

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6	F 2023(002), ETC.	BS 6-R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094, ETC.	1

STATE OF TEXAS DEPARTMENT OF TRANSPORTATION

NOTES:

- * SEE SHEET 2 FOR INDEX OF SHEETS
- * SEE SHEET 3 FOR PROJECT LOCATION MAP BRYAN DISTRICT

PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT

PROJECT NUMBER: F 2023(002), ETC.

BS 6-R, ETC.

BRAZOS COUNTY, ETC.

TOTAL LENGTH OF PROJECT = 18897.12 FT = 3.597 MILES, ETC.

**FOR THE CONSTRUCTION OF TRAFFIC CONTROL DEVICES
CONSISTING OF PROFILE MARKINGS.**

FINAL PLANS

CONTRACTOR:

LETTING DATE:

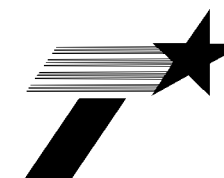
DATE CONTRACTOR BEGAN WORK:

DATE WORK WAS COMPLETED:

DATE WORK WAS ACCEPTED:

FINAL CONTRACT COST: \$

DESIGN SPEED: N/A



TEXAS DEPARTMENT OF TRANSPORTATION®

SUBMITTED FOR LETTING: 7/22/2022
 DocuSigned by:
Rakshanda Malik P.E.
095D0909B13241E... DISTRICT DESIGN ENGINEER

RECOMMENDED FOR LETTING: 7/22/2022
 DocuSigned by:
Doug Fairman, P.E.
DAA3B0624E5419... DIRECTOR OF TRANSPORTATION
 PLANNING AND DEVELOPMENT

APPROVED FOR LETTING: 7/22/2022
 DocuSigned by:
Chad Bohne
60E5537715D24E... DISTRICT ENGINEER

NO EXCEPTIONS
NO EQUATIONS
16 RAILROAD CROSSINGS

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014, AND SPECIFICATION ITEMS LISTED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT
 REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, JULY 5, 2022)

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INDEX OF SHEETS

SHEET NO.	DESCRIPTION
GENERAL	
1	TITLE SHEET
2	INDEX OF SHEETS
3	PROJECT LOCATION MAP BRYAN DISTRICT (17)
4, 4A-4B	GENERAL NOTES
5, 5A-5J	ESTIMATE & QUANTITY SHEET
6	SUMMARY OF QUANTITIES
7	(OMIT)
8	(OMIT)
9	(OMIT)
10	SUMMARY OF QUANTITIES (BRAZOS COUNTY)
10A	PROJECT LOCATION MAP BRAZOS COUNTY
11	SUMMARY OF QUANTITIES (BURLESON COUNTY)
11A	PROJECT LOCATION MAP BURLESON COUNTY
12	SUMMARY OF QUANTITIES (FREESTONE COUNTY)
12A	PROJECT LOCATION MAP FREESTONE COUNTY
13	SUMMARY OF QUANTITIES (GRIMES COUNTY)
13A	PROJECT LOCATION MAP GRIMES COUNTY
14	SUMMARY OF QUANTITIES (LEON COUNTY)
14A	PROJECT LOCATION MAP LEON COUNTY
15	SUMMARY OF QUANTITIES (MADISON COUNTY)
15A	PROJECT LOCATION MAP MADISON COUNTY
16	SUMMARY OF QUANTITIES (MILAM COUNTY)
16A	PROJECT LOCATION MAP MILAM COUNTY
17	SUMMARY OF QUANTITIES (ROBERTSON COUNTY)
17A	PROJECT LOCATION MAP ROBERTSON COUNTY
18	SUMMARY OF QUANTITIES (WALKER COUNTY)
18A	PROJECT LOCATION MAP WALKER COUNTY
19	SUMMARY OF QUANTITIES (WASHINGTON COUNTY)
19A	PROJECT LOCATION MAP WASHINGTON COUNTY

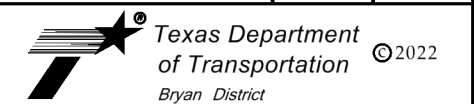
SHEET NO.	DESCRIPTION
TRAFFIC ITEMS	
20-31	~ BC(1)-21 THRU BC(12)-21
32-36	~ TCP(1-1)-18 THRU TCP(1-5)-18
37-40	~ TCP(2-1)-18 THRU TCP(2-4)-18
41-42	~ TCP(3-1)-13 THRU TCP(3-2)-13
43	~ TCP(3-3)-14
44	~ TCP(3-4)-13
45-47	~ PM(1)-20 THRU PM(3)-20
48-51	~ RS(1)-13 THRU RS(4)-13
52	~ WZ(RS)-22
RAILROAD	
53	BNSF RAILROAD CROSSING PROJECT LOCATION MAP
54	BNSF RAILROAD CROSSING LOCATION INFORMATION TABLE
55	UNION PACIFIC RAILROAD CROSSING PROJECT LOCATION MAP
56	UNION PACIFIC CROSSING LOCATION INFORMATION TABLE
57	RAILROAD SCOPE OF WORK FOR (BNSF)
58	RAILROAD SCOPE OF WORK FOR (UNION PACIFIC)
59-60	~ RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS
ENVIRONMENTAL	
61	ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC)

THE STANDARD SHEETS, WHICH ARE SPECIFICALLY IDENTIFIED WITH (~), HAVE BEEN SELECTED BY ME, OR UNDER MY RESPONSIBLE SUPERVISION, AS BEING APPLICABLE TO THIS PROJECT.



07/08/2022

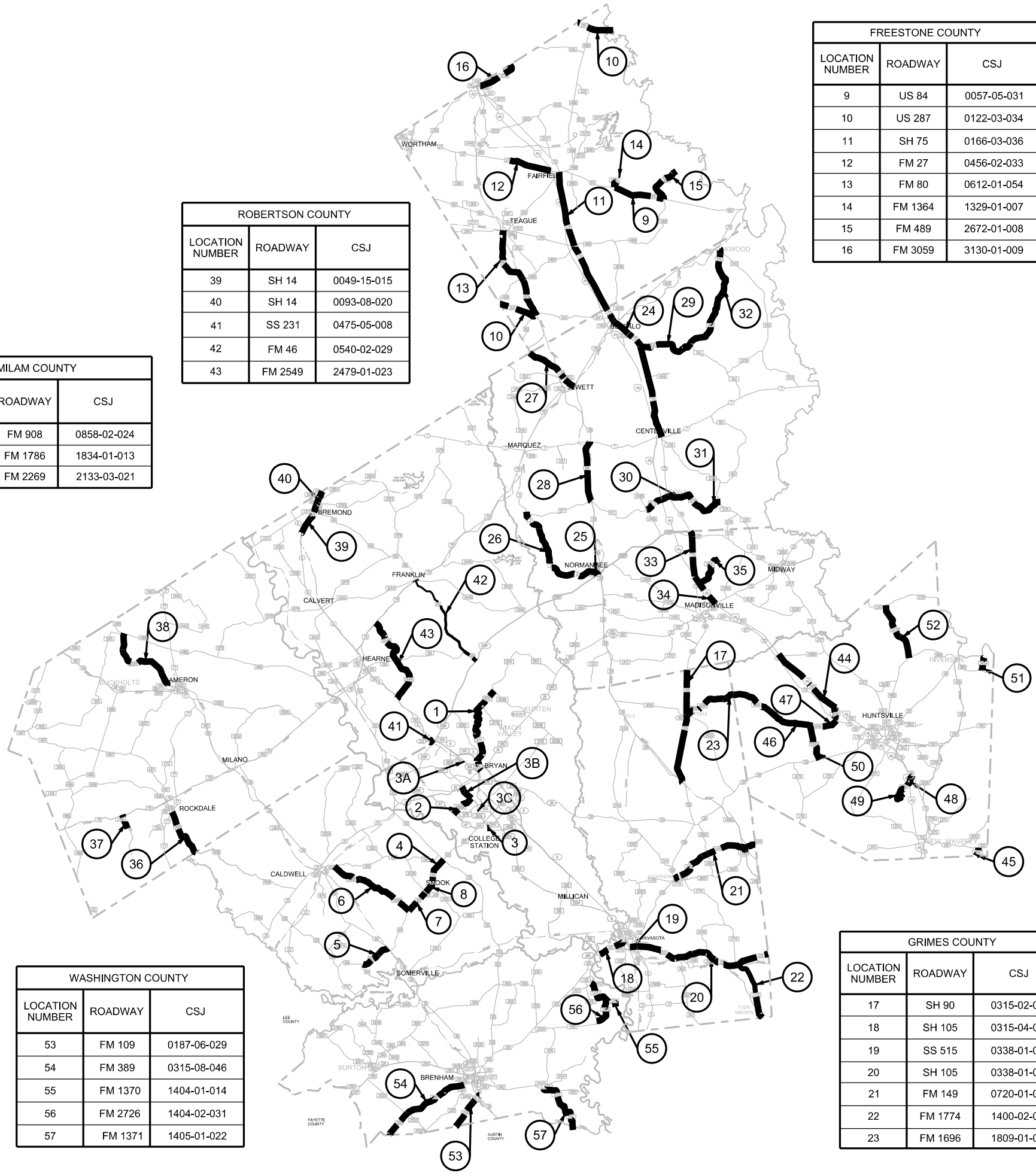
PRINT DATE	REVISION DATE
7/7/2022	



INDEX OF SHEETS

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	02

REV. DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\General\003 PROJECT LOCATION MAP BRYAN DISTRICT (017).dgn



ROBERTSON COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
39	SH 14	0049-15-015
40	SH 14	0093-08-020
41	SS 231	0475-05-008
42	FM 46	0540-02-029
43	FM 2549	2479-01-023

FREESTONE COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
9	US 84	0057-05-031
10	US 287	0122-03-034
11	SH 75	0166-03-036
12	FM 27	0456-02-033
13	FM 80	0612-01-054
14	FM 1364	1329-01-007
15	FM 489	2672-01-008
16	FM 3059	3130-01-009

LEON COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
24	SH 75	0166-04-051
25	FS 3	3281-01-009
26	FM 3	0552-01-034
27	FM 39	0643-01-067
28	FM 39	0643-01-068
29	FM 831	1145-01-052
30	FM 977	1147-02-026
31	FM 977	1147-03-016
32	FM 831	1457-01-023

MILAM COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
36	FM 908	0858-02-024
37	FM 1786	1834-01-013
38	FM 2269	2133-03-021

MADISON COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
33	SH 75	0166-07-069
34	IH 45 EFR	0675-05-102
35	FM 3091	3178-03-010

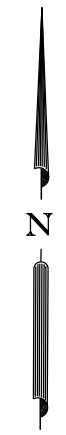
WALKER COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
44	IH45 EFR	0675-06-116
45	FM 1097	1259-03-009
46	FM 1696	1809-02-029
47	FM 1696	1809-03-012
48	PR 40	2267-01-013
49	PR 40R	2267-01-014
50	FM 2550	2480-01-012
51	FM 3454	3443-01-007
52	FM 3478	3550-01-016

BRAZOS COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
1	FM 974	0540-03-036
2	FM 1688	1560-02-022
3	FM 2347	3138-01-037
3A	BS 6-R	0049-09-094
3B	FM 2818	2851-01-052
3C	FM 2818	2399-01-084

BURLESON COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
4	FM 60	0648-03-077
5	FM 60	0713-01-050
6	FM 3058	3119-01-016
7	FM 60	0648-03-078
8	FM 60	0648-04-003

WASHINGTON COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
53	FM 109	0187-06-029
54	FM 389	0315-08-046
55	FM 1370	1404-01-014
56	FM 2726	1404-02-031
57	FM 1371	1405-01-022

GRIMES COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
17	SH 90	0315-02-058
18	SH 105	0315-04-084
19	SS 515	0338-01-063
20	SH 105	0338-01-064
21	FM 149	0720-01-046
22	FM 1774	1400-02-029
23	FM 1696	1809-01-020



Drawings Not To Scale

PRINT DATE	REVISION DATE
7/6/2022	


Texas Department of Transportation
 Bryan District ©2022

PROJECT LOCATION MAP BRYAN DISTRICT (017)

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER
6		BS 6R, ETC.
STATE	DISTRICT	COUNTY
TEXAS	BRYAN	BRAZOS, ETC.
CONTROL	SECTION	JOB SHEET NO.
0049	09	094,ETC. 03

Highway: BS 6-R, Etc.
 County: Brazos, Etc.

Control: 0049-09-094, Etc.

GENERAL:

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

James Kreamer, P.E., A.E., James.Kreamer@txdot.gov
 Ross McCall, P.E., A.A.E., John.McCall@txdot.gov

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

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

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

ITEM 7 "LEGAL RELATIONS AND RESPONSIBILITIES"

This project is on a hurricane evacuation route. Furnish at the pre-construction meeting a written plan outlining procedures to suspend work, secure the job site and safely handle traffic through and across the project in the event of a hurricane evacuation.

During the hurricane season (June 1 through November 30), do not close any travel lanes except when the Contractor can demonstrate that he can provide labor, equipment, material, work plan, and quality of work to satisfactorily return all lanes to an open, all-weather travel surface within three days of receiving written or verbal notice but no later than 3 days prior to hurricane landfall. Construction of temporary lanes to an all-weather surface will be paid in accordance with Article 9.7, "Payment for Extra Work and Force Account Method".

In addition to lane closures, cease work 3 days prior to hurricane landfall on or near the roadway that adversely impacts the flow of traffic and reduces the capacity of the highway during an evacuation. Prohibit the Contractor's, sub-contractors' or material suppliers' vehicles from entering or exiting the stream of traffic including material hauling and delivery, and mobilization or demobilization of equipment. When directed, this prohibition will include a reasonable time period for the evacuees to return to their point of origin.

In the event of the declaration of a hurricane watch, warning, other severe weather warning or national or state emergency that requires the roadways in the vicinity be used as evacuation routes, cease all work that requires the Contractor's, sub-contractors' or material suppliers' vehicles to enter the stream of traffic on these primary or secondary evacuation routes. This work includes material hauling and delivery, and mobilization or demobilization of equipment.

The following roadways are recognized evacuation routes in the Bryan District:

Highway: BS 6-R, Etc.
 County: Brazos, Etc.

Control: 0049-09-094, Etc.

Primary Evacuation Routes: IH 45, US 290, SH 6, SH 36.

Secondary Evacuation Routes: US 79, US 84, SH 7, SH 30, SH 21, SH 105.

Other routes may be designated.

Roadway closures during the following key dates and/or special events are prohibited:

Day before and day of Texas A&M home football games

Texas A&M graduation

Texas A&M Parents Weekend

The Engineer may decide to restrict construction operations or lane closures on these key dates and/or special events.

FOR UNION PACIFIC RR;

Fiber optic cable systems may be buried on the Railroad's property. Protection of the fiber optic cable systems is of extreme importance since any break could disrupt service to users resulting in business interruption and loss of revenue and profits. It is the Contractor's responsibility to telephone the Railroad at 1-800-848-8715 (a 24-hour number) to determine if fiber optic cable is buried anywhere on the Railroad's premises to be used by the State. If it is, the Contractor will telephone the telecommunications company(ies) involved, arrange for a cable locator, and make arrangements for relocation or other protection of the fiber optic cable prior to beginning any work on the Railroad's premises.

A Railroad Inspector is required to monitor the ground and track for movement during the jacking process. The installation process and all train movements must be immediately stopped if any movement of ground is detected. The damaged area must be immediately repaired. The installation process must be reviewed and modified as necessary before installation may proceed. All work associated with the installation of the culvert will be at the expense of the State of Texas.

FOR BNSF RAILWAY COMPANY;

It is the Contractor's responsibility to contact, five working days before any work is performed, the Railroad's Communications Network Control Center at 1-800-832-5452 to determine if fiber optic or other type of cable is buried in the general location where work is to be performed. In the event such cable is present, the Contractor then calls the owner of the fiber optic or cable line to determine its exact location. The State shall indemnify and hold harmless the Railroad against any cost or claims arising out of damage to any cable, but only to the extent such damage is caused by negligence of the State and/or its Contractor.

Highway: BS 6-R, Etc.
County: Brazos, Etc.

Control: 0049-09-094, Etc.

ITEM 8 “PROSECUTION AND PROGRESS”

By noon of each Wednesday, provide the Engineer a written outline of the daily work schedule for the following week. Include in the outline the times and places for proposed traffic control changes, lane and shoulder closures, and moving operations or other operations that affect traffic on the roadway.

Prepare Progress Schedule Bar Chart

The time determination schedule was established assuming 2 crews perform installation of profile markings, 2 crews perform installation of Type I striping and profile striping, and 1 crew perform installation of raised pavement markers. These operations would be performed concurrently.

Staging or parking is limited to paved areas such as stockpile locations, or as directed by the Engineer.

ITEM 502 “BARRICADES, SIGNS AND TRAFFIC HANDLING”

Where shown on applicable TCP standards, channelizing devices on the centerline are required at all times; including when a pilot vehicle is used to lead traffic. Mount a G20-4 sign at a conspicuous location on the rear of the vehicle. Traffic delays caused by one-lane, two-way traffic control, will not be allowed to exceed 5 minutes unless approved by the Engineer.

One way traffic control operations are required when placing centerline profile markings on all two-lane roadways, unless otherwise approved by the Engineer. Work area is limited to a maximum of 2 miles for this work.

During one-way operations, station flaggers at all county roads and any other locations, such as private businesses, that may have traffic entering the work area.

Removal of ground mounted temporary signs and supports as specified on standard sheet BC(5), shall include the immediate backfilling of support holes with Type B embankment material and the compaction of the backfill material.

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.

Highway: BS 6-R, Etc.
County: Brazos, Etc.

Control: 0049-09-094, Etc.

ITEM 506 “TEMPORARY EROSION, SEDIMENTATION AND ENVIRONMENTAL CONTROLS”

It is not anticipated that any erosion control devices will be needed on this project. However, in the event that any devices are needed, payment for the work will be determined in accordance with Article 9.7, “Payment for Extra Work and Force Account Method”.

ITEM 666 “REFLECTORIZED PAVEMENT MARKINGS”

All striping limits must be approved by the Engineer before striping operations may begin.

ITEM 672 “RAISED PAVEMENT MARKERS”

Use flexible bituminous adhesive for applications on all pavement types.

Highway: BS 6-R, Etc.
County: Brazos, Etc.

Control: 0049-09-094, Etc.

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 one (1) shadow vehicle with TMA for TCP (1-1)-18 as detailed on General Note 4 of this standard sheet,

provide one (1) shadow vehicle with TMA for TCP (1-2)-18 as detailed on General Note 5 of this standard sheet,

provide one (1) shadow vehicle with TMA for TCP (1-3)-18 as detailed on General Note 6 of this standard sheet,

provide one (1) shadow vehicle with TMA for TCP (1-4)-18 as detailed on General Note 4 of this standard sheet,

provide one (1) shadow vehicle with TMA for TCP (1-5)-18 as detailed on General Note 4 of this standard sheet,

provide one (1) shadow vehicle with TMA for TCP (2-1)-18 as detailed on General Note 4 of this standard sheet,

provide one (1) shadow vehicle with TMA for TCP (2-2)-18 as detailed on General Note 6 of this standard sheet,

provide one (1) shadow vehicle with TMA for TCP (2-3)-18 as detailed on General Note 7 of this standard sheet,

provide one (1) shadow vehicle with TMA for TCP (2-4)-18 as detailed on General Note 5 of this standard sheet,

provide two (2) (shadow and trail) vehicles with TMA for TCP (3-1)-13 as detailed on General Note 3 of this standard sheet.

provide three (3) (advance warning, shadow and trail) vehicles with TMA for TCP (3-2)-13 as detailed on General Note 4 of this standard sheet.

provide three (3) (advance warning, shadow and trail) vehicles with TMA for TCP (3-3)-14 as detailed on General Note 3 of this standard sheet.

provide two (2) shadow vehicles with TMA for TCP (3-4)-13 as detailed on General Note 2 of this standard sheet,

Highway: BS 6-R, Etc.
County: Brazos, Etc.

Control: 0049-09-094, Etc.

Therefore, nineteen (19) total shadow vehicles with TMA will be required for this type of work. The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs needed for the project.

One hundred twenty-five (125) TMA days are provided in this project estimate for stationary operation.

Two hundred eighty-six (286) TMA days are provided in the project estimate for mobile operations.



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0049-09-094

DISTRICT Bryan

COUNTY Brazos, Burleson, Freestone, Grimes, Leon, Madison, Milam, Robertson, Walker, Washington

HIGHWAY BS 6R, FM 109, FM 1097, FM 1364, FM 1370, FM 1371, FM 149, FM 1688, FM 1696, FM 1774, FM 1786, FM 2269, FM 2347, FM 2549, FM 2550, FM 27, FM 2726, FM 2818, FM 3, FM 3058, FM 3059, FM 3091, FM 3454, FM 3478, FM 389, FM 39, FM 46, FM 489, FM 60, FM 80, FM 831, FM 908, FM 974, FM 977, FS 3, IH 45, PR 40, PR 40A, SH 105, SH 14, SH 75, SH 90, SS 231, SS 515, US 287, US 84

CONTROL SECTION JOB				0049-09-094		0049-15-015		0057-05-031		0093-08-020		0122-03-034		0166-03-036	
PROJECT ID				A00185088		A00185808		A00185550		A00185809		A00185551		A00185552	
COUNTY				Brazos		Robertson		Freestone		Robertson		Freestone		Freestone	
HIGHWAY				BS 6R		SH 14		US 84		SH 14		US 287		SH 75	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	500-6001	MOBILIZATION	LS	1.000											
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	5.000											
	666-6282	REF PROF PAV MRK TY I(W)4"(SLD)(060MIL)	LF	31,112.000		44,118.000		64,961.000		13,264.000		38,658.000		184,573.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	31,616.000		16,629.000		33,301.000		12,740.000		4,594.000		87,579.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF			4,085.000		6,591.000		441.000		4,873.000		16,428.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	7,120.000				1,177.000						3,683.000	
	672-6007	REFL PAV MRKR TY I-C	EA			3.000		21.000		1.000				38.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	67.000		83.000		140.000		33.000		66.000		392.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA	91.000											
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF			1,641.000		1,207.000		11.000		1,813.000		3,537.000	
	6185-6002	TMA (STATIONARY)	DAY	125.000											
	6185-6005	TMA (MOBILE OPERATION)	DAY	286.000											
	12	RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000											
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000											
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000											



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0049-09-094

DISTRICT Bryan

COUNTY Brazos, Burleson, Freestone, Grimes, Leon, Madison, Milam, Robertson, Walker, Washington

HIGHWAY BS 6R, FM 109, FM 1097, FM 1364, FM 1370, FM 1371, FM 149, FM 1688, FM 1696, FM 1774, FM 1786, FM 2269, FM 2347, FM 2549, FM 2550, FM 27, FM 2726, FM 2818, FM 3, FM 3058, FM 3059, FM 3091, FM 3454, FM 3478, FM 389, FM 39, FM 46, FM 489, FM 60, FM 80, FM 831, FM 908, FM 974, FM 977, FS 3, IH 45, PR 40, PR 40A, SH 105, SH 14, SH 75, SH 90, SS 231, SS 515, US 287, US 84

CONTROL SECTION JOB				0166-04-051		0166-07-069		0187-06-029		0315-02-058		0315-04-084		0315-08-046	
PROJECT ID				A00185656		A00185800		A00185836		A00185560		A00185561		A00185837	
COUNTY				Leon		Madison		Washington		Grimes		Grimes		Washington	
HIGHWAY				SH 75		SH 75		FM 109		SH 90		SH 105		FM 389	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	500-6001	MOBILIZATION	LS												
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO												
	666-6282	REF PROF PAV MRK TY I(W)4"(SLD)(060MIL)	LF	186,413.000		55,025.000		48,590.000		143,009.000		21,086.000		116,884.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	120,043.000		23,652.000		33,181.000		43,380.000		24,338.000		86,725.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF	13,879.000		5,435.000		2,886.000		15,830.000		5,624.000		6,167.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	671.000								1,096.000			
	672-6007	REFL PAV MRKR TY I-C	EA	7.000		14.000				2.000		26.000			
	672-6009	REFL PAV MRKR TY II-A-A	EA	439.000		110.000		113.000		266.000		85.000		278.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA												
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF	1,055.000		1,253.000		456.000		4,603.000		731.000		857.000	
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
	12	RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS												
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												

DISTRICT	COUNTY	CCSJ	SHEET
Bryan	Brazos	0049-09-094	5A



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0049-09-094

DISTRICT Bryan

COUNTY Brazos, Burleson, Freestone, Grimes, Leon, Madison, Milam, Robertson, Walker, Washington

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CONTROL SECTION JOB				0338-01-063		0338-01-064		0456-02-033		0475-05-008		0540-02-029		0540-03-036	
PROJECT ID				A00185563		A00185565		A00185554		A00185811		A00185814		A00185542	
COUNTY				Grimes		Grimes		Freestone		Robertson		Robertson		Brazos	
HIGHWAY				SS 515		SH 105		FM 27		SS 231		FM 46		FM 974	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	500-6001	MOBILIZATION	LS												
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO												
	666-6282	REF PROF PAV MRK TY I(W)4"(SLD)(060MIL)	LF	212.000				29,389.000		6,503.000		135,417.000		122,087.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	9,110.000				16,622.000		6,608.000		68,637.000		68,107.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF	1,866.000				3,057.000				12,386.000		9,997.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	145.000		1,665.000								374.000	
	672-6007	REFL PAV MRKR TY I-C	EA	43.000		29.000		4.000				1.000		5.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	23.000		137.000		68.000		16.000		287.000		274.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA												
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF					228.000				2,812.000		2,003.000	
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
	12	RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS												
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0049-09-094

DISTRICT Bryan

COUNTY Brazos, Burleson, Freestone, Grimes, Leon, Madison, Milam, Robertson, Walker, Washington

HIGHWAY BS 6R, FM 109, FM 1097, FM 1364, FM 1370, FM 1371, FM 149, FM 1688, FM 1696, FM 1774, FM 1786, FM 2269, FM 2347, FM 2549, FM 2550, FM 27, FM 2726, FM 2818, FM 3, FM 3058, FM 3059, FM 3091, FM 3454, FM 3478, FM 389, FM 39, FM 46, FM 489, FM 60, FM 80, FM 831, FM 908, FM 974, FM 977, FS 3, IH 45, PR 40, PR 40A, SH 105, SH 14, SH 75, SH 90, SS 231, SS 515, US 287, US 84

CONTROL SECTION JOB				0552-01-034		0612-01-054		0643-01-067		0643-01-068		0648-03-077		0648-03-078	
PROJECT ID				A00185658		A00185555		A00185659		A00185660		A00185545		A00185548	
COUNTY				Leon		Freestone		Leon		Leon		Burleson		Burleson	
HIGHWAY				FM 3		FM 80		FM 39		FM 39		FM 60		FM 60	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	500-6001	MOBILIZATION	LS												
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO												
	666-6282	REF PROF PAV MRK TY I(W)4"(SLD)(060MIL)	LF	14,873.000		126,586.000		77,090.000		78,616.000					
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	111,751.000		79,389.000		25,278.000		9,882.000					
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF	8,248.000		9,603.000		8,265.000		8,756.000					
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF									7,846.000		3,206.000	
	672-6007	REFL PAV MRKR TY I-C	EA			4.000									
	672-6009	REFL PAV MRKR TY II-A-A	EA	9.000		292.000		143.000		112.000		6.000		1.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA									171.000		87.000	
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF	466.000		1,227.000		2,562.000							
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
	12	RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS												
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0049-09-094

DISTRICT Bryan

COUNTY Brazos, Burleson, Freestone, Grimes, Leon, Madison, Milam, Robertson, Walker, Washington

HIGHWAY BS 6R, FM 109, FM 1097, FM 1364, FM 1370, FM 1371, FM 149, FM 1688, FM 1696, FM 1774, FM 1786, FM 2269, FM 2347, FM 2549, FM 2550, FM 27, FM 2726, FM 2818, FM 3, FM 3058, FM 3059, FM 3091, FM 3454, FM 3478, FM 389, FM 39, FM 46, FM 489, FM 60, FM 80, FM 831, FM 908, FM 974, FM 977, FS 3, IH 45, PR 40, PR 40A, SH 105, SH 14, SH 75, SH 90, SS 231, SS 515, US 287, US 84

CONTROL SECTION JOB				0648-04-003		0675-05-102		0675-06-116		0713-01-050		0720-01-046		0858-02-024	
PROJECT ID				A00185549		A00185801		A00185816		A00185546		A00185566		A00185803	
COUNTY				Burleson		Madison		Walker		Burleson		Grimes		Milam	
HIGHWAY				FM 60		IH 45		IH 45		FM 60		FM 149		FM 908	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	500-6001	MOBILIZATION	LS												
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO												
	666-6282	REF PROF PAV MRK TY I(W)4"(SLD)(060MIL)	LF			47,216.000		104,814.000		39,398.000		122,871.000		61,435.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF			24,750.000		66,972.000		30,241.000		87,682.000		36,605.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF			3,339.000		7,167.000		1,621.000		7,765.000		5,174.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	3,271.000											
	672-6007	REFL PAV MRKR TY I-C	EA			3.000									
	672-6009	REFL PAV MRKR TY II-A-A	EA			103.000		242.000		92.000		302.000		144.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA	56.000											
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF			1,123.000		1,133.000		381.000		481.000		535.000	
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
	12	RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS												
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0049-09-094

DISTRICT Bryan

COUNTY Brazos, Burleson, Freestone, Grimes, Leon, Madison, Milam, Robertson, Walker, Washington

HIGHWAY BS 6R, FM 109, FM 1097, FM 1364, FM 1370, FM 1371, FM 149, FM 1688, FM 1696, FM 1774, FM 1786, FM 2269, FM 2347, FM 2549, FM 2550, FM 27, FM 2726, FM 2818, FM 3, FM 3058, FM 3059, FM 3091, FM 3454, FM 3478, FM 389, FM 39, FM 46, FM 489, FM 60, FM 80, FM 831, FM 908, FM 974, FM 977, FS 3, IH 45, PR 40, PR 40A, SH 105, SH 14, SH 75, SH 90, SS 231, SS 515, US 287, US 84

CONTROL SECTION JOB				1145-01-052		1147-02-026		1147-03-016		1259-03-009		1329-01-007		1400-02-029	
PROJECT ID				A00185661		A00185794		A00185795		A00185817		A00185557		A00185567	
COUNTY				Leon		Leon		Leon		Walker		Freestone		Grimes	
HIGHWAY				FM 831		FM 977		FM 977		FM 1097		FM 1364		FM 1774	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	500-6001	MOBILIZATION	LS												
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO												
	666-6282	REF PROF PAV MRK TY I(W)4"(SLD)(060MIL)	LF	143,415.000		35,209.000		80,604.000		10,866.000				36,082.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	117,374.000		32,751.000		59,442.000		9,668.000		10,576.000		21,696.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF	5,124.000		514.000		4,266.000		299.000		315.000		2,377.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF												
	672-6007	REFL PAV MRKR TY I-C	EA									4.000			
	672-6009	REFL PAV MRKR TY II-A-A	EA	344.000		89.000		188.000		27.000		29.000		80.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA											231.000	
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF	693.000				512.000						578.000	
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
	12	RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS												
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												

DISTRICT	COUNTY	CCSJ	SHEET
Bryan	Brazos	0049-09-094	5E



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0049-09-094

DISTRICT Bryan

COUNTY Brazos, Burleson, Freestone, Grimes, Leon, Madison, Milam, Robertson, Walker, Washington

HIGHWAY BS 6R, FM 109, FM 1097, FM 1364, FM 1370, FM 1371, FM 149, FM 1688, FM 1696, FM 1774, FM 1786, FM 2269, FM 2347, FM 2549, FM 2550, FM 27, FM 2726, FM 2818, FM 3, FM 3058, FM 3059, FM 3091, FM 3454, FM 3478, FM 389, FM 39, FM 46, FM 489, FM 60, FM 80, FM 831, FM 908, FM 974, FM 977, FS 3, IH 45, PR 40, PR 40A, SH 105, SH 14, SH 75, SH 90, SS 231, SS 515, US 287, US 84

CONTROL SECTION JOB				1404-01-014		1404-02-031		1405-01-022		1457-01-023		1560-02-022		1809-01-020	
PROJECT ID				A00185838		A00185839		A00185840		A00185798		A00185543		A00185568	
COUNTY				Washington		Washington		Washington		Leon		Brazos		Grimes	
HIGHWAY				FM 1370		FM 2726		FM 1371		FM 831		FM 1688		FM 1696	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	500-6001	MOBILIZATION	LS												
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO												
	666-6282	REF PROF PAV MRK TY I(W)4"(SLD)(060MIL)	LF	50,910.000		76,832.000		34,033.000		75,027.000		29,400.000		66,844.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	33,060.000		58,607.000		21,646.000		63,786.000		13,718.000		46,225.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF	3,551.000		4,111.000		2,861.000		2,810.000		2,950.000		3,306.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF												
	672-6007	REFL PAV MRKR TY I-C	EA									1.000			
	672-6009	REFL PAV MRKR TY II-A-A	EA	118.000		188.000		83.000		9.000		63.000		155.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA												
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF	530.000		147.000		355.000				549.000		764.000	
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
	12	RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS												
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0049-09-094

DISTRICT Bryan

COUNTY Brazos, Burleson, Freestone, Grimes, Leon, Madison, Milam, Robertson, Walker, Washington

HIGHWAY BS 6R, FM 109, FM 1097, FM 1364, FM 1370, FM 1371, FM 149, FM 1688, FM 1696, FM 1774, FM 1786, FM 2269, FM 2347, FM 2549, FM 2550, FM 27, FM 2726, FM 2818, FM 3, FM 3058, FM 3059, FM 3091, FM 3454, FM 3478, FM 389, FM 39, FM 46, FM 489, FM 60, FM 80, FM 831, FM 908, FM 974, FM 977, FS 3, IH 45, PR 40, PR 40A, SH 105, SH 14, SH 75, SH 90, SS 231, SS 515, US 287, US 84

CONTROL SECTION JOB				1809-02-029		1809-03-012		1834-01-013		2133-03-021		2267-01-013		2267-01-014	
PROJECT ID				A00185818		A00185819		A00185805		A00185806		A00185820		A00185821	
COUNTY				Walker		Walker		Milam		Milam		Walker		Walker	
HIGHWAY				FM 1696		FM 1696		FM 1786		FM 2269		PR 40		PR 40A	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	500-6001	MOBILIZATION	LS												
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO												
	666-6282	REF PROF PAV MRK TY I(W)4"(SLD)(060MIL)	LF	144,038.000		20,318.000		17,474.000		10,351.000		15,132.000		12,386.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	76,772.000		15,999.000		5,620.000		40,401.000		16,372.000		12,386.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF	12,217.000		1,007.000		1,933.000		11,461.000					
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF												
	672-6007	REFL PAV MRKR TY I-C	EA	7.000											
	672-6009	REFL PAV MRKR TY II-A-A	EA	313.000		61.000		33.000		217.000		64.000		31.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA												
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF	2,407.000		37.000		527.000		2,312.000					
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
	12	RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS												
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0049-09-094

DISTRICT Bryan

COUNTY Brazos, Burleson, Freestone, Grimes, Leon, Madison, Milam, Robertson, Walker, Washington

HIGHWAY BS 6R, FM 109, FM 1097, FM 1364, FM 1370, FM 1371, FM 149, FM 1688, FM 1696, FM 1774, FM 1786, FM 2269, FM 2347, FM 2549, FM 2550, FM 27, FM 2726, FM 2818, FM 3, FM 3058, FM 3059, FM 3091, FM 3454, FM 3478, FM 389, FM 39, FM 46, FM 489, FM 60, FM 80, FM 831, FM 908, FM 974, FM 977, FS 3, IH 45, PR 40, PR 40A, SH 105, SH 14, SH 75, SH 90, SS 231, SS 515, US 287, US 84

CONTROL SECTION JOB				2399-01-084		2479-01-023		2480-01-012		2672-01-008		2851-01-052		3119-01-016	
PROJECT ID				A00185842		A00185815		A00185822		A00185558		A00185841		A00185547	
COUNTY				Brazos		Robertson		Walker		Freestone		Brazos		Burleson	
HIGHWAY				FM 2818		FM 2549		FM 2550		FM 489		FM 2818		FM 3058	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	500-6001	MOBILIZATION	LS												
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO												
	666-6282	REF PROF PAV MRK TY I(W)4"(SLD)(060MIL)	LF	13,584.000		121,618.000		3,294.000				2,951.000		114,898.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	13,888.000		89,732.000		2,107.000		40,007.000		37,147.000		80,882.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF	3,022.000		7,357.000		297.000		2,612.000		7,434.000		7,210.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	3,321.000								1,418.000			
	672-6007	REFL PAV MRKR TY I-C	EA	54.000				5.000				164.000			
	672-6009	REFL PAV MRKR TY II-A-A	EA	35.000		299.000		8.000		126.000		42.000		275.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA												
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF			489.000				259.000				735.000	
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
	12	RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS												
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												

DISTRICT	COUNTY	CCSJ	SHEET
Bryan	Brazos	0049-09-094	5H



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0049-09-094

DISTRICT Bryan

COUNTY Brazos, Burleson, Freestone, Grimes, Leon, Madison, Milam, Robertson, Walker, Washington

HIGHWAY BS 6R, FM 109, FM 1097, FM 1364, FM 1370, FM 1371, FM 149, FM 1688, FM 1696, FM 1774, FM 1786, FM 2269, FM 2347, FM 2549, FM 2550, FM 27, FM 2726, FM 2818, FM 3, FM 3058, FM 3059, FM 3091, FM 3454, FM 3478, FM 389, FM 39, FM 46, FM 489, FM 60, FM 80, FM 831, FM 908, FM 974, FM 977, FS 3, IH 45, PR 40, PR 40A, SH 105, SH 14, SH 75, SH 90, SS 231, SS 515, US 287, US 84

CONTROL SECTION JOB				3130-01-009		3138-01-037		3178-03-010		3281-01-009		3443-01-007		3550-01-016	
PROJECT ID				A00185559		A00185544		A00185802		A00185657		A00185823		A00185824	
COUNTY				Freestone		Brazos		Madison		Leon		Walker		Walker	
HIGHWAY				FM 3059		FM 2347		FM 3091		FS 3		FM 3454		FM 3478	
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	500-6001	MOBILIZATION	LS												
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO												
	666-6282	REF PROF PAV MRK TY I(W)4"(SLD)(060MIL)	LF	51,057.000		2,702.000		44,415.000		3,286.000		17,156.000		75,726.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	17,472.000				30,529.000		3,286.000		15,178.000		40,007.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF	5,219.000		2,702.000		2,960.000				494.000		7,043.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF												
	672-6007	REFL PAV MRKR TY I-C	EA			1.000									
	672-6009	REFL PAV MRKR TY II-A-A	EA	96.000		7.000		106.000				43.000		170.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA												
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF	1,589.000				256.000						943.000	
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
	12	RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS												
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												



CONTROLLING PROJECT ID 0049-09-094

Estimate & Quantity Sheet

DISTRICT Bryan

COUNTY Brazos, Burleson, Freestone, Grimes, Leon, Madison, Milam, Robertson, Walker, Washington

HIGHWAY BS 6R, FM 109, FM 1097, FM 1364, FM 1370, FM 1371, FM 149, FM 1688, FM 1696, FM 1774, FM 1786, FM 2269, FM 2347, FM 2549, FM 2550, FM 27, FM 2726, FM 2818, FM 3, FM 3058, FM 3059, FM 3091, FM 3454, FM 3478, FM 389, FM 39, FM 46, FM 489, FM 60, FM 80, FM 831, FM 908, FM 974, FM 977, FS 3, IH 45, PR 40, PR 40A, SH 105, SH 14, SH 75, SH 90, SS 231, SS 515, US 287, US 84

CONTROL SECTION JOB				TOTAL EST.	TOTAL FINAL
PROJECT ID					
COUNTY					
HIGHWAY					
ALT	BID CODE	DESCRIPTION	UNIT		
	500-6001	MOBILIZATION	LS	1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	5.000	
	666-6282	REF PROF PAV MRK TY I(W)4"(SLD)(060MIL)	LF	3,223,808.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	2,185,746.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF	274,935.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	34,993.000	
	672-6007	REFL PAV MRKR TY I-C	EA	437.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	7,622.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA	636.000	
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF	43,797.000	
	6185-6002	TMA (STATIONARY)	DAY	125.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	286.000	
	12	RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000	
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000	




DISTRICT	COUNTY	CCSJ	SHEET
Bryan	Brazos	0049-09-094	5J

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\Summaries\006 SUMMARY OF QUANTITIES.dgn

SUMMARY OF QUANTITIES											
COUNTY	ITEM 666							ITEM 672			ITEM 6056
	6300	6303	6312	6315	6282	6287	6291	6007	6009	6010	6002
	RE PM W/RET REQ TY I (W) 4" (BRK)	RE PM W/RET REQ TY I (W) 4" (SLD)	RE PM W/RET REQ TY I (Y) 4" (BRK)	RE PM W/RET REQ TY I (Y) 4" (SLD)	REF PROF PAV MRK TY I (W) 4" (SLD)	REF PROF PAV MRK TY I (Y) 4" (SLD)	REF PROF PAV MRK TY I (Y) 4" (BRK)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R	PERFORMED CENTERLINE RUMBLE STRIP
	(100 MIL)	(100 MIL)	(100 MIL)	(100 MIL)	(60 MIL)	(90 MIL)	(90 MIL)				
LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	LF	
BRAZOS (21)	12,233				201,836	164,476	26,105	225	488	91	2,551
BURLESON (026)	14,323				154,296	111,123	8,831		374	314	1,116
FREESTONE (082)	4,860	0	0	0	495,224	289,540	48,698	71	1,209	0	9,860
GRIMES (094)	2,906				390,104	232,431	36,768	100	1,048	231	7,157
LEON (145)	671	0	0	0	694,533	543,593	51,862	7	1,333	0	5,288
MADISON (154)					146,656	78,931	11,734	17	319		2,631
MILAM (166)	0	0	0	0	89,260	82,626	18,568	0	394	0	3,373
ROBERTSON (198)	0	0	0	0	320,920	194,346	24,269	5	718	0	4,953
WALKER (236)	0	0	0	0	403,730	255,461	28,524	12	959	0	4,519
WASHINGTON (239)	0	0	0	0	327,249	233,219	19,576	0	780	0	2,343
BASE BID TOTAL	34,993	0	0	0	3,223,808	2,185,746	274,935	437	7,622	636	43,797

SUMMARY OF TCP QUANTITIES		
	ITEM 6185	
	6002	6005
	TMA (STATIONARY)	TMA (MOBILE OPERATION)
	DAY	DAY
Throughout Project	125	286
TOTAL	125	286

PRINT DATE: 7/8/2022 REVISION DATE:



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Bryan District Standard

SUMMARY OF QUANTITIES

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER
6		BS 6R
STATE	DISTRICT	COUNTY
TEXAS	BRY	BRAZOS,ETC
CONTROL	SECTION	JOB SHEET NO.
0049	09	094,ETC. 6


REV. DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\Summaries\010 SUMMARY OF QUANTITIES (BRAZOS CNTY).dgn

PAVEMENT MARKINGS AND MARKERS SUMMARY																					
LOCATION NUMBER	CSJ	COUNTY	HIGHWAY	PROJECT LIMITS		HIGHWAY TYPE	TYPE OF EDGELINE RUMBLE STRIPS	TYPE OF CENTERLINE RUMBLE STRIPS	ITEM 666						ITEM 672			ITEM 6056	REMARKS		
									6300	6303	6312	6315	6282	6287	6291	6007	6009	6010		6002	
									RE PM W/RET REQ TY I (W) 4" (BRK)	RE PM W/RET REQ TY I (W) 4" (SLD)	RE PM W/RET REQ TY I (Y) 4" (BRK)	RE PM W/RET REQ TY I (Y) 4" (SLD)	REF PROF PAV MRK TY I (W) 4" (SLD)	REF PROF PAV MRK TY I (Y) 4" (SLD)	REF PROF PAV MRK TY I (Y) 4" (BRK)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R		PREFORMED CENTERLINE RUMBLE STRIP	
				(100 MIL)	(100 MIL)				(100 MIL)	(100 MIL)	(60 MIL)	(90 MIL)	(90 MIL)	(5)	(5)	(5)	LF				
FROM	TO	(1)	(1)	(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	EA	EA	EA	LF				
1	0540-03-036	BRAZOS	FM 974	SH 21	FM 2038	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4	374					122,087	68,107	9,997	5	274		2,003	
2	1560-02-022	BRAZOS	FM 1688	SH 47	FM 2818	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4	0					29,400	13,718	2,950	1	63		549	
3	3138-01-037	BRAZOS	FM 2347	AIRPORT	FM 2818	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4	0					2,702		2,702	1	7		0	
3A	0049-09-094	BRAZOS	BS 6-R	SH 6 (N)	SH 21	FOUR LANE, TWO WAY	N/A	N/A	7,120					31,112	31,616			67	91	0	
3B	2851-01-052	BRAZOS	FM 2818	SH 21	FM 1179	4-LN DIVIDED & 4-LN W/TWLT	RS(1)-13 RS(4)-13 OPTION 4	RS(2)-13 OPTION 1	1,418					2,951	37,147	7,434	164	42		0	EXISTING MILLED RUMBLE STRIPS
3C	2399-01-084	BRAZOS	FM 2818	FM 1179	F&B ROAD	4-LN DIVIDED & 4-LN W/TWLT	RS(1)-13 RS(4)-13 OPTION 4	RS(2)-13 OPTION 1	3,321					13,584	13,888	3,022	54	35		0	EXISTING MILLED RUMBLE STRIPS
TOTAL									12,233	0	0	0	201,836	164,476	26,105	225	488	91	2,551		

NOTES

- (1) Refer to rumble strip standards: RS(1)-13 through RS(4)-13.
- (2) Retrace all white skips (W BRK) with item 666-6300.
- (3) For sections with speed limits 45 mph or less, retrace white edgeline with item 666-6303, and yellow centerline with items: 666-6312 and 666-6315.
- (4) For sections with speed limits higher than 45 mph, retrace white edgeline with item 666-6282, and yellow centerline with items: 666-6287 and 666-6291.
- (5) This value represents the estimated amount of missing raised pavement markers (RPMs) to be replaced. Place the new RPMs only where the existing RPM is missing or damaged. This quantity is 20% of the total amount of existing RPMs (an estimated 20% loss).

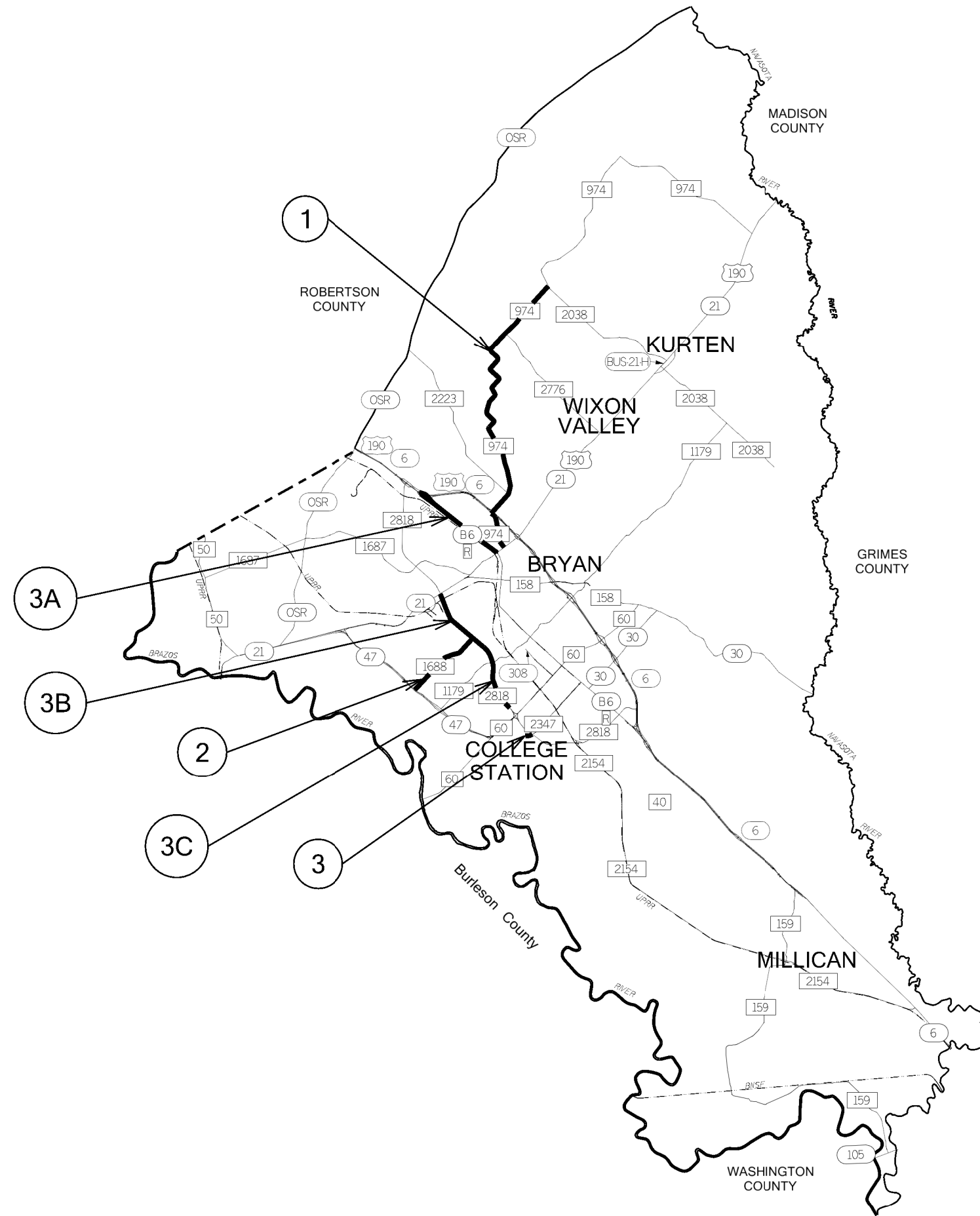
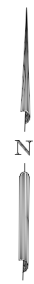
PRINT DATE	REVISION DATE
7/6/2022	



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Bryan District

SUMMARY OF QUANTITIES (BRAZOS COUNTY)

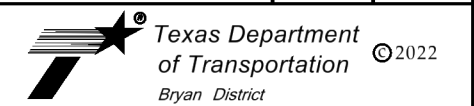
FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	10



BRAZOS COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
1	FM 974	0540-03-036
2	FM 1688	1560-02-022
3	FM 2347	3138-01-037
3A	BS 6-R	0049-09-094
3B	FM 2818	2851-01-052
3C	FM 2818	2399-01-084

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\General\010A_Project Location Map Brazos County.dgn

PRINT DATE	REVISION DATE
7/6/2022	



**PROJECT LOCATION MAP
BRAZOS COUNTY**

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	10A

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\Summaries\011 SUMMARY OF QUANTITIES (BURLESON COUNTY).dgn

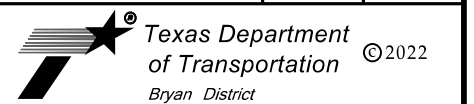
PAVEMENT MARKINGS AND MARKERS SUMMARY

LOCATION NUMBER	CSJ	COUNTY	HIGHWAY	PROJECT LIMITS		HIGHWAY TYPE	TYPE OF EDGELINE RUMBLE STRIPS	TYPE OF CENTERLINE RUMBLE STRIPS	ITEM 666						ITEM 672			ITEM 6056	REMARKS		
									6300	6303	6312	6315	6282	6287	6291	6007	6009	6010		6002	
									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)	RE PM W/RET REQ TY I (Y) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (60 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (90 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (90 MIL)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R		PREFORMED CENTERLINE RUMBLE STRIP	
(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	(5)										
FROM	TO	(1)	(1)	(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	(5)						
4	0648-03-077	BURLESON	FM 60	FM 2155	FM 50	4-LN DIVIDED & 4=LN W/TWLTL	-	-	7,846							0		6	171		EXISTING MILLED RUMBLE STRIPS (EDGES) AT DIVIDED HIGHWAY
5	0713-01-050	BURLESON	FM 60	PR 4	SH 36	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4	0				39,398	30,241	1,621			92		381	
6	3119-01-016	BURLESON	FM 3058	FM 166	FM 60	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4	0				114,898	80,882	7,210			275		735	
7	0648-03-078	BURLESON	FM 60	0.9 MI W of FM 2039	0.4 MIE of FM 2039	4-LN DIVIDED & 4=LN W/TWLTL	-	-	3,206									1	87		EXISTING MILLED RUMBLE STRIPS (EDGES) AT DIVIDED HIGHWAY
8	0648-04-003	BURLESON	FM 60	0.4 MIE of FM 2039	FM 2155	4-LN DIVIDED & 4=LN W/TWLTL	-	-	3,271							0			56		EXISTING MILLED RUMBLE STRIPS (EDGES) AT DIVIDED HIGHWAY
TOTAL									14,323	0	0	0	154,296	111,123	8,831	0	374	314	1,116		

NOTES

- (1) Refer to rumble strip standards: RS(1)-13 through RS(4)-13.
- (2) Retrace all white skips (W BRK) with item 666-6300.
- (3) For sections with speed limits 45 mph or less, retrace white edgeline with item 666-6303, and yellow centerline with items: 666-6312 and 666-6315.
- (4) For sections with speed limits higher than 45 mph, retrace white edgeline with item 666-6282, and yellow centerline with items: 666-6287 and 666-6291.
- (5) This value represents the estimated amount of missing raised pavement markers (RPMs) to be replaced. Place the new RPMs only where the existing RPM is missing. This quantity is 20% of the total amount of existing RPMs (an estimated 20% loss).

PRINT DATE	REVISION DATE
7/6/2022	



SUMMARY OF QUANTITIES (BURLESON COUNTY)

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	11

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\Summaries\012 SUMMARY OF QUANTITIES (FREESTONE COUNTY).dgn


PAVEMENT MARKINGS AND MARKERS SUMMARY

LOCATION NUMBER	CSJ	COUNTY	HIGHWAY	PROJECT LIMITS		HIGHWAY TYPE	TYPE OF EDGELINE RUMBLE STRIPS	TYPE OF CENTERLINE RUMBLE STRIPS	ITEM 666						ITEM 672			ITEM 6056	REMARKS					
									6300	6303	6312	6315	6282	6287	6291	6007	6009	6010		6002				
									RE PM W/RET REQ TY I (W) 4" (100 MIL)	RE PM W/RET REQ TY I (W) 4" (100 MIL)	RE PM W/RET REQ TY I (Y) 4" (100 MIL)	RE PM W/RET REQ TY I (Y) 4" (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (60 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (90 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (90 MIL)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R		PREFORMED CENTERLINE RUMBLE STRIP				
(1)	(1)	(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	(5)	(5)	LF									
9	0057-05-031	FREESTONE	US 84	FM 1364	FM 489	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4	1,177					64,961	33,301	6,591	21	140		EA	EA	EA	LF	EXISTING MILLED RUMBLE STRIPS
10	0122-03-034	FREESTONE	US 287	Navarro County Line	Anderson County Line	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						38,658	4,594	4,873		66					1,813	
11	0166-03-036	FREESTONE	SH 75	US 84	Leon County Line	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4	3,683					184,573	87,579	16,428	38	392					3,537	
12	0456-02-033	FREESTONE	FM 27	6.4 Mi E of FM 80 (CR 941)	IH 45 WFR	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						29,389	16,622	3,057	4	68					228	
13	0612-01-054	FREESTONE	FM 80	BU 84-R	SH 164	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						126,586	79,389	9,603	4	292					1,227	
14	1329-01-007	FREESTONE	FM1364	End of Pavement	US 84	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4							10,576	315	4	29						
15	2672-01-008	FREESTONE	FM 489	US 84	The End of State Maintenance	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4							40,007	2,612		126					259	
16	3130-01-009	FREESTONE	FM 3059	SH 75	Navarro County Line	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						51,057	17,472	5,219		96					1,589	
TOTAL									4,860	0	0	0	495,224	289,540	48,698	71	1,209	0	9,860					

NOTES

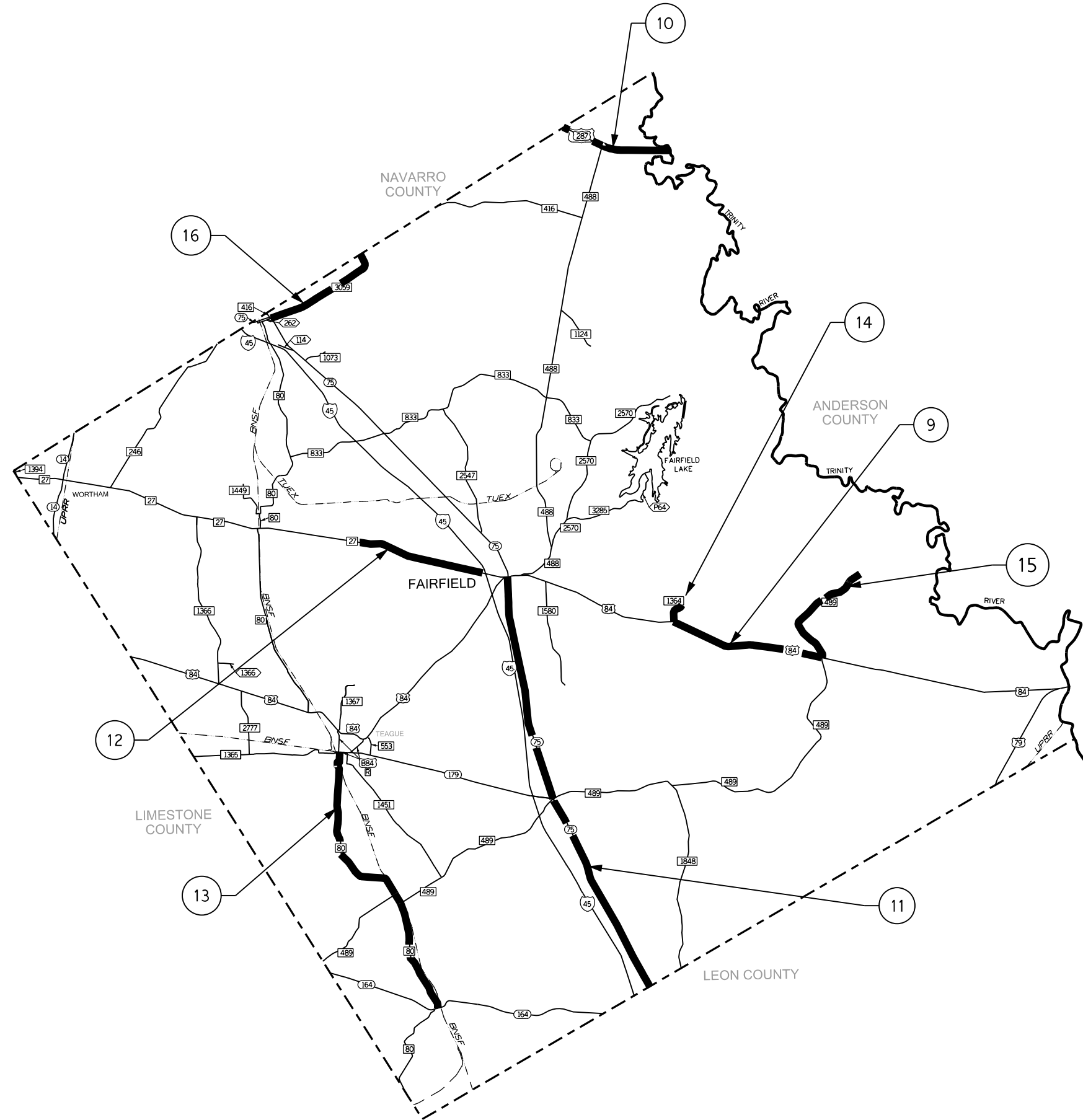
- (1) Refer to rumble strip standards: RS(1)-13 through RS(4)-13.
- (2) Retrace all white skips (W BRK) with item 666-6300.
- (3) For sections with speed limits 45 mph or less, retrace white edgeline with item 666-6303, and yellow centerline with items: 666-6312 and 666-6315.
- (4) For sections with speed limits higher than 45 mph, retrace white edgeline with item 666-6282, and yellow centerline with items: 666-6287 and 666-6291.
- (5) This value represents the estimated amount of missing raised pavement markers (RPMs) to be replaced. Place the new RPMs only where the existing RPM is missing. This quantity is 20% of the total amount of existing RPMs (an estimated 20% loss).

PRINT DATE	REVISION DATE
7/7/2022	



**SUMMARY OF QUANTITIES
(FREESTONE COUNTY)**

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	12



FREESTONE COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
9	US 84	0057-05-031
10	US 287	0122-03-034
11	SH 75	0166-03-036
12	FM 27	0456-02-033
13	FM 80	0612-01-054
14	FM 1364	1329-01-007
15	FM 489	2672-01-008
16	FM 3059	3130-01-009

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\General\012A_Project Location Map Freestone County.dgn

Drawings Not To Scale

PRINT DATE	REVISION DATE
7/6/2022	



**PROJECT LOCATION MAP
FREESTONE COUNTY**

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	12A

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\Summaries\013 SUMMARY OF QUANTITIES (GRIMES COUNTY).dgn

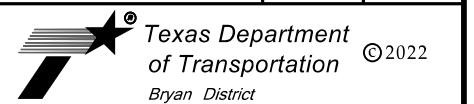
PAVEMENT MARKINGS AND MARKERS SUMMARY

LOCATION NUMBER	CSJ	COUNTY	HIGHWAY	PROJECT LIMITS		HIGHWAY TYPE	TYPE OF EDGELINE RUMBLE STRIPS	TYPE OF CENTERLINE RUMBLE STRIPS	ITEM 666						ITEM 672			ITEM 6056	REMARKS	
									6300	6303	6312	6315	6282	6287	6291	6007	6009	6010		6002
									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)	RE PM W/RET REQ TY I (Y) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (60 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (90 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (90 MIL)	REFL PAV MRKR TY I-C (5) EA	REFL PAV MRKR TY II-A-A (5) EA	REFL PAV MRKR TY II-C-R (5) EA		PERFORMED CENTERLINE RUMBLE STRIP LF
17	0315-02-058	GRIMES	SH 90	The Madison County Line	FM 39	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					143009	43380	15830	2	266		4,603	EXISTING MILLED RUMBLE STRIPS
18	0315-04-084	GRIMES	SH 105	.8 MI E of Brazos CL	FM 379	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4	1096				21086	24338	5624	26	85		731	
19	0338-01-063	GRIMES	SS 515	BS 6	SH 6	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4	145				212	9110	1866	43	23			
20	0338-01-064	GRIMES	SH 105	SH 6	FM 362	TWO LANE, TWO WAY	-	-	1665							29	137			EXISTING MILLED RUMBLE STRIPS(EDGE AND CENTER)
21	0720-01-046	GRIMES	FM 149	SH 90	Montgomery County Line	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					122871	87682	7765		302		481	
22	1400-02-029	GRIMES	FM 1774	SH 105	Conc Bridge 0.2 MI N of SH 249	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					36082	21696	2377		80	231	578	
23	1809-01-020	GRIMES	FM 1696	SH 90	Walker County Line	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					66844	46225	3306		155		764	
TOTAL									2,906	0	0	0	390,104	232,431	36,768	100	1,048	231	7,157	

NOTES

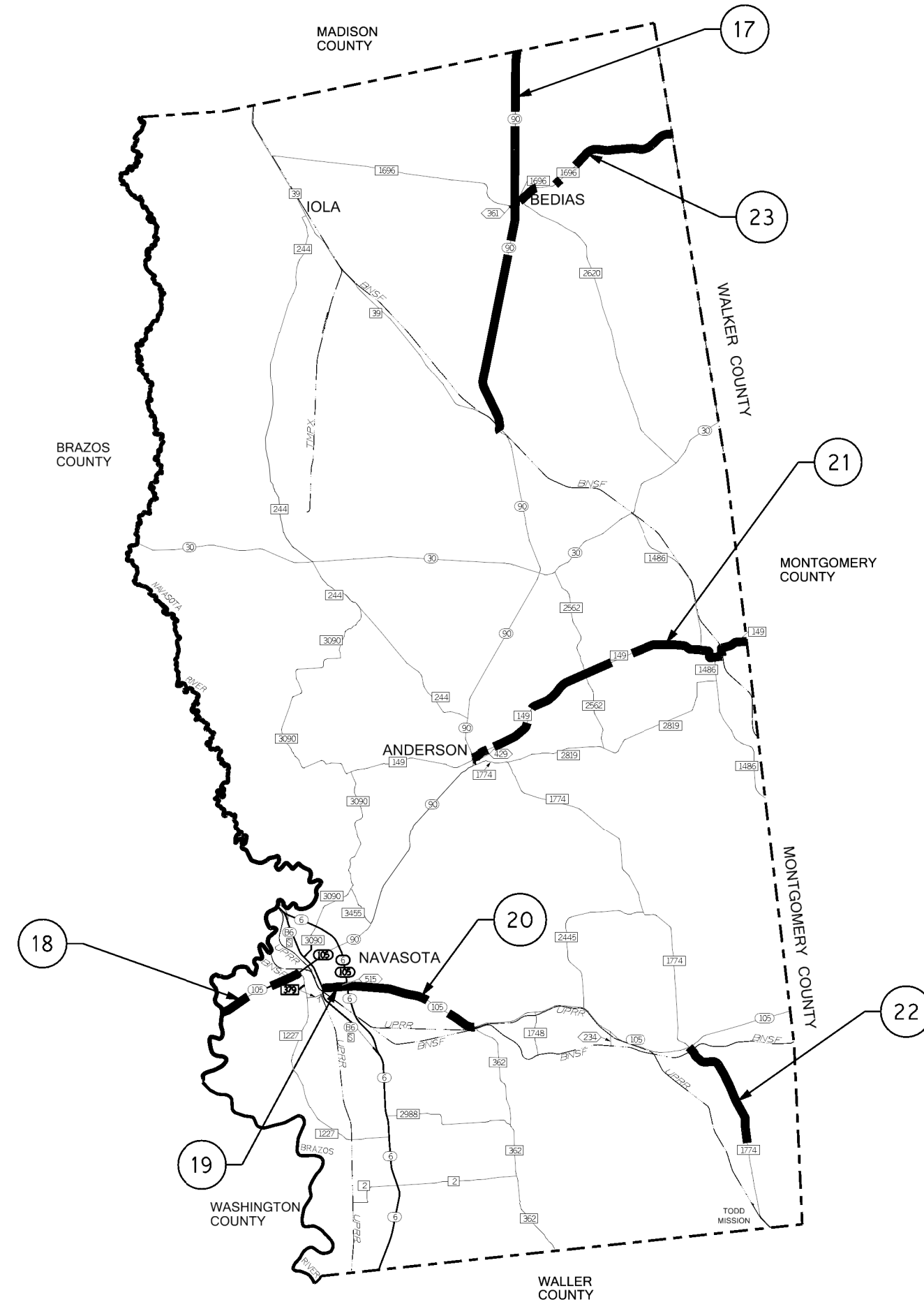
- (1) Refer to rumble strip standards: RS(1)-13 through RS(4)-13.
- (2) Retrace all white skips (W BRK) with item 666-6300.
- (3) For sections with speed limits 45 mph or less, retrace white edgeline with item 666-6303, and yellow centerline with items: 666-6312 and 666-6315.
- (4) For sections with speed limits higher than 45 mph, retrace white edgeline with item 666-6282, and yellow centerline with items: 666-6287 and 666-6291.
- (5) This value represents the estimated amount of missing raised pavement markers (RPMs) to be replaced. Place the new RPMs only where the existing RPM is missing. This quantity is 20% of the total amount of existing RPMs (an estimated 20% loss).

PRINT DATE: 7/6/2022
REVISION DATE:



SUMMARY OF QUANTITIES (GRIMES COUNTY)

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	13



GRIMES COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
17	SH 90	0315-02-058
18	SH 105	0315-04-084
19	SS 515	0338-01-063
20	SH 105	0338-01-064
21	FM 149	0720-01-046
22	FM 1774	1400-02-029
23	FM 1696	1809-01-020

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\General\013A_Project Location Map Grimes County.dgn

Drawings Not To Scale

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**PROJECT LOCATION MAP
GRIMES COUNTY**

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	13A

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\Summaries\014 SUMMARY OF QUANTITIES (LEON COUNTY).dgn

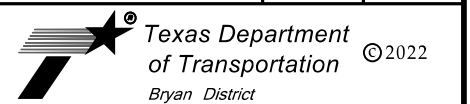
PAVEMENT MARKINGS AND MARKERS SUMMARY

LOCATION NUMBER	CSJ	COUNTY	HIGHWAY	PROJECT LIMITS		HIGHWAY TYPE	TYPE OF EDGELINE RUMBLE STRIPS	TYPE OF CENTERLINE RUMBLE STRIPS	ITEM 666						ITEM 672			ITEM 6056	REMARKS		
									6300	6303	6312	6315	6282	6287	6291	6007	6009	6010		6002	
									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)	RE PM W/RET REQ TY I (Y) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (60 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (90 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (90 MIL)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R		PREFORMED CENTERLINE RUMBLE STRIP	
(1)	(1)	(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	(5)	(5)	(5)						
FROM		TO		(1)	(1)	(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(5)					
24	0166-04-051	LEON	SH 75	Freestone County Line	SH 7	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4	671					186,413	120,043	13,879	7	439		1,055	
25	3281-01-009	LEON	FS 3	FM 03	SH OSR	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						3,286	3,286					0	
26	0552-01-034	LEON	FM 3	FM 977	FM 39	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						14,873	111,751	8,248		9		466	
27	0643-01-067	LEON	FM 39	Limestone County Line	US 79	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						77,090	25,278	8,265		143		2,562	
28	0643-01-068	LEON	FM 39	SH 7	FM 977	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						78,616	9,882	8,756		112		0	
29	1145-01-052	LEON	FM 831	FM 1511	FM 542	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						143,415	117,374	5,124		344		693	
30	1147-02-026	LEON	FM 977	FM 2485	SH 75	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						35,209	32,751	514		89		0	
31	1147-03-016	LEON	FM 977	SH 75	FM 1119	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						80,604	59,442	4,266		188		512	
32	1457-01-023	LEON	FM 831	SH 75	FM 1511	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						75,027	63,786	2,810		9		0	
TOTAL									671	0	0	0	694,533	543,593	51,862	7	1,333	0	5,288		

NOTES

- (1) Refer to rumble strip standards: RS(1)-13 through RS(4)-13.
- (2) Retrace all white skips (W BRK) with item 666-6300.
- (3) For sections with speed limits 45 mph or less, retrace white edgeline with item 666-6303, and yellow centerline with items: 666-6312 and 666-6315.
- (4) For sections with speed limits higher than 45 mph, retrace white edgeline with item 666-6282, and yellow centerline with items: 666-6287 and 666-6291.
- (5) This value represents the estimated amount of missing raised pavement markers (RPMs) to be replaced. Place the new RPMs only where the existing RPM is missing. This quantity is 20% of the total amount of existing RPMs (an estimated 20% loss).

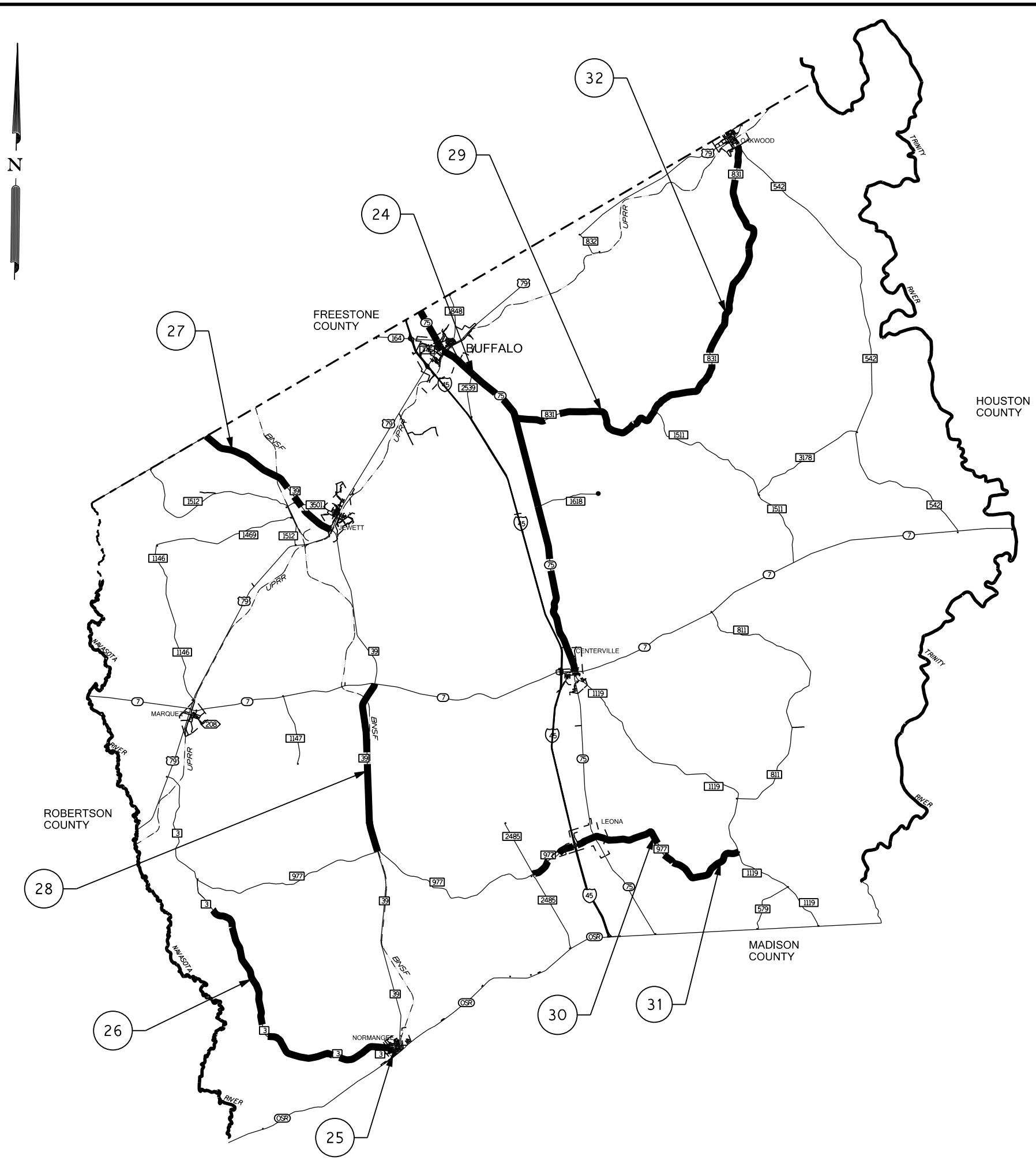
PRINT DATE	REVISION DATE
7/6/2022	



SUMMARY OF QUANTITIES (LEON COUNTY)

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	14

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\General\014A_Project Location Map Leon County.dgn



LEON COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
24	SH 75	0166-04-051
25	FS 3	3281-01-009
26	FM 3	0552-01-034
27	FM 39	0643-01-067
28	FM 39	0643-01-068
29	FM 831	1145-01-052
30	FM 977	1147-02-026
31	FM 977	1147-03-016
32	FM 831	1457-01-023

Drawings Not To Scale

PRINT DATE	REVISION DATE
7/6/2022	



**PROJECT LOCATION MAP
LEON COUNTY**

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	14A

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\SUMMARY OF QUANTITIES (MADISON COUNTY).dgn

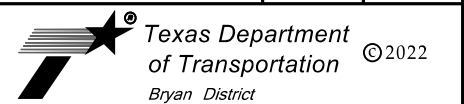
PAVEMENT MARKINGS AND MARKERS SUMMARY

LOCATION NUMBER	CSJ	COUNTY	HIGHWAY	PROJECT LIMITS		HIGHWAY TYPE	TYPE OF EDGELINE RUMBLE STRIPS	TYPE OF CENTERLINE RUMBLE STRIPS	ITEM 666			ITEM 672			ITEM 6056	REMARKS				
									6300	6303	6312	6282	6287	6291	6007		6009	6010	6002	
									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)	RE PM W/RET REQ TY I (Y) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (60 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (90 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (90 MIL)		REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R	PREFORMED CENTERLINE RUMBLE STRIP
(1)	(1)	(2)	(3)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	(5)	(5)					
TOTAL									LF	LF	LF	LF	LF	EA	EA	EA	LF			
33	0166-07-069	MADISON	SH 75	Leon County Line	IH 45	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					55025	23652	5435	14	110		1,253	
34	0675-05-102	MADISON	IH 45 EFR	SH0021	SH 75	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					47216	24750	3339	3	103		1,123	
35	3178-03-010	MADISON	FM 3091	4.22 Mi E of IH 45	IH 45 EFR	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					44415	30529	2960		106		256	
TOTAL									0	0	0	0	146,656	78,931	11,734	17	319	0	2,631	

NOTES

- (1) Refer to rumble strip standards: RS(1)-13 through RS(4)-13.
- (2) Retrace all white skips (W BRK) with item 666-6300.
- (3) For sections with speed limits 45 mph or less, retrace white edgeline with item 666-6303, and yellow centerline with items: 666-6312 and 666-6315.
- (4) For sections with speed limits higher than 45 mph, retrace white edgeline with item 666-6282, and yellow centerline with items: 666-6287 and 666-6291.
- (5) This value represents the estimated amount of missing raised pavement markers (RPMs) to be replaced. Place the new RPMs only where the existing RPM is missing. This quantity is 20% of the total amount of existing RPMs (an estimated 20% loss).

PRINT DATE	REVISION DATE
7/6/2022	



SUMMARY OF QUANTITIES (MADISON COUNTY)

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	15

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\Summaries\016 SUMMARY OF QUANTITIES (MILAM COUNTY).dgn

PAVEMENT MARKINGS AND MARKERS SUMMARY

LOCATION NUMBER	CSJ	COUNTY	HIGHWAY	PROJECT LIMITS		HIGHWAY TYPE	TYPE OF EDGELINE RUMBLE STRIPS	TYPE OF CENTERLINE RUMBLE STRIPS	ITEM 666				ITEM 672			ITEM 6056	REMARKS			
									6300	6303	6312	6315	6282	6287	6291	6007		6009	6010	6002
									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)	RE PM W/RET REQ TY I (Y) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (60 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (90 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (90 MIL)	REFL PAV MRKR TY I-C		REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R	PREFORMED CENTERLINE RUMBLE STRIP
(1)	(1)	(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	(5)	(5)						
FROM		TO		(1)	(1)	(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(5)				
36	0858-02-024	MILAM	FM 908	US 77	BURLESON CO.	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					61435	36605	5174		144		535	
37	1834-01-013	MILAM	FM 1786	US 79	1.8 MI S OF US 79	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					17474	5620	1933		33		527	
38	2133-03-021	MILAM	FM 2269	FM 485	US 190	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					10351	40401	11461		217		2,312	
TOTAL									0	0	0	0	89,260	82,626	18,568	0	394	0	3,373	

NOTES

(1) Refer to rumble strip standards: RS(1)-13 through RS(4)-13.

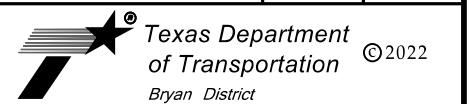
(2) Retrace all white skips (W BRK) with item 666-6300.

(3) For sections with speed limits 45 mph or less, retrace white edgeline with item 666-6303, and yellow centerline with items: 666-6312 and 666-6315.

(4) For sections with speed limits higher than 45 mph, retrace white edgeline with item 666-6282, and yellow centerline with items: 666-6287 and 666-6291.

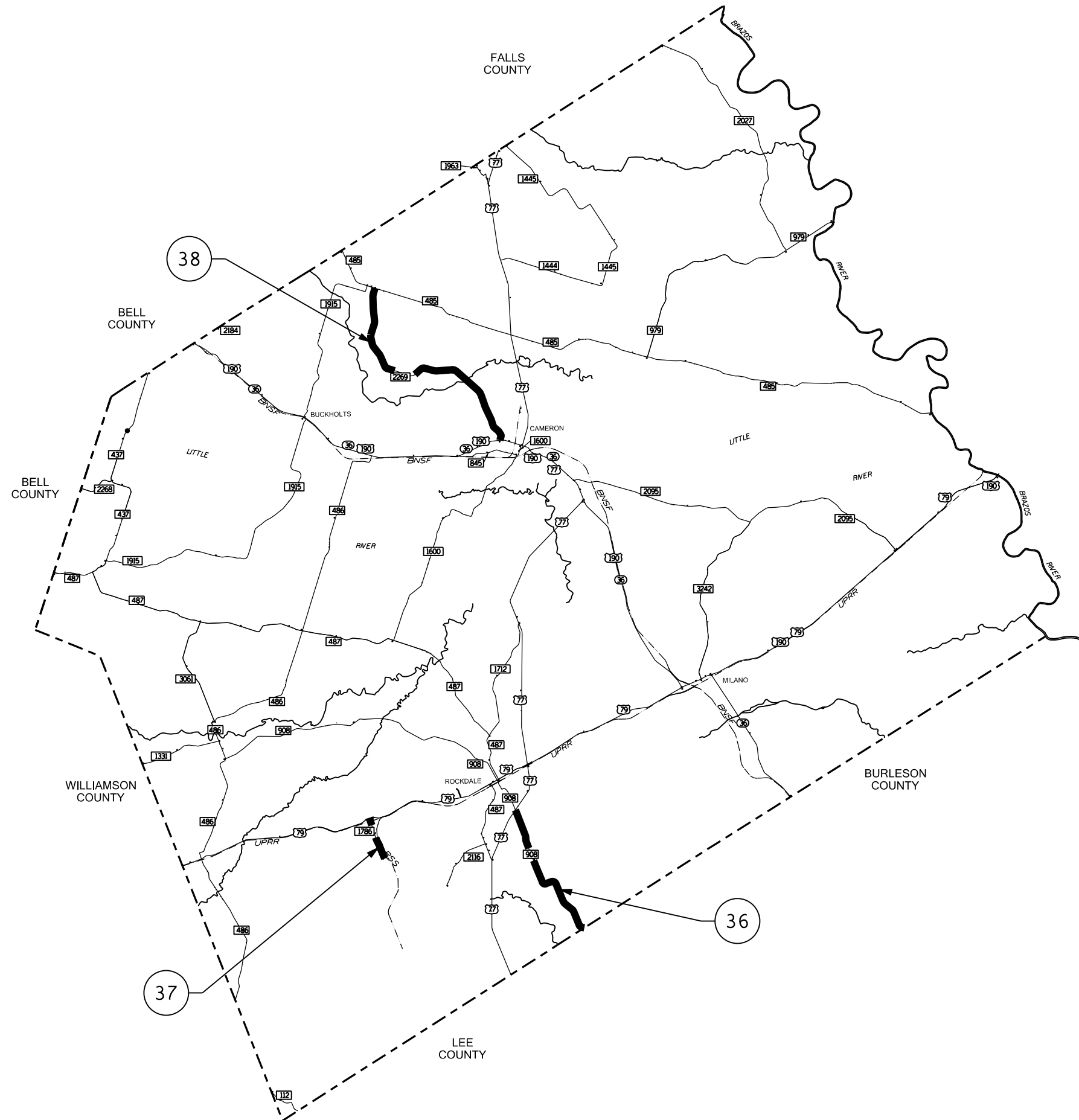
(5) This value represents the estimated amount of missing raised pavement markers (RPMs) to be replaced. Place the new RPMs only where the existing RPM is missing. This quantity is 20% of the total amount of existing RPMs (an estimated 20% loss).

PRINT DATE	REVISION DATE
7/6/2022	



**SUMMARY OF QUANTITIES
(MILAM COUNTY)**

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	16



MILAM COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
36	FM 908	0858-02-024
37	FM 1786	1834-01-013
38	FM 2269	2133-03-021

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\General\016A_Project_Location_Map_Milam_County.dgn

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PRINT DATE	REVISION DATE
7/6/2022	



**PROJECT LOCATION MAP
MILAM COUNTY**

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	16A


PAVEMENT MARKINGS AND MARKERS SUMMARY

LOCATION NUMBER	CSJ	COUNTY	HIGHWAY	PROJECT LIMITS		HIGHWAY TYPE	TYPE OF EDGELINE RUMBLE STRIPS	TYPE OF CENTERLINE RUMBLE STRIPS	ITEM 666						ITEM 672			ITEM 6056	REMARKS			
									6300	6303	6312	6315	6282	6287	6291	6007	6009	6010		6002		
									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)	RE PM W/RET REQ TY I (Y) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (60 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (90 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (90 MIL)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R		PERFORMED CENTERLINE RUMBLE STRIP		
(1)	(1)	(2)	(3)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	(5)	(5)	EA	EA	EA	LF			
39	0049-15-015	ROBERTSON	SH 14	FM 46	SH 6	TWO LANE, TWO WAY	RS(4)-13 OPTION 4	RS(3)-13 OPTION 4						44118	16629	4085		3	83		1,641	EXISTING MILLED RUMBLE STRIPS
40	0093-08-020	ROBERTSON	SH 14	Falls County Line	FM 46	TWO LANE, TWO WAY	RS(4)-13 OPTION 4	RS(3)-13 OPTION 4						13264	12740	441		1	33		11	EXISTING MILLED RUMBLE STRIPS
41	0475-05-008	ROBERTSON	SS 231	0.65 Mi W of SH 6	SH 6 West Frontage Road	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						6503	6608					16		
42	0540-02-029	ROBERTSON	FM 46	US 79	OSR	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						135417	68637	12386		1	287		2,812	
43	2479-01-023	ROBERTSON	FM 2549	US0190/SH 6	US 79	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4						121618	89732	7357				299	489	
TOTAL									0	0	0	0	320,920	194,346	24,269	5	718	0	4,953			

NOTES

- (1) Refer to rumble strip standards: RS(1)-13 through RS(4)-13.
- (2) Retrace all white skips (W BRK) with item 666-6300.
- (3) For sections with speed limits 45 mph or less, retrace white edgeline with item 666-6303, and yellow centerline with items: 666-6312 and 666-6315.
- (4) For sections with speed limits higher than 45 mph, retrace white edgeline with item 666-6282, and yellow centerline with items: 666-6287 and 666-6291.
- (5) This value represents the estimated amount of missing raised pavement markers (RPMs) to be replaced. Place the new RPMs only where the existing RPM is missing. This quantity is 20% of the total amount of existing RPMs (an estimated 20% loss).

PRINT DATE	REVISION DATE
7/6/2022	

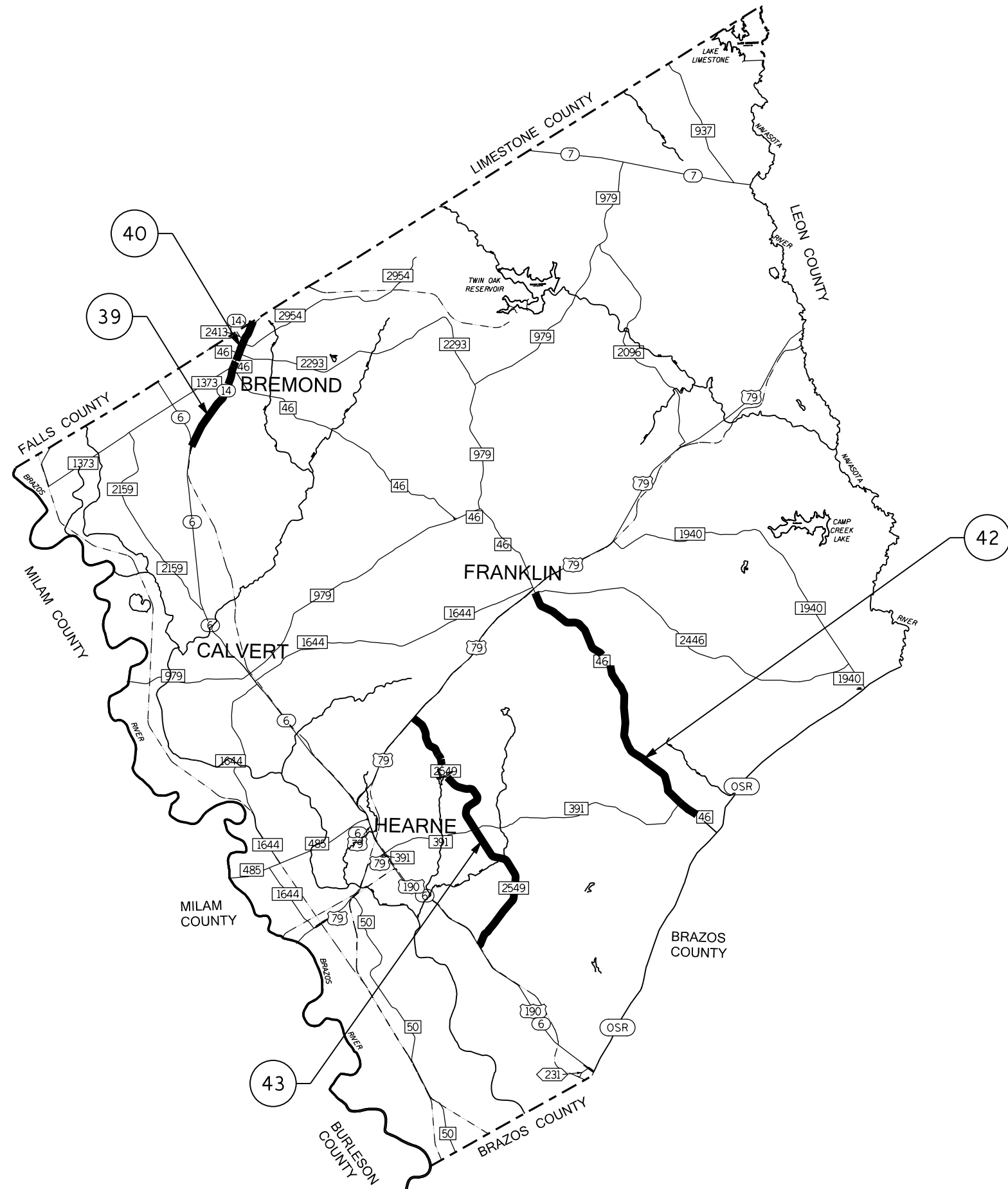


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Bryan District

SUMMARY OF QUANTITIES (ROBERTSON COUNTY)

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	17


REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\Summaries\017 SUMMARY OF QUANTITIES (ROBERTSON COUNTY).dgn



ROBERTSON COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
39	SH 14	0049-15-015
40	SH 14	0093-08-020
41	SS 231	0475-05-008
42	FM 46	0540-02-029
43	FM 2549	2479-01-023

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\General\017A_Project_Location_Map_Robertson County.dgn

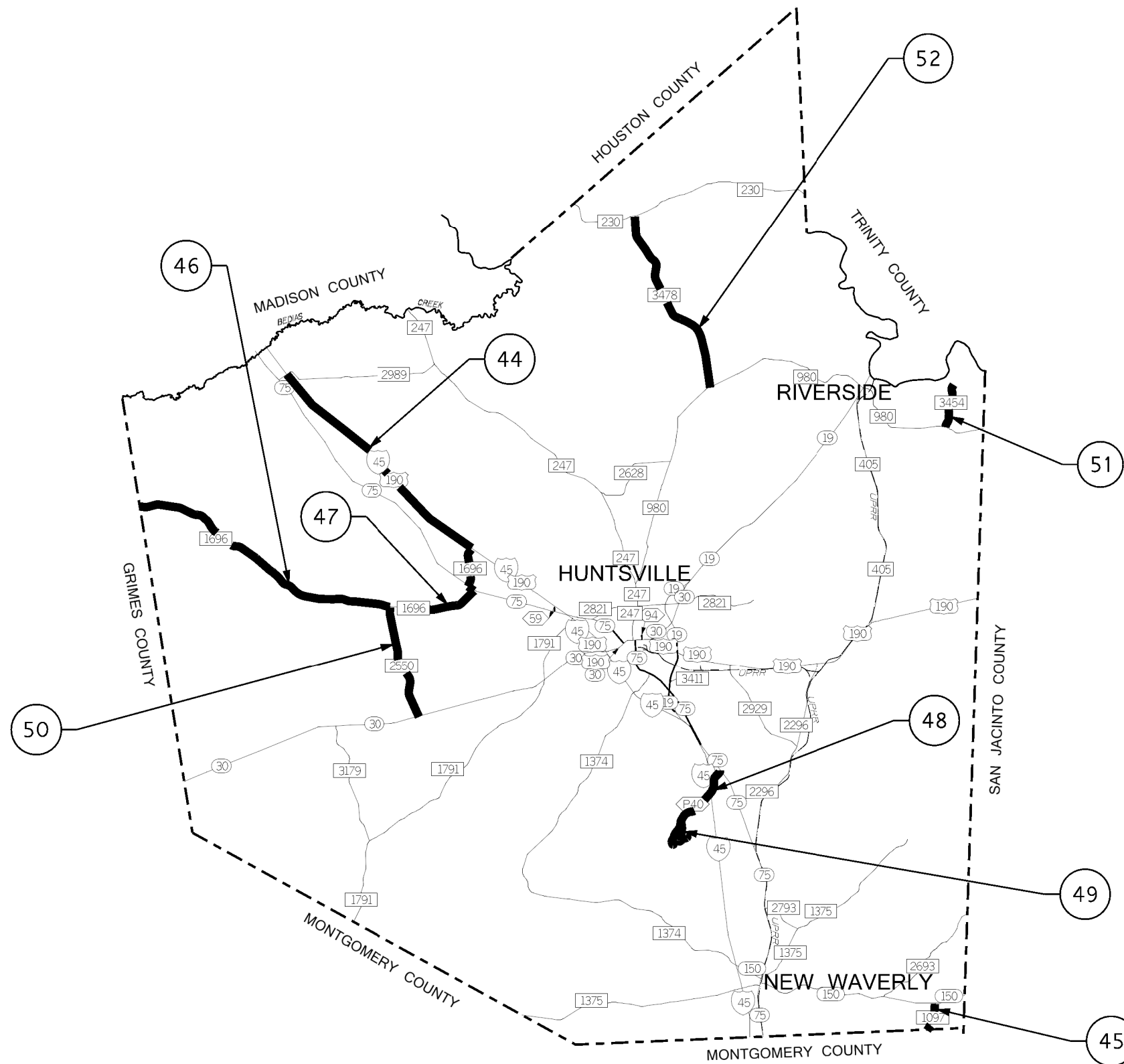
PRINT DATE	REVISION DATE
7/6/2022	


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 Bryan District

PROJECT LOCATION MAP
ROBERTSON COUNTY

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER
6		BS 6R, ETC.
STATE	DISTRICT	COUNTY
TEXAS	BRYAN	BRAZOS, ETC.
CONTROL	SECTION	JOB SHEET NO.
0049	09	094,ETC. 17A

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\General\018A_Project Location Map Walker County.dgn



WALKER COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
44	IH45 EFR	0675-06-116
45	FM 1097	1259-03-009
46	FM 1696	1809-02-029
47	FM 1696	1809-03-012
48	PR 40	2267-01-013
49	PR 40R	2267-01-014
50	FM 2550	2480-01-012
51	FM 3454	3443-01-007
52	FM 3478	3550-01-016

Drawings Not To Scale

PRINT DATE	REVISION DATE
7/6/2022	



**PROJECT LOCATION MAP
WALKER COUNTY**

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	18A

REV DATE: 0049-09-094, ETC. FILENAME: G:\004909\094\SHEETS\Summaries\019 SUMMARY OF QUANTITIES (WASHINGTON COUNTY).dgn


PAVEMENT MARKINGS AND MARKERS SUMMARY

LOCATION NUMBER	CSJ	COUNTY	HIGHWAY	PROJECT LIMITS		HIGHWAY TYPE	TYPE OF EDGELINE RUMBLE STRIPS	TYPE OF CENTERLINE RUMBLE STRIPS	ITEM 666						ITEM 672			ITEM 6056	REMARKS	
									6300	6303	6312	6315	6282	6287	6291	6007	6009	6010		6002
									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)	RE PM W/RET REQ TY I (Y) 4" (SLD) (100 MIL)	REF PROF PAV MRK TY I (W) 4" (SLD) (60 MIL)	REF PROF PAV MRK TY I (Y) 4" (SLD) (90 MIL)	REF PROF PAV MRK TY I (Y) 4" (BRK) (90 MIL)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R		PREFORMED CENTERLINE RUMBLE STRIP
(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	(5)									
FROM	TO	(1)	(1)	(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(5)	(5)	(5)					
53	0187-06-029	Washington	FM 109	SH 36	AUSTIN CL	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					48590	33181	2886		113		456	
54	0315-08-046	Washington	FM 389	AUSTIN CL	FM 332	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					116884	86725	6167		278		857	
55	1404-01-014	Washington	FM 1370	FM 1155	End of State Maintenance	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					50910	33060	3551		118		530	
56	1404-02-031	Washington	FM 2726	FM 1370	FM 1155	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					76832	58607	4111		188		147	
57	1405-01-022	Washington	FM 1371	US 290	Austin County Line	TWO LANE, TWO WAY	RS(4)-13 OPTION 6	RS(3)-13 OPTION 4					34033	21646	2861		83		355	
TOTAL									0	0	0	0	327,249	233,219	19,576	0	780	0	2,343	

NOTES

- (1) Refer to rumble strip standards: RS(1)-13 through RS(4)-13.
- (2) Retrace all white skips (W BRK) with item 666-6300.
- (3) For sections with speed limits 45 mph or less, retrace white edgeline with item 666-6303, and yellow centerline with items: 666-6312 and 666-6315.
- (4) For sections with speed limits higher than 45 mph, retrace white edgeline with item 666-6282, and yellow centerline with items: 666-6287 and 666-6291.
- (5) This value represents the estimated amount of missing raised pavement markers (RPMs) to be replaced. Place the new RPMs only where the existing RPM is missing. This quantity is 20% of the total amount of existing RPMs (an estimated 20% loss).

PRINT DATE	REVISION DATE
7/6/2022	

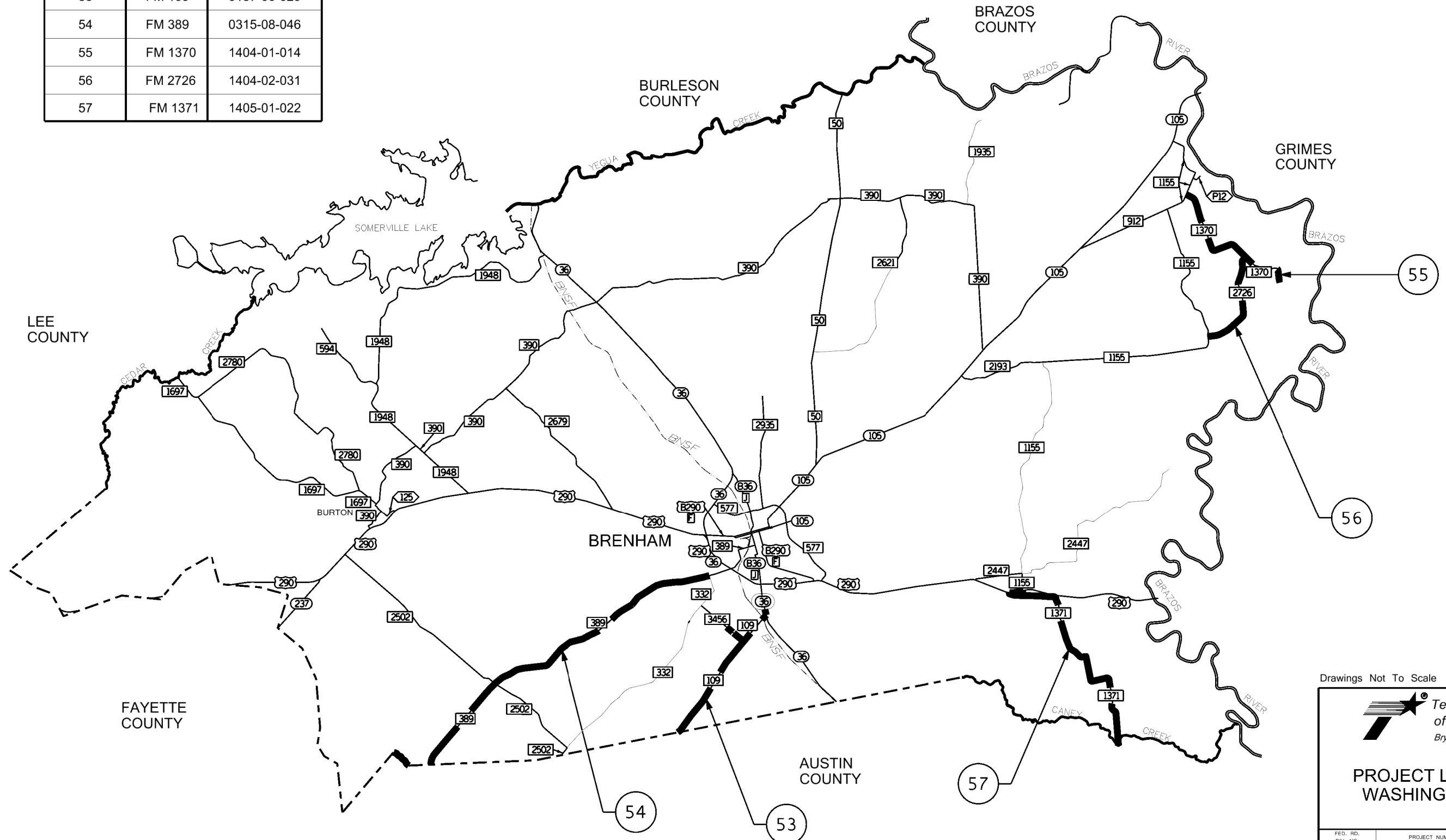


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Bryan District

SUMMARY OF QUANTITIES (WASHINGTON COUNTY)

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	19

WASHINGTON COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
53	FM 109	0187-06-029
54	FM 389	0315-08-046
55	FM 1370	1404-01-014
56	FM 2726	1404-02-031
57	FM 1371	1405-01-022



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Drawings Not To Scale

PRINT DATE	REVISION DATE
7/6/2022	



**PROJECT LOCATION MAP
WASHINGTON COUNTY**

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	19A

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

WORKER SAFETY NOTES:


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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

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

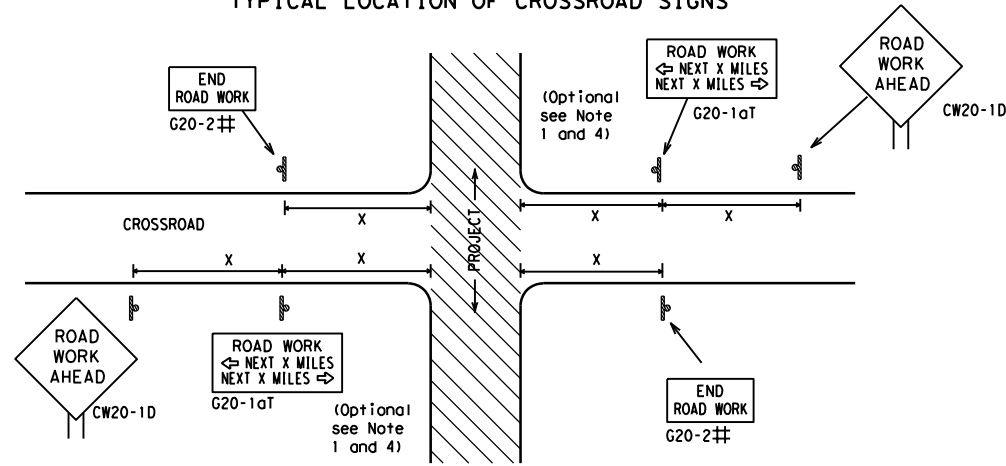
SHEET 1 OF 12

 Texas Department of Transportation		Traffic Safety Division Standard	
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS			
BC (1) - 21			
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		CON:	0049
		SECT:	09
		JOB:	094, ETC.
		HIGHWAY:	BS 6R, ETC.
REVISIONS		DIST:	COUNTY
4-03	7-13		
9-07	8-14		
5-10	5-21	BRY	BRAZOS, ETC.
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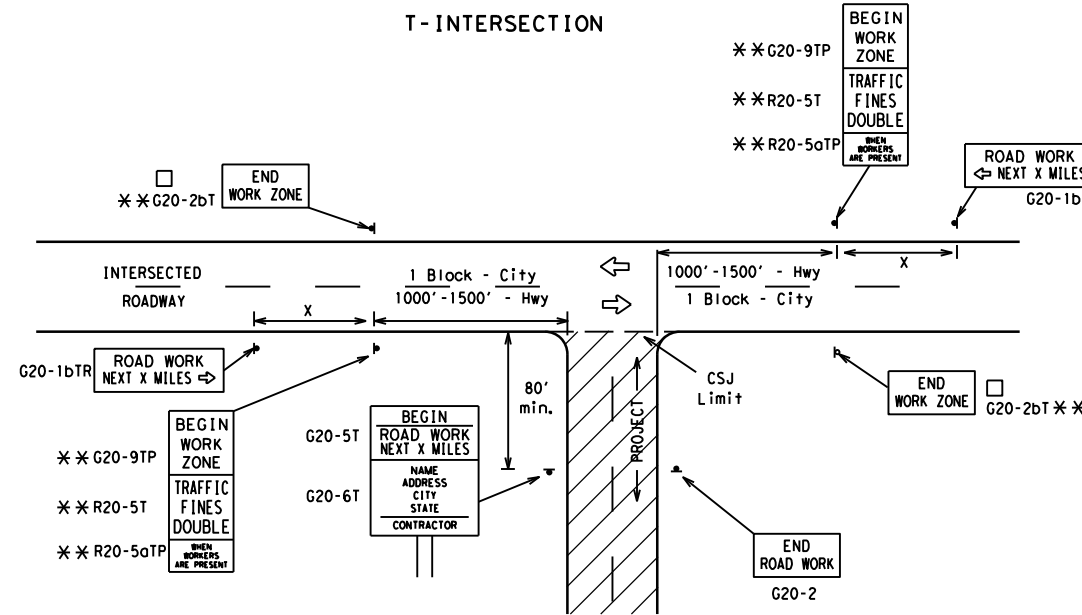
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TYPICAL LOCATION OF CROSSROAD SIGNS



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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

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

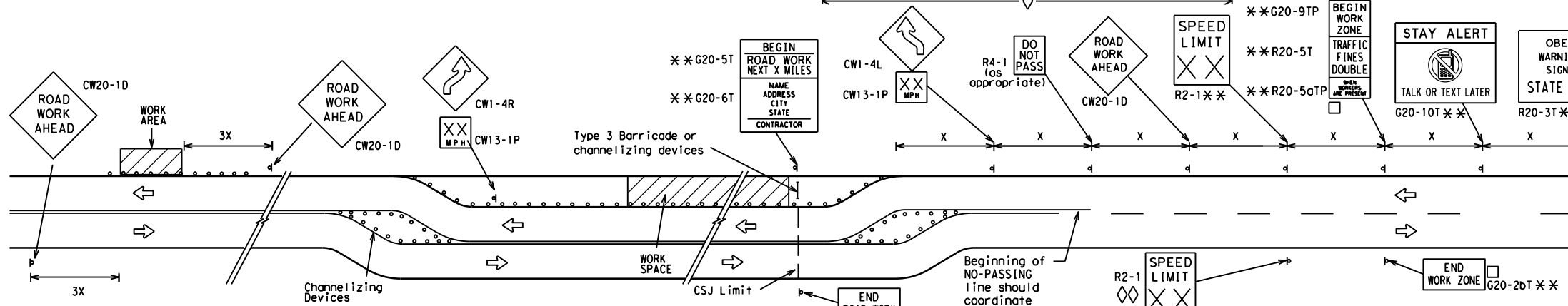
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

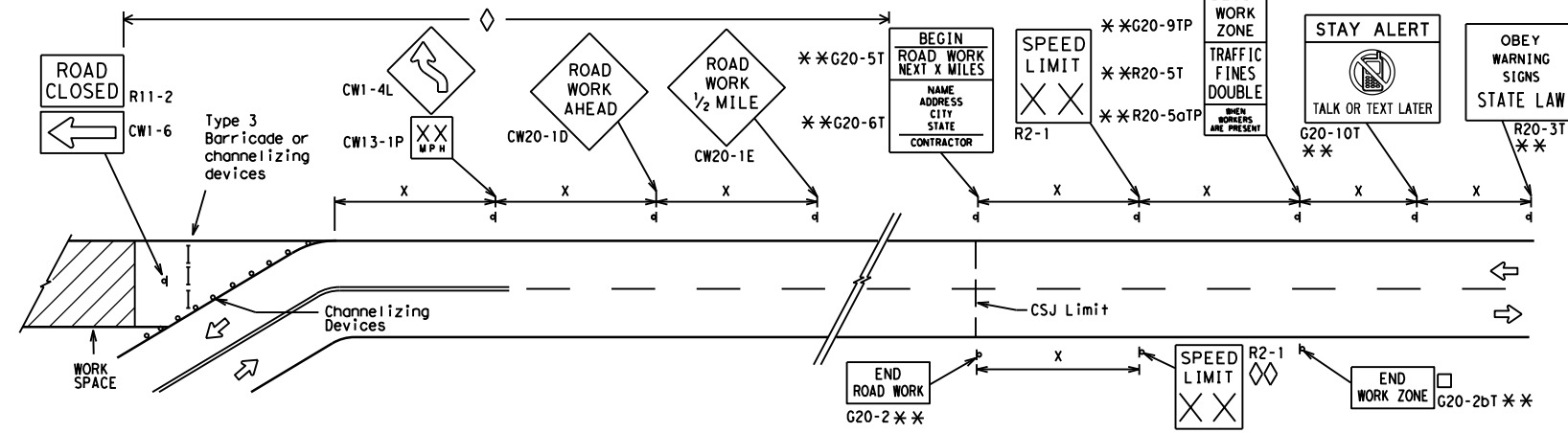
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

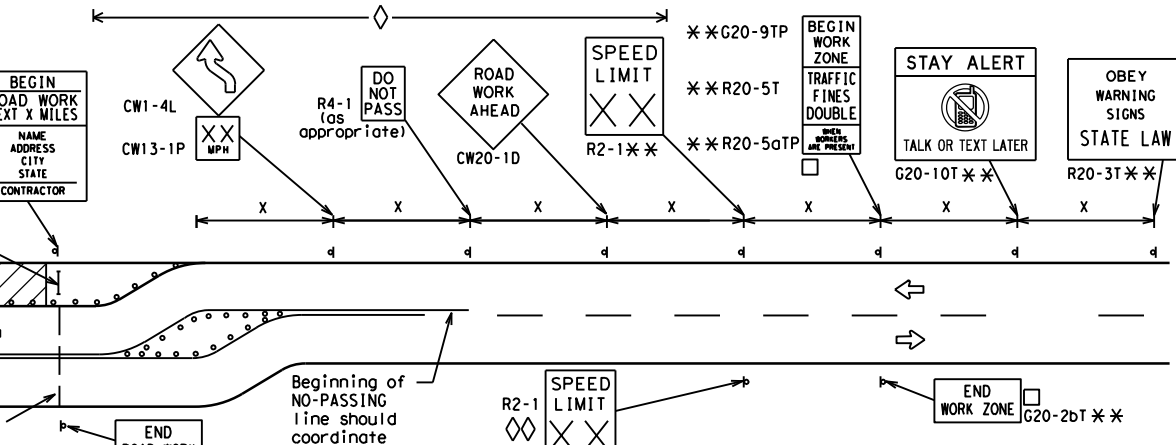


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

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



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



NOTES

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

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

SHEET 2 OF 12



BARRICADE AND CONSTRUCTION PROJECT LIMIT

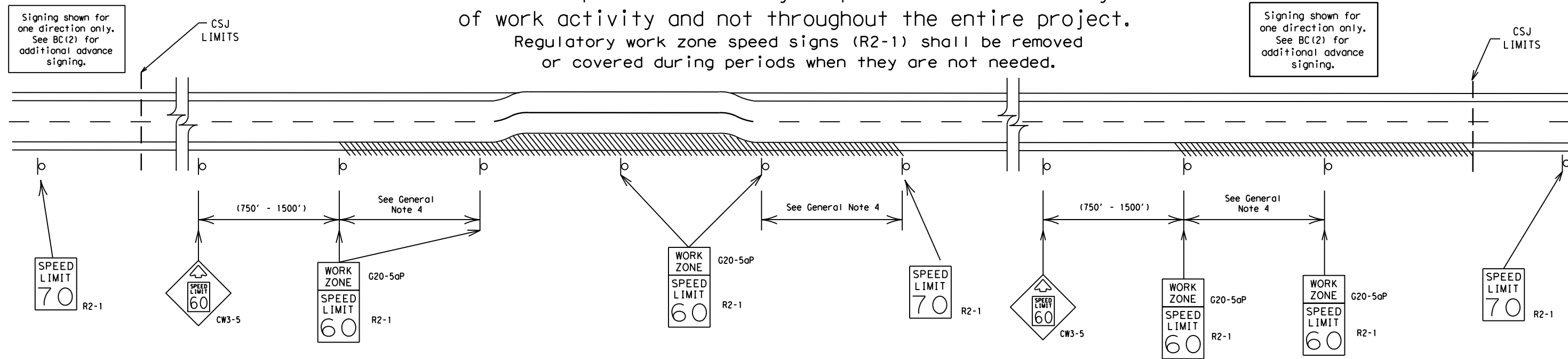
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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	BRY	BRAZOS, ETC.	21	

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

- rough road or damaged pavement surface
- substantial alteration of roadway geometrics (diversions)
- construction detours
- grade
- width
- other conditions readily apparent to the driver

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

- Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
- Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
- Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
- Frequency of work zone speed limit signs should be:

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

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SHEET 3 OF 12



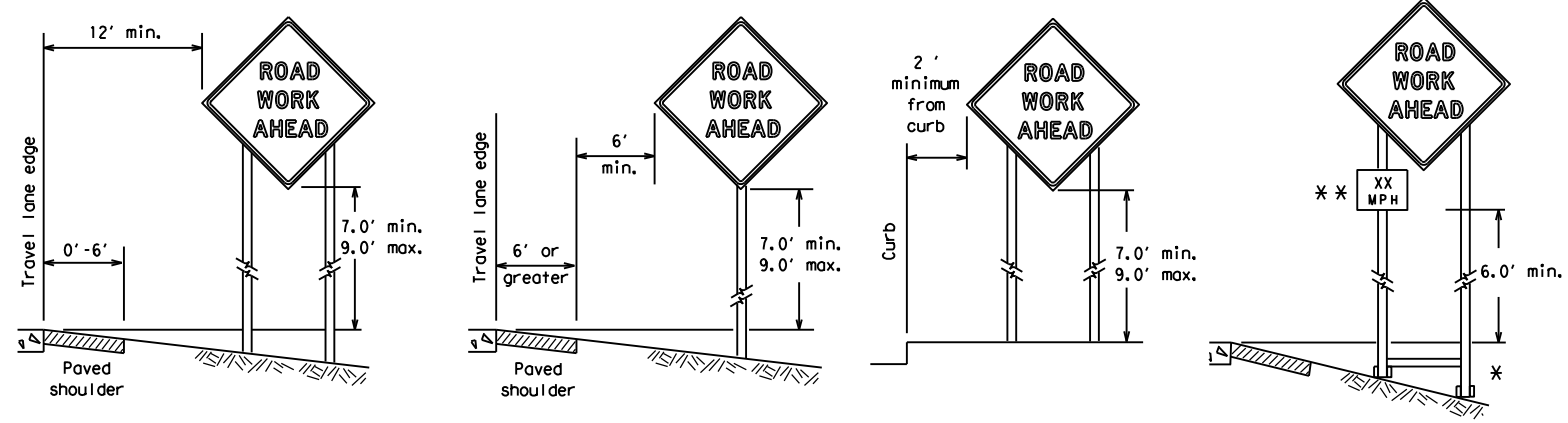
BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC (3) - 21

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9-07	8-14	DIST	COUNTY		SHEET NO.				
7-13	5-21	BRY	BRAZOS, ETC.		22				

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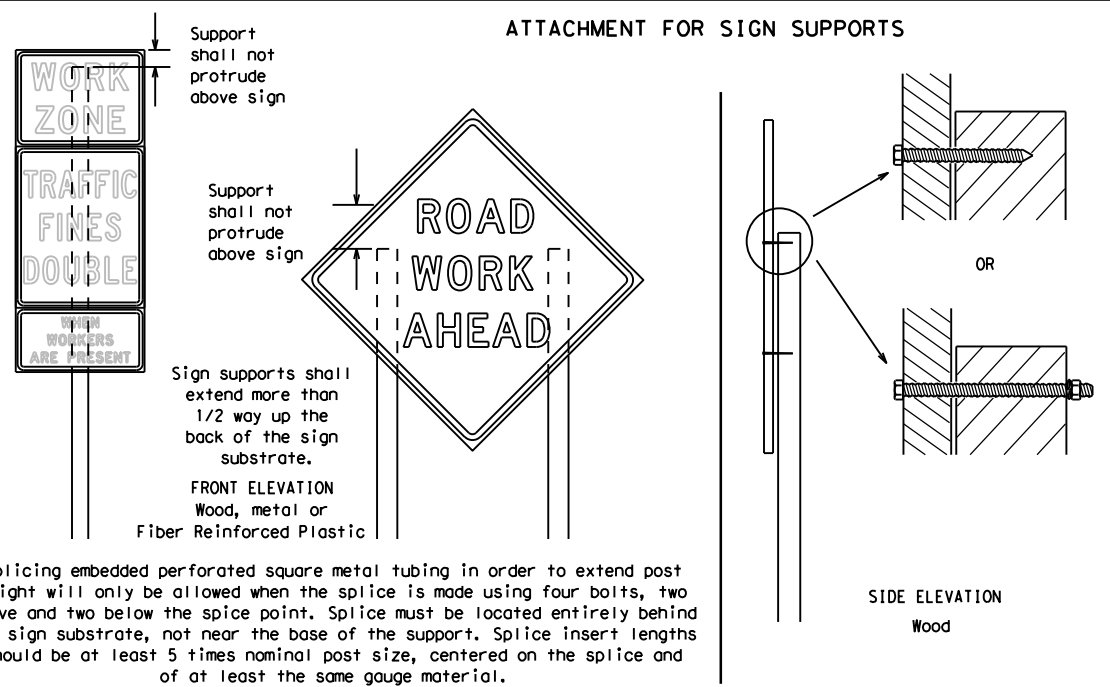
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



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

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

ATTACHMENT FOR SIGN SUPPORTS



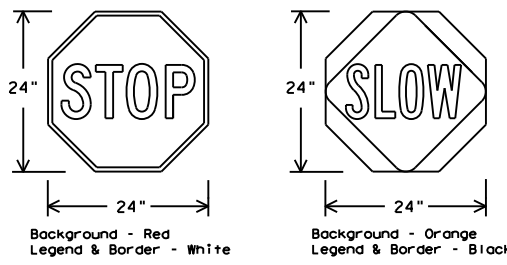
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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

STOP/SLOW PADDLES

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



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

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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



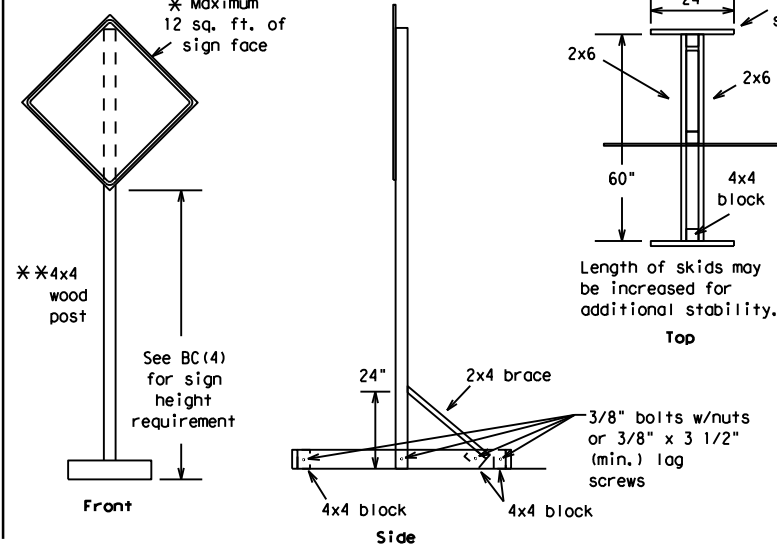
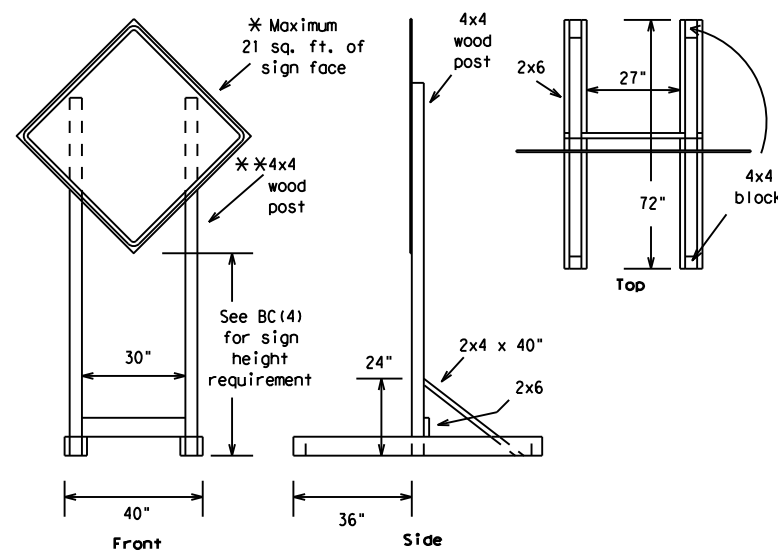
BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC (4) - 21

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© TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY				
REVISIONS		0049	09	094, ETC.	BS	6R, ETC.			
9-07	8-14	DIST	COUNTY	SHEET NO.					
7-13	5-21	BRY	BRAZOS, ETC.	23					

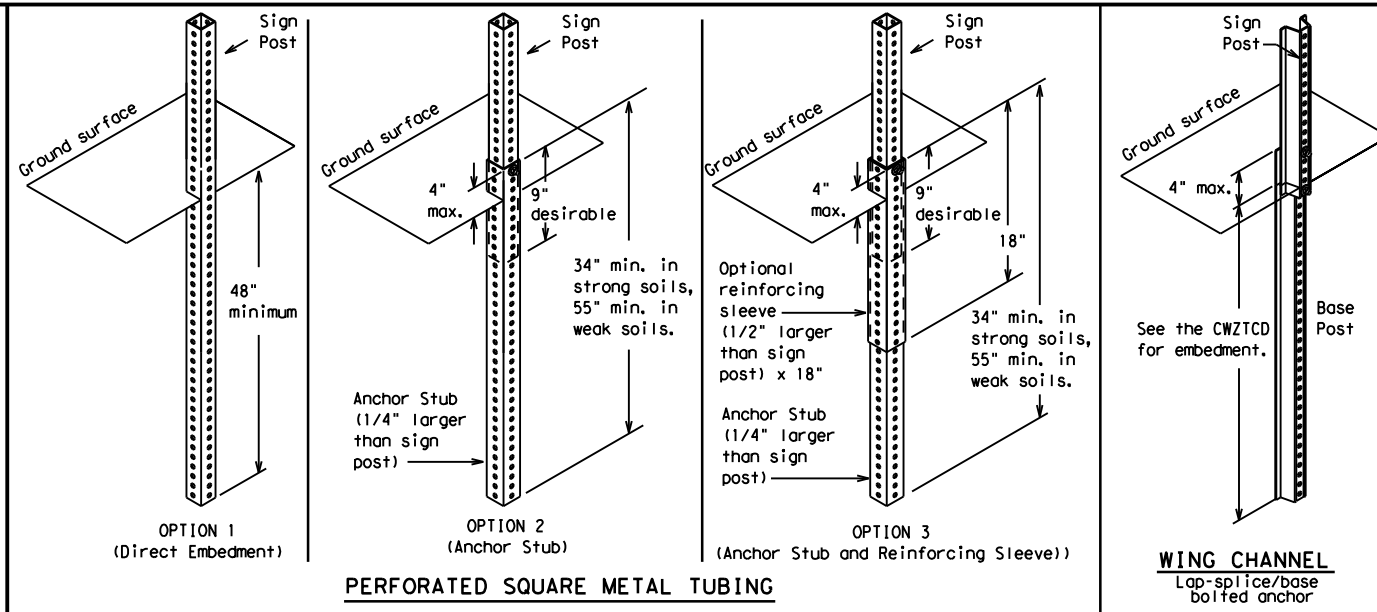
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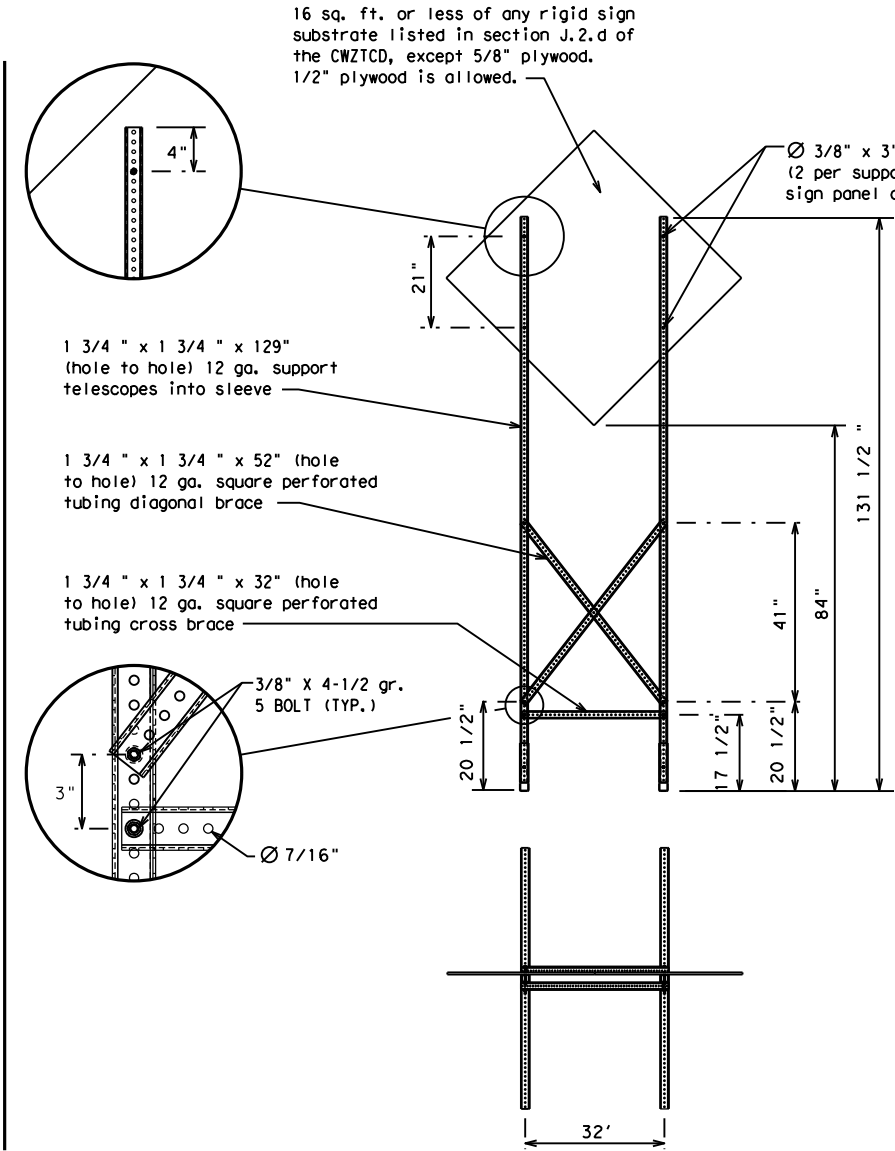
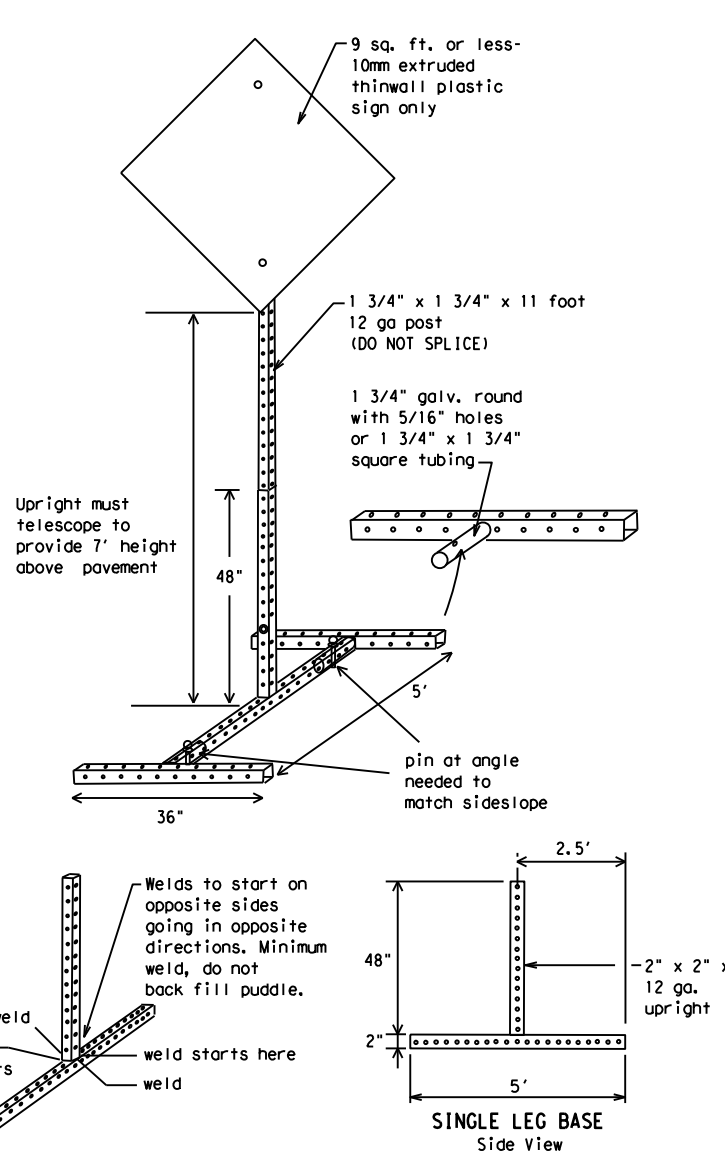
SKID MOUNTED WOOD SIGN SUPPORTS

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



GROUND MOUNTED SIGN SUPPORTS

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



SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

SHEET 5 OF 12



BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5) - 21

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REVISIONS		0049	09	094, ETC.	BS 6R, ETC.				
9-07	8-14	DIST	COUNTY	SHEET NO.					
7-13	5-21	BRY	BRAZOS, ETC.	24					

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

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

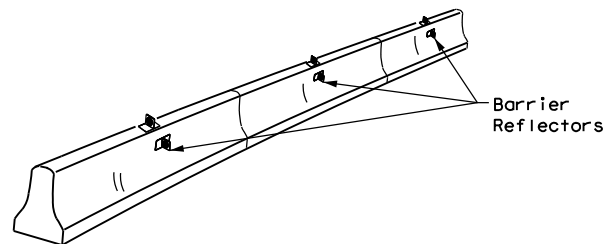
Roadway designation # IH-number, US-number, SH-number, FM-number

<h3>BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)</h3>			
<h2>BC (6) - 21</h2>			
FILE:	bc-21.dgn	DN:	TxDOT
© TxDOT	November 2002	CONT:	SECT:
REVISIONS	0049 09	JOB:	HIGHWAY
9-07	8-14	094, ETC. BS 6R, ETC.	
7-13	5-21	DIST:	COUNTY
		BRY	BRAZOS, ETC.
		SHEET NO. 25	

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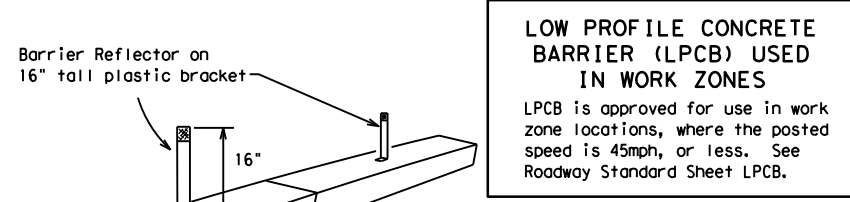
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors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



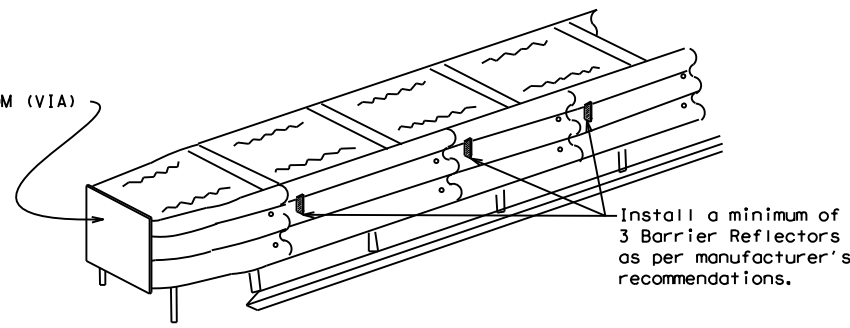
CONCRETE TRAFFIC BARRIER (CTB)

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



LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES
 LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

LOW PROFILE CONCRETE BARRIER (LPCB)



DELINEATION OF END TREATMENTS

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

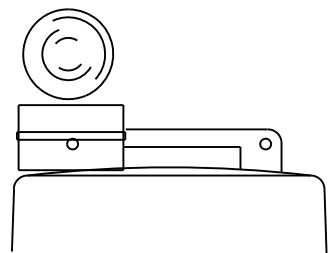
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

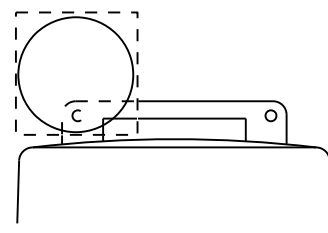
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing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

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

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



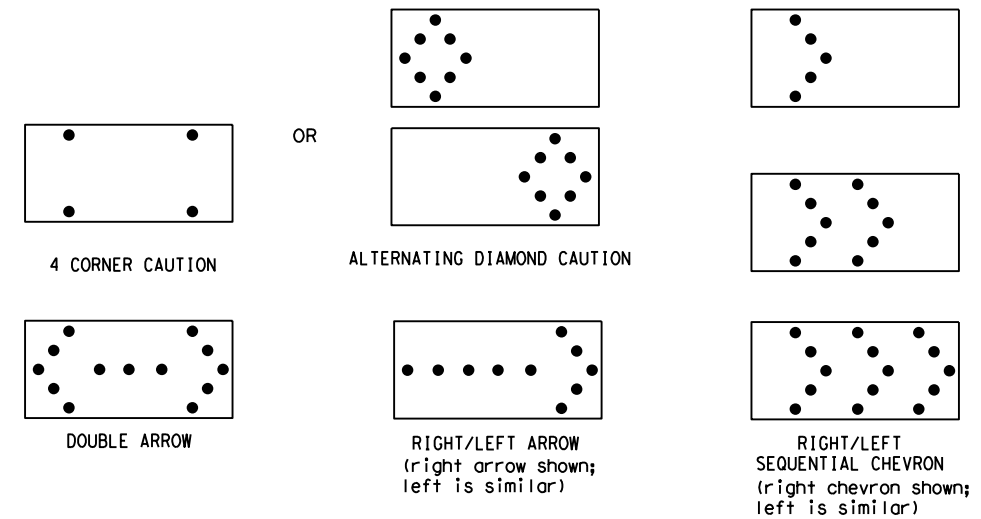
Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



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

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

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



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

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

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

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

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

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



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

BC (7) - 21

FILE:	bc-21.dgn	DN:	TxDOT	CR:	TxDOT	OW:	TxDOT	CK:	TxDOT
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REVISIONS		0049	09	094, ETC.		BS		6R, ETC.	
9-07	8-14	DIST	COUNTY		SHEET NO.				
7-13	5-21	BRY	BRAZOS, ETC.		26				

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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

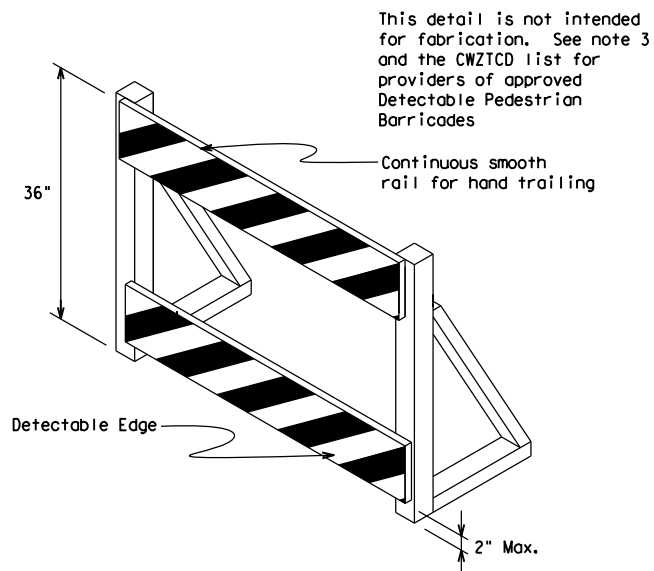
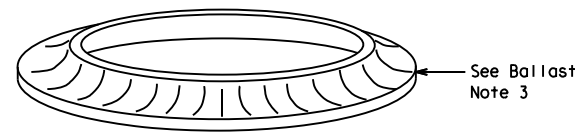
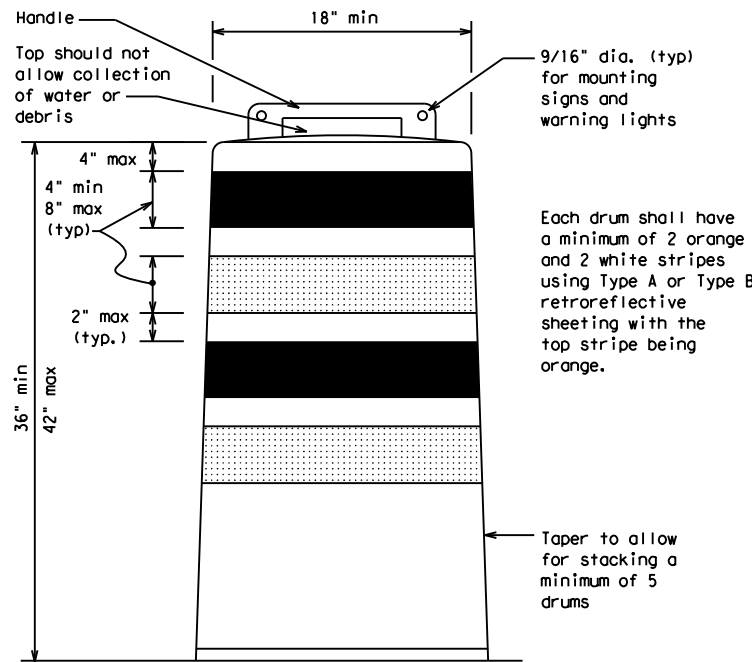
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

RETROREFLECTIVE SHEETING

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

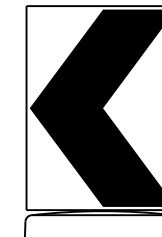
BALLAST

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

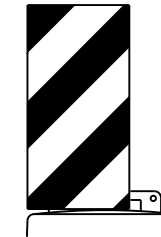


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

SHEET 8 OF 12



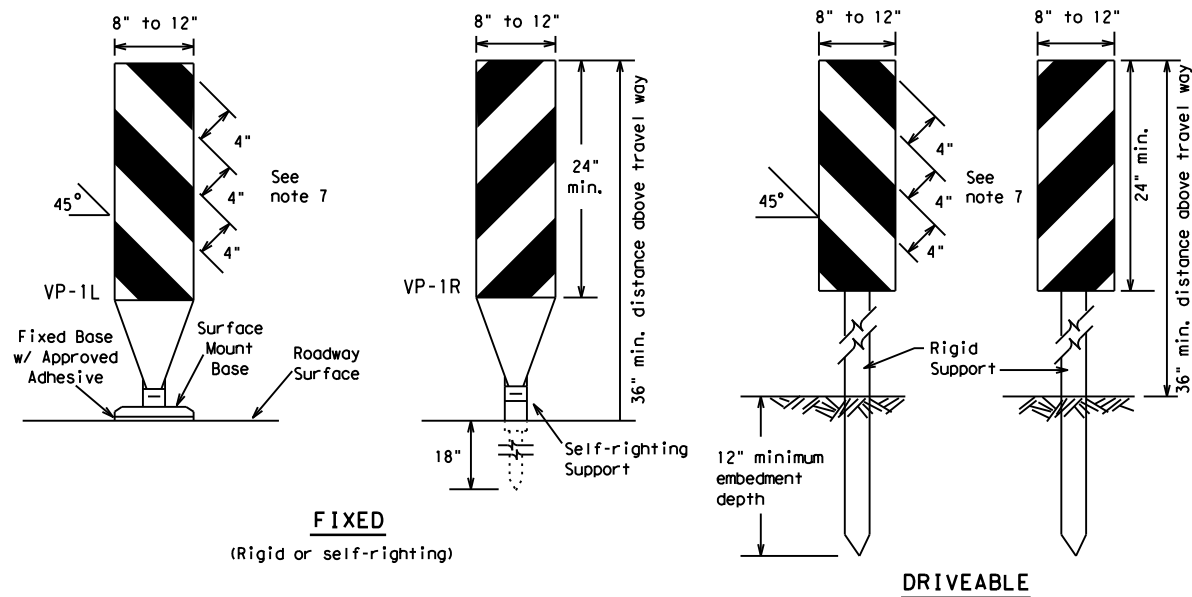
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (8) - 21

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9-07	5-21	BRY		BRAZOS, ETC.		27			
7-13									

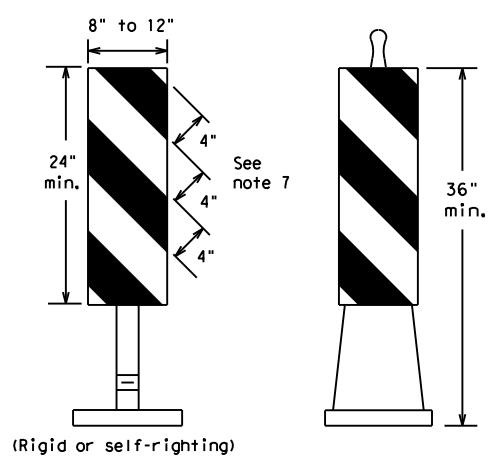
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FIXED
(Rigid or self-righting)

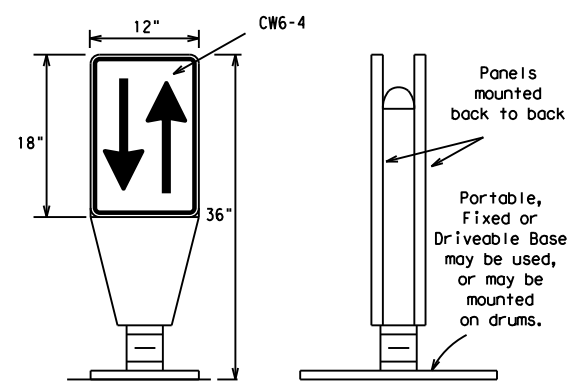
DRIVEABLE



PORTABLE

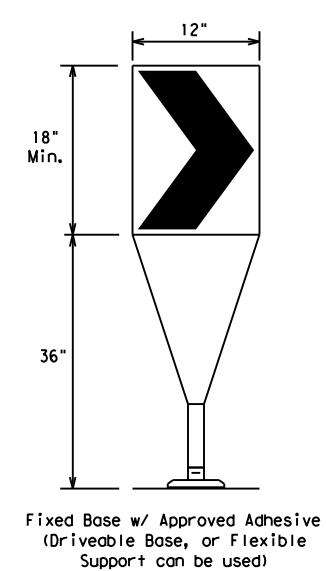
VERTICAL PANELS (VPs)

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



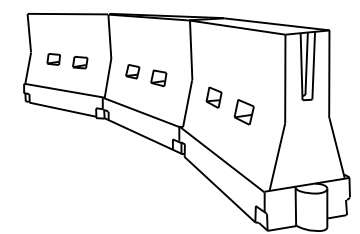
OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

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



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

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

GENERAL NOTES

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (9) - 21

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7-13	5-21	BRY	BRAZOS, ETC.	28					

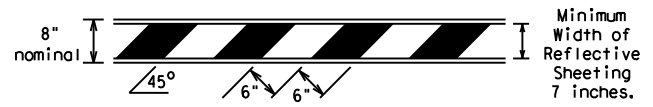
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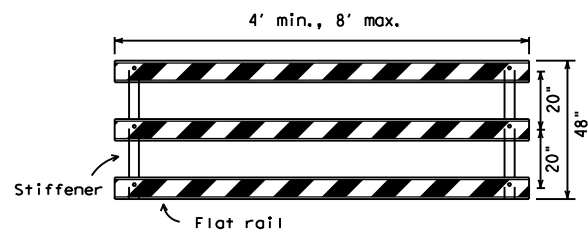
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



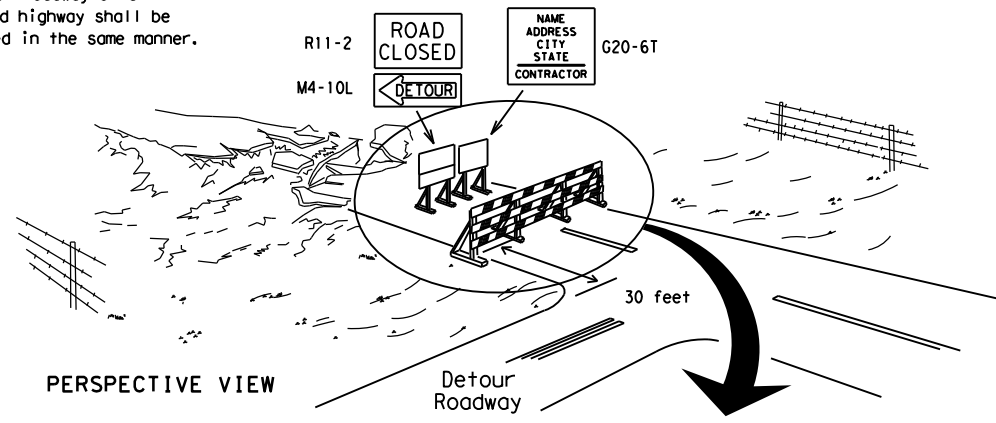
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

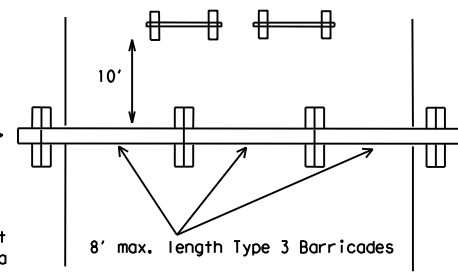
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

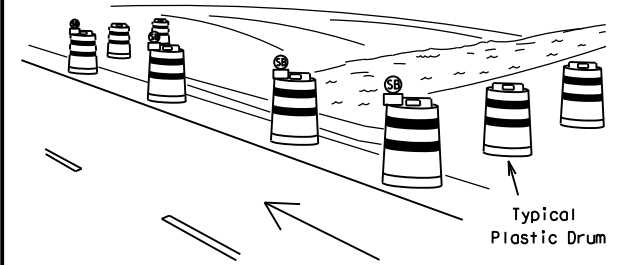
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



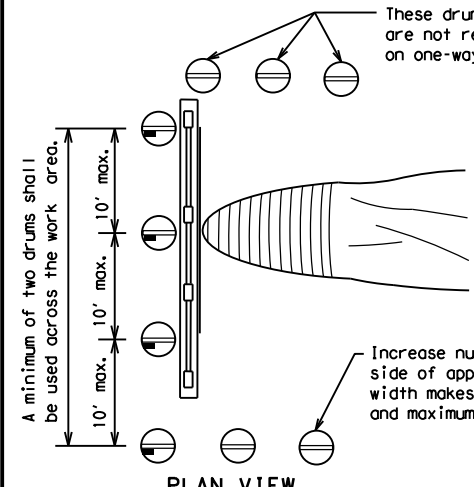
PLAN VIEW

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

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

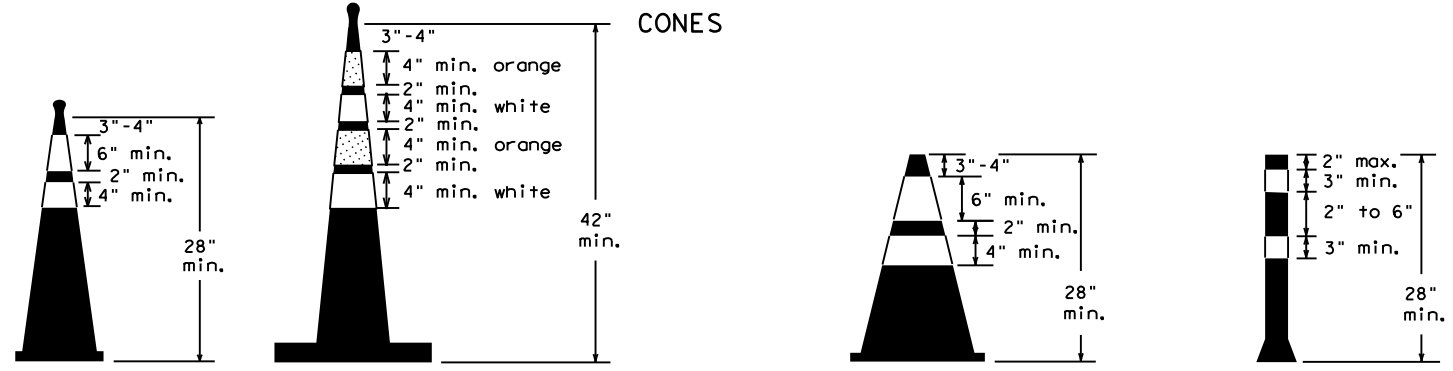


PLAN VIEW

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

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

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



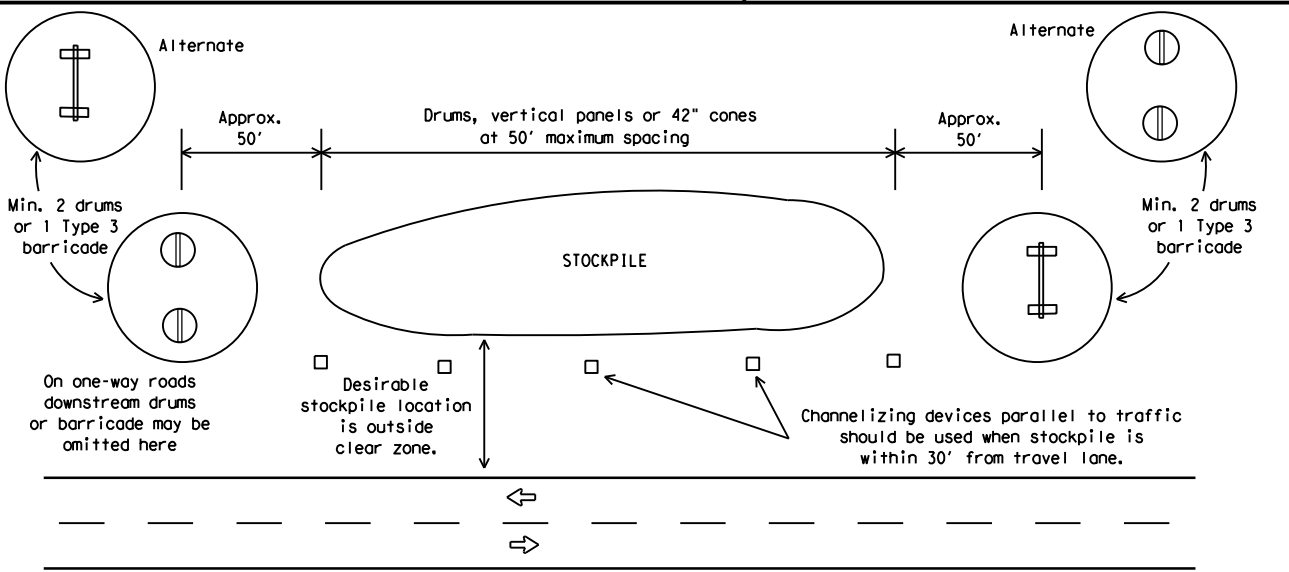
Two-Piece cones

One-Piece cones

Tubular Marker

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

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (10) - 21

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9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	BRY	BRAZOS, ETC.	29	

WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

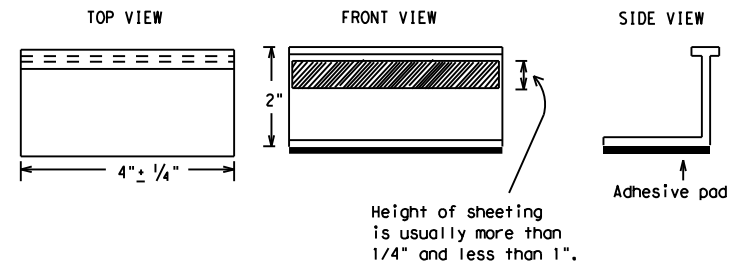
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

SHEET 11 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11) - 21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS		0049	09	094, ETC. BS 6R, ETC.
2-98	9-07	5-21		
1-02	7-13			
11-02	8-14			
	DIST	COUNTY	SHEET NO.	
	BRY	BRAZOS, ETC.	30	

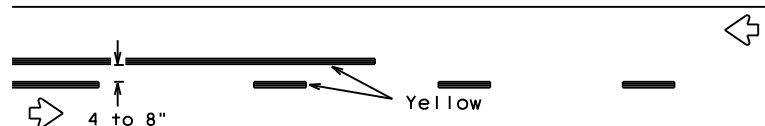
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PAVEMENT MARKING PATTERNS

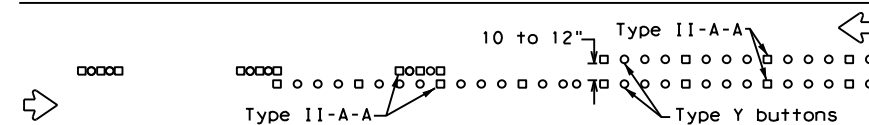


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

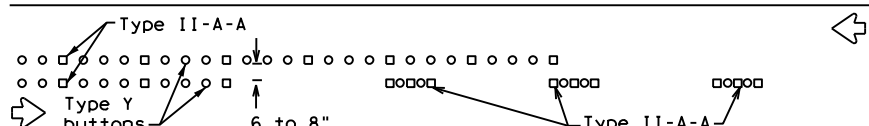


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

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

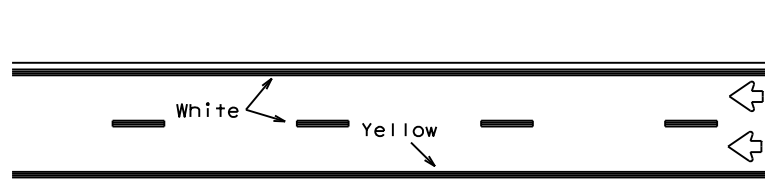


RAISED PAVEMENT MARKERS - PATTERN A



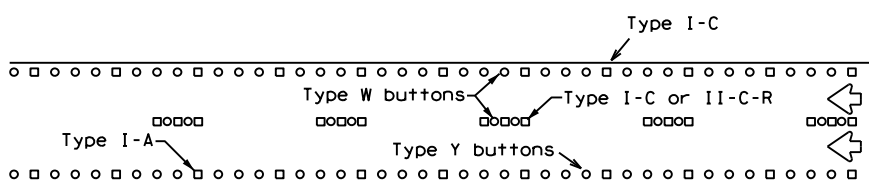
RAISED PAVEMENT MARKERS - PATTERN B

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



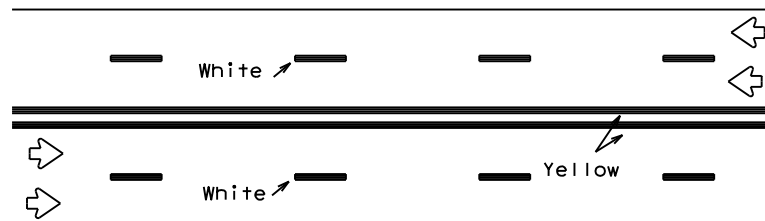
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



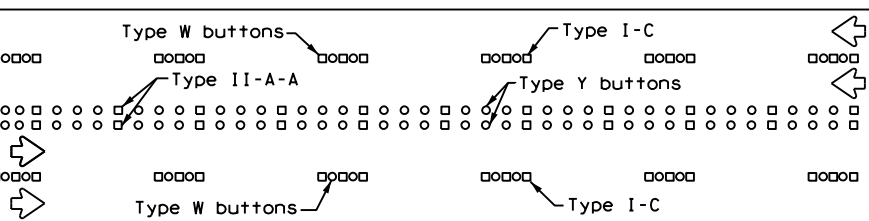
RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY



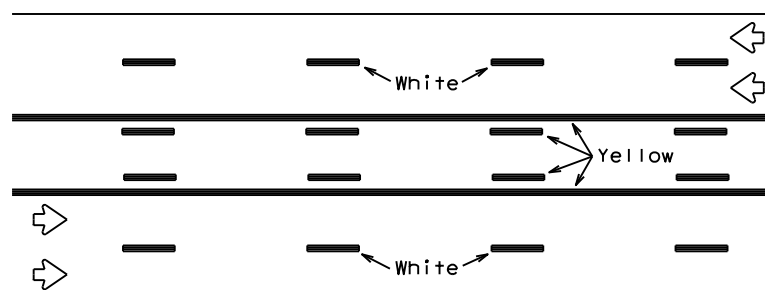
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



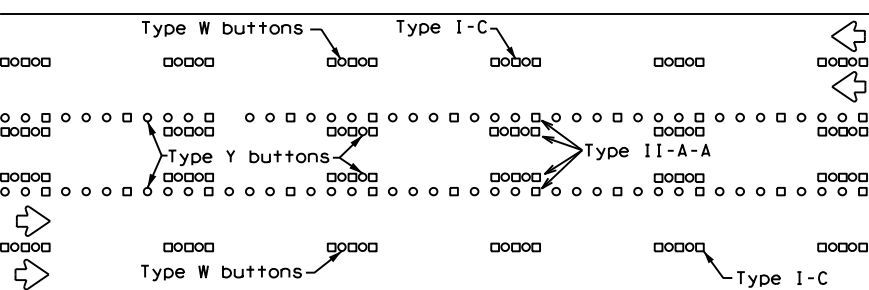
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

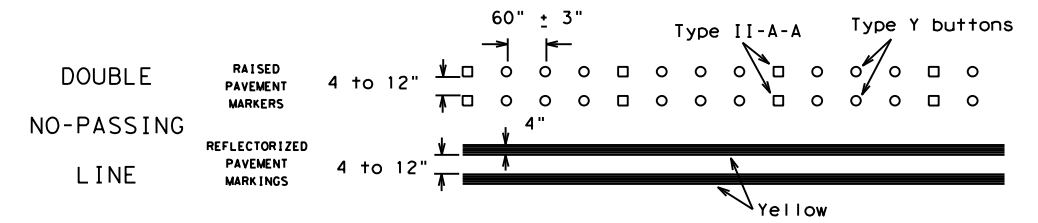
Prefabricated markings may be substituted for reflectORIZED pavement markings.



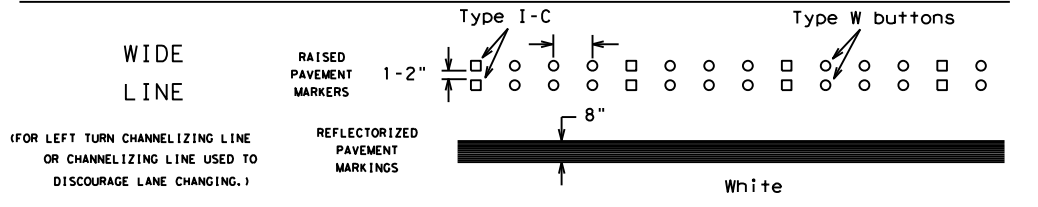
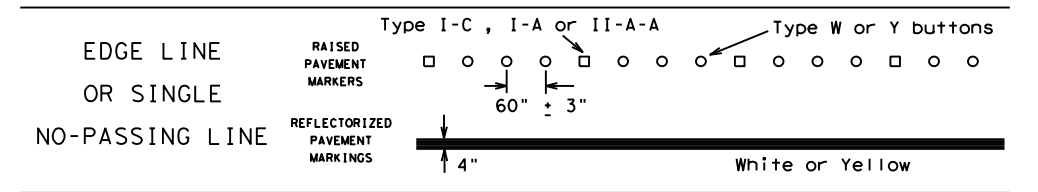
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE

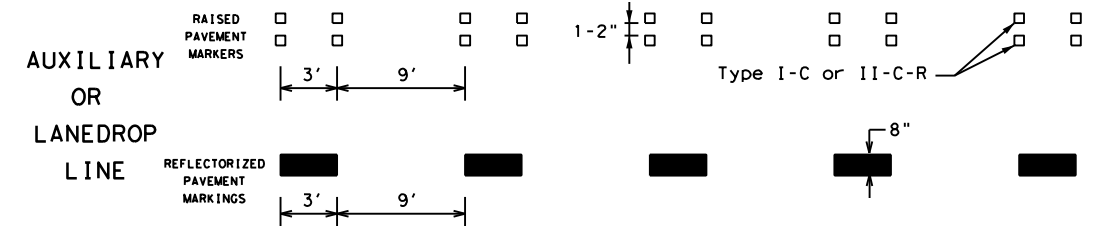
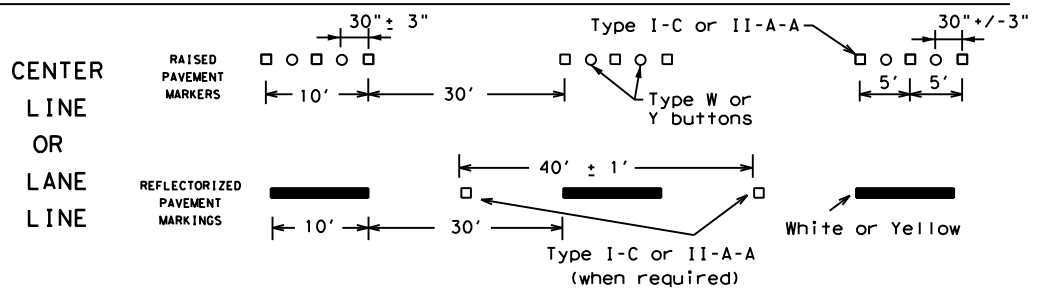
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



SOLID LINES

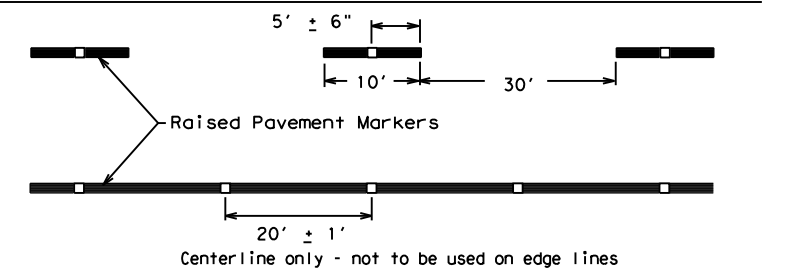


BROKEN LINES



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



SHEET 12 OF 12

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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."



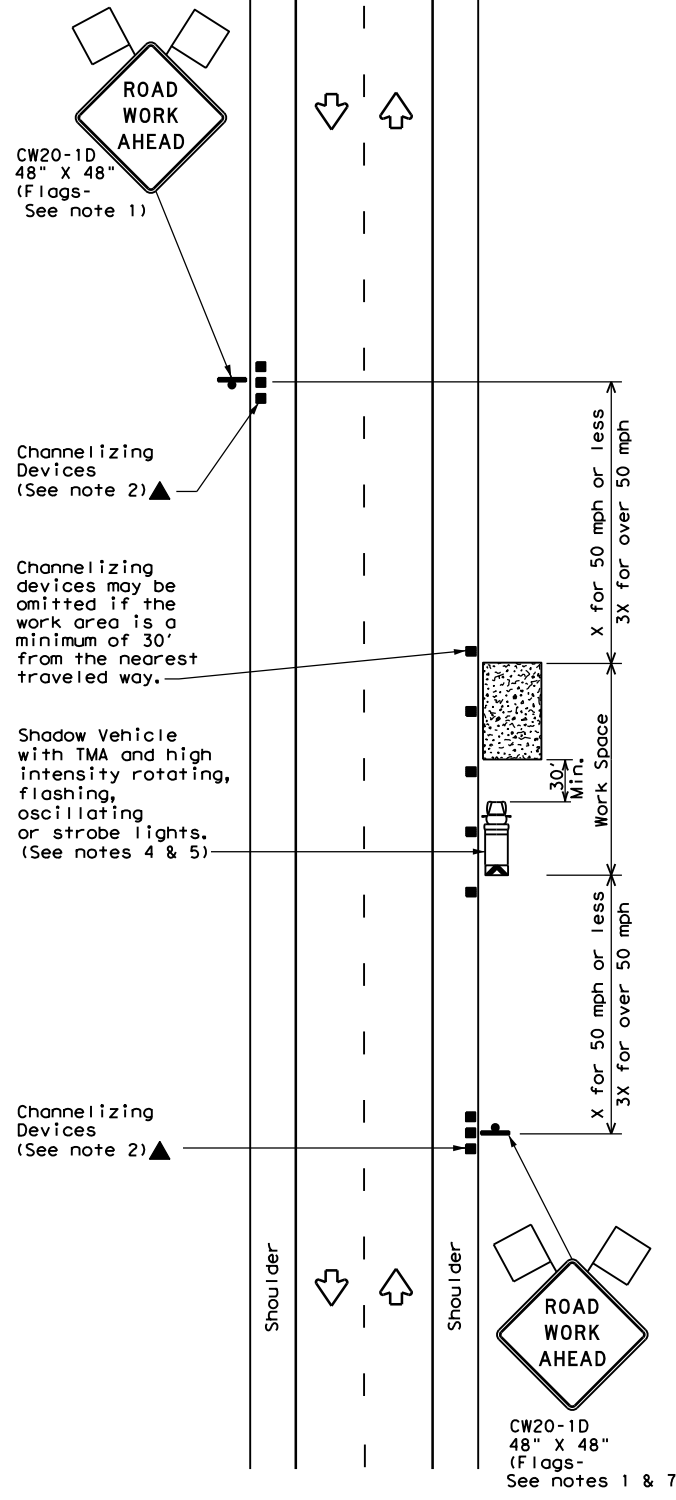
BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

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©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0049	09	094, ETC.	BS 6R, ETC.
1-97 9-07 5-21	DIST	COUNTY	SHEET NO.	
2-98 7-13	BRY	BRAZOS, ETC.	31	
11-02 8-14				

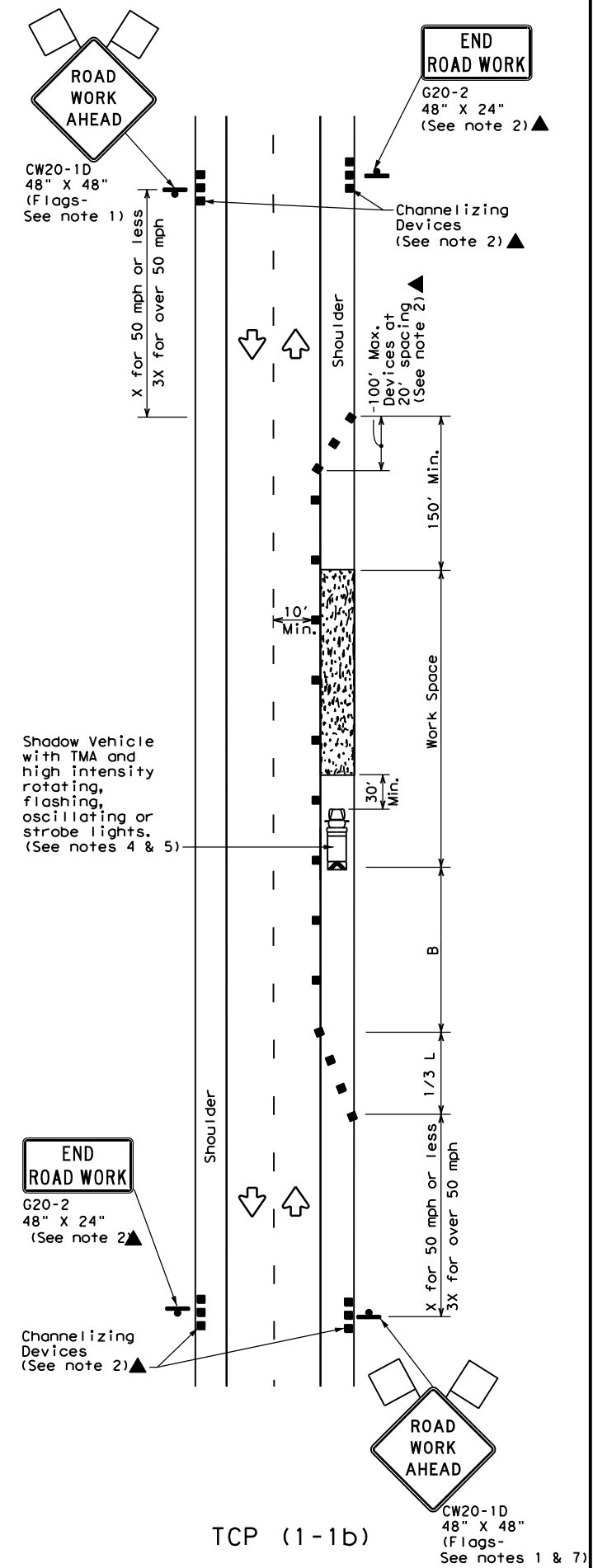
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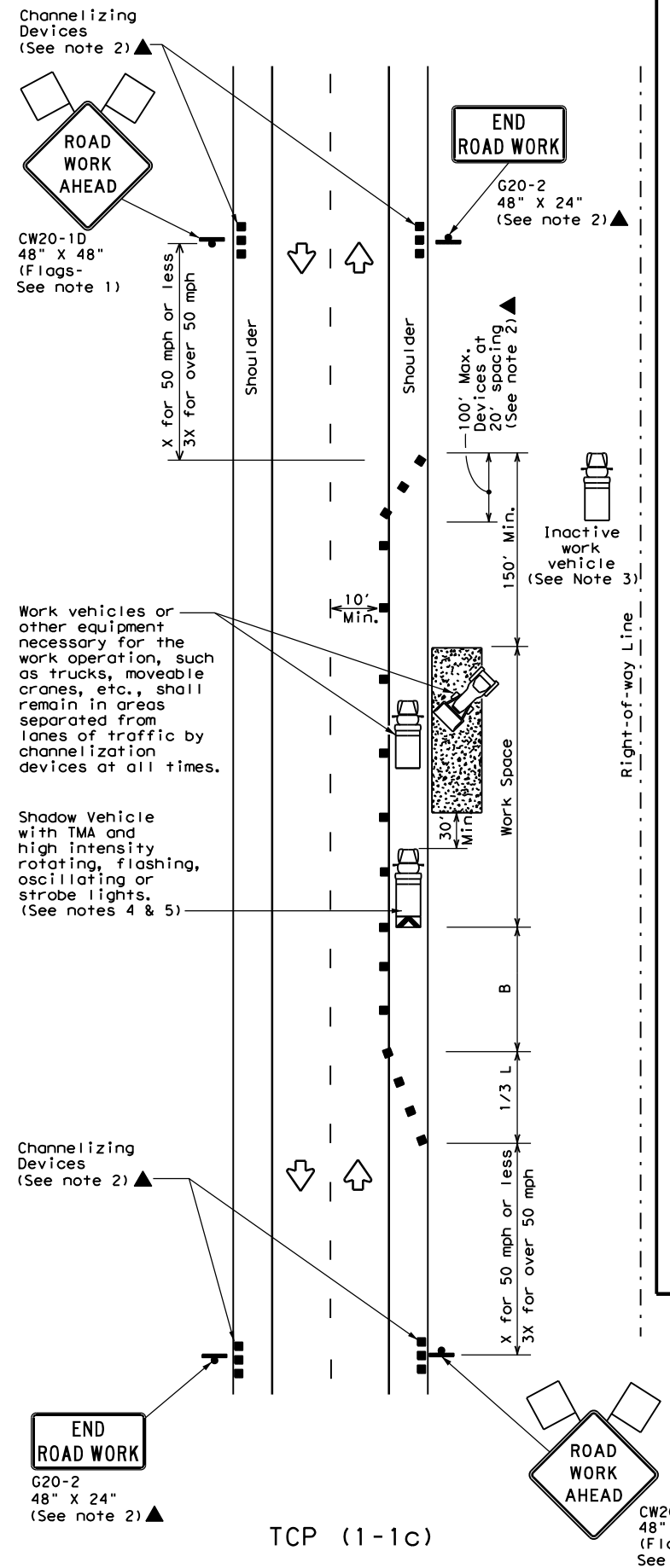
TCP (1-1a)

WORK SPACE NEAR SHOULDER
 Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
 Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
 Conventional Roads

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

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

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

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

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
 - See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
 - CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.



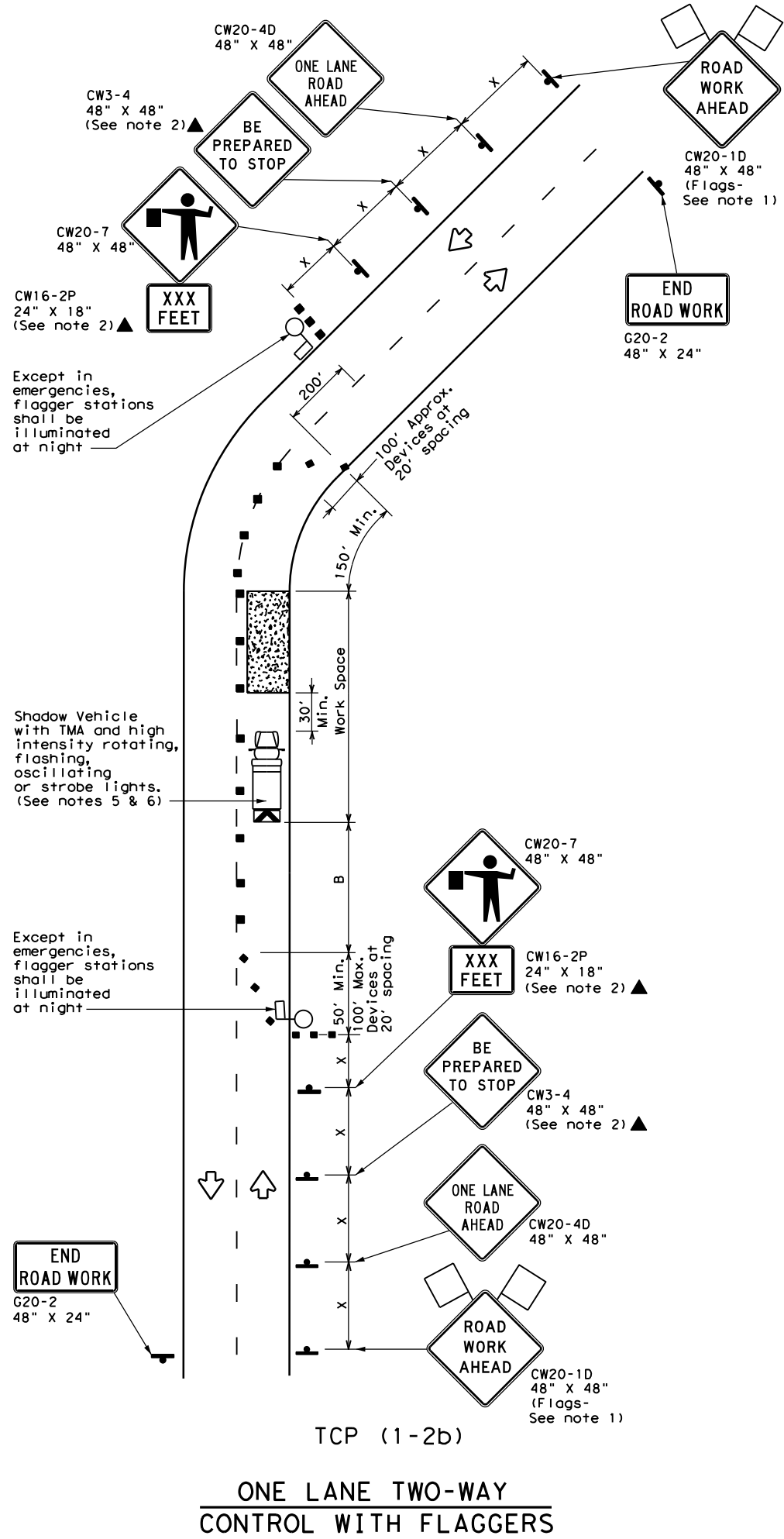
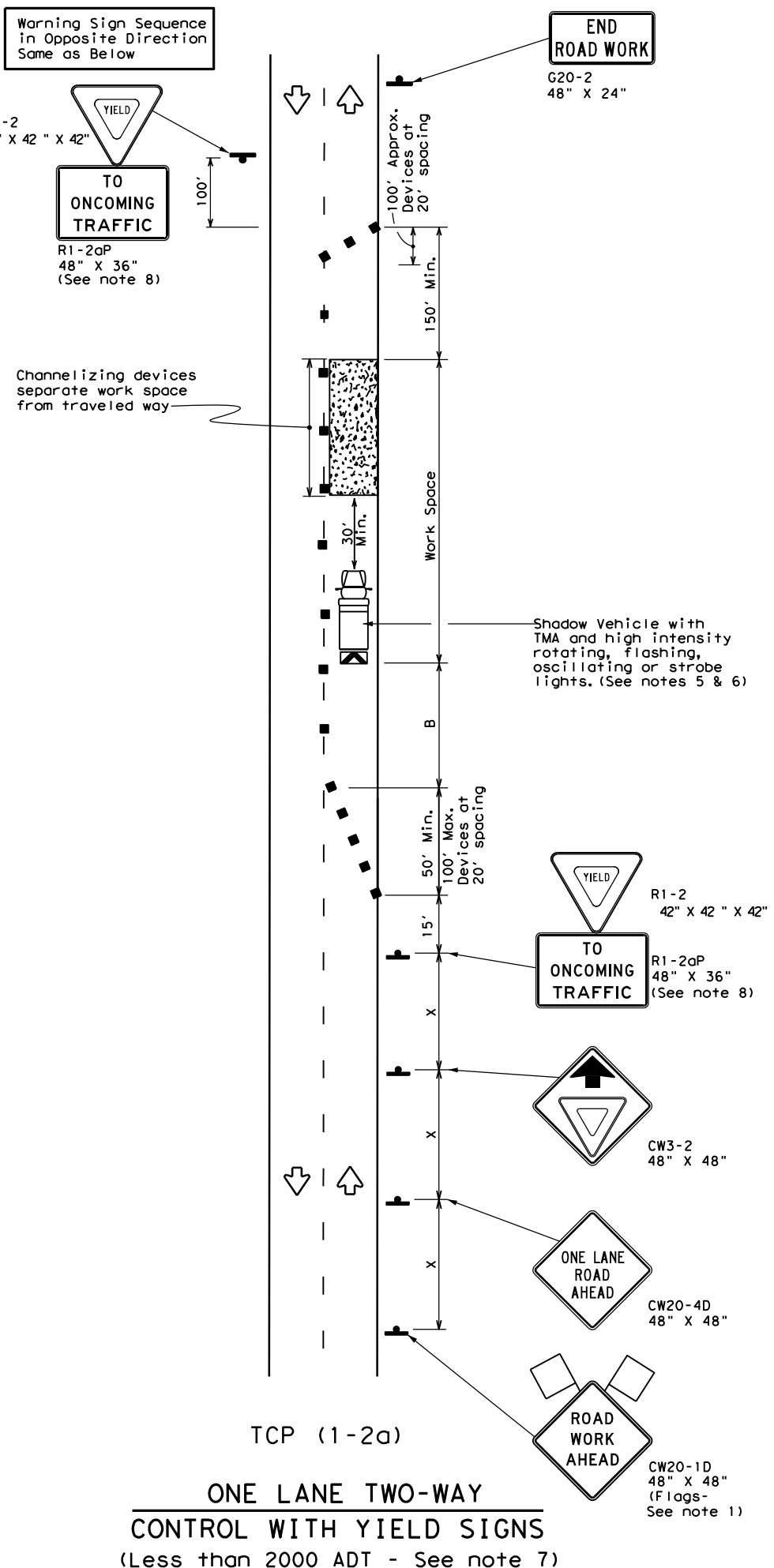
TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP (1-1) - 18

FILE: tcp1-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0049	09	094, ETC.	BS 6R, ETC.
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 2-12	BRY	BRAZOS, ETC.	32	
1-97 2-18				

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 FILE: G:\DESIGN\004909\094\SHEETS\Standards\094_standards\tcp1-2-18.dgn



LEGEND

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

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

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

TYPICAL USAGE

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

GENERAL NOTES

- Flags attached to signs where shown are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
 - Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
- TCP (1-2a)**
- R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work spaces should be no longer than one half city block. In rural areas on roadways with less than 2000 ADT, work spaces should be no longer than 400 feet.
 - R1-2 "YIELD" sign with R1-2aP "TO ONCOMING TRAFFIC" plaque shall be placed on a support at a 7 foot minimum mounting height.
- TCP (1-2b)**
- Flaggers should use two-way radios or other methods of communication to control traffic.
 - Length of work space should be based on the ability of flaggers to communicate.
 - If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
 - Channelizing devices on the center-line may be omitted when a pilot car is leading traffic and approved by the Engineer.
 - Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation

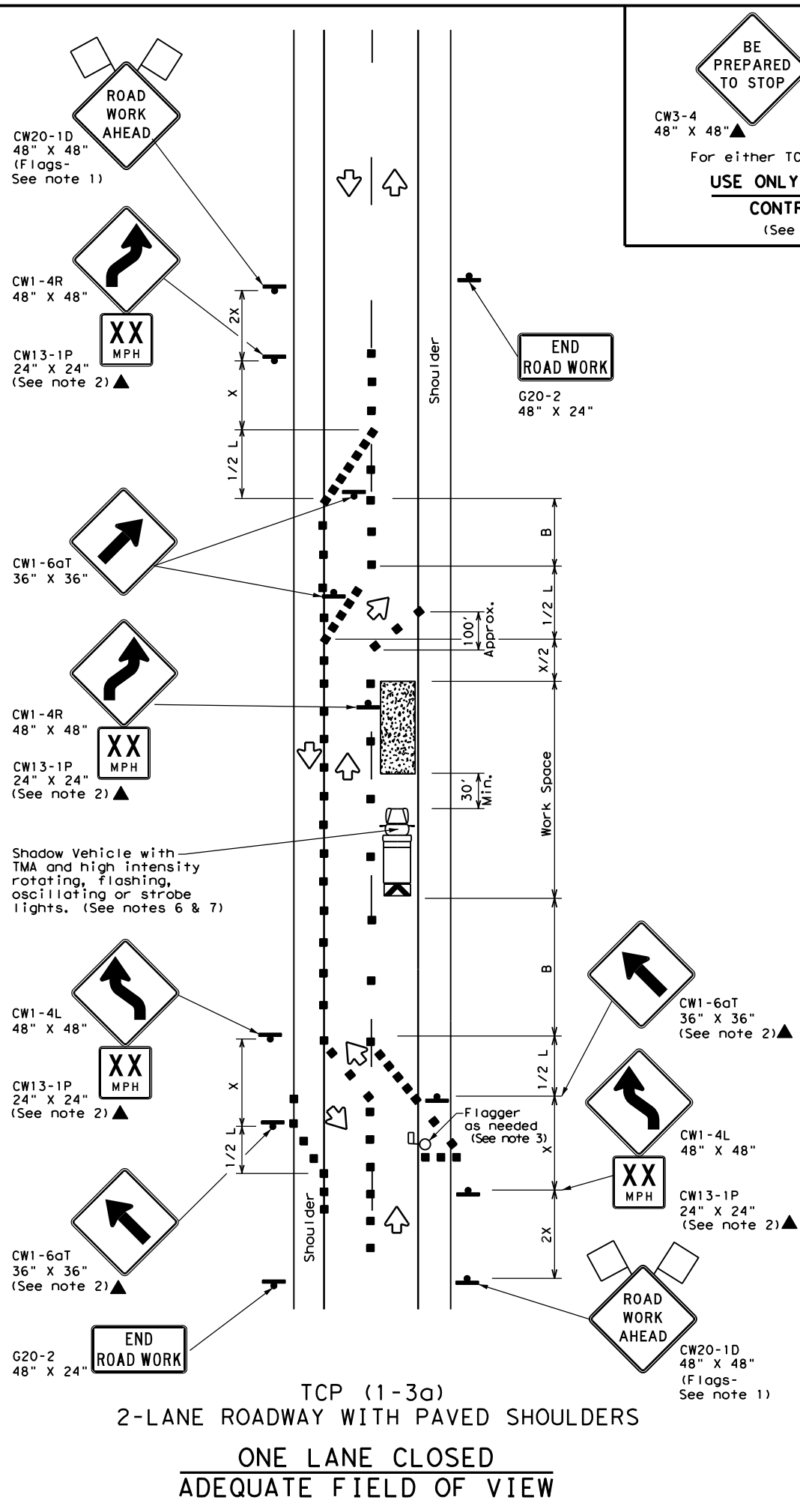
TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

TCP (1-2) - 18

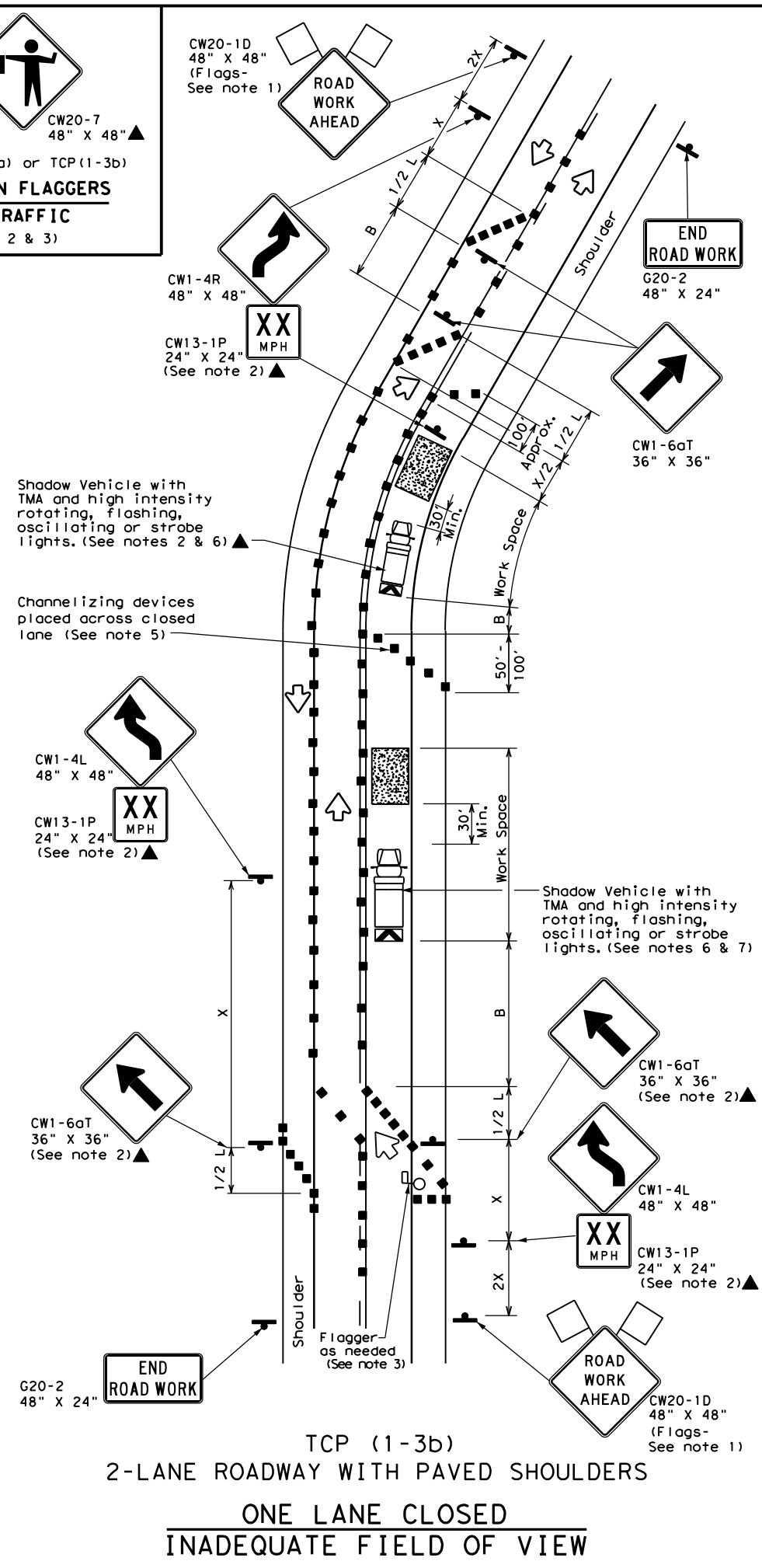
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0049	09	094, ETC.	BS 6R, ETC.
4-90 4-98	DIST	COUNTY	SHEET NO.	
2-94 2-12	BRY	BRAZOS, ETC.	33	
1-97 2-18				

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BE PREPARED TO STOP
 CW3-4 48" X 48"
 CW20-7 48" X 48"
 For either TCP(1-3a) or TCP(1-3b)
USE ONLY WHEN FLAGGERS CONTROL TRAFFIC
 (See Notes 2 & 3)



LEGEND

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

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

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

TYPICAL USAGE

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

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Additional flaggers may be positioned in advance of traffic queues to alert traffic to reduce speed.
 - DO NOT PASS, PASS WITH CARE and construction regulatory speed zone signs may be installed downstream of the ROAD WORK AHEAD signs.
 - When the work zone is made up of several work spaces, channelizing devices should be placed laterally across the closed lane to re-emphasize closure. Laterally placed channelizing devices should be repeated every 500 to 1000 feet in urban areas and every 1/4 to 1/2 mile in rural areas.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
 - Where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20', or 15' if posted speed are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the area of conflicting markings not the entire work zone.

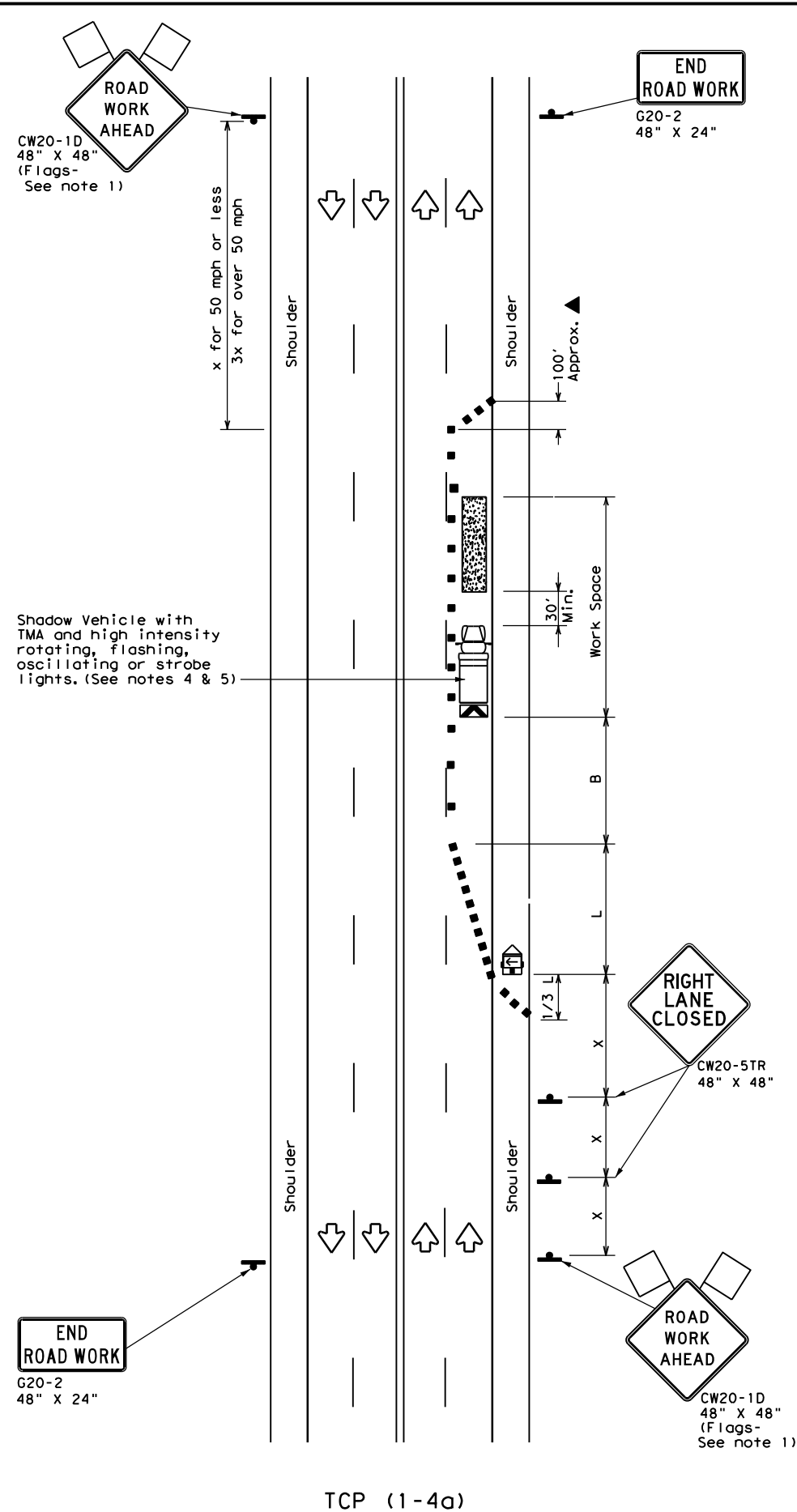
Texas Department of Transportation Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
TRAFFIC SHIFTS ON
TWO LANE ROADS
TCP (1-3) - 18

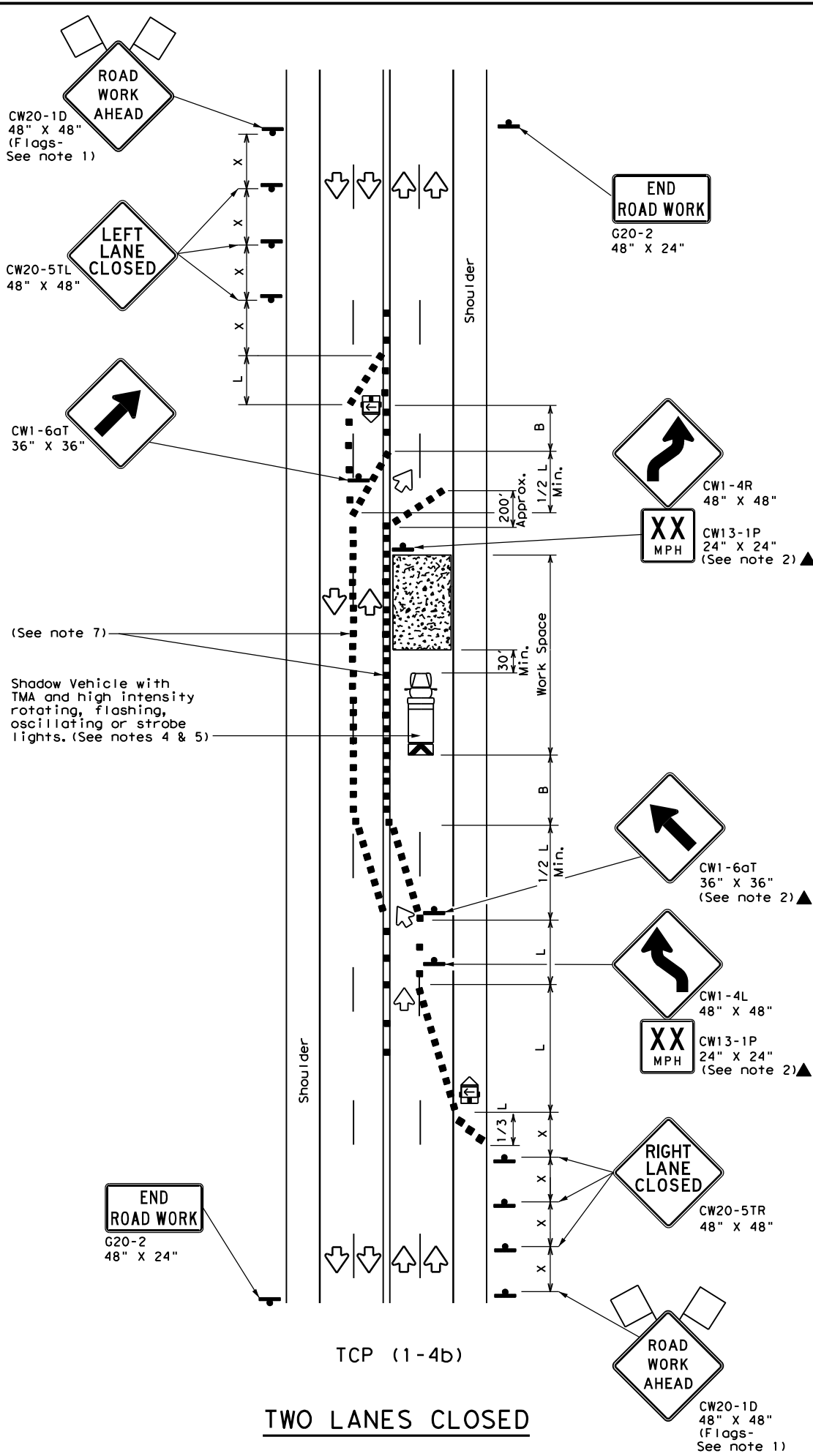
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0049	09	094, ETC.	BS 6R, ETC.
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 2-12	BRY	BRAZOS, ETC.	034	
1-97 2-18				

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TCP (1-4a)
 ONE LANE CLOSED



TCP (1-4b)
 TWO LANES CLOSED

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

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

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

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

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-4a)

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

TCP (1-4b)

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

Texas Department of Transportation
 Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

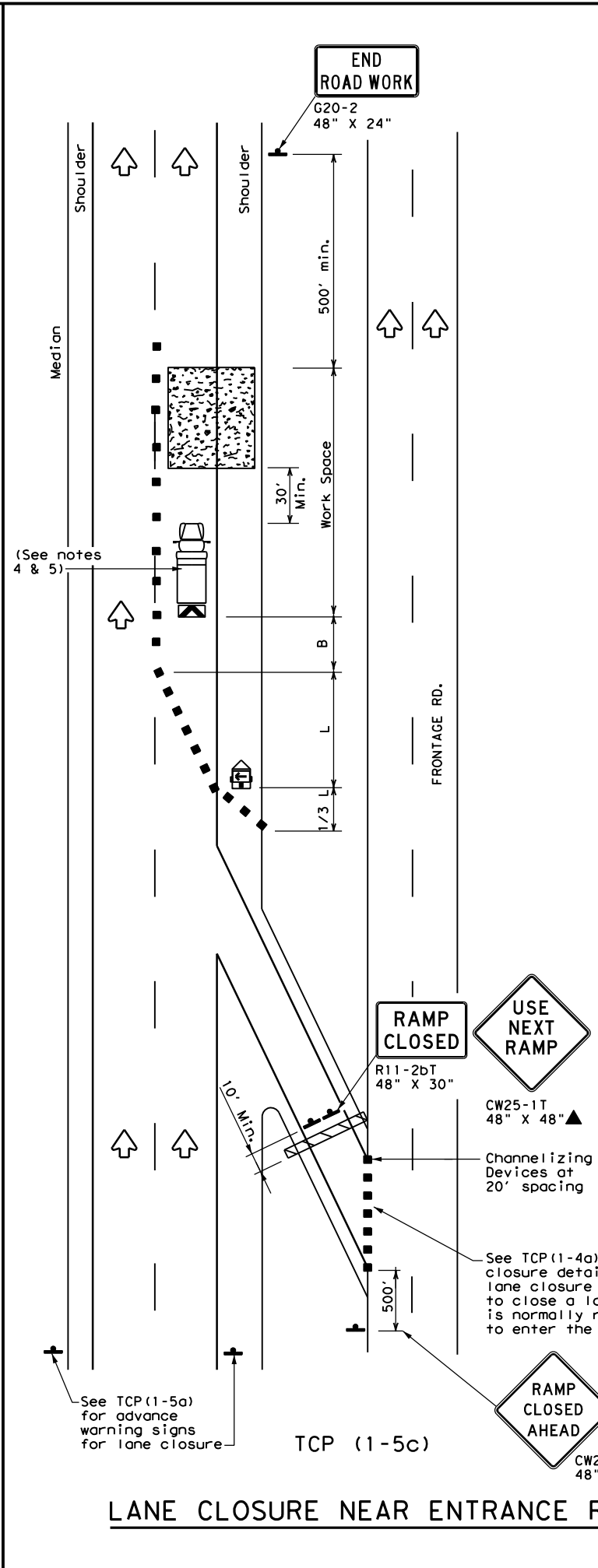
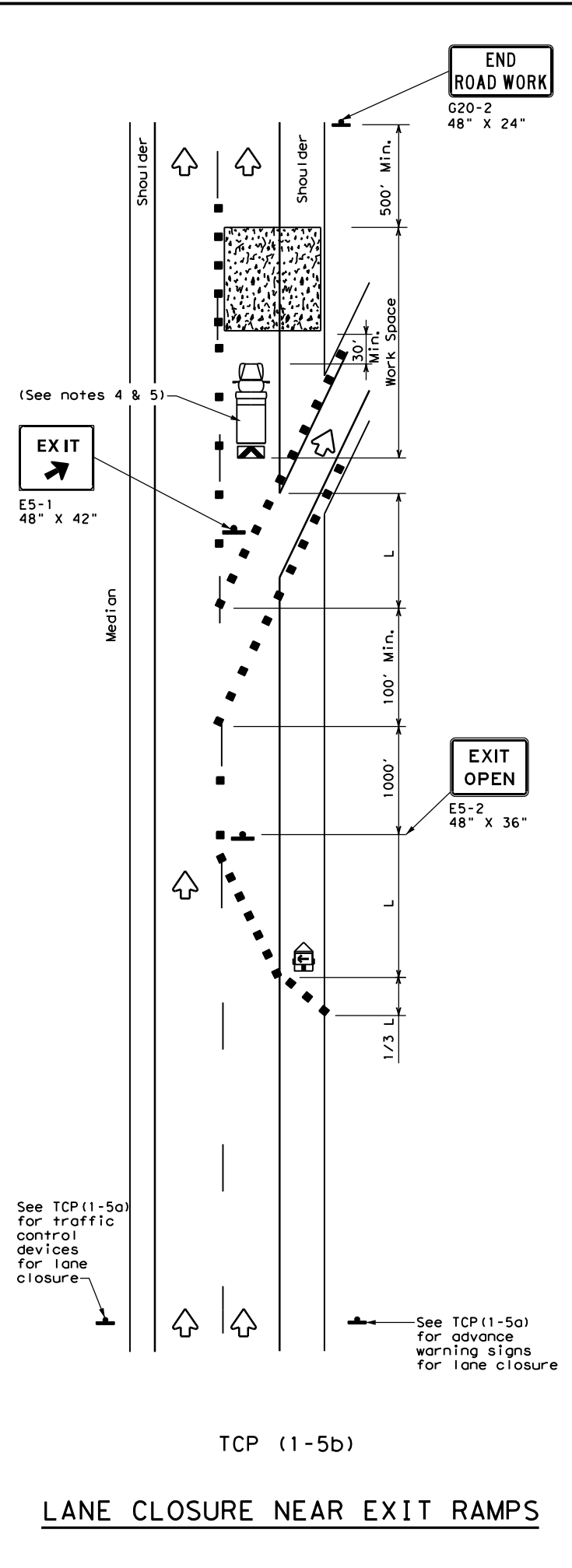
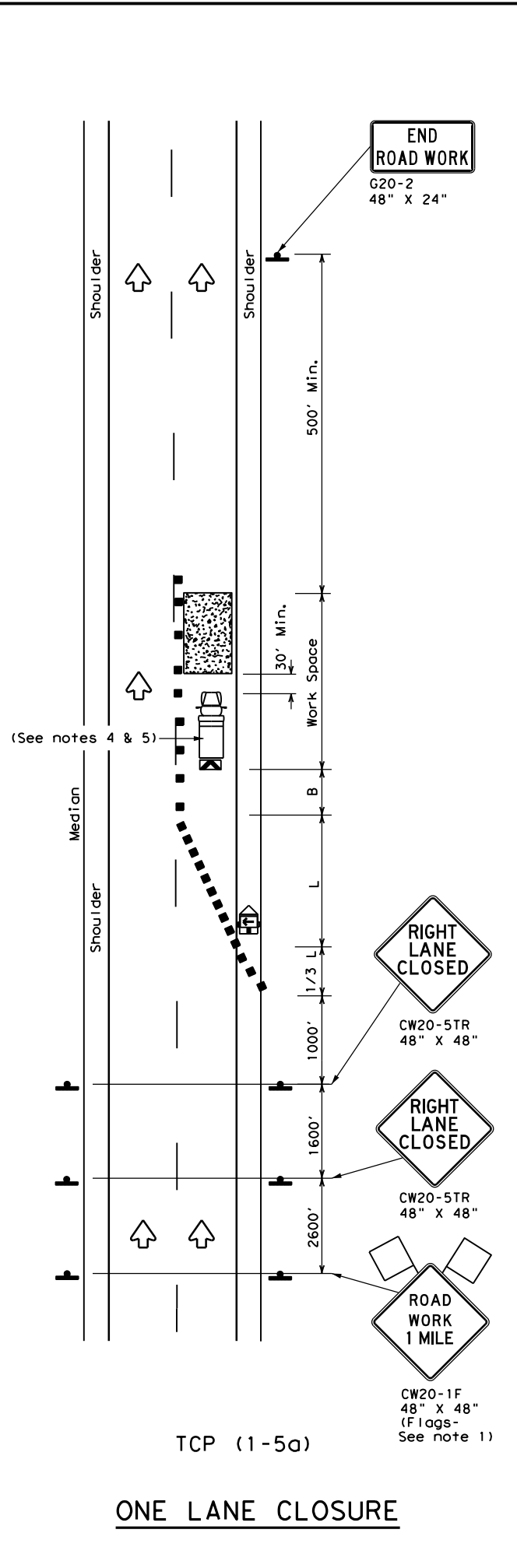
TCP (1-4) - 18

FILE: tcp1-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 2-12	BRY	BRAZOS, ETC.	35	
1-97 2-18				

154

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DATE: 3/4/2022 9:39:17 AM
 FILE: G:\DESIGN\004909\094\SHEETS\Standards\094_standards\tcp1-5-18.dgn



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

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

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

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

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
 - Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation Traffic Operations Division Standard

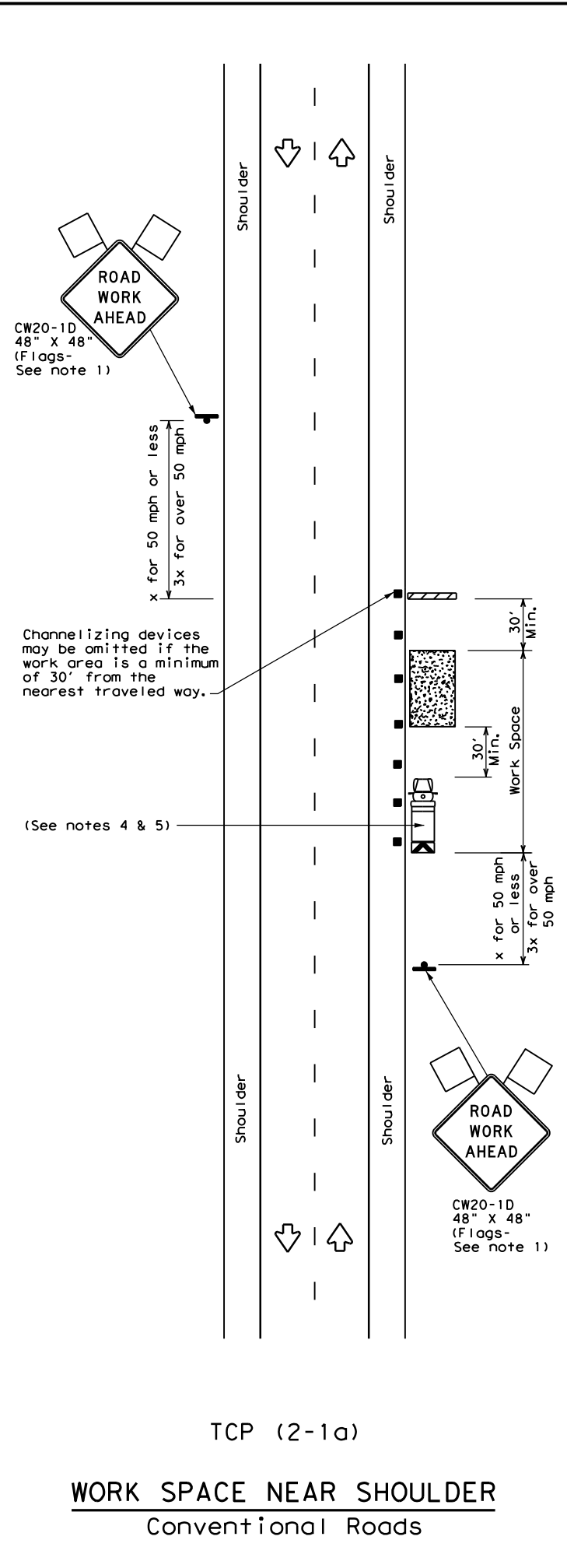
TRAFFIC CONTROL PLAN
LANE CLOSURES FOR
DIVIDED HIGHWAYS

TCP (1-5) - 18

FILE: tcp1-5-18.dgn	DN:	CK:	DW:	CK:
© TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
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REVISIONS	DIST	COUNTY	SHEET NO.	
	BRY	BRAZOS, ETC.	36	

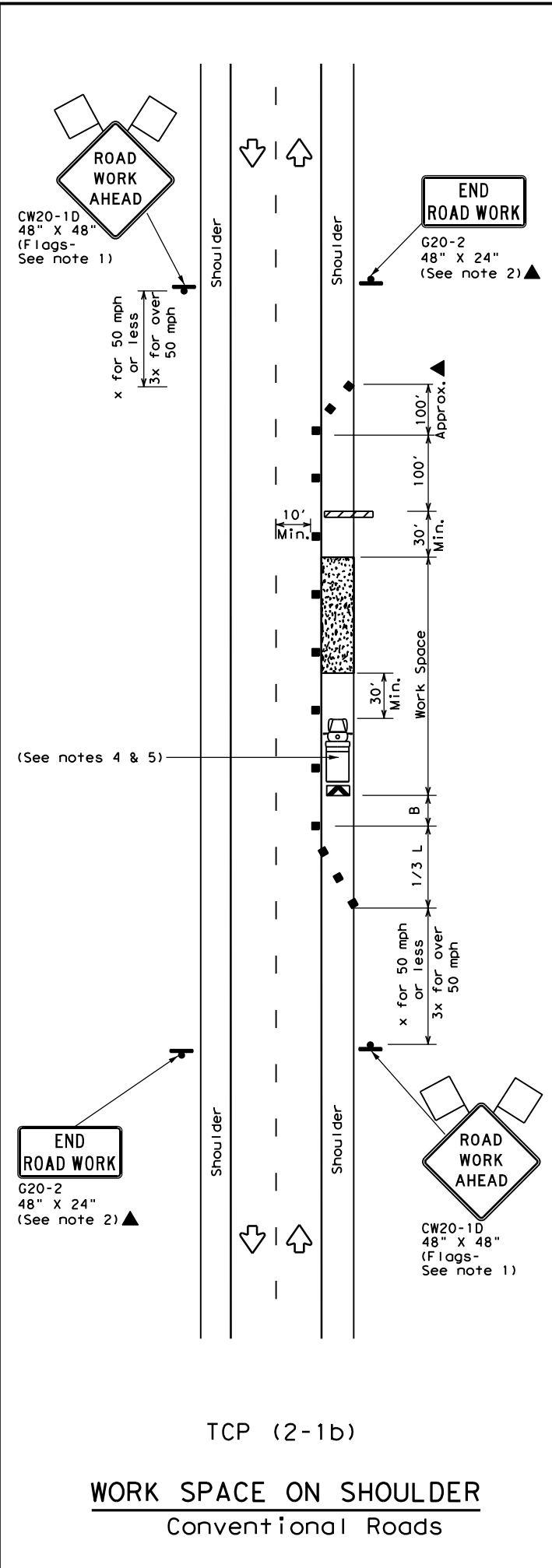
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 3/17/2022 4:10:34 PM
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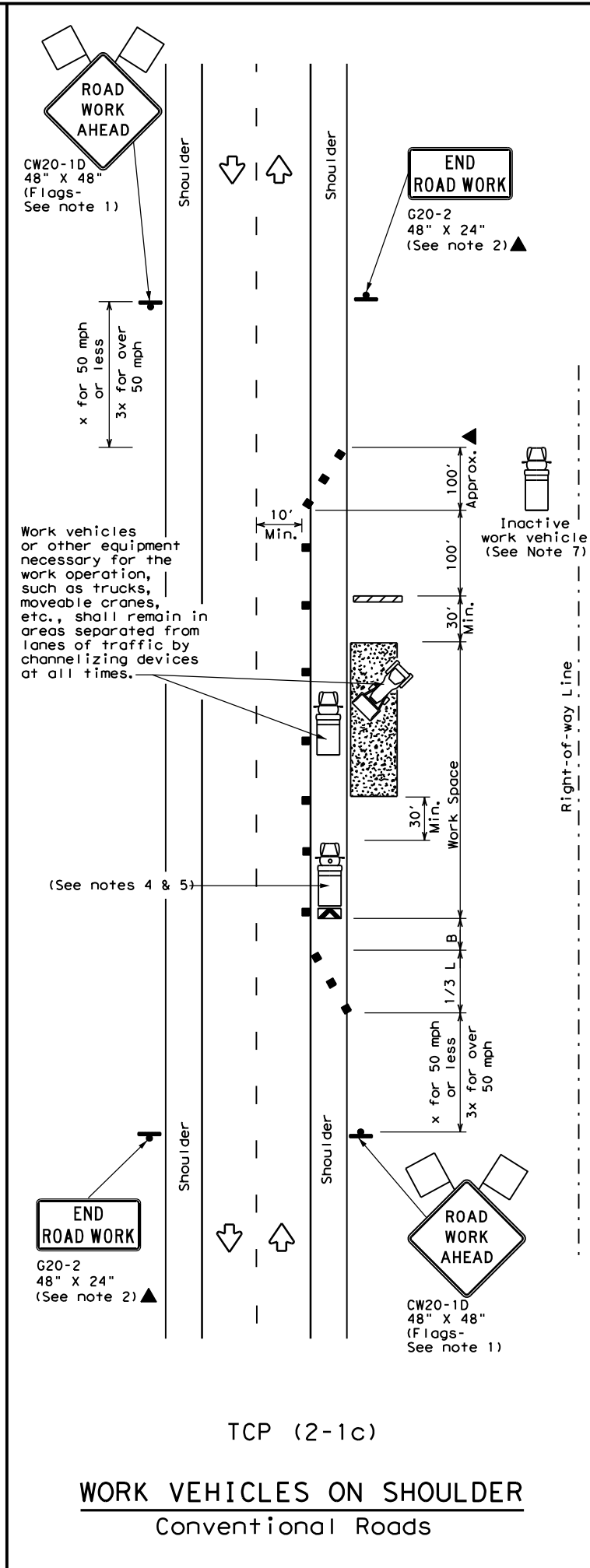
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

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

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

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
 - Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
 - Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
 - See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
 - Additional work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
 - CW21-5 "SHOULDER WORK" signs may be used in place of CW21-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.



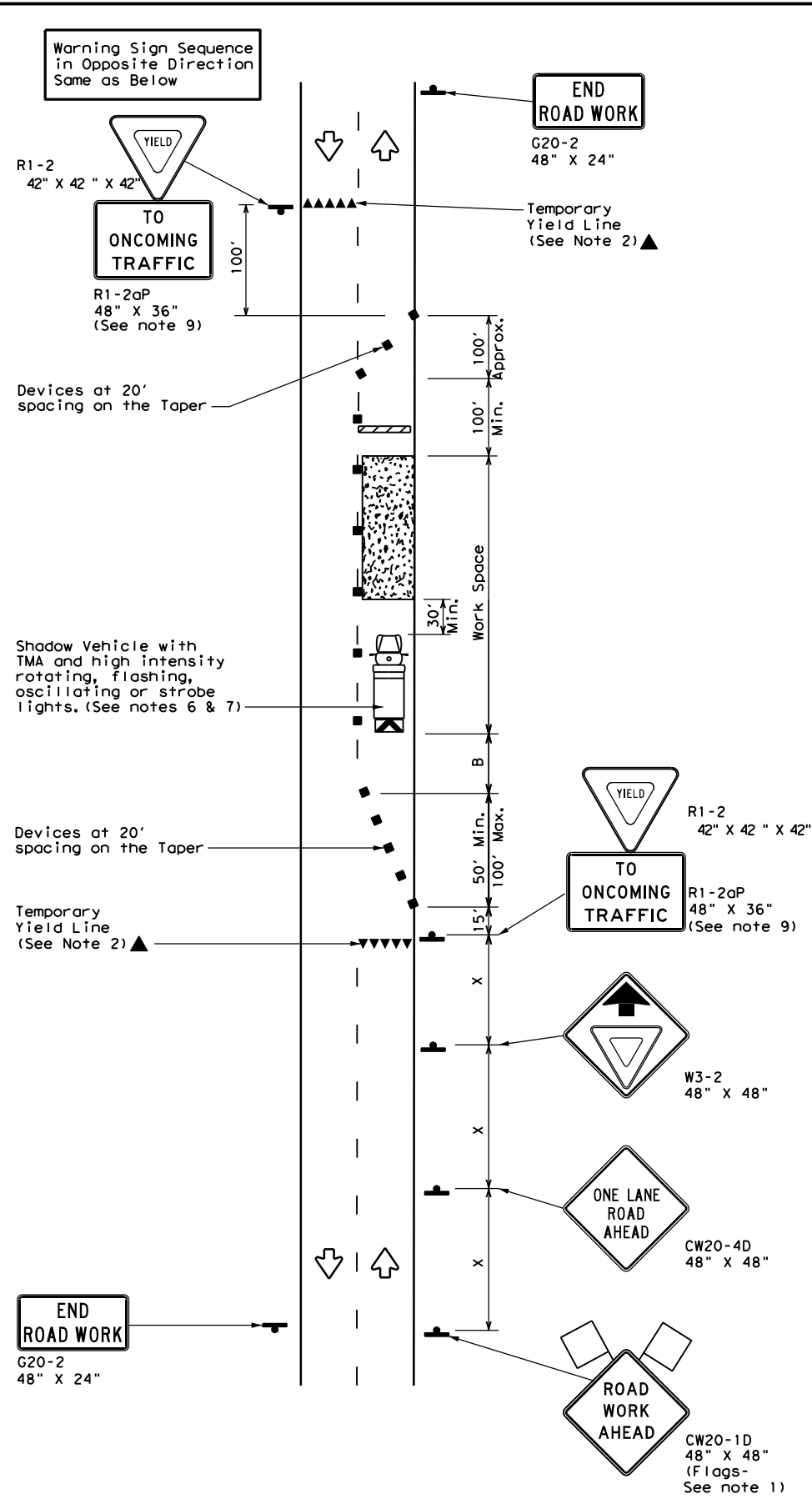
**TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK**

TCP (2-1) - 18

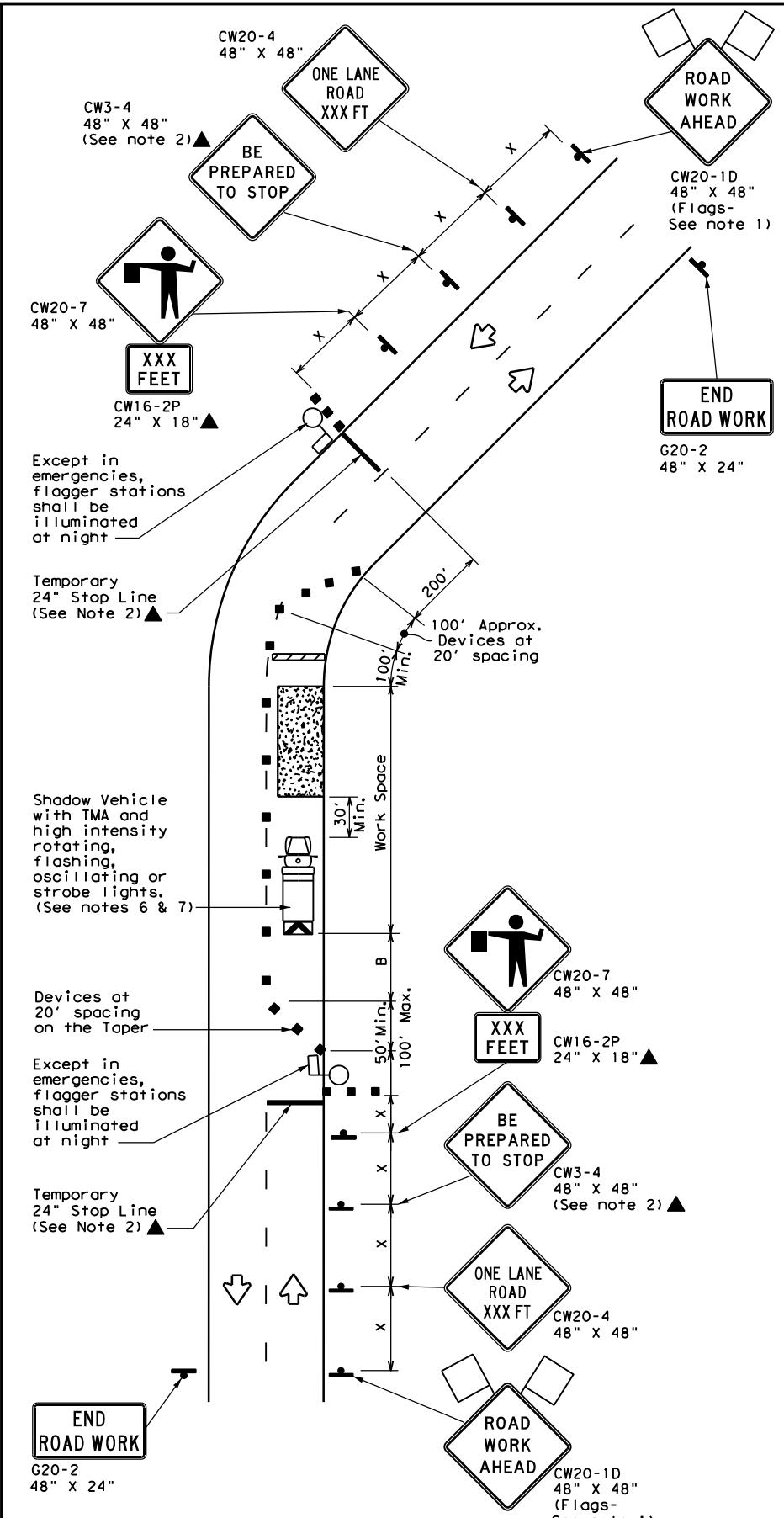
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0049	09	094, ETC.	BS 6R, ETC.
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 2-12	BRY	BRAZOS, ETC.	37	
1-97 2-18				

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DATE: 3/4/2022 9:40:57 AM
 FILE: G:\DESIGN\004909\094\SHEETS\Standards\094_standards\tcp2-2-18.dgn



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



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

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

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

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

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

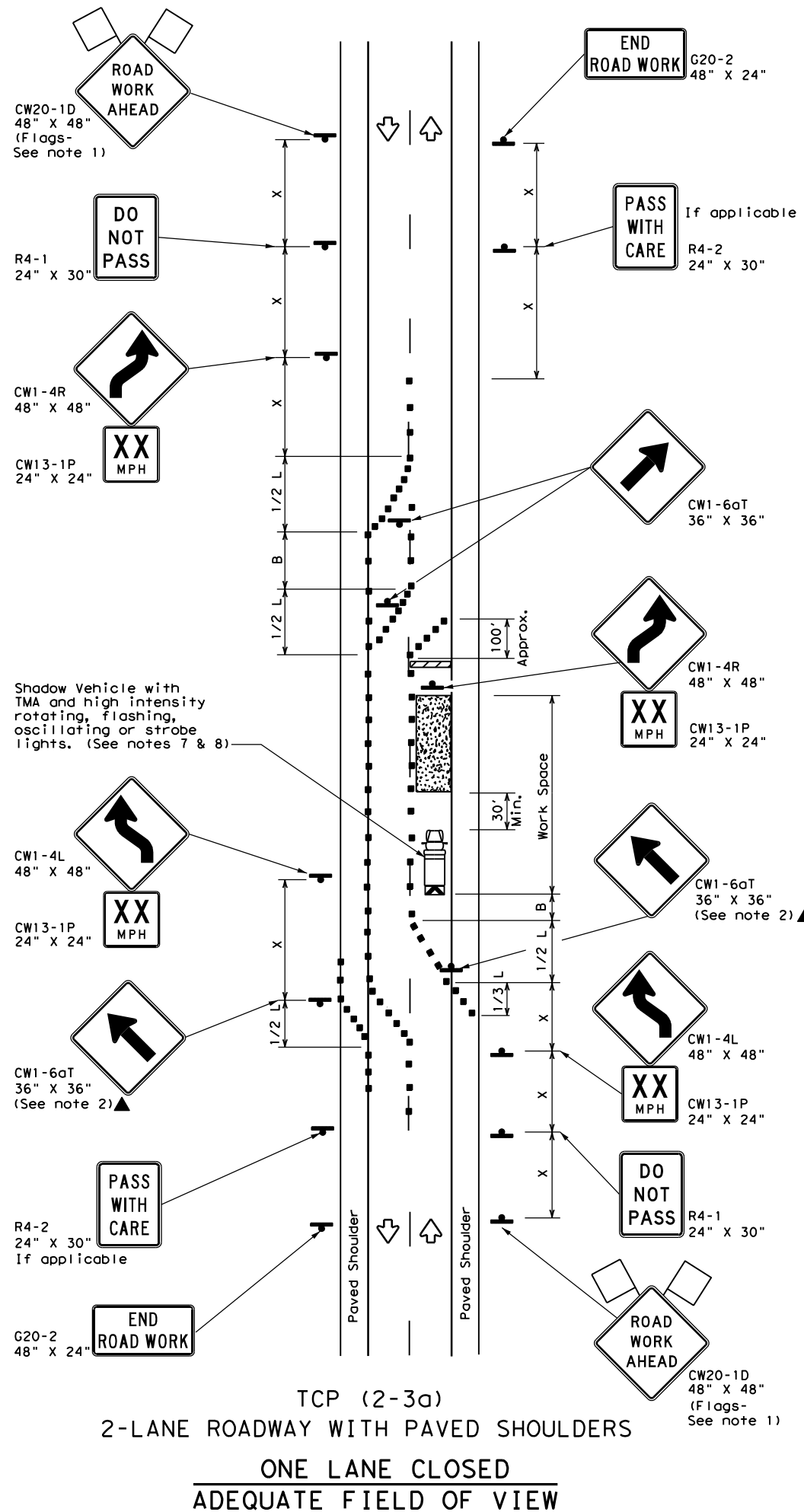
GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
 - Flaggers should use two-way radios or other methods of communication to control traffic.
 - Length of work space should be based on the ability of flaggers to communicate.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
- TCP (2-2a)
- The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
 - The R1-2aP "YIELD TO ONCOMING TRAFFIC" sign shall be placed on a support at a 7 foot minimum mounting height.
- TCP (2-2b)
- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
 - If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
 - Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

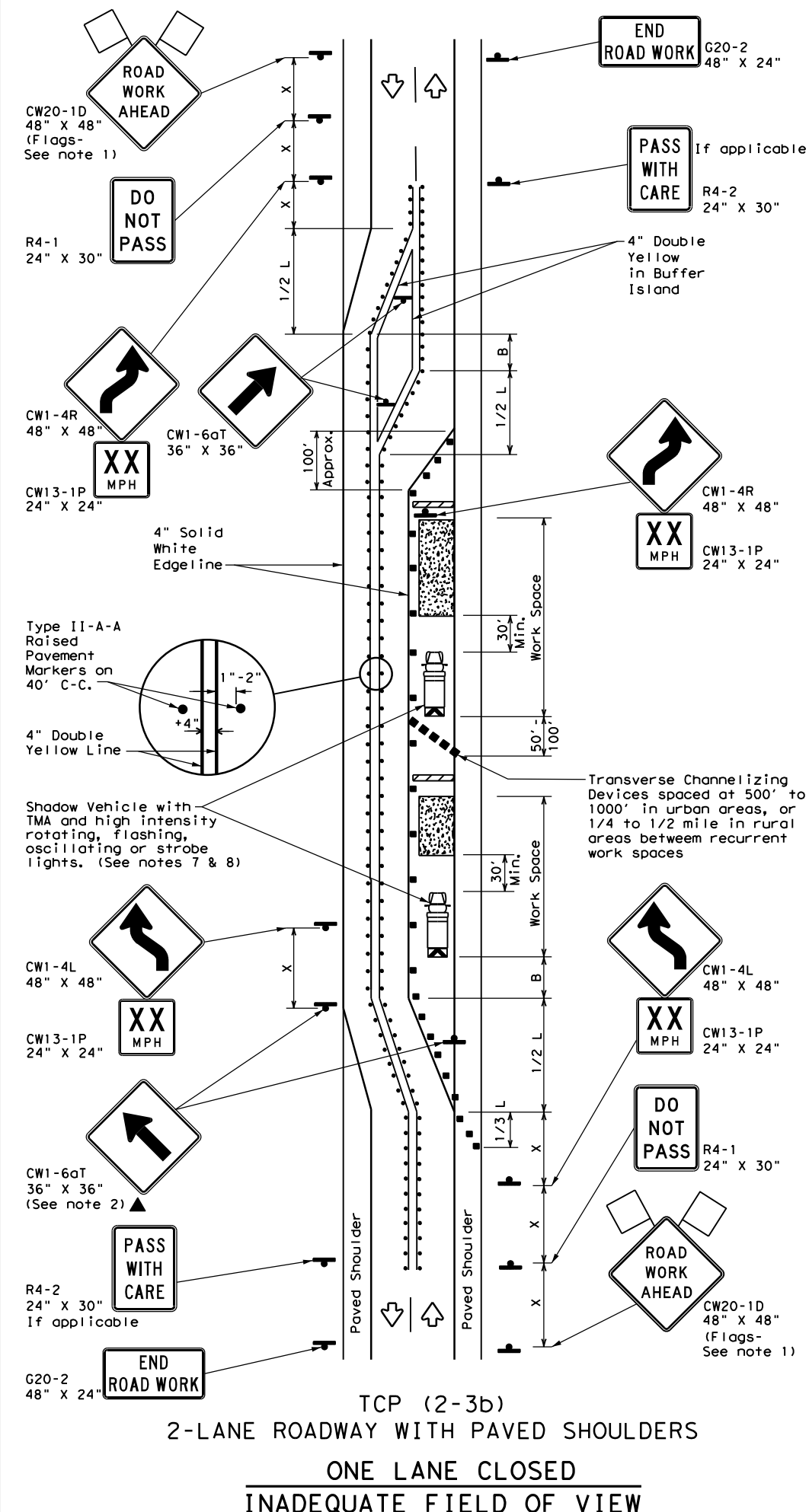
		Traffic Operations Division Standard	
TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL TCP (2-2) - 18			
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© TxDOT	December 1985	CONT	SECT
REVISIONS 8-95 3-03 1-97 2-12 4-98 2-18		JOB 0049 09 094, ETC. BS 6R, ETC.	
DIST BRY		COUNTY BRAZOS, ETC.	
		SHEET NO. 38	

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DATE: 3/4/2022 9:43:26 AM
 FILE: G:\DESIGN\004909\094\SHEETS\Standards\094_standards\tcp2-3-18.dgn



TCP (2-3a)
 2-LANE ROADWAY WITH PAVED SHOULDERS
 ONE LANE CLOSED
 ADEQUATE FIELD OF VIEW



TCP (2-3b)
 2-LANE ROADWAY WITH PAVED SHOULDERS
 ONE LANE CLOSED
 INADEQUATE FIELD OF VIEW

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

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

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓
				TCP (2-3b) ONLY

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - When work space will be in place less than three days existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
 - Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Flagger should be positioned at end of traffic queue.
 - The R4-1 "DO NOT PASS," R4-2 "PASS WITH CARE" and construction regulatory speed zone signs may be installed within CW20-1D "ROAD WORK AHEAD" signs. Proper spacing of signs shall be maintained.
 - Conflicting pavement marking shall be removed for long term projects.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

- TCP (2-3a)**
- Conflicting pavement markings shall be removed for long-term projects. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter device spacing is intended for the area of the conflicting markings, not the entire work zone.



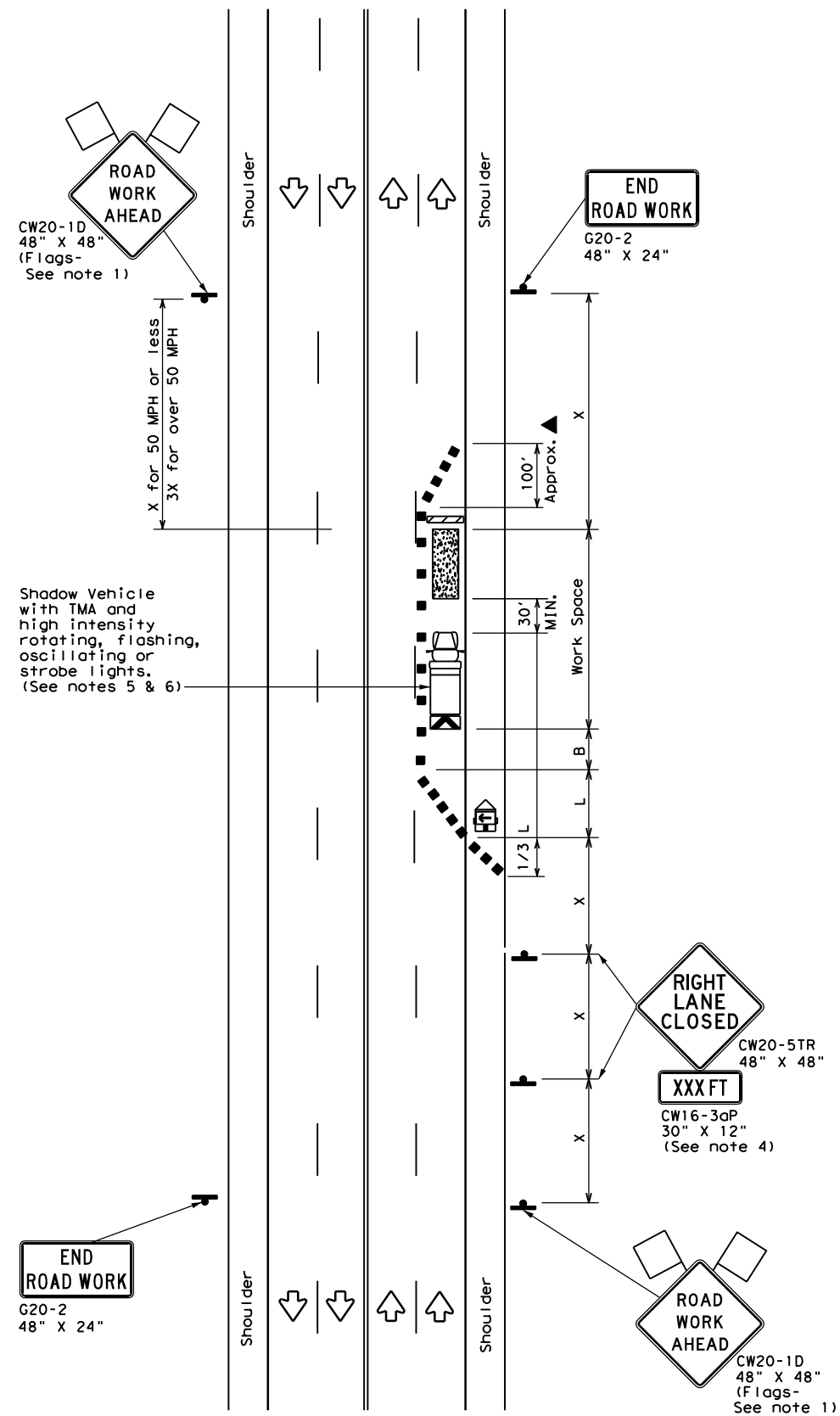
TRAFFIC CONTROL PLAN
 TRAFFIC SHIFTS ON
 TWO-LANE ROADS

TCP (2-3) - 18

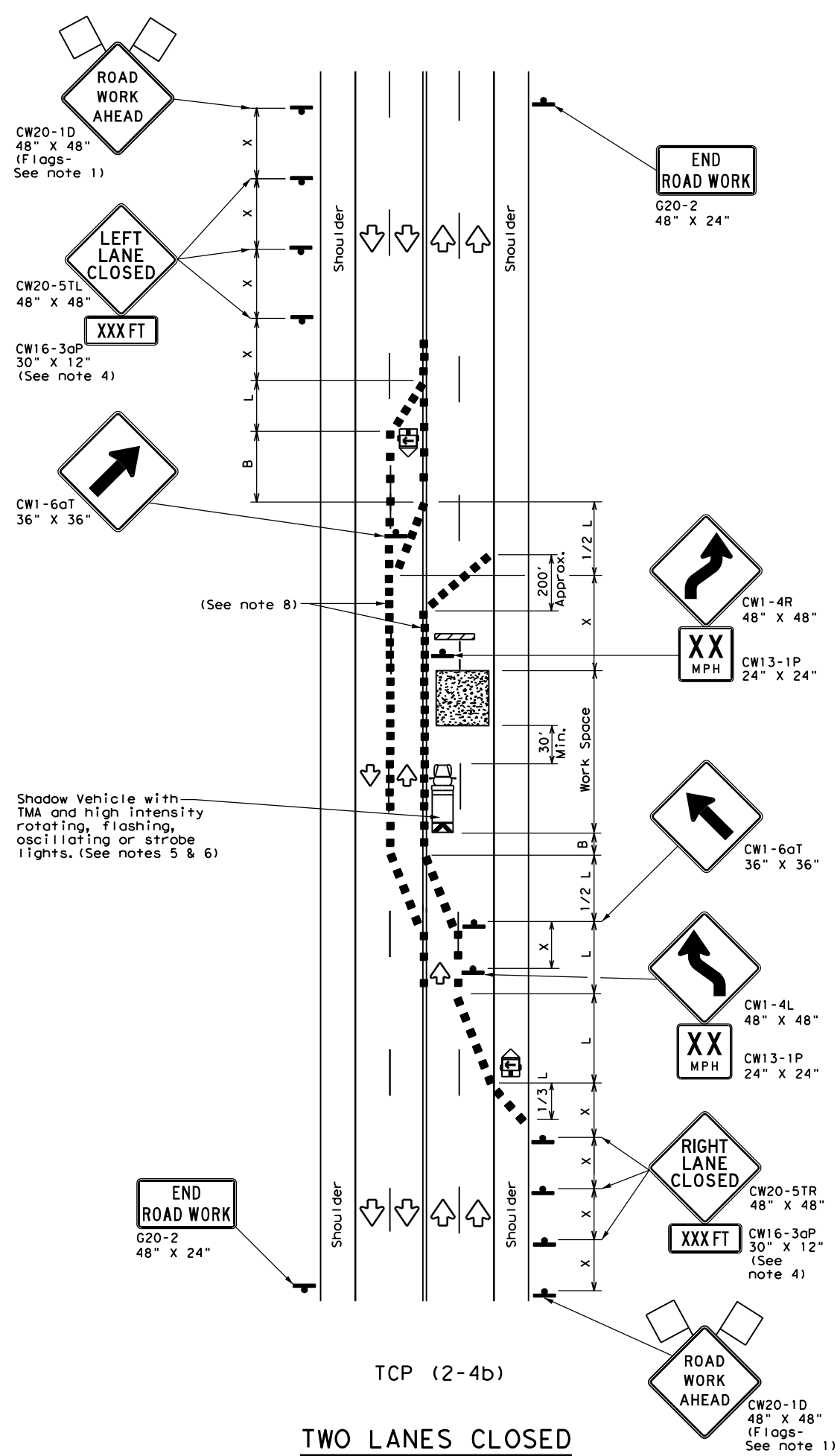
FILE:	tcp(2-3)-18.dgn	DN:	CK:	DW:	CK:
© TxDOT	December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS		0049	09	094, ETC.	BS 6R, ETC.
8-95	3-03	DIST	COUNTY	SHEET NO.	
1-97	2-12	BRY	BRAZOS, ETC.	39	
4-98	2-18				

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DATE: 3/4/2022 9:45:26 AM
 FILE: G:\DESIGN\004909\094\SHEETS\Standards\094_standards\tcp2-4-18.dgn



TCP (2-4a)
 ONE LANE CLOSED



TCP (2-4b)
 TWO LANES CLOSED

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

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

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

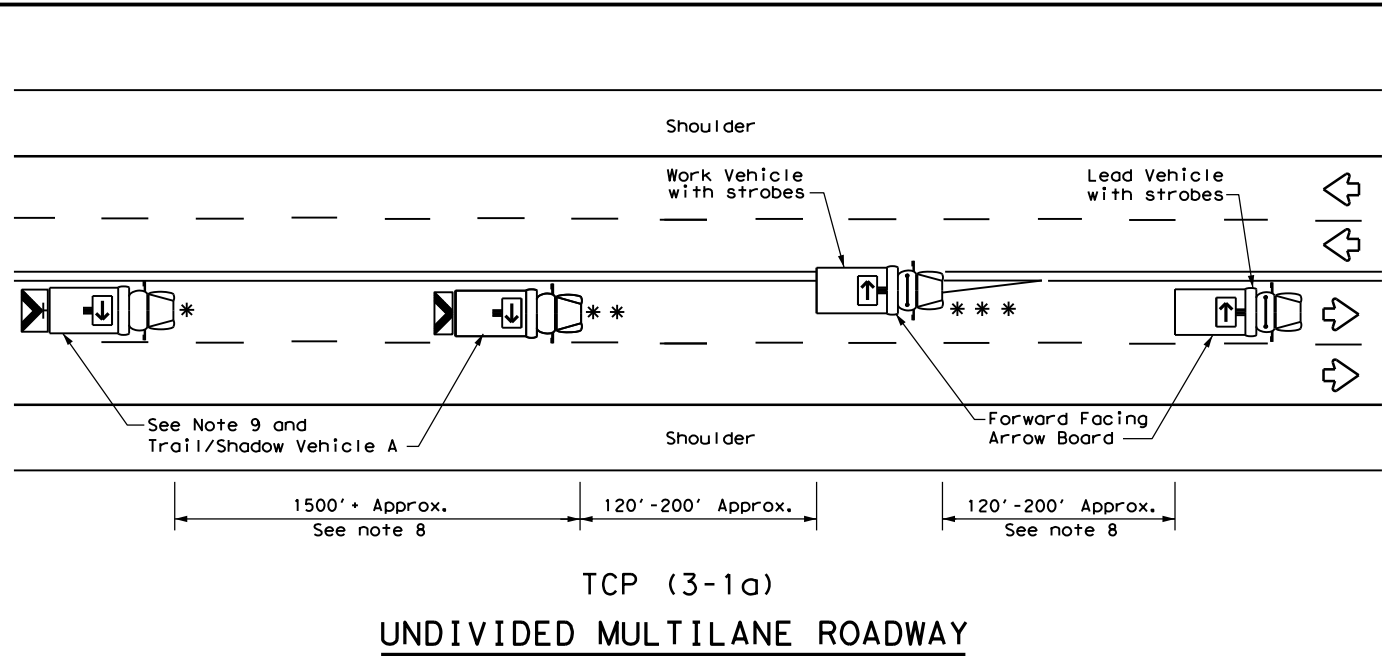
TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓	✓	

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
 - For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.
- TCP (2-4a)**
- If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.
- TCP (2-4b)**
- For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter devices spacing is intended for the area of conflicting markings, not the entire work zone.

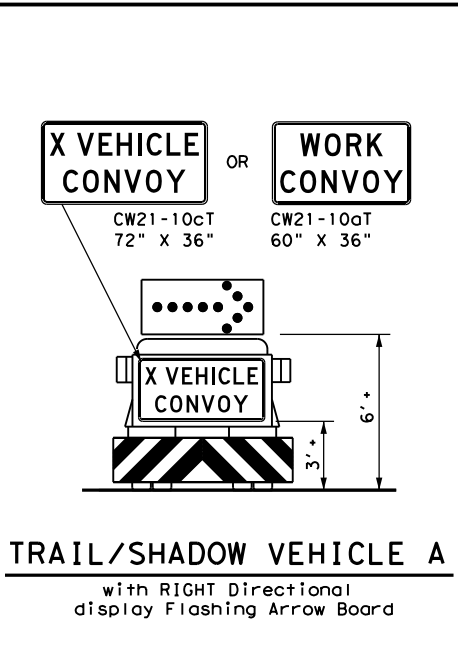
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TRAFFIC CONTROL PLAN			
LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS			
TCP (2-4) - 18			
FILE: tcp2-4-18.dgn	DN:	CK:	DW:
© TxDOT December 1985	CON:	SECT:	JOB:
REVISIONS		0049 09	094, ETC. BS 6R, ETC.
8-95 3-03	DIST:	COUNTY:	SHEET NO.
1-97 2-12	BRY	BRAZOS, ETC.	40
4-98 2-18			

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DATE: 3/4/2022 9:46:42 AM
 FILE: G:\DESIGN\004909\094\SHEETS\standards\094_standards\tcp3-1_13.dgn



TCP (3-1a)
 UNDIVIDED MULTILANE ROADWAY



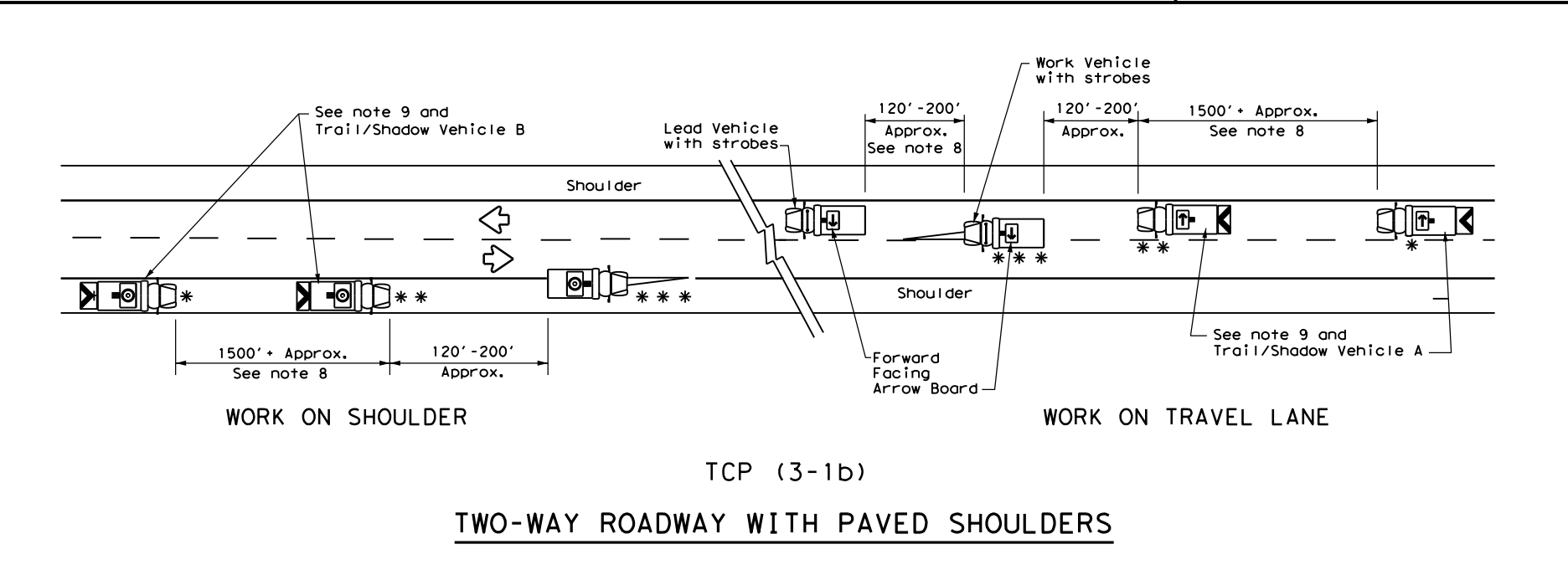
TRAIL/SHADOW VEHICLE A
 with RIGHT Directional display Flashing Arrow Board

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

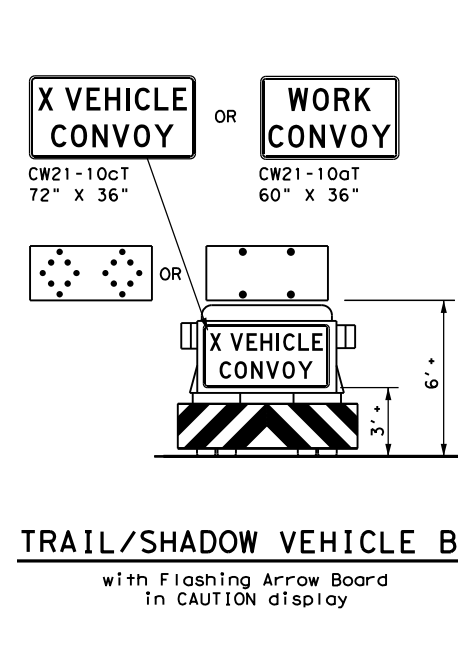
TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

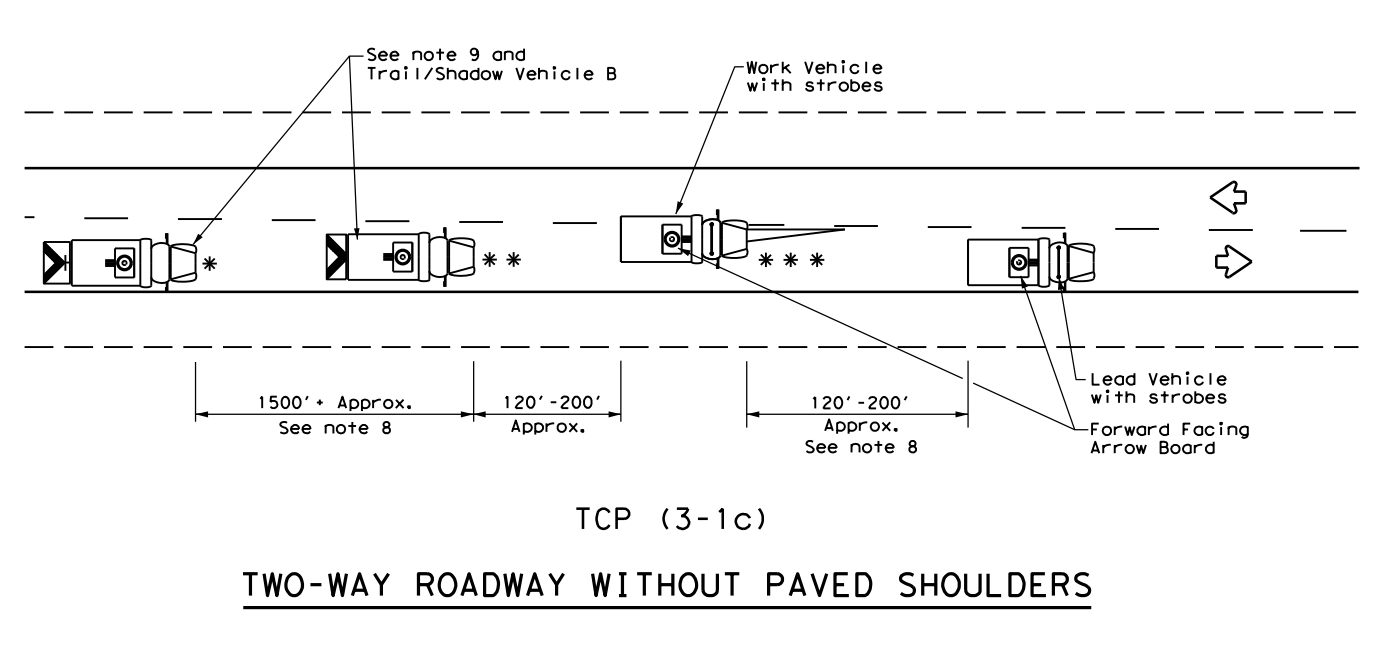
1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic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



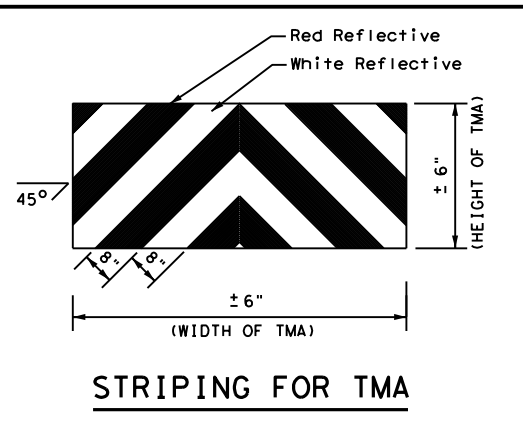
TCP (3-1b)
 TWO-WAY ROADWAY WITH PAVED SHOULDERS



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



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



STRIPING FOR TMA

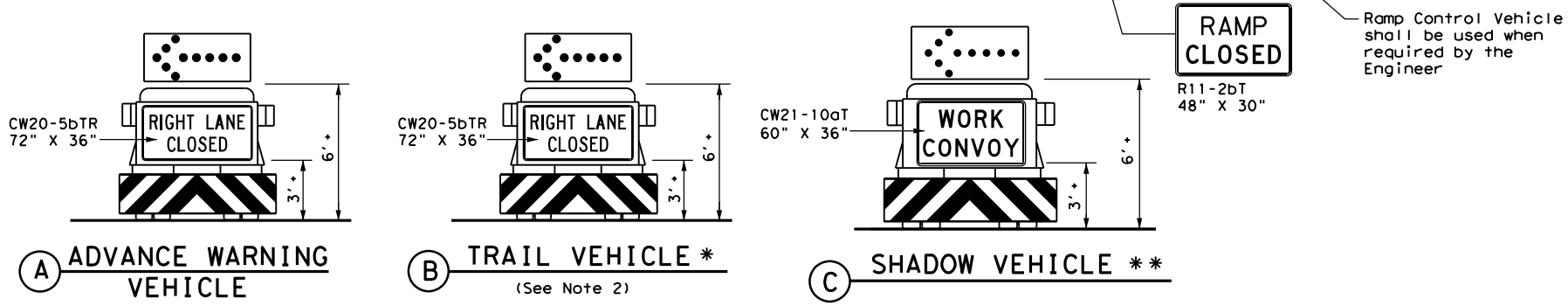
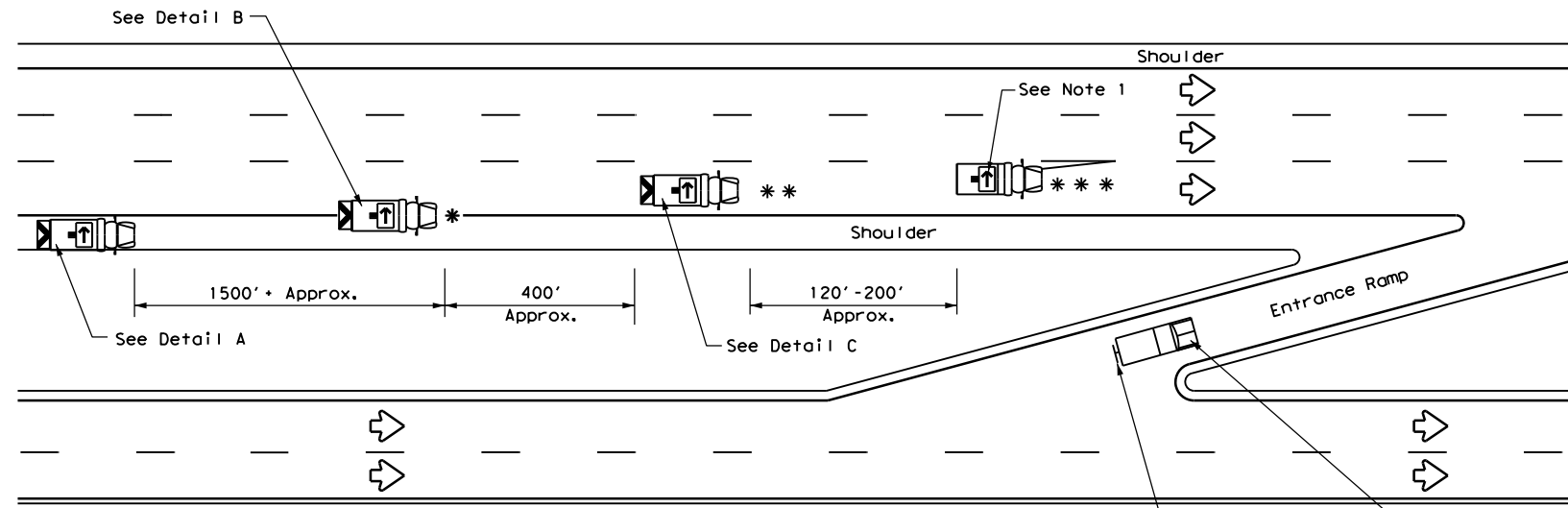
Texas Department of Transportation
 Traffic Operations Division Standard

**TRAFFIC CONTROL PLAN
 MOBILE OPERATIONS
 UNDIVIDED HIGHWAYS**

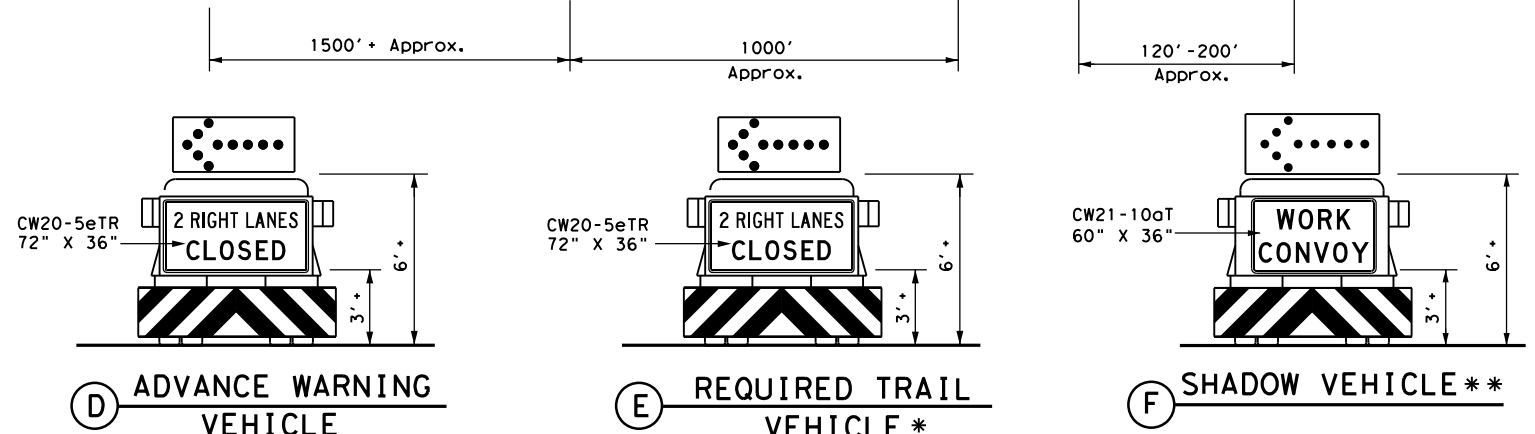
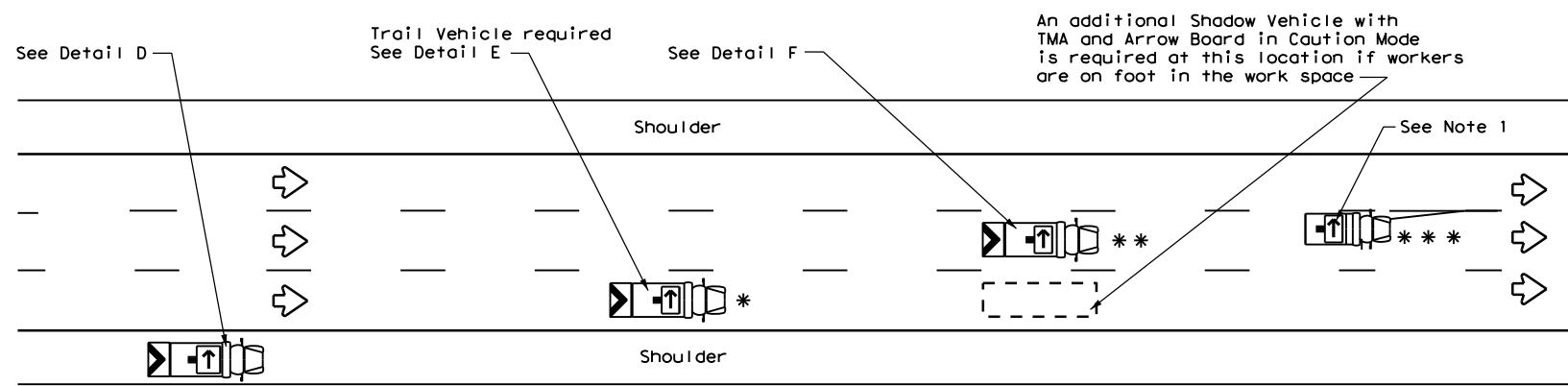
TCP (3-1) - 13

FILE:	tcp3-1.dgn	DN:	TxDOT	CK:	TxDOT	DW:	TxDOT	CK:	TxDOT
© TxDOT	December 1985	CONT:	SECT:	JOB:	HIGHWAY:				
REVISIONS		0049	09	094, ETC.	BS 6R, ETC.				
2-94	4-98	DIST:	COUNTY:	SHEET NO.					
8-95	7-13	BRY	BRAZOS, ETC.	41					
1-97									

DATE: 3/4/2022 9:48:10 AM
 FILE: G:\DESIGN\004909\094\SHEETS\Standards\094_standards\TCP3-2_13.DGN
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RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



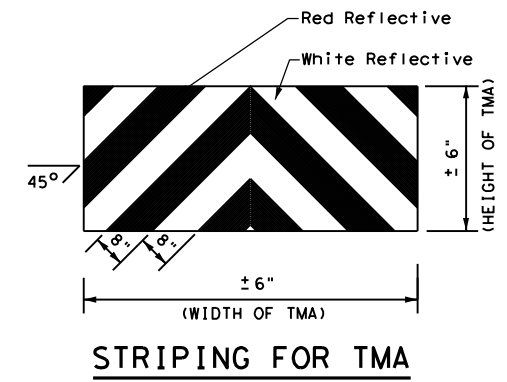
INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

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

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

GENERAL NOTES

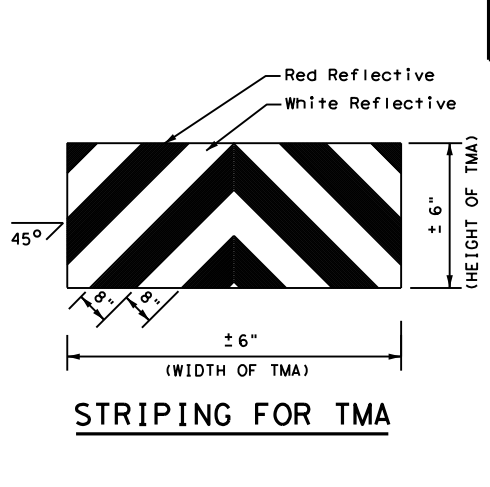
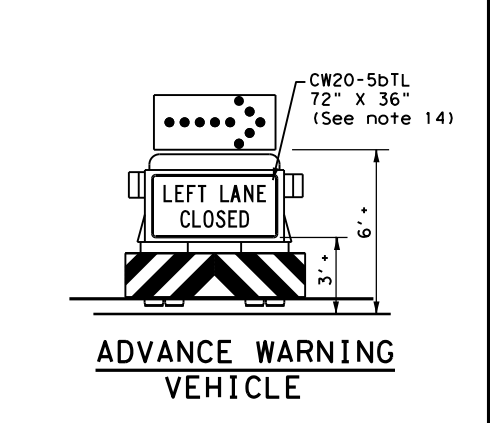
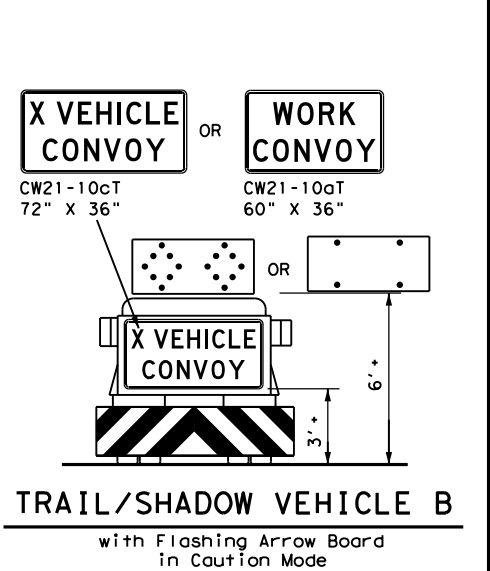
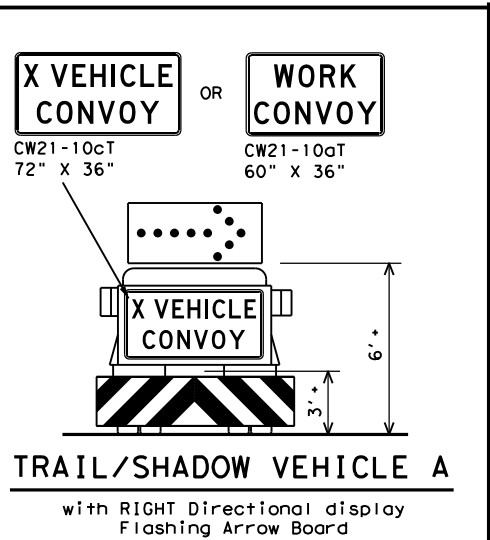
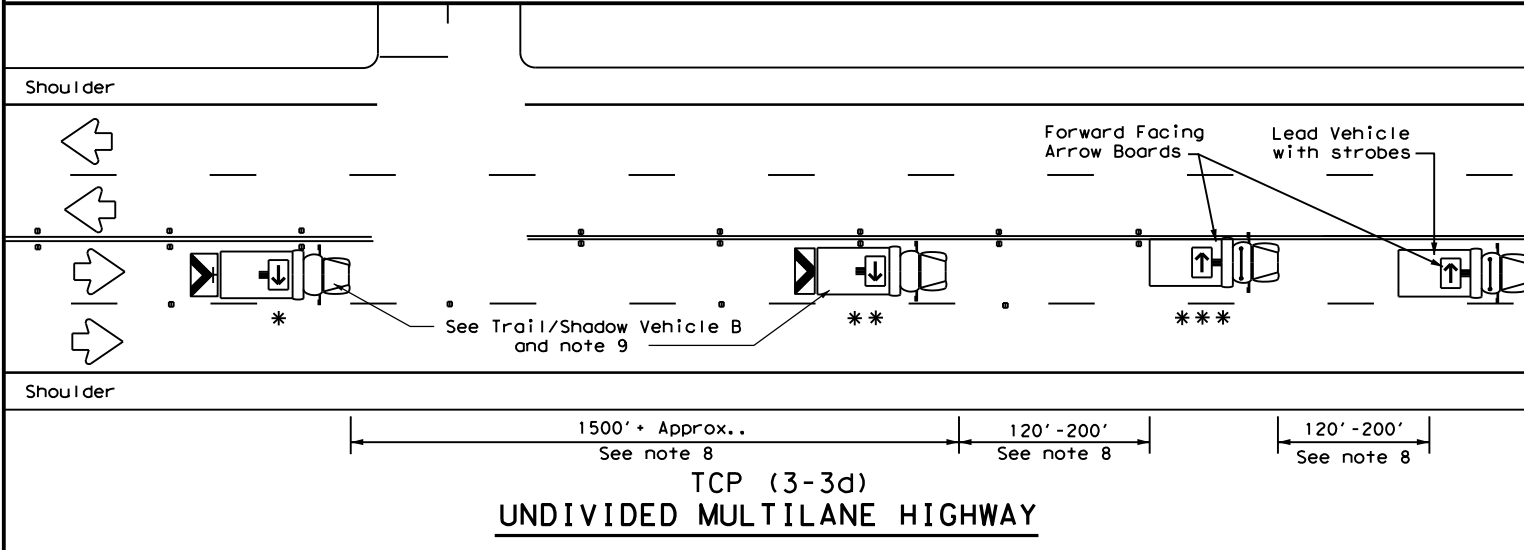
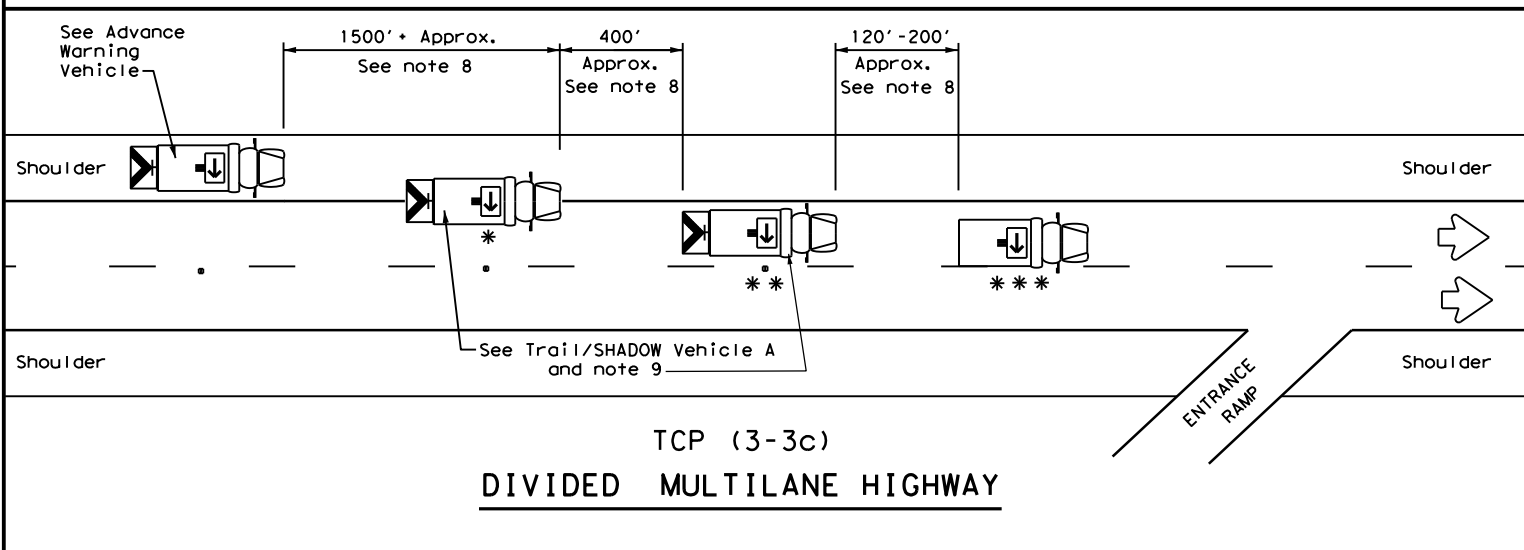
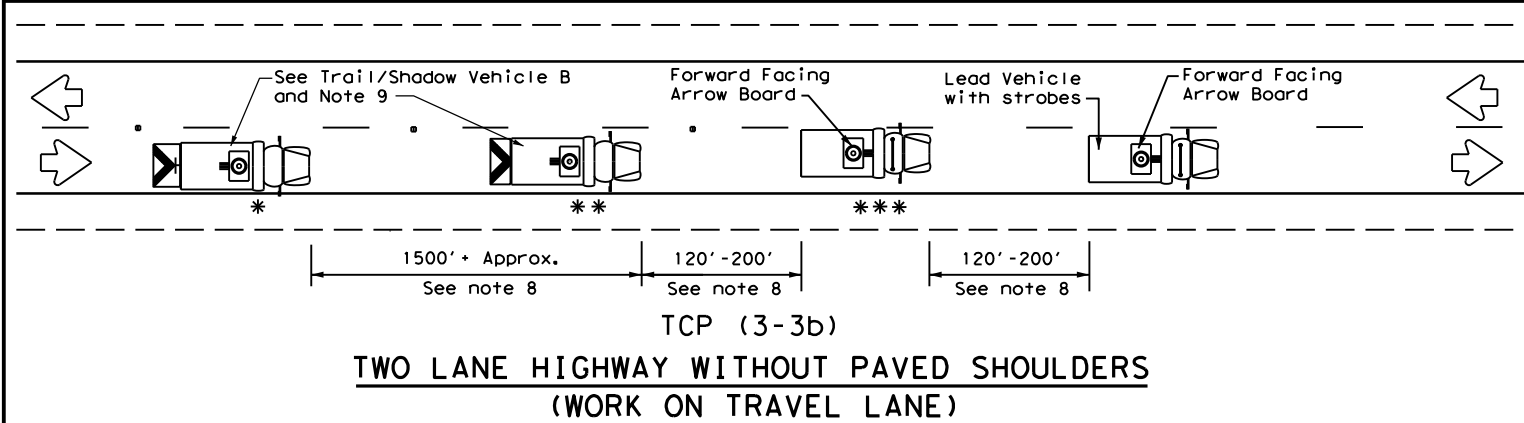
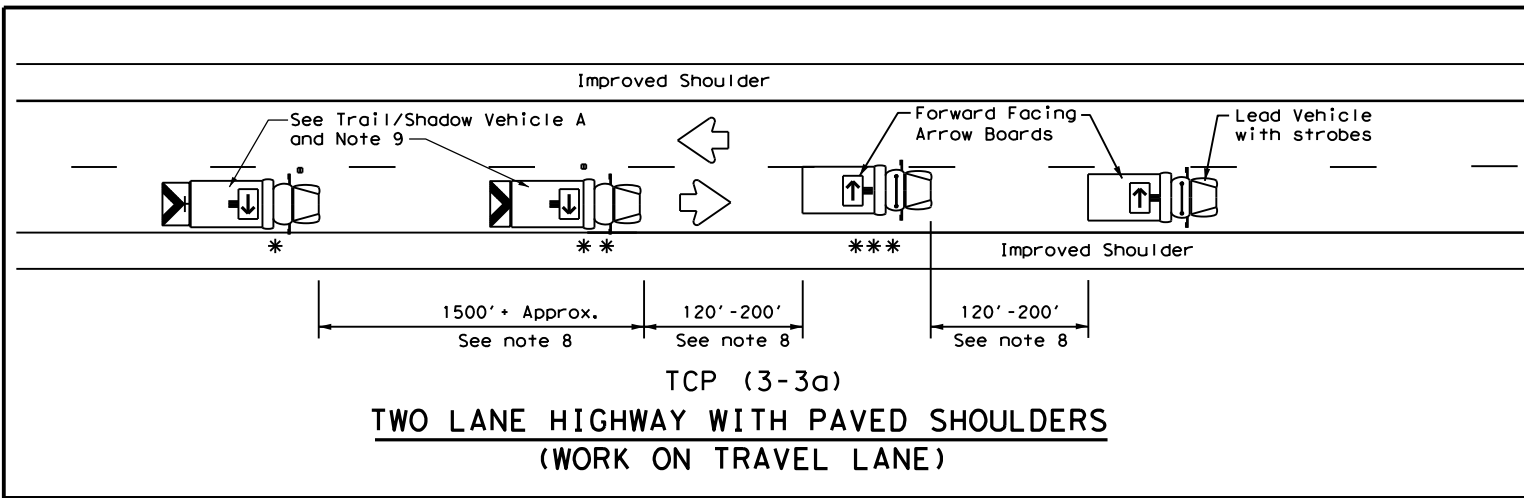
- ADVANCE WARNING, TRAIL and SHADOW vehicles shall be equipped with Type B or Type C flashing arrow boards as per the Barricade and Construction (BC) standards. Arrow boards on WORK vehicles will be optional based on the type of work being performed. The arrow boards shall be operated from inside the vehicle.
- For TCP(3-2a) the Engineer will determine if the TRAIL VEHICLE is required based on prevailing roadway conditions, traffic volume, and sight distance restrictions. All other vehicles shown for both TCP(3-2a) and TCP(3-2b) are required.
- The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
- The use of truck mounted attenuators (TMA) on the ADVANCE WARNING, SHADOW, and TRAIL vehicles are required.
- Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DMS 8300, Type A.
- Each vehicle shall have two-way radio communication capability.
- When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
- Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE may vary according to terrain, work activity and other factors.
- Standard 48" X 48" diamond shaped warning signs with the same message as those shown may be used where adequate mounting space exists.
- The signs shown should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or a truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board, must be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
- Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
- The principles on this sheet may be used to close lanes from the left side of the roadway considering the number of lanes, shoulder width, sight distance, and ramp frequency.
- Signs and flashing arrow board modes shall be appropriately altered when implementing left lane closures or interior closures which close the left lanes.
- The Advance Warning Vehicle may straddle the edgeline when shoulder width makes it necessary.



STRIPING FOR TMA

		Traffic Operations Division Standard	
TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS			
TCP(3-2)-13			
FILE: tcp3-2.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT December 1985	CONT	SECT	JOB
REVISIONS	0049 09	094, ETC.	BS 6R, ETC.
2-94 4-98			
8-95 7-13			
1-97			
DIST	COUNTY	SHEET NO.	
BRY	BRAZOS, ETC.	42	

DATE: 3/4/2022 9:52:13 AM
 FILE: G:\DESIGN\004909\094\SHEETS\Standards\094_standards\TCP3-3_1_4.DGN
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LEGEND		
* Trail Vehicle	ARROW BOARD DISPLAY	
** Shadow Vehicle		
*** Work Vehicle		RIGHT Directional
		LEFT Directional
		Double Arrow
		CAUTION (Alternating Diamond or 4 Corner Flash)

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

GENERAL NOTES

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.

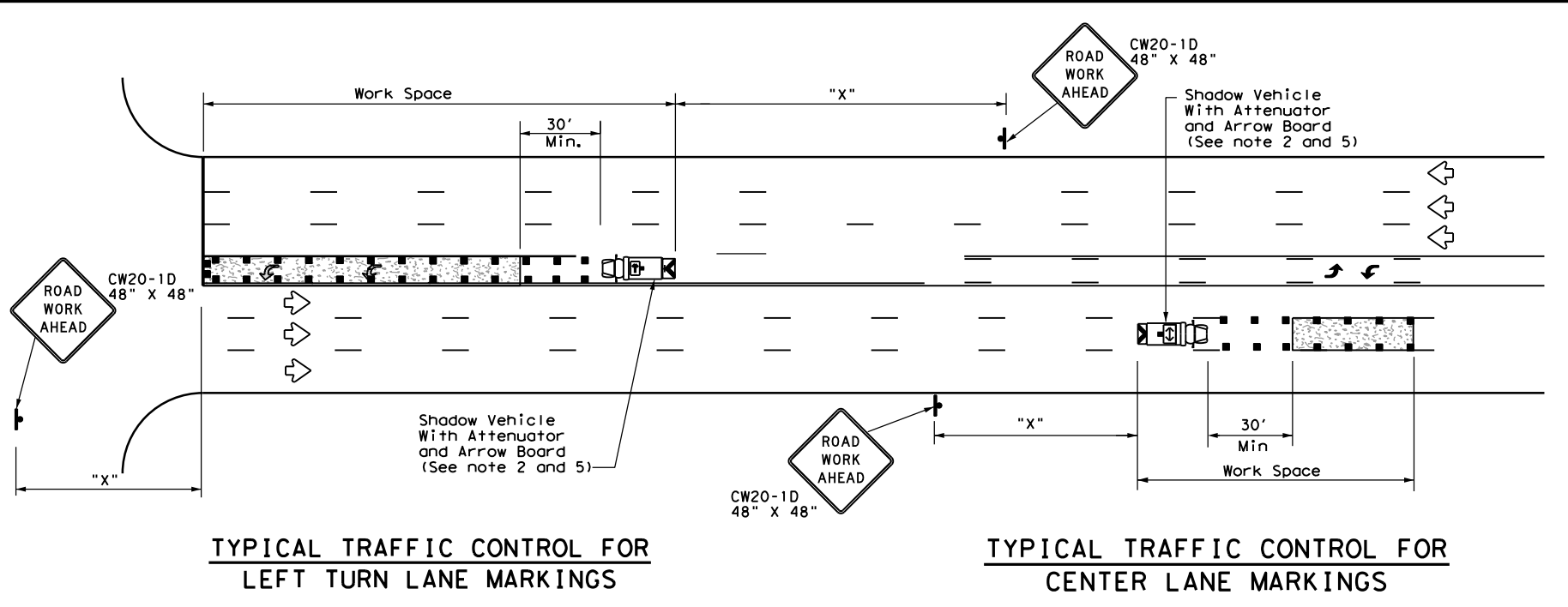
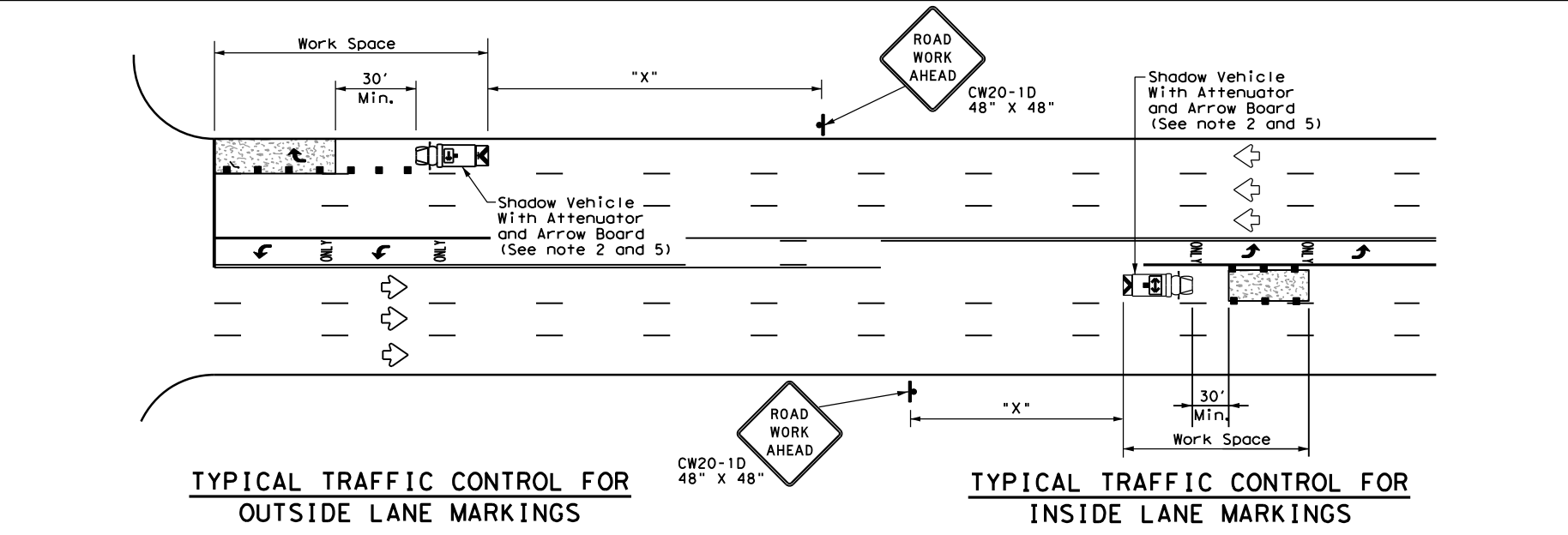
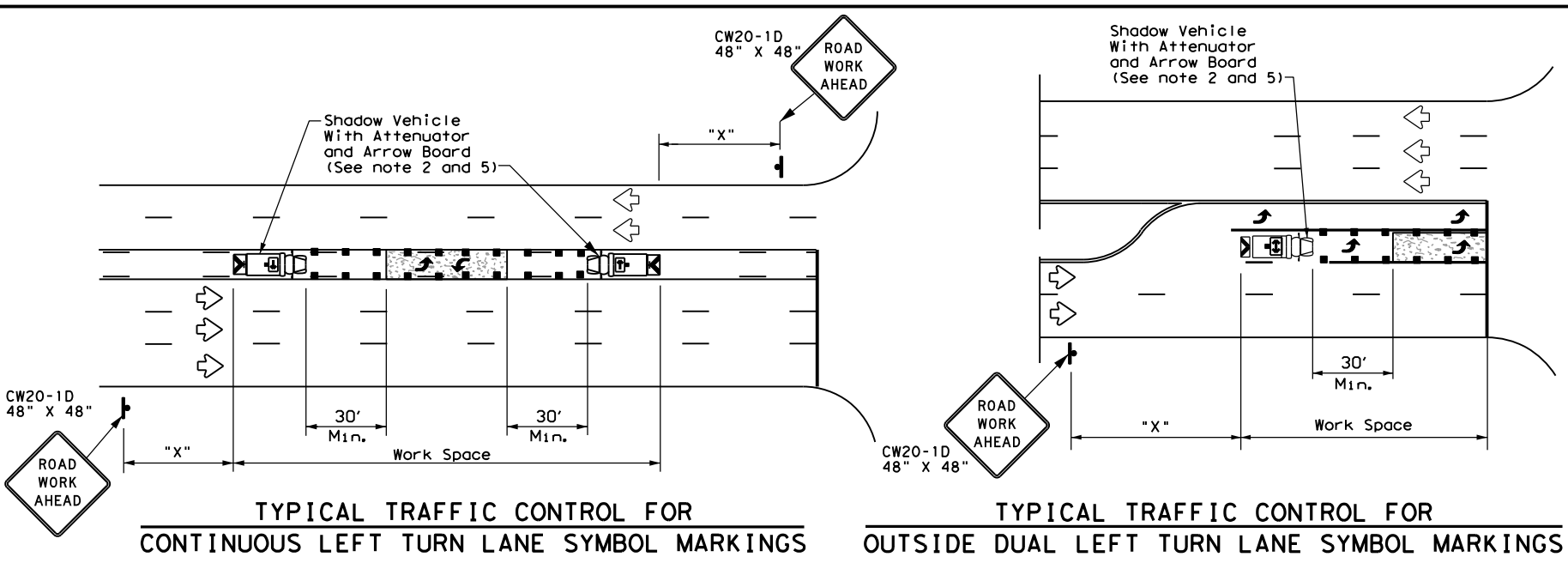
Texas Department of Transportation
 Traffic Operations Division Standard

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	0049	09	094, ETC.	BS 6R, ETC.
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 7-13	BRY	BRAZOS, ETC.	43	
1-97 7-14				

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DATE: 3/4/2022 9:53:17 AM
 FILE: G:\DESIGN\004909\094\SHEETS\Standards\094_standards\TCP3-4_13.dgn



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

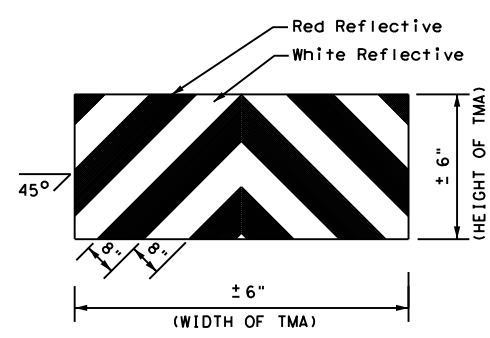
Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'
35		205'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

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

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

GENERAL NOTES

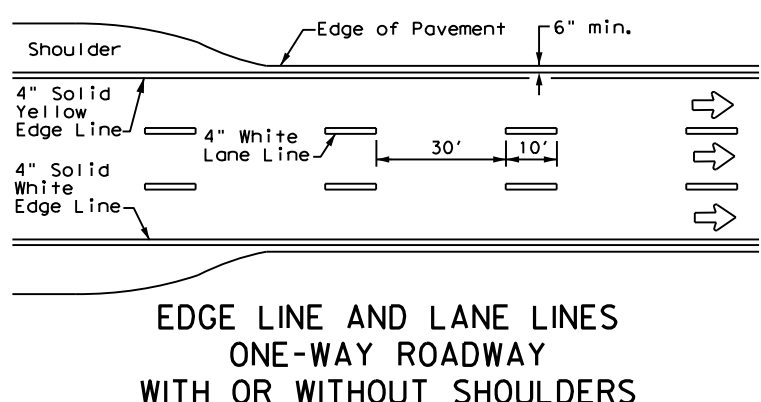
1. This traffic control plan is for use on conventional roads posted at 45 mph or less and is intended for mobile operations that move continuously or intermittently (stopping up to approximately 15 minutes) such as short-line striping and in-lane rumble strips. When activities are anticipated to take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



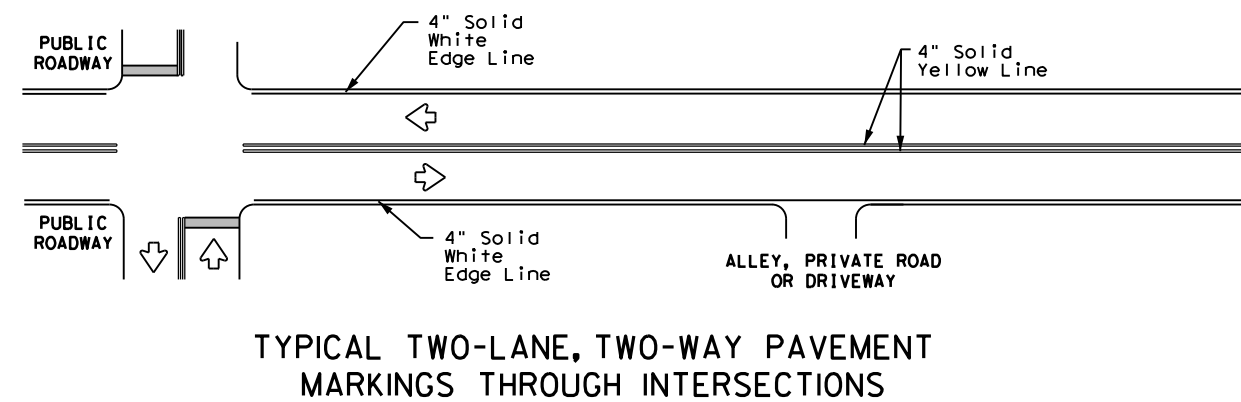
STRIPING FOR TMA

		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
© TxDOT	July, 2013	CONT:	SECT
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			HIGHWAY
DIST:	BRY	COUNTY:	BRAZOS, ETC.
		SHEET NO.:	44

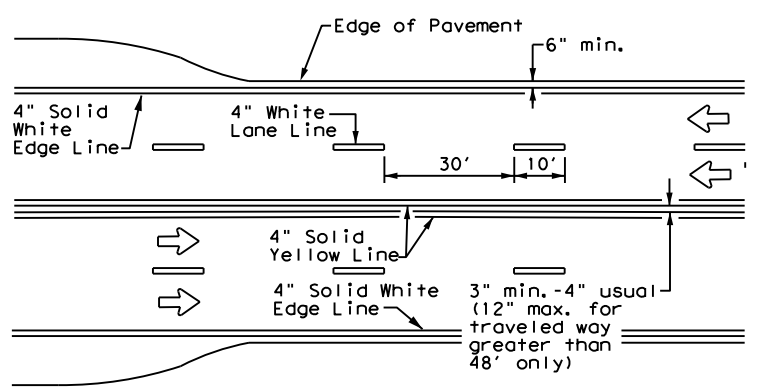
DATE: 3/4/2022 9:58:27 AM
 FILE: G:\DESIGN\004909\094\SHEETS\standards\094_standards\pm1-20.dgn
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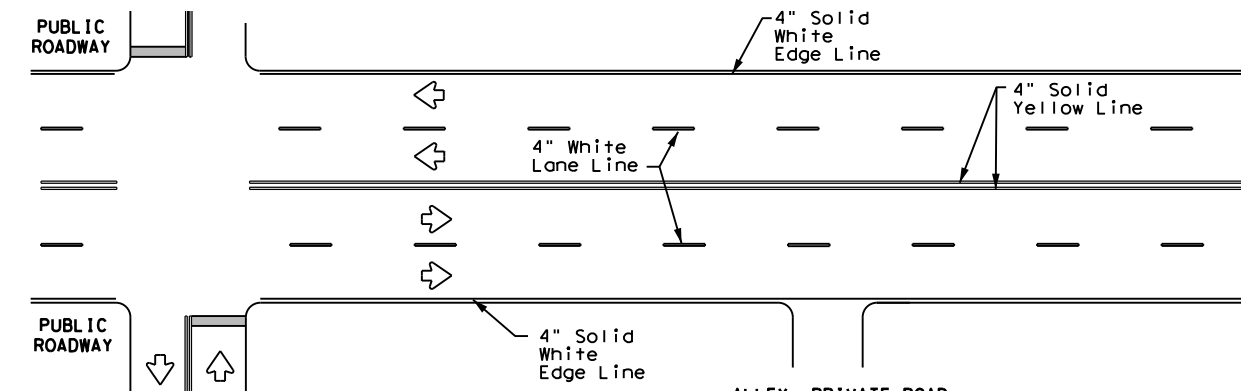
**EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



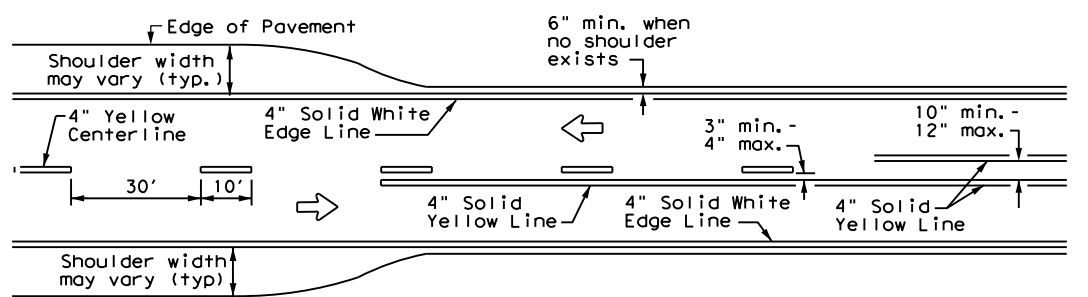
**TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



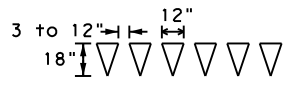
**CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



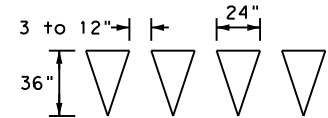
**TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



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

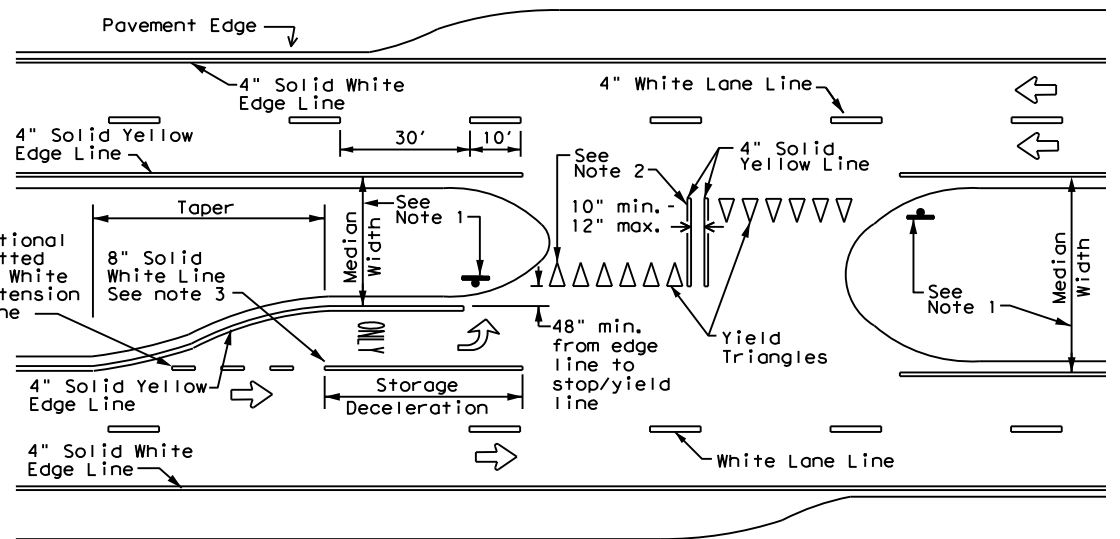


For posted speed on road being marked equal to or less than 40 MPH.



For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

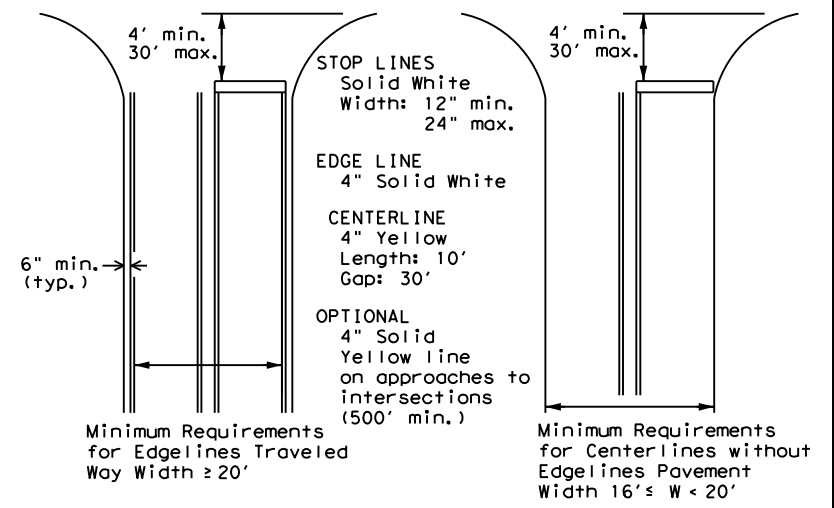
- Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs are optional as determined by the Engineer.
- Install median striping (double yellow centerlines and stop bars/yield triangles) when a 50' or greater median centerline can be placed. Stop bars shall only be used with stop signs. Yield triangles shall only be used with yield signs.
- Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

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

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

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



**GUIDE FOR PLACEMENT OF STOP LINES,
EDGE LINE & CENTERLINE**

Based on Traveled Way and Pavement Widths for Undivided Highways



**TYPICAL STANDARD
PAVEMENT MARKINGS**

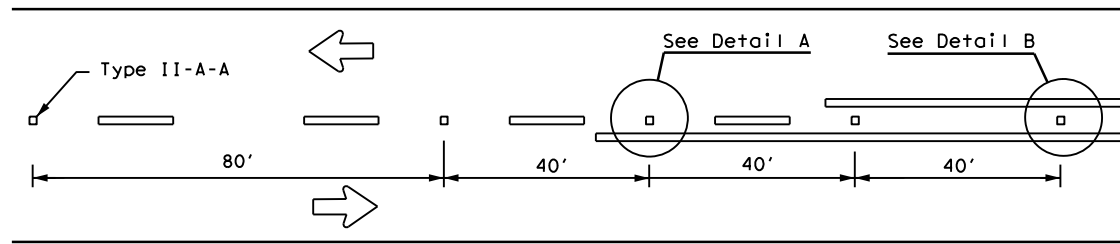
PM(1) - 20

FILE: pm1-20.dgn	DN:	CK:	DW:	CK:
© TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
8-95 3-03 REVISIONS	0049	09	094, ETC.	BS 6R, ETC.
5-00 2-12	DIST	COUNTY	SHEET NO.	
8-00 6-20	BRY	BRAZOS, ETC.	45	

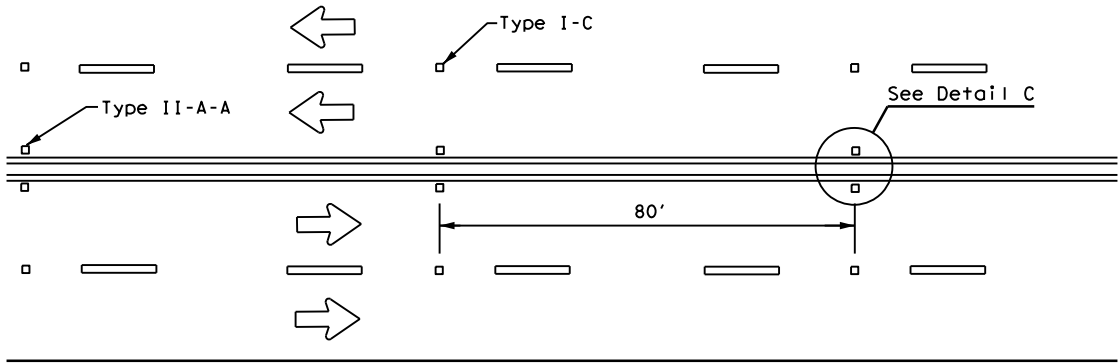
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

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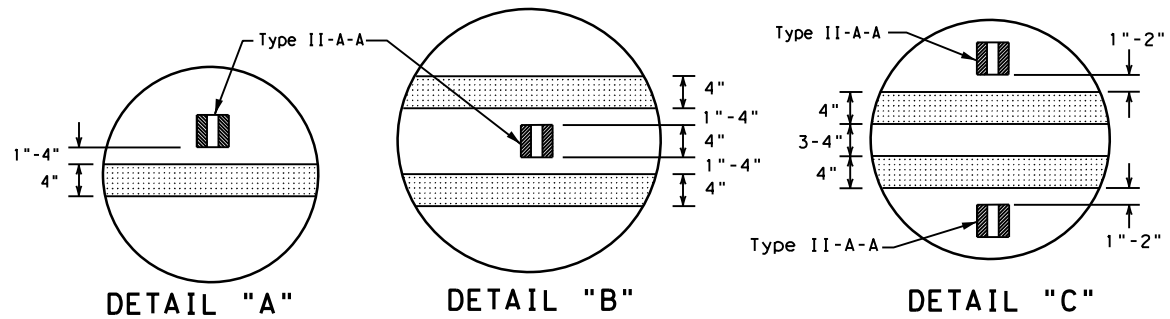
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CENTERLINE FOR ALL TWO LANE ROADWAYS



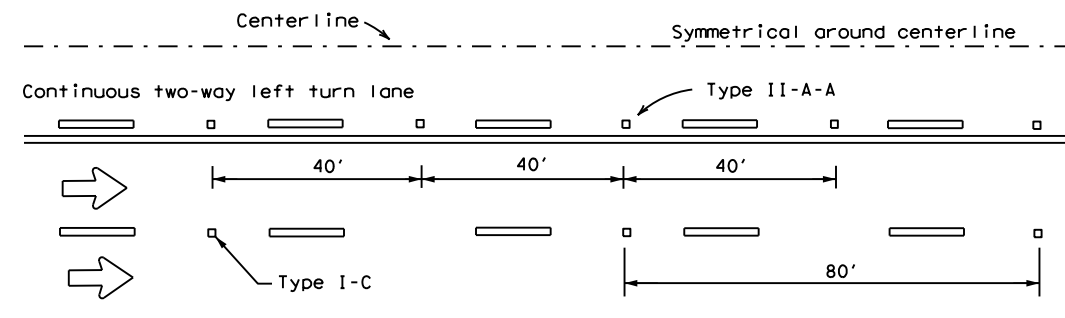
CENTERLINE & LANE LINES
FOR FOUR LANE TWO-WAY HIGHWAYS



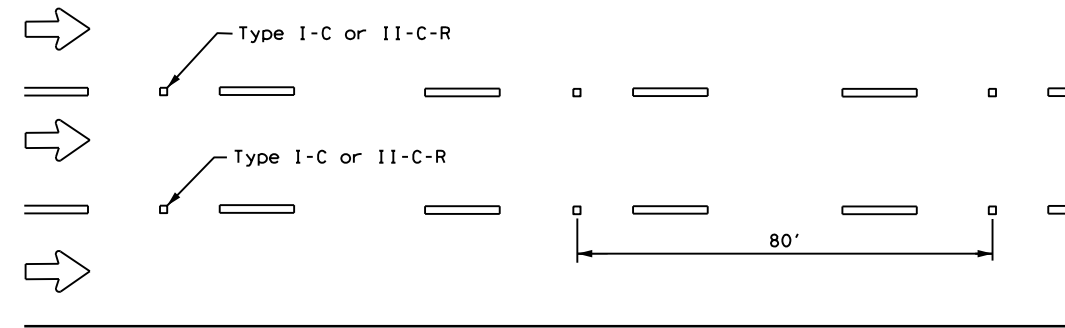
DETAIL "A"

DETAIL "B"

DETAIL "C"



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE

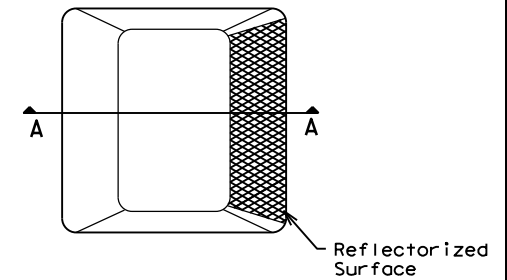


LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

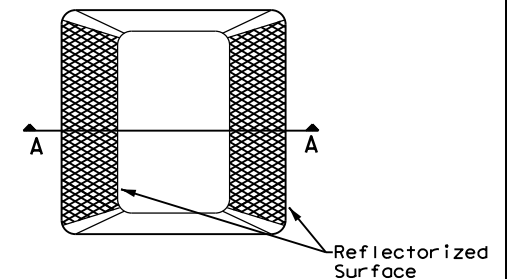
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

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

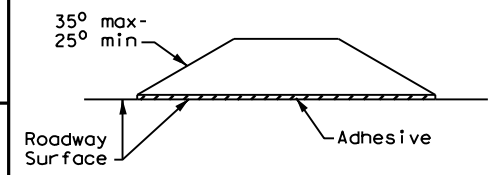
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

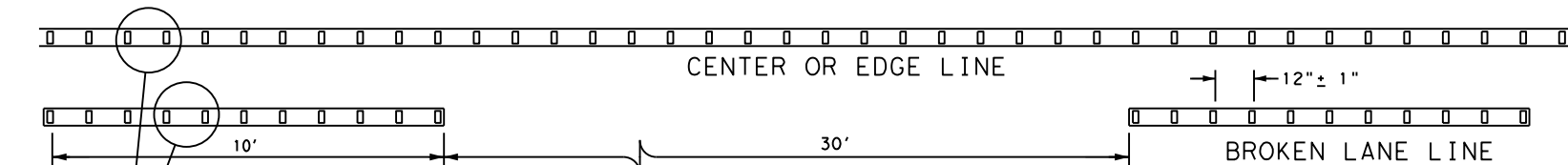


POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS PM(2) - 20

FILE: pm2-20.dgn	DN:	CK:	DW:	CK:
© TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
4-92 2-10 REVISIONS	0049	09	094, ETC.	BS 6R, ETC.
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	BRY	BRAZOS, ETC.		46

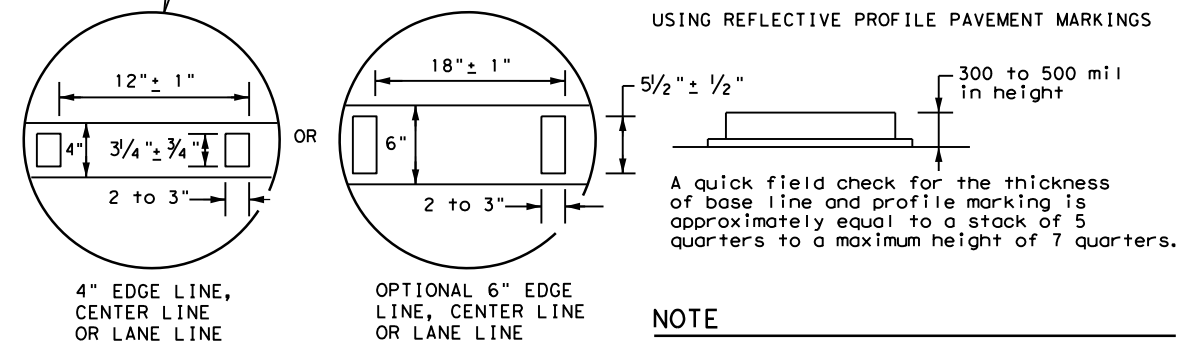
GENERAL NOTES

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



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS



4" EDGE LINE,
CENTER LINE
OR LANE LINE

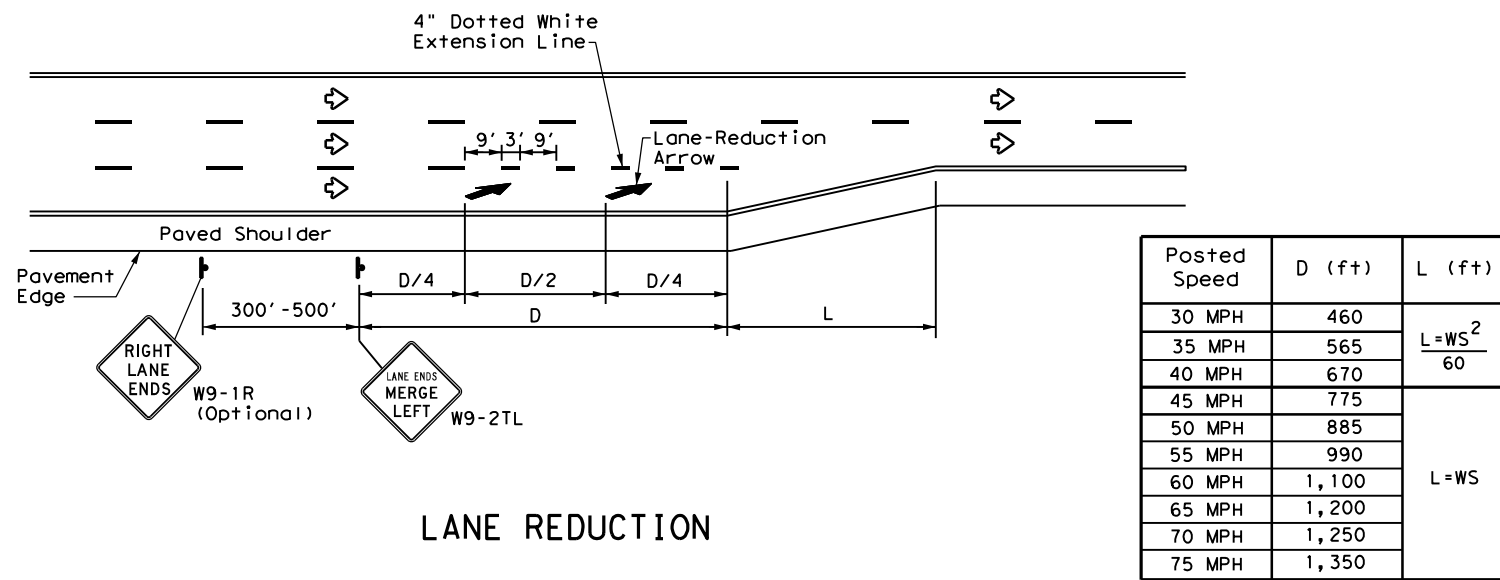
OPTIONAL 6" EDGE
LINE, CENTER LINE
OR LANE LINE

NOTE

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

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LANE REDUCTION

NOTES

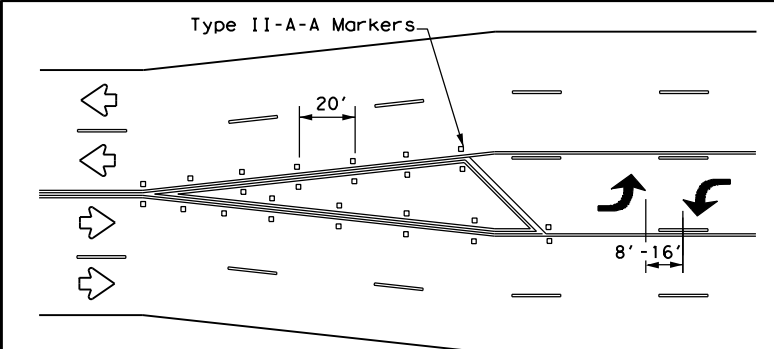
- Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
- On divided highways, an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

GENERAL NOTES

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

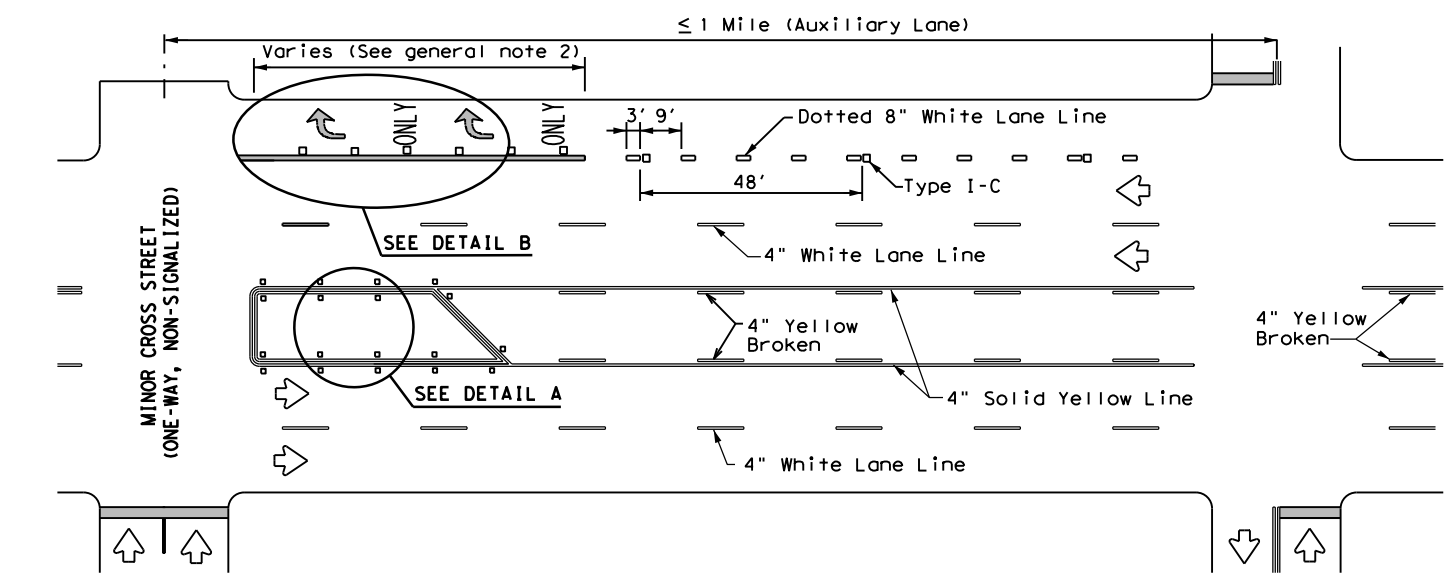
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

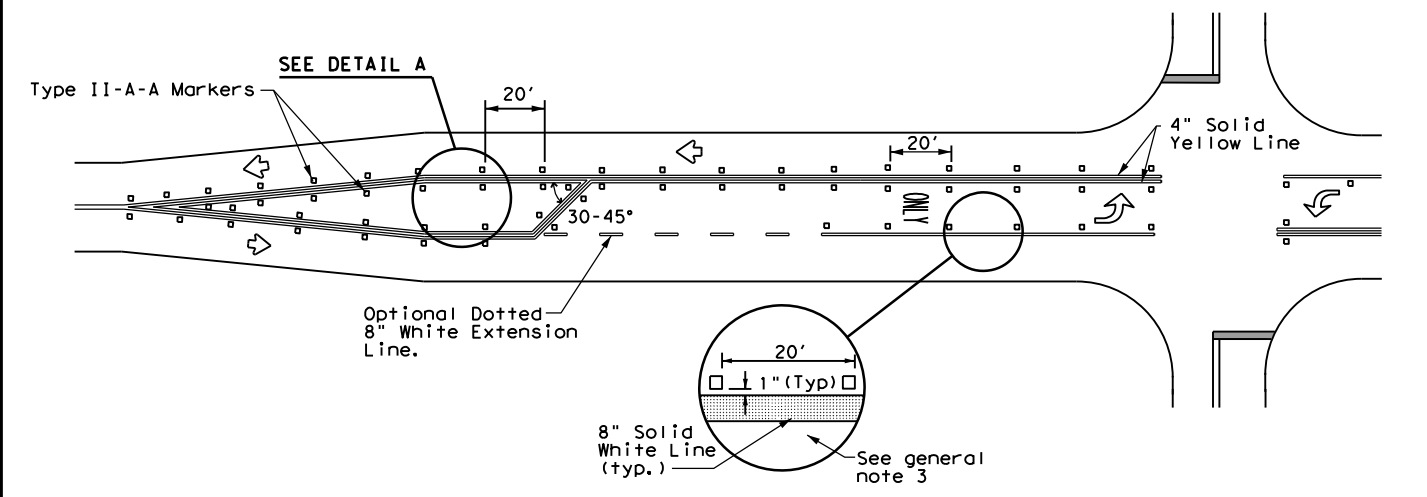


A two-way left-turn (TWLTL) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

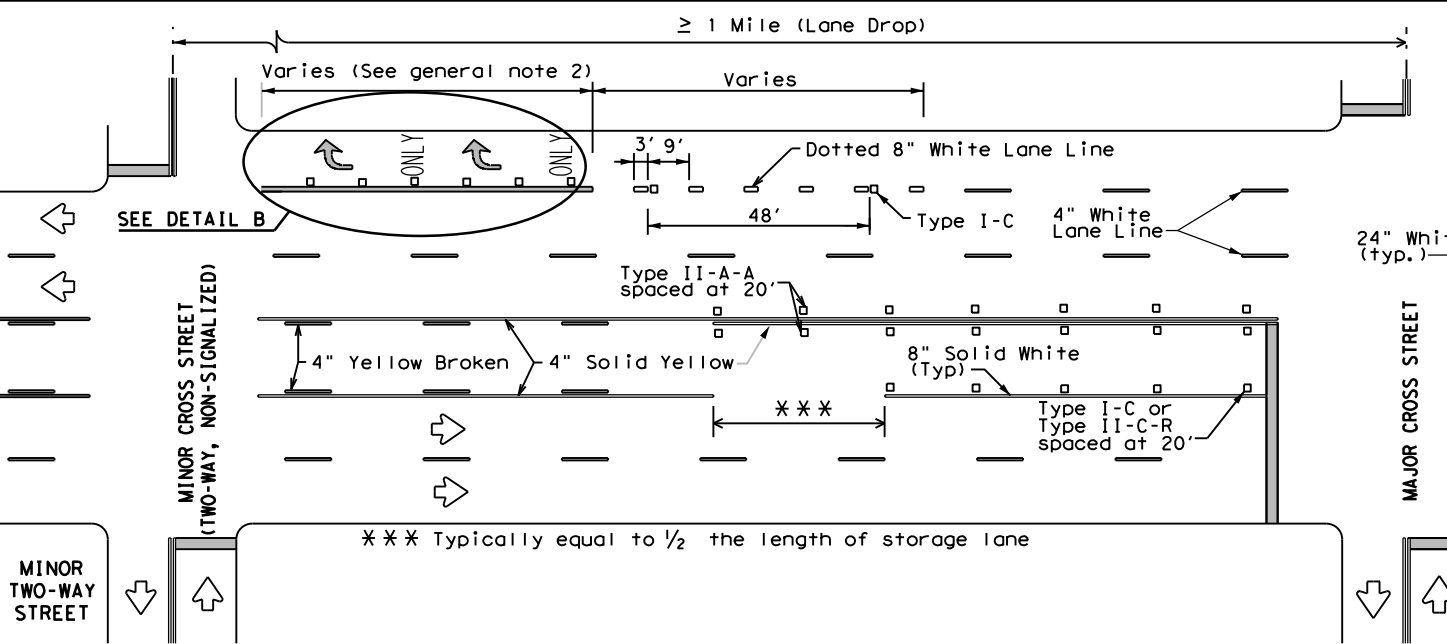
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



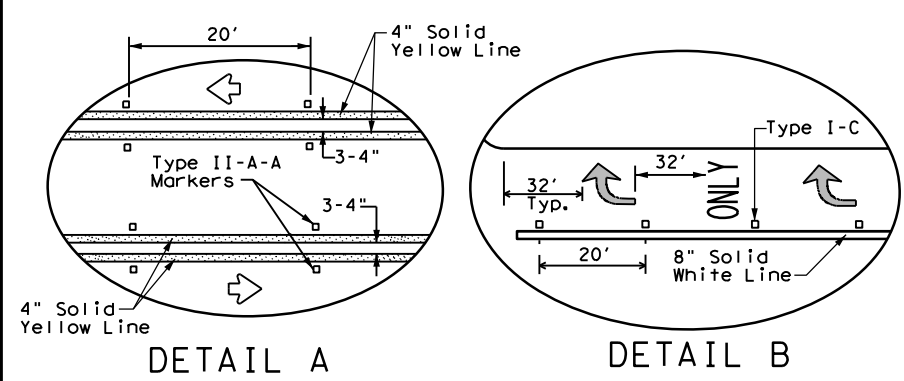
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



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



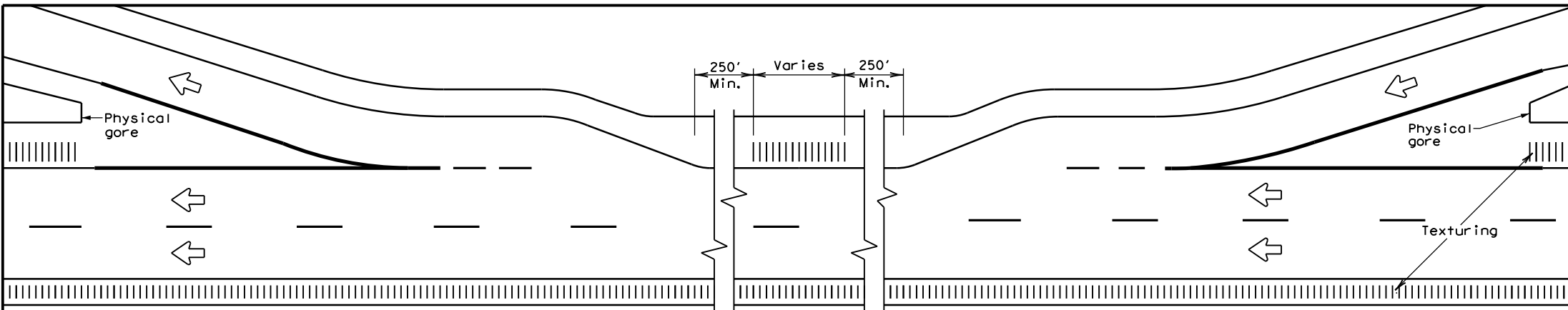
Texas Department of Transportation
 Traffic Safety Division Standard

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	0049	09	094, ETC.	BS 6R, ETC.
5-00 2-10	DIST	COUNTY	SHEET NO.	
8-00 2-12	BRY	BRAZOS, ETC.	47	
3-03 6-20				

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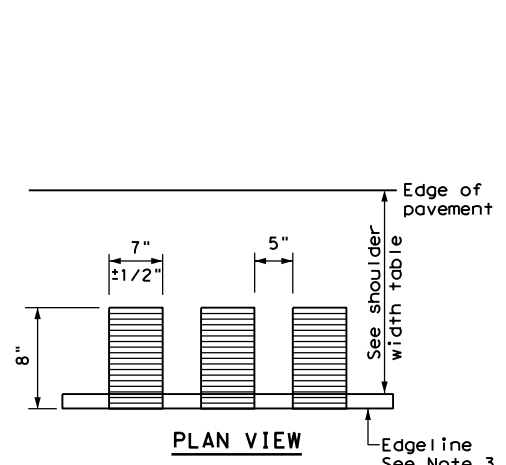
TYPICAL RUMBLE STRIP PLACEMENT AT EXIT AND ENTRANCE RAMPS

GENERAL NOTES

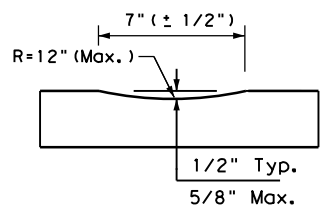
- Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
 - Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
 - Use Standard Sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
 - See the table below for determining what options may be used for edgeline rumble strips.
- WHEN INSTALLING MILLED DEPRESSION EDGELINE RUMBLE STRIPS:**
- See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Operations Division.
 - Pavement markings can be applied over milled shoulder rumble strips to create an edgeline rumble strip.
 - 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.
 - Rumble strips shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
 - 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.
 - 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:

- Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
- Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the 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.
- 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.
- 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.
- The minimum distance between the edgeline and the buttons should be used if the shoulder is less than 8 feet in width.
- Raised profile thermoplastic markings used as edgelines may substitute for buttons.

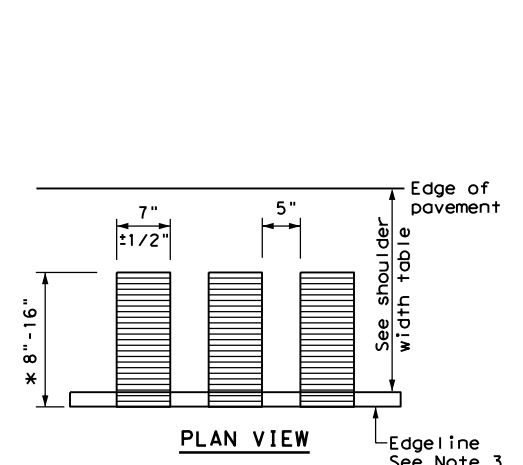


PLAN VIEW



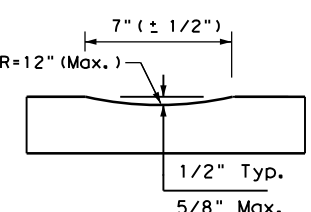
PROFILE VIEW
OPTION 1

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



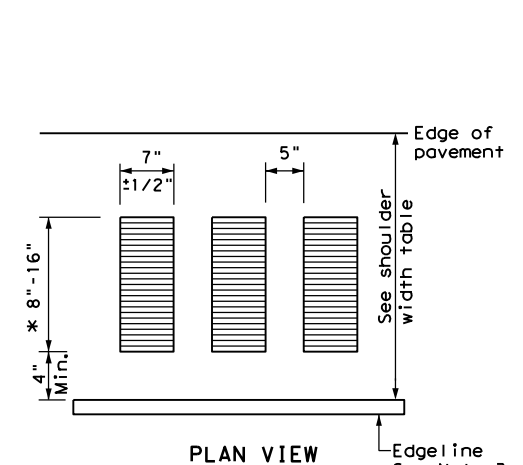
PLAN VIEW

* This distance may vary based on width of shoulder



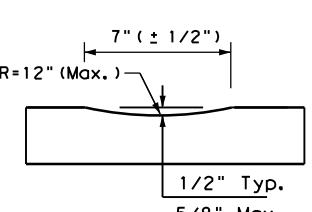
PROFILE VIEW
OPTION 2

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



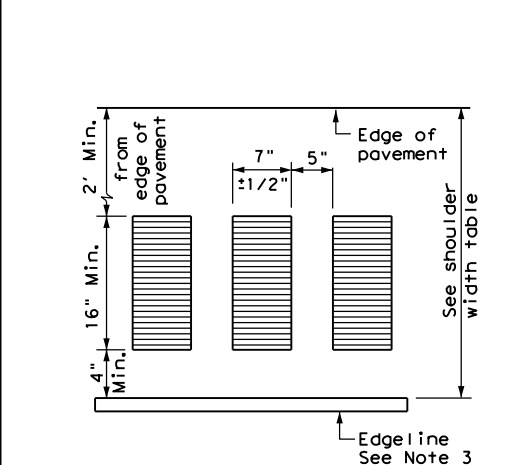
PLAN VIEW

* This distance may vary based on width of shoulder

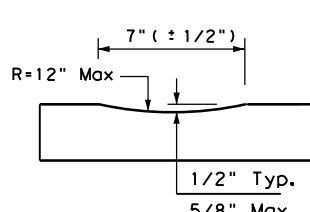


PROFILE VIEW
OPTION 3

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)

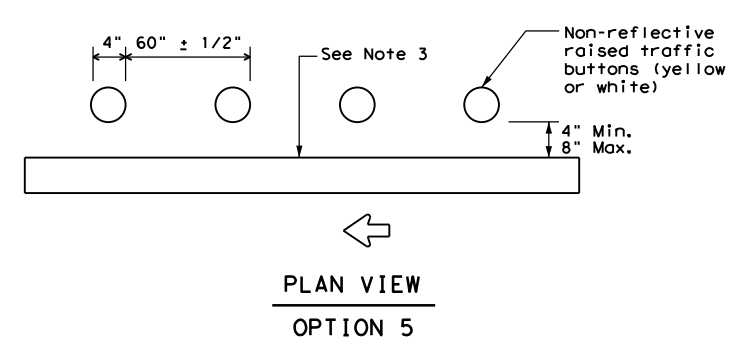


PLAN VIEW



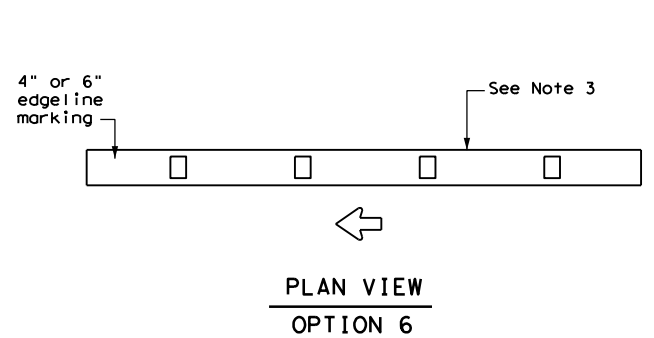
PROFILE VIEW
OPTION 4

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

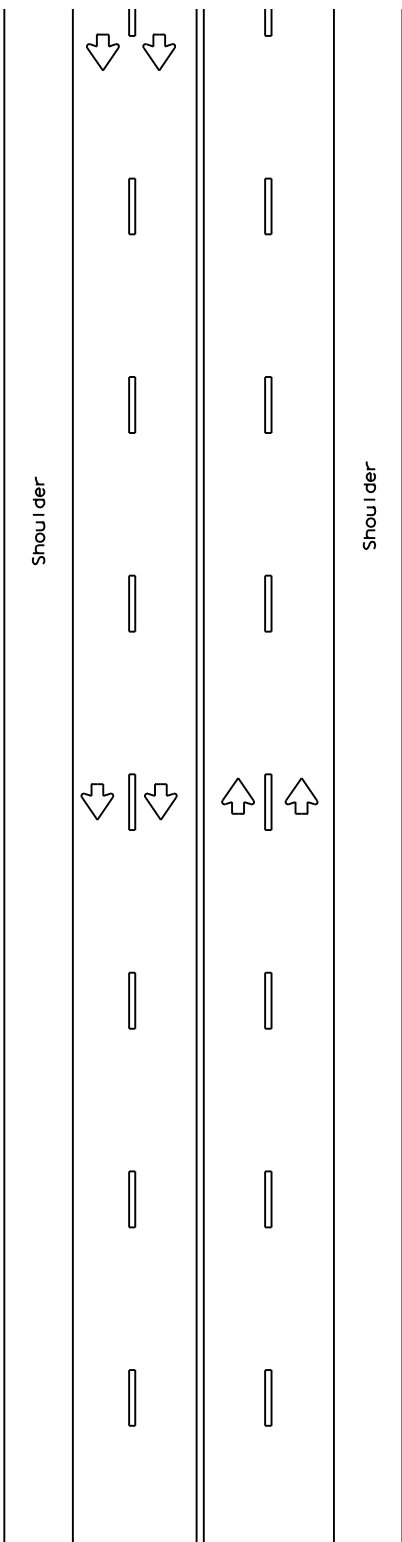


EDGELINE RUMBLE STRIPS ON FREEWAYS AND DIVIDED HIGHWAYS RS(1)-13

FILE: rs(1)-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT April 2006	CONT	SECT	JOB	HIGHWAY
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10-13	DIST	COUNTY	SHEET NO.	
	BRY	BRAZOS, ETC.	48	

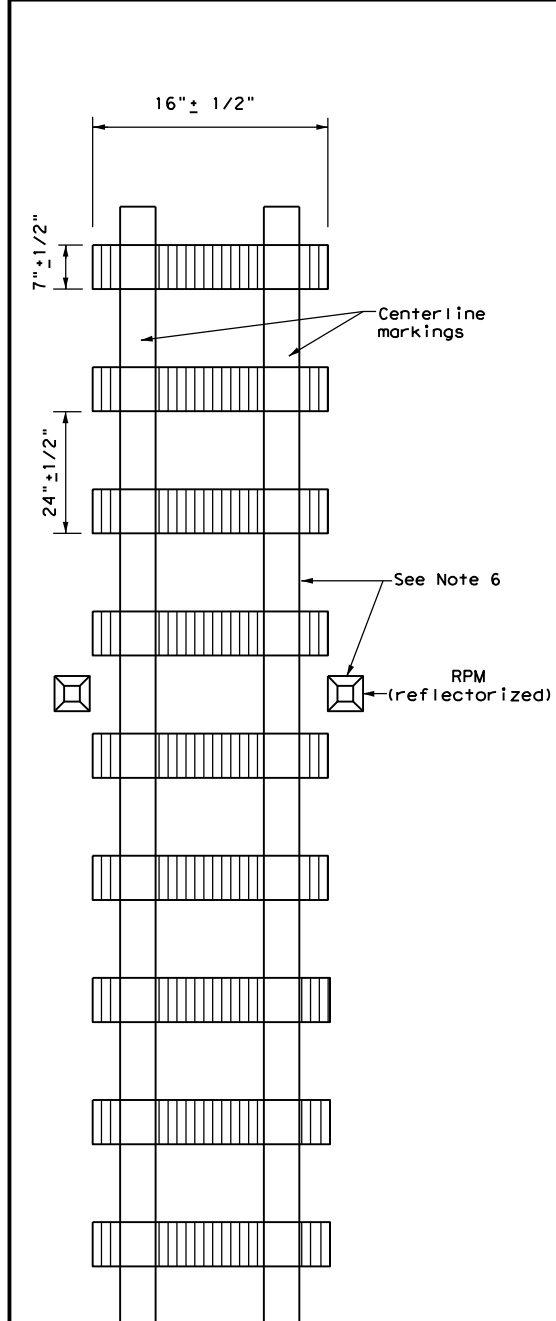
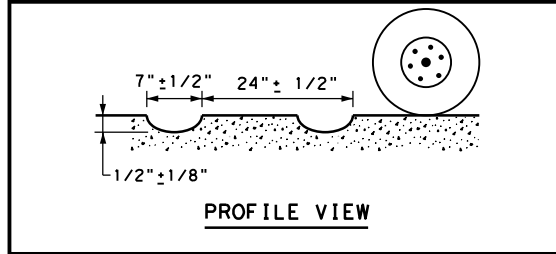
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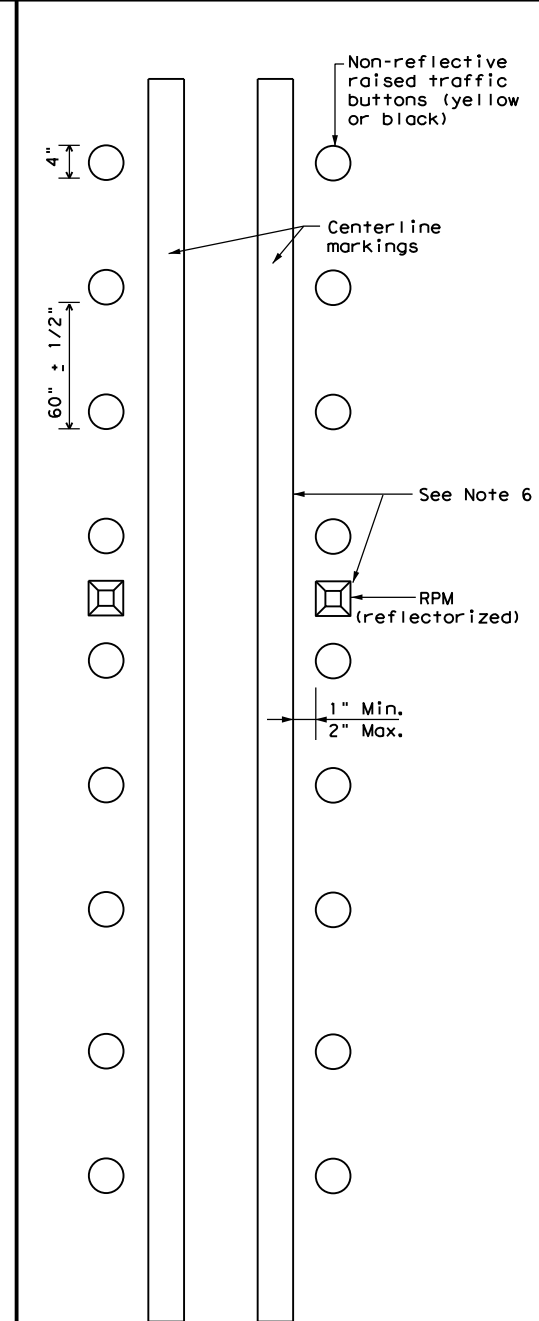
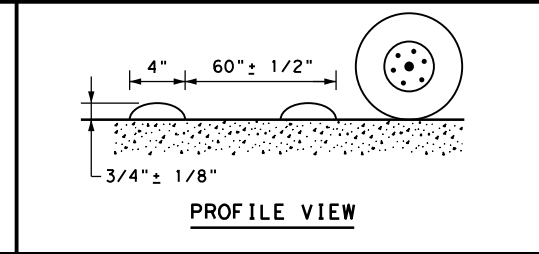


MULTILANE UNDIVIDED HIGHWAY WITH SHOULDER

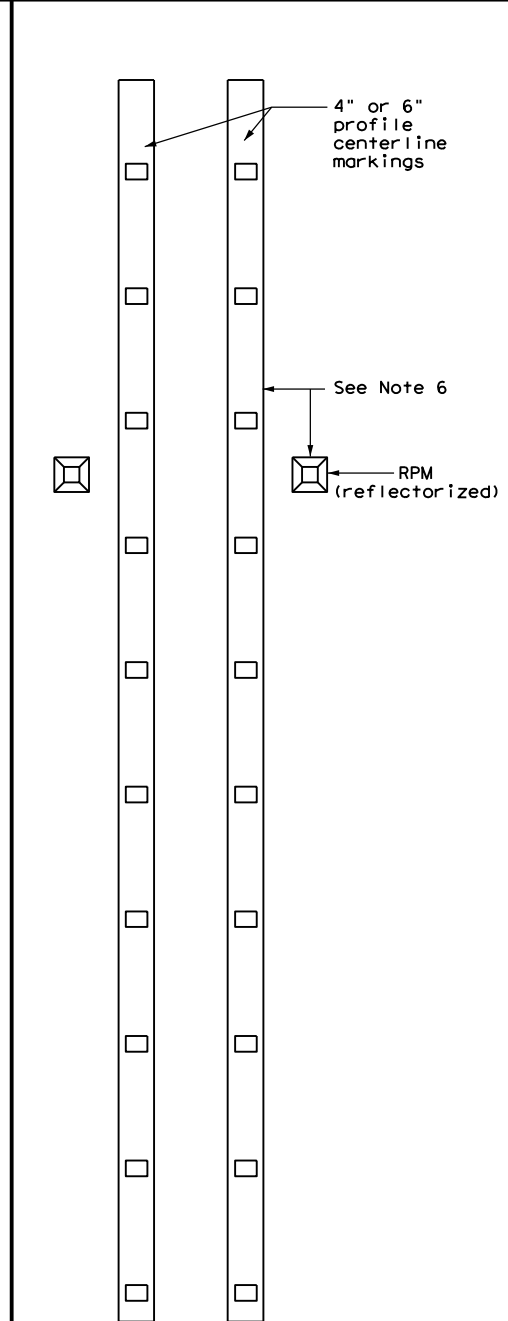
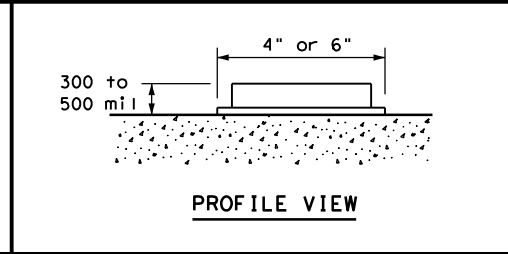
CENTERLINE RUMBLE STRIPS



PLAN VIEW OPTION 1
 MILLED CENTERLINE RUMBLE STRIPS



PLAN VIEW OPTION 2
 RAISED CENTERLINE RUMBLE STRIPS



PLAN VIEW OPTION 3
 PROFILE CENTERLINE MARKINGS

GENERAL NOTES

1. This standard sheet provides guidelines for installing centerline rumble strips on multilane undivided highways.
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 crossing, 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, 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 for normal centerline spacing. For wider medians, specify in the plans the exact placement of the rumble strips. Place the rumble strips under each centerline marking or centered in the middle of the median.

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 color of the button should be yellow for a continuous no passing roadway. The button will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.

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

11. See standard sheet RS(4).



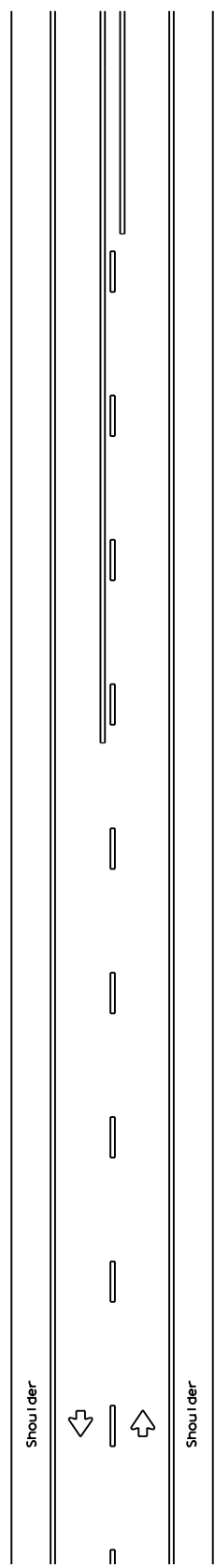
CENTERLINE RUMBLE STRIPS ON MULTILANE UNDIVIDED HIGHWAYS

RS(2) - 13

FILE: rs(2)-13.dgn	DW: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS				
0049	09	094, ETC.	BS	6R, ETC.
DIST	COUNTY	SHEET NO.		
BRY	BRAZOS, ETC.	49		

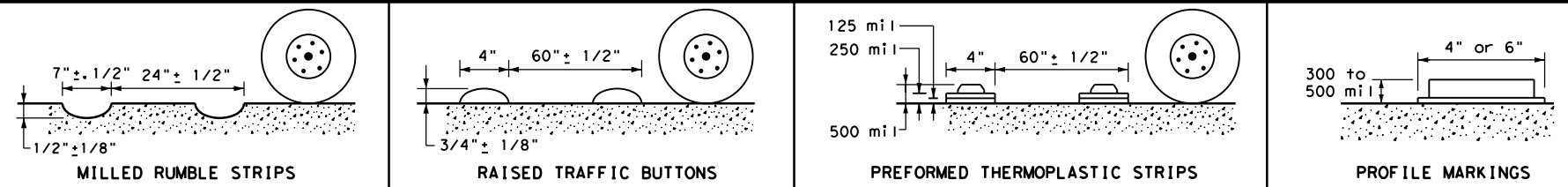
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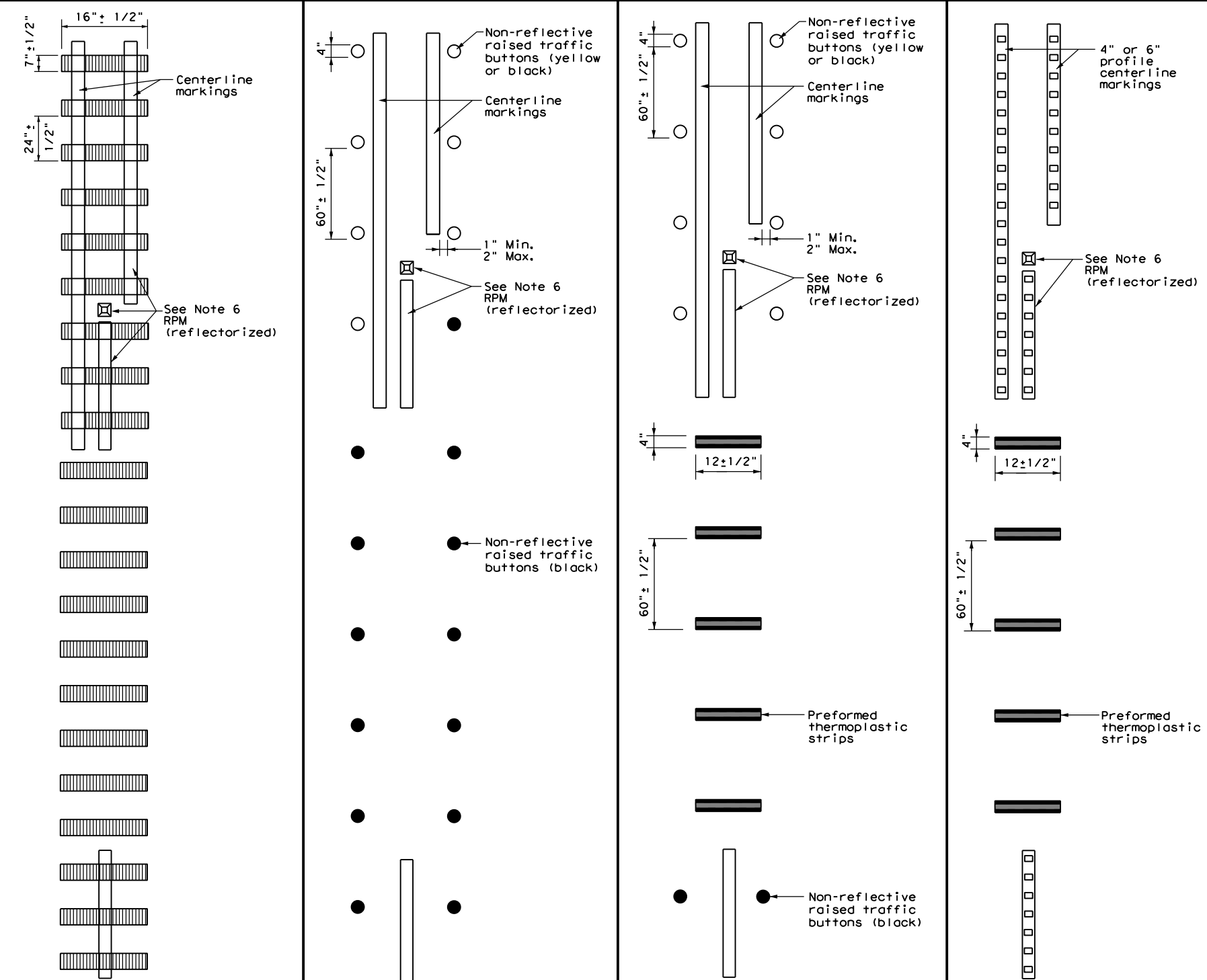


TWO LANE TWO-WAY ROADWAYS

CENTERLINE RUMBLE STRIPS



PROFILE VIEW



PLAN VIEW OPTION 1: 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

- This standard sheet provides guidelines for installing centerline rumble strips on two-lane highways with or without shoulders.
 - Centerline and edgeline rumble strips or profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
 - Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
 - See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Operations Division.
 - 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.
 - Use Standard Sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, and dimensions pavement markings and profile markings.
 - 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.
 - Pavement markings must be applied over milled centerline rumble strips.
- WHEN INSTALLING CENTERLINE RUMBLE STRIPS:**
- Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per manufacturer's recommendations.
 - 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.
 - 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 STRIPS WITH OR WITHOUT CENTERLINE RUMBLE STRIPS ON UNDIVIDED HIGHWAYS:**
- See standard sheet RS(4).

Texas Department of Transportation
 Traffic Operations Division Standard

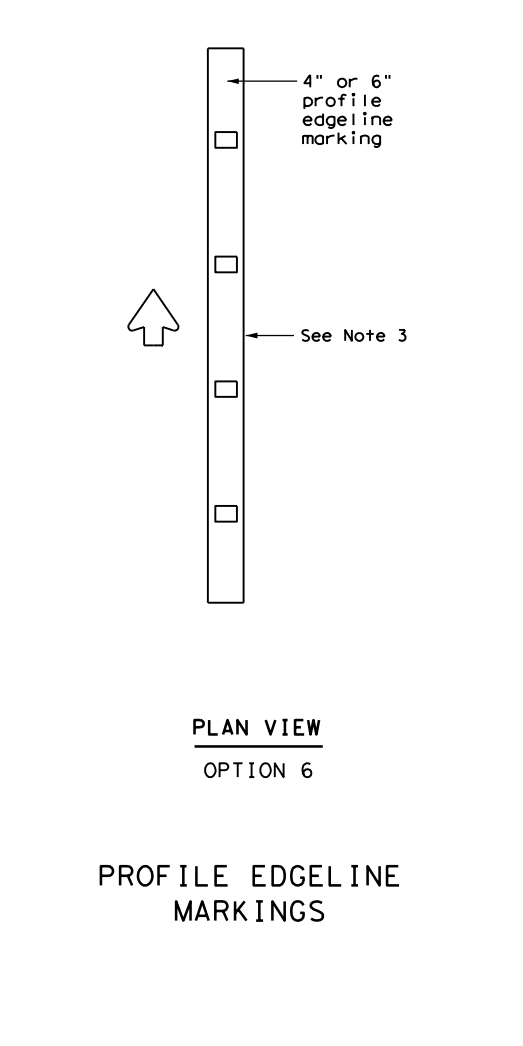
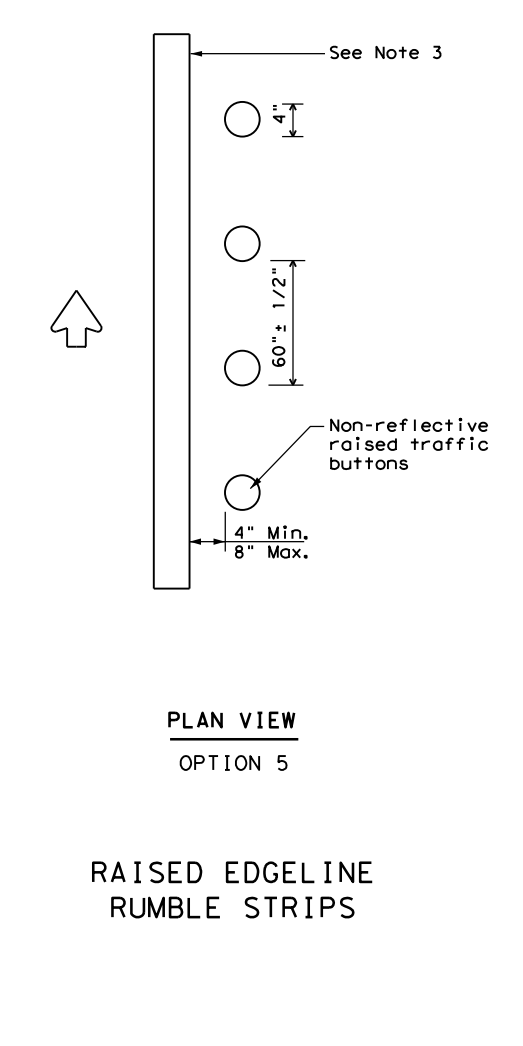
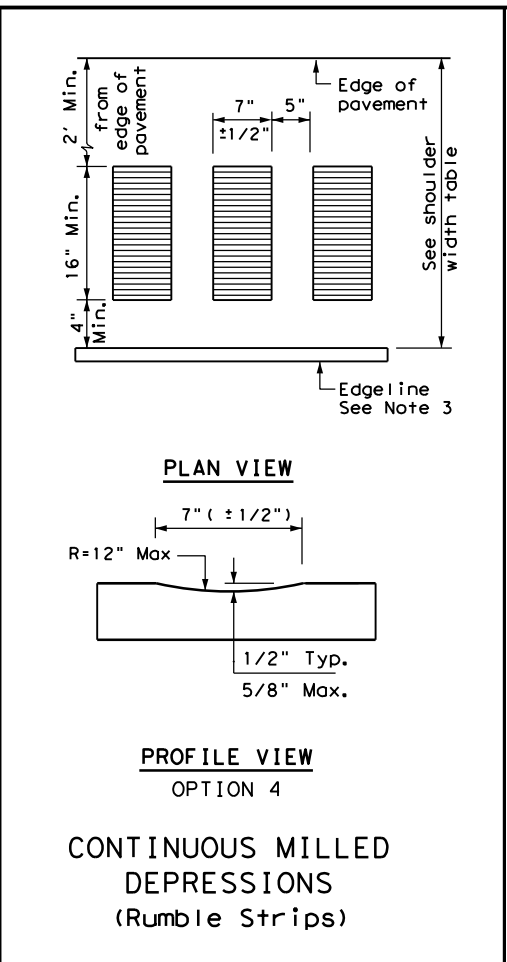
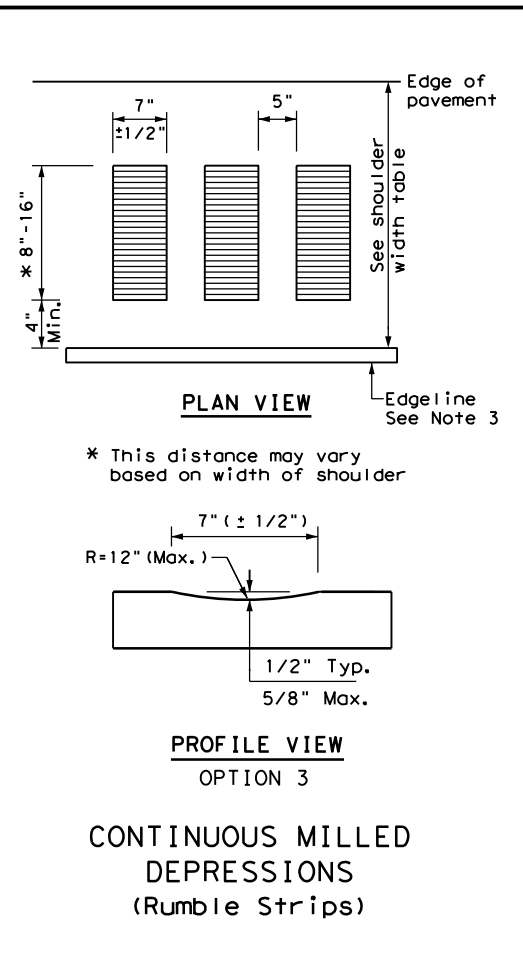
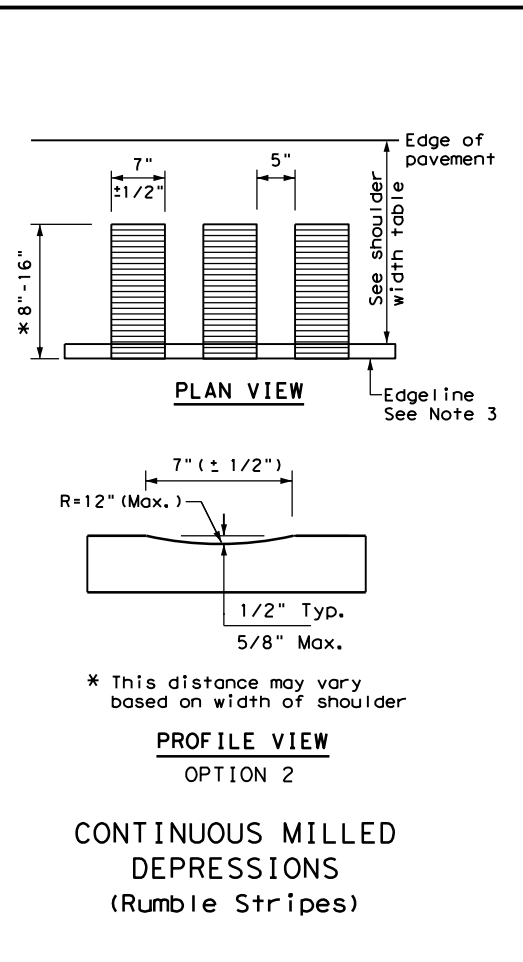
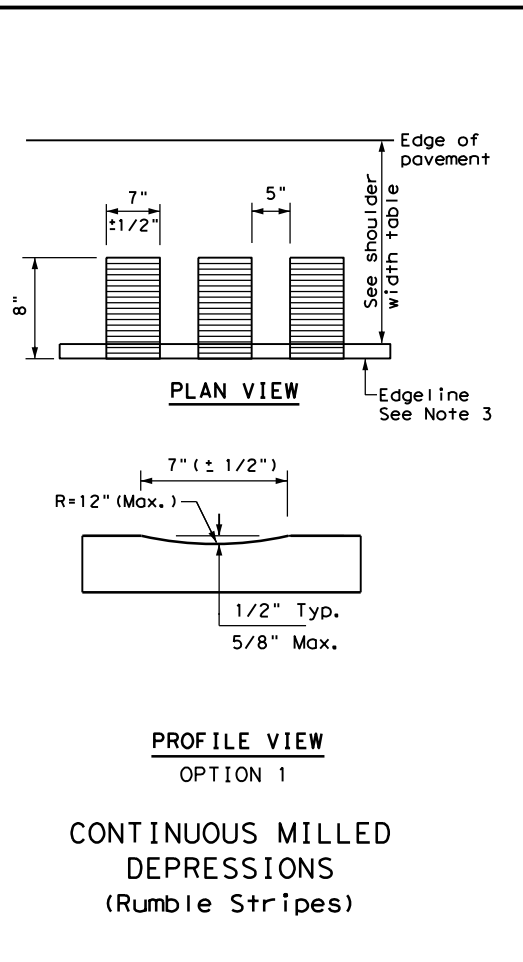
CENTERLINE RUMBLE STRIPS ON TWO LANE TWO-WAY HIGHWAYS

RS(3) - 13

FILE: rs(3)-13.dgn	DW: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS	0049	09	094, ETC.	BS 6R, ETC.
	DIST	COUNTY	SHEET NO.	
	BRY	BRAZOS, ETC.	50	

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DATE: 3/17/2022 4:13:46 PM
 FILE: G:\DESIGN\004909\094\SHEETS\Standards\094_standards\rs(4)-13.dgn



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

- Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
 - Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
 - Use Standard Sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
 - See the table below for determining what options may be used for edgeline rumble strips.
- WHEN INSTALLING MILLED DEPRESSION EDGELINE RUMBLE STRIPS:**
- See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Operations Division.
 - Pavement markings can be applied over milled shoulder rumble strips to create an edgeline rumble stripe.
 - 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.
 - Rumble strips shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
 - 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.
 - 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:**
- Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
 - Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the 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.
 - 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.
 - 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.
 - The minimum distance between the edgeline and the buttons should be used if the shoulder is less than 8 feet in width.
 - Raised profile thermoplastic markings used as edgelines may substitute for buttons.

Texas Department of Transportation
 Traffic Operations Division Standard

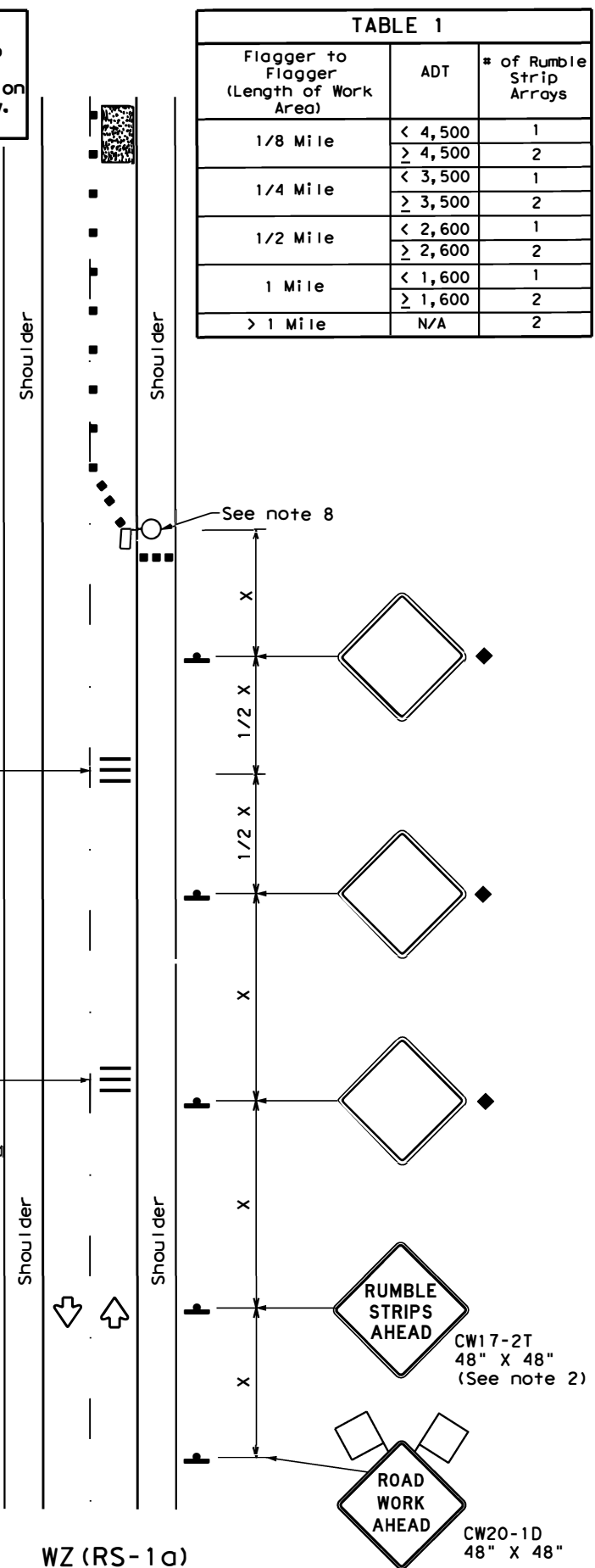
EDGELINE RUMBLE STRIPS ON UNDIVIDED OR TWO LANE HIGHWAYS RS(4)-13

FILE: rs(4)-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS	0049	09	094, ETC.	BS 6R, ETC.
	DIST	COUNTY	SHEET NO.	
	BRY	BRAZOS, ETC.	51	

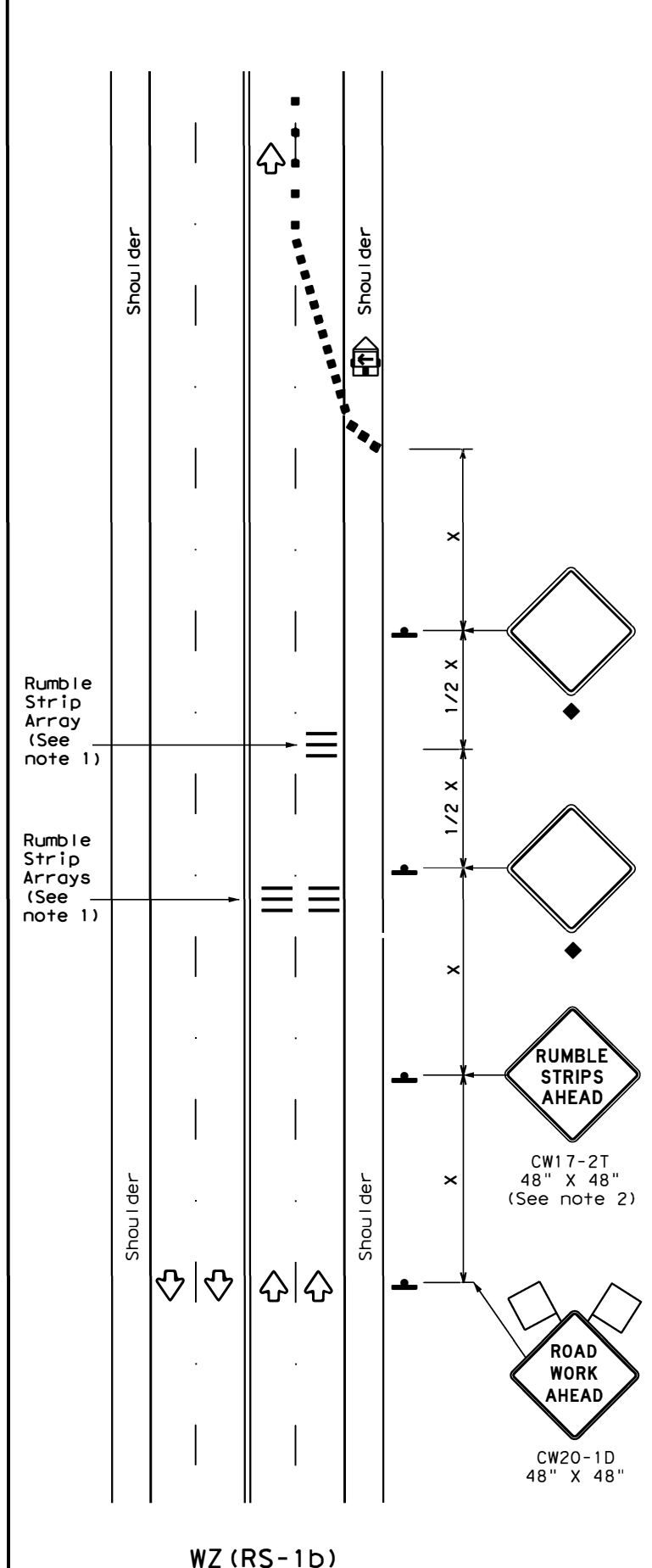
DATE: 3/4/2022 9:55:45 AM
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Warning sign and rumble strip sequence in opposite direction is same as below.

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



RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

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

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

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

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

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

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

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

Texas Department of Transportation
 Traffic Safety Division Standard

TEMPORARY RUMBLE STRIPS

WZ (RS) - 22

FILE: wzrs22.dgn	DW: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	0049	09	094, ETC.	BS 6R, ETC.
2-14 1-22	DIST	COUNTY	SHEET NO.	
4-16	BRY	BRAZOS, ETC.	52	

DATE: 5/3/2022 11:44:22 PM
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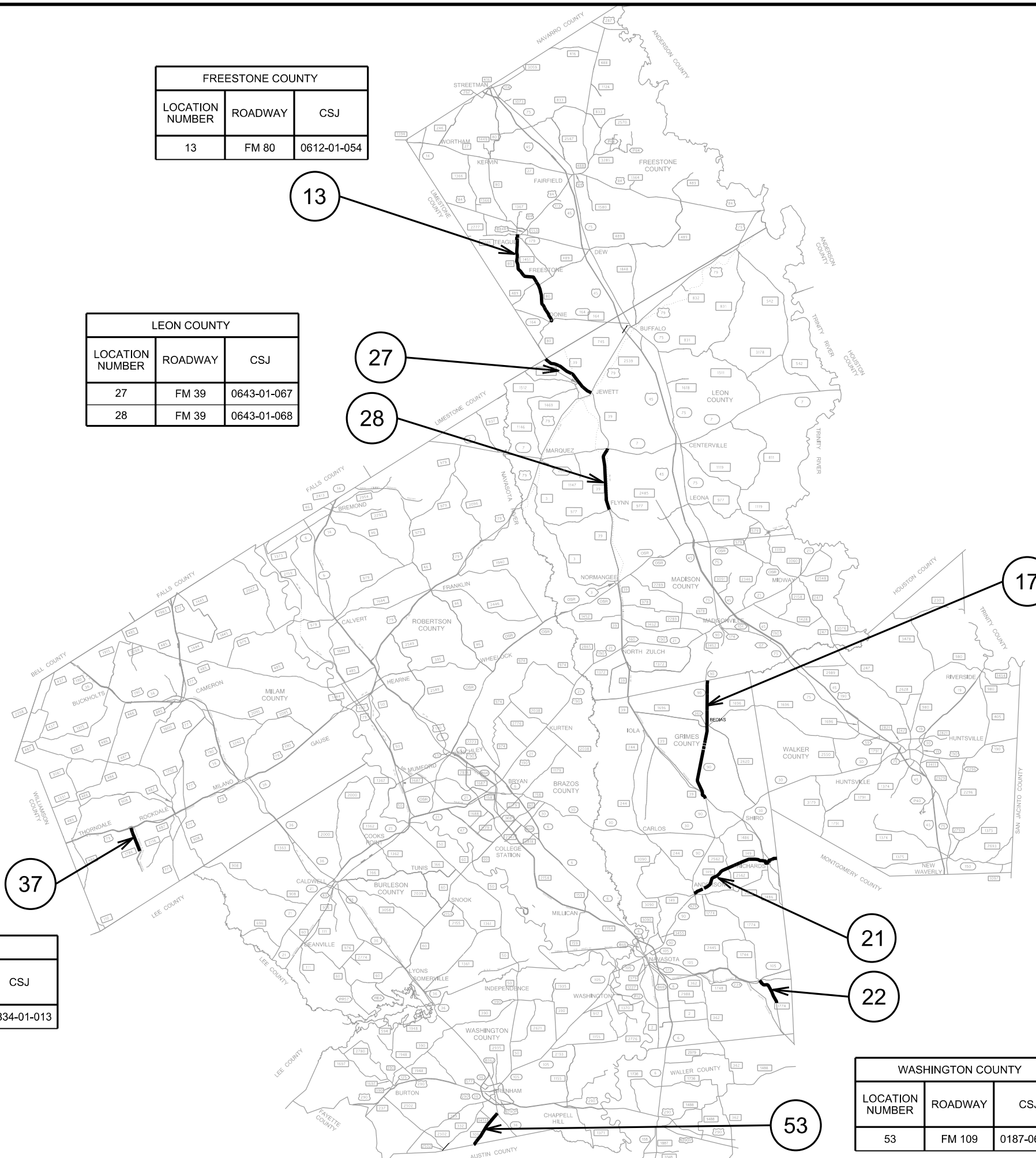
FREESTONE COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
13	FM 80	0612-01-054

LEON COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
27	FM 39	0643-01-067
28	FM 39	0643-01-068

GRIMES COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
17	SH 90	0315-02-058
21	FM 149	0720-01-046
22	FM 1774	1400-02-029

MILAM COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
37	FM 1786	1834-01-013

WASHINGTON COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
53	FM 109	0187-06-029



Drawings Not To Scale

Texas Department of Transportation ©2022
 Bryan District

BNSF RAILROAD CROSSING PROJECT LOCATION MAP

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6	-	BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094, ETC.	53

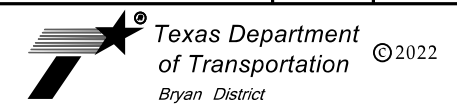
PRINT DATE	REVISION DATE
5/3/2022	

BNSF RAILROAD CROSSING LOCATIONS

Location #	County	CSJ	RRX DOT #	Highway Type & Number	Crossing Position	Primary Operating Railroad	RR Mile Post	RR Subdivision	City or Municipality	# of Regularly Scheduled Trains per Day	# of Switching Movements per Day	Speed of Trains (mph)	ADT (yr, vpd)	Posted Speed Limit (mph)
13	FREESTONE	0612-01-054	597181G	FM 80	AT GRADE	BNSF Railway Co.	197.84	HOUSTON	FREESTONE	8	0	40	2010, 1950	65
13	FREESTONE	0612-01-054	597189L	FM 80	AT GRADE	BNSF Railway Co.	203.95	HOUSTON	TEAGUE	8	0	40	2011, 2500	55
17	GRIMES	0315-02-058	597131D	SH 90	RR UNDER	BNSF Railway Co.	131.08	HOUSTON	SINGLETON	6	0	40	2011, 2200	60
21	GRIMES	0720-01-046	597123L	FM 149	AT GRADE	BNSF Railway Co.	119.42	HOUSTON	RICHARDS	6	0	40	2014, 9842	45
22	GRIMES	1400-02-029	024313H	FM 1774	AT GRADE	BNSF Railway Co.	43.415	CONROE	NAVASOTA	8	0	40	2014, 1085	70
27	LEON	0643-01-067	597173P	FM 39	RR OVER	BNSF Railway Co.	186.588	HOUSTON	JEWETT	8	0	40	2010, 2900	70
28	LEON	0643-01-068	597164R	FM 39	RR UNDER	BNSF Railway Co.	175	HOUSTON	JEWETT	8	0	40	2010, 2700	70
28	LEON	0643-01-068	597159U	FM 39	AT GRADE	BNSF Railway Co.	168.46	HOUSTON	NORMANGEE	8	0	40	2010, 600	55
37	MILAM	1834-01-013	446532M	FM 1786	RR OVER	BNSF Railway Co.	124.97	AUSTIN SUB	ROCKDALE	23	0	60	2011, 2200	70
53	WASHINGTON	0187-06-029	022837M	FM 109	AT GRADE	BNSF Railway Co.	123.042	GALVESTON	BRENHAM	20	0	55	2014, 7497	40

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PRINT DATE	REVISION DATE
5/3/2022	



**BNSF RAILROAD
CROSSING LOCATION
INFORMATION TABLE**

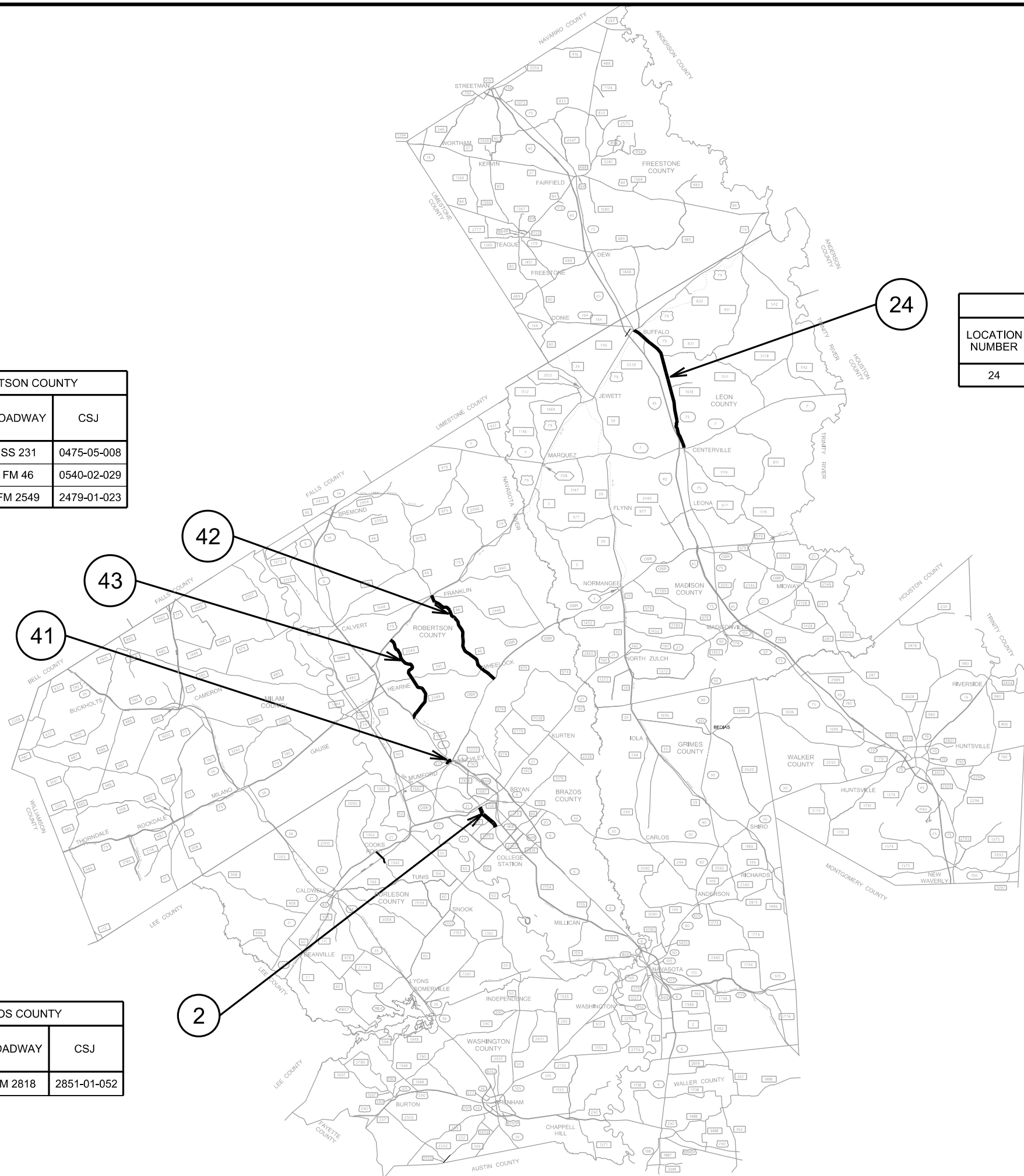
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6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	54

DATE: 5/3/2022 11:48:07 PM
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ROBERTSON COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
41	SS 231	0475-05-008
42	FM 46	0540-02-029
43	FM 2549	2479-01-023

BRAZOS COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
2	FM 2818	2851-01-052

LEON COUNTY		
LOCATION NUMBER	ROADWAY	CSJ
24	SH 75	0166-04-051



Drawings Not To Scale

PRINT DATE	REVISION DATE
5/3/2022	



UNION PACIFIC RAILROAD CROSSING PROJECT LOCATION MAP


FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6	-	BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094, ETC.	55

UNION PACIFIC RAILROAD CROSSING LOCATIONS

Location #	County	CSJ	RRX DOT #	Highway Type & Number	Crossing Position	Primary Operating Railroad	RR Mile Post	RR Subdivision	City or Municipality	# of Regularly Scheduled Trains per Day	# of Switching Movements per Day	Speed of Trains (mph)	ADT (yr, vpd)	Posted Speed Limit (mph)
2	Brazos	2851-01-052	430160A	FM 2818	RR OVER	Union Pacific Railroad	80.250	NAVASOTA SUB	BRYAN	10	0	60	2013, 17400	60
24	LEON	0166-04-051	432355U	SH 75	RR OVER	Union Pacific Railroad	35.220	HEARNE SUB	BUFFALO	10	0	60	2011, 3200	40
41	ROBERTSON	0475-05-008	743184E	SS 231	AT GRADE	Union Pacific Railroad	107.670	BRYAN SUB	HEARNE	4	0	40	2010, 310	55
42	ROBERTSON	0540-02-029	432247X	FM 46	AT GRADE	Union Pacific Railroad	76.83	HEARNE SUB	FRANKLIN	8	0	60	2010, 4400	30
43	ROBERTSON	2479-01-023	743179H	FM 2549	AT GRADE	Union Pacific Railroad	114.710	BRYAN SUB	HEARNE	4	0	40	2010, 1150	70
43	ROBERTSON	2479-01-023	432260L	FM 2549	AT GRADE	Union Pacific Railroad	83.880	HEARNE SUB	HEARNE	8	0	60	2010, 270	55

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PRINT DATE	REVISION DATE
5/3/2022	



Texas Department
of Transportation ©2022
Bryan District

**UNION PACIFIC RAILROAD
CROSSING LOCATION
INFORMATION TABLE**

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6		BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	56

DATE: 5/3/2022 3:48:42 PM
 FILE: G:\004909\094\SHEETS\RAILROAD\RAILROAD SCOPE OF WORK (BNSF).dgn
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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

DOT #: SEE LOCATION CHART
 Crossing Type: ** SEE LOCATION CHART
 RR Company Owning Track at Crossing: BNSF Railway
 Operating RR Company at Track: BNSF Railway
 RR MP: SEE LOCATION CHART
 RR Subdivision: SEE LOCATION CHART
 City: SEE LOCATION CHART
 County: SEE LOCATION CHART
 CSJ at this Crossing: SEE LOCATION CHART
 Highway/Roadway name crossing the railroad: SEE LOCATION CHART
 # of regularly scheduled trains per day at this crossing: SEE LOCATION CHART
 # of switching movements per day at this crossing: SEE LOCATION CHART
 % of estimated contract cost of work within railroad ROW: .1 % per location

Scope of Work at this Crossing to Be Performed by State Contractor:
The profile markings will be placed in accordance with the following Standard Sheets: PM(1)-20, PM(2)-20, RS(2)-13 Option 3, RS(3)-13 Option 4, and RS(4)-13 Option 6.
This scope of work does not remove existing striping.

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

RAILROAD FLAGGING WILL BE REQUIRED FOR ONE-LANE TWO-WAY TRAFFIC CONTROL OR CONTRAFLOW OPERATIONS WITHIN THE RAILROAD ROW

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 1 per each location
 On this project, night or weekend flagging is:
 Expected
 Not Expected
 Flagging services will be provided by:
 Railroad Company: TxDOT will pay flagging invoices
 Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT
 Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30 day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR - UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 - UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF - BNSF.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging

KCS - KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 - Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

- Not Required
 Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:
 Required
 Not Required

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.
 The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.
 Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000 combined single limit

Railroad Protective Liability	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge Projects	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Projects	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:
 Not Required
 Required: TxDOT CST to assist in obtaining with the UPRR (see Item 5, Article 8.3)
 Required: UPRR Maintenance Consent Letter. TxDOT CST to assist.
 Required: Contractor to obtain (see Item 5, Article 8.4)
 With the following railroad companies: BNSF Railway

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

<http://www.txdot.gov/inside-txdot/division/rail/samples.html>

Approved ROE Agreement templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed ROE agreement between the Contractor and the Railroad if required on project.

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:
 Not Required
 Required


See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
 Call BNSF Railway (BNSF)
 Railroad Emergency Line at 800-832-5452
 Location: See Railroad Crossing Location Information Table
 RR Milepost: See Railroad Crossing Location Information Table
 Subdivision: See Railroad Crossing Location Information Table

				Rail Division	
RAILROAD SCOPE OF WORK PROJECT SPECIFIC DETAILS (BNSF)					
FILE:	RR_Scope_of_Work.dgn	DNR TxDOT	CK:	DW:	CK:
© TxDOT	June 2014	CONT	SECT	JOB	HIGHWAY
9/2021		REVISIONS		0049 09	094, ETC. BS 6R
		DIST	COUNTY	SHEET NO.	
		BRY	BRAZOS, ETC	57	

DATE: 5/4/2022 10:53:38 AM
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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

DOT #: SEE LOCATION CHART
 Crossing Type: ** SEE LOCATION CHART
 RR Company Owning Track at Crossing: UNION PACIFIC RAILROAD
 Operating RR Company at Track: UNION PACIFIC RAILROAD
 RR MP: SEE LOCATION CHART
 RR Subdivision: SEE LOCATION CHART
 City: SEE LOCATION CHART
 County: SEE LOCATION CHART
 CSJ at this Crossing: SEE LOCATION CHART
 Highway/Roadway name crossing the railroad: SEE LOCATION CHART
 # of regularly scheduled trains per day at this crossing: SEE LOCATION CHART
 # of switching movements per day at this crossing: SEE LOCATION CHART
 % of estimated contract cost of work within railroad ROW: .1 % per location

Scope of Work at this Crossing to Be Performed by State Contractor:
The profile markings will be placed in accordance with the following Standard Sheets: PM(1)-20, PM(2)-20, RS(2)-13 Option 3, RS(3)-13 Option 4, and RS(4)-13 Option 6.
This scope of work does not remove existing striping.

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

RAILROAD FLAGGING WILL BE REQUIRED FOR ONE-LANE TWO-WAY TRAFFIC CONTROL OR CONTRAFLOW OPERATIONS WITHIN THE RAILROAD ROW

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 Not Expected
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Contact Information for Flagging:

UPRR - UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 - UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF - BNSF.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging

KCS - KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 - Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

- Not Required
 Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:
 Required
 Not Required

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.
 The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.
 Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000 combined single limit

Railroad Protective Liability	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge Projects	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Projects	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:
 Not Required
 Required: TxDOT CST to assist in obtaining with the UPRR (see Item 5, Article 8.3)
 Required: UPRR Maintenance Consent Letter. TxDOT CST to assist.
 Required: Contractor to obtain (see Item 5, Article 8.4)
 With the following railroad companies: UNION PACIFIC RAILROAD

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

<http://www.txdot.gov/inside-txdot/division/rail/samples.html>

Approved ROE Agreement templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed ROE agreement between the Contractor and the Railroad if required on project.

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:
 Not Required
 Required


See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call Union Pacific Railroad (UPRR)
Railroad Emergency Line at 888-877-7267
Location: See Railroad Crossing Location Information Table
RR Milepost: See Railroad Crossing Location Information Table
Subdivision: See Railroad Crossing Location Information Table

 Texas Department of Transportation				Rail Division	
RAILROAD SCOPE OF WORK PROJECT SPECIFIC DETAILS (UNION PACIFIC)					
FILE:	RR_Scope_of_Work.dgn	DNR TxDOT	CK:	DNR	CK:
© TxDOT	June 2014	CONT	SECT	JOB	HIGHWAY
9/2021		REVISIONS		0049 09	094, ETC. BS 6R
		DIST	COUNTY	SHEET NO.	
		BRY	BRAZOS, ETC	58	

PART 1 - GENERAL

1.01 DESCRIPTION

This project includes construction work within the right of way and/or properties of the Railroad and adjacent to its tracks, wire lines and other facilities. These sheets describe the minimum special requirements for coordination with the Railroad when working upon, over or under Railroad Right of Way or when impacting current or future Railroad operations. Coordinate with the Railroad while performing the work outlined herein, and afford the same cooperation with the Railroad as with TxDOT. Complete all submittals and work in accordance with TxDOT Standard Specifications, Railroad Guidelines and AREMA recommendations as modified by these minimum special requirements or as directed in writing by the Railroad Designated Representative.

For purposes of this project, the Railroad Designated Representative is the person or persons designated by the Railroad Manager of Industry and Public Projects to handle specific tasks related to the project.

1.02 REQUEST FOR INFORMATION / CLARIFICATION

Submit Requests for Information ("RFI") involving work within any Railroad Right of Way to the TxDOT Engineer. The TxDOT Engineer will submit the RFI to the Railroad Designated Representative for review and approval for RFI's corresponding to work within Railroad Right of Way. Allow six (6) weeks total time for review and approval, which includes four (4) weeks for review and approval by the Railroad.

1.03 PLANS / SPECIFICATIONS

TxDOT has received written Railroad approval of the plans and specifications for this project. Any revisions or changes in the plans after award of the Contract must have the approval of TxDOT and the Railroad.

PART 2 - UTILITIES AND FIBER OPTIC

Construct all utility installations in accordance with current AREMA recommendations, Railroad, TxDOT and owning utility specifications and requirements. Railroad general guidelines can be found on the Railroad website or by contacting the Railroad Designated Representative.

PART 3 - CONSTRUCTION

3.01 GENERAL

- A. Perform all work in compliance with all applicable Railroad, Federal Railroad Administration (FRA), and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of railroad train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.
- B. Construction activities within 15 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 15 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.
- C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor machinery and materials at least 50 feet from the Railroad's nearest track.
- D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with Railroad approval.
- E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.
- F. Railroad requirements do not allow work within 50 feet of track centers when a train passes the work site and all personnel must clear the area within 50 feet of the track centerline and secure all equipment. Additional allowances may be pursued as outlined in 3.02 and 3.03.
- G. All permanent clearances shall be verified before project closing.

3.02 RAILROAD OPERATIONS

- A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.
- B. All railroad tracks within and adjacent to the contract site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.
- C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:
 - 1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a railroad flag person will be required. At the direction of the railroad flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.
 - 2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. Railroad flag persons will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

- A. Do not perform any work within Railroad Right of Way without a valid executed Right of Entry Agreement if required on this project.
- B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right of Way and observe the Railroad's rules and regulations with respect thereto.
- C. Perform all work upon Railroad Right of Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.15 for railroad flagging requirements.
- D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
 - 1. Exactly what the work entails.
 - 2. The days and hours that work will be performed.
 - 3. The exact location of work, and proximity to the tracks.
 - 4. The type of window requested and the amount of time requested.
 - 5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.
- E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

3.04 INSURANCE

Do not begin work upon or over Railroad Right of Way until furnishing the Railroad with the insurance policies, binders, certificates and endorsements required by the "Contractor's Right of Entry Agreement", and until the Railroad Designated Representative has advised TxDOT that such insurance is in accordance with the Agreement.

3.05 RAILROAD SAFETY ORIENTATION

- A. Complete the railroad course "Orientation for Contractor's Safety", and maintain current registration prior to working on railroad property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

"UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other railroads. Refer to Railroad specific contractor right of entry for training information."
- B. Know and follow the "Contractor's Right of Entry Agreement" EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

3.06 COOPERATION

The Railroad will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of Railroad Right of Way in performing the work.

3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES


Abide by the following minimum temporary clearances during the course of construction:
A. 15' - 0" (BNSF) (UPRR) and 14' - 0" (KCS) horizontal from centerline of track
B. 22' (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

For construction clearance less than listed above, obtain local Railroad Operating Unit review and approval.

3.08 APPROVAL OF REDUCED CLEARANCES

- A. Maintain minimum track clearances during construction as specified in Section 3.07.
- B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.
- C. Do not commence work involving an approved infringement without receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

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		Rail Division	
RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS			
FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT
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REVISIONS March 2020	0049	09	094, ETC.
	DIST	COUNTY	SHEET NO.
	BRY	BRAZOS, ETC	59

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3.09 MAINTENANCE OF RAILROAD FACILITIES

- A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.
- B. Perform all such maintenance and repair of damages due to the Contractor's operations at Contractor's expense.
- C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the project site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.10 SITE INSPECTIONS BY RAILROAD'S DESIGNATED REPRESENTATIVE

- A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
 1. Pre-construction meetings.
 2. Pile driving/drilling of caissons or drilled shafts.
 3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
 4. Erection of precast concrete or steel bridge superstructure.
 5. Placement of waterproofing (prior to placing ballast on bridge deck).
 6. Completion of the bridge structure.
- B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.
- C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.11 RAILROAD REPRESENTATIVES

Railroad representatives, conductors, flag person or watch person will be provided by the Railroad at expense of TxDOT to protect Railroad facilities, property and movements of its trains or engines. In general, the Railroad will furnish such personnel or other protective services as follows:

- A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.
- B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other railroad facilities may be subject to settlement or movement.
- C. During any clearing, grubbing, excavation or grading in proximity to railroad facilities, which, in the opinion of the Railroad Designated Representative, may endanger railroad facilities or operations.
- D. During any Contractor's operations when, in the opinion of the Railroad Designated Representative, railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.
- E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.12 COMMUNICATIONS AND SIGNAL LINES

If required, the Railroad will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by the Railroad's forces in connection with its operation at expense of TxDOT. This work by the Railroad will be done by its own forces and it is not a part of the Work under this Contract.

3.13 TRAFFIC CONTROL

Coordinate any operations that control traffic across or around railroad facilities with the Railroad Designated Representative.

3.14 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

- A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".
- B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

UPRR 1-800-336-9193
 7:00 AM to 9:00 PM CST Monday-Friday except holidays,
 staffed 24 hrs/day for emergencies
 48 hrs notice required

BNSF 1-800-533-2891
 24 hour number
 5 working days notice required

KCS 1-800-344-8377
 Texas One Call, a 24 hour number
 48 hrs notice required, excluding weekends and holidays

If a telecommunications system is buried anywhere on or near railroad property, coordinate with TxDOT, the Railroad and the Telecommunication Company(ies) to arrange for relocation or protective measures prior to beginning work on or near railroad property. Refer to the project General Notes for additional information.

- C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of 1/4 inch vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

3.15 RAILROAD FLAGGING

Per the Right of Entry Agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor's work and at least 30 working days in advance of any Contractor's work in which any person or equipment will be within 25 feet of nearest rail or as specified in the Contractor Right of Entry (CROE).

3.16 CLEANING OF RIGHT-OF-WAY

When work is complete, remove all tools, implements, and other materials brought into Railroad Right of Way and leave the right of Way in a clean and presentable condition to the satisfaction of TxDOT and the Railroad.

Texas Department of Transportation				Rail Division
RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS				
FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT October 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS March 2020	0049	09	094, ETC.	BS 6R
DIST	COUNTY		SHEET NO.	
BRY	BRAZOS, ETC		60	

During the planning phase of project development the following environmental permits, issues and commitments have been developed during coordination with resource agencies, local governmental entities and the general public. Any change orders and/or deviations from the final design must be reported to the Engineer prior to the commencement of construction activities. As additional environmental clearances may be required.

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

Required Action No Action Required

Action No.

Refer to 2014 TxDOT Standard Specification Items:
 7.7.2 Texas Pollutant Discharge Elimination System (TPDES) Permits and Storm Water Pollution Prevention Plans (SWP3)
 506 Temporary Erosion, Sedimentation and Environmental Controls
 734 Litter Removal
 735 Debris Removal
 738 Cleaning and Sweeping Highways

II. WORK IN OR NEAR STREAMS, WATER BODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas. The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

- No Permit Required
- Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)
- Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)
- Individual 404 Permit Required
- Other Nationwide Permit Required: NWP#

Required Actions: List locations of waters of the US.

Information regarding the USACE Nationwide Permit Program can be found at:
<http://www.swf.usace.army.mil/Missions/Regulatory/Permitting/GeneralPermits.aspx>

Refer to 2014 TxDOT Standard Specification Items:
 7.7.3 Work in Waters of the United States
 7.7.6 Project Specific Locations
 496 Removing Structures
 506 Temporary Erosion, Sedimentation and Environmental Controls
 506.4.3.4 Restricted Activities and Required Precautions

III. CULTURAL RESOURCES

Refer to 2014 TxDOT Standard Specification Item 7.7.1 Cultural Resources, in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) immediately cease work in the vicinity and contact the Engineer.

Required Action No Action Required

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical.

Required Action No Action Required

Refer to 2014 TxDOT Standard Specification Items:
 160 Topsoil 730 Roadside Mowing
 161 Compost 751 Landscape Maintenance
 162 Sodding for Erosion Control 752 Tree and Brush Removal
 164 Seeding for Erosion Control
 166 Fertilizer
 168 Vegetative Watering
 169 Soil Retention Blankets
 170 Irrigation System
 180 Wildflower Seeding
 192 Landscape Planting
 193 Landscape Establishment
 506 Temporary Erosion, Sedimentation, and Environmental Controls

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

Required Action No Action Required

Action No.

1. Do not kill snakes or other animals!
2. Do not destroy nests on structures within the project limits.

Temporarily prevent the building of nests on any structures that require work within the project limits during the construction timeframe.

This can be accomplished by application of bird repellent gel, netting, or removal by hand every 3-4 days.

The nesting/breeding season for migratory birds is March 1 - September 1.

Under the Migratory Bird Treaty Act (MBTA), it is unlawful by any means or manner, to pursue, hunt, take, capture, [or] kill any migratory birds except as permitted by regulation (16 U.S.C. 703-704). Neither the statute nor its implementing regulations (Title 50, Code of Federal Regulations, Parts 10, 13, 21) exempt unintentional take of migratory birds. The unauthorized take (e.g. killing, capturing, or collecting) of migratory birds is a strict liability criminal offense that does not require knowledge or specific intent on the part of the offender. Even when engaged in an otherwise lawful activity for which the intent is not the killing of migratory birds, a violation may be committed.
3. If caves or sinkholes are discovered, cease work in the immediate area to verify the presence or absence of wildlife.
4. BMPs for T and E species will be discussed at the preconstruction meeting.

The Bryan District Environmental Section can be contacted at (979) 778-9766 to assist with the removal of wildlife that will not leave on their own with gentle persuasion.

Refer to 2014 TxDOT Standard Specification Item:
 7.7.6 Project Specific Locations

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used. Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act. Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the Engineer 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 discoverd on site. Hazardous Materials or Contamination Issues Specific to this Project:

Required Action No Action Required

Action No.

1. The Clean Water Act, in part, requires that any spill of oil that could enter a waterway, as defined by the Act, and that violates applicable water quality standards or causes a film or sheen on water require reporting to the TCEQ and local authorities.
Contact the Bryan District Environmental Section at 979-778-9766.

If potentially hazardous material and/or contaminated media (i.e. soil, groundwater, surface water, sediment, building materials) are unexpectedly encountered during construction, immediately cease work in the vicinity and contact the Engineer.

Refer to 2014 TxDOT Standard Specification Items:
 6.10 Hazardous Materials
 7.12 Responsibility for Hazardous Materials

VII. OTHER ENVIRONMENTAL ISSUES

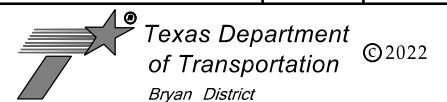
Required Action No Action Required

Refer to 2014 TxDOT Standard Specification Items:
 7.7.6 Project Specific Locations
 751 Landscape Maintenance

Contacts:

Mr. John D. Moravec
 Environmental Coordinator
 Texas Department of Transportation
 Bryan District
 2591 N. Earl Rudder Freeway
 Bryan, TX 77803
 Phone: (979) 778-9766
 Fax: (979) 778-9702
 e-mail: John.Moravec@txdot.gov

PRINT DATE	REVISION DATE
2/22/2022	02/12/2015



ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC)

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER	
6	---	BS 6R, ETC.	
STATE	DISTRICT	COUNTY	
TEXAS	BRYAN	BRAZOS, ETC.	
CONTROL	SECTION	JOB	SHEET NO.
0049	09	094,ETC.	61