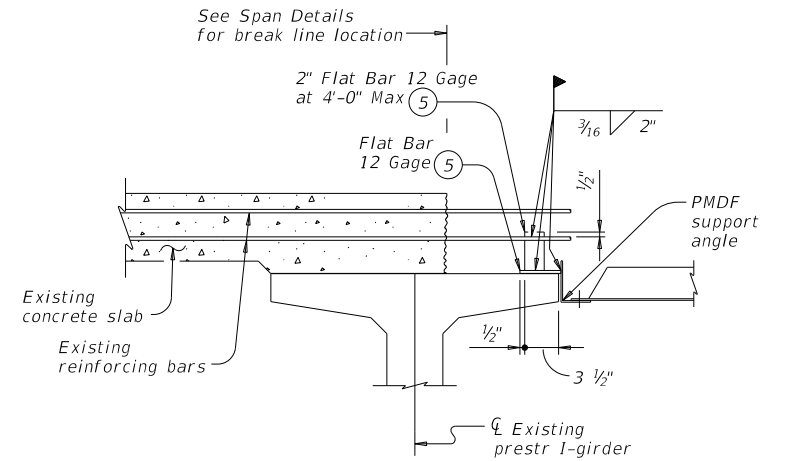
AT THICKENED SLAB END FOR U-BEAMS



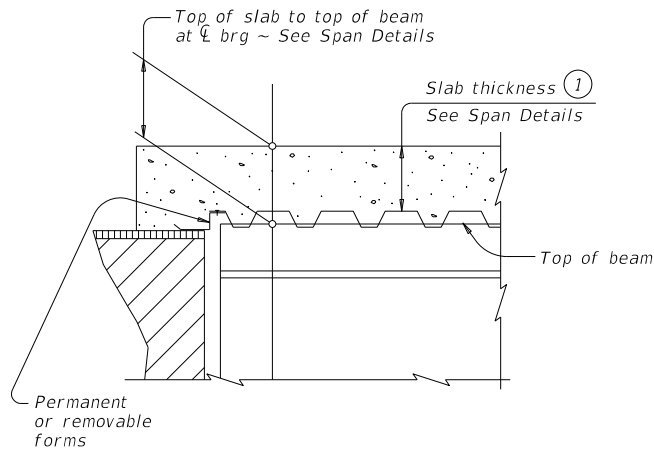
AT THICKENED SLAB END FOR PRESTRESSED I-BEAMS, I-GIRDERS AND STEEL BEAMS
Showing I-beam block-out. No block-out for I-girders or steel beams.



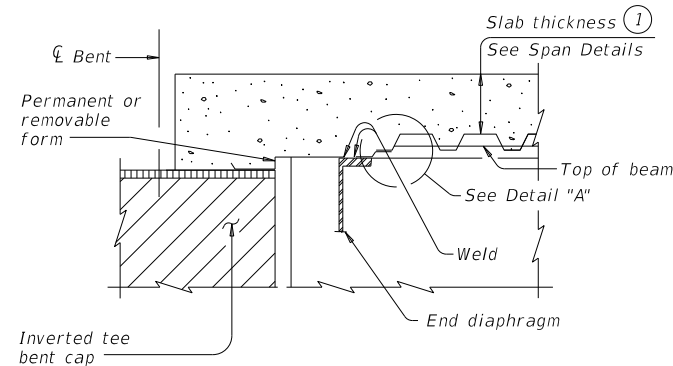
SECTION A-A



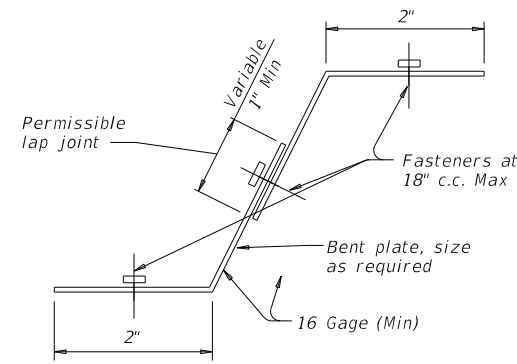
SHOWING PRESTRESSED CONCRETE I-BEAMS, I-GIRDERS AND U-BEAMS



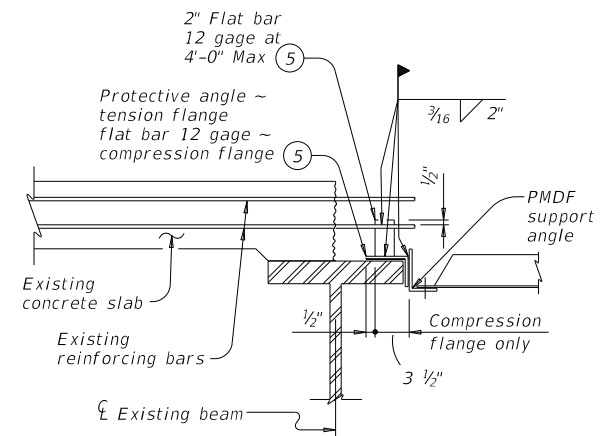
AT SLAB OVER ABUT BKWL OR INV TEE STEM FOR CONC BEAMS WITHOUT THICKENED SLAB END



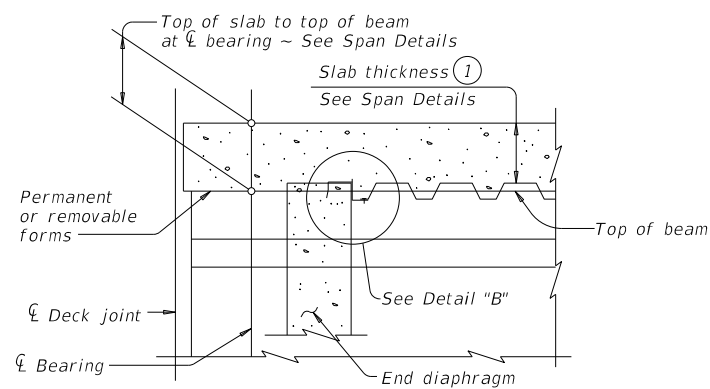
AT SLAB OVER INV TEE STEM FOR STEEL BEAMS WITHOUT THICKENED SLAB END



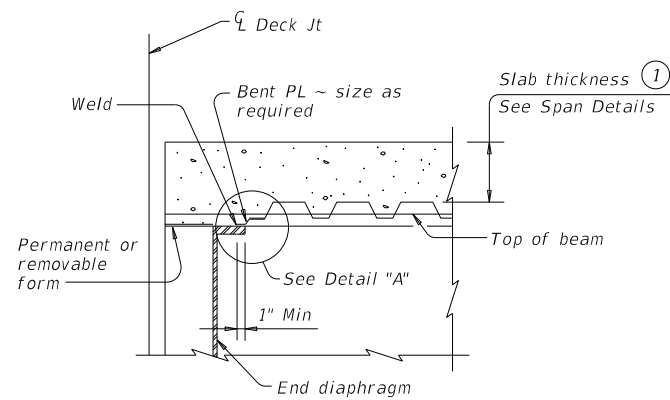
DETAIL "A"



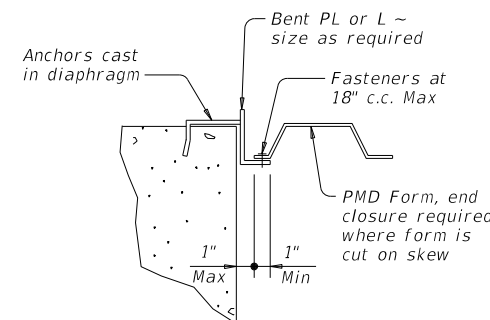
SHOWING STEEL BEAMS



AT CONC END DIAPHRAGM FOR PRESTRESSED I-BEAMS AND STEEL BEAMS



AT END DIAPHRAGM FOR STEEL BEAMS WITHOUT THICKENED SLAB END



DETAIL "B"

WIDENING DETAILS

DETAILS AT ENDS OF BEAMS

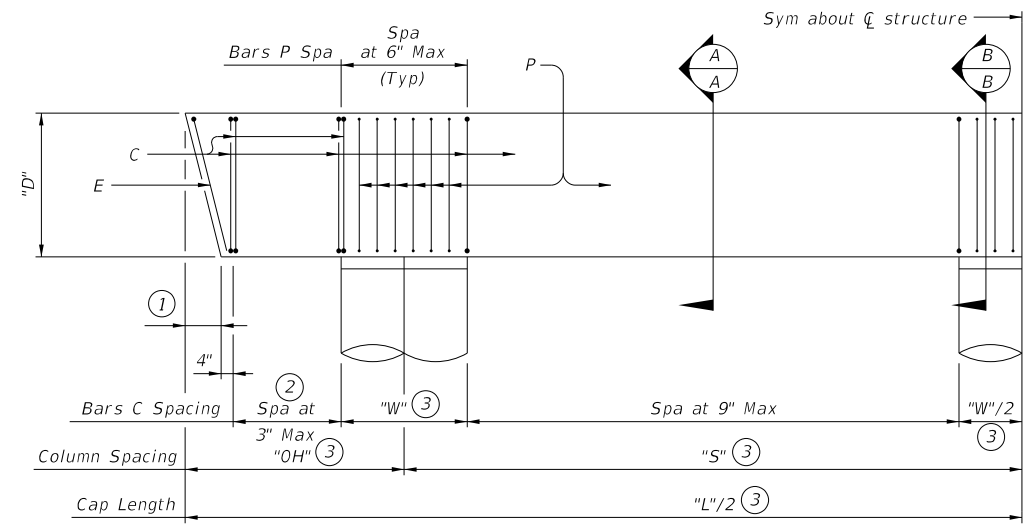
- (1) Slab thickness minus 3/8" if corrugations match reinforcing bars
- (5) Minimum yield stress of 12 gage bars shall be 40 ksi

SHEET 2 OF 2

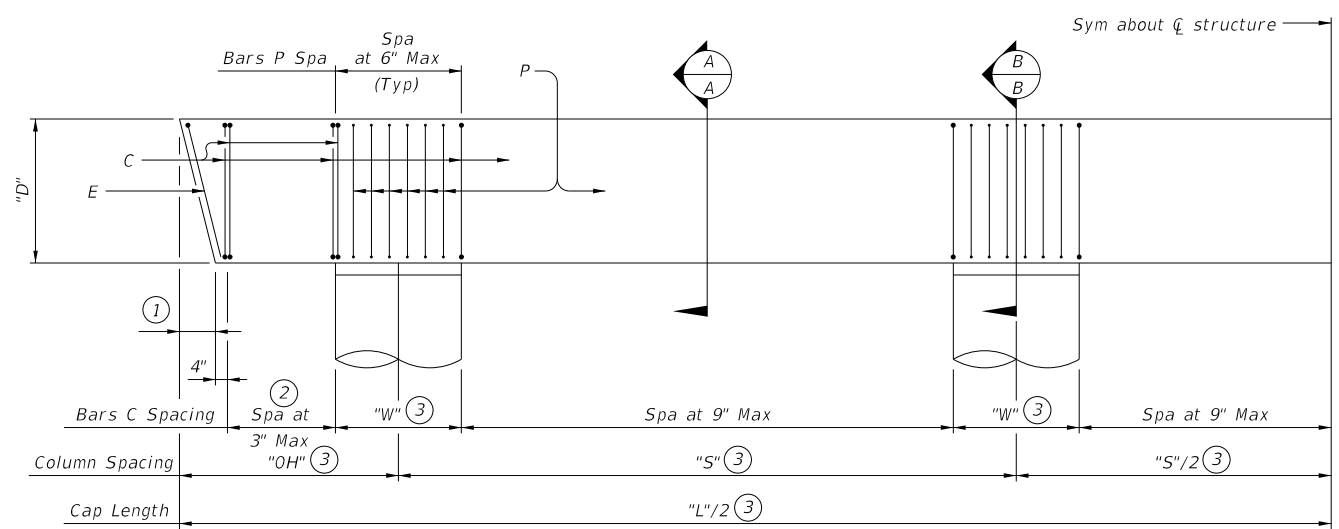
		Bridge Division Standard	
PERMANENT METAL DECK FORMS			
PMDF			
FILE: pmdfstel1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
©TxDOT April 2019	CONTRACT	SECTION	JOB
REVISIONS	0910	07	072
02-20: Modified box note by adding steel beams/girders and subsidiary.	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	244

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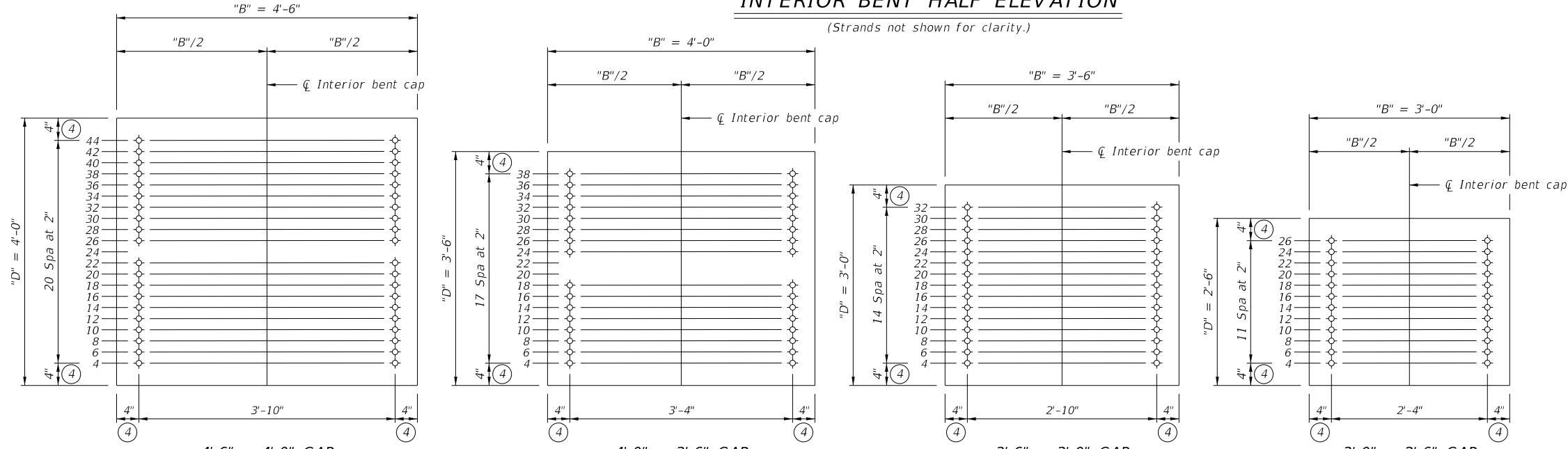
SHOWING 3 COLUMN BENT



SHOWING 4 COLUMN BENT

INTERIOR BENT HALF ELEVATION

(Strands not shown for clarity.)

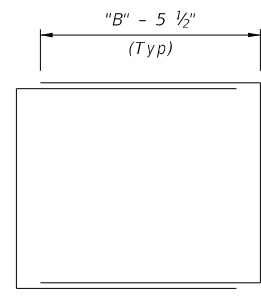


INTERIOR BENT CAP SECTIONS

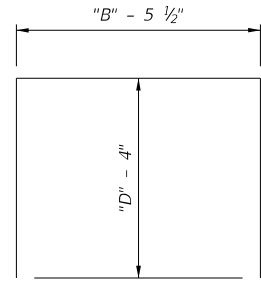
(Showing strands only.)

TABLE OF CAP DESIGNS

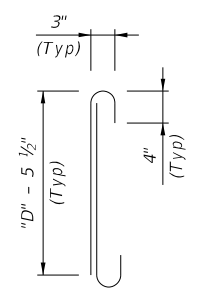
SUPERSTRUCTURE TYPE	CAP DIMENSIONS			CONCRETE		PRESTRESSING STRANDS				REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (ft-kips)
	CAP WIDTH "B" (ft-in)	CAP DEPTH "D" (ft-in)	CORRUGATED PIPE INSIDE DIAMETER (ft-in)	RELEASE STRENGTH f'_{ci} (ksi)	MINIMUM 28 DAY COMP STRENGTH f'_c (ksi)	LAYERS OF PS STRANDS	TOTAL NO. PS STRANDS	SIZE (in)	STRENGTH (ksi)	
Slab Beams	3'-0"	2'-6"	1'-6"	4.0	5.0	12	24	0.6	270	1,201
Decked Slab Beams	3'-6"	3'-0"	2'-0"	4.0	5.0	15	30	0.6	270	1,886
Box Beams	3'-6"	3'-0"	2'-0"	4.0	5.0	15	30	0.6	270	1,886
X-Beams	4'-0"	3'-6"	2'-6"	5.2	6.5	16	32	0.6	270	2,671
I-Girders (Tx28-Tx54)	4'-0"	3'-6"	2'-6"	4.0	5.0	16	32	0.6	270	2,484
I-Girders (Tx62)	4'-6"	4'-0"	3'-0"	4.0	5.0	20	40	0.6	270	3,634



BARS C (#5)
Showing one complete bar.

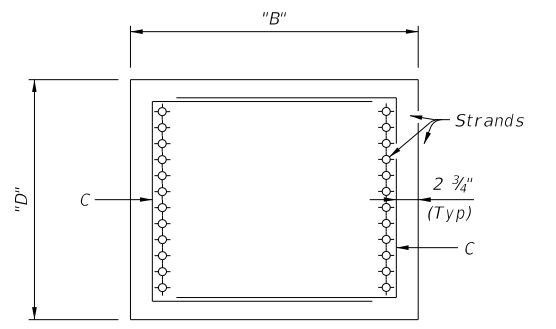


BARS E (#5)

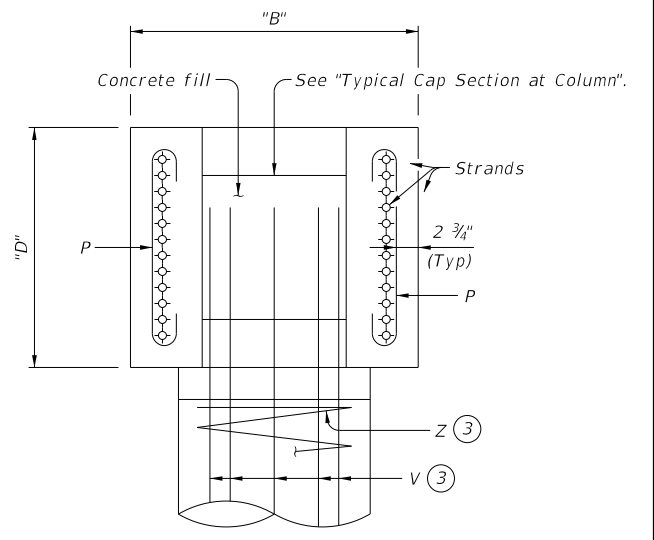


BARS P (#3)
Showing one complete bar.

- ① Variable. See Interior Bents sheet for dimension. When dimension is 0', omit Bars E and reduce end cover to Bars C to 3". Measured parallel to top of cap cross-slope.
- ② Double Bars C. (Typ)
- ③ See Interior Bents sheet for details not shown.
- ④ Dimensioned to center of strand.



SECTION A-A



SECTION B-B

HL93 LOADING SHEET 1 OF 2



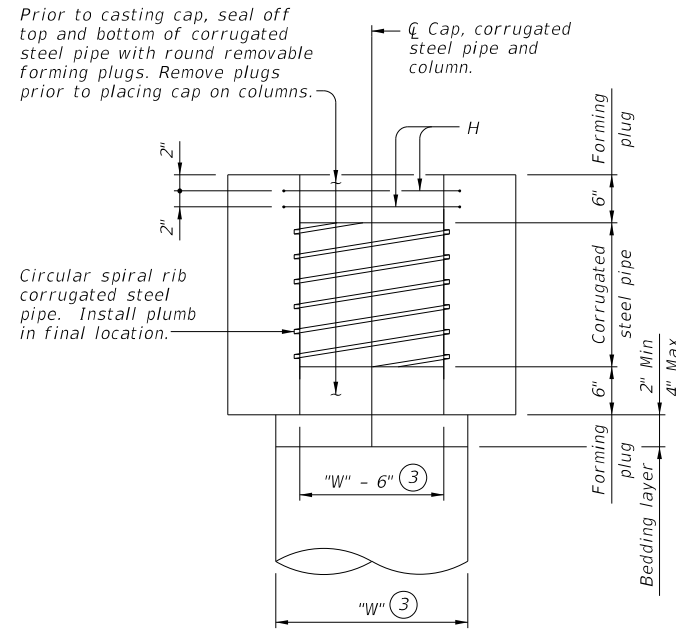
PRESTRESSED, PRECAST BENT CAP OPTION FOR ROUND COLUMNS

PPBC-RC

FILE: ppbcstd1-19.dgn	DN: CPM	CK: AJF	DW: JTR	CK: CPM
©TxDOT April 2019	CONTRACT	SECTION	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	245	

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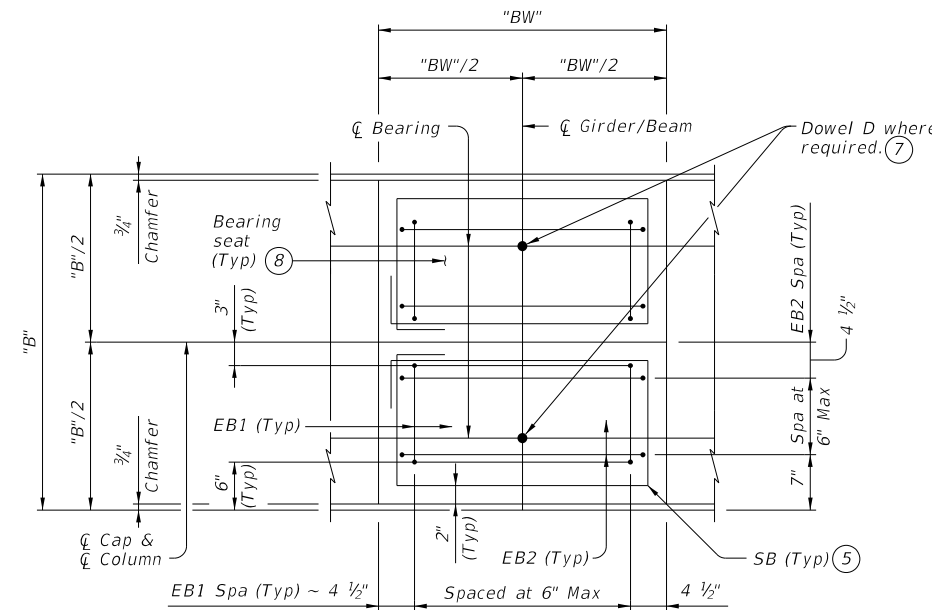
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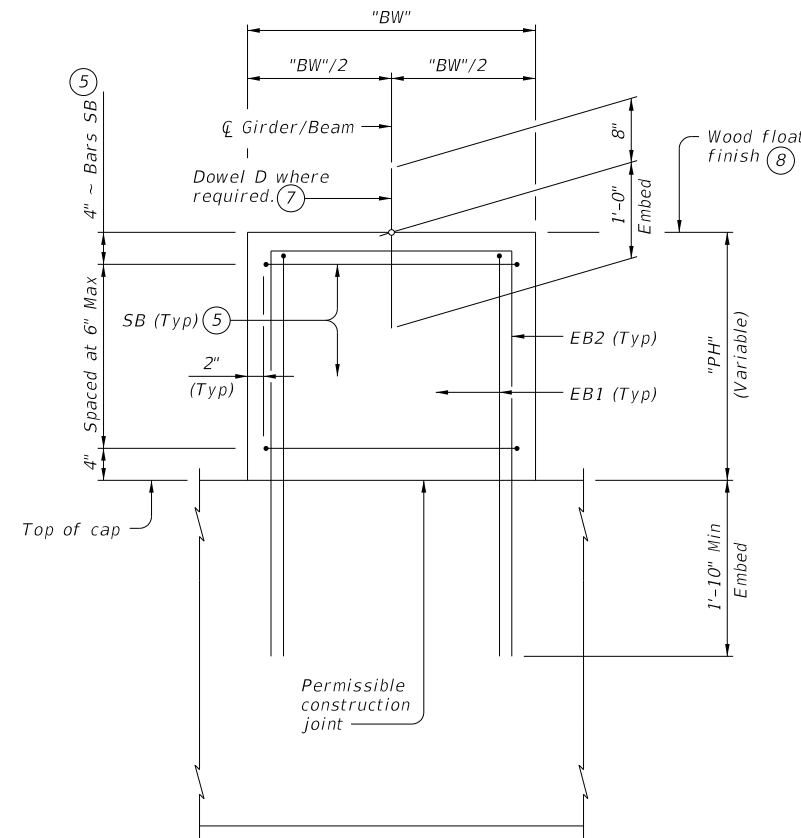
TYPICAL CAP SECTION AT COLUMN

Showing example of cap and corrugated steel pipe at column. Cap and column reinforcing not shown for clarity.

SUPERSTRUCTURE TYPE	BEARING DIMENSIONS "BW" (ft-in)
X-Beams	6'-0"
I-Girders (Tx28-Tx54)	3'-0"
I-Girders (Tx62)	3'-0"



PLAN

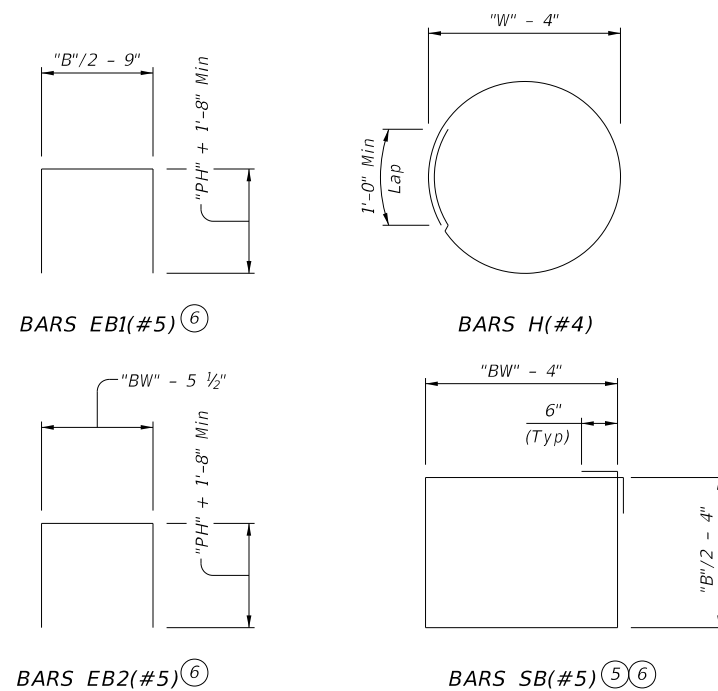


ELEVATION

PEDESTAL DETAILS

Clean bearing surface and all loose material before placing bearing pad. Reinforce bearing seats/pedestals over 3" in height as shown.

- ③ See Interior Bents sheet for details not shown.
- ⑤ Omit bars SB for pedestal heights ("PH") under 1'-0".
- ⑥ Shown for structures without skew. Details are for "PH" heights greater than 3" and less than 18". Details are shown for standard X-Beams and I-Girders. Submit details as part of the shop drawing submittal for skewed structures and for pedestals greater than 18" in height.
- ⑦ See Interior Bents sheet for placement of dowels. Place dowels plumb.
- ⑧ See Interior Bents sheet, Bearing Seat Detail for slope.



CONSTRUCTION NOTES:

Cap Fabrication:
 Fabricate in accordance with Item 425, "Precast Prestressed Concrete Structural Members". Secure corrugated metal pipes to prevent their movement during concrete placement. Location tolerance of pipes is 1/4" from plan location, transversely and longitudinally. Seal pipes to prevent intrusion of concrete.
 Chamfer or round all exposed corners 3/4".
 Repair cracks exceeding 0.005 in. in width as directed. The fabricator must take approved corrective actions if cracks greater than 0.005 in. form. All work, material, and engineering related to these cracks will be at the Contractor's expense.
 Caps can be set level or at grade. If required or needed, build bearing seats/pedestals to achieve final grade. Bearing seats/pedestals may be precast with the initial cast. Bearing seats/pedestals that conflict with column locations may not be precast with cap. Do not locate lift points at bearing seats/pedestals if bearing seats/pedestals are precast. If bearing seats/pedestals are not precast, cast in accordance with Item 420.4.9, "Treatment and Finishing of Horizontal Surfaces". Do not slope the top of caps between bearing areas from the center slightly towards the edge. If pedestals are not precast, drill and epoxy anchor bars EB1 and EB2 into top of cap in accordance with Item 420.7.10, "Installation of Dowels and Anchor Bolts".
 If earwalls are required, see Interior Bents sheet for details.
 If shear keys are required elsewhere in plans, submit details. Shear keys may not be precast. Drill and epoxy shear key anchor reinforcement into top of cap in accordance with Item 420.4.7.10 "Installation of Dowels and Anchor Bolts".
 Limit flexural stress in cap to 250 psi during handling and storage. Store and handle caps in accordance with Item 425, "Precast Prestressed Concrete Structural Members". Do not stack caps.

Cap-to-Column Connection:

Construct a mock-up of the column-to-cap connection that must demonstrate the ability of the Contractor to provide a connection free of voids. In the presence of the Engineer, use trial batch of concrete fill using the same material, equipment, and personnel to be used for actual concrete operations and fill the mock-up at least one week before casting concrete. Field test the trial batch of concrete fill to the same levels required for the actual concrete fill depth.
 Caps may be placed on columns/drilled shafts after column/drilled shaft concrete has achieved a flexural stress of 355 psi (or 2,500 psi compressive strength). Use plastic shims or friction collars to support the cap at the proper elevation prior to concrete fill depth. Total area of plastic shims used on top of each column may not exceed 6 percent of the column area. Column/drilled shaft curing may be interrupted a maximum of 2 hours for placement of plastic shims or friction collars and cap placement.
 Provide mortar tight forms. Ensure the top of the column is in a saturated surface dry (SSD) condition just before placing concrete fill. Deposit concrete such that all voids in the bedding layer and bent cap are completely filled. Deposit concrete through the top opening of the cap pocket in a manner that deposits concrete from the bedding layer on the bottom of the connection upward. Vibrate concrete in the pocket in accordance with Item 420.4.7.9, "Consolidation". Trowel finish top surface of cap pockets flush with top of cap. Wet mat cure these locations for at least 48 hours. Recess lifting loops 1-inch minimum using exothermic cutting rods. Do not overheat or damage the surrounding concrete. Abrade the concrete surfaces of excavation and end of the lifting loop to remove all slag with a needle gun, steel brush, or other suitable means. Coat the inside of the recessed area, including the lifting loops, with 10 mils (minimum) of neat, Type VIII epoxy and patch the recess with epoxy mortar.

MATERIAL NOTES:

Provide 12 gage, Type 1, lock-seam, helical corrugated pipe conforming to Item 460, "Corrugated Metal Pipe".
 Provide Grade 60 reinforcing steel. Do not epoxy coat reinforcement even if column reinforcement is epoxy coated.
 Provide Class "H" (HPC) concrete for cap concrete.
 Provide Class "C" or "S" concrete for cap-to-column connection concrete fill.
 Use low relaxation strands, each pretensioned to 75% of fpu.

GENERAL NOTES:

Designed in accordance with AASHTO LRFD Bridge Design Specifications.
 Prestress loss calculated according to Research Report FHWA/TX-12/0-6374-2 Table 6.6 using a relative humidity of 60 percent.
 The Contractor has the option to provide prestressed, precast bent caps in accordance with the details shown. No additional payment will be made if the Contractor uses prestressed, precast bent caps.
 Submit shop drawings of prestressed, precast bent caps for approval prior to construction. Indicate lifting attachments and locations on the shop drawings.
 Corrugated pipe and concrete fill are subsidiary to Item 425, "Precast Prestressed Concrete Structural Members".
 See standard Interior Bents sheet for details and notes not shown.

These details can only be used as an alternate to standard Interior Bents with round columns for slab beams, decked slab beams, box beams, X-beams, and I-girder standard designed structures.

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

HL93 LOADING SHEET 2 OF 2



PRESTRESSED, PRECAST BENT CAP OPTION FOR ROUND COLUMNS

PPBC-RC

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REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	246	

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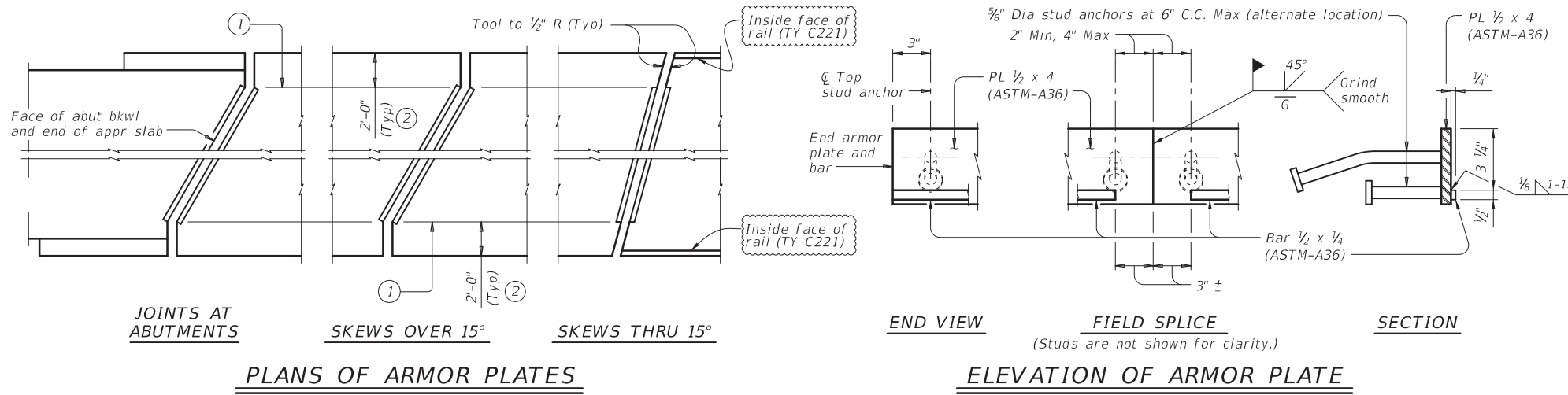


TABLE OF SEALED EXPANSION JOINT INFORMATION			
MANUFACTURER	STEEL SECTION (7)	STRIP SEAL	
		4" JOINT	
		Seal Type	Joint Opening (8)
D.S. Brown	As shown	V-400	2 1/4"
R.J. Watson	As shown	SF-400	2 1/2"
SSI	As shown	SSS-400	2 1/2"
Watson Bowman Acme	As shown	SPS-400	2"

REDUCED LONGITUDINAL MOVEMENT RANGE	
SKEW (deg)	JOINT SIZE
0	4.0"
15	4.0"
30	3.5"
45	2.8"

DESIGN NOTES:

Joints installed on a skew have reduced ability to accommodate longitudinal movement. Use table values to determine the correct joint size for skewed installations. For other skews over 25 degrees, calculate reduced movement range by multiplying joint size by cosine (skew).

FABRICATION NOTES:

Temporarily shop assemble corresponding sections of sealed expansion joints (SEJ), check for fit, and match mark for shipment. Secure corresponding sections together for shipment with shipping angle. Do not use erection bolts.

The seal must be continuous and included in the price bid for sealed expansion joint.

Ship steel sections in convenient lengths of 10'-0" Min and 24'-0" Max unless necessary for staged construction or widenings. One shop splice is permitted in each shipping length provided no piece is less than 2'-0" long and sufficient studs are added to limit the stud to shop splice distance to 2" Min and 4" Max.

Weld studs in accordance with AWS D1.1.

Butt weld all shop and field splices and grind smooth areas in contact with seal. Make all necessary field splice joint preparations in the shop.

Paint the entire steel section with System II or IV primer in accordance with Item 446, "Feild Cleaning and Painting Steel." Provide paints in accordance with Item 446.2. Prepare steel and apply paint in accordance with Item 446.4.7.3 and 446.4.7.4.

Shop drawings for the fabrication of sealed expansion joints will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

CONSTRUCTION NOTES:

Secure the sealed expansion joint in position and place to the proper grade and alignment by welding braces to adjacent reinforcing steel, to prestressed beam stirrups, or to anchors cast in concrete diaphragms. Include cost of temporary bracing in the price bid for sealed expansion joint.

Remove shipping angle immediately after each joint half is secured in place. Grind smooth, and touch up with organic zinc-rich paint.

Clean and prepare seal cavity for seal installation as per the Manufacturer's installation procedures.

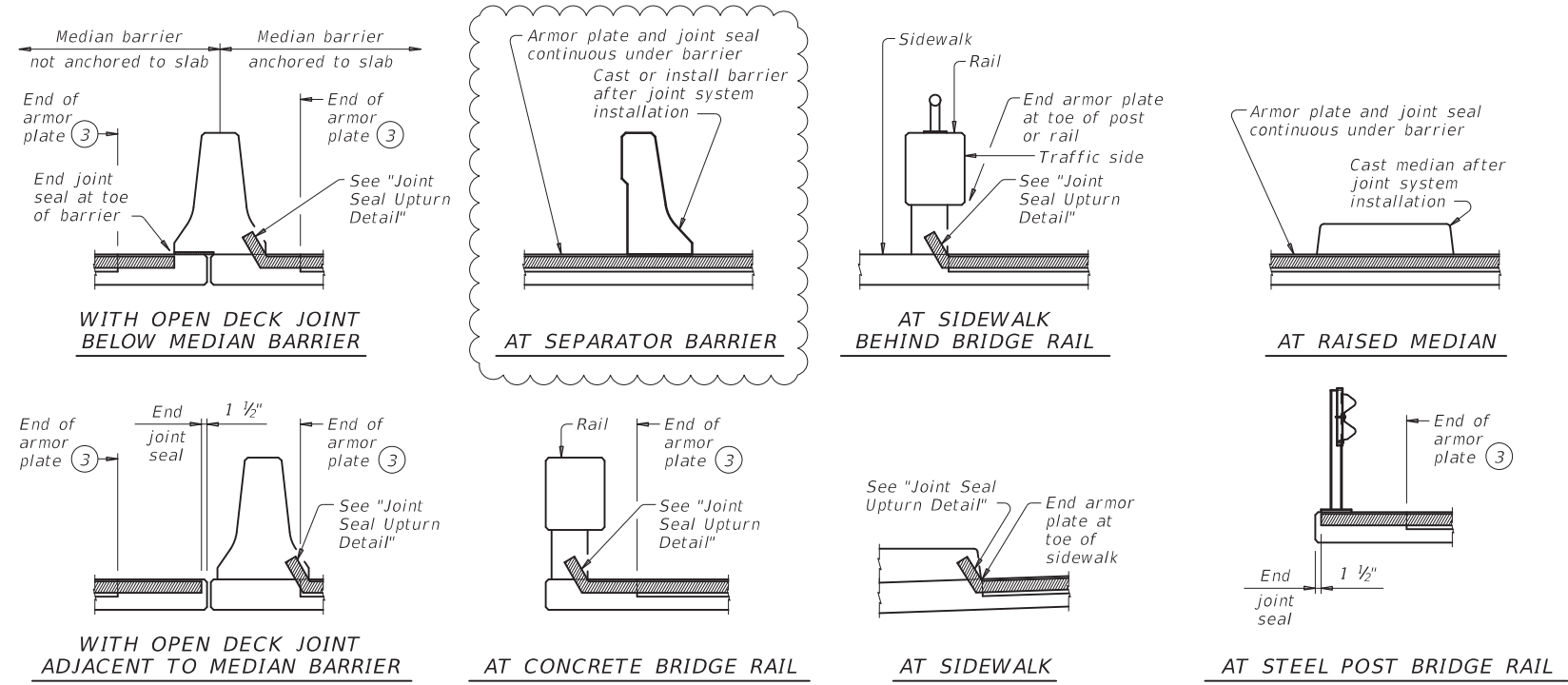
Splice and install seal in accordance with the Manufacturer's directions and with the adhesive provided by the Manufacturer.

Splice in joint seal may be performed in the field.

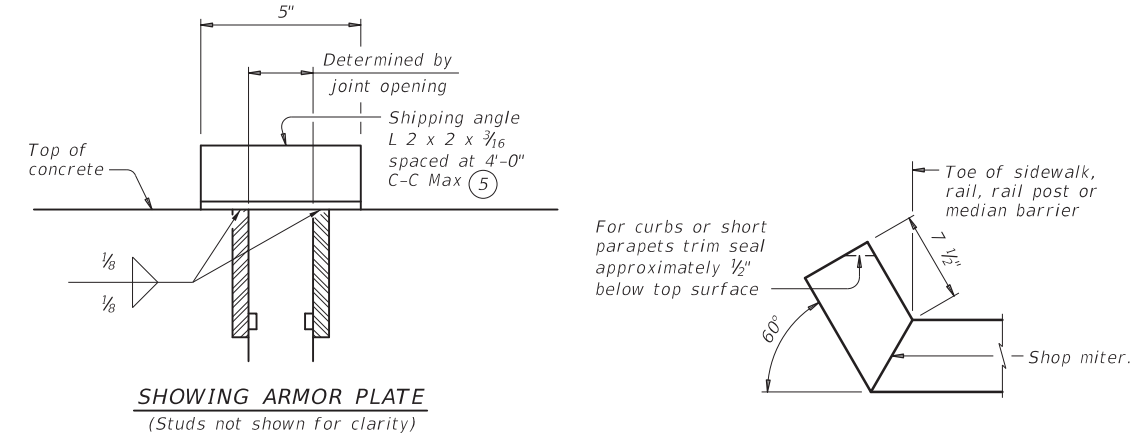
GENERAL NOTES:

Provide sealed expansion joints in the size and at locations shown on the plans.

Minimum slab and overhang thickness required for the use of SEJ-B is 6 1/2".



- At Fabricator's option, armor plate may extend up to 6" beyond this point for skews through 15°.
- Unless shown otherwise, terminate armor plate at slab break point if break is more than 2'-0" from slab edge.
- See "Plans of Armor Plates".
- Other conditions affecting the joint profile should be noted elsewhere.
- Align shipping angle perpendicular to joint.
- Coat with Manufacturer's supplied epoxy primer above bar before installing sealant.
- Shape of steel section shown is typical. Variations in sections must be approved by the Engineer.
- These openings are also the recommended minimum installation openings.

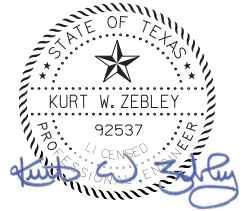
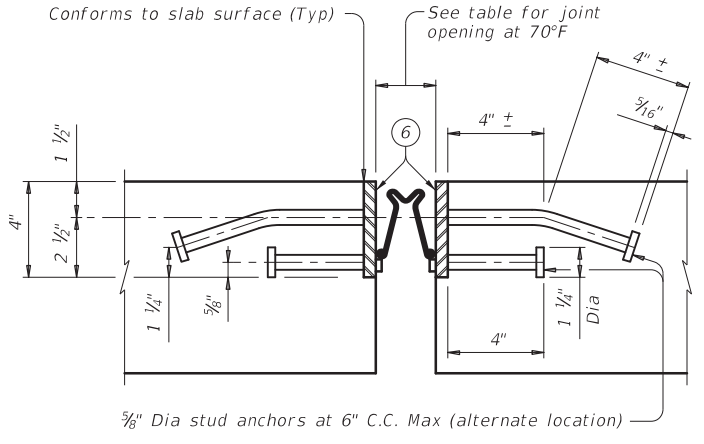


SHIPPING ANGLE

An alternate method of securing joint sections may be used if approved by the Bridge Division. Erection bolts are not allowed.

JOINT SEAL UPTURN DETAIL

Upturn seal only. Terminate armor plates as shown in "Plans of Armor Plates" and "Typical Sections of Armor Plates & Seals."



11/4/2021

Texas Department of Transportation
 Bridge Division Standard

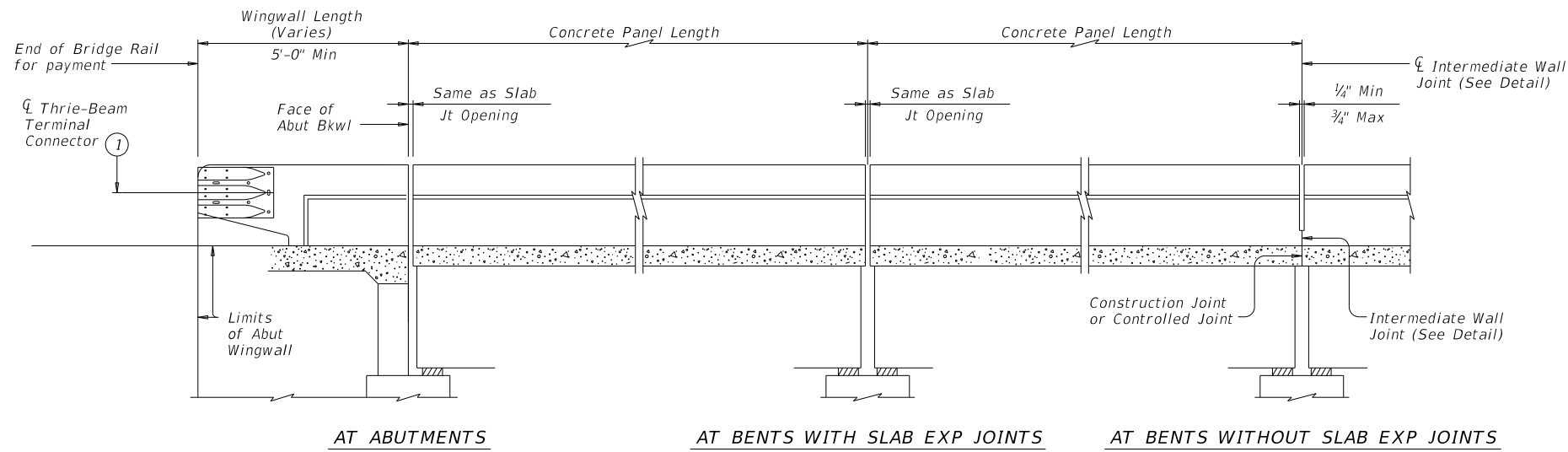
SEALED EXPANSION JOINT TYPE B WITHOUT OVERLAY

SEJ-B(MOD)

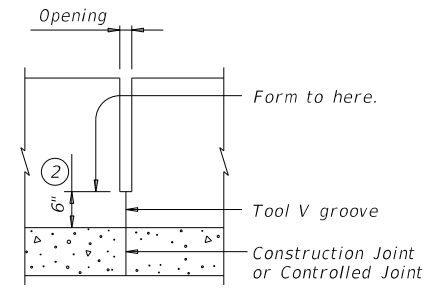
FILE: sejbste1-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
©TxDOT April 2019	CONV	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
11-2021 Updated Call Out and detail	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	247	

DISCLAIMER:
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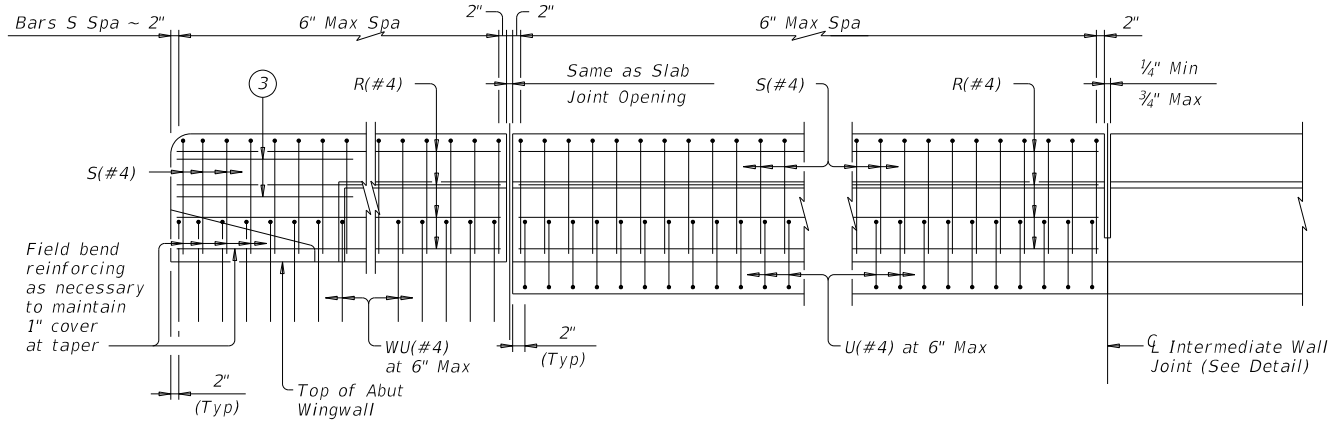
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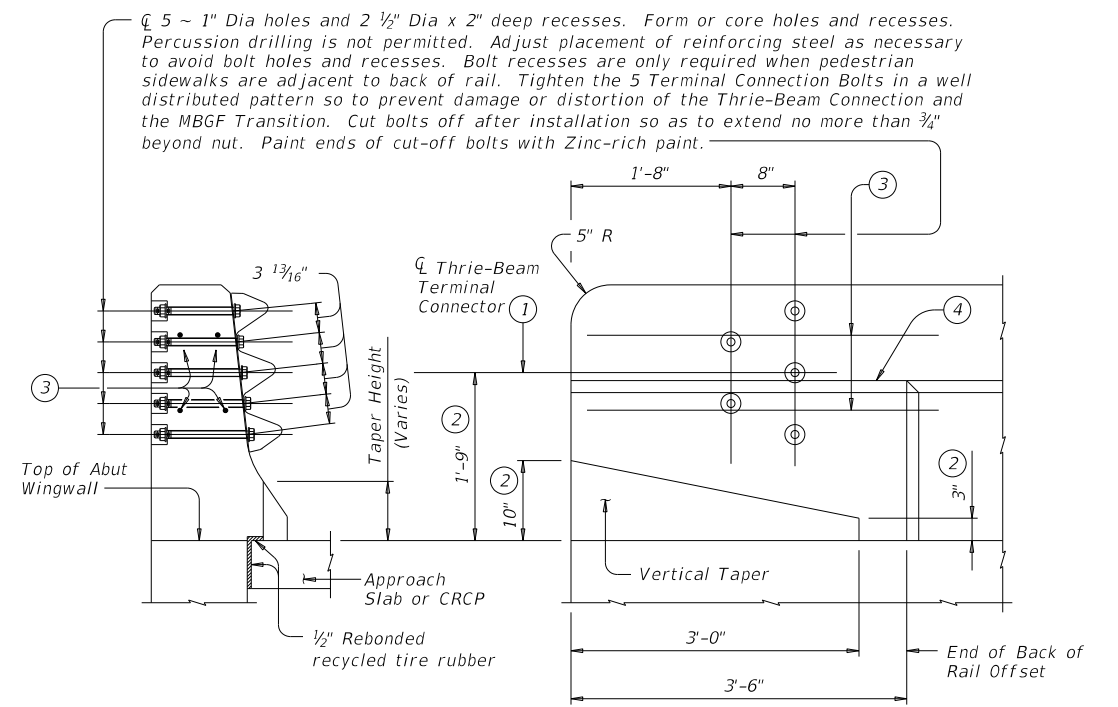
ROADWAY ELEVATION OF RAIL



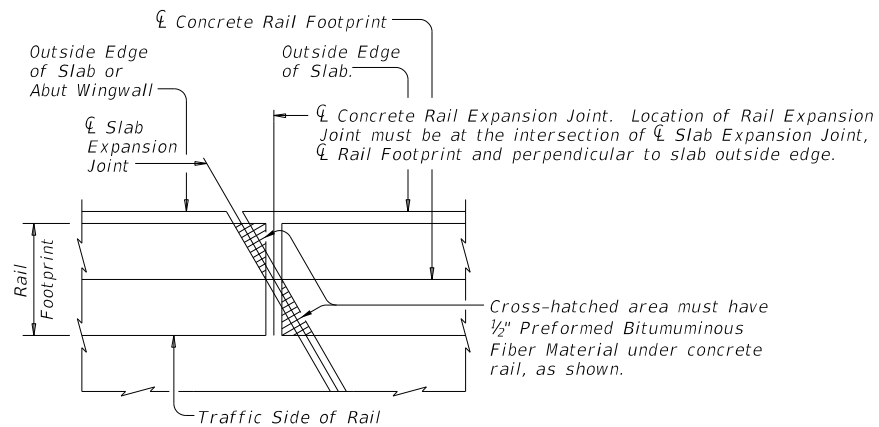
INTERMEDIATE WALL JOINT DETAIL
Provide at all interior bents without slab expansion joints.



ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT



SECTION
ELEVATION
TERMINAL CONNECTION DETAILS



PLAN OF RAIL AT EXPANSION JOINTS
Example showing Slab Expansion Joints without breakbacks.

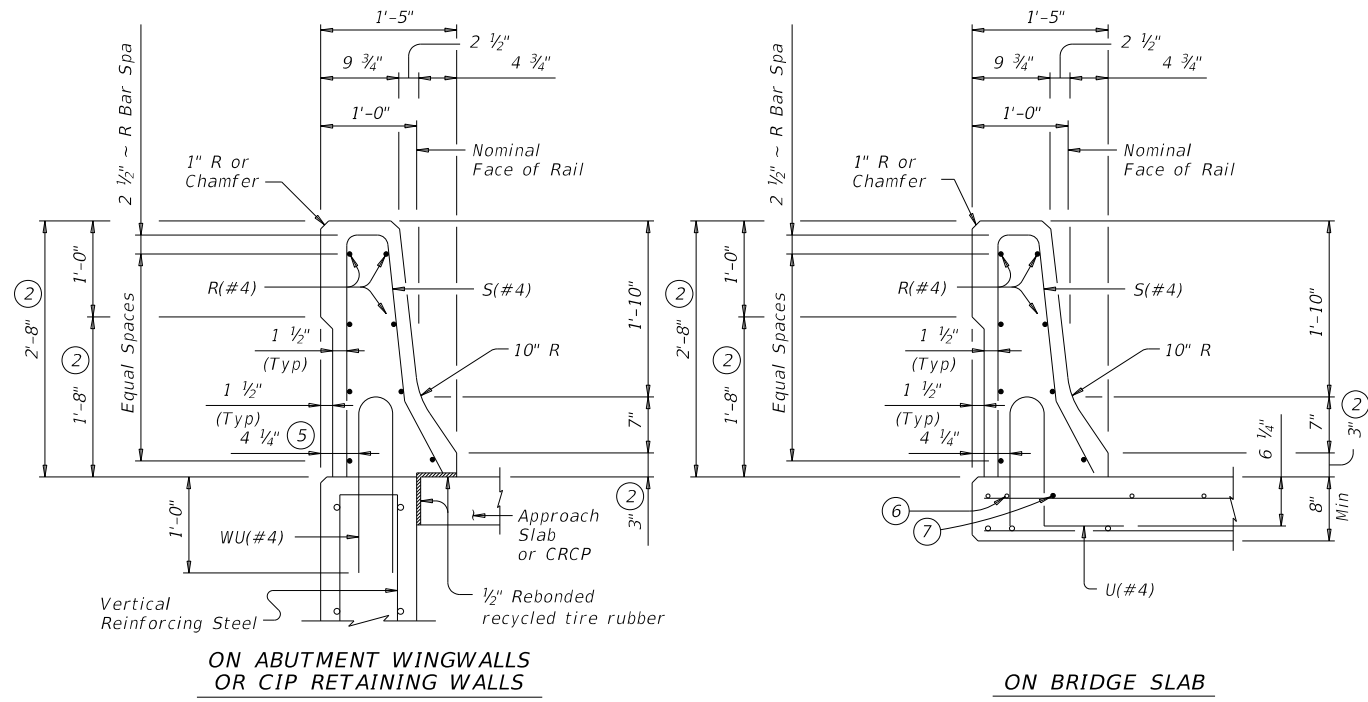
- 1 Terminal Connectors and associated hardware are to be paid for under the Item "Metal Beam Guard Fence". Attach Metal Beam Guard Fence Transitions to the bridge rail and extend along the embankment unless otherwise shown in the plans.
- 2 Increase 2" for structures with overlay.
- 3 Place 4 additional Bars R(#4) 3'-8" in length inside Bars S(#4) and centered 2'-0" from end of rail when Terminal Connections are required.
- 4 Back of rail offset may, with Engineer's approval, be continued to the end of the railing.

SHEET 1 OF 2

		Bridge Division Standard	
<h2>TRAFFIC RAIL</h2>			
<h3>TYPE T551</h3>			
FILE: r1std009-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR
©TxDOT September 2019	CONT	SECT	JOB
REVISIONS	0910	07	072
	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	248

DISCLAIMER:
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DATE: 7/22/2021
FILE: \\jmt-pw-bent\ey.com:jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\7. Bridge\TxDOT_Standards\1std009-19.dgn



SECTION THRU RAIL

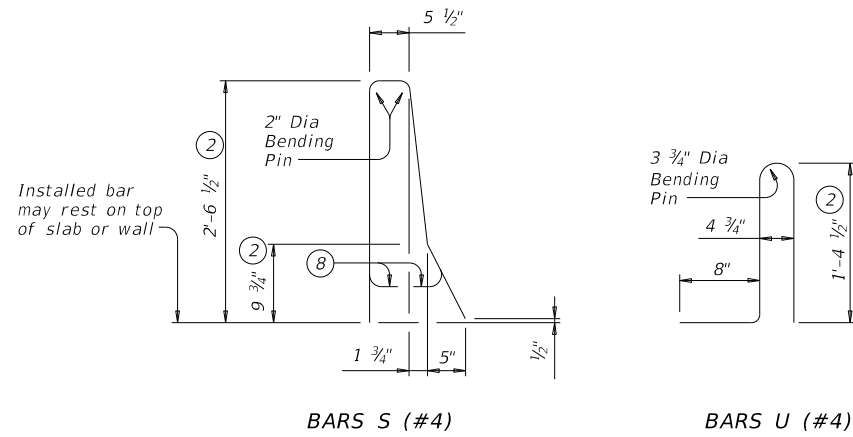
- ② Increase 2" for structures with overlay.
- ⑤ 5 1/4" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.
- ⑥ As an aid in supporting reinforcement, additional longitudinal bars may be used in the slab with the approval of the Engineer. Such bars will be furnished at the Contractor's expense.
- ⑦ Top longitudinal slab bar may be adjusted laterally 3" plus or minus to tie reinforcing.
- ⑧ Bend or cut as required to clear drain slots.
- ⑨ No longitudinal wires may be in top center of cage.
- ⑩ Space U(#4) bars at 4" Max when end region of panel length is less than 6'-0" to side slot drain. Space U(#4) bars at 6" Max when end region of panel length is 6'-0" and greater to side slot drain.

CONSTRUCTION NOTES:
This railing may be constructed by the slipform process when approved by the Engineer, with equipment approved by the Engineer. Provide sensor control for both line and grade. Tack welding to provide bracing for slipform operations is acceptable. Welding may be performed at a minimum spacing of 3 ft between the cage and the anchorage. It is permissible to weld to bars U, WU and S at any location on the cage. If increased bracing is needed, provide additional anchorage devices and weld in the upper two thirds of the cage. Paint welded areas on epoxy coated and/or galvanized reinforcing with an organic zinc rich paint in accordance with Item 445 "Galvanizing".
If rail is slipformed, apply an heavy epoxy bead 1" behind toe of traffic side of rail to concrete deck just prior to slip forming. Provide a 3/8" width x 1/4" tall heavy epoxy bead with Type III, Class C or a Type V epoxy.
The back of railing must be vertical unless otherwise shown on the plans or approved by the Engineer.

MATERIAL NOTES:
Provide Class "C" concrete. Provide Class "C" (HPC) if required elsewhere.
Provide Grade 60 reinforcing steel.
Epoxy coat or galvanize all reinforcing steel if slab bars are epoxy coated or galvanized.
Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars U and WU unless noted otherwise. Deformed WWR (ASTM A1064) may be substituted for Bars R and S, as shown. Combinations of reinforcing steel and WWR or configurations of WWR other than shown are permitted if conditions in the table are satisfied. Provide the same laps as required for reinforcing bars.
Provide bar laps, where required, as follows:
Uncoated or galvanized ~ #4 = 1'-7"
Epoxy coated ~ #4 = 2'-5"

GENERAL NOTES:
This rail has been evaluated and accepted to be of equal strength to railings with like geometry, which have been crash tested to meet MASH TL-3 criteria. This rail can be used for speeds of 50 mph and greater when a TL-3 rated guard fence transition is used. When a TL-2 rated guard fence transition is used, this rail can only be used for speeds of 45 mph and less.
Do not use this railing on bridges with expansion joints providing more than 5" movement.
Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.
Shop drawings will not be required for this rail.
Average weight of railing with no overlay is 382 plf.

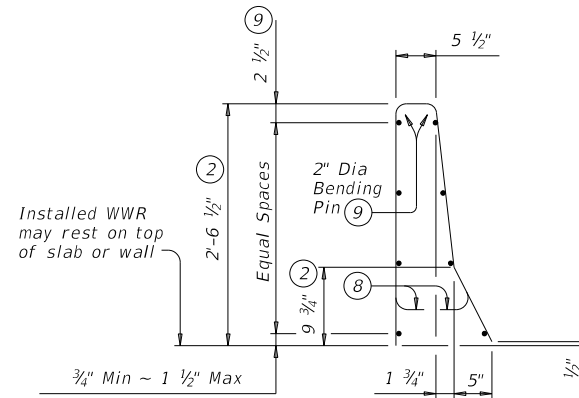
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.



BARS S (#4)

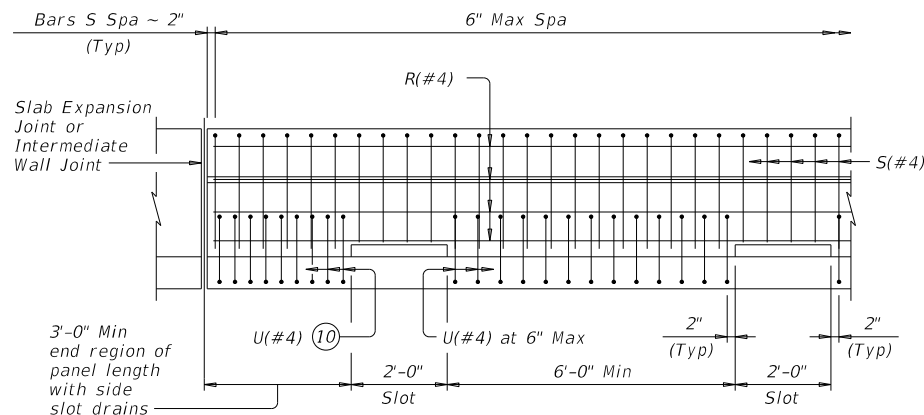
BARS U (#4)

BARS WU (#4)



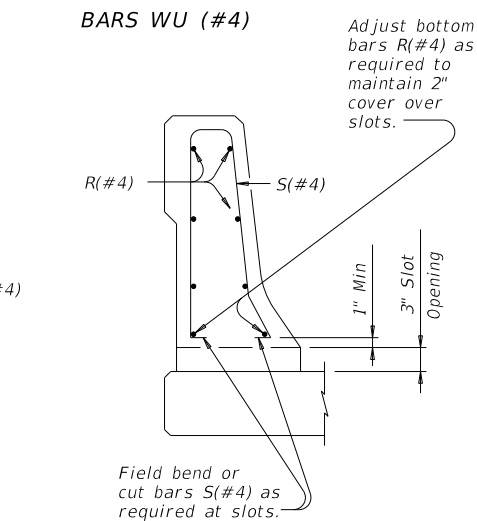
OPTIONAL WELDED WIRE REINFORCEMENT (WWR)

DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	1.067 Sq In.	0.267 Sq In. per Ft
Minimum	No. of Wires	Spacing
Maximum	10	4"
Maximum Wire Size Differential	The smaller wire must have an area of 40% or more of the larger wire.	



OPTIONAL SIDE SLOT DRAIN DETAIL

Note: Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. If continuous slots at 8 ft c-c are required, then details as on standard Type T552 should apply. Do not place drains over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.

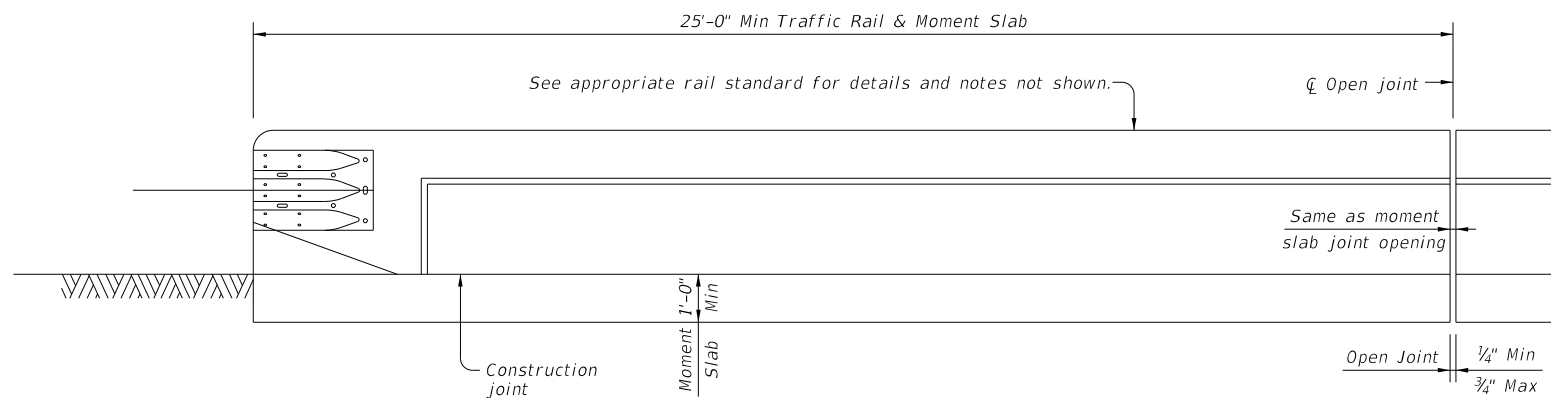


SECTION THRU OPTIONAL SIDE SLOT DRAIN

		Bridge Division Standard	
<h1>TRAFFIC RAIL</h1>			
<h2>TYPE T551</h2>			
FILE: r1std009-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR
©TxDOT September 2019	CONT	SECT	JOB
REVISIONS	0910	07	072 HIGH ST
	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	249

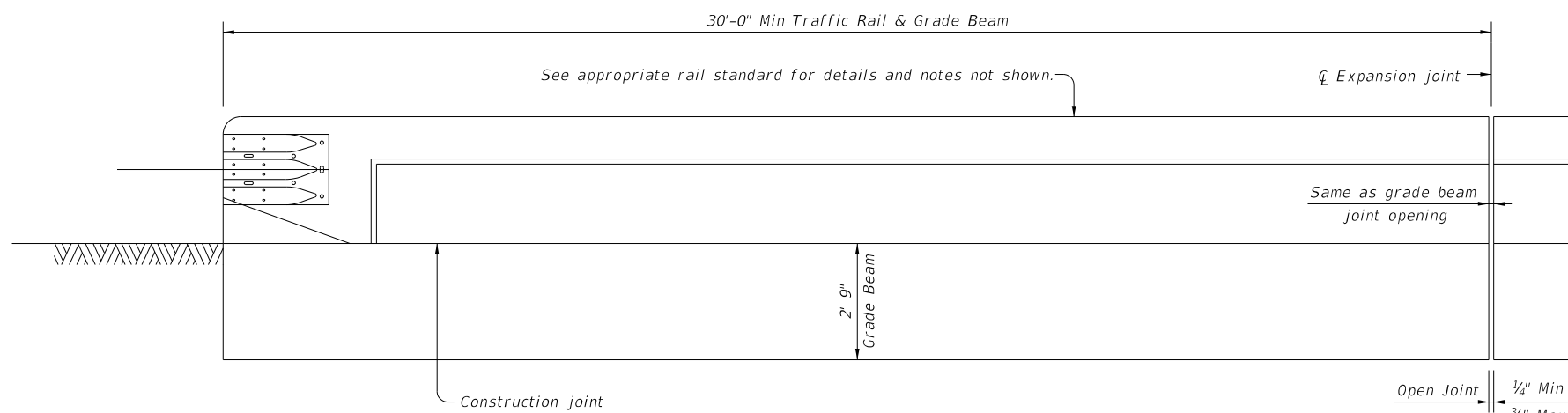
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of units or the accuracy of the information provided. See TxDOT Bridge Design Manual, Section 15-0021-20, dgn.

DATE: 7/22/2021 \$TIME\$
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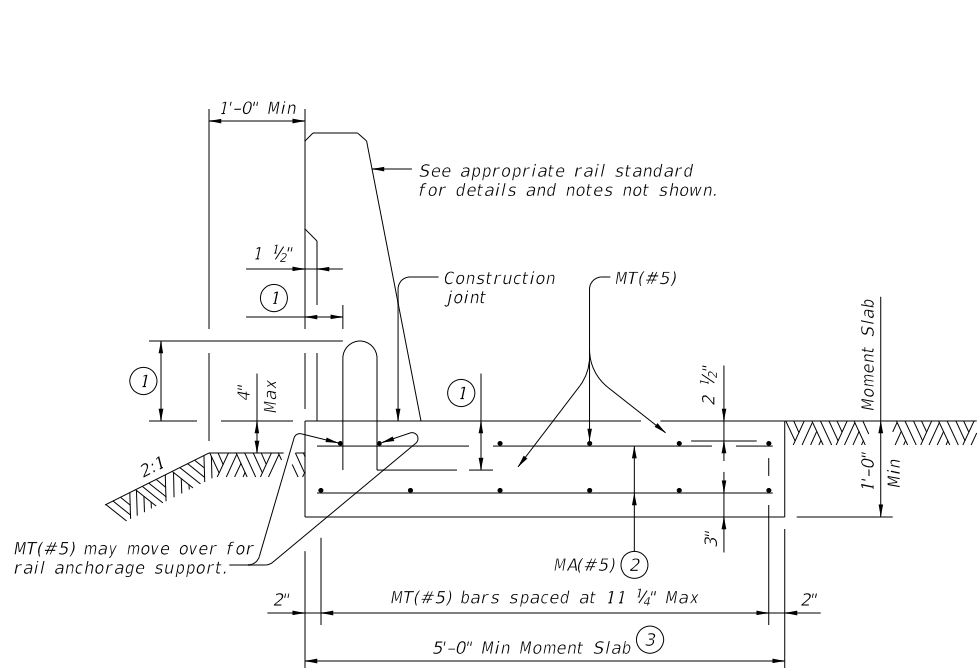
ROADWAY ELEVATION OF TRAFFIC RAIL ON MOMENT SLAB (TRF-MS)

(Showing SSTR rail other rails are similar. Reinforcing not shown for clarity.)



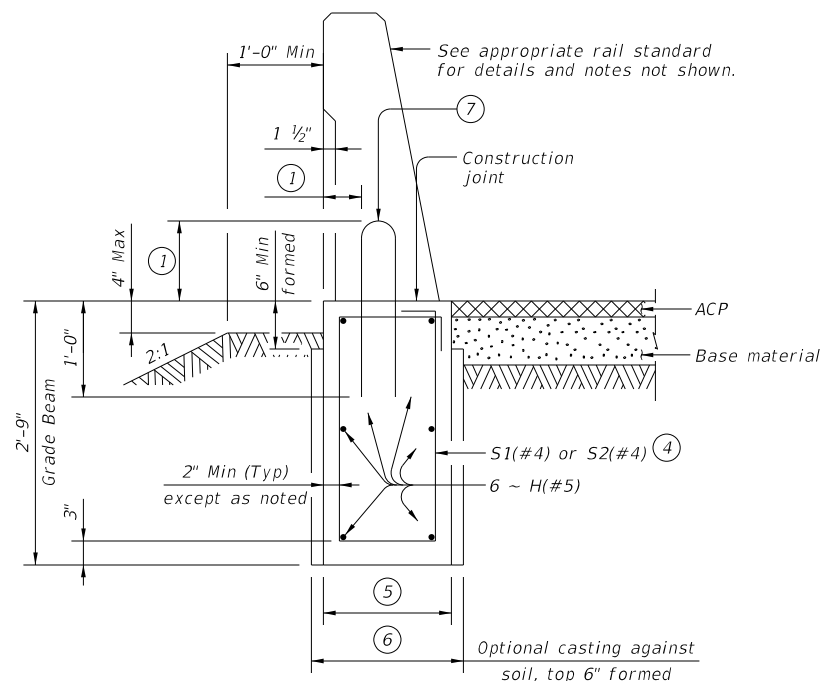
ROADWAY ELEVATION OF TRAFFIC RAIL ON GRADE BEAM (TRF-GB)

(Showing SSTR rail other rails are similar. Reinforcing not shown for clarity.)



SECTION OF TRAFFIC RAIL ON MOMENT SLAB (TRF-MS)

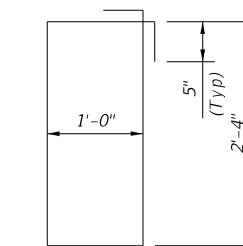
(Showing SSTR rail other rails are similar.)



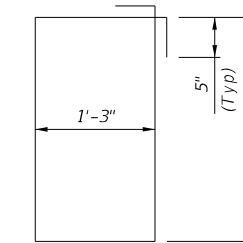
SECTION OF TRAFFIC RAIL ON GRADE BEAM (TRF-GB)

(Showing SSTR rail other rails are similar.)

- ① See applicable bridge rail standard.
- ② MA(#5) space longitudinally along moment slab at 12" Max. (Spaced 2 1/2" longitudinally from outside edge of moment slab).
- ③ Approximate moment slab concrete = 0.19 CY/LF and reinforcement = 22.4 LB/LF.
- ④ S1(#4) or S2(#4) spaced longitudinally along grade beam at 8" Max. (Spaced 2 1/2" longitudinally from outside edge of grade beam).
- ⑤ Use bar S1(#4) with 1'-4" grade beam width and bridge rail types: All rails except for T224, C412, T66, C66, T80HT and T80SS. Approximate grade beam concrete = 0.14 CY/LF and reinforcement = 13.8 LB/LF. Use bar S2(#4) with 1'-7" grade beam width and bridge rail types: T66 and C66. Approximate grade beam concrete = 0.16 CY/LF and reinforcement = 14.2 LB/LF.
- ⑥ 1'-6" for bridge rail types: All rails except for T224, C412, T66, C66, T80HT and T80SS. 1'-9" bridge rail types: T66 and C66.
- ⑦ Modify reinforcing on standard bridge rail anchorage if necessary by extending rail anchorage 12" Min, vertically into traffic rail



BARS S1(#4)



BARS S2(#4)

CONSTRUCTION NOTES:

Align moment slab (TRF-MS) or grade beam (TRF-GB) open joints with rail open joints maintaining no less than minimum rail length. Provide moment slab (TRF-MS) or grade beam (TRF-GB) with open joints at no greater than 100' spacing unless otherwise shown on the plans or approved by the Engineer.

MATERIAL NOTES:

Provide Class "C" concrete. Provide Class "C" (HPC) if required elsewhere. Provide Grade 60 reinforcing steel. Epoxy coat or galvanize all reinforcing steel if required elsewhere. Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for bars S1(#4), S2(#4) and H(#5) unless noted otherwise. Provide the same laps as required for reinforcing bars. Provide bar laps, where required, as follows:
 Uncoated or galvanized ~ #5 = 2'-4"
 Epoxy coated ~ #5 = 3'-6"

GENERAL NOTES:

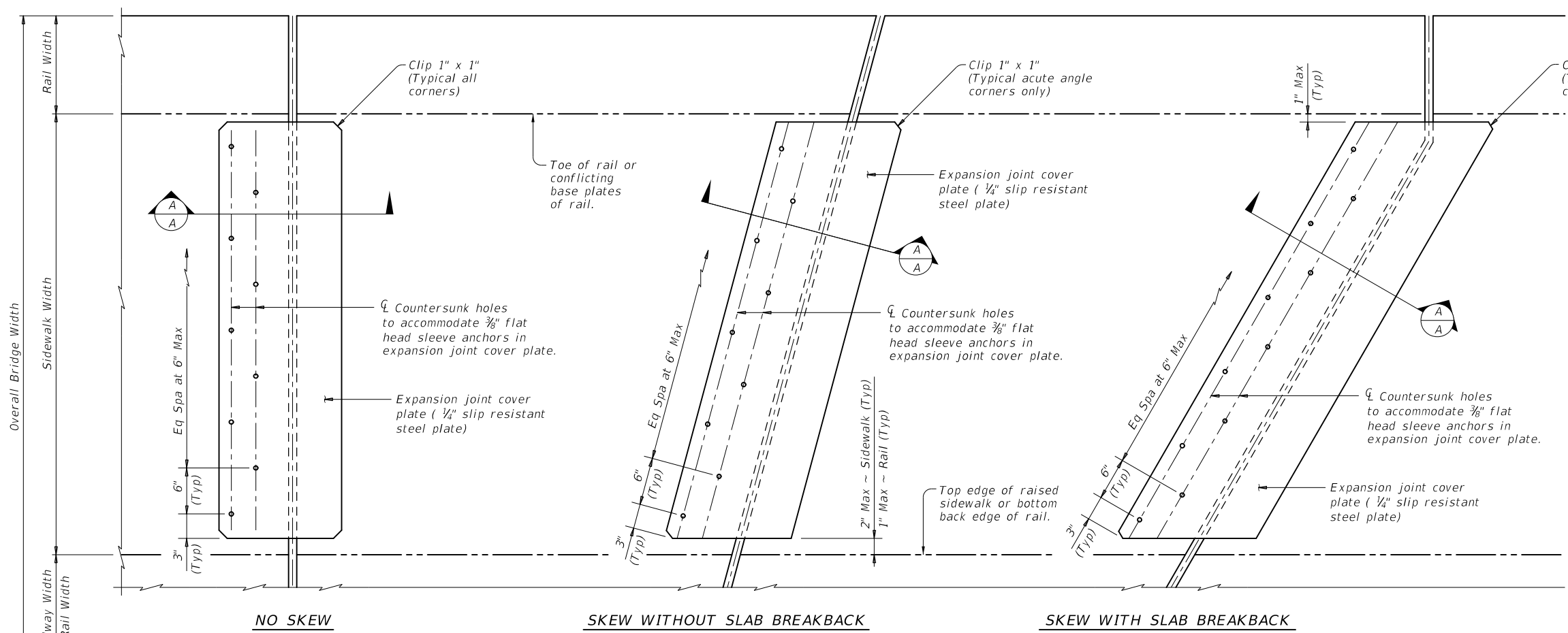
Use of these details will result in a moment slab (TRF-MS) or grade beam (TRF-GB) foundation that is acceptable for traffic rails which are MASH TL-2, TL-3, or TL-4 compliant. See elsewhere in the plans for selected options between moment slab (TRF-MS) and/or grade beam (TRF-GB). The foundation design resistance is based on the current AASHTO bridge railing requirements with the assumption of fair to good soil support conditions. Poor soil conditions will require suitably deeper and/or wider foundations. See appropriate rail standard for details and notes not shown. This detail is intended for use as a guide to unusual railing anchorage situations but may be included in the plans, modified as necessary to apply to specific installations required on the project. Payment for moment slab (TRF-MS) and/or grade beam (TRF-GB) will be by Class "C" concrete or Class "C" (HPC) concrete for rail foundations. The associated bridge railing will be paid for by the linear foot which includes the concrete and reinforcement. Excavation will be subsidiary to other items.

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

		Bridge Division Standard	
TRAFFIC RAIL FOUNDATIONS FOR MASH TL-2, TL-3 & TL-4 BRIDGE RAILS			
TRF			
FILE: r1Std027-20.dgn	DN: TxDOT	CK: TAR	DW: JTR
©TxDOT September 2019	CONV	SECT	JOB
REVISIONS	0910	07	072 HIGH ST
07-20: Added moment slab with rail foundation lengths.	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	250

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DATE: 11/3/2021
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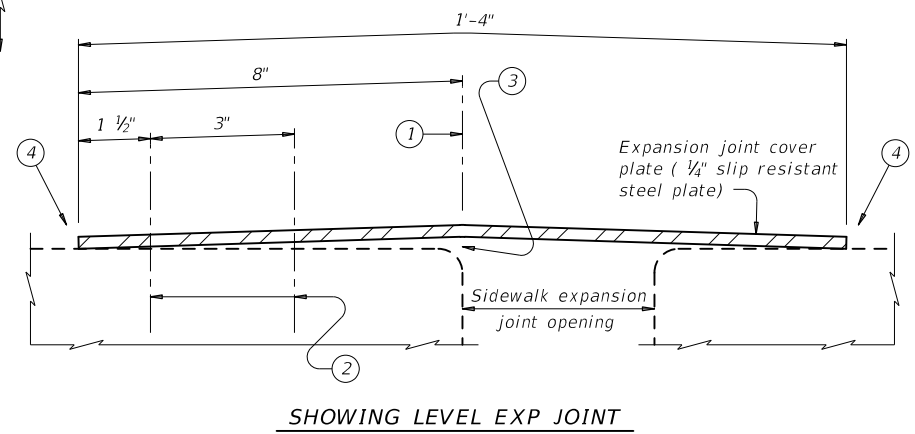


NO SKEW

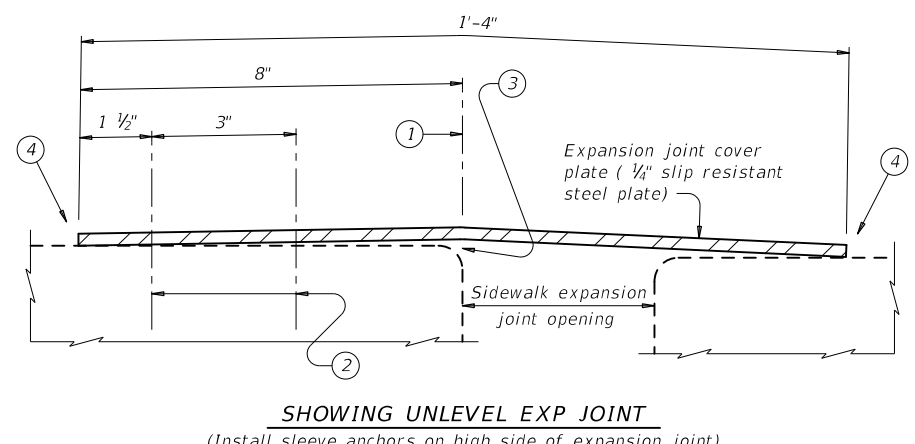
SKEW WITHOUT SLAB BREAKBACK

SKEW WITH SLAB BREAKBACK

PLAN

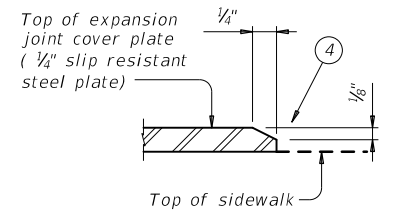


SHOWING LEVEL EXP JOINT



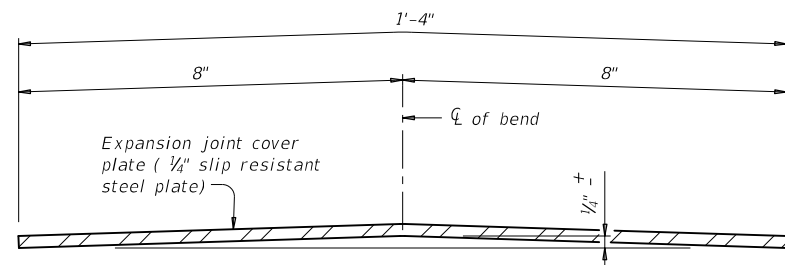
SHOWING UNLEVEL EXP JOINT
 (Install sleeve anchors on high side of expansion joint)

SECTION A-A



EXP JOINT COVER PLATE BEVEL DETAIL

Bevel all plate edges as shown.



BENDING DIAGRAM OF EXP JOINT COVER PLATE

- ① Expansion joint cover plate and edge of expansion joint.
- ② 3/8" x 2 1/2" Min, Flat Head Sleeve Anchors, Stainless Steel. Countersink Flat Head Sleeve Anchors in 1/4" Slip Resistant Steel Plate.
- ③ It is not necessary to remove plate crown provided the plate is firmly secured to the sidewalk.
- ④ Transverse edges must be in contact with sidewalk surface after installation.

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

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

FABRICATION NOTES:
 Shop drawings for the fabrication of Bridge Sidewalk Expansion Joint Cover Plate will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

A Bridge Sidewalk Expansion Joint Cover Plate Layout which identifies location side of sleeve anchors and orientation of all cover plate sections must be developed by the fabricator. Mark each steel section in accordance with the Bridge Sidewalk Expansion Joint Cover Plate Layout. A copy of the Bridge Sidewalk Expansion Joint Cover Plate Layout is to be provided to the Engineer.

Sidewalk expansion joint cover plates must be hot-dipped galvanized 1/4" slip resistant steel plate. Checker plate or diamond plate is not allowed nor are slip resistant tapes, films and non-metallic coatings.

Minimum required yield strength of steel plate is 36 ksi.

Hot-dip galvanize slip resistant steel plate after fabrication in accordance with Item 445, "Galvanizing".

Provide stainless steel flat head sleeve anchors meeting the requirements of ASTM F 593, Group 1, Alloy 304. Countersink holes in slip-resistant plate for sleeve anchors. Drill holes in sidewalk as per sleeve anchor manufacturer's recommendations. Install sleeve anchors flush with, or slightly recessed below, top surface of sidewalk expansion joint cover plate.

GENERAL NOTES:

Sidewalk expansion joint cover plates can only accommodate up to a 7" maximum expansion joint opening.

Details provided are applicable to concrete walkway surfaces only.

Payment for sidewalk expansion joint cover plates are by the pound of "Structural Steel (Misc Non-Bridge)" as per Item 442, "Metal for Structures".

Estimated weight of one sidewalk expansion joint cover plate is 14 plf.

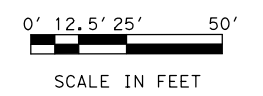
Texas Department of Transportation **Bridge Division Standard**

BRIDGE SIDEWALK EXPANSION JOINT COVER PLATE (ALL SKEWS)

BS-EJCP

FILE: bsejste1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONTRACT	SECTION	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
8-20: Closer tolerances on cover plate.	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	250A	

DATE: 7/22/2021
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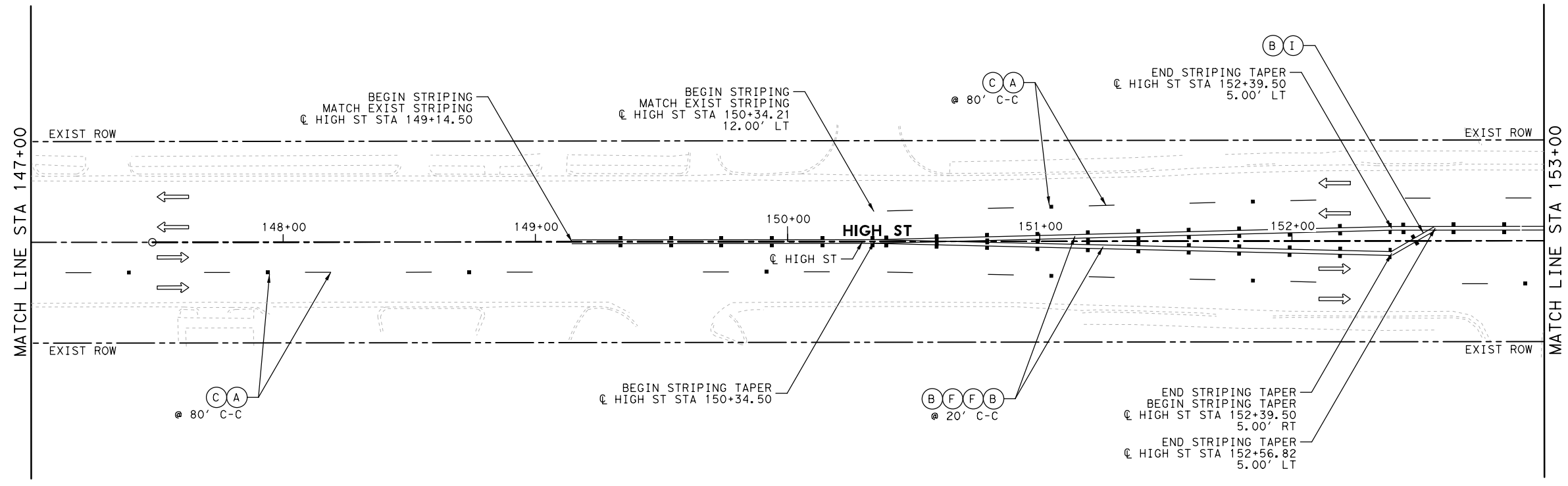
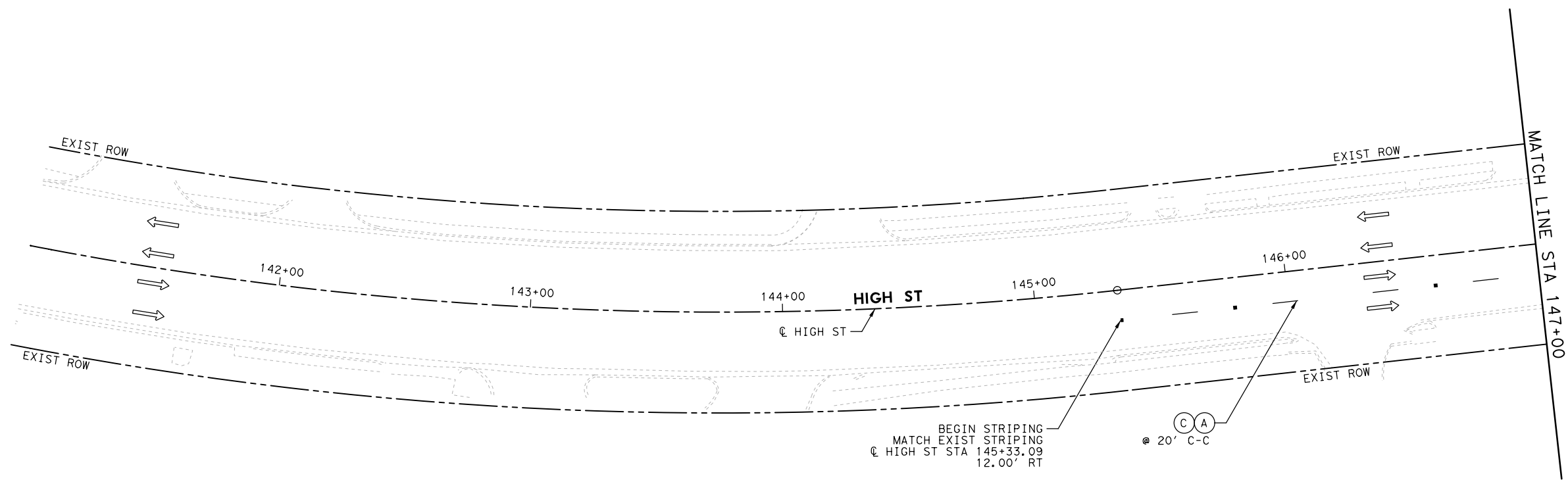
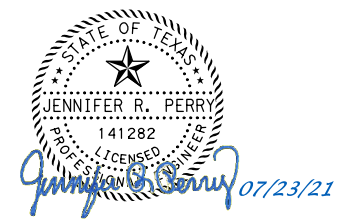



LEGEND

- (A) REFL PAV MRKR TY I-C
- (B) REFL PAV MRKR TY II-A-A
- (C) RE PM W/RET REQ TY I/II (W) 4" (BRK) (100MIL)
- (D) REFL PAV MRK TY I/II (W) 8" (SLD) (100MIL)
- (E) REFL PAV MRK TY I/II (W) 24" (SLD) (100MIL)
- (F) RE PM W/RET REQ TY I/II (Y) 4" (SLD) (100MIL)
- (G) PREFAB PAV MRK TY C (W) (WORD)
- (H) PREFAB PAV MRK TY C (Y) (4") (SLD)
- (I) PREFAB PAV MRK TY C (Y) (4") (SLD)
- # INSTALL SMALL ROADSIDE SIGN ASSEMBLIES SEE NOTE 1
- ⊗ INSTL DEL ASSM (D-SW) SZ 1 (WFLX) GND
- INSTL OM ASSM (OM-2Z) (WFLX) GND


NOTES:

1. MOUNT SIGN TO BE INSTALLED IN ACCORDANCE WITH BRIDGE MOUNTING STANDARD SMD (BR-1) - SMD (BR-3) - 14.





TBPE REGISTRATION NO. F-16341

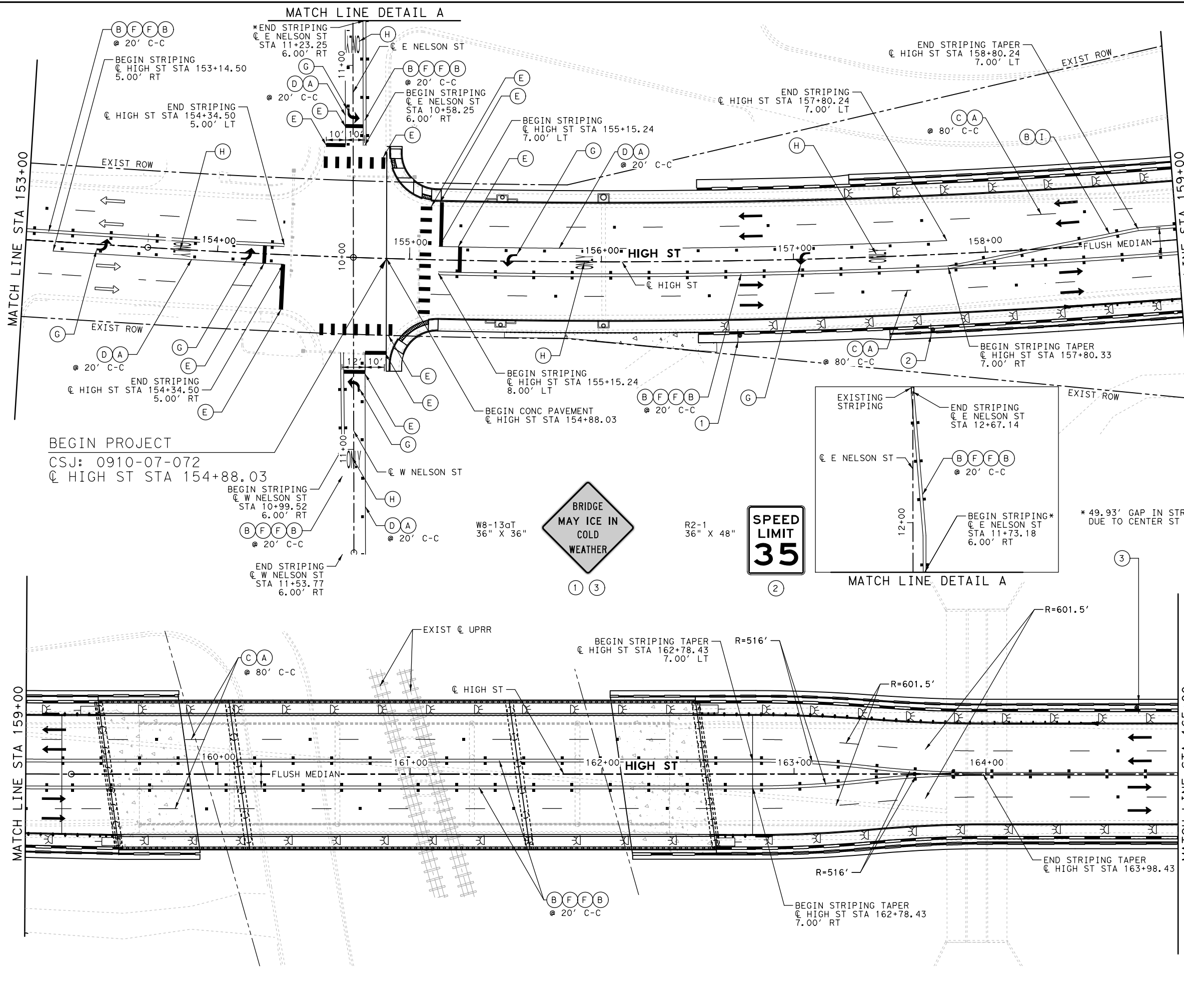


S HIGH ST AT UPRR AND SABINE ST

SIGNING & PAVEMENT MARKINGS

SHEET 1 OF 3			
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	SHEET NO.
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
			251

DATE: 7/22/2021
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0' 12.5' 25' 50'
 SCALE IN FEET

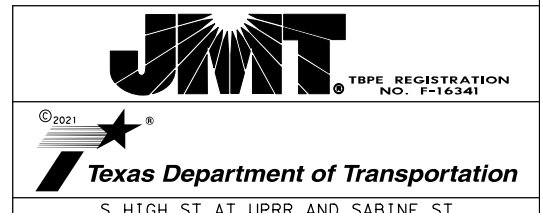
LEGEND

- (A) REFL PAV MRKR TY I-C
- (B) REFL PAV MRKR TY II-A-A
- (C) RE PM W/RET REQ TY I/II (W)4" (BRK) (100MIL)
- (D) REFL PAV MRK TY I/II (W)8" (SLD) (100MIL)
- (E) REFL PAV MRK TY I/II (W)24" (SLD) (100MIL)
- (F) RE PM W/RET REQ TY I/II (Y)4" (SLD) (100MIL)
- (G) PREFAB PAV MRK TY C (W) (ARROW)
- (H) PREFAB PAV MRK TY C (Y) (4") (SLD)
- (I) PREFAB PAV MRK TY C (Y) (4") (SLD)
- # INSTALL SMALL ROADSIDE SIGN ASSEMBLIES SEE NOTE 1
- INSTR DEL ASSM (D-SW) SZ 1 (WFLX) GND
- INSTR OM ASSM (OM-2Z) (WFLX) GND

NOTES:

1. MOUNT SIGN TO BE INSTALLED IN ACCORDANCE WITH BRIDGE MOUNTING STANDARD SMD (BR-1) - SMD (BR-3) - 14.
2. SEE SUMMARY OF SMALL SIGNS FOR MORE INFORMATION.

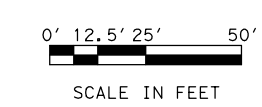
* 49.93' GAP IN STRIPING DUE TO CENTER ST APPROACH



SIGNING & PAVEMENT MARKINGS

				SHEET 2 OF 3
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
JMT	6	(SEE TITLE SHEET)	HIGH ST	
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	252
CHECK	CONTROL	SECTION	JOB	
JMT	0910	07	072	

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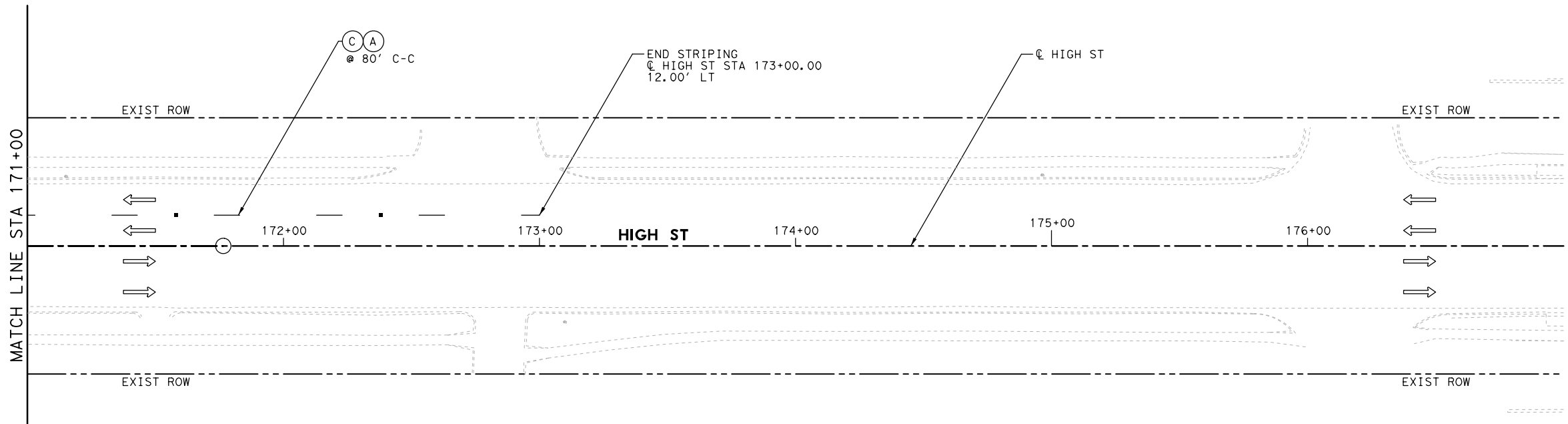
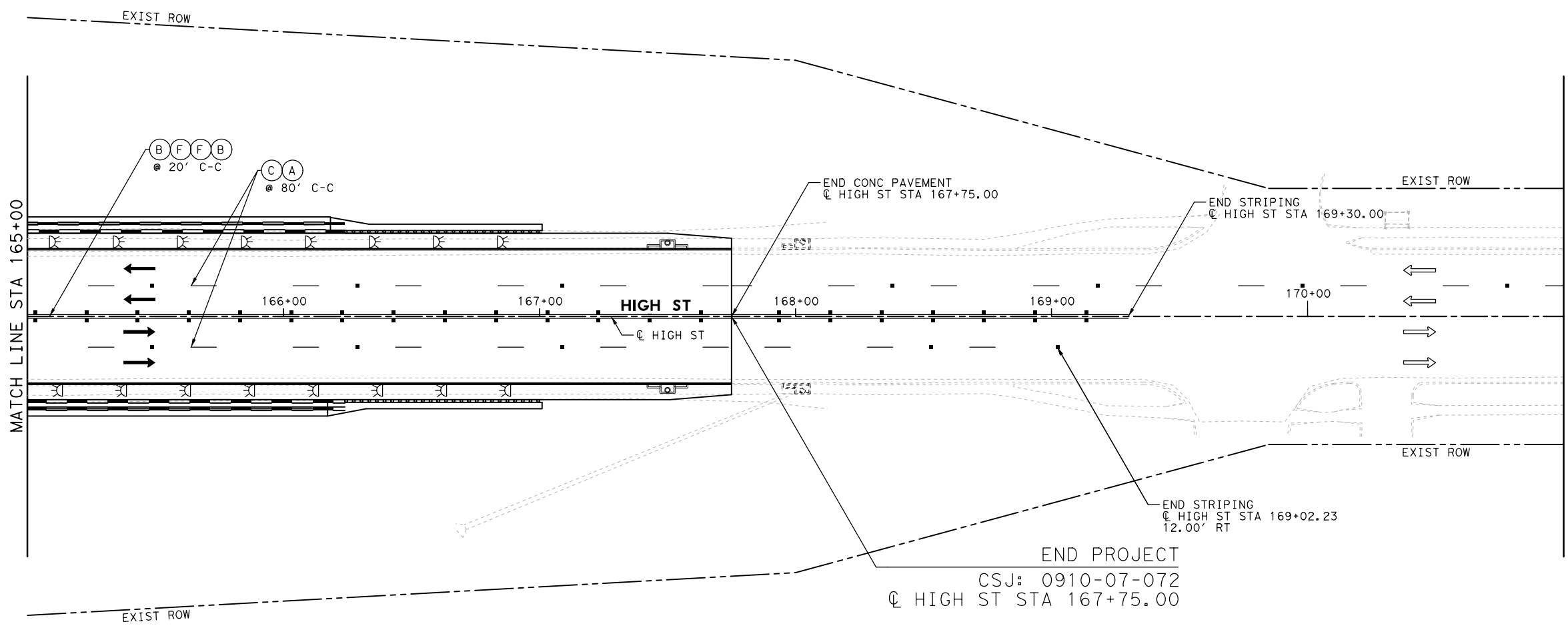



LEGEND

- (A) REFL PAV MRKR TY I-C
- (B) REFL PAV MRKR TY II-A-A
- (C) RE PM W/RET REQ TY I/II (W)4" (BRK) (100MIL)
- (D) REFL PAV MRK TY I/II (W)8" (SLD) (100MIL)
- (E) REFL PAV MRK TY I/II (W)24" (SLD) (100MIL)
- (F) RE PM W/RET REQ TY I/II (Y)4" (SLD) (100MIL)
- (G) PREFAB PAV MRK TY C (W) (ARROW)
- (H) PREFAB PAV MRK TY C (W) (WORD)
- (I) PREFAB PAV MRK TY C (Y) (4") (SLD)
- (#) INSTALL SMALL ROADSIDE SIGN ASSEMBLIES SEE NOTE 1
- ⊗ INSTL DEL ASSM (D-SW) SZ 1 (WFLX) GND
- INSTL OM ASSM (OM-2Z) (WFLX) GND

NOTES:

1. MOUNT SIGN TO BE INSTALLED IN ACCORDANCE WITH BRIDGE MOUNTING STANDARD SMD (BR-1) - SMD (BR-3) - 14.



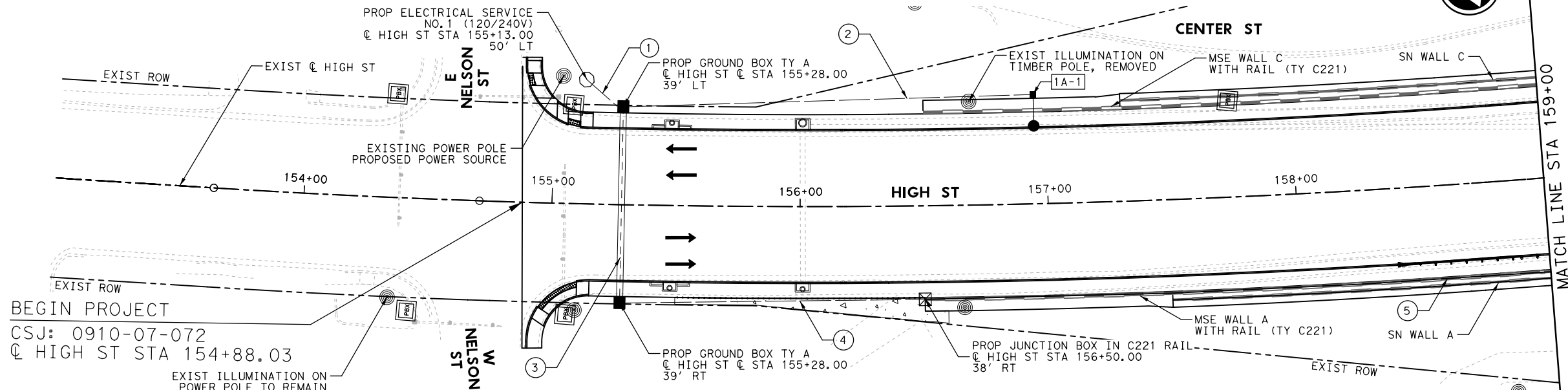
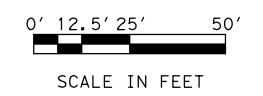
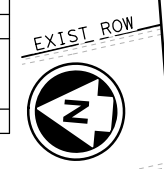


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Texas Department of Transportation
 S HIGH ST AT UPRR AND SABINE ST

SIGNING & PAVEMENT MARKINGS

			SHEET 3 OF 3
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
			253

ELECTRICAL SERVICE DATA											
SHEET 1 OF 2											
ELEC. SERVICE NO.	ELECTRICAL SERVICE SEE ED(5), (6) & (7)	SERVICE CONDUIT SIZE	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN CKT. BKR POLE/AMPS	LIGHTING CONTACTOR AMPS	PANELBD/LOADC ENTER AMP RATING	BRANCH CIRCUIT NO.	BRANCH CKT. BKR. POLE/AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
1	ELC SRV TY A 120/240 060(NS)SS(E)SP(O)	1 1/4"	3/#6	N/A	2P/60	2P/60	N/A	A	2P/15	2.08	0.5



BEGIN PROJECT
CSJ: 0910-07-072
CL HIGH ST STA 154+88.03

LEGEND

- ① RUN NO.
- 1A-1 SERVICE NO., CIRCUIT NO., AND LUMINAIRE NO
- PROP TRANSFORMER BASE ASSEMBLY
- PROP RETAINING WALL MOUNT ASSEMBLY
- PROPOSED ELECTRICAL SERVICE
- PROP GROUND BOX TY A
- ⊠ PROP C221 RAIL JUNCTION BOX
- CONDUIT & CONDUCTOR (TRENCHED)
- CONDUIT METAL (IN RAIL)
- CONDUIT & CONDUCTOR (BORED)**
- POWER POLE

NOTES:

1. ALL PROPOSED ILLUMINATION ASSEMBLY MUST BE TY SA 50T-12 400W EQ LED OR TY SA 50B-12 400W EQ LED AS CALLED OUT ON PLAN.
2. PROPOSED ASSEMBLY IS SHOWN AT APPROXIMATE LOCATION, FINAL LOCATION TO BE DETERMINED BY FIELD ENGINEER.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF ALL UTILITIES AND UNDERGROUND STRUCTURES BEFORE MAKING ANY EXCAVATIONS OR BORES.
4. COORDINATE WITH POWER COMPANY TO VERIFY THE PROPOSED POWER SOURCE.
5. SEE RW(LB) STANDARD DETAIL FOR RAIL CONDUIT & RETAINING WALL ILLUMINATION ASSEMBLY MOUNTING DETAILS.
6. SEE BL STANDARD DETAIL FOR RAIL CONDUIT AND BRIDGE ILLUMINATION ASSEMBLY MOUNTING DETAILS.

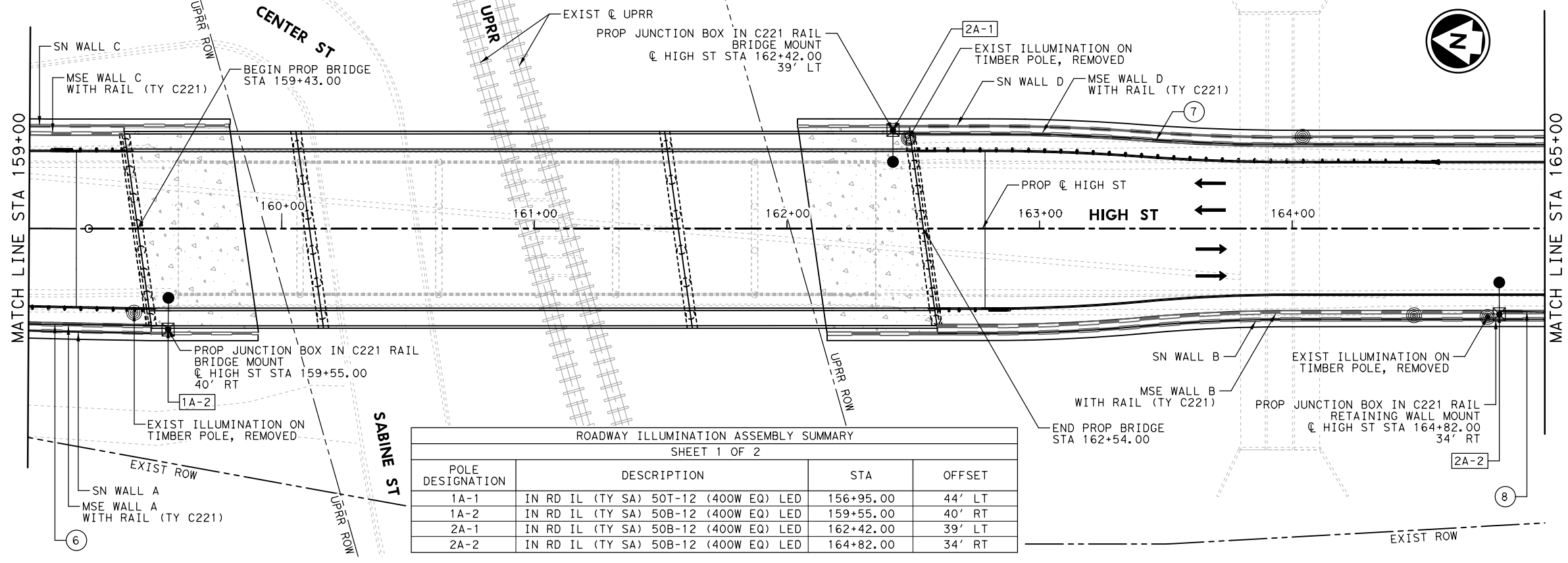
CONDUIT AND CONDUCTOR RUNS
SHEET 1 OF 2

ITEM NO.	ELEC CONDR (NO. 8) BARE	ELEC CONDR (NO. 8) INSULATED	CONDT (PVC) (SCH 40) (2")	COND (RM) (2")	CONDT (PVC) (SCH 80) (2") BORE
1	22	2 - 22	17		
2	167	2 - 167	162		
3	79	2 - 79			74**
4	126	2 - 126	121		
5	258	2 - 258		253	
6	61	2 - 61		56	
7	264	2 - 264		259	
8	23	2 - 23		18	
TOTAL	1000	2000	300	586	74**

* 5' SLACK HAS BEEN INCLUDED IN ESTIMATE
**CONTRACTOR TO COORDINATE WITH FIELD ENGINEER ON INSTALLATION METHOD (BORED VERSUS TRENCH)

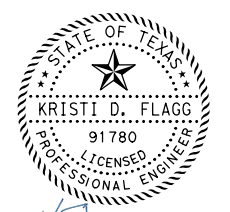
SUMMARY OF ILLUMINATION QUANTITIES
SHEET 1 OF 2

ITEM NO.	DESCRIPTION	UNITS	QUANTITY
416 6029	DRILL SHAFT (RDWY ILL POLE) (30 IN)	LF	14
432 6009	RIPRAP (CONC) (CL B) (4")	CY	0.35
620 6008	ELEC CONDR (NO. 8) INSULATED	LF	2000
620 6007	ELEC CONDR (NO. 8) BARE	LF	1000
618 6023	CONDT (PVC) (SCH 40) (2")	LF	300
618 6070	CONDT (RM) (2")	LF	586
618 6047	CONDT (PVC) (SCH 80) (2") (BORE)	LF	74
610 6290	IN RD IL (TY SA) 50T-12 (400W EQ) LED	EA	1
610 6274	IN RD IL (TY SA) 50B-12 (400W EQ) LED	EA	3
624 6002	GROUND BOX TY A (122311)W/APRON	EA	2
6027 6004	JUNCTION BOX (INSTALL)	EA	4
628 6009	ELC SRV TY A 120/240 060(NS)SS(E)SP(O)	EA	1



ROADWAY ILLUMINATION ASSEMBLY SUMMARY
SHEET 1 OF 2

POLE DESIGNATION	DESCRIPTION	STA	OFFSET
1A-1	IN RD IL (TY SA) 50T-12 (400W EQ) LED	156+95.00	44' LT
1A-2	IN RD IL (TY SA) 50B-12 (400W EQ) LED	159+55.00	40' RT
2A-1	IN RD IL (TY SA) 50B-12 (400W EQ) LED	162+42.00	39' LT
2A-2	IN RD IL (TY SA) 50B-12 (400W EQ) LED	164+82.00	34' RT



08/24/2021



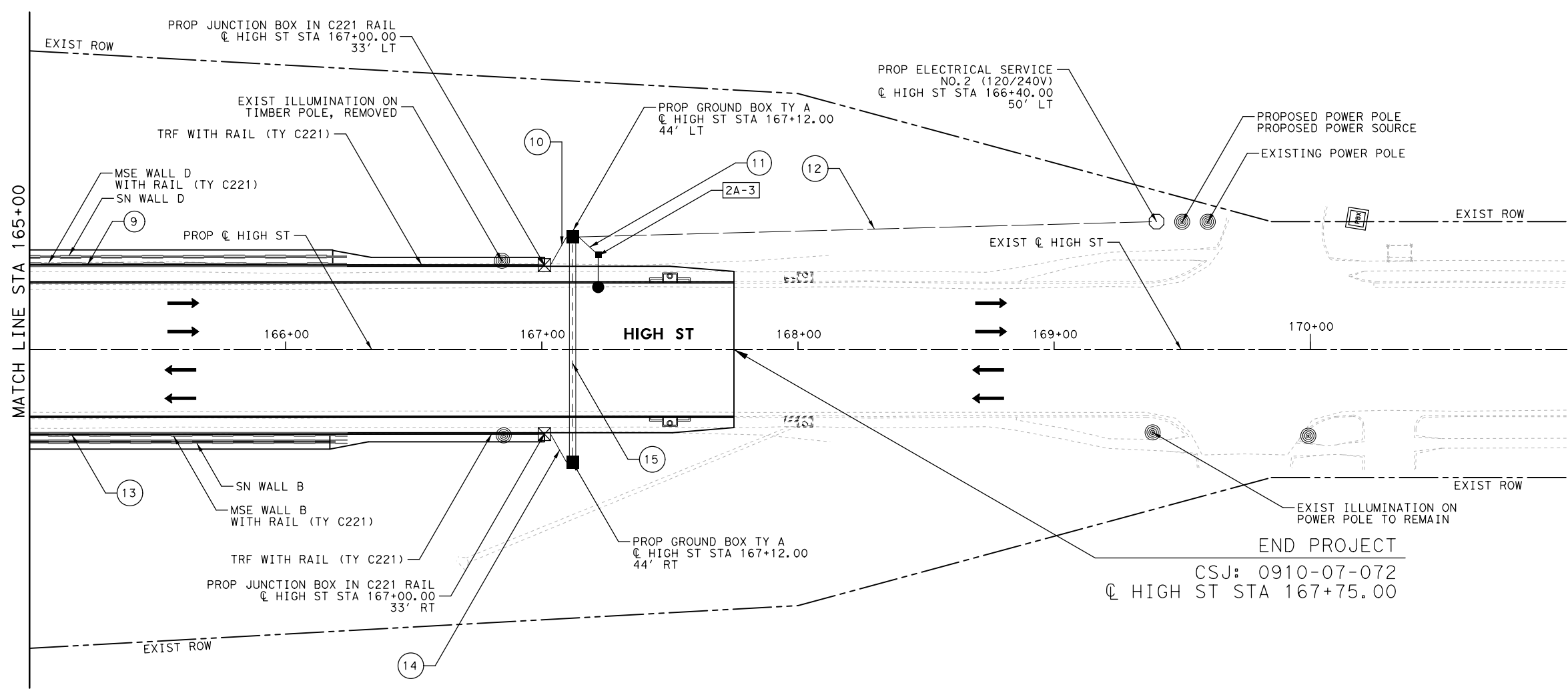
**ILLUMINATION PLAN
BEGIN PROJECT TO STA 165+00**

SHEET 1 OF 2

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			254
JMT			

DATE: 8/24/2021
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DATE: 7/22/2021
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0' 12.5' 25' 50'
 SCALE IN FEET

LEGEND

- ① RUN NO.
- 1A-1 SERVICE NO., CIRCUIT NO., AND LUMINAIRE NO
- PROP TRANSFORMER BASE ASSEMBLY
- PROP RETAINING WALL MOUNT ASSEMBLY
- PROPOSED ELECTRICAL SERVICE
- PROP GROUND BOX TY A
- ⊠ PROP C221 RAIL JUNCTION BOX
- CONDUIT & CONDUCTOR (TRENCHED)
- CONDUIT METAL (IN RAIL)
- CONDUIT & CONDUCTOR (BORED)**
- POWER POLE

NOTES:

1. ALL PROPOSED ILLUMINATION ASSEMBLY MUST BE TY SA 50T-12 400W EQ LED OR TY SA 50B-12 400W EQ LED AS CALLED OUT ON PLAN.
2. PROPOSED ASSEMBLY IS SHOWN AT APPROXIMATE LOCATION, FINAL LOCATION TO BE DETERMINED BY FIELD ENGINEER.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF ALL UTILITIES AND UNDERGROUND STRUCTURES BEFORE MAKING ANY EXCAVATIONS OR BORES.
4. COORDINATE WITH POWER COMPANY TO VERIFY THE PROPOSED POWER SOURCE.
5. SEE RW(LB) STANDARD DETAIL FOR RAIL CONDUIT & RETAINING WALL ILLUMINATION ASSEMBLY MOUNTING DETAILS.
6. SEE BL STANDARD DETAIL FOR RAIL CONDUIT AND BRIDGE ILLUMINATION ASSEMBLY MOUNTING DETAILS.

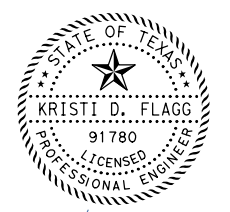
ROADWAY ILLUMINATION ASSEMBLY SUMMARY			
SHEET 2			
POLE DESIGNATION	DESCRIPTION	STA	OFFSET
2A-3	IN RD IL (TY SA) 50T-12 (400W EQ) LED	167+22.00	37' LT

SUMMARY OF ILLUMINATION QUANTITIES			
SHEET 2 OF 2			
ITEM NO.	DESCRIPTION	UNITS	QUANTITY
416 6029	DRILL SHAFT (RDWY ILL POLE) (30 IN)	LF	14
432 6009	RIPRAP (CONC) (CL B) (4")	CY	0.35
620 6008	ELEC CONDR (NO.8) INSULATED	LF	1558
620 6007	ELEC CONDR (NO.8) BARE	LF	779
618 6023	CONDT (PVC) (SCH 40) (2")	LF	263
618 6070	CONDT (RM) (2")	LF	398
618 6047	CONDT (PVC) (SCH 80) (2") (BORE)	LF	83
610 6290	IN RD IL (TY SA) 50T-12 (400W EQ) LED	EA	1
610 6274	IN RD IL (TY SA) 50B-12 (400W EQ) LED	EA	0
624 6002	GROUND BOX TY A (122311)W/APRON	EA	2
6027 6004	JUNCTION BOX (INSTALL)	EA	2
628 6009	ELC SRV TY A 120/240 060(NS)SS(E)SP(O)	EA	1

CONDUIT AND CONDUCTOR RUNS					
SHEET 2 OF 2					
RUN NO.	ELEC CONDR (NO.8) BARE	ELEC CONDR (NO.8) INSULATED	CONDT (PVC) (SCH 40) (2")	COND (RM) (2")	CONDT (PVC) (SCH 80) (2") BORE
ITEM NO.	620 6007	620 6008	618 6023	618 6070	618 6047
9	204	2 - 204		199	
10	18	2 - 18	13		
11	16	2 - 16	11		
12	231	2 - 231	226		
13	204	2 - 204		199	
14	18	2 - 18	13		
15	88	2 - 88			83**
TOTAL	779	1558	263	398	83**

* 5' SLACK HAS BEEN INCLUDED IN ESTIMATE
 **CONTRACTOR TO COORDINATE WITH FIELD ENGINEER ON INSTALLATION METHOD (BORED VERSUS TRENCH)

ELECTRICAL SERVICE DATA											
SHEET 2 OF 2											
ELEC. SERVICE NO.	ELECTRICAL SERVICE SEE ED(5), (6) & (7)	SERVICE CONDUIT SIZE	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN CKT. BKR POLE/AMPS	LIGHTING CONTACTOR AMPS	PANELBD/LOADC ENTER AMP RATING	BRANCH CIRCUIT NO.	BRANCH CKT. BKR. POLE/AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
2	ELC SRV TY A 120/240 060(NS)SS(E)SP(O)	1 1/4"	3/#6	N/A	2P/60	2P/60	N/A	A	2P/15	3.12	0.7



K. Flagg 7/23/2021



ILLUMINATION PLAN
 STA 165+00 TO END PROJECT

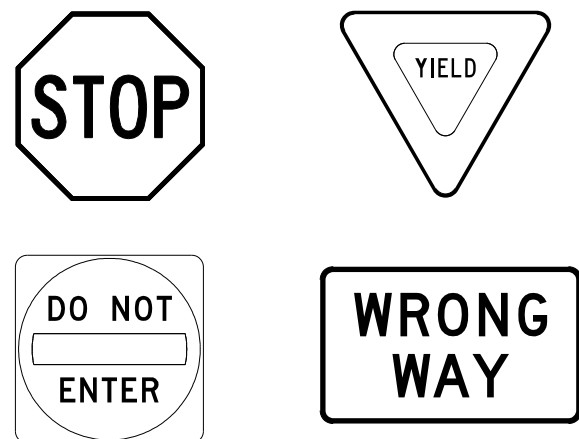
SHEET 2 OF 2			
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
			255

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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

GENERAL NOTES

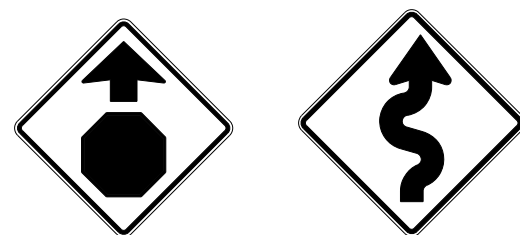
- Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
- Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway 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/>

REQUIREMENTS FOR WARNING SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B _{FL} OR C _{FL} 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 _{FL} OR C _{FL} SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING



TYPICAL SIGN REQUIREMENTS

TSR(4)-13

FILE:	tsr4-13.dgn	DN:	TxDOT	CK:	TxDOT	DW:	TxDOT	CK:	TxDOT
© TxDOT	October 2003	CONT	SECT	JOB	HIGHWAY				
REVISIONS		0910	07	072	HIGH ST				
12-03	7-13	DIST	COUNTY		SHEET NO.				
9-08		TYLER	GREGG		256				

DATE: 7/22/2021
 FILE: pw:\jmt-pw_bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\8 - Traffic\TxDOT_Standards\dom1-20.dgn
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REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS				
DEVICE	SIZE 1	SIZE 2	SIZE 3	SIZE 4
SHEETING	Yellow, White or Red Type B or C reflective sheeting			
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (flx). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.			

DELINEATORS			
DEVICE	SINGLE	DOUBLE	
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting		
POST TYPE	WC	YFLX, WFLX	WC
MOUNT TYPE	GND	GND, SRF	GND, SRF

D & OM DESCRIPTIVE CODES	
INSTL DEL ASSM	(D-XX)SZ X (XXXX)XXX (XX)
NUMBER OF REFLECTORS	S = Single D = Double
COLOR OF REFLECTORS	W = White Y = Yellow R = Red
REFLECTOR UNIT SIZE	1 or 2
TYPE OF POST OR DELINEATOR	WC = Wing Channel Post YFLX = Yellow Flexible Post WFLX = White Flexible Post BRF = Barrier Reflector
TYPE OF MOUNT	GND = Embedded (drivable or set in concrete) CTB = Concrete Barrier Mount GF1 or GF2 = Guard Fence Attachment SRF = Surface Mount
DIRECTION	If Required BI = Bi-Directional BR = Bi-Directional with red on back
INSTL OM ASSM	(OM-XX) (XXXX)XXX (XX)
TYPE OF OBJECT MARKER	1, 2, 3, or 4
NUMBER OF REFLECTORS OR DIRECTION	X = 3-Size 2 reflector unit (Type 2 only) Y = 1-Size 3 reflector unit (Type 2 only) Z = 3-Size 1 or 1-Size 4 reflector unit(s) (Type 2 only) L = Left Side (Type 3 Object Marker only) R = Right Side (Type 3 Object Marker only) C = Center (Type 3 Object Marker only)
TYPE OF POST	WC = Wing Channel Post WFLX = White Flexible Post TWT = Thin Walled Tubing
TYPE OF MOUNT	GND = Embedded (drivable) SRF = Surface Mount WAS = Wedge Anchor Steel WAP = Wedge Anchor Plastic
DIRECTION	If Required BI = Bi-Directional

OBJECT MARKERS								
DEVICE	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
SHEETING	Yellow-Type B _{FL} or C _{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroreflective yellow - Type B _{FL} or C _{FL} Sheeting			Red -Type B _{FL} or C _{FL} Sheeting
POST TYPE	TWT	WC	WC	WFLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

DEPARTMENTAL MATERIAL SPECIFICATIONS	
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

BARRIER REFLECTORS (BRF)		
DEVICE	GF1	GF2
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.	
SHEETING	Yellow, White, Red	
NOTE	1. Reflective sheeting shall have a minimum dimension of 3 inches and minimum surface area of 9 square inches.	

CHEVRONS			
DEVICE			
SIZE (W x L)	18" x 24" (Conventional)	24" x 30" (Conventional Oversize)	30" x 36" (Expressway) / 36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		
NOTE	1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies). 2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6).		

ONE DIRECTION LARGE ARROW		
DEVICE		
SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

NOTE:
Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.

Texas Department of Transportation
Traffic Safety Division Standard

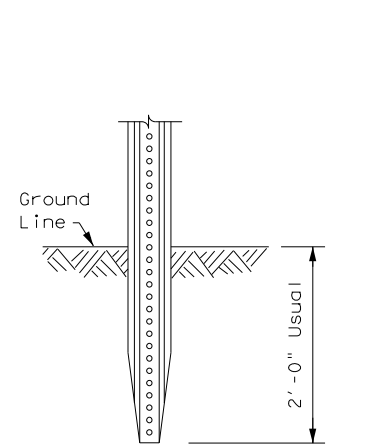
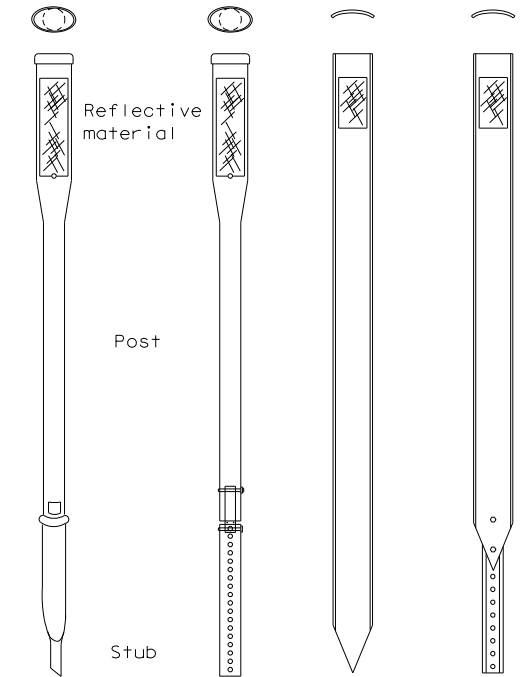
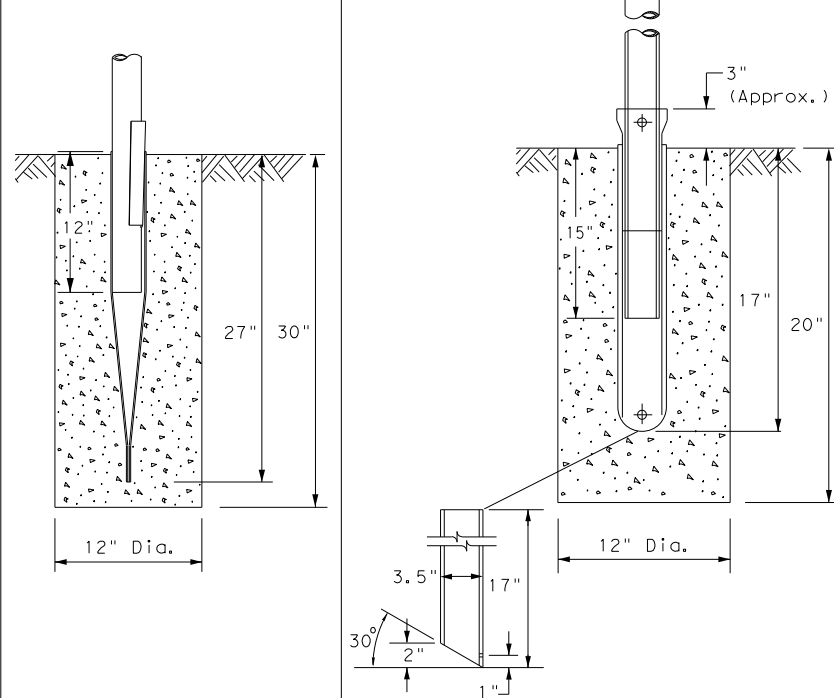
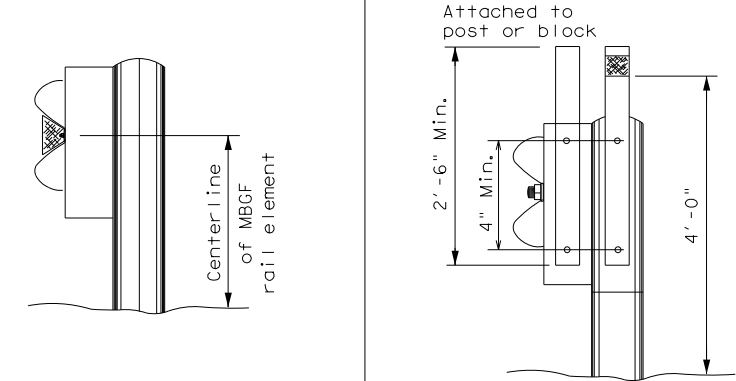
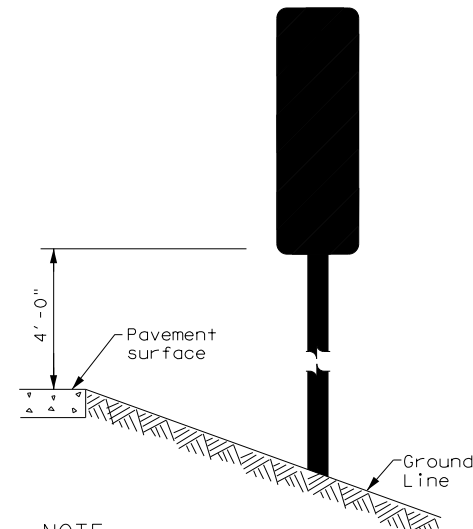
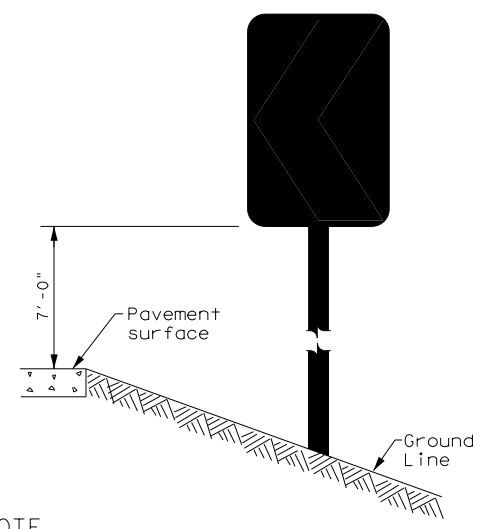
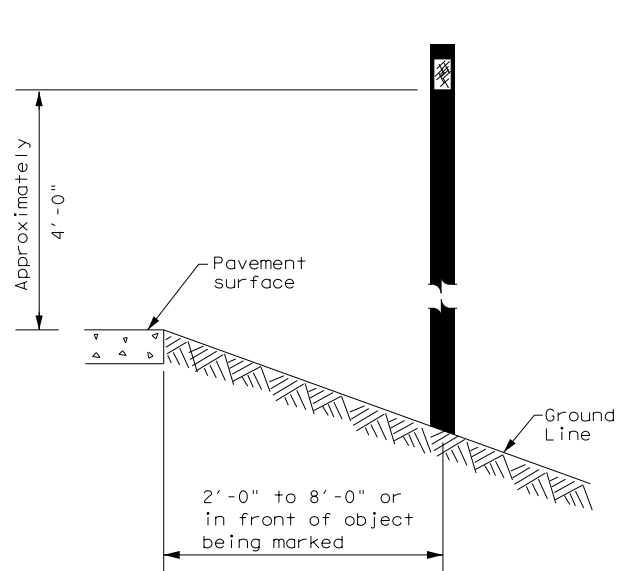

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

FILE: dom1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
10-09 3-15	DIST	COUNTY	SHEET NO.	
4-10 7-20	TYLER	GREGG	257	

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POST TYPE AND SUPPORT FOUNDATION DETAILS				TYPE OF BARRIER MOUNTS			
WING CHANNEL (WC)	FLEXIBLE POSTS (YFLX, WFLX)		WEDGE ANCHOR SYSTEMS		GUARD FENCE ATTACHMENT		
GND	GND	SRF	WAS	WAP	GF1	GF2	
							
	EMBEDDED		SURFACE MOUNT		CONCRETE TRAFFIC BARRIER (CTB)		
<p>NOTES</p> <ol style="list-style-type: none"> 1. Embedded Wing Channel (WC) post option may be used for Type 2 Object Markers and Delineators only. 2. 1.12 lbs/ft steel per ASTM A 1011 SS Gr. 50, or ASTM A499. 			<p>NOTES</p> <ol style="list-style-type: none"> 1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices. 2. Install per manufacturer's recommendations. 3. Post length may vary to meet field conditions. 4. When using yellow delineators with flexible posts to separate opposing direction of travel, such as centerline or median use, the flexible posts shall be yellow. 			<p>NOTE</p> <ol style="list-style-type: none"> 1. Install per manufacturer's recommendations. 	
TYPES 1,3, AND 4 OBJECT MARKERS AND CHEVRONS		CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN		DELINEATORS AND TYPE 2 OBJECT MARKERS			
 <p>NOTE</p> <p>Mounting at 4 feet to the bottom of the chevron is permitted for chevrons that will not exceed a height of 6'-6" to the top of the chevron (sizes 24" x 30" and smaller)</p>		 <p>NOTE</p> <p>Chevrons 30" x 36" and larger shall be mounted at a height of 7' to the bottom of the chevron. Chevron sign and ONE DIRECTION LARGE ARROW sign (W1-9T) shall be installed per SMD standard sheets and paid under item 644.</p>		 <p>See general notes 1, 2 and 3.</p>			
<p>GENERAL NOTES</p> <ol style="list-style-type: none"> 1. Place delineators on a section of roadway at a consistent distance from the edge of pavement. 2. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction. 3. When Type 2 object markers and delineators are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker or delineator as close to the desired height as possible. 4. Install all delineators, object markers and barrier reflectors in accordance with the manufacturer's recommendation. 5. Barrier reflectors should be installed a minimum of 18 inches above the edge of the pavement surface. 6. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane. 							
 Traffic Safety Division Standard							
<h2 style="margin: 0;">DELINEATOR & OBJECT MARKER INSTALLATION</h2> <h3 style="margin: 0;">D & OM(2)-20</h3>							
<small>FILE: dom2-20.dgn</small>		<small>DN: TxDOT</small>		<small>CK: TxDOT</small>			
<small>© TxDOT August 2004</small>		<small>CON: 0910</small>		<small>SECT: 07</small>			
<small>10-09 3-15</small>		<small>REVISIONS</small>		<small>JOB: 072</small>			
<small>4-10 7-20</small>		<small>DIST: TYLER</small>		<small>COUNTY: GREGG</small>			
				<small>HIGHWAY: HIGH ST</small>			
				<small>SHEET NO.: 258</small>			

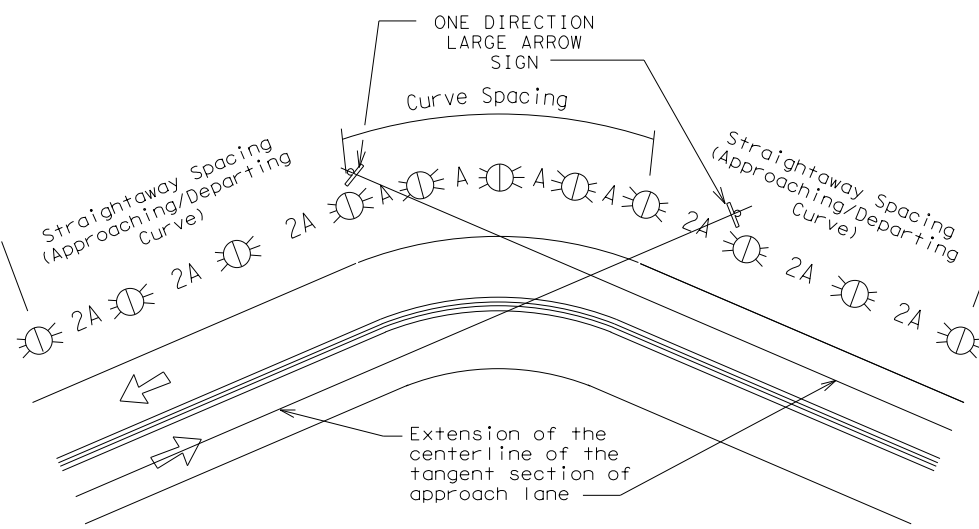
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MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

Amount by which Advisory Speed is less than Posted Speed	Curve Advisory Speed	
	Turn (30 MPH or less)	Curve (35 MPH or more)
5 MPH & 10 MPH	● RPMs	● RPMs
15 MPH & 20 MPH	● RPMs and One Direction Large Arrow sign	● RPMs and Chevrons; or ● RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons.
25 MPH & more	● RPMs and Chevrons; or ● RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons	● RPMs and Chevrons

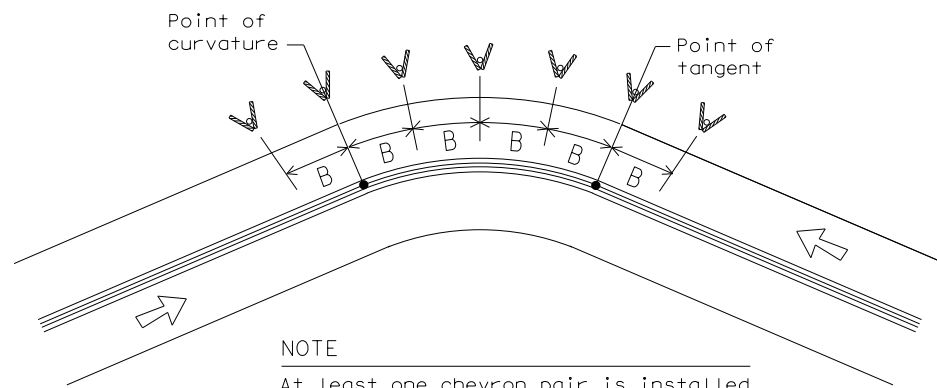
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



NOTE

ONE DIRECTION LARGE ARROW (W1-6) sign should be located at approximately and perpendicular to the extension of the centerline of the tangent section of approach lane.

SUGGESTED SPACING FOR CHEVRONS ON HORIZONTAL CURVES



NOTE

At least one chevron pair is installed beyond the point of tangent in tangent section.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS KNOWN				
Degree of Curve	FEET			
	Radius of Curve	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
		A	2A	B
1	5730	225	450	—
2	2865	160	320	—
3	1910	130	260	200
4	1433	110	220	160
5	1146	100	200	160
6	955	90	180	160
7	819	85	170	160
8	716	75	150	160
9	637	75	150	120
10	573	70	140	120
11	521	65	130	120
12	478	60	120	120
13	441	60	120	120
14	409	55	110	80
15	382	55	110	80
16	358	55	110	80
19	302	50	100	80
23	249	40	80	80
29	198	35	70	40
38	151	30	60	40
57	101	20	40	40

Curve delineator approach and departure spacing should include 3 delineators spaced at 2A. This spacing should be used during design preparation or when the degree of curve is known.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS NOT KNOWN			
Advisory Speed (MPH)	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
	A	2xA	B
65	130	260	200
60	110	220	160
55	100	200	160
50	85	170	160
45	75	150	120
40	70	140	120
35	60	120	120
30	55	110	80
25	50	100	80
20	40	80	80
15	35	70	40

If the degree of curve is not known, delineator spacing may be determined based on the Advisory Speed of the curve. Use the delineator curve spacing for each Advisory Speed (MPH).

DELINEATOR AND OBJECT MARKER APPLICATION AND SPACING

CONDITION	REQUIRED TREATMENT	MINIMUM SPACING
Frwy./Exp. Tangent	RPMs	See PM-series and FPM-series standard sheets
Frwy./Exp. Curve	Single delineators on right side	See delineator spacing table
Frwy/Exp. Ramp	Single delineators on at least one side of ramp (should be on outside of curves) (see Detail 3 on D&OM(4))	100 feet on ramp tangents Use delineator spacing table for ramp curves ("straightway spacing" does not apply to ramp curves)
Acceleration/Deceleration Lane	Double delineators (see Detail 3 on D&OM(4))	100 feet (See Detail 3 on D & OM (4))
Truck Escape Ramp	Single red delineators on both sides	50 feet
Bridge Rail (steel or concrete) and Metal Beam Guard Fence	Bi-Directional Delineators when undivided with one lane each direction Single Delineators when multiple lanes each direction	Equal spacing (100' max) but not less than 3 delineators
Concrete Traffic Barrier (CTB) or Steel Traffic Barrier	Barrier reflectors matching the color of the edge line	Equal spacing 100' max
Cable Barrier	Reflectors matching the color of the edge line	Every 5th cable barrier post (up to 100' max)
Guard Rail Terminus/Impact Head	Divided highway - Object marker on approach end Undivided 2-lane highways - Object marker on approach and departure end	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5) and D & OM (6)
Bridges with no Approach Rail	Type 3 Object Marker (OM-3) at end of rail and 3 single delineators approaching rail	See D & OM(5)
Reduced Width Approaches to Bridge Rail	Type 2 and Type 3 Object Markers (OM-3) and 3 single delineators approaching bridge	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5)
Culverts without MBGF	Type 2 Object Markers	See Detail 2 on D & OM(4)
Crossovers	Double yellow delineators and RPMs	See Detail 1 on D & OM (4)
Pavement Narrowing (lane merge) on Freeways/Expressway	Single delineators adjacent to affected lane for full length of transition	100 feet

NOTES

- Unless indicated otherwise, the delineator or barrier reflector color shall conform to the color of the pavement edge line on the side of the road where the delineators or barrier reflectors are placed.
- Barrier reflectors may be used to replace required delineators.
- Single red delineators may be mounted on the back side of delineator posts for wrong way driver applications

LEGEND	
	Bi-directional Delineator
	Delineator
	Sign

Texas Department of Transportation
Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(3)-20

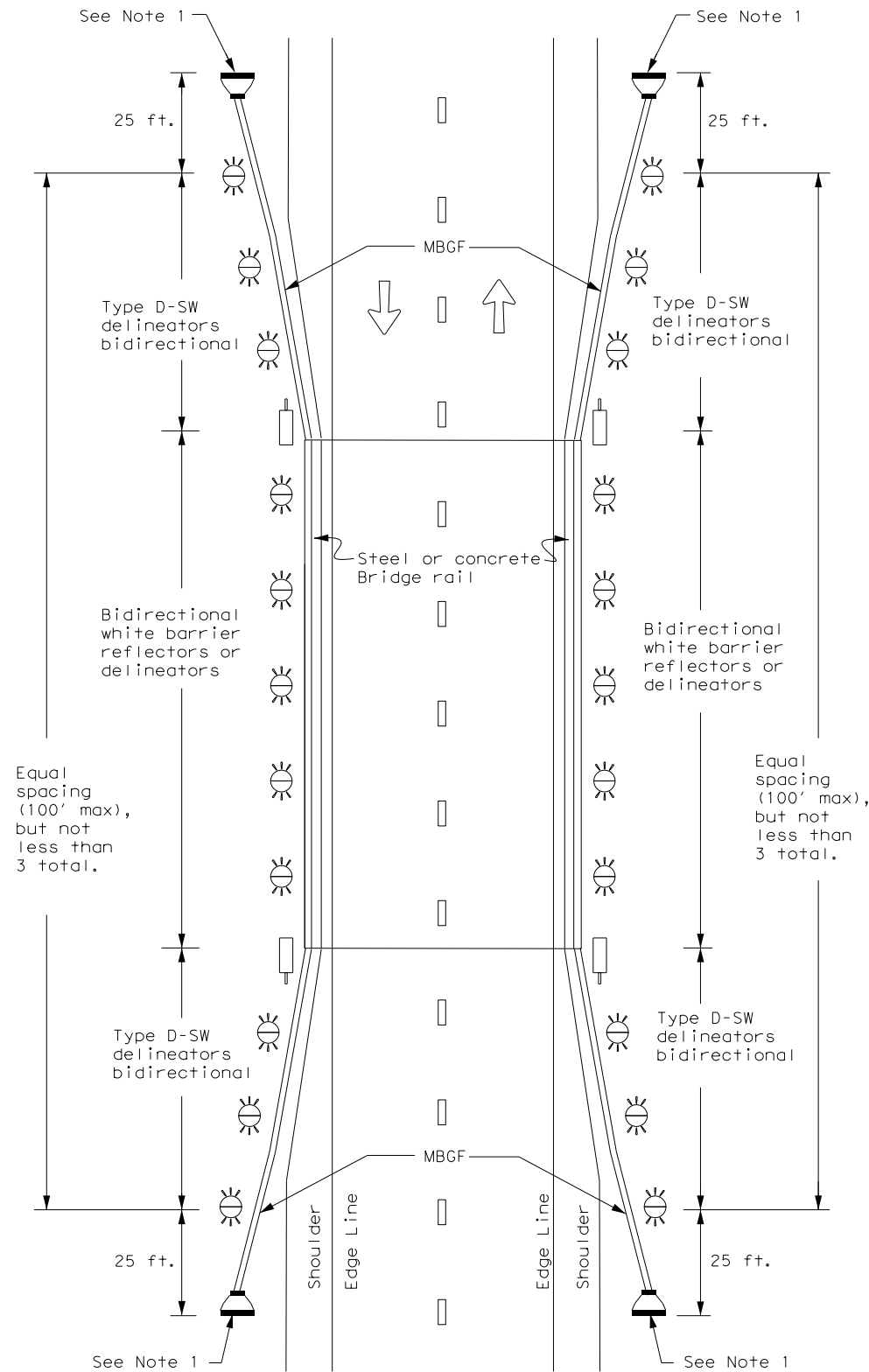
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© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS		0910	07	072
3-15 8-15	DIST	COUNTY	SHEET NO.	
8-15 7-20	TYLER	GREGG	259	

20C

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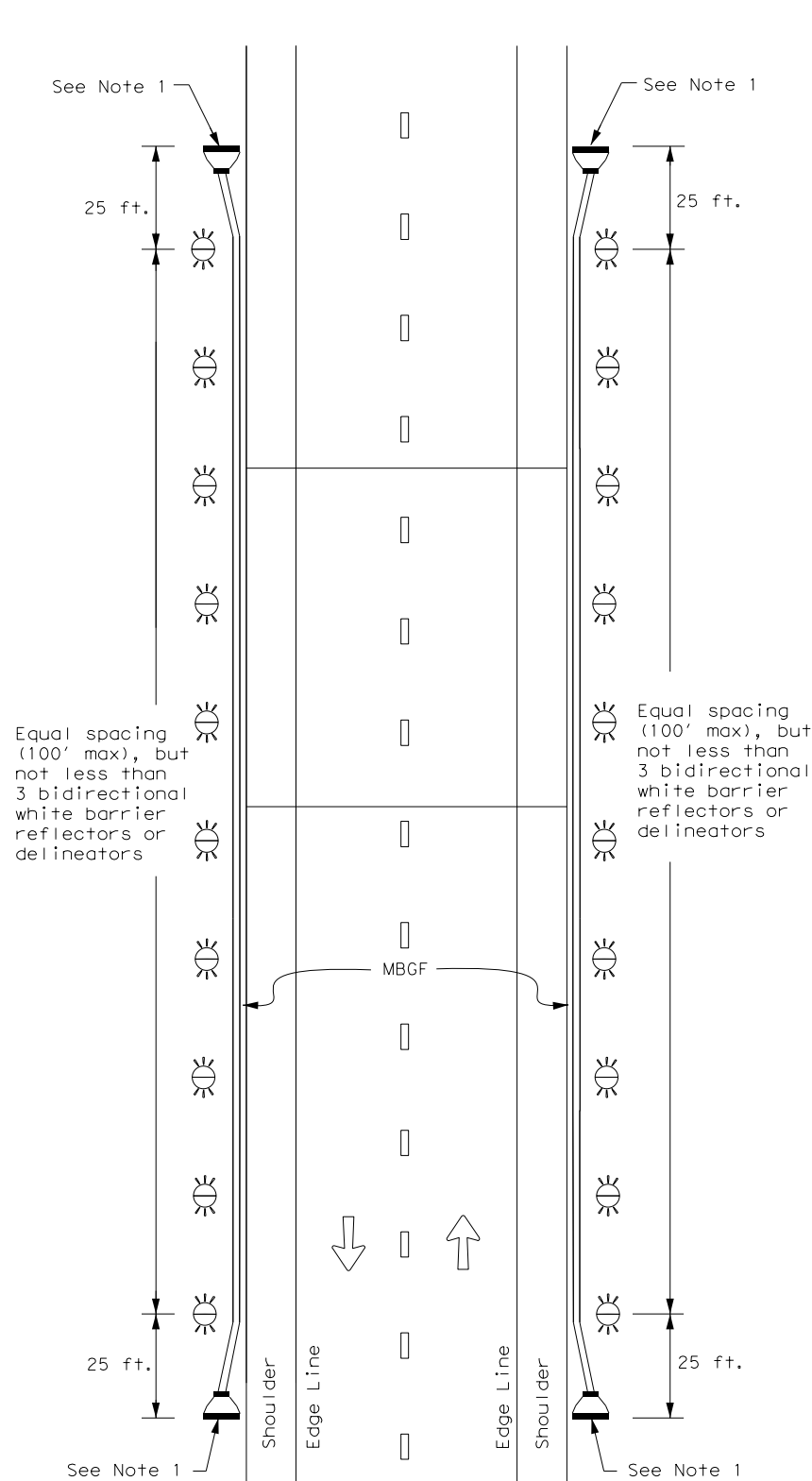
TWO-WAY, TWO LANE ROADWAY WITH REDUCED WIDTH APPROACH RAIL



NOTE:

1. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

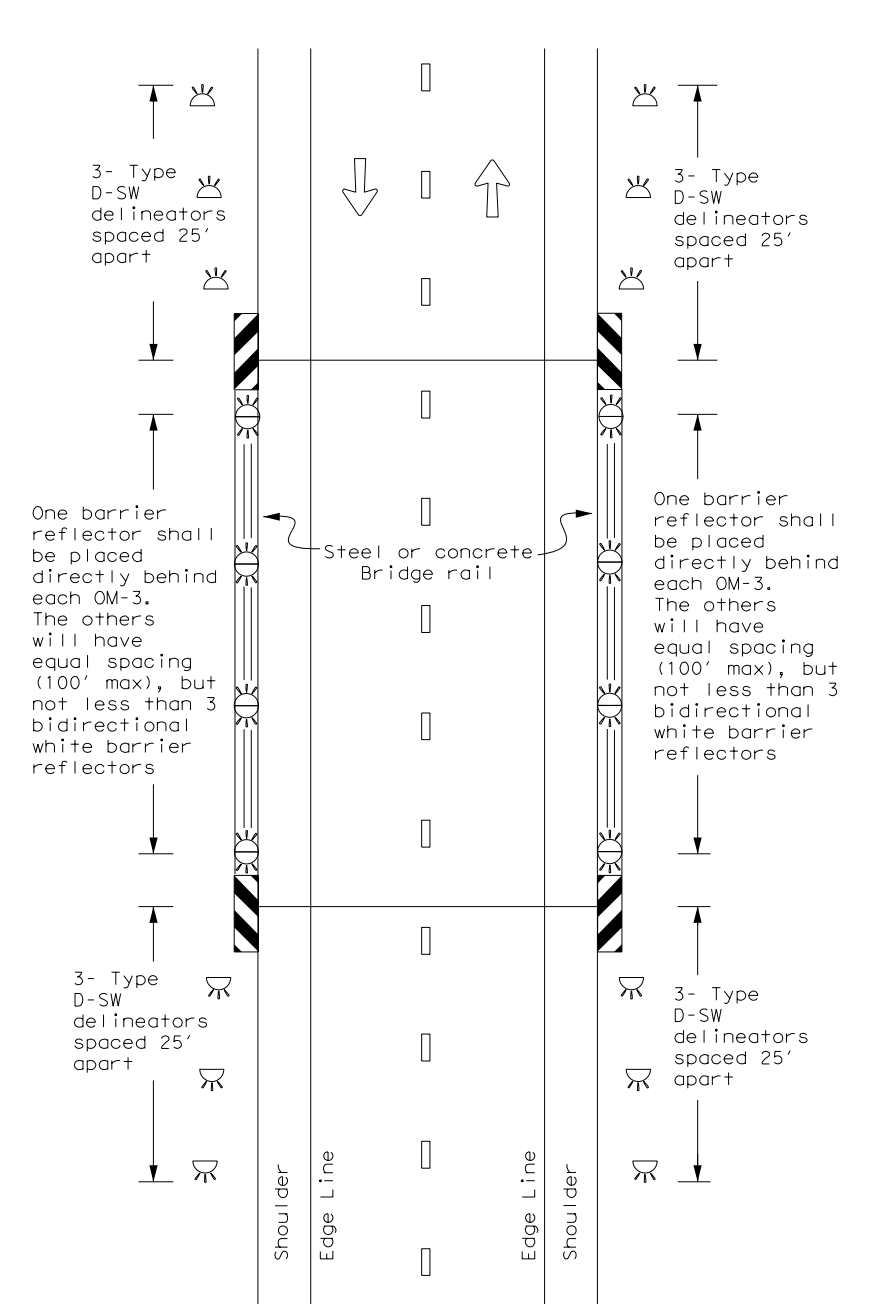
TWO-WAY, TWO LANE ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



NOTE:

1. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

TWO-WAY, TWO LANE ROADWAY BRIDGE WITH NO APPROACH RAIL



LEGEND

	Bidirectional Delineator
	Delineator
	OM-3
	OM-2
	Terminal End
	Traffic Flow



Traffic Safety Division Standard

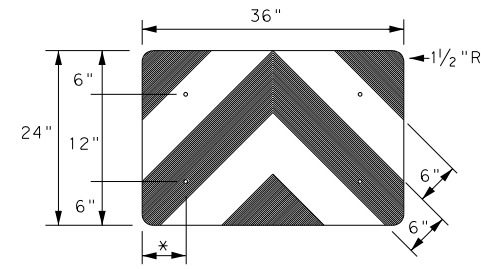
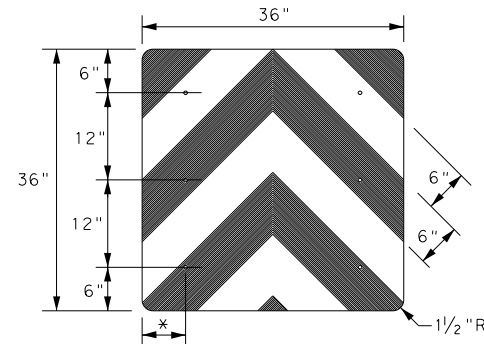
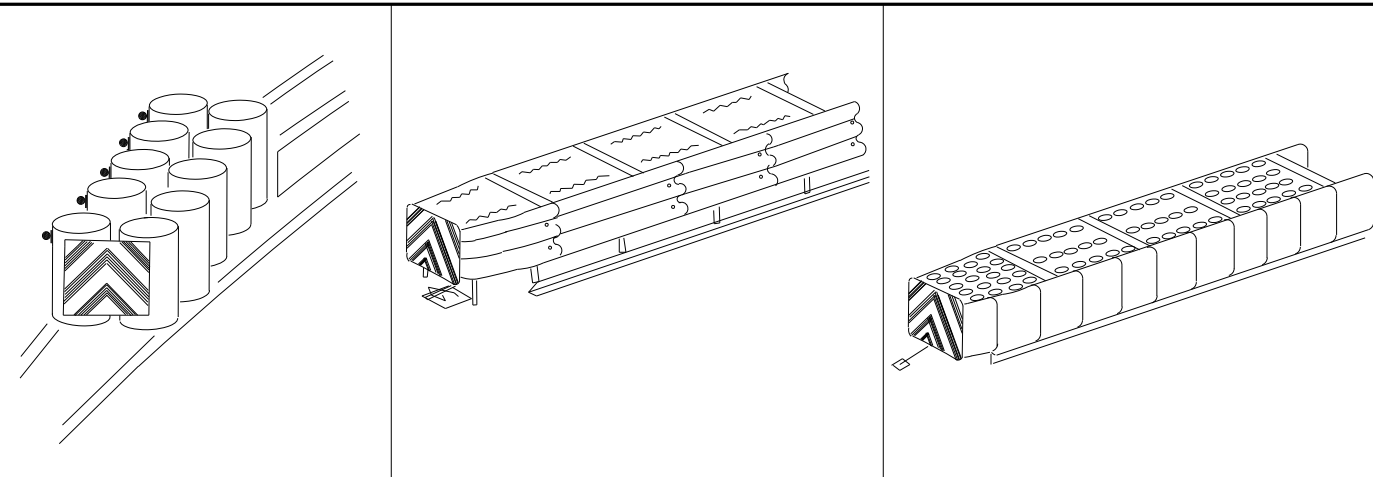
DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(5) - 20

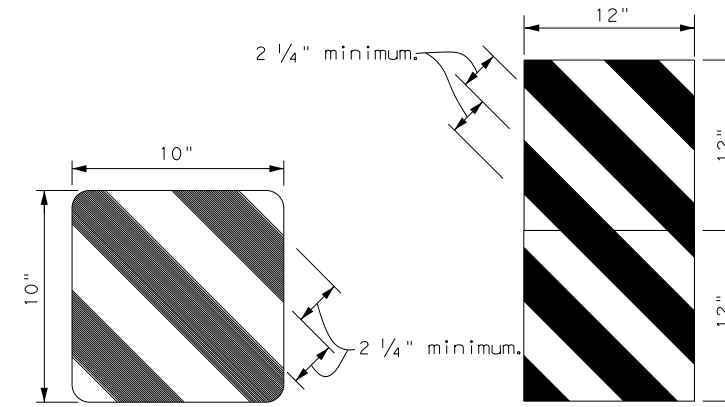
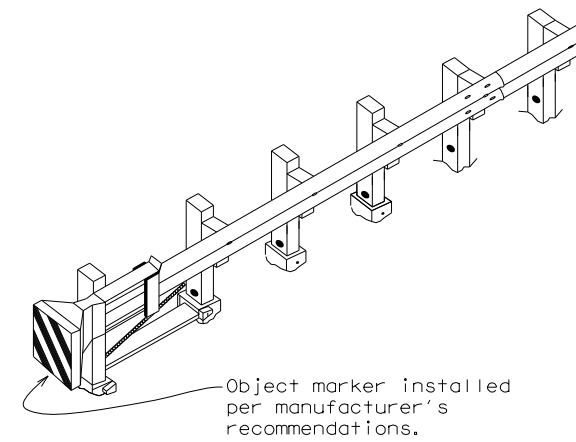
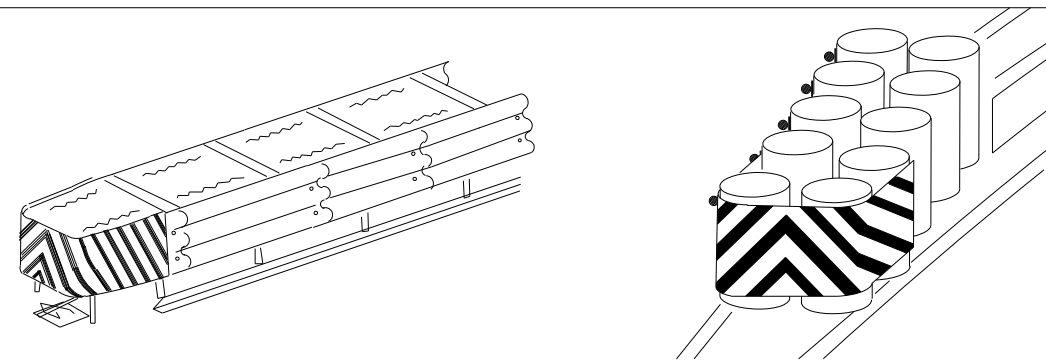
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© TxDOT August 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
7-20	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	260	

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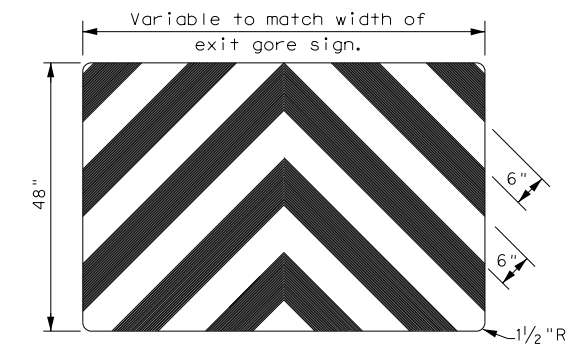
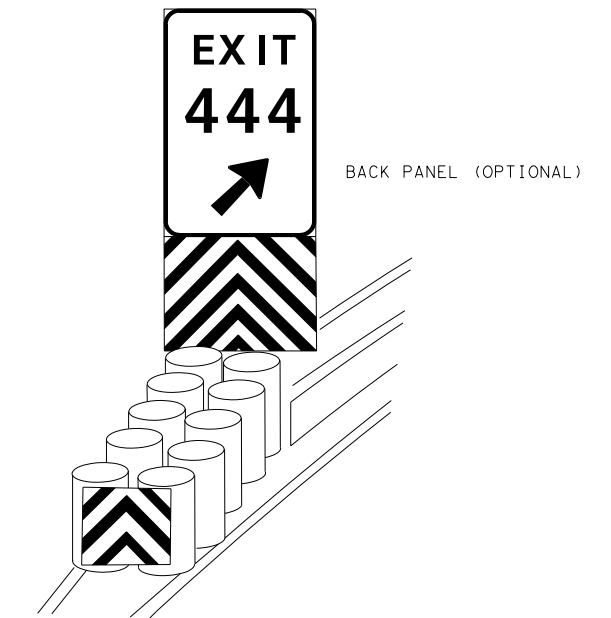
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* Adjust to fit attenuator per manufacturer's recommendation, or as directed by the Engineer

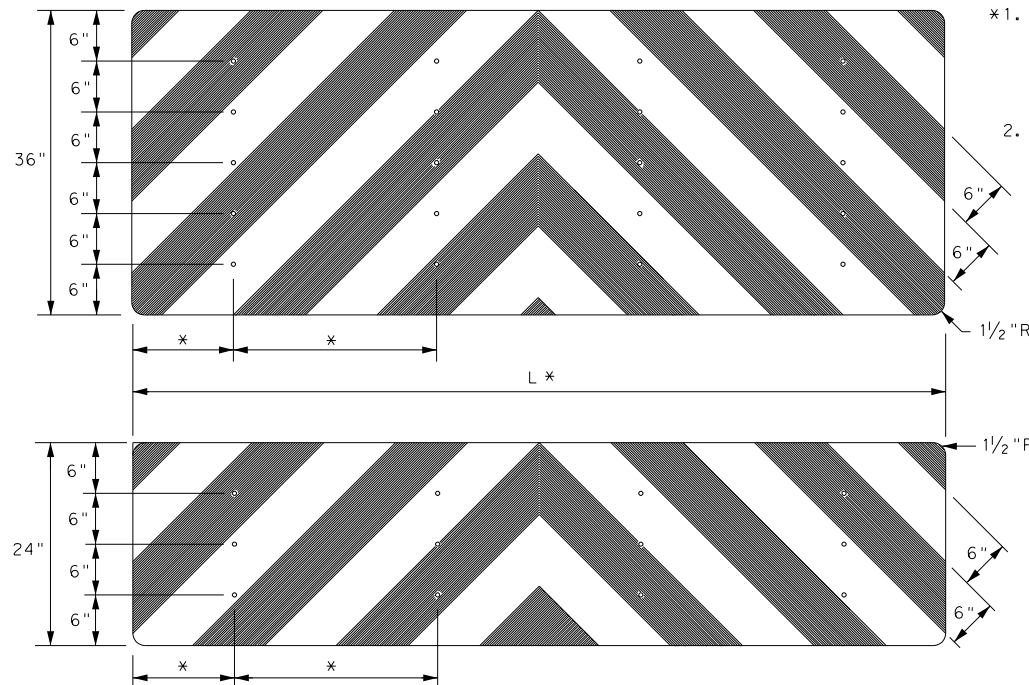


OBJECT MARKERS SMALLER THAN 3 FT²



NOTES

- *1. Spacing should be adjusted to attach through centerline of drum, per attenuator manufacturer's recommendation, or as directed by the Engineer.
- 2. Mounting should be flush with top of attenuator. Minimum size 96" x 24".



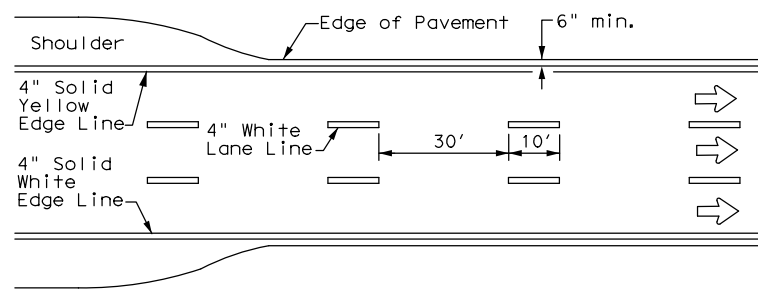
NOTES

1. Object Markers shall conform to the Texas MUTCD and meet the color and reflectivity requirement of Department Material Specification DMS 8300. Background shall be yellow reflective sheeting (Type B or C) and Chevron shall be black.
2. Object Markers may be fabricated from adhesive backed reflective sheeting applied directly to guardrail end treatment, or applied directly to an "end cap" as per the manufacturer's recommendation. Direct applied sheeting shall provide a smooth surface and have no wrinkles, air bubbles, cuts or tears. A radius at the corners is not required for direct applied sheeting.
3. Object Marker size may be reduced to fit smaller devices. Width of alternating black and yellow stripes are typically 6". Object Markers smaller than 3ft may have reduced width stripes of a minimum of 2 1/4".
4. Pop rivets, screws, or nuts and bolts may be used to attach object markers and reflectors. Holes, slots or other openings may be cut or drilled through object markers to allow cable or other attachments.
5. Object Marker at nose of attenuator is subsidiary to the attenuator.
6. See D & OM (1-4) for required barrier reflectors.

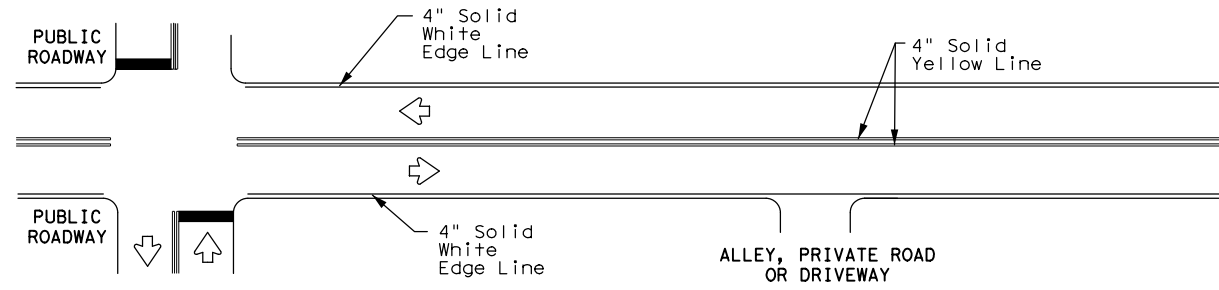
<p>DELINEATOR & OBJECT MARKER FOR VEHICLE IMPACT ATTENUATORS D & OM(VIA) - 20</p>			
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© TxDOT December 1989	CONT	SECT	JOB
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4-92 8-04			HIGHWAY
8-95 3-15			
4-98 7-20	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	261
20G			

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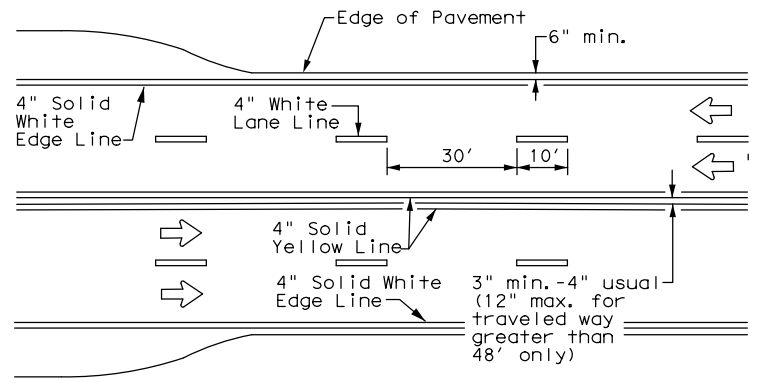
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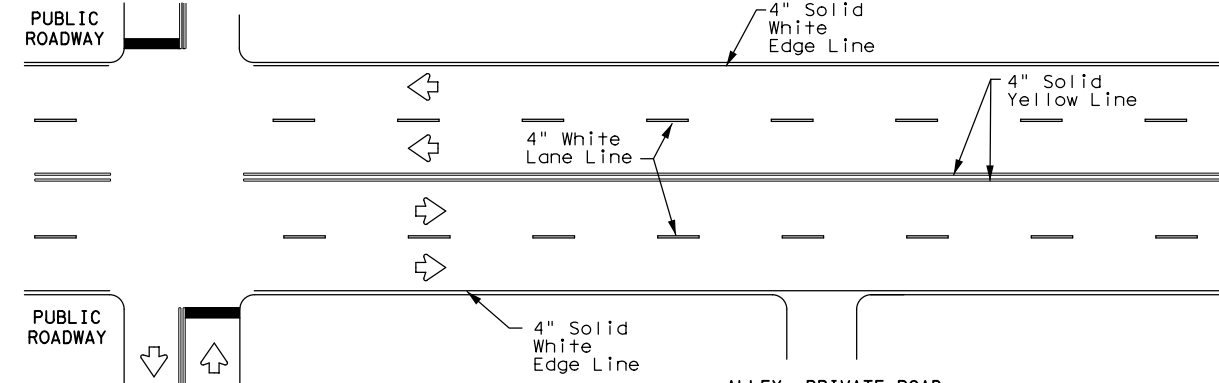
EDGE LINE AND LANE LINES
 ONE-WAY ROADWAY
 WITH OR WITHOUT SHOULDERS



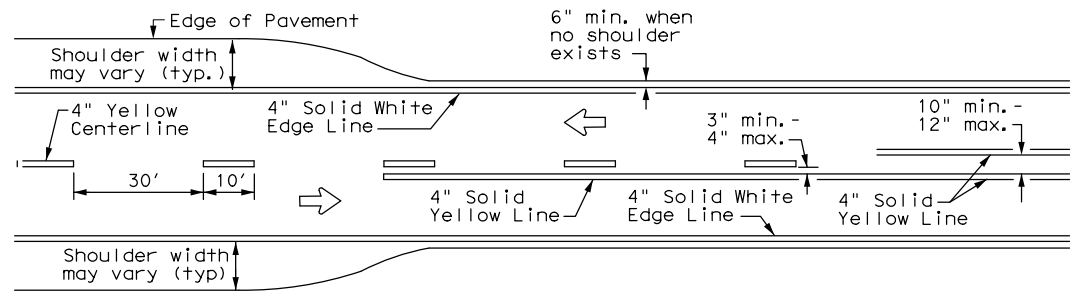
TYPICAL TWO-LANE, TWO-WAY PAVEMENT
 MARKINGS THROUGH INTERSECTIONS



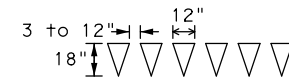
CENTERLINE AND LANE LINES
 FOUR LANE TWO-WAY ROADWAY
 WITH OR WITHOUT SHOULDERS



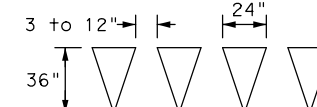
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
 MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY
 WITH OR WITHOUT SHOULDERS

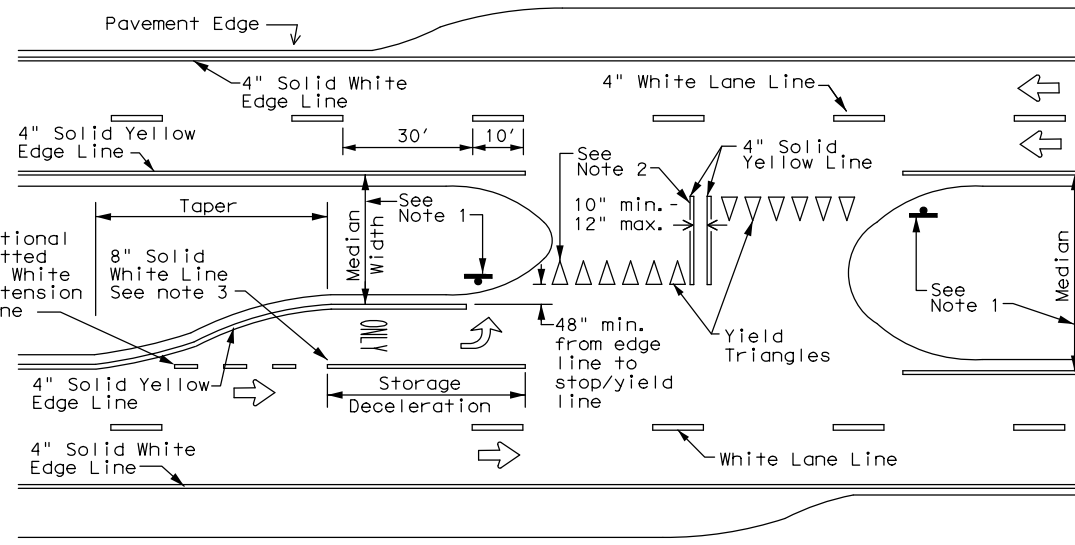


For posted speed on road
 being marked equal to or
 less than 40 MPH.



For posted speed on road
 being marked equal to or
 greater than 45 MPH.

YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

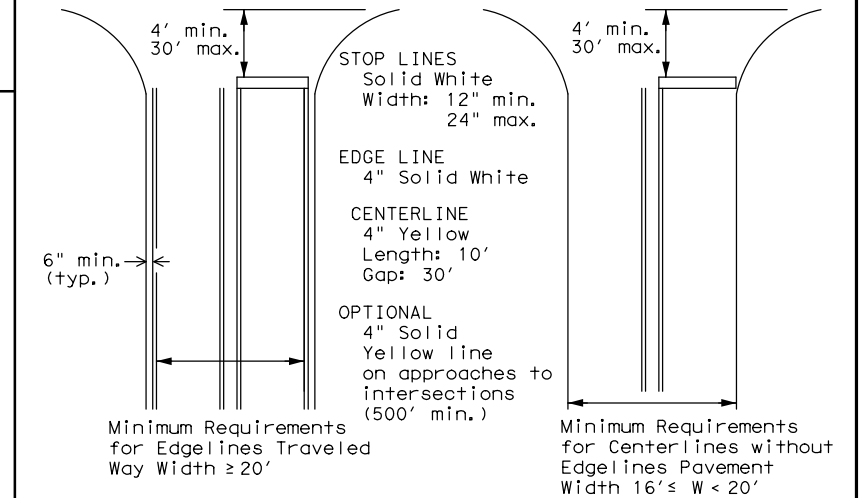
- Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs are optional as determined by the Engineer.
- Install median striping (double yellow centerlines and stop bars/yield triangles) when a 50' or greater median centerline can be placed. Stop bars shall only be used with stop signs. Yield triangles shall only be used with yield signs.
- Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

- Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.
- The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to the inside of edgeline of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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



GUIDE FOR PLACEMENT OF STOP LINES,
 EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths
 for Undivided Highways



TYPICAL STANDARD
 PAVEMENT MARKINGS

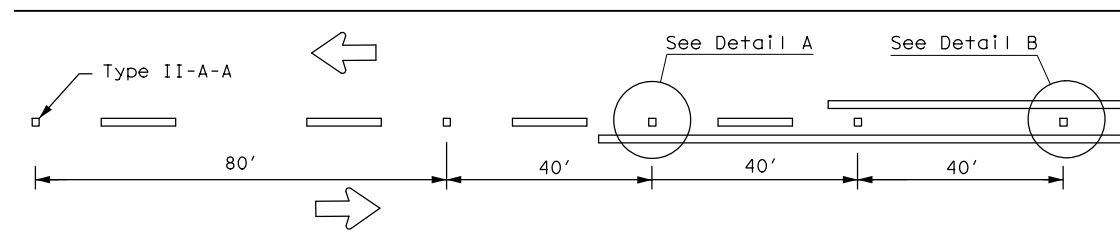
PM(1)-20

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© TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
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5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	TYLER	GREGG		262

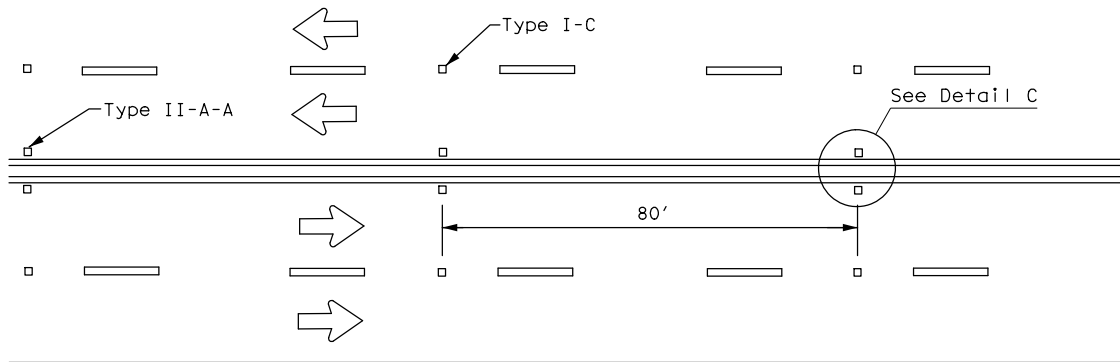
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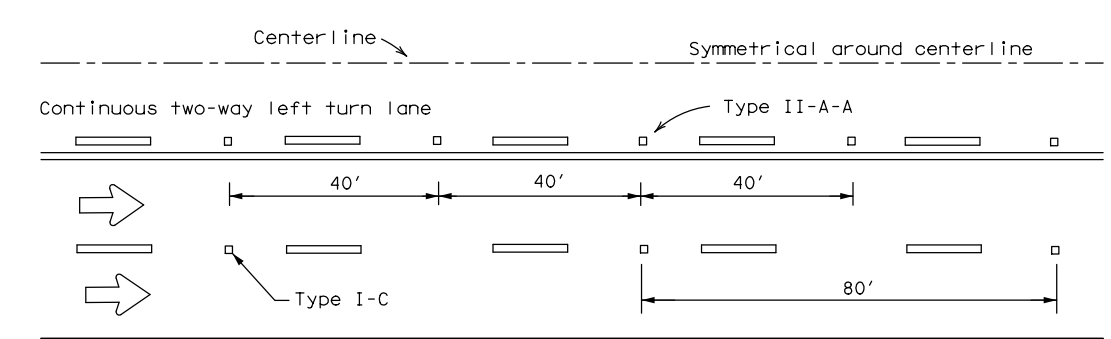
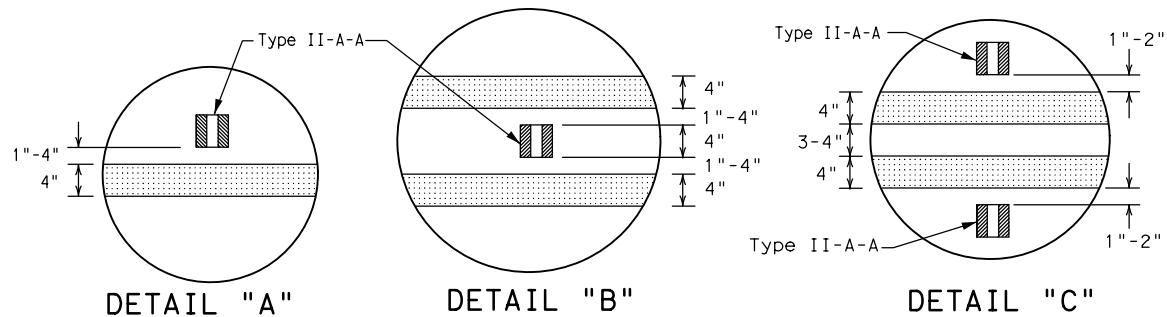
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



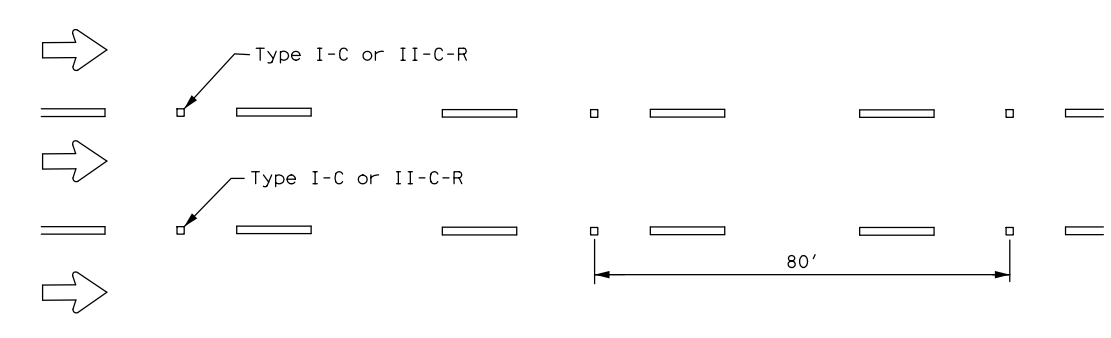
CENTERLINE FOR ALL TWO LANE ROADWAYS



CENTERLINE & LANE LINES
FOR FOUR LANE TWO-WAY HIGHWAYS



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE

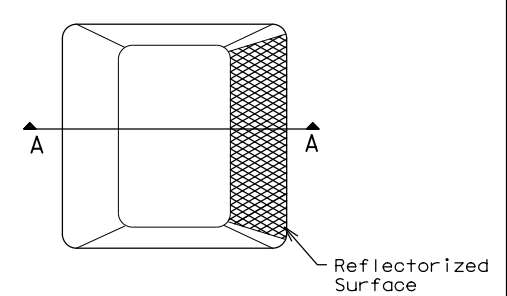


LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

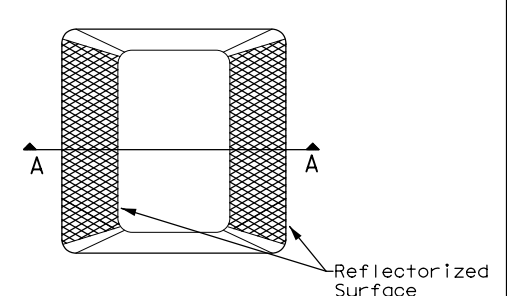
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

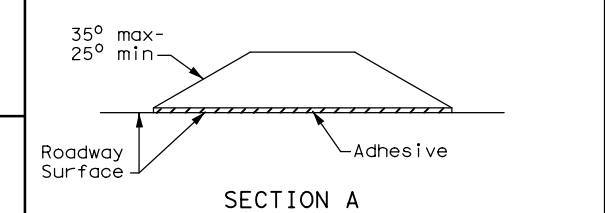
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



RAISED PAVEMENT MARKERS

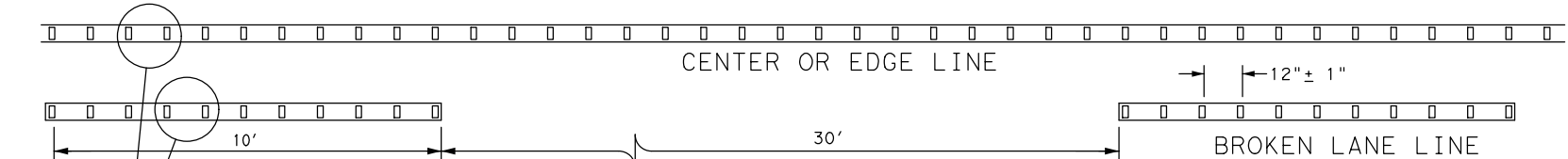


POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS PM(2) - 20

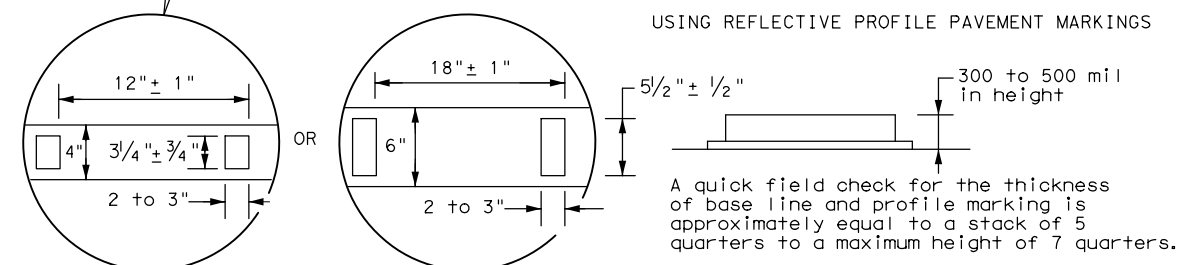
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© TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
4-92 2-10 REVISIONS	0910	07	072	HIGH ST
5-00 2-12	DIST	COUNTY	SHEET NO.	
8-00 6-20	TYLER	GREGG	263	

GENERAL NOTES

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



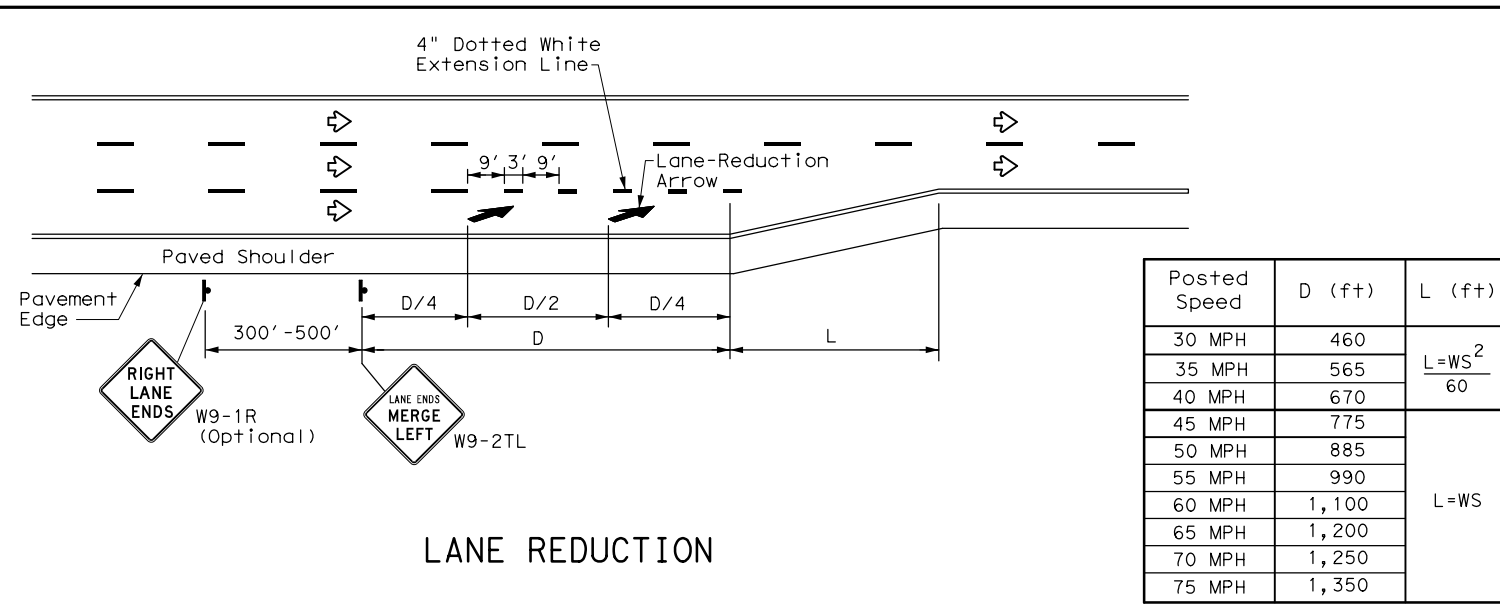
REFLECTORIZED PROFILE
PATTERN DETAIL
USING REFLECTIVE PROFILE PAVEMENT MARKINGS



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

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DATE: 7/22/2021
 FILE: pm3-20.dgn
 PROJECT: \jmt-pw-bent\ey.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\8. Traffic\TxDOT_Standards\pm3-20.dgn



Posted Speed	D (ft)	L (ft)
30 MPH	460	$L = \frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	L=WS
45 MPH	775	
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

LANE REDUCTION

NOTES

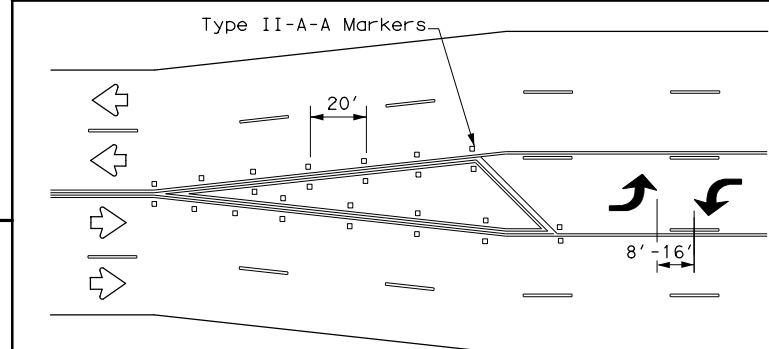
- Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
- On divided highways, an additional W9-1R "RIGHT LANE ENDS" sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
- Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
- For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

GENERAL NOTES

- Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
- When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
- Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
- Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

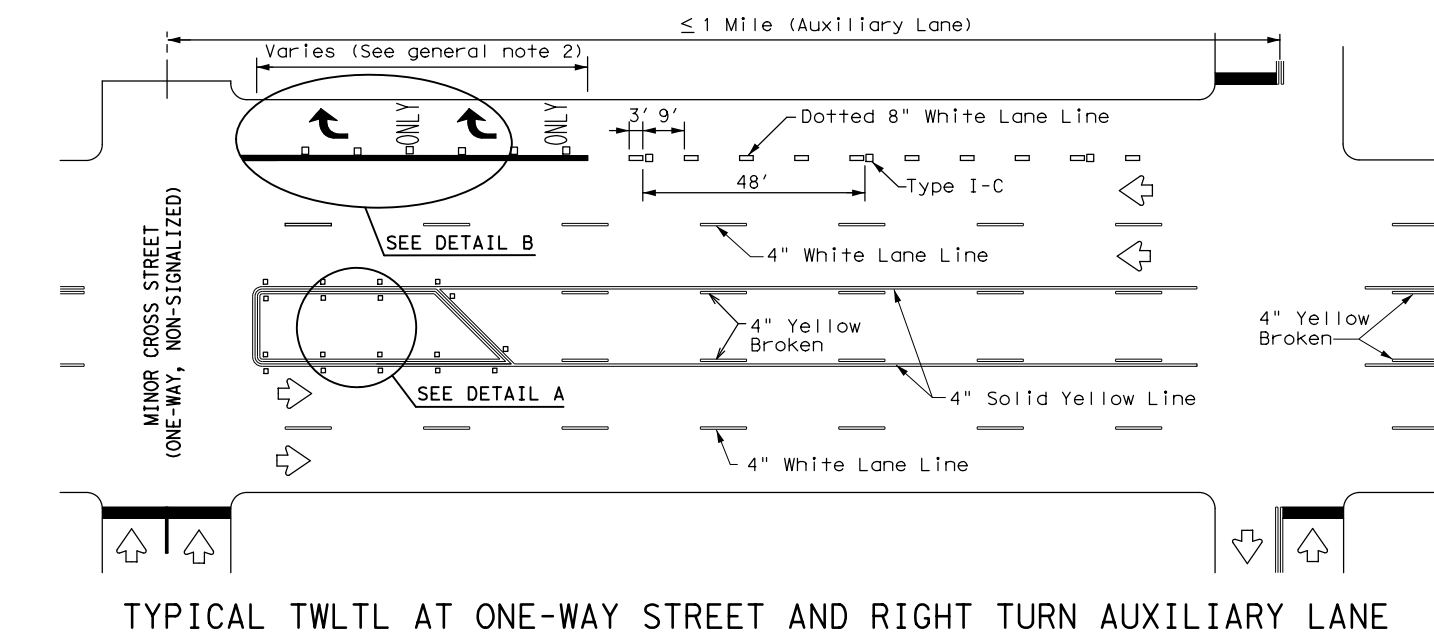
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

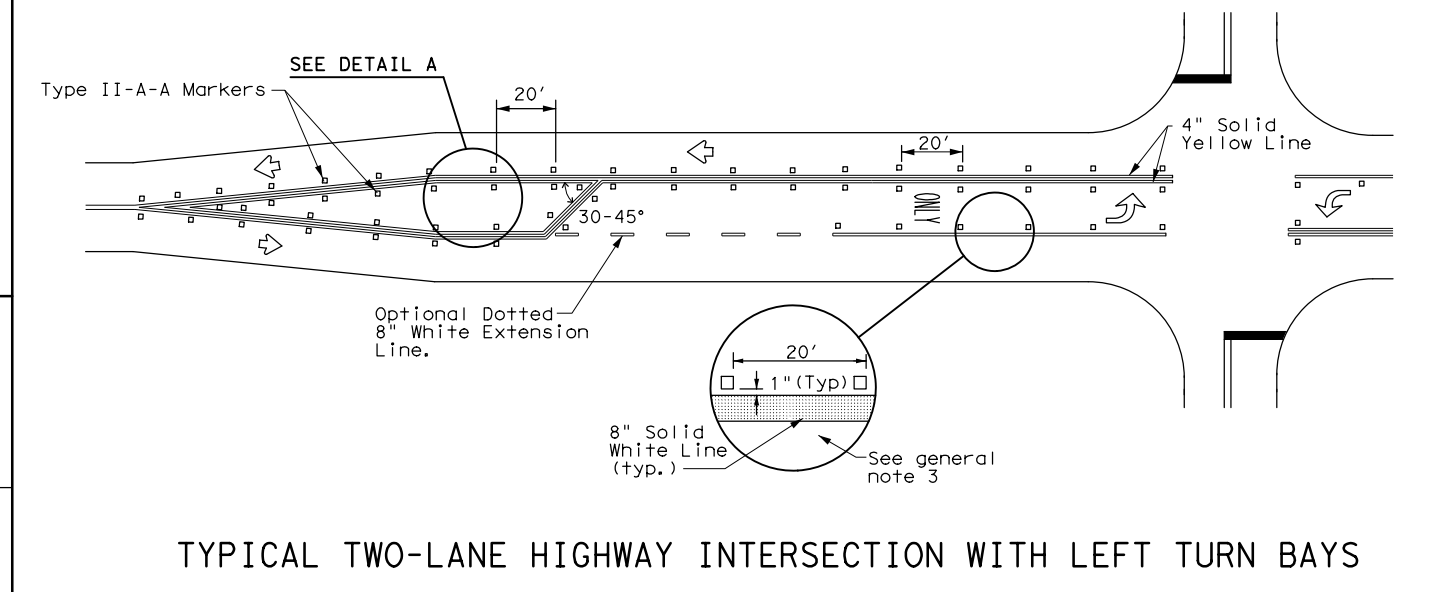


A two-way left-turn (TWLTL) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

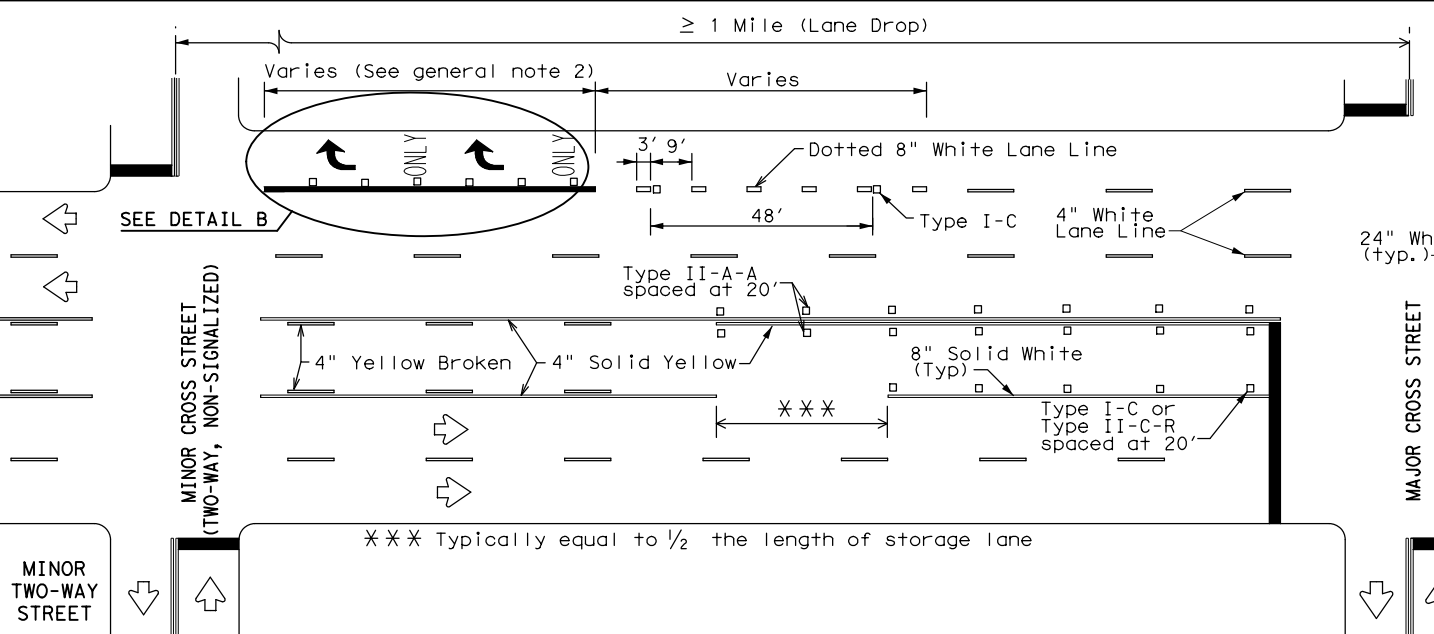
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



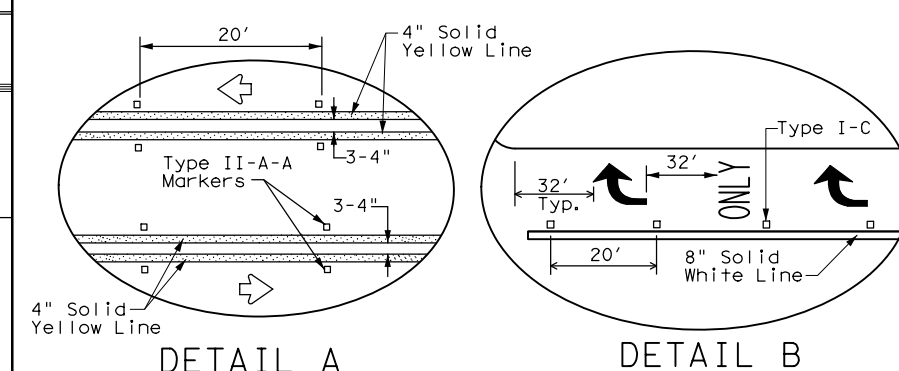
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



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



DETAIL A

DETAIL B

Texas Department of Transportation
 Traffic Safety Division Standard

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

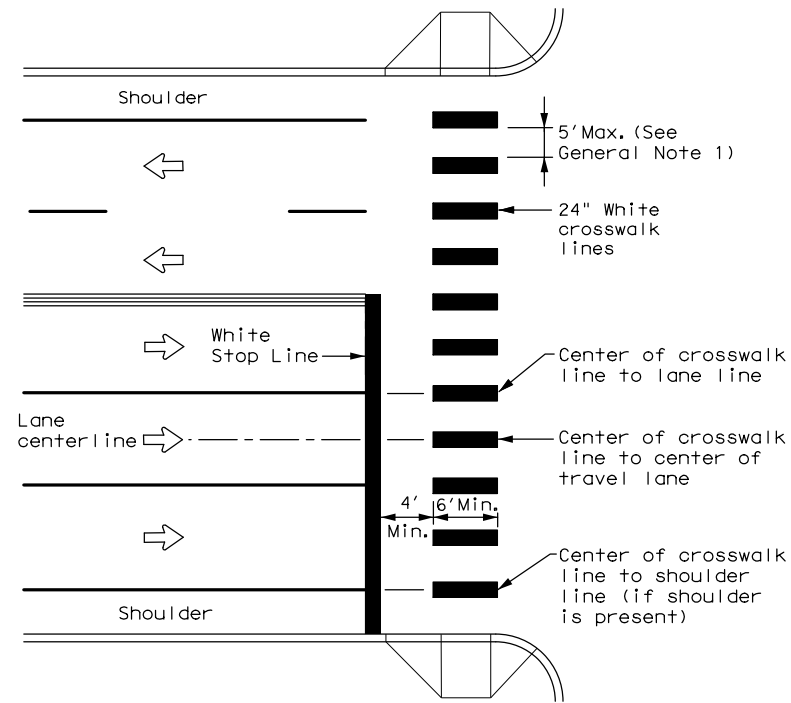
FILE: pm3-20.dgn	DATE: 0910 07	CK: 072	DW:	CK:
© TxDOT April 1998	CONTRACT: 0910 07	SECTION: 072	JOB: HIGHWAY	PROJECT: HIGH ST
REVISIONS:	DIST: TYLER	COUNTY: GREGG	SHEET NO.:	264

5-00 2-10
 8-00 2-12
 3-03 6-20

22C

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DATE: 12/21/2021
 FILE: pm4-20.dgn



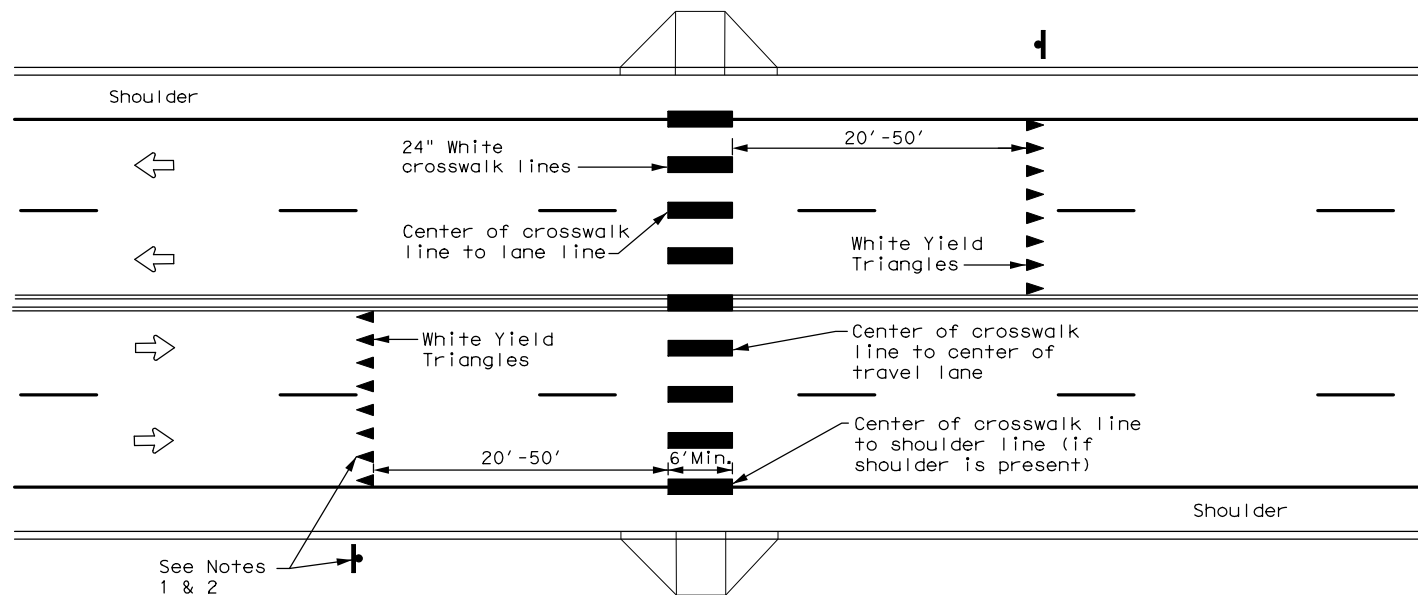
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

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.

Crosswalk width = 9" for approach speeds of 30 mph or less
 Crosswalk width = 12" for approach speeds of 35 mph or more



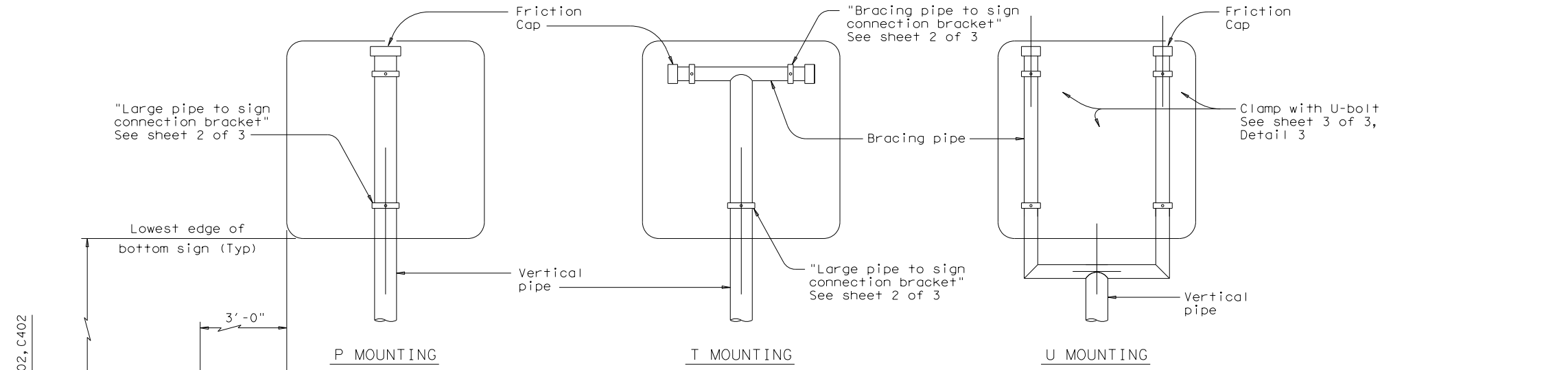
Texas Department of Transportation
 Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS
 PM(4)-20 MOD

FILE: pm4-20.dgn	DN:	CK:	DW:	CK:
© TxDOT June 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	265	

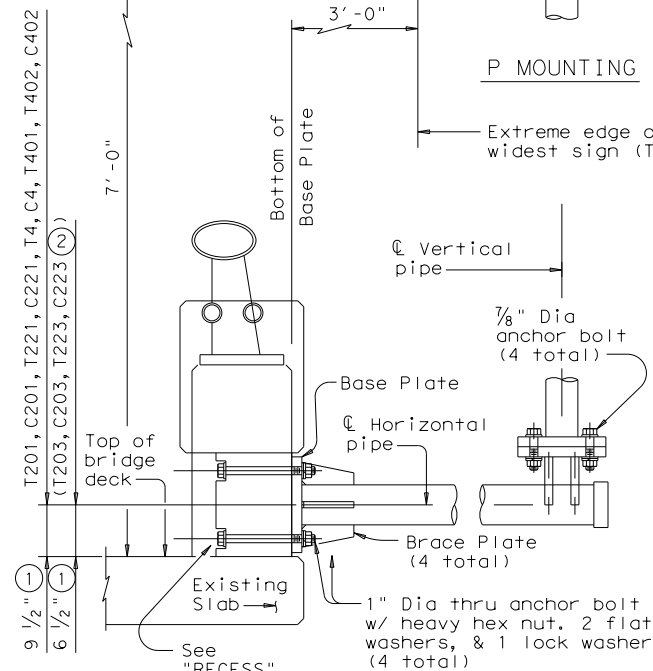
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DATE: 7/22/2021
 FILE: \\jmt-pw_bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan_Set\8. Traffic\TxDOT_Standards\smbr-14.dgn

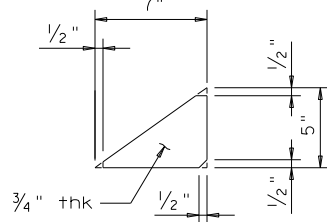
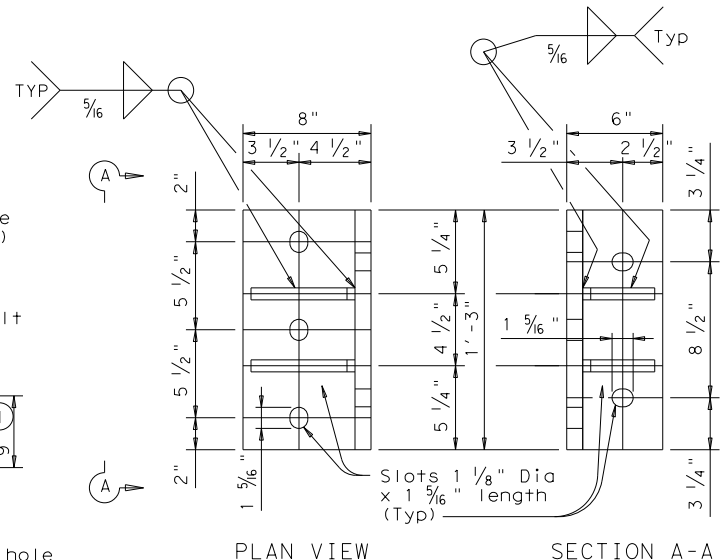
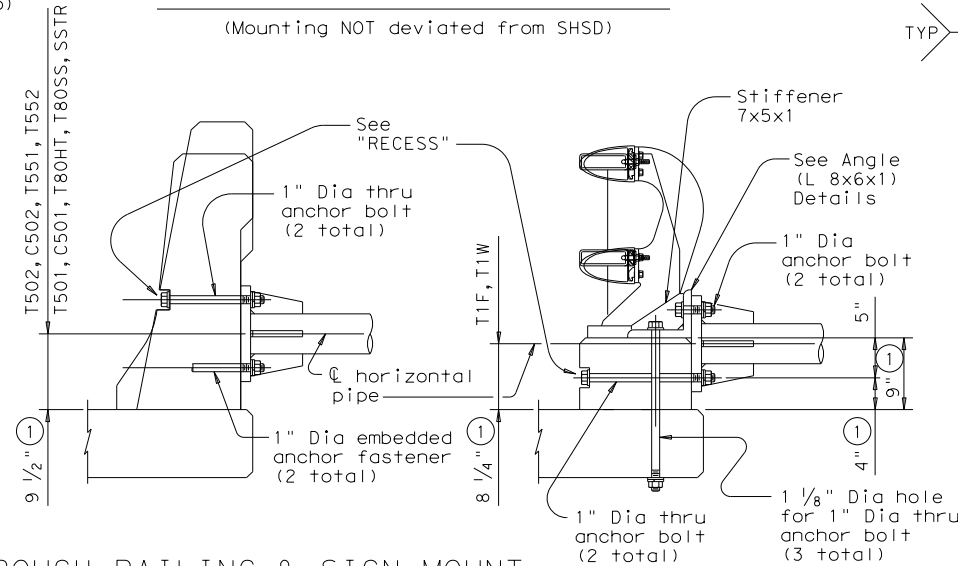


VARIOUS SIGN ATTACHMENTS

(Mounting NOT deviated from SHSD)

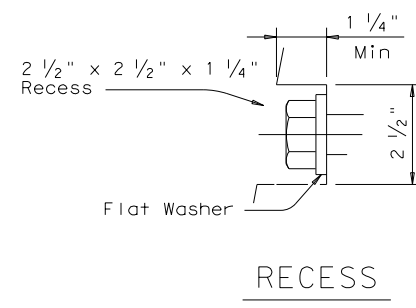


LONGITUDINAL SECTION THROUGH RAILING & SIGN MOUNT



ANGLE (L 8x6x1) DETAILS

- ① Increase 2" for structure with overlay.
- ② Attached at center post.



PIPE SIZE AND THICKNESS			
Pipe Placement Design Wind Speed	Horizontal	Vertical	Bracing
90 mph	5" X-Strong (.375")	4" X-Strong (.337")	2 1/2" Standard (.203")
130 mph	6" X-Strong (.432")	5" X-Strong (.375")	3" X-Strong (.300")

GENERAL NOTES:

Design conforms to 2013 AASHTO Standard Specifications for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design 3-second gust wind speeds of 90 mph and 130 mph with a 1.14 gust factor, and a wind importance factor of 1.0 (50-year mean recurrence interval) for the supporting structures. For mounting connection between sign panel and pipe, wind importance factors of 0.71 and 0.54, for 90 mph and 130 mph winds, respectively, are applied to adjust the wind speeds to a 10-year mean recurrence interval.

See standard sheet WV & IZ (LTS2013) for the boundaries of each design wind zone. All mounting shall be based on 130 mph wind speed design except when located in 90 mph wind zone. Maximum panel area is 30 sq. ft. Maximum design height is 50 ft, with design height defined as the distance between natural ground (average elevation of surrounding terrain) and the center of sign(s) at the mounting location.

Material for pipe shall be ASTM A53 Grade B, or A501. Structural steel plates shall be ASTM A36, A572 Grade 50, or A588. Bolts used to connect pipe and mounting bracket, and wind beam to sign panel shall be ASTM A307. Anchor bolts shall be ASTM A325 or A193 B7. Each anchor bolt shall be provided with 2 flat washers, 1 lock washer, and 1 heavy hex nut. All parts shall be galvanized in accordance with Standard Specifications Item 445, "Galvanizing".

Attach horizontal pipe at least 2'-0" from the edge of any nearby drain slot.

Contractor shall verify applicable field dimensions before fabrication. Holes drilled through the railing parapet wall shall be drilled with rotary (coring or masonry drill) type equipment. Percussion (star) drilling shall not be allowed. Anchorage for pipe attached to rail shall be placed using an anchoring system approved by the engineer. Installation of anchor fasteners including hole depth, diameter and material shall be in accordance with the manufacturers' recommendation.

Each embedded anchor fastener shall resist an allowable design loading (after applying the reduction factors of bolt spacing and bolt edge distance) of:

	130 mph	90 mph
Tension	12.5 kips	7.5 kips
Shear	9.0 kips	5.0 kips

Each anchoring system shall provide a capacity to resist the required tension and shear acting simultaneously.

For sign connection to mounting, shop drill holes on sign blank in accordance with the current Standard Highway Sign Designs for Texas (SHSD). Additional hole(s) needed to meet a stipulated-type mounting may be field drilled. For multi-sign or back-to-back signs mounting, the engineer shall determine the proper type which ensures each individual mounting meets requirements.

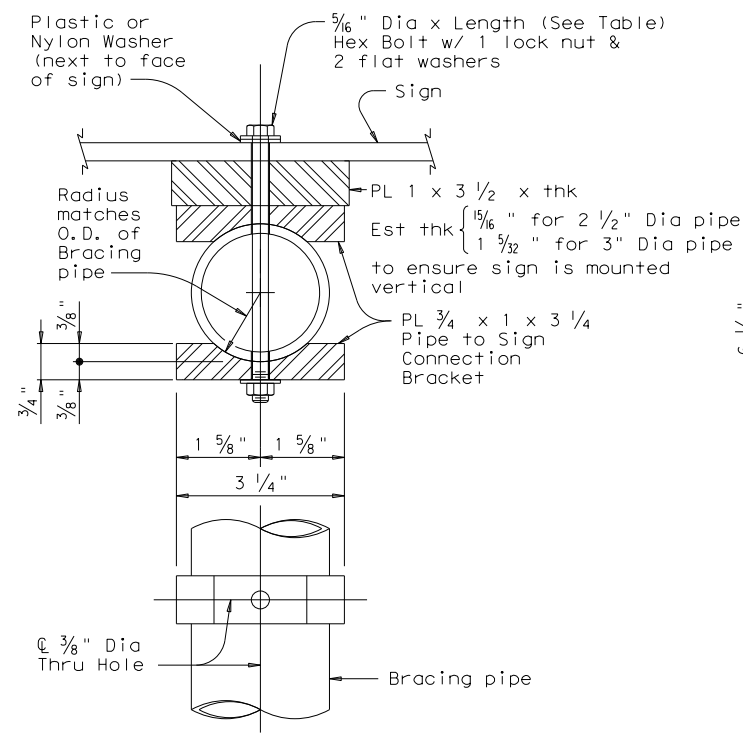
Refer to Standard sheets SMD(GEN), SMD(SLIP-2 and SMD(2-1) for details not covered here.

SHEET 1 OF 3

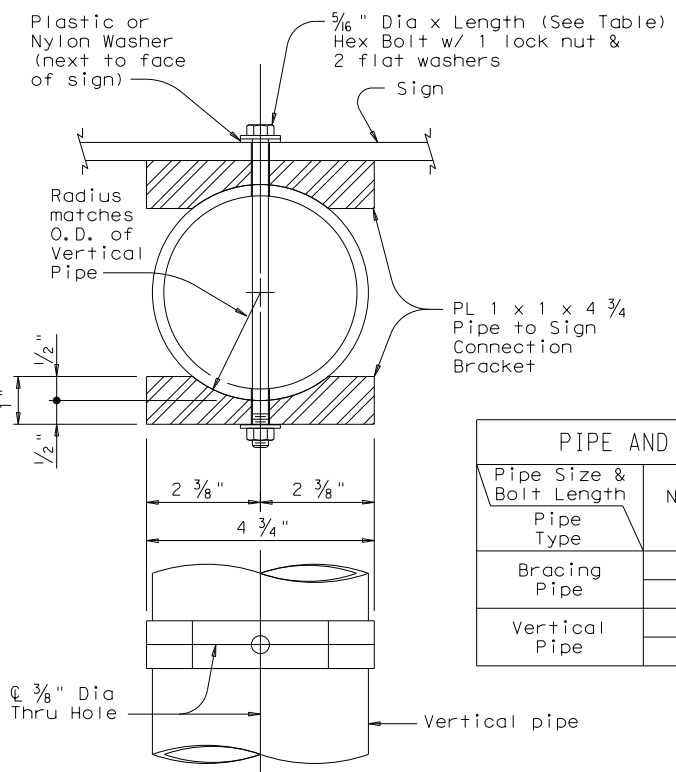
		Traffic Operations Division Standard	
BRIDGE RAILING SIGN MOUNT DETAILS			
SMD (BR-1) - 14			
FILE: smdbr-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT August 2014	CON: 0910	SECT: 07	JOB: 072
REVISIONS	DIST: TYLER	COUNTY: GREGG	SHEET NO.: 266

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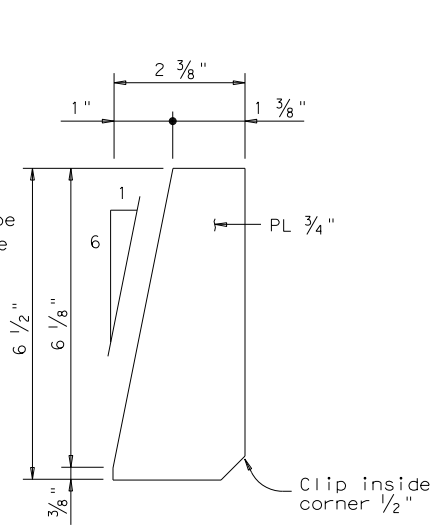
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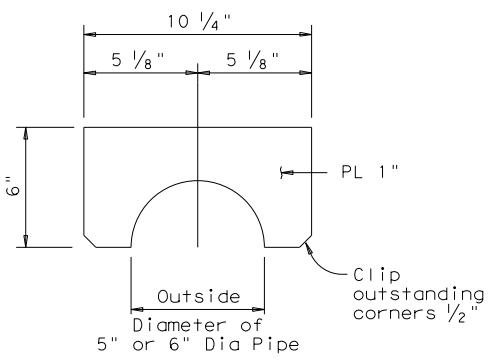
BRACING PIPE TO SIGN CONNECTION BRACKET DETAILS
 (Showing T Mounting)



LARGE PIPE TO SIGN CONNECTION BRACKET DETAILS
 (Showing P or T Mounting)

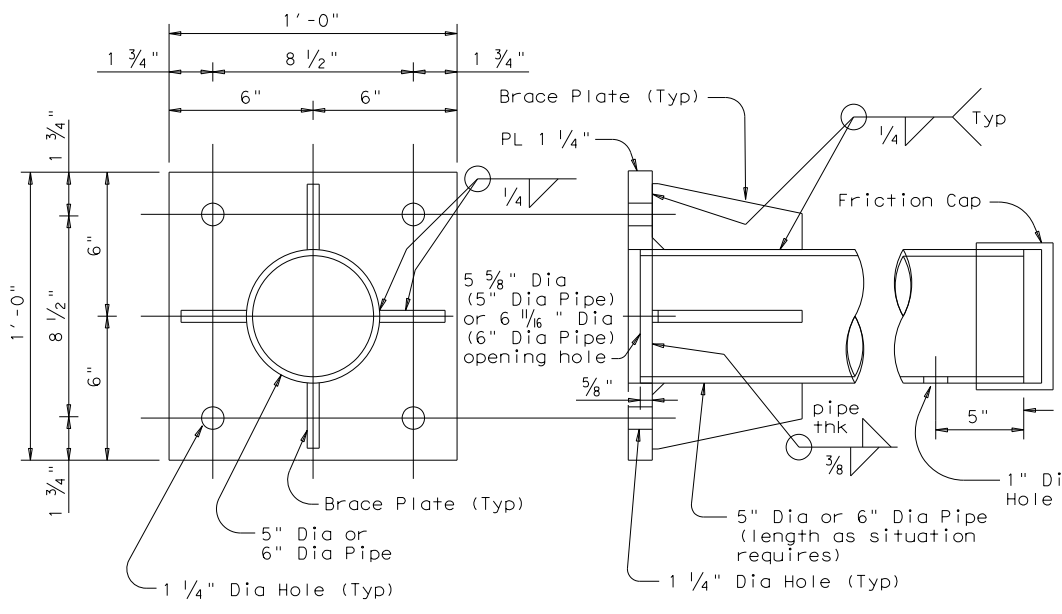


BRACE PLATE DETAILS

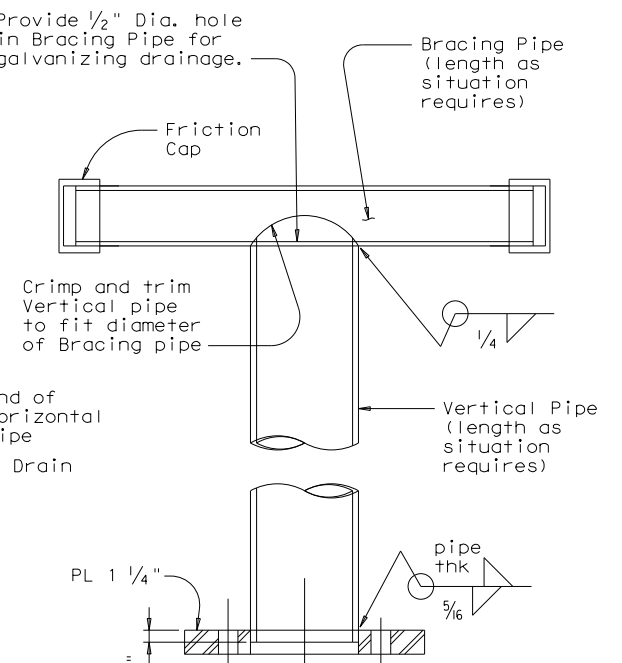


SIGN POLE SUPPORT PLATE BRACKET DETAILS

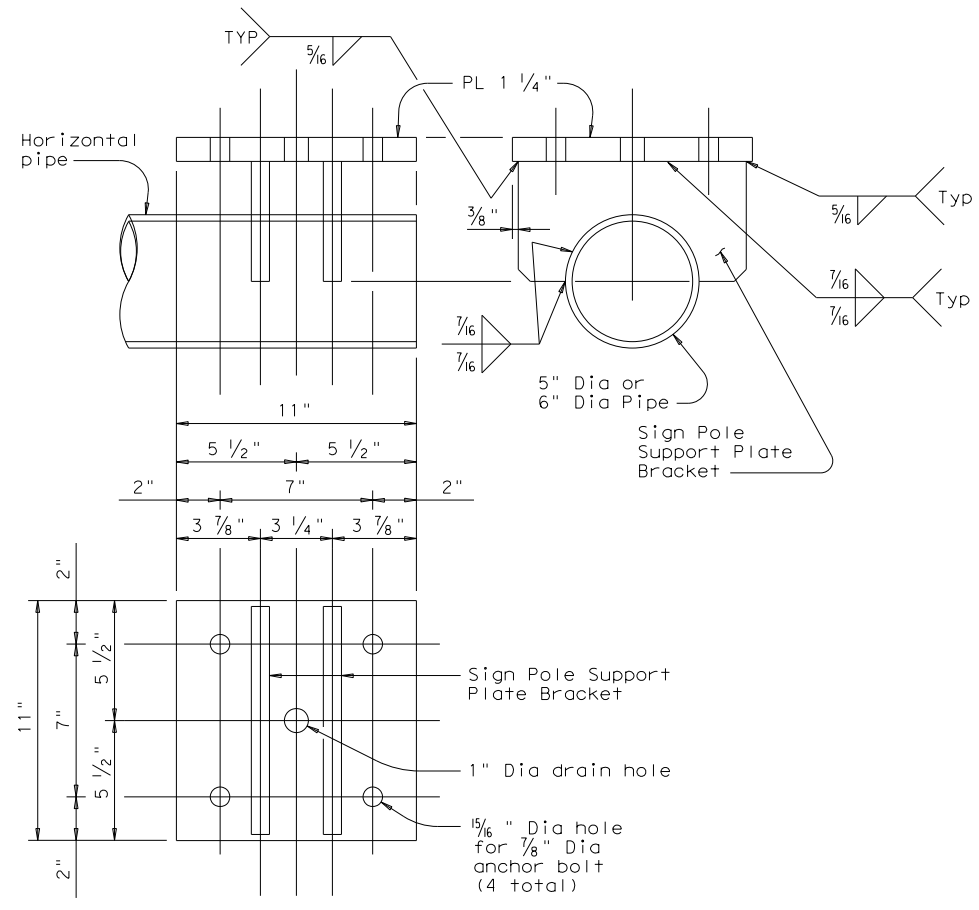
PIPE AND BOLT SPECIFICATIONS		
Pipe Size & Bolt Length Pipe Type	Nominal Pipe Dia (in.)	Bolt Length (in.)
Bracing Pipe	2 1/2	6
Vertical Pipe	3	7
	4	7
	5	8



BASE PLATE DETAILS



SIGN POLE & POLE BASE PLATE DETAILS
 (Showing only T Mounting)



SIGN POLE SUPPORT PLATE DETAILS

SHEET 2 OF 3

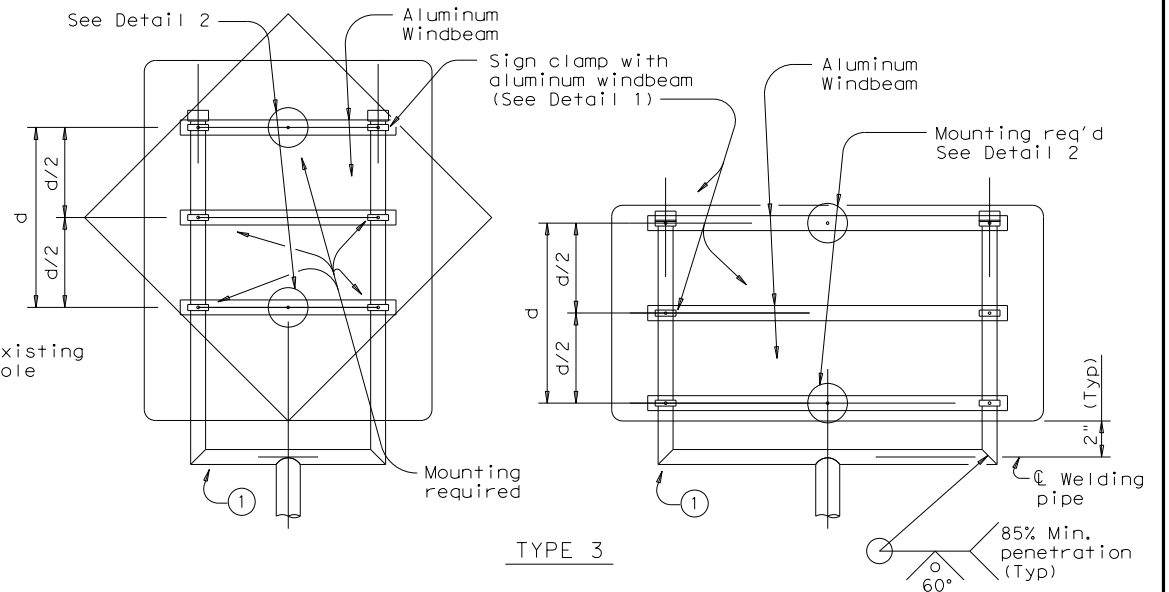
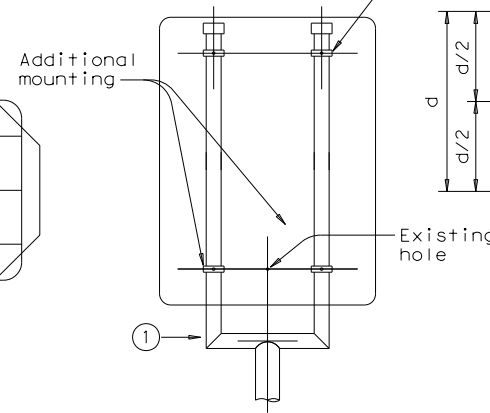
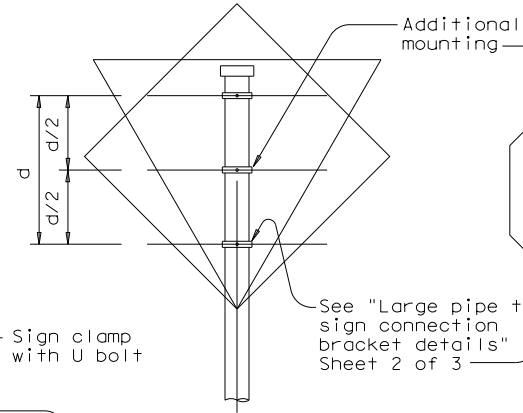
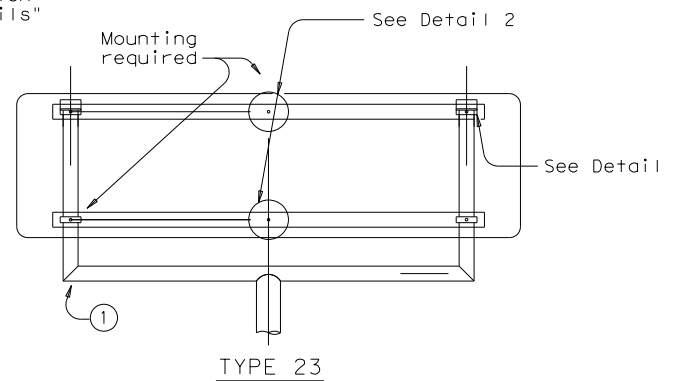
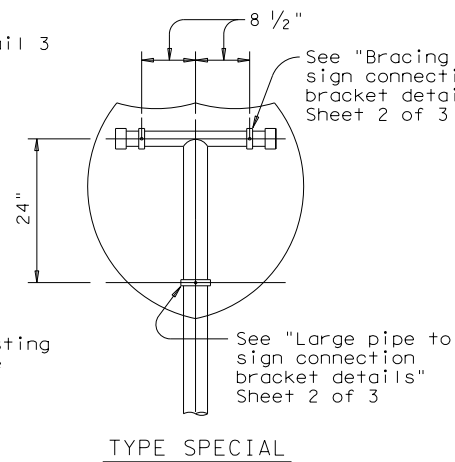
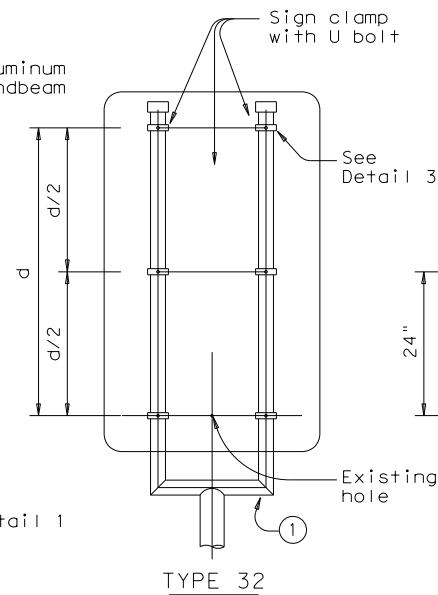
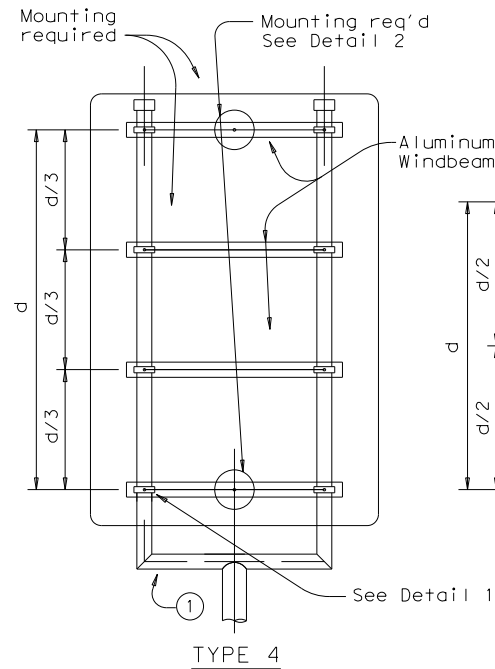
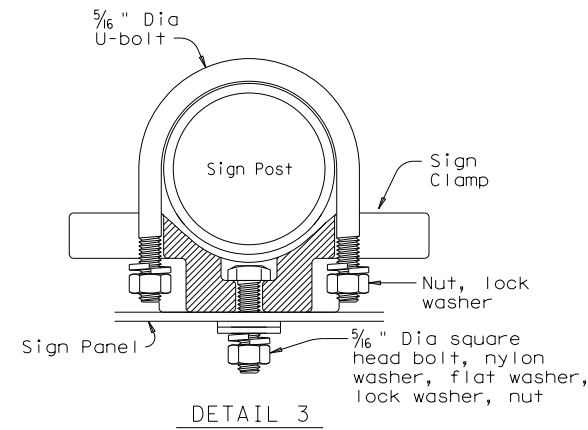
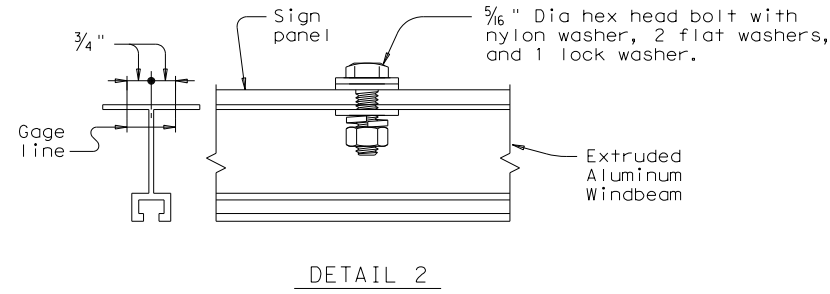
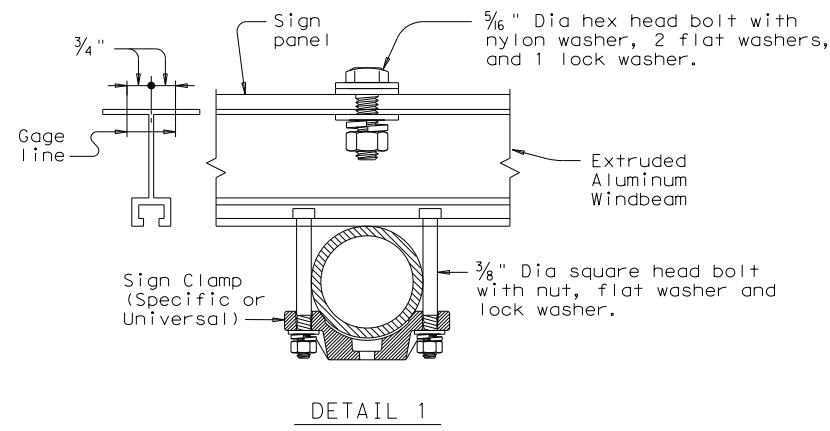
Texas Department of Transportation
 Traffic Operations Division Standard

BRIDGE RAILING SIGN MOUNT DETAILS
 SMD (BR-2) - 14

FILE: smdbr-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY		SHEET NO.
	TYLER	GREGG		267

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SIGN SHAPE	SQUARE			HORIZONTAL RECTANGLE			VERTICAL RECTANGLE			DIAMOND			OCTAGON			EQUILATERAL TRIANGLE			INTERSTATE SHIELD	PENTAGON (SCHOOL)	
	Type of Sign Mounting on SHSD	P	T	U	P	T	U	P	T	U	P	T	U	P	T	U	P	T	P	T	
90 mph					(Type 23) 60"x48"			(Type 3) 72"x36" 78"x36"			(Type 2) 36"x48" (Type 32) 36"x60" 36"x72" 42"x60" 48"x54" 48"x60" 48"x72"			(Type 3) 60"x60"					(Type Special) 45"x36"		
130 mph	(Type 1) 30"x30" 36"x36"	(Type 3) 48"x48"		(Type 1) 36"x24" 36"x30"	(Type 23) 48"x42" 54"x42" 60"x30" 66"x36" 84"x24"			(Type 3) 72"x36" 78"x36"	(Type 1) 30"x36" 30"x42"		(Type 3) 36"x48" 36"x60" 36"x72" 42"x60" 48"x54" 48"x60"	(Type 3) 48"x60"	(Type 1) 36"x36"	(Type 3) 48"x48" 60"x60"			(Type 1) 48"x48"		(Type Special) 36"x36" 45"x36"		
					(Type 3) 72"x30" 84"x24"			(Type 3) 72"x30" 84"x24"			(Type 4) 48"x72" 48"x84"										

Notes: 1. Drill holes in addition to the hole pattern of the Standard Highway Sign Designs for Texas (SHSD) at specified locations to meet a stipulated-type mounting indicated in the parenthesis ().
 2. "Blank" in the above table indicates all other signs excluded from stipulated mounting shall be mounted in accordance with SHSD.
 3. In lieu of welding, the Fabricator may bend bracing pipe elbows if the following conditions are met:
 a. Spacing between vertical bracing pipes is equal to or greater than 2'-6".
 b. Bending radius is 12".
 c. The distance between the lowest clamp and centerline of horizontal bent pipe is 13" max.

SHEET 3 OF 3

Texas Department of Transportation
 Traffic Operations Division Standard

BRIDGE RAILING SIGN MOUNT DETAILS

SMD (BR-3) - 14

FILE: smbr-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	268	

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

Post Type _____

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

Number of Posts (1 or 2) _____

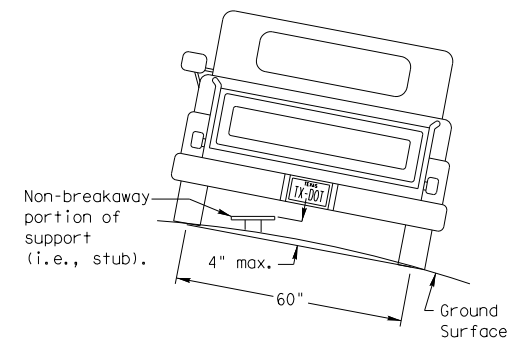
Anchor Type _____

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

Sign Mounting Designation

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

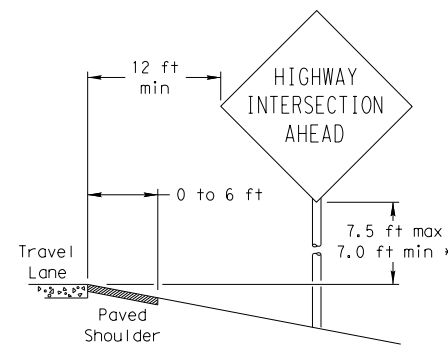
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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

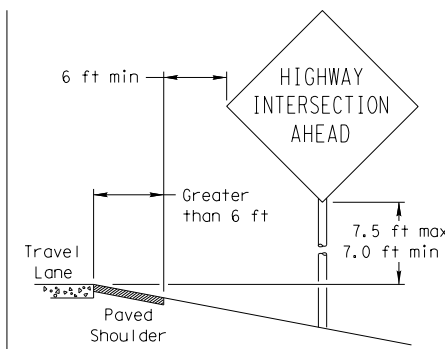
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

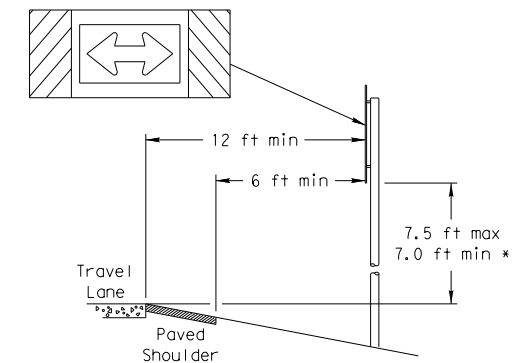
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



GREATER THAN 6 FT. WIDE

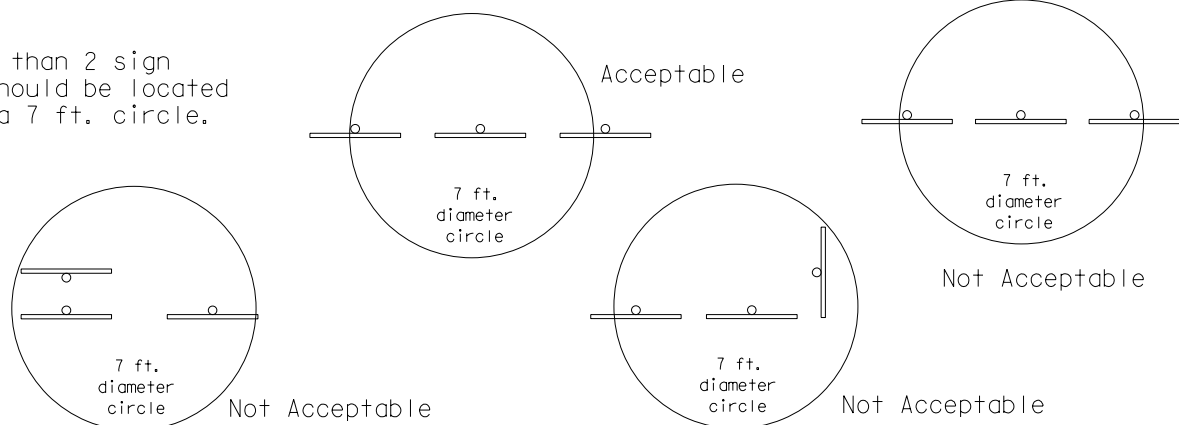
When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

T-INTERSECTION

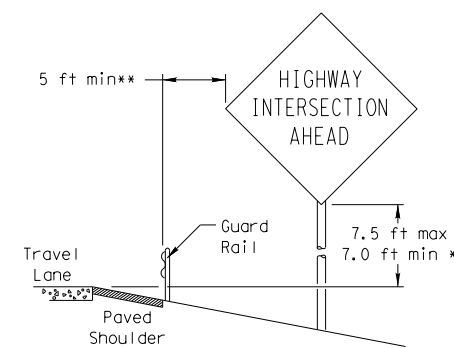


When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.

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

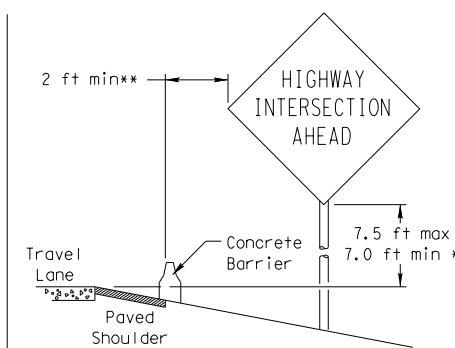


BEHIND BARRIER



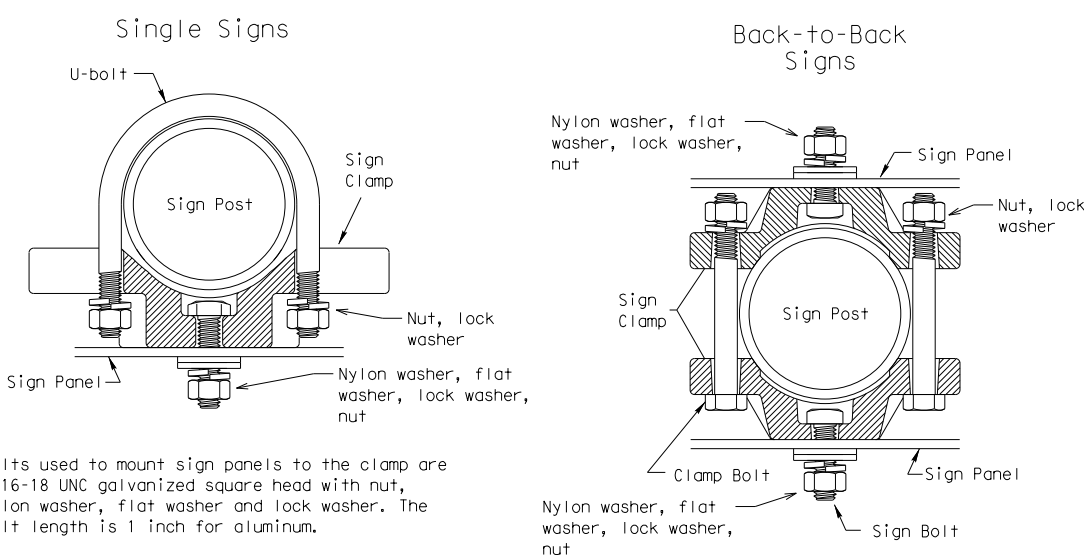
BEHIND GUARDRAIL

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



BEHIND CONCRETE BARRIER

TYPICAL SIGN ATTACHMENT DETAIL



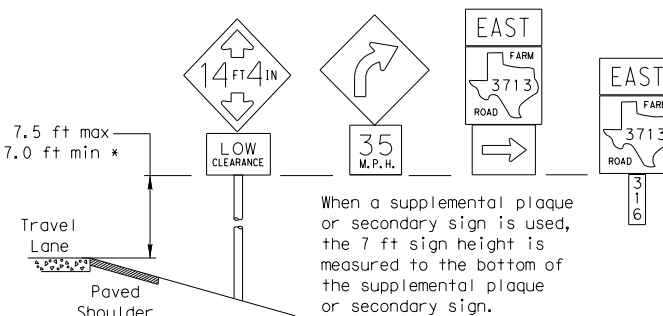
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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

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

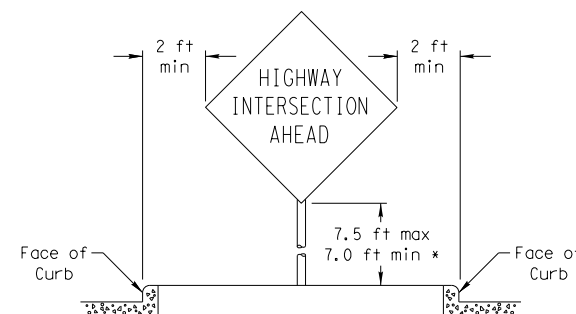
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES

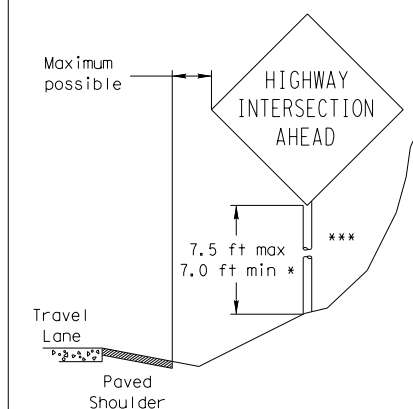


When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY (When 6 ft min. is not possible.)



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

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

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

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

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

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

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

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



SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

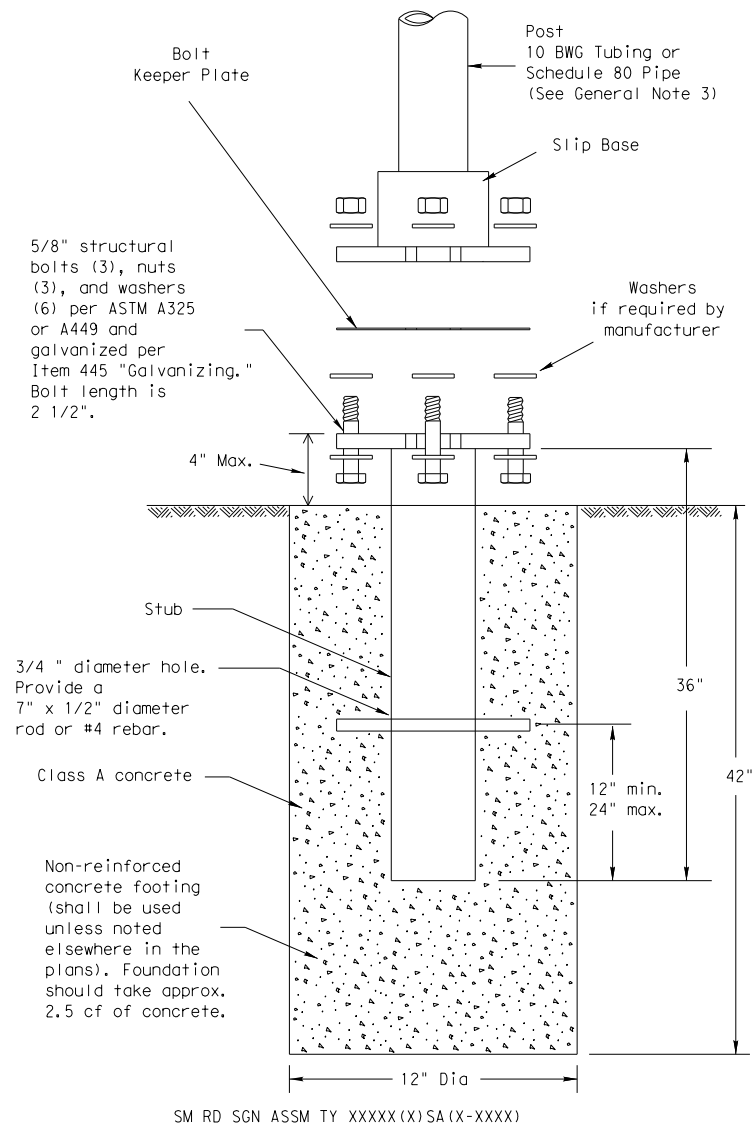
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9-08	REVISIONS	CONT	SECT	JOB	HIGHWAY
		0910	07	072	HIGH ST
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		TYLER	GREGG		269

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TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

- Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
- Material used as post with this system shall conform to the following specifications:
 - 10 BWG Tubing (2.875" outside diameter)
 - 0.134" nominal wall thickness
 - Seamless or electric-resistance welded steel tubing or pipe
 - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
 - Other steels may be used if they meet the following:
 - 55,000 PSI minimum yield strength
 - 70,000 PSI minimum tensile strength
 - 20% minimum elongation in 2"
 - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
 - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
 - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
 - Schedule 80 Pipe (2.875" outside diameter)
 - 0.276" nominal wall thickness
 - Steel tubing per ASTM A500 Gr C
 - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
 - 46,000 PSI minimum yield strength
 - 62,000 PSI minimum tensile strength
 - 21% minimum elongation in 2"
 - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
 - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
 - Galvanization per ASTM A123
- See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: <http://www.txdot.gov/publications/traffic.htm>
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

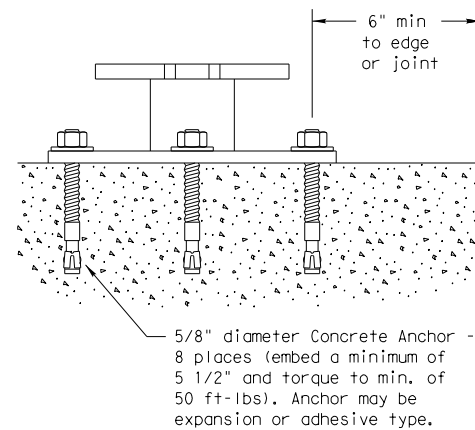
Foundation

- Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
- The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
- Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
- Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
- The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support

- Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
- Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



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

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxyes and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.



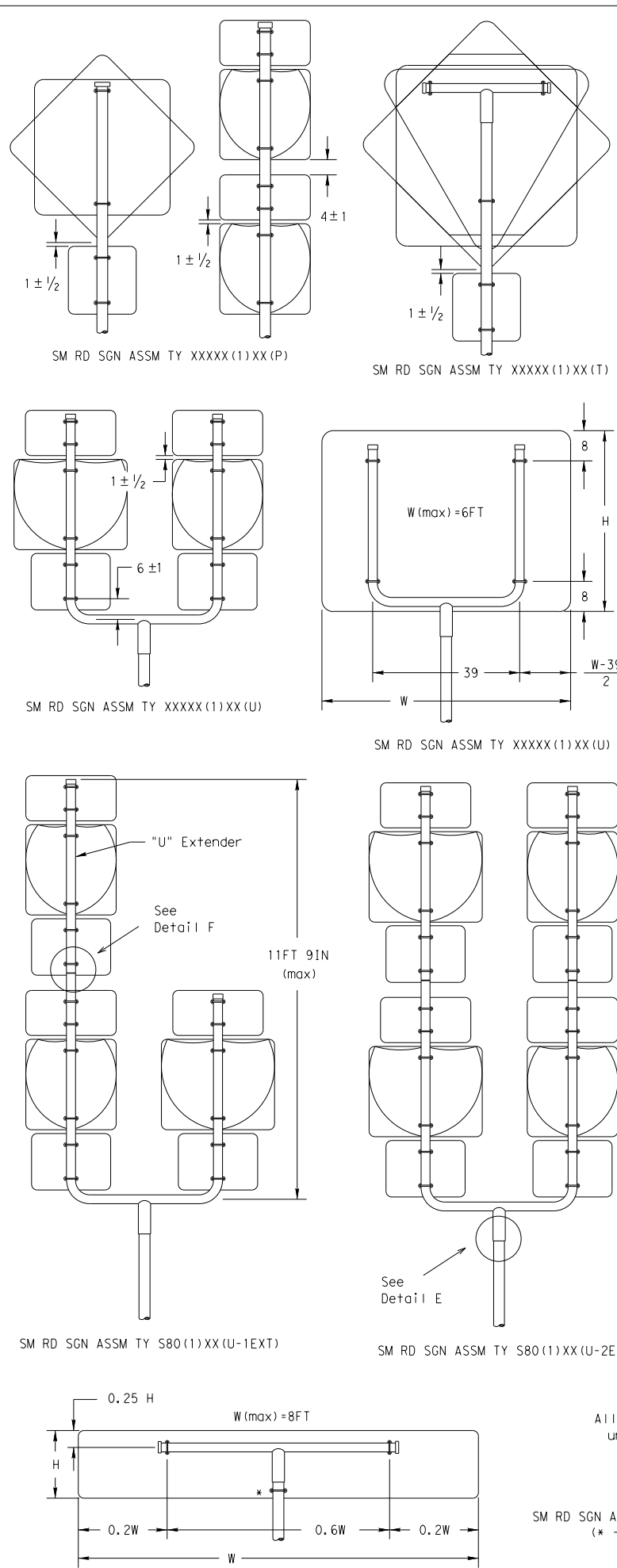
SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

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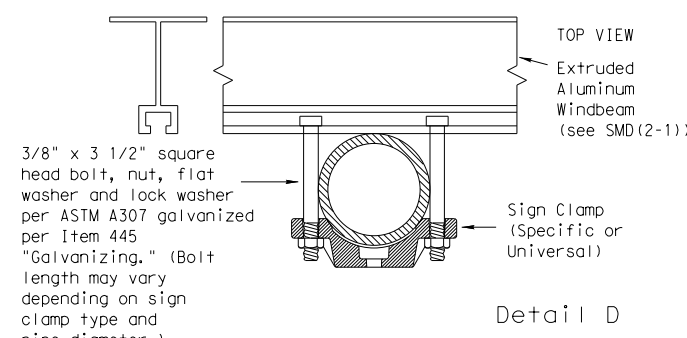
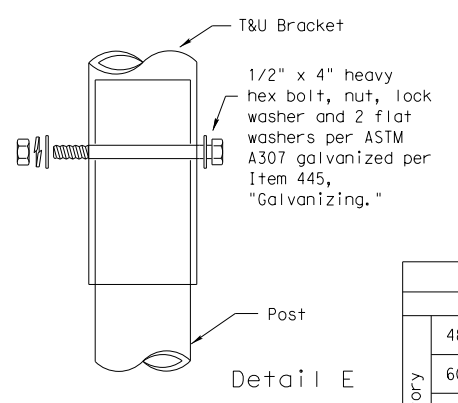
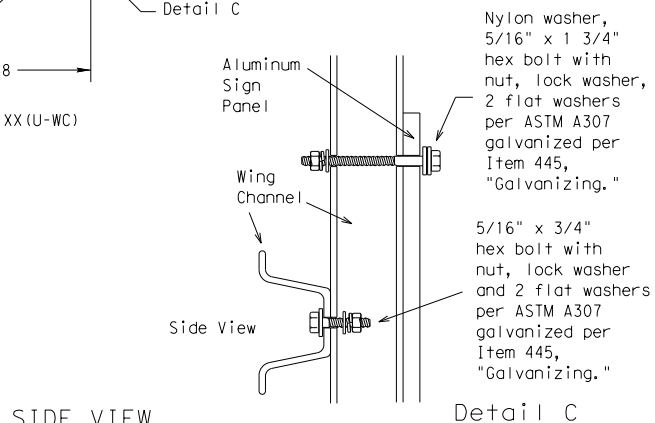
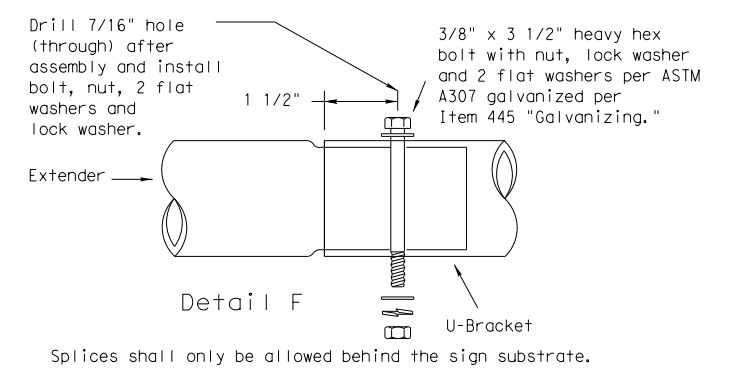
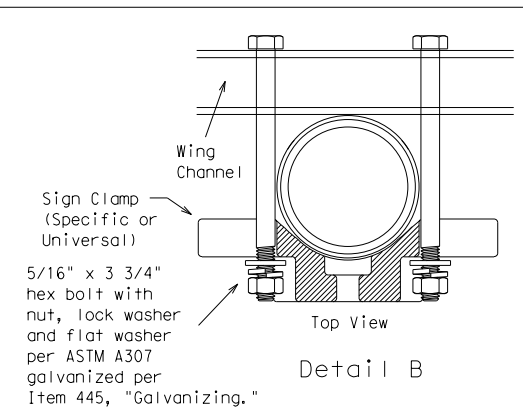
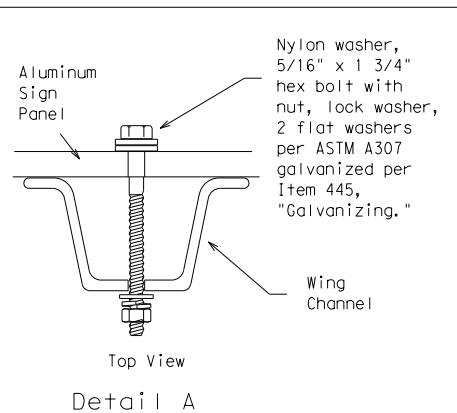
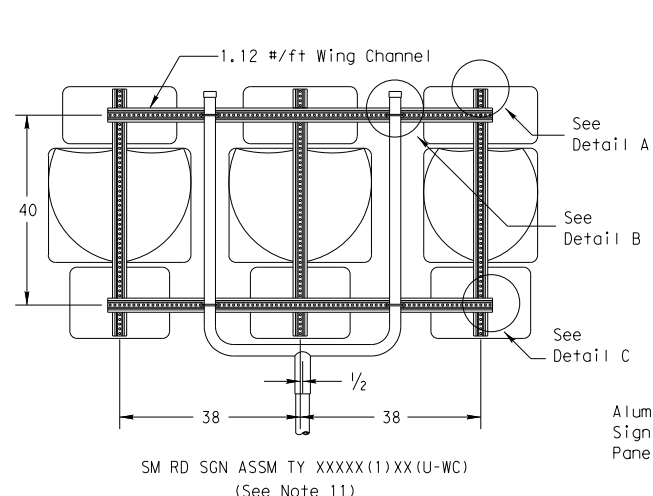
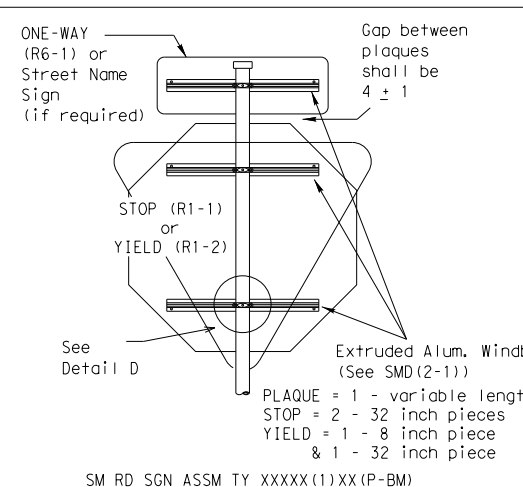
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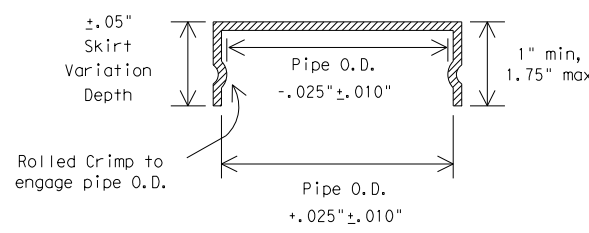


All dimensions are in english unless detailed otherwise.

SM RD SGN ASSM TY XXXXX(1)XX(T)
 (* - See Note 12)



FRICION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes. The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture. Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

- The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
- Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
- For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
- When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
- Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
- Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
- Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
- Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
- Post open ends shall be fitted with Friction Caps.
- Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT		
SIGN DESCRIPTION	SUPPORT	
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
Warning	48x60-inch signs	TY S80(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)	

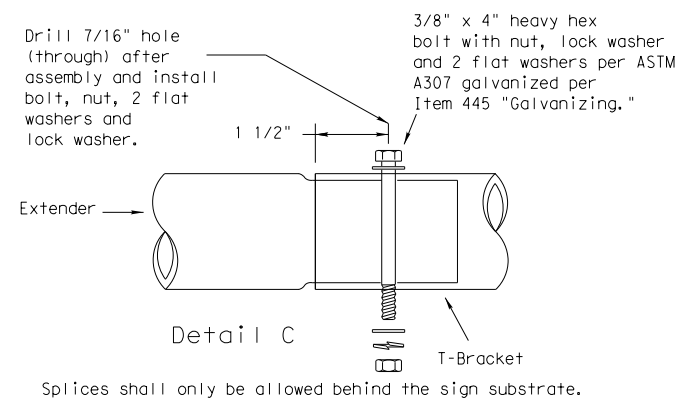
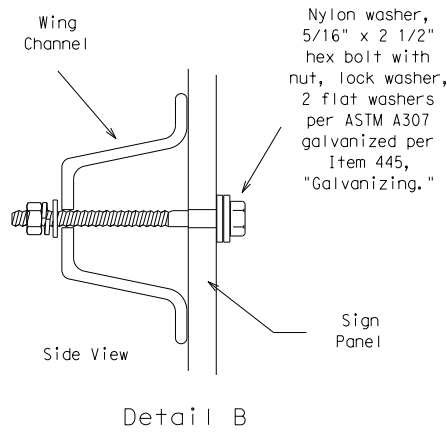
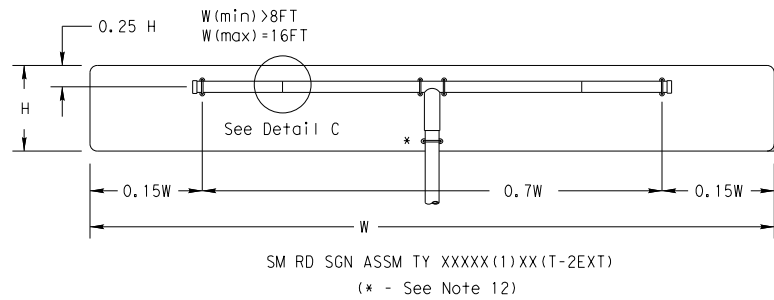


SIGN MOUNTING DETAILS
 SMALL ROADSIDE SIGNS
 TRIANGULAR SLIPBASE SYSTEM
 SMD(SLIP-2)-08

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		DIST: TYLER	COUNTY: GREGG	HIGHWAY: HIGH ST
				SHEET NO.: 271

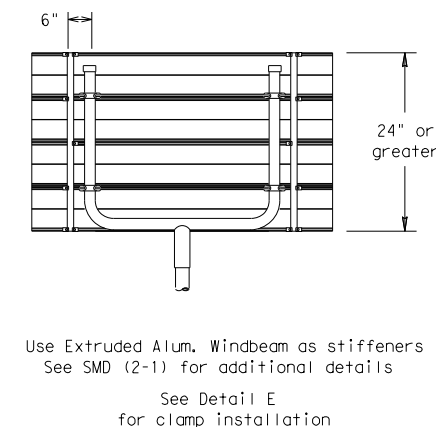
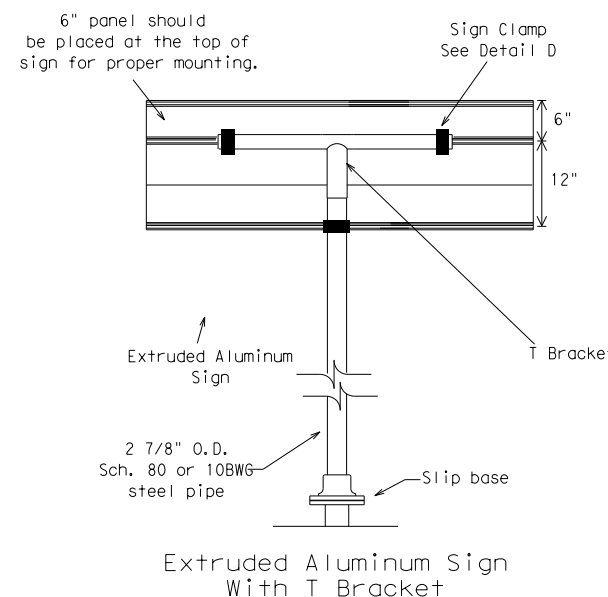
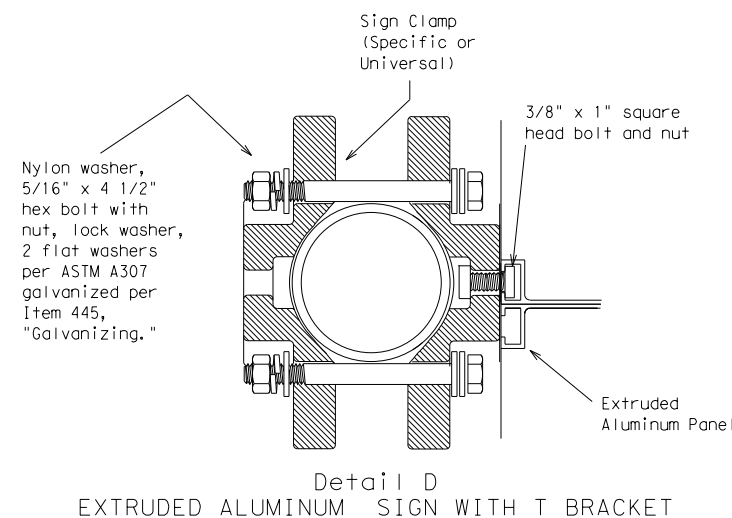
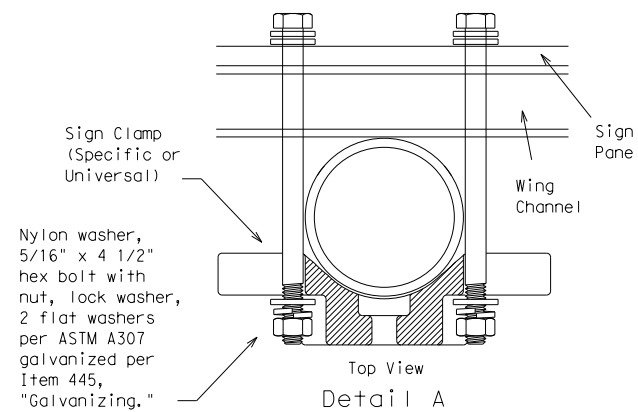
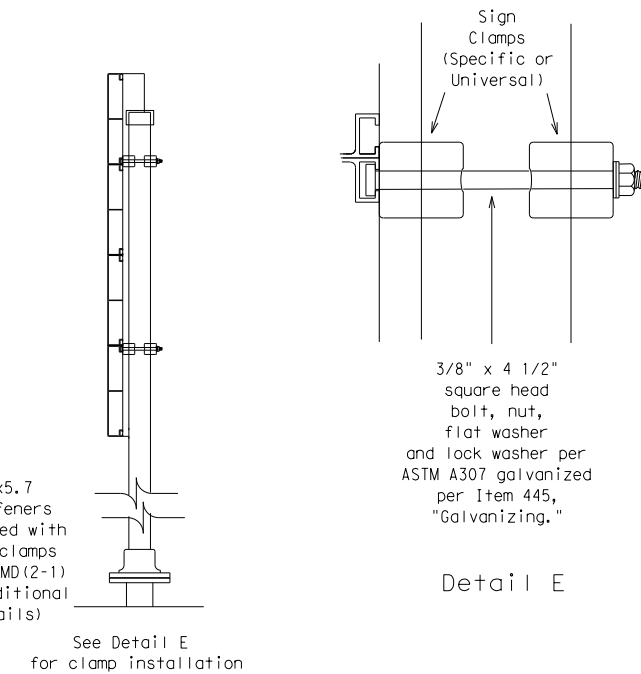
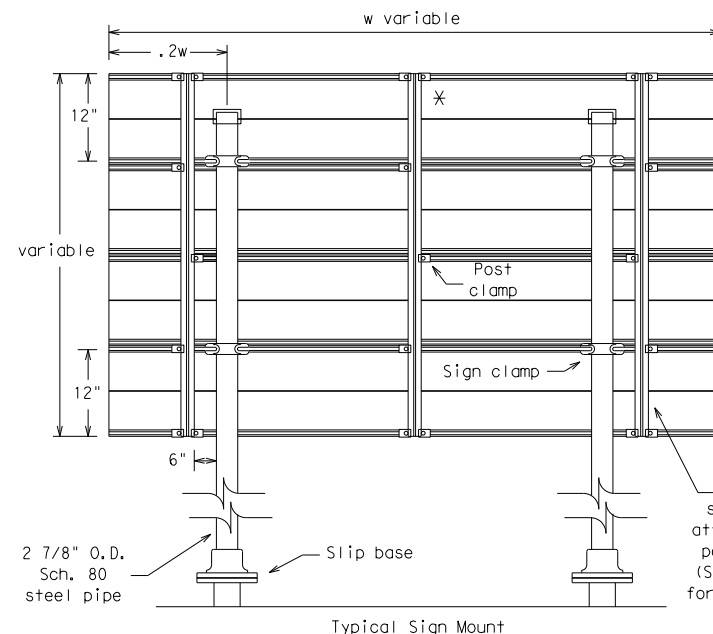
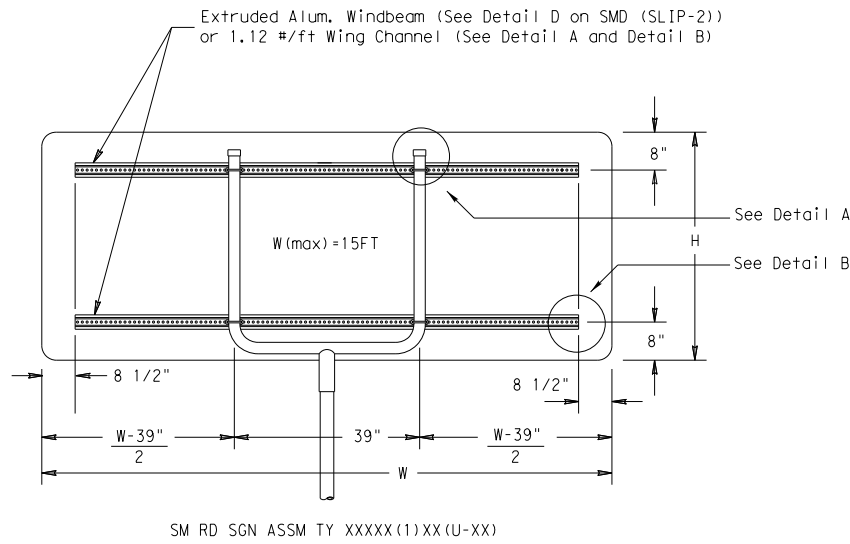
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GENERAL NOTES:

- | SIGN SUPPORT | # OF POSTS | MAX. SIGN AREA |
|--------------|------------|----------------|
| 10 BWG | 1 | 16 SF |
| 10 BWG | 2 | 32 SF |
| Sch 80 | 1 | 32 SF |
| Sch 80 | 2 | 64 SF |
- The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
- Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
- For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
- When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
- Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
- Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
- Sign blanks shall be the sizes and shapes shown on the plans.
- Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
- Post open ends shall be fitted with Friction Caps.



REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)



SIGN MOUNTING DETAILS
 SMALL ROADSIDE SIGNS
 TRIANGULAR SLIPBASE SYSTEM
 SMD(SLIP-3) -08

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9-08	REVISIONS	CONT	SECT	JOB	HIGHWAY
		0910	07	072	272
		DIST	COUNTY		SHEET NO.
		TYLER	GREGG		272

GENERAL NOTES FOR ALL ELECTRICAL WORK

- The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.
- Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.
- Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is 1/2 in. or less in diameter.
- Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.
- Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.
- When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

- Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.
- Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.
- Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.

AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" x 8" x 4"	10" x 10" x 4"	12" x 12" x 4"
#4	8" x 8" x 4"	10" x 10" x 4"	10" x 10" x 4"
#6	8" x 8" x 4"	8" x 8" x 4"	10" x 10" x 4"
#8	8" x 8" x 4"	8" x 8" x 4"	8" x 8" x 4"


- Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.
- Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.
- Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.
- Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

- Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.
- When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.
- Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

- Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.
- Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.
- Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.
- Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.
- When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."
- Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.
- During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.
- Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.
- Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.
- Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.
- At all electrical services, install a 6 AWG solid copper grounding electrode conductor.
- Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).
- Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.
- File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

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		Traffic Operations Division Standard	
<h2>ELECTRICAL DETAILS CONDUITS & NOTES</h2> <h3>ED(1)-14</h3>			
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		TYLER	GREGG
		JOB:	HIGHWAY:
		072	
		SHEET NO.	
		273	

ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

1. Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS)11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color jacket or by colored tape. When identifying conductors with colored tape, mark at least 6 in. of the conductor's insulation with half laps of tape.
2. Provide a solid copper 6 AWG grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS 11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the plans.
3. Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag with a permanent marker.
4. Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in DMS 11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.

B. CONSTRUCTION METHODS

1. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.
2. Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.
3. Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between the individual conductors and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned, or overheated, is considered defective and must be replaced.
4. Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.
5. Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the accumulation of water.
6. Support conductors in illumination poles with a J-hook at the top of the pole.
7. When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.
8. Replace conductors and cables that are damaged beyond repair or that fail an insulation resistance test at no additional cost to the department.
9. Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.
10. Do not terminate more than one conductor under a single connector, unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.
11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.

12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

C. TEMPORARY WIRING

1. Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.
2. Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of the following: molded cord and plug set, receptacle, or circuit breaker type.
3. Use listed wire nuts with factory applied sealant for temporary wiring where approved.
4. Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. Where installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.
5. Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with the NEC.

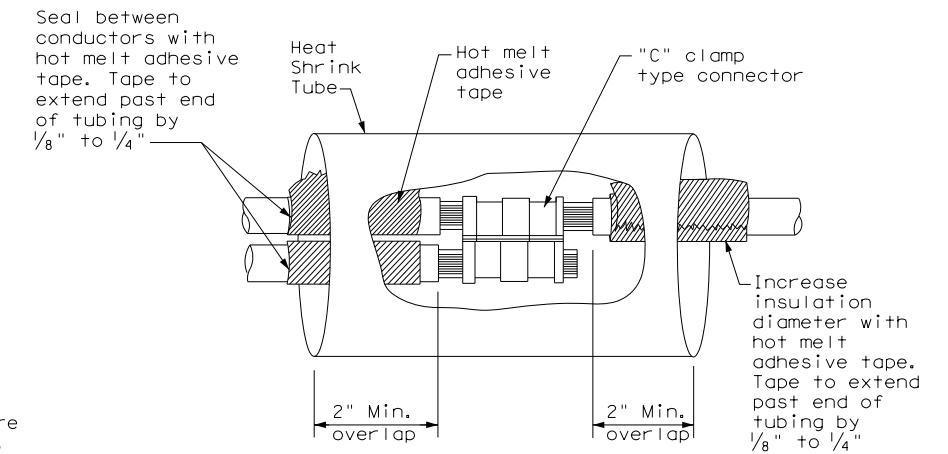
GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

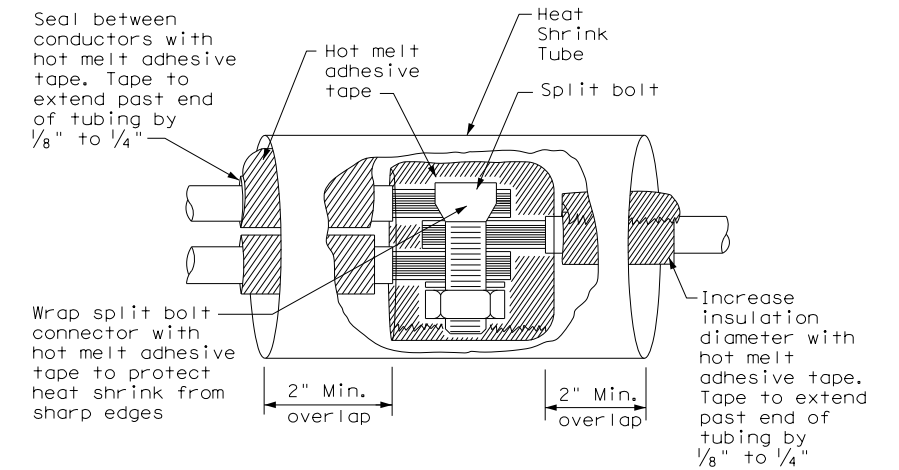
1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in specific locations including electrical service, see individual plan sheets.

B. CONSTRUCTION METHODS

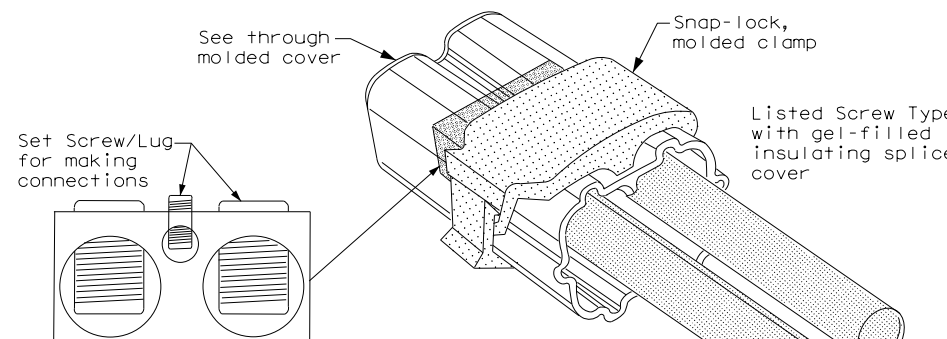
1. Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.
2. Do not place ground rods in the same drilled hole as a timber pole.
3. Install ground rods so the imprinted part number is at the upper end of the rod.
4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.
5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.
6. Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding type bushing and properly sized bonding jumper on each end of the metal conduit.
7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



SPLICE OPTION 1
Compression Type



SPLICE OPTION 2
Split Bolt Type



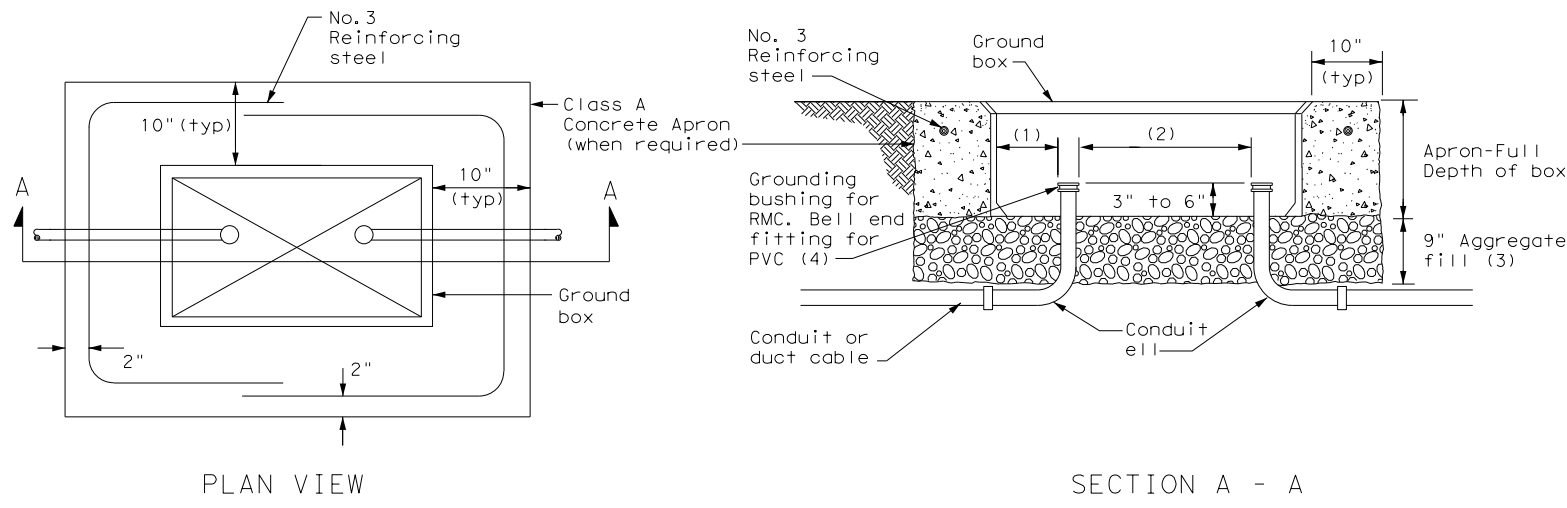
SPLICE OPTION 3
Listed Screw Type

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<h2>ELECTRICAL DETAILS CONDUCTORS</h2> <h3>ED(3)-14</h3>				
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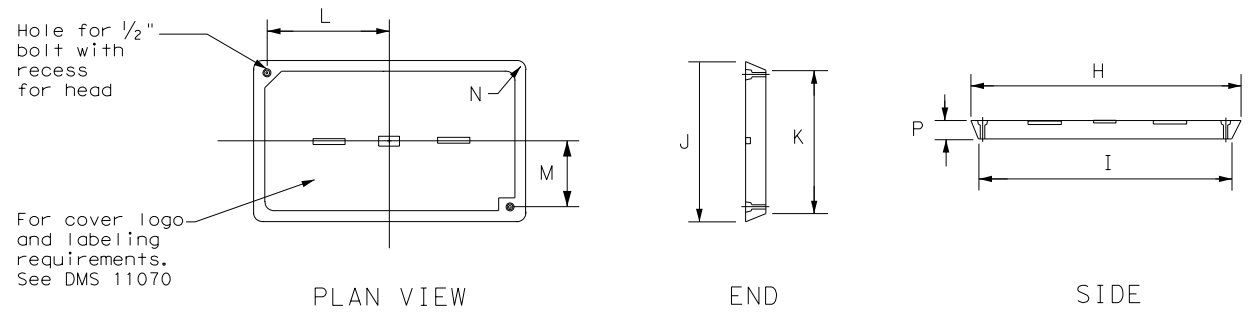


APRON FOR GROUND BOX

- (1) Uniformly space ends of conduits within the ground box. Position ends of conduits so that ground box walls do not interfere with the installation of grounding bushings or bell end fittings.
- (2) Maintain sufficient space between conduits to allow for proper installation of bushing.
- (3) Place aggregate under the box, not in the box. Aggregate should not encroach on the interior volume of the box.
- (4) Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.

GROUND BOX DIMENSIONS	
TYPE	OUTSIDE DIMENSIONS (INCHES) (Width x Length X Depth)
A	12 X 23 X 11
B	12 X 23 X 22
C	16 X 29 X 11
D	16 X 29 X 22
E	12 X 23 X 17

GROUND BOX COVER DIMENSIONS								
TYPE	DIMENSIONS (INCHES)							
	H	I	J	K	L	M	N	P
A, B & E	23 1/4	23	13 3/4	13 1/2	9 7/8	5 1/8	1 3/8	2
C & D	30 1/2	30 1/4	17 1/2	17 1/4	13 1/4	6 3/4	1 3/8	2



GROUND BOX COVER

GROUND BOXES

A. MATERIALS

1. Provide polymer concrete ground boxes measuring 16x30x24 in. (WxLxD) or smaller in accordance with Departmental Material Specification (DMS) 11070 "Ground Boxes" and Item 624 "Ground Boxes."
2. Provide Type A, B, C, D, and E ground boxes as shown in the plans, and as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 624.
3. Ensure ground box cover is correctly labeled in accordance with DMS 11070.
4. Provide larger ground boxes in accordance with Item 624 and as shown in the plans.

B. CONSTRUCTION METHODS

1. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting ground box. Provide Grade 3 or 4 coarse aggregate as shown in Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure aggregate bed is in place and at least 9 inches deep, prior to setting the ground box. Install ground box on top of aggregate.
2. Cast ground box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Ground box aprons, including concrete and reinforcing steel, are subsidiary to ground boxes when called for by descriptive code.
3. Keep bolt holes in the box clear of dirt. Bolt covers down when not working in ground boxes.
4. Install all conduits and ells in a neat and workmanlike manner. Uniformly space conduits so grounding bushings and bell end fittings can easily be installed.
5. Temporarily seal all conduits in the ground box until conductors are installed.
6. Permanently seal conduits immediately after the completion of conductor installation and pull tests. Permanently seal the ends of all conduits with duct seal, expandable foam, or other method as approved. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a sealant.
7. When a ground rod is present in a ground box, bond all equipment grounding conductors together and to the ground rod with listed connectors.
8. When a type B or D ground box is stacked to meet volume requirements, it is allowable to cut an appropriately sized hole for conduit entry in the side wall at least 18 inches below grade.
9. If an existing ground box in the contract has a metal cover, bond the cover to the equipment grounding conductor with a 3 ft. long stranded bonding jumper the same size as the grounding conductor. The bonding jumper is subsidiary to various bid items. Verify existing ground boxes with metal covers are shown on the plans, with notes fully describing the work required.
10. If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.
11. Bond metal ground box covers to the grounding conductor with a tank ground type lug.

				Traffic Operations Division Standard	
<h2>ELECTRICAL DETAILS</h2> <h3>GROUND BOXES</h3> <h4>ED(4) - 14</h4>					
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REVISIONS		JOB:	072	HIGHWAY:	710
		DIST:	TYLER	COUNTY:	GREGG
				SHEET NO.:	275

ELECTRICAL SERVICES NOTES

- Provide new materials. Ensure installation and materials comply with the applicable provisions of the National Electrical Code (NEC) and National Electrical Manufacturers Association (NEMA) standards. Ensure material is Underwriters Laboratories (UL) listed. Provide and install electrical service conduits, conductors, disconnects, contactors, circuit breaker panels, and branch circuit breakers as shown on the Electrical Service Data chart in the plans. Faulty fabrication or poor workmanship in material, equipment, or installation is justification for rejection. Where manufacturers provide warranties and guarantees as a customary trade practice, furnish these to the State.
- Provide electrical services in accordance with Electrical Details standard sheets, Departmental Material Specification (DMS) 11080 "Electrical Services," DMS 11081 "Electrical Services-Type A," DMS 11082 "Electrical Services-Type C," DMS 11083 "Electrical Services-Type D," DMS 11084 "Electrical Services-Type T," DMS 11085 "Electrical Services-Pedestal (PS)", and Item 628 "Electrical Services" of the Standard Specifications. Provide electrical service types A, C, and D, as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 628. Provide other service types as detailed on the plans.
- Provide all work, materials, services, and any incidentals needed to install a complete electrical service as specified in the plans.
- Coordinate with the Engineer and the utility provider for metering and compliance with utility requirements. Primary line extensions, connection charges, meter charges, and other charges by the utility company to provide power to the location are paid for in accordance with Item 628. Get approval for the costs associated with these charges prior to engaging the utility company to do the work. Consult with the utility provider to determine costs and requirements, and coordinate the work as approved.
- The enclosure manufacturer will provide Master Lock Type 2 with brass tumblers keyed #2195 for all custom electrical enclosures. Installing Contractor is to provide Master Lock #2195 Type 2 with brass tumblers for "off the shelf" enclosures. Master Lock #2195 keys and locks become property of the State. Unless otherwise approved, do not energize electrical service equipment until locks are installed.
- Enclosures with external disconnects that de-energize all equipment inside the enclosure do not need a dead front trim. Protect incoming line terminations from incidental contact as required by the NEC.
- When galvanized is specified for nuts, screws, bolts or miscellaneous hardware, stainless steel may be used.
- Provide wiring and electrical components rated for 75°C. Provide red, black, and white colored XHHW service entrance conductors of minimum size 6 American Wire Gauge (AWG). Identify size 6 AWG conductors by continuous color jacket. Identify electrical conductors sized 4 AWG and larger by continuous color jacket or by colored tape. Mark at least 6 inches of the conductor's insulation with half laps of colored tape, when identifying conductors. Ensure each service entrance conductor exits through a separately bushed non-metallic opening in the weatherhead. The lengths of the conductors outside the weatherhead are to be 12 inches minimum, 18 inches maximum, or as required by utility.
- All electrical service conduit and conductors attached to the electrical service including the riser or the elbow below ground are subsidiary to the electrical service. For an underground utility feed, all service conduit and conductors after the elbow, including service conduit and conductors for the utility pole riser when furnished by the Contractor, will be paid for separately.
- Provide rigid metal conduit (RMC) for all conduits on service, except for the 1/2 in. PVC conduit containing the electrical service grounding electrode conductor. Size the service entrance conduit as shown in the plans. Ensure conduit for branch circuit entry to enclosure is the same size as that shown on the layout sheets for branch circuit conduit. Extend all rigid metal conduits a minimum of 6 inches underground and then couple to the type and schedule of the conduit shown on the layout for that particular branch circuit. Install a grounding bushing on the RMC where it terminates in the service enclosure.
- Use of liquidtight flexible metal conduit (LFMC) is allowed between the meter and service enclosure when they are mounted 90 to 180 degrees to each other. Size the LFMC the same size as service entrance conduit. LFMC must not exceed 3 feet in length. Strap LFMC within 1 foot of each end. LFMC less than 12 inches in length need not be strapped. Each end of LFMC must have a grounding bushing or be terminated with a grounding fitting. The LFMC must contain a grounded (neutral) conductor. Ensure any bend in LFMC never exceeds 180 degrees. A pull test is required on all installed conductors, with at least six inches of free conductor movement demonstrated to the satisfaction of the Engineer.
- Ensure all mounting hardware and installation details of services conform to utility company specifications.
- For all electrical service enclosures listed under Item 628 on the MPL, the UL 508 enclosure manufacturers will prepare and submit a schematic drawing unique to each service. Before shipment to the job site, place the applicable laminated schematic drawings and the laminated plan sheet showing the electrical service data chart used to build the enclosure in the enclosure's data pocket. The installing contractor will copy and laminate the actual project plan sheets detailing all equipment and branch circuits supplied by that service. The laminated plan sheets are to be placed in the service enclosure's document pocket. Reduce 11 in. x 17 in. plan sheets to 8 1/2 in. x 11 in. before laminating. If the installation differs from the plan sheets, the installing contractor is to redline plan sheets before laminating.
- When providing an "Off The Shelf" Type D or Type T service, provide laminated plan sheets detailing equipment and branch circuits supplied by that service. Reduce 11 in. x 17 in. plan sheets to 8 1/2 in. x 11 in before laminating. Deliver these drawings before completion of the work to the Engineer, instead of placing in enclosure that has no door pocket.
- Do not install conduit in the back wall of a service enclosure where it would penetrate the equipment mounting panel inside the enclosure. Provide grounding bushings on all metal conduits, and terminate bonding jumpers to grounding bus. Grounding bushings are not required when the end of the metal conduit is fitted with a conduit sealing hub or threaded boss, such as a meter base hub.

SERVICE ASSEMBLY ENCLOSURE

- Provide threaded hub for all conduit entries into the top of enclosure.
- Type galvanized steel (GS) enclosures may be used for Type C panelboards and for Type D and T services that do not use an enclosure mounted photocell or lighting contactor. Provide GS enclosures in accordance with DMS 11080, 11082, 11083, and 11084.
- Provide aluminum (AL) and stainless steel (SS) enclosures for Types A, C, and D in accordance with DMS 11080, 11081, 11082, 11083, and 11084. Do not paint stainless steel.
- Provide pedestal service (PS) enclosures in accordance with ED(9) and DMS 11080 and 11085. Do not provide GS pedestal services. If GS is shown in the PS descriptive code, provide an AL enclosure.

MAIN DISCONNECT & BRANCH CIRCUIT BREAKERS

- Field drill flange-mounted remote operator handle if needed, to ensure handle is lockable in both the "On" and "Off" positions.
- When the utility company provides a transformer larger than 50 KVA, verify that the available fault current is less than the circuit breaker's ampere interrupting capacity (AIC) rating and provide documentation from the electric utility provider to the Engineer.

PHOTOELECTRIC CONTROL

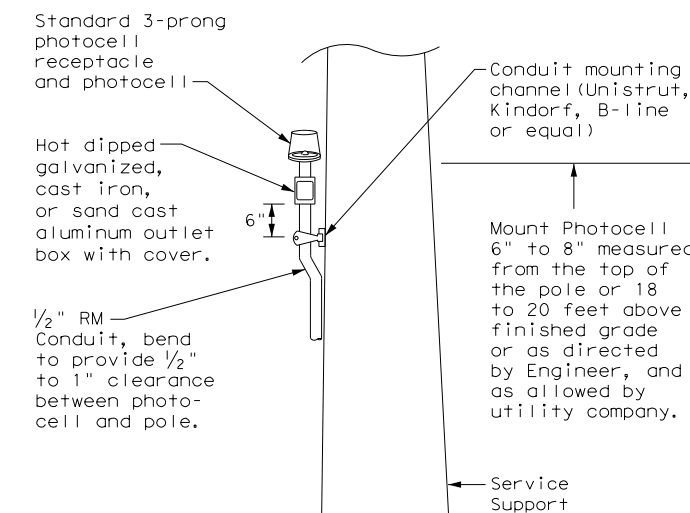
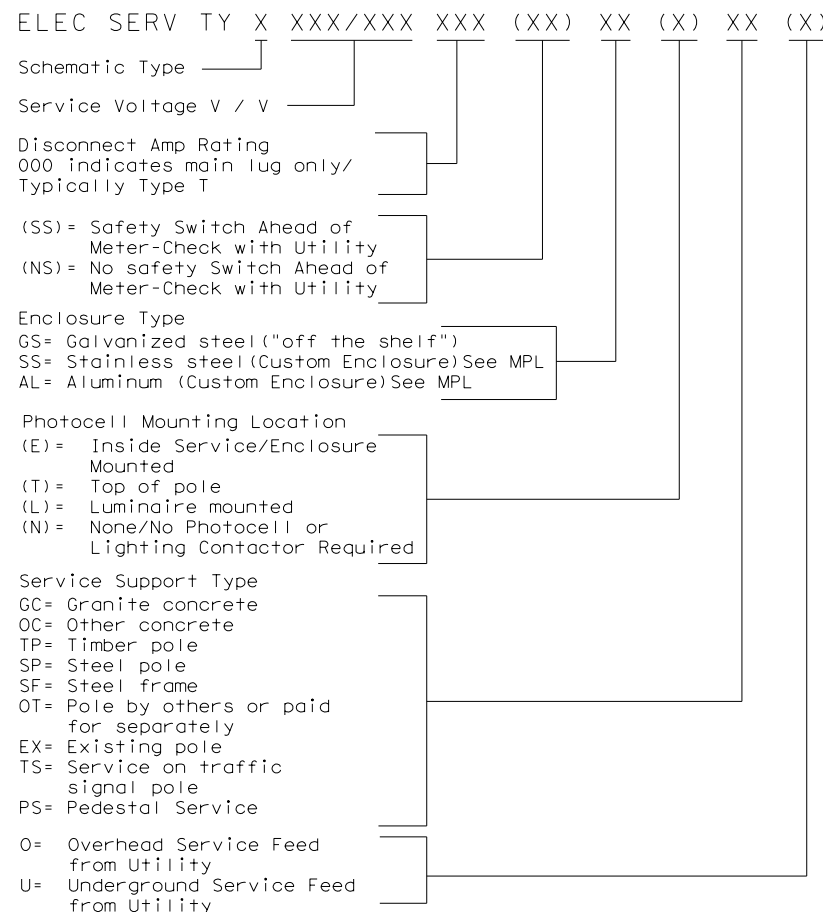
- Provide photocell as listed on the MPL. Move, adjust, or shield the photocell from stray or ambient night time light to ensure proper operation. Mount photocell facing north when practical. Mount top of pole photocells as shown on Top Mounted Photocell Detail.

* ELECTRICAL SERVICE DATA												
Elec. Service ID	Plan Sheet Number	Electrical Service Description	Service Conduit *xS Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole/Amps	Two-Pole Contractor Amps	Panelbd/ Loadcenter Amp Rating	Branch Circuit ID	Branch Ckt. Bkr. Pole/Amps	Branch Circuit Amps	KVA Load
SB 183	289	ELC SRV TY A 240/480 100(SS)AL(E)SF(U)	2"	3/#2	100	2P/100	100	N/A	Lighting NB	2P/40	26	28.1
									Lighting SB	2P/40	25	
									Underpass	1P/20	15	
NB Access	30	ELC SRV TY D 120/240 060(NS)SS(E)TS(O)	1 1/4"	3/#6	N/A	2P/60		100	Sig. Controller	1P/30	23	5.3
							30		Luminaires	2P/20	9	
									CCTV	1P/20	3	
2nd & Main	58	ELC SRV TY T 120/240 000(NS)GS(N)SP(O)	1 1/4"	3/#6	N/A	N/A	N/A	70	Flashing Beacon 1	1P/20	4	1.0
									Flashing Beacon 2	1P/20	4	

* Example only, not for construction. All new electrical services must have electrical service data chart specific to that service as shown in the plans.

** Verify service conduit size with utility. Size may change due to utility meter requirements. Ensure conduit size meets the National Electrical Code.

EXPLANATION OF ELECTRICAL SERVICE DESCRIPTIVE CODE



TOP MOUNTED PHOTOCELL

Install conduit strap maximum 3 feet from box. 5 foot maximum spacing between straps supporting conduit.



ELECTRICAL DETAILS SERVICE NOTES & DATA

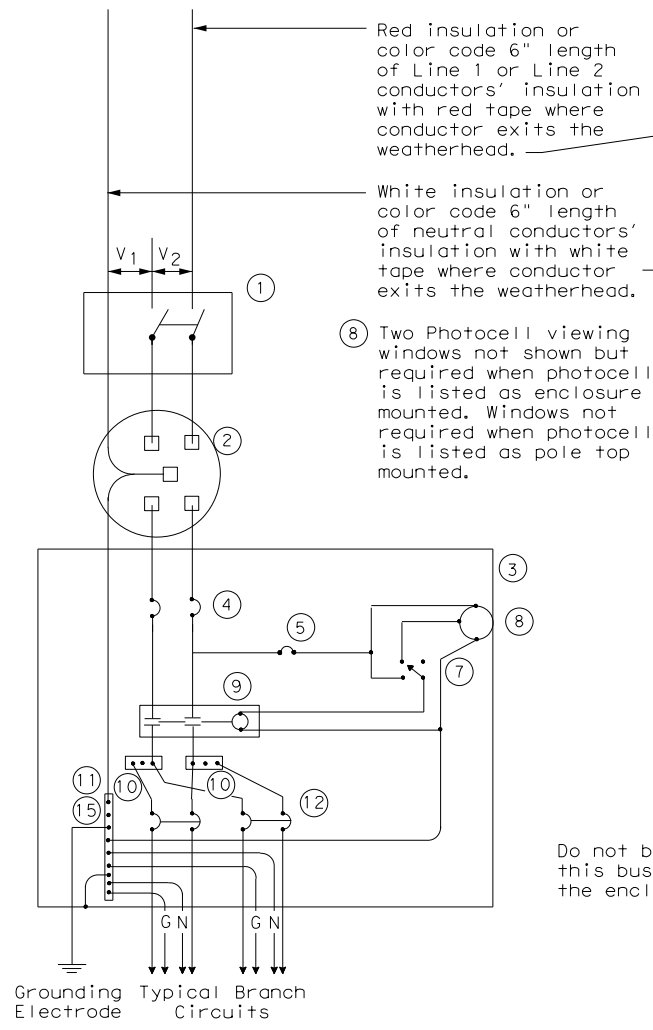
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©TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
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	TYLER	GREGG	276	

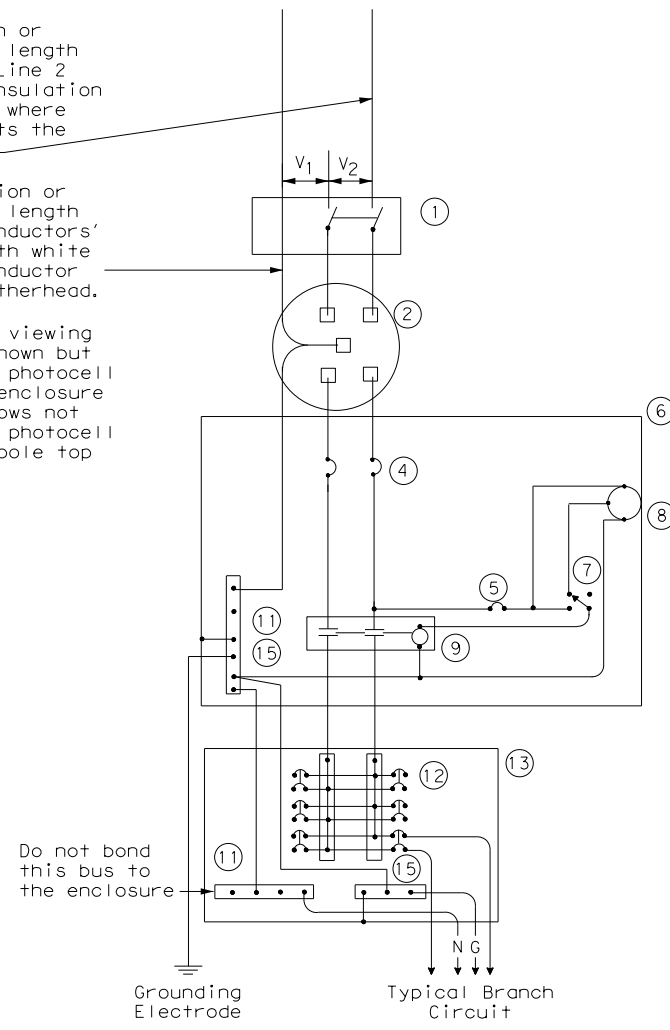
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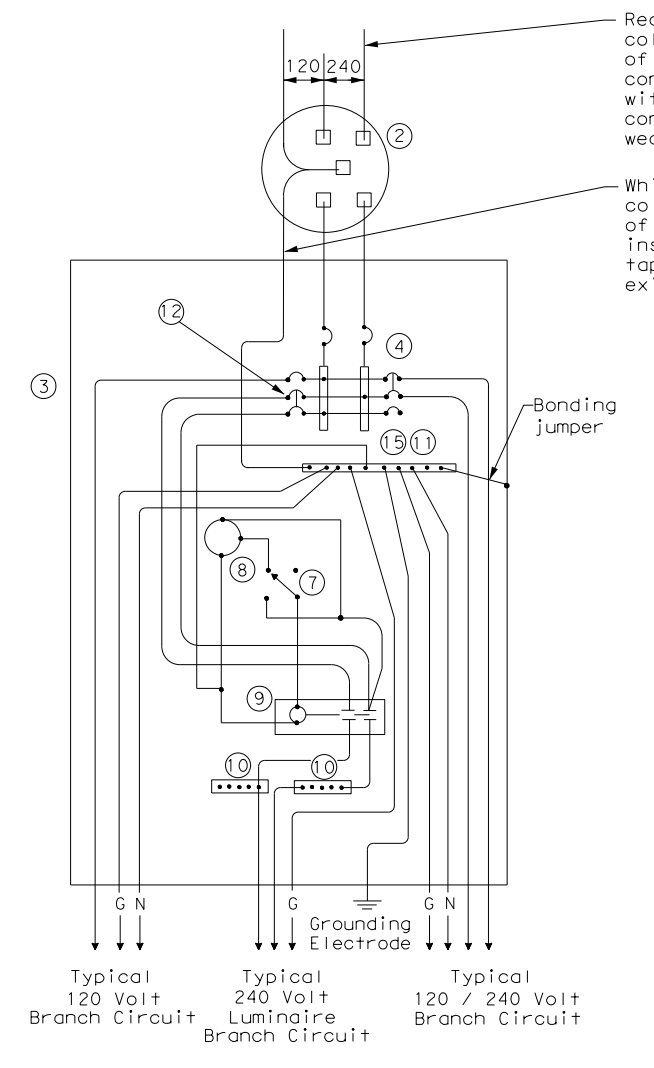
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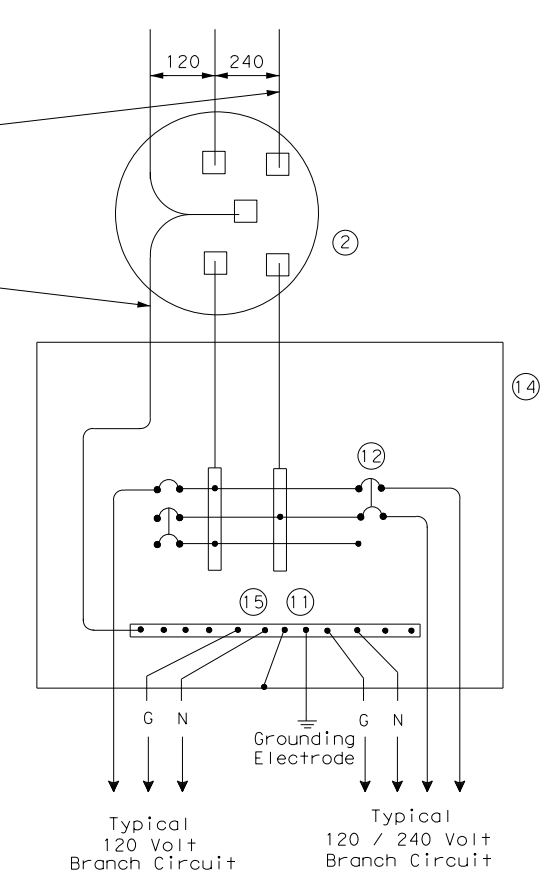
SCHEMATIC TYPE A
THREE WIRE



SCHEMATIC TYPE C
THREE WIRE



SCHEMATIC TYPE D - CUSTOM
120/240 VOLTS - THREE WIRE



SCHEMATIC TYPE T
120/240 VOLTS - THREE WIRE
Galvanized steel - "Buy Off The Shelf" only. When required install photocell top of the pole or on luminaire only, no lighting contractor will be installed.

WIRING LEGEND	
—	Power Wiring
- - -	Control Wiring
—N—	Neutral Conductor
—G—	Equipment grounding conductor-always required

SCHEMATIC LEGEND	
1	Safety Switch (when required)
2	Meter (when required-verify with electric utility provider)
3	Service Assembly Enclosure
4	Main Disconnect Breaker (See Electrical Service Data)
5	Circuit Breaker, 15 Amp (Control Circuit)
6	Auxiliary Enclosure
7	Control Station ("H-O-A" Switch)
8	Photo Electric Control (enclosure-mounted shown)
9	Lighting Contactor
10	Power Distribution Terminal Blocks
11	Neutral Bus
12	Branch Circuit Breaker (See Electrical Service Data)
13	Separate Circuit Breaker Panelboard
14	Load Center
15	Ground Bus

				Traffic Operations Division Standard	
ELECTRICAL DETAILS SERVICE ENCLOSURE AND NOTES					
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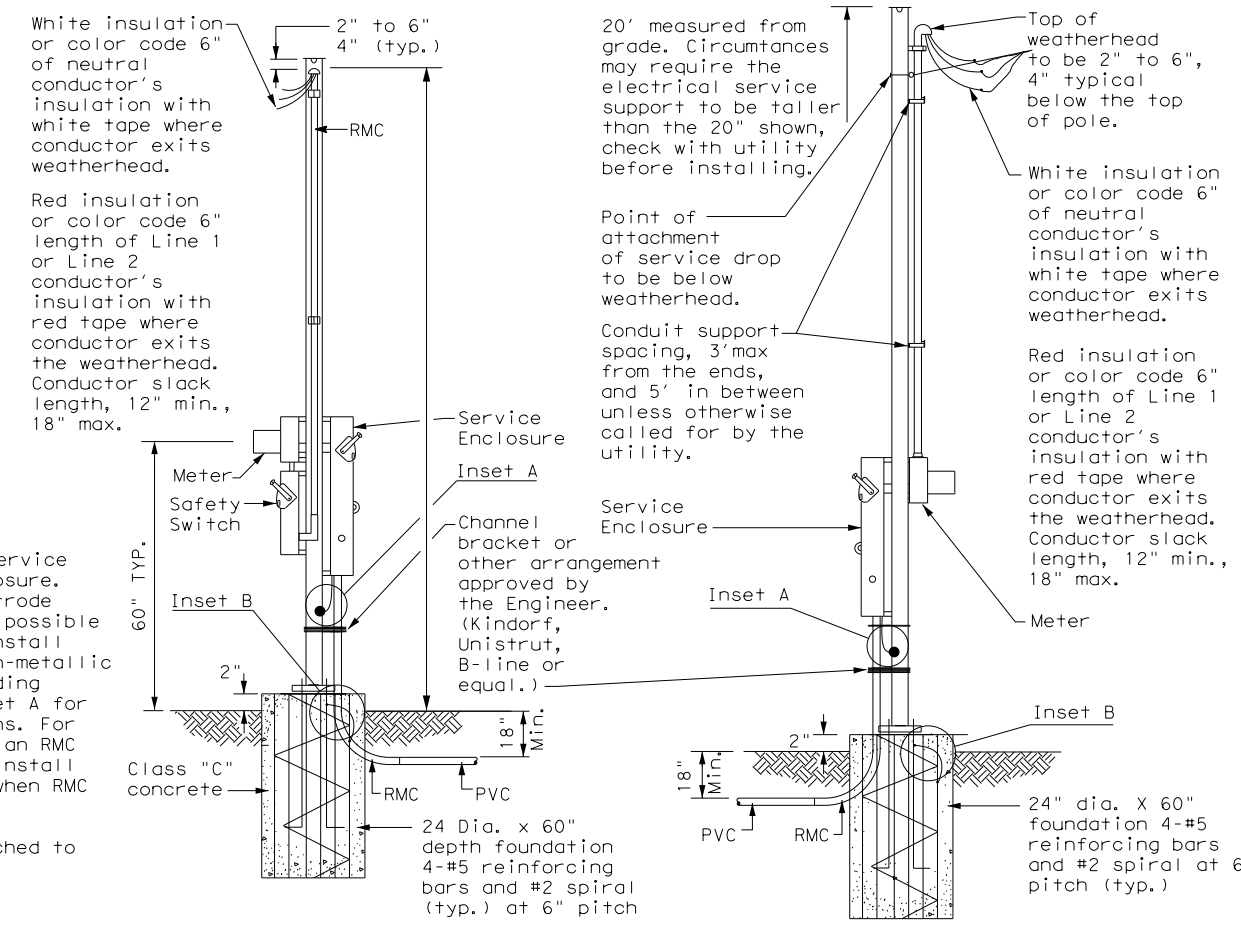
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SUPPORT TYPE STEEL POLE (SP) AND STEEL FRAME (SF)

1. Provide steel pole and steel frame supports as per TxDOT Departmental Material Specification (DMS)11080 "Electrical Services." Mount all equipment and conduit on 12 gauge galvanized steel or stainless steel channel strut, 1 1/2 in. or 1 3/8 in. wide by 1 in. up to 3 3/4 in. deep Unistrut, Kindorf, B-line or equal. Bolt or weld all channel and hardware to vertical members as approved. Do not stack channel. File smooth and paint field cut ends of all channel with zinc-rich paint before installing.
2. Provide poles for overhead service with an eyebolt or similar fitting for attachment of the service drop to the pole in conformance with the electric utility provider's specifications.
3. Provide and install galvanized 3/4 in. x 18 in. x 4 in. (dia. x length x hook length) anchor bolts for underground service supports. Provide and install galvanized 3/4 in. x 56 in. x 4 in. anchor bolts for overhead service supports. Ensure anchor bolts have 3 in of thread, with 3 1/4 in. to 3 1/2 in. of the exposed anchor bolt projecting above finished foundation. Provide and install leveling nuts for all anchor bolts.
4. Bond one of the anchor bolts to the rebar cage with 6 AWG bare stranded copper conductor. Use listed mechanical connectors rated for embedment in concrete. See Inset B.
5. Furnish and install rigid metallic ells in all steel pole and steel frame foundations for all conduits entering the service from underground.
6. Use class C concrete for foundations. Ensure reinforcing steel is Grade 60 with 3" of unobstructed concrete cover.
7. Drill and tap steel poles and frames for 1/2 in. X 13 UNC tank ground fitting. For steel pole service supports, provide and install tank ground fitting 4 in. to 6 in. below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. For steel frame service supports, provide and install tank ground fitting on steel frame post. Install service grounding electrode conductor in a non-metallic conduit or tubing from the enclosure to the steel frame post. Connect electrical service grounding electrode conductor to the tank ground fitting. See steel frame and steel pole details and Inset A for more information. Size service entrance conduit and branch circuit conduit as shown in the plans. For underground conduit runs from the electrical service, extend RMC from the service enclosure to an RMC elbow, and then connect the schedule type and size of conduit shown in the plans. Provide and install grounding bushings where RMC terminates in the enclosure. Grounding bushings are not required when RMC is fitted into a sealing hub or threaded boss.
8. If Steel pole or frame is painted, bond each separate painted piece with a bonding jumper attached to a tapped hole.
9. Provide 1/4" - 20 machine screws for bonding. Do not use sheet metal screws. Remove all non-conductive material at contact points. Terminate bonding jumpers with listed devices. Install minimum size 6 AWG stranded copper bonding jumpers. Make up all threaded bonding connections wrench tight.
10. Avoid contact of the service drop and service entrance conductors with the metal pole to prevent abrasion of the insulated conductors.
11. Shop drawings are not required for service support structure unless specifically stated elsewhere or directed by the Engineer.

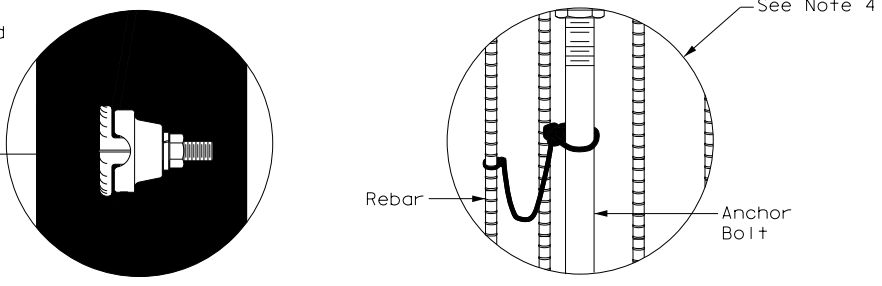
White insulation or color code 6" of neutral conductor's insulation with white tape where conductor exits weatherhead.

Red insulation or color code 6" length of Line 1 or Line 2 conductor's insulation with red tape where conductor exits the weatherhead. Conductor slack length, 12" min., 18" max.

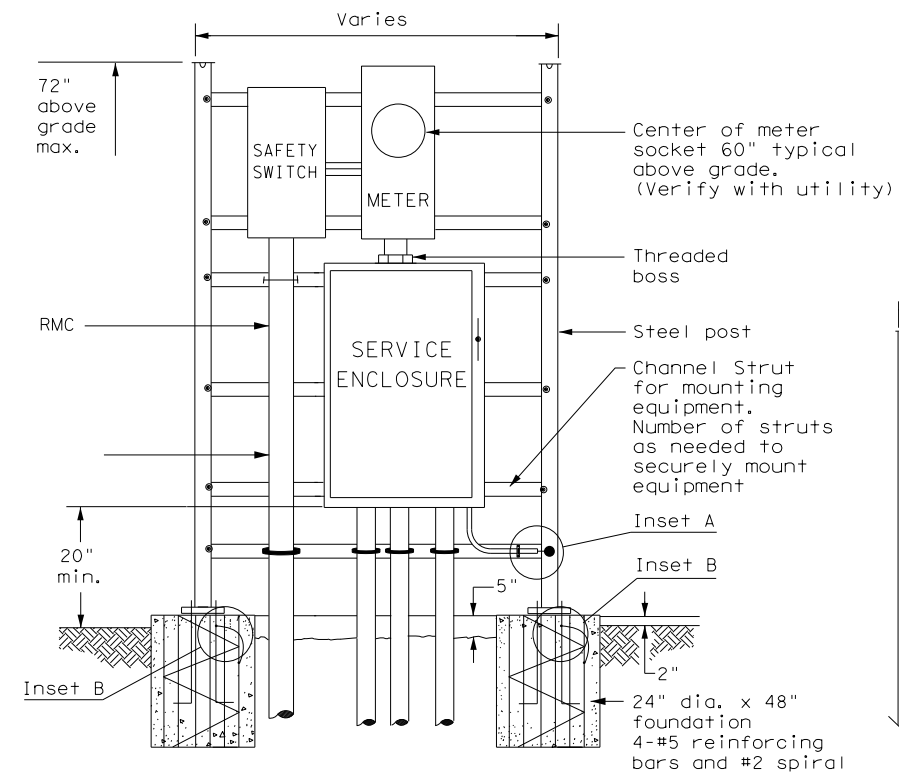


WITH SAFETY SWITCH
WITHOUT SAFETY SWITCH
SERVICE SUPPORT TYPE SP (O) - OVERHEAD SERVICE

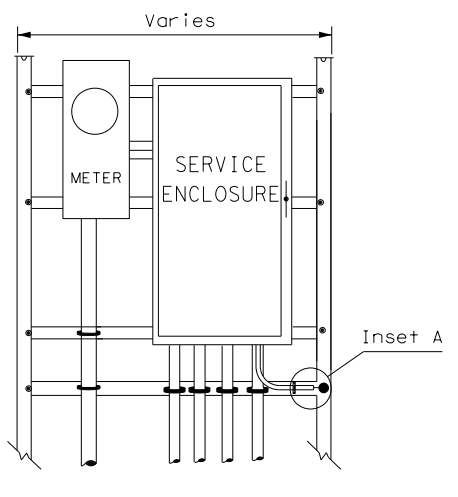
Drill, tap, and thread 1/2" X 13 UNC. Install tank ground fitting, connect electrical service grounding electrode conductor. See Note 7.



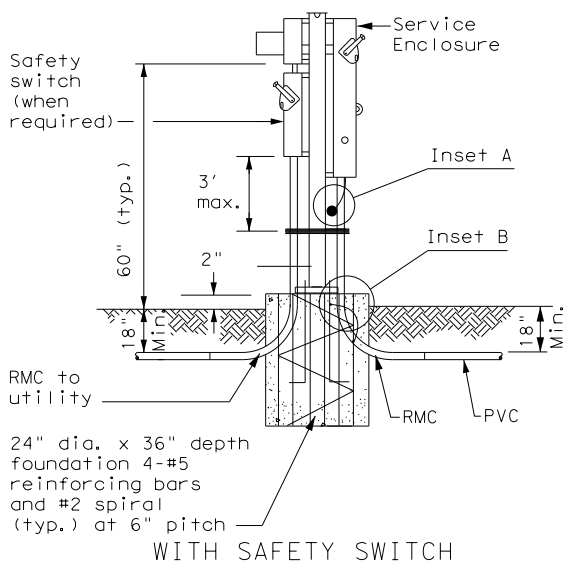
FRONT VIEW INSET A
INSET B



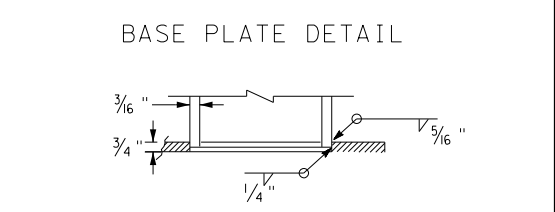
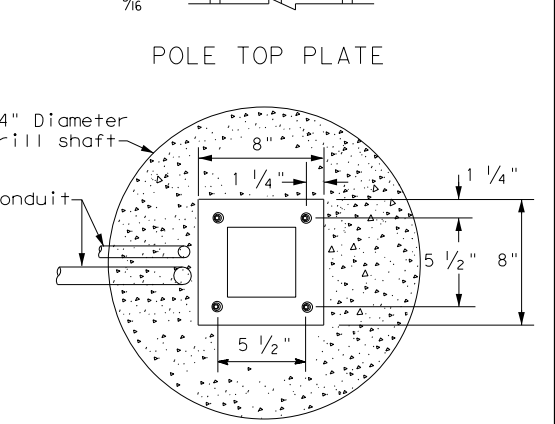
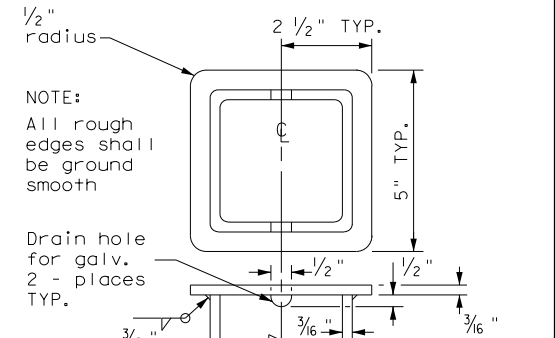
WITH SAFETY SWITCH
WITHOUT SAFETY SWITCH
FRONT VIEW
SERVICE SUPPORT TYPE SF (U) - UNDERGROUND SERVICE



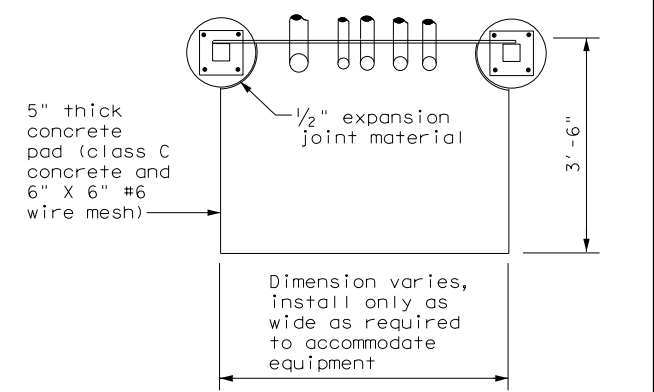
WITH SAFETY SWITCH
WITHOUT SAFETY SWITCH
FRONT VIEW
SERVICE SUPPORT TYPE SP (U) - UNDERGROUND SERVICE



HOOKED ANCHOR DETAIL



POLE TOP PLATE
BASE PLATE DETAIL
BOTTOM OF POLE



TOP VIEW
SERVICE SUPPORT TY SF (O) & SF (U)



**ELECTRICAL DETAILS
SERVICE SUPPORT
TYPES SF & SP
ED(7)-14**

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	TYLER	GREGG		278

ROADWAY ILLUMINATION ASSEMBLY NOTES

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1. Details apply to roadway lighting installations bid or referenced under Item 610, "Roadway Illumination Assemblies." Provide, furnish, and install all other materials not shown on the plans which may be necessary for complete and proper construction. Where manufacturers provide warranties or guarantees as a customary trade practice, furnish to the State such warranties or guarantees.
2. The locations of poles and fixtures may be shifted by the Engineer to accommodate local conditions. Install or remove poles and luminaires located near overhead electrical lines using established industry and utility safety practices and in accordance with laws governing such work. Consult with the appropriate utility company prior to beginning such work.
3. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association, Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection.
4. Provide Roadway Illumination Light Fixtures as per TxDOT Departmental Material Specification (DMS) 11010, Item 610, and as shown on the Material Producers List (MPL) for Roadway Illumination and Electrical Supplies.
5. Fabricate steel roadway illumination poles in accordance with Roadway Illumination Poles (RIP) standards and Item 610. Poles fabricated according to RIP standards do not require shop drawing submittals.
 - a. Alternate designs to RIP standards or the use of aluminum to fabricate poles will require the submission of shop drawings electronically. For instructions on submitting shop drawings electronically see "Guide to Electronic Shop Drawing Submittal" on the TxDOT web site.
 - b. Limitations on use of the RIP standard: The RIP standard details were developed for installations in locations where the 3-second gust basic maximum wind speed is 110 mph, and where the elevation of the base of the pole is less than (i.e. not more than) 25' above the elevation of the surrounding terrain, in accordance with the "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals," 6th Edition (2013) of the AASHTO Design Specifications. For poles to be installed in regions where the maximum basic wind speed exceeds 110 mph or to be mounted more than 25' above the surrounding terrain, provide poles meeting the following requirements:
 - i. Submittals. Following the electronic shop drawing submittal process (see Guide to Electronic Shop Drawing Submittal on the TxDOT web site), submit to the Engineer for approval fabrication drawings and calculations for the poles, sealed by a Texas licensed professional engineer (P.E.).
 - ii. Luminaire Structural Support Requirements. Provide light poles, arms, and anchor bolt assemblies with a 25 year design life to safely resist dead loads, ice loads and the required basic wind speeds at the location of installation in accordance with the 6th edition (2013) of the AASHTO Design Specifications. For transformer base poles, include transformer base and connecting hardware in calculations and shop drawing submittals. Structurally test all transformer bases to resist the theoretical plastic moment capacity of the pole. Submit certification of the plastic moment load test and FHWA breakaway requirement test of the model of base being furnished with the shop drawings. Show breakaway base model number, manufacturer's name, and logo on shop drawings. Include on manufacturer's shop drawings the ASTM designations for all materials to be used.
6. For both transformer and shoe-base type illumination poles, provide and install double-pole breakaway fuse holders as specified by DMS-11040. Breakaway fuse holders are listed on the MPL for Roadway Illumination and Electrical Supplies under Items 610 & 620. Provide 10 amp time delay fuses for breakaway connectors in light poles, or inside the light fixture for underpass luminaires. In each pole, connect luminaires to the breakaway connector with continuous stranded 12 AWG copper conductors as listed on the MPL. Bond all equipment grounding conductors together and to the ground lug in the transformer base or hand hole.
7. Tighten anchor bolts for shoe base, concrete traffic barrier base, and bridge mount roadway illumination poles, in accordance with Item 449.
8. Install T-Base with following procedure:
 - a. Anchor Bolt Tightening.
 - i. Coat the threads of the anchor bolts with electrically conductive lubricant.
 - ii. Place the T-base over the anchor bolts. Foundation must be level and flat. The maximum permissible gap under any one corner of the T-base is 1/8" before nuts are tightened.
 - iii. Coat the bearing surfaces of the nuts and washers with electrically conductive lubricant. Install (1) 1/2" hold down washer, (1) lock washer, and (1) nut on each anchor bolt. Turn the nuts onto the bolts so that each is hand-tight against the washer.
 - iv. Using a torque wrench, tighten each nut to 150 ft-lb. Uniform contact is required between the foundation and the T-base in the corner regions of the T-base, and all corner gaps must be closed after applying torque. If a gap still exists after torquing to 150 ft-lbs, continue torquing each bolt incrementally until gap is closed or maximum allowable torque of 250 ft. pound is reached, whichever comes first. If 250 ft-lbs is not enough to close the gap the foundation must be leveled. Gaps along the straight sides of the T-bases and the foundation are permissible. Ensure that no high point of contact occurs between the straight sides of the T-base and the foundation.
 - v. Check top of T-base for level. If not level then foundation must be leveled.
 - b. Top Bolt Procedure
 - i. Erect pole over T-base with crane. Coat bolts, nuts, washers, and lock washers with electrically conductive lubricant.

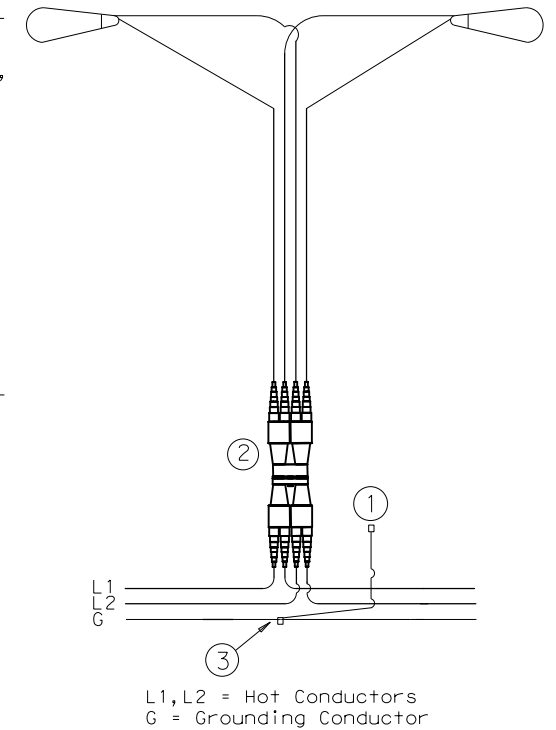
- ii. Install bolts and 1/2" connecting washers from the inside of the T-base, thread up through the pole base. Install flat washers, lock washers and nuts snug tight according to Item 447, "Structural Bolting."
- iii. Tighten each nut to 150 ft-lb. using a torque wrench.
- c. Level and Plumb
 - i. Ensure pole is plumb and mast arm is perpendicular to the roadway according to plans to within 5 degrees.
9. Construct luminaire pole foundations in accordance with Item 416, "Drilled Shaft Foundations," and TxDOT standard sheet RID(2).
10. Provide and install underpass luminaires in accordance with Item 610, DMS-11010, and TxDOT standard sheet RID(3). Typical luminaire size for underpass luminaires is 150W HPS or 150W EQ LED.
11. Mount luminaires on arms level as shown by the luminaire level indicator.
12. Orient luminaires perpendicular to the roadway intended to be lit unless otherwise shown on the plans.

Wiring Diagram Notes:

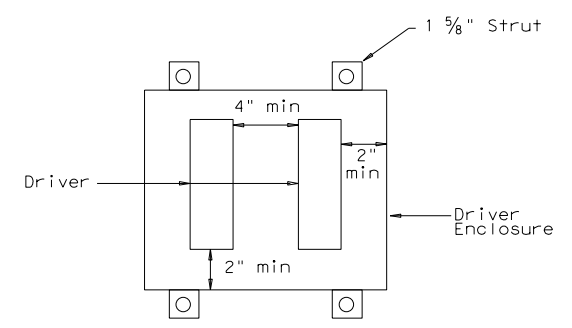
- ① Use 1/2 in. -13 UNC threaded, copper or tin-plated copper, pole bonding connector, sized appropriately for conductors, bonded to T-base, or use ground lug in handhole as available.
- ② Use pre-qualified two-pole breakaway connectors for all luminaire pole installations. For luminaires fed by a circuit with a neutral conductor, use double pole breakaway connectors with the neutral side unfused and marked white.
- ③ Split Bolt or other connector.

Decorative LED Lighting Notes:

1. LED Drivers in Remote Outdoor enclosures (for drivers that do not include an enclosure as part of a factory assembly):
 - a. Provide NEMA 3R outdoor enclosure or as approved.
 - b. Install enclosure at least 12" above ground or other horizontal surface. Mount vertically or on ceiling, and avoid direct sun where possible.
 - c. Install drivers with at least 2 inches of space from enclosure walls.
 - d. For multiple drivers in an enclosure, provide at least 4 inches side to side and 1 inch end to end from other drivers or electronic equipment
 - e. For drivers mounted on back wall of enclosure, mount enclosure on 1 5/8" strut or other standoff to dissipate heat, or mount driver to side of the enclosure or to the metal cover.
 - f. Provide remote drivers with a maximum of 100 watts
 - g. Provide drivers with documentation of 100,000 hr lifetime at Tcase of 65C or higher.



TYPICAL WIRING DIAGRAM
 LUMINAIRES SERVED AT 480V ON 240/480 VOLT SERVICE OR LUMINAIRES SERVED AT 240V FOR 120/240 VOLT SERVICE.

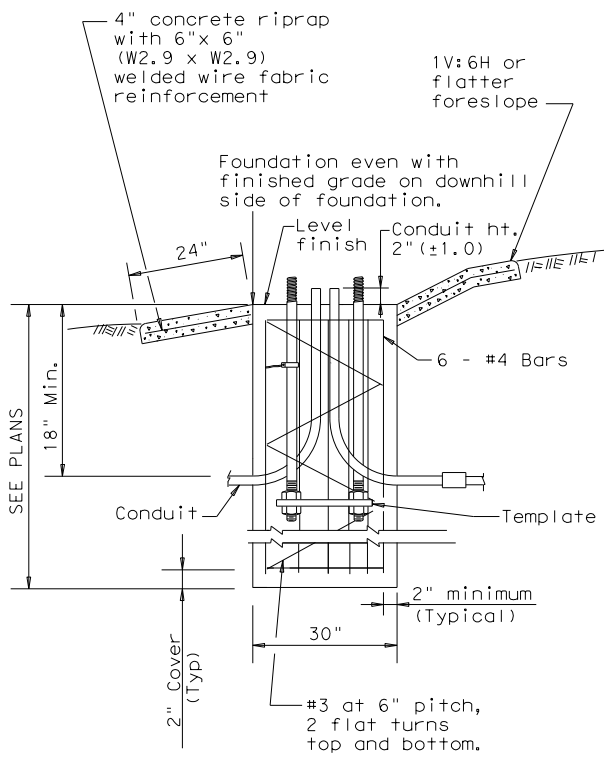


Driver Spacing In Remote Enclosure

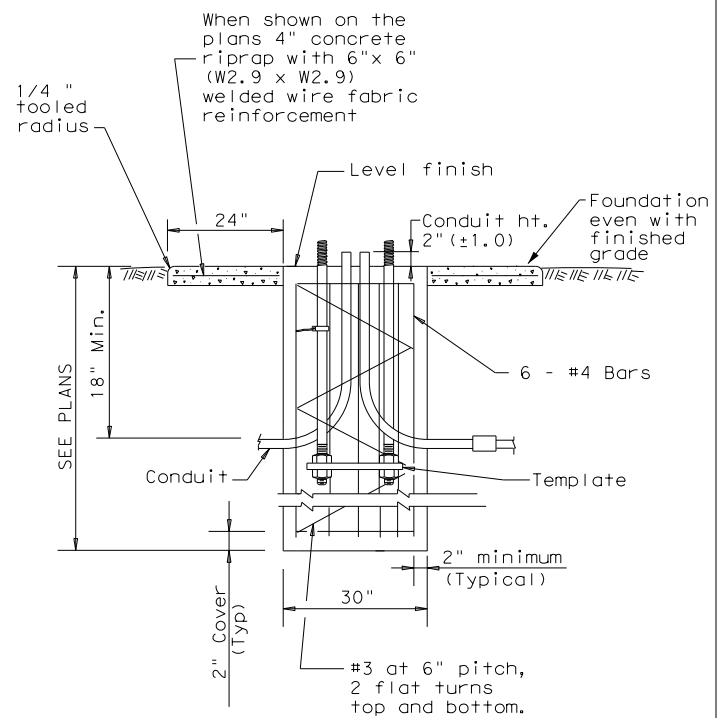
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SECTION A-A
SHOWING SLOPED GRADE



SECTION A-A
SHOWING CONSTANT GRADE

TABLE 1

ANCHOR BOLTS

POLE MOUNTING HEIGHT	BOLT CIRCLE		ANCHOR BOLT SIZE
	Shoe Base	T-Base	
<40 ft.	13 in.	14 in.	1 in. x 30 in.
40-50 ft.	15 in.	17 1/4 in.	1 1/4 in. x 30 in.

TABLE 2

RECOMMENDED FOUNDATION LENGTHS (See note 1)

MOUNTING HEIGHT	TEXAS CONE PENETROMETER N Blows/ft		
	10	15	40
≤20 ft.	6'	6'	6'
>20 ft. to 30 ft.	8'	6'	6'
>30 ft. to 40 ft.	8'	8'	6'
>40 ft. to 50 ft.	10'	8'	6'

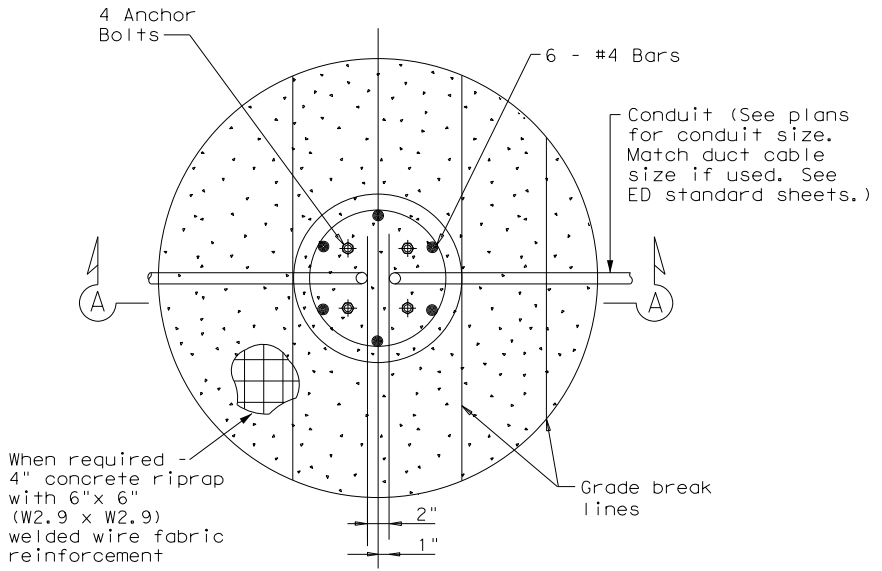
TABLE 3

PAY QUANTITY OF RIPRAP PER FOUNDATION (Install only when shown on the plans)

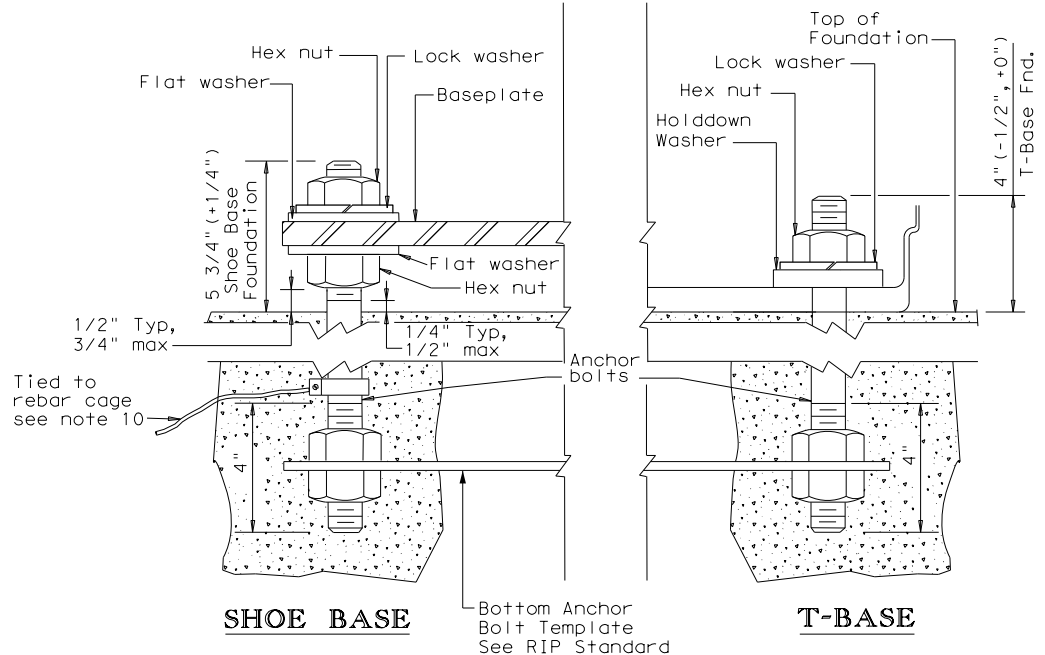
Foundation Diameter	RIPRAP DIAMETER	RIPRAP (CONC) (CL B)
30 in.	78 in.	0.35 CY

GENERAL NOTES:

- "Recommended Foundation Lengths" table is for information purposes only. Foundation lengths shall be as shown on the plans, or as directed by the Engineer. Foundations will be paid for under Item 416, "Drilled Shaft Foundations," unless otherwise shown on the plans.
- Erect roadway illumination assembly poles plumb and true. Form and level the top 6" of the foundation so the pole will be plumb. Use leveling nuts to plumb shoe base poles. Do not use shims or leveling nuts under transformer bases. Do not grout between baseplate and the foundation.
- Ensure Class 2A and 2B fit for anchor bolts and nuts. Tap and chase nuts after galvanizing. Anchor bolt body with rolled threads need not be full size.
- Use appropriate class of concrete as specified in Items 416 and 432. Concrete for riprap may be upgraded to Class C at no extra cost to the Department.
- Place riprap around the foundation when called for elsewhere in the plans. Riprap will be paid for under Item 432.
- Locate breakaway roadway illumination assemblies as shown in the placement table, unless otherwise dimensioned on the plans. Protect non-breakaway illumination assemblies from vehicular impact (i.e. 2.5 ft. behind guard rail or mounted on traffic barrier), or located outside the clear zone, except that 2.5 ft. from curb face is minimum desired for light poles on city streets, 45 mph or less. See Roadway Design Manual for further information.
- Use 4 hold down and 4 connecting washers on transformer base poles as recommended by the manufacturer and supplied with base.
- Install a minimum of 2 conduits in each foundation. See lighting layout sheets for locations of foundations with more than 2 conduits. Cap unused conduits in foundations on both ends.
- Conduit location in foundations is critical for breakaway devices. Place conduits 2 in. apart on centerline as shown.
- Bond anchor bolt to rebar cage with #6 bare stranded copper conductor. Use listed mechanical connectors rated for embedment in concrete. The bonded steel in the foundation creates a concrete encased grounding electrode which replaces the ground rod.
- Grade earthwork around T-base foundations even with the finished grade as shown in Section A-A to ensure proper function of the breakaway device. Use riprap on T-base foundations that are located on sloped grades, and as shown on the plans for level grades.



FOUNDATION DETAIL



ANCHOR BOLT DETAIL

TABLE 4

BREAKAWAY POLE PLACEMENT (See note 6)

ROADWAY FUNCTIONAL CLASSIFICATION	** POLE OFFSET (DISTANCE TO FACE OF TRANSFORMER BASE)
Freeway Mainlanes (roadway with full control of access)	15 ft. (minimum and typical) from lane edge
All curbed, 45 mph or less design speed	2.5 ft. minimum (15 ft. desirable) from curb face
All others	10 ft. minimum*(15 ft. desirable) from lane edge

* or as close to ROW line as is practical

** provide 2/5 of the luminaire mounting height behind the pole for "falling area" to prevent encroachment on the other travel lanes. See design guidelines.

Texas Department of Transportation
 Traffic Safety Division Standard

ROADWAY ILLUMINATION DETAILS (RDWY ILLUM FOUNDATIONS)

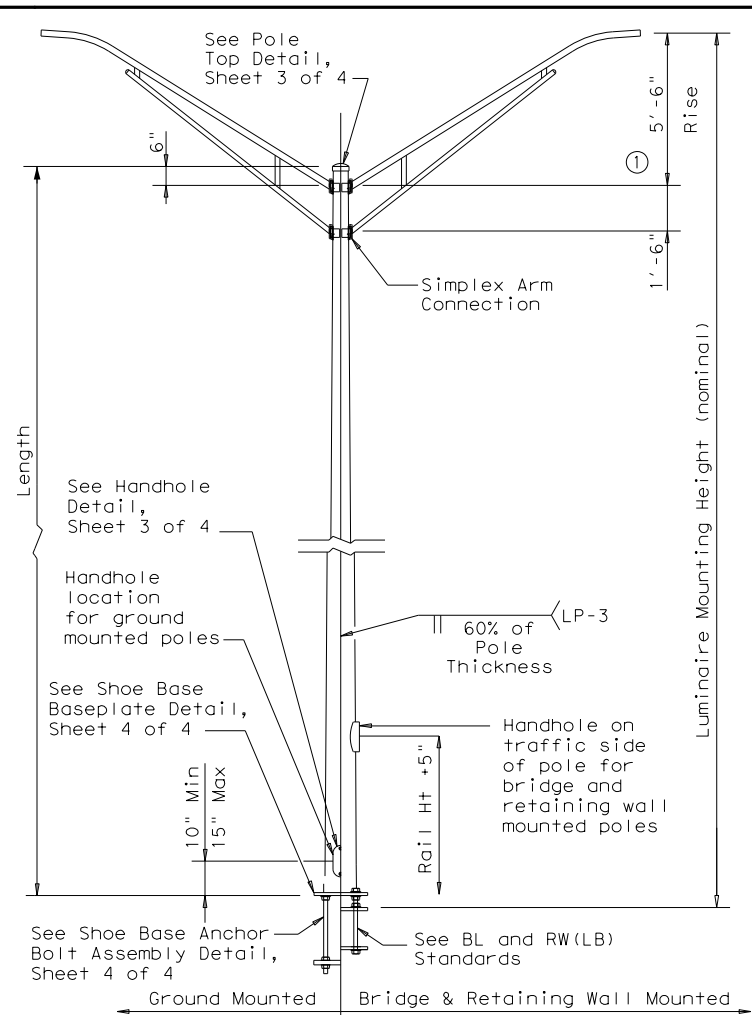
RID(2)-20

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1-11	DIST:	COUNTY:	SHEET NO.:	
7-17	TYLER	GREGG	280	
12-20				

72B

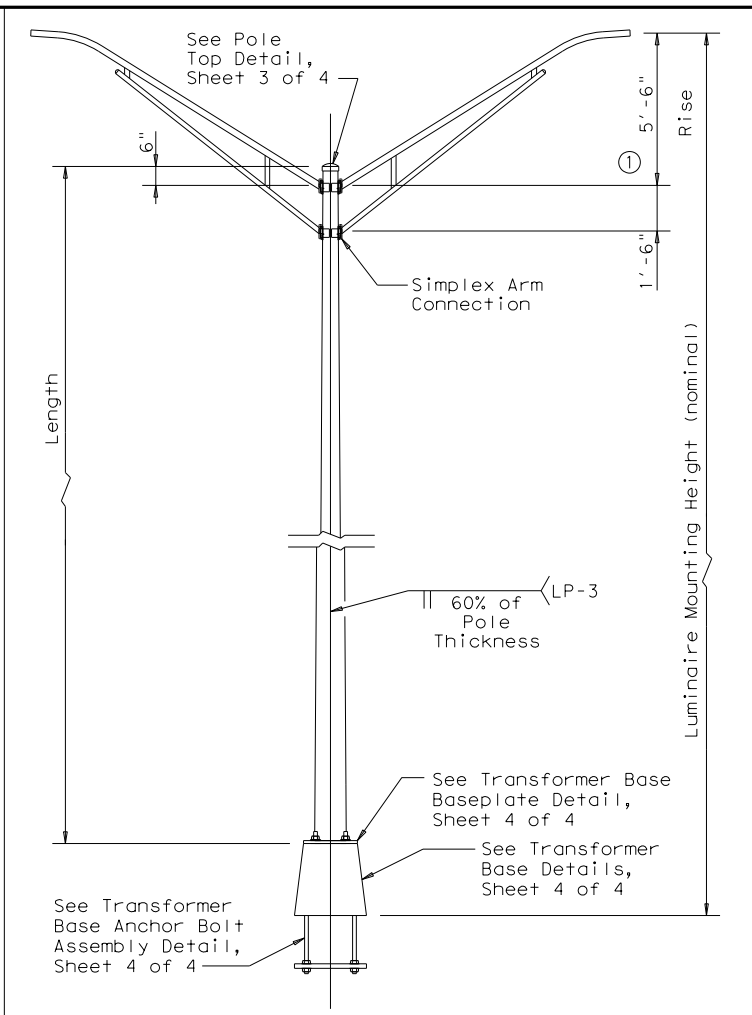
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DATE: 7/22/2021 \$TIME\$
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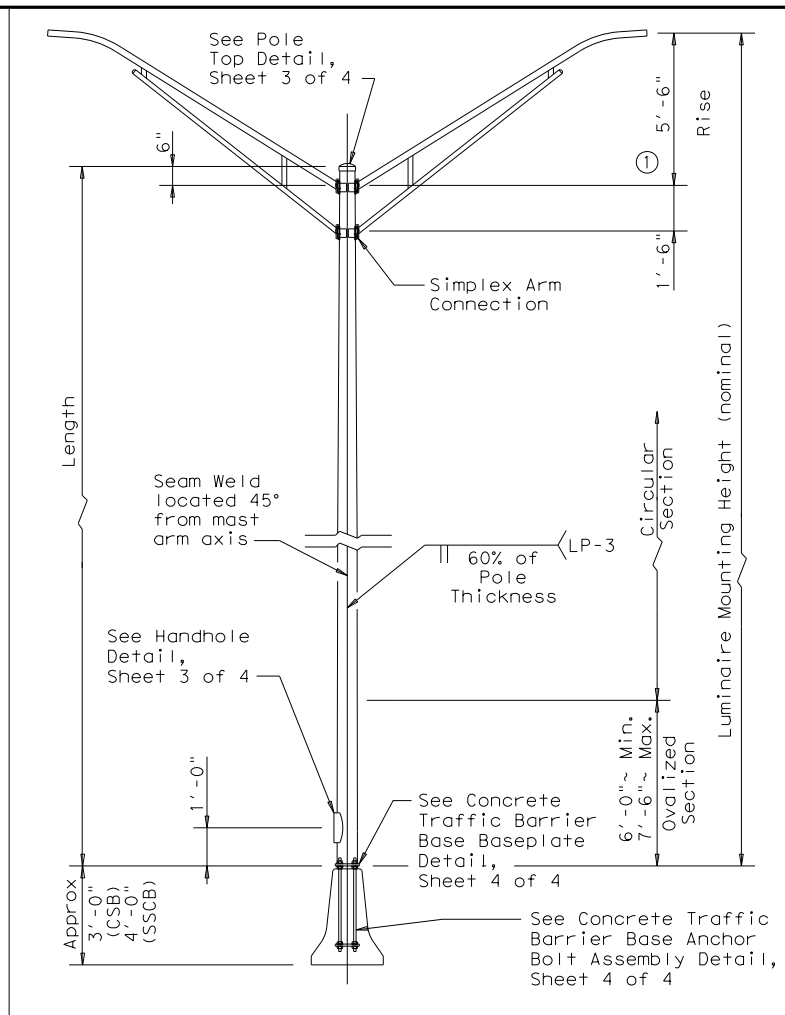
SHOE BASE POLE

SHOE BASE POLE					
Luminaire Mounting Height (Nominal) (ft)	Base Diameter (in)	Top Diameter (in)	Length (ft)	Pole Thickness (in)	Design Moment (K-ft)
20.00	7.00	4.90	15.00	0.1196	7.1
30.00	7.50	4.00	25.00	0.1196	13.2
31.00-39.00	8.00	4.36-3.24	26.00-34.00	0.1196	20.7
40.00	8.50	3.60	35.00	0.1196	20.7
50.00	10.50	4.20	45.00	0.1196	30.3



TRANSFORMER BASE POLE

TRANSFORMER BASE POLE					
Luminaire Mounting Height (Nominal) (ft)	Base Diameter (in)	Top Diameter (in)	Length (ft)	Pole Thickness (in)	Design Moment (K-ft)
20.00	7.00	5.11	13.50	0.1196	7.1
30.00	7.50	4.21	23.50	0.1196	13.2
31.00-39.00	8.00	4.57-3.45	24.50-32.50	0.1196	20.7
40.00	8.50	3.81	33.50	0.1196	20.7
50.00	10.00	3.91	43.50	0.1196	30.3



CONCRETE TRAFFIC BARRIER BASE POLE

CONCRETE TRAFFIC BARRIER BASE POLE (CSB/SSCB)						
Luminaire Mounting Height (Nominal) (ft)	Base Diameter (in)	Top Diameter (in)	Length (ft)	Pole Thickness (in)	Design Moment (K-ft)	
					About Rail	Perp. to Rail
28.00	9.00	5.78	23.00	0.1196	10.3	13.2
38.00	9.00	4.38	33.00	0.1196	16.6	20.8
48.00	10.50	4.48	43.00	0.1345	25.1	30.5

GENERAL NOTES:

- Designs conform to AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 6th Edition (2013) and Interim Revisions thereto. Design 3-Second Gust Wind Speed equals 110 mph with a 1.14 gust factor. A wind importance factor of 0.80 is applied to adjust the wind speed to a 25 year recurrence interval. Design moments listed in tables assume base of pole is 25' above natural ground level.
- Structures are designed to support two 12' luminaire mast arms and luminaires. Mast arms are designed to support a 60-pound luminaire having an effective projected area of 1.6 square feet.
- Fabrication shall be in accordance with the Specifications and with the details, dimensions, and weld procedures shown herein. Do not submit shop drawings for roadway illumination pole assemblies fabricated in accordance with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of these sheets and the Specifications. In the absence of specified fabrication tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice.
- For mounting heights between values shown in the tables, use base diameter and thickness values for the larger height.
- Unless otherwise noted, all steel parts shall be galvanized in accordance with Item 445, "Galvanizing."
- Steel poles shall be fabricated in accordance with Item 441, "Steel Structures." Longitudinal seam welds for pole sections shall have 60% minimum penetration. All welding shall be in accordance with AWS D1.1, Structural Welding Code-Steel.
- Two-section poles joined by circumferential welds will not be permitted, unless otherwise shown on the plans. Poles may be fabricated in two sections and field-assembled by the lap-joint method. The two sections shall telescope together with a lap length of not less than 1-1/2 times the shaft diameter at the lap joint.
- Alternate material equal to or better than material specified may be substituted with the approval of the Engineer.
- Lubricate and tighten anchor bolts, when erecting shoe base poles and concrete traffic barrier base poles, in accordance with Item 449, "Anchor Bolts."
- All poles, except Transformer Base Poles, shall have hand holes with reinforcing frames and covers. For ground mounted shoe base poles, hand holes shall be placed 90 degrees to mast arm unless otherwise noted on the plans. For poles mounted on a concrete traffic barrier with one luminaire arm, hand holes shall be located 180 degrees from luminaire arm. For poles mounted on a concrete traffic barrier with two luminaire arms, all hand holes shall be on the same side of the barrier. For poles mounted on a bridge lighting bracket or a retaining wall lighting bracket, hand hole shall be on traffic side of the pole, at a height that will clear the barrier.
- The finished pole shall have a smooth, uniform finish free of pits, blisters, or other defects. Scratched, chipped, and other damaged galvanized areas on poles and mast arms shall be repaired in accordance with Item 445, "Galvanizing."
- Pole length is based on a 5'-6" luminaire arm rise. 4 ft. luminaire arms have a 2'-6" rise. A pole with 4 ft. luminaire arms will have an actual mounting height 3'-0" less than the nominal mounting height. Increasing the pole length to meet the nominal mounting height is allowed, but unnecessary unless otherwise directed by the engineer.
- Erect transformer base poles in accordance with sheet RID(1).

MATERIAL DATA

COMPONENT	ASTM DESIGNATION	MIN. YIELD (ksi)
Pole Shaft (0.14"/ft. Taper)	A572 Gr 50, A595 Gr A, A1011 HSLAS Gr 50 Cl 2 ③, or A1008 HSLAS Gr 50 Cl 2	50
Base Plate and Handhole Frame	A572 Gr.50, or A36	36
T-Base Connecting Bolts	F3125 Gr A325	92
Anchor Bolts	F1554 Gr 55, A193-B7 or A321	55 105
Anchor Bolt Templates	A36	36
Heavy Hex (H.H.) Nuts	A194 Gr 2H, or A563 Gr DH	
Flat Washers	F436	

NOTES:

- 2'-6" rise for 4 ft. luminaire arms.
- Before ovalized as shown on Concrete Traffic Barrier Base Baseplate details, Sheet 4 of 4.
- A1011 SS Gr 50 may be used instead of HSLAS, provided the material meets the elongation requirements for HSLAS.

POLE ASSEMBLY FABRICATION TOLERANCES TABLE

DIMENSION	TOLERANCE
Shaft length	+1"
I.D. of outside piece of slip fitting pieces	+1/8", -1/16"
O.D. of inside piece of slip fitting pieces	+1/32", -1/8"
Shaft diameter: other	+3/16"
Out of "round"	1/4"
Straightness of shaft	±1/4" in 10 ft
Twist in multi-sided shaft	4° in 50 ft
Perpendicular to baseplate	1/8" in 24"
Pole centered on baseplate	±1/4"
Location of Attachments	±1/4"
Bolt hole spacing	±1/16"

SHEET 2 OF 4

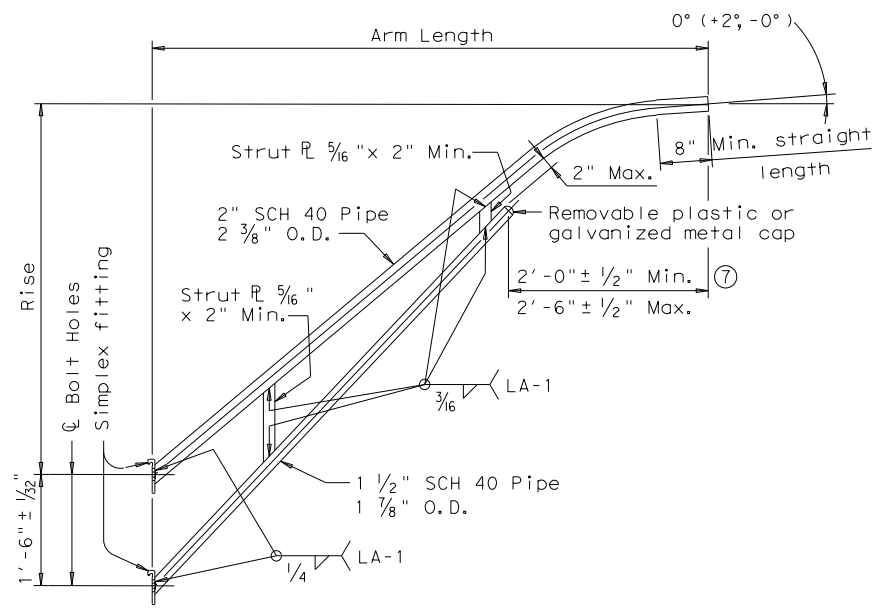


**ROADWAY ILLUMINATION POLES
 RIP(2)-19**

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©TxDOT January 2007	CON:	SECT:	JOB:	HIGHWAY:
REVISIONS	0910	07	072	HIGH ST
7-17	DIST:	COUNTY:	SHEET NO.:	
12-19	TYLER	GREGG	282	

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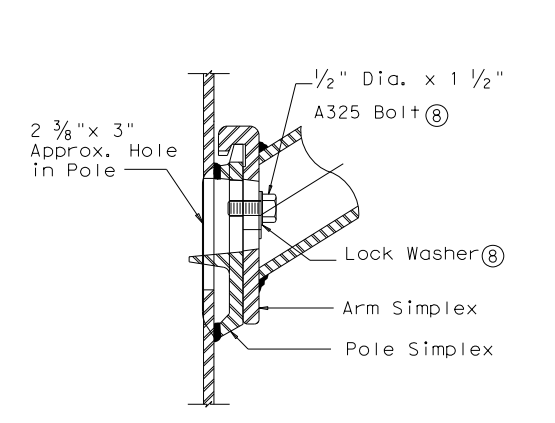
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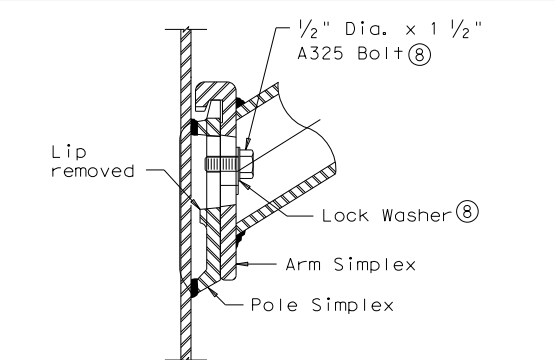
LUMINAIRE ARM

LUMINAIRE ARM DIMENSIONS		
Nominal Arm Length	Arm Length	Rise
4'-0"	3'-6"	2'-6"
6'-0"	5'-6"	5'-6"
8'-0"	7'-6"	5'-6"
10'-0"	9'-6"	5'-6"
12'-0"	11'-6"	5'-6"

ARM ASSEMBLY FABRICATION TOLERANCES TABLE	
DIMENSION	TOLERANCE
Arm Length	±1"
Arm Rise	±1"
Deviation from flat	1/8" in 12"
Spacing between holes	±1/32"

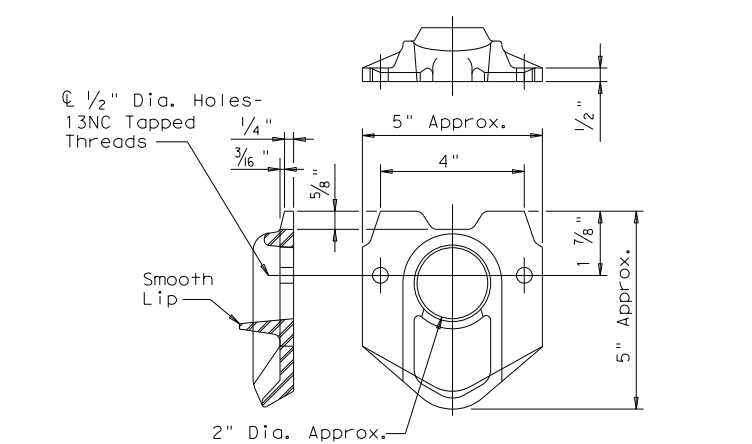


UPPER SIMPLEX FITTING
(Gusset not shown for clarity)

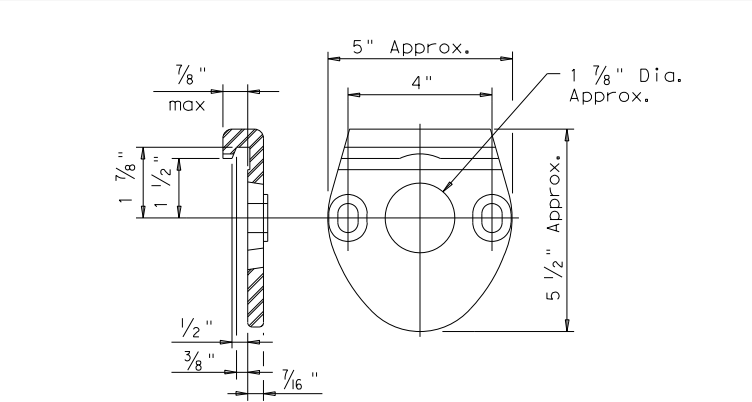


LOWER SIMPLEX FITTING
(Gusset not shown for clarity)

SECTION B-B



POLE SIMPLEX DETAIL (9)



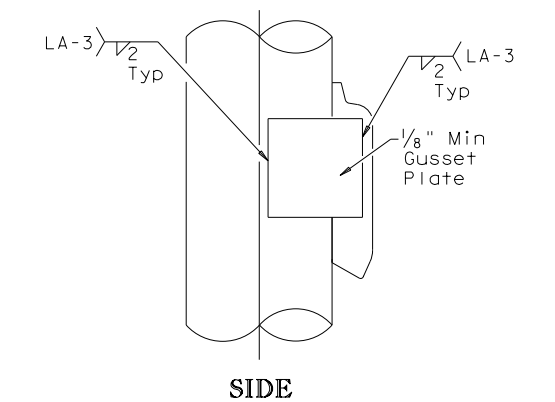
ARM SIMPLEX DETAIL (9)

NOTES:

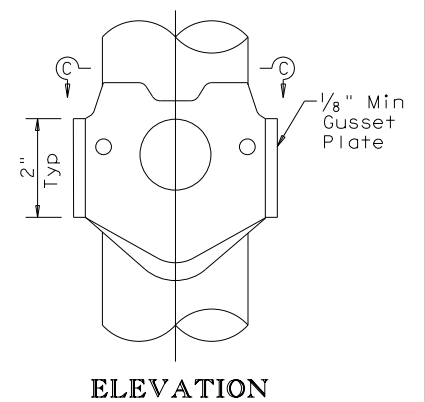
- (4) Any of the materials listed for plates may be used where the drawings do not specify a particular ASTM designation.
- (5) A576 must be suitable for forging and also meet minimum tensile strength of 65 ksi, minimum yield of 35 ksi, and elongation in 2 inches of 22 percent.
- (6) A572, A1008 HSLAS-F, and A1011 HSLAS-F materials may have higher yield strengths but shall not have less elongation than the grade indicated.
- (7) Dimensional limits are given to show acceptable variation in design. All of a Fabricator's production of a particular arm length shall have the same dimensions within specified tolerances.
- (8) Each pole simplex fitting shall be supplied with 2 bolts and 2 lock washers of the size specified. The bolts and lock washers shall be secured to the pole with the other hardware items called for in the plans.
- (9) Proposed deviations in arm simplex dimensions or materials must be submitted to the Department for approval.
- (10) A welded handhole frame is permissible. Maximum of two (2) CJP weld splices is allowed.

MATERIALS

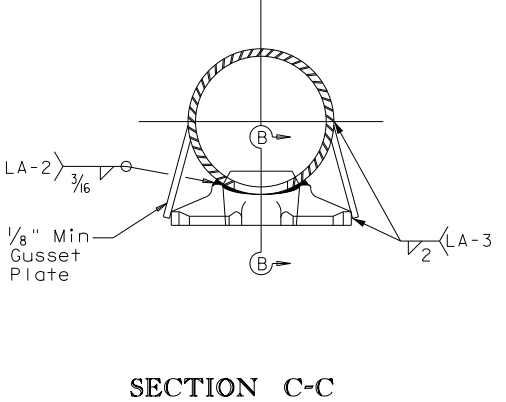
Pole or Arm Simplex	ASTM A27 Gr 65-35 or Gr 70-36, A148 Gr 80-50, A576 Gr 1021 (5), or A36 (Arm only)
Arm Pipes	ASTM A53 Gr A or B, A500 Gr B, A501, A 1008 HSLAS-F Gr 50 (6), or A1011 HSLAS-F Gr 50 (6)
Arm Struts and Gusset Plates (4)	ASTM A36, A572 Gr 50 (6), or A588
Misc.	ASTM designations as noted



SIDE

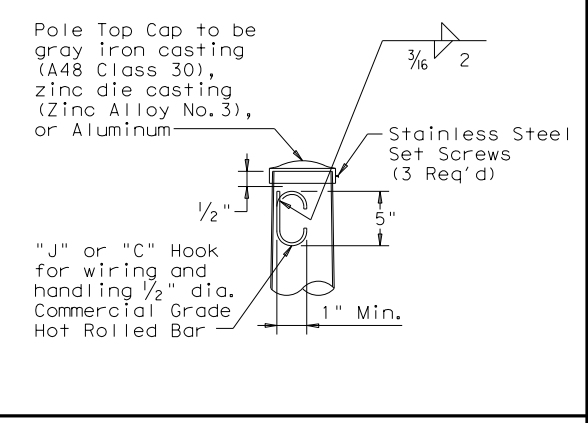


ELEVATION

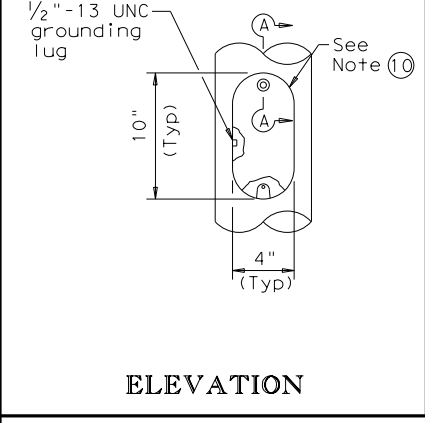


SECTION C-C

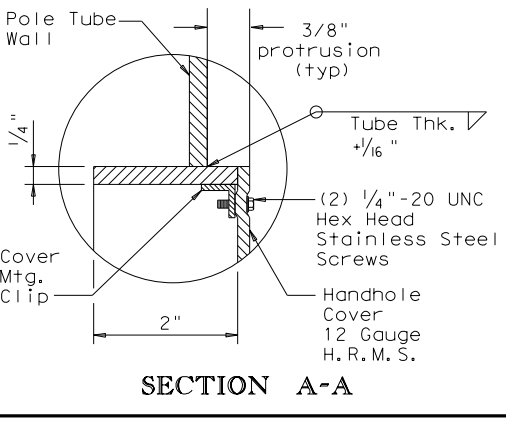
SIMPLEX ATTACHMENT DETAIL



POLE TOP



ELEVATION



SECTION A-A

HANDHOLE

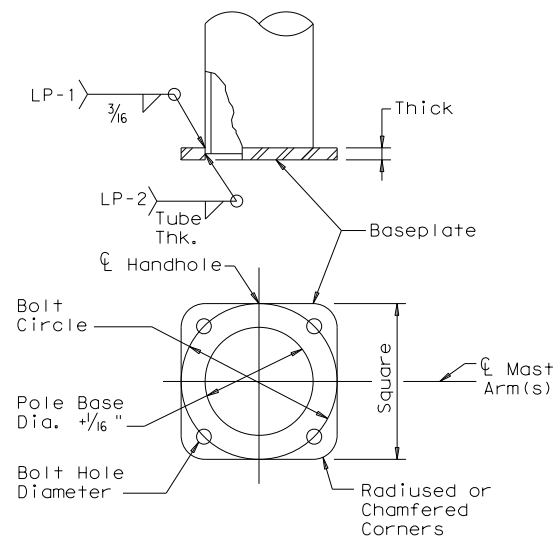
SHEET 3 OF 4



ROADWAY ILLUMINATION POLES
RIP(3)-19

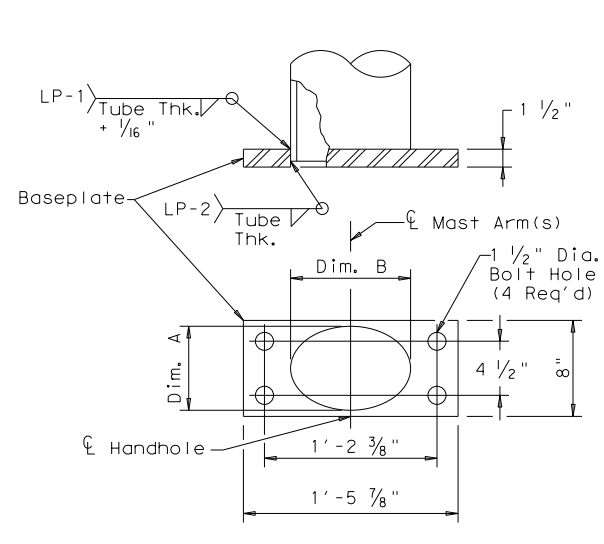
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7-17	DIST	COUNTY	SHEET NO.	
12-19	TYLER	GREGG	283	

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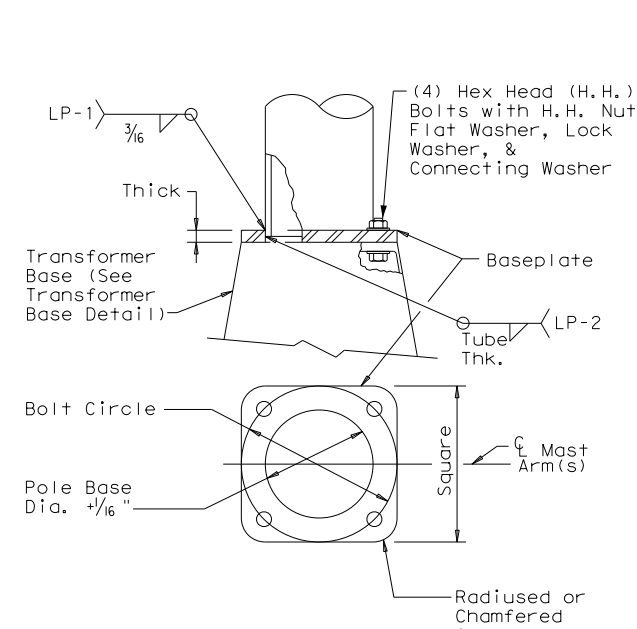
SHOE BASE BASEPLATE

SHOE BASE BASEPLATE TABLE				
MOUNTING HEIGHTS (nominal)	BOLT CIRCLE	SQUARE	THICK	BOLT HOLE DIAMETER
20' - 39'	13"	13"	1 1/4"	1 1/4"
40'	15"	15"	1 1/4"	1 1/2"
50'	15"	15"	1 1/2"	1 1/2"



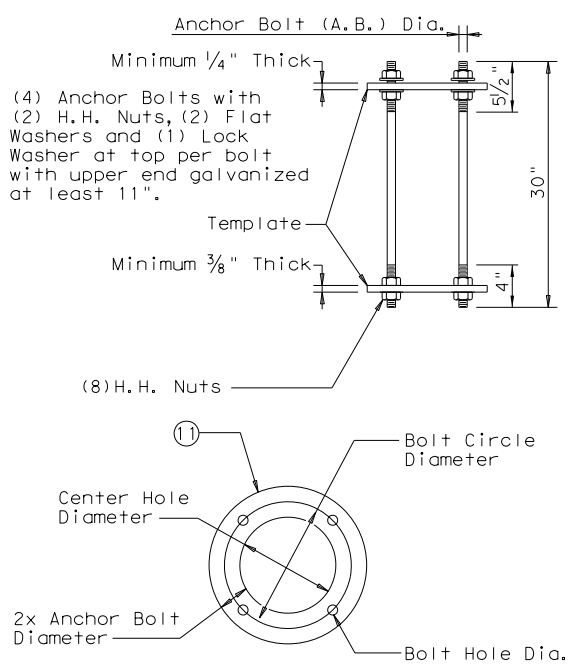
CONCRETE TRAFFIC BARRIER BASE BASEPLATE

CONCRETE TRAFFIC BARRIER BASE BASEPLATE TABLE			
MOUNTING HEIGHTS (nominal)	POLE DIA. (12)	DIM. A	DIM. B
28' - 38'	9"	7" ± 1/4"	10" ± 1/4"
48'	10 1/2"	7" ± 1/4"	13" ± 1/4"



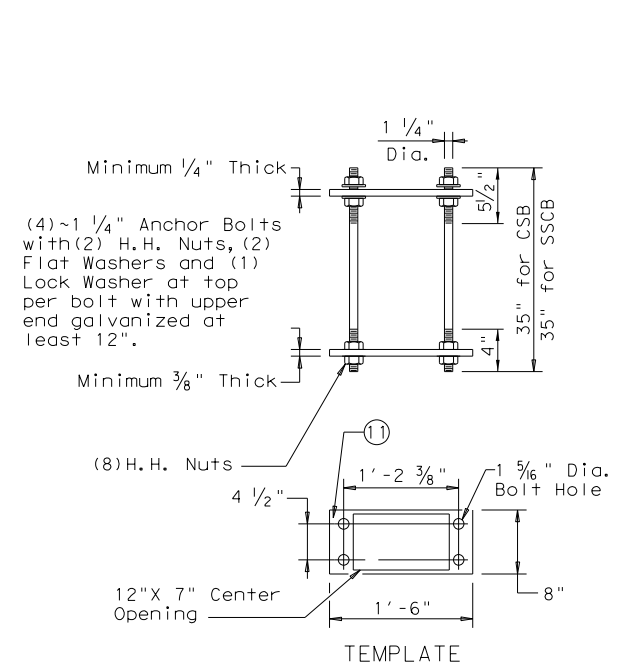
TRANSFORMER BASE BASEPLATE

TRANSFORMER BASE BASEPLATE TABLE						
MOUNTING HEIGHTS (nominal)	BOLT CIRCLE	SQUARE	THICK	CONNECTING BOLT DIA.	BOLT HOLE DIAMETER	TRANSFORMER BASE TYPE
20' - 39'	13"	13"	1 1/4"	1"	1 1/4"	A
40'	15"	15"	1 1/4"	1 1/4"	1 1/2"	B
50'	15"	15"	1 1/2"	1 1/4"	1 1/2"	B



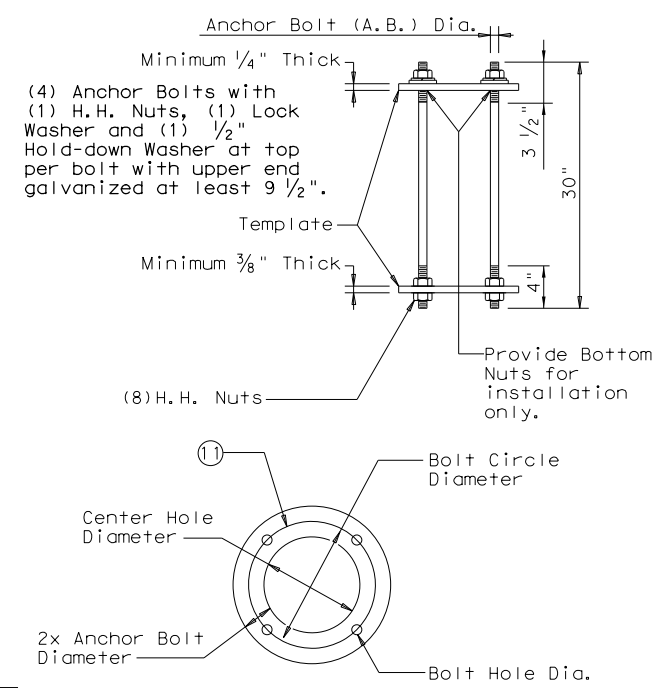
SHOE BASE ANCHOR BOLT ASSEMBLY

SHOE BASE ANCHOR BOLT ASSEMBLY TABLE				
MOUNTING HEIGHTS (nominal)	A.B. Dia.	BOLT CIRCLE DIAMETER	CTR. HOLE DIAMETER	BOLT HOLE DIAMETER
20' - 39'	1"	13"	11"	1 1/16"
40' - 50'	1 1/4"	15"	12 1/2"	1 5/16"



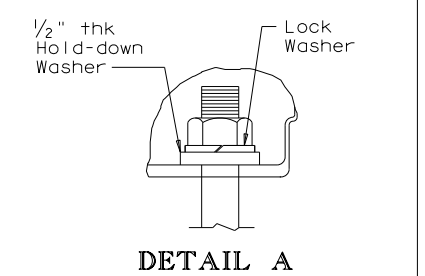
CONCRETE TRAFFIC BARRIER BASE ANCHOR BOLT ASSEMBLY

CONCRETE TRAFFIC BARRIER BASE ANCHOR BOLT ASSEMBLY TABLE				
MOUNTING HEIGHTS (nominal)	A.B. Dia.	BOLT CIRCLE DIAMETER	CTR. HOLE DIAMETER	BOLT HOLE DIAMETER
20' - 39'	1"	14"	12"	1 1/16"
40' - 50'	1 1/4"	17 1/4"	14 3/4"	1 5/16"

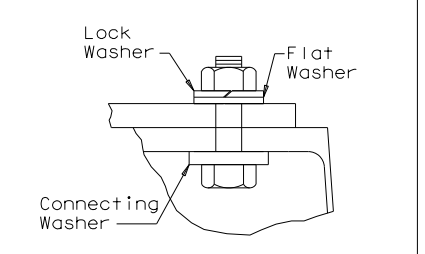


TRANSFORMER BASE ANCHOR BOLT ASSEMBLY

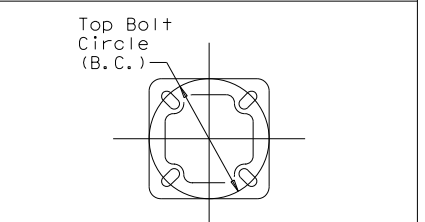
TRANSFORMER BASE TABLE		
TYPE	TOP B.C.	BTM. B.C.
A	13"	14"
B	15"	17 1/4"



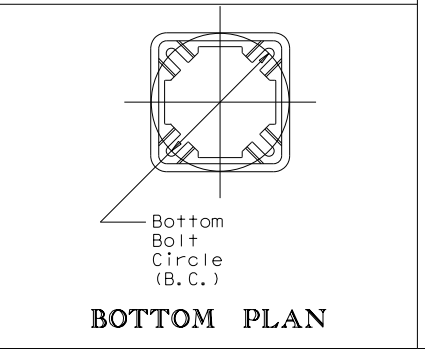
DETAIL A



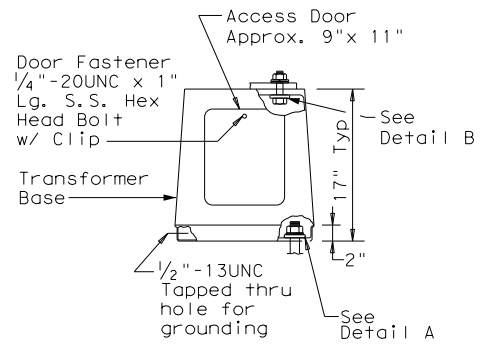
DETAIL B



TOP PLAN



BOTTOM PLAN



ELEVATION

TRANSFORMER BASE DETAILS

GENERAL NOTES:

- For mounting heights between those shown in the table, use the values in the table for the larger mounting height.
- All breakaway bases shall meet the breakaway requirements of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 6th Edition (2013) and Interim Revisions thereto, and shall have been tested by FHWA-approved methods. All bases shall have been structurally tested to resist 150% of the design moment.
- Transformer bases shall be cast from aluminum, ASTM B108 or B26 Alloy 356.0-T6, or other material approved by the Engineer. Four Hex Head (H.H.) bolts with four H.H. nuts, four lock washers, four flat washers, and connecting and hold-down washers as recommended by the manufacturer, galvanized to ASTM A153 Class C or D, or B695 Class 50, shall be provided with each transformer base for connecting the pole. Bolts shall be ASTM A325 or approved equal. Nuts shall be ASTM A563 grade DH galvanized.
- Bases shall be stamped, incised or by other approved permanent means, marked to show fabricator's name or logo, and model number. Such information shall be placed in a readily seen location, inside or outside the base, but shall not be placed on the door.
- Doors for transformer bases shall be made of plastic, fiberglass or other non-metallic material approved by the Engineer and shall be attached with stainless steel screws or bolts. Transformer bases shall be cleaned by grit blast cleaning after heat treatment. Certification by the manufacturer of heat treatment shall be furnished with transformer bases. The certification shall show the material ASTM specification. Transformer bases shall be cast with a removable tab bar for material testing. Some bars may have been removed by the manufacturer for testing.

NOTES:

- Anchor Bolt Templates do not need to be galvanized.
- Pole diameter before ovalized.

ANCHOR BOLT FABRICATION TOLERANCES TABLE	
DIMENSION	TOLERANCE
Length	± 1/2"
Threaded length	± 1/2"
Galvanized length (if required)	- 1/4"

SHEET 4 OF 4

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION POLES

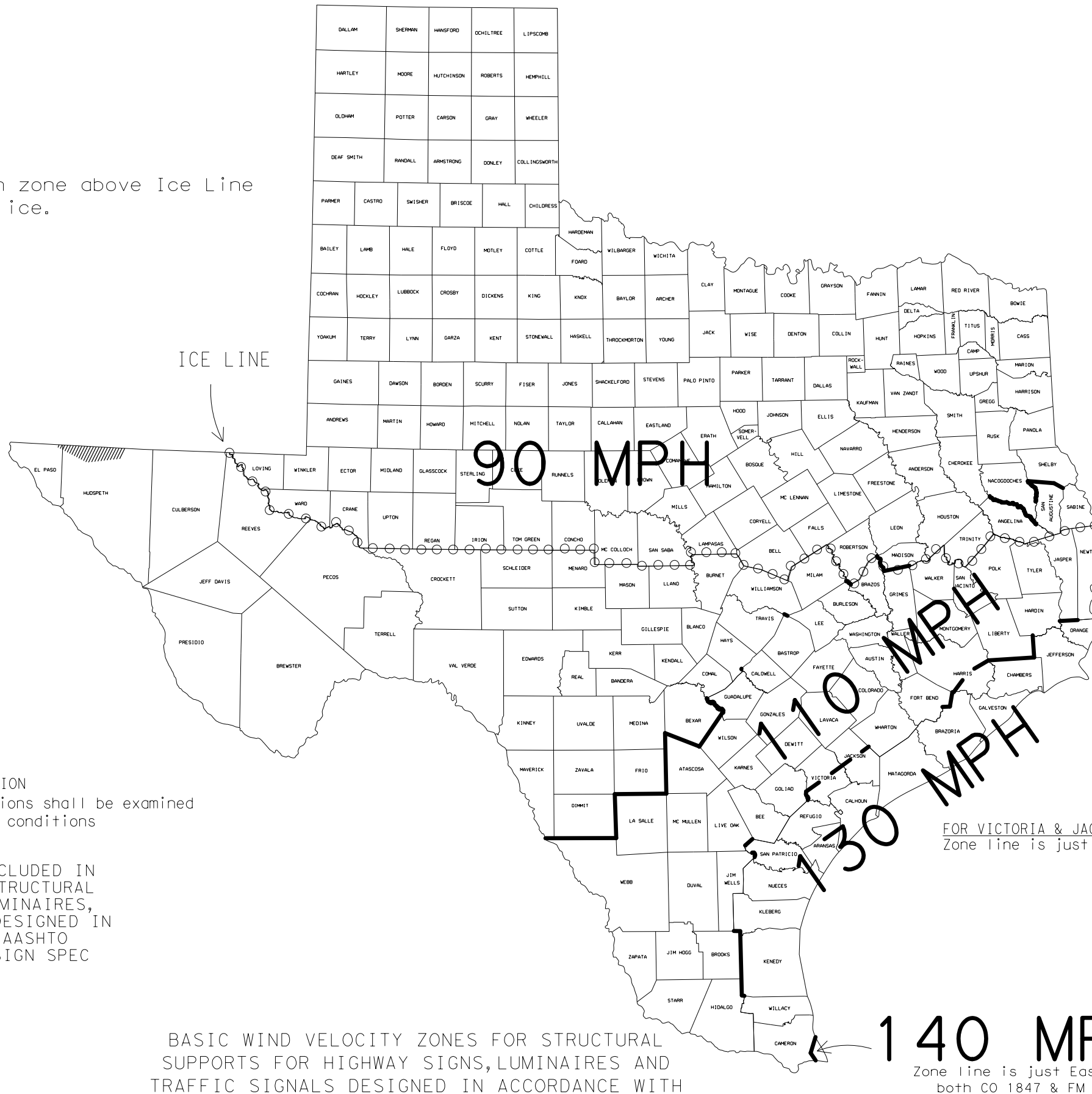
RIP(4)-19

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12-19	TYLER	GREGG	284	

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NOTE: Structures in zone above Ice Line to be designed for ice.



 SPECIAL WIND REGION
 Special wind regions shall be examined for unusual wind conditions

FOR HARRIS CO. ONLY
 Zone line is just North of US 90, around on the North, West and South sides of IH 610 and down the West side of SH 288.


FOR VICTORIA & JACKSON COUNTIES ONLY
 Zone line is just South of US 59.

THIS SHEET IS TO BE INCLUDED IN ALL P.S.&E.'s HAVING STRUCTURAL SUPPORTS FOR SIGNS, LUMINAIRES, AND/OR TRAFFIC SIGNALS DESIGNED IN ACCORDANCE WITH THE AASHTO 2001 THRU 2013 LTS DESIGN SPEC

BASIC WIND VELOCITY ZONES FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS DESIGNED IN ACCORDANCE WITH THE AASHTO 2001 THRU 2013 LTS DESIGN SPEC

Values are nominal design 3-sec gust wind speeds in mph at 33 ft above ground for Exposure C category. (50-year mean recurrence interval)

NOTE: AASHTO 2001 THRU 2013 LTS DESIGN SPEC = AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 4th thru 6th Edition

 Texas Department of Transportation				Traffic Operations Division Standard	
WIND VELOCITY AND ICE ZONES (AASHTO 2001-2013 LTS DESIGN SPEC) WV & IZ (LTS2013)-14					
FILE: Its2013.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	
© TxDOT August 2014	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0910	07	072	HIGH ST	
	DIST	COUNTY	SHEET NO.		
	TYLER	GREGG	285		

A. GENERAL SITE DATA

1. PROJECT LIMITS: FROM AT UPRR AND SABINE ST TO STR*001, IN LONGVIEW

Begin Project Coordinates : Latitude (N) : 32.48705000 Longitude (W) : 94.74419000

2. PROJECT SITE MAPS:

- * Project Location Map: The Title Sheet
- * Drainage Patterns: Hydrologic & Hydraulic Data (Sheet 160)
- * Slopes Anticipated After Major Gradings or Areas of Soil Disturbance: Typical Sections (Sheets 5-8)
- * Location of Erosion and Sediment Controls: SW3P Site Maps (Sheets 288-293)
- * Surface Waters and Discharge Locations: Drainage Plan & Profile (Sheet 161)
- * Project Specific Location(s) (PSL): To be determined by the project Construction Personnel. Location(s) shown on SW3P Site Map (if PSL location(s) is within one mile of project) and information located in project SW3P Binder (Reference Item *10 below).

3. PROJECT DESCRIPTION:

REPLACEMENT OF EXISTING BRIDGE AND APPROACHES

4. MAJOR SOIL DISTURBING ACTIVITIES:

INCLUDES PREP ROW, EMBANKMENT FOR FILL, DITCH GRADING, EROSION AND SEDIMENTARY CONTROLS, AND TOPSOIL WORK FOR FINAL SEEDING.

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

THE EXISTING SOIL CONSISTS PRIMARILY OF CLAYEY GRAVEL WITH SAND. SLOPES RANGING FROM 0% TO 25% NATIVE GRASSES, BRUSH, AND TREES COVER THE EXISTING SOIL.

6. TOTAL PROJECT AREA: 4.17 Acres

7. TOTAL AREA TO BE DISTURBED: 2.84 Acres (68.11%)

8. WEIGHTED RUNOFF COEFFICIENT

BEFORE CONSTRUCTION: 0.93
AFTER CONSTRUCTION: 0.93

9. NAME OF RECEIVING WATERS:

RUNOFF FROM THE PROJECT SITE DRAINS TO WADE CREEK.

10. PROJECT SW3P Binder:

A. For projects disturbing one to five acres, TxDOT will maintain a SW3P Binder at the project field office (if there is not a project field office, should be kept at the Area Office) which contains the following: Index Sheet, TCEQ Signature Authority, TxDOT's and Contractor's Small Construction Site Notice, SW3P Inspector Qualification Statements, EPIC Sheet, SW3P Sheet, Site Location Maps, Inspection and Maintenance Reports (Form 2118), Construction Stage Gate Checklists (CSGC), Stored Material Lists specifying associated control measures and the Appendix which contains the TPDES Construction General Permit, TxDOT and Contractor MS4 Operator Notification(s) and the Construction PSL Permits per all applicable requirements.

B. For projects disturbing 5 acres or more, TxDOT will follow the actions listed in (10.A.) above with the addition of the following: TxDOT and Contractor Notice Of Intent (N.O.I.) and Fee Payment Form, TxDOT and Contractor Large Construction Site Notice (to be used instead of Small Site Notice), and TPDES Permit Coverage Notice.

C. For projects disturbing less than one acre, actions described in (10.A.) and (10.B.) above are not required. Acreage is calculated by adding Total Area To Be Disturbed Acres on project (See *7 above) and the PSL(s) acreage located within one mile of project.

B. EROSION AND SEDIMENT CONTROLS

1. SOIL STABILIZATION PRACTICES:

- TEMPORARY SEEDING
- MULCHING (Hay or Straw)
- BUFFER ZONES
- PLANTING
- SEEDING
- SODDING
- PRESERVATION OF NATURAL RESOURCES
- FLEXIBLE CHANNEL LINER
- RIGID CHANNEL LINER
- SOIL RETENTION BLANKET
- COMPOST MANUFACTURED TOPSOIL
- VERTICAL TRACKING
- OTHER:

2. STRUCTURAL PRACTICES:

- SILT FENCES
- EROSION CONTROL LOGS
- EROSION CONTROL COMPOST BERMS (Low Velocity)
- ROCK FILTER DAMS
- DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- DIVERSION DIKE AND SWALE COMBINATIONS
- PIPE SLOPE DRAINS
- PAVED FLUMES
- ROCK BEDDING AT CONSTRUCTION EXIT
- TIMBER MATTING AT CONSTRUCTION EXIT
- CHANNEL LINERS
- SEDIMENT TRAPS
- SEDIMENT BASINS
- STORM INLET SEDIMENT TRAP
- STONE OUTLET STRUCTURES
- CURBS AND GUTTERS
- STORM SEWERS
- VELOCITY CONTROL DEVICES
- OTHER:

NOTE: TOP OF BMP'S SHOULD NOT BE HIGHER THAN ROADWAY ELEVATION AS NOT TO FLOOD ROADWAY UNLESS PRIOR APPROVAL FROM ENGINEER IS OBTAINED.

3. STORM WATER MANAGEMENT:

- A. Storm water drainage will be provided by inlets and storm water systems which carry drainage within the R.O.W. to the lows within the roadway and project site which drains to natural facilities.
- B. Other permanent erosion controls include hydraulic design to limit structure outlet velocities and grading design generally consisting of 4:1 or flatter slopes with permanent vegetative cover.

4. STORM WATER MANAGEMENT ACTIVITIES: (Sequence of Construction)

- THE ORDER OF ACTIVITIES WILL BE AS FOLLOWS:
- 1. PRESERVE EXISTING VEGETATIVE COVER AS MUCH AS POSSIBLE.
- 2. INSTALL EROSION AND SEDIMENTATION CONTROLS PRIOR TO SOIL DISTURBANCE WHENEVER POSSIBLE.
- 3. ONCE BEGUN, EARTHWORK ACTIVITIES SHALL BE PROGRESSED UNTIL FINAL GRADING IS ACCOMPLISHED, UNLESS APPROVED BY THE ENGINEER.
- 4. EROSION CONTROL MEASURES SHALL BE APPLIED IMMEDIATELY UPON COMPLETION OF THE EMBANKMENT PLACEMENT TO MINIMIZE POTENTIAL WATER QUALITY IMPACTS.

5. NON-STORM WATER DISCHARGES:

Filter non-storm water discharges, or hold in retention basins, before being allowed to mix with storm water. These discharges consist of, but not limited to, non-polluted ground water, spring water, foundation or footing drain water, water used for dust control or pavement washing and vehicle washwater containing no detergents.

C. OTHER REQUIREMENTS & PRACTICES

1. MAINTENANCE:

Maintain all erosion and sediment controls in good working order. Perform any necessary cleaning/repairs/replacements at the earliest possible date prior to next rain event, but no later than 7 calendar days. Ensure the surrounding ground has dried sufficiently to prevent damage from equipment. "Too Wet" is the only reason for not adhering to timeframes described. When construction activities permanently or temporarily cease and are not expected to resume for 14 or more days on a disturbed portion of the site, stabilization measures must be initiated immediately.

2. INSPECTION:

A TxDOT Inspector will perform a regularly scheduled SW3P inspection every 7 calendar days. An Inspection and Maintenance Report, signed by the TxDOT Inspector and the Contractor, will be filed for each inspection. Revise/clean/repair/replace each BMP control device in accordance with the current Field Inspection and Maintenance Report (Form 2118) and Item 1 (Maintenance) above.

3. WASTE MATERIALS:

On a daily basis, or as may be directed, collect all waste materials, trash and debris from the construction site and deposit into a metal dumpster having a secure cover and which meets all state and local city solid waste management requirements. Empty the dumpster as required by regulation, or as may be directed, at a local approved landfill site. Do not bury construction waste on the construction project site.

4. HAZARDOUS WASTE & SPILL REPORTING:

As a minimum, any products in the following categories are considered to be hazardous: Paints, Acids, Solvents, Fuels, Asphalt Products, Chemical Additives for Soil Stabilization, and Concrete Curing Compounds or Additives. When storing hazardous material on the project site, or at a Project Specific Location, take all practicable precaution to prevent and/or contain any spillage of these materials. In the event of a spill, contact the spill coordinator immediately.

5. SANITARY WASTE:

Use a licensed sanitary waste management contractor to collect all sanitary waste from portable units as may be required by local regulation, or as directed.

6. CONSTRUCTION VEHICLE TRACKING:

On a regular basis, or as may be directed, dampen haul roads for dust control and construct construction entrances/exits. Provide for a motorized broom or vacuum type sweeper to be available on a daily basis, or as may be directed, to remove sediment from paved roadways on project, abutting and traversing the project site.

7. MANAGEMENT PRACTICES:

- A. Construct disposal areas, stockpiles, haul roads and PSL's in a manner that will minimize and control the amount of sediment that may enter receiving waters. Do not locate disposal areas in any wetland, waterbody or streambed.
- B. Locate construction staging areas, vehicle maintenance and PSL's areas in a manner to minimize the runoff of pollutants.
- C. When working in or near a wetland, install and maintain operating soil erosion and sediment controls at all times during construction and isolate the work from the wetland.
- D. Clear all waterways as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, debris or other obstructions placed during construction operations that are not a part of the finished work.
- E. Procedures and/or practices should be taken to control dust.
- F. Sediment to be removed from roadways daily or when work begins after weather events if construction activities have ceased due to weather event.

FILE NAME

DATE

DESIGNER



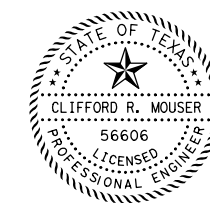
Texas Department of Transportation
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HIGH STREET

STORM WATER POLLUTION PREVENTION PLAN (SW3P)

TEMPLATE REVISION DATE: 02/07/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)		HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
JMT	TEXAS	TYLER	GREGG	286
CHECK	CONTROL	SECTION	JOB	
JMT	0910	07	072	



Signature of Registrant & Date

DATE: 7/22/2021
 FILE: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\Design\Plan Set\9, Environmental\HIGH ST_EPIC.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.

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

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

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

1. City of Longview

No Action Required Required Action

Action No.

- Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
- Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
- Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
- When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

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

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

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

- No Permit Required
- Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)
- Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)
- Individual 404 Permit Required
- Other Nationwide Permit Required: NWP# 3(i)

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.

- Wade Creek
-
-
-

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

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
<input type="checkbox"/> Temporary Vegetation	<input checked="" type="checkbox"/> Silt Fence	<input checked="" type="checkbox"/> Vegetative Filter Strips
<input type="checkbox"/> Blankets/Matting	<input checked="" type="checkbox"/> Rock Berm	<input type="checkbox"/> Retention/Irrigation Systems
<input checked="" 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 checked="" 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.

- No Action necessary above those required by the 2014 Texas Standard for Specifications Construction and Maintenance of Highways, Streets, and Bridges
-
-
-

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.

- Contractor to adhere to specifications listed above.
-
-
-

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

No Action Required Required Action

Action No.

- Adhere to Direction Concerning Migratory Birds Listed Below.
-
-
-

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

LIST OF ABBREVIATIONS

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

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

- * Dead or distressed vegetation (not identified as normal)
- * Trash piles, drums, canister, barrels, etc.
- * Undesirable smells or odors
- * Evidence of leaching or seepage of substances

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

Yes No

If "No", then no further action is required.

If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

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

Yes No

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

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

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims. For all bridges under this Contract, results of the asbestos and lead surveys for the existing structures are still outstanding, No bridge work can be performed until the Engineer has received the survey results.

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.

- Lead Base Paint is present on steel substructure.
-
-


VII. OTHER ENVIRONMENTAL ISSUES

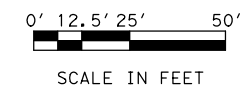
(includes regional issues such as Edwards Aquifer District, etc.)

No Action Required Required Action

Action No.

-
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 Texas Department of Transportation		Design Division Standard	
ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS EPIC			
FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP
©TxDOT: February 2015	CONT	SECT	JOB
12-12-2011 (DS) REVISIONS	0910	07	072
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.	TYLER	GREGG	287

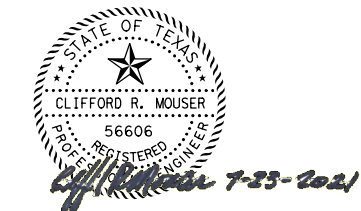


LEGEND

- (SCF) — SEDIMENT CONTROL FENCE THIS STAGE
- (RFD1) — ROCK FILTER DAM (TY 1) THIS STAGE
- (ECL) — BIODEG EROSN CONT LOGS (12") THIS STAGE
- (SCF) — SEDIMENT CONTROL FENCE PREVIOUS STAGE
- (RFD1) — ROCK FILTER DAM (TY 1) PREVIOUS STAGE
- (ECL) — BIODEG EROSN CONT LOGS (12") PREVIOUS STAGE
- PROPOSED SEEDING AND MULCHING
- PROPOSED CONSTRUCTION EXIT
- CONSTRUCTION THIS PHASE
- CONSTRUCTION PREVIOUS PHASE
- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY SPECIAL SHORING
- TEMPORARY EARTH WALL
- PORT CTB (LOW PROF)
- PORT CTB (F-SHP TO LOW PROF)
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- TYPE 3 BARRICADE
- EXISTING DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE

NOTES:

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3. ALL CULVERT ENDS WILL HAVE INLET PROTECTION UNTIL END OF CONSTRUCTION.
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5. ALL LOCATIONS OF CONSTRUCTION EXITS MAY BE RELOCATED AS NEEDED BY THE CONTRACTOR AND FIELD ENGINEER.



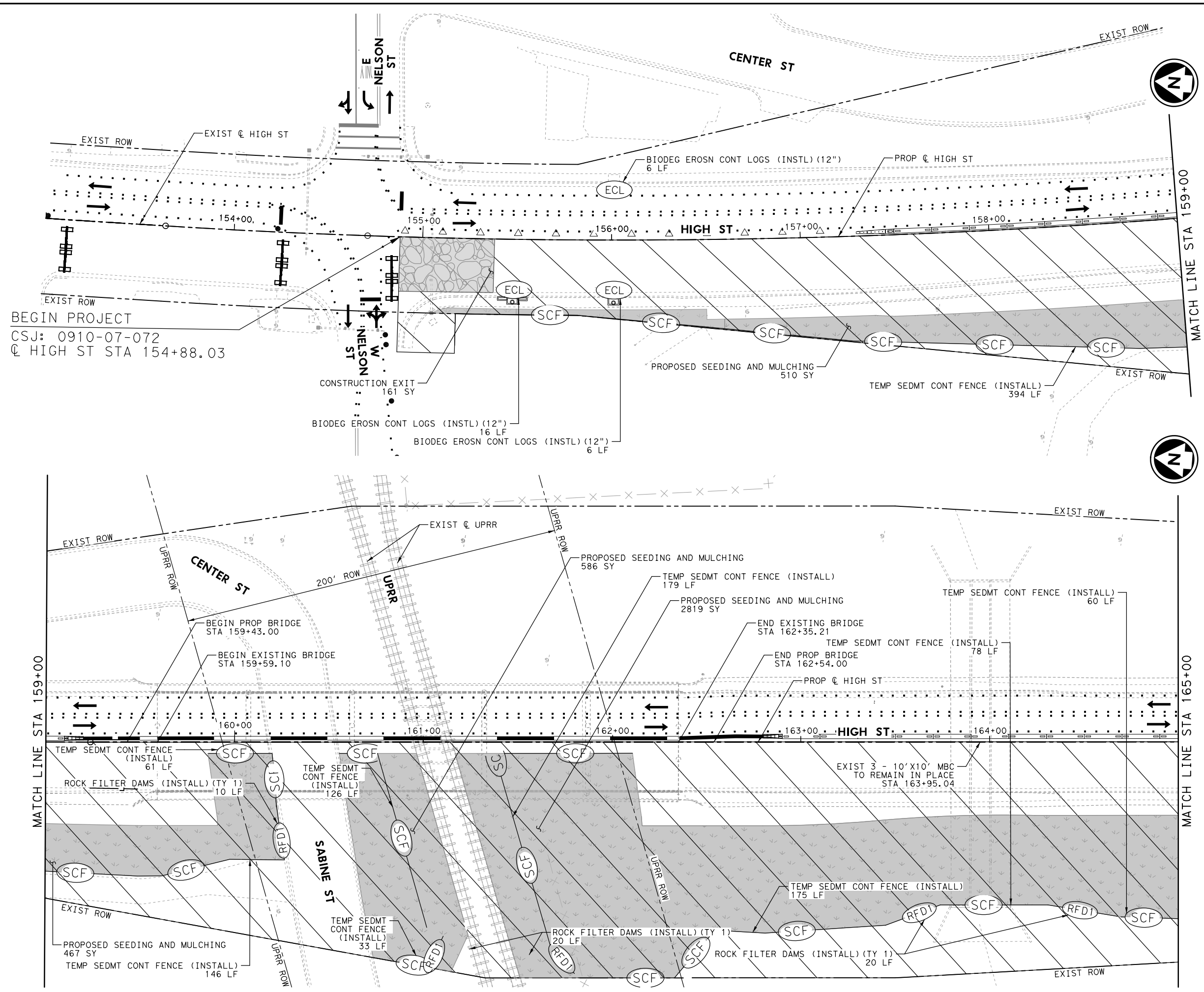
S HIGH ST AT UPRR AND SABINE ST

TEMPORARY EROSION CONTROL PHASE 1

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			SHEET NO.
JMT			288

SHEET 1 OF 2

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BEGIN PROJECT
CSJ: 0910-07-072
@ HIGH ST STA 154+88.03

MATCH LINE STA 159+00

MATCH LINE STA 165+00

DATE: 7/22/2021
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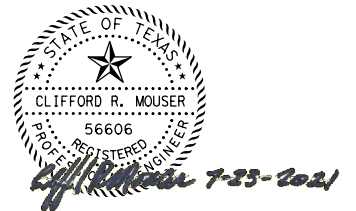


LEGEND

- (SCF)— SEDIMENT CONTROL FENCE THIS STAGE
- (RFD1)— ROCK FILTER DAM (TY 1) THIS STAGE
- (ECL)— BIODEG EROSN CONT LOGS (12") THIS STAGE
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- (RFD1)— ROCK FILTER DAM (TY 1) PREVIOUS STAGE
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- PROPOSED CONSTRUCTION EXIT
- CONSTRUCTION THIS PHASE
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- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY SPECIAL SHORING
- TEMPORARY EARTH WALL
- PORT CTB (LOW PROF)
- PORT CTB (F-SHP TO LOW PROF)
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- TYPE 3 BARRICADE
- EXISTING DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE

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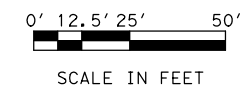
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TEMPORARY EROSION CONTROL PHASE 1

SHEET 2 OF 2

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	SECTION	JOB	072		
CHECK	JMT	0910	07	072			289

DATE: 7/22/2021
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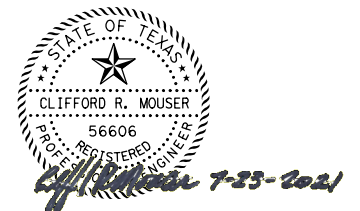


LEGEND

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- (RFD1) — ROCK FILTER DAM (TY 1) PREVIOUS STAGE
- (ECL) — BIODEG EROSN CONT LOGS (12") PREVIOUS STAGE
- [Pattern] PROPOSED SEEDING AND MULCHING
- [Pattern] PROPOSED CONSTRUCTION EXIT
- [Pattern] CONSTRUCTION THIS PHASE
- [Pattern] CONSTRUCTION PREVIOUS PHASE
- [Symbol] PORTABLE CONCRETE TRAFFIC BARRIER
- [Symbol] LOW PROFILE CONCRETE BARRIER
- [Symbol] TEMPORARY SPECIAL SHORING
- [Symbol] TEMPORARY EARTH WALL
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- [Symbol] TYPE 3 BARRICADE
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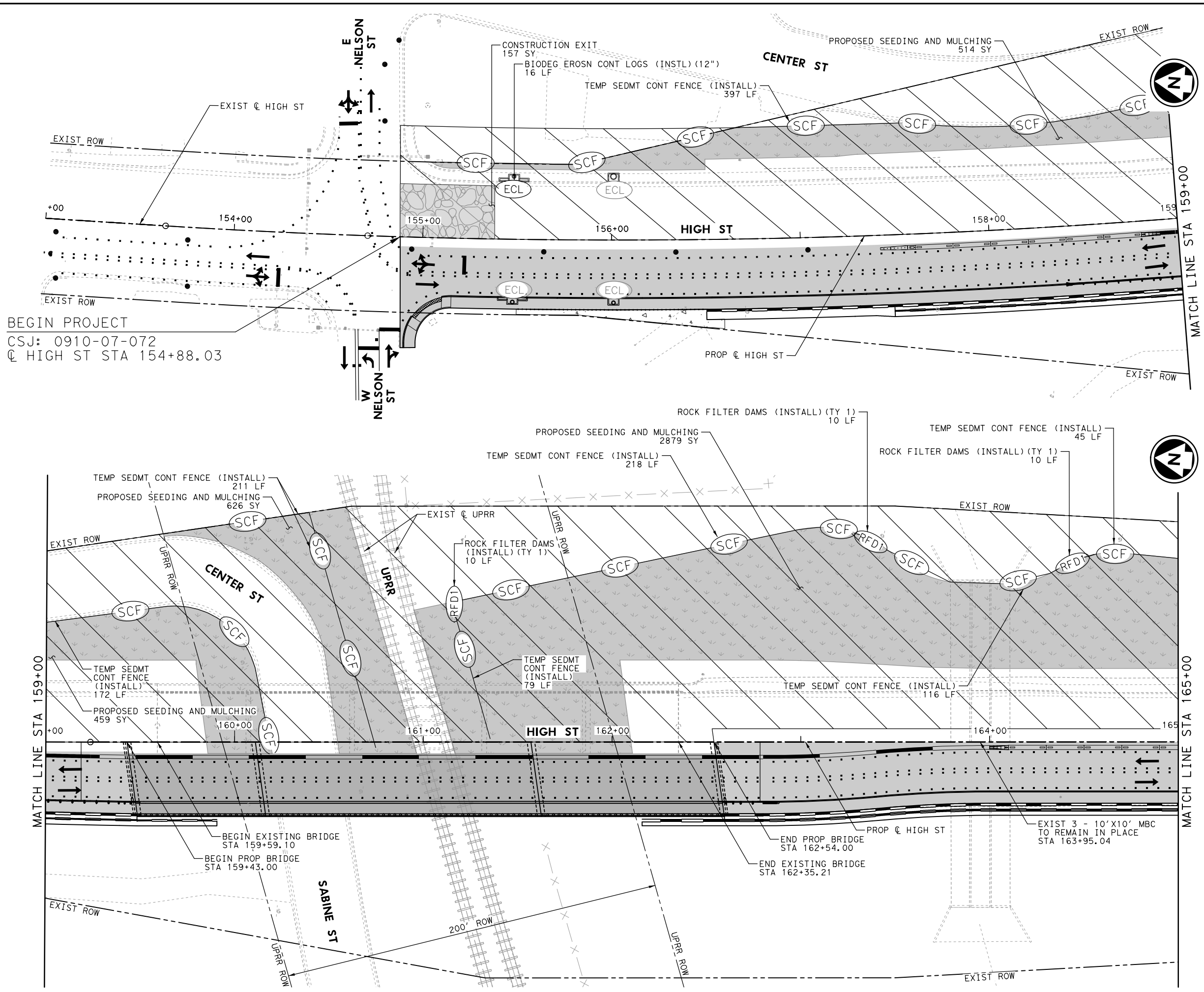


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 S HIGH ST AT UPRR AND SABINE ST

TEMPORARY EROSION CONTROL PHASE 2

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JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			290
JMT			

SHEET 1 OF 2



BEGIN PROJECT
 CSJ: 0910-07-072
 Q HIGH ST STA 154+88.03

BEGIN EXISTING BRIDGE
 STA 159+59.10
 BEGIN PROP BRIDGE
 STA 159+43.00

END PROP BRIDGE
 STA 162+54.00
 END EXISTING BRIDGE
 STA 162+35.21
 EXIST 3 - 10' X 10' MBC
 TO REMAIN IN PLACE
 STA 163+95.04

DATE: 7/22/2021
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0' 12.5' 25' 50'

SCALE IN FEET

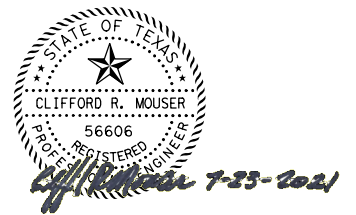


LEGEND

- (SCF) — SEDIMENT CONTROL FENCE THIS STAGE
- (RFD1) — ROCK FILTER DAM (TY 1) THIS STAGE
- (ECL) — BIODEG EROSN CONT LOGS (12") THIS STAGE
- (SCF) — SEDIMENT CONTROL FENCE PREVIOUS STAGE
- (RFD1) — ROCK FILTER DAM (TY 1) PREVIOUS STAGE
- (ECL) — BIODEG EROSN CONT LOGS (12") PREVIOUS STAGE
- PROPOSED SEEDING AND MULCHING
- PROPOSED CONSTRUCTION EXIT
- CONSTRUCTION THIS PHASE
- CONSTRUCTION PREVIOUS PHASE
- PORTABLE CONCRETE TRAFFIC BARRIER
- LOW PROFILE CONCRETE BARRIER
- TEMPORARY SPECIAL SHORING
- TEMPORARY EARTH WALL
- PORT CTB (LOW PROF)
- PORT CTB (F-SHP TO LOW PROF)
- PLASTIC DRUMS
- 42" TWO-PIECE CONES
- TYPE 3 BARRICADE
- EXISTING DIRECTION OF TRAFFIC
- DIRECTION OF TRAFFIC THIS PHASE

NOTES:

1. ALL STRUCTURES TO BE PLACED AS SHOWN IN STANDARDS EC(1)-EC(3) EXCEPT AS DIRECTED.
2. ALL ROCK FILTER DAMS, PERIMETER SEDIMENT CONTROL FENCE, AND EROSION CONTROL LOGS WILL BE PLACED DURING PHASE 1 AND 2 AND WILL REMAIN IN PLACE UNTIL END OF CONSTRUCTION.
3. ALL CULVERT ENDS WILL HAVE INLET PROTECTION UNTIL END OF CONSTRUCTION.
4. ALL EROSION CONTROL DEVICES TO BE INSTALLED AS DIRECTED BY THE ENGINEER.
5. ALL LOCATIONS OF CONSTRUCTION EXITS MAY BE RELOCATED AS NEEDED BY THE CONTRACTOR AND FIELD ENGINEER.

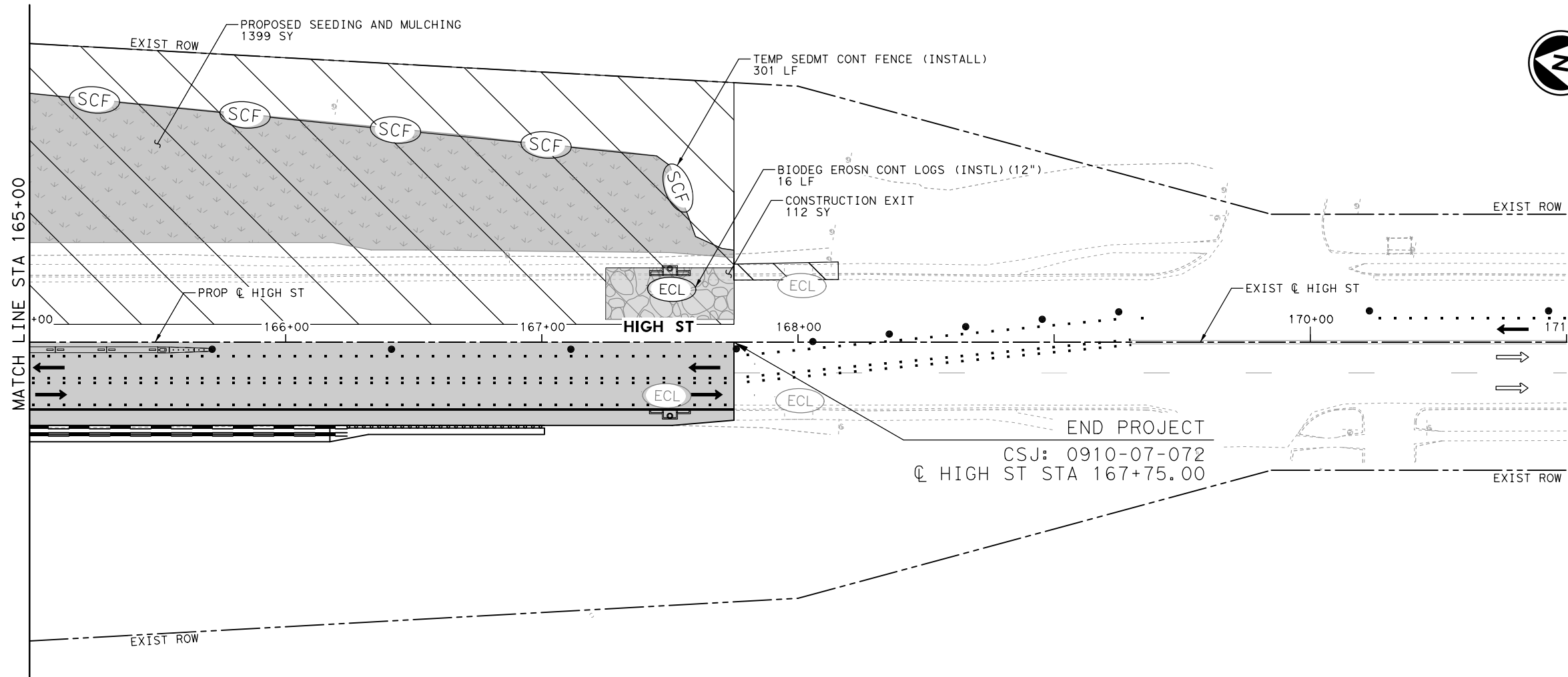


S HIGH ST AT UPRR AND SABINE ST

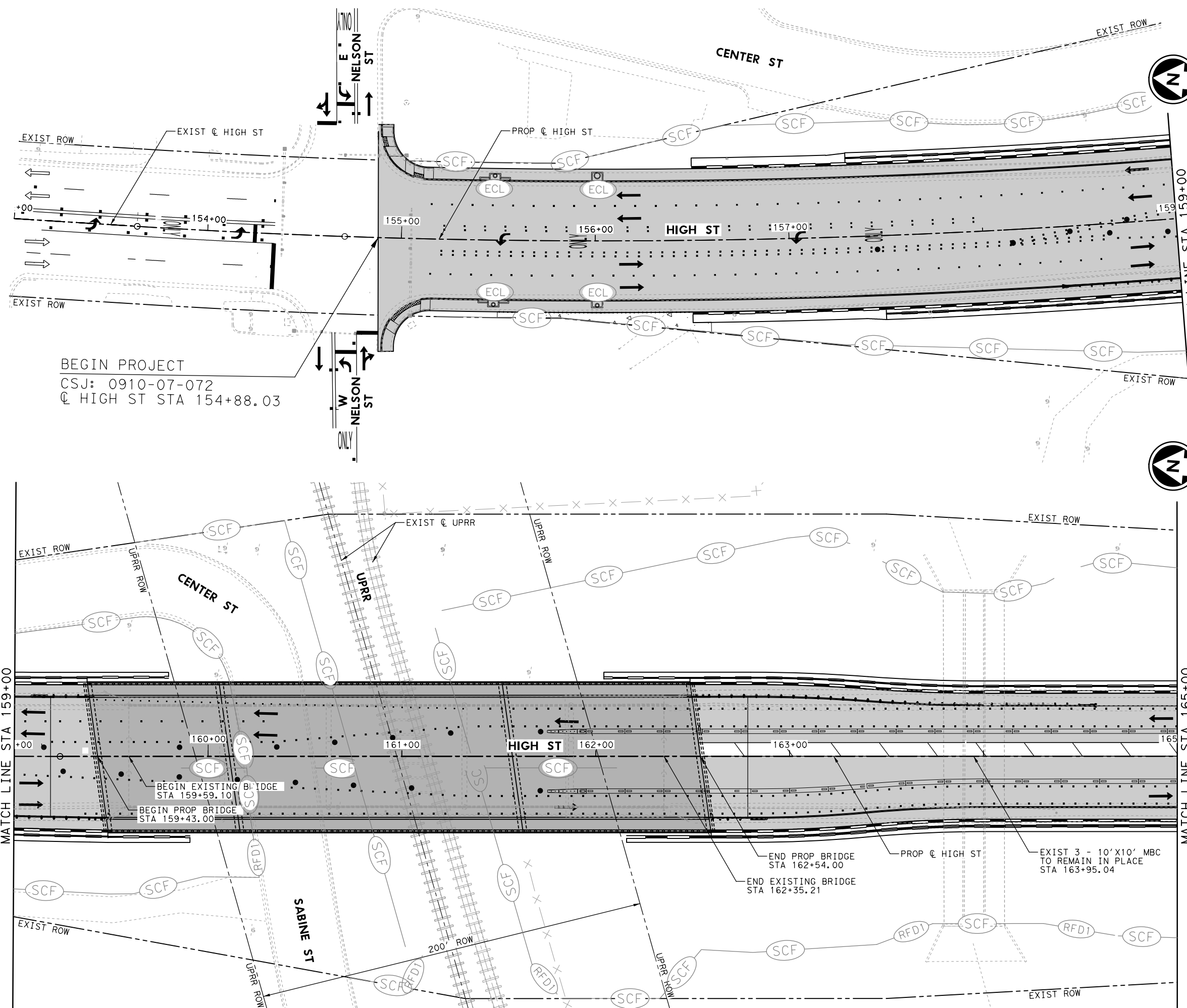
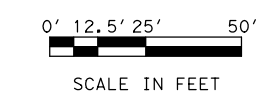
TEMPORARY EROSION CONTROL PHASE 2

SHEET 2 OF 2

DESIGN	JMT	FED. RD. DIV. NO.	6	FEDERAL AID PROJECT NO.	(SEE TITLE SHEET)	HIGHWAY NO.	HIGH ST
GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						291



DATE: 7/22/2021
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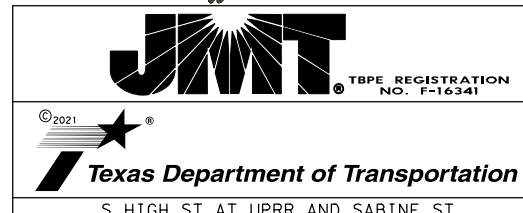
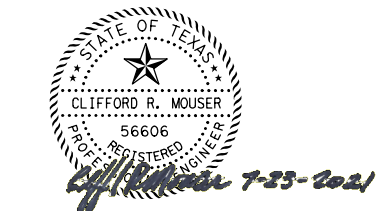
BEGIN PROJECT
 CSJ: 0910-07-072
 Q HIGH ST STA 154+88.03

BEGIN EXISTING BRIDGE
 STA 159+59.10
 BEGIN PROP BRIDGE
 STA 159+43.00

END PROP BRIDGE
 STA 162+54.00
 END EXISTING BRIDGE
 STA 162+35.21
 PROP Q HIGH ST
 EXIST 3 - 10'X10' MBC
 TO REMAIN IN PLACE
 STA 163+95.04

- LEGEND**
- (SCF) — SEDIMENT CONTROL FENCE THIS STAGE
 - (RFD1) — ROCK FILTER DAM (TY 1) THIS STAGE
 - (ECL) — BIODEG EROSN CONT LOGS (12") THIS STAGE
 - (SCF) — SEDIMENT CONTROL FENCE PREVIOUS STAGE
 - (RFD1) — ROCK FILTER DAM (TY 1) PREVIOUS STAGE
 - (ECL) — BIODEG EROSN CONT LOGS (12") PREVIOUS STAGE
 - [Pattern] PROPOSED SEEDING AND MULCHING
 - [Pattern] PROPOSED CONSTRUCTION EXIT
 - [Pattern] CONSTRUCTION THIS PHASE
 - [Pattern] CONSTRUCTION PREVIOUS PHASE
 - [Symbol] PORTABLE CONCRETE TRAFFIC BARRIER
 - [Symbol] LOW PROFILE CONCRETE BARRIER
 - [Symbol] TEMPORARY SPECIAL SHORING
 - [Symbol] TEMPORARY EARTH WALL
 - [Symbol] PORT CTB (LOW PROF)
 - [Symbol] PORT CTB (F-SHP TO LOW PROF)
 - [Symbol] PLASTIC DRUMS
 - [Symbol] 42" TWO-PIECE CONES
 - [Symbol] TYPE 3 BARRICADE
 - [Symbol] EXISTING DIRECTION OF TRAFFIC
 - [Symbol] DIRECTION OF TRAFFIC THIS PHASE

- NOTES:**
1. ALL STRUCTURES TO BE PLACED AS SHOWN IN STANDARDS EC(1)-EC(3) EXCEPT AS DIRECTED.
 2. ALL ROCK FILTER DAMS, PERIMETER SEDIMENT CONTROL FENCE, AND EROSION CONTROL LOGS WILL BE PLACED DURING PHASE 1 AND 2 AND WILL REMAIN IN PLACE UNTIL END OF CONSTRUCTION.
 3. ALL CULVERT ENDS WILL HAVE INLET PROTECTION UNTIL END OF CONSTRUCTION.
 4. ALL EROSION CONTROL DEVICES TO BE INSTALLED AS DIRECTED BY THE ENGINEER.
 5. ALL LOCATIONS OF CONSTRUCTION EXITS MAY BE RELOCATED AS NEEDED BY THE CONTRACTOR AND FIELD ENGINEER.



**TEMPORARY EROSION CONTROL
 PHASE 3**

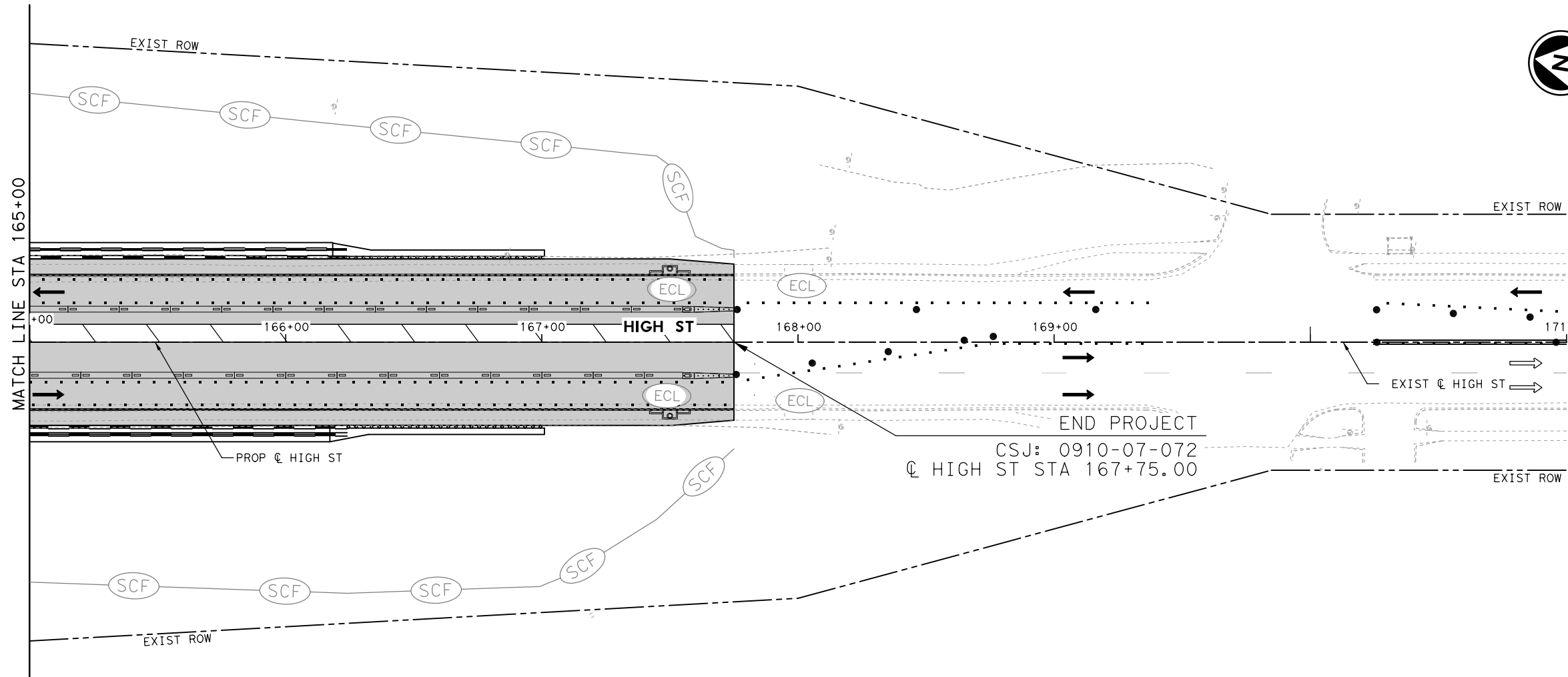
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JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			
JMT			

SHEET 1 OF 2

DATE: 7/22/2021
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0' 12.5' 25' 50'

SCALE IN FEET



LEGEND

- (SCF)— SEDIMENT CONTROL FENCE THIS STAGE
- (RFD1)— ROCK FILTER DAM (TY 1) THIS STAGE
- (ECL)— BIODEG EROSN CONT LOGS (12") THIS STAGE
- (SCF)— SEDIMENT CONTROL FENCE PREVIOUS STAGE
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NOTES:

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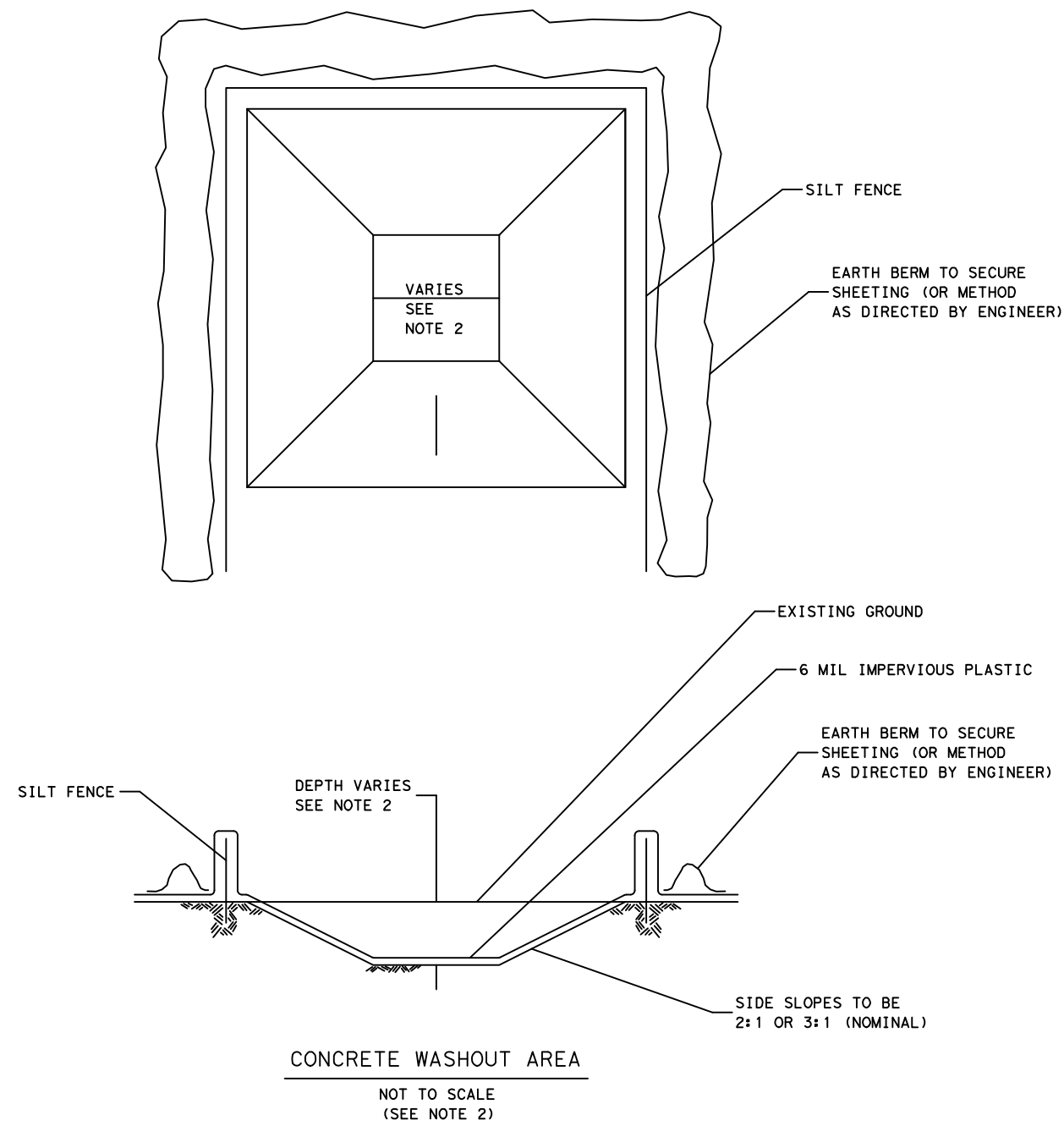
S HIGH ST AT UPRR AND SABINE ST

TEMPORARY EROSION CONTROL PHASE 3

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GRAPHICS	JMT	STATE	TEXAS	DISTRICT	TYLER	COUNTY	GREGG
CHECK	JMT	CONTROL	0910	SECTION	07	JOB	072
CHECK	JMT						293

SHEET 2 OF 2

DATE: 7/22/2021
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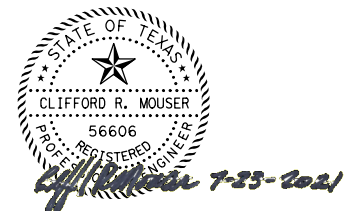


NOTES

1. CONCRETE WASHOUT AREA(S) SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE. THE CONCRETE WASHOUT AREA SHALL BE ENTIRELY SELF-CONTAINED.
2. THE CONTRACTOR SHALL SUBMIT THE DESIGN, LOCATION AND SIZING OF OF THE CONCRETE WASHOUT AREA(S) WITH THE PROJECT'S EROSION AND SEDIMENTATION CONTROL PLAN AND SHALL BE APPROVED BY THE ENGINEER.

 LOCATION: WASHOUT AREA(S) ARE TO BE LOCATED AT LEAST 50 FEET FROM ANY STREAM, WETLAND, STORM DRAINS, OR OTHER SENSITIVE RESOURCE. THE FLOOD CONTINGENCY PLAN MUST ADDRESS THE CONCRETE WASHOUT IF THE WASHOUT IS TO BE LOCATED WITHIN THE FLOODPLAN.

 SIZE: THE WASHOUT MUST HAVE SUFFICIENT VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS INCLUDING, BUT NOT LIMITED TO, OPERATIONS ASSOCIATED WITH GROUT AND MORTAR.
3. SURFACE DISCHARGE IS UNACCEPTABLE, THEREFORE EARTH BERM OR OTHER CONTROL MEASURES, AS APPROVED BY THE ENGINEER, SHOULD BE USED AROUND THE PERIMETER OF THE CONCRETE WASHOUT AREA FOR CONTAINMENT.
4. SIGNS SHOULD BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CONCRETE AREA(S) AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS. WASHOUT AREA(S) SHOULD BE FLAGGED WITH SAFETY FENCING OR OTHER APPROVED METHOD.
5. CONCRETE WASH-OUT AREAS SHALL BE LINED WITH IMPERVIOUS PLASTIC WITH A MINIMUM THICKNESS OF 6 MILS AND BE REPLACED IF DAMAGED DURING CLEAN-OUT OF HARDENED CONCRETE FROM THE WASH-OUT AREA.
6. WASHOUT AREA(S) ARE TO BE INSPECTED AT LEAST ONCE A WEEK FOR STRUCTURAL INTEGRITY, ADEQUATE HOLDING CAPACITY AND CHECKED FOR LEAKS, TEARS, OR OVERFLOWS. (AS DIRECTED BY THE CONSTRUCTION SITE ENVIRONMENTAL INSPECTION REPORT) WASHOUT AREA(S) SHOULD BE CHECKED AFTER HEAVY RAINS.
7. HARDENED CONCRETE WASTE SHOULD BE REMOVED AND DISPOSED OF WHEN THE WASTE HAS ACCUMULATED TO HALF OF THE CONCRETE WASHOUT'S HEIGHT. THE WASTE CAN BE STORED AT AN UPLAND LOCATION, AS APPROVED BY THE ENGINEER. ALL CONCRETE WASTE SHALL BE DISPOSED OF IN A MANNER CONSISTENT WITH ALL APPLICABLE LAWS, REGULATIONS, AND GUIDELINES.
8. PAYMENT FOR THIS ITEM IS TO BE INCLUDED UNDER THE GENERAL COST OF THE WORK FOR THE PROJECT, INCLUDING SITE RESTORATION.

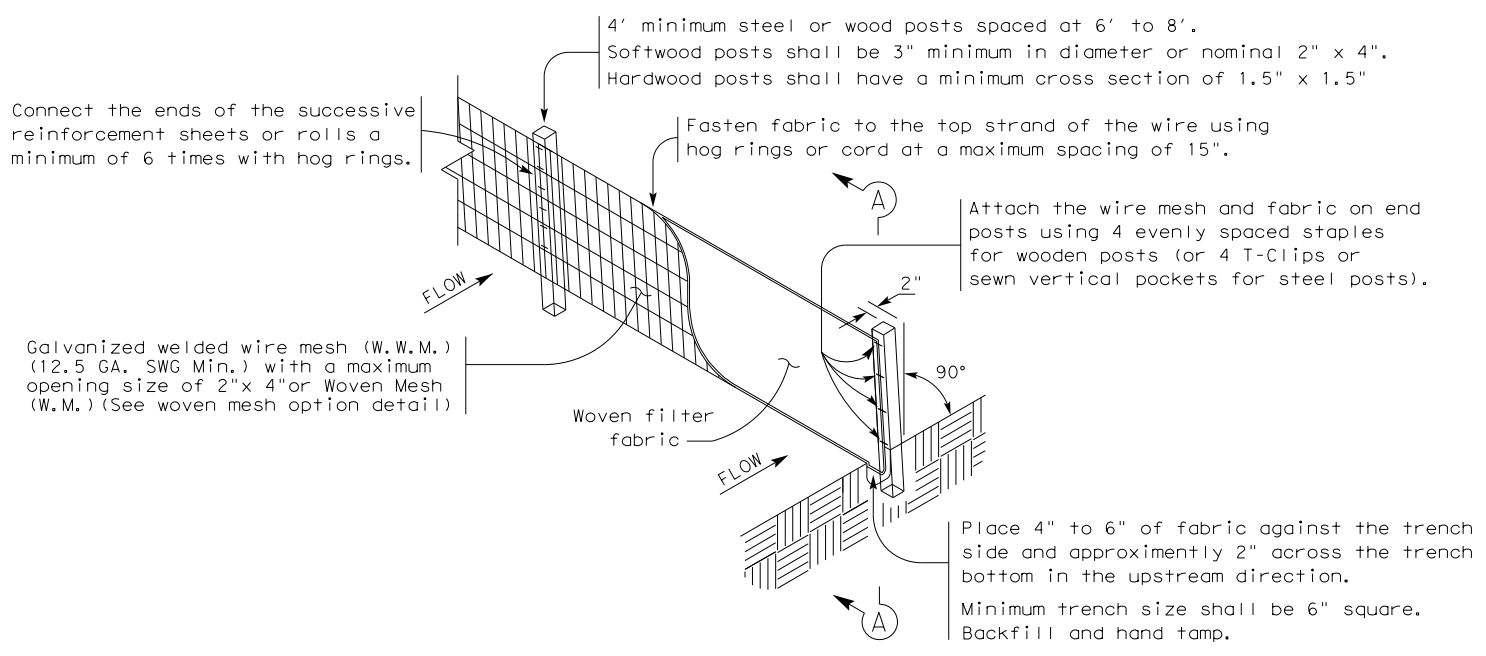


**TEMPORARY EROSION CONTROL
 CONCRETE WASHOUT DETAIL**

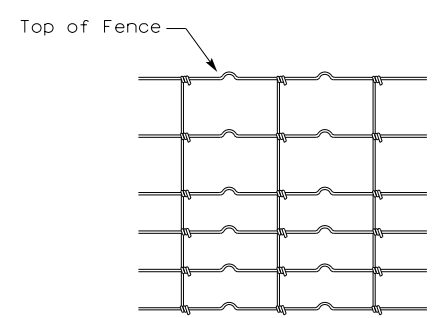
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JMT	6	(SEE TITLE SHEET)	HIGH ST
GRAPHICS	STATE	DISTRICT	COUNTY
JMT	TEXAS	TYLER	GREGG
CHECK	CONTROL	SECTION	JOB
JMT	0910	07	072
CHECK			
JMT			

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DATE 7/22/2021
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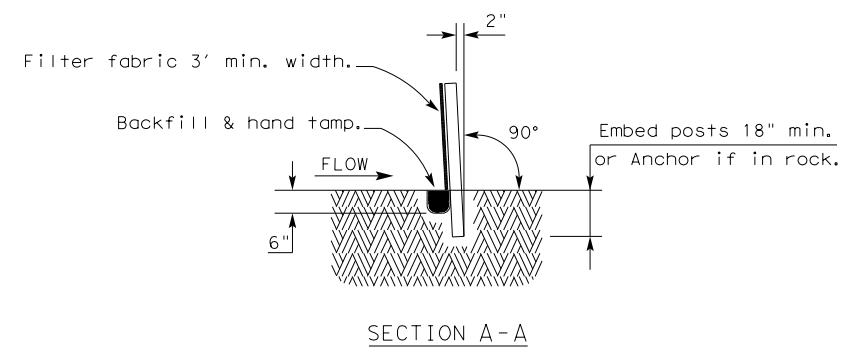


TEMPORARY SEDIMENT CONTROL FENCE



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.

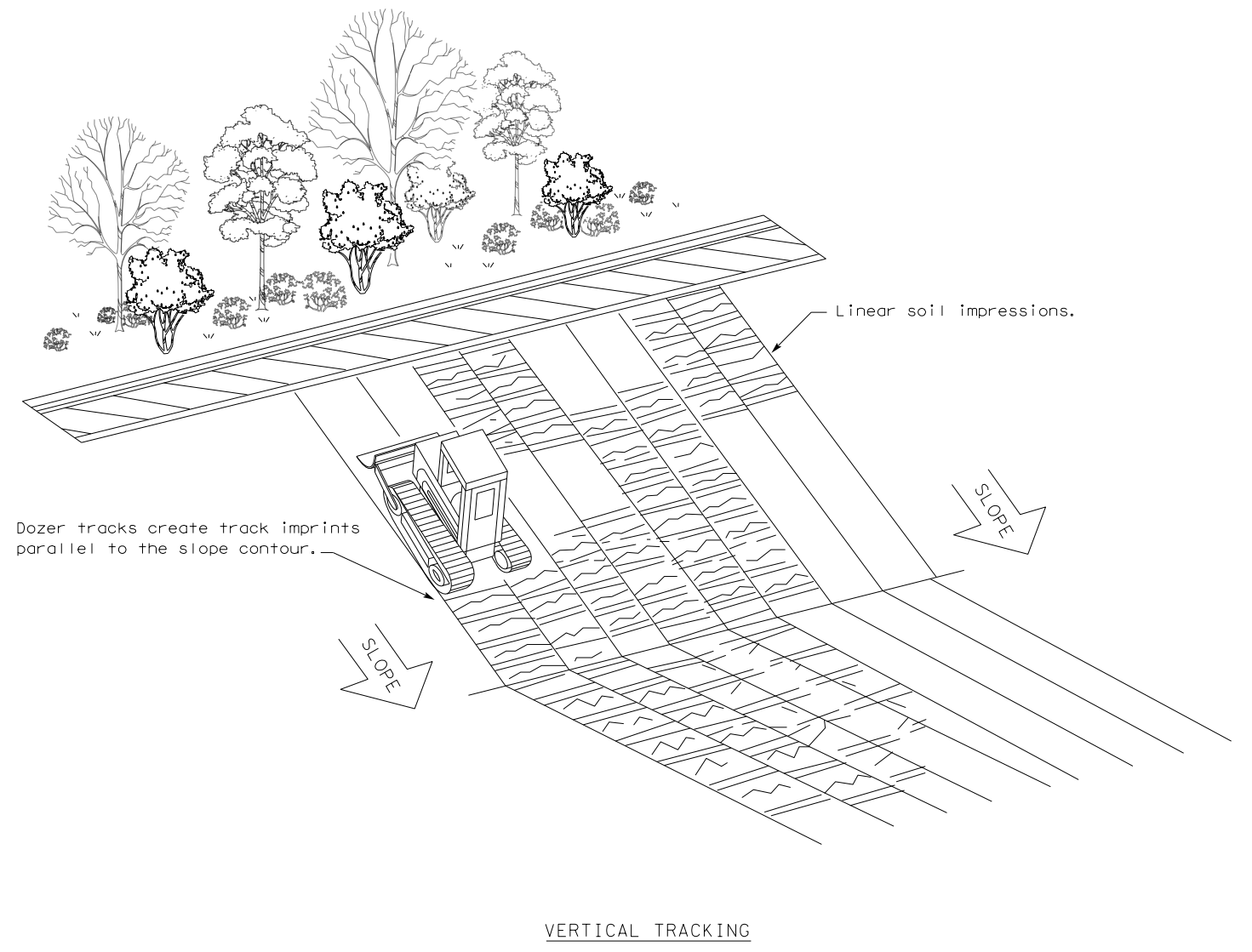
Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT². Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

LEGEND

Sediment Control Fence

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.

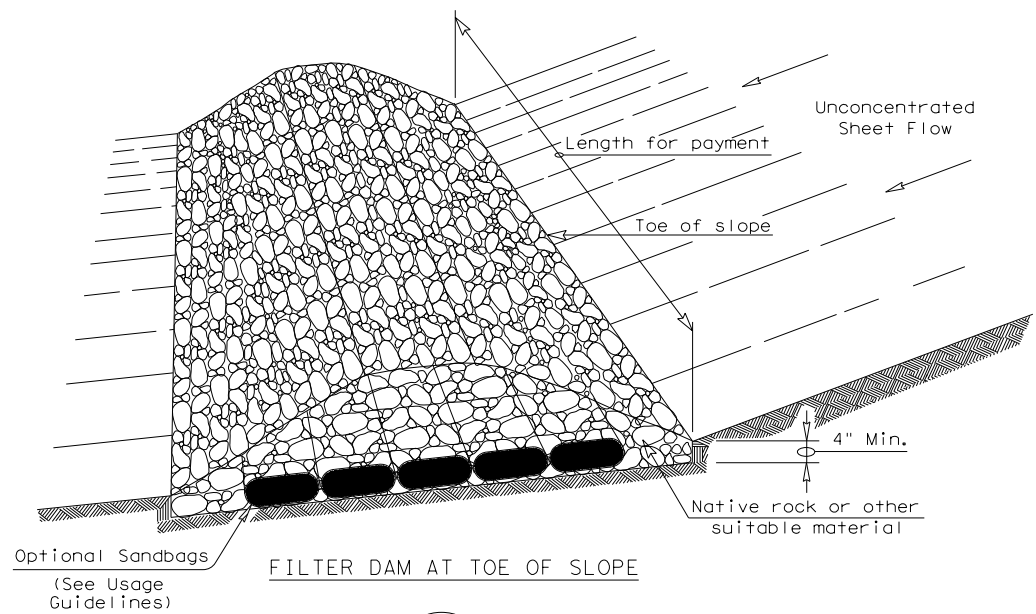


TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES FENCE & VERTICAL TRACKING

EC(1)-16

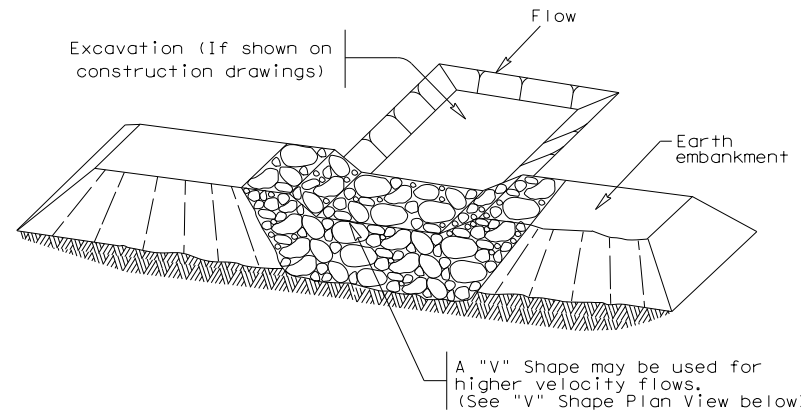
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© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0910	07	072	HIGH ST
	DIST	COUNTY	SHEET NO.	
	TYLER	GREGG	295	

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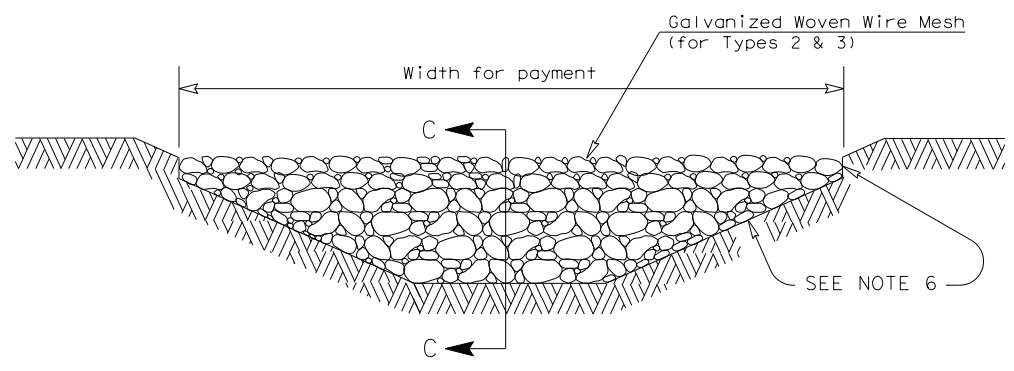
FILTER DAM AT TOE OF SLOPE

RFD1



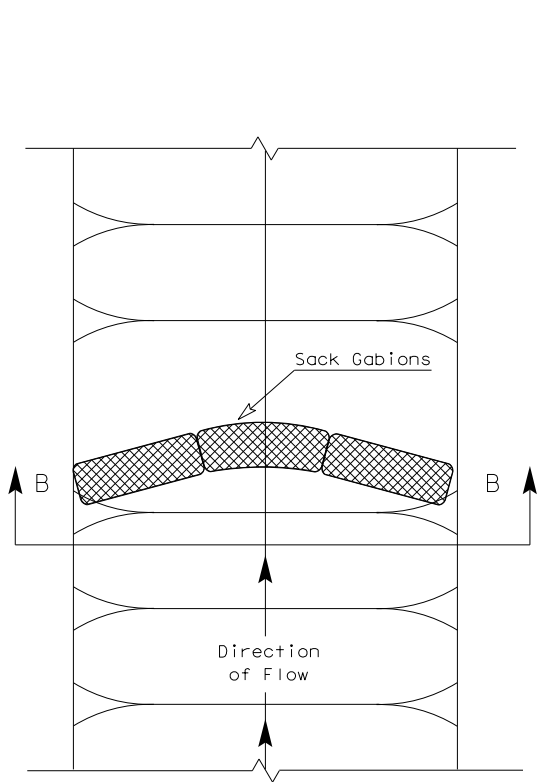
FILTER DAM AT SEDIMENT TRAP

RFD1 OR RFD2

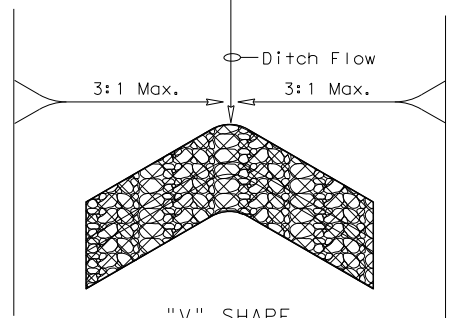


FILTER DAM AT CHANNEL SECTIONS

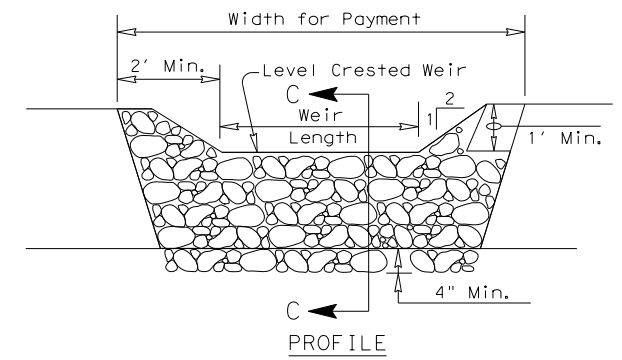
RFD1 OR RFD2 OR RFD3



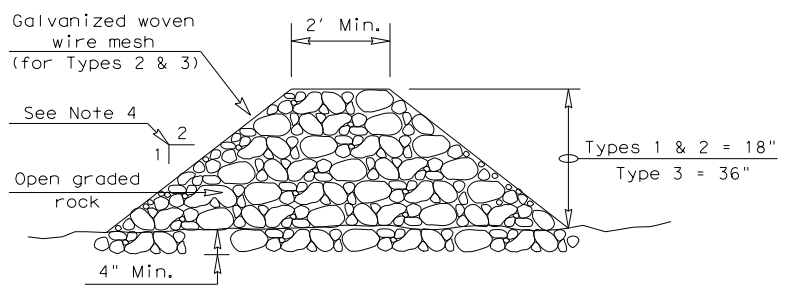
PLAN VIEW



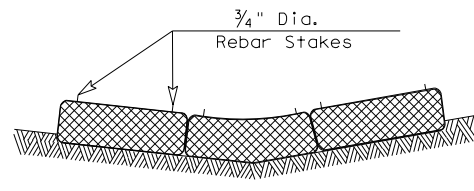
"V" SHAPE PLAN VIEW



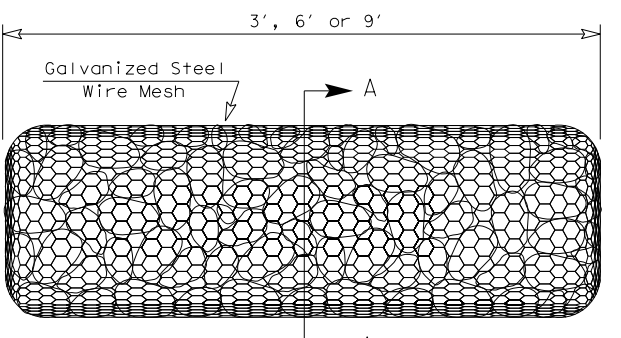
PROFILE



SECTION C-C

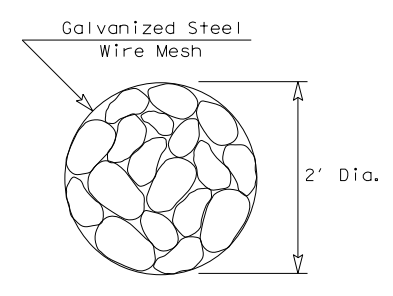


SECTION B-B



TYPE 4 (SACK GABIONS)

RFD4



SECTION A-A

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT² of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximately 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh) (3" to 6" aggregate): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh) (4" to 8" aggregate): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions) (3" to 6" aggregate): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

Type 5: Provide rock filter dams as shown on plans.

GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. For in stream use, the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with 3/4" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 1/2" x 3 1/4".
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

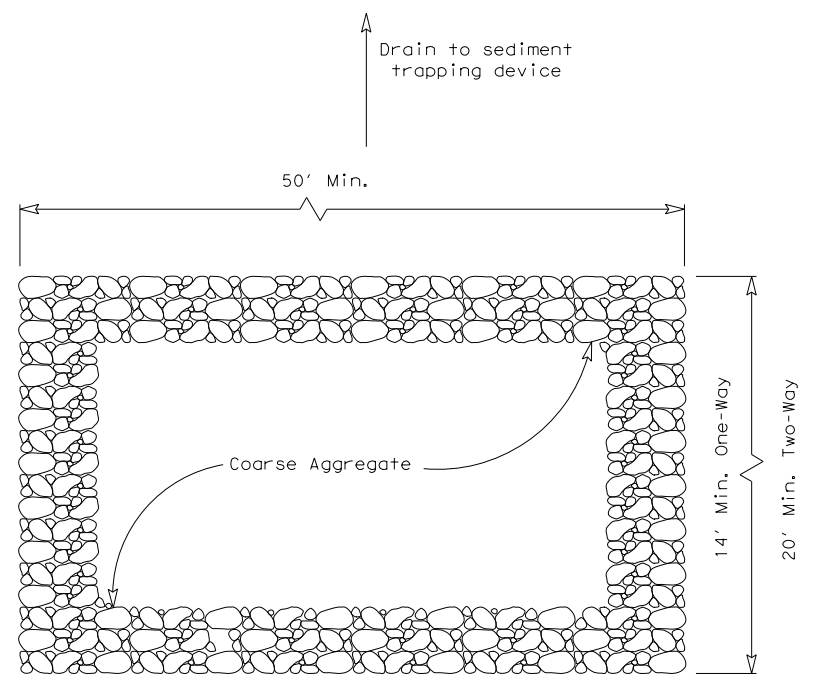
PLAN SHEET LEGEND

- Type 1 Rock Filter Dam — RFD1 —
- Type 2 Rock Filter Dam — RFD2 —
- Type 3 Rock Filter Dam — RFD3 —
- Type 4 Rock Filter Dam — RFD4 —

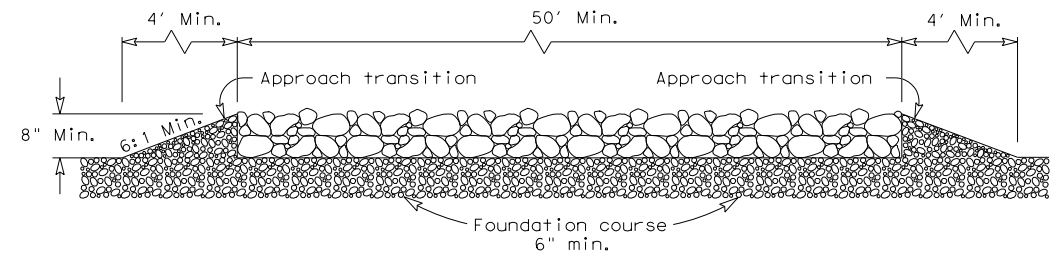
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TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES ROCK FILTER DAMS EC(2)-16			
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© TXDOT: JULY 2016	CONT: 0910	SECT: 07	JOB: 072
REVISIONS	DIST: TYLER	COUNTY: GREGG	SHEET NO.: 296

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PLAN VIEW

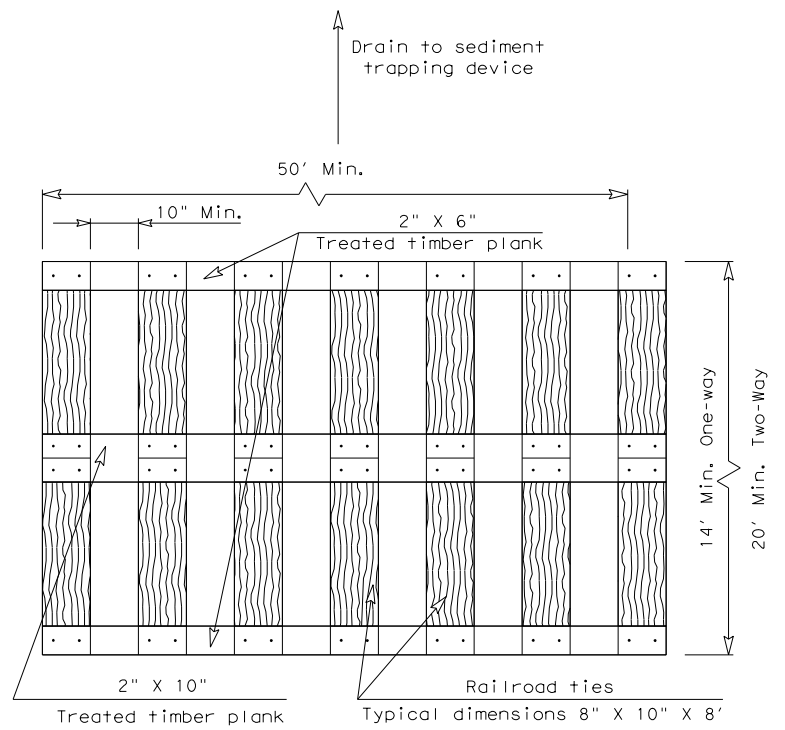


ELEVATION VIEW

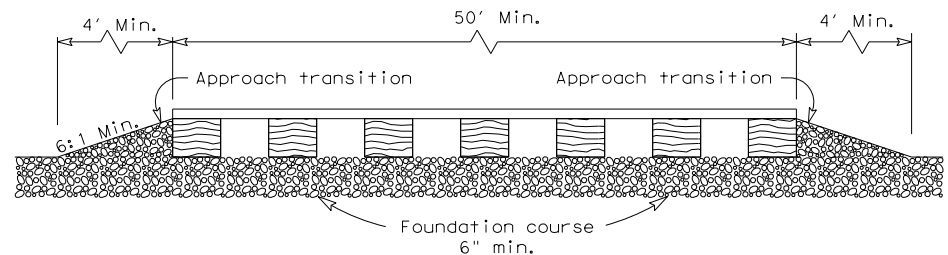
CONSTRUCTION EXIT (TYPE 1)
ROCK CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 1)

- The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
- The coarse aggregate should be open graded with a size of 4" to 8".
- The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
- The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materials approved by the Engineer.
- The construction exit shall be graded to allow drainage to a sediment trapping device.
- The guidelines shown hereon are suggestions only and may be modified by the Engineer.
- Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.



PLAN VIEW

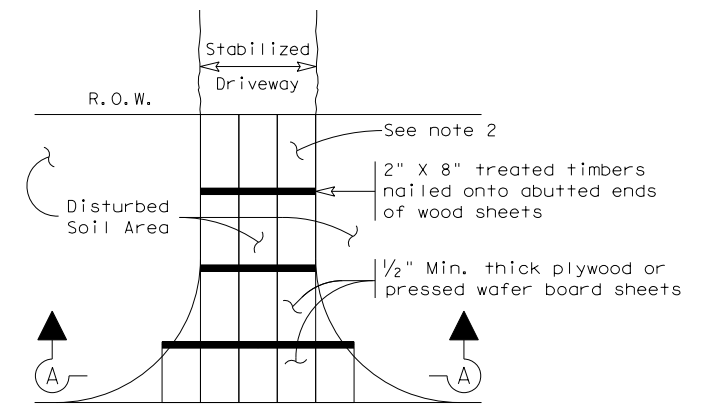


ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 2)
TIMBER CONSTRUCTION (LONG TERM)

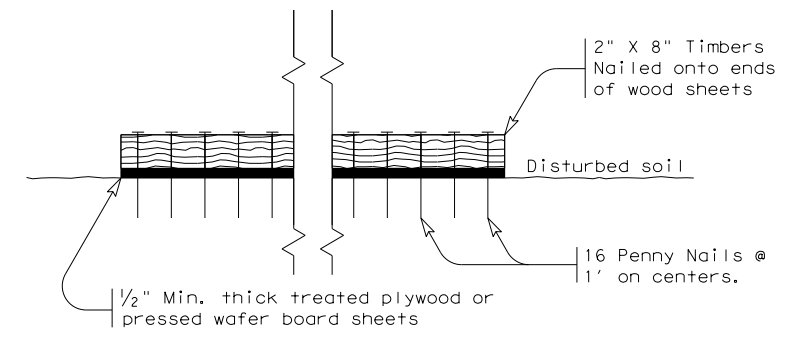
GENERAL NOTES (TYPE 2)

- The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
- The treated timber planks shall be attached to the railroad ties with 1/2" x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
- The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
- The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
- The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
- The construction exit should be graded to allow drainage to a sediment trapping device.
- The guidelines shown hereon are suggestions only and may be modified by the Engineer.
- Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.



Paved Roadway

PLAN VIEW



SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

SHORT TERM

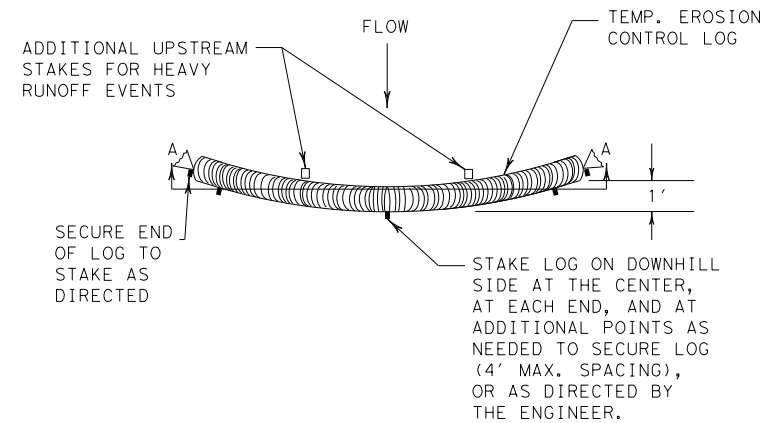
GENERAL NOTES (TYPE 3)

- The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
- The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
- The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
- The guidelines shown hereon are suggestions only and may be modified by the Engineer.

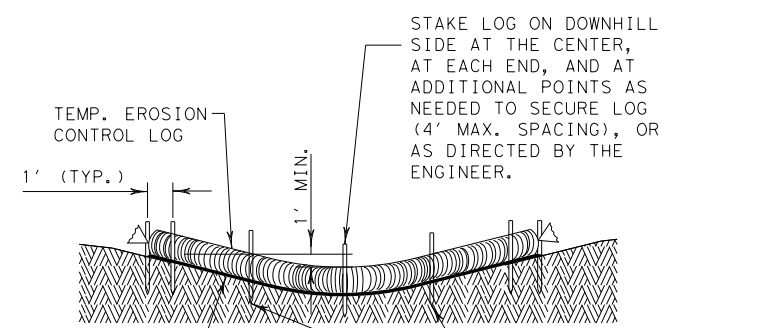
		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES CONSTRUCTION EXITS EC(3)-16			
FILE: ec316	DN: TxDOT	CK: KM	DW: VP
© TxDOT: JULY 2016	CONT	SECT	JOB
REVISIONS		HIGHWAY	
	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	297

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DATE: 7/22/2021
 FILE: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\Design\Plan Set\9. Environmental\TxDOT Standards\ec916.dgn



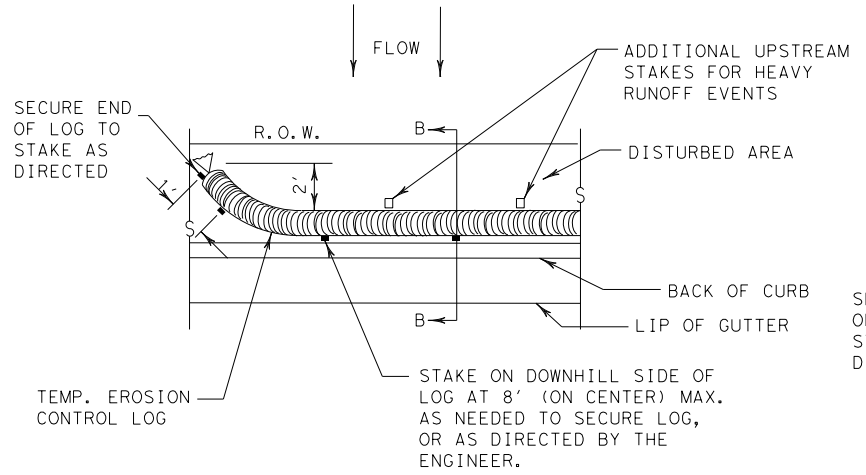
PLAN VIEW



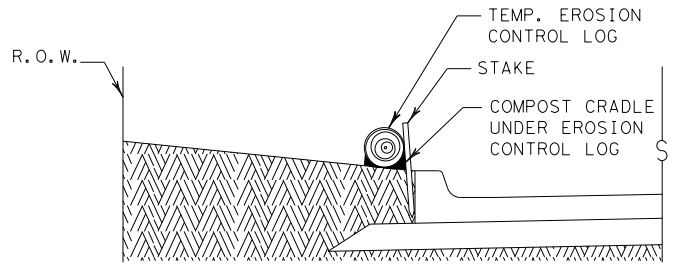
SECTION A-A

EROSION CONTROL LOG DAM

CL-D



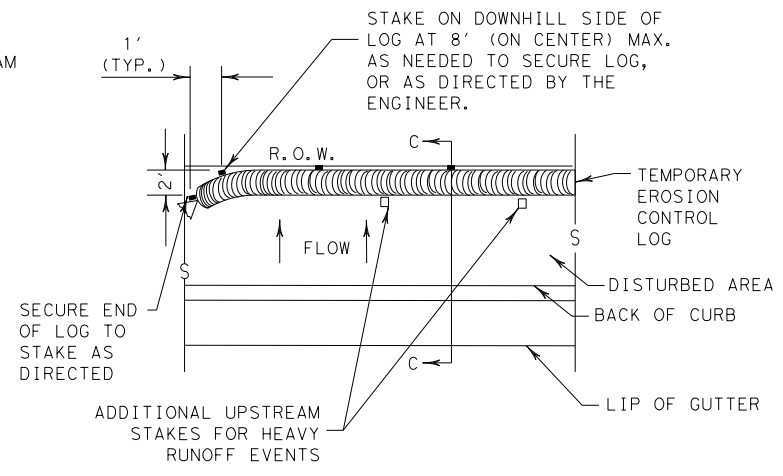
PLAN VIEW



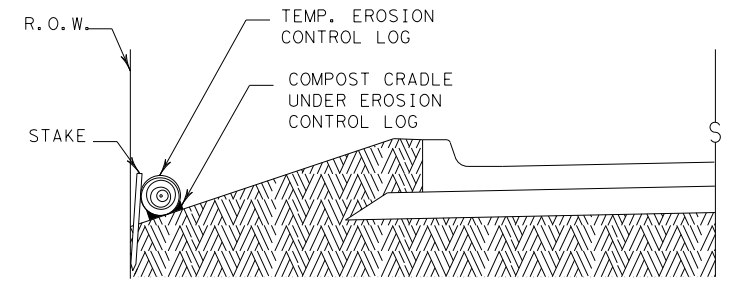
SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

CL-BOC



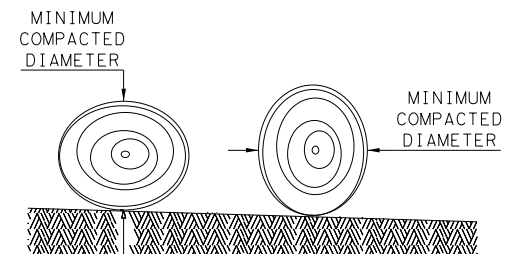
PLAN VIEW



SECTION C-C

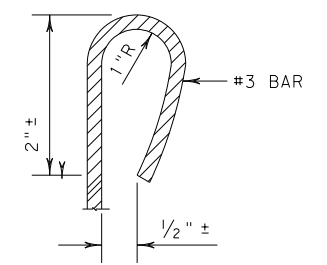
EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

- LEGEND
- CL-D EROSION CONTROL LOG DAM
 - CL-BOC EROSION CONTROL LOG AT BACK OF CURB
 - CL-ROW EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
 - CL-SST EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
 - CL-SSL EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
 - CL-DI EROSION CONTROL LOG AT DROP INLET
 - CL-CI EROSION CONTROL LOG AT CURB INLET
 - CL-GI EROSION CONTROL LOG AT CURB & GRATE INLET



REBAR STAKE DETAIL

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

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

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

GENERAL NOTES:

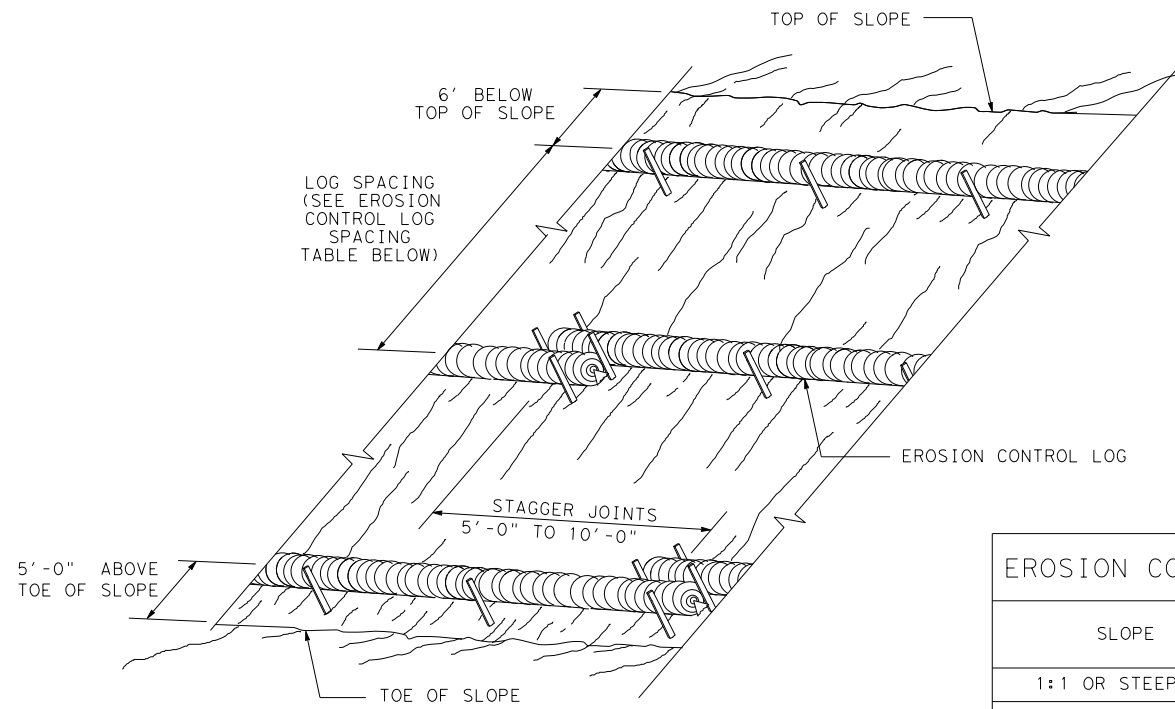
1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

SHEET 1 OF 3

		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES			
EROSION CONTROL LOG			
EC (9) - 16			
FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT SECT	JOB	HIGHWAY
REVISIONS	0910 07	072	HIGH ST
	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	298

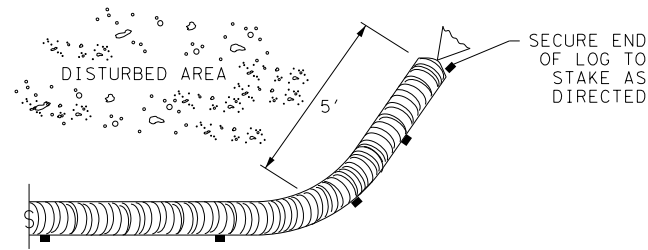
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DATE: 7/22/2021
 FILE: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\9. Environmental\TxDOT Standards\ec916.dgn



EROSION CONTROL LOGS ON SLOPES
 STAKE AND TRENCHING ANCHORING

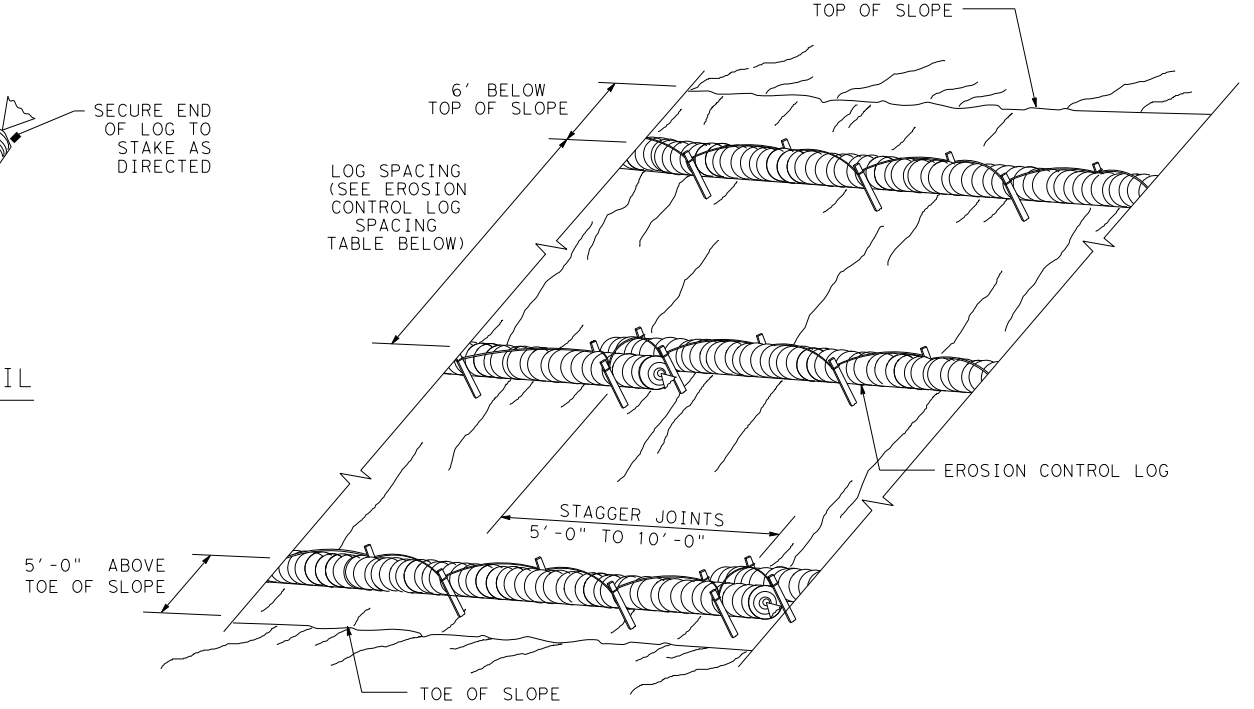
CL-SST



END SECTION RAP DETAIL

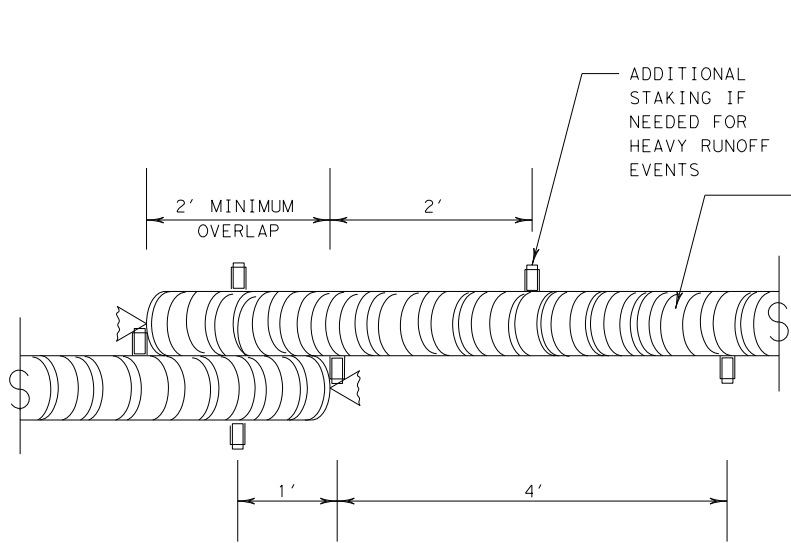
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

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



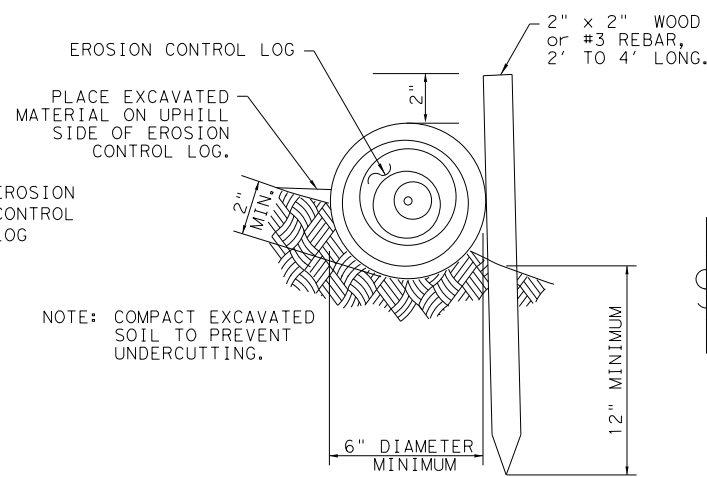
EROSION CONTROL LOGS ON SLOPES
 STAKE AND LASHING ANCHORING

CL-SSL

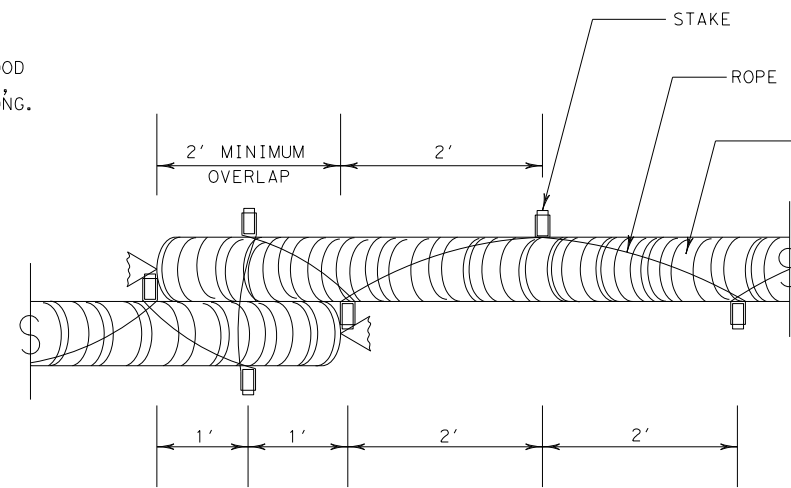


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST



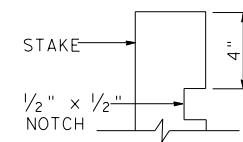
NOTE: COMPACT EXCAVATED SOIL TO PREVENT UNDERCUTTING.



STAKE AND LASHING ANCHORING DETAIL

CL-SSL

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



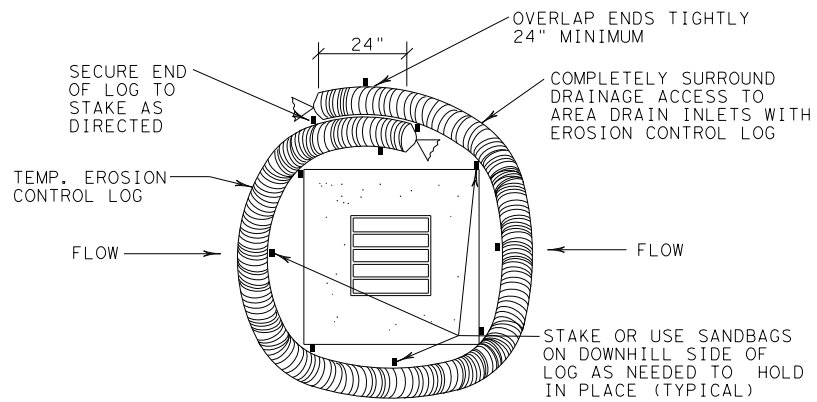
STAKE NOTCH DETAIL

SHEET 2 OF 3

		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16			
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CON: 0910	SECT: 07	JOB: 072
REVISIONS		HIGHWAY	
		DIST: TYLER	
		COUNTY: GREGG	
		SHEET NO.: 299	

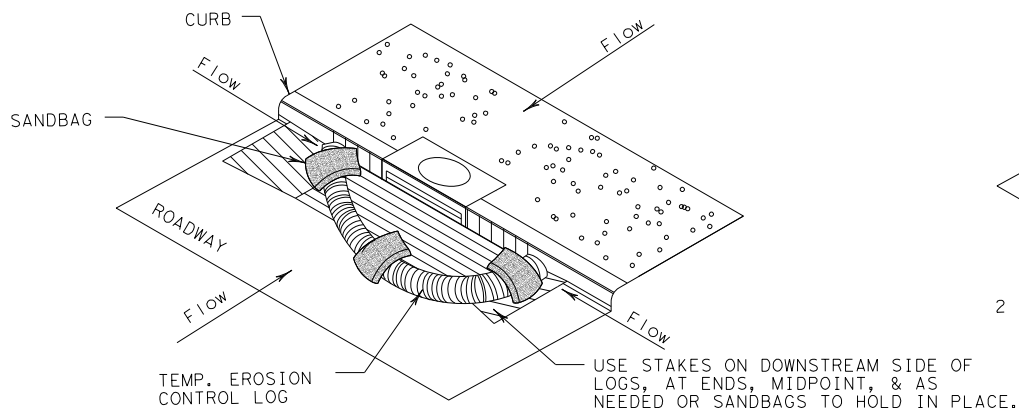
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DATE: 7/22/2021
 FILE: pw:\jmt-pw.bentley.com\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\9. Environmental\TxDOT Standards\ec916.dgn



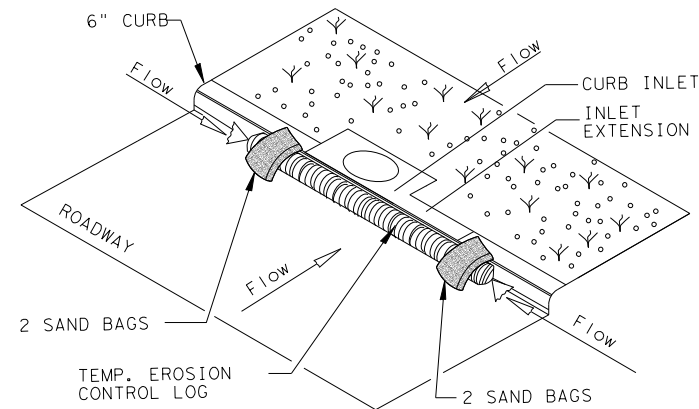
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

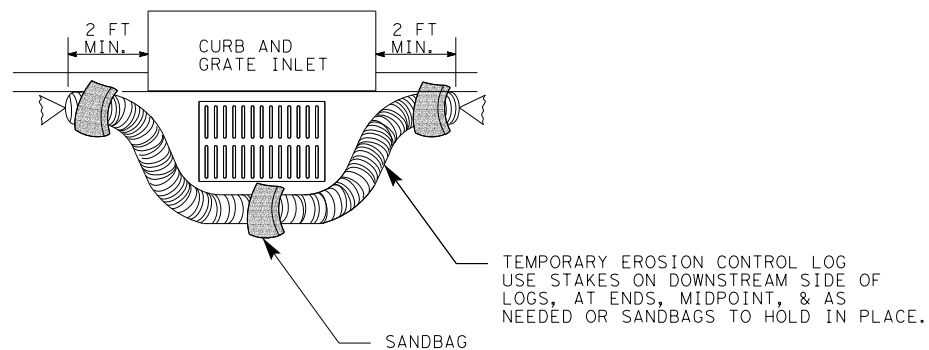
CL-CI



EROSION CONTROL LOG AT CURB INLET

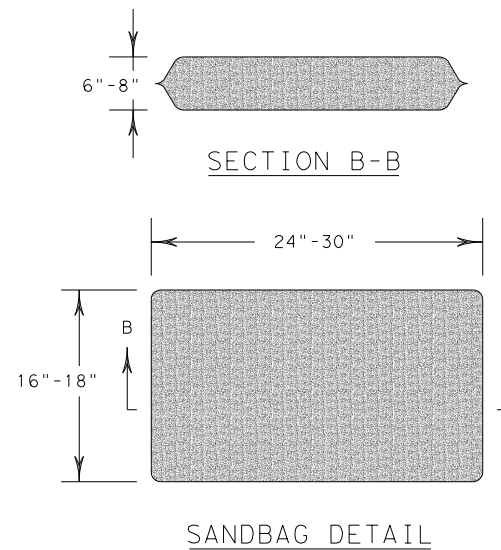
CL-CI

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



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SHEET 3 OF 3

		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16			
FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT	SECT	JOB
REVISIONS	0910	07	072
	DIST	COUNTY	SHEET NO.
	TYLER	GREGG	300

DATE: 12/22/2021 FILENAME: pw:\jmt-pw-bentley.com:\jmt-pw-01\Documents\Projects\2016\16-0641-005\DesignData\4 - Design\Plan Set\6. Utilities\HIGH ST*UTIL*01.dgn

CAUTION
CONTRACTOR NEEDS TO VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

CAUTION
UTILITY LINES SHOWN ARE APPROXIMATE BASED ON LEVEL D SUE DATA.



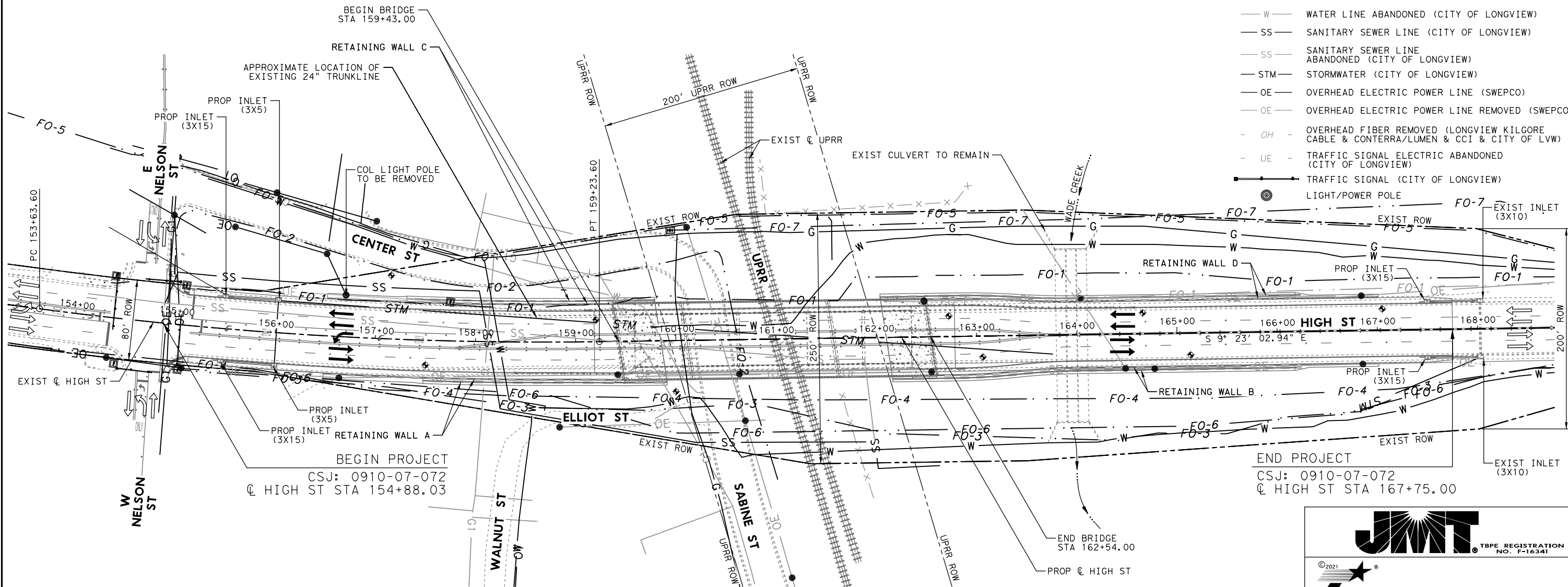
0' 25' 50' 100'
SCALE IN FEET

NOTES:

1. UTILITY LINES SHOWN ARE APPROXIMATE AND CONTRACTOR MUST FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

LEGEND

- G — NATURAL GAS (ATMOS ENERGY)
- G1 — NATURAL GAS (CENTERPOINT)
- G1 — NATURAL GAS ABANDONED (CENTERPOINT)
- OT — TELEPHONE (AT&T)
- FO-1 - FIBER OPTIC (AT&T)
- FO-1 - FIBER OPTIC ABANDONED (AT&T)
- FO-2 - FIBER OPTIC (VERIZON (MCI))
- FO-3 - FIBER OPTIC (ETEX TELEPHONE COOP. INC.)
- FO-4 - FIBER OPTIC (LUMEN)
- FO-5 - FIBER OPTIC (CONSOLIDATED)
- FO-6 - FIBER OPTIC (LONGVIEW CABLE)
- FO-7 - FIBER OPTIC (SPARK LIGHT)
- W — WATER LINE (CITY OF LONGVIEW)
- W — WATER LINE ABANDONED (CITY OF LONGVIEW)
- SS — SANITARY SEWER LINE (CITY OF LONGVIEW)
- SS — SANITARY SEWER LINE ABANDONED (CITY OF LONGVIEW)
- STM — STORMWATER (CITY OF LONGVIEW)
- OE — OVERHEAD ELECTRIC POWER LINE (SWEPCO)
- OE — OVERHEAD ELECTRIC POWER LINE REMOVED (SWEPCO)
- OH - OVERHEAD FIBER REMOVED (LONGVIEW KILGORE CABLE & CONTEERRA/LUMEN & CCI & CITY OF LVW)
- UE - TRAFFIC SIGNAL ELECTRIC ABANDONED (CITY OF LONGVIEW)
- TS — TRAFFIC SIGNAL (CITY OF LONGVIEW)
- ⊙ LIGHT/POWER POLE



BEGIN PROJECT
CSJ: 0910-07-072
@ HIGH ST STA 154+88.03

END PROJECT
CSJ: 0910-07-072
@ HIGH ST STA 167+75.00



Texas Department of Transportation
S HIGH ST AT UPRR AND SABINE ST

UTILITY LAYOUT



12/22/2021

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
JMT	6	(SEE TITLE SHEET)	HIGH ST	
GRAPHICS	STATE	DISTRICT	COUNTY	
JMT	TEXAS	TYLER	GREGG	
CHECK	CONTROL	SECTION	JOB	
JMT	0910	07	072	
CHECK				301
JMT				