FEDERAL AID PROJECT NO.			
NH 2017(462), etc.			
CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		1

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT NO. NH 2017(462), STP 2B23(223)HES

US 62/385
TERRY COUNTY

CSJ: 0228-01-056; CSJ: 0228-01-061

NET LENGTH OF ROADWAY: 57,845 FT. = 10.955 MI.

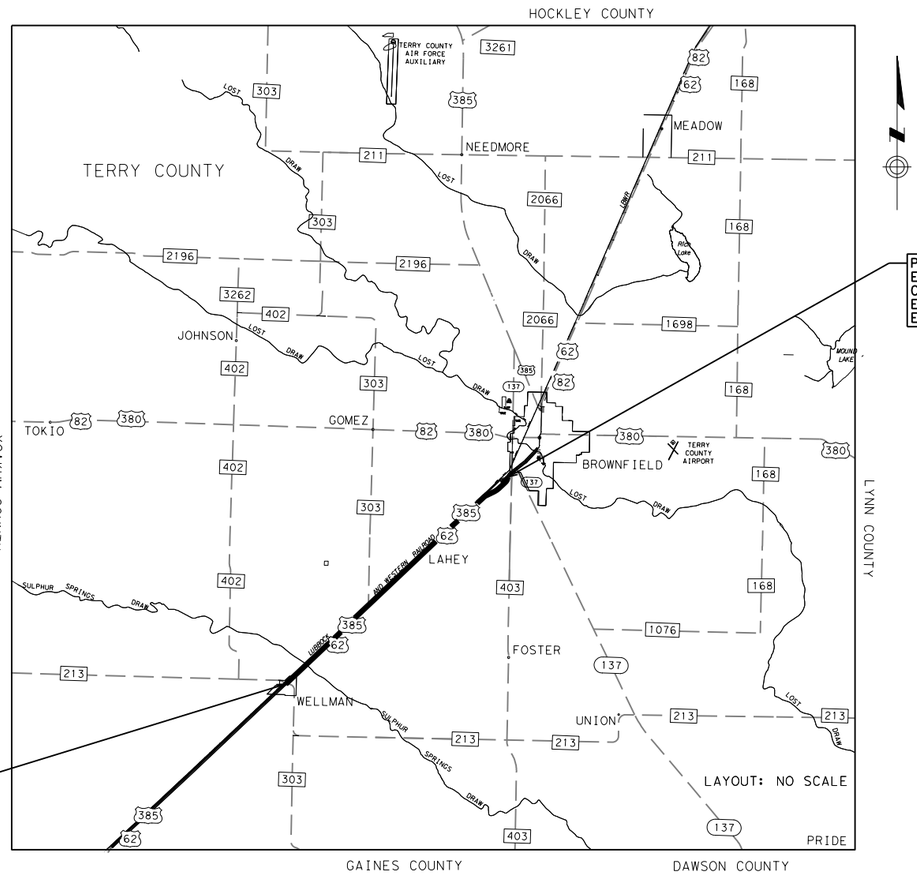
TOTAL LENGTH OF PROJECT: 57,845 FT. = 10.955 MI.

LIMITS: FM 213 IN WELLMAN TO BEGINNING OF 4 LANE DIVIDED SOUTH OF BROWNFIELD

FOR REHABILITATION OF EXISTING ROADWAY

CONSISTING OF SUBGRADE WIDENING, REMOVING OF STABILIZED BASE AND ASPHALT PAVEMENT, D-GR HMA, SMA, DRAINAGE INLET IMPROVEMENTS, CULVERT AND SET INSTALLMENT, MEDIAN CABLE BARRIER AND STRIPING

Design Speed: Brownfield and Wellman Sections = 55 MPH, Rural = 70 MPH
2023 ADT: 9120
2043 ADT: 12220
Functional Class: Principal Arterial



PROJECT LIMITS
END CSJ 0228-01-056;
CSJ 0228-01-061
END STA 95+55.00
END REF MRK 286+1.100

PROJECT LIMITS
BEG CSJ 0228-01-056;
CSJ 0228-01-061
BEG STA 674+00.00
BEG REF MRK 274+0.743

NO TDLR REVIEW REQUIRED

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, JULY 2022)

EXCEPTIONS: NONE
EQUATIONS: STA 162+98.00 = STA 162+00.00
STA 635+33.20 = STA 635+51.60
RAILROAD CROSSINGS: LBWR- 017792X, 017793E, 017794L, 017795T, 017796A, 017797G
017798N, 017799V, 017800M, 017801U, 017803H, 017804P

Texas Department of Transportation

STATE OF TEXAS
SHELLEY C. HARRIS
99197
LICENSED
PROFESSIONAL ENGINEER

SUBMITTED FOR LETTING: 6/20/2023
DocuSigned by: Shelley C. Harris P.E.
F9984108931347C...
DISTRICT DESIGN ENGINEER

RECOMMENDED FOR LETTING: 6/20/2023
DocuSigned by:
AREA ENGINEER

APPROVAL FOR LETTING: 6/20/2023
559AA9F194ED40A...
DocuSigned by: Billy P. Warren P.E.
642C665E4DDD46A...
DISTRICT ENGINEER

DATE: 08/09/18 04:05 PM
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GENERAL

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STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH A ' 'TXDOT, ' HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		2

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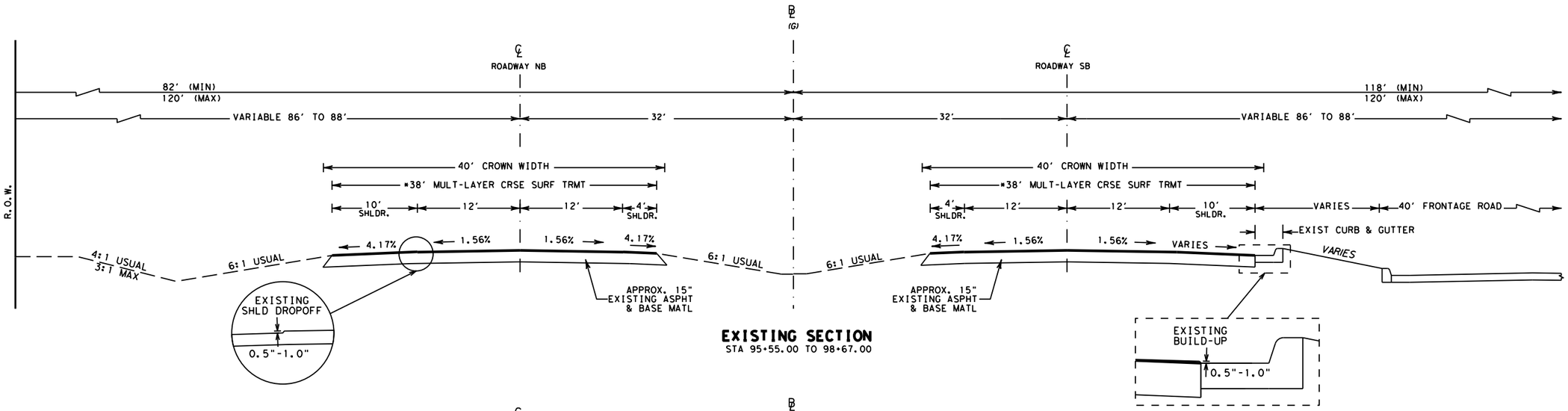

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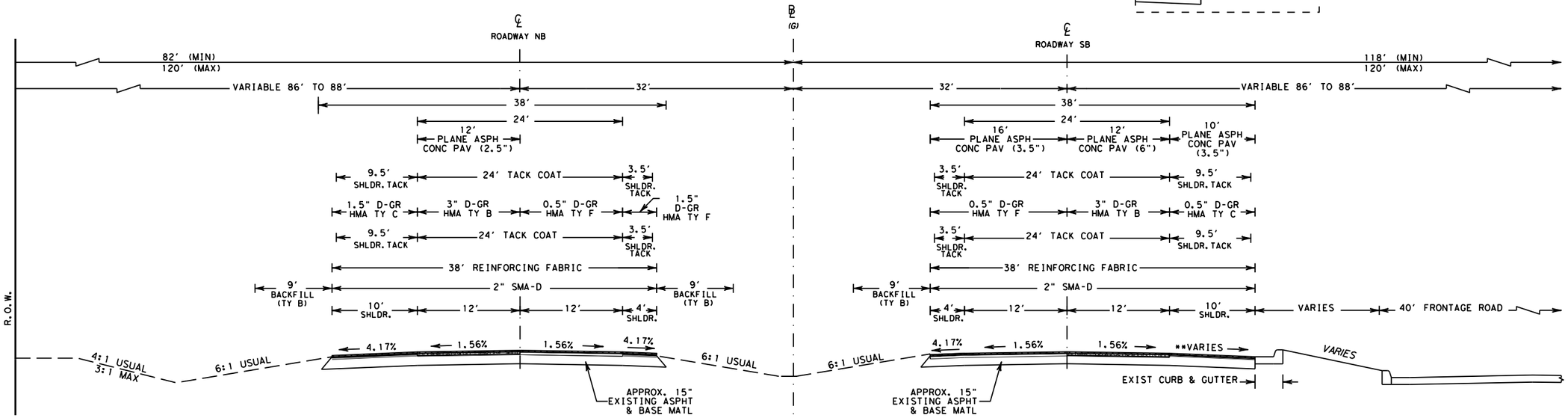

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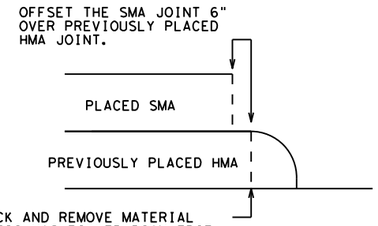

VERICAL EDGE DETAIL

*APPROXIMATELY 5" ACP DEPTH ON OUTSIDE SHOULDER AND 7" ON LANES AND INSIDE SHOULDER.

**FOLLOWS EXISTING CURB LINE.

CONTRACTOR TO VERIFY DEPTHS IN THE FIELD.

NOTES:

1. FOR SHOULDERS, ONLY PRIME COAT IF EXISTING BASE MATERIAL IS EXPOSED DUE TO MILLING.
2. TRANSITION MILLING DEPTH FROM STATION 95+55.00 TO 96+55.00. FOR BOTH NORTH AND SOUTH BOUND LANES. THIS TRANSITION IS OFF A 50:1 RATIO. SEE SHEET "ROADWAY TRANSITION DETAILS" FOR MORE INFORMATION.

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

TYPICAL SECTIONS

NO SCALE SHEET 1 OF 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		3

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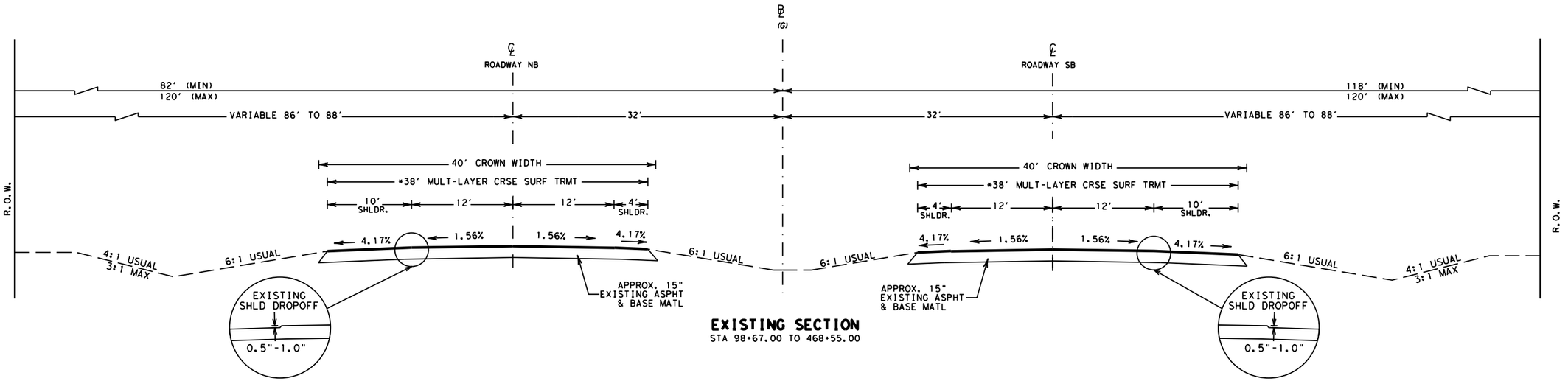

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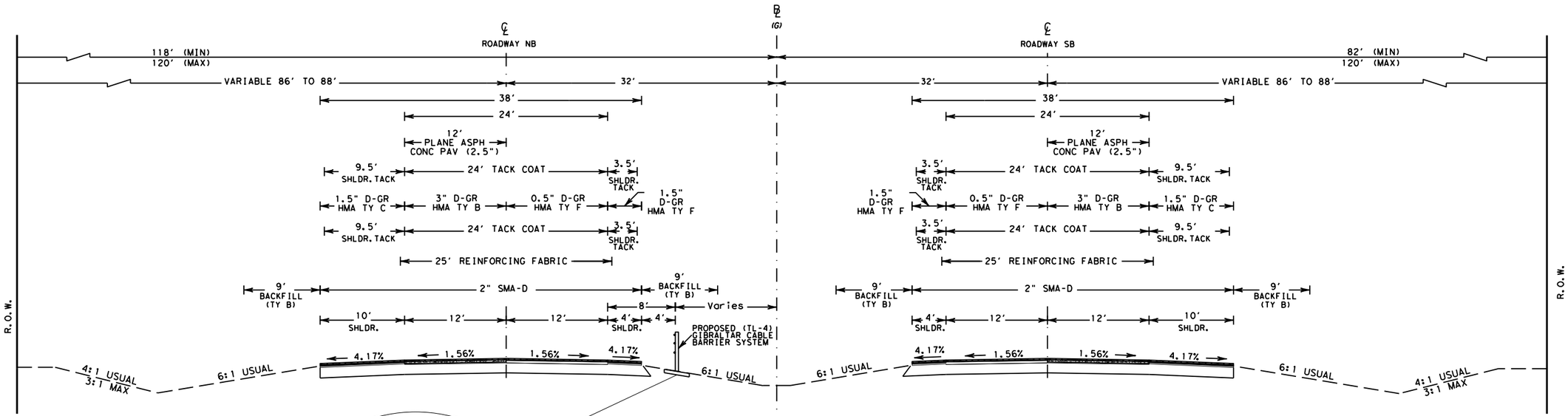

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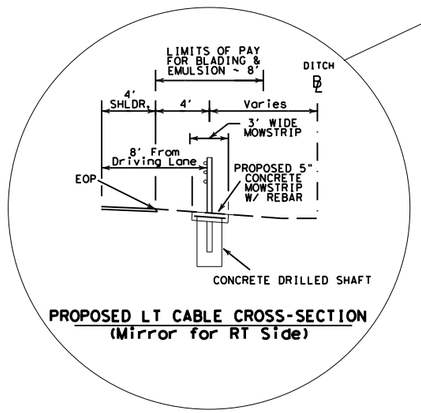
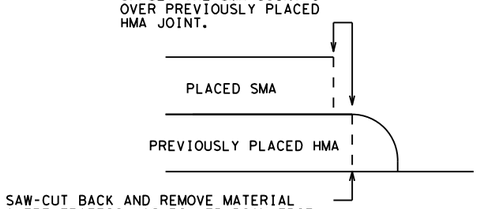


PROPOSED LT CABLE CROSS-SECTION
(Mirror for RT Side)



VERICAL EDGE DETAIL

*APPROXIMATELY 2" ACP DEPTH ON OUTSIDE SHOULDER AND 3.75" ON LANES AND INSIDE SHOULDER.

CONTRACTOR TO VERIFY DEPTHS IN THE FIELD.

NOTES:

1. FOR SHOULDERS, ONLY PRIME COAT IF EXISTING BASE MATERIAL IS EXPOSED DUE TO MILLING.
2. TRANSITION MILLING DEPTH FROM STATION 467+55.00 TO 468+55.00. FOR BOTH NORTH AND SOUTH BOUND LANES. THIS TRANSITION IS OFF A 50:1 RATIO. SEE SHEET "ROADWAY TRANSITION DETAILS" FOR MORE INFORMATION.
3. IN THE INSIDE DECELERATION/ACCELERATION LANE SEGMENTS WHERE THE SHOULDER WIDTH IS 2 FT, OFFSET THE PROPOSED CABLE BARRIER SYSTEM 6 FT FROM THE EDGE OF PAVEMENT TO PROVIDE ENOUGH SPACING FOR THE 8 FT DEFLECTION

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

TYPICAL SECTIONS

NO SCALE SHEET 2 OF 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		4

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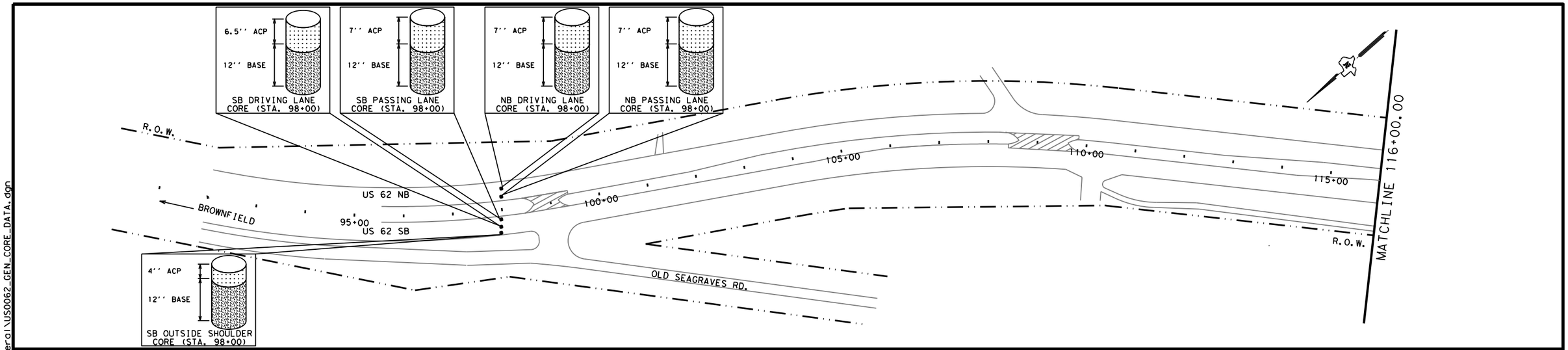

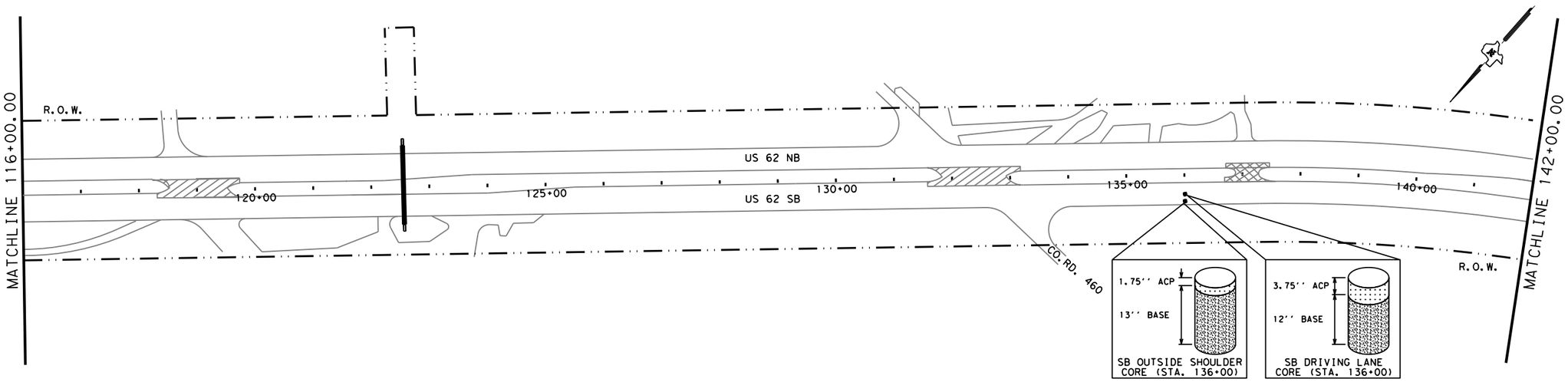

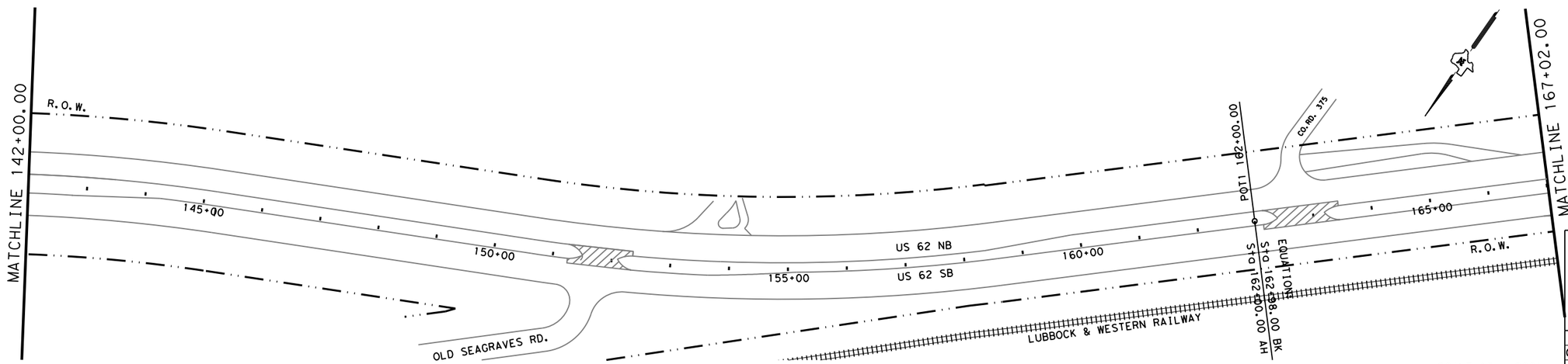

SCALE 1" = 200'

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

CORE DATA

SHEET 1 OF 6

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		5

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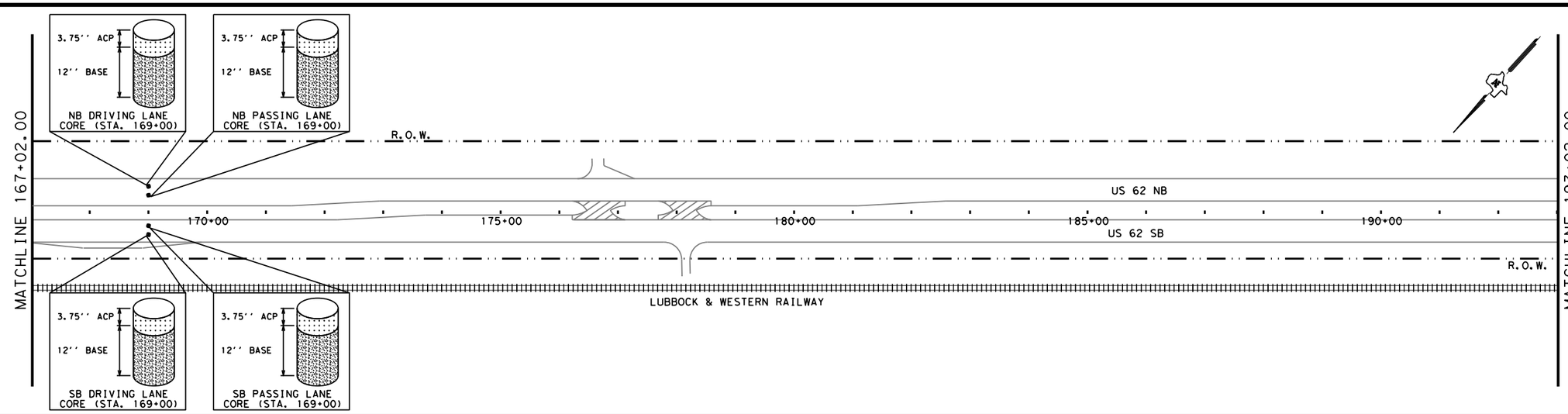

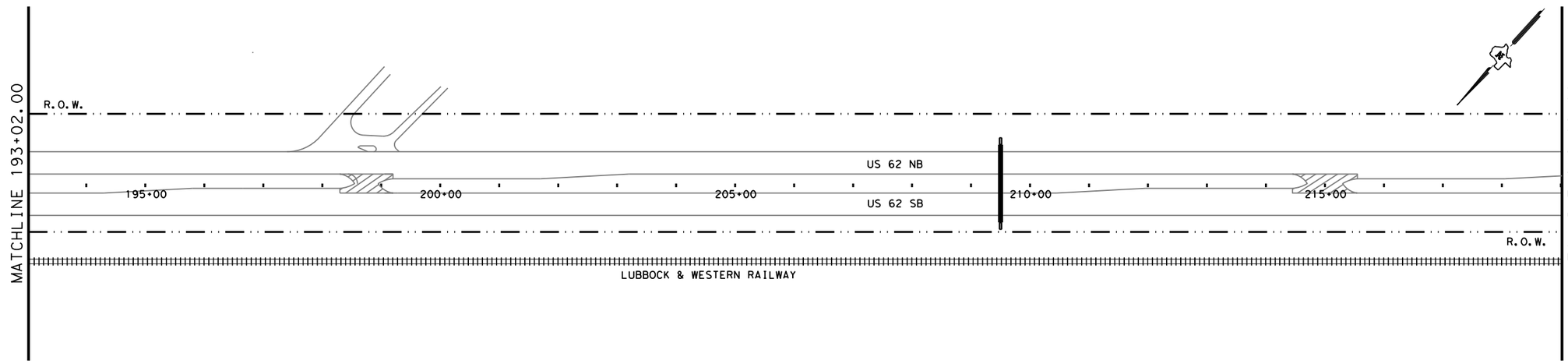

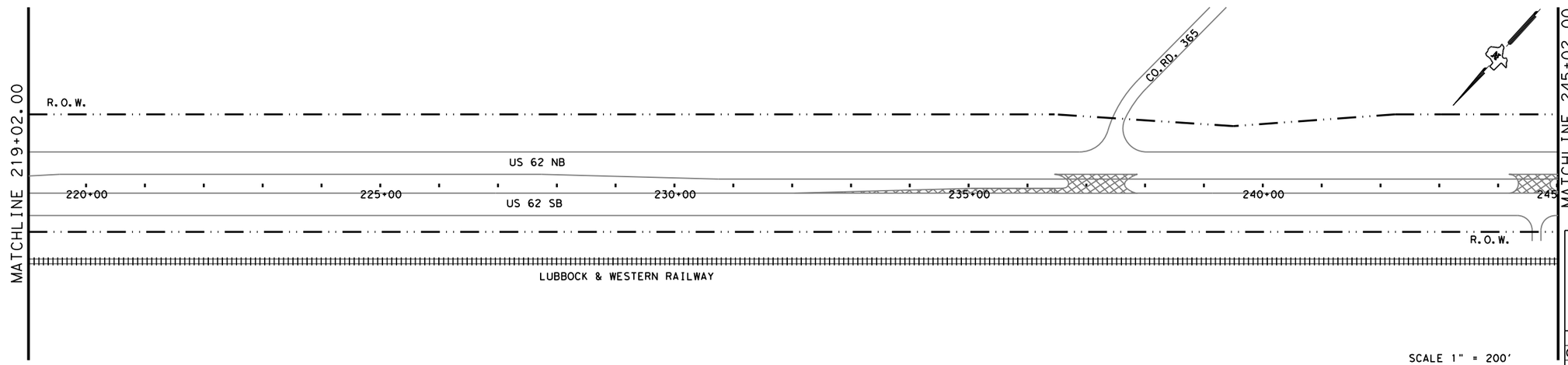

SCALE 1" = 200'

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

CORE DATA

SHEET 2 OF 6

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
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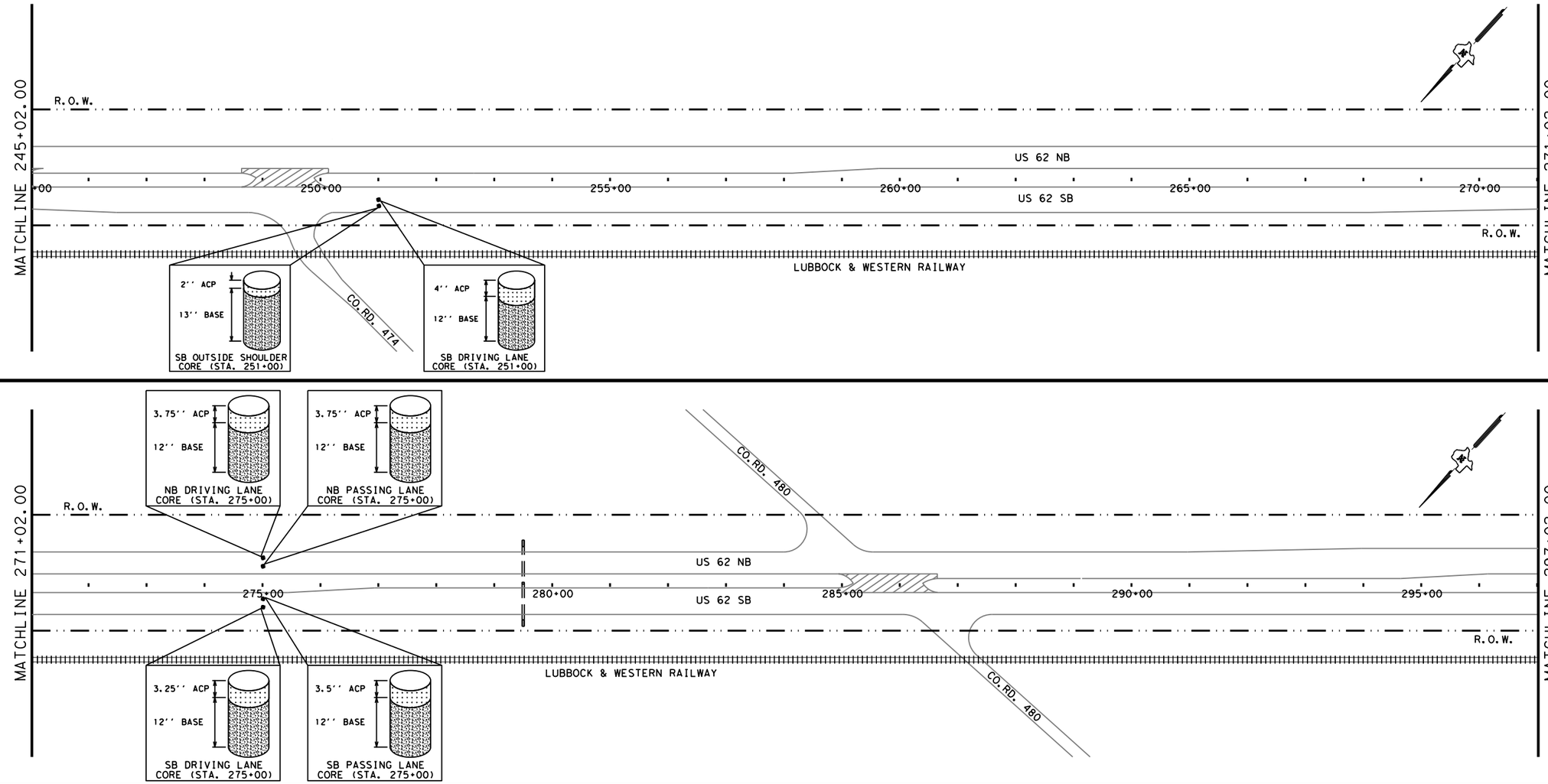

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

CORE DATA

SHEET 3 OF 6

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
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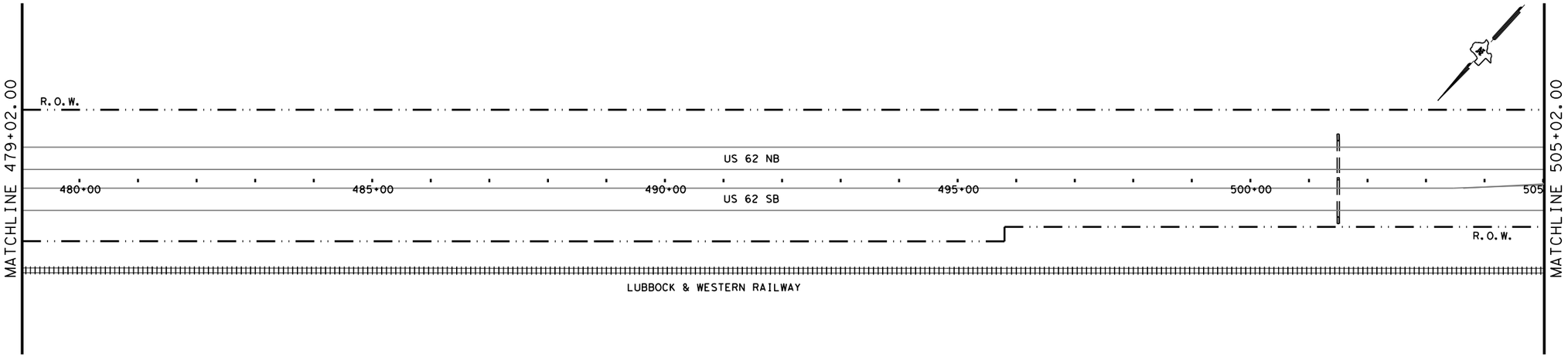

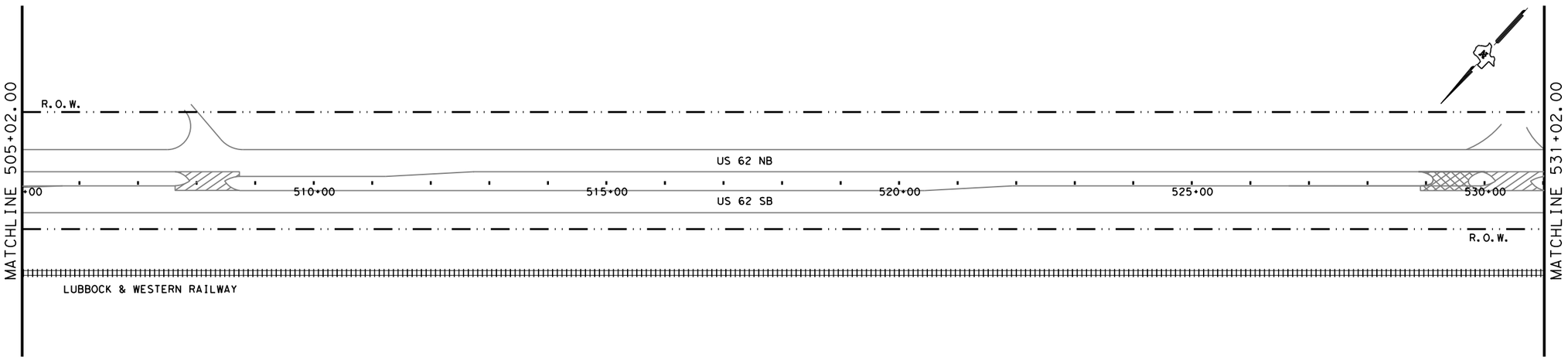

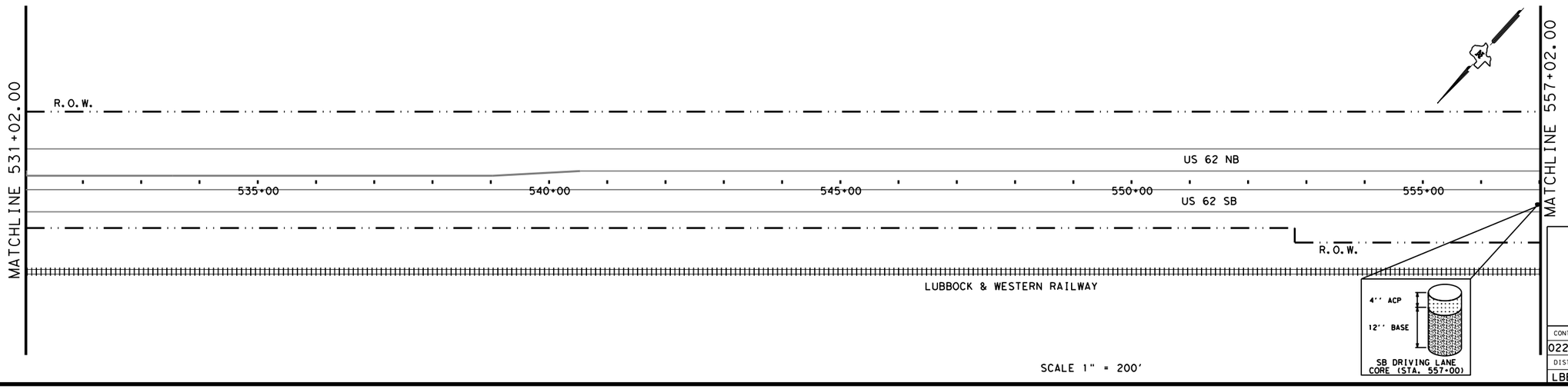

SCALE 1" = 200'

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

CORE DATA

SHEET 4 OF 6

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		8

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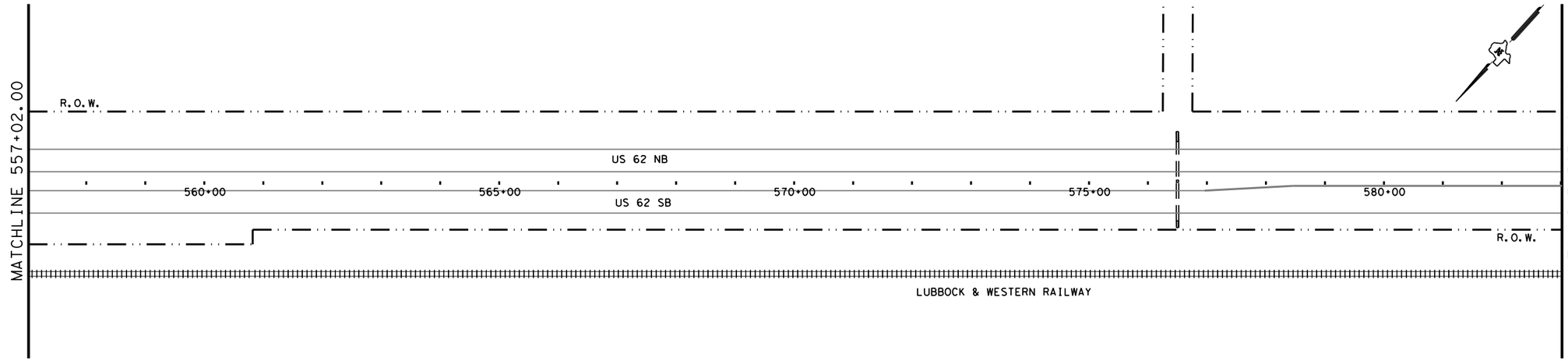

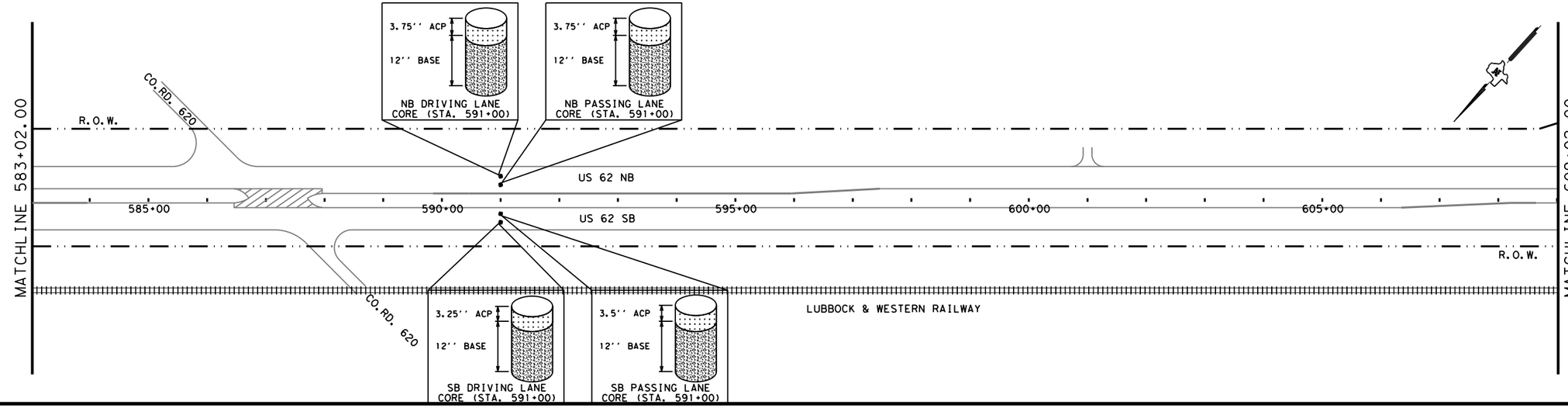

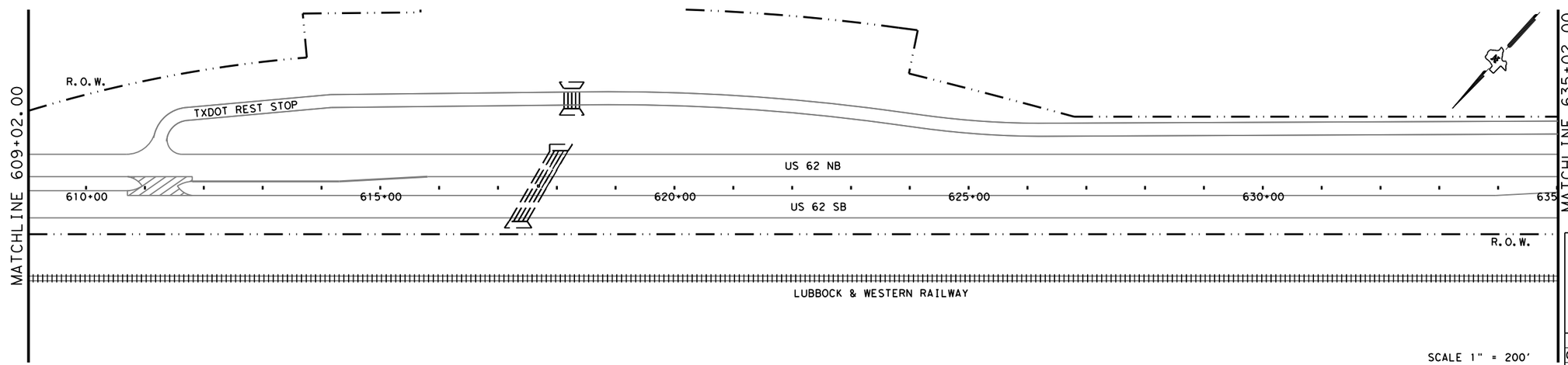

SCALE 1" = 200'

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

CORE DATA

SHEET 5 OF 6

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
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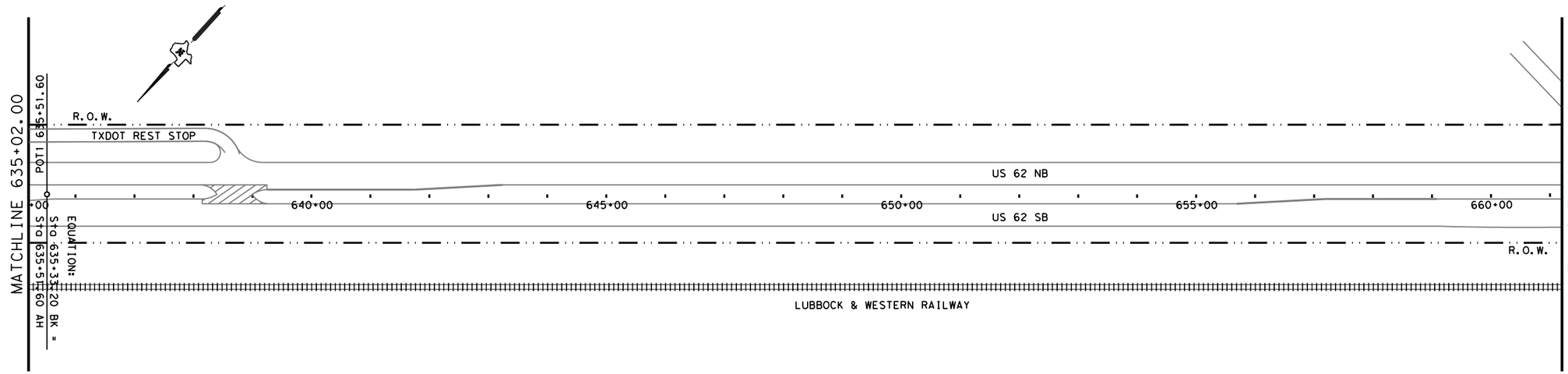

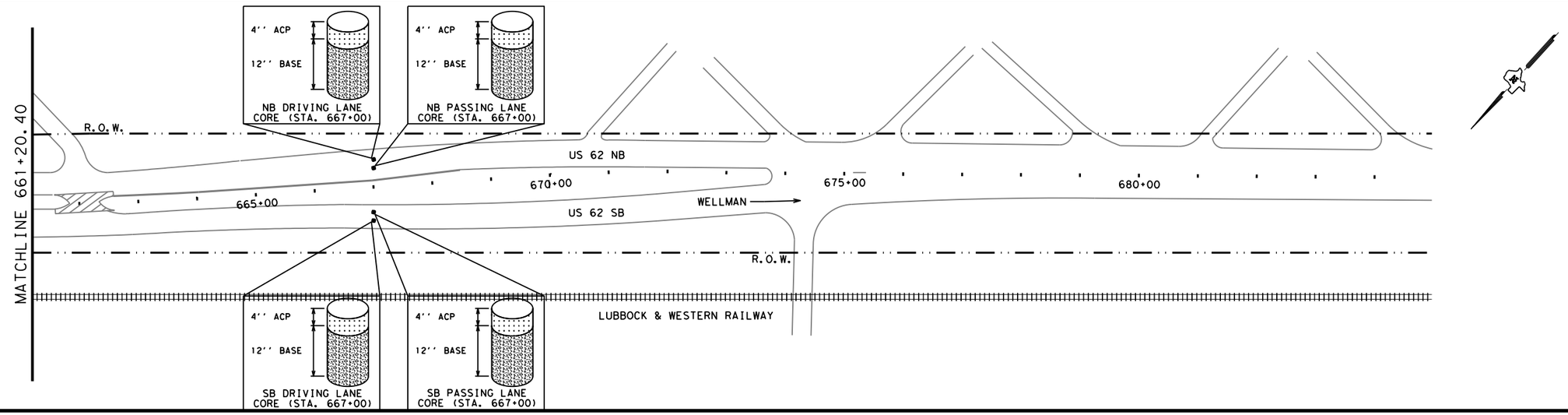

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

CORE DATA

SHEET 6 OF 6

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		10

SCALE 1" = 200'

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GENERAL NOTES:

Hot Mix Basis of Estimate

ITEM	DESCRIPTION	*RATE (approx.)
3080	2 IN, SMA-D PG76-28, SAC-A	236 LBS/SY
3076	1.5 IN. D-GR HMAC TY-C, SAC-B, PG76-28	172.5 LBS/SY
3076	0.5 IN. D-GR HMAC TY-C, SAC-B, PG76-28	57.5 LBS/SY
3076	1.5 IN. D-GR HMAC TY-F, SAC-B, PG76-28	172.5 LBS/SY
3076	0.5 IN. D-GR HMAC TY-F, SAC-B, PG76-28	57.5 LBS/SY
3076	4 IN. D-GR HMAC TY-B, PG76-28, SAC-B	460 LBS/SY
3076	3 IN. D-GR HMAC TY-B, PG76-28, SAC-B	345 LBS/SY

*Actual rates will be determined by Engineer in Field

Hot Mix Area (SY)

CSJ	MIX TYPE	SY
0228-01-056	2 IN. SMA	368,483
0228-01-056	1.5 IN. D-GR HMAC TY-C, SAC-B, PG76-28	82,725
0228-01-056	0.5 IN. D-GR HMAC TY-C, SAC-B, PG76-28	347
0228-01-056	1.5 IN. D-GR HMAC TY-F, SAC-B, PG76-28	33,088
0228-01-056	0.5 IN. D-GR HMAC TY-F, SAC-B, PG76-28	99,817
0228-01-056	4 IN. D-GR HMAC TY-B, PG76-28, SAC-B	46,296
0228-01-056	3 IN. D-GR HMAC TY-B, PG76-28, SAC-B	99,679

Surface Treatment Basis of Estimate

DESCRIPTION	EMUL (ERSN CONT)	PRIME COAT	PRIME COAT	FOG SEAL	REINF. FABRIC	TACK COAT
ASPH TYPE & GRADE	CSS-1H	MC-30	CSS-1H	CSS-1H	PG76-28	Trackless
ASPH RATE (GAL/SY)	0.22	0.20	0.20	0.15	0.15	0.14
AGGR TYPE						
AGGR GRADE						

Surface Treatment Area (SY)

CSJ	EMUL (ERSN CONT)	PRIME COAT (MC-30)	PRIME COAT (CSS-1H)	FOG SEAL	REINF. FABRIC	TY D TACK COAT	SMA SHLDR. TACK COAT
0228-01-056	840,980	21,718	21,718	54,600	207,665	451,551	215,971

County: Terry **Control:** 0228-01-056

Highway: US 62/385 **Sheet: 11**

W.W.A.R.P

Provide coarse aggregate for all surface hotmix and overlays meeting a minimum class of **A** as published in the *AGGREGATE QUALITY MONITORING PROGRAM RATED SOURCE QUALITY CATALOGUE*.

Provide coarse aggregate for all base hotmix and surface treatments meeting a minimum class of **B** as published in the *AGGREGATE QUALITY MONITORING PROGRAM RATED SOURCE QUALITY CATALOGUE*.

General Requirements and Covenants - Items 1 thru 9

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

Seve Sisneros, Brownfield Area Engineer – seve.sisneros@txdot.gov (806) 637-4501

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:
https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors

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

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

Item 1 – Abbreviations and Definitions

Contract Prosecution – 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 any and all contracts at the same time.

Item 2 – Instructions to Bidders

The construction time determination schedule will be posted on the Letting Pre-Bid Q&A web page.

View the plans on-line or download from the web at:
http://www.dot.state.tx.us/business/plansonline/agreement.htm
Choose “I Agree” then, “Click here”, then “State-Let-Construction”, pick the letting month, then “Plans” and then choose the plans set.

Order plans from any of the plan reproduction companies shown on the web at:

http://www.dot.state.tx.us/business/contractors_consultants/repro_companies.htm

By signing this proposal, a bidder acknowledges that he/she has a copy of the "Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges", adopted by the Texas Department of Transportation, November 1, 2014. This specification book may be purchased from the Department or downloaded at:
http://www.txdot.gov/business/resources/txdot-specifications.html

There is no survey data or cross-sections for this project.

Utilities

Overhead and underground utility installations exist within the project limits.

Call One Call to mark the locations of all utilities. Call Brownfield, Wellman, and TxDOT separately to have their respective utilities marked.

Item 5 – Control of the Work

Perform construction surveying in accordance with Article 5.9.3, "Method C."

Replace all damaged ROW and USGS monuments at the contractor's expense.

Set railroad spikes at all PCs, PTs and every 1500 feet along the centerline of each roadway in the final pavement surface.

When deviation from the plans is requested by the Contractor, but not required for installation, the Contractor will bear any additional costs associated with the deviation.

Restore all disturbed areas due to trenching or any construction activity to a condition equivalent to the original condition within 14 working days from the time work began in the area including all necessary stabilization.

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

At the end of each day remove from the ROW, inside or outside the project limits, any excess material and debris resulting from construction.

Correct any deficiencies identified during the final inspection including required paperwork.

Submit all required paperwork within 60 days of project acceptance.

All culverts locations will be approved prior to installation.

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Item 6 – Control of Materials

Use materials from pre-qualified producers. A list of material producers pre-qualified by the Construction Division (CST) of the Texas Department of Transportation (TxDOT) can be found at the following website:
http://www.txdot.gov/business/resources/producer-list.html

In addition to the requirements of the plans and specifications, make all material and equipment furnished, installed, modified, tested, or otherwise used on this contract, and becoming the property of TxDOT, fully functional within the manufacturer normal specifications, warranties, and guarantees. Make any additional functions of the material and equipment normally supplied by the manufacturer, but not specified by TxDOT, completely functional.

To comply with the latest provisions of Build America, Buy America Act (BABA Act) of the Bipartisan Infrastructure Law, the contractor must submit a notarized original of the TxDOT Construction Material Buy America Certification Form for all items classified as construction materials. This form is not required for materials classified as a manufactured product.

Refer to the Buy America Material Classification Sheet for clarification on material categorization.

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

Provide the State 30 days to test all materials and resolve any disputes.

Item 7 – Legal Relations and Responsibilities

Coordinate street closures with the local fire, police, and other emergency personnel.

Maintain access to adjacent property at all times.

Notify, in writing, each residence and business 10 days prior to beginning construction of the phase/phases that are expected to affect their ingress and egress. This notice may be hand delivered or mailed.

When applicable, comply with all requirements of the Environmental Permits Issues and Commitments (EPIC) sheets.

Provide a lidded dumpster to be used by Contractor's personnel on the job site. The lid or covering to the dumpsters needs to be able to stay closed in high winds for preventing trash from being blown out. This shall be considered subsidiary to the various bid items.

Dispose of all waste materials in compliance with local, state, and federal regulations. Submit a list of all approved waste sites to the Engineer for review.

All vehicles in the work zone shall use flashing amber strobe lights visible 360 degrees.

No significant traffic generator events identified.

This project will not require a railroad agreement, insurance, or right-of-entry.

Item 8 - Prosecution and Progress

This project is to be complete in 289 days and 18 months of barricades in accordance with the contract documents.

Liquidated damages as defined in SP 000-1243 ($2,411) will be increased by the calculated road user cost of $1,281, for a total of $3,692 per day.

Work must begin by 1/2/2024.

Monthly schedule updates are a very important aspect of managing the progress of this project. The Engineer may withhold the monthly estimate if the schedule update has not been received.

A bar chart will be required on this project.

Do not begin work before sunrise or end work after sunset unless authorized by the Engineer, and remove all equipment from the roadway before sundown.

Perform any erosion control measures such as seeding or sodding before beginning the next phase, or land, unless otherwise authorized by the Engineer.

Working days will be computed and charged in accordance with Article 8.3.1.4 Standard Workweek.

Shut down operations the working day before the following major traffic generating holidays: January 1st (New Year's); Last Monday in May (Memorial Day); July 4th (Independence Day); First Monday in September (Labor Day); Fourth Thursday in November (Thanksgiving); and December 24th (Christmas Eve).

If the season for SMA is past, time and work on the project will not be suspended until all other work is complete. When this work is complete, the Engineer will suspend time and work until SMA season begins.

The work zone shall not exceed 2 miles unless otherwise directed by the Engineer.

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Payment for final 3% mobilization will be made once all project signage has been removed and all other items according to Article 500.3. Timeliness for submittal of required paperwork and correction of deficiencies is a consideration in developing the final contractor evaluation score.

Water may be hard to come by. Check for water restrictions.

Item 9 - Measurement and Payment

Submit material-on-hand payment requests by the monthly estimate cutoff date.

Material-on-hand will be paid item for item regardless of how the work was bid.

Items 110 And 132 - Excavation and Embankment

Provide Type C Embankment conforming to the following material specifications:

Liquid Limit (maximum)	45
Plasticity Index (maximum)	25
Bar Linear Shrinkage (minimum)	2

Consider all embankment to be Earth Embankment in accordance with Article 132.3.1.

Proof roll, as directed by the Engineer.

Item 112 – Subgrade Widening

Provide embankment material for subgrade widening that meets the requirements of Type C Embankment from approved sources.

Item 134 - Backfilling Pavement Edges and Item 150 - Blading

Salvage existing topsoil and grass in windrows along the edge of the grading operations, or as directed by the Engineer. As a land is finished, spread the adjacent topsoil and grass uniformly over the disturbed area. Perform this work in phases not to exceed three miles, unless otherwise authorized by the Engineer.

Some reshaping of the ditch back slope may be required.

Water will be required as directed by the Engineer to compact backfill the pavement edges.

Item 164 - Seeding For Erosion Control

After drill seeding, apply *CSS-1H* emulsified asphalt as a tacking agent, in accordance with Item 314, across the seeded area, as directed by the Engineer.

Notify the Engineer of scheduled seeding operations 24 hours prior to seeding applications. Do not begin seeding operations until the Engineer has approved seedbed preparations. Locate and flag all irrigation heads, valve covers, utility facility covers, etc. prior to commencing seed application operations.

Leave the seeded area lightly tracked in order to establish a better environment for seed germination.

Furnish seed tags from the seed supplier to the Engineer for verification of quantity and type.

Submit an available substitution to the Engineer, for approval, if a grass variety is not available.

Do not disturb or drive on newly seeded areas. Repair any damage to the seeded areas to the satisfaction of the Engineer.

A Cultipak planter may be used in lieu of drill seeding.

Items 162, 164, 166, And 168

Furnish and place hay mulch or cellulose fiber mulch, seed, fertilizer, and vegetative watering on all cut and fill slopes as soon as each construction sequence will allow, but within 14 days of the end of the construction phase and prior to beginning a new construction phase. Leave the seeded area lightly tracked in order to provide the seed a better environment for germination.

Reseed at contractor's expense if 70% growth hasn't been attained in 2 months.

Item 216 – Proof Rolling

Provide a 25 ton roller, or other equipment approved by the Engineer for proof rolling.

Proof roll as directed.

Item 247 - Flexible Base

Provide TY A Grade 4 flexible base.

SPECIFICATION DATA

TEST TO BE IN ACCORDANCE WITH TEXAS DEPARTMENT OF TRANSPORTATION STANDARD TEST METHODS

FLEXIBLE BASE SPECIFICATION DATA

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GRADING REQUIREMENTS PERCENT RETAINED – SIEVES SIEVE SIZES INCHES					SOIL CONSTANTS		MAX WET BALL	MAX % INCREASE	MIN STRENGTH 15 PSI
1 3/4	7/8	1/2	#4	#40	L.L. MAX	P.I. MAX			
0	10-30	30-55	50-75	70-90	40	15	45	20	175

The addition of field sand to reduce the plasticity index a maximum of three points below the original P.I. is permitted. Introduce field sand at the crusher on a feed belt prior to building the stockpile.

The addition of lime, or suitable material as approved by the Engineer, is permitted to reduce the plasticity index, if the mixture is mixed on the road or in a pugmill just prior to placement.

Proof roll as directed by the Engineer.

Provide the state at least 30 days to perform material testing on the flex base.

Item 251 - Reworking Base Courses

Before replacing salvaged material, construct and shape subgrade, using density control in accordance with Article 132.3.4.2.

A BOMAG or milling machine will not be allowed for scarifying existing material. Use rippers or other means to scarify.

Dispose of excess base material.

Item 310 - Prime Coat

Apply a prime coat to all finished subgrade before placement of Type B hotmix. Remove all loose and scabbed material from the surface prior to prime coat application.

Allow the prime coat to penetrate and dry for a minimum of 72 hours before placing any asphaltic material on the primed surface, unless otherwise authorized by the Engineer.

Item 314 - Emulsified Asphalt Treatment

Apply the emulsified asphalt and water mixture, as directed by the Engineer.

Item 315 - Fog Seal

Apply the emulsified asphalt and water mixture, as directed by the Engineer.

Item 320 – Equipment for Asphalt Concrete Pavement

Provide waterproof tarpaulins on all hauling equipment.

Item 351 – Flexible Pavement Structure Repair

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 tack coat shall be AC or PG.

The type and grade of prime shall be MC-30 and CSS-1H.

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

Use a roadway structure of 3" TY B Hotmix placed in one 3" lift for full depth repairs and surface repairs.

The minimum repair area shall be 10' wide by 20' long.

Pavement repair shall be performed the same day as the mill and fill operation

Item 354 – Planing and Texturing Pavement

TxDOT to retain possession of planed material. Material to be stored at the intersection of SH 137 & US 62/385. Contact Jaime Cortez, Brownfield Maintenance Supervisor, (806) 224-6369 for any questions.

Item 400 - Excavation and Backfill for Structures

Furnish crushed caliche or sand and gravel as aggregate for cement stabilized backfill.

Deliver the cement stabilized backfill in a mixer truck in a flowable state and capable of filling all the voids.

Construct fill over structures to plan grade before hauling with heavy equipment over structures.

Compact backfill used for structures, other than flowable backfill, to a minimum density of 95 percent.

Use a template in order to secure reasonably accurate Class C shaping of the foundation material outside of cement stabilized areas.

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Contact the utility company and properly secure the utility poles prior to excavating next to the utility poles. The work and material used to secure the utility poles are subsidiary to the pertinent items.

Item 420 - Concrete Substructures

Furnish and place preformed fiber material, a minimum one-half (1/2)-inch thick, as shown on the plans or directed by the Engineer.

Furnish a temperature recorder with the minimum capabilities of a 7-day recording time, 2 degree F division, and 120 VAC with 9-volt backup, for each curing tank used on the project. Supply all charts, recording pins, and other equipment necessary for complete operation of the temperature recorder during the project. The temperature recorder and all associated equipment will not be paid directly, but will be subsidiary to the various bid items.

Use Grade 3 or Grade 4 coarse aggregate in all concrete structures.

Cold weather protection requirements within 72 hours of a concrete pour as per the following table:

PROJECTED LOW TEMP	PROTECTION REQUIRED
< 20 degrees	DO NOT POUR
20-27 degrees	cover with plastic, then a insulating blanket, and plastic on top
28-35 degrees	cover with plastic, then a insulating blanket
> 35 degrees	no protection required

All projected temperatures will be based on the NOAA website. None of the above actions releases the Contractor from the responsibility for freeze damaged concrete for whatever reason.

Coring of structural classes of concrete will not be allowed. All coring of miscellaneous concrete shall be at the Contractor's expense including all prep work. Coring must be completed within 3 days of notice of failing 28-day samples; otherwise pay deductions apply using 28-day compressive strength.

Provide TY II curing compound for all curb and gutter, sidewalks, driveways, curb ramps, riprap, and cast-in-place SET's.

When doweling into concrete, clean out the hole, fill completely with epoxy, then place the dowel. Do not dip the dowel into epoxy first and shove it into the hole.

Do not place concrete when the wind gusts get to over 25 miles per hour.

Vibrate all concrete.

Provide the State with 48 hours notice before pouring concrete.

Item 421 - Hydraulic Cement Concrete

All Class C concrete will be designed using Option 3.

If fly ash is used, a maximum of 35% will be allowed.

Provide air entrainment in all concrete except for concrete used in drilled shafts and precast concrete members. Target an entrained air content of 4.0% +/- 1% for concrete pavement and 5.5% +/- 1% for all other concrete requiring air entrainment. Ensure the minimum entrained air content is at least 3.0% for all classes of concrete.

The Engineer will perform all concrete job control testing.

Supply 2 – 4’ x 8’ x ¾” sheets of plywood, in order to perform required testing procedures at the location of concrete placements.

Use 4-inch by 8-inch cylinder molds for concrete with Grade 3 or smaller coarse aggregate. Supply new cylinder molds and lids subsidiary to the various bid items.

The Engineer will inspect concrete batch plants and trucks for approval.

For this project, the requirements of Article 421.4.8.1, “Certification of Testing Personnel” are waived, except that “Personnel performing these tests are subject to Departmental approval.”

Concrete plant must be capable of providing automated moisture content control for both coarse and fine aggregate.

Item 427 - Surface Finishes For Concrete

Provide surface area I concrete surfaces with a rub finish as soon as forms are removed.

Item 432 - Riprap

Provide 5-inch thick Class A concrete riprap, unless otherwise indicated in the plans.

Reinforce with steel reinforcing using #3 bars on 16”x16” spacing on centers in the slab. Fiber reinforcement or welded wire will not be allowed.

In large areas of riprap, provide one-half (1/2)-inch thick expansion joint material at approximately 100-foot intervals, or as determined by the Engineer.

Transverse bars shall be 32’’ in length and placed every 16’’ longitudinally.

Place asphalt expansion joint material between proposed riprap and utility poles, guy wires, vent pipes, stand pipes and as directed.

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Excavate trench for mow strip after blading.

Backfill mowstrip after forms are removed. This will be considered subsidiary.

Follow cold weather protection requirements listed under Item 420.

Seal between concrete boundaries.

Item 464 - Reinforced Concrete Pipe

Join all concrete culvert pipe with a cold-applied plastic asphalt sewer joint compound.

Item 467 - Safety End Treatment

Install reinforced concrete aprons on all Type I SET, using reinforcing composed of #4 bars at 12-inch spacings, center-to-center, or as shown on the detail sheet.

Install riprap around all precast SETs. The riprap shall be Class B and reinforced in accordance with Item 432.3.1. Precast riprap will not be allowed.

Item 502 - Barricades, Signs And Traffic Handling

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

Additional signs and barricades as directed by the Engineer shall be considered subsidiary to Item 502.

Provide flashing portable arrow panels for all lane closures.

Wash the channelizing devices and barricades following each rainfall or snowfall event and at times deemed necessary by the Engineer.

To ensure the safety and convenience of traffic, flaggers may be required when construction machinery is being operated along, across, or adjacent to lanes carrying traffic. If considered necessary by the Engineer, supplemental signs and barricades may be required.

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

Barricades, Signs and Traffic Handling is a plan quantity item. If time is suspended, no additional compensation will be made.

Traffic switches will not be permitted on Fridays or any working day preceding a holiday unless authorized by the Engineer.

Cones or chevrons may be used in lieu of vertical panels at the discretion of the Engineer. Cones cannot be used to separate opposing traffic.

Construct temporary ramps to maintain access to driveways and city streets as directed by the Engineer. Temporary ramp construction is subsidiary to Item 502.

The Contractor shall bid the traffic control plan shown in the plans. Any proposed alterations to the TCP (combining work areas / phasing / etc.) shall be submitted to the Engineer at least 10 days prior to anticipated changes.

Even when not explicitly shown in the project TCP, vertical panels shall be used with an opposing lane divider every 5th panel in accordance with BC(9) for all opposing traffic conditions without a positive barrier.

Square tubing sign supports may be used for temporary construction signs. Aluminum and wood signs may be mounted if the vertical supports are embedded into the ground. Square tubing supports on skids which are typically held in place with sand bags can only support signs made of light weight flutted plastic.

Any trench or drop off over 2" and less than 10" will require a safety slope of at least 1:1 if drop off is going to be existing for more than 2 nights. For drop-offs greater than 10", a safety slope will be required at the end of operations for that day. This safety slope may be constructed with RAP, embankment, or other material approved by the Engineer. The placement, maintenance, and removal of this safety slope is the responsibility of the Contractor and will be considered subsidiary to the various bid items.

Provide an all-weather surface for all sections of the roadway prior to time suspension as directed by the Engineer. The all-weather surface shall be the original undisturbed asphalt pavement or a one course surface treatment on the constructed roadbed as shown in the typical sections.

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.

Correct all noted deficiencies within 7 calendar days, otherwise, cease all operations until the noted deficiencies are corrected.

Stockpiles that meet the barricade requirements as shown on the BC(10) Standard are required to be erected at the time of material delivery in the Right-of-Way and maintained as long as the stockpile exists. Payment for Material-on-Hand will be withheld from the estimate for

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inadequate barricades or the failure to maintain barricades on a per stockpile basis as determined by the Engineer.

Like new traffic control devices will be required at the initial setup for all projects or as approved by the Engineer.

Provide flags and a CW8-15P "MOTORCYCLE WARNING" plaque on all CW20-1D "ROAD WORK AHEAD" signs except on side roads.

Use only the work zone speed limit and TCP signs that are relevant to the active work area and as directed. Reset signs for subsequent work phases as work progresses and approved by the Engineer. Reset normal speed limit signs at the ends of work zones.

Project limit signage is required on both sides of the roadway on a divided highway.

All bid items and work requiring traffic control is the responsibility of the contractor, even when not explicitly detailed in the plans. Consider this work subsidiary to Item 502.

TMAs and Portable Changeable Message Boards will not be used as Arrow Boards.

When the roadway is open to traffic and final striping is completed, any subsequent work shall be done under daytime traffic control.

The contractor is to respond within 30 minutes to any traffic control maintenance after wind events, storms, etc., and as directed by the Engineer.

Ground mount all signs if possible.

Item 504 - Facilities for Field Laboratory

Furnish one Type D structure. Field laboratory shall be located adjacent to the project site.

The Contractor will furnish a concrete cylinder breaker and cylinder bath, subsidiary to the furnished field laboratory. Provide calibration documentation for all supplied equipment.

Partition the floor of the Type D structure into a minimum of three interconnected rooms. Furnish each room with a door. Type D structure must have at least two windows and two exterior doors. Block and tie down portable structures.

Equip the Type D field lab with an eyewash facility capable of flushing the eyes for at least 15 minutes, connected to the main water supply or an approved stand-alone water supply.

Provide 2 tables and 1 meeting table. Provide 1 chair for each table and enough chairs for the meeting table. Provide 2 filing cabinets. Equip the field lab with window blinds.

Provide internet connectivity, a printer/fax/scanner/copier, and telephone service to field offices, including installation, monthly charges and the phones.

Equip all field field labs with a surge protector at the circuit breaker panel.

Item 506 - Temporary Erosion, Sedimentation, and Environmental Controls

Place a weatherproof bulletin board containing the TCEQ required information on the project at a site directed by the Engineer. Post the following documents: (1) "TCEQ TPDES Storm Water Program" Construction Site Notice and (2) TCEQ "TPDES Permit." Place rain gauge(s) at locations designated by the Engineer. At the completion of the contract, the bulletin board will become the property of the State and will remain in place until 70 percent vegetation coverage has been obtained.

Provide long-term, Type 1 construction exits, located at the Contractor's equipment storage area.

Silt fence, sandbags and other BMPs will be placed and relocated as directed by the Engineer in order to comply fully with the SW3P requirements.

The soil area disturbed by this project, including all disturbed areas within the limits of this project as described in the Contract and at Contractor project specific locations (PSLs) within one mile of the project limits, contributes to the establishment of the Texas Commission on Environmental Quality (TCEQ) Construction General Permit (CGP) requirements for storm water discharges. The Department will obtain an authorization from the TCEQ to discharge storm water for construction activities shown on the plans. The Contractor shall obtain the required authorization from the TCEQ for Contractor project specific locations (PSLs) for construction support activities off the right-of-way. As directed by the Engineer, the Contractor shall obtain any required authorization from the TCEQ for on-site PSLs. When the total area disturbed within the project limits and at PSLs within one mile of the project limits exceeds five acres, the Contractor shall provide a copy of the Contractor's Notice of Intent (NOI) submission and Construction General Permit for PSLs on the right-of-way to the Engineer (and submit a copy of NOIs to appropriate MS4 operators).

Sediments removed from BMPs shall be paid for by force account. The Contractor shall submit an invoice for the work.

Correct all noted deficiencies within 7 calendar days, otherwise, cease all operations until the noted deficiencies are corrected.

Maintain 100 feet of silt fence, 100 feet of erosion control logs, and 50 sandbags on site at all times for repairs/replacement as needed.

Water for dust control at least twice a day for all areas that are disturbed but not stabilized.

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Item 530 – Intersections, Driveways, and Turnouts

Use Class A Concrete for all concrete driveways.

Reinforce concrete driveways with # 4 bars on 12"x12" grid spacing centered in the slab depth.

Item 533 – Rumble Strips

Use Option 4 for edgeline rumble strips.

Place final edge striping before milling rumble strips. Use a spray bar shield or other means to protect final stripe from fog seal application.

Place fog seal on rumble strips within 14 days of milling and before placing final stripe.

Item 543 – Cable Barrier System

Ensure that the cable barrier manufacturer provides training to TxDOT maintenance forces and local emergency personnel on how to extract, repair, and maintain the system after it has been hit.

Item 560 - Mailbox Assemblies

Move and replace all mailboxes within the project limits such that they may be served by the mail carrier from his car at all times during and after construction. This work will be considered subsidiary to the various bid items of this contract.

Salvage and remount existing mailboxes on new supports.

Final placement shall include new metal mailboxes of similar size to the original mailbox, unless the property owner wants to retain their old mailbox.

Item 585 - Ride Quality for Pavement Surfaces

Use Surface Test Type B for SMA on driving and passing lanes. Use Surface Test Type A for all other hot mix surfaces.

"Pay Adjustment Schedule" number 3 will be used on this project.

Provide IRI score to the Engineer before and after construction.

Corrective action, when required, shall be diamond grinding, as approved and directed by the Engineer. This work is considered subsidiary.

Item 644 - Small Roadside Sign Assemblies

All signs on this project, new or relocated, will require a retroreflective wrap on the sign support. This wrap shall be 12 inches in height, visible in all directions and shall be placed 3 ft. below the bottom of the sign. The color for YIELD, STOP, WRONG WAY, and DO NOT ENTER signs shall be red. The color for all other signs shall be yellow. This retroreflective wrap will not be paid for directly but considered subsidiary to Item 644.

Stake all sign locations, and receive approval from the Engineer, prior to sign placement.

The triangular slip bases will be the two bolt clamp type (Southern Plains Fabrication or equivalent). For more information refer to the approved materials producers list: http://www.txdot.gov/business/resources/producer-list.html

For all signs designated for removal (Slippery When Wet):

- Salvage aluminum signs,
- Palletize and band salvaged aluminum signs,
- Stockpile signs at the Terry County Maintenance Office in Brownfield, Texas. The office number is 806-637-8913. The contact is Jaime Cortez.

Item 658 - Delineator and Object Marker Assemblies

Delineator and object marker assembly posts shall be driveable and composed of post-consumer recycled materials. Embedded stub shall be perforated square tubing.

Driveable posts shall be the three-piece Flexible Delineator Post System, utilizing a 2-3/8” round post with a square to round flexible joint. The Embedded Anchor shall be 2" x 12 gauge x 24" long steel perforated square tubing. The Posts shall be permanently sealed at the top and have a 3-1/2” wide x 13" flattened surface to accommodate up to a 3" x 12" reflective sheet on both sides.

Surface Mount posts shall be the three-piece Flexible Delineator Post System, utilizing a 2-3/8” round post with a square to round flexible joint. The Base shall have 6 mounting holes to accommodate for mounting on narrow headwalls as well as all surfaces. The Posts shall be permanently sealed at the top and have a 3-1/2” wide x 13" flattened surface to accommodate up to a 3" x 12" reflective sheet on both sides.

Guard Fence Delineator posts shall be 33” in length and permanently sealed at the top and have a 3-1/2” wide x 13" flattened surface to accommodate up to a 3" x 12" reflective sheet on both sides. They shall be flattened on both ends and transition to 2-3/8” round in the center for 360-degree visibility.

Item 662 - Work Zone Pavement Markings

Use short-term removable striping as directed by the Engineer.

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Water based paint may be used for all non-removable striping if not prohibited in the plans and authorized by the Engineer. If water based paint is used, there will be no payment for striping refresh.

The deviation rate in alignment shall not exceed one inch per 200 feet of roadway. The maximum deviation shall not exceed 2 inches nor shall any deviation be abrupt. Striping not in conformance shall be removed and replaced at the Contractor's expense.
No guide markers will be placed on a finished surface unless they fall on a proposed lane line.
Stick-down markings will be removed by the Contractor prior to final marking.

Remove tabs at the same time as the RPM placement. Cut off tabs or remove by a method acceptable to the Engineer.

Type I markings must be at least one twenty-fifth (1/25) of an inch thick.

Remove ceramic buttons, RPMs, and Adhesives as directed by the Engineer. Payment for this work is subsidiary to Item 662.

Use thermoplastic adhesive to glue down work zone buttons and RPMs. Bituminous adhesive will not be allowed.

Dispose of the backing from tabs in an appropriate manner.

Any roadway opened to traffic shall be striped within 14 days.

Item 666 - Reflectorized Pavement Markings

Mark the location of standard pavement markings, including barrier lines, no passing zones, gores, and transitions adjusting to meet latest standards or as directed by the Engineer.

After completion of all work and removal of the barricades, time charges will be suspended. The performance period for the project will not begin until all the striping has been completed. Final acceptance will not be granted until the performance period for pavement markings is complete. If replacement markings are needed, traffic control for moving operations will be required. No payment will be made for traffic control during replacement striping work. All traffic control work shall be considered subsidiary to the project’s replacement striping work.

The yellow or white long-line striping for re-striping operations will not lag one another by more than four (4) working days. The performance period for a roadway will not begin for a section of roadway or a project until all required striping for that section or project has been completed.

Provide a schedule and notify the District Traffic Office a minimum of 3 days prior to any striping operation. Contact via email at LBB-TRFOPS@TxDOT.GOV. If not notified, the time

frame for testing and meeting the Retroreflectivity requirements in article 4.4 will start the day the department is made aware of that the markings have been applied.

Item 668 - Prefabricated Pavement Markings

Reference the "Standard Highway Sign Designs for Texas" manual for dimensions to words and symbols.

Manufacturer's sealer is subsidiary to this item. Surface preparation will be paid for separately under Item 678.

Item 677 - Eliminating Existing Pavement Markings and Markers

Eliminate existing pavement markings on asphalt surfaces by the Burn, Blasting, or Mechanical Methods at the project limits that get the work zone seal coat and as directed. Otherwise, use the Surface Treatment Method.

Payment for covering a solid yellow line with a broken yellow line next to it, parallel to the centerline of the highway, will be by the linear foot. This payment will be made only once for two stripes side-by-side.

Item 730 - Roadside Mowing

Mow full-width from pavement edge to Right-of-Way line 3 cycles. The Engineer shall dictate the times to mow and the areas in the project to mow.

Each mowing cycle is for the entire project and is 170 acres.

Notify the Engineer by 9:00 am each day for work completed the previous day, including hand trimming and cleanup. The Engineer will then inspect the section(s) of roadway for acceptance, not more than two (2) working days after notification.

Mobile TMA will be required where median cable is present and the mower deck extends into the roadway.

Truck mounted attenuators shall be used while mowing.

Item 734 – Litter Removal

Perform litter removal 3 cycles prior to mowing and as directed by the Engineer.

Item 3032 – Reinforced Paving Mat for Asphalt Pavement Overlays

Provide a letter from the manufacturer that authorizes the installer to install the product.

County: Terry **Control:** 0228-01-056

Highway: US 62/385 **Sheet: 11I**

Submerge a 2 in x 2 in of sample in D-Limonene or other approved solvent for 60 minutes. The result is passing if the solvent remains clear.

Don't install more reinforcing fabric that can't be covered that same day.

Provide PG76-28 binder at a rate of 0.15 gal/sy.

Items 3076, 3077, 3079, 3080, 3081, and 3082 – Hot Mix Asphalt Pavement

All calibration pans will be mixed within the Lubbock District.

PG 76-28 asphalt is required for this project.

Provide a summary spreadsheet for each lot in accordance with Article 520.2 of the Standard Specifications.

Design the mixture with a Superpave Gyratory Compactor (SGC).

Aggregate will be subjected to five cycles of the magnesium sulfate soundness test in accordance with Test Method TEX-411-A. The loss shall not be greater than **20** percent.

The mix will be evaluated for stripping through the boil and hamburg wheel tests. If it is determined to be stripping then 1% lime, liquid anti-strip or a warm mix additive proven to prevent stripping will be required.

Schedule the placement width for the final hotmix surface in such a manner that all joints will coincide with proposed lane lines (+/- 6 inches).

Except for SMA Hot Mix, provide emulsified trackless asphalt for tack coat at a rate of 0.10-0.14 gal/sy.

The Contractor will be required to tack 100% of the surfaces prior to the subsequent lift including all vertical joints.

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 or provide the PaveIR. Minimum requirements for the MTV are a storage capacity of approximately 25 tons, a pivoting discharge conveyor, a means of completely remixing the ACP prior to placement, and a paver hopper equipped with a separate surge storage insert with a minimum capacity of approximately 20 tons.

Provide straight edges including the outside edge. Any edges not conforming to the typical sections will be cut and removed at the Contractor's expense.

Lay the shoulders first, then the main lanes.

No TxDOT RAP is available for this project.

There are paving widths less than 10 ft wide on this project.

Do not pave when temperatures get below 32 degrees F in a 12 hour period.

No substitute PG grade binders will be allowed.

Provide a square edge before laying the adjacent lane of hotmix as directed by the Engineer.

Do not place hotmix if the sustained wind speed gets to over 25 miles per hour.

Seal all joints between hotmix and curb and gutter.

Item 3076 – Dense-Graded Hot-Mix Asphalt

Asphalt stabilized base will not be allowed as RAP.

Fractionate the RAP if used in the mixture design.

Post-consumer RAS will not be allowed.

No exempt production on driving lanes and shoulder.

The TY B hotmix is considered a surface layer and is subject to the Minimum Pavement Surface Temperature requirements in Tables 14A and 14B.

Item 3080 – Stone-Matrix Asphalt

Place hot mix between May 15 and September 30.

Tack coat for the horizontal surface not receiving fabric prior to SMA placement will not be required. The reinforcing fabric binder will perform as the tack coat.

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

The percent passing the #200 sieve will be 6.0-12.0 in Section 4.4.1, Table 7 Master Gradation Limits for SMA-D Medium.

RAP will not be allowed.

Beginning with Lot 2, if the Contractor's requested referee test results come back with a failing lab molded density, the Contractor may request performance tests on the laboratory tested material be used as a basis for acceptance of the sub lot at maximum production penalty.

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The contractor will have one day after receiving the referee testing results to request in writing that TxDOT consider acceptance of the material using performance testing.

If SMA fails performance tests then remove the TY B, Reinforcing Fabric and SMA, then relay new TY B, Reinforcing Fabric, and SMA at the Contractor's expense.

Item 6001 - Portable Changeable Message Sign

Provide messages as directed by the Engineer.

Provide 2 solar powered changeable message signs for the duration of this project.

Inform the public 2 weeks before construction begins.

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

Provide 2 TMAs for stationary use for the duration of the project. Stationary TMAs will be used during the various phases of work required for this project. Payment will be made by the day for each TMA used in stationary operations.

Provide 3 TMAs for mobile use. Mobile TMAs will be used for moving operations such as striping and RPM placement. Payment will be made by the day for each TMA used in mobile operations.

Item 6307 – Temporary Speed Monitoring System

Provide 2 speed monitoring trailers for this project.

Utilize the speed monitoring trailers on the project for the duration of this project as directed for the protection of the workers.

Change locations of speed monitoring trailers on a regular basis to improve driver attention.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0228-01-056 **DISTRICT** Lubbock **COUNTY** Terry
HIGHWAY US 62

			CONTROL SECTION JOB		**0228-01-056**		**0228-01-061**		TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00081489**		**A00194916**			
			COUNTY		**Terry**		**Terry**			
			HIGHWAY		**US 62**		**US 62**			
ALT	**BID CODE**	**DESCRIPTION**		**UNIT**	EST.	FINAL	EST.	FINAL		
	110-6001	EXCAVATION (ROADWAY)		CY	1,086.000				1,086.000	
	112-6003	SUBGRADE WIDENING (DENS CONT)		SY	42,198.000				42,198.000	
	134-6002	BACKFILL (TY B)		STA	953.000				953.000	
	150-6001	BLADING		STA	953.000				953.000	
	164-6033	DRILL SEEDING (PERM) (RURAL) (SANDY)		SY	840,980.000				840,980.000	
	216-6001	PROOF ROLLING		HR	100.000				100.000	
	247-6064	FL BS (CMP IN PLC)(TY A GR 4) (6")		SY	41,552.000				41,552.000	
	251-6027	REWORK BS MTL (TY B) (6") (DENS CONT)		SY	6,229.000				6,229.000	
	310-6006	PRIME COAT (CSS-1H)		GAL	4,778.000				4,778.000	
	310-6009	PRIME COAT (MC-30)		GAL	4,778.000				4,778.000	
	314-6013	EMULS ASPH (EROSN CONT)(CSS-1H)		GAL	109,327.000				109,327.000	
	315-6004	FOG SEAL (CSS-1H)		GAL	8,190.000				8,190.000	
	351-6002	FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")		SY	3,156.000				3,156.000	
	351-6019	FLEXIBLE PAVEMENT STRUCTURE REPAIR(3")		SY	9,469.000				9,469.000	
	354-6010	PLAN & TEXT ASPH CONC PAV(0" TO 6")		SY	1,317.000				1,317.000	
	354-6042	PLANE ASPH CONC PAV (8")		SY	19,327.000				19,327.000	
	354-6064	PLANE ASPH CONC PAV (2 1/2")		SY	107,535.000				107,535.000	
	400-6005	CEM STABIL BKFL		CY	295.000				295.000	
	432-6046	RIPRAP (MOW STRIP)(5 IN)		CY			2,464.000		2,464.000	
	464-6018	RC PIPE (CL IV)(24 IN)		LF	1,280.000				1,280.000	
	467-6395	SET (TY II) (24 IN) (RCP) (6: 1) (P)		EA	24.000				24.000	
	480-6001	CLEAN EXIST CULVERTS		EA	19.000				19.000	
	500-6001	MOBILIZATION		LS	1.000				1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING		MO	18.000				18.000	
	506-6022	CONSTRUCTION EXITS (INSTALL) (TY 3)		SY	444.000				444.000	
	506-6024	CONSTRUCTION EXITS (REMOVE)		SY	444.000				444.000	
	506-6035	SANDBAGS FOR EROSION CONTROL		EA	40.000				40.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)		LF	120.000				120.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)		LF	60.000				60.000	
	506-6042	BIODEG EROSN CONT LOGS (INSTL) (18")		LF	5,510.000				5,510.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)		LF	2,755.000				2,755.000	
	530-6002	INTERSECTIONS (ACP)		SY	5,664.000				5,664.000	
	530-6005	DRIVEWAYS (ACP)		SY	935.000				935.000	
	533-6003	RUMBLE STRIPS (SHOULDER) ASPHALT		LF	158,231.000				158,231.000	
	543-6002	CABLE BARRIER SYSTEM (TL-4)		LF			51,862.000		51,862.000	
	543-6020	CABLE BARRIER TERMINAL SECTION (TL-4)		EA			46.000		46.000	
	560-6011	MAILBOX INSTALL-S (TWW-POST) TY 4		EA	6.000				6.000	

Estimate & Quantity Sheet

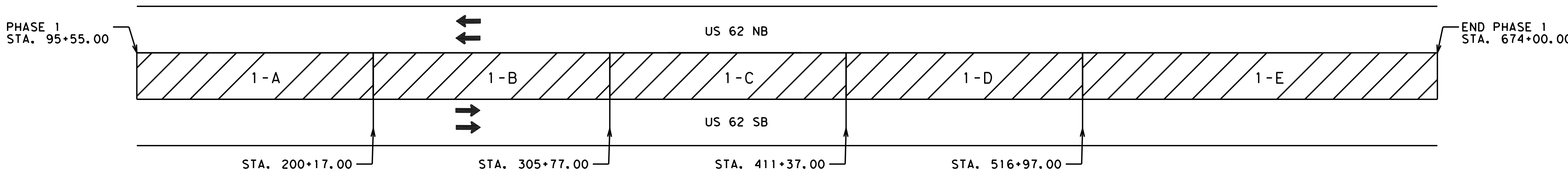
CONTROLLING PROJECT ID 0228-01-056 **DISTRICT** Lubbock **COUNTY** Terry
HIGHWAY US 62

			CONTROL SECTION JOB		**0228-01-056**		**0228-01-061**		TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00081489**		**A00194916**			
			COUNTY		**Terry**		**Terry**			
			HIGHWAY		**US 62**		**US 62**			
ALT	**BID CODE**	**DESCRIPTION**		**UNIT**	EST.	FINAL	EST.	FINAL		
	560-6012	MAILBOX INSTALL-D (TWW-POST) TY 4		EA	1.000				1.000	
	560-6013	MAILBOX INSTALL-M (TWW-POST) TY 4		EA	1.000				1.000	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)		EA	75.000				75.000	
	644-6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)		EA	188.000				188.000	
	644-6007	IN SM RD SN SUP&AM TY10BWG(1)SA(U)		EA	19.000				19.000	
	644-6076	REMOVE SM RD SN SUP&AM		EA	283.000				283.000	
	658-6060	REMOVE DELIN & OBJECT MARKER ASSMS		EA	75.000				75.000	
	658-6100	INSTL OM ASSM (OM-2Z)(WFLX)GND(BI)		EA	146.000				146.000	
	662-6005	WK ZN PAV MRK NON-REMOV (W)6"(BRK)		LF	28,975.000				28,975.000	
	662-6008	WK ZN PAV MRK NON-REMOV (W)6"(SLD)		LF	113,660.000				113,660.000	
	662-6010	WK ZN PAV MRK NON-REMOV (W)8"(DOT)		LF	1,813.000				1,813.000	
	662-6012	WK ZN PAV MRK NON-REMOV (W)8"(SLD)		LF	25,930.000				25,930.000	
	662-6016	WK ZN PAV MRK NON-REMOV (W)24"(SLD)		LF	320.000				320.000	
	662-6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)		LF	109,546.000				109,546.000	
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W		EA	2,537.000				2,537.000	
	666-6030	REFL PAV MRK TY I (W)8"(DOT)(100MIL)		LF	1,995.000				1,995.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)		LF	26,994.000				26,994.000	
	666-6306	RE PM W/RET REQ TY I (W)6"(BRK)(100MIL)		LF	28,975.000				28,975.000	
	666-6309	RE PM W/RET REQ TY I (W)6"(SLD)(100MIL)		LF	113,660.000				113,660.000	
	666-6321	RE PM W/RET REQ TY I (Y)6"(SLD)(100MIL)		LF	109,514.000				109,514.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)		LF	360.000				360.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)		EA	125.000				125.000	
	668-6083	PREFAB PAV MRK TY C (W) (LNDP ARROW)		EA	6.000				6.000	
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)		EA	792.000				792.000	
	672-6010	REFL PAV MRKR TY II-C-R		EA	4,481.000				4,481.000	
	677-6002	ELIM EXT PAV MRK & MRKS (6")		LF	252,181.000				252,181.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")		LF	25,930.000				25,930.000	
	730-6107	FULL - WIDTH MOWING		CYC	3.000				3.000	
	734-6002	LITTER REMOVAL		CYC	3.000				3.000	
	3032-6001	REINFORCED FAB FOR ASPH PVMNT OVERLAYS		SY	207,665.000				207,665.000	
	3032-6004	ASPH FOR REINF FAB (PG76-28)		GAL	31,150.000				31,150.000	
	3076-6066	TACK COAT		GAL	55,820.000				55,820.000	
	3076-6088	D-GR HMA TY-C SAC-B PG76-28		TON	7,145.000				7,145.000	
	3076-6089	D-GR HMA TY-F SAC-B PG76-28		TON	5,724.000				5,724.000	
	3076-6090	D-GR HMA TY-B SAC-B PG 76-28		TON	27,843.000				27,843.000	
	3080-6008	STONE-MTRX-ASPH SMA-D SAC-A PG76-28		TON	43,481.000				43,481.000	
	3080-6029	TACK COAT		GAL	37,633.000				37,633.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0228-01-056 **DISTRICT** Lubbock **COUNTY** Terry
HIGHWAY US 62

			CONTROL SECTION JOB		**0228-01-056**		**0228-01-061**		TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00081489**		**A00194916**			
			COUNTY		**Terry**		**Terry**			
			HIGHWAY		**US 62**		**US 62**			
ALT	**BID CODE**	**DESCRIPTION**		**UNIT**	EST.	FINAL	EST.	FINAL		
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN		DAY	1,080.000				1,080.000	
	6185-6002	TMA (STATIONARY)		DAY	578.000				578.000	
	6185-6005	TMA (MOBILE OPERATION)		DAY	54.000				54.000	
	6307-6003	TEMP SPEED MONITOR SYS		EA	2.000				2.000	
	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	



KEY
- WORKZONE PHASE
- COMPLETED PHASE
- TRAFFIC FLOW

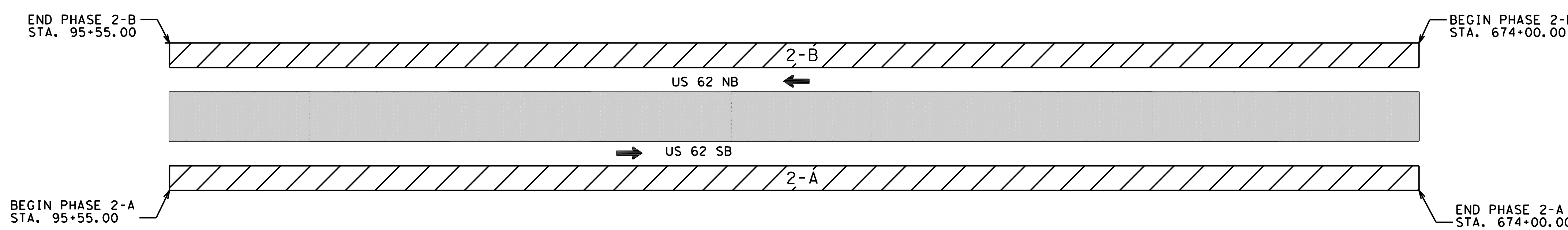
PHASE 1
US 62
(REBUILDING CROSSOVERS, CROSSOVER DECEL LANES AND TAPERS)
STA 95+55.00 TO 674+00.00

ONLY 2 CROSSOVERS CAN BE WORKED ON AT THE SAME TIME

1. PLACE PORTABLE MESSAGE BOARDS AND PROJECT LIMIT SIGNING.
2. PLACE WORK ZONE SIGNING AND BARRICADES AS REQUIRED. REMOVE ANY CONFLICTING SIGNS.
3. INSTALL SW3P ITEMS IN ACCORDANCE WITH SW3P LAYOUT SHEETS.
4. INSTALL WORKZONE STRIPING AND BARRICADES AS REQUIRED FOR PHASE 1.
5. CONSTRUCT CROSSOVERS, CROSSOVERS DECEL LANES, AND TAPERS:
   A) BLADING TO WINDROW
   B) REMOVE STABILIZED BASE AND ASPHALT PAVEMENT
   C) SUBGRADE WIDENING
   D) REWORK BASE MATERIAL AND NEW FLEX BASE
   E) INSTALL PROPOSED STRUCTURE (CROSSOVERS)
   F) INSTALL PRIME COAT
   G) INSTALL D-GR HMA
   H) PARTIAL BACKFILL PAVEMENT EDGES
6. INSTALL WORKZONE STRIPING AND MARKINGS

PHASE 1 (CROSSOVER) NOTES

1. TWO CROSSOVERS MAY BE OPENED TO CONSTRUCTION WITHIN THE 2 MILE WORK AREA; NEXT TWO CROSSOVERS SHALL NOT BE OPENED TO CONSTRUCTION UNTIL D-GR HMA IS INSTALLED ON THE PREVIOUS TWO CROSSOVERS.
2. NO TWO CONSECUTIVE 2 MILE PHASES WILL BE ALLOWED OPEN TO CONSTRUCTION AT ONE TIME. THE FOLLOWING PHASE COMBINATIONS WILL BE ALLOWED: 1A & 1C, 1B & 1D, 1E.
3. THE SUBSEQUENT PHASE CANNOT BEGIN UNTIL THE PREVIOUS PHASE IS COMPLETE.



PHASE 2-A, 2-B
US 62

(MILL AND INLAY SOUTHBOUND DRIVING LANE & OUTSIDE DECEL LANE)
2-A STA 95+55.00 TO STA 674+00.00 RT

(MILL AND INLAY NORTHBOUND DRIVING LANE & OUTSIDE DECEL/ACCEL LANE)
2-B STA 674+00.00 TO STA 95+55.00 LT

1. CHANGE PORTABLE MESSAGE BOARDS AND BARRICADES FOR NEW TRAFFIC PATTERN.
2. PLACE WORK ZONE SIGNING AND BARRICADES AS REQUIRED FOR PHASE 2 LANE CLOSURE. REMOVE ANY CONFLICTING SIGNS.
3. INSTALL SW3P ITEMS IN ACCORDANCE WITH SW3P LAYOUT SHEETS.
4. INSTALL WORK ZONE STRIPING AND BARRICADES AS REQUIRED FOR PHASE 2.
5. CONSTRUCT SOUTHBOUND/NORTHBOUND DRIVING LANE AND OUTSIDE DECEL/ACCEL LANE IN ACCORDANCE WITH THE TYPICAL SECTIONS:
   A) BLADING TO WINDROW (OUTSIDE DECEL/ACCEL LANE)
   B) PLANE ASPHALT PAVEMENT
   C) SUBGRADE WIDENING (OUTSIDE DECEL/ACCEL LANE)
   D) REWORK BASE MATERIAL AND NEW FLEX BASE (OUTSIDE DECEL/ACCEL LANE)
   E) INSTALL PRIME COAT
   F) INSTALL D-GR HMA
   G) PARTIAL BACKFILL PAVEMENT EDGES
6. INSTALL WORK ZONE STRIPING AND MARKINGS

PHASE 2-A, 2-B NOTES

1. NO TWO CONSECUTIVE PHASES WILL BE ALLOWED OPEN TO CONSTRUCTION AT ONE TIME.
2. THE SUBSEQUENT PHASE CANNOT BEGIN UNTIL THE PREVIOUS PHASE IS COMPLETE.
3. MILL AND FILL ONLY WHAT YOU CAN DO IN A DAY AND OPEN BACK TO TRAFFIC AT NIGHT.

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.
6-19-2023

PHASING NARRATIVE

NO SCALE SHEET 1 OF 3

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		13

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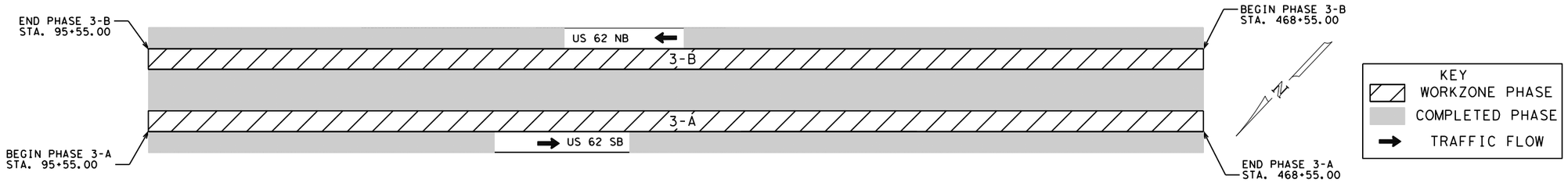


PHASE 3-A, 3-B

US 62

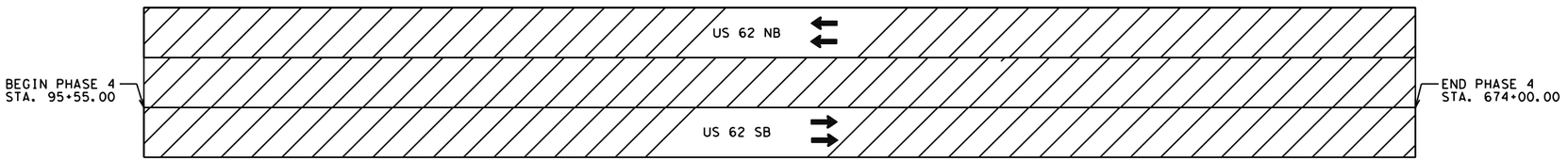
(MILL AND INLAY SOUTHBOUND PASSING LANE)
3-A STA 95+55.00 TO STA 468+55.00 RT

(MILL AND INLAY NORTHBOUND PASSING LANE)
3-B STA 468+55.00 TO STA 95+55.00 LT

1. CHANGE PORTABLE MESSAGE BOARDS AND BARRICADES FOR NEW TRAFFIC PATTERN.
2. PLACE WORK ZONE SIGNING AND BARRICADES AS REQUIRED FOR PHASE 3 LANE CLOSURE. REMOVE ANY CONFLICTING SIGNS.
3. ENSURE SW3P ITEMS ARE IN PROPER WORKING CONDITIONS.
4. INSTALL WORK ZONE STRIPING AND BARRICADES AS REQUIRED FOR PHASE 3.
5. CONSTRUCT SOUTHBOUND/NORTHBOUND PASSING LANE IN ACCORDANCE WITH THE TYPICAL SECTIONS:
   - A) PLANE ASPHALT PAVEMENT
   - B) INSTALL TACKCOAT
   - C) INSTALL D-GR HMA
6. INSTALL WORKZONE STRIPING AND MARKINGS.

PHASE 3-A, 3-B NOTES

1. NO TWO CONSECUTIVE PHASES WILL BE ALLOWED OPEN TO CONSTRUCTION AT ONE TIME.
2. THE SUBSEQUENT PHASE CANNOT BEGIN UNTIL THE PREVIOUS PHASE IS COMPLETE.
3. MILL AND FILL ONLY WHAT YOU CAN DO IN A DAY AND OPEN BACK TO TRAFFIC AT NIGHT.



PHASE 4

US 62

(SMA OVERLAY)

(SOUTHBOUND DRIVING LANE, NORTHBOUND DRIVING LANE, SOUTHBOUND SHOULDER,
OUTSIDE DECEL LANE, NORTHBOUND SHOULDER, OUTSIDE DECEL/ACCEL LANE
SOUTHBOUND PASSING, NORTHBOUND PASSING LANE & CROSSOVERS)

STA 95+55.00 TO 674+00.00

1. CHANGE PORTABLE MESSAGE BOARDS AND BARRICADES FOR NEW TRAFFIC PATTERN.
2. PLACE WORK ZONE SIGNING AND BARRICADES AS REQUIRED REMOVE ANY CONFLICTING SIGNS.
3. ENSURE SW3P ITEMS ARE IN WORKING CONDITIONS.
4. CONTRACTOR RESPONSIBLE FOR PROVIDING ACCESS TO PRIVATE ROADWAYS AND DRIVEWAYS AT ALL TIMES.
5. INSTALL FABRIC & SMA.
6. COMPLETE BACKFILLING OF PAVEMENT EDGES.
7. INSTALL EMULSION FOR EROSION CONTROL AS DIRECTED BY THE ENGINEER

PHASE 4 NOTES

1. NO MORE THAN 2 MILES CAN BE OPENED FOR CONSTRUCTION AT ALL TIMES OR AS DIRECTED BY THE ENGINEER.
2. WORK SHALL START ON THE SOUTHBOUND SIDE AT BROWNFIELD AND PROGRESS TOWARDS WELLMAN, THEN SWITCH BACK TO THE NORTHBOUND SIDE AT WELLMAN AND PROGRESS BACK TO BROWNFIELD.

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PHASING NARRATIVE

NO SCALE SHEET 2 OF 3

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		14

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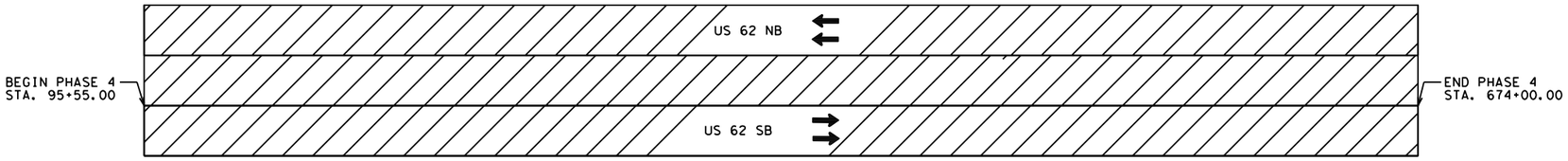


PHASE 5

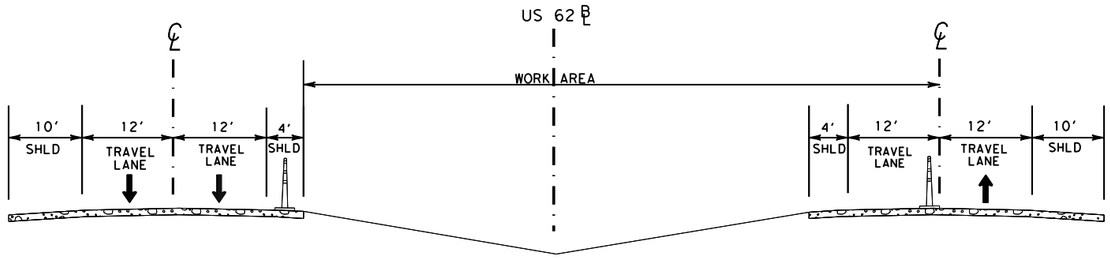
US 62

(FINAL STRIPING, RAISED PAVEMENT MARKERS, SIGNING, AND DELINEATION)

STA 95+55.00 TO 674+00.00

1. CHANGE PORTABLE MESSAGE BOARDS AND BARRICADES FOR NEW TRAFFIC PATTERN.
2. ENSURE SW3P ITEMS ARE IN WORKING CONDITIONS.
3. CONTRACTOR RESPONSIBLE FOR PROVIDING ACCESS TO PRIVATE ROADWAYS AND DRIVEWAYS AT ALL TIMES.
4. MEDIAN CABLE BARRIER WORK
5. INSTALL RUMBLE STRIP, FINAL STRIPING AND RAISE PAVEMENT MARKERS
6. INSTALL SIGNING AND DELINEATION
7. PERFORM FINAL CLEAN UP
8. REMOVE BARRICADES

KEY
WORKZONE PHASE
COMPLETED PHASE
TRAFFIC FLOW



DAILY CLOSURE TYPICAL SECTION
(LT SIDE SIMILAR)
ONLY CLOSE LANE ON SIDE NEAREST TO WORK
TRAFFIC CONTROL DEVICES TO BE MOVED TO INSIDE SHOULDER
AT THE END OF THE WORK DAY OR WHEN NO WORK IS BEING DONE.

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PHASING NARRATIVE

NO SCALE SHEET 3 OF 3

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		15

DATE: 6/22/2023 7:55:16 PM
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*US62 WORKZONE STRIPING SUMMARY											
DESCRIPTION											
TO	FROM	ELIM EXT PAV MRK	ELIM EXT PAV MRK	SW			DOT	BW	SY		TABS
		6"	8"	6"	8"	24"	8" x 3'	6"	6"	6"	TY W
		LF	LF	LF	LF	LF	LF	LF	LF	LF	EA
95+55	674+20	252181	25930	113660	25930	320	1813	28975	910	108636	2537
* ESTIMATED PURPOSES ONLY									109546		

PROJECT TRAFFIC CONTROL NOTES (ALL PHASES)

SEQUENCE OF WORK WILL BE APPROVED BY THE ENGINEER.

STANDARD REGULATORY AND WARNING SIGNS WHICH ARE NOT SHOWN ON THE TCP SHEETS SHALL BE IN ACCORDANCE WITH THE CURRENT TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) AND STANARDS BC (1) - (12).

THE CONTRACTOR MAY BE REQUIRED TO FURNISH OTHER BARRICADES AND OTHER TYPES OF DEVICES AS DIRECTED BY THE ENGINEER OR AS INDICATED IN THE TMUTCD, BC, WZ, AND TCP STANDARDS.

PAVEMENT MARKING CONFORMING TO THE TMUTCD AND SHEETS BC (1) - (12) WILL BE IN PLACE BEFORE ANY OVERNIGHT TRAFFIC IS ALLOWED ON ANY CONSTRUCTION SURFACE.

ALL PAVEMENT MARKINGS AND SIGNS THAT CONFLICT WITH TRAFFIC MOVEMENTS WILL BE REMOVED. REMOVAL OF ITEM 662 "WORK ZONE PAVEMENT MARKINGS (REMOVABLE)" WILL NOT BE PAID FOR BUT CONSIDERED SUBIDIARY TO ITEM 662.

REFER TO "TREATMENT FOR VARIOUS EDGE CONDITIONS" SHEET FOR EDGE DROPOFF TREATMENT.

CW8-17 AND CW8-11 SIGNS SHALL BE PLACED AS DIRECTED BY THE ENGINEER.

ADVISORY SPEED LIMIT SIGNS SHALL BE PLACED AS DIRECTED BY THE ENGINEER.

BARRICADES SHALL NOT BE USED AS SIGN SUPPORTS.

ON ANY SERIES OF TRAFFIC CONTROL DEVICES WHERE REFLECTORS MAY BE USED, LIGHTS WILL BE REQUIRED AT THE BEGINNING AND END OF EACH SERIES.

SIGN, BARRICADES, AND CONES NOT IN USE FOR 3 WORKING DAYS WILL BE REMOVED FROM THE RIGHT-OF-WAY.

SIGNS AT THE BEGINNING AND END OF THE PROJECT SHALL BE IN ACCORDANCE WITH BC (1) - (12).

SIGNS G20-2 AND G20-1aT, OR CW20-1D SIGNS SHALL BE AT EACH INTERSECTING HIGHWAY, CITY STREET, AND COUNTY ROAD.

THE CONTRACTOR WILL CONTACT ADJACENT PROPERTY OWNERS CONCERNING INGRESS AND EGRESS OF THEIR PROPERTY DURING CONSTRUCTION.

THIS ROADWAY SHALL BE CONSIDERED A HIGH SPEED ROADWAY.

UNLESS OTHERWISE STATED IN THE PLANS, FLAGS ATTACHED TO SIGNS ARE REQUIRED.

IF USED, PROVIDE VERTICAL PANELS MOUNTED ON FIXED SUPPORTS USING AN APPROVED ADHESIVE.

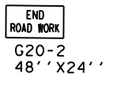
IF USED, INSTALL BARRIER REFLECTORS ON PORTABLE CONCRETE TRAFFIC BARRIER AS SHOWN ON BC (7).

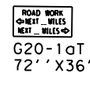
ALL TRANSVERSE EDGE HOT MIX TAPERS GREATER THAN ONE INCH, INTENDED TO CONVEY TRAFFIC, SHALL BE CONSTRUCTED AT A 100:1 SLOPE AND SHALL BE CONSIDERED SUBSIDIARY TO BARRICADES, SIGNS, AND TRAFFIC HANDLING.

POST TRAINED FLAGMEN AS NEEDED IN SPECIAL SITUATIONS AS DEEMED NECESSARY BY THE ENGINEER.

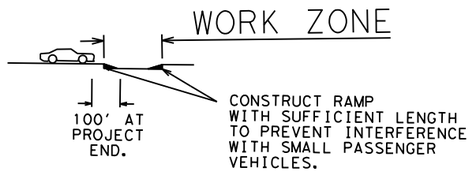
THE CONTRACTOR SHALL CONSTRUCT SALVAGE BASE OR HOT MIX RAMPS DURING CONSTRUCTION AT ALL INTERSECTIONS AND DRIVEWAYS FOR THE CONVENIENCE OF THE TRAVELING PUBLIC. CONSTRUCT RAMP WITH SUFFICIENT LENGTH TO PREVENT INTERFERENCE WITH SMALL PASSENGER VEHICLE. THIS WORK IS CONSIDERED SUBSIDIARY TO BARRICADES, SIGNS, AND TRAFFIC HANDLING.

CONSTRUCTION SPEED ZONE SHALL BE 65 MPH UNLESS EXISTING SPEED LIMITS ARE LOWER, OR AS DIRECTED BY THE ENGINEER.





Mounted back to back.



Benjamin Cox, P.E.

6-19-2023

WORKZONE ITEM SUMMARY

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		16

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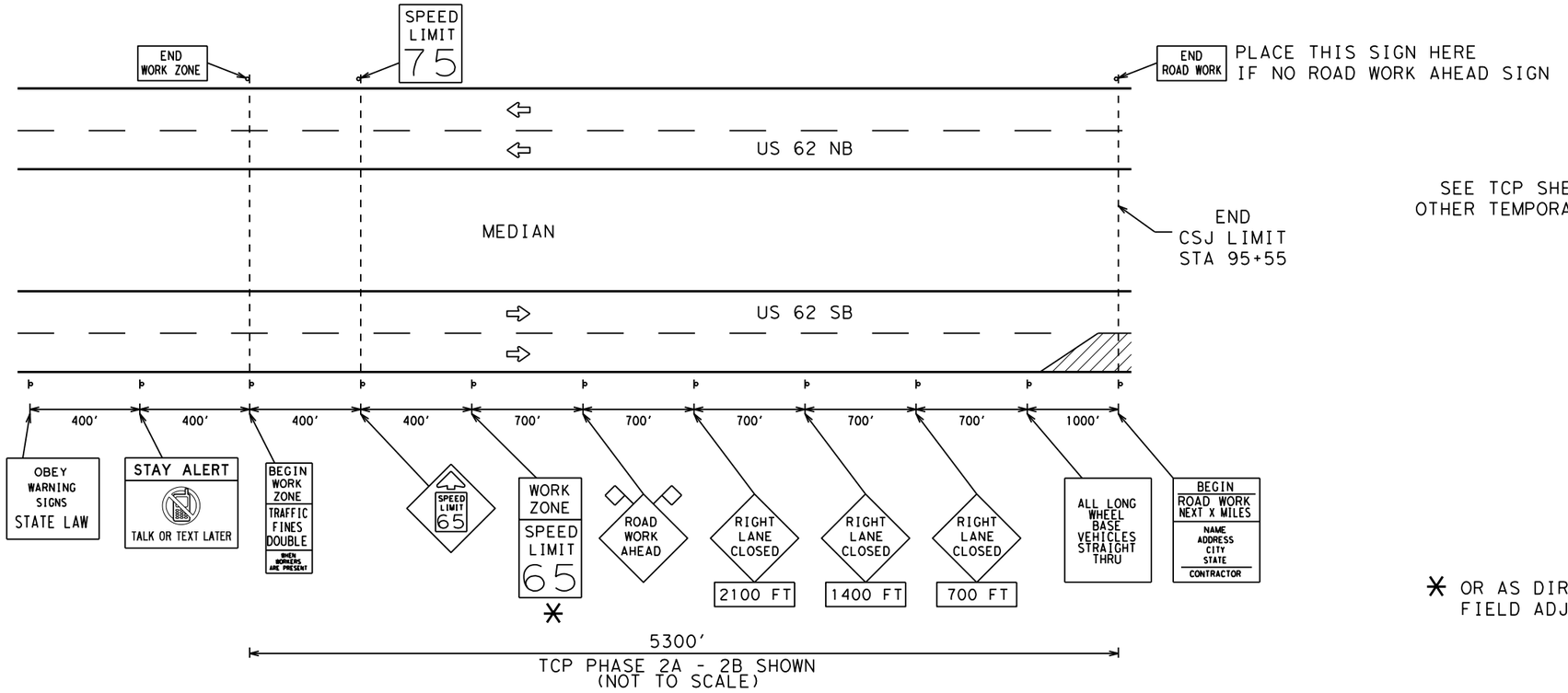
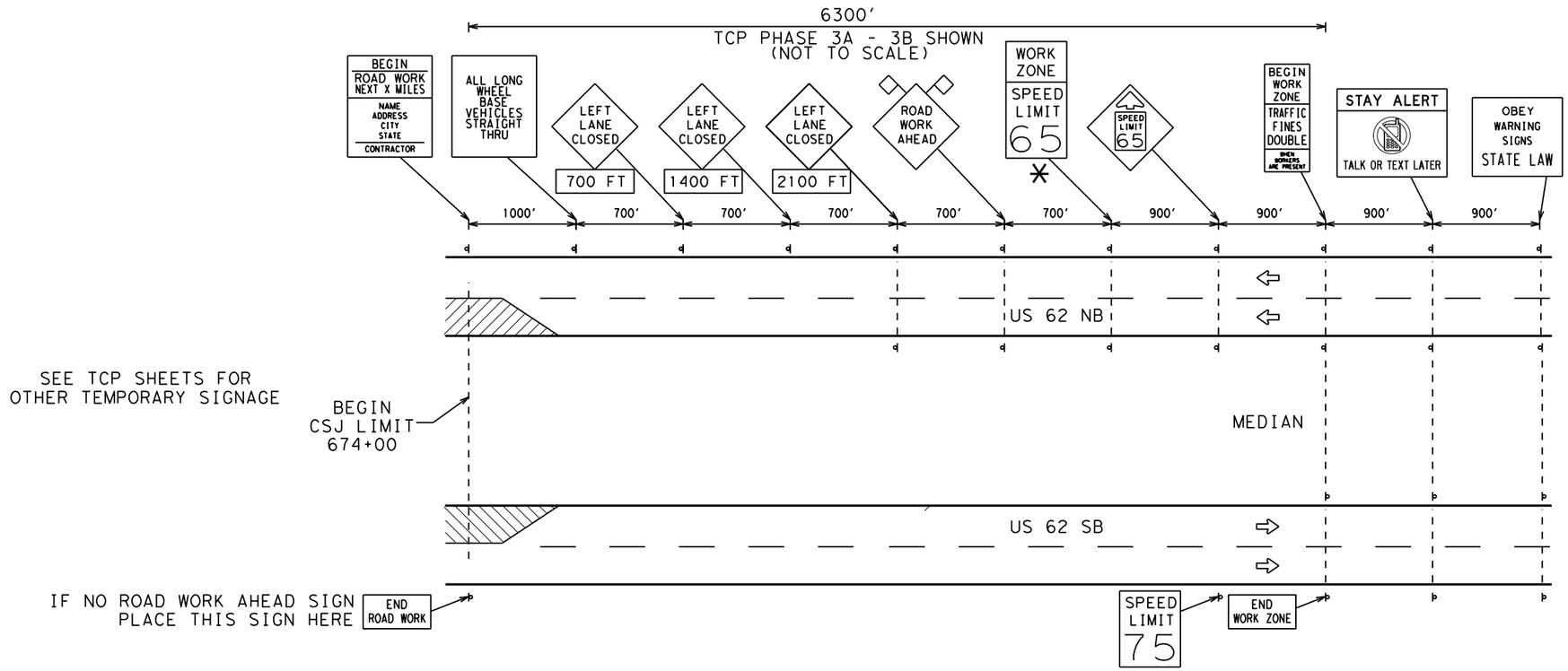


SEE TCP SHEETS FOR OTHER TEMPORARY SIGNAGE

* OR AS DIRECTED BY THE ENGINEER. FIELD ADJUSTMENT MAY BE NECESSARY.



STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PERIMETER SIGN LAYOUT

NO SCALE

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		17

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TYPICAL CONSTRUCTION SEQUENCE
SOUTHBOUND ROADWAY SHOWN
STA. 95+55.00 TO 98+67.00

USUAL SLOPES, WIDTHS, AND OTHER CONDITIONS SHOWN.
SEE PLAN DETAILS FOR SPECIFIC INSTRUCTIONS.

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLANING DETAILS

NO SCALE SHEET 1 OF 3

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		18

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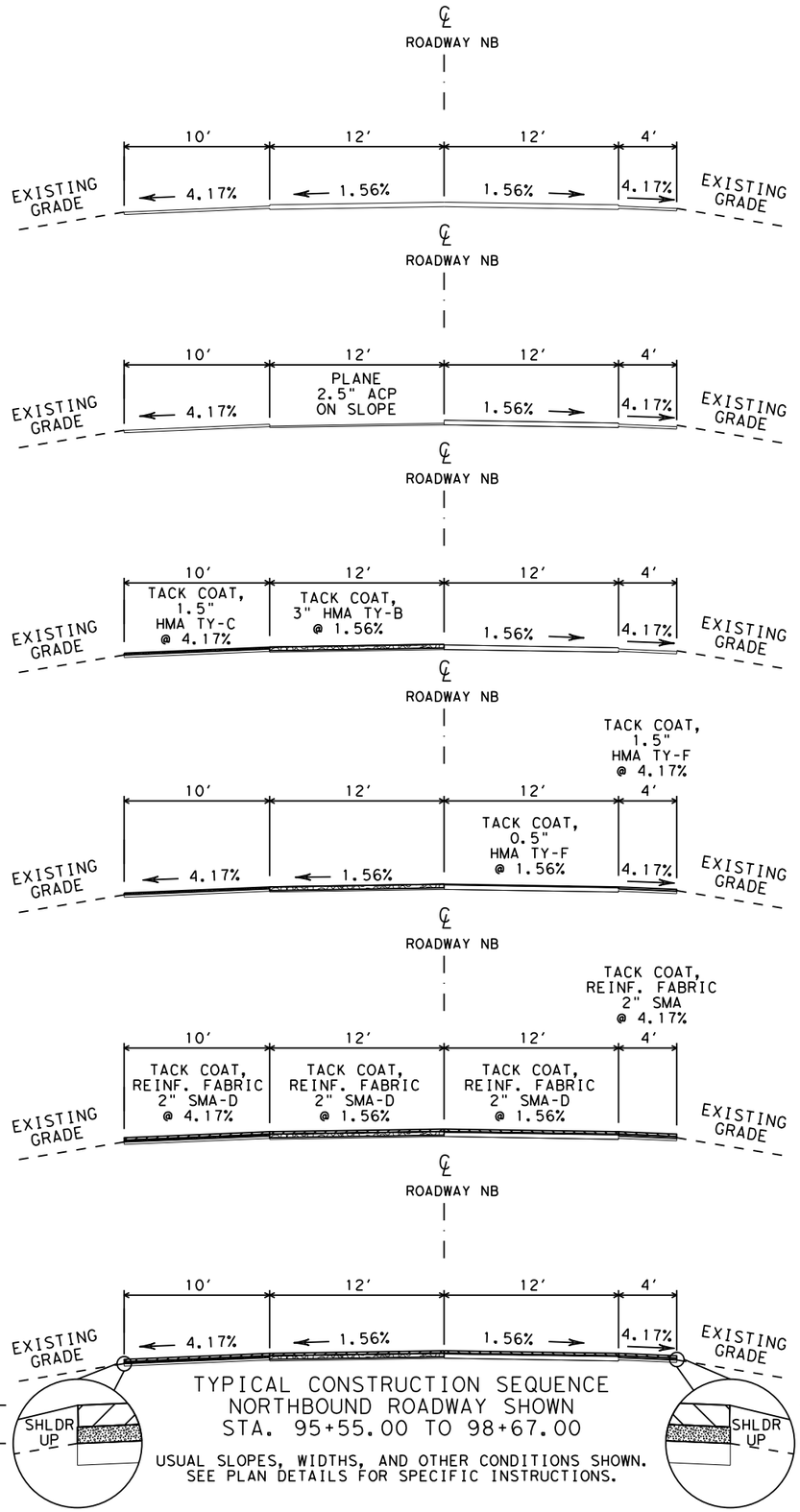

TYPICAL CONSTRUCTION SEQUENCE
NORTHBOUND ROADWAY SHOWN
STA. 95+55.00 TO 98+67.00

USUAL SLOPES, WIDTHS, AND OTHER CONDITIONS SHOWN.
SEE PLAN DETAILS FOR SPECIFIC INSTRUCTIONS.

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLANING DETAILS

NO SCALE SHEET 2 OF 3

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		19

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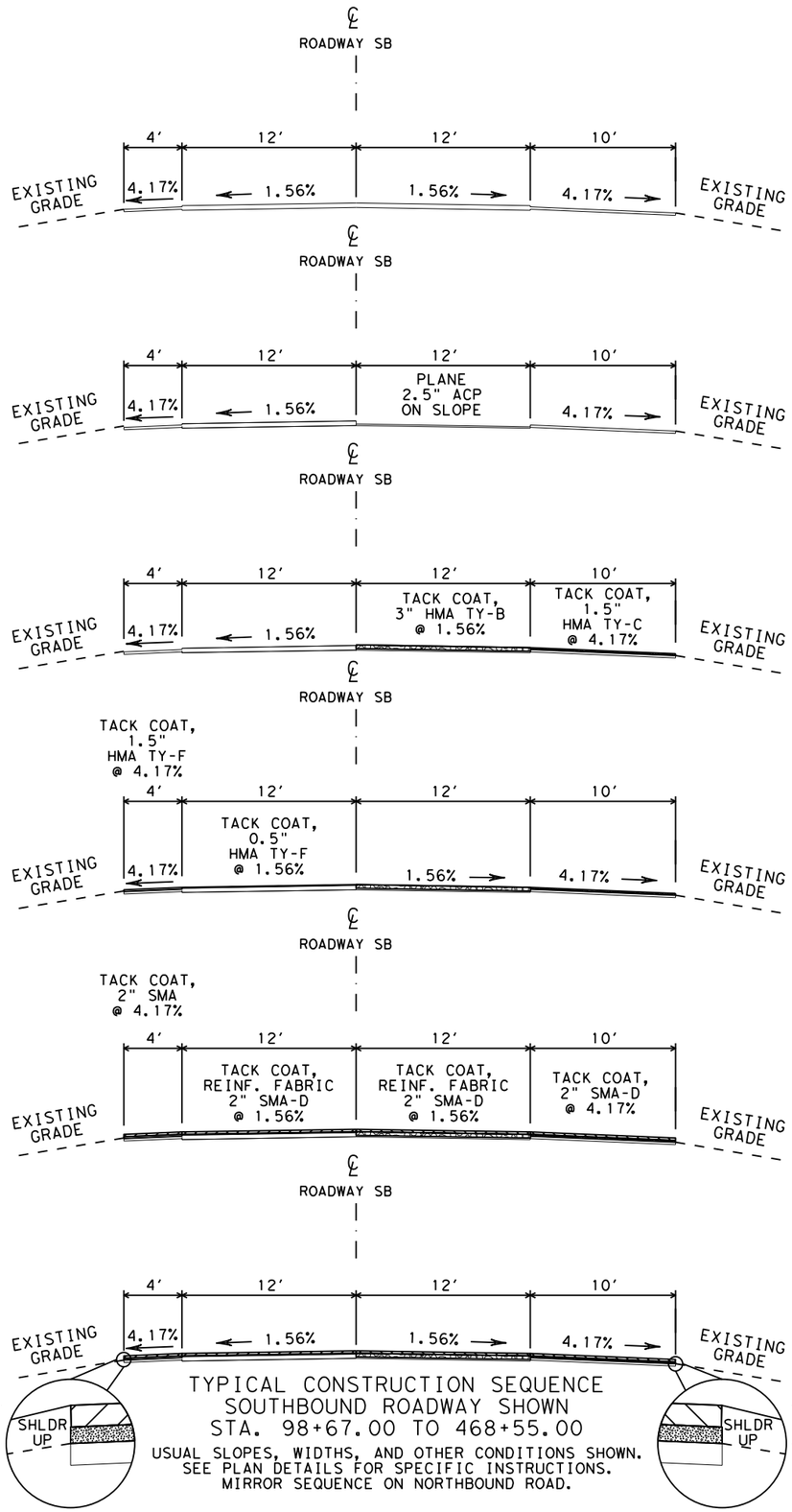

TYPICAL CONSTRUCTION SEQUENCE
SOUTHBOUND ROADWAY SHOWN
STA. 98+67.00 TO 468+55.00

USUAL SLOPES, WIDTHS, AND OTHER CONDITIONS SHOWN.
SEE PLAN DETAILS FOR SPECIFIC INSTRUCTIONS.
MIRROR SEQUENCE ON NORTHBOUND ROAD.

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLANING DETAILS

NO SCALE SHEET 3 OF 3

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		20

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

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

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

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

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

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

WORKER SAFETY NOTES:

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

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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
4-03 7-13	DIST	COUNTY		SHEET NO.
9-07 8-14	LBB	TERRY		21
5-10 5-21				

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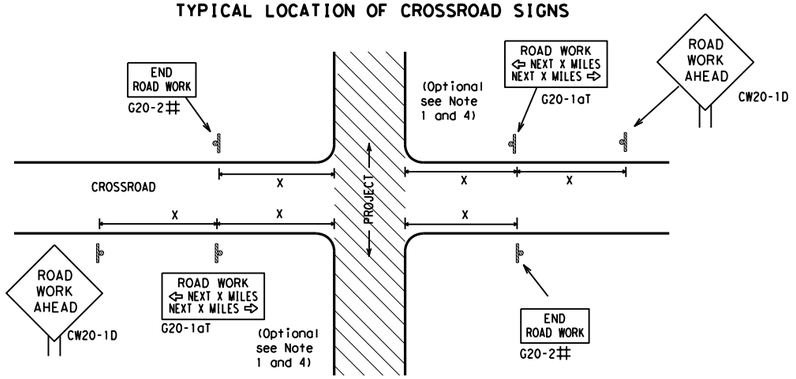
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\05 - LBB\Design Projects\022801056\4 - Design\Plan Set\2. TCP\TCP Standards\bc-21.dgn

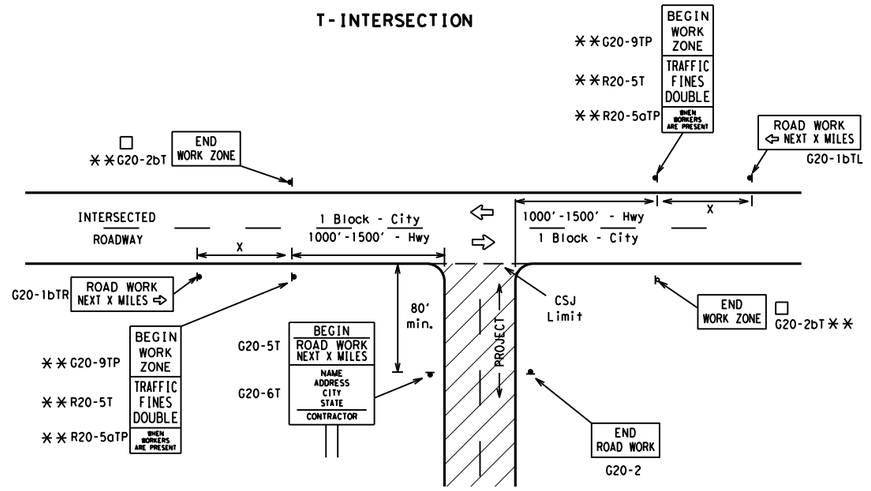
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

SIZE

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

SPACING

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

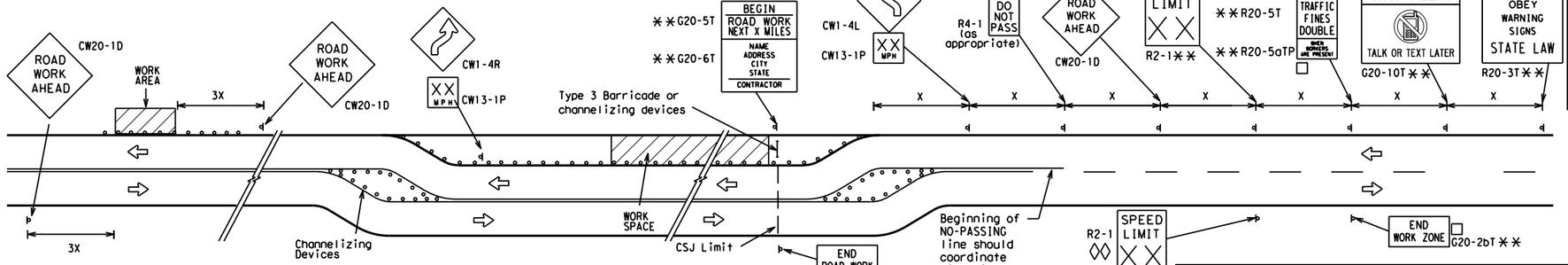
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

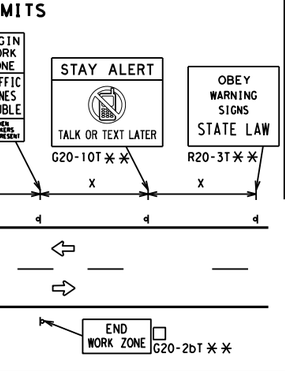
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

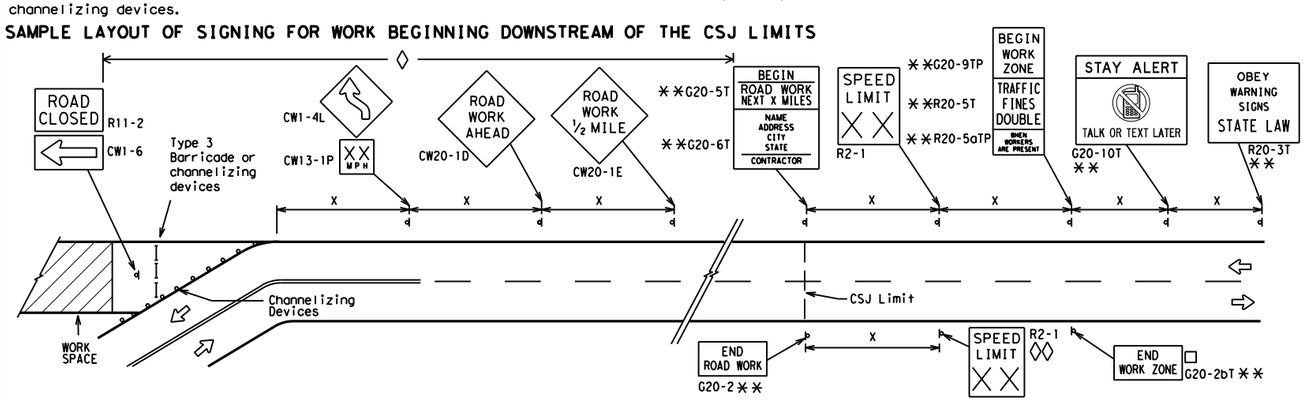


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



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



NOTES

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

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

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

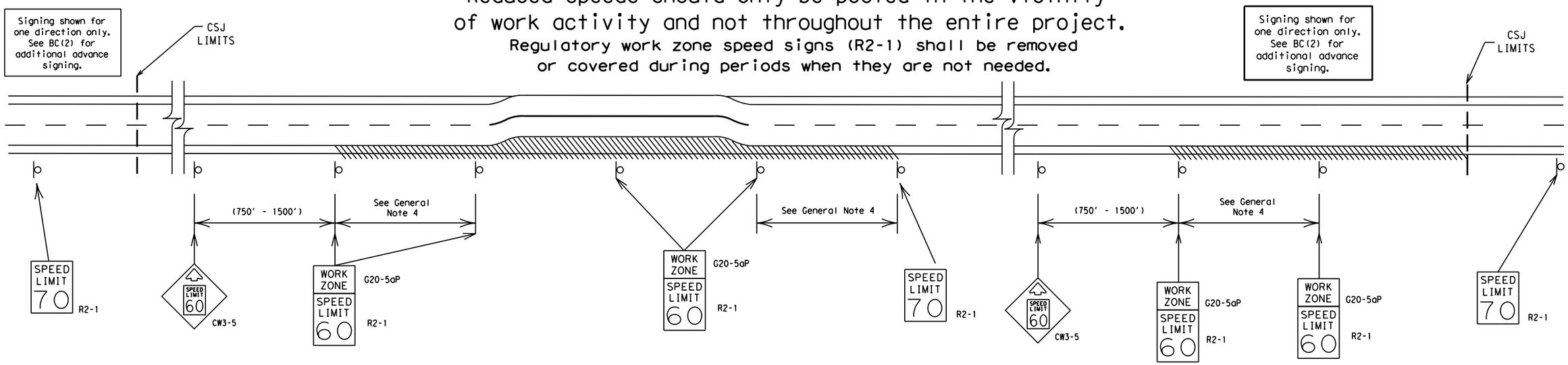
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LBB	TERRY		22

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the traveled way.

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

GENERAL NOTES

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
3. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
4. Frequency of work zone speed limit signs should be:
   40 mph and greater 0.2 to 2 miles
   35 mph and less 0.2 to 1 mile
5. Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
6. Fabrication, erection and maintenance of the"ADVANCE SPEED LIMIT"(CW3-5)sign, "WORK ZONE"(G20-5aP) plaque and the "SPEED LIMIT"(R2-1)signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
7. Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Techniques that may help reduce traffic speeds include but are not limited to:
   A. Law enforcement.
   B. Flagger stationed next to sign.
   C. Portable changeable message sign (PCMS).
   D. Low-power (drone) radar transmitter.
   E. Speed monitor trailers or signs.
9. Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
10. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

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Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

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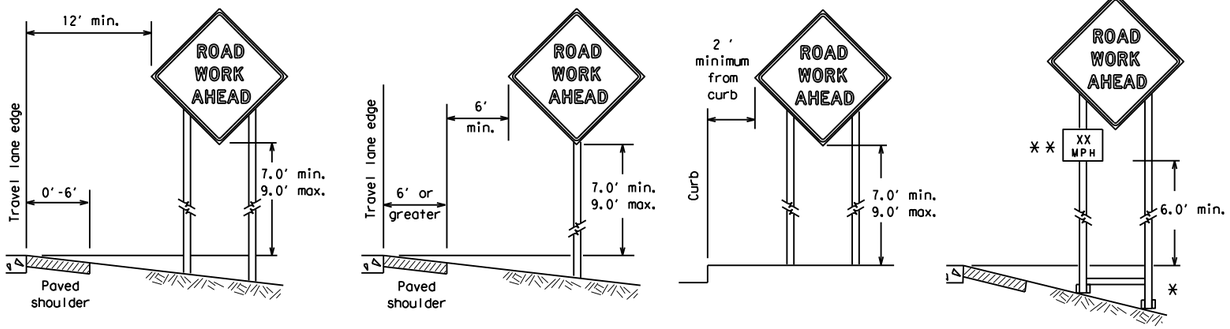
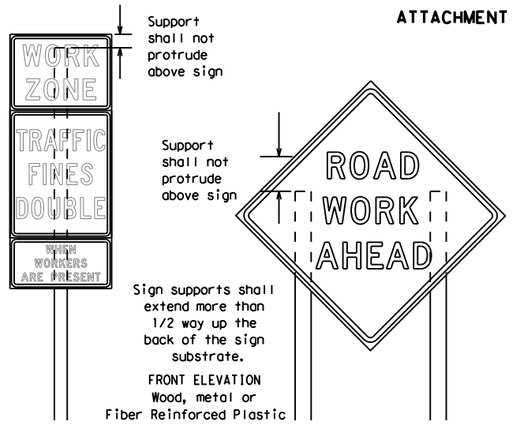
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

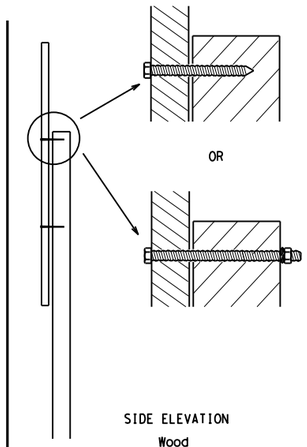


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS





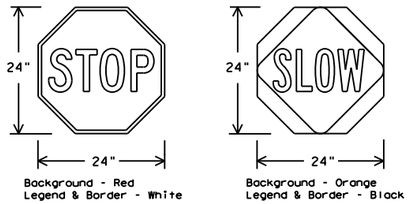
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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

STOP/SLOW PADDLES

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



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

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (LOGO), or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRS standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

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

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

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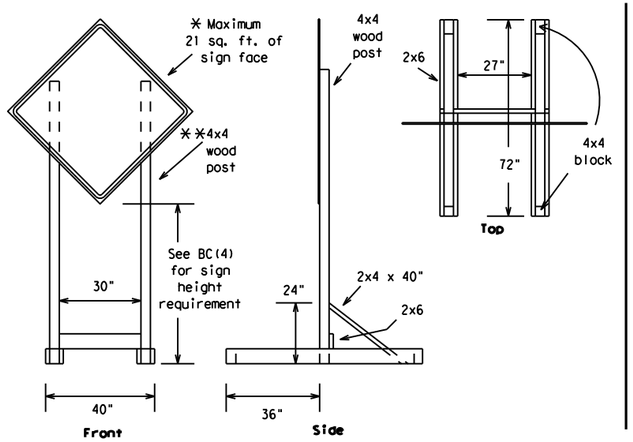
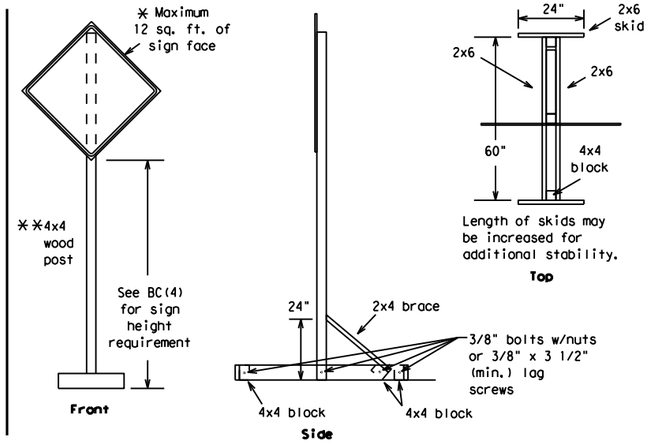
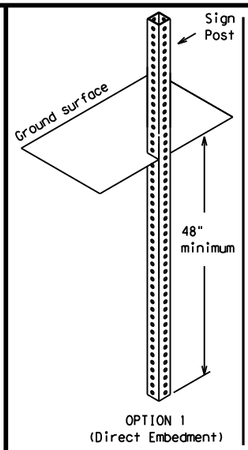
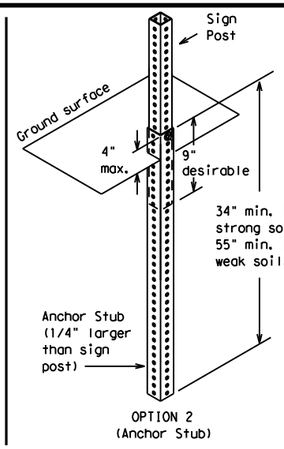


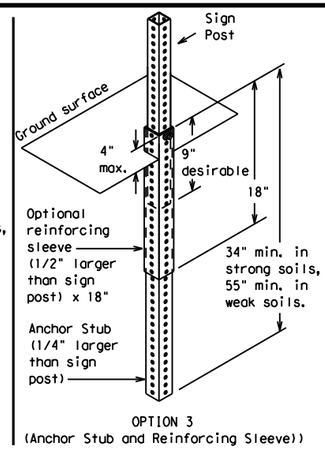


SKID MOUNTED WOOD SIGN SUPPORTS

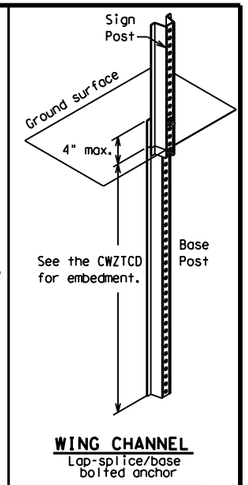
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS







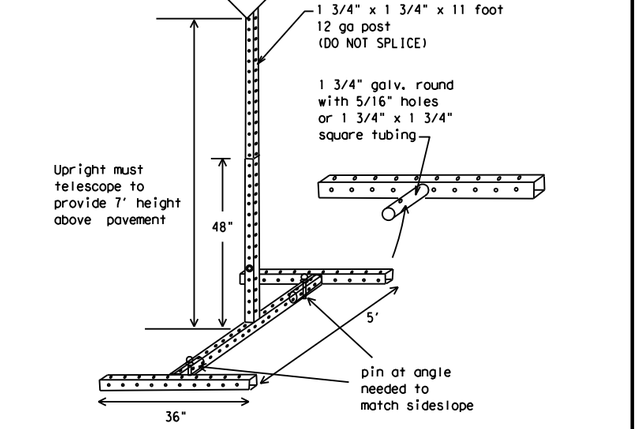
PERFORATED SQUARE METAL TUBING

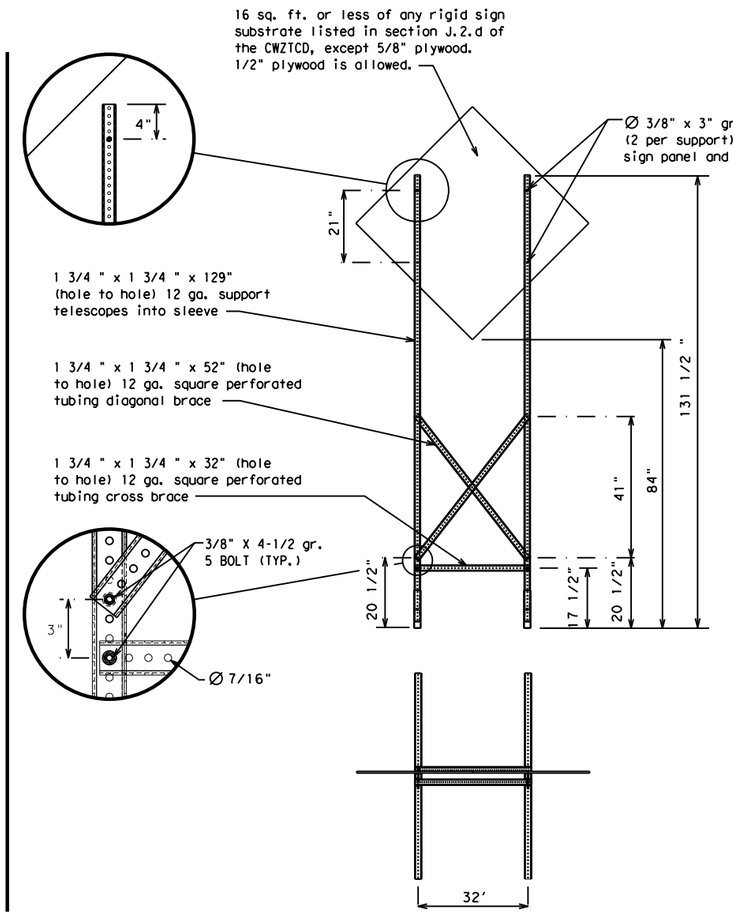


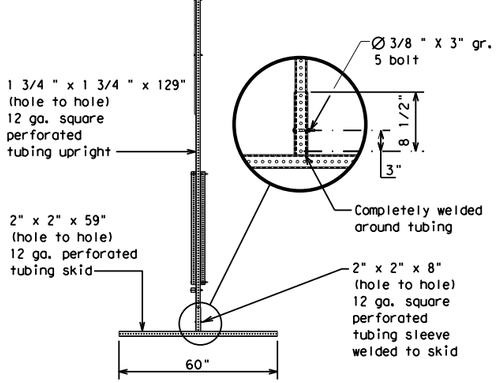
WING CHANNEL
Lap-splice/base bolted anchor

GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

* See BC(4) for definition of "Work Duration."

** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

□ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

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Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

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

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

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LBB	TERRY		26

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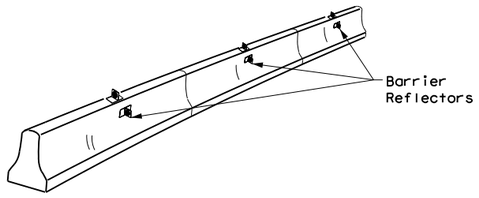
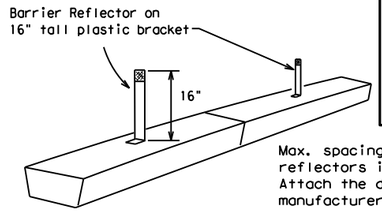
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost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



CONCRETE TRAFFIC BARRIER (CTB)

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

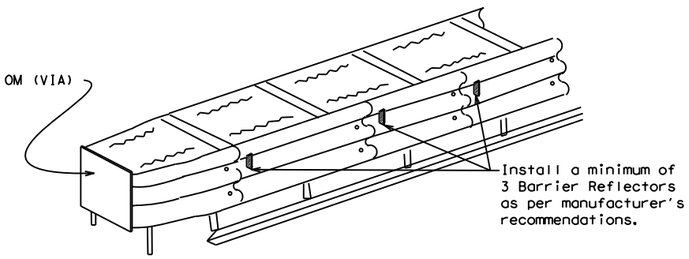


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) 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)

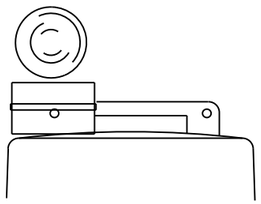


DELINEATION OF END TREATMENTS

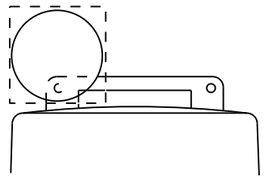
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

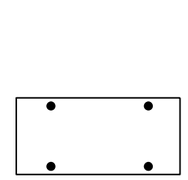
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

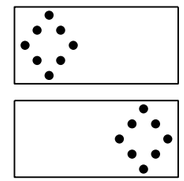
Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

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

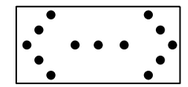


4 CORNER CAUTION

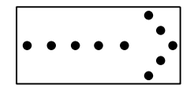
OR



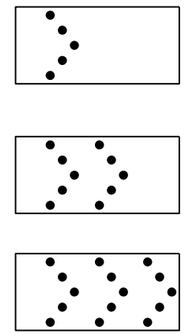
ALTERNATING DIAMOND CAUTION



DOUBLE ARROW



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



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

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

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

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

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

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	LBB	TERRY		27

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GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

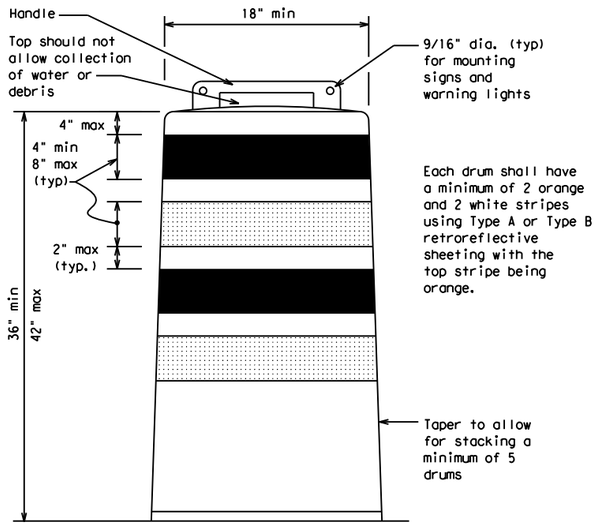
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

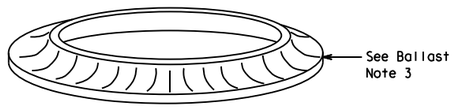
RETROREFLECTIVE SHEETING

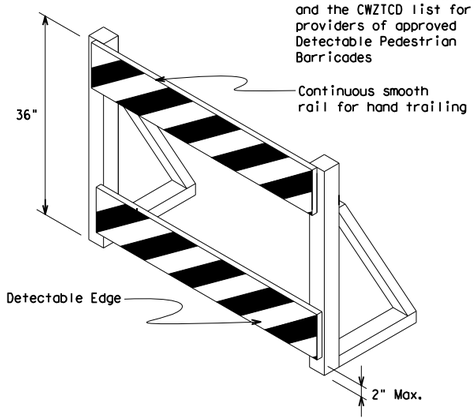
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
5. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.

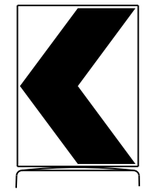




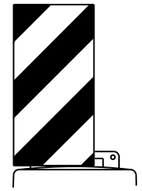


DETECTABLE PEDESTRIAN BARRICADES

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



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
4-03 8-14	DIST	COUNTY		SHEET NO.
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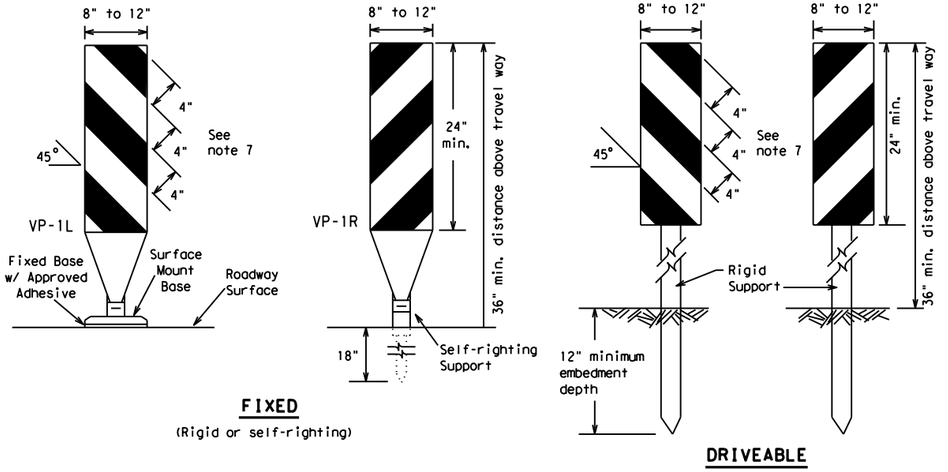
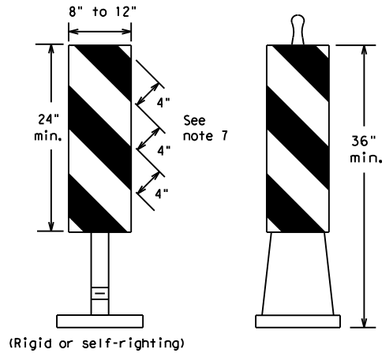


FIXED
(Rigid or self-righting)

DRIVEABLE

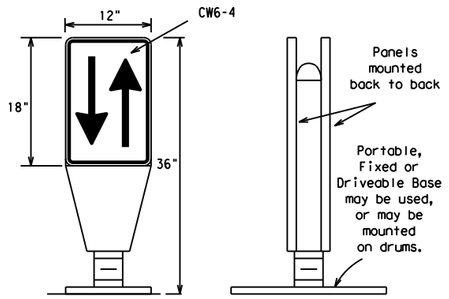


(Rigid or self-righting)

PORTABLE

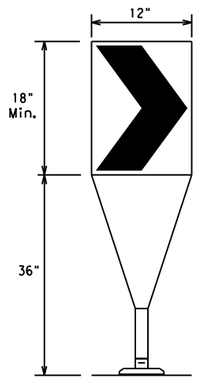
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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

VERTICAL PANELS (VPs)



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



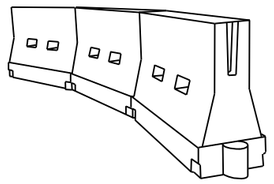
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS

GENERAL NOTES

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

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Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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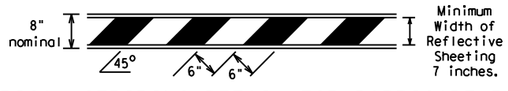
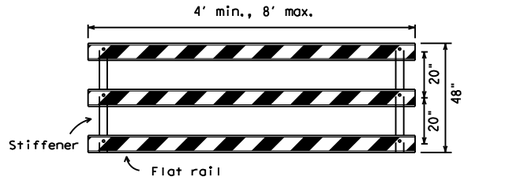
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



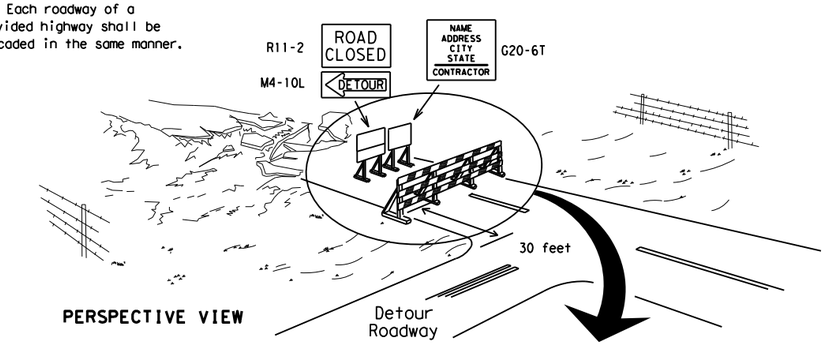
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

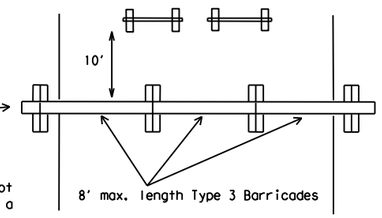
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

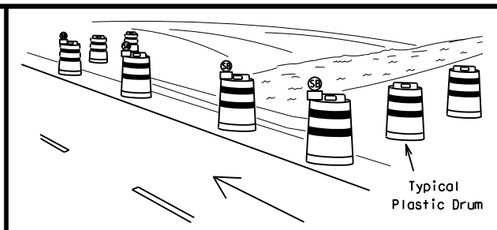
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

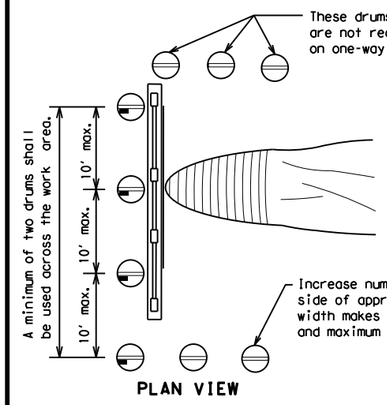
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

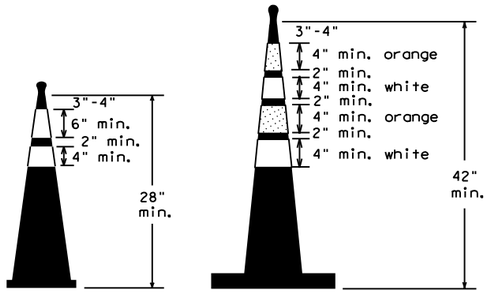
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



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

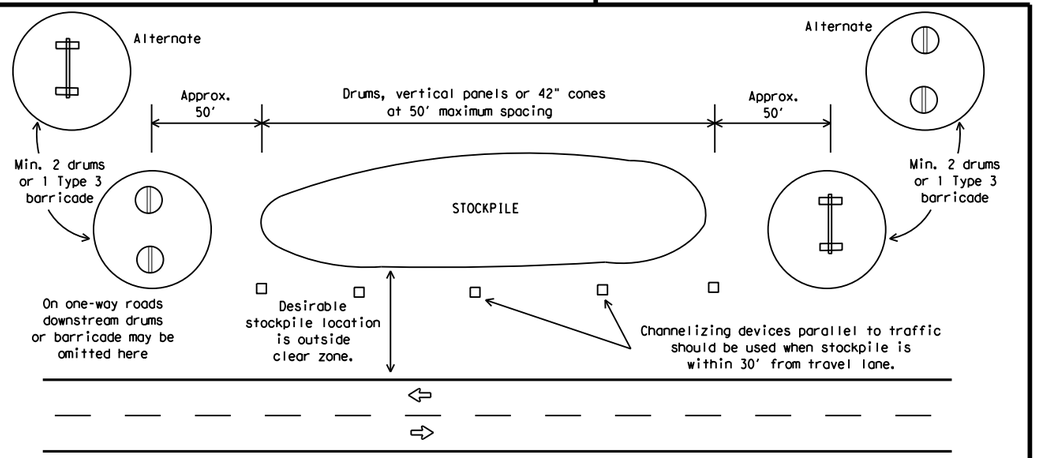
PLAN VIEW

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



28" Cones shall have a minimum weight of 9 1/2 lbs.
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

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WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

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

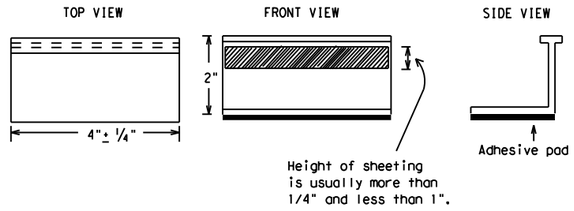
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

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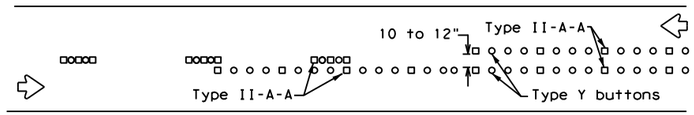
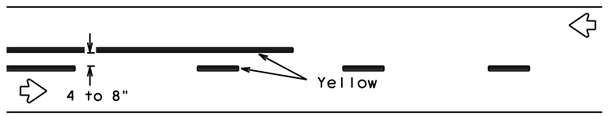
PAVEMENT MARKING PATTERNS

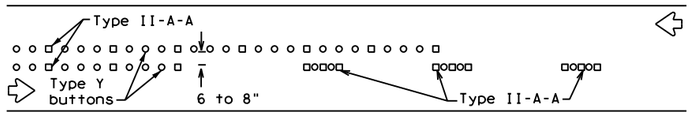
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



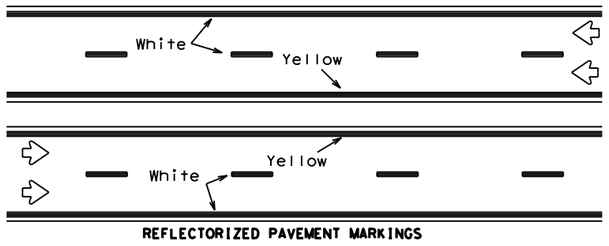
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



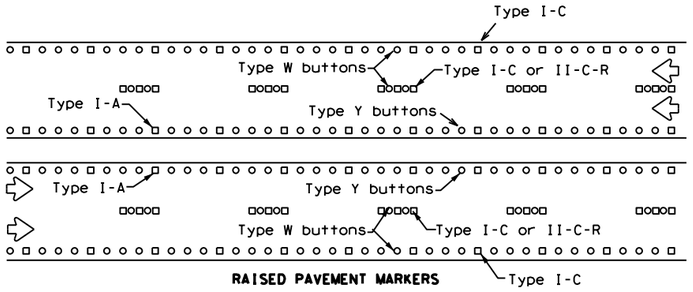
RAISED PAVEMENT MARKERS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer.
Prefabricated markings may be substituted for reflectorized pavement markings.

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



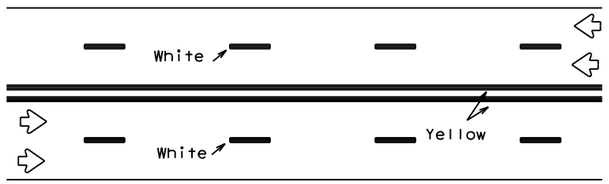
REFLECTORIZED PAVEMENT MARKINGS



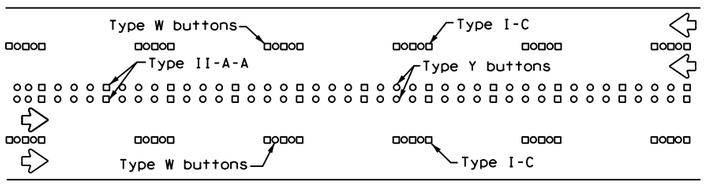
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



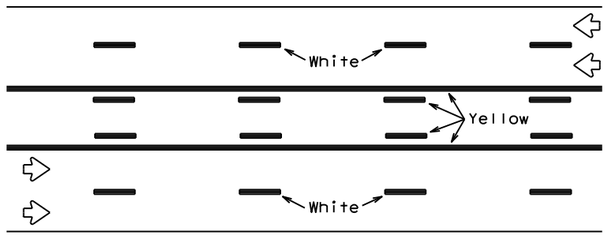
REFLECTORIZED PAVEMENT MARKINGS



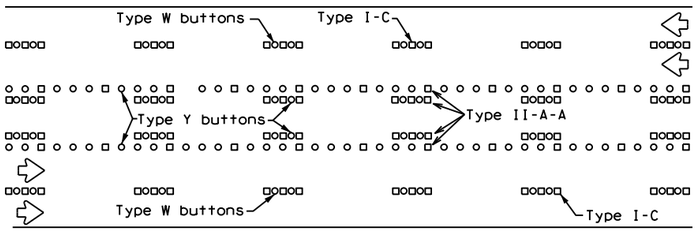
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

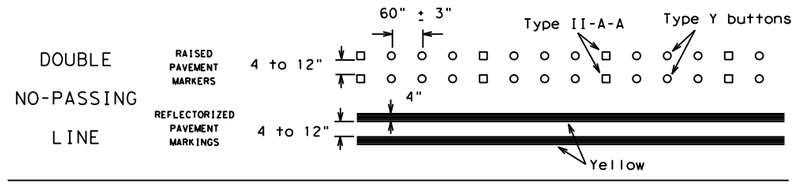
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

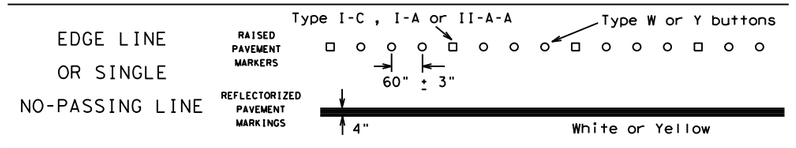
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

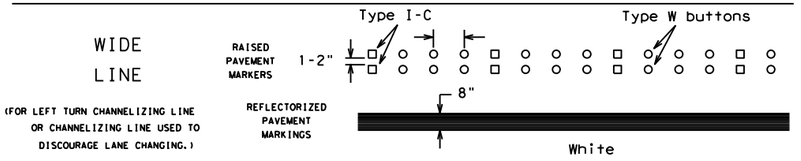


EDGE LINE OR SINGLE NO-PASSING LINE



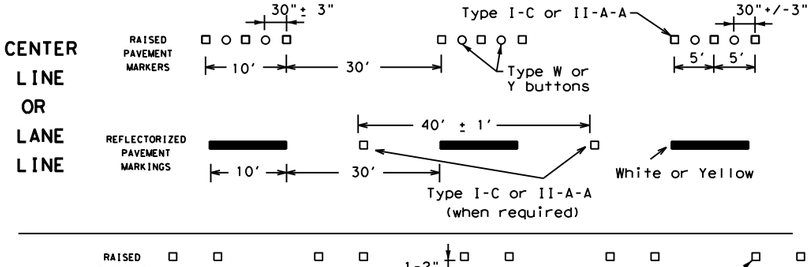
WIDE LINE

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

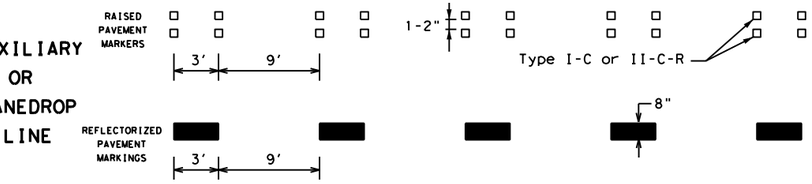


BROKEN LINES

CENTER LINE OR LANE LINE

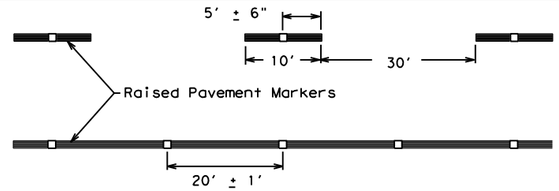


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0228	01	056	US 62/385
	DIST	COUNTY		SHEET NO.
	LBB	TERRY		32

106

DATE: 6/7/2023 4:45:23 PM
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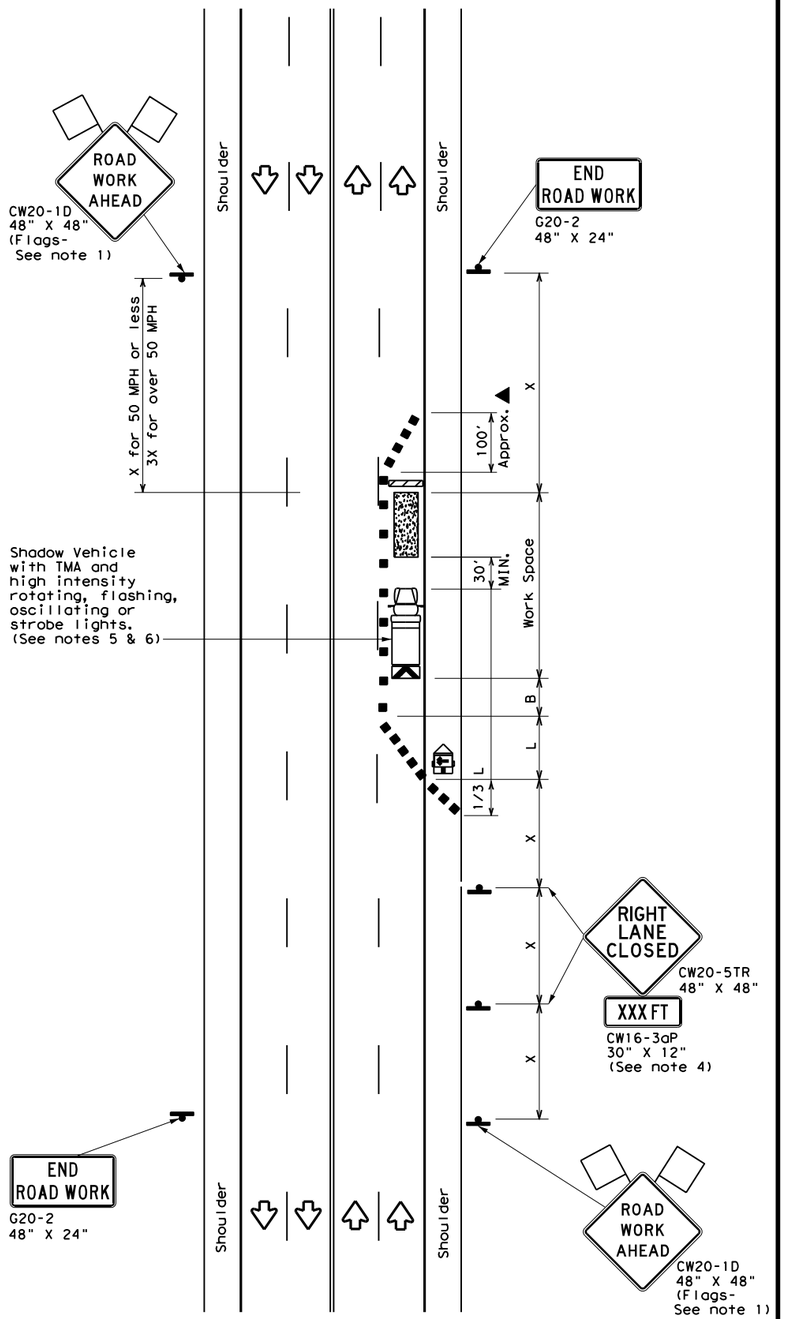
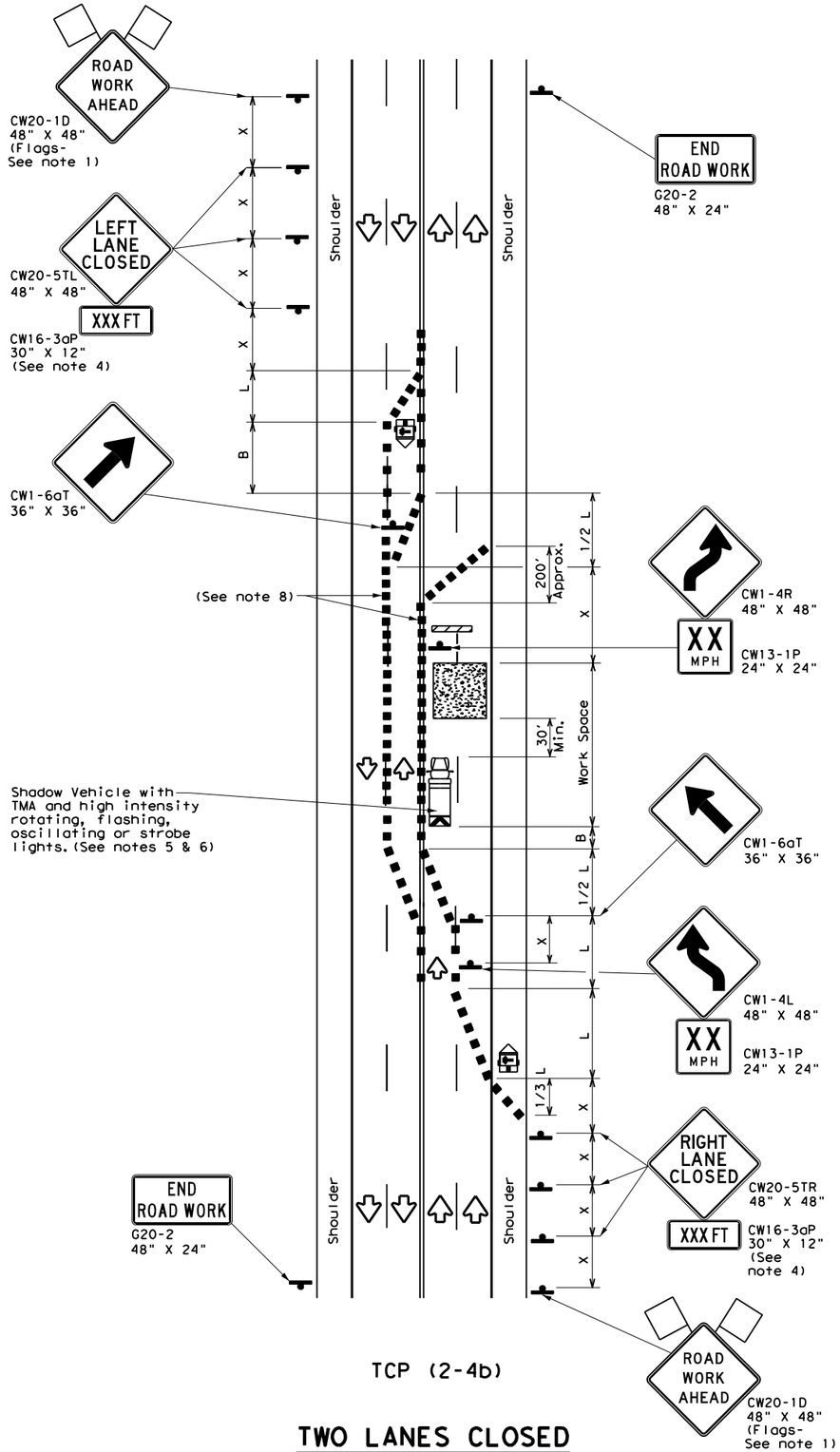


TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

TCP (2-4a)

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

TCP (2-4b)

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

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

FILE: tcp2-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0228	01	056	US 62/385
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	LBB	TERRY		33

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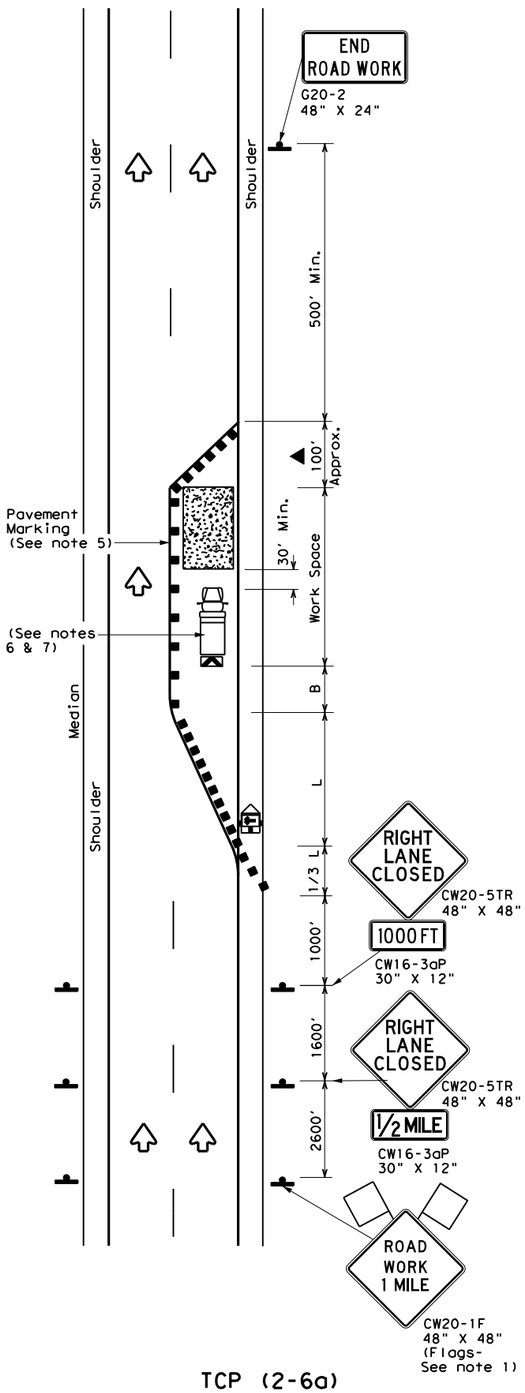
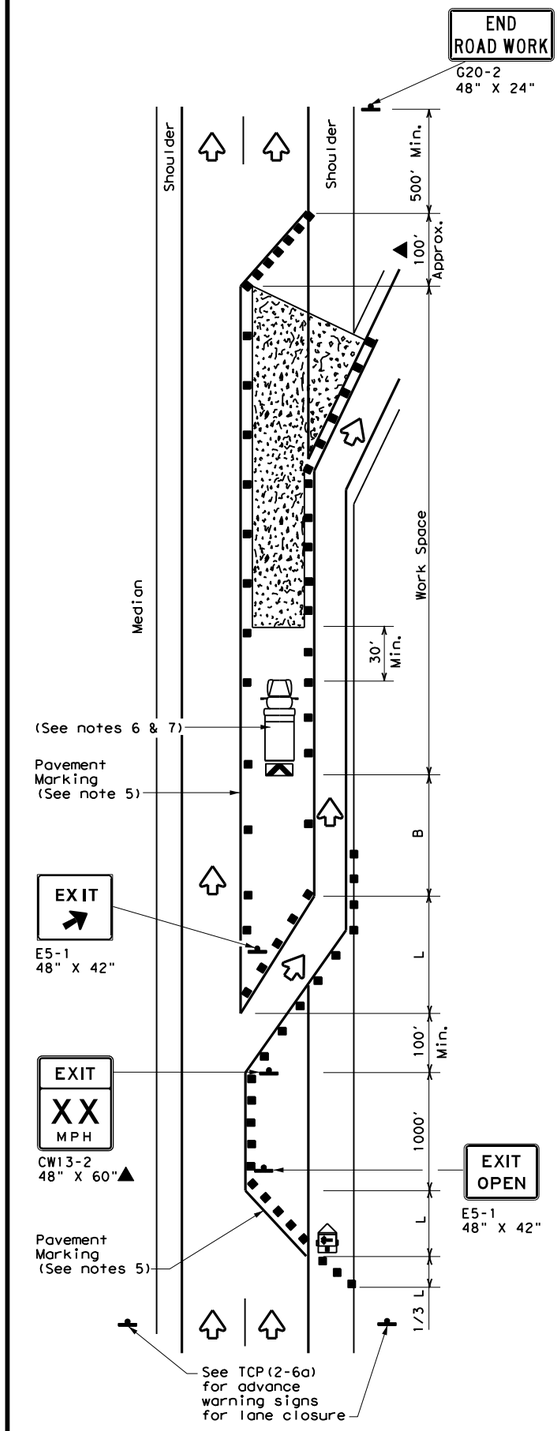


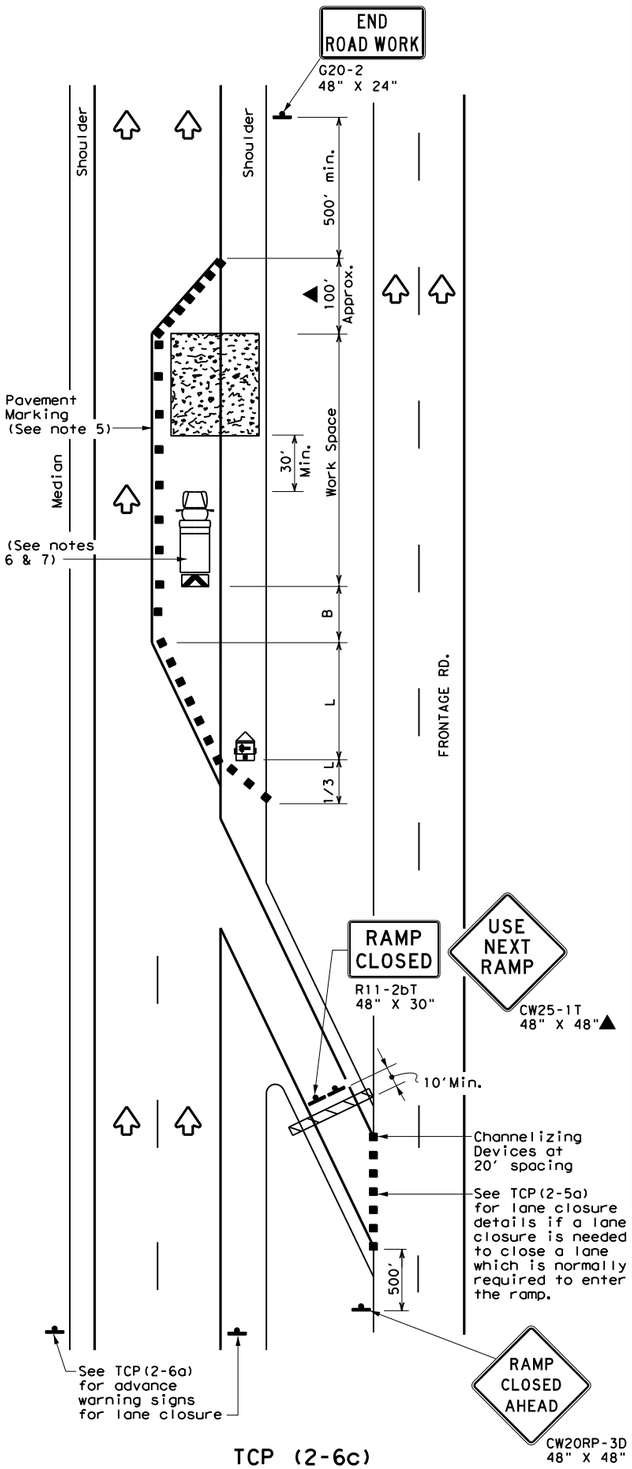
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on everyother channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
5. The placement of pavement markings may be omitted on Intermediate-term stationary work zones with the approval of the Engineer.
6. Shadow Vehicle with TMA and high intensity rotating, flashing,oscillating or strobe lights. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

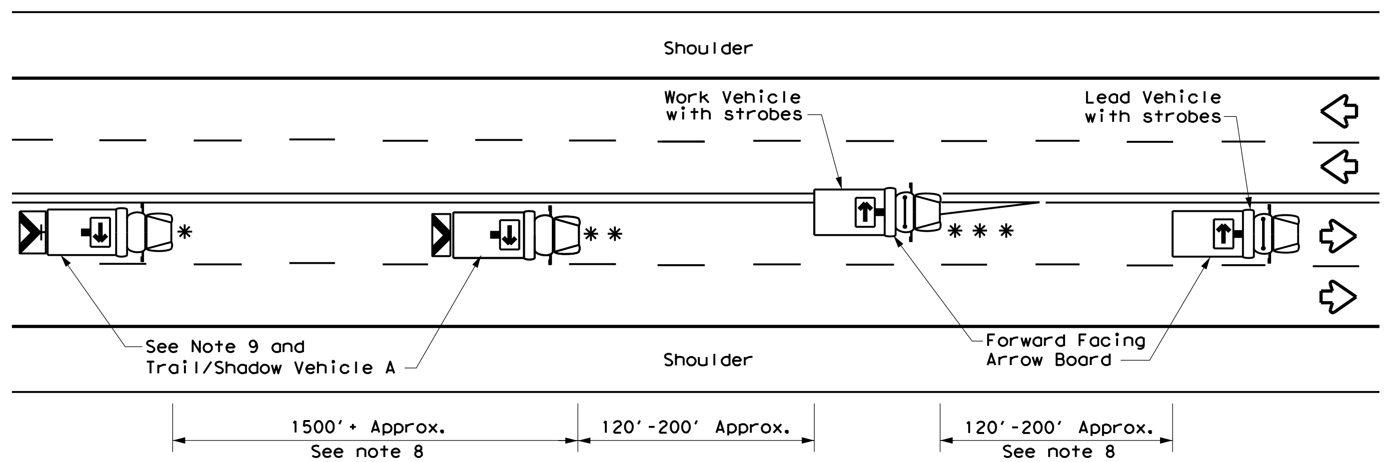
Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS

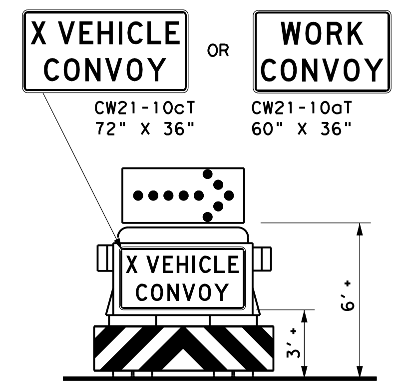
TCP(2-6)-18

FILE: tcp2-6-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	0228	01	056	US 62/385
	DIST	COUNTY		SHEET NO.
	LBB	TERRY		34



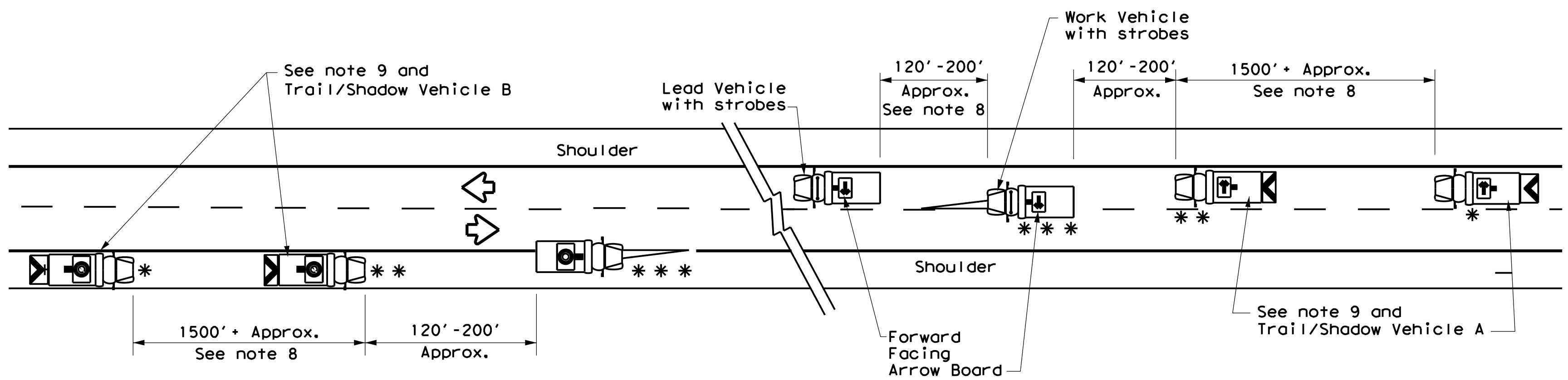
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

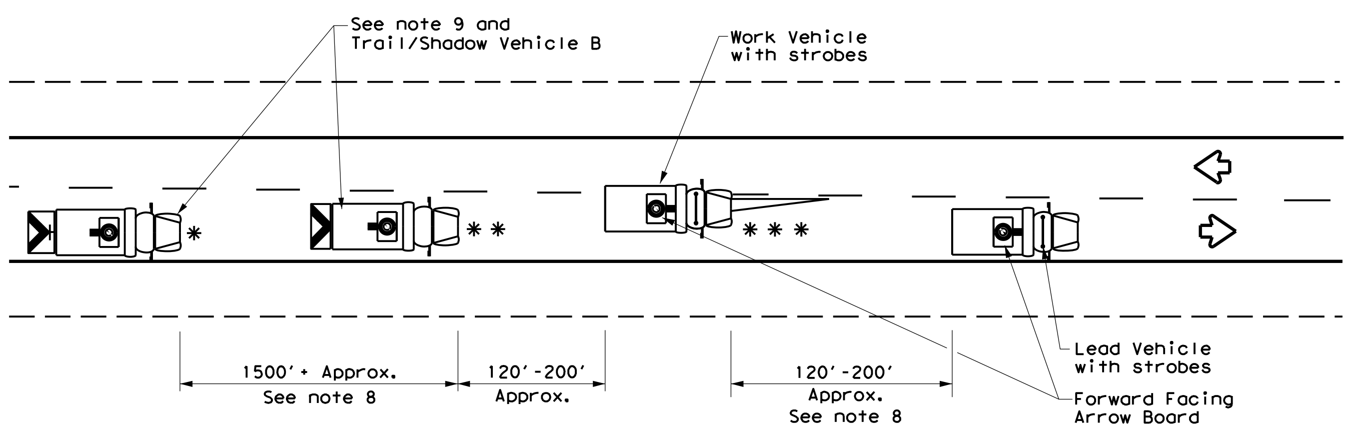


WORK ON SHOULDER

WORK ON TRAVEL LANE

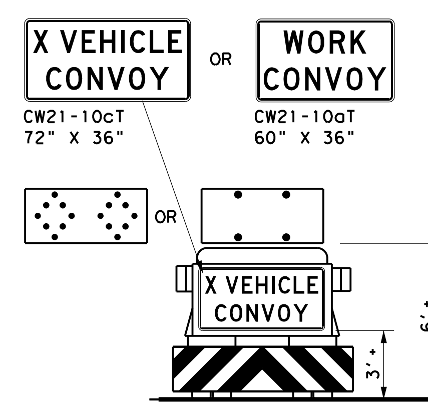
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board in CAUTION display

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

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

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used 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.

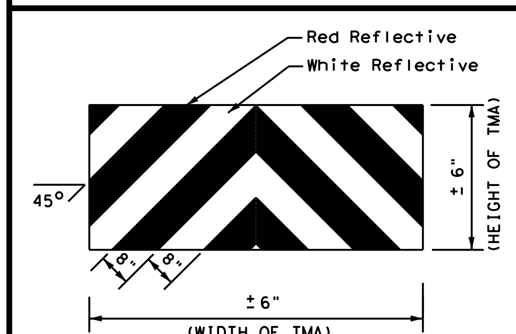
6. Each vehicle shall have two-way radio communication capability.

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.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

TCP(3-1)-13

FILE: tcp3-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	0228	01	056	US 62/385
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	LBB		TERRY	35

175

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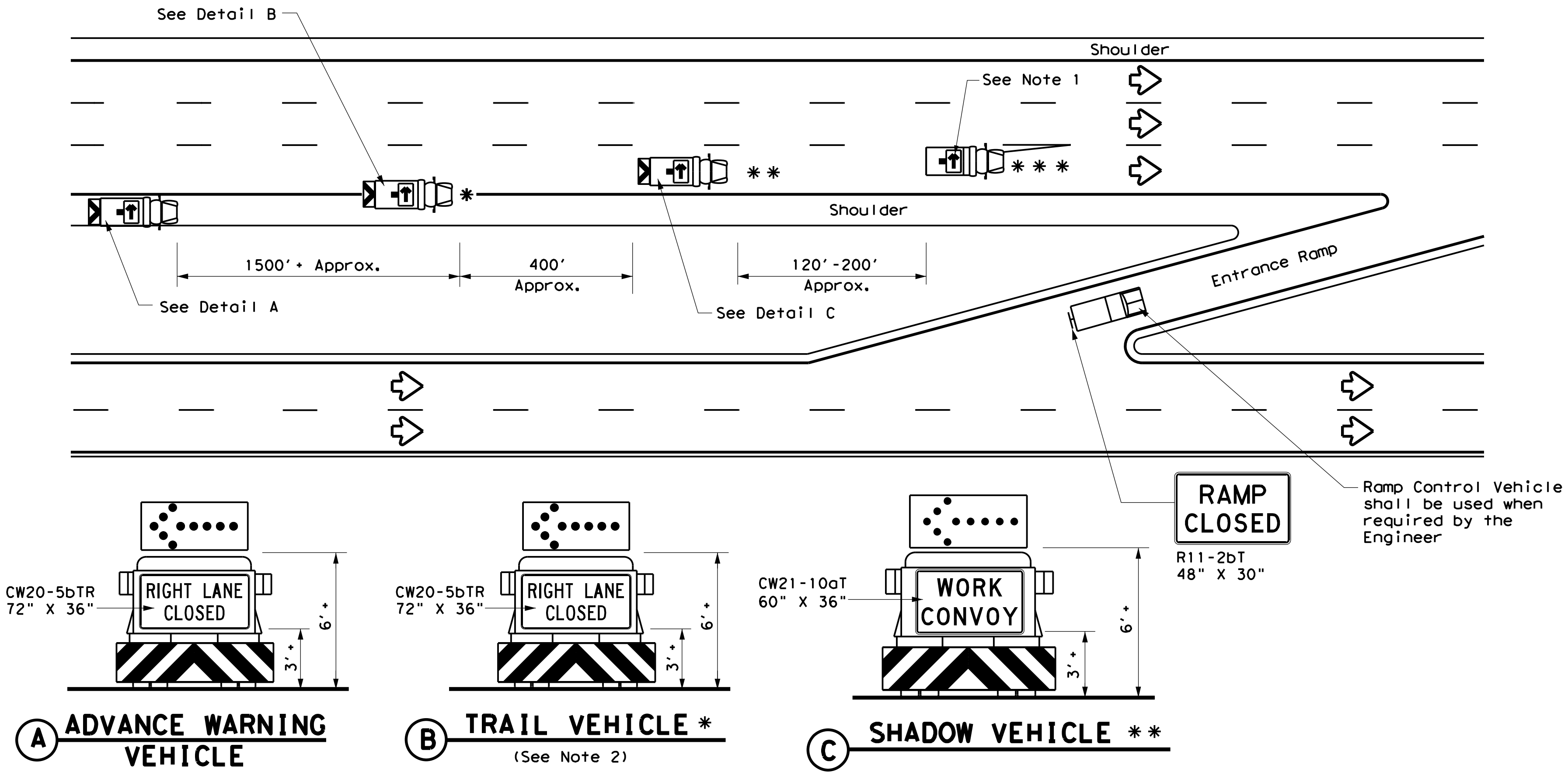
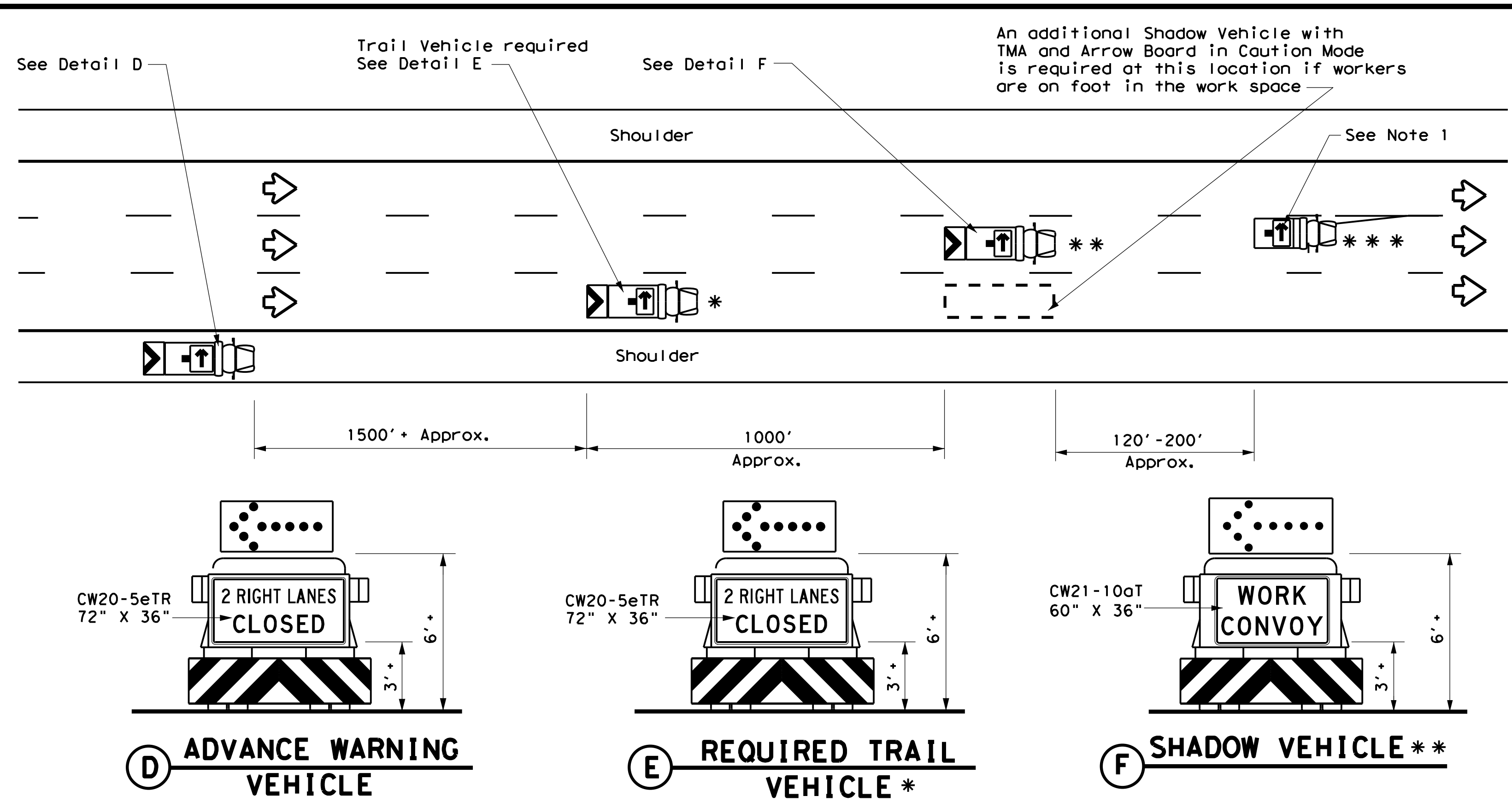


RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

LEGEND

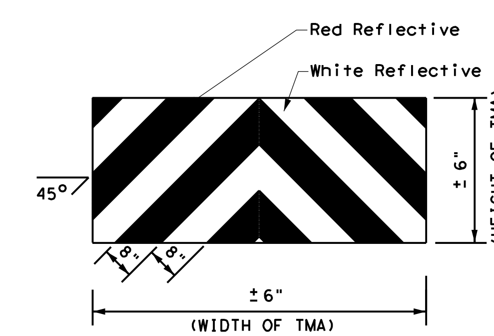
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE

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

GENERAL NOTES

1. ADVANCE WARNING, TRAIL and SHADOW vehicles shall be equipped with Type B or Type C flashing arrow boards as per the Barricade and Construction (BC) standards. Arrow boards on WORK vehicles will be optional based on the type of work being performed. The arrow boards shall be operated from inside the vehicle.
2. For TCP(3-2a) the Engineer will determine if the TRAIL VEHICLE is required based on prevailing roadway conditions, traffic volume, and sight distance restrictions. All other vehicles shown for both TCP(3-2a) and TCP(3-2b) are required.
3. 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.
4. The use of truck mounted attenuators (TMA) on the ADVANCE WARNING, SHADOW, and TRAIL vehicles are required.
5. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DMS 8300, Type A.
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 may vary according to terrain, work activity and other factors.
9. Standard 48" X 48" diamond shaped warning signs with the same message as those shown may be used where adequate mounting space exists.
10. The signs shown should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or a 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, must be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
11. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
12. The principles on this sheet may be used to close lanes from the left side of the roadway considering the number of lanes, shoulder width, sight distance, and ramp frequency.
13. Signs and flashing arrow board modes shall be appropriately altered when implementing left lane closures or interior closures which close the left lanes.
14. The Advance Warning Vehicle may straddle the edgeline when shoulder width makes it necessary.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS

TCP(3-2)-13

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© TxDOT December 1985	CONT 0228	SECT 01	JOB 056	HIGHWAY US 62/385
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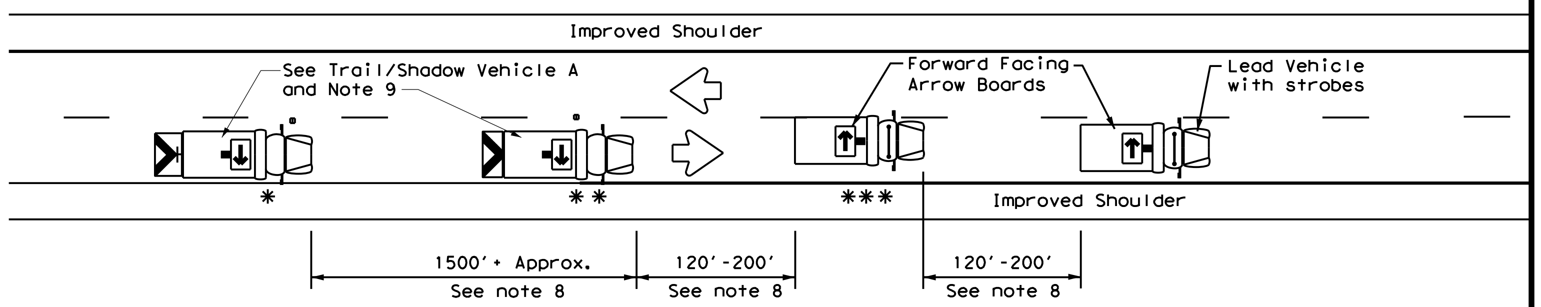
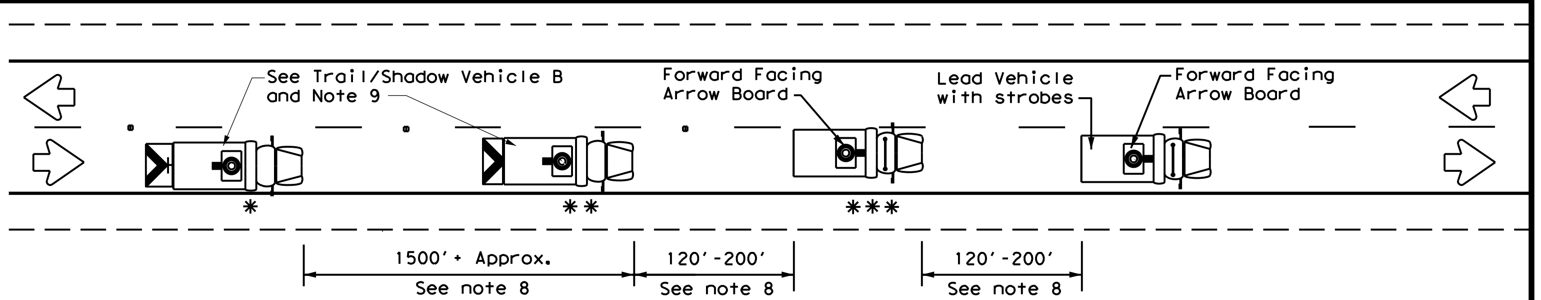


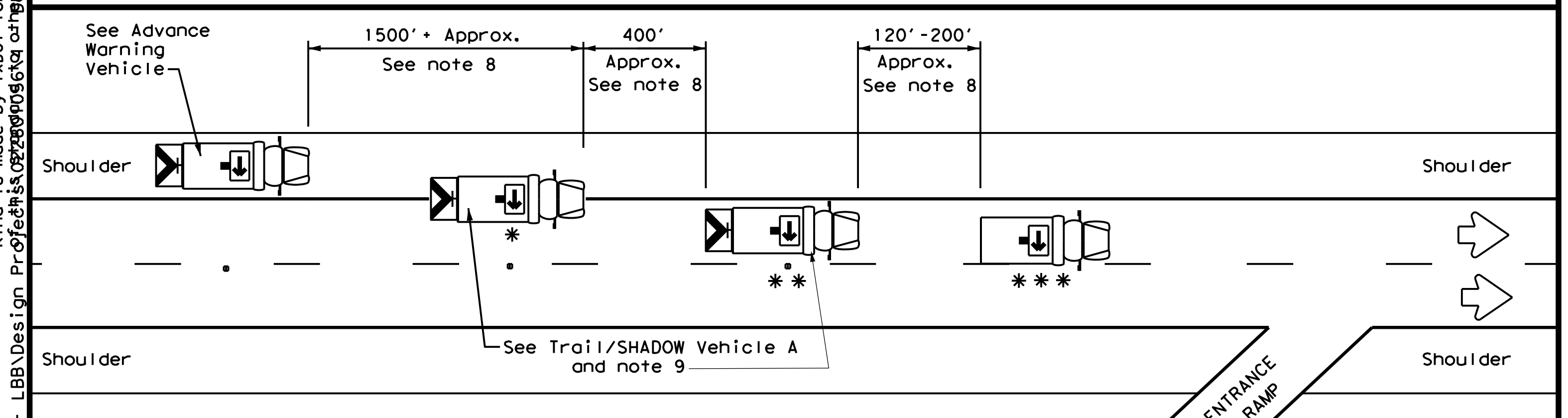
TCP (3-3a)

TWO LANE HIGHWAY WITH PAVED SHOULDERS
(WORK ON TRAVEL LANE)



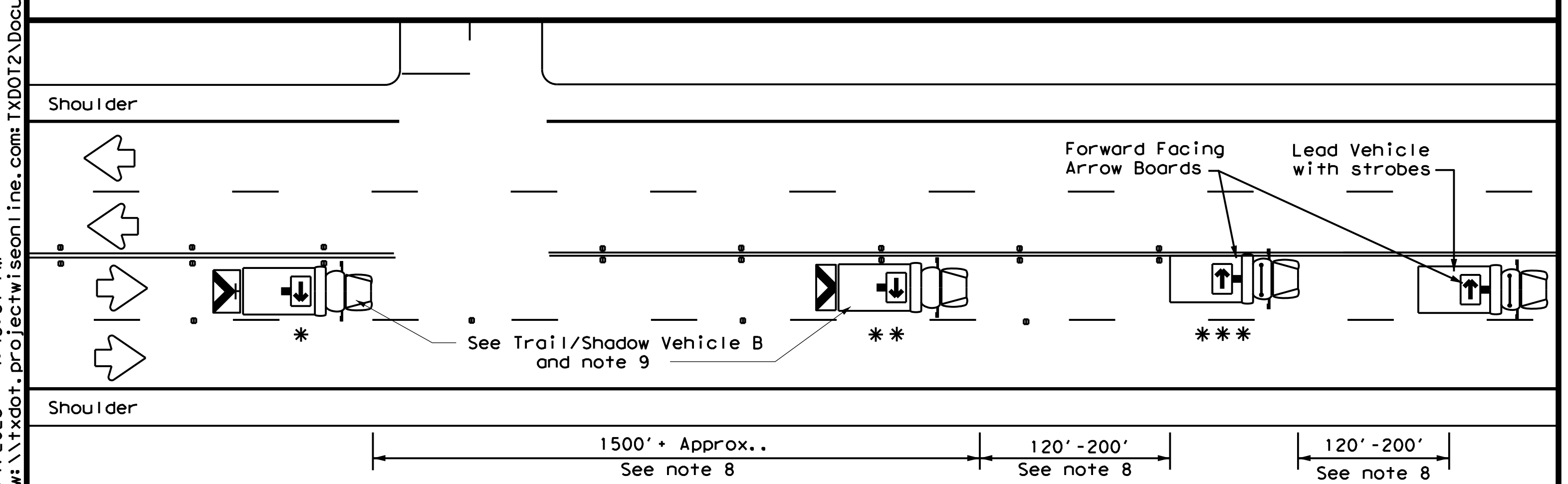
TCP (3-3b)

TWO LANE HIGHWAY WITHOUT PAVED SHOULDERS
(WORK ON TRAVEL LANE)



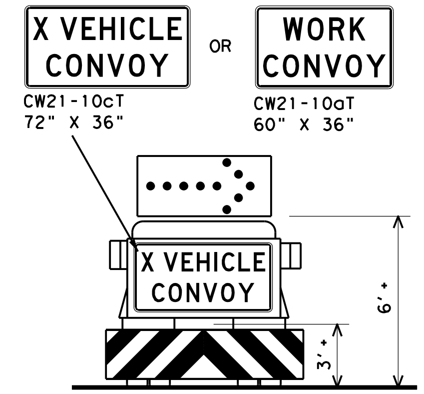
TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



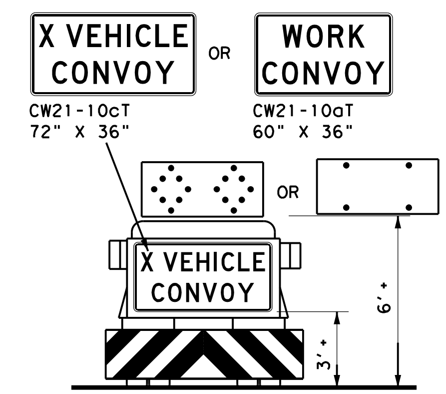
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



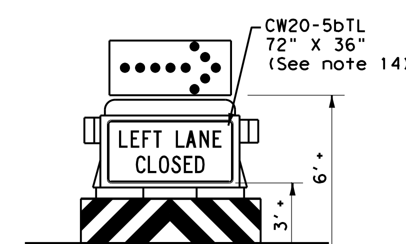
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

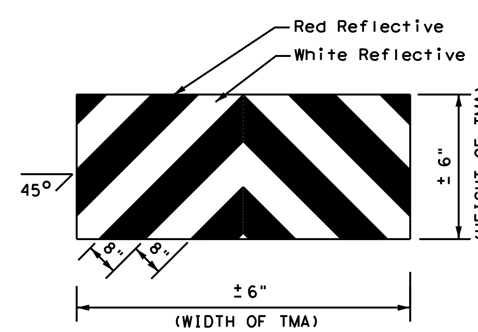


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board
in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

LEGEND

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

TYPICAL USAGE

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

GENERAL NOTES

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

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 0228	SECT 01	JOB 056	HIGHWAY US 62/385
REVISIONS 2-94 4-98 8-95 7-13 1-97 7-14	DIST LBB		COUNTY TERRY	SHEET NO. 37

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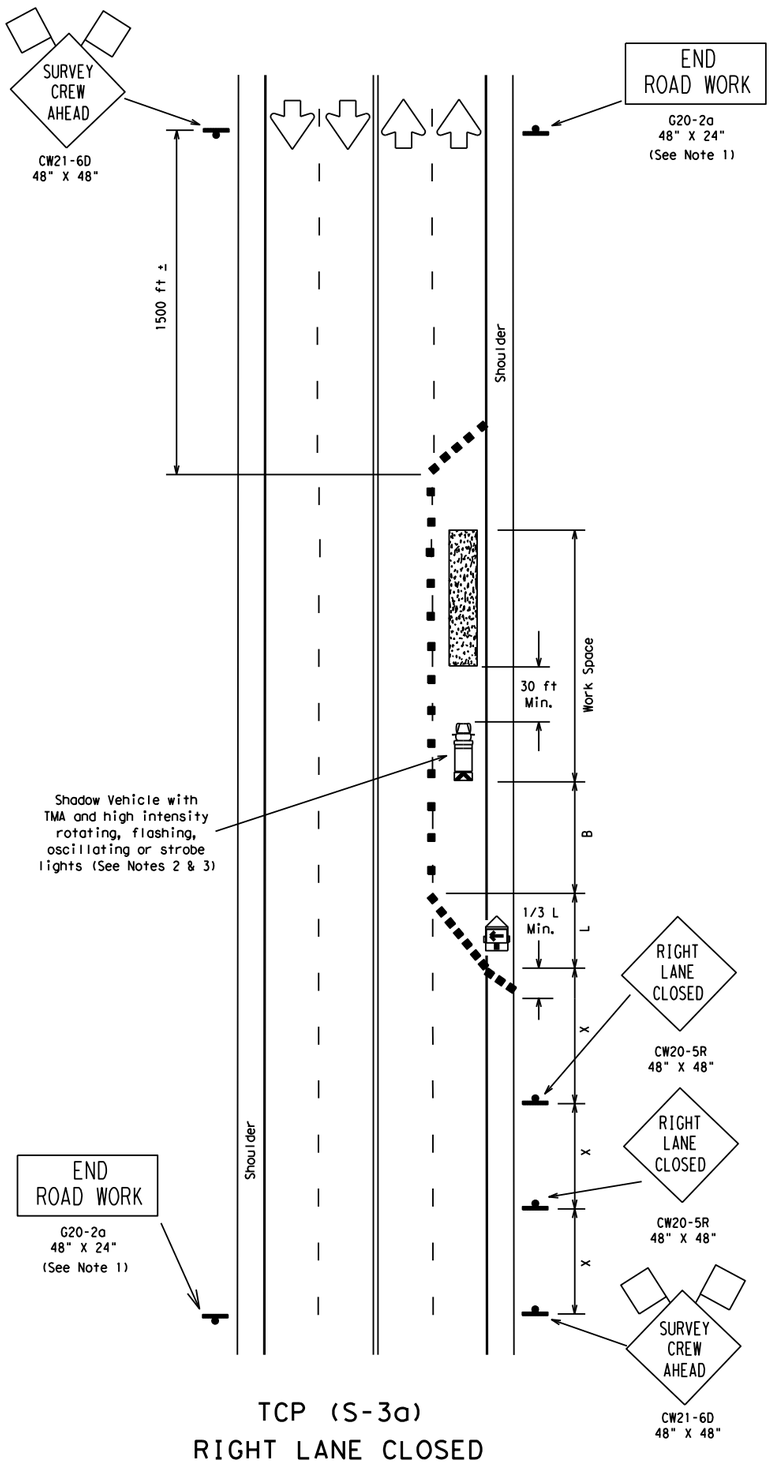
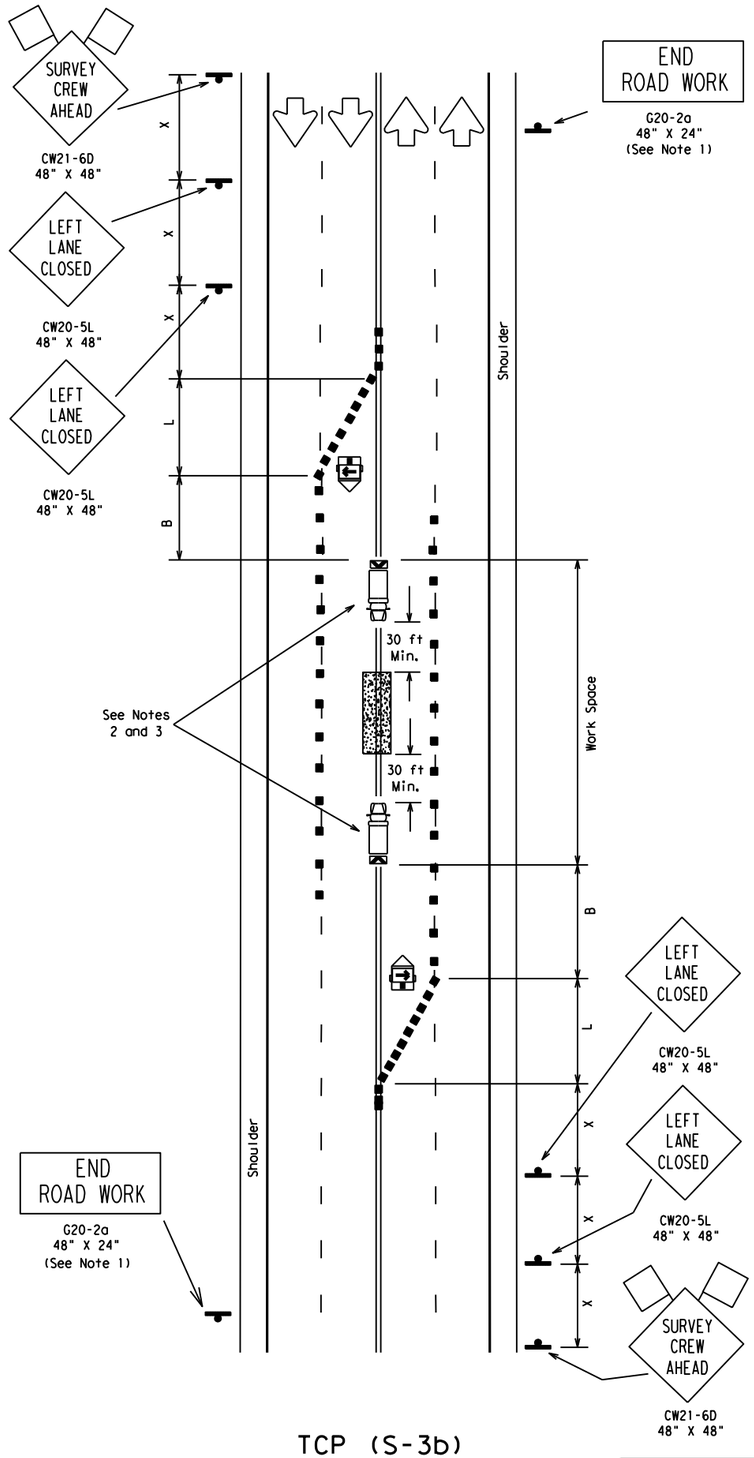


TCP (S-3a)
RIGHT LANE CLOSED
WITH OR WITHOUT SHOULDERS



TCP (S-3b)
WORK ON CENTERLINE

WHENEVER POSSIBLE, SURVEY PARTIES SHOULD AVOID, BY THE USE OF OFFSET LINES, ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator (TMA)
Trailer Mounted Flashing Arrow Panel
Portable Changeable Message Sign (PCMS)
Flagger Sign Post

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'	90'
35		205'	225'	245'	35'	70'-90'	160'	120'
40		265'	295'	320'	40'	80'-100'	240'	155'
45	L=WS	450'	495'	540'	45'	90'-110'	320'	195'
50		500'	550'	600'	50'	100'-125'	400'	240'
55		550'	605'	660'	55'	110'-140'	500'	295'
60		600'	660'	720'	60'	120'-150'	600'	350'
65		650'	715'	780'	65'	130'-165'	700'	410'
70		700'	770'	840'	70'	140'-175'	800'	475'
75		750'	825'	900'	75'	150'-185'	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
	✓	✓		

DEFINITIONS:
SHORT DURATION - work that occupies a location up to 1 hour.
SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:
1. The G20-2a "END ROAD WORK" sign may be placed on the back of the CW21-6D "SURVEY CREW AHEAD" sign or may be omitted for short duration (less than 1 hour) work.
2. For short duration work the Shadow Vehicle with TMA may be replaced by another Work Vehicle with high intensity rotating, flashing or strobe lights.
3. Shadow Vehicles with a TMA are desirable when workers or equipment are in the work space. When approved by the engineer, Type III barricades or other channelizing devices may be substituted for the Shadow Vehicle.
4. CW20-1D "ROAD WORK AHEAD" signs may be substituted for CW21-6D "SURVEY CREW AHEAD" signs.
5. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads is desirable, but is not required when working less than 15 minutes in area of the side road, as determined by the Engineer.

TCP(S-3a)
6. If shoulders are not present, the 1/3L shoulder taper is to be omitted and four channelizing devices shall be placed in front of the arrow panel, perpendicular to traffic.

TCP(S-3b)
7. One CW20-5L "LEFT LANE CLOSED" sign in each direction may be omitted when the posted speed is less than 45mph and volume is less then 2000 ADT.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-3)-08

REVISIONS

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

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385

DIST	COUNTY	SHEET NO.
LBB	TERRY	38

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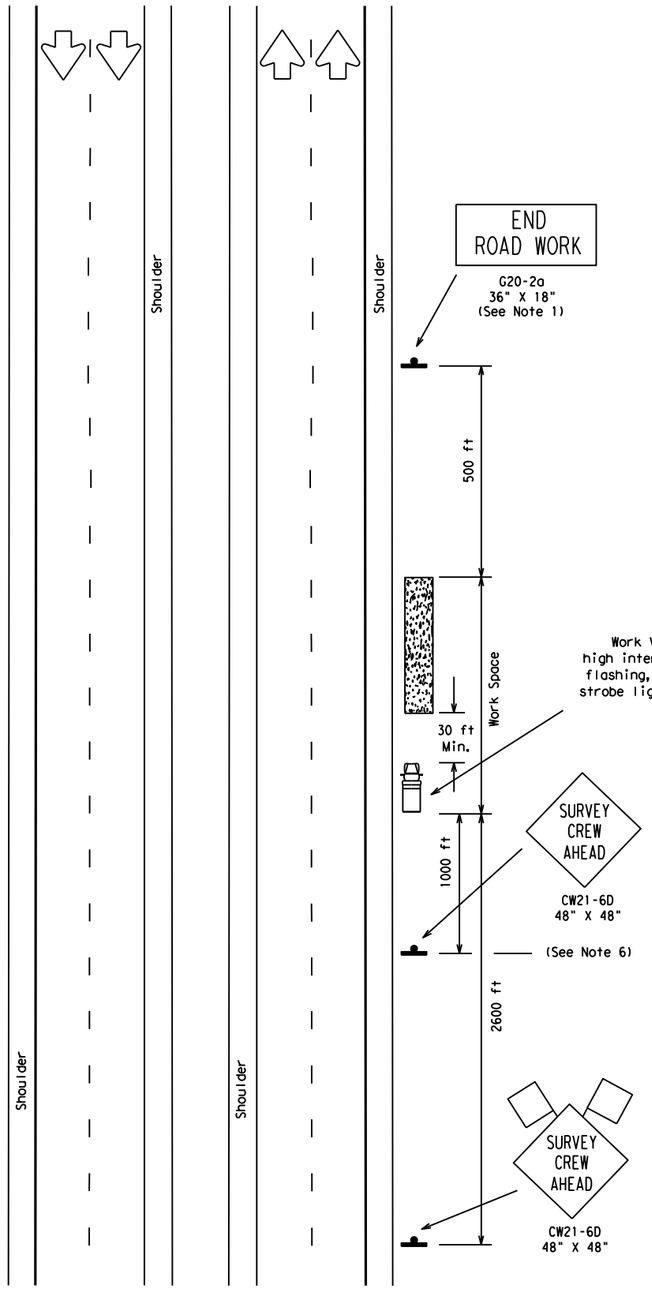
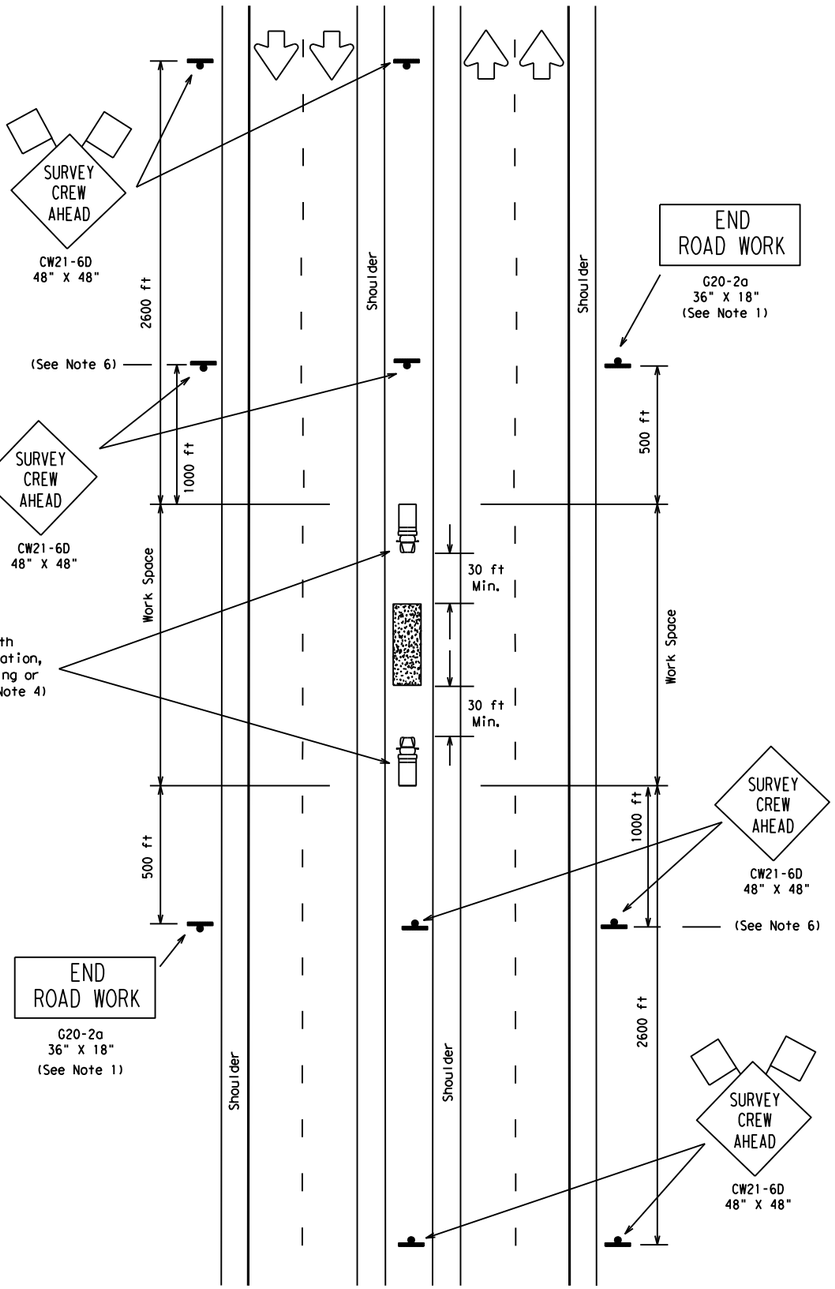


TCP (S-4a)
WORK OFF RIGHT SHOULDER
OF DIVIDED ROADWAYS



TCP (S-4b)
WORK IN MEDIAN
OF DIVIDED ROADWAYS

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator (TMA)
Trailer Mounted Flashing Arrow Panel
Portable Changeable Message Sign (PCMS)
Flagger Sign Post

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'	90'
35		205'	225'	245'	35'	70'-90'	160'	120'
40		265'	295'	320'	40'	80'-100'	240'	155'
45	L=WS	450'	495'	540'	45'	90'-110'	320'	195'
50		500'	550'	600'	50'	100'-125'	400'	240'
55		550'	605'	660'	55'	110'-140'	500'	295'
60		600'	660'	720'	60'	120'-150'	600'	350'
65		650'	715'	780'	65'	130'-165'	700'	410'
70		700'	770'	840'	70'	140'-175'	800'	475'
75		750'	825'	900'	75'	150'-185'	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
	✓	✓		

DEFINITIONS:
SHORT DURATION - work that occupies a location up to 1 hour.
SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:

1. The G20-2a "END ROAD WORK" sign may be omitted for short duration (less than 1 hour) work.
2. When median work is protected on one side by existing median barriers, signing and protection vehicle may be omitted for the protected direction only.
3. CW20-1D "ROAD WORK AHEAD" signs may be substituted for "SURVEY CREW AHEAD" signs.
1. 4. A Shadow Vehicle with a TMA and flashing warning lights/arrow panel in caution mode may be used in lieu of the Work Vehicle to protect the work space.
5. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads is desirable, but is not required when working less than 15 minutes in area of the side road, as determined by the Engineer.
6. The CW21-6D "SURVEY CREW AHEAD" sign placed at 1000' ahead of the work space is optional, at the discretion of the Engineer. The signs shown at 2600' from the work space are required.
7. Cones may be placed at edge of pavement adjacent to the work space to enhance safety.

WHENEVER POSSIBLE, SURVEY PARTIES SHOULD AVOID, BY THE USE OF OFFSET LINES, ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

8-18-08 Revision
1 Corrected misspelling.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-4)-08A

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	0228	01	056	US 62/385
	DIST	COUNTY		SHEET NO.
	LBB	TERRY		39

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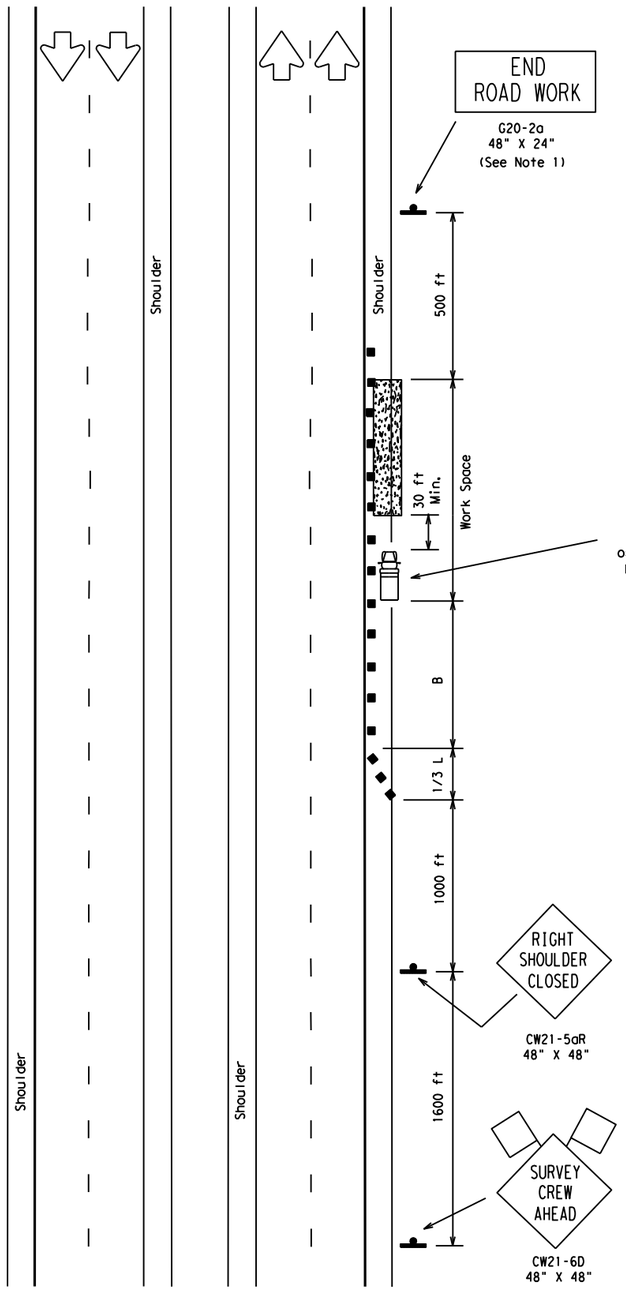
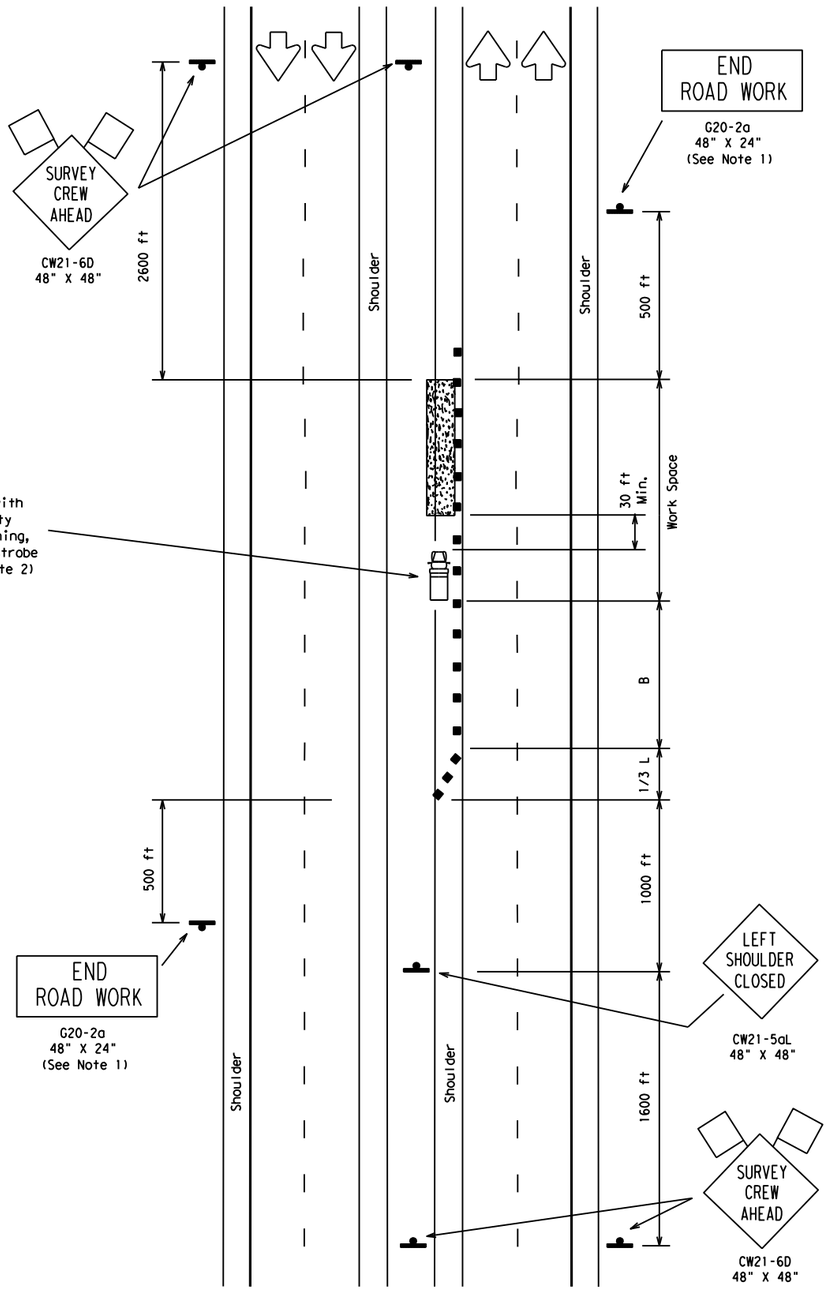


TCP (S-5a)
WORK ON RIGHT SHOULDER
OF DIVIDED ROADWAYS



TCP (S-5b)
WORK ON MEDIAN SHOULDER
OF DIVIDED ROADWAYS

WHENEVER POSSIBLE, SURVEY PARTIES SHOULD AVOID, BY THE USE OF OFFSET LINES, ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator (TMA)
Trailer Mounted Flashing Arrow Panel
Portable Changeable Message Sign (PCMS)
Flagger Sign Post

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'	90'
35		205'	225'	245'	35'	70'-90'	160'	120'
40		265'	295'	320'	40'	80'-100'	240'	155'
45	L=WS	450'	495'	540'	45'	90'-110'	320'	195'
50		500'	550'	600'	50'	100'-125'	400'	240'
55		550'	605'	660'	55'	110'-140'	500'	295'
60		600'	660'	720'	60'	120'-150'	600'	350'
65		650'	715'	780'	65'	130'-165'	700'	410'
70		700'	770'	840'	70'	140'-175'	800'	475'
75		750'	825'	900'	75'	150'-185'	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
	✓	✓		

DEFINITIONS:
SHORT DURATION - work that occupies a location up to 1 hour.
SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:

1. The G20-2a "END ROAD WORK" sign may be omitted for short duration (less than 1 hour) work.
2. For short duration work, the Shadow Vehicle with TMA may be replaced by another Work Vehicle with high intensity rotating, flashing or strobe lights.
3. Shadow Vehicles with a TMA are desirable when workers or equipment are in the work space. When approved by the engineer, Type III barricades or other channelizing devices may be substituted for the Shadow Vehicle.
4. If shoulders are not present, the 1/3L shoulder taper is to be omitted and four channelizing devices shall be placed in front of the arrow panel, perpendicular to traffic.
5. CW20-1D "ROAD WORK AHEAD" signs may be substituted for CW21-6D "SURVEY CREW AHEAD" signs.
6. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads is desirable, but is not required when working less than 15 minutes in area of the side road, as determined by the Engineer.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-5)-08

REVISIONS

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

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385

DIST	COUNTY	SHEET NO.
LBB	TERRY	40

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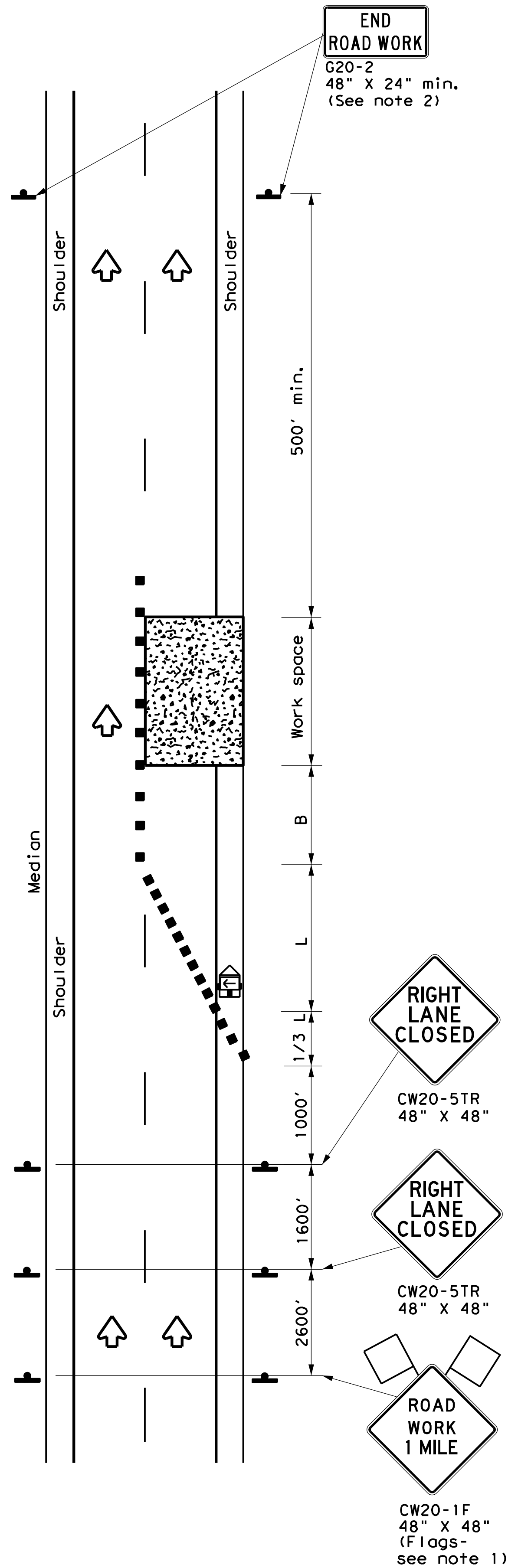
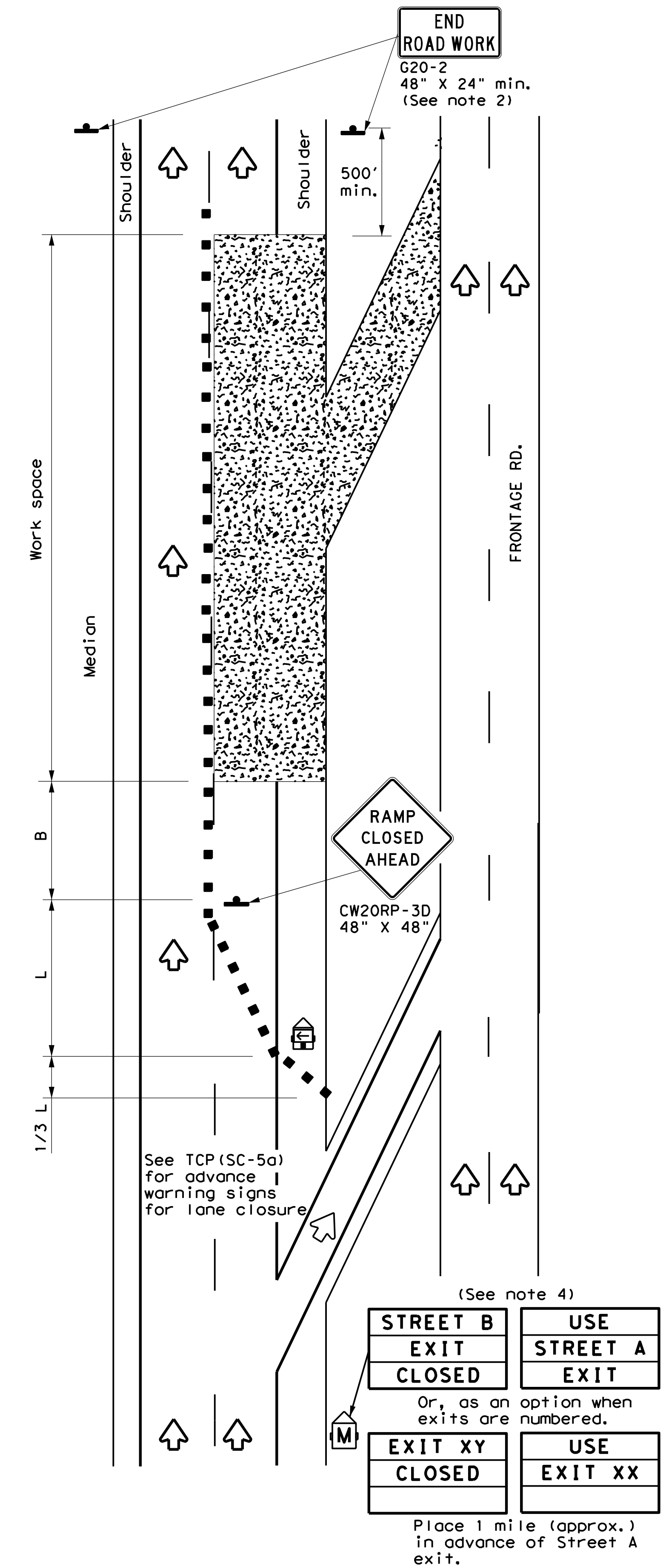


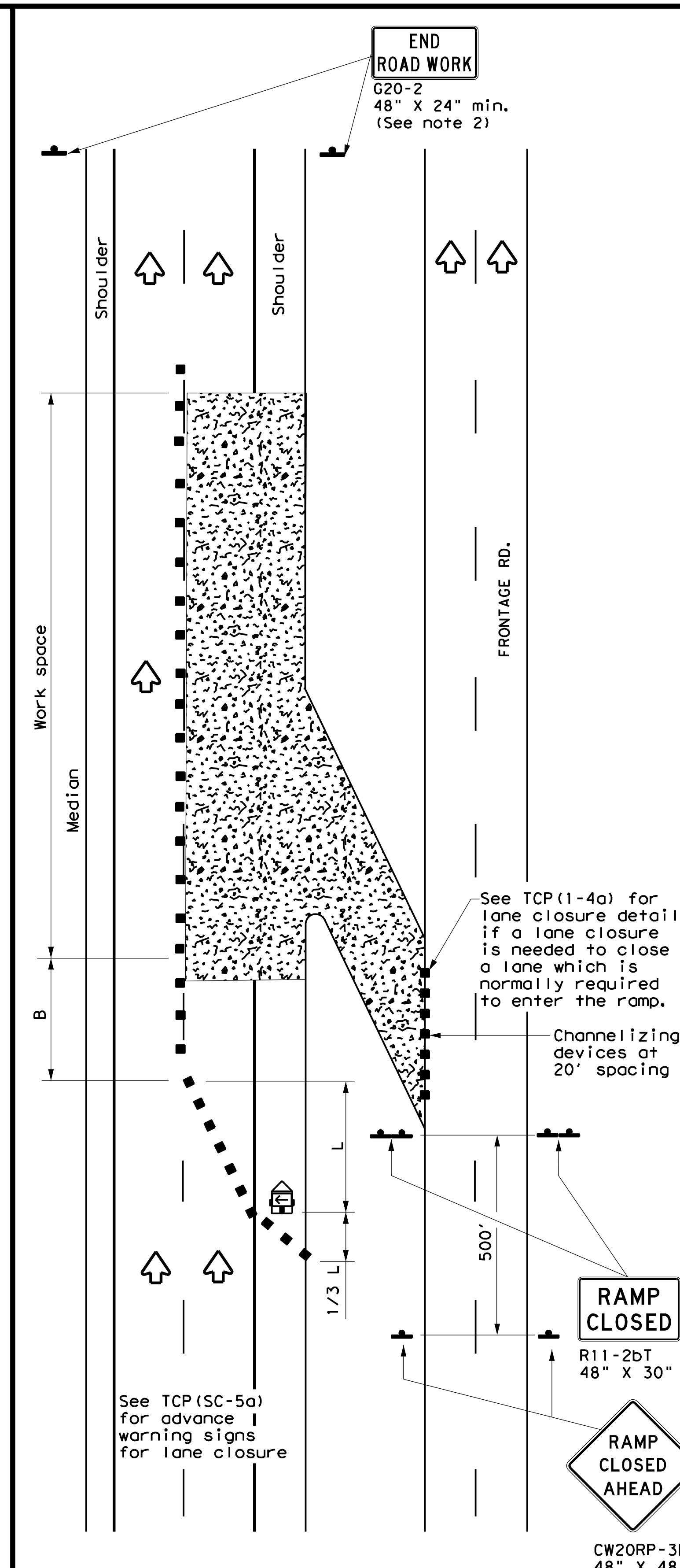
TCP (SC-5a)

ONE LANE CLOSURE



TCP (SC-5b)

LANE AND RAMP CLOSURE AT EXIT RAMPS



TCP (SC-5c)

LANE AND RAMP CLOSURE AT ENTRANCE RAMPS

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

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except:
   - If project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
   - USE NEXT RAMP (CW25-1T) sign is optional with approval by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. The PCMS may be omitted if: it is replaced with a RAMP CLOSED AHEAD (CW20RP-3D) sign or when a permanent Dynamic Message Sign (DMS) is available in the appropriate location to display a similar message as called for on the PCMS.
5. Temporary rumble strips are not required on seal coat operations.

Texas Department of Transportation

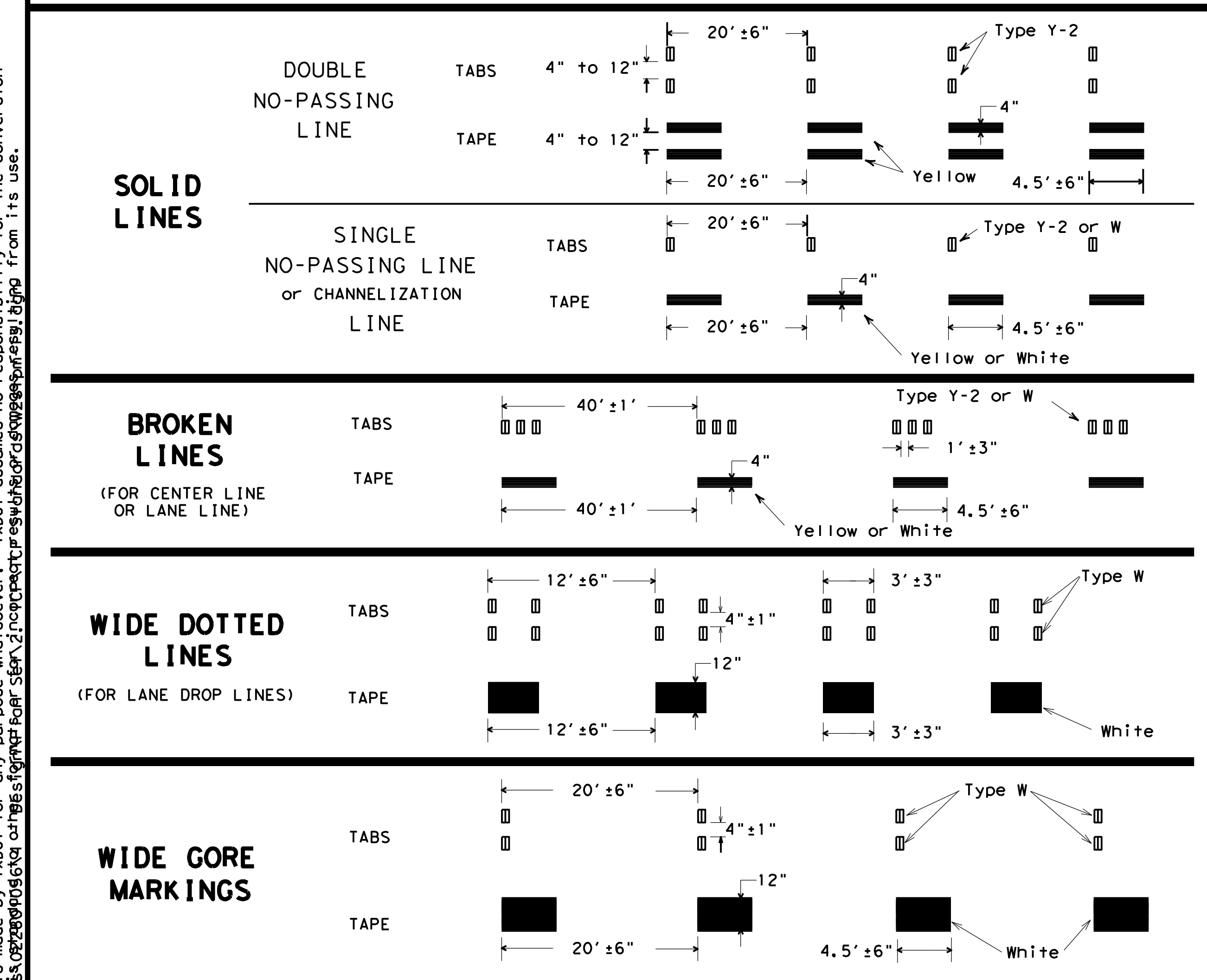
Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS DIVIDED HIGHWAYS

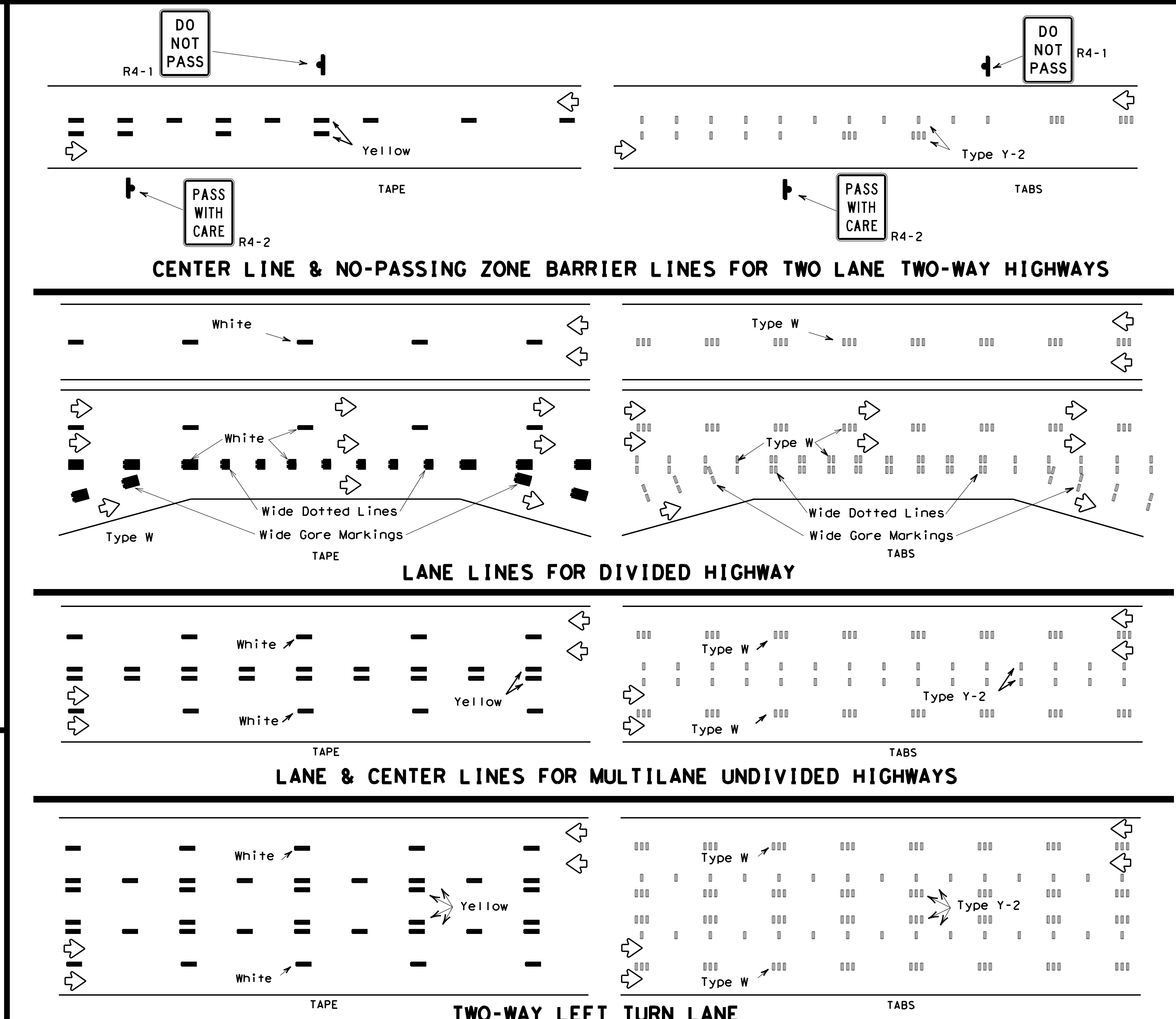
TCP(SC-5)-22

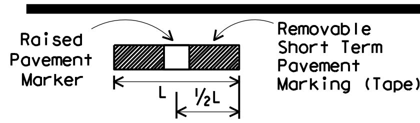
FILE: tcpsc-5-22.dgn	DN:	CK:	DW:	CK:
©TxDOT October 2022	CONT 0228	SECT 01	JOB 056	HIGHWAY US 62/385
REVISIONS 4-21 10-22	DIST LBB	COUNTY TERRY		SHEET NO. 41

WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS





If raised pavement markers are used to supplement REMOVABLE short term markings, the markers shall be applied to the top of the tape at the approximate mid length of the tape. This allows an easier removal of raised markers and tape.

NOTES:

1. Short term pavement markings may be prefabricated markings (stick down tape) or temporary flexible-reflective roadway marker tabs unless otherwise specified elsewhere in plans.
2. Short term pavement markings shall NOT be used to simulate edge lines.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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).
8. 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)

1. 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).
2. Tabs shall meet requirements of Departmental Material Specification DMS-8242.
3. 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.
4. 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.

PREFABRICATED PAVEMENT MARKINGS

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

RAISED PAVEMENT MARKERS

1. 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)

1. 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

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Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ(STPM)-13

FILE:	wzstpm-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	April 1992	CONT	SECT	JOB	HIGHWAY
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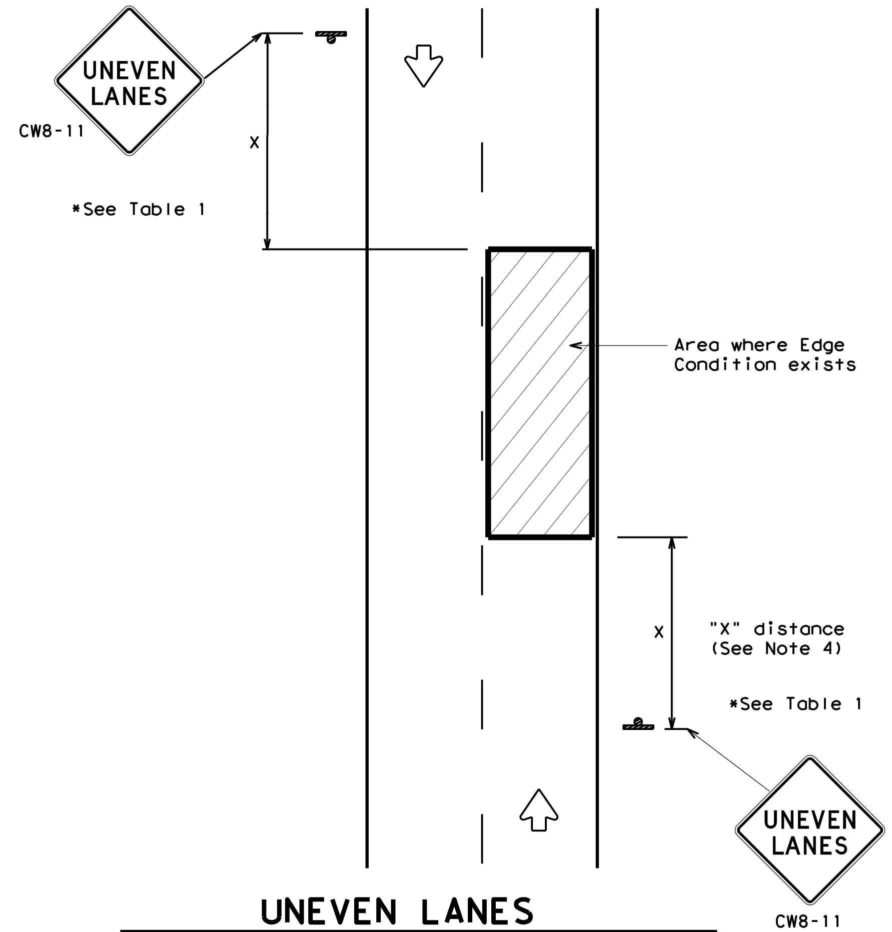
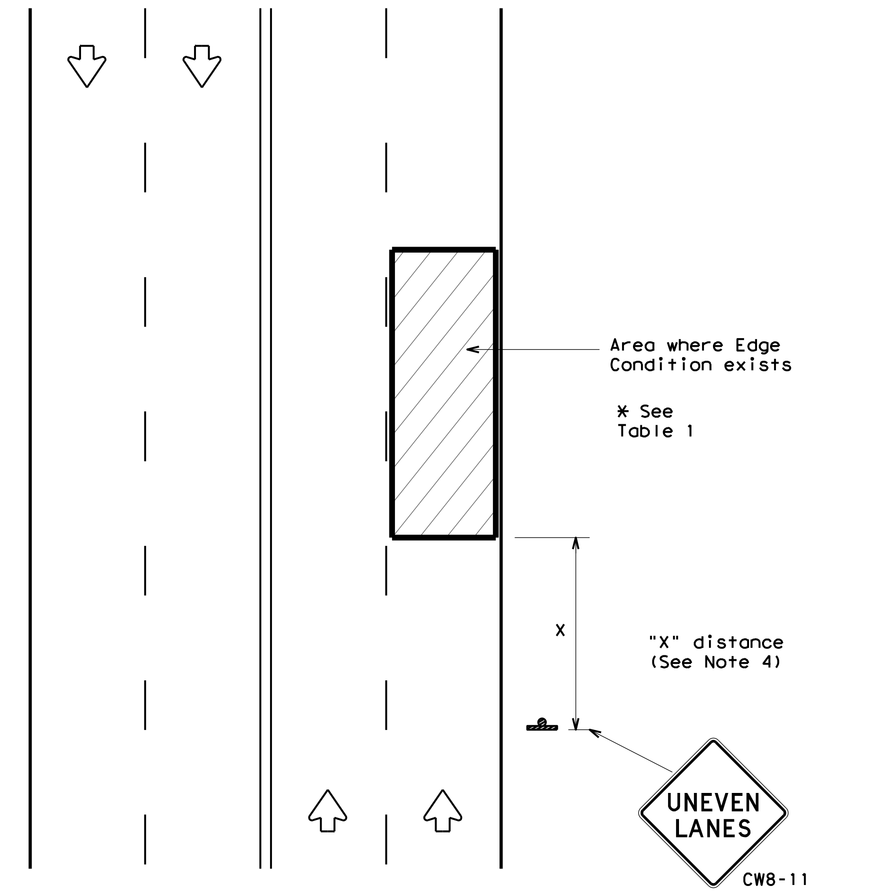
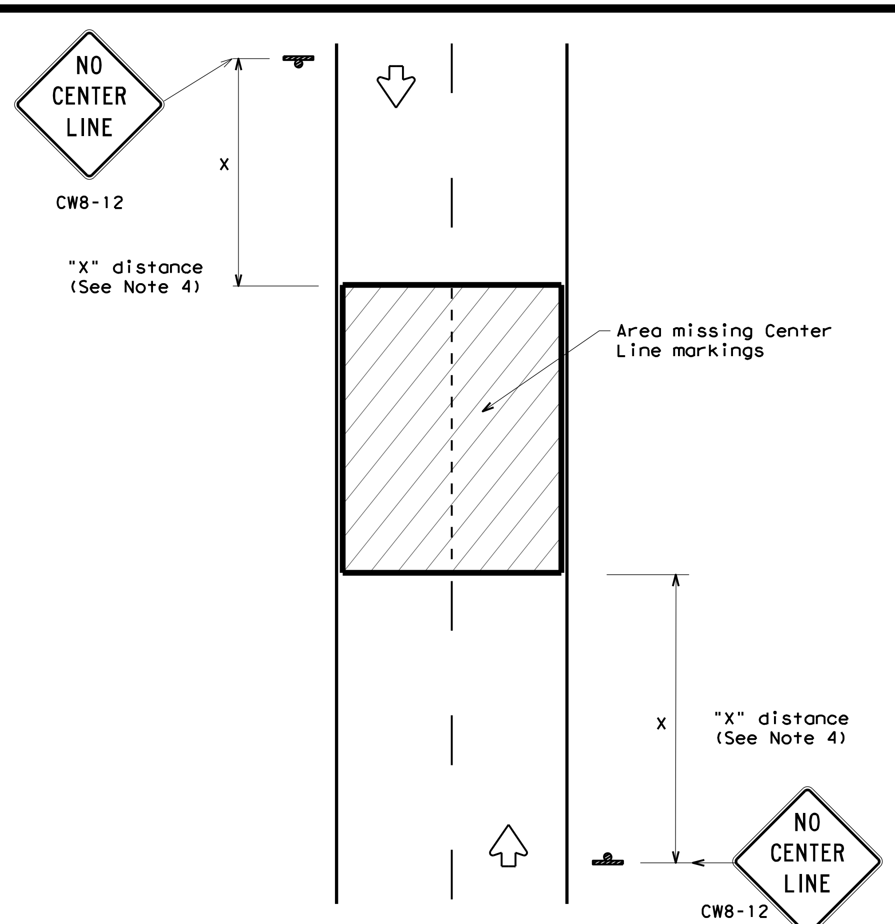
1-97 3-03 7-13		DIST		COUNTY	SHEET NO.
		LBB		TERRY	42



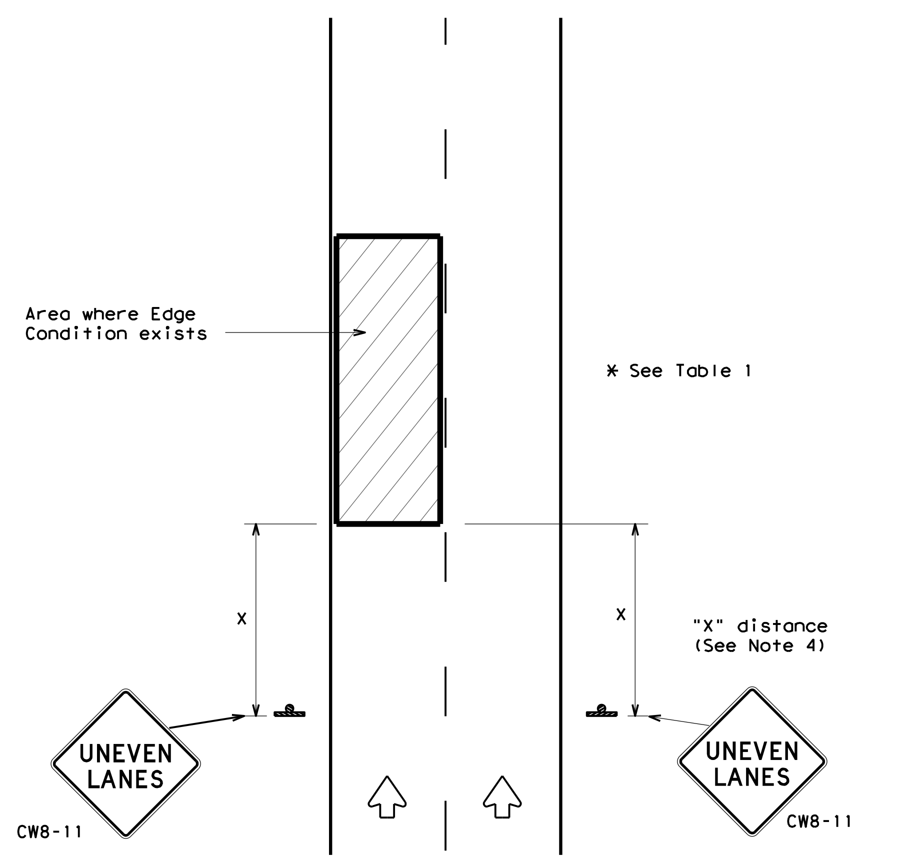
UNEVEN LANES
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
FOUR LANE CONVENTIONAL ROAD



NO CENTER LINE
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
DIVIDED ROADWAY

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.

TABLE 1

Edge Condition	Edge Height (D)	* Warning Devices
① (D)	Less than or equal to: 1¼" (maximum-planing) 1½" (typical-overlay)	Sign: CW8-11
	Distance "D" may be a maximum of 1 1/4 " for planing operations and 2" for overlay operations if uneven lanes with edge condition 1 are open to traffic after work operations cease.	
② (>3, 1, D)	Less than or equal to 3"	Sign: CW8-11
③ (0" to 3/4", D, 12") Notched Wedge Joint	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"

Texas Department of Transportation — Traffic Operations Division Standard

SIGNING FOR UNEVEN LANES

WZ(UL)-13

FILE: wzul-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
8-95 2-98 7-13 1-97 3-03	DIST		COUNTY	SHEET NO.
	LBB		TERRY	43

112

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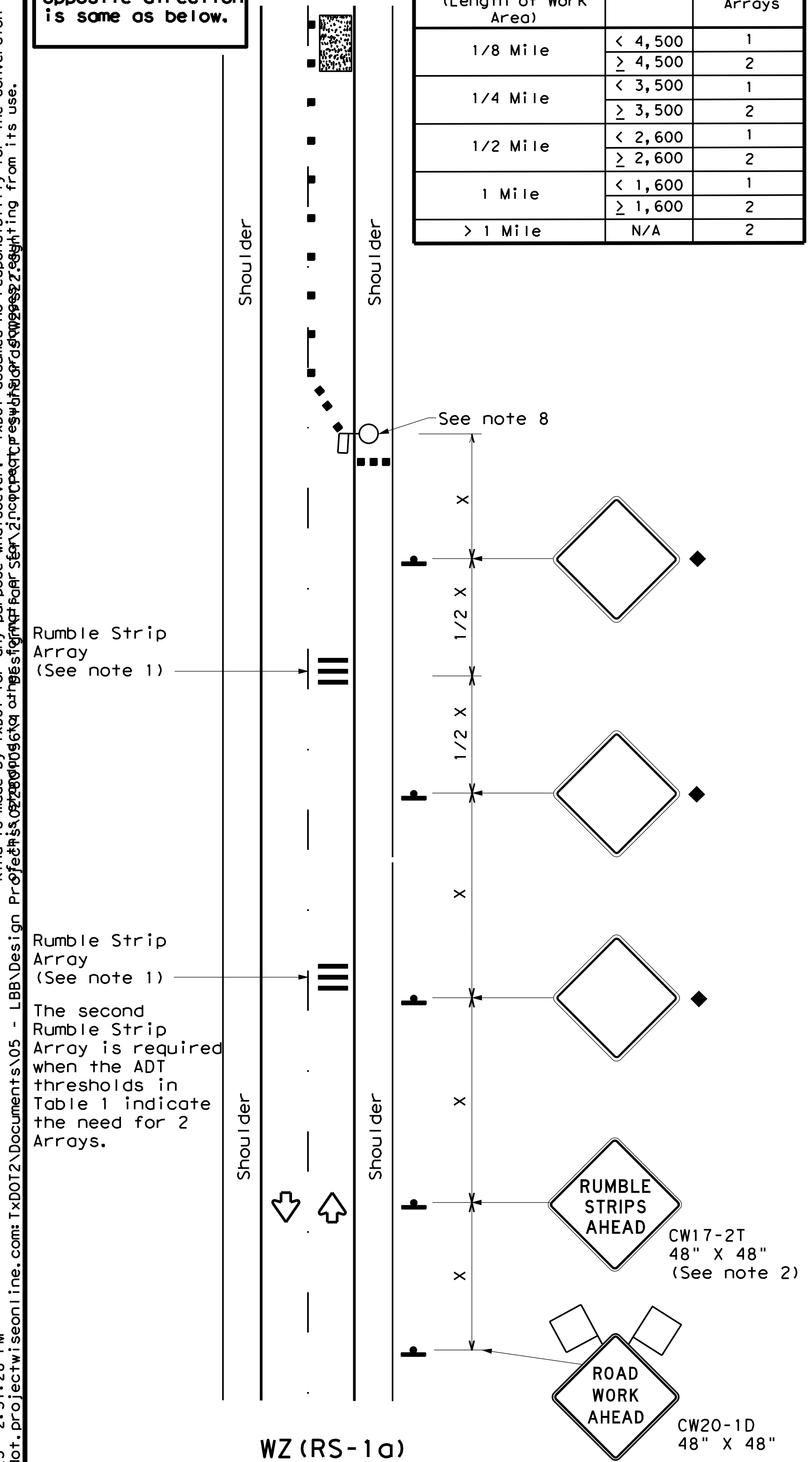
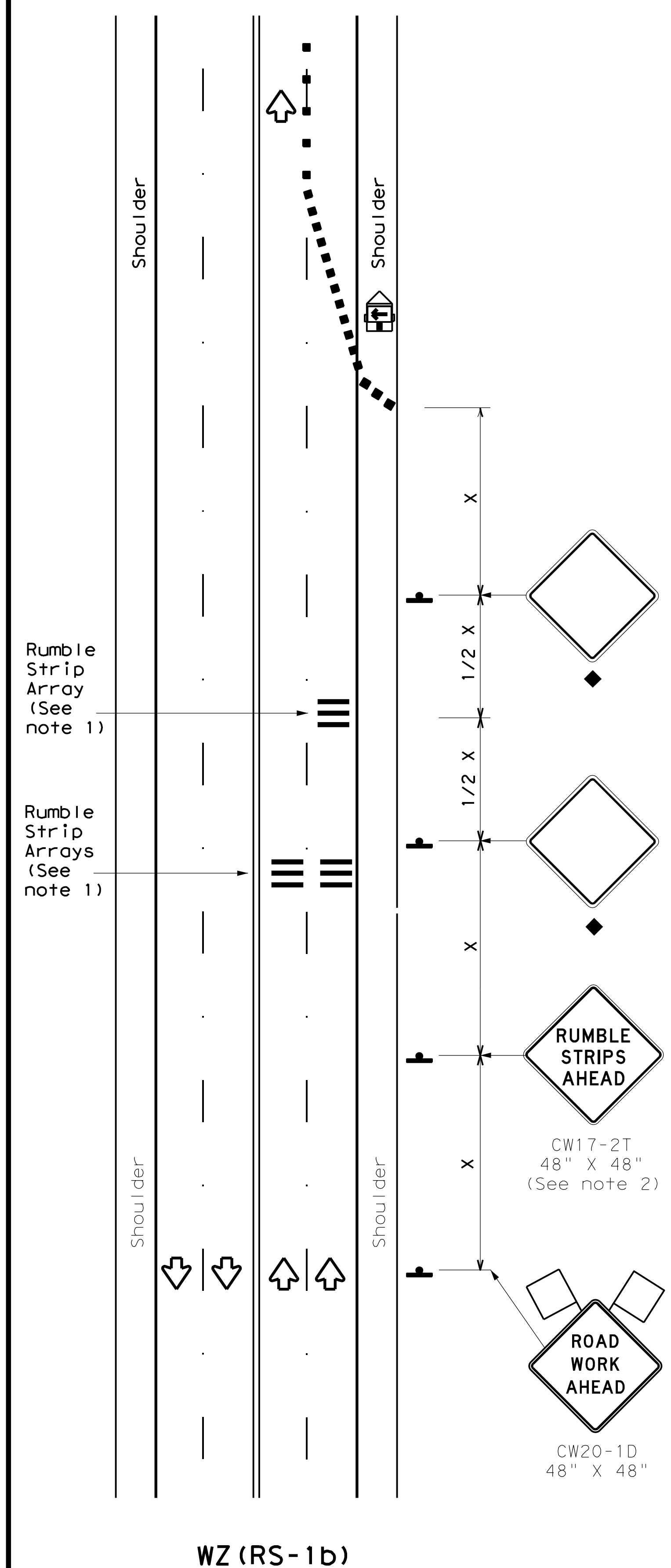
Warning sign and rumble strip sequence in opposite direction is same as below.

TABLE 1

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



RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

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

LEGEND

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

* Conventional Roads Only

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

TYPICAL USAGE

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

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

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

TABLE 2

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

Texas Department of Transportation

Traffic Safety Division Standard

TEMPORARY RUMBLE STRIPS

WZ(RS)-22

FILE: wzrs22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-14 1-22 4-16	0228	01	056	US 62/385
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	LBB	TERRY		44

117

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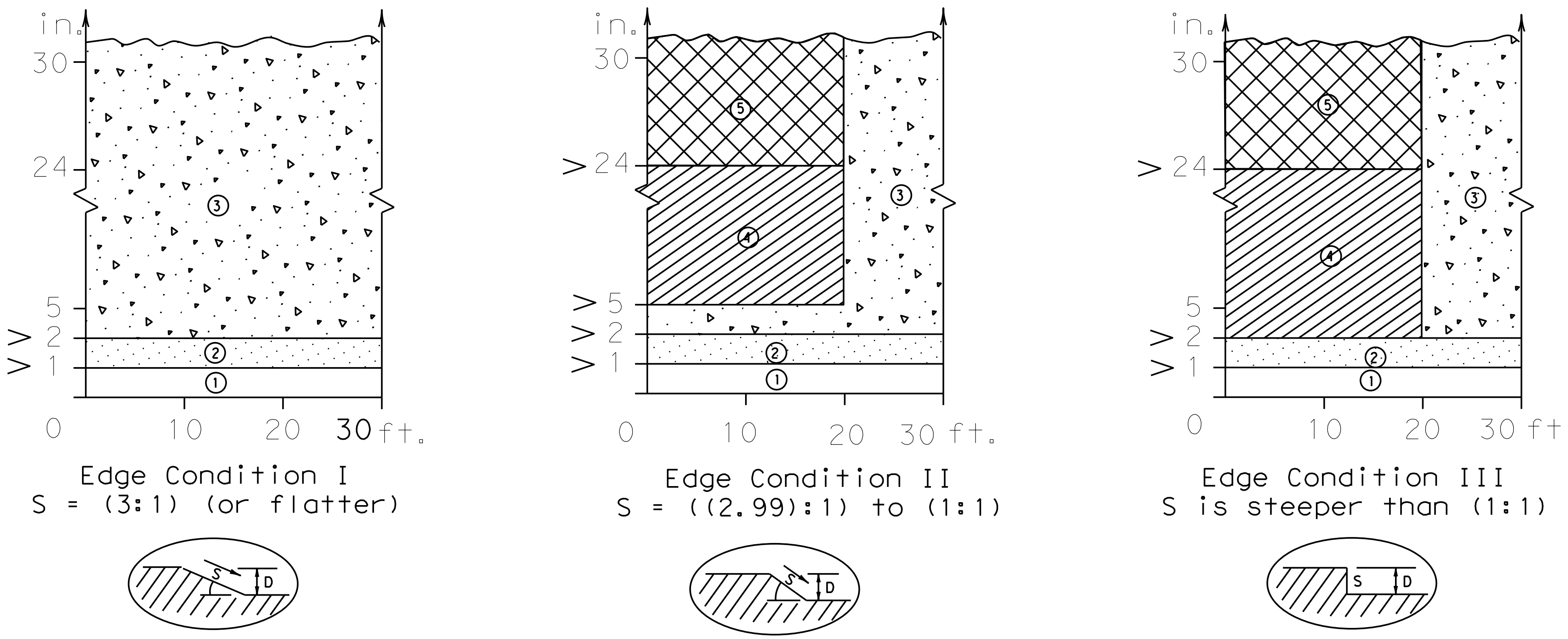
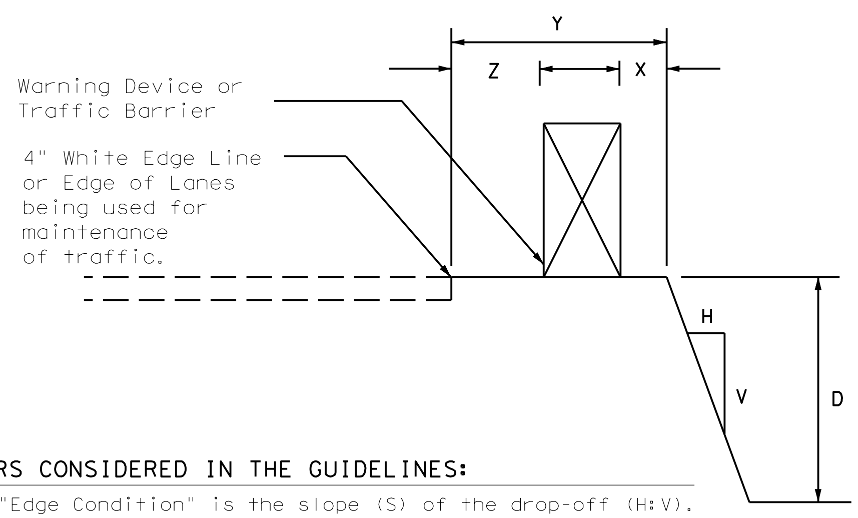
DEFINITION OF TREATMENT ZONES FOR VARIOUS EDGE CONDITIONS

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





FACTORS CONSIDERED IN THE GUIDELINES:

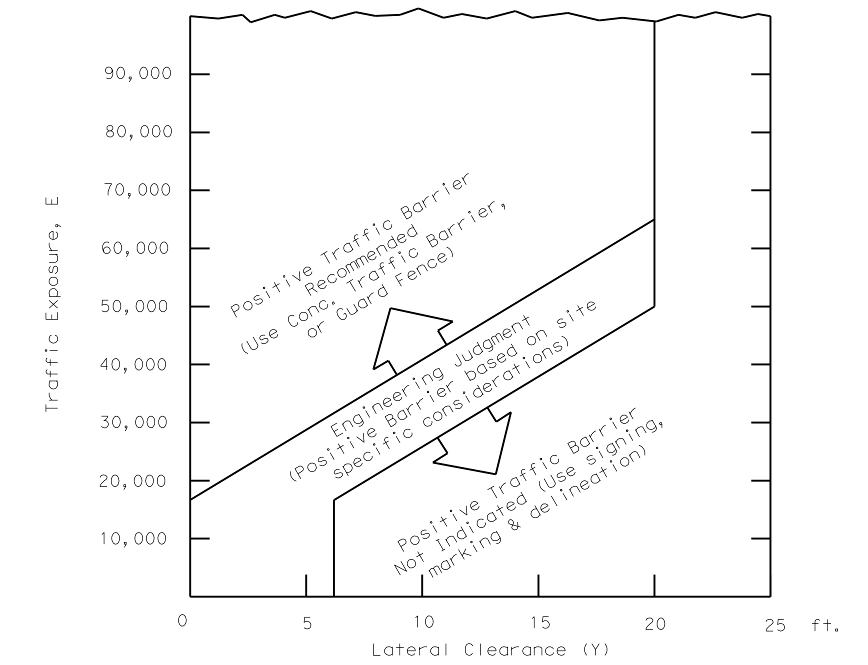
1. The "Edge Condition" is the slope (S) of the drop-off (H:V). The "Edge Height is the depth of the drop-off "D".
2. Distance "X" is to be the maximum practical under job conditions. Two feet minimum for high speed conditions. Distance "Y" is the lateral clearance from edge of travel lane to edge of dropoff. Distance "Z" does not have a minimum.
3. 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.
4. 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.
5. 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:

1. 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.
2. 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" exeeds 24 inches, the possibility for rollover is greater in most vehicles.
3. 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.
4. 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.

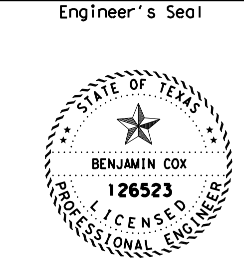
FIGURE-1: CONDITIONS INDICATING USE OF POSITIVE BARRIER FOR ZONE 5 (▩)



1. E = ADT x 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.
2. 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.
3. 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.

Engineer's Seal



Benjamin Cox, P.E.

Date 6-19-2023

Texas Department of Transportation

Traffic Safety Division Standard

TREATMENT FOR VARIOUS EDGE CONDITIONS

FILE: edgecon.dgn	DN:	CK:	DW:	CK:
© TxDOT August 2000	CONT	SECT	JOB	HIGHWAY
REVISIONS 03-01 08-01 9-21	0228	01	056	US 62/385
	DIST		COUNTY	SHEET NO.
	LBB		TERRY	45

Horizontal Alignment Review Report

Report Created: 5/29/2023
Time: 12:00pm

Project: Default
Description:
File Name: c:\txdot\pw_online\txdot2\svetislav.vojsic\d0150750\US0062_MDF_ML_Ali

Note: All units in this report are in feet unless specified otherwise.

Alignment Name: US62_BL
Alignment Description:
Alignment Style: Geom_Centerline

		Station
Element: Linear		
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PC		92+02.0000 R1
	Tangential Direction:	S 52°46'38.0" W
	Tangential Length:	2752
Element: Circular		
PC		92+02.0000 R1
PI		95+67.2057 R1
CC		
PT		99+23.7000 R1
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	Tangent:	365.2057
	Chord:	717.4141
	Middle Ordinate:	33.9867
	External:	34.6025
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	Radial Direction:	N 37°13'21.9" W
	Chord Direction:	S 41°57'08.1" W
	Radial Direction:	N 58°52'21.8" W
	Tangent Direction:	S 31°07'38.2" W
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PC		103+87.0000 R1
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	Tangential Length:	463.3
Element: Circular		
PC		103+87.0000 R1
PI		107+22.3638 R1
CC		
PT		110+53.0000 R1
	Radius:	2291.6
	Delta:	16°39'06.0" Right
	Degree of Curvature (Arc):	2°30'00.9"
	Length:	666
	Tangent:	335.3638
	Chord:	663.6586
	Middle Ordinate:	24.1521
	External:	24.4094
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	Radial Direction:	N 58°52'21.8" W
	Chord Direction:	S 39°27'11.2" W
	Radial Direction:	N 42°13'15.8" W
	Tangent Direction:	S 47°46'44.2" W
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PC		137+28.6518 R1
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	Tangential Length:	2675.6518
Element: Circular		
PC		137+28.6518 R1
PI		141+27.4484 R1
CC		
PT		145+21.1521 R1
	Radius:	2864.79
	Delta:	15°51'00.0" Right
	Degree of Curvature (Arc):	2°00'00.0"
	Length:	792.5003
	Tangent:	398.7966
	Chord:	789.9757
	Middle Ordinate:	27.3605
	External:	27.6243
	Tangent Direction:	S 47°46'44.2" W
	Radial Direction:	N 42°13'15,8" W
	Chord Direction:	S 55°42'14.2" W
	Radial Direction:	N 26°22'15,8" W
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CC		
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	Chord Direction:	S 55°42'13.3" W
	Radial Direction:	N 42°13'17.6" W
	Tangent Direction:	S 47°46'42.4" W
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	EQNAHD	162+00.0000 R2
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CC		
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	Chord:	174.9932
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	Radial Direction:	N 42°13'17.6" W
	Chord Direction:	S 46°54'12.4" W
	Radial Direction:	N 43°58'17.6" W
	Tangent Direction:	S 46°01'42.4" W
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	Chord:	174.9932
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	Chord Direction:	S 46°54'12.4" W
	Radial Direction:	N 42°13'17.6" W
	Tangent Direction:	S 47°46'42.4" W
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PT		454+89.8521 R2
	EQNBK	635+33.2000 R2
	EQNAHD	635+51.6000 R3
PC		659+22.4805 R3
	Tangential Direction:	S 47°46'42.4" W
	Tangential Length:	20414.2284
Element: Circular		
PC		659+22.4805 R3
PI		661+62.9932 R3
CC		
PT		664+03.3932 R3
	Radius:	9071.3393
	Delta:	3°02'15.0" Left
	Degree of Curvature (Arc):	0°37'53,8"
	Length:	480.9127
	Tangent:	240.5127
	Chord:	480.8563
	Middle Ordinate:	3.1867
	External:	3.1879
	Tangent Direction:	S 47°46'42.4" W
	Radial Direction:	N 42°13'17.6" W
	Chord Direction:	S 46°15'34.9" W
	Radial Direction:	N 45°15'32.6" W
	Tangent Direction:	S 44°44'27.4" W
Element: Linear		
PT		664+03.3932 R3
PC		669+97.9845 R3
	Tangential Direction:	S 43°56'40.4" W
	Tangential Length:	594.5913
Element: Circular		
PC		669+97.9845 R3
PI		671+56.8972 R3
CC		
PT		673+15.4846 R3
	Radius:	2864.79
	Delta:	6°21'00.0" Right
	Degree of Curvature (Arc):	2°00'00.0"
	Length:	317.5001
	Tangent:	158.9127
	Chord:	317.3376
	Middle Ordinate:	4.3974
	External:	4.4041
	Tangent Direction:	S 43°56'40.4" W
	Radial Direction:	N 46°03'19.6" W
	Chord Direction:	S 47°07'10.4" W
	Radial Direction:	N 39°42'19.6" W
	Tangent Direction:	S 50°17'40.4" W
Element: Linear		
PT		673+15.4846 R3
POE		684+97.4771 R3
	Tangential Direction:	S 48°08'11.9" W
	Tangential Length:	1181.9926

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

HORIZONTAL ALIGNMENT DATA

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		46

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HORIZONTAL ALIGNMENT CHECK

PROPOSED DESIGN CSJ: 0228-01-056										RADIUS, LENGTH, & SUPERELEVATION CHECK CSJ: 0228-01-056								
PI NO.	PC	PI	PT	DESIGN SPEED (MPH)	DEFLECTION (DELTA), (DEG)	RADIUS (FT)	LENGTH (FT)	MIN. RADIUS (FT)	E PROP (%)	E MAX EXISTING (%)	E REQ. (%)	CHANGE IN X-SLOPE (%)	G (%)	Lr SUPERELEVATION RUNOFF (FT)	Lt TANGENT RUNOUT (FT)	Lc† SUPERELEVATION TRANSITION LENGTH (FT)	MAX. SUPERELEVATION LENGTH (FT)	MEETS?
1	92+02.00	95+67.21	99+23.70	55	21.65 LT	1909.95	721.70	1890.00	5.1	5.1	5.0	6.66	0.50	122.40	37.44	159.84	402.02	YES
2	103+87.00	107+22.36	110+53.00	60	16.65 RT	2291.60	666.00	2160.00	5.2	5.2	5.2	6.76	0.50	124.80	37.44	162.24	341.52	YES
3	137+28.65	141+27.44	145+21.15	75	15.85 RT	2864.79	792.50	2500.00	6.0	6.0	6.0	7.56	0.50	144.00	37.44	181.44	429.62	YES
4	150+63.05	154+61.85	158+55.55	75	15.85 LT	2864.70	792.50	2500.00	6.0	6.0	6.0	7.56	0.50	144.00	37.44	181.44	429.62	YES
5	445+14.85	446+02.36	446+89.85	75	1.75 LT	5729.58	175.00	5560.00										N/A
6	453+14.85	454+02.36	454+89.85	75	1.75 RT	5729.58	175.00	5560.00										N/A
7	659+22.48	661+62.99	664+03.39	55	3.00 LT	9071.34	480.91	6820.00										N/A
8	669+97.98	671+56.90	673+15.48	55	6.35 RT	2864.79	317.50	2810.00										N/A
										Measured in the filed	Roadway Design Manual Table 2-4							

STATE OF TEXAS
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HORIZONTAL ALIGNMENT CHECK

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		47

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VERTICAL ALIGNMENT CHECK										
LOCATION	PI STATION	LENGTH	G1	G2	E	K-VALUE CALC.	K-VALUE MIN.	CREST OR SAG?	MEETS MIN. K?	UNDER MAX. GRADE?
		(FT)	(%)	(%)	(FT)			(C/S)	(Y/N)	(Y/N)
Terry County 0228-01-056										
CENTERLINE	104+00.00	300.00	0.500	-1.100	-0.60	188	172	C	Y	Y
CENTERLINE	108+00.00	300.00	-1.100	-0.600	0.19	600	384	S	Y	Y
CENTERLINE	118+00.00	300.00	-0.600	-0.150	NO VERTICAL CURVE, G2-G1 < 0.5					
CENTERLINE	128+00.00	300.00	0.050	1.650	0.60	188	181	S	Y	Y
CENTERLINE	134+00.00	500.00	1.650	-0.950	-1.63	192	193	C	**N	Y
CENTERLINE	138+00.00	300.00	-0.950	-0.200	0.28	400	231	S	Y	Y
CENTERLINE	148+00.00	300.00	-0.200	-1.200	-0.38	300	247	C	Y	Y
CENTERLINE	153+00.00	300.00	-1.200	-1.600	NO VERTICAL CURVE, G2-G1 < 0.5					
CENTERLINE	156+00.00	300.00	-1.600	-0.933	0.25	450	231	S	Y	Y
CENTERLINE	159+00.00	300.00	-0.933	-0.100	0.31	360	231.00	S	Y	Y
CENTERLINE	618+00.00	900.00	-2.565	2.642	5.86	173	169.00	S	Y	Y
CENTERLINE	631+00.00	500.00	2.642	0.920	-1.08	290	247.00	C	Y	Y

* Profile grade separates into Left Lane grade and Right Lane grade From STA 163+00 To STA 618+00, and From STA 631+00 To STA 668+00, see tables bellow

** K-Value calculated is within 1% of the Min. K-Value. Design exception required.

VERTICAL ALIGNMENT CHECK										
LOCATION	PI STATION	LENGTH	G1	G2	E	K-VALUE CALC.	K-VALUE MIN.	CREST OR SAG?	MEETS MIN. K?	UNDER MAX. GRADE?
		(FT)	(%)	(%)	(FT)			(C/S)	(Y/N)	(Y/N)
Terry County 0228-01-056										
LEFT LANE	175+00.00	300.00	-0.100	-0.675	-0.22	521.74	384.00	C	Y	Y
LEFT LANE	179+00.00	300.00	-0.675	-0.450	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	183+00.00	300.00	-0.450	-0.100	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	188+00.00	300.00	-0.100	-0.750	-0.24	461.54	384.00	C	Y	Y
LEFT LANE	198+00.00	300.00	-0.750	0.000	0.28	400.00	231.00	S	Y	Y
LEFT LANE	226+00.00	300.00	1.000	2.000	0.38	300.00	231.00	S	Y	Y
LEFT LANE	231+00.00	300.00	2.000	1.350	-0.24	461.54	384.00	C	Y	Y
LEFT LANE	235+00.00	300.00	1.350	0.333	-0.38	294.99	247.00	C	Y	Y
LEFT LANE	241+00.00	400.00	0.333	-1.000	-0.67	300.08	247.00	C	Y	Y
LEFT LANE	245+00.00	400.00	-1.000	-0.200	0.40	500.00	231.00	S	Y	Y
LEFT LANE	258+00.00	300.00	-0.100	-1.000	-0.34	333.33	312.00	C	Y	Y
LEFT LANE	261+00.00	300.00	-1.000	-0.200	0.30	375.00	231.00	S	Y	Y
LEFT LANE	269+00.00	400.00	-0.100	-1.000	-0.45	444.44	384.00	C	Y	Y
LEFT LANE	273+00.00	400.00	-1.000	-0.200	0.40	500.00	231.00	S	Y	Y
LEFT LANE	279+00.00	300.00	-0.200	0.100	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	285+00.00	300.00	0.100	0.400	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	293+00.00	400.00	0.575	0.100	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	319+00.00	400.00	-0.100	-1.000	-0.45	444.44	384.00	C	Y	Y
LEFT LANE	329+00.00	1400.00	-1.000	0.938	3.39	722.58	231.00	S	Y	Y
LEFT LANE	349+00.00	300.00	1.000	0.600	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	353+00.00	300.00	0.600	0.100	-0.19	600.00	384.00	C	Y	Y
LEFT LANE	369+00.00	300.00	0.100	-0.200	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	382+00.00	300.00	-0.300	-1.550	-0.47	240.00	193.00	C	Y	Y
LEFT LANE	392+00.00	1200.00	-1.550	1.000	3.83	470.59	231.00	S	Y	Y

VERTICAL ALIGNMENT CHECK										
LOCATION	PI STATION	LENGTH	G1	G2	E	K-VALUE CALC.	K-VALUE MIN.	CREST OR SAG?	MEETS MIN. K?	UNDER MAX. GRADE?
		(FT)	(%)	(%)	(FT)			(C/S)	(Y/N)	(Y/N)
Terry County 0228-01-056										
LEFT LANE	408+00.00	300.00	1.000	0.600	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	415+00.00	300.00	0.600	0.900	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	423+00.00	300.00	0.900	0.570	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	434+00.00	400.00	0.570	0.241	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	442+00.00	600.00	0.241	1.400	0.87	517.69	231.00	S	Y	Y
LEFT LANE	448+00.00	400.00	1.400	0.820	-0.29	689.66	384.00	C	Y	Y
LEFT LANE	453+00.00	400.00	0.820	1.300	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	461+00.00	1200.00	1.300	-1.400	-4.05	444.44	384.00	C	Y	Y
LEFT LANE	471+00.00	400.00	-1.400	0.860	1.13	176.99	170.00	S	Y	Y
LEFT LANE	488+00.00	400.00	-0.700	-0.300	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	494+00.00	400.00	-0.300	-1.113	-0.41	492.31	384.00	C	Y	Y
LEFT LANE	502+00.00	1200.00	-1.113	1.000	3.17	568.05	231.00	S	Y	Y
LEFT LANE	526+00.00	400.00	0.800	0.100	-0.35	571.43	384.00	C	Y	Y
LEFT LANE	548+00.00	600.00	0.290	-0.950	-0.93	483.87	384.00	C	Y	Y
LEFT LANE	559+00.00	400.00	-0.950	-1.372	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	566+00.00	400.00	-1.372	-0.530	0.42	475.06	231.00	S	Y	Y
LEFT LANE	576+00.00	400.00	-0.530	0.550	0.54	370.37	231.00	S	Y	Y
LEFT LANE	590+00.00	400.00	0.438	0.000	NO VERTICAL CURVE, G2-G1 < 0.5					
LEFT LANE	601+00.00	700.00	0.000	-2.565	-2.24	272.94	247.00	C	Y	Y
LEFT LANE	640+00.00	400.00	0.920	0.100	-0.41	487.80	384.00	C	Y	Y
LEFT LANE	655+00.00	300.00	0.100	1.914	0.68	165.38	157.00	S	Y	Y
LEFT LANE	660+00.00	400.00	1.914	0.367	-0.77	258.56	247.00	C	Y	Y
LEFT LANE	668+00.00	400.00	0.367	0.558	0.10	2094.24	231.00	S	Y	Y

Benjamin Cox, P.E.

6-19-2023

VERTICAL ALIGNMENT CHECK

SHEET 1 OF 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		48

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VERTICAL ALIGNMENT CHECK										
LOCATION	PI STATION	LENGTH	G1	G2	E	K-VALUE CALC.	K-VALUE MIN.	CREST OR SAG?	MEETS MIN. K?	UNDER MAX. GRADE?
		(FT)	(%)	(%)	(FT)			(C/S)	(Y/N)	(Y/N)
Terry County 0228-01-056										
RIGHT LANE	163+00.00	200.00	-0.375	0.000	NO VERTICAL CURVE, G2-G1 < 0.5					
RIGHT LANE	172+00.00	300.00	0.000	-0.171	NO VERTICAL CURVE, G2-G1 < 0.5					
RIGHT LANE	175+50.00	400.00	-0.171	-0.714	-0.27	736.65	384.00	C	Y	Y
RIGHT LANE	179+00.00	200.00	-0.714	-0.467	NO VERTICAL CURVE, G2-G1 < 0.5					
RIGHT LANE	182+00.00	200.00	-0.467	-0.233	NO VERTICAL CURVE, G2-G1 < 0.5					
RIGHT LANE	190+50.00	400.00	-0.236	-0.825	-0.29	679.12	384.00	C	Y	Y
RIGHT LANE	226+00.00	300.00	0.971	1.900	0.35	322.93	231.00	S	Y	Y
RIGHT LANE	235+00.00	200.00	1.333	0.367	-0.24	207.04	193.00	C	Y	Y
RIGHT LANE	242+00.00	200.00	0.025	-1.033	-0.26	189.04	172.00	C	Y	Y
RIGHT LANE	245+00.00	300.00	-1.033	-0.300	0.27	409.28	231.00	S	Y	Y
RIGHT LANE	257+00.00	300.00	0.000	-0.950	-0.36	315.79	312.00	C	Y	Y
RIGHT LANE	261+00.00	300.00	-0.950	0.000	0.36	315.79	231.00	S	Y	Y
RIGHT LANE	269+00.00	300.00	0.000	-0.162	NO VERTICAL CURVE, G2-G1 < 0.5					
RIGHT LANE	376+00.00	300.00	-0.400	-0.109	NO VERTICAL CURVE, G2-G1 < 0.5					
RIGHT LANE	381+00.00	400.00	-0.109	-1.473	-0.68	293.26	247.00	C	Y	Y
RIGHT LANE	402+00.00	300.00	0.825	1.150	NO VERTICAL CURVE, G2-G1 < 0.5					
RIGHT LANE	406+00.00	300.00	1.150	0.675	NO VERTICAL CURVE, G2-G1 < 0.5					
RIGHT LANE	419+00.00	300.00	0.800	1.300	0.19	600.00	231.00	S	Y	Y
RIGHT LANE	422+00.00	300.00	1.300	0.180	-0.42	267.86	247.00	C	Y	Y
RIGHT LANE	427+00.00	300.00	0.180	1.000	0.31	365.85	231.00	S	Y	Y
RIGHT LANE	433+00.00	400.00	1.000	0.000	-0.50	400.00	384.00	C	Y	Y
RIGHT LANE	441+50.00	500.00	0.000	1.572	0.98	318.07	231.00	S	Y	Y
RIGHT LANE	449+00.00	300.00	1.325	0.625	-0.26	428.57	384.00	C	Y	Y
RIGHT LANE	453+00.00	200.00	0.625	1.628	0.25	199.40	157.00	S	Y	Y
RIGHT LANE	456+50.00	400.00	1.628	0.300	-0.66	301.20	247.00	C	Y	Y
RIGHT LANE	461+50.00	300.00	0.300	-0.571	-0.33	344.43	312.00	C	Y	Y
RIGHT LANE	465+00.00	300.00	-0.571	-1.500	-0.35	322.93	312.00	C	Y	Y
RIGHT LANE	470+00.00	300.00	-1.500	-0.825	0.25	444.44	231.00	S	Y	Y
RIGHT LANE	481+00.00	300.00	-0.800	-0.467	NO VERTICAL CURVE, G2-G1 < 0.5					
RIGHT LANE	484+00.00	300.00	-0.467	-0.875	NO VERTICAL CURVE, G2-G1 < 0.5					
RIGHT LANE	491+00.00	200.00	0.000	-0.567	-0.14	352.73	193.00	C	Y	Y
RIGHT LANE	511+00.00	300.00	0.450	1.540	0.41	275.23	231.00	S	Y	Y
RIGHT LANE	516+00.00	300.00	1.540	0.275	-0.47	237.15	193.00	C	Y	Y
RIGHT LANE	520+00.00	300.00	0.275	1.150	0.33	342.86	312.00	S	Y	Y
RIGHT LANE	526+00.00	300.00	1.150	-0.067	-0.46	246.51	193.00	C	Y	Y
RIGHT LANE	545+00.00	300.00	0.533	-0.050	-0.22	514.58	384.00	C	Y	Y
RIGHT LANE	549+00.00	300.00	-0.050	-1.200	-0.43	260.87	247.00	C	Y	Y
RIGHT LANE	554+00.00	400.00	-1.200	-0.800	NO VERTICAL CURVE, G2-G1 < 0.5					
RIGHT LANE	560+00.00	300.00	-0.800	-1.800	-0.38	300.00	247.00	C	Y	Y
RIGHT LANE	564+50.00	300.00	-1.800	-0.333	0.55	204.50	206.00	S	**N	Y
RIGHT LANE	569+00.00	300.00	-0.333	-0.975	-0.24	467.29	384.00	C	Y	Y
RIGHT LANE	573+00.00	300.00	-0.975	-0.400	0.22	521.74	231.00	S	Y	Y
RIGHT LANE	578+00.00	200.00	-0.100	1.133	0.31	162.21	157.00	S	Y	Y
RIGHT LANE	581+00.00	200.00	1.133	0.400	-0.18	272.85	193.00	C	Y	Y
RIGHT LANE	591+00.00	400.00	0.460	0.000	NO VERTICAL CURVE, G2-G1 < 0.5					
RIGHT LANE	640+00.00	400.00	0.920	0.100	-0.41	487.80	384.00	C	Y	Y
RIGHT LANE	655+50.00	300.00	0.100	1.914	0.68	165.38	157.00	S	Y	Y
RIGHT LANE	660+50.00	400.00	1.914	0.367	-0.77	258.56	247.00	C	Y	Y

** K-Value calculated is within 1% of the Min. K-Value. Design exception required.

STATE OF TEXAS
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6-19-2023

VERTICAL ALIGNMENT CHECK

SHEET 2 OF 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		49

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ROADWAY ITEMS (US 62/385) MAINLANES

STATION	STATION	LENGTH ****	WIDTH	SIDE OF ROADWAY	AREA	INFORMATION	FLEXIBLE PAVEMENT STRUCTURE REPAIR (6") 1% OF ROADWAY AREA	FLEXIBLE PAVEMENT STRUCTURE REPAIR (3") 3% OF ROADWAY AREA	PLANE ASPH CONC PAV (0"TO 6")	***PLANE ASPH CONC PAV (2 1/2")	***** BLADING & BACKFILL (TY B)	**REINF. FABRIC WIDTH	REINF. FABRIC AREA	REINF. FABRIC ASPHALT 0.15 GAL/SY	TACK COAT 0.14 GAL/SY	TY-F 57.5 LBS/SY 0.5"	TY-F 172.5 LBS/SY 1.5"	TY-C 57.5 LBS/SY 0.5"	TY-C 172.5 LBS/SY 1.5"	TY-B 345 LBS/SY 3"	SMA 236 LBS/SY 2"	*SMA SHOULDER TACK 0.14 GAL/SY
TO	TO	FT	FT	RT/LT/BOTH	SY		SY	SY	SY	SY	STA	FT	SY	GAL	GAL	TON	TON	TON	TON	TON	TON	GAL
95+55.00	98+67.00	312	12	RT	416.00	MILL AND INLAY SB DRIVING LANE			416.00			12.50	433.33	65.00	116.48					71.76	49.09	
95+55.00	98+67.00	312	12	LT	416.00	MILL AND INLAY NB DRIVING LANE				450.67		12.50	433.33	65.00	116.48					71.76	49.09	
95+55.00	98+67.00	312	12	RT	416.00	MILL AND INLAY SB PASSING LANE			416.00			12.50	433.33	65.00	116.48	11.96					49.09	
95+55.00	98+67.00	312	12	LT	416.00	OVERLAY NB PASSING LANE						12.50	433.33	65.00	116.48	11.96					49.09	
95+55.00	98+67.00	312	10	RT	346.67	MILL AND INLAY SB OUTSIDE SHLD			346.67									9.97			40.91	92.22
95+55.00	98+67.00	312	10	LT	346.67	OVERLAY NB OUTSIDE SHLD													29.90		40.91	92.22
95+55.00	98+67.00	312	4	RT	138.67	MILL AND INLAY SB INSIDE SHLD			138.67		6.24					3.99					16.36	33.98
95+55.00	98+67.00	312	4	LT	138.67	OVERLAY NB INSIDE SHLD											11.96				16.36	33.98
98+67.00	468+55.00	37067.60	12	RT	49423.47	MILL AND INLAY SB DRIVING LANE				53542.09		12.50	51482.78	7722.42	13838.58					8525.55	5831.97	
98+67.00	468+55.00	37067.60	12	LT	49423.47	MILL AND INLAY NB DRIVING LANE				53542.09		12.50	51482.78	7722.42	13838.58					8525.55	5831.97	
98+67.00	468+55.00	37067.60	12	RT	49423.47	OVERLAY SB PASSING LANE						12.50	51482.78	7722.42	13838.58	1420.92					5831.97	
98+67.00	468+55.00	37067.60	12	LT	49423.47	OVERLAY NB PASSING LANE						12.50	51482.78	7722.42	13838.58	1420.92					5831.97	
98+67.00	468+55.00	37067.60	10	RT	41186.22	OVERLAY SB OUTSIDE SHLD													3552.31		4859.97	10955.54
98+67.00	468+55.00	37067.60	10	LT	41186.22	OVERLAY NB OUTSIDE SHLD					741.35								3552.31		4859.97	10955.54
98+67.00	468+55.00	37067.60	4	RT	16474.49	OVERLAY SB INSIDE SHLD											1420.92				1943.99	4036.24
98+67.00	468+55.00	37067.60	4	LT	16474.49	OVERLAY NB INSIDE SHLD											1420.92				1943.99	4036.24
468+55.00	674+00.00	20545				CENTER MEDIAN					205.45											
					TOTALS		3156	9469	1317.34	107534.85	953.04	100.00	207664.44	31149.68	55820.24	2869.75	2853.80	9.97	7134.52	17194.62	37246.70	30235.96
																5723.55		7144.49				

* TACK COAT 9.5' OF BOTH OUTSIDE SHOULDERS AND 3.5' OF BOTH INSIDE SHOULDERS

** 6" OVERLAP

*** PLANE 13' WIDE TO ELIMINATE HMA BUILD-UP

**** EQUATION EXISTS

***** BLADING AND BACKFILL PAYMENT FOR NB OUTSIDE DITCH AND CENTER MEDIAN FROM 95+55.00 TO 98+67.00
BLADING AND BACKFILL PAYMENT FOR NB/SB OUTSIDE DITCH AND CENTER MEDIAN FROM 98+67.00 TO 468+55.00
BLADING AND BACKFILL PAYMENT FOR NB/SB CENTER MEDIAN FROM 468+55.00 TO 674+00.00

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

ROADWAY SUMMARY
MAINLANES

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		50

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ROADWAY ITEMS (US 62/385) CROSSOVER ITEMS

NO.	INFORMATION	LOCATION	WIDTH OF CROSSOVER	EXISTING AREA	EXTENDED AREA	PROPOSED AREA	PLANE ASPH CONC PAV (8")	*EXCAVATION	SUBGRADE WIDENING	FL BS (CMP IN PLC) (TY A GR 4) (6")	REWORK BASE (TY B) (DENS CONT) (6")	**PRIME COAT (MC-30 & CSS-1H)	FOG SEAL (CSS-1H)	HMA D-GR TY B PG 76-28	STONE-MTRX-ASPH SMA-D SAC-A PG 76-28	SMA TACK COAT
												0.20 GAL/SY	0.15 GAL/SY	460 LBS/SY	236 LBS/SY	0.14 GAL/SY
														4"	2"	
		STATION	FT	SY	SY	SY	SY	CY	SY	SY	SY	GAL	GAL	TON	TON	GAL
CR 1	OLD SEAGRAVES RD.	98+91	50	198.20	40.80	239.00		56.32	40.80	40.80	198.20	47.80	71.70	54.97	28.20	33.46
CR 2	COMMERICAL AREA	109+12	100	403.92	33.08	437.00		33.93	33.08	33.08	403.92	87.40	131.10	100.51	51.57	61.18
CR 3	COMMERICAL AREA	119+00	100	130.82	306.18	437.00		52.96	306.18	306.18	130.82	87.40	131.10	100.51	51.57	61.18
CR 4	CO.RD. 460	132+38	110	479.26	1.74	481.00		35.56	1.74	1.74	479.26	96.20	144.30	110.63	56.76	67.34
CR 5	COMMERICAL AREA	137+09	40	210.00			210.00									
CR 6	OLD SEAGRAVES RD.	151+80	60	280.99	23.01	304.00		35.56	23.01	23.01	280.99	60.80	91.20	69.92	35.87	42.56
CR 7	CO.RD. 375	162+79	80	317.36	57.64	375.00		53.33	57.64	57.64	317.36	75.00	112.50	86.25	44.25	52.50
CR 8	PRIVATE	176+67	40			232.00		53.33		232.00		46.40	69.60	53.36	27.38	32.48
CR 9	PRIVATE	178+14	40	130.16	101.84	232.00		53.33	101.84	101.84	130.16	46.40	69.60	53.36	27.38	32.48
CR 10	PRIVATE	198+75	40	140.32	91.68	232.00		53.33	91.68	91.68	140.32	46.40	69.60	53.36	27.38	32.48
CR 11	PRIVATE	215+00	60			304.00		35.56		304.00		60.80	91.20	69.92	35.87	42.56
CR 12	CO.RD. 365	237+17	90	400.00			400.00									
CR 13	PRIVATE	244+64	60	229.89			229.89									
CR 14	CO.RD. 474	249+40	100	333.93	112.07	446.00		35.56	112.07	112.07	333.93	89.20	133.80	102.58	52.63	62.44
CR 15	CO.RD. 480	285+79	120	497.71	19.29	517.00		35.56	19.29	19.29	497.71	103.40	155.10	118.91	61.01	72.38
CR 16	CO.RD. 355 N	309+13	80	250.72			250.72									
CR 17	CO.RD. 355 S	312+37	110	457.00	24.00	481.00		53.33	24.00	24.00	457.00	96.20	144.30	110.63	56.76	67.34
CR 18	PRIVATE	346+65	40	97.47	134.53	232.00		53.33	134.53	134.53	97.47	46.40	69.60	53.36	27.38	32.48
CR 19	PRIVATE	359+78	40	157.14	74.86	232.00		35.56	74.86	74.86	157.14	46.40	69.60	53.36	27.38	32.48
CR 20	PRIVATE	386+46	40	184.42	47.58	232.00		53.33	47.58	47.58	184.42	46.40	69.60	53.36	27.38	32.48
CR 21	CO.RD. 600	436+34	120	484.93	32.07	517.00		53.33	32.07	32.07	484.93	103.40	155.10	118.91	61.01	72.38
CR 22	FM 303	458+30	100	420.16	25.84	446.00		35.56	25.84	25.84	420.16	89.20	133.80	102.58	52.63	62.44
CR 23	PRIVATE	466+63	40	166.64			166.64									
CR 24	PRIVATE	508+18	60	291.62	12.38	304.00		35.56	12.38	12.38	291.62	60.80	91.20	69.92	35.87	42.56
CR 25	CO.RD. 861	529+42	60	271.36			271.36									
CR 26	CO.RD. 861	530+49	60			304.00		53.33		304.00		60.80	91.20	69.92	35.87	42.56
CR 27	CO.RD. 620	587+13	100	431.70	14.30	446.00		35.56	14.30	14.30	431.70	89.20	133.80	102.58	52.63	62.44
CR 28	TxDOT REST AREA	611+25	60	273.14	30.86	304.00		53.33	30.86	30.86	273.14	60.80	91.20	69.92	35.87	42.56
CR 29	TxDOT REST AREA	638+70	60	277.70	26.30	304.00		53.33	26.30	26.30	277.70	60.80	91.20	69.92	35.87	42.56
CR 30	1ST STREET	662+05	50	240.96	27.04	268.00		35.56	27.04	27.04	240.96	53.60	80.40	61.64	31.62	37.52
						TOTAL	1528.61	1085.44	1237.09	2077.09	6228.91	1661.20	2491.80	1910.38	980.14	1162.84

* EXCAVATION QUANTITY TO ENSURE POSITIVE DRAINAGE UPSTREAM AND DOWNSTREAM

** 1/2 TOTAL QUANTITY = MC-30

** 1/2 TOTAL QUANTITY = CSS-1H

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

CROSSOVER ITEMS SUMMARY

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		51

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ROADWAY ITEMS (US 62/385) INSIDE DECEL LANES

CROSSOVER NO.	INFORMATION	DESCRIPTION	PROPOSED/ EXISTING	LOCATION		LENGTH	BEGIN WIDTH	END WIDTH	SIDE OF ROADWAY	DESCRIPTION	LANE AREA	TAPER AREA	AREA	PLANE ASPH CONC PAV (8")	SUBGRADE WIDENING	FL BS (CMP IN PLC) (TY A GR 4) (6")	PRIME COAT (MC-30 & CSS-1H)	FOG SEAL (CSS-1H)	D-GR HMA TY-B PG76-28	STONE-MTRX-ASPH SMA-D SAC-A PG76-28	SMA TACK COAT
				STATION										4 FT WIDE	13 FT WIDE	12.5 FT WIDE	0.20 GAL/ SY	0.15 GAL/SY	460 LBS/SY	236 LBS/SY	0.14 GAL/SY
																			4"	2"	
		LANE/TAPER		TO	TO	FT	FT	FT	LT/RT	DECEL	SY	SY	SY	SY	SY	SY	GAL	GAL	TON	TON	GAL
CR 1	OLD SEAGRAVES RD.	LANE	PROPOSED	99+37.00	101+87.00	250.00	12	12	LT	DECEL	333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		TAPER		101+87.00	103+37.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 2	COMMERICAL AREA	TAPER	PROPOSED	104+41.00	105+91.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		105+91.00	106+77.00	86.00	12	12			114.67		114.67	38.22	124.22	119.44	23.89	17.20	26.37	13.53	16.05
		LANE	EXISTING	106+77.00	108+41.00	164.00	12	12			218.67		218.67							25.80	30.61
		LANE	EXISTING	109+82.00	112+82.00	300.00	12	12	LT	DECEL	400.00		400.00							47.20	56.00
		TAPER		112+82.00	114+82.00	200.00	12	0				133.33	133.33							15.73	18.67
CR 3	COMMERICAL AREA	TAPER	PROPOSED	114+31.00	115+81.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		115+81.00	118+31.00	250.00	12	12			333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		LANE		119+73.00	122+23.00	250.00	12	12	LT		333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		TAPER		122+23.00	123+73.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 4	CO.RD. 460	TAPER	PROPOSED	124+01.00	125+51.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		125+51.00	129+31.00	380.00	12	12			506.67		506.67	168.89	548.89	527.78	105.56	76.00	116.53	59.79	70.93
		LANE	EXISTING	129+31.00	131+56.00	225.00	12	12			300.00		300.00							35.40	42.00
		LANE		133+15.00	137+28.00	413.00	12	12	LT	DECEL	550.67		550.67							64.98	77.09
		LANE	PROPOSED	137+28.00	140+14.00	286.00	12	12			381.33		381.33	127.11	413.11	397.22	79.44	57.20	87.71	45.00	53.39
		TAPER		140+14.00	141+64.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 6	OLD SEAGRAVES RD.	TAPER	PROPOSED	142+75.00	144+25.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		144+25.00	151+25.00	700.00	12	12			933.33		933.33	311.11	1011.11	972.22	194.44	140.00	214.67	110.13	130.67
		LANE	EXISTING	152+35.00	153+85.00	150.00	12	12	LT	DECEL	200.00		200.00							23.60	28.00
		LANE	PROPOSED	153+85.00	158+35.00	450.00	12	12			600.00		600.00	200.00	650.00	625.00	125.00	90.00	138.00	70.80	84.00
		TAPER		158+35.00	159+85.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 7	CO.RD. 375	TAPER	PROPOSED	153+65.00	155+15.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		155+15.00	160+65.00	550.00	12	12			733.33		733.33	244.44	794.44	763.89	152.78	110.00	168.67	86.53	102.67
		LANE	EXISTING	160+65.00	162+17.00	250.00	12	12			333.33		333.33							39.33	46.67
		LANE	PROPOSED	163+44.00	171+44.00	800.00	12	12	LT		1066.67		1066.67	355.56	1155.56	1111.11	222.22	160.00	245.33	125.87	149.33
		TAPER		171+44.00	172+94.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 8	PRIVATE	TAPER	PROPOSED	172+22.00	173+72.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		173+72.00	176+22.00	250.00	12	12			333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
CR 9	PRIVATE	LANE	PROPOSED	178+59.00	181+09.00	250.00	12	12	LT	DECEL	333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		TAPER		181+09.00	182+59.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 10	PRIVATE	TAPER	PROPOSED	194+30.00	195+80.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		195+80.00	196+66.00	86.00	12	12			114.67		114.67	38.22	124.22	119.44	23.89	17.20	26.37	13.53	16.05
		LANE	EXISTING	196+66.00	198+30.00	164.00	12	12			218.67		218.67							25.80	30.61
		LANE	PROPOSED	199+20.00	201+70.00	250.00	12	12	LT	DECEL	333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		TAPER		201+70.00	203+20.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 11	PRIVATE	TAPER	PROPOSED	210+45.00	211+95.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		211+95.00	214+45.00	250.00	12	12			333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		LANE		215+55.00	218+05.00	250.00	12	12	LT		333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		TAPER		218+05.00	219+55.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 12	CO.RD. 365	TAPER	EXISTING	232+04.00	235+04.00	300.00	0	8	RT	DECEL		133.33	133.33	♪ 133.33							
		LANE		235+04.00	236+46.00	142.00	8	8			126.22		126.22	♪ 126.22							
SUBTOTAL														3698.70	9443.71	9080.58	♪♪ 1816.02	1307.60	2005.01	1306.46	1550.10

♪ PLANE EXISTING ASPHALT CONCRETE PAVEMENT (4") INCLUDES INSIDE 8' TAPER & DECEL LANE. SEE CROSSOVER DETAIL SHEET FOR FURTHER DETAILS.

♪♪ 1/2 TOTAL QUANTITY = MC-30, 1/2 TOTAL QUANTITY = CSS-1H

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

DECEL & ACEL LANE ITEMS SUMMARY

SHEET 1 OF 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		52

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ROADWAY ITEMS (US 62/385) INSIDE DECEL LANES

CROSSOVER NO.	INFORMATION	DESCRIPTION	PROPOSED/ EXISTING	LOCATION		LENGTH	BEGIN WIDTH	END WIDTH	SIDE OF ROADWAY	DESCRIPTION	LANE AREA	TAPER AREA	AREA	PLANE ASPH CONC PAV (8")	SUBGRADE WIDENING	FL BS (CMP IN PLC) (TY A GR 4) (6")	PRIME COAT (MC-30 & CSS-1H)	FOG SEAL (CSS-1H)	D-GR HMA TY-B PG76-28	STONE-MTRX-ASPH SMA-D SAC-A PG76-28	SMA TACK COAT
				STATION										4 FT WIDE	13 FT WIDE	12.5 FT WIDE	0.20 GAL/ SY	0.15 GAL/SY	460 LBS/SY	236 LBS/SY	0.14 GAL/SY
																			4"	2"	
		LANE/TAPER		TO	TO	FT	FT	FT	LT/RT	DECEL	SY	SY	SY	SY	SY	SY	GAL	GAL	TON	TON	GAL
CR 14	CO.RD. 474	LANE	EXISTING	250+14.00	252+64.00	250.00	12	12			333.33		333.33							39.33	46.67
		LANE	PROPOSED	252+64.00	258+14.00	550.00	12	12	LT	DECEL	733.33		733.33	244.44	794.44	763.89	152.78	110.00	168.67	86.53	102.67
		TAPER		258+14.00	259+64.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 15	CO.RD. 480	TAPER	PROPOSED	275+44.00	276+94.00	150.00	0	12				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		276+94.00	282+69.00	575.00	12	12	RT	DECEL	766.67		766.67	255.56	830.56	798.61	159.72	115.00	176.33	90.47	107.33
		LANE	EXISTING	282+69.00	284+94.00	225.00	12	12			300.00		300.00							35.40	42.00
		LANE		286+65.00	289+15.00	250.00	12	12			333.33		333.33							39.33	46.67
		LANE	PROPOSED	289+15.00	294+65.00	550.00	12	12	LT	DECEL	733.33		733.33	244.44	794.44	763.89	152.78	110.00	168.67	86.53	102.67
		TAPER		294+65.00	296+15.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 16	CO. RD. 355 N.	LANE	EXISTING	309+73.00	311+56.00	183.00	8	8	LT	DECEL	171.97		171.97	♪ 171.97							
CR 17	CO.RD. 355 S	TAPER	PROPOSED	302+06.00	303+56.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		303+56.00	309+06.00	550.00	12	12			733.33		733.33	244.44	794.44	763.89	152.78	110.00	168.67	86.53	102.67
		LANE	EXISTING	309+06.00	311+56.00	250.00	12	12	RT		333.33		333.33							39.33	46.67
		LANE	PROPOSED	313+16.00	321+16.00	800.00	12	12	LT		1066.67		1066.67	355.56	1155.56	1111.11	222.22	160.00	245.33	125.87	149.33
		TAPER		321+16.00	322+66.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 18	PRIVATE	TAPER	PROPOSED	342+19.00	343+69.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		343+69.00	346+19.00	250.00	12	12			333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		LANE		347+10.00	349+60.00	250.00	12	12	LT		333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		TAPER		349+60.00	351+10.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 19	PRIVATE	TAPER	PROPOSED	355+32.00	356+82.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		356+82.00	359+32.00	250.00	12	12			333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		LANE		360+22.00	362+72.00	250.00	12	12	LT		333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		TAPER		362+72.00	364+22.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 20	PRIVATE	TAPER	PROPOSED	382+01.00	383+51.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		383+51.00	386+01.00	250.00	12	12			333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		LANE		386+91.00	389+41.00	250.00	12	12	LT		333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		TAPER		389+41.00	390+91.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 21	CO.RD. 600	TAPER	PROPOSED	426+01.00	427+51.00	150.00	0	12				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		427+51.00	433+01.00	550.00	12	12	RT	DECEL	733.33		733.33	244.44	794.44	763.89	152.78	110.00	168.67	86.53	102.67
		LANE	EXISTING	433+01.00	435+53.00	252.00	12	12			336.00		336.00							39.65	47.04
		LANE		437+23.00	439+73.00	250.00	12	12			333.33		333.33							39.33	46.67
		LANE	PROPOSED	439+73.00	445+23.00	550.00	12	12	LT	DECEL	733.33		733.33	244.44	794.44	763.89	152.78	110.00	168.67	86.53	102.67
		TAPER		445+23.00	446+73.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 22	FM 303	TAPER	PROPOSED	448+05.00	449+55.00	150.00	0	12	RT			100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		449+55.00	457+55.00	800.00	12	12			1066.67		1066.67	355.56	1155.56	1111.11	222.22	160.00	245.33	125.87	149.33
		LANE	EXISTING	459+05.00	461+55.00	250.00	12	12		DECEL	333.33		333.33							39.33	46.67
		LANE	PROPOSED	461+55.00	467+05.00	550.00	12	12	LT		733.33		733.33	244.44	794.44	763.89	152.78	110.00	168.67	86.53	102.67
		TAPER		467+05.00	468+55.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
										SUBTOTAL				4272.00	11699.93	11250.04	♫ 2249.93	1620.00	2484.03	1546.07	1834.42

♪ PLANE EXISTING ASPHALT CONCRETE PAVEMENT (4") INCLUDES INSIDE 8' TAPER & DECEL LANE. SEE CROSSOVER DETAIL SHEET FOR FURTHER DETAILS.

♫ 1/2 TOTAL QUANTITY = MC-30, 1/2 TOTAL QUANTITY = CSS-1H

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

DECEL & ACEL LANE ITEMS SUMMARY

SHEET 2 OF 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		53

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ROADWAY ITEMS (US 62/385) INSIDE DECEL LANES

CROSSOVER NO.	INFORMATION	DESCRIPTION	PROPOSED/ EXISTING	LOCATION		LENGTH	BEGIN WIDTH	END WIDTH	SIDE OF ROADWAY	DESCRIPTION	LANE AREA	TAPER AREA	AREA	PLANE ASPH CONC PAV (8")	SUBGRADE WIDENING	FL BS (CMP IN PLC) (TY A GR 4) (6")	PRIME COAT (MC-30 & CSS-1H)	FOG SEAL (CSS-1H)	D-GR HMA TY-B PG76-28	STONE-MTRX-ASPH SMA-D SAC-A PG76-28	SMA TACK COAT
				STATION										4 FT WIDE	13 FT WIDE	12.5 FT WIDE	0.20 GAL/ SY	0.15 GAL/SY	460 LBS/SY	236 LBS/SY	0.14 GAL/SY
																			4"	2"	
		LANE/TAPER		TO	TO	FT	FT	FT	LT/RT	DECEL	SY	SY	SY	SY	SY	SY	GAL	GAL	TON	TON	GAL
CR 24	PRIVATE	TAPER	PROPOSED	503+63.00	505+13.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		505+13.00	505+72.00	59.00	12	12			78.67		78.67	26.22	85.22	81.94	16.39	11.80	18.09	9.28	11.01
		LANE	EXISTING	505+72.00	507+63.00	191.00	12	12			254.67		254.67							30.05	35.65
		LANE	PROPOSED	508+73.00	511+23.00	250.00	12	12	LT	DECEL	333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		TAPER		511+23.00	512+73.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 26	CO.RD. 861	TAPER	PROPOSED	520+44.00	521+94.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		521+94.00	529+94.00	800.00	12	12			1066.67		1066.67	355.56	1155.56	1111.11	222.22	160.00	245.33	125.87	149.33
		LANE		531+04.00	539+04.00	800.00	12	12	LT		1066.67		1066.67	355.56	1155.56	1111.11	222.22	160.00	245.33	125.87	149.33
		TAPER		539+04.00	540+54.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 27	CO.RD. 620	TAPER	PROPOSED	576+96.00	578+46.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE		578+46.00	583+96.00	550.00	12	12			733.33		733.33	244.44	794.44	763.89	152.78	110.00	168.67	86.53	102.67
		LANE	EXISTING	583+96.00	586+46.00	250.00	12	12			333.33		333.33							39.33	46.67
		LANE		587+96.00	589+85.00	189.00	12	12	LT		252.00		252.00							29.74	35.28
		LANE	PROPOSED	589+85.00	595+96.00	611.00	12	12			814.67		814.67	271.56	882.56	848.61	169.72	122.20	187.37	96.13	114.05
		TAPER		595+96.00	597+46.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 28	TxDOT REST AREA	TAPER	PROPOSED	606+34.00	608+20.00	186.00	0	12	RT	DECEL		124.00	124.00	82.67	134.33	129.17	25.83	18.60	28.52	14.63	17.36
		LANE		608+20.00	608+64.00	44.00	12	12			58.67		58.67	19.56	63.56	61.11	12.22	8.80	13.49	6.92	8.21
		LANE	EXISTING	608+64.00	610+70.00	206.00	12	12			274.67		274.67							32.41	38.45
		LANE	PROPOSED	611+80.00	614+30.00	250.00	12	12	LT		333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		TAPER		614+30.00	615+80.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 29	TxDOT REST AREA	TAPER	EXISTING	633+96.00	635+65.00	150.00	0	12	RT	DECEL		100.00	100.00							11.80	14.00
		LANE		635+65.00	638+15.00	250.00	12	12			333.33		333.33							39.33	46.67
		LANE	PROPOSED	639+25.00	641+75.00	250.00	12	12	LT		333.33		333.33	111.11	361.11	347.22	69.44	50.00	76.67	39.33	46.67
		TAPER		641+75.00	643+25.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
CR 30	1ST STREET	TAPER	PROPOSED	655+69.00	657+19.00	150.00	0	12	RT	DECEL		100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
		LANE	EXISTING	659+09.00	661+59.00	250.00	12	12			333.33		333.33							39.33	46.67
		LANE	PROPOSED	662+58.00	666+98.00	440.00	12	12	LT		586.67		586.67	195.56	635.56	611.11	122.22	88.00	134.93	69.23	82.13
		TAPER		666+98.00	668+48.00	150.00	12	0				100.00	100.00	66.67	108.33	104.17	20.83	15.00	23.00	11.80	14.00
										SUBTOTAL				2551.16	7073.42	6801.41	♫♫1360.22	979.40	1501.74	992.44	1177.49

♫♫ 1/2 TOTAL QUANTITY = MC-30, 1/2 TOTAL QUANTITY = CSS-1H

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

DECEL & ACEL LANE ITEMS SUMMARY

SHEET 3 OF 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		54

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ROADWAY ITEMS (US 62/385) DECEL/ACCEL LANES

CROSSOVER NO.	INFORMATION	DESCRIPTION	PROPOSED/ EXISTING	LOCATION		LENGTH	BEGIN WIDTH	END WIDTH	SIDE OF ROADWAY	DESCRIPTION	LANE AREA	TAPER AREA	AREA	PLANE ASPH CONC PAV (8")	SUBGRADE WIDENING	FL BS (CMP IN PLC) (TY A GR 4) (6")	PRIME COAT (MC-30 & CSS-1H)	FOG SEAL (CSS-1H)	D-GR HMA TY-B PG70-28	STONE-MTRX-ASPH SMA-D SAC-A PG76-28	SMA TACK COAT
				STATION										4 FT INSIDE OR 10 FT OUTSIDE WIDTH	13 FT INSIDE OR 17 FT OUTSIDE WIDTH	12.5 FT INSIDE OR 16.5 FT OUTSIDE WIDTH	0.20 GAL/ SY	0.15 GAL/SY	460 LBS/SY	236 LBS/SY	0.14 GAL/SY
																			4"	2"	
		LANE/TAPER		TO	TO	FT	FT	FT	LT/RT	ACEL/ DECEL	SY	SY	SY	SY	SY	SY	GAL	GAL	TON	TON	GAL
CR 14	CO. RD. 474	TAPER	PROPOSED	227+74.00	230+74.00	300.00	0	12	LT	INSIDE ACCEL		200.00	200.00	133.33	216.67	208.33	41.67	30.00	46.00	23.60	28.00
		LANE		230+74.00	248+64.00	1790.00	12	12			2386.67		2386.67	795.56	2585.56	2486.11	497.22	358.00	548.93	281.63	334.13
		TAPER		244+98.00	246+48.00	150.00	0	16	RT	OUTSIDE DECEL		133.33	133.33	166.67	141.67	137.50	27.50	20.00	30.67	15.73	18.67
		LANE		246+78.00	248+76.00	198.00	16	16			352.00		352.00	220.00	374.00	363.00	72.60	52.80	80.96	41.54	49.28
		LANE		250+21.00	268+11.00	1790.00	16	16		OUTSIDE ACCEL	3182.22		3182.22	1988.89	3381.11	3281.67	656.33	477.33	731.91	375.50	445.51
		TAPER		268+11.00	271+11.00	300.00	16	0				266.67	266.67	333.33	283.33	275.00	55.00	40.00	61.33	31.47	37.33
CR 17	CO. RD. 355 S	TAPER	PROPOSED	290+96.00	293+96.00	300.00	0	16	LT	OUTSIDE ACCEL		266.67	266.67	333.33	283.33	275.00	55.00	40.00	61.33	31.47	37.33
		LANE		293+96.00	311+86.00	1790.00	16	16			3182.22		3182.22	1988.89	3381.11	3281.67	656.33	477.33	731.91	375.50	445.51
		LANE		313+28.00	323+63.00	1035.00	16	16		OUTSIDE DECEL	1840.00		1840.00	1150.00	1955.00	1897.50	379.50	276.00	423.20	217.12	257.60
		TAPER		323+63.00	325+13.00	150.00	16	0				133.33	133.33	166.67	141.67	137.50	27.50	20.00	30.67	15.73	18.67
													TOTAL	7276.67	12743.45	12343.28	♫♫2468.65	1791.46	2746.91	1409.29	1672.03

♫♫ 1/2 TOTAL QUANTITY = MC-30, 1/2 TOTAL QUANTITY = CSS-1H

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

DECEL & ACEL LANE ITEMS SUMMARY

SHEET 4 OF 4

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		55

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CABLE BARRIER CSJ: 0228-01-061											
							543-6002	543-6020			432-6046
CABLE RUN	STATION		GENERAL LOCATION		BASELINE OFFSET (LEFT OR RIGHT)	ENTIRE LENGTH	CABLE BARRIER SYSTEM (TL-4)	END TERM (EA)	3' WIDE MOW STRIP LENGTH	5" MOW STRIP AREA	5" MOW STRIP (CY)
	FROM	TO	FROM	TO		LF	LF	EA	LF	SY	CY
1	99+72.00	108+07.00	CR 1	CR 2	LT	835.00	780	2	839	279.67	38.84
2	110+23.00	117+98.00	CR 2	CR 3	LT	775.00	720	2	779	259.67	36.07
3	120+07.00	131+22.00	CR 3	CR 4	RT	1115.00	1060	2	1119	373.00	51.81
4	133+55.00	150+90.00	CR 4	CR 6	LT	1735.00	1680	2	1739	579.67	80.51
5	152+85.00	162+80.00	CR 6	CR 7	RT	995.00	940	2	999	333.00	46.25
6	163+94.00	175+89.00	CR 7	CR 8	LT	1195.00	1140	2	1199	399.67	55.51
7	178+88.00	198+03.00	CR 9	CR 10	RT	1915.00	1860	2	1919	639.67	88.84
8	199+62.00	214+17.00	CR 10	CR 11	LT	1455.00	1400	2	1459	486.33	67.55
9	215+82.00	248+37.00	CR 11	CR 14	RT	3255.00	3200	2	3259	1086.33	150.88
10	250+45.00	284+60.00	CR 14	CR 15	LT	3415.00	3360	2	3419	1139.67	158.29
11	287+07.00	311+22.00	CR 15	CR 17	RT	2415.00	2360	2	2419	806.33	111.99
12	313+51.00	345+86.00	CR 17	CR 18	LT	3235.00	3180	2	3239	1079.67	149.95
13	347+35.00	359+10.00	CR 18	CR 19	RT	1175.00	1120	2	1179	393.00	54.58
14	360+55.00	385+70.00	CR 19	CR 20	LT	2515.00	2460	2	2519	839.67	116.62
15	387+25.00	435+20.00	CR 20	CR 21	RT	4795.00	4740	2	4799	1599.67	222.18
16	437+49.00	457+24.00	CR 21	CR 22	RT	1975.00	1920	2	1979	659.67	91.62
17	459+38.00	507+33.00	CR 22	CR 24	RT	4795.00	4740	2	4799	1599.67	222.18
18	508+98.00	529+73.00	CR 24	CR 26	LT	2075.00	2020	2	2079	693.00	96.25
19	531+34.00	586+09.00	CR 26	CR 27	RT	5475.00	5420	2	5479	1826.33	253.66
20	588+22.00	610+37.00	CR 27	CR 28	LT	2215.00	2160	2	2219	739.67	102.73
♪ 21	612+10.00	637+67.00	CR 28	CR 29	RT	2557.00	2502	2	2561	853.67	118.57
22	639+55.00	661+30.00	CR 29	CR 30	LT	2175.00	2120	2	2179	726.33	100.88
23	662+89.00	673+24.00	CR 30	FM 303	RT	1035.00	980	2	1039	346.33	48.10
PROJECT TOTAL:						53127	51862	46	53219	17739.69	2463.86

♪ STATION EQUATION EXISTS
STA. 635+33.20 BK
STA. 635+51.60 AH

STATE OF TEXAS
BENJAMIN COX
126523
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PROFESSIONAL ENGINEER

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6-19-2023

CABLE BARRIER SUMMARY

SHEET 1 OF 1

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		56

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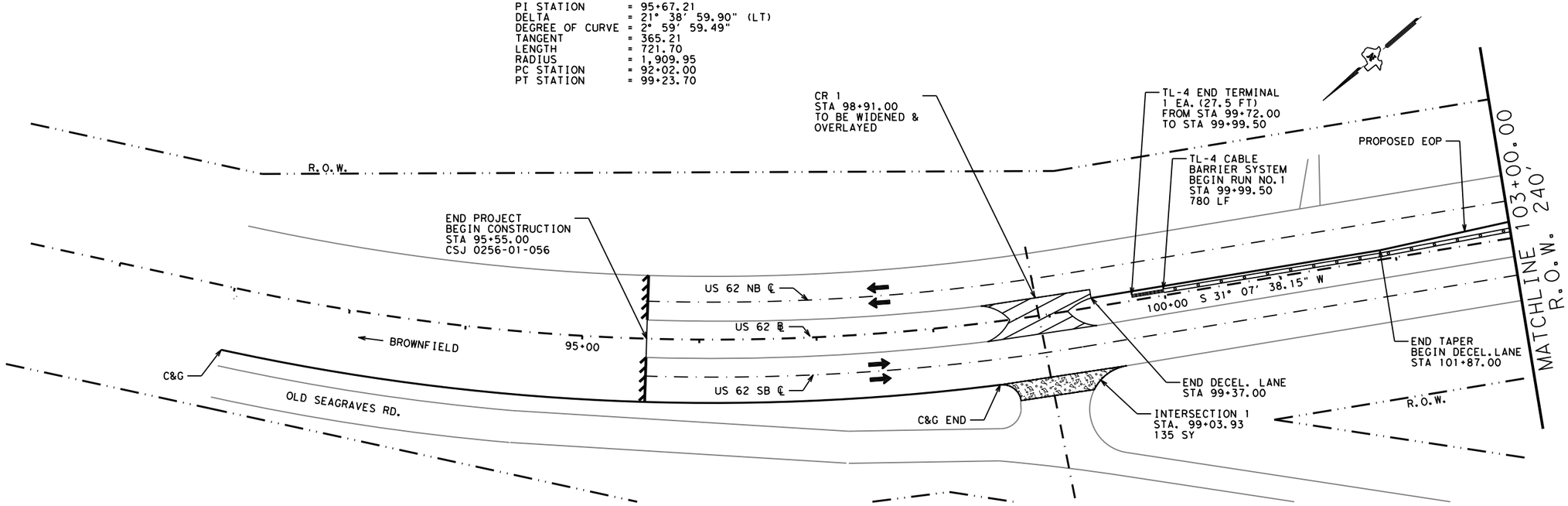
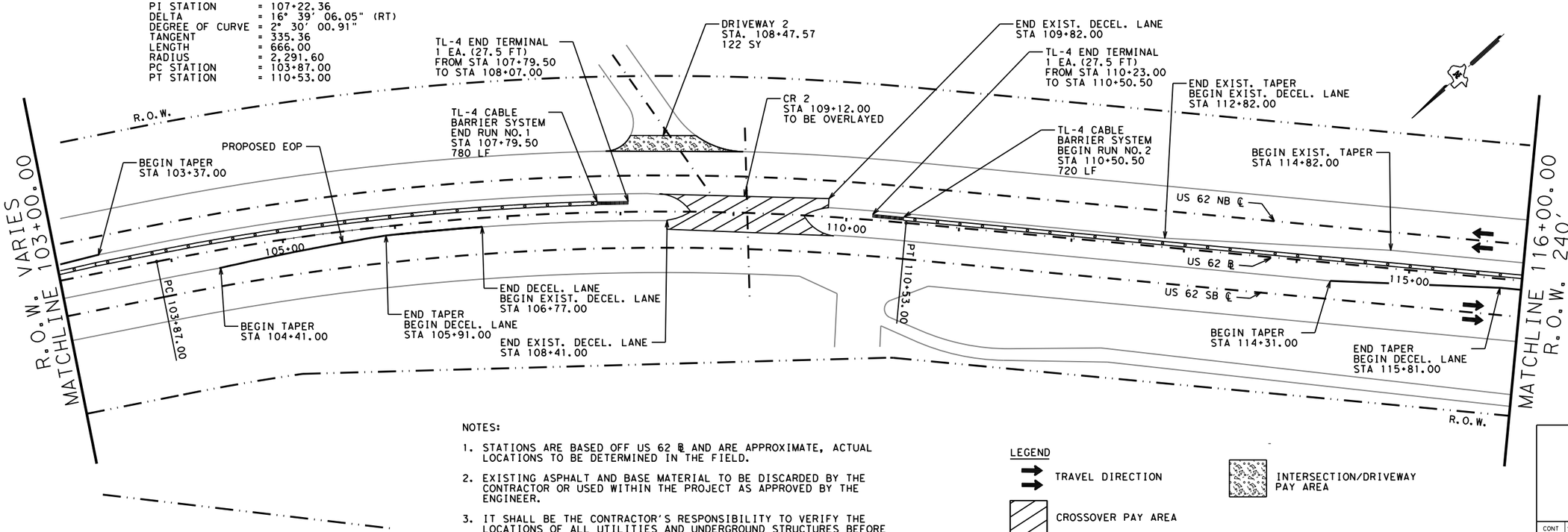
PI STATION = 95+67.21
DELTA = 21° 38' 59.90" (LT)
DEGREE OF CURVE = 2° 59' 59.49"
TANGENT = 365.21
LENGTH = 721.70
RADIUS = 1,909.95
PC STATION = 92+02.00
PT STATION = 99+23.70



PI STATION = 107+22.36
DELTA = 16° 39' 06.05" (RT)
DEGREE OF CURVE = 2° 30' 00.91"
TANGENT = 335.36
LENGTH = 666.00
RADIUS = 2,291.60
PC STATION = 103+87.00
PT STATION = 110+53.00



NOTES:

1. STATIONS ARE BASED OFF US 62 ℄ AND ARE APPROXIMATE, ACTUAL LOCATIONS TO BE DETERMINED IN THE FIELD.
2. EXISTING ASPHALT AND BASE MATERIAL TO BE DISCARDED BY THE CONTRACTOR OR USED WITHIN THE PROJECT AS APPROVED BY THE ENGINEER.
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF ALL UTILITIES AND UNDERGROUND STRUCTURES BEFORE MAKING ANY EXCAVATIONS. FIELD ADJUSTMENTS MAY BE NECESSARY AS DIRECTED BY THE ENGINEER TO AVOID UTILITIES.

LEGEND

- TRAVEL DIRECTION
- CROSSOVER PAY AREA
- INTERSECTION/DRIVEWAY PAY AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 1 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		57

DATE: 6/20/2023 2:32:07 PM
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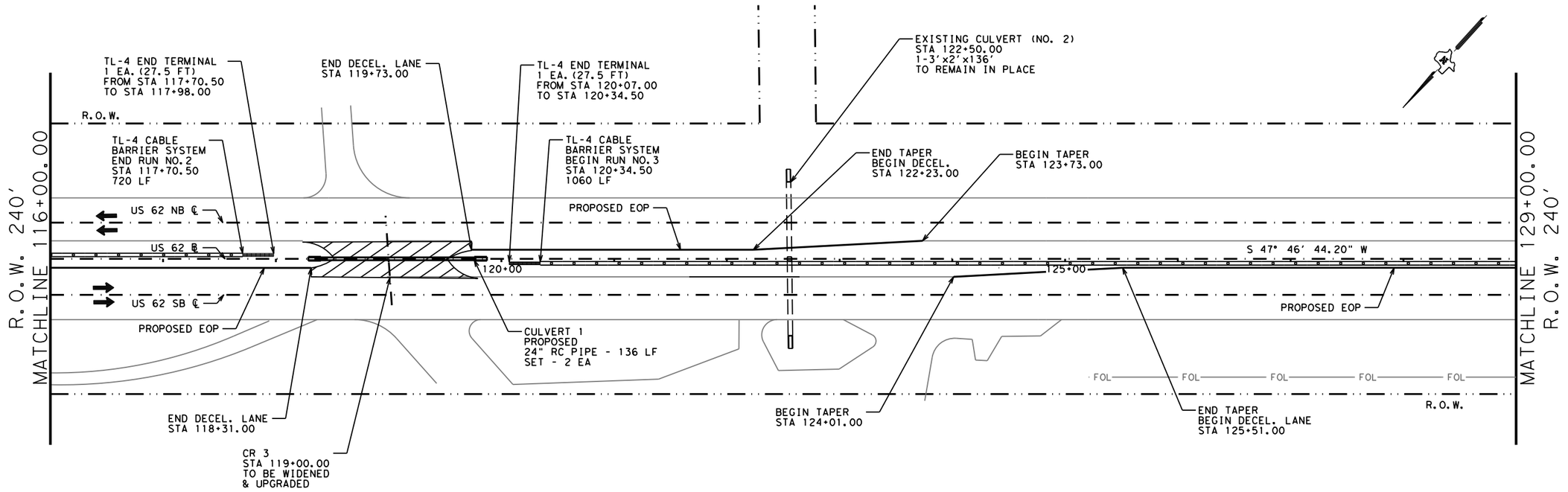

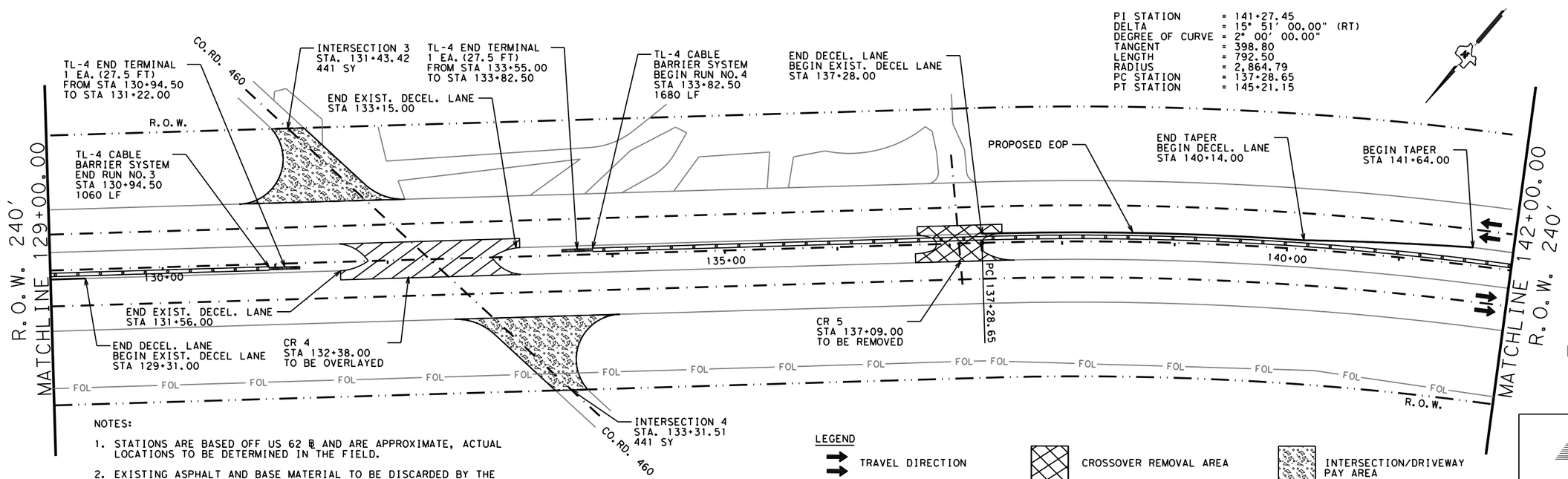

NOTES:

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2. EXISTING ASPHALT AND BASE MATERIAL TO BE DISCARDED BY THE CONTRACTOR OR USED WITHIN THE PROJECT AS APPROVED BY THE ENGINEER.
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LEGEND

- TRAVEL DIRECTION
- CROSSOVER REMOVAL AREA
- INTERSECTION/DRIVEWAY PAY AREA
- CROSSOVER PAY AREA
- FOL — FIBER (BURIED)

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 2 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		58

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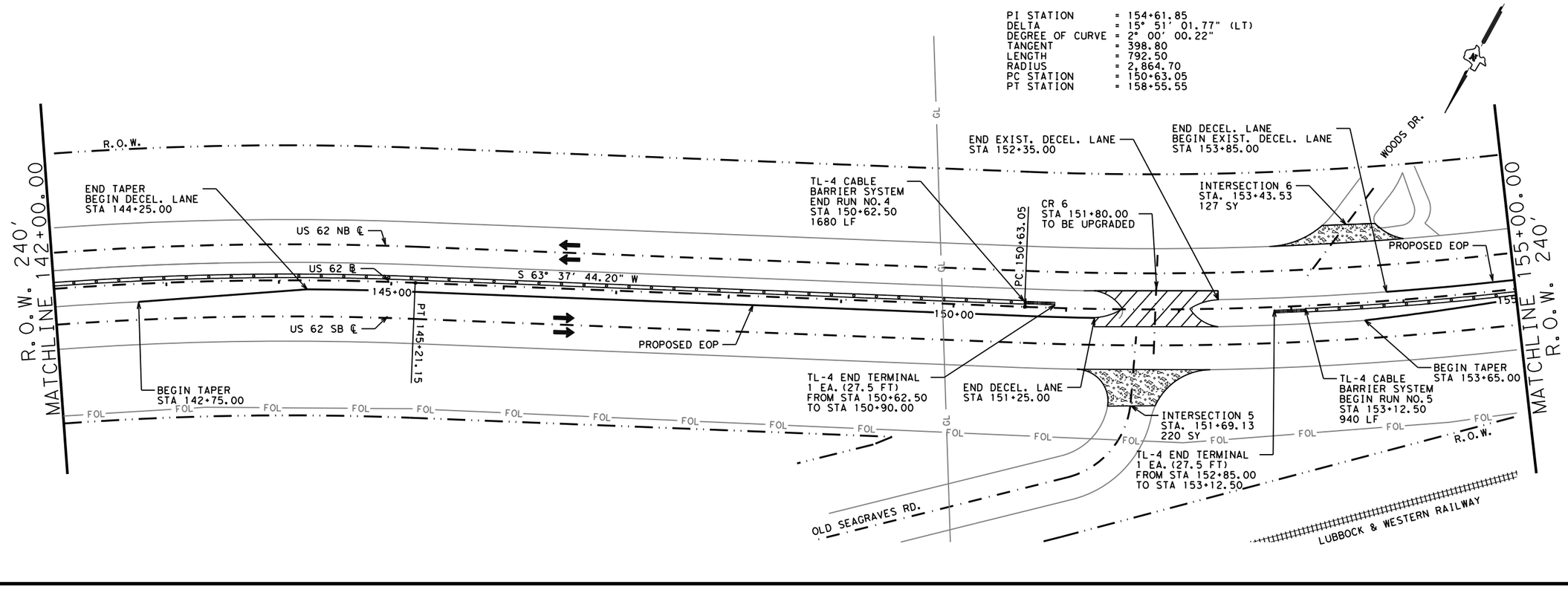

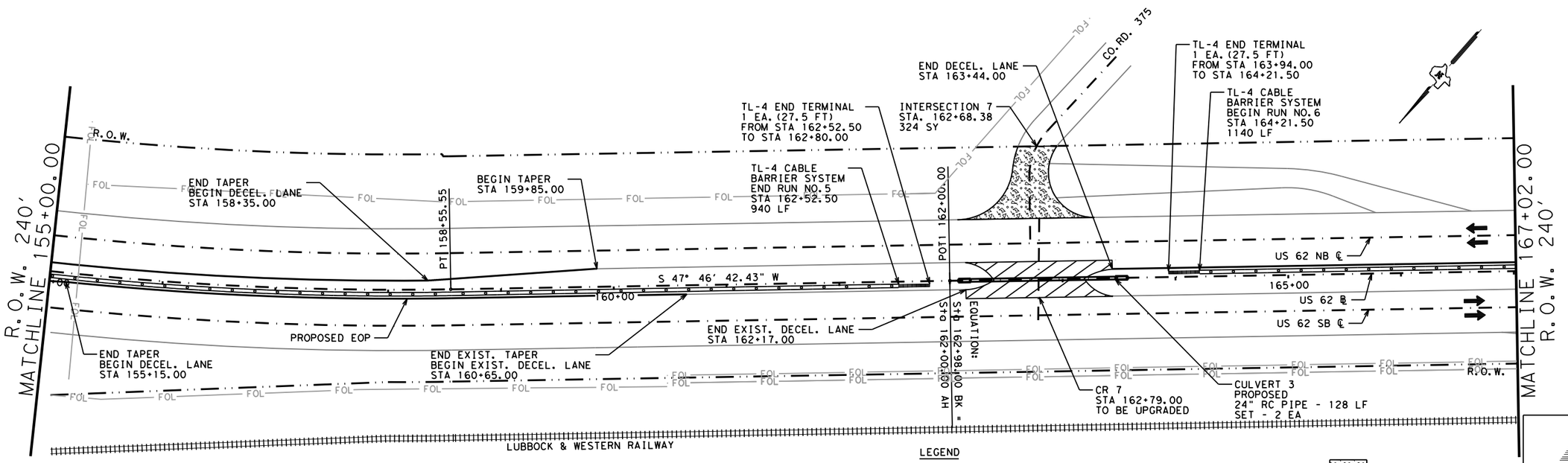

LEGEND

- TRAVEL DIRECTION
- FOL — FIBER (BURIED)
- INTERSECTION/DRIVEWAY PAY AREA
- CROSSOVER PAY AREA
- GL — GAS LINE (BURIED)

NOTES:

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STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 3 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		59

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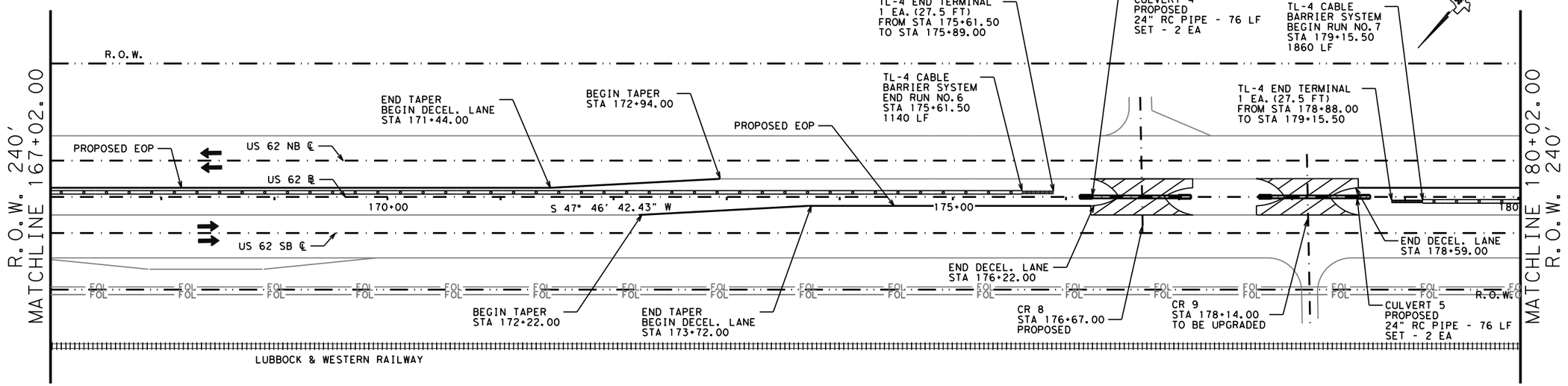

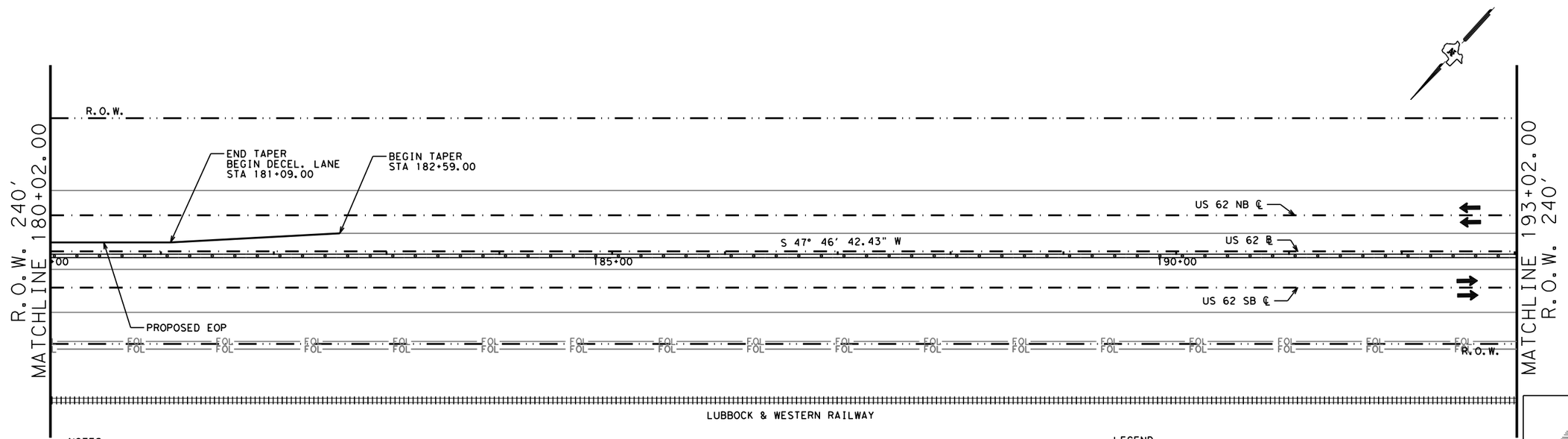

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LEGEND

TRAVEL DIRECTION

CROSSOVER PAY AREA

— FOL — FIBER (BURIED)

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 4 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		60

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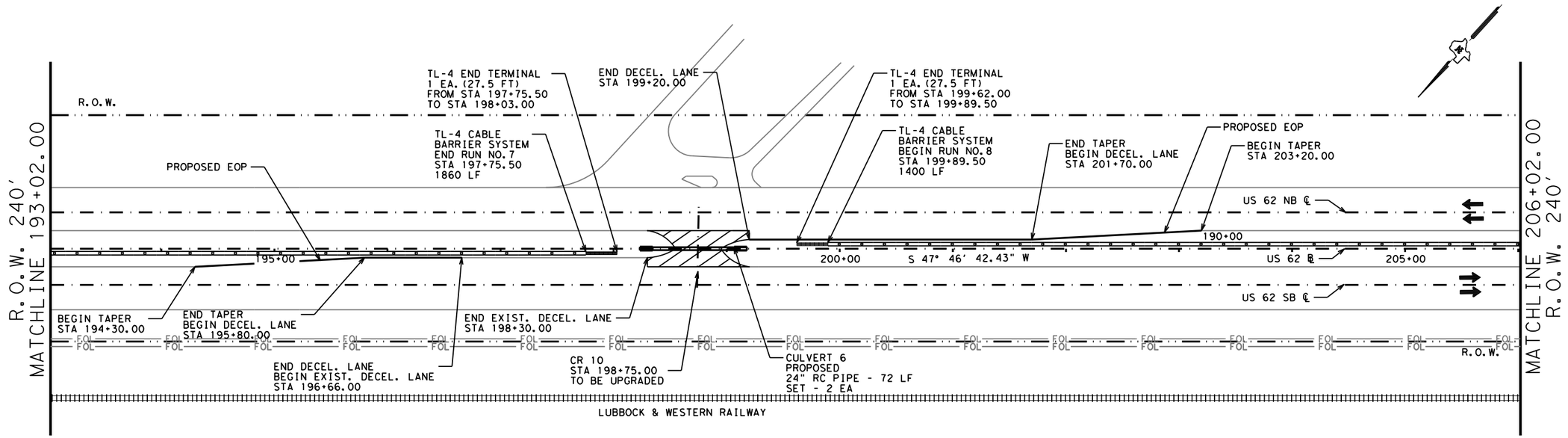

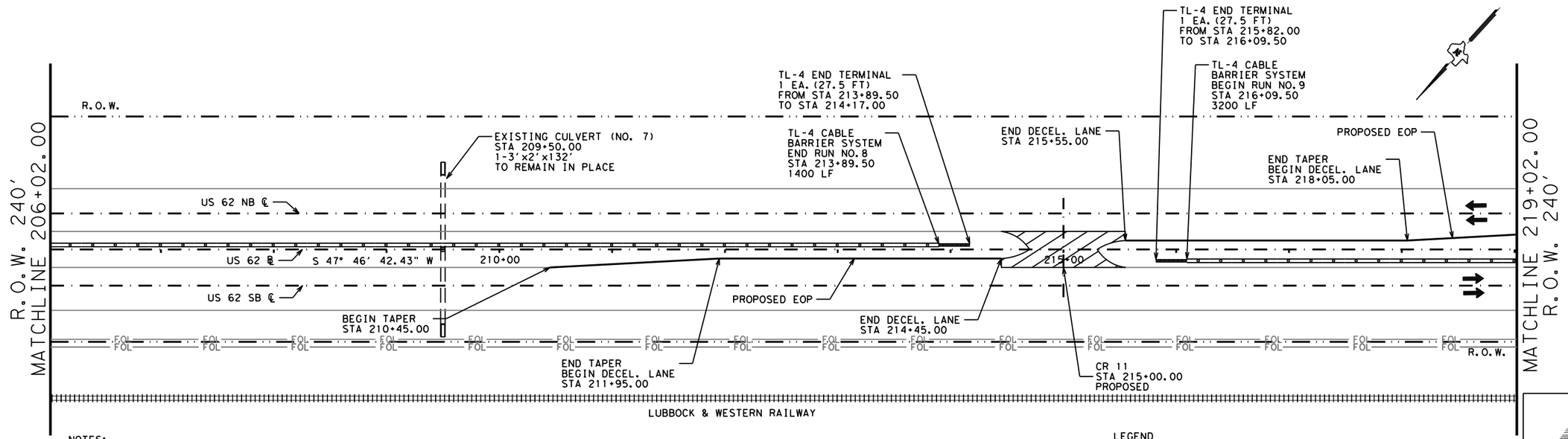

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LEGEND

TRAVEL DIRECTION

CROSSOVER PAY AREA

— FOL — FIBER (BURIED)

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 5 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		61

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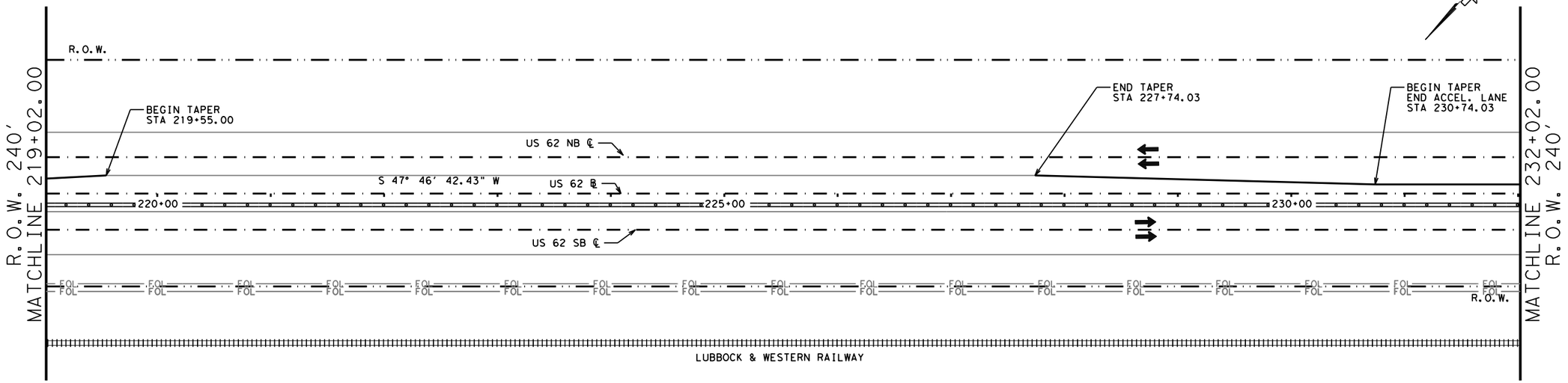

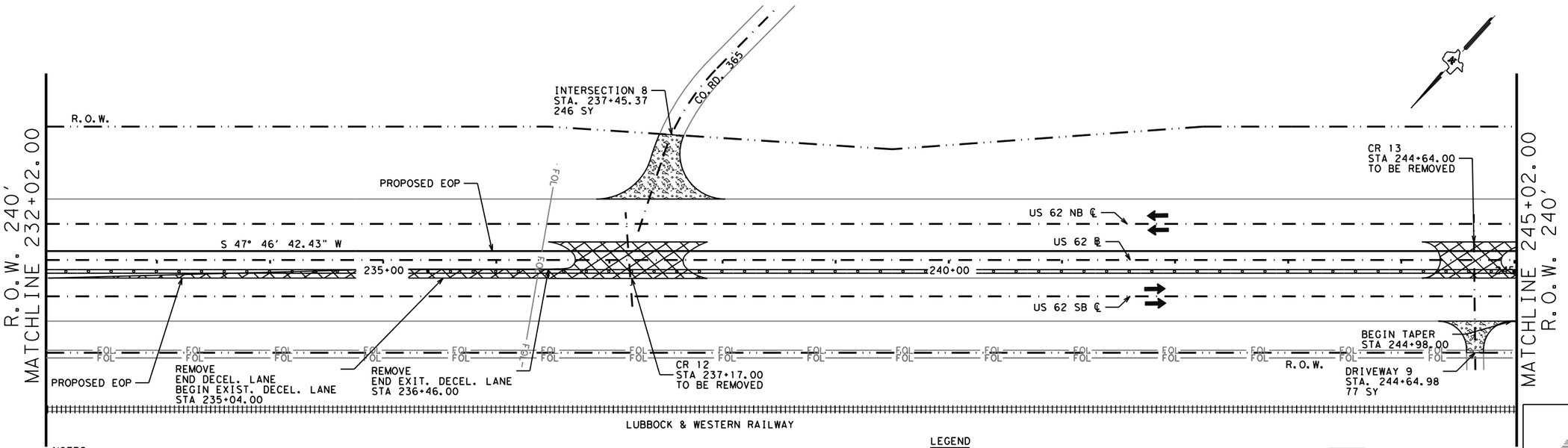

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LEGEND

- TRAVEL DIRECTION
- FOL — FIBER (BURIED)
- INTERSECTION/DRIVEWAY PAY AREA
- CROSSOVER PAY AREA
- CROSSOVER REMOVAL AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 6 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		62

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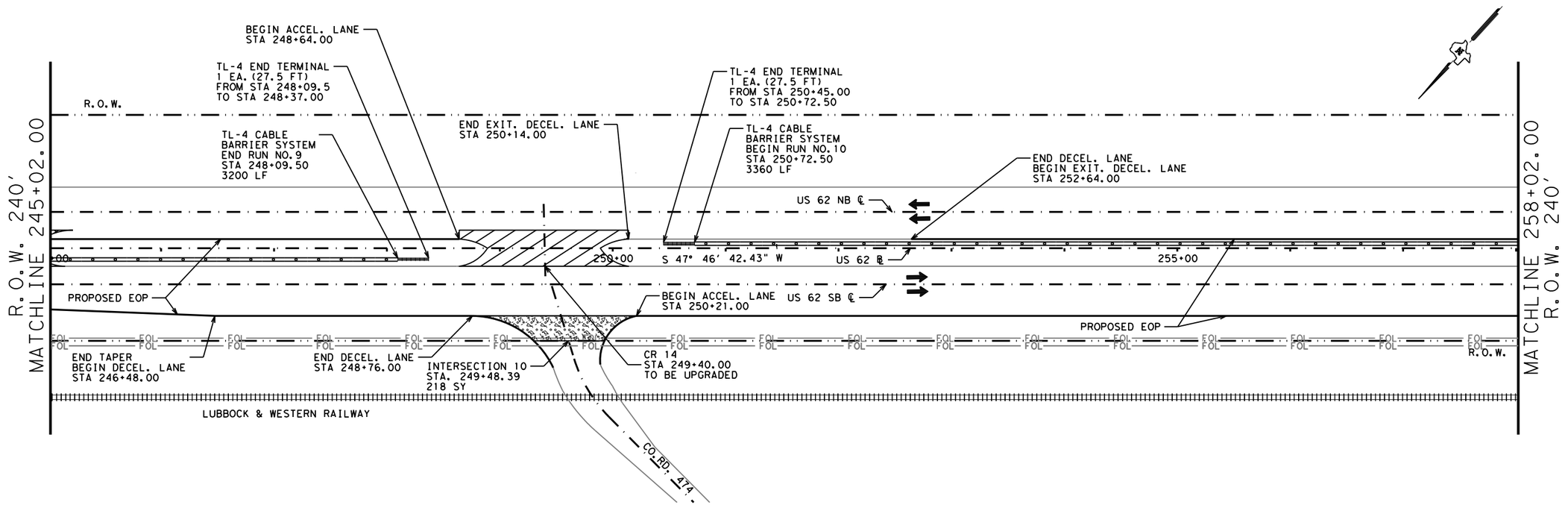

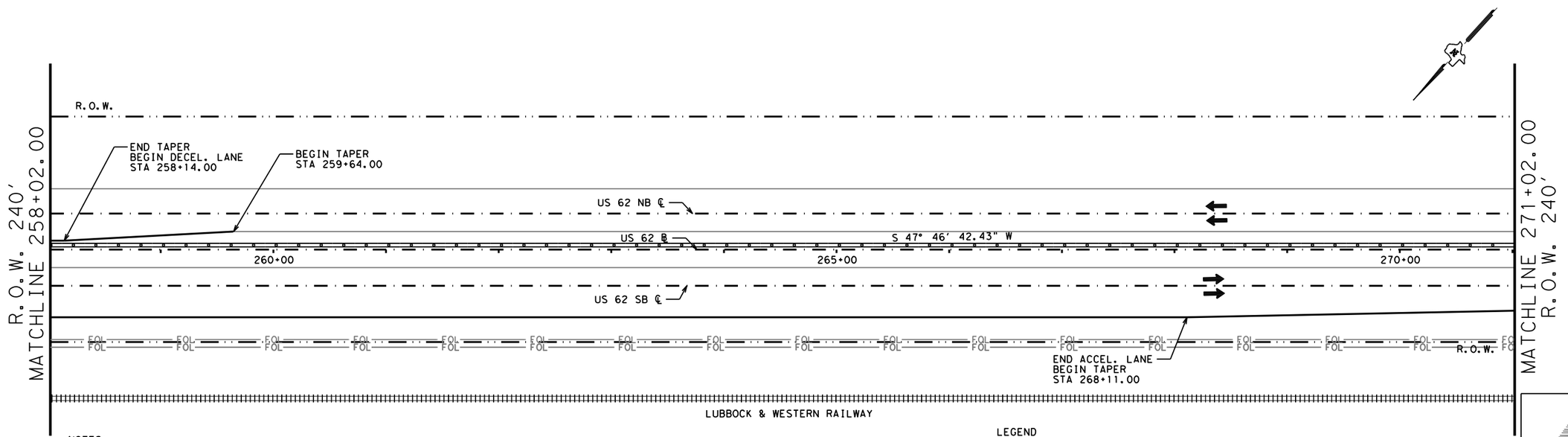

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LEGEND

- TRAVEL DIRECTION
- — FOL — FIBER (BURIED)
- CROSSOVER PAY AREA
- INTERSECTION/DRIVEWAY PAY AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 7 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		63

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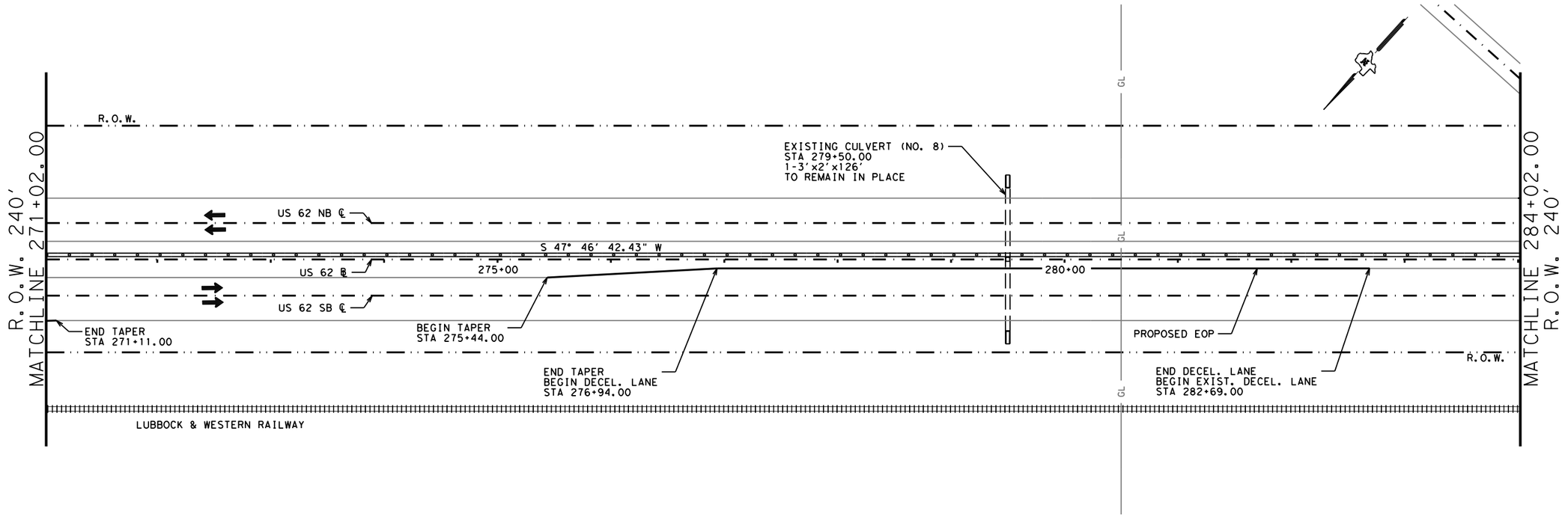

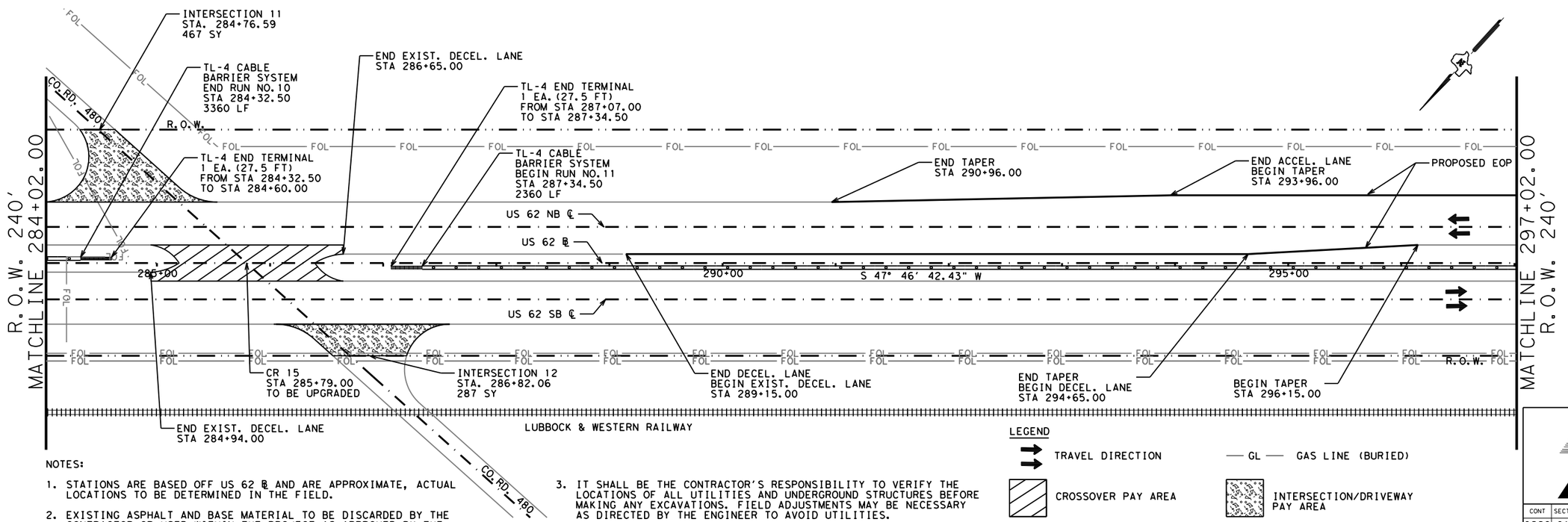

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STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 8 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		64

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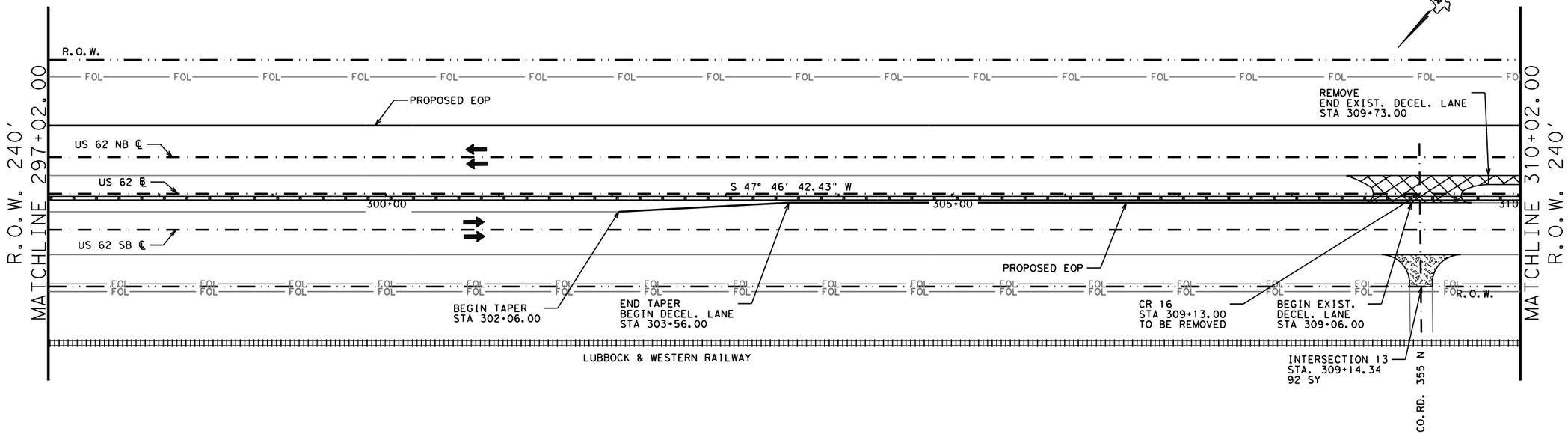

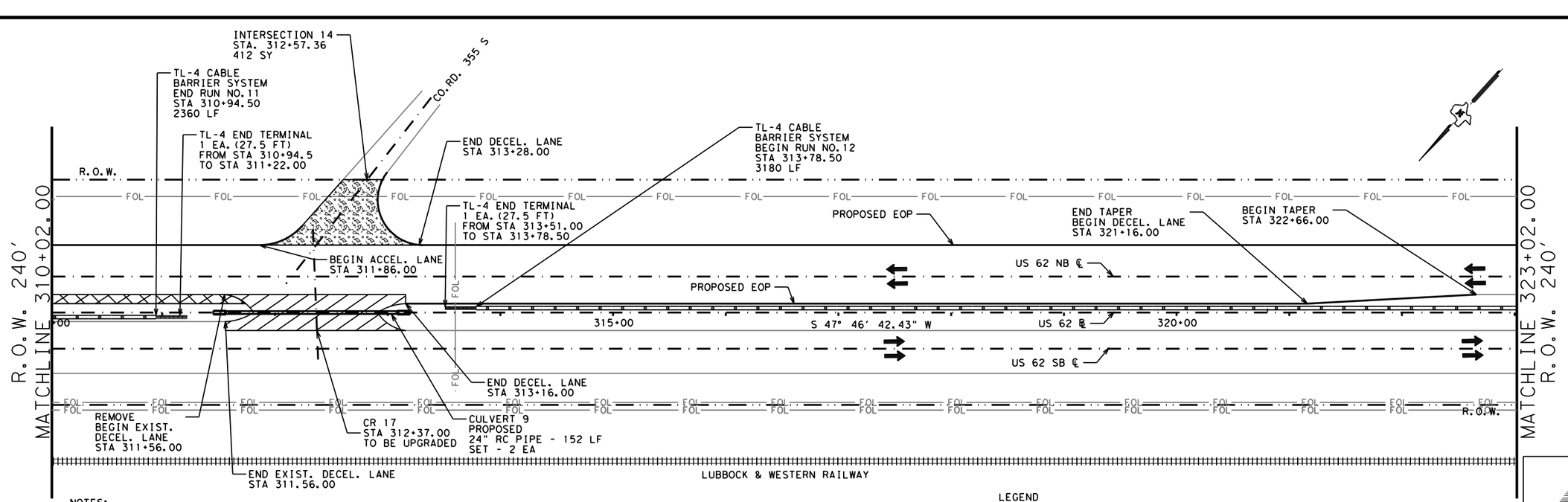

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LEGEND

- TRAVEL DIRECTION
- — FOL — FIBER (BURIED)
- CROSSOVER PAY AREA
- INTERSECTION/DRIVEWAY PAY AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 9 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		65

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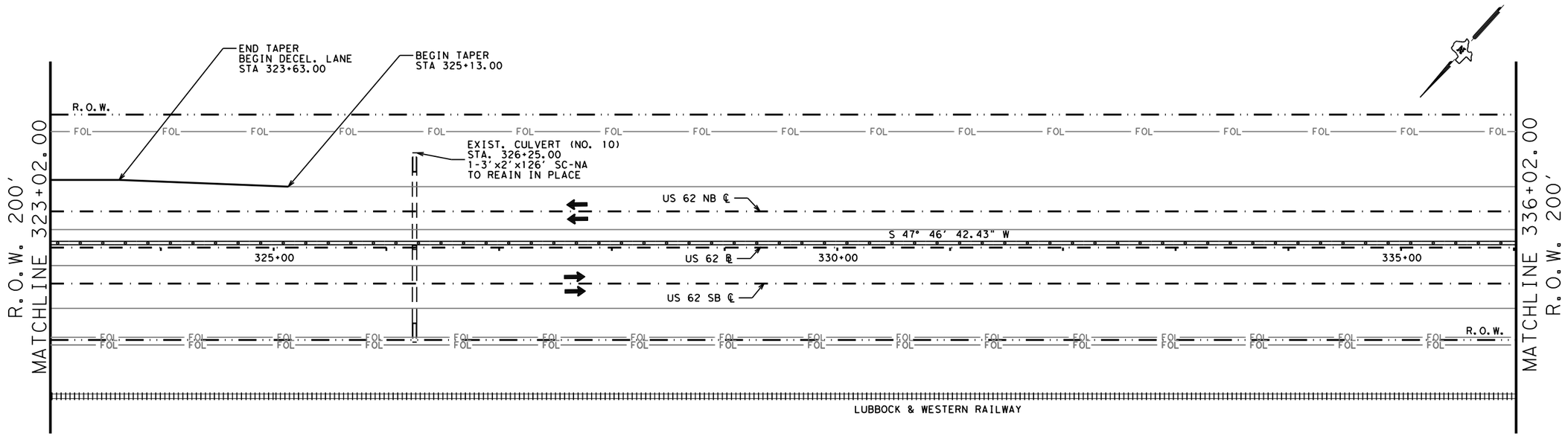

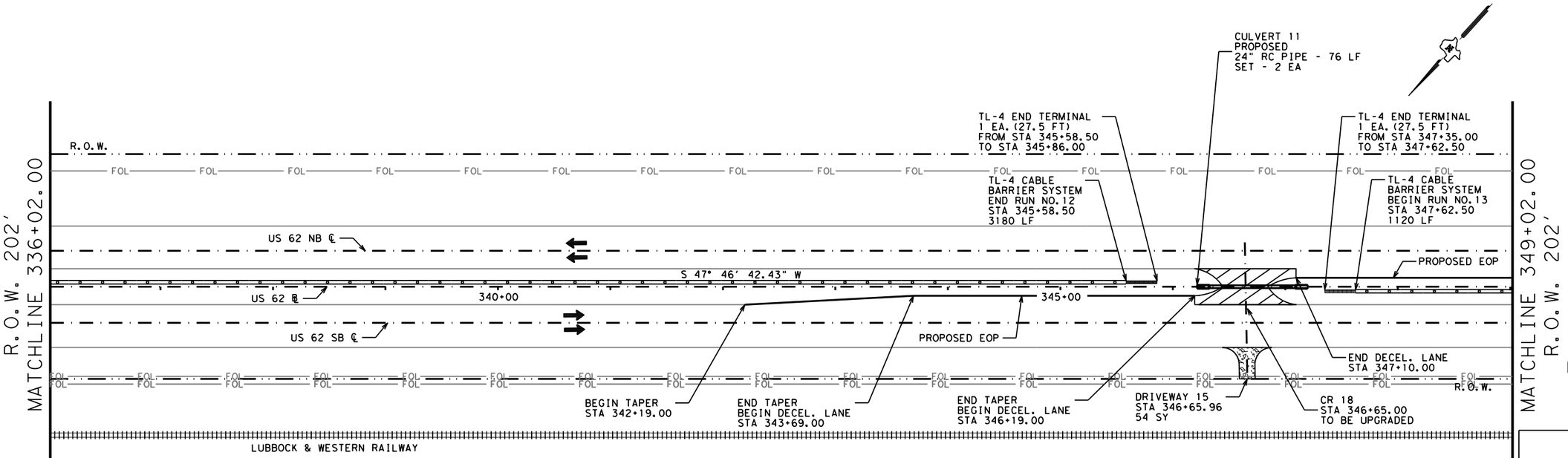

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LEGEND

- TRAVEL DIRECTION
- FOL — FIBER (BURIED)
- CROSSOVER PAY AREA
- INTERSECTION/DRIVEWAY PAY AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 10 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		66

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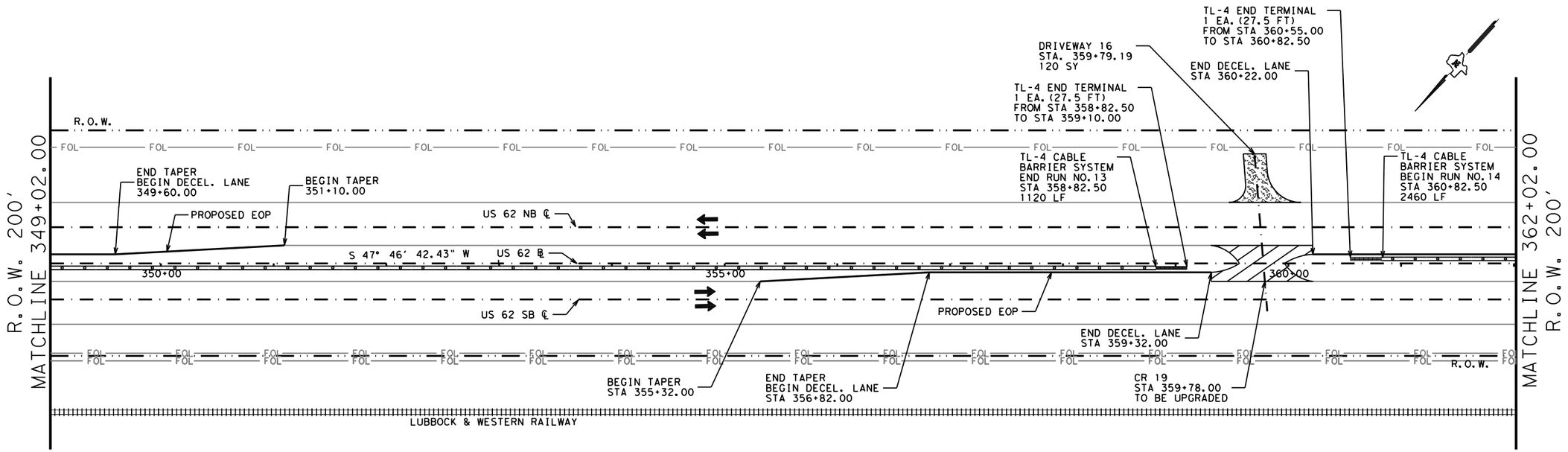

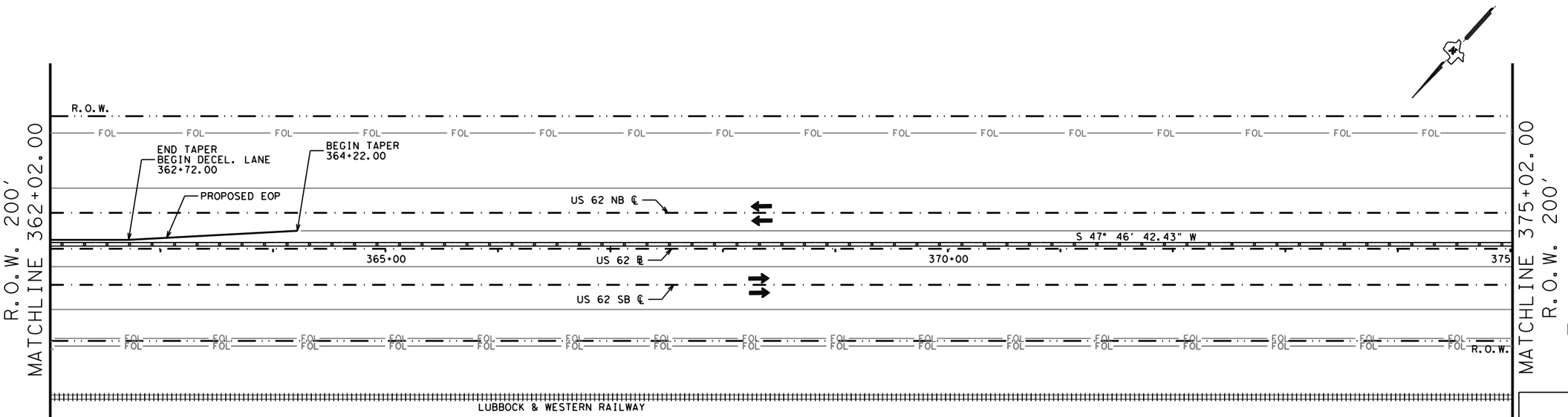

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LEGEND

- TRAVEL DIRECTION
- — FOL — FIBER (BURIED)
- CROSSOVER PAY AREA
- INTERSECTION/DRIVEWAY PAY AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 11 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		67

DATE: 6/20/2023 2:32:52 PM
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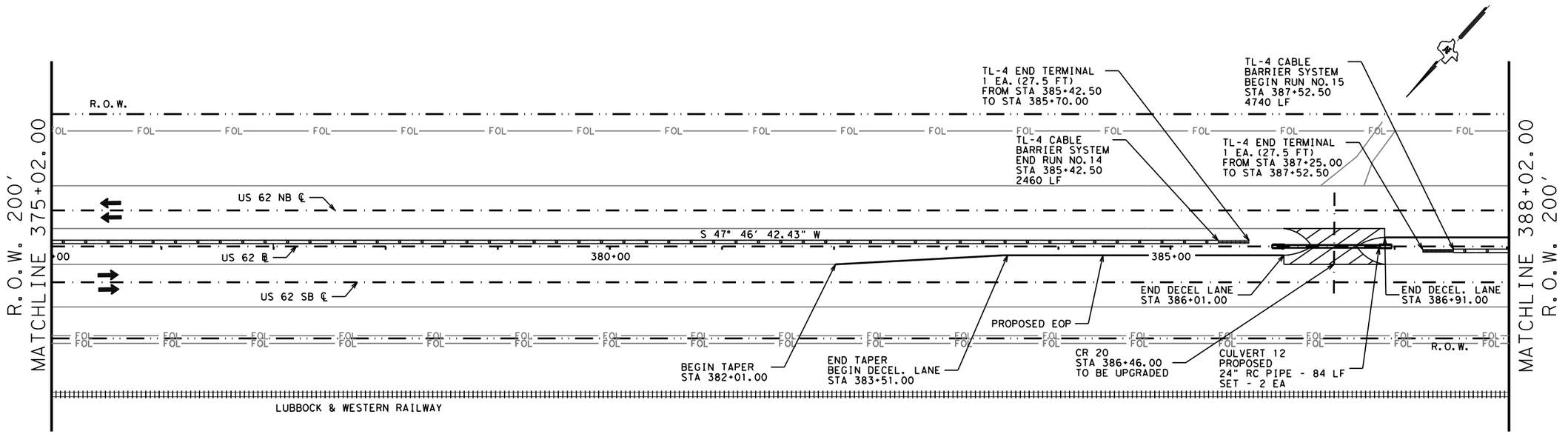

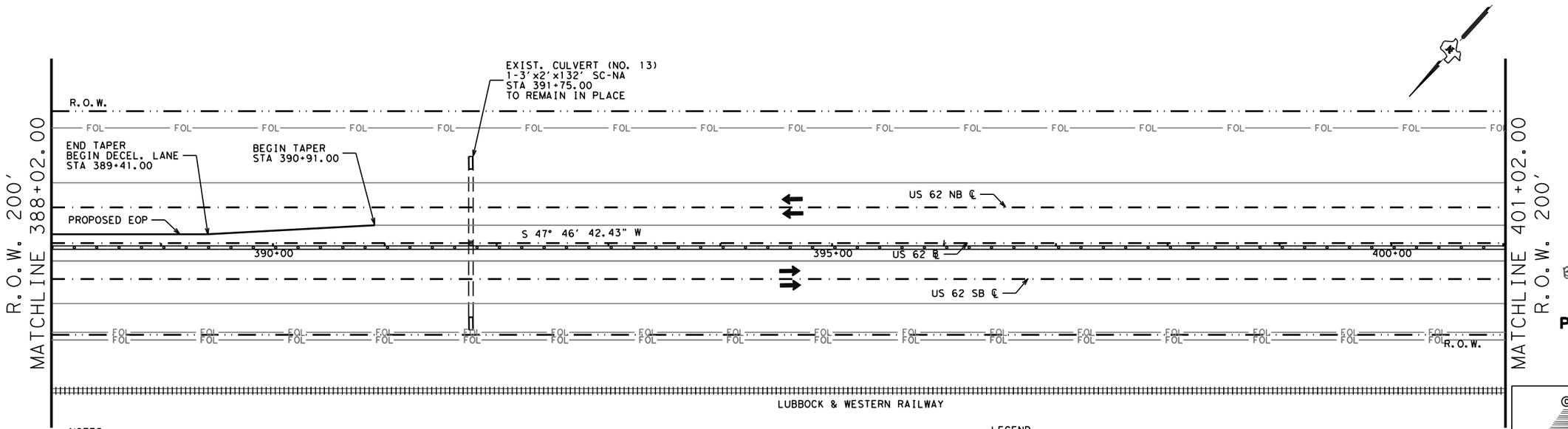

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LEGEND

TRAVEL DIRECTION

— FOL — FIBER (BURIED)

CROSSOVER PAY AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 12 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		68

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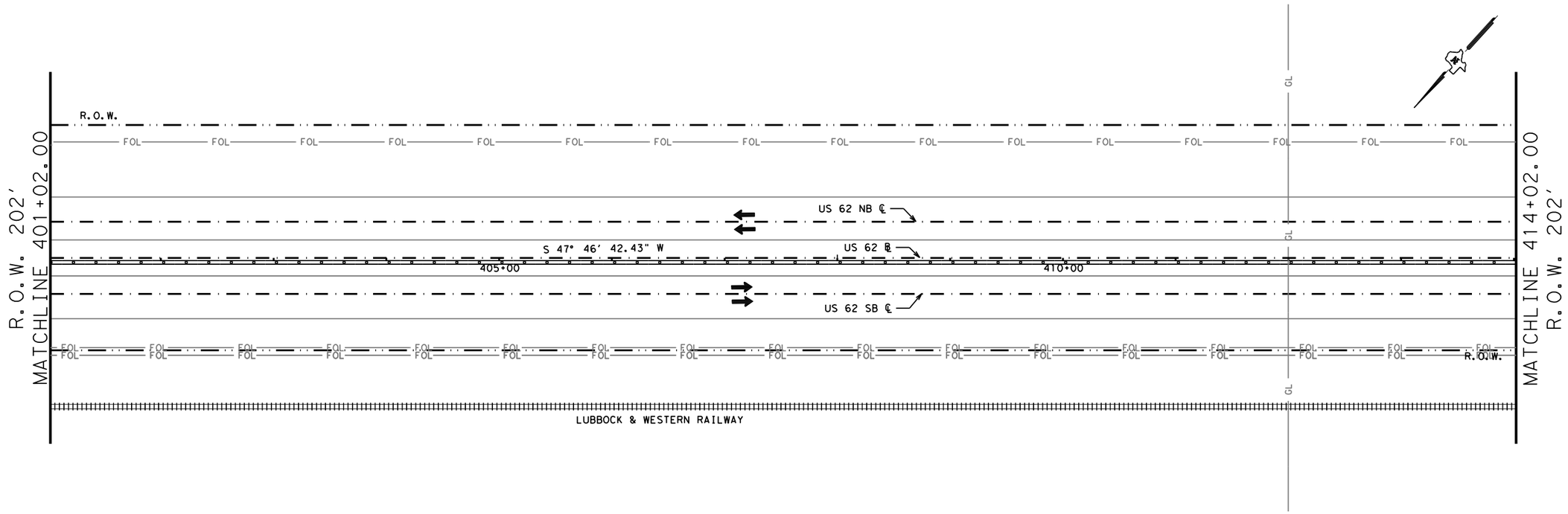

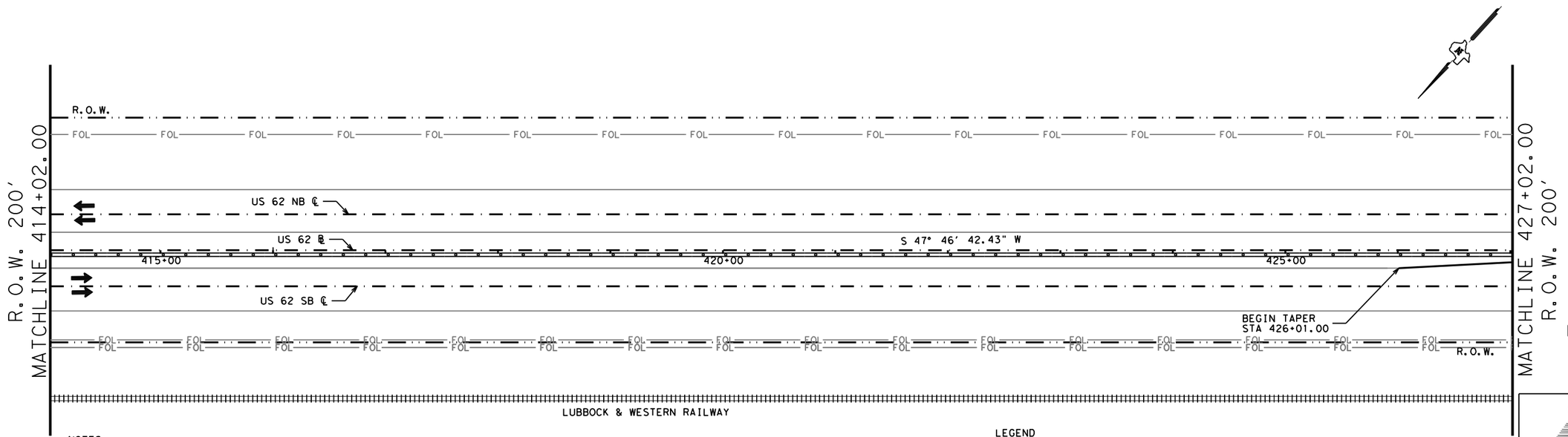

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LEGEND

- TRAVEL DIRECTION
- CROSSOVER PAY AREA
- GL — GAS LINE (BURIED)
- FOL — FIBER (BURIED)

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 13 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		69

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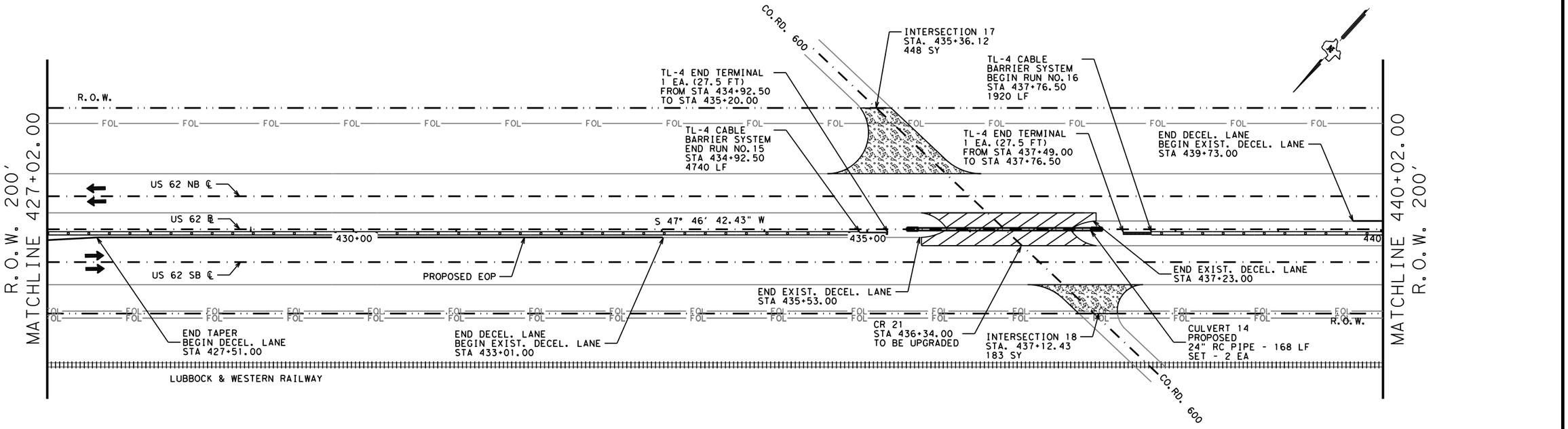

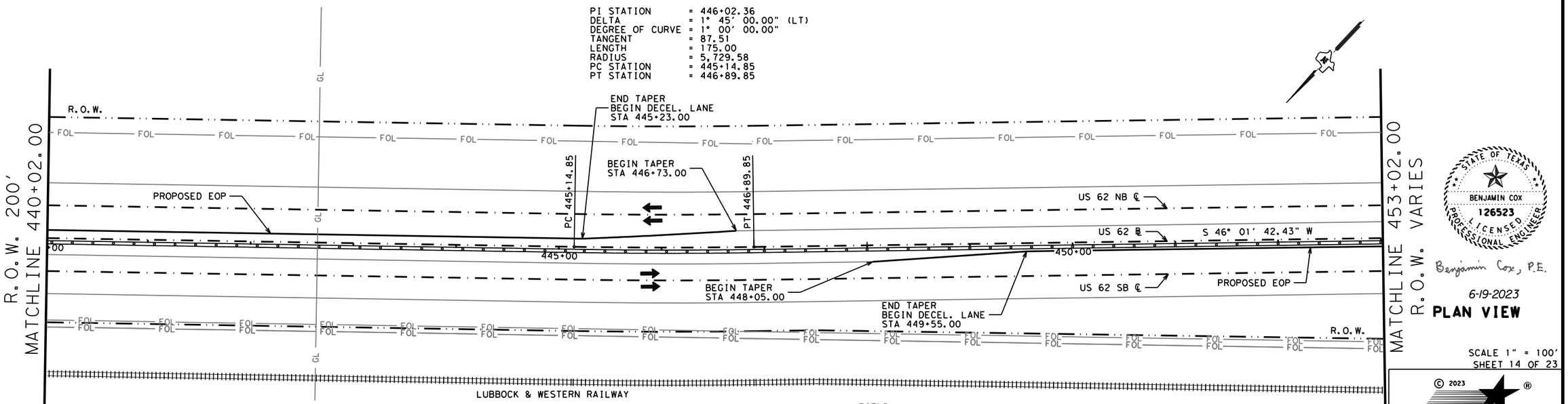

NOTES:

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LEGEND

- TRAVEL DIRECTION
- FOL — FIBER (BURIED)
- INTERSECTION/DRIVEWAY PAY AREA
- CROSSOVER PAY AREA
- GL — GAS LINE (BURIED)

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 14 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		70

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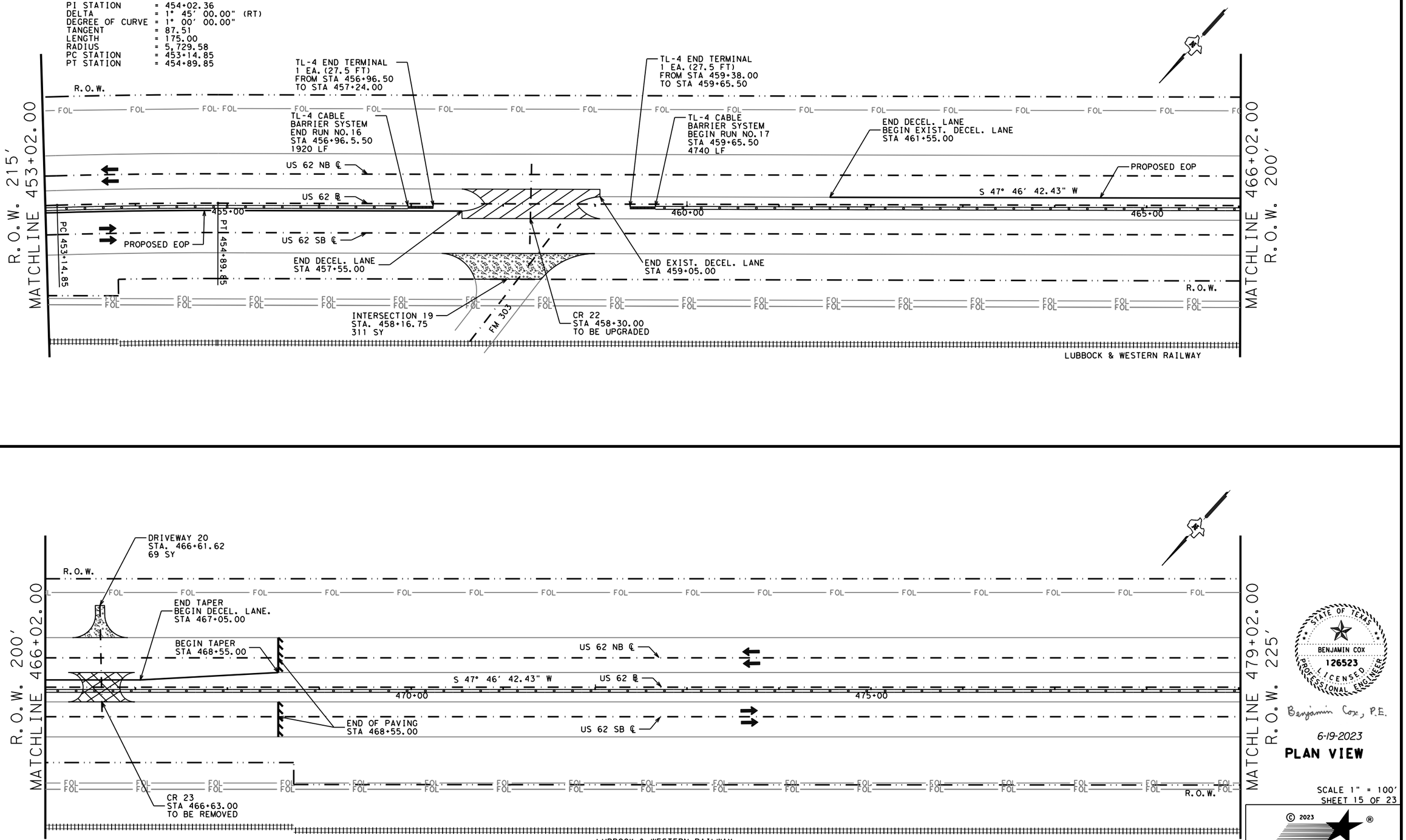

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LEGEND

- TRAVEL DIRECTION
- FOL — FIBER (BURIED)
- INTERSECTION/DRIVEWAY PAY AREA
- CROSSOVER PAY AREA
- CROSSOVER REMOVAL AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 15 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		71

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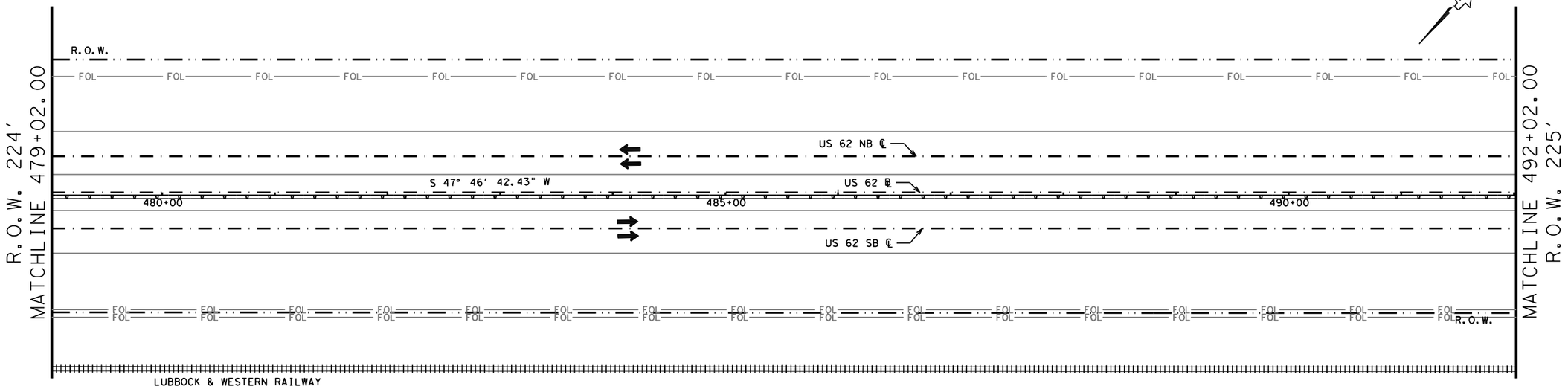

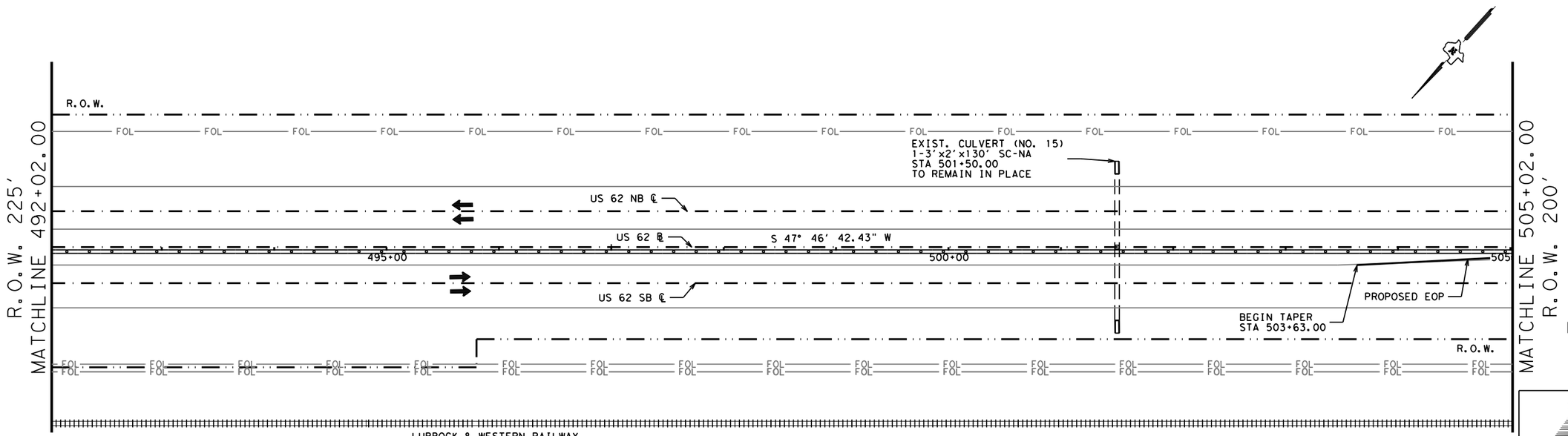

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LEGEND

TRAVEL DIRECTION

— FOL — FIBER (BURIED)

CROSSOVER PAY AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 16 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		72

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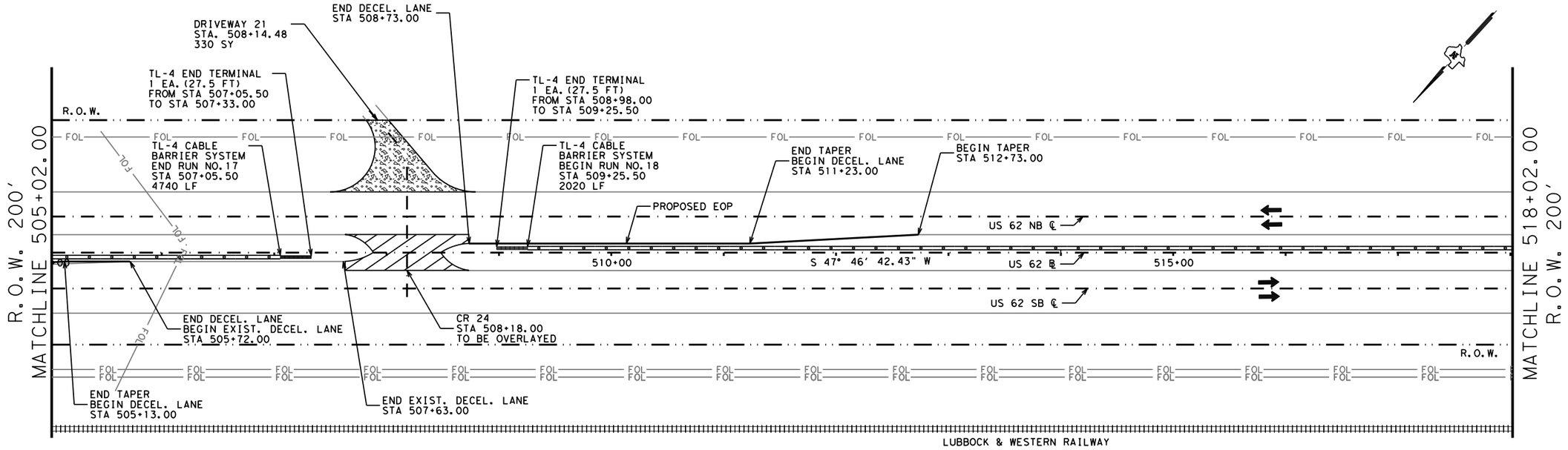

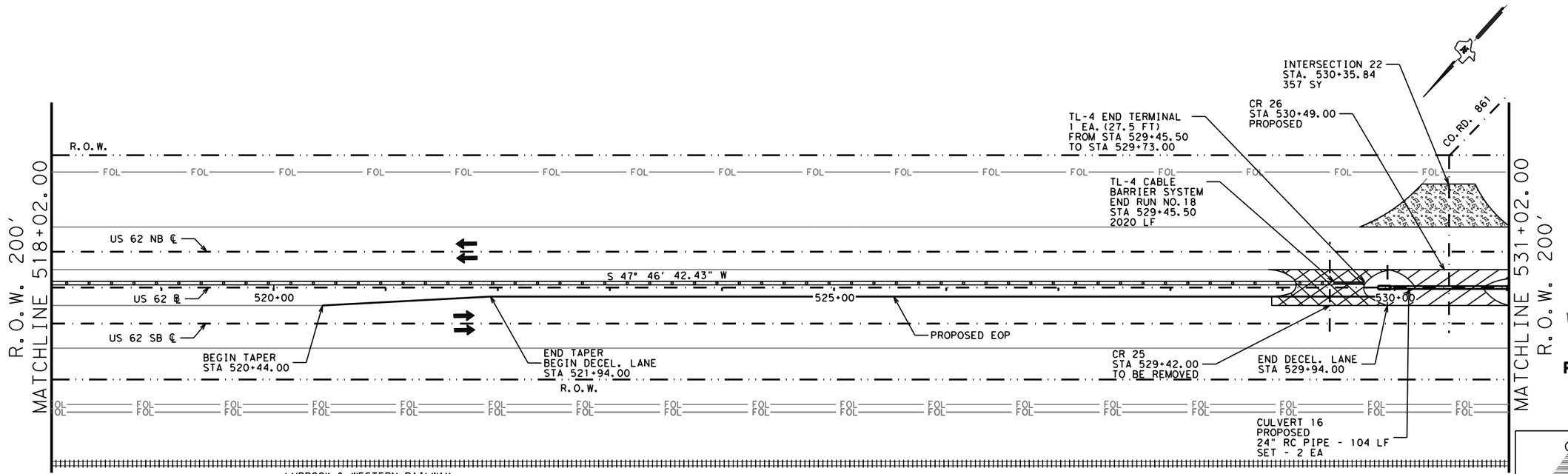

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LEGEND

- TRAVEL DIRECTION
- FOL — FIBER (BURIED)
- INTERSECTION/DRIVEWAY PAY AREA
- CROSSOVER PAY AREA
- CROSSOVER REMOVAL AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 17 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		73

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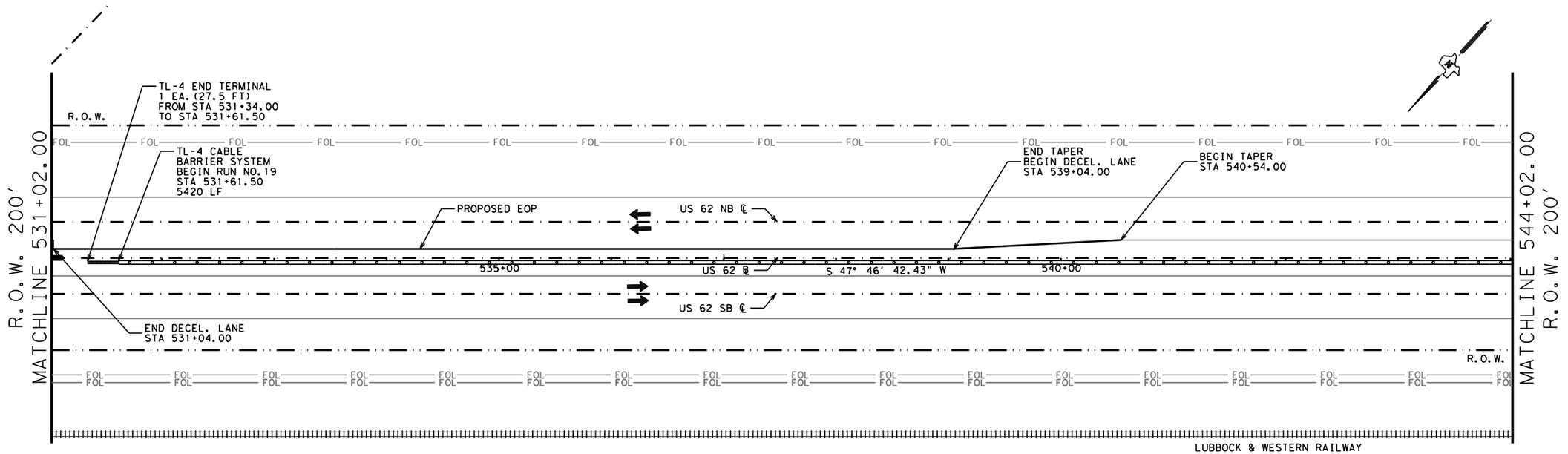

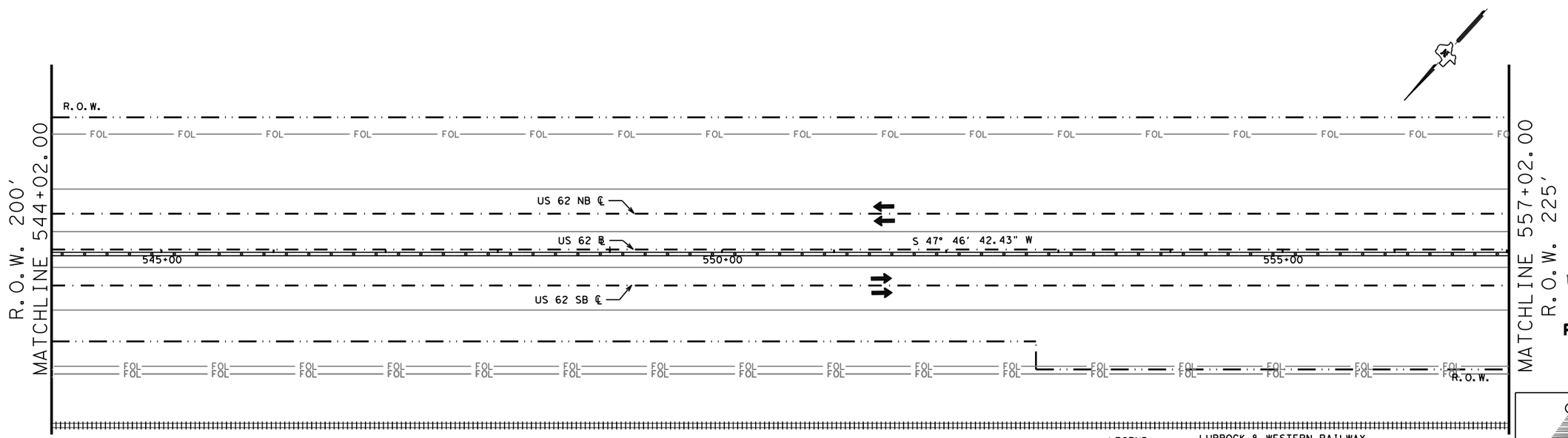

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LEGEND

TRAVEL DIRECTION

CROSSOVER PAY AREA

FOL FIBER (BURIED)

LUBBOCK & WESTERN RAILWAY

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 18 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		74

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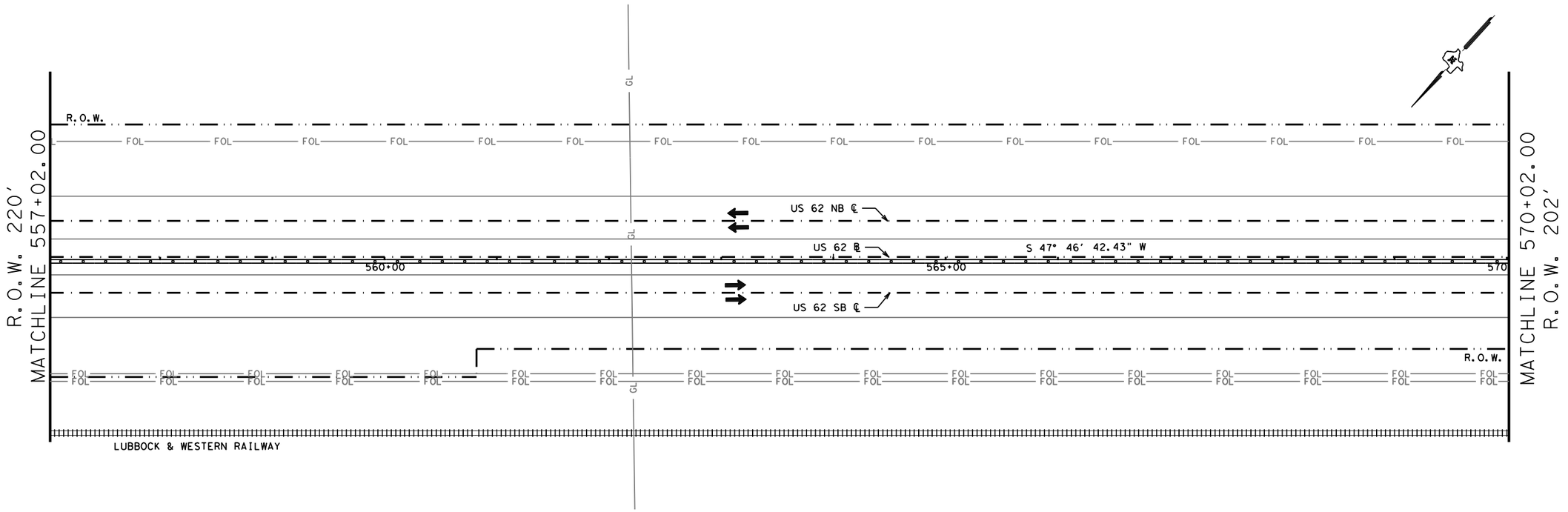

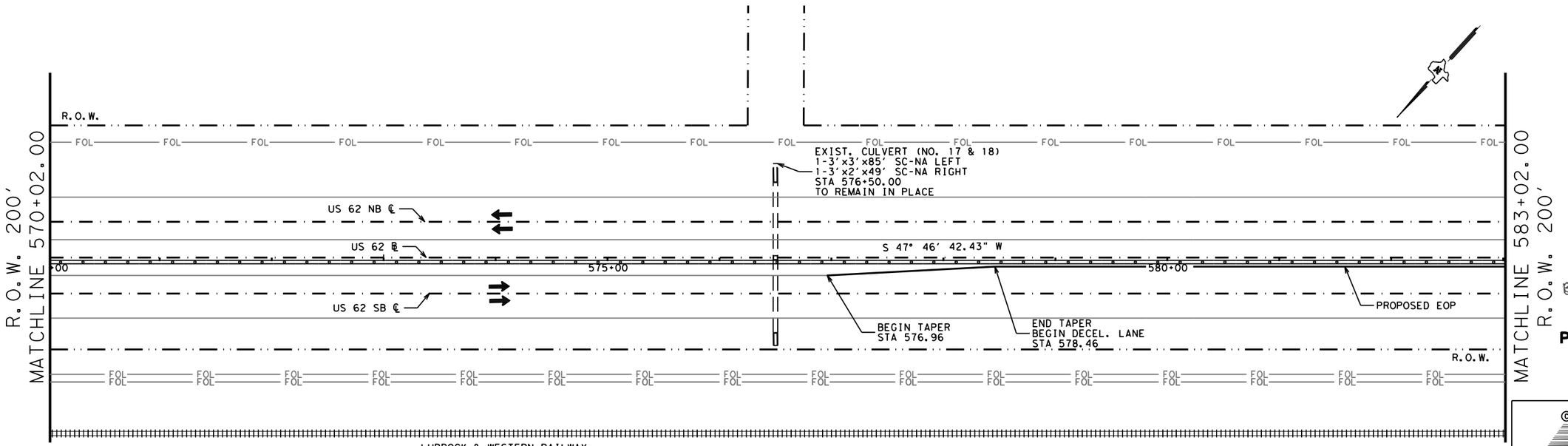

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LEGEND

TRAVEL DIRECTION — FOL — FIBER (BURIED)

CROSSOVER PAY AREA — GL — GAS LINE (BURIED)

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 19 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		75

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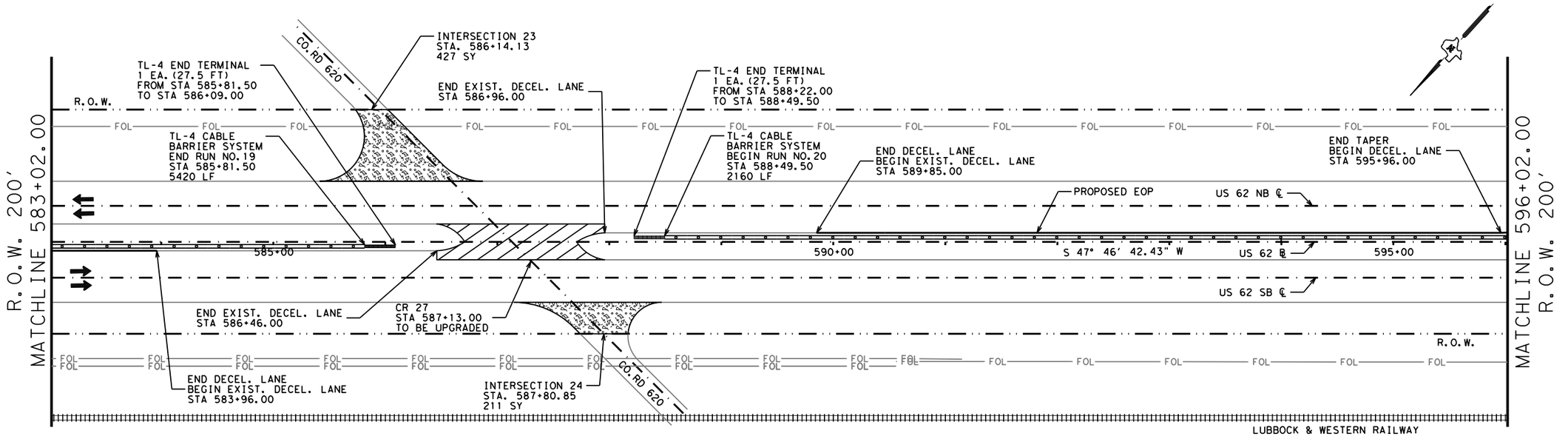

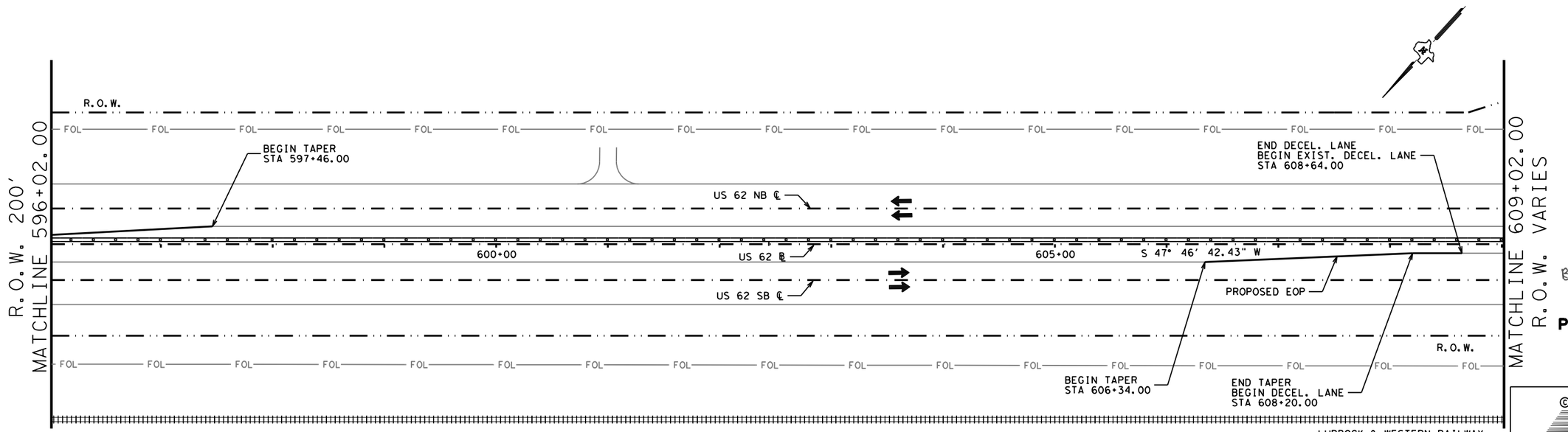

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LEGEND

- TRAVEL DIRECTION
- FOL — FIBER (BURIED)
- CROSSOVER PAY AREA
- INTERSECTION/DRIVEWAY PAY AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 20 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		76

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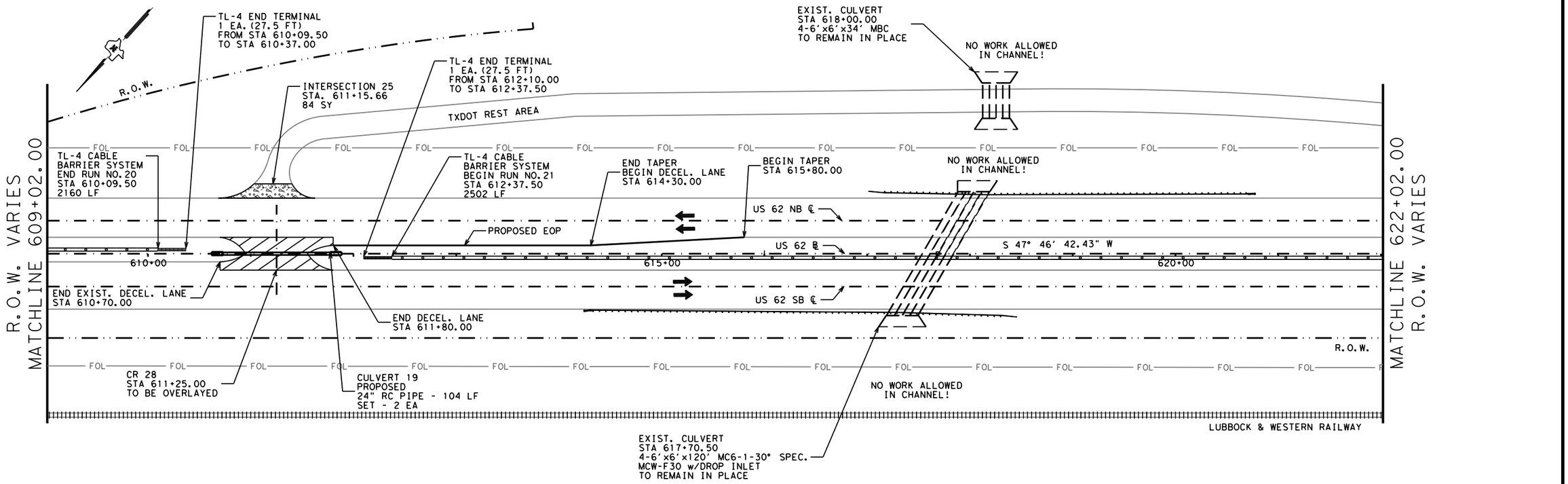

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LEGEND

- TRAVEL DIRECTION
- FOL — FIBER (BURIED)
- CROSSOVER PAY AREA
- INTERSECTION/DRIVEWAY PAY AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 21 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		77

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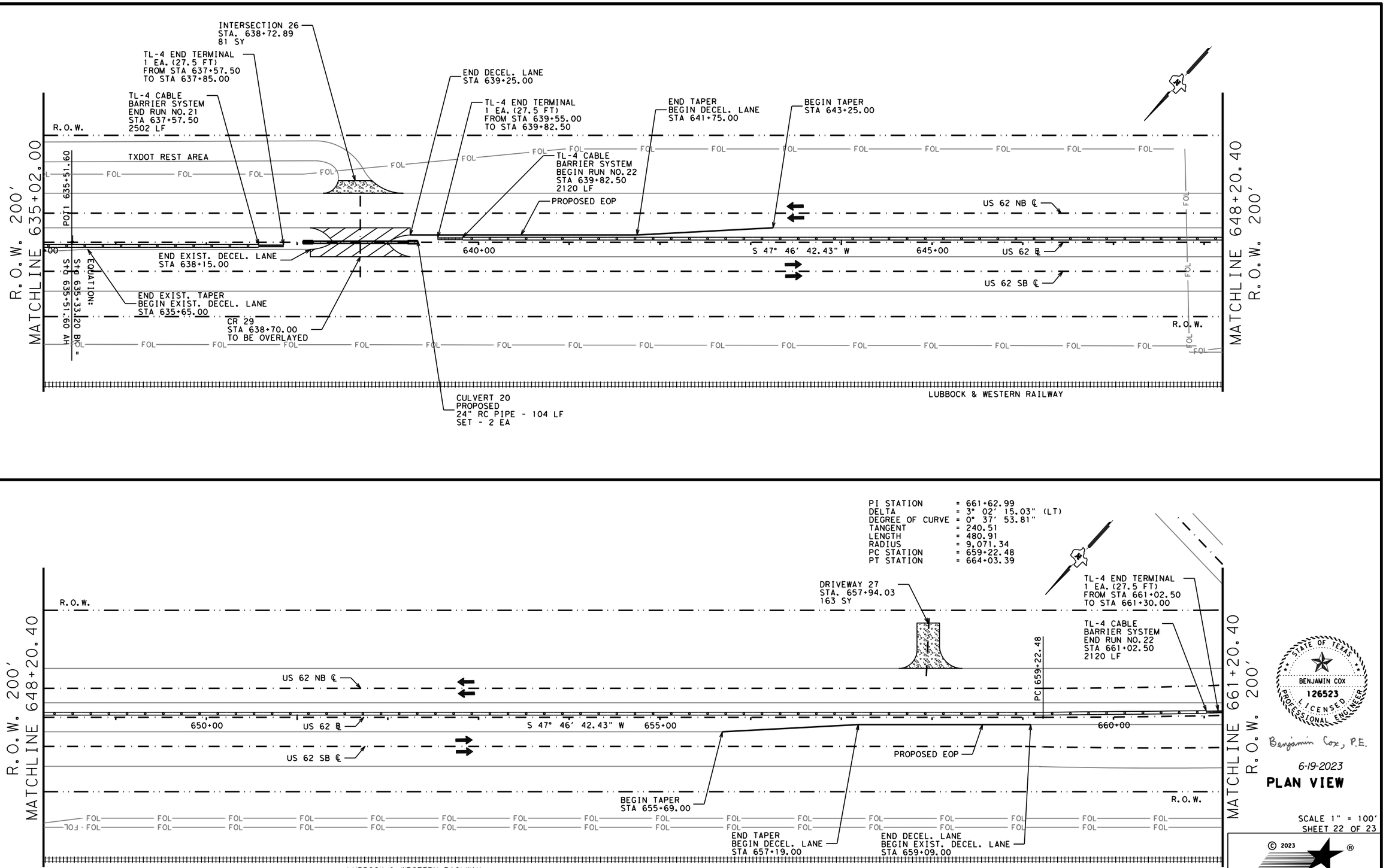

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LEGEND

- TRAVEL DIRECTION
- FOL — FIBER (BURIED)
- CROSSOVER PAY AREA
- INTERSECTION/DIRECTWAY PAY AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100'
SHEET 22 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		78

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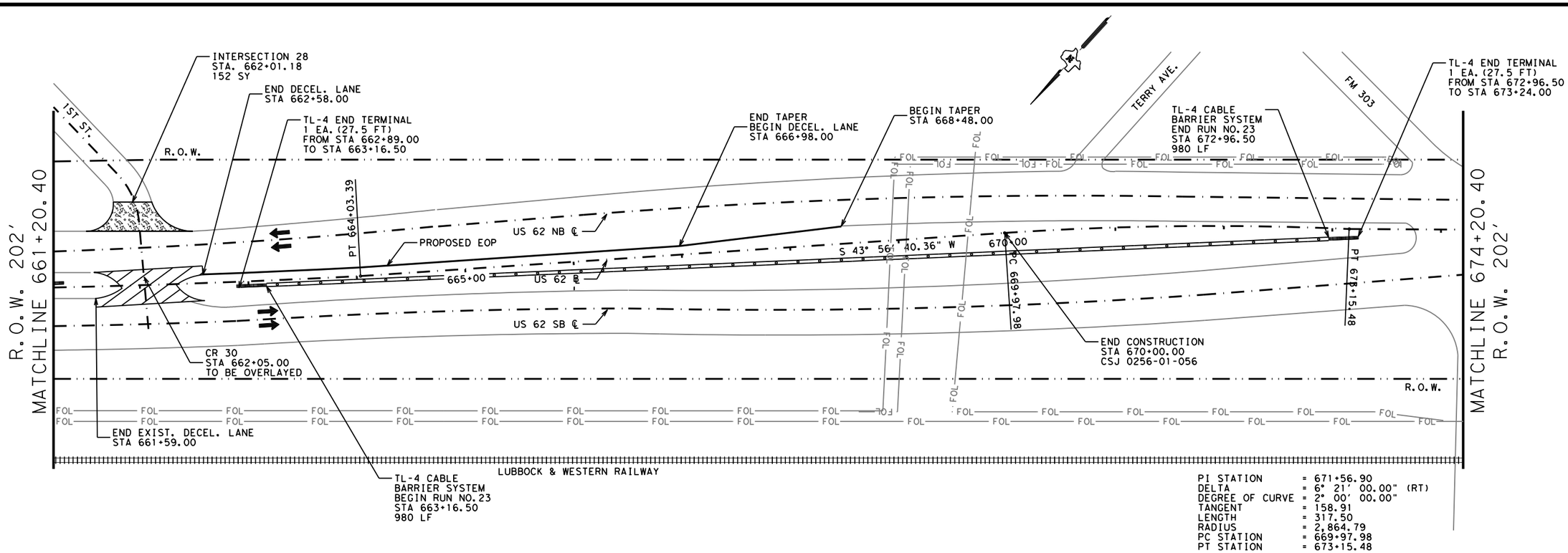
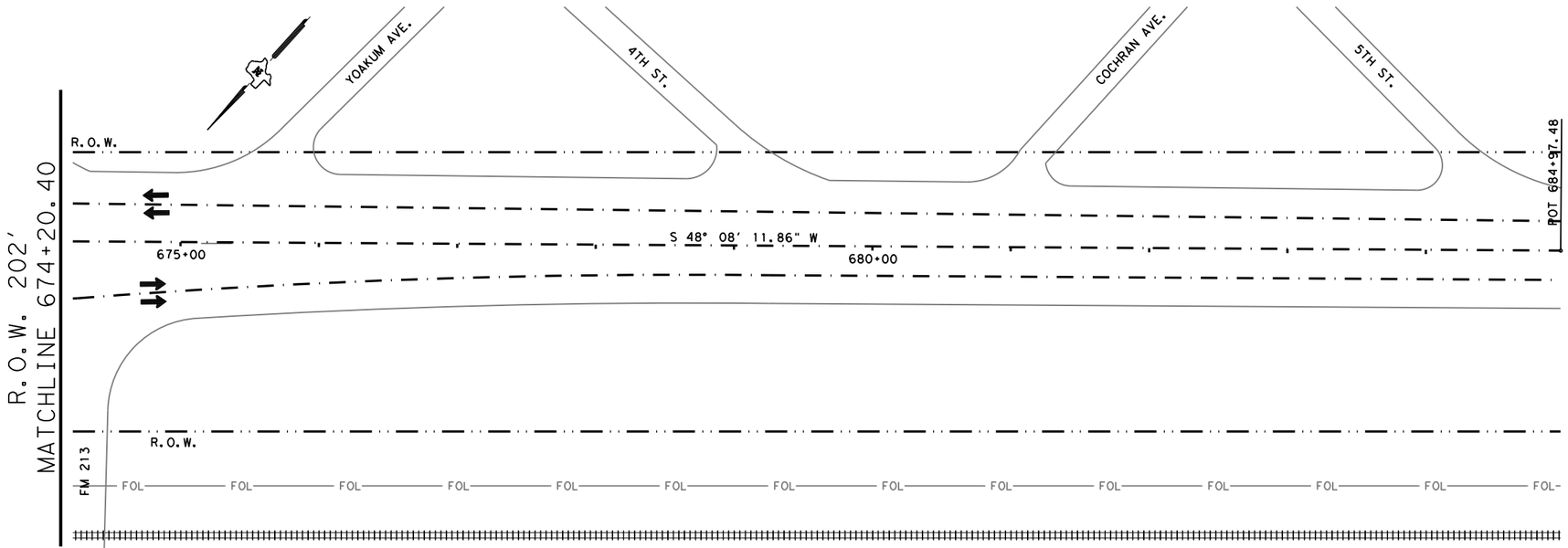


PI STATION = 671+56.90
DELTA = 6° 21′ 00.00" (RT)
DEGREE OF CURVE = 2° 00′ 00.00"
TANGENT = 158.91
LENGTH = 317.50
RADIUS = 2,864.79
PC STATION = 669+97.98
PT STATION = 673+15.48



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LEGEND

TRAVEL DIRECTION

CROSSOVER PAY AREA

— FOL — FIBER (BURIED)

INTERSECTION/DRIVEWAY PAY AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

PLAN VIEW

SCALE 1" = 100′
SHEET 23 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		79

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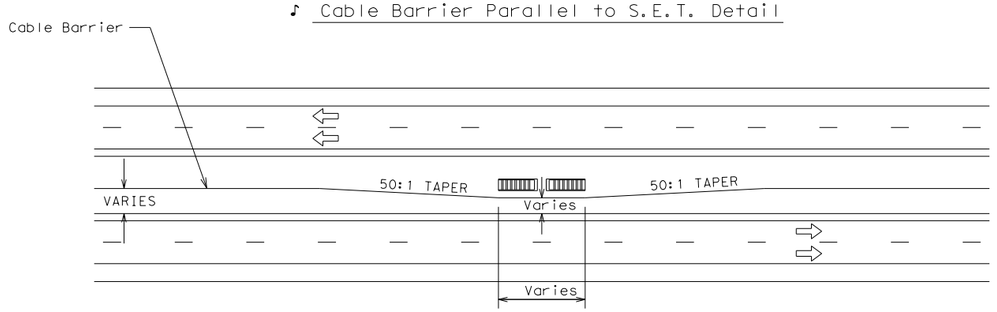
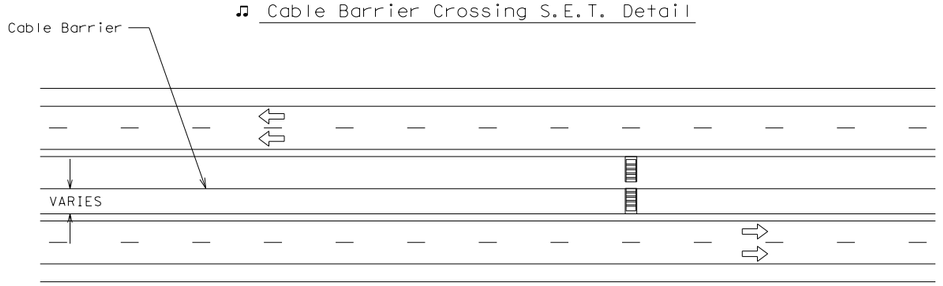
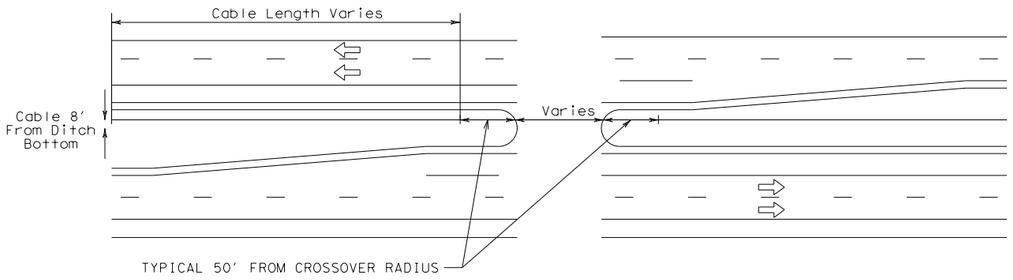
♪ Cable Barrier Parallel to S.E.T. Detail



♫ Cable Barrier Crossing S.E.T. Detail



TERMINAL SECTION AT CROSSOVER DETAIL

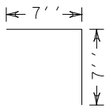


♪ Place concrete riprap connecting median inlets and structures parallel to the road, to the adjacent cable barrier mow strip.

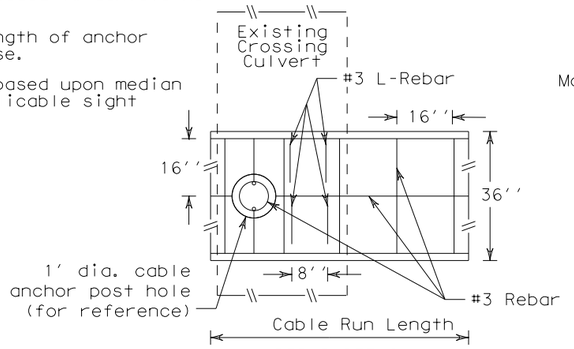
♫ Do not continue mowstrip through an S.E.T. perpendicular to the cable barrier. Run the cable according to the plans over the S.E.T. Should it become apparent a that a cable post will come into conflict with an S.E.T., place the post on the upstream side relative to the direction the cable will be tensioned; i.e. maintain cable post spacing at a length not greater than dictated in the applicable standard(s), and shorten the distance between the posts as needed to achieve no conflict with the S.E.T.

♫♫ Length of overlap is typically 80', plus the length of anchor terminals; field conditions may dictate otherwise.

♫♫♫ Length of cable break will be field determined based upon median width, TxDOT, Law Enforcement input and any applicable sight distance considerations.

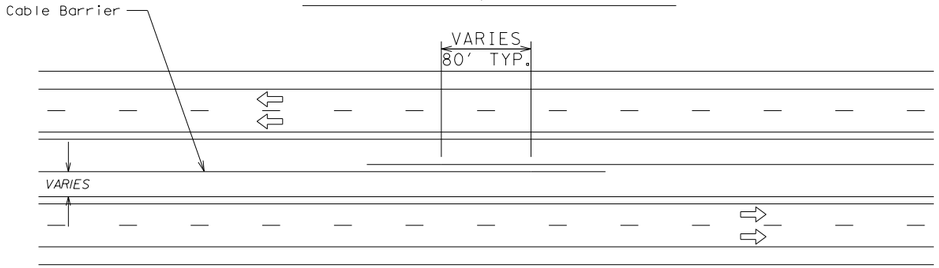


3 L-REBAR DETAIL

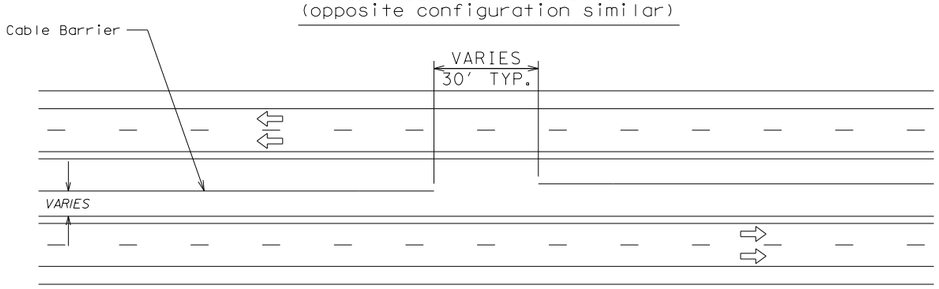


REBAR DETAIL

♫ Cable Barrier Overlap Detail (opposite configuration similar)

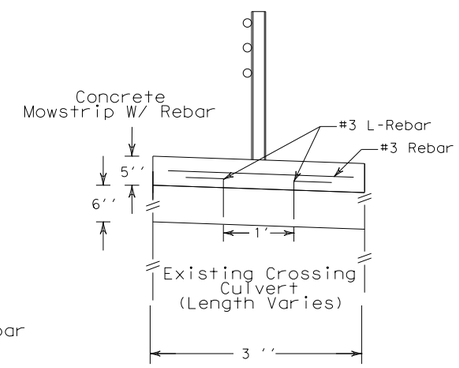


♫♫ Cable Barrier Break Detail (opposite configuration similar)

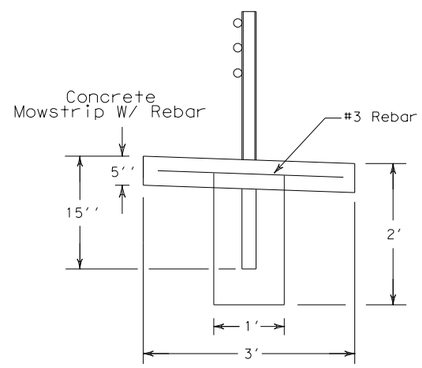


Notes:

1. Riprap mowstrip shall be Class A concrete 3' wide and be 5'' thick for the entire length of a cable run. Place mowstrip 2' beyond all anchor terminals.
2. Number 3 reinforcing steel shall be used for all riprap mowstrip. No welded wire, wire mesh, or fiber-reinforced concrete will be allowed.
3. See steel detail below for dimensions and spacing.
4. Drill shafts shall be TY A concrete and placed in accordance with manufacturer's recommendations.
5. Provide expansion material at joints 100' apart for the length of the mowstrip.
6. Except where expansion joints are located, place tool joints every 20' for the length of the mowstrip.
7. Cold weather protection requirements will apply for mowstrip placement.
8. Riprap cross-slope shall match existing front slope; ensure water does not pond between mowstrip and edge of pavement.
9. Limits of pay for windrows vary. Additional soil removed will not be paid for but will be returned to existing conditions at no cost to the Department.
10. Provide 2'' of clear cover for rebar in the mowstrip.
11. The center piece of longitudinal rebar shall be cut then resumed after any cable anchor post holes. A maximum length of 16'' will be permissible.
12. Tie all transverse steel pieces at all 3 longitudinal steel pieces.
13. Make sure ALL object markers are placed according to cable barrier standards and object marker standards.
14. If field conditions differ from the plans, promptly notify the Engineer.
15. Blade and backfill daily with cable mowstrip construction.
16. Tie mowstrip into top of culvert boxes with 6'' x 6'' #3 L-Bars spaced @ 8'' .
17. At least one post needs to be bolted into the top of any existing culverts.



CROSSING CULVERT DETAIL (PROFILE)



DRILLED SHAFT DETAIL

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

CABLE BARRIER DETAILS

NO SCALE

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		80

DATE: 6/20/2023 2:33:51 PM
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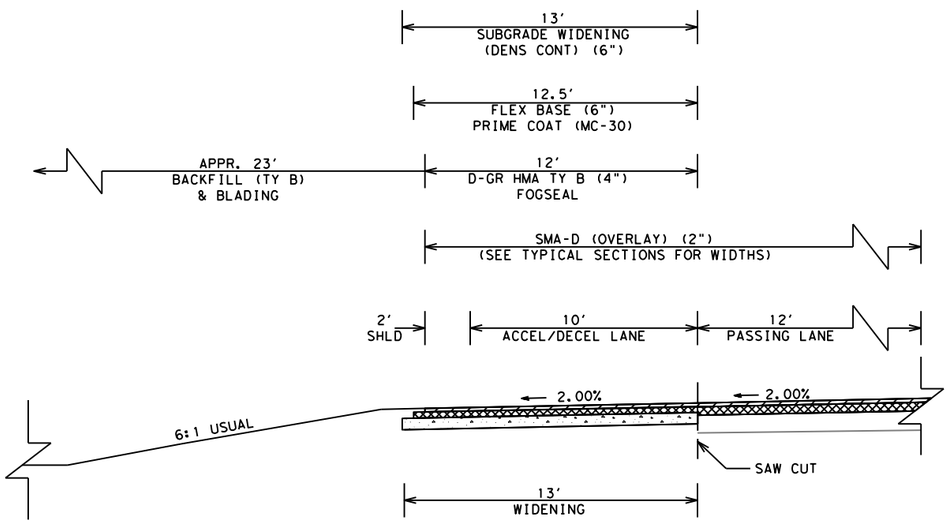
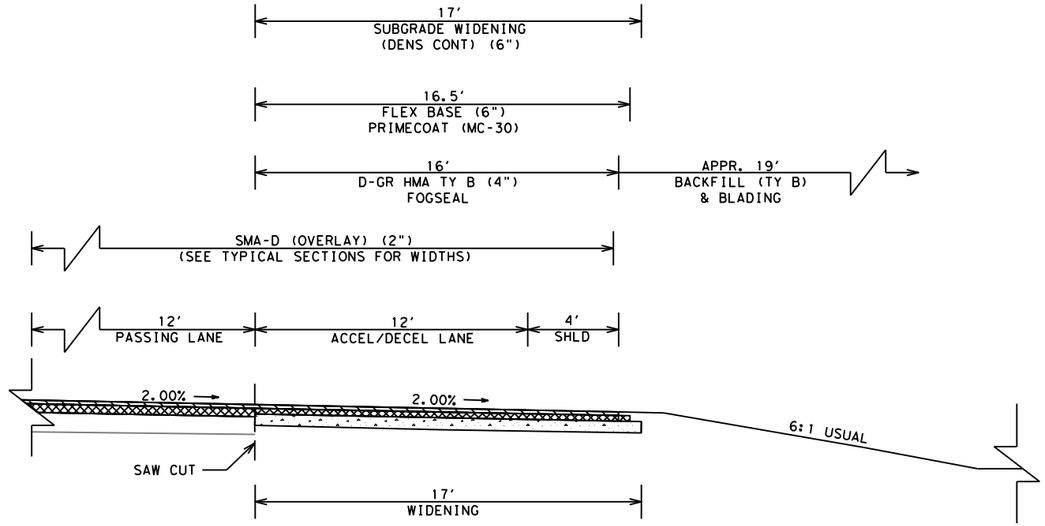


PROPOSED
INSIDE ACCEL/DECEL LANE WIDENING



PROPOSED
OUTSIDE ACCEL/DECEL LANE WIDENING

NOTES:
1. SEE STANDARD "TE (HMAC)-11" FOR TAPERED EDGE DETAILS ON HMAC PAVEMENT.

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6-19-2023

ROADWAY WIDENING DETAILS

NO SCALE SHEET 1 OF 1

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		81

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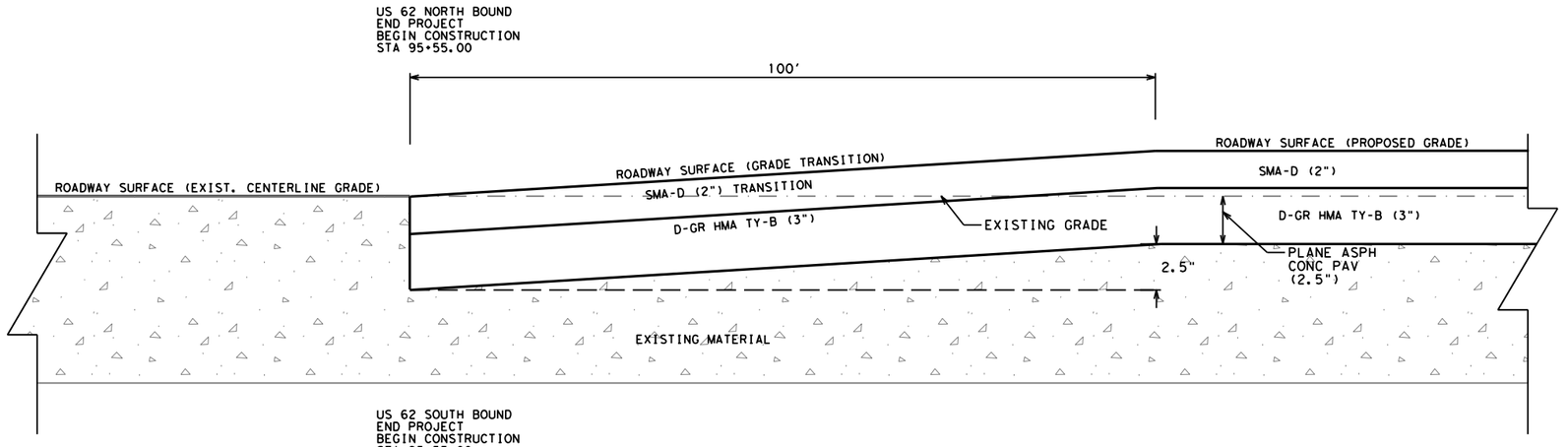

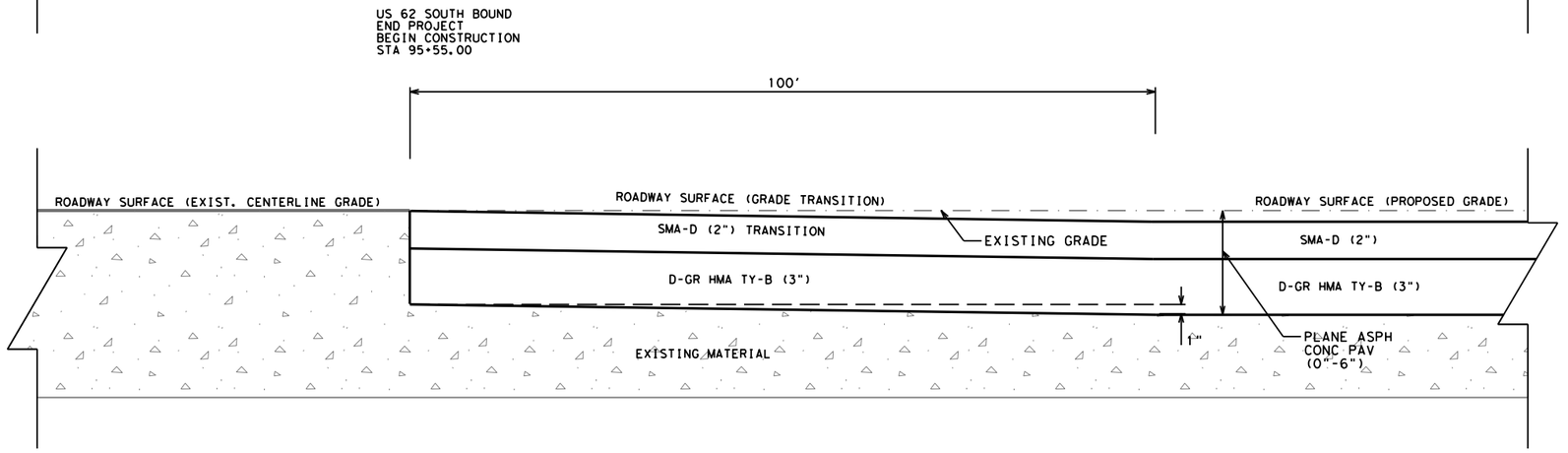

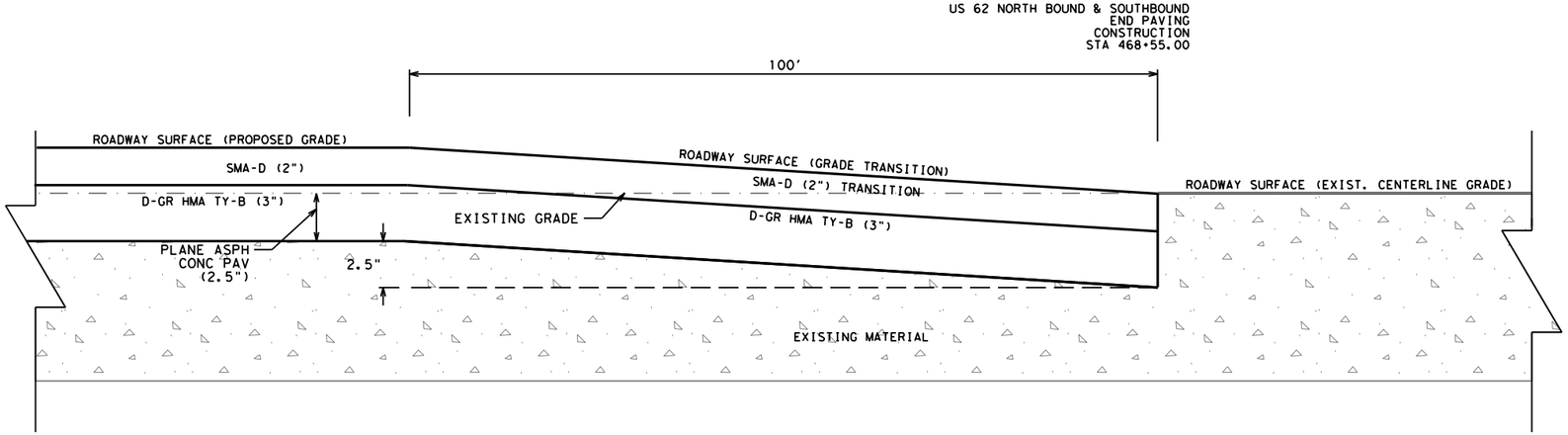

PROJECT ENDS TRANSITION DETAIL

NOTES
1. STATIONS ARE APPROXIMATE, ACTUAL LOCATIONS TO BE DETERMINED IN THE FIELD.

2. SEE SHEET "TYPICAL SECTIONS" FOR WIDTHS AND PAYMENT ITEMS.

NO SCALE

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6-19-2023

ROADWAY TRANSITION DETAIL

SHEET 1 OF 1

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		82

DATE: 6/20/2023 2:33:58 PM
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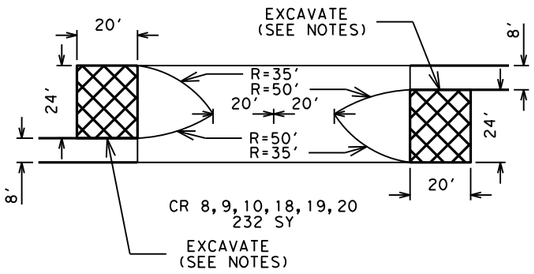
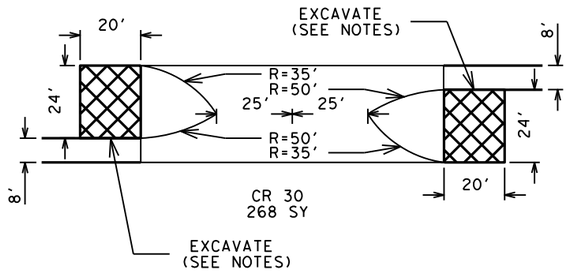
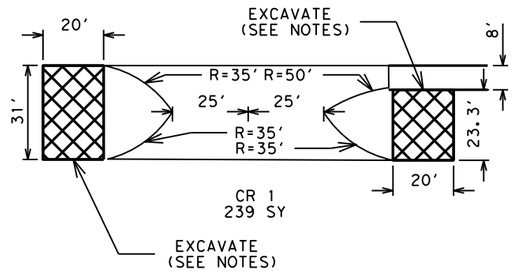
40' WIDE CROSSOVER DIMENSIONS



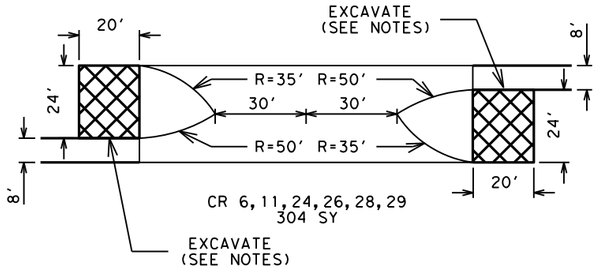
50' WIDE CROSSOVER DIMENSIONS



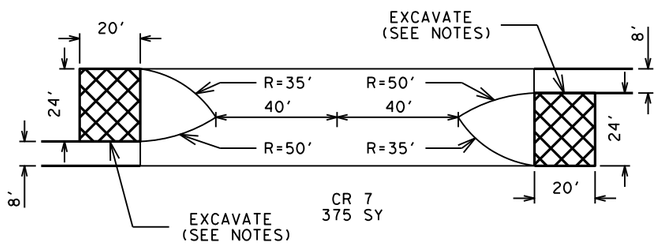
50' WIDE CROSSOVER DIMENSIONS



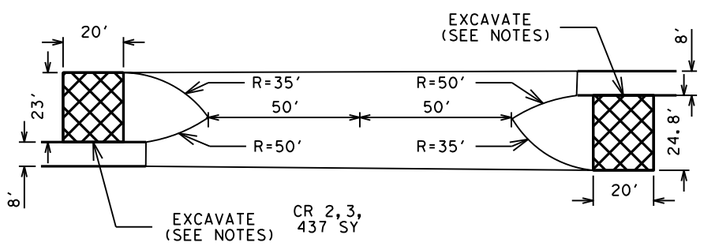
60' WIDE CROSSOVER DIMENSIONS



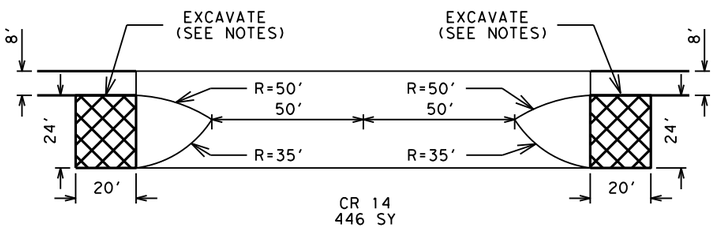
80' WIDE CROSSOVER DIMENSIONS



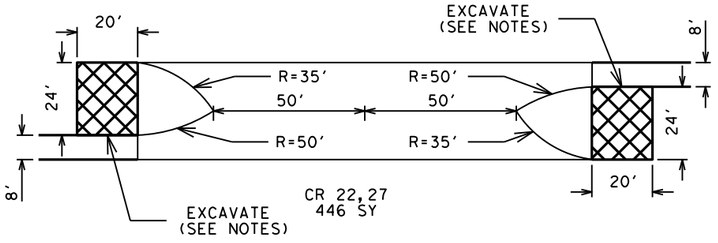
100' WIDE CROSSOVER DIMENSIONS



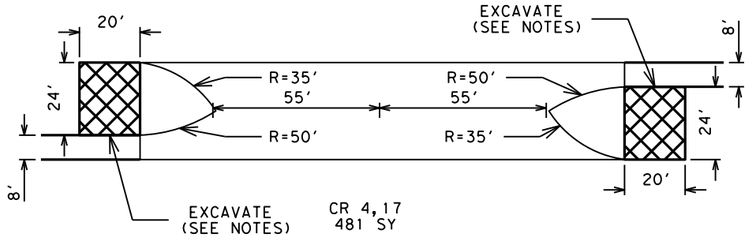
100' WIDE CROSSOVER DIMENSIONS



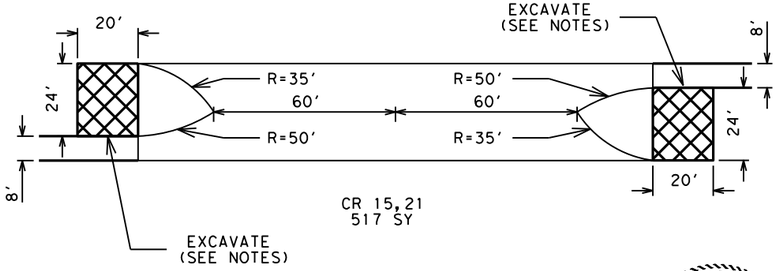
100' WIDE CROSSOVER DIMENSIONS



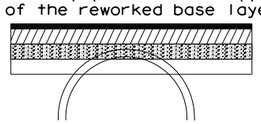
110' WIDE CROSSOVER DIMENSIONS



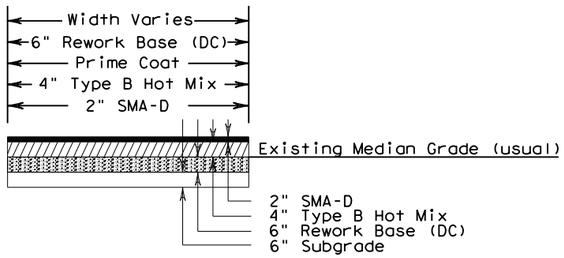
120' WIDE CROSSOVER DIMENSIONS



Construct crossover pavement so that the top of the pipe is in the upper 3 inches of the reworked base layer.



MEDIAN CULVERT DETAIL
(No Scale)



MEDIAN CROSSOVER DETAIL
(No Scale)

NOTES:

Construct Median Crossovers concurrently with the adjacent D-Lanes.

Do not close two adjacent crossovers at the same time.

Subgrade widening quantities for extending radius on crossovers.

The rework base item is intended to pay for scarifying existing asphalt and base, reshaping the salvaged base and any added Type A Flexible Base, and compacting with density control.

Adjusted crossover grades to achieve desireable slopes for crossing traffic. Do not raise flow line finish grade on dip crossovers more than 8 inches above existing unless otherwise directed.

Excavate to ensure positive drainage.
4:1 front/back slopes of ditch for proposed culverts.
6:1 front/back slopes of ditch where there are no proposed culverts.

Culverts not shown for clarity. See drainage items summary for culvert locations.

STATE OF TEXAS
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6-19-2023

CROSSOVER DETAILS

SCALE 1" = 50' SHEET 1 OF 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		83

DATE: 6/20/2023 2:34:01 PM
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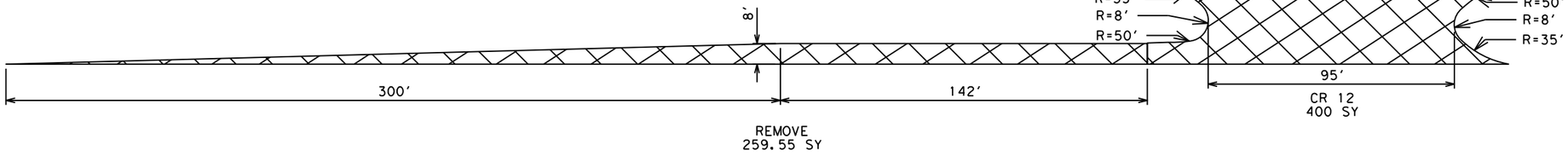
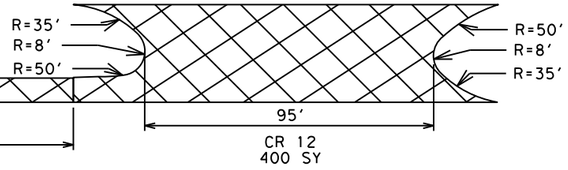
EXISTING DECEL LANE REMOVAL DIMENSIONS



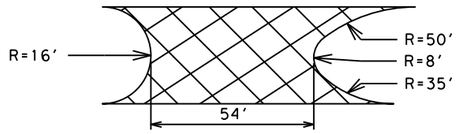
REMOVE
259.55 SY

CROSSOVER REMOVAL DIMENSIONS



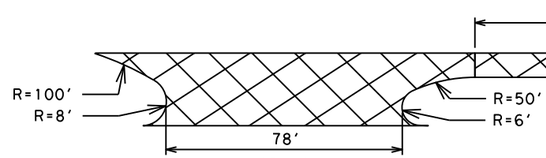
CR 12
400 SY

CROSSOVER REMOVAL DIMENSIONS



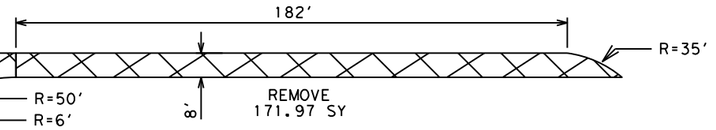
CR 13
229.89 SY

CROSSOVER REMOVAL DIMENSIONS



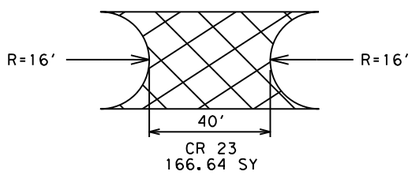
CR 16
250.72 SY

EXISTING DECEL LANE REMOVAL DIMENSIONS



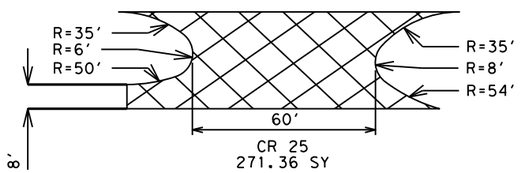
REMOVE
171.97 SY

CROSSOVER REMOVAL DIMENSIONS



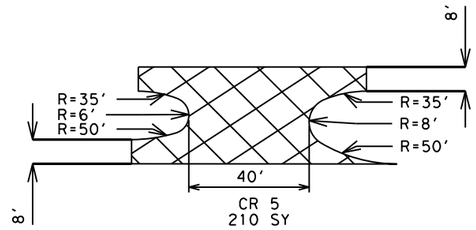
CR 23
166.64 SY

CROSSOVER REMOVAL DIMENSIONS



CR 25
271.36 SY

CROSSOVER REMOVAL DIMENSIONS



CR 5
210 SY

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

CROSSOVER DETAILS

SCALE 1" = 50' SHEET 2 OF 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		84

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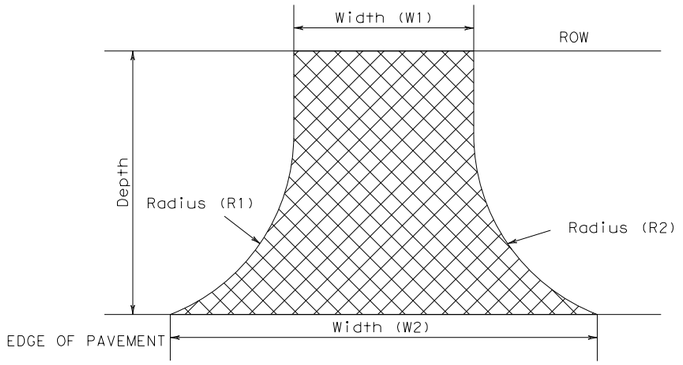
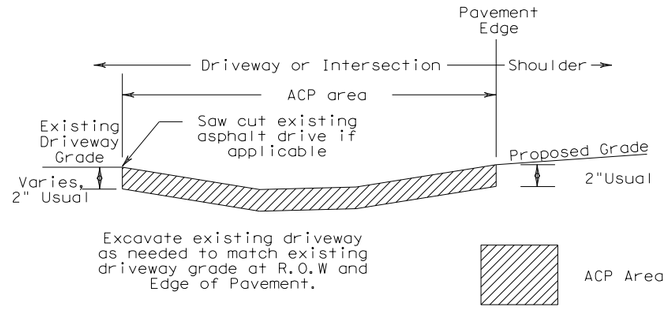
US 62 DRIVEWAY/INTERSECTION SUMMARY										
		DRIVEWAY/INTERSECTION WITH RADIUS							TYPE	
		W1	W2	D	R1	R2			INTERSECTION (ACP)	DRIVEWAY (ACP)
NO	STA	FT	FT	FT	FT	FT	RT/LT	DESCRIPTION	AREA (SY)	AREA (SY)
1	99+03.93	63	109	16	38	16	RT	OLD SEAGRAVES RD.	135	
2	108+47.57	58	121	14	25	75	LT	DRIVEWAY (PRIVATE)		122
3	131+43.42	29	147	71	40	50	LT	CO. RD. 460	441	
4	133+31.51	29	147	71	40	50	RT	CO. RD. 460	441	
5	151+69.13	42	118	33	55	28	RT	OLD SEAGRAVES RD.	220	
6	153+43.53	47	119	16	75	44	LT	WOODS DR.	127	
7	162+68.38	35	120	64	50	40	LT	CO. RD. 375	324	
8	237+45.37	21	114	57	50	40	LT	CO. RD. 365	246	
9	244+64.98	15	65	28	25	25	RT	DRIVEWAY (PRIVATE)		77
10	249+48.39	63	145	22	40	80	RT	CO. RD. 474	218	
11	284+76.59	31	154	64	40	50	LT	CO. RD. 480	467	
12	286+82.06	65	154	28	40	50	RT	CO. RD. 480	287	
13	309+14.34	20	70	28	25	25	RT	CO. RD. 355 N	92	
14	312+57.36	35	145	58	50	40	LT	CO. RD. 355 S	412	
15	346+65.96	14	44	28	15	15	RT	DRIVEWAY (PRIVATE)		54
16	359+79.19	20	64	43	15	30	LT	DRIVEWAY (PRIVATE)		120
17	435+36.12	30	150	64	40	50	LT	CO. RD. 600	448	
18	437+12.43	38	112	28	25	50	RT	CO. RD. 600	183	
19	458+16.75	72	166	28	75	40	RT	FM 303	311	
20	466+61.62	10	60	35	25	25	LT	DRIVEWAY (PRIVATE)		69
21	508+14.48	20	129	64	40	50	LT	DRIVEWAY (PRIVATE)		330
22	530+35.84	47	135	38	150	100	LT	CO. RD. 861	357	
23	586+14.13	29	146	64	40	50	LT	CO. RD. 620	427	
24	587+80.85	43	132	28	30	75	RT	CO. RD. 620	211	
25	611+15.66	37	94	14	50	25	LT	TXDOT REST AREA	84	
26	638+72.89	35	89	14	17	50	LT	TXDOT REST AREA	81	
27	657+94.03	25	70	50	20	25	LT	DRIVEWAY (PRIVATE)		163
28	662+01.18	35	98	27	25	40	LT	1ST ST.	152	
US 62 CSJ: 0228-01-056 TOTAL									**5664**	**935**



TYPICAL ACP DRIVEWAY CONSTRUCTION DETAIL

Remove pavement and base at driveways 2" usual deep and replace with a 2" usual of Type C Hot Mix (exempt production) in accordance with Item 530 "Driveways (ACP)". Measurement is by the square yard. Removal of 2" of pavement and base is considered subsidiary work.

After removal and before placement of new hot mix, level and compact the existing base material in order to construct a smooth intersection for crossing pedestrian traffic.



ACP SECTION DETAIL

ACP driveways and intersections will receive Type C Hot Mix (exempt production).

Excavate as necessary to tie to existing driveway grade at R.O.W. Removal or reshaping of excess material in existing driveway may be required prior to placing hot mix in driveways. This work considered subsidiary to Item "530".

Construction and payment of Type Type C Hot Mix (exempt production) for driveways will be in accordance with item 530 "Driveway (ACP)". Place a minimum of 2" of Type D hot mix in all locations.

STATE OF TEXAS
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6-19-2023

DRIVEWAY DETAILS

NO SCALE

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		85

DATE: 6/20/2023 2:34:06 PM
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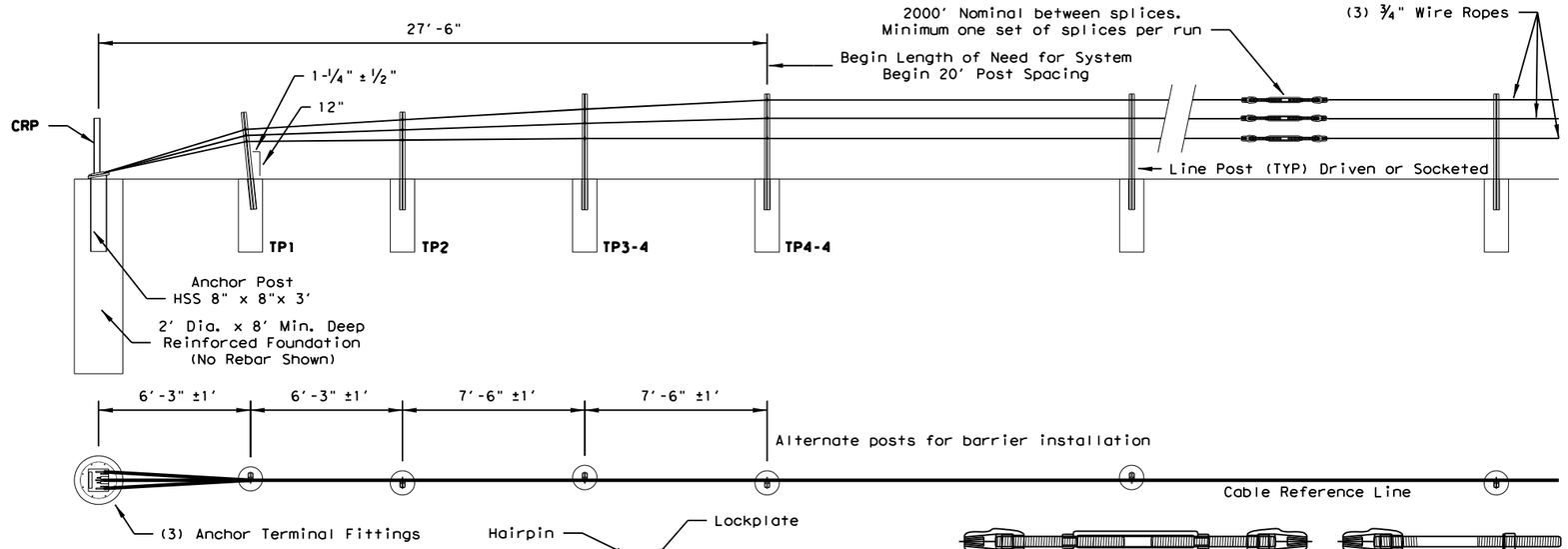
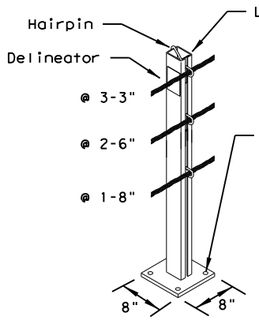
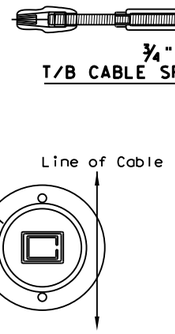
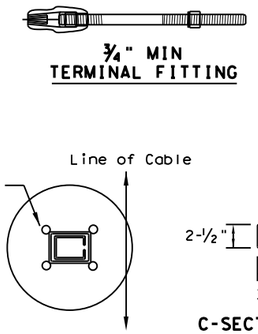




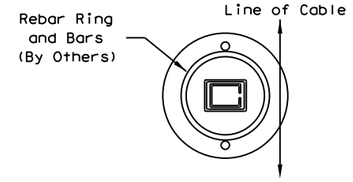
LINE POST
(BASE-PLATED OPTION)
Low-Fill Box Culvert Less than 15" Fill



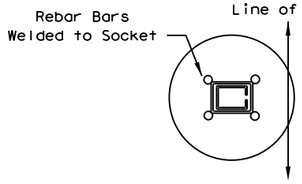
¾" MIN
T/B CABLE SPLICE FITTING



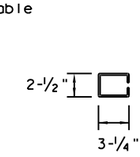
¾" MIN
TERMINAL FITTING



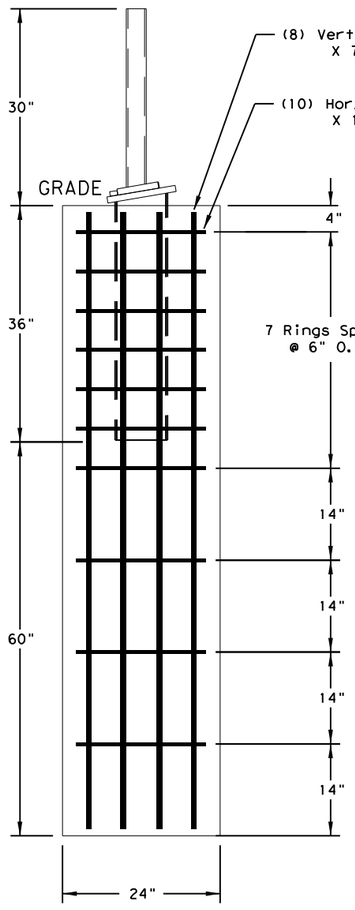
SECTION A



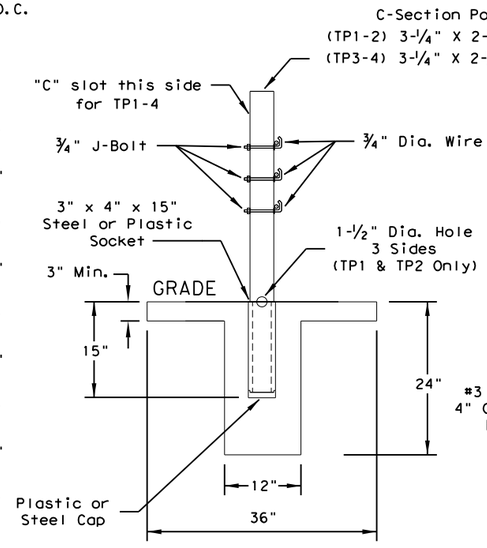
SECTION B



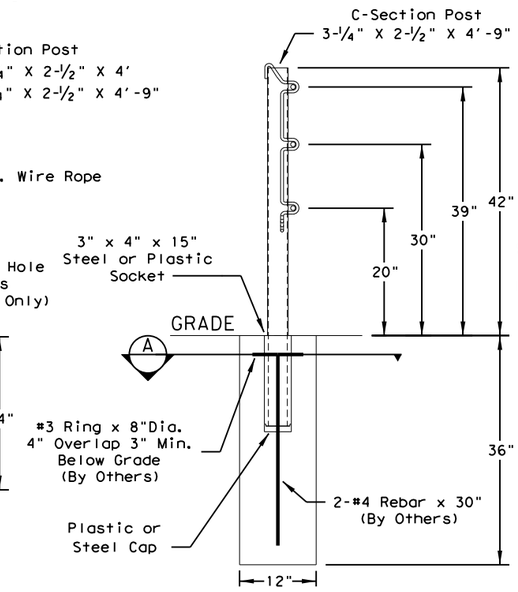
C-SECTION POST



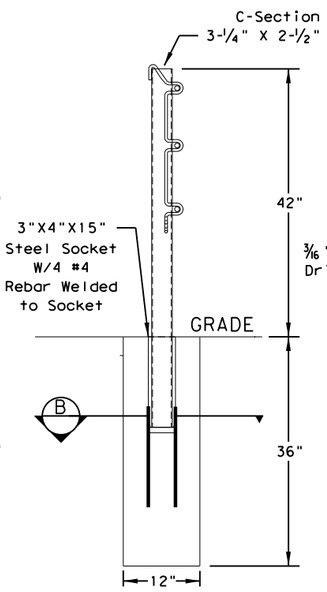
CABLE RELEASE AND ANCHOR POST



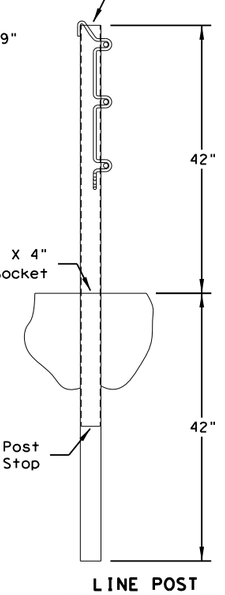
TERMINAL POST
(SHOWN WITH CONCRETE MOWSTRIP)
(Shown with Tube Plate Option)
(See Note 10)



LINE POST SOCKETED
(Shown with Rebar Ring/Bars Socket Option)
(See Note 9)



LINE POST SOCKETED
(Shown with Welded Rebar Socket Option)
(See Note 9)



LINE POST
(DRIVEN OPTION)
(Shown with Driven
Socket Option)
(See Note 9)

GENERAL NOTES

1. For additional information contact Gibraltar, Inc. at 1-800-495-8957, 830-798-5444, or see the manufacturer's product manual.
2. All concrete shall be CLASS A.
3. The Cable Barrier System shall be installed on shoulders or on medians with slopes of 6:1 or flatter. If installed on slopes steeper than 6:1 up to 4:1 the TL-4 system performs as a TL-3 and Gibraltar must be contacted for various guidelines related to placement.
4. The Cable Barrier System is accepted by the FHWA Test Level - 4.
5. See the Texas MUTCD for proper "Barrier" delineation.
6. Rock Clause: Where solid rock is encountered:
   A. For socketed post, continue digging 12" diameter, 15" deep into rock or the required plan depth, whichever comes first.
   B. For driven post, core drill a 4" diameter hole 18" deep into rock or the required plan depth, whichever comes first.
   C. For Anchor post, continue digging 24" diameter, 30" deep into rock or the required plan depth, whichever comes first.
7. Tolerances:
   * LP = 3" out of plumb, at top
   * Cable height = 1"
   * Anchor Post = 5" off of Cable Reference Line
8. The Gibraltar cable barrier system shall be installed in NCHRP Report 350 standard compacted soil. Soil must be well drained.
9. All non-welded rebar by others.
10. Minimum recommended line post foundation.
    A. Without mowstrip, 36" Deep x 12" diameter foundations with #3 rebar ring x 8" diameter with two #4 rebar vertical bars 30" long
    B. With 4" minimum depth hot mix asphalt, 30" deep x 12" diameter foundations with #3 rebar ring x 8" diameter with two #4 rebar vertical bars 30" long.
    C. With 3" minimum depth concrete mowstrip, 24" deep x 12" diameter foundations. (No rebar required)
    D. Direct drive post 42" deep.

CABLE TENSION CHART*	
-10 °F	8000
0 °F	7600
10 °F	7200
20 °F	6800
30 °F	6400
40 °F	6000
50 °F	5600
60 °F	5200
70 °F	4800
80 °F	4400
90 °F	4000
100 °F	3600
110 °F	3200

DEFLECTION	
Deflection	Post Spacing
8'-0"	20 FT
7'-0"	12 FT
6'-8"	10 FT

* Allowable Deviation from Chart +/- 10%

Texas Department of Transportation — Design Division Standard

GIBRALTAR
CABLE BARRIER SYSTEM
(TL-4)

GBRLTR(TL4)-14

FILE: gbrltrtl414.dgn	DN:TxDOT	CK:RM	DW:VP	CK:
©TxDOT: March 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
	DIST	COUNTY		SHEET NO.
	LBB	TERRY		86

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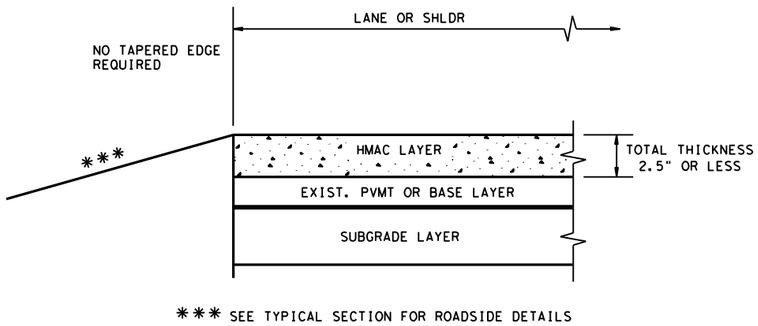
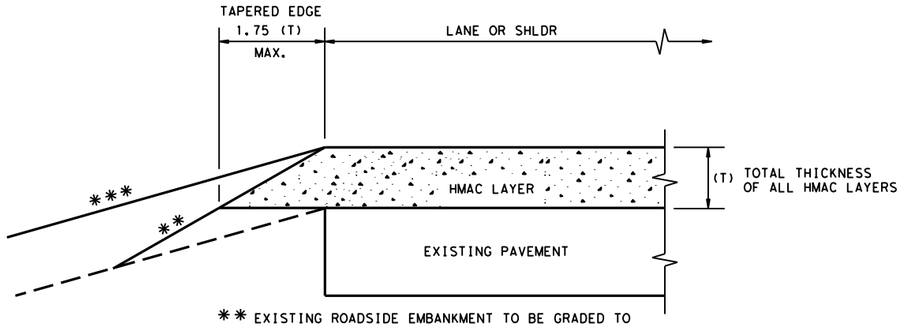


*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

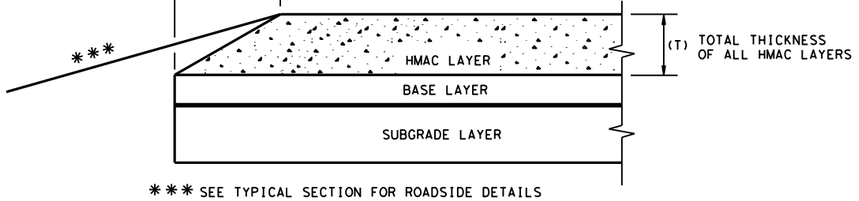
CONDITION - 1
THIN HMAC SURFACES OR HMAC OVERLAY WITH THICKNESS OF 2.5" OR LESS



** 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.

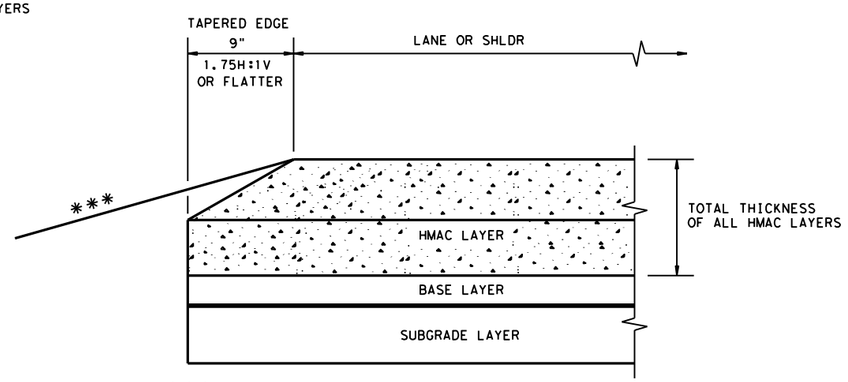
*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

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

(NOT TO SCALE)

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.

Texas Department of Transportation | Design Division Standard

TAPERED EDGE DETAILS
HMAC PAVEMENT

TE(HMAC)-11

FILE: tehmac11.dgn	DN: TxDOT	CK: RL	DW: KB	CK:
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REVISIONS	0228	01	056	US 62/385
	DIST	COUNTY		SHEET NO.
	LBB	TERRY		87

NOTES FOR TABLE:

1. PEAK DISCHARGE CALCULATED USING THE RATIONAL METHOD.
2. INFORMATION FOR THE INTENSITY DURATION FREQUENCY (IDF) CREATED FROM THE IDF EXCEL TABLE GIVEN BY THE TXDOT HYDRAULIC DEPARTMENT.
3. RUNOFF COEFFICIENT FROM TABLE 4-11: "RUNOFF COEFFICIENTS FOR RURAL WATERSHEDS"
4. AREAS CALCULATED BY HAND

RUNOFF COEFFICIENT	cr=.2	ci=.07	cv=.10	cs=.10
	C=0.47			

Drainage information used for analysis:
State: Terry County, Texas

Drainage Area Name	Area Acres	C	Tc mins	Intensity (10-YR) IN/HR	Intensity (25-YR) IN/HR	Intensity (50-YR) IN/HR	Intensity (100-YR) IN/HR
DA-1	2.22	0.47	10	6.08	7.68	8.93	10.26
DA-2	0.41	0.47	10	6.08	7.68	8.93	10.26
DA-3	2.16	0.47	10	6.08	7.68	8.93	10.26
DA-4	1.76	0.47	10	6.08	7.68	8.93	10.26
DA-5	2.05	0.47	10	6.08	7.68	8.93	10.26
DA-6	0.22	0.47	10	6.08	7.68	8.93	10.26
DA-7	3.03	0.47	10	6.08	7.68	8.93	10.26
DA-8	0.56	0.47	10	6.08	7.68	8.93	10.26
DA-9	0.53	0.47	10	6.08	7.68	8.93	10.26
DA-10	0.70	0.47	10	6.08	7.68	8.93	10.26
DA-11	3.43	0.47	10	6.08	7.68	8.93	10.26
DA-12	0.48	0.47	10	6.08	7.68	8.93	10.26
DA-13	1.93	0.47	10	6.08	7.68	8.93	10.26
DA-14	1.35	0.47	10	6.08	7.68	8.93	10.26
DA-15	2.57	0.47	10	6.08	7.68	8.93	10.26
DA-16	3.23	0.47	10	6.08	7.68	8.93	10.26
DA-17	0.40	0.47	10	6.08	7.68	8.93	10.26
DA-18	0.83	0.47	10	6.08	7.68	8.93	10.26
DA-19	3.28	0.47	10	6.08	7.68	8.93	10.26
DA-20	2.53	0.47	10	6.08	7.68	8.93	10.26
DA-21	1.52	0.47	10	6.08	7.68	8.93	10.26
DA-22	0.51	0.47	10	6.08	7.68	8.93	10.26
DA-23	1.51	0.47	10	6.08	7.68	8.93	10.26
DA-24	3.43	0.47	10	6.08	7.68	8.93	10.26
DA-25	1.09	0.47	10	6.08	7.68	8.93	10.26

Discharges Developed per drainage Area:

Drainage Area Name	Peak Discharge (10-YR) CFS	(25-YR) CFS	(50-YR) CFS	(100-YR) CFS
DA-1	6.34	8.01	9.32	10.71
DA-2	1.17	1.48	1.72	1.98
DA-3	6.17	7.8	9.07	10.42
DA-4	5.03	6.35	7.39	8.49
DA-5	5.86	7.40	8.60	9.89
DA-6	0.63	0.79	0.92	1.06
DA-7	8.66	10.94	12.72	14.61
DA-8	1.60	2.02	2.35	2.70
DA-9	1.51	1.91	2.22	2.56
DA-10	2.00	2.53	2.94	3.38
DA-11	9.80	12.38	14.40	16.54
DA-12	1.37	1.73	2.01	2.31
DA-13	5.52	6.97	8.10	9.31
DA-14	3.86	4.87	5.67	6.51
DA-15	7.34	9.28	10.79	12.39
DA-16	9.23	11.66	13.56	15.58
DA-17	1.14	1.44	1.68	1.93
DA-18	2.37	3.00	3.48	4.00
DA-19	9.37	11.84	13.77	15.82
DA-20	7.23	9.13	10.62	12.20
DA-21	4.34	5.49	6.38	7.33
DA-22	1.46	1.84	2.14	2.46
DA-23	4.31	5.45	6.34	7.28
DA-24	9.80	12.38	14.40	16.54
DA-25	3.11	3.93	4.57	5.26

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HYDROLOGY DATA

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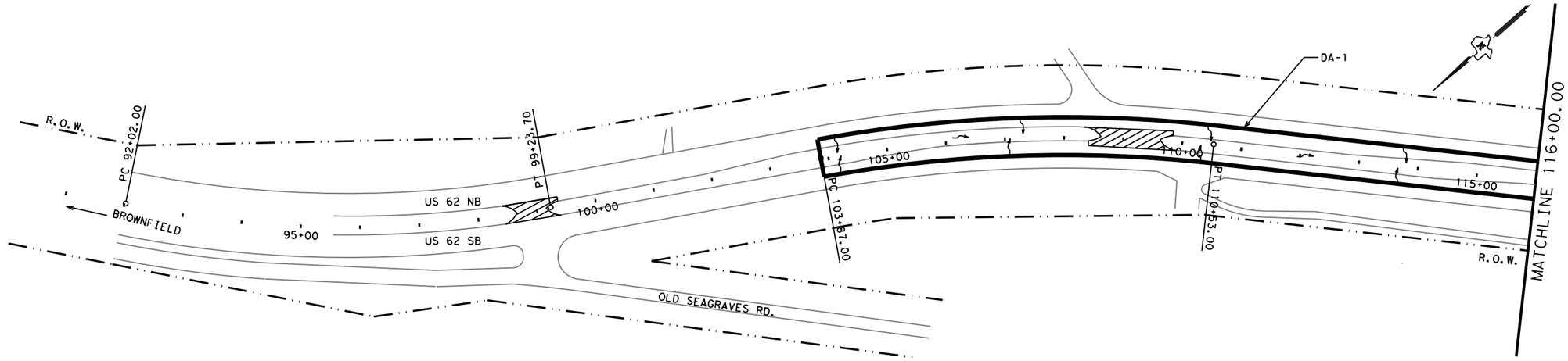

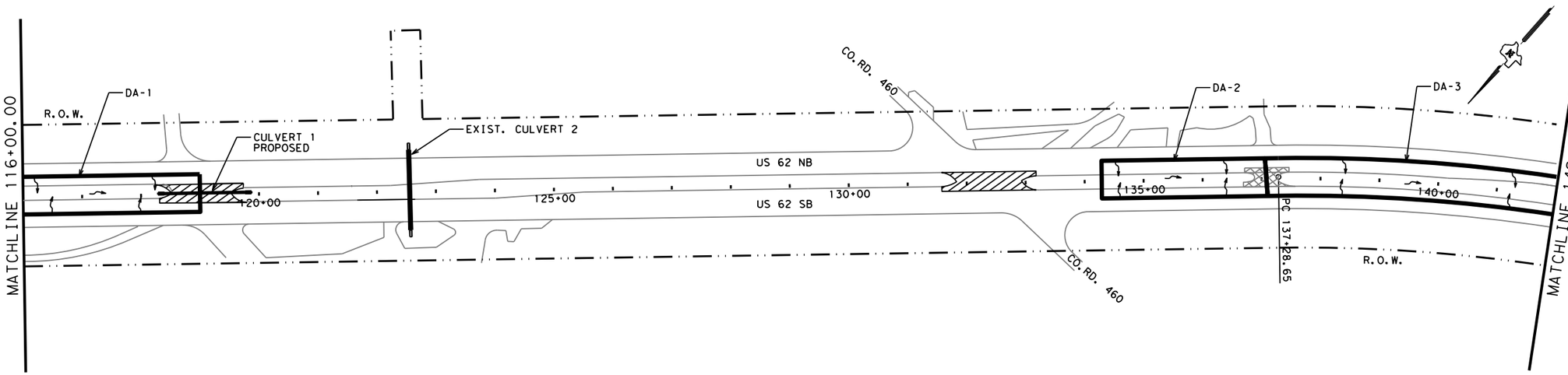

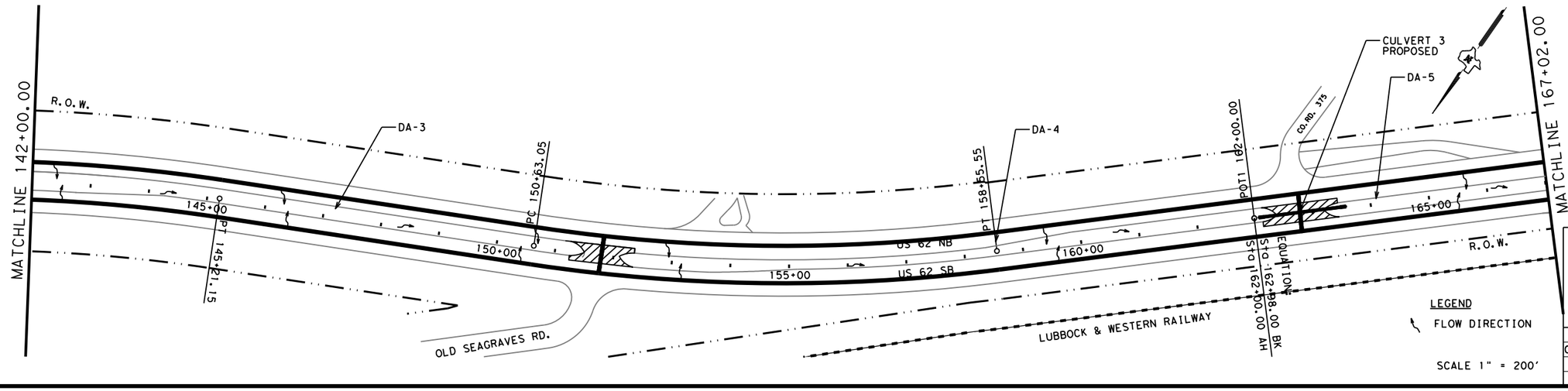

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PROPOSED DRAINAGE AREAS FOR CROSSOVERS

SHEET 1 OF 8

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CONT	SECT	JOB	HIGHWAY
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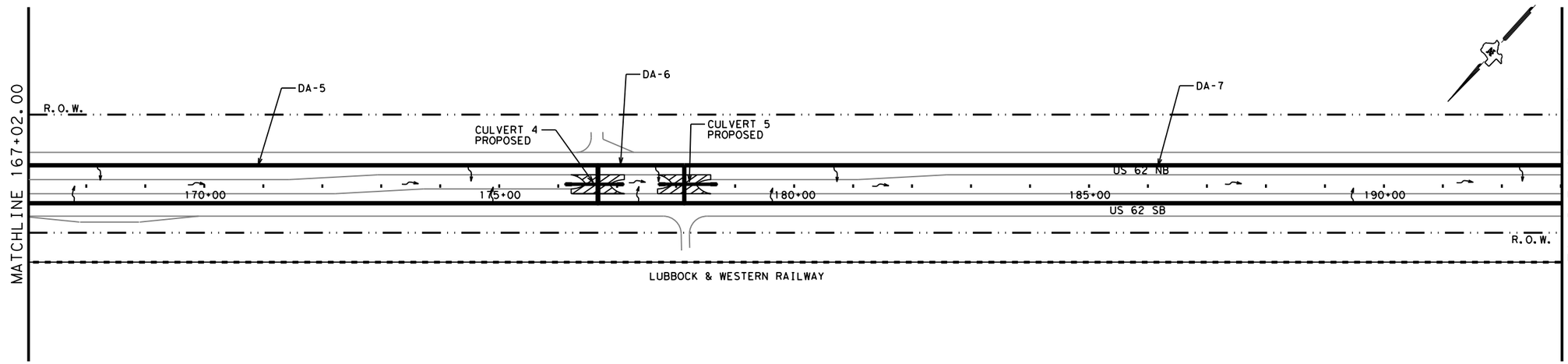

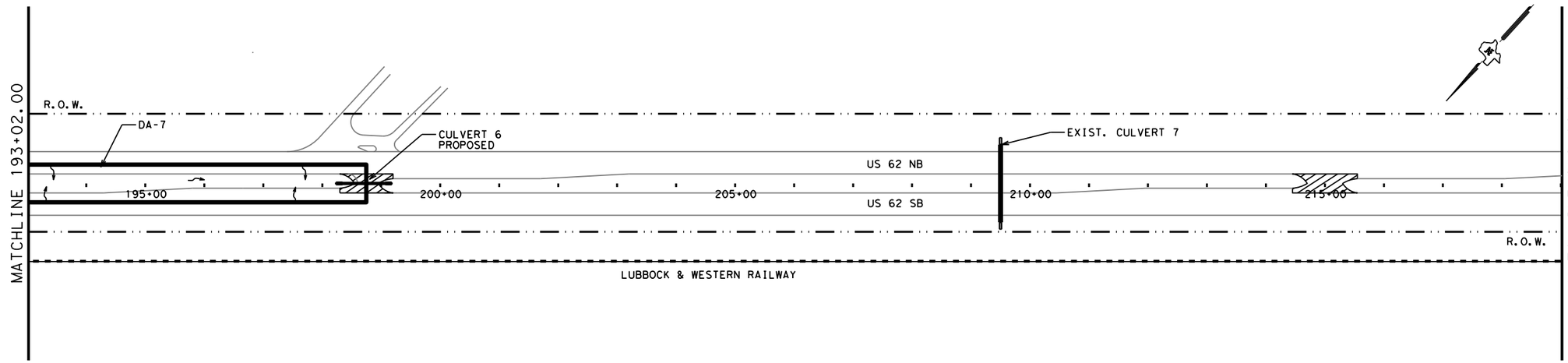

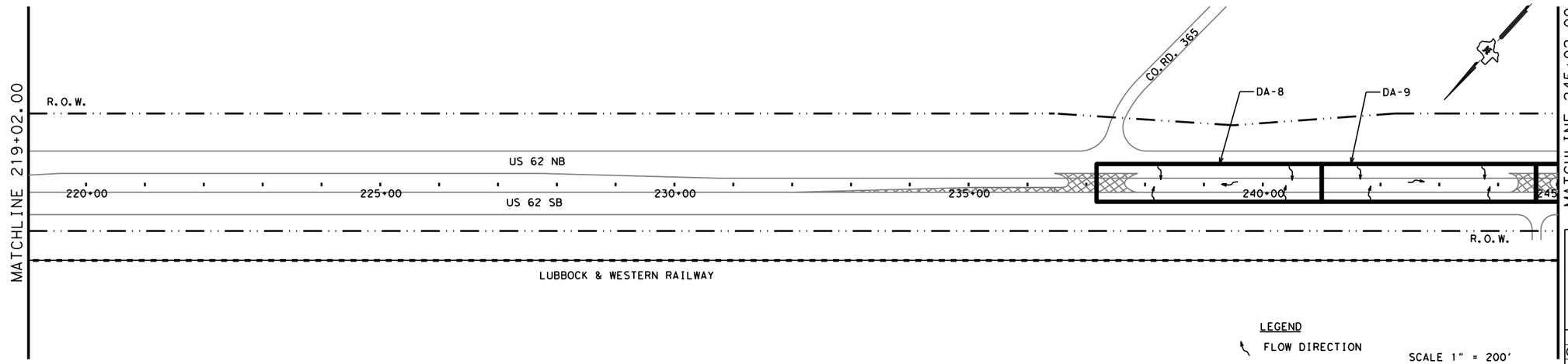

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PROPOSED DRAINAGE AREAS FOR CROSSOVERS

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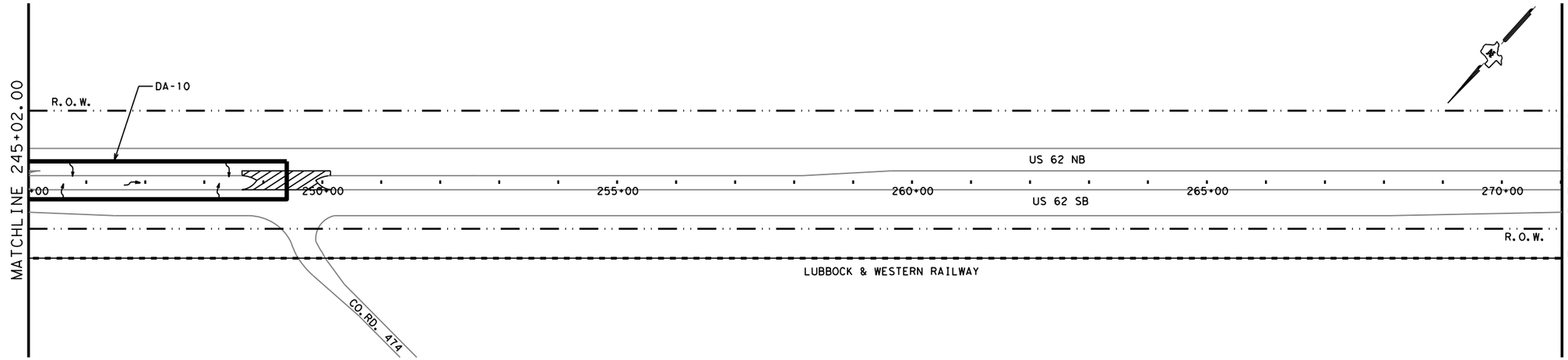

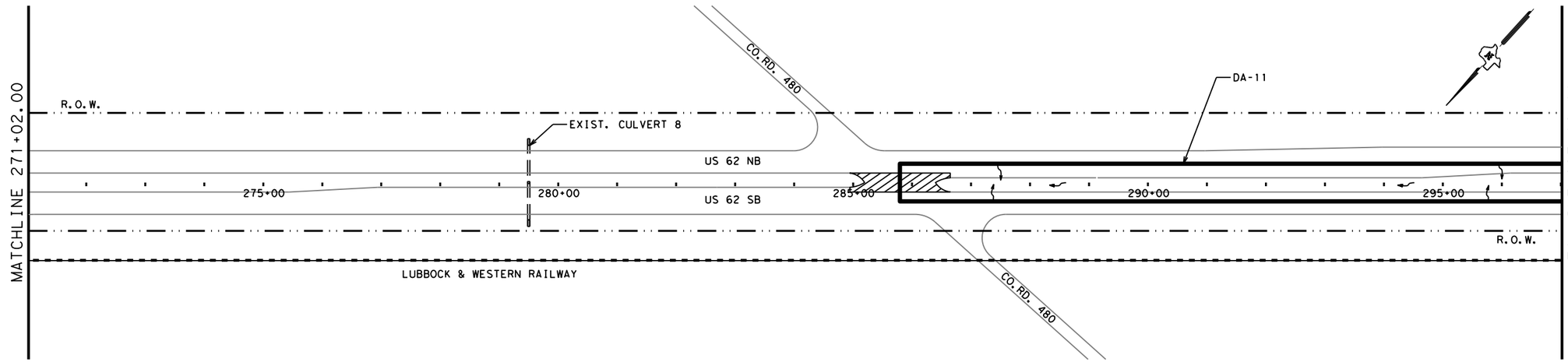

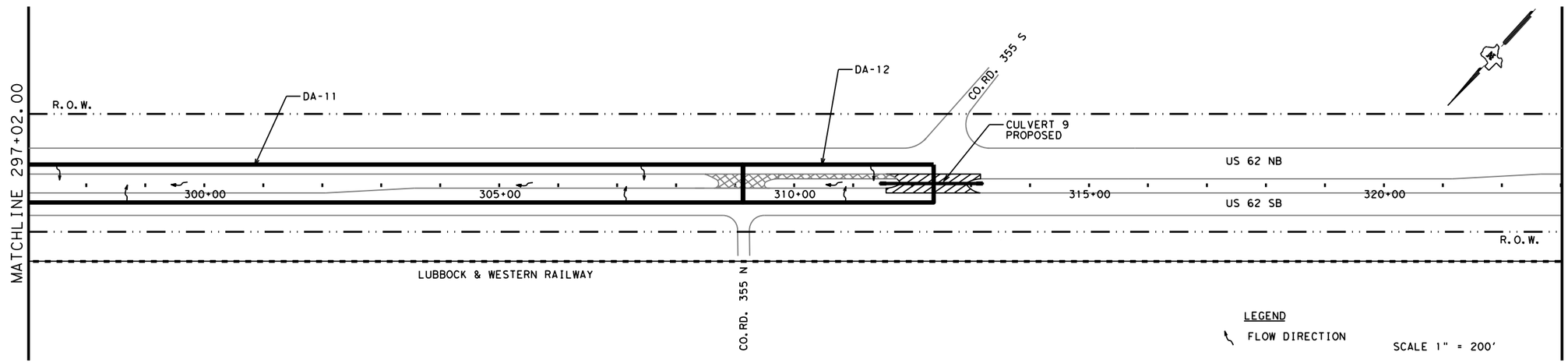

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SHEET 3 OF 8

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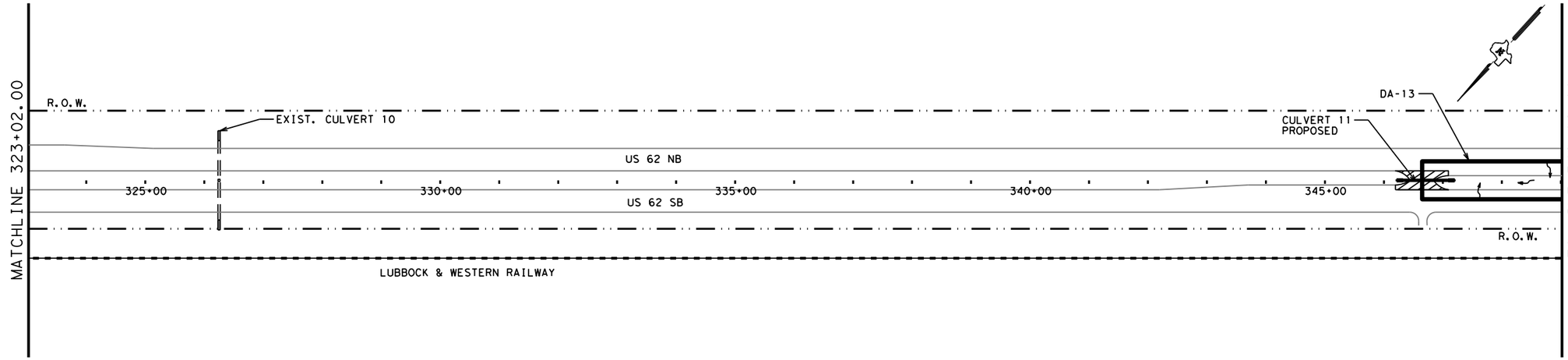

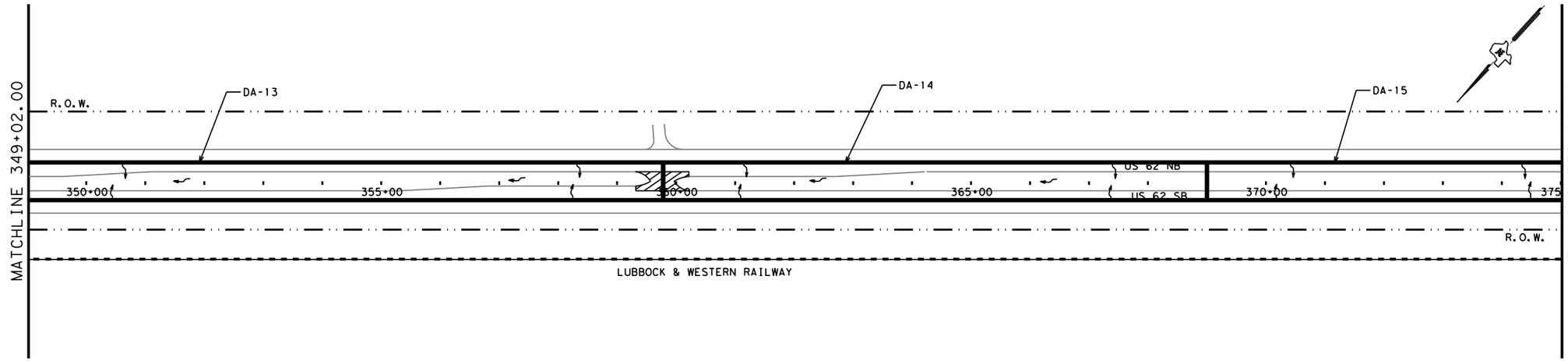

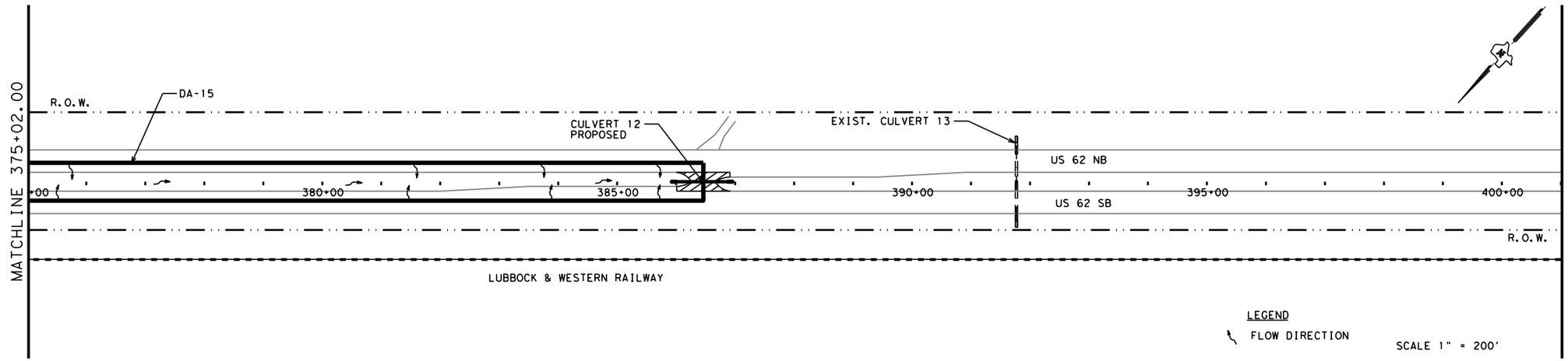

LEGEND

FLOW DIRECTION

SCALE 1" = 200'

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PROPOSED DRAINAGE AREAS FOR CROSSOVERS

SHEET 4 OF 8

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CONT	SECT	JOB	HIGHWAY
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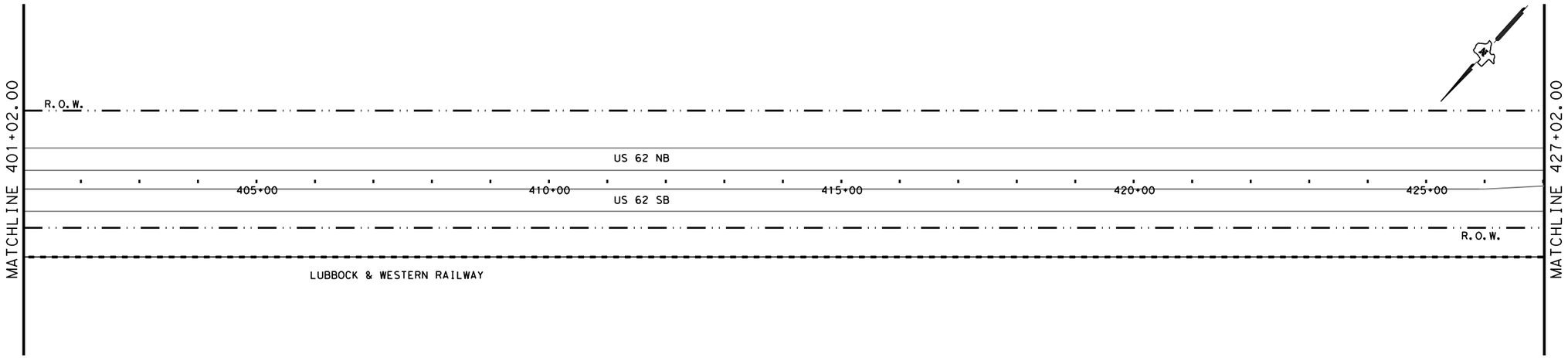

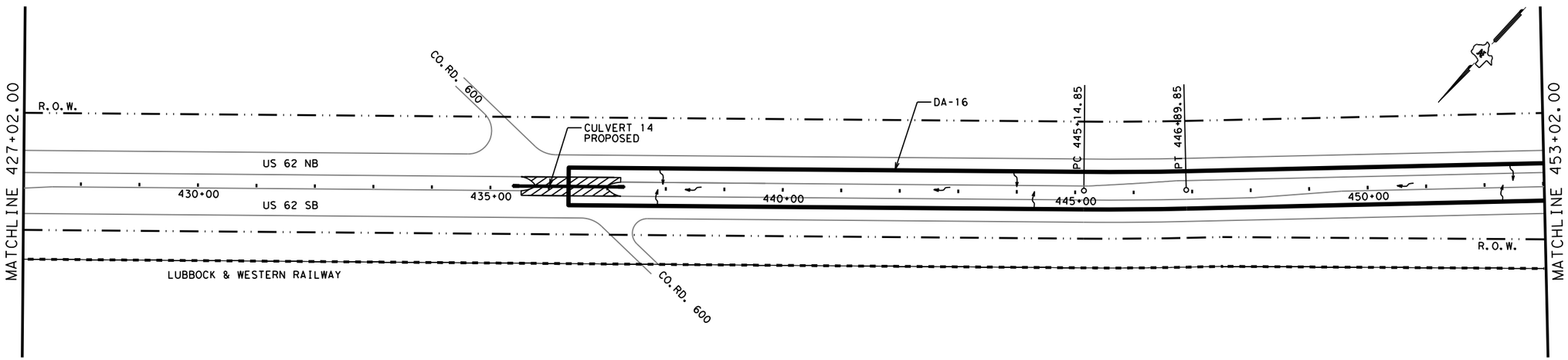

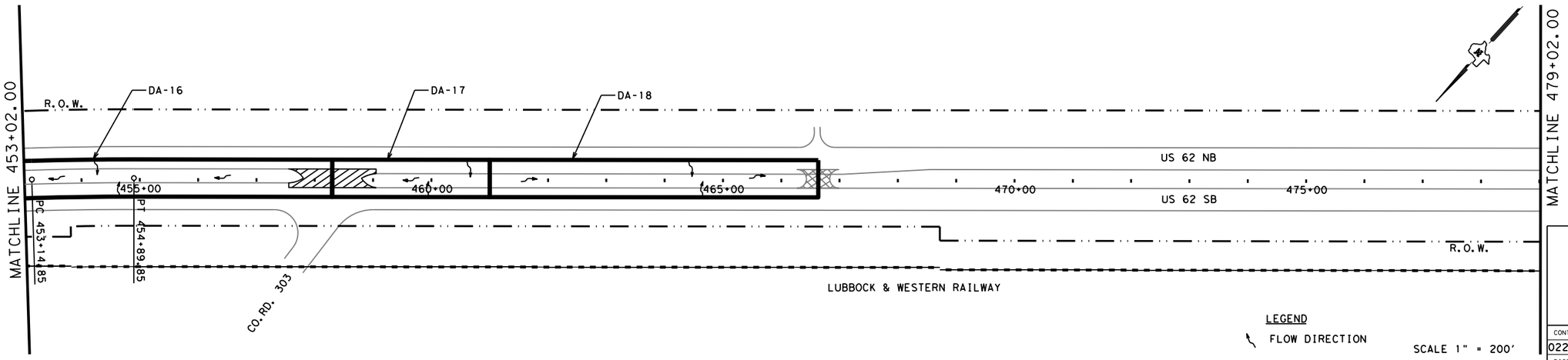

LEGEND

FLOW DIRECTION

SCALE 1" = 200'

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PROPOSED DRAINAGE AREAS FOR CROSSOVERS

SHEET 5 OF 8

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
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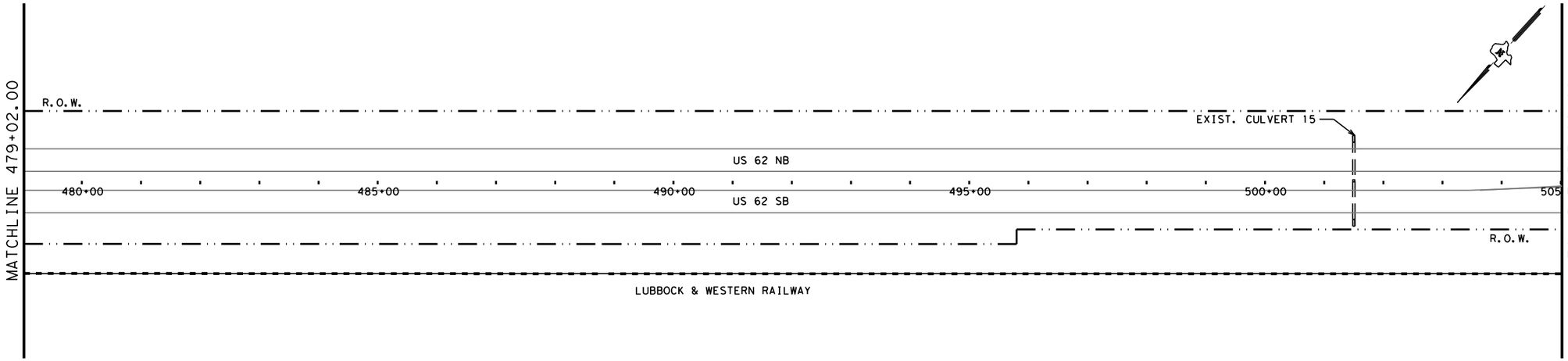

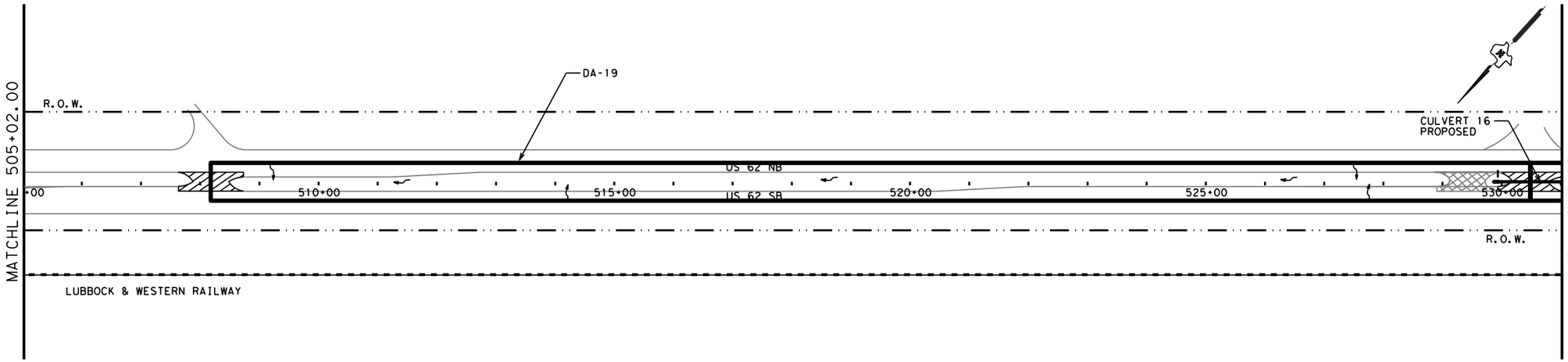

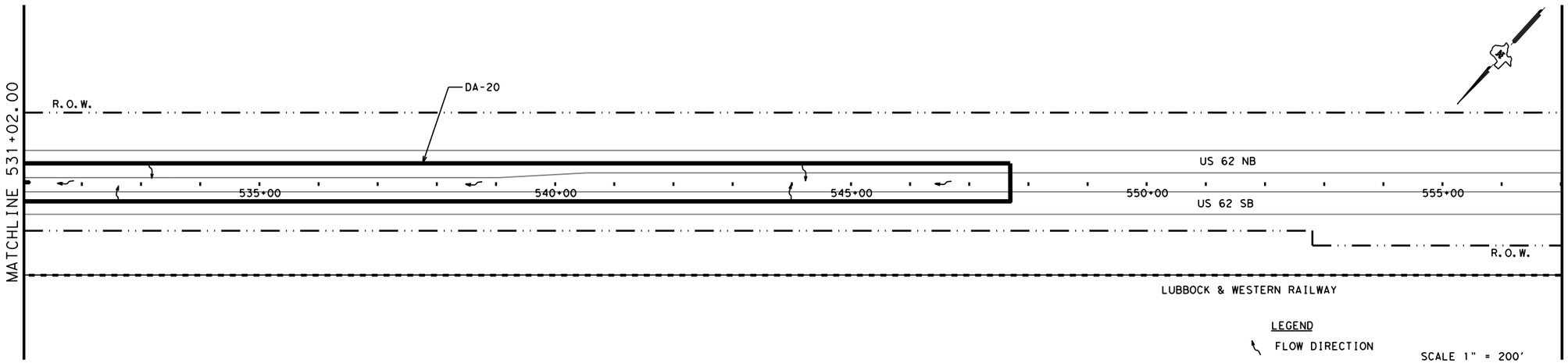

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PROPOSED DRAINAGE AREAS FOR CROSSOVERS

SHEET 6 OF 8

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
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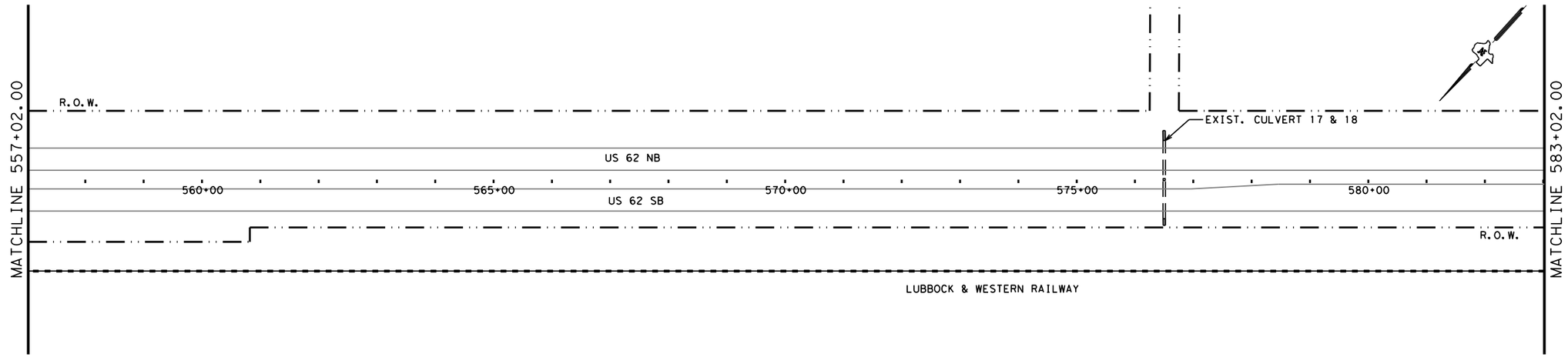

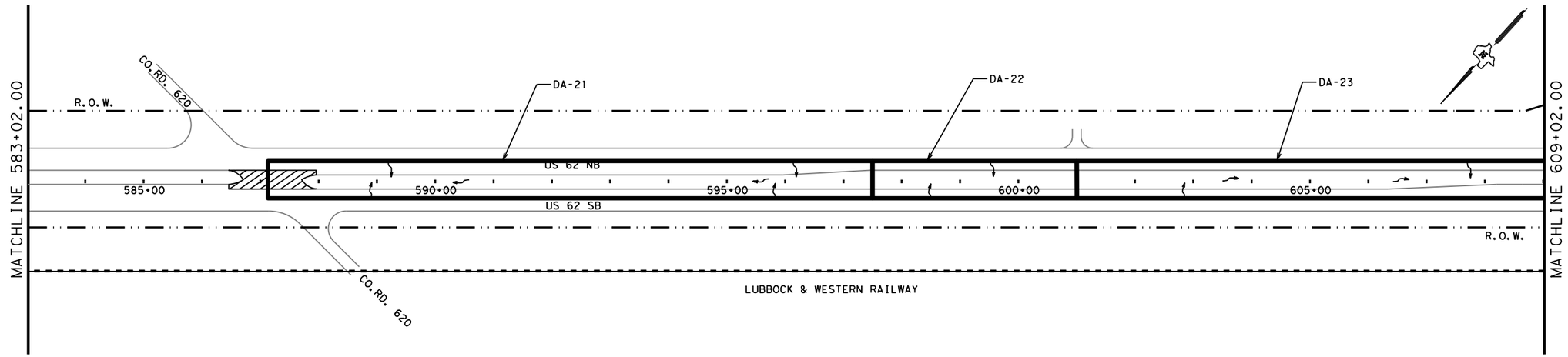

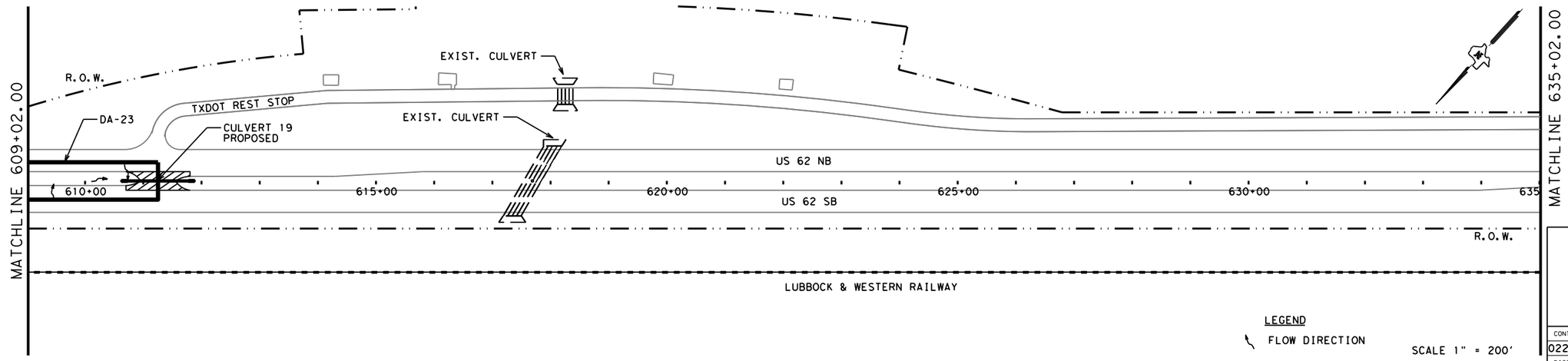

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6-19-2023

PROPOSED DRAINAGE AREAS FOR CROSSOVERS

SHEET 7 OF 8

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		95

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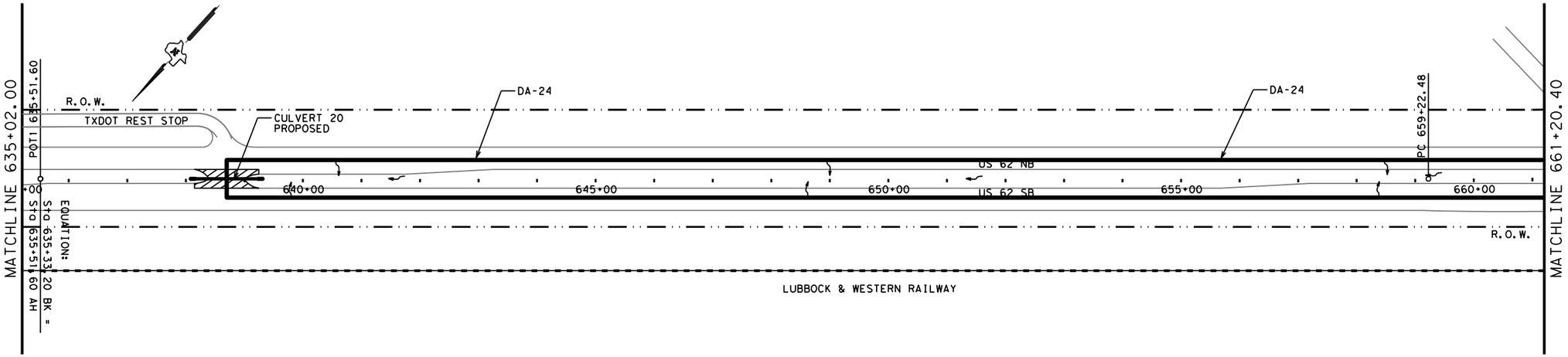

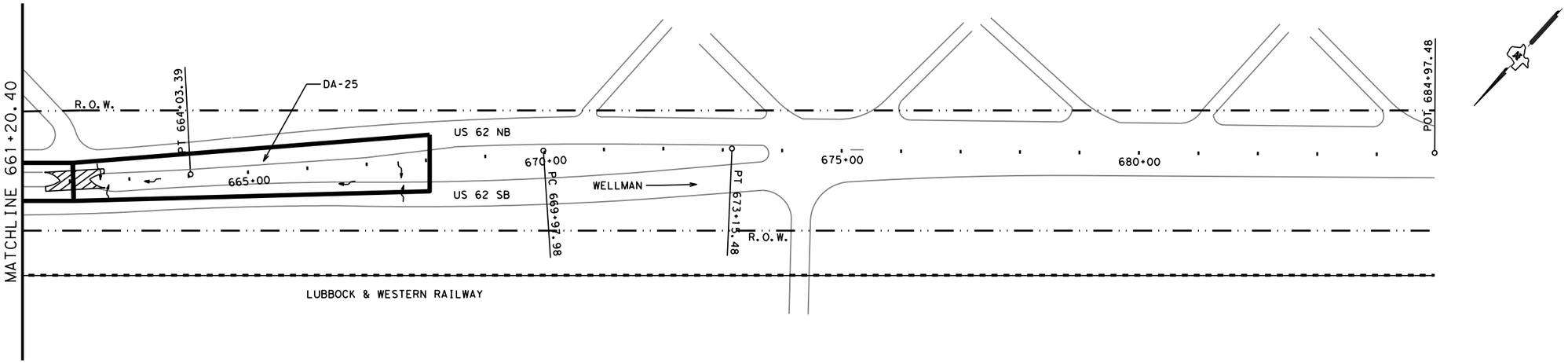

LEGEND

FLOW DIRECTION

SCALE 1" = 200'

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PROPOSED DRAINAGE AREAS FOR CROSSOVERS

SHEET 8 OF 8

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		96

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STRUCTURE SUMMARY = CSJ : 0228-01-056													
									PAY ITEMS				
STRUCTURE	CROSSOVER	STATION	DESCRIPTION	WIDTH OF CROSSOVER		WORK DESCRIPTION		EXISTING GRATED ENDS 6:1 SLOPE	CEM STABIL BKFL	RC PIPE (CL IV) (24 IN)	SET (TY II) (24 IN) (RCP) (6:1) (P)	CLEAN CULVERT
					LOCATION	END TREATMENT			0.23 CY/LF			
						EXISTING	PROPOSED		DIA 24"			
NO	NO			FT					CY	LF	EA	EA
1	CR 3	119+00	PROPOSED 1 - 24'' x 136' RCP (COMMERICAL AREA)	100	BACK		SETP-PD 6:1		31.28	136	1	1
					FORWARD		SETP-PD 6:1				1	
2		122+50	EXISTING 1 - 3' x 2' x 136' SC - NA		LEFT			1				1
					RIGHT			1				
3	CR 7	162+79	PROPOSED 1 - 24'' x 128' RCP (CO.RD. 375)	80	BACK		SETP-PD 6:1		29.44	128	1	1
					FORWARD		SETP-PD 6:1				1	
4	CR 8	176+67	PROPOSED 1 - 24'' x 76' RCP (PRIVATE)	40	BACK		SETP-PD 6:1		17.48	76	1	1
					FORWARD		SETP-PD 6:1				1	
5	CR 9	178+14	PROPOSED 1 - 24'' x 76' RCP (PRIVATE)	40	BACK		SETP-PD 6:1		17.48	76	1	1
					FORWARD		SETP-PD 6:1				1	
6	CR 10	198+75	PROPOSED 1 - 24'' x 72' RCP (PRIVATE)	40	BACK		SETP-PD 6:1		16.56	72	1	1
					FORWARD		SETP-PD 6:1				1	
7		209+50	EXISTING 1 - 3' x 2' x 132' SC - NA		LEFT			1				1
					RIGHT			1				
8		279+50	EXISTING 1 - 3' x 2' x 126' SC - NA		LEFT			1				1
					RIGHT			1				
9	CR 17	312+37	PROPOSED 1 - 24'' x 152' RCP (CO.RD. 355 S)	110	BACK		SETP-PD 6:1		34.96	152	1	1
					FORWARD		SETP-PD 6:1				1	
10		326+25	EXISTING 1 - 3' x 2' x 126' SC - NA		LEFT			1				1
					RIGHT			1				
11	CR 18	346+65	PROPOSED 1 - 24'' x 76' RCP (PRIVATE)	40	BACK		SETP-PD 6:1		17.48	76	1	1
					FORWARD		SETP-PD 6:1				1	
12	CR 20	386+46	PROPOSED 1 - 24'' x 84' RCP (PRIVATE)	40	BACK		SETP-PD 6:1		19.32	84	1	1
					FORWARD		SETP-PD 6:1				1	
13		391+75	EXISTING 1 - 3' x 2' x 132' SC - NA		LEFT			1				1
					RIGHT			1				
14	CR 21	436+34	PROPOSED 1 - 24'' x 168' RCP (CO.RD. 600)	120	BACK		SETP-PD 6:1		38.64	168	1	1
					FORWARD		SETP-PD 6:1				1	
15		501+50	EXISTING 1 - 3' x 2' x 130' SC - NA		LEFT			1				1
					RIGHT			1				
16	CR 26	530+49	PROPOSED 1 - 24'' x 104' RCP (CO.RD. 861)	60	BACK		SETP-PD 6:1		23.92	104	1	1
					FORWARD		SETP-PD 6:1				1	
17		576+50	EXISTING 1 - 3' x 3' x 85' SC - NA (LEFT)		LEFT			1				1
					RIGHT							
18		576+50	EXISTING 1 - 3' x 2' x 49' SC - NA (RIGHT)		LEFT							
					RIGHT			1				
19	CR 28	611+25	PROPOSED 1 - 24'' x 104' RCP (TxDOT REST AREA)	60	BACK		SETP-PD 6:1		23.92	104	1	1
					FORWARD		SETP-PD 6:1				1	
20	CR 29	638+70	PROPOSED 1 - 24'' x 104' RCP (TxDOT REST AREA)	60	BACK		SETP-PD 6:1		23.92	104	1	1
					FORWARD		SETP-PD 6:1				1	
				TOTALS				14	294.40	1280	24	19

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DRAINAGE ITEMS SUMMARY

SHEET 1 OF 1

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		97

DATE: 6/20/2023 2:34:49 PM
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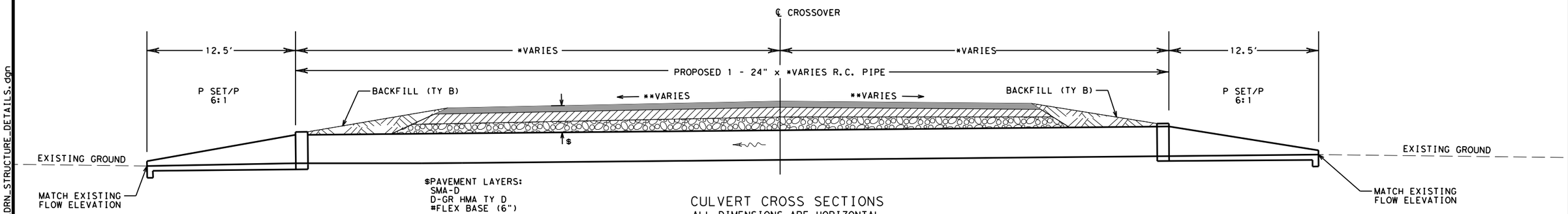


$PAVEMENT LAYERS:
SMA-D
D-GR HMA TY D
#FLEX BASE (6")

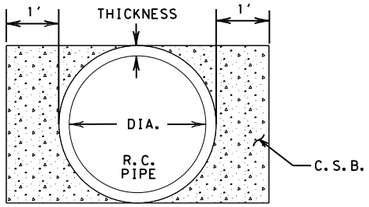
CULVERT CROSS SECTIONS

ALL DIMENSIONS ARE HORIZONTAL.

#FLEX BASE DEPTH MAY VARY.
SIX INCH USED FOR ESTIMATING PURPOSES ONLY.
CONTRACTOR SHALL VARIFY DEPTH IN THE FIELD.

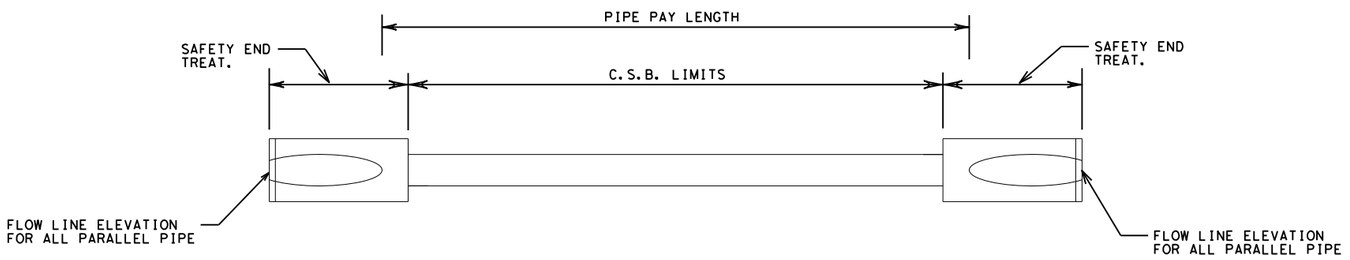
*FOR CULVERT LENGTHS AND LOCATIONS REFER TO SHEET "SHEET DRAINAGE ITEMS SUMMARY"
**CROSS SLOPE WILL BE BASED ON EXISTING CONDITIONS OR AS DIRECTED BY THE ENGINEER

NOTE:
1. SURVEY DATA NOT AVAILABLE FOR PROPOSED CULVERTS.
2. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE FLOW DIRECTION AND FLOW ELEVATIONS.
3. FOR LENGTH OF SAFETY END TREATMENTS, SEE ASSOCIATED STANDARDS.

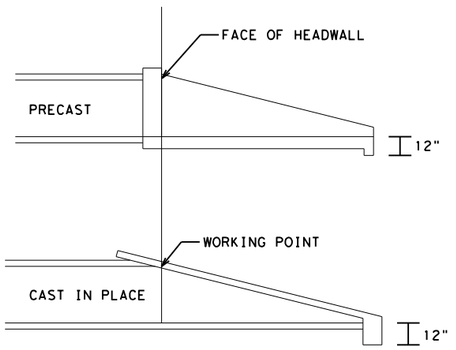


CEMENT STABILIZED BACKFILL DETAIL

SEE STRUCTURE SUMMARY FOR LOCATIONS.
SHEET "DRAINAGE ITEMS SUMMARY"
FOR LOCATIONS.



PIPE LENGTH DETAIL



PRECAST OR CAST IN PLACE SET OPTION DETAIL

THE CONTRACTOR HAS THE OPTION OF USING PRECAST OR CAST-IN-PLACE TYPE II SET'S EXCEPT ON SKEWED ENDS.

IF USING THE OPTION NOT SHOWN IN THE PLANS, THE FACE OF THE PRECAST SET SHALL LINE UP WITH THE WORKING POINT ON THE CAST-IN-PLACE SET.

TOEWALLS ARE REQUIRED ON ALL SET'S

NOT TO SCALE

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6-19-2023

STRUCTURE DETAILS

SHEET 1 OF 1

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		98

DATE: 6/20/2023 2:34:52 PM
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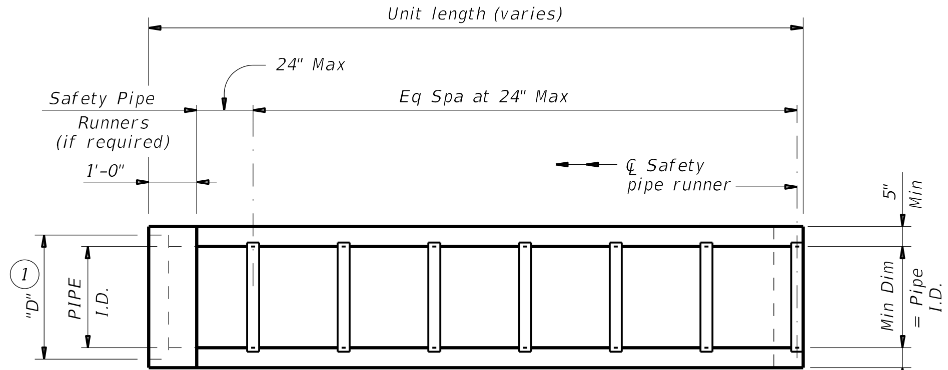
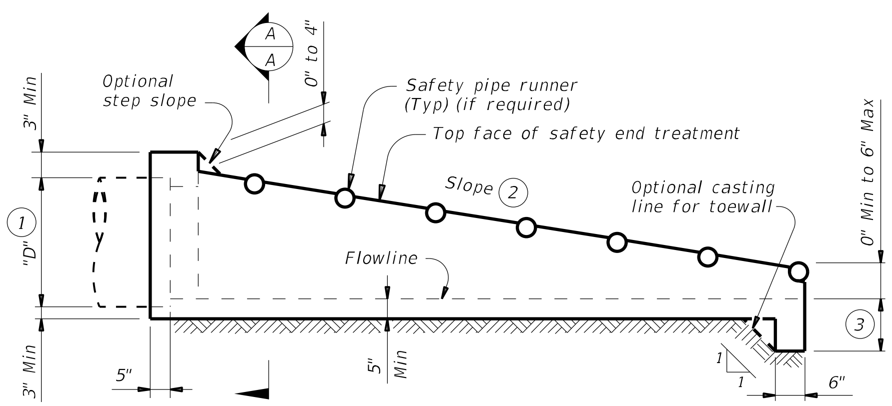


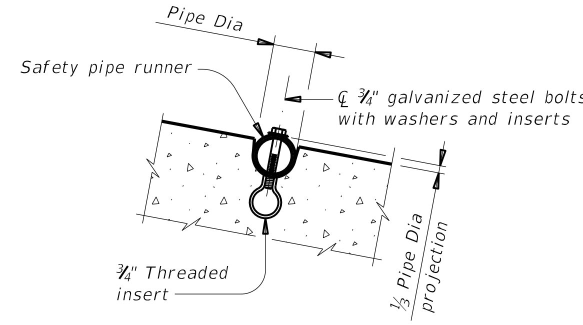
PLAN

(Showing bell end connection.)



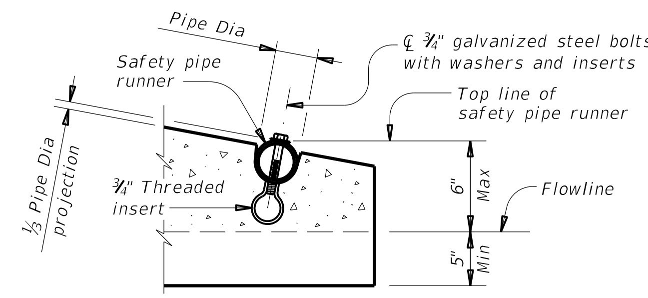
LONGITUDINAL ELEVATION

(Showing bell end connection.)

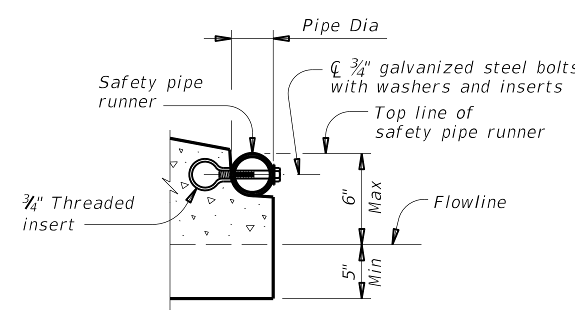


INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)



OPTION A



OPTION B

END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)

Pipe I.D.	RCP Wall "B" Thickness	TP Wall Thickness (7)	"D" (1)	Slope	Min Length	Pipe Runners Required		Required Pipe Runner Size		
						Single Pipe	Multiple Pipe	Nominal Dia.	O.D.	I.D.
12"	2"	1.15"	17.00"	6:1	4' - 9"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
15"	2 ¼"	1.30"	20.50"	6:1	6' - 5"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
18"	2 ½"	1.60"	24.00"	6:1	8' - 0"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
24"	3"	1.95"	31.00"	6:1	11' - 3"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
30"	3 ½"	2.65"	38.50"	6:1	14' - 8"	No	Yes	4" STD	4.500"	4.026"
36"	4"	2.75"	45.50"	6:1	17' - 11"	Yes	Yes	4" STD	4.500"	4.026"
42"	4 ½"	2.7"	52.50"	6:1	21' - 2"	Yes	Yes	4" STD	4.500"	4.026"

Table: REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

(1) Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.

(2) Slope as shown elsewhere in the plans. Slope of 6:1 or flatter is required for vehicle safety.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

(4) Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment".

(5) Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.

(6) Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures". Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.

(7) Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment".

When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on 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.

Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below :

A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" - D12 x D12 or 5"x5" - D10 x D10 welded wire reinforcement (WWR).

B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).

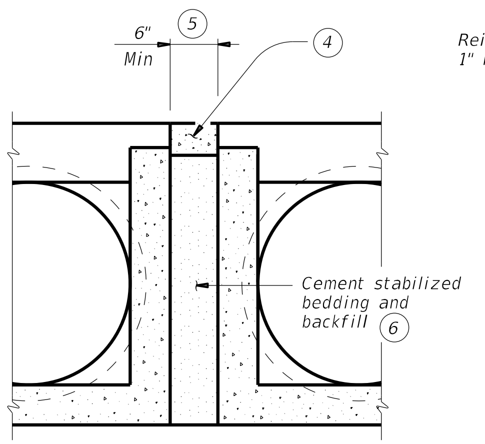
At the option and expense of the Contractor the next larger size of safety end treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.

Pipe runners are designed for a traversing load of 10,000 Lbs at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

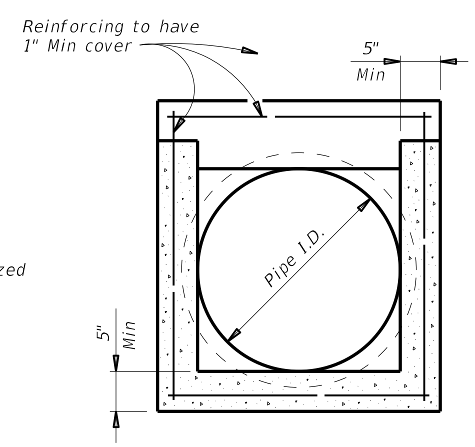
Provide pipe runners meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

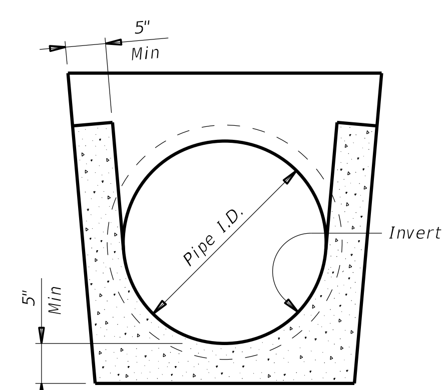
Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464, "Reinforced Concrete Pipe". Connect TP by grouting. See Pipe and Box Grouted Connections (PBGC) standard for grouted connections with TP and precast safety end treatment.



MULTIPLE PIPE INSTALLATION

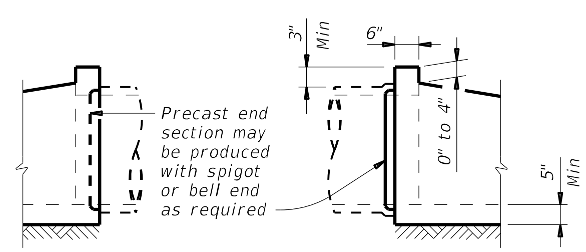


OPTION WITH SQUARE BOTTOM



OPTION WITH INVERT BOTTOM

SECTION A-A



OPTIONAL JOINT FOR RCP

(Showing joint between RCP and precast safety end treatment.)

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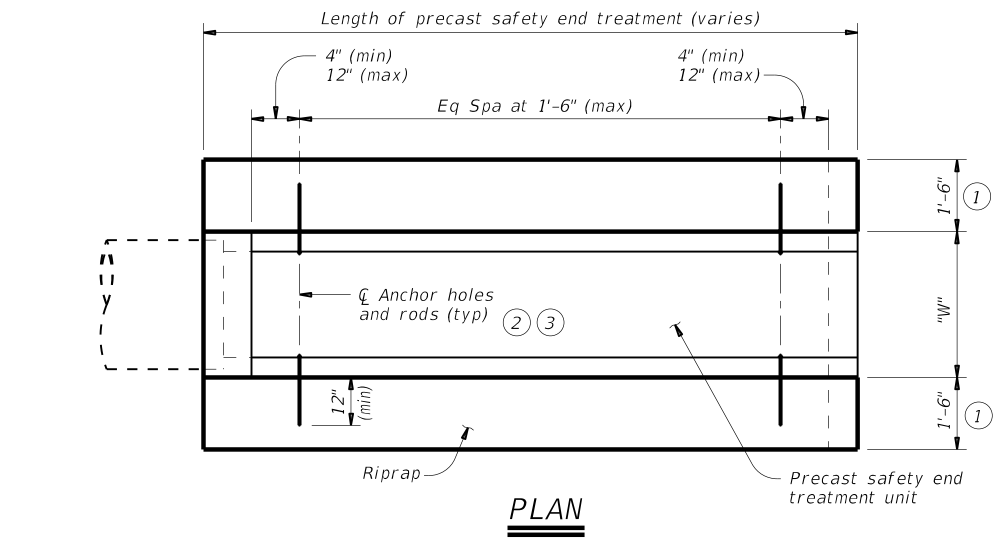
Texas Department of Transportation | Bridge Division Standard

PRECAST SAFETY END TREATMENT

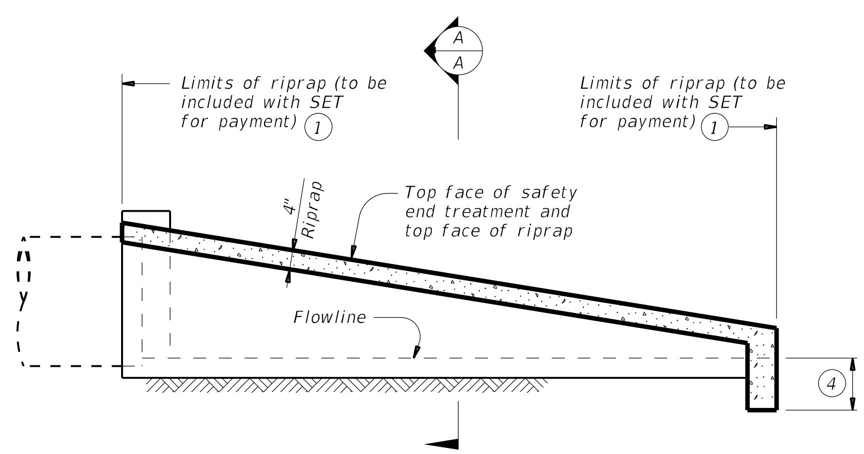
TYPE II ~ PARALLEL DRAINAGE

PSET-SP

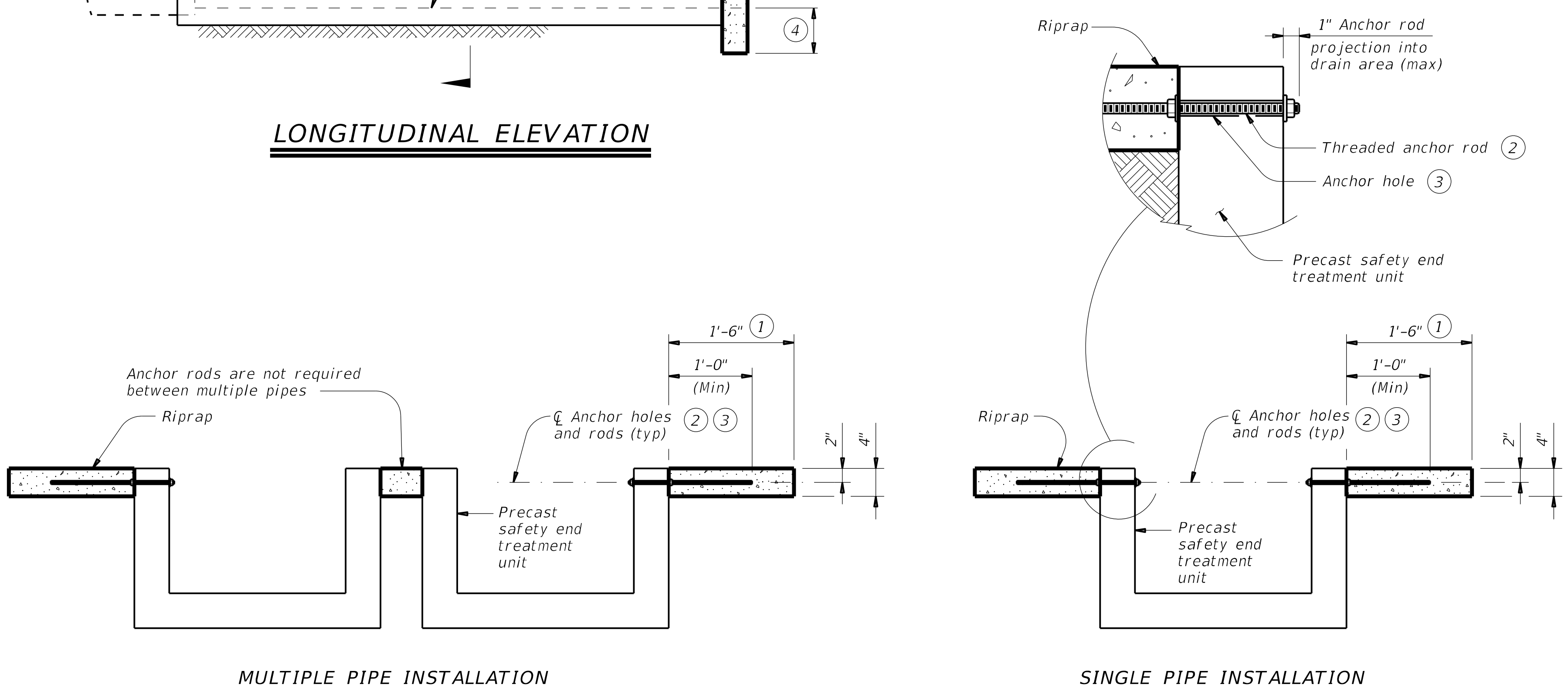
FILE: psetspss-21.dgn	DN: RLW	CK: KLR	DW: JTR	CK: GAF
©TxDOT February 2020	CONT 0228	SECT 01	JOB 056	HIGHWAY US 62/385
REVISIONS 12-21: Added 42" TP	DIST LBB		COUNTY TERRY	SHEET NO. 99



PLAN



LONGITUDINAL ELEVATION



SECTION A-A

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) (5)

Nominal Culvert (Pipe) I.D.	PSET-SC and PSET-SP Standards				PSET-RC and PSET-RP Standards			
	Unit Width "W"	Side Slope 3:1	Side Slope 4:1	Side Slope 6:1	Unit Width "W"	Side Slope 3:1	Side Slope 4:1	Side Slope 6:1
12"	23.0"	0.1	0.2	0.2	16.0"	0.1	0.1	0.2
15"	26.5"	0.2	0.2	0.3	19.5"	0.1	0.2	0.2
18"	30.0"	0.2	0.2	0.3	23.0"	0.2	0.2	0.3
24"	37.0"	0.3	0.3	0.5	30.0"	0.2	0.3	0.4
30"	44.5"	0.3	0.4	0.6	37.0"	0.3	0.3	0.5
36"	51.5"	0.4	0.5	0.7	44.0"	0.3	0.4	0.6
42"	58.5"	0.5	0.6	0.8	51.0"	0.4	0.5	0.7

(1) Riprap placed beyond the limits shown will be paid as concrete riprap in accordance with Item 432, "Riprap". When riprap is cast integrally with the precast safety end treatment, this dimension is 1'-0" minimum.

(2) 1#2" Dia ASTM A307 Gr A threaded anchor rod with 2 nuts and 2 washers. Galvanize all components in accordance with Item 445, "Galvanizing". Repair galvanizing that is damaged during transport or construction in accordance with the specifications.

(3) 3#4" through holes in walls of safety end treatment for riprap anchor rods may be drilled with rotary (coring or masonry) type drilling equipment or may be formed. Do not use percussive (star) type drilling equipment. If holes are drilled, patch spalls in the inside face of the wall exceeding 1#2" from the holes.

(4) Provide riprap toe wall when dimension is shown elsewhere in the plans or when field conditions require a toe wall.

(5) Quantities shown are for one end of one reinforced concrete pipe culvert. For multiple pipe culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only. Quantities are based on the minimum unit lengths shown on the Precast Saftey End Treatment (SET) standard sheets.

MATERIAL NOTES:

Provide Class "B" riprap in accordance with Item 432, "Riprap".

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. The anchor rods shown are always required.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe may be used for TYPE II end treatment as specified in Item 467, "Safety End Treatment".

Refer to PSET-SC or PSET-SP standard sheets for details of square safety end treatments not shown. Refer to PSET-RC or PSET-RP standard sheets for details of round safety end treatments not shown.

For precast units with integrally cast riprap, substitute reinforcing steel in the amount on 0.26 in./ft. minimum for the threaded anchor rods shown. When requested, submit sealed engineering drawings for approval prior to construction. Shop drawings will not be required. Note that a proprietary precast unit with integral riprap is available from L&R Precast Concrete Works, Inc. (956) 583-6293 or www.lrprecast.com.

Payment for riprap and toewalls is included in the price bid for each safety end treatment.

These riprap details are only applicable when notes that require placement of riprap with precast safety end treatments are shown elsewhere in the plans.

Precast units with integrally cast riprap are permitted unless noted otherwise on the plans.

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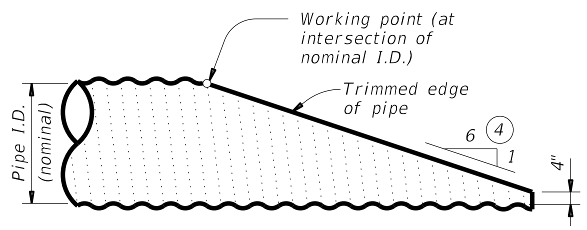
Texas Department of Transportation — Bridge Division Standard

PRECAST SAFETY END TREATMENT
TYPE II RIPRAP DETAILS

PSET-RR

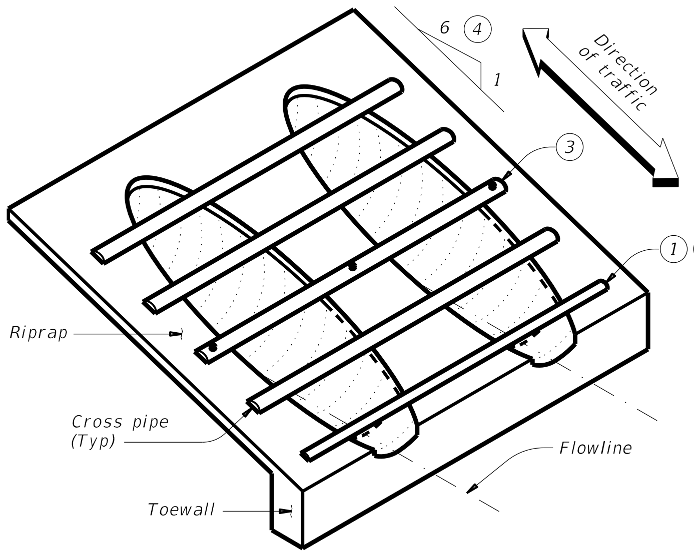
FILE: psetrrse-20.dgn	DN: GAF	CK: TxDOT	DW: JRP	CK: GAF
©TxDOT February 2020	CONT 0228	SECT 01	JOB 056	HIGHWAY US 62/385
REVISIONS	DIST LBB	COUNTY TERRY		SHEET NO. 100



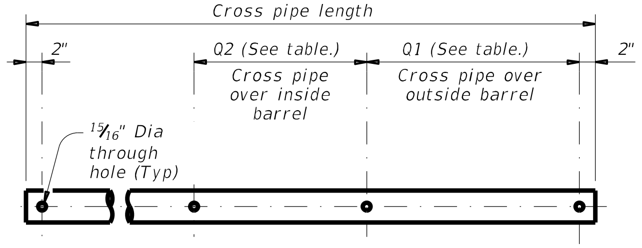
NOTE: All cross pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

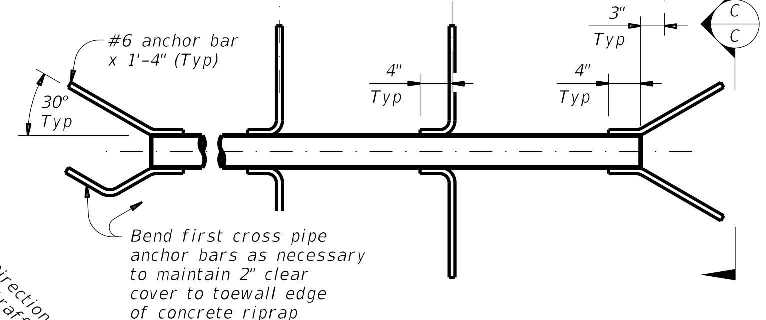
(Showing corrugated metal pipe (CMP) culvert Details at reinforced concrete pipe (RCP) culvert are similar.)



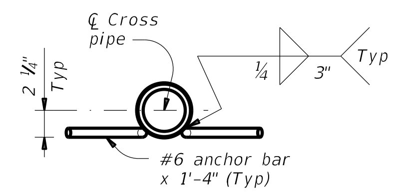
ISOMETRIC VIEW OF TYPICAL INSTALLATION



PIPE WITH BOLTED ANCHOR

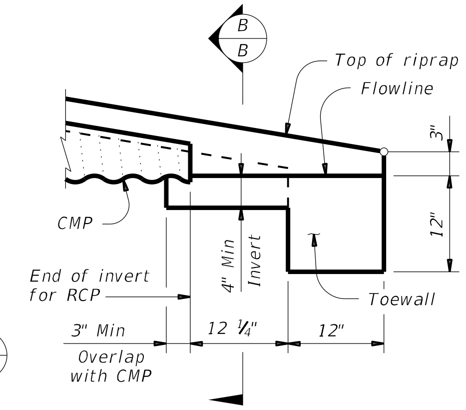


PIPE WITH ANCHOR BARS



SECTION C-C

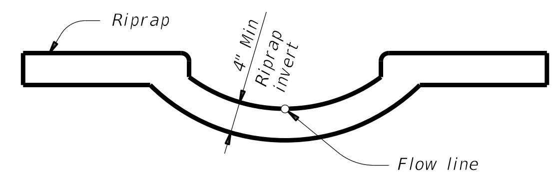
CROSS PIPE DETAILS



DETAIL "A"

(Showing invert with corrugated metal pipe (CMP) culvert. Reinforced concrete pipe (RCP) culvert details are similar. Cross pipes not shown for clarity.)

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, AND RIPRAP QUANTITIES (2)							
Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for Use of Cross Pipes	Cross Pipe Sizes
12"	0.6	0' - 9"	N/A	2' - 1"	1' - 9"	3 or more pipe culverts	3" Std (3.500" O.D.)
15"	0.7	0' - 11"	N/A	2' - 5"	2' - 2"		
18"	0.8	1' - 2"	N/A	2' - 10"	2' - 8"		
21"	0.9	1' - 4"	N/A	3' - 2"	3' - 1"		
24"	0.9	1' - 7"	N/A	3' - 6"	3' - 7"		
27"	1.0	1' - 8"	N/A	3' - 10"	3' - 11"	3 or more pipe culverts	3 ½" Std (4.000" O.D.)
30"	1.1	1' - 10"	N/A	4' - 2"	4' - 4"	2 or more pipe culverts	
33"	1.2	1' - 11"	4' - 2"	4' - 5"	4' - 8"	All pipe culverts	
36"	1.3	2' - 1"	4' - 5"	4' - 9"	5' - 1"	All pipe culverts	4" Std (4.500" O.D.)
42"	1.5	2' - 4"	4' - 11"	5' - 5"	5' - 10"		
48"	1.7	2' - 7"	5' - 5"	6' - 0"	6' - 7"	All pipe culverts	5" Std (5.563" O.D.)
54"	2.0	3' - 0"	5' - 11"	6' - 9"	7' - 6"		
60"	2.2	3' - 3"	6' - 5"	7' - 4"	8' - 3"		
66"	2.4	3' - 3"	6' - 11"	7' - 10"	8' - 9"		
72"	2.7	3' - 4"	7' - 5"	8' - 5"	9' - 4"		



SECTION B-B

(Cross pipes not shown for clarity.)

(1) The proper installation of the first cross pipe is critical for vehicle safety. Place the top of the first cross pipe no more than 6" above the flow line.

(2) Provide cross pipes, except the first bottom pipe, of the size shown in the table. Provide a 3 1#2" standard pipe (4" O.D.) for the first bottom pipe.

(3) Install the third cross pipe from the bottom of the culvert using a bolted connection. Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, install all other cross pipes using the bolted connection details.

(4) Match cross slope as shown elsewhere in the plans. Cross slope of 6:1 or flatter is required for vehicle safety.

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

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

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide cross pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 (Gr B), or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

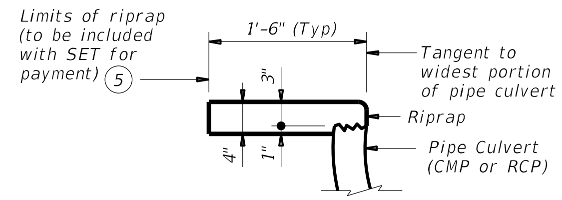
GENERAL NOTES:

Cross pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

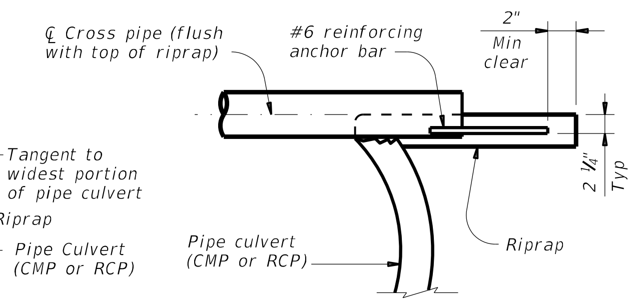
Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.

Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".

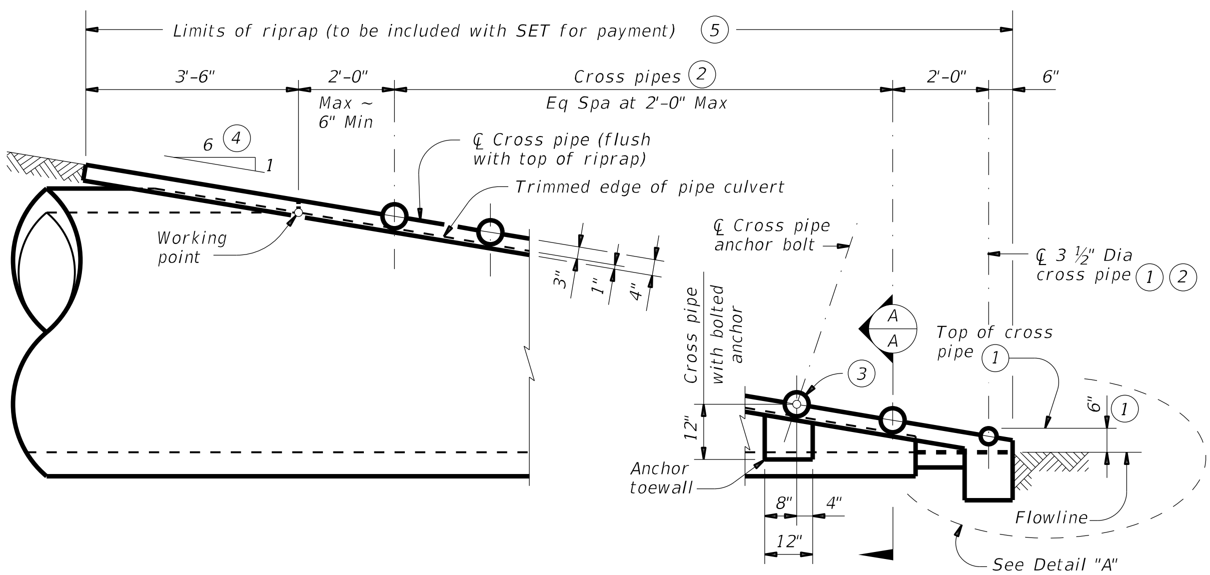
Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.



SHOWING TYPICAL PIPE CULVERT AND RIPRAP

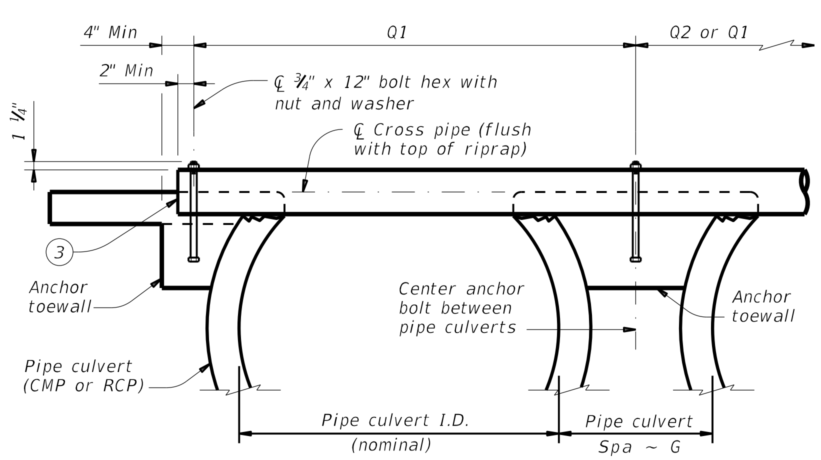


SHOWING CROSS PIPE WITH ANCHOR BAR



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

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



SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

Texas Department of Transportation | Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 72" DIA PIPE CULVERTS TYPE II ~ PARALLEL DRAINAGE

SETP-PD

FILE: setppdse-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2020	CONT 0228	SECT 01	JOB 056	HIGHWAY US 62/385
REVISIONS	DIST LBB	COUNTY TERRY		SHEET NO. 101

DATE: 6/20/2023 2:35:02 PM
FILE: pw:\\txdot.projectwiseonline.com:TxDOT2\Documents\05 - LBB\Design Projects\0228010056\4 Design\Plan Sets\Drainage\Drainage Standards\setppdse-20.dgn

US62 PERMANENT STRIPING SUMMARY																	
DESCRIPTION																	
SHEET NO.	TO	FROM	RUMBLE	SW			DOT	BW	SY		ARROWS				YIELD		
			EDGE LINE	6''	8"	24''	8'' x 3'	6''	6'' DY	6'' SY	LANE REDUCTION ARROW	RIGHT TURN ARROW	SINGLE ARROW	LEFT TURN ARROW	36'' TRIANGLE	II-C-R	
			LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	
1 of 23	95+55	103+00	844	1407	247	30	38	375	48	1330				2	23	50	
1 of 23	103+00	116+00	2229	2600	550	30	125	650	36	1761				4	44	108	
2 of 23	116+00	129+00	2600	2600	834		75	650	36	2304				6	43	128	
2 of 23	129+00	142+00	2806	2306	940	20	38	650	32	2277				4	53	133	
3 of 23	142+00	155+00	1862	2482	940	20	75	650	36	2373				4	25	139	
3 of 23	155+00	167+02	2229	2479	1491	10	38	650	32	2340				6	36	188	
4 of 23	167+02	180+02	2743	2712	838		75	650	96	2130				5	33	129	
4 of 23	180+02	193+02	4799	2600	104		38	650		2600				1		49	
5 of 23	193+02	206+02	3160	2600	500		75	650	24	2420				4	18	95	
5 of 23	206+02	219+02	3800	2600	500		75	650		2600				4	27	95	
6 of 23	219+02	232+02	4542	2600	128		75	650		2600	1			1		58	
6 of 23	232+02	245+02	3536	2486	1300	10		650		2320	1					163	
7 of 23	245+02	258+02	2205	2450	2147	20	38	650	48	2300		2	1	3	43	253	
7 of 23	258+02	271+02	3800	3609	1009		113	650		2600	2					152	
8 of 23	271+02	284+02	3982	2600	708		38	650		2600				2		110	
8 of 23	284+02	297+02	2010	2295	1305	30	75	650	38	2260	2			4	56	176	
9 of 23	297+02	310+02	1400	2530	646	10	38	650	32	2165				2	34	103	
9 of 23	310+02	323+02	2222	2458	2164	20	38	650	32	2130		3	1	4	45	255	
10 of 23	323+02	336+02	4839	2600	61		38	650		2600						45	
10 of 23	336+02	349+02	3985	2600	442	10	38	650	32	2418				3	16	83	
11 of 23	349+02	362+02	3319	2600	486		75	650	32	2420				4	17	94	
11 of 23	362+02	375+02	4827	2600	72		38	650		2600				1		46	
12 of 23	375+02	388+02	4096	2600	361		38	650	32	2420				3	14	75	
12 of 23	388+02	401+02	4710	2600	144		38	650		2600				1		53	
13 of 23	401+02	414+02	5200	2600				650		2600						33	
13 of 23	414+02	427+02	4947	2600			25	650		2600						37	
14 of 23	427+02	440+02	2664	2300	1082	30	12	650	48	2260				4	57	143	
14 of 23	440+02	453+02	3275	2600	868		75	650		2600				3		132	
15 of 23	453+02	466+02	2863	2450	1150	20		650	32	2300				4	42	148	
15 of 23	466+02	479+02	4720	2600	28		56	650		2600				1		45	
16 of 23	479+02	492+02	5200	2600				650		2600						33	
16 of 23	492+02	505+02	4907	2600			38	650		2600						39	
17 of 23	505+02	518+02	3730	2600	500		38	650	32	2380				4	25	89	
17 of 23	518+02	531+02	3295	2467	800	20	38	650	32	2382				3	25	119	
18 of 23	531+02	544+02	3791	2600	805		38	650		2600				3		119	
18 of 23	544+02	557+02	5200	2600				650		2600						33	
19 of 23	557+02	570+02	5200	2600				650		2600						33	
19 of 23	570+02	583+02	4440	2600	459		38	650		2600				2		85	
20 of 23	583+02	596+02	2669	2308	1134	40		650	44	2300				4	48	146	
20 of 23	596+02	609+02	4410	2600	78		75	650		2600				1		53	
21 of 23	609+02	622+02	2270	2380	424		38	650	32	2380				3	25	81	
21 of 23	622+02	635+02	4875	2600				650		2600						33	
22 of 23	635+02	648+20.4	3152	2490	502	10	50	650	32	2380				4	25	91	
22 of 23	648+20.4	661+20.4	4878	2600	400		38	650		2600				2		79	
23 of 23	661+20.4	674+20.4		1851	847	30	114	650	40	2286		2	4	6	20	136	
PROJECT TOTAL			158231	113660	26994	360	1995	28975	878	108636	6	7	6	112	792	4481	
									109514			125					

SUMMARY OF SMALL SIGN QUANTITIES				
BID ITEM	644	644	644	644
DESCRIP.	IN SM RD SN SUP&AM TY10BWG(1)SA (P)	IN SM RD SN SUP&AM TY10BWG(1)SA (T)	IN SM RD SN SUP&AM TY10BWG(1)SA (U)	REMOVE SM RD SN SUP&AM
	EA	EA	EA	EA
US62	75	188	19	283
PROJECT TOTAL	75	188	19	283

MAILBOXES SUMMARY			
	MAILBOX INSTALL-S (TWW-POST)TY 4	MAILBOX INSTALL-D (TWW-POST) TY 4	MAILBOX INSTALL-M (TWW-POST) TY 4
US62	6	1	1
PROJECT TOTAL	6	1	1

OBJECT MARKER SUMMARY		
	INSTL OM ASSM (OM-2Z) (FLEX) GND	REMOVE DELIN & OBJECT MARKER ASSMS
US62	146	75
PROJECT TOTAL	146	75

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SIGNING, STRIPING & DELINEATION SUMMARY

NO SCALE

SHEET 1 OF 1

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		102

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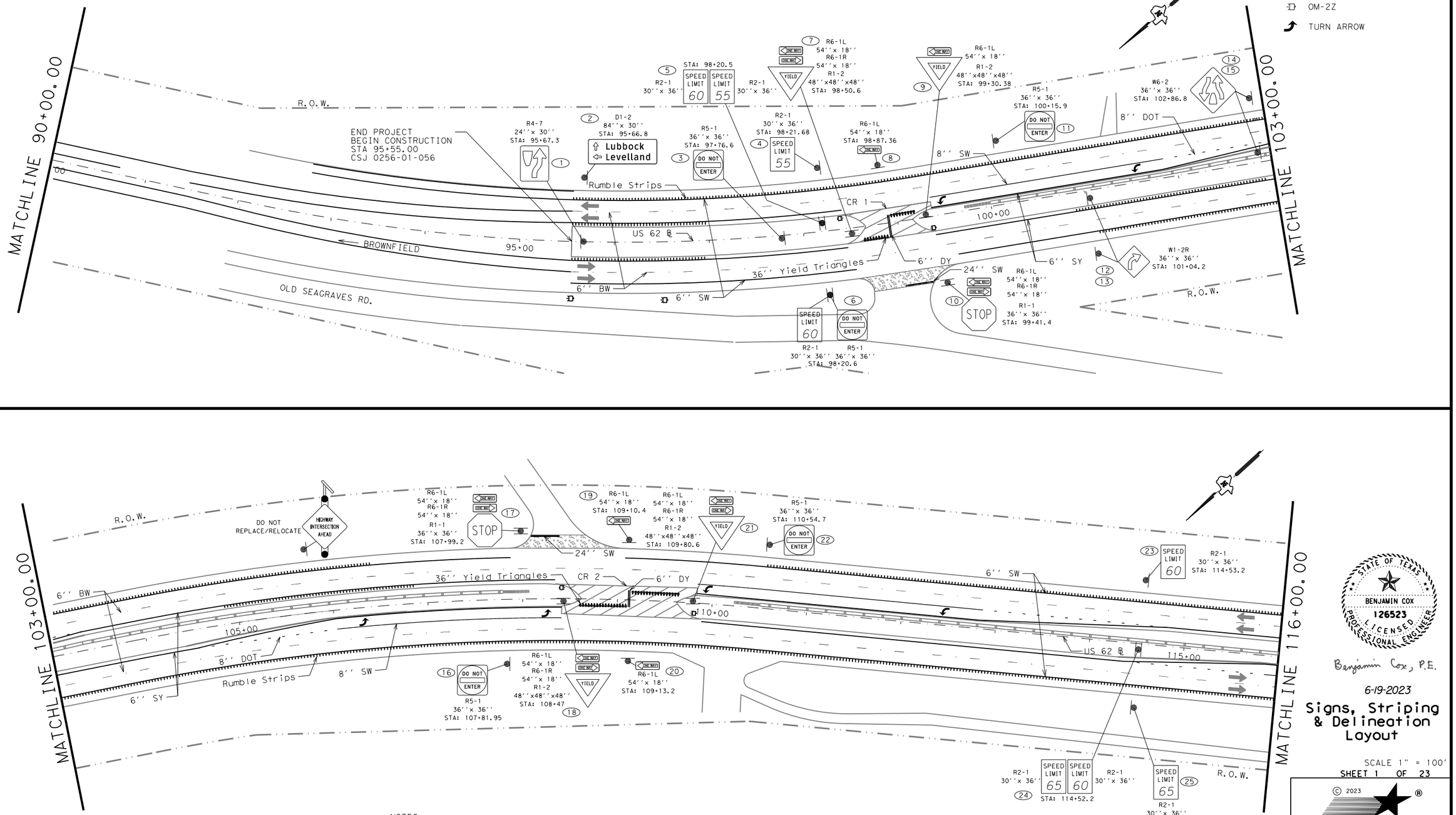

NOTES
1. STATIONS ARE BASED OFF US 62 ℄ AND ARE APPROXIMATE, ACTUAL LOCATIONS TO BE DETERMINED IN THE FIELD.
2. COUNTY ROAD SIGNS ARE TO BE SALVAGED AND REMOUNTED.
3. EXISTING "SLIPPERY WHEN WET SIGNS" TO BE REMOVED AND GIVEN TO BROWNFIELD TXDOT MAINTENENCE SECTION.

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 1 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		103

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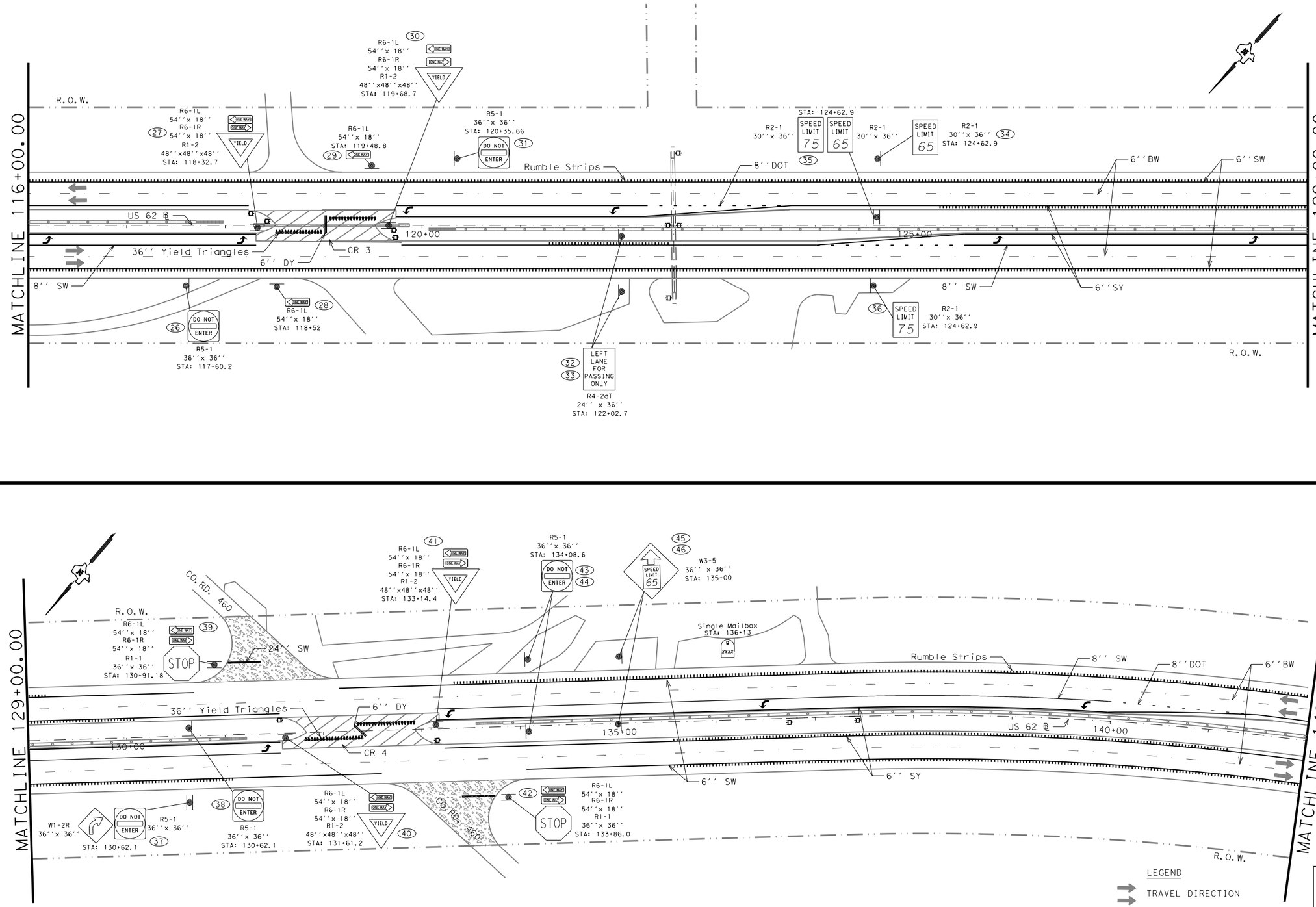

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LEGEND
- TRAVEL DIRECTION
- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW

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6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 2 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		104

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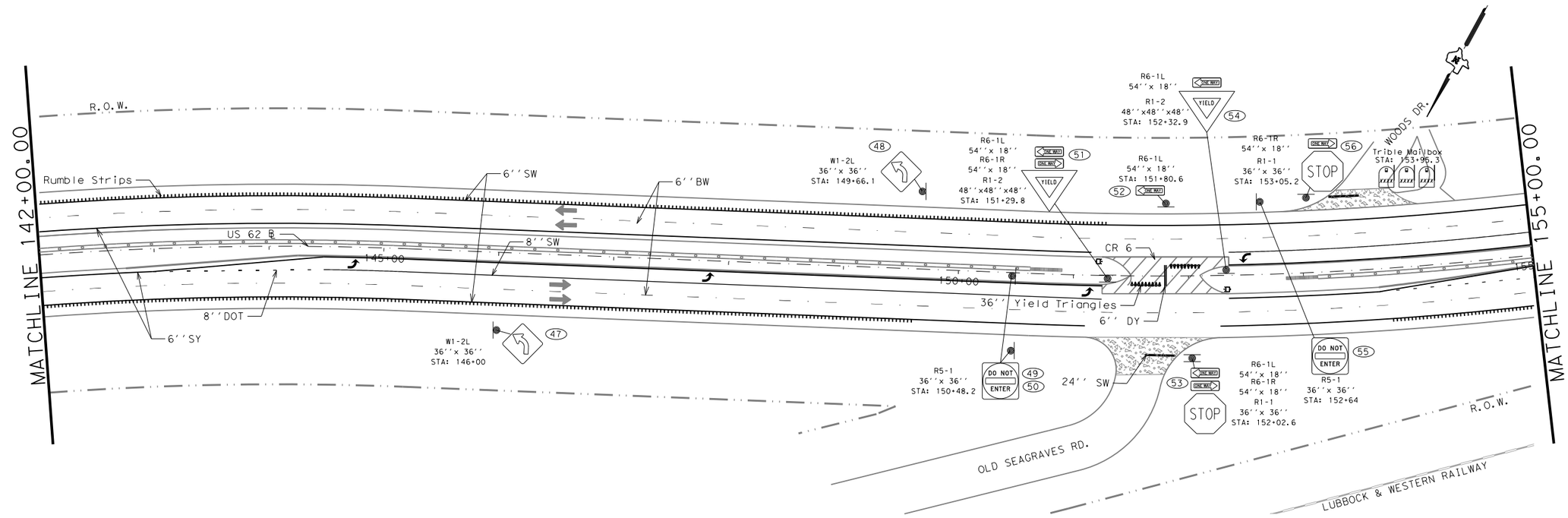

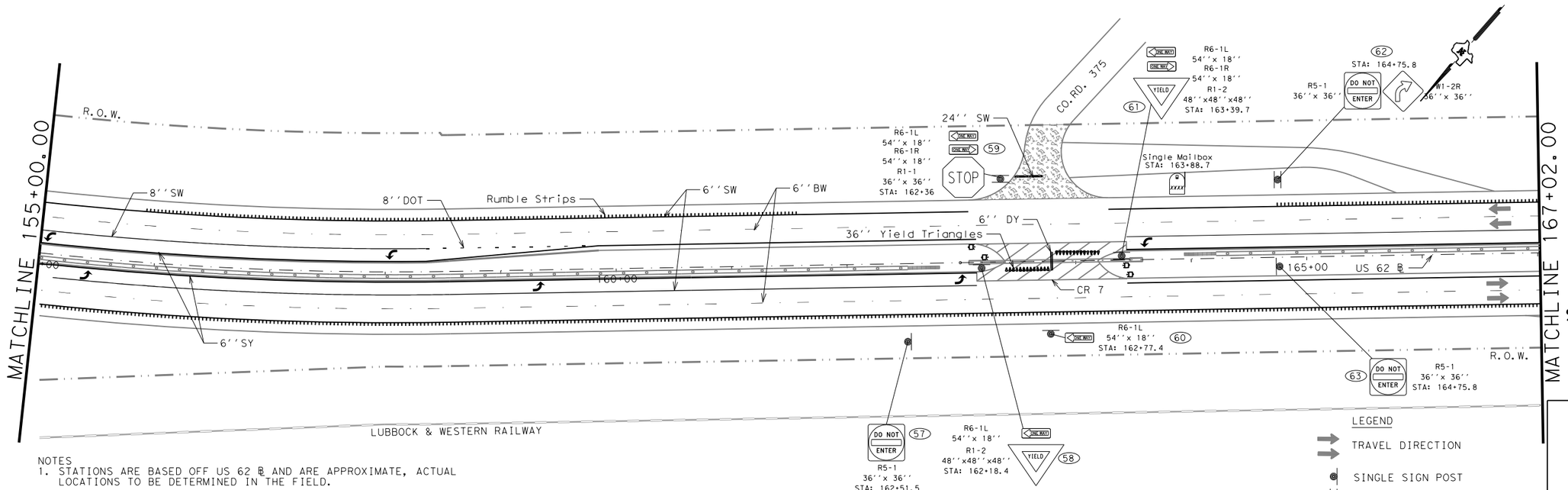

NOTES
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LEGEND
- TRAVEL DIRECTION
- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW

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6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 3 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		105

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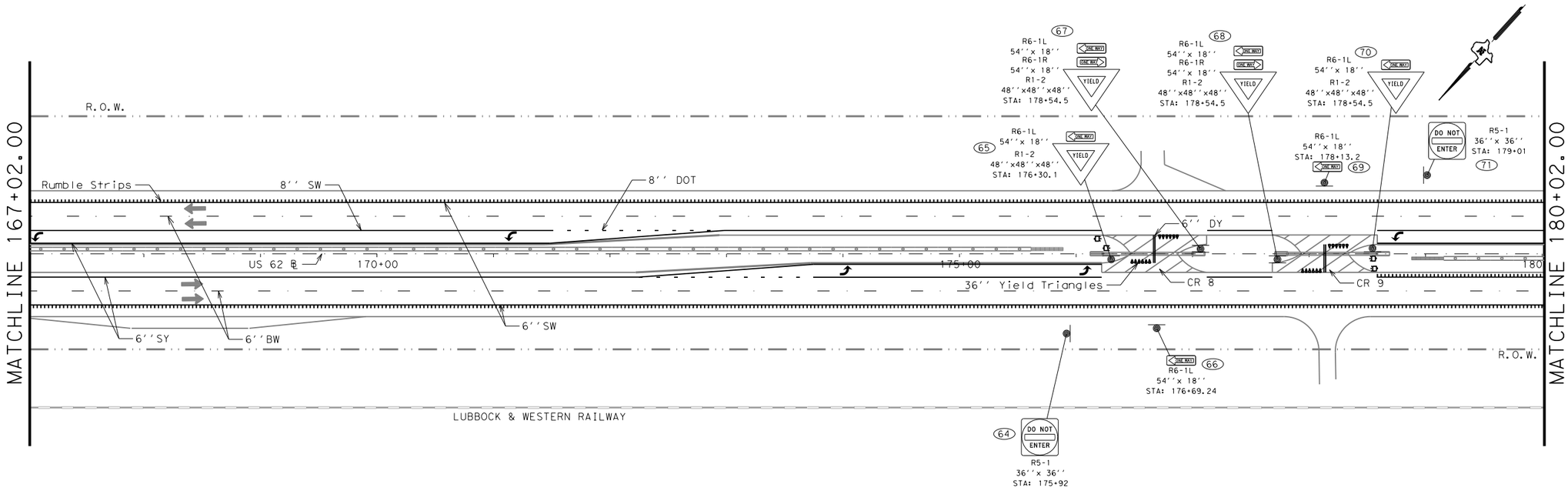

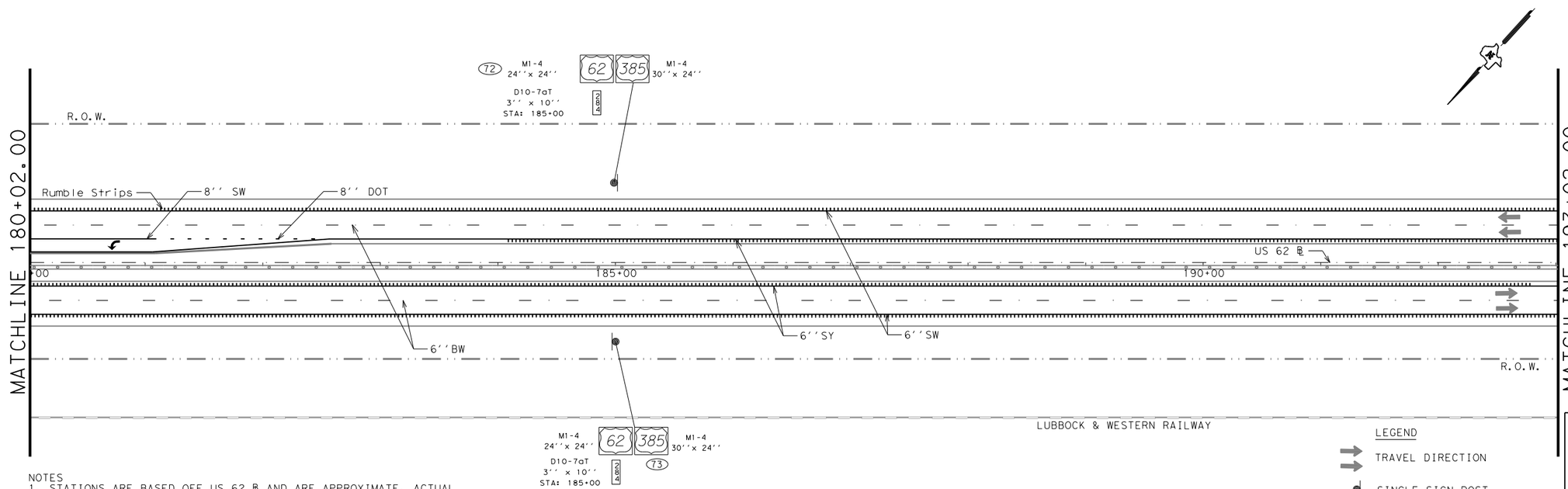

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LEGEND
- TRAVEL DIRECTION
- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW

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6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 4 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		106

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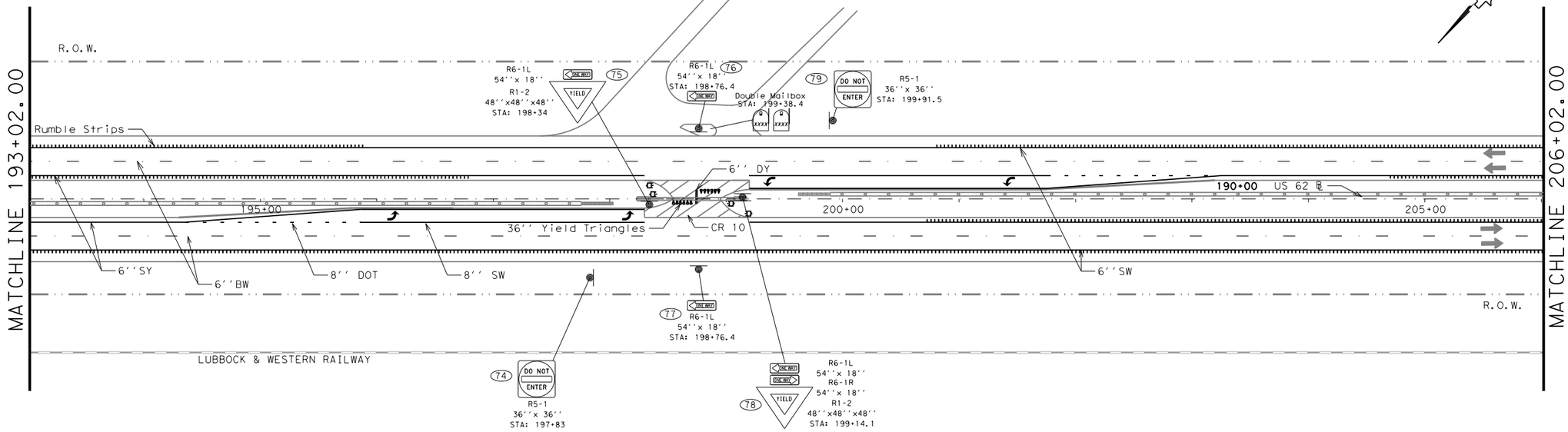

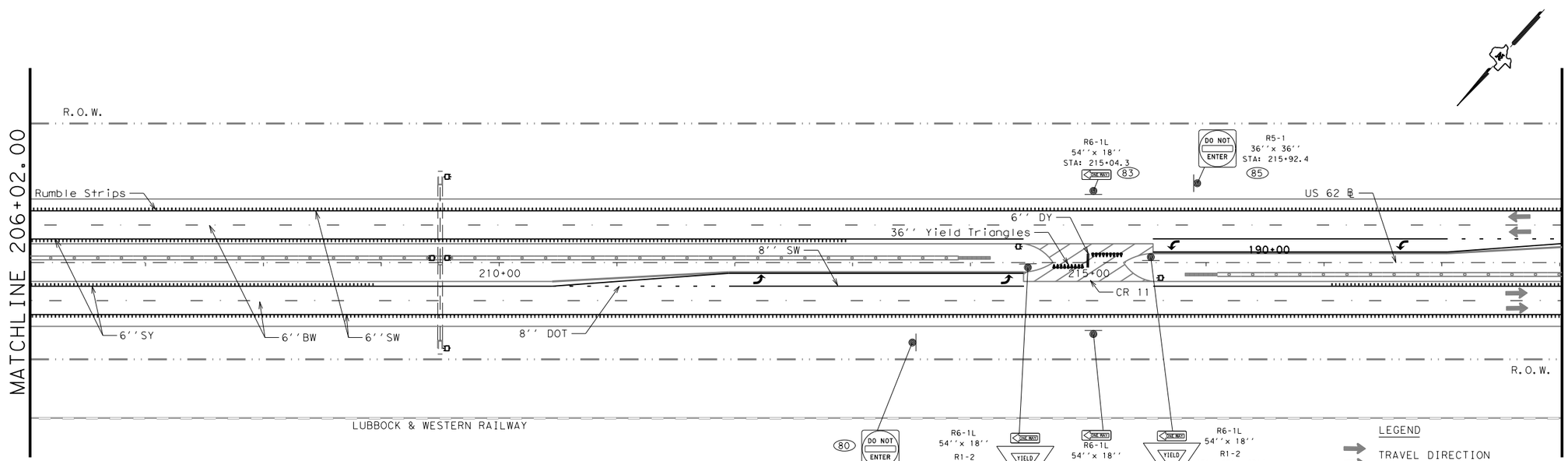

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SCALE 1" = 100'

SHEET 5 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		107

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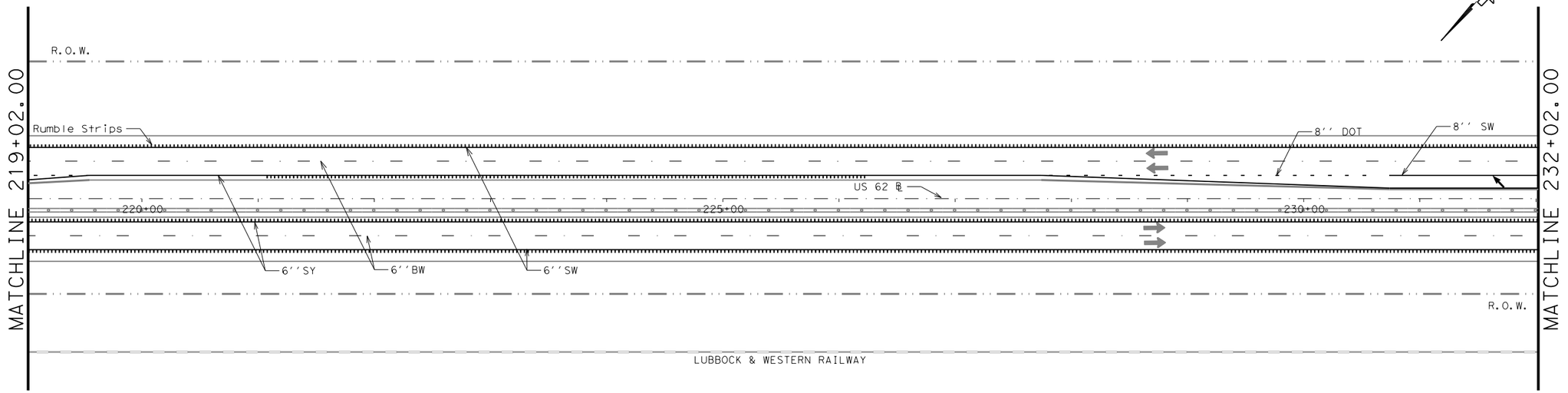

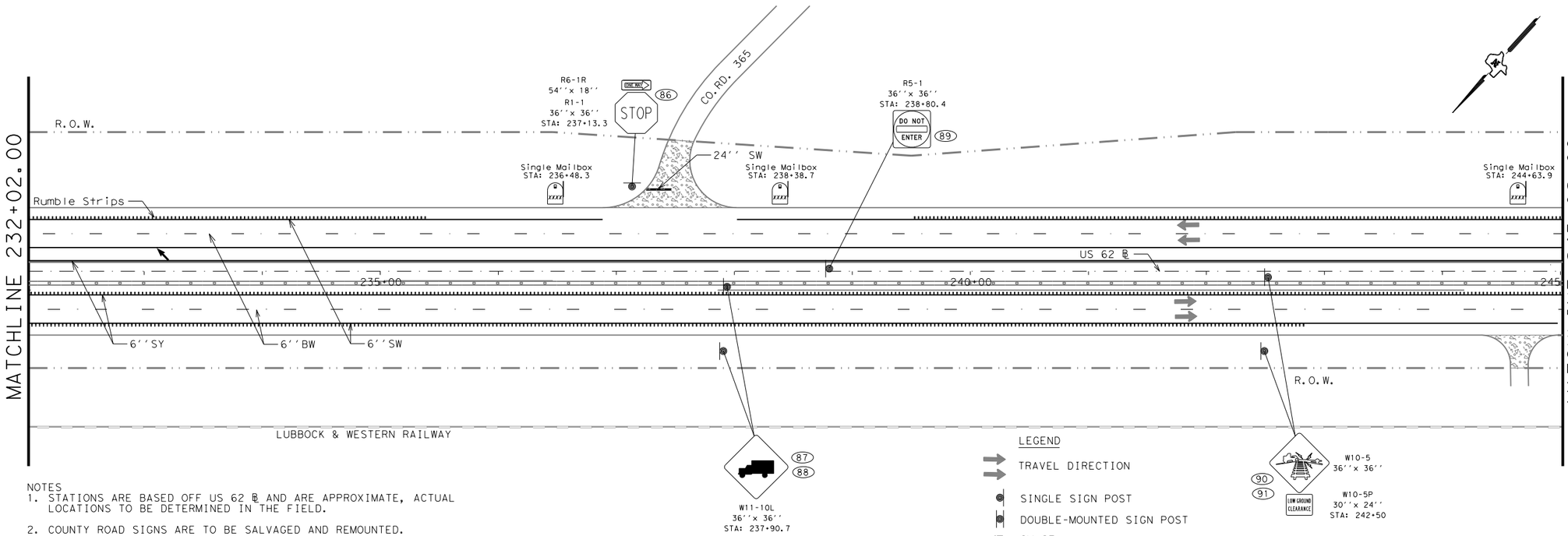

NOTES
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2. COUNTY ROAD SIGNS ARE TO BE SALVAGED AND REMOUNTED.
3. EXISTING "SLIPPERY WHEN WET SIGNS" TO BE REMOVED AND GIVEN TO BROWNFIELD TXDOT MAINTENENCE SECTION.

LEGEND
- TRAVEL DIRECTION
- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 6 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		108

DATE: 6/21/2023 4:34:25 PM
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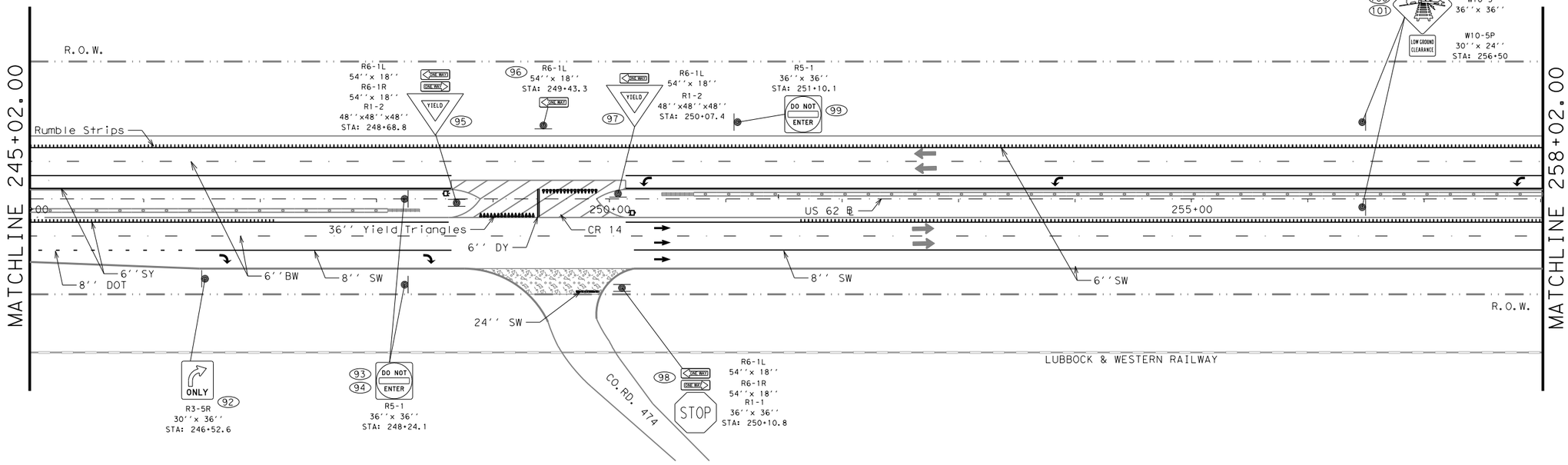

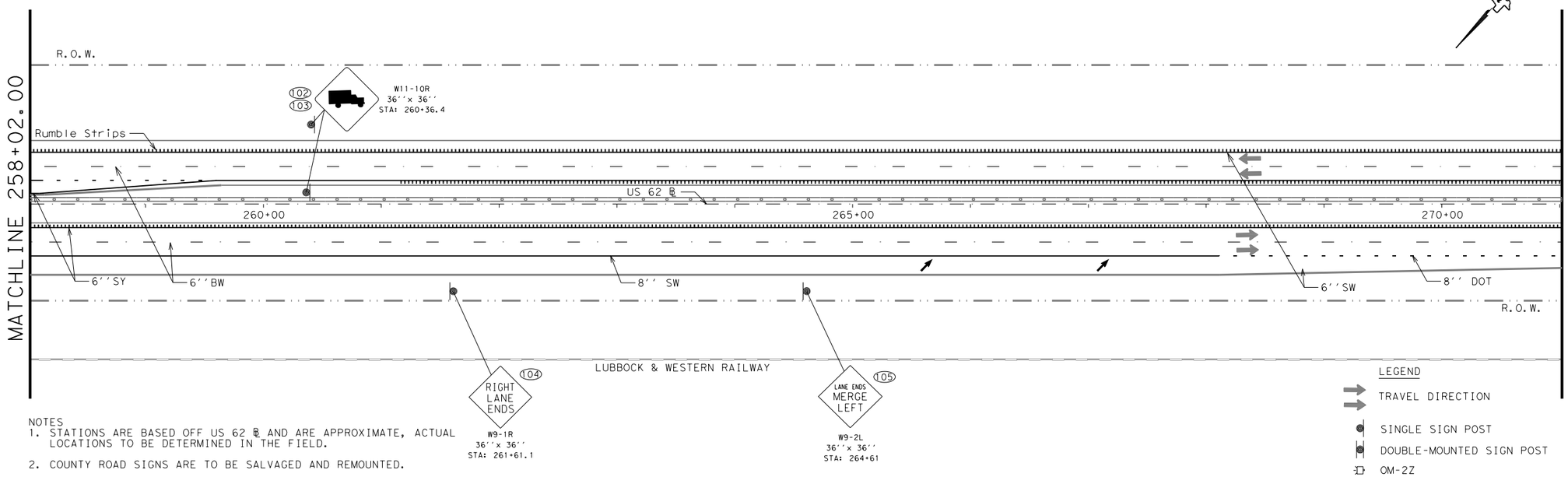

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LEGEND
- TRAVEL DIRECTION
- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 7 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		109

DATE: 6/21/2023 4:34:37 PM
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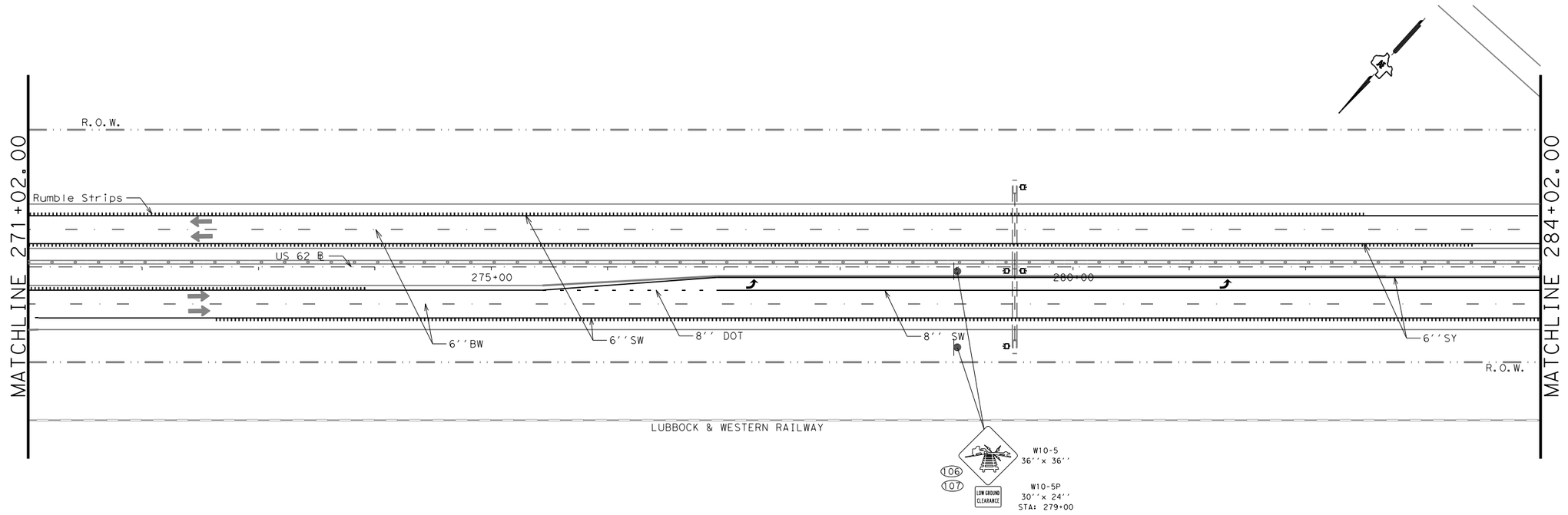

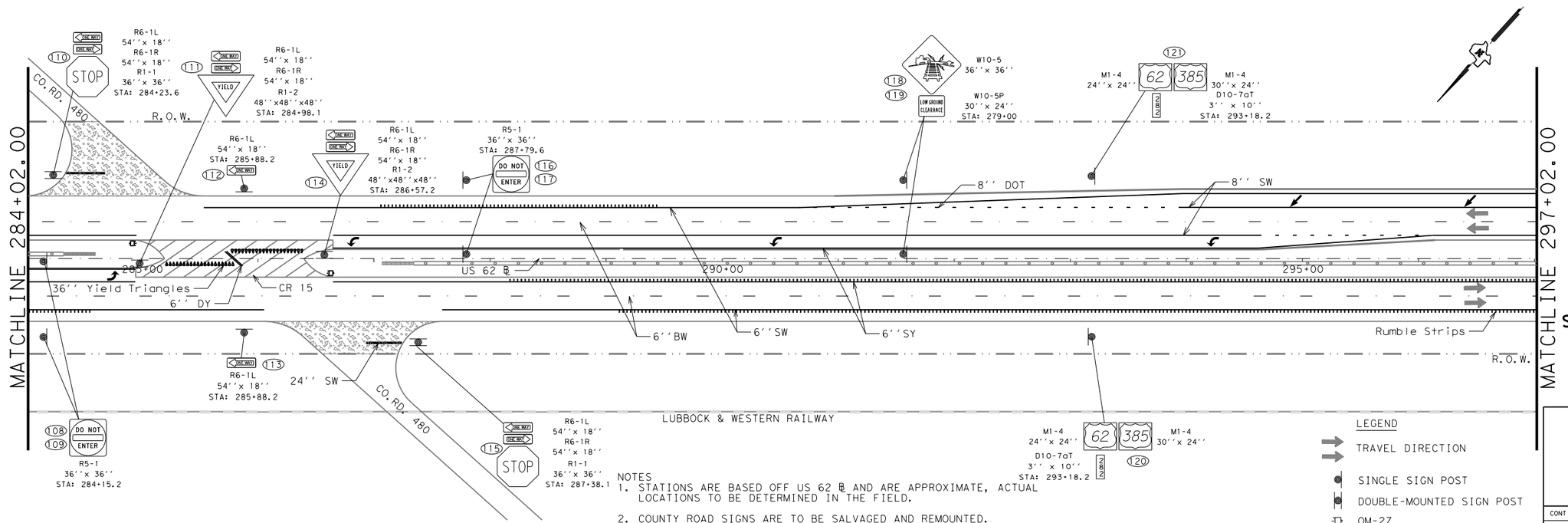

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LEGEND
- TRAVEL DIRECTION
- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

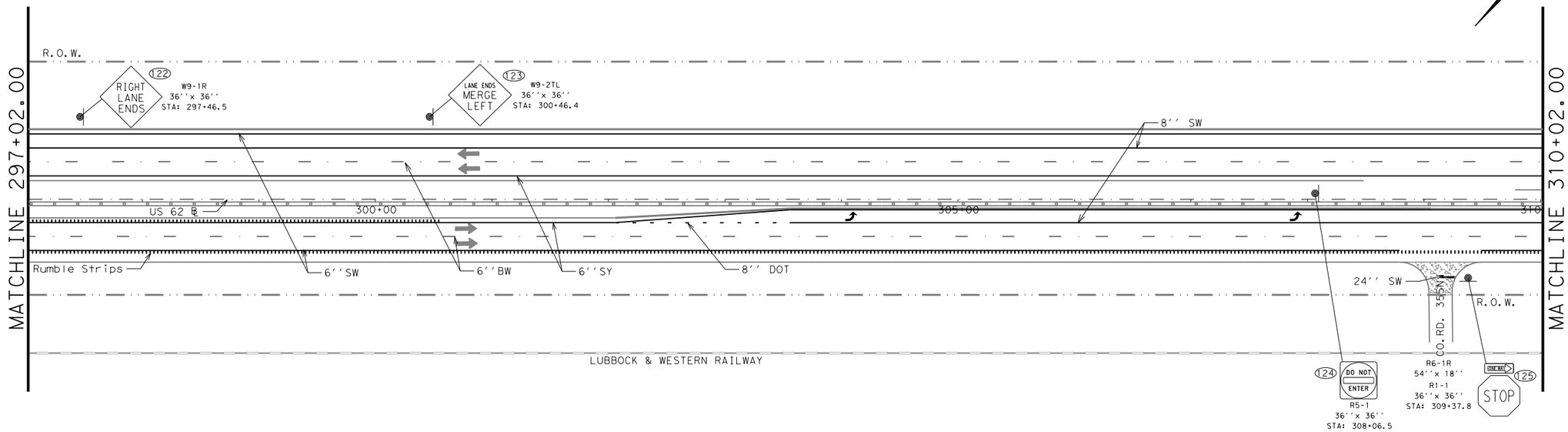
Signs, Striping & Delineation Layout

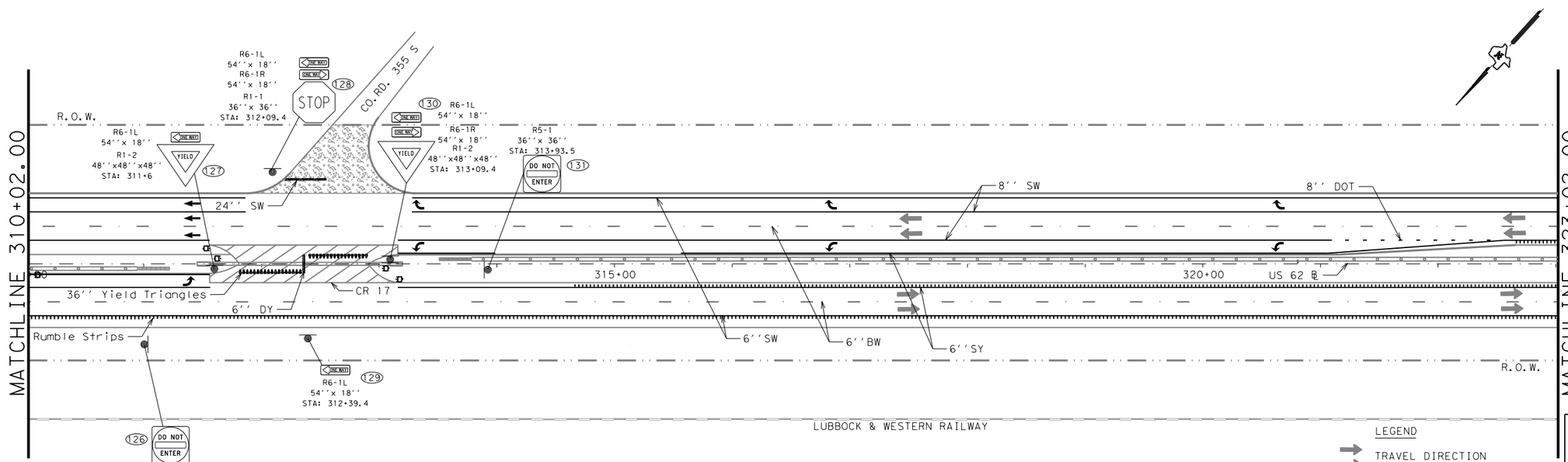
SCALE 1" = 100'

SHEET 8 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		110





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LEGEND
- TRAVEL DIRECTION
- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 9 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		111

DATE: 6/21/2023 4:35:02 PM
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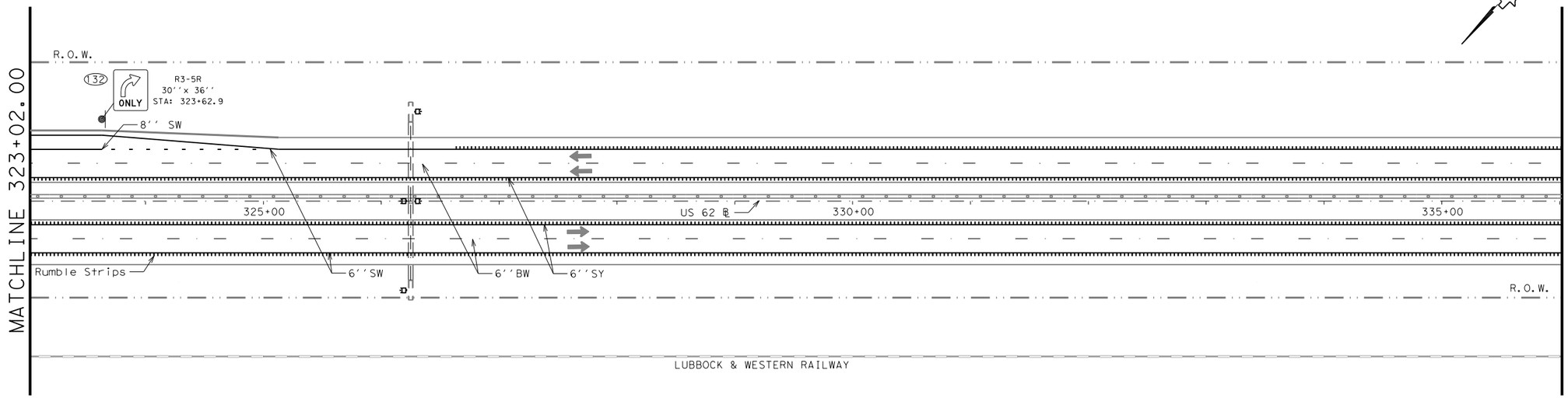

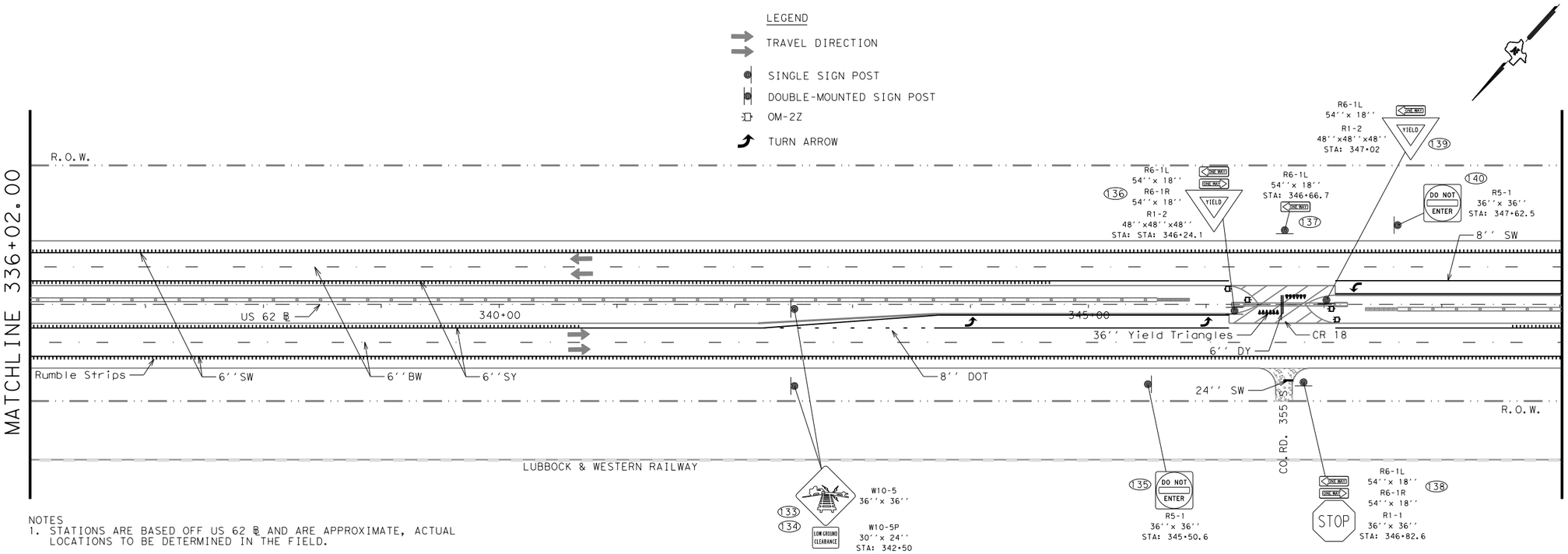

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STATE OF TEXAS
BENJAMIN COX
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LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 10 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		112

DATE: 6/21/2023 4:35:15 PM
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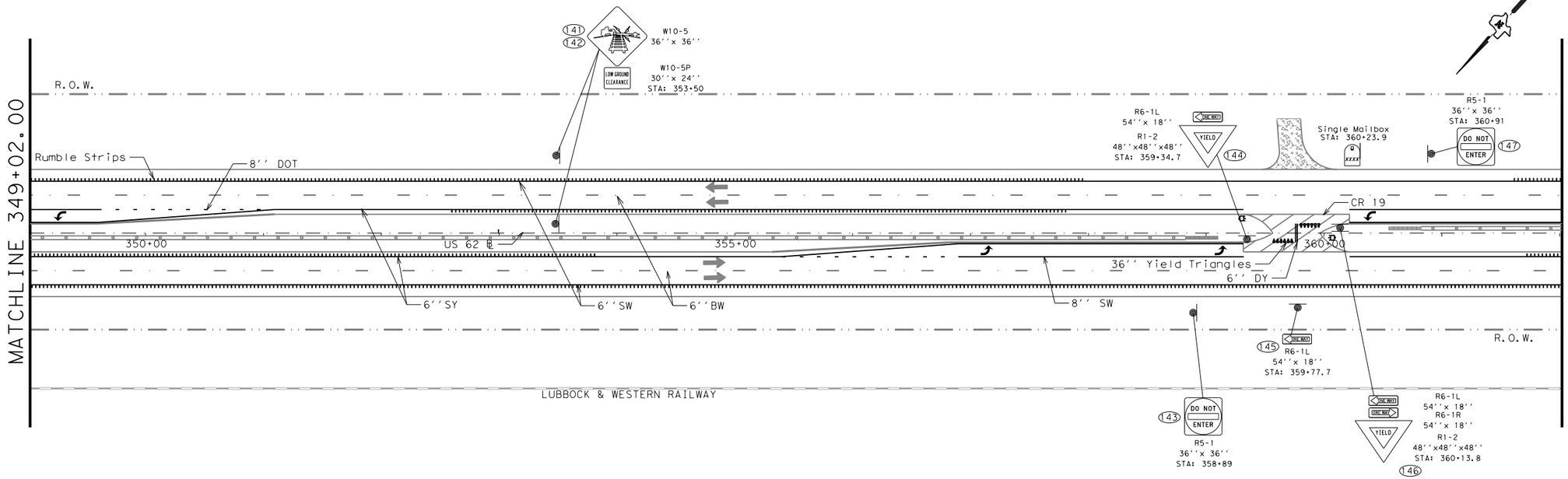

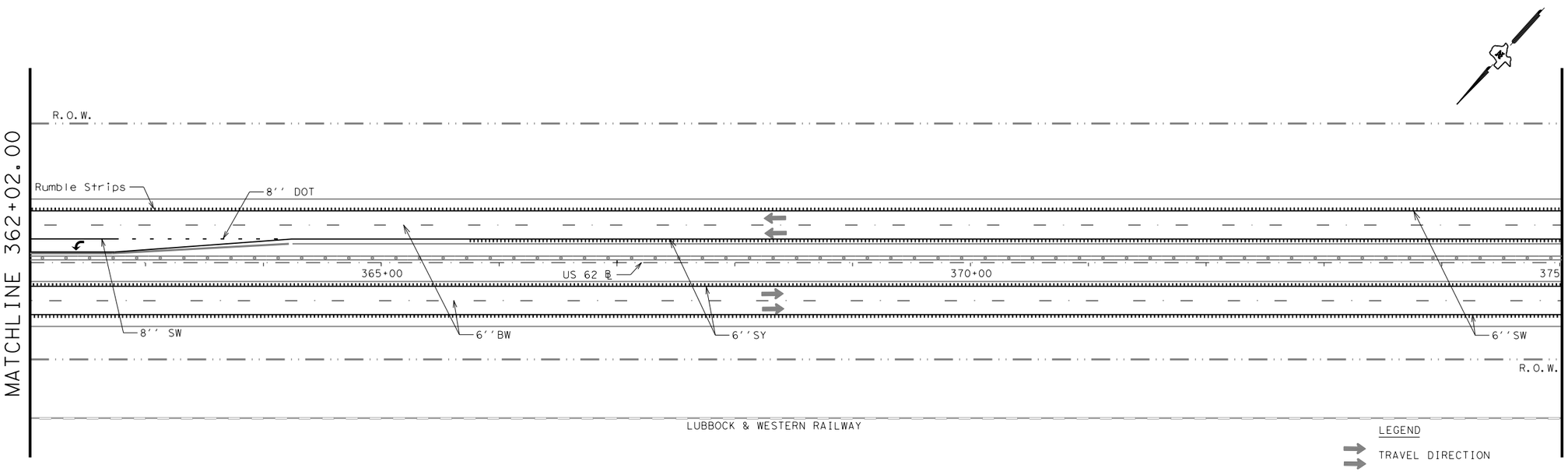

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LEGEND
- TRAVEL DIRECTION
- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 11 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		113

DATE: 6/21/2023 4:35:27 PM
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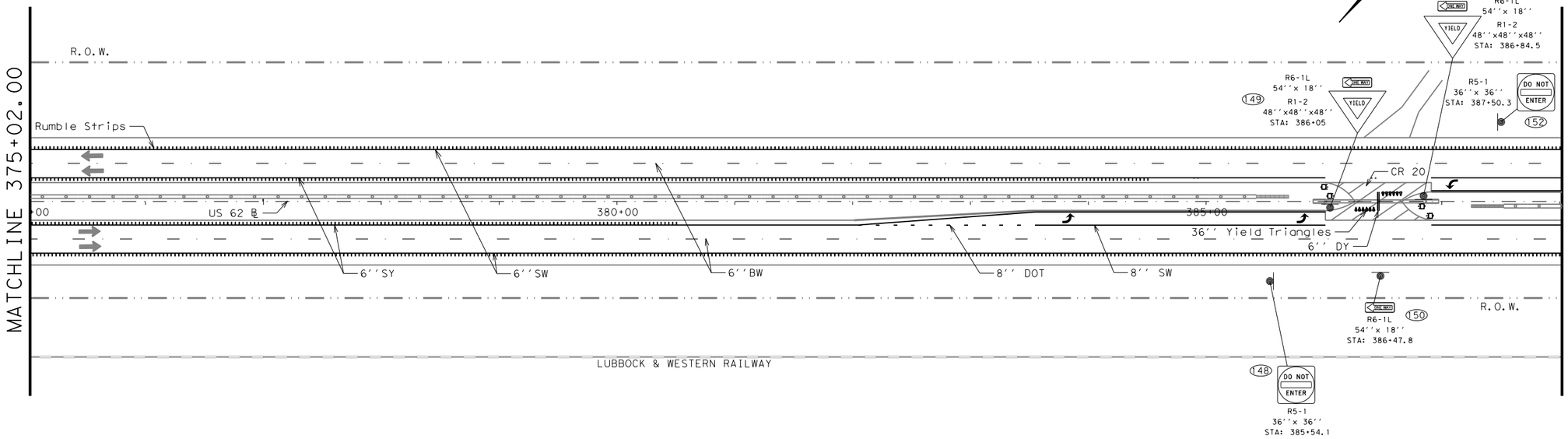

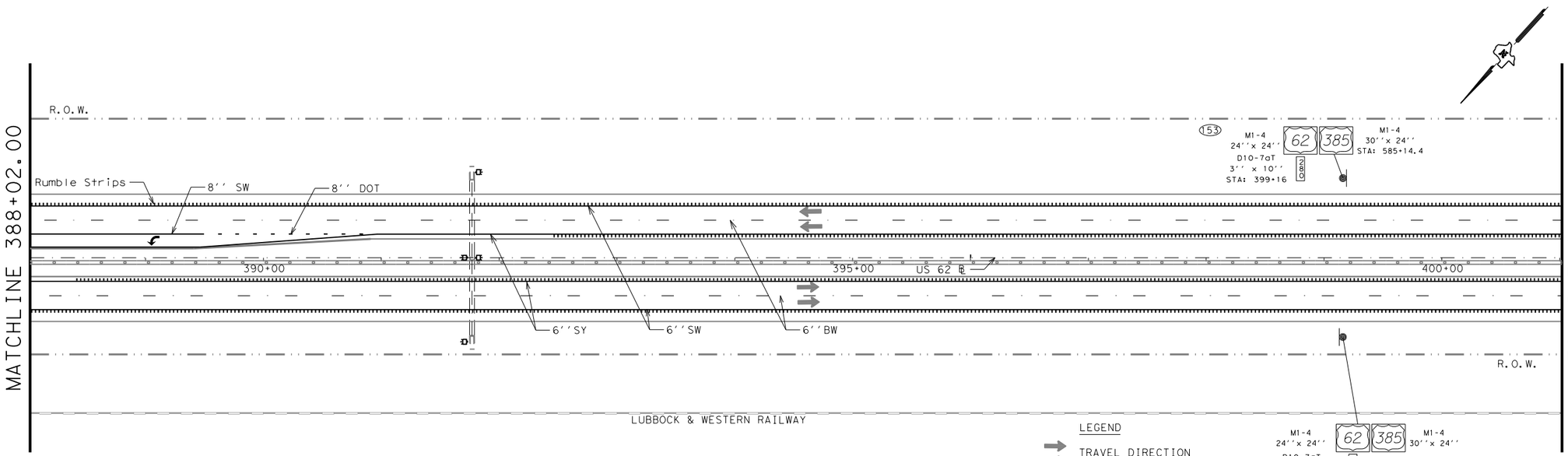

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LEGEND
- TRAVEL DIRECTION
- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 12 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		114

DATE: 6/21/2023 4:35:39 PM
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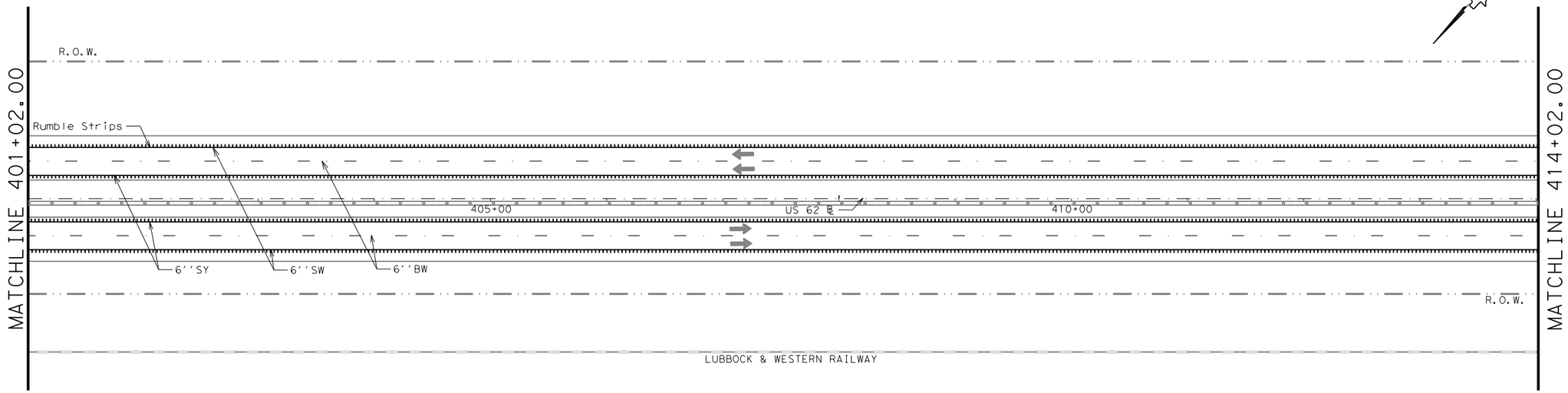

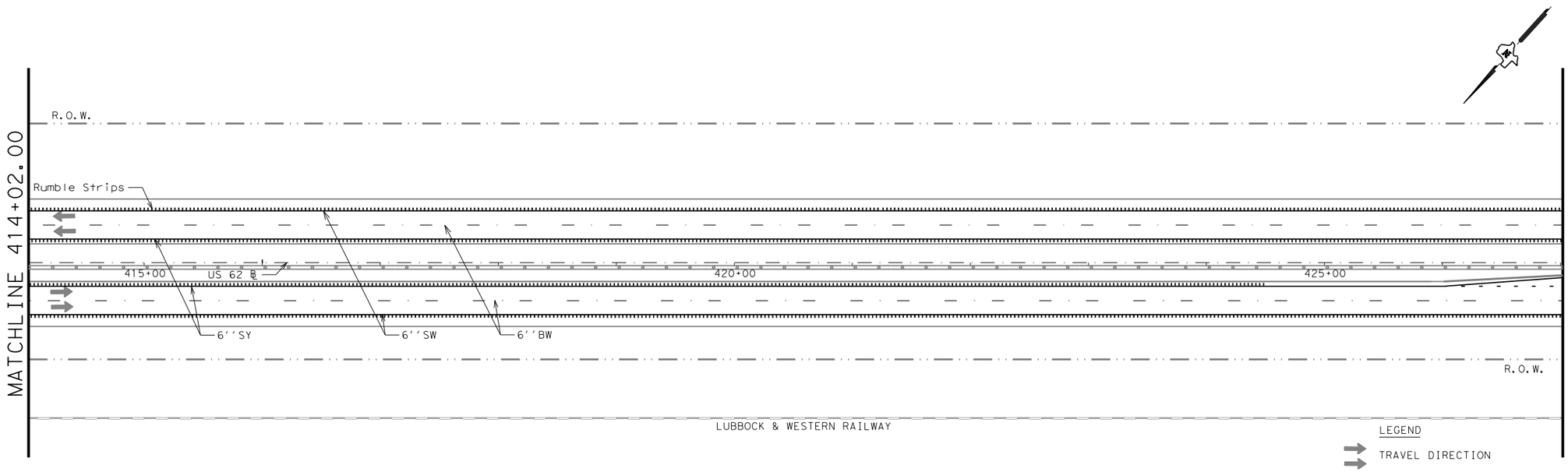

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LEGEND
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- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 13 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		115

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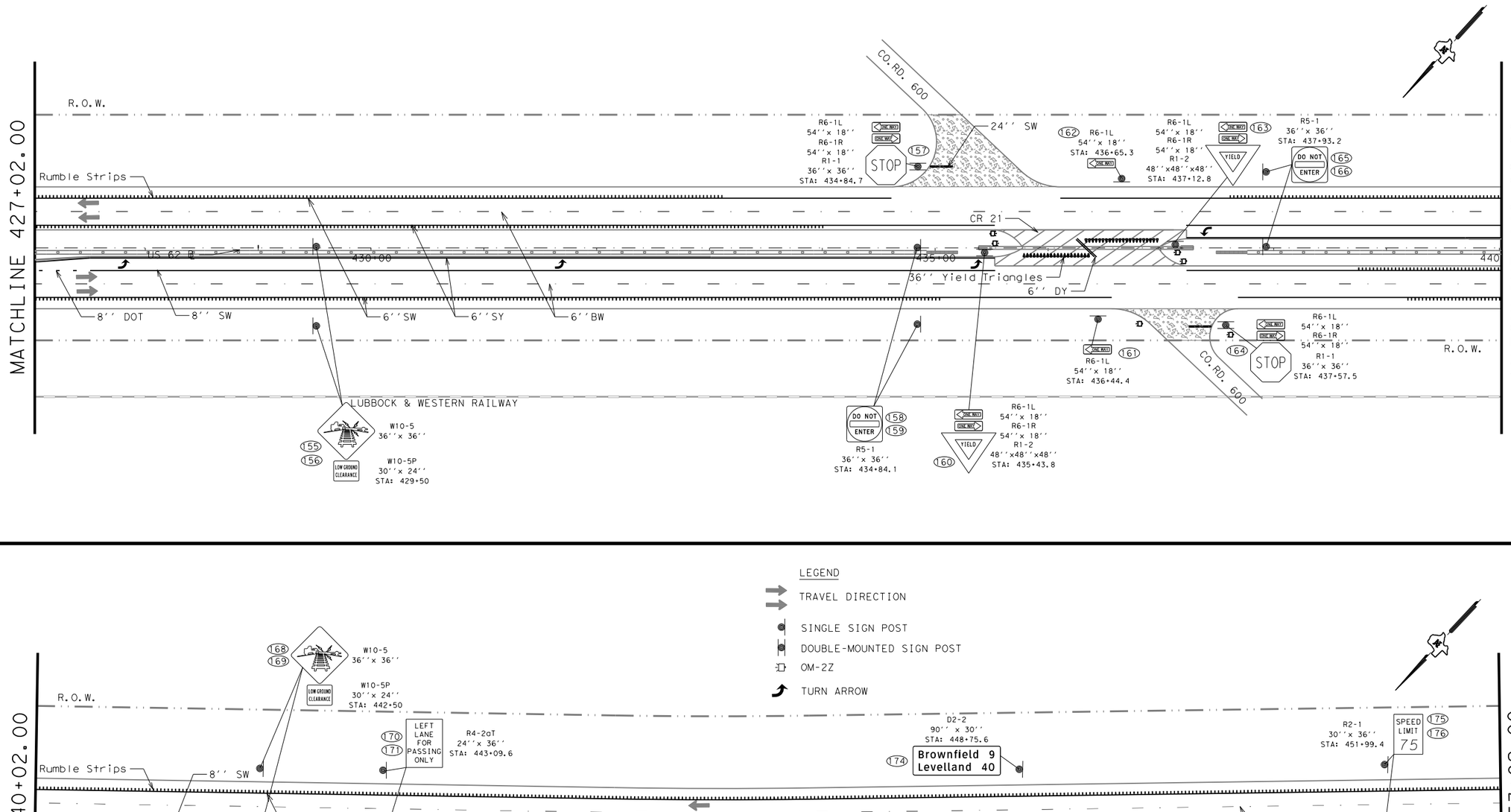

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STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 14 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		116

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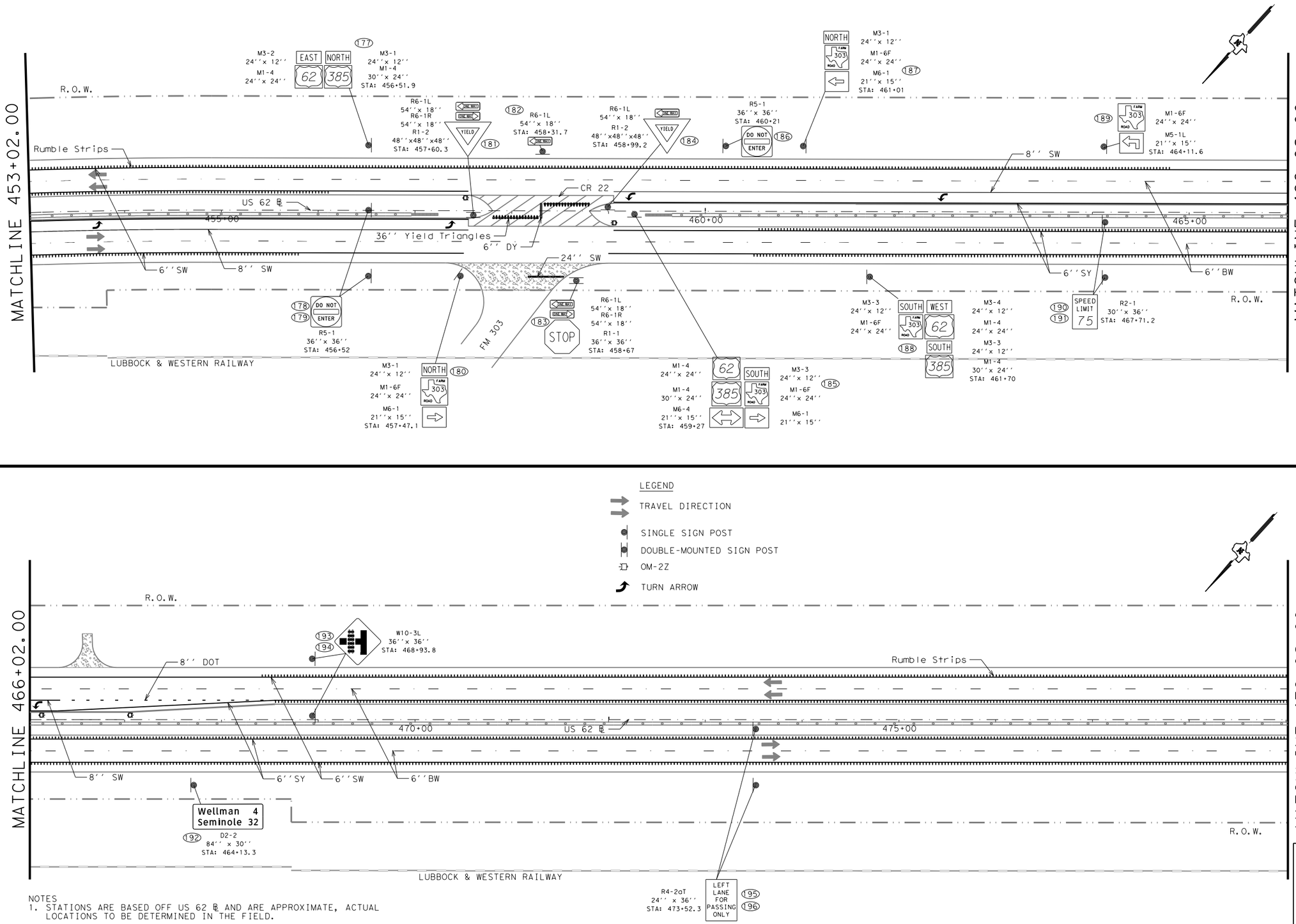

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STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 15 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		117

DATE: 6/21/2023 4:36:15 PM
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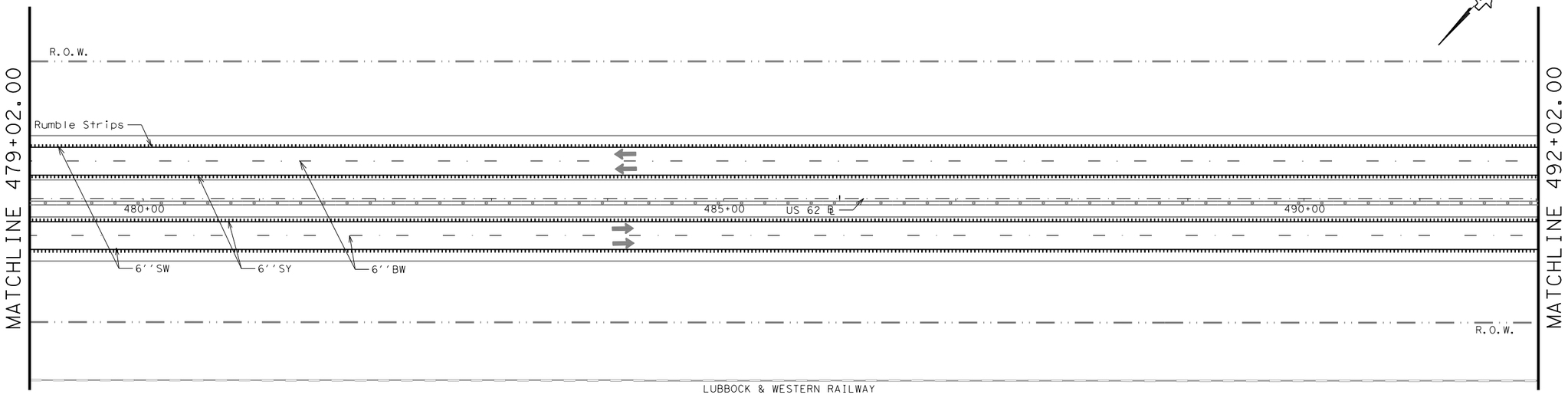

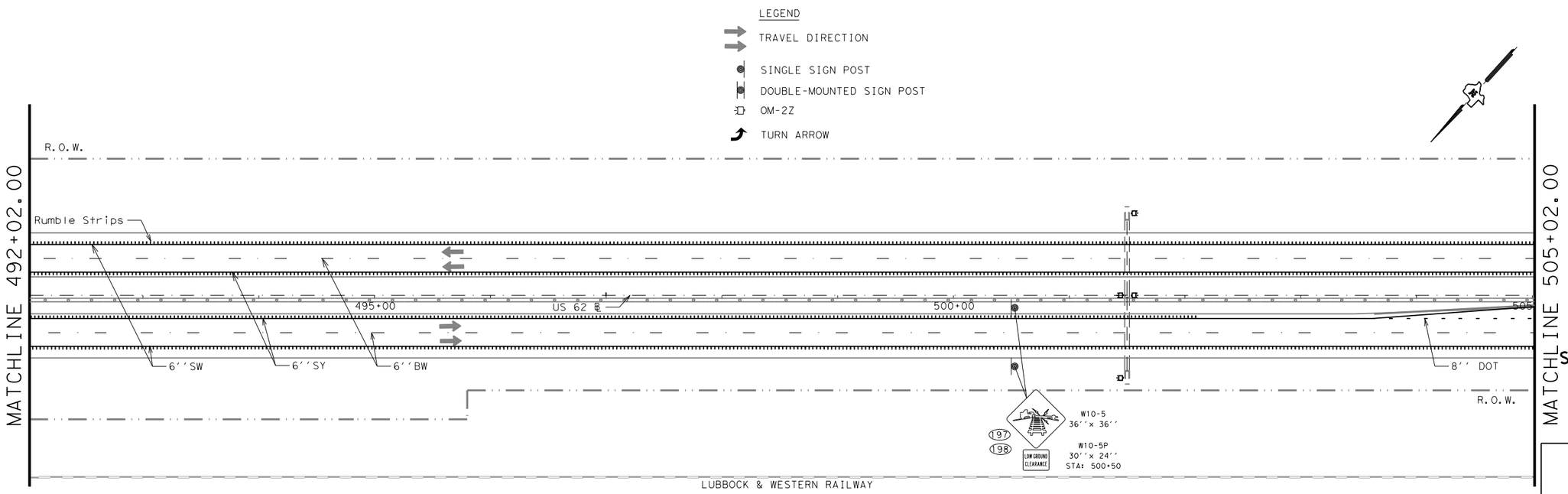

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STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

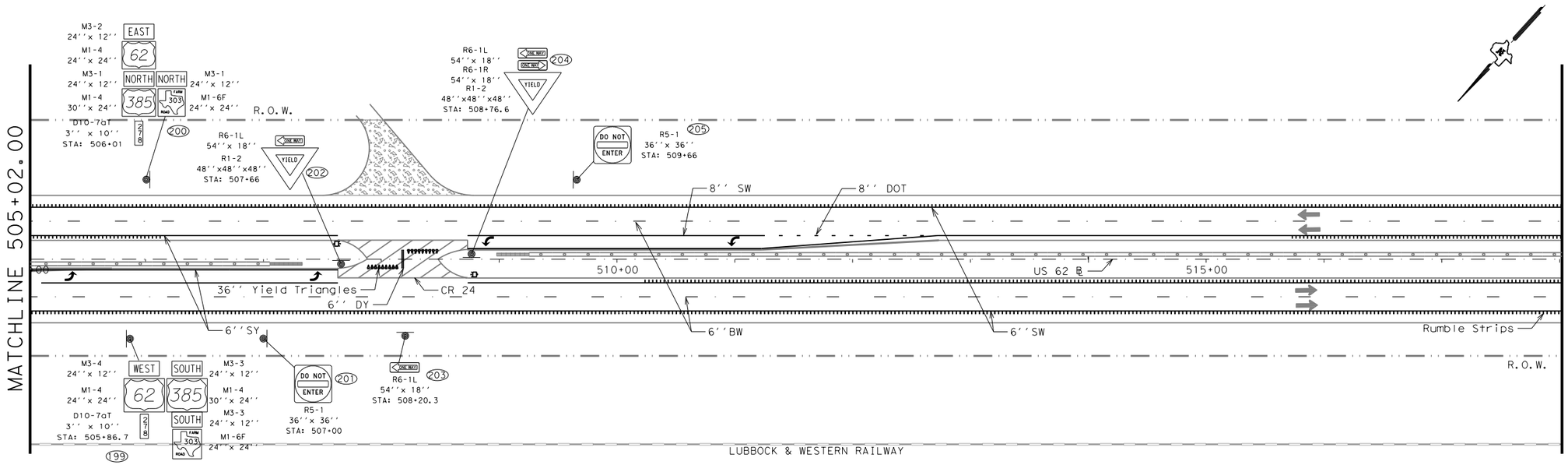
Signs, Striping & Delineation Layout

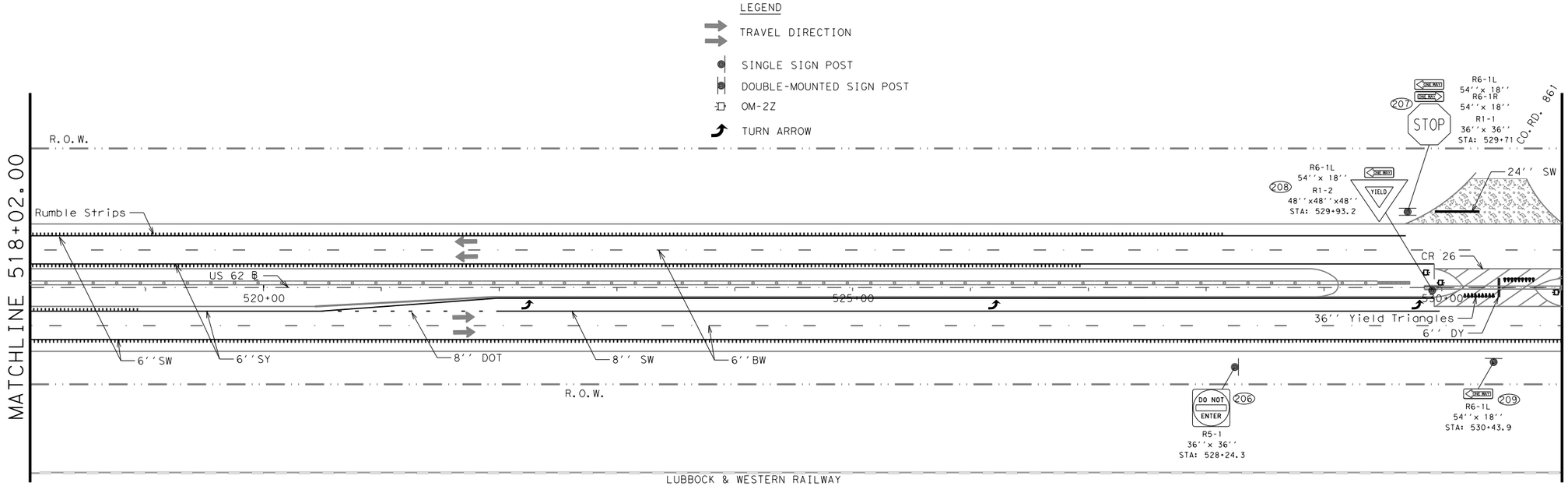
SCALE 1" = 100'

SHEET 16 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		118





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STATE OF TEXAS
BENJAMIN COX
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PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 17 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		119

DATE: 6/21/2023 4:36:39 PM
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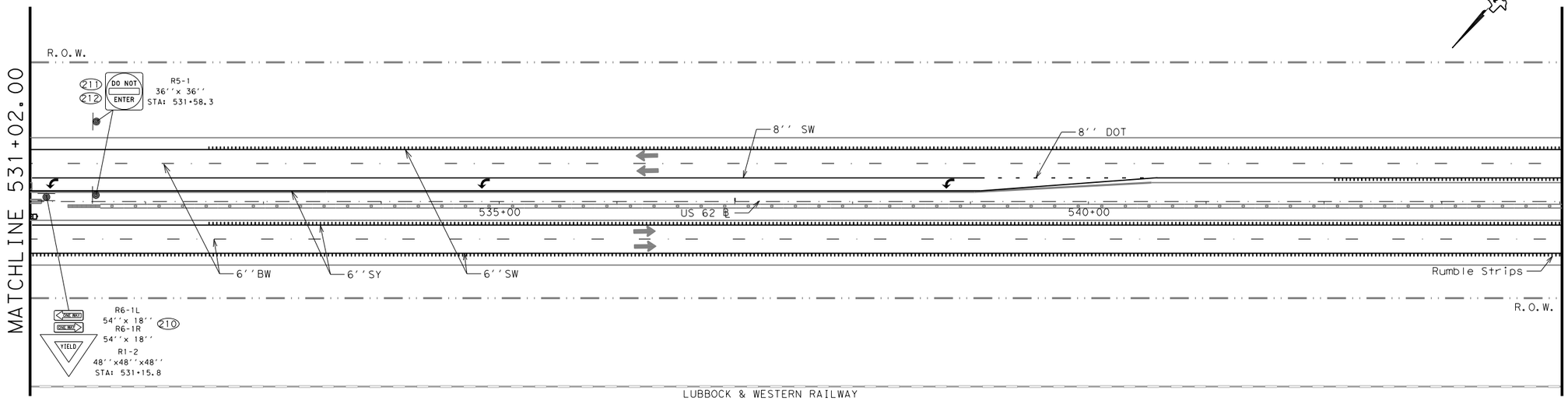
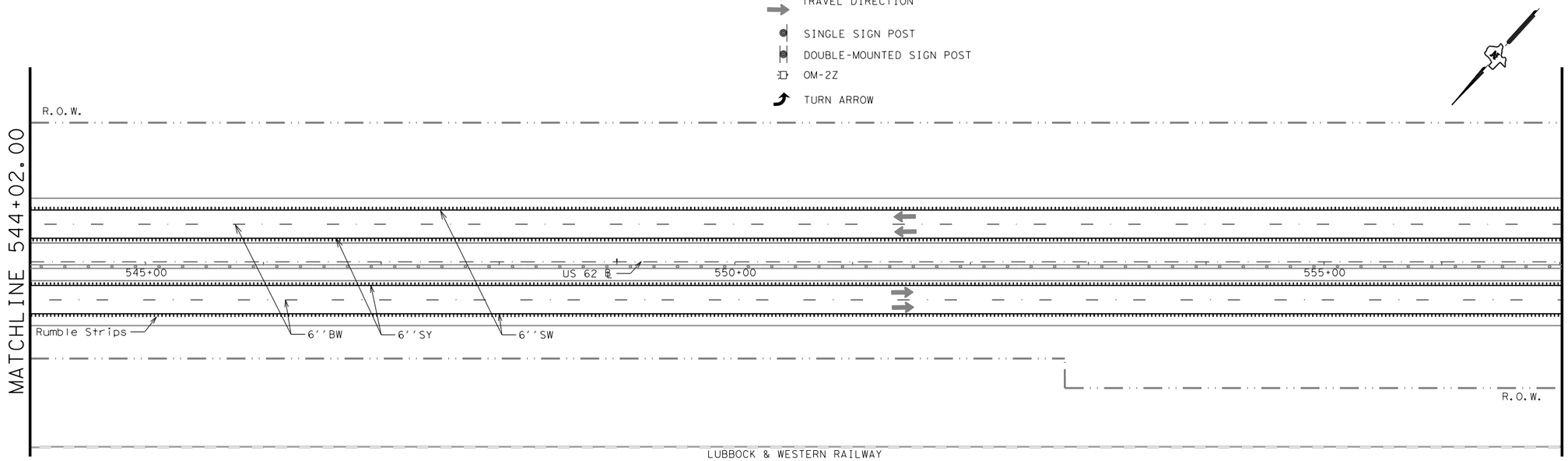


LEGEND

- TRAVEL DIRECTION
- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW



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STATE OF TEXAS
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PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 18 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		120

DATE: 6/21/2023 4:36:52 PM
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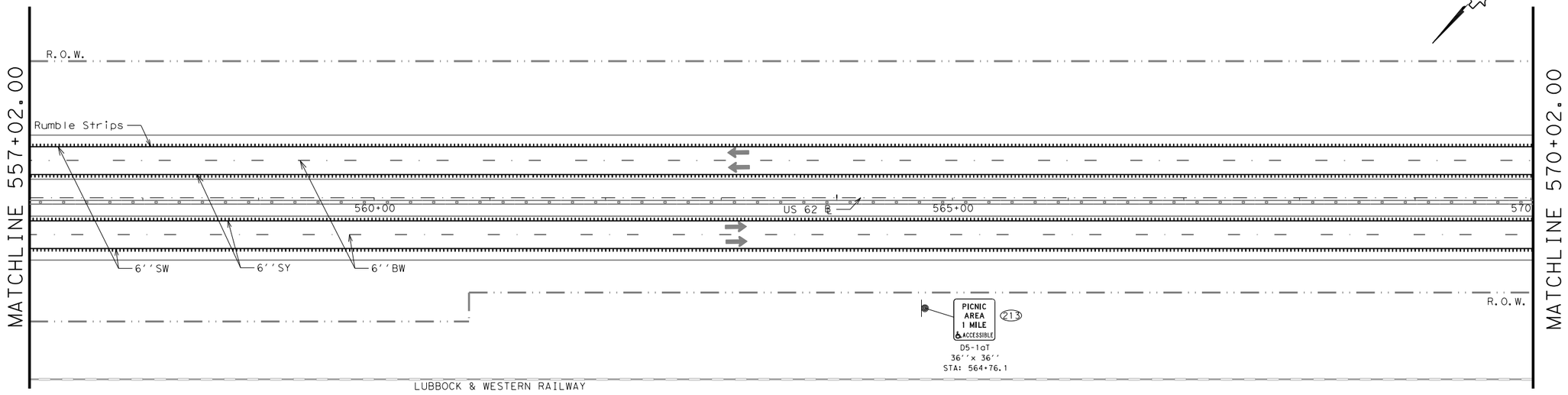

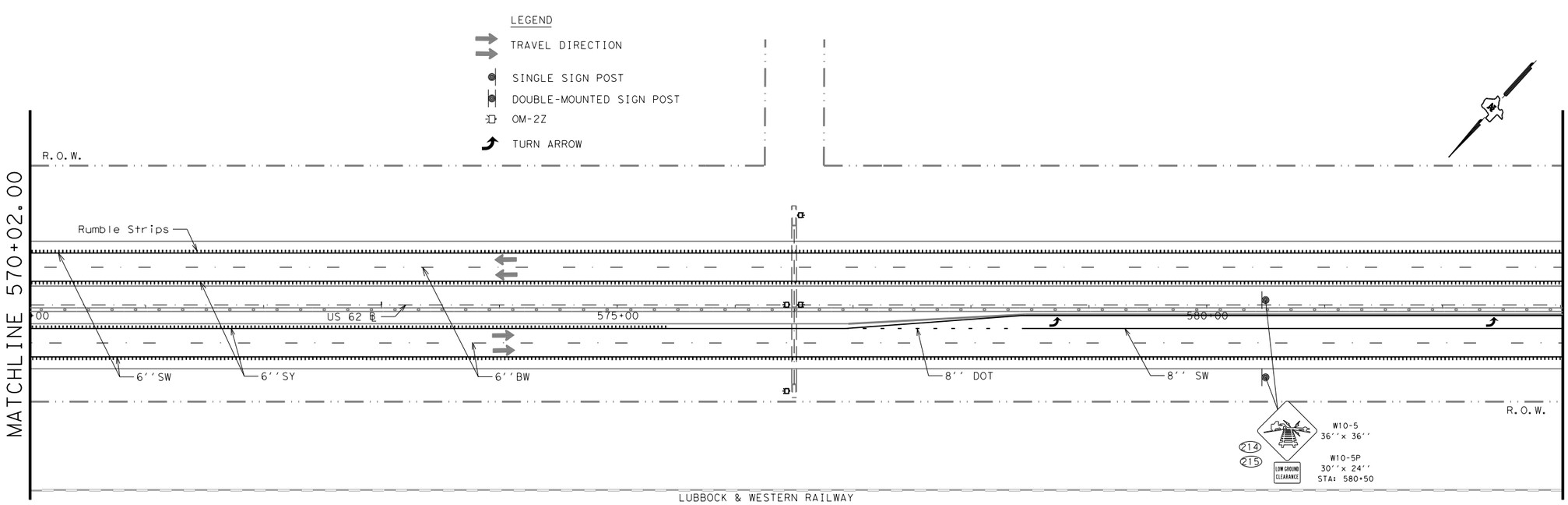

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STATE OF TEXAS
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126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

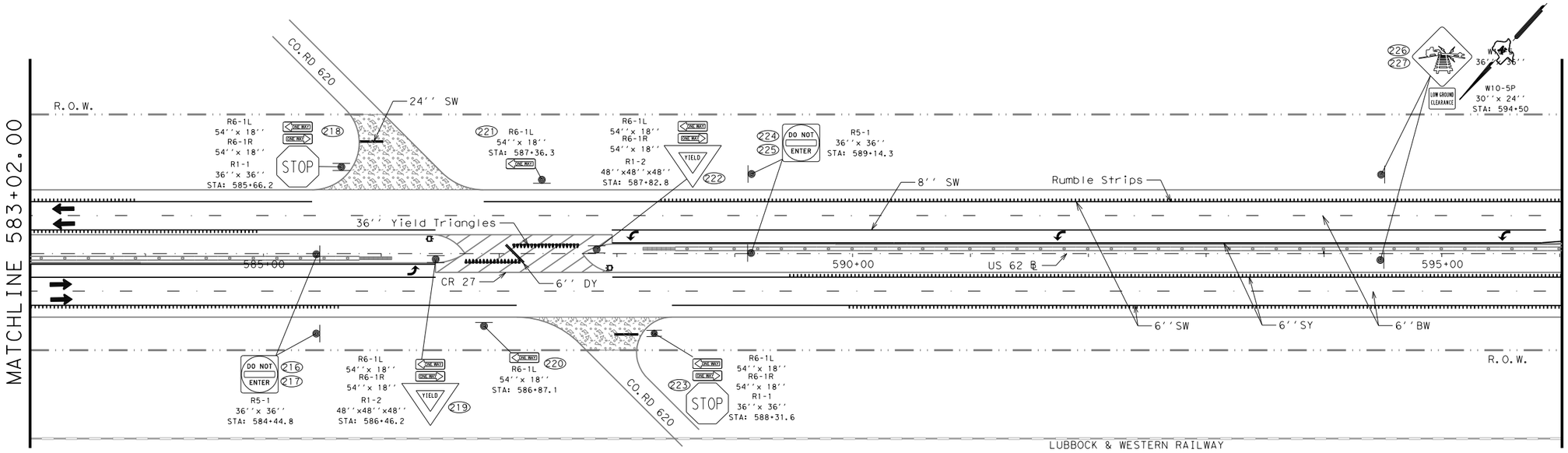
Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 19 OF 23

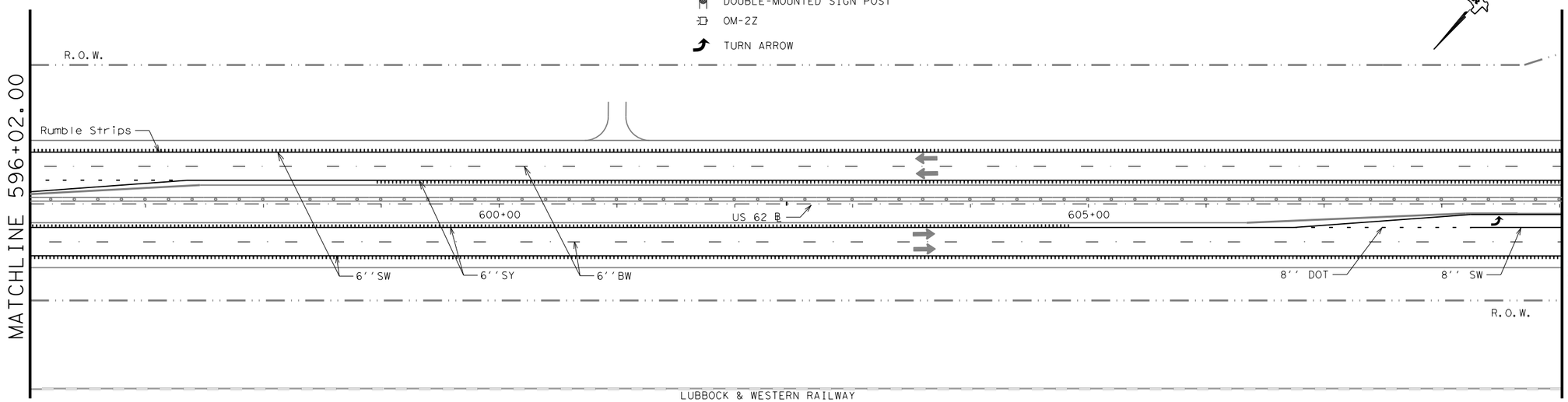
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		121



LEGEND

- TRAVEL DIRECTION
- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW



NOTES
1. STATIONS ARE BASED OFF US 62 ℄ AND ARE APPROXIMATE, ACTUAL LOCATIONS TO BE DETERMINED IN THE FIELD.
2. COUNTY ROAD SIGNS ARE TO BE SALVAGED AND REMOUNTED.
3. EXISTING "SLIPPERY WHEN WET SIGNS" TO BE REMOVED AND GIVEN TO BROWNFIELD TXDOT MAINTENENCE SECTION.

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 20 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		122

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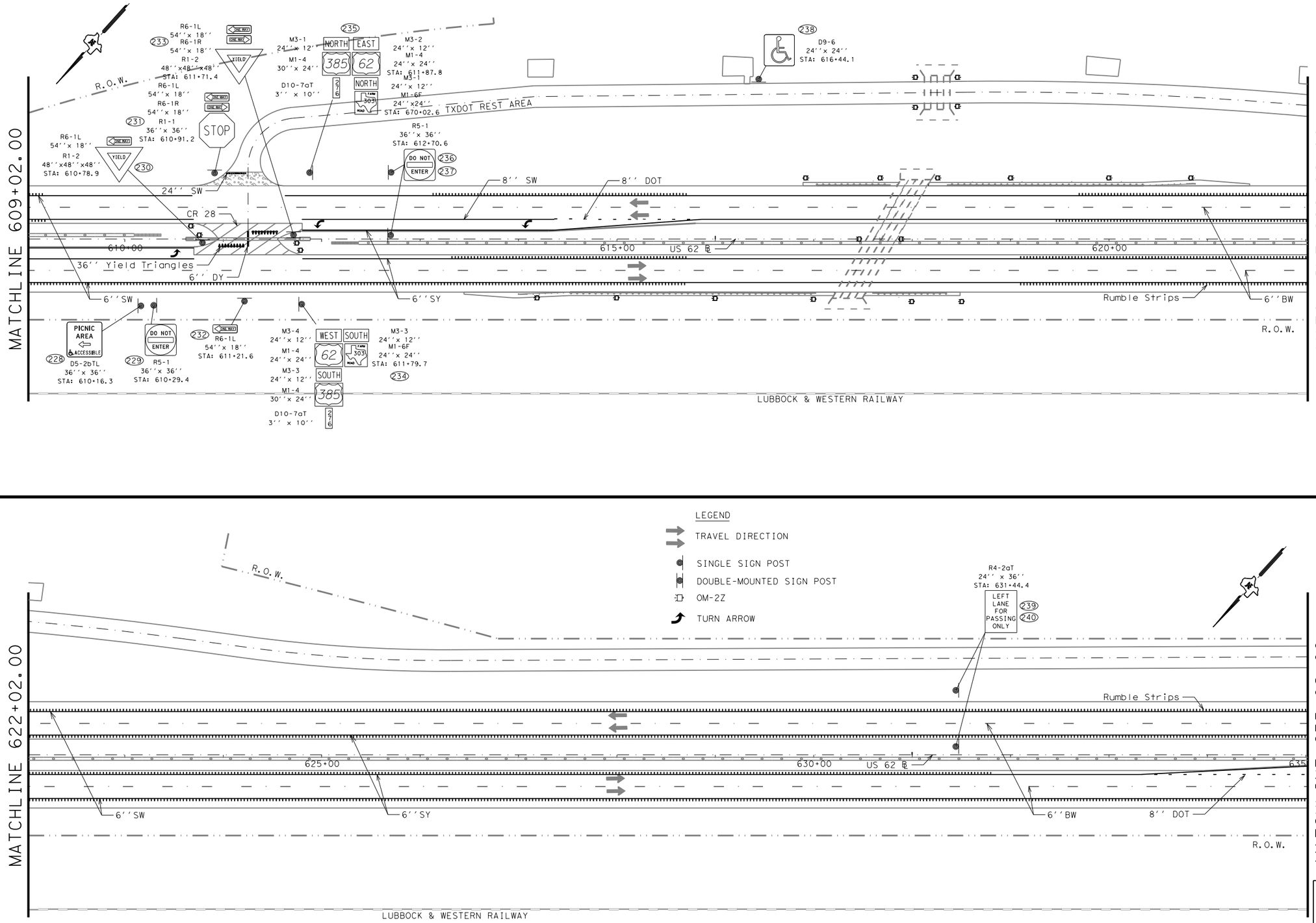

NOTES
1. STATIONS ARE BASED OFF US 62 ℄ AND ARE APPROXIMATE, ACTUAL LOCATIONS TO BE DETERMINED IN THE FIELD.
2. COUNTY ROAD SIGNS ARE TO BE SALVAGED AND REMOUNTED.
3. EXISTING "SLIPPERY WHEN WET SIGNS" TO BE REMOVED AND GIVEN TO BROWNFIELD TXDOT MAINTENENCE SECTION.

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 21 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		123

DATE: 6/21/2023 4:37:28 PM
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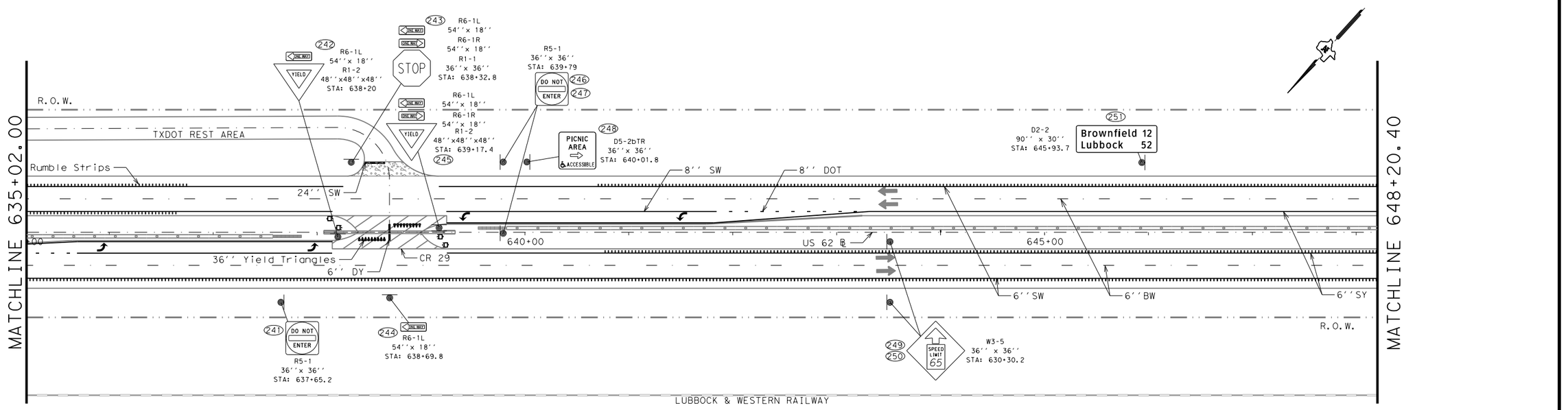

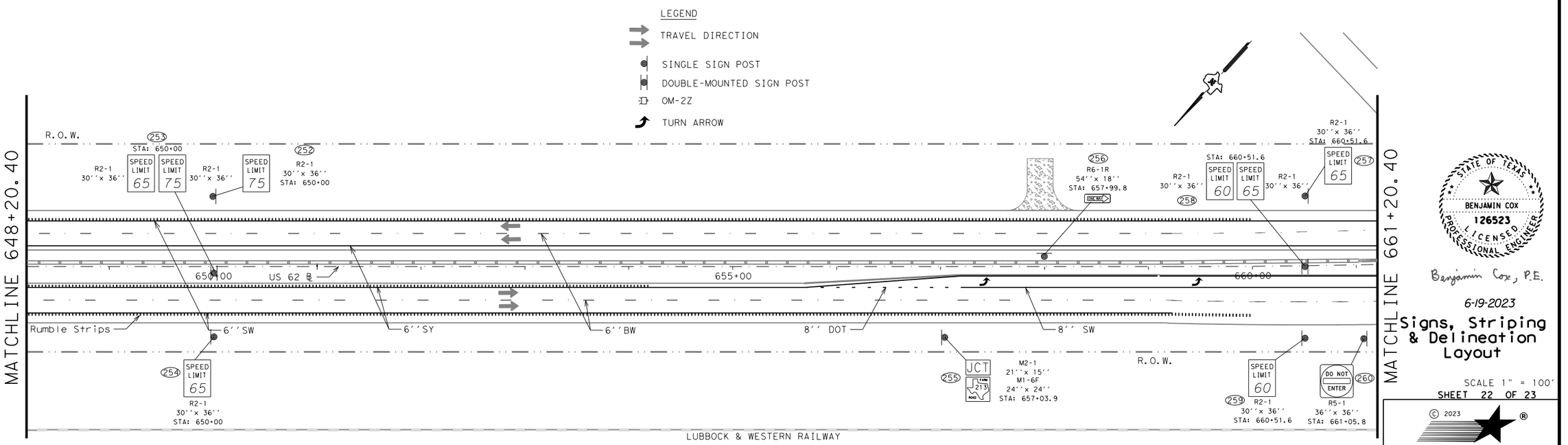

NOTES
1. STATIONS ARE BASED OFF US 62 ℄ AND ARE APPROXIMATE, ACTUAL LOCATIONS TO BE DETERMINED IN THE FIELD.
2. COUNTY ROAD SIGNS ARE TO BE SALVAGED AND REMOUNTED.
3. EXISTING "SLIPPERY WHEN WET SIGNS" TO BE REMOVED AND GIVEN TO BROWNFIELD TXDOT MAINTENENCE SECTION.

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 22 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		124

DATE: 6/21/2023 4:37:40 PM
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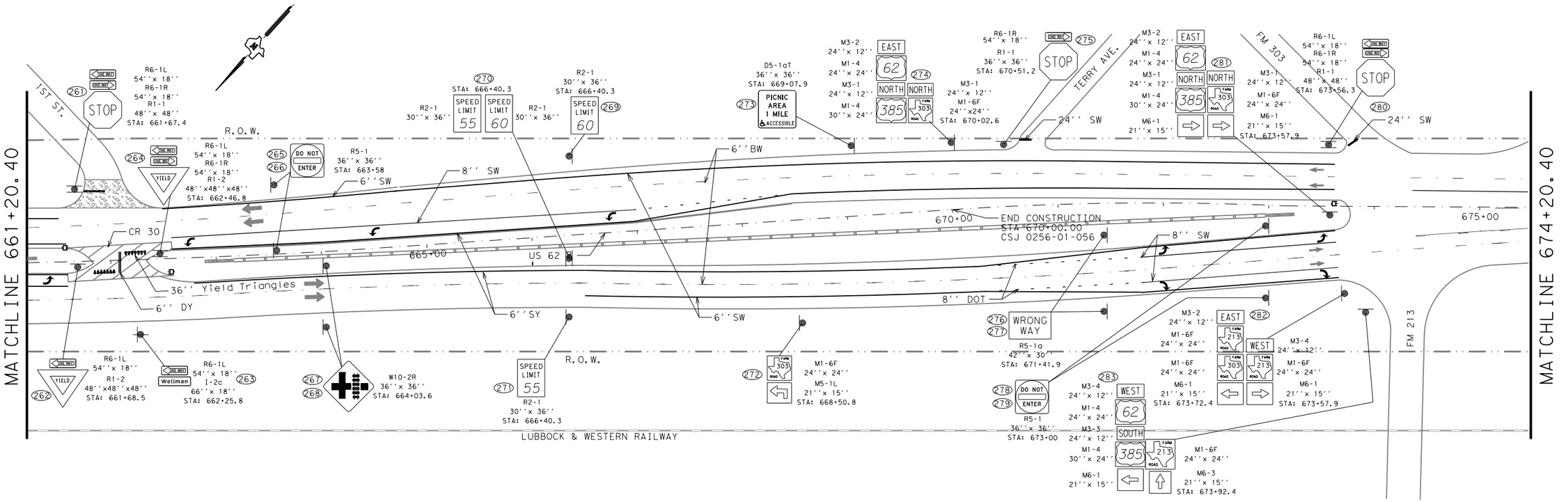

NOTES
1. STATIONS ARE BASED OFF US 62 ℄ AND ARE APPROXIMATE, ACTUAL LOCATIONS TO BE DETERMINED IN THE FIELD.
2. COUNTY ROAD SIGNS ARE TO BE SALVAGED AND REMOUNTED.
3. EXISTING "SLIPPERY WHEN WET SIGNS" TO BE REMOVED AND GIVEN TO BROWNFIELD TXDOT MAINTENENCE SECTION.

LEGEND
- TRAVEL DIRECTION
- SINGLE SIGN POST
- DOUBLE-MOUNTED SIGN POST
- OM-2Z
- TURN ARROW

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

Signs, Striping & Delineation Layout

SCALE 1" = 100'

SHEET 23 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		125

DATE: 6/21/2023 4:37:52 PM
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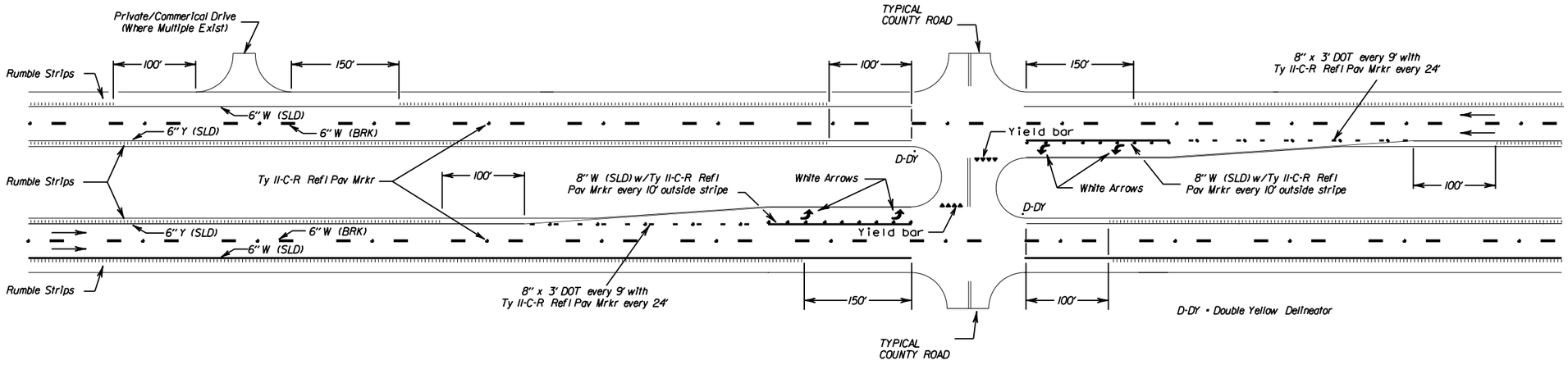
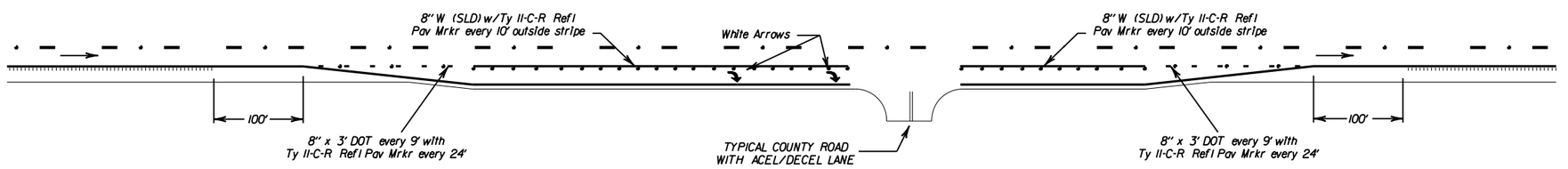


TYPICAL STRIPING/RUMBLE STRIP DETAIL



TYPICAL STRIPING/RUMBLE STRIP DETAIL
WITH OUTSIDE A & D LANES

Median Acel Lane similar to outside Acel Lane.

NOTE:
1. ALL STRIPING SHALL COMPLY WITH THE CURRENT TMUTCD AND TXDOT PM STANDARD SHEETS.

NO SCALE

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

STRIPING & RUMBLE STRIP DETAIL

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		126

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US 62 SUMMARY OF SMALL SIGNS (1 OF 14)

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	1	R4-7	<SYMBOL - KEEP RIGHT OF FEATURE>	24 x 30	1		10BWG	1	SA	T		
	2	D1-2	(<ARROW> LUBBOCK)(<ARROW LEVELLAND)	84 x 30	1		10BWG	1	SA	T		
	3	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	4	R2-1	SPEED LIMIT (55)	30 x 36	1		10BWG	1	SA	T		
	5	R2-1	SPEED LIMIT (55)	30 x 36	1		10BWG	1	SA	T		
			SPEED LIMIT (60)	30 x 36	1							
	6	R2-1	SPEED LIMIT (60)	30 x 36	1		10BWG	1	SA	T		
		R5-1	DO NOT ENTER	36 x 36	1							
	7	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	8	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	9	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	10	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	11	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	12	W1-2R	SYMBOL - HORIZ CURVE RIGHT	36 x 36	1		10BWG	1	SA	T		
	13	W1-2R	SYMBOL - HORIZ CURVE RIGHT	36 x 36	1		10BWG	1	SA	T		
	14	W6-2	SYMBOL - DIVIDED HIGHWAY ENDS AHEAD	36 x 36	1		10BWG	1	SA	T		
	15	W6-2	SYMBOL - DIVIDED HIGHWAY ENDS AHEAD	36 x 36	1		10BWG	1	SA	T		
	16	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	17	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	18	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	19	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	20	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	21	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	22	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	23	R2-1	SPEED LIMIT (60)	30 x 36	1		10BWG	1	SA	T		

DATE:
FILE:

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

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

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
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3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: US180*TRF*SOSS.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	022801		056	US 62/385
4-16	DIST	COUNTY		SHEET NO.
8-16	05	TERRY		127

US 62 SUMMARY OF SMALL SIGNS (2 OF 14)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		TY N TY S
	24	R2-1	SPEED LIMIT (60)	30 x 36	1		10BWG	1	SA	T		
		R2-1	SPEED LIMIT (65)	30 x 36	1							
	25	R2-1	SPEED LIMIT (65)	30 x 36	1		10BWG	1	SA	T		
	26	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	27	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	28	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	29	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	30	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	31	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	32	R4-2AT	LEFT LANE FOR PASSING ONLY	24 x 36	1		10BWG	1	SA	P		
	33	R4-2AT	LEFT LANE FOR PASSING ONLY	24 x 36	1		10BWG	1	SA	P		
	34	R2-1	SPEED LIMIT (65)	30 x 36	1		10BWG	1	SA	T		
	35	R2-1	SPEED LIMIT (65)	30 x 36	1		10BWG	1	SA	T		
		R2-1	SPEED LIMIT (75)	30 x 36	1							
	36	R2-1	SPEED LIMIT (75)	30 x 36	1		10BWG	1	SA	T		
	37	W1-2R	SYMBOL - HORIZ CURVE RIGHT	36 x 36	1		10BWG	1	SA	T		
		R5-1	DO NOT ENTER	36 x 36	1							
	38	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	39	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	40	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	41	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	42	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	43	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	44	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	45	W3-5	SYMBOL - REDUCED SPEED AHD>(SPEED 65)	36 x 36	1		10BWG	1	SA	T		
	46	W3-5	SYMBOL - REDUCED SPEED AHD>(SPEED 65)	36 x 36	1		10BWG	1	SA	T		

DATE:
FILE:

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

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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: US180*TRF*SOSS.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	022801		056	US 62/385
4-16	DIST	COUNTY		SHEET NO.
8-16	05	TERRY		128

US 62 SUMMARY OF SMALL SIGNS (3 OF 14)

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	47	W1-2L	SYMBOL - HORIZ CURVE LEFT	36 x 36	1		10BWG	1	SA	T		
	48	W1-2L	SYMBOL - HORIZ CURVE LEFT	36 x 36	1		10BWG	1	SA	T		
	49	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	50	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	51	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	52	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	53	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	54	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	55	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	56	R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R1-1	STOP	36 x 36	1							
	57	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	58	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	59	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	60	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	61	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	62	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
		W1-2R	SYMBOL - HORIZ CURVE RIGHT	36 x 36	1							
	63	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	64	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	65	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	66	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	67	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	68	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							

DATE:
FILE:

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

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Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: US180*TRF*SOSS.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	022801		056	US 62/385
4-16 8-16	DIST	COUNTY		SHEET NO.
	05	TERRY		129

TB

US 62 SUMMARY OF SMALL SIGNS (4 OF 14)

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	69	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	/		10BWG	/	SA	P		
	70	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	/		10BWG	/	SA	T		
		R1-2	YIELD	48 x 48 x 48	/							
	71	R5-1	DO NOT ENTER	36 x 36	/		10BWG	/	SA	T		
	72	M1-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	/		10BWG	/	SA	U		
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	/							
		D10-7AT	<REFERENCE MARKER #284>	3 x 10	/							
	73	M1-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	/		10BWG	/	SA	U		
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	/							
		D10-7AT	<REFERENCE MARKER #284>	3 x 10	/							
	74	R5-1	DO NOT ENTER	36 x 36	/		10BWG	/	SA	T		
	75	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	/		10BWG	/	SA	T		
		R1-2	YIELD	48 x 48 x 48	/							
	76	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	/		10BWG	/	SA	P		
	77	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	/		10BWG	/	SA	P		
	78	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	/		10BWG	/	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	/							
		R1-2	YIELD	48 x 48 x 48	/							
	79	R5-1	DO NOT ENTER	36 x 36	/		10BWG	/	SA	T		
	80	R5-1	DO NOT ENTER	36 x 36	/		10BWG	/	SA	T		
	81	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	/		10BWG	/	SA	T		
		R1-2	YIELD	48 x 48 x 48	/							
	82	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	/		10BWG	/	SA	P		
	83	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	/		10BWG	/	SA	P		
	84	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	/		10BWG	/	SA	T		
		R1-2	YIELD	48 x 48 x 48	/							
	85	R5-1	DO NOT ENTER	36 x 36	/		10BWG	/	SA	T		
	86	R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	/		10BWG	/	SA	P		
		R1-1	STOP	36 x 36	/							
	87	W11-10L	SYMBOL - BE ALERT FOR TRUCKS ENTERING LT	36 x 36	/		10BWG	/	SA	T		
	88	W11-10L	SYMBOL - BE ALERT FOR TRUCKS ENTERING LT	36 x 36	/		10BWG	/	SA	T		
	89	R5-1	DO NOT ENTER	36 x 36	/		10BWG	/	SA	T		
	90	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	/		10BWG	/	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	/							
	91	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	/		10BWG	/	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	/							
	92	R3-5R	<RIGHT TURN ARROW> ONLY	30 x 36	/		10BWG	/	SA	P		

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

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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: US180*TRF*SOSS.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	022801		056	US 62/385
4-16 8-16	DIST	COUNTY		SHEET NO.
	05	TERRY		130

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FILE:

US 62 SUMMARY OF SMALL SIGNS (5 OF 14)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		TY N TY S
	93	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	94	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	95	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	96	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	97	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	98	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	99	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	100	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	101	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	102	W11-10R	SYMBOL - BE ALERT FOR TRUCKS ENTERING RT	36 x 36	1		10BWG	1	SA	T		
	103	W11-10R	SYMBOL - BE ALERT FOR TRUCKS ENTERING RT	36 x 36	1		10BWG	1	SA	T		
	104	W9-1R	RIGHT LANE ENDS	36 x 36	1		10BWG	1	SA	T		
	105	W9-2L	LANE ENDS MERGE LEFT	36 x 36	1		10BWG	1	SA	T		
	106	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	107	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	108	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	109	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	110	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	111	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	112	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	113	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	114	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							

DATE:
FILE:

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

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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: US180*TRF*SOSS.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987 REVISIONS 4-16 8-16	CONT	SECT	JOB	HIGHWAY
	022801		056	US 62/385
	DIST	COUNTY		SHEET NO.
	05	TERRY		131

US 62 SUMMARY OF SMALL SIGNS (6 OF 14)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	115	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	116	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	117	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	118	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	119	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	120	M1-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	1		10BWG	1	SA	U		
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	1							
		D10-7AT	<REFERENCE MARKER #282>	3 x 10	1							
	121	M1-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	1		10BWG	1	SA	U		
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	1							
		D10-7AT	<REFERENCE MARKER #282>	3 x 10	1							
	122	W9-1R	RIGHT LANE ENDS	36 x 36	1		10BWG	1	SA	T		
	123	W9-2L	LANE ENDS MERGE LEFT	36 x 36	1		10BWG	1	SA	T		
	124	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	125	R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R1-1	STOP	36 x 36	1							
	126	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	127	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	128	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	129	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	130	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	131	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	132	R3-5R	<RIGHT TURN ARROW> ONLY	30 x 36	1		10BWG	1	SA	P		
	133	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	134	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	135	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		

DATE:
FILE:

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

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4-16 8-16	DIST	COUNTY		SHEET NO.
	05	TERRY		132

US 62 SUMMARY OF SMALL SIGNS (7 OF 14)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		TY N TY S
	136	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	137	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	138	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	139	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	140	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	141	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	142	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	143	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	144	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	145	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	146	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	147	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	148	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	149	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	150	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	151	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	152	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	153	M1-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	1		10BWG	1	SA	U		
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	1							
		D10-7AT	<REFERENCE MARKER #280>	3 x 10	1							
	154	M1-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	1		10BWG	1	SA	U		
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	1							
		D10-7AT	<REFERENCE MARKER #280>	3 x 10	1							
	155	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	156	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							

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Traffic Operations Division Standard

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4-16	DIST	COUNTY		SHEET NO.
8-16	05	TERRY		133

18

DATE:
FILE:

US 62 SUMMARY OF SMALL SIGNS (8 OF 14)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		TY N TY S
	157	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	158	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	159	R5-1	DO NOT ENTER	36 x 36								
	160	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	161	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	162	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	163	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	164	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	165	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	166	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	167	M2-1	JCT <AUXILIARY SIGN>	21 x 15	1		10BWG	1	SA	P		
		M1-6F	<FM SHIELD>FARM ROAD(303)	24 x 24	1							
	168	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	169	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	170	R4-2AT	LEFT LANE FOR PASSING ONLY	24 x 36	1		10BWG	1	SA	P		
	171	R4-2AT	LEFT LANE FOR PASSING ONLY	24 x 36	1		10BWG	1	SA	P		
	172	W10-3R	RAILROAD INTERSECTION	36 x 36	1		10BWG	1	SA	T		
	173	W10-3R	RAILROAD INTERSECTION	36 x 36	1		10BWG	1	SA	T		
	174	D2-2	(BROWNFIELD 9)(LEVELLAND 40)	90 x 30	1		10BWG	1	SA	T		
	175	R2-1	SPEED LIMIT (75)	30 x 36	1		10BWG	1	SA	T		
	176	R2-1	SPEED LIMIT (75)	30 x 36	1		10BWG	1	SA	T		
	177	M3-2	EAST <AUXILIARY SIGN>	24 x 12	1		10BWG	1	SA	U		
		M1-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	1							
		M3-1	NORTH <AUXILIARY SIGN>	24 x 12	1							
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	1							
	178	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	179	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		

DATE:
FILE:

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

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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: US180*TRF*SOSS.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	022801		056	US 62/385
4-16	DIST	COUNTY		SHEET NO.
8-16	05	TERRY		134

US 62 SUMMARY OF SMALL SIGNS (9 OF 14)

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	180	M3-1	NORTH <AUXILIARY SIGN>	24 x 12	1		10BWG	1	SA	P		
		M1-6F	<FM SHIELD>FARM ROAD(303)	24 x 24	1							
		M6-1	<ARROW - HORIZ. STRGHT> <AUXILIARY SIGN>	21 x 15	1							
	181	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	182	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	183	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	184	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	185	M1-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	1		10BWG	1	SA	U		
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	1							
		M6-4	<ARROW - DUAL LEFT & RIGHT> <AUX. SIGN>	21 x 15	1							
		M3-3	SOUTH <AUXILIARY SIGN>	24 x 12	1							
		M1-6F	<FM SHIELD>FARM ROAD(303)	24 x 24	1							
		M6-1	<ARROW - HORIZ. STRGHT> <AUXILIARY SIGN>	21 x 15	1							
	186	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	187	M3-1	NORTH <AUXILIARY SIGN>	24 x 12	1		10BWG	1	SA	P		
		M1-6F	<FM SHIELD>FARM ROAD(303)	24 x 24	1							
		M6-1	<ARROW - HORIZ. STRGHT> <AUXILIARY SIGN>	21 x 15	1							
	188	M3-3	SOUTH <AUXILIARY SIGN>	24 x 12	1		10BWG	1	SA	U		
		M1-6F	<FM SHIELD>FARM ROAD (303)	24 x 24	1							
		M3-4	WEST <AUXILIARY SIGN>	24 x 12	1							
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> ROUTE 62)	30 x 24	1							
		M3-3	SOUTH <AUXILIARY SIGN>	24 x 12	1							
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> ROUTE 385)	30 x 24	1							
	189	M1-6F	<FM SHIELD>FARM ROAD (303)	24 x 24	1		10BWG	1	SA	P		
		M5-1L	<ARROW - STRAIGHT THEN LEFT> <AUX. SIGN>	21 x 15	1							
	190	R2-1	SPEED LIMIT (75)	30 x 36	1		10BWG	1	SA	T		
	191	R2-1	SPEED LIMIT (75)	30 x 36	1		10BWG	1	SA	T		
	192	D2-2	(WELLMAN 4)(SEMINOLE 32)	84 x 30	1		10BWG	1	SA	U		
	193	W10-3L	RAILROAD INTERSECTION	36 x 36	1		10BWG	1	SA	T		
	194	W10-3L	RAILROAD INTERSECTION	36 x 36	1		10BWG	1	SA	T		
	195	R4-2AT	LEFT LANE FOR PASSING ONLY	24 x 36	1		10BWG	1	SA	P		
	196	R4-2AT	LEFT LANE FOR PASSING ONLY	24 x 36	1		10BWG	1	SA	P		
	197	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24								
	198	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24								

DATE:
FILE:

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

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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: US180*TRF*SOSS.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
	CONT	SECT	JOB	HIGHWAY
REVISIONS	022801		056	US 62/385
4-16 8-16	DIST	COUNTY		SHEET NO.
	05	TERRY		135

US 62 SUMMARY OF SMALL SIGNS (10 OF 14)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		TY N TY S
	199	M3-4	WEST <AUXILIARY SIGN>	24 x 12	I		10BWG	I	SA	U		
		MI-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	I							
		DI0-7AT	<REFERENCE MARKER #278>	3 x 10	I							
		M3-3	SOUTH <AUXILIARY SIGN>	24 x 12	I							
		MI-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	I							
	200	M3-2	EAST <AUXILIARY SIGN>	24 x 12	I		10BWG	I	SA	U		
		MI-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	I							
		M3-1	NORTH <AUXILIARY SIGN>	24 x 12	I							
		MI-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	I							
		DI0-7AT	<REFERENCE MARKER #278>	3 x 10	I							
		M3-1	NORTH <AUXILIARY SIGN>	24 x 12	I							
		MI-6F	<FM SHIELD>FARM ROAD (303)	24 x 24	I							
	201	R5-1	DO NOT ENTER	36 x 36	I		10BWG	I	SA	T		
	202	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	I		10BWG	I	SA	T		
		R1-2	YIELD	48 x 48 x 48	I							
	203	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	I		10BWG	I	SA	P		
	204	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	I		10BWG	I	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	I							
		R1-2	YIELD	48 x 48 x 48	I							
	205	R5-1	DO NOT ENTER	36 x 36	I		10BWG	I	SA	T		
	206	R5-1	DO NOT ENTER	36 x 36	I		10BWG	I	SA	T		
	207	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	I		10BWG	I	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	I							
		R1-1	STOP	36 x 36	I							
	208	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	I		10BWG	I	SA	T		
		R1-2	YIELD	48 x 48 x 48	I							
	209	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	I		10BWG	I	SA	P		
	210	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	I		10BWG	I	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	I							
		R1-2	YIELD	48 x 48 x 48	I							
	211	R5-1	DO NOT ENTER	36 x 36	I		10BWG	I	SA	T		
	212	R5-1	DO NOT ENTER	36 x 36	I		10BWG	I	SA	T		
	213	D5-1AT	REST AREA 1 MILE - ACCESSIBLE	36 x 36	I		10BWG	I	SA	P		
	214	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	I		10BWG	I	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	I							
	215	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	I		10BWG	I	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	I							
	216	R5-1	DO NOT ENTER	36 x 36	I		10BWG	I	SA	T		
	217	R5-1	DO NOT ENTER	36 x 36	I		10BWG	I	SA	T		

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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:

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

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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: US180*TRF*SOSS.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	022801		056	US 62/385
4-16	DIST	COUNTY		SHEET NO.
8-16	05	TERRY		136

US 62 SUMMARY OF SMALL SIGNS (11 OF 14)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		TY N TY S
	218	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	219	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	220	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	221	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	222	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	223	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	224	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	225	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	226	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	227	W10-5	SYMBOL - LOW GROUND CLEARANCE	36 x 36	1		10BWG	1	SA	T		
		W10-5P	LOW GROUND CLEARANCE <PLAQUE>	30 x 24	1							
	228	D5-2BTL	PICNIC AREA <LEFT ARROW> ACCESSIBLE	36 x 36	1		10BWG	1	SA	P		
	229	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	230	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	231	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	232	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	233	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	234	M3-4	WEST <AUXILIARY SIGN>	24 x 12	1		10BWG	1	SA	U		
		M1-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	1							
		M3-3	SOUTH <AUXILIARY SIGN>	24 x 12	1							
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	1							
		D10-7AT	<REFERENCE MARKER #276>	3 x 10	1							
		M3-3	SOUTH <AUXILIARY SIGN>	24 x 12	1							
		M1-6F	<FM SHIELD>FARM ROAD (303)	24 x 24	1							
	235	M3-1	NORTH <AUXILIARY SIGN>	24 x 12	1		10BWG	1	SA	U		
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	1							
		D10-7AT	<REFERENCE MARKER #276>	3 x 10	1							
		M3-2	EAST <AUXILIARY SIGN>	24 x 12	1							
		M1-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	1							

DATE:
FILE:

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

SOSS

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©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	022801		056	US 62/385
4-16	DIST	COUNTY		SHEET NO.
8-16	05	TERRY		137

US 62 SUMMARY OF SMALL SIGNS (12 OF 14)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
		M3-1	NORTH <AUXILIARY SIGN>	24 x 12	1							
		M1-6F	<FM SHIELD>FARM ROAD (303)	24 x 24	1							
	236	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	237	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	238	D9-6	SYMBOL - ACCESSIBLE TO HANDICAPPED	24 x 24	1		10BWG	1	SA	P		
	239	R4-2AT	LEFT LANE FOR PASSING ONLY	24 x 36	1		10BWG	1	SA	P		
	240	R4-2AT	LEFT LANE FOR PASSING ONLY	24 x 36	1		10BWG	1	SA	P		
	241	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	242	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R1-2	YIELD	48 x 48 x 48	1							
	243	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	244	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
	245	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	246	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	247	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	248	D5-2BTR	PICNIC AREA <RIGHT ARROW> ACCESSIBLE	36 x 36	1		10BWG	1	SA	P		
	249	W3-5	<SYMBOL - REDUCED SPEED AHD> (SPEED)	36 x 36	1		10BWG	1	SA	T		
	250	W3-5	<SYMBOL - REDUCED SPEED AHD> (SPEED)	36 x 36	1		10BWG	1	SA	T		
	251	D2-2	(BROWNFIELD 12)(LUBBOCK 52)	90 x 30	1		10BWG	1	SA	U		
	252	R2-1	SPEED LIMIT (75)	30 x 36	1		10BWG	1	SA	T		
	253	R2-1	SPEED LIMIT (75)	30 x 36	1		10BWG	1	SA	T		
		R2-1	SPEED LIMIT (65)	30 x 36	1							
	254	R2-1	SPEED LIMIT (65)	30 x 36	1		10BWG	1	SA	T		
	255	M2-1	JCT <AUXILIARY SIGN>	21 x 15	1		10BWG	1	SA	P		
		M1-6F	<FARM ROAD>FARM ROAD (213)	24 x 24	1							
	256	R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1		10BWG	1	SA	P		
	257	R2-1	SPEED LIMIT (65)	30 x 36	1		10BWG	1	SA	T		
	258	R2-1	SPEED LIMIT (60)	30 x 36	1		10BWG	1	SA	T		
		R2-1	SPEED LIMIT (65)	30 x 36	1							
	259	R2-1	SPEED LIMIT (60)	30 x 36	1		10BWG	1	SA	T		
	260	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		

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

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

http://www.txdot.gov/

NOTE:

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

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: US180*TRF*SOSS.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
4-16	DIST	COUNTY		SHEET NO.
8-16	05	TERRY		138

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:

US 62 SUMMARY OF SMALL SIGNS (13 OF 14)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		TY N TY S
	261	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	36 x 36	1							
	262	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R1-2	YIELD	48 x 48 x 48	1							
	263	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	P		
		I-2C	(WELLMAN)	66 x 18	1							
	264	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-2	YIELD	48 x 48 x 48	1							
	265	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	266	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	267	W10-2R	RAILROAD INTERSECTION	36 x 36	1		10BWG	1	SA	T		
	268	W10-2R	RAILROAD INTERSECTION	36 x 36	1		10BWG	1	SA	T		
	269	R2-1	SPEED LIMIT (60)	30 x 36	1		10BWG	1	SA	T		
	270	R2-1	SPEED LIMIT (60)	30 x 36	1		10BWG	1	SA	T		
		R2-1	SPEED LIMIT (55)	30 x 36	1							
	271	R2-1	SPEED LIMIT (55)	30 x 36	1		10BWG	1	SA	T		
	272	M1-6F	<FM SHIELD>FARM ROAD (303)	24 x 24	1		10BWG	1	SA	P		
		M5-1L	<ARROW - STRAIGHT THEN LEFT> <AUX. SIGN>	21 x 15	1							
	273	D5-1AT	REST AREA 1 MILE - ACCESSIBLE	36 x 36	1		10BWG	1	SA	P		
	274	M3-2	EAST <AUXILIARY SIGN>	24 x 12	1		10BWG	1	SA	U		
		M1-4(2 dgt)	<US HIGHWAY ROUTE SHIELD>(ROUTE 62)	24 x 24	1							
		M3-1	NORTH <AUXILIARY SIGN>	24 x 12	1							
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD>(ROUTE 385)	30 x 24	1							
		M3-1	NORTH <AUXILIARY SIGN>	24 x 12	1							
		M1-6F	<FM SHIELD>FARM ROAD (303)	24 x 24	1							
	275	R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1		10BWG	1	SA	P		
		R1-1	STOP	36 x 36	1							
	276	R5-1A	WRONG WAY	42 x 30	1		10BWG	1	SA	T		
	277	R5-1A	WRONG WAY	42 x 30	1		10BWG	1	SA	T		
	278	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	279	R5-1	DO NOT ENTER	36 x 36	1		10BWG	1	SA	T		
	280	R6-1L	ONE WAY <IN LEFT ARROW>	54 x 18	1		10BWG	1	SA	T		
		R6-1R	ONE WAY <IN RIGHT ARROW>	54 x 18	1							
		R1-1	STOP	48 x 48	1							
	281	M3-2	EAST <AUXILIARY SIGN>	24 x 12	1		10BWG	1	SA	U		
		M1-4(2 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 62)	24 x 24	1							
		M3-1	NORTH <AUXILIARY SIGN>	24 x 12	1							
		M1-4(3 dgt)	<US HIGHWAY ROUTE SHIELD> (ROUTE 385)	30 x 24	1							

DATE:
FILE:

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

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Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: US180*TRF*SOSS.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	022801		056	US 62/385
4-16 8-16	DIST	COUNTY		SHEET NO.
	05	TERRY		139

US 62 SUMMARY OF SMALL SIGNS (14 OF 14)

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS (in.)	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
		M6-1	<ARROW - HORIZ. STRGHT> <AUXILIARY SIGN>	21 x 15	1							
		M3-1	NORTH <AUXILIARY SIGN>	24 x 12	1							
		MI-6F	<FM SHIELD>FARM ROAD (303)	24 x 24	1							
		M6-1	<ARROW - HORIZ. STRGHT> <AUXILIARY SIGN>	21 x 15	1							
	282	M3-2	EAST <AUXILIARY SIGN>	24 x 12	1		10BWG	1	SA	U		
		MI-6F	<FM SHIELD>FARM ROAD (213)	24 x 24	1							
		MI-6F	<FM SHIELD>FARM ROAD (303)	24 x 24	1							
		M6-1	<ARROW - HORIZ. STRGHT> <AUXILIARY SIGN>	21 x 15	1							
		M3-4	WEST <AUXILIARY SIGN>	24 x 12	1							
		MI-6F	<FM SHIELD>FARM ROAD (213)	24 x 24	1							
		M6-1	<ARROW - HORIZ. STRGHT> <AUXILIARY SIGN>	21 x 15	1							
	283	M3-4	WEST <AUXILIARY SIGN>	24 x 12	1		10BWG	1	SA	U		
		MI-4(2 dgt)	<US HIGHWAY ROUTE SHIELD>(ROUTE 62)	24 x 24	1							
		M3-3	SOUTH <AUXILIARY SIGN>	24 x 12	1							
		MI-4(3 dgt)	<US HIGHWAY ROUTE SHIELD>(ROUTE 385)	30 x 24	1							
		M6-1	<ARROW - HORIZ. STRGHT> <AUXILIARY SIGN>	21 x 15	1							
		MI-6F	<FM SHIELD>FARM ROAD (213)	24 x 24	1							
		M6-3	<ARROW - VERTICAL STRGHT> <AUX. SIGN>	21 x 15	1							

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

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FILE:

Texas Department of Transportation

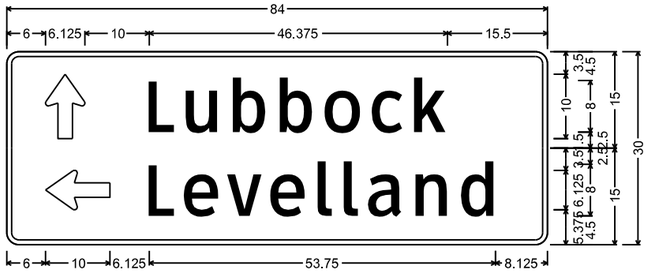
Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: US180*TRF*SOSS.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	022801		056	US 62/385
4-16	DIST	COUNTY		SHEET NO.
8-16	05	TERRY		140

2

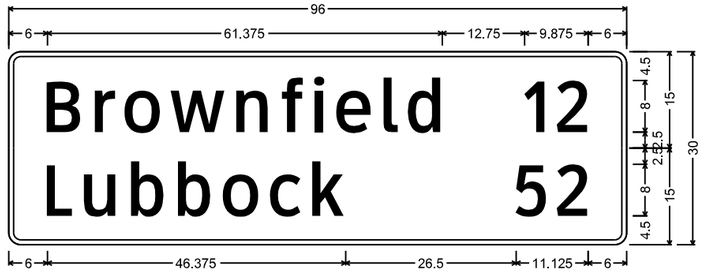


D1-2 8in UP-LT;

1.875" Radius, 0.750" Border, White on Green;
Standard Arrow Custom 10.000" X 6.125" 90°; "Lubbock", ClearviewHwy-3-W;

1.875" Radius, 0.750" Border, White on Green;
Standard Arrow Custom 10.000" X 6.125" 180°; "Levelland", ClearviewHwy-3-W;

251



D2-2 8in;

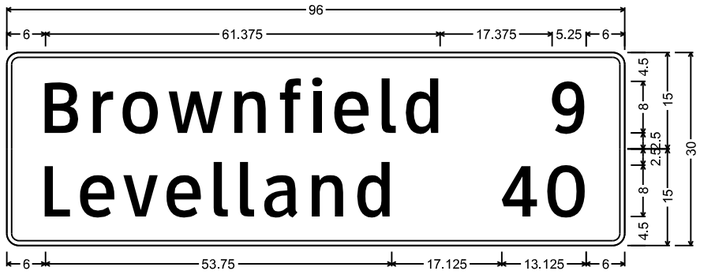
1.875" Radius, 0.750" Border, White on Green;
"Brownfield", ClearviewHwy-3-W; "12", ClearviewHwy-3-W;

1.875" Radius, 0.750" Border, White on Green;
"Lubbock", ClearviewHwy-3-W; "52", ClearviewHwy-3-W;

263

I-2c 8in;
1.500" Radius, 0.500" Border, White on Green;
"Wellman", ClearviewHwy-5-W-R;

174

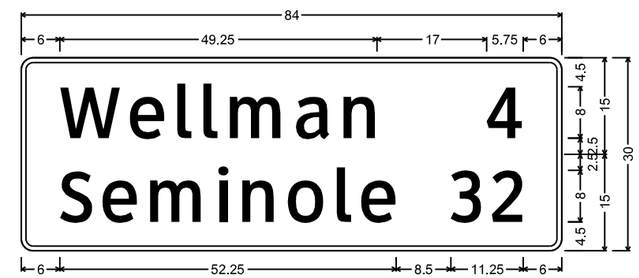


D2-2 8in;

1.875" Radius, 0.750" Border, White on Green;
"Brownfield", ClearviewHwy-3-W; "9", ClearviewHwy-3-W;

1.875" Radius, 0.750" Border, White on Green;
"Levelland", ClearviewHwy-3-W; "40", ClearviewHwy-3-W;

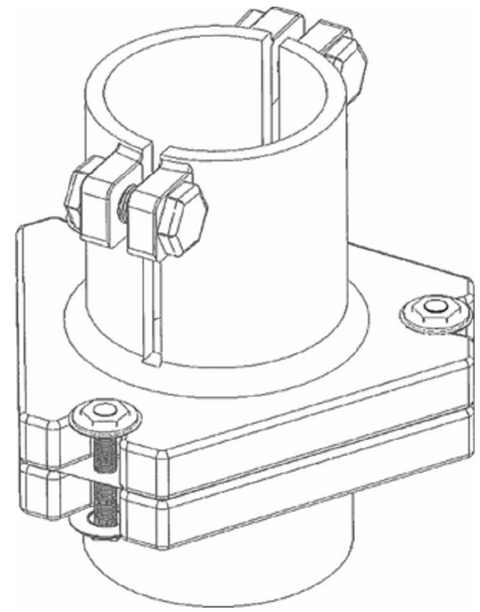
192



D2-2 8in;

1.875" Radius, 0.750" Border, White on Green;
"Wellman", ClearviewHwy-3-W; "4", ClearviewHwy-3-W;

1.875" Radius, 0.750" Border, White on Green;
"Seminole", ClearviewHwy-3-W; "32", ClearviewHwy-3-W;



Use two-bolt clamp triangular slip base for the signs on this project.

NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

NO SCALE

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

D-SERIES SIGNS

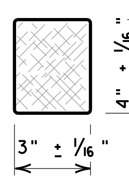
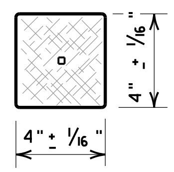
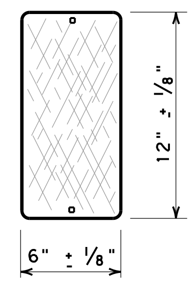
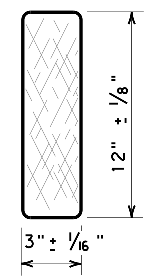
SHEET 1 OF 1

Texas Department of Transportation

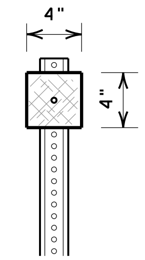
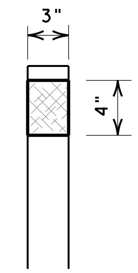
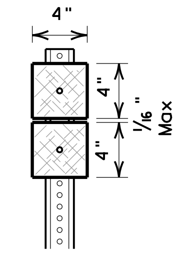
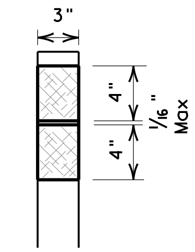
CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		141

DATE: 6/21/2023 4:32:06 PM
FILE: pw:\\txdot.projectwiseonline.com:TxDOT2\Documents\05 - LBB\Design Projects\0228010561\4 - Design\Plan Set\8. Traffic\US0062_TRF_D SERIES SIGN LAYOUT.dgn

REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

	SIZE 1	SIZE 2	SIZE 3	SIZE 4
DEVICE				
SHEETING	Yellow, White or Red Type B or C reflective sheeting			
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (flx). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.			

DELINEATORS

	SINGLE		DOUBLE	
DEVICE	 1-Size 2 reflector unit	 1-Size 1 reflector unit	 2-Size 2 reflector units	 2-Size 1 reflector units
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting			
POST TYPE	WC	YFLX, WFLX	WC	YFLX, WFLX
MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

D & OM DESCRIPTIVE CODES

INSTL DEL ASSM (D-XX)SZ X (XXXX)XXX(XX)

NUMBER OF REFLECTORS
S = Single
D = Double

COLOR OF REFLECTORS
W = White
Y = Yellow
R = Red

REFLECTOR UNIT SIZE
1 or 2

TYPE OF POST OR DELINEATOR
WC = Wing Channel Post
YFLX = Yellow Flexible Post
WFLX = White Flexible Post
BRF = Barrier Reflector

TYPE OF MOUNT
GND = Embedded (drivable or set in concrete)
CTB = Concrete Barrier Mount
GF1 or GF2 = Guard Fence Attachment
SRF = Surface Mount

DIRECTION
If Required
BI = Bi-Directional
BR = Bi-Directional with red on back

INSTL OM ASSM (OM-XX) (XXXX)XXX(XX)

TYPE OF OBJECT MARKER
1, 2, 3, or 4

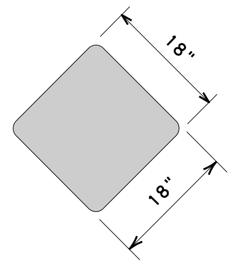
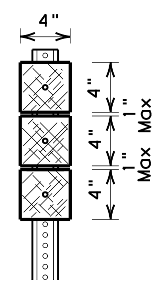
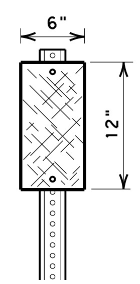
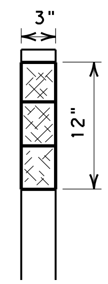
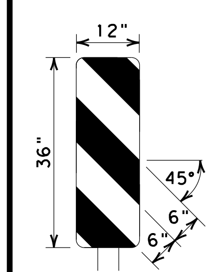
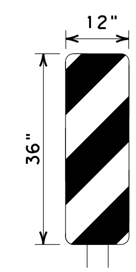
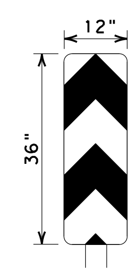
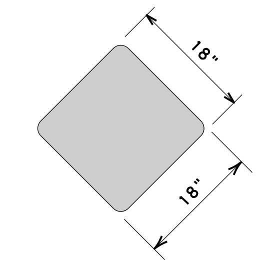
NUMBER OF REFLECTORS OR DIRECTION
X = 3-Size 2 reflector units (Type 2 only)
Y = 1-Size 3 reflector unit (Type 2 only)
Z = 3-Size 1 or 1-Size 4 reflector unit(s)(Type 2 only)
L = Left Side (Type 3 Object Marker only)
R = Right Side (Type 3 Object Marker only)
C = Center (Type 3 Object Marker only)

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

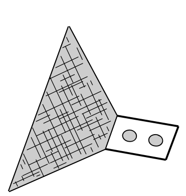
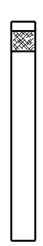
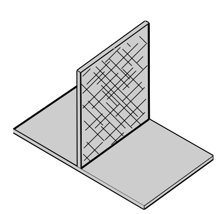
OBJECT MARKERS

	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE		 3-Size 2 reflector units	 1-Size 3 reflector unit	 3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_{FL} or C_{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_{FL} or C_{FL} Sheeting			Red -Type B_{FL} or C_{FL} Sheeting
POST TYPE	TWT	WC	WC	WFLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

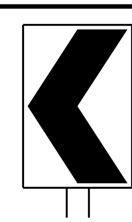
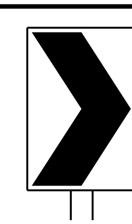
DEPARTMENTAL MATERIAL SPECIFICATIONS

FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

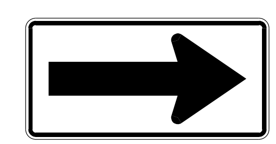
BARRIER REFLECTORS (BRF)

	GF1	GF2	CTB
DEVICE			
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.		
SHEETING	Yellow, White, Red		
NOTE	1. Reflective sheeting shall have a minimum dimension of 3 inches and minimum surface area of 9 square inches.		

CHEVRONS

DEVICE	  W1-8			
SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	

ONE DIRECTION LARGE ARROW

DEVICE	 W1-6	
SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

NOTE

1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies).
2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6).

NOTE:

Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.

Texas Department of Transportation — Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

FILE: doml-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	
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REVISIONS	0228	01	056	US 62/385	
10-09 3-15	DIST		COUNTY	SHEET NO.	
4-10 7-20	LBB		TERRY	142	

20A

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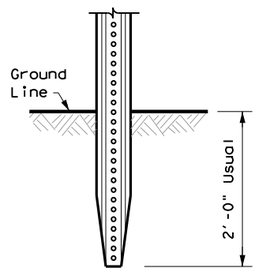
POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

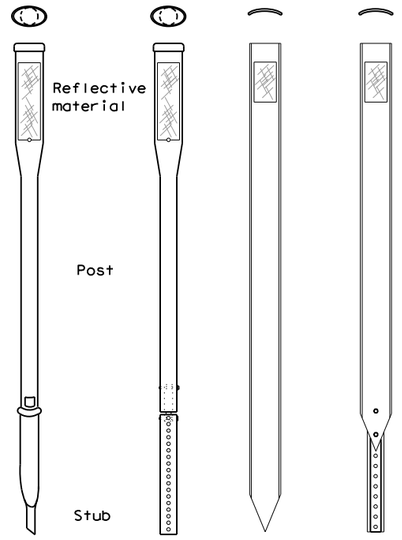


NOTES

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.

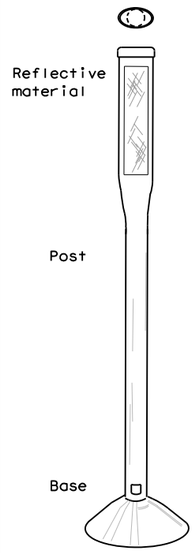
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



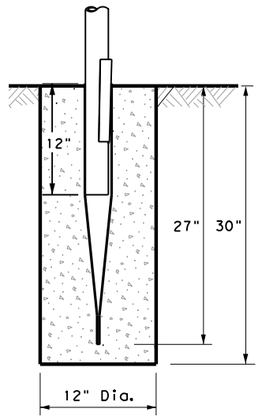
SURFACE MOUNT

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.

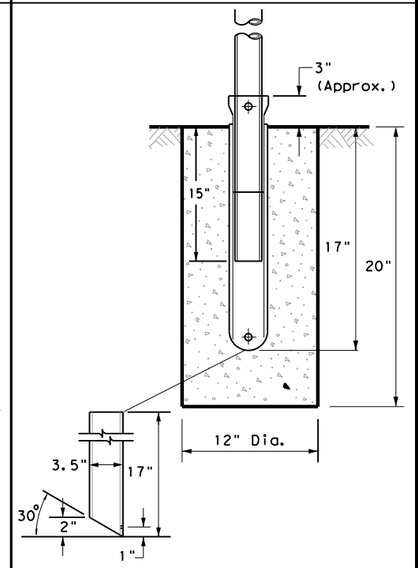
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

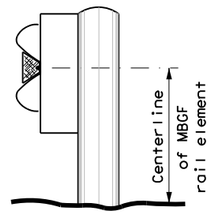
NOTE

1. Install per manufacturer's recommendations.

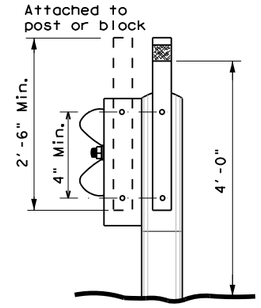
TYPE OF BARRIER MOUNTS

GUARD FENCE ATTACHMENT

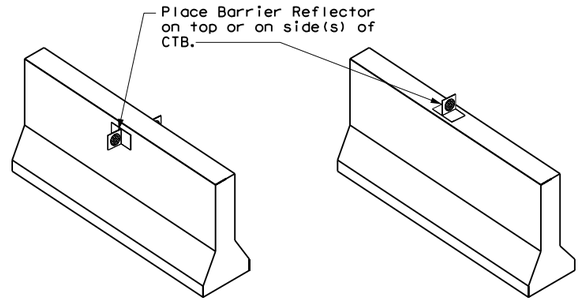
GF1



GF2



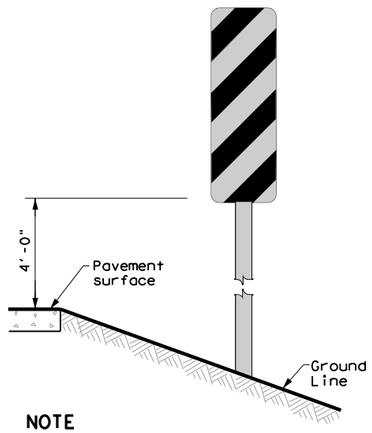
CONCRETE TRAFFIC BARRIER (CTB)



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.

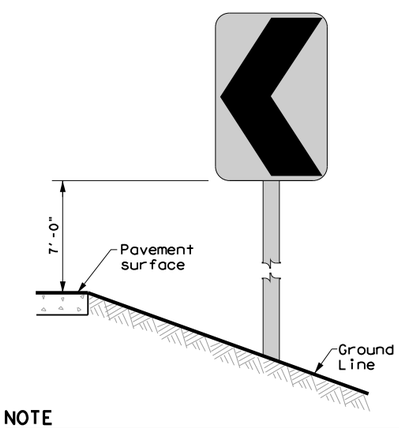
TYPES 1, 3, AND 4 OBJECT MARKERS AND CHEVRONS



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)

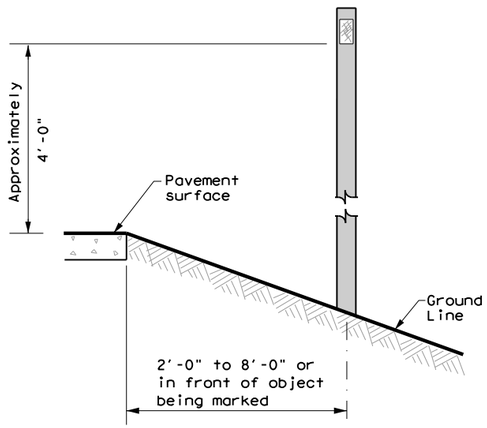
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



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



See general notes 1, 2 and 3.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

FILE: dom2-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
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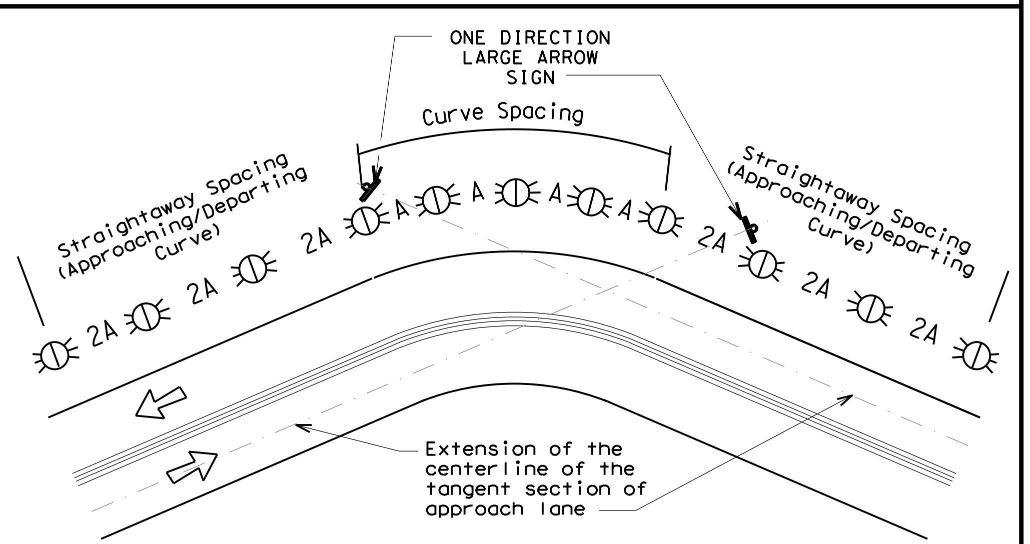
MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

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

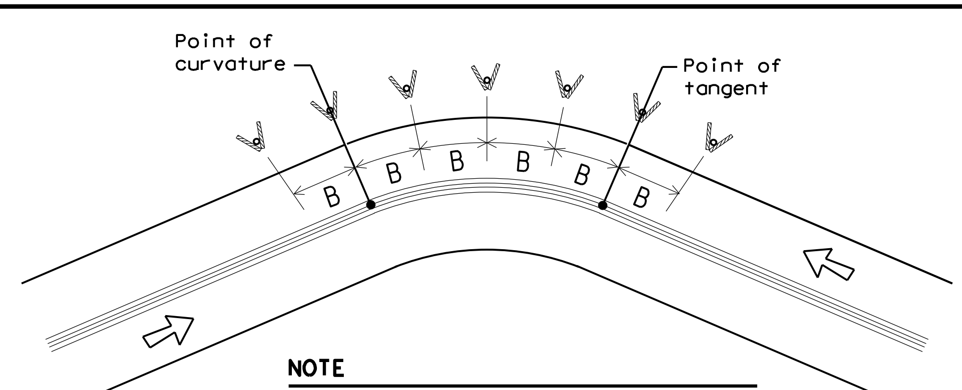
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



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

1. 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.
2. Barrier reflectors may be used to replace required delineators.
3. Single red delineators may be mounted on the back side of delineator posts for wrong way driver applications

LEGEND

(symbol)	Bi-directional Delineator
(symbol)	Delineator
(symbol)	Sign

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(3)-20

FILE: dom3-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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3-15 8-15 8-15 7-20	DIST		COUNTY	SHEET NO.
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20C

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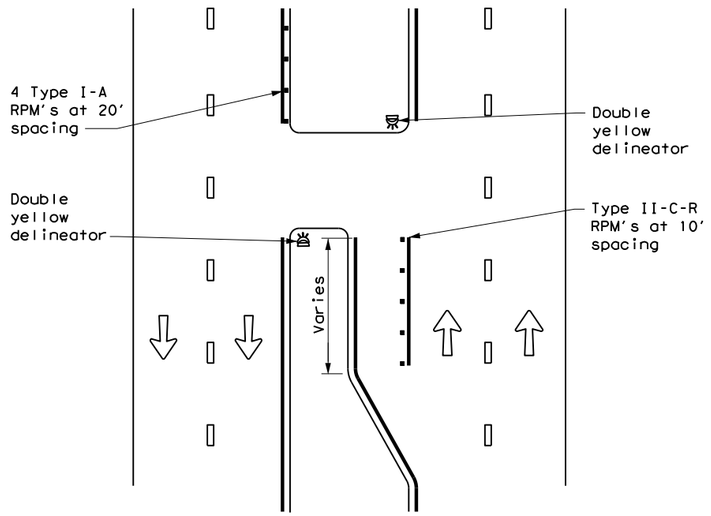
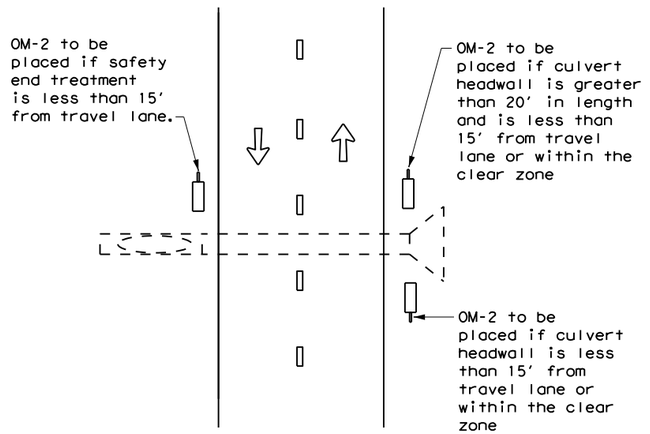
CROSSOVERS



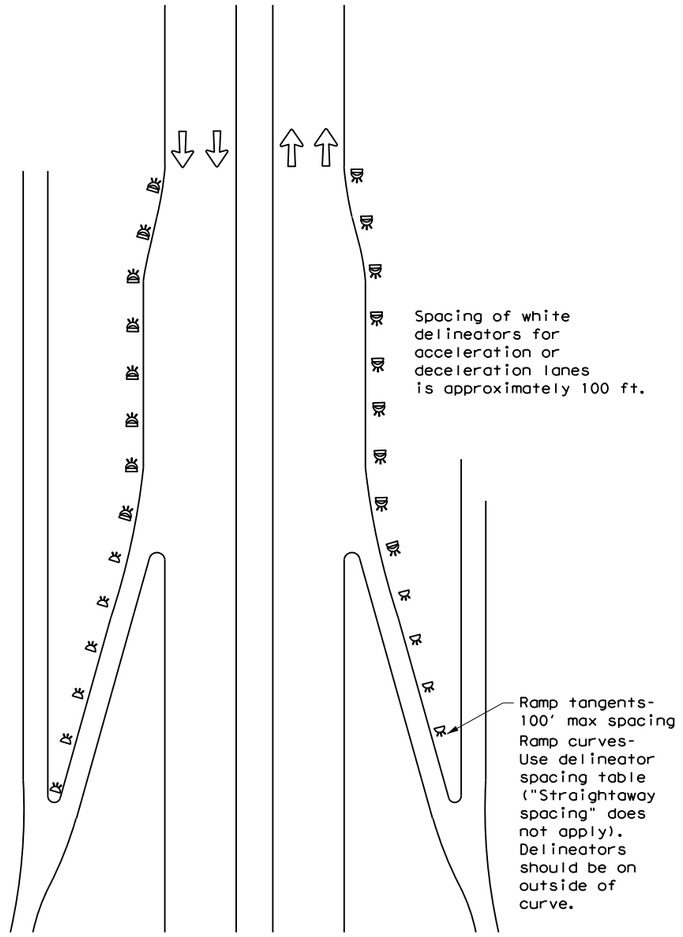
DETAIL 1

FOR CULVERTS WITHOUT MBGF



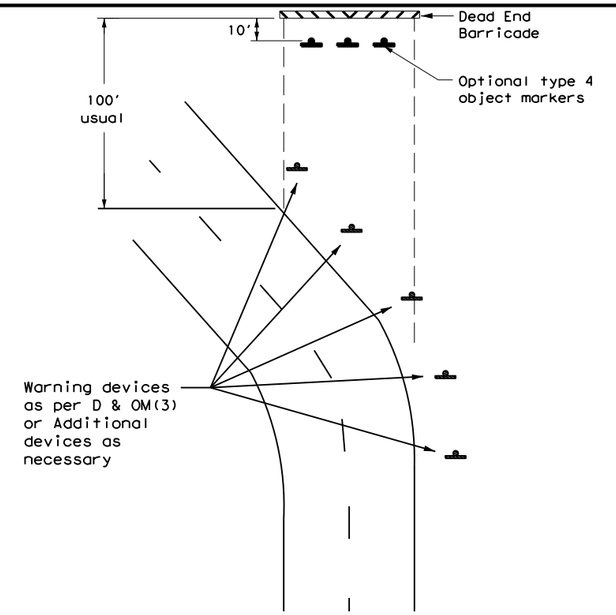
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



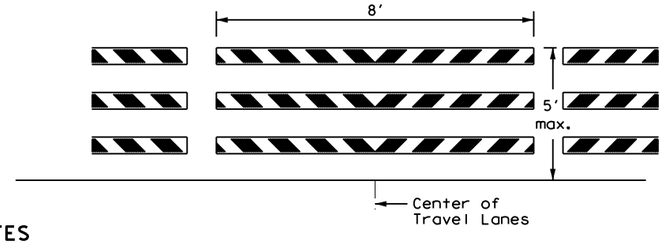
DETAIL 3

TYPICAL APPLICATION OF DEAD END BARRICADE



DETAIL 4

TYPICAL DEAD END BARRICADE INSTALLATION



NOTES

1. Barricade striping shall be red and white reflective sheeting for all permanent road closures.
2. Barricade striping is red and white sloping toward the center of the roadway.
3. 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

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(4)-20

FILE: dom4-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
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3-15	DIST	COUNTY		SHEET NO.
7-20	LBB	TERRY		145

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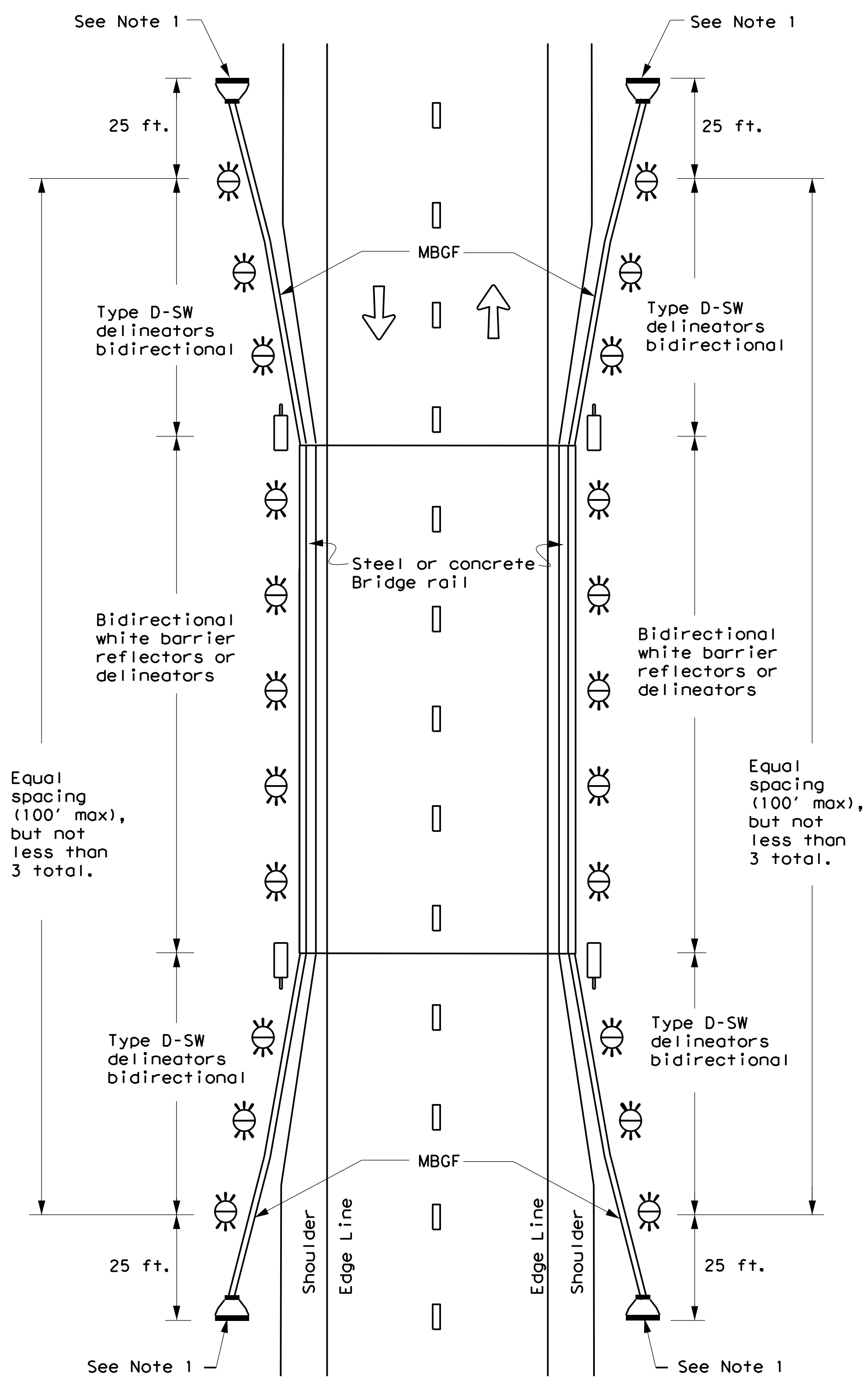
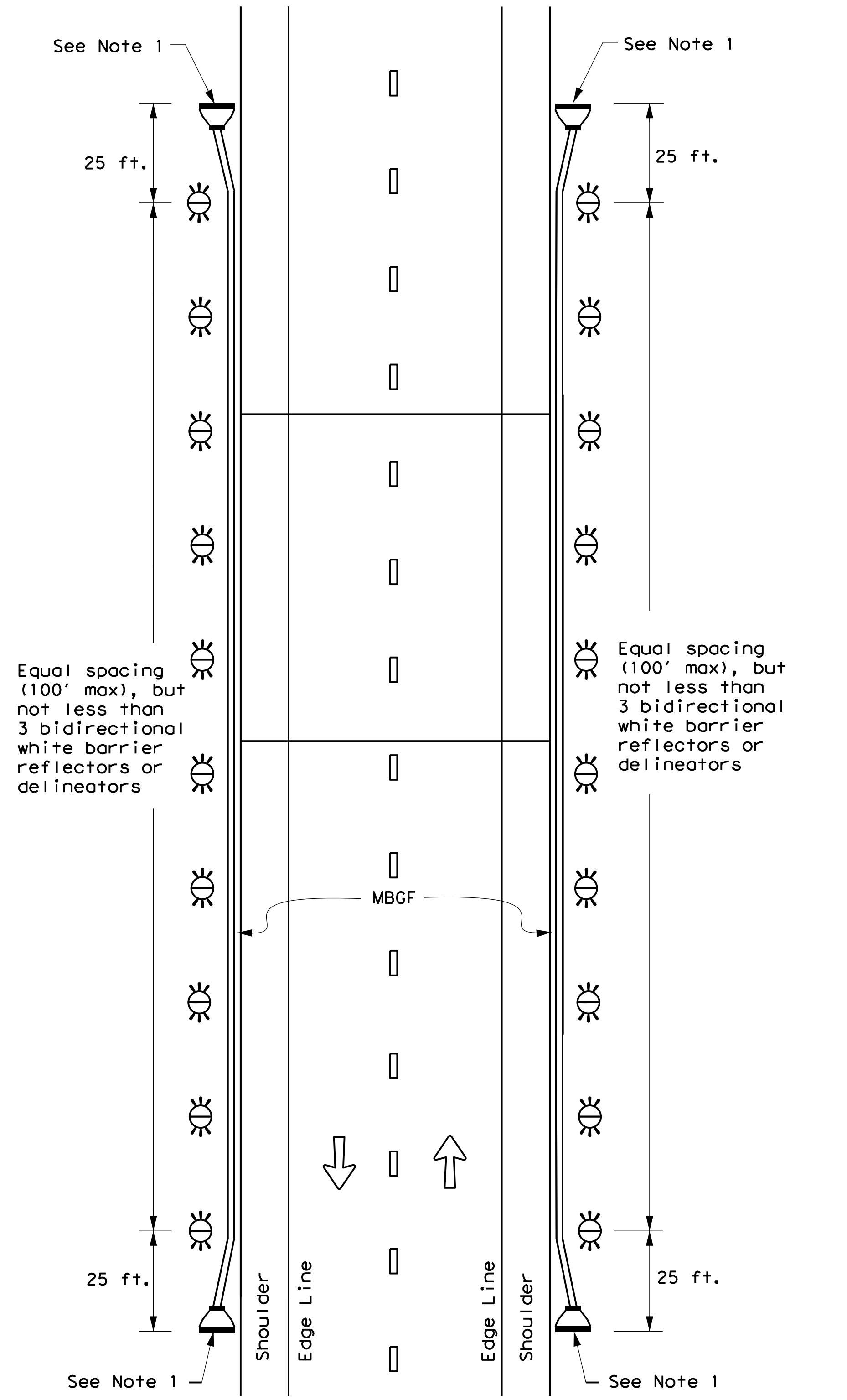
TWO-WAY, TWO LANE ROADWAY WITH REDUCED WIDTH APPROACH RAIL



NOTE:

1. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

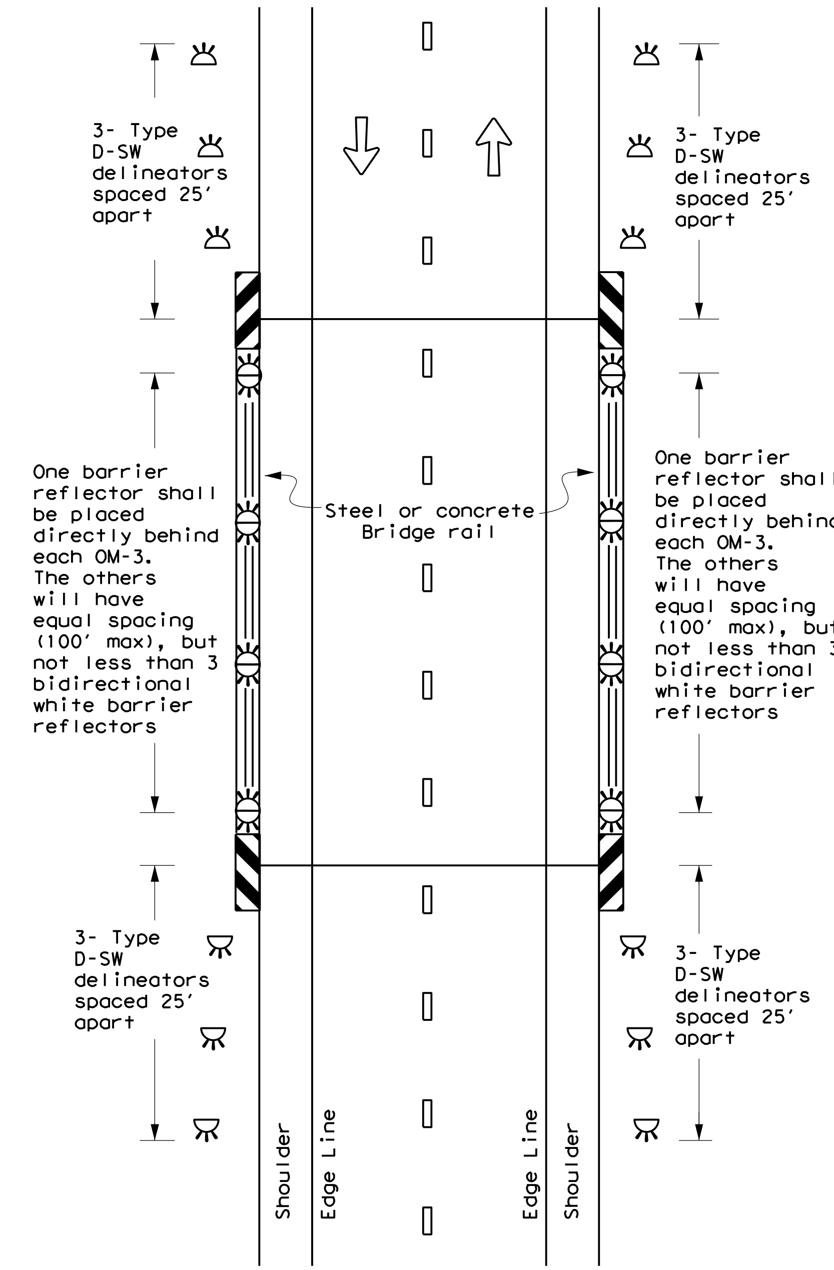
TWO-WAY, TWO LANE ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



NOTE:

1. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

TWO-WAY, TWO LANE ROADWAY BRIDGE WITH NO APPROACH RAIL



LEGEND

Symbol	Description
	Bidirectional Delineator
	Delineator
	OM-3
	OM-2
	Terminal End
	Traffic Flow

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(5)-20

FILE: dom5-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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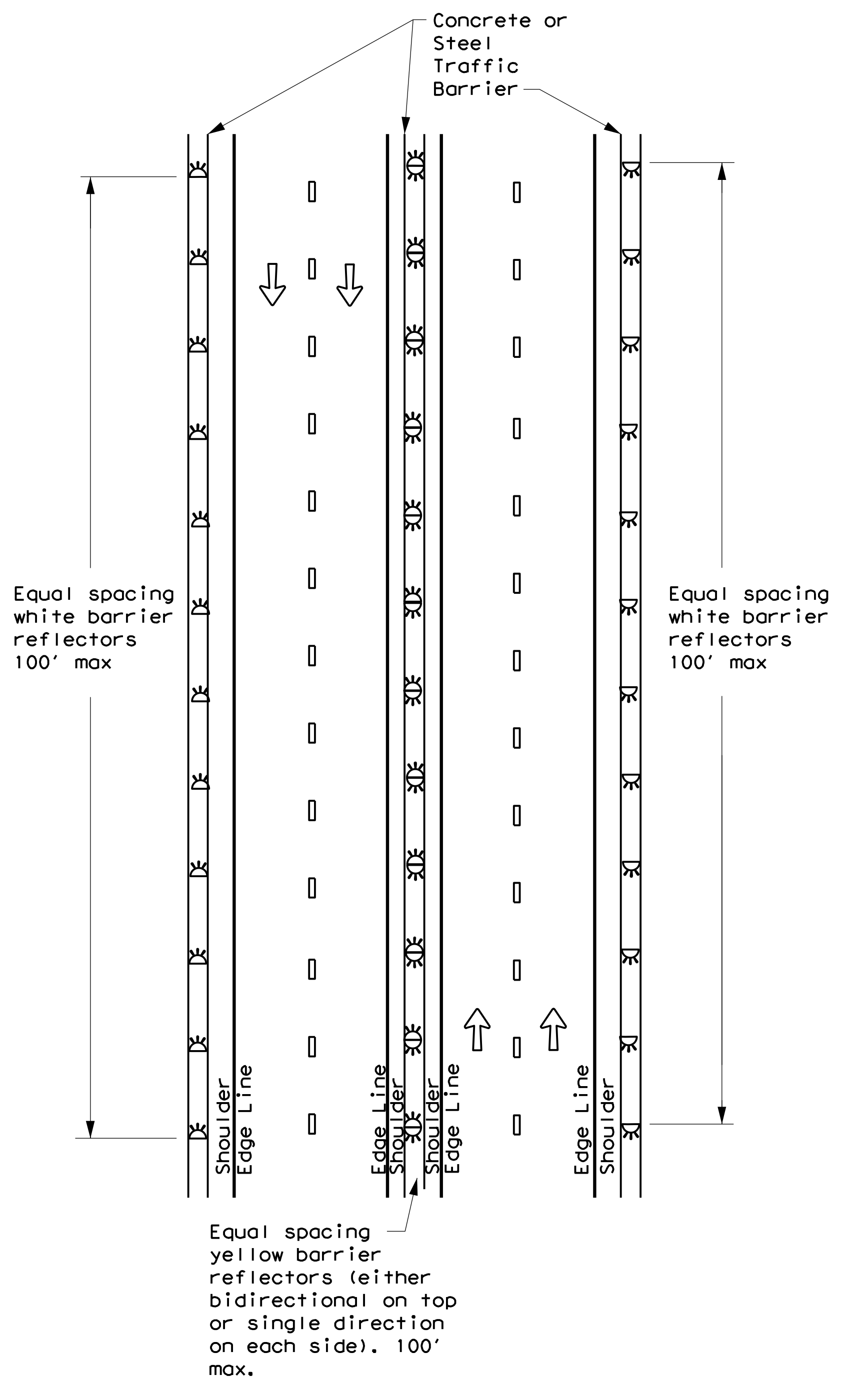
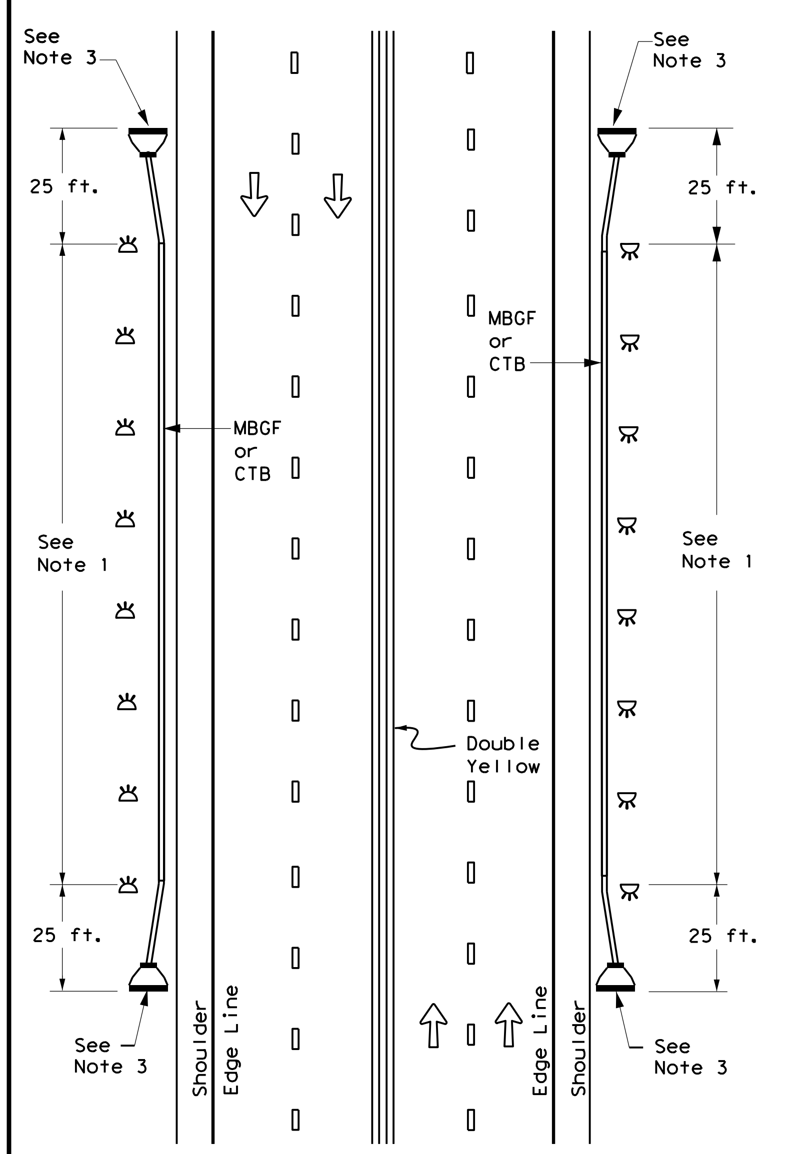
7-20	DIST		COUNTY	SHEET NO.
	LBB		TERRY	146

20E

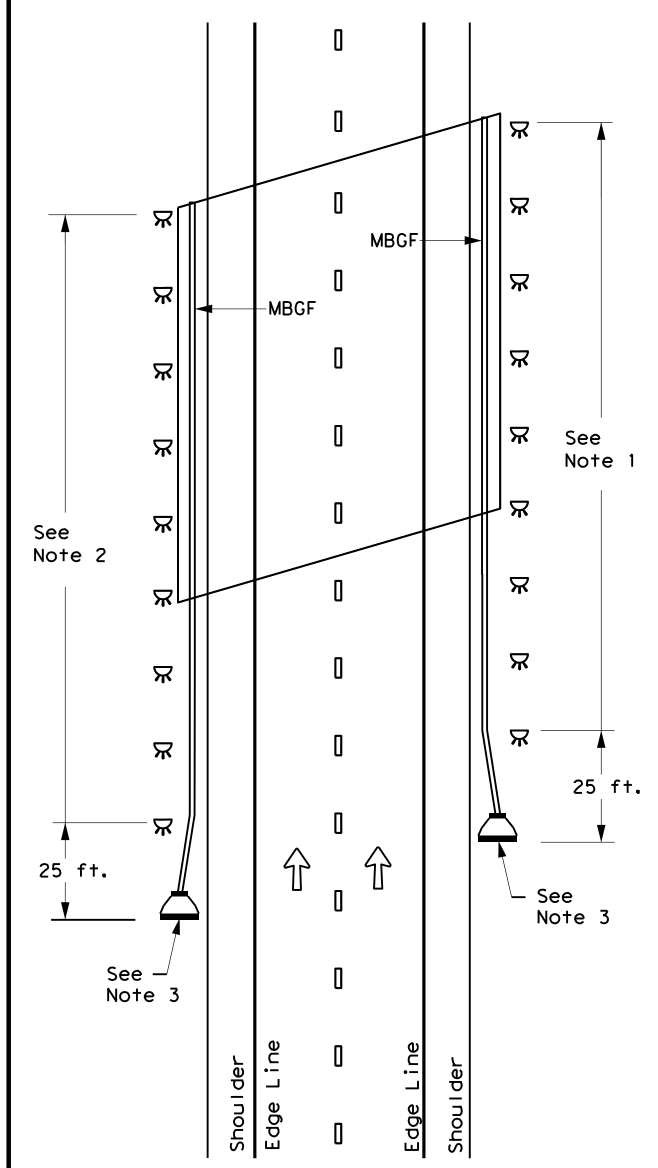
CONTINUOUS CONCRETE OR STEEL BARRIER



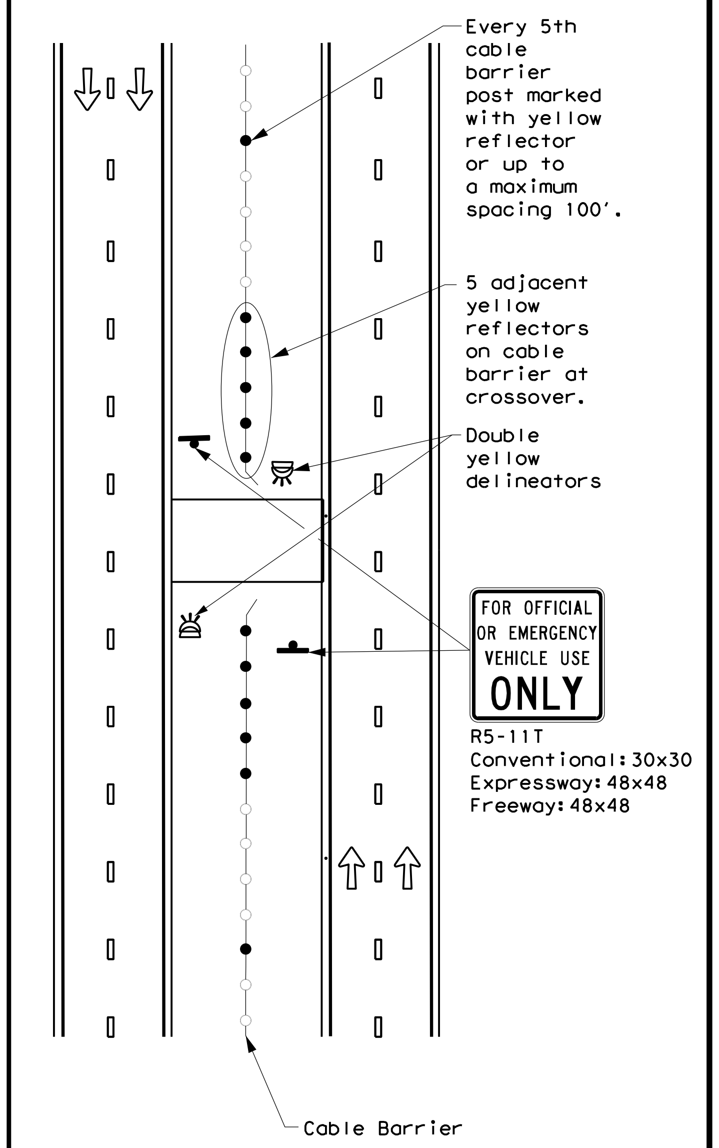
MULTI-LANE UNDIVIDED, TWO-WAY ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



DIVIDED ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



EMERGENCY CROSSOVER



NOTES

1. Equal spacing (100′ max), but not less than 3 single directional white barrier reflectors or delineators. On Continuos Barrier, equal spacing (100′ max.)

2. Equal spacing (100′ max), but not less than 3 single directional yellow barrier reflectors or delineators.

3. 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.

LEGEND

Symbol	Description
(symbol)	Bidirectional Delineator
(symbol)	Delineator
(symbol)	OM-3
(symbol)	OM-2
(symbol)	Terminal End
(symbol)	Traffic Flow

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(6)-20

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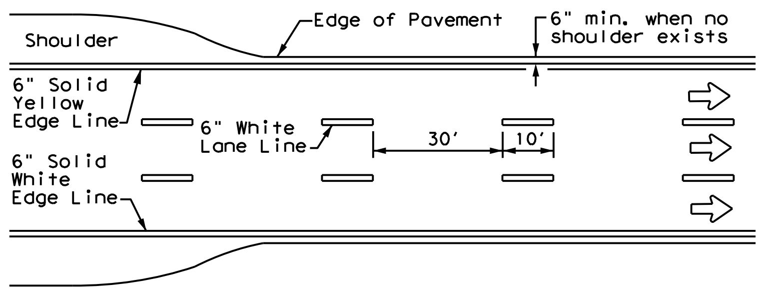
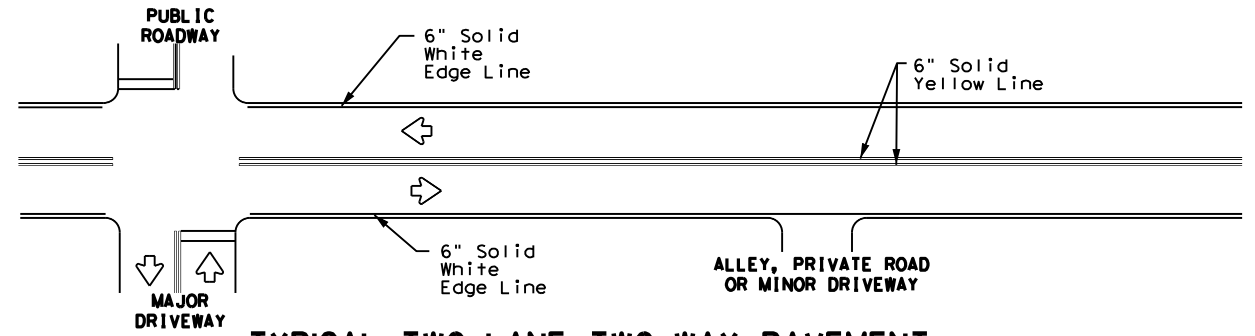
	LBB		TERRY	147

20F



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



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

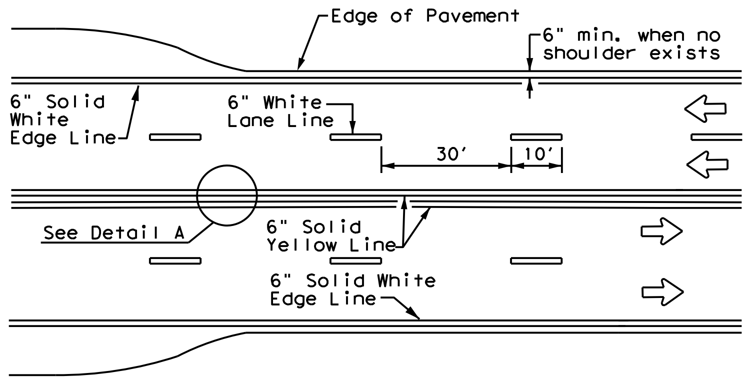
GENERAL NOTES

1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.

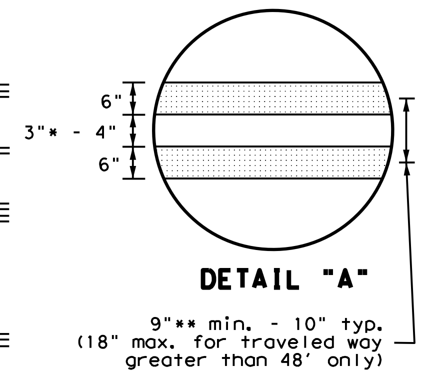
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

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

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



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

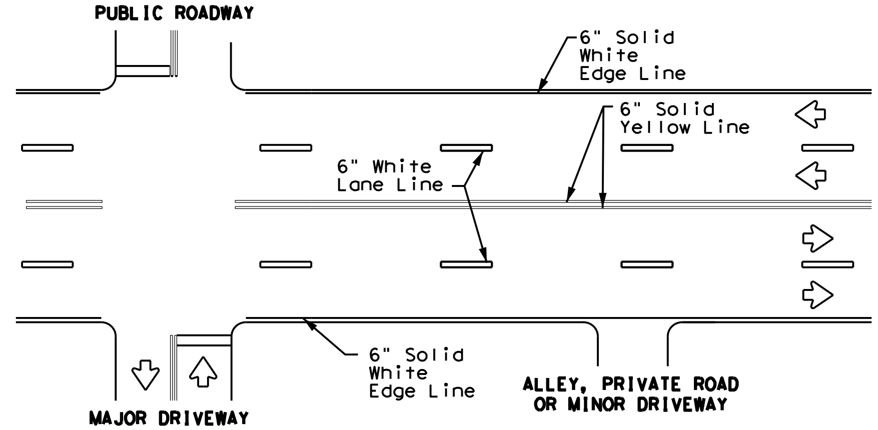


DETAIL "A"

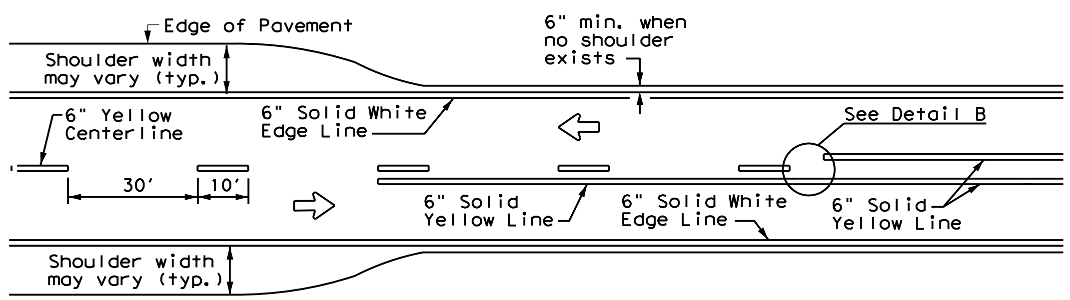
9"** min. - 10" typ. (18" max. for traveled way greater than 48' only)

* 2" minimum for restripe projects when approved by the Engineer.

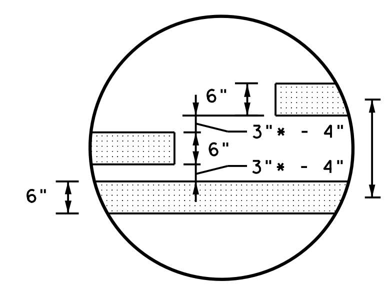
** 8" minimum for restripe projects when approved by the Engineer.



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



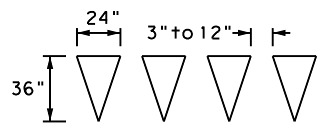
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



18" min. - 20" max. (16" minimum for restripe projects when approved by the Engineer.)

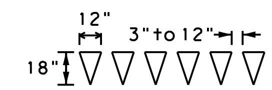
DETAIL "B"

* 2" minimum for restripe projects when approved by the Engineer.

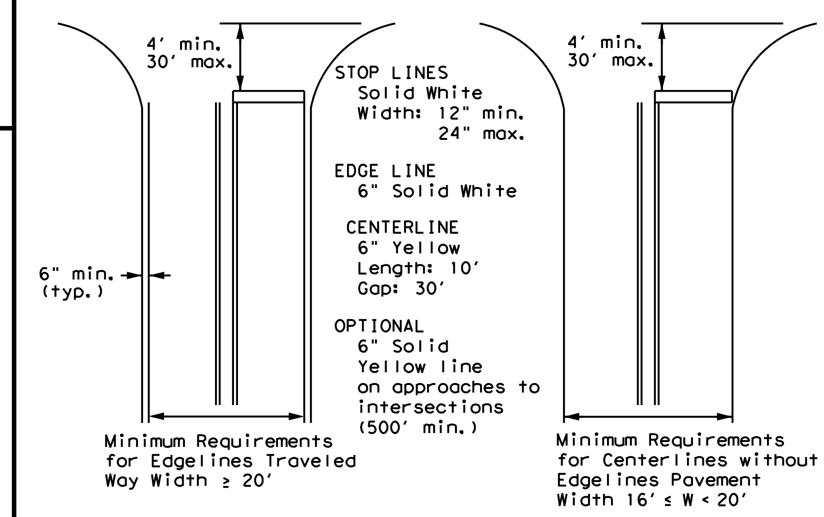


For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



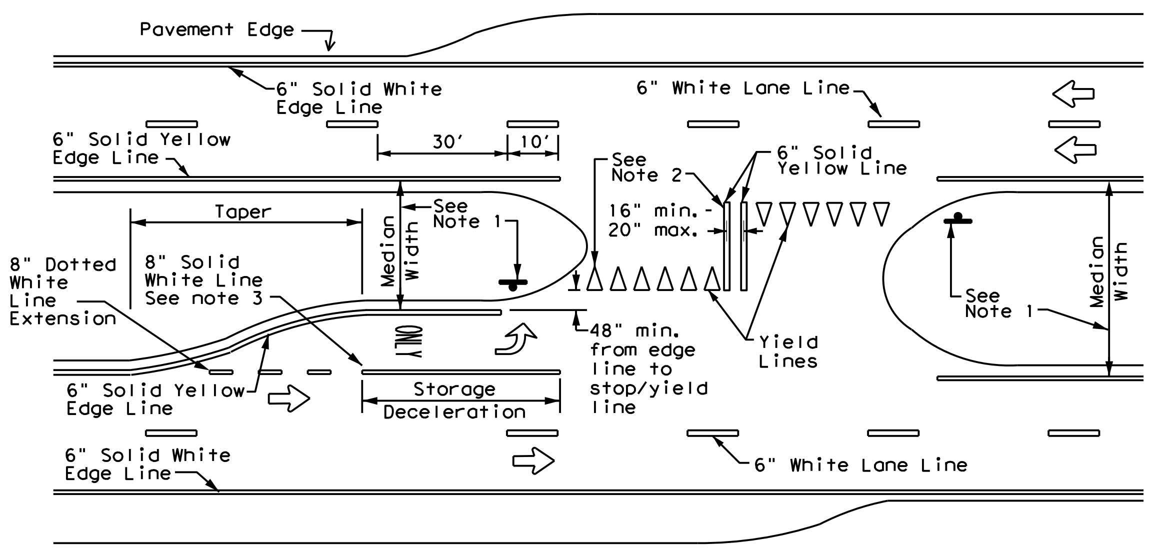
For posted speed on road being marked equal to or less than 40 MPH.



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

1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections.
Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.

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

3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

Texas Department of Transportation — Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

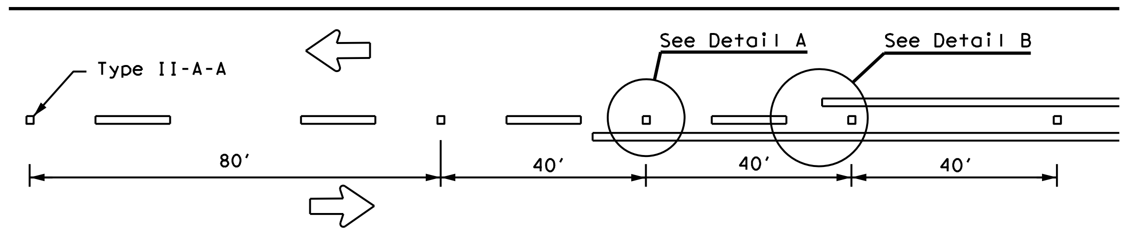
PM(1)-22

FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 11-78 8-00 6-20 8-95 3-03 12-22 5-00 2-12	0228	01	056	US 62/385
	DIST		COUNTY	SHEET NO.
	LBB		TERRY	148

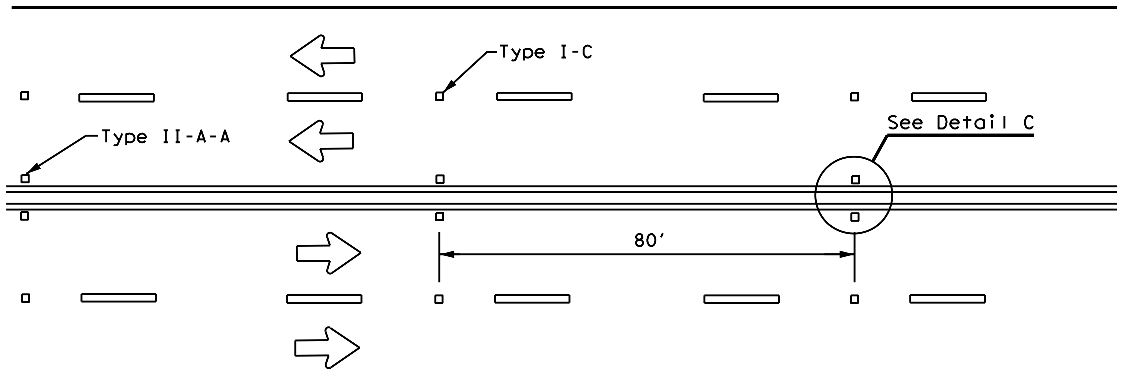
22A

DATE: 6/20/2023 2:38:57 PM
FILE: pw:\\txdot.projectwiseonline.com:TxDOT2\Documents\05 - LBB\Design Projects\...

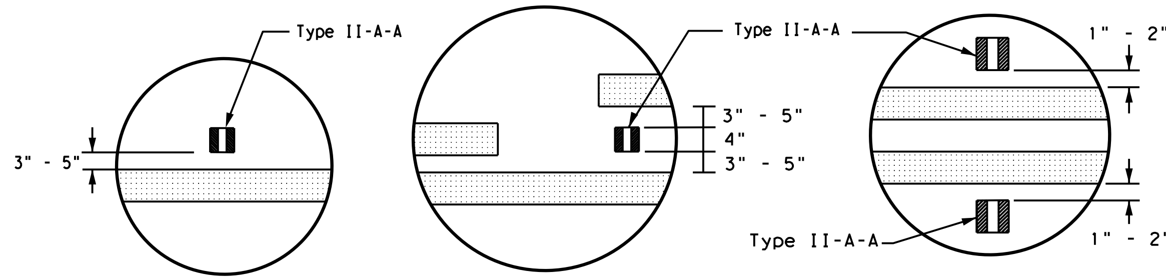
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

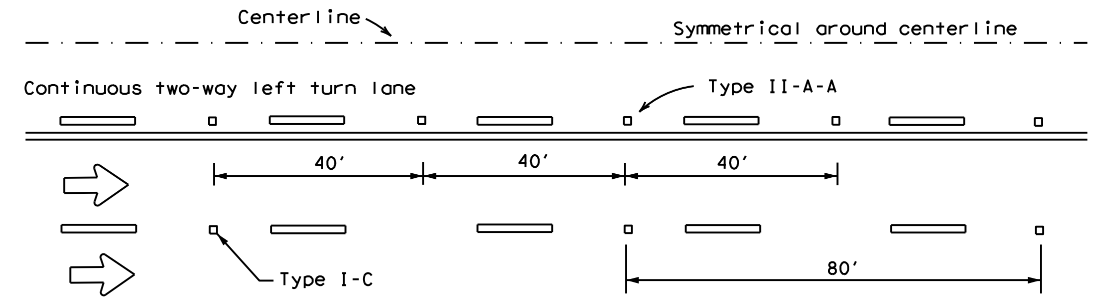


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

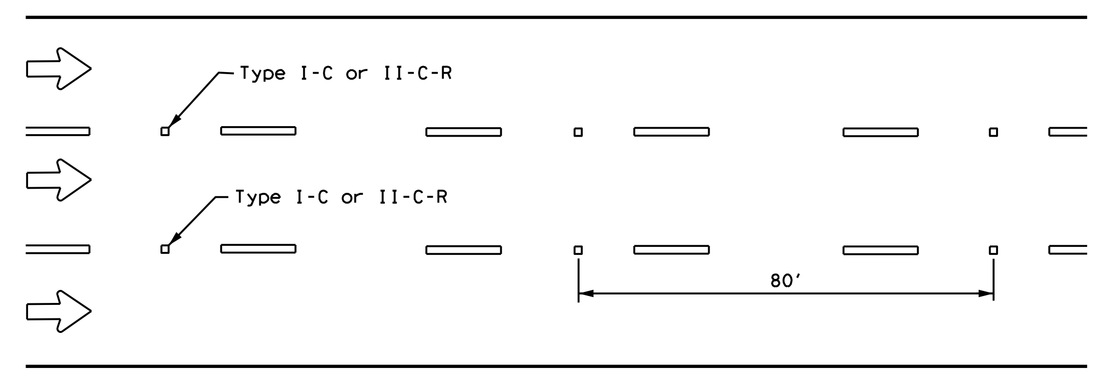


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS





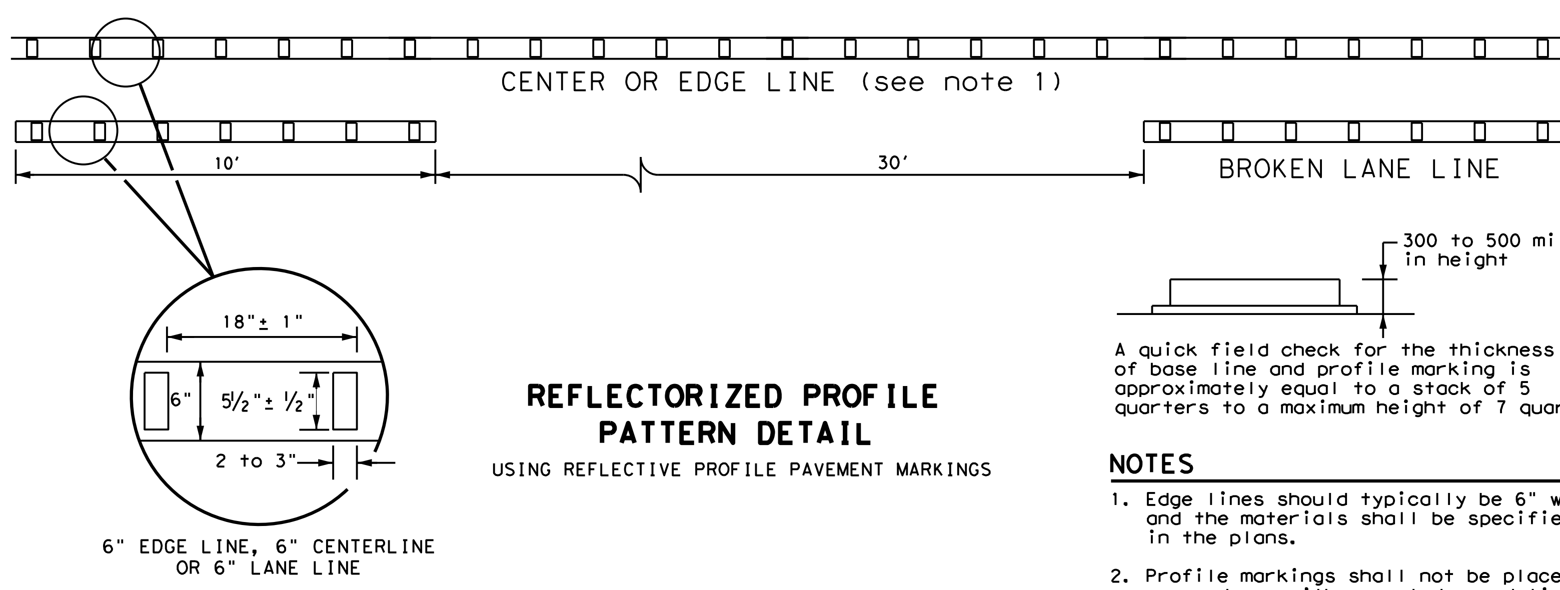
CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



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

300 to 500 mil in height

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

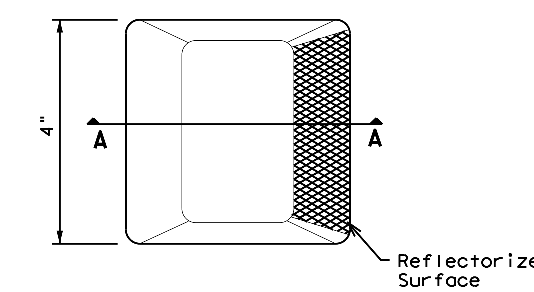
1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

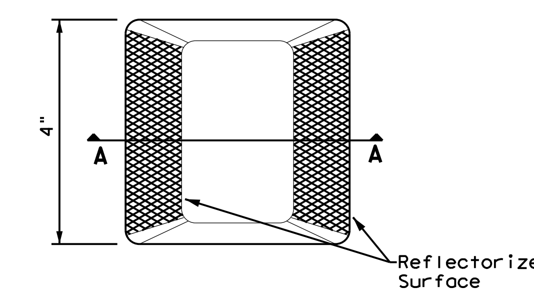
1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians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

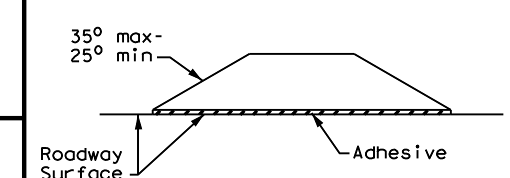
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

Traffic Safety Division Standard

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

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT 0228	SECT 01	JOB 056	HIGHWAY US 62/385
REVISIONS 4-77 8-00 6-20; 4-92 2-10 12-22; 5-00 2-12	DIST LBB		COUNTY TERRY	SHEET NO. 149

22B

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DATE: 6/20/2023 2:39:01 PM
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DATE: 6/20/2023 2:39:04 PM
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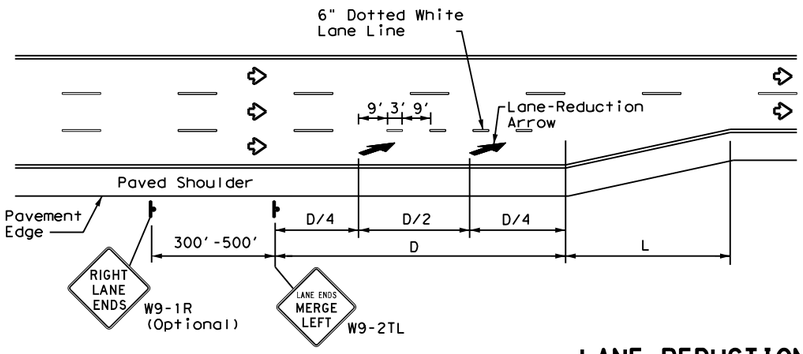
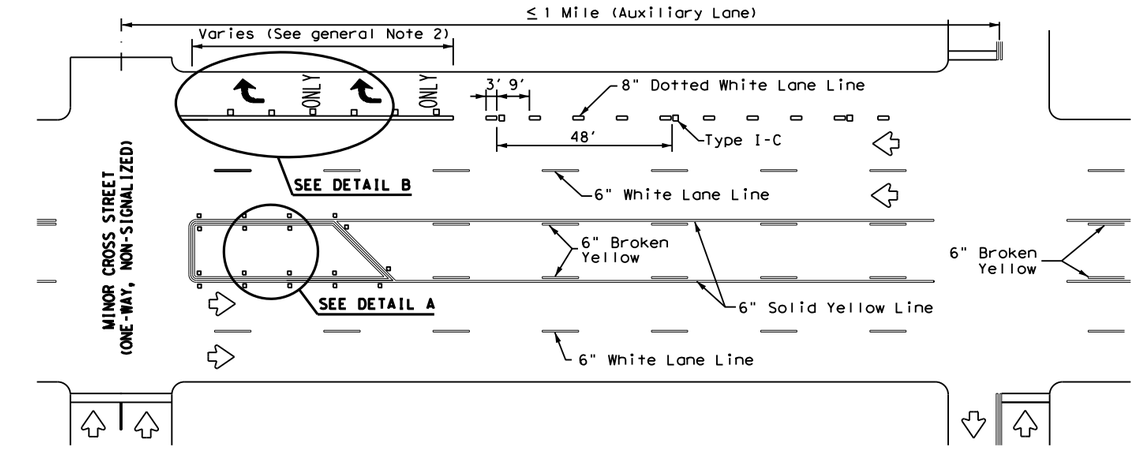


LANE REDUCTION

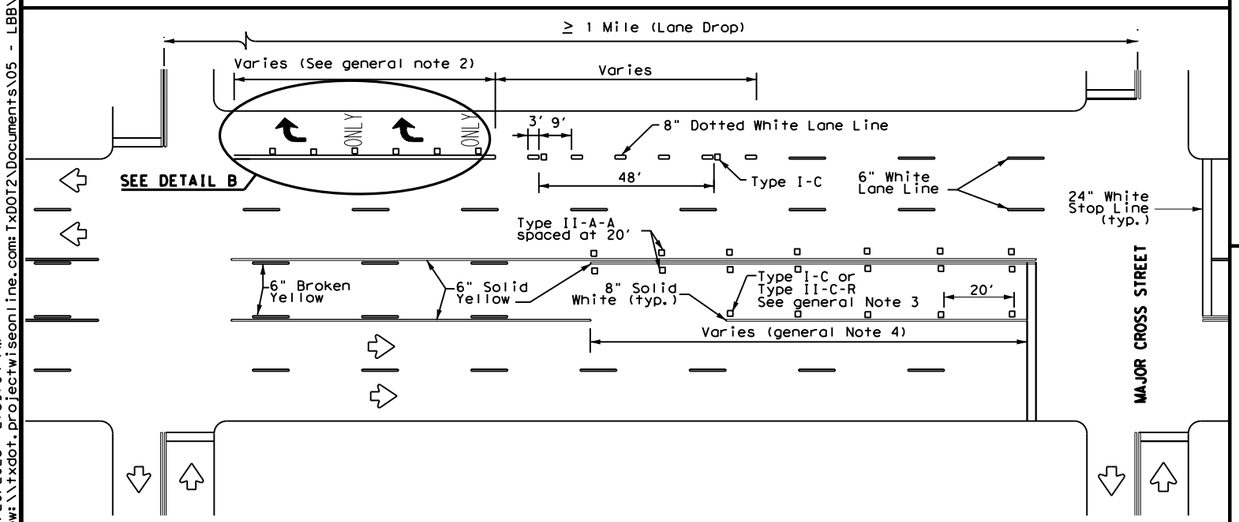
NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

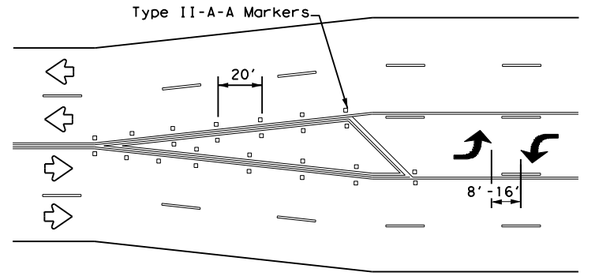
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	



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

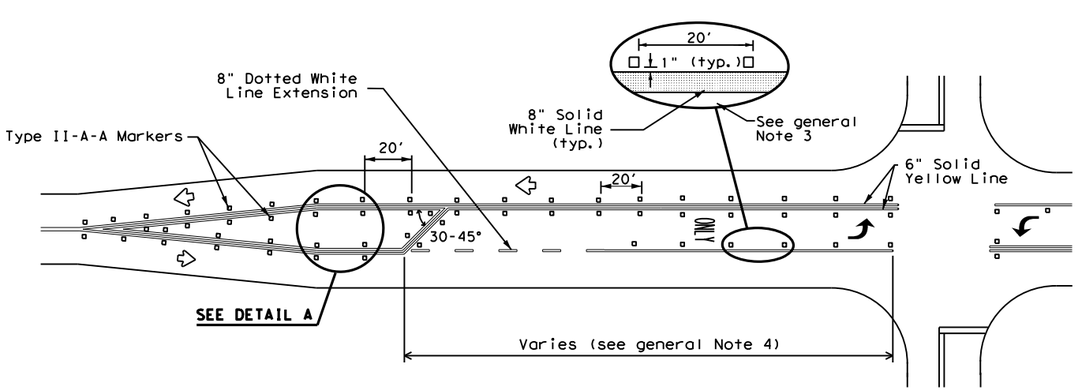


TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



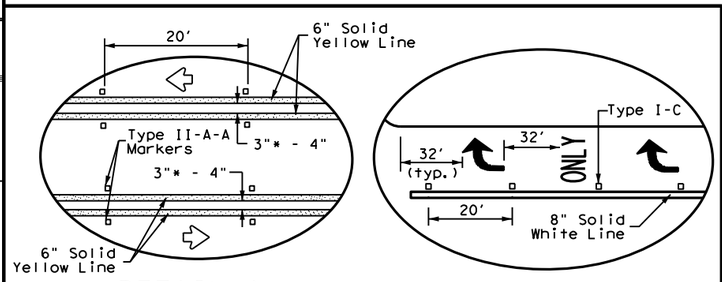
TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS

GENERAL NOTES

1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

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

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



* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

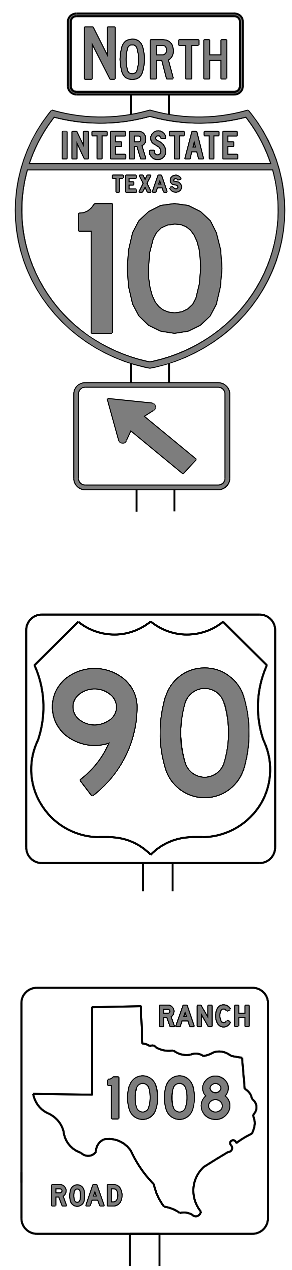
PM(3)-22

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12	0228	01	056	US 62/385
	DIST	COUNTY		SHEET NO.
	LBB	TERRY		150

22C

REQUIREMENTS FOR INDEPENDENT MOUNTED ROUTE SIGNS

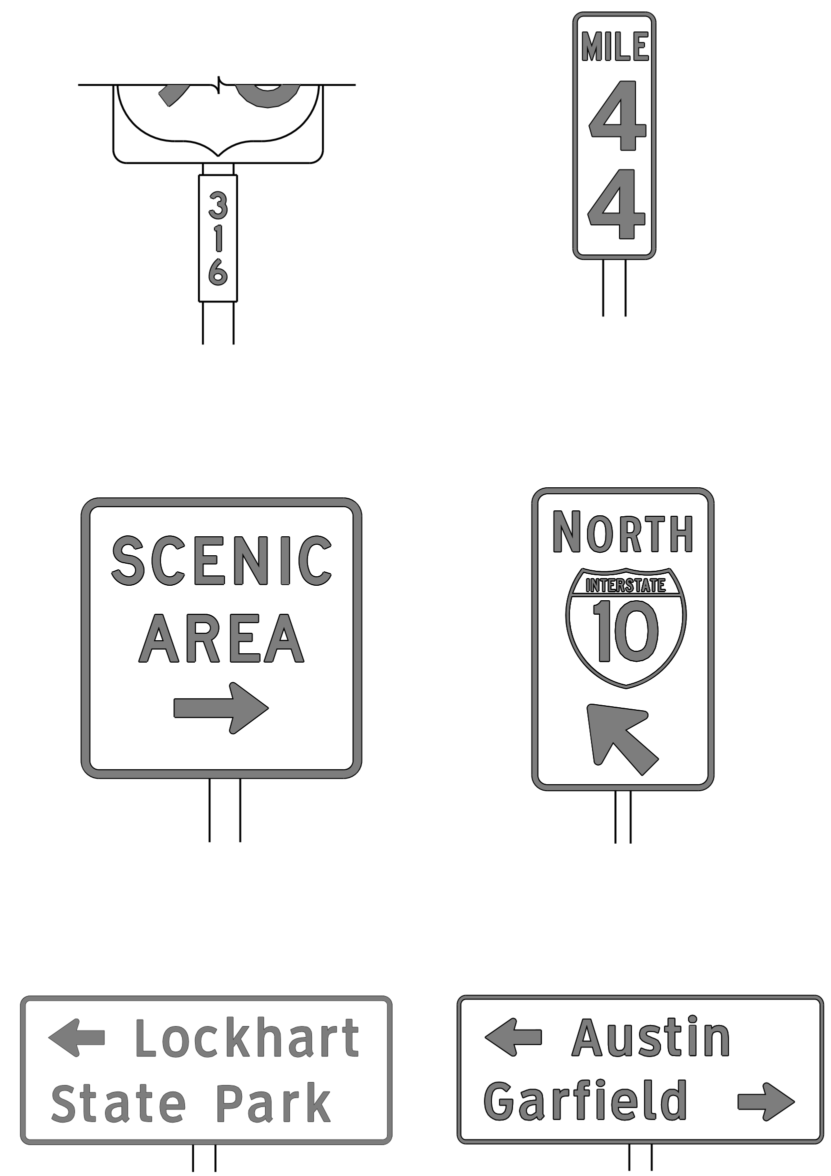
SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE A SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & BORDERS	ALL OTHERS	TYPE B or C SHEETING



TYPICAL EXAMPLES

REQUIREMENTS FOR BLUE, BROWN & GREEN D AND I SERIES GUIDE SIGNS

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	ALL	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE D SHEETING
LEGEND, SYMBOLS & BORDERS	ALL OTHERS	TYPE B OR C SHEETING



TYPICAL EXAMPLES

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).

2. White legend shall use the Clearview Alphabet. The following Clearview fonts shall be used to replace the existing white Federal Highway Administration (FHWA) Standard Highway Alphabets, when not specified in the SHSD, or in the plans.

B	CV-1W
C	CV-2W
D	CV-3W
E	CV-4W
Emod	CV-5WR
F	CV-6W

3. Route sign legend (ie. IH, US, SH and FM shields) shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets B, C, D, E, Emod or F).

4. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.

5. Independent mounted route sign with white or colored legend and borders shall be applied by screening process with transparent color ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof. White legend, symbols and borders on all other signs shall be cut-out white sheeting applied to colored background sheeting.

6. Information regarding borders and radii for signs is found in the "Standard Highway Sign Designs for Texas". Dimensions shown and described for borders and corner radii on parent sign are nominal. Borders may vary in width as much as 1/2 inch. Corner radii above 3 inches may vary in width as much as 1 inch. Borders and corner radii within a parent sign must be of matching widths. The sign area outside the corner radius should be trimmed or rounded.

7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.

8. Mounting details of roadside signs are shown in the "SMD series" Standard Plan Sheets.

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

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

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

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(3)-13

FILE: tsr3-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
12-03 7-13 9-08	DIST		COUNTY	SHEET NO.
	LBB		TERRY	151

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DATE: 6/20/2023 2:39:10 PM
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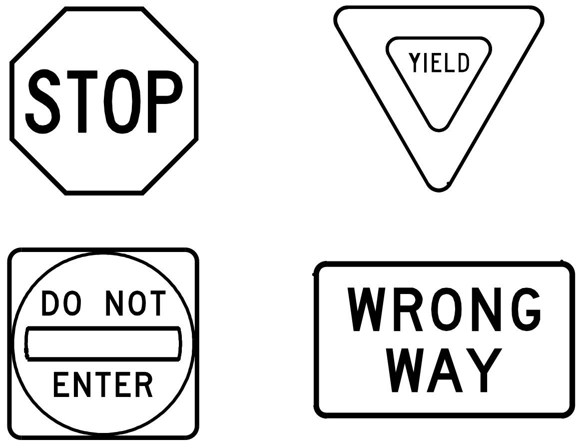
REQUIREMENTS FOR RED BACKGROUND REGULATORY SIGNS
(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

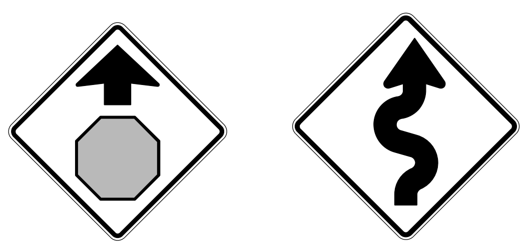
SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	WHITE	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING
LEGEND	RED	TYPE B OR C SHEETING

REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS
(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)

TYPICAL EXAMPLES

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

REQUIREMENTS FOR WARNING SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR SCHOOL SIGNS

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING

GENERAL NOTES

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

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

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

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

Texas Department of Transportation — Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(4)-13

FILE: tsr4-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	
© TxDOT October 2003	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0228	01	056	US 62/385	
12-03 7-13 9-08	DIST	COUNTY		SHEET NO.	
	LBB	TERRY		152	

4

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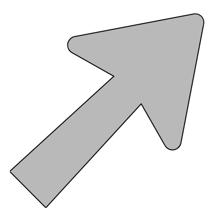
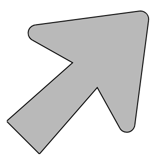
FILE: pw:\\txdot.projectwiseonline.com:TxDOT2\Documents\05 - LBB\Design Projects\0228010056\a other\Design Files\Sheets\Standards\Signing Standards\tsr5-13.dgn

ARROW DETAILS

for Large Ground-Mounted and Overhead Guide Signs


Type A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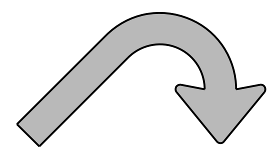
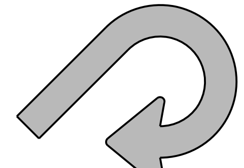
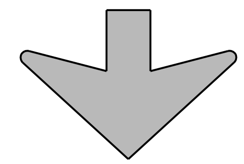

E-3


E-4


Down Arrow

TYPE	LETTER SIZE	USE
A-1	10.67" U/L and 10" Caps	Single Lane Exits
A-2	13.33" U/L and 12" Caps	
A-3	16" & 20" U/L	
B-1	10.67" U/L and 10" Caps	Multiple Lane Exits
B-2	13.33" U/L and 12" Caps	
B-3	16" & 20" U/L	

CODE	USED ON SIGN NO.
E-3	E5-1aT
E-4	E5-1bT

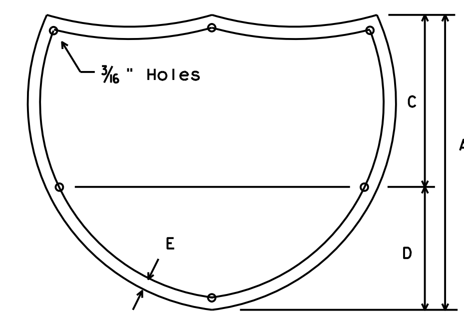
NOTE

Arrow dimensions are shown in the "Standard Highway Sign Designs for Texas" manual.

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

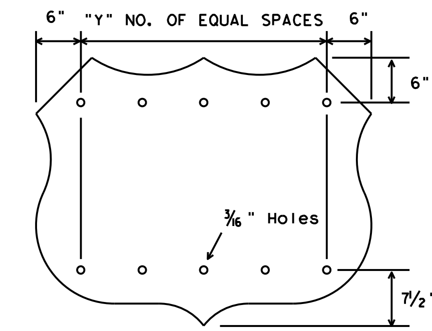
http://www.txdot.gov/

SIGN BLANK PUNCHING DETAILS FOR ATTACHMENTS WHEN SPECIFIED TO BE TYPE A ALUMINUM SIGNS (FOR MOUNTING TO GUIDE SIGN FACE)



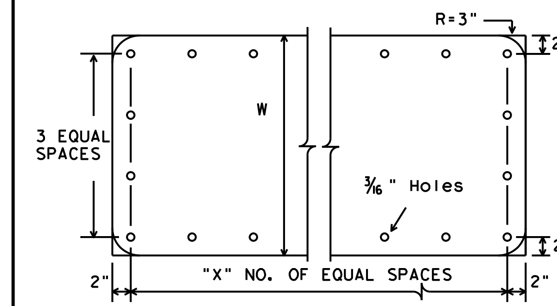
INTERSTATE ROUTE MARKERS

A	C	D	E
36	21	15	1 1/2
48	28	20	1 3/4



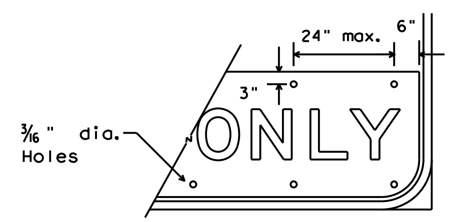
U.S. ROUTE MARKERS

Sign Size	"Y"
24x24	2
30x24	3
36x36	3
45x36	4
48x48	4
60x48	5



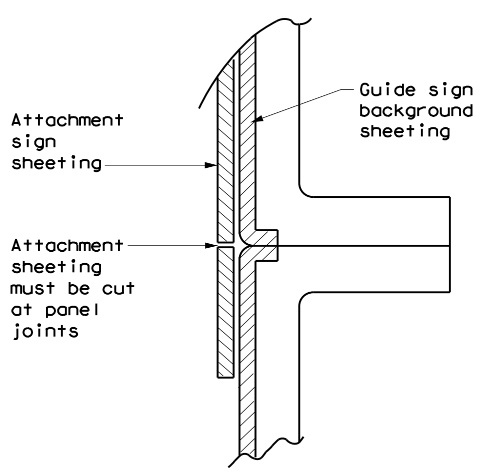
STATE ROUTE MARKERS

No. of Digits	W	X
4	24	4
4	36	5
4	48	6
3	24	3
3	36	4
3	48	5

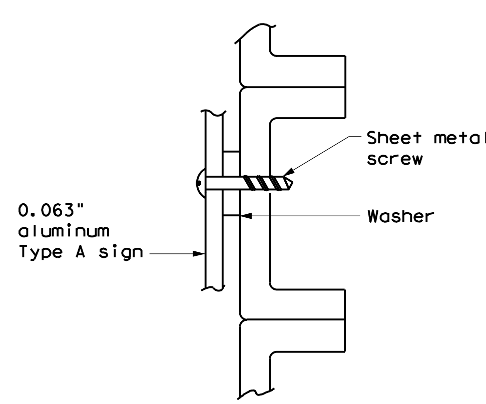


EXIT ONLY PANEL

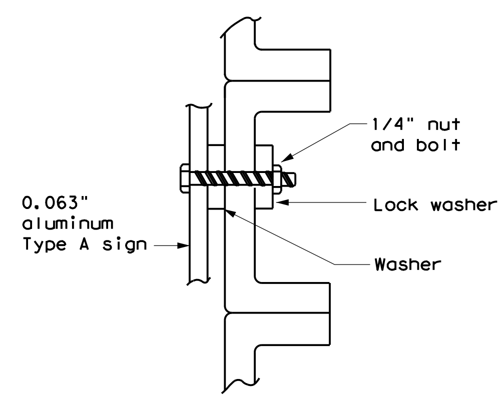
MOUNTING DETAILS OF ATTACHMENTS TO GUIDE SIGN FACE ("EXIT ONLY" AND "LEFT EXIT" PANELS, ROUTE MARKERS AND OTHER ATTACHMENTS)



DIRECT APPLIED ATTACHMENT



SCREW ATTACHMENT



NUT/BOLT ATTACHMENT

NOTE:

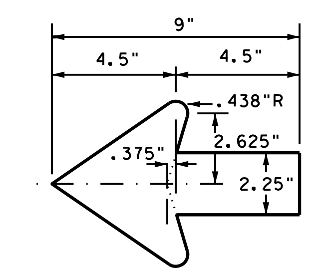
1. Sheeting for legend, symbols, and borders must be cut at panel joints.
2. Direct applied attachment signs will be subsidiary to "Aluminum Signs" or "Fiberglass Signs".

NOTE:

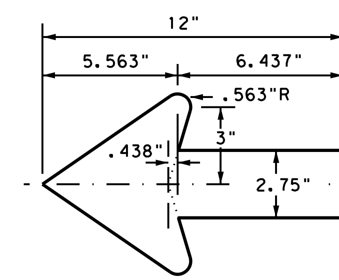
Furnish Type A aluminum sign attachments only when specified in the plans. These signs will be paid for under "Aluminum Signs".

ARROW DETAILS

for Destination Signs (Type D)



Standard arrow to be used with 6 inch letters.



Standard arrow to be used with 8 inch letters.

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(5)-13

FILE: tsr5-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
12-03 7-13 9-08	DIST		COUNTY	SHEET NO.
	LBB		TERRY	153

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FILE: pw:\\txdot.projectwiseonline.com:TxDOT2\Documents\05 - LBB\Design Projects\022801056\4 - Design\Plan Set\8. Traffic\Signs Standards\smdgen.dgn

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

Post Type

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

Number of Posts (1 or 2)

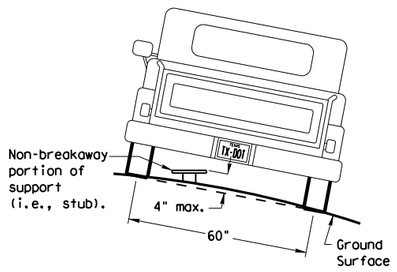
Anchor Type

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

Sign Mounting Designation

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

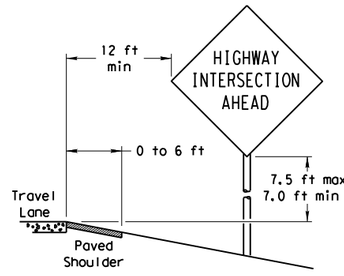
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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

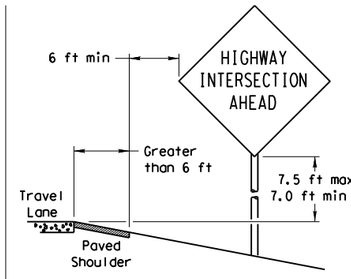
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

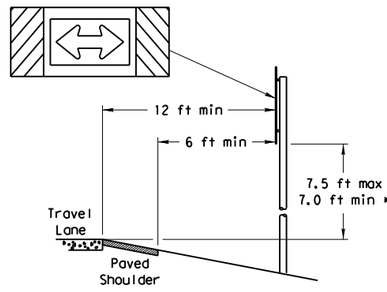
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



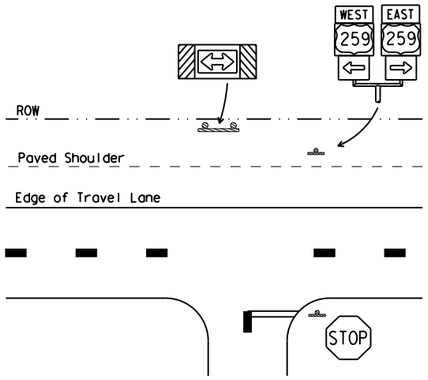
GREATER THAN 6 FT. WIDE

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

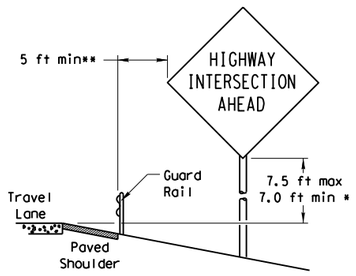
T-INTERSECTION



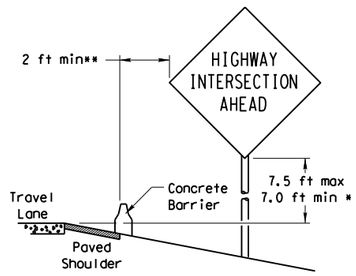
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



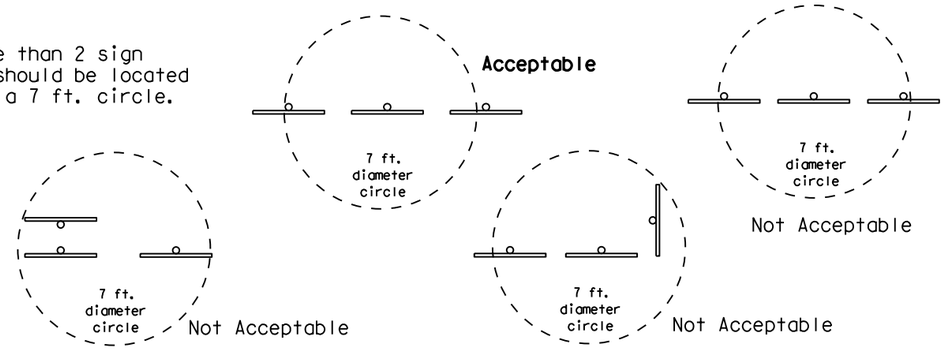
BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

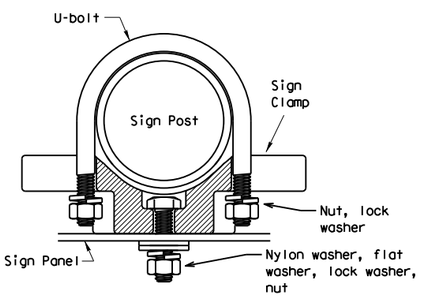
**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

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



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

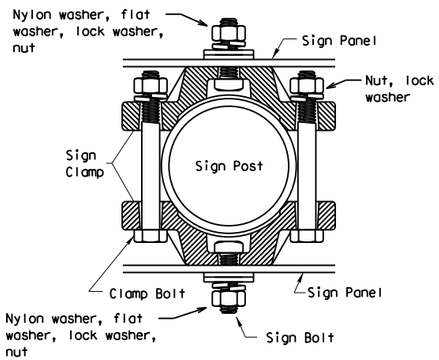


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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

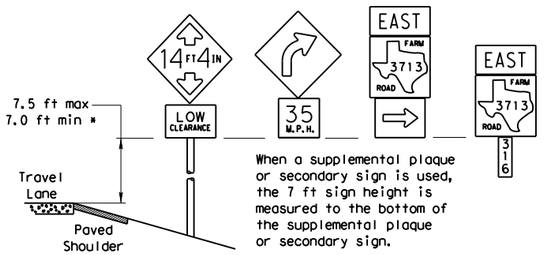
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



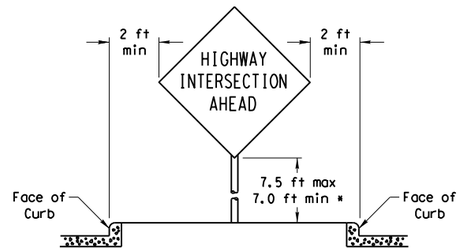
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



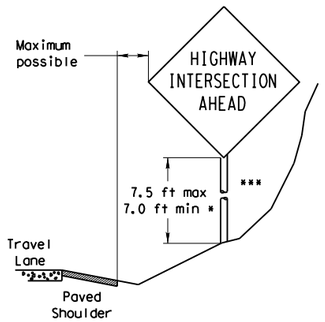
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



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

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

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

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

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

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

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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0228	01	056	US 62/385
	DIST	COUNTY		SHEET NO.
	LBB	TERRY		154

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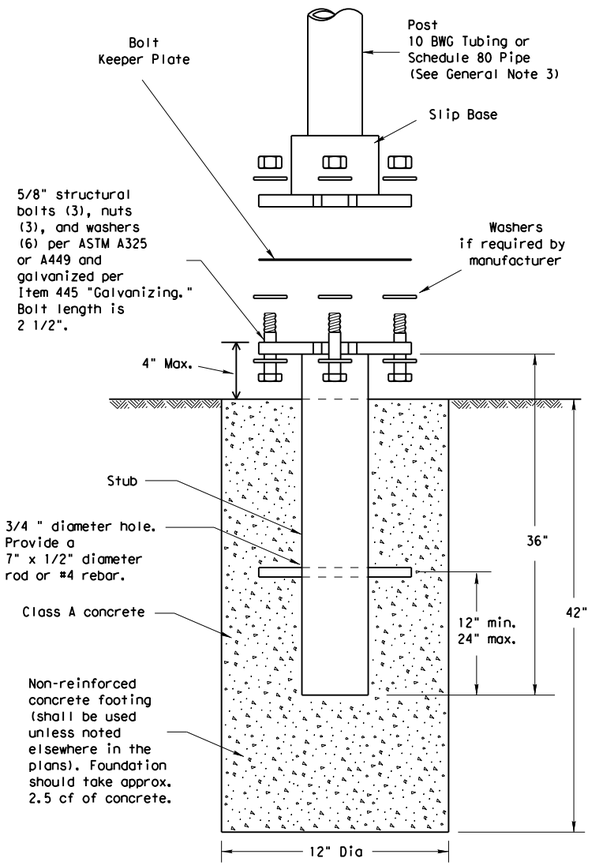
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

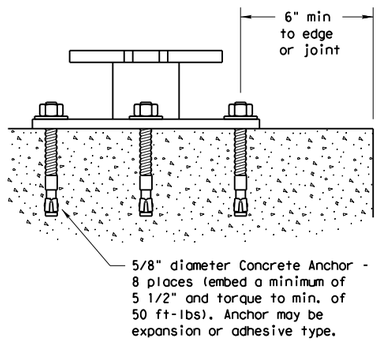
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



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

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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

REVISIONS 9-08

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385

DIST	COUNTY	SHEET NO.
LBB	TERRY	155

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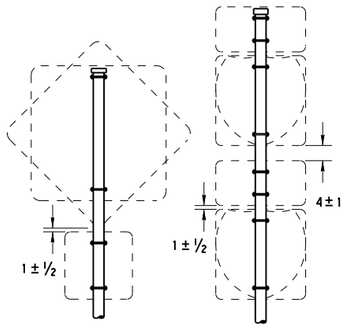
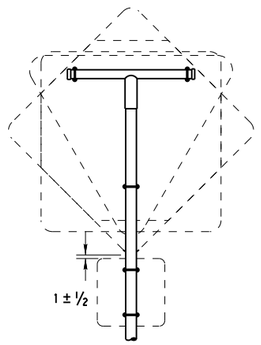
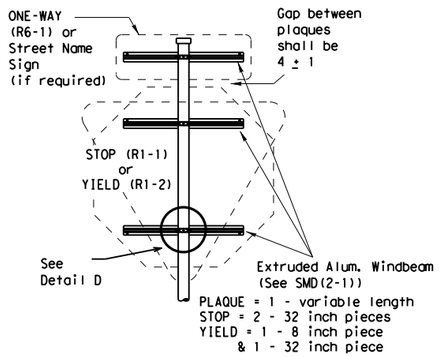


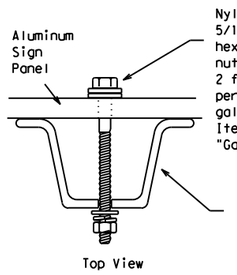
SM RD SGN ASSM TY XXXXX(1)XX(P)



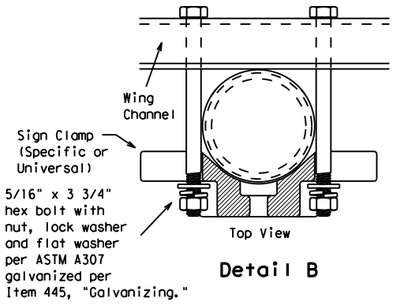
SM RD SGN ASSM TY XXXXX(1)XX(T)



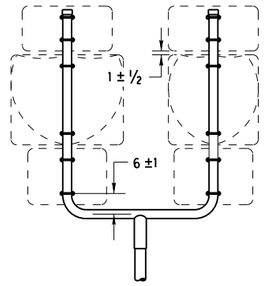
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



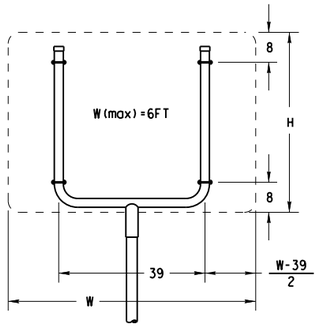
Detail A



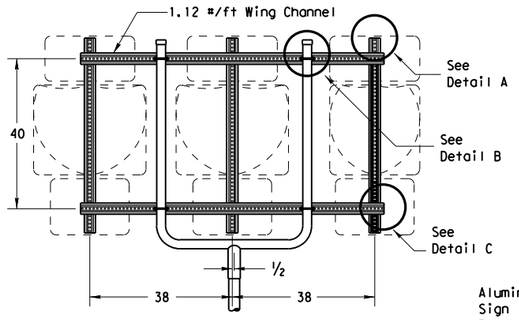
Detail B



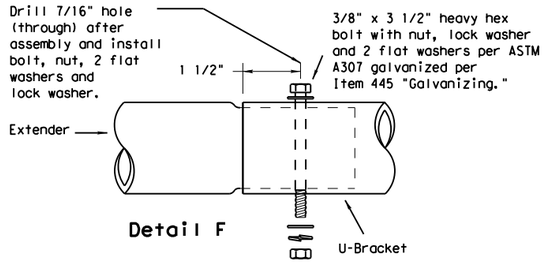
SM RD SGN ASSM TY XXXXX(1)XX(U)



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

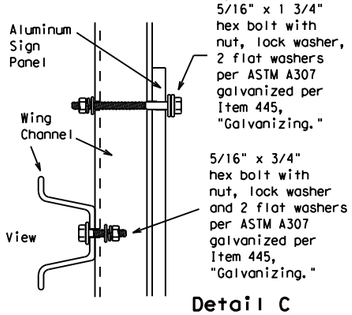


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

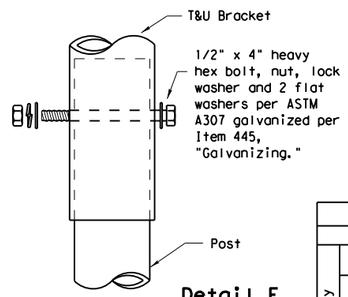


Detail F

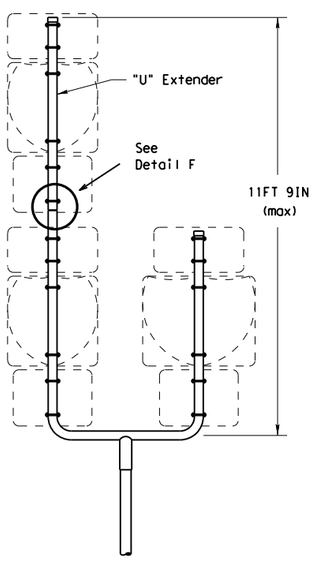
Splices shall only be allowed behind the sign substrate.



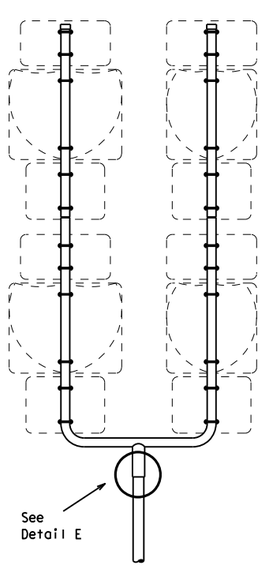
Detail C



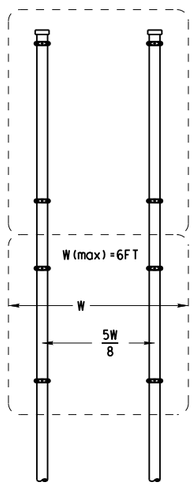
Detail E



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

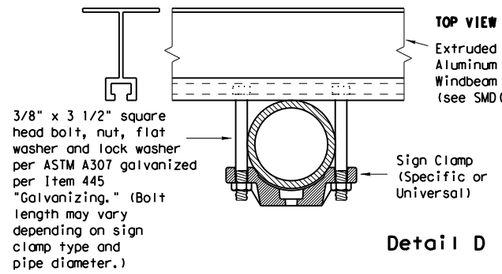


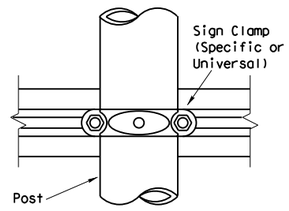
SM RD SGN ASSM TY S80(1)XX(U-2EXT)



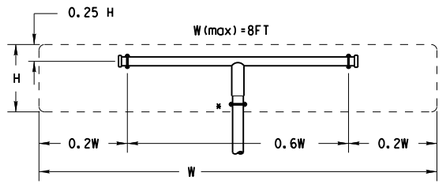
SM RD SGN ASSYM TY XXXXX(2)XX(P)

SIDE VIEW





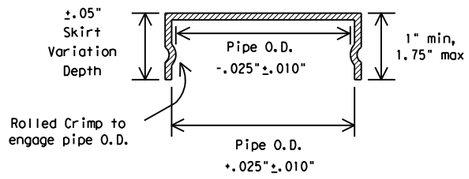
Detail D



SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

GENERAL NOTES:

1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

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

9-08 REVISIONS

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385

DIST	COUNTY	SHEET NO.
LBB	TERRY	156

DATE: 6/20/2023 2:39:24 PM
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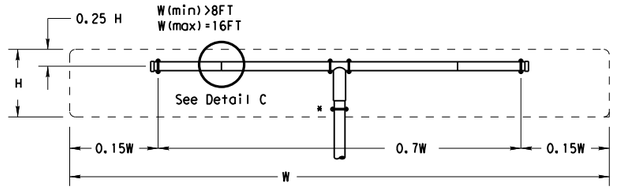
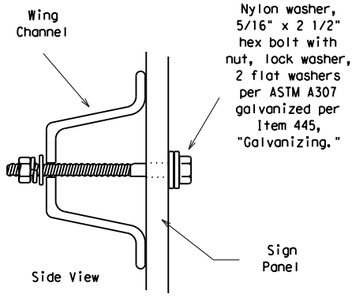
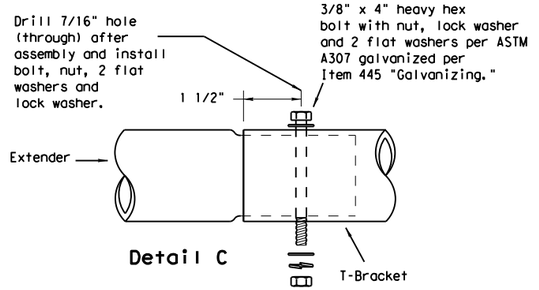


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)



Detail B



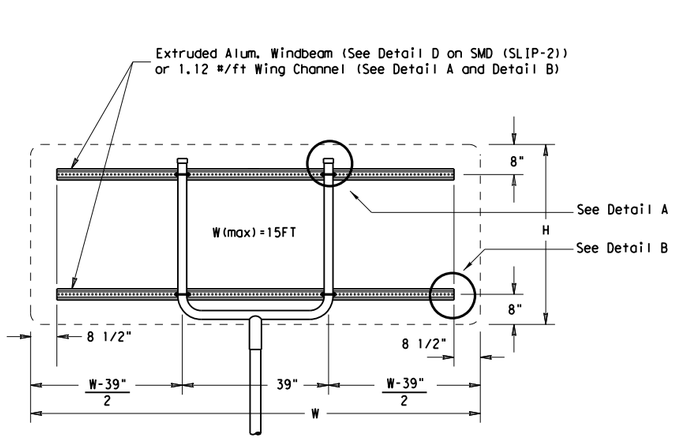
Detail C

Splices shall only be allowed behind the sign substrate.

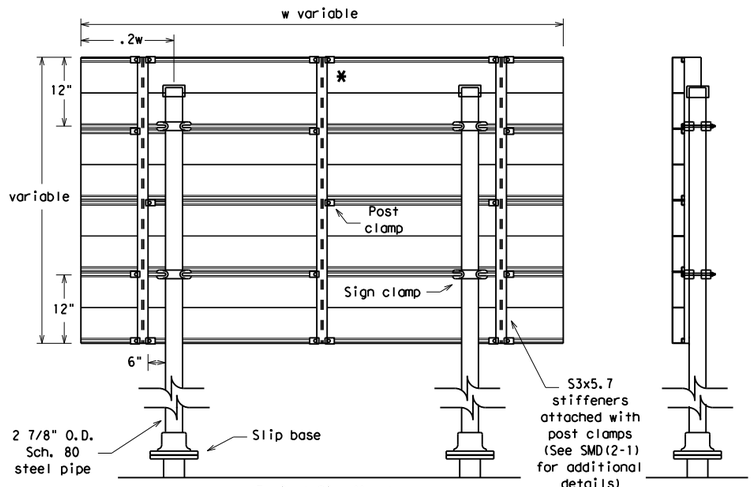
GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
2. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
3. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
4. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
5. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
6. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
7. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
8. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
9. Sign blanks shall be the sizes and shapes shown on the plans.
10. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
11. Post open ends shall be fitted with Friction Caps.



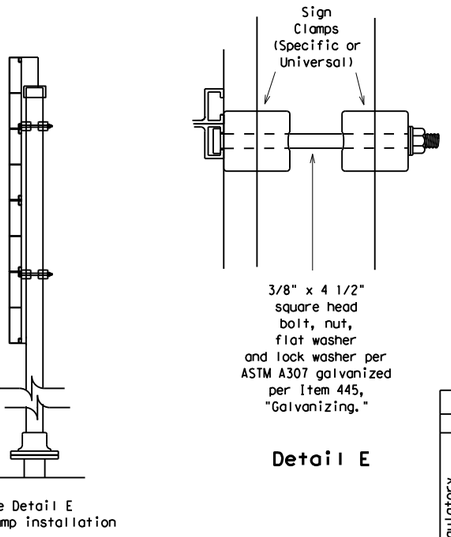
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



Typical Sign Mount

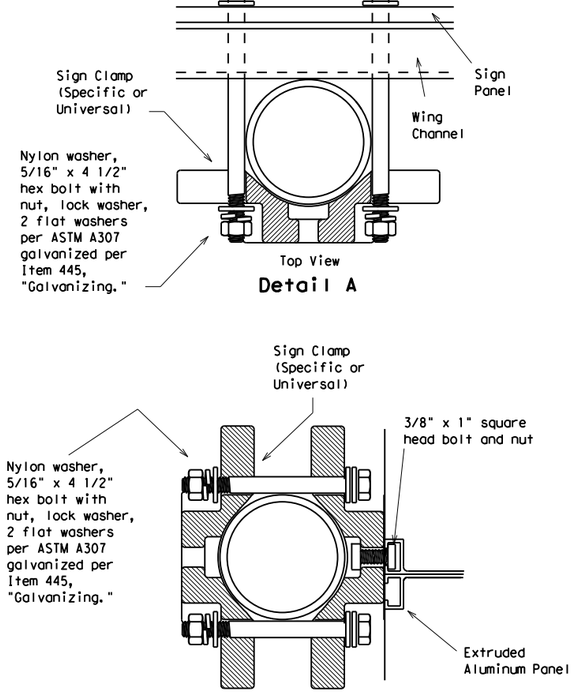
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

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



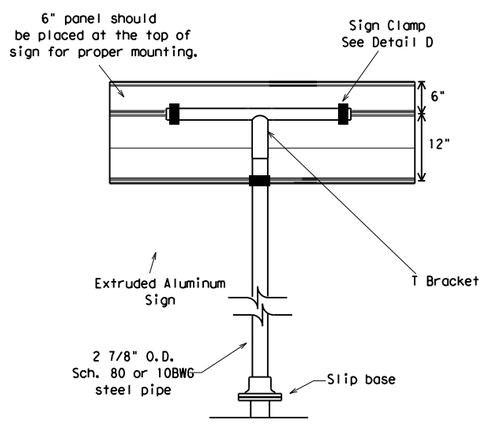
Detail E

See Detail E for clamp installation

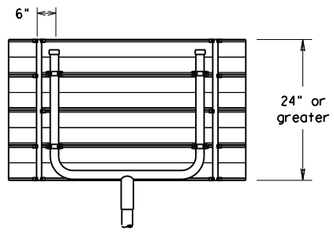


Detail A

Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

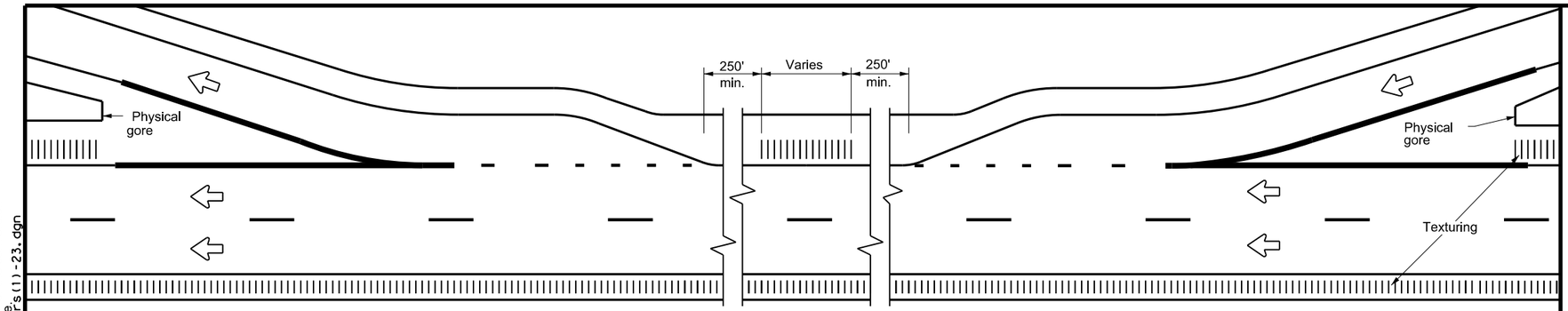
Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

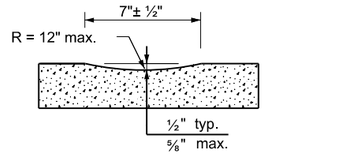
SMD(SLIP-3)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0228	01	056	US 62/385
	DIST	COUNTY		SHEET NO.
	LBB	TERRY		157

DATE: 6/20/2023 2:39:27 PM
FILE: pw:\\txdot.projectwiseonline.com:TxDOT2\Documents\05 - LBB\Design Projects\02280105\4 - Design\Plan Set\8. Traffic Signs Standards\rs(1)-23.dgn

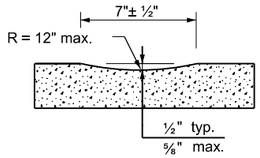


TYPICAL RUMBLE STRIP PLACEMENT AT EXIT AND ENTRANCE RAMPS



PROFILE VIEW
OPTION 1

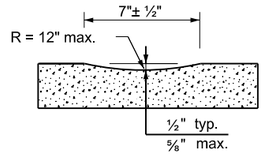
CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



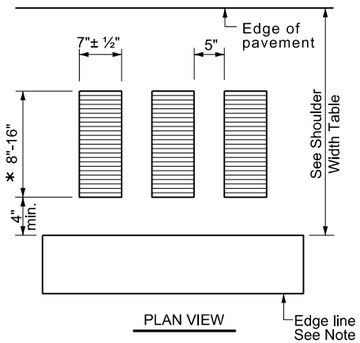
PROFILE VIEW
OPTION 2

* This distance may vary based on width of shoulder

CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)

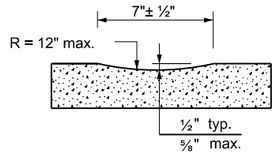


PROFILE VIEW
OPTION 3

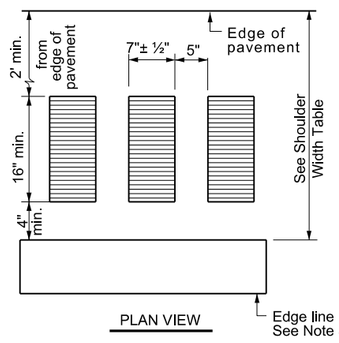


* This distance may vary based on width of shoulder

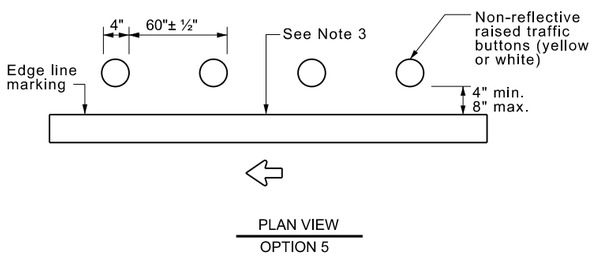
CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



PROFILE VIEW
OPTION 4

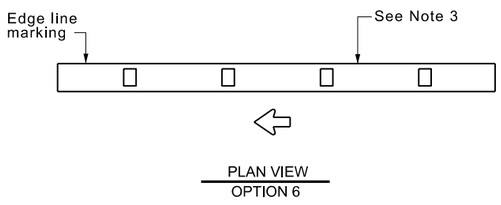


CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



PLAN VIEW
OPTION 5

RAISED EDGE LINE
(Rumble Strips)



PLAN VIEW
OPTION 6

PROFILE EDGE LINE MARKINGS
(Rumble Strips)

GENERAL NOTES

1. Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
2. 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.
3. Use standard sheets PM(2) and FPM(1) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
4. See the Shoulder Width Table below for determining what options may be used for edge line rumble strips.
5. 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.
6. Rumble strips shall not be placed across exit or entrance ramps, acceleration or deceleration lanes, crossovers, gore areas, or intersections with other roadways.
7. Consideration should be given to noise levels when edge line 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. Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING MILLED DEPRESSION EDGE LINE RUMBLE STRIPS:

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

WHEN INSTALLING RAISED OR PROFILE EDGE LINE RUMBLE STRIPS:

11. 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.
12. 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.
13. 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.
14. The minimum distance between the edge line and the buttons should be used if the shoulder is less than 8 feet in width.
15. 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, or 6	Option 1, 2, 3, 5, or 6	Option 2, 4, 5, or 6

Texas Department of Transportation

Traffic Safety Division Standard

EDGE LINE RUMBLE STRIPS ON FREEWAYS AND DIVIDED HIGHWAYS
RS(1)-23

FILE: rs(1)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT January 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
4-06 1-23	DIST	COUNTY		SHEET NO.
2-10	LBB	TERRY		158
10-13				

DATE: 6/20/2023 2:39:31 PM
FILE: pw:\\txdot.projectwiseonline.com:TxDOT2\Documents\05 - LBB\Design Projects\0228-01-056\RAILROAD SCOPE OF WORK.dgn

I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

A.
DOT #: 017792X
Crossing Type:** PRIVATE
RR Company Owning Track at Crossing: LBWR
Operating RR Company at Track: LBWR
RR MP: 42.75
RR Subdivision: SEAGRAVES
City: BROWNFIELD
County: TERRY
CSJ at this Crossing: 0228-01-056
Highway/Roadway name crossing the railroad: PRIVATE ROAD
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
RESTORATION OF EXISTING ROADWAY

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

B.
DOT #: 017793E
Crossing Type:** PRIVATE
RR Company Owning Track at Crossing: LBWR
Operating RR Company at Track: LBWR
RR MP: 43.7
RR Subdivision: SEAGRAVES
City: BROWNFIELD
County: TERRY
CSJ at this Crossing: 0228-01-056
Highway/Roadway name crossing the railroad: PRIVATE ROAD
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
RESTORATION OF EXISTING ROADWAY

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

C.
DOT #: 017794L
Crossing Type:** PRIVATE
RR Company Owning Track at Crossing: LBWR
Operating RR Company at Track: LBWR
RR MP: 44.01
RR Subdivision: SEAGRAVES
City: BROWNFIELD
County: TERRY
CSJ at this Crossing: 0228-01-056
Highway/Roadway name crossing the railroad: PRIVATE ROAD
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
RESTORATION OF EXISTING ROADWAY

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

D.
DOT #: 017795T
Crossing Type:** PUBLIC
RR Company Owning Track at Crossing: LBWR
Operating RR Company at Track: LBWR
RR MP: 44.11
RR Subdivision: SEAGRAVES
City: BROWNFIELD
County: TERRY
CSJ at this Crossing: 0228-01-056
Highway/Roadway name crossing the railroad: CR 831
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
RESTORATION OF EXISTING ROADWAY

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

E.
DOT #: 017796A
Crossing Type:** PUBLIC
RR Company Owning Track at Crossing: LBWR
Operating RR Company at Track: LBWR
RR MP: 44.81
RR Subdivision: SEAGRAVES
City: BROWNFIELD
County: TERRY
CSJ at this Crossing: 0228-01-056
Highway/Roadway name crossing the railroad: CR 480
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
RESTORATION OF EXISTING ROADWAY

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

F.
DOT #: 017797G
Crossing Type:** PUBLIC
RR Company Owning Track at Crossing: LBWR
Operating RR Company at Track: LBWR
RR MP: 45.23
RR Subdivision: SEAGRAVES
City: WELLMAN
County: TERRY
CSJ at this Crossing: 0228-01-056
Highway/Roadway name crossing the railroad: CR 870
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
RESTORATION OF EXISTING ROADWAY

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

G.
DOT #: 017798N
Crossing Type:** PRIVATE
RR Company Owning Track at Crossing: LBWR
Operating RR Company at Track: LBWR
RR MP: 45.94
RR Subdivision: SEAGRAVES
City: BROWNFIELD
County: TERRY
CSJ at this Crossing: 0228-01-056
Highway/Roadway name crossing the railroad: PRIVATE ROAD
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
RESTORATION OF EXISTING ROADWAY

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

H.
DOT #: 017799V
Crossing Type:** PRIVATE
RR Company Owning Track at Crossing: LBWR
Operating RR Company at Track: LBWR
RR MP: 46.64
RR Subdivision: SEAGRAVES
City: BROWNFIELD
County: TERRY
CSJ at this Crossing: 0228-01-056
Highway/Roadway name crossing the railroad: PRIVATE ROAD
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
RESTORATION OF EXISTING ROADWAY

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

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RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:		
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DATE:
FILE:

I. DOT #: 017800M
Crossing Type:** PUBLIC
RR Company Owning Track at Crossing: LBWR
Operating RR Company at Track: LBWR
RR MP: 47.66
RR Subdivision: SEAGRAVES
City: WELLMAN
County: TERRY
CSJ at this Crossing: 0228-01-056
Highway/Roadway name crossing the railroad: CR 600
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
RESTORATION OF EXISTING ROADWAY

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

J. DOT #: 017801U
Crossing Type:** PUBLIC
RR Company Owning Track at Crossing: LBWR
Operating RR Company at Track: LBWR
RR MP: 48.04
RR Subdivision: SEAGRAVES
City: WELLMAN
County: TERRY
CSJ at this Crossing: 0228-01-056
Highway/Roadway name crossing the railroad: FM 303
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
RESTORATION OF EXISTING ROADWAY

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

K. DOT #: 017803H
Crossing Type:** PUBLIC
RR Company Owning Track at Crossing: LBWR
Operating RR Company at Track: LBWR
RR MP: 50.52
RR Subdivision: SEAGRAVES
City: WELLMAN
County: TERRY
CSJ at this Crossing: 0228-01-056
Highway/Roadway name crossing the railroad: CR 835
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
RESTORATION OF EXISTING ROADWAY

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

L. DOT #: 017804P
Crossing Type:** PUBLIC
RR Company Owning Track at Crossing: LBWR
Operating RR Company at Track: LBWR
RR MP: 52.14
RR Subdivision: SEAGRAVES
City: WELLMAN
County: TERRY
CSJ at this Crossing: 0228-01-056
Highway/Roadway name crossing the railroad: FM 213
# of regularly scheduled trains per day at this crossing: 2
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
RESTORATION OF EXISTING ROADWAY

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 0
On this project, night or weekend flagging is:
☐ Expected
☒ Not Expected

Flagging services will be provided by:
☐ Railroad Company: TxDOT will pay flagging invoices
☐ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30 day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
- UP.request@nrssinc.net
Call Center 877-984-6777

☐ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☐ KCS - KCS.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
- Bottom Line On-Track Safety Services
bottomline076@aol.com, 903-767-7630

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:
☐ Required
☒ Not Required

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit

Railroad Protective Liability		
☐	Not Required	
☒	Non - Bridge Projects	$2,000,000 / $6,000,000
☐	Bridge Projects	$5,000,000 / $10,000,000
☐	Other	

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RAILROAD SCOPE OF WORK
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	LBB	TERRY		160

DATE:
FILE:

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☐ Not Required

☐ Required: TxDOT CST to assist in obtaining with the UPRR (see Item 5, Article 8.3)

☐ Required: UPRR Maintenance Consent Letter. TxDOT CST to assist.

☒ Required: Contractor to obtain (see Item 5, Article 8.4)

With the following railroad companies: LBWR

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed ROE agreement between the Contractor and the Railroad if required on project.

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required

☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
LBWR Railroad Emergency Line at 866-386-9321

Location: DOT 017792X
RR Milepost: 42.75
Subdivision: SEAGRAVES

Location: DOT 017793E
RR Milepost: 43.7
Subdivision: SEAGRAVES

Location: DOT 017794L
RR Milepost: 44.01
Subdivision: SEAGRAVES

Location: DOT 017795T
RR Milepost: 44.11
Subdivision: SEAGRAVES

Location: DOT 017796A
RR Milepost: 44.81
Subdivision: SEAGRAVES

Location: DOT 017797G
RR Milepost: 45.23
Subdivision: SEAGRAVES

Location: DOT 017798N
RR Milepost: 45.94
Subdivision: SEAGRAVES

Location: DOT 017799V
RR Milepost: 46.64
Subdivision: SEAGRAVES

Location: DOT 017800M
RR Milepost: 47.66
Subdivision: SEAGRAVES

Location: DOT 017801U
RR Milepost: 48.04
Subdivision: SEAGRAVES

Location: DOT 017803H
RR Milepost: 50.52
Subdivision: SEAGRAVES

Location: DOT 017804P
RR Milepost: 52.14
Subdivision: SEAGRAVES

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RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS

Sheet 3 of 3

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PART 1 - GENERAL

1.01 DESCRIPTION

This project includes construction work within the Right-of-Way and/or properties of the Railroad Company and adjacent to its tracks, wire lines and other facilities. These sheets describe the minimum special requirements for coordination with the Railroad when working upon, over or under Railroad Right-of-Way or when impacting current or future Railroad operations. Coordinate with the Railroad while performing the work outlined herein, and afford the same cooperation with the Railroad as with TxDOT. Complete all submittals and work in accordance with TxDOT Standard Specifications, Railroad Guidelines and AREMA recommendations as modified by these minimum special requirements or as directed in writing by the Railroad Designated Representative.

For purposes of this project, the Railroad Designated Representative is the person or persons designated by the Railroad Manager of Industry and Public Projects to handle specific tasks related to the project.

1.02 REQUEST FOR INFORMATION / CLARIFICATION

Submit Requests for Information ("RFI") involving work within any Railroad Right-Of-Way to the TxDOT Engineer. The TxDOT Engineer will submit the RFI to the Railroad Designated Representative for review and approval for RFI's corresponding to work within Railroad Right-Of-Way. Allow six (6) weeks total time for review and approval, which includes four (4) weeks for review and approval by the Railroad.

1.03 PLANS / SPECIFICATIONS

TxDOT has received written Railroad approval of the plans and specifications for this project. Any revisions or changes in the plans after award of the Contract must have the approval of TxDOT and the Railroad.

PART 2 - UTILITIES AND FIBER OPTIC

Construct all utility installations in accordance with current AREMA recommendations, Railroad, TxDOT and owning utility specifications and requirements. Railroad general guidelines can be found on the Railroad website or by contacting the Railroad Designated Representative.

PART 3 - CONSTRUCTION

3.01 GENERAL

A. Perform all work in compliance with all applicable Railroad, Federal Railroad Administration (FRA), and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of Railroad train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.

B. Construction activities within 15 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 15 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.

C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor machinery and materials at least 50 feet from the Railroad's nearest track.

D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with Railroad approval.

E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.

F. Railroad requirements do not allow work within 50 feet of track centers when a train passes the work site and all personnel must clear the area within 50 feet of the track centerline and secure all equipment. Additional allowances may be pursued as outlined in 3.02 and 3.03.

G. All permanent clearances shall be verified before project closing.

3.02 RAILROAD OPERATIONS

A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.

B. All railroad tracks within and adjacent to the Contract Site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. Railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.

C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:

1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a Railroad flag person will be required. At the direction of the Railroad flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.

2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. Railroad flag persons will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

A. Do not perform any work within Railroad Right-of-Way without a valid executed Right of Entry Agreement if required on this project.

B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right-of-Way and observe the Railroad's rules and regulations with respect thereto.

C. Perform all work upon Railroad Right-of-Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.15 for railroad flagging requirements.

D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
1. Exactly what the work entails.
2. The days and hours that work will be performed.
3. The exact location of work, and proximity to the tracks.
4. The type of window requested and the amount of time requested.
5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.

E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

3.04 INSURANCE

Do not begin work upon or over Railroad Right-of-Way until furnishing the Railroad with the insurance policies, binders, certificates and endorsements required by the "Contractor's Right-of-Entry Agreement", and until the Railroad Designated Representative has advised TxDOT that such insurance is in accordance with the Agreement.

3.05 RAILROAD SAFETY ORIENTATION

A. Complete the Railroad course "Orientation for Contractor's Safety", and maintain current registration prior to working on Railroad property. This orientation is available at www.contractororientation.com. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

"UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other railroads. Refer to Railroad specific contractor right of entry for training information."

B. Know and follow the "Contractor's Right of Entry Agreement" EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

3.06 COOPERATION

The Railroad will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of Railroad Right-of-Way in performing the work.

3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

Abide by the following minimum temporary clearances during the course of construction:
A. 15' - 0" (BNSF)(UPRR)and 14'-0" (KCS) horizontal from centerline of track
B. 22' (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

For construction clearance less than listed above, obtain local Railroad Operating Unit review and approval.

3.08 APPROVAL OF REDUCED CLEARANCES

A. Maintain minimum track clearances during construction as specified in Section 3.07.

B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.

C. Do not commence work involving an approved infringement without receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

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RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

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	DIST	COUNTY		SHEET NO.
	LBB	TERRY		162

3.09 MAINTENANCE OF RAILROAD FACILITIES

A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.

B. Perform all such maintenance and repair of damages due to the Contractors's operations at Contractor's expense.

C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the Project Site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.10 SITE INSPECTIONS BY RAILROAD's DESIGNATED REPRESENTATIVE

A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
   1. Pre-construction meetings.
   2. Pile driving/drilling of caissons or drilled shafts.
   3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
   4. Erection of precast concrete or steel bridge superstructure.
   5. Placement of waterproofing (prior to placing ballast on bridge deck).
   6. Completion of the bridge structure.

B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.

C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.11 RAILROAD REPRESENTATIVES

Railroad representatives, conductors, flag person or watch person will be provided by the Railroad at expense of TxDOT to protect Railroad facilities, property and movements of its trains or engines. In general, the Railroad will furnish such personnel or other protective services as follows:

A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other Railroad facilities may be subject to settlement or movement.

C. During any clearing, grubbing, excavation or grading in proximity to Railroad facilities, which, in the opinion of the Railroad Designated Representative, may endanger Railroad facilities or operations.

D. During any Contractor's operations when, in the opinion of the Railroad Designated Representative, Railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.

E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.12 COMMUNICATIONS AND SIGNAL LINES

If required, the Railroad will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by the Railroad's forces in connection with its operation at expense of TxDOT. This work by the Railroad will be done by its own forces and it is not a part of the Work under this Contract.

3.13 TRAFFIC CONTROL

Coordinate any operations that control traffic across or around Railroad facilities with the Railroad Designated Representative.

3.14 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".

B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

   UPRR 1-800-336-9193
   7:00 AM to 9:00 PM CST Monday-Friday except holidays,
   staffed 24 hrs/day for emergencies
   48 hrs notice required

   BNSF 1-800-533-2891
   24 hour number
   5 working days notice required

   KCS 1-800-344-8377
   Texas One Call, a 24 hour number
   48 hrs notice required, excluding weekends and holidays

   If a telecommunications system is buried anywhere on or near Railroad property, coordinate with TxDOT, the Railroad and the Telecommunication Company(ies) to arrange for relocation or protective measures prior to beginning work on or near Railroad property. Refer to the project General Notes for additional information.

C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor-assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of 1/4" vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

3.15 RAILROAD FLAGGING

Per the RIGHT OF ENTRY agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor work and at least 30 working days in advance of any Contractor work in which any person or equipment will be within 25 feet of nearest rail.

3.16 CLEANING OF RIGHT-OF-WAY

When work is complete, remove all tools, implements, and other materials brought into Railroad Right-of-Way and leave the Right-of-Way in a clean and presentable condition to the satisfaction of TxDOT and the Railroad.

Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
	DIST	COUNTY		SHEET NO.
	LBB	TERRY		163

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SUMMARY OF EROSION CONTROL LOGS - US 62						
EROSION CONTROL NO.	APPROX. STATION	DESCRIPTION	INSTALL QTY	REMOVE QTY	DATE INSTALLED	DATE REMOVED
ECL-1	95+55	NB DITCH	30	15		
ECL-2	95+55	MEDIAN	30	15		
ECI-3	95+55	SEAGRAVES RD	30	15		
ECL-4	98+59	SB DITCH	30	15		
ECL-5	98+95	SEAGRAVES RD	30	15		
ECL-6	99+21	SB DITCH	30	15		
ECL-7	99+33	MEDIAN	20	10		
ECL-8	101+41	NB DITCH	30	15		
ECL-9	107+75	NB DITCH	30	15		
ECL-10	108+45	MEDIAN	20	10		
ECL-11	108+45	NB DITCH	30	15		
ECL-12	109+79	MEDIAN	20	10		
ECL-13	109+86	SB DITCH	30	15		
ECL-14	110+76	SB DITCH	30	15		
ECL-15	117+45	SB DITCH	20	10		
ECL-16	118+31	NB DITCH	30	15		
ECL-17	118+31	CULVERT	30	15		
ECL-18	119+76	CULVERT	10	5		
ECL-19	119+76	CULVERT	10	5		
ECL-20	122+47	CULVERT	30	15		
ECL-21	122+63	CULVERT	30	15		
ECL-22	122+55	CULVERT	30	15		
ECL-23	122+55	CULVERT	30	15		
ECL-24	125+00	SB DITCH	30	15		
ECL-25	128+11	NB DITCH	30	15		
ECL-26	128+11	MEDIAN	20	10		
ECL-27	132+18	NB DITCH	20	10		
ECL-28	133+08	MEDIAN	20	10		
ECL-29	133+13	SB DITCH	30	15		
ECL-30	137+22	NB DITCH	30	15		
ECL-31	141+00	MEDIAN	30	15		
ECL-32	141+33	NB DITCH	30	15		
ECL-33	146+01	NB DITCH	30	15		
ECL-34	146+01	MEDIAN	20	10		
ECL-35	146+01	SB DITCH	30	15		
ECL-36	151+08	SB DITCH	30	15		
ECL-37	153+11	NB DITCH	30	15		
ECL-38	157+00	NB DITCH	30	15		
ECL-39	157+00	MEDIAN	10	5		
ECL-40	157+00	SB DITCH	30	15		
ECL-41	162+73	SB DITCH	30	15		
ECL-42	162+04	CULVERT	30	15		
ECL-43	162+45	NB DITCH	30	15		
ECL-44	163+13	NB DITCH	30	15		
ECL-45	163+47	CULVERT	10	5		
ECL-46	163+47	CULVERT	10	5		
ECL-47	172+00	MEDIAN	20	10		
ECL-48	172+00	SB DITCH	30	15		
ECL-49	173+44	NB DITCH	30	15		
ECL-50	176+09	CULVERT	30	15		
ECL-51	176+31	NB DITCH	30	15		
ECL-52	177+00	CULVERT	10	5		
ECL-53	177+00	CULVERT	10	5		
ECL-54	177+68	CULVERT	30	15		
ECL-55	177+82	SB DITCH	30	15		
ECL-56	178+58	CULVERT	10	5		
ECL-57	178+58	CULVERT	10	5		
ECL-58	185+50	NB DITCH	30	15		
ECL-59	185+50	MEDIAN	30	15		
ECL-60	185+50	SB DITCH	30	15		
ECL-61	192+00	NB DITCH	30	15		
ECL-62	192+00	MEDIAN	30	15		
ECL-63	192+00	SB DITCH	30	15		
ECL-64	197+53	NB DITCH	30	15		
ECL-65	198+20	CULVERT	30	15		
ECL-66	199+07	CULVERT	10	5		
ECL-67	199+07	CULVERT	10	5		
ECL-68	199+73	NB DITCH	30	15		
ECL-69	205+48	NB DITCH	30	15		
ECL-70	205+48	MEDIAN	30	15		
ECL-71	205+48	SB DITCH	30	15		
ECL-72	209+41	CULVERT	30	15		
ECL-73	209+50	CULVERT	30	15		
ECL-74	209+50	CULVERT	30	15		
ECL-75	209+57	CULVERT	30	15		
ECL-76	229+00	NB DITCH	30	15		
ECL-77	229+00	MEDIAN	30	15		
ECL-78	229+00	SB DITCH	30	15		
ECL-79	237+27	NB DITCH	30	15		
ECL-80	244+29	NB DITCH	30	15		
ECL-81	244+29	MEDIAN	20	10		
ECL-82	244+29	SB DITCH	30	15		
ECL-83	249+06	SB DITCH	20	10		
ECL-84	249+49	NB DITCH	30	15		
ECL-85	249+94	SB DITCH	20	10		

SUMMARY OF EROSION CONTROL LOGS - US 62						
EROSION CONTROL NO.	APPROX. STATION	DESCRIPTION	INSTALL QTY	REMOVE QTY	DATE INSTALLED	DATE REMOVED
ECL-85	249+94	SB DITCH	20	10		
ECL-86	259+50	NB DITCH	30	15		
ECL-87	259+50	MEDIAN	30	15		
ECL-88	259+50	SB DITCH	30	15		
ECL-89	274+00	NB DITCH	30	15		
ECL-90	274+00	MEDIAN	30	15		
ECL-91	274+00	SB DITCH	30	15		
ECL-92	279+41	CULVERT	30	15		
ECL-93	279+50	CULVERT	30	15		
ECL-94	279+50	CULVERT	30	15		
ECL-95	249+57	CULVERT	30	15		
ECL-96	284+15	NB DITCH	30	15		
ECL-97	285+31	NB DITCH	30	15		
ECL-98	286+36	SB DITCH	30	15		
ECL-99	287+37	SB DITCH	30	15		
ECL-100	300+00	NB DITCH	30	15		
ECL-101	300+00	MEDIAN	20	10		
ECL-102	300+00	SB DITCH	30	15		
ECL-103	304+50	NB DITCH	30	15		
ECL-104	304+50	MEDIAN	20	10		
ECL-105	304+50	SB DITCH	30	15		
ECL-106	308+88	SB DITCH	30	15		
ECL-107	309+39	SB DITCH	30	15		
ECL-108	311+46	CULVERT	10	5		
ECL-109	311+46	CULVERT	10	5		
ECL-110	312+91	NB DITCH	30	15		
ECL-111	313+15	CULVERT	30	15		
ECL-112	318+03	NB DITCH	30	15		
ECL-113	318+03	MEDIAN	20	10		
ECL-114	318+03	SB DITCH	30	15		
ECL-115	326+17	CULVERT	30	15		
ECL-116	326+24	CULVERT	30	15		
ECL-117	326+24	CULVERT	30	15		
ECL-118	326+33	CULVERT	30	15		
ECL-119	335+50	NB DITCH	30	15		
ECL-120	335+50	MEDIAN	30	15		
ECL-121	335+50	SB DITCH	30	15		
ECL-122	341+17	NB DITCH	30	15		
ECL-123	341+17	MEDIAN	30	15		
ECL-124	341+17	SB DITCH	30	15		
ECL-125	346+27	CULVERT	10	5		
ECL-126	346+27	CULVERT	10	5		
ECL-127	346+43	SB DITCH	30	15		
ECL-128	346+88	SB DITCH	30	15		
ECL-129	347+15	CULVERT	30	15		
ECL-130	359+47	NB DITCH	30	15		
ECL-131	359+96	NB DITCH	30	15		
ECL-132	366+00	NB DITCH	30	15		
ECL-133	366+00	MEDIAN	30	15		
ECL-134	366+53	SB DITCH	30	15		
ECL-135	379+00	NB DITCH	30	15		
ECL-136	379+00	MEDIAN	30	15		
ECL-137	379+00	SB DITCH	30	15		
ECL-138	385+94	CULVERT	30	15		
ECL-139	386+73	NB DITCH	30	15		
ECL-140	386+91	CULVERT	10	5		
ECL-141	386+91	CULVERT	10	5		
ECL-142	387+24	NB DITCH	30	15		
ECL-143	391+68	CULVERT	30	15		
ECL-144	391+76	CULVERT	30	15		
ECL-145	391+76	CULVERT	30	15		
ECL-146	391+84	CULVERT	30	15		
ECL-147	395+51	NB DITCH	30	15		
ECL-148	395+51	MEDIAN	30	15		
ECL-149	395+51	SB DITCH	30	15		
ECL-150	409+00	NB DITCH	30	15		
ECL-151	409+00	MEDIAN	30	15		
ECL-152	409+00	SB DITCH	30	15		
ECL-153	425+00	NB DITCH	30	15		
ECL-154	425+00	MEDIAN	30	15		
ECL-155	425+00	SB DITCH	30	15		
ECL-156	434+76	NB DITCH	30	15		
ECL-157	435+44	CULVERT	10	5		
ECL-158	435+44	CULVERT	10	5		
ECL-159	435+46	NB DITCH	30	15		
ECL-160	436+87	SB DITCH	30	15		
ECL-161	437+24	CULVERT	30	15		
ECL-162	437+58	SB DITCH	30	15		
ECL-163	441+00	NB DITCH	30	15		
ECL-164	441+00	MEDIAN	20	10		
ECL-165	441+00	SB DITCH	30	15		
ECL-166	454+00	NB DITCH	30	15		
ECL-167	454+00	MEDIAN	20	10		
ECL-168	454+00	SB DITCH	30	15		
ECL-169	458+57	SB DITCH	30	15		

SUMMARY OF EROSION CONTROL LOGS - US 62						
EROSION CONTROL NO.	APPROX. STATION	DESCRIPTION	INSTALL QTY	REMOVE QTY	DATE INSTALLED	DATE REMOVED
ECL-170	461+21	NB DITCH	30	15		
ECL-171	466+30	NB DITCH	30	15		
ECL-172	468+55	NB DITCH	30	15		
ECL-173	468+55	MEDIAN	30	15		
ECL-174	468+55	SB DITCH	30	15		
ECL-176	484+00	MEDIAN	30	15		
ECL-179	501+50	CULVERT	30	15		
ECL-184	508+66	MEDIAN	20	10		
ECL-185	516+00	MEDIAN	30	15		
ECL-189	529+89	CULVERT	30	15		
ECL-192	531+07	CULVERT	30	15		
ECL-194	537+56	MEDIAN	20	10		
ECL-198	550+00	MEDIAN	30	15		
ECL-200	559+00	MEDIAN	30	15		
ECL-202	576+50	CULVERT	30	15		
ECL-211	597+00	MEDIAN	30	15		
ECL-214	604+00	MEDIAN	30	15		
ECL-216	610+66	CULVERT	30	15		
ECL-219	611+82	CULVERT	10	5		
ECL-220	611+82	CULVERT	10	5		
ECL-222	617+45	CULVERT	30	15		
ECL-224	617+68	CULVERT	30	15		
ECL-226	617+92	CULVERT	30	15		
ECL-229	629+00	MEDIAN	30	15		
ECL-231	638+17	CULVERT	30	15		
ECL-232	638+17	CULVERT	10	5		
ECL-235	639+28	CULVERT	30	15		
ECL-237	651+00	MEDIAN	30	15		
ECL-242	666+05	MEDIAN	30	15		
		Replacement	200	100		
		TOTAL	5510	2755		

SUMMARY OF SEDIMENT CONTROL FENCE - US 62						
SEDIMENT CONTROL FENCE NO.	START STATION	DESCRIPTION	INSTALL QTY (LF)	REMOVE QTY (LF)	DATE INSTALLED	DATE REMOVED
SCF-1	122+54	LEFT ROW	60	30		
		Replacement	60	30		
		TOTAL	120	60		

EMULSION	
	EMULS ASPH (EROSN
	GAL
US 62	109327
TOTAL	109,327

CONSTRUCTION EXITS		DATE INSTALLED	DATE REMOVED
	(SY)		
US 62	444		

* Assumed 4- 50' x 20' Two-Way Construction Exits

SUMMARY OF SAND BAGS - US 62					
SAND BAG NO.	APPOX. STATION	DESCRIPTION	PLACE (EA)	DATE INSTALLED	DATE REMOVED
SB-1	95+55	SB C & G	20		
SB-2	98+50	SB C & G	20		
		TOTAL	40		

DRILL SEED	
	SY
US 62	840980
TOTAL	840980

Sediment Basins Are Not Feasible On The Project Because Right-Of-Way Is Limited And The Construction Of A Sedimentation Basin Would Be Within The Boundaries Of The Roadway's ClearZone And For The Safety Of Motorists, Sedimentation Basins Cannot Be Constructed Within The Clear Zone. Since Sediment Basins Are Not Feasible Due To Lack Of Right-Of-Way, Mathmatical Calculations Have Not Been Developed.

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

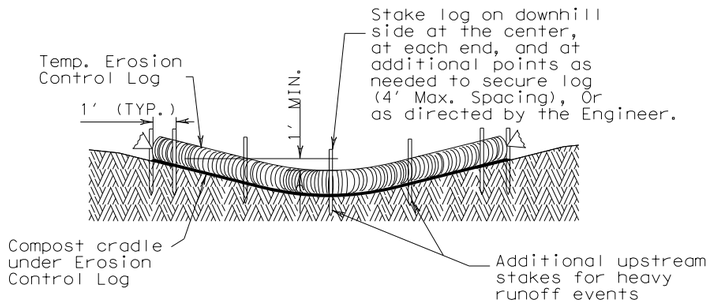
6-19-2023

SWP3 SUMMARY

NO SCALE SHEET 1 OF 2

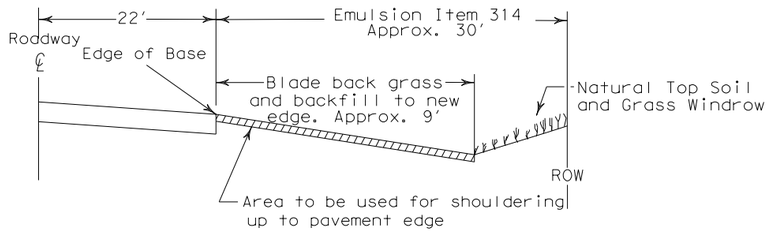
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		164



NOTE:
1. Soak Erosion Control Log with water at installation to help hold log in place.
2. Only Use Wooden Stakes-no rebar allowed to anchor logs.

EROSION CONTROL LOG DAM



SHOULDER-UP DETAIL

STATE OF TEXAS
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SWP3 SUMMARY

NO SCALE SHEET 2 OF 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		165

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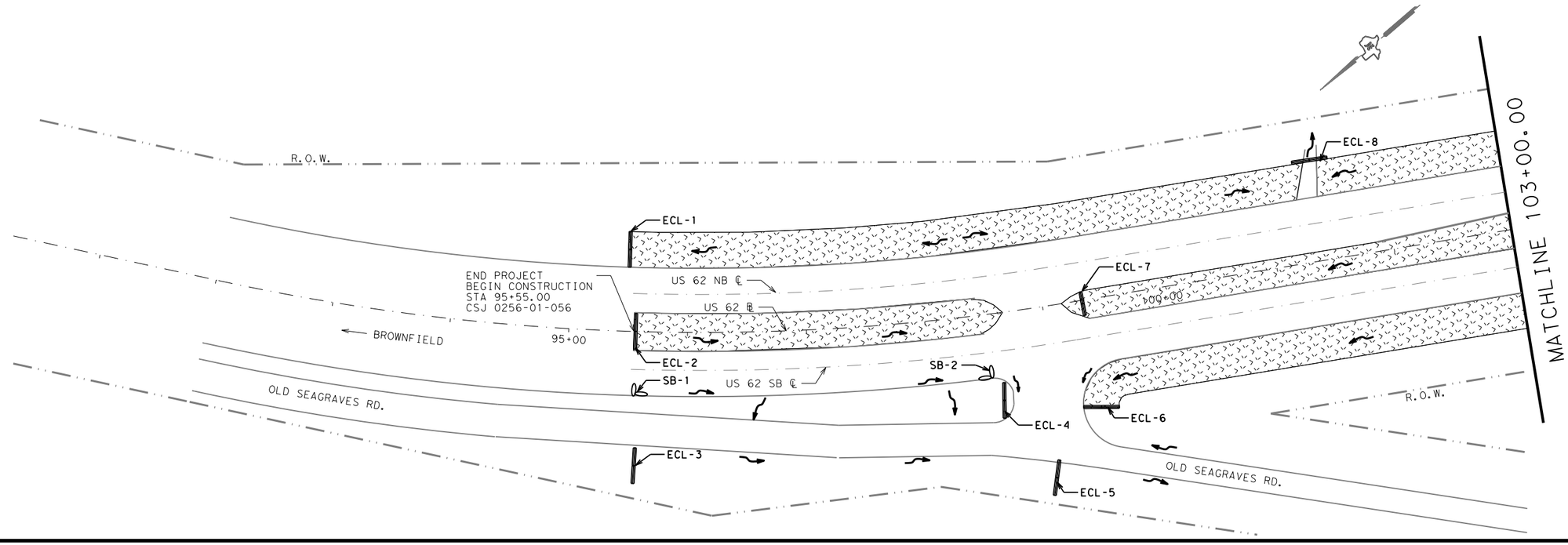

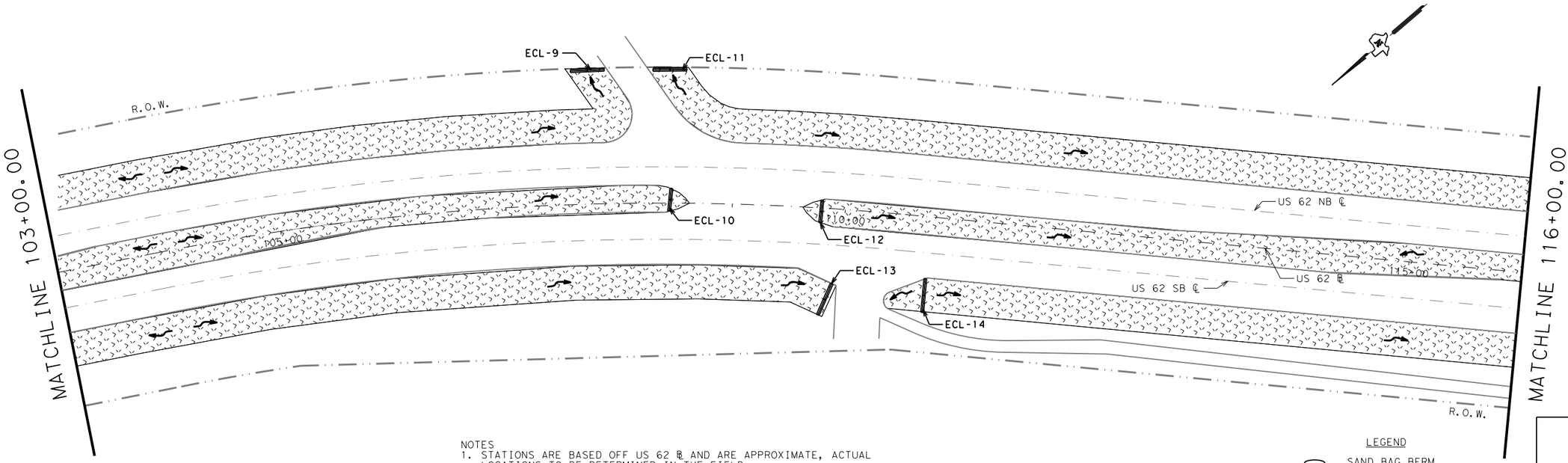

NOTES
1. STATIONS ARE BASED OFF US 62 ℄ AND ARE APPROXIMATE, ACTUAL LOCATIONS TO BE DETERMINED IN THE FIELD.

LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
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6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 1 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		166

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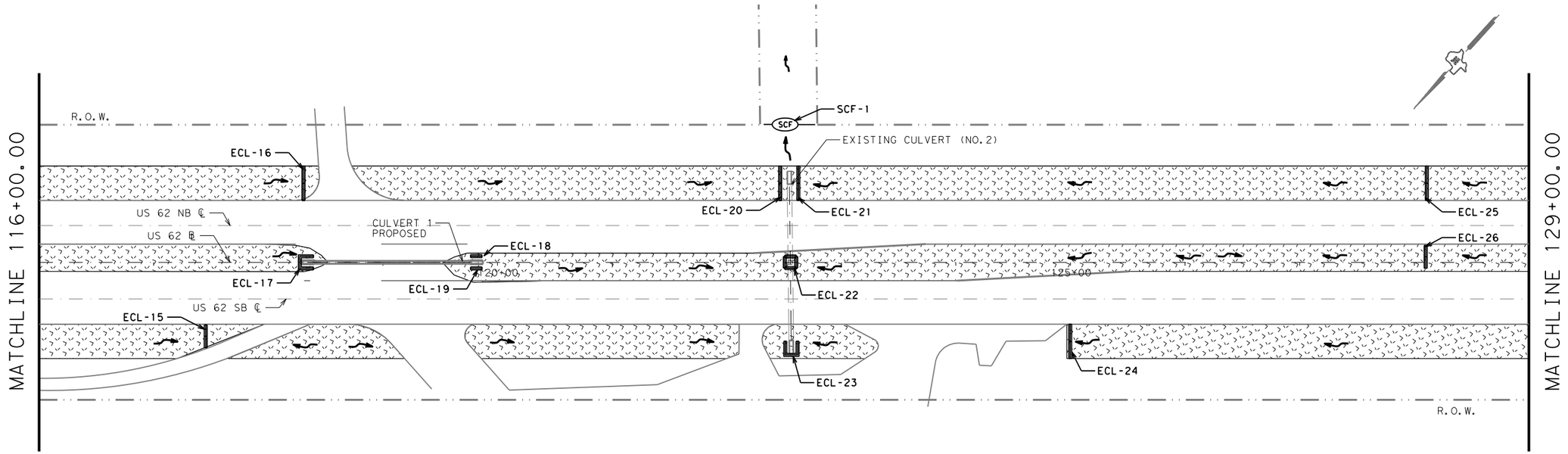

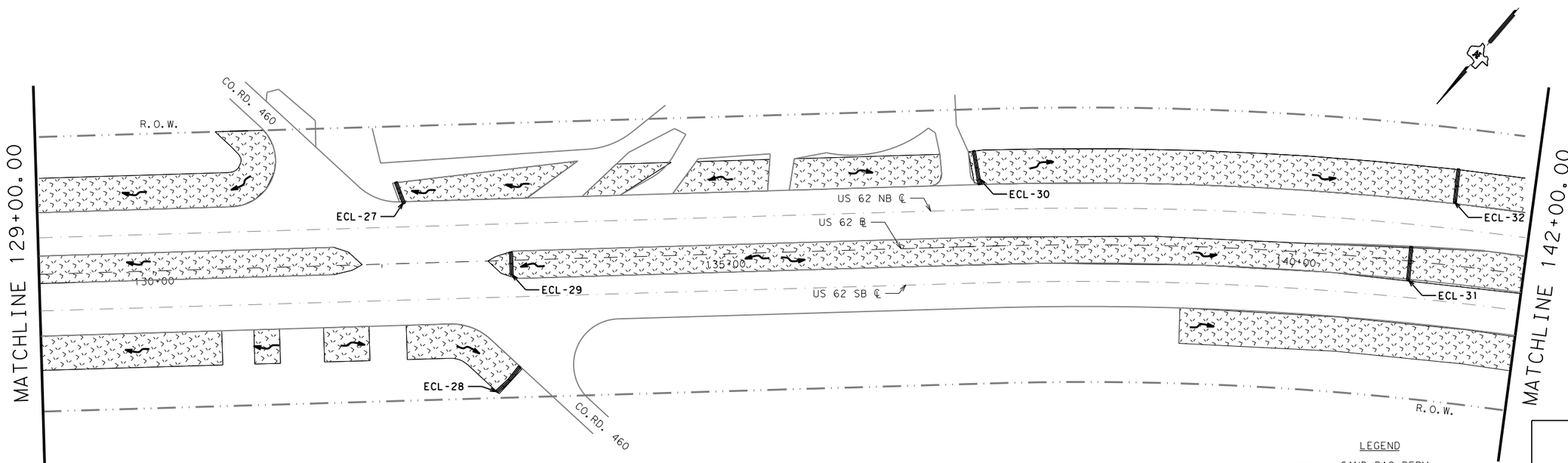

NOTES
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LEGEND
- SAND BAG BERM
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STATE OF TEXAS
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6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 2 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		167

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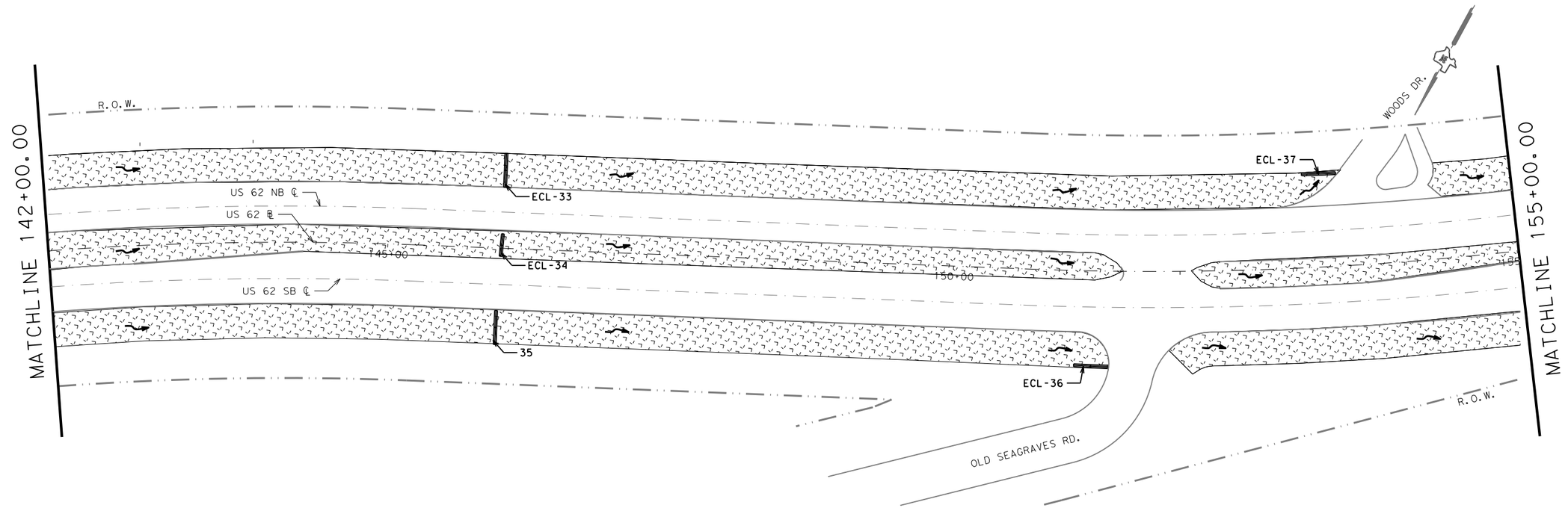

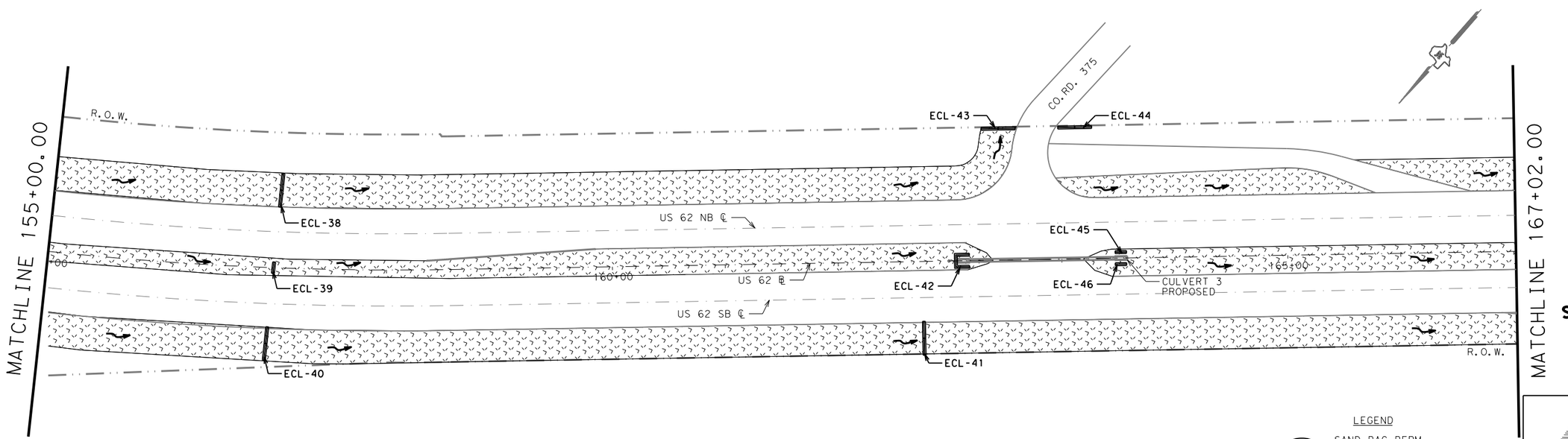

NOTES
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LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
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6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 3 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		168

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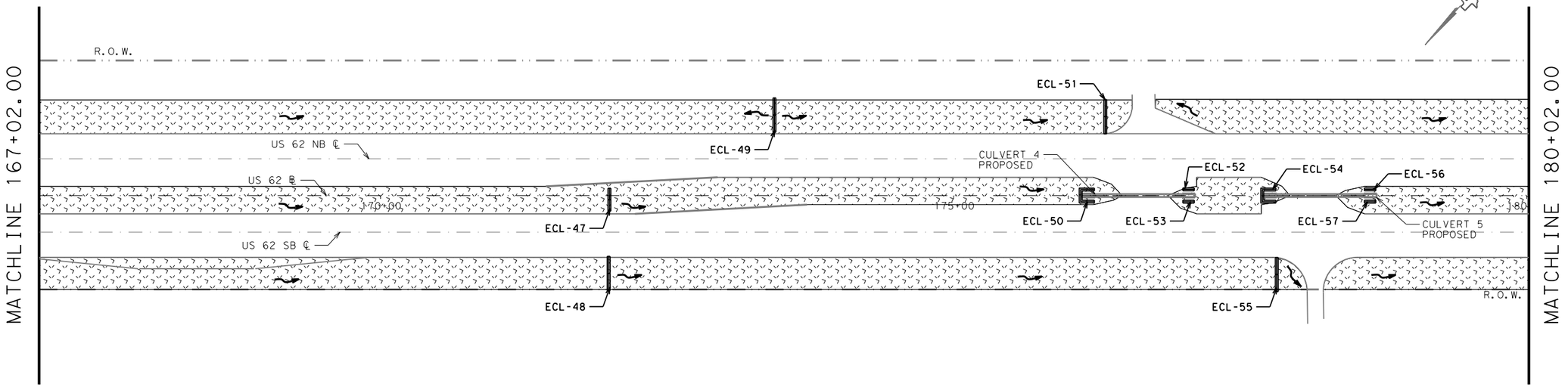

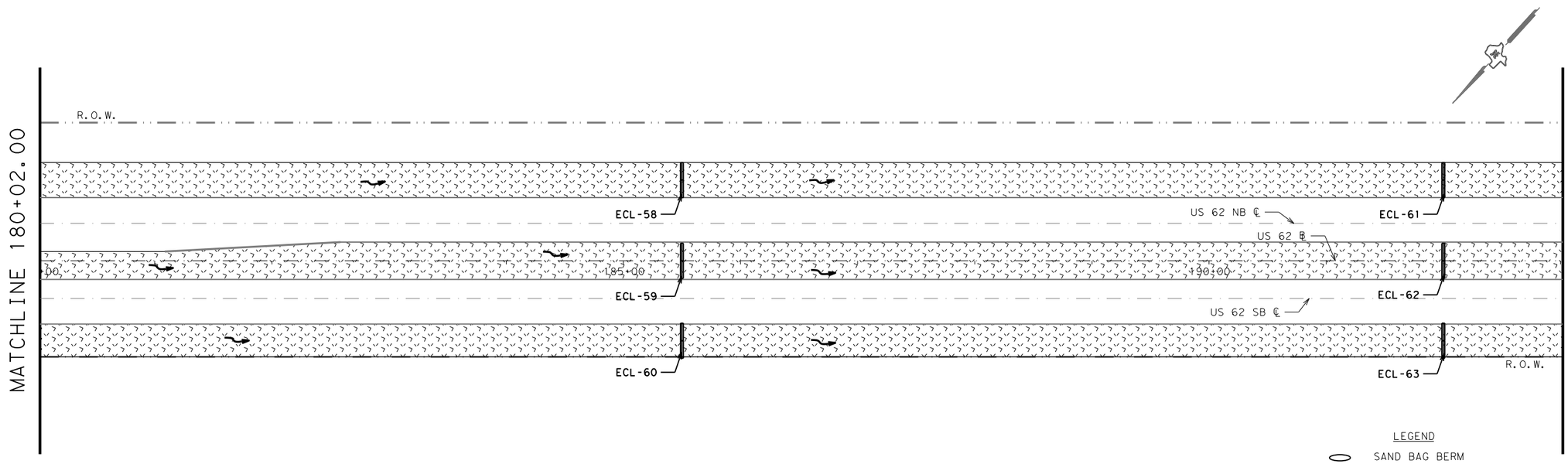

NOTES
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LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 4 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		169

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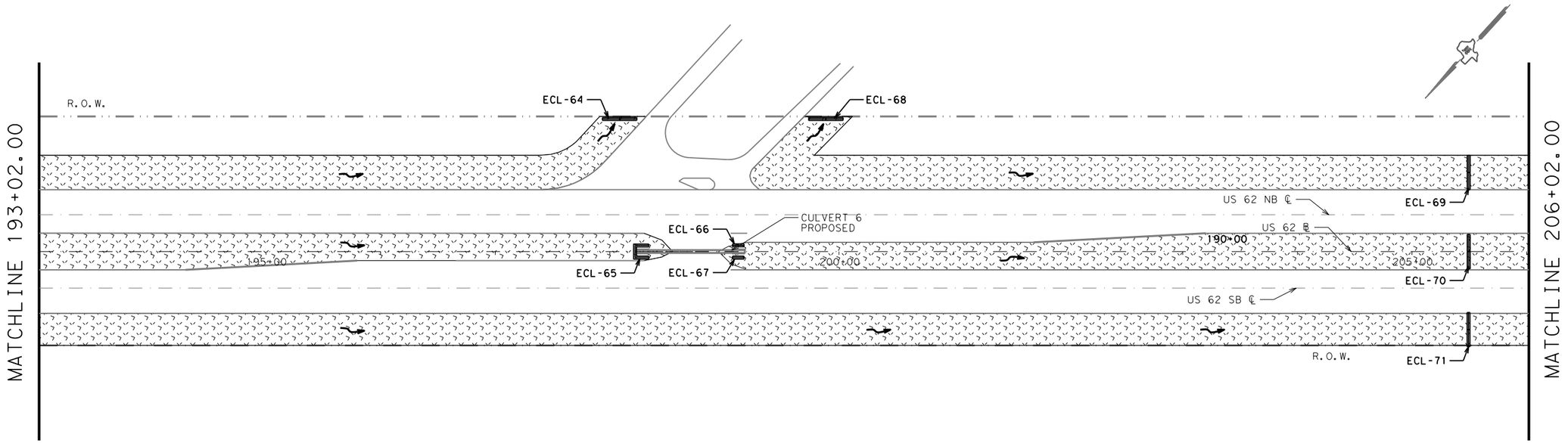

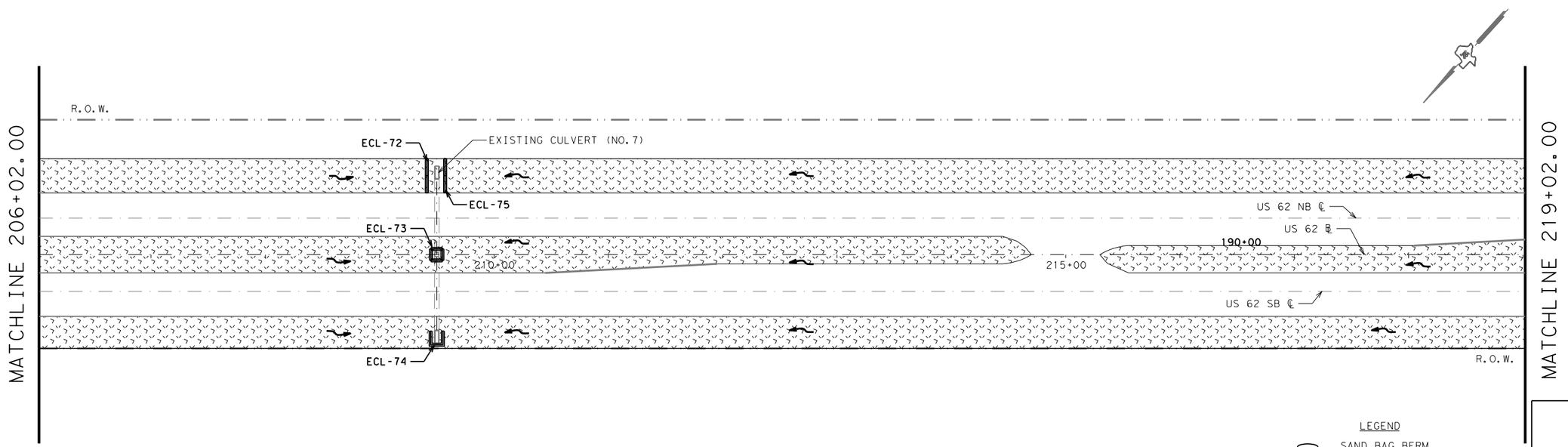

NOTES
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LEGEND
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- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
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PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 5 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		170

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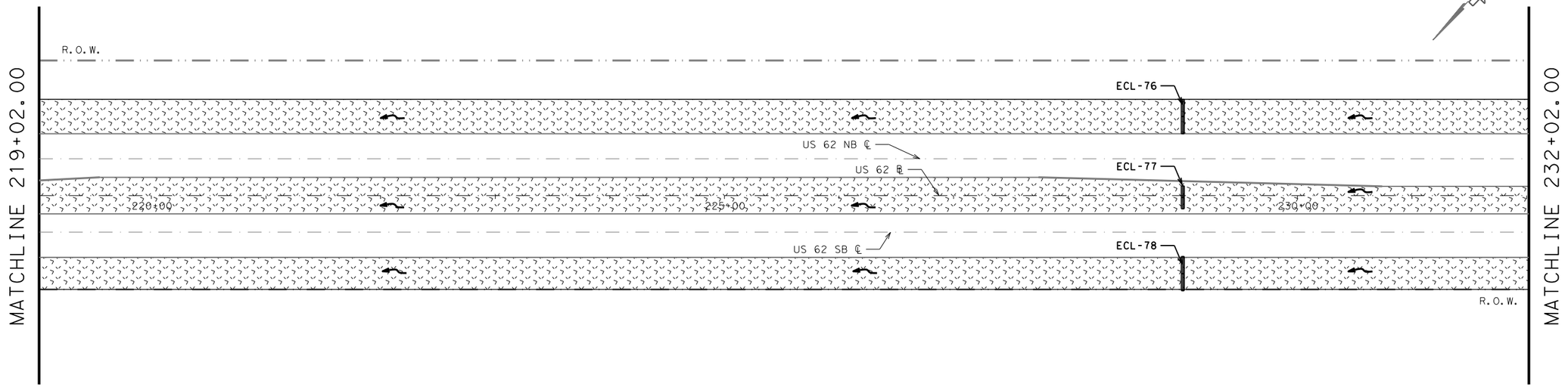

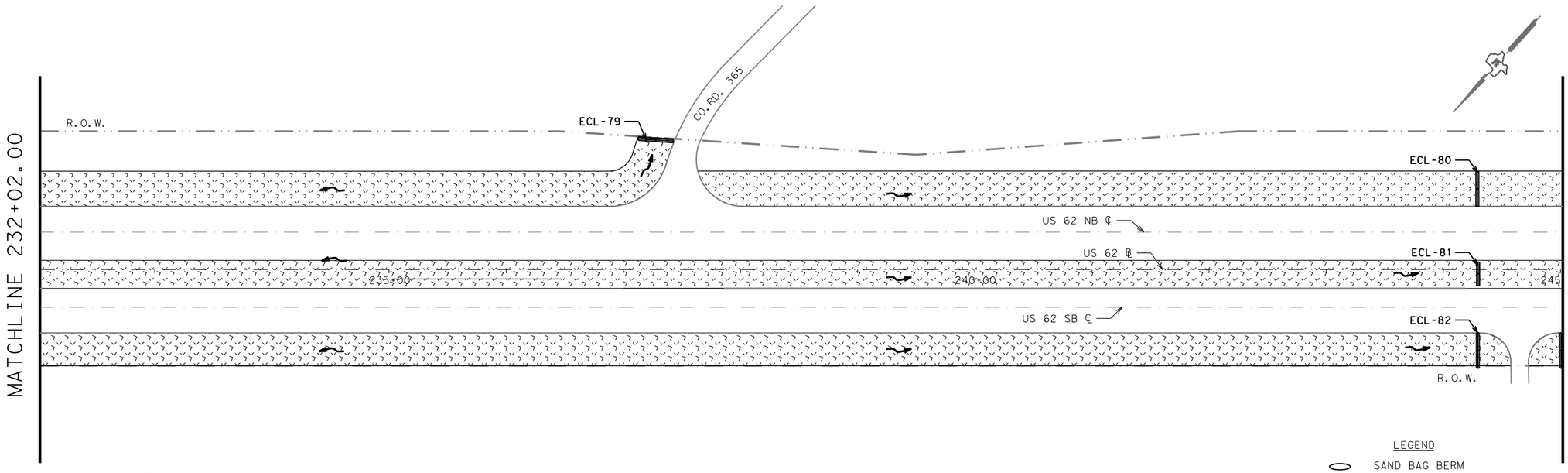

NOTES
1. STATIONS ARE BASED OFF US 62 ℄ AND ARE APPROXIMATE, ACTUAL LOCATIONS TO BE DETERMINED IN THE FIELD.

LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 6 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		171

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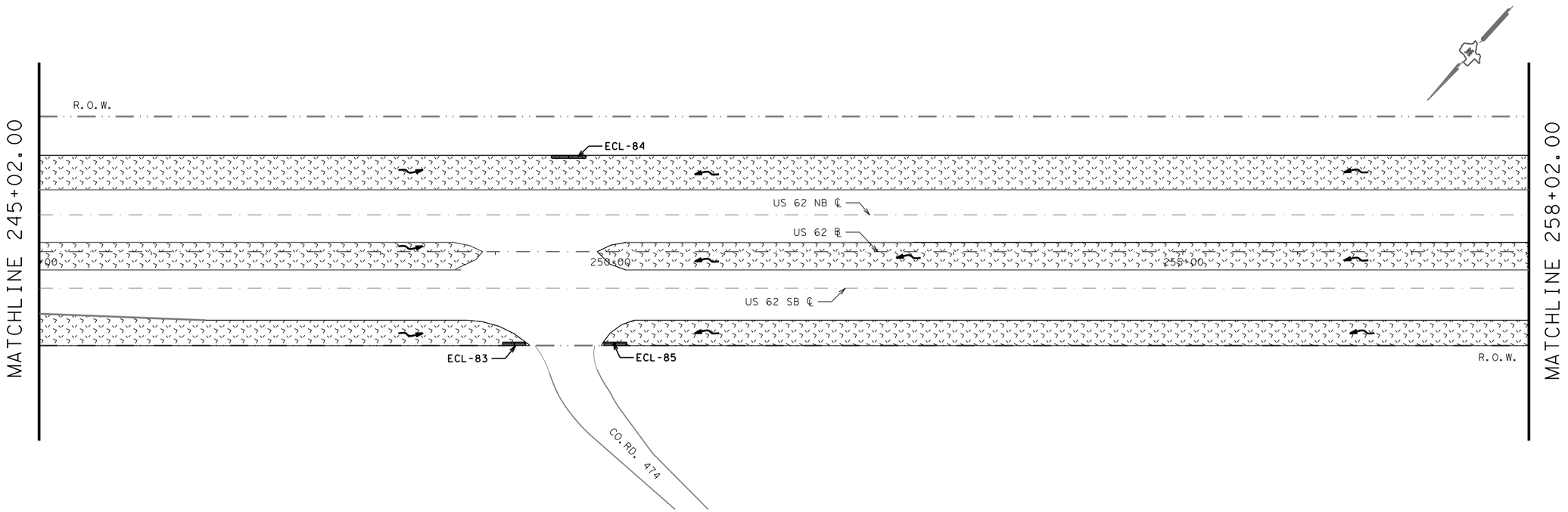

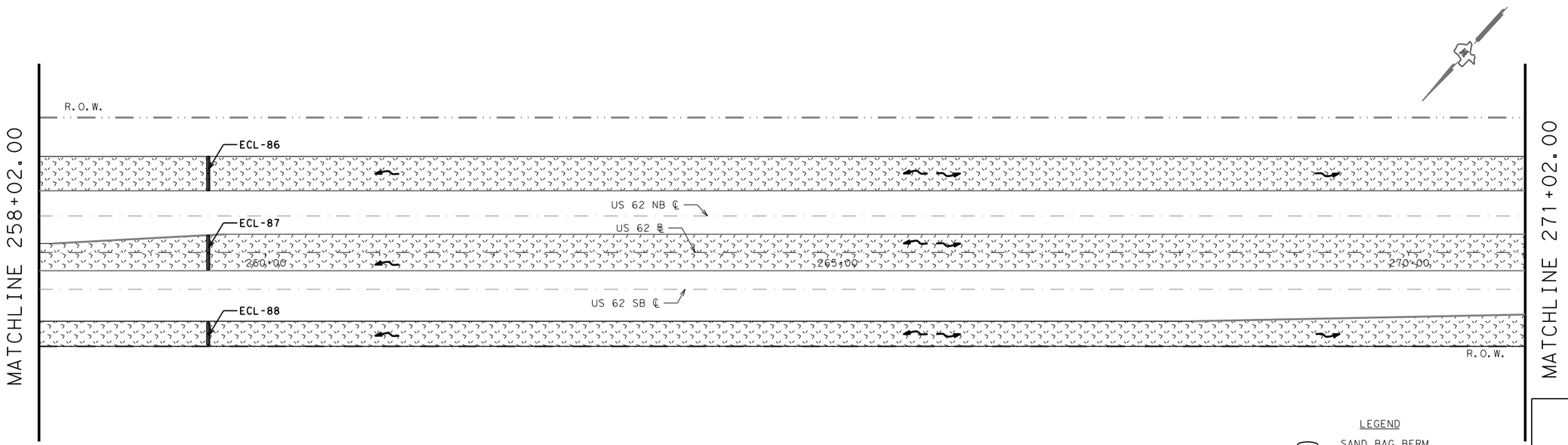

NOTES
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LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 7 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		172

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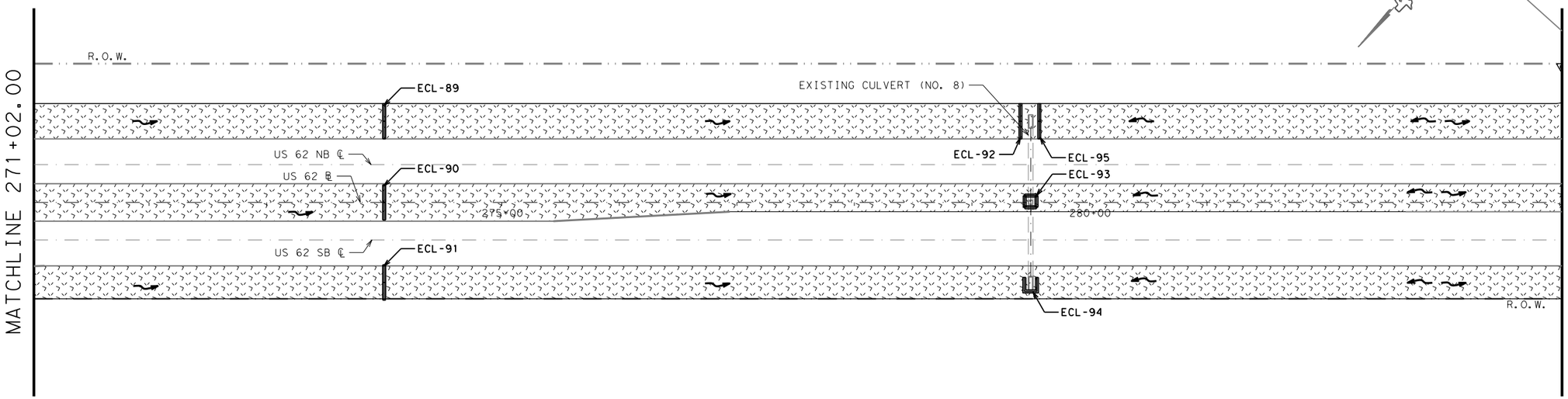

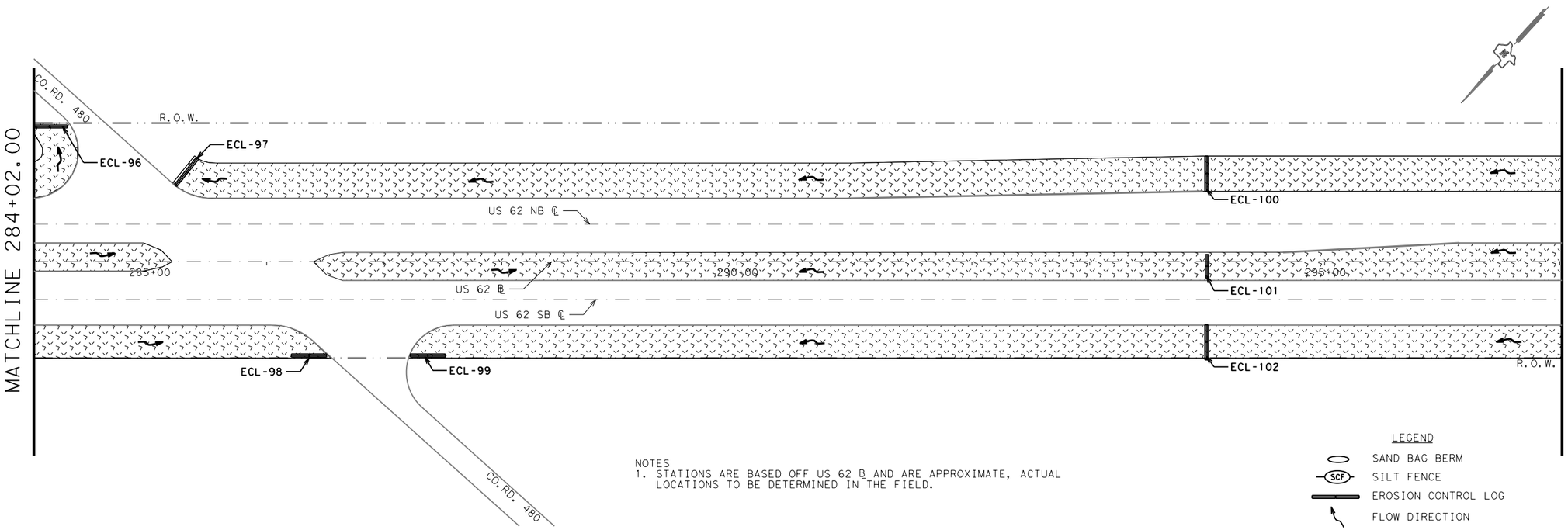

NOTES
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LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 8 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		173

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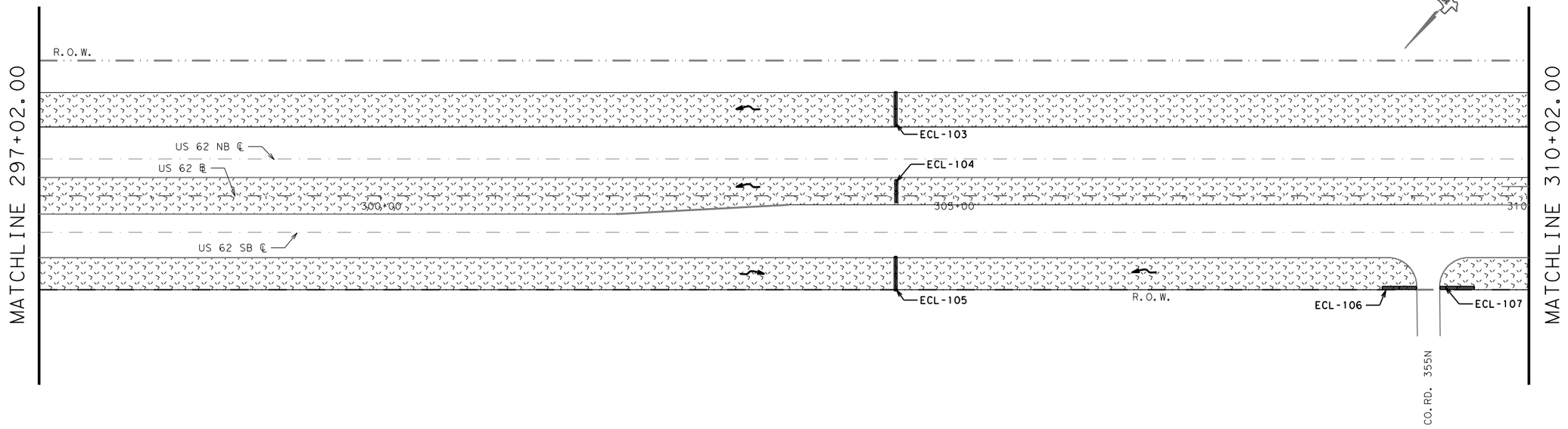

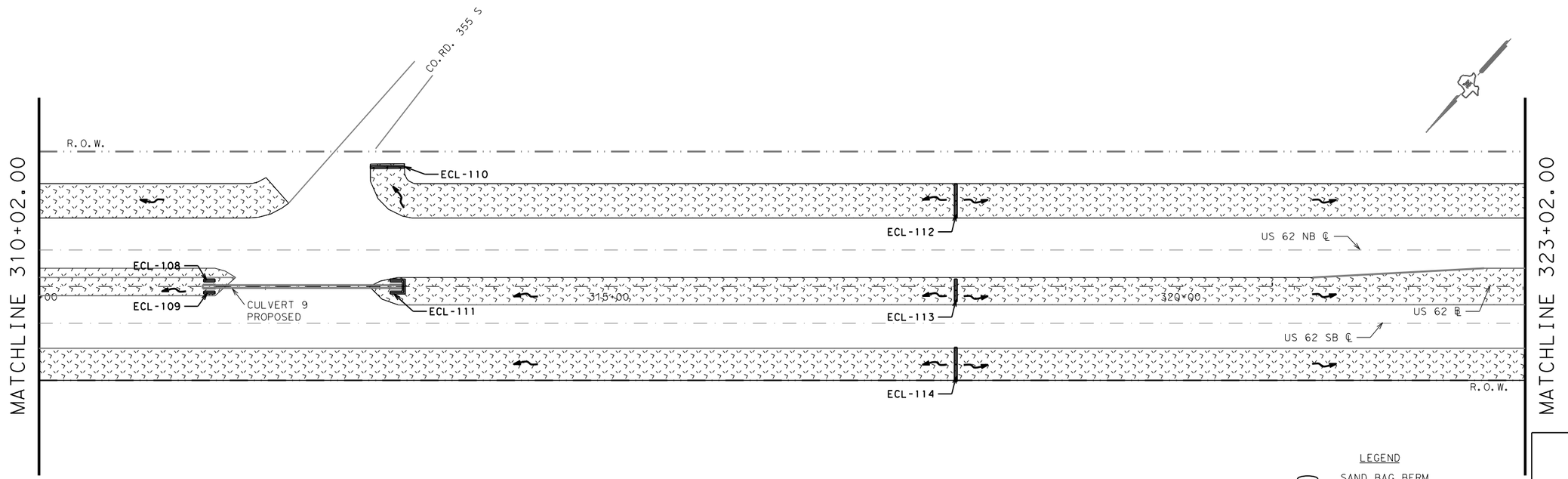

NOTES
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LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 9 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		174

DATE: 6/20/2023 2:41:20 PM
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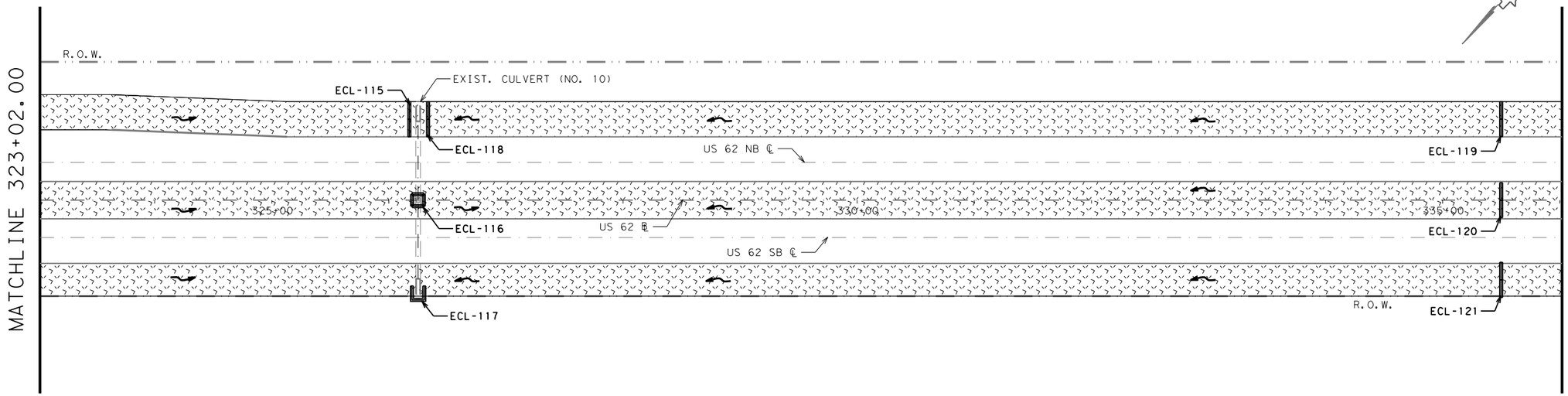

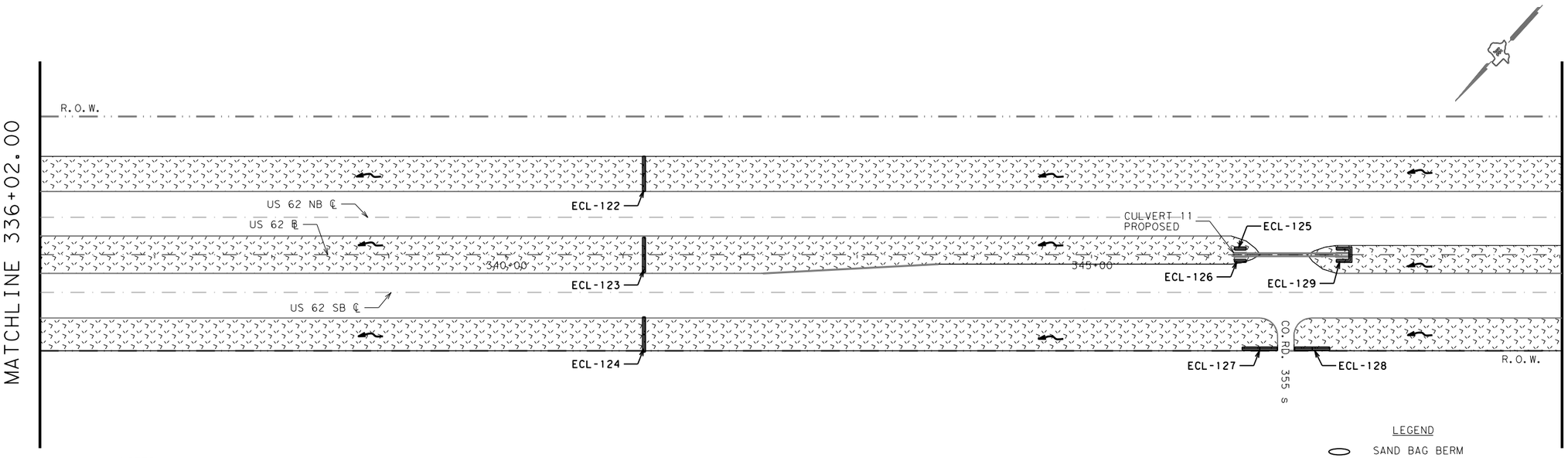

NOTES
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LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 10 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		175

DATE: 6/20/2023 2:41:30 PM
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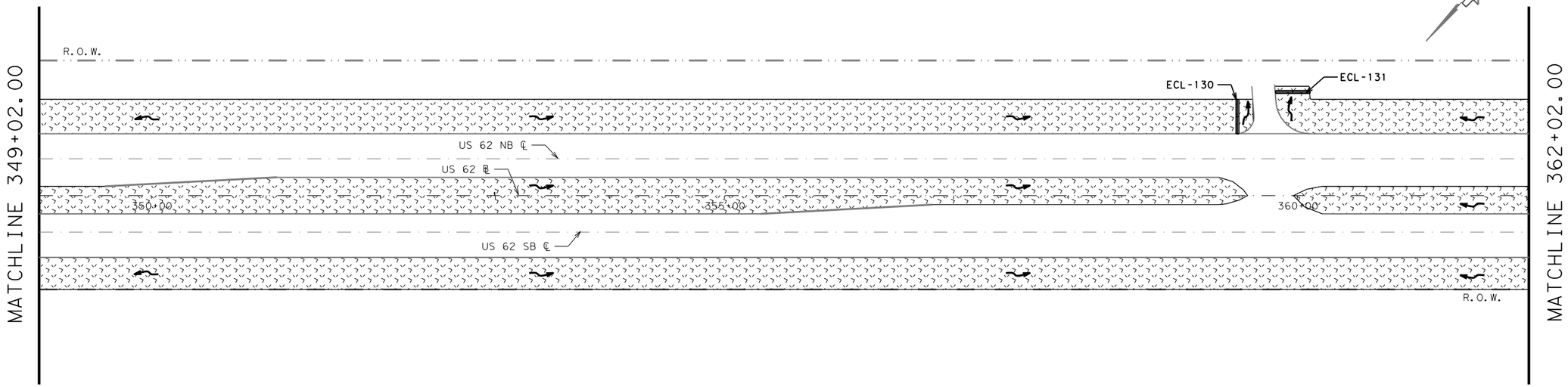

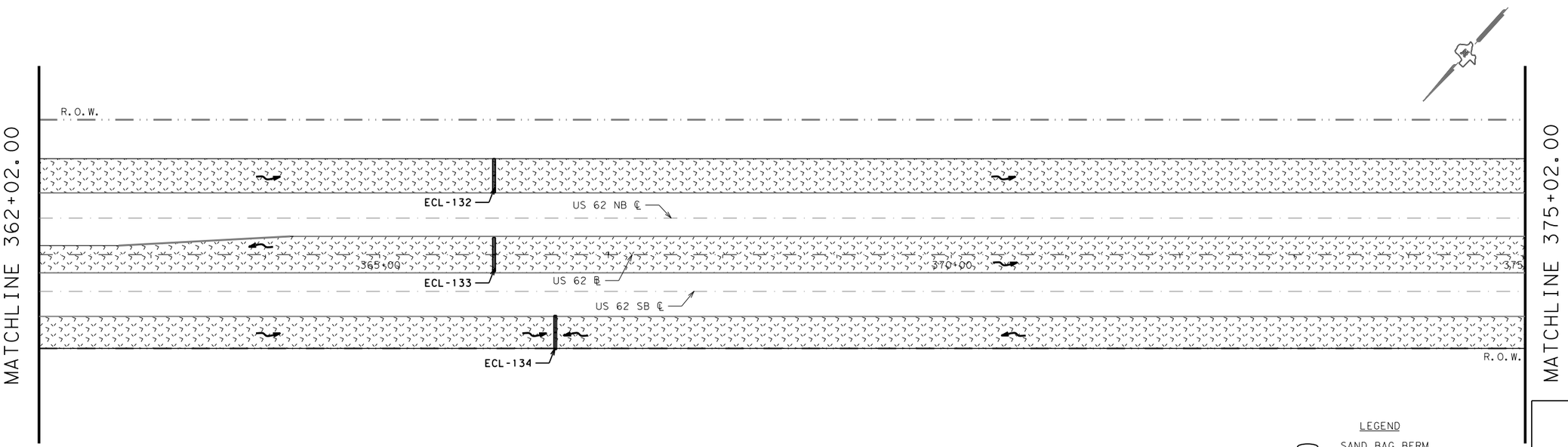

NOTES
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LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 11 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		176

DATE: 6/20/2023 2:41:41 PM
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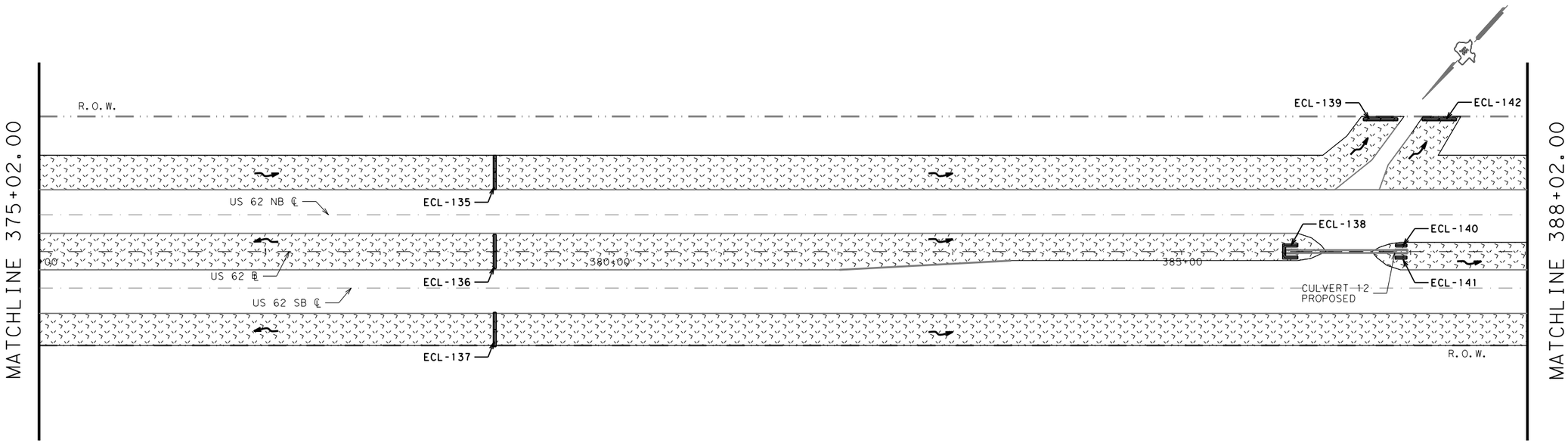

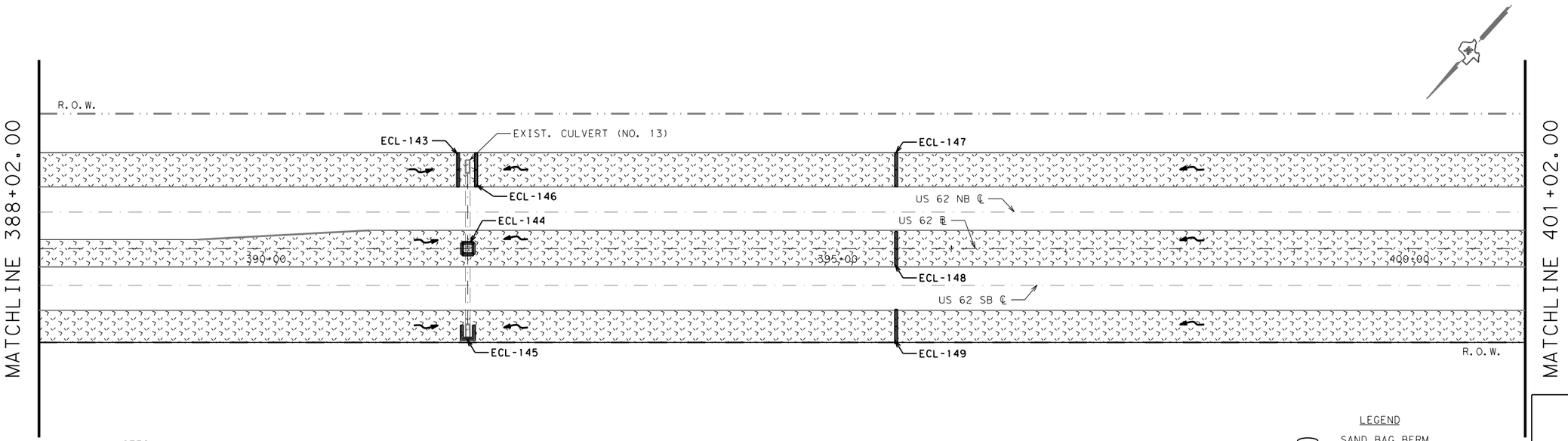

NOTES
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LEGEND
- SAND BAG BERM
- SCF — SILT FENCE
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- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER
Benjamin Cox, P.E.
6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'
SHEET 12 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		177

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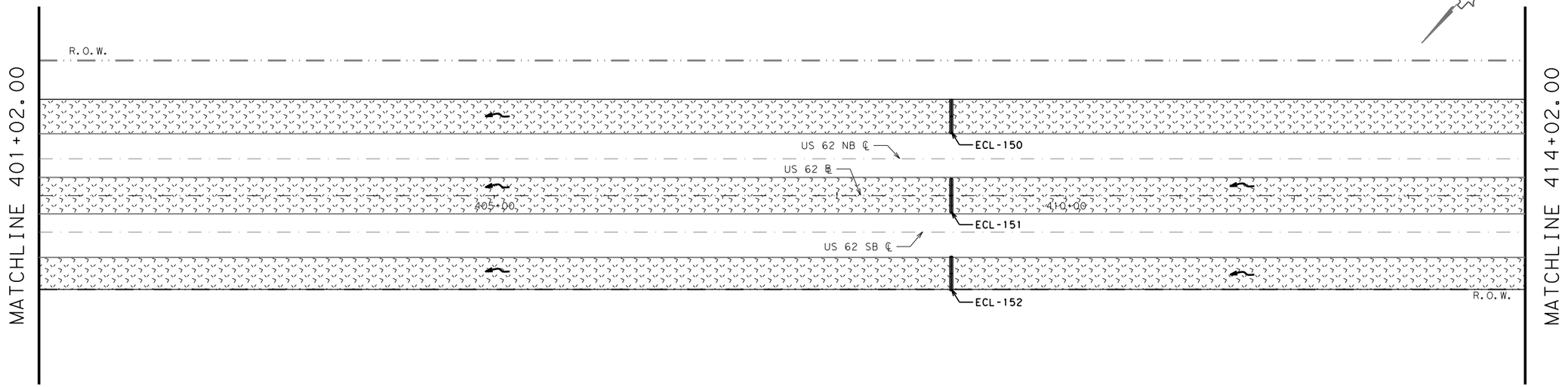

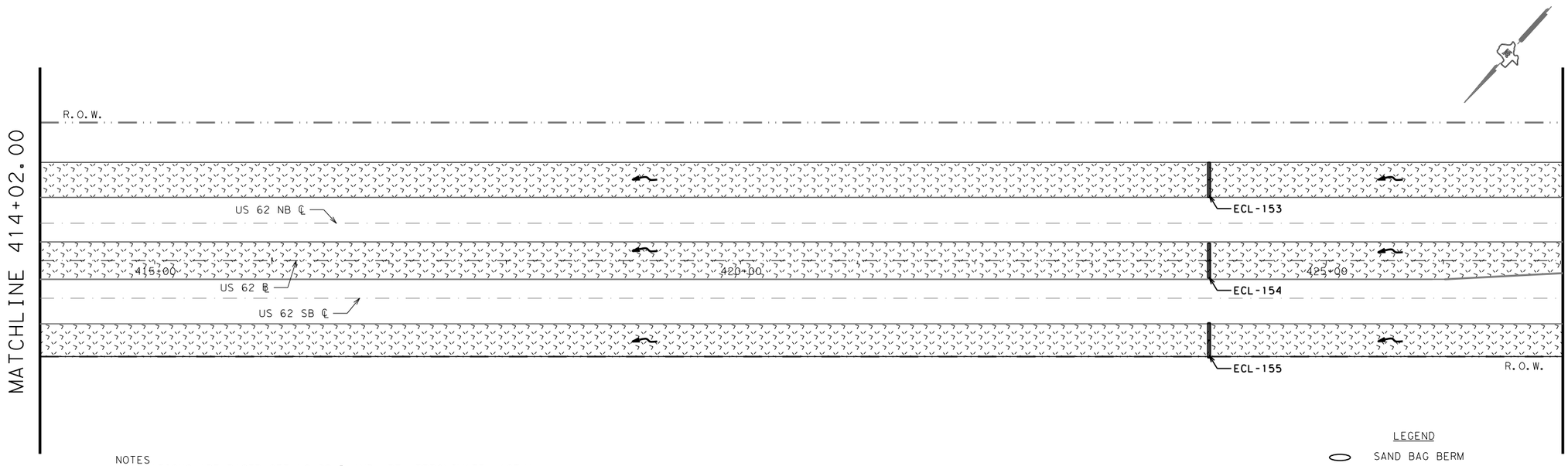

NOTES
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LEGEND

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- SCF — SILT FENCE
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STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 13 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		178

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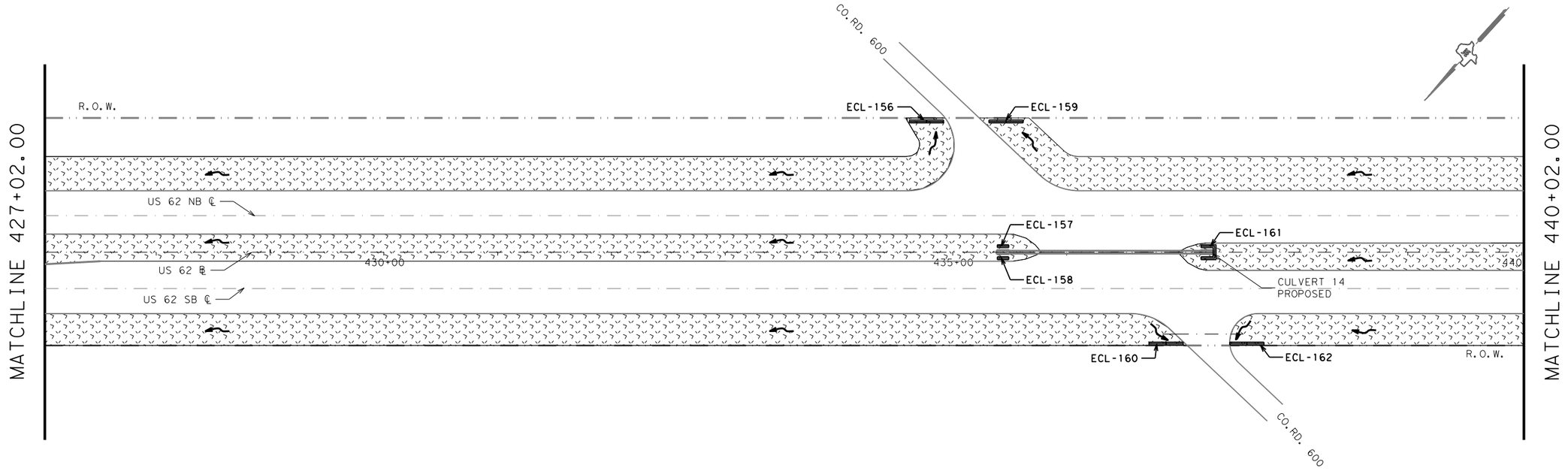

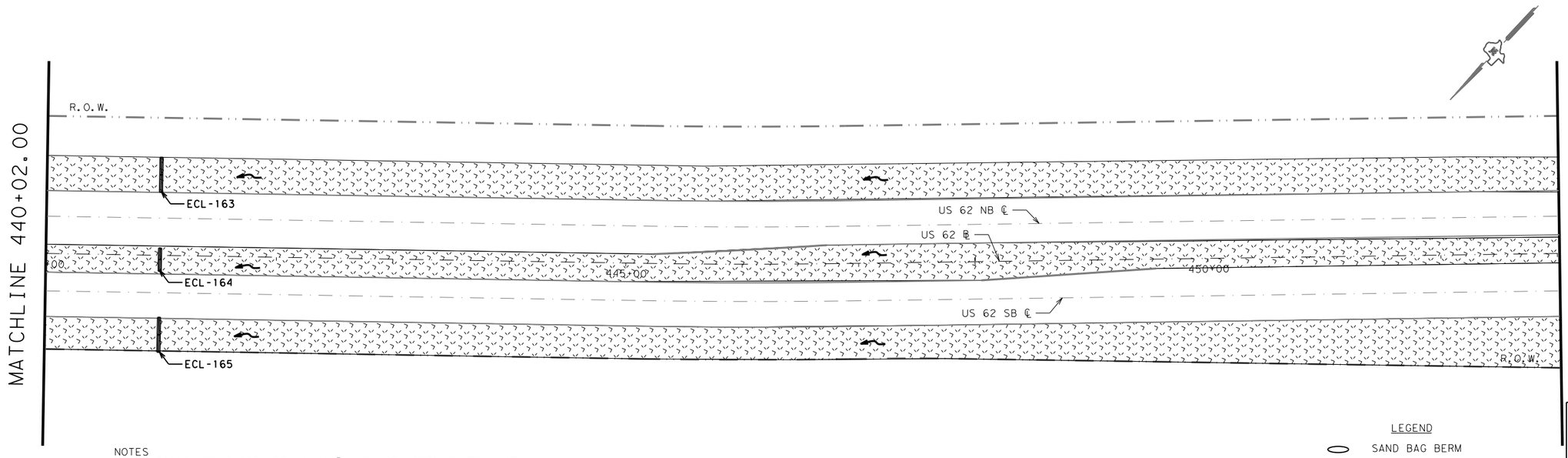

NOTES
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LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 14 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		179

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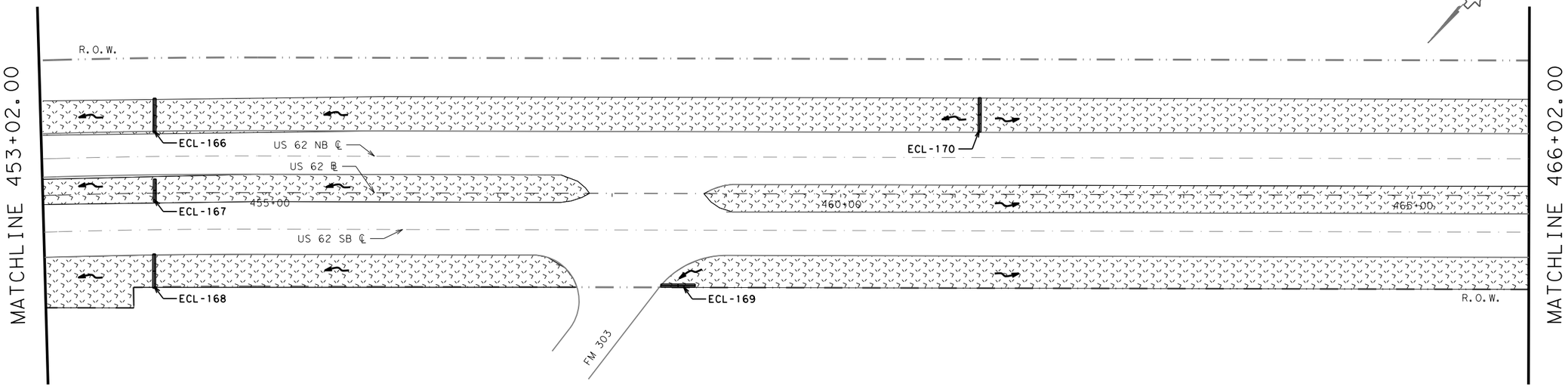

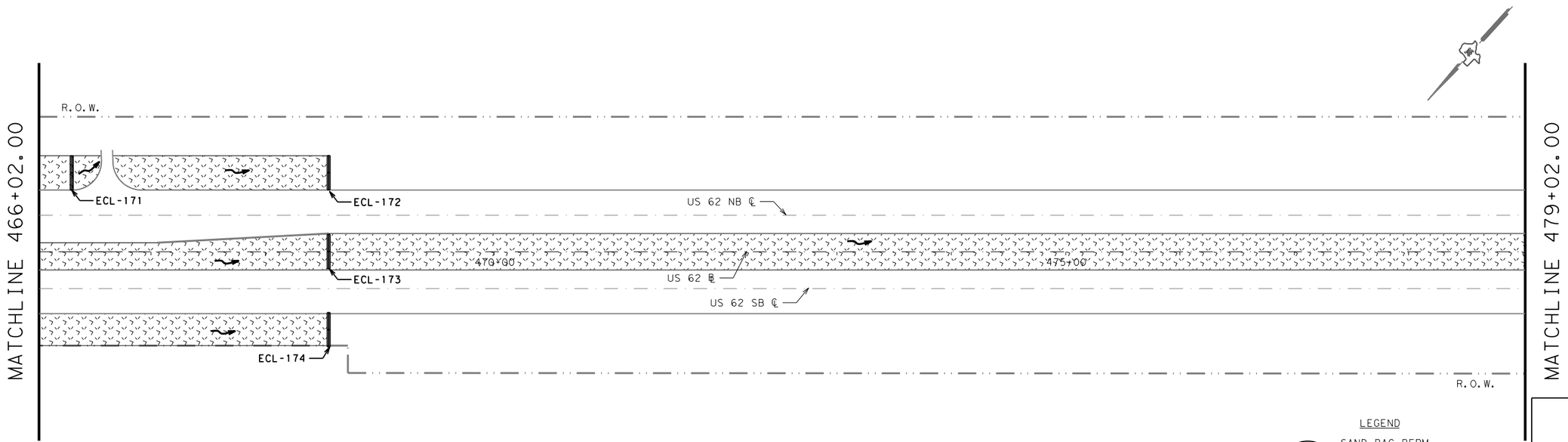

NOTES
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LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
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STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 15 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		180

DATE: 6/20/2023 2:42:30 PM
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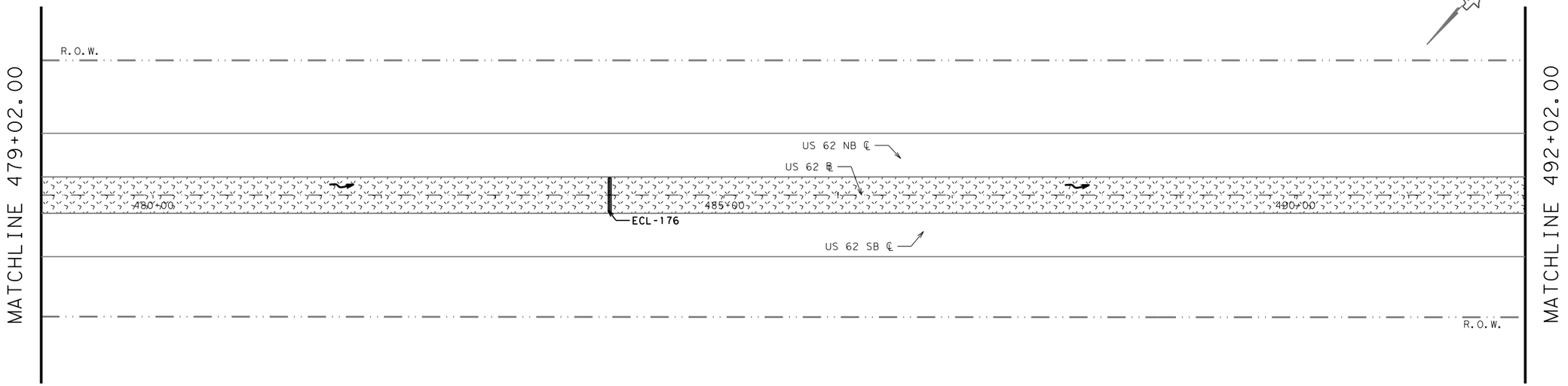

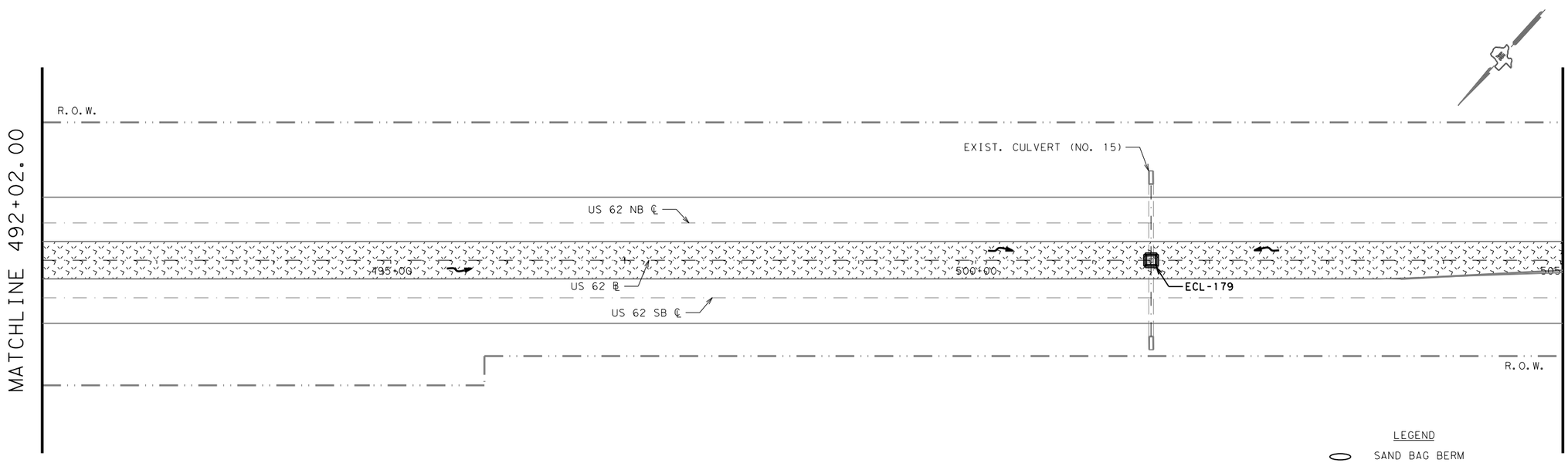

NOTES
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LEGEND

- SAND BAG BERM
- SILT FENCE
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STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 16 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		181

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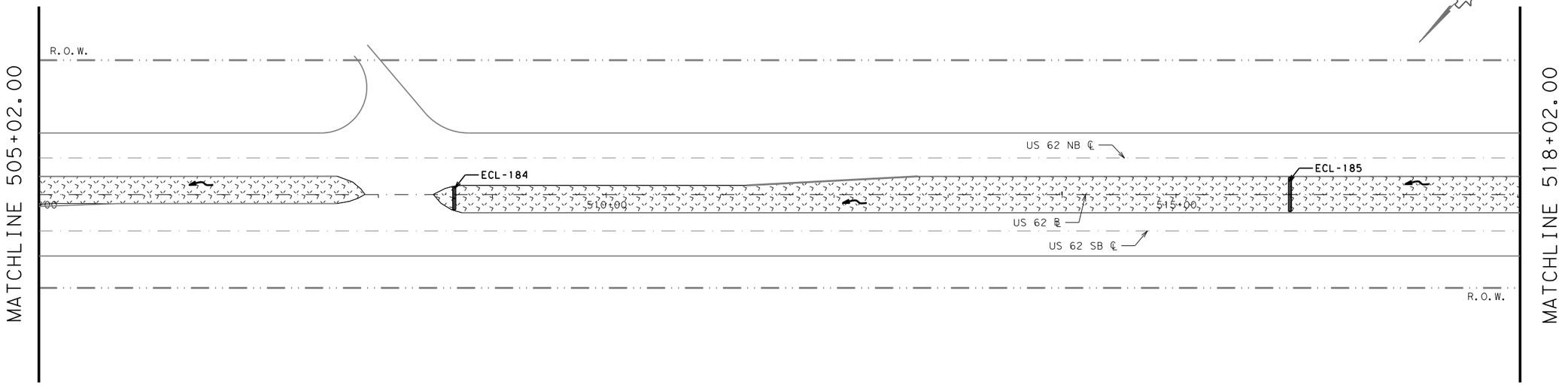

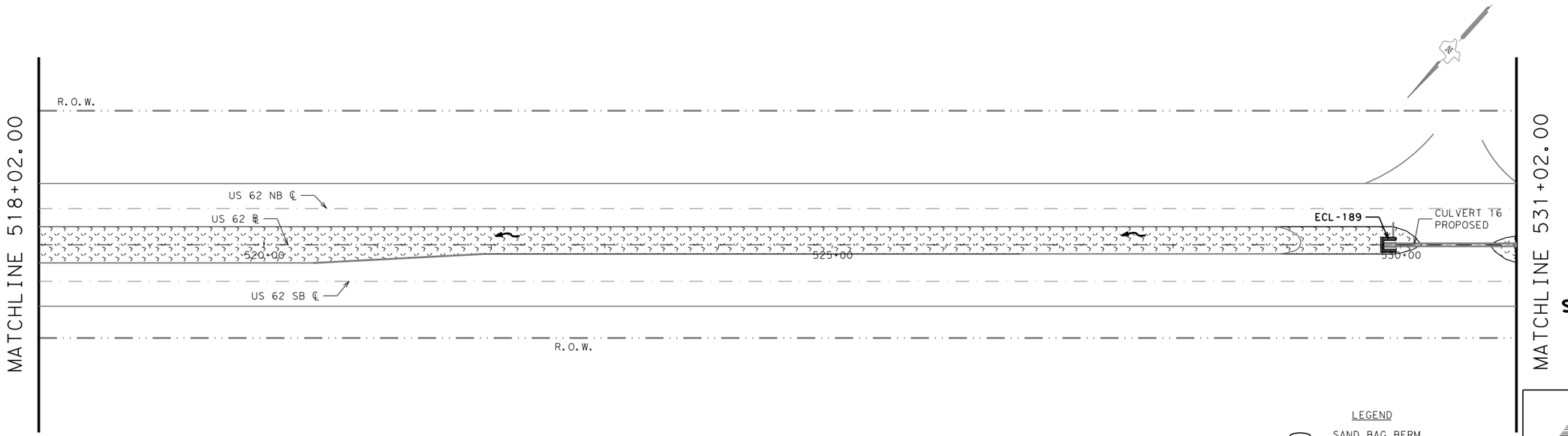

NOTES
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LEGEND

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STATE OF TEXAS
BENJAMIN COX
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Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 17 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		182

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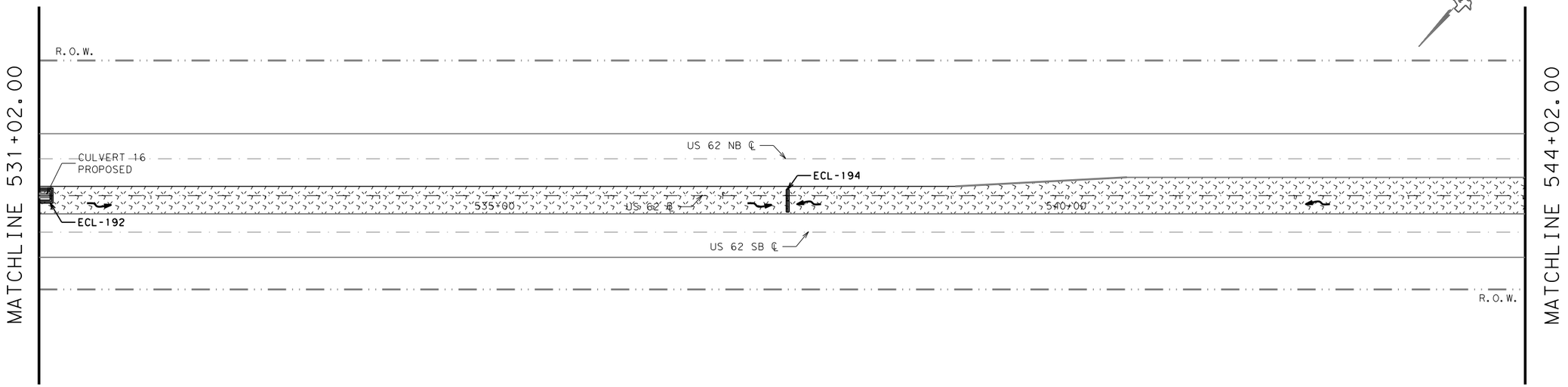

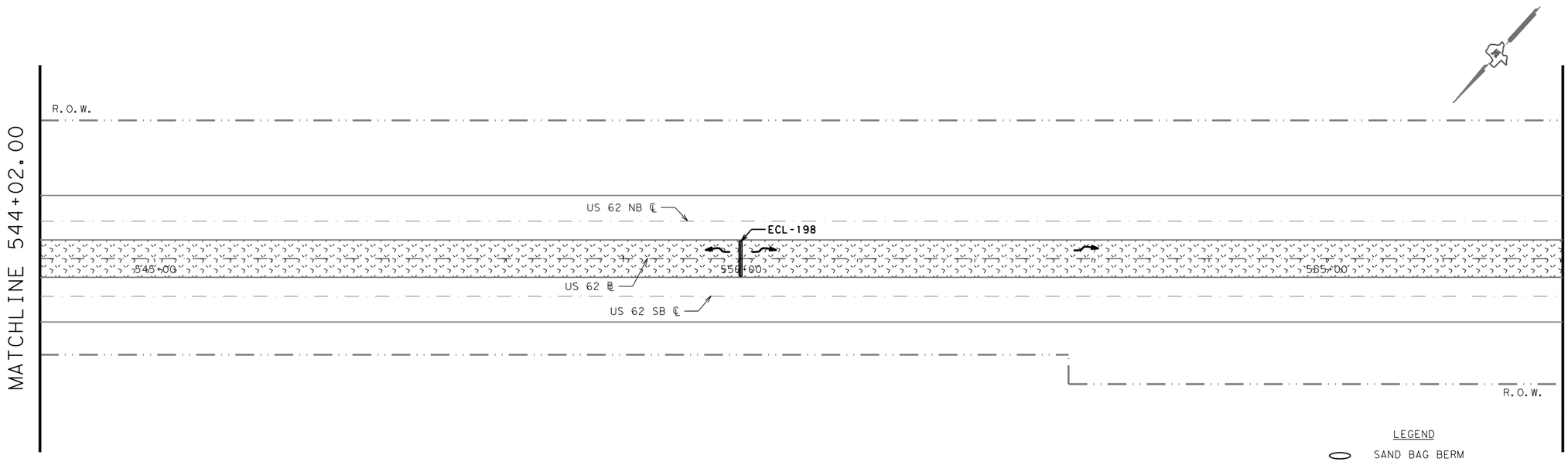

NOTES
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LEGEND

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STATE OF TEXAS
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126523
LICENSED
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Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 18 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		183

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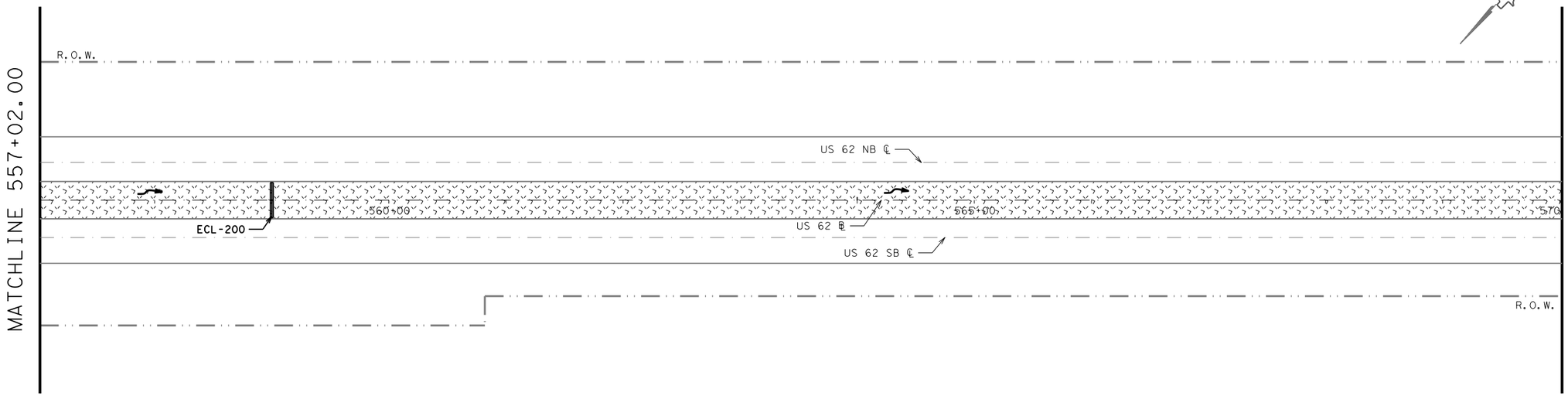

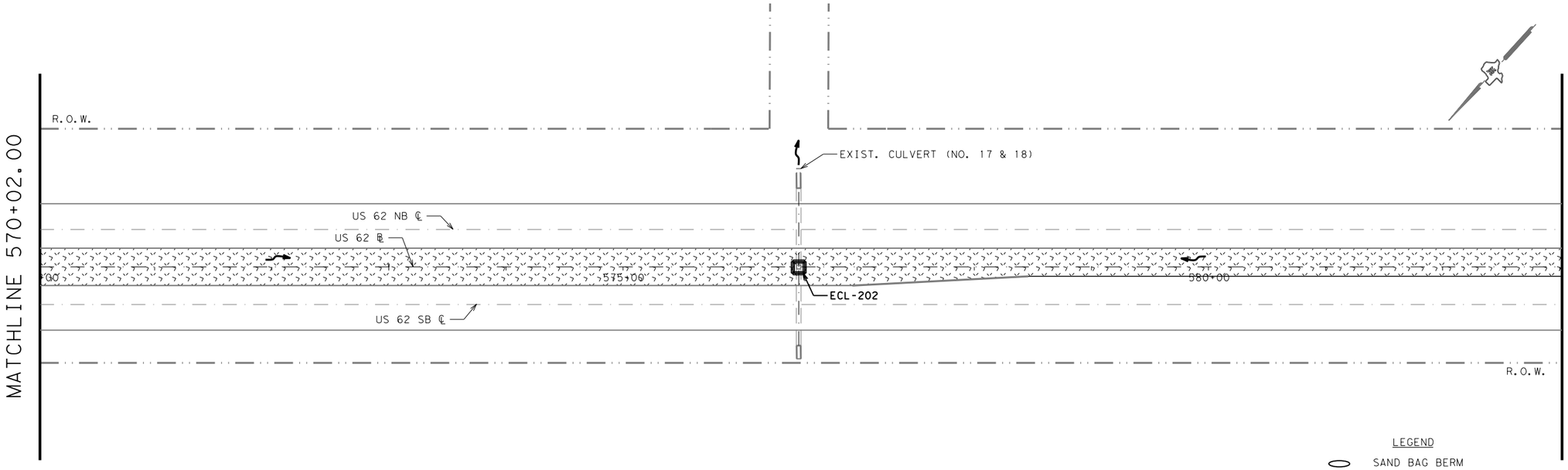

NOTES
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LEGEND

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STATE OF TEXAS
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Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 19 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		184

DATE: 6/20/2023 2:43:11 PM
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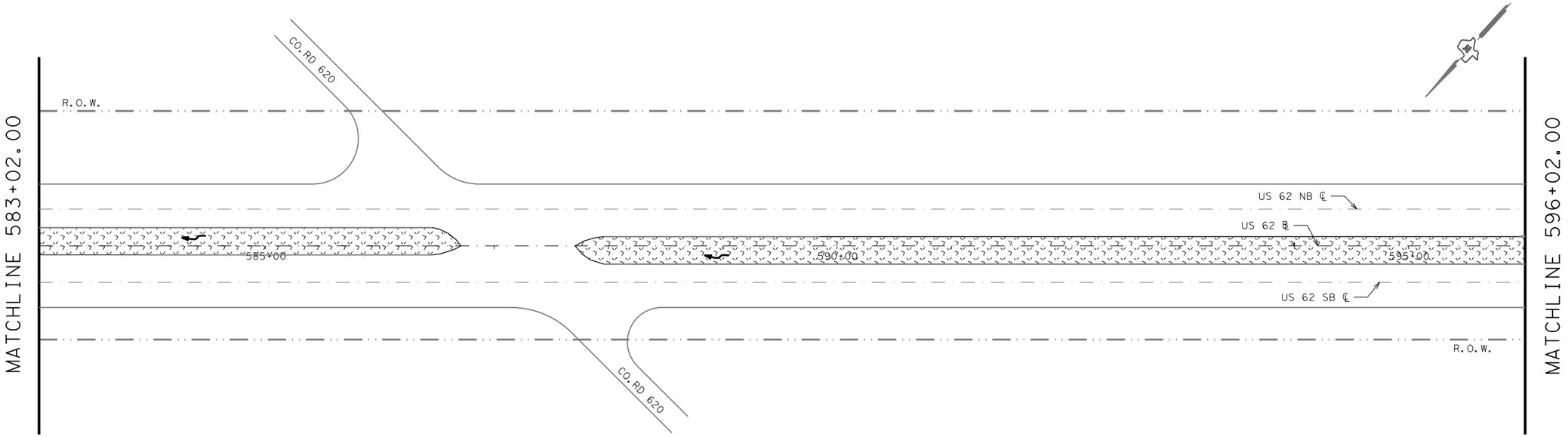

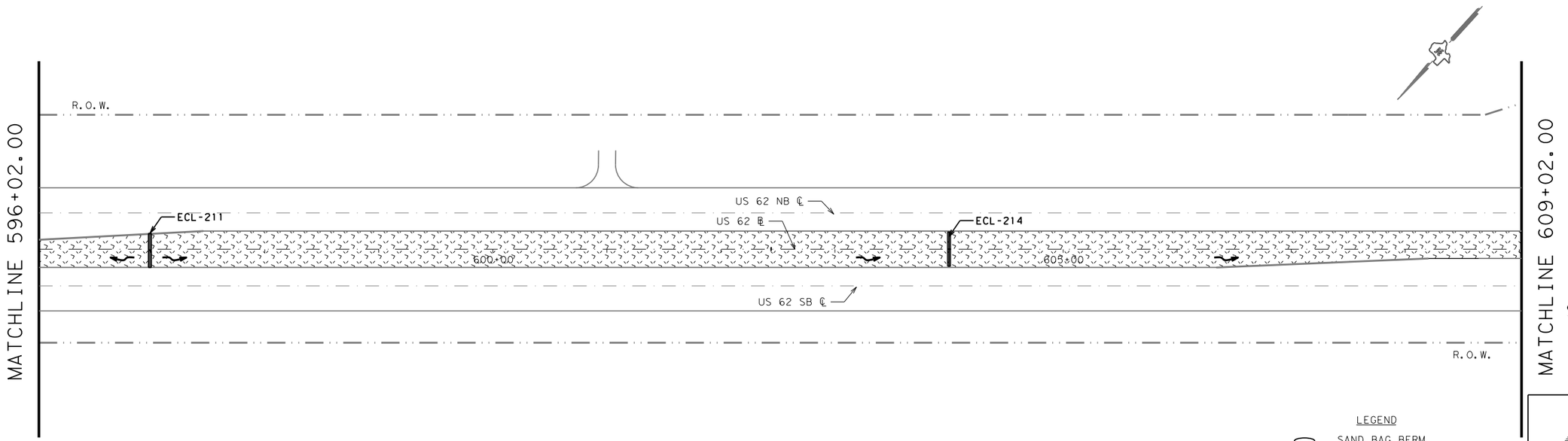

NOTES
1. STATIONS ARE BASED OFF US 62 ℄ AND ARE APPROXIMATE, ACTUAL LOCATIONS TO BE DETERMINED IN THE FIELD.

LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 20 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		185

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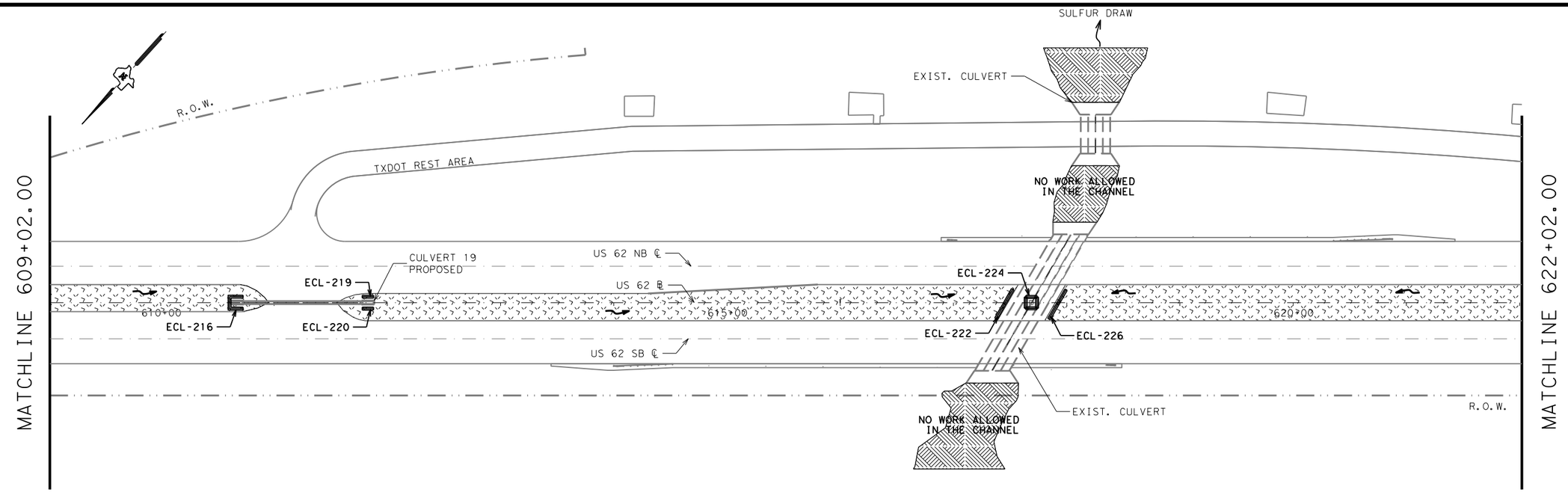

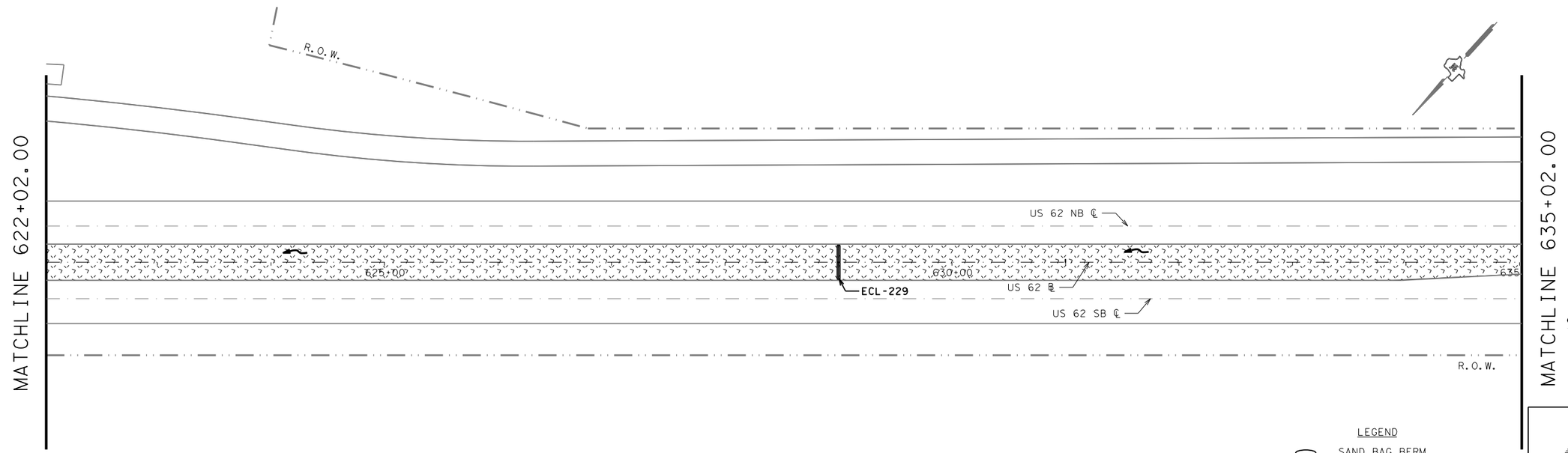

NOTES
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- SCF — SILT FENCE
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- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 21 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		186

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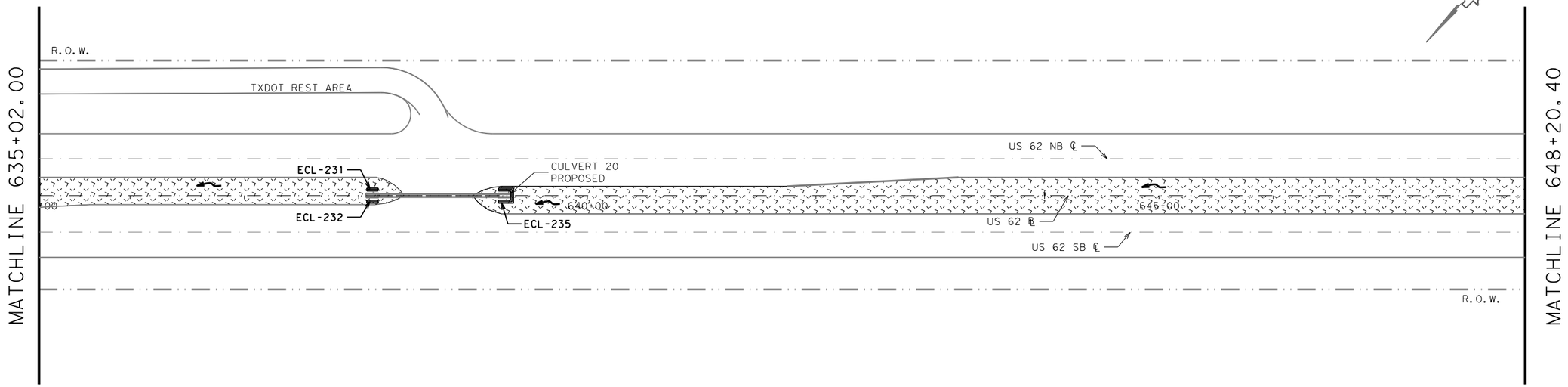

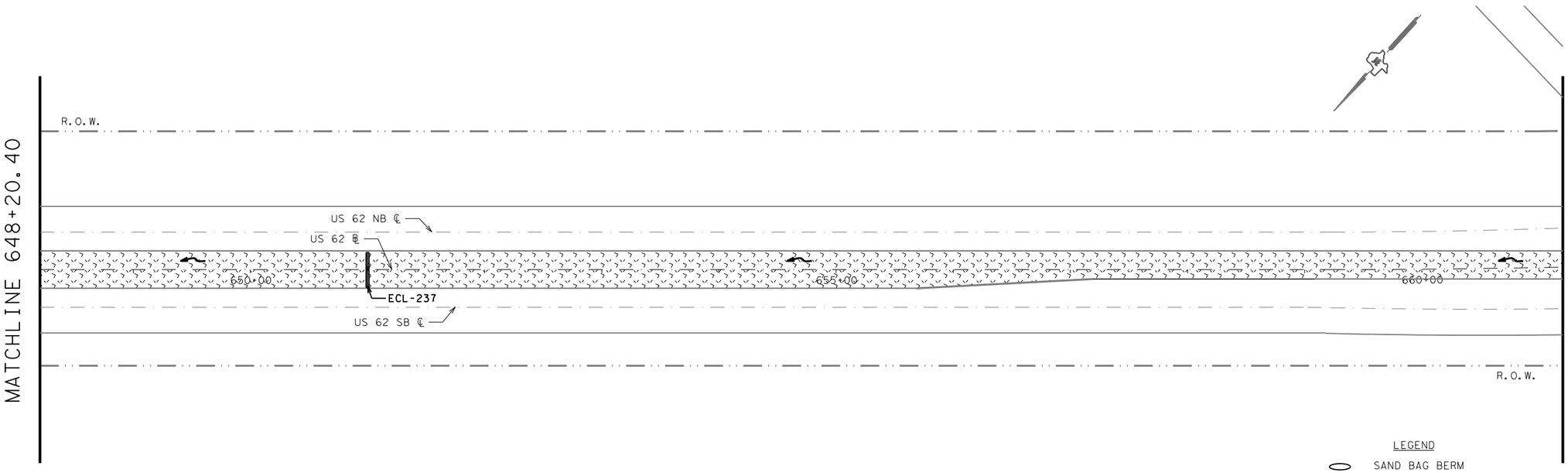

NOTES
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LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
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PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 22 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		187

DATE: 6/20/2023 2:43:40 PM
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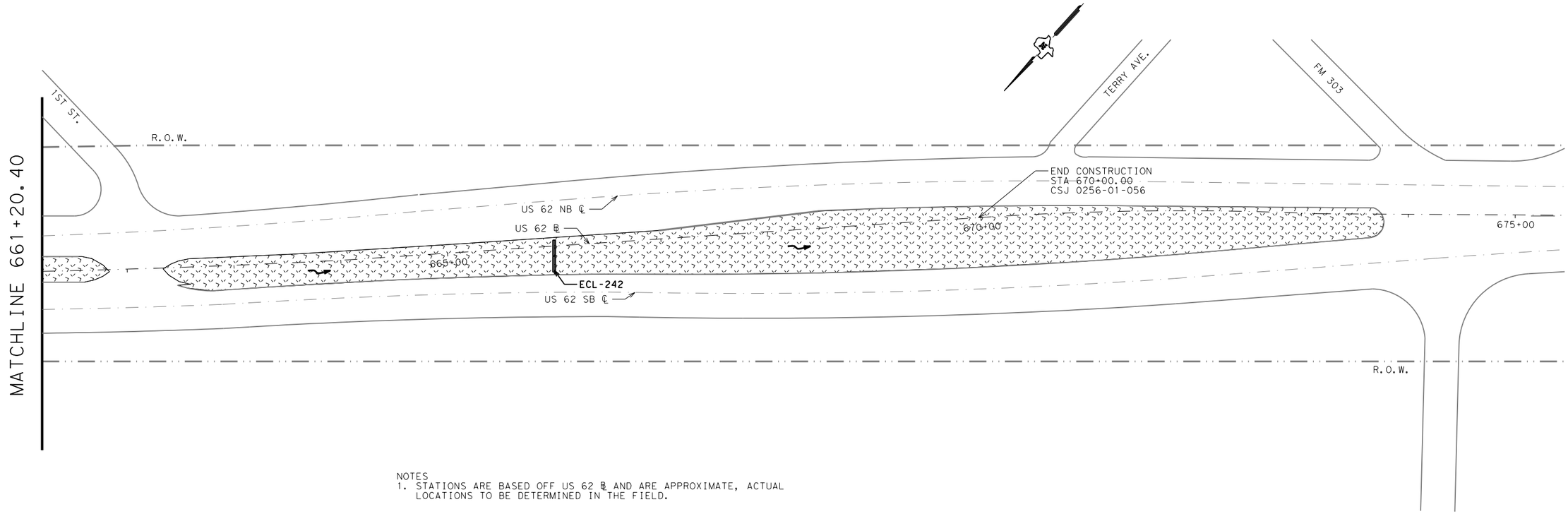

NOTES
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LEGEND

- SAND BAG BERM
- SCF — SILT FENCE
- EROSION CONTROL LOG
- FLOW DIRECTION
- EMULSION/SEEDING AREA

STATE OF TEXAS
BENJAMIN COX
126523
LICENSED
PROFESSIONAL ENGINEER

Benjamin Cox, P.E.

6-19-2023

SWP3 LAYOUT

SCALE 1" = 100'

SHEET 23 OF 23

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0228	01	056	US 62/385
DIST	COUNTY		SHEET NO.
LBB	TERRY		188

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STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with the TPDES Construction General Permit TXR150000 (CGP). The Texas Department of Transportation (TxDOT) ensures that project specifications include adequate best management practices (BMPs) for this project.

For all projects with 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 in the appropriate TxDOT Area Office.

This SWP3 is consistent with requirements specified in applicable stormwater plans and the projects environmental permits, issues, and commitments (EPICs). A copy of the CGP is included in Attachment 2.12 of the SWP3 binder.

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
0228-01-056

1.2 PROJECT LIMITS:

From: FM 213 IN WELLMAN

To: BEGINNING OF 4 LANE DIVIDED SOUTH OF BROWNFIELD

1.3 PROJECT COORDINATES:

BEGIN: (Lat) 102° 25′ 41.93"W ,(Long) 33° 02′ 55.24"N

END: (Lat) 102° 17′ 35.87"W ,(Long) 33° 09′ 35.87"N

1.4 TOTAL PROJECT AREA (Acres): 264.5 ACRES

1.5 TOTAL AREA TO BE DISTURBED (Acres): 173.8 ACRES

1.6 NATURE OF CONSTRUCTION ACTIVITY:

REHABILITATION OF EXISTING ROADWAY. CONSISTING OF SUBGRADE WIDENING, REMOVING OF STABILIZED BASE, & ASPHALT PAVEMENT, D-GR HMA, SMA, DRAINAGE INLET IMPROVEMENTS, CULVERT & SET INSTALLMENT, MEDIAN CABLE BARRIER & STRIPING.

1.7 MAJOR SOIL TYPES:

Soil Type	Description
Patricia and Amarillo loamy fine sands, 0 to 3 percent slopes (PAB)	50 % Patricia soils, 40% Amarillo soils, well drained,
Midessa, Potter and Posey soils, 3 to 12 percent slopes (MPP)	40% Midessa soils, well drained,
Levelland soils, 0 to 2 percent slopes, occasionally flooded (LDA)	80% Levelland soils, well drained,
Midessa fine sandy loam, 1 to 3 percent slopes (MdB)	85% Midessa soils, well drained,
Amarillo fine sandy loam, 1 to 3 percent slopes (AfB)	90% Amarillo soils, well drained,
Amarillo fine sandy loam, 0 to 1 percent slopes (AfA)	90% Amarillo soils, well drained,
Midessa fine sandy loam, 0 to 1 percent slopes (MdA)	85% Midessa soils, well drained,

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):

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

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

Type	Sheet #s

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

1.9 CONSTRUCTION ACTIVITIES:

(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.5.)

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

1.10 POTENTIAL POLLUTANTS AND SOURCES:

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

Concrete truck wash-out is allowed provided:
a) wash-out of concrete trucks to surface waters in the state, including storm sewer drains and inlets, is prohibited;
b) wash-out shall be to a structural control;
c) the direct discharge of wash-out water is prohibited at all times;
d) the discharge shall not contribute to groundwater contamination;
e) wash-out areas must be shown on the site map;
f) wash-out pits shall be bermed and lined with plastic.

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
Sulphur Springs Draw, Natrual Dam Lake, Salt Lake	*Beals Creek (1412B); Impaired for Bacteria
Beals Creek, Fourmile Lake, Threemile Lake, Moss Creek , Moss Creek Lake, Chimnery Creek, Powell Creek, Powell Lake, Devils Creek, Dugout Creek, Bull Creek, Wildcat Creek, Geneva Creek,	*Colorado River Below Lake J. B. Thomas (1412); Impaired for Bacteria in Water
NO TDMLs or I-PLANS were identified	

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

1.12 ROLES AND RESPONSIBILITIES: TxDOT

- ☒ Development of plans and specifications
- ☒ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- ☒ Post Construction Site Notice
- ☐ Submit NOI/CSN to local MS4
- ☒ Perform SWP3 inspections
- ☒ Maintain SWP3 records and update to reflect daily operations
- ☒ Complete and submit Notice of Termination to TCEQ
- ☒ Maintain SWP3 records for 3 years
- ☐ Other: _____
- ☐ Other: _____

NOTE: Environmental Documentation shall be uploaded to Site Manager and Projectwise within 7 calendar days per CGP Part III.E.

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

- ☒ Day To Day Operational Control
- ☒ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- ☒ Post Construction Site Notice
- ☐ Submit NOI/CSN to local MS4
- ☒ Maintain schedule of major construction activities
- ☒ Install, maintain and modify BMPs
- ☒ Complete and submit Notice of Termination to TCEQ
- ☒ Maintain SWP3 records for 3 years
- ☐ Other: _____
- ☐ Other: _____

NOTE: Environmental Documentation must be readily available.

1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:

NONE	MS4 Entity

STATE OF TEXAS
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6-19-2023

STORMWATER POLLUTION PREVENTION PLAN (SWP3) NARRATIVE - OVER 1 ACRE

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			189
STATE	STATE DIST.	COUNTY	
TEXAS	LBB	TERRY	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	01	056	US 62/385

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

- [X] ☐ Protection of Existing Vegetation
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Soil Retention Blankets
- ☐ ☐ Geotextiles
- ☐ ☐ Mulching/ Hydromulching
- ☐ ☐ Soil Surface Treatments
- ☐ ☐ Temporary Seeding
- ☐ [X] Permanent Planting, Sodding or Seeding
- [X] ☐ 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

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

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

Sediment control BMPs requiring design capacity calculations (See SWP3 Attachment 1.3.):

T / P

- ☐ ☐ Sediment Trap
  - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
  - ☐ 3,600 cubic feet of storage per acre drained
- [X] ☐ Sedimentation Basin
  - ☐ Not required (<10 acres disturbed)
  - ☐ Required (>10 acres) and implemented.
    - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
    - ☐ 3,600 cubic feet of storage per acre drained
  - [X] Required (>10 acres), but not feasible due to:
    - [X] Available area/Site geometry
    - ☐ Site slope/Drainage patterns
    - ☐ Site soils/Geotechnical factors
    - ☐ Public safety
    - ☐ Other: _____

2.3 PERMANENT CONTROLS:

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

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

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

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

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

2.5 POLLUTION PREVENTION MEASURES:

- [X] Chemical Management
- [X] Concrete and Materials Waste Management
- [X] Debris and Trash Management
- [X] Dust Control
- [X] Sanitary Facilities
- X Other: *Lidded Dumpster (Part III.G.4.c in CGP)*
- ☐ Other: _____

Litter and Construction Debris:
Storage of construction and waste materials on-site shall be temporary. The project contractor shall establish a schedule for the regular removal of litter and construction debris; this schedule shall be approved by the project engineer; and, once approved, implemented by the contractor. As needed, the project engineer shall direct the contractor to establish good housekeeping measures consistent with the TCEQ's Construction General Permit.

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:

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

NOTE: Discharges from dewatering activities are prohibited unless managed by appropriate controls per the CGP. Part III.G.3

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 2.5 of this SWP3 .

Inspection of Controls:

Lubbock District: an informal inspection of controls shall occur every work day; a formal inspection of controls accompanied by an inspection report using Form 2118 shall occur every seven calendar days. Inspectors must inspect disturbed areas that have not been finally stabilized, areas that are used for storage of materials and that are exposed to rain, discharge locations and structural controls for evidence of, or the potential for, pollutants entering the drainage system. The SWP3 must be modified based on the results of inspections to better control pollutants in runoff. Revisions to the SWP3 must be completed within seven calendar days following inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWP3 and wherever possible those changes implemented before the next storm event.

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 2.5 of this SWP3.

STATE OF TEXAS
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STORMWATER POLLUTION PREVENTION PLAN (SWP3) NARRATIVE - OVER 1 ACRE

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			190
STATE	STATE DIST.	COUNTY	
TEXAS	LBB	TERRY	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	01	056	US 62/385

DESCRIPTION OF BMPs USED TO MINIMIZE POLLUTION IN RUNOFF:
EROSION AND SEDIMENT CONTROLS: If it is necessary to pump water, BMP's shall be used to reduce the off-site transport of sediment. BMP's shall be installed per the manufacturer specifications or as directed by the Engineer.

GENERAL SCHEDULE FOR IMPLEMENTATION OF SW3P CONTROLS:

CONTROL	IMPLEMENTATION SCHEDULE AND DESCRIPTION	REMOVAL SCHEDULE
general, various controls	control measures are to be provided at a time and in a manner that will minimize impacts to receiving waters	at final stabilization; at the resumption of construction (temporary measures); at the direction of the SW3P plan; at the direction of the project manager
rock filter dams	to be installed prior to soil disturbing activities in the surrounding areas	at final stabilization or as directed by the project engineer
sandbag berms	to be installed prior to the start of construction; sandbag berms are to serve as water velocity dissipaters, as ditch blocks, as sedimentation basins, in support of other control devices, and as a final multiple control for water leaving the construction zone	at final stabilization or as directed by the project engineer
silt fence	silt fence will be installed prior to the start of construction along right-of-way lines silt fence will be installed as quickly as feasible (where it is reasonable to do so) at the toe of header bank and other slopes silt fence may be installed at the start of construction, during construction as appropriate, and during construction to support other controls as needed	at final stabilization or as directed by the project engineer at final stabilization or as directed by the project engineer at the removal of the construction exit, at final stabilization, or as directed by the project engineer
tackifiers/emulsions	soil tackifiers may be used to control dust	erosion controls that are designed to remain in-place for a indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal (CGP, page 23)
water	to be used to suppress dust and compact dirt on an as needed schedule	erosion controls that are designed to remain in-place for a indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal (CGP, page 23)
seed, temporary	to be installed, when apprppriate, in disturbed areas where construction has temporarily ceased for 21 days	erosion controls that are designed to remain in-place for a indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal (CGP, page 23)
seed, permanent	to be installed as a final stabilization measure where construction is complete or as directed by the Engineer	erosion controls that are designed to remain in-place for a indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal (CGP, page 23)
construction exits	to be installed at all construction vehicle exit points to publicly traveled ways prior to the use of these exits by construction vehicles	as directed by construction conditions or by the Engineer
erosion control logs	to be installed prior to the start of construction; erosion control logs are to serve as water velocity dissipaters, as ditchblocks, as sedimentation basins, and in support of other control devices.	as directed by construction conditions or by the Engineer
soil retention blankets	to be installed as a final stabilization measure where construction is complete or as directed by the Engineer	erosion controls that are designed to remain in-place for a indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal (CGP, page 23)
inlet protectors	to be installed to cover curb inlets with support from sandbags or as directed by the Engineer	as directed by construction conditions or by the Engineer
compost socks	to be installed as channel blocks, inlet protectors, and to support sandbag berms, silt fences or as directed by the Engineer	as directed by construction conditions or by the Engineer

Notes from the Lubbock District:
-This is a general schedule for the installation of and removal of SW3P best management practice controls. The final determination of the implementation and removal of controls is at the discretion of the project engineer.
-Control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications. If periodic inspections or other information indicates control has been used incorrectly, or that the control is performing inadequately, the operator must replace or modify the control as soon as practicable after the discovery that the control has been used incorrectly, is performing inadequately, or is damaged.
-Sediment must be removed from traps and sedimentation ponds no later than the time that design capacity has been reduced by 50 percent.
-If sediment escapes the site, accumulations must be removed at a frequency to minimize further negative effects, and whenever feasible, prior to the next rain event.
-Controls must be developed to limit, to the extent practicable, the off-site transport of litter, construction debris, and construction materials.
-Erosion and sediment controls must be designed to retain sediment on-site to the extent practicable with consideration for local topography, soil type, and rainfall. Controls must also be designed and utilized to reduce the off-site transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water.

MAINTENANCE REQUIREMENTS:
Control measures shall be properly installed and maintained according to the manufacturer's specifications. Sediment must be removed from BMP's as directed by the SW3P plan requirements, and as directed by the manufacturer's recommendations, but no later than the time at which the capacity of the BMP has been reduced by 50 percent. If sediment or other pollutants escape the site, accumulations will be removed to reduce further negative effects. If inspections or other information indicates a control has been installed, used, or is performing inadequately, the contractor must modify or replace the control as soon as practicable after the problem is discovered. Controls shall be maintained in effective operating condition. If inspections determine that BMPs are not operating effectively, maintenance shall be performed as necessary to continue the effectiveness of the controls. Controls that have been intentionally disabled, run over, removed, or otherwise made ineffective, must be corrected or replaced at discovery.

LITTER AND CONSTRUCTION DEBRIS:
The project contractor shall establish a schedule for the regular removal of litter and construction debris; this schedule shall be approved by the project engineer; and, once approved, implemented by the contractor. As needed, the project engineer shall direct the contractor to establish good housekeeping measures consistent with the TCEQ's Construction General Permit.

DESCRIPTION OF PERMANENT STORM WATER CONTROLS:
PERMANENT STORM WATER CONTROLS: A description of controls that will stay in-place after construction is completed must be included in the SW3P.

1. Riprap: concrete riprap can be installed as a permanent stabilization measure at locations where construction is completed must be included in the SW3P.
2. Existing Vegetation & Vegetative Buffers: to the extent practicable, existing vegetation will not be disturbed by construction activities; and, where feasible (especially at storm water discharge sites), existing vegetation will remain undisturbed to form a vegetative buffer between construction areas and areas undisturbed by construction.
3. Permanent Sodding/Seeding & Plantings: this is the establishment of permanent perennial vegetation. Permanent vegetation stabilizes soil by holding soil particles in-place. Vegetation filters sediments, helps soil absorb water, improves wildlife habitat, and enhances aesthetics of the site.
4. Permanent vegetation will remain in vegetated channels.

SEDIMENT CONTROL PRACTICES:
1. Sandbags: the purpose of a sandbag is to intercept sediment laden storm water from disturbed areas, create a detention pond, detain sediment and release water in a sheet flow. Sandbag berms are a general purpose sediment control device and will be used throughout the project to detain sediment on site. Sandbags will be placed in ditches and channels to form sedimentation basins. Sandbags will also be used where runoff exits the construction site to enter receiving waters and to support other storm water controls.
2. Silt fence: silt fence is to be installed with construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This is a general use control that will be used to create detention basins that retain sediment on-site; they will also be used in support of other controls such as construction exits and rock filter dams.
   Silt fence will be used along playa lakes to reduce the loss of sediment from roadway front slopes; it may be used in ditches, channels, discharge points to support sandbag berms; may be used to support stabilized construction exits.
3. Rock Filter Dams: the purpose of a rock filter dam is to intercept and slow sediment laden water runoff from disturbed areas, retain the sediment and release the water in sheet flow. Rock filter dams will generally be used in high water velocity flow channels.
4. Stabilized Construction Exit: the purpose of the stabilized exit is to reduce the tracking of sediment and dirt onto public roadways beyond the construction zone.
   Stabilized Construction Exits are to be in-place at exit points to streets and thoroughfares in urban areas and are to be used by all construction vehicles regardless of size. They are to be supported where appropriate with silt fence and mechanized brooms.

Sediment basins are required where feasible for common drainage locations that serve an area with 10 or more acres disturbed at one time. Temporary or permanent sediment basins that provide water storage capacity are located on the project; the following controls provide, where feasible, structural controls / sediment basins:
1. Sandbag Berm as a Sediment Basin: a temporary basin designed to intercept sediment-laden storm water runoff and to trap sediment on-site.
2. Vegetative Buffer Strip: vegetative buffer strips reduce water velocity which reduces the potential of water erosion and allows sediments to fall out of the storm water.
3. Silt Fence will be used to reduce the loss of sediment from roadway front slopes adjacent to playa lakes by filtering out silt laden storm water from construction area.

Erosion control and stabilization measures must be initiated immediately in portions of the site where construcion activities have ceased and will not resume for a period exceeding 14 calendar days. Stabilization measures that provide a protective cover must be initiated immediately in portions of the site where construction activities have permanently ceased (CGP Part III Sect. F2(b)iii page 33).

STABILIZATION PRACTICES AND OTHER REQUIRED CONTROLS AND BMPs:
1. Stabilized Construction Exit: a stabilized pad of stone, timber, or other stabilized surface located at points where construction traffic will leave the construction zone to enter a public roadway. The purpose of the stabilized exit is to reduce the tracking of sediment and dirt onto public roadways beyond the construction zone. Stabilized Construction Exits will be placed as needed.
2. Water: water will be used to temporarily suppress dust and compact dirt.
3. Tackifiers: tackifiers such as asphalt emulsion, guar, (and other natural tackifiers), and synthetic tackifiers will be used to control air (dust) & water erosion.
4. Existing Vegetation & Vegetative Buffers: to the extent practicable, existing vegetation will not be disturbed by construction activities; where feasible (especially at storm water discharge sites), existing vegetation will remain undisturbed to form a vegetative buffer between construction areas and areas undisturbed by construction.
5. Cleaning and Sweeping: clean and sweep curb and gutter sections twice a month to reduce dirt and trash or as directed.
6. Riprap: concrete riprap can be installed as a permanent stabilization measure at locations where construction is complete and permanent stabilization is required.
7. Tracking and Dust: Off-site tracking and generation of dust must be minimized.

ON-SITE STORAGE OF CONSTRUCTION AND WASTE MATERIALS:
1. Disposal methods must meet federal, state, and local waste management requirements. No construction waste shall be buried or burned on-site. Spoils of disposal, material storage, and waste materials from the demolition of existing roads and structures shall be stored in areas designated by the project engineer, and prevented from becoming a pollutant source with appropriate BMPs. Construction and waste materials that might be temporarily stored on-site include concrete and steel pipe; steel reinforcing bar, forms and frames; sand and gravel; wire, concrete and steel beams; wood and steel building units; and controls, construction signs and barricades. A list of construction and waste materials stored on site and controls will be presented to the Project Engineer.
2. Contractor shall design and utilize appropriate controls to minimize the offsite transport of suspended sediments and other pollutants. If it is necessary to pump or channel standing water from the site.
3. Litter, construction debris, and construction material exposed to stormwater shall be managed in a manner that prevents this material from becoming a pollutant. A regular sweep of the project shall be made to pick up litter. No construction material of any kind (including dirt) shall be discharged to a water of the United States (ephemeral streams and playa lakes) without a permit from the Corps of Engineers.
4. Oil, gasoline, grease, solvents, and other petroleum products are not to be stored on-site. Major vehicle maintenance shall occur on-site only under emergency conditions, and when this maintenance type is necessary, a plastic cover shall be used (and properly disposed of) to prevent petroleum products from contaminating the surrounding soil.
5. Potential Pollutant Sources from Areas Other than Construction:
   oil, grease, and other petroleum fluids construction traffic at concrete plant and field office
   sediment laden stormwater disturbed soil from concrete batch plant and field office
   litter, motorists driving through the project

All best management practices available to this construction project are available to control non-construction generated pollutants including sand bag berms, silt fence, stabilized construction exits, sedimentation basins, and litter management programs among other controls listed in this document.

STORAGE TANKS:
Storage tanks that are above ground, regardless of whether they are used to store petroleum products, hazardous waste, or other hazardous material must follow the Summary of Federal Requirements.

Aboveground storage tanks (ASTs) used for the storage of petroleum products is regulated primarily under 40 CFR 112. These containers are used for purposes including, but not limited to, the storage of oil prior to use, while being used, or prior to further distribution in commerce.

A bulk storage container is 55 gal. or greater and may be aboveground, partially buried, bunkered, or completely buried. AST's include mobile storage containers such as trailers and tanked vehicles. Oil-filled electrical, operating, or manufacturing equipment is not a bulk storage container.

All bulk storage container installations must be constructed so a secondary means of containment is provided for the entire capacity of the largest single container and sufficient freeboard to contain precipitation. Diked areas must be sufficiently impervious to contain discharged oil.

Mobile/Portable AST:
Mobile or portable oil bulk storage containers must be positioned or located to prevent a discharge and furnished with a secondary means of containment, such as a dike or catchment basin, sufficient to contain the capacity of the largest single compartment or container with sufficient freeboard to contain precipitation.

DETERMINATION OF REPORTABLE QUANTITIES:
A list of each substance designated as hazardous in 40 CFR Part 116 is found in the project's SW3P folder. The 40 CFR 116 registration applies to quantities, when discharged into or upon the Waters of the United States, adjoining shorelines, into or upon the contiguous zone, or beyond the contiguous zone as provided in the Act.

STATE OF TEXAS
BENJAMIN COX
126523
PROFESSIONAL ENGINEER

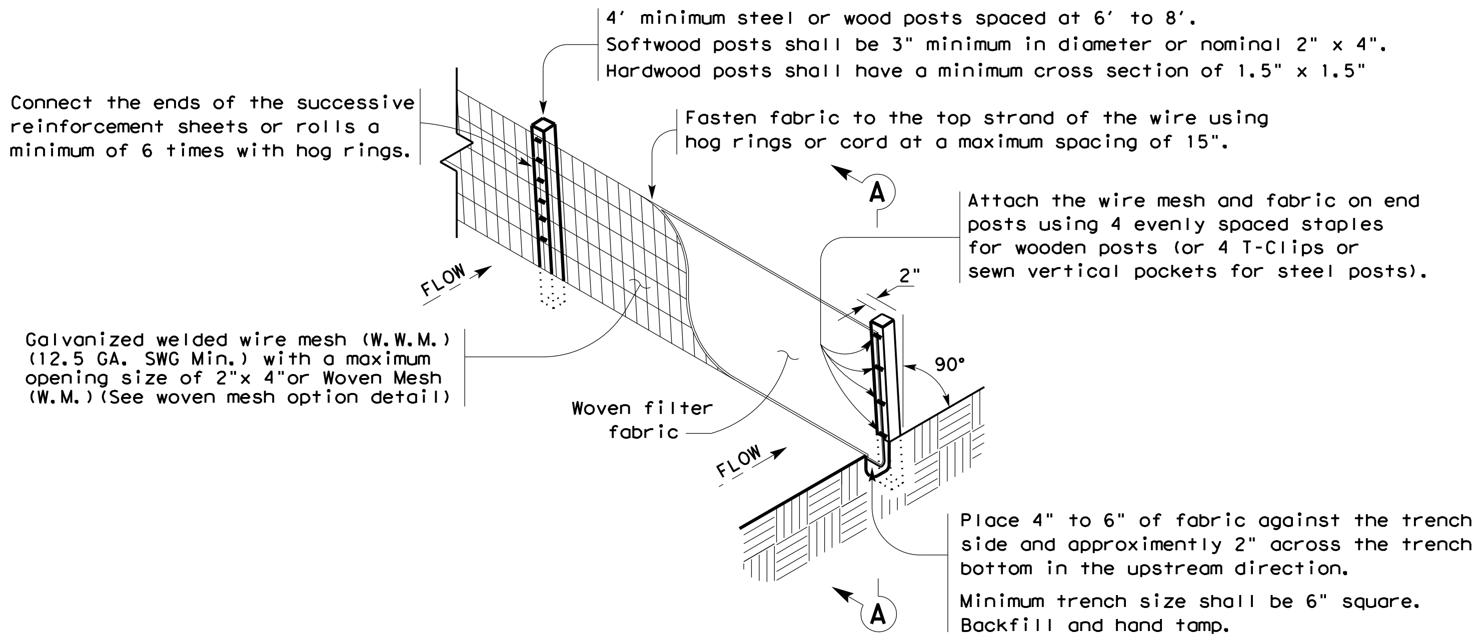
Benjamin Cox, P.E.

6-19-2023

STORMWATER POLLUTION PREVENTION PLAN (SWP3) NARRATIVE - OVER 1 ACRE

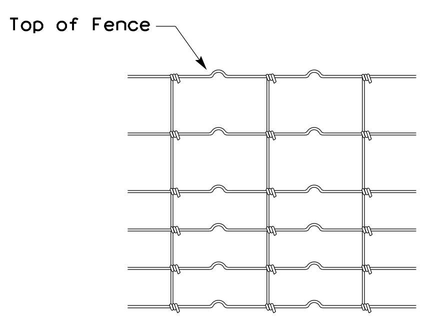
Texas Department of Transportation

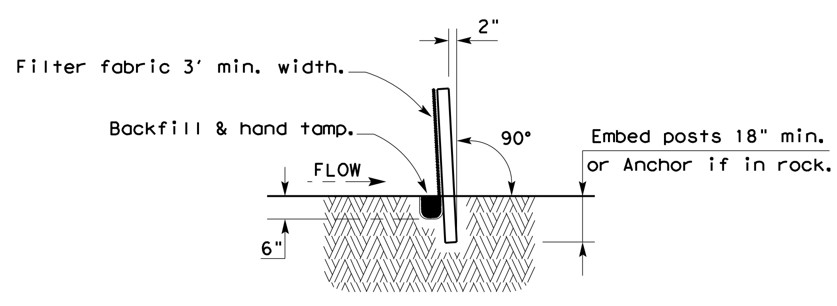
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			191
STATE	STATE DIST.	COUNTY	
TEXAS	LBB	TERRY	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	01	056	US 62/385



TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

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

SEDIMENT CONTROL FENCE USAGE GUIDELINES

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

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

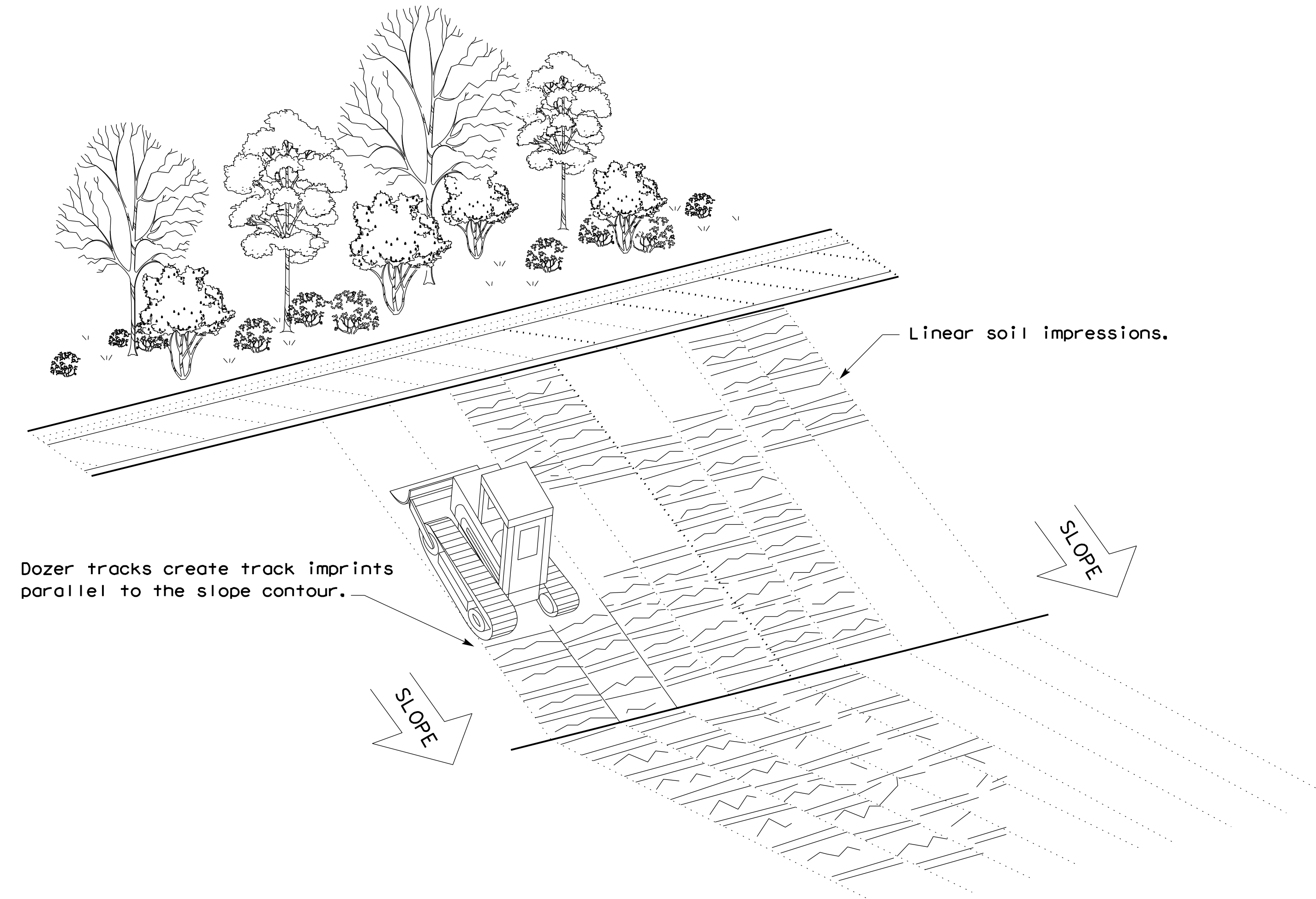
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

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



VERTICAL TRACKING

Texas Department of Transportation — Design Division Standard

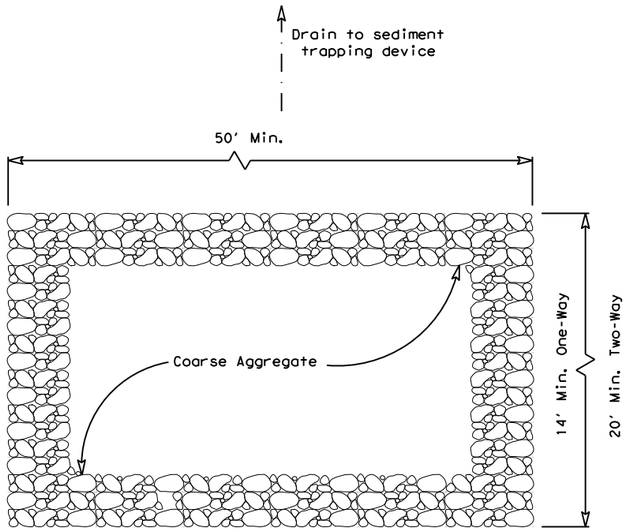
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

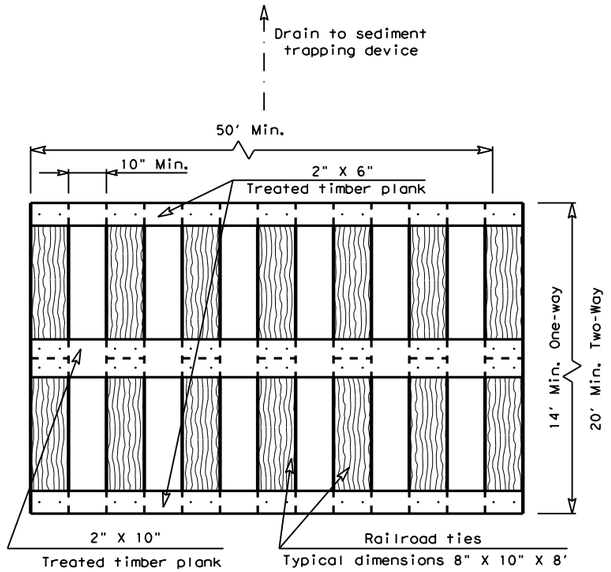
EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
	DIST		COUNTY	SHEET NO.
	LBB		TERRY	192

DATE: 6/20/2023
FILE: pw:\\txdot.projectwiseonline.com:TxDOT2\Documents\05 - LBB\Design Projects\022801056\4 - Design\Plan Set\9. Environmental\Environmental Standards\ec316.dgn



PLAN VIEW



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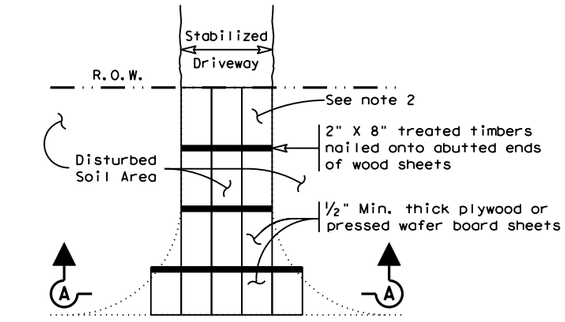

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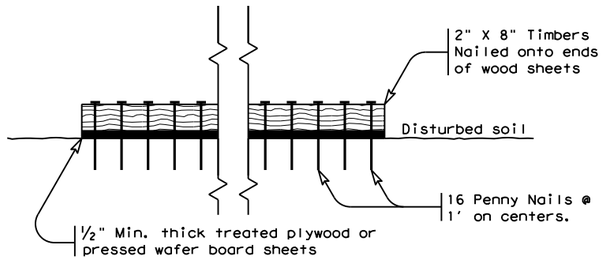
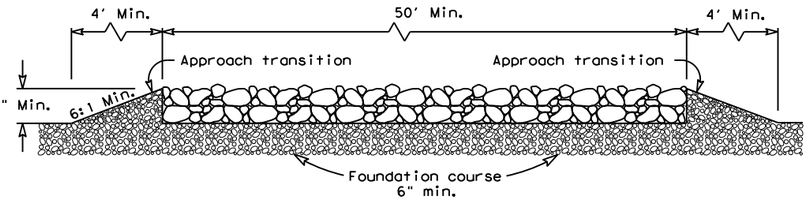


SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

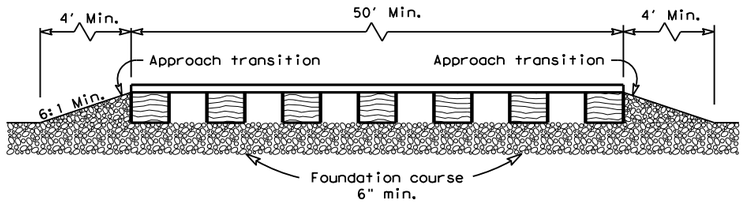
SHORT TERM



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 1)

ROCK CONSTRUCTION (LONG TERM)



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 2)

TIMBER CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 1)

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materialas approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
7. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 2)

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
2. The treated timber planks shall be attached to the railroad ties with ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
8. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 3)

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

CONSTRUCTION EXITS

EC(3)-16

FILE: ec316	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
	DIST	COUNTY		SHEET NO.
	LBB	TERRY		193

DATE: 6/20/2023
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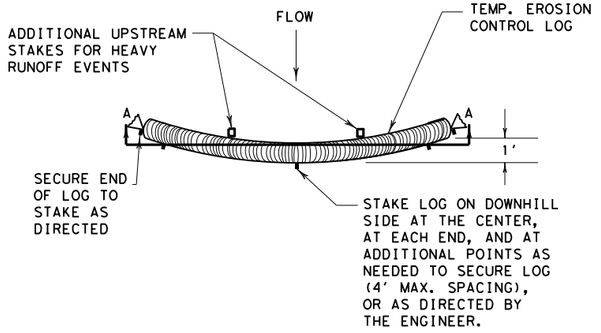
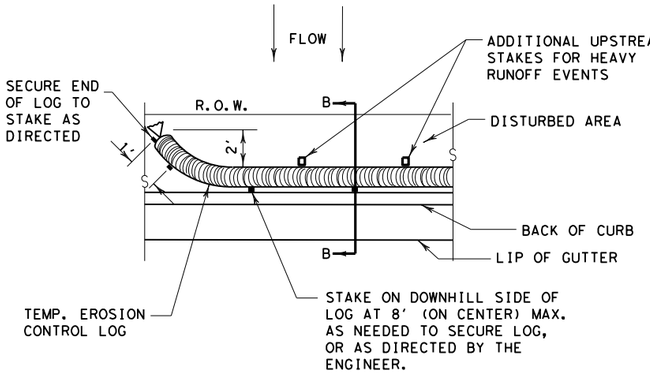
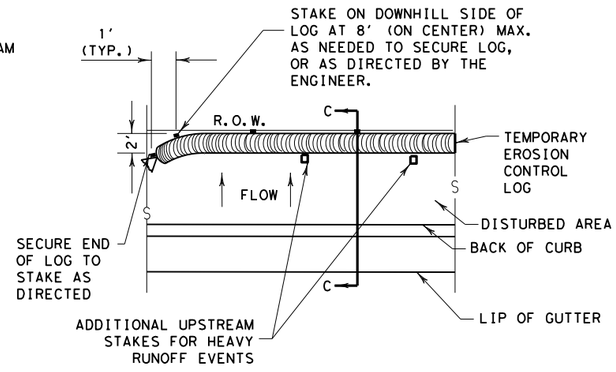


PLAN VIEW



PLAN VIEW



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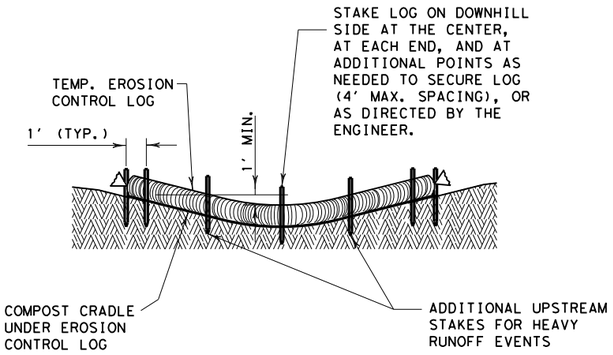
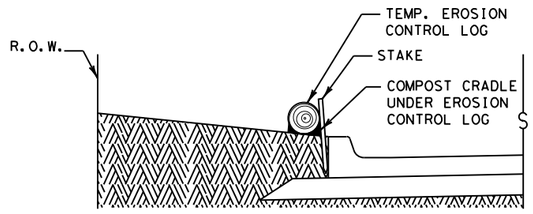


SECTION A-A

EROSION CONTROL LOG DAM

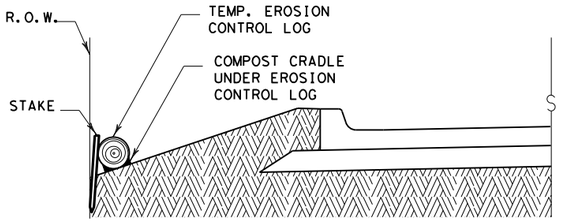
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

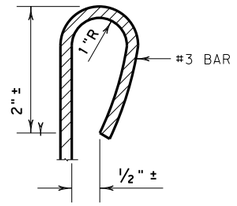
CL-BOC



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



REBAR STAKE DETAIL

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

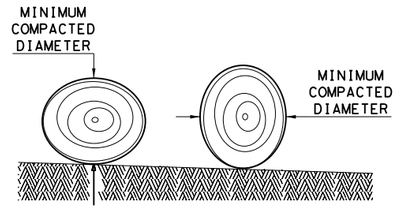
Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

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	0228	01	056	US 62/385
	DIST	COUNTY		SHEET NO.
	LBB	TERRY		194

DATE: 6/20/2023
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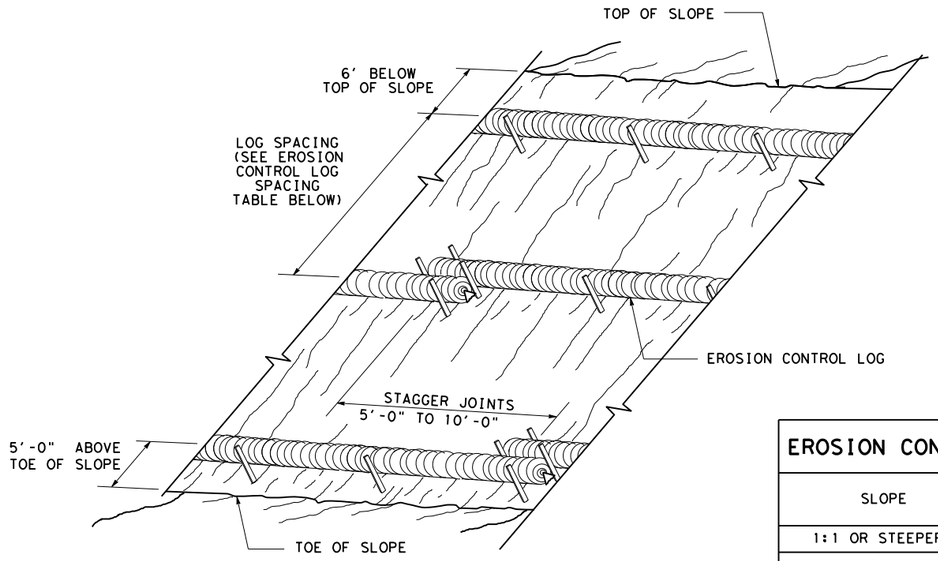
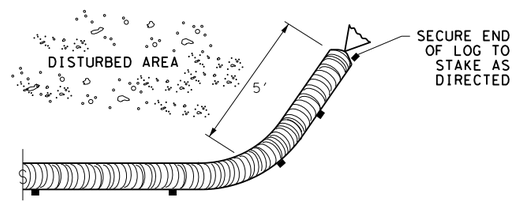


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

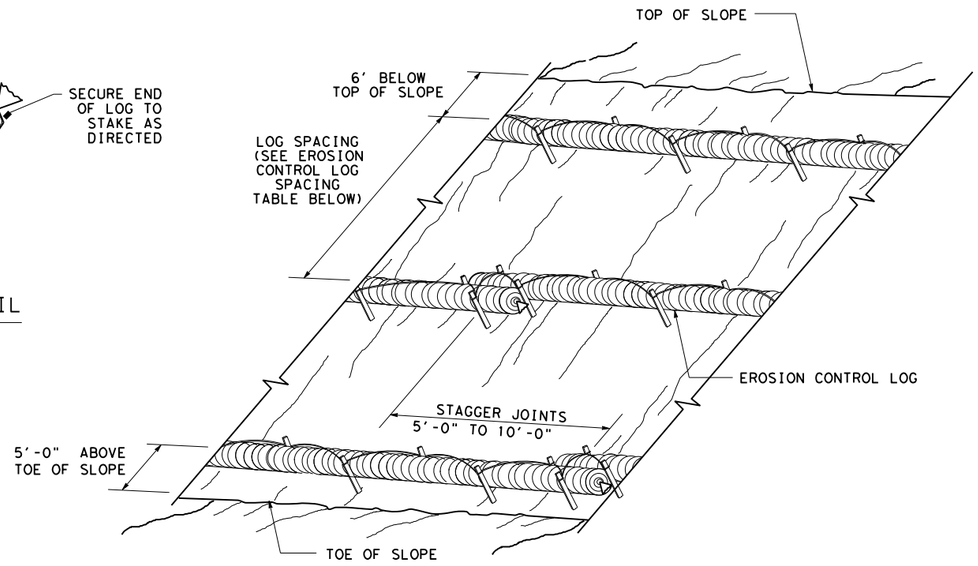
CL-SST



END SECTION RAP DETAIL

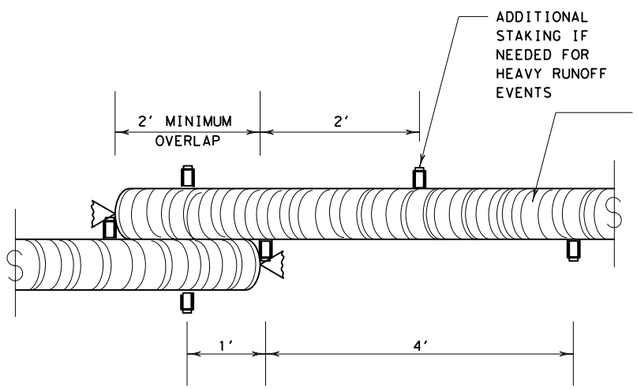
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

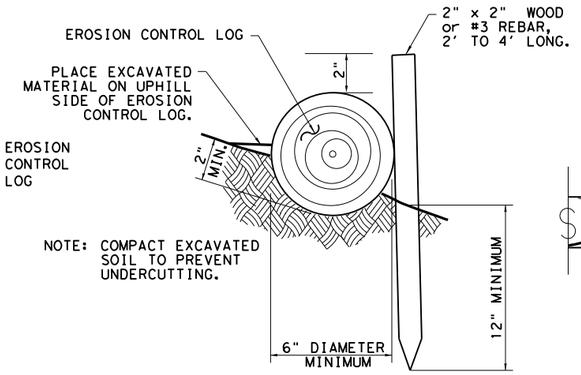
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

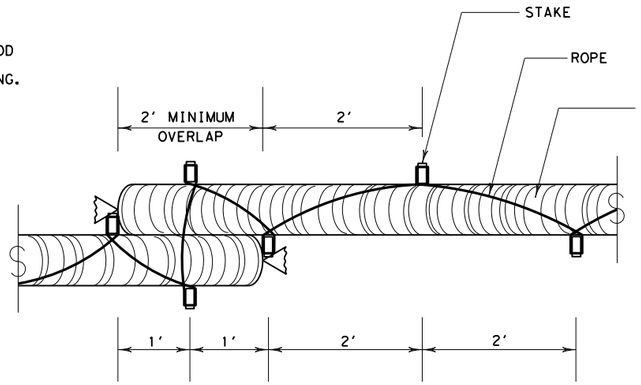


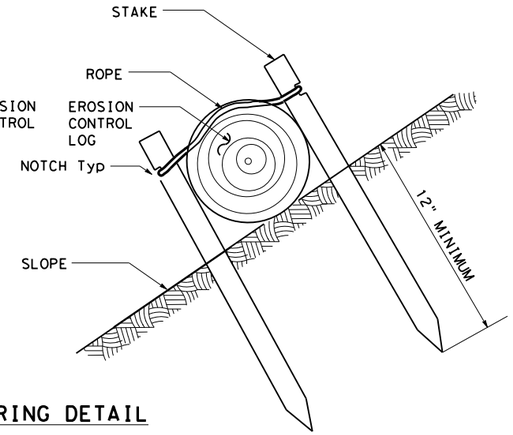


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

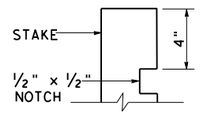
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC(9)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
	DIST	COUNTY		SHEET NO.
	LBB	TERRY		195

DATE: 6/20/2023
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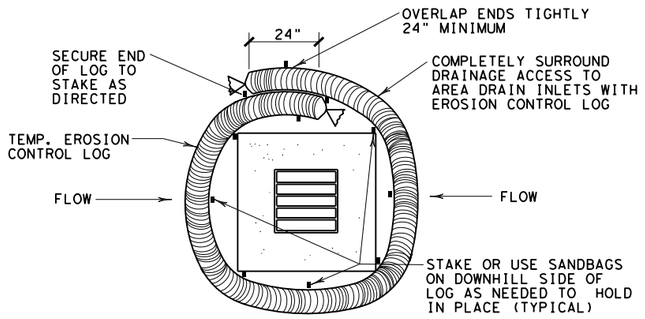
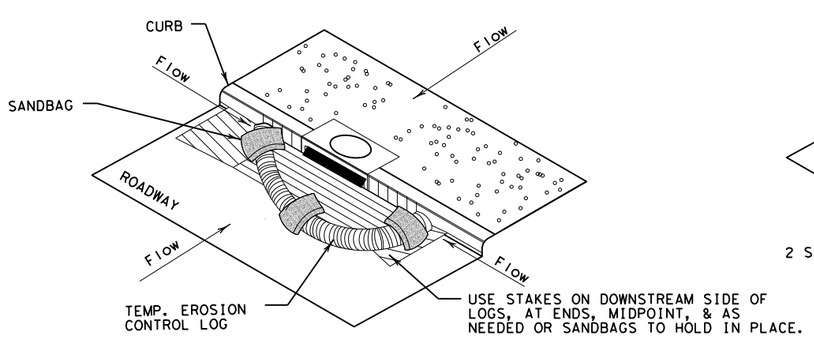


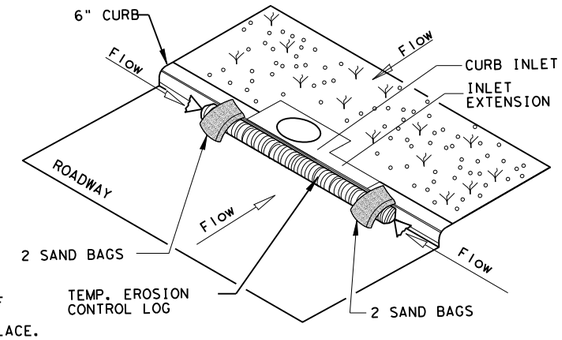
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

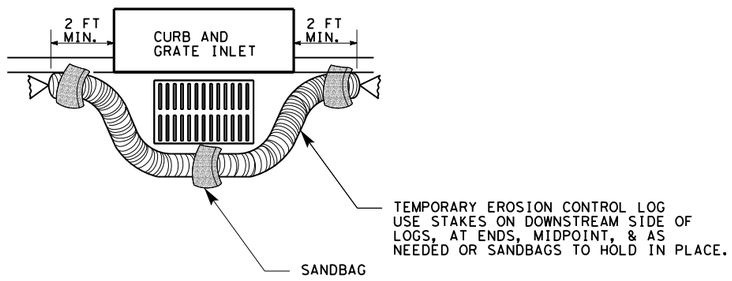
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

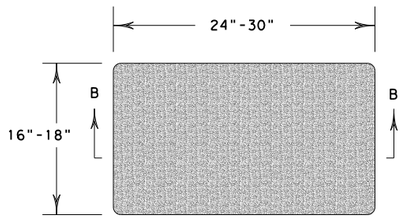
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI

SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT		CK: KM	DW: LS/PT		CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY	
REVISIONS	0228	01	056		US 62/385	
	DIST	COUNTY				SHEET NO.
	LBB	TERRY				196

DATE: 6/20/2023
FILE: pw:\\txdot.projectwiseonline.com:TxDOT2\Documents\05 - LBB\Design Projects\022801056\4 - Design\Plan Set\9. Environmental\US0062_ENV_EPIC.dgn

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

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

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

1.

2.

☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

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

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

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

☒ No Permit Required

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

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

☐ Individual 404 Permit Required

☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

1.

2.

3.

4.

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

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

☒ No Action Required ☐ Required Action

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical.
Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

☐ No Action Required ☒ Required Action

Action No.

1. Comply with Executive Order 13112 on Invasive Plant Species.
2. Comply with TxDOT Executive Memorandum on beneficial landscaping.
3. Comply with temporary and permanent vegetation stabilization protocols of the SW3P.

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

☐ No Action Required ☒ Required Action

Action No.

1. Do not handle or harm Texas horned lizards, prairie dogs, barn swallows or burrowing owls.
2. No prairie dog towns can be damaged or crossed with equipment without approval of the Engineer.
3. No nests of burrowing owls (in prairie dog holes) can be disturbed or damaged (See General Notes).
4. No nests of barn swallows (likely on structures such as bridges) can be disturbed or damaged (See General Notes).
5. Obey the Bald and Golden Eagle Protection Act. Do not handle, harm, capture, disturb, or kill the species. Do not handle, harm, or take nests, eggs, feathers, bones, or eagles.
6. Obey the Migratory Bird Treaty Act of 1916, of which details there cannot be any handling or harming of migratory bird species; including their eggs, nests, or feathers.

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.

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.

LIST OF ABBREVIATIONS

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

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

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

VII. OTHER ENVIRONMENTAL ISSUES

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

☐ No Action Required ☒ Required Action

Action No.

1. Maintain equipment muffler systems and work hour restrictions to reduce traffic noise.
2. No PSL's may be located in the prairie dog towns, playa lakes (wet or dry) or stream beds (wet or dry).
3. No dumping of construction material in playa lakes or stream beds regardless of property owner requests.
4. Contractor must obtain historical and archaeological clearances for off-site PSL's.
5. Contractor is responsible for air quality permits for concrete and asphalt batch and similar plants.
6. Contractor is responsible for water appropriation or impoundment TCEQ permits.
7. Contractor will protect environmentally sensitive areas with fencing, work sequencing or scheduling as directed.
8. PSL's beyond the project right-of-way have "individual operator" status under the TPDES Construction General Permit and the Contractor is responsible for the SW3P and any TCEQ permits.
9. No waste material of any type may be placed at any location where it could be washed into a water of the U.S. or a surface water of Texas.
10. Flood elevations will not be increased to a level that would violate flood plain regulations or ordinances.
11. Contractor shall remove all construction debris daily from the waterway by close of business, where applicable.
12. The SW3P, including best management practices, must be in-place prior to disturbing soil.

Texas Department of Transportation — Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	01	056	US 62/385
12-12-2011 (DS)	DIST	COUNTY		SHEET NO.
05-07-14 ADDED NOTE SECTION IV.	LBB	TERRY		197
01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.				