INDEX OF SHEETS

SEE SHEET NO. 2

FUNCTIONAL CLASS =Major Collector or Greater

FEDERAL-AID PROJECT NUMBER			
STP 2021(214)			
CONT.	SECT.	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST.	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		1

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT STP 2021(214)

VA

TOM GREEN, ETC

NET LENGTH OF PROJECT ROADWAY = 305.929 MI

LIMITS: VARIOUS LOCATIONS IN SAN ANGELO DISTRICT

FOR THE CONSTRUCTION OF PAVEMENT MARKINGS

FINAL PLANS

Letting Date: _____

Name of Contractor: _____

Date Work Began: _____

Date Work Completed: _____

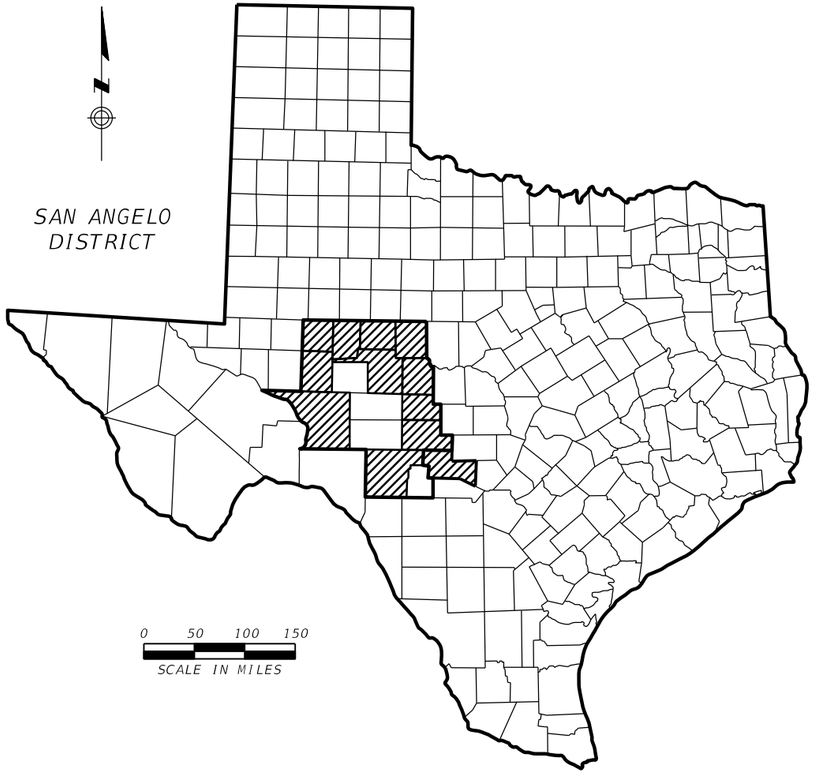
Date Work Accepted: _____

Final Contract Cost: _____

Project was built according to the Plans & Specifications. These final plans reflect the work done and the quantities shown thereon and on the Final Estimate are Final Quantities.

Area Engineer Date

Summary of Change Orders:



EXCEPTIONS
NONE

EQUATIONS
NONE

RAILROAD CROSSINGS
NONE

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

2020 Texas Department of Transportation

SUBMITTED FOR LETTING: 11/6/2020
DocuSigned by: Randee M Shields P.E.
BA79D4709AD492...
District Design Engineer

RECOMMENDED FOR LETTING: 11/6/2020
DocuSigned by: John A. Dewhurst P.E.
826185212E51427...
District Director of TP&D

APPROVED FOR LETTING: 11/6/2020
DocuSigned by:
BC10B17FA709437...
District Engineer

DATE: 10/28/2020 10:29:58 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\090700197\4 - Design\Plan Set\1. General\001 TITLE SHEET.dgn

	SHEET NO.	DESCRIPTION
	1	TITLE SHEET
	2	INDEX OF SHEETS
	3	LOCATION MAP SAN ANGELO AREA
	4	LOCATION MAP CITY OF SAN ANGELO
	5	LOCATION MAP JUNCTION AREA
	6A-6B	GENERAL NOTES
	7	ESTIMATE & QUANTITY SHEET
	8	QUANTITY SUMMARY
		TRAFFIC CONTROL PLAN STANDARDS
	9	TRAFFIC CONTROL PLAN GENERAL REQUIREMENTS
#	10-21	BC (1)-14 THRU BC (12)-14
#	22	TCP (3-1)-13
#	23	TCP (3-3)-14
#	24	TCP (3-4)-13
		PAVEMENT MARKINGS & DELINEATION
	25-26	INDEX A
	27-29	INDEX B
	30-31	INDEX C
	32-33	INDEX D
	34-35	INDEX E
	36-37	INDEX F
	38-39	INDEX G
	40-41	INDEX H
	42-43	INDEX I
	44-45	INDEX J
	46-47	INDEX K
	48-49	INDEX L
	50-51	INDEX M
	52-53	INDEX N
	54-55	INDEX O
	56-57	INDEX P
	58-59	INDEX Q
	60-61	INDEX R
	62-63	INDEX S
	64-65	INDEX T
	66	INDEX U
	67-68	INDEX V
	69-70	INDEX W
	71-72	INDEX X
	73-74	INDEX Y
	75-76	INDEX Z
	77-78	INDEX AA
	79-80	INDEX BB
	81-82	INDEX CC
	83-84	INDEX DD
	85	INDEX EE
	86-88	INDEX FF

	SHEET NO.	DESCRIPTION
		PAVEMENT MARKINGS & DELINEATION
	89	INDEX GG
	90	INDEX HH
	91	INDEX II
	92	PAVEMENT MARKING DETAILS (RURAL)
	93	PAVEMENT MARKING DETAILS (URBAN)
		PAVEMENT MARKINGS & DELINEATION STANDARDS
#	94	PM (1)-20
#	95	PM (2)-20
#	96	PM (3)-20
#	97	PM (4)-20
#	98	FPM (1)-12
#	99	RS(3)-13
#	100	RS(4)-13
		ENVIRONMENTAL ISSUES
	101	ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS
		RAILROAD STANDARDS
#	102	RCD(1)-10
#	103	RCD(2)-10

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE BY A # HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

Edwin Steven Kloboucnik, P.E.

STATE OF TEXAS
EDWIN STEVEN KLOBOUCNIK
73984
REGISTERED PROFESSIONAL ENGINEER

29.10.2020

Texas Department of Transportation

San Angelo District

INDEX OF SHEETS

SHEET 1 OF 1 NOT TO SCALE

SHEET ISSUED OR LAST REVISED
10-20

CONT.	SECT.	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST.	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		2

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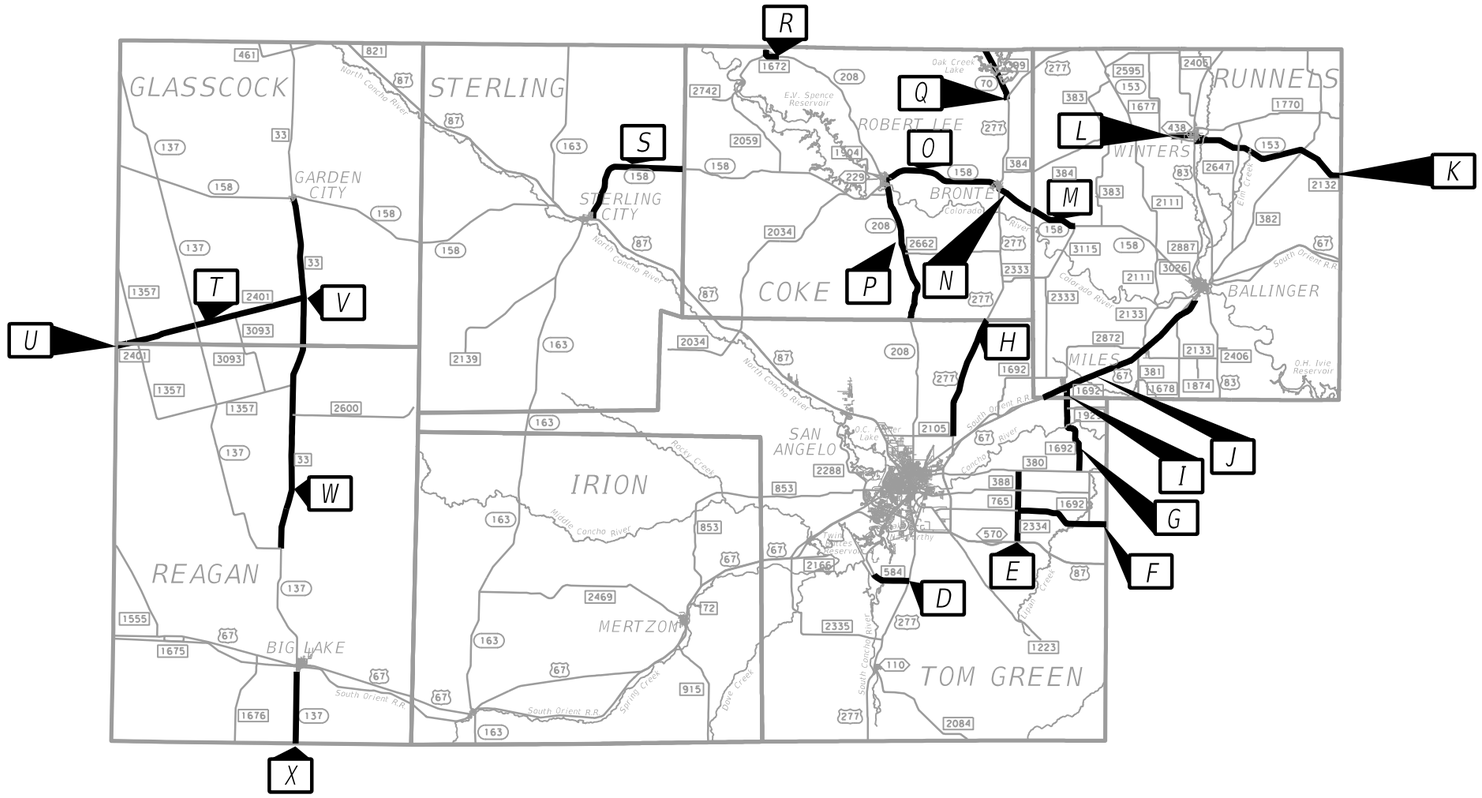
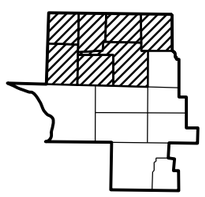


0 5 10 15

SCALE IN MILES

KEY TO SAN ANGELO DISTRICT COUNTIES



Ed. St. Klobouchnik, P.E.

STATE OF TEXAS
EDWIN STEVEN KLOBOUCNIK
73984
REGISTERED PROFESSIONAL ENGINEER

29.10.2020

Texas Department of Transportation

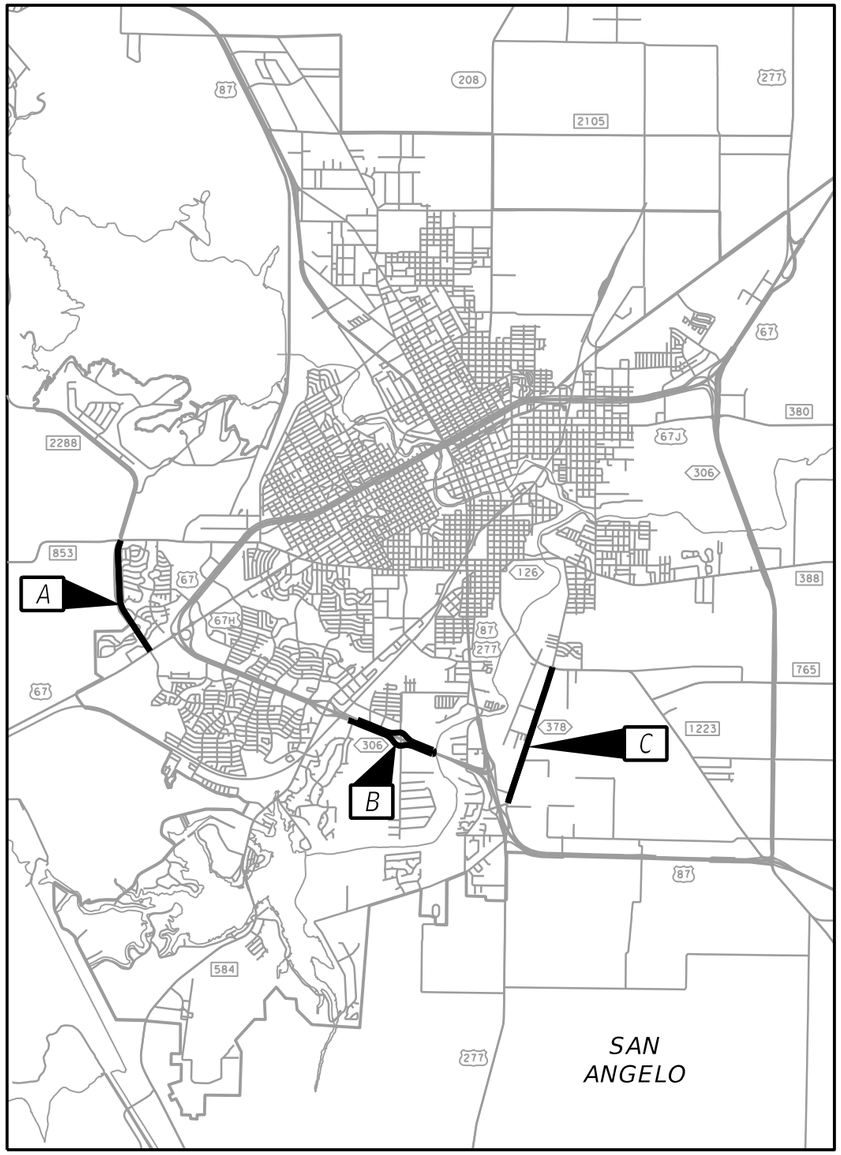
San Angelo District

LOCATION MAP SAN ANGELO AREA

SHEET 1 OF 1 SCALE 1"=15 MILES

SHEET ISSUED OR LAST REVISED	CONT.	SECT.	JOB	HIGHWAY
03-20	0907	00	197, ETC	VA
	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		3

DATE: 10/28/2020 10:30:20 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\0907001917\4 - Design\Plan Set\1. General\Location Map San Angelo Area 1 IN=15 MI.dgn



0 1 2

SCALE IN MILES

EDWIN STEVEN KLOBOUCNIK
73984
REGISTERED
PROFESSIONAL ENGINEER
STATE OF TEXAS

29.10.2020

Texas Department of Transportation

San Angelo District

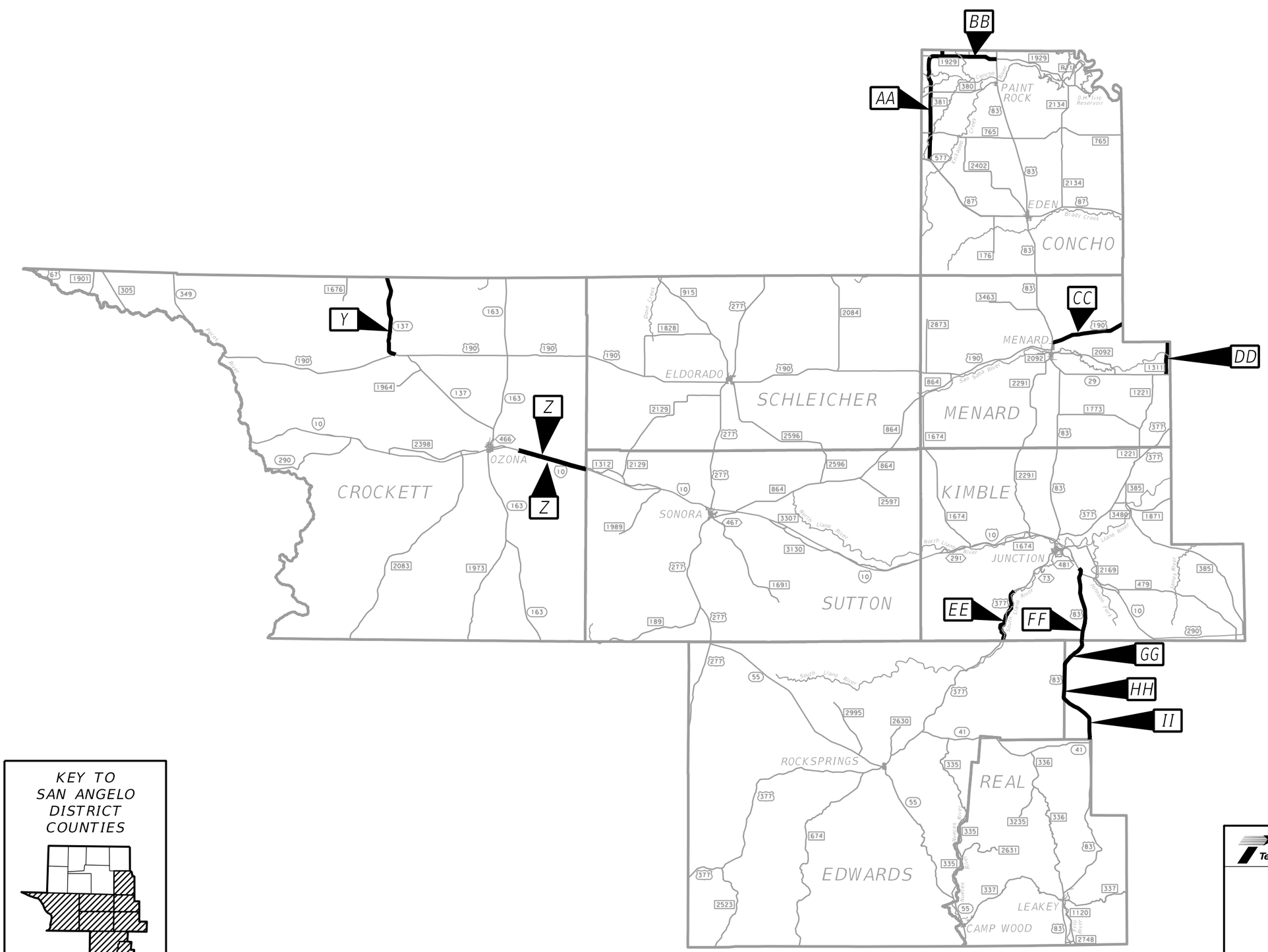
LOCATION MAP
CITY OF SAN ANGELO

SHEET 1 OF 1 SCALE 1"=2 MILES

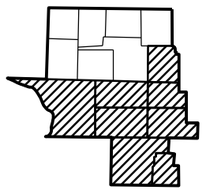
SHEET ISSUED OR LAST REVISED
03-20

CONT.	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST.	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		4

DATE: 10/28/2020 10:30:31 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\090700197\4 - Design\Plan Set\1. General\Location Map City of San Angelo 1 IN=2 MI.dgn



KEY TO SAN ANGELO DISTRICT COUNTIES



Ed. St. Klobucnik, P.E.

STATE OF TEXAS
EDWIN STEVEN KLOBOUCNIK
73984
REGISTERED PROFESSIONAL ENGINEER

29.10.2020

Texas Department of Transportation | San Angelo District

LOCATION MAP JUNCTION AREA

SHEET 1 OF 1 | SCALE 1"=15 MILES

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
03-20	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		5

DATE: 10/28/2020 10:30:40 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\0907001917\4 - Design\Plan Set\1. General\Location Map Junction Area 1 IN=15 MI.dgn

GENERAL NOTES

The following Standard Sheets have been modified: None

Locate the project bulletin board at an approved location within the project limits such as at a field office, staging area, or stockpile, and make accessible to the public at all times. Do not remove the bulletin board from the project until approved. If a construction site notice is required for the project, post a copy at each geographically separated work location.

If Contractor elects to establish a pit within 200 ft. of a public road, construct a barrier or other device in accordance with Natural Resources Code, Chapter 133, and Section 133.041.

Do not use salt water with solids in excess of 10,000 parts per million, as determined by evaporation.

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

Nicholas Greenly, P.E.; email SJT_PreliminaryReview@txdot.gov

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

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

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

Item 5, "Control of the Work"

Responsibility for construction surveying shall conform to Section 5.9.3., "Method C."

Item 7, "Legal Relations and Responsibilities"

No significant traffic generator events have been identified.

Item 8, "Prosecution and Progress"

Submit the sequence of work and estimated progress schedule on paper or as a Portable Document Format (PDF) electronic file compatible with Adobe Systems Incorporated "Acrobat Reader XI".

Project Number: **Sheet:** 6A

County: TOM GREEN **Control:** 0907-00-197

Highway: VARIOUS

A copy of the contract time determination summary may be obtained by qualified bidders by sending a request to SJT_PreliminaryReview@txdot.gov.

Item 9, "Measurement and Payment"

The progress payment period shall end two working days before the last working day of the month. Deliver invoices to be paid as material on hand on or before the end of the progress payment period.

For projects that include a disadvantaged business enterprises (DBE) goal, provide a conversion rate for units of payment for work subcontracted to DBE if units of payments differ from those shown on the plans.

Item 502, "Barricades, Signs and Traffic Handling"

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

Item 506, "Temporary Erosion, Sedimentation, and Environmental Controls"

The project is exempt from the Texas Pollutant Discharge Elimination System (TPDES) General Permit (TXR150000). Exempt projects are those that disturb less than one acre or routine maintenance activities that maintain the original line and grade, hydraulic capacity, or original purposes of the site. No temporary erosion control measures or Storm Water Pollution Prevention Plan (SW3P) have been included in the plans.

Item 666, "Retroreflectorized Pavement Markings"

Place glass beads for pavement markings in accordance with the following table:

Marking Types	Glass Bead (Double Drop) Types	Glass Bead Rates	
		Surface Treatment	Asphalt Concrete Pavement, Microsurfacing, Concrete Pavement
TY I markings	Type II	12 LB per 100 SF	6 LB per 100 SF
	Type III	12 LB per 100 SF	6 LB per 100 SF
TY II markings	Type II	12 LB per GAL	6 LB per GAL
	Type III	12 LB per GAL	6 LB per GAL

Apply TY II marking material at a rate of 25 gallons per mile.

The striper speed shall not exceed 5 MPH during application. Convert to gravity-flow beaders (if not in use) to obtain optimum bead application, when directed.

Clean striper tanks before use if there is a build-up of dry paint, as directed. Flush lines and guns before use.

Provide a double-drop of Type II and Type III glass beads.

For the purposes of this project, existing no-passing zone markings were not evaluated for adherence to current standards, but were re-established in their existing locations.

Item 668, "Prefabricated Pavement Markings"

When applying Type C specialty markings (symbols, words, etc.) over existing thermoplastic markings, first apply heat to the surface of the existing markings and roughen the surface with a shovel. Remove existing Type A, B, or C prefabricated markings prior to placing the new Type C markings.

Item 677, "Eliminating Existing Pavement Markings and Markers"

Use the following method: Mechanical.

Item 678, "Pavement Surface Preparation for Markings"

Some stop bars on existing pavement are covered in material from adjacent unpaved roads. Provide cleaning tools. Locations of these stop bars are referenced in the plans.

Project Number: **Sheet:** 6B

County: TOM GREEN **Control:** 0907-00-197

Highway: VARIOUS

Item 6056 "Preformed Centerline Rumble Strip"

Use Option 4 as shown on Standard Sheet RS(3)-13 and Option 6 of RS(4)-13.

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

In addition to the shadow vehicles with truck mounted attenuator (TMA) that are specified as being required on the traffic control plan for this project, provide:

- No additional shadow vehicles with TMA.

QUANTITY SHEET

CONTROLLING PROJECT ID 0907-00-197 **DISTRICT** San Angelo **COUNTY** Tom Green
HIGHWAY Various

		CONTROL SECTION JOB		**0907-00-197**		TOTAL EST.	TOTAL FINAL
		PROJECT ID		**A00127361**			
		COUNTY		**Tom Green**			
		HIGHWAY		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	500-6001	MOBILIZATION	LS	100.00%		100.00%	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	4.000		4.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	7,290.000		7,290.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	4,958.000		4,958.000	
	666-6138	REFL PAV MRK TY I (Y)8"(SLD)(100MIL)	LF	887.000		887.000	
	666-6147	REFL PAV MRK TY I (Y)24"(SLD)(100MIL)	LF	375.000		375.000	
	666-6230	PAVEMENT SEALER 24"	LF	733.000		733.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	13,780.000		13,780.000	
	666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)	LF	57,040.000		57,040.000	
	666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	8,900.000		8,900.000	
	666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	72,930.000		72,930.000	
	666-6342	REF PROF PAV MRK TY I(W)4"(SLD)(100MIL)	LF	2,720,590.000		2,720,590.000	
	666-6344	REF PROF PAV MRK TY I(Y)4"(BRK)(100MIL)	LF	320,840.000		320,840.000	
	666-6345	REF PROF PAV MRK TY I(Y)4"(SLD)(100MIL)	LF	923,450.000		923,450.000	
	668-6089	PREFAB PAV MRK TY C (W) (RR XING)	EA	1.000		1.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	262.000		262.000	
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF	114,670.000		114,670.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	211.000		211.000	
	08	SAFETY CONTINGENCY (NON-PART)	LS	1.000		1.000	
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	

SUMMARY OF PAVEMENT MARKING ITEMS

LOCATION	666 6036	666 6048	666 6138	666 6147	666 6230	666 6300	666 6303	666 6312	666 6315	666 6342	666 6344	666 6345	668 6089	677 6007	6056 6002
	REFL PAV MRK TY I (W)8"(SLD) (100MIL)	REFL PAV MRK TY I (W)24"(SLD) (100MIL)	REFL PAV MRK TY I (Y)8"(SLD)(100MIL)	REFL PAV MRK TY I (Y)24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100MIL)	RE PM W/RET REQ TY I (Y)4"(SLD) (100MIL)	REF PROF PAV MRK TY I(W)4"(SLD)(100MIL)	REF PROF PAV MRK TY I(Y)4"(BRK)(100MIL)	REF PROF PAV MRK TY I(Y)4"(SLD) (100MIL)	PREFAB PAV MRK TY C (W) (RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP
	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	LF	LF
INDEX A SHEET 1 OF 2 FM 2288	704					4,000		3,450	13,820		120	1,290			
INDEX B SHEET 1 OF 3 SL 306	2,170	72	887	375		2,830	5,160		4,500					72	
INDEX C SHEET 1 OF 2 SL 378	576	25				130				18,850	2,120	4,900			800
INDEX D SHHET 1 OF 2 RM 584		64			39					61,500	6,900	16,300			2,180
INDEX E SHEET 1 OF 2 FM 2334		102					2,750	170	1,340	72,000	8,710	3,300			4,350
INDEX F SHEET 1 OF 2 FM 765		123								98,000	11,740	16,000			4,540
INDEX G SHEET 10F 2 FM 1692		164								83,610	7,720	37,750			2,000
INDEX H SHEET 1 OF 2 US 277	505	38								127,530	14,840	38,300			3,840
INDEX I SHHET 1 OF 2 FM 1692		47			14		6,080	1,450	3,660	5,120	700	840			220
INDEX J SHEET 1 OF 2 US 67 FRT		1,448			10			2,230	5,950		11,780	16,740	1	9	4,500
INDEX K SHEET 1 OF 2 SH 153		313			138	230	1,560	50	4,300	166,000	19,490	40,000			6,350
INDEX L SHEET 1 OF 2 SL 438		245			40		11,190		16,450	13,180	1,660	11,550		80	380
INDEX M SHHET 1 OF 2 SH 158		99			8					47,400	5,280	12,800			1,790
INDEX N SHEET 1 OF 2 SH 158	130	51			26		2,970	100	2,700	40,700	4,820	11,860			1,240
INDEX O SHEET 1 OF 2 SH 158	318	236			24	1,660	7,430	240	7,350	113,650	11,890	36,960			3,700
INDEX P SHEET 1 OF 2 SH 208	127	178				520	5,730		5,600	148,500	13,300	67,400			3,530
INDEX Q SHEET 1 OF 2 SH 70		76				60				51,500	5,790	12,000		26	2,260
INDEX R SHEET 1 OF 2 RM 1672	217	86								18,700	1,660	9,900		10	265
INDEX S SHEET 1 OF 2 SH 158		197			18	3,220	6,930	800	970	127,000	15,900	14,250			6,180
INDEX T SHEET 1 OF 2 RM 2401		209			93					189,300	23,110	6,650			11,470
INDEX U SHEET 1 OF 1 RM 2401										11,830	1,480				740
INDEX V SHEET 1 OF 2 RM 33	337	183			183	140	950	60	1,710	152,500	18,200	17,150			7,945
INDEX W SHEET 1 OF 2 RM 33		120			98	480				21,100	23,630	32,500			10,955
INDEX X SHEET 1 OF 2 SH 137		10			10	310				75,090	7,970	23,200			2,550
INDEX Y SHEET 1 OF 2 SH 137	162	29				200				131,200	15,440	21,100			5,970
INDEX Z SHEET 1 OF 2 IH 10 FRT		76								139,000	18,690	41,200			6,590
INDEX AA SHEET 1 OF 2 FM 381	234	369			20		4,990	350	3,350	186,000	19,800	32,700			9,400
INDEX BB SHEET 1 OF 2 FM 1929	82	82								88,100	8,690	34,200			2,400
INDEX CC SHEET 1 OF 2 US 190		54					1,300		1,230	116,540	8,500	71,600			1,380
INDEX DD SHEET 1 OF 2 FM 1311	70	12								500	5,480	20,400			1,290
INDEX EE SHEET 1 OF 2 US 377		48								99,700	4,000	74,500			1,230
INDEX FF SHEET 1 OF 3 US 83	1,658	185			12					127,600	9,060	75,900		65	2,200
INDEX GG SHEET 1 OF 1 US 83										67,790	6,040	35,010			1,090
INDEX HH SHEET 1 OF 1 US 83										37,060	3,680	15,700			845
INDEX II SHEET 1 OF 1 US 83		17								84,040	2,650	69,500			490
PROJECT TOTALS	7,290	4,958	887	375	733	13,780	57,040	8,900	72,930	2,720,590	320,840	923,450	1	262	114,670

Edwin Steven Kloboucnik, P.E.

STATE OF TEXAS
EDWIN STEVEN KLOBOUCNIK
73984
REGISTERED PROFESSIONAL ENGINEER

29.10.2020

Texas Department of Transportation

San Angelo District

QUANTITY SUMMARY

SHEET 1 OF 1 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
03-20	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		8

GENERAL NOTES

1. When a contractor force account "Safety Contingency" has been established for the project, it is for work zone enhancements that were unforeseen in the project planning and design stage, but would improve the effectiveness of the traffic control plan. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if doing so does not slow implementation of work zone enhancements.
2. Shadow, lead, trail, and ramp control vehicles shown on the plans are required.
3. Use high level warning flags on advance warning signs during daytime operations.
4. Provide flaggers at such times and locations as directed to ensure the safe passage of traffic through construction areas. When flaggers are used to control traffic, furnish and install signs CW20-7 "FLAGGER SYMBOL", CW20-7aD "FLAGGER AHEAD", and CW3-4 "BE PREPARED TO STOP". Flaggers shall use 24 in. STOP/SLOW paddles.
5. Temporarily relocate existing mailbox assemblies on portable mailbox stands as shown on the plans, or as directed. Use materials conforming to the Compliant Work Zone Traffic Control Device List (CWZTCDL).
6. Prior to each work day, make provisions to exclude vehicles from parking within work areas.
7. Temporarily relocate existing permanent sign assemblies to temporary supports as shown on the plans, or as directed.
8. Omit advance warning signs and furnish and install reduced size signs CW20-1 "ROAD WORK AHEAD" mounted back to back with reduced size signs G20-2 "END ROAD WORK" signs at intersecting city streets and county roads.
9. Furnish and install signs CW20-1D "ROAD WORK AHEAD", G20-1aT "ROAD WORK ←NEXT X MILES, NEXT X MILES→", and G20-2 "END ROAD WORK" at intersecting state highways.
10. Sign and buffer spacing may be altered to fit field conditions, as directed.
11. In addition to providing a Contractor's Responsible Person and a phone number for emergency contact, have employee(s) available to respond on the project for emergencies and for taking corrective measures within 30 minutes.
12. Cones may be used as the typical channelizing device for freeway surfacing projects.
13. 28 in. tall cones will be allowed only for short duration or short term stationary operations when workers are present to maintain the devices upright and in proper location. Intermediate term stationary work areas should use drums, vertical panels, or 42 in. tall two-piece cones.
14. All construction signs and barricades placed during any phase of work shall remain in place until removal is approved by the Engineer.
15. The Engineer may direct the Contractor to furnish additional signs and barricades as required to maintain traffic flow, detours and motorist safety during construction.
16. Warning signs for long term stationary work should be mounted at 7 ft. to the bottom of the sign.
17. For long term stationary work at night, floodlights should be used to illuminate the work area and equipment crossings. Floodlights shall not produce a disabling glare condition for road users or workers.
18. All motor vehicle equipment having an obstructed view to the rear shall have a reverse signal alarm audible above the surrounding noise level.
19. Traffic control devices denoted with the triangle symbol on the plans may be omitted.
20. When sheet WZ(RS) is included in the plans, furnish and install temporary rumble strips for daytime lane closures. Do not use temporary rumble strips on freeways or expressways.
21. When sheet WZ(BRK) is included in the plans, furnish and install signs CW21-1T "GIVE US A BRAKE".
22. Flags attached to signs shown in the plans are required.
23. Signs END ROAD WORK (G20-2) may be omitted when conflicting with G20-2 signs already in place on the project.
24. The Engineer will determine advisory speeds to be shown on plaques CW13-1P.
25. Temporary work zone devices (including portable barriers) manufactured after December 31, 2019 must have been successfully tested to the 2016 edition of Manual for Assessing Safety Hardware (MASH). Such devices manufactured on or before this date, and successfully tested to either National Cooperative Highway Research Program (NCHRP) Report 350 or the 2009 edition of MASH, may continue to be used.

TRUCK MOUNTED ATTENUATOR REQUIREMENTS

Provide the number of vehicles with truck mounted attenuators listed in the table below. The Contractor shall determine if multiple operations will occur at the same time, to determine the total number of truck mounted attenuators needed for the project.

WZ(BTS-1)	0	TCP(2-3)	0	TCP(6-1)	0
TCP(1-1)	0	TCP(2-4)	0	TCP(6-2)	0
TCP(1-2)	0	TCP(2-5)	0	TCP(6-3)	0
TCP(1-3)	0	TCP(2-6)	0	TCP(6-4)	0
TCP(1-4)	0	TCP(3-1)	2	TCP(6-5)	0
TCP(1-5)	0	TCP(3-2)	0	TCP(6-6)	0
TCP(1-6)	0	TCP(3-3)	2	TCP(6-7)	0
TCP(2-1)	0	TCP(3-4)	1	TCP(6-8)	0
TCP(2-2)	0	TCP(5-1)	0	TCP(6-9)	0
TRAFFIC CONTROL PLAN PILOT VEHICLE OPERATION					0
TRAFFIC CONTROL PLAN TWO LANE CLOSURES ON FOUR LANE UNDIVIDED HIGHWAYS					0
TRAFFIC CONTROL PLAN LANE CLOSURES WITH BARRIER					0
TRAFFIC CONTROL PLAN SHOULDER CLOSURES WITH BARRIER					0
TRAFFIC CONTROL PLAN WORK SPACE NEAR SHOULDER					0
TRAFFIC CONTROL PLAN CROSSOVER CLOSURE					0
TRAFFIC CONTROL PLAN TURNAROUND CLOSURE					0
TRAFFIC CONTROL PLAN LANE CLOSURES WITH TRAFFIC SIGNAL AND BARRIER					0
TRAFFIC CONTROL PLAN LANE CLOSURES WITH TRAFFIC SIGNAL					0
TRAFFIC CONTROL PLAN FREEWAY CLOSURE					0

PORTABLE CHANGEABLE MESSAGE SIGN REQUIREMENTS

Provide the portable changeable message signs listed in the table below. The Contractor shall determine if multiple operations will occur at the same time, to determine the total number of portable changeable message signs needed for the project.

TCP(6-1)	0	TCP(6-4)	0	TCP(6-8)	0
TCP(6-2)	0	TCP(6-6)	0	TCP(6-9)	0
TCP(6-3)	0	TCP(6-7)	0		
TRAFFIC CONTROL PLAN LANE CLOSURES WITH BARRIER					0
TRAFFIC CONTROL PLAN SHOULDER CLOSURES WITH BARRIER					0
TRAFFIC CONTROL PLAN LANE CLOSURES WITH TRAFFIC SIGNAL AND BARRIER					0
TRAFFIC CONTROL PLAN LANE CLOSURES WITH TRAFFIC SIGNAL					0
TRAFFIC CONTROL PLAN FREEWAY CLOSURE					0

TYPICAL USAGE

MOBILE
Work that moves continuously or intermittently (stopping for up to approximately 15 minutes).

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 in a single daylight period.

INTERMEDIATE TERM STATIONARY
Work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than 1 hour.

LONG TERM STATIONARY
Work that occupies a location more than 3 days.

Edwin Steven Klobouchnik, P.E.
STATE OF TEXAS
EDWIN STEVEN KLOBOUCNIK
73984
REGISTERED PROFESSIONAL ENGINEER
29.10.2020

Texas Department of Transportation | San Angelo District

TRAFFIC CONTROL PLAN GENERAL REQUIREMENTS

SHEET 1 OF 1 | NOT TO SCALE

CONT.	SECT.	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST.	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		9

SHEET ISSUED OR LAST REVISED 11-19

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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. As shown on BC(2), the OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER (see Sign Detail G20-10T) and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. However, the TRAFFIC FINES DOUBLE sign will not be required on projects consisting solely of mobile operation work, such as striping or milling edgeline rumble strips. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits.

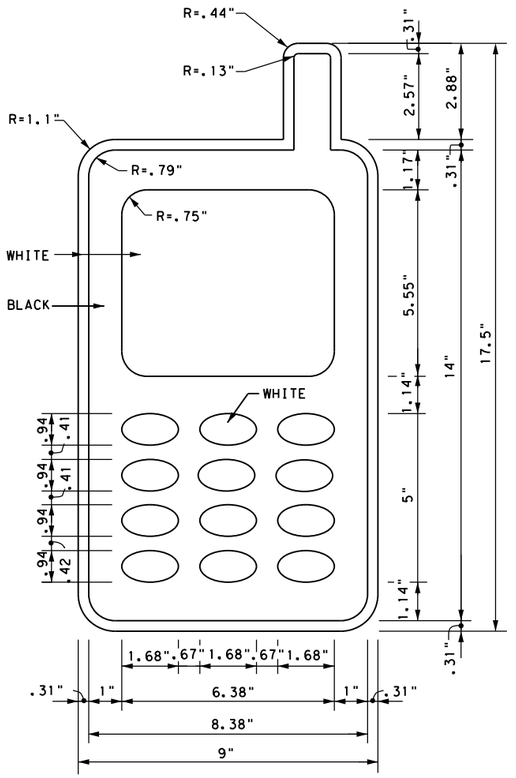
11. Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.

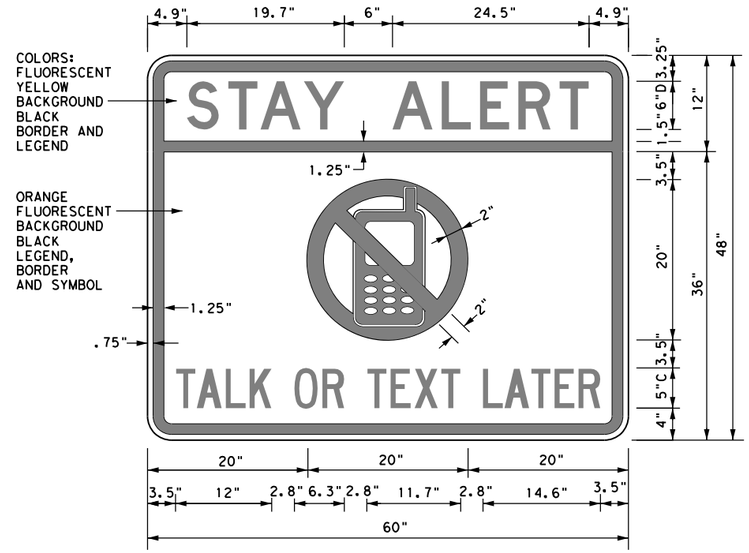
12. The Engineer has the final decision on the location of all traffic control devices.

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 APPAREL 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.





3.0" Radius, 1.25" Border, 0.75" Indent, Black on Yellow;
[STAY ALERT] Font: D
3.0" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
[TALK OR TEXT LATER] Font: C specified length;

SIGN DETAIL (G20-10T)

Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found on-line at the web address given below or by contacting:

Texas Department of Transportation
Traffic Operations Division - TE
Phone (512) 416-3118

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 Operations Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0907	00	197, ETC	VA
4-03 5-10 8-14	DIST	COUNTY		SHEET NO.
9-07 7-13	SJT	TOM GREEN, ETC		10

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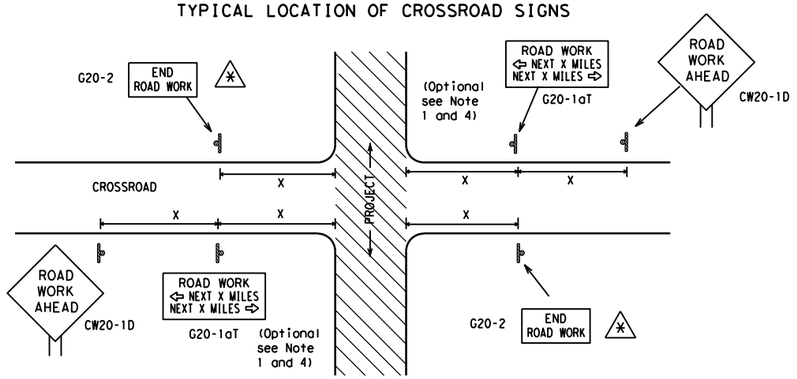
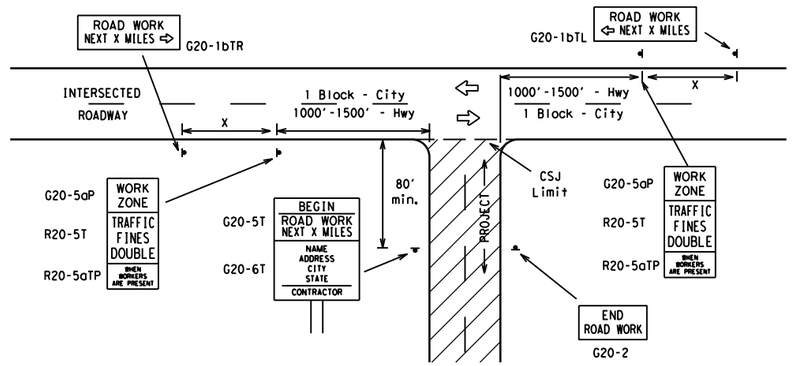
TYPICAL LOCATION OF CROSSROAD SIGNS



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

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D)sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK"(G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume. 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]

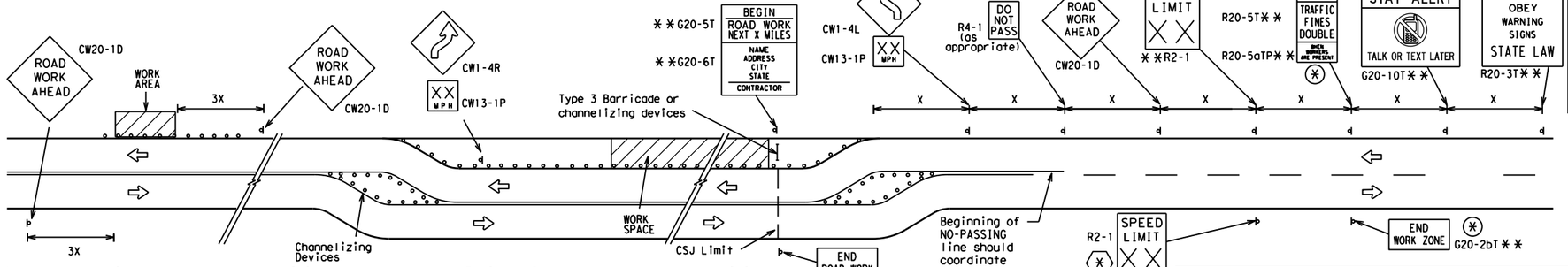
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

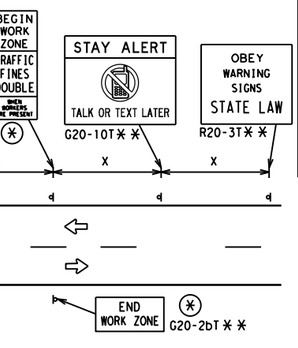
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may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

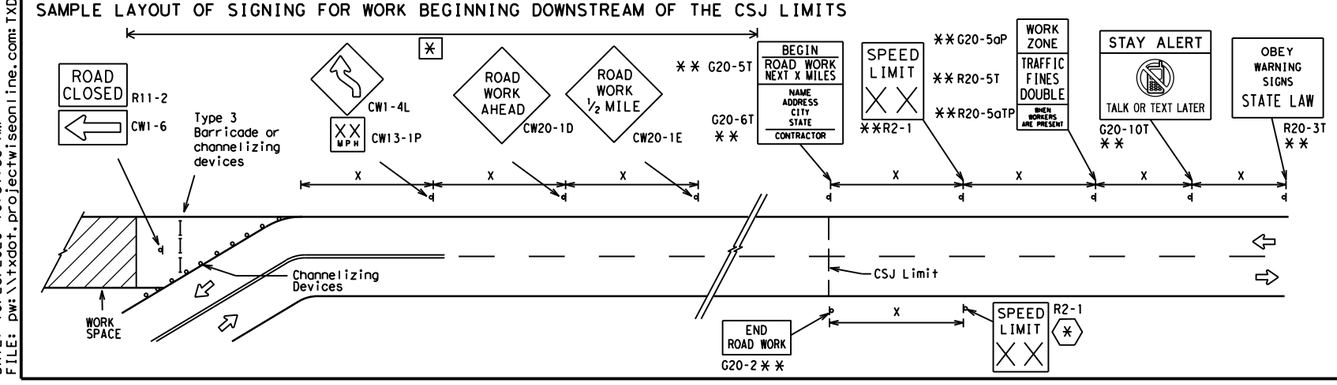


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

** Required CSJ Limit signing. See Note 10 on BC(1). TRAFFIC FINES DOUBLE signs will not be required on projects consisting solely of mobile operations work.

[*] 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 Operations Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-14

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0907	00	197, ETC	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13	SJT	TOM GREEN, ETC		11

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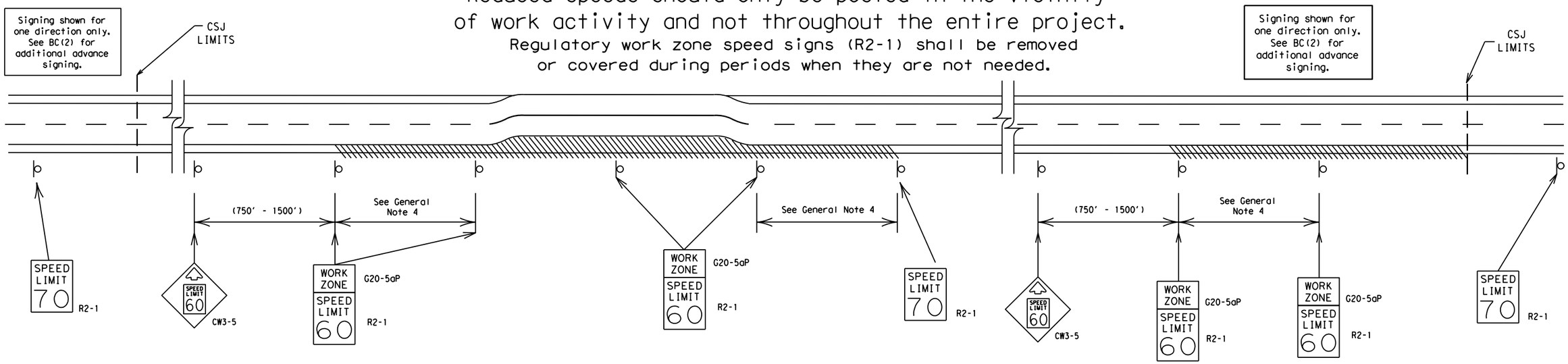
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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 travelled way.

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-14

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REVISIONS 9-07 8-14 7-13	0907	00	197, ETC	VA
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	SJT	TOM GREEN, ETC		12

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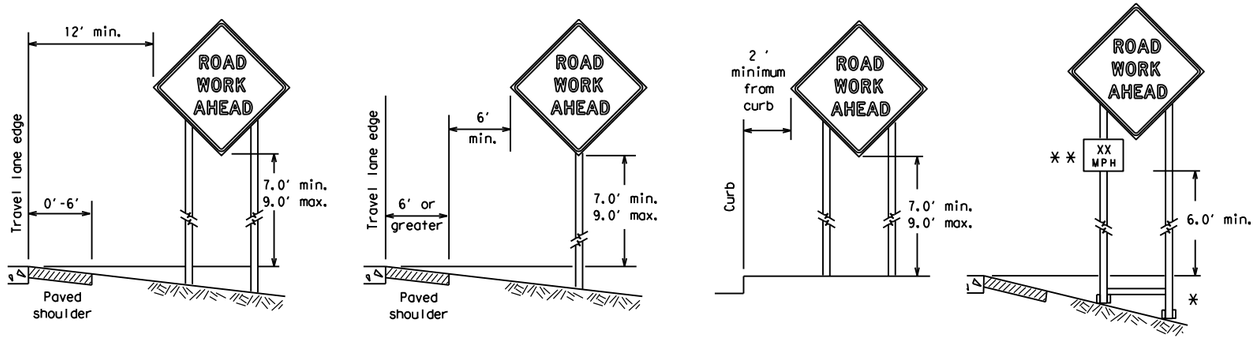
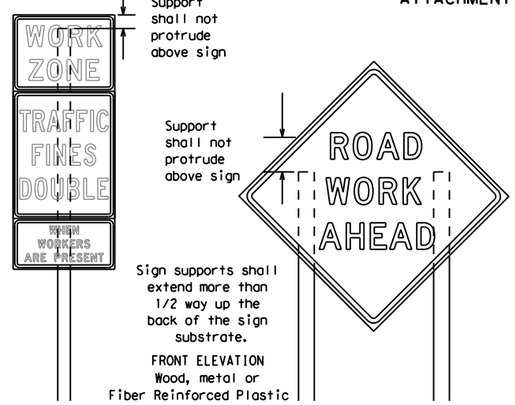
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



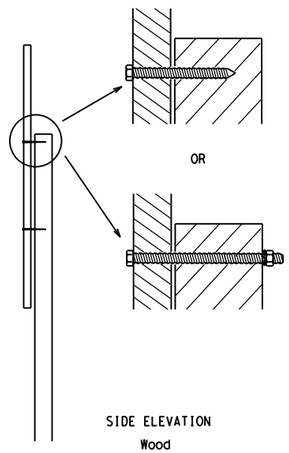
* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS



Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the 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.

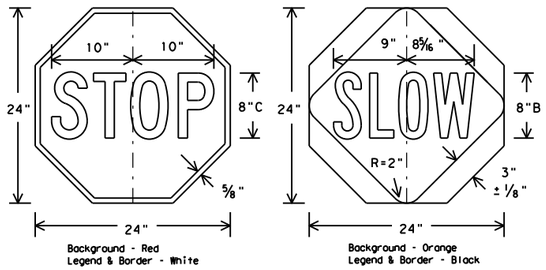


Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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.

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" as detailed below.
2. When used at night, the STOP/SLOW paddle shall be retroreflectorized.
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.



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, 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.
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 sheets or the CWZTCD. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards 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). 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

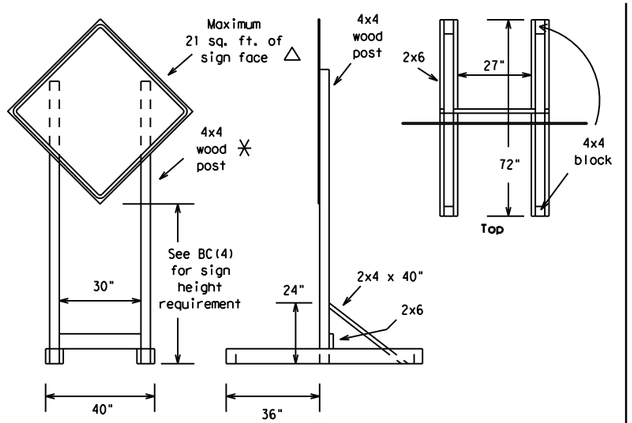
1. Flags may be used to draw attention to warning signs. When used the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

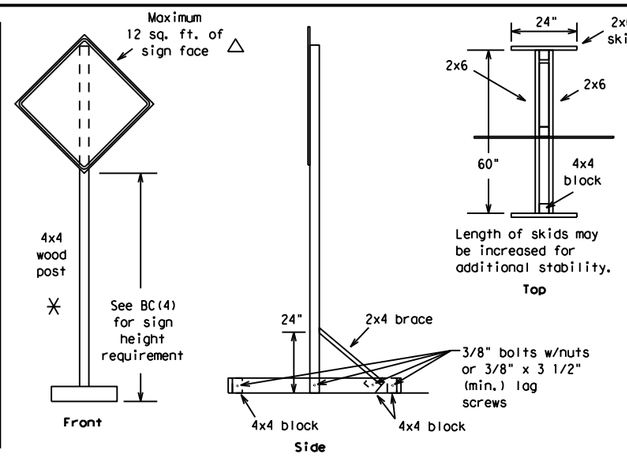
Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-14

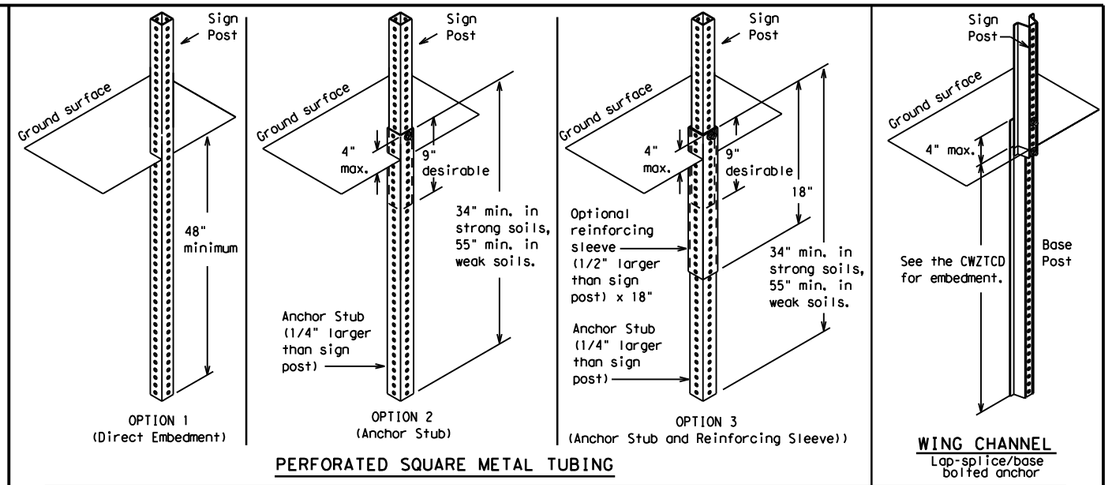
FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		13





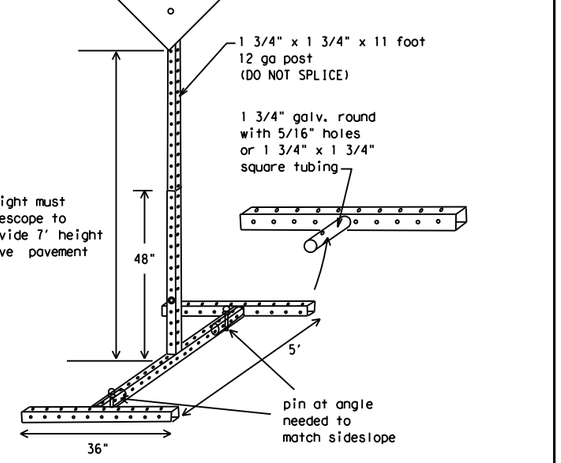
SKID MOUNTED WOOD SIGN SUPPORTS

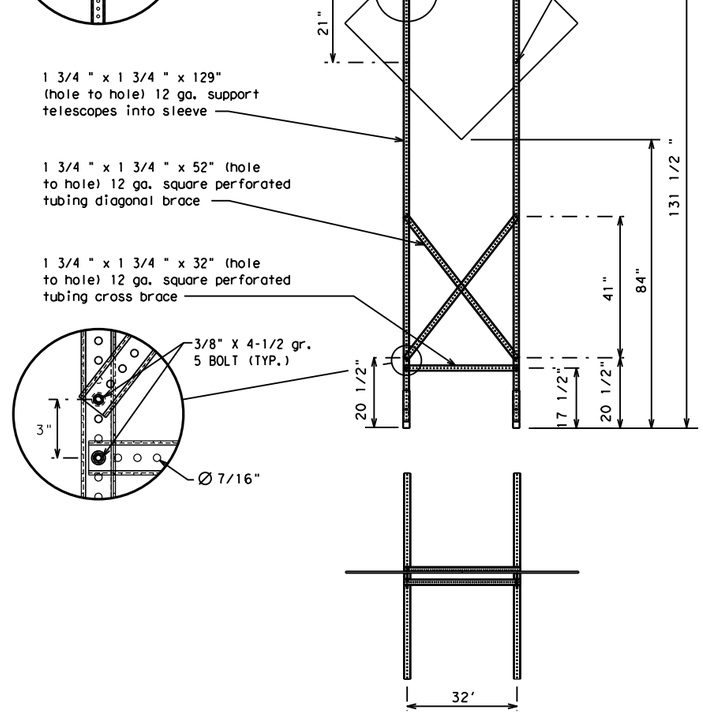
LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS □

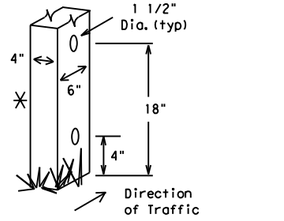


GROUND MOUNTED SIGN SUPPORTS

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

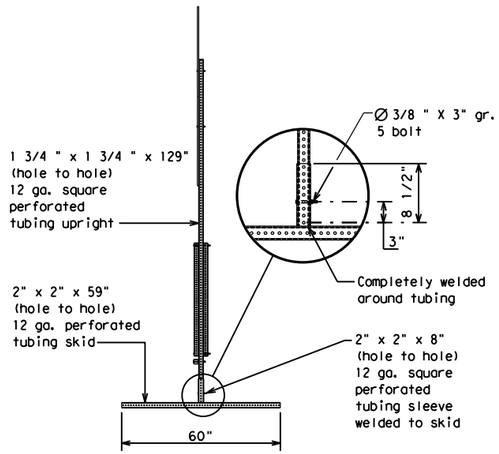






Nominal Post Size	Number of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES

WOOD POST SYSTEM FOR GROUND 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.

SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

SHEET 5 OF 12

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0907	00	197, ETC	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13	SJT	TOM GREEN, ETC		14

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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		Other Condition List		
FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED	ROADWORK XXX FT	ROAD REPAIRS XXXX FT	
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT	FLAGGER XXXX FT	LANE NARROWS XXXX FT	
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT	RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE	
RIGHT X LANES CLOSED	RIGHT X LANES OPEN	MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT	
CENTER LANE CLOSED	DAYTIME LANE CLOSURES	LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT	
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED	DETOUR X MILE	ROUGH ROAD XXXX FT	
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE	ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN	
EXIT CLOSED	RIGHT LN TO BE CLOSED	BUMP XXXX FT	US XXX EXIT X MILES	
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI	TRAFFIC SIGNAL XXXX FT	LANES SHIFT *	
XXXXXXXX BLVD CLOSED				

* 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		Location List	Warning List	** Advance Notice List
MERGE RIGHT	FORM X LINES RIGHT	AT FM XXXX	SPEED LIMIT XX MPH	TUE-FRI XX AM- X PM
DETOUR NEXT X EXITS	USE XXXXX RD EXIT	BEFORE RAILROAD CROSSING	MAXIMUM SPEED XX MPH	APR XX-XX X PM-X AM
USE EXIT XXX	USE EXIT I-XX NORTH	NEXT X MILES	MINIMUM SPEED XX MPH	BEGINS MONDAY
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N	PAST US XXX EXIT	ADVISORY SPEED XX MPH	BEGINS MAY XX
TRUCKS USE US XXX N	WATCH FOR TRUCKS	XXXXXXX TO XXXXXXX	RIGHT LANE EXIT	MAY X-X XX PM - XX AM
WATCH FOR TRUCKS	EXPECT DELAYS	US XXX TO FM XXXX	USE CAUTION	NEXT FRI-SUN
EXPECT DELAYS	PREPARE TO STOP		DRIVE SAFELY	XX AM TO XX PM
REDUCE SPEED XXX FT	END SHOULDER USE		DRIVE WITH CARE	NEXT TUE AUG XX
USE OTHER ROUTES	WATCH FOR WORKERS			TONIGHT XX PM- XX AM
STAY IN LANE *				

* 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 Operations Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-14

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©TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY
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9-07 8-14		DIST	COUNTY		SHEET NO.
7-13		SJT	TOM GREEN, ETC		15

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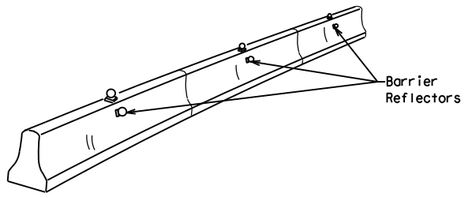
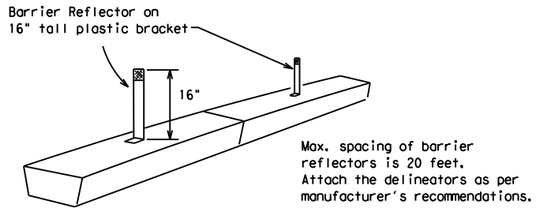
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost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

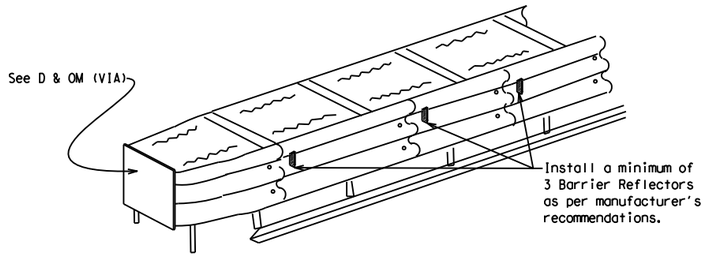


CONCRETE TRAFFIC BARRIER (CTB)

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.



LOW PROFILE CONCRETE BARRIER (LPCB)

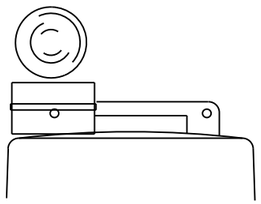


DELINEATION OF END TREATMENTS

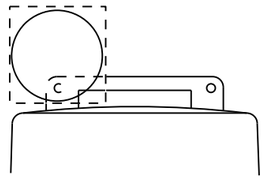
END TREATMENTS FOR
CTB'S USED
IN WORK ZONES

End treatments used on CTB's in work zones shall meet crashworthy standards as defined in the National Cooperative Highway Research Report 350. Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

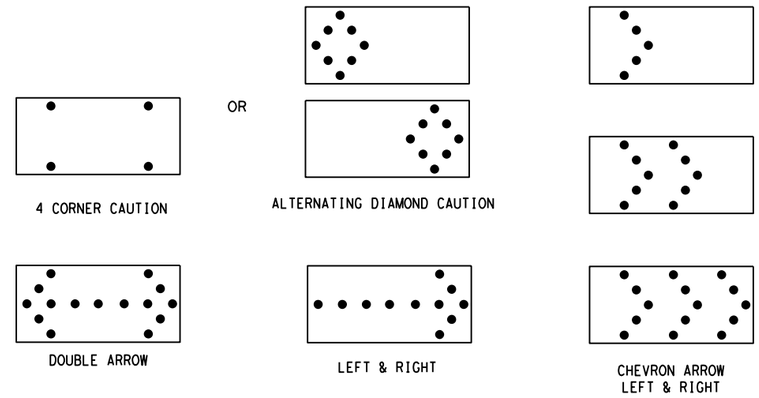
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



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

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

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

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the National Cooperative Highway Research Report No. 350 (NCHRP 350) or 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 Operations Division Standard

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

BC(7)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0907	00	197, ETC	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13	SJT	TOM GREEN, ETC		16

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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:

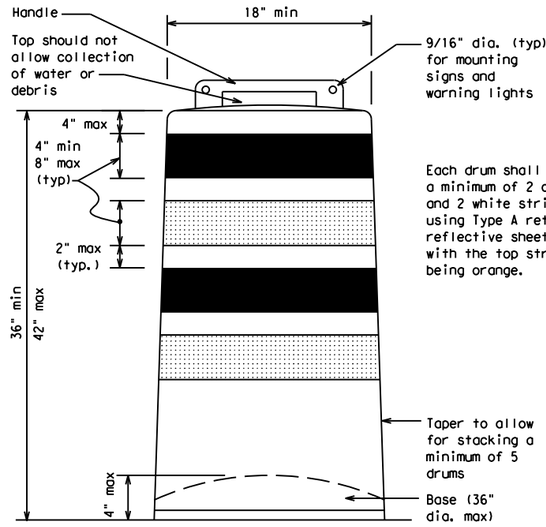
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

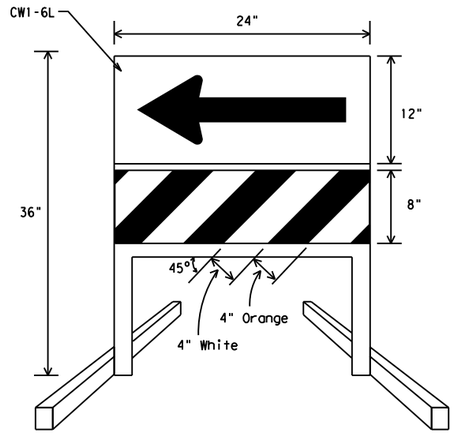
RETROREFLECTIVE SHEETING

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 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

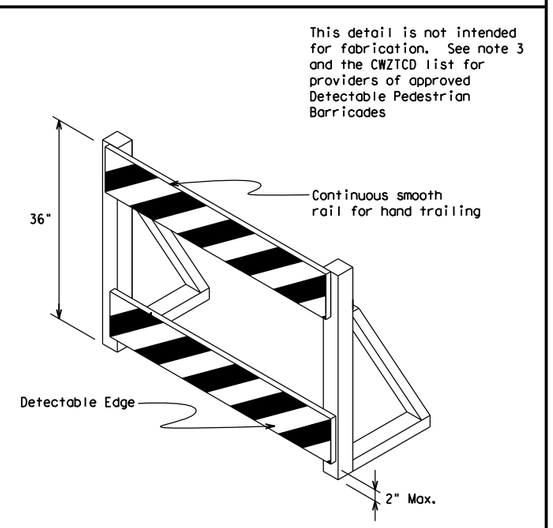
1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other 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.





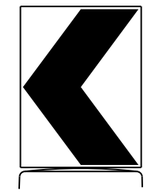
DIRECTION INDICATOR BARRICADE

1. The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional guidance to drivers is necessary.
2. If used, the Direction Indicator Barricade should be used in series to direct the driver through the transition and into the intended travel lane.
3. The Direction Indicator Barricade shall consist of One-Direction Large Arrow (CW1-6) sign in the size shown with a black arrow on a background of Type B_{FL} or Type C_{FL} Orange retroreflective sheeting above a rail with Type A retroreflective sheeting in alternating 4" white and orange stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. Sheeting types shall be as per DMS 8300.
4. Double arrows on the Direction Indicator Barricade will not be allowed.
5. Approved manufacturers are shown on the CWZTCD List. Ballast shall be as approved by the manufacturers instructions.

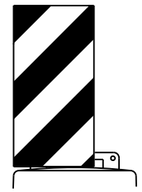


DETECTABLE PEDESTRIAN BARRICADES

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.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a device that is detectable by a person with a visual disability traveling with the aid of a long cane shall be placed across the full width of the closed sidewalk.
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 for Buildings and Facilities (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 may 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 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 Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-14

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REVISIONS	0907	00	197, ETC	VA
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9-07 8-14	SJT	TOM GREEN, ETC		17

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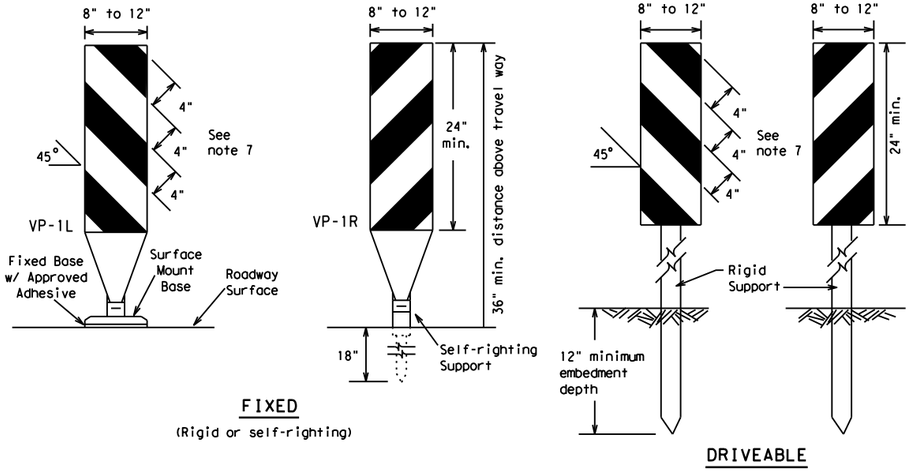
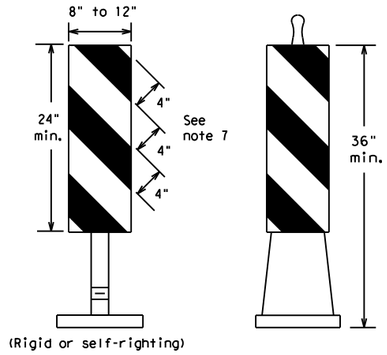


FIXED
(Rigid or self-righting)

DRIVEABLE

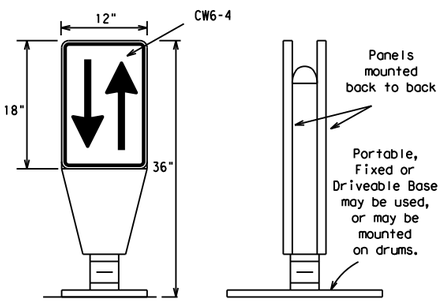


(Rigid or self-righting)

PORTABLE

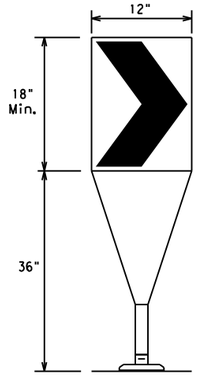
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual Appendix B "Treatment of Pavement Drop-offs in Work Zones" for additional guidelines on the use of 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 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)



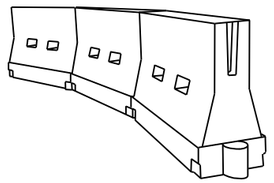
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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) placed 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 NCHRP 350 crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

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

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-14

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	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		18

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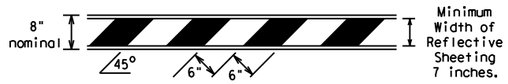
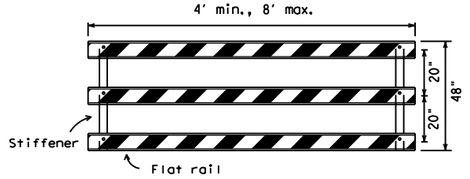
TYPE 3 BARRICADES

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 conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



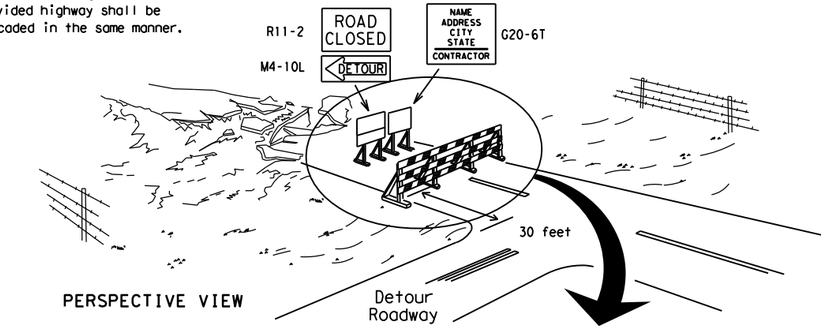
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

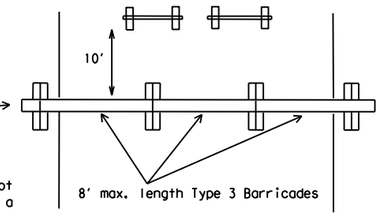
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

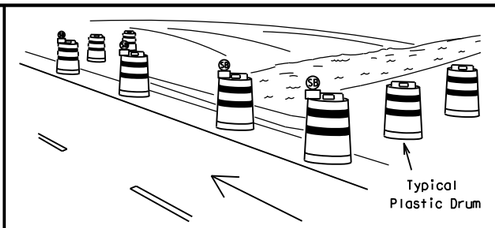
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

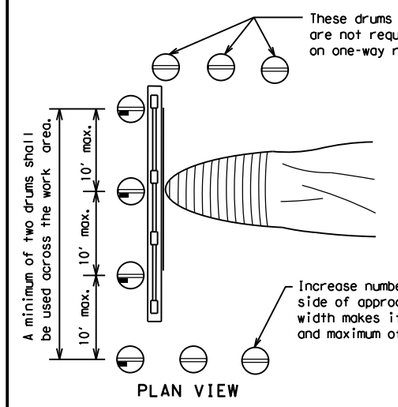
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

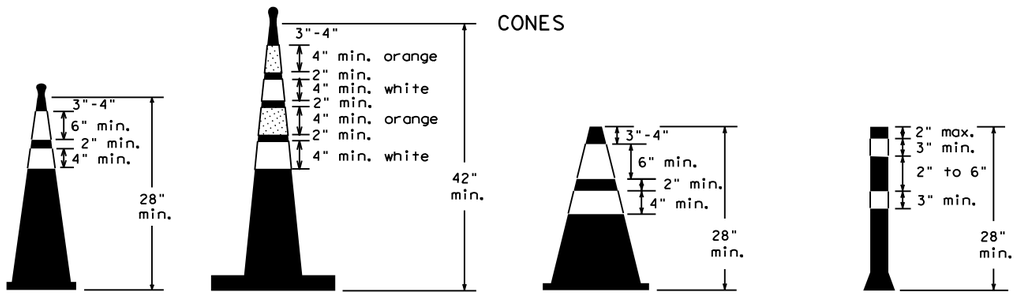
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



PLAN VIEW

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

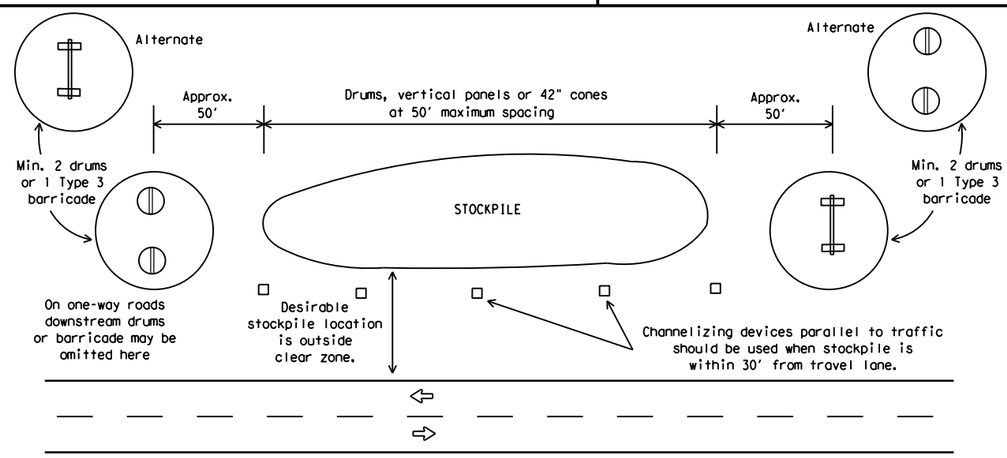
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



28" Cones shall have a minimum weight of 9 1/2 lbs.

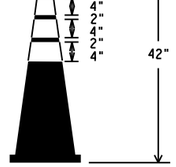
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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 used at night 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.
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

THIS DEVICE SHALL NOT BE USED ON PROJECTS LET AFTER MARCH 2014.



EDGELINE CHANNELIZER

1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane. It is not intended to be used in transitions or tapers.
2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
3. This device is based on a 42 inch, two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-14

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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.

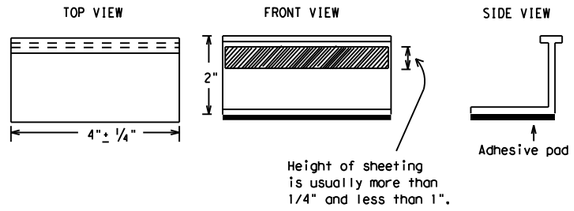
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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 Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-14

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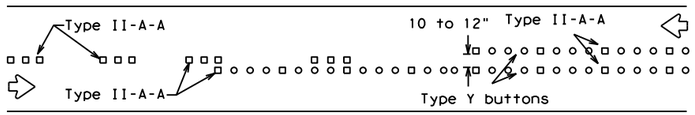
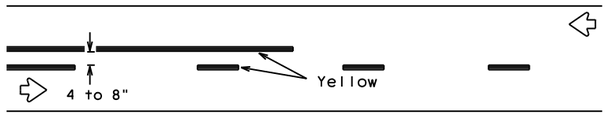
PAVEMENT MARKING PATTERNS

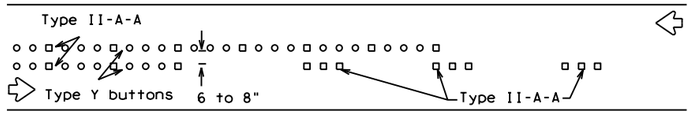
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



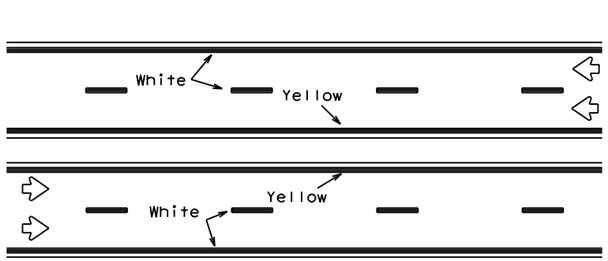
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



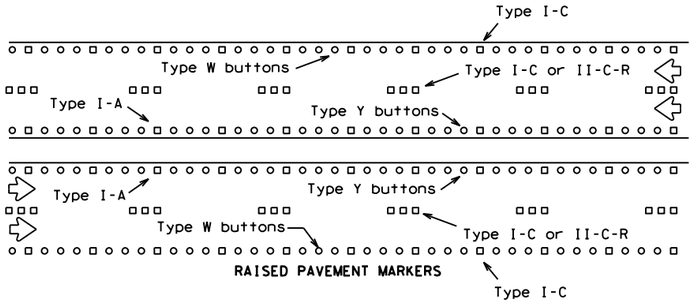
RAISED PAVEMENT MARKERS - PATTERN B

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



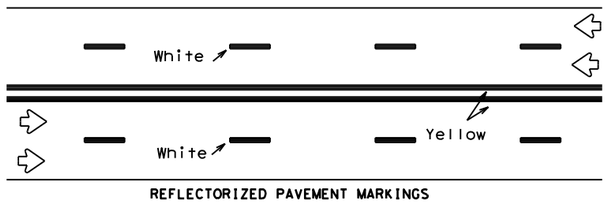
REFLECTORIZED PAVEMENT MARKINGS



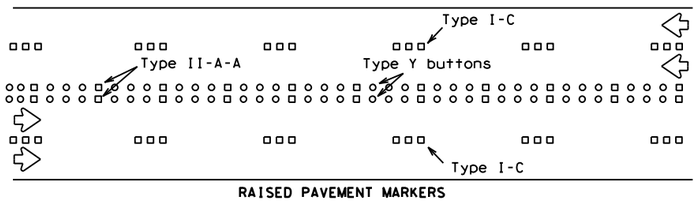
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



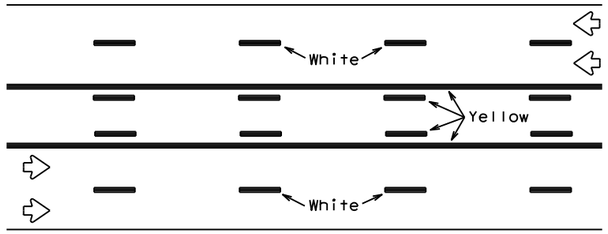
REFLECTORIZED PAVEMENT MARKINGS



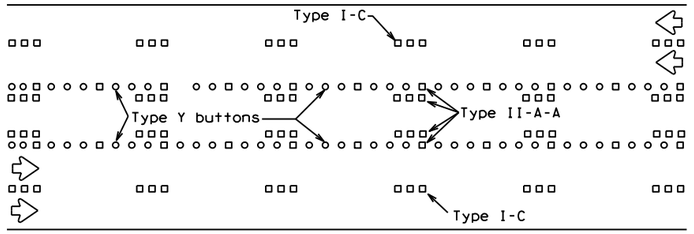
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

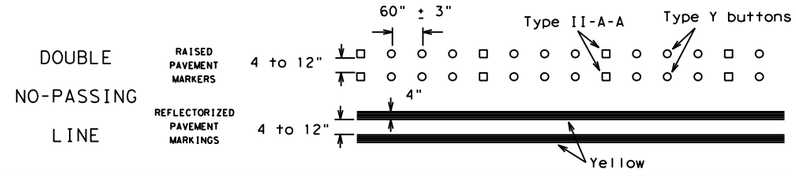
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

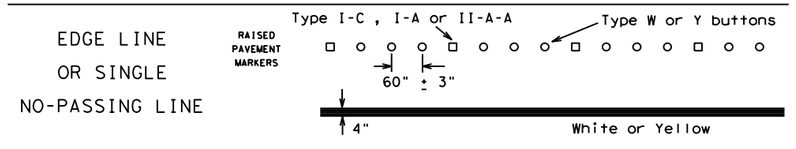
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

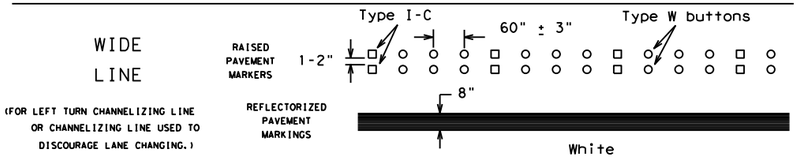


EDGE LINE OR SINGLE NO-PASSING LINE



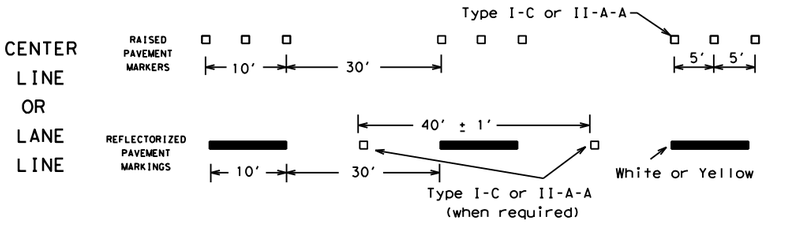
WIDE LINE

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

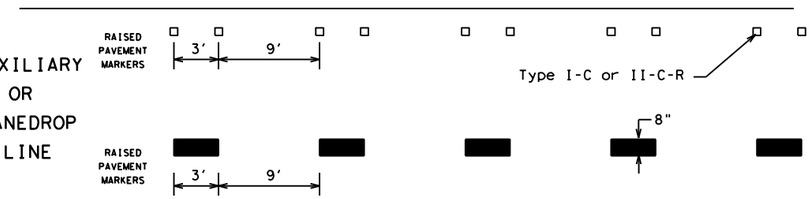


BROKEN LINES

CENTER LINE OR LANE LINE

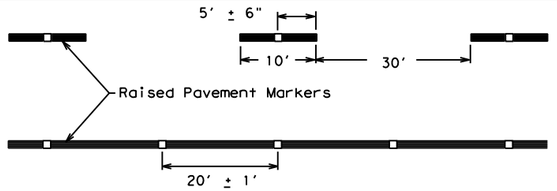


AUXILIARY OR LANEDROP LINE



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 Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-14

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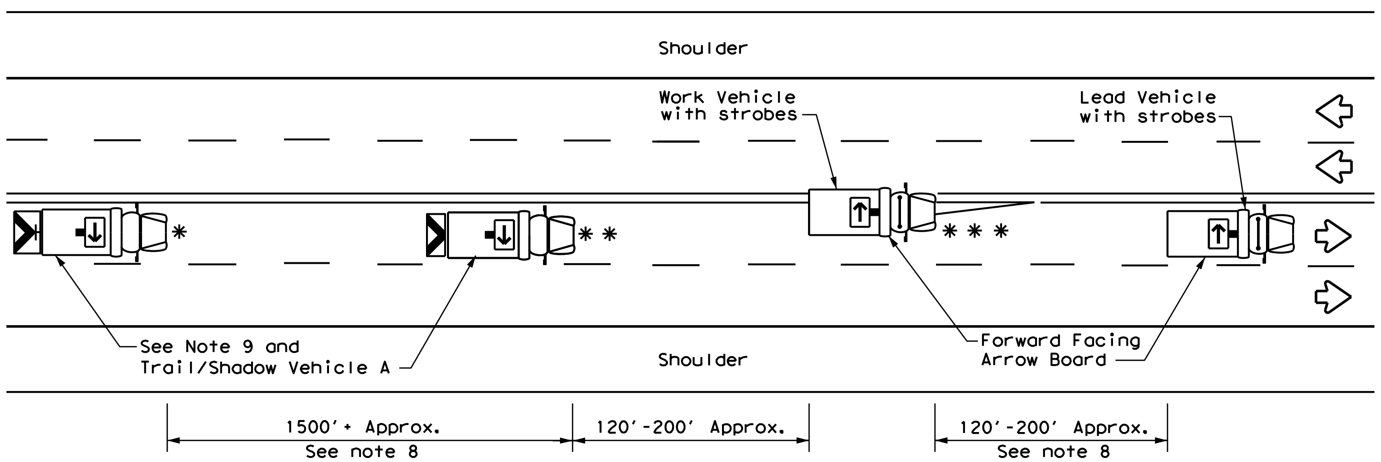
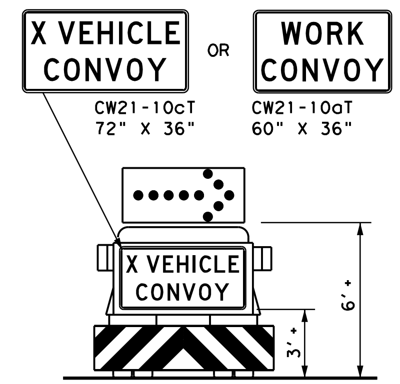


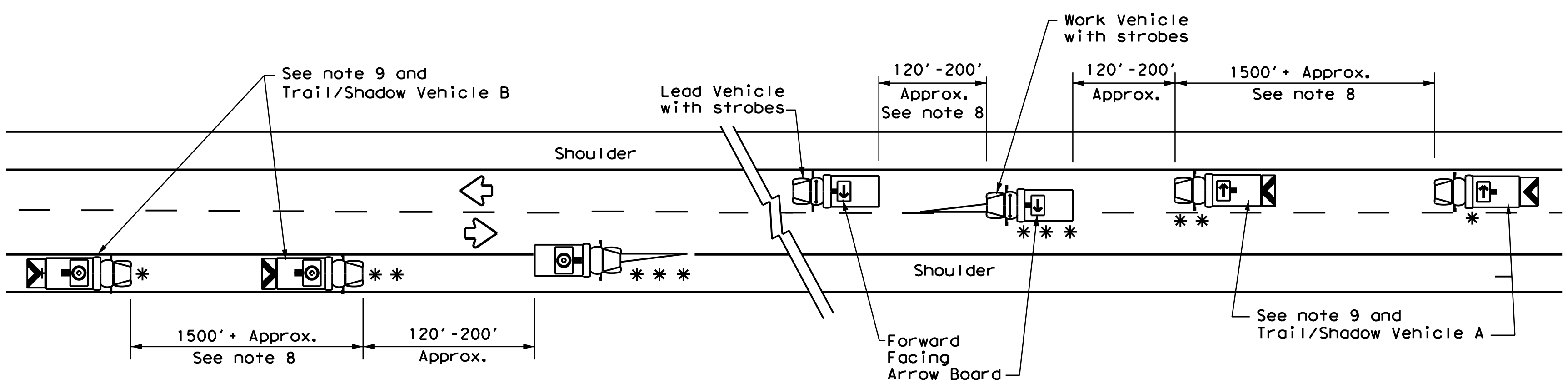
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

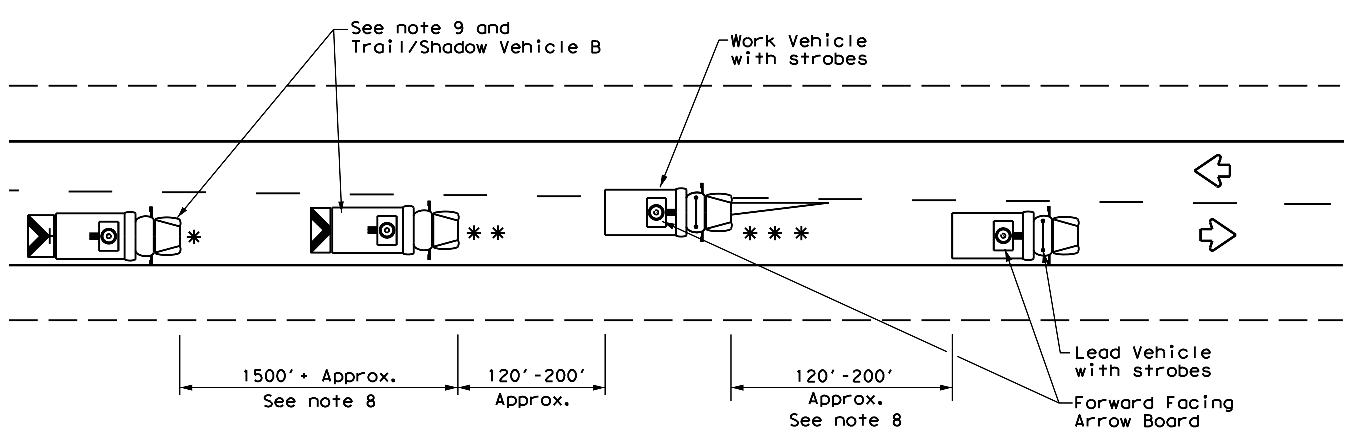


WORK ON SHOULDER

WORK ON TRAVEL LANE

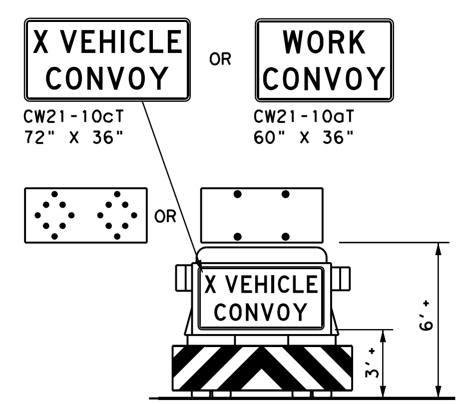
TCP (3-1b)

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

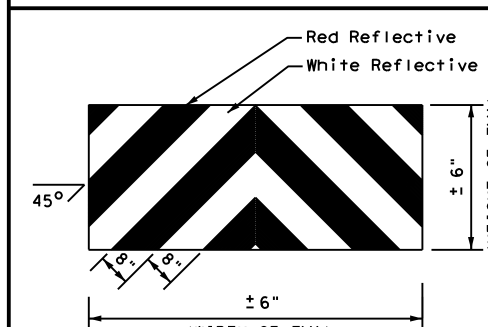
LEGEND

Symbol	Description	Arrow Board Display	
*	Trail Vehicle	ARROW BOARD DISPLAY	
* *	Shadow Vehicle		
* * *	Work Vehicle	[right arrow]	RIGHT Directional
[heavy work vehicle symbol]	Heavy Work Vehicle	[left arrow]	LEFT Directional
[TMA symbol]	Truck Mounted Attenuator (TMA)	[double arrow]	Double Arrow
[traffic flow arrow]	Traffic Flow	[caution symbol]	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

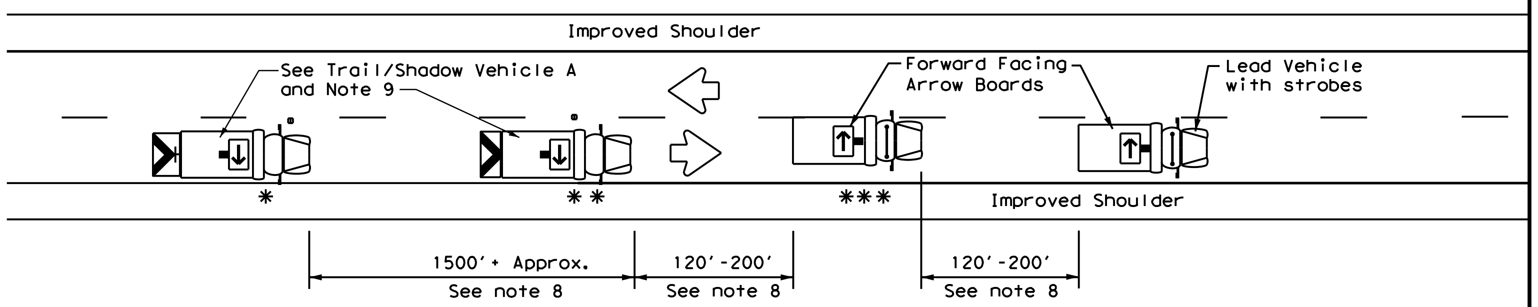
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

TCP(3-1)-13

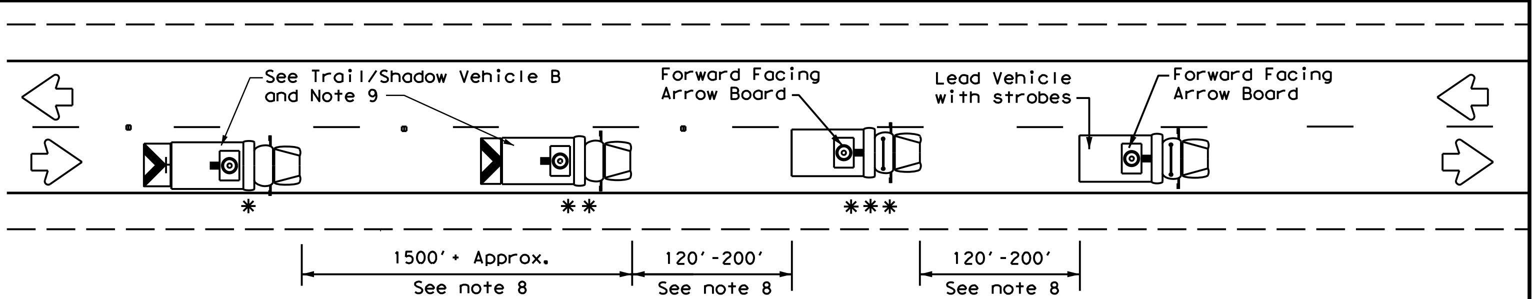
FILE: tcp3-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	0907	00	197, ETC	VA
	DIST		COUNTY	SHEET NO.
	SJT		TOM GREEN, ETC	22

175



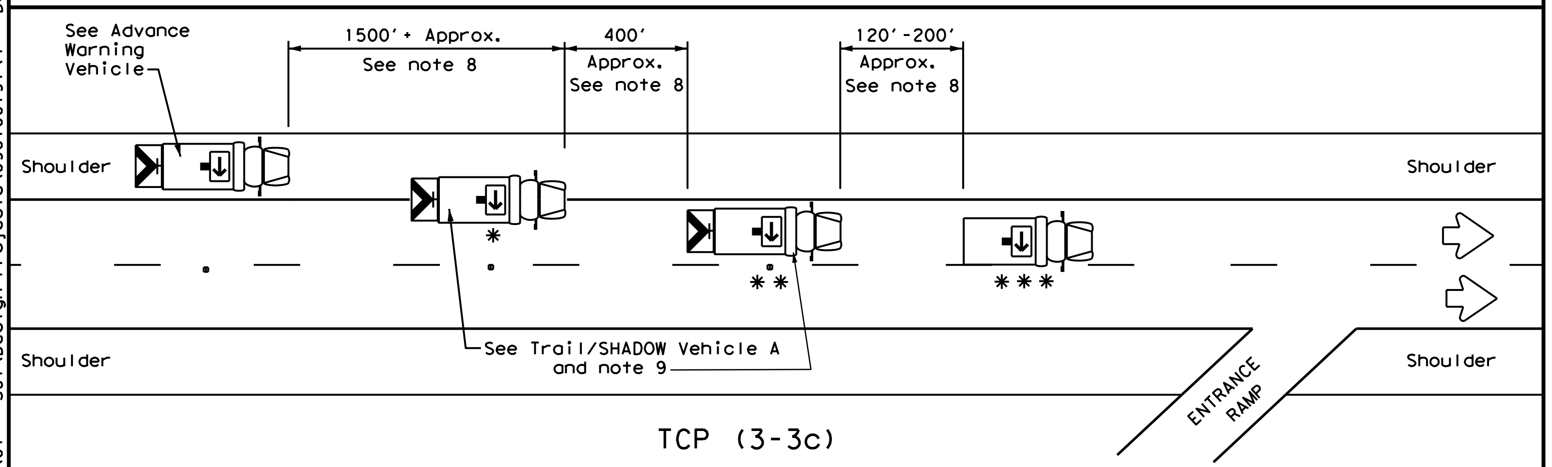
TCP (3-3a)

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



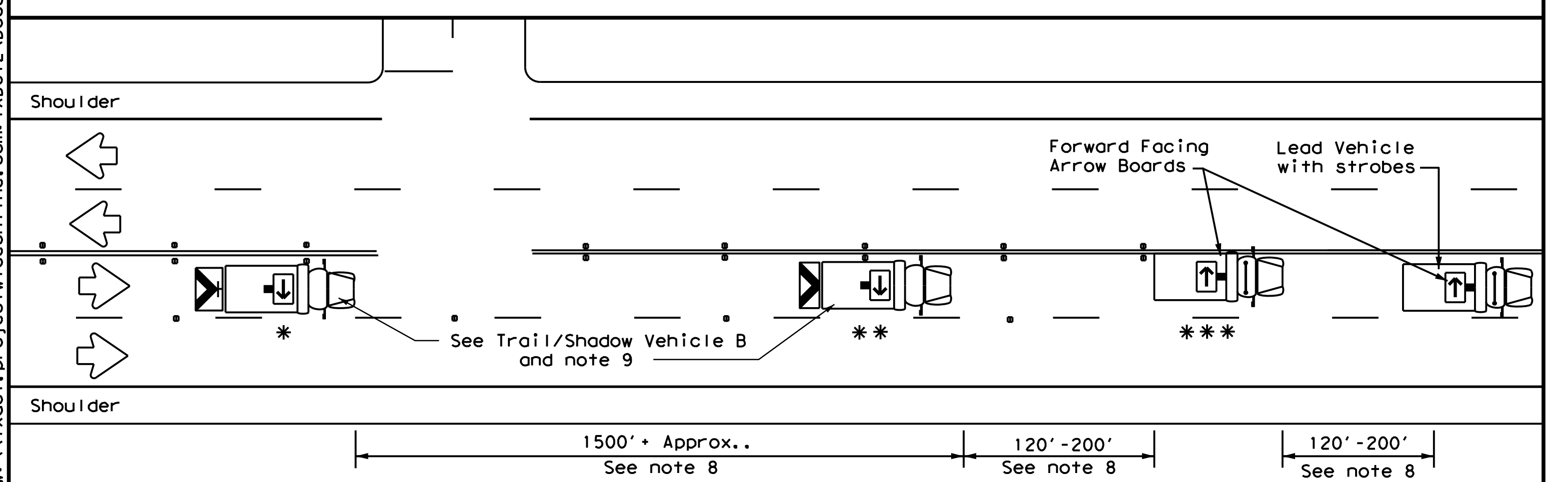
TCP (3-3b)

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



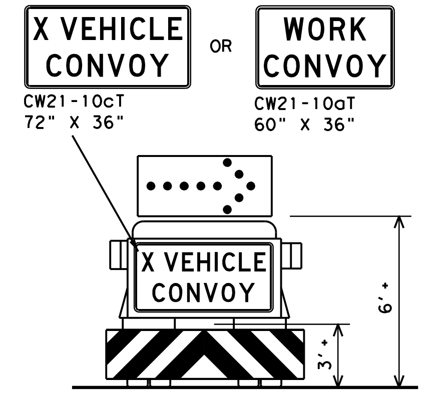
TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



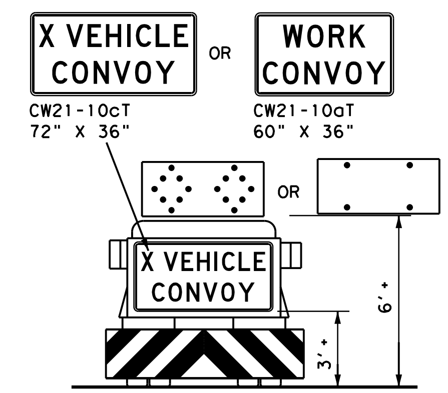
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



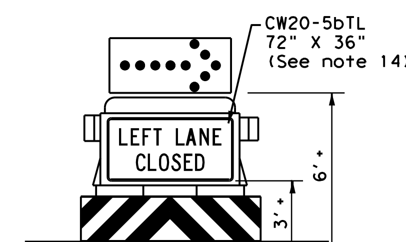
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

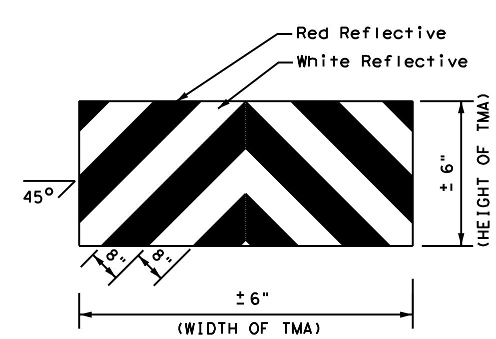


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

LEGEND

Symbol	Description	Symbol	ARROW BOARD DISPLAY
*	Trail Vehicle		
**	Shadow Vehicle		
***	Work Vehicle	[right arrow]	RIGHT Directional
[vehicle]	Heavy Work Vehicle	[left arrow]	LEFT Directional
[TMA]	Truck Mounted Attenuator (TMA)	[double arrow]	Double Arrow
[arrow]	Traffic Flow	[caution]	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

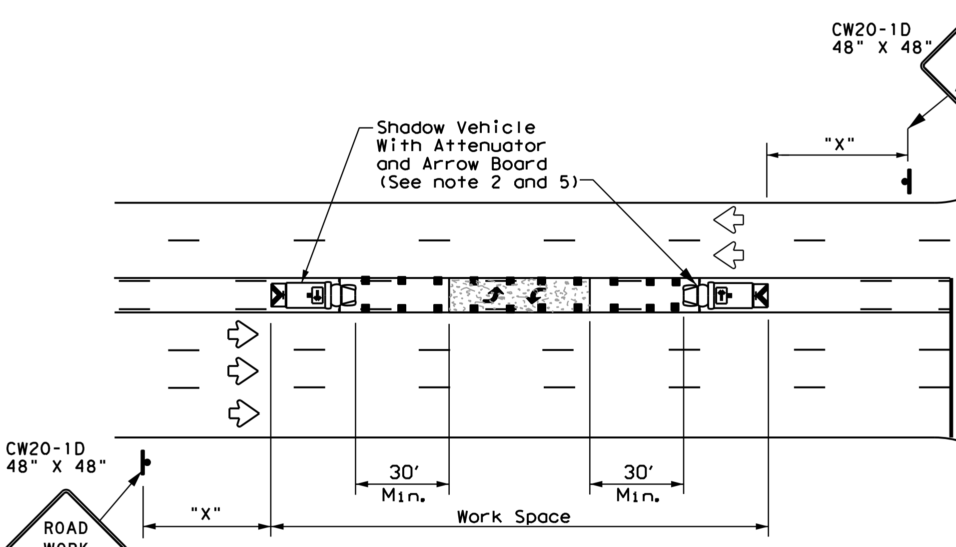
TRAFFIC CONTROL PLAN MOBILE OPERATIONS RAISED PAVEMENT MARKER INSTALLATION/ REMOVAL

TCP(3-3)-14

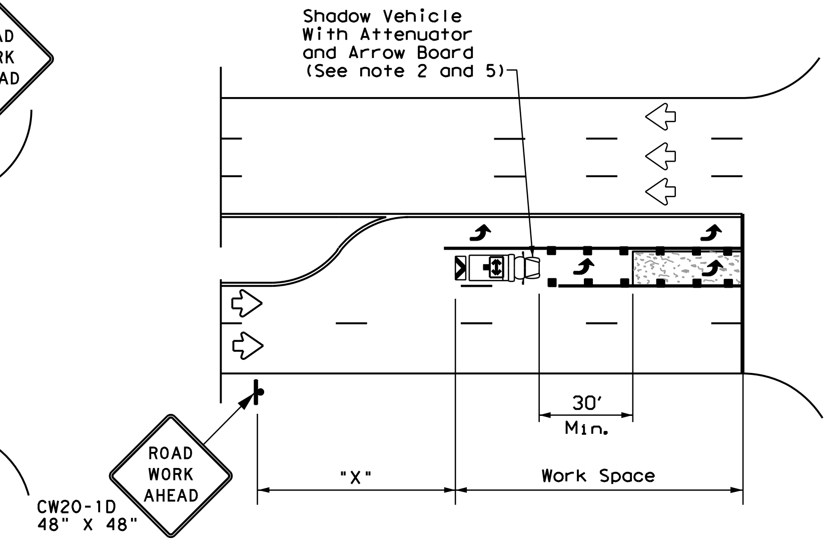
FILE: tcp3-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0907	00	197, ETC	VA
2-94 4-98 8-95 7-13 1-97 7-14	DIST		COUNTY	SHEET NO.
	SJT		TOM GREEN, ETC	23

177

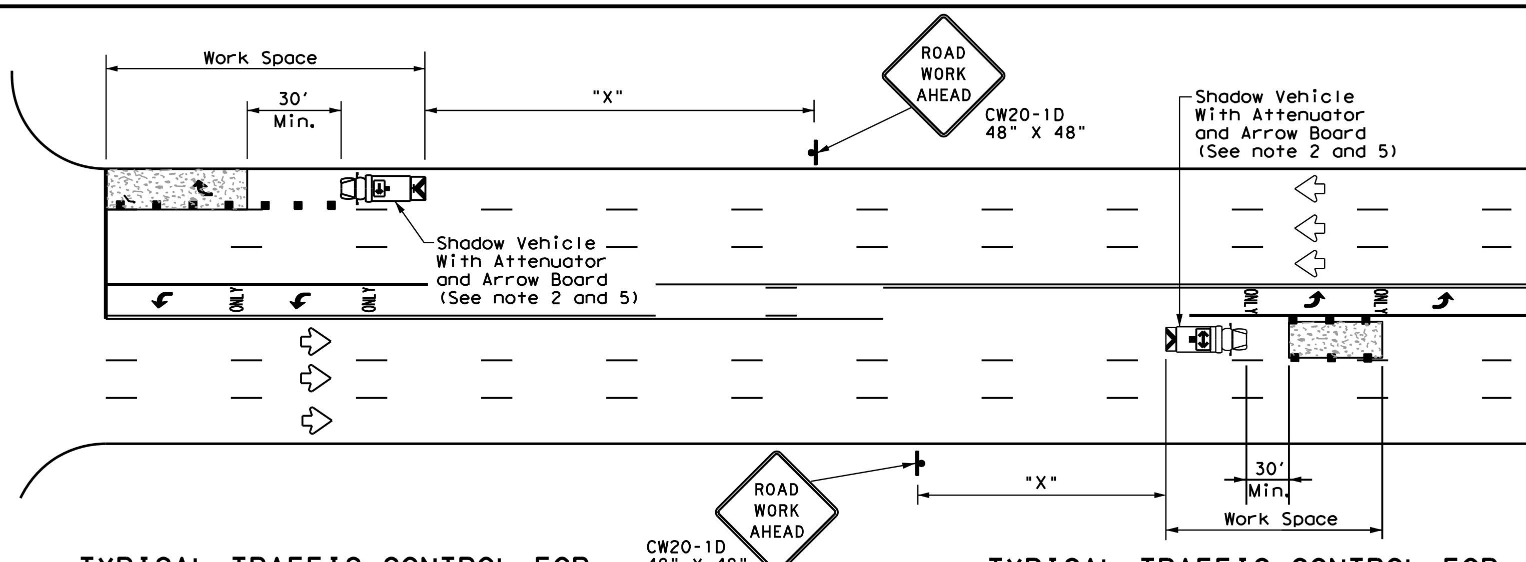
DATE: 10/28/2020 10:34:25 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\...



TYPICAL TRAFFIC CONTROL FOR
CONTINUOUS LEFT TURN LANE SYMBOL MARKINGS

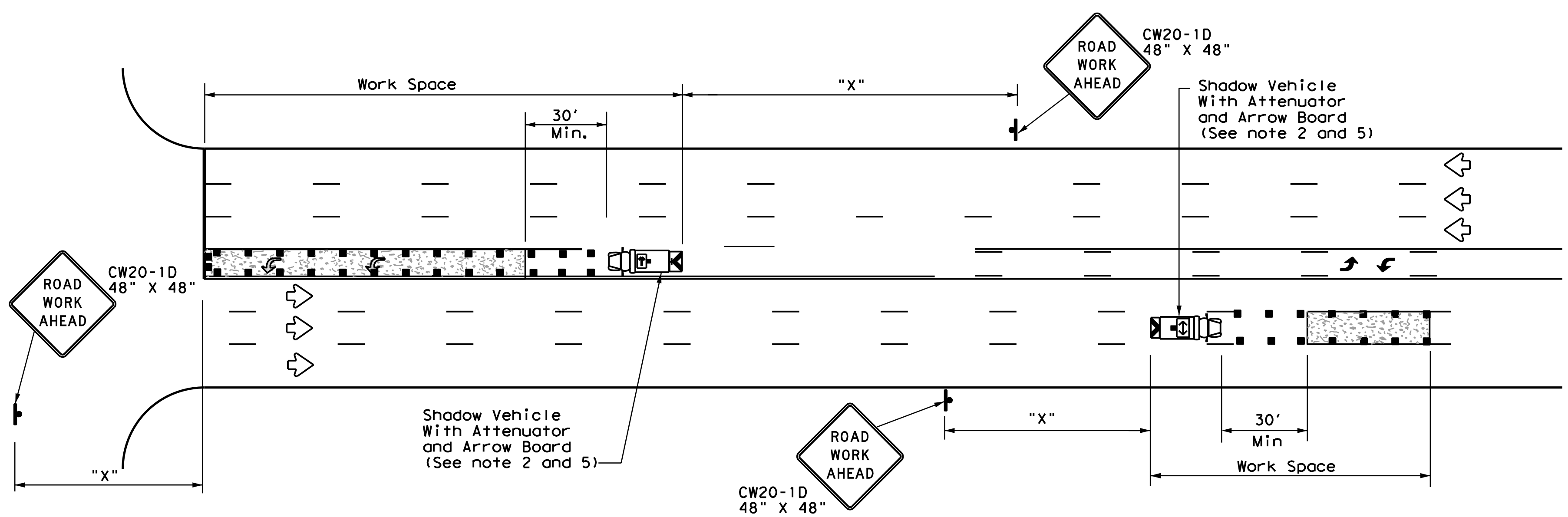


TYPICAL TRAFFIC CONTROL FOR
OUTSIDE DUAL LEFT TURN LANE SYMBOL MARKINGS



TYPICAL TRAFFIC CONTROL FOR
OUTSIDE LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR
INSIDE LANE MARKINGS



TYPICAL TRAFFIC CONTROL FOR
LEFT TURN LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR
CENTER LANE MARKINGS

LEGEND

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

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

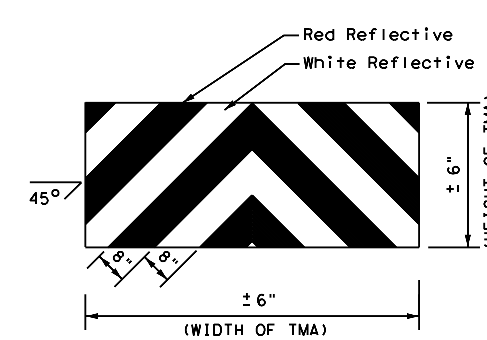
* Conventional Roads Only

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



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS FOR ISOLATED WORK AREAS UNDIVIDED HIGHWAYS

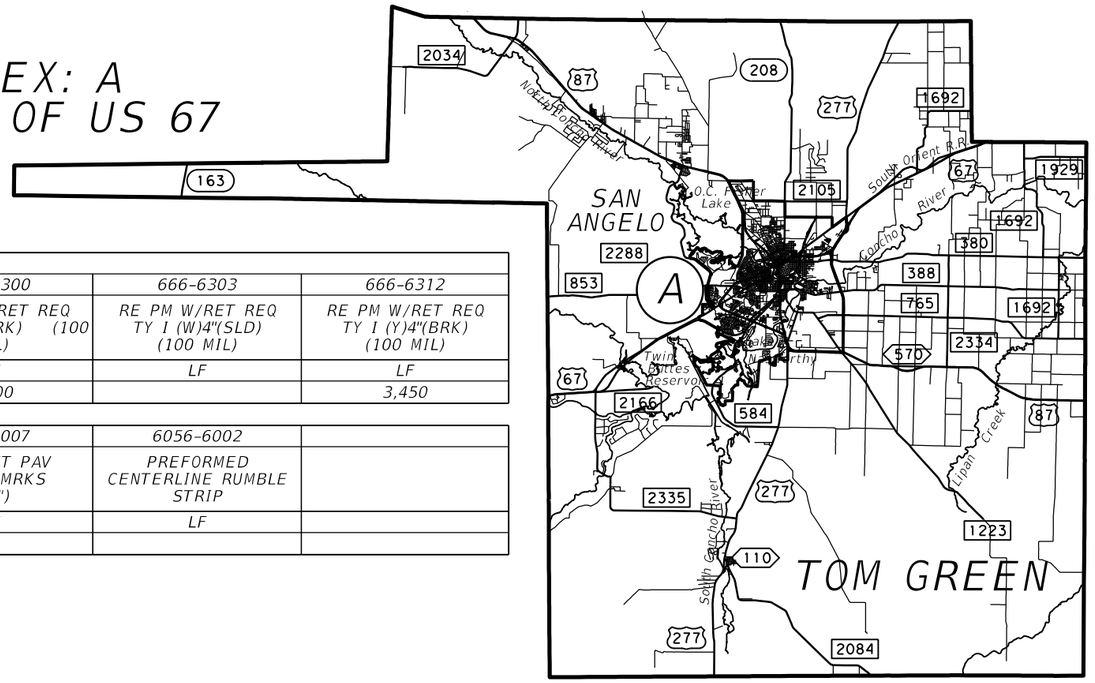
TCP(3-4)-13

FILE: tcp3-4.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT July, 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS	0907	00	197, ETC	VA
	DIST		COUNTY	SHEET NO.
	SJT		TOM GREEN, ETC	24

178

DATE: 10/28/2020 10:34:38 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\...

COUNTY: TOM GREEN HIGHWAY: FM 2288 INDEX: A
LIMITS OF PROJECT: RM 853 TO 280' NORTH OF US 67
LENGTH: 1.514 MILES



PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
704					4,000		3,450

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
13,820		120	1,290				

NOTES: 1. 8" WHITE SOLID IS FOR ISLANDS AND TURN LANES.
2. 8" WHITE DOT IS FOR TURN LANES.
3. NO PROFILE MARKINGS ARE FROM CITY LIMIT SIGN TO US 67.

Ed. St. Klobucnik, P.E.

STATE OF TEXAS
EDWIN STEVEN KLOBOUCNIK
73984
REGISTERED PROFESSIONAL ENGINEER

29.10.2020

Texas Department of Transportation

San Angelo District

INDEX A

SHEET 1 OF 2 NOT TO SCALE

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		25

SHEET ISSUED OR LAST REVISED
08-19

DATE: 10/28/2020 10:34:55 AM
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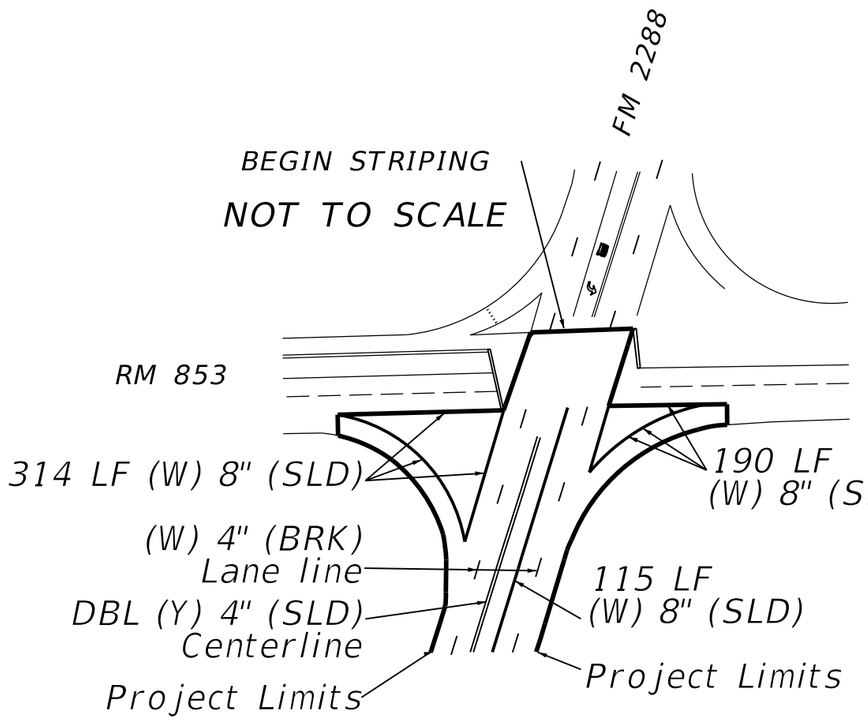

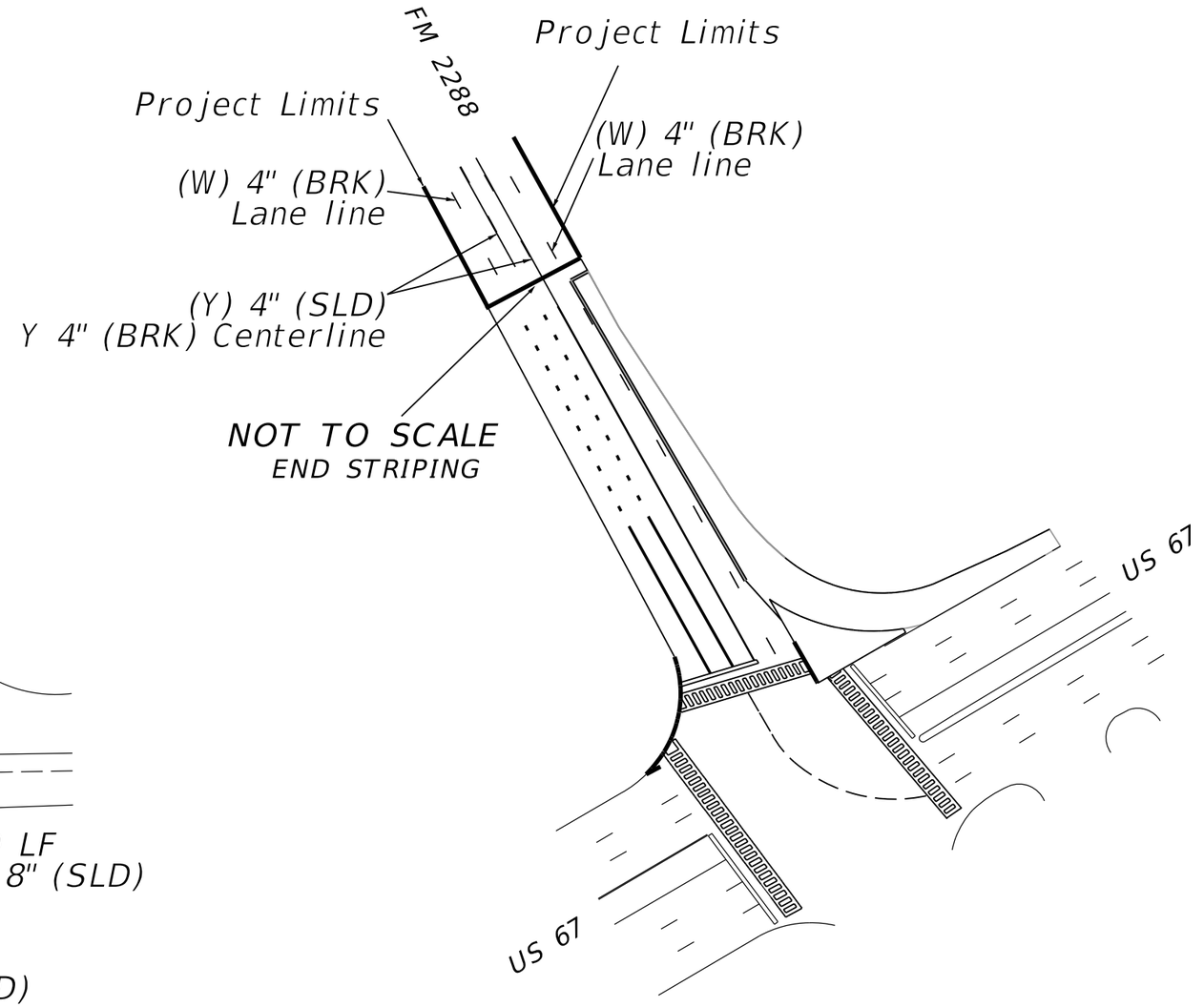

Ed. St. Klobouchnik, P.E.

STATE OF TEXAS
EDWIN STEVEN KLOBOUCNIK
73984
REGISTERED PROFESSIONAL ENGINEER

29.10.2020

Texas Department of Transportation

San Angelo District

INDEX A

SHEET 2 OF 2 NOT TO SCALE

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		26

SHEET ISSUED OR LAST REVISED
08-19

DATE: 10/28/2020 10:35:08 AM
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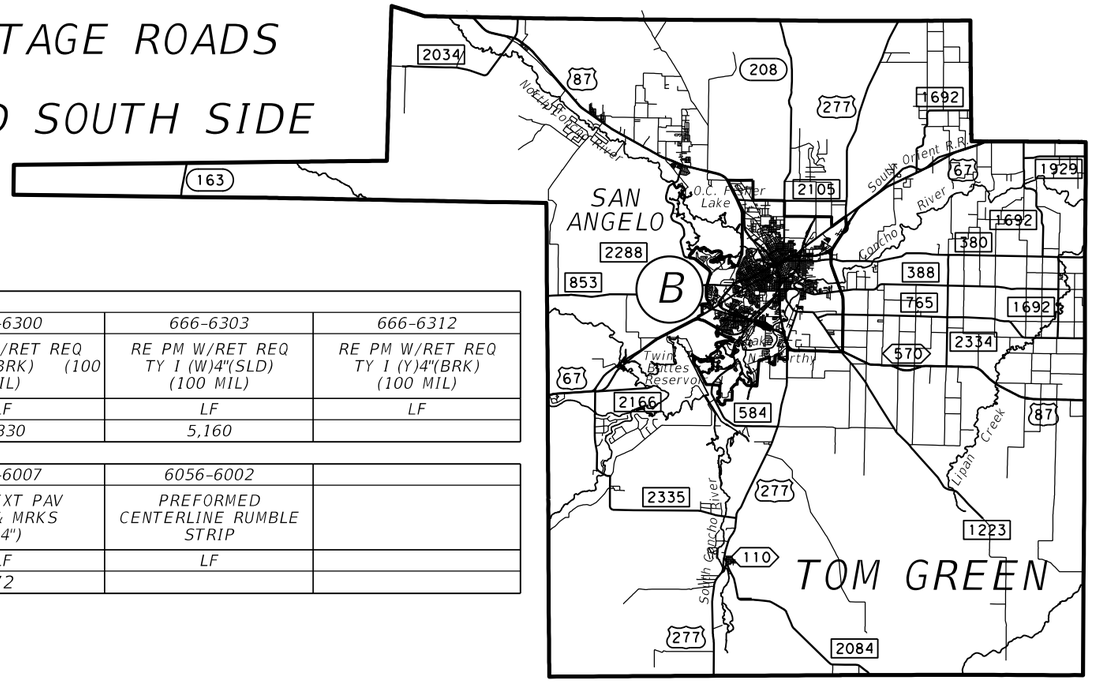
COUNTY: TOM GREEN HIGHWAY: SL 306 FRONTAGE ROADS
INDEX: B
LIMITS OF PROJECT: 300' EAST OF RAILROAD SOUTH SIDE TO 800' EAST OF RAILROAD NORTH SIDE
LENGTH: 2.493 MILES



PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
2,170	72	887	375		2,830	5,160	

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
4,500					72		

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. 8" WHITE SOLID IS FOR ENTRANCE & EXIT RAMP GORES.
3. 8" YELLOW SOLID IS FOR FRONTAGE RD RAMP GORES.
4. 24" YELLOW SOLID IS FOR FRONTAGE RD RAMP GORES.
5. NO PROFILE MARKINGS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
27'	FOSTER RD		
45'	FOSTER RD		

29.10.2020

Texas Department of Transportation | San Angelo District

INDEX B

SHEET 1 OF 3 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		27

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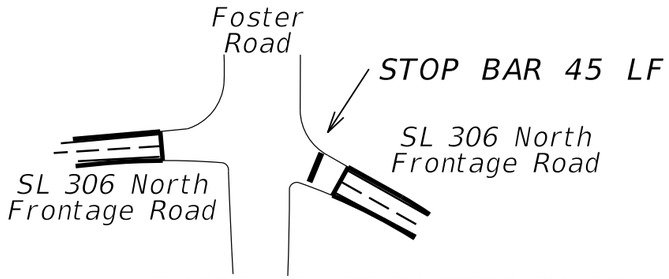
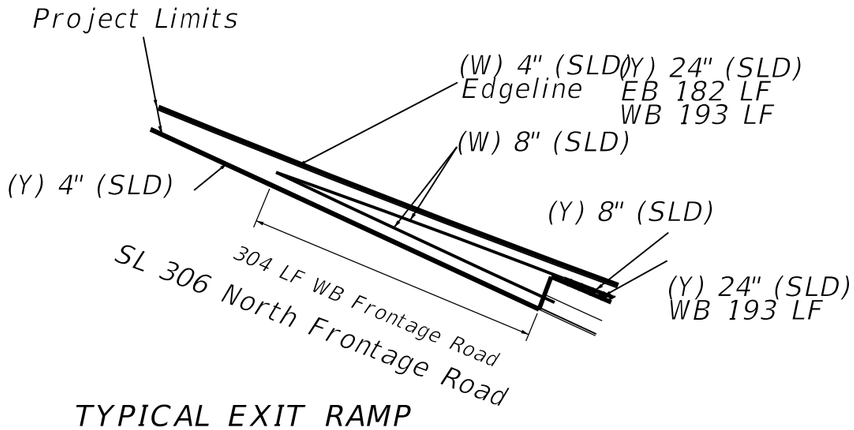
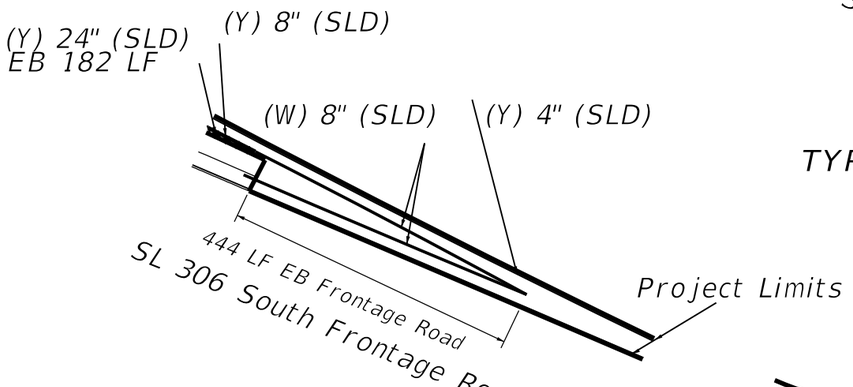


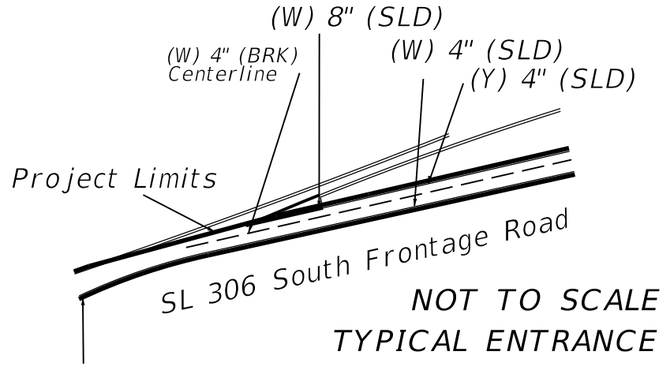
NORTH FR AT FOSTER ROAD
NOT TO SCALE



TYPICAL EXIT RAMP
NOT TO SCALE



NOT TO SCALE
TYPICAL EXIT RAMP



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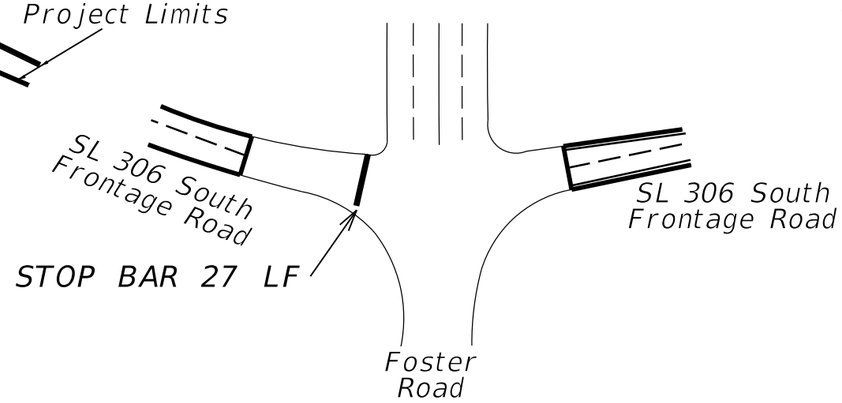

SOUTH FR AT FOSTER ROAD
NOT TO SCALE

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INDEX B

SHEET 2 OF 3 NOT TO SCALE

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		28

DATE: 10/28/2020 10:35:34 AM
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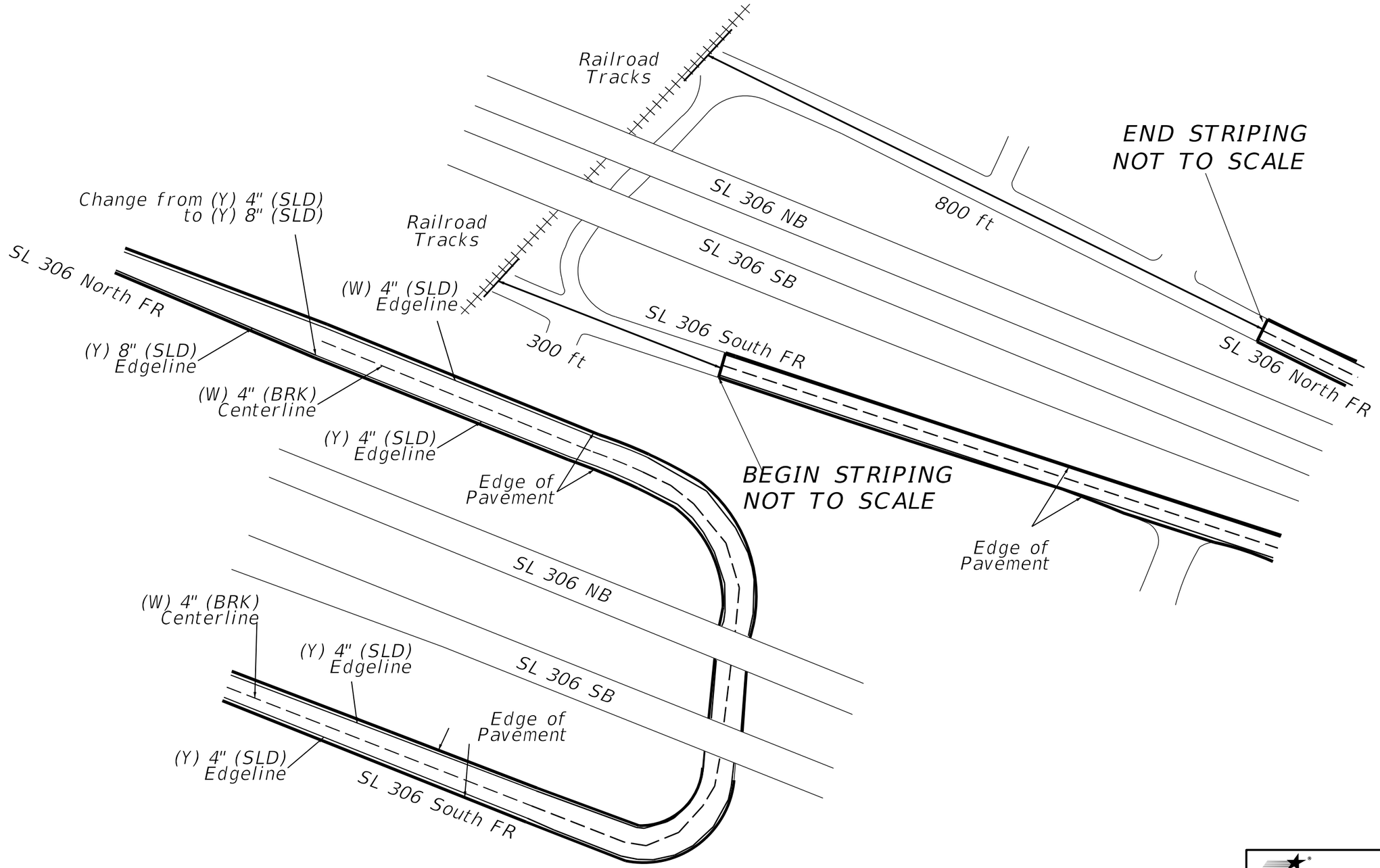

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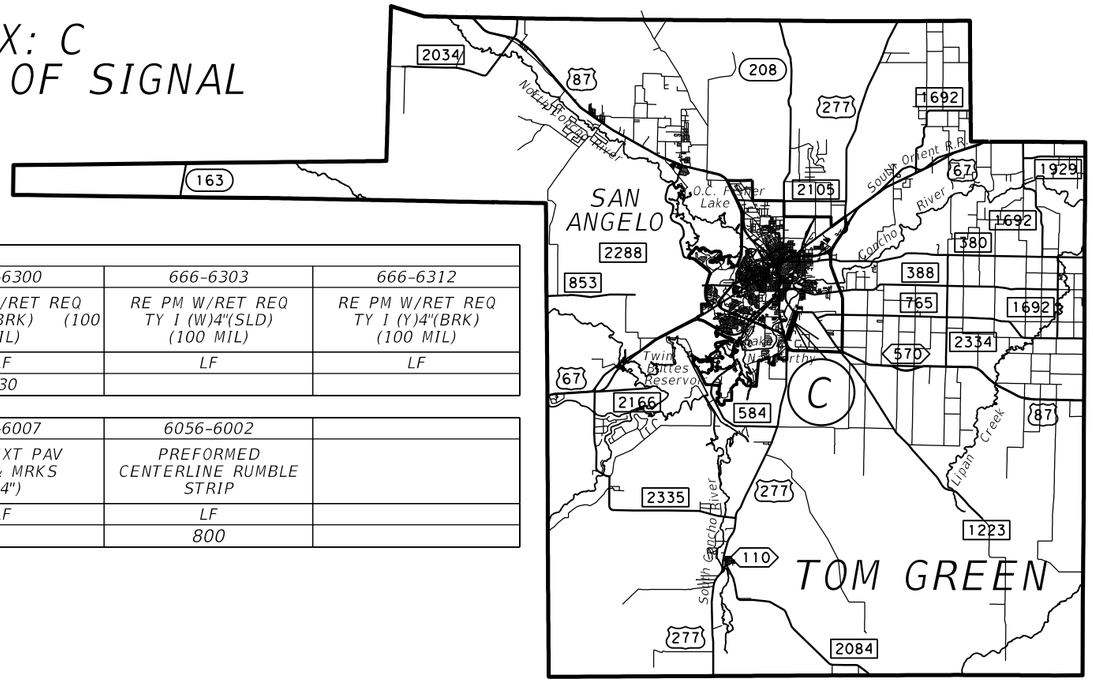
INDEX B

SHEET 3 OF 3 NOT TO SCALE

SHEET ISSUED OR LAST REVISED
08-19

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		29

COUNTY: TOM GREEN HIGHWAY: SL 378 INDEX: C
LIMITS OF PROJECT: FM 1233 TO 50' NORTH OF SIGNAL
LENGTH: 1.872 MILES



PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
576	25				130		

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	18,850	2,120	4,900			800	

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BAR.
2. 8" WHITE SOLID IF FOR ISLANDS AND ONE TURN LANE.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
25'	FM 2133		

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Texas Department of Transportation | San Angelo District

INDEX C

SHEET 1 OF 2 | NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT.	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		30

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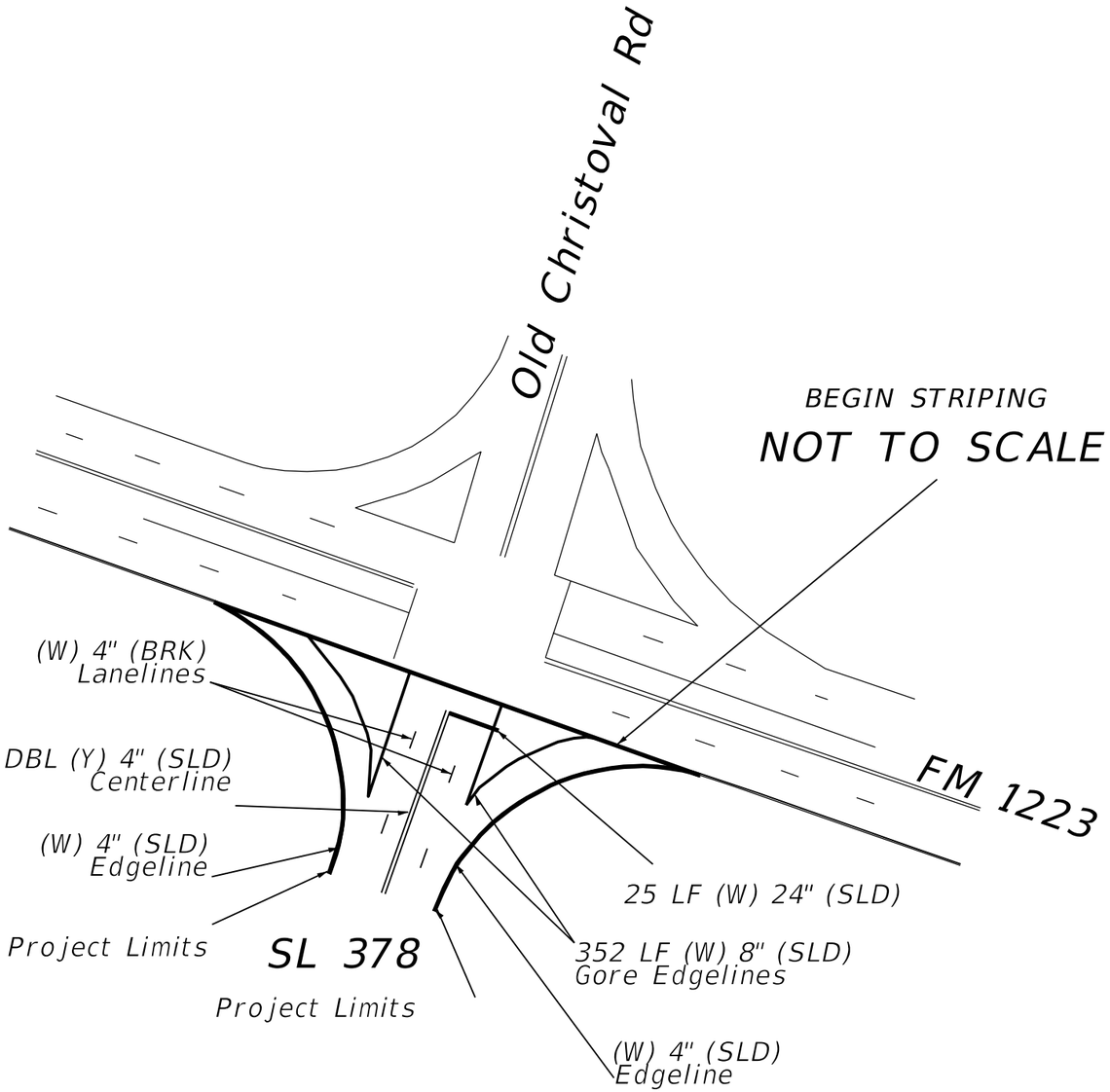

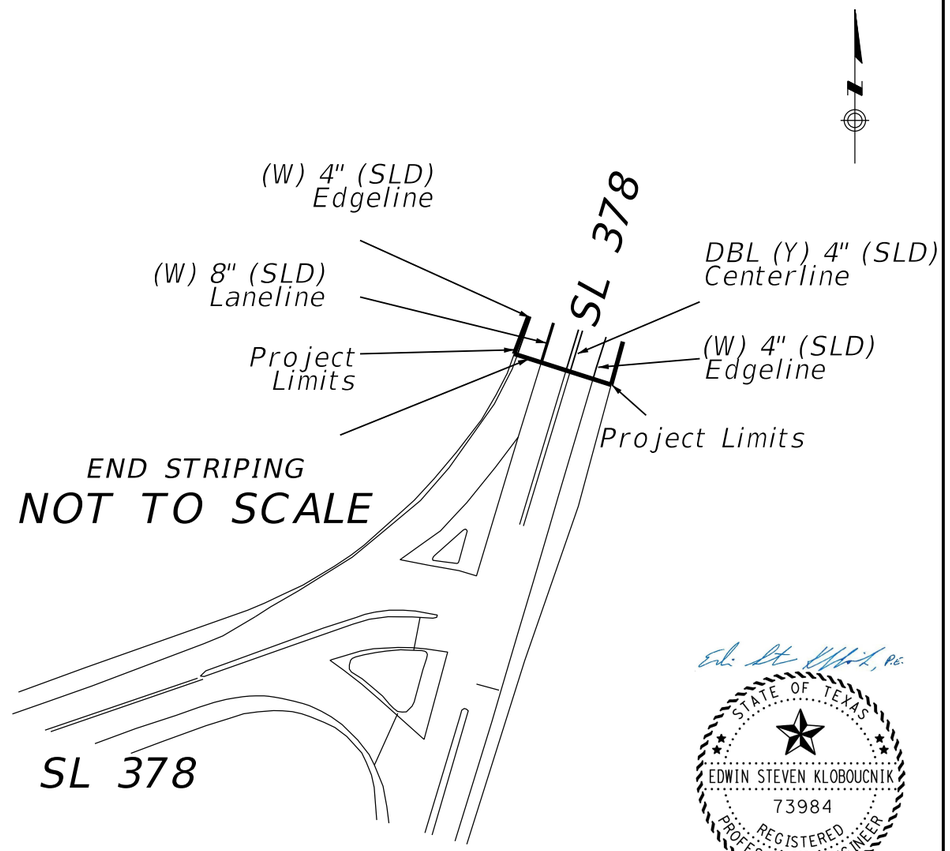

EDWIN STEVEN KLOBOUCNIK
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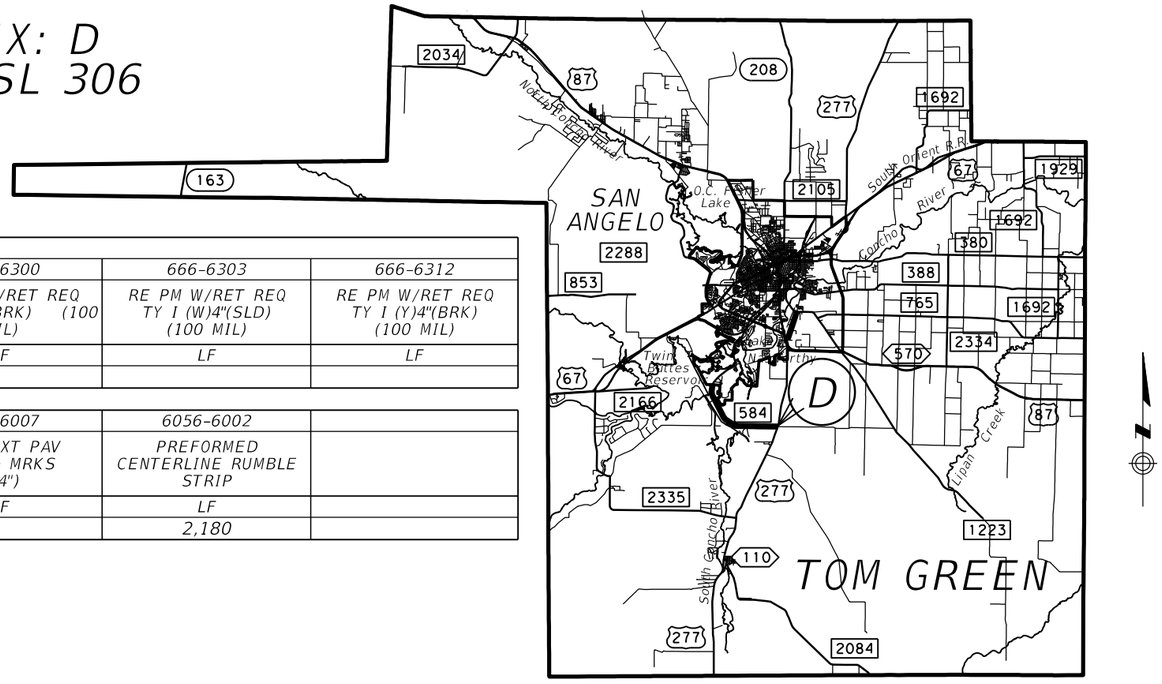
INDEX C

SHEET 2 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT.	SECT.	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		31

DATE: 10/28/2020 10:36:18 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\090700197\4 - Design\Plan Set\8. Traffic\INDEX C-1.dgn

COUNTY: TOM GREEN HIGHWAY: RM 584 INDEX: D
LIMITS OF PROJECT: 5.27 MILES SOUTH OF SL 306 TO US 277
LENGTH: 5.629 MILES



PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	64			39			

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	61,500	6,900	16,300			2,180	

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
25'	US 277	15'	LINE RD
15'	LINE RD	24'	KNICKERBOCKER RD
24'	KNICKERBOCKER RD		

Edwin Steven Kloboucnik, P.E.

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INDEX D

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		32

DATE: 10/28/2020 10:36:32 AM
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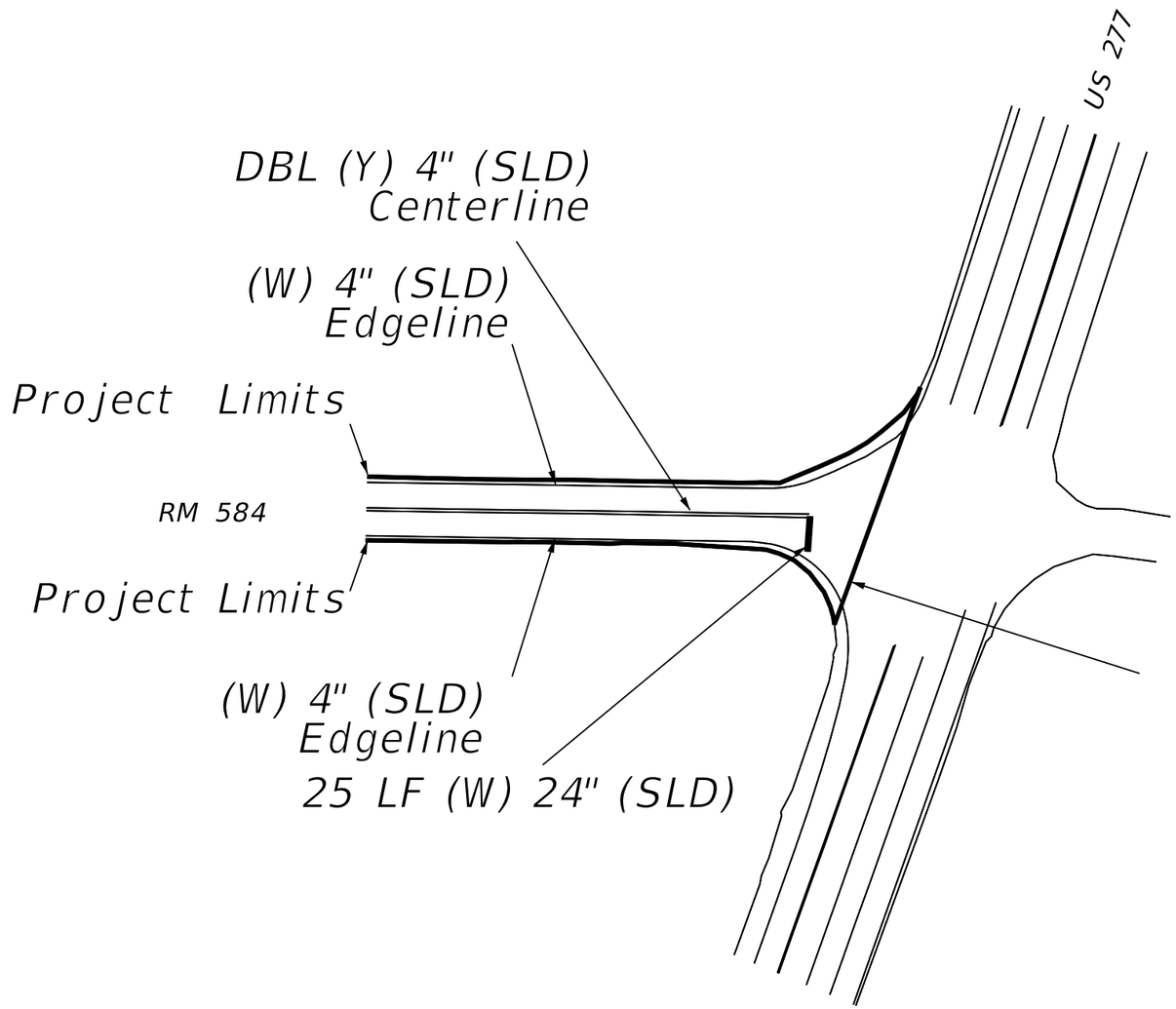

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San Angelo District

INDEX D

SHEET 2 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		33

DATE: 10/28/2020 12:19:43 PM
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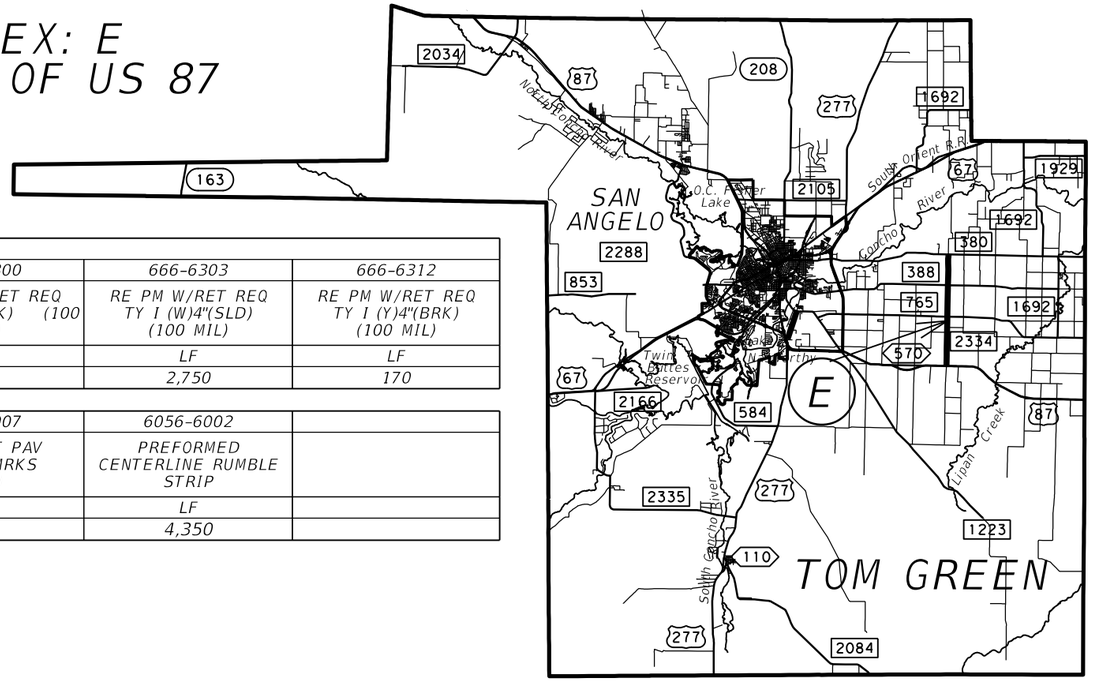
COUNTY: TOM GREEN HIGHWAY: FM 2334 INDEX: E
LIMITS OF PROJECT: FM 380 TO 160' NORTH OF US 87
LENGTH: 7.059 MILES



PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	102					2,750	170

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
1,340	72,000	8,710	3,300			4,350	

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. NO PROFILE MARKINGS FROM 45 MPH SIGN TO FM 380 IN VERIBEST.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
14'	FM 380		
18',19'	FM 388		
16',17'	FM 765		
8'	JARRAT RD		
10'	E PENNY LN		

Eric St Klobouchnik, P.E.

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INDEX E

SHEET 1 OF 2 | NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		34

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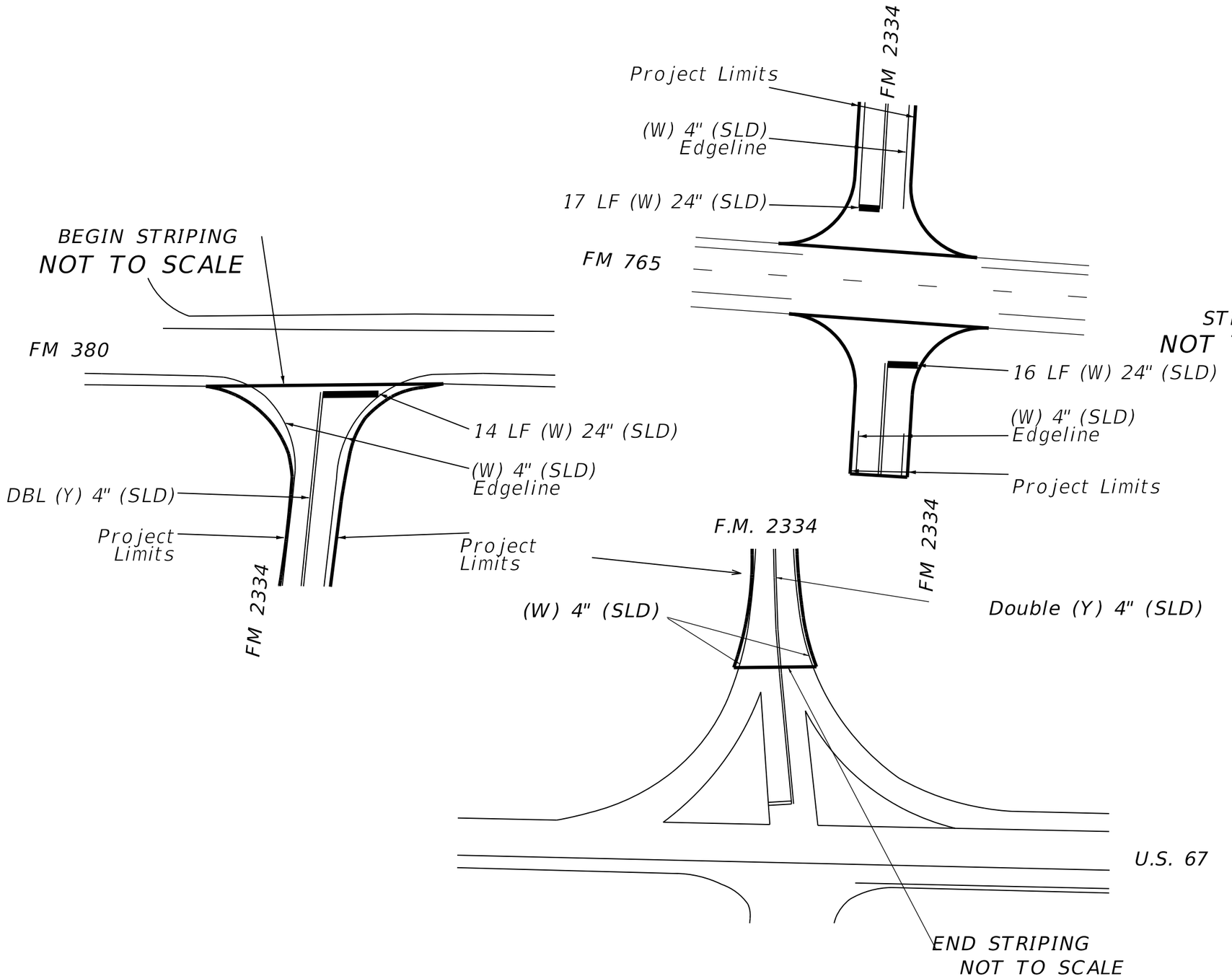

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San Angelo District

INDEX E

SHEET 2 OF 2 NOT TO SCALE

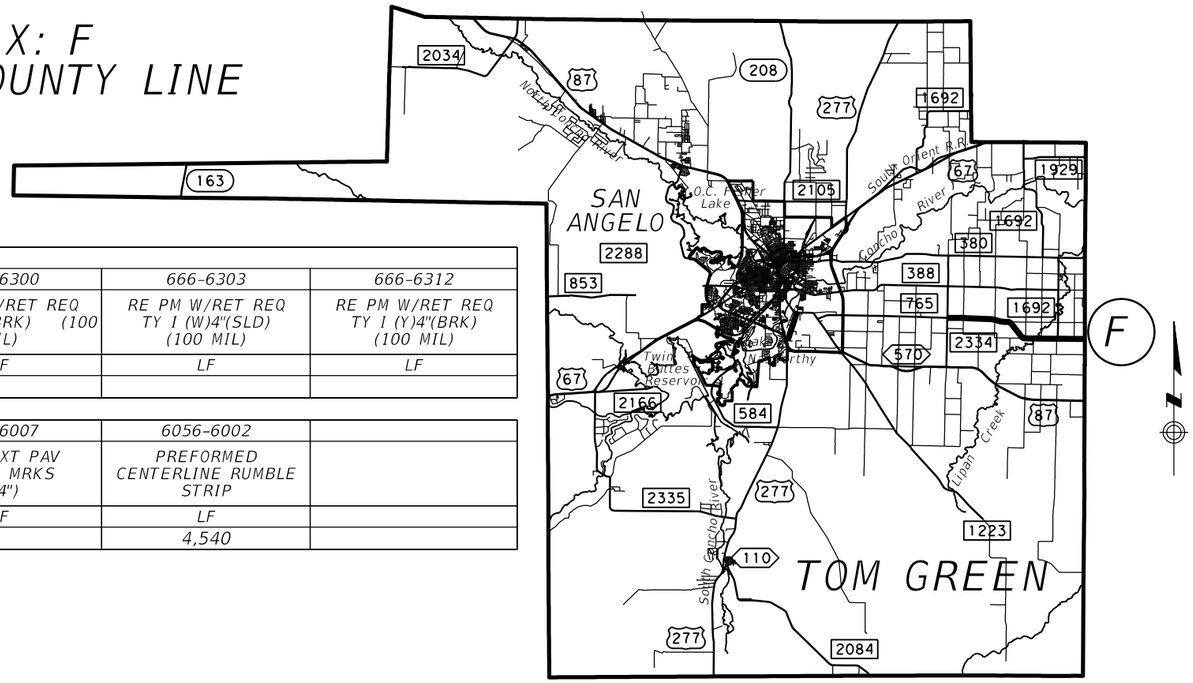
CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA

SHEET ISSUED OR LAST REVISED
08-19

DIST.	COUNTY	SHEET NO.
SJT	TOM GREEN, ETC	35

DATE: 10/28/2020 10:37:12 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\090700197\4 - Design\Plan Set\8. Traffic\INDEX E-1.dgn

COUNTY: TOM GREEN HIGHWAY: FM 765 INDEX: F
LIMITS OF PROJECT: FM 2334 TO CONCHO COUNTY LINE
LENGTH: 9.245 MILES



PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	123						

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	98,000	11,740	16,000			4,540	

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		STOP BARS	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
10'	HOLESCHER RD	10'	SCHRIEVER RD
10'	1ST RD	10'	5TH ST
10'	JARRAT RD	15'	POWELL LN
10'	3RD RD	17'	FM 1692
10'	WHITEFIELD RD	12'	PHINNEY RD
9'	GRAY RD		

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INDEX F

SHEET 1 OF 2 | NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		36

DATE: 10/28/2020 10:37:25 AM
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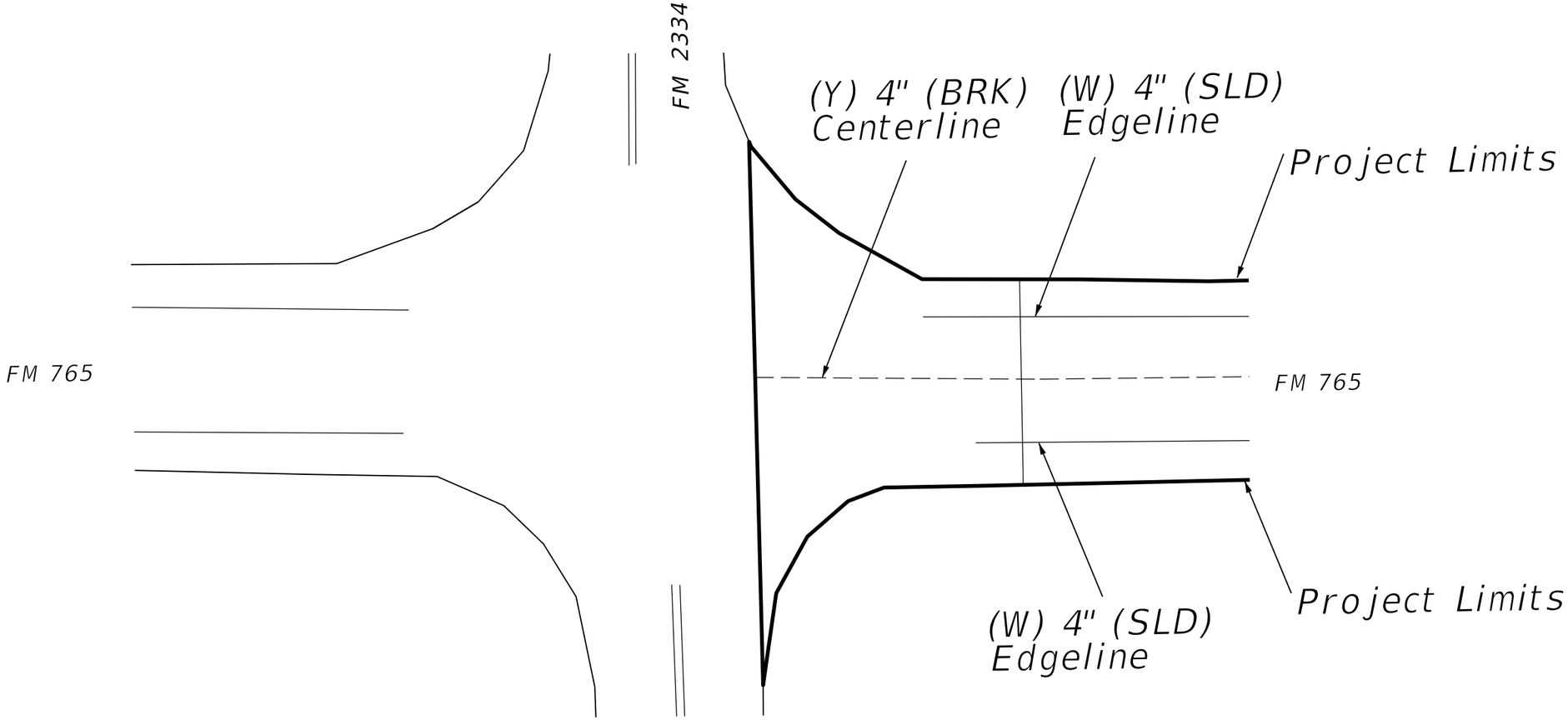

BEGIN STRIPING

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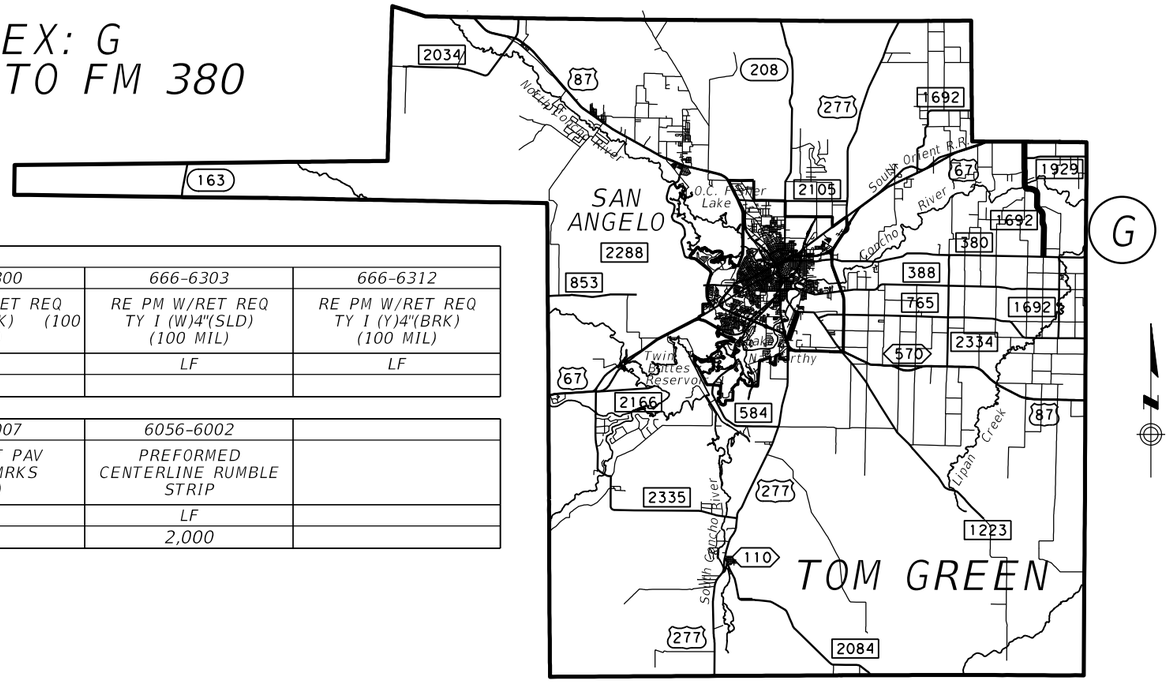
INDEX F

SHEET 2 OF 2 NOT TO SCALE

© TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		37

DATE: 10/28/2020 10:37:36 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\09070019?\4 - Design\Plan Set\8. Traffic\INDEX F-1.dgn

COUNTY: TOM GREEN HIGHWAY: FM 1692 INDEX: G
LIMITS OF PROJECT: RUNNELS COUNTY LINE TO FM 380
LENGTH: 7.990 MILES



PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	164						

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	83,610	7,720	37,750			2,000	

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		STOP BARS	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
12'	FM 1929	18'	JACKSON LN
17'	MC MILLIAN RD	11'	HELWIG RD
25'	MY RD	10'	KELLERMIER RD
19'	ARRINGTON RD	42'	FM 380
10'	BROOM LN		

Eric St. Clair, P.E.

STATE OF TEXAS
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INDEX G

SHEET 1 OF 2 | NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		38

DATE: 10/28/2020 10:37:52 AM
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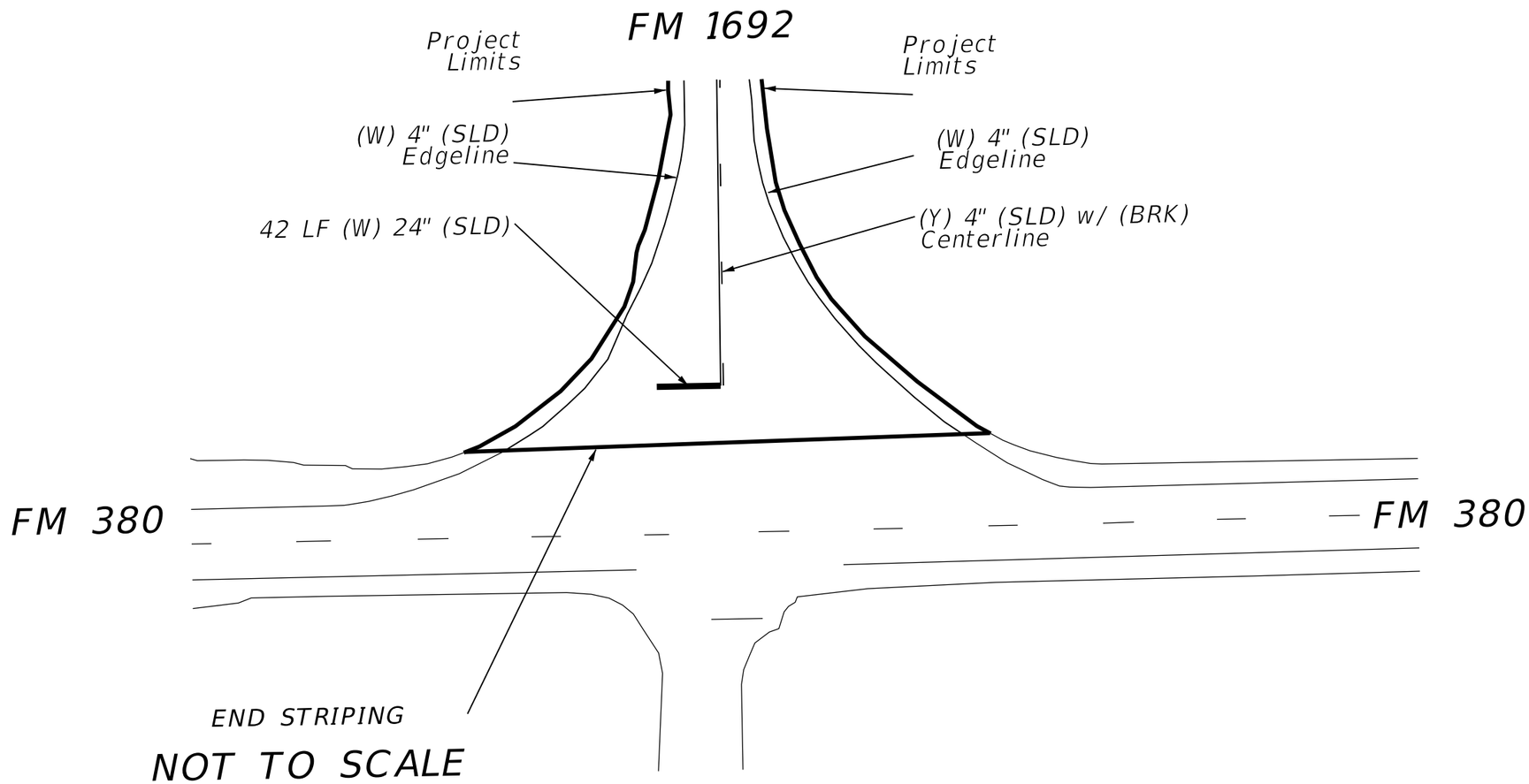

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San Angelo District

INDEX G

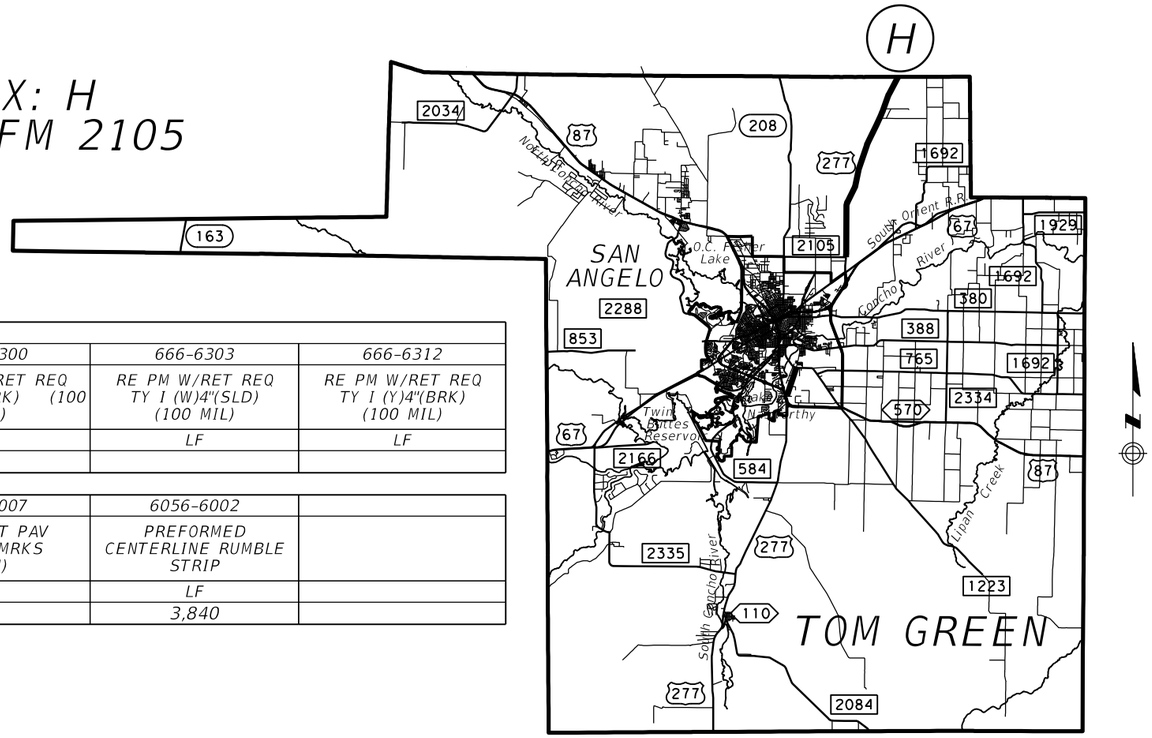
SHEET 2 OF 2 NOT TO SCALE

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		39

SHEET ISSUED OR LAST REVISED 08-19

DATE: 10/28/2020 10:38:06 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\090700197\4 - Design\Plan Set\8. Traffic\INDEX G-1.dgn

COUNTY: TOM GREEN HIGHWAY: US 277 INDEX: H
LIMITS OF PROJECT: COKE COUNTY LINE TO FM 2105
LENGTH: 12.164 MILES



PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
505	38						

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	127,530	14,840	38,300			3,840	

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. 8" IS FOR LANE LINE AND ISLAND.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
13'	ORIENT RD		
25'	SIERRA TR		

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29.10.2020

Texas Department of Transportation | San Angelo District

INDEX H

SHEET 1 OF 2 | NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		40

DATE: 10/28/2020 10:38:19 AM
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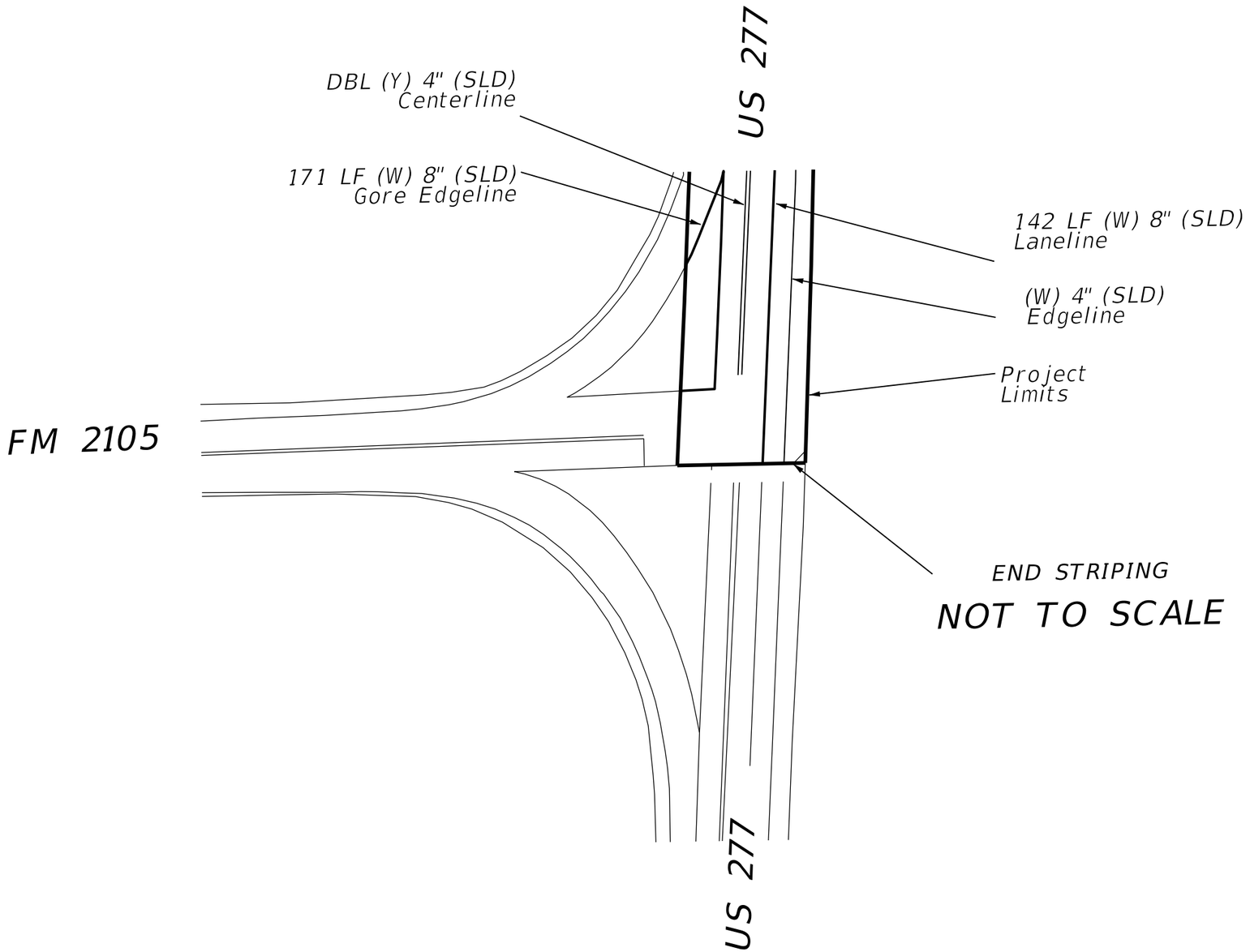

29.10.2020

Texas Department of Transportation

San Angelo District

INDEX H

SHEET 2 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED
08-19

CONT.	SECT.	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST.	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		41

DATE: 10/28/2020 10:38:31 AM
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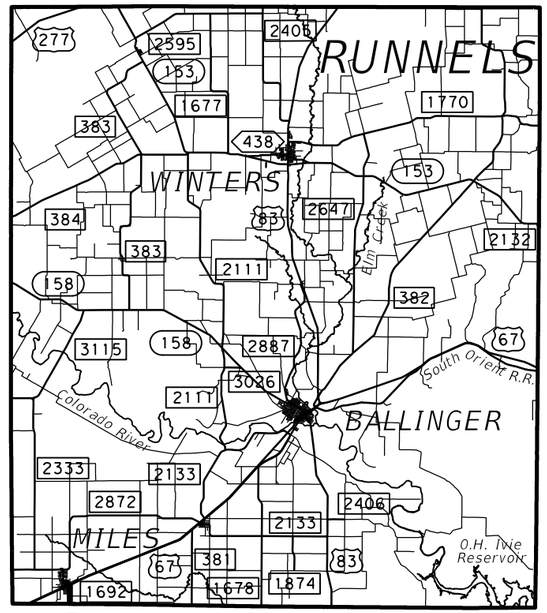
COUNTY: RUNNELS HIGHWAY: FM 1692 INDEX: I
LIMITS OF PROJECT: US 67 TO TOM GREEN COUNTY LINE
LENGTH: 1.076 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	47			14		6,080	1,450

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
3,660	5,120	700	840			220	



I

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. NO PROFILE MARKINGS FROM MILES CITY LIMIT SIGN TO US 67

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
33'	US 67	14'	CO RD 254
14'	CO RD 254		

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INDEX I

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		42

DATE: 10/28/2020 10:38:45 AM
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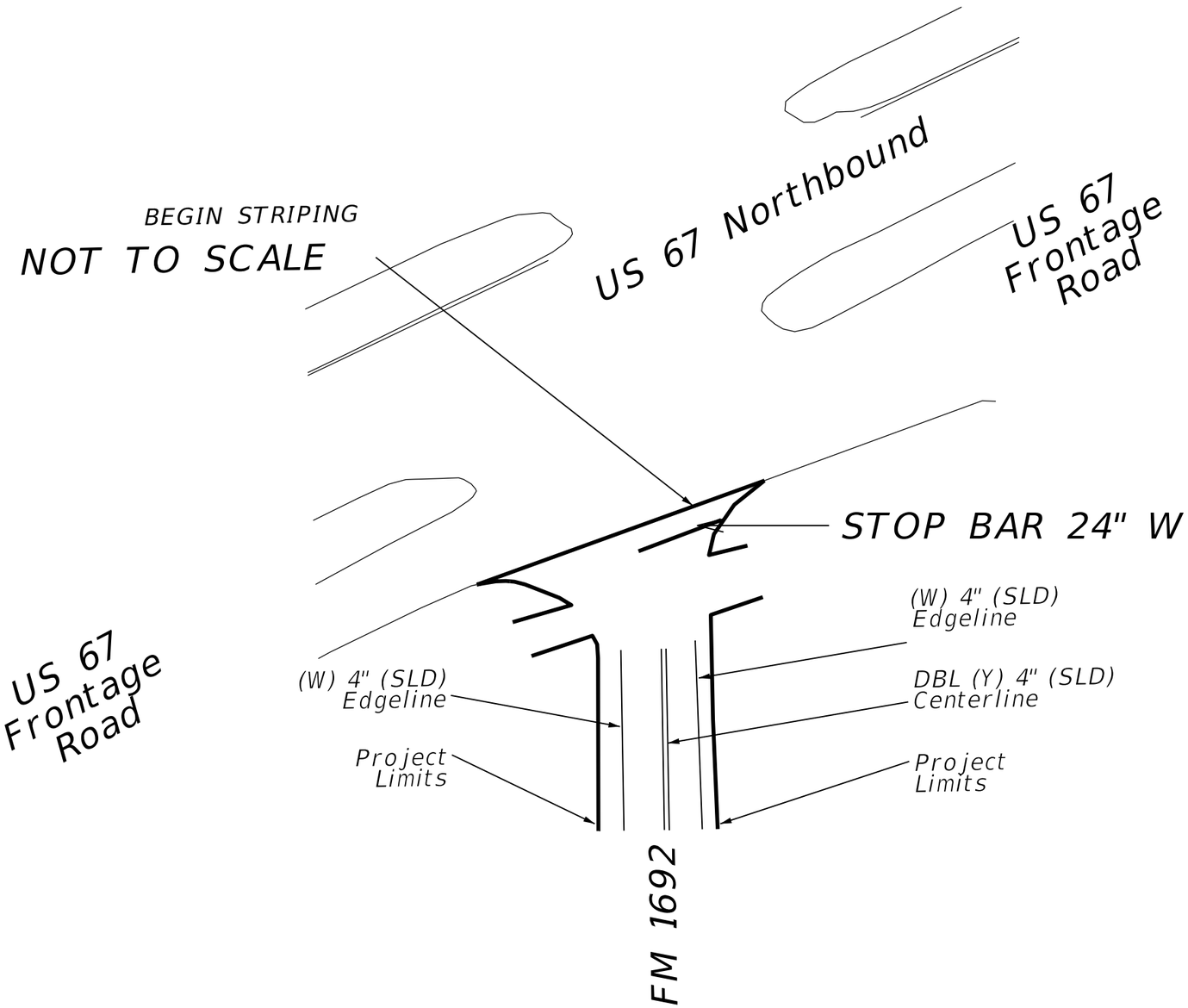

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29.10.2020

Texas Department of Transportation

San Angelo District

INDEX I

SHEET 2 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED
08-19

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		43

DATE: 10/28/2020 10:38:57 AM
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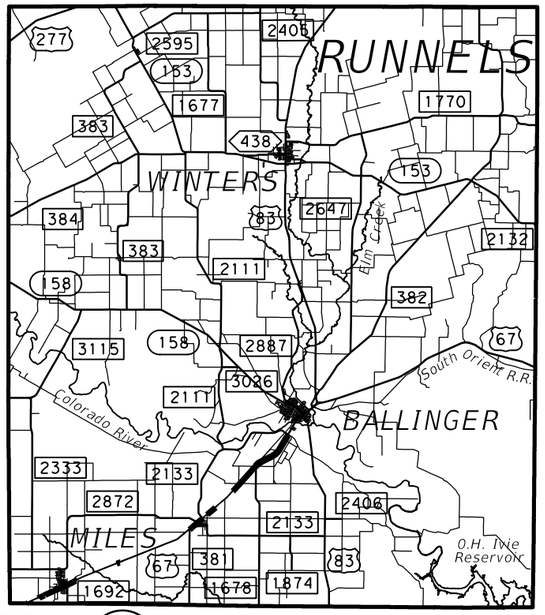
COUNTY: RUNNELS HIGHWAY: US 67 FRONTAGE ROADS INDEX: J
LIMITS OF PROJECT: TOM GREEN COUNTY LINE TO FM 2133
LENGTH: 11.467 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	1,448			10			2,230

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
5,950		11,780	16,740	1	9	4,500	



J

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. NO PROFILE MARKINGS FROM CO RD 230 TO FM 2133 SOUTHSIDE IN BALLINGER.
3. NO PROFILE MARKINGS FROM FM 2133 TO 320' EAST OF FM 2133 IN ROWENA.
4. NO PROFILE MARKINGS FROM CO RD 253 TO THIELE ST IN MILES NORTH SIDE.
5. NO PROFILE MARKINGS FROM THIELE ST TO SOUTH FM 1692 IN MILES SOUTH SIDE.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS N FRT RD		SEALER N FRT RD	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
26', 9'	US 67	10'	CO RD 402
11',12',28'	CEMETERY	REMOVE 24" N FRT RD	
10'	CO RD 402	LENGTH EA	LOCATION
9',12',21'	CO RD 259	9'	CO RD 402
9'	CO RD 402		
11',11',23'	CO RD 449		
11',11'	CO RD 449 RR		
13',30'	CO RD 253		
9',32',19'	FM 1692		
12',12'	THIELE ST		

FOR CONTRACTOR INFORMATION ONLY					
STOP BARS S FRT RD		STOP BARS S FRT RD		STOP BARS S FRT RD	
LENGTH EA	LOCATION	LENGTH EA	LOCATION	LENGTH EA	LOCATION
11'	FM 2133	25',11'	CO RD 244	12',26,13'	FM 2133
10',10',24'	WALMART	17'	US 67 X-OVER	28'	FM 381
11',11'	CO RD 230	22'	US 67 X-OVER	22'	US 67
10',27'	CO RD 230	10'	CONCHO	21'	US 67 X-OVER
10',10',21'	HARDWARE	10',12',21'	CO RD 238	28'	CO RD 363
17',25'	CO RD 259	10'	PONY ST	34',12',9'	FM 1692
10',10'	CO RD 259	11',11',22'	FM 2133	9',25',8'	FM 1692
25',25'	FM 1678	18',11',26'	MARY ST	11',27',8'	THIELE ST
10',13'	FM 1678	15'	MAIN ST	32'	CO RD 469
8',10'	CO RD 240	12',12'	DEPOT ST	23'	CO RD 366
9',12',24'	CO RD 240	13',26'	DEPOT ST	25'	US 67 @ CL
22'	US 67	13',13',26'	FM 2872	18'	US 67 @ CL

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Texas Department of Transportation | San Angelo District

INDEX J

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		44

DATE: 10/28/2020 10:39:11 AM
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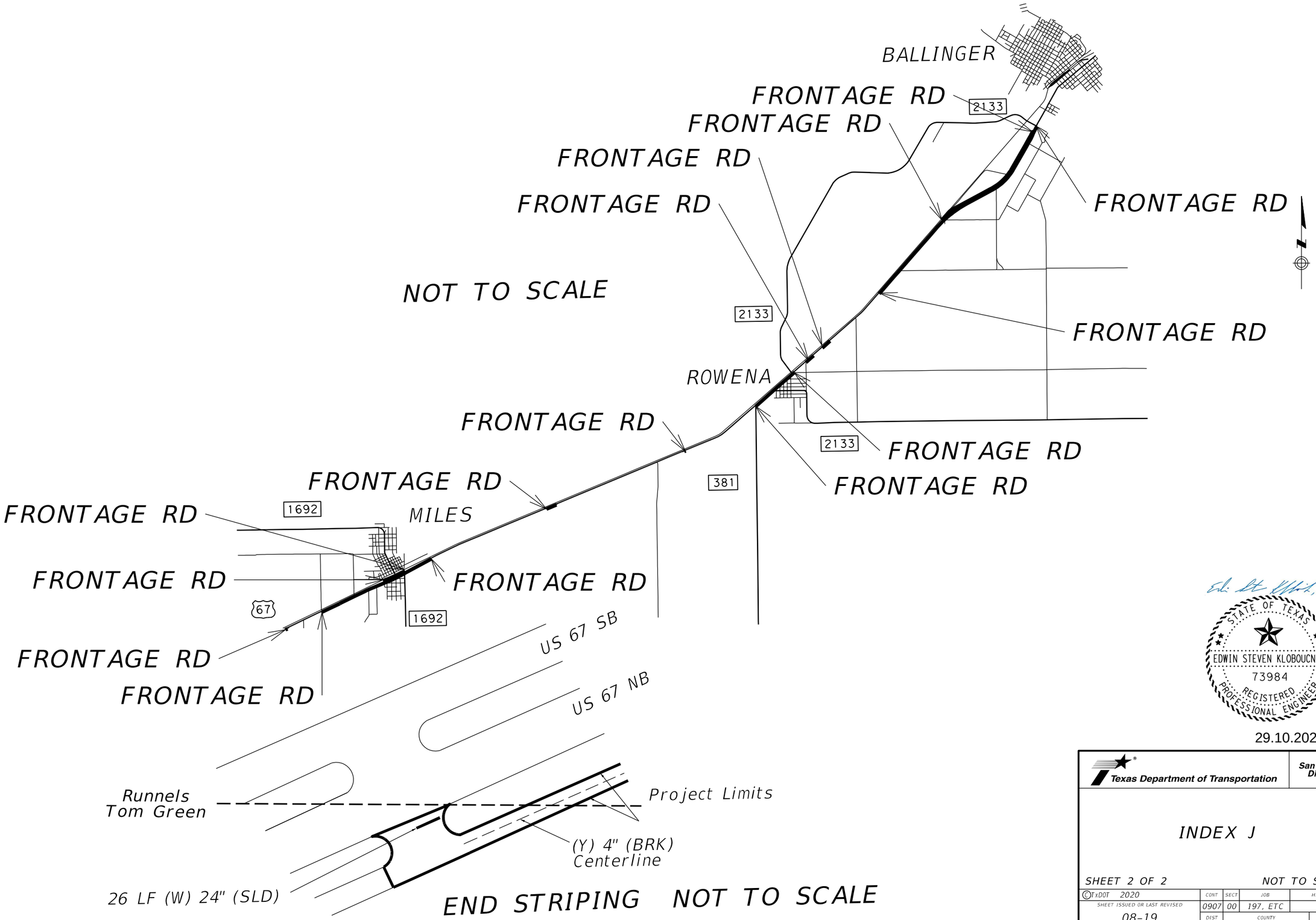

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INDEX J

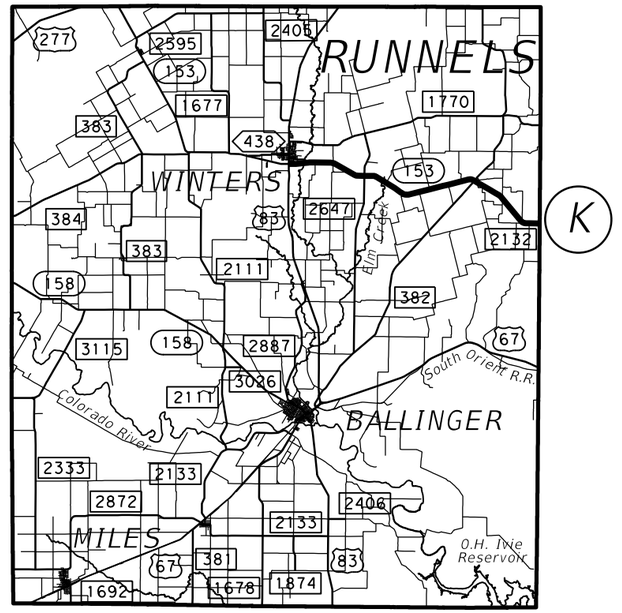
SHEET 2 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		45

COUNTY: RUNNELS HIGHWAY: SH 153 INDEX: K
LIMITS OF PROJECT: US 83 TO COLEMAN COUNTY LINE
LENGTH: 16.100 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	313			138	230	1,560	50

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
4,300	166,000	19,490	40,000			6,350	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. NO PROFILE MARKINGS FROM US 83 TO THE 50 MPH IN WINTERS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		STOP BARS	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
28'	US 83	10'	CO RD 139
8',8'	CO RD 396	10'	CO RD 142
11'	CO RD 355	SEALER	
12',16'	CO RD 170	LENGTH EA	LOCATION
14'	CO RD 208	8'	CO RD 396
22',22'	FM 2647	10'	CO RD 167
10'	CO RD 167	10'	CO RD 165
10'	CO RD 165	10'	CO RD 154
10'	CO RD 154	10'	CO RD 179
10'	CO RD 179	10'	CO RD 155
10'	CO RD 155	20'	CO RD 150
30',12'	FM 382	15',15'	CO RD 140
20'	CO RD 150	10'	CO RD 140
15',15'	CO RD 140	10'	CO RD 139
10'	CO RD 140	10'	CO RD 142

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Texas Department of Transportation

San Angelo District

INDEX K

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		46

DATE: 10/28/2020 10:39:40 AM
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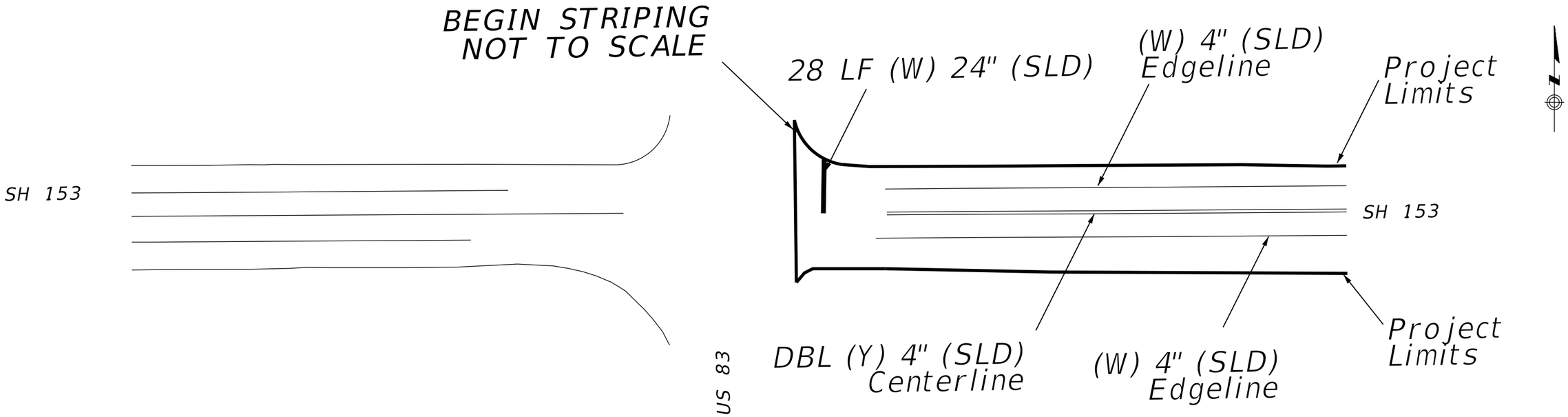

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29.10.2020

Texas Department of Transportation

San Angelo District

INDEX K

SHEET 2 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED
08-19

CONT.	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST.	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		47

DATE: 10/28/2020 10:39:54 AM
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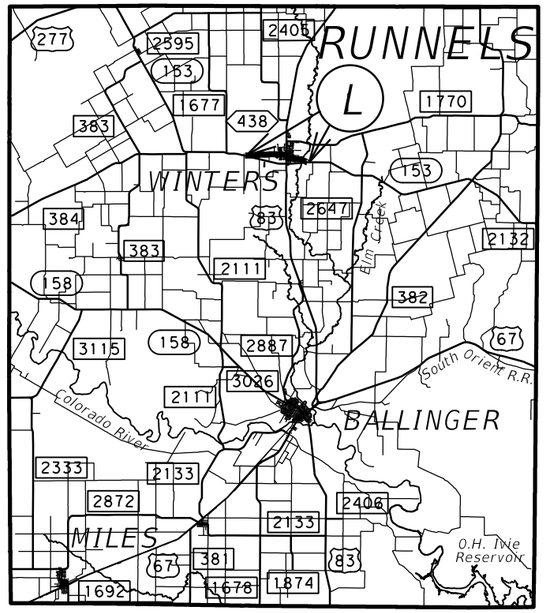
COUNTY: RUNNELS HIGHWAY: SL 438 INDEX: L
LIMITS OF PROJECT: SH 153 TO SH 153
LENGTH: 3.680 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	245			40		11,190	

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
16,450	13,180	1,660	11,550		80	380	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS AND CROSSWALK CROSS BARS ONLY.
2. NO PROFILE MARKINGS FROM US 83 TO 55 MPH SIGN ON THE WEST SIDE OF WINTERS.
3. NO PROFILE MARKINGS FROM US 83 TO 45 MPH SIGN ON THE EAST SIDE OF WINTERS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
37'	SH 153	10'	CO RD 334
22',18'	SH 153	11',11'	S CRYER ST
10'	CO RD 334	8'	CO RD 398
14'	US 83	CROSSWALK	
15'	US 83	LENGTH EA	LOCATION
11',11',11',11'	S CRYER ST	60'	US 83
8'	CO RD 398	REMOVE 24"	
17'	SH 153	LENGTH EA	LOCATION
		80'	US 83 CROSSWALK

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INDEX L

SHEET 1 OF 2 NOT TO SCALE

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		48

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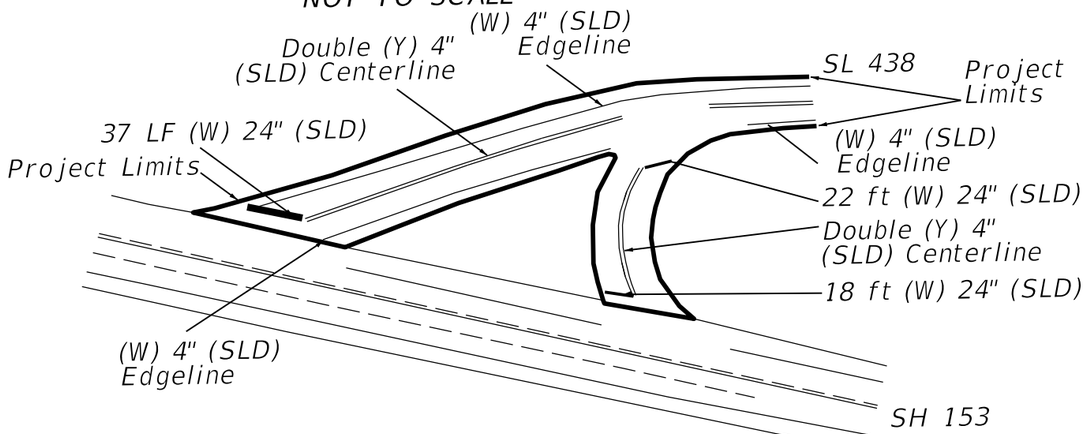
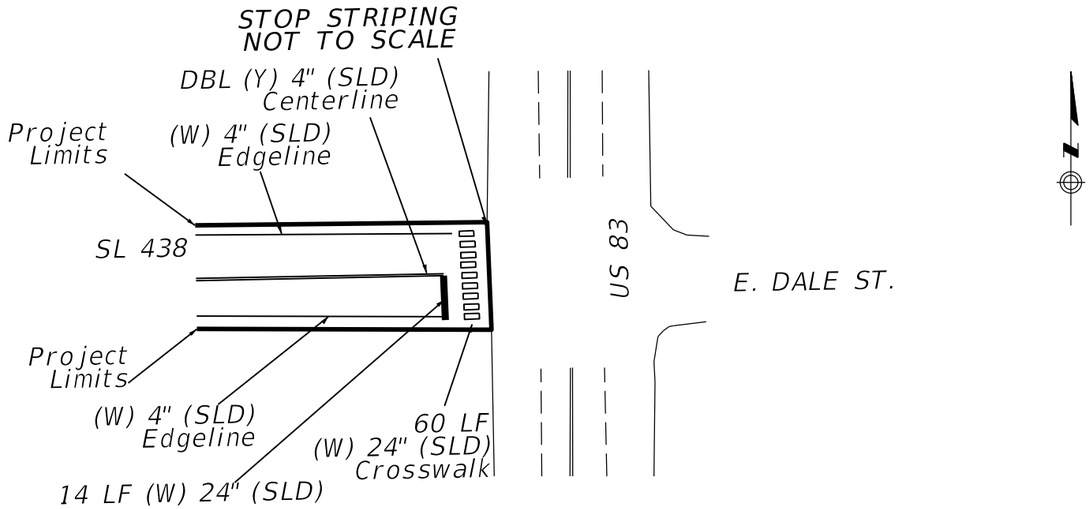
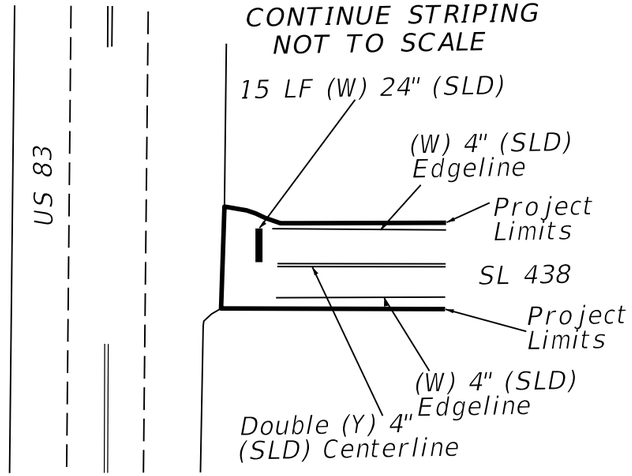


STOP STRIPING
NOT TO SCALE



CONTINUE STRIPING
NOT TO SCALE



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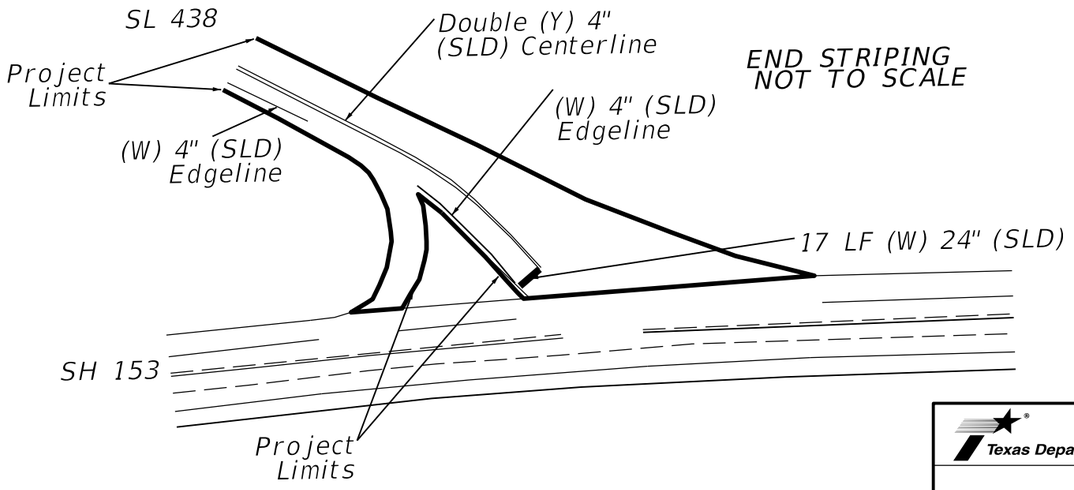
NOT TO SCALE



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29.10.2020

Texas Department of Transportation | San Angelo District

INDEX L

SHEET 2 OF 2 NOT TO SCALE

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		49

SHEET ISSUED OR LAST REVISED
08-19

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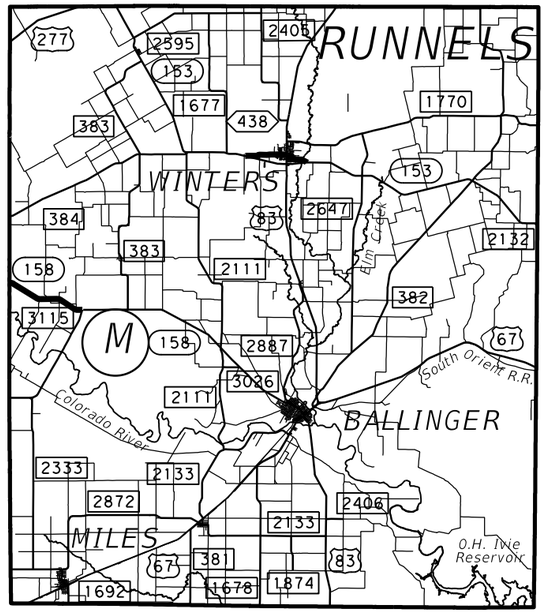
COUNTY: RUNNELS HIGHWAY: SH 158 INDEX: M
LIMITS OF PROJECT: COKE COUNTY LINE TO FM 3115
LENGTH: 4.538 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	109			8			

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	47,400	5,280	12,800			1,790	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
8'	CO RD 297	8'	CO RD 297
16'	CO RD 214		
10'	CO RD 213		
9'	CO RD 210		
9'	CO RD 211		
9',10'	CO RD 213		
8'	CO RD 359		
20'	FM 3115		

Edwin Steven Kloboucnik, P.E.

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29.10.2020

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INDEX M

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		50

DATE: 10/28/2020 10:40:37 AM
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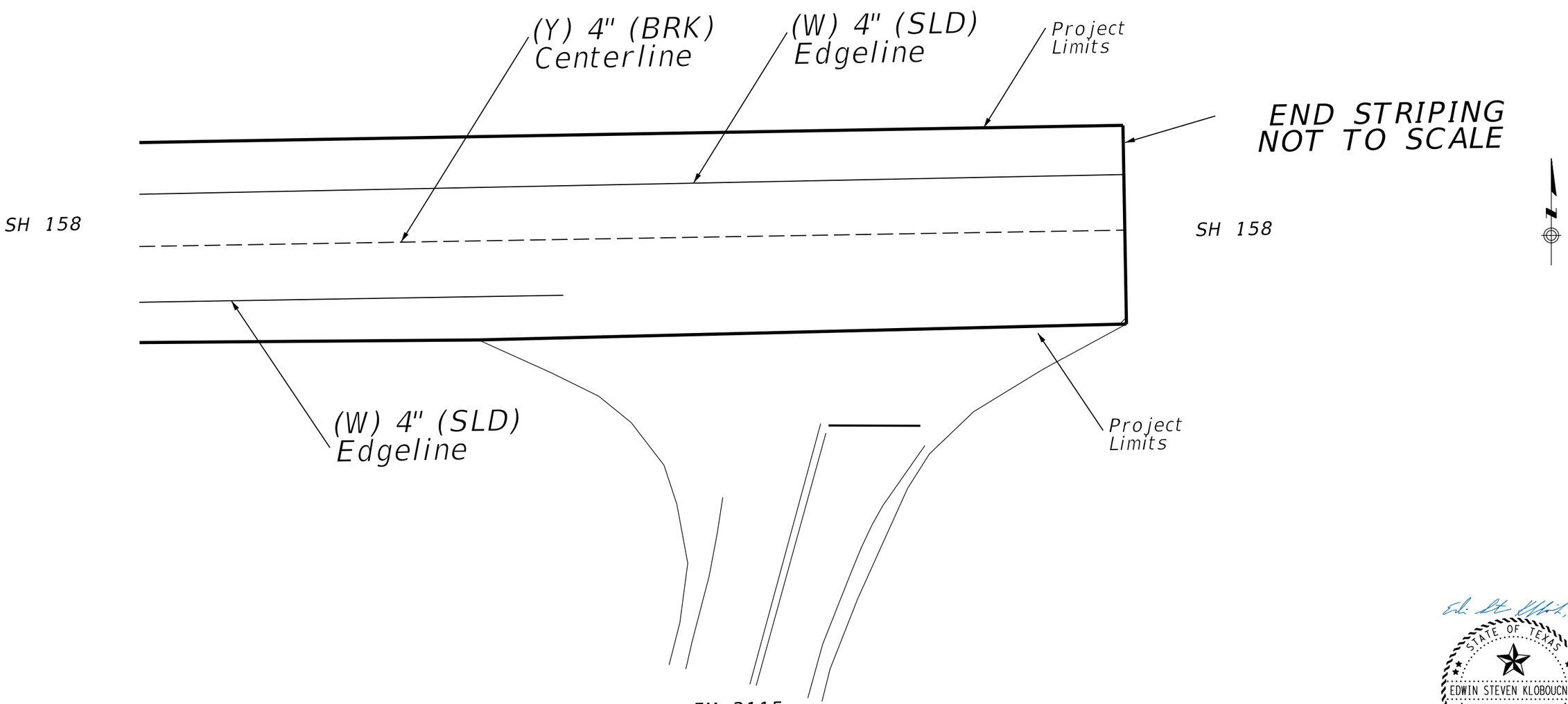

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Texas Department of Transportation

San Angelo District

INDEX M

SHEET 2 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED
08-19

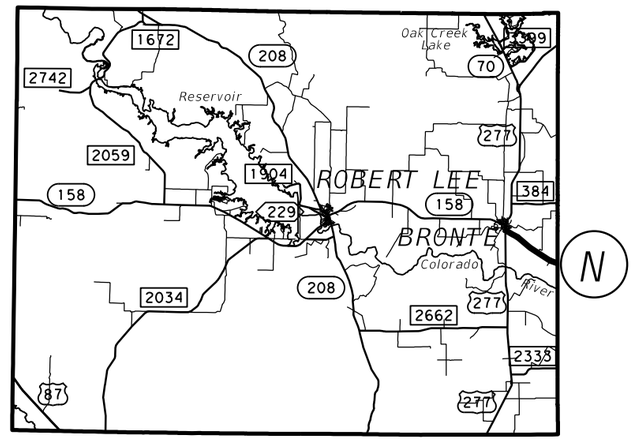
CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		51

DATE: 10/28/2020 10:40:50 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\0907001971\4 - Design\Plan Set\8. Traffic\INDEX M-1.dgn

COUNTY: COKE HIGHWAY: SH 158 INDEX: N
LIMITS OF PROJECT: US 277 TO RUNNELS COUNTY LINE
LENGTH: 4.101 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
130	51			26		2,970	100

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
2,700	40,700	4,820	11,860			1,240	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. 8" WHITE SOLID FOR GORE.
3. NO PROFILE MARKINGS FROM US 277 TO BRONTE CITY LIMIT SIGN.

FOR CONTRACTOR INFORMATION ONLY

STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
13',12'	US 277	16'	BELL RD
16'	BELL RD	10'	CERVENKA RD
10'	CERVENKA RD		

29.10.2020

Texas Department of Transportation | San Angelo District

INDEX N

SHEET 1 OF 2 NOT TO SCALE

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		52

DATE: 10/28/2020 10:41:07 AM
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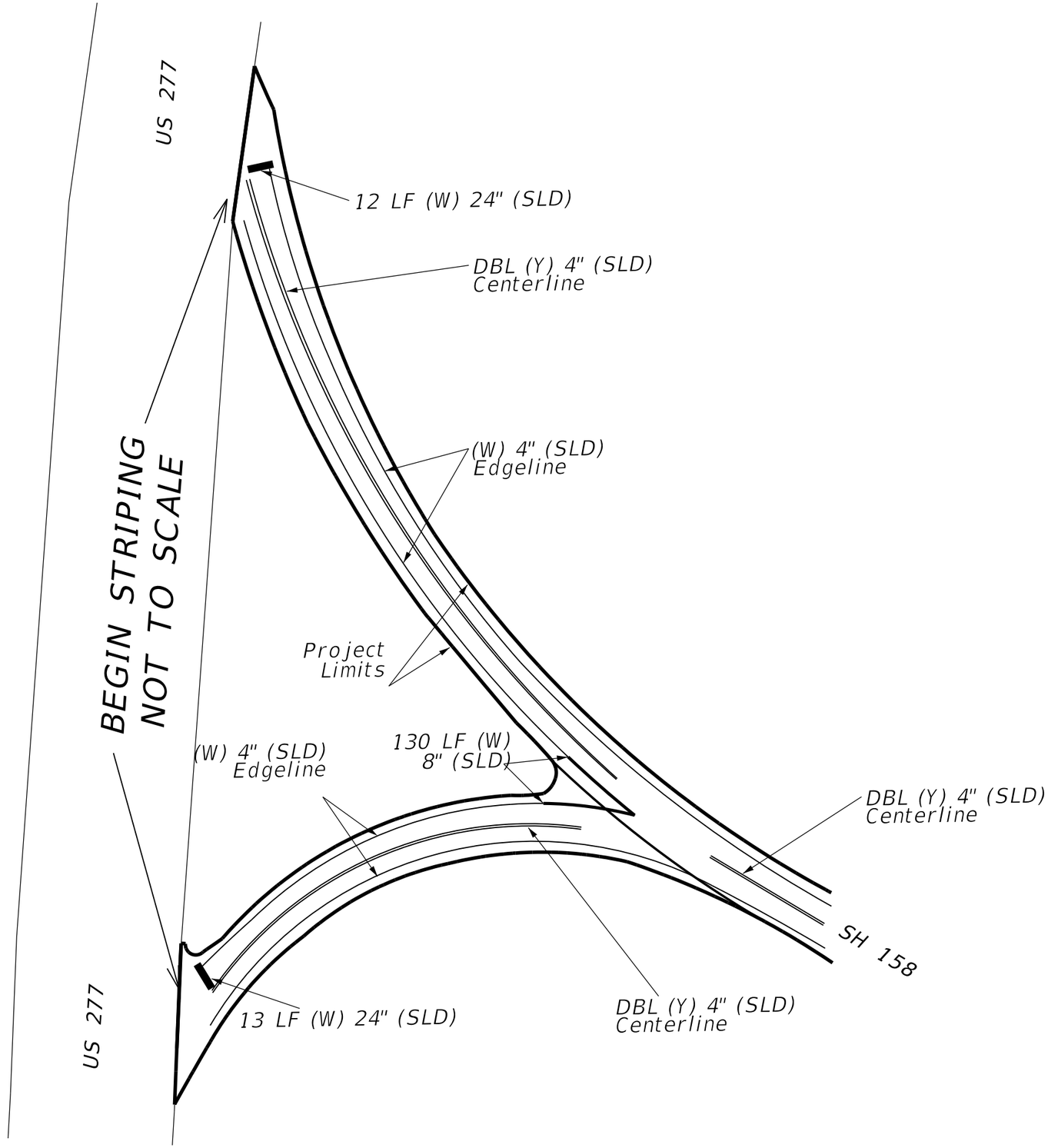

EDWIN STEVEN KLOBOUCNIK
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Texas Department of Transportation

San Angelo District

INDEX N

SHEET 2 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		53

DATE: 10/28/2020 10:41:19 AM
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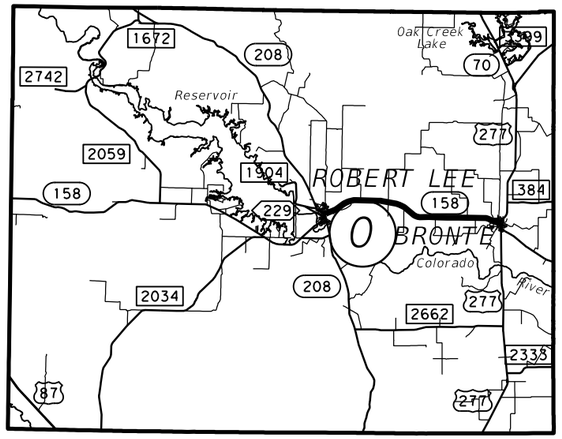
COUNTY: COKE HIGHWAY: SH 158 INDEX: 0
LIMITS OF PROJECT: SH 208 TO US 277
LENGTH: 11.768 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
318	236			24	1,660	7,430	240

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
7,350	113,650	11,890	36,960			3,700	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS & SCHOOL ZONE.
2. 8" WHITE SOLID IS FOR ISLANDS.
3. NO PROFILE MARKINGS FROM US 277 TO 55 MPH SIGN WEST SIDE OF BRONTE.
4. NO PROFILE MARKINGS FROM THE 55 MPH SIDE TO SH 208 EAST SIDE OF ROBERT LEE.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
44'	SCHOOL	14'	HUMBLE RD
44'	SCHOOL	10'	COX RD
14'	HUMBLE RD		
16'	HAYRICK RD		
14'	DOUBLE BARREL RD		
15'	7 MILE HILL RD		
16'	W HAYRICK RD		
14'	INDIAN CREEK RD		
10'	COX RD		
12',19'	SCOTT LN		
18'	SH 208		

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29.10.2020

Texas Department of Transportation | San Angelo District

INDEX O

SHEET 1 OF 2 | NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		54

DATE: 10/28/2020 10:41:36 AM
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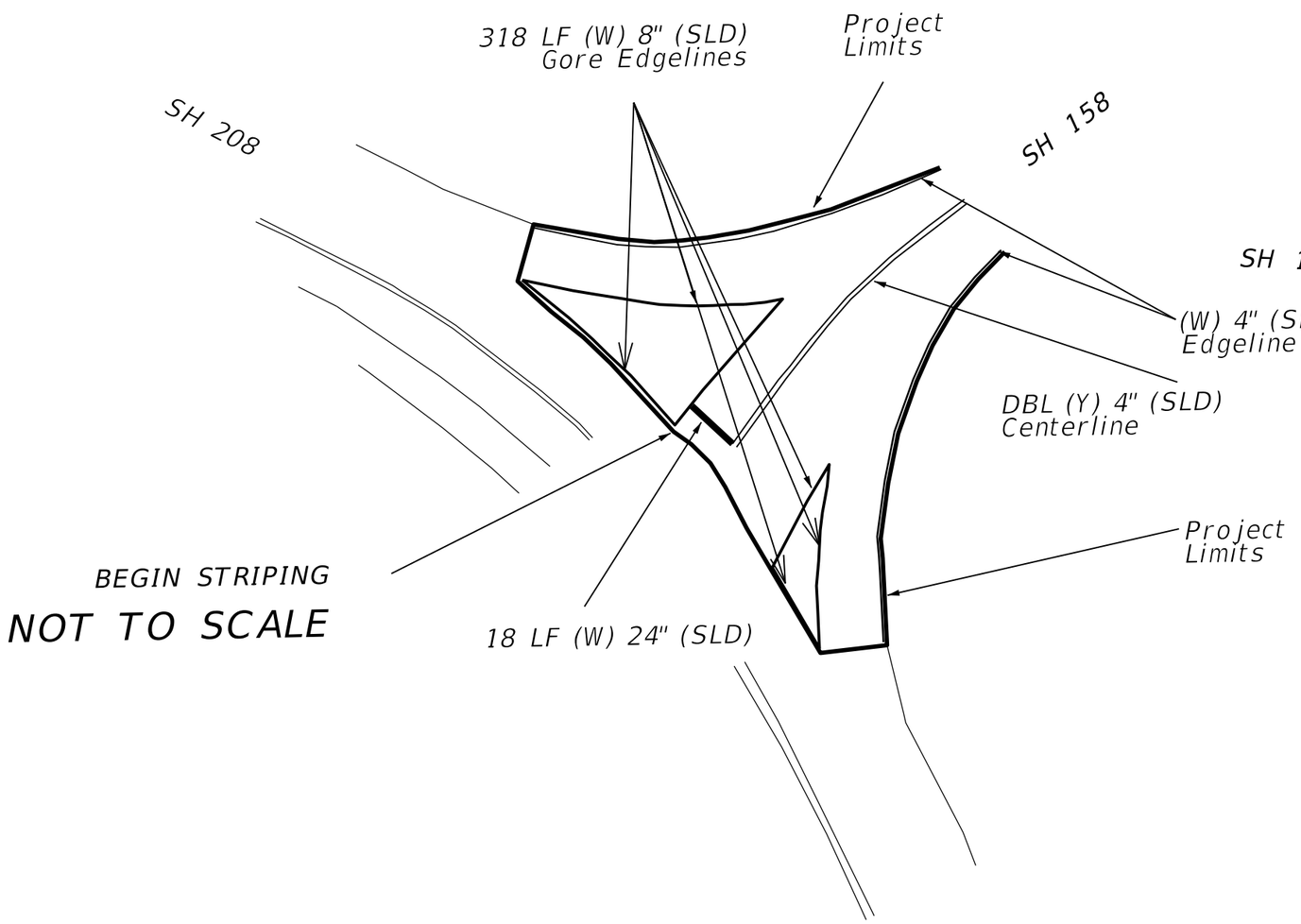

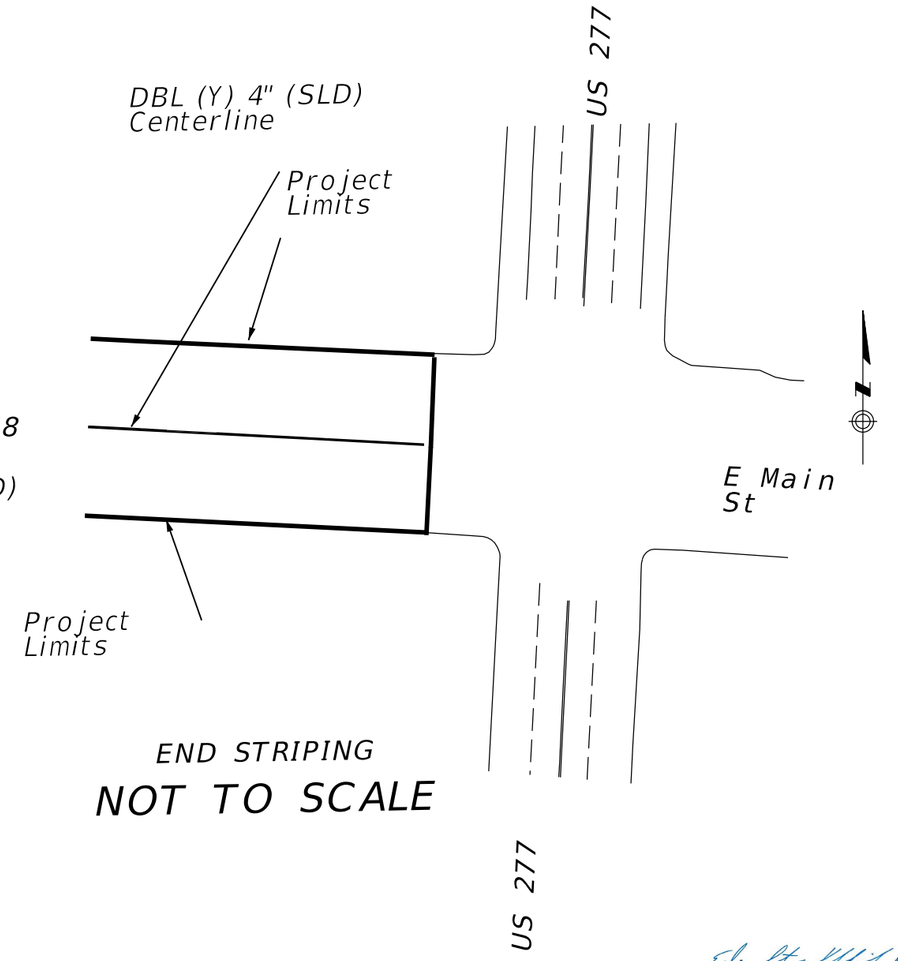

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Texas Department of Transportation

San Angelo District

INDEX O

SHEET 2 OF 2 NOT TO SCALE

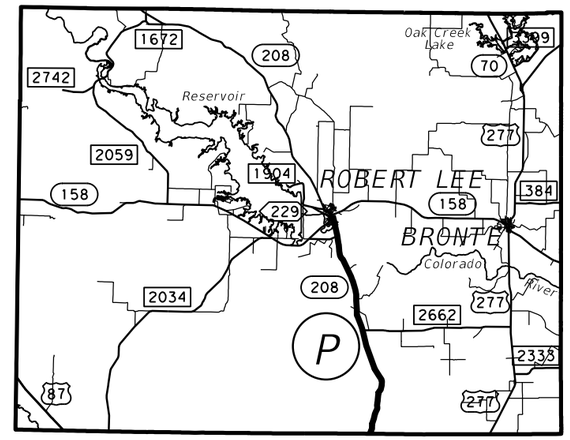
©TxDOT 2020	CONT.	SECT.	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		55

DATE: 10/28/2020 10:41:51 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\09070019?\4 - Design\Plan Set\8. Traffic\INDEX 0-1.dgn

COUNTY: COKE HIGHWAY: SH 208 INDEX: P
LIMITS OF PROJECT: SH 158 TO TOM GREEN COUNTY LINE
LENGTH: 14.683 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
127	178				520	5,730	

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
5,600	148,500	13,300	67,400			3,530	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. 8" WHITE SOLID IS FOR ISLANDS.
3. NO PROFILE MARKINGS FROM SH 158 TO ROBERT LEE CITY LIMIT SIGN.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
27'	SL 229		
53'	RM 2034		
33'	VALLEYVIEW RD		
15'	VALLEYVIEW RD		
15'	BUFFALO CREEK RD		
15'	MATAPEAKE RD		
20'	FM 2662		

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29.10.2020

Texas Department of Transportation

San Angelo District

INDEX P

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		56

DATE: 10/28/2020 10:42:06 AM
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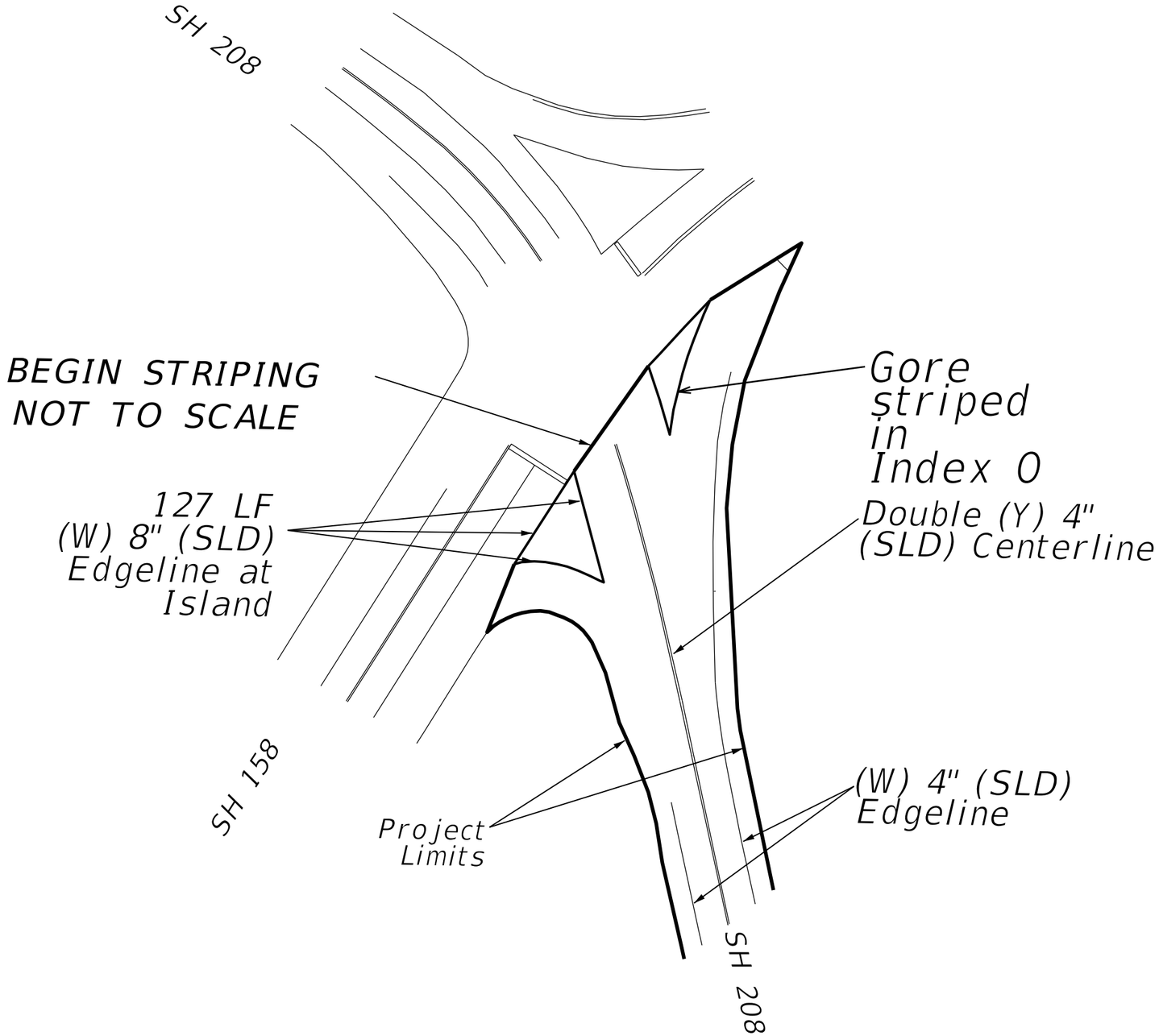

Eric Steven Klobouchnik, P.E.

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Texas Department of Transportation

San Angelo District

INDEX P

SHEET 2 OF 2 NOT TO SCALE

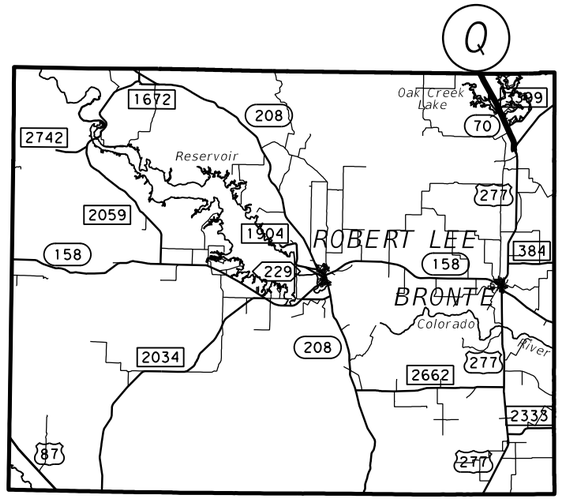
CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		57

SHEET ISSUED OR LAST REVISED
08-19

COUNTY: COKE HIGHWAY: SH 70 INDEX: Q
LIMITS OF PROJECT: NOLAN COUNTY LINE TO 0.6 MILES NORTH OF US 277
LENGTH: 4.899 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	76				60		

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	51,500	5,790	12,000		26	2,260	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		REMOVE 24"	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
14'	SWEET RD	26'	RM 3369
8'	COPELAND RD		
17'	ROCKY POINT RD		
26'	RM 3369		
11'	ROSS RD		

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29.10.2020

Texas Department of Transportation | San Angelo District

INDEX Q

SHEET 1 OF 2 | NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		58

DATE: 10/28/2020 10:42:33 AM
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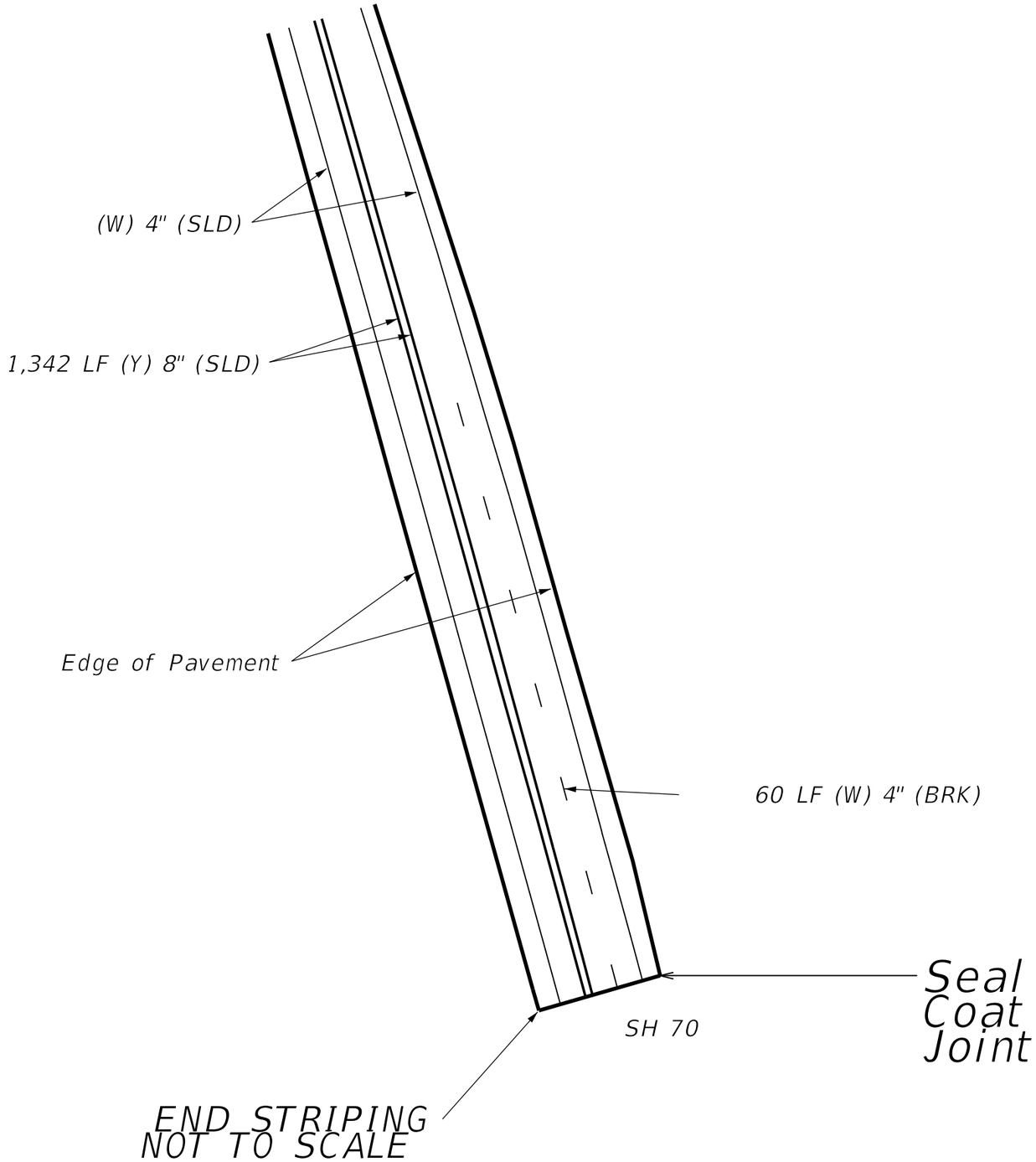

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Texas Department of Transportation

San Angelo District

INDEX Q

SHEET 2 OF 2 NOT TO SCALE

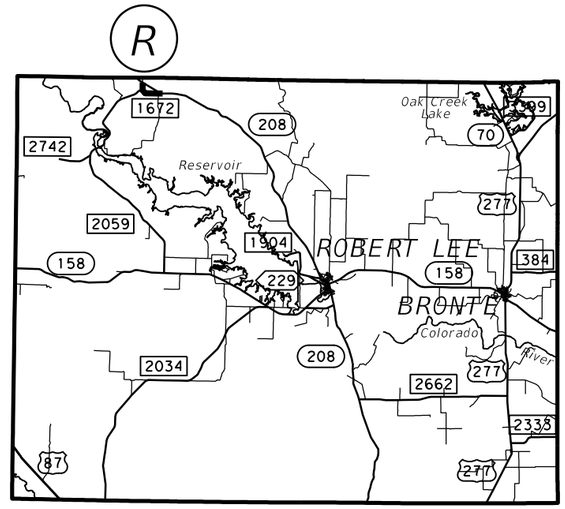
CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		59

SHEET ISSUED OR LAST REVISED
08-19

COUNTY: COKE HIGHWAY: RM 1672 INDEX: R
LIMITS OF PROJECT: SH 208 TO SH 208
LENGTH: 1.833 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
217	86						

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	18,700	1,660	9,900		10	265	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. 8" WHITE SOLID IS FOR ISLANDS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		REMOVE 24"	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
11',34'	SH 208	10'	POST OFFICE RD
10'	POST OFFICE RD		
31'	SILVER LP		

Edwin Steven Kloboucnik, P.E.

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Texas Department of Transportation | San Angelo District

INDEX R

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		60

DATE: 10/28/2020 10:43:00 AM
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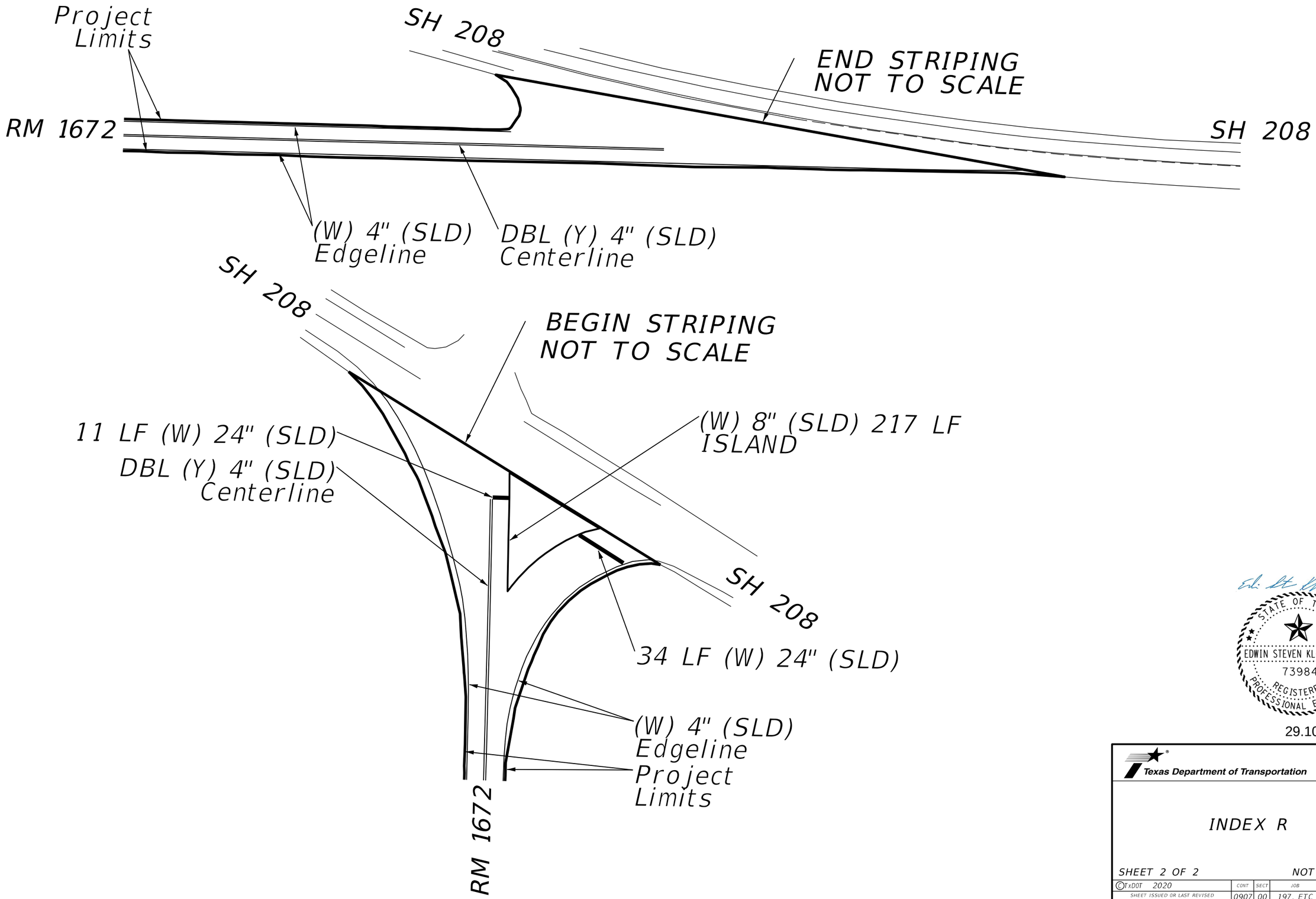

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29.10.2020

Texas Department of Transportation

San Angelo District

INDEX R

SHEET 2 OF 2 NOT TO SCALE

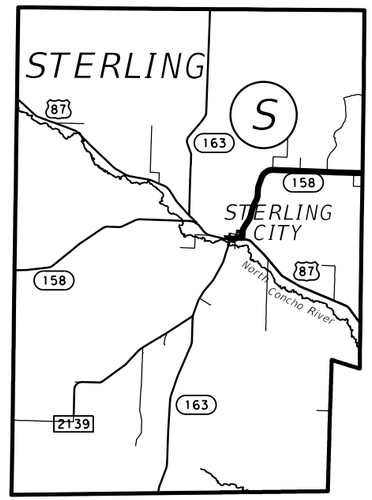
SHEET ISSUED OR LAST REVISED
08-19

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST.	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		61

COUNTY: STERLING HIGHWAY: SH 158 INDEX: S
LIMITS OF PROJECT: 170 FEET NORTH OF US 87 TO THE COKE COUNTY LINE
LENGTH: 12.746 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	41			18	3,220	6,930	800

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
970	127,000	15,900	14,250			6,180	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. NO PROFILE MARKINGS FROM US 87 TO STERLING CITY LIMIT SIGN

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
10'	BIRD LN	18'	KNIGHT CANYON RD
13'	MUNN RD		
18'	KNIGHT CANYON RD		

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INDEX S

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		62

DATE: 10/28/2020 10:43:41 AM
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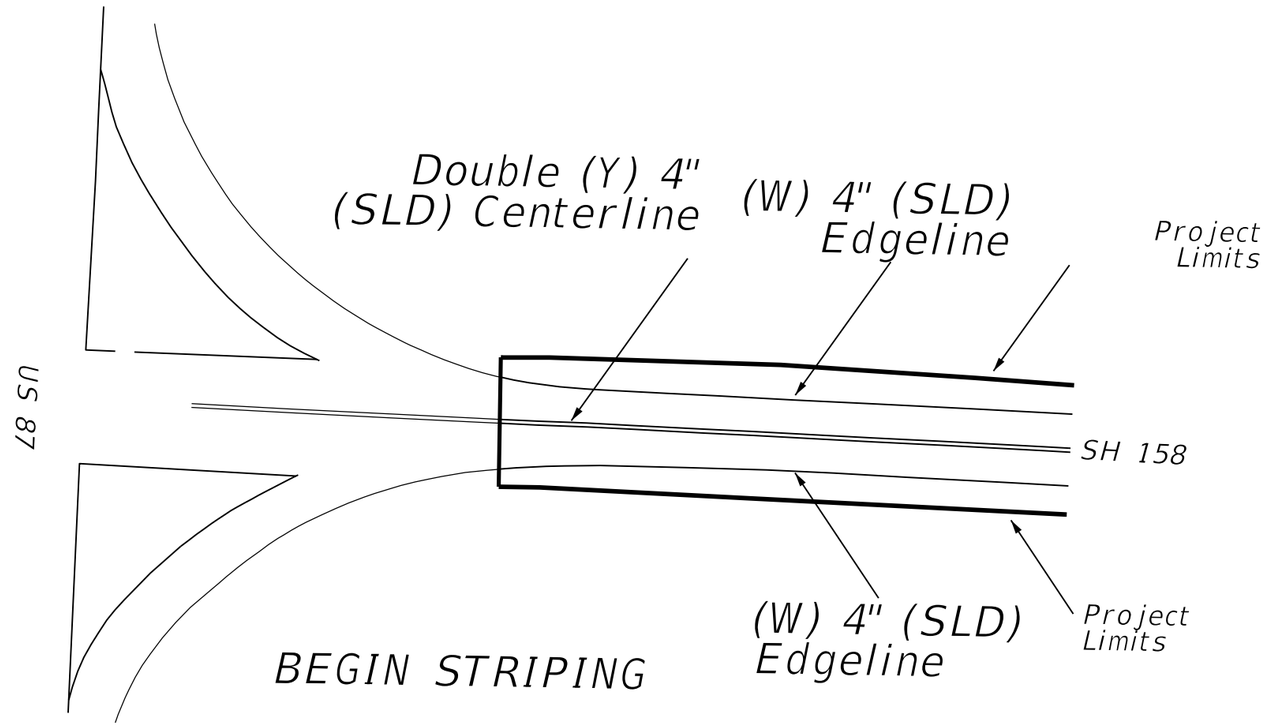

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San Angelo District

INDEX S

SHEET 2 OF 2 NOT TO SCALE

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA

SHEET ISSUED OR LAST REVISED
08-19

DIST	COUNTY	SHEET NO
SJT	TOM GREEN, ETC	63

DATE: 10/28/2020 10:43:55 AM
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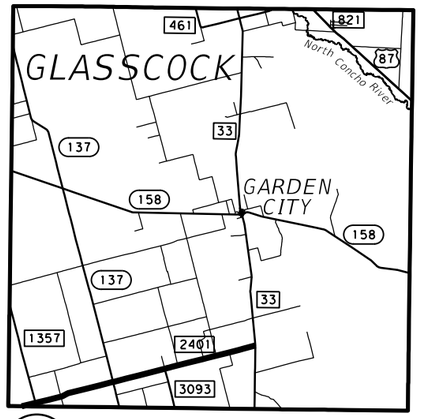
COUNTY: GLASSCOCK HIGHWAY: RM 2401 INDEX: T
LIMITS OF PROJECT: REAGAN COUNTY LINE TO RM 33
LENGTH: 18.066 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	197			93			

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	189,300	23,110	6,650			11,470	



T

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
24',24'	RM 1357	12'	CO RD 195
12'	CO RD 195	10'	CO RD 155
18',16'	SH 137	25'	COOP RD
10'	CO RD 155	10'	PAYMASTER RD
12'	RM 3093	12'	CO RD 125
25'	COOP RD	12'	CO RD 105
10'	PAYMASTER RD		
12'	CO RD 125		
12'	CO RD 105		
22'	RM 33		

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INDEX T

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED 08-19

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		64

DATE: 10/28/2020 10:44:11 AM
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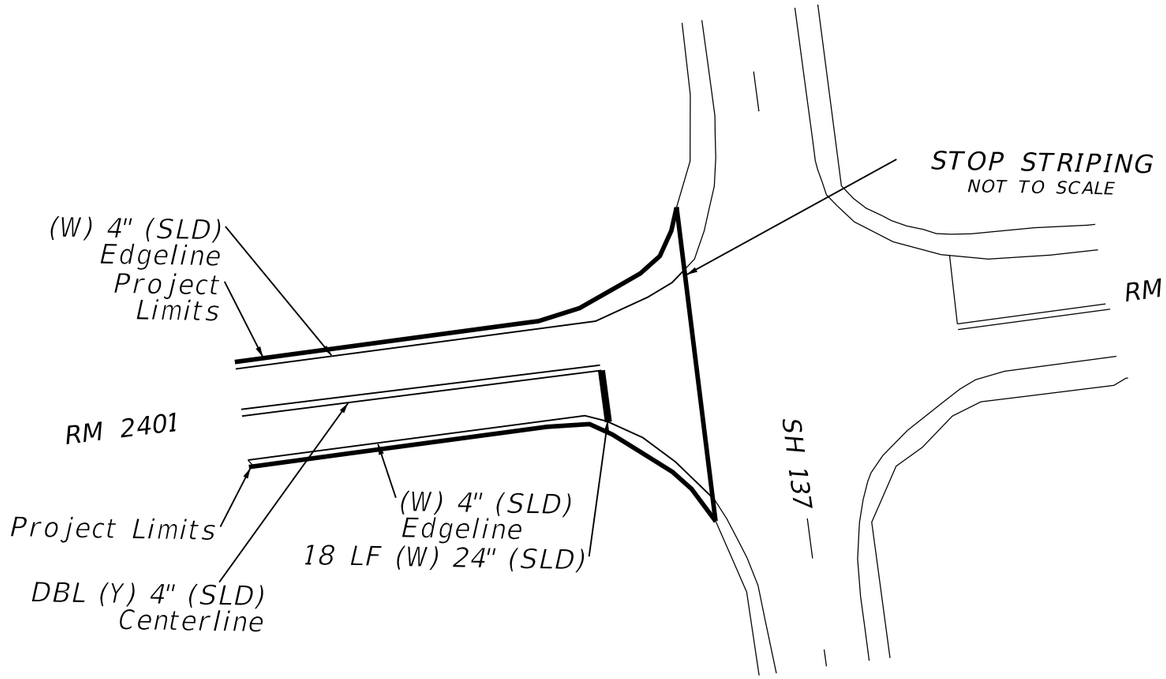

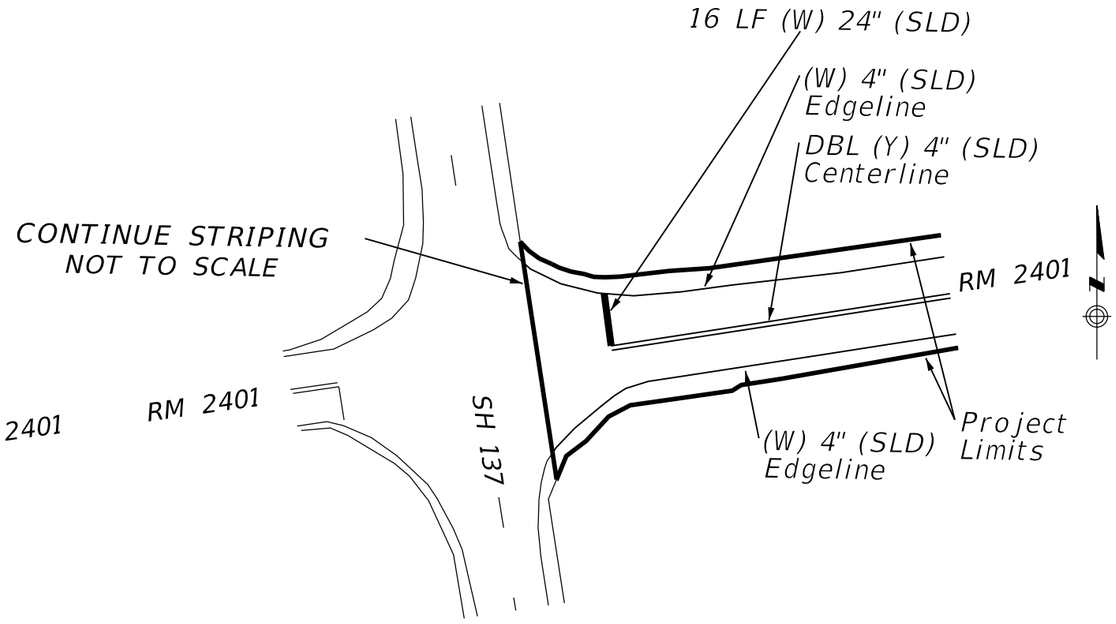

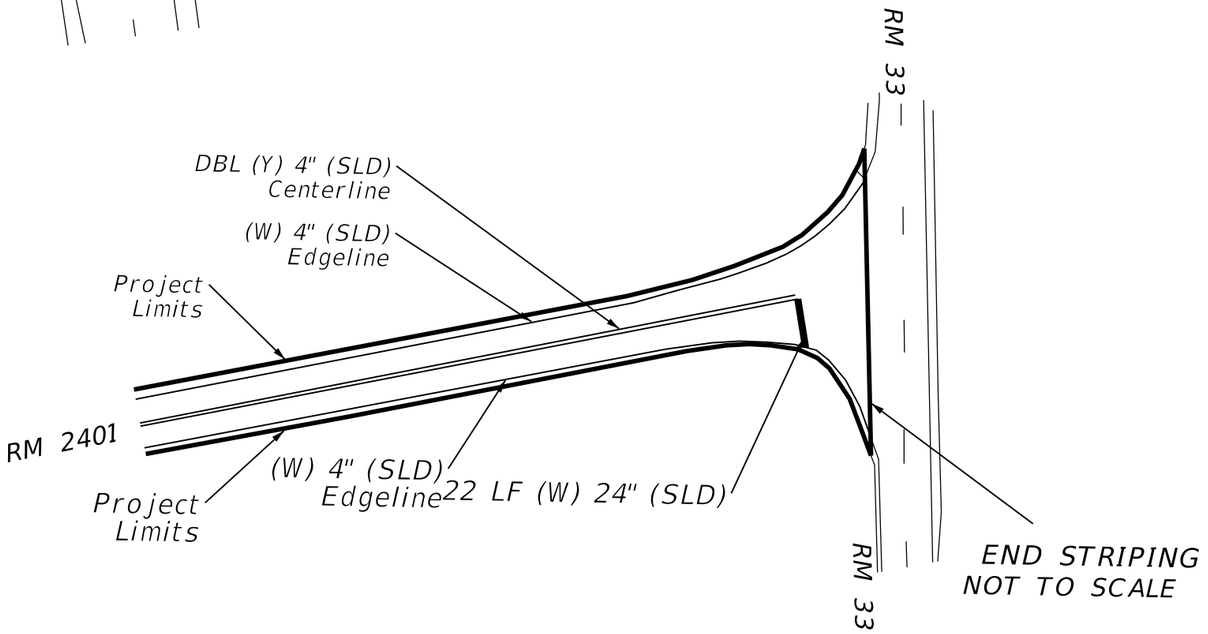

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Texas Department of Transportation | San Angelo District

INDEX T

SHEET 2 OF 2 | NOT TO SCALE

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		65

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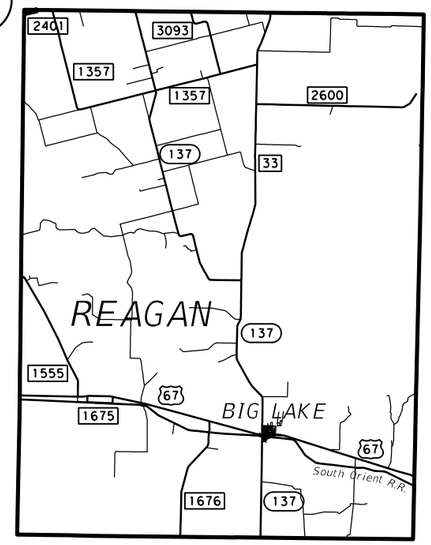
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\09070019?\4 - Design\Plan Set\8. Traffic\INDEX T-1.dgn

COUNTY: REAGAN HIGHWAY: RM 2401 INDEX: U
LIMITS OF PROJECT: GLASSCOCK COUNTY LINE TO UPTON COUNTY LINE
LENGTH: 1.104 MILES

U

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	11,830	1,480				740	



N

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Texas Department of Transportation

San Angelo District

INDEX U

SHEET 1 OF 1 NOT TO SCALE

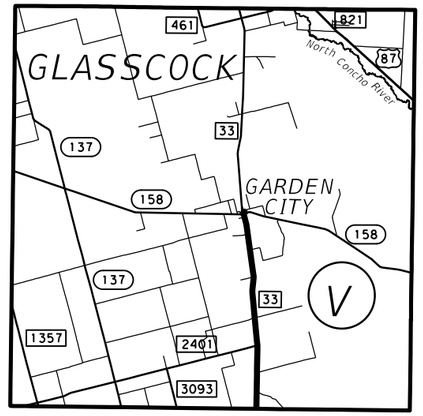
SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		66

DATE: 10/28/2020 10:44:44 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\090700197\4 - Design\Plan Set\8. Traffic\INDEX U.dgn

COUNTY: GLASSCOCK HIGHWAY: RM 33 INDEX: V
LIMITS OF PROJECT: SH 158 TO REAGAN COUNTY LINE
LENGTH: 14.732 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
337	183			183	140	950	60

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
1,710	152,500	18,200	17,150			7,945	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. 8" WHITE SOLID FOR TURN LANE.
3. NO PROFILE MARKINGS FROM SH 158 TO GARDEN CITY LIMIT SIGN.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
26'	SH 158	26'	SH 158
11',12'	HOUSTON ST	11',12'	HOUSTON ST
10'	PRAIRIE AVE	10'	PRAIRIE AVE
10',13'	HILL ST	10'	HILL ST
13'	PECAN ST	13'	PECAN ST
10'	CO RD 120	10'	CO RD 120
12'	CO RD 220	12'	CO RD 220
20'	CO RD 170	20'	CO RD 170
15'	CO RD 270	15'	CO RD 270
20'	CO RD 280	20'	CO RD 280
11'	CO RD 290	11'	CO RD 290

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29.10.2020

Texas Department of Transportation | San Angelo District

INDEX V

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		67

DATE: 10/28/2020 10:45:01 AM
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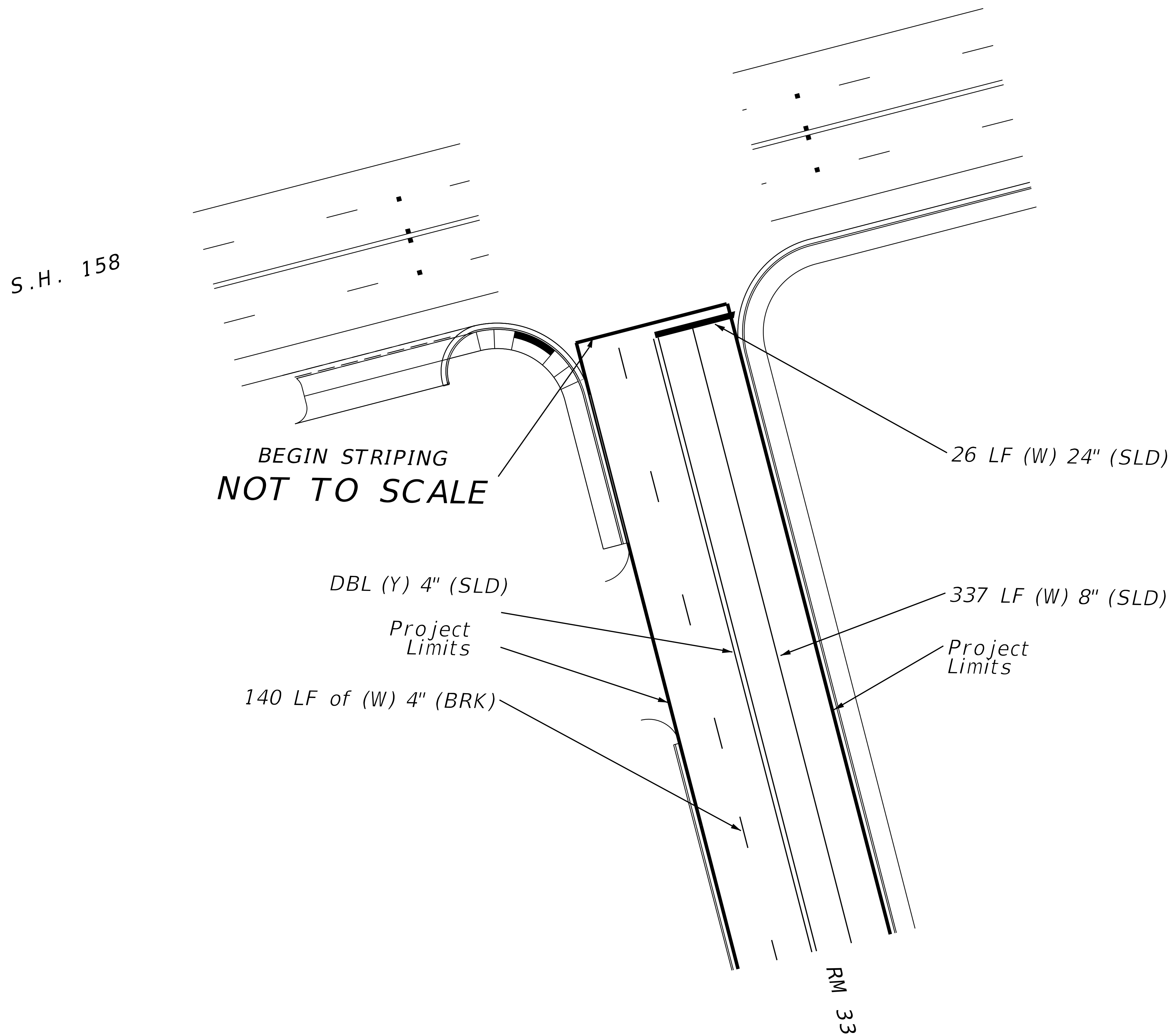

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Texas Department of Transportation

San Angelo District

INDEX V

SHEET 2 OF 2

NOT TO SCALE

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		68

DATE: 10/28/2020 10:45:16 AM
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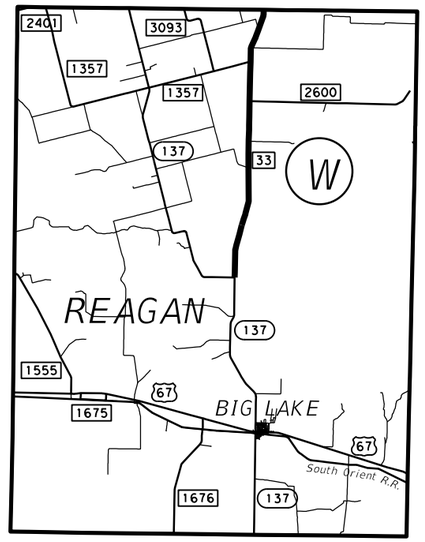
COUNTY: REAGAN HIGHWAY: RM 33 INDEX: W
LIMITS OF PROJECT: GLASSCOCK COUNTY LINE TO 200' NORTH OF CONCRETE PAVEMENT AT SH 137
LENGTH: 20.356 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	120			98	480		

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	21,100	23,630	32,500			10,955	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
12'	ANGLE RD	12'	ANGLE RD
22'	RADIO TOWER RD	22'	RADIO TOWER RD
28'	RM 1357	28'	RM 1357
22'	RM 2600	24'	STRAWBERRY PATCH RD
24'	STRAWBERRY PATCH RD	12'	STOUT RD
12'	STOUT RD		

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San Angelo District

INDEX W

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		69

DATE: 10/28/2020 10:45:36 AM
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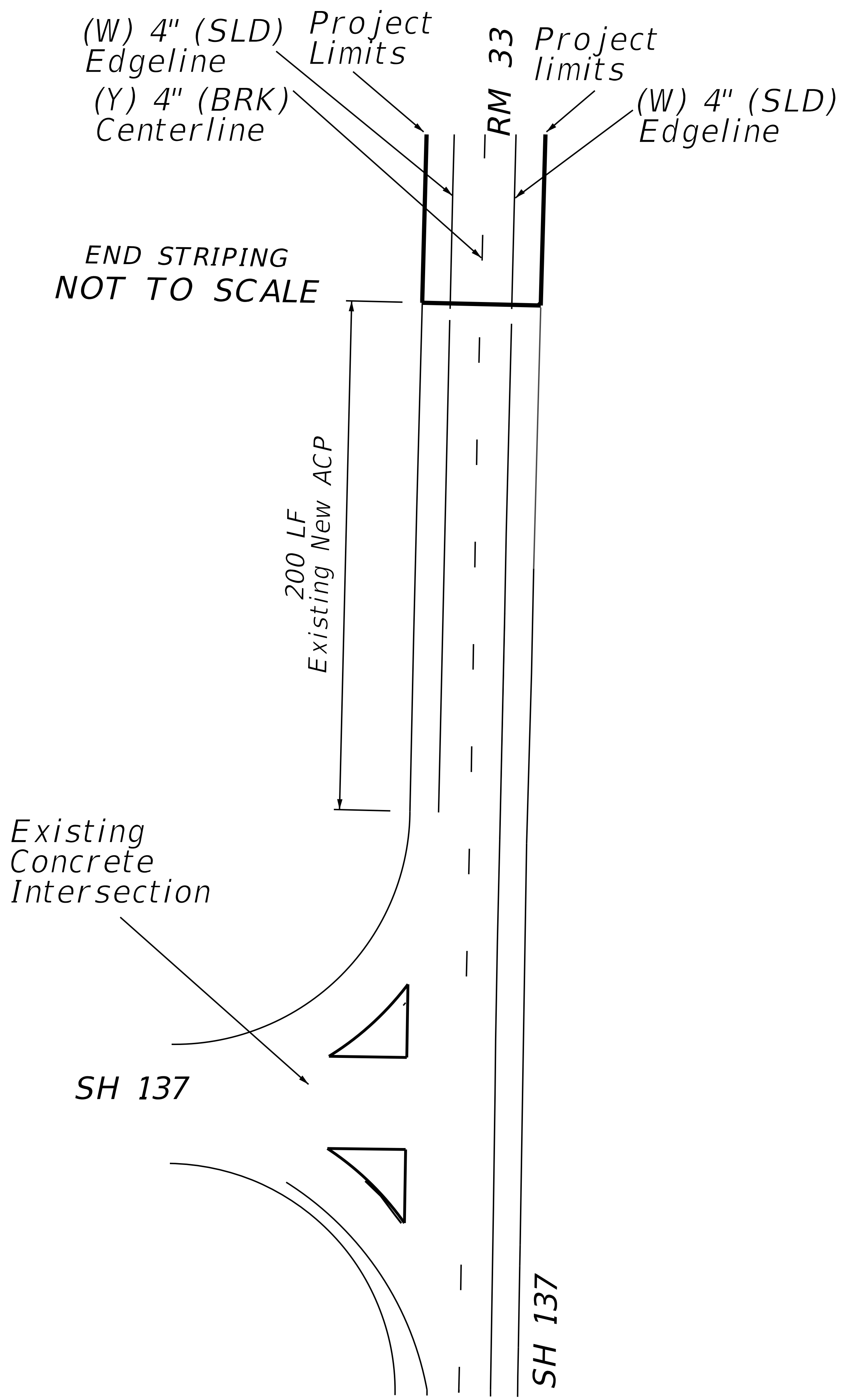

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San Angelo District

INDEX W

SHEET 2 OF 2 NOT TO SCALE

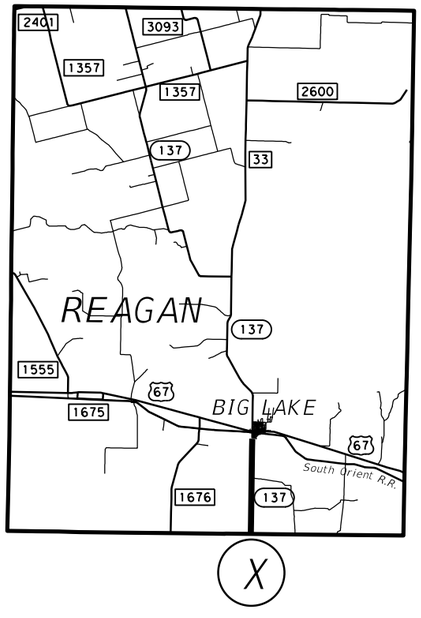
©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		70

DATE: 10/28/2020 10:45:53 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\0907001974 - Design\Plan Set\8. Traffic\INDEX W-1.dgn

COUNTY: REAGAN HIGHWAY: SH 137 INDEX: X
LIMITS OF PROJECT: 0.6 MILES SOUTH OF US 67 TO CROCKETT COUNTY LINE
LENGTH: 7.136 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	10			10	310		

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	75,090	7,970	23,200			2,550	



X

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
10'	CHICO LN	10'	CHICO LN

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Texas Department of Transportation | San Angelo District

INDEX X

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		71

DATE: 10/28/2020 10:46:14 AM
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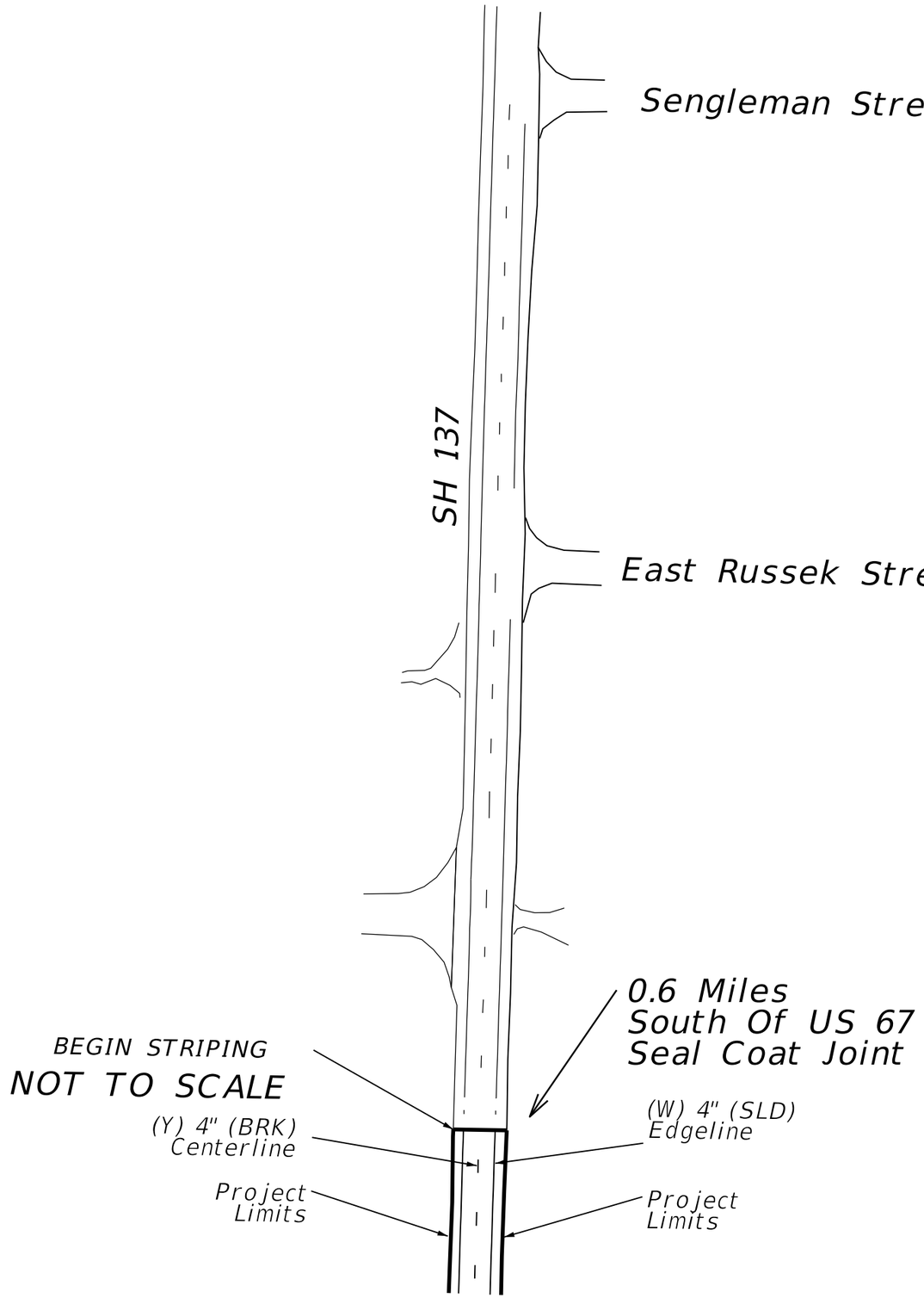

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29.10.2020

Texas Department of Transportation

San Angelo District

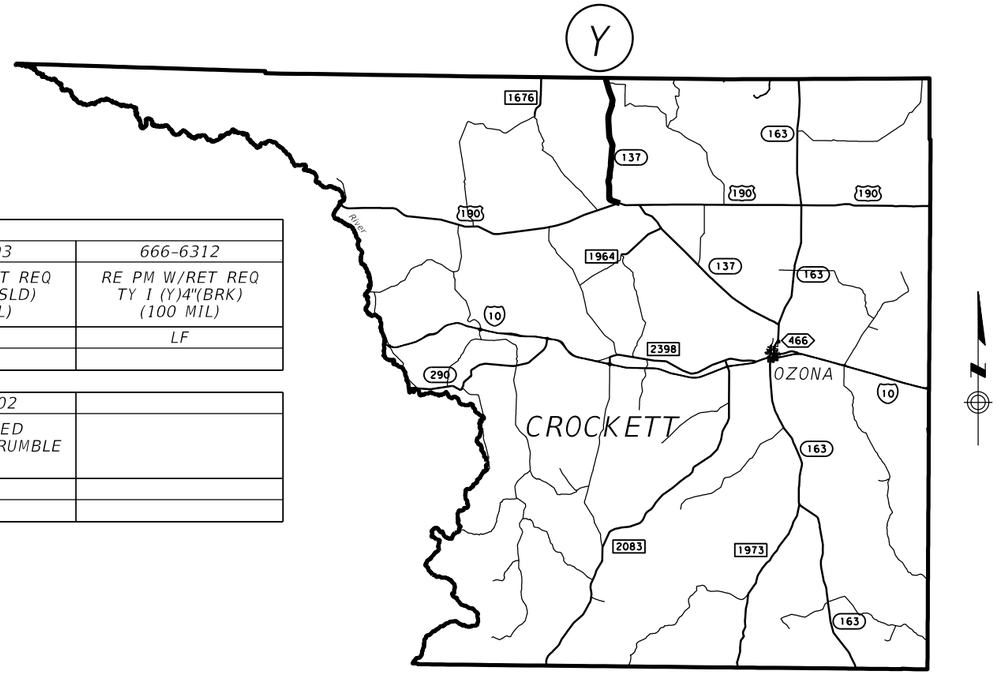
INDEX X

SHEET 2 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED
08-19

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		72

COUNTY: CROCKETT HIGHWAY: SH 137 INDEX: Y
LIMITS OF PROJECT: REAGAN COUNTY LINE TO US 190
LENGTH: 12.430 MILES



PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
162	29				200		

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	131,200	15,440	21,100			5,970	

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. 8" WHITE SOLID IS FOR GORE.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
17'	CO RD 205		
12'	US 190		

Edwin Steven Kloboucnik, P.E.

STATE OF TEXAS
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73984
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29.10.2020

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INDEX Y

SHEET 1 OF 2 NOT TO SCALE

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		73

DATE: 10/28/2020 10:46:47 AM
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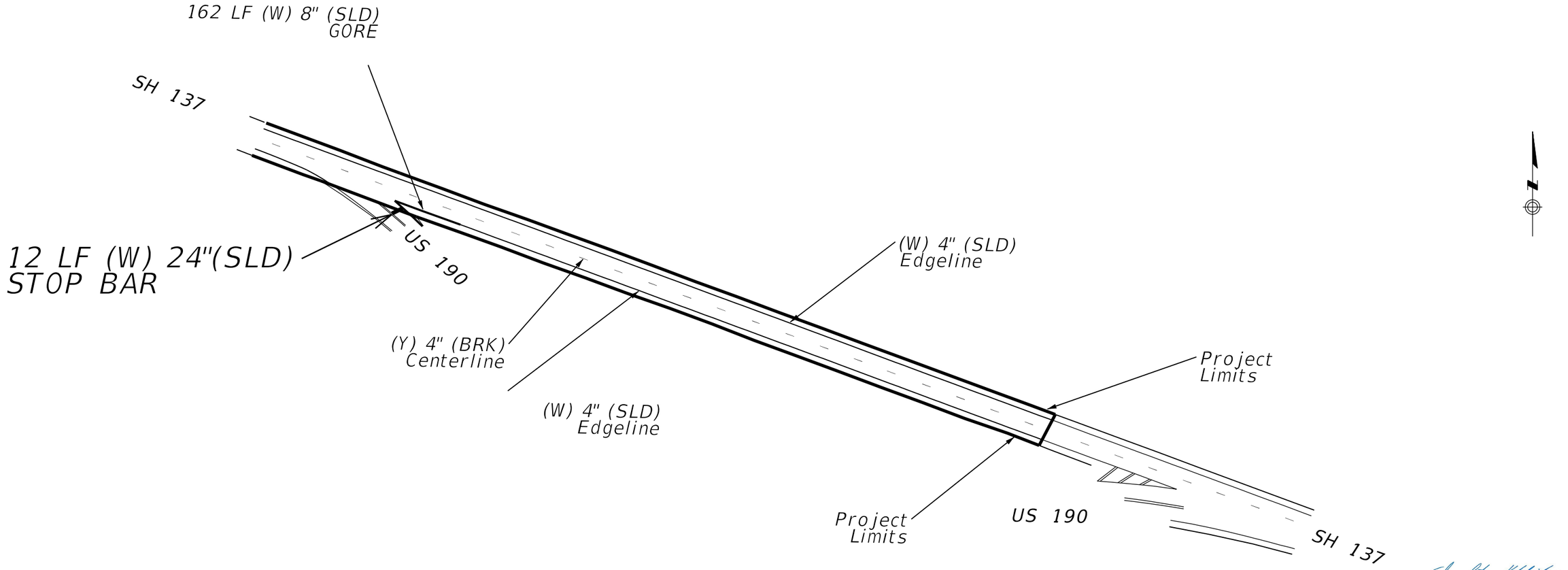

END STRIPING

NOT TO SCALE

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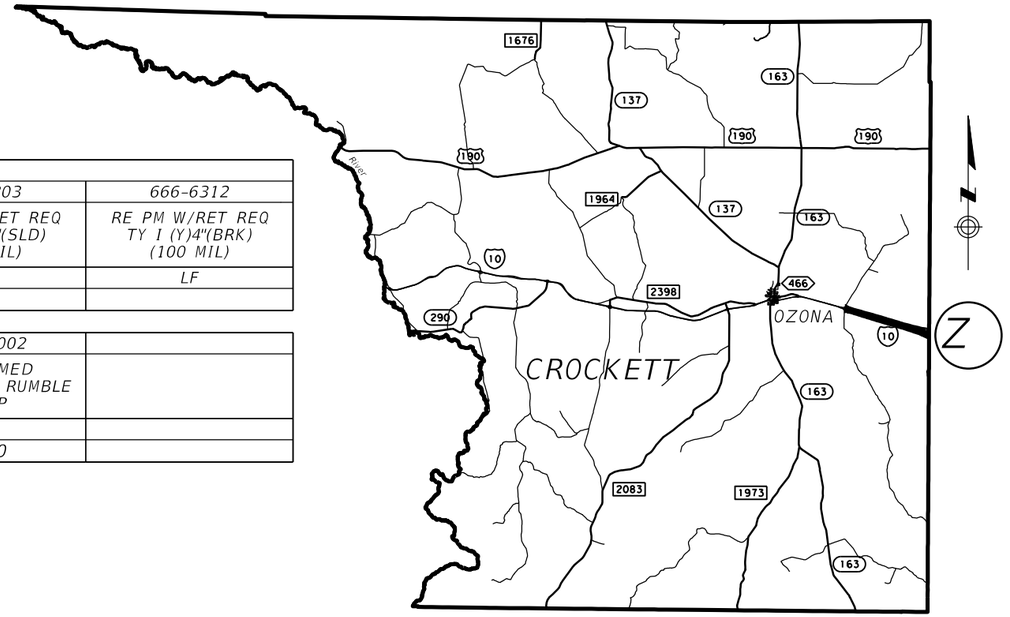
San Angelo District

INDEX Y

SHEET 2 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		74

COUNTY: CROCKETT HIGHWAY: IH 10 FRONTAGE ROADS INDEX: Z
LIMITS OF PROJECT: TAYLOR BOX RD TO SUTTON COUNTY LINE
LENGTH: 16.280 MILES



PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	76						

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	139,000	18,690	41,200			6,590	

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
17'	S TAYLOR BOX RD		
21'	S UNDER PASS		
18'	N TAYLOR BOX RD		
20'	N UNDER PASS		

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INDEX Z

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		75

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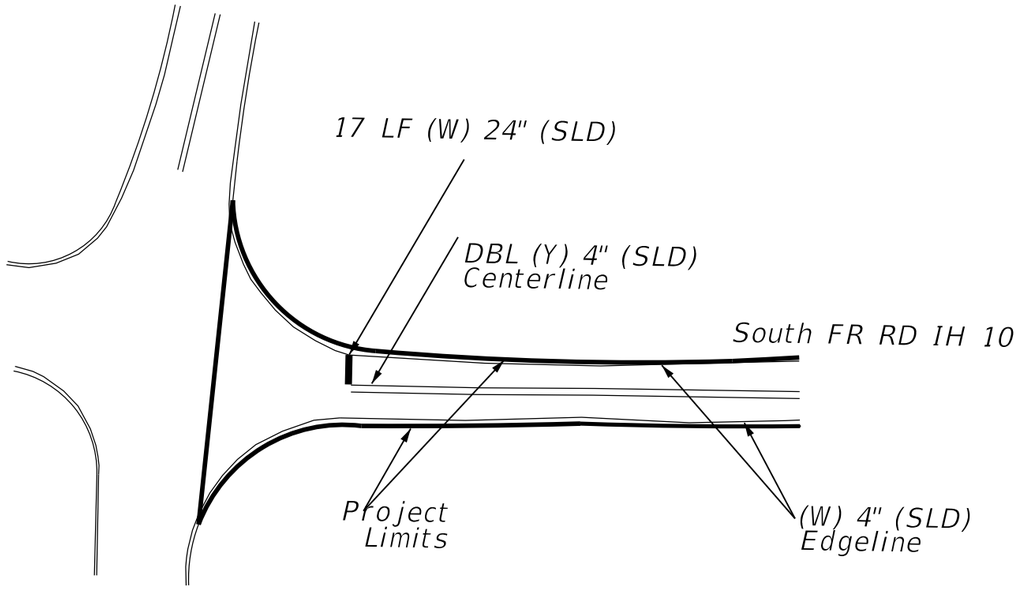
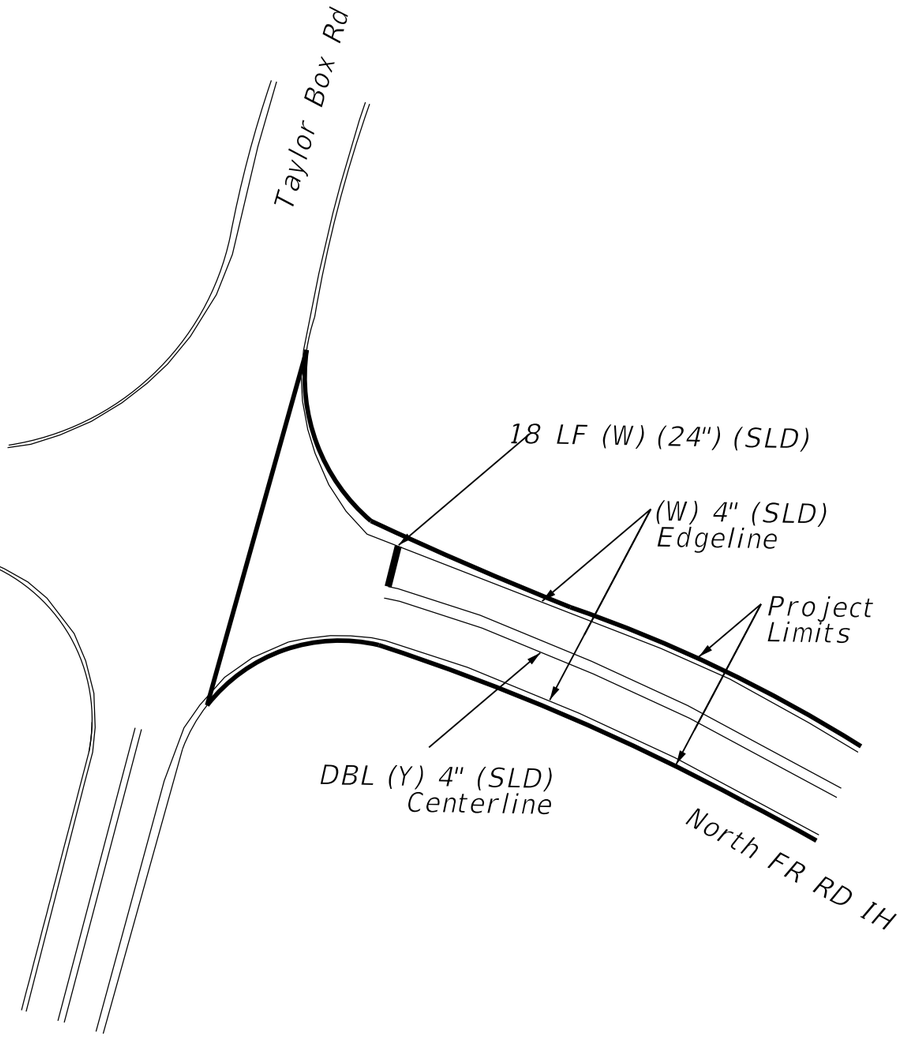


BEGIN STRIPING
I-10 SOUTH FRONTAGE ROAD
NOT TO SCALE



BEGIN STRIPING
I-10 NORTH FRONTAGE ROAD
NOT TO SCALE

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INDEX Z

SHEET 2 OF 2 NOT TO SCALE

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		76

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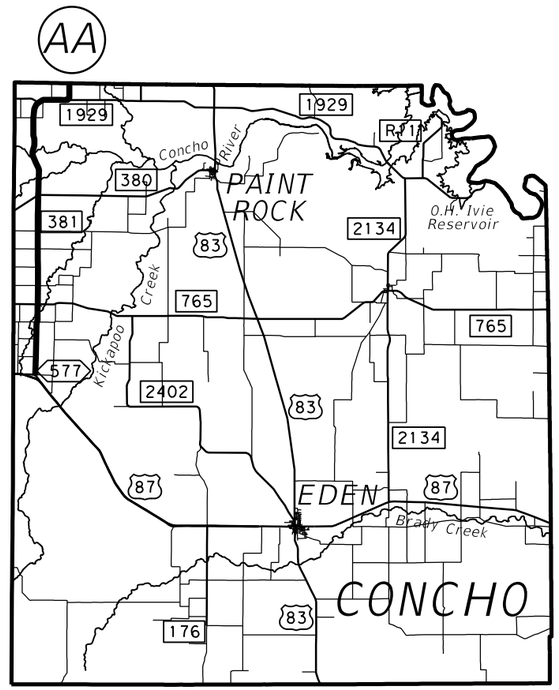
COUNTY: CONCHO HIGHWAY: FM 381 INDEX: AA
LIMITS OF PROJECT: RUNNELS COUNTY LINE TO SL 577
LENGTH: 18.171 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
234	369			20		4,990	350

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
3,350	186,000	19,800	32,700			9,400	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. 8" WHITE SOLID IS FOR ISLANDS AND GORES.
3. NO PROFILE MARKINGS FROM EOLA TOWN LIMIT SIGN TO EOLA TOWN LIMIT SIGN.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		STOP BARS	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
21'	CO RD 1879	10',10'	CO RD 5502
27'	FM 1929	14',14'	CO RD 5500
14',20'	CO RD 1884	25',11'	CO RD 1482
14',16'	FM 380	13'	CO RD 1388
14',15'	CO RD 1640	13'	CO RD 1386
20',18'	CO RD 1568	15'	SL 577
13'	CO RD 1584	SEALER	
14',16'	CO RD 1520	LENGTH EA	LOCATION
11',11'	FM 765	10',10'	CO RD 5502

Ed. St. Klobouchnik, PE

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INDEX AA

SHEET 1 OF 2 NOT TO SCALE

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		77

DATE: 10/28/2020 10:47:44 AM
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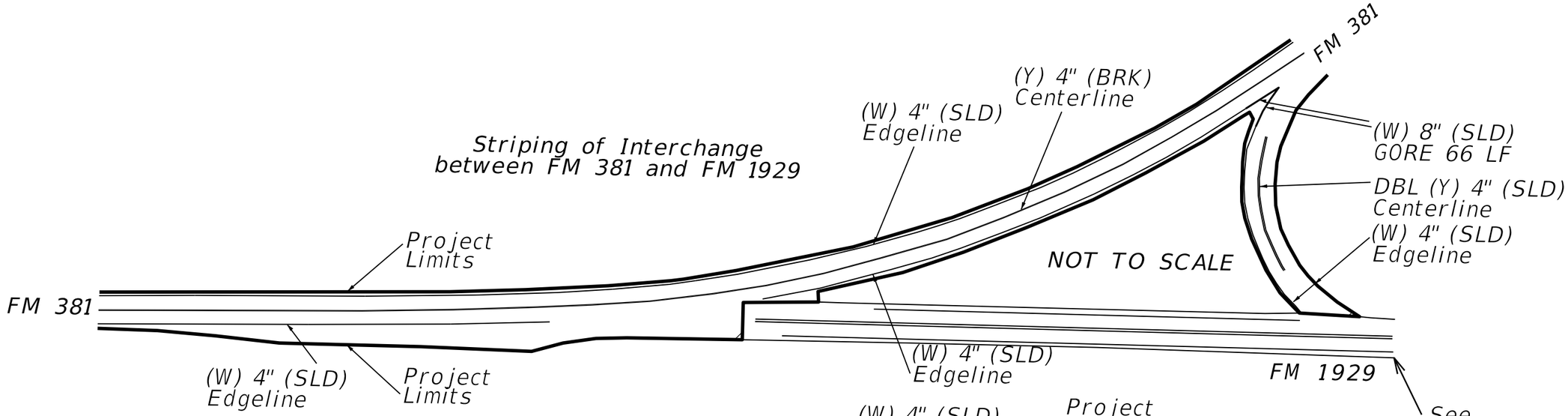

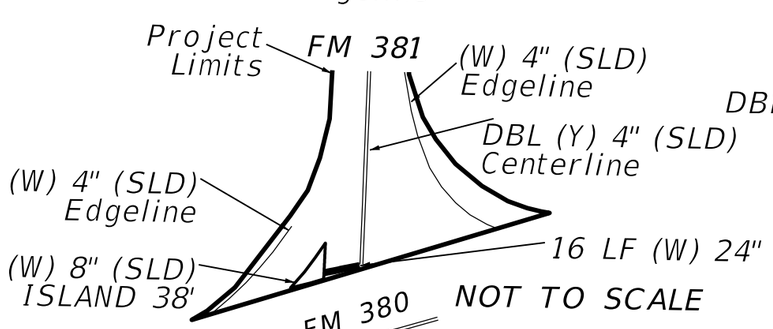

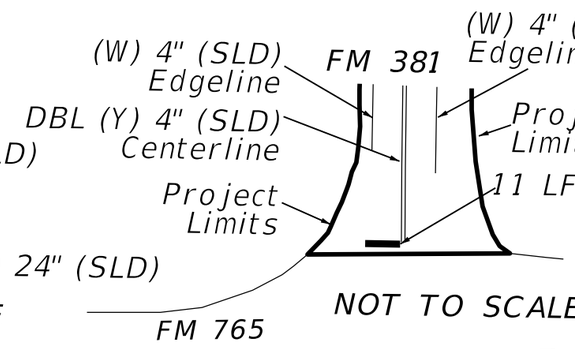

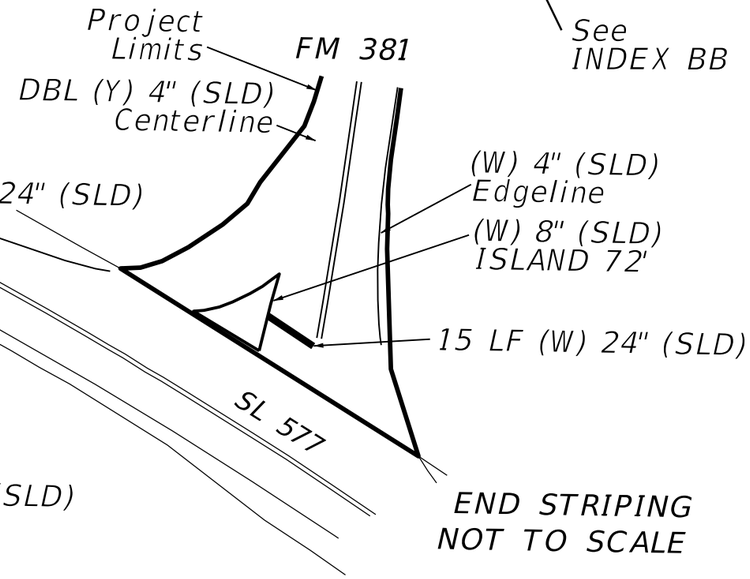

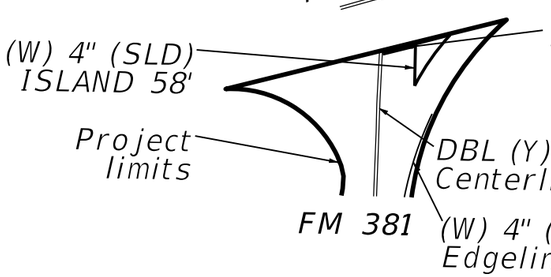

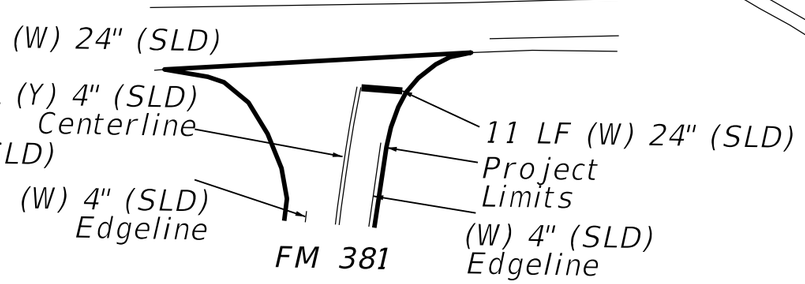

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San Angelo District

INDEX AA

SHEET 2 OF 2 NOT TO SCALE

©TxDOT 2020	CONT.	SECT.	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		78

DATE: 10/28/2020 10:47:58 AM
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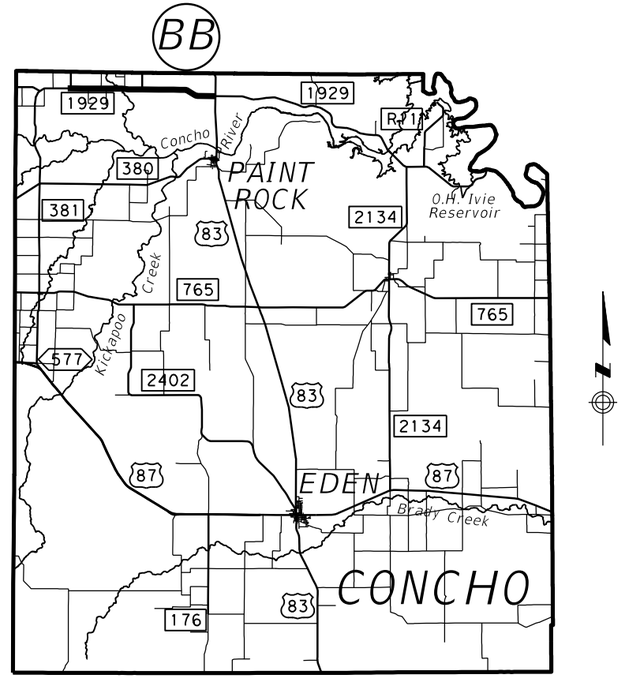
COUNTY: CONCHO HIGHWAY: FM 1929 INDEX: BB
LIMITS OF PROJECT: FM 381 TO US 83
LENGTH: 8.391 MILES



PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
82	82						

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	88,100	8,690	34,200			2,400	

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. 8" WHITE SOLID IS FOR ISLAND.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
10'	FM 381		
10'	CO RD 1867		
16'	CO RD 1865		
16'	CO RD 1861		
18'	CO RD 1855		
12'	US 83		

Edwin Steven Kloboucnik, P.E.

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29.10.2020

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INDEX BB

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT.	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		79

DATE: 10/28/2020 10:48:15 AM
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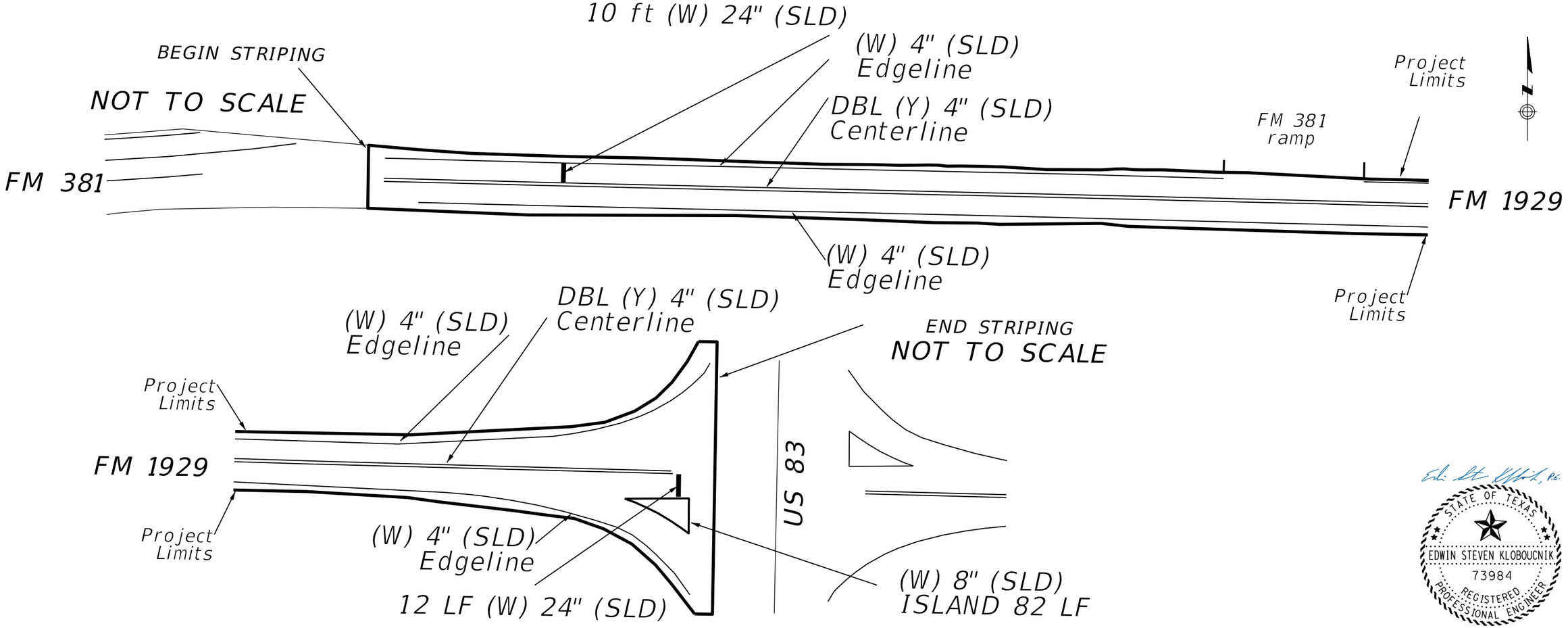

Erik St. Klobouk, P.E.

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Texas Department of Transportation

San Angelo District

INDEX BB

SHEET 2 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED
08-19

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA

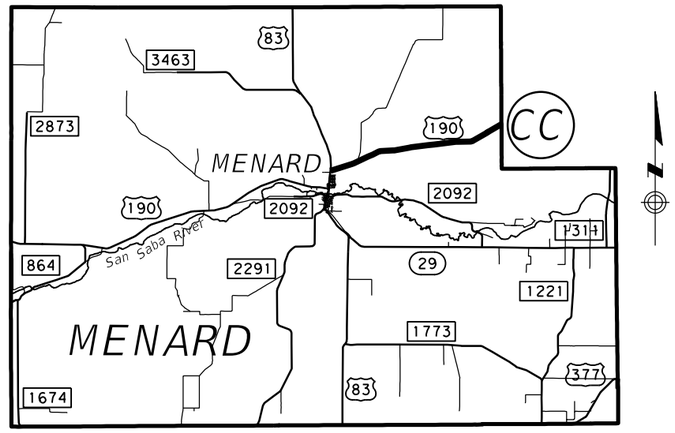
DIST.	COUNTY	SHEET NO.
SJT	TOM GREEN, ETC	80

DATE: 10/28/2020 10:48:29 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\090700197\4 - Design\Plan Set\8. Traffic\INDEX BB-1.dgn

COUNTY: MENARD HIGHWAY: US 190 INDEX: CC
LIMITS OF PROJECT: US 83 TO MCCULLOCH COUNTY LINE
LENGTH: 11.174 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	54					1,300	

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
1,230	116,540	8,500	71,600			1,380	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. NO PROFILE MARKINGS FROM US 83 TO 60 MPH SIGN.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
44'	US 83		
10'	CALLAN LN		

Edwin S. Kloboucnik, P.E.

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INDEX CC

SHEET 1 OF 2 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		81

DATE: 10/28/2020 10:48:45 AM
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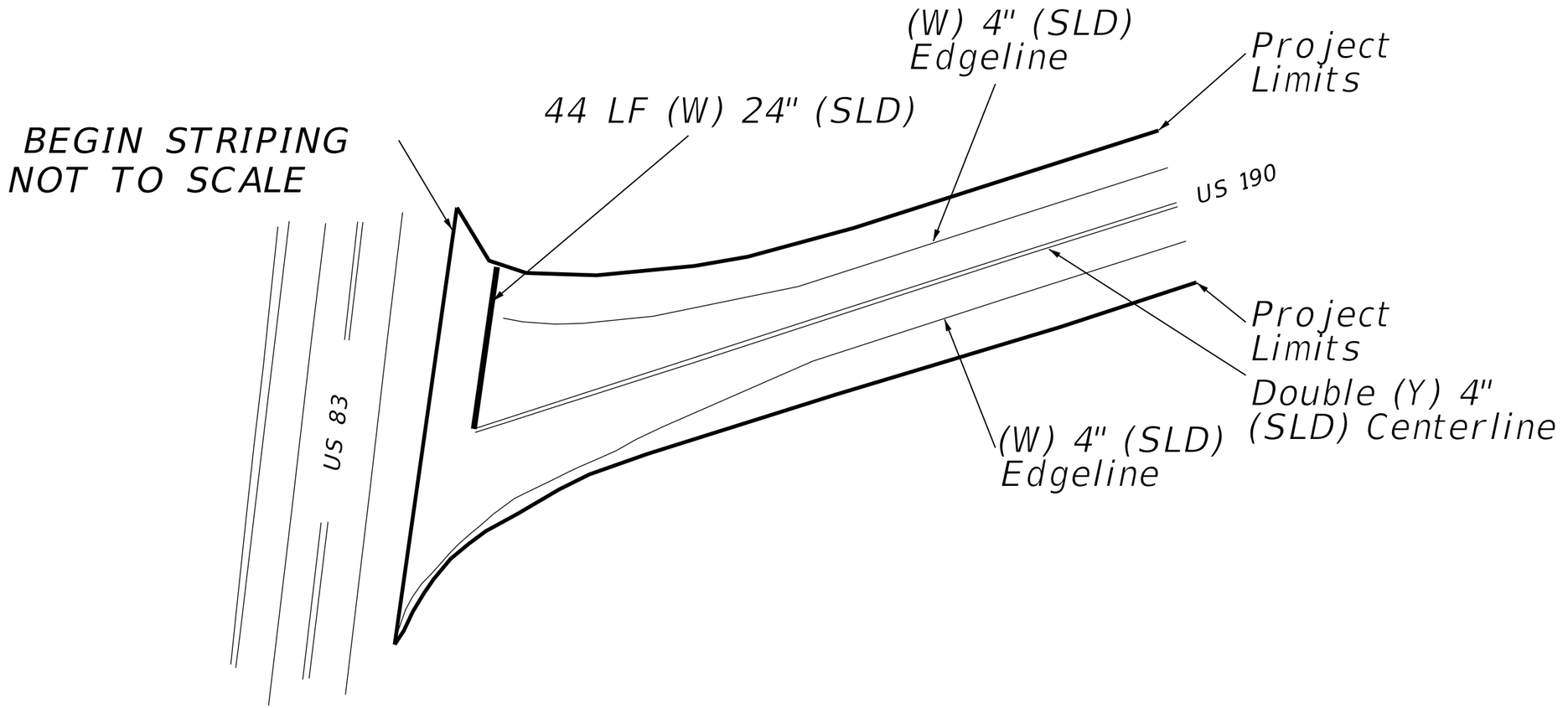

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29.10.2020

Texas Department of Transportation

San Angelo District

INDEX CC

SHEET 2 OF 2 NOT TO SCALE

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		82

SHEET ISSUED OR LAST REVISED
08-19

DATE: 10/28/2020 10:49:02 AM
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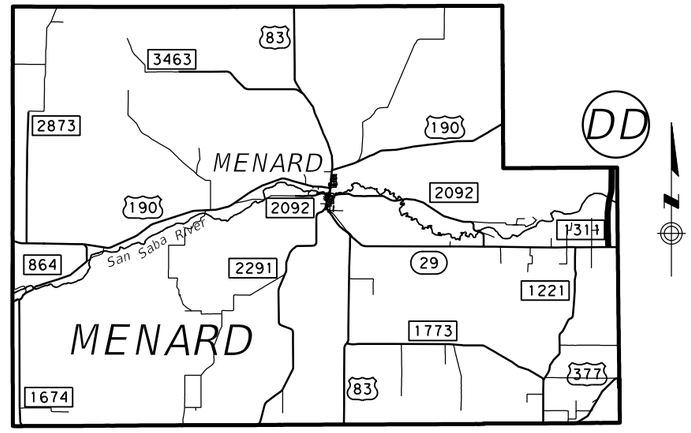
COUNTY: MENARD HIGHWAY: FM 1311 INDEX: DD
LIMITS OF PROJECT: MCCULLOCH COUNTY LINE TO SH 29
LENGTH: 4.970 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
70	12						

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	500	5,480	20,400			1,290	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. 8" WHATE SOILD IS FOR A GORE.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
12'	SH 29		

Edwin Steven Kloboucnik, P.E.

STATE OF TEXAS
EDWIN STEVEN KLOBOUCNIK
73984
REGISTERED PROFESSIONAL ENGINEER

29.10.2020

Texas Department of Transportation | San Angelo District

INDEX DD

SHEET 1 OF 2 NOT TO SCALE

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		83

DATE: 10/28/2020 10:49:18 AM
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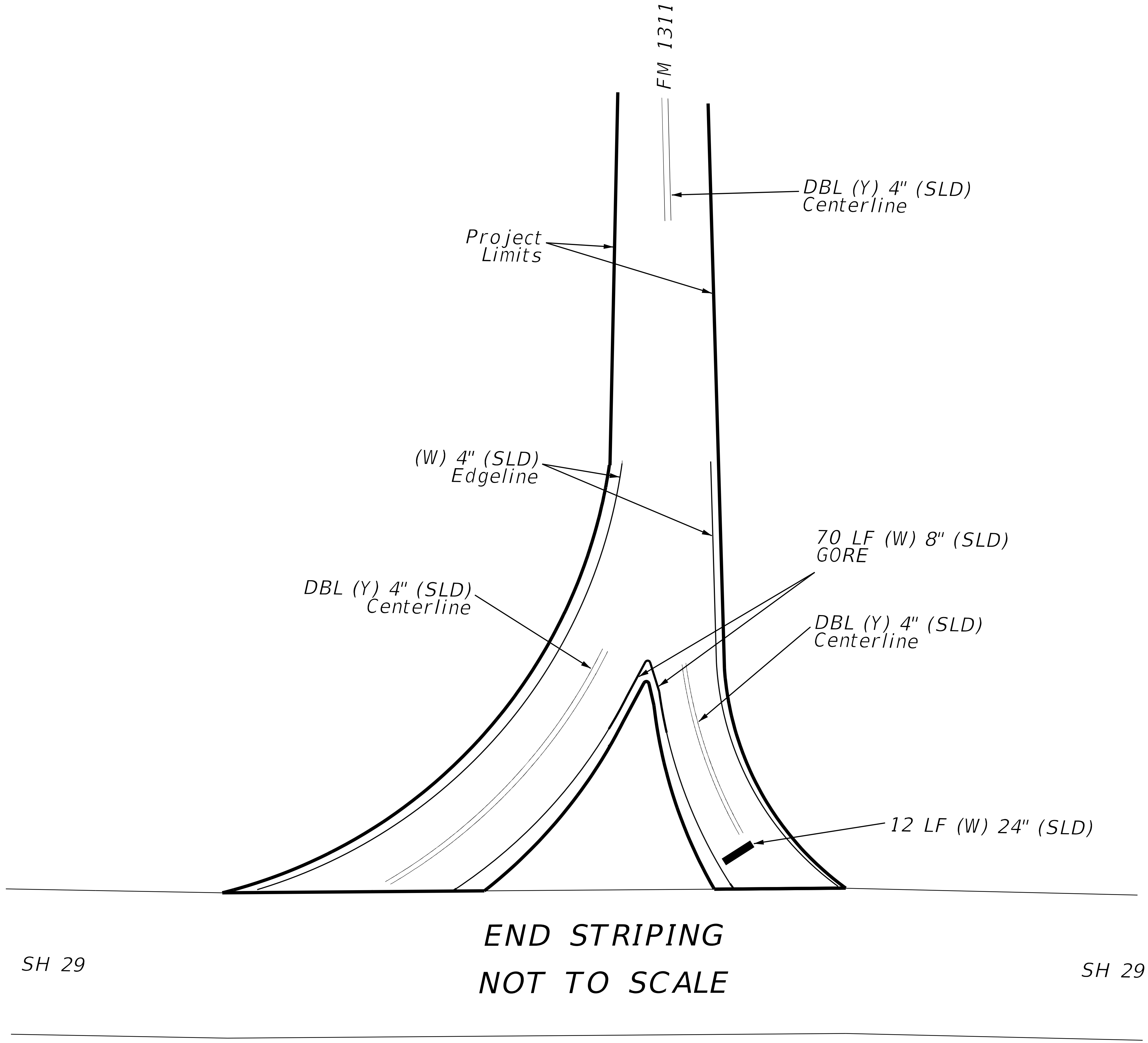

END STRIPING

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EDWIN STEVEN KLOBOUCNIK
73984
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29.10.2020

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INDEX DD

SHEET 2 OF 2 — NOT TO SCALE

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		84

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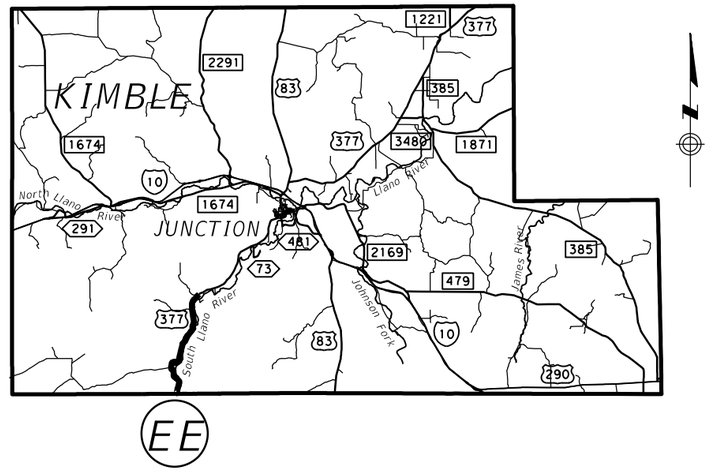
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\0907001974 - Design\Plan Set\8. Traffic\INDEX DD-1.dgn

COUNTY: KIMBLE HIGHWAY: US 377 INDEX: EE
LIMITS OF PROJECT: 9.6 MILES SOUTH OF SL 481 TO EDWARDS COUNTY LINE
LENGTH: 9.694 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	48						

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	99,700	4,000	74,500			1,230	



EE

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
9'	CO RD 120		
25'	CO RD 130		
7'	CO RD 140		
7'	CO RD 150		

Eric Steven Kloboucnik, P.E.

STATE OF TEXAS
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73984
REGISTERED PROFESSIONAL ENGINEER

29.10.2020

Texas Department of Transportation | San Angelo District

INDEX EE

SHEET 1 OF 1 | NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		85

DATE: 10/28/2020 10:49:52 AM
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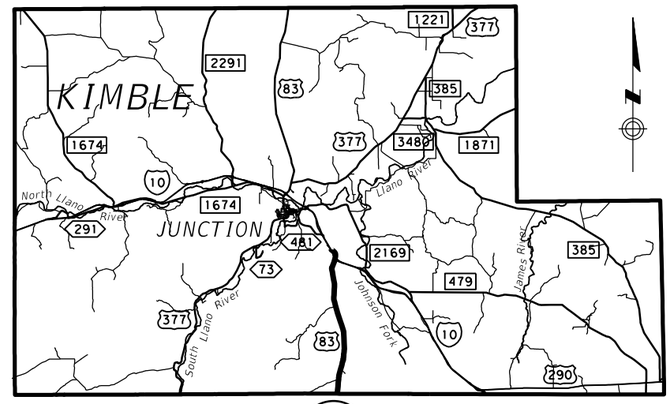
COUNTY: KIMBLE HIGHWAY: US 83 INDEX: FF
LIMITS OF PROJECT: IH-10 TO KERR COUNTY LINE
LENGTH: 10.691 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
1,658	185			12			

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	127,600	9,060	75,900		65	2,200	



FF

NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.
2. 8" WHITE SOLID FOR TURN LANES, ISLANDS, AND GORES.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
26'	CO RD 481	12'	CO RD 110
12',12'	S. FRONTAGE RD	REMOVE 24"	
13'	SW OFF RAMP	LENGTH EA	LOCATION
11'	SE ON RAMP	12'	S. FRONTAGE RD
22'	NW OFF RAMP	22'	SE SERVICE RD
24'	SE RIGHT TURN	17'	CO RD 112
22'	SE SERVICE RD	14'	CO RD 111
17'	CO RD 112		
14'	CO RD 111		
12'	CO RD 110		

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STATE OF TEXAS
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29.10.2020

Texas Department of Transportation

San Angelo District

INDEX FF

SHEET 1 OF 3 NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		86

DATE: 10/28/2020 10:50:09 AM
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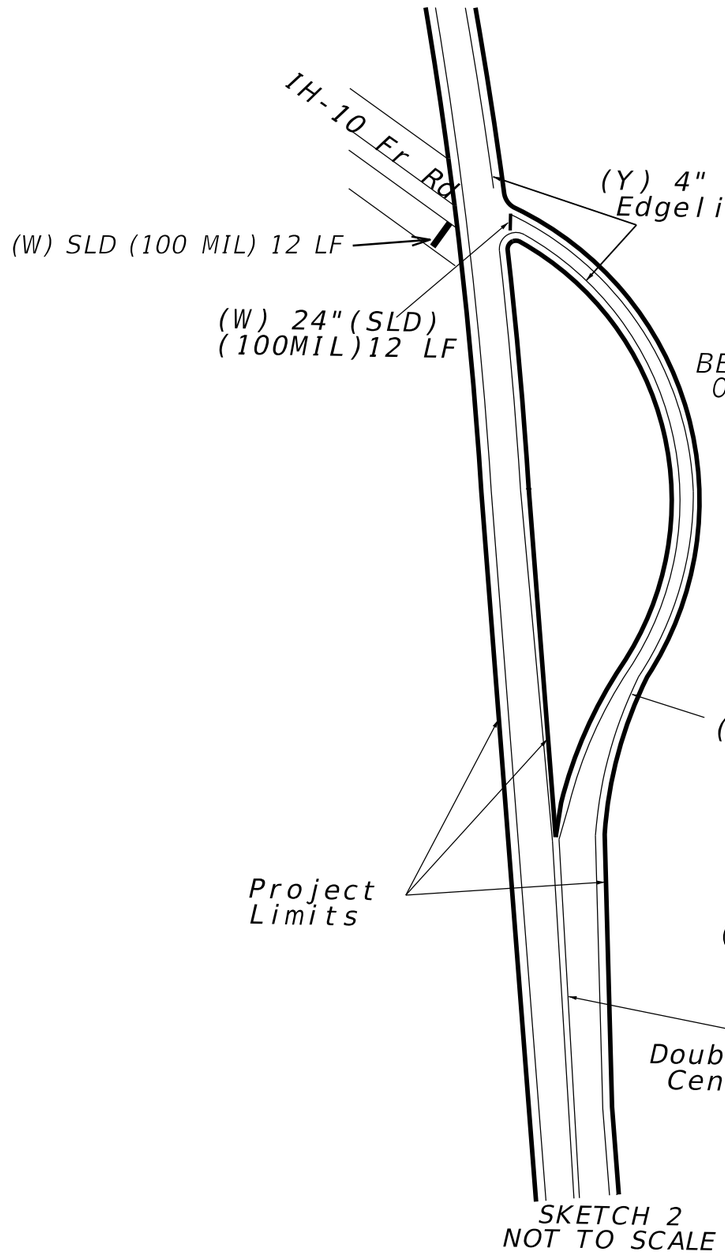

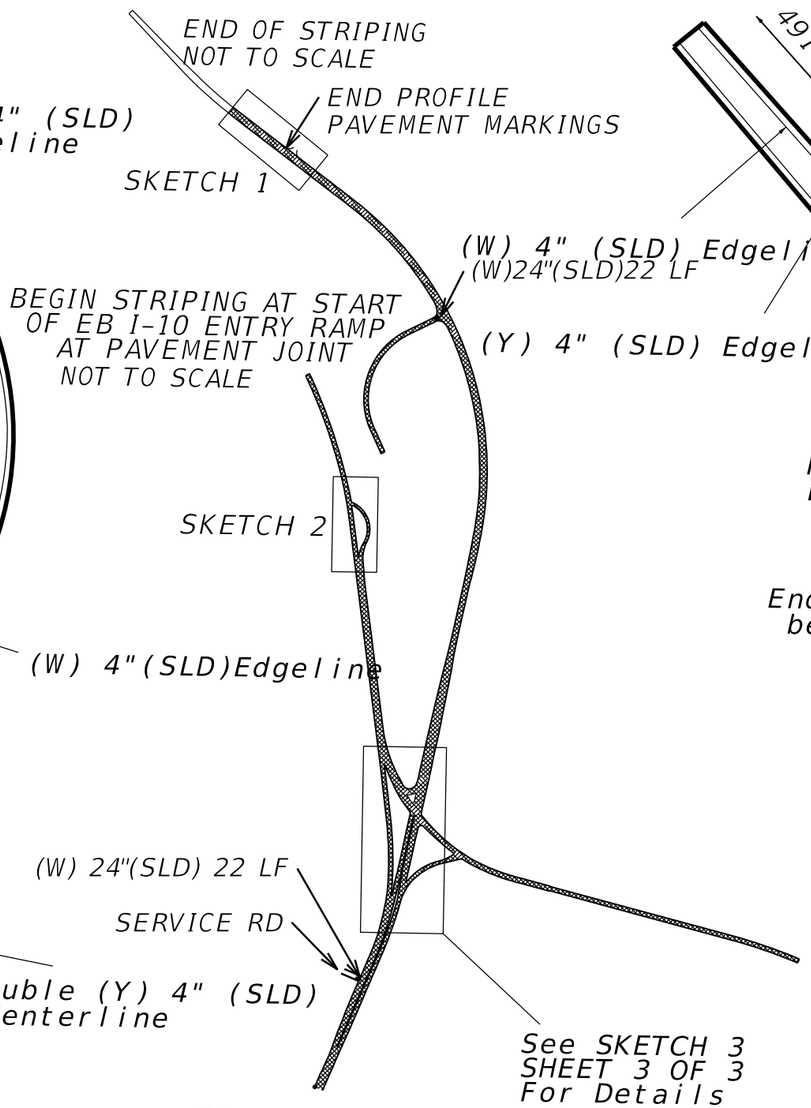

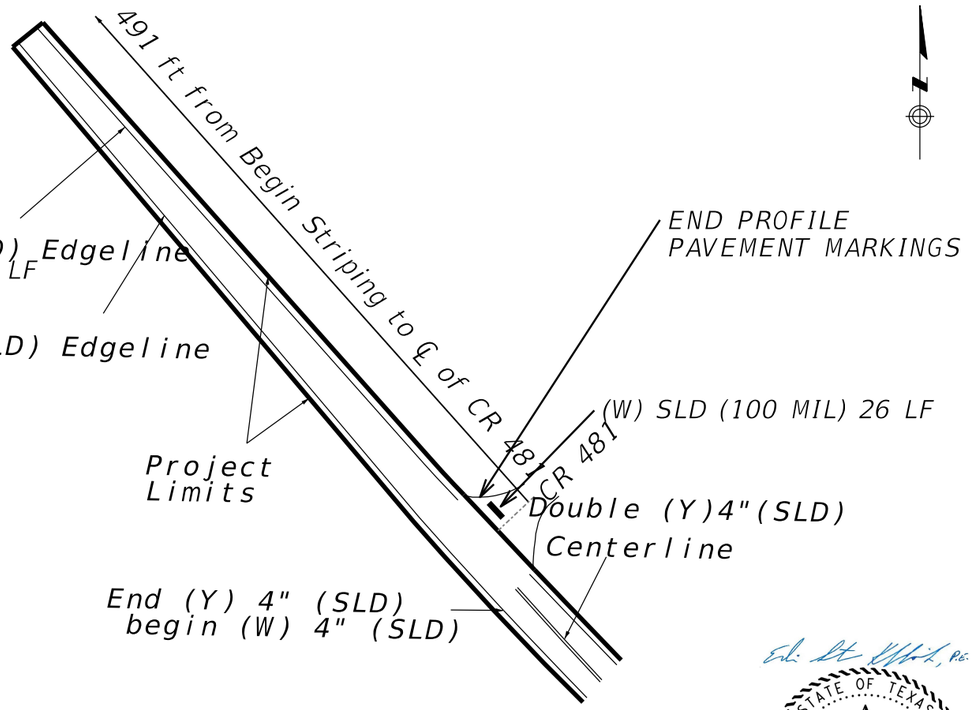

Edwin Steven Kloboucnik, P.E.

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29.10.2020

Texas Department of Transportation

San Angelo District

INDEX FF

SHEET 2 OF 3 NOT TO SCALE

SHEET ISSUED OR LAST REVISED
08-19

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		87

DATE: 10/28/2020 10:50:25 AM
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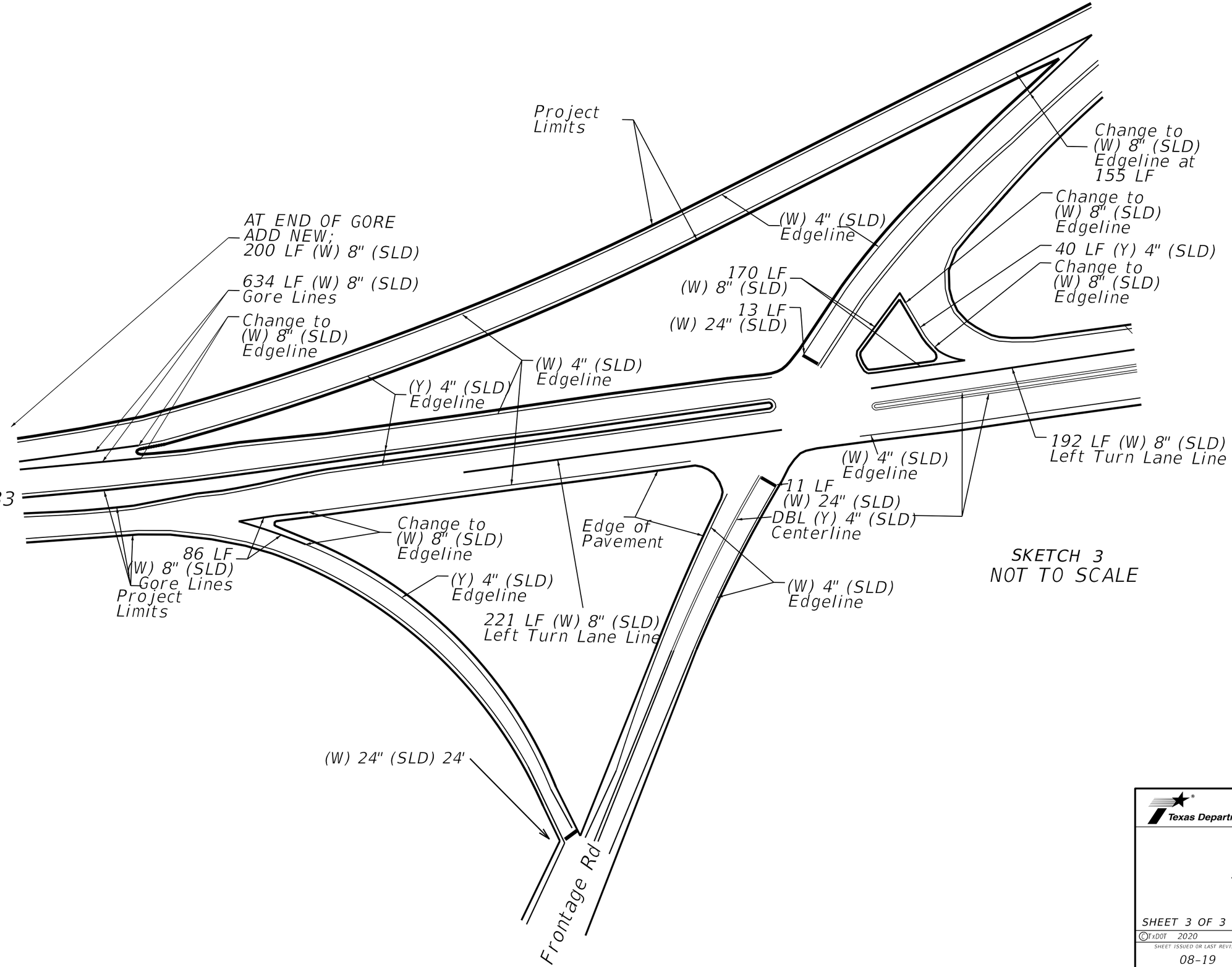


SKETCH 3
NOT TO SCALE

29.10.2020

Texas Department of Transportation | San Angelo District

INDEX FF

SHEET 3 OF 3 NOT TO SCALE

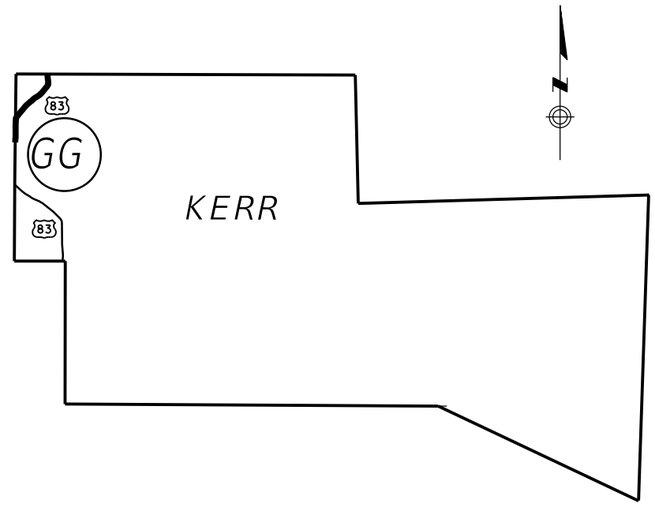
©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
08-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		88

DATE: 10/28/2020 10:50:41 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\0907001917\4 - Design\Plan Set\8. Traffic\INDEX FF-2.dgn

COUNTY: KERR HIGHWAY: US 83 INDEX: GG
LIMITS OF PROJECT: KIMBLE COUNTY LINE TO EDWARDS COUNTY LINE
LENGTH: 6.406 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
		67,790	6,040	35,010		1,090	



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29.10.2020

Texas Department of Transportation

San Angelo District

INDEX GG

SHEET 1 OF 1 NOT TO SCALE

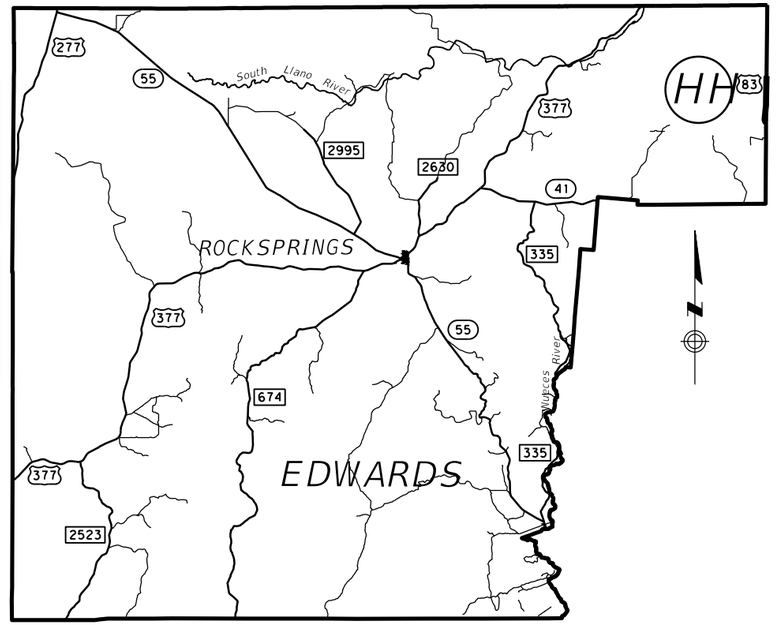
SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		89

DATE: 10/28/2020 10:50:56 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\090700197\4 - Design\Plan Set\8. Traffic\INDEX GG.dgn

COUNTY: EDWARDS HIGHWAY: US 83 INDEX: HH
LIMITS OF PROJECT: KERR COUNTY LINE TO KERR COUNTY LINE
LENGTH: 3.513 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	37,060	3,680	15,700			845	



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29.10.2020

Texas Department of Transportation

San Angelo District

INDEX HH

SHEET 1 OF 1 NOT TO SCALE

SHEET ISSUED OR LAST REVISED 08-19

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST.	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		90

DATE: 10/28/2020 10:51:11 AM
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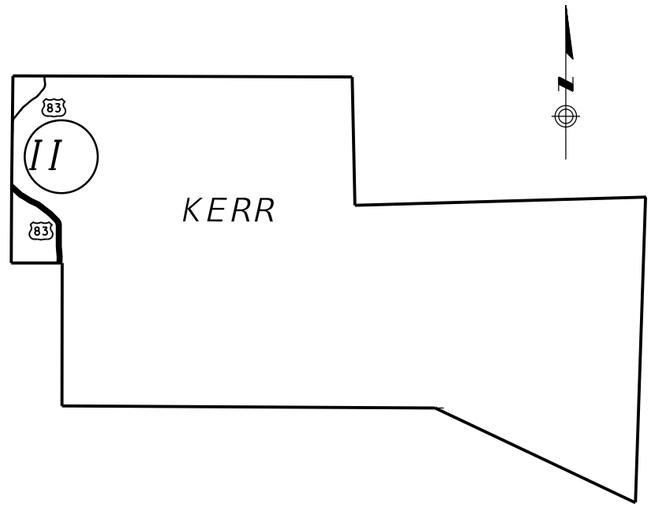
COUNTY: KERR HIGHWAY: US 83 INDEX: II
LIMITS OF PROJECT: EDWARDS COUNTY LINE TO REAL COUNTY LINE
LENGTH: 7.958 MILES

PAVEMENT MARKING QUANTITIES (THIS SHEET ONLY)							
666-6036	666-6048	666-6138	666-6147	666-6230	666-6300	666-6303	666-6312
REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 8"(SLD) (100MIL)	REFL PAV MRK TY I (Y) 24"(SLD) (100MIL)	PAVEMENT SEALER 24"	RE PM W/RET REQ TY I (W)4"(BRK) (100 MIL)	RE PM W/RET REQ TY I (W)4"(SLD) (100 MIL)	RE PM W/RET REQ TY I (Y)4"(BRK) (100 MIL)
LF	LF	LF	LF	LF	LF	LF	LF
	17						

666-6315	666-6342	666-6344	666-6345	668-6089	677-6007	6056-6002	
RE PM W/RET REQ TY I (Y)4"(SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (100 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (100 MIL)	PREFAB PAV MRK TY C (W)(RR XING)	ELIM EXT PAV MRK & MRKS (24")	PREFORMED CENTERLINE RUMBLE STRIP	
LF	LF	LF	LF	EA	LF	LF	
	84,040	2,650	69,500			490	



NOTES: 1. 24" WHITE STRIPE IS FOR STOP BARS.

FOR CONTRACTOR INFORMATION ONLY			
STOP BARS		SEALER	
LENGTH EA	LOCATION	LENGTH EA	LOCATION
17'	GOLDEN WAY		

Edwin Steven Klobucnik, P.E.

STATE OF TEXAS
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73984
REGISTERED PROFESSIONAL ENGINEER

29.10.2020

Texas Department of Transportation | San Angelo District

INDEX II

SHEET 1 OF 1 | NOT TO SCALE

SHEET ISSUED OR LAST REVISED	CONT	SECT	JOB	HIGHWAY
08-19	0907	00	197, ETC	VA
	DIST.	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		91

DATE: 10/28/2020 10:51:27 AM
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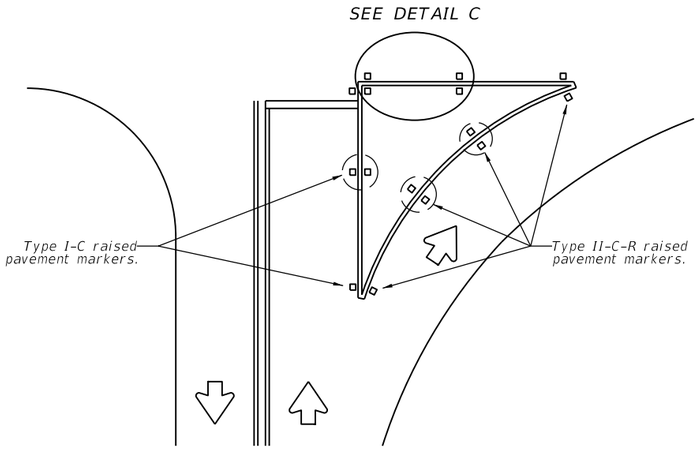
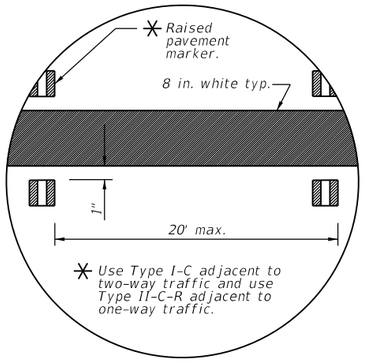


DETAILS FOR TYPICAL INTERSECTION WITH UNCURBED CHANNELIZING ISLAND



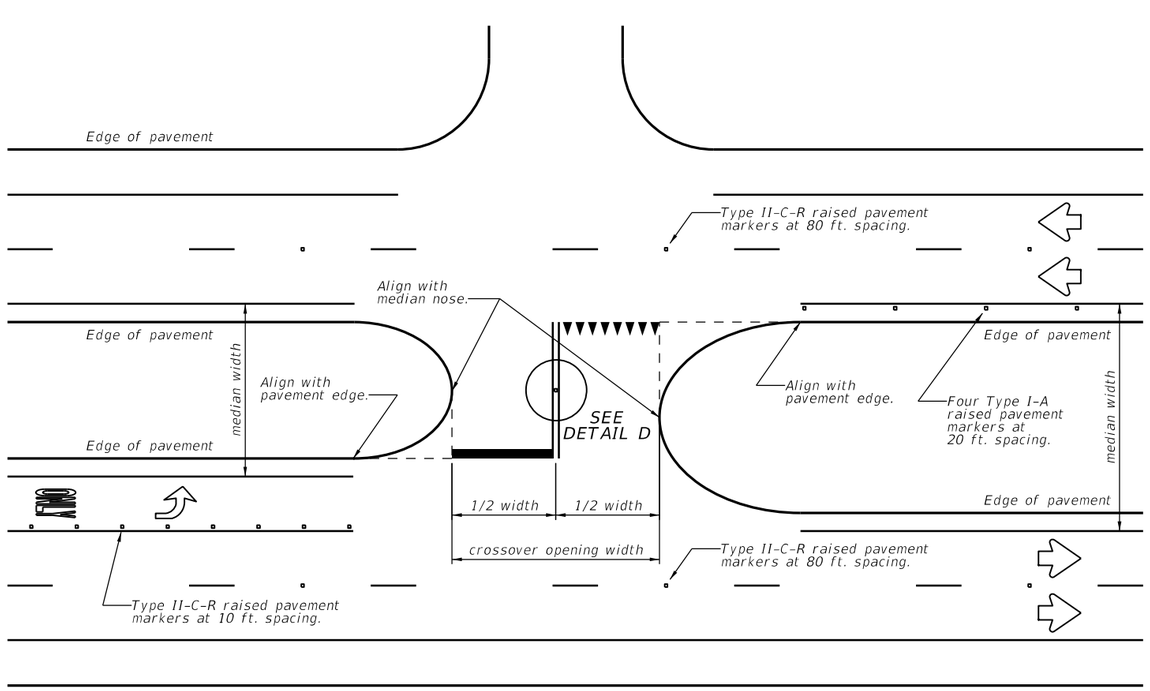
DETAIL C

GENERAL NOTES

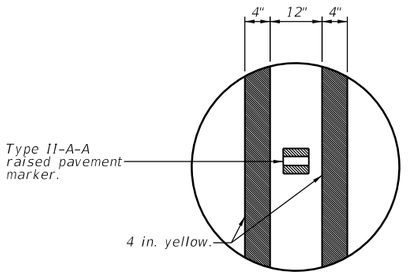
1. Lane-use word and arrow markings should be used in bays serving public road intersections.
2. When lane-use word and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane-use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane. See Standard Sheet PM(3) for more details.
3. Use 36 in. yield triangles or 24 in. stop bars, double yellow pavement markings, and Type II-A-A raised pavement markers at crossovers having narrower median width of at least 30 ft. Place one Type II-A-A raised pavement marker centered in the median, between the double yellow pavement markings.
4. The stop bar widths or number of yield triangles at each location is determined by the crossover opening width.
5. Spacing between yield triangles shall be 12 in.

PROJECT QUANTITIES OF WORDS AND ARROWS

ONLY	STOP	AHEAD				
0	0	0	0	0	0	0
0	0	0	0	0	0	0



CROSSOVER DETAILS



DETAIL D

Edwin Steven Kloboucnik, P.E.

STATE OF TEXAS
EDWIN STEVEN KLOBOUCNIK
73984
REGISTERED PROFESSIONAL ENGINEER

29.10.2020

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San Angelo District

PAVEMENT MARKING DETAILS (RURAL)

SHEET 1 OF 1 NOT TO SCALE

SHEET ISSUED OR LAST REVISED 11-19

CONT	SECT	JOB	HIGHWAY
0907	00	197, ETC	VA
DIST.	COUNTY		SHEET NO.
SJT	TOM GREEN, ETC		92

DATE: 10/28/2020 10:51:40 AM
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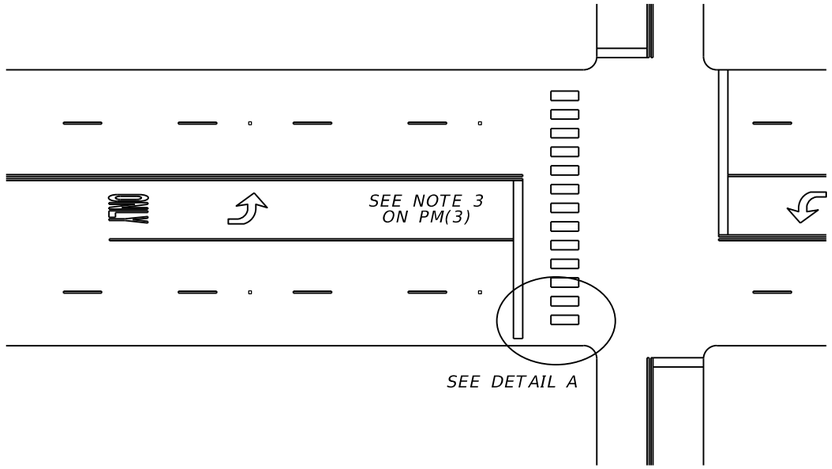
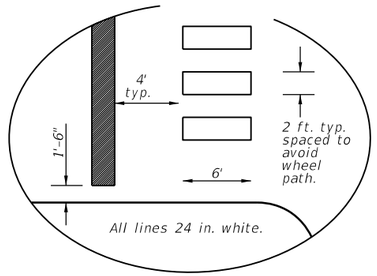
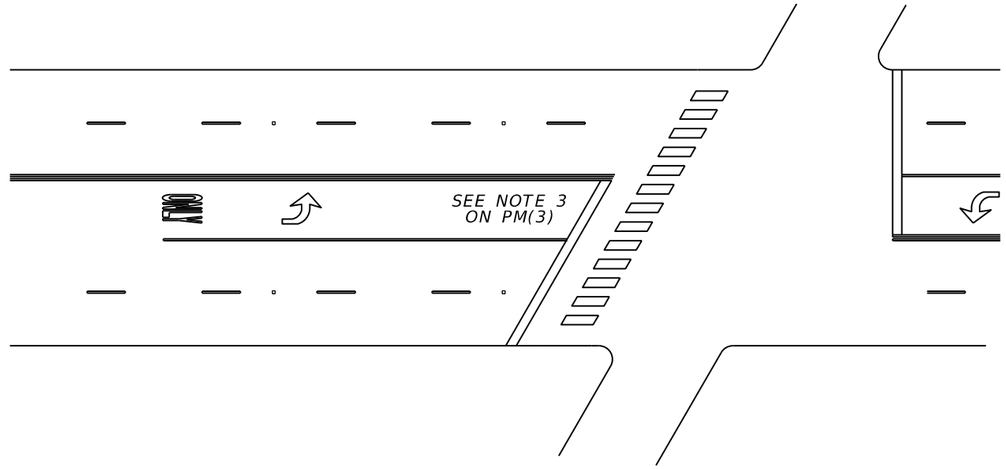


DETAILS FOR
TYPICAL INTERSECTION
WITH PERPENDICULAR CROSSWALK

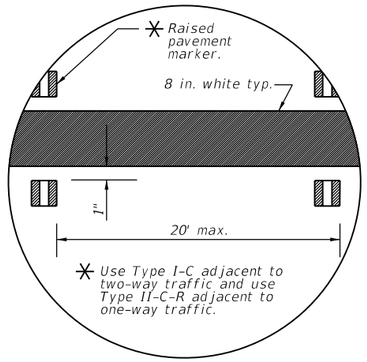


DETAIL A

The Engineer will approve final placement of stop bar and crosswalk.

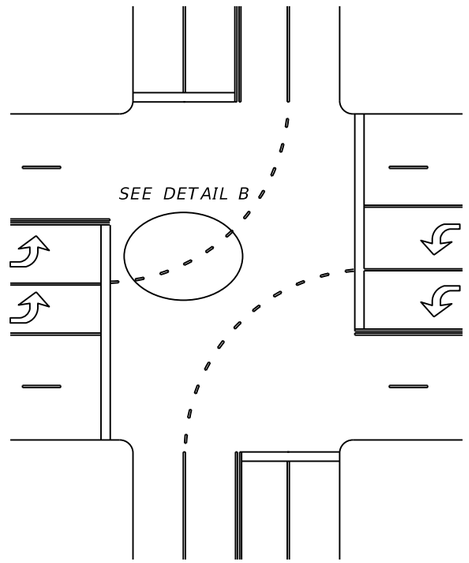


DETAILS FOR
TYPICAL INTERSECTION
WITH SKEWED CROSSWALK

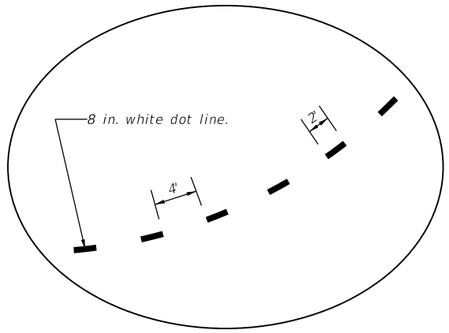


DETAIL C

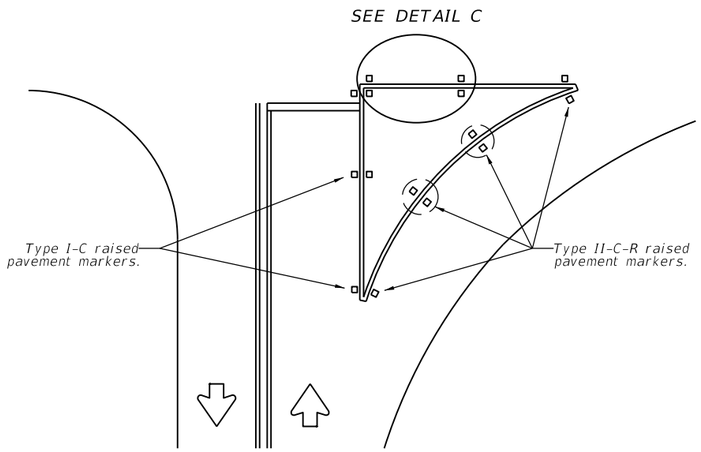
PROJECT QUANTITIES OF WORDS AND ARROWS						
ONLY	STOP	AHEAD				
0	0	0	0	0	0	0
0	0	0	0	0	0	0



DETAILS FOR
TYPICAL INTERSECTION
WITH "CAT TRACKS"



DETAIL B



DETAILS FOR
TYPICAL INTERSECTION
WITH UNCURBED
CHANNELIZING ISLAND

Ed. St. Klobouchnik, P.E.

STATE OF TEXAS
EDWIN STEVEN KLOBOUCNIK
73984
REGISTERED
PROFESSIONAL ENGINEER

29.10.2020

Texas Department of Transportation

San Angelo District

PAVEMENT MARKING DETAILS (URBAN)

SHEET 1 OF 1 NOT TO SCALE

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
09-20	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		93

DATE: 10/28/2020 10:51:56 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\090700197\4 - Design\Plan Set\8. Traffic\STANDARDS\PAVEMENT MARKING DETAILS (URBAN).dgn

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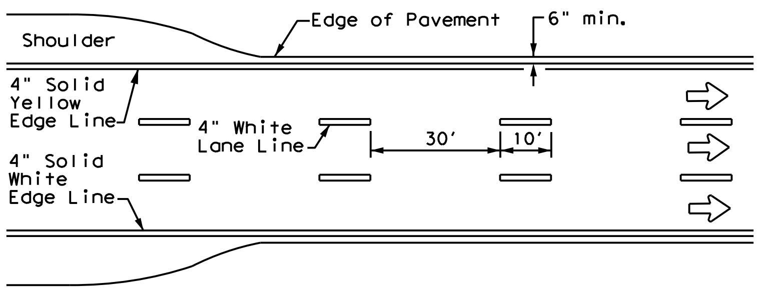
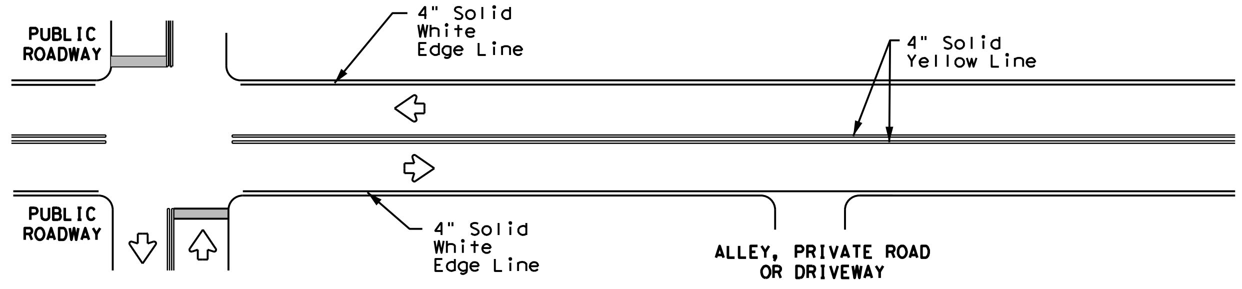
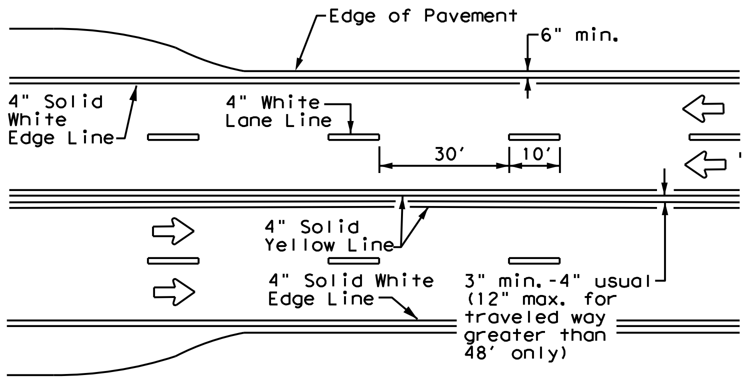


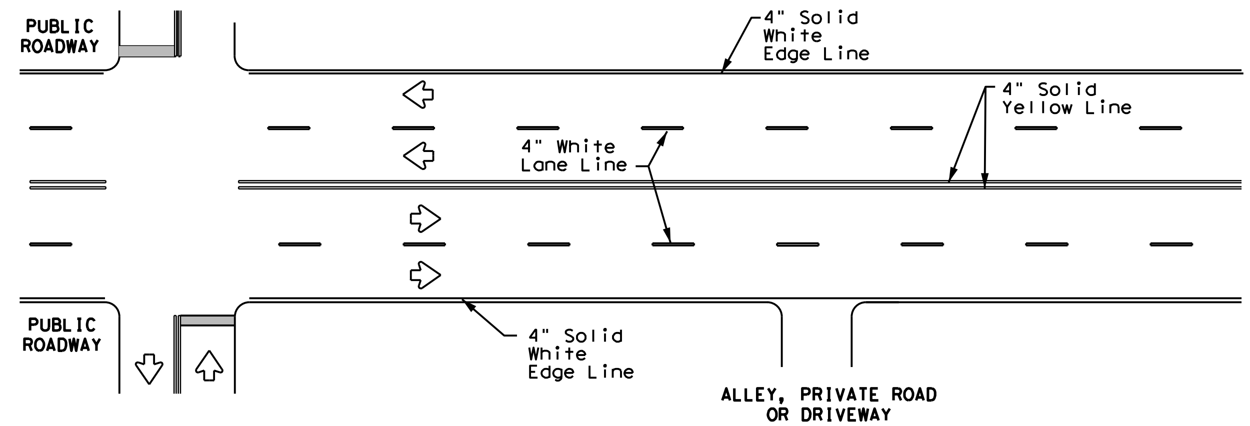
EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



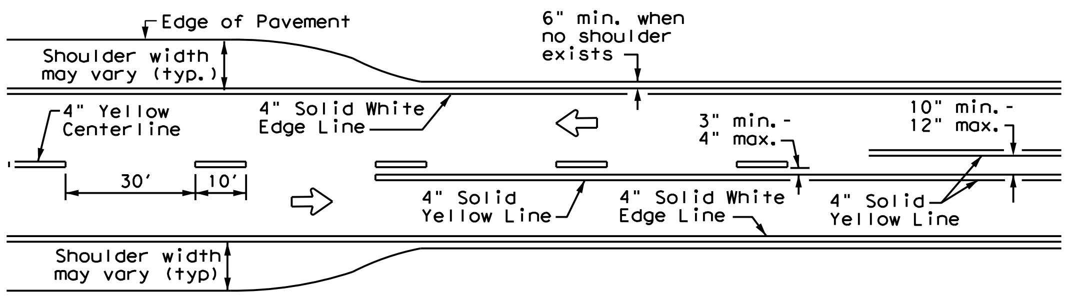
TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS



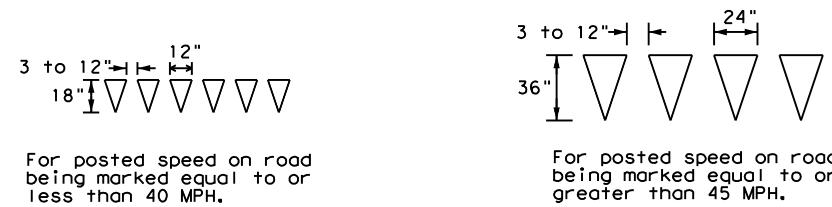
CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



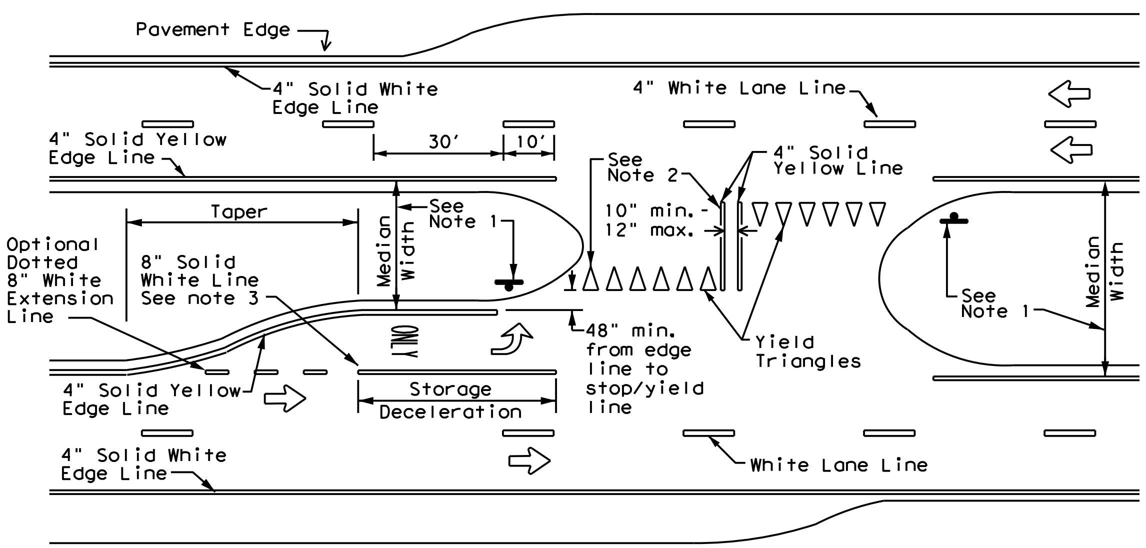
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

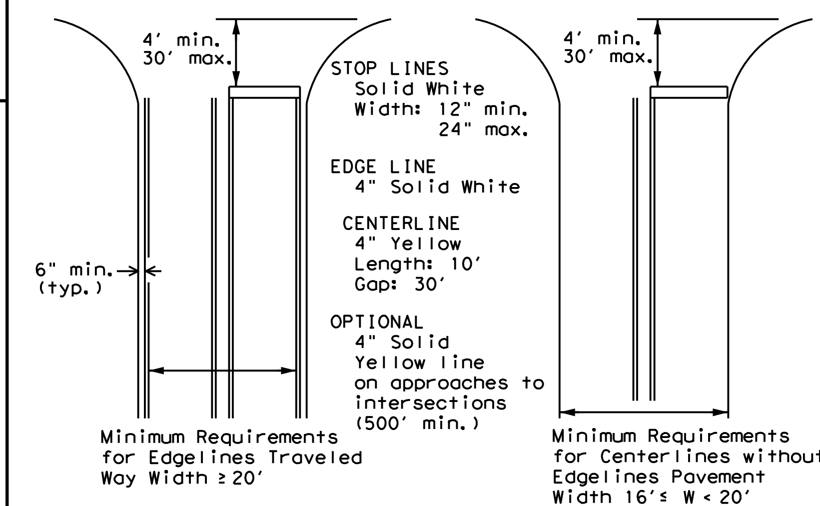
GENERAL NOTES

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

2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to the inside of edgeline of a two lane roadway.

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

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



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

NOTES

1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs are optional as determined by the Engineer.

2. Install median striping (double yellow centerlines and stop bars/yield triangles) when a 50' or greater median centerline can be placed. Stop bars shall only be used with stop signs. Yield trading les 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)-20

FILE: pm1-20.dgn	DN:	CK:	DW:	CK:
©TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03 5-00 2-12 8-00 6-20	0907	00	197, ETC	VA
	DIST		COUNTY	SHEET NO.
	SJT		TOM GREEN, ETC	94

22B

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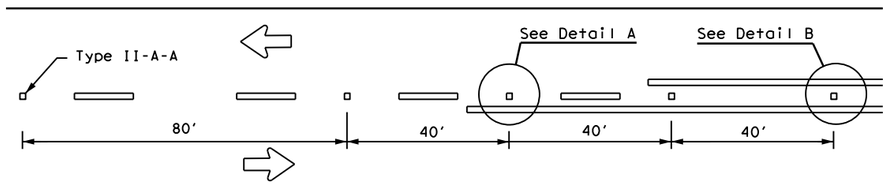
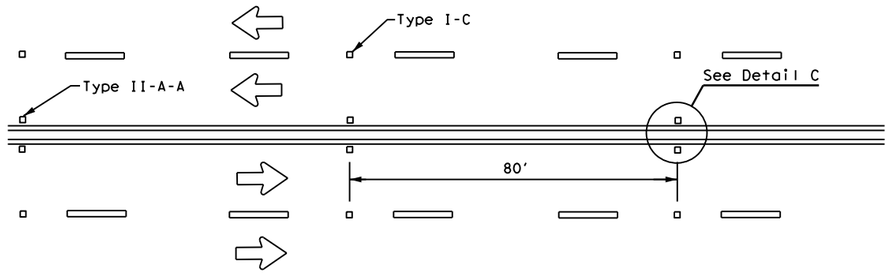
FILE: DOCUMENT NAME ...twiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\0907001974 - Design\Plan Set\8. Traffic\STANDARDS\PM(1)-20.dgn

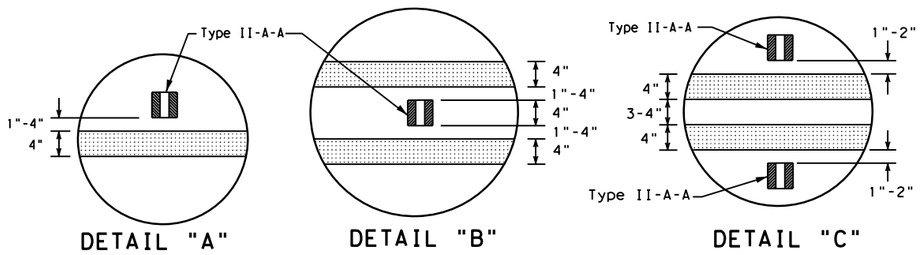
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



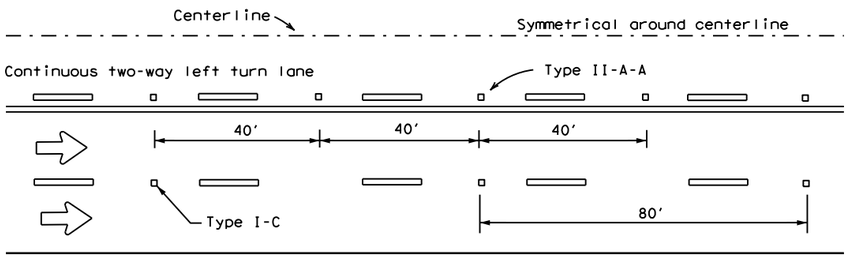
CENTERLINE FOR ALL TWO LANE ROADWAYS



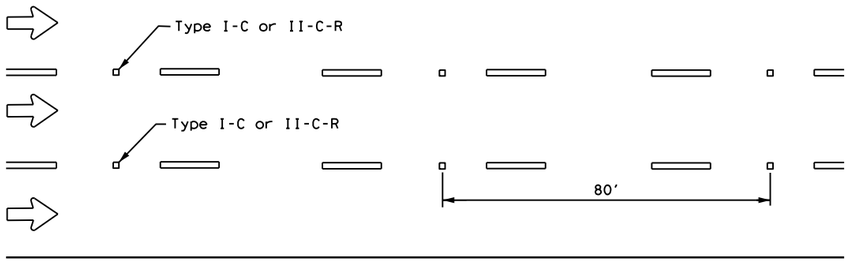
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS



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

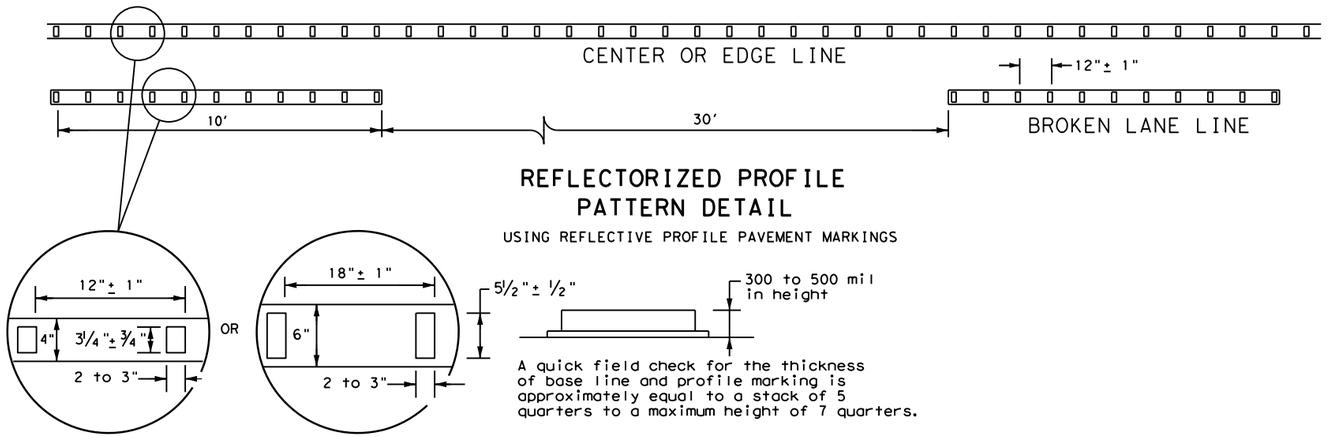


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



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

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



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

4" EDGE LINE, CENTER LINE OR LANE LINE

OPTIONAL 6" EDGE LINE, CENTER LINE OR LANE LINE

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

NOTE

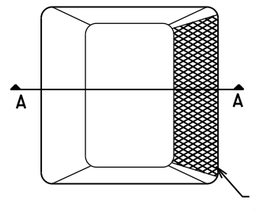
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

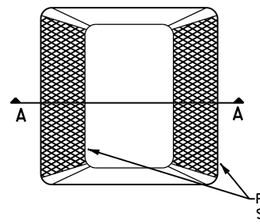
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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

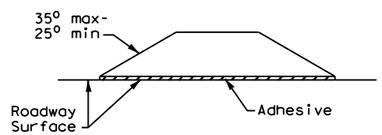
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

Traffic Safety Division Standard

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

FILE: pm2-20.dgn	DN:	CK:	DW:	CK:
©TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-92 2-10 5-00 2-12 8-00 6-20	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		95

228

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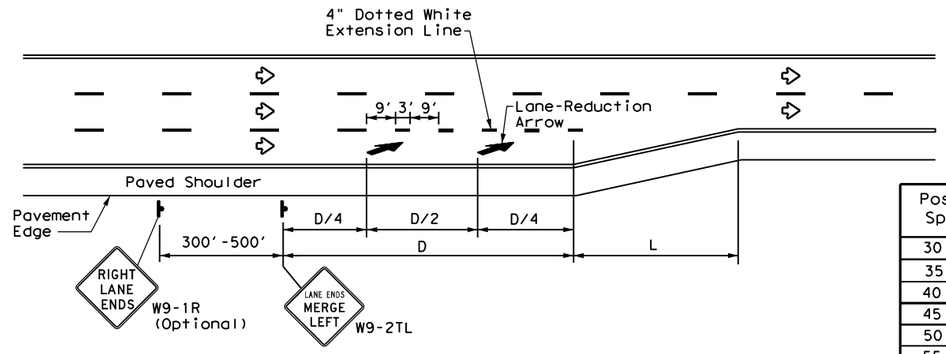
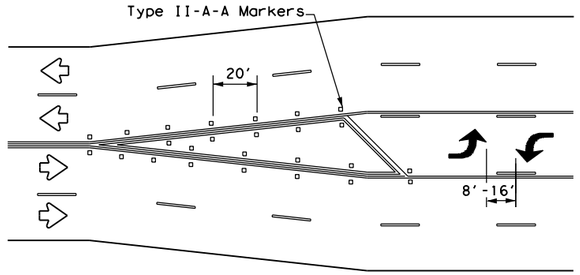


LANE REDUCTION

Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional W9-1R "RIGHT LANE ENDS" sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.



A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

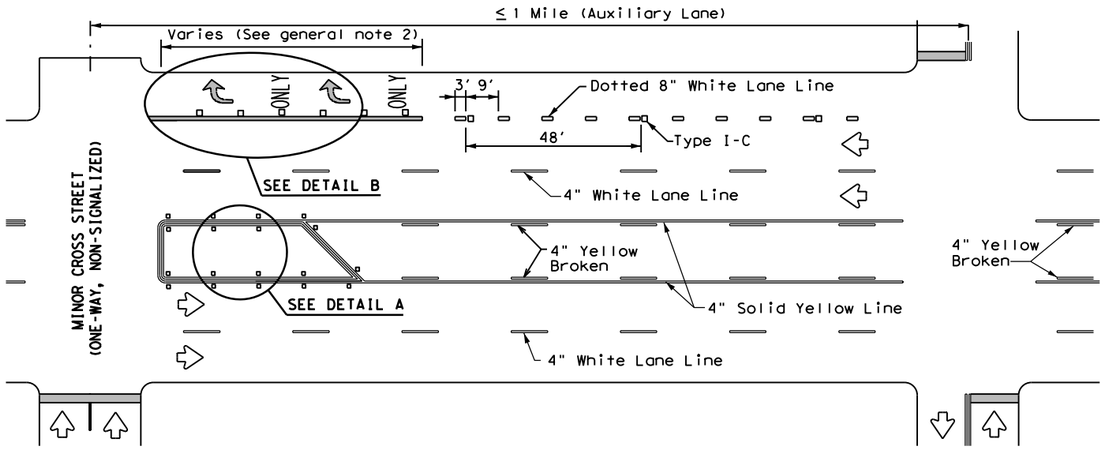
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

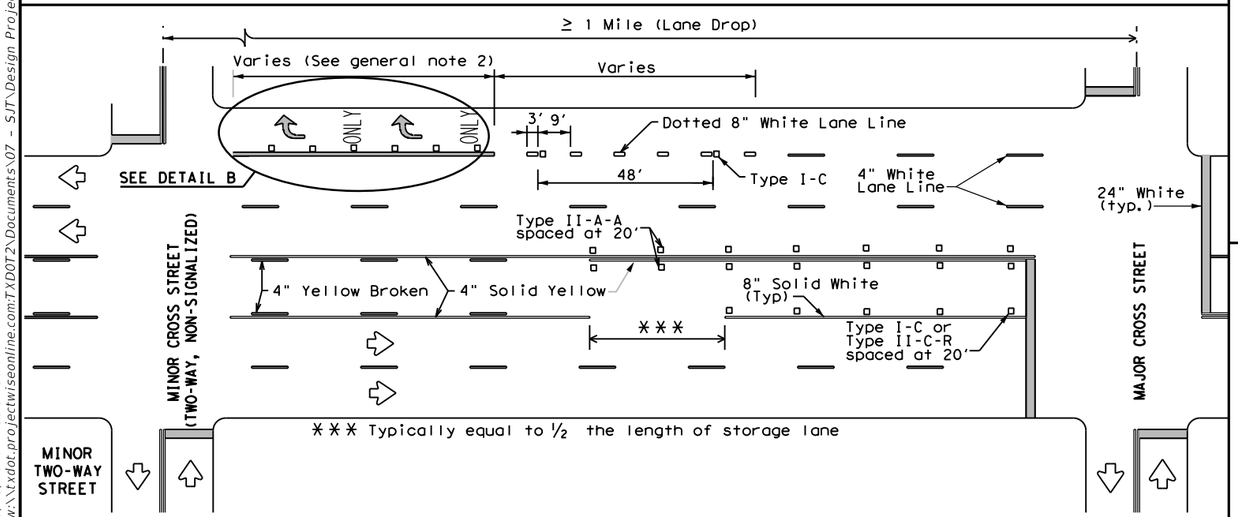
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

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

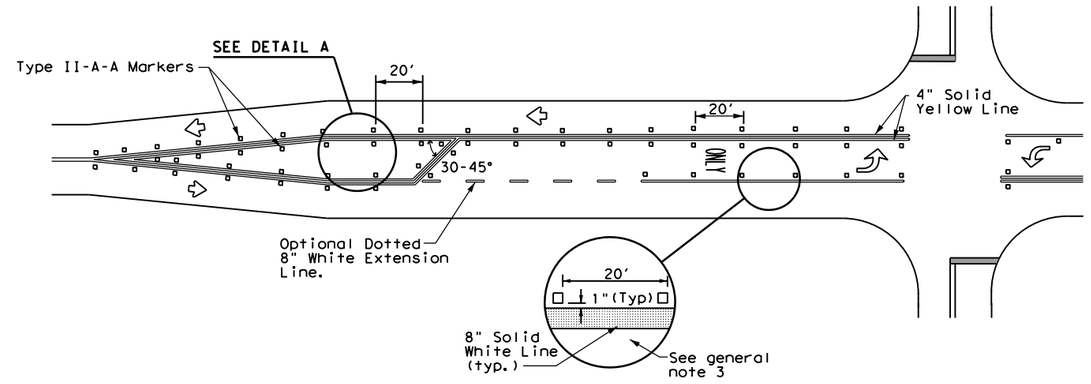
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



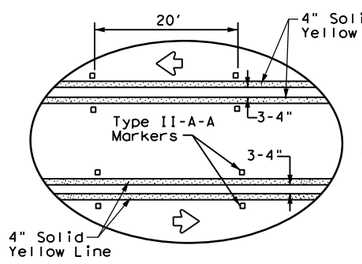
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



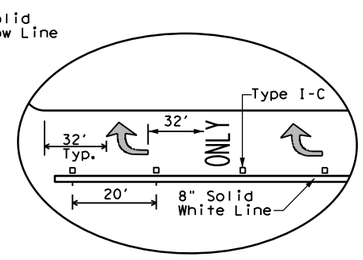
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



DETAIL A



DETAIL B

Texas Department of Transportation

Traffic Safety Division Standard

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

FILE: pm3-20.dgn	DN:	CK:	DW:	CK:
©TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0907	00	197, ETC	VA
5-00 2-10	DIST	COUNTY		SHEET NO.
8-00 2-12	SJT	TOM GREEN, ETC		96
3-03 6-20				

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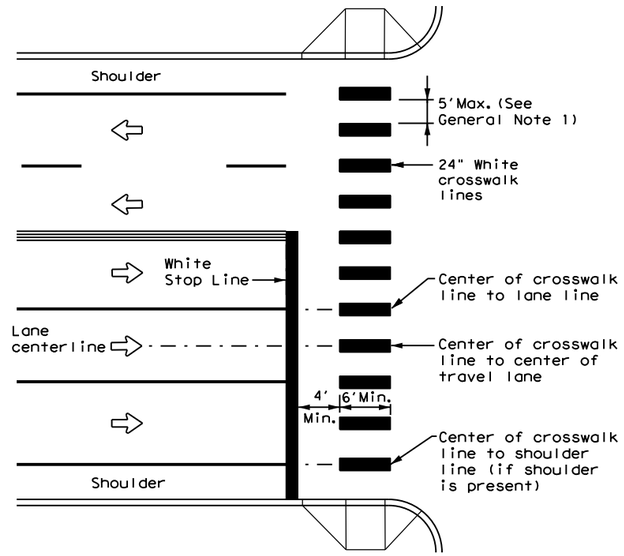


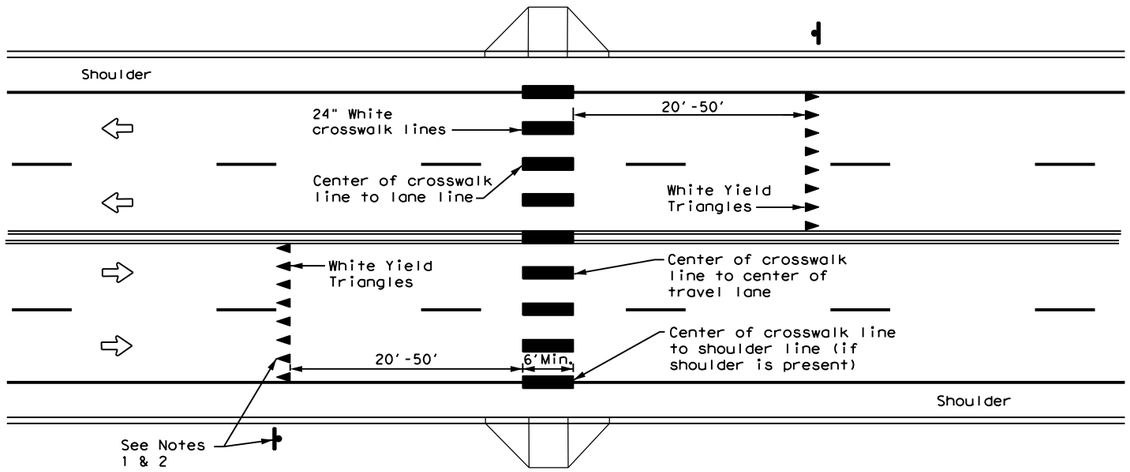
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar/Yield Triangles and Crosswalk shall be approved by the Engineer in the field.

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

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



UNSIGNALIZED MID BLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES

1. Use yield triangles with "Yield Here to Pedestrians" signs at unsignalized mid block crosswalks.
2. Use stop bars with "Stop Here on Red" signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

Texas Department of Transportation

Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS

PM(4)-20

FILE: pm4-20.dgn	DN:	CK:	DW:	CK:
© TxDOT June 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		97

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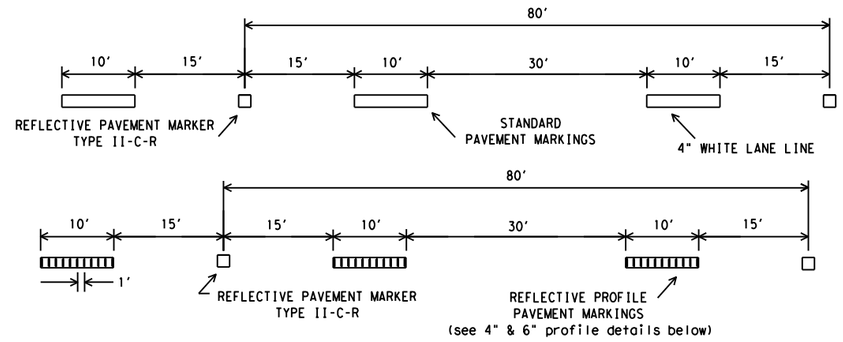
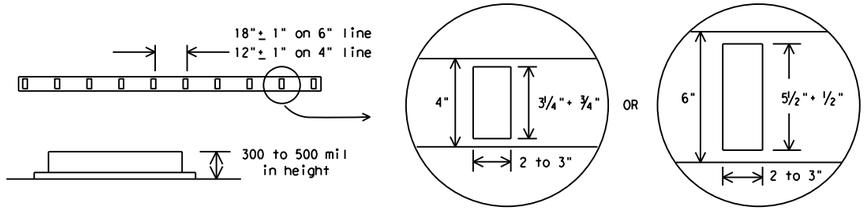


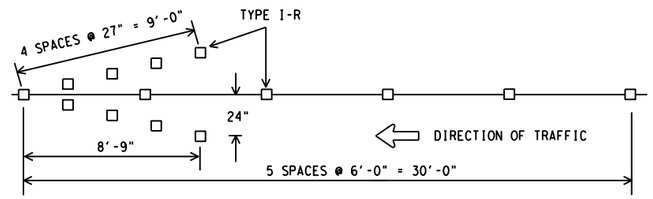
PAVEMENT MARKERS (REFL) TYPE II-C-R SHALL BE SPACED ON 80' CENTERS WITH THE CLEAR FACE TOWARD NORMAL TRAFFIC AND THE RED FACE TOWARD WRONG WAY TRAFFIC.

TRAFFIC LANE LINES PAVEMENT MARKING DETAILS

EDGELINES SHOULD TYPICALLY BE 4" WIDE AND THE MATERIALS SHALL BE AS SPECIFIED IN THE PLANS.
IF RAISED PROFILE PAVEMENT MARKINGS ARE USED SEE DETAILS BELOW.



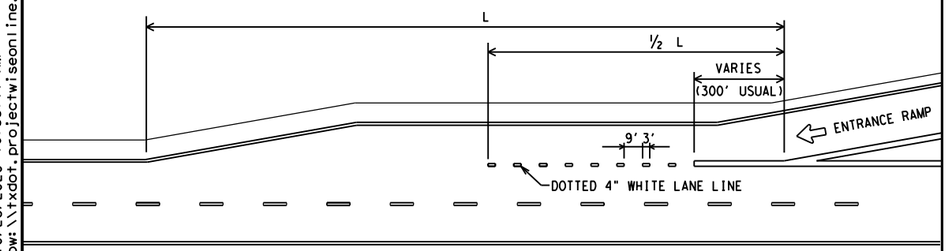
EDGELINE PAVEMENT MARKINGS



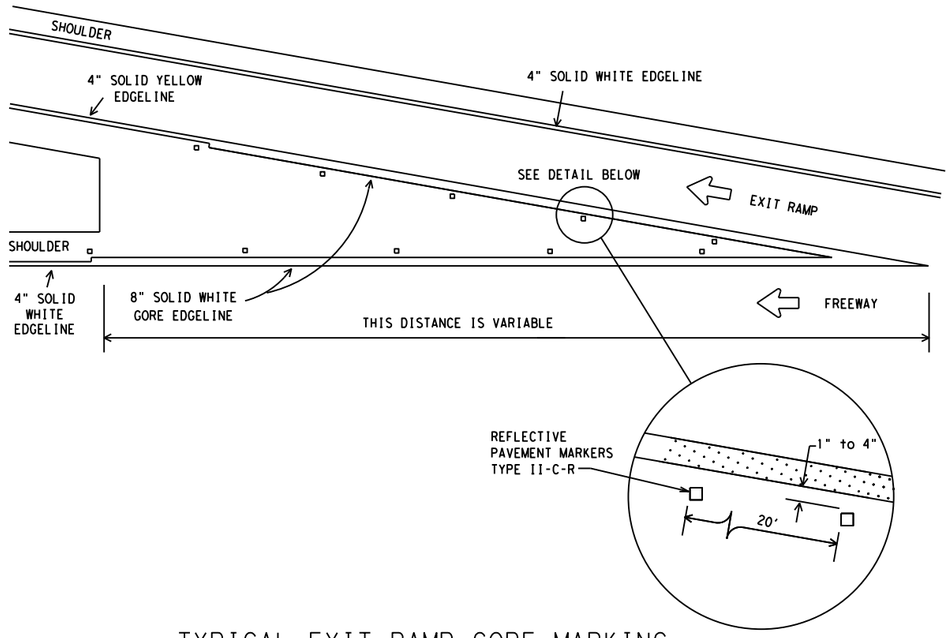
ALL RAISED MARKERS IN THE WRONG WAY ARROW SHALL BE TYPE I-R REFLECTORIZED PAVEMENT MARKERS WITH THE REFLECTORIZED SURFACE FACING THE WRONG WAY TRAFFIC. TYPE II-C-R SHALL NOT BE USED.

REFLECTORIZED WRONG WAY ARROWS, NOT TO EXCEED TWO, MAY BE PLACED ON EXIT RAMPS.
LOCATION OF THE ARROWS SHALL BE AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

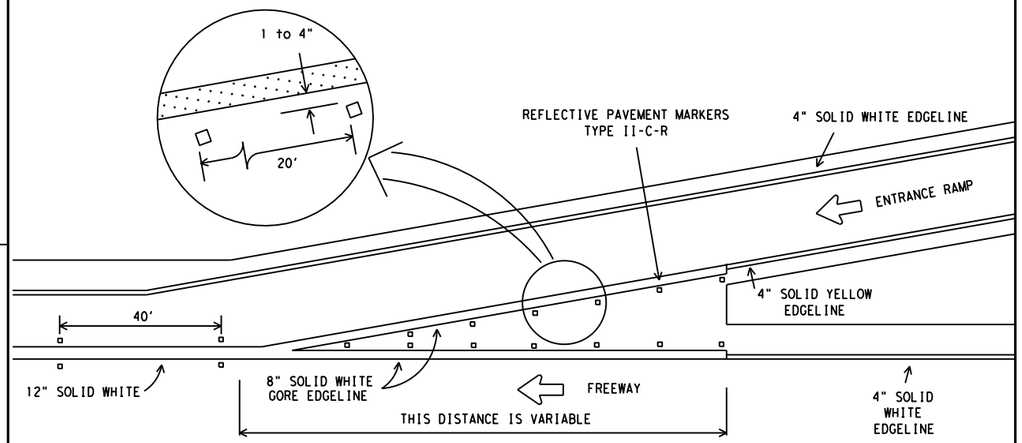
WRONG WAY ARROW DETAIL



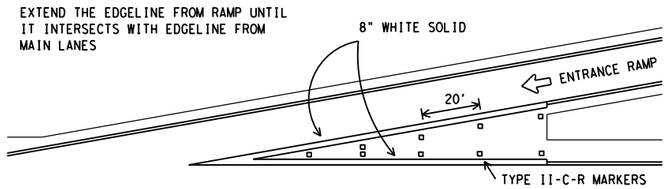
PARALLEL ACCELERATION LANE



TYPICAL EXIT RAMP GORE MARKING



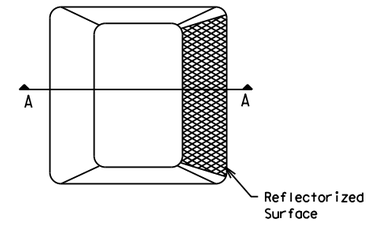
TYPICAL ENTRANCE RAMP GORE MARKING



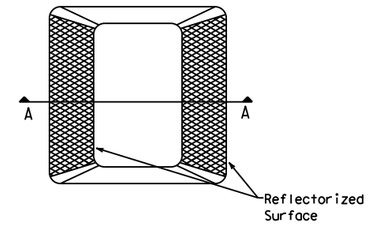
TAPERED ACCELERATION LANE

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

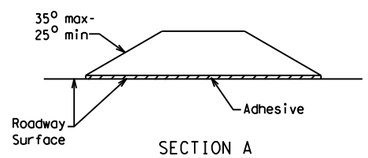
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation
Traffic Operations Division

TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS WITH RAISED PAVEMENT MARKERS

FPM(1)-12

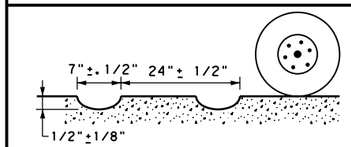
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS		CONT	SECT	JOB	HIGHWAY
4-92	2-10	0907	00	197, ETC	VA
5-00	2-12	DIST	COUNTY		SHEET NO.
8-00		SJT	TOM GREEN, ETC		98
2-08					

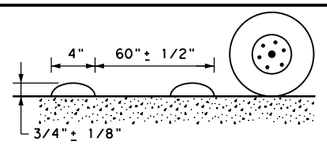
23A

DATE: 10/28/2020 10:53:21 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT2\Documents\07 - SJT\Design Projects\0907197ETC RS(3)-13.dgn

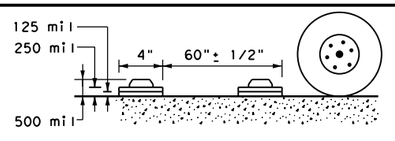
CENTERLINE RUMBLE STRIPS



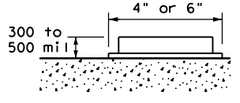
MILLED RUMBLE STRIPS



RAISED TRAFFIC BUTTONS

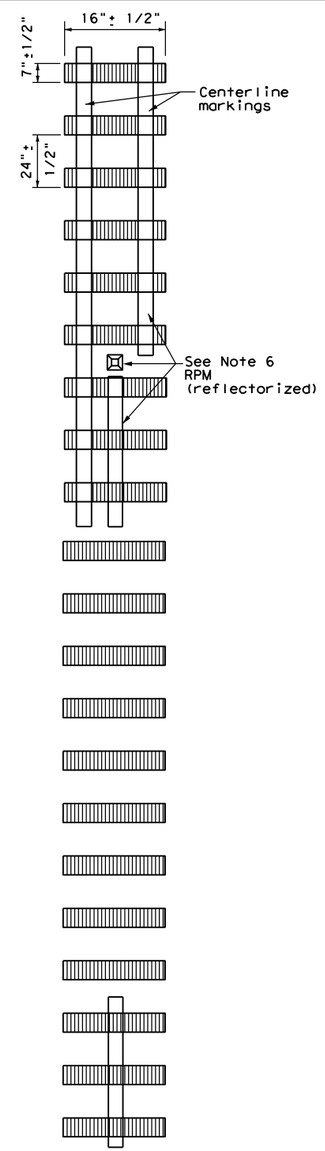


PREFORMED THERMOPLASTIC STRIPS



PROFILE MARKINGS

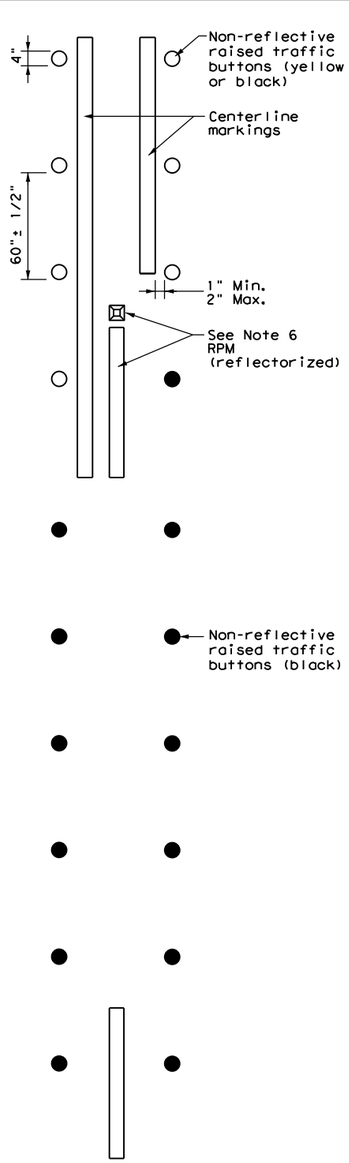
PROFILE VIEW



PLAN VIEW
OPTION 1

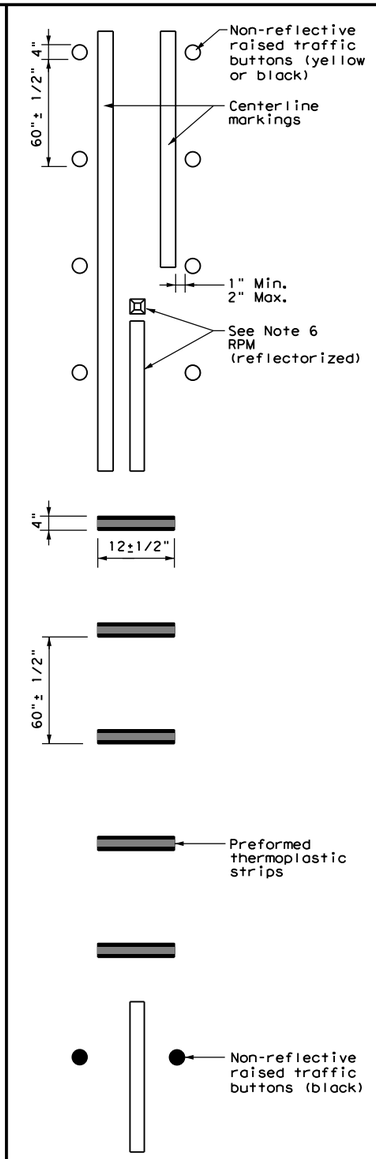
TWO LANE TWO-WAY ROADWAYS

MILLED CENTERLINE RUMBLE STRIPS



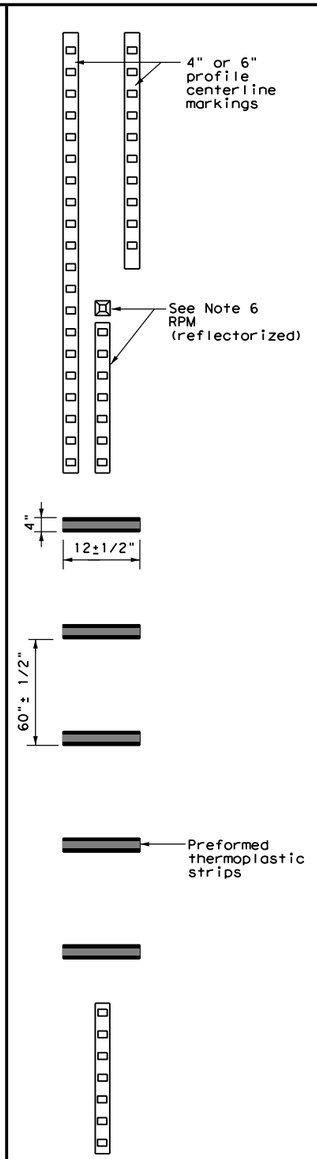
PLAN VIEW
OPTION 2

RAISED CENTERLINE RUMBLE STRIPS



PLAN VIEW
OPTION 3

RAISED CENTERLINE RUMBLE STRIPS AND PREFORMED THERMOPLASTIC STRIPS



PLAN VIEW
OPTION 4

PROFILE CENTERLINE MARKINGS AND PREFORMED THERMOPLASTIC STRIPS

GENERAL NOTES

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

WHEN INSTALLING CENTERLINE RUMBLE STRIPS:

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

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

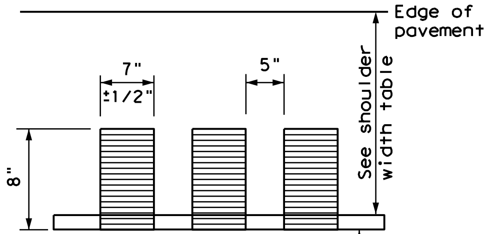
12. See standard sheet RS(4).

Texas Department of Transportation®
Traffic Operations Division Standard

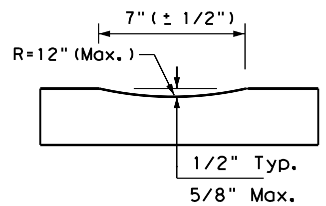
CENTERLINE RUMBLE STRIPS ON TWO LANE TWO-WAY HIGHWAYS

RS(3)-13

FILE: rs(3)-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS	0907	00	197, ETC	VA
	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		99



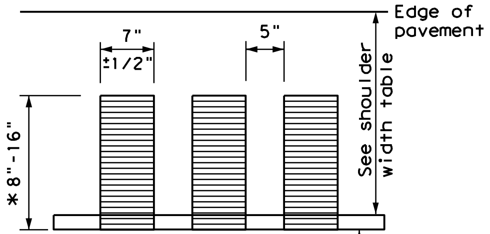
PLAN VIEW



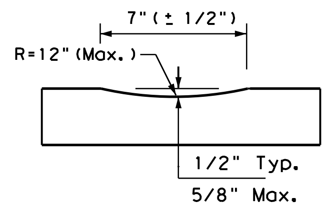
PROFILE VIEW

OPTION 1

CONTINUOUS MILLED DEPRESSIONS (Rumble Stripes)



PLAN VIEW

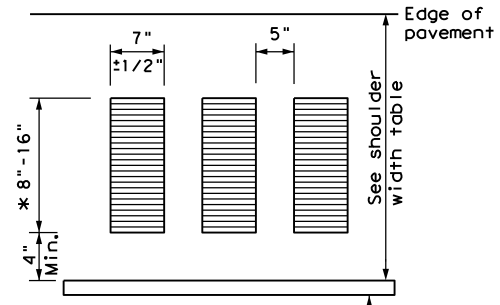


* This distance may vary based on width of shoulder

PROFILE VIEW

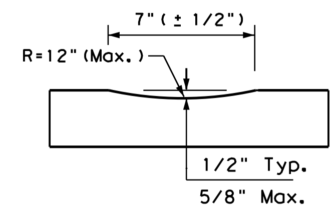
OPTION 2

CONTINUOUS MILLED DEPRESSIONS (Rumble Stripes)



PLAN VIEW

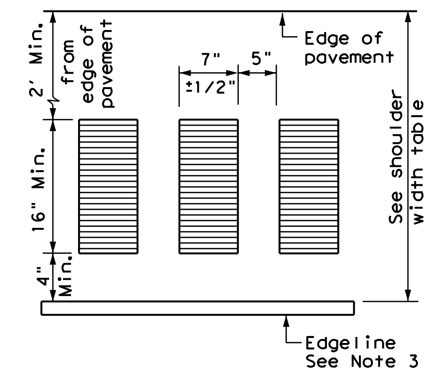
* This distance may vary based on width of shoulder



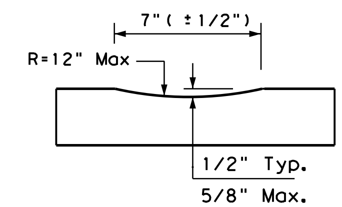
PROFILE VIEW

OPTION 3

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



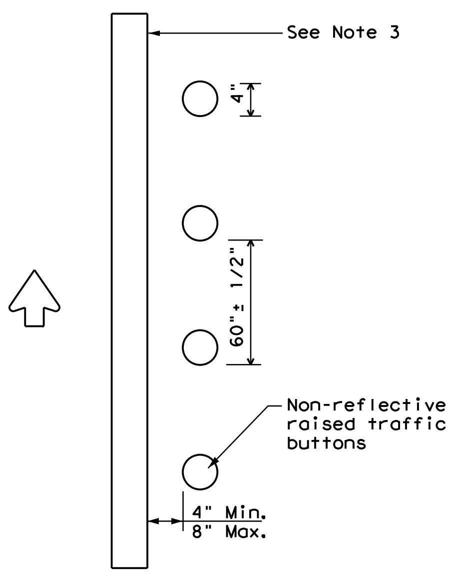
PLAN VIEW



PROFILE VIEW

OPTION 4

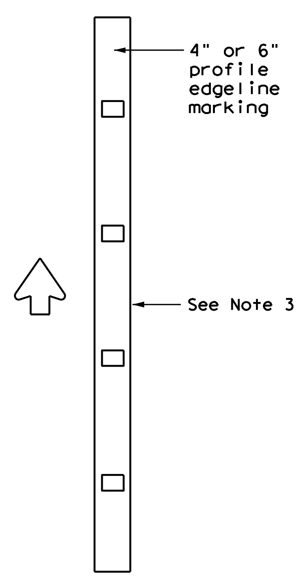
CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



PLAN VIEW

OPTION 5

RAISED EDGELINE RUMBLE STRIPS



PLAN VIEW

OPTION 6

PROFILE EDGELINE MARKINGS

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

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 Sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
4. See the table below for determining what options may be used for edgeline rumble strips.

WHEN INSTALLING MILLED DEPRESSION EDGELINE RUMBLE STRIPS:

5. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Operations Division.
6. Pavement markings can be applied over milled shoulder rumble strips to create an edgeline rumble stripe.
7. Breaks in edgeline rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections and driveways with high usage of large trucks when installed on conventional highways.
8. Rumble strips shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
9. Consideration should be given to noise levels when edgeline rumble strips are installed near residential areas, schools, churches, etc. A minimum of 3/8 inches depth of milled rumble strip may be considered in these areas.
10. On roadways with high bicycle activity, consideration should be given before the installation of edgeline rumble strips. Things to consider include size of rumble strips, rumble strip material and location of rumble strips on the shoulder. If the designer determines that gaps are needed in the rumble strips due to bicycle use of the road, then follow the requirement shown in FHWA Technical Advisory T5040.39, or latest version. A detail of the spacing shall be included in the plans.

WHEN INSTALLING RAISED OR PROFILE EDGELINE 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 edgeline when used as a rumble strip. The color of the button should match the color of the adjacent edgeline 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. Breaks in edgeline rumble strips using raised traffic buttons shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossing, intersections and driveways with high usage of large trucks when installed on conventional highways.
15. The minimum distance between the edgeline and the buttons should be used if the shoulder is less than 8 feet in width.
16. Raised profile thermoplastic markings used as edgelines may substitute for buttons.

Texas Department of Transportation | Traffic Operations Division Standard

EDGELINE RUMBLE STRIPS ON UNDIVIDED OR TWO LANE HIGHWAYS RS(4)-13

FILE:	rs(4)-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	October 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS		0907	00	197, ETC	VA
		DIST		COUNTY	SHEET NO.
		SJT		TOM GREEN, ETC	100

DATE: 10/28/2020 10:53:30 AM
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I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or CGP 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 that may receive discharges from this project. The MS4 Operator may need to be notified prior to construction activities.

1. N/A

☑ NO ACTION REQUIRED ☐ ACTION REQUIRED

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 CSN with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. When 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.

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#

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.

Required Actions: List waters of the U.S. that the permit applies to, the location in project, and check BMP's planned to control erosion, sedimentation and post-construction TSS.

1. N/A

BEST MANAGEMENT PRACTICES

EROSION

☐ SEEDING OR SODDING
☐ MULCHING
☐ SOIL RETENTION BLANKETS
☐ BIODEGRADABLE EROSION CONTROL LOGS
☐ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
☐ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
☐ TOPSOIL OR COMPOST
☐ FLEXIBLE CHANNEL LINERS
☐ GROUND COVER

SEDIMENTATION

☐ ROCK FILTER DAMS
☐ TEMPORARY SEDIMENT CONTROL FENCES
☐ TRIANGULAR FILTER DIKES
☐ TOPSOIL OR COMPOST
☐ BIODEGRADABLE EROSION CONTROL LOGS
☐ SEDIMENT BASINS
☐ SAND BAG BERMS
☐ STRAW BALE DIKES
☐ BRUSH BERMS
☐ STORM INLET SEDIMENT TRAPS

POST-CONSTRUCTION TSS

☐ VEGETATIVE FILTER STRIPS
☐ RETENTION/IRRIGATION SYSTEMS
☐ EXTENDED DETENTION BASINS
☐ CONSTRUCTED WETLANDS
☐ WET BASINS
☐ TOPSOIL OR COMPOST
☐ BIODEGRADABLE EROSION CONTROL LOGS
☐ VEGETATION LINED DITCHES
☐ SAND FILTER SYSTEMS
☐ GRASSY SWALES

III. CULTURAL RESOURCES

Refer to the 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 ☐ ACTION REQUIRED

1. N/A

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical.

Adhere to specification requirements of Items 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 ☑ ACTION REQUIRED

1. Only remove woody vegetation between October 1 and March 1.

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

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

☐ NO ACTION REQUIRED ☑ ACTION REQUIRED

1. The Migratory Bird Treaty Act of 1918 states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, or egg in part or in whole, without a federal permit issued in accordance with the Act's policies and regulations. Migration patterns would not be affected by the proposed project. Remove non-active migratory bird nests from structures where work would be performed from September 1 through the end of February. Prevent migratory birds from building nests from March 1 to August 31. In the event that migratory birds are encountered on-site during project construction, avoid adverse impacts on protected birds, active nests, eggs, and/or young.

ABBREVIATIONS USED

BMP – Best Management Practice
CGP – Construction General Permit
CSN – Construction Site Notice
DSHS – Texas Department of State Health Services
EPA – U.S. Environmental Protection Agency
MS4 – Municipal Separate Stormwater Sewer System
MSDS – Material Safety Data Sheet
NOI – Notice of Intent
NWP – Nationwide Permit
PCN – Pre-Construction Notification
PSL – Project Specific Location
SW3P – Storm Water Pollution Prevention Plan
TCEQ – Texas Commission on Environmental Quality
TPDES – Texas Pollutant Discharge Elimination System
TSS – Total Suspended Solids
USACE – U.S. Army Corps of Engineers

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 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 labeling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the TxDOT 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 ☐ ACTION REQUIRED

1. N/A

VII. OTHER ENVIRONMENTAL ISSUES

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

☑ NO ACTION REQUIRED ☐ ACTION REQUIRED

1. N/A

P.E. SEAL REQUIRED
PRELIMINARY
SUBJECT TO REVISION
This document is released for informational purposes under the authority of EDWIN STEVEN KLOBOUCNIK, P.E. P.E. NUMBER 73984 10/28/2020 90% COMPLETE It is not to be used for regulatory approval, permit, bidding, or construction purposes.

Texas Department of Transportation | San Angelo District

ENVIRONMENTAL PERMITS ISSUES AND COMMITMENTS

SHEET 1 OF 1 NOT TO SCALE

©TxDOT 2020	CONT	SECT	JOB	HIGHWAY
SHEET ISSUED OR LAST REVISED	0907	00	197, ETC	VA
11-19	DIST	COUNTY		SHEET NO.
	SJT	TOM GREEN, ETC		101

DATE: 10/28/2020 10:53:42 AM
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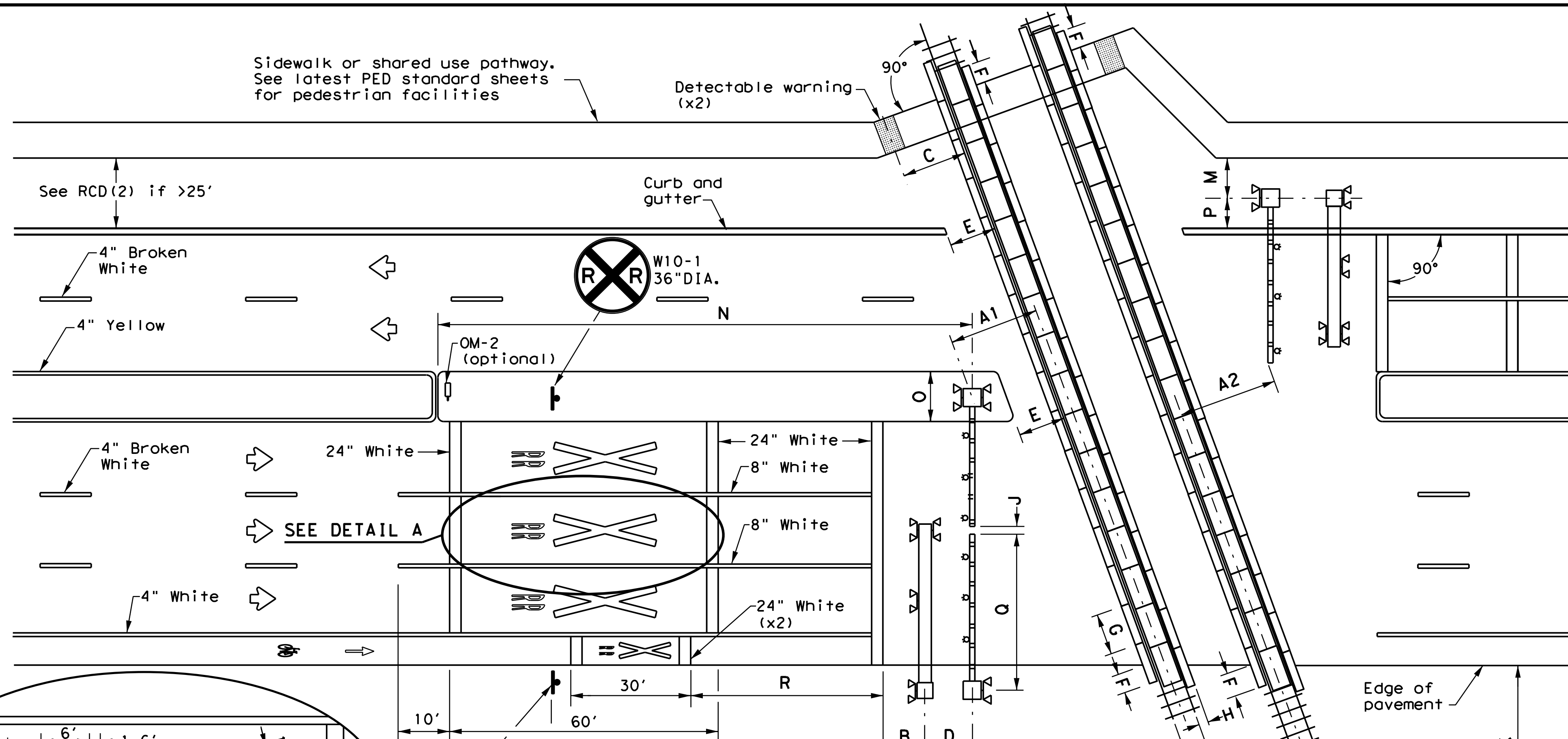
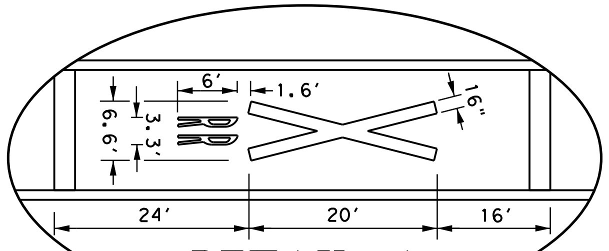


2-WAY, MULTIPLE LANES EACH DIRECTION



DETAIL A

NOTES

A1: Center of RR mast to center of rail: 12' minimum, 15' typical.

A2: Tip of gate to center of rail: 12' minimum, 15' typical.

B: Center of mast (cantilever, gate, or mast flasher) of nearest active traffic control device to stop line: 8' (NOTE: Stop line may be moved as needed, but should be at least 8' back from gates, if present).

C: Center of detectable warning device to nearest rail: 6' minimum

D: Center of gate mast to center of cantilever mast: 6' typical. NOTE: Cantilever may be located in front or behind gates.

E: Edge of median or curb to nearest rail: 10' typical. NOTE: Design median edge to be parallel with rail.

F: Edge of planking panel from edge of pavement or sidewalk: 3' minimum. NOTE: Field panels need not be in line with gauge panels.

G: Length of panels along rail: 8' typical.

H: Width of field panel: 2' typical (check with railroad company).

I: Distance between rails: 4'-8.5".

J: Tip of gate to tip of gate: 2' maximum for Quiet Zone SSM or 90% of traveled way covered by gates for all other locations.

K: Nearest edge of RR cabin from edge of pavement: 30' typical. NOTE: Cabinet not required to be parallel to edge of pavement.

L: Nearest edge of RR cabin from nearest rail: 25' typical.

M: Center of RR mast to edge of sidewalk: 6' minimum.

N: Center of gate mast to leading edge of non-traversable median: 100' minimum to qualify as a Quiet Zone SSM. NOTE: 60' will suffice if there is a street intersection within the 100' and all street intersections within 60' are closed.

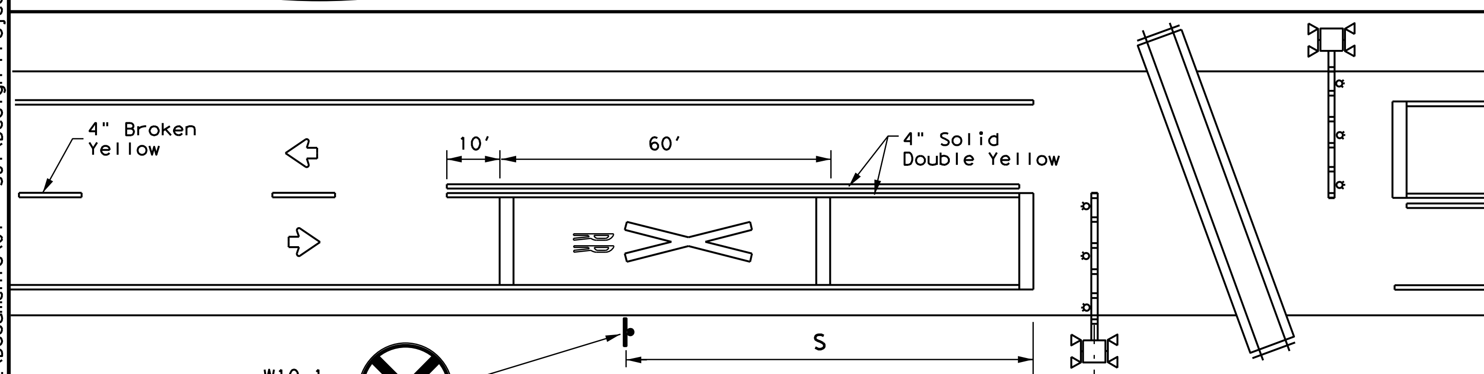
O: Width of median: 8'-6" minimum, 10' typical when using median gates. NOTE: Center of gate mast minimum 4'-3" from face of curb.

P: Center of RR mast to face of curb: 4'-3" minimum. Center of RR mast to edge of pavement (with shoulder): 6' minimum Center of RR mast to edge of pavement (no shoulder): 8'-3" minimum NOTE: BNSF prefers 5'-3", 7', and 9'-3" minimums, respectively.

Q: Gate length: 28' or less typical, but railroad company may allow up to 32' under special circumstances.

R: Stop line to first RR Crossing transverse line (bike lane): 50' typical.

S: Stop line to GRADE CROSSING ADVANCE WARNING (W10-1) sign and adjacent RR Crossing pavement markings. See Table 1. See RCD(2) for other signs.



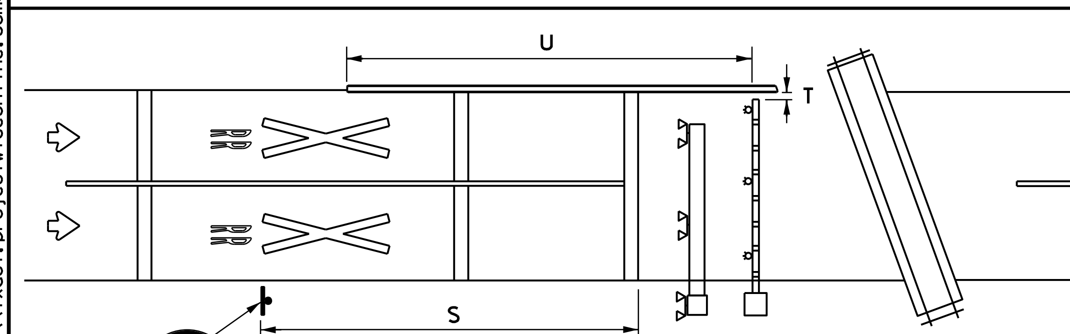
2 LANES, 2-WAY

TABLE 1	
Approach Speed (mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

LEGEND	
(symbol)	Sign
(symbol)	Object Marker
(symbol)	Traffic Flow
(symbol)	Cantilever
(symbol)	Gate Assembly
(symbol)	Mast Flasher Pair

GENERAL NOTES

1. Medians and curbs must be non-traversable to qualify as a Quiet Zone Supplementary Safety Measure (SSM). Non-traversable curbs in Quiet Zones are 6" tall minimum and used on roadways where speeds does not exceed 40 mph.
2. Raised pavement markers may be used to supplement striping. See PM(2) and PM(3) standard sheets.
3. Medians preferred whenever possible to prevent vehicles from driving around gates.
4. Longitudinal edge striping may be continued thru crossing as needed. Illumination may also be considered for nighttime visibility.
5. See SMD standard sheets for sign mounting details.
6. See the Standard Highway Sign Design for Texas (SHSD) manual for sign and pavement marking details.

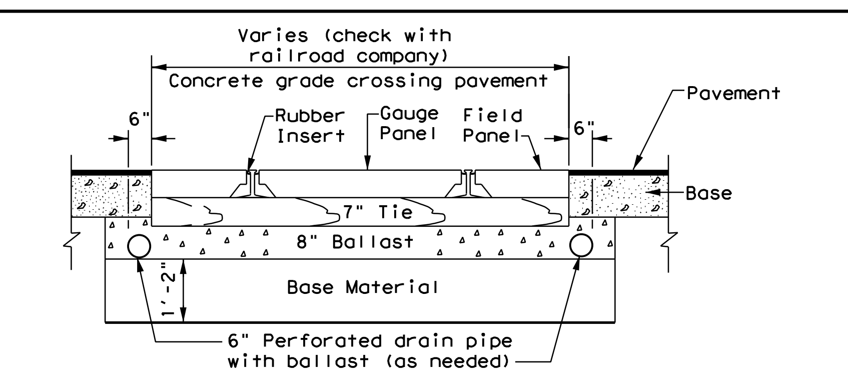


1-WAY STREET WITH CURB

NOTES

T: Tip of gate to edge of curb: 1' max for Quiet Zone SSM, 90% of traveled way covered by gates for all other locations

U: Non-traversable curb length from gate: 100' min. for a Quiet Zone SSM, 10' min for all other locations.



CROSSING SURFACE CROSS SECTION

Texas Department of Transportation

Traffic Operations Division Standard

RAILROAD CROSSING DETAILS SIGNING, STRIPING, AND DEVICE PLACEMENT

RCD(1)-16

FILE: rcd1-16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT FEBRUARY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0907	00	197, ETC	VA
	DIST		COUNTY	SHEET NO.
	SJT		TOM GREEN, ETC	102

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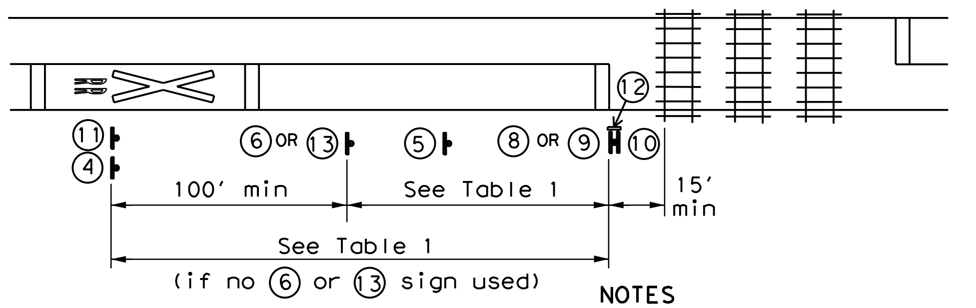
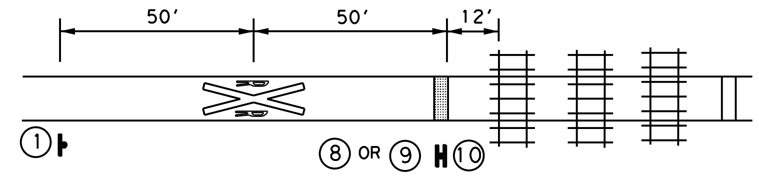
PASSIVE CROSSING



NOTES

1. Stop or yield sign may also be installed to the left of the crossbuck sign, rather than below it.
2. A 2" white retroreflective strip shall be installed on front and back of crossbuck sign post.

PATHWAY CROSSING



NOTES

1. A shared use pathway is considered a separate pathway crossing when more than 25' from traveled way of adjacent roadway.
2. Detectable warning used at stop bar.
3. Smaller sign sizes preferred than shown to the right on this sheet.

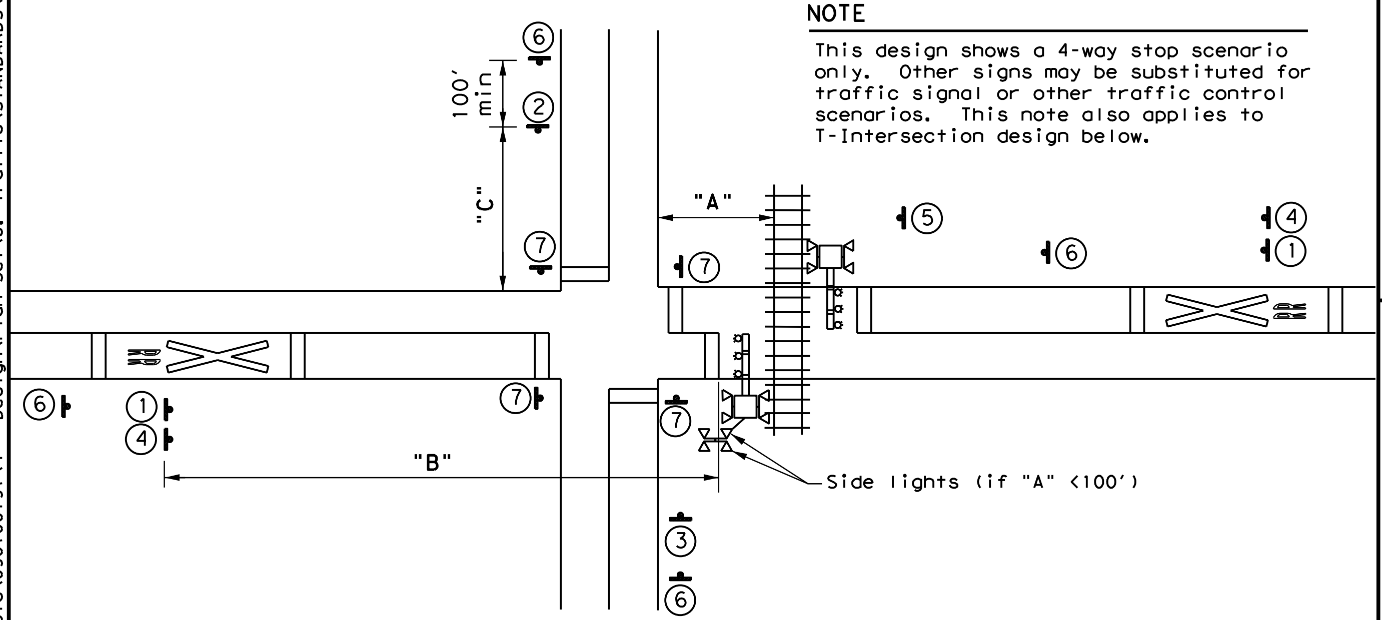
TABLE 1

Approach Speed (mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

GENERAL NOTES

1. Railroad company to provide active traffic control devices, CROSSBUCK (R15-1), NUMBER OF TRACKS Plaque (R15-2P) (if more than 1 track), and EMERGENCY NOTIFICATION (I-13) signs.
2. LOW GROUND CLEARANCE (W10-5) signs may be relocated further upstream of crossing to provide advance warning of alternate route.
3. GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-2) signs may be modified as needed to fit roadway geometry.
4. Table 1 placement distances may vary per Sect. 2C.05 of the TMUTCD.
5. See Table 1 to determine placement of STOP AHEAD (W3-1) and YIELD AHEAD (W3-2) signs unless shown otherwise.
6. DO NOT STOP ON TRACKS (R8-8) signs installed when potential for vehicles stopping on tracks is significant as determined by sealing engineer. Install so sign does not block view of RR mast.
7. See the Standard Highway Sign Design for Texas (SHSD) manual for sign and pavement marking details.

GRADE CROSSING NEAR A PARALLEL STREET

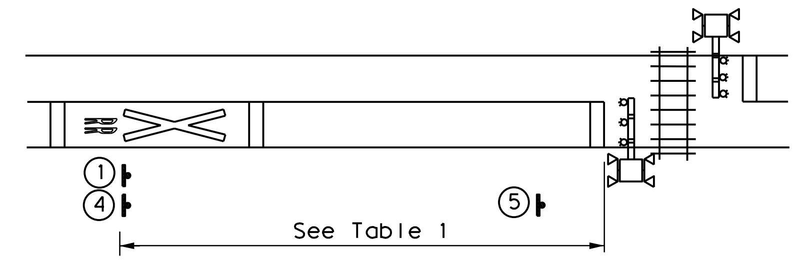


NOTE

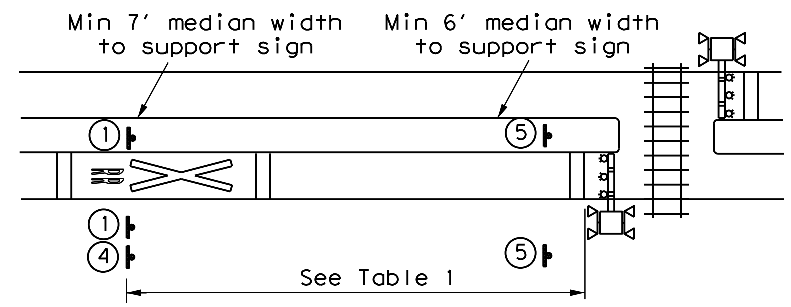
This design shows a 4-way stop scenario only. Other signs may be substituted for traffic signal or other traffic control scenarios. This note also applies to T-Intersection design below.

	"A" <100'	"A" ≥100'
"B"	See Table 1. Place pavement markings and signs on opposite side of intersection from rail if spacing from Table 1 would put markings within intersection.	See Table 1. Place pavement markings and signs between rail and intersection if spacing from Table 1 would put markings within intersection.
"C"	See Table 1.	GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-2, W10-3, W10-4) signs should only be installed if W10-1 sign is not between intersection and railroad crossing. If needed, see Table 1.

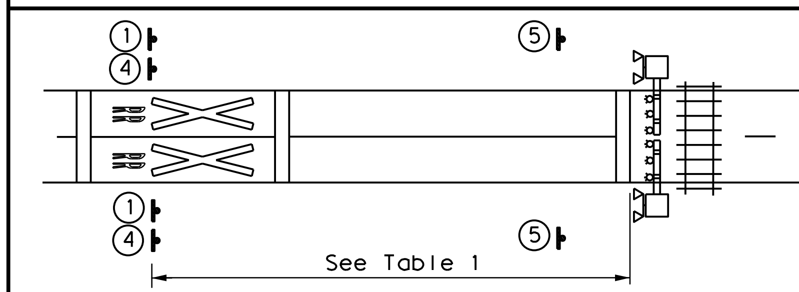
2-WAY



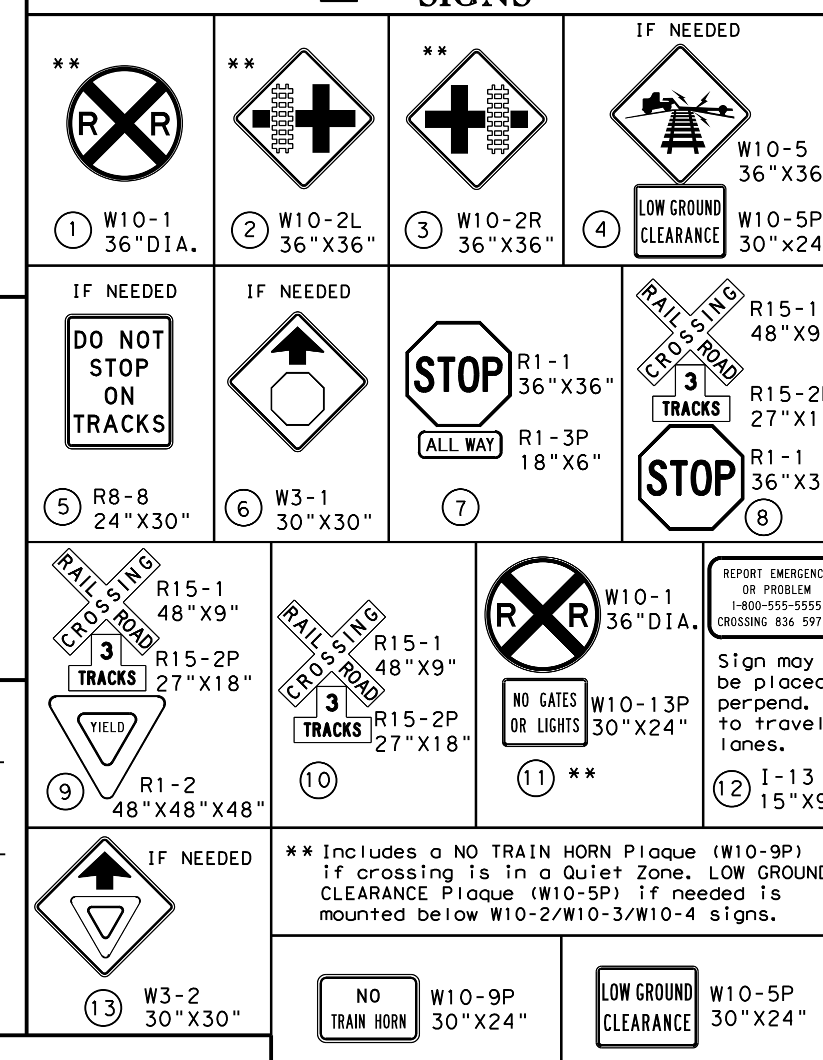
2-WAY WITH MEDIAN



1-WAY

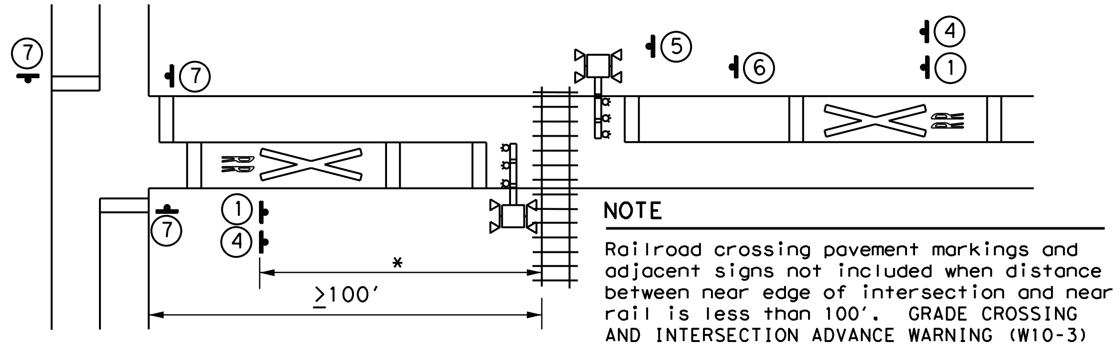


SIGNS



** Includes a NO TRAIN HORN Plaque (W10-9P) if crossing is in a Quiet Zone. LOW GROUND CLEARANCE Plaque (W10-5P) if needed is mounted below W10-2/W10-3/W10-4 signs.

T-INTERSECTION

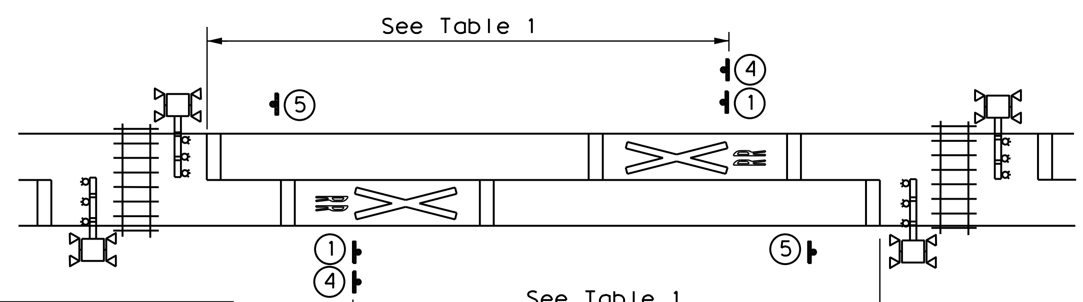


*Use Table 1 if sufficient space exists.

NOTE

Railroad crossing pavement markings and adjacent signs not included when distance between near edge of intersection and near rail is less than 100'. GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-3) signs installed on roadway parallel with rail in this case.

2 ADJACENT CROSSINGS



NOTE

Separate active traffic control devices, railroad crossing pavement markings, and adjacent signs required when tracks are more than 100' apart.

Texas Department of Transportation | Traffic Operations Division Standard

RAILROAD CROSSING DETAILS SIGNING & STRIPING

RCD(2)-16

FILE: rcd2-16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT FEBRUARY 2016	CONT 0907	SECT 00	JOB 197, ETC	HIGHWAY VA
REVISIONS	DIST SJT	COUNTY TOM GREEN, ETC		SHEET NO. 103