

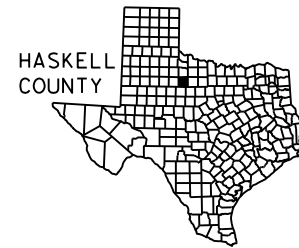
STATE OF TEXAS DEPARTMENT OF TRANSPORTATION

DESIGN SPEED = N/A
 CURRENT A.D.T. (2022) = 1,667 vpd
 PROJECTED A.D.T. (2042) = 2,634 vpd
 FUNCTIONAL CLASS = RURAL MINOR ARTERIAL
 PROPOSED NBI# = N/A

FHWA TEXAS DIVISION	PROJECT NO.		SHEET NO.
	C 360-4-33		1
STATE	DISTRICT	COUNTY	
TEXAS	ABL	HASKELL	
CONTROL	SECTION	JOB	HIGHWAY NO.
0360	04	033	US 380

INDEX OF SHEETS

SEE SHEET 2



EXISTING NBI#=
 08-105-0-0360-04-022
 08-105-0-0360-04-021
 08-105-0-0360-04-020
 08-105-0-0360-04-019
 08-105-0-0360-04-018
 08-105-0-0360-04-017
 08-105-0-0360-04-016

PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT

PROJECT NO. C 360-4-33

NET LENGTH OF ROADWAY= 75,520.00 ft = 14.303 mi
 NET LENGTH OF BRIDGE = 247.00 ft = 0.047 mi
 NET LENGTH OF PROJECT= 75,767.00 ft = 14.350 mi

US 380 HASKELL COUNTY

LIMITS: FROM HASKELL EAST CITY LIMITS
 TO THROCKMORTON COUNTY
 FOR THE CONSTRUCTION OF: OVERLAY
 CONSISTING OF: PREVENTIVE MAINTENANCE

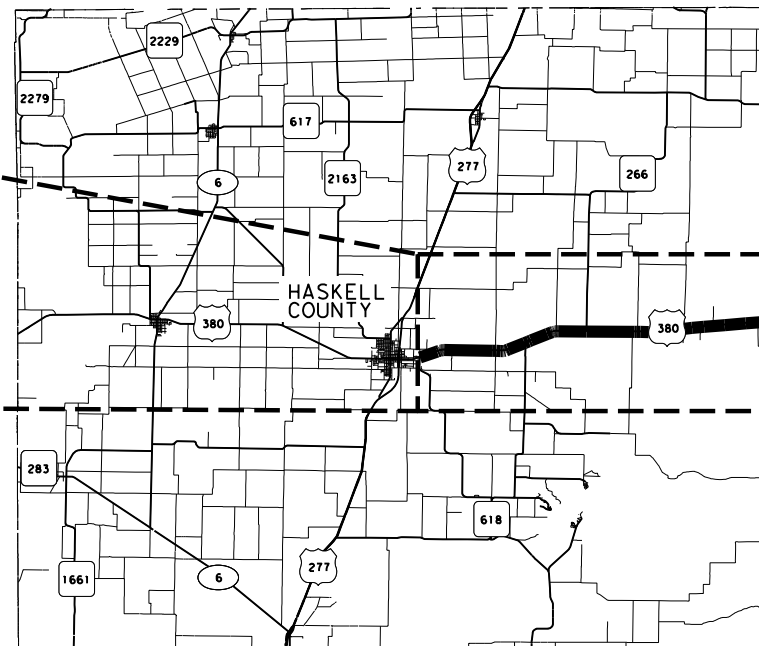
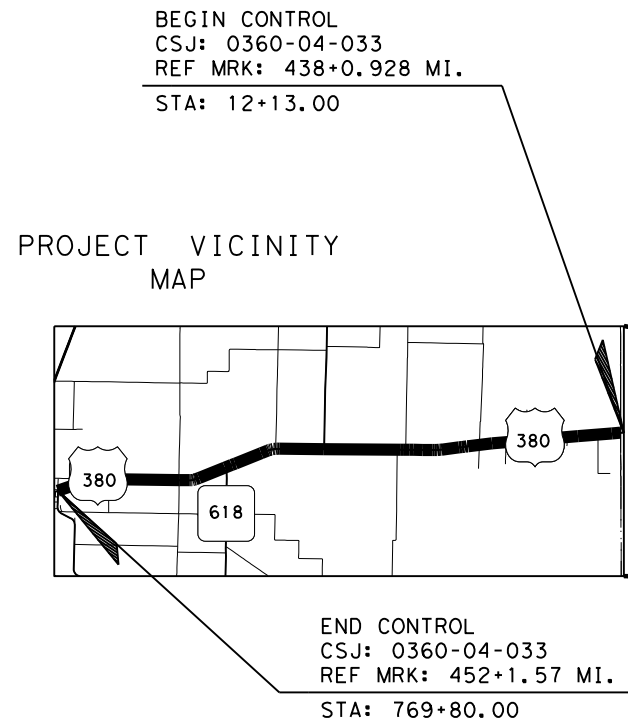
FINAL PLANS

LETTING DATE: 12/05/2023
 DATE CONTRACTOR BEGAN WORK: _____
 DATE WORK WAS COMPLETED: _____
 DATE WORK WAS ACCEPTED: _____
 FINAL CONTRACT COST: \$ _____
 CONTRACTOR : _____

CERTIFICATION FOR FINAL PLANS

THIS PROJECT WAS BUILT ACCORDING TO THE PLANS AND SPECIFICATIONS. THESE FINAL PLANS REFLECT THE WORK DONE AND THE QUANTITIES SHOWN THEREON AND ON THE FINAL ESTIMATE ARE FINAL QUANTITIES.

 AREA ENGINEER DATE



EXCEPTIONS: N/A
 EQUATIONS: N/A
 RAILROAD CROSSINGS: N/A

THE DISTRICT TRAFFIC SAFETY COMMITTEE HAS REVIEWED THE TRAFFIC CONTROL PLAN FOR THIS PROJECT AND IT IS IN COMPLIANCE WITH CURRENT TRAFFIC CONTROL STANDARDS.

Michael Wittie, P.E. 9/27/2023
 COMMITTEE CHAIRMAN DATE

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 ALL RIGHTS RESERVED

RECOMMENDED FOR LETTING: 9/27/2023

Stewart J. Chapman, P.E.
 STEWART J. CHAPMAN, P.E.
 AREA ENGINEER

SUBMITTED FOR LETTING: 9/15/2023

Rajesh Janarthanan
 RAJESH JANARTHANAN, P.E.
 AIG TECHNICAL SERVICES PROJECT MANAGER

RECOMMENDED FOR LETTING: 9/28/2023

Michael Haithcock
 MICHAEL HAITHCOCK, P.E.
 DIRECTOR OF T P & D

RECOMMENDED FOR LETTING: 9/27/2023

Debra Okoye
 DEBRA OKOYE
 TxDOT PROJECT MANAGER

APPROVED FOR LETTING: 9/28/2023

Thomas J. Allbritton, P.E.
 THOMAS J. ALLBRITTON, P.E.
 DISTRICT ENGINEER

PENTABLET
 DATE: 9/15/2023
 FILE: G:\MIG-Project\Use\AIG Technical Services LLC\2312\WA3\US380+PSE+AIG.4 - Design\Plan Set\1 - General\US380-AIG-CN-CO-01A.dgn

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

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# 54	GF(31)MS-19
# 55	SGT(10S)31-16
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ENVIRONMENTAL STANDARDS	
# 116-118	EC(9)-16



THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ON THIS SHEET WITH A '#' HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

A. Rebollar Velazquez, P.E. 9/8/2023
A. REBOLLAR VELAZQUEZ, P.E. DATE

REV NO.	DATE	BY	REVISION

AIG Tech
Advanced Infrastructure Group
AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607



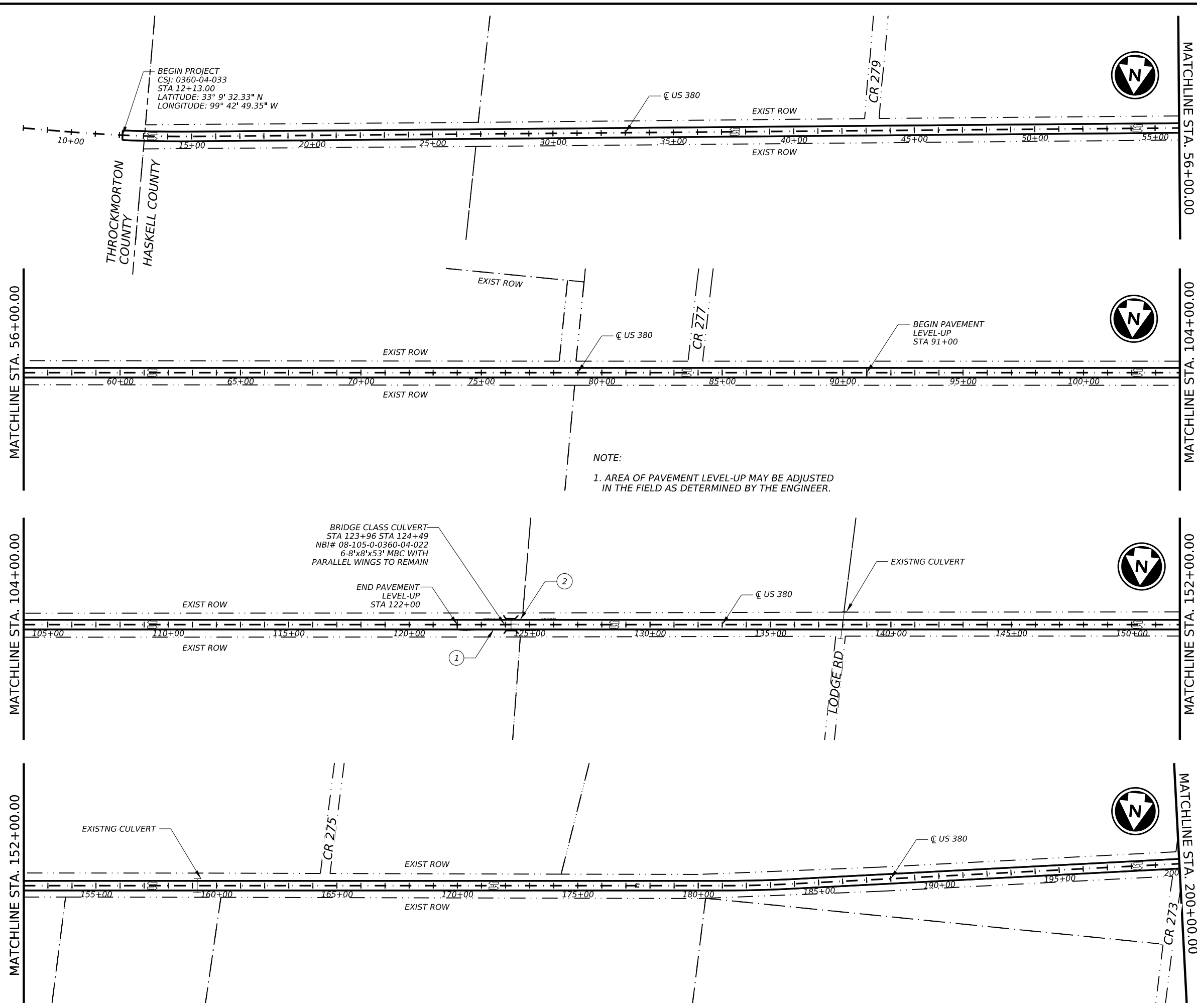
US 380 INDEX OF SHEETS

SHEET 1 OF 1

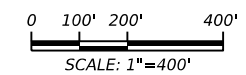
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0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	2	

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BEGIN PROJECT
 CSJ: 0360-04-033
 STA 12+13.00
 LATITUDE: 33° 9' 32.33" N
 LONGITUDE: 99° 42' 49.35" W



LEGEND

- EXISTING RIGHT-OF-WAY (ROW)
- DIRECTION OF TRAFFIC
- TRAFFIC RAIL NO.

NOTE:

1. SEE TRAFFIC RAIL DETAIL FOR ADDITIONAL INFORMATION.
2. EXISTING STRUCTURES BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY PRIOR TO BEGIN CONSTRUCTION.

NOTE:

1. AREA OF PAVEMENT LEVEL-UP MAY BE ADJUSTED IN THE FIELD AS DETERMINED BY THE ENGINEER.

REV NO.	DATE	BY	REVISION



9/8/2023



AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607



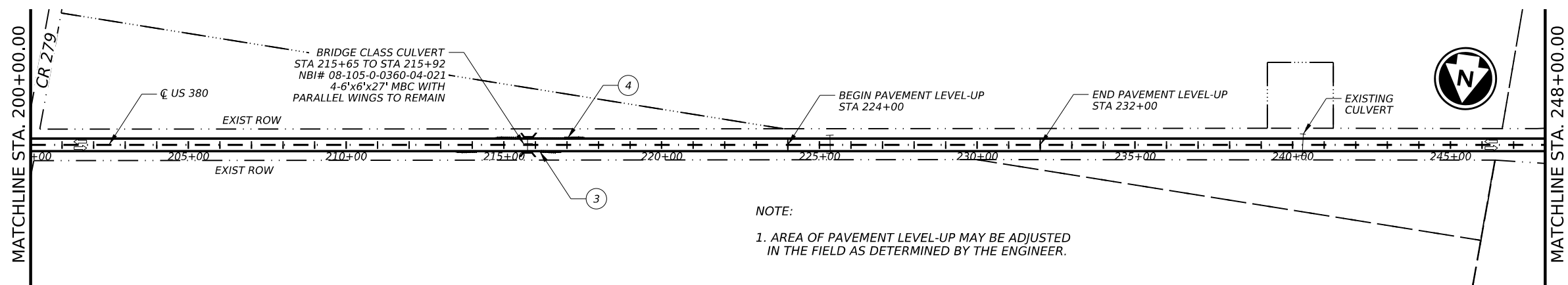
Texas Department of Transportation

**US 380
 PROJECT LAYOUT
 BEGIN PROJECT TO STA 200+00**

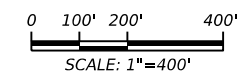
SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	3	

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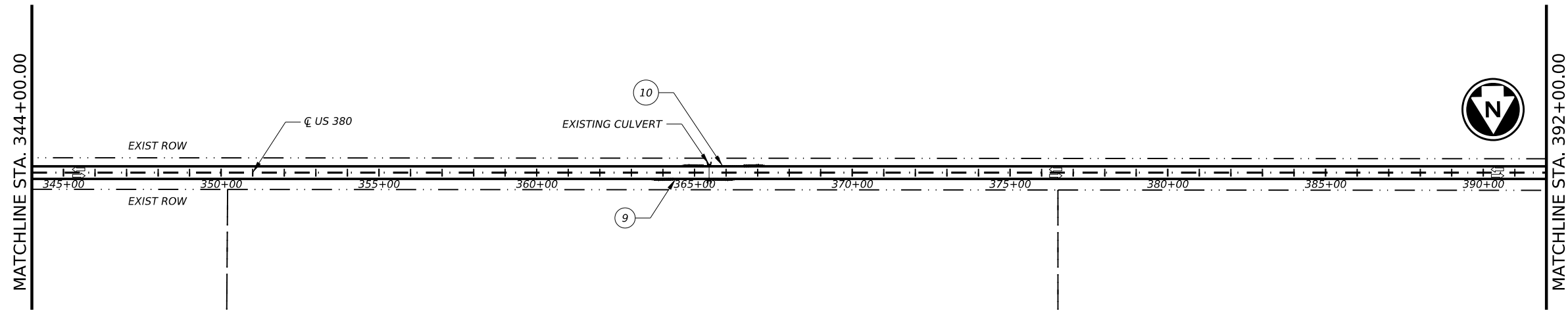
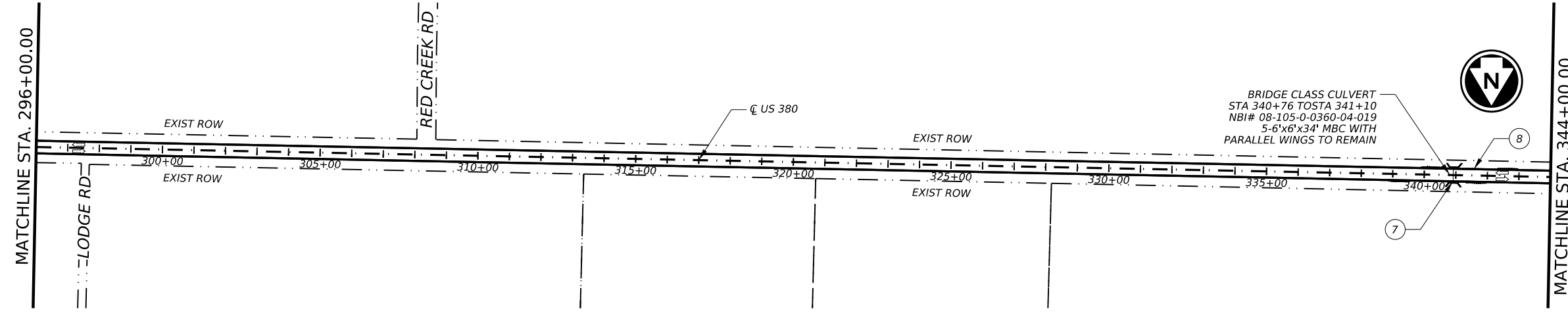
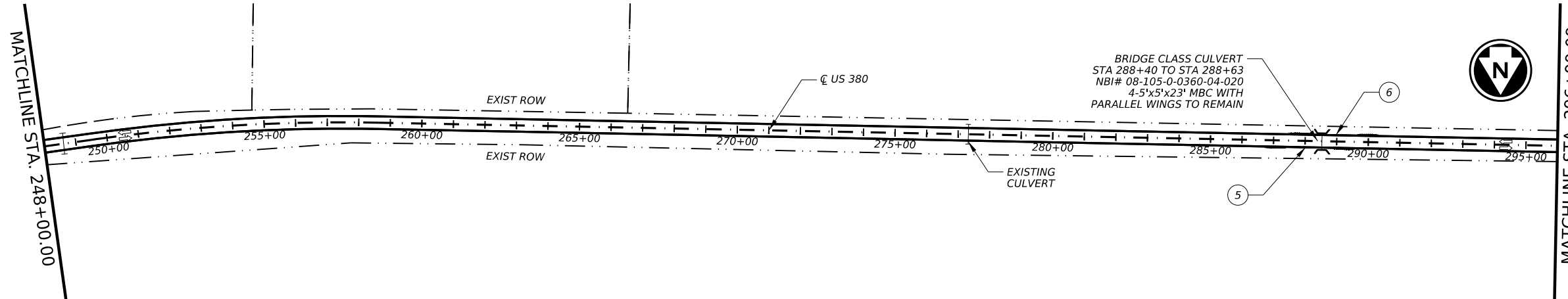
NOTE:
1. AREA OF PAVEMENT LEVEL-UP MAY BE ADJUSTED IN THE FIELD AS DETERMINED BY THE ENGINEER.



LEGEND

- EXISTING RIGHT-OF-WAY (ROW)
- DIRECTION OF TRAFFIC
- TRAFFIC RAIL NO.

- NOTE:
1. SEE TRAFFIC RAIL DETAIL FOR ADDITIONAL INFORMATION.
 2. EXISTING STRUCTURES BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY PRIOR TO BEGIN CONSTRUCTION.



REV NO.	DATE	BY	REVISION

9/8/2023

AIG Tech
Advanced Infrastructure Group

AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

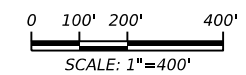
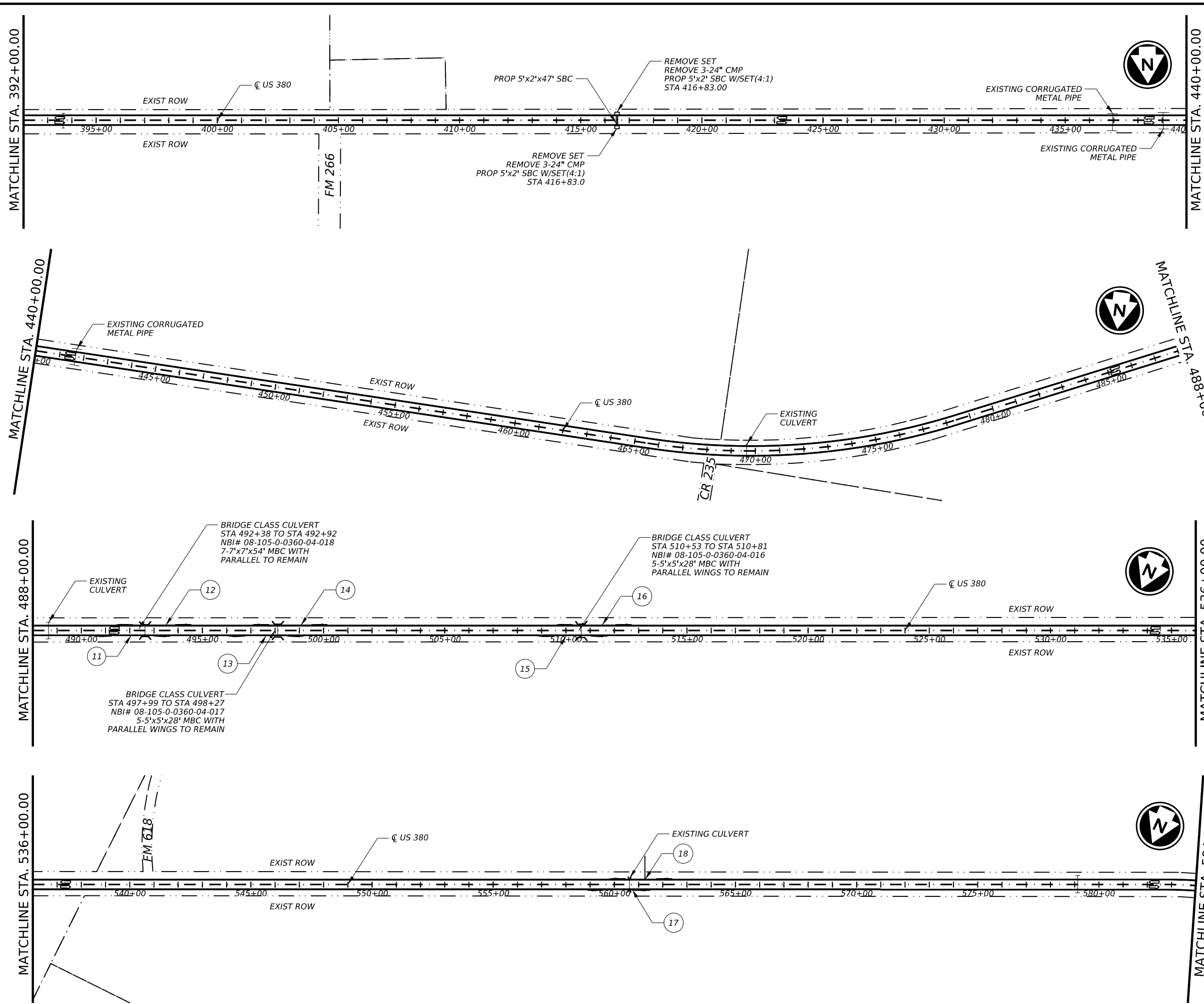
Texas Department of Transportation

US 380
PROJECT LAYOUT
STA 200+00 TO STA 392+00

SHEET 2 OF 4

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST		COUNTY	SHEET NO.
ABILENE		HASKELL	4

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LEGEND

- EXISTING RIGHT-OF-WAY (ROW)
- ← DIRECTION OF TRAFFIC
- ⊗ TRAFFIC RAIL NO.

NOTE:

1. SEE TRAFFIC RAIL DETAIL FOR ADDITIONAL INFORMATION.
2. EXISTING STRUCTURES BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY PRIOR TO BEGIN CONSTRUCTION.

REV. NO.	DATE	BY	REVISION



9/8/2023

AIG Tech
Advanced Infrastructure Group

AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607



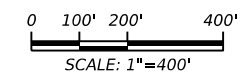
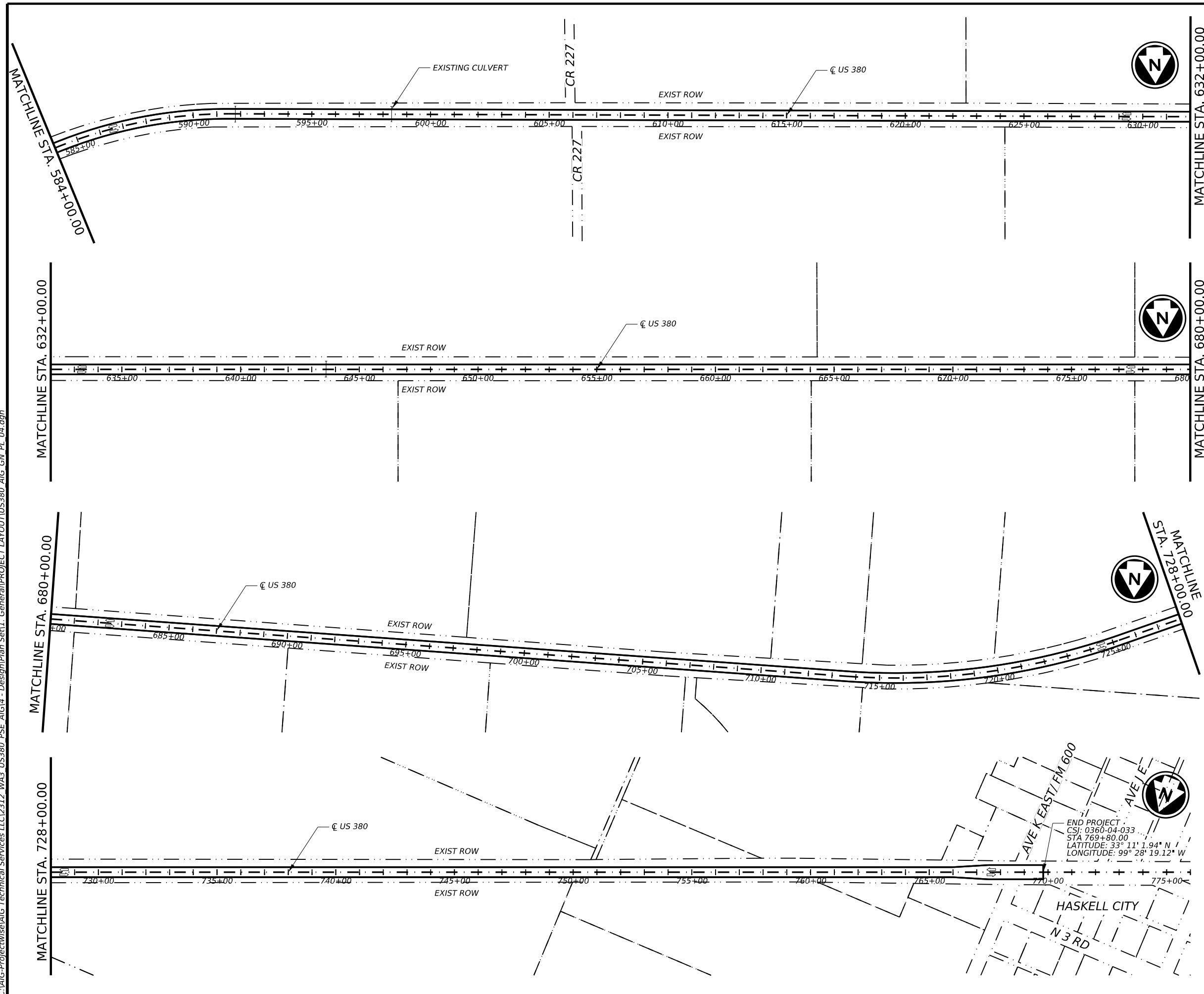
Texas Department of Transportation

US 380
PROJECT LAYOUT
STA 392+00 TO STA 584+00

SHEET 3 OF 4

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST		COUNTY	SHEET NO.
ABILENE		HASKELL	5

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LEGEND

- EXISTING RIGHT-OF-WAY (ROW)
- ← DIRECTION OF TRAFFIC
- ⊗ TRAFFIC RAIL NO.

NOTE:

1. SEE TRAFFIC RAIL DETAIL FOR ADDITIONAL INFORMATION.
2. EXISTING STRUCTURES BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY PRIOR TO BEGIN CONSTRUCTION.

REV NO.	DATE	BY	REVISION



9/8/2023

AIG Tech
Advanced Infrastructure Group

AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607



Texas Department of Transportation

US 380

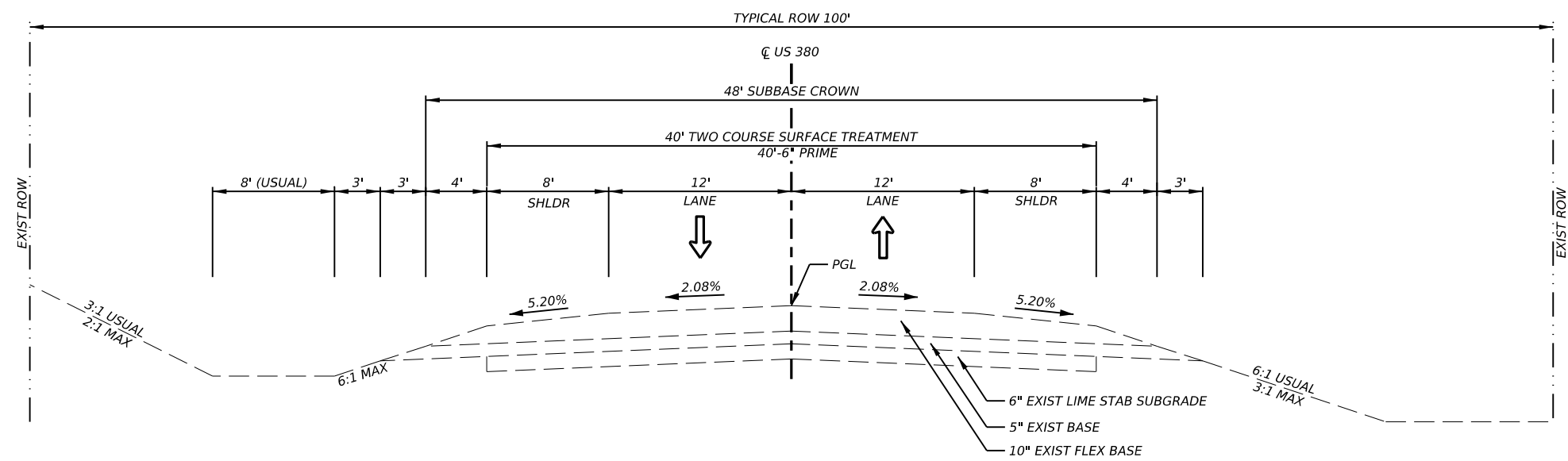
PROJECT LAYOUT

STA 584+00 TO END PROJECT

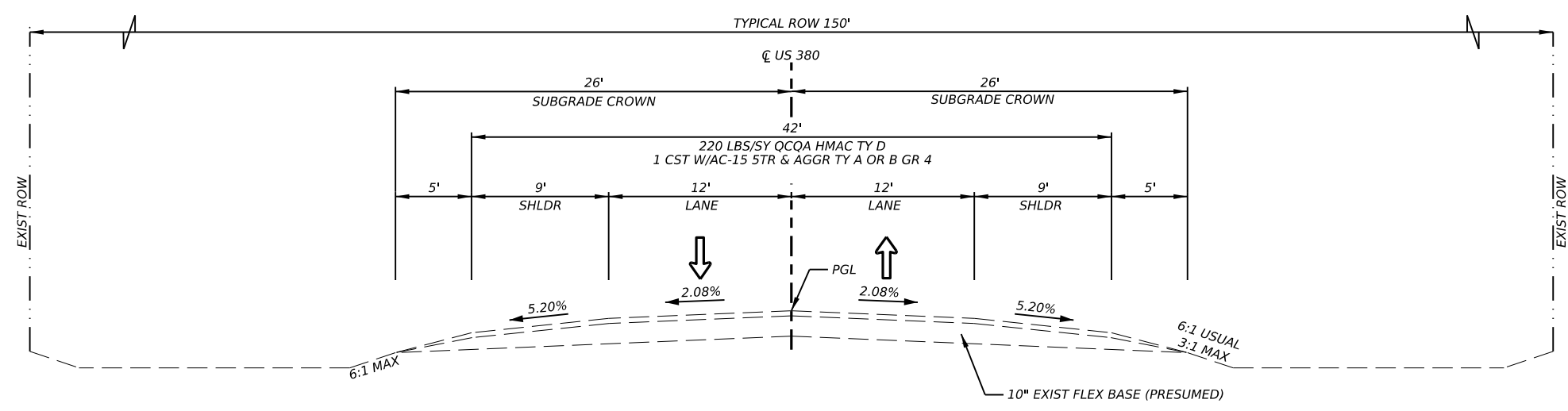
SHEET 4 OF 4

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0360	04	033	US 380
DIST		COUNTY	SHEET NO.
ABILENE		HASKELL	6

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EXISTING TYPICAL SECTIONS
 STA 12+13 TO STA 571+00
 N.T.S.




EXISTING TYPICAL SECTIONS
 STA 571+00 TO STA 769+80
 N.T.S.

REV NO.	DATE	BY	REVISION




9/8/2023



AIG Tech
Advanced Infrastructure Group

AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607



Texas Department of Transportation

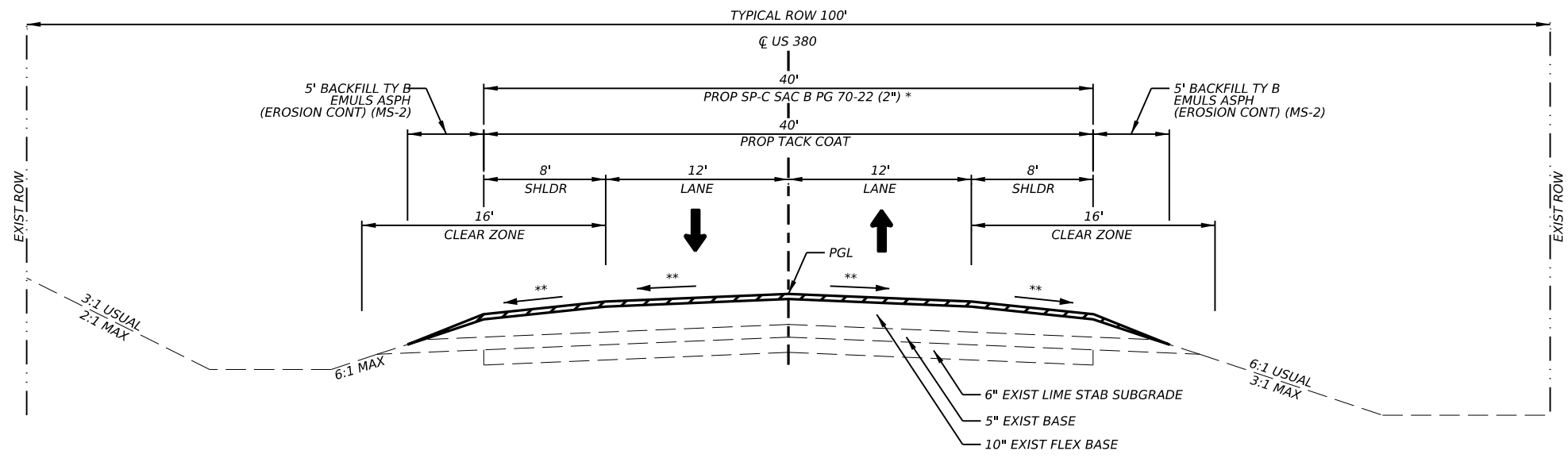
US 380

TYPICAL SECTIONS

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST		COUNTY	SHEET NO.
ABILENE		HASKELL	7

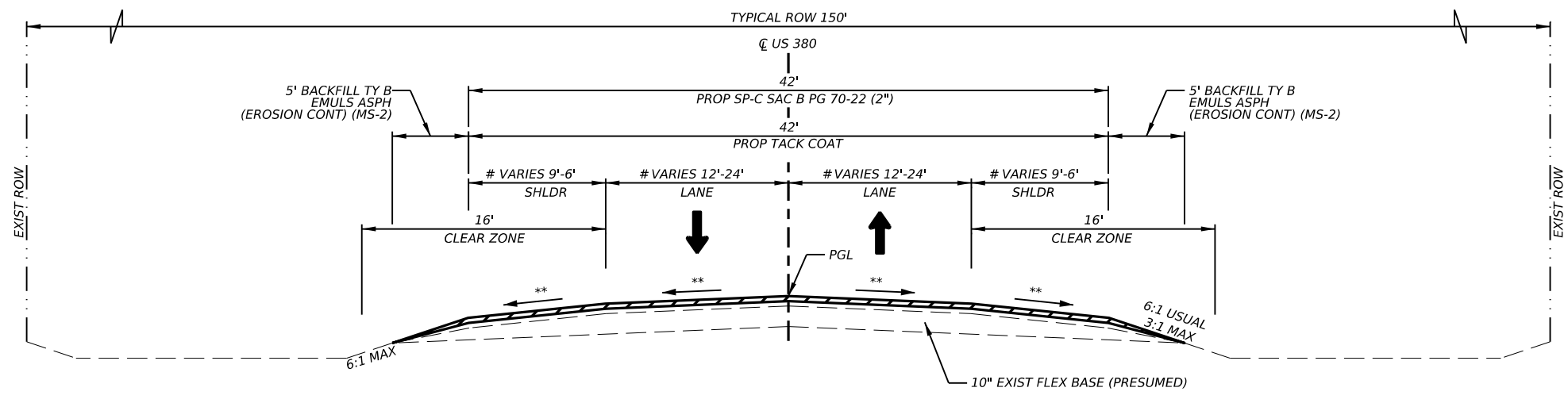
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PROPOSED TYPICAL SECTION

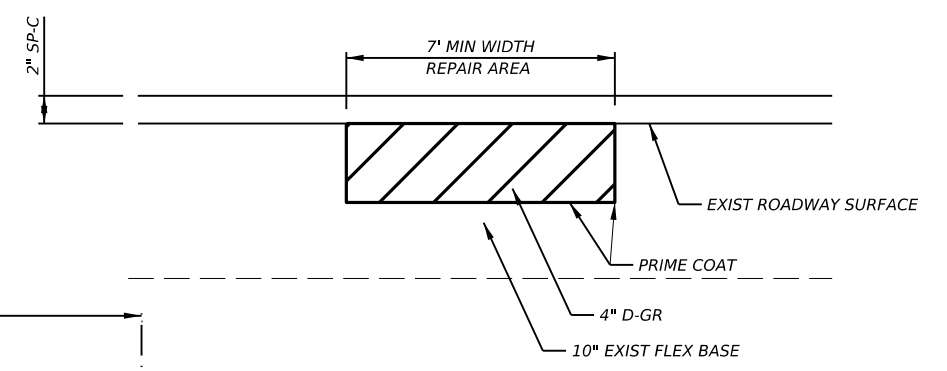
STA 12+13 TO STA 571+00

* PAVEMENT LEVEL-UP LIMITS
 STA 91+00 TO STA 122+00
 STA 224+00 TO STA 232+00
 N.T.S.



PROPOSED TYPICAL SECTION

STA 571+00 TO STA 766+00
 (6' SHOULDERS & 24' TRAVEL LANES)
 # STA 766+00 TO STA 769+80
 N.T.S.



SPOT REPAIR DETAIL
(NOT TO SCALE)

LOCATIONS AND SIZE OF SPOT REPAIRS TO BE DETERMINED BY THE ENGINEER. REMOVAL OF EXISTING MATERIAL, D-GR HMA TY-B PG64-22, PROOF ROLLING, AND PRIME COAT MC-30 SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 351.

- NOTES:
- TACK COAT WILL BE REQUIRED ON ALL SURFACES AND ALL VERTICAL FACES BETWEEN INTERIOR JOINTS.

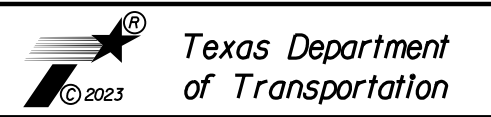
**CONTRACTOR TO MATCH EXISTING CROSS SLOPE/SUPER ELEVATION.

REV NO.	DATE	BY	REVISION



9/8/2023

AIG Tech
 Advanced Infrastructure Group
 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607



US 380
TYPICAL SECTIONS

SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	8	

CCSJ: 0360-04-033
County: Haskell
Highway: US 380

ABILENE DISTRICT GENERAL NOTES 2014 SPECIFICATIONS

General

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

Stewart Chapman, P.E. / Phone: 325-573-0143 / Stewart.Chapman@txdot.gov
Maxie Allen, P.E. / Phone: 325-573-0142 / Maxie.Allen@txdot.gov
Jose Cabrera, P.E. / Phone: 325-573-0143 / Jose.Cabrera@txdot.gov
(Snyder Area Office)

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

For Q&A's on Proposals navigate to

<https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors>

Use the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

All relevant project documentation including contract time, cross sections, etc. will be posted on the districts FTP website. <https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/>

Modified Standards:
T631-CM(MOD)

Failure to make necessary corrections to SW3P based on SW3P inspections will be cause for withholding the monthly estimate until such corrections have been made.

Failure to make necessary corrections to traffic control items based on barricade inspections will be cause for withholding the monthly estimate until such corrections have been made.

Provide ingress/egress to the adjacent properties in areas under construction. Phased construction of driveways and streets shall be required to provide uninterrupted access to adjacent properties. Coordinate work with the property owners before beginning any construction in the vicinity of the drive.

Cut neat, straight lines with vertical faces along pavement edges or along joints between existing asphalt or concrete pavement and new pavement perpendicular or parallel to the direction of traffic by methods described in applicable bid items, or as directed. Provide clean edges or joints without jagged appearance or chunks broken out. This work is considered subsidiary to various bid items.

General Notes

Sheet A

CCSJ: 0360-04-033
County: Haskell
Highway: US 380

Environmental

Endangered and Protected Species

1. Migratory Birds

- a. **Bird nesting season is typically 15Feb through 15Sep annually.**
- b. The Contractor will avoid disturbing, destroying, removing, or relocating migratory birds and active nests found in trees, culverts, bridges, on the ground, or anywhere they are encountered.
- c. Perform all tree trimming and other vegetation clearing activities during the non-breeding season (typically 15Sep-15Feb annually). Perform any inactive nest removal and bird exclusion methods to prevent birds from establishing nests. Phasing of work during construction may be necessary to stay in compliance.
- d. When active nests are unexpectedly encountered on-site during construction, the Contractor will stop work and immediately notify the Engineer. Take measures to avoid disturbance of these birds, their occupied nest, eggs, and/or young, in accordance with the Migratory Bird Treaty Act, Texas Parks and Wildlife Code, and TxDOT policy.
- e. The Engineer will notify the Contractor when work may resume.
- f. The Contractor should be prepared to prevent migratory birds from building nests by utilizing nest prevention methods, such as bird-deterrent netting and bird-repelling sprays and/or gels, between 15Feb and 15Sep. The Contractor can discuss other preventative measures with the Engineer and/or District Environmental Staff.

Best Management Practices

1. Bird BMPs

- a. Not disturbing, destroying, or removing active nests, including ground nesting birds, during the nesting season.
- b. Avoiding the removal of unoccupied, inactive nests, as practicable.
- c. Preventing the establishment of active nests during the nesting season on TxDOT owned and operated facilities and structures proposed for replacement or repair.
- d. Not collecting, capturing, relocating, or transporting birds, eggs, young, or active nests without a permit.

Item 5, "Control of Work"

Use Method C for construction surveying.

All known utilities are identified in the plans, including the crossing of power lines. Use this information to identify potential issues with power poles and power lines prior to bidding.

Make necessary arrangements with utility owners regarding temporary protections such as bracing power poles, and de-energizing power lines. The Department will not reimburse the cost

General Notes

Sheet B

CCSJ: 0360-04-033
County: Haskell
Highway: US 380

of such temporary protections to the Contractor, unless the Engineer determines that inadequate information was available at the time the project was bid. **“Call Before You Dig” “Call 811”**

Provide notification to the District Traffic Engineering Section by telephone at 325-676-6991 and by email at ABL_TrafficFix@txdot.gov when planning drilling or excavation work in areas where existing TxDOT underground utilities exist. Visual evidence of TxDOT underground utilities in the area include illumination poles, ground boxes, flashing beacons, traffic signals, etc. This notification must be provided 72 hours in advance of performing the work.

Drilled shaft locations or excavation areas must be staked prior to the notification so that the underground utilities can be located in relationship to the proposed work. Preserve and document the marked utility locations to prevent unnecessary secondary notifications. Notify the Engineer of conflicts between proposed work and underground utilities.

“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 [Alternate Precast Proposal Submission \(txdot.gov\)](http://www.txdot.gov). 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”

The total area disturbed for this project is **0.52** acres. The disturbed area in this project, all project locations in the Contract, and the 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. The Contractor is to obtain required authorization from the TCEQ for Contractor PSLs for construction support activities on or off the ROW. When the total area disturbed in the Contract and PSLs within 1 mile of the project limits exceeds 5 acres, provide a copy of the Contractor NOI for PSLs on the ROW to the Engineer and to the government that operates a separate storm sewer system.

Provide one SW3P Notification Board for this project. Notification Boards are to be placed at locations within the right-of-way but outside the clear zone as directed by the Engineer. Consider this work to be subsidiary to the various bid items of the contract.

No significant traffic generator events identified.

Hard hats are required at all times during construction when construction personnel are in TxDOT Right-of-Way.

General Notes

Sheet C

CCSJ: 0360-04-033
County: Haskell
Highway: US 380

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

LIGHTING STANDARDS FOR HIGHWAY MAINTENANCE OR CONSTRUCTION VEHICLES AND SERVICE VEHICLES

VEHICLE LIGHTING SUMMARY

Vehicle	Color of Flashing Lights	Transportation Code
Police Vehicles	Red/Blue/White/Amber	547.305 & 547.702
Fire/EMS Vehicles	Red/Blue/White/Amber	547.305 & 547.702
Volunteer Fire/EMS	Red/Blue/White/Amber	547.305 & 547.702
School	Bus Red/White (rooftop) /Amber	547.305 & 547.701
Highway Maintenance or Construction Vehicles and Service Vehicles	Amber/Blue	547.105 & TxDOT Lighting Standards

Item 8 “Prosecution and Progress”

Each contract awarded by the Department stands on its own and as such, is separate from other contracts. A Contractor awarded multiple contracts must be capable and sufficiently staffed to concurrently process and/or execute all contracts at the same time.

Coordinate and update the work schedule with the project inspector daily. Give a minimum of 24 hours of notice to project inspector if work requiring inspection or testing is to be performed. Failure to do so may cause that work to be delayed or postponed if TxDOT personnel are not available. Work performed without suitable inspection, as determined by the Engineer, may be ordered removed and replaced at Contractor’s expense.

Prepare the progress schedule as a Critical Path Method (CPM).

Item 9, “Measurement and Payment”

The progress payment period shall end on the 25th of each month, unless directed by the Area Office Engineer. Material on Hand (MOH) is due two business days before estimate cut off.

Item 134, “Backfilling”

Backfill pavement edges no later than 2 weeks after the construction of the final surface. Apply emulsion at a 50/50 of water to emulsion; emulsion rate = 0.15 gal/sy residual emulsion.

General Notes

Sheet D

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CCSJ: 0360-04-033
County: Haskell
Highway: US 380

Item 351, “Flexible Pavement Structure Repair”

The quantity shown in the plans for pavement structure repair is estimated. The Engineer will determine specific locations to be repaired. Unless otherwise shown in the plans, multiple locations throughout the project will be repaired, and may vary significantly in length and width.

Saw cut at least two inches deep around the edges of concrete or asphaltic pavement to be removed, unless otherwise directed by the Engineer.

The type and grade of prime shall be MC-30.

A motor grader will be allowed only as directed by the Engineer.

Item 354, “Planing and Texturing Pavement”

Retain ownership of excess RAP and remove the unused material from the project site upon completion of the paving work.

Item 432, “Riprap”

When using conventional reinforcement, meet all requirements in accordance with Article 432.3.1. Concrete Riprap with exception that Class A Concrete is required.

Provide structural fiber reinforced or conventionally reinforced concrete for formed M.B.G.F. concrete mow strip.

Meet the following requirements when using structural fiber reinforcement:

- If slip forming, use an approved method that ensures adequate concrete consolidation. Sprinkle and consolidate the subgrade before the concrete is placed. Finish the surface with a wood float or broom finish as approved. Immediately after finishing operation, cure the riprap according to Item 420, “Concrete Structures”.

Item 502, “Barricades, Signs and Traffic Handling”

Mobile traffic control in accordance with TCP 3 series will be required for placement of short duration, short term, intermediate term, and long-term traffic control.

Provide the Engineer with written notification seven (7) days in advance of major traffic changes. A major traffic change is defined as the temporary (greater than one day) or permanent relocation of traffic lanes typically in an urban setting. The notice will, at a minimum, include the expected date, time and scope of the traffic change. The Department will utilize the information provided to inform the traveling public of the changes. Failure to provide advance notice, or to provide accurate information, will result in delaying the work until such time that the public has been notified.

Additional signs, barricades and traffic handling may be necessary to complete the work shown herein and will be provided by the contractor as required and will be considered subsidiary to this item.

General Notes

Sheet E

CCSJ: 0360-04-033
County: Haskell
Highway: US 380

Provide separate attenuators for each work area within a common lane closure as approved or directed by the Engineer.

In sections where traffic is restricted to one lane, two-way traffic, flaggers will be stationed at each end of that section with two-way communication devices and a pilot car will control operations.

Pilot car is subsidiary to item 502.

Relocate existing roadside signs to temporary supports as approved by the engineer.

All safety appurtenances such as signs, delineators, object markers and route markers will be in place prior to opening each phase of the construction to traffic, unless otherwise directed.

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

The Contractor’s person responsible for TCP compliance must be available by local telephone and have a response time within 45 minutes.

Work will not be allowed on both sides of the roadbed at the same time.

Equip all work vehicles within 30 feet of the traveled way with a functioning amber strobe light or rotating beacon visible from all directions.

Repair barricades within the timeline shown on the barricade inspection report. Failure to comply will cease all work until barricades are repaired to the satisfaction of the Department. Replace all damaged traffic control devices immediately. Remove any damaged traffic control devices from the project within 24 hours.

Conflicting guide signs shall be covered as approved by the Engineer. This work shall be subsidiary to Item 502.

Reduced regulatory speed limit signs should only be posted in the vicinity of ongoing work activity as shown on BC (3)-21 and not throughout the entire project. Removing, relocating or covering speed limit signs shall be considered subsidiary to item 502.

General Notes

Sheet F

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CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY		SHEET NO.
ABL	HASKELL		11

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CCSJ: 0360-04-033
County: Haskell
Highway: US 380

Item 504, "Field Office for Laboratory"

Field Laboratory:

Furnish a "Type D" structure for the asphalt mix control laboratory for the Engineer's exclusive use. In addition to the requirements of Item 504, furniture and equipment to be furnished by the Contractor shall include:

- eye wash station
- first-aid kit
- two fire extinguishers
- Provide internet connectivity for use by TxDOT lab testing personnel at all laboratory structures on this project.

Item 510, "One-way Traffic Control"

The contractor shall use ADDCO PTS-2000 or equivalent, that shall show wait time, as temporary traffic signals. Two temporary traffic signals will be required for this project.

Item 512, "Portable Concrete Traffic Barrier"

The state will furnish the portable concrete traffic barrier (PCTB) sections stockpiled at the intersection of FM 57 and US 180 in Fisher County, approx. 56 miles from the project limits. All PCTB sections will be hauled by the Contractor to the project site. Upon completion, all PCTB sections will be returned to their original location. Make arrangements at the storage sites for the loading and unloading of the PCTB.

Type X Joint installation shall be furnished and used by the contractor. All SSCB joint installation hardware shall be subsidiary to item 512.

Item 533, "Milled Rumble Strips"

The milled rumble strips should be placed on shoulder according to RS (2)-23 standards and the shoulder widths as shown below.

- Rumble strip will begin 3 feet from the edge line.

Guidance markings are considered subsidiary to this item.

Item 540, "Metal Beam Guard Fence"

Core drill 1 ¼ diameter holes through existing slab. Percussion or impact drilling is not permitted. Patch spalls, when directed by the engineer, in accordance with item 429, "Concrete Structure Repair", at the contractor's expense.

Item 585, "Ride Quality for Pavement Surfaces"

Use pay adjustment schedule 3 for Ride Quality bonus/penalty calculation.

General Notes

Sheet G

CCSJ: 0360-04-033
County: Haskell
Highway: US 380

Item 658, "Delineator and Object Marker Assemblies"

Delineators and object marker assemblies will use winged channel posts. The winged channel posts will be 1.12 lb/ft and 6.5 ft in length.

All MBGF delineation shall be equivalent to Shure-tite GF2 (BRF) mounted on posts.

Use a minimum 2 inch long lag screws with washers to attach flexible GF2 barrier reflectors to wooden post. For steel posts, use an approved adhesive, or other method approved by Engineer.

Item 662, "Work Zone Pavement Markings"

Place work zone pavement markings (flexible tabs) prior to the seal coat operation.

Dispose of tabs and paper in an approved trash receptacle. (Reference Standard SW3P, waste material)

Item 666, "Retro reflectorized Pavement Markings"

All longitudinal pavement markings (including profile pavement markings) must meet minimum retro reflectivity requirements.

Establish a true and correct alignment with a method approved by the Engineer. This work will be considered subsidiary.

Contractor is responsible for re-establishing location and alignment for new pavement markings matching pavement marking alignment prior to construction activities. This work will be considered subsidiary.

Item 672, "Raised Pavement Markers"

Provide a complete system of raised pavement markers at locations indicated on the plans and as directed by the engineer. The plans are intended to show typical conditions, which can be extended to similar conditions throughout this project as approved or directed.

Bituminous adhesive shall be used on this project.

Item 3077, "Superpave Mixtures"

Furnish aggregate for final surfaces with a minimum surface aggregate classification of "B".

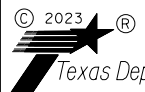
The Engineer reserves the right to test all sources even if the source is listed in the Bituminous Source Rated Quality Catalog.

Provide the testing lab samples to calibrate the ignition oven no later than five (5) working days prior to mix design verification.

Paving operations will not be allowed to begin until TxDOT has tested and obtained passing Hamburg results on the trial batch.

General Notes

Sheet H



GENERAL NOTES

SHEET 4 OF 5

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY		SHEET NO.
ABL	HASKELL		12

CCSJ: 0360-04-033
County: Haskell
Highway: US 380

A maximum of 0.50% anti-stripping agent will be allowed for each specified mix type.

Dilution of tack coat is not allowed.

Do not exceed a laydown width of 16' per pass.

Substitute Binders will not be allowed unless RAP is used in the production of the mixture.

RAP will not be allowed in surface mixes.
 A warm mix additive will be required for hotmix hauls over 50 miles.

Unless otherwise directed by the engineer, a warm mix additive will be required when paving during November 1st through March 15th.

The maximum allowable dust / asphalt ratio that will be allowed is 0.6 to 1.2.

The use of a tapered longitudinal joint will be required for pavement thicker than 2 inches.

Use a self-propelled, wheel-mounted material transfer vehicle (MTV) capable of receiving hot mix from the haul trucks separate from the paver on this project. Minimum requirements for the MTV are a storage capacity of approximately 25 tons, a pivoting discharge conveyor, and a means of completely remixing the ACP prior to placement.
 Provide PG 64-22 tack coat at a rate of 0.10 gal/sy.

The Contractor will be required to tack 100% of the surfaces with uniform coverage prior to the subsequent lift. The type and grade of tack will be approved by the Engineer prior to use.

Tack all vertical joints unless otherwise directed.

Cement and kiln dust will not be allowed to be used as mineral fillers.

Final surface of driveway shall not be placed prior to adjoining surface.

Item 6185, "Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)"

Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA) will not be considered a major item of work on this project.

TMA,s will only be paid while workers are present or to protect a blunt object.

The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs needed for the project. The Contractor must get approval from the Engineer for any changes in the number of TMA as shown in the plans.

General Notes

Sheet I

CCSJ: 0360-04-033
County: Haskell
Highway: US 380

If a TMA is used for both mobile and stationary traffic control on the same day, it will be paid for as stationary for that day.

BASIS OF ESTIMATE FOR STATIONARY TMAs				
		TMA (Stationary)		
Phase	Standard	Required	Additional	TOTAL
Phase 3 (Spot repair and overlay)	TCP (2-2)-18	1	-	1
Basis of Estimate for Mobile TMAs				
		TMA (Mobile)		
Phase	Standard	Required	Additional	TOTAL
Phase 4 (Rumble strips placement)	TCP (3-1)-13	2	-	2
(Placement of pavement markings)	TCP (3-3)-14	2	-	

General Notes

Sheet J

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CONTROLLING PROJECT ID 0360-04-033

DISTRICT Abilene
HIGHWAY US 380

COUNTY Haskell

Estimate & Quantity Sheet

CONTROL SECTION JOB				0360-04-033		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00195423			
COUNTY				Haskell			
HIGHWAY				US 380			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	134-6002	BACKFILL (TY B)	STA	757.700		757.700	
	351-6013	FLEXIBLE PAVEMENT STRUCTURE REPAIR(4")	SY	1,000.000		1,000.000	
	354-6037	PLANE CONC PAV(0" TO 2")	SY	1,666.000		1,666.000	
	400-6005	CEM STABIL BKFL	CY	22.000		22.000	
	400-6006	CUT & RESTORING PAV	SY	43.000		43.000	
	402-6001	TRENCH EXCAVATION PROTECTION	LF	48.000		48.000	
	432-6045	RIPRAP (MOW STRIP)(4 IN)	CY	261.000		261.000	
	450-6018	RAIL (TY T631)	LF	494.000		494.000	
	462-6006	CONC BOX CULV (5 FT X 2 FT)	LF	48.000		48.000	
	467-6172	SET (TY I)(S= 5 FT)(HW= 3 FT)(4:1) (C)	EA	2.000		2.000	
	496-6004	REMOV STR (SET)	EA	2.000		2.000	
	496-6007	REMOV STR (PIPE)	LF	161.000		161.000	
	500-6001	MOBILIZATION	LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	7.000		7.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	864.000		864.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	864.000		864.000	
	510-6003	ONE-WAY TRAF CONT (PORT TRAF SIG)	MO	1.000		1.000	
	512-6013	PORT CTB (DES SOURCE)(SGL SLP)(TY 1)	LF	1,200.000		1,200.000	
	512-6025	PORT CTB (MOVE)(SGL SLP)(TY 1)	LF	9,690.000		9,690.000	
	512-6037	PORT CTB (STKPL)(SGL SLP)(TY 1)	LF	1,200.000		1,200.000	
	533-6001	RUMBLE STRIPS (SHOULDER)	LF	151,534.000		151,534.000	
	533-6002	RUMBLE STRIPS (CENTERLINE)	LF	75,767.000		75,767.000	
	540-6001	MTL W-BEAM GD FEN (TIM POST)	LF	2,250.000		2,250.000	
	540-6033	MTL BM GD FEN (LONG SPAN SYSTEM)	EA	4.000		4.000	
	542-6001	REMOVE METAL BEAM GUARD FENCE	LF	2,875.000		2,875.000	
	544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA	36.000		36.000	
	544-6003	GUARDRAIL END TREATMENT (REMOVE)	EA	36.000		36.000	
	545-6003	CRASH CUSH ATTEN (MOVE & RESET)	EA	32.000		32.000	
	545-6005	CRASH CUSH ATTEN (REMOVE)	EA	4.000		4.000	
	545-6019	CRASH CUSH ATTEN (INSTL)(S)(N)(TL3)	EA	4.000		4.000	
	658-6047	INSTL OM ASSM (OM-2Y)(WC)GND	EA	52.000		52.000	
	658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	90.000		90.000	
	662-6050	WK ZN PAV MRK REMOV (REFL) TY II-A-A	EA	8,900.000		8,900.000	
	662-6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	99,200.000		99,200.000	
	662-6098	WK ZN PAV MRK REMOV (Y)6"(SLD)	LF	178,000.000		178,000.000	
	662-6110	WK ZN PAV MRK SHT TERM (TAB)TY Y	EA	5,684.000		5,684.000	
	666-6309	RE PM W/RET REQ TY I (W)6"(SLD)(100MIL)	LF	151,540.000		151,540.000	

US 380
ESTIMATE
&
QUANTITY

SHEET 1 OF 2

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST		COUNTY	
ABILENE		HASKELL	
			SHEET NO.
			14





CONTROLLING PROJECT ID 0360-04-033

DISTRICT Abilene
HIGHWAY US 380

COUNTY Haskell

Estimate & Quantity Sheet

CONTROL SECTION JOB				0360-04-033		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00195423			
COUNTY				Haskell			
HIGHWAY				US 380			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	666-6318	RE PM W/RET REQ TY I (Y)6"(BRK)(100MIL)	LF	16,760.000		16,760.000	
	666-6321	RE PM W/RET REQ TY I (Y)6"(SLD)(100MIL)	LF	50,710.000		50,710.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	1,501.000		1,501.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	40,650.000		40,650.000	
	3077-6023	SP MIXESSP-CSAC-B PG70-22	TON	37,811.000		37,811.000	
	3077-6075	TACK COAT	GAL	34,177.000		34,177.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2.000		2.000	
	6185-6002	TMA (STATIONARY)	DAY	30.000		30.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	20.000		20.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	



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Report Created On: Sep 15, 2023 11:32:58 AM

US 380 ESTIMATE & QUANTITY			
SHEET 2 OF 2			
CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY		SHEET NO.
ABILENE	HASKELL		15

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SUMMARY OF ROADWAY ITEMS													
LOCATION (PER PROJECT LAYOUT SHEETS)	BEGIN STATION	END STATION	LENGTH	WIDTH	134	351	354	432	540	540	544	① 3077	① 3077
					6002	6013	6037	6045	6001	6033	6001		
					BACKFILL (TY B)	FLEXIBLE PAVEMENT STRUCTURE REPAIR(4")	PLANE CONC PAV(0" TO 2")	RIPRAP (MOW STRIP)(4 IN)	MTL W-BEAM GD FEN (TIM POST)	MTL BM GD FEN (LONG SPAN SYSTEM)	GUARDRAIL END TREATMENT (INSTALL)	SP MIXES SP-C SAC-B PG70-22	TACK COAT
STA	STA	FT	FT	STA	SY	SY	CY	LF	EA	EA	EA	SY	SY
SHEET 1 OF 4	12+13	200+00	18787 *	40	187.9	250	666	31	275		4	83498	83498
SHEET 2 OF 4	200+00	392+00	19200 *	40	192.0	250		113	975	2	16	85333	85333
SHEET 3 OF 4	392+00	584+00	19200	40 **	192.0	250		117	1000	2	16	85622	85622
SHEET 4 OF 4	584+00	769+80	18580	42 **	185.8	250	1000					87317	87317
PROJECT TOTALS					757.7	1000	1666	261	2250	4	36	341770	341770

* LENGTH VARIES DUE TO PAVEMENT LEVEL-UP LIMITS
 ** WIDTH VARIES TOWARDS END OF PROJECT

SUMMARY OF REMOVAL ITEMS					
LOCATION (PER PROJECT LAYOUT SHEETS)	496	496	542	544	677
	6004	6007	6001	6003	6001
	REMOV STR (SET)	REMOV STR (PIPE)	REMOVE METAL BEAM GUARD FENCE	GUARDRAIL END TREATMENT (REMOVE)	ELIM EXT PAV MRK & MRKS (4")
EA	LF	LF	EA	LF	
SHEET 1 OF 4			375	4	4490
SHEET 2 OF 4			1225	16	17960
SHEET 3 OF 4	2	161	1275	16	18200
SHEET 4 OF 4					
PROJECT TOTALS	2	161	2875	36	40650

BASIS OF ESTIMATE					
ITEM	DESCRIPTION	RATE	AREA (SY)	QUANTITY	UNIT
3077 6023	SP MIXES SP-C SAC-B PG70-22	220 LB/SY	324437	35688	TON
3077 6023 ***	SP MIXES SP-C SAC-B PG70-22	245 LB/SY	17333	2123	TON
3077 6075	TACK COAT	0.1 GAL/SY	341770	34177	GAL


*** AREAS OF PAVEMENT LEVEL-UP AT THE FOLLOWING STATIONS:
 STA 90+00 TO STA 122+00 (EB&WB)
 STA 224+00 TO STA 232+00 (EB&WB)
 STA 339+50 TO STA 342+50 (EB&WB)

① SEE BASIS OF ESTIMATE FOR PAY ITEM QUANTITY.

SUMMARY OF DRAINAGE ITEMS						
LOCATION (PER PROJECT LAYOUT SHEETS)	400	400	400	402	462	467
	#	6005	6006	6001	6006	6172
	STRUCT EXCAV (BOX)	CEM STABIL BKFL	CUT & RESTORING PAV	TRENCH EXCAVATION PROTECTION	CONC BOX CULV (5 FT X 2 FT)	SET (TY 1)(S=5 FT)(HW=3 FT)(4:1) (C)
CY	CY	SY	LF	LF	EA	
SHEET 1 OF 4						
SHEET 2 OF 4						
SHEET 3 OF 4	67	22	43	48	48	2
SHEET 4 OF 4						
PROJECT TOTALS	67	22	43	48	48	2


FOR CONTRACTOR'S INFORMATION ONLY.

REV NO.	DATE	BY	REVISION



AIG Tech
Advanced Infrastructure Group

AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607



Texas Department of Transportation

US 380
QUANTITY SUMMARY

SHEET 1 OF 3			
CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY		SHEET NO.
ABILENE	HASKELL		16



SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS														
LOCATION	510 6003	512 6013	512 6025	512 6037	545 6003	545 6005	545 6019	662 6067	662 6098	662 6050	662 6110	6001 6002	6185 6002	6185 6005
	ONE-WAY TRAF CONT (PORT TRAF SIG)	PORT CTB (DES SOURCE)(SGL SLP)(TY 1)	PORT CTB (MOVE)(SGL SLP)(TY 1)	PORT CTB (STKPL)(SGL SLP)(TY 1)	CRASH CUSH ATTEN (MOVE & RESET)	CRASH CUSH ATTEN (REMOVE)	CRASH CUSH ATTEN (INSTL)(S)(N)(TL3)	WK ZN PAV MRK REMOV (W)6*(SLD)	WK ZN PAV MRK REMOV (Y)6*(SLD)	WK ZN PAV MRK REMOV (REFL) TY II-A-A	WK ZN PAV MRK SHT TERM (TAB)TY Y	PORTABLE CHANGEABLE MESSAGE SIGN	TMA (STATIONARY)	TMA (MOBILE OPERATION)
	MO	LF	LF	LF	EA	EA	EA	LF	LF	EA	EA	EA	DAY	DAY
	1	1200	9690	1200	32	4	4	99200	178000	8900	5684	2	30	20
PROJECT TOTALS	1	1200	9690	1200	32	4	4	99200	178000	8900	5684	2	30	20

SUMMARY OF BRIDGES												
CSJ	PROJECT LAYOUT SHEET	BRIDGE NBI #		DESIGN		BRIDGE LOCATION	STATION		LENGTH FT	CLEAR RDWY WIDTH FT	LOADING	450
		EXISTING	PROPOSED	EXISTING	PROPOSED		BEGIN	END				6018
												RAIL (TY T631)
0360-04-033	1	08-105-0-0360-04-022	N/A	CONCRETE MBC-BRIDGE	N/A	US 380 OVER DRAW	123+96	124+49	53	42	2-H 15	106
0360-04-033	2	08-105-0-0360-04-021	N/A	CONCRETE MBC-BRIDGE	N/A	US 380 OVER DRAW	215+65	215+92	27	42	2-H 15	54
0360-04-033	2	08-105-0-0360-04-020	N/A	CONCRETE MBC-BRIDGE	N/A	US 380 OVER DRAW	288+40	288+63	23	42	2-H 15	46
0360-04-033	2	08-105-0-0360-04-019	N/A	CONCRETE MBC-BRIDGE	N/A	US 380 OVER DRAW	340+76	341+10	34	42	2-H 15	68
0360-04-033	3	08-105-0-0360-04-018	N/A	CONCRETE MBC-BRIDGE	N/A	US 380 OVER SLOUGH	492+38	492+92	54	42	HS20	108
0360-04-033	3	08-105-0-0360-04-017	N/A	CONCRETE MBC-BRIDGE	N/A	US 380 OVER RED CREEK RELIEF	497+99	498+27	28	42	HS20	56
0360-04-033	3	08-105-0-0360-04-016	N/A	CONCRETE MBC-BRIDGE	N/A	US 380 OVER RED CREEK	510+53	510+81	28	42	HS20	56
PROJECT TOTAL												494

SUMMARY OF EROSION CONTROL ITEMS		
LOCATION (PER PROJECT LAYOUT SHEETS)	506 6041	506 6043
	BIODEG EROSN CONT LOGS (INSTL) (12")	BIODEG EROSN CONT LOGS (REMOVE)
	LF	LF
SHEET 1 OF 4	96	96
SHEET 2 OF 4	384	384
SHEET 3 OF 4	384	384
SHEET 4 OF 4		
PROJECT TOTALS	864	864

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AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

**Texas Department
of Transportation**

US 380
QUANTITY
SUMMARY


SHEET 2 OF 3

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY		SHEET NO.
ABILENE	HASKELL		17


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SUMMARY OF PAVEMENT MARKING ITEMS								
LOCATION	533 6001	533 6002	658 6047	658 6062	666 6309	666 6318	666 6321	672 6009
	RUMBLE STRIPS (SHOULDER)	RUMBLE STRIPS (CENTERLINE)	INSTL OM ASSM (OM-2Y)(WC)GND	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	RE PM W/RET REQ TY I (W)6*(SLD)(100MIL)	RE PM W/RET REQ TY I (Y)6*(BRK)(100MIL)	RE PM W/RET REQ TY I (Y)6*(SLD)(100MIL)	REFL PAV MRKR TY II-A-A
	LF	LF	EA	EA	LF	LF	LF	EA
SHEET 1 OF 32	3974	1987			3980	500		26
SHEET 2 OF 32	4800	2400			4800	600		31
SHEET 3 OF 32	4800	2400			4800	600		31
SHEET 4 OF 32	4800	2400			4800	600		31
SHEET 5 OF 32	4800	2400	2	10	4800	600		31
SHEET 6 OF 32	4800	2400	2		4800	600		31
SHEET 7 OF 32	4800	2400	2		4800	480	2240	53
SHEET 8 OF 32	4800	2400			4800	270	3750	61
SHEET 9 OF 32	4800	2400	2	10	4800	600	225	34
SHEET 10 OF 32	4800	2400	4		4800	600	285	35
SHEET 11 OF 32	4800	2400	2		4800	470	2935	61
SHEET 12 OF 32	4800	2400	4	10	4800	600	1070	44
SHEET 13 OF 32	4800	2400			4800	150	4880	70
SHEET 14 OF 32	4800	2400	2	10	4800	520	2065	53
SHEET 15 OF 32	4800	2400	2	10	4800	600	2030	56
SHEET 16 OF 32	4800	2400			4800	600	2400	61
SHEET 17 OF 32	4800	2400	2		4800	600	1800	53
SHEET 18 OF 32	4800	2400	6		4800	600	885	42
SHEET 19 OF 32	4800	2400	2		4800	540	1725	49
SHEET 20 OF 32	4800	2400	2		4800	300	3610	61
SHEET 21 OF 32	4800	2400	8	29	4800	600	545	38
SHEET 22 OF 32	4800	2400		1	4800	600	2400	61
SHEET 23 OF 32	4800	2400		2	4800	600	2000	56
SHEET 24 OF 32	4800	2400	4	8	4800	630	1375	49
SHEET 25 OF 32	4800	2400	4		4800	180	2910	46
SHEET 26 OF 32	4800	2400			4800	600	1680	52
SHEET 27 OF 32	4800	2400	2		4800	600	1495	50
SHEET 28 OF 32	4800	2400			4800	600	750	40
SHEET 29 OF 32	4800	2400			4800	600	1715	52
SHEET 30 OF 32	4800	2400			4800	560	2440	59
SHEET 31 OF 32	4800	2400			4800	600	930	43
SHEET 32 OF 32	3560	1780			3560	160	2570	41
PROJECT TOTALS	151534	75767	52	90	151540	16760	50710	1501

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**Texas Department
of Transportation**

US 380
**QUANTITY
SUMMARY**

SHEET 3 OF 3

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY		SHEET NO.
ABILENE	HASKELL		18

SEQUENCE OF WORK:

GENERAL

1. THE SEQUENCE OF WORK MAY BE MODIFIED AS APPROVED IN WRITING BY THE ENGINEER. ANY CHANGES IMPLEMENTED SHALL HAVE DETAILS THAT ARE SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER.
2. THE CONTRACTOR WILL ONLY BE ALLOWED TO PERFORM WORK ON ONE THE SIDE OF THE ROADWAY AT A TIME UNLESS OTHERWISE APPROVED BY THE ENGINEER.
3. TRAFFIC MUST BE HANDLED THROUGHOUT THE PROJECT DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A SAFE PASSAGE FOR VEHICULAR TRAFFIC WITH MINIMAL INCONVENIENCE TO THE PUBLIC AND MAINTAINING DRIVEWAY ACCESS AT ALL TIMES, AS SHOWN IN THE PLANS OR AS DIRECTED / APPROVED BY THE ENGINEER.
4. TRAFFIC RAIL INSTALLATION INCLUDES METAL BEAM GUARD FENCE (MBGF), T631, AND SINGLE GUARDRAIL TERMINAL (SGT) AS SHOWN IN TRAFFIC RAIL DETAILS SHEET.
5. LIMIT PHASE 2 WORK TO TWO TRAFFIC RAIL LOCATIONS AT A TIME, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
6. LIMIT PHASE 3 WORK TO A MAXIMUM OF 2.5 MILE SECTIONS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
7. PLACE ADVANCE WARNING SIGNS PER BC STANDARDS PRIOR TO BEGIN WORK.

PHASE 1- CULVERT REPLACEMENT WORK

- STEP 1. WESTBOUND (WB) - UTILIZE TEMPORARY TRAFFIC SIGNALS PER TRAFFIC CONTROL PLAN PHASE 1 SHEET AND TCP(2-8)-23 FOR ONE-LANE TWO-WAY OPERATION WITH POSITIVE BARRIER TWO FEET FROM EDGE OF TRAVEL LANE
- A. INSTALL EROSION CONTROL LOGS AS PER ENVIRONMENTAL LAYOUT SHEET AND STANDARD EC(9-16)
 - B. INSTALL POSITIVE BARRIERS WITH TEMPORARY TRAFFIC SIGNAL FOR ONE LANE TWO-WAY OPERATION ON EXISTING EB LANES
 - C. EXCAVATE AND REMOVE WB SAFETY END TREATMENT (SET) AND PARTIAL EXISTING 24" CULVERTS
 - D. PLACE PROPOSED WB PRECAST BOX USING OPEN-CUT METHOD
 - E. BACKFILL AND RESTORE EXISTING PAVEMENT, MAINTAINING POSITIVE DRAINAGE ACROSS EXISTING AND PROPOSED DRAINAGE STRUCTURES
 - F. INSTALL PROPOSED SET
 - G. REMOVE TEMPORARY TRAFFIC CONTROL AND PLACE WORK ZONE PAVEMENT MARKINGS
- STEP 2. EASTBOUND (EB) - UTILIZE TEMPORARY TRAFFIC SIGNALS PER TRAFFIC CONTROL PLAN PHASE 1 SHEET AND TCP(2-8)-23 FOR ONE LANE TWO-WAY OPERATION WITH POSITIVE BARRIER TWO FEET FROM EDGE OF TRAVEL LANE
- A. INSTALL EROSION CONTROL LOGS PER ENVIRONMENTAL LAYOUT AND STANDARD EC(9-16)
 - B. INSTALL POSITIVE BARRIERS WITH TEMPORARY TRAFFIC SIGNAL FOR ONE LANE TWO-WAY OPERATION ON EXISTING WB LANES
 - C. EXCAVATE AND REMOVE EXISTING EB SET AND REMAINDER EXISTING 24" CULVERTS
 - D. PLACE PROPOSED EB PRECAST BOX USING OPEN-CUT METHOD
 - E. BACKFILL AND RESTORE EXISTING PAVEMENT
 - F. INSTALL PROPOSED SET
 - G. REMOVE TEMPORARY TRAFFIC CONTROL AND PLACE WORK ZONE PAVEMENT MARKINGS

PHASE 2- T631 RAIL MBGF AND MOW STRIPS

- STEP 1. WESTBOUND - UTILIZE TCP(2-3)-23 FOR SHOULDER CLOSURE
- A. INSTALL PCTB AND CRASH CUSHION ATTENUATOR AS SHOWN IN TRAFFIC CONTROL PLAN PHASE 2 SHEET
 - B. REMOVE EXISTING METAL BEAM GUARD FENCE
 - C. INSTALL PROPOSED TRAFFIC RAIL (T631, MBGF, AS APPLICABLE)
 - D. PLACE MOW STRIP
 - E. REMOVE TEMPORARY TRAFFIC CONTROL AND PLACE WORK ZONE PAVEMENT MARKINGS
- STEP 2. EASTBOUND - UTILIZE TCP(2-3)-23 FOR SHOULDER CLOSURE
- A. INSTALL PCTB AND CRASH CUSHION ATTENUATOR AS SHOWN IN TRAFFIC CONTROL PLAN PHASE 2 SHEET
 - B. REMOVE EXISTING METAL BEAM GUARD FENCE
 - C. INSTALL PROPOSED TRAFFIC RAIL (T631, MBGF, AS APPLICABLE)
 - D. PLACE MOW STRIP
 - E. REMOVE TEMPORARY TRAFFIC CONTROL AND PLACE WORK ZONE PAVEMENT MARKINGS




PHASE 3- SPOT REPAIR AND OVERLAY

- STEP 1. WESTBOUND - UTILIZE TCP(2-2b)-18 FOR DAYTIME LANE CLOSURES (ONE LANE TWO-WAY OPERATION) AND OPEN AT NIGHT (TWO-LANE TWO-WAY OPERATION)
- A. PERFORM SPOT REPAIRS
 - B. PLACE SURFACE COURSE ON WB LANE AND SHOULDER
 - C. BACKFILL (TY B) PAVEMENT EDGES AND PLACE EMULSION
- STEP 2. EASTBOUND - UTILIZE TCP(2-2b)-18 FOR DAYTIME LANE CLOSURES (ONE LANE TWO-WAY OPERATION) AND OPEN AT NIGHT (TWO-LANE TWO-WAY OPERATION)
- A. PERFORM SPOT REPAIRS
 - B. PLACE SURFACE COURSE ON EB LANE AND SHOULDER
 - C. BACKFILL (TY B) PAVEMENT EDGES AND PLACE EMULSION

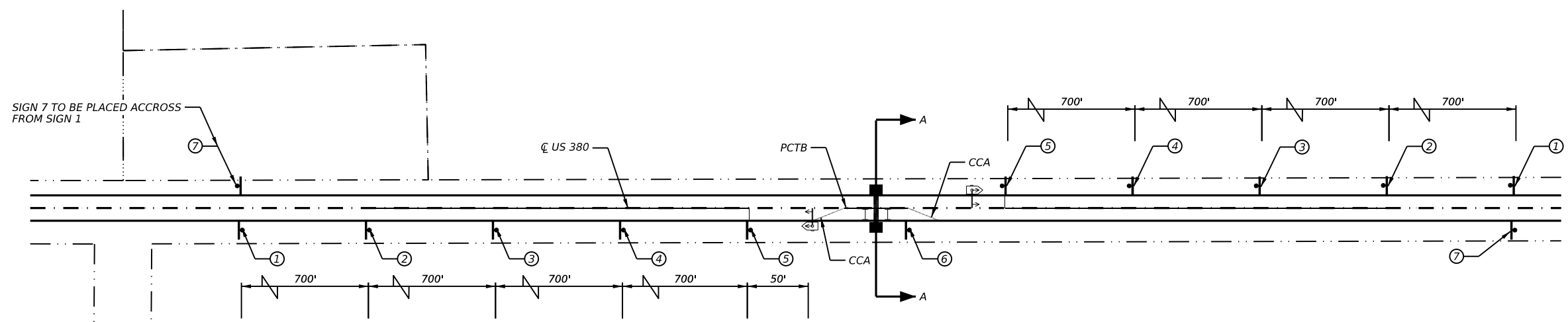
PHASE 4- PAVEMENT MARKINGS AND RUMBLE STRIPS

1. PLACE FINAL RUMBLE STRIPS UTILIZING TCP(3-1)-13
2. PLACE FINAL PAVEMENT MARKINGS UTILIZING TCP(3-3)-14
3. COMPLETE FINAL CLEAN UP AND PUNCHLIST

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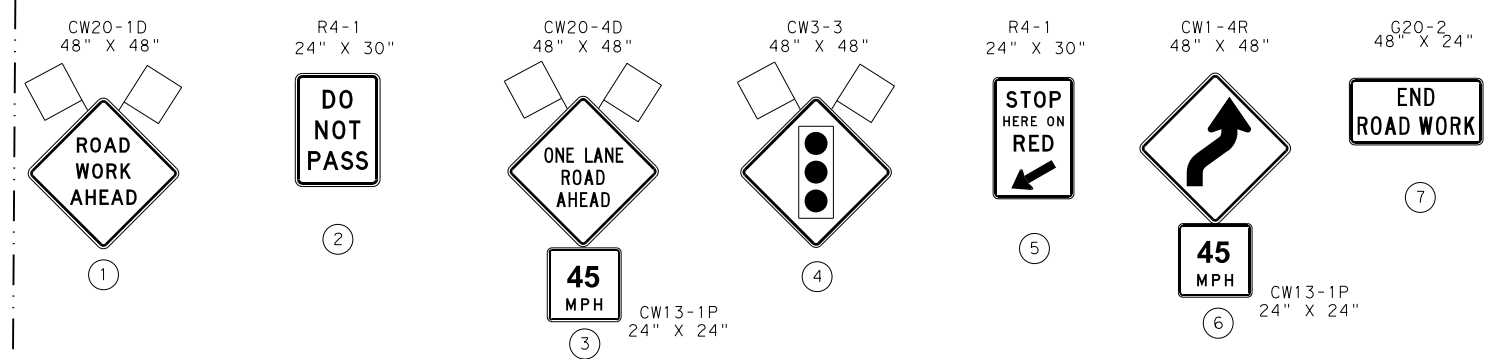
REV NO.	DATE	BY	REVISION				
 9/8/2023							
				AIG TECHNICAL SERVICES, LLC 1500 S. DAIRY ASHFORD SUITE 445 HOUSTON, TX 77077 TBPE FIRM NO. F-20607			
				Texas Department of Transportation			
US 380 SEQUENCE OF WORK							
SHEET 1 OF 1							
CONT	SECT	JOB	HIGHWAY				
0360	04	033	US 380				
DIST	COUNTY		SHEET NO.				
ABILENE	HASKELL		19				

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LEGEND

- SIGNS
- PORTABLE TRAFFIC SIGNAL
- TY III BARRICADE



NOTE:
SEE TCP (2-8)-23 FOR ADDITIONAL INFORMATION.

REV NO.	DATE	BY	REVISION



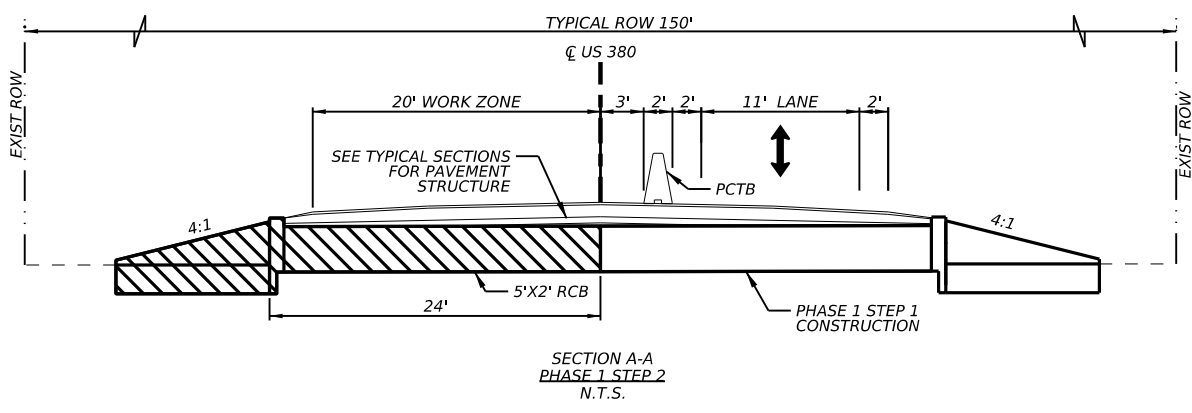
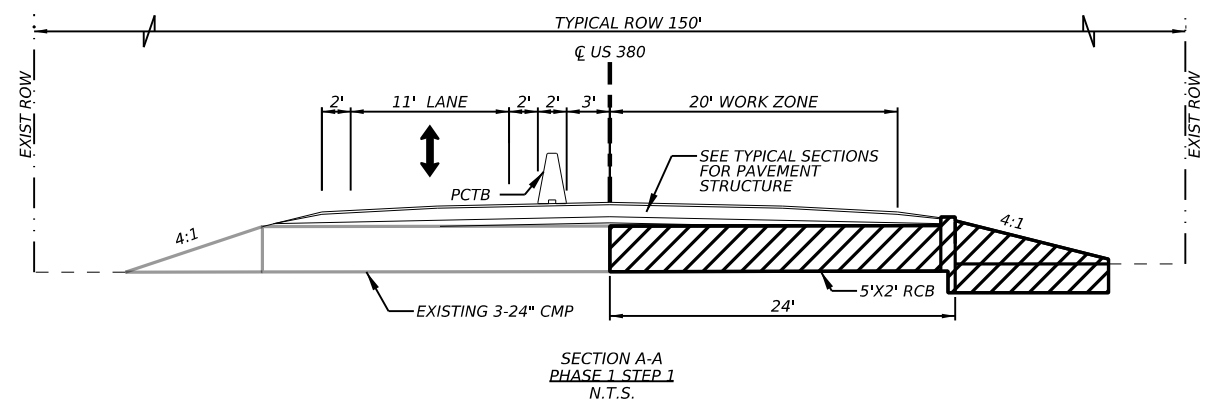
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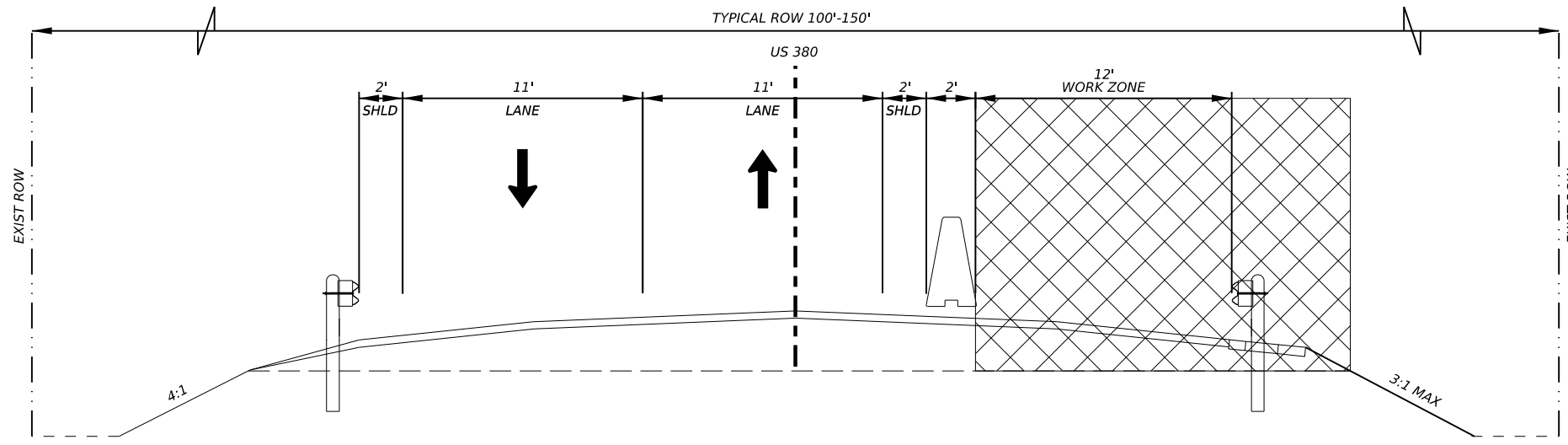
US 380
**TRAFFIC CONTROL PLAN
 PHASE 1**

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	20	

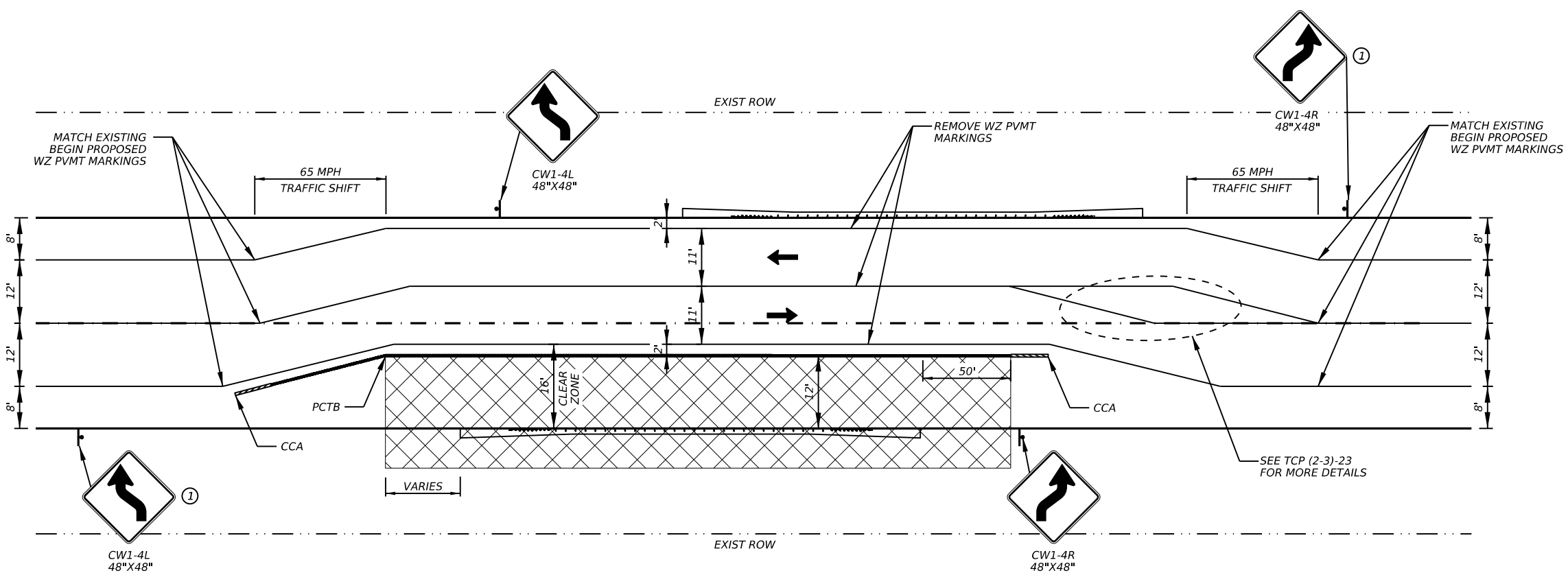


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- LEGEND**
- CONSTRUCTION THIS SEGMENT/STEP
 - DIRECTION OF TRAFFIC
 - SIGNS
 - PCTB
 - CCA
 - SEE TCP (2-3)-23 STANDARD FOR ADDITIONAL INFORMATION

- NOTES:**
1. CHANNELIZING DEVICES SHALL REMAIN IN PLACE UNTIL EDGE LINE STRIPE IS IN PLACE.
 2. SPACING OF CHANNELIZING DEVICES SHALL BE IN ACCORDANCE WITH CURRENT BC/TCP STANDARDS.
 3. CONTRACTOR SHALL COMPLETE THE TRAFFIC CONTROL PLAN AS SHOWN. ANY MODIFICATIONS TO THE LOCATIONS AND LENGTHS OF THE TRAFFIC SHIFTS SHALL BE APPROVED BY THE ENGINEER.
 4. REFER TO BC STANDARDS FOR ADVANCE WARNING SIGNS.



REV. NO.	DATE	BY	REVISION

9/8/2023

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TBPE FIRM NO. F-20607

Texas Department of Transportation

US 380

**TRAFFIC CONTROL PLAN
PHASE 2**

SHEET 1 OF 1

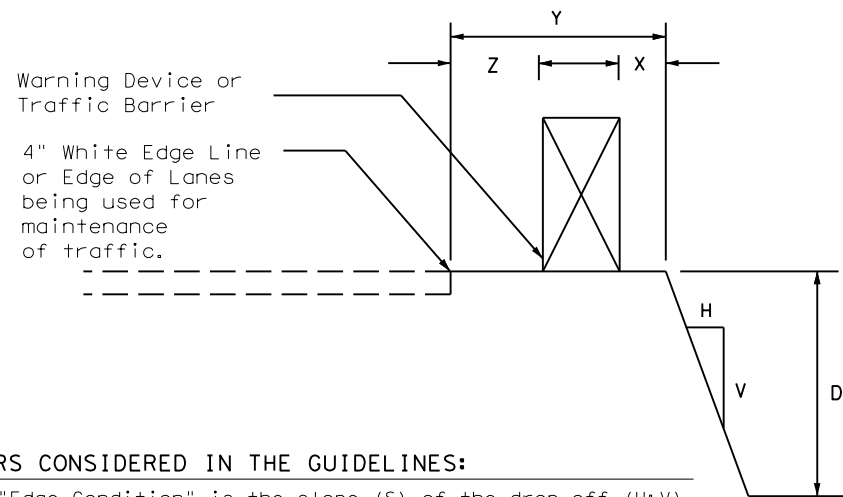
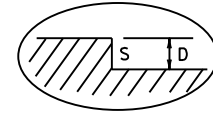
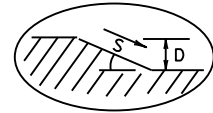
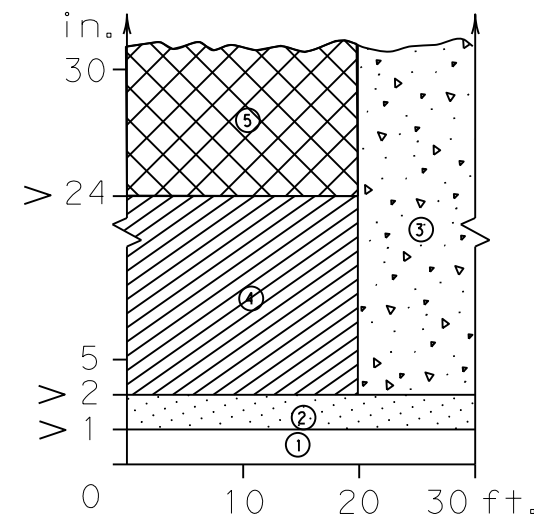
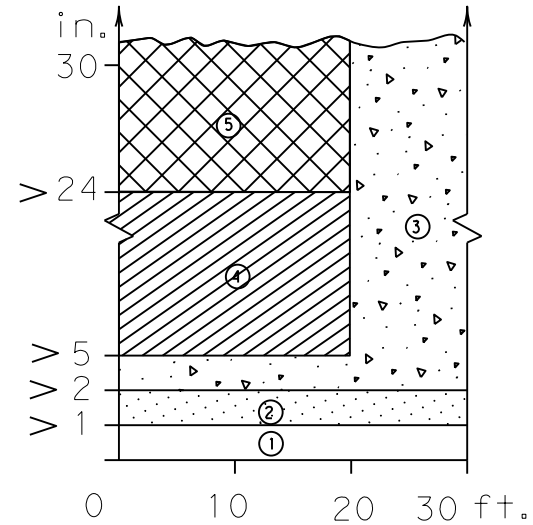
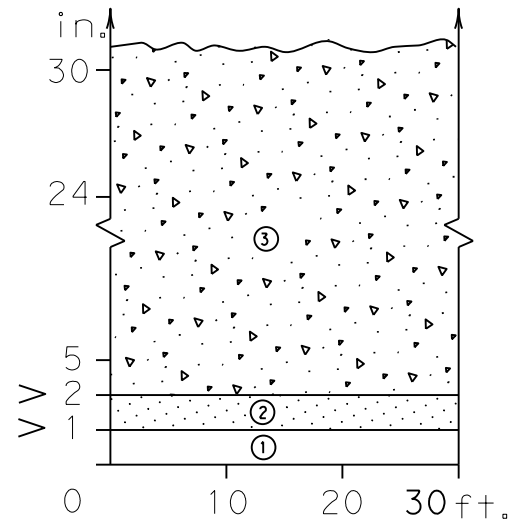
CONT 0360	SECT 04	JOB 033	HIGHWAY US 380
DIST ABILENE		COUNTY HASKELL	
			SHEET NO. 21

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DEFINITION OF TREATMENT ZONES FOR VARIOUS EDGE CONDITIONS

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



FACTORS CONSIDERED IN THE GUIDELINES:

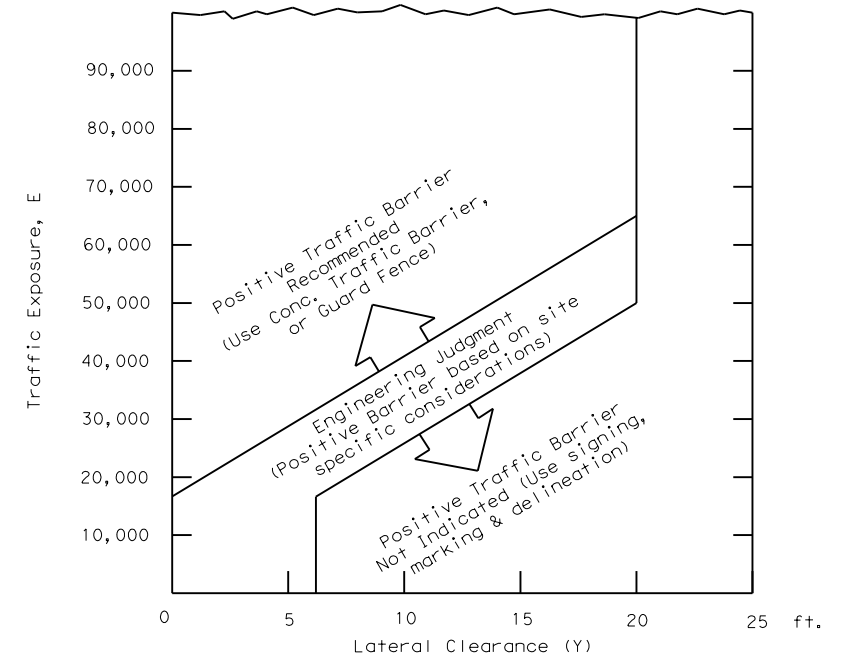
- The "Edge Condition" is the slope (S) of the drop-off (H:V). The "Edge Height" is the depth of the drop-off "D".
- Distance "X" is to be the maximum practical under job conditions. Two feet minimum for high speed conditions. Distance "Y" is the lateral clearance from edge of travel lane to edge of 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.

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	CW8-9a or CW 8-11, signs plus drums. Where restricted space precludes the use of drums, use vertical panels. An edge slope to that of the profered Edge Condition I.
⑤	Check indications (Figure-1) for possitive 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:

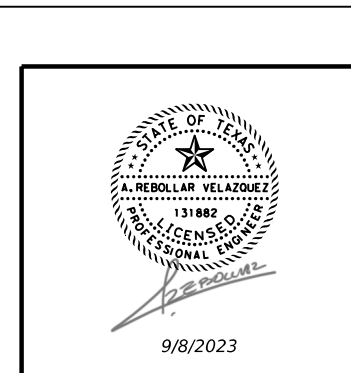
- Edge Condition I: Most vehicles are able to traverse an edge condition with a slope rate of (3 to 1) or flatter. The slope must be constructed with a compacted material capable of supporting vehicles.
- Edge Condition II: Most vehicles are able to traverse an edge condition with a slope between (2.99 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])



- $E = ADT \times T$
 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 the clear zone.

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.



TREATMENT FOR VARIOUS EDGE CONDITIONS

FILE: edgecon.dgn	DN:	CK:	DW:	CK:
© TxDOT August 2000	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
03-01	DIST	COUNTY	SHEET NO.	
08-01	ABL	HASKELL	22	
9-21				

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LOC NO.	TCP PHASE	PLAN SHEET NUMBER	LOCATION	STA	TEST LEVEL	DIRECTION OF TRAFFIC (UNI/BI)	FOUNDATION PAD		BACKUP SUPPORT			AVAILABLE SITE LENGTH	CRASH CUSHION																					
							PROPOSED MATERIAL	PROPOSED THICKNESS	DESCRIPTION	WIDTH	HEIGHT		INSTALL	REMOVE	MOVE / RESET		L	L	R	R	S	S												
															MOVE / RESET	FROM LOC. #	N	W	N	W	N	W												
1	1-1	3 OF 4	US 380	414+09.65	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'	X										X											
2	1-1	3 OF 4	US 380	416+79.65	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'	X										X											
3	1-2	3 OF 4	US 380	418+89.65	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	1							X											
4	1-2	3 OF 4	US 380	416+19.65	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	2							X											
5	2-1	1 OF 4	US 380	119+85.53	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	3							X											
6	2-1	1 OF 4	US 380	125+50.00	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	4							X											
7	2-1	2 OF 4	US 380	213+40.00	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'	X										X											
8	2-1	2 OF 4	US 380	217+00.00	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'	X										X											
9	2-1	2 OF 4	US 380	286+65.00	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	5							X											
10	2-1	2 OF 4	US 380	289+65.00	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	6							X											
11	2-1	2 OF 4	US 380	336+49.35	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	7							X											
12	2-1	2 OF 4	US 380	342+49.35	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	8							X											
13	2-1	2 OF 4	US 380	361+37.24	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	9							X											
14	2-1	2 OF 4	US 380	366+77.24	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	10							X											
15	2-1	3 OF 4	US 380	488+28.28	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	11							X											
16	2-1	3 OF 4	US 380	499+68.28	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	12							X											
17	2-1	3 OF 4	US 380	506+22.07	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	13							X											
18	2-1	3 OF 4	US 380	512+22.07	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	14							X											
19	2-1	3 OF 4	US 380	556+58.99	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	15							X											
20	2-1	3 OF 4	US 380	561+98.99	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	16							X											
21	2-2	1 OF 4	US 380	122+58.01	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	17							X											
22	2-2	1 OF 4	US 380	128+28.01	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	18							X											
23	2-2	2 OF 4	US 380	214+21.56	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	19							X											
24	2-2	2 OF 4	US 380	219+91.56	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	20							X											
25	2-2	2 OF 4	US 380	286+95.33	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	21							X											
26	2-2	2 OF 4	US 380	292+65.33	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	22							X											
27	2-2	2 OF 4	US 380	339+36.12	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	23							X											
28	2-2	2 OF 4	US 380	345+06.12	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	24							X											
29	2-2	2 OF 4	US 380	364+09.93	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	25							X											
30	2-2	2 OF 4	US 380	369+49.93	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	26							X											
31	2-2	3 OF 4	US 380	490+92.24	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	27							X											
32	2-2	3 OF 4	US 380	502+32.94	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'			X	28							X											
33	2-2	3 OF 4	US 380	509+09.24	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'		X	X	29							X											
34	2-2	3 OF 4	US 380	515+09.24	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'		X	X	30							X											
35	2-2	3 OF 4	US 380	559+27.11	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'		X	X	31							X											
36	2-2	3 OF 4	US 380	564+67.11	TL-3	BI	HMAC		PTCB	24"	32" MIN	35'		X	X	32							X											
TOTALS												4	4	32																				

LEGEND:
 L=LOW MAINTENANCE
 R=REUSABLE
 S=SACRIFICIAL
 N=NARROW
 W=WIDE

FOR DEFINITIONS SEE THE "CRASH CUSHION CATEGORIZATION CHART.PDF" AT THE DESIGN DIVISION (ROADWAY STANDARDS) WEBSITE. USE QUICK LINKS TO ACCESS ATTENUATORS / CRASH CUSHIONS SECTION.
<http://www.dot.state.tx.us/insdtdot/orgchart/cmd/cserve/standard/rdwylse.htm>

CRASH CUSHION SUMMARY SHEET

FILE: CCSS.dgn	DN: TxDOT	CK:	CK:
© TxDOT	CONT	SECT	JOB
REVISIONS	0360	04	033
	DIST	COUNTY	
	ABL	HASKEL	
	FEDERAL AID PROJECT		
	SEE TITLE SHEET		
	SHEET NO.		
	23		

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

- 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).
- The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Traffic control devices should be in place only while work is actually in progress or a definite need exists.
- The Engineer has the final decision on the location of all traffic control devices.
- 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:


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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

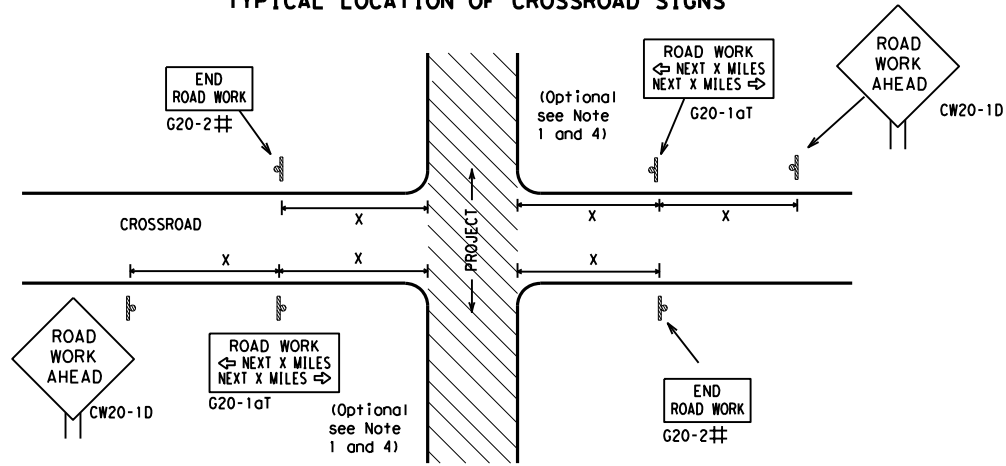
THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS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

SHEET 1 OF 12

 Texas Department of Transportation		Traffic Safety Division Standard	
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS			
BC (1) -21			
FILE:	bc-21.dgn	DN:	TxDOT
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REVISIONS	CONT	SECT	JOB
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9-07 8-14			US 380
5-10 5-21	DIST	COUNTY	SHEET NO.
	ABL	HASKELL	24

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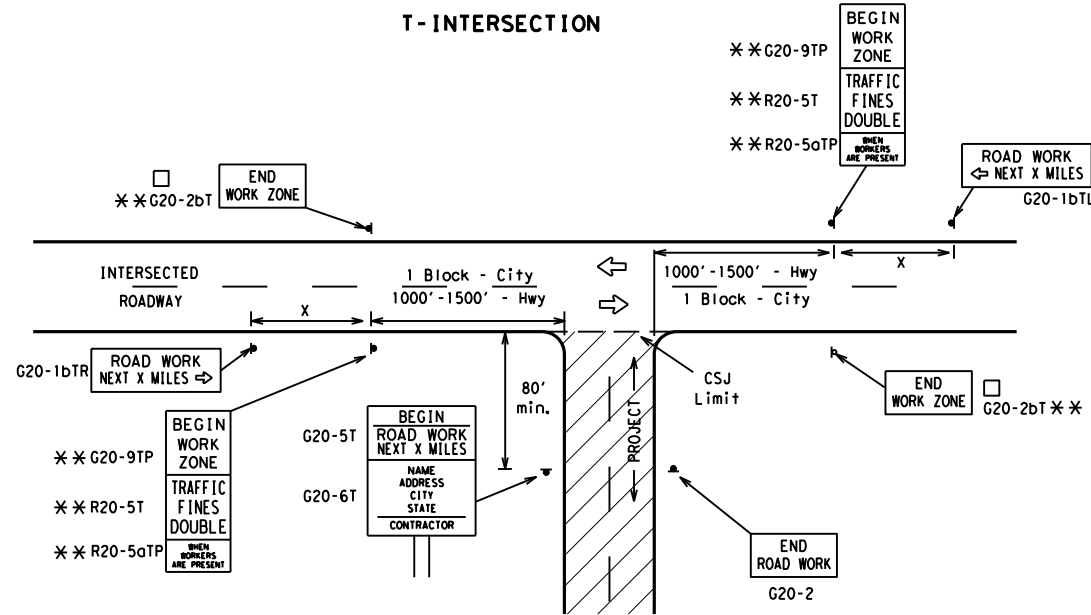
TYPICAL LOCATION OF CROSSROAD SIGNS



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

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D) sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK" (G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume as per TMUTCD Part 5. This information shall be shown in the plans.
3. Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
4. The "ROAD WORK NEXT X MILES" (G20-1aT) sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
5. Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
6. When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
2. If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME" (G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow (G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR) signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING^{1,5,6}

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			50	400
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"	55	500 ²
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"	60	600 ²
			65	700 ²
			70	800 ²
			75	900 ²
			80	1000 ²
			*	* ³

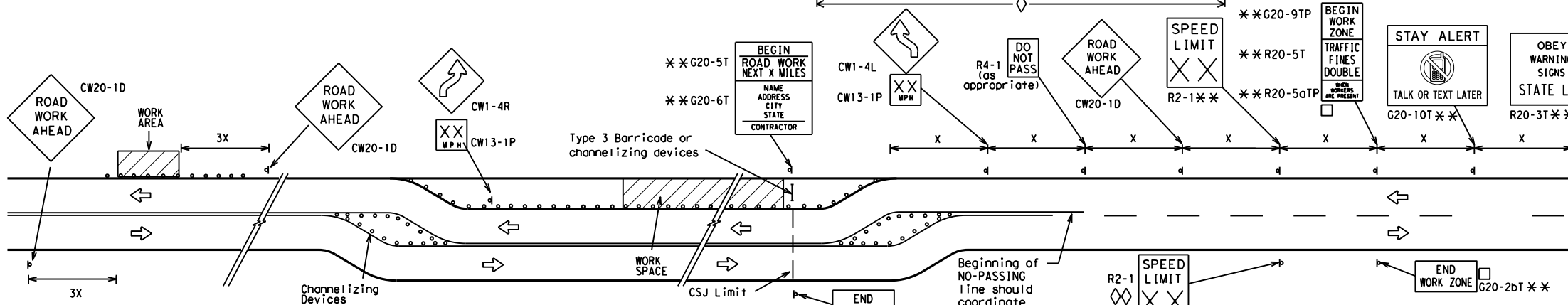
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

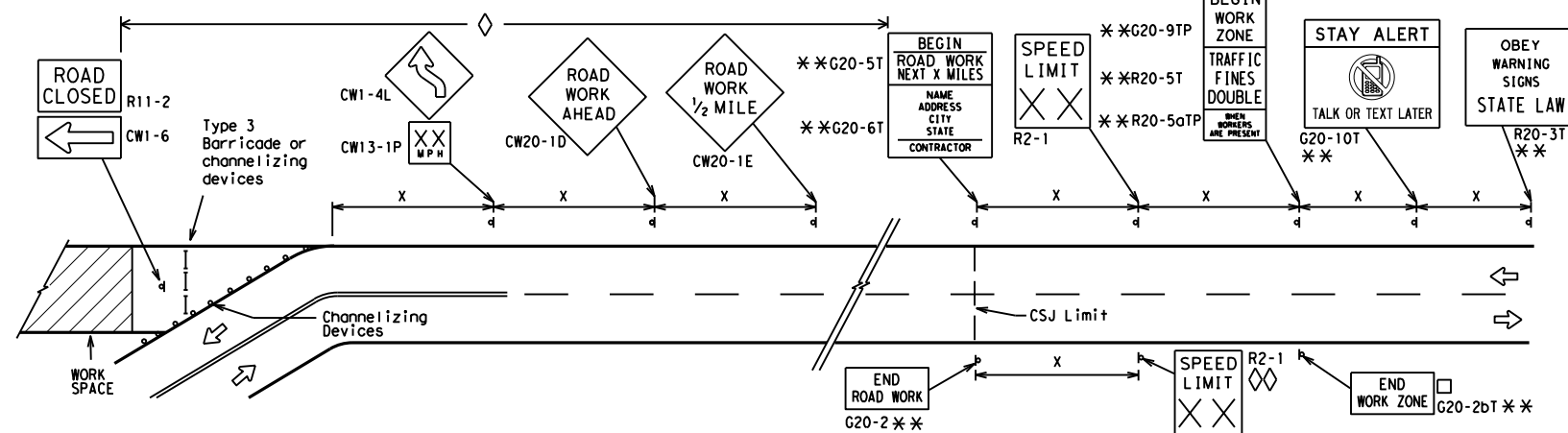
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING 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

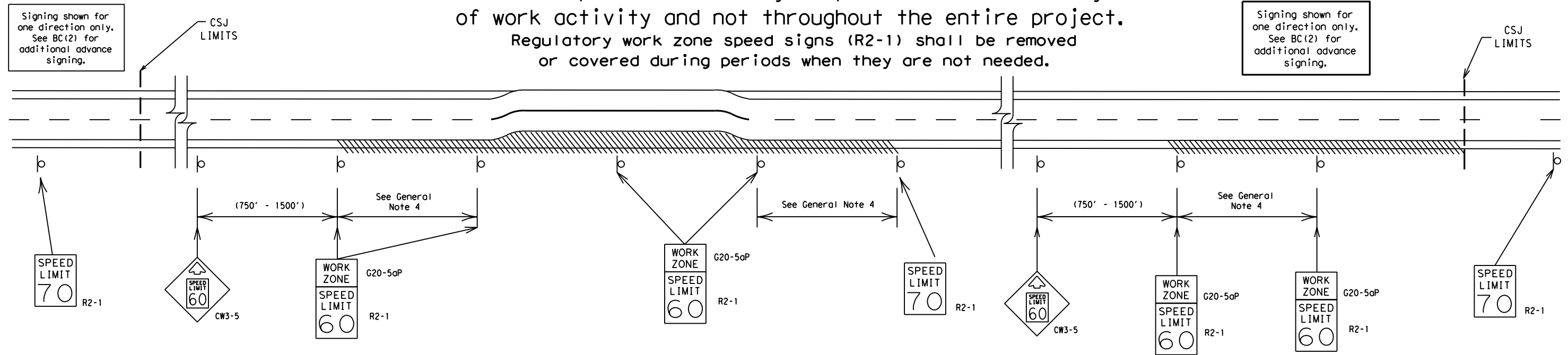
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
9-07 8-14	DIST	COUNTY	SHEET NO.	
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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.

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SHEET 3 OF 12



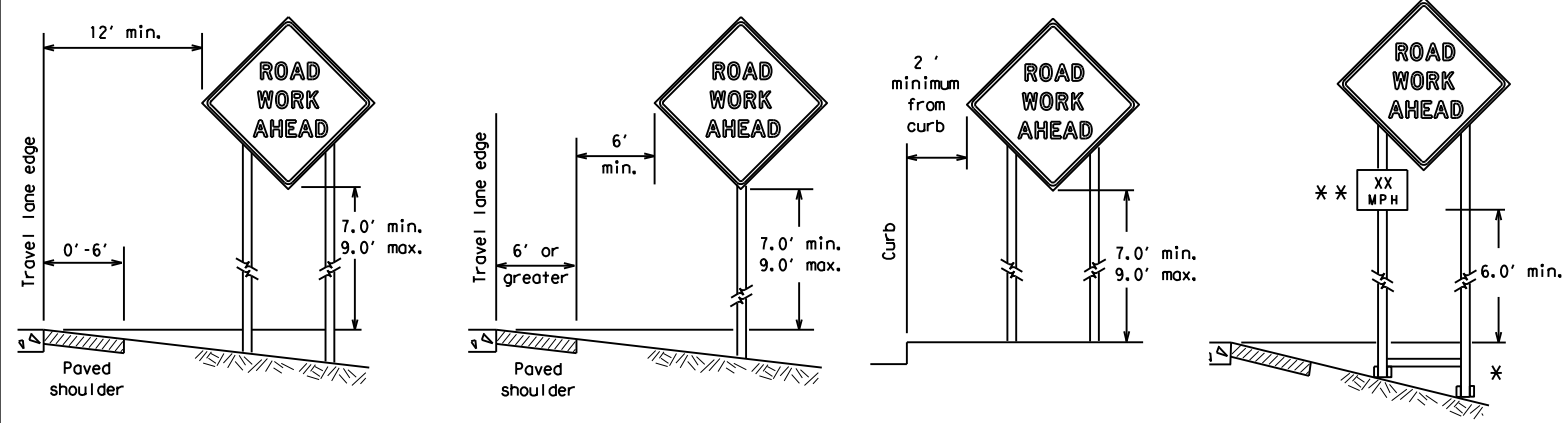
BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC (3) -21

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7-13	5-21	DIST	COUNTY		SHEET NO.				
		ABL	HASKELL		26				

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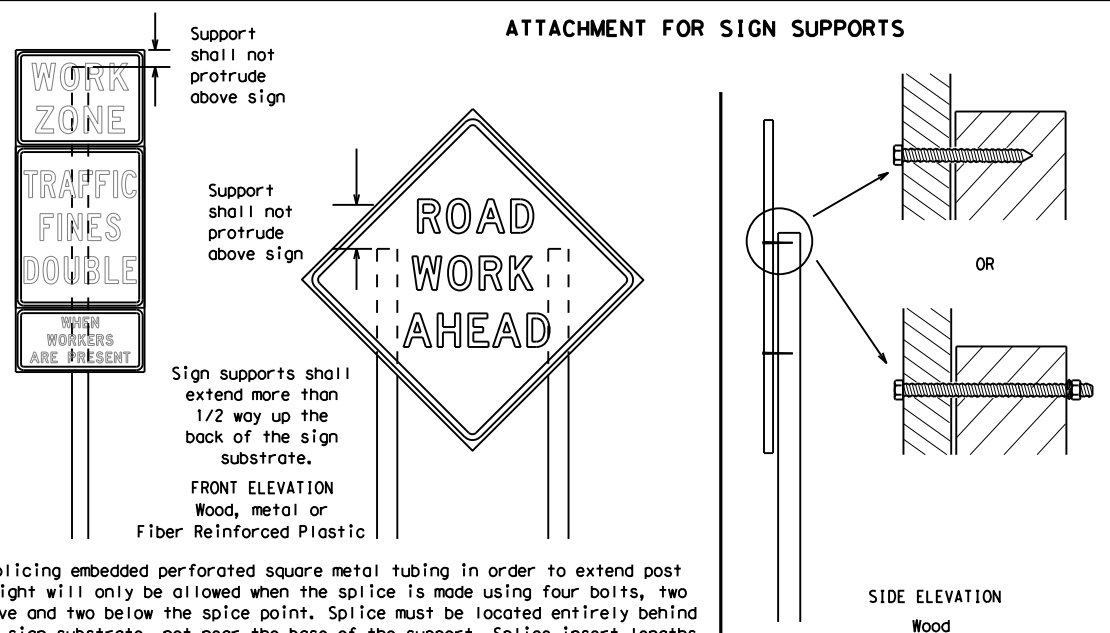
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



* 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

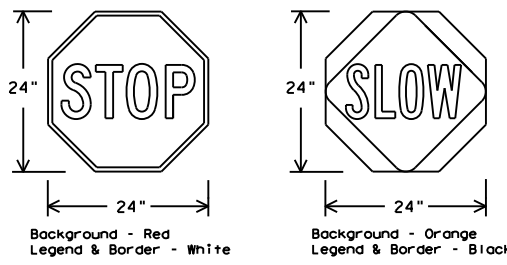
- Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
- The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
- Rock, concrete, iron, steel or other solid objects shall not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

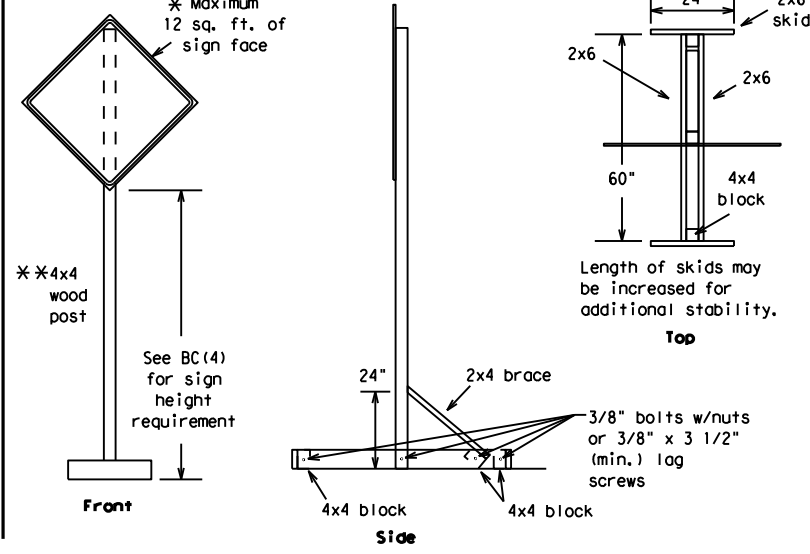
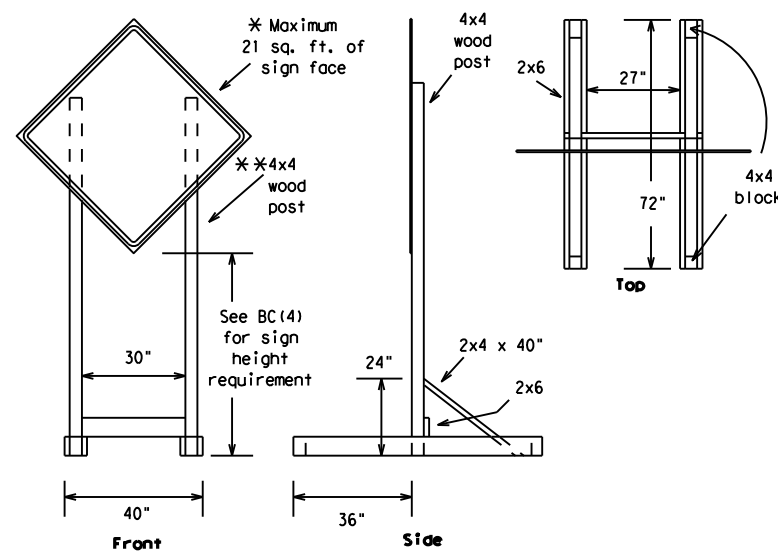


BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC (4) - 21

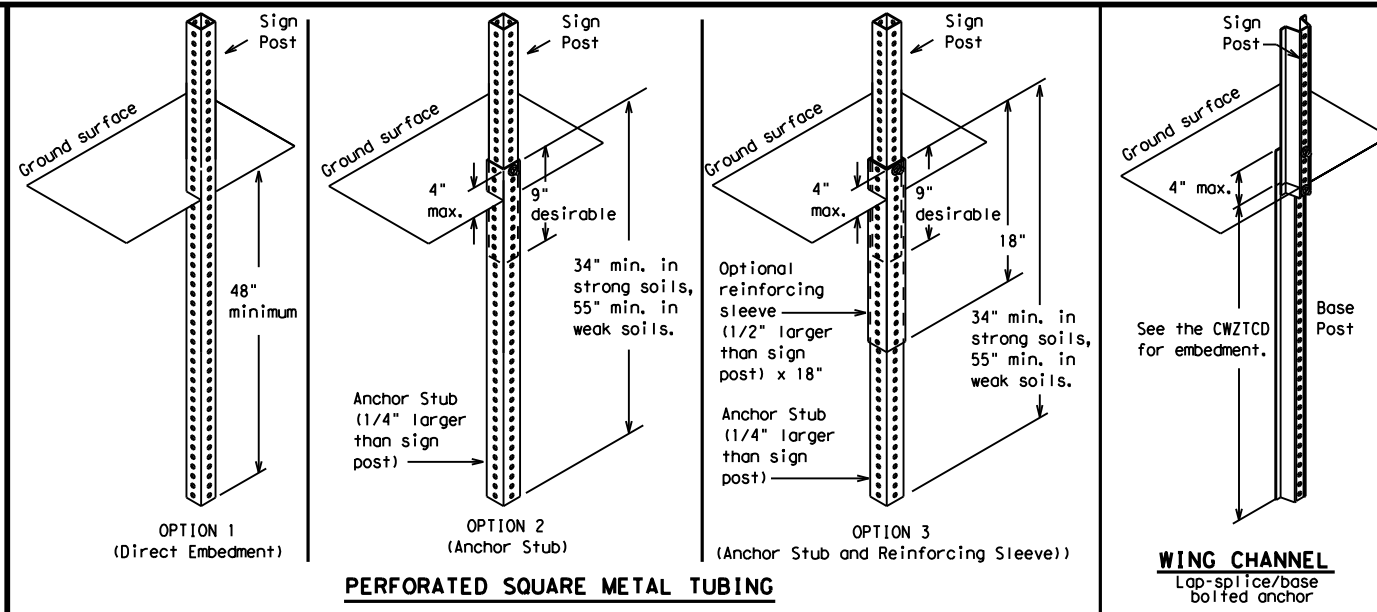
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© TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY				
REVISIONS		0360	04	033	US 380				
9-07	8-14	DIST	COUNTY		SHEET NO.				
7-13	5-21	ABL	HASKELL		27				

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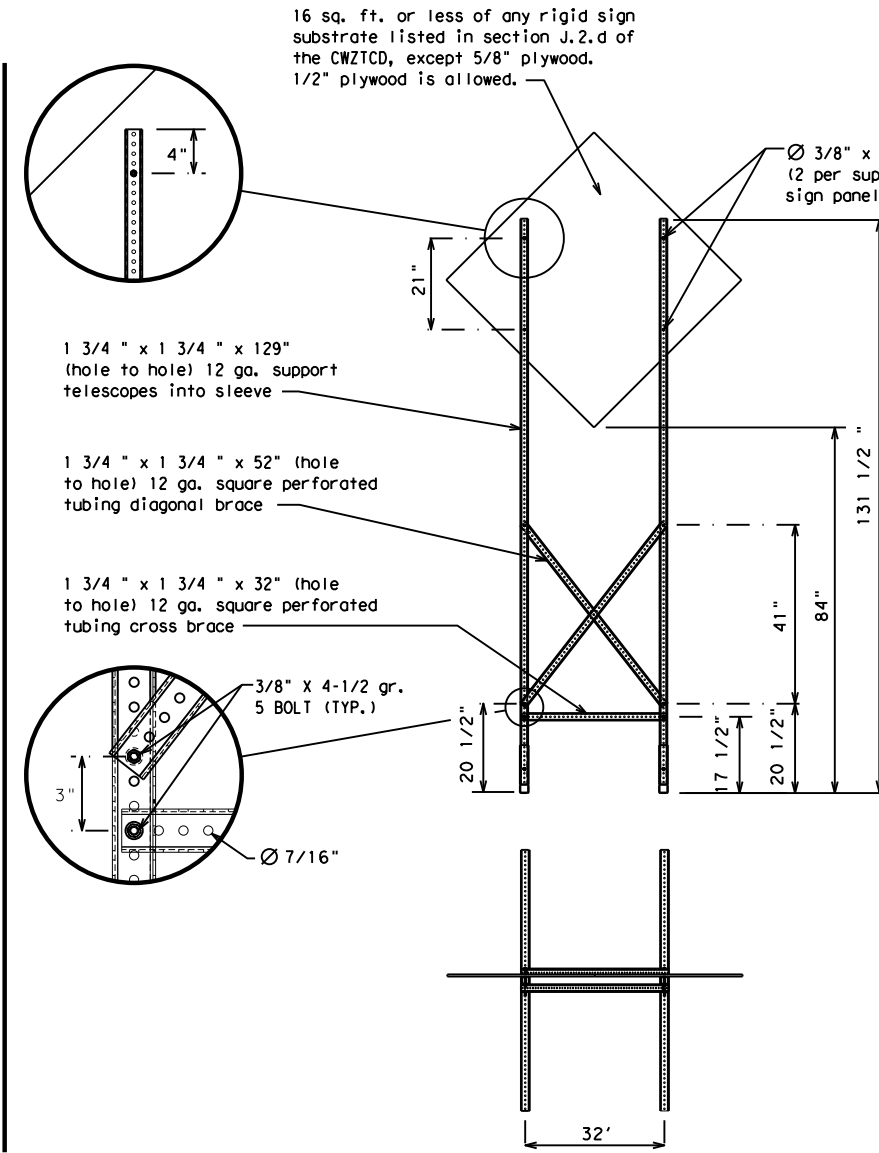
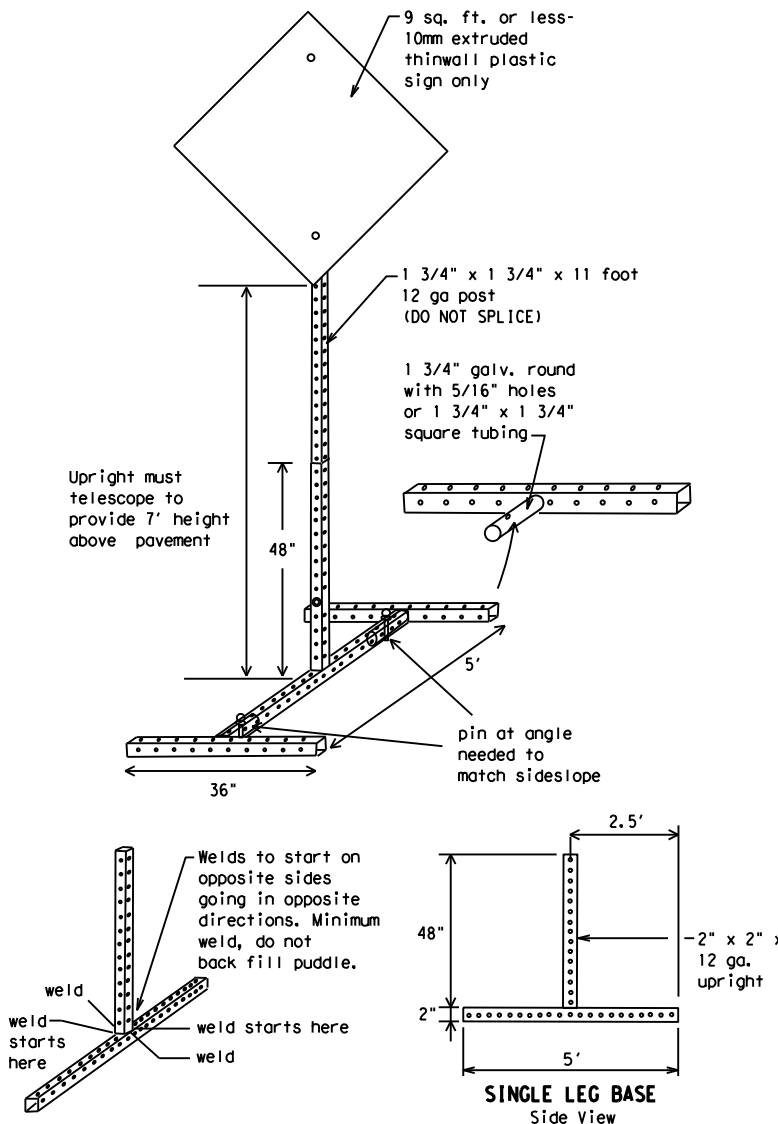
SKID MOUNTED WOOD SIGN SUPPORTS

* 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

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

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

SHEET 5 OF 12



BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5) - 21

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9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	ABL	HASKELL	28	

DATE: FILE:

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

PORTABLE CHANGEABLE MESSAGE SIGNS

- The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
- Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
- Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
- Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
- Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
- When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
- The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
- The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
- Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
- Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
- Do not use the word "Danger" in message.
- Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
- Do not display messages that scroll horizontally or vertically across the face of the sign.
- The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
- PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
- Each line of text should be centered on the message board rather than left or right justified.
- If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE
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
XXXXXXXX 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 *

FORM X LINES RIGHT
USE XXXXX RD EXIT
USE EXIT I-XX NORTH
USE I-XX E TO I-XX N
WATCH FOR TRUCKS
EXPECT DELAYS
PREPARE TO STOP
END SHOULDER USE
WATCH FOR WORKERS

Location List

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

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DATE: FILE:

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

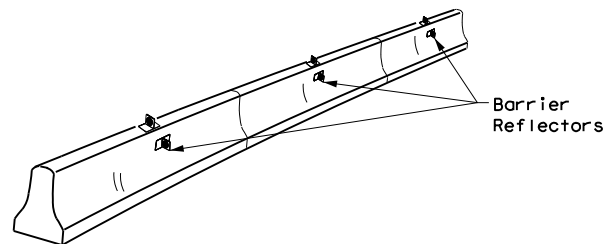
Roadway designation # IH-number, US-number, SH-number, FM-number

SHEET 6 OF 12

<h2>BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)</h2>			
<h3>BC (6) - 21</h3>			
FILE: bc-21.dgn	DN: TxDOT	CR: TxDOT	DW: TxDOT
© TxDOT November 2002	CONT: 0360	SECT: 04	JOB: 033
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9-07 8-14	DIST: 0360	COUNTY: HASKELL	SHEET NO. 29
7-13 5-21	ABL		

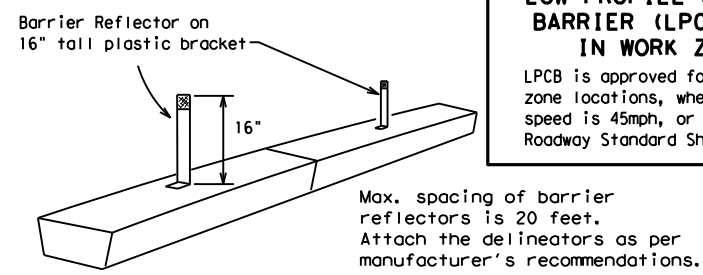
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors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



CONCRETE TRAFFIC BARRIER (CTB)

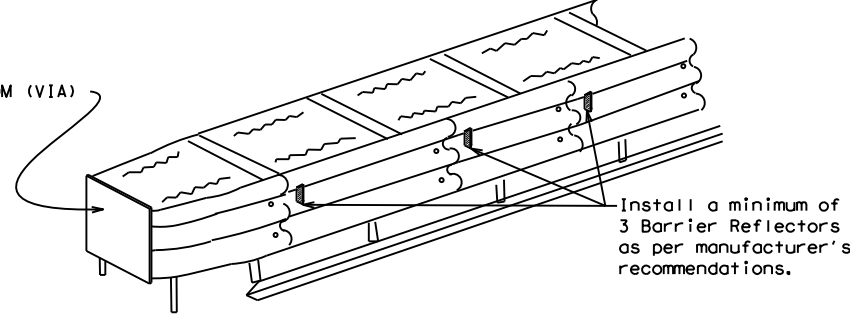
- Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector.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



LOW PROFILE CONCRETE BARRIER (LPCB) 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.

LOW PROFILE CONCRETE BARRIER (LPCB)



DELINEATION OF END TREATMENTS

END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

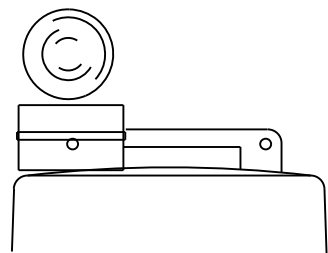
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

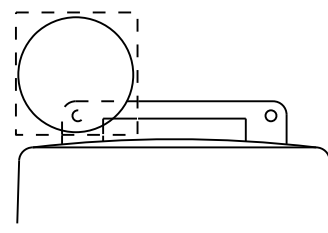
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing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

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

- A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
- The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
- The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
- Round reflectors shall be fully reflectorized, including the area where attached to the drum.
- Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
- The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
- When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
- The warning reflector should be mounted on the side of the handle nearest approaching traffic.
- The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.



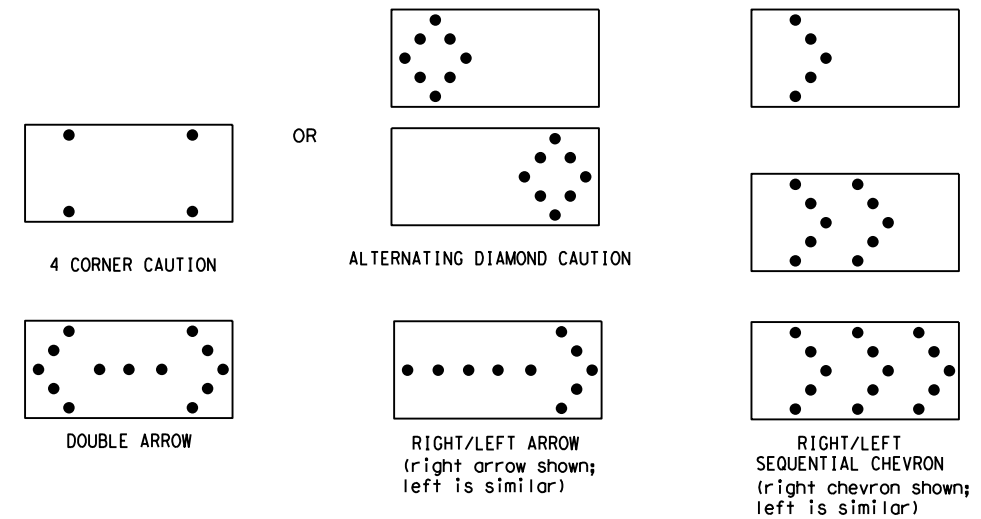
Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



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

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

- The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
- Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
- The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
- The Flashing Arrow Board should be able to display the following symbols:



- The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
- Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
- The sequential arrow display is NOT ALLOWED.
- The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
- The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
- A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
- A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
- Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

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

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

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

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

- Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
- Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
- Refer to the CWZTCD for a list of approved TMAs.
- TMAs are required on freeways unless otherwise noted in the plans.
- A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
- The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.



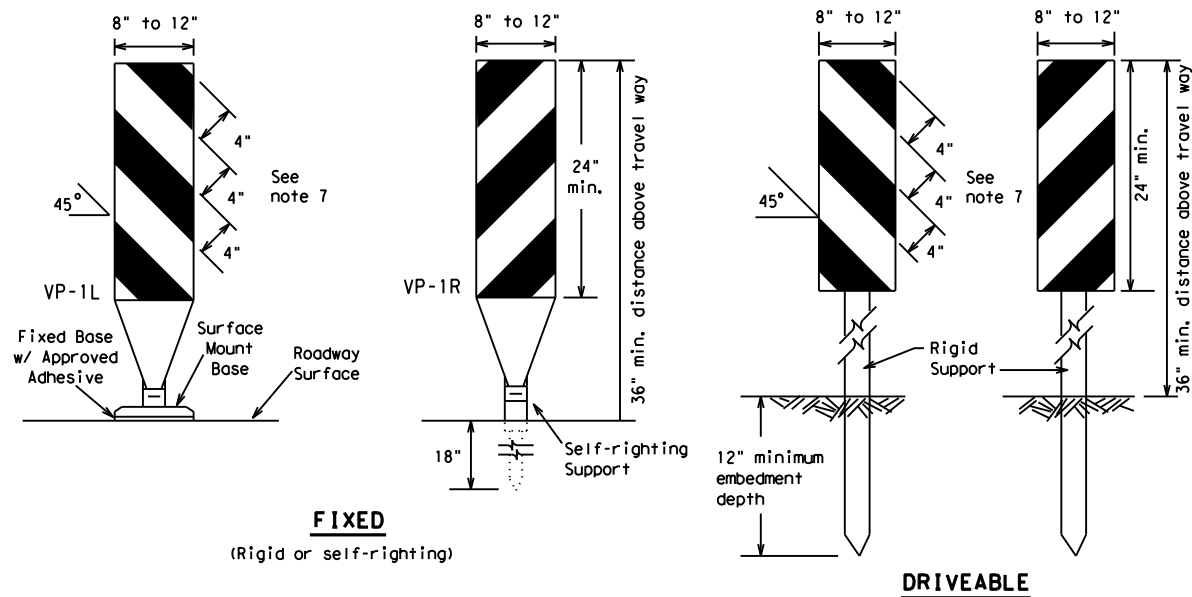
BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC (7) -21

FILE:	bc-21.dgn	DN:	TxDOT	CR:	TxDOT	OW:	TxDOT	CK:	TxDOT
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FIXED
(Rigid or self-righting)

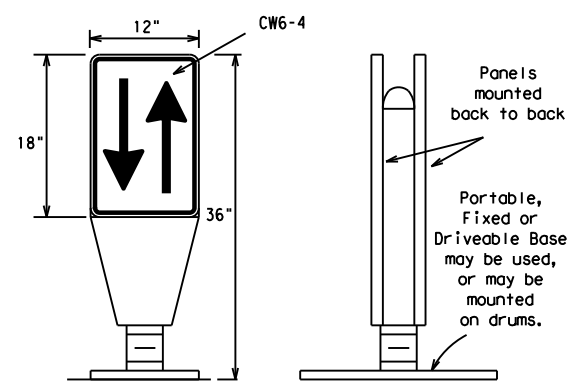
DRIVEABLE



PORTABLE

VERTICAL PANELS (VPs)

- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
- VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
- VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
- Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
- Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



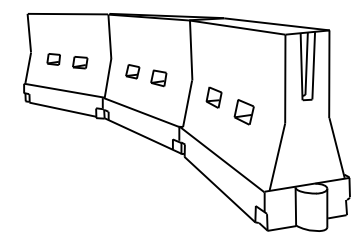
OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

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



- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
- Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
- To be effective, the chevron should be visible for at least 500 feet.
- Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{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 * *			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'

* * * 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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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.



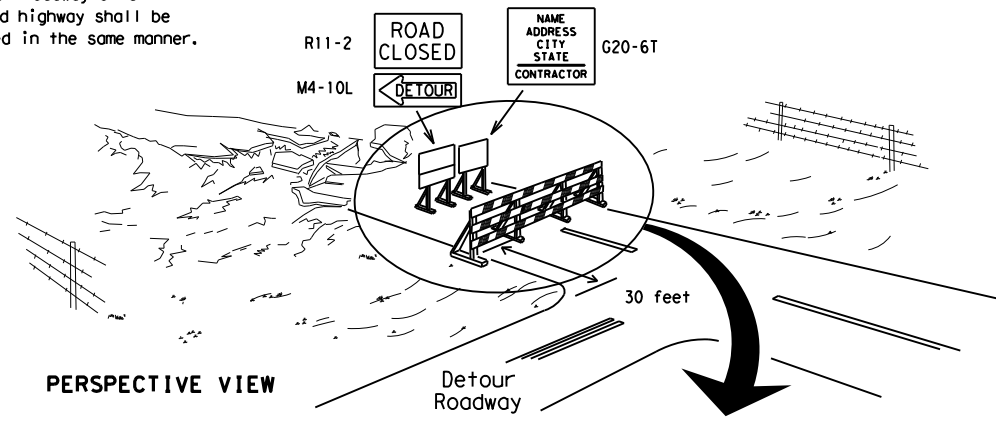
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

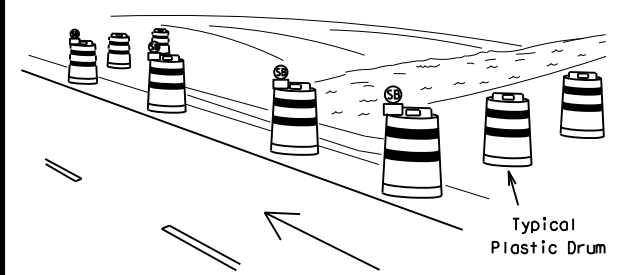
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



PLAN VIEW

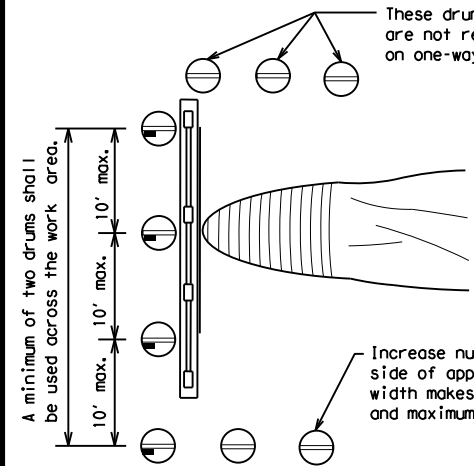
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

These drums are not required on one-way roadway

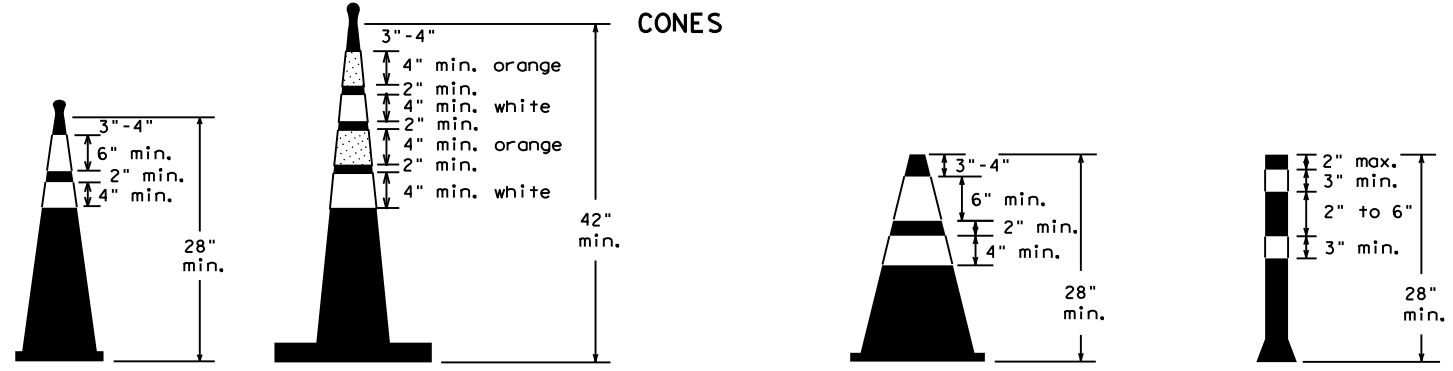


PLAN VIEW

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



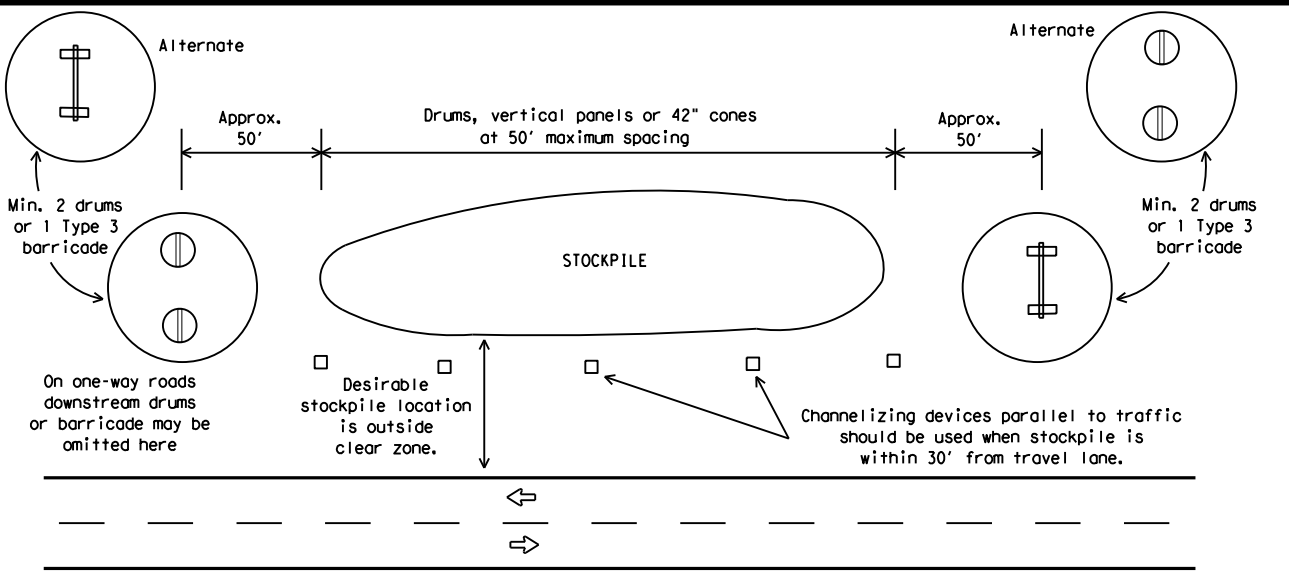
Two-Piece cones

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



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (10) - 21

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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.

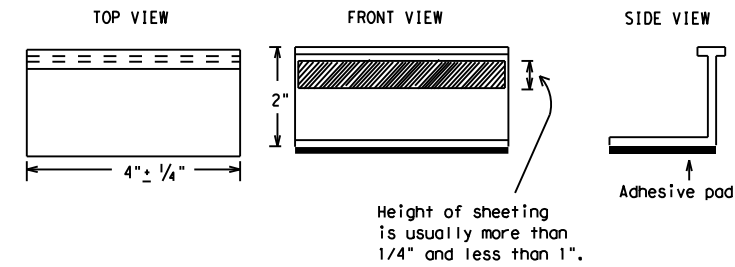
MAINTAINING WORK ZONE PAVEMENT MARKINGS

- 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).

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SHEET 11 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

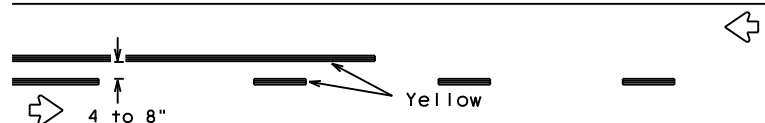
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11-02 8-14				

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PAVEMENT MARKING PATTERNS

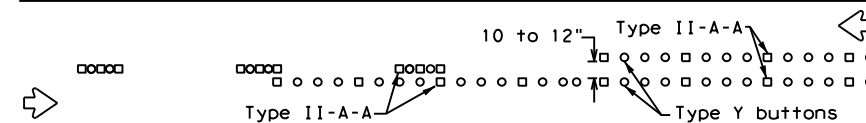


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

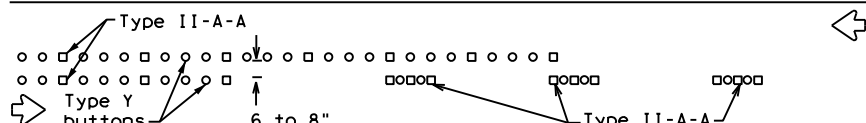


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

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



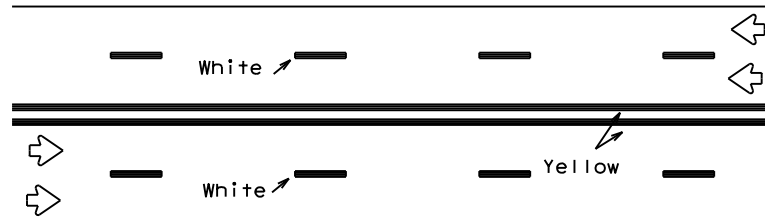
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



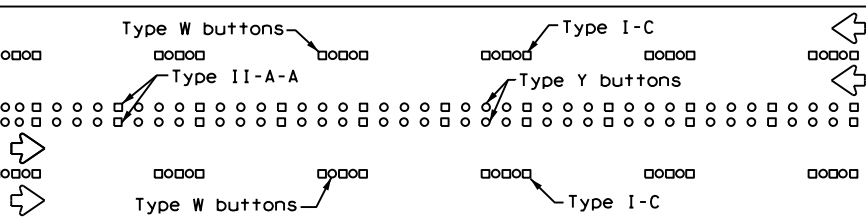
RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY



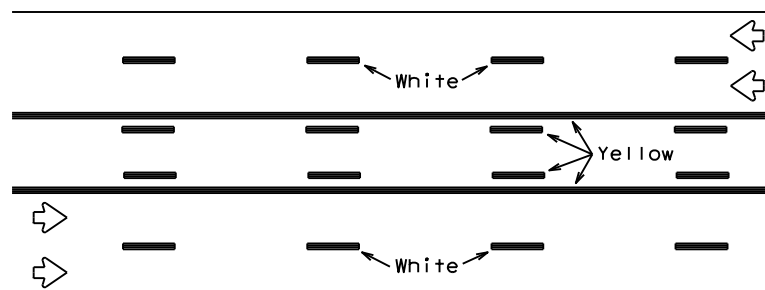
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



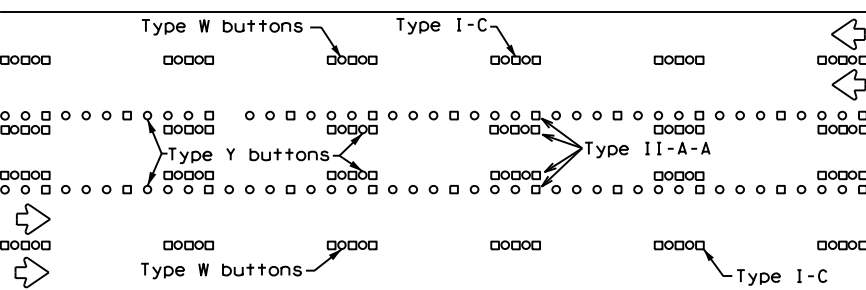
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



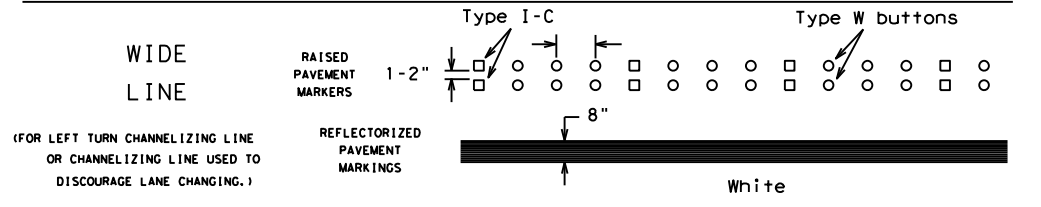
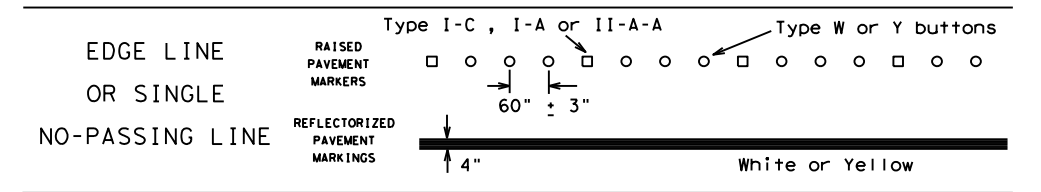
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE

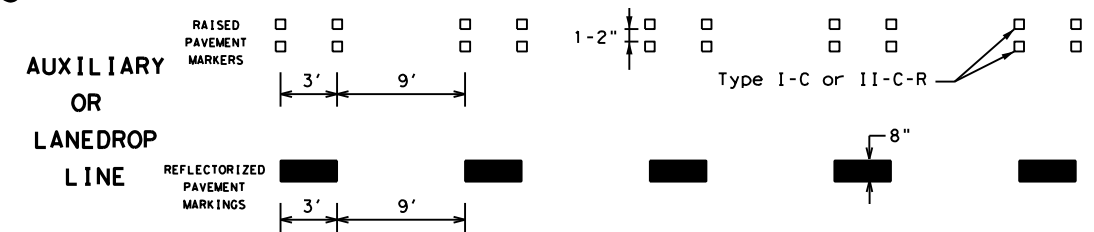
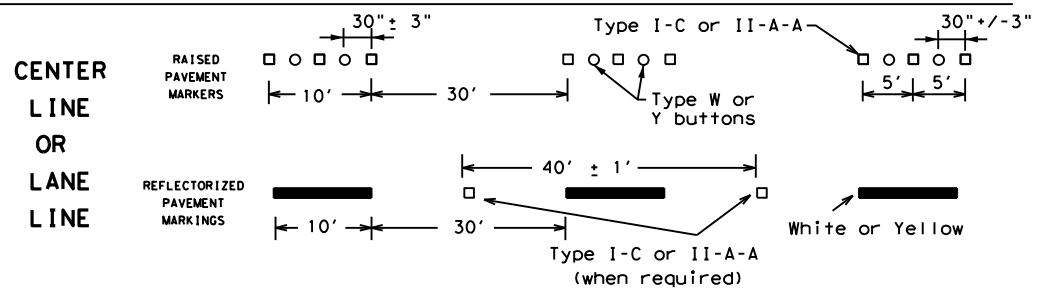
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



SOLID LINES

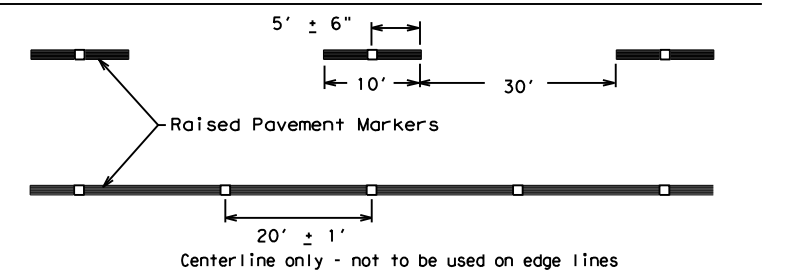


BROKEN LINES



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

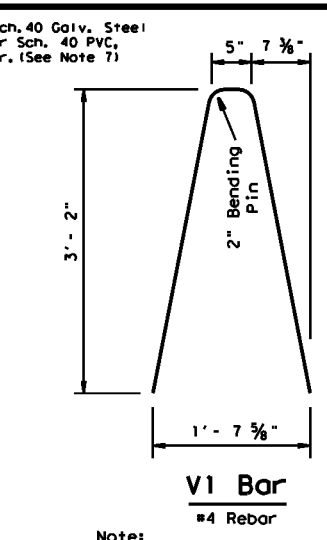
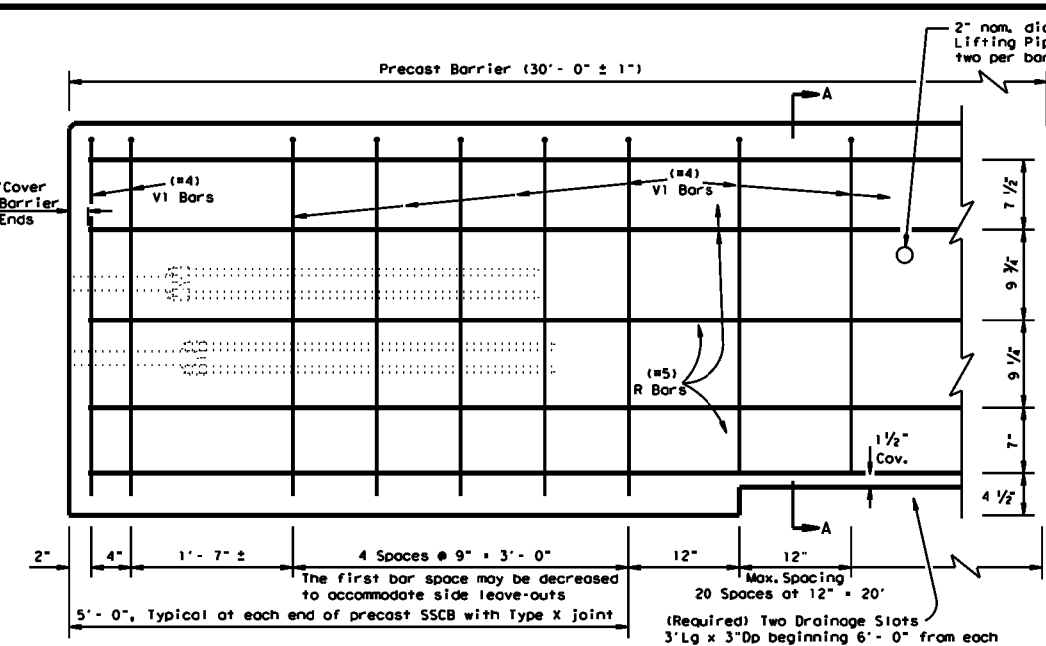
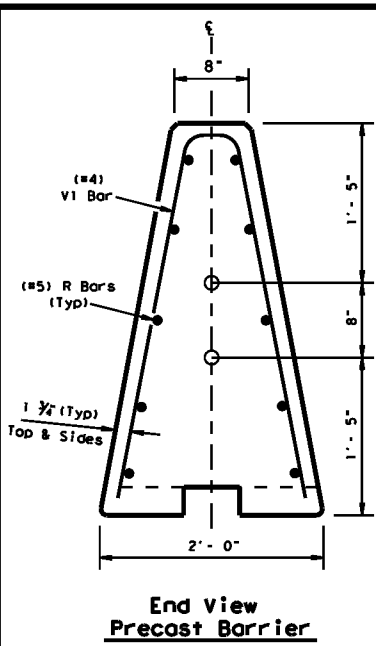
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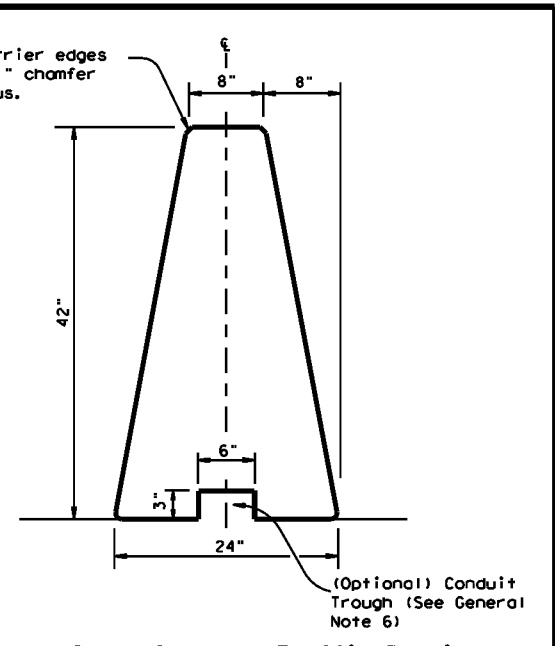
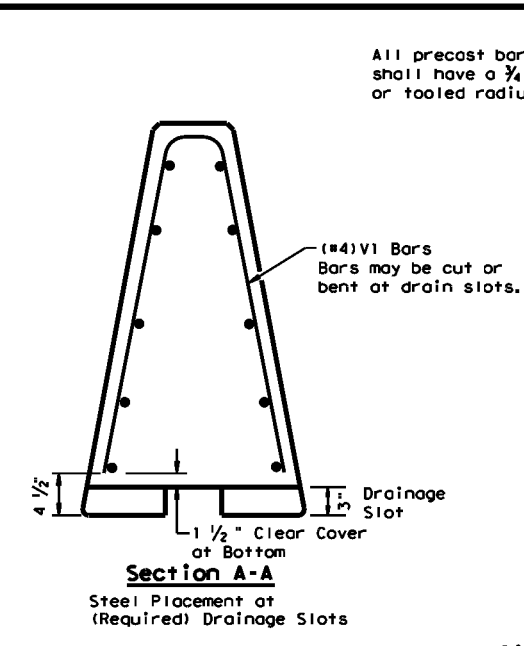
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DATE:
FILE:



V1 Bar
#4 Rebar

Note:
V1 Bars above the drainage slots may be bent to accommodate 1 1/2" clear cover as directed by the Engineer.

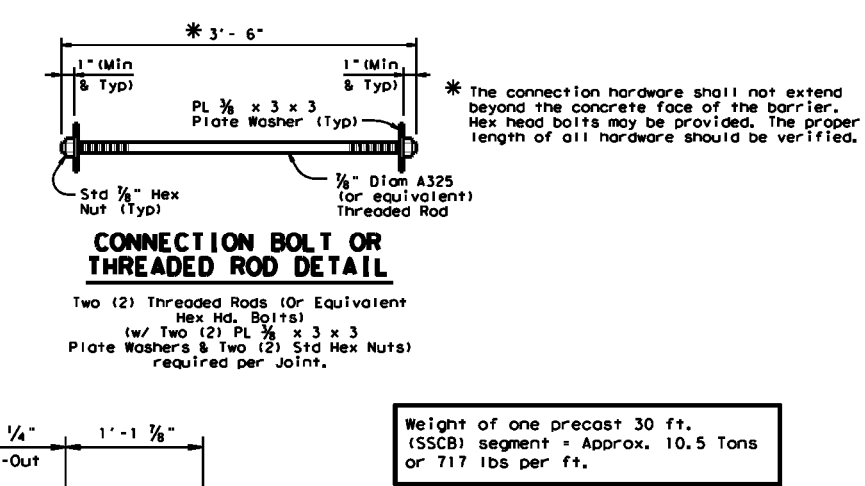
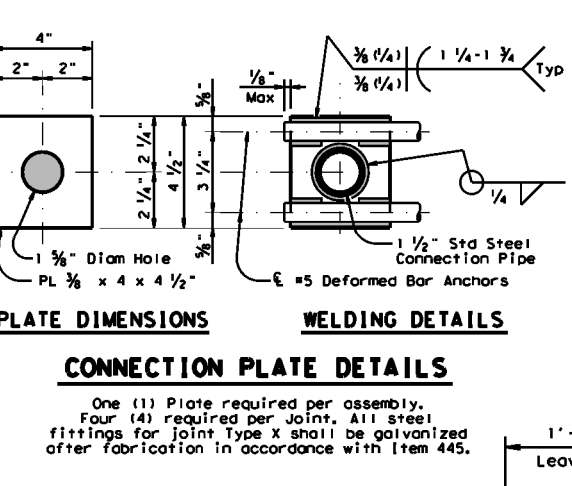
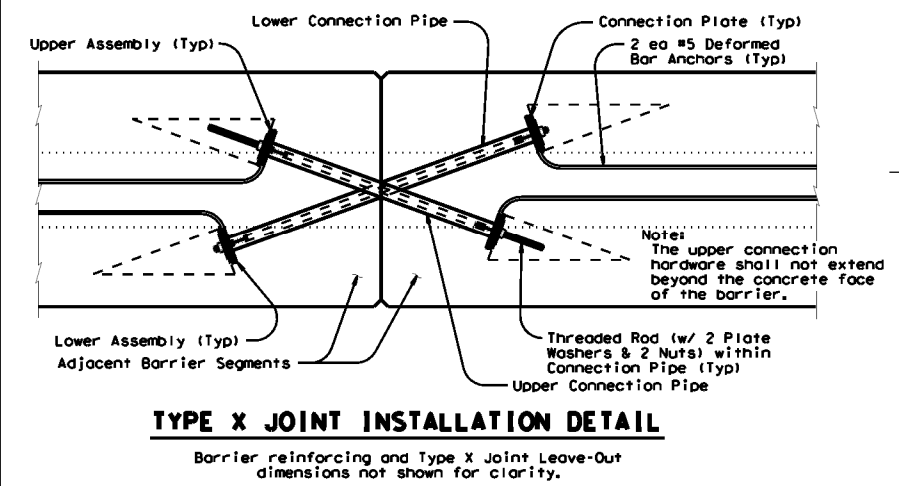
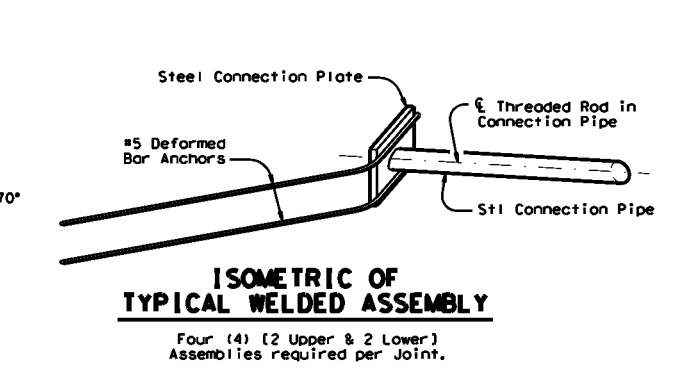
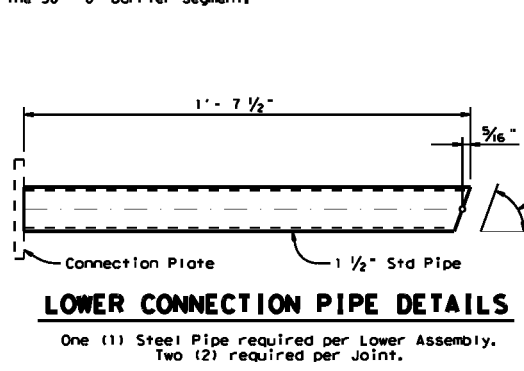
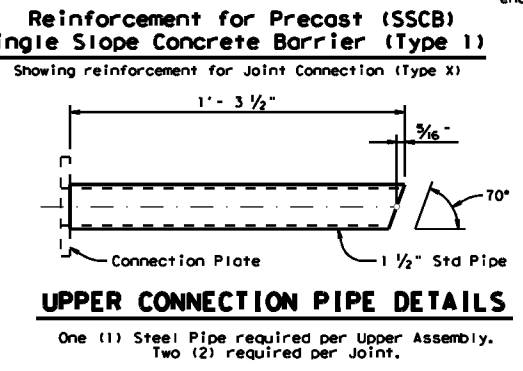
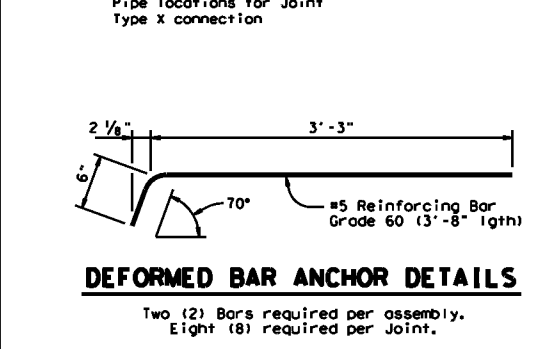


Single Slope Concrete Traffic Barrier

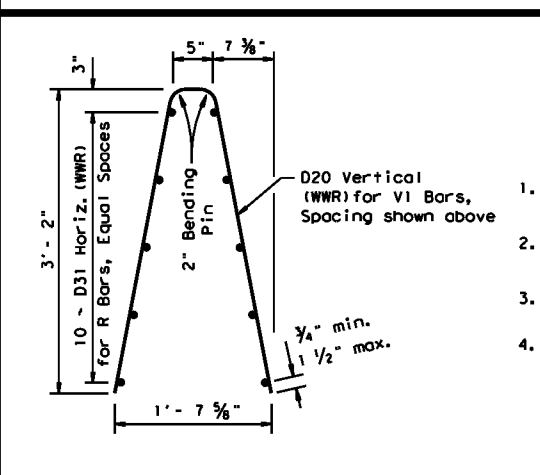
Precast SSCB barrier may be connected to cast-in-place SSBC. The joint connection "Types" may be used in the cast-in-place barrier, to match the precast barrier connection.

General Notes

- Concrete shall be Class H with a minimum compressive strength of 3,600 psi.
- Where used, rebar reinforcement shall be Grade 60 and conform to ASTM A615.
- Precast barrier length shall be 30 ft. unless otherwise specified on the plans.
- All precast barrier edges shall have a 3/4" chamfer or a tooled radius.
- All concrete, reinforcement, joint connection systems, grout etc. as shown, are considered as part of the barrier pavement.
- Conduit trough when required shall be shown elsewhere on the plans, or as directed by the Engineer.
- 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.
- 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.
- All steel assemblies shall be galvanized after fabrication in accordance with Item 445, "Galvanizing."



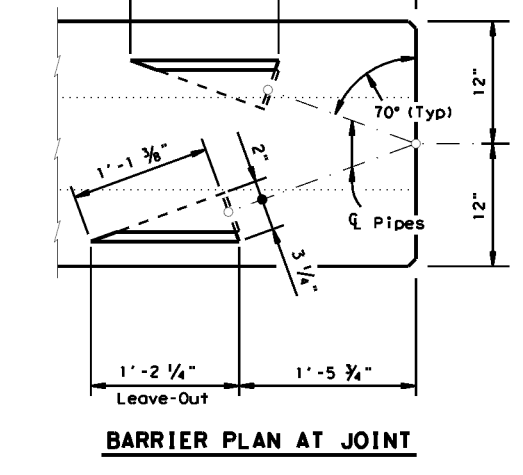
Weight of one precast 30 ft. (SSCB) segment = Approx. 10.5 Tons or 717 lbs per ft.



Welded Wire Reinforcement (WWR) Option for Bars R and V1

(WWR) General Notes

- Deformed Welded Wire Reinforcement (WWR) shall conform to ASTM A497.
- Welded wire cage may be cut or bent to accommodate the Type X joint connection and drainage slots, as directed by the Engineer.
- All reinforcement shall comply with Item 440, "Reinforcing Steel."
- 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".



SHEET 1 OF 2

Texas Department of Transportation
Design Division Standard

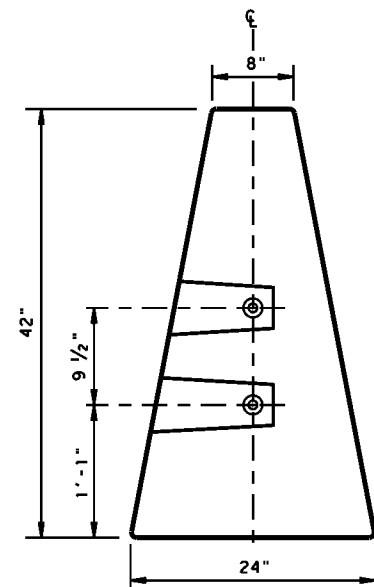
SINGLE SLOPE CONCRETE BARRIER

PRECAST BARRIER (TYPE 1)

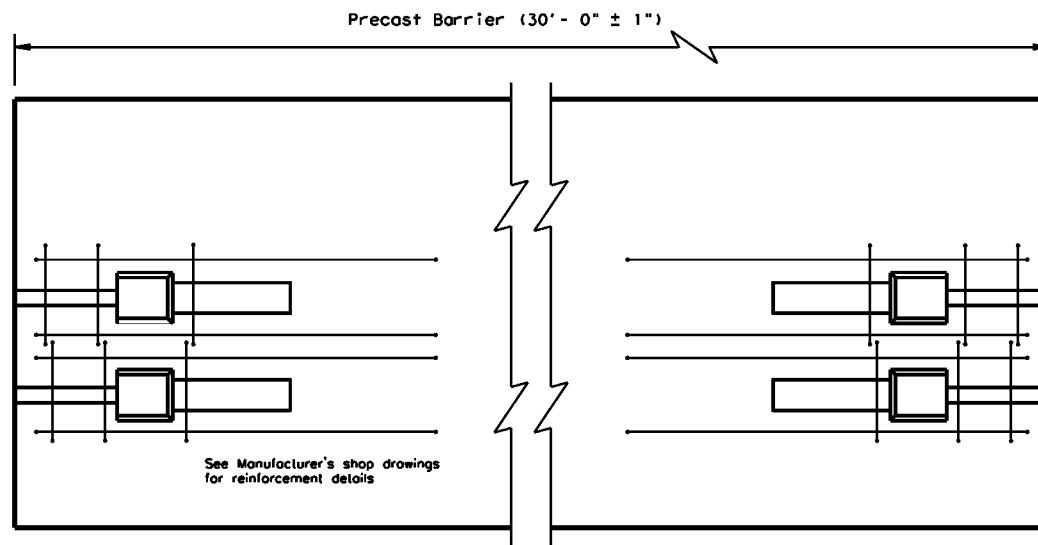
SSCB(2)-10

FILE: sscb210.dgn	DNR TxDOT	CR: AM	DNR BD	CR:
© TxDOT December 2010	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	ABL	HASKELL		36

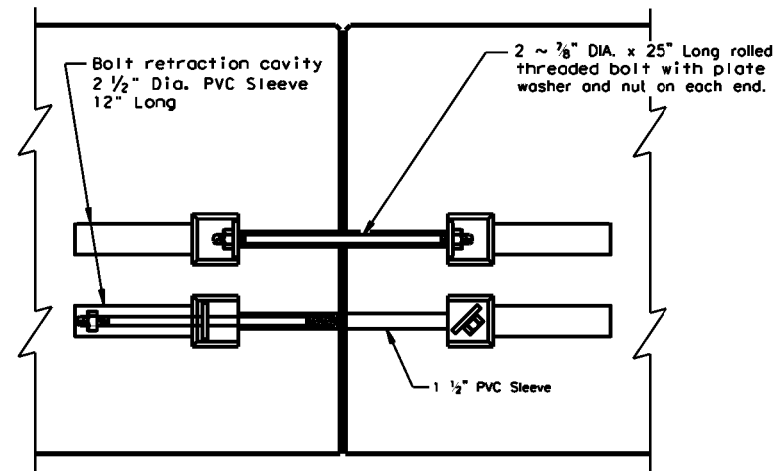
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END VIEW
"QUICK-BOLT" POCKET LOCATIONS

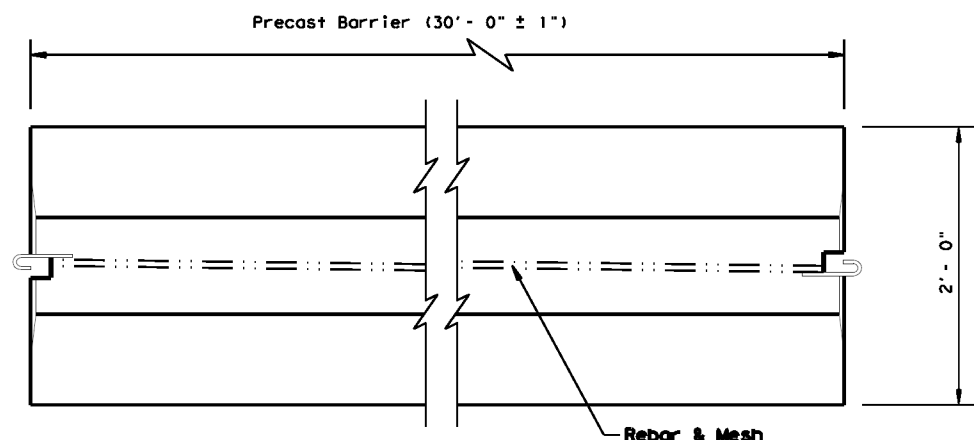


ELEVATION VIEW
"QUICK-BOLT" (SSCB)
See Manufacturer's shop drawing for additional details

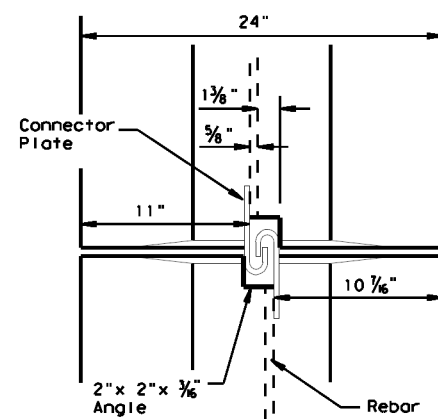


ELEVATION VIEW SHOWING JOINT CONNECTION
"QUICK-BOLT"

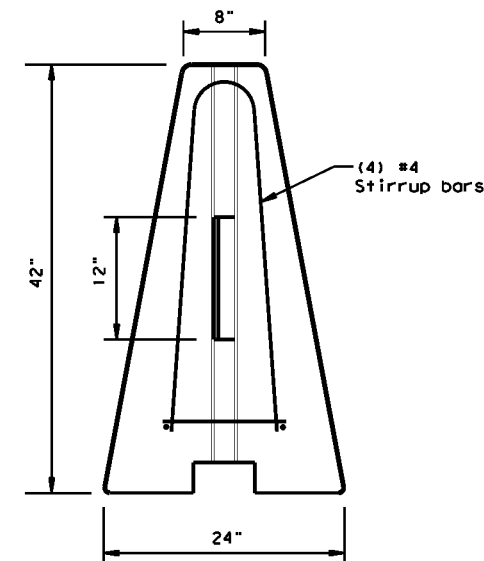
Joint Connection (Type Q)



TOP VIEW
PRECAST (SSCB) WITH J-J HOOKS
See Manufacturer's shop drawing for additional details



VIEW FROM ABOVE
J-J HOOK CONNECTION



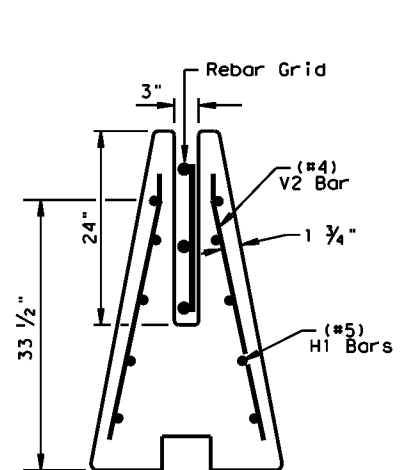
END VIEW

Proprietary Joint Connections (SSCB)

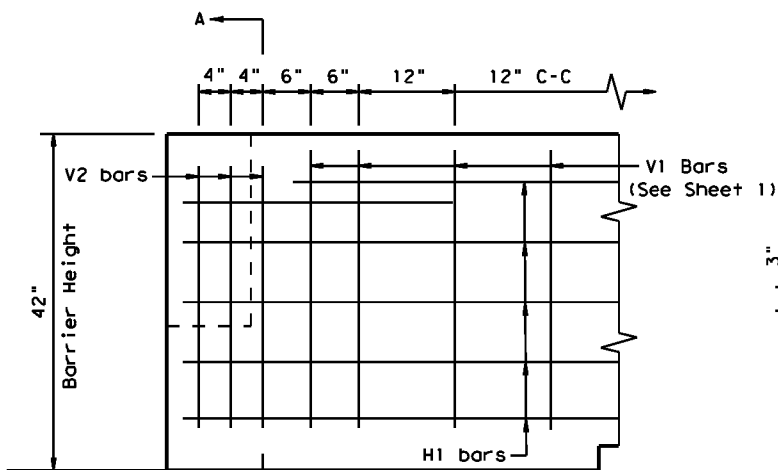
Two proprietary joint connections are acceptable as alternates to the (Type X) connection shown, here on. These joint connections types are:

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

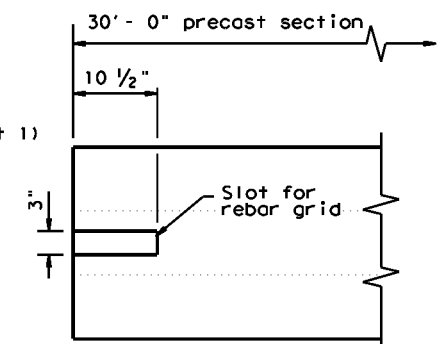
If one of these connection systems are exclusively specified in the plans, prior approval for sole source use must be obtained. Details of the connection components and barrier reinforcement for these systems, will be shown on the manufacturer's shop drawing(s) furnished to the Engineer.



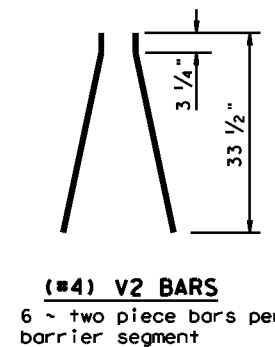
SECTION A-A
Showing (Type R)
Rebar Grid



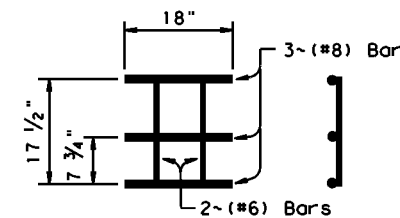
ELEVATION
V1 Bars (See Sheet 1)



TOP VIEW
JOINT CONNECTION
Typical at both ends of barrier segment



(#4) V2 BARS
6 ~ two piece bars per
barrier segment



WELDED REBAR GRID

Joint Connection (Type R)

SINGLE SLOPE CONCRETE BARRIER
PRECAST BARRIER (TYPE 1)
SSCB(2) - 10

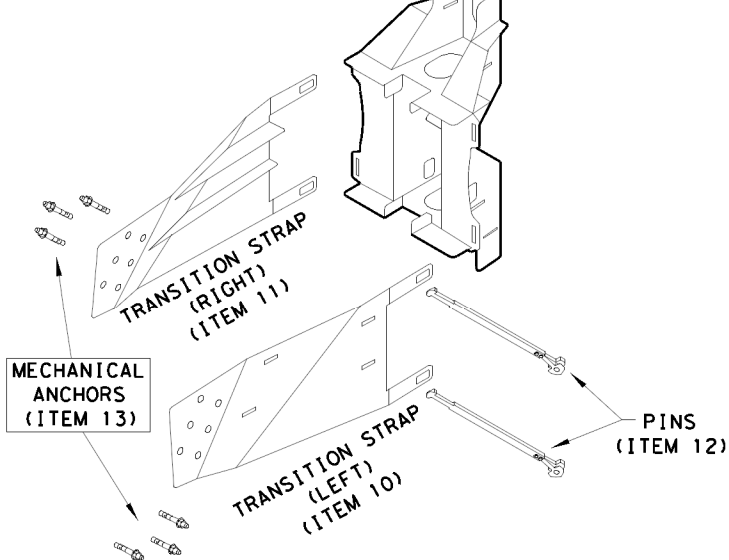
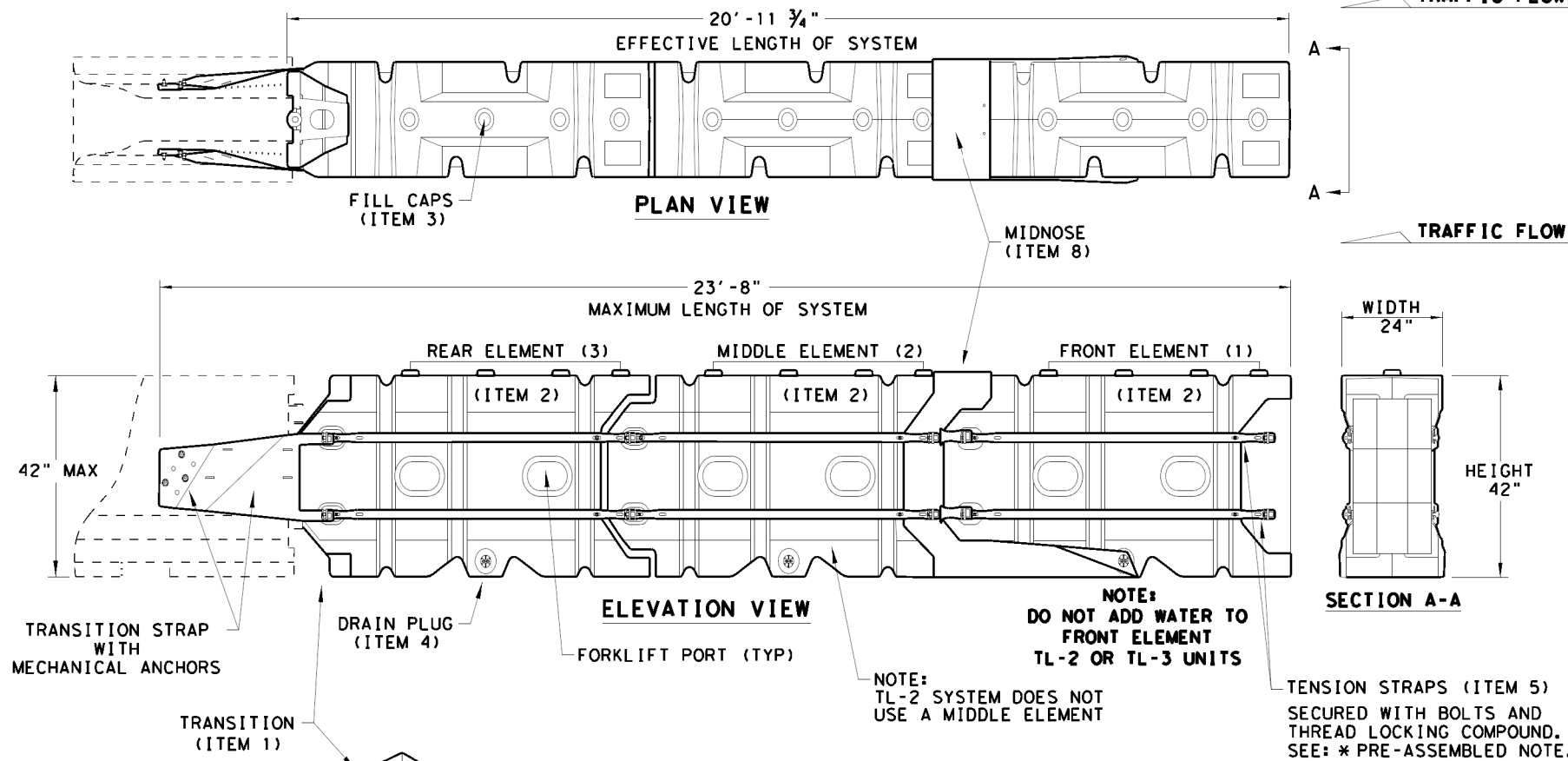
FILE: sscb210.dgn	DNR TxDOT	CR: AM	DWR: VP	CR:
© TxDOT December 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360 04		033	US 380
	DIST	COUNTY	SHEET NO.	
	ABL	HASKELL	37	

DATE:
FILE:

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DATE:
FILE:

SYSTEM SHOWN - ABSORB-M TL-3

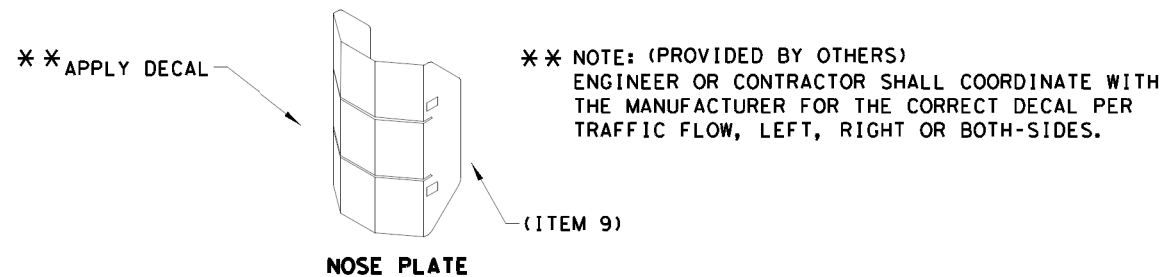


THE ABSORB-M IS A NON-REDIRECTIVE, GATING, CRASH CUSHION DESIGNED TO MEET THE LATEST TL-3 & TL-2 MASH REQUIREMENTS.

THE SYSTEM IS DESIGNED TO ACCOMMODATE A VARIETY OF F-SHAPE AND SINGLE SLOPE CONCRETE BARRIERS. CONTACT THE MANUFACTURER FOR GUIDANCE REGARDING OTHER ALLOWABLE SHAPES.

TEST LEVEL	NUMBER OF ELEMENTS	EFFECTIVE LENGTH	MAXIMUM LENGTH
TL-2	2	14' - 7 3/4"	17' - 4"
TL-3	3	20' - 11 3/4"	23' - 8"

NOTE: CROSS SLOPES OF UP TO 8% (OR 1:12 SLOPE) CAN BE ACCOMMODATED WITH STANDARD HARDWARE SHOWN WITHIN THE INSTRUCTIONS MANUAL. FOR SLOPES WITH EXCESS OF 8% (OR 1:12) CONTACT, LINDSAY TRANSPORTATION SOLUTIONS.



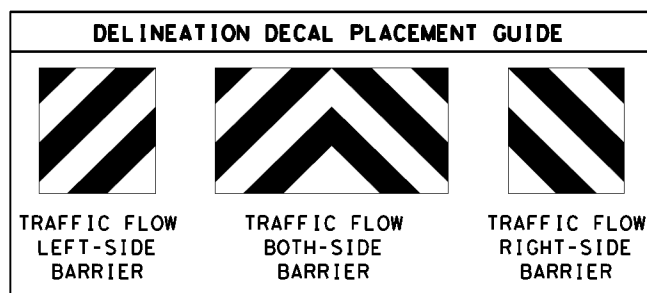
NOTE: APPLY A HIGH REFLECTIVE DECAL TO THE NOSE PLATE. DELINEATION DECAL ORIENTATION IS SHOWN ON THE CONSTRUCTION PLAN SET AND SHALL BE IN ACCORDANCE WITH THE TEXAS MUTCD FOR (TRAFFIC CONTROL DEVICES). DECALS ARE AVAILABLE FOR TRAFFIC FLOW ON THE LEFT-SIDE, BOTH -SIDES AND RIGHT-SIDE.

GENERAL NOTES

- FOR SPECIFIC INFORMATION REGARDING THE INSTALLATION AND TECHNICAL GUIDANCE, CONTACT: LINDSAY TRANSPORTATION SOLUTIONS (LTS) - BARRIER SYSTEMS, INC. AT (707) 374-6800. 180 RIVER ROAD, RIO VISTA, CA 94571
- THE ABSORB-M SYSTEM IS ONLY APPROVED FOR USE IN (TEMPORARY WORK ZONE) LOCATIONS.
- THE ABSORB-M IS A WATER FILLED NON-REDIRECTIVE, GATING CRASH CUSHION THAT DOES NOT NEED TO BE ATTACHED TO A FOUNDATION AND CAN BE INSTALLED ON TOP OF CONCRETE, ASPHALT, OR ANY SURFACE CAPABLE OF BEARING THE WEIGHT OF THE SYSTEM.
- MAXIMUM PERMISSIBLE CROSS-SLOPE IS 8%.
- THE INSTALLATION AREA SHOULD BE FREE FROM CURBS, ELEVATED OBJECTS, OR DEPRESSIONS.
- THE ABSORB-M SHOULD BE LOCATED APPROXIMATELY PARALLEL WITH THE BARRIER.
- THE USE OF THE ABSORB-M IS RESTRICTED TO A BARRIER HEIGHT OF UP TO 42 INCHES.
- DO NOT ADD WATER TO FRONT ELEMENT (TL-2 OR TL-3 UNIT).

BILL OF MATERIALS (BOM) ABSORB-M TL-3 & TL-2 SYSTEMS			QTY	QTY
ITEM #	PART NUMBER	PART DESCRIPTION	TL-2 SYSTEM	TL-3 SYSTEM
1	BSI-1809036-00	TRANSITION - (GALV)	1	1
2	BSI-1808002-00	PRE-ASSEMBLED ABSORBING (ELEMENTS)	2	3
3	BSI-4004598	FILL CAPS	8	12
4	BSI-4004599	DRAIN PLUGS	2	3
5	BSI-1809053-00	TENSION STRAP - (GALV)	8	12
6	BSI-2001998	C-SCR FH 3/8-16 X 1 1/2 GR5 PLT	8	12
7	BSI-2001999	C-SCR FH 3/8-16 X 1 GR5 PLT	8	12
8	BSI-1809035-00	MIDNOSE - (GALV)	1	1
9	BSI-1808014-00	NOSE PLATE	1	1
10	BSI-1809037-00	TRANSITION STRAP (LEFT-HAND) - (GALV)	1	1
11	BSI-1809038-00	TRANSITION STRAP (RIGHT-HAND) - (GALV)	1	1
12	BSI-1808005-00	PIN ASSEMBLY	8	10
13	BSI-2002001	ANC MECH 5/8-11X5 (GALV)	6	6
14	ABSORB-M	INSTALLATION AND INSTRUCTIONS MANUAL	1	1

* COMPONENTS PRE-ASSEMBLED WITH ELEMENT ASSEMBLY

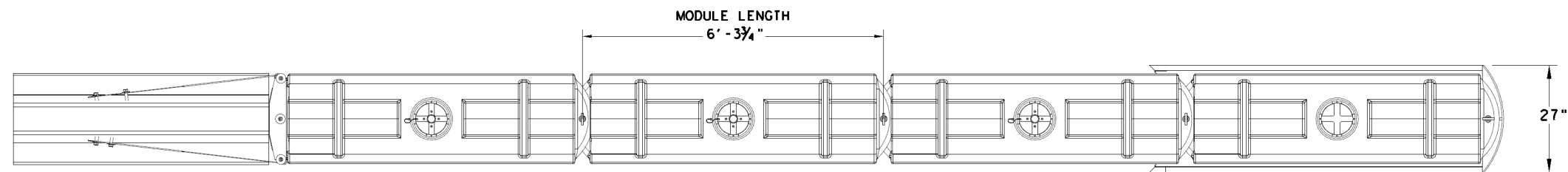


SACRIFICIAL

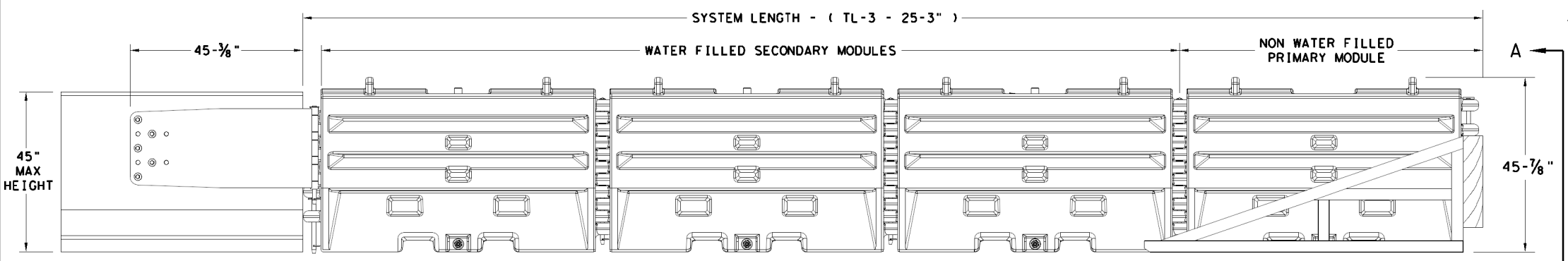
		Design Division Standard	
LINDSAY TRANSPORTATION SOLUTIONS CRASH CUSHION (MASH TL-3 & TL-2) TEMPORARY - WORK ZONE ABSORB (M) - 19			
FILE: absorbm19	DN: TxDOT	CK: KM	DW: VP
© TxDOT: JULY 2019	CONT SECT	JOB	HIGHWAY
REVISIONS	0360 04	033	US 380
DIST	COUNTY	SHEET NO.	
ABL	HASKELL	38	

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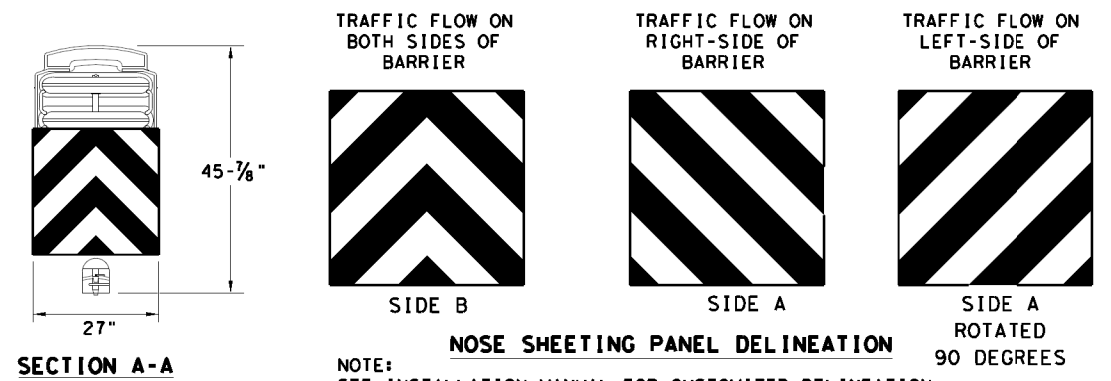
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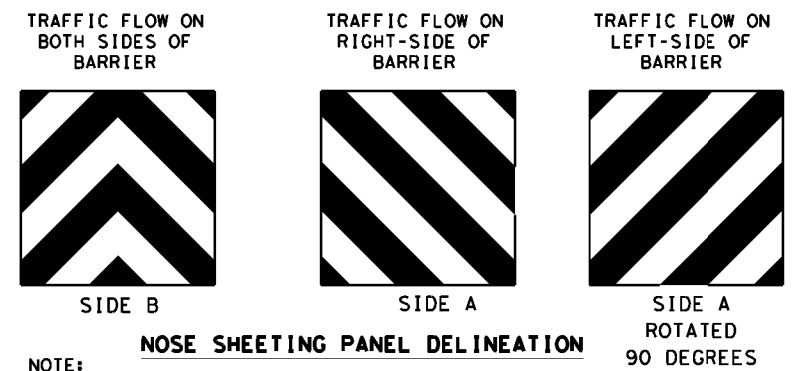
PLAN VIEW



ELEVATION VIEW



SECTION A-A



NOSE SHEETING PANEL DELINEATION

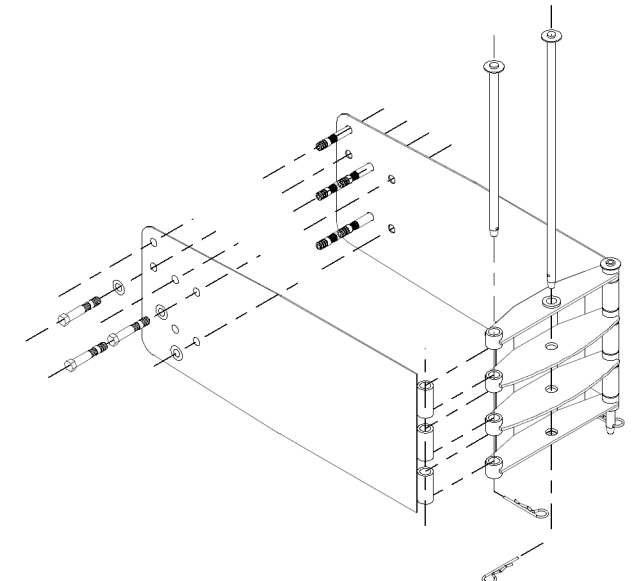
NOTE: SEE INSTALLATION MANUAL FOR CUSTOMIZED DELINEATION NOSE SHEETING FOR DECAL PLACEMENT.

TEST LEVEL	NUMBER OF SECONDARY MODULES	SYSTEM LENGTH
TL-3	3	25' 3"

GENERAL NOTES

- REFER TO THE INSTALLATION MANUAL FOR SPECIFIC SYSTEM ASSEMBLY AND MODULE ORIENTATION. FOR ADDITIONAL INFORMATION, CONTACT TRAFFIX, INC. AT (949) 361-5663.
- THE SLED SYSTEM IS A MASH APPROVED TEST LEVEL 3 (TL-3) CRASH CUSHION APPROVED FOR USE IN TEMPORARY WORK ZONES. THE SLED SYSTEM IS A NON-REDIRECTIVE, GATING CRASH CUSHION THAT DOES NOT NEED TO BE ATTACHED TO THE GROUND AND CAN BE INSTALLED ON CONCRETE, ASPHALT, GRAVEL OR COMPACTED SOIL.
- MAXIMUM PERMISSIBLE CROSS SLOPE IS 8° (DEGREES) (14%).
- THE INSTALLATION AREA SHOULD BE FREE FROM CURBS, ELEVATED OBJECTS, OR DEPRESSIONS.
- THE SLED SYSTEM CAN BE ATTACHED TO:
 - CONCRETE BARRIER, TEMPORARY OR PERMANENT, 45" MAXIMUM HEIGHT
 - STEEL BARRIER
 - PLASTIC BARRIER
 - CONCRETE BRIDGE ABUTMENTS
 - W-BEAM GUARD RAIL
 - THRIE BEAM GUARD RAIL

BILL OF MATERIAL		
PART NUMBER	DESCRIPTION	QTY: TL-3
45131	TRANSITION FRAME, GALVANIZED	1
45150	TRANSITION PANEL, GALVANIZED	2
45147-CP	TRANSITION SHORT DROP PIN W/ KEEPER PIN, GALVANIZED	2
45148-CP	TRANSITION LONG DROP PIN W/ KEEPER PIN, GALVANIZED	1
45050	ANCHOR BOLTS	9
12060	WASHER, 3/4" ID X 2" OD	9
45044-Y	SLED YELLOW WATER FILLED MODULE	3
45044-YH	SLED YELLOW "NO FILL" MODULE	1
45044-S	CIS (CONTAINMENT IMPACT SLED), GALVANIZED	1
45043-CP	T-PIN W/ KEEPER PIN	4
18009-B-I	FILL CAP W/ "DRIVE BY" FLOAT INDICATOR	3
45033-RC-B	DRAIN PLUG	3
45032-DPT	DRAIN PLUG REMOVAL TOOL	1



SLED TRANSITION COMPONENTS FOR ATTACHMENT TO CMB

NOTE: SEE MANUFACTURER'S INSTALLATION MANUAL FOR FURTHER DETAILS.

TRANSITION OPTIONS
SLED TRANSITION TO CONCRETE TRAFFIC BARRIER (TEMPORARY OR PERMANENT)
SLED TRANSITION TO STEEL TRAFFIC BARRIER (CONTACT MFGR FOR PROPER TRANSITION)
SLED TRANSITION TO PLASTIC TRAFFIC BARRIER (CONTACT MFGR FOR PROPER TRANSITION)
SLED TRANSITION TO W-BEAM OR THRIE BEAM GUARD RAIL (CONTACT MFGR FOR PROPER TRANSITION)
SLED TRANSITION TO CONCRETE BRIDGE ABUTMENT

NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE SLED, IT IS NOT INTENDED TO REPLACE THE INSTALLATION INSTRUCTIONS MANUAL.

SACRIFICIAL

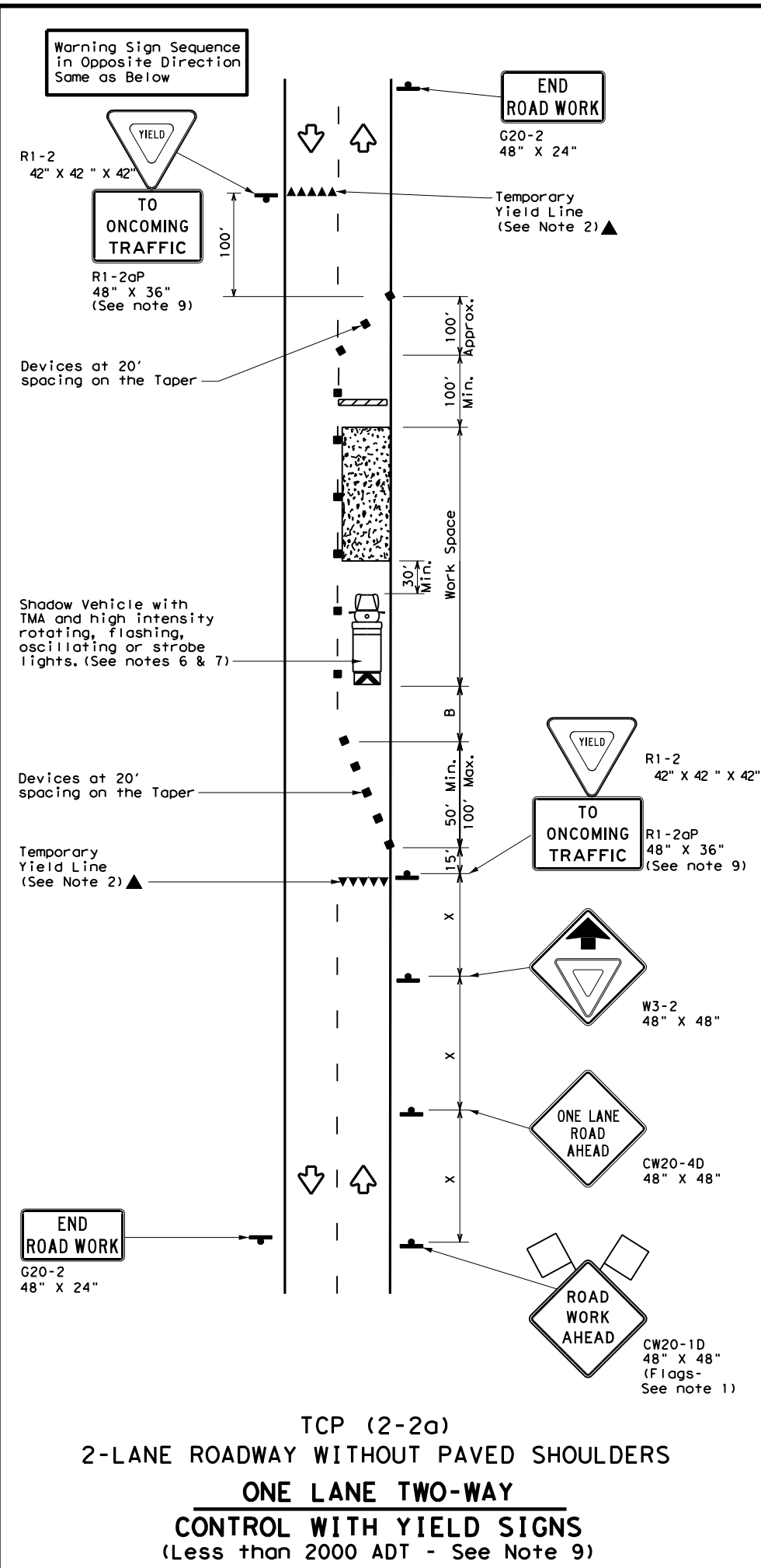
Design Division Standard

SLED CRASH CUSHION TL-3 MASH COMPLIANT (TEMPORARY, WORK ZONE) SLED-19

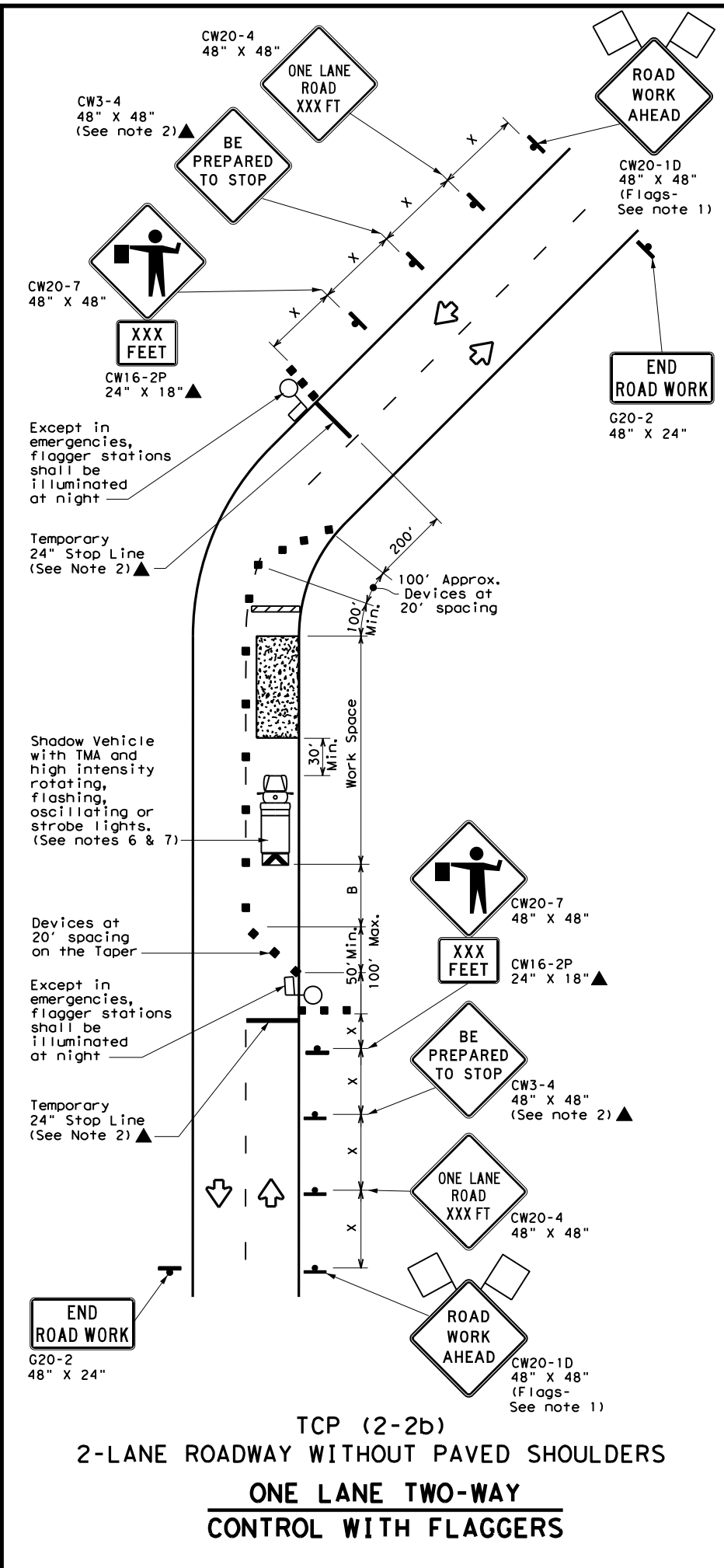
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© TxDOT: DECEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
DIST	COUNTY		SHEET NO.	
ABL	HASKELL		39	

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DATE: 9/8/2023 8:14:06 AM
 FILE: C:\AIG-Projectwise\AIG Technical Services LLC\2312_WA3_US380_PSE_AIG\CP\2312-18.dgn



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



TCP (2-2b)
 2-LANE ROADWAY WITHOUT PAVED SHOULDERS
 ONE LANE TWO-WAY
 CONTROL WITH FLAGGERS

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		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"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
30	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

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

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

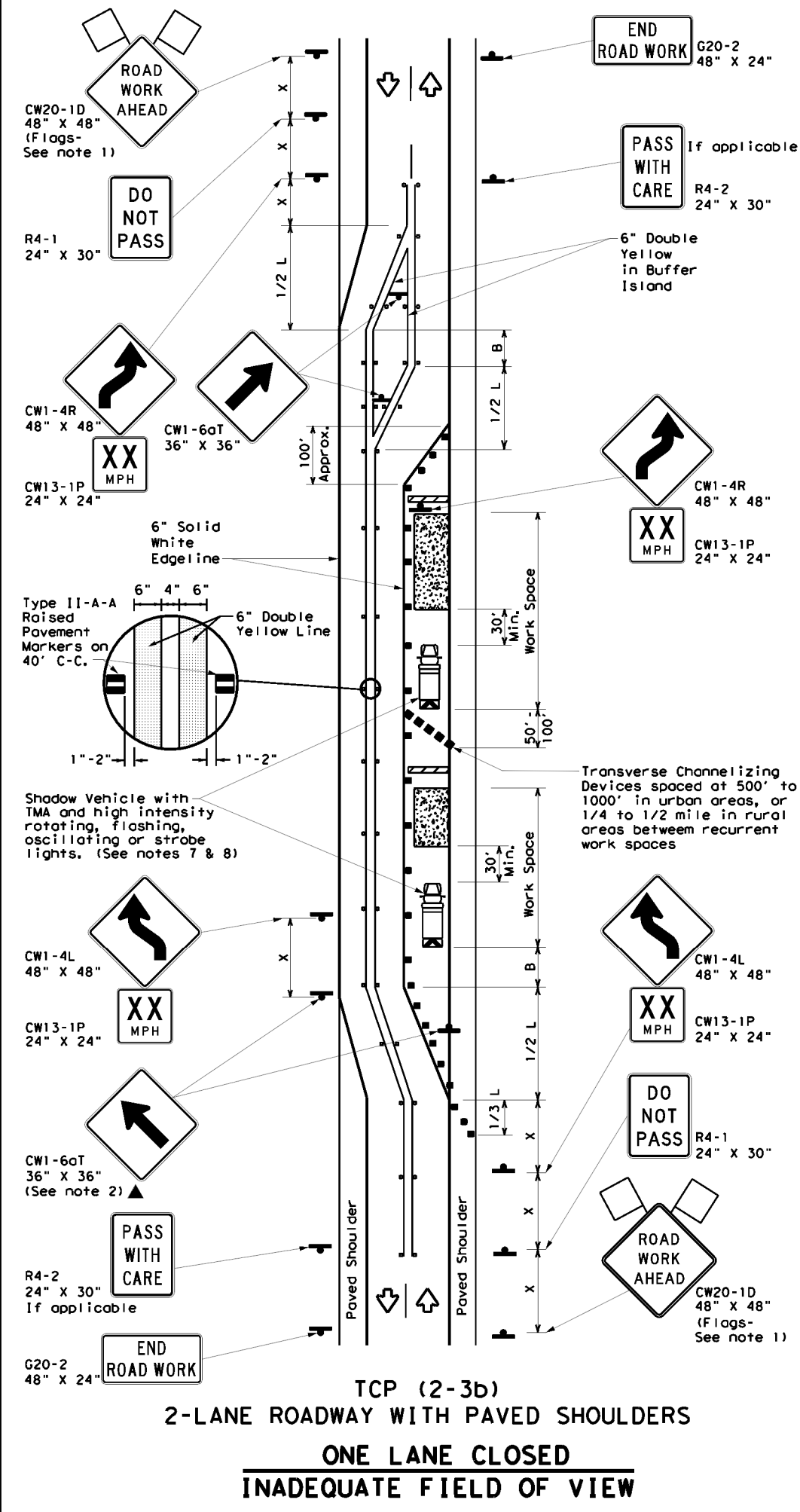
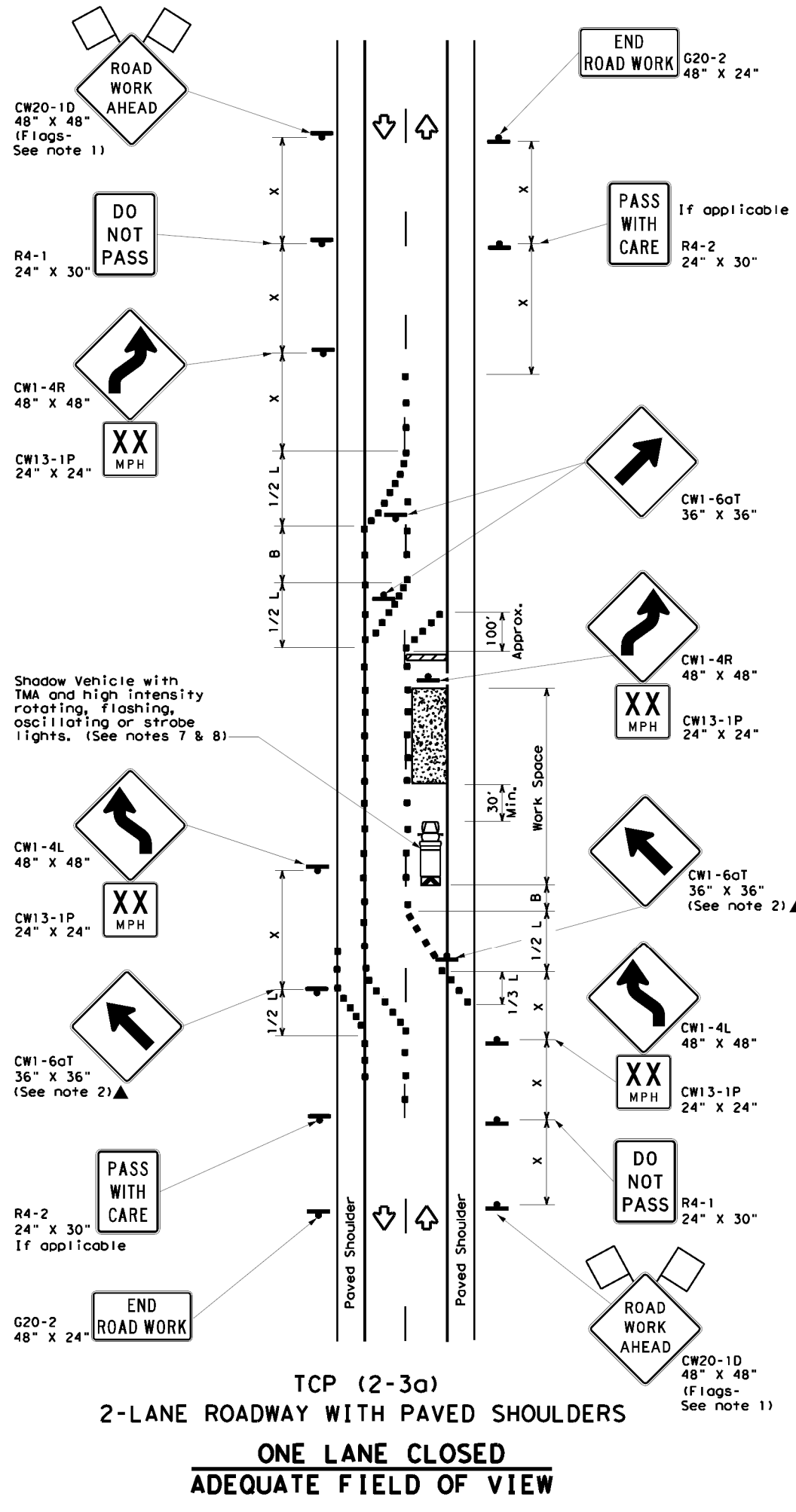
GENERAL NOTES

- 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 CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
 - 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.
 - 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 a wider work space.
- TCP (2-2a)**
- The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
 - The R1-2aP "YIELD TO ONCOMING TRAFFIC" sign shall be placed on a support at a 7 foot minimum mounting height.
- TCP (2-2b)**
- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
 - If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
 - Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

		Traffic Operations Division Standard	
TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL			
TCP (2-2) - 18			
FILE:	tcp2-2-18.dgn	DN:	CK:
© TxDOT	REVISIONS	CON:	SECT:
8-95	3-03	0360	04
1-97	2-12	DIST:	COUNTY:
4-98	2-18	ABL	HASKELL
		JOB:	033
		HIGHWAY:	US 380
		SHEET NO.:	40

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DATE: FILE:



LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Raised Pavement Markers Ty II-AA
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			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
			✓	✓
				TCP (2-3b) ONLY

- 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.
 - When work space will be in place less than three days existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
 - Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Flagger should be positioned at end of traffic queue.
 - The R4-1 "DO NOT PASS," R4-2 "PASS WITH CARE" and construction regulatory speed zone signs may be installed within CW20-1D "ROAD WORK AHEAD" signs. Proper spacing of signs shall be maintained.
 - Conflicting pavement marking shall be removed for long term projects.
 - 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.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
- TCP (2-3a)**
- Conflicting pavement markings shall be removed for long-term projects. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter device spacing is intended for the area of the conflicting markings, not the entire work zone.

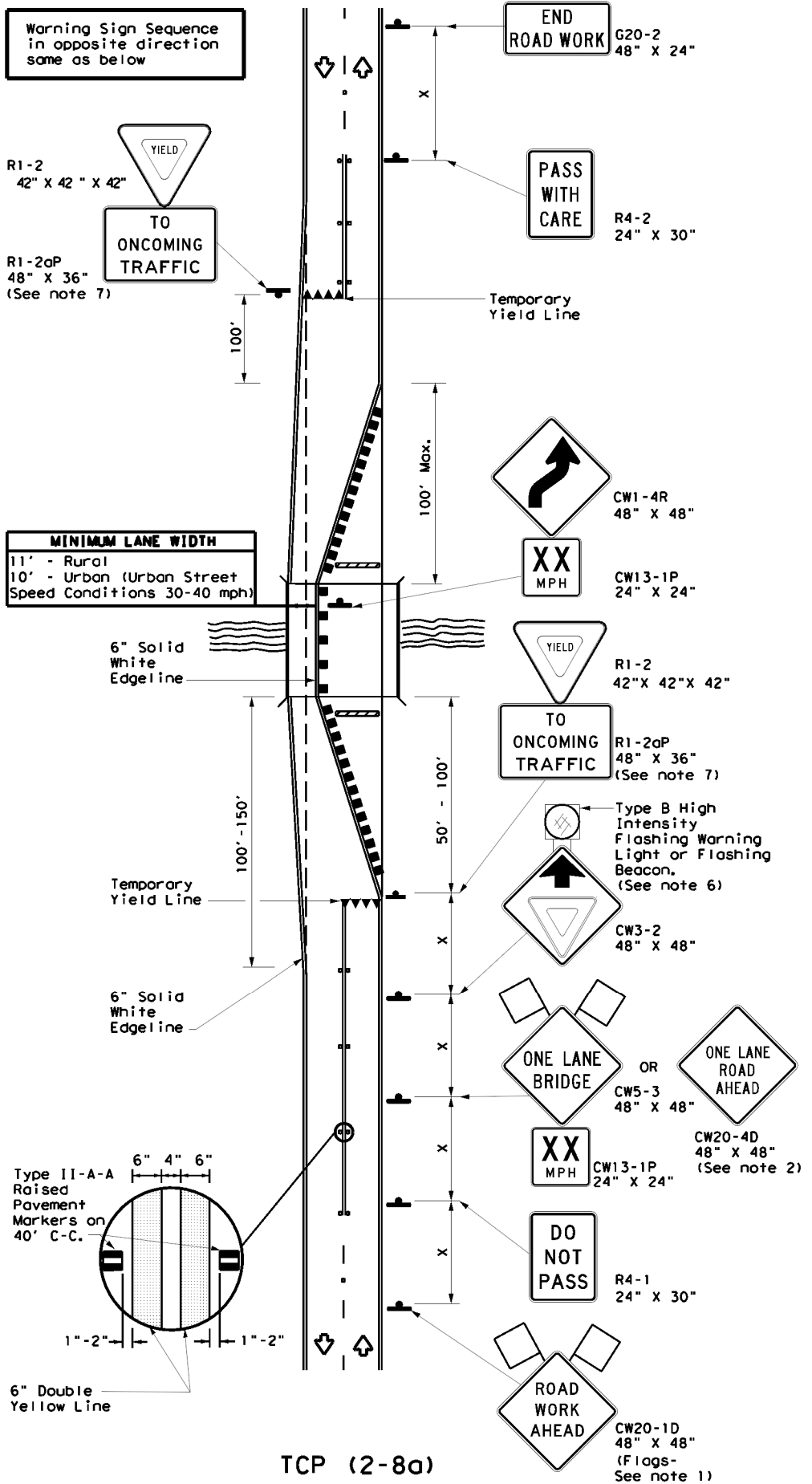


TRAFFIC CONTROL PLAN
TRAFFIC SHIFTS ON
TWO-LANE ROADS

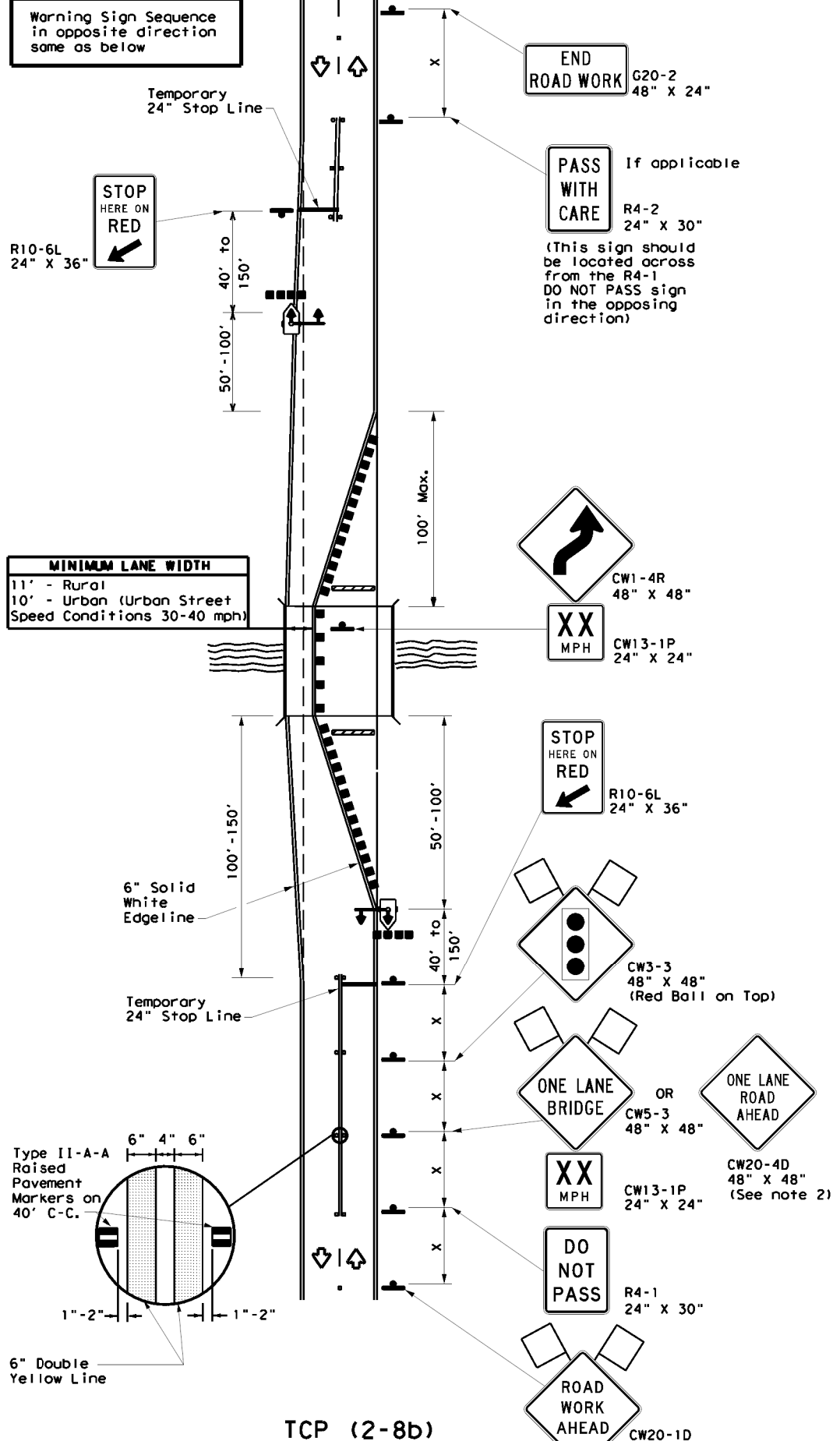
TCP (2-3) - 23

FILE:	top (2-3) - 23.dgn	DN:	CK:	DW:	CK:
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12-85	4-98	2-18	0360	04	033
8-95	3-03	4-23	DIST	COUNTY	SHEET NO.
1-97	2-12		ABL	HASKELL	41

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TCP (2-8a)
ONE LANE TWO-WAY
TRAFFIC CONTROL WITH YIELD SIGNS
 (Less Than 2000 ADT-See Note 5)



TCP (2-8b)
ONE LANE TWO-WAY
TRAFFIC CONTROL WITH TRAFFIC SIGNAL

LEGEND

	Type 3 Barricade		Channelizing Devices
	Sign		Traffic Flow
	Flag		Flagger
	Raised Pavement Markers Ty II-AA		Temporary or Portable Traffic Signal

Posted Speed *	Formula	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	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

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

TYPICAL USAGE

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

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
 - When this TCP is used at a location which does not involve a bridge, a 48" x 48" CW20-4D "ONE LANE ROAD AHEAD" signs should be used in lieu of the CW5-3 "ONE LANE BRIDGE" signs. The CW13-1P Advisory Speed Plaque is required with either warning sign.
 - Raised pavement markers shall be placed 40 feet c-c on centerline between DO NOT PASS signs and stop or yield lines.
 - For intermediate term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close spacing. This is especially important in locations of conflicting information, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 20 feet is recommended. The 20 foot channelizing device spacing recommendation is intended for the area of conflicting information and not the entire work zone.
- TCP (2-8a)**
- Traffic control by CW3-2 "YIELD AHEAD" symbol signs for one lane two-way traffic control operations should be limited to work spaces less than 400 feet long and roadways with less than 2000 ADT. Otherwise, portable traffic signals should be used.
 - If power is available, a flashing beacon should be attached to the CW3-2 "YIELD AHEAD" symbol sign for emphasis.
 - The R1-2 "YIELD" and R1-2aP "TO ONCOMING TRAFFIC" signs and other regulatory signs shall be installed at 7 foot minimum mounting height.
- TCP (2-8b)**
- A list of approved Portable Traffic Signals can be found in the "Compliant Work Zone Traffic Control Devices" list.
 - Portable traffic signals should be located to provide adequate stopping sight distance for approaching motorist (See table above).

Texas Department of Transportation
 Traffic Safety Division Standard

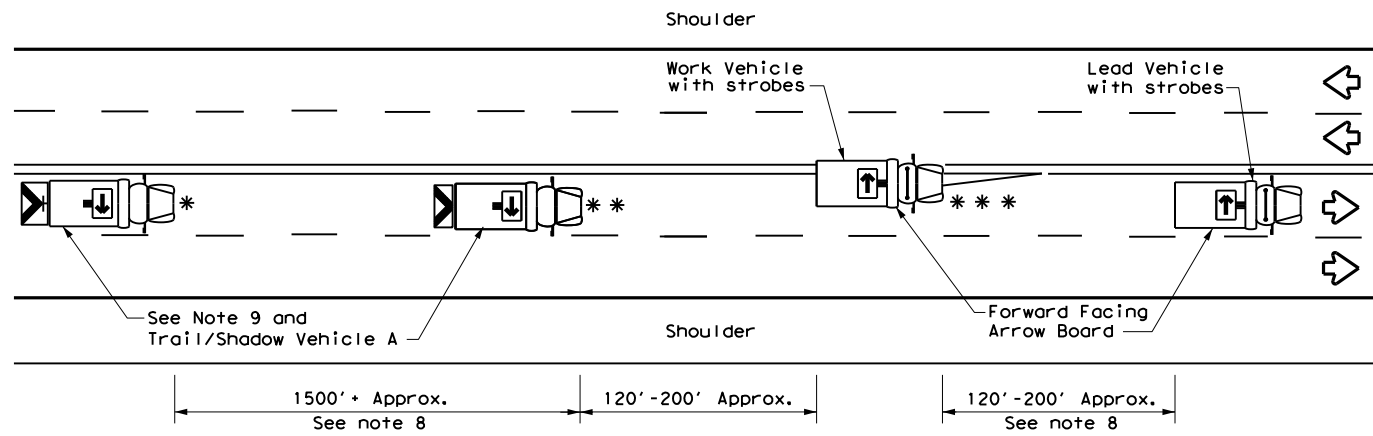
TRAFFIC CONTROL PLAN
LONG TERM ONE-LANE
TWO-WAY CONTROL

TCP (2-8) - 23

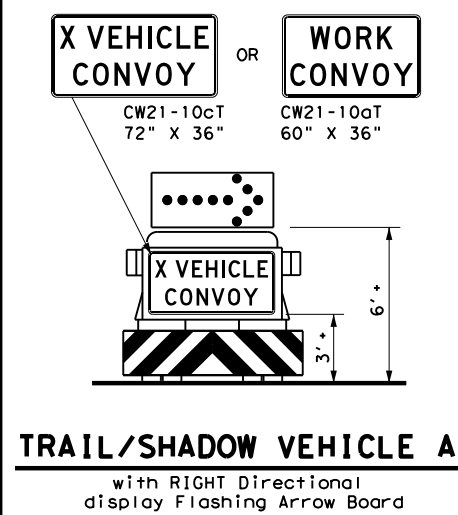
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© TxDOT April 2023	0360 04	033 US 380
REVISIONS	DIST: COUNTY: SHEET NO.	
12-85 4-98 2-18	ABL HASKELL	42
8-95 3-03 4-23		
1-97 2-12		

DATE:
 FILE:

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TCP (3-1a)
UNDIVIDED MULTILANE ROADWAY



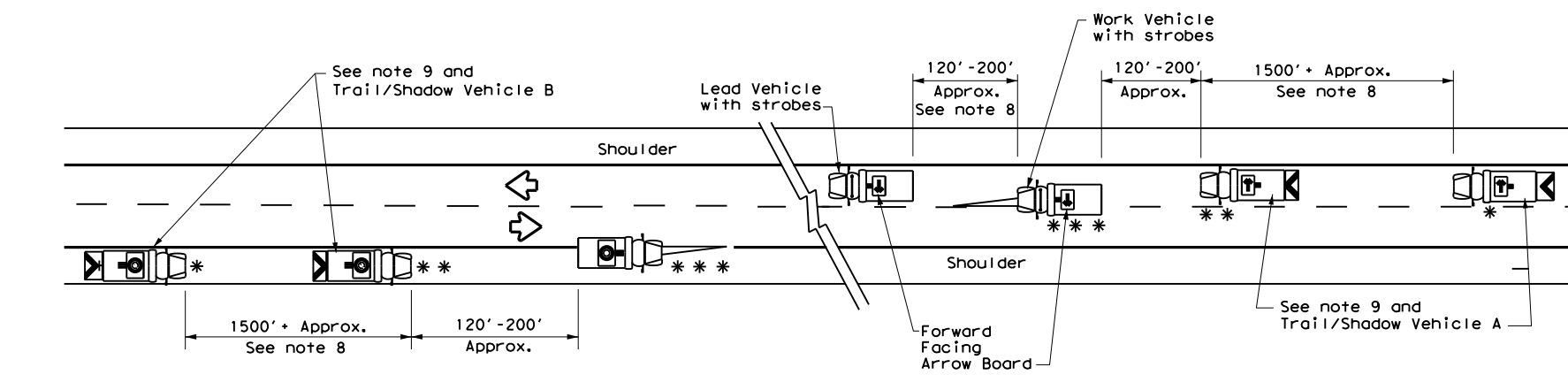
TRAIL/SHADOW VEHICLE A
with RIGHT Directional display Flashing Arrow Board

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)

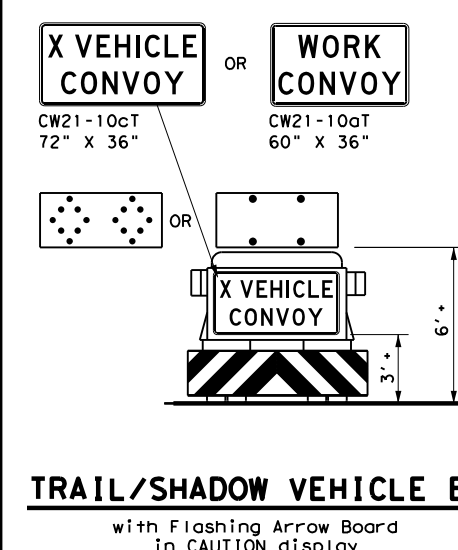
TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
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GENERAL NOTES

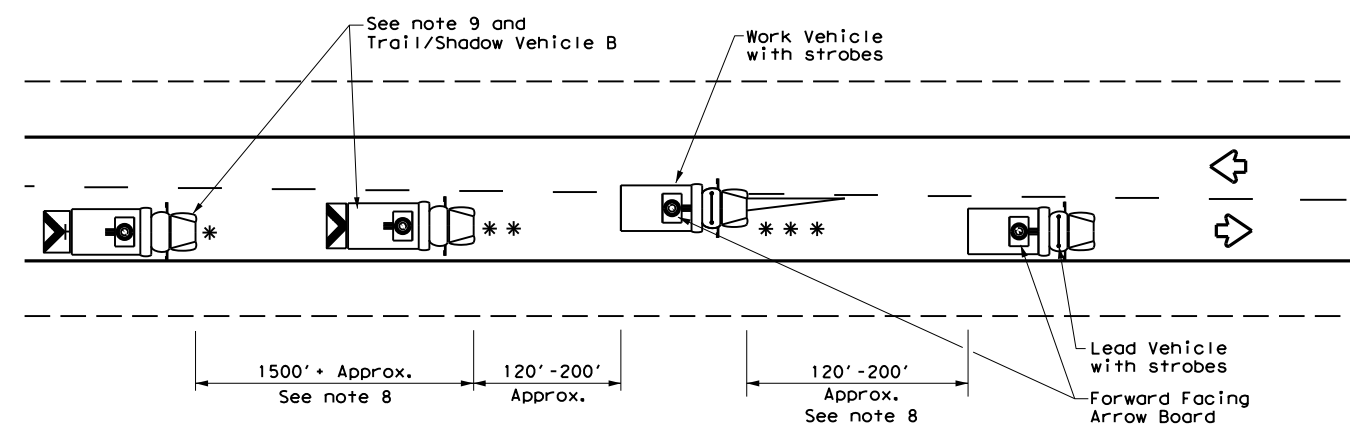
1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
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 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 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.
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. 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.



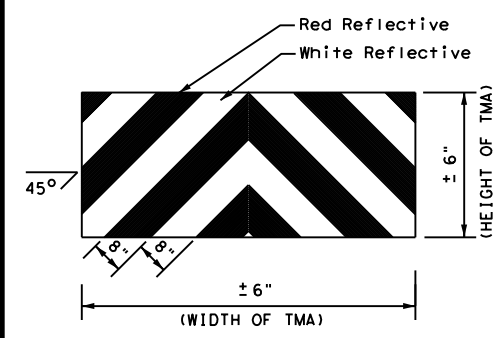
TCP (3-1b)
TWO-WAY ROADWAY WITH PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B
with Flashing Arrow Board in CAUTION display



TCP (3-1c)
TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



STRIPING FOR TMA

**TRAFFIC CONTROL PLAN
MOBILE OPERATIONS
UNDIVIDED HIGHWAYS**

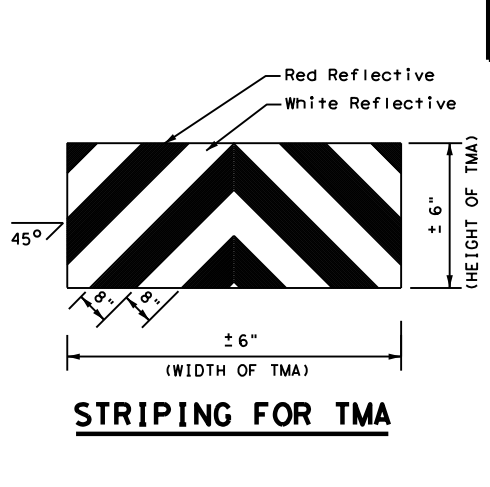
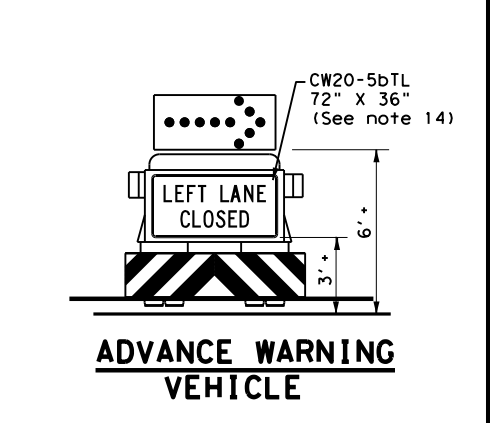
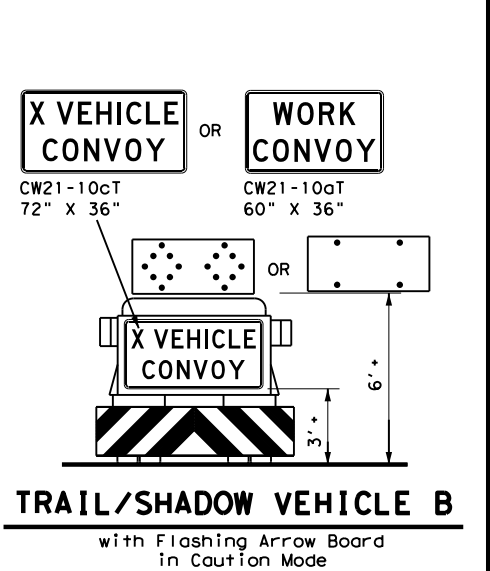
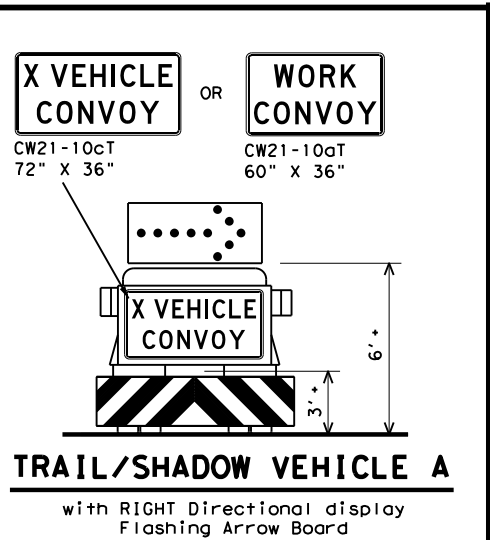
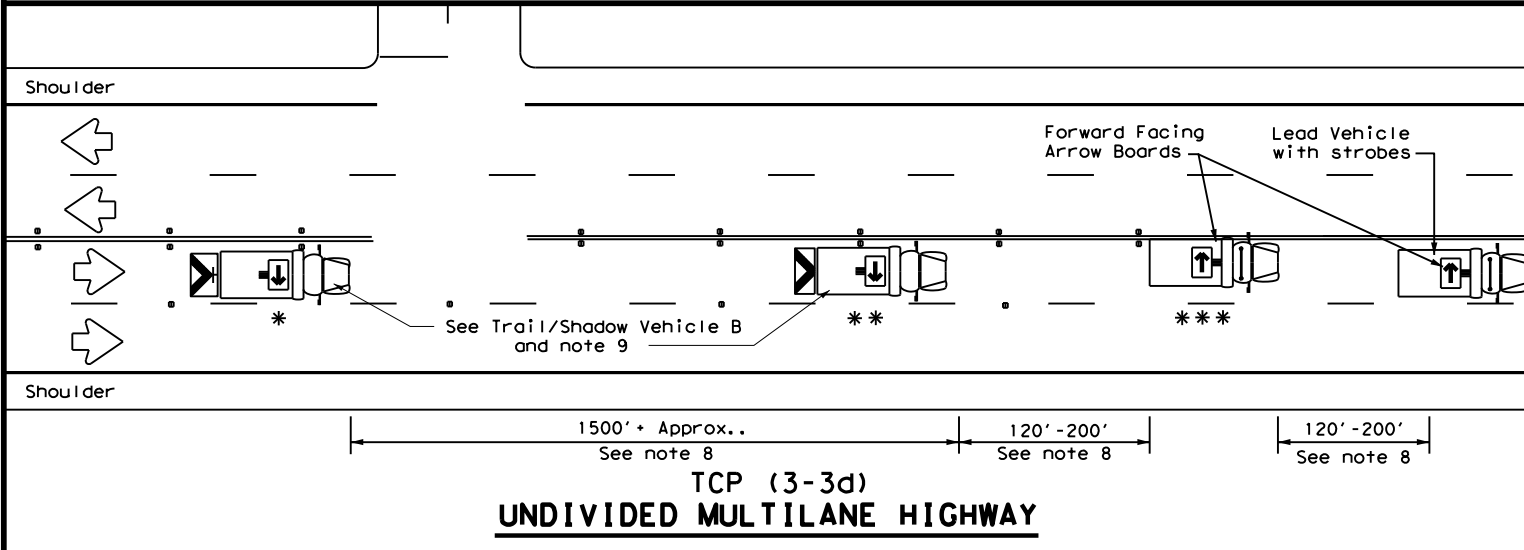
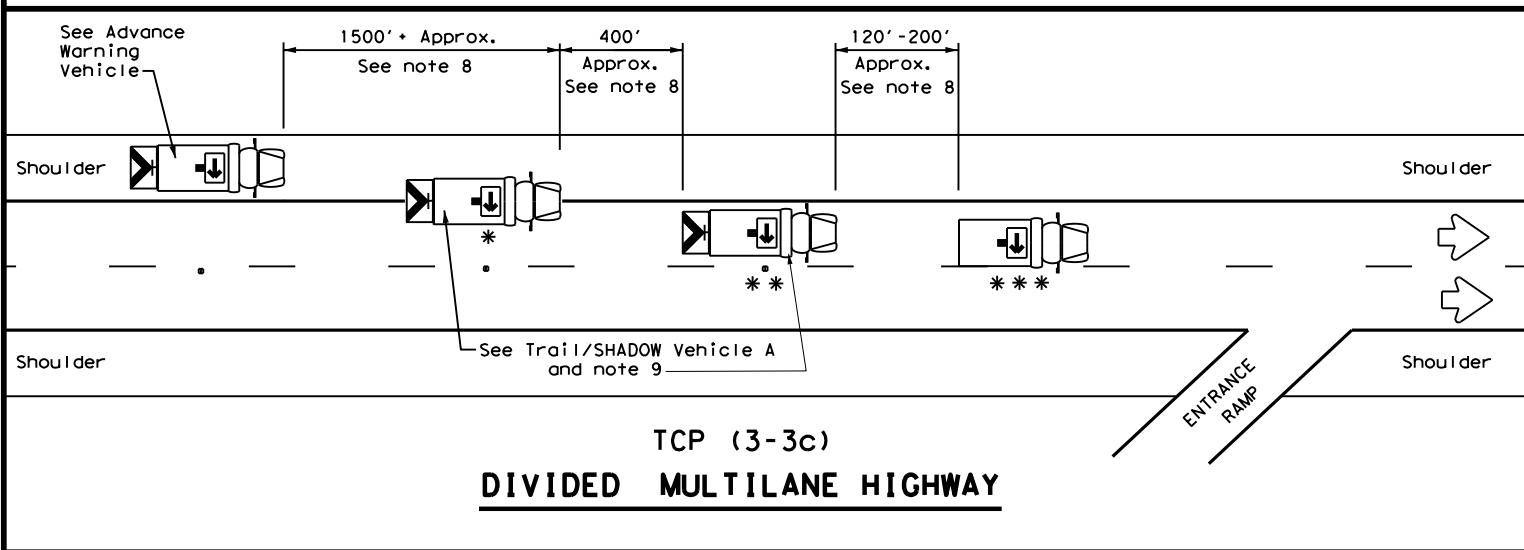
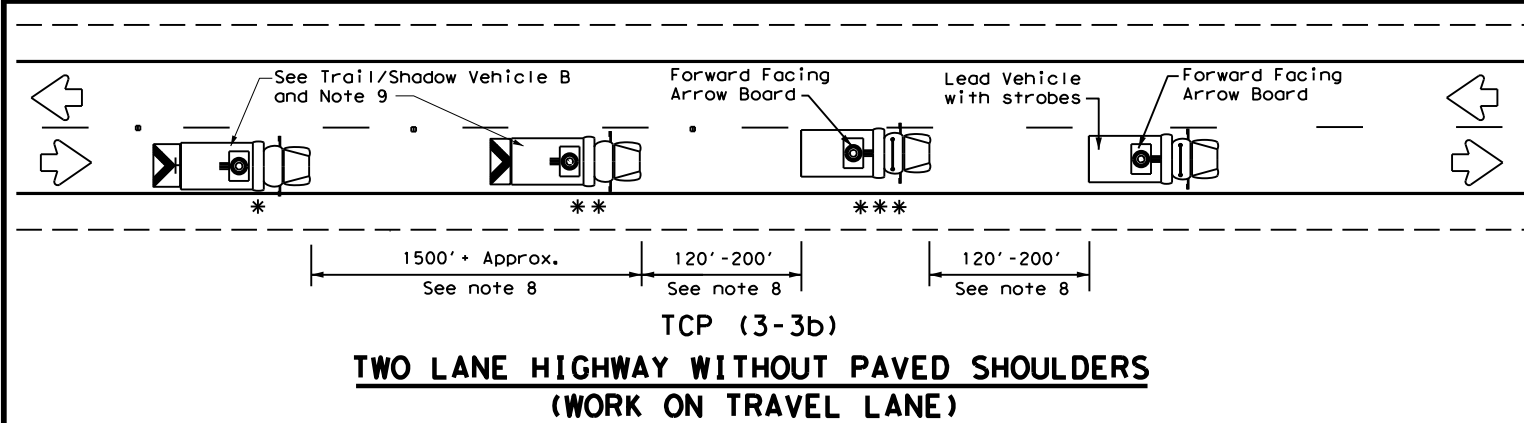
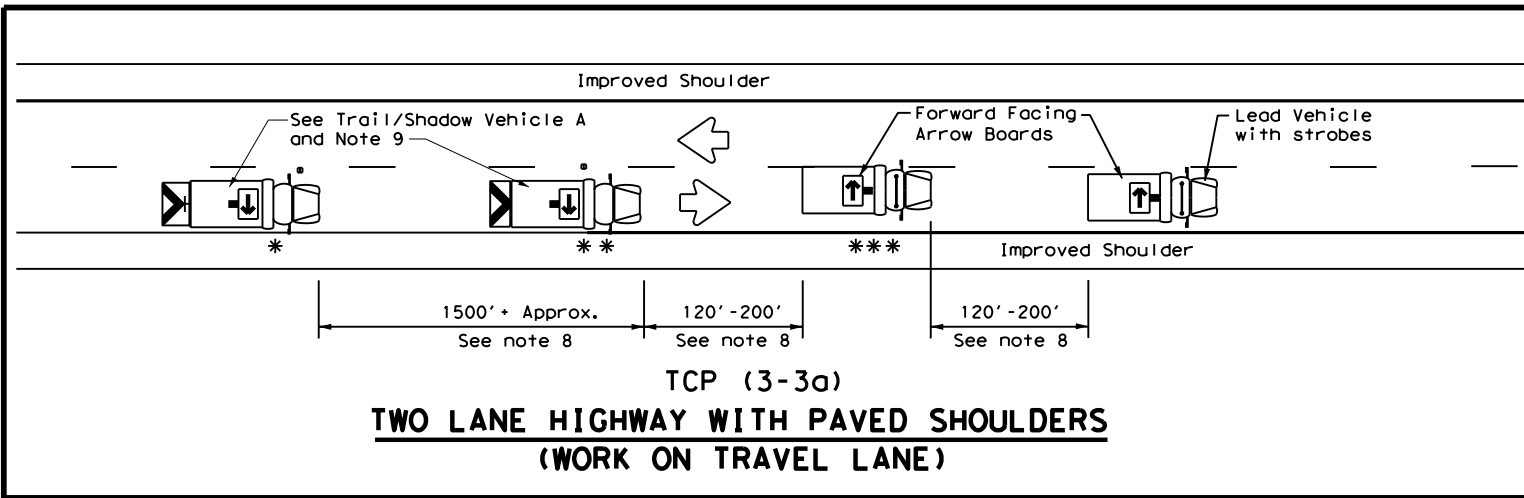
TCP (3-1) - 13

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2-94	4-98	DIST:		COUNTY:		SHEET NO.			
8-95	7-13	ABL		HASKELL		43			
1-97									

DATE:
FILE:

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DATE: FILE:



LEGEND		
* Trail Vehicle	ARROW BOARD DISPLAY	
** Shadow Vehicle		
*** Work Vehicle		RIGHT Directional
		LEFT Directional
		Double Arrow
		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 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.
- 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, ADVANCE WARNING 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 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.
- 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.
- A double arrow shall not be displayed on the arrow board on the Advance Warning Vehicle.
- For divided highways with three or four lanes in each direction, use TCP(3-2).
- Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
- The Advance Warning Vehicle may straddle the edgeline when Shoulder width makes it necessary.
- 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

RAISED PAVEMENT

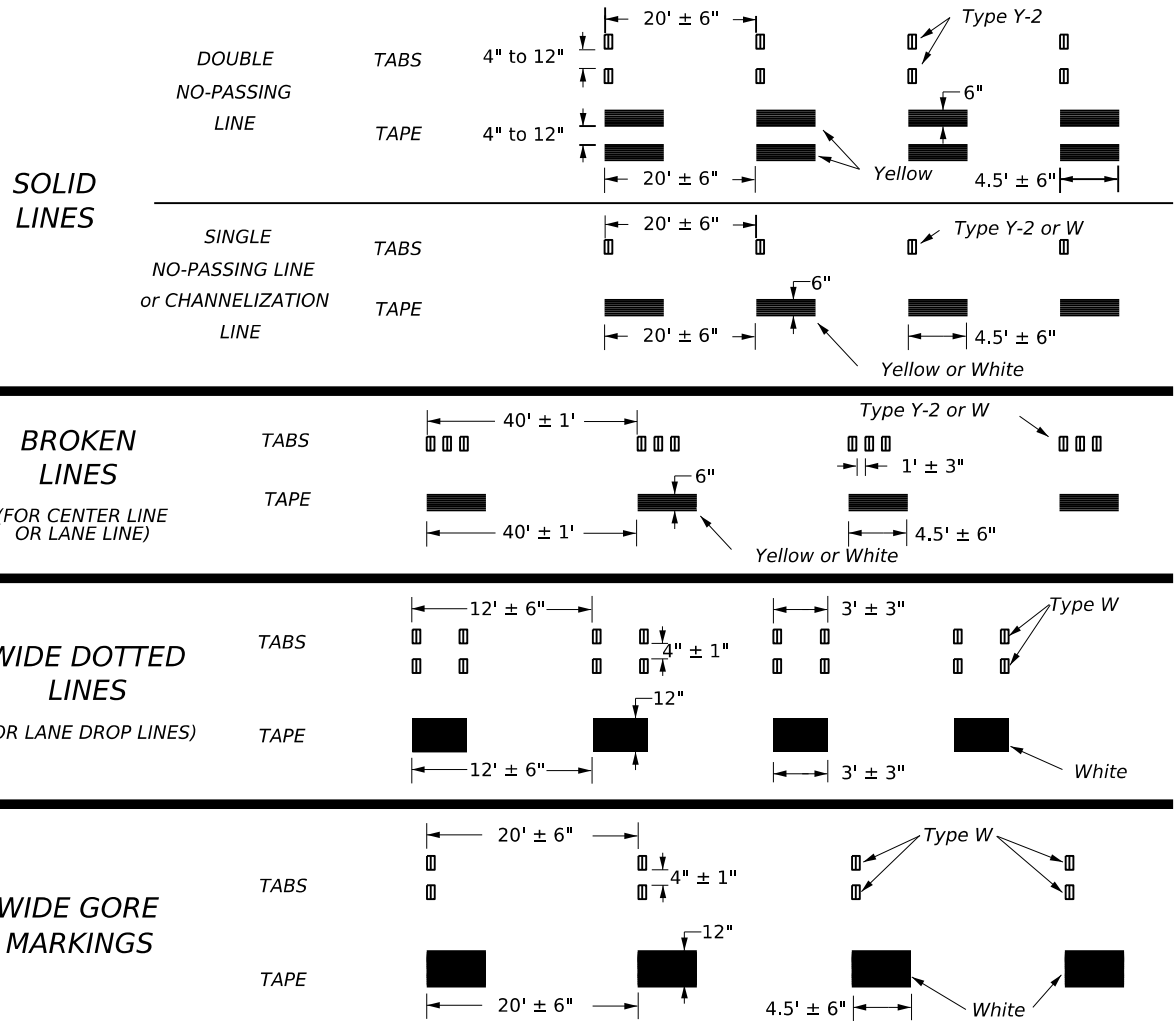
MARKER INSTALLATION/REMOVAL

TCP (3-3) - 14

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© TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
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2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 7-13	ABL	HASKELL	44	
1-97 7-14				

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WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



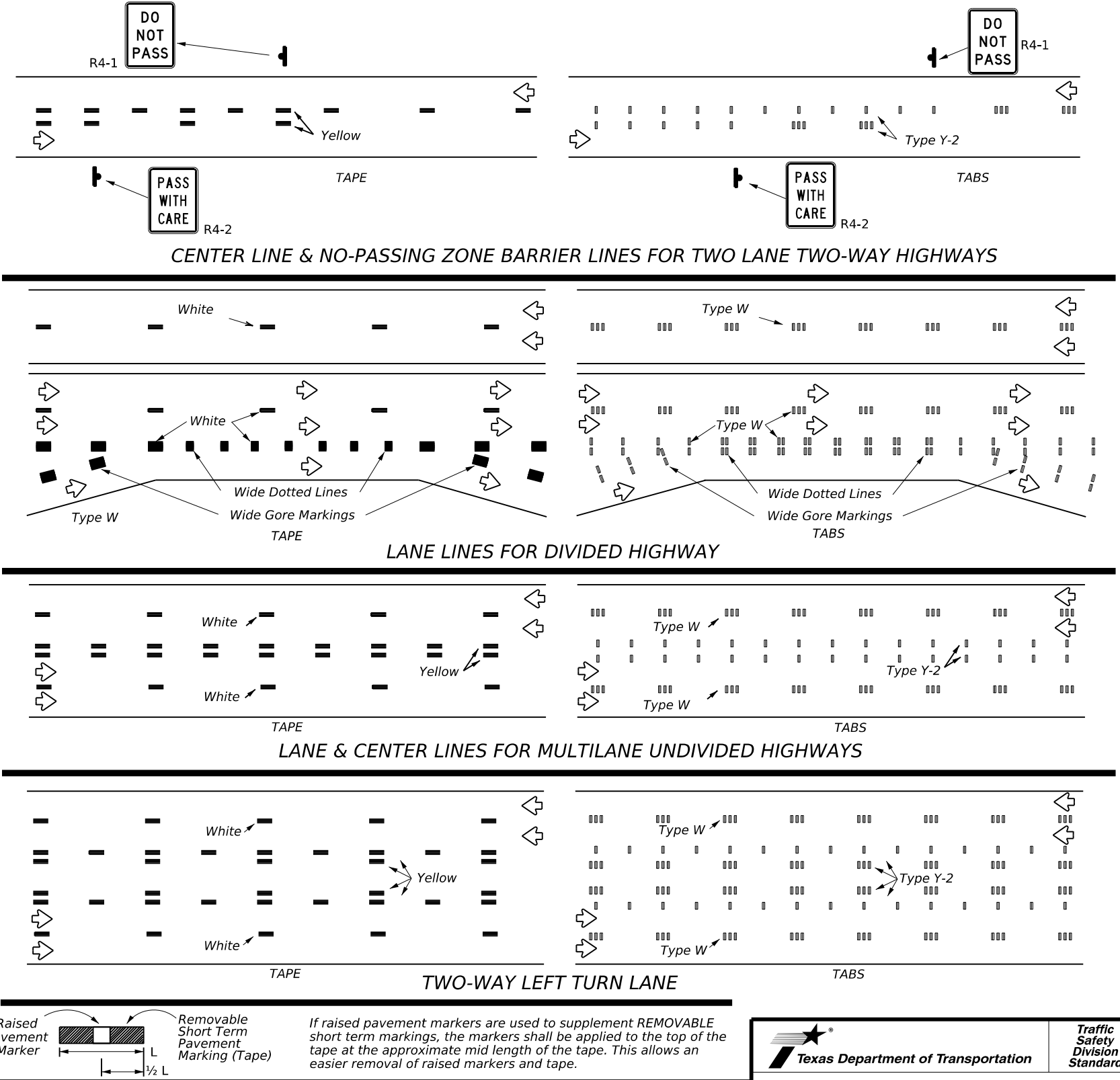
NOTES:

- Short term pavement markings may be prefabricated markings (stick down tape) or temporary flexible reflective roadway marker tabs unless otherwise specified elsewhere in plans.
- Short term pavement markings shall NOT be used to simulate edge lines.
- Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.
- Temporary flexible-reflective roadway marker tabs will require normal maintenance replacement when used on roadways with an ADT per lane of up to 7500 vehicles with no more than 10% truck mix. When roadways exceed these values, additional maintenance replacement of devices should be planned.
- No segment of roadway open to traffic shall remain without permanent pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
- For two lane, two-way roadways, DO NOT PASS signs shall be erected to mark the beginning of sections where passing is prohibited and PASS WITH CARE signs shall be erected to mark the beginning of sections where passing is permitted. Signs shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and may be used to indicate the limits of no-passing zones for up to 14 calendar days. Permanent pavement markings should then be placed.
- For low volume two lane, two-way roadways of 4000 ADT or less, no-passing lines may be omitted when approved by the Engineer. DO NOT PASS and PASS WITH CARE signs shall be erected (see note 6).
- For exit gores where a lane is being dropped place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are not allowed for this purpose.

TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

- Temporary flexible-reflective roadway marker tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(11).
- Tabs shall meet requirements of Departmental Material Specification DMS-8242.
- When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
- No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 3.

WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



PREFABRICATED PAVEMENT MARKINGS

- Temporary Removable Prefabricated Pavement Markings shall meet the requirements of DMS-8241.
- Non-removable Prefabricated Pavement Markings shall meet the requirements of either DMS-8240 "Permanent Prefabricated Pavement Markings" or DMS-8243 "Temporary Construction-Grade Prefabricated Pavement Markings."

RAISED PAVEMENT MARKERS

- All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and DMS-4200.

DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS) & MATERIAL PRODUCER LISTS (MPL)

- DMSs referenced above can be found along with embedded links to their respective MPLs at the following website:

http://www.txdot.gov/business/contractors_consultants/material_specifications/default.htm



WORK ZONE SHORT TERM PAVEMENT MARKINGS

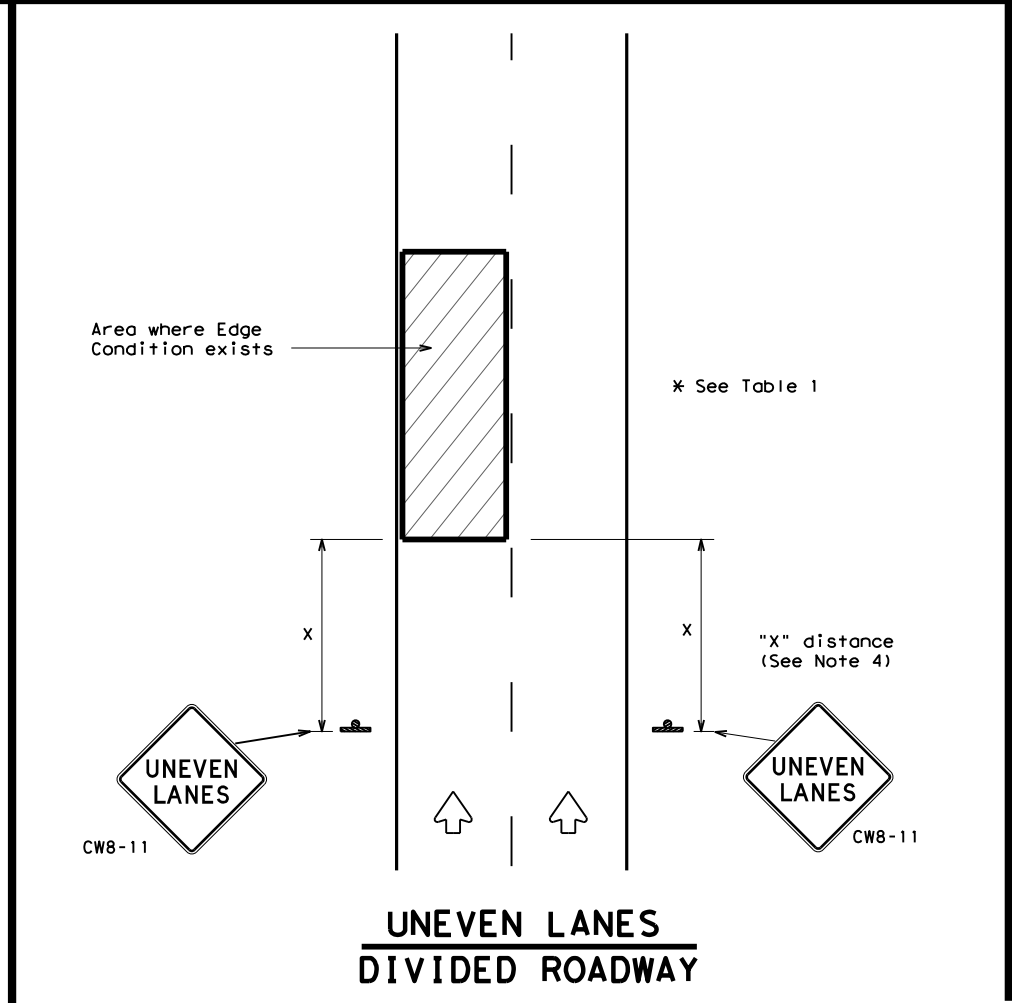
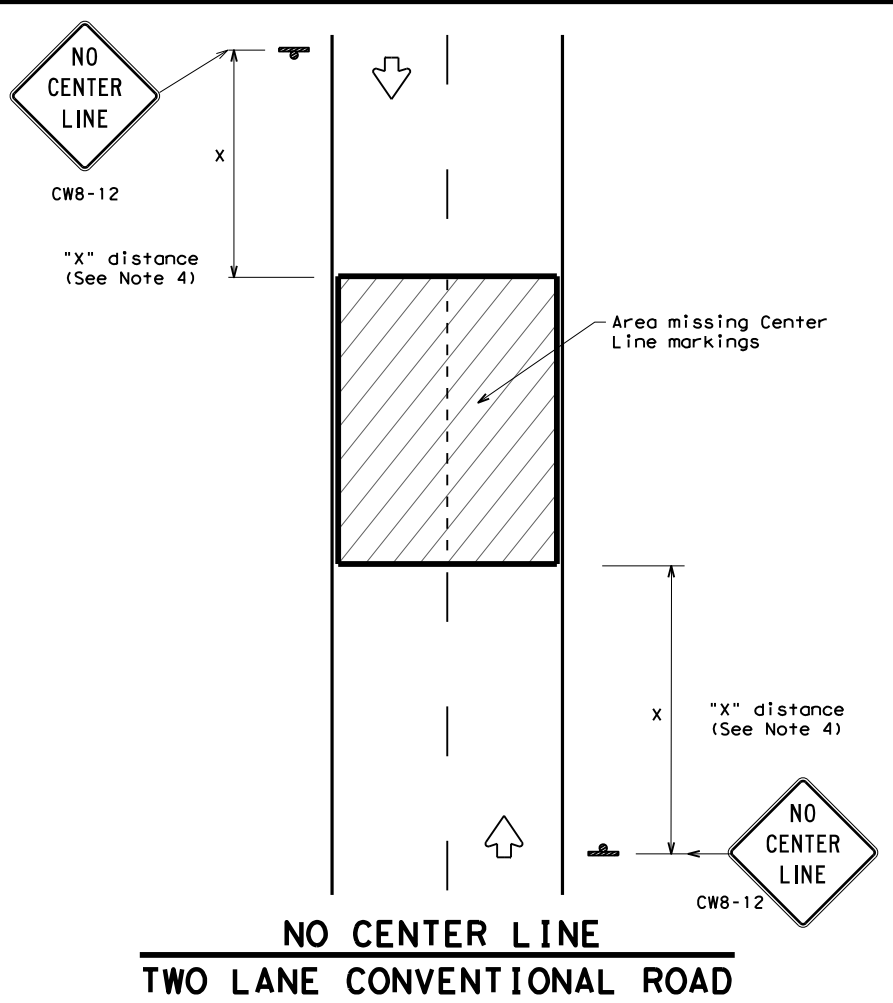
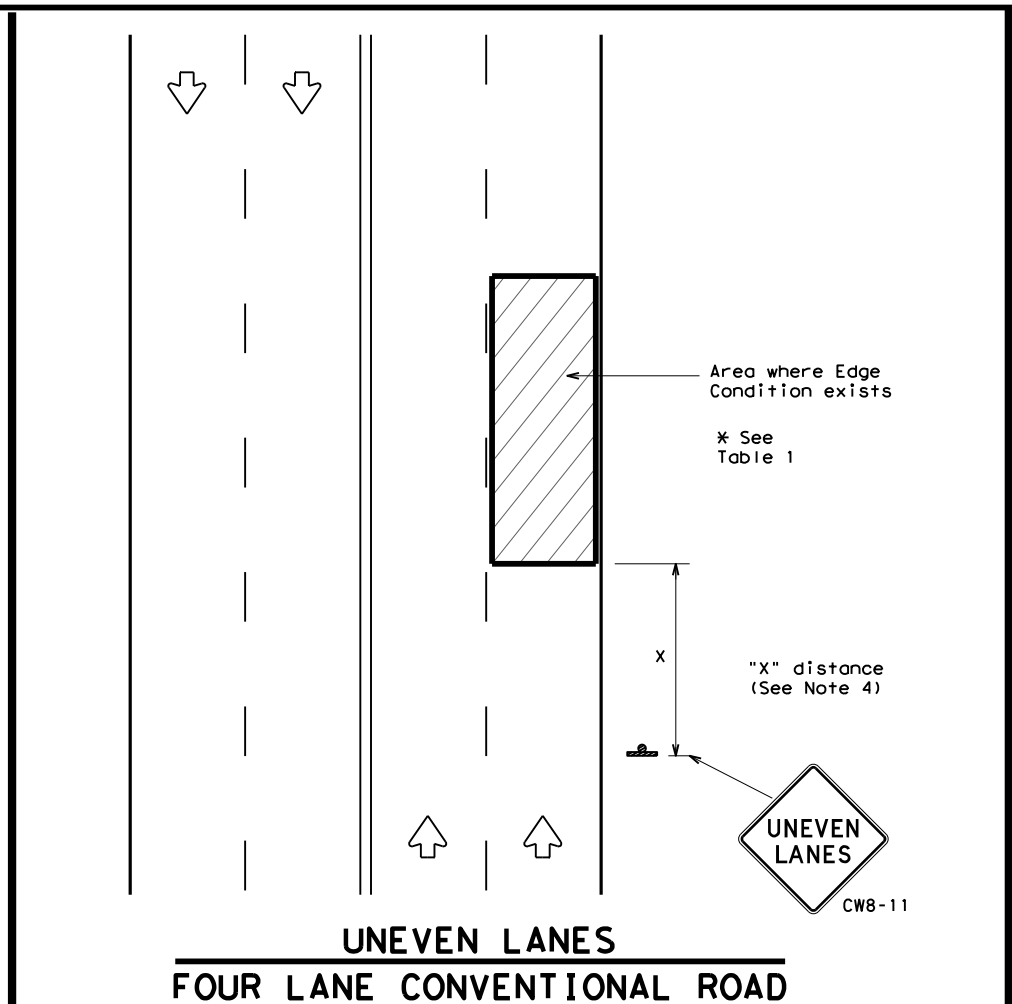
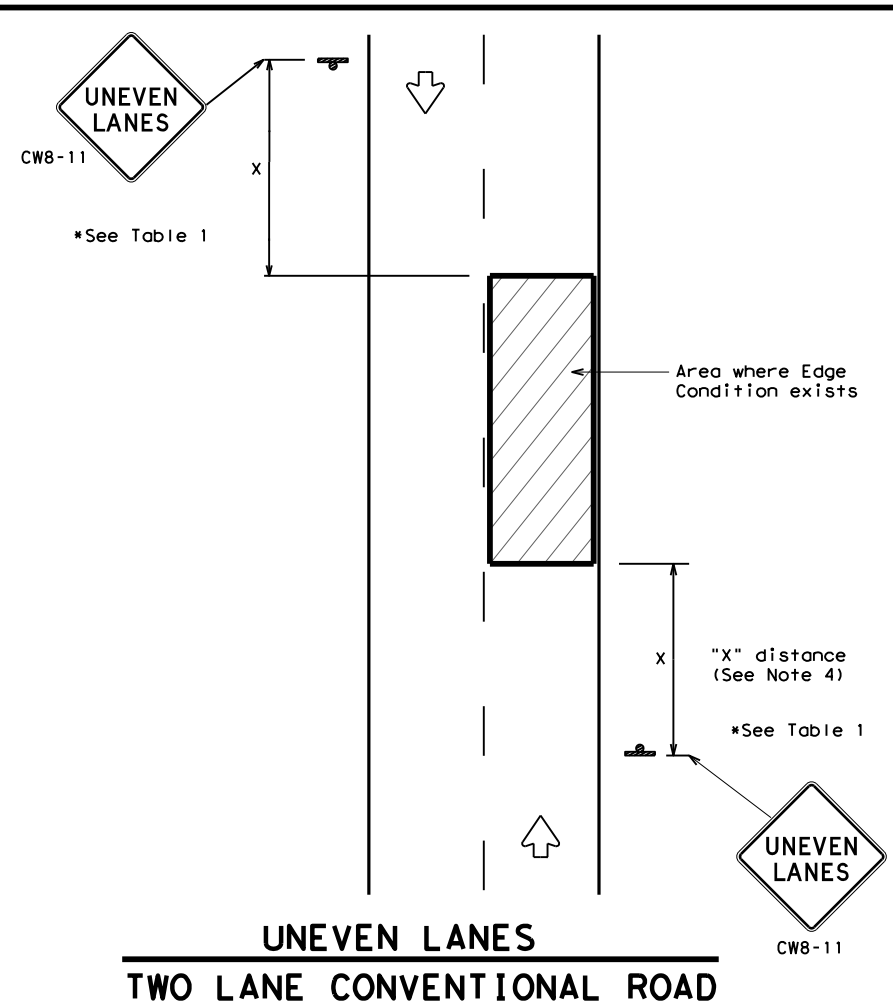
WZ(STPM)-23

FILE: wzsstpm-23.dgn	DN:	CK:	DW:	CK:
© TxDOT February 2023	CONTRACT	SECTION	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
4-92	7-13			
1-97	2-23			
3-03				
	DIST	COUNTY		SHEET NO.
	ABL	HASKELL		45

DATE: FILE:

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DEPARTMENTAL MATERIAL SPECIFICATIONS	
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY (REMOVABLE) PREFABRICATED PAVEMENT MARKINGS	DMS-8241
SIGN FACE MATERIALS	DMS-8300

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

GENERAL NOTES

1. If spalling or holes occur, ROUGH ROAD (CW8-8) signs should be placed in advance of the condition and be repeated every two miles where the condition persists.
2. UNEVEN LANES (CW8-11) signs shall be installed in advance of the condition and repeated every mile. Signs installed along the uneven lane condition may be supplemented with the NEXT XX MILES (CW7-3aP) plaque or Advisory Speed (CW13-1P) plaque.
3. NO CENTER LINE (CW8-12) signs and temporary pavement markings as per the WZ(STPM) standard shall be installed if yellow centerlines separating two way traffic are obscured or obliterated. Repeat NO CENTER LINE signs every two miles where the center line markings are not in place. The signs and markings shall remain in place until permanent pavement markings are installed.
4. Signs shall be spaced at the distances recommended as per BC standards.
5. Additional signs may be required as directed by the Engineer. Signs shall remain in place until final surface is applied. Signs shall be considered subsidiary to Item 502 "BARRICADES, SIGNS AND TRAFFIC HANDLING."
6. Signs shall be fabricated and mounted on supports as shown on the BC standards and/or listed on the "Compliant Work Zone Traffic Control Devices" list.
7. Short term markings shall not be used to simulate edge lines.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition.

Edge Condition	Edge Height (D)	* Warning Devices
①	Less than or equal to: 1/4" (maximum-planing) 1/2" (typical-overlay)	Sign: CW8-11
②	Less than or equal to 3"	Sign: CW8-11
③	Distance "D" may be a maximum of 3" if uneven lanes with edge condition 2 or 3 are open to traffic after work operations cease. Uneven lanes should not be open to traffic when "D" is greater than 3".	

TRAFFIC CONTROL DURING PLANING, OVERLAY AND LEVELING OPERATIONS ARE SHOWN ELSEWHERE IN THE PLANS.

MINIMUM WARNING SIGN SIZE	
Conventional roads	36" x 36"
Freeways/expressways, divided roadways	48" x 48"



SIGNING FOR UNEVEN LANES

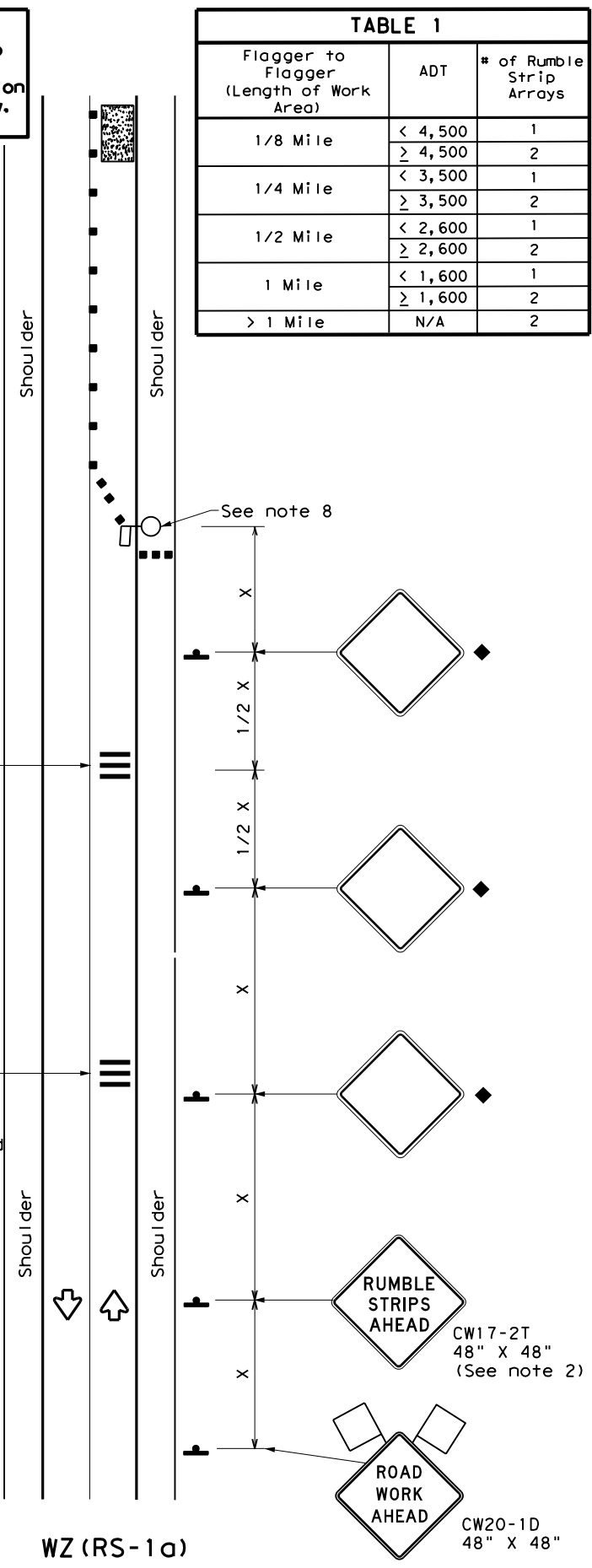
WZ (UL) - 13

FILE: wzu1-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT April 1992	CONT 0360	SECT 04	JOB 033	HIGHWAY US 380
8-95 2-98 7-13	DIST	COUNTY	SHEET NO.	
1-97 3-03	ABL	HASKELL	46	

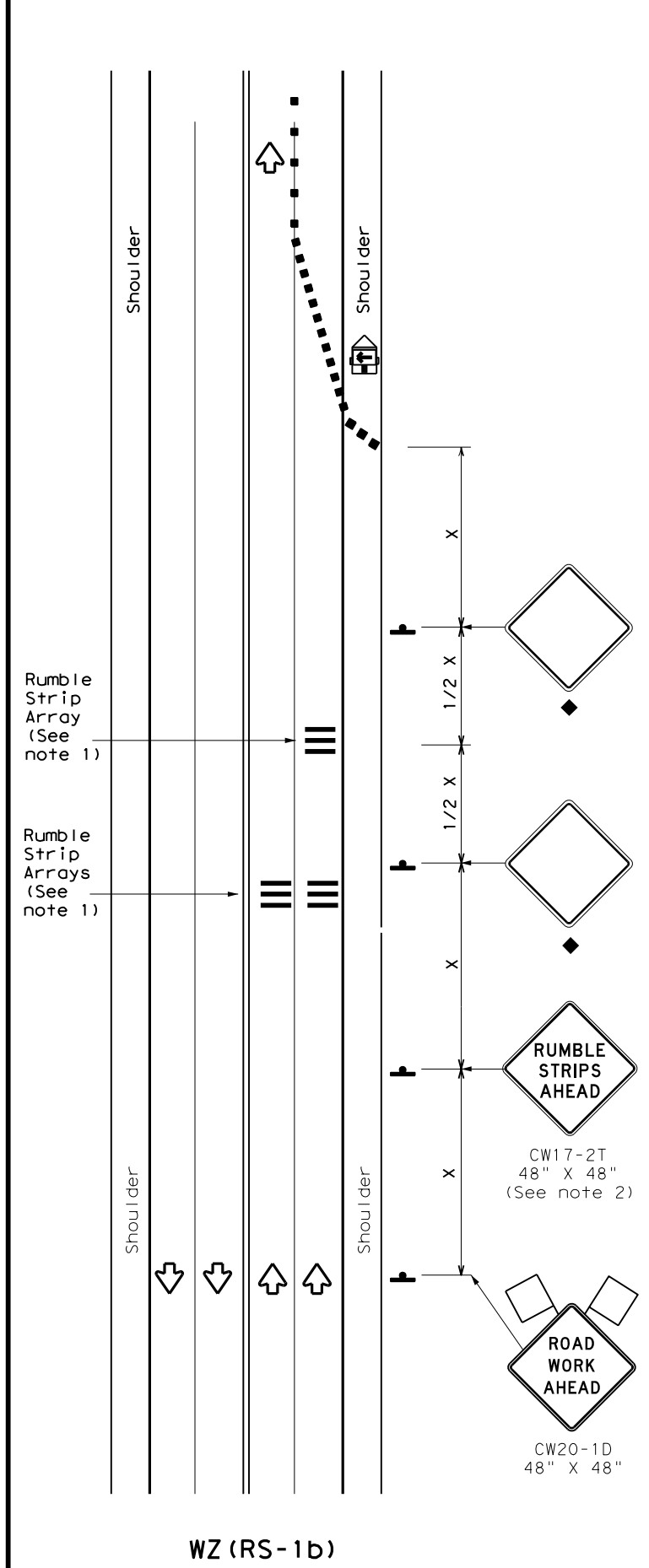
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard into a project-specific design. The user of this standard shall be responsible for the accuracy of the design. DATE: 9/8/2023 8:14:19 AM FILE: C:\AIG-Projectwise\AIG Technical Services LLC\2312_WA3_US380_PSE_AIG\2312_WA3_US380_PSE_AIG.dwg

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

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



RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

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

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

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Panel		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/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)

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

◆ Signs are for illustrative purposes only. Signs required may vary depending on the TCP, TMUTCD Typical Application, or project specific details for the project.
 * For posted speeds in excess of 65 MPH, it is recommended that spacing is increased as speed limits increase. Increasing space between rumble strips will improve effectiveness.

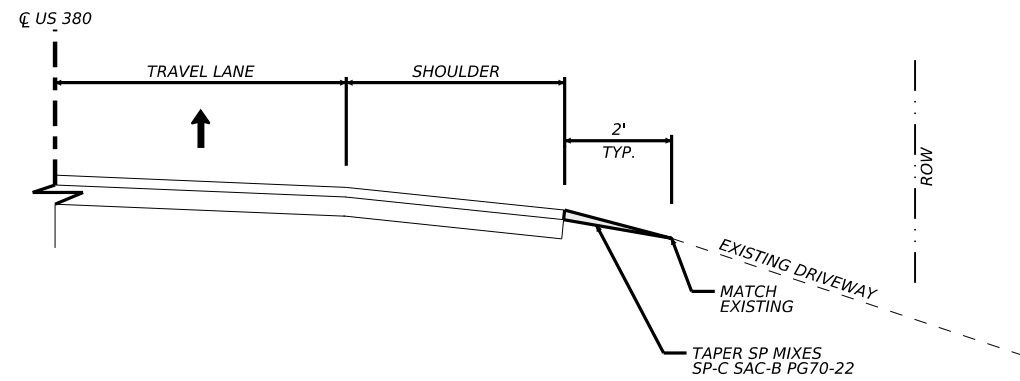
Texas Department of Transportation Traffic Safety Division Standard

TEMPORARY RUMBLE STRIPS

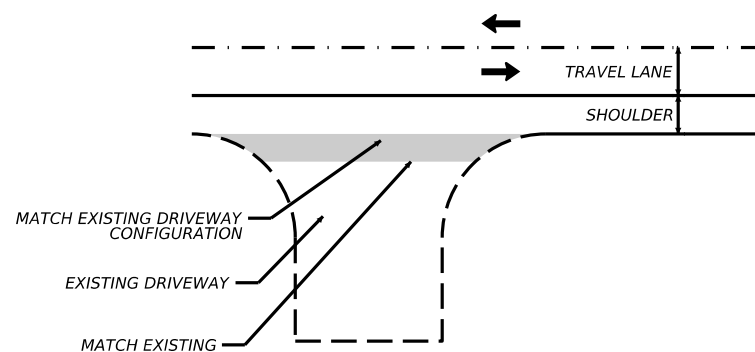
WZ (RS) - 22

FILE: wzrs22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
2-14 1-22	DIST	COUNTY	SHEET NO.	
4-16	ABL	HASKELL	47	

9/8/2023 8:15:36 AM C:\AIG-Projectwise\AIG Technical Services LLC\2312_WA3_US380_PSE_AIG\4 - Design\Plan Set\3_Roadway\US380_AIG_RD_DD_01.dgn



INTERSECTION & DRIVEWAY TYPICAL SECTION




INTERSECTION & DRIVEWAY PLAN

- NOTES:
1. THE CONTRACTOR SHALL ALLOW INGRESS AND EGRESS OF RESIDENTS DURING CONSTRUCTION OF DRIVEWAYS.
 2. SP-C FOR DRIVEWAYS AND INTERSECTIONS WILL BE PAID UNDER ITEM 3077 BY THE TON.

SUMMARY OF INTERSECTION & DRIVEWAY AREAS		
CSj: 0360-04-033		
APPROX. STA	SIDE	AREA(SY)
43+00	LT	12
63+26	LT	14
79+38	RT	21
83+64	LT	10
137+72	RT	10
137+85	LT	10
153+48	RT	11
164+37	LT	10
167+78	RT	10
172+00	LT	12
199+57	RT	12
199+76	LT	15
233+37	LT	13
262+70	LT	12
297+00	RT	16
308+00	LT	16
310+00	RT	19
317+00	RT	14
332+07	RT	13
356+81	RT	17
358+00	RT	10
376+20	LT	8
408+60	LT	7
467+60	RT	20
470+18	RT	17
538+00	RT	22
605+75	LT	12
605+90	RT	11
660+50	RT	8
697+29	LT	15
705+87	LT	22
713+73	RT	18
750+36	LT	24
766+56	LT	16
768+20	RT	13
SHEET TOTALS:		490


REV NO.	DATE	BY	REVISION



9/8/2023

AIG Tech
Advanced Infrastructure Group

AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607



Texas Department of Transportation

US 380
INTERSECTION & DRIVEWAY DETAILS

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY		SHEET NO.
ABILENE	HASKELL		48

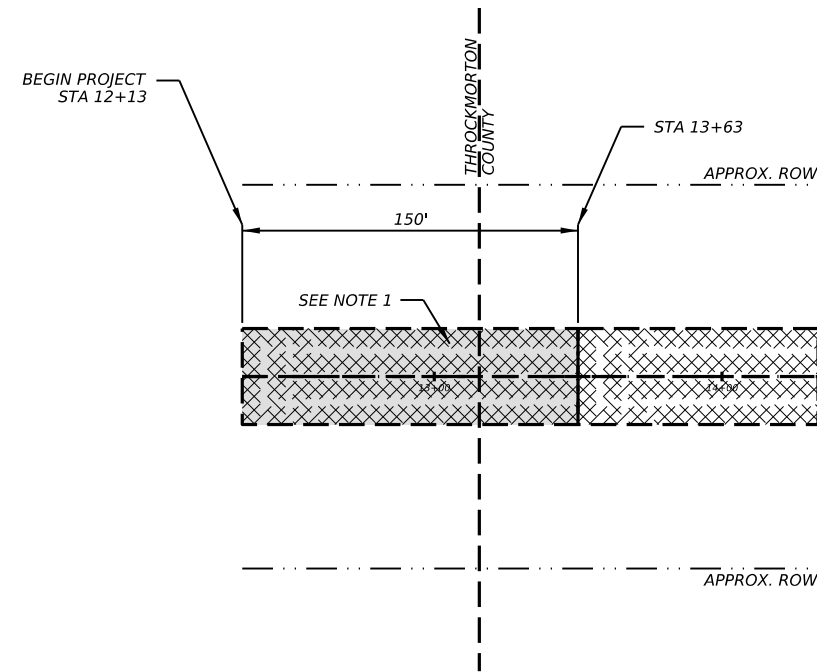
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LEGEND

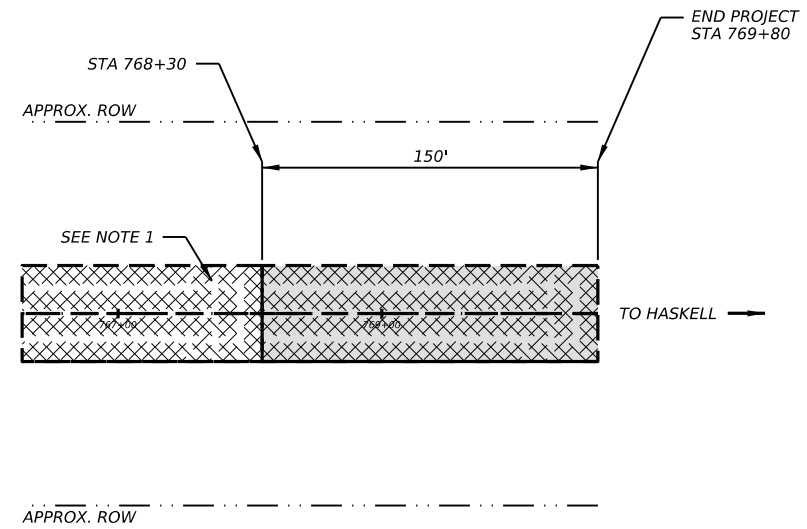
- 2" OVERLAY
- 0"-2" MILL

NOTES:

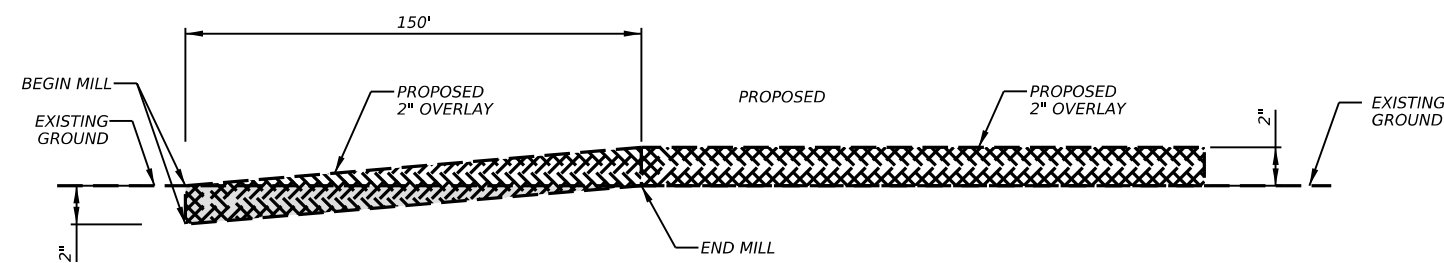
1. TACK COAT WILL BE REQUIRED ON AS DETERMINED BY THE ENGINEER ON ALL SURFACES AND VERTICAL FACES BETWEEN INTERIOR JOINTS.



CSJ: 0360-04-033 PLAN
SCALE: NOT TO SCALE



CSJ: 0360-04-033 PLAN
SCALE: NOT TO SCALE



PROFILE DETAIL
SCALE: NOT TO SCALE

REV NO.	DATE	BY	REVISION



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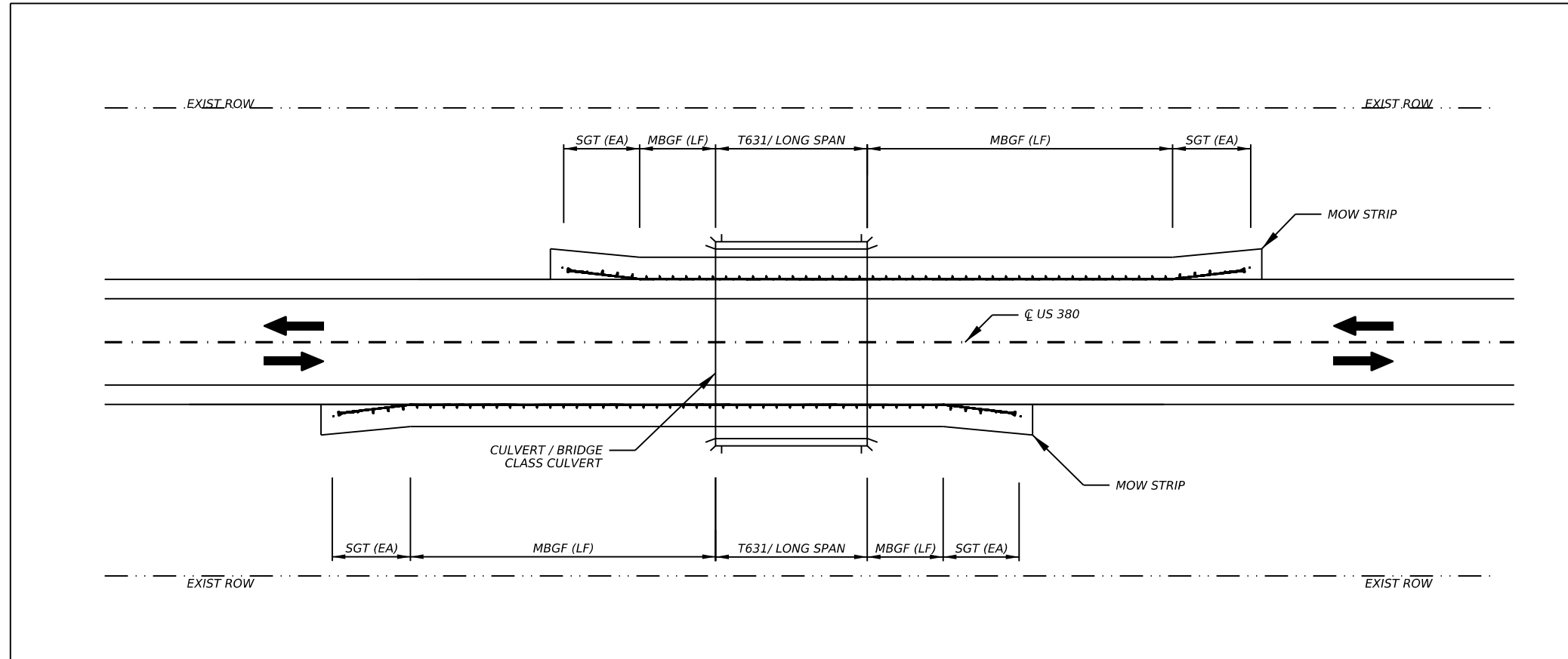
Texas Department of Transportation

**US 380
TIE-IN DETAIL**

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	49	

9/15/2023 2:00:28 PM C:\AIG-Projectwise\AIG Technical Services LLC\2312_WA3_US380_PSE_AIG4 - Design\Plan Set\3_Roadway\US380_AIG_RD_ML_01.dgn



**TRAFFIC RAIL PLAN
N.T.S.**

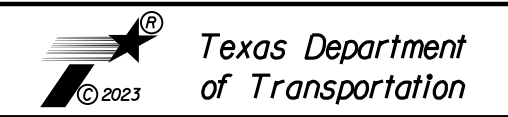
- NOTES:
1. APPROXIMATE STATION LOCATIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
 2. EXISTING STRUCTURES BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY PRIOR TO BEGIN CONSTRUCTION.
 3. FIELD CUT TRAFFIC RAIL AS NEEDED.
 4. SEE PROJECT LAYOUT SHEETS FOR ADDITIONAL INFORMATION ON LIMITS OF TRAFFIC RAIL.
 5. SEE MBGF AND TRAFFIC RAIL STANDARDS FOR ADDITIONAL INFORMATION.

REV NO.	DATE	BY	REVISION



9/8/2023

AIG Tech
Advanced Infrastructure Group
AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
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**US 380
TRAFFIC RAIL
DETAIL**

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	50	

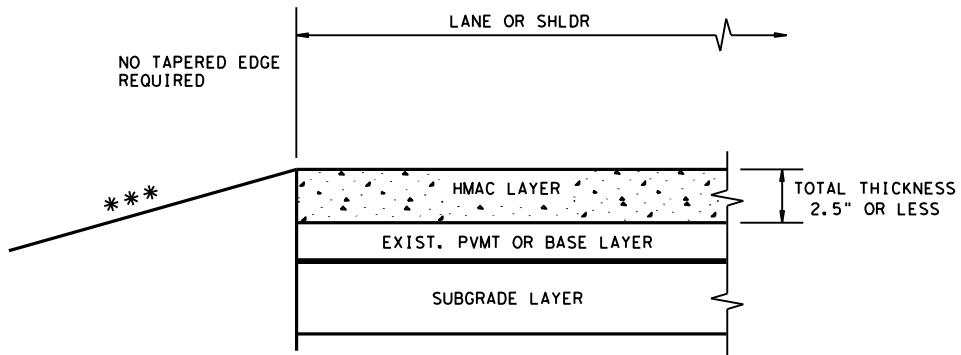
INSTALLATION OF TRAFFIC RAIL ITEMS FOR BRIDGE CLASS CULVERTS

TRAFFIC RAIL NO.	NBI NUMBER	BEGIN STA	END STA	FEATURE CROSSED	SIDE	BEGIN STRUCTURE	APPROX. MBGF BEGIN STA	APPROX. MBGF END STA	MBGF LENGTH (FT)	APPROX. TRAFFIC RAIL T631 BEGIN STA	APPROX. TRAFFIC RAIL T631 END STA	TRAFFIC RAIL T631 LENGTH (FT)	APPROX. MBGF BEGIN STA	APPROX. MBGF END STA	MBGF LENGTH (FT)	END STRUCTURE
1	08-105-0-0360-04-022	123+96.00	124+49.00	DRAW	LT	SGT	122+71.00	123+96.00	125	123+96.00	124+49.00	53	124+49.00	124+71.00	22	SGT
2					RT	SGT	123+74.00	123+96.00	22	123+96.00	124+49.00	53	124+49.00	125+49.00	100	SGT
3	08-105-0-0360-04-021	215+65.00	215+92.00	DRAW	LT	SGT	214+15.00	215+65.00	150	215+65.00	215+92.00	27	215+92.00	216+15.00	23	SGT
4					RT	SGT	215+42.00	215+65.00	23	215+65.00	215+92.00	27	215+92.00	216+92.00	100	SGT
5	08-105-0-0360-04-020	288+40.00	288+63.00	DRAW	LT	SGT	287+40.00	288+40.00	100	288+40.00	288+63.00	23	288+63.00	288+90.00	27	SGT
6					RT	SGT	288+13.00	288+40.00	27	288+40.00	288+63.00	23	288+63.00	289+63.00	100	SGT
7	08-105-0-0360-04-019	340+76.00	341+10.00	DRAW	LT	SGT	339+51.00	340+76.00	125	340+76.00	341+10.00	34	341+10.00	341+51.00	41	SGT
8					RT	SGT	340+35.00	340+76.00	41	340+76.00	341+10.00	34	341+10.00	342+10.00	100	SGT
11	08-105-0-0360-04-018	492+38.00	492+92.00	SLOUGH	LT	SGT	491+38.00	492+38.00	100	492+38.00	492+92.00	54	492+92.00	493+13.00	21	SGT
12					RT	SGT	492+17.00	492+38.00	21	492+38.00	492+92.00	54	492+92.00	494+17.00	125	SGT
13	08-105-0-0360-04-017	497+99.00	498+27.00	RED CREEK RELIEF	LT	SGT	496+74.00	497+99.00	125	497+99.00	498+27.00	28	498+27.00	498+49.00	22	SGT
14					RT	SGT	497+77.00	497+99.00	22	497+99.00	498+27.00	28	498+27.00	499+52.00	125	SGT
15	08-105-0-0360-04-016	510+53.00	510+81.00	RED CREEK	LT	SGT	509+53.00	510+53.00	100	510+53.00	510+81.00	28	510+81.00	511+03.00	22	SGT
16					RT	SGT	510+31.00	510+53.00	22	510+53.00	510+81.00	28	510+81.00	512+06.00	125	SGT

INSTALLATION OF TRAFFIC RAIL ITEMS FOR CULVERTS

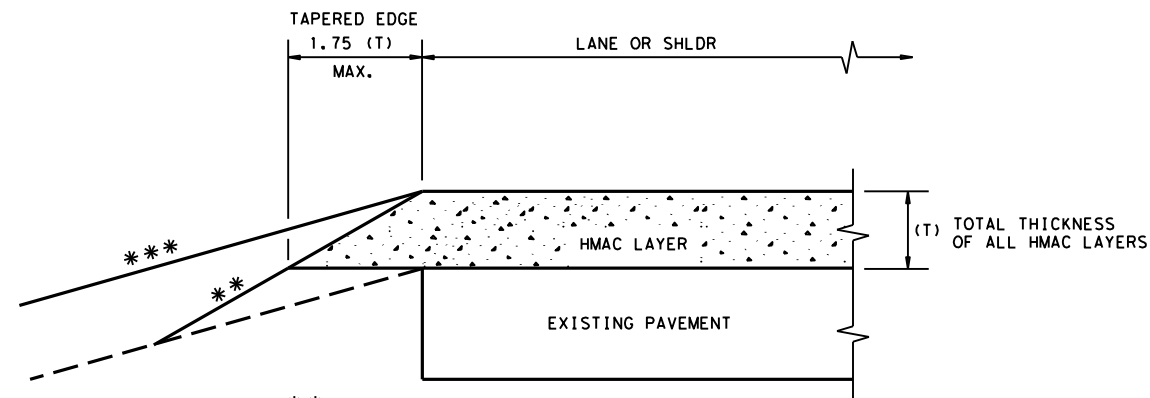
TRAFFIC RAIL NO.	SIDE	BEGIN STRUCTURE	APPROX. MBGF BEGIN STA	APPROX. MBGF END STA	MBGF LENGTH (FT)	LONG SPAN MBGF (EA)	APPROX. MBGF BEGIN STA	APPROX. MBGF END STA	MBGF LENGTH (FT)	END STRUCTURE
9	LT	SGT	364+34.00	365+09.00	75	1	N/A	N/A	N/A	SGT
10	RT	SGT	N/A	N/A	N/A	1	365+80.00	366+55.00	75	SGT
17	LT	SGT	559+55.00	560+30.00	75	1	N/A	N/A	N/A	SGT
18	RT	SGT	N/A	N/A	N/A	1	560+97.00	561+72.00	75	SGT

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*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

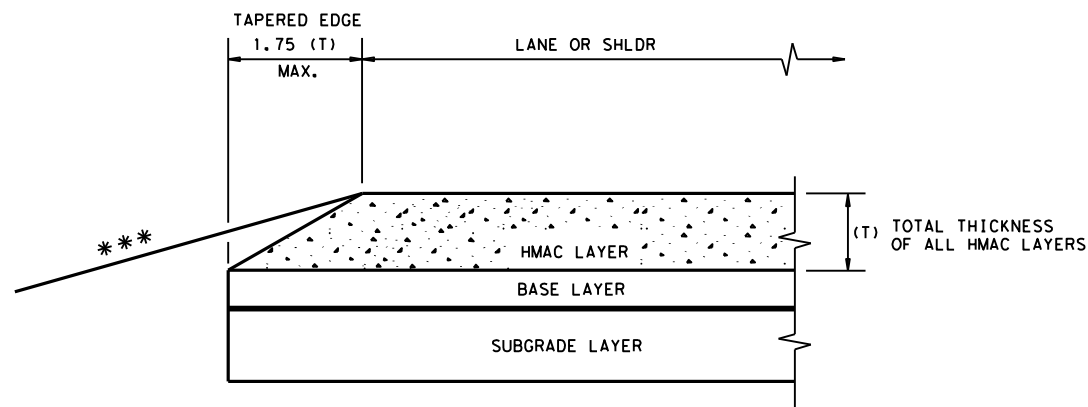
CONDITION - 1
THIN HMAC SURFACES OR HMAC OVERLAY
WITH THICKNESS OF 2.5" OR LESS



** EXISTING ROADSIDE EMBANKMENT TO BE GRADED TO PRODUCE A SMOOTH LEVEL SURFACE FOR PLACEMENT OF TAPERED EDGE. THIS WORK IS SUBSIDIARY TO THE VARIOUS BID ITEMS.

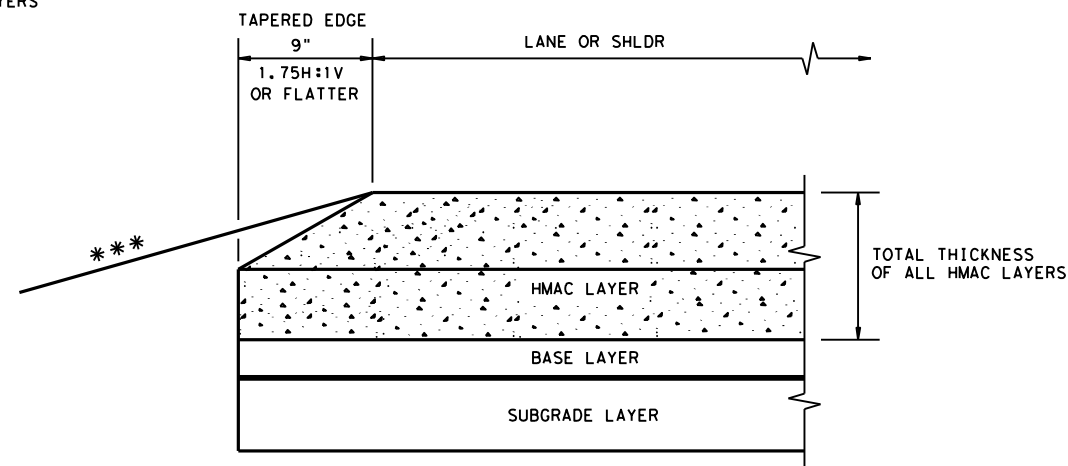
*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 2
OVERLAY OF EXISTING PAVEMENT
HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 3
NEW OR RECONSTRUCTED PAVEMENT
HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 4
NEW OR RECONSTRUCTED PAVEMENT
HMAC THICKNESS 5" OR GREATER

GENERAL NOTES

1. UNLESS OTHERWISE SHOWN IN THE PLANS, A VERTICAL EDGE IS PERMISSIBLE FOR HMAC PLACED GREATER THAN 5" BELOW THE EDGE OF PAVEMENT AND FOR THICKNESS OF HMAC LESS THAN 2.5".
2. FOR FURTHER INFORMATION REGARDING THE ROADSIDE AND PAVEMENT DETAILS, SEE TYPICAL SECTIONS.
3. PAYMENT FOR TAPERED EDGE WILL BE IN ACCORDANCE WITH APPLICABLE ITEMS IN THE CONTRACT.
4. THE SLOPE OF THE TAPERED EDGE SHALL BE 1.75H:1V OR FLATTER.
5. THE TAPERED EDGE SHALL BE PRODUCED BY USE OF A SCREED ATTACHMENT CAPABLE OF PRODUCING A SMOOTH COMPACTED SURFACE. ADDITIONAL COMPACTING EFFORT BEHIND THE SCREED IS NOT REQUIRED.

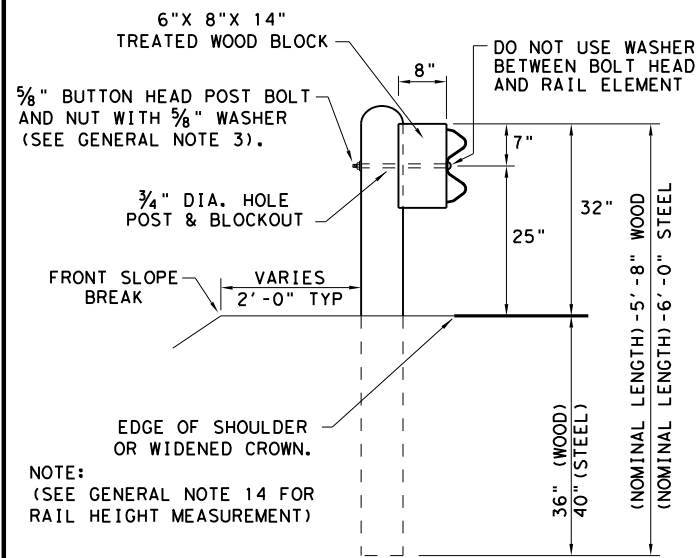
(NOT TO SCALE)

DATE:
FILE:

					Design Division Standard	
TAPERED EDGE DETAILS HMAC PAVEMENT						
TE (HMAC) - 11						
FILE: tehmac11.dgn	DN: TxDOT	CK: RL	DW: KB	CK:		
© TxDOT January 2011	CONT	SECT	JOB	HIGHWAY		
REVISIONS	0360	04	033	US 380		
	DIST	COUNTY	SHEET NO.			
	ABL	HASKELL	51			

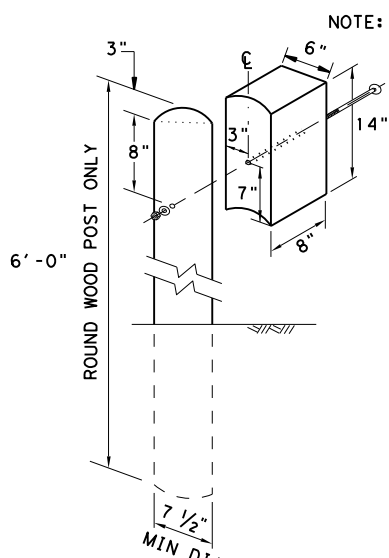
DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TXDOT FOR ANY PURPOSE WHATSOEVER. TXDOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

DATE: FILE:



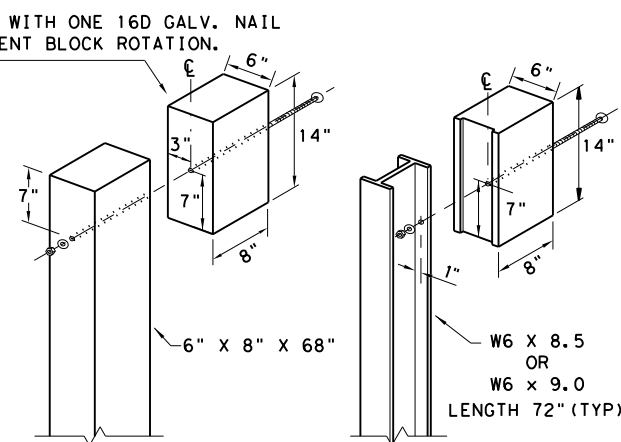
TYPICAL POST PLACEMENT

NOTE: (SEE GENERAL NOTE 14 FOR RAIL HEIGHT MEASUREMENT)



WOOD BLOCK TO ROUND WOOD POST

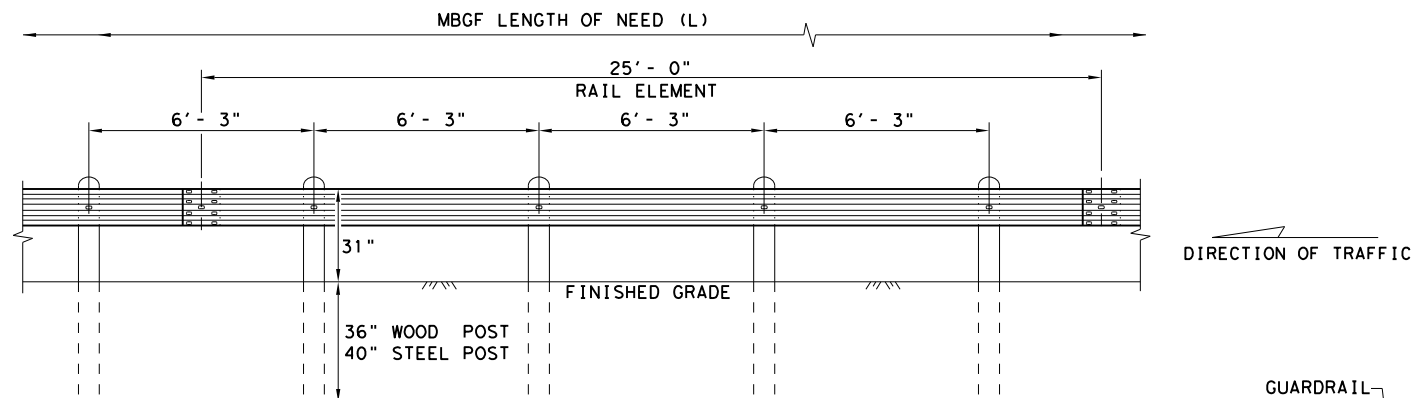
NOTE: TOENAIL WITH ONE 16D GALV. NAIL TO PREVENT BLOCK ROTATION.



WOOD BLOCK TO RECTANGULAR WOOD POST

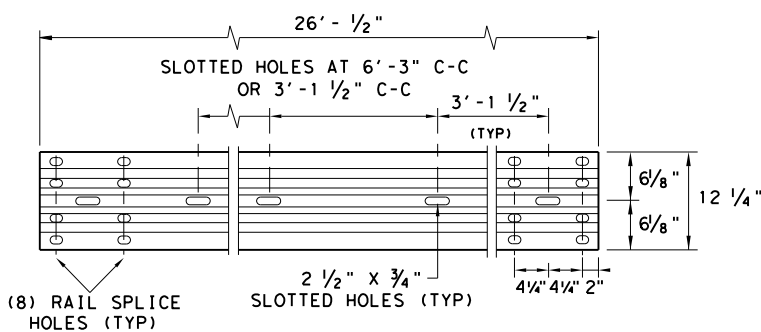
ROUTED WOOD BLOCK TO I-BEAM STEEL POST

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



ELEVATION MID-SPAN RAIL SPLICE

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



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

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

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

SPLICE BOLT LENGTH VARIES

FBB01 = 1 1/4"

FBB02 = 2"

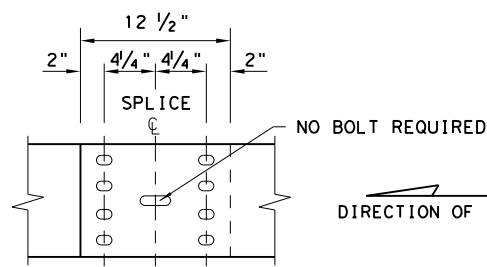
POST & BLOCK LENGTH

FBB03 = 10"

FBB04 = 18"

BUTTON HEAD BOLT

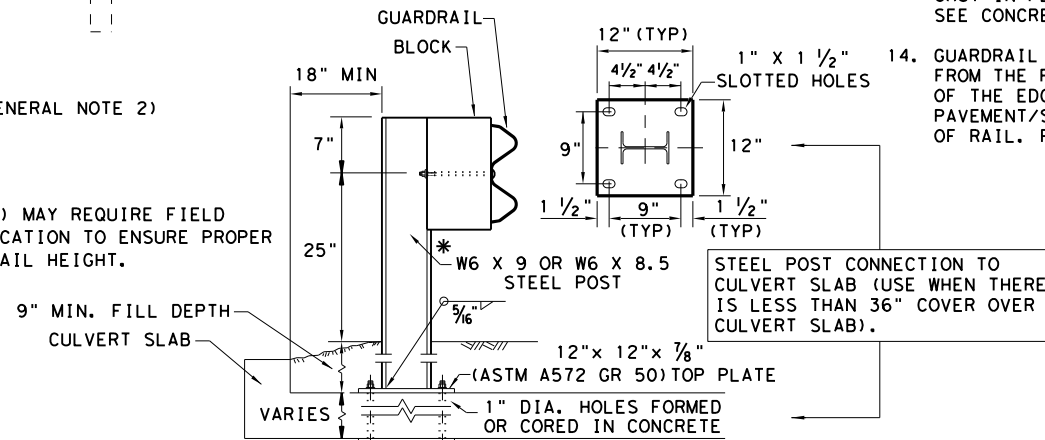
NOTE: SEE GENERAL NOTE 3 FOR SPLICE & POST BOLT DETAILS.



MID-SPAN RAIL SPLICE DETAIL

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

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



LOW FILL CULVERT POST

12" x 12" x 1/4" (ASTM A36) STEEL BOTTOM PLATE WITH 1" DIA. HOLES REQUIRED WITH BOLT-THROUGH INSTALLATION.

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.

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 3/8" 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.

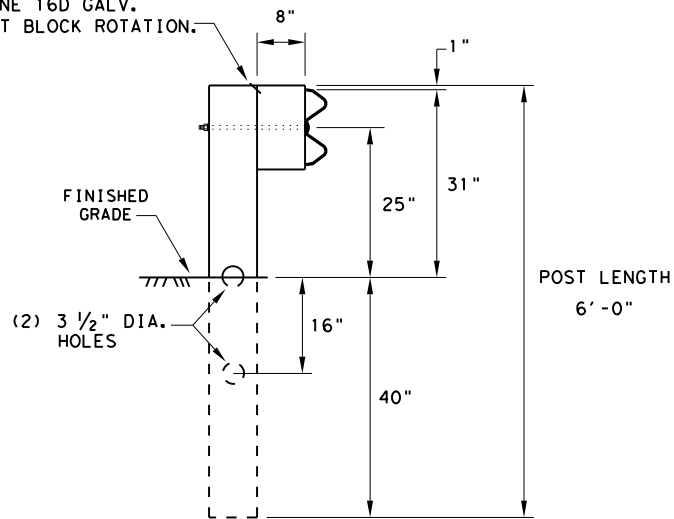
NOTE: TRANSITIONS TO BRIDGE RAILS OR TRAFFIC BARRIERS. SEE GF(31)TL3 TR STANDARD FOR HIGH-SPEED TL-3 TRANSITIONS. SEE GF(31)TL2 TR STANDARD FOR LOW-SPEED TL-2 TRANSITIONS.

				Design Division Standard
METAL BEAM GUARD FENCE TL-3 MASH COMPLIANT GF(31)-19				
FILE: gf3119.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
© TXDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
	DIST	COUNTY	SHEET NO.	
	ABL	HASKELL	52	

DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TXDOT FOR ANY PURPOSE WHATSOEVER. TXDOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

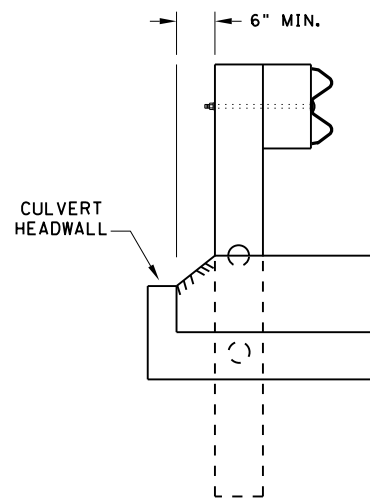
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NOTE: TOENAIL WITH ONE 16D GALV. NAIL TO PREVENT BLOCK ROTATION.



**RECTANGULAR CRT POST
(6" X 8" X 6' LONG)**

(6) CRT REQUIRED
SEE ELEVATION DETAIL FOR LOCATIONS



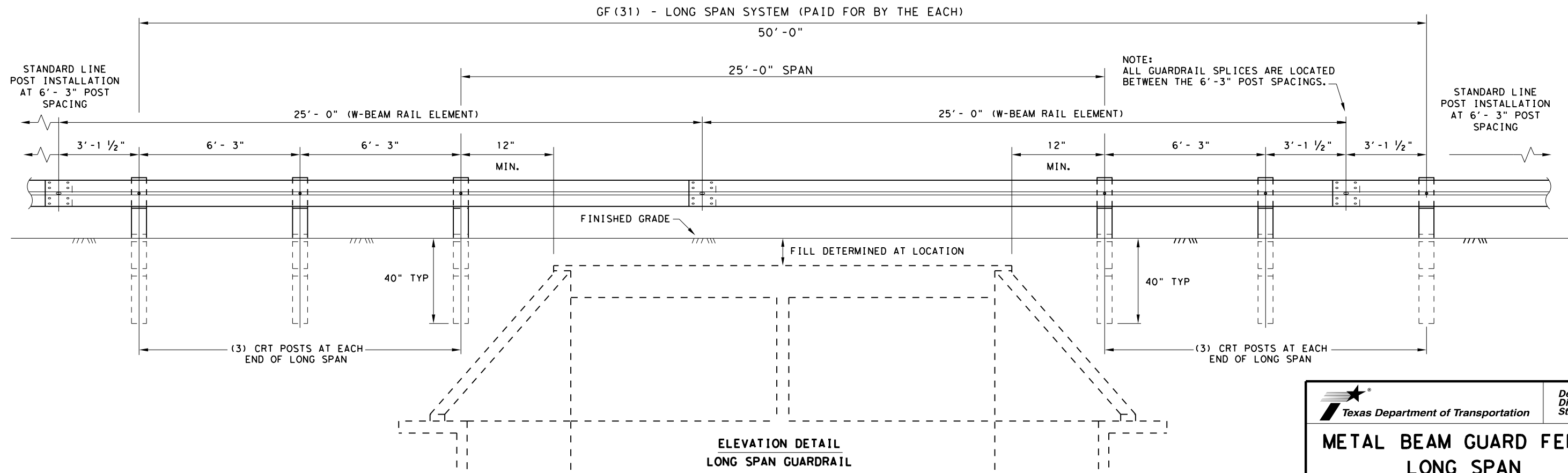
**LATERAL OFFSET BETWEEN THE
GUARDRAIL AND THE CULVERT HEADWALL**

GENERAL NOTES

1. THE TYPE OF LINE POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF THE TRANSITIONS SHALL BE AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENT SHALL MEET ALL REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED ON THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 12'-6" OR 25'-0" NOMINAL LENGTHS.
3. RAIL POST HOLES ARE OFFSET 3'-1 1/2" FROM STANDARD GUARDRAIL TO ACCOMMODATE THE MIDSPAN SPLICING.
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 (FWC160) AND NO MORE THAN 1" BEYOND IT.
5. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. WHERE SOLID ROCK IS ENCOUNTERED, CONTACT THE DESIGN DIVISION FOR ADDITIONAL GUIDANCE. (512) 416-2678
7. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
8. REFER TO GF(31) STANDARD SHEET FOR ADDITIONAL DETAILS.
9. FLAME CUTTING OF HOLES IN GUARDRAIL SHALL NOT BE PERMITTED. IF YOU ENCOUNTER MIS-ALIGNED BOLT HOLES IN GUARDRAIL CONTACT THE DESIGN DIVISION FOR ADDITIONAL INFORMATION & OPTIONS.

NOTE: SEE GF(31) STANDARD FOR STANDARD LINE POSTS.

DIRECTION OF TRAFFIC

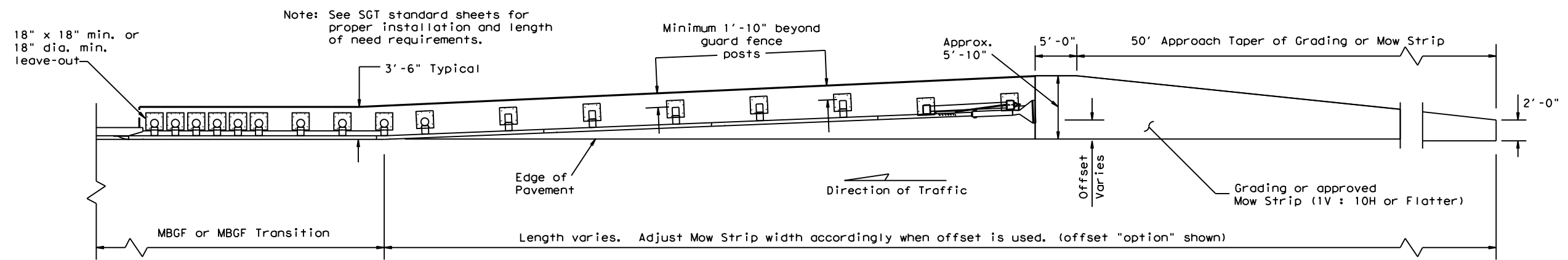


**ELEVATION DETAIL
LONG SPAN GUARDRAIL**

		Design Division Standard	
METAL BEAM GUARD FENCE LONG SPAN TL-3 MASH COMPLIANT			
GF(31)LS-19			
FILE: gf31ls19.dgn	DN: TXDOT	CK: KM	DW: VP
© TXDOT: NOVEMBER 2019	CONT	SECT	JOB
REVISIONS	0360	04	033
	DIST	COUNTY	SHEET NO.
	ABL	HASKELL	53

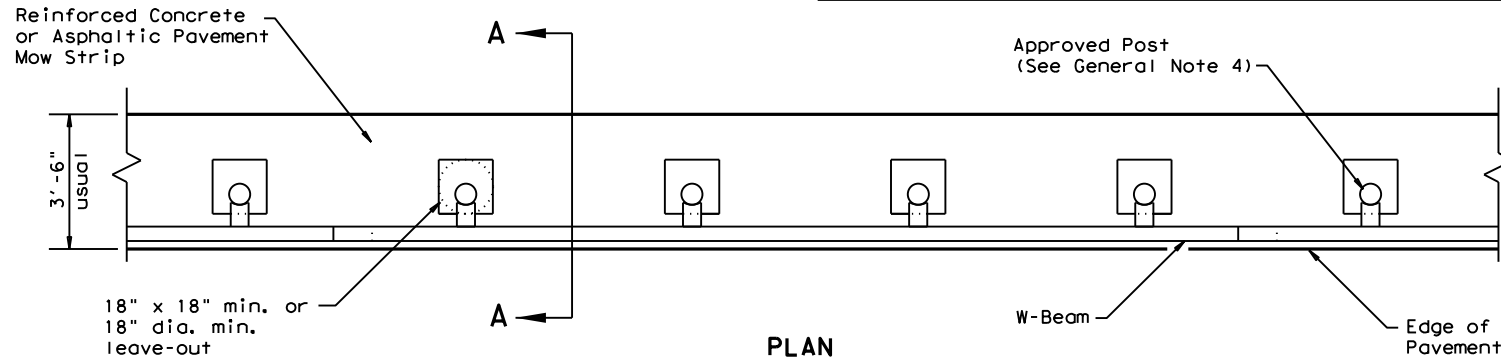
DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TxDOT FOR ANY PURPOSE WHATSOEVER. TxDOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

DATE: FILE:



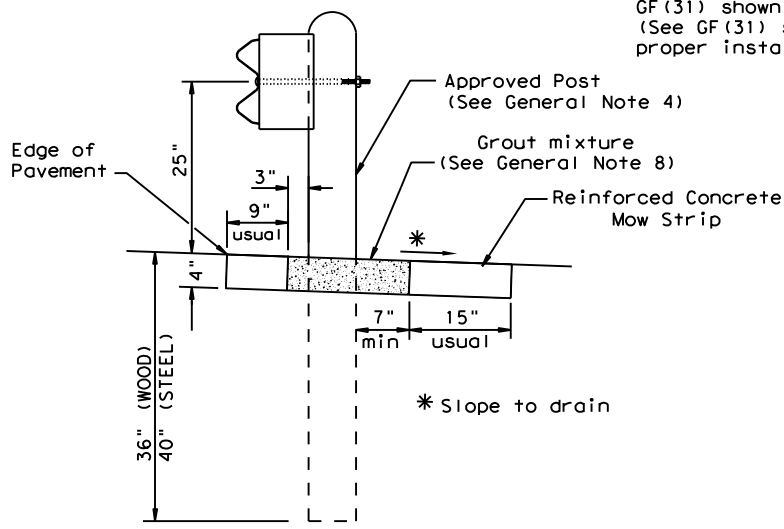
GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS

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.



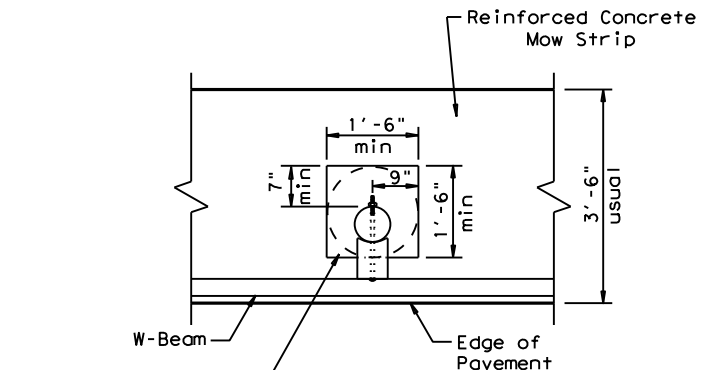
PLAN

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



SECTION A-A

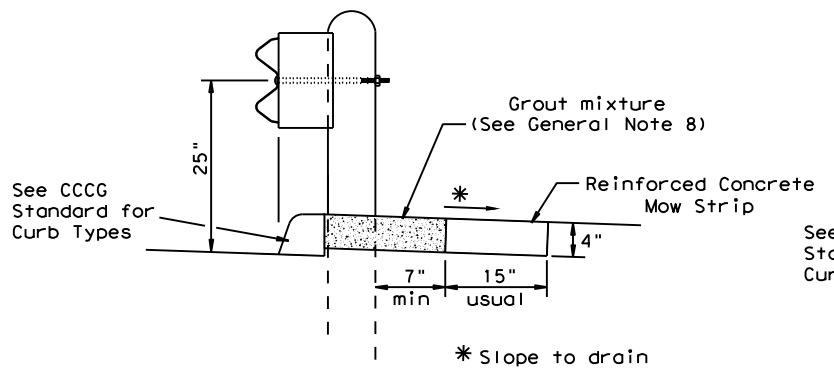
Typical



MOW STRIP DETAIL

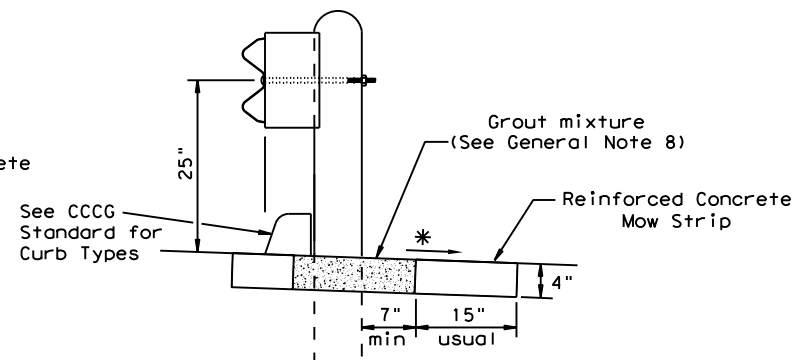
Reinforced Concrete Mow Strip with 18" x 18" Square or 18" Dia. minimum leave-out.

- 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 I 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.



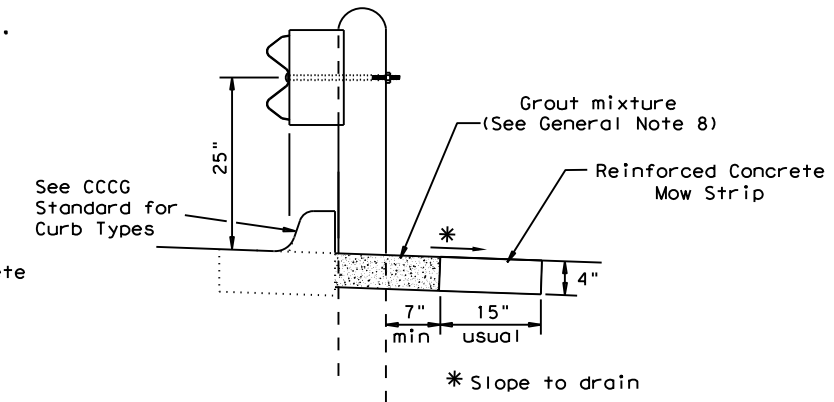
CURB OPTION (1)

This option will increase the post embedment throughout the system.



CURB OPTION (2)

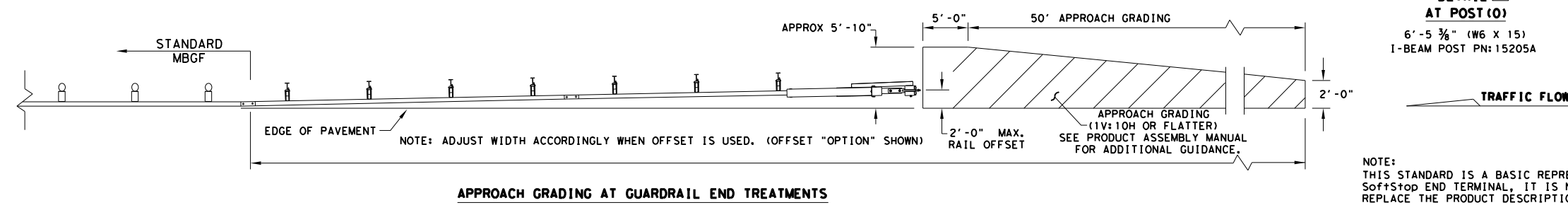
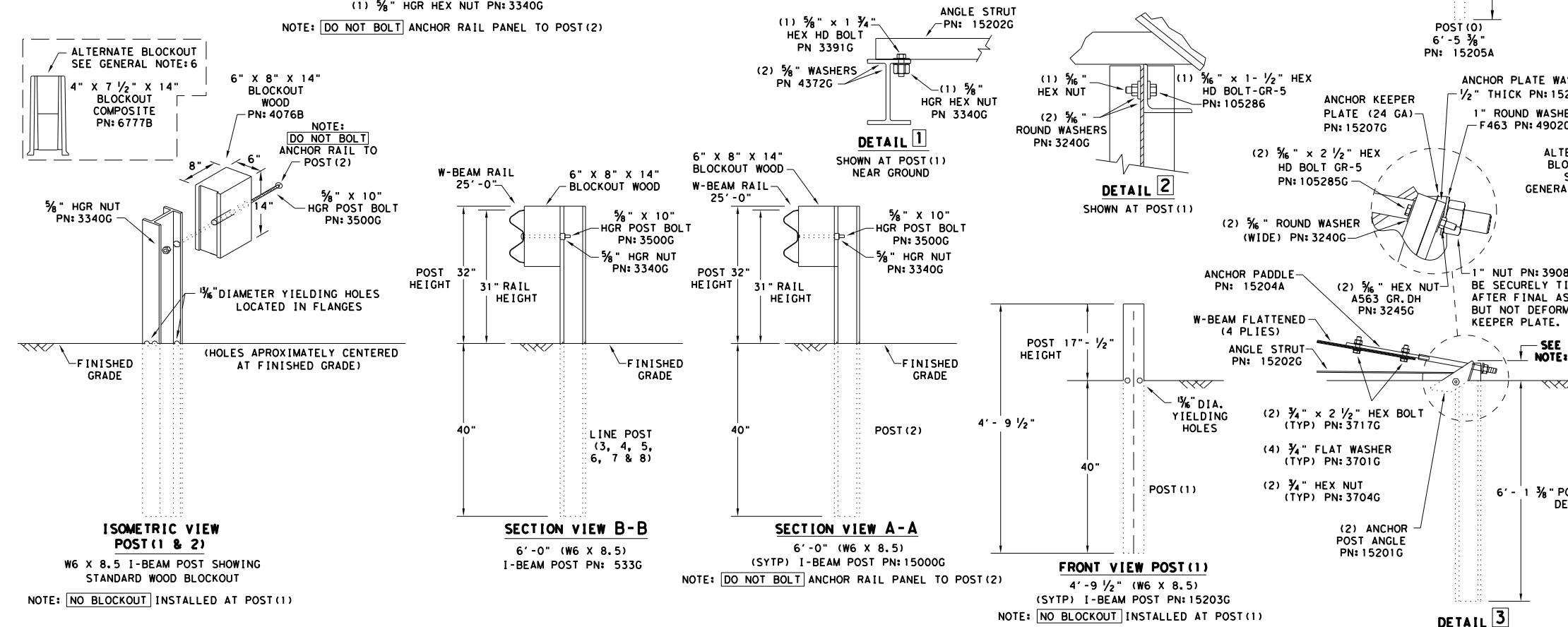
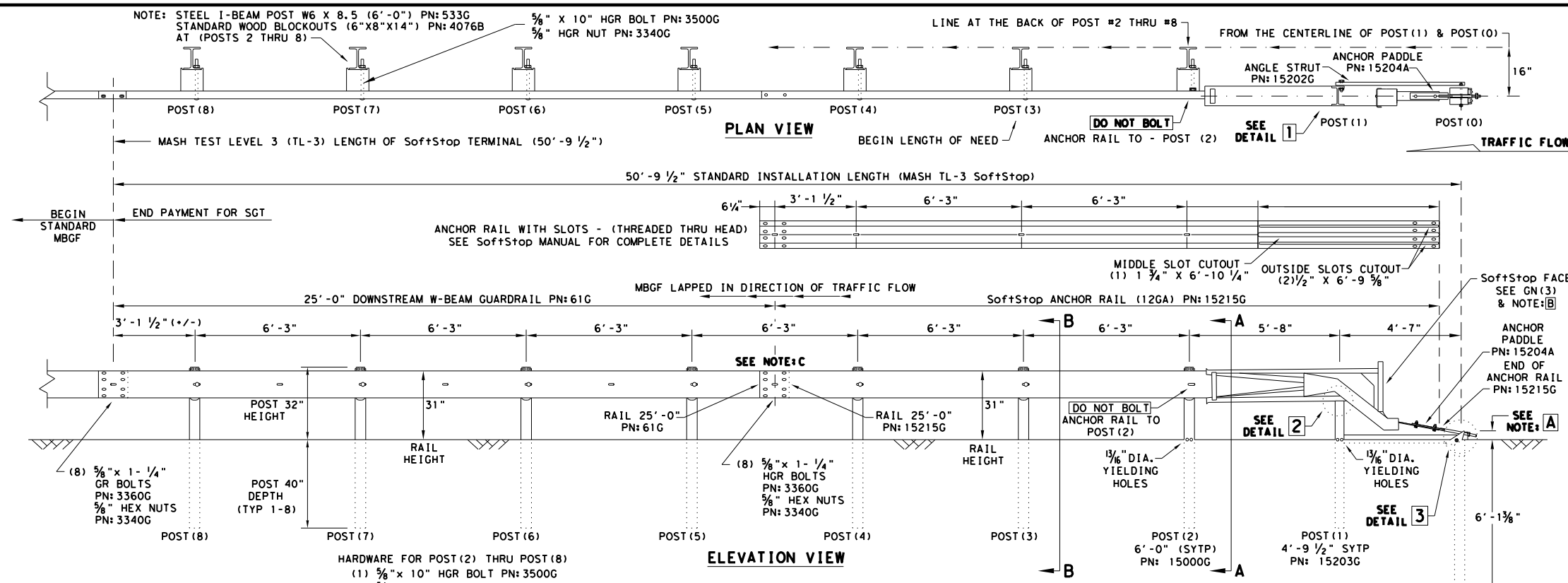
Curb shown on top of mow strip



CURB OPTION (3)

				Design Division Standard
METAL BEAM GUARD FENCE (MOW STRIP) TL-3 MASH COMPLIANT GF(31)MS-19				
FILE: gf31ms19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
	DIST	COUNTY	SHEET NO.	
	ABL	HASKELL	54	

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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 MGBF 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 PADDLE
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

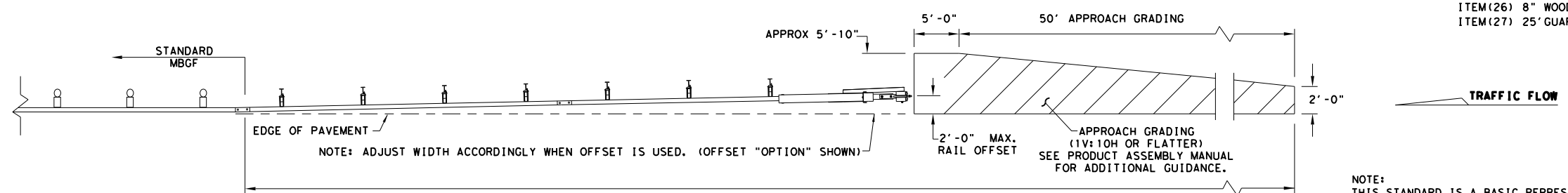
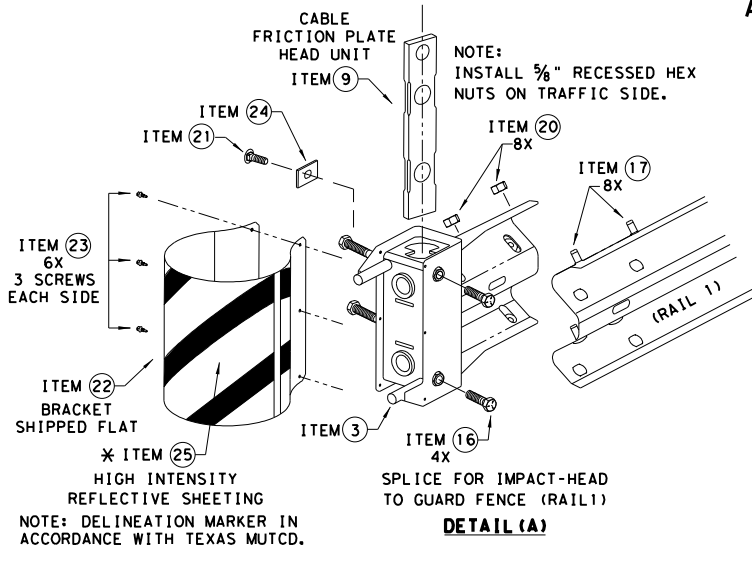
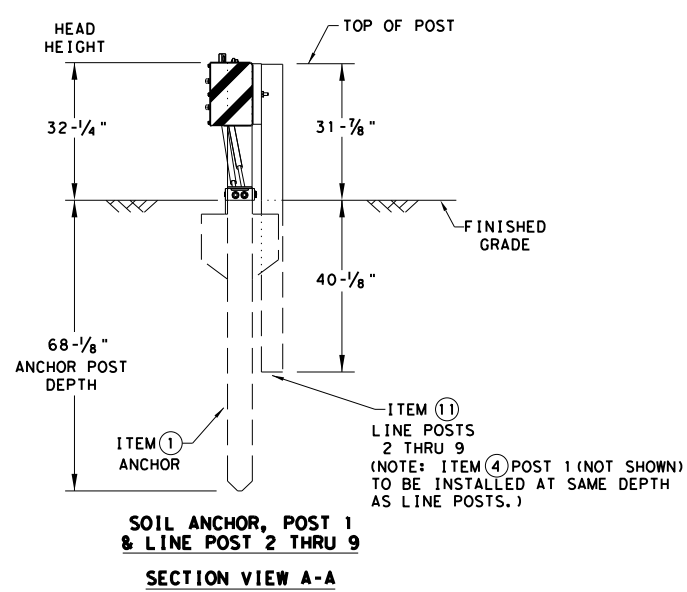
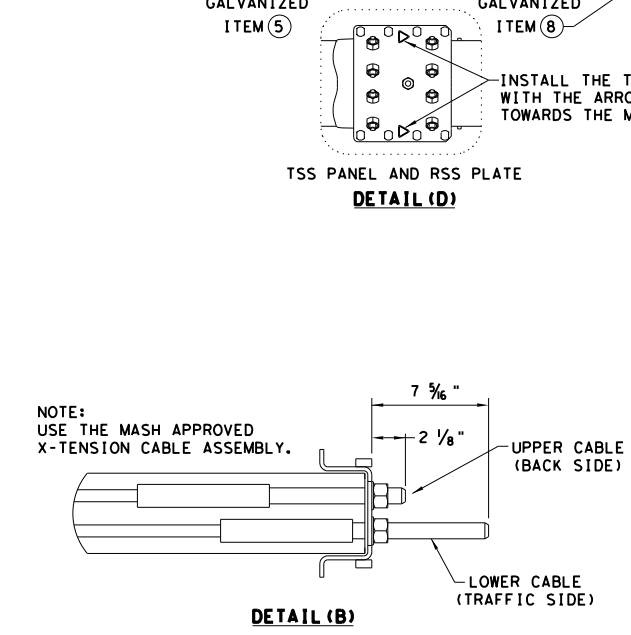
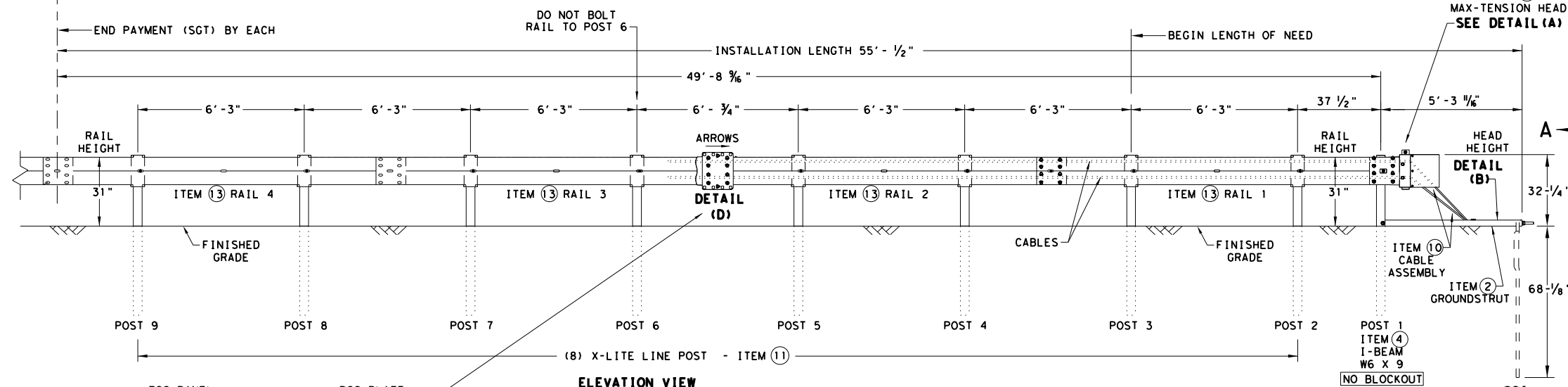
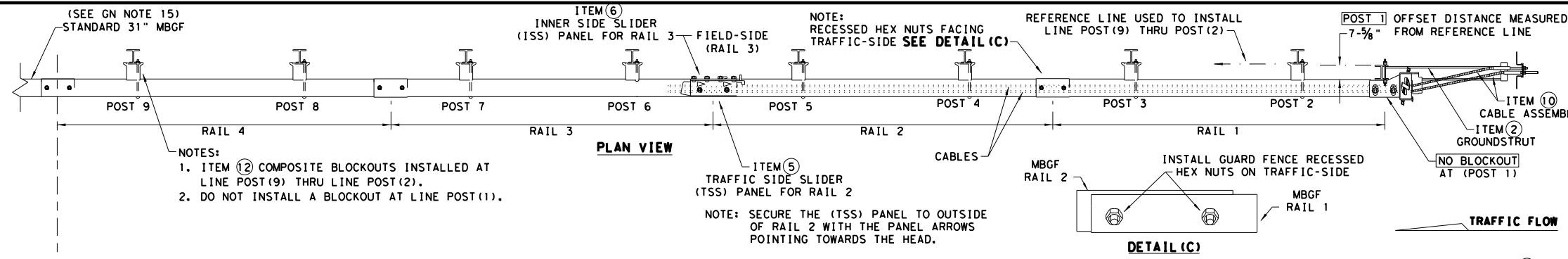
**TRINITY HIGHWAY
SOFTSTOP END TERMINAL
MASH - TL-3
SGT (10S) 31-16**

FILE: sgt10s3116	DW: TxDOT	CK: KM	DW: VP	CK: MB/VP
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
	DIST	COUNTY		SHEET NO.
	ABL	HASKELL		55

DATE: FILE:

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

- 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" MBSG PANELS, 25'-0" MBSG PANELS ARE ALSO ALLOWED.
 - A MINIMUM OF 12'-6" OF 12GA. MBSG 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	$\frac{3}{8}$ " X 7" THREAD BOLT HH (GR.5)GEOMET	1
16	BSI-2001885	$\frac{3}{4}$ " X 3" ALL-THREAD BOLT HH (GR.5)GEOMET	4
17	4001115	$\frac{5}{8}$ " X 1 $\frac{1}{4}$ " GUARD FENCE BOLTS (GR.2)MGAL	48
18	2001840	$\frac{5}{8}$ " X 10" GUARD FENCE BOLTS MGAL	8
19	2001636	$\frac{3}{8}$ " WASHER F436 STRUCTURAL MGAL	2
20	4001116	$\frac{5}{8}$ " RECESSED GUARD FENCE NUT (GR.2)MGAL	59
21	BSI-2001888	$\frac{3}{8}$ " X 2" ALL THREAD BOLT (GR.5)GEOMET	1
22	BSI-1701063-00	DELINEATION MOUNTING (BRACKET)	1
23	BSI-2001887	$\frac{1}{4}$ " X $\frac{3}{4}$ " 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: sg11s3118.dgn DN: TxDOT CK: KM DW: TxDOT CK: CL

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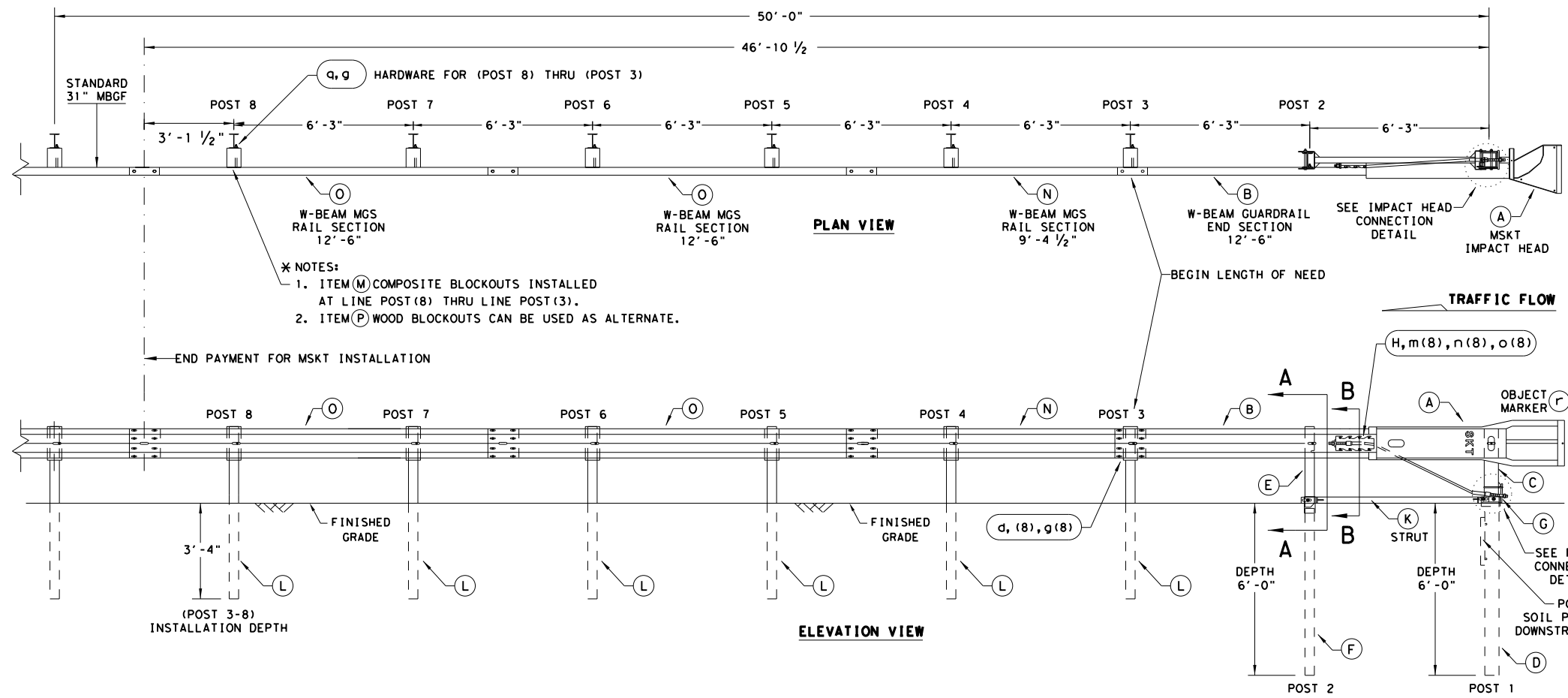
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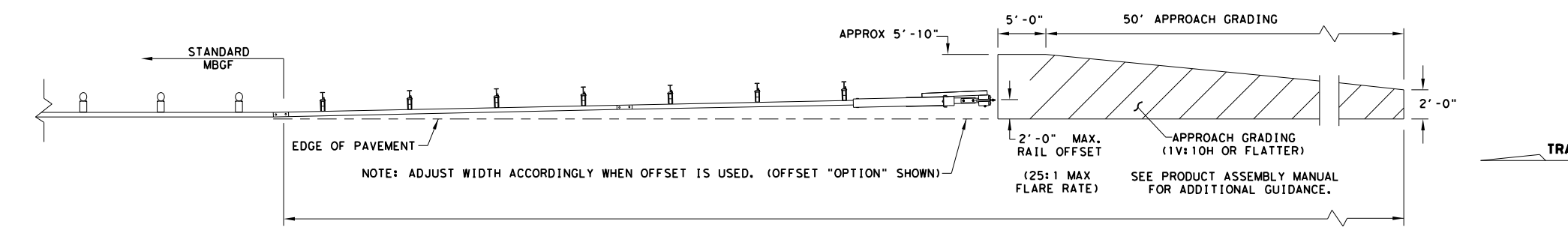
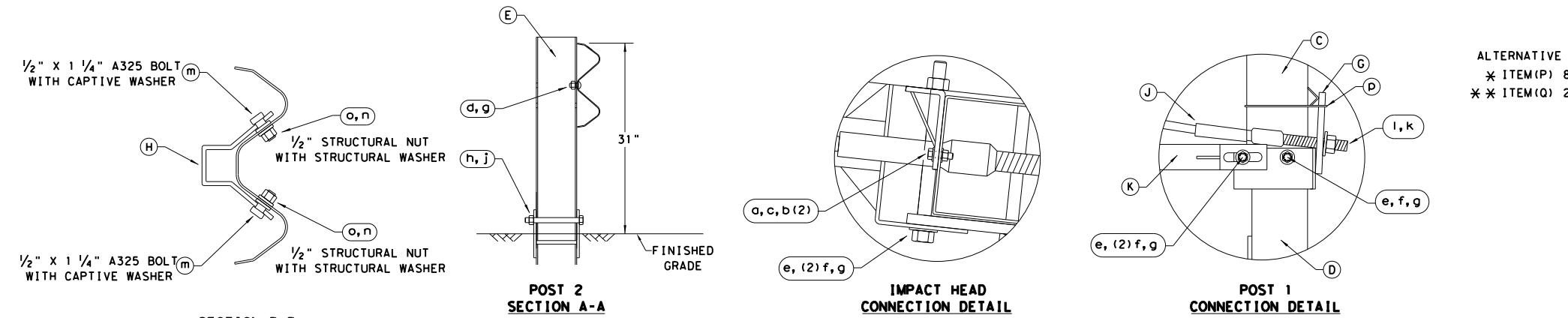
NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE MAX-TENSION END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT ASSEMBLY MANUAL.

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- 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 THEIR 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	3/8" x 1" HEX BOLT (GRD 5)	B5160104A
b	4	3/8" WASHER	W0516
c	2	3/8" HEX NUT	N0516
d	25	3/8" Dia. x 1 1/4" SPLICE BOLT (POST 2)	B580122
e	2	3/8" Dia. x 9" HEX BOLT (GRD A449)	B580904A
f	3	3/8" WASHER	W050
g	33	3/8" 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	3/8" x 10" H.G.R. BOLT	B581002
r	1	OBJECT MARKER 18" X 18"	E3151



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

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

Design Division Standard

SINGLE GUARDRAIL TERMINAL

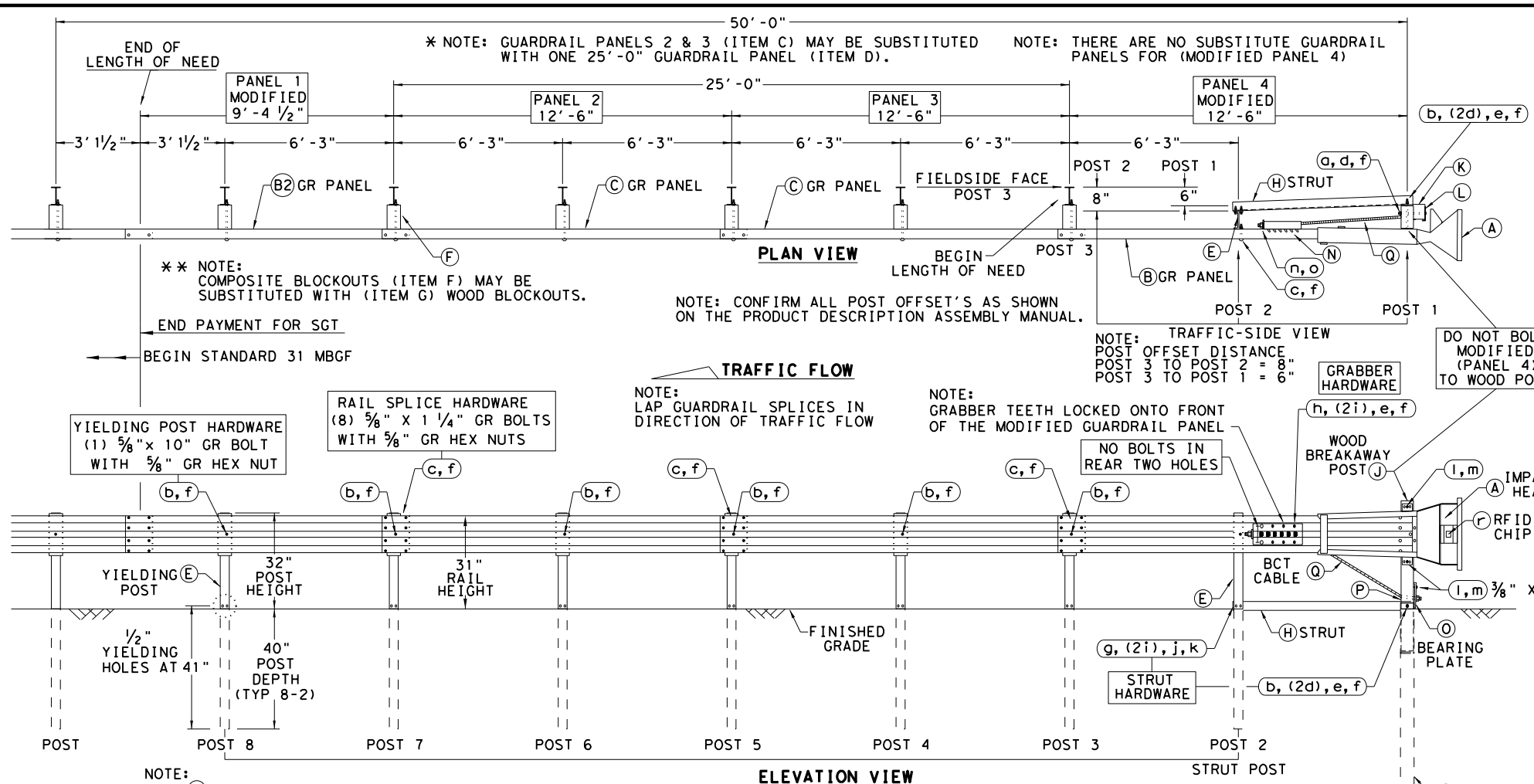
MSKT-MASH-TL-3

SGT (12S) 31-18

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© TxDOT: APRIL 2018	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	ABL	HASKELL		57

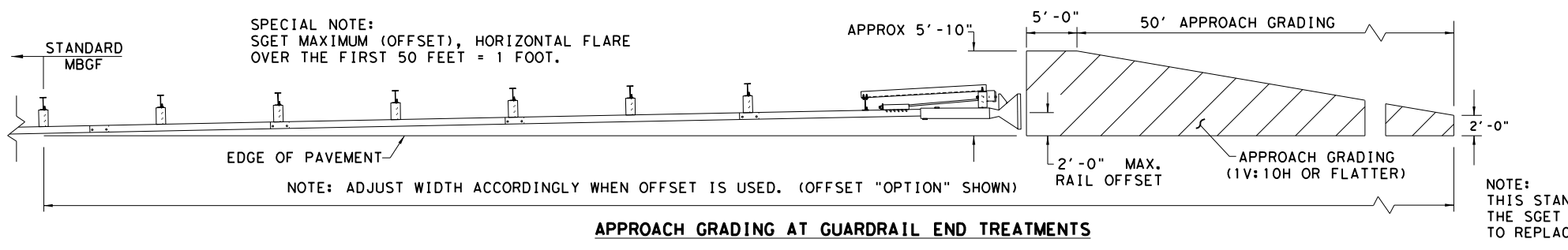
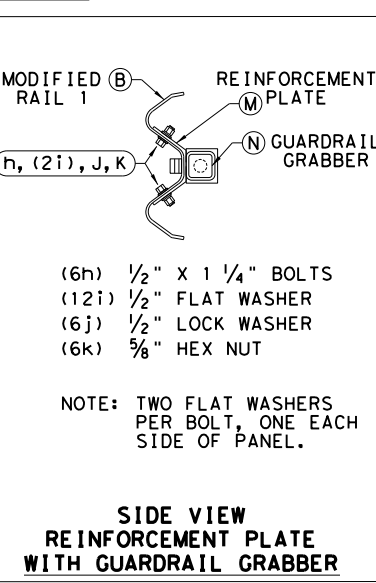
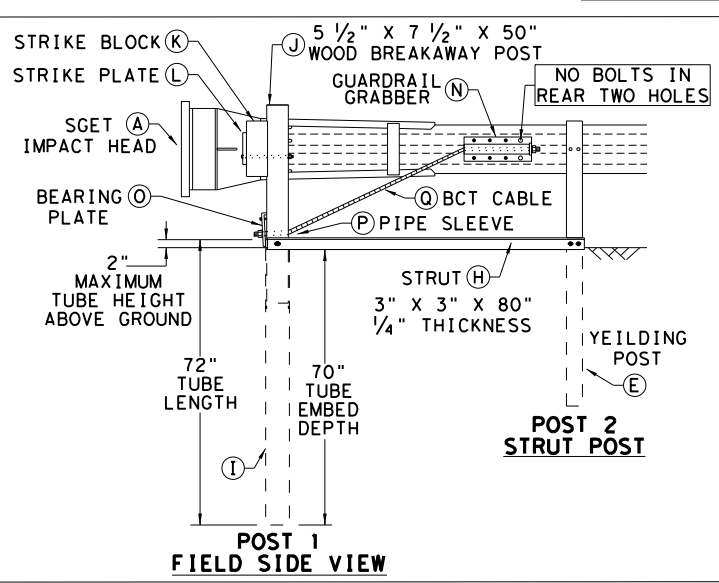
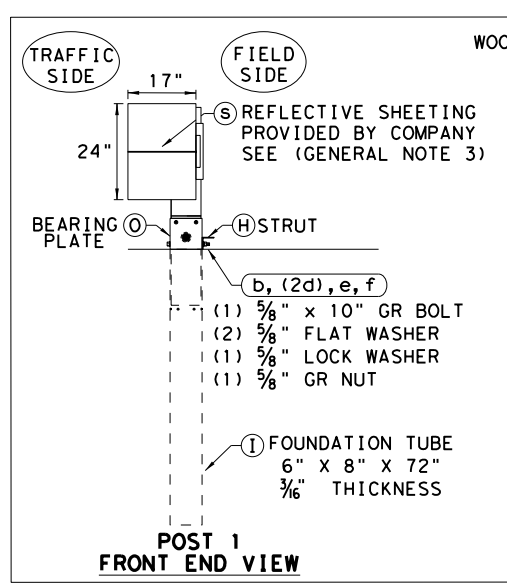
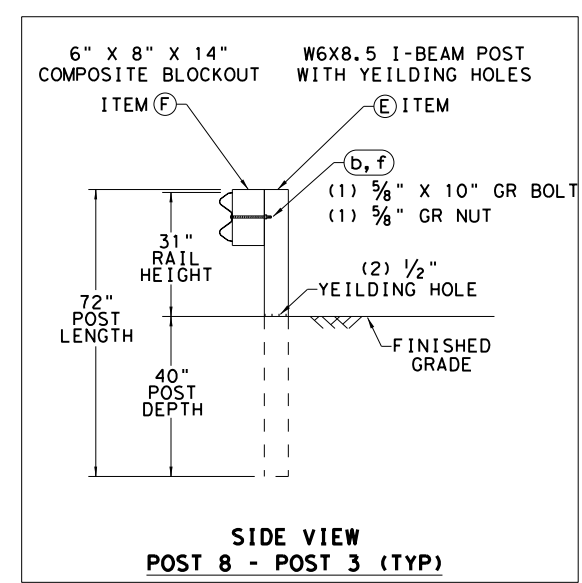
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- ### GENERAL NOTES
- FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: SPIG INDUSTRY, INC. AT 1(267) 644-9510. 14675 INDUSTRIAL PARK RD; BRISTOL, VA 24202
 - FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE MANUFACTURER'S; SGET END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL.
 - MANUFACTURER WILL APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" TO THE FACE PLATE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. THE OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
 - THE NOMINAL HEIGHT OF THE GUARDRAIL BEAM IS 31 INCHES WITH A TOLERANCE OF +/- ONE INCH.
 - FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
 - (POST 2 THROUGH POST 8) ARE MODIFIED STEEL-YIELDING POSTS WITH YIELDING HOLES AT GROUND LEVEL. THERE ARE NO SUBSTITUTE POSTS.
 - POSTS SHALL NOT BE SET IN CONCRETE.
 - IF SOLID ROCK IS ENCOUNTERED FOR ANY OF THE POSTS IN THE SYSTEM, CONTACT THE MANUFACTURER FOR SPECIFIC INSTALLATION GUIDANCE.
 - 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 DMS-7210 REQUIREMENTS MAY BE SUBSTITUTED FOR AN APPROVED WOOD BLOCKOUT. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
 - THE ENTIRE SYSTEM MUST BE INSTALLED IN A STRAIGHT LINE WITHOUT ANY CURVE. HOWEVER, THE SYSTEM CAN BE OFFSET BY TWO FEET AS SHOWN ON THE APPROACH GRADING DETAIL TO HELP OFF-SET THE IMPACT HEAD FROM SHOULDER OF THE ROAD.

ITEM	QTY	MAIN SYSTEM COMPONENTS	ITEM #
A	1	SGET IMPACT HEAD	SIH1A
B	1	MODIFIED GUARDRAIL PANEL 12'-6" 12GA	126SPZGP
B2	1	MODIFIED GUARDRAIL PANEL 9'-4 1/2" 12GA	GP94
C	2	STANDARD GUARDRAIL PANEL 12'-6" 12GA	GP126
D	1	STANDARD GUARDRAIL PANEL 25'-0" 12GA	GP25
E	7	MODIFIED YIELDING I-BEAM POST W6x8.5	YP6MOD
F	6	COMPOSITE BLOCKOUT 6" X 8" X 14"	CB08
G	6	WOOD BLOCKOUT 6" X 8" X 14"	WB08
H	1	STRUT 3" X 3" X 80" X 1/4" A36 ANGLE	STR80
I	1	FOUNDATION TUBE 6" X 8" X 72" X 3/8"	FNDT6
J	1	WOOD BREAKAWAY POST 5 1/2" X 7 1/2" X 50"	WBRK50
K	1	WOOD STRIKE BLOCK	WSBLK14
L	1	STRIKE PLATE 1/4" A36 BENT PLATE	SPLT8
M	1	REINFORCEMENT PLATE 12 GA. GR55	REPLT17
N	1	GUARDRAIL GRABBER 2 1/2" X 2 1/2" X 16 1/2"	GGRI17
O	1	BEARING PLATE 8" X 8 5/8" X 5/8" A36	BPLT8
P	1	PIPE SLEEVE 4 1/4" X 2 3/8" O.D. (2 1/8" I.D.)	PSLV4
Q	1	BCT CABLE 3/4" X 81" LENGTH	CBL81
SMALL HARDWARE			
a	1	5/8" X 12" GUARDRAIL BOLT 307A HDG	12GRBLT
b	7	5/8" X 10" GUARDRAIL BOLT 307A HDG	10GRBLT
c	33	5/8" X 1 1/4" GR SPLICE BOLTS 307A HDG	1GRBLT
d	3	5/8" FLAT WASHER F436 A325 HDG	58FW436
e	1	5/8" LOCK WASHER HDG	58LW
f	39	5/8" GUARDRAIL HEX NUT HDG	58HN563
g	2	1/2" X 2" STRUT BOLT A325 HDG	2BLT
h	6	1/2" X 1 1/4" PLATE BOLT A325 HDG	125BLT
i	16	1/2" FLAT WASHER F436 A325 HDG	12FWF436
j	8	1/2" LOCK WASHER HDG	12LW
k	8	1/2" HEX NUT A563 HDG	12HN563
l	4	3/8" X 3" HEX LAG SCREW GR5 HDG	38LS
m	4	3/8" FLAT WASHER F436 A325 HDG	38FW844
n	2	1" FLAT WASHER F436 A325 HDG	1FWF436
o	2	1" HEX NUT A563HDG HDG	1HN563
p	1	18" TO 24" LONG ZIP TIE RATED 175-200LB	ZPT18
q	1	1 1/2" X 4" SCH-40 PVC PIPE	PSPCR4
r	1	RFID CHIP RATED MIL-STD-810F	RFID810F
s	1	IMPACT HEAD REFLECTIVE SHEETING	RS30M



NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE SGET TERMINAL SYSTEM AND IS NOT INTENDED TO REPLACE THE MANUFACTURER'S ASSEMBLY MANUAL.

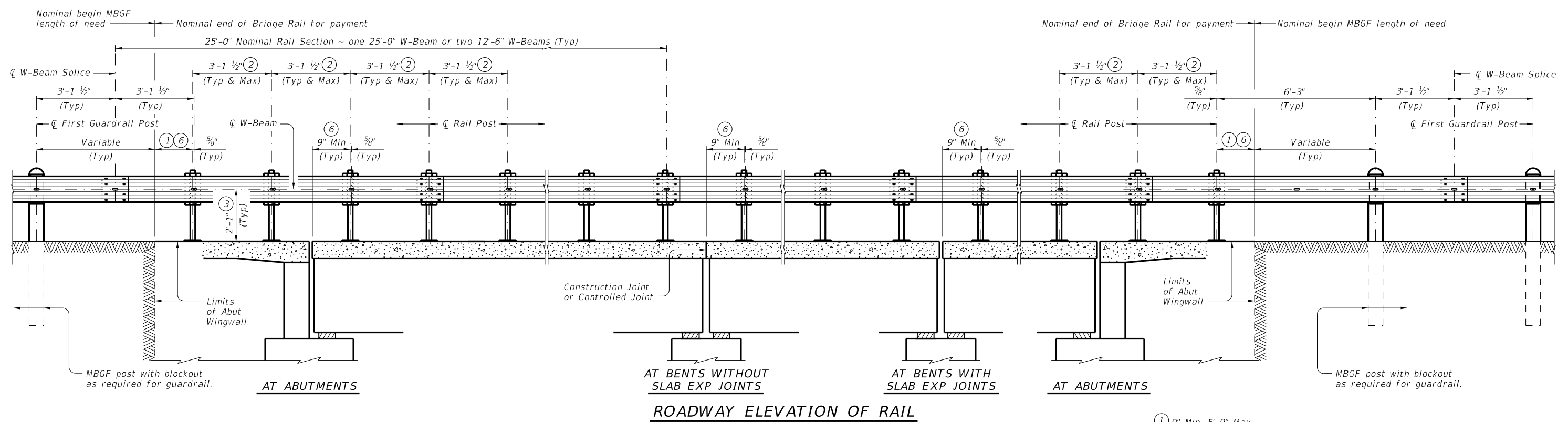
SPIG INDUSTRY, LLC
SINGLE GUARDRAIL TERMINAL
SGET - TL-3 - MASH
SGT (15) 31-20

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© TXDOT: APRIL 2020	CONT: 0360	SECT: 04	JOB: 033	HIGHWAY: US 380
REVISIONS	DIST: ABL	COUNTY: HASKELL	SHEET NO. 58	

Texas Department of Transportation
Design Division Standard

DATE: FILE:

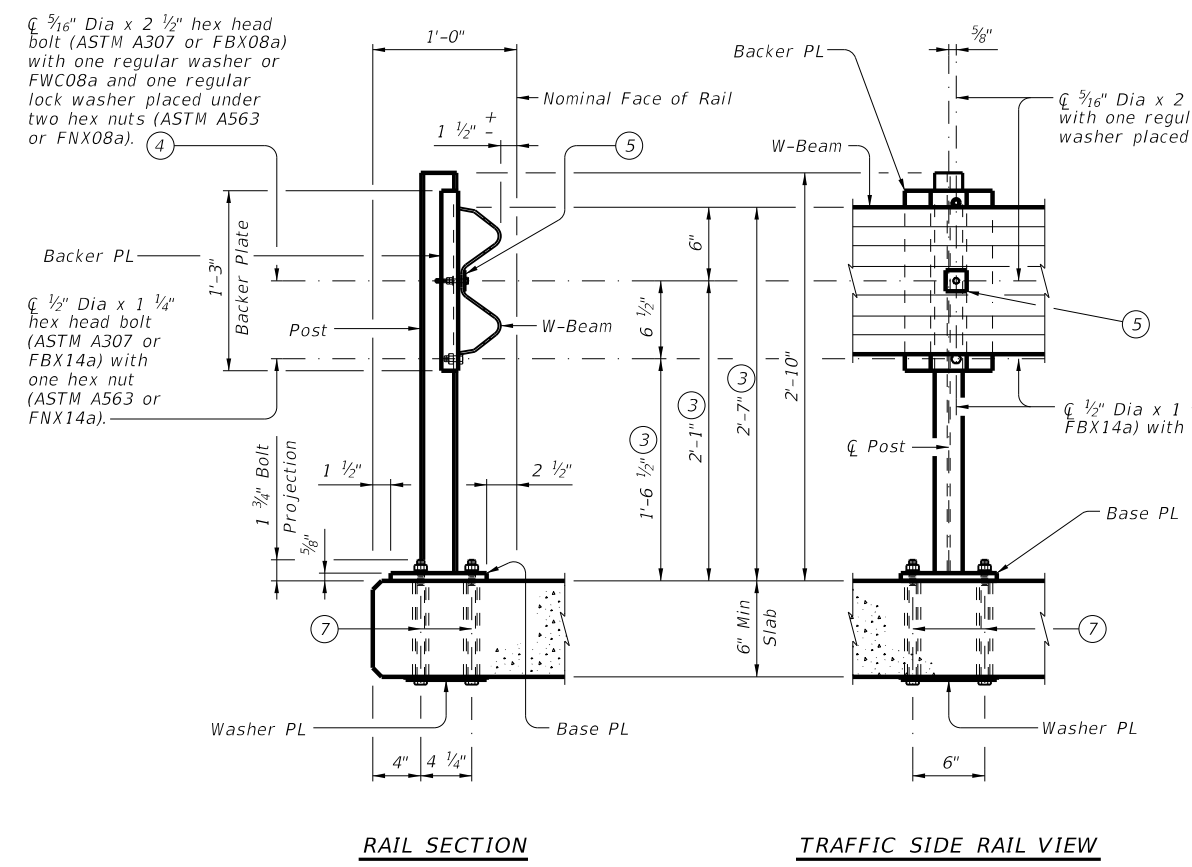
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ROADWAY ELEVATION OF RAIL

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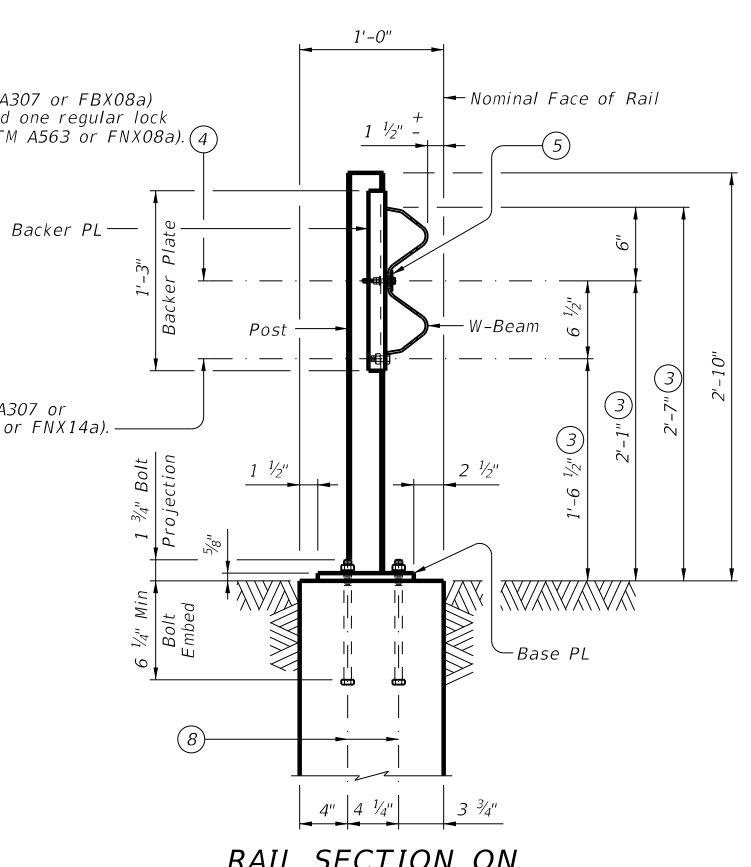
- ① 9" Min, 5'-9" Max
- ② Maintain 3'-1 1/2" Rail Post spacing wherever possible for use with nominal 25'-0" or 12'-6" W-Beam sections. Symmetry of post spacing on both sides and along the structure is not necessary.
- ③ Increase 2" for structures with overlay.
- ④ Tighten the first hex nut by hand until the top and bottom edges of the W-Beam engage the Backer Plate (Backer Plate should be snug against the post). Then tighten hex nut one revolution with wrench and secure with the second hex nut.
- ⑤ PL 1/8" x 1 3/4" x 1 3/4" with 3/8" Dia Hole centered in PL (ASTM A36). Square Guardrail Washer (FWR01).
- ⑥ The post nearest to a slab joint or end of structure may be shifted up to 9" in order to satisfy the minimum offset dimension. Drill a new 3/4" Dia hole on the centerline of W-beam for shifted post. Paint hole with two coats of zinc-rich paint conforming to the Item "Galvanizing". All other posts must remain on the typical spacing.
- ⑦ 3/8" Dia formed holes for 3/8" Dia heavy hex head anchor bolt (ASTM F3125 Gr A325 or A449) or threaded rod (ASTM A193 Gr B7 or F1554 Gr 105) with one hardened steel washer (ASTM F436) and one regular lock washer placed under heavy hex nut (ASTM A563). One additional heavy hex nut must be furnished and tack welded for each threaded rod. See "Cast-In-Place & Formed Hole Anchor Bolt Options".
- ⑧ 3/8" Dia heavy hex head anchor bolt (ASTM F3125 Gr A325 or A449) or threaded rod (ASTM A193 Gr B7 or F1554 Gr 105) with one hardened steel washer (ASTM F436) and one regular lock washer placed under heavy hex nut (ASTM A563). One additional heavy hex nut must be furnished and tack welded for each threaded rod. See "Cast-In-Place & Formed Hole Anchor Bolt Options".



RAIL SECTION **TRAFFIC SIDE RAIL VIEW**

RAIL DETAILS ON BRIDGE SLAB

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RAIL SECTION ON ABUTMENT WINGWALL

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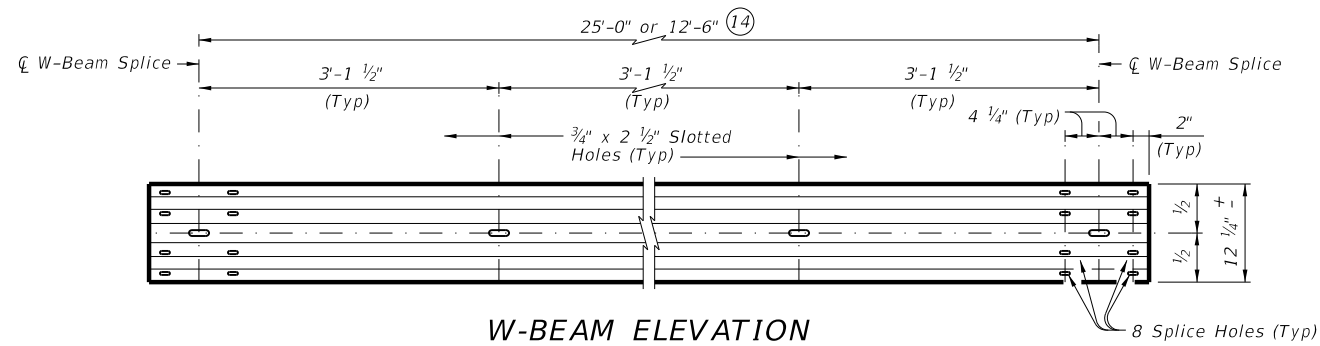
SHEET 1 OF 2

		Bridge Division Standard	
<h2>TRAFFIC RAIL</h2>			
<h3>TYPE T631</h3>			
FILE: RL-T631-23.dgn	DN: TxDOT	CK: AES	DW: JTR
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REVISIONS	0360	04	033
07/2020: Allowing 9'-4 1/2" or 6'-3" W-Beam sections	DIST	COUNTY	SHEET NO.
03/2023: MBGF Notes.	ABL	HASKELL	59

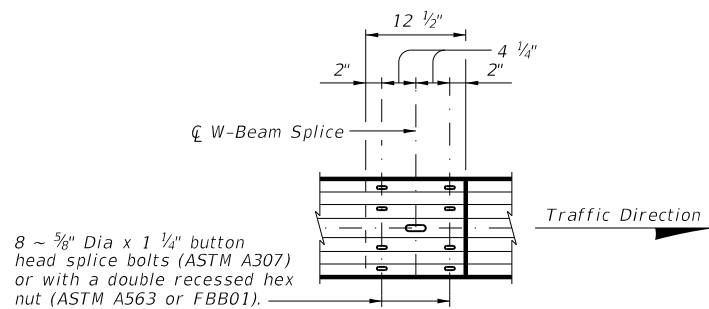
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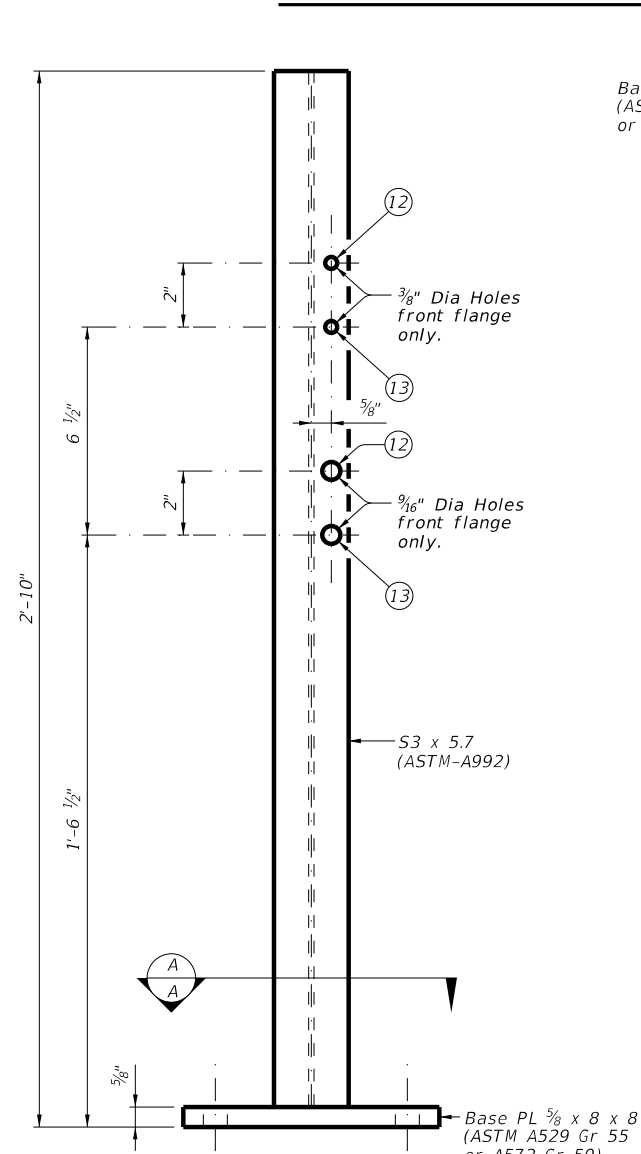
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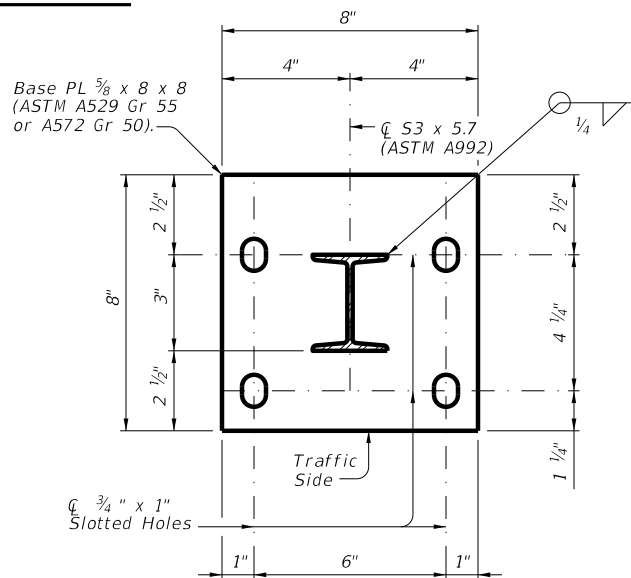
W-BEAM ELEVATION



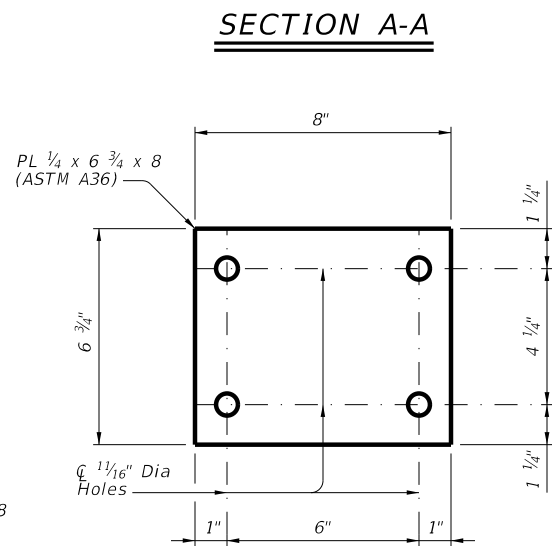
W-BEAM SPLICE ELEVATION



POST ELEVATION

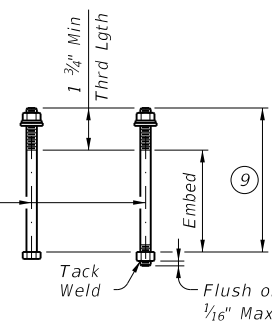


SECTION A-A



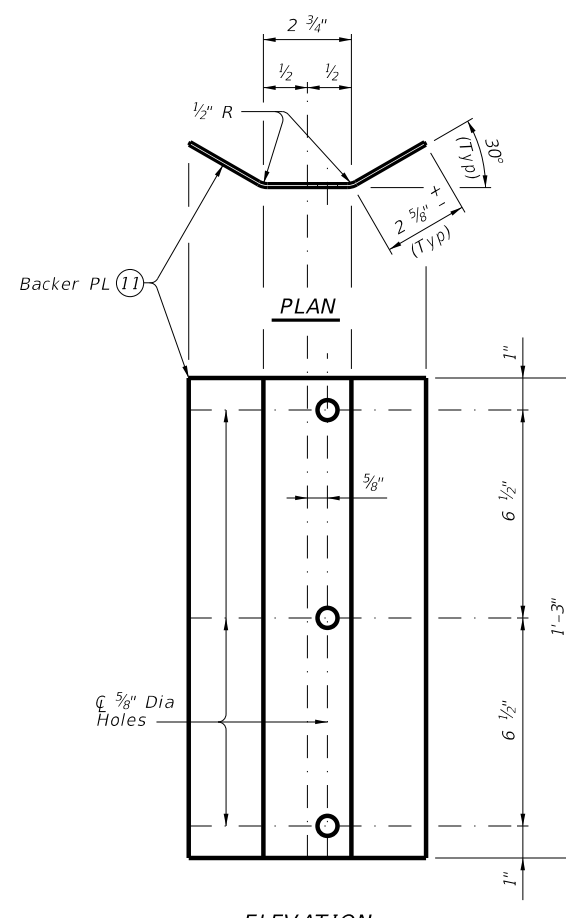
WASHER PLATE DETAIL

9 5/8" Dia heavy hex head anchor bolt (ASTM F3125 Gr A325 or A449) or threaded rod (ASTM A193 Gr B7 or F1554 Gr 105) with one hardened steel washer (ASTM F436) and one regular lock washer placed under heavy hex nut (ASTM A563). One additional heavy hex nut must be furnished and tack welded for each threaded rod.



CAST-IN-PLACE & FORMED HOLE ANCHOR BOLT OPTIONS (9)

- (9) See "Rail Details On Bridge Slab" and/or "Rail Section On Abutment Wingwall".
- (10) See "Material Notes" for anchor bolt information.
- (11) Backer PL 1/4" x 8 x 1'-3" (ASTM A1011 CS or SS Gr 33, or A1008 CS or SS Gr 33 (11 Gage acceptable)).
- (12) Used for structures with overlay.
- (13) Used for structures without overlay.
- (14) At the nominal end of the bridge rail for payment, one 9'-4 1/2" or 6'-3" W-beam section is permitted in order to achieve the required W-Beam splice location on the MBGF.



BACKER PLATE

MBGF AND END TREATMENT NOTES:
This traffic railing must be anchored by metal beam guard fence (MBGF) and guard fence end treatments. Determine MBGF length of need in accordance with the Roadway Design Manual, unless otherwise specified. The minimum MBGF length of need required for anchoring the railing is 25' of MBGF plus the appropriate end treatment installed tangent to the primary roadway.

CONSTRUCTION NOTES:
Face of rail post must be plumb unless otherwise approved by the Engineer. Post must be perpendicular to adjacent roadway grade. Use epoxy mortar under post base plates if gaps larger than 1/16" exist.
Fully anchored guardrail must be attached to each end of rail. A metal beam guard fence transition is not used with this rail. At the Contractor's option anchor bolts may be an adhesive anchor system. See "Material Notes".

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.

It is recommended to show a Rail Layout with rail posts and W-beam splices. Fabricator must submit erection drawings to the Engineer for approval.

Round or chamfer exposed edges of rail post and backer plate to approximately 1/16" by grinding. Shop drawings are not required for this rail.

MATERIAL NOTES:
Galvanize all steel components.
Anchor bolts for base plate must be 5/8" Dia ASTM F3125 Gr A325 or A449 bolts (or ASTM A193 Gr B7 or F1554 Gr 105 threaded rods with one tack welded heavy hex nut each) with one hardened steel washer (ASTM F436) and one regular lock washer placed under each heavy hex nut. Nuts must conform to ASTM A563 requirements.

Optional adhesive anchorage system must be 5/8" Dia ASTM A193 Gr B7 or F1554 Gr 105 fully threaded rods with one hardened steel washer (ASTM F436) and one regular lock washer placed under each heavy hex nut. Nuts must conform to ASTM A563 requirements. Embed fully threaded rod into slab and/or abutment wingwall using a Type III, Class C, D, E, or F anchor adhesive. Minimum adhesive anchor embedment depth is 4 3/4". Anchor adhesive chosen must be able to achieve a nominal bond strength in tension of a single anchor, Na, of 8 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."

W-beam must 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" (Nominal) lengths and a single rail element of 9'-4 1/2" or 6'-3" (Nominal) length. W-Beam must have slotted holes at 3'-1 1/2".

Some part numbers from the "Task Force 13" Guide to Standardized Highway Barrier Hardware have been furnished for quick reference.

GENERAL NOTES:
This railing has been successfully evaluated by full-scale crash test to meet MASH TL-3 criteria. This railing can be used for speeds of 50 mph and greater.
This rail is designed to deflect approximately 4' to 4'-6" as it contains and redirects the errant vehicle. This rail may not be installed on top of or behind curbs that project above finished grade, on bridges with expansion joints providing more than 5" movement, on retaining walls, or on grade separations and interchanges.

Repairs to impact-damaged post and base plate unit are not permitted. Replace all impact-damaged posts with a new post and base plate unit.

Average weight of railing with no overlay: 20 plf total.

SHEET 2 OF 2

		Bridge Division Standard	
<h1>TRAFFIC RAIL</h1>			
<h2>TYPE T631</h2>			
FILE: RL-T631-23.dgn	DN: TxDOT	CK: AES	DW: JTR
©TxDOT September 2019	CONT	SECT	JOB
REVISIONS	0360	04	033
07/2020: Allowing 9'-4 1/2" or 6'-3" W-Beam sections	DIST	COUNTY	SHEET NO.
03/2023: MBGF Notes	ABL	HASKELL	60

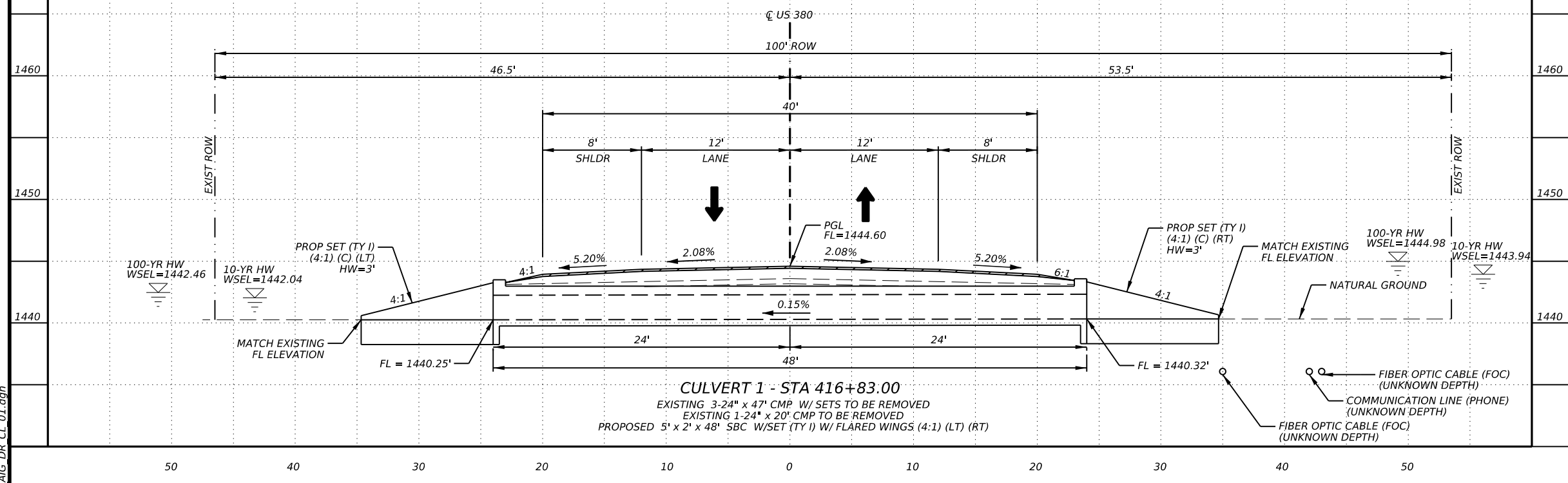
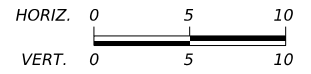
9/15/2023 5:24:24 AM C:\AIG-Projectwise\AIG Technical Services LLC\2312_WA3_US380_PSE_AIG4 - Design\Plan Set\5_Drainage\US380_AIG_DR_CL_01.dgn

SUMMARY OF CULVERT ITEMS								
LOCATION	400*	400	400	402	462	467	496	496
	STRUCT EXCAV (BOX)	CEM STABIL BKFL	CUT & RESTORING PAV	TRENCH EXCAVATION PROTECTION	CONC BOX CULV (5 FT X 2 FT)	SET (TY I)(S=5 FT)(HW=3 FT)(4:1) (C)	REMOV STR (SET)	REMOV STR (PIPE)
	CY	CY	SY	LF	LF	EA	EA	LF
STA 416+83.00	67	22	43	48	48	2	2	161
PROJECT TOTALS	67	22	43	48	48	2	2	161

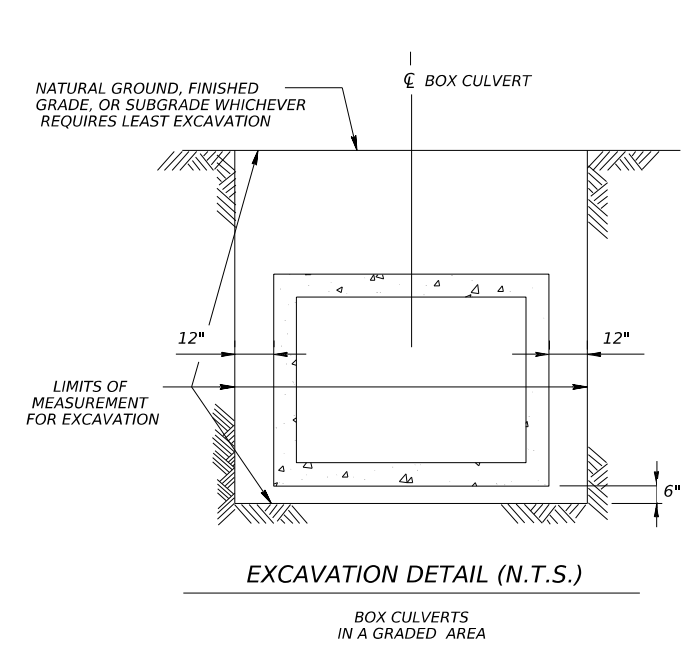
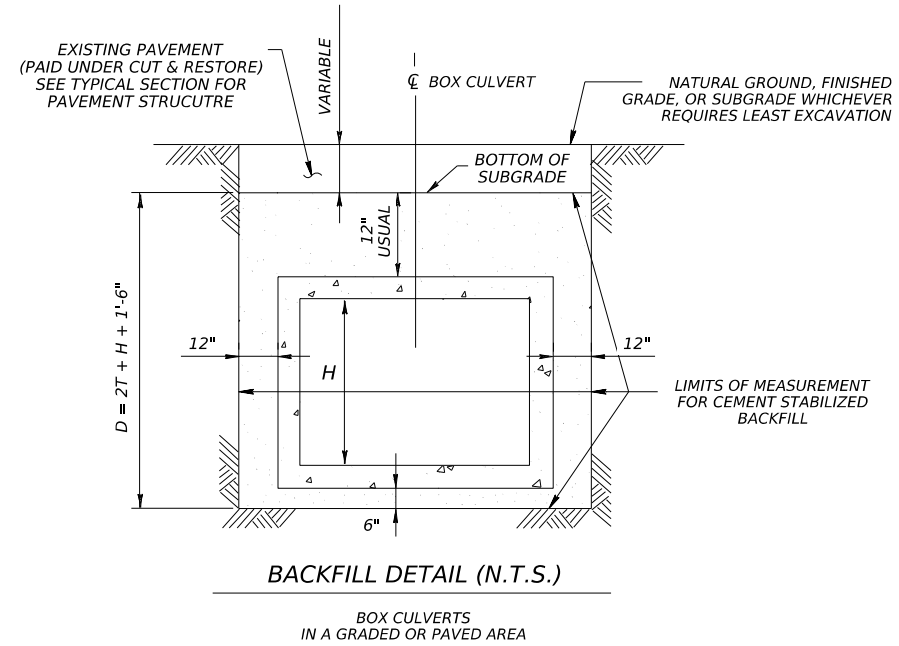
* FOR CONTRACTOR'S INFORMATION ONLY.

HY-8 MODEL RESULT-EXISTING CONDITION								
EXISTING CONDITION [3-24" CMP]								
STATION	DRAINAGE AREA (ac)	AEP	HW Elev	Q (total)	Q (culv)	Q (road)	Outlet vel	TW (elev)
			ft	cfs	cfs	cfs	ft/s	ft
STA 416+83.00	63.00	(10-year)	1444.72	71.53	62.09	9.43	6.99	1442.04
		(100-year)	1445.29	112.53	64.57	47.96	6.85	1442.46

HY-8 MODEL RESULT-EXISTING CONDITION								
PROPOSED CONDITION [5'X2' RCB]								
STATION	DRAINAGE AREA (ac)	AEP	HW Elev	Q (total)	Q (culv)	Q (road)	Outlet vel	TW (elev)
			ft	cfs	cfs	cfs	ft/s	ft
STA 416+83.00	63.00	(10-year)	1443.94	71.53	71.53	0.00	7.72	1442.04
		(100-year)	1444.98	112.53	87.67	24.85	8.77	1442.46



- NOTES:
- DRAINAGE AREA BASED ON AS-BUILT (CS): 0360-04-018).
 - CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITIES BEFORE BEGINNING ANY TYPE OF WORK.
 - EXISTING STRUCTURE FLOWLINES MAY VARY FROM PLANS. PROPOSED SAFETY END TREATMENT MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
 - ALL STATIONS AND OFFSETS ARE FROM C US 380 UNLESS OTHERWISE SPECIFIED.
 - ALL TYPE I SETS ARE PRECAST (PSET) UNLESS NOTED ON THE DRAWING.
 - PIPE LENGTH IS FROM OUTSIDE WALL TO OUTSIDE WALL.
 - SEE TYPICAL SECTIONS FOR PAVEMENT STRUCTURE INFORMATION.



REV NO.	DATE	BY	REVISION

9/8/2023

AIG Tech
 Advanced Infrastructure Group
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

Texas Department of Transportation

**US 380
 PROPOSED
 CULVERT CROSS SECTION**

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	61	

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Culvert Station and/or Creek Name followed by applicable end (Lt, Rt or Both)	Description of Box Culvert No. Spans ~ Span X Height	Max Fill Height (Ft)	Applicable Box Culvert Standard (4)	Applicable Wingwall or End Treatment Standard	Skew Angle (0°, 15°, 30° or 45°)	Side Slope or Channel Slope Ratio (SL:1)	T Culvert Top Slab Thickness (In)	U Culvert Wall Thickness (In)	C Estimated Curb Height (Ft)	Hw (1) Height of Wingwall (Ft)	A Curb to End of Wingwall (Ft)	B Offset of End of Wingwall (Ft)	Lw Length of Longest Wingwall (Ft)	Ltw Culvert Toewall Length (Ft)	Atw Anchor Toewall Length (Ft)	Riprap Apron (CY)	Class "C" Conc (Curb) (CY) (2)	Class "C" Conc (Wingwall) (CY) (3)	Total Wingwall Area (SF)
STA 416+83.00 (Both)	1 ~ 5'x 2'	1.5'	SCP-5	SETB-FW-0	0°	4:1	8"	6"	0.500'	2.917'	10.333'	5.966'	11.932'	6.000'	16.932'	0.0	0.2	9.0	N/A

NOTES:

Skew = 0° on SW-0, FW-0, SETB-CD, SETB-SW-0, and SETB-FW-0 standard sheets;
 30° maximum for safety end treatment

SL:1 = Horizontal : 1 Vertical

- Side slope at culvert for flared or straight wingwalls.
- Channel slope for parallel wingwalls.
- Slope must be 3:1 or flatter for safety end treatments.

T = Box culvert top slab thickness. Dimension can be found on the applicable box culvert standard sheet.

U = Box culvert wall thickness. Dimension can be found on the applicable box culvert standard sheet.

C = Curb height

See applicable wing or end treatment standard sheets for calculations of Hw, A, B, Lw, Ltw, Atw, and Total Wingwall Area.

Hw = Height of wingwall

A = Distance from face of curb to end of wingwall (not applicable to parallel or straight wingwalls)

B = Offset of end of wingwall (not applicable to parallel or straight wingwalls)

Lw = Length of longest wingwall.

Ltw = Length of culvert toewall (not applicable when using riprap apron)

Atw = Length of anchor toewall (applicable to safety end treatment only)

Total Wingwall Area = Wingwall area in sq. ft. for two wingwalls (one structure end) if Lt or Rt.
 Area for four wingwalls (two structure ends) if Both.

- 1 Round the wall heights shown to the nearest foot for bidding purposes.
- 2 Concrete volume shown is for box culvert curb only. For curbs using the Box Culvert Rail Mounting Details (RAC) standard sheet quantities shown must be increased by a factor of 2.25. If Class S concrete is required for the top slab of the culvert, also provide Class S concrete for the curb. Curb concrete is considered part of the Box Culvert for payment.
- 3 Concrete volume shown is total of wings, footings, culvert toewall (if any), anchor toewalls (if any) and wingwall toewalls. Riprap aprons, culverts, and curb quantities are not included.
- 4 Regardless of the type of culvert shown on this sheet, the Contractor has the option of furnishing cast-in-place or precast culverts unless otherwise shown elsewhere on the plans. If the Contractor elects to provide culverts of a different type than those shown on this sheet, it is the Contractor's responsibility to make the necessary adjustments to the dimensions and quantities shown.

SPECIAL NOTE:

This sheet is a supplement to the box culvert standards. It is to be filled out by the culvert specifier and provides dimensions for the construction of the box culvert wingwalls and safety end treatments.

An Excel 2010 spreadsheet to assist in completing this table can be downloaded from the Bridge Standards (English) web page on the TxDOT web site. The completed sheet must be signed, sealed, and dated by a licensed Professional Engineer.



9/8/2023

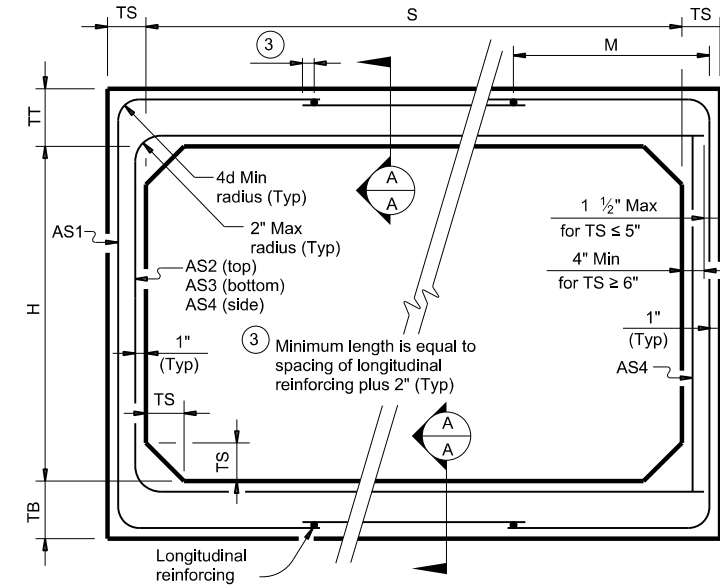
		Bridge Division Standard	
<h2>BOX CULVERT SUPPLEMENT</h2> <h3>WINGS AND END TREATMENTS</h3>			
BCS			
FILE: bcsstd1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
©TxDOT February 2020	CONT: 0360	SECT: 04	JOB: 033
REVISIONS	0360	04	033
DIST: ABL	COUNTY: HASKELL	SHEET NO.	62

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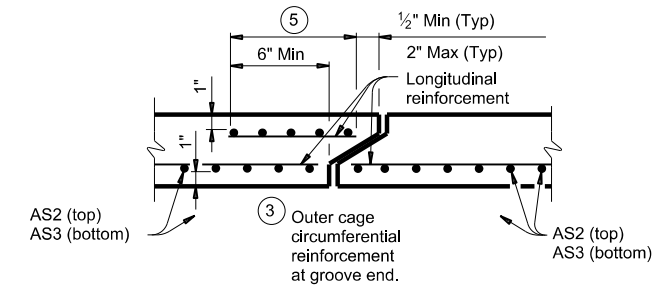
BOX DATA

SECTION DIMENSIONS					Fill Height (ft.)	M (Min) (in.)	REINFORCING (sq. in. / ft.) ^②								① Lift Weight (tons)
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)			AS1	AS2	AS3	AS4	AS5	AS7	AS8		
5	2	8	7	6	< 2	-	0.19	0.27	0.18	0.14	0.19	0.19	0.17	6.0	
5	2	6	6	6	2 < 3	44	0.22	0.20	0.16	0.14	-	-	-	5.1	
5	2	6	6	6	3 - 5	44	0.16	0.14	0.14	0.14	-	-	-	5.1	
5	2	6	6	6	10	36	0.15	0.14	0.14	0.14	-	-	-	5.1	
5	2	6	6	6	15	36	0.20	0.18	0.18	0.14	-	-	-	5.1	
5	2	6	6	6	20	36	0.26	0.23	0.24	0.14	-	-	-	5.1	
5	2	6	6	6	25	36	0.33	0.29	0.29	0.14	-	-	-	5.1	
5	2	6	6	6	30	36	0.39	0.34	0.35	0.14	-	-	-	5.1	
5	3	8	7	6	< 2	-	0.19	0.31	0.21	0.14	0.19	0.19	0.17	6.6	
5	3	6	6	6	2 < 3	45	0.18	0.24	0.19	0.14	-	-	-	5.7	
5	3	6	6	6	3 - 5	36	0.14	0.17	0.16	0.14	-	-	-	5.7	
5	3	6	6	6	10	36	0.14	0.16	0.17	0.14	-	-	-	5.7	
5	3	6	6	6	15	35	0.16	0.21	0.22	0.14	-	-	-	5.7	
5	3	6	6	6	20	35	0.21	0.27	0.28	0.14	-	-	-	5.7	
5	3	6	6	6	25	35	0.26	0.34	0.34	0.14	-	-	-	5.7	
5	3	6	6	6	30	35	0.31	0.41	0.41	0.14	-	-	-	5.7	
5	4	8	7	6	< 2	-	0.19	0.33	0.24	0.14	0.19	0.19	0.17	7.2	
5	4	6	6	6	2 < 3	45	0.16	0.27	0.22	0.14	-	-	-	6.3	
5	4	6	6	6	3 - 5	45	0.14	0.19	0.18	0.14	-	-	-	6.3	
5	4	6	6	6	10	36	0.14	0.18	0.18	0.14	-	-	-	6.3	
5	4	6	6	6	15	35	0.14	0.23	0.24	0.14	-	-	-	6.3	
5	4	6	6	6	20	35	0.17	0.30	0.31	0.14	-	-	-	6.3	
5	4	6	6	6	25	35	0.21	0.37	0.38	0.14	-	-	-	6.3	
5	4	6	6	6	30	35	0.25	0.44	0.45	0.14	-	-	-	6.3	
5	5	8	7	6	< 2	-	0.19	0.35	0.26	0.14	0.19	0.19	0.17	7.8	
5	5	6	6	6	2 < 3	45	0.14	0.29	0.24	0.14	-	-	-	6.9	
5	5	6	6	6	3 - 5	45	0.14	0.21	0.20	0.14	-	-	-	6.9	
5	5	6	6	6	10	45	0.14	0.19	0.20	0.14	-	-	-	6.9	
5	5	6	6	6	15	36	0.14	0.24	0.25	0.14	-	-	-	6.9	
5	5	6	6	6	20	35	0.15	0.31	0.32	0.14	-	-	-	6.9	
5	5	6	6	6	25	35	0.18	0.38	0.39	0.14	-	-	-	6.9	
5	5	6	6	6	30	35	0.21	0.46	0.47	0.14	-	-	-	6.9	

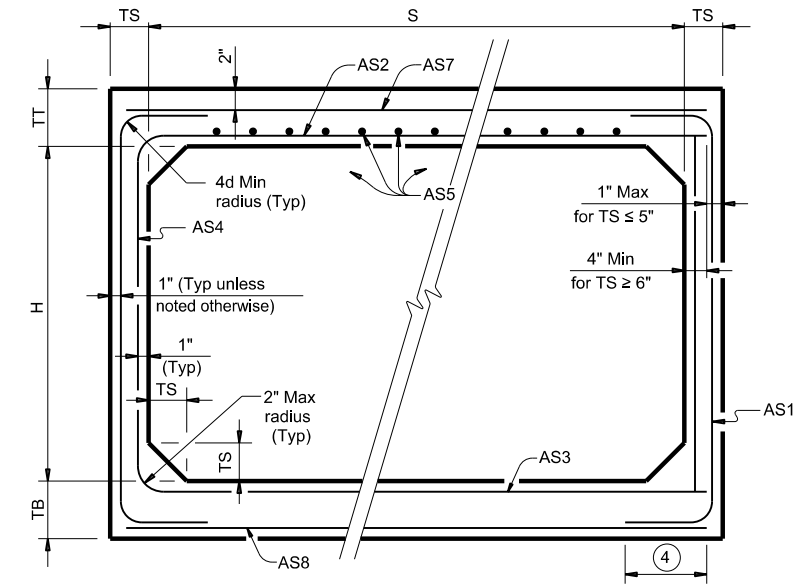


CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER



SECTION A-A
(Showing top and bottom slab joint reinforcement.)



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

④ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)

MATERIAL NOTES:
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
Provide Class H concrete (f'c = 5,000 psi).

GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

① For box length = 8'-0"
② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

HL93 LOADING

		<i>Bridge Division Standard</i>	
SINGLE BOX CULVERTS PRECAST 5'-0" SPAN			
SCP-5			
FILE: scp05sls-20.dgn	DN: TxDOT	CR: TxDOT	DW: TxDOT
©TxDOT February 2020	CONT	SECT	JOB
REVISIONS	0360	04	033
DIST	COUNTY		SHEET NO.
ABL	HASKELL		63

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TABLE OF DIMENSIONS AND REINFORCING STEEL
(Wings for One Structure End)

Maximum Wingwall Height Hw (9)	Dimensions				Variable Reinforcing				Estimated Quantities per ft of wing length (Two-Wings) (3)	
	W	X	Y	Z	Bars J1		Bars J2		Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721

TABLE OF WING WALL REINFORCING
(Two-Wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)	2.45		
Conc (CY/Ft)	0.037		

TABLE OF ESTIMATED ANCHOR TOEWALL QUANTITIES

Bar	Size	No.	Spa
K	#4	~	1'-0"
N	#5	6	~
OL	#4	6	~
Reinf (Lb/Ft)	9.82		
Conc (CY/Ft)	0.074		

- Extend Bars P 3'-0" Min into bottom slab of box culvert.
- Adjust to fit as necessary to maintain 1 #2" clear cover and 4" Min between bars.
- Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by Lw.
- Recommended values of slope are: 3:1, 4:1, and 6:1. Provide 3:1 or flatter slope.
- When shown elsewhere on the plans, construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap." Unless otherwise shown on the plans or directed by the Engineer, extend construction joints or grooved joints, oriented in the direction of flow, across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B is not required.
- At Contractor's option, end the culvert toewall flush with wingwall toewall. Adjust reinforcing as needed.
- 3" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to the Extend Curb Details (ECD) standard sheet.
- For vehicle safety, reduce curb heights, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.
- See Table of Maximum Wing Heights for various slopes. Height is limited based on a 33'-6" maximum safety pipe runner length.

TABLE OF MAXIMUM WING HEIGHTS (9)

Side Slope	Hw Max
3:1	11'-5"
4:1	8'-10"
6:1	6'-1"

WING DIMENSION CALCULATIONS:

$Hw = H + T + C - 0.250'$ (9)
 $A = (Hw - 0.333') (SL)$
 $B = (A) (\tan 30^\circ)$
 $Lw = (A) + \cos 30^\circ$
 For cast-in-place culverts:
 $Ltw = (N) (S) + (N + 1) (U)$
 For precast culverts:
 $Ltw = (N) (2U + S) + (N - 1) (0.500')$
 $Lc = (Ltw) - (2U)$
 $Atw = (Lc) + (2B)$
 Total Wingwall Area (two wings ~ SF)
 $= (Hw + 0.333') (Lw)$

Hw = Height of wingwall (feet)
 Atw = Anchor toewall length (feet)
 Lw = Length of wingwall (feet)
 N = Number of culvert barrels
 SL:1 = Side slope ratio (horizontal : 1 vertical)
 Ltw = Culvert toewall length (feet)
 Lc = Culvert curb between wings (feet)
 See applicable box culvert standard for H, S, T, and U values.
 See Table of Maximum Wall Heights for limits on Hw.

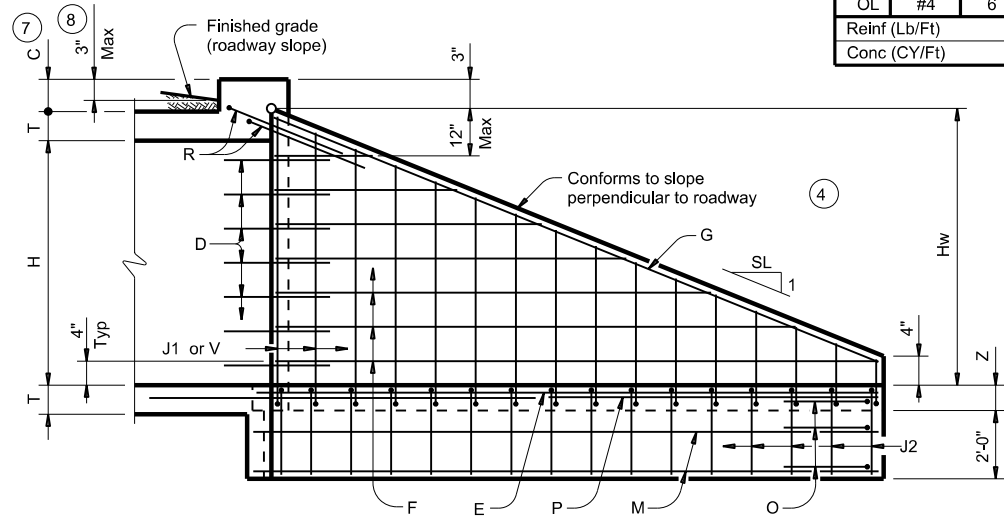
MATERIAL NOTES:

- Provide Grade 60 reinforcing steel.
- Provide galvanized reinforcing steel if required elsewhere in the plans. Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
- Provide Class "C" concrete (f'c = 3,600 psi).
- Adjust reinforcing as necessary to provide a minimum clear cover of 1"
- Provide pipe runners and anchor pipes meeting the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.
- Provide ASTM A307 bolts and nuts.
- Provide ASTM A36 steel plates.
- Galvanize all steel components, except reinforcing unless required elsewhere in the plans, after fabrication.
- Repair galvanizing damaged during transport or construction in accordance with the Item 445, "Galvanizing."
- For optional adhesive anchors, install adhesive anchorages in accordance with the manufacturer's instructions including hole size, drilling equipment and method, hole cleaning equipment and method, mixing and dispensing adhesive, and anchor insertion. Do not alter the manufacturer's mixing nozzle or dispenser. Provide anchorage rods that are clean and free of grease, oil, or any other foreign material. Demonstrate hole cleaning method to the Engineer for approval and continue the approved process for all anchorage locations. Test adhesive anchors in accordance with Item 450.3.3, "Tests." Test 3 anchors per 100 anchors installed.

GENERAL NOTES:

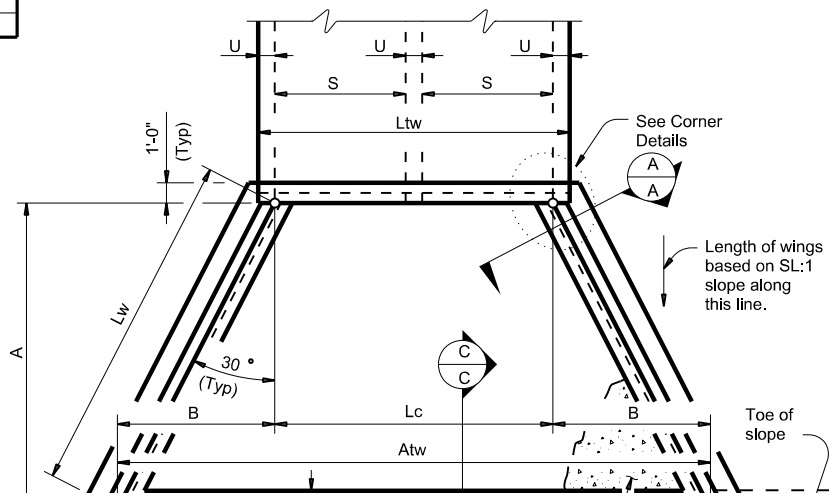
- Designed according to AASHTO LRFD Bridge Design Specifications.
- The safety end treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.
- Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.
- When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
- All bolts, nuts, washers, brackets, angles, and pipe runners are considered parts of the safety end treatment for payment.
- The quantities for pipe runners, reinforcing steel, and concrete, resulting from the formulas given herein are for Contractor's information only.
- See the Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.

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



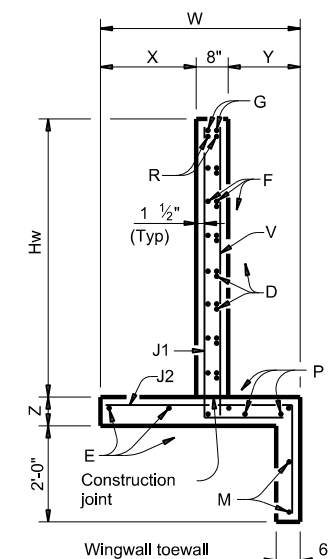
INSIDE ELEVATION OF WINGWALL

(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)

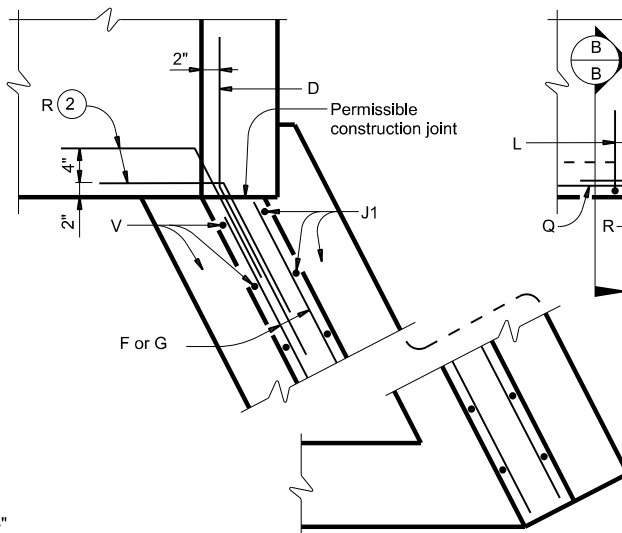


STRUCTURAL PLAN

(Showing dimensions.)

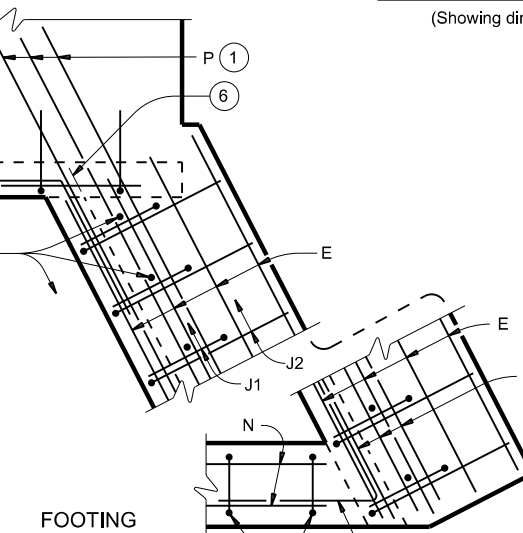


SECTION A-A

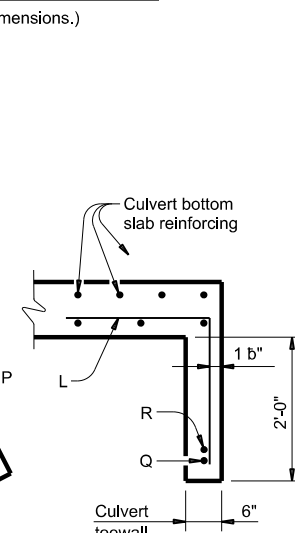


CORNER DETAILS

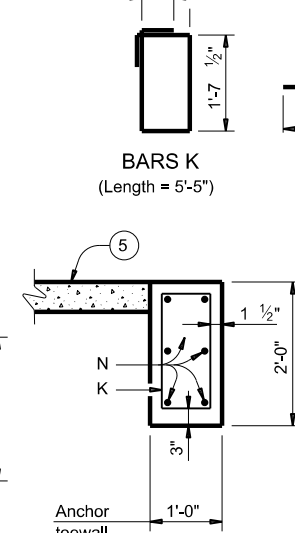
(Culvert and culvert toewall reinforcing not shown for clarity.)



FOOTING AND TOEWALL



SECTION B-B (5)



SECTION C-C

BARS K
(Length = 5'-5")

BARS OL

BARS D

BARS L

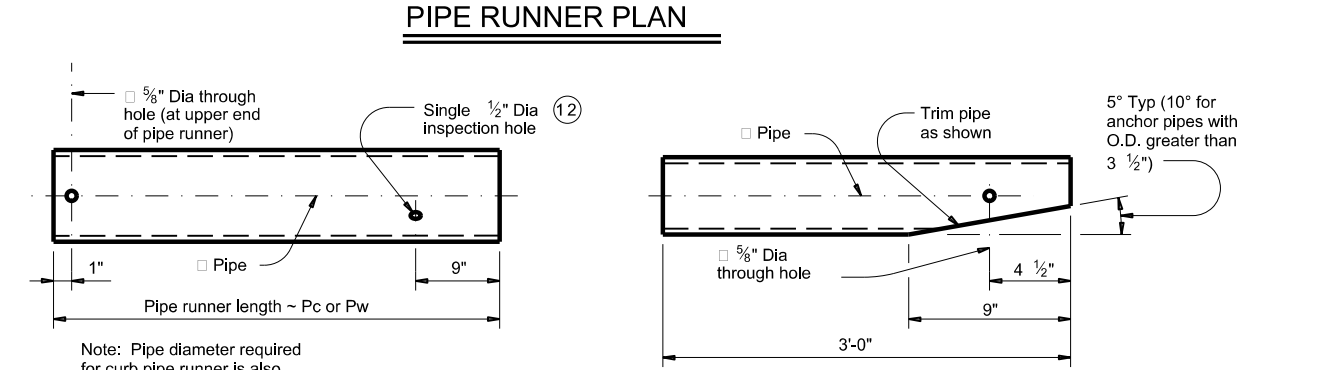
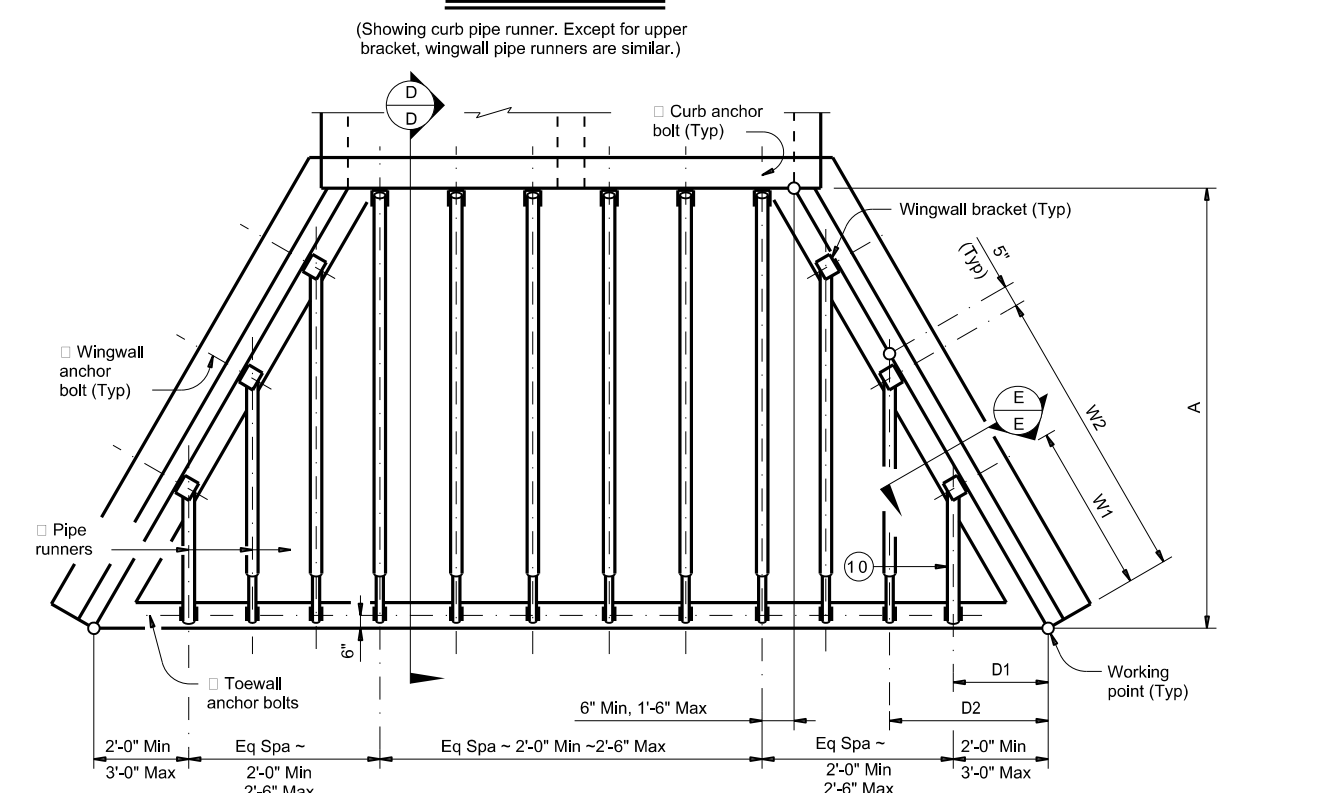
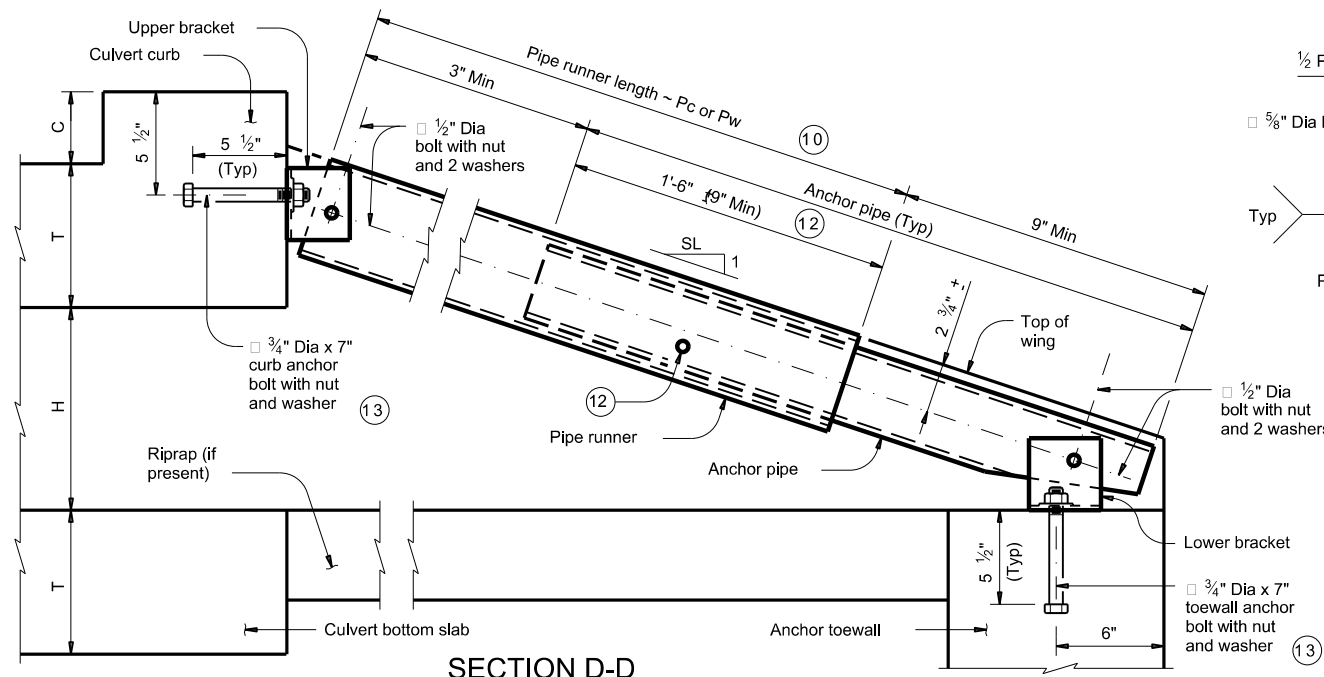
BARS J2

BARS J1

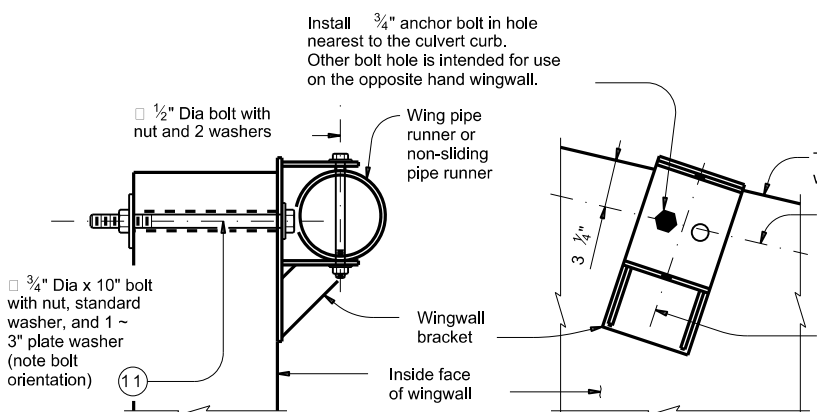
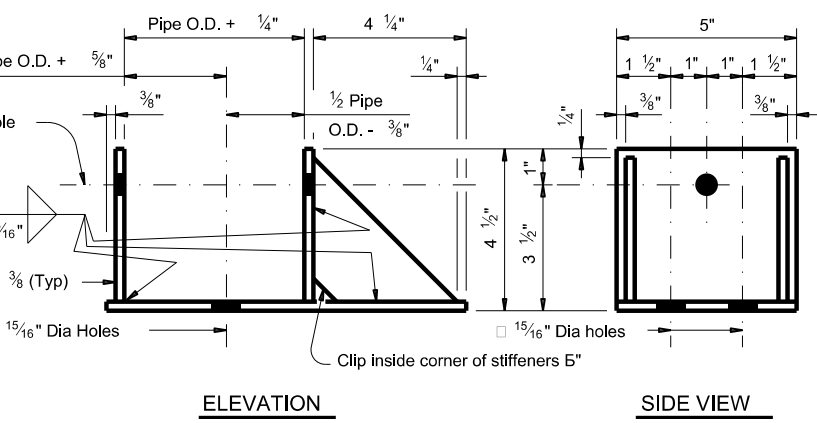
BARS V

				Bridge Division Standard	
SAFETY END TREATMENT WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS TYPE I ~ CROSS DRAINAGE					
SETB-FW-0					
FILE:	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT	
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0360	04	033	US 380	
DIST	COUNTY		SHEET NO.		
ABL	HASKELL		64		

DATE: 9/8/2023 1:33:26 PM
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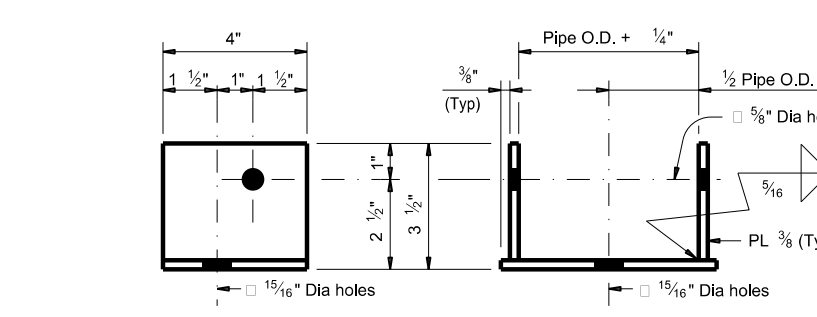


PIPE RUNNER PLAN
PIPE RUNNER DETAILS
ANCHOR PIPE DETAILS



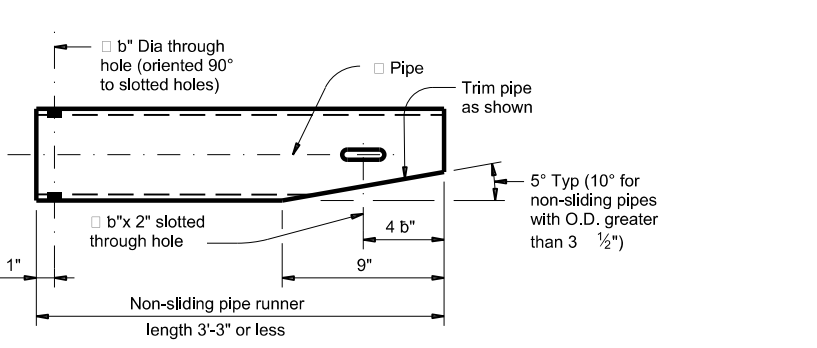
SECTION E-E
ELEVATION

Note: Match wingwall bracket to the upper curb bracket size.
WINGWALL BRACKET DETAILS



SIDE VIEW
ELEVATION

Note: Match upper and lower brackets, except for the brackets used with non-sliding pipe runners, to the required pipe diameters as shown in the table.
UPPER AND LOWER BRACKET DETAILS



Note: Pipe size is the same as required for curb pipe runner. Adjust the corresponding lower bracket accordingly.
NON-SLIDING PIPE RUNNER DETAILS

Maximum Pipe Runner Length (Pc or Pw)	MAXIMUM PIPE RUNNER LENGTHS AND REQUIRED PIPE RUNNER SIZES					
	Required Pipe Runner Size			Required Anchor Pipe Size		
	Pipe Size	Pipe O.D.	Pipe I.D.	Pipe Size	Pipe O.D.	Pipe I.D.
9'-4"	3" STD	3.500"	3.068"	2" STD	2.375"	2.067"
19'-0"	4" STD	4.500"	4.026"	3" STD	3.500"	3.068"
33'-6"	5" STD	5.563"	5.047"	4" STD	4.500"	4.026"

- 10 If pipe runner length (Pw) is 1'-9" or less replace the normal pipe runner and anchor pipe with a single non-sliding pipe runner. See Non-Sliding Pipe Runner Details for additional information.
- 11 At Contractor's option, 7/8" diameter hole may be formed or cored drilled. Percussion drilling is not permitted. Adjust placement of reinforcing steel as necessary to avoid bolt holes.
- 12 After installation of pipe runner, use the 5" inspection hole to ensure that the lap of the anchor pipe with the pipe runner is adequate.
- 13 At Contractor's option, an adhesive anchor may be used. Provide 3/4" Dia adhesive anchors that meet the requirements of ASTM A307 Gr A fully threaded rods. Embed threaded rods into curb, wingwalls, and toewall using a Type III, Class C, D, E, or F anchor adhesive. Minimum embedment depth is 5 b". Provide anchor adhesive able to achieve a basic bond strength in tension, Nba, of 20 kips. 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.

PIPE RUNNER DIMENSION CALCULATIONS:	
Wn	= (2.000) (Dn) - (0.416')
Pwn	= (Dn) (K2) - (2.063')
Pw1 Non-Sliding Pipe Runner (If required)	= (D1) (K2) - (0.563')
Pc	= (A) (K1) - (1.688')

- Wn = Distance from working point to centerline anchor bolt measured along bottom inside face of wing (feet)
- Dn = Distance from working point to centerline pipe runner measured along outside face of anchor toewall (feet)
- Pw = Wingwall pipe runner length (feet)
- Pc = Curb pipe runner length (feet)
- K = Constant values for use in formulas
- Slope SL:1 K1 K2
- 3:1 ~ 1.054 ~ 1.826
- 4:1 ~ 1.031 ~ 1.785
- 6:1 ~ 1.014 ~ 1.756
- n = Wing pipe runner number

SHEET 2 OF 3

Texas Department of Transportation
Bridge Division Standard

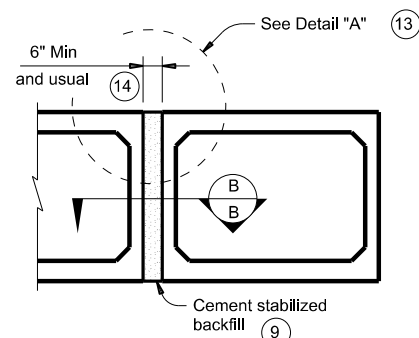
SAFETY END TREATMENT WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS TYPE I ~ CROSS DRAINAGE

SETB-FW-0

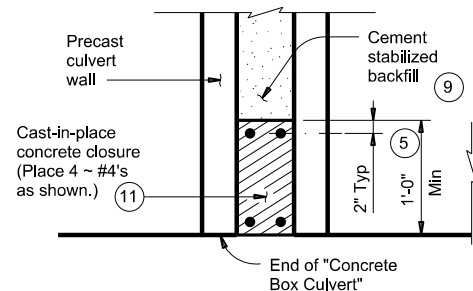
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©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
	DIST	COUNTY	SHEET NO.	
	ABL	HASKELL	65	

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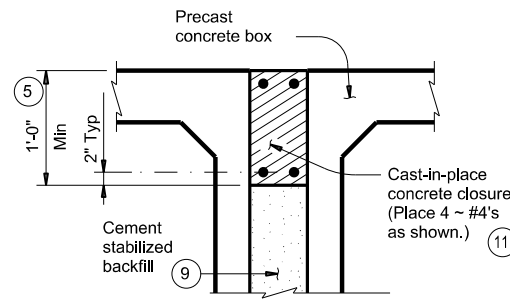
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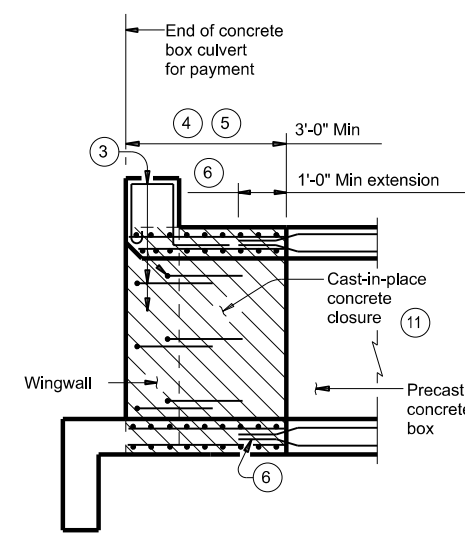
MULTIPLE UNIT PLACEMENT



SECTION B-B

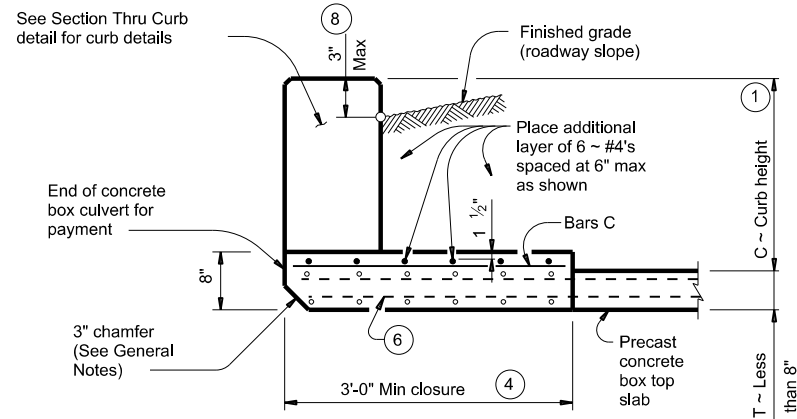


DETAIL "A" (13)

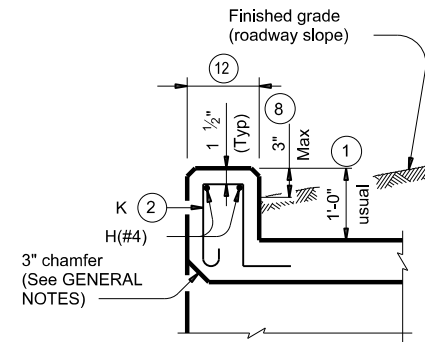


WINGWALL CONNECTION

(Also applies to safety end treatment.)

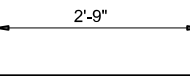


SECTION THRU TOP SLABS LESS THAN 8"

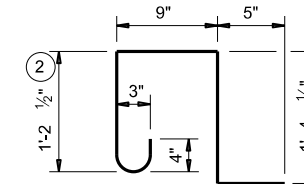


SECTION THRU CURB

QUANTITIES PER FOOT OF CURB (10)	
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY



BARS C (#4)
(Spa = 1'-0" Max)



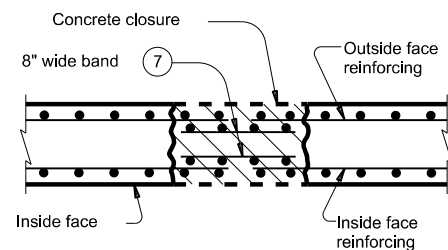
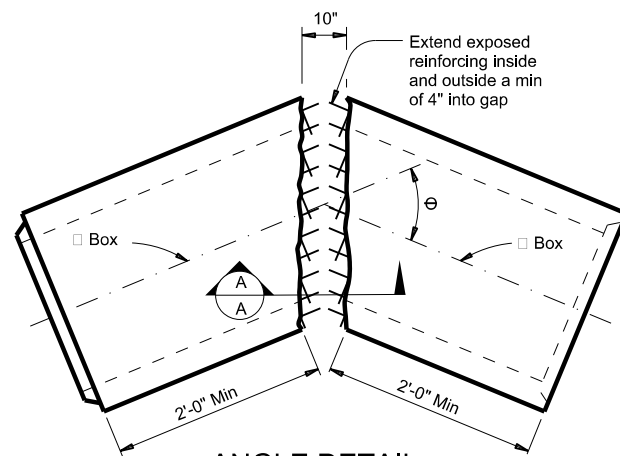
BARS K (#4)
(Spa = 1'-0" Max)
(Length = 4'-2")

- 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail, or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
- For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.
- Extend curb, wingwall, or safety end treatment reinforcing into concrete closure. Bend or trim, as necessary, any reinforcing that does not fit into closure area.
- Provide a 3'-0" Min cast-in-place concrete closure. Break back boxes in the field or cast boxes short. Provide bands of reinforcing in the closure that are the same size and spacing as in the precast box section. Provide #4 longitudinal reinforcement spaced at 12 inches Max within the closure. Except where shown otherwise, construct the cast-in-place closure flush with the inside and outside faces of the precast box section.
- For multiple unit placements, adjust the length of the closure for the interior walls as necessary. Provide a 3'-0" Min cast-in-place closure in the top slab, bottom slab, and exterior wall. See Section B-B detail when interior walls are cast full length.
- Extend precast box reinforcing a minimum of 1'-0" into concrete closure (Typ).
- Place bands of reinforcing matching the inside and outside face reinforcing in the gaps of the top and bottom slabs. Place a band matching the outside face reinforcing of the wall in the gaps of the walls (placed in the outside face only). Tack weld the bands to the exposed reinforcing at each point of contact.
- For vehicle safety, the following requirements must be met:
 - For structures without bridge rail, construct curbs no more than 3" above finished grade.
 - For structures with bridge rail, construct curbs flush with finished grade. Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- Cement stabilized backfill between boxes is considered part of the box culvert for payment.
- All curb concrete and reinforcing is considered part of the box culvert for payment.
- Any additional concrete and reinforcing required for the closures will be considered subsidiary to the box culvert for payment.
- 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.
- For multiple unit placement with overlay, with 1 to 2 course surface treatment, or with the top slab as the final riding surface, provide wall closure as shown in Detail "A".
- This dimension may be increased with approval of the Engineer to allow the precast boxes to be tunneled or jacked in accordance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box." No payment will be made for any additional material in the gap between adjacent boxes.

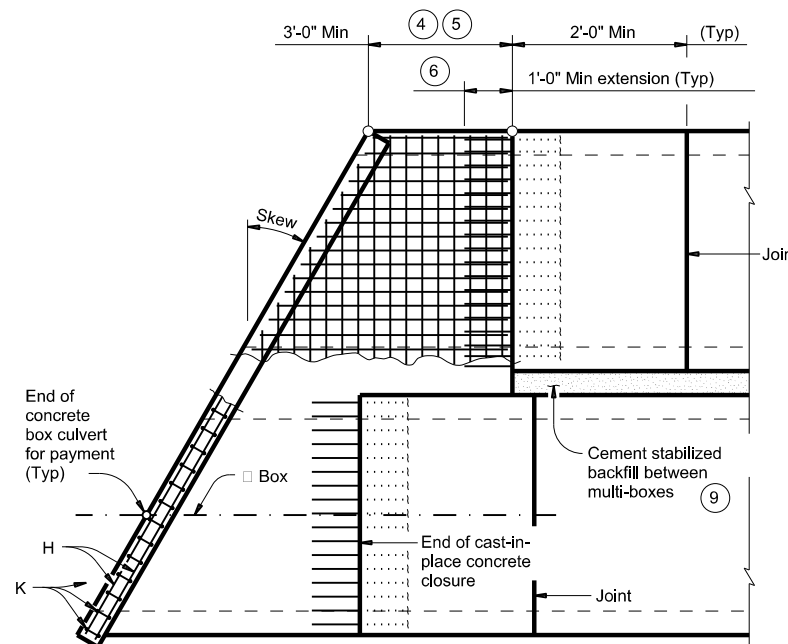
MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide ASTM A1064 welded wire reinforcement.
Provide Class C concrete (f_c = 3,600 psi) for the closures.
Provide cement stabilized backfill meeting the requirements of Item 400, "Excavation and Backfill for Structures."
Any additional concrete required for the closures will be considered subsidiary to the box culvert.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to the Single Box Culverts Precast (SCP) standard sheets for details and notes not shown.
Chamfer the bottom edge of the top slab closure 3 inches at culvert closure ends.

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



SECTION A-A



PLAN OF SKEWED ENDS

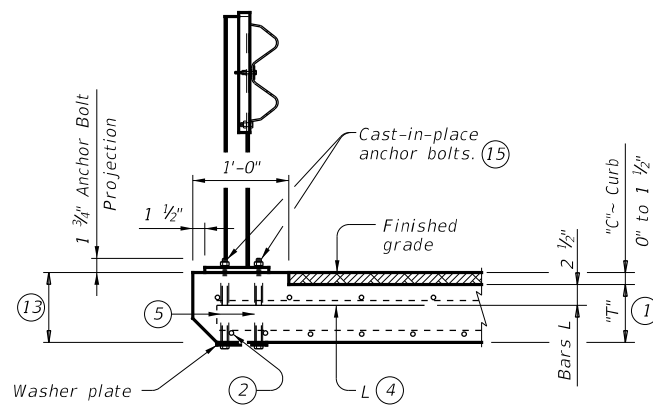
(Showing multi-box placement.)

HL93 LOADING

		Bridge Division Standard	
BOX CULVERTS PRECAST MISCELLANEOUS DETAILS			
SCP-MD			
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©TxDOT February 2020	CONT	SECT	HIGHWAY
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DIST	COUNTY	SHEET NO.	
ABL	HASKELL	67	

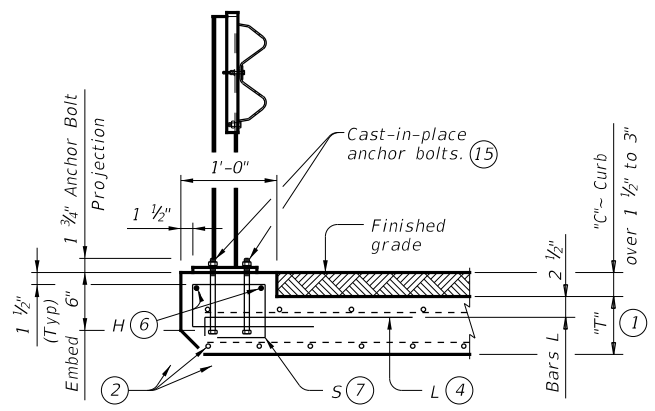
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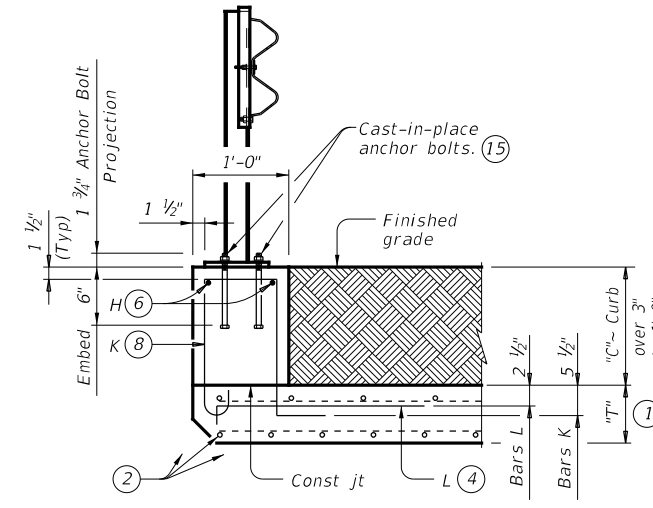
SECTION - TYPE 1 (3)

Used for curbs 1 1/2" and Less
(Showing "C" = 1 1/2")



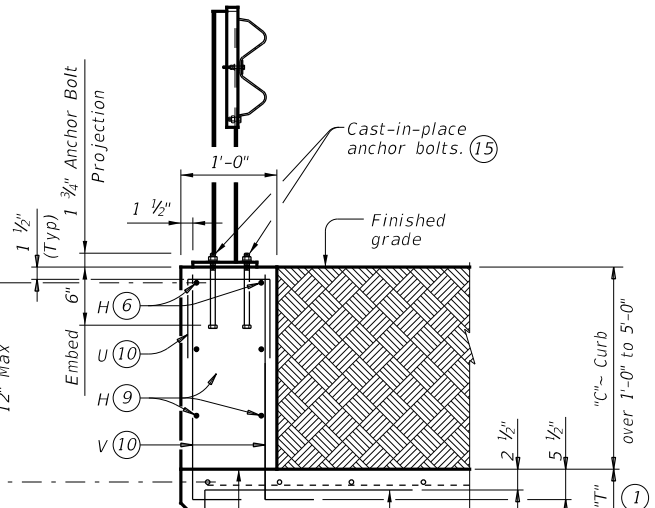
SECTION - TYPE 2

Used for curbs over 1 1/2" to 3"
(Showing "C" = 3")



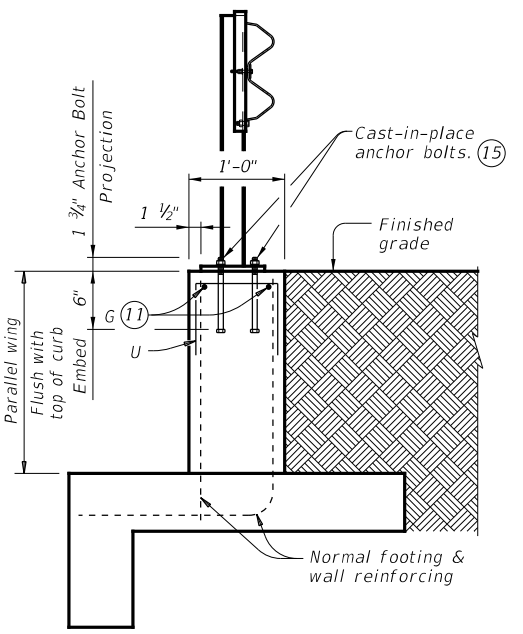
SECTION - TYPE 3

Used for curbs over 3" to 1'-0"
(Showing "C" = 1'-0")



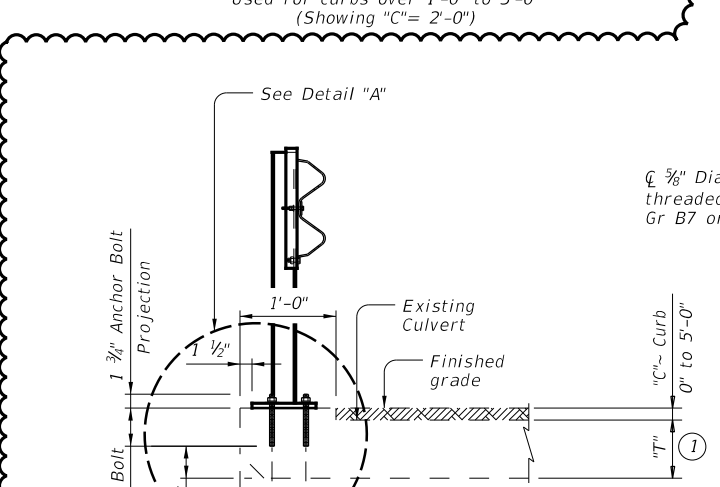
SECTION - TYPE 4

Used for curbs over 1'-0" to 5'-0"
(Showing "C" = 2'-0")



TYPICAL SECTION THRU PARALLEL WINGWALL (15)

Use with all curb heights shown

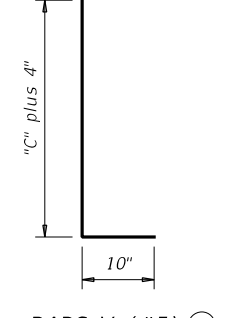


ADHESIVE ANCHORAGE

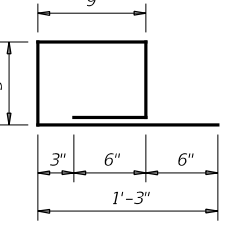
adhesive anchor may replace cast-in-place anchor bolts for Type 1 thru Type 4 and on Typical Section Thru Parallel Wingwalls. Reinforcement for optional adhesive anchorage matches details shown for Type 1 thru Type 4 and on Typical Section Thru Parallel Wingwalls.

1 "T" is equal to the culvert top slab thickness. For precast boxes with slabs less than 6" thick, see SCP-MD standard for additional details.

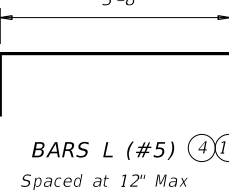
- 2 Adjust normal culvert slab bars as necessary to clear obstructions.
- 3 Omit normal culvert curb Bars K and H.
- 4 Place Bars L as shown. Tilt hook as necessary to maintain cover.
- 5 4 formed holes for anchor bolts at each rail post. See rail standard for information not shown.
- 6 Place normal culvert curb Bars H (#4) as shown. Adjust as necessary to clear obstructions.
- 7 Omit normal culvert curb Bars K. Place Bars S as shown. Tilt Bars S as necessary to maintain cover.
- 8 Place normal culvert curb Bars K spaced at 12" Max as shown. Tilt Bars K as necessary to maintain cover. Refer to box culvert details sheets for Bars K details.
- 9 Additional Bars H (#4) as required to maintain 12" Max spa.
- 10 At TYPE 4 mountings, replace normal culvert curb Bars K with one Bar U and two Bars V as shown spaced at 12" Max. Adjust length of Bars V as necessary to maintain clear cover.
- 11 Adjust parallel wing Bars G to positions shown.
- 12 Optional Bars L are to be used only for precast box culverts with 3'-0" closure pour.
- 13 If "T" plus "C" is greater than 8", provide reinforcement per TYPE 1 mounting and anchor bolts per TYPE 2 mounting.
- 14 Quantities shown are for Contractor's information only. Quantities are per linear foot of curb length. The values for each section type in table can be interpolated for intermediate values of curb height, "C". Quantity includes Bars K (when applicable).
- 15 See "Cast-In-Place & Formed Hole Anchor Bolt Options."



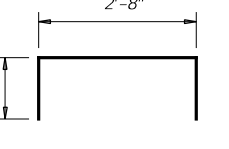
BARS V (#5) (10)
Spaced at 12" Max



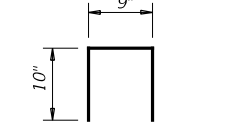
BARS S (#4) (7)
Spaced at 12" Max



BARS L (#5) (4)(12)
Spaced at 12" Max



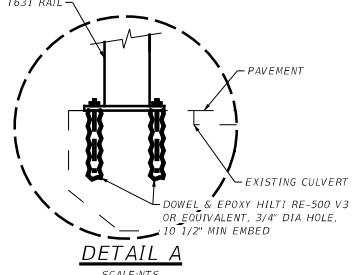
OPTIONAL BARS L (#5) (4)(12)
Spaced at 12" Max



BARS U (#4) (10)
Spaced at 12" Max

FORMED HOLE ANCHOR BOLT OPTIONS

Applies to T631LS and T631 traffic rails.



DETAIL A
SCALE: NTS

TABLE OF ESTIMATED CURB QUANTITIES (14)

Curb Height "C"	Section Type	Conc (CY/LF)	Reinf Steel (Lb/LF)
1 1/2"	1	0.005	4.7
3"	2	0.009	8.4
6"	3	0.019	8.9
1'-0"	3	0.037	8.9
1'-6"	4	0.056	14.3
2'-0"	4	0.074	15.4
2'-6"	4	0.093	17.7
3'-0"	4	0.111	18.8
3'-6"	4	0.130	21.2
4'-0"	4	0.148	22.2
4'-6"	4	0.167	24.6
5'-0"	4	0.185	25.6

CONSTRUCTION NOTES:
For vehicle safety, finished grade must be flush with top of curb. Adjust reinforcing as necessary to provide 1 1/4" cover. At the Contractor's option, anchor bolts may be an adhesive anchor system. Test adhesive anchors in accordance with Item 450.3.3, "Test". 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:
Provide concrete for curb of the same Class and strength as the box culvert top slab. Galvanize all steel components of steel rail system. Provide Grade 60 reinforcing steel. Galvanize all reinforcing steel if required elsewhere. Anchor bolts for base plate must be 3/8" Dia ASTM F3125 Gr A325 or A449 bolts (or ASTM A193 Gr B7 or F1554 Gr 105 threaded rods with one tack welded heavy hex nut each) with one hardened steel washer (ASTM F436) and one regular lock washer placed under each heavy hex nut. Nuts must conform to ASTM A563 requirements. Optional adhesive anchor system must be 3/8" Dia ASTM A193 Gr B7 or F1554 Gr 105 fully threaded rods with one hardened steel washer (ASTM F436) and one regular lock washer placed under each heavy hex nut. Nuts must conform to ASTM A563 requirements. Embed fully threaded rod into slab and/or abutment wingwall using a Type III, Class C, D, E, or F anchor adhesive. Minimum adhesive anchor embedment depth is 4 3/4". Anchor adhesive chosen must be able to achieve a nominal bond strength in tension of a single anchor, Na, of 8 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."

GENERAL NOTES:
Designed in accordance with AASHTO LRFD Bridge Design Specifications. See T631LS or T631 rail standard for approved speed restrictions, notes and details not shown. The curb is considered as part of the box culvert for payment. These details are for use with curbs that are 5'-0" tall and less only. Curb heights that are less than or greater than those shown will require special design.

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

The use of the T631LS rail is restricted to speeds of 45 mph or less.

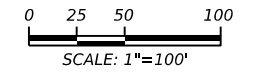
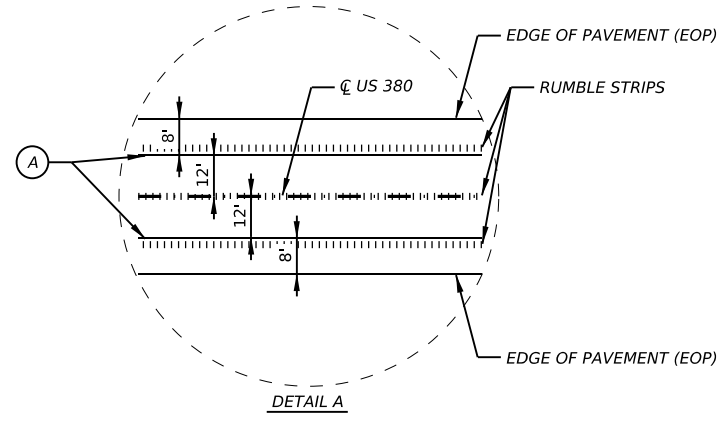
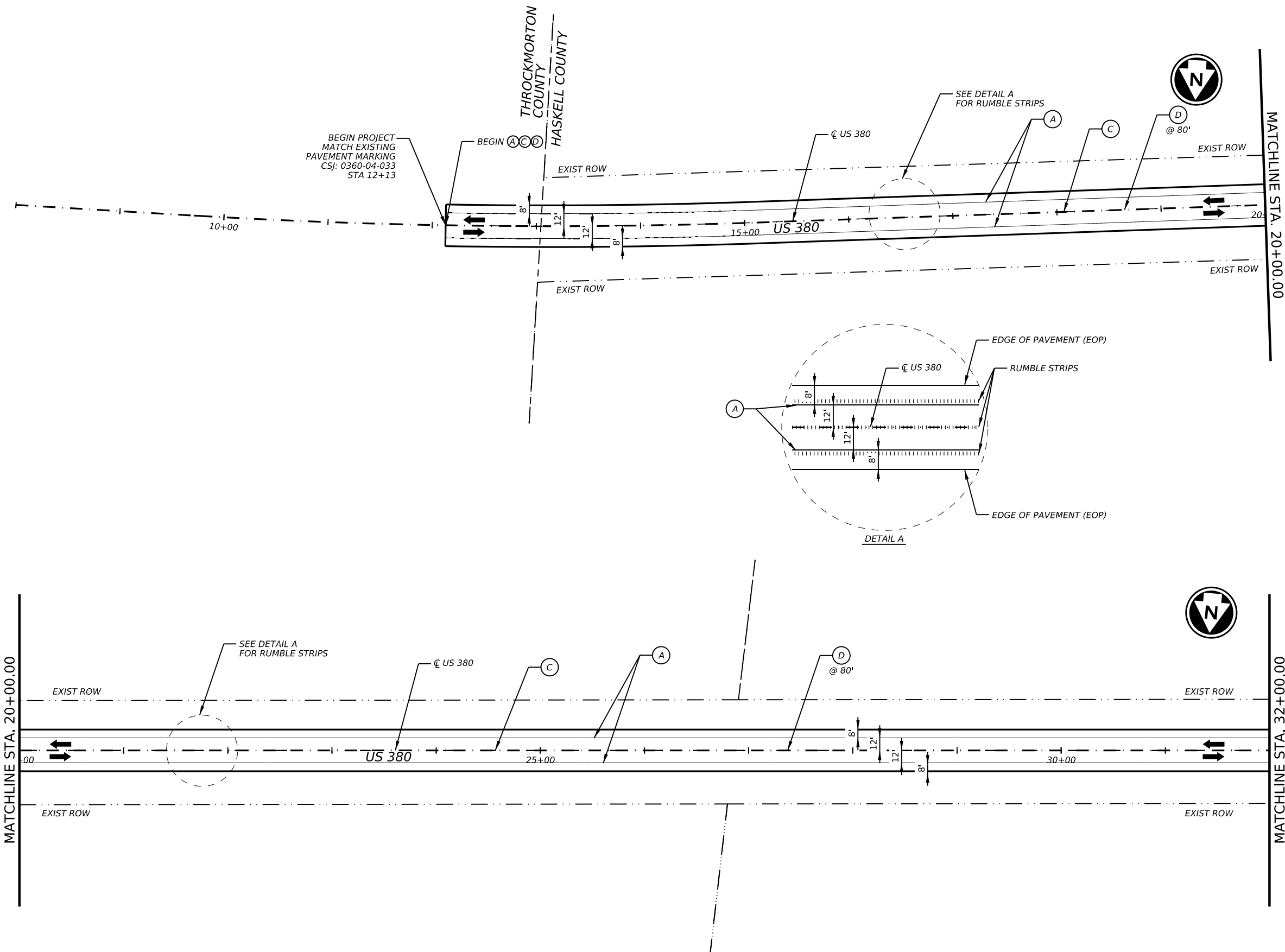
Texas Department of Transportation
Bridge Division Standard

BOX CULVERT MOUNTING DETAILS FOR TYPE T631LS & T631 RAILS (CURBS 5' TALL AND LESS ONLY) T631-CM(MOD)

09/08/2023

FILE: TxDOT February 2020	DN: TxDOT	CK: TxDOT	DW: JTR	CK: AES
REVISIONS	CONTRACT	SECTION	JOB	HIGHWAY
0360	04	033	US 380	
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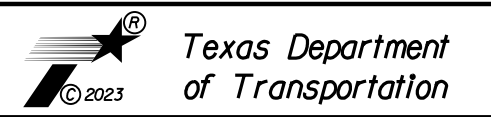
LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
Advanced Infrastructure Group
AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

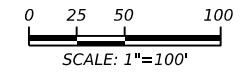
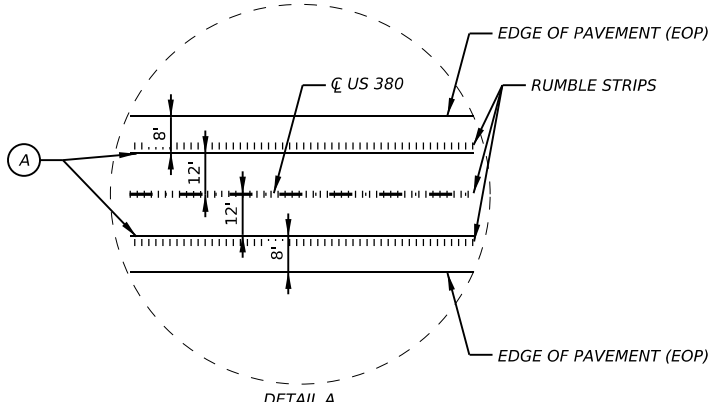
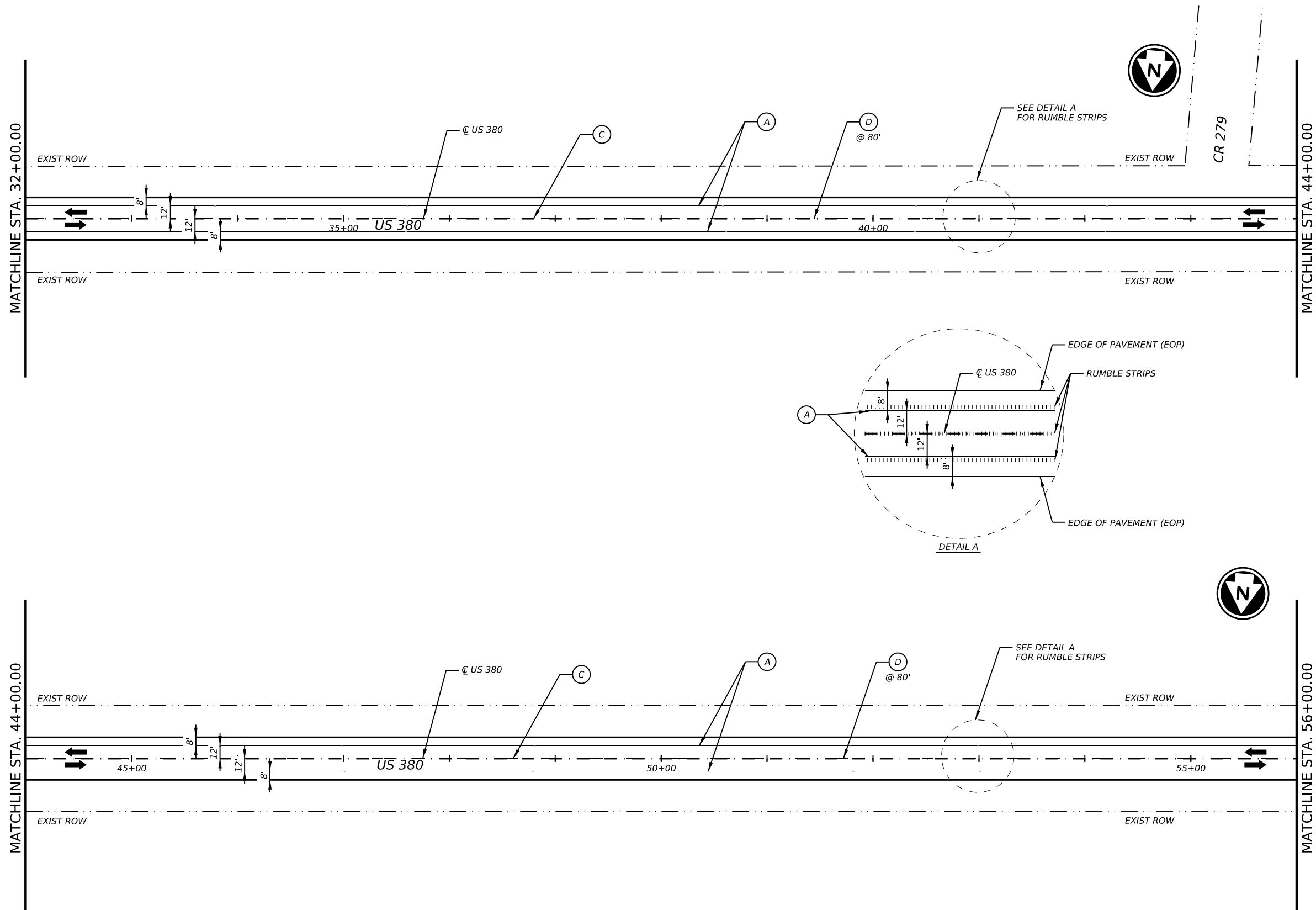


**US 380
PAVEMENT MARKING**
BEGIN PROJECT TO STA 32+00

SHEET 1 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	69	

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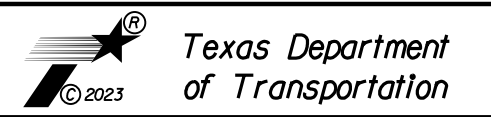
- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☉ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023

AIG Tech
Advanced Infrastructure Group
AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

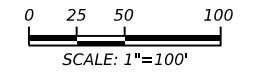
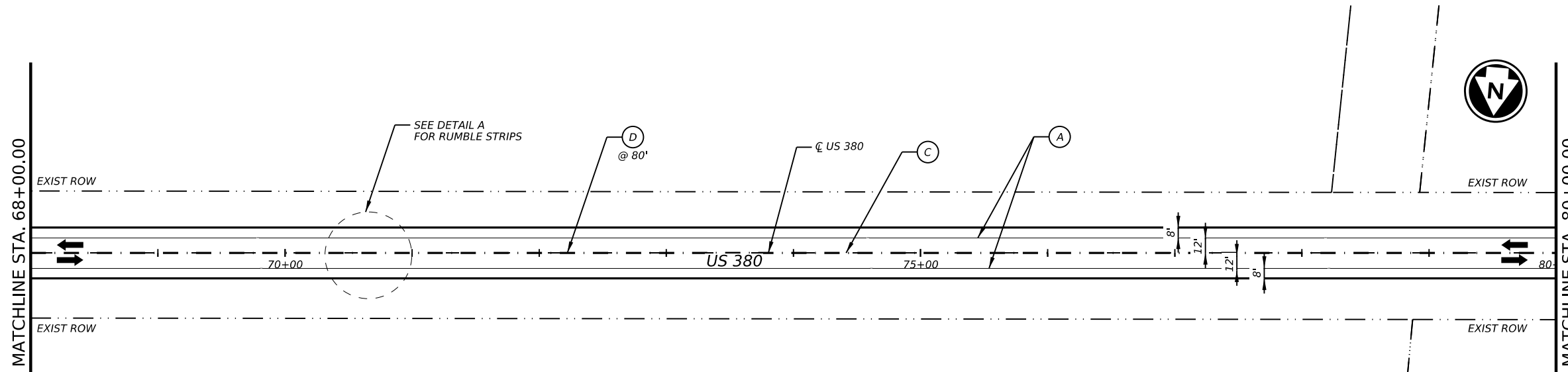
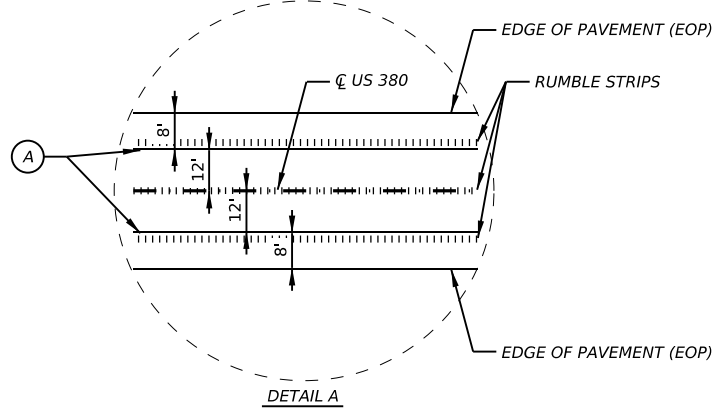
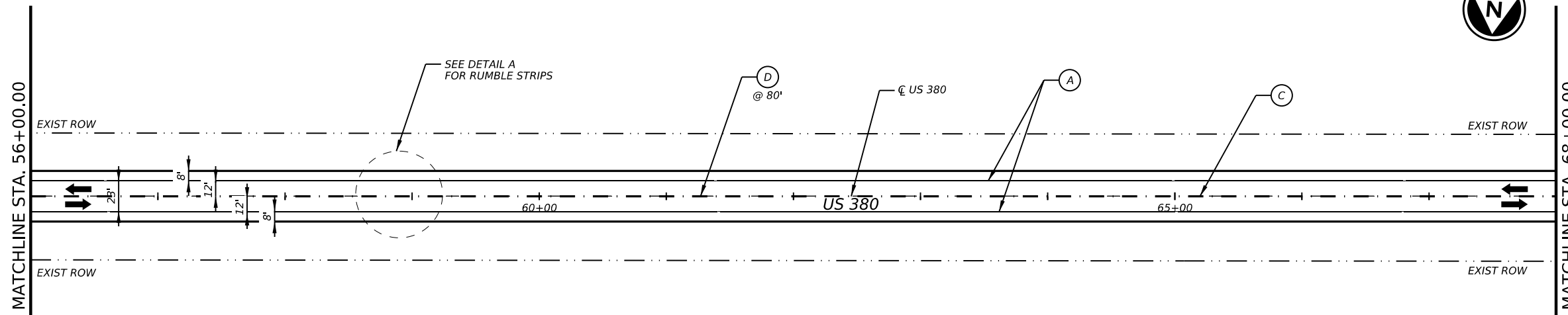


**US 380
PAVEMENT MARKING
STA 32+00 TO STA 56+00**

SHEET 2 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	70	

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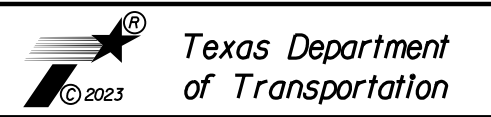
- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▬ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023

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 Advanced Infrastructure Group
 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

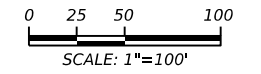
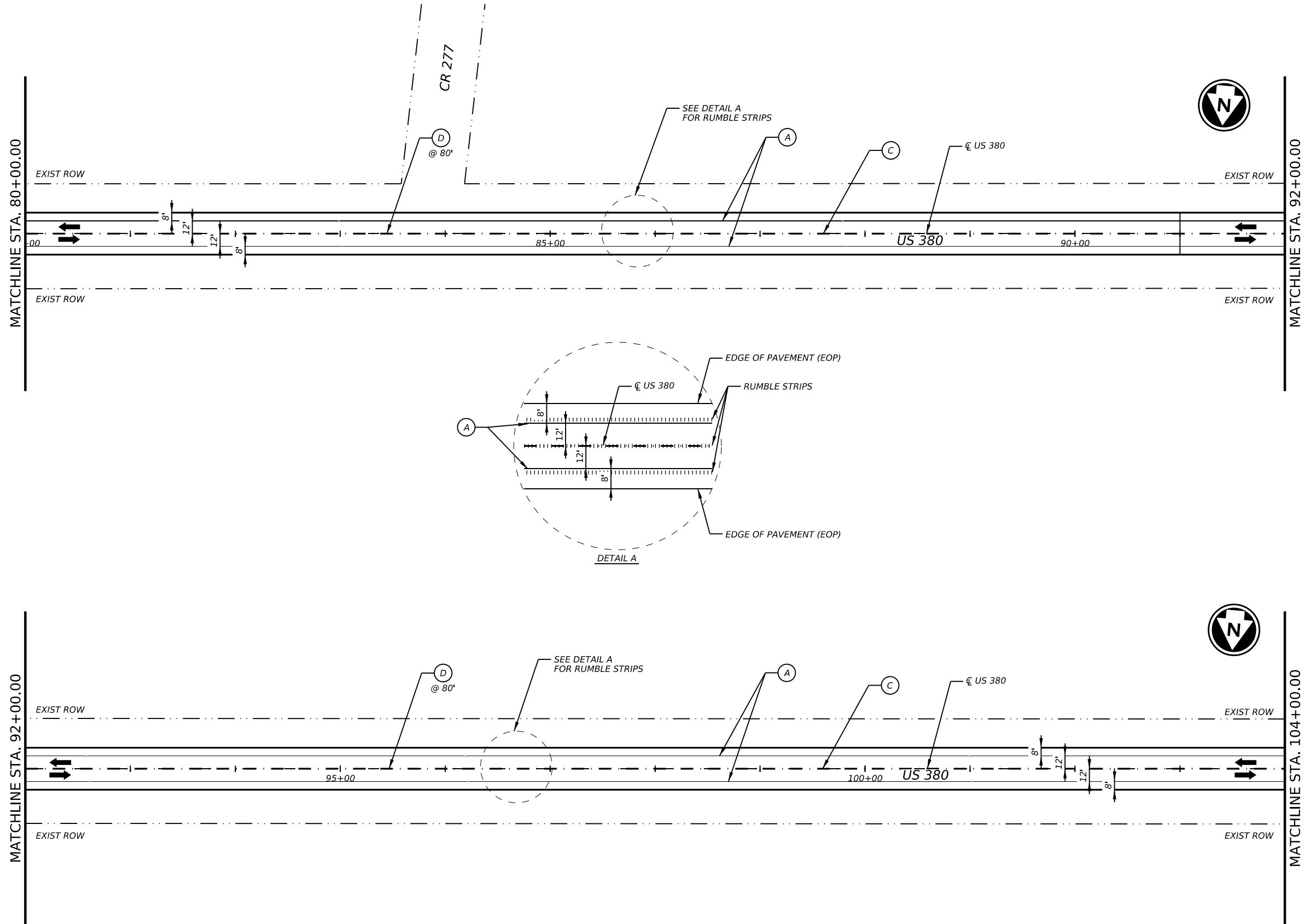


US 380
PAVEMENT MARKING
 STA 56+00 TO STA 80+00

SHEET 3 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	71	

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LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➡ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023



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1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607



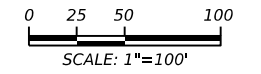
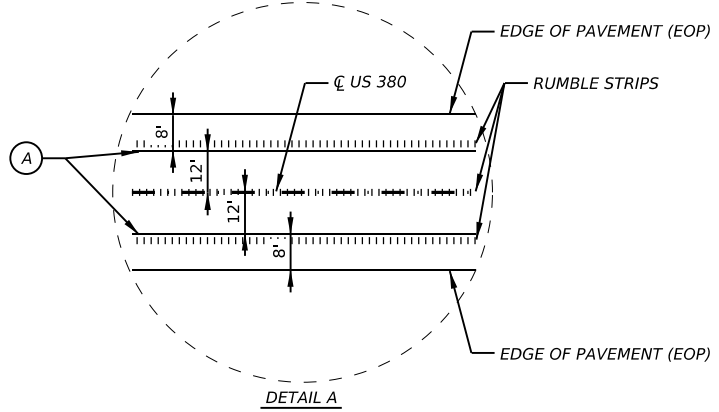
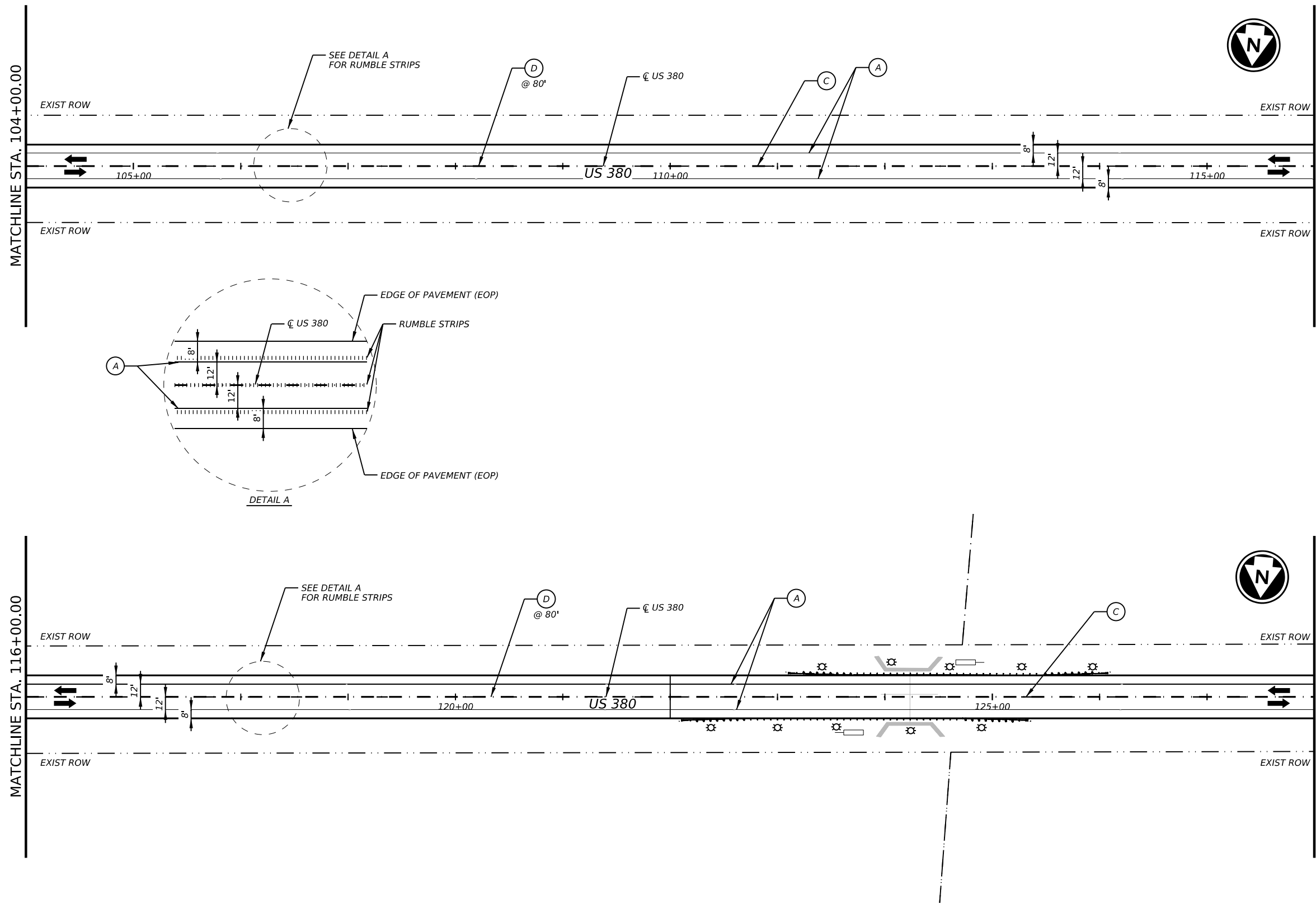
Texas Department
of Transportation

US 380
PAVEMENT MARKING
STA 80+00 TO STA 104+00

SHEET 4 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	72	

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LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☉ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023

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Advanced Infrastructure Group

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1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607



Texas Department of Transportation

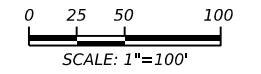
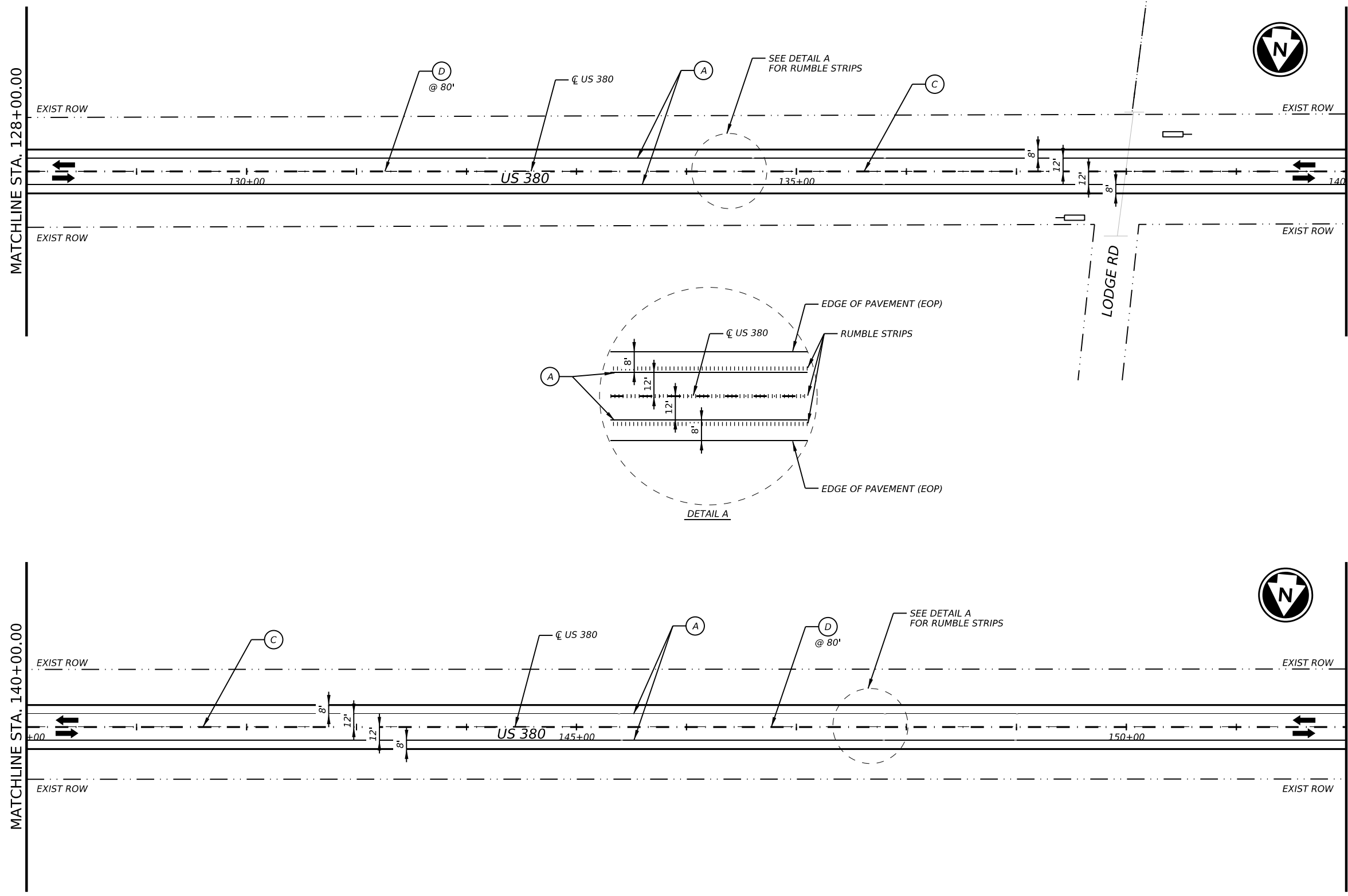
**US 380
PAVEMENT MARKING**

STA 104+00 TO 128+00

SHEET 5 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST		COUNTY	SHEET NO.
ABILENE		HASKELL	73

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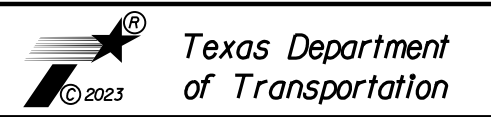
LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



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Advanced Infrastructure Group
AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

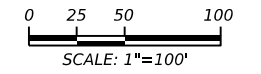
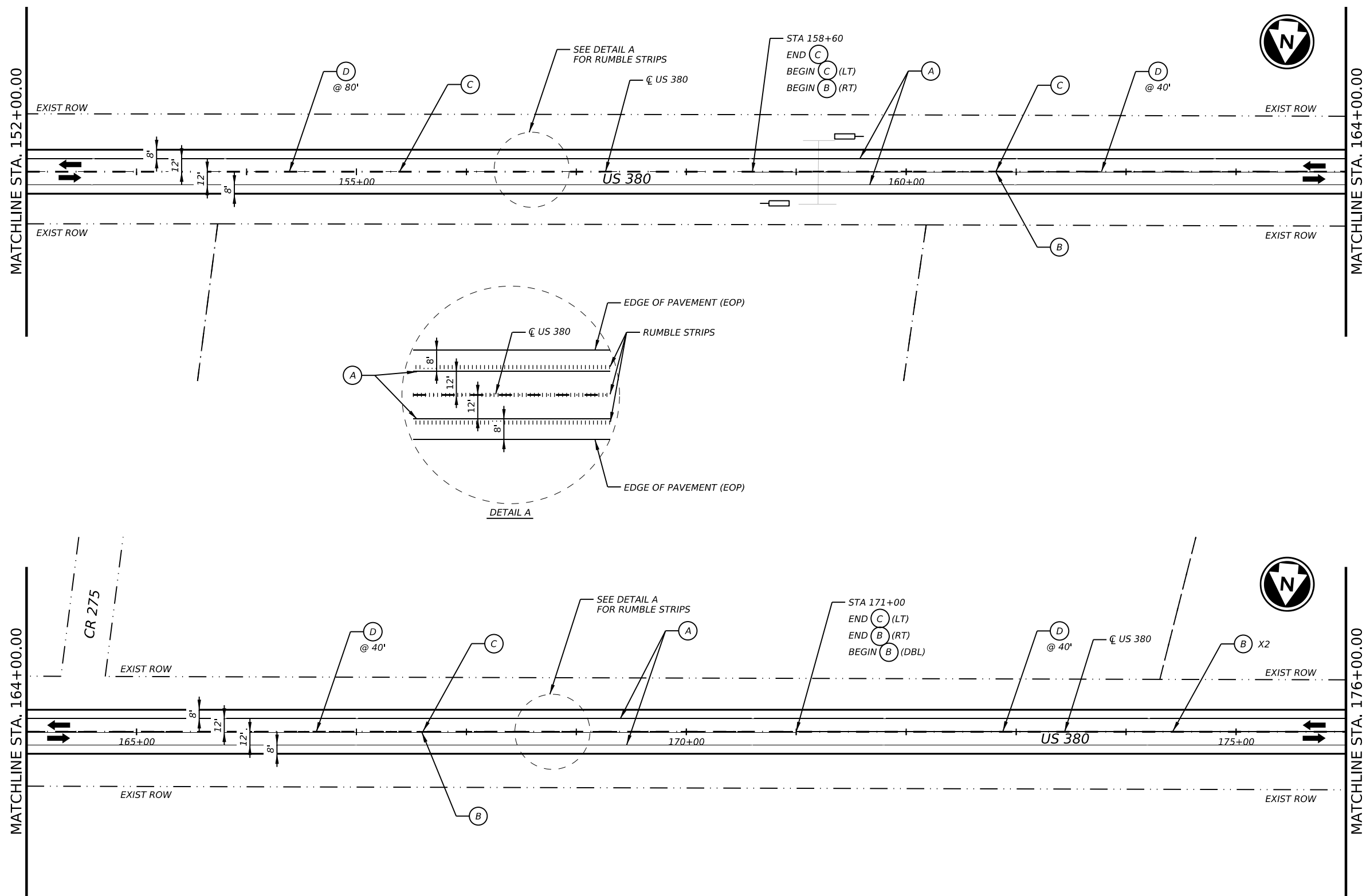


**US 380
PAVEMENT MARKING
STA 128+00 TO STA 152+00**

SHEET 6 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	74	

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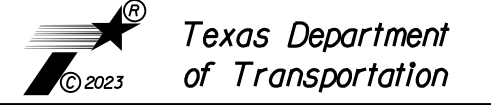
LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



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Advanced Infrastructure Group
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1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

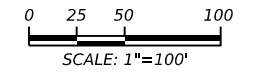
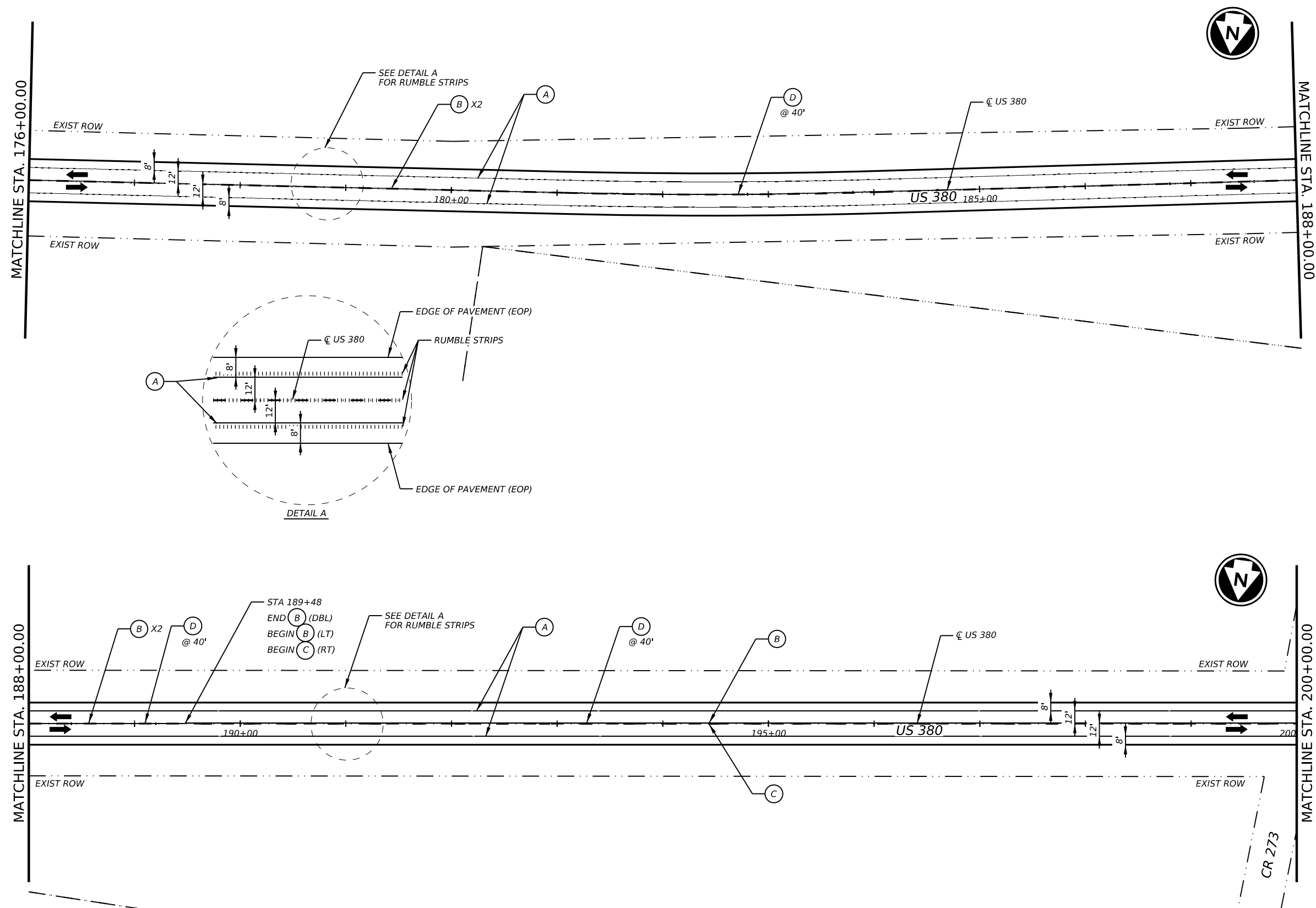


**US 380
PAVEMENT MARKING
STA 152+00 TO STA 176+00**

SHEET 7 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	75	

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LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



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 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

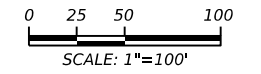
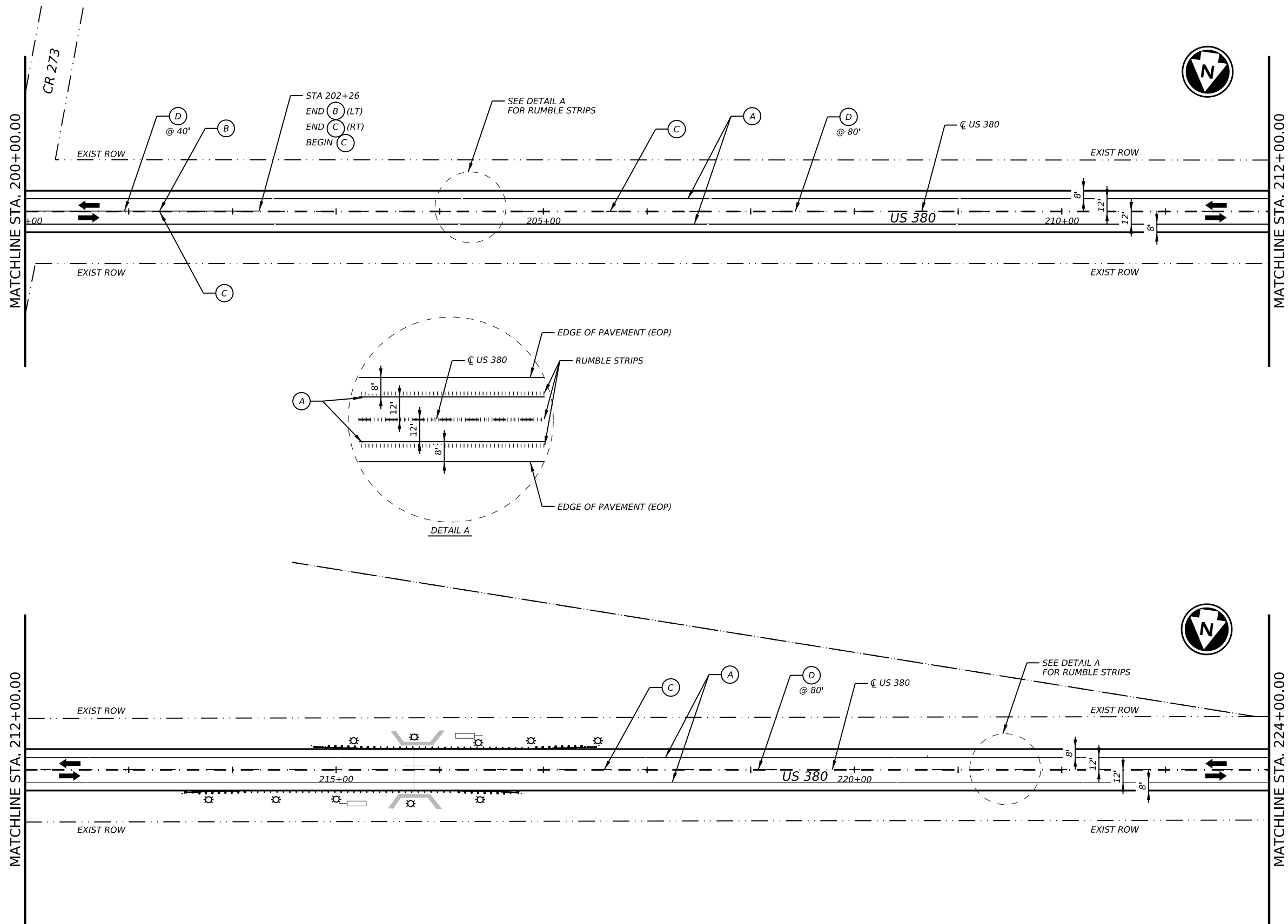


US 380
PAVEMENT MARKING
 STA 176+00 TO STA 200+00

SHEET 8 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	76	

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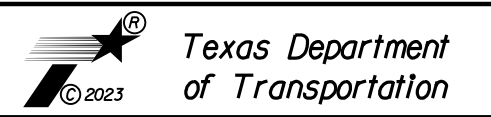
LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☉ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



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Advanced Infrastructure Group
AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

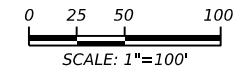
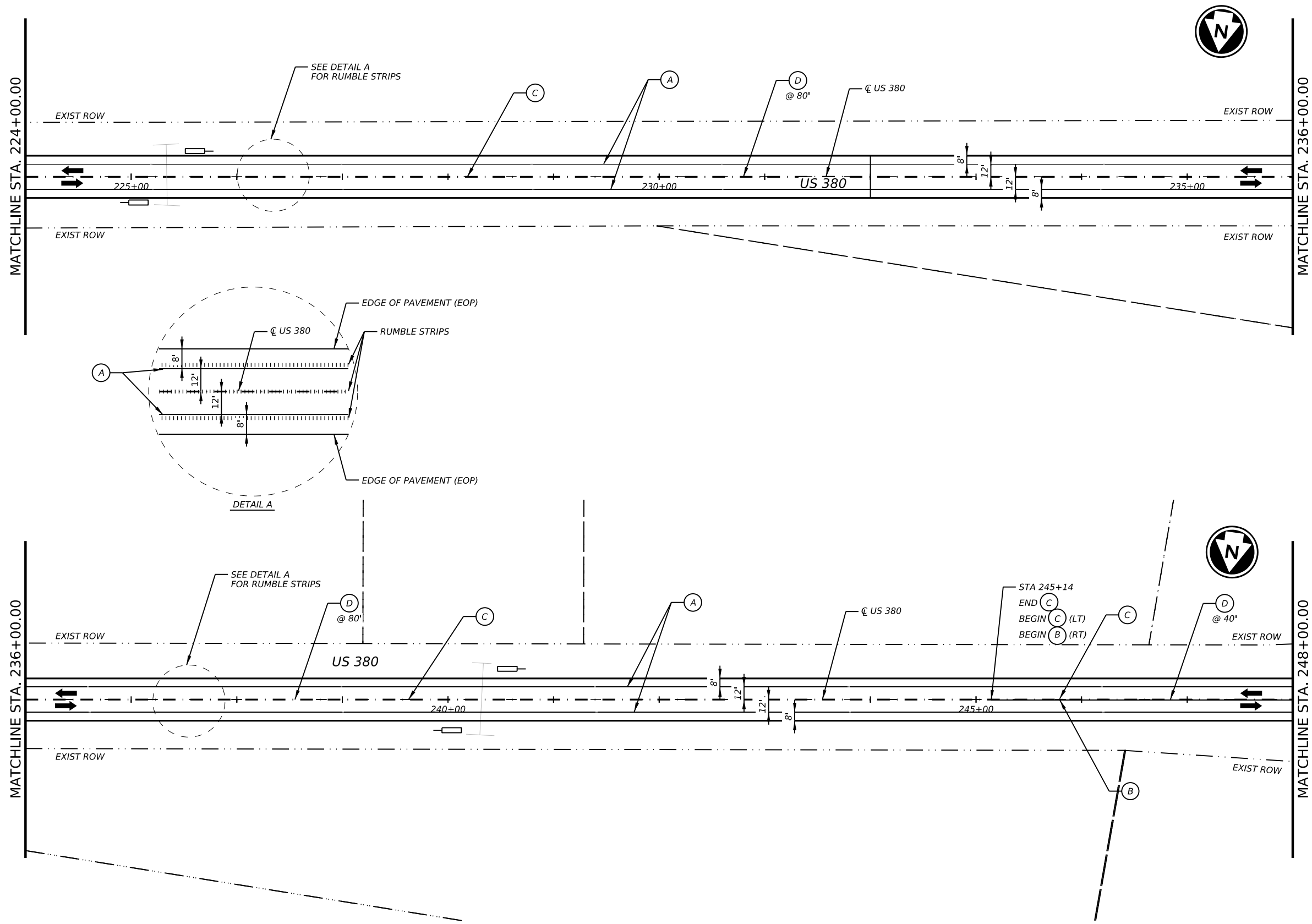


**US 380
PAVEMENT MARKING**
STA 200+00 TO STA 224+00

SHEET 9 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	77	

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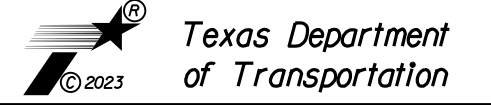
LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



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 Advanced Infrastructure Group
 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

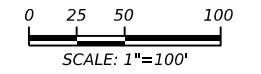
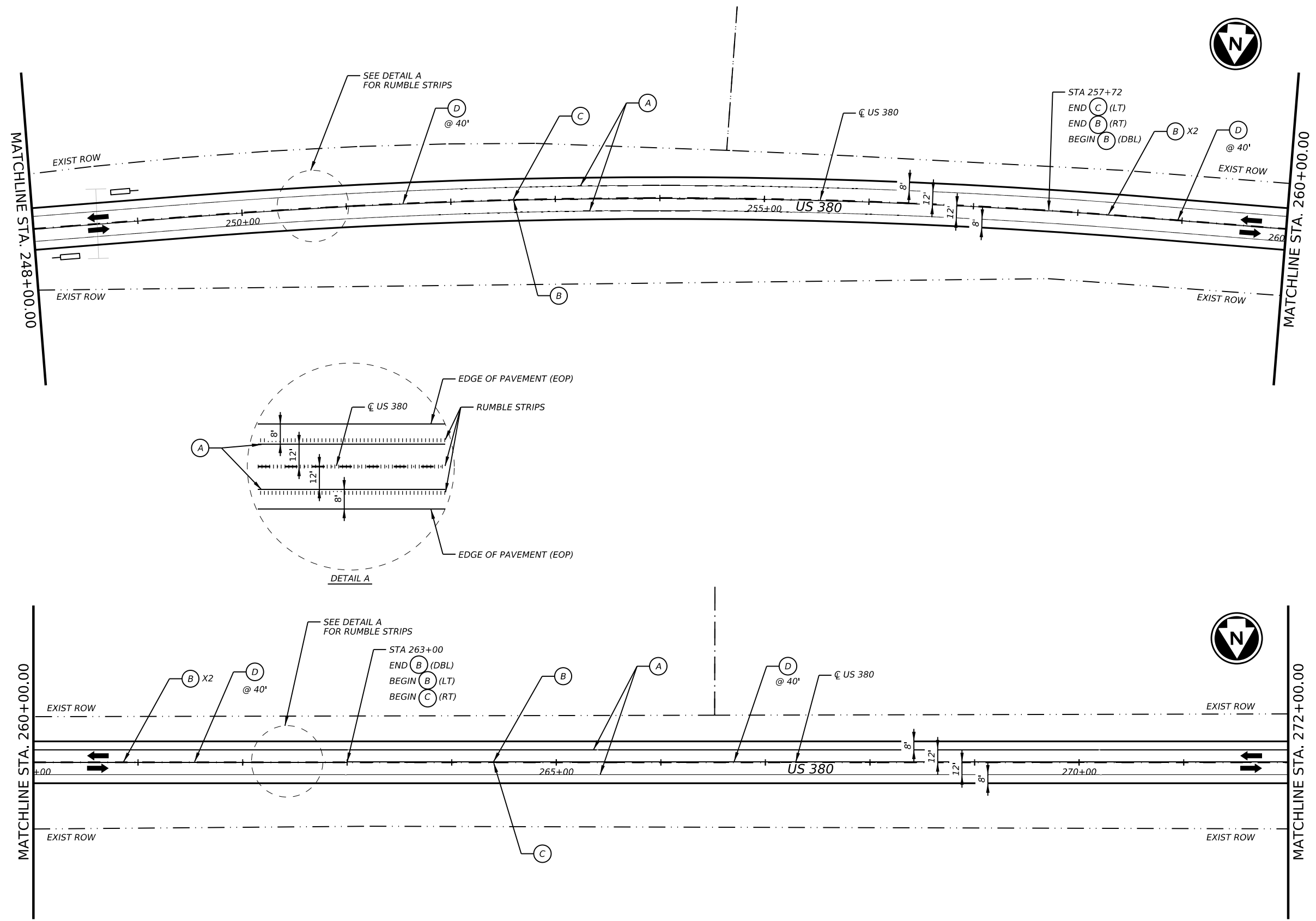


US 380
PAVEMENT MARKING
 STA 224+00 TO STA 248+00

SHEET 10 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	78	

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LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023

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SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

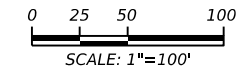
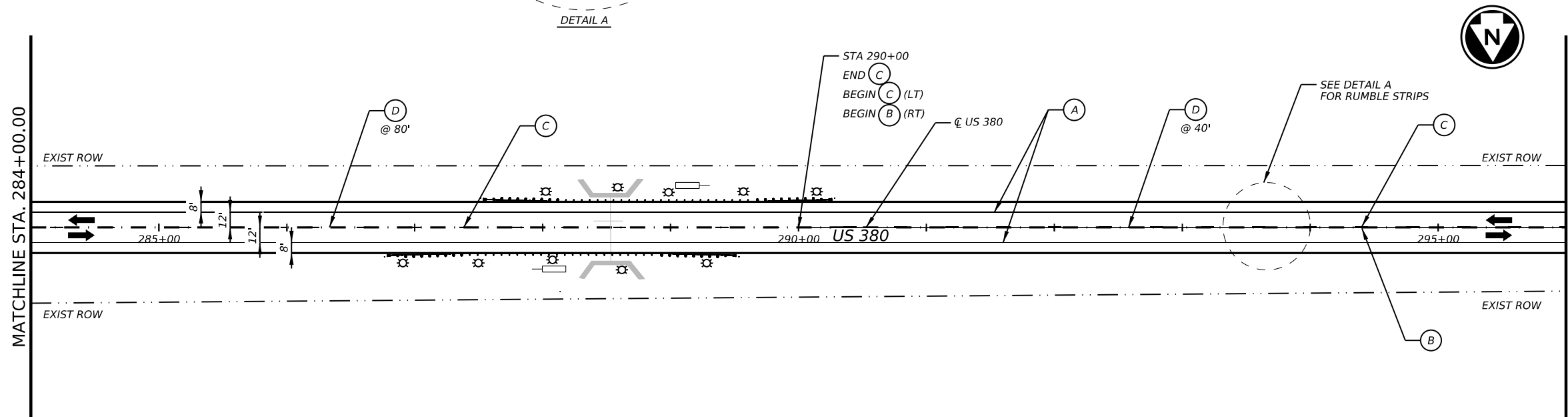
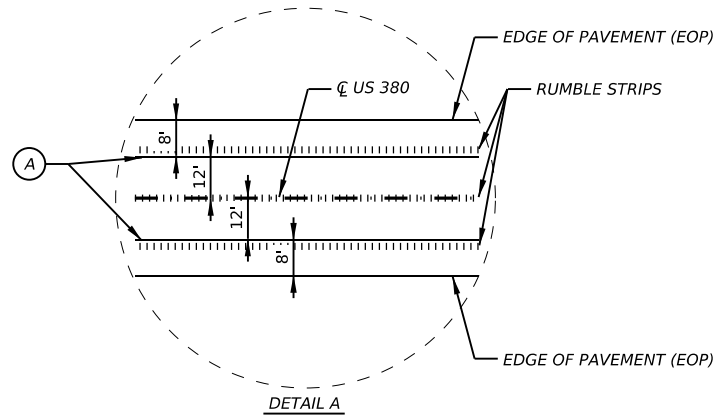
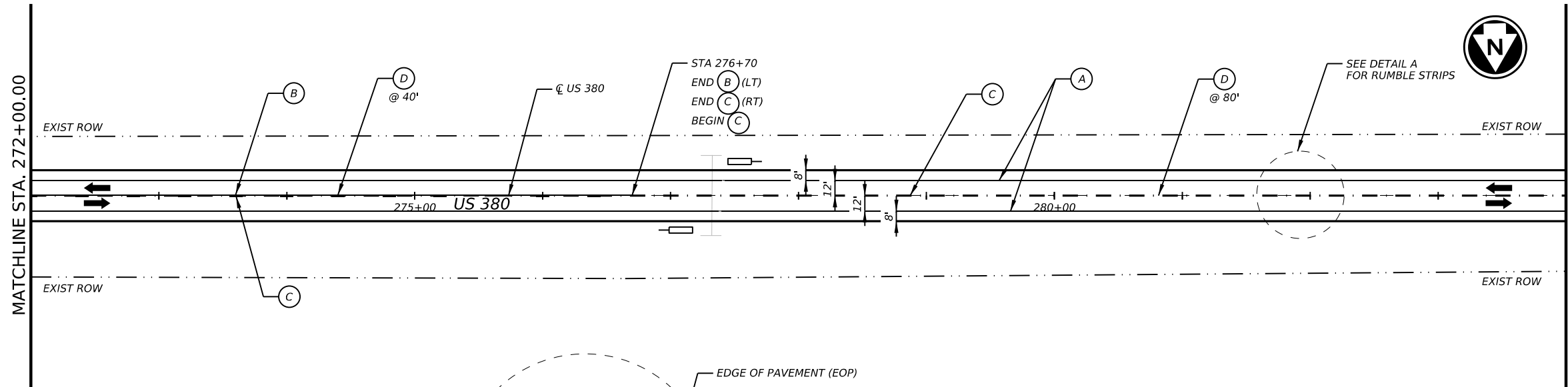


**US 380
PAVEMENT MARKING**
STA 248+00 TO STA 272+00

SHEET 11 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	79	

9/8/2023 8:35:29 AM
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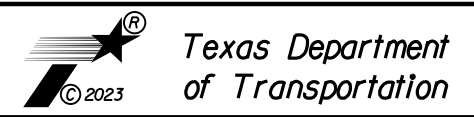
- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023

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 Advanced Infrastructure Group
 1500 S. DAIRY ASHFORD
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 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

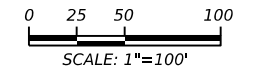
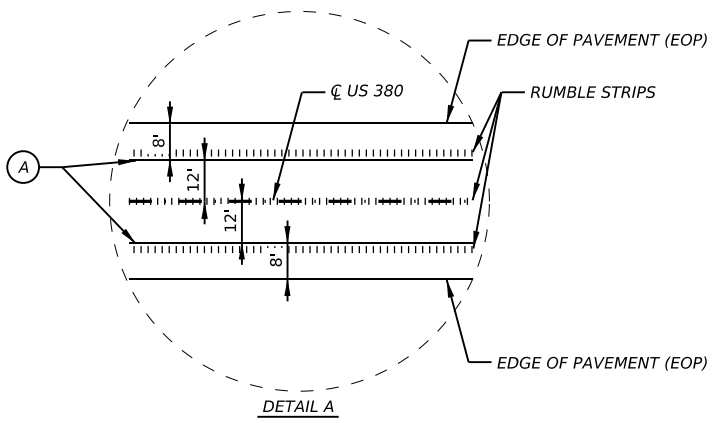
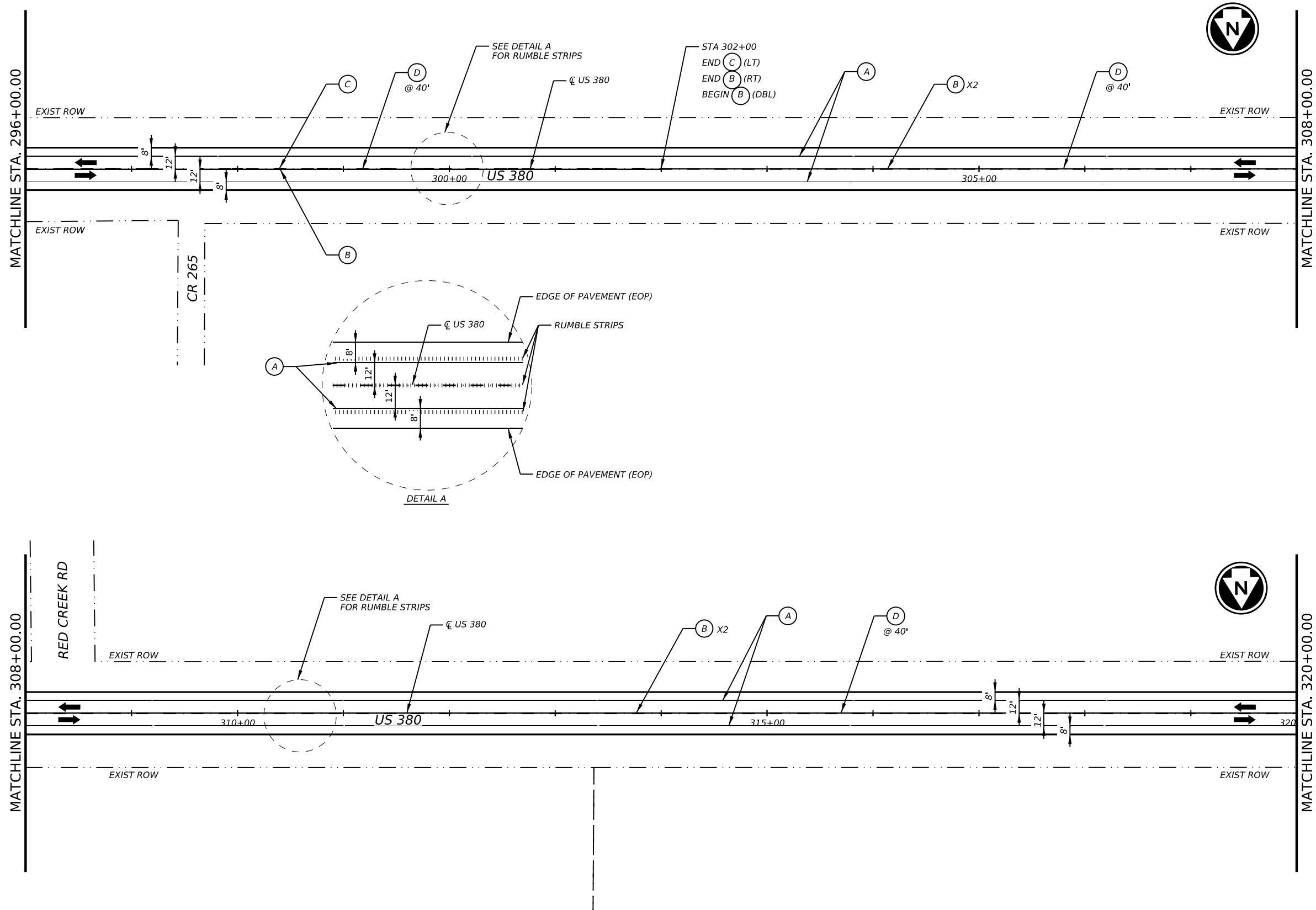


US 380
PAVEMENT MARKING
 STA 272+00 TO STA 296+00

SHEET 12 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	80	

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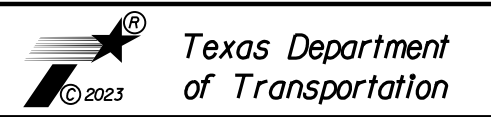
- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023

AIG Tech
Advanced Infrastructure Group
AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

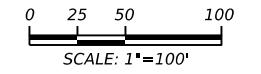
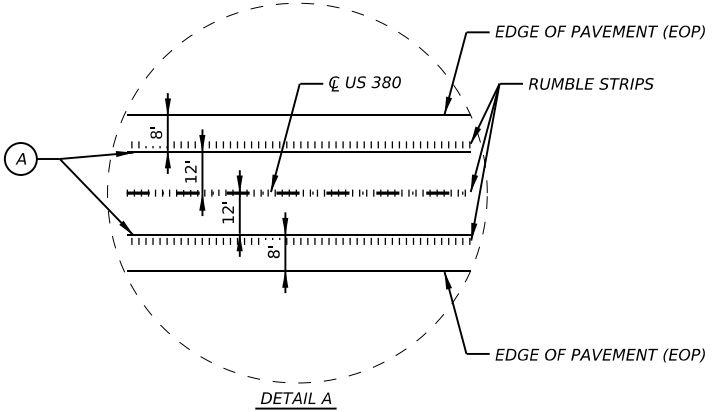
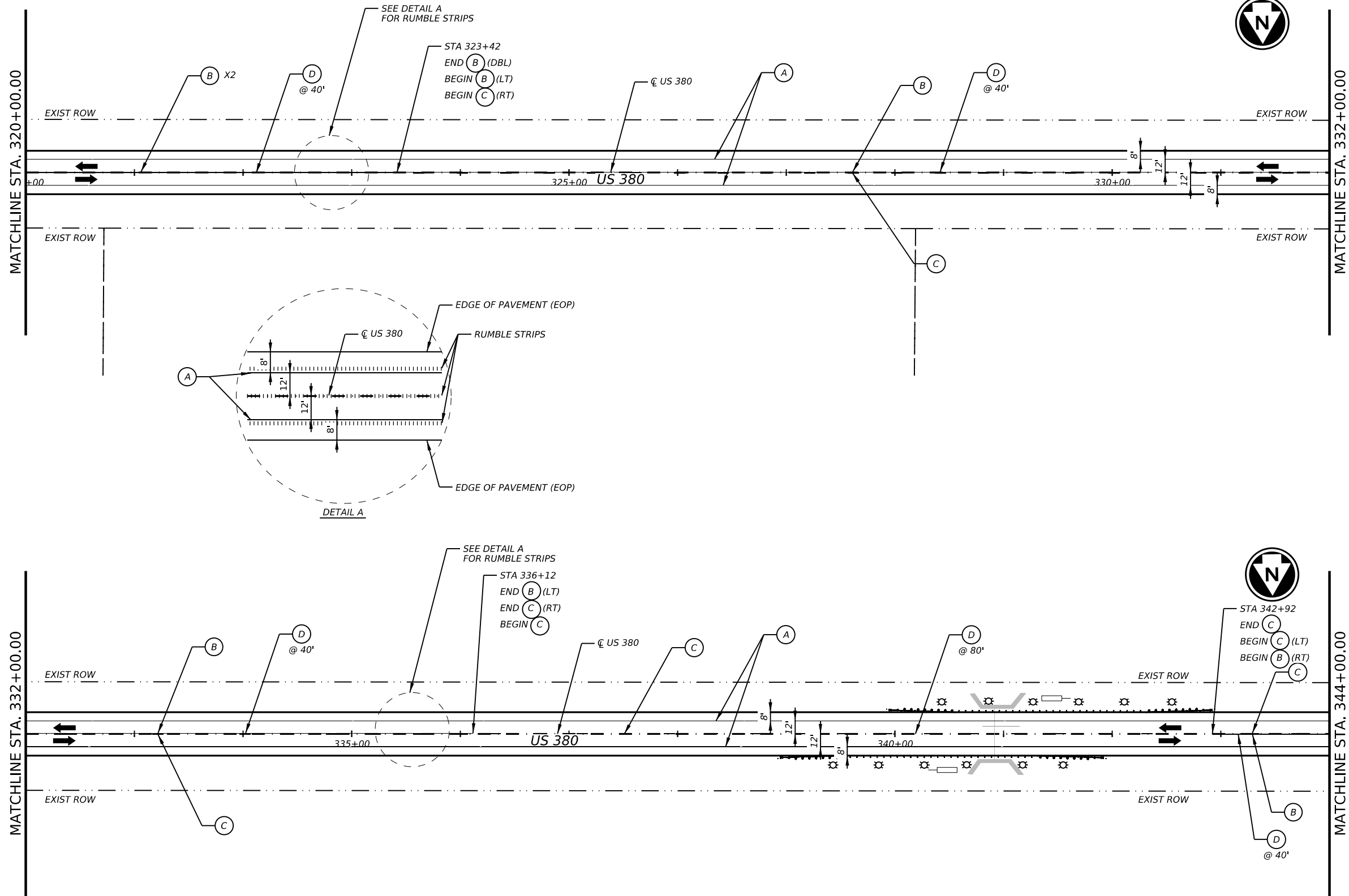


**US 380
PAVEMENT MARKING
STA 296+00 TO STA 320+00**

SHEET 13 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	81	

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LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☉ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023



AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607



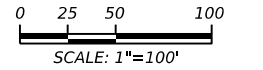
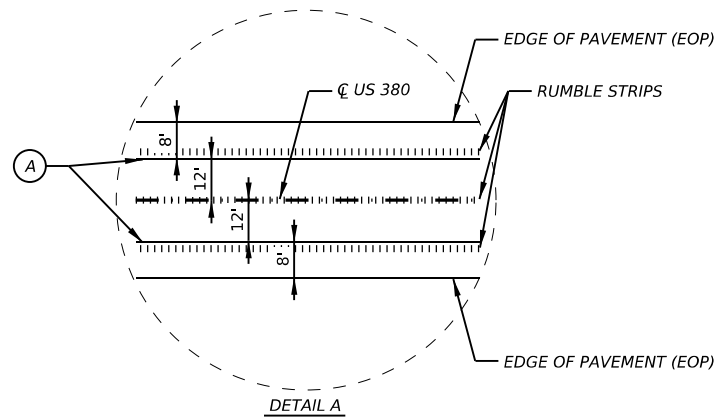
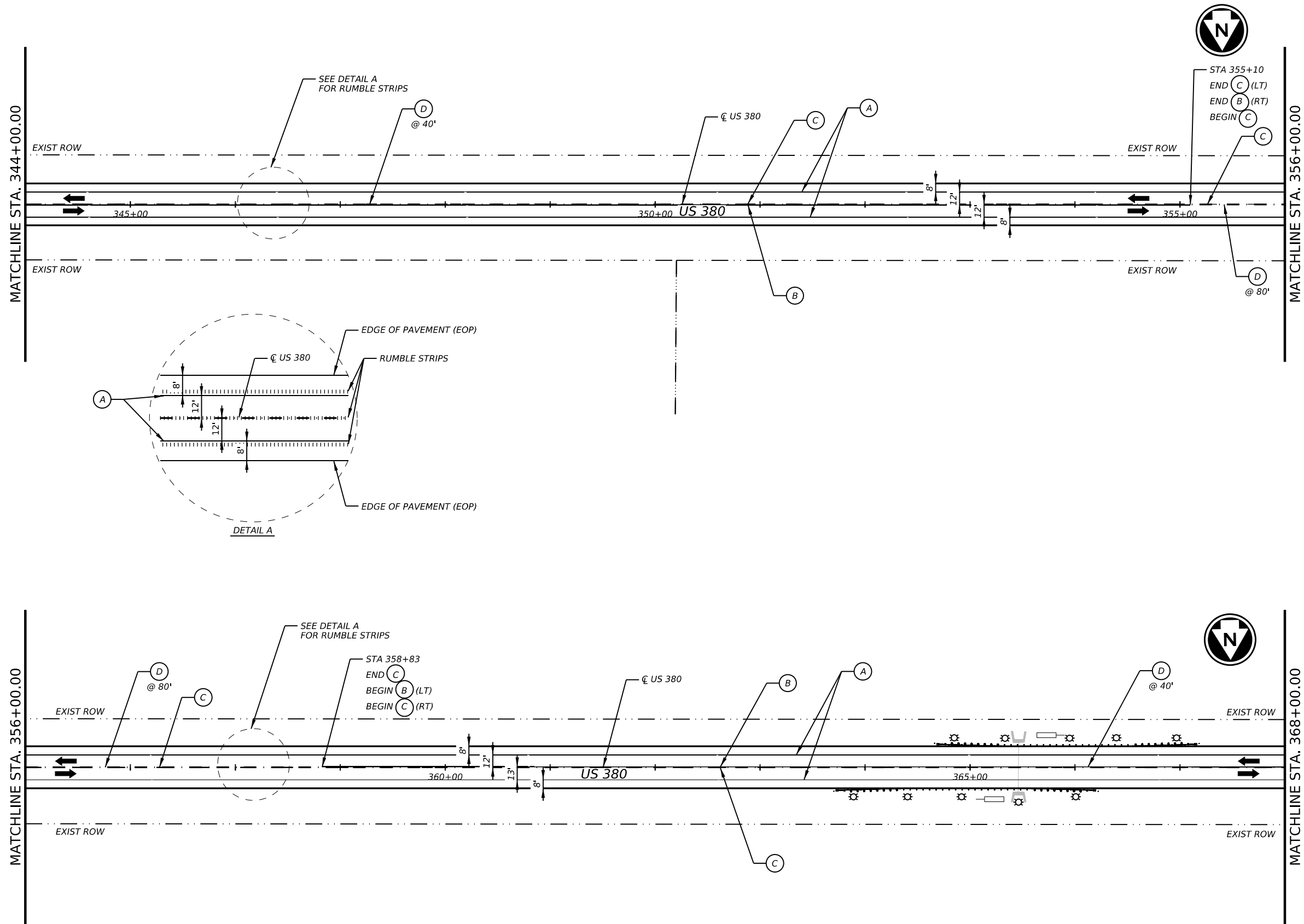
Texas Department
 of Transportation

US 380
 PAVEMENT MARKING
 STA 320+00 TO STA 344+00

SHEET 14 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	82	

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LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
Advanced Infrastructure Group
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

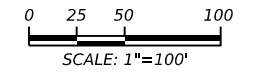
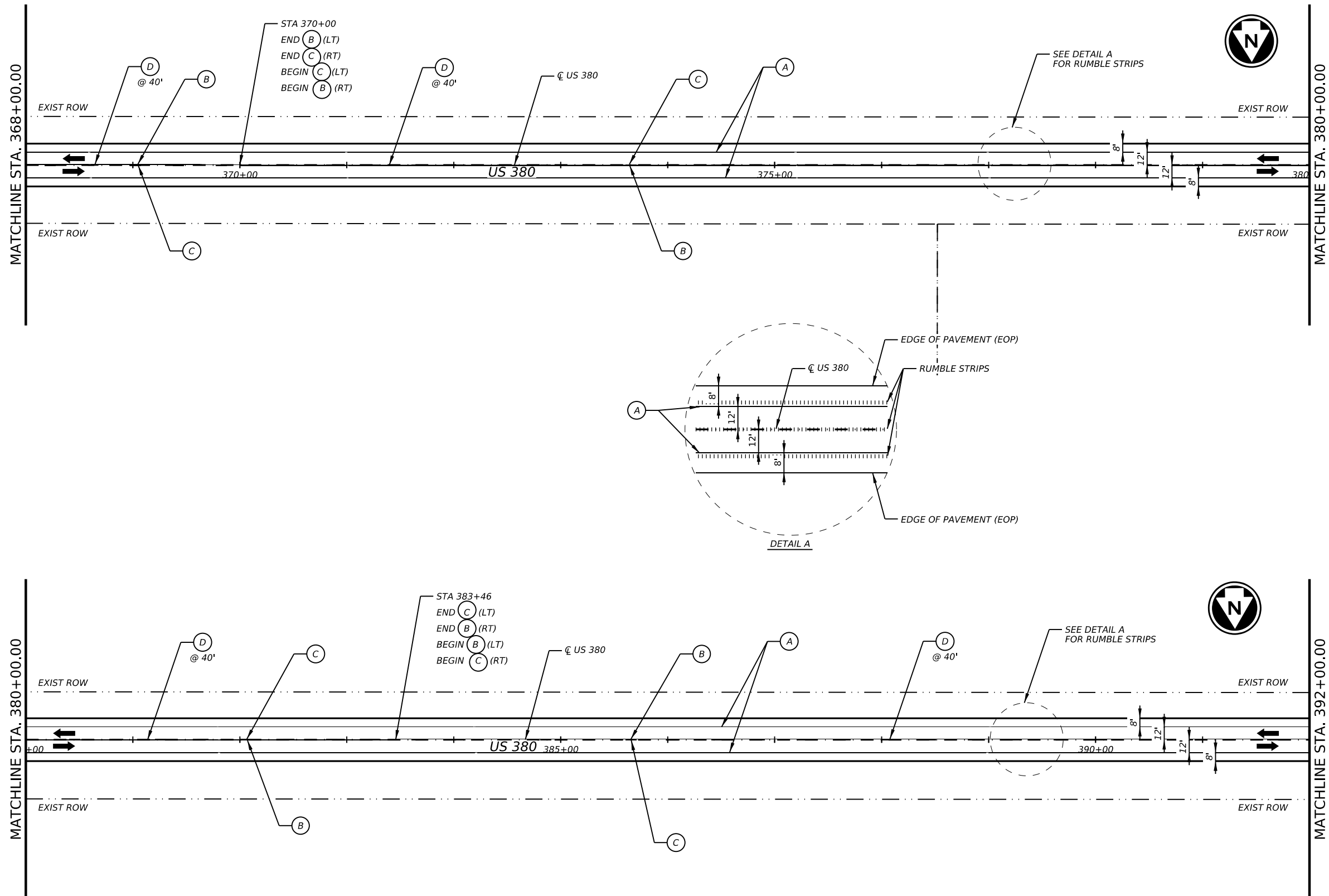


**US 380
PAVEMENT MARKING
STA 344+00 TO STA 368+00**

SHEET 15 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	83	

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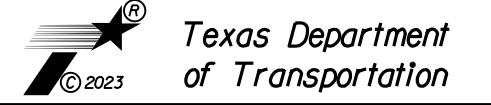
- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023

AIG Tech
 Advanced Infrastructure Group
 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

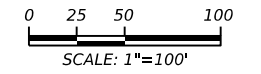
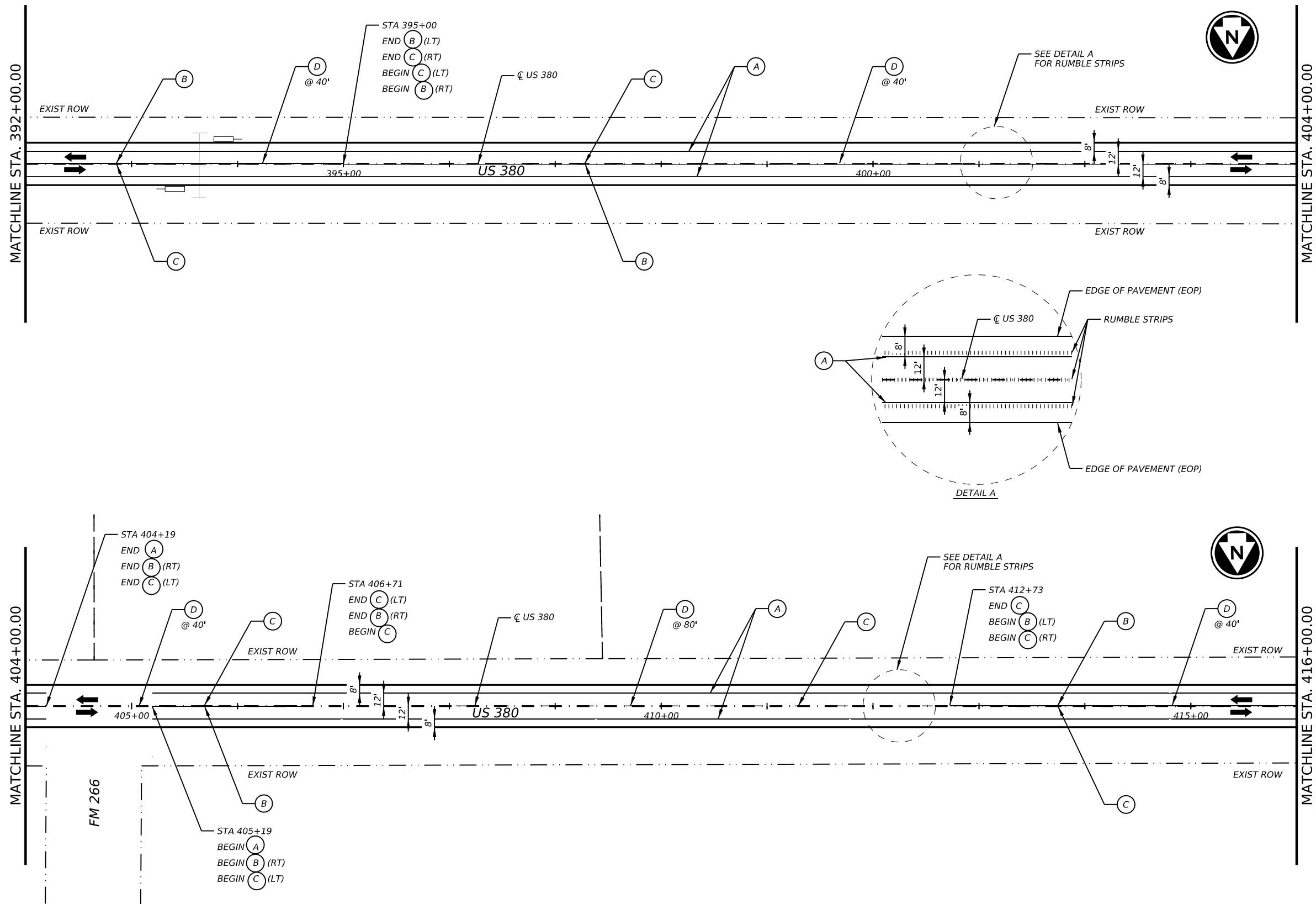


US 380
PAVEMENT MARKING
 STA 368+00 TO STA 392+00

SHEET 16 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	84	

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LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
Advanced Infrastructure Group
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

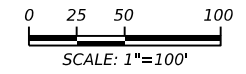
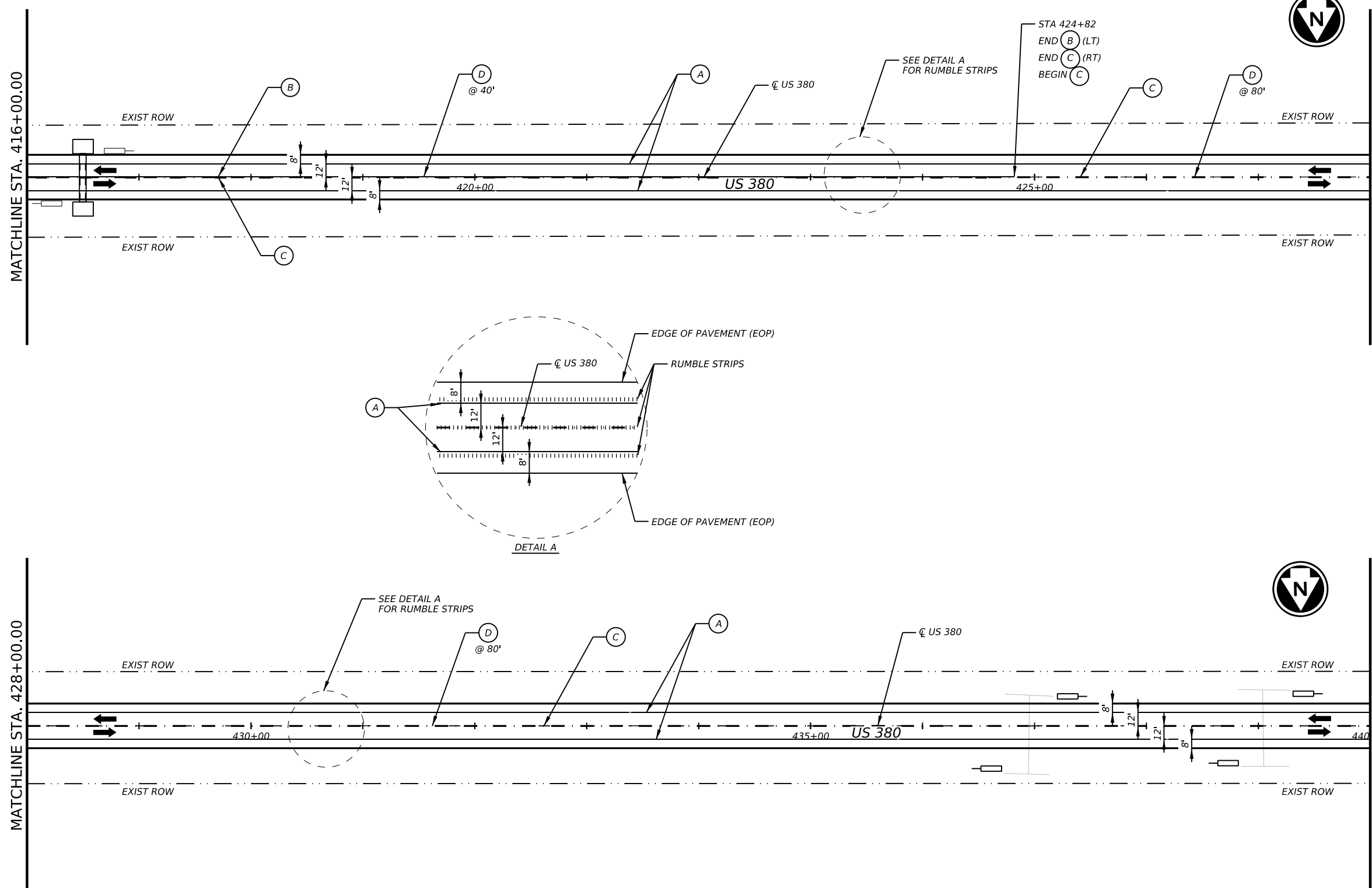


**US 380
PAVEMENT MARKING
STA 392+00 TO STA 416+00**

SHEET 17 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
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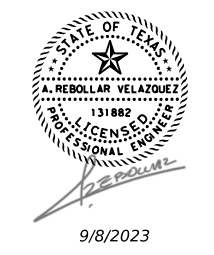
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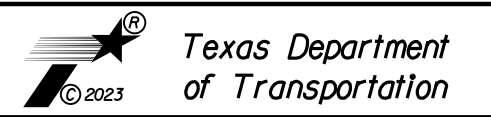
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- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
Advanced Infrastructure Group
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

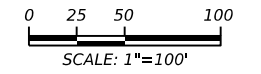
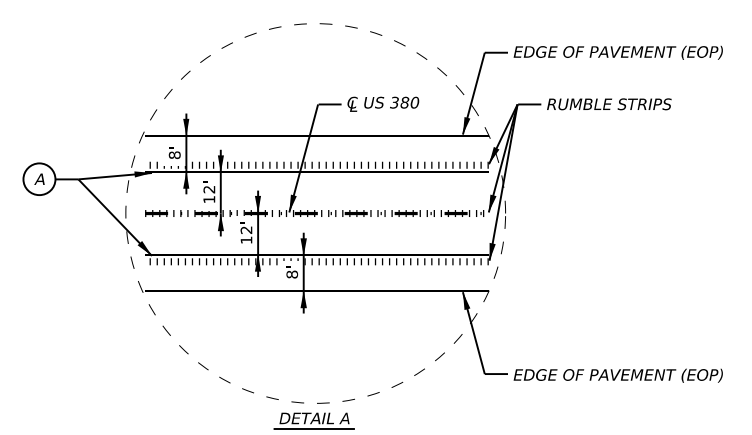
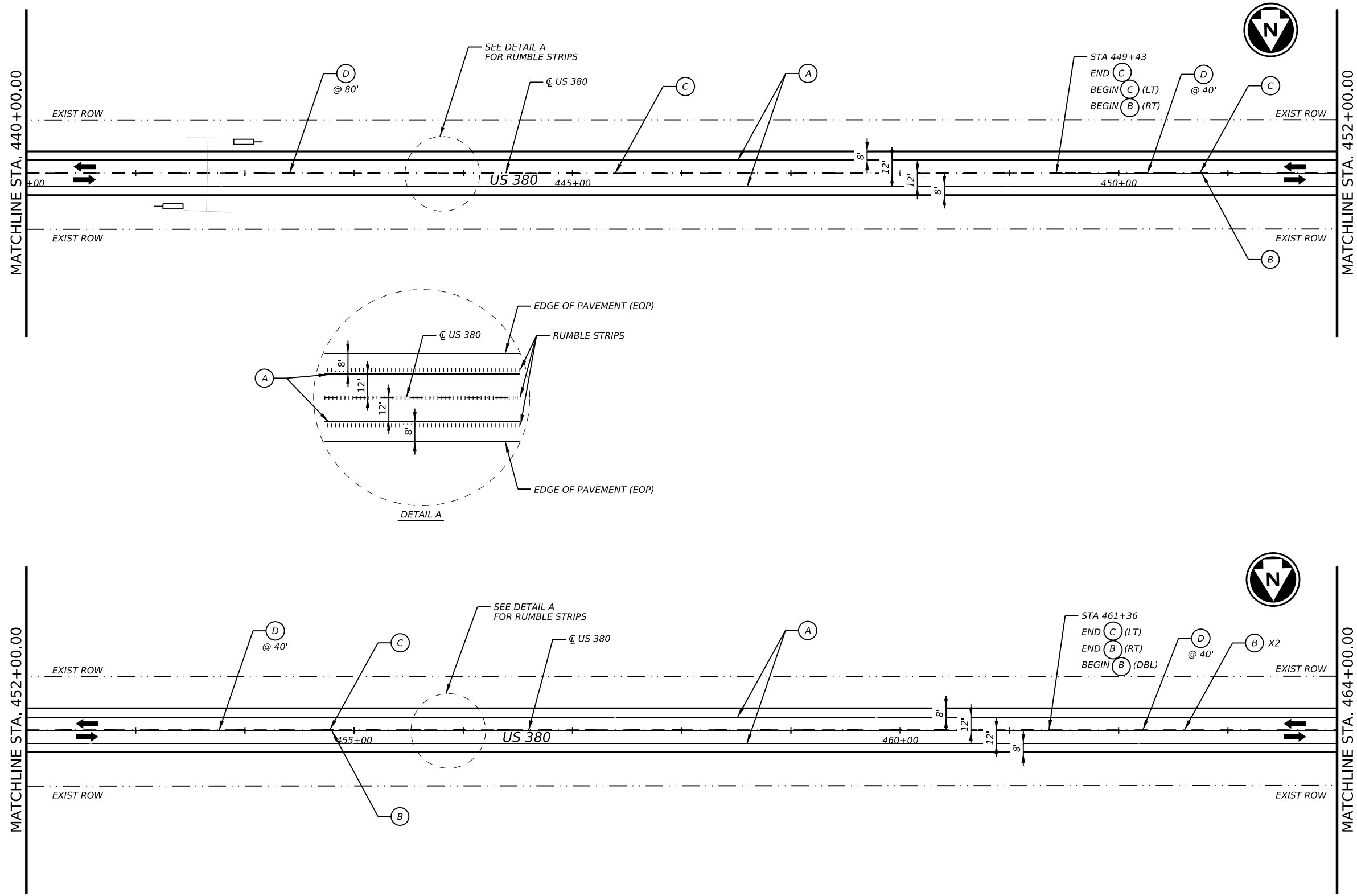


**US 380
PAVEMENT MARKING**
STA 416+00 TO STA 440+00

SHEET 18 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	86	

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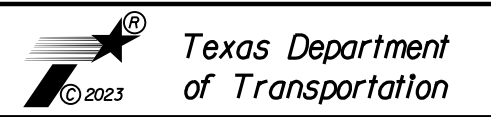
- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023

AIG Tech
 Advanced Infrastructure Group
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

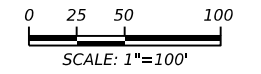
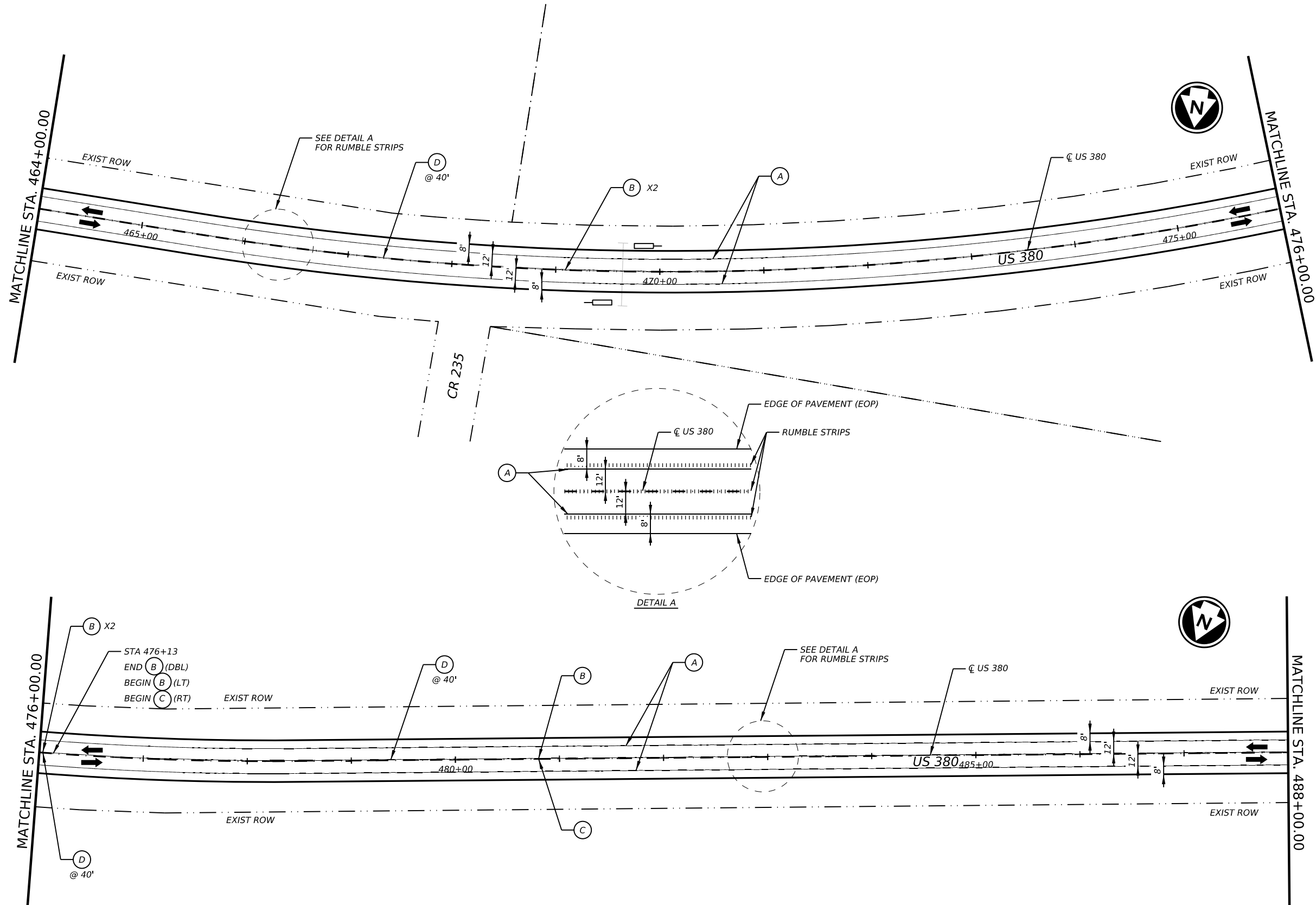


US 380
PAVEMENT MARKING
 STA 440+00 TO STA 464+00

SHEET 19 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
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LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
 Advanced Infrastructure Group
 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

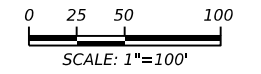
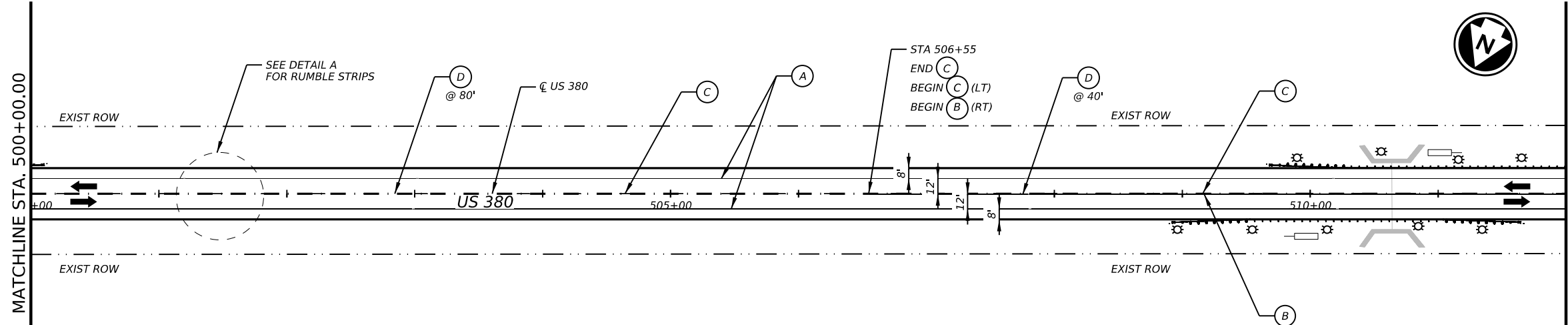
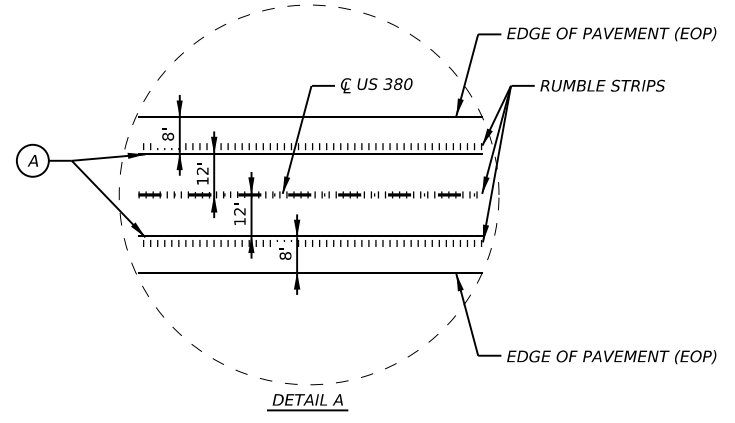
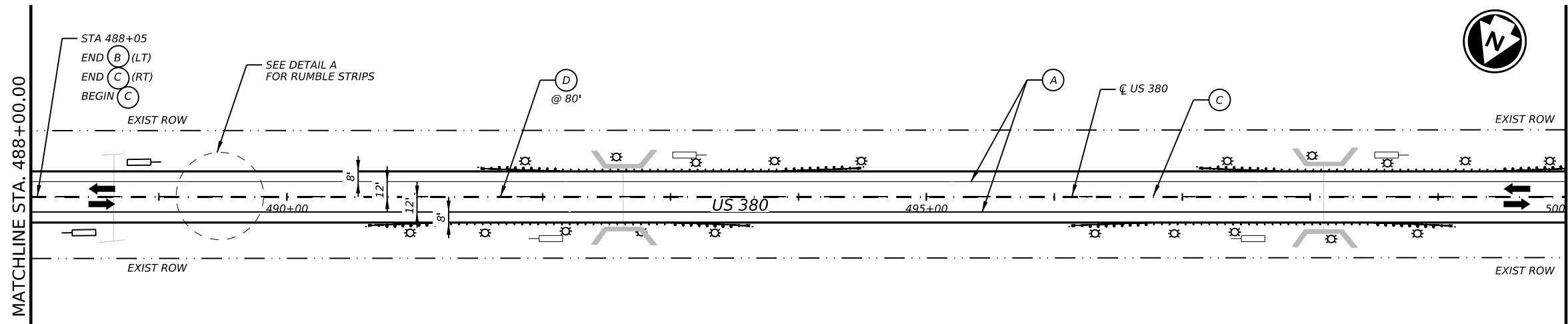


US 380
PAVEMENT MARKING
 STA 464+00 TO STA 488+00

SHEET 20 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	88	

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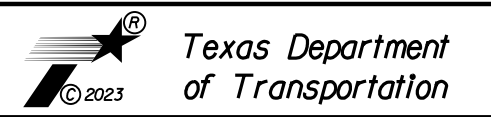
- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023

AIG Tech
 Advanced Infrastructure Group
 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

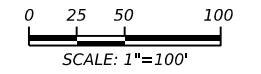
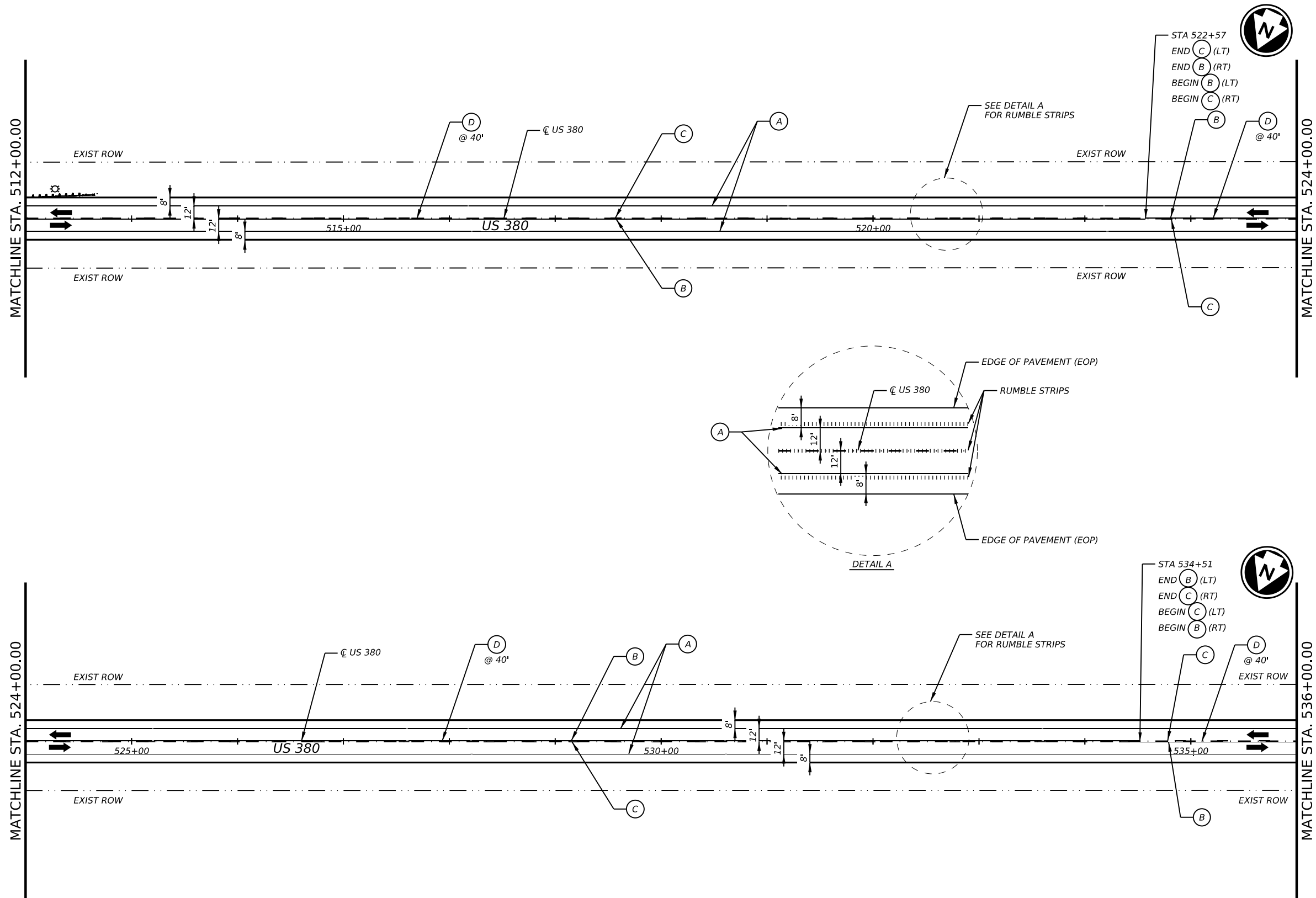


US 380
PAVEMENT MARKING
 STA 488+00 TO STA 512+00

SHEET 21 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	89	

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LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
Advanced Infrastructure Group
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

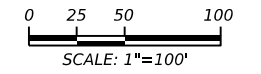
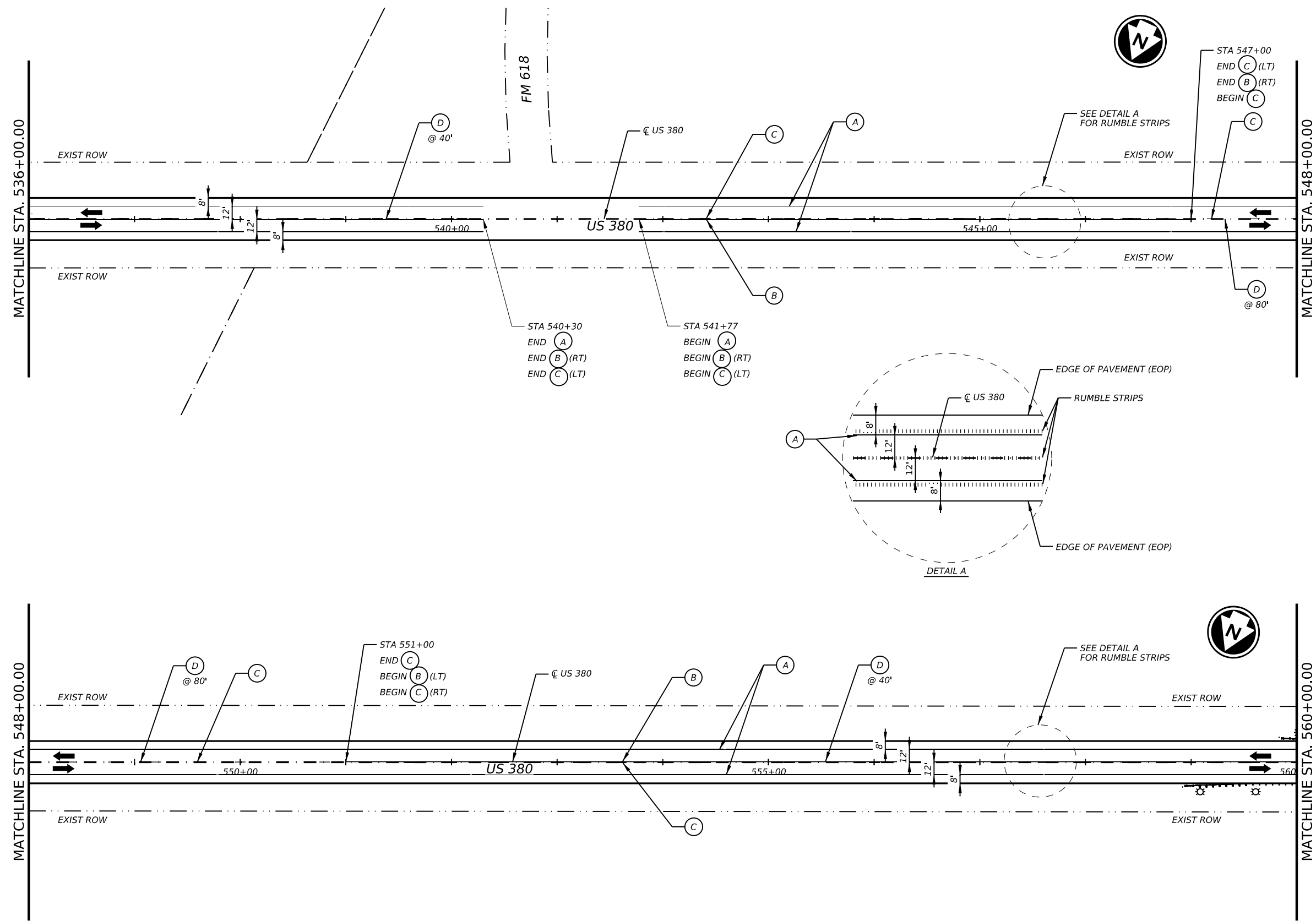


**US 380
PAVEMENT MARKING**
STA 512+00 TO STA 536+00

SHEET 22 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	90	

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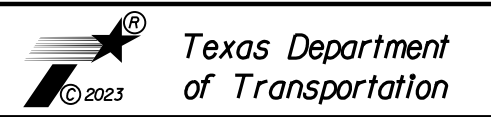
LEGEND:

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- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL) 10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL) 3' STRIPE + 9' GAP
- MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☉ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
Advanced Infrastructure Group
AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

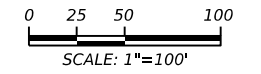
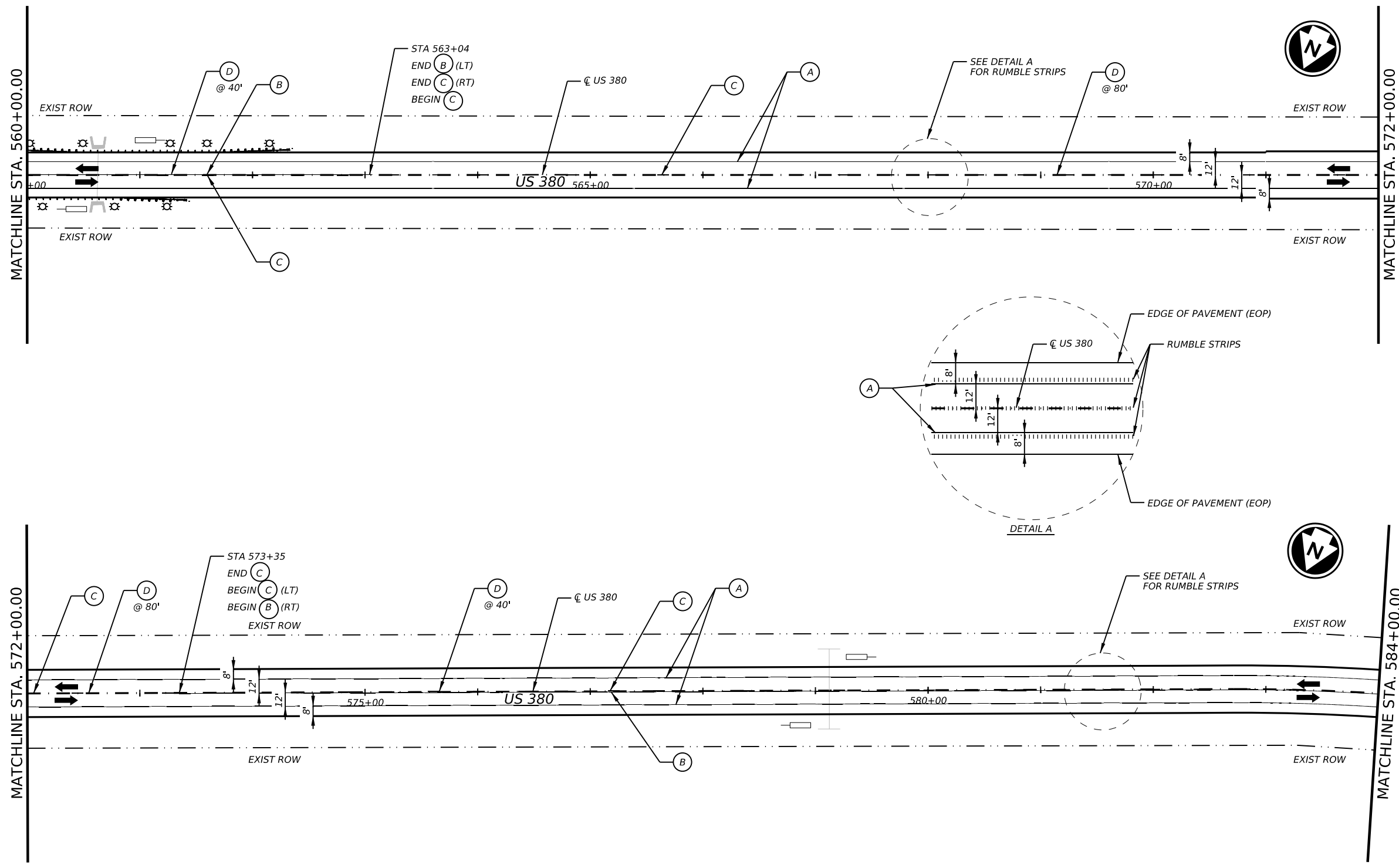


**US 380
PAVEMENT MARKING
STA 536+00 TO STA 560+00**

SHEET 23 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	91	

9/8/2023 8:37:22 AM
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LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
 Advanced Infrastructure Group
 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

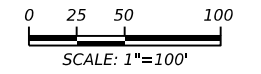
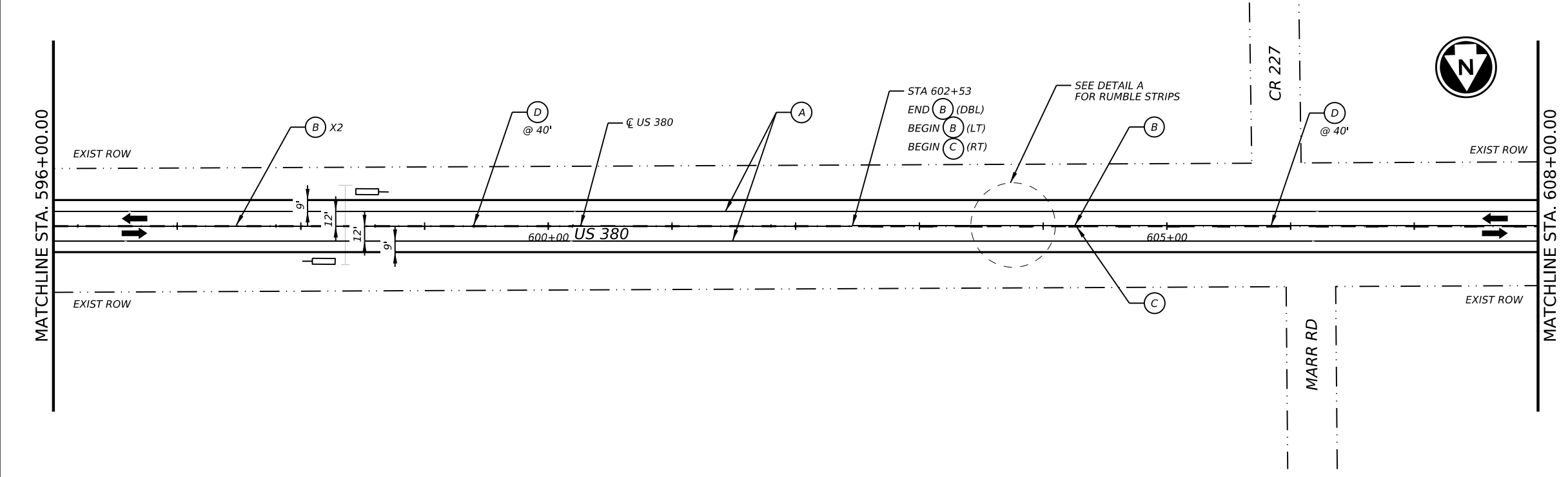
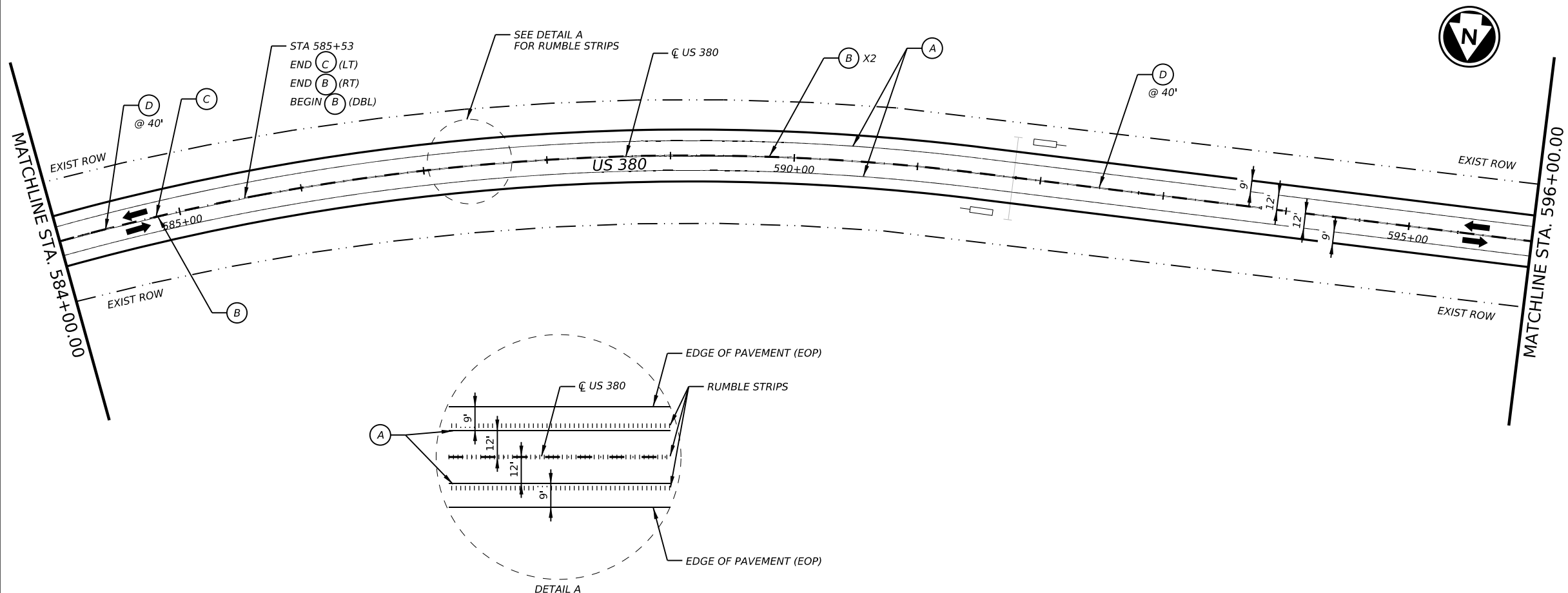


US 380
PAVEMENT MARKING
 STA 560+00 TO STA 584+00

SHEET 24 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	92	

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LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
 Advanced Infrastructure Group
 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

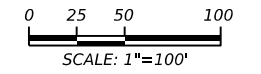
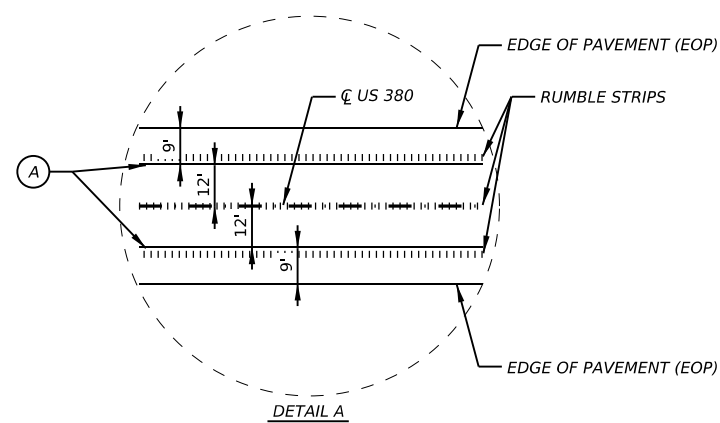
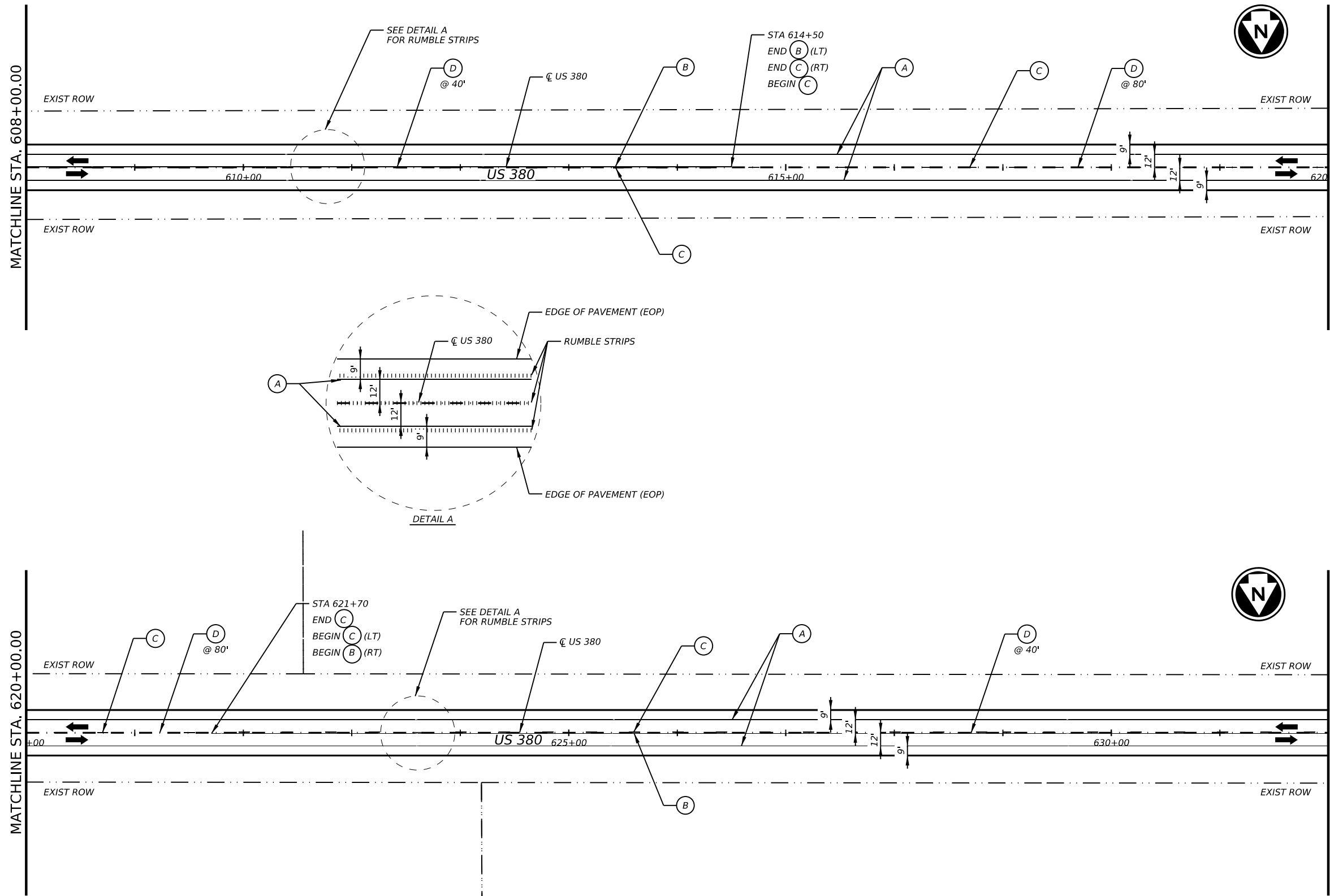


US 380
PAVEMENT MARKING
 STA 584+00 TO STA 608+00

SHEET 25 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	93	

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LEGEND:

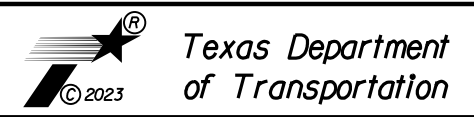
- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▬ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023

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 Advanced Infrastructure Group
 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

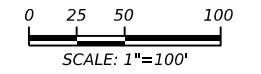
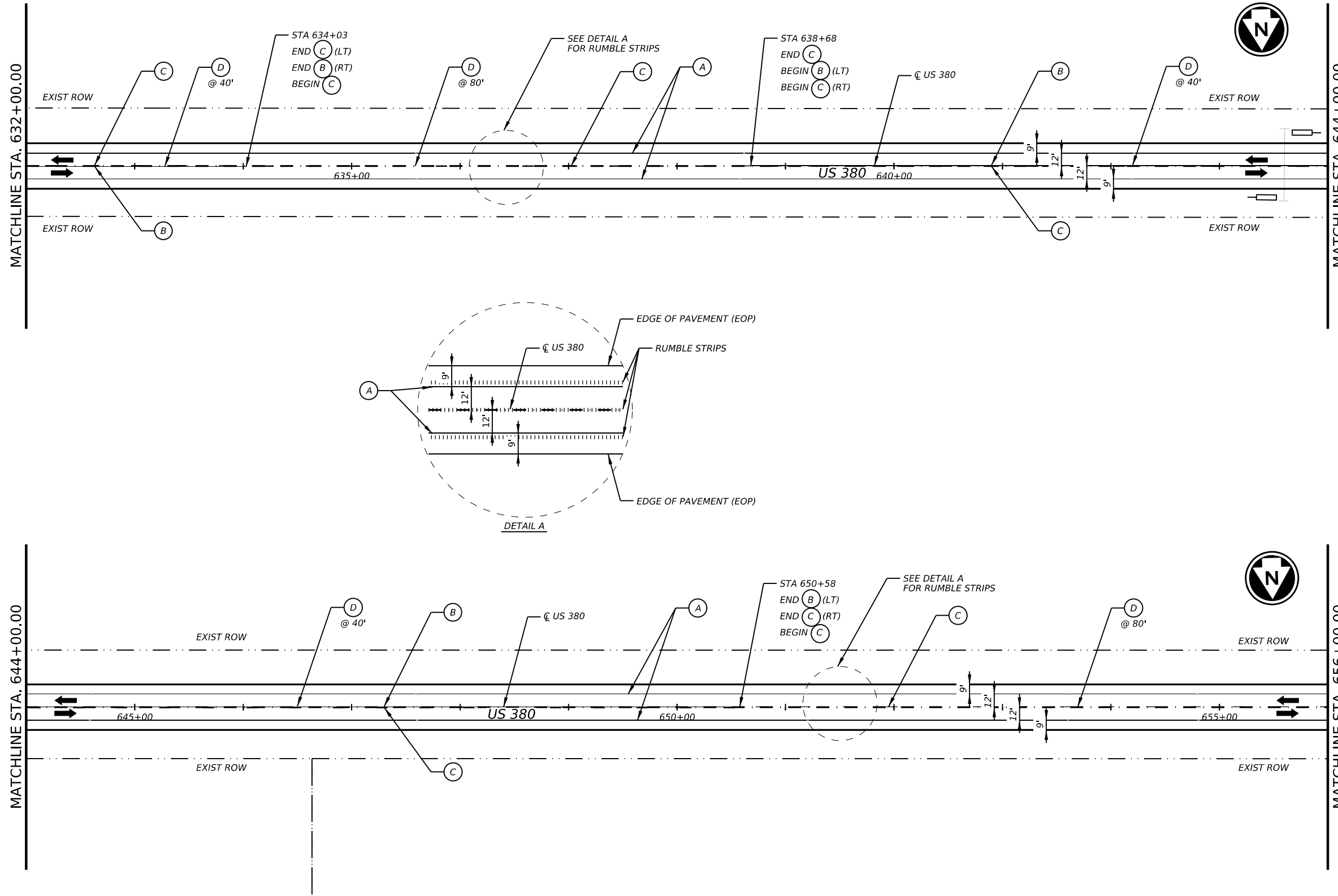


US 380
PAVEMENT MARKING
 STA 608+00 TO STA 632+00

SHEET 26 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST		COUNTY	SHEET NO.
ABILENE		HASKELL	94

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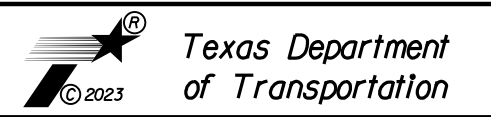
LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6'') (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6'') (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6'') (BRK) (100MIL) 10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4'') (DOT) (100MIL) 3' STRIPE + 9' GAP
- MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
 Advanced Infrastructure Group
 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

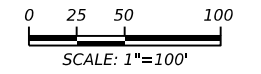
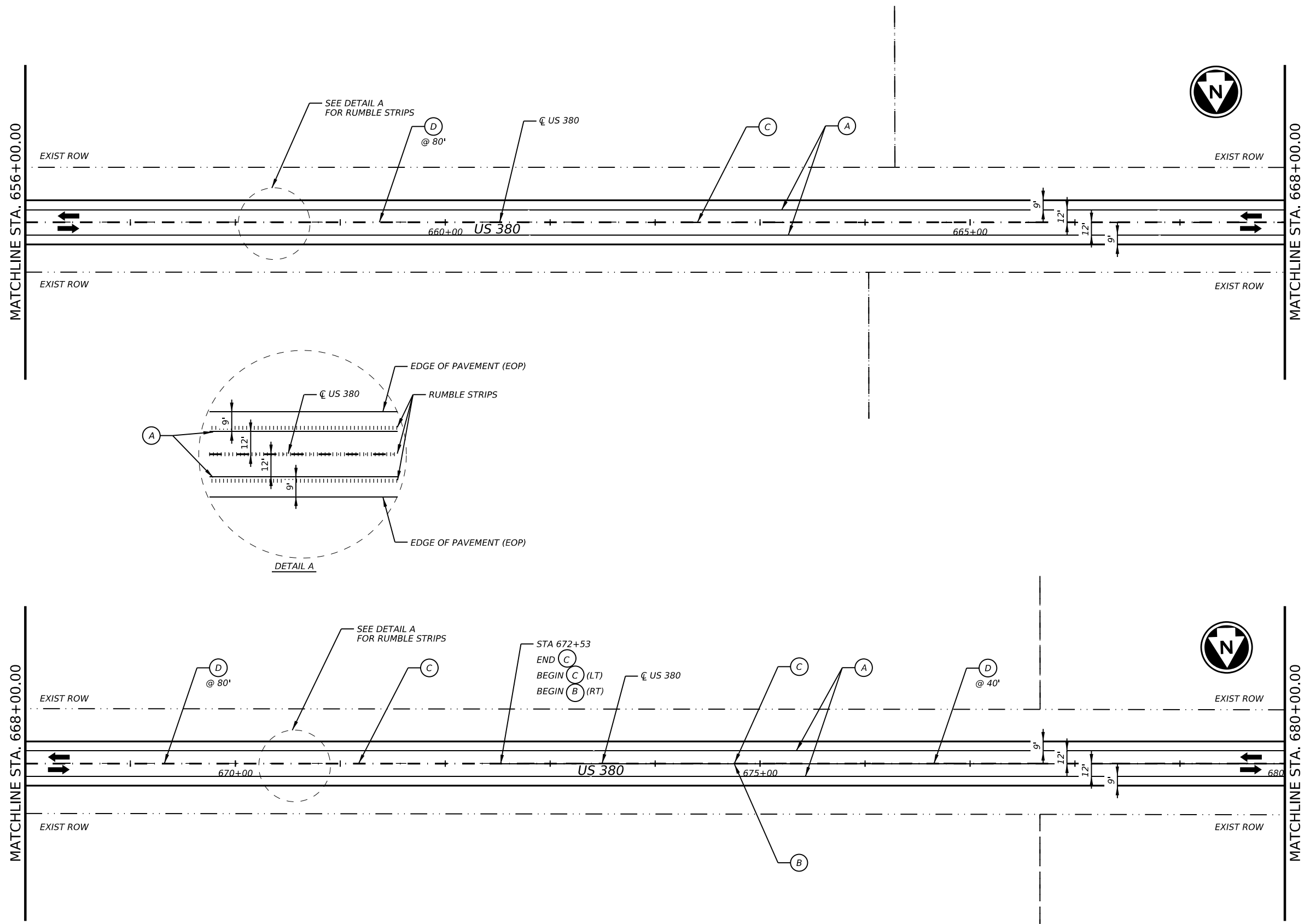


**US 380
 PAVEMENT MARKING
 STA 632+00 TO STA 656+00**

SHEET 27 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	95	

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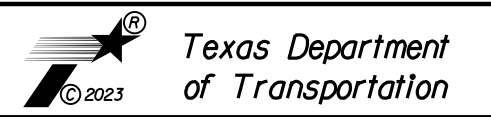
LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▬ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
Advanced Infrastructure Group
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

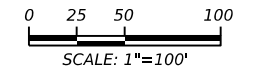
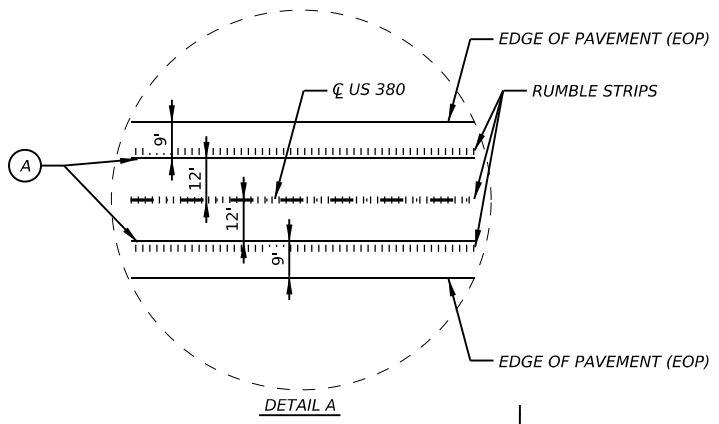
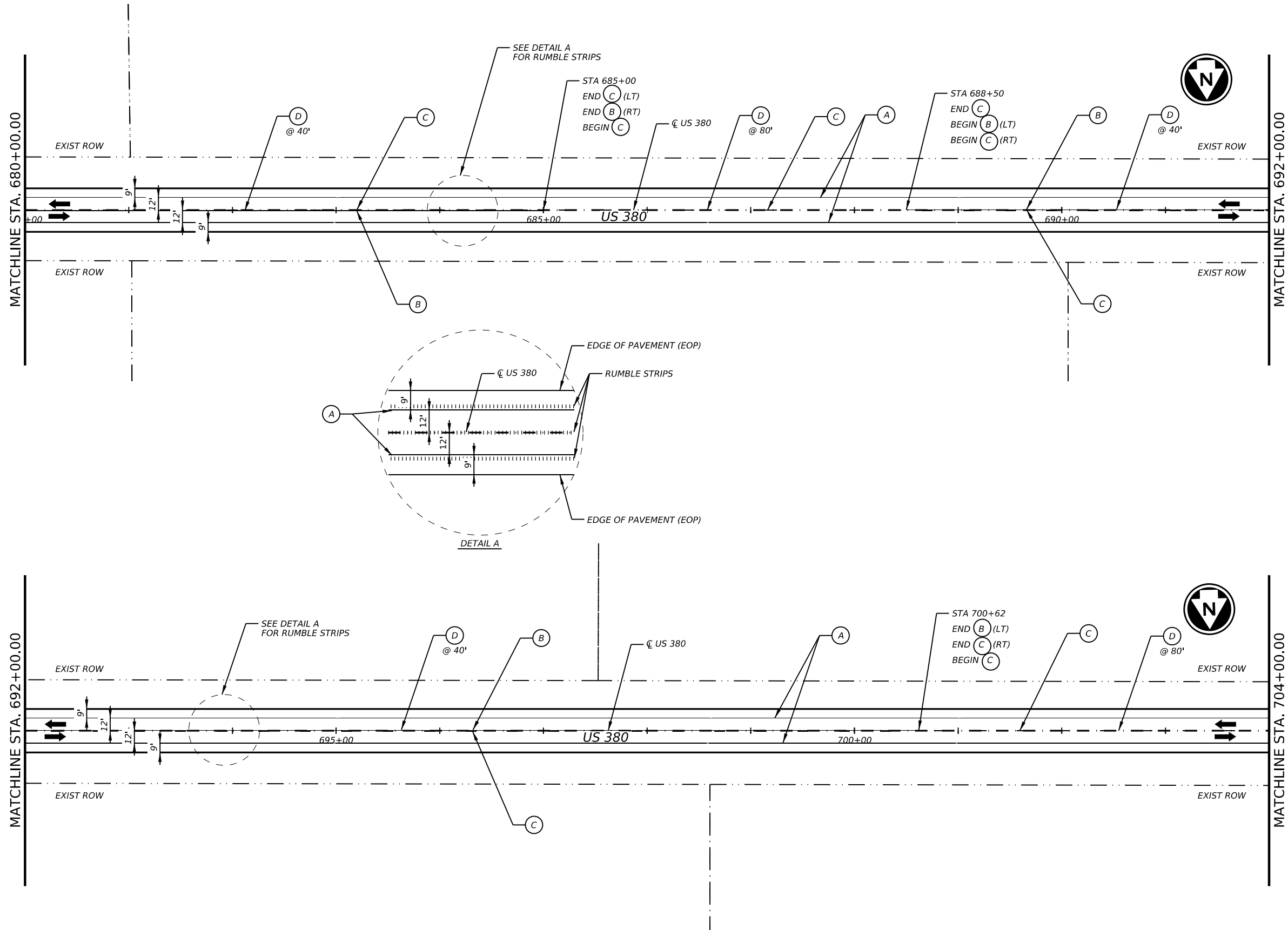


**US 380
PAVEMENT MARKING
STA 656+00 TO STA 680+00**

SHEET 28 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	96	

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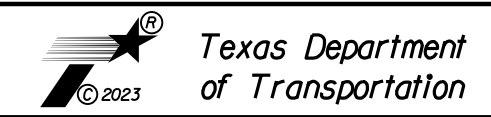
LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
Advanced Infrastructure Group
AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

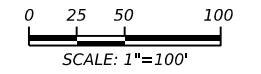
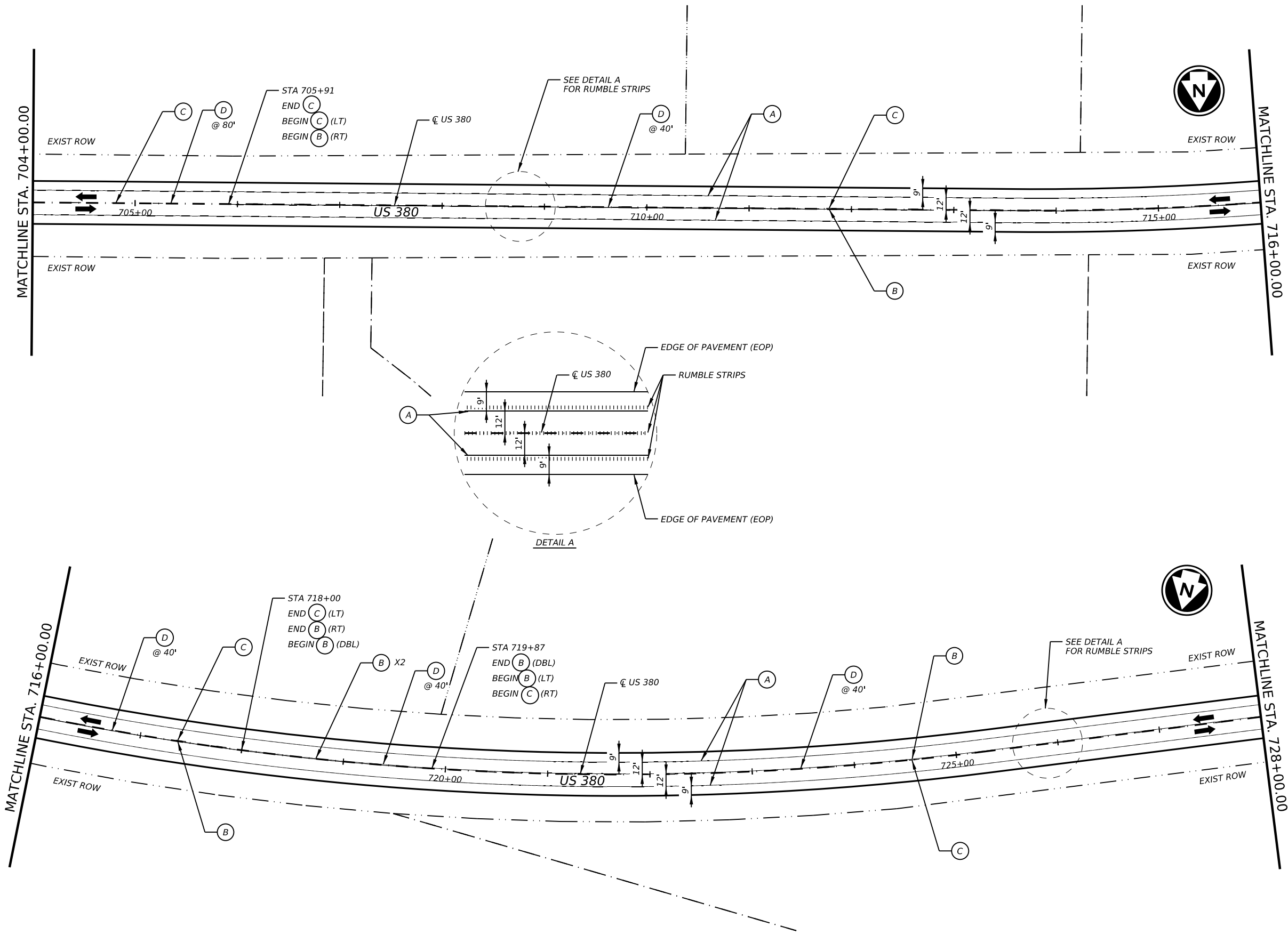


**US 380
PAVEMENT MARKING
STA 680+00 TO STA 704+00**

SHEET 29 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	97	

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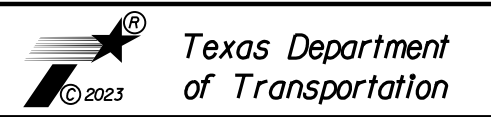
LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
 Advanced Infrastructure Group
 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607

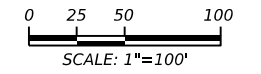
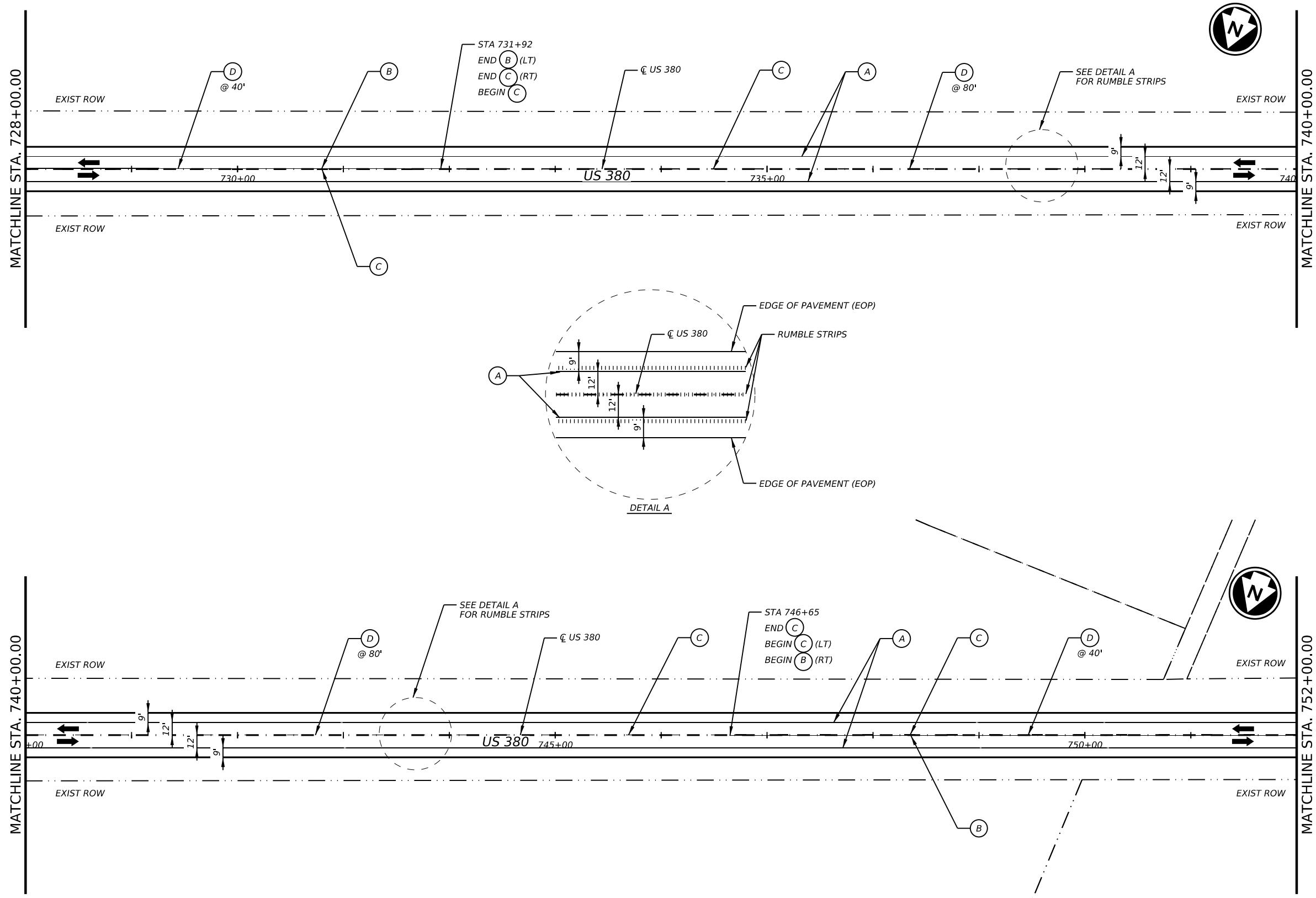


US 380
PAVEMENT MARKING
 STA 704+00 TO STA 728+00

SHEET 30 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST		COUNTY	SHEET NO.
ABILENE		HASKELL	98

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LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



9/8/2023



AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607



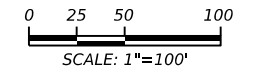
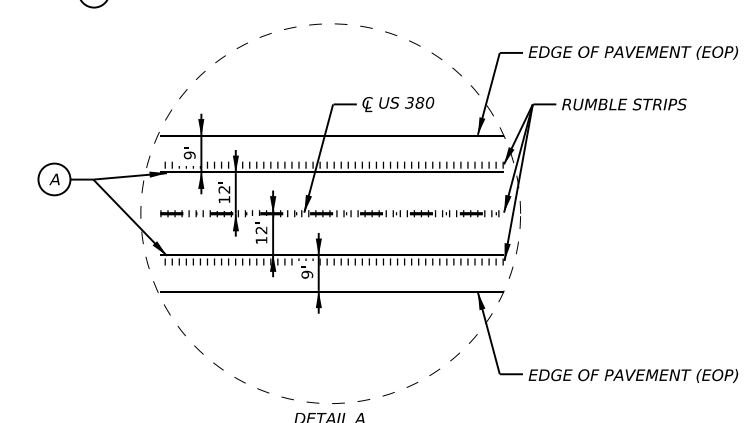
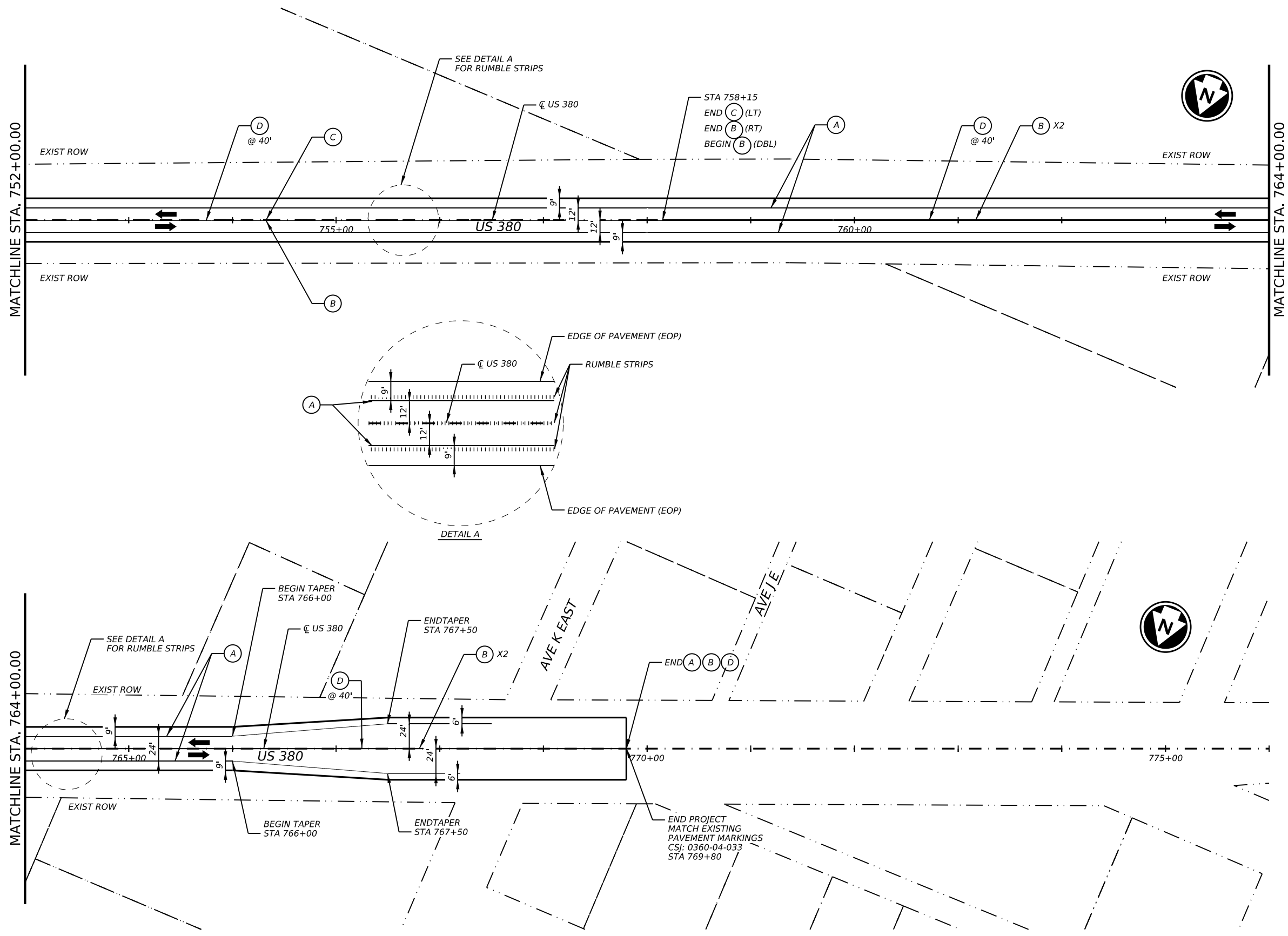
Texas Department of Transportation

US 380
PAVEMENT MARKING
 STA 728+00 TO STA 752+00

SHEET 31 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST		COUNTY	SHEET NO.
ABILENE		HASKELL	99

9/8/2023 8:38:42 AM
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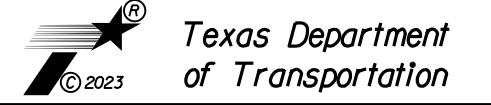
LEGEND:

- (A) RE PM W/RET REQ TY I (W) (6") (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) (6") (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (Y) (6") (BRK) (100MIL)
10' STRIPE + 30' GAP
- (D) REFL PAV MRK TY II-A-A
- (E) REFL PAV MRK (W) (4") (DOT) (100MIL)
3' STRIPE + 9' GAP
- ||||| MILLED CENTERLINE / SHOULDER RUMBLE STRIPS
- ▭ (OM-2Y) (WC) GND
- ➔ TRAFFIC DIRECTION ARROW
- ☼ DEL ASSM (D-SW) (BRF) (BI)

REV NO.	DATE	BY	REVISION



AIG Tech
 Advanced Infrastructure Group
 AIG TECHNICAL SERVICES, LLC
 1500 S. DAIRY ASHFORD
 SUITE 445
 HOUSTON, TX 77077
 TBPE FIRM NO. F-20607



US 380
PAVEMENT MARKING
STA 752+00 TO END PROJECT

SHEET 32 OF 32

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY	SHEET NO.	
ABILENE	HASKELL	100	

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

DATE: FILE:

REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS				DELINEATORS				D & OM DESCRIPTIVE CODES	
DEVICE	SIZE 1	SIZE 2	SIZE 3	SIZE 4	DEVICE	SINGLE	DOUBLE	INSTL DEL ASSM (D-XX)SZ X (XXXX)XXX (XX)	
SHEETING	Yellow, White or Red Type B or C reflective sheeting				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 (fix). 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.				POST TYPE	WC	YFLX, WFLX	WC	YFLX, WFLX
					MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

OBJECT MARKERS								D & OM DESCRIPTIVE CODES		
DEVICE	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)	INSTL OM ASSM (OM-XX) (XXXX)XXX (XX)	
		OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4	TYPE OF OBJECT MARKER 1, 2, 3, or 4 NUMBER OF REFLECTORS OR DIRECTION X = 3-Size 2 reflector units (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
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	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	
POST TYPE	TWT	WC	WC	WFLX	TWT			TWT		
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP		

BARRIER REFLECTORS (BRF)			CHEVRONS				ONE DIRECTION LARGE ARROW		NOTE:		
DEVICE	GF1	GF2	CTB	W1-8				W1-6		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.	
SHEETING	Yellow, White, Red			SIZE (W x L)	18" x 24" (Conventional)	24" x 30" (Conventional Oversize)	30" x 36" (Expressway)	36" x 48" (Freeway)	SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
NOTE	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.			MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	MOUNTING HEIGHT	7'-0"		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).

Texas Department of Transportation
Traffic Safety Division Standard

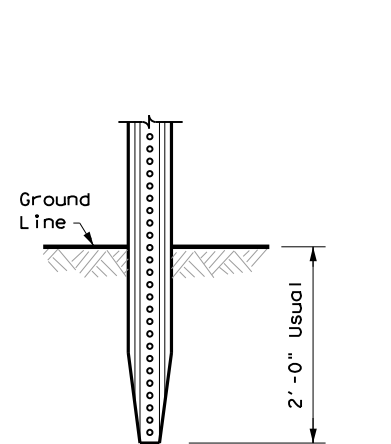
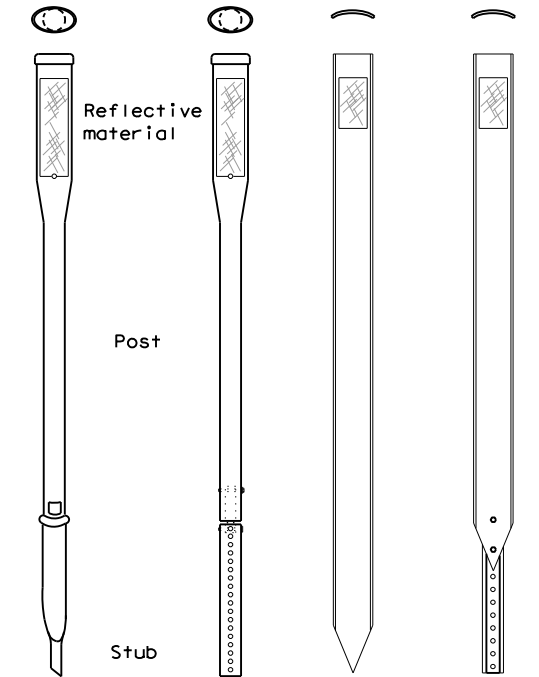
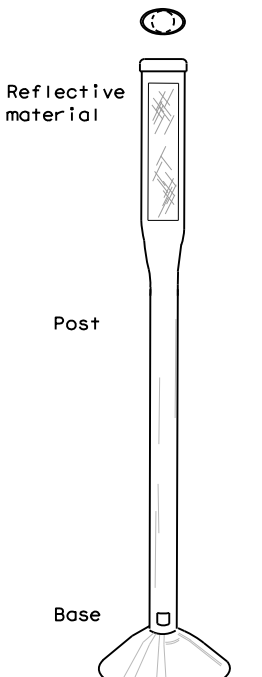
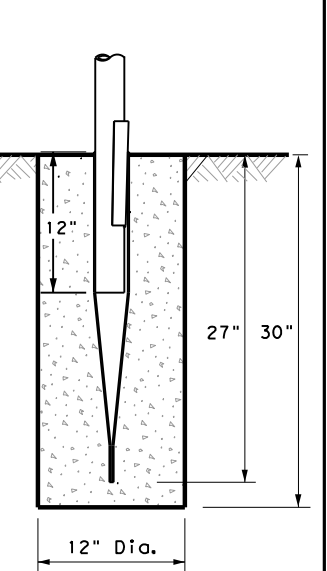
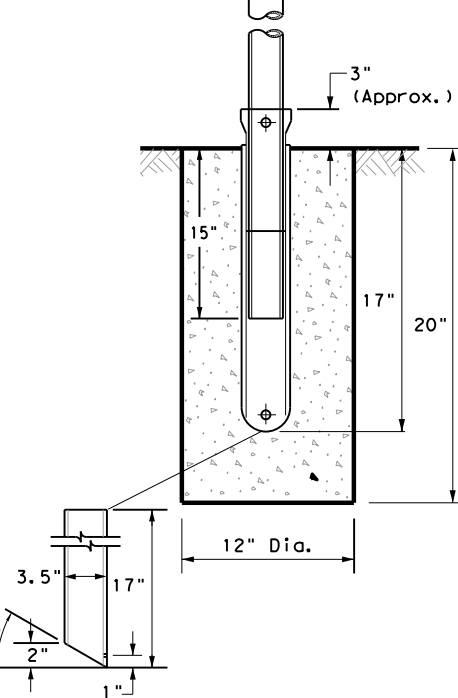
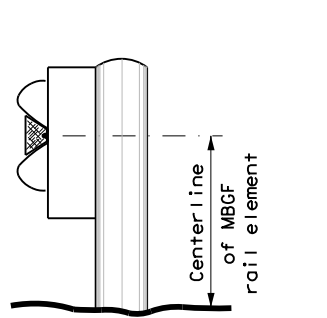
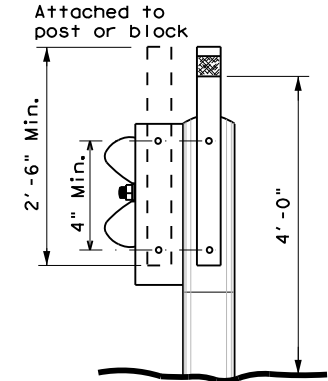
DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

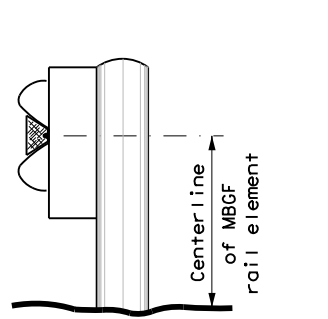
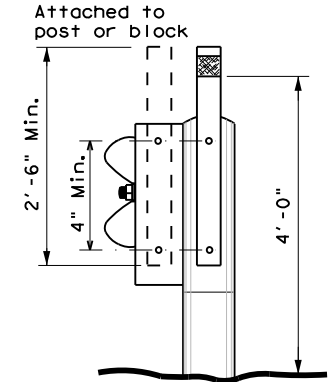
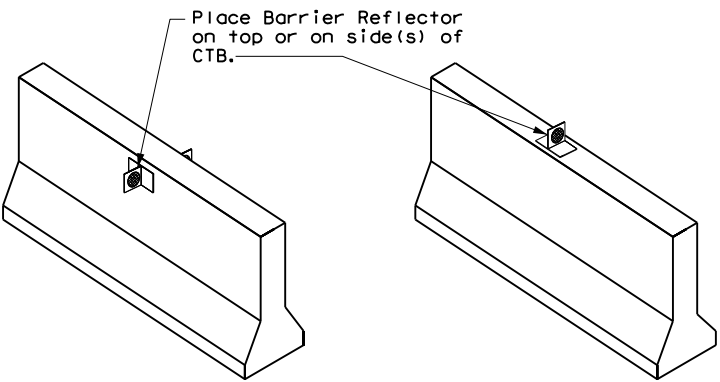
D & OM(1)-20

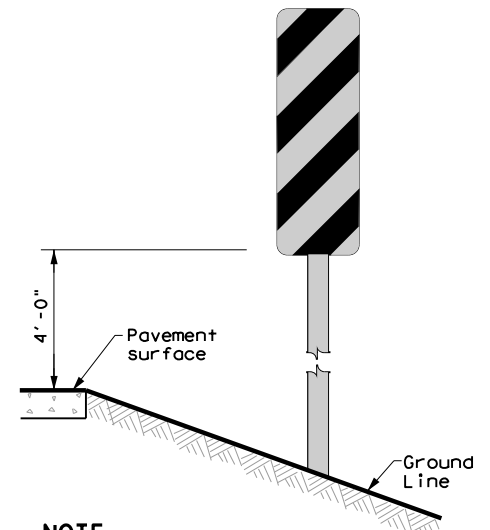
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© TXDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
10-09 3-15	DIST	COUNTY	SHEET NO.	
4-10 7-20	ABL	HASKELL	101	

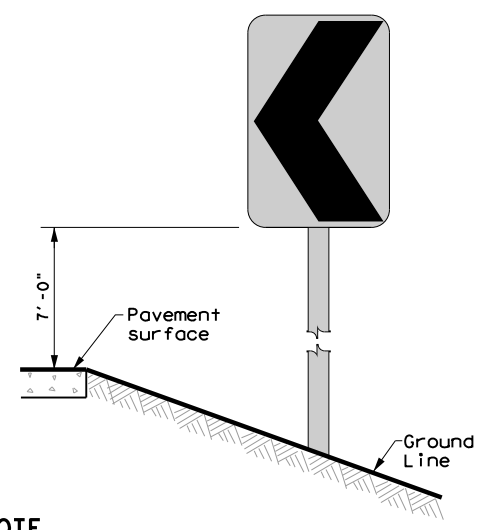
20A

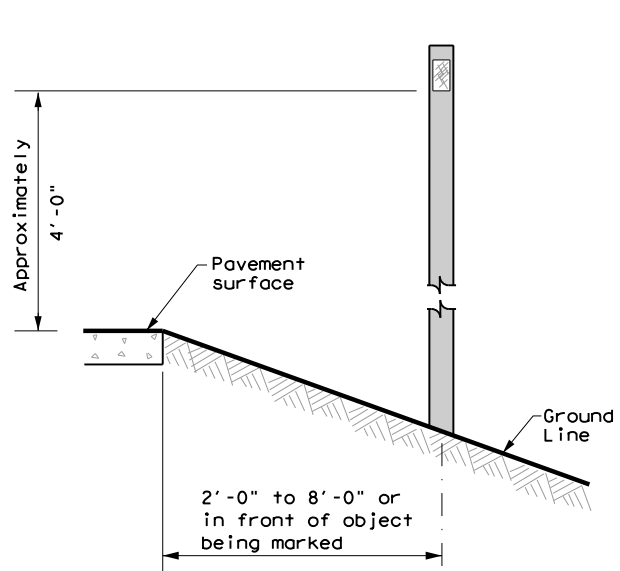
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POST TYPE AND SUPPORT FOUNDATION DETAILS				TYPE OF BARRIER MOUNTS	
WING CHANNEL (WC)	FLEXIBLE POSTS (YFLX, WFLX)		WEDGE ANCHOR SYSTEMS		GUARD FENCE ATTACHMENT
GND	GND	SRF	WAS	WAP	GF 1
					
	EMBEDDED	SURFACE MOUNT	STEEL	PLASTIC	GF 2
NOTES 1. Embedded 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.	NOTES 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.		NOTE 1. Install per manufacturer's recommendations.		

TYPE OF BARRIER MOUNTS	
GUARD FENCE ATTACHMENT	
GF 1	GF 2
	
CONCRETE TRAFFIC BARRIER (CTB)	
	
GENERAL NOTES	
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.	

TYPES 1,3, AND 4 OBJECT MARKERS AND CHEVRONS

NOTE 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)

CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN

NOTE 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.

DELINEATORS AND TYPE 2 OBJECT MARKERS

NOTE See general notes 1, 2 and 3.



Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

FILE: dom2-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
10-09 3-15	DIST	COUNTY	SHEET NO.	
4-10 7-20	ABL	HASKELL	102	

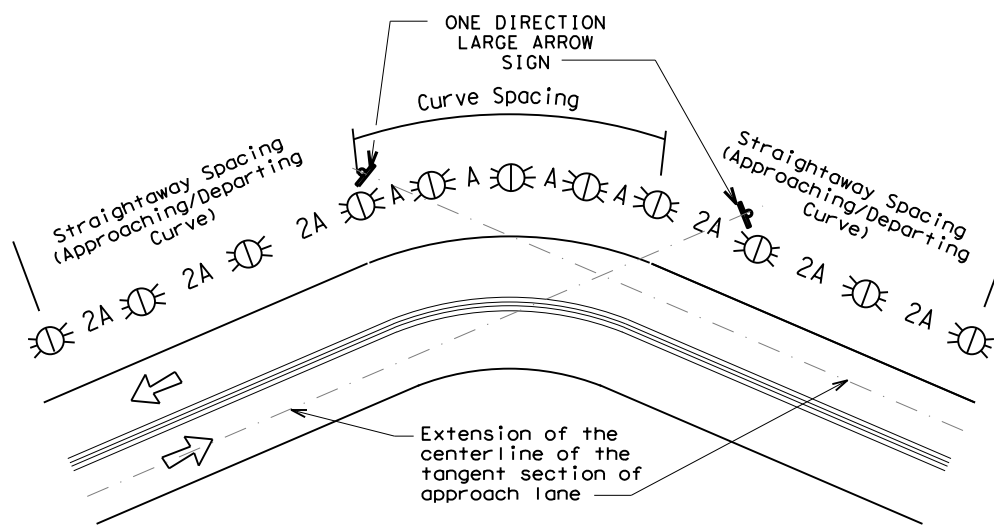
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MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

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

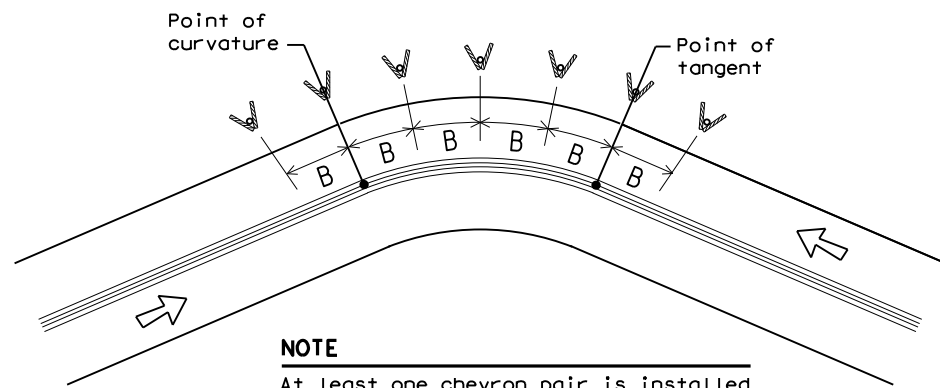
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



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



DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

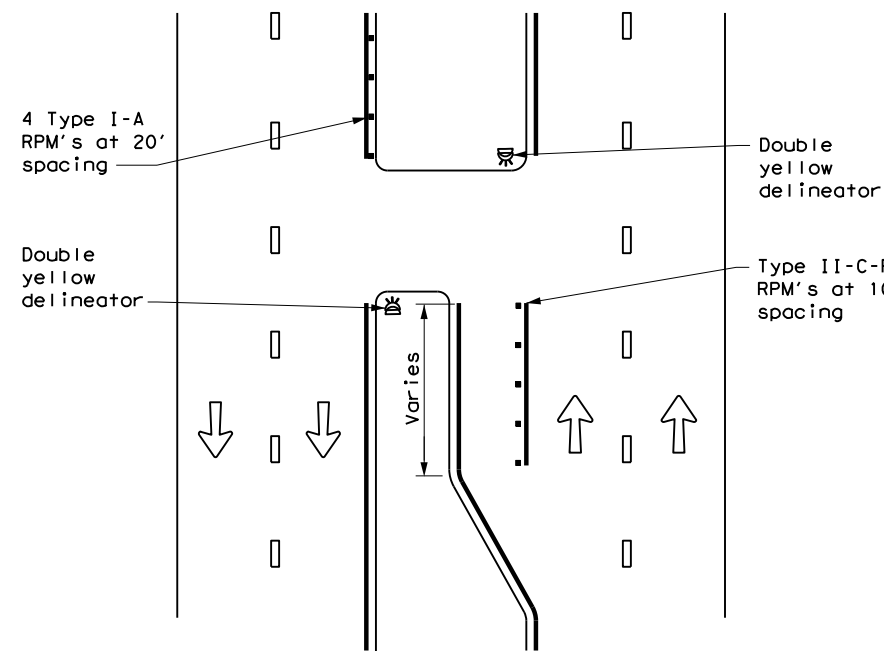
D & OM(3)-20

FILE: dom3-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
3-15 8-15	DIST	COUNTY	SHEET NO.	
8-15 7-20	ABL	HASKELL	103	

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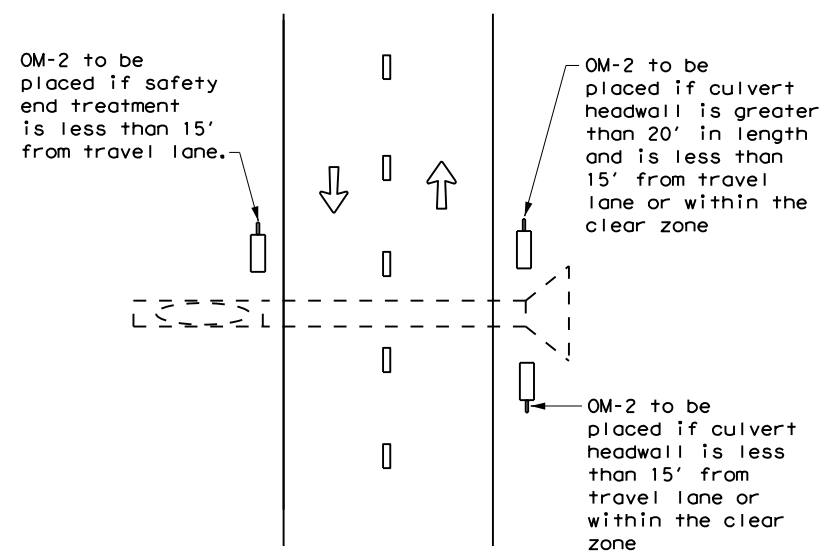
DATE:
FILE:

CROSSOVERS



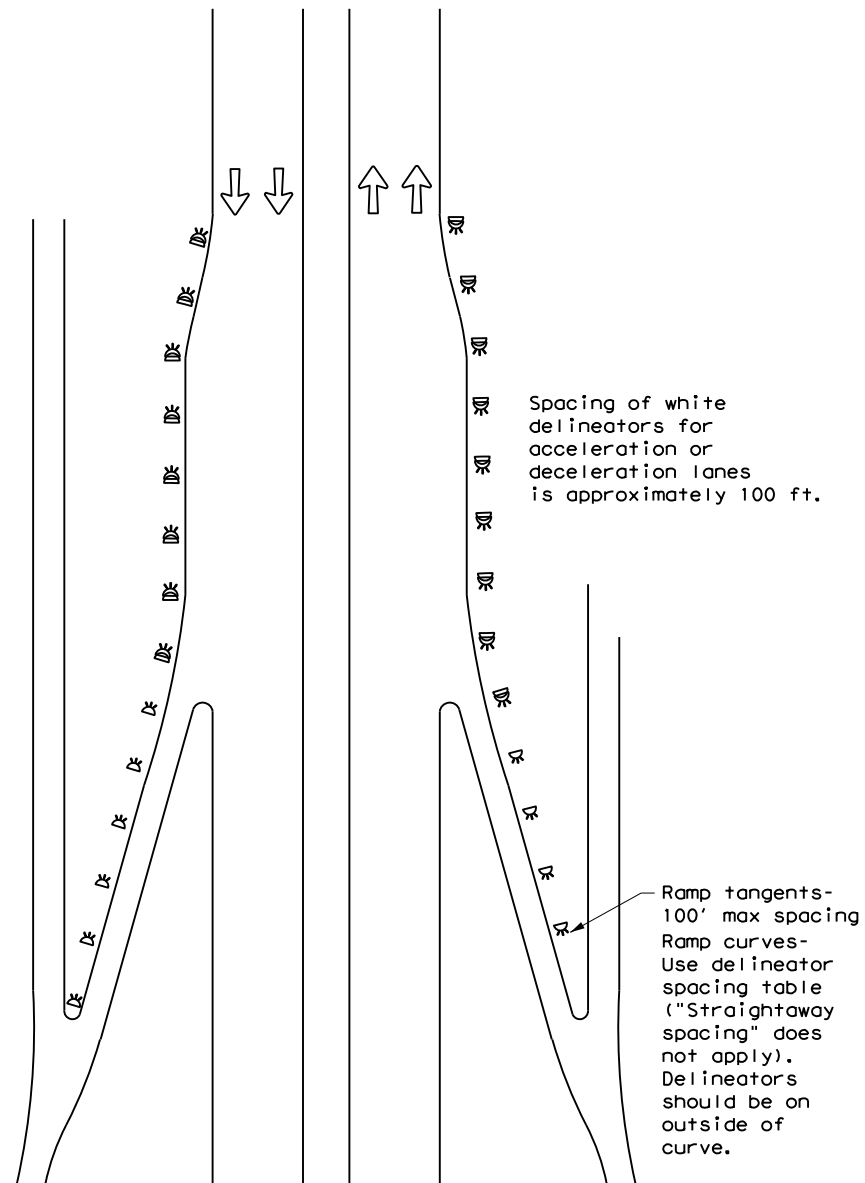
DETAIL 1

FOR CULVERTS WITHOUT MBGF



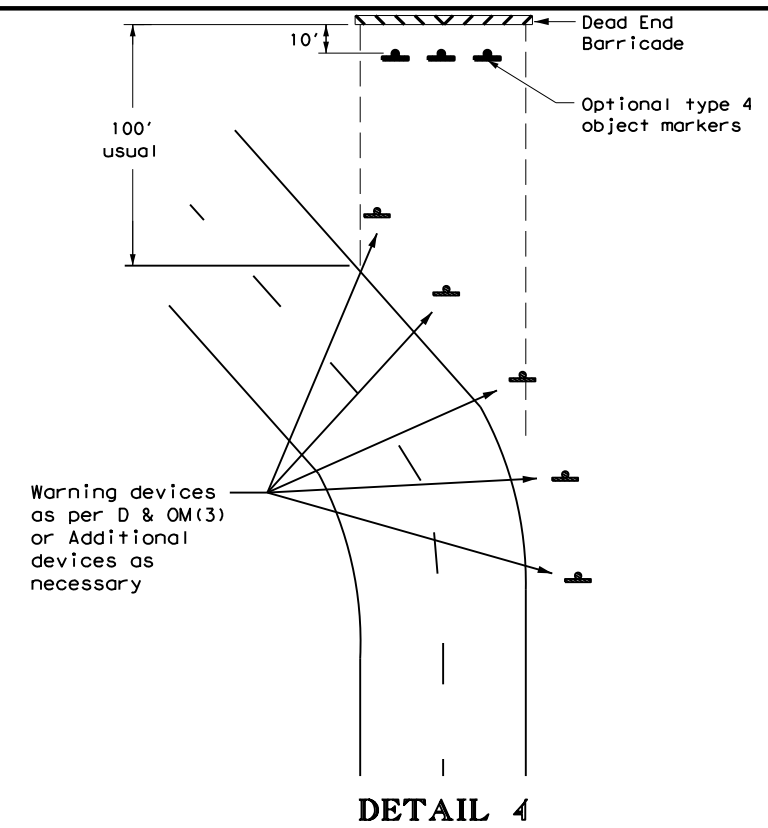
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



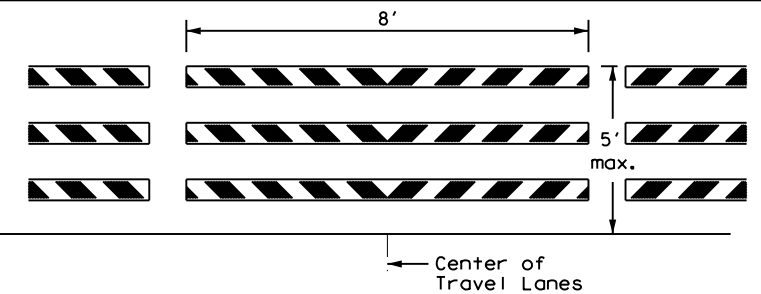
DETAIL 3

TYPICAL APPLICATION OF DEAD END BARRICADE



DETAIL 4

TYPICAL DEAD END BARRICADE INSTALLATION



NOTES

- Barricade striping shall be red and white reflective sheeting for all permanent road closures.
- Barricade striping is red and white sloping toward the center of the roadway.
- Type 3 Barricade Supports should be anchored to soil or pavement as described in compliant Work Zone Traffic Control Devices List, section D.2.f and D.2.g.

DETAIL 5

LEGEND	
	Bidirectional Delineator
	Delineator
	OM-3
	Barricade
	Sign
	OM-2
	Double Delineator

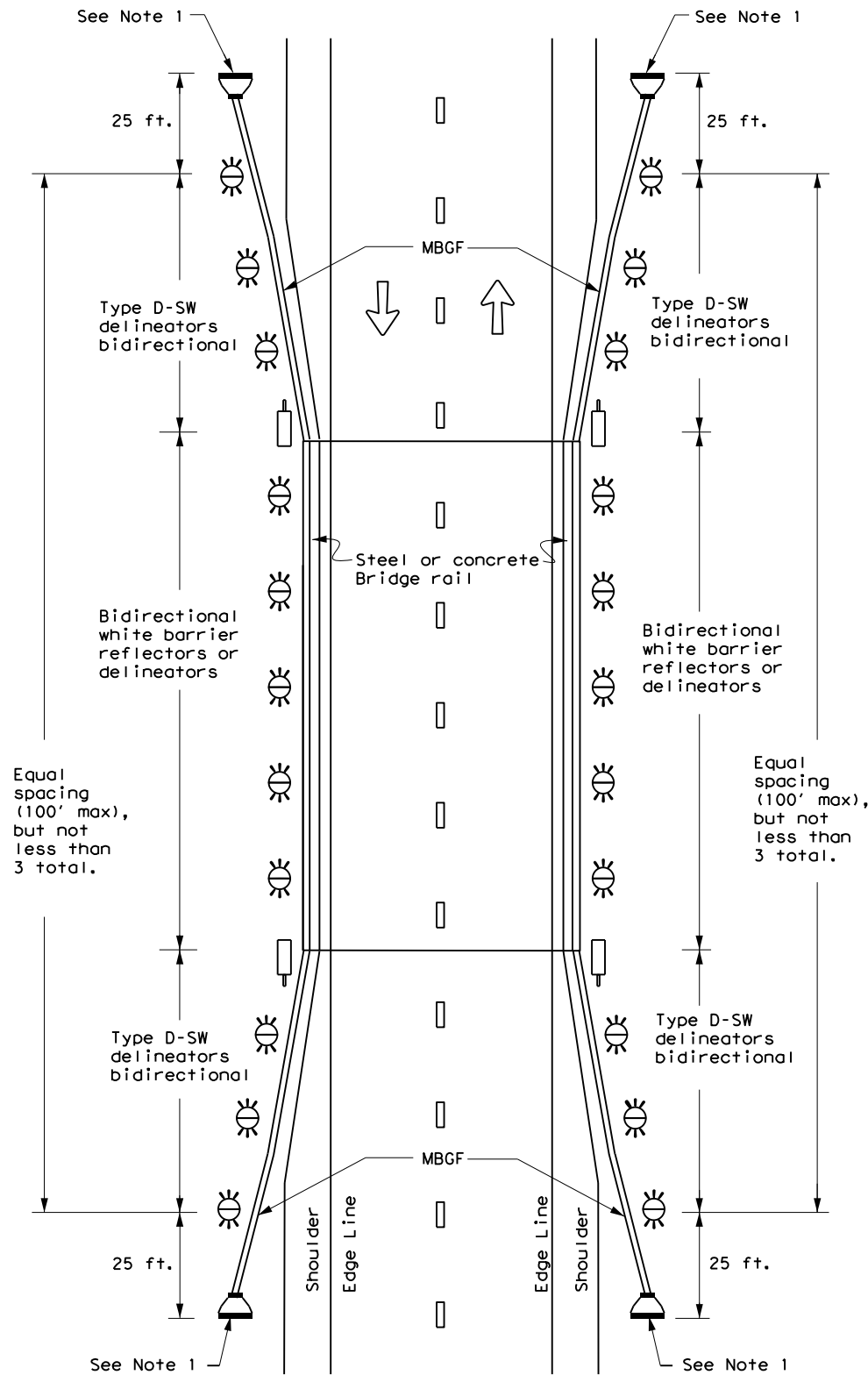


DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(4) -20

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© TXDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
3-15	DIST	COUNTY	SHEET NO.	
7-20	ABL	HASKELL	104	

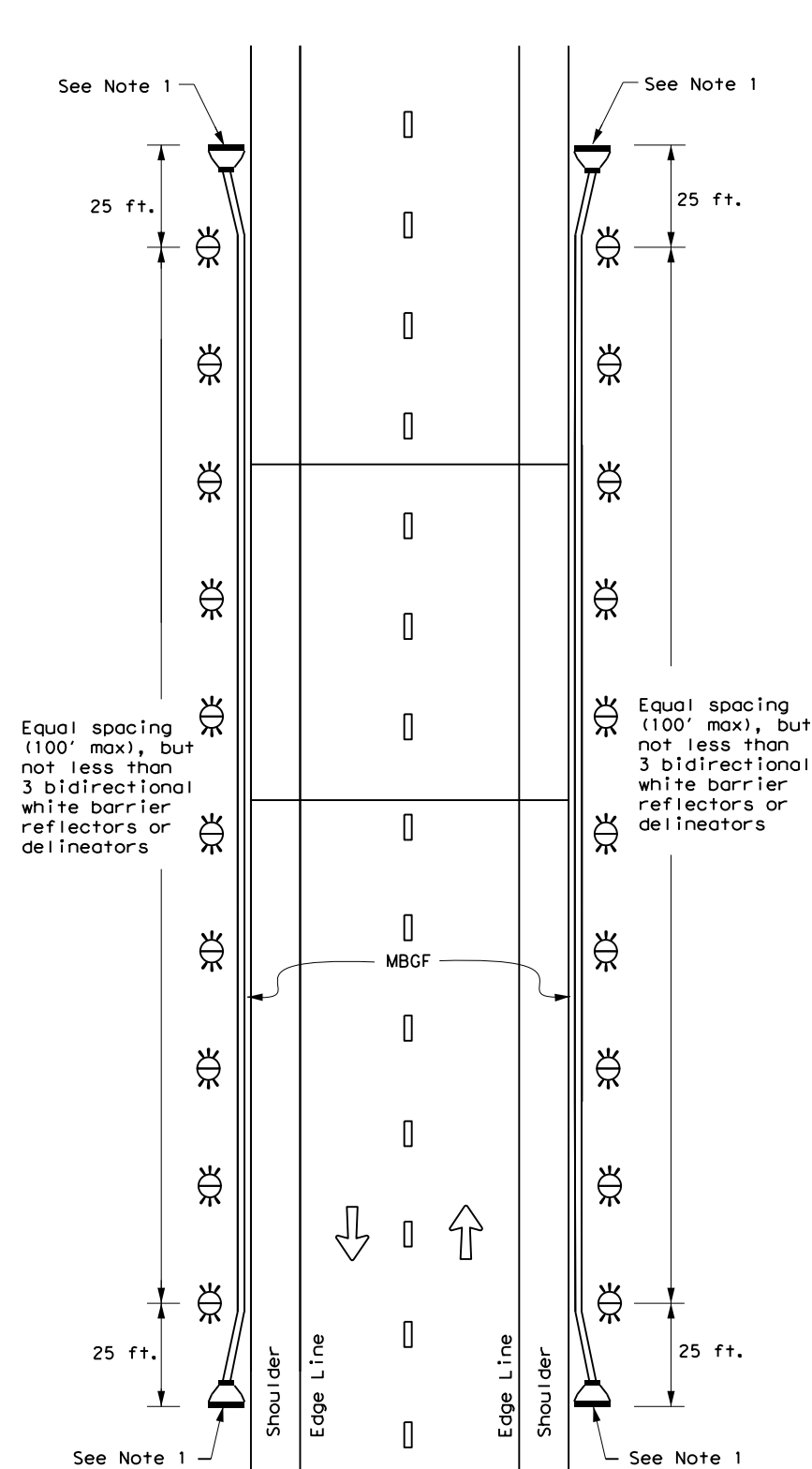
**TWO-WAY, TWO LANE ROADWAY
WITH REDUCED WIDTH APPROACH RAIL**



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.

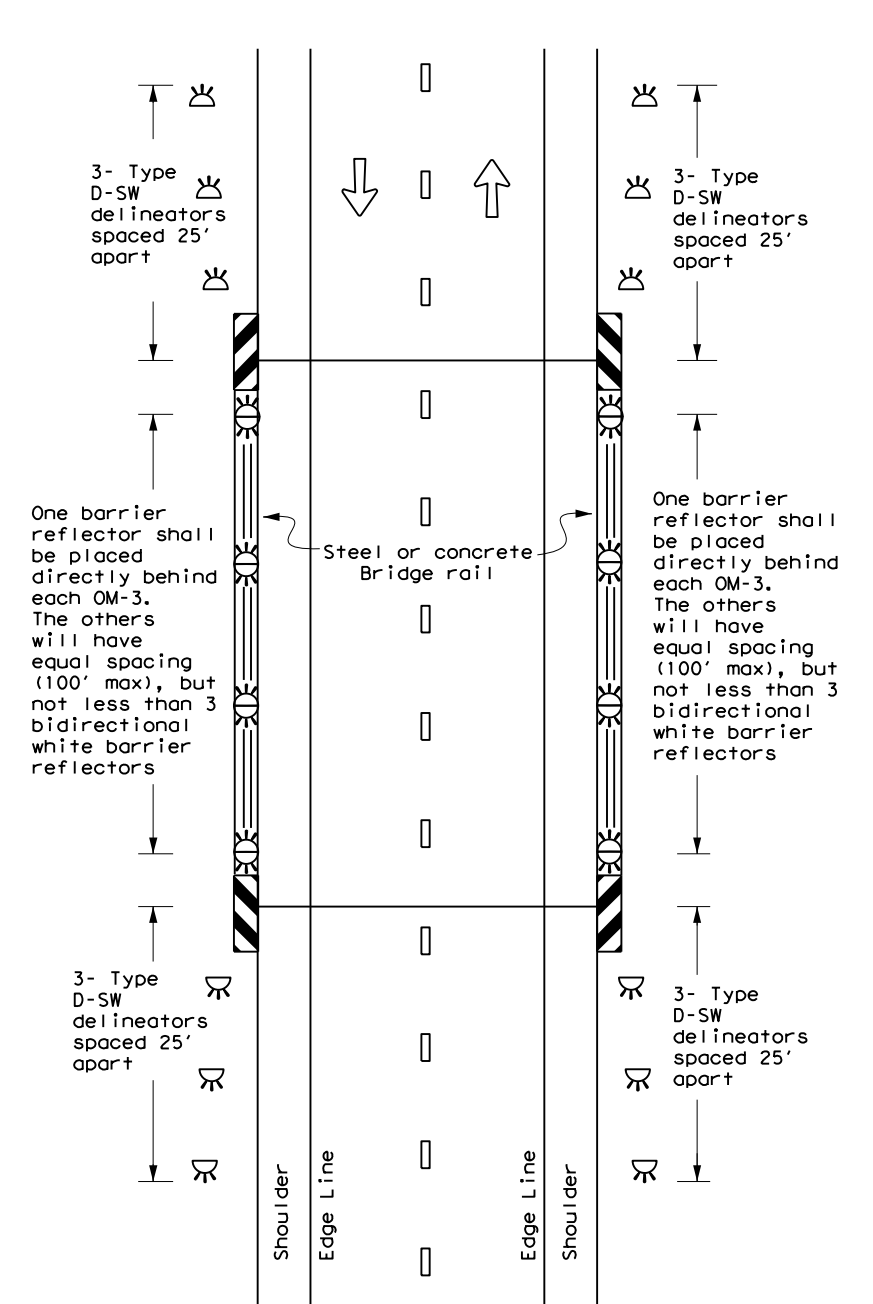
**TWO-WAY, TWO LANE ROADWAY
WITH METAL BEAM GUARD FENCE (MBGF)**



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



**DELINEATOR &
OBJECT MARKER
PLACEMENT DETAILS**

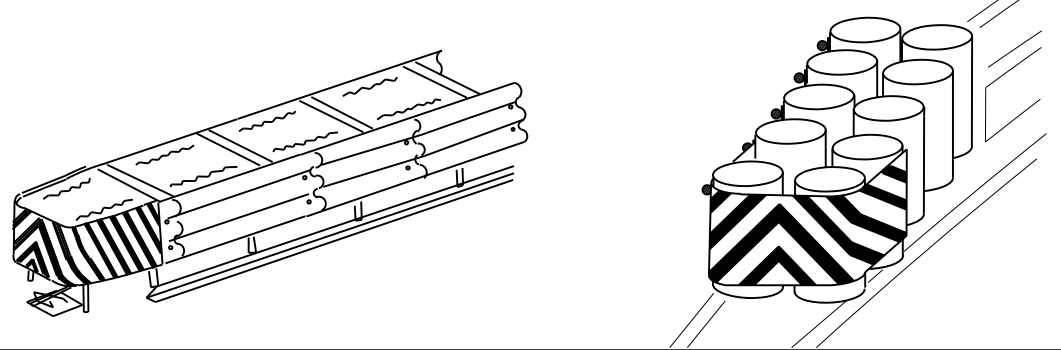
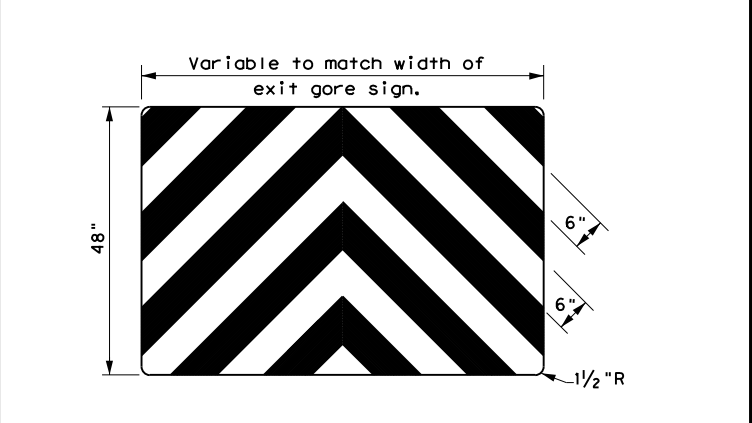
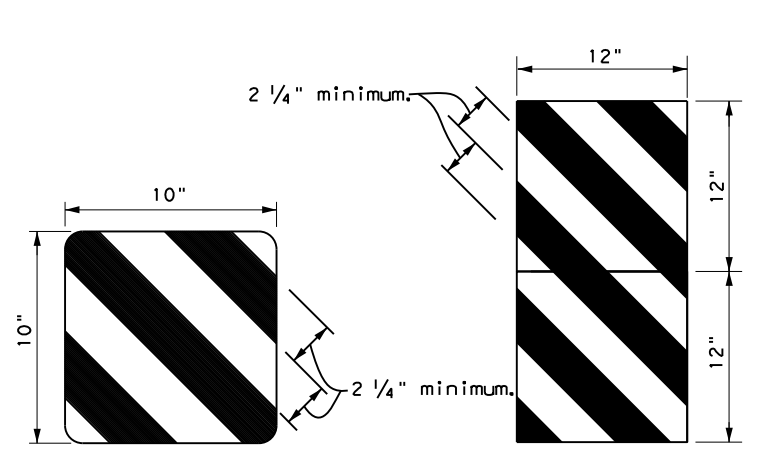
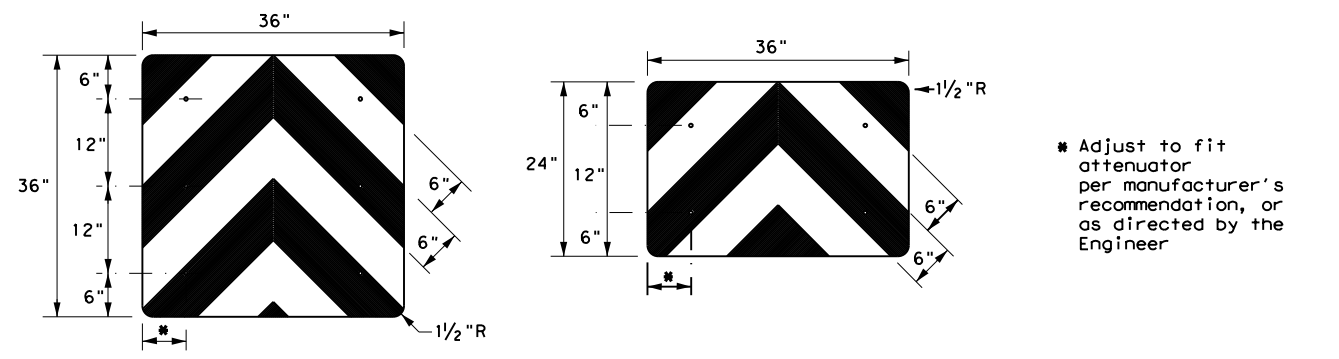
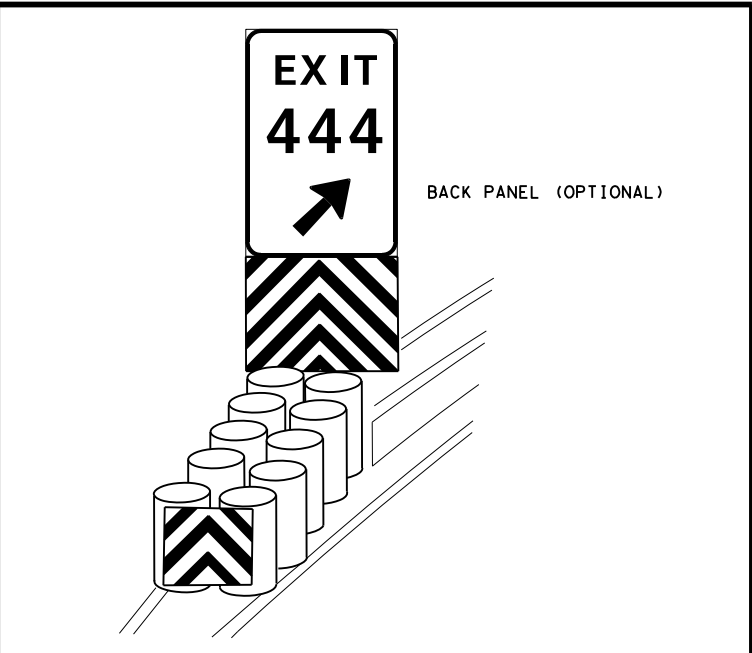
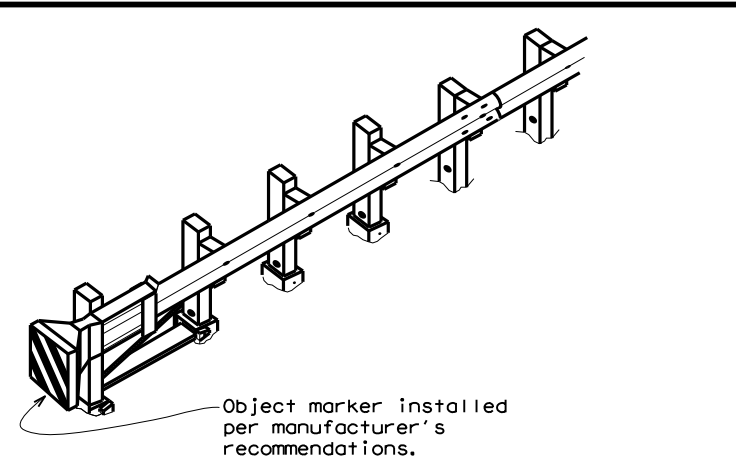
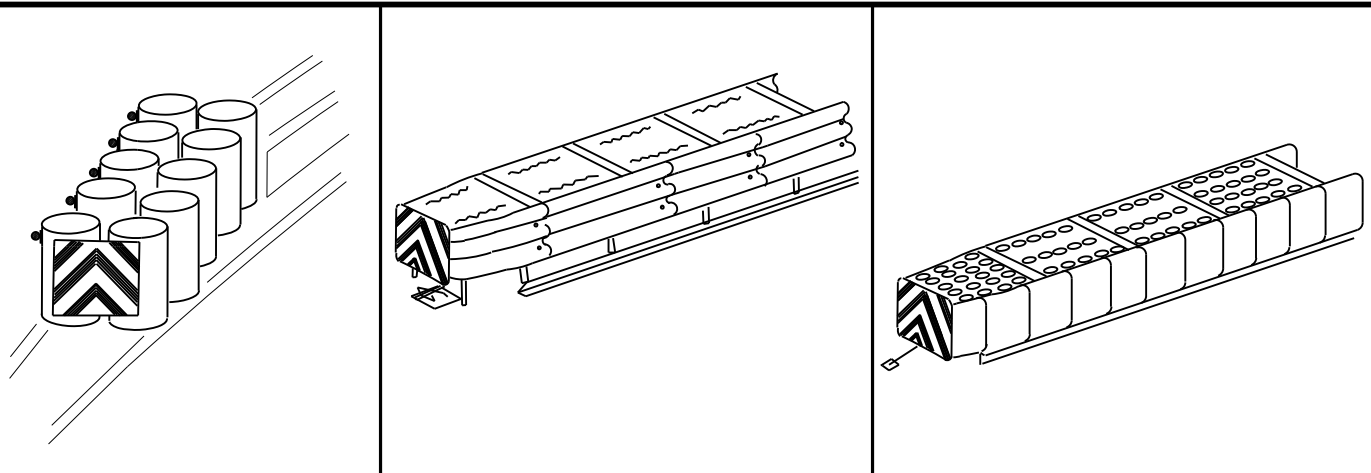
D & OM(5) - 20

FILE: dom5-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
7-20	DIST	COUNTY	SHEET NO.	
	ABL	HASKELL	105	

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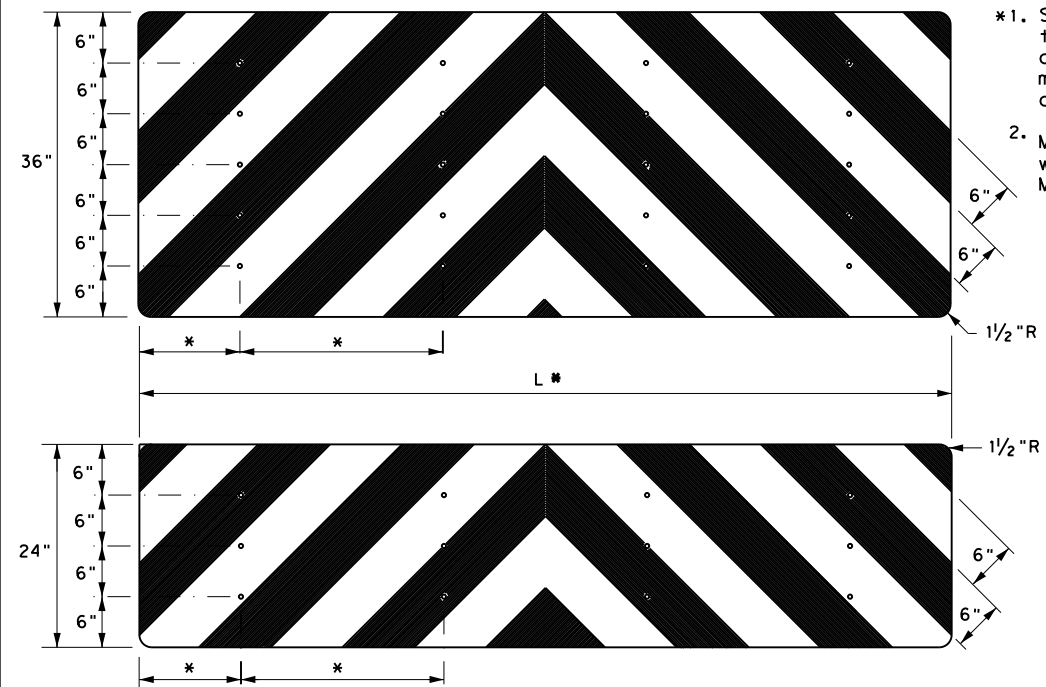
OBJECT MARKERS SMALLER THAN 3 FT²

NOTES

- 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.
- 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.
- 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".
- 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.
- Object Marker at nose of attenuator is subsidiary to the attenuator.
- See D & OM (1-4) for required barrier reflectors.

NOTES

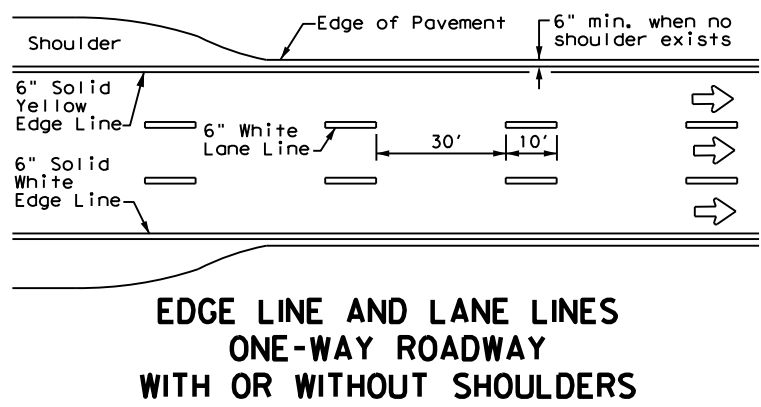
- Spacing should be adjusted to attach through centerline of drum, per attenuator manufacturer's recommendation, or as directed by the Engineer.
- Mounting should be flush with top of attenuator. Minimum size 96" x 24".



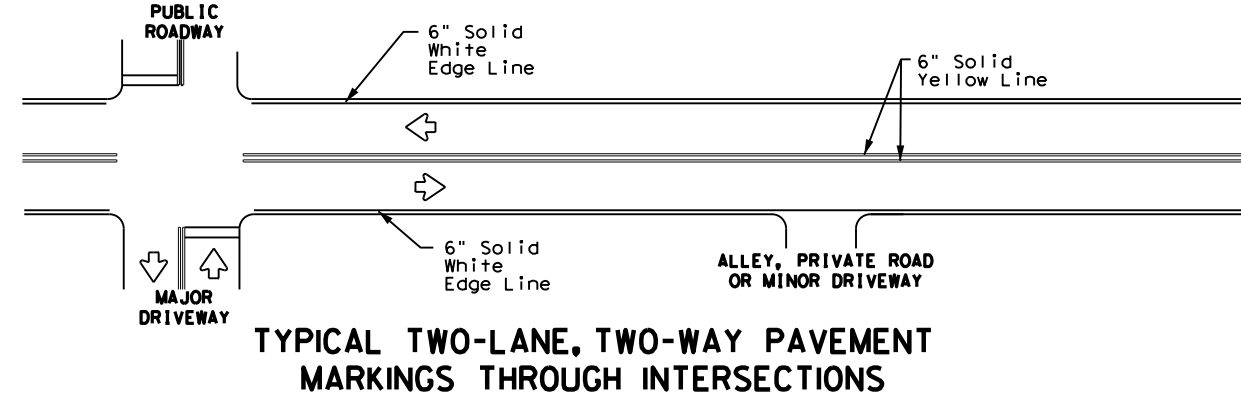
<p>DELINEATOR & OBJECT MARKER FOR VEHICLE IMPACT ATTENUATORS</p> <p>D & OM(VIA) -20</p>			
FILE: domvia20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT
© TXDOT December 1989	CONT	SECT	JOB
REVISIONS		0360 04	033
4-92 8-04	DIST		COUNTY
8-95 3-15	ABL		HASKELL
4-98 7-20			SHEET NO.
			106
20G			

DATE:
FILE:

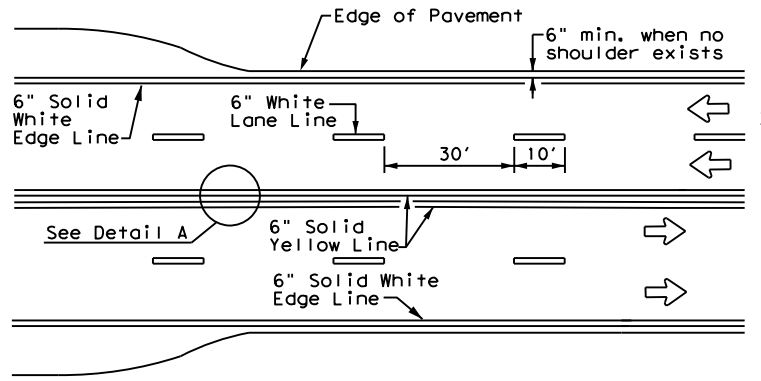
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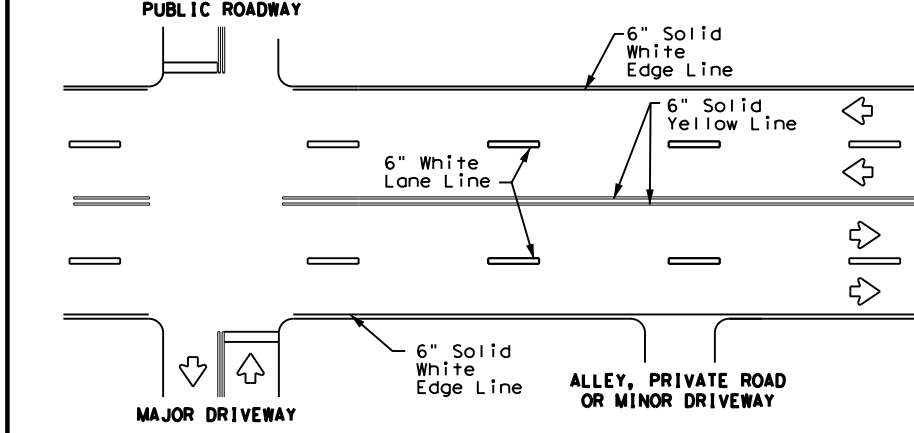
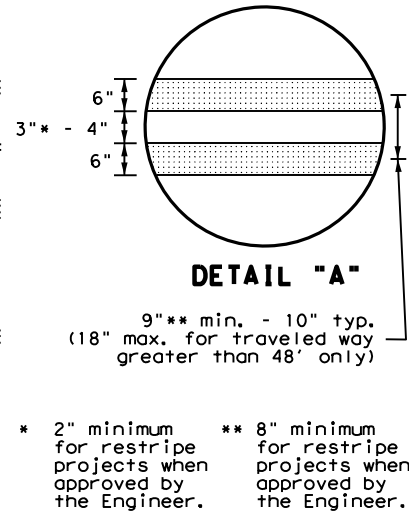
**EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



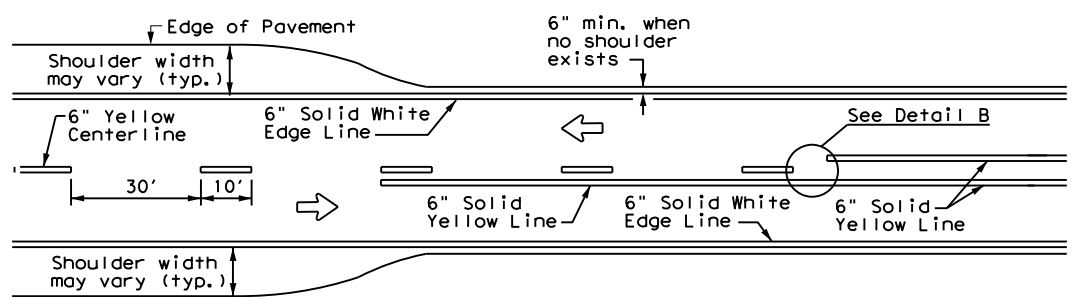
**TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



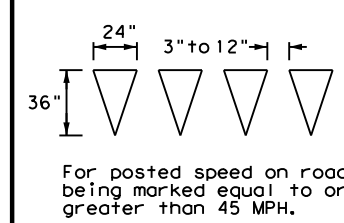
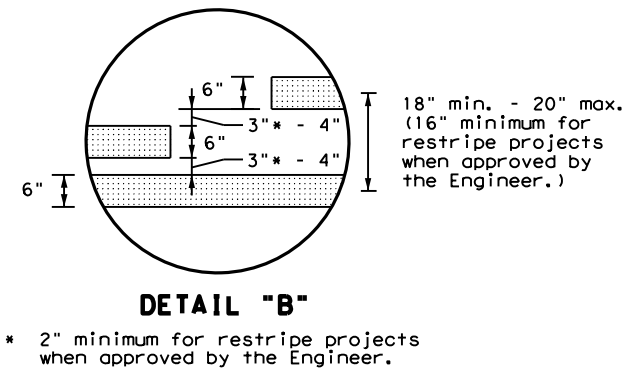
**CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



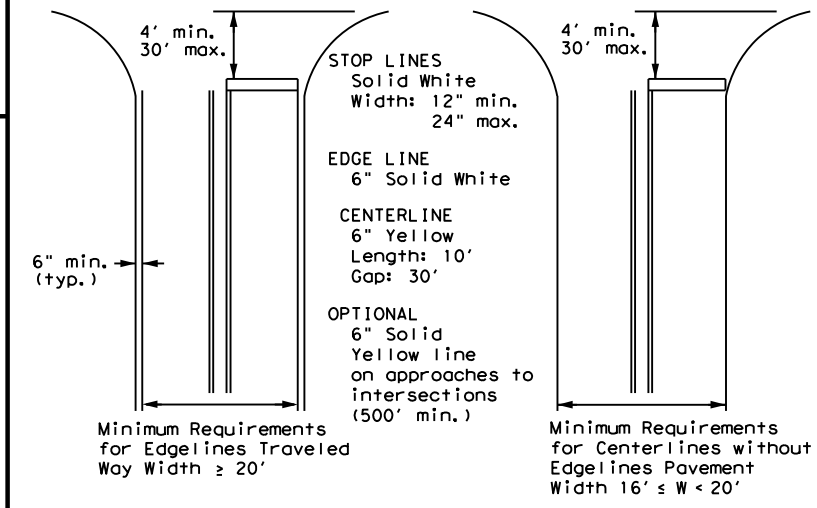
**TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



**TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**

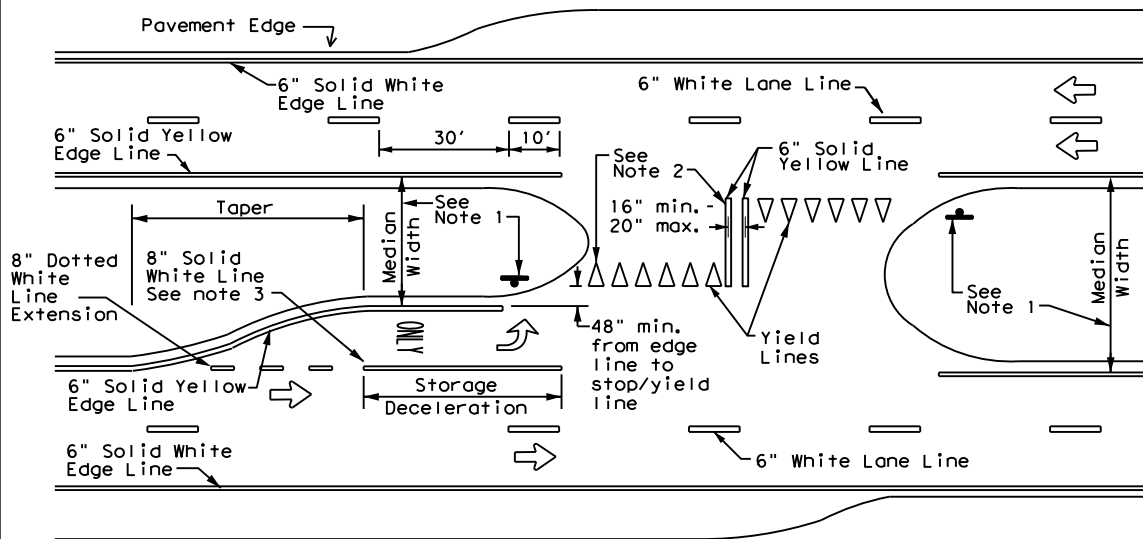


YIELD LINES



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

**GUIDE FOR PLACEMENT OF STOP LINES,
EDGE LINE & CENTERLINE**
 Based on Traveled Way and Pavement Widths for Undivided Roadways



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 and stop bars are optional as determined by the Engineer.
- Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
- 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

- Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
- The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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



**TYPICAL STANDARD
PAVEMENT MARKINGS**

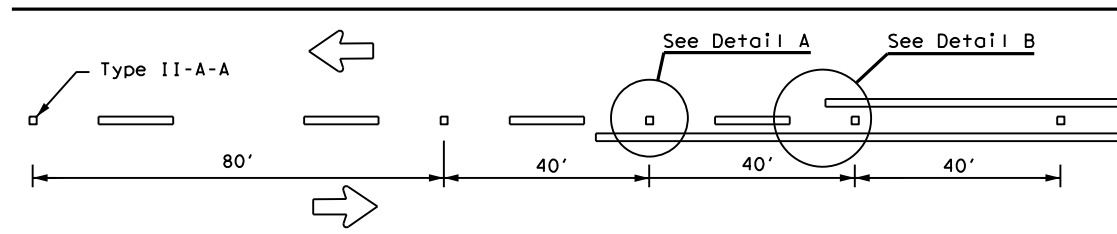
PM(1) - 22

FILE:	pm1-22.dgn	DN:	CK:	DW:	CK:
© TxDOT	December 2022	CONT	SECT	JOB	HIGHWAY
11-78	8-00 6-20	0360	04	033	US 380
8-95	3-03 12-22	DIST	COUNTY	SHEET NO.	
5-00	2-12	ABL	HASKELL	107	

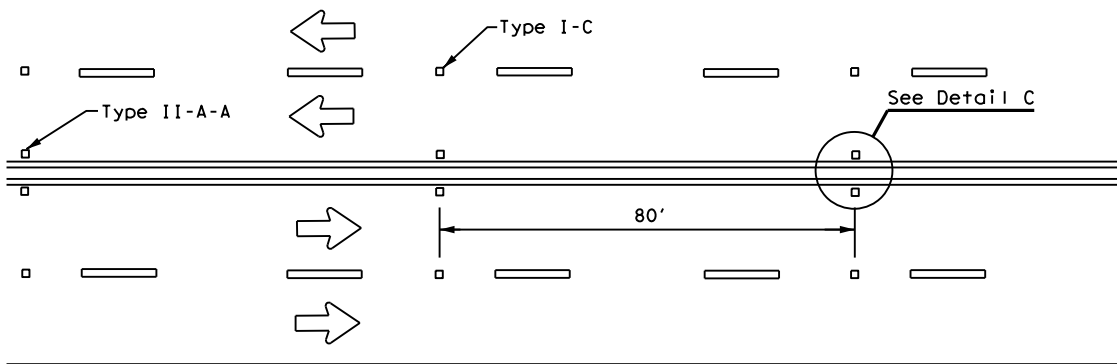
DATE:
FILE:

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

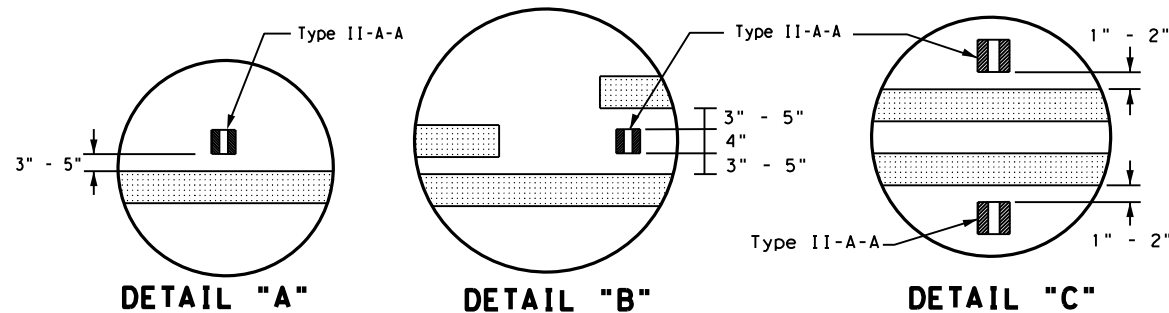
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CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS



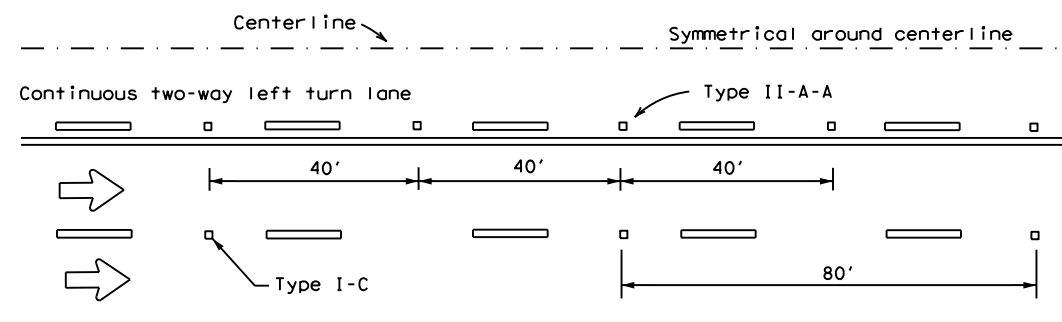
**CENTERLINE & LANE LINES
FOR FOUR LANE TWO-WAY ROADWAYS**



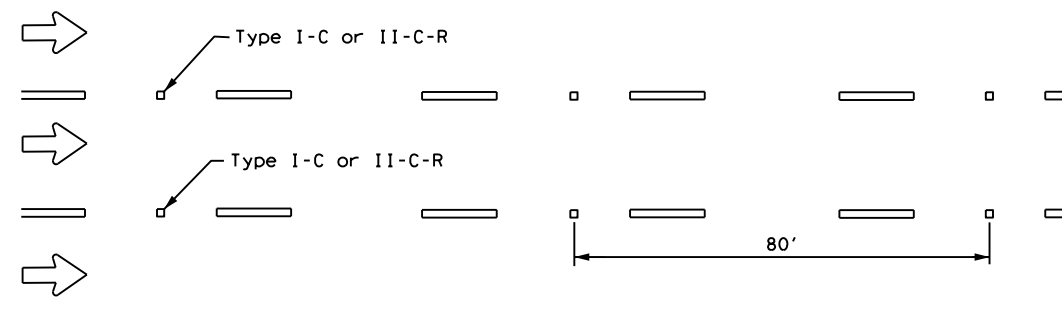
DETAIL "A"

DETAIL "B"

DETAIL "C"

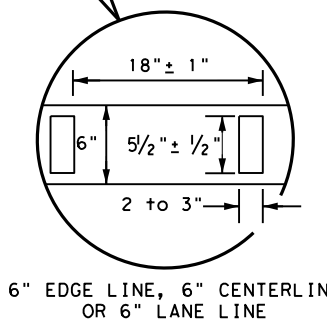
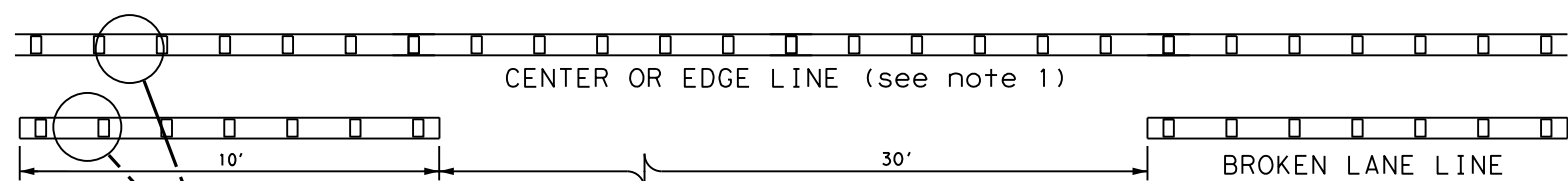


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

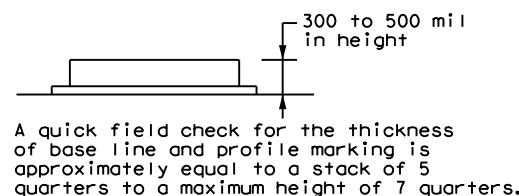
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.
See Note 3.



**REFLECTORIZED PROFILE
PATTERN DETAIL**

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

6" EDGE LINE, 6" CENTERLINE
OR 6" LANE LINE



A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTES

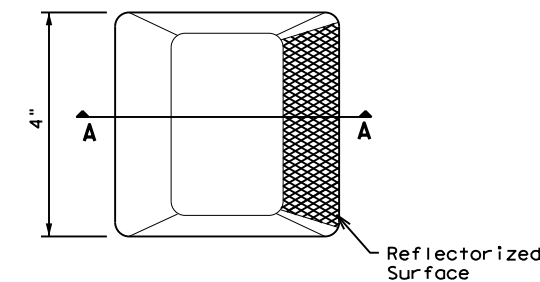
1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

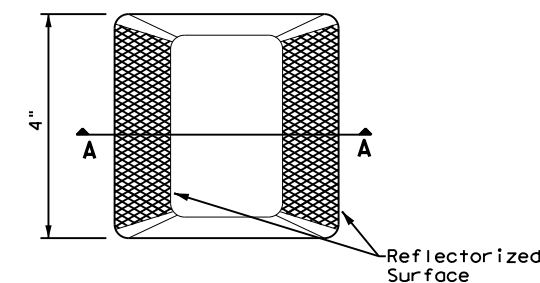
1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

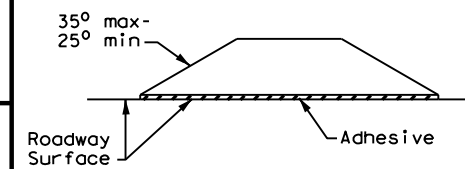
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



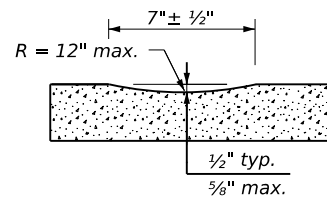
**POSITION GUIDANCE USING
RAISED MARKERS
REFLECTORIZED PROFILE
MARKINGS
PM(2) - 22**

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
4-77 8-00 6-20	DIST	COUNTY	SHEET NO.	
4-92 2-10 12-22	ABL	HASKELL	108	
5-00 2-12				

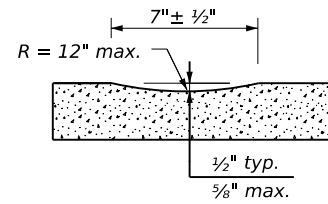
DATE:
FILE:

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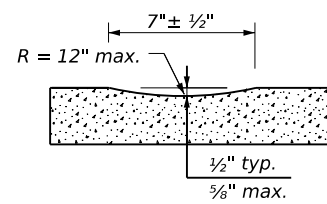
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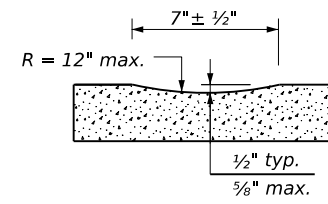
PROFILE VIEW
OPTION 1



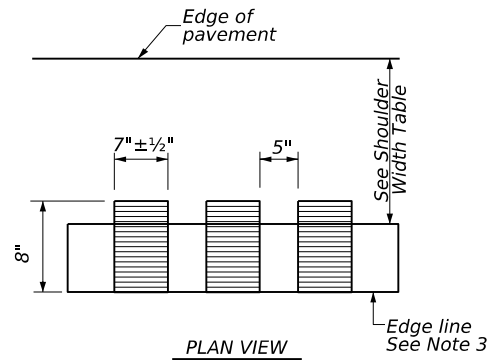
PROFILE VIEW
OPTION 2



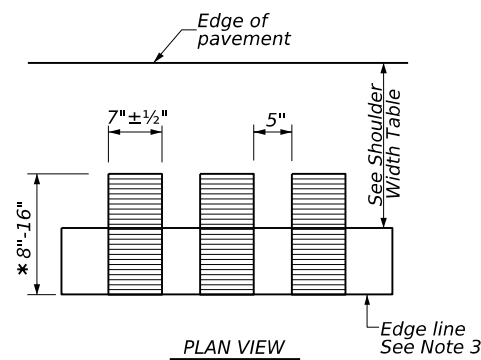
PROFILE VIEW
OPTION 3



PROFILE VIEW
OPTION 4

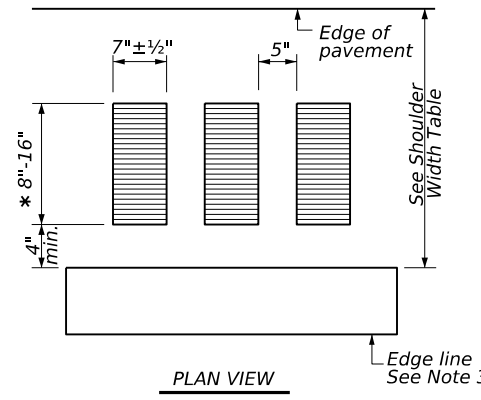


PLAN VIEW



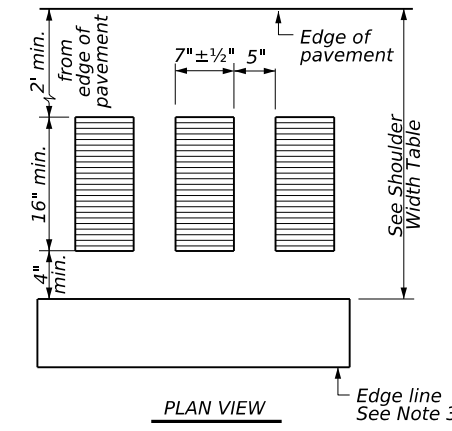
PLAN VIEW

* This distance may vary based on width of shoulder



PLAN VIEW

* This distance may vary based on width of shoulder



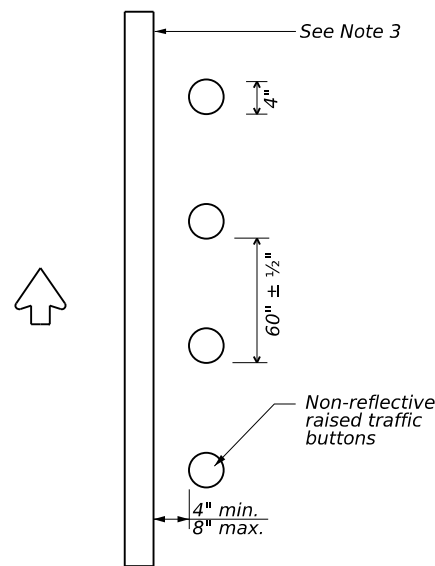
PLAN VIEW

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)

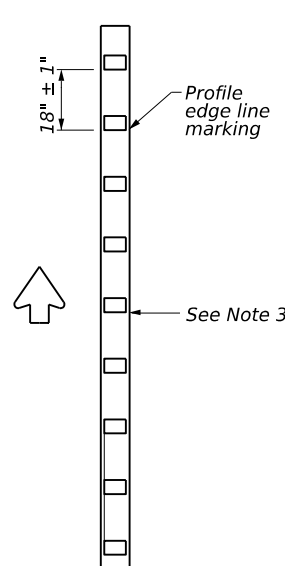
CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



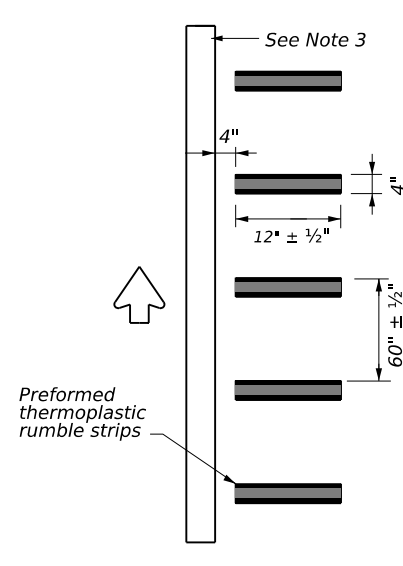
PLAN VIEW
OPTION 5



PLAN VIEW
OPTION 6

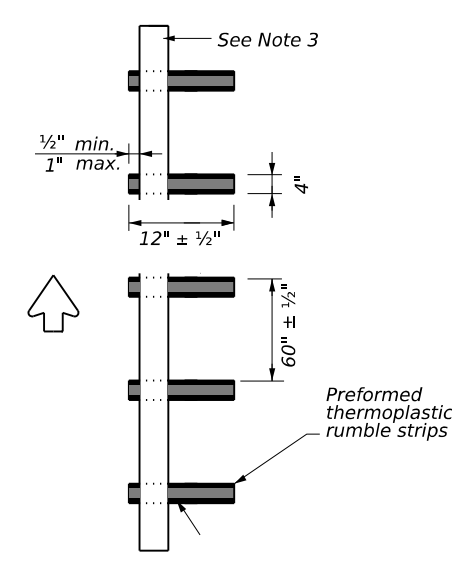
RAISED EDGE LINE (Rumble Strips)

PROFILE EDGE LINE MARKINGS (Rumble Strips)



PLAN VIEW
OPTION 7

PREFORMED THERMOPLASTIC EDGE LINE (Rumble Strips)



PLAN VIEW
OPTION 8

PREFORMED THERMOPLASTIC EDGE LINE (Rumble Strips)

GENERAL NOTES

- Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
- Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
- Use Standard Sheet PM(2) and FPM(1) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
- See the Shoulder Width Table below for determining what options may be used for edge line rumble strips.
- Breaks in edge line rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections, or driveways with high usage of large trucks when installed on conventional highways.
- Rumble strips shall not be placed across exit or entrance ramps, acceleration or deceleration lanes, crossovers, gore areas, or intersections with other roadways.
- Consideration should be given to noise levels when edgeline rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
- Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING MILLED DEPRESSION EDGE LINE RUMBLE STRIPS:

- See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
- Pavement markings can be applied over milled shoulder rumble strips to create an edge line rumble strip.

WHEN INSTALLING RAISED OR PROFILE EDGE LINE RUMBLE STRIPS:

- Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
- Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the edge line when used as a rumble strip. The color of the button should match the color of the adjacent edge line marking (white or yellow). The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
- Non-reflective traffic buttons shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
- The minimum distance between the edge line and the buttons should be used if the shoulder is less than 8 feet in width.
- Raised profile thermoplastic markings used as edge lines may substitute for buttons.

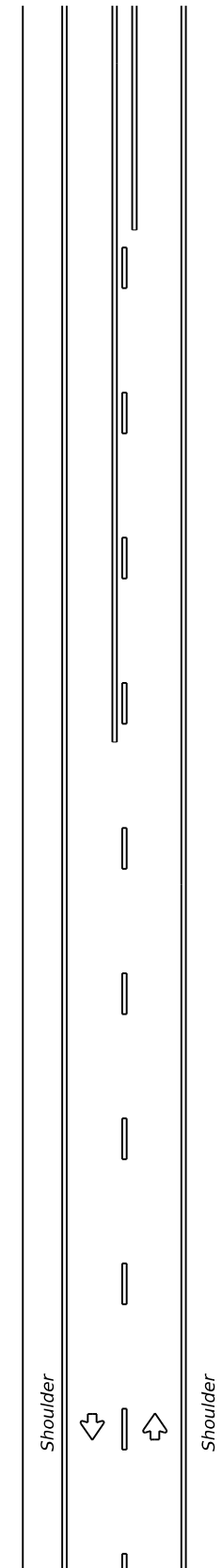
SHOULDER WIDTH TABLE		
EQUAL TO OR LESS THAN 2 FEET	GREATER THAN 2 FEET LESS THAN 4 FEET	EQUAL TO OR GREATER THAN 4 FEET
Option 1, 5, 6 or 8	Option 1, 2, 3, 5, 6 or 7	Option 2, 4, 5, 6 or 7

EDGE LINE RUMBLE STRIPS ON UNDIVIDED OR TWO LANE HIGHWAYS RS(2)-23			
FILE: rs(2)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT January 2023	COWT	SECT	JOB
REVISIONS	0360	04	033
10-13	DIST	COUNTY	SHEET NO.
1-23	ABL	HASKELL	109

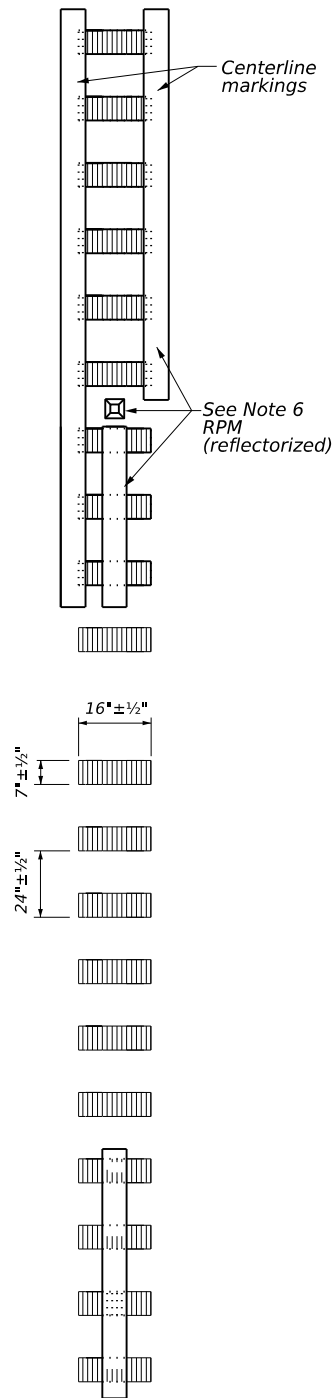
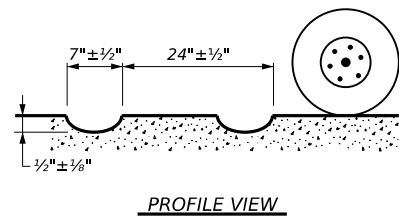
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DATE: FILE:

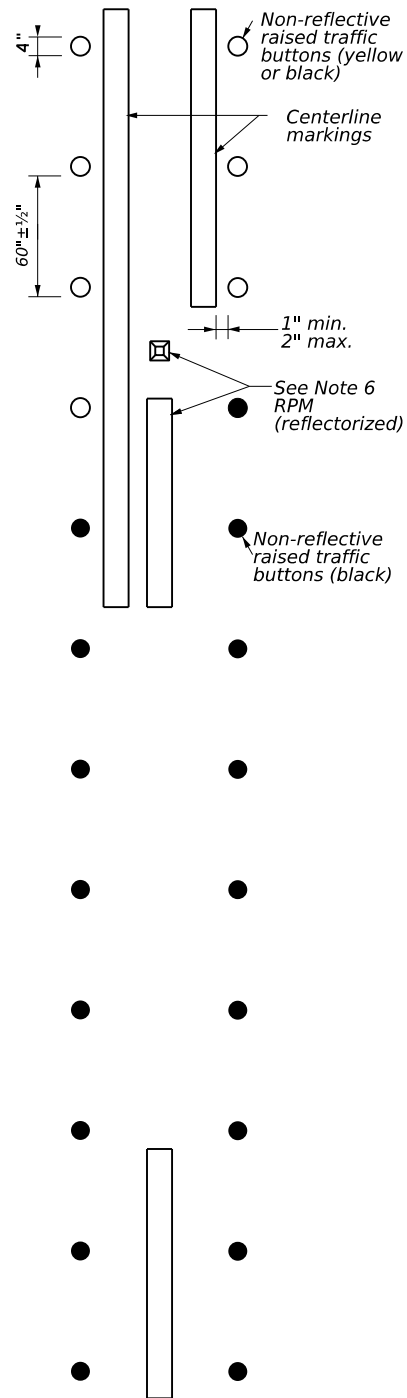
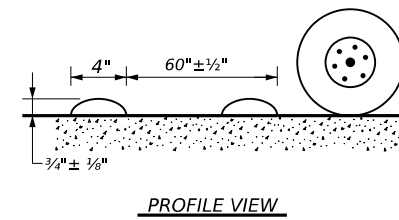
CENTERLINE RUMBLE STRIPS



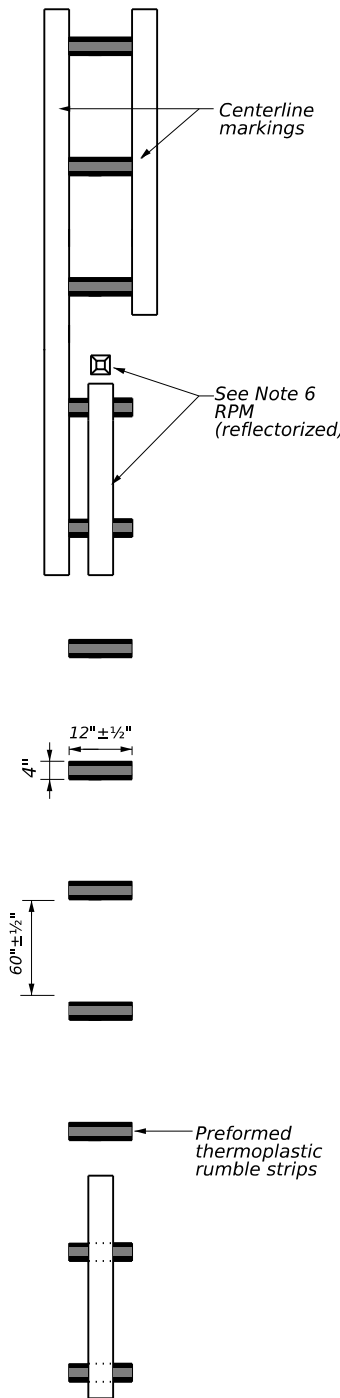
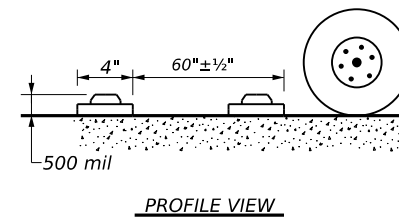
TWO LANE TWO-WAY HIGHWAYS



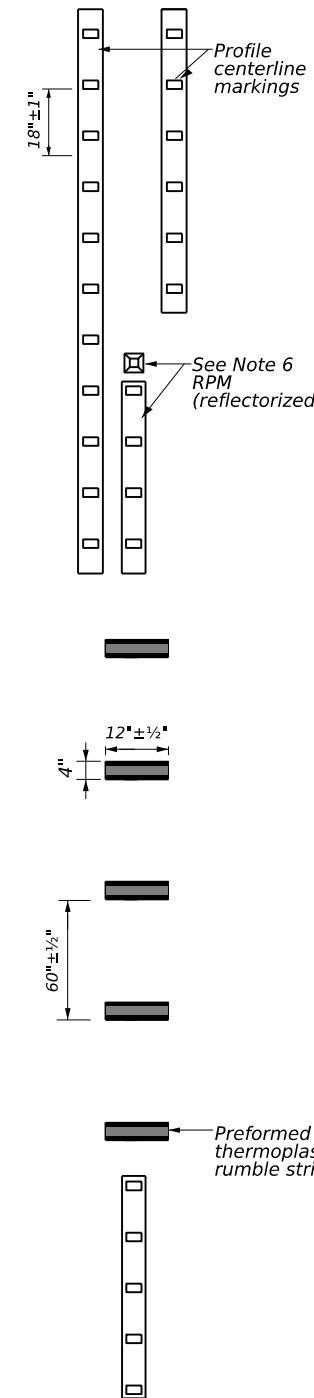
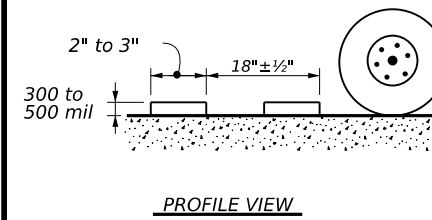
MILLED CENTERLINE RUMBLE STRIPS



RAISED CENTERLINE RUMBLE STRIPS



PREFORMED THERMOPLASTIC RUMBLE STRIPS



PROFILE CENTERLINE MARKINGS AND PREFORMED THERMOPLASTIC RUMBLE STRIPS

GENERAL NOTES

1. This standard sheet provides guidelines for installing centerline rumble strips on two-lane highways with or without shoulders.
2. Centerline and edge line rumble strips or profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
3. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
4. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
5. Breaks in milled centerline rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections or driveways with high usage of large trucks.
6. Use standard sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings and profile markings.
7. Consideration should be given to noise levels when centerline rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
8. Pavement markings must be applied over milled centerline rumble strips.

WHEN INSTALLING CENTERLINE RUMBLE STRIPS:

9. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per manufacturer's recommendations.
10. When using non-reflective raised traffic buttons as a centerline rumble strip, the button shall be placed adjacent to the pavement marking delineating the centerline. The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
11. The color of the button should be yellow for a continuous no passing roadway. Black buttons should be used in areas where passing is allowed.
12. Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING EDGE LINE RUMBLE STRIPS WITH OR WITHOUT CENTERLINE RUMBLE STRIPS ON UNDIVIDED HIGHWAYS:

13. See standard sheet RS(2).

<h3>CENTERLINE RUMBLE STRIPS ON TWO LANE TWO-WAY HIGHWAYS RS(4)-23</h3>			
FILE: rs(4)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT January 2023	COWT	SECT	JOB
REVISIONS	0360	04	033
10-13	DIST	COUNTY	SHEET NO.
1-23	ABL	HASKELL	110

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with TxDOT policy for projects disturbing less than 1 acre of soil, and not part of a larger common plan of development.

For all projects with any soil disturbing activities, TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office. If no field office is available, then this SWP3 shall be kept at the appropriate TxDOT Area Office.

This SWP3 is consistent with requirements specified in applicable stormwater plans, and the project's environmental permits, issues, and commitments (EPICs).

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):

0360-04-033

1.2 PROJECT LIMITS:

From: Haskell East City Limits

To: Throckmorton County

1.3 PROJECT COORDINATES:

BEGIN: (Lat) 33° 9' 31.86"N, (Long) 99°42'50.80"W

END: (Lat) 33°11' 1.96"N, (Long) 99°28' 18.03"W

1.4 TOTAL PROJECT AREA (Acres): 196.76

1.5 TOTAL AREA TO BE DISTURBED (Acres): 0.52

1.6 NATURE OF CONSTRUCTION ACTIVITY:

PAVEMENT OVERLAY, MBGF REPLACEMENT,
AND CULVERT AND SET REPLACEMENT.

1.7 MAJOR SOIL TYPES:

Soil Type	Description
ABILENE CLAY LOAM, 1% TO 3% SLOPES	35% SAND, 33% SILT, 32% CLAY; WELL DRAINED; MEDIUM RUNOFF; LOW EROSION POTENTIAL
TOBOSA CLAY LOAM, 0% TO 1% SLOPES	22% SAND, 27% SILT, 50% CLAY; WELL DRAINED; HIGH RUNOFF; LOW EROSION POTENTIAL
HOLLESTER CLAY LOAM, 0% TO 1% SLOPES	30% SAND, 32% SILT, 38% CLAY; WELL DRAINED; MEDIUM RUNOFF; LOW EROSION POTENTIAL
HOLLESTER CLAY LOAM, 1% TO 3% SLOPES	30% SAND, 32% SILT, 38% CLAY; WELL DRAINED; HIGH RUNOFF; LOW EROSION POTENTIAL
WHEATWOOD SILTY CLAY LOAM	6% SAND, 62% SILT, 31% CLAY; WELL DRAINED; NEGLIGIBLE RUNOFF; LOW EROSION POTENTIAL
TILLMAN CLAY LOAM, 0% TO 1% SLOPES	22% SAND, 50% SILT, 28% CLAY; WELL DRAINED; MEDIUM RUNOFF; LOW EROSION POTENTIAL
TILLMAN CLAY LOAM, 1% TO 3% SLOPES	22% SAND, 50% SILT, 28% CLAY; WELL DRAINED; HIGH RUNOFF; LOW EROSION POTENTIAL
VERNON CLAY LOAM, 3% TO 8% SLOPES	15% SAND, 35% SILT, 50% CLAY; WELL DRAINED; VERY HIGH RUNOFF; LOW EROSION POTENTIAL
KNOCO COMPLEX	22% SAND, 27% SILT, 50% CLAY; WELL DRAINED; VERY HIGH RUNOFF; LOW EROSION POTENTIAL
WITCHA CLAY LOAM, 1% TO 3% SLOPES	35% SAND, 33% SILT, 31% CLAY; WELL DRAINED; MEDIUM RUNOFF; LOW EROSION POTENTIAL
HILGRAVE GRAVELLY LOAM, 1% TO 5% SLOPES	43% SAND, 39% SILT, 17% CLAY; WELL DRAINED; NEGLIGIBLE RUNOFF; LOW EROSION POTENTIAL

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):

PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

- PSLs determined during preconstruction meeting
- PSLs determined during construction
- No PSLs planned for construction

Type	Sheet #s
CONCRETE WASHOUT	

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:

(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.3.)

- Mobilization
- Install sediment and erosion controls
 - Blade existing topsoil into windrows, prep ROW, clear and grub
- Remove existing pavement
 - Grading operations, excavation, and embankment
 - Excavate and prepare subgrade for proposed pavement widening
- Remove existing culverts, safety end treatments (SETs)
- Remove existing metal beam guard fence (MBGF), bridge rail
- Install proposed pavement per plans
 - Install culverts, culvert extensions, SETs
- Install mow strip, MBGF, bridge rail
 - Place flex base
 - Rework slopes, grade ditches
 - Blade windrowed material back across slopes
- Revegetation of unpaved areas
- Achieve site stabilization and remove sediment and erosion control measures
 - Other: _____
 - Other: _____
 - Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

- Sediment laden stormwater from stormwater conveyance over disturbed area
- Fuels, oils, and lubricants from construction vehicles, equipment, and storage
- Solvents, paints, adhesives, etc. from various construction activities
- Transported soils from offsite vehicle tracking
- Construction debris and waste from various construction activities
 - Contaminated water from excavation or dewatering pump-out water
- Sanitary waste from onsite restroom facilities
- Trash from various construction activities/receptacles
 - Long-term stockpiles of material and waste
 - Other: _____
 - Other: _____
 - Other: _____

1.11 RECEIVING WATERS:

Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody
BUFFALO CREEK, RED CREEK, NORTH PAINT CREEK	CLEAR FORK BRAZOS RIVER (1232)

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: TxDOT

- Development of plans and specifications
- Perform SWP3 inspections
- Maintain SWP3 records and update to reflect daily operations
 - Other: _____
 - Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

- Day To Day Operational Control
- Maintain schedule of major construction activities
- Install, maintain and modify BMPs
 - Other: _____
 - Other: _____



9/8/2023

STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)



Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.			SHEET NO.
06	SEE TITLE SHEET			111
STATE	STATE DIST.	COUNTY		
TEXAS	ABL	HASKELL		
CONT.	SECT.	JOB	HIGHWAY NO.	
0360	04	033	US 380	

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- Protection of Existing Vegetation
- Vegetated Buffer Zones
- Soil Retention Blankets
- Geotextiles
- Mulching/ Hydromulching
- Soil Surface Treatments
- Temporary Seeding
- Permanent Planting, Sodding or Seeding
- Biodegradable Erosion Control Logs
- Rock Filter Dams/ Rock Check Dams
- Vertical Tracking
- Interceptor Swale
- Riprap
- Diversion Dike
- Temporary Pipe Slope Drain
- Embankment for Erosion Control
- Paved Flumes
- Other: _____
- Other: _____
- Other: _____
- Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- Biodegradable Erosion Control Logs
- Dewatering Controls
- Inlet Protection
- Rock Filter Dams/ Rock Check Dams
- Sandbag Berms
- Sediment Control Fence
- Stabilized Construction Exit
- Floating Turbidity Barrier
- Vegetated Buffer Zones
- Vegetated Filter Strips
- Other: _____
- Other: _____
- Other: _____
- Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- Excess dirt/mud on road removed daily
- Haul roads dampened for dust control
- Loaded haul trucks to be covered with tarpaulin
- Stabilized construction exit
- Other: _____
- Other: _____
- Other: _____
- Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.5 POLLUTION PREVENTION MEASURES:

- Chemical Management
- Concrete and Materials Waste Management
- Debris and Trash Management
- Dust Control
- Sanitary Facilities
- Other: _____
- Other: _____
- Other: _____
- Other: _____

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- Fire hydrant flushings
- Irrigation drainage
- Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- Potable water sources
- Springs
- Uncontaminated groundwater
- Water used to wash vehicles or control dust
- Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

2.8 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3 .

2.9 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3.



9/8/2023

STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)



Sheet 2 of 2

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
06	SEE TITLE SHEET		112
STATE	STATE DIST.	COUNTY	
TEXAS	ABL	HASKELL	
CONT.	SECT.	JOB	HIGHWAY NO.
0360	04	033	US 380

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x

PREPARED BY (NAME OF DESIGNER)
 DATE: \$DATE\$
 FILE: \$FILE\$

I. STORM WATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Storm water 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. No Action Required Required Action

- Action No.
- The project disturbs less than one acre of surface area. The contractor is responsible for the PSL as defined in the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges (2014 Edition, Section 7.6., Page 44). The total disturbed acreage is the combined acreage to be disturbed on the project and the contractors PSL.
 - Prevent storm water 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, WATER BODIES 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# 3a

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.

- PERMIT WILL BE USED FOR CULVERT 1 IN PROJECT LAYOUT 3 FOR THE REPLACEMENT AND RESTORING OF EXISTING 2-24" CMP WITH SETS. THIS IS NOT A NAMED OR JURISDICTIONAL WATERWAY.
-

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 type="checkbox"/> Silt Fence	<input type="checkbox"/> Vegetative Filter Strips
<input type="checkbox"/> Blankets/Matting	<input type="checkbox"/> Rock Berm	<input type="checkbox"/> Retention/Irrigation Systems
<input type="checkbox"/> Mulch	<input type="checkbox"/> Triangular Filter Dike	<input type="checkbox"/> Sedimentation 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 & Hay Bale Dike	<input type="checkbox"/> Wet Basin
<input type="checkbox"/> Diversion Dike	<input type="checkbox"/> Brush Berms	<input type="checkbox"/> Erosion Control Compost/Mulch
<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Compost Filter Berm and Socks
<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Sand Filter Systems
<input checked="" type="checkbox"/> Temporary Erosion Control Logs (BIOLOGS)	<input checked="" type="checkbox"/> Temporary Erosion Control Logs (BIOLOGS)	<input type="checkbox"/> Temporary Erosion Control Logs (BIOLOGS)
<input checked="" type="checkbox"/> Preservation of Natural Resources	<input type="checkbox"/> Sediment Traps	<input type="checkbox"/> Permanent Vegetation (Planting, Sodding, or Seeding)
<input type="checkbox"/> Construction Exits	<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.

- Should contractor encounter archeological deposits during construction activities, contractor shall cease work in the immediate area and notify TxDOT.
-
-
-

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.

- Comply with ED 13112 on use of native vegetation.
-
-
-

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

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.

- No Action Required Required Action

Action No.

- COMPLY WITH THE MIGRATORY BIRD TREATY ACT ON THE PROTECTION OF BIRDS, NESTS, AND THEIR YOUNG.
-
-
-

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 Storm water Sewer System	TPWD: Texas Parks and Wildlife Department
MBTA: Migratory Bird Treaty Act	TxDOT: Texas Department of Transportation
NOT: Notice of Termination	T&E: Threatened and Endangered Species
NWP: Nationwide Permit	USACE: U.S. Army Corps of Engineers
NOI: Notice of Intent	USFWS: U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used. Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

- * Dead or distressed vegetation (not identified as normal)
- * Trash piles, drums, canister, barrels, etc.
- * Undesirable smells or odors
- * Evidence of leaching or seepage of substances

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

- Yes No

If "No", then no further action is required.

If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

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

- Yes No

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

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

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

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

- No Action Required Required Action

Action No.

-
-
-

VII. OTHER ENVIRONMENTAL ISSUES

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

- No Action Required Required Action


Action No.

- Avoid driving in or having PSL's in adjacent to wetland (Station 416+83).
-
-

US 380

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

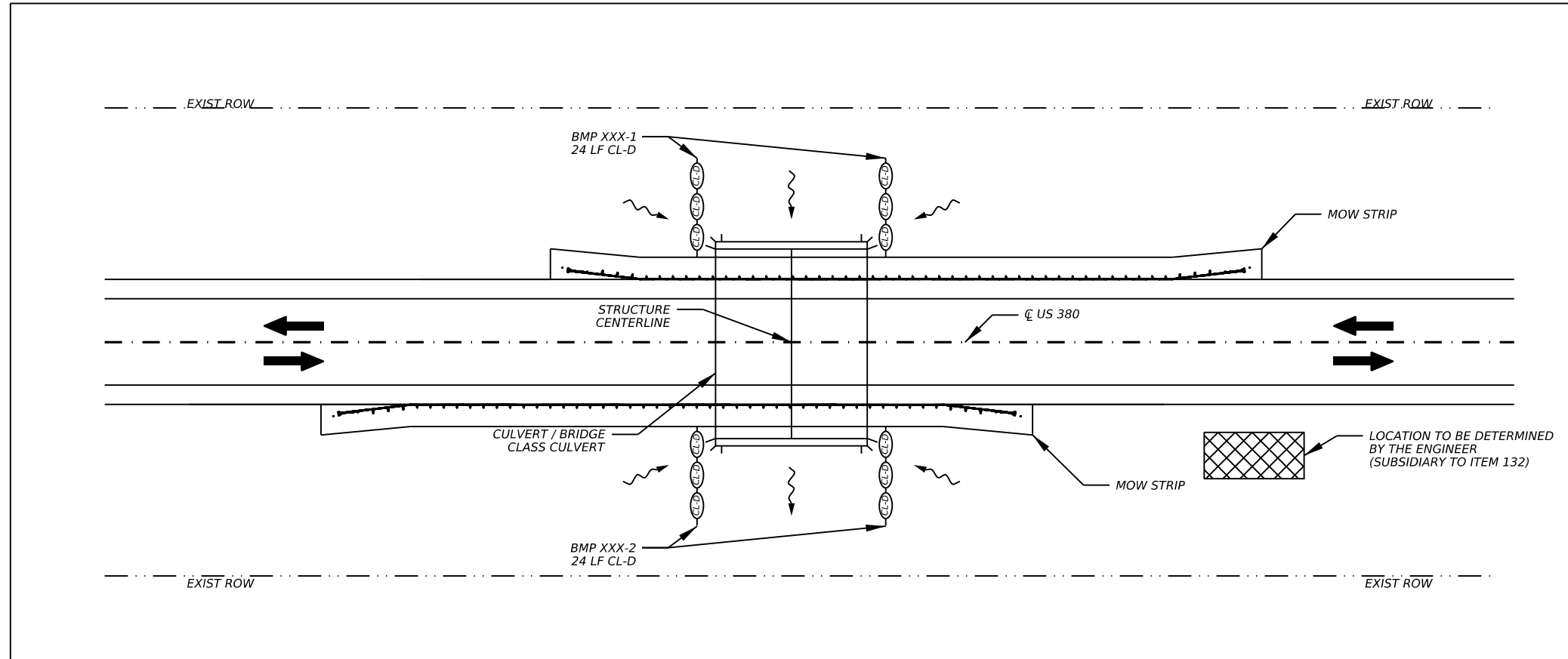


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NO SCALE SHEET 1 OF 1

FHWA DIVISION	PROJECT NO.	HIGHWAY NO.
6	SEE TITLE SHEET	US 380
STATE	COUNTY	SHEET NO.
TEXAS	HASKELL	113
DISTRICT	CONTROL	SECTION
ABL	0360	04
		JOB
		033

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SWP3 SITE PLAN
N.T.S.

LEGEND

- TRAFFIC ARROW**
- EROSION CONTROL LOG DAM**
- HYDRUALIC FLOW ARROW**
- CONCRETE WASHOUT**

SW3P SITE PLAN SUMMARY							
LOCATION	BMP#	LENGTH (LF)	CONCRETE WASHOUT INCLUDED	BMP DATE INSTALLED	BMP DATE REMOVED	CONCRETE WASHOUT DATE	CONCRETE WASHOUT DATE REMOVED
124+22.50	124-1	48	X				
	124-2	48	X				
215+78.50	215-1	48	X				
	215-2	48	X				
288+51.50	288-1	48	X				
	288-2	48	X				
340+93.00	340-1	48	X				
	340-2	48	X				
365+09.00	365-1	48	X				
	365-2	48	X				
492+65.00	492-1	48	X				
	492-2	48	X				
498+13.00	498-1	48	X				
	498-2	48	X				
510+67.00	510-1	48	X				
	510-2	48	X				
560+97.00	560-1	48	X				
	560-2	48	X				

REV NO.	DATE	BY	REVISION

9/8/2023

AIG Tech
Advanced Infrastructure Group

AIG TECHNICAL SERVICES, LLC
1500 S. DAIRY ASHFORD
SUITE 445
HOUSTON, TX 77077
TBPE FIRM NO. F-20607

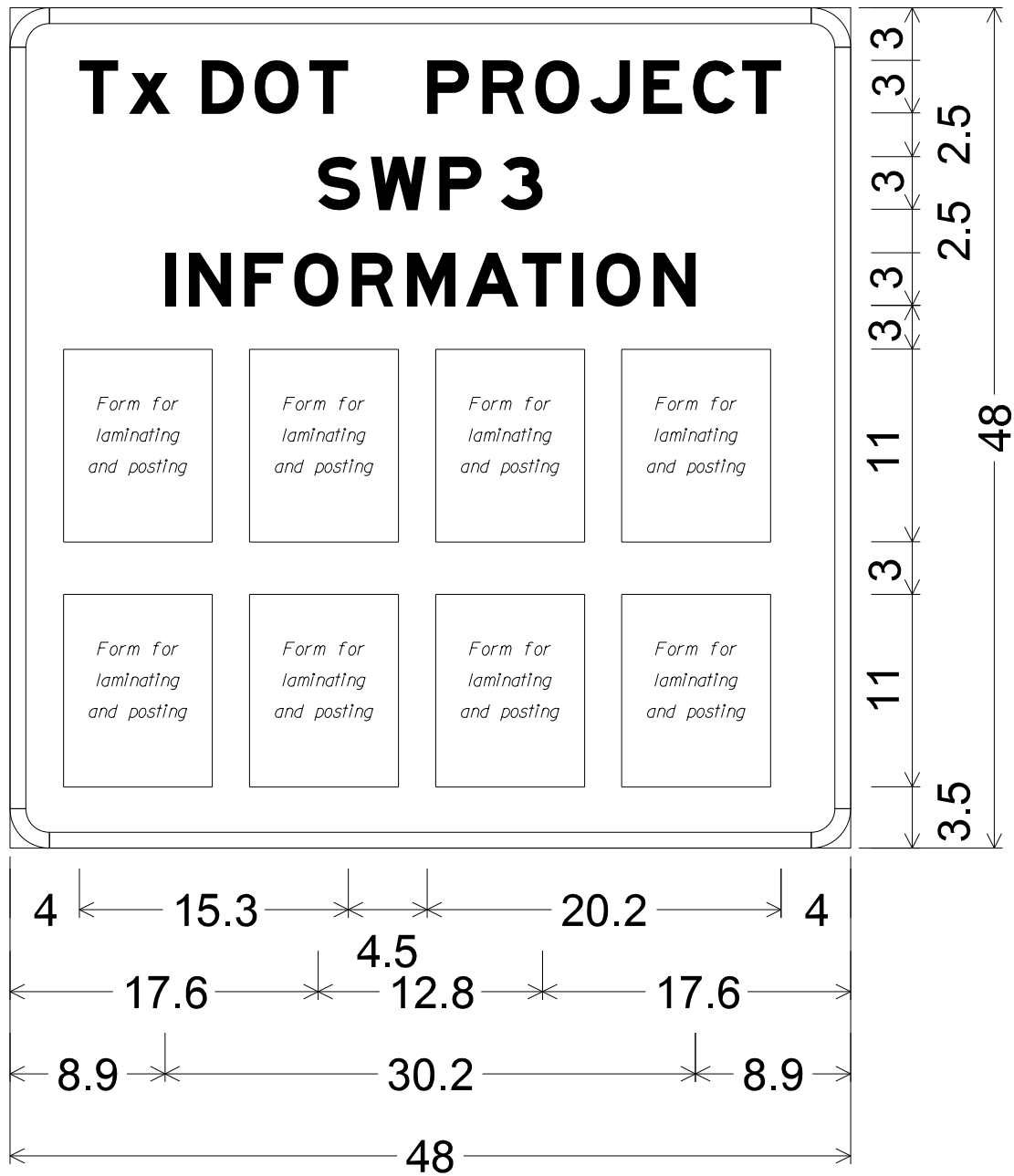
Texas Department of Transportation

US 380

ENVIRONMENTAL LAYOUT SHEET

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0360	04	033	US 380
DIST	COUNTY		SHEET NO.
ABILENE	HASKELL		114



2.3" Radius, 0.9" Border, White on Blue;
 [TxDOT PROJECT] E Mod;
 [SW3P] E Mod;
 [INFORMATION] E Mod;

NOTE:

The Forms needed for laminating and posting to the SW3P Notification Board will be provided by the Engineer. The total number of forms may vary. Notification Boards are to be constructed from Plywood, 1/2 or 5/8-inch thick, in accordance with TxDOT Departmental Material Specification (DMS)-7100. 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 sign will be placed at a location within the right-of-way but outside the clear zone as directed by the Engineer. This work will not be paid for directly, but will be considered subsidiary to other items.



9/8/2023

SWP3 NOTIFICATION BOARD DETAIL

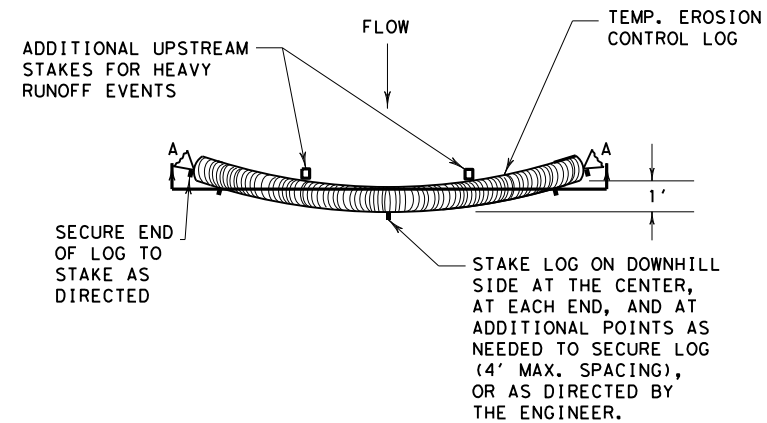


NO SCALE SHEET 1 OF 1

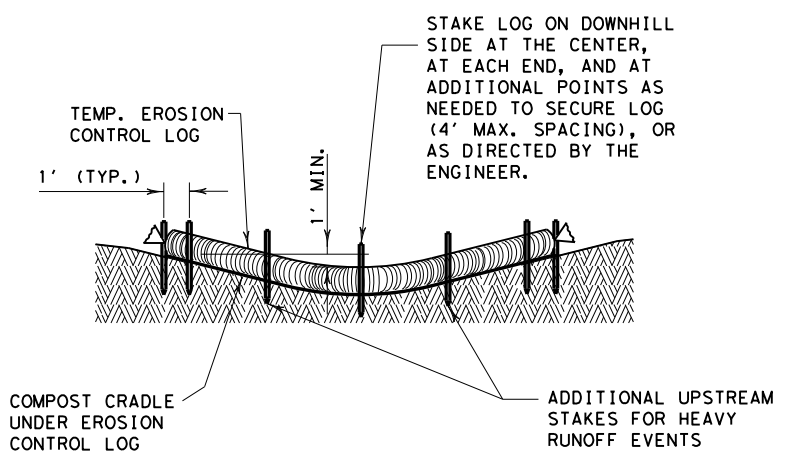
FHWA DIVISION	PROJECT NO.		HIGHWAY NO.
6	SEE TITLE SHEET		US 380
STATE	COUNTY		SHEET NO.
TEXAS	HASKELL		115
DISTRICT	CONTROL	SECTION	
ABL	0360	04	033

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DATE:
FILE:



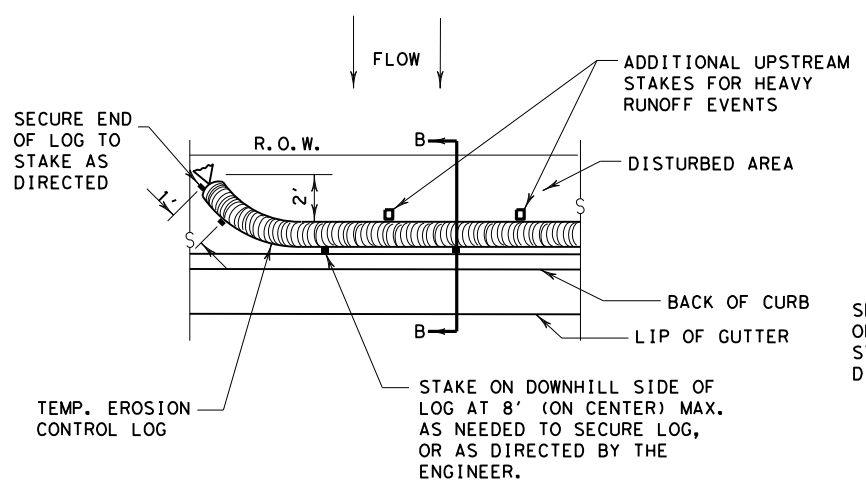
PLAN VIEW



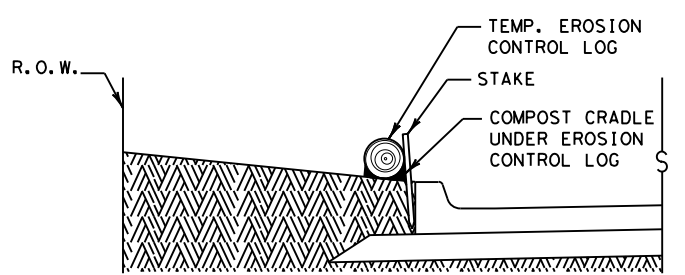
SECTION A-A
EROSION CONTROL LOG DAM

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

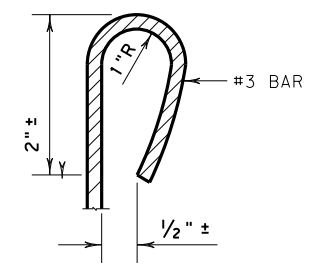


PLAN VIEW

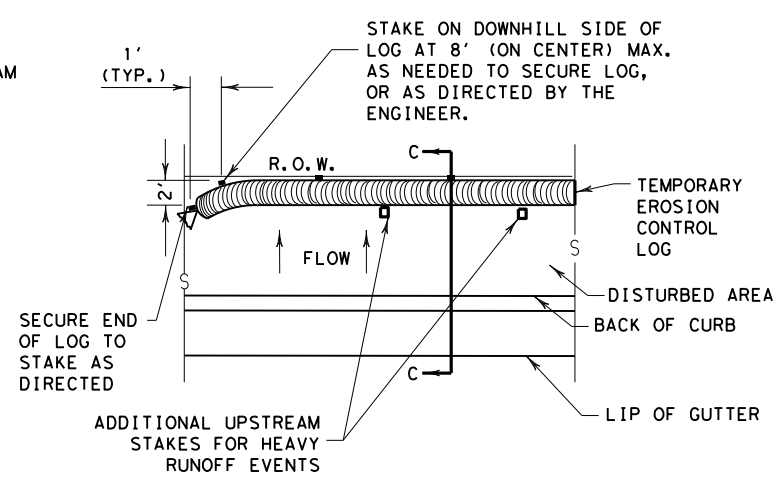


SECTION B-B
EROSION CONTROL LOG AT BACK OF CURB

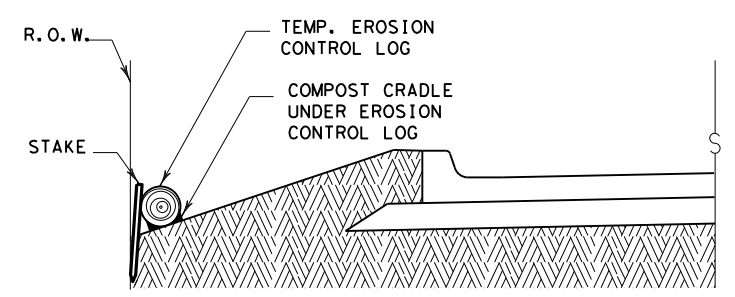
CL-BOC



REBAR STAKE DETAIL



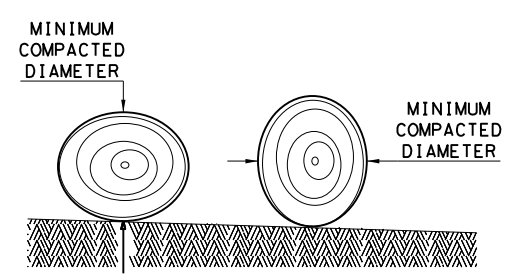
PLAN VIEW



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

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

Texas Department of Transportation
Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

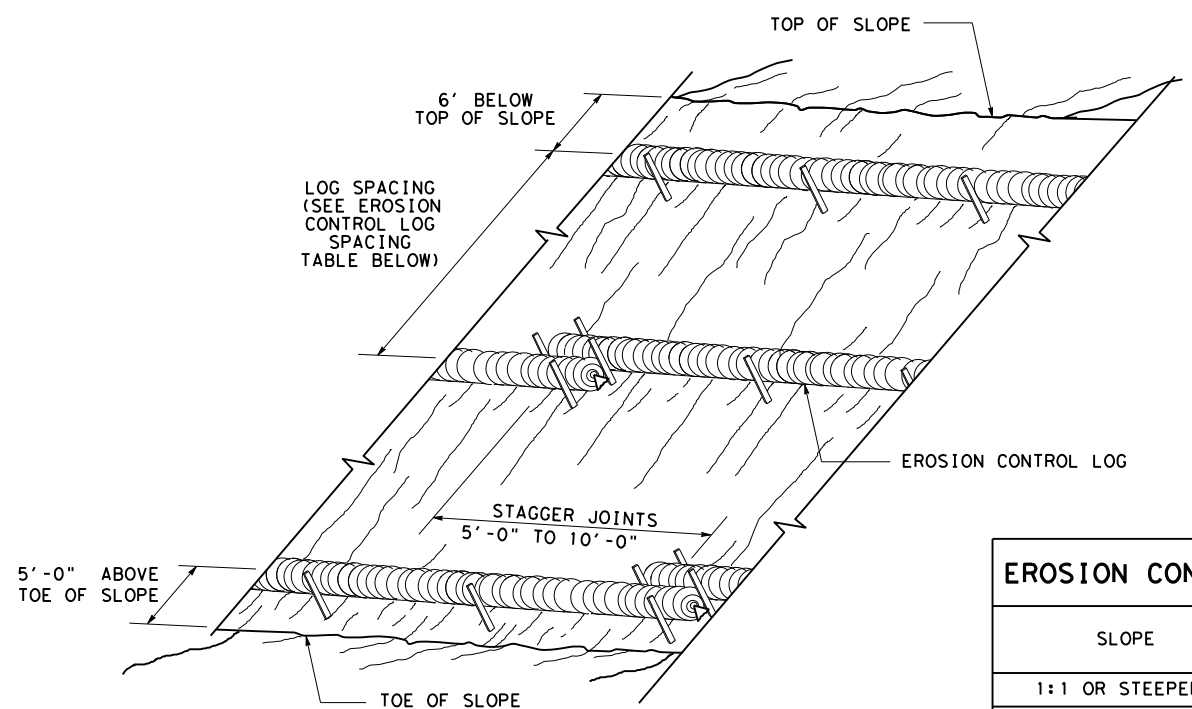
EROSION CONTROL LOG

EC (9) - 16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0360	04	033	US 380
	DIST	COUNTY	SHEET NO.	
	ABL	HASKELL	116	

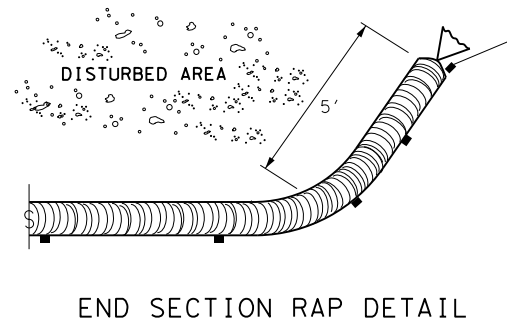
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DATE: FILE:



**EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING**

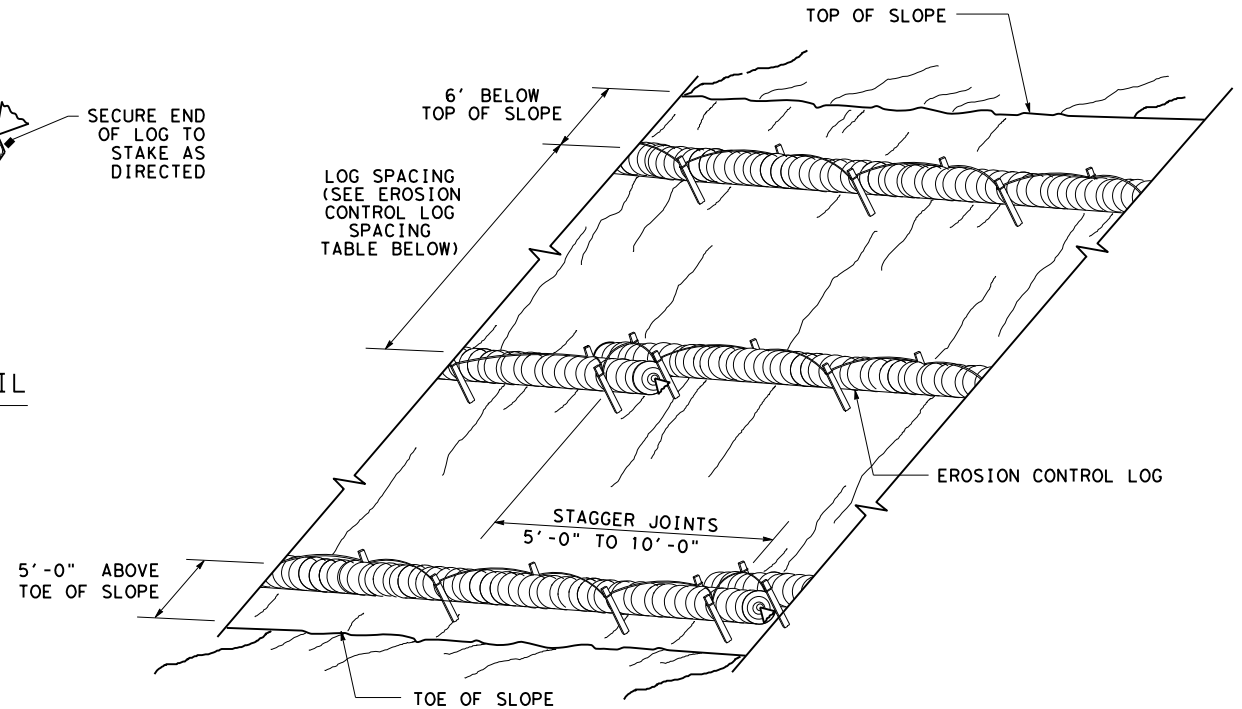
CL-SST



END SECTION RAP DETAIL

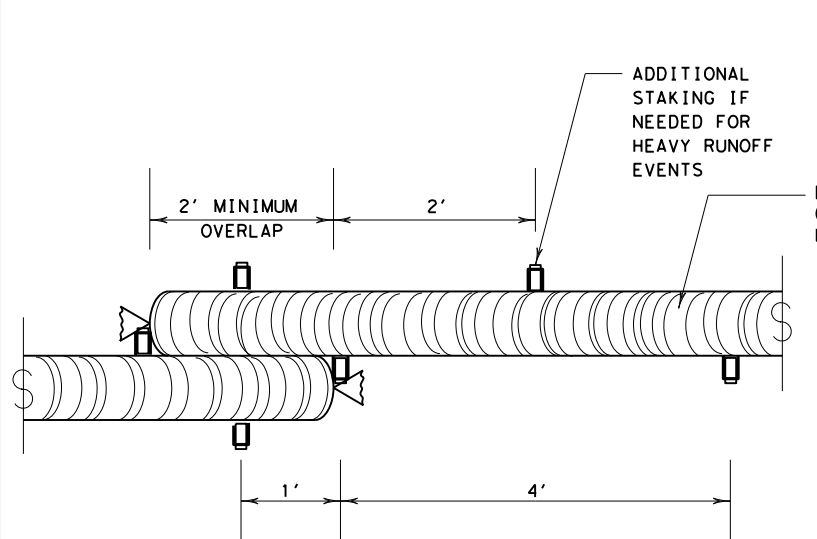
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

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



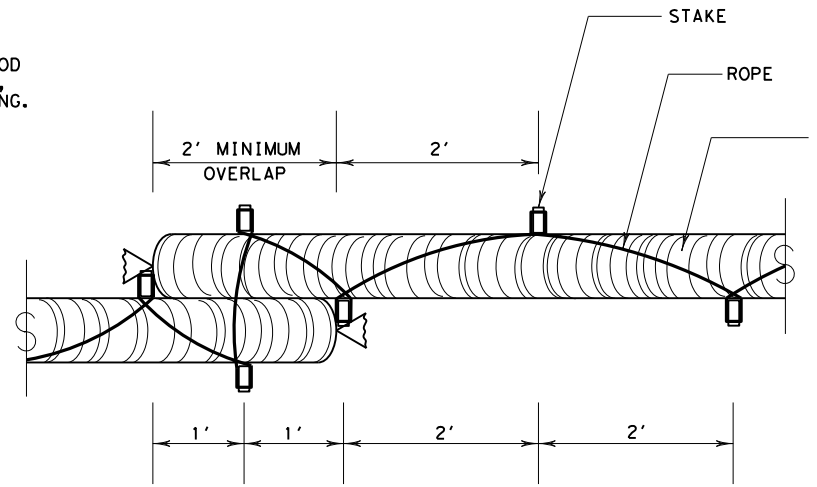
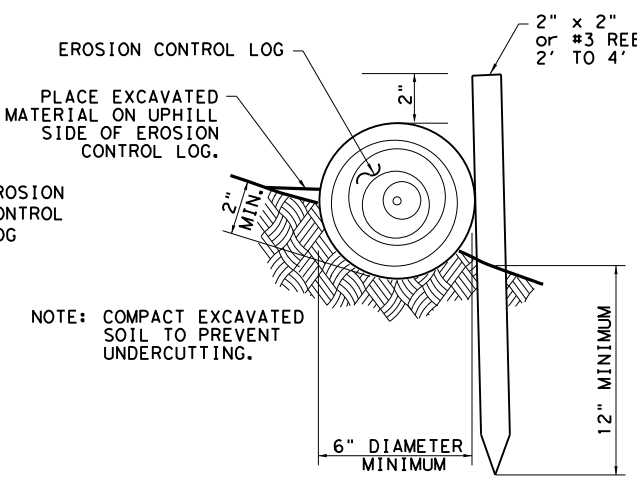
**EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING**

CL-SSL



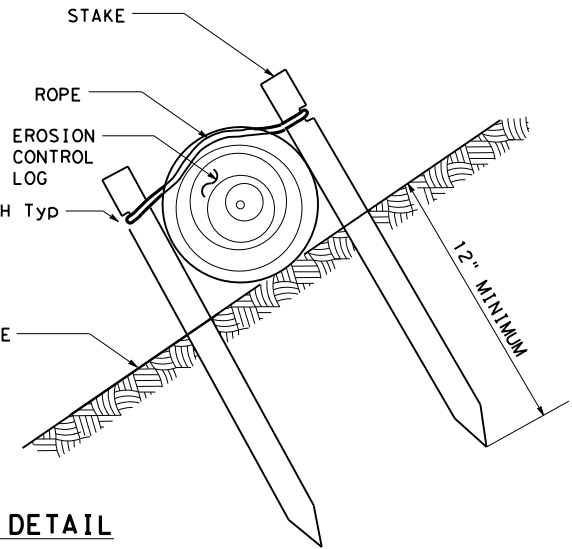
STAKE AND TRENCHING ANCHORING DETAIL

CL-SST



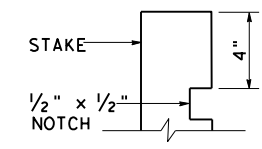
STAKE AND LASHING ANCHORING DETAIL

CL-SSL



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

TRENCH DEPTH TABLE

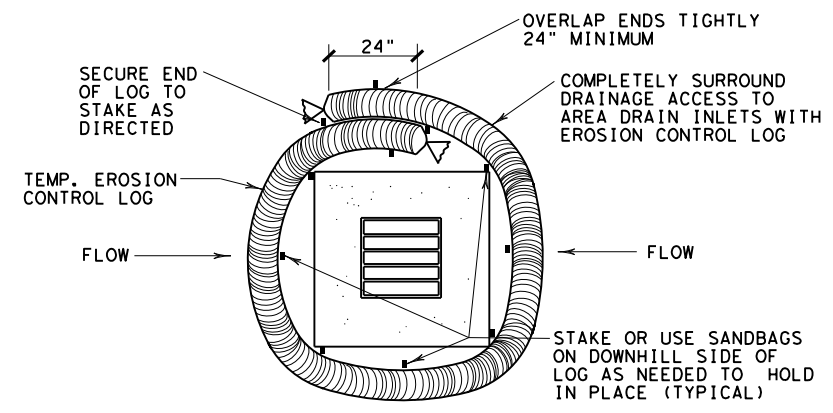


STAKE NOTCH DETAIL

SHEET 2 OF 3

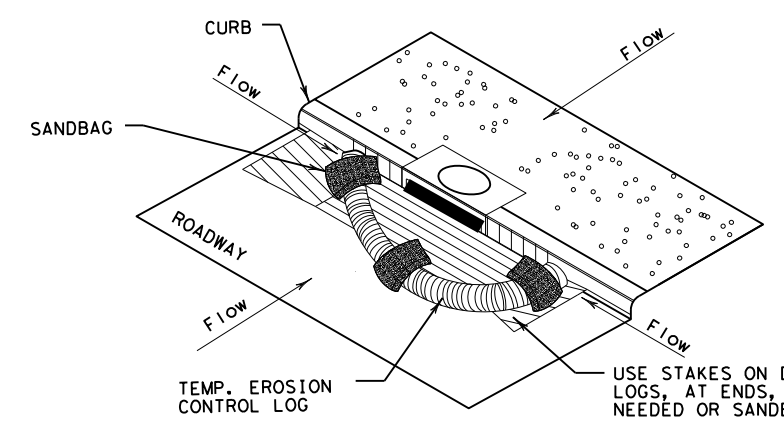
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TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16			
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT: 0360	SECT: 04	JOB: 033
REVISIONS	DIST: ABL	COUNTY: HASKELL	SHEET NO. 117

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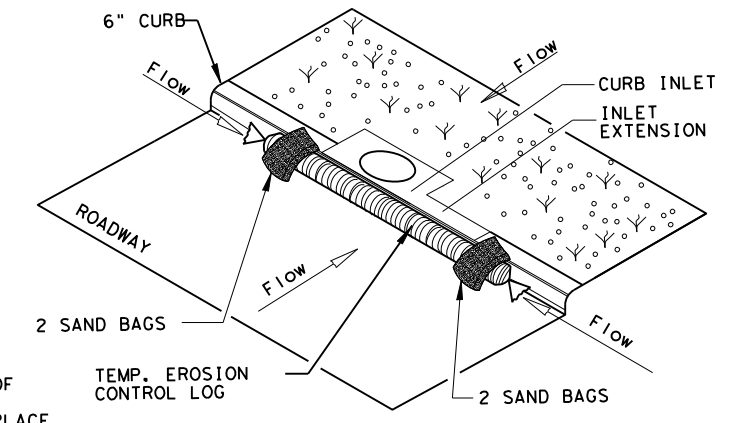
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

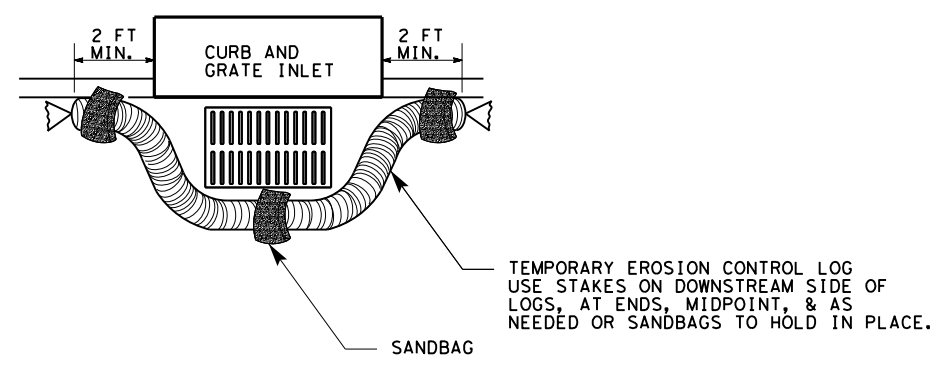
CL-CI



EROSION CONTROL LOG AT CURB INLET

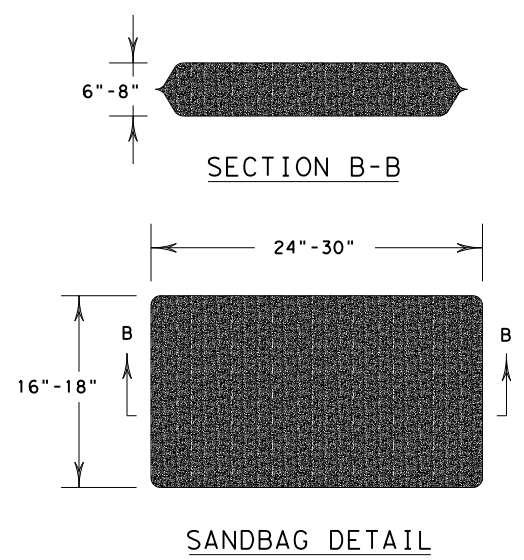
CL-CI

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



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SHEET 3 OF 3

		<i>Design Division Standard</i>	
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: 0360	SECT: 04	JOB: 033
REVISIONS	DIST: ABL	COUNTY: HASKELL	HIGHWAY: US 380
			SHEET NO. 118

DATE:
FILE: