

**INDEX OF SHEETS**

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

**STATE OF TEXAS  
DEPARTMENT OF TRANSPORTATION**

**PLANS OF PROPOSED  
STATE HIGHWAY IMPROVEMENT**

FEDERAL AID PROJECT NO. F 2025(255)

**FM 2493,Etc  
SMITH COUNTY, Etc**

LIMITS: FROM TOLL 49 TO FM 346

NET LENGTH OF PROJECT = 1,380,192 FT.= 261.4 MI.

FOR THE CONSTRUCTION OF SEAL COAT TYPE WORK  
CONSISTING OF ONE COURSE SURFACE TREATMENT AND PAVEMENT MARKINGS

NET LENGTH OF PROJECT = 1,250,198.00 FT.= 236.78 MI.

FOR THE CONSTRUCTION OF TRAFFIC CONTROL DEVICES  
CONSISTING OF THERMOPLASTIC & PROFILE PAVEMENT MARKINGS



EXCEPTIONS: CONCRETE BRIDGES/ INTERSECTIONS  
EQUATIONS: N/A  
RAILROAD CROSSINGS: 11  
NOT TO SCALE

FEDERAL AID PROJECT NO.			
F 2025(255)			
CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH,Etc		1

FINAL PLANS

LETTING DATE: \_\_\_\_\_

DATE CONTRACTOR BEGAN WORK: \_\_\_\_\_

DATE WORK WAS COMPLETED & ACCEPTED: \_\_\_\_\_

FINAL CONTRACT COST: \$ \_\_\_\_\_

CONTRACTOR : \_\_\_\_\_

USED \_\_\_\_ OF \_\_\_\_ ALOTTED DAYS: \_\_\_\_\_

FINAL AS BUILT PLANS

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

DATE:

AREA ENGINEER

\* REQUIRED SIGNS SHALL BE IN ACCORDANCE WITH  
BC (1)- 21 THRU BC (12)- 21 AND THE "TEXAS  
MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".



RECOMMENDED FOR LETTING: **10/4/2024**  
DocuSigned by:  
**Rolando Mendez**  
DISTRICT DESIGN ENGINEER

APPROVED FOR LETTING: **10/4/2024**  
DocuSigned by:  
**Heaven M. Hill**  
DISTRICT ENGINEER

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION,  
SEPTEMBER 1, 2024 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS,  
SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL  
FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, OCTOBER 23,2023)

DATE: 10/1/2024 3:32:58 PM  
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CK: DW: CK: DW: CK: DW:

## GENERAL

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13 - 16	LOCATION TABLES
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## TRAFFIC CONTROL PLAN

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55 - 58	TCP(3-1)-13, TCP(3-2)-13, TCP(3-3)-14 AND TCP(3-4)-13
59 - 66	TCP(SC-1)-22 THRU TCP(SC-8)-22
67	WZ (RS)-22

## ROADWAY DETAILS

SHEET NO.	DESCRIPTION
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72 - 76	PM(1)-22 THRU PM(3)-22, PM(4)-22A(MOD), PM(5)-22
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84	BLPM-10

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SHEET NO.	DESCRIPTION
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SHEET NO.	STANDARDS
98	EC (1)-16

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

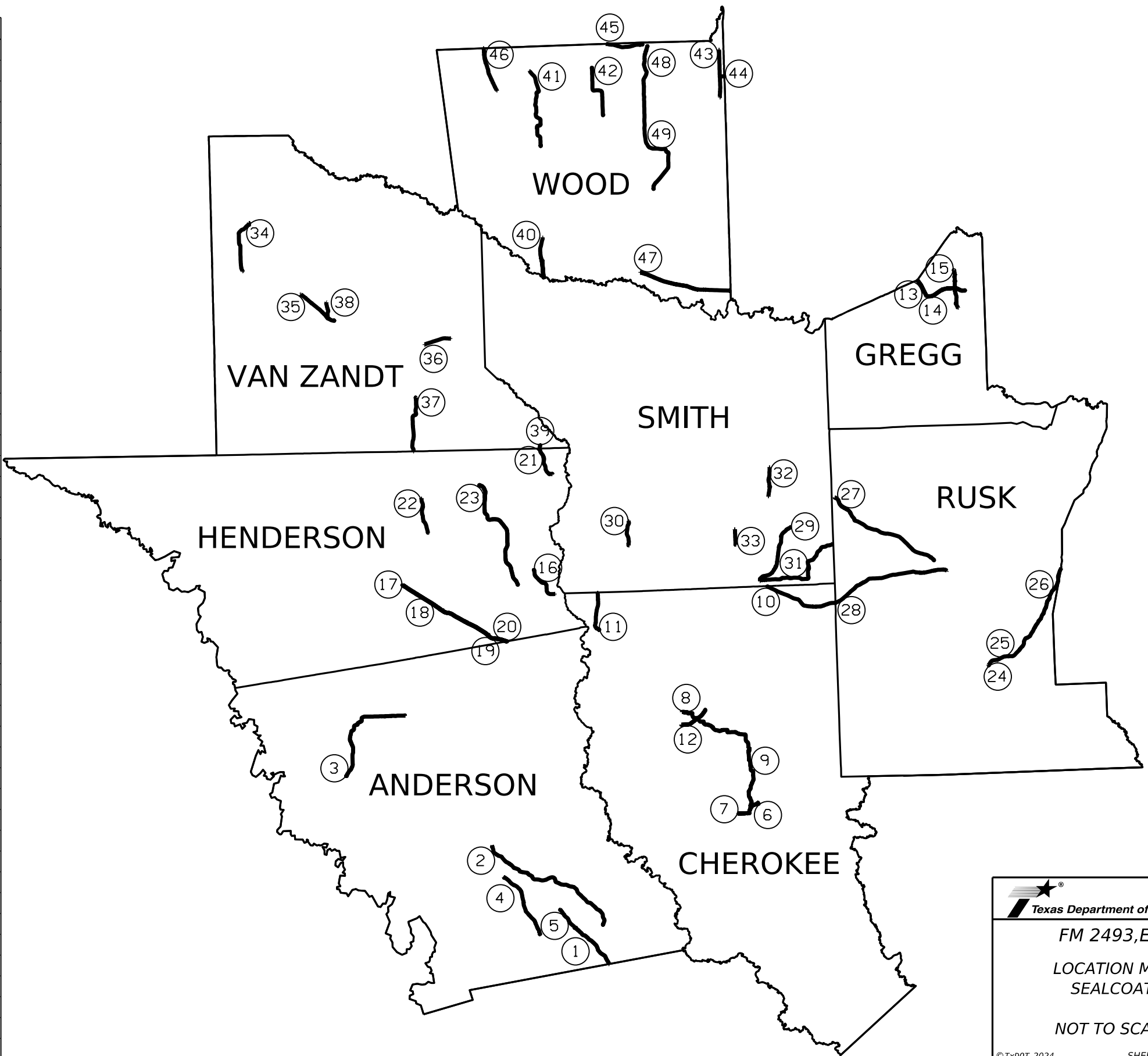



10/03/2024

<b>FM 2493, Etc</b> <b>SUPPLEMENTAL INDEX OF SHEETS</b>			
<small>© TXDOT 2024 SHEET 1 OF 1</small>			
CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH, Etc	2	

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REF	CTRL	SECT	JOB	COUNTY	ROADWAY
1	1875	04	002	ANDERSON	FM 2022
2	0891	02	022	ANDERSON	FM 323
3	0458	03	011	ANDERSON	FM 860
4	2272	01	009	ANDERSON	FM 2419
5	1875	05	002	ANDERSON	FM 2022
6	0123	03	047	CHEROKEE	US 84
7	0123	02	047	CHEROKEE	US 84
8	1124	01	012	CHEROKEE	FM 768
9	1124	02	006	CHEROKEE	FM 768
10	0591	03	010	CHEROKEE	FM 13
11	1764	02	008	CHEROKEE	FM 346
12	3201	01	009	CHEROKEE	SL 456
13	1385	02	025	GREGG	SH 300
14	2158	01	009	GREGG	FM 2275
15	0392	08	024	GREGG	SS 502
16	3574	01	003	HENDERSON	FM 3506
17	0198	01	034	HENDERSON	US 175
18	0198	02	036	HENDERSON	US 175
19	0198	02	037	HENDERSON	US 175
20	0198	01	038	HENDERSON	US 175
21	2840	02	006	HENDERSON	FM 2010
22	2986	01	003	HENDERSON	FM 1803
23	1789	01	015	HENDERSON	FM 314
24	0706	02	025	RUSK	FM 1798
25	1669	02	012	RUSK	FM 1798
26	0424	05	028	RUSK	FM 1798
27	0592	02	018	RUSK	SH 323
28	0591	02	023	RUSK	FM 13
29	0378	03	019	SMITH	SH 135
30	0191	03	089	SMITH	FM 2493
31	0491	01	011	SMITH	FM 15
32	2623	01	006	SMITH	FM 2607
33	3402	01	002	SMITH	FM 3341
34	0646	02	034	VAN ZANDT	FM 47
35	0245	01	035	VAN ZANDT	SH 64
36	0522	03	027	VAN ZANDT	FM 16
37	1099	01	009	VAN ZANDT	FM 773
38	1171	02	016	VAN ZANDT	FM 859
39	2840	01	006	VAN ZANDT	FM 2010
40	0190	03	088	WOOD	US 69
41	2409	02	007	WOOD	FM 2225
42	2794	01	005	WOOD	FM 1643
43	1674	01	002	WOOD	FM 1647
44	1579	01	002	WOOD	FM 2455
45	0767	04	008	WOOD	FM 852
46	0401	02	036	WOOD	SH 154
47	0096	02	052	WOOD	US 80
48	0492	02	022	WOOD	FM 312
49	0492	02	023	WOOD	FM 312

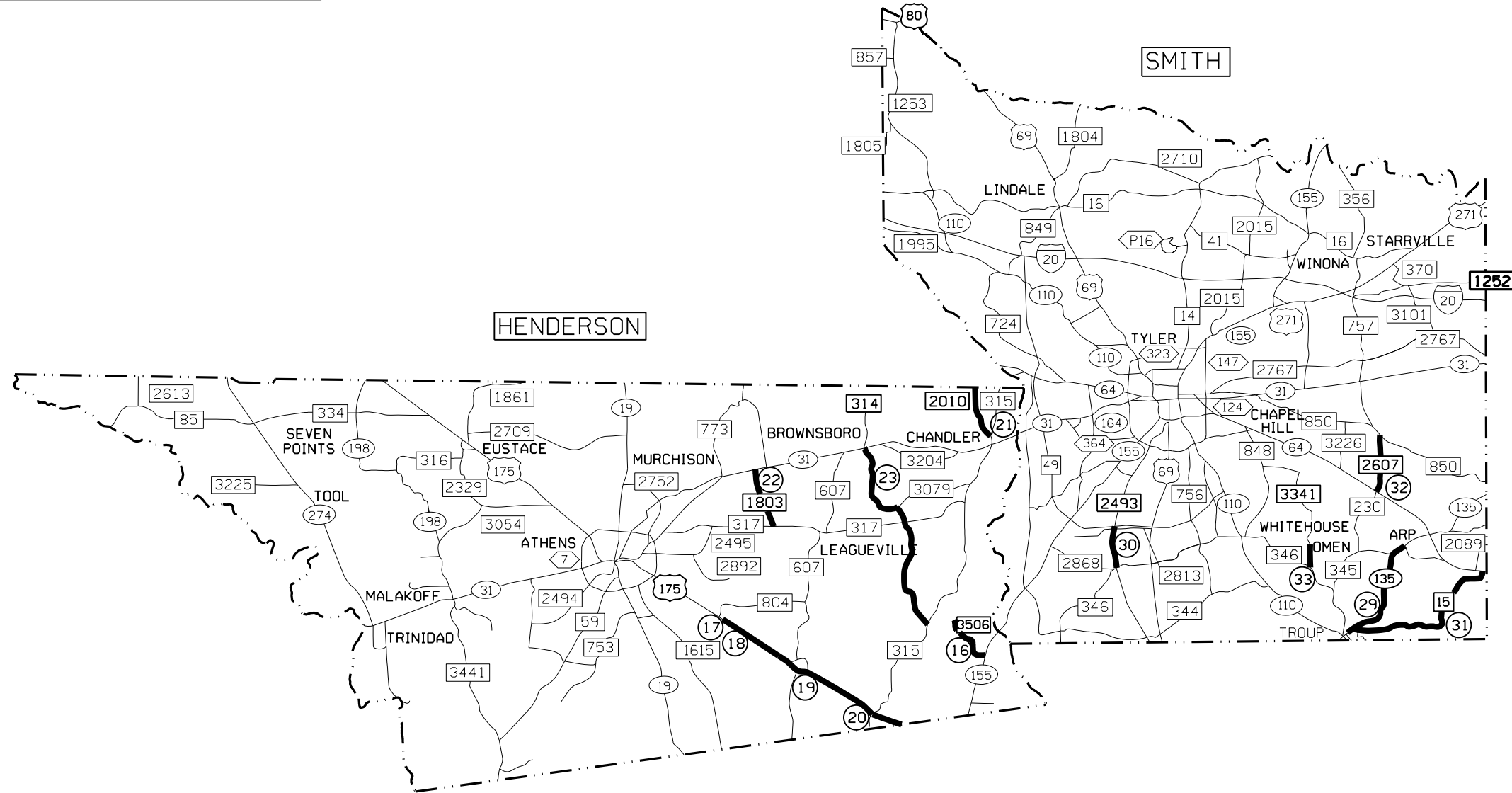



 Texas Department of Transportation  
**FM 2493, Etc**  
**LOCATION MAP**  
**SEALCOAT**  
**NOT TO SCALE**  
 © TxDOT 2024 SHEET 1 OF 1  

CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH, Etc		3



REF NO.	COUNTY	ROADWAY	GRADE
16	HENDERSON	FM 3506	3
17	HENDERSON	US 175E	4
18	HENDERSON	US 175E	4
19	HENDERSON	US 175E	4
20	HENDERSON	US 175E	4
21	HENDERSON	FM 2010	4
22	HENDERSON	FM 1803	4
23	HENDERSON	FM 314	3
29	SMITH	SH 135	4
* 30	SMITH	FM 2493	4
31	SMITH	FM 15	3
32	SMITH	FM 2607	3
33	SMITH	FM 3341	4



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**Texas Department of Transportation**

FM 2493, Etc

LOCATION MAP SEALCOAT

NOT TO SCALE

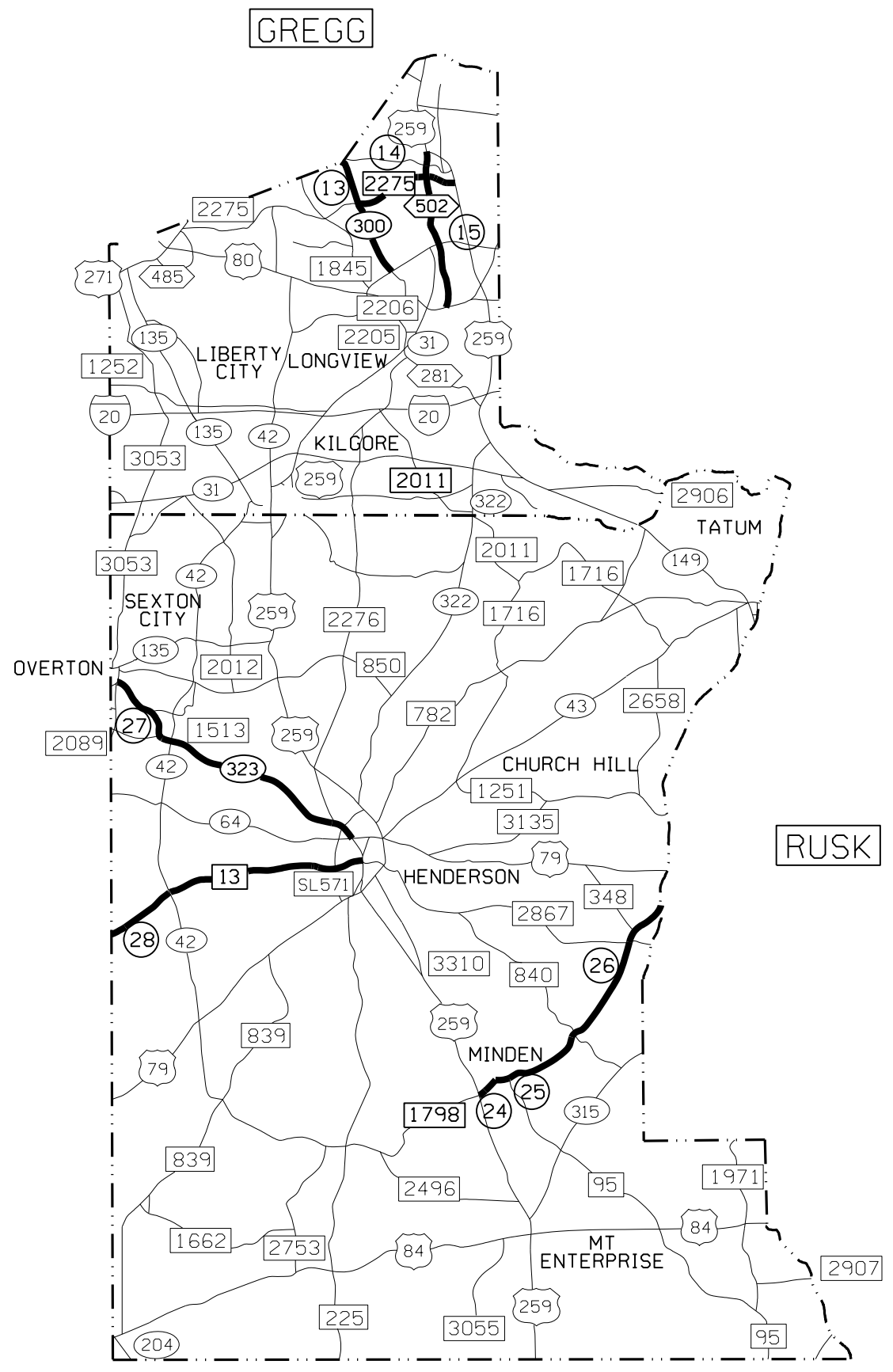
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CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH, Etc	5	



CK: DW: CK: DW:

REF NO.	COUNTY	ROADWAY	GRADE
* 13	GREGG	SH 300	4
* 14	GREGG	FM 2275	4
* 15	GREGG	SS 502	4
24	RUSK	FM 1798	3
25	RUSK	FM 1798	3
26	RUSK	FM 1798	3
27	RUSK	FM 323	3
28	RUSK	FM 13	3



Notes:  
 ALL STOCKPILE LOCATIONS SHALL BE SIGNED  
 WITH CONTRACTORS NAMES AND PROJECT NUMBER  
 \* DESIGNATED HIGH TRAFFIC VOLUME AREA

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**Texas Department of Transportation**

FM 2493, Etc

LOCATION MAP SEALCOAT

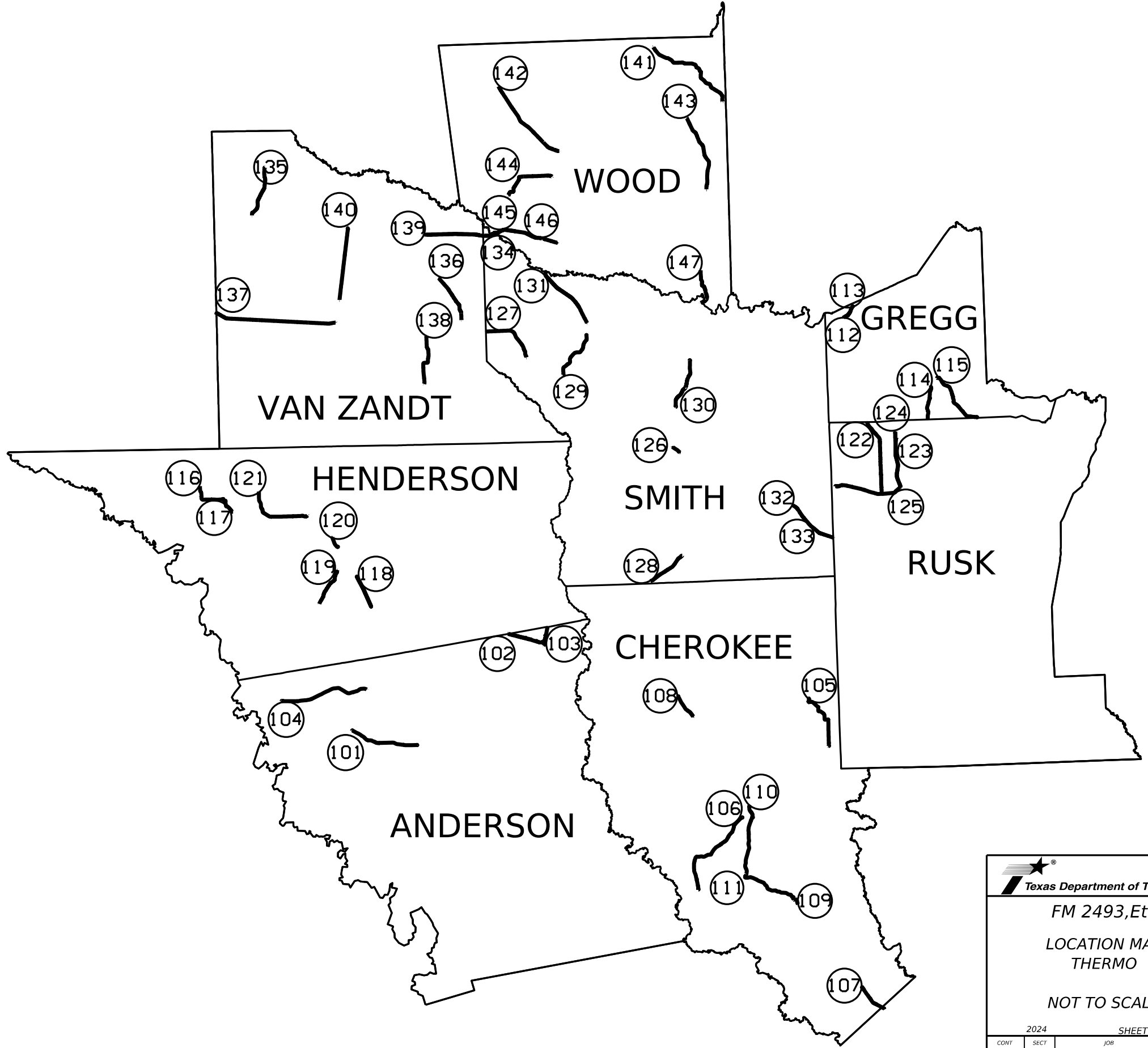
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CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH, Etc	7	

CK: DW: CK: DW:

REF	CTRL	SECT	JOB	COUNTY	ROADWAY
101	2195	02	000	ANDERSON	FM 2330
102	0198	03	000	ANDERSON	US 175
103	0520	08	000	ANDERSON	SH 155
104	3019	01	000	ANDERSON	FM 2961
105	1150	02	000	CHEROKEE	FM 235
106	1929	01	000	CHEROKEE	FM 1857
107	0199	03	000	CHEROKEE	US 69
108	0199	01	000	CHEROKEE	US 69
109	0199	02	000	CHEROKEE	US 69
110	0345	09	000	CHEROKEE	FM 752
111	2066	01	000	CHEROKEE	FM 752
112	0165	03	000	GREGG	US 271
113	0248	06	000	GREGG	US 271
114	2159	01	000	GREGG	FM 2276
115	1932	01	000	GREGG	FM 2011
116	1668	01	000	HENDERSON	SH 198
117	0646	05	000	HENDERSON	SH 198
118	0108	04	000	HENDERSON	SH 19
119	0458	01	000	HENDERSON	FM 59
120	0197	06	000	HENDERSON	BU175G
121	2196	01	000	HENDERSON	RM 2329
122	1933	02	000	RUSK	FM 2012
123	0138	02	000	RUSK	US 259
124	0138	02	000	RUSK	BU 259
125	1163	02	000	RUSK	FM 850
126	0245	16	000	SMITH	SL 124
127	0505	02	000	SMITH	SH 110
128	0927	01	000	SMITH	FM 344
129	0429	05	000	SMITH	FM 849
130	1934	02	000	SMITH	FM 2015
131	0190	04	000	SMITH	US 69
132	0245	06	000	SMITH	SH 64
133	0245	07	000	SMITH	SH 64
134	0095	08	000	SMITH	US 80
135	0646	01	000	VAN ZANDT	FM 47
136	0505	01	000	VAN ZANDT	SH 110
137	0522	02	000	VAN ZANDT	SH 243
138	1099	04	000	VAN ZANDT	FM 773
139	0095	07	000	VAN ZANDT	US 80
140	0108	01	000	VAN ZANDT	SH 19
141	0767	04	000	WOOD	FM 852
142	0401	02	000	WOOD	SH 154
143	2958	02	000	WOOD	FM 2896
144	1111	01	000	WOOD	FM 779
145	0095	09	000	WOOD	US 80
146	0096	01	000	WOOD	US 80
147	0492	03	000	WOOD	FM 14



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**Texas Department of Transportation**

FM 2493,Etc  
 LOCATION MAP  
 THERMO  
 NOT TO SCALE

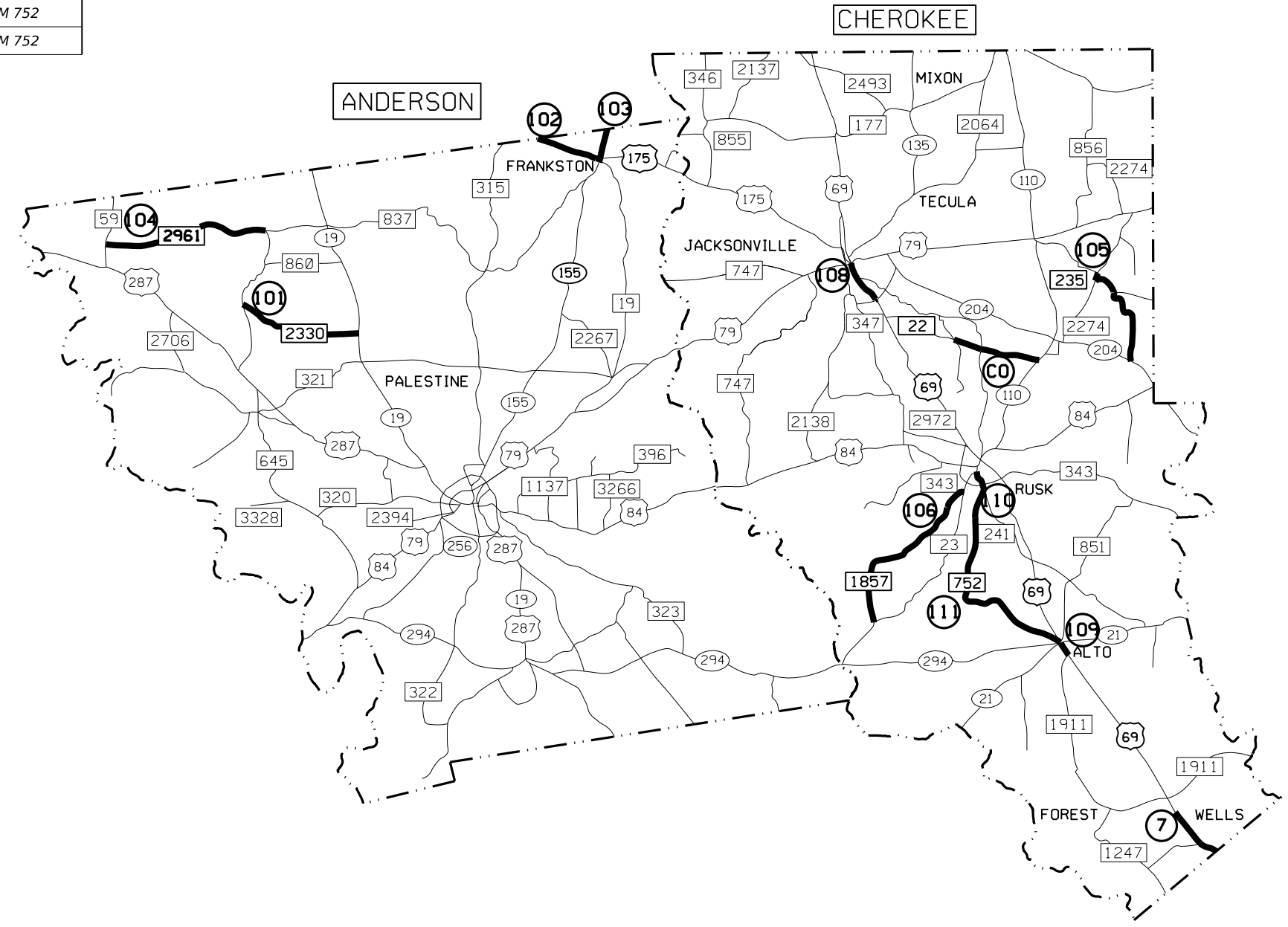
2024 SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH,Etc	8	



CK:  
DW:  
CK:  
DW:

REF	COUNTY	ROADWAY
101	ANDERSON	FM 2330
102	ANDERSON	US 175
103	ANDERSON	SH 155
104	ANDERSON	FM 2961
105	CHEROKEE	FM 235
106	CHEROKEE	FM 1857
107	CHEROKEE	US 69
108	CHEROKEE	US 69
109	CHEROKEE	US 69
110	CHEROKEE	FM 752
111	CHEROKEE	FM 752



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FM 2493,Etc

LOCATION MAP  
THERMO

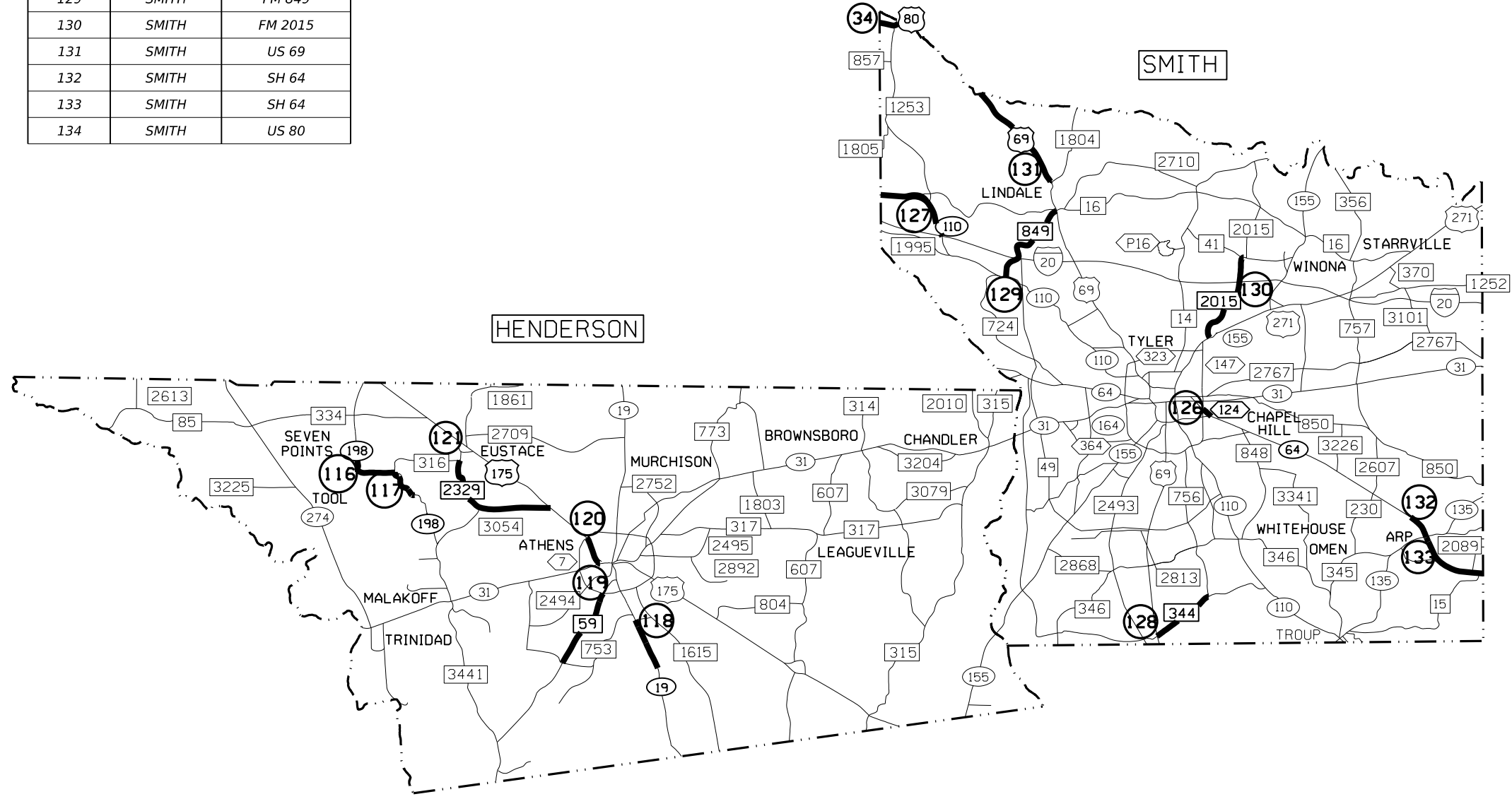
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CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH,Etc	9	

CK:  
DW:  
CK:  
DW:

REF	COUNTY	ROADWAY
116	HENDERSON	SH 198
117	HENDERSON	SH 198
118	HENDERSON	SH 19
119	HENDERSON	FM 59
120	HENDERSON	BU175G
121	HENDERSON	RM 2329
126	SMITH	SL 124
127	SMITH	SH 110
128	SMITH	FM 344
129	SMITH	FM 849
130	SMITH	FM 2015
131	SMITH	US 69
132	SMITH	SH 64
133	SMITH	SH 64
134	SMITH	US 80



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 Texas Department of Transportation

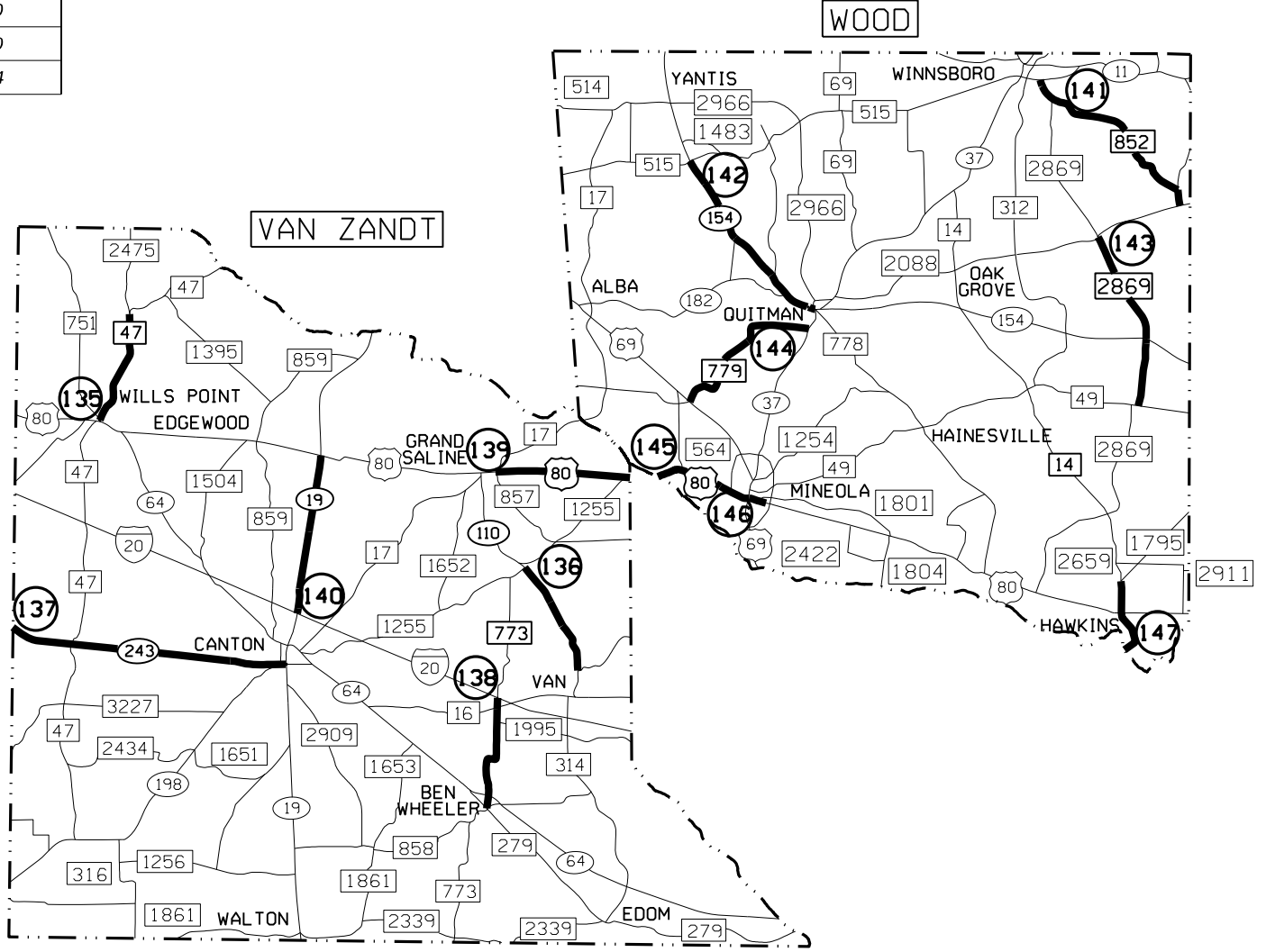
FM 2493,Etc  
 LOCATION MAP  
 THERMO  
 NOT TO SCALE

© TxDOT 2024 SHEET 2 OF 4

CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH,Etc	10	

CK: DW: CK: DW:

REF	COUNTY	ROADWAY
135	VAN ZANDT	FM 47
136	VAN ZANDT	SH 110
137	VAN ZANDT	SH 243
138	VAN ZANDT	FM 773
139	VAN ZANDT	US 80
140	VAN ZANDT	SH 19
141	WOOD	FM 852
142	WOOD	SH 154
143	WOOD	FM 2896
144	WOOD	FM 779
145	WOOD	US 80
146	WOOD	US 80
147	WOOD	FM 14



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FM 2493,Etc  
 LOCATION MAP  
 THERMO  
 NOT TO SCALE

© TXDOT 2024		SHEET 3 OF 4	
CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH,Etc	11	





PROJECT LOCATION AND LENGTH															
REF NO.	COUNTY	ROADWAY	CSJ	GENERAL LOCATION OF PROJECT		REFERENCE MARKER LOCATION OF PROJECT		WORK LENGTH		SURFACE AREA	ADT	24 HR TRUCK PERCENTAGE	FUNCTIONAL CLASS (6) STATE FUNDED	DES BICYCLE ROUTE	EXCEPTIONS
								MILE	FEET						
25	RUSK	FM 1798	1669 - 02 - 012	FROM: FM 95	TO: FM 348 (WEST)	FROM: 716+0.743	TO: 724+1.758	9.120	48,154	134,792	7,280	7.1	4	NO	
26	RUSK	FM 1798	0424 - 05 - 028	FROM: FM 348 (WEST)	TO: US 79	FROM: 284+0.373	TO: 290+1.837	3.470	18,322	48,778	2,477	34.5	5	NO	
27	RUSK	SH 323	0592 - 02 - 018	FROM: SH 64 (OVERTON)	TO: SH 135 (HENDERSON)	FROM: 694-0.034	TO: 706+0.804	12.770	67,426	203,494	1,682	27.5	4	NO	
28	RUSK	FM 13	0591 - 02 - 023	FROM: CHEROKEE CO. LINE	TO: BU 79 (DOWNTOWN HENDERSON)	FROM: 312+1.662	TO: 324+1.756	12.094	63,856	203,853	1,518	3.8	5	NO	
29	SMITH	SH 135	0378 - 03 - 019	FROM: SS 80 (ARP)	TO: FM 13	FROM: 304+1.403	TO: 312+0.449	7.161	37,810	196,504	2,910	31.0	5	NO	
30	SMITH	FM 2493	0191 - 03 - 089	FROM: TOLL 49 (CONCRETE JOINT)	TO: FM 346 (CONCRETE JOINT)	FROM: 300+0.942	TO: 302+1.751	2.782	14,689	99,453	20,254	6.1	5	YES	
31	SMITH	FM 15	0491 - 01 - 011	FROM: SH 135	TO: SH 64	FROM: 686+0.148	TO: 696+0.258	10.730	56,654	156,964	1,045	12.0	6	NO	
32	SMITH	FM 2607	2623 - 01 - 006	FROM: FM 850	TO: SH 64	FROM: 292-0.030	TO: 294+1.198	3.198	16,885	50,157	1,319	10.8	5	NO	
33	SMITH	FM 3341	3402 - 01 - 002	FROM: FM 346	TO: END OF STATE MAINTENANCE	FROM: 298-0.023	TO: 298+1.493	1.535	8,105	22,541	422	12.8	6	NO	280' BRIDGE 6174' FROM BEG
34	VAN ZANDT	FM 47	0646 - 02 - 034	FROM: US 80 (RED BRICK JOINT)	TO: IH 20 (NORTH SIDE)	FROM: 272+1.083	TO: 278+0.000	5.351	28,253	96,339	2,732	8.4	5	NO	
35	VAN ZANDT	SH 64	0245 - 01 - 035	FROM: IH 20 (SOUTH SIDE HMAC JOINT)	TO: SH 19	FROM: 642+1.622	TO: 646+1.105	4.446	23,475	85,655	7,249	8.8	4	YES	
36	VAN ZANDT	FM 16	0522 - 03 - 027	FROM: FM 773	TO: CR 1501	FROM: 652+0.000	TO: 654+1.436	3.459	18,264	42,166	2,461	8.0	5	NO	
37	VAN ZANDT	FM 773	1099 - 01 - 009	FROM: FM 858	TO: HENDERSON CO. LINE	FROM: 294+0.000	TO: 300+0.000	6.107	32,245	97,110	1,119	8.8	5	NO	
38	VAN ZANDT	FM 859	1171 - 02 - 016	FROM: IH 20 (SOUTH SIDE)	TO: SH 64	FROM: 278+0.854	TO: 280+0.541	1.690	8,923	26,282	2,741	7.6	5	NO	
39	VAN ZANDT	FM 2010	2840 - 01 - 006	FROM: FM 279	TO: HENDERSON CO. LINE	FROM: 292-0.029	TO: 294+0.000	0.360	1,901	5,561	1,045	9.3	5	NO	
40	WOOD	US 69	0190 - 03 - 088	FROM: SH 37 (BEGINNING OF GORE)	TO: SMITH CO. LINE	FROM: 304+0.627	TO: 310.0324	5.697	30,080	188,033	13,609	10.0	3	NO	259' BRIDGE 12947' FROM BEG / 517' BRIDGE 16646' FROM BEG / 533' BRIDGE 20464' FROM BEG
41	WOOD	FM 2225	2409 - 02 - 007	FROM: DEAD END	TO: SH 154	FROM: 252+0.094	TO: 260+0.885	8.870	46,834	127,215	252	11.9	6	NO	
42	WOOD	FM 1643	2794 - 01 - 005	FROM: FM 515	TO: SH 37	FROM: 252+0.077	TO: 256+1.812	5.780	30,518	84,221	182	10.4	6	NO	
43	WOOD	FM 1647	1674 - 01 - 002	FROM: SH 11	TO: FM 852	FROM: 260+0.216	TO: 268+0.296	4.970	26,242	74,108	1,790	13.2	5	NO	
44	WOOD	FM 2455	1579 - 01 - 002	FROM: FM 1647	TO: CAMP CO. LINE	FROM: 680+0.000	TO: 680+0.349	0.470	2,482	7,022	359	12.0	5	NO	
45	WOOD	FM 852	0767 - 04 - 008	FROM: HOPKINS CO. LINE	TO: SH 11 (WINNSBORO)	FROM: 578+0.812	TO: 582+0.014	5.091	26,880	51,267	364	12.6	6	YES	
46	WOOD	SH 154	0401 - 02 - 036	FROM: HOPKINS CO. LINE	TO: FM 515	FROM: 736+1.126	TO: 738+0.18	3.159	16,680	96,442	5,049	10.7	4	NO	
47	WOOD	US 80	0096 - 02 - 052	FROM: FM 778	TO: UPSHUR CO. LINE	FROM: 746+1.994	TO: 758+0.760	9.542	50,382	406,089	4,516	8.9	3	NO	250' BRIDGE 18671' FROM BEG / 211' BRIDGE 18671' FROM BEG
48	WOOD	FM 312	0492 - 02 - 022	FROM: SH 11	TO: FM 49	FROM: 250+0.256	TO: 266+1.664	17.382	91,777	256,508	1,607	6.0	5	NO	

NOTE: SURFACE AREA DOES NOT INCLUDE ITEM 3028 FRICTIONAL ASPH SURF PRESERV TRTMT.



FM 2493,Etc

LOCATION TABLE SEALCOAT

©TxDOT 2024		SHEET 2 OF 2	
CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH,Etc	14	

PROJECT LOCATION AND LENGTH

REF NO.	COUNTY	ROADWAY	CSJ	GENERAL LOCATION OF PROJECT		REFERENCE MARKER LOCATION OF PROJECT		WORK LENGTH		FUNCTIONAL CLASS (6) STATE FUNDED	REMARKS
								MILE	FEET		
101	ANDERSON	FM 2330	2195 - 02 - 000	FROM: FM 860	TO: SH 19	FROM: 644-0.04	TO: 650+1.474	7.188	37,952	6	
102	ANDERSON	US 175	0198 - 03 - 000	FROM: Henderson C/L	TO: Commerce St. (Concrete Joint)	FROM: 682A+0.014	TO: 684+1.778	3.744	19,770	3	
103	ANDERSON	SH 155	0520 - 08 - 000	FROM: Henderson C/L	TO: 0.13 Mi S. of FM 19 (End of C&G)	FROM: 348+0.021	TO: 348+1.860	1.839	9,710	3	
104	ANDERSON	FM 2961	3019 - 01 - 000	FROM: FM 59	TO: FM 837	FROM: 636-0.026	TO: 644+1.506	9.415	49,711	5	
105	CHEROKEE	FM 235	1150 - 02 - 000	FROM: FM 2274	TO: SH 204	FROM: 320+0.188	TO: 326+0.524	5.995	31,652	5	
106	CHEROKEE	FM 1857	1929 - 01 - 000	FROM: FM 23 N.	TO: FM 23 S.	FROM: 330-0.13	TO: 340+0.289	10.315	54,462	6	
107	CHEROKEE	US 69	0199 - 03 - 000	FROM: 0.98 Mi S. of FM 1911 (Seal Joint)	TO: 0.27 Mi S. of Angelina C/L	FROM: 396+1.286	TO: 400+0.569	3.436	18,143	3	
108	CHEROKEE	US 69	0199 - 01 - 000	FROM: US 79	TO: 0.198 Mi S. of Loop 456 (PFC Joint)	FROM: 360+0.249	TO: 362+0.536	2.659	14,037	3	
109	CHEROKEE	US 69	0199 - 02 - 000	FROM: SH 21	TO: FM 1911 N.	FROM: 384+1.605	TO: 386+0.212	0.588	3,103	3	
110	CHEROKEE	FM 752	0345 - 09 - 000	FROM: SL 62	TO: 0.585 Mi S. of CR 2310	FROM: 330-0.03	TO: 336+1.689	7.391	39,025	6	
111	CHEROKEE	FM 752	2066 - 01 - 000	FROM: 0.585 Mi S. of CR 2310	TO: SH 294	FROM: 336+1.689	TO: 342+1.934	6.355	33,556	6	
112	GREGG	US 271	0165 - 03 - 000	FROM: US 80	TO: Loop 485 S.	FROM: 300+1.235	TO: 302+0.076	0.867	4,580	3	
113	GREGG	US 271	0248 - 06 - 000	FROM: Loop 485 N.	TO: US 80	FROM: 300+0.469	TO: 300+1.235	0.803	4,242	3	
114	GREGG	FM 2276	2159 - 01 - 000	FROM: FM 2087	TO: Rusk C/L	FROM: 384-0.037	TO: 286+1.344	3.452	18,227	5	
115	GREGG	FM 2011	1932 - 01 - 000	FROM: FM 2087	TO: SH 322	FROM: 284-0.015	TO: 290+0.523	6.398	33,780	5	
116	HENDERSON	SH 198	1668 - 01 - 000	FROM: South End of Twin Creek Bridge	TO: FM 316	FROM: 302A+1.959	TO: 306+1.477	3.677	19,417	4	
117	HENDERSON	SH 198	0646 - 05 - 000	FROM: FM 316	TO: South Payne Springs City Limits	FROM: 306+1.498	TO: 308+1.536	1.905	10,056	4	
118	HENDERSON	SH 19	0108 - 04 - 000	FROM: FM 1615	TO: 0.341 Mi S. of CR 4613 (Seal Joint)	FROM: 312+1.915	TO: 316+1.49	3.466	18,300	4	
119	HENDERSON	FM 59	0458 - 01 - 000	FROM: .23 Mi N. of Loop 7 (HMAC Joint)	TO: 0.059 Mi N. of FM 753 (Seal Joint)	FROM: 306+0.109	TO: 310+0.049	4.115	21,725	5	
120	HENDERSON	BU175G	0197 - 06 - 000	FROM: US 175W (Loop 7)	TO: BU 31 (At the Y)	FROM: 658+0.062	TO: 660+0.586	1.127	5,951	3	
121	HENDERSON	RM 2329	2196 - 01 - 000	FROM: FM 316	TO: US 175	FROM: 634-0.04	TO: 640+1.138	7.091	37,438	5	
122	RUSK	FM 2012	1933 - 02 - 000	FROM: Gregg C/L	TO: FM 850	FROM: 290+0.056	TO: 298+0.095	7.945	41,948	5	
123	RUSK	US 259	0138 - 02 - 000	FROM: FM 850	TO: BU 259	FROM: 298A+2.649	TO: 304+1.081	5.156	27,224	3	
124	RUSK	BU 259	0138 - 02 - 000	FROM: BU 259 (Divided HWY)	TO: US 259	FROM: 298+0.935	TO: 298+1.751	0.802	4,233	3	
125	RUSK	FM 850	1163 - 02 - 000	FROM: US 259	TO: SH 135	FROM: 696+0.416	TO: 702+1.159	7.071	37,335	5	
126	SMITH	SL 124	0245 - 16 - 000	FROM: SL 323	TO: SH 64	FROM: 292+0.498	TO: 292+1.481	0.971	5,127	4	

NOTE: ACTUAL BEGIN/END OF PROFILE MARKINGS MAY VARY DUE TO EXCEPTIONS FOR LEFT TURN LANES OR 45 MPH OR BELOW SPEED ZONES




FM 2493,Etc

LOCATION TABLES THERMO

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CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH,Etc		15

PROJECT LOCATION AND LENGTH											
REF NO.	COUNTY	ROADWAY	CSJ	GENERAL LOCATION OF PROJECT		REFERENCE MARKER LOCATION OF PROJECT		WORK LENGTH		FUNCTIONAL CLASS (6) STATE FUNDED	REMARKS
								MILE	FEET		
127	SMITH	SH 110	0505 - 02 - 0000	FROM: Van Zandt C/L	TO: IH 20	FROM: 284+0.373	TO: 290+1.837	5.823	30,747	5	
128	SMITH	FM 344	0927 - 01 - 0000	FROM: 0.133 Mi W. of US 69 (Pavement Joint)	TO: FM 756 (Pavement Joint)	FROM: 676+0.215	TO: 680+0.503	4.338	22,905	5	
129	SMITH	FM 849	0429 - 05 - 0000	FROM: FM 16	TO: SH 110	FROM: 280-0.028	TO: 284+1.281	5.293	27,947	5	
130	SMITH	FM 2015	1934 - 02 - 0000	FROM: Sand Flat Rd. (CR 4322)	TO: US 271	FROM: 282+0.683	TO: 286+1.843	5.332	28,152	5	
131	SMITH	US 69	0190 - 04 - 0000	FROM: Wood C/L	TO: FM 1804	FROM: 308+0.949	TO: 316+0.931	6.989	36,899	3	
132	SMITH	SH 64	0245 - 06 - 0000	FROM: 0.4 miles East of CR 246	TO: 1.3 miles East of CR 246	FROM: 700+0.871	TO: 702+0.175	0.929	4,903	4	
133	SMITH	SH 64	0245 - 07 - 0000	FROM: 1.3 miles East of CR 246	TO: Rusk C/L	FROM: 702+0.177	TO: 706+1.028	4.675	24,683	4	
134	SMITH	US 80	0095 - 08 - 0000	FROM: Van Zandt C/L	TO: Wood C/L	FROM: 730+0.030	TO: 730+1.408	1.481	7,817	3	
135	VAN ZANDT	FM 47	0646 - 01 - 0000	FROM: FM 2475	TO: 0.27 Mi S. of FM 751 (Brick Road Joint)	FROM: 266+1.080	TO: 272+0.860	5.488	28,979	5	
136	VAN ZANDT	SH 110	0505 - 01 - 0000	FROM: FM 1255 S.	TO: FM 1805	FROM: 274+1.37	TO: 280+0.564	5.184	27,372	5	
137	VAN ZANDT	SH 243	0522 - 02 - 0000	FROM: Kaufman C/L	TO: SH 19 (Concrete Joint)	FROM: 630+0.164	TO: 642+0.638	12.732	67,225	4	
138	VAN ZANDT	FM 773	1099 - 04 - 0000	FROM: IH 20	TO: FM 279	FROM: 286+1.941	TO: 292+1.376	5.455	28,801	5	
139	VAN ZANDT	US 80	0095 - 07 - 0000	FROM: FM 857	TO: Smith C/L	FROM: 722+0.388	TO: 730+0.000	6.158	32,513	3	
140	VAN ZANDT	SH 19	0108 - 01 - 0000	FROM: US 80	TO: IH 20 (Concrete Joint/Overpass)	FROM: 276+0.707	TO: 284+0.127	7.514	39,673	4	
141	WOOD	FM 852	0767 - 04 - 0000	FROM: FM 515	TO: FM 2088	FROM: 584A-0.044	TO: 592+2.124	10.319	54,484	5	
142	WOOD	SH 154	0401 - 02 - 0000	FROM: FM 515 (South Side of Intersection)	TO: 550' West of SH-37 (Smart St.)	FROM: 686+0.656	TO: 696+0.34	9.544	50,392	4	
143	WOOD	FM 2896	2958 - 02 - 0000	FROM: FM 2088	TO: FM 49	FROM: 260+0.216	TO: 268+0.296	8.147	43,016.25	5	
144	WOOD	FM 779	1111 - 01 - 0000	FROM: US 69	TO: SH 37	FROM: 665+1.986	TO: 670+1.676	5.892	31,111.91	5	
145	WOOD	US 80	0095 - 09 - 0000	FROM: Smith C/L	TO: US 69	FROM: 730+1.408	TO: 736+1.105	5.003	26,417.10	3	
146	WOOD	US 80	0096 - 01 - 0000	FROM: US 69	TO: Mineola City Limits	FROM: 736+1.126	TO: 738+0.180	0.984	5,195.52	3	
147	WOOD	FM 14	0492 - 03 - 0000	FROM: FM 1795 (Seal Joint)	TO: Smith C/L	FROM: 276+1.289	TO: 280+1.197	3.953	20,874.27	5	

  
**Texas Department of Transportation**  
**FM 2493, Etc**  
**LOCATION TABLES THERMO**

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CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST		COUNTY	SHEET NO.
TYL		SMITH, Etc	16



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Highway: FM 2493, Etc.

**GENERAL NOTES:****GENERAL.**

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

Sealcoat:	Lance Pomykal	<a href="mailto:Lance.Pomykal@txdot.gov">Lance.Pomykal@txdot.gov</a>
	Josh Fulton	<a href="mailto:Josh.Fulton@txdot.gov">Josh.Fulton@txdot.gov</a>
Thermo:	Juanita Daniels-West	<a href="mailto:Juanita.DanielsWest@txdot.gov">Juanita.DanielsWest@txdot.gov</a>
	Steven Swindell	<a href="mailto:Steven.Swindell@txdot.gov">Steven.Swindell@txdot.gov</a>

For Q&A on Proposals navigate to:

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

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

All relevant project documentation including Contract Time Determinations and cross-sections will still be posted to the districts FTP website.

<https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/Tyler%20District/Construction%20Projects>

For this Contract, the following standard sheets have been modified:

PM(4)-22A (MOD)

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

**Provide a representative to monitor all aggregate stockpiling to ensure aggregate does not impede or conflict with other materials causing contamination.**

A Contractor Force Account item is included for payment to relocate surplus aggregate to permanent stockpile locations as directed.

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Remove all vegetation from pavement edges, intersections, and driveways prior to planning operations, seal coat, or ACP operations. This work will not be paid for directly, but will be subsidiary to the bid items of the Contract.

Furnish materials and repair the existing roadway at any place that is damaged by Contractor's operations. This work will not be paid for directly, but will be considered subsidiary to bid items of the Contract.

Resurface intersections and crossovers before resurfacing the roadway unless otherwise authorized. Do not surface concrete pavement or bridge decks that have not been previously surfaced unless otherwise directed.

Submit in writing for approval, the procedure to be used for handling public claims and complaints. Include the time frame in which Contractor will respond to complaints.

Prior to beginning work, supply a toll-free telephone number of the insurance company or Contractor's person responsible for processing complaints and claims.

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

**ITEM 6. CONTROL OF MATERIALS**

The Buy America Material Classification Sheet for clarification on material categorization is located at the link below:

<https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html>

**ITEM 7. LEGAL RELATIONS AND RESPONSIBILITIES**

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

Railroad flaggers will be paid for under the Railroad Force Account under control 0191-03-089.

In accordance with Article 7.9, provide and maintain adequate, neat and sanitary toilet accommodations within the project limits for employees, including State employees.

No significant traffic generator events identified.

**ITEM 8. PROSECUTION AND PROGRESS**

**The Work Start Date and the beginning of Working Day charges for this Contract will be March 1, 2025.**

Working days will be computed and charged in accordance with Section 8.3.1.2., "Six-Day Workweek."

Milestones are being incorporated into the Contract for Thermoplastic Striping Operations "Thermo" and for specific rumble strip items listed in the Sealcoat section "Rumble" as shown on the plans. The Contractor has 90 calendar days to complete these milestones. These milestones begin March 1, 2025. Days stop being charged to the milestone when Thermo and Rumble operations are substantially complete and all Thermo and Rumble referenced roadways are fully open to traffic. Partially completed Thermo and Rumble references will not be considered part of substantial completion for these milestones. The Contractor will be penalized \$1,000 per DAY for each day the Thermo and Rumble operations are under construction in excess of the allotted 90 days.

"Substantial completion" for Milestone 1 is defined as completion of ALL items listed under thermoplastic striping operations shown in the "Thermo" section of the plans including: (Item 666), (Item 668), (Item 677), (Item 678, all cleanup necessary post thermoplastic striping operations and any other items subsidiary to the work indicated in the "Thermo" section of the plan set.

"Substantial completion" for Milestone 2 is defined as completion of specific items of the Sealcoat operations as listed here: Rumble Strips (Shoulder and Centerline)(Item 533) and Elim Ext Pav Mrk & Mrks (Rumble Strip)(Item 677).

Milestone 1: Thermoplastic Striping Operations (Thermo)

Milestone 2: Sealcoat Operations Items (Rumble)

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

Contract Time Estimate is prepared assuming multiple crews working simultaneously.

**ITEM 9. MEASUREMENT & PAYMENT**

In accordance with Article 9.1., "Measurement of Quantities," furnish the tare and maximum gross weights as well as the volume capacity of all vehicles, trucks, truck-tractors, trailers, semi-trailers, or combination of such vehicles used to deliver materials for this Contract. Also, furnish

calculations supporting these weights and capacities. Provide all measurements required for pay a minimum of 2 days before the trucks are used.

A boom axe will not be allowed to trim trees.

Remove or stockpile remaining trees and brush at the end of the day. Barricade the stockpile in accordance with Item 502. Remove stockpiles weekly.

**ITEM 316. SEAL COAT**

The open season for the application of asphalt under Item 316 is from May 1 to August 31.

The Contractor's project superintendent, knowledgeable of TxDOT seal coat operations, and the Department's project manager must drive all roadways for this Contract and review the pavement conditions in order to set preliminary asphalt and aggregate rates. The rates may be adjusted as necessary during construction to allow for any changes in the materials, pavement, or weather conditions at the time of construction.

For Grade 3 references the AC/AR Ratio is 0.84%.

For Grade 4 references the AC/AR Ratio is 0.72%.

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

During surface treatment application, if existing conditions warrant, vary the lane widths, transitions, and intersection areas as directed.

Perform rolling as directed with equipment complying with Section 210.2.4.2, "Medium Pneumatic Tire." This work will not be paid for directly, but will be subsidiary to pertinent Items.

Do not apply asphalt later than 1 hour before sunset unless otherwise approved.

The Engineer will approve stockpile sites for materials. Locate stockpile site a minimum of 30 ft. from the roadway unless otherwise authorized. Place stockpiles in a manner that will not interfere with access from abutting property and will not obstruct traffic or sight distance. Avoid stockpiling at intersections. Notify the Engineer at least 5 working days prior to stockpiling material to secure approval of the site. The Engineer may approve stockpiling of materials closer than 30 ft. from the travelway if adequate barricades and devices are furnished and approved. Keep stockpile clear of debris and vegetative growth as approved. Contractor shall provide a supervisor at every stockpile location to dump material and ensure all above.

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Clearly sign stockpile locations with Contractor's name & project name, as approved. This will not be paid for directly, but will be subsidiary to Item 316.

Provide aggregate for shoulders and mainlanes from the same source unless otherwise directed.

The rates shown on the plans for asphalt and aggregate are for estimating purposes only. The rates may be varied as directed.

The target rate for precoat asphalt is (TY-PD) 1.2% (TY-PL) 1.5%.

Furnish aggregate from the same source for each reference.

The Contractor's project superintendent, knowledgeable of TxDOT seal coat operations, and the Department's project manager must drive all roadways for this Contract and review the pavement conditions in order to set preliminary asphalt and aggregate rates. The rates may be adjusted as necessary during construction to allow for any changes in the materials, pavement, or weather conditions at the time of construction.

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

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

Provide and install nozzles capable of applying variable rates of asphalt as requested. The Engineer will determine areas to apply variable asphalt rates.

Remove excess aggregate from the completed roadway as directed.

When sealing roadways in curb and gutter sections, remove excess aggregate from sidewalks, gores, and driveways on the day of application and on a daily basis, as required. It is anticipated that a vacuum truck or equivalent may be required to accomplish this work.

Remove all raised pavement markers before placement of the surface treatment. This may be performed by utilizing a maintainer or equivalent with care given to protect existing pavement. Repair any damage to existing pavement resulting in the removal of RPMs. This work will not be paid for directly, but will be subsidiary to pertinent Items. Raised pavement markers are the

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property of the Contractor. Dispose of removed pavement markers off of the right of way in accordance with federal, state, and local regulations.

Each reference will be shot using a single asphalt type unless otherwise approved.

Upon notification of areas needing repair on previously completed references, make all repairs within 10 days of notification. These repairs include, but are not limited to, strip sealing for striping correction. If these corrections are not completed in that time, all other work will cease, but time charges will continue as directed. Seal all shoulders unless otherwise directed.

Once a reference is completed, prior to moving to the next reference, all trash and debris shall be picked up and disposed of at an approved site.

Special Provision 316-001 is included in this Contract. This requires Seal Coat certifications for Department and Contractor personnel.

#### **ITEM 502. BARRICADES, SIGNS, AND TRAFFIC HANDLING**

The traffic control plan for this Contract consists of: the installation and maintenance of warning signs and other traffic control devices shown on the plans; specification data, which may be included in the general notes; applicable provisions of the Texas Manual on Uniform Traffic Control Devices (TMUTCD); traffic control plan sheets included on the plans; standard BC sheets; Compliant Work Zone Traffic Control Device List, and Item 502 of the standard specifications.

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

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

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

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

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

A G20-1B (L or R) or a G20-1A sign will be required on all major roadways intersecting this project. This sign will be used in addition to the standard, "Road Work Ahead" (CW20-1D) warning sign.

Complete project signing before beginning any construction operation.

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

When the sequence of work is shown on the plans, the Contractor may submit an alternate proposal for approval. Submit in writing all proposed variations and revisions.

High-visibility safety apparel is required for workers in accordance with the General Notes on current BC standards.

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

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

Lane closures will not be allowed before 8:30 A.M. for Thermo and Striping operations unless otherwise directed.

Unless otherwise approved, construction operations will not be allowed on Good Friday, Easter weekend, the Friday before Memorial Day thru Memorial Day, July 4th, the Friday before Labor Day thru Labor Day, the Wednesday before Thanksgiving Day thru Sunday, Christmas Eve, Christmas Day, New Year's Eve, New Year's Day, or on any other high traffic days or holidays as determined by the Engineer.

Erect R4-1 (Do Not Pass) and R4-2 (Pass With Care) signs to mark existing no-passing zones as directed. (These signs will not be required if these zones will not be eliminated during construction.)

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

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

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

The pavement must be entirely open to traffic each night. Remove or clearly barricade all material stockpiles, equipment left overnight, or any obstruction within the right of way as approved.

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

Provide flaggers at county roads, commercial driveways, and other intersecting roadways deemed necessary by the Engineer to maintain control of the work zone during one-lane two-way operations. Provide communication radios to each flagger in the work zone and the pilot vehicle operator.

Lane closures will not be allowed Thursday thru Sunday of Canton's First Monday Weekend for references 35 and 38.

With prior approval, provide uniformed law enforcement officers for traffic control during construction operations at the high-volume intersections on reference no. 13, 14, 15, 30, 35, 38, 40 & 47 unless other traffic control measures are approved. The law enforcement officer's intersection control force account is under control 0191-03-089.

Refer to the traffic control details for surfacing operations shown on the plans. Install signs as required by this standard or plan sheet. Keep signs in place until after completion of the surface course operation and until placement of the standard pavement markings. Place standard pavement markings within 7 days of surface treatment application. The placement of acceptable permanent pavement markings and the completion of the final cleanup will be considered a part

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of the surface course operation. These signs are in addition to the signs and barricades that may be required on standard BC sheets. Short-term stationary/short duration portable signs will be required during the removal of the temporary pavement markings.

Provide a pilot vehicle.

No seal coat operations are allowed during active school zones.

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

Provide uniformed LEOs with marked vehicles during work zone activities. The officer in marked vehicle will be located as approved to monitor or direct traffic during the closure. The Engineer will approve the method used to direct traffic at signalized intersections. Additional officers and vehicles may be provided when directed.

Complete the daily tracking form provided by the Department and submit invoices that agree with the tracking form for payment at the end of each month approved services were provided. Minimums, scheduling fees, etc. will not be paid; TxDOT will consider paying cancellation fees on a case-by-case basis.

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

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

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

Cancel law enforcement personnel when the work is canceled due to weather. Cancellation, minimums or "show up" fees will not be paid when cancellation is made 12 hours prior to beginning of the work. Failure to cancel within 12 hours will not be cause for payment for cancellation, minimums, or "show up" time. Payment of actual "show up" time to the work site due to cancellation will be on a case-by-case basis at a maximum of 2 hours per officer.

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

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### ITEM 503. PORTABLE CHANGEABLE MESSAGE SIGN

Provide a non-erodible, stable surface to place the Portable Changeable Message Sign (PCMS) units adjacent to the roadway as directed. Payment for this surface is incidental to Item 503.

Provide a cellular modem connection to communicate with the PCMS remotely.

### ITEM 505. TRUCK-MOUNTED ATTENUATOR (TMA) AND TRAILER ATTENUATOR (TA)

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

The TMA/TA used for installation/removal of traffic control for a work area will be subsidiary to the TMA/TA used to perform the work.

### ITEM 506. TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS

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

The Storm Water Pollution Prevention Plan (SWP3) consists of temporary erosion control measures needed and provided for under this Item. The disturbed area is less than one acre and use of erosion control measures is not anticipated. If physical conditions encountered at the job site require necessary controls, BMP installation, maintenance, and removal will be paid as extra work on a force account basis per Articles 4.4 and 9.7.

Provide the following Items for the SWP3 for this Contract as directed on a force account basis:

Temporary sediment control fence, seeding for erosion control, earthwork for erosion control, and vegetative watering.

Temporary erosion control work will be paid for under the Contractor's force account under control 0191-03-089.

**ITEM 533. RUMBLE STRIPS**

Provide one-lane two-way traffic control on two-lane roadways unless otherwise approved.

Provide traffic control for roadways with other lane configurations as directed.

Provide a sweeper that meets the requirements of Section 354.2.3.

Do not use foil backed pavement markings as removable work zone pavement markings. Removable work zone pavement markings must be pliant polymer detour grade (removable) material or other markings that can be obliterated or removed to the satisfaction of the Engineer.

Use tape for short-term removable pavement markings on hot mix & PFC surfacing applications.

Tabs may be used before surface treatment application.

For each reference, furnish and place work zone pavement markings (short term)(tab) on center lines and lane lines on 40 ft. centers and marking the beginning and end of no passing zones in accordance with TCP(7-1). Place tabs within 1 in. of the proper alignment as established by the Contractor and approved by the Engineer. Remove tabs after placement of permanent markings. Final acceptance will be contingent upon tab removal. Tab removal will be subsidiary to Item 662.

**ITEM 662. WORK ZONE PAVEMENT MARKINGS**

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

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

Do not use foil backed pavement markings as removable work zone pavement markings. Removable work zone pavement markings must be pliant polymer detour grade (removable) material or other markings that can be obliterated or removed to the satisfaction of the Engineer.

Use tape for short-term removable pavement markings on hot mix & PFC surfacing applications.

Tabs may be used before surface treatment application.

For each reference, furnish and place work zone pavement markings (short term)(tab) on center lines and lane lines on 40 ft. centers and marking the beginning and end of no passing zones in accordance with TCP(7-1). Place tabs within 1 in. of the proper alignment as established by the Contractor and approved by the Engineer. Remove tabs after placement of permanent markings.

Final acceptance will be contingent upon tab removal. Tab removal will be subsidiary to Item 662.

**ITEM 666. RETROREFLECTORIZED PAVEMENT MARKINGS**

Each reference project should cure for three days before striping.

Complete striping on each reference project within eleven (11) days of expiration of the three-day curing period. In the event the striping is not completed within this time frame, all other work shall be stopped immediately until the striping is completed, if directed.

Tabs will be required where surface treatment operations cover parking striping.

Pilot line placement and tab removal will require "Road Work Ahead" and "Flagger Ahead" signs at a distance not to exceed 1 mile.

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

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

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

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

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

The Engineer will establish beginning and ending points of no passing zones.

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

**County:** Smith, Etc.**Control:** 0191-03-089, Etc.**Highway:** FM 2493, Etc.

Static lane closures are required for all profile stripe operations. These operations will require a pilot car for all two-lane roadways, unless otherwise directed.

**ITEM 668. PREFABRICATED PAVEMENT MARKINGS AND RUMBLE STRIPS**

Supply all equipment and materials necessary for placement of centerline rumble strips.

Provide rumble strips that are black in color with an overall height of 500 mil. Achieve this height with an additional layer of material, as per the manufacturer's dimensions.

Ensure strict placement for centering and aligning all centerline rumble strips. Placement of material will be strictly enforced. Irregular bars not centered or aligned properly will not be accepted.

Replacement of all centerline rumble strips within a separate location will be required when 30% loss of an individual rumble strip exists on 20% of the length of a location or when 500 mil thickness is not maintained. Visual evaluation will be used for these determinations. Upon request, the Engineer will allow a Contractor's representative to accompany the Engineer on these evaluations.

**ITEM 672. RAISED PAVEMENT MARKERS**

Provide dispensing equipment such that the bituminous material can be directly applied from the melting pot to the pavement surface without secondary handling. Dispensing material from the melting pot into a separate container and then to the pavement surface will not be permitted. Intermittent agitation of the bituminous material will be by a method approved by the Engineer to ensure even heat distribution and must be such that the adhesive is agitated at approved and consistent intervals.

**ITEM 677. ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS**

Remove all existing 300 to 500 mil profile "bumps" (as shown in Standard PM(2)) before placement of the surface treatment. Immediately collect loose debris with a vacuum system and dispose of removed profile "bumps" off of the right of way in accordance with federal, state, and local regulations. Repair any damage to existing pavement resulting in the removal of these markings. This repair work will not be paid for directly, but will be subsidiary to pertinent items.

Unless otherwise directed, utilize Surface Treatment Method for removal on asphaltic surfaces. The Engineer will approve materials and rates prior to use.

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

**County:** Smith, Etc.**Control:** 0191-03-089, Etc.**Highway:** FM 2493, Etc.

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

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

Skip or cover all bridge joints with approved material during stripe elimination operations. Damage to the bridge joint material as a result of this operation must be repaired at the Contractor's expense.



CONTROLLING PROJECT ID 0191-03-089

# Estimate & Quantity Sheet

DISTRICT Tyler

COUNTY Anderson, Cherokee, Gregg, Henderson, Rusk, Smith, Van Zandt, Wood

HIGHWAY FM 13, FM 15, FM 16, FM 1643, FM 1647, FM 1798, FM 1803, FM 1857, FM 2010, FM 2022, FM 2225, FM 2275, FM 2330, FM 2419, FM 2455, FM 2493, FM 2607, FM 312, FM 314, FM 323, FM 3341, FM 346, FM 3506, FM 47, FM 752, FM 768, FM 773, FM 852, FM 859, FM 860, SH 135, SH 154, SH 300, SH 323, SH 64, SL 456, SS 502, US 175, US 69, US 80, US 84, Various

ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL
	316-7084	ASPH (AC-20-5TR OR AC-20XP)	TON	9,386.900	
	316-7146	AGGR (TY-PD, GR-3)(SAC-A)	CY	13,356.000	
	316-7148	AGGR (TY-PD, GR-4)(SAC-A)	CY	18,892.000	
	316-7243	AGGR (TY-PD OR PL, GR-3)(SAC-A)	CY	1,252.000	
	316-7257	AGGR (TY-PD OR PL, GR-3)	CY	14,319.000	
	500-7001	MOBILIZATION	LS	1.000	
	502-7001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	7.000	
	503-7001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	78.000	
	505-7001	TMA (STATIONARY)	DAY	93.000	
	505-7003	TMA (MOBILE OPERATION)	DAY	119.000	
	533-7001	MILL RUMBLE STRIPS (ASPHALT) (SHLDR)	LF	1,183,325.000	
	533-7002	MILL RUMBLE STRIPS (ASPH) (CENTERLINE)	LF	1,143,359.000	
	662-7112	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	12,989.000	
	662-7114	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	129,746.000	
	666-7009	REFL PAV MRK TY I (W)6"(DOT)(100MIL)	LF	468.000	
	666-7018	REFL PAV MRK TY I (W)8"(DOT)(100MIL)	LF	2,059.000	
	666-7024	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	49,937.000	
	666-7033	REFL PAV MRK TY I (W)18"(SLD)(100MIL)	LF	704.000	
	666-7036	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	13,150.000	
	666-7172	RE PM TY II (W) 6" (BRK)	LF	113,242.000	
	666-7173	RE PM TY II (W) 6" (DOT)	LF	1,279.000	
	666-7175	RE PM TY II (W) 6" (SLD)	LF	2,010,500.000	
	666-7177	RE PM TY II (W) 8" (DOT)	LF	368.000	
	666-7179	RE PM TY II (W) 8" (SLD)	LF	32,697.000	
	666-7183	RE PM TY II (W) 18" (SLD)	LF	853.000	
	666-7184	RE PM TY II (W) 24" (SLD)	LF	6,880.000	
	666-7186	RE PM TY II (W) (ARROW)	EA	326.000	
	666-7187	RE PM TY II (W) (DBL ARROW)	EA	3.000	
	666-7192	RE PM TY II (W) (LN REDUCT ARW)	EA	7.000	
	666-7194	RE PM TY II (W) (WORD)	EA	184.000	
	666-7198	RE PM TY II (W) (RR XING)	EA	9.000	
	666-7201	RE PM TY II (W) 36" (YLD TRI)	EA	334.000	
	666-7203	RE PM TY II (W) (BIKE ARROW)	EA	32.000	
	666-7205	RE PM TY II (W) (BIKE SYMBOL)	EA	32.000	
	666-7211	RE PM TY II (Y) 6" (BRK)	LF	143,218.000	
	666-7213	RE PM TY II (Y) 6" (SLD)	LF	2,359,037.000	
	666-7266	RE PROFILE PM TY I(W)6"(SLD)(100MIL)	LF	1,204,526.000	
	666-7270	RE PROFILE PM TY I(Y)6"(SLD)(100MIL)	LF	979,741.000	
	666-7274	RE PROFILE PM TY I(Y)6"(BRK)(100MIL)	LF	70,698.000	
	666-7347	PAVEMENT SLER 6"	LF	16,319.000	



DISTRICT	COUNTY	CCSJ	SHEET
Tyler	Smith	0191-03-089	18





CONTROLLING PROJECT ID 0191-03-089

# Estimate & Quantity Sheet

DISTRICT Tyler

COUNTY Anderson, Cherokee, Gregg, Henderson, Rusk, Smith, Van Zandt, Wood

HIGHWAY FM 13, FM 15, FM 16, FM 1643, FM 1647, FM 1798, FM 1803, FM 1857, FM 2010, FM 2022, FM 2225, FM 2275, FM 2330, FM 2419, FM 2455, FM 2493, FM 2607, FM 312, FM 314, FM 323, FM 3341, FM 346, FM 3506, FM 47, FM 752, FM 768, FM 773, FM 852, FM 859, FM 860, SH 135, SH 154, SH 300, SH 323, SH 64, SL 456, SS 502, US 175, US 69, US 80, US 84, Various

ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL
	666-7348	PAVEMENT SLER 8"	LF	1,518.000	
	666-7352	PAVEMENT SLER 24"	LF	158.000	
	666-7353	PAVEMENT SLER (ARROW)	EA	7.000	
	666-7354	PAVEMENT SLER (WORD)	EA	2.000	
	666-7365	PAVEMENT SLER (YLD TRI)	EA	5.000	
	666-7408	REFL PAV MRK TY I (W)6"(BRK)(100MIL)	LF	109,750.000	
	666-7411	REFL PAV MRK TY I (W)6"(SLD)(100MIL)	LF	1,069,436.000	
	666-7420	REFL PAV MRK TY I (Y)6"(BRK)(100MIL)	LF	92,070.000	
	666-7423	REFL PAV MRK TY I (Y)6"(SLD)(100MIL)	LF	976,506.000	
	668-7001	PRFB RUMBLE STRIP (BLK)(4')(TRANSVERSE)	LF	80.000	
	668-7002	PRFB RUMBLE STRIP (BLK)(1')(CENTERLINE)	LF	240.000	
	668-7091	PREFAB PM TY C (W)(ARROW)	EA	353.000	
	668-7093	PREFAB PM TY C (W)(DBL ARROW)	EA	5.000	
	668-7100	PREFAB PM TY C (W)(LN REDUCT ARROW)	EA	6.000	
	668-7103	PREFAB PM TY C (W)(WORD)	EA	224.000	
	668-7108	PREFAB PM TY C (W)(RR XING)	EA	10.000	
	668-7110	PREFAB PM TY C (W)(18")(YLD TRI)	EA	10.000	
	668-7111	PREFAB PM TY C (W)(36")(YLD TRI)	EA	583.000	
	668-7113	PREFAB PM TY C (W)(BIKE ARROW)	EA	2.000	
	668-7115	PREFAB PM TY C (W)(BIKE SYMBOL)	EA	2.000	
	668-7133	PRE PM TY C(BL&WH)(ACC PRK)(W/BORDR)LG	EA	1.000	
	672-7001	REFL PAV MRKR TY I-A	EA	6,006.000	
	672-7002	REFL PAV MRKR TY I-C	EA	10,764.000	
	672-7004	REFL PAV MRKR TY II-A-A	EA	70,376.000	
	672-7006	REFL PAV MRKR TY II-C-R	EA	907.000	
	677-7002	ELIM EXT PM & MRKS (6")	LF	45,475.000	
	677-7004	ELIM EXT PM & MRKS (8")	LF	2,564.000	
	677-7006	ELIM EXT PM & MRKS (12")	LF	998.000	
	677-7008	ELIM EXT PM & MRKS (24")	LF	852.000	
	677-7009	ELIM EXT PM & MRKS (ARROW)	EA	23.000	
	677-7015	ELIM EXT PM & MRKS (WORD)	EA	12.000	
	677-7024	ELIM EXT PM & MRKS (36")(YLD TRI)	EA	13.000	
	677-7030	ELIM EXT PM & MRKS (RUMBLE STRIP)	LF	1,268,576.000	
	678-7002	PAV SURF PREP FOR MRK (6")	LF	41,675.000	
	678-7004	PAV SURF PREP FOR MRK (8")	LF	2,464.000	
	678-7008	PAV SURF PREP FOR MRK (24")	LF	752.000	
	678-7009	PAV SURF PREP FOR MRK (ARROW)	EA	18.000	
	678-7016	PAV SURF PREP FOR MRK (WORD)	EA	7.000	
	678-7023	PAV SURF PREP FOR MRK (36")(YLD TRI)	EA	13.000	
	3001-7001	FRICTIONAL ASPH SURF PRESERV TRTMT	SY	252,338.000	



DISTRICT	COUNTY	CCSJ	SHEET
Tyler	Smith	0191-03-089	18A



**CONTROLLING PROJECT ID** 0191-03-089

# Estimate & Quantity Sheet

**DISTRICT** Tyler

**COUNTY** Anderson, Cherokee, Gregg, Henderson, Rusk, Smith, Van Zandt, Wood

**HIGHWAY** FM 13, FM 15, FM 16, FM 1643, FM 1647, FM 1798, FM 1803, FM 1857, FM 2010, FM 2022, FM 2225, FM 2275, FM 2330, FM 2419, FM 2455, FM 2493, FM 2607, FM 312, FM 314, FM 323, FM 3341, FM 346, FM 3506, FM 47, FM 752, FM 768, FM 773, FM 852, FM 859, FM 860, SH 135, SH 154, SH 300, SH 323, SH 64, SL 456, SS 502, US 175, US 69, US 80, US 84, Various

ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL
	12	RAILROAD FLAGGING: RAILROAD FORCE ACCOUNT WORK (PART)	LS	1.000	
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000	
		CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000	
		LAW ENFORCEMENT: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000	



DISTRICT	COUNTY	CCSJ	SHEET
Tyler	Smith	0191-03-089	18B

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BASIS OF ESTIMATE				
ITEM	DESCRIPTION	RATE	PROJECT TOTAL	PAY UNIT
[1] 210	ROLL (MED PNEUM TIRE) (TY B)	1.00 HR/3500 S	1,611	HR
316	ASPH (AC-20-5TR OR AC-20XP)	8.47 GAL/LB	9,386.9	TON
316	AGGR (TY-PD OR PL, GR-3)	1.00 CY/110 SY	14,319	CY
316	AGGR (TY-PD OR PL, GR-3)(SAC-A)	1.00 CY/110 SY	1,252	CY
316	AGGR (TY-PD, GR-3)(SAC-A)	1.00 CY/110 SY	13,356	CY
[1] 316	ASPH (AC-20-5TR OR AC-20XP)	0.42 GAL/SY	1,355,670	GAL
316	AGGR (TY-PD GR-4)(SAC-A)	1.00 CY/130 SY	18,892	CY
[1] 316	ASPH (AC-20-5TR OR AC-20XP)	0.36 GAL/SY	901,840	GAL
[2] 3001	FRICIONAL ASPH SURF PRESERV TRTM	0.25 GAL/SY	252,338	SY
500	MOBILIZATION		1	LS
502	BARRICADES, SIGNS AND TRAFFIC HANDLING		4	MO


[1] FOR CONTRACTORS INFORMATION ONLY.  
 [2] TO BE USED ON REFERENCES NOTED FOR OUTSIDE SHOULDERS GREATER THAN 8' IN WIDTH.

PORTABLE CHANGEABLE MESSAGE SIGN SUMMARY (1 OF 2)							
REF. NO.	COUNTY	ROADWAY	CSJ	ITEM 503			DAY
				PORTABLE CHANGEABLE MESSAGE SIGN			
CONTROL CSJ 0191-03-089. ETC							
1	ANDERSON	FM 2022	1875 - 04 - 002				1
[1] 2	ANDERSON	FM 323	0891 - 02 - 022				2
[1] 3	ANDERSON	FM 860	0458 - 03 - 011				2
4	ANDERSON	FM 2419	2272 - 01 - 009				1
5	ANDERSON	FM 2022	1875 - 05 - 002				1
6	CHEROKEE	US 84	0123 - 03 - 024				1
[1] 7	CHEROKEE	US 84	0123 - 03 - 023				2
[1] 8	CHEROKEE	FM 768	1124 - 01 - 012				2
9	CHEROKEE	FM 768	1124 - 02 - 006				1
10	CHEROKEE	FM 13	0591 - 03 - 010				1
11	CHEROKEE	FM 346	1764 - 02 - 008				1
[1] 12	CHEROKEE	SL 456	3201 - 01 - 009				2
[1] 13	GREGG	SH 300	1385 - 02 - 025				2
14	GREGG	FM 2275	2158 - 01 - 027				1
15	GREGG	SS 502	0392 - 08 - 024				1
[1] 16	HENDERSON	FM 3506	3574 - 01 - 003				2
[1] 17	HENDERSON	US 175	0198 - 01 - 034				2
[1] 18	HENDERSON	US 175	0198 - 02 - 036				2
19	HENDERSON	US 175	0198 - 02 - 037				1
[1] 20	HENDERSON	US 175	0198 - 02 - 038				2
21	HENDERSON	FM 2010	2840 - 02 - 006				1
22	HENDERSON	FM 1803	2986 - 01 - 003				1
23	HENDERSON	FM 314	1789 - 01 - 015				2
24	RUSK	FM 1798	0706 - 02 - 025				1
25	RUSK	FM 1798	1669 - 02 - 012				1
[1] 26	RUSK	FM 1798	0424 - 05 - 028				2
<b>SUBTOTALS (1 OF 2)</b>							<b>38</b>

[1] SHALL BE SIGNED FOR A MINIMUM OF 24 HOURS IN ADVANCE OF CONSTRUCTION ACTIVITIES STARTING  
 NOTE: 1. TO BE USED AS DIRECTED

TABULATION OF SURFACE AREA SUMMARY (1 OF 2)										
REF. NO.	COUNTY	ROADWAY	CSJ	ITEM 316						ITEM 3001
				[1] ASPH (AC-20-5TR OR AC-20XP)	ASPH (AC-20-5TR OR AC-20XP)	AGGR (TY-PD GR-3 OR TY-PL GR-3)	AGGR (TY-PD GR-3 (SAC-A))	AGGR (TY-PD GR-3) (SAC-A)	AGGR (TY-PD GR-4) (SAC-A)	[2] FRICIONAL ASPH SURF PRESERV TRTMT
CONTROL CSJ 0191-03-089. ETC				GAL	TON	CY	CY	CY	CY	SY
1	ANDERSON	FM 2022	1875 - 04 - 002	35,022	148.32	758				
2	ANDERSON	FM 323	0891 - 02 - 022	99,560	421.64			2,155		
3	ANDERSON	FM 860	0458 - 03 - 011	69,800	295.61	1,511				
4	ANDERSON	FM 2419	2272 - 01 - 009	49,424	209.31			1,070		
5	ANDERSON	FM 2022	1875 - 05 - 002	18,524	78.45	401				
6	CHEROKEE	US 84	0123 - 03 - 024	24,388	103.28				521	
7	CHEROKEE	US 84	0123 - 03 - 023	11,933	50.54				255	
8	CHEROKEE	FM 768	1124 - 01 - 012	55,375	234.51				1,183	
9	CHEROKEE	FM 768	1124 - 02 - 006	33,526	141.98				716	
10	CHEROKEE	FM 13	0591 - 03 - 010	54,337	230.12	1,176				
11	CHEROKEE	FM 346	1764 - 02 - 008	24,419	103.41				522	
12	CHEROKEE	SL 456	3201 - 01 - 009	31,808	134.71				680	
13	GREGG	SH 300	1385 - 02 - 025	25,580	108.33				547	
14	GREGG	FM 2275	2158 - 01 - 027	59,305	251.16				1,267	
15	GREGG	SS 502	0392 - 08 - 024	75,793	320.98				1,620	
16	HENDERSON	FM 3506	3574 - 01 - 003	40,726	172.47	882				
17	HENDERSON	US 175	0198 - 01 - 034	33,686	142.66				720	
18	HENDERSON	US 175	0198 - 02 - 036	165,181	699.54				3,530	
19	HENDERSON	US 175	0198 - 02 - 037	17,882	75.73				382	
20	HENDERSON	US 175	0198 - 02 - 038	25,388	107.52				542	
21	HENDERSON	FM 2010	2840 - 02 - 006	16,773	71.04				358	
22	HENDERSON	FM 1803	2986 - 01 - 003	20,370	86.27				435	
23	HENDERSON	FM 314	1789 - 01 - 015	90,030	381.28			1,949		39,392
24	RUSK	FM 1798	0706 - 02 - 025	8,702	36.85	188				7,565
25	RUSK	FM 1798	1669 - 02 - 012	57,075	241.71	1,235				
26	RUSK	FM 1798	0424 - 05 - 028	20,827	88.20	451				
<b>SUBTOTALS (1 OF 2)</b>				<b>1,165,433</b>	<b>4,935.61</b>	<b>6,602</b>		<b>5,173</b>	<b>13,278</b>	<b>46,957</b>

[1] FOR CONTRACTORS INFORMATION ONLY.  
 [2] TO BE USED ON REFERENCES NOTED FOR OUTSIDE SHOULDERS GREATER THAN 8' IN WIDTH.



**FM 2493, Etc**

**QUANTITY SUMMARY SEALCOAT**

© TxDOT 2024 SHEET 1 OF 13

CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH, Etc	19	


DATE: 10/15/2024 12:27:34 PM  
 FILE: c:\txdot\ipw\on\line\txdot\evan\_barron\0778039\FM2493 03 089 GEN QUANTITY SUMMARY.dgn

PORTABLE CHANGEABLE MESSAGE SIGN SUMMARY (2 OF 2)						
REF. NO.	COUNTY	ROADWAY	CSJ	ITEM 503		
				PORTABLE CHANGEABLE MESSAGE SIGN		
CONTROL CSJ 0191-03-089. ETC						
						DAY
[1] 27	RUSK	SH 323	0592 - 01 - 018			1
[1] 28	RUSK	FM 13	0591 - 02 - 023			2
[1] 29	SMITH	SH 135	0378 - 03 - 019			1
[1] 30	SMITH	FM 2493	0191 - 03 - 089			2
[1] 31	SMITH	FM 15	0491 - 01 - 011			3
[1] 32	SMITH	FM 2607	2623 - 01 - 006			1
[1] 33	SMITH	FM 3341	3402 - 01 - 002			1
[1] 34	VAN ZANDT	FM 47	0646 - 02 - 034			1
[1] 35	VAN ZANDT	SH 64	0245 - 01 - 035			2
[1] 36	VAN ZANDT	FM 16	0522 - 03 - 027			1
[1] 37	VAN ZANDT	FM 773	1099 - 01 - 009			3
[1] 38	VAN ZANDT	FM 859	1171 - 02 - 016			1
[1] 39	VAN ZANDT	FM 2010	2840 - 01 - 006			2
[1] 40	WOOD	US 69	0190 - 03 - 088			3
[1] 41	WOOD	FM 2225	2409 - 02 - 007			1
[1] 42	WOOD	FM 1643	2794 - 01 - 005			2
[1] 43	WOOD	FM 1647	1674 - 01 - 002			1
[1] 44	WOOD	FM 2455	1579 - 01 - 002			1
[1] 45	WOOD	FM 852	0767 - 05 - 009			3
[1] 46	WOOD	SH 154	0401 - 02 - 036			2
[1] 47	WOOD	US 80	0096 - 02 - 052			2
[1] 48	WOOD	FM 312	0492 - 02 - 022			2
[1] 49	WOOD	FM 312	0492 - 02 - 023			2
<b>SUBTOTALS (2 OF 2)</b>						<b>40</b>
<b>PROJECT TOTALS</b>						<b>78</b>

[1] SHALL BE SIGNED FOR A MINIMUM OF 24 HOURS IN ADVANCE OF CONSTRUCTION ACTIVITIES STARTING  
 NOTE: 1. TO BE USED AS DIRECTED

TABULATION OF SURFACE AREA SUMMARY (2 OF 2)										
REF. NO.	COUNTY	ROADWAY	CSJ	ITEM 316						ITEM 3001
				[1] ASPH (AC-20-5TR OR AC-20XP)	ASPH (AC-20-5TR OR AC-20XP)	AGGR (TY-PD OR PL, GR-3)	AGGR (TY-PD OR PL, GR-3) (SAC-A)	AGGR (TY-PD, GR-3) (SAC-A)	AGGR (TY-PD, GR-4) (SAC-A)	[2] FRICTIONAL ASPH SURF PRESERV TRTMT
CONTROL CSJ 0191-03-089. ETC				GAL	TON	CY	CY	CY	CY	SY
27	RUSK	SH 323	0592 - 01 - 018	87,871	372.13	1,902				
28	RUSK	FM 13	0591 - 02 - 023	83,946	355.51			1,433	379	
29	SMITH	SH 135	0378 - 03 - 019	71,901	304.50				1,536	
30	SMITH	FM 2493	0191 - 03 - 089	33,984	143.92				726	
31	SMITH	FM 15	0491 - 01 - 011	66,677	282.38			1,443		83,291
32	SMITH	FM 2607	2623 - 01 - 006	21,579	91.39		467			
33	SMITH	FM 3341	3402 - 01 - 002	8,077	34.20				173	54,709
34	VAN ZANDT	FM 47	0646 - 02 - 034	39,741	168.30			723	136	
35	VAN ZANDT	SH 64	0245 - 01 - 035	31,388	132.93				671	
36	VAN ZANDT	FM 16	0522 - 03 - 027	18,020	76.32	390				
37	VAN ZANDT	FM 773	1099 - 01 - 009	41,127	174.17	890				
38	VAN ZANDT	FM 859	1171 - 02 - 016	11,262	47.70	244				
39	VAN ZANDT	FM 2010	2840 - 01 - 006	2,102	8.90				45	
40	WOOD	US 69	0190 - 03 - 088	67,895	287.54				1,451	
41	WOOD	FM 2225	2409 - 02 - 007	54,470	230.68	1,179				
42	WOOD	FM 1643	2794 - 01 - 005	36,282	153.65		785			65,477
43	WOOD	FM 1647	1674 - 01 - 002	31,666	134.11	685				
44	WOOD	FM 2455	1579 - 01 - 002	3,351	14.19	73				
45	WOOD	FM 852	0767 - 05 - 009	21,874	92.63			473		1,904
46	WOOD	SH 154	0401 - 02 - 036	37,566	159.09			396	412	
47	WOOD	US 80	0096 - 02 - 052	171,567	726.59			3,714		
48	WOOD	FM 312	0492 - 02 - 022	55,515	235.11	1,202			85	
49	WOOD	FM 312	0492 - 02 - 023	53,210	225.34	1,152				
<b>SUBTOTALS (2 OF 2)</b>				<b>1,051,071</b>	<b>4,451.28</b>	<b>7,716</b>	<b>1,252</b>	<b>8,182</b>	<b>5,613</b>	<b>205,381</b>
<b>SUBTOTALS (1 OF 2)</b>				<b>1,165,433</b>	<b>4,935.61</b>	<b>6,602</b>		<b>5,173</b>	<b>13,278</b>	<b>46,957</b>
<b>PROJECT TOTALS</b>				<b>2,216,504</b>	<b>9,386.90</b>	<b>14,319</b>	<b>1,252</b>	<b>13,356</b>	<b>18,892</b>	<b>252,338</b>

[1] FOR CONTRACTORS INFORMATION ONLY.  
 [2] TO BE USED ON REFERENCES NOTED FOR OUTSIDE SHOULDERS GREATER THAN 8' IN WIDTH.



**FM 2493,Etc**

**QUANTITY SUMMARY SEALCOAT**

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© TXDOT 2024 SHEET 2 OF 13

CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH,Etc		20


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TRUCK MOUNTED ATTENUATORS (1 OF 2)								
REF. NO.	COUNTY	ROADWAY	CSJ	NUMBER OF TRUCKS	ITEM 505			
					[1] TMA (STATIONARY)	[1] TMA (MOBILE OPERATION)	DAY	DAY
CONTROL CSJ 0191-03-089. ETC								
1	ANDERSON	FM 2022	1875 - 04 - 002	1	1	1		
2	ANDERSON	FM 323	0891 - 02 - 022	1	2	2		
3	ANDERSON	FM 860	0458 - 03 - 011	1	1	1		
4	ANDERSON	FM 2419	2272 - 01 - 009	1	1	1		
5	ANDERSON	FM 2022	1875 - 05 - 002	1	1	1		
6	CHEROKEE	US 84	0123 - 03 - 024	1	1	1		
7	CHEROKEE	US 84	0123 - 03 - 023	1	2	2		
8	CHEROKEE	FM 768	1124 - 01 - 012	1	1	1		
9	CHEROKEE	FM 768	1124 - 02 - 006	1	1	1		
10	CHEROKEE	FM 13	0591 - 03 - 010	1	1	1		
11	CHEROKEE	FM 346	1764 - 02 - 008	1	1	1		
12	CHEROKEE	SL 456	3201 - 01 - 009	1	1	1		
13	GREGG	SH 300	1385 - 02 - 025	1	1	1		
14	GREGG	FM 2275	2158 - 01 - 027	1	1	1		
15	GREGG	SS 502	0392 - 08 - 024	1	1	1		
16	HENDERSON	FM 3506	3574 - 01 - 003	1	1	1		
17	HENDERSON	US 175	0198 - 01 - 034	1	1	1		
18	HENDERSON	US 175	0198 - 02 - 036	1	1	1		
19	HENDERSON	US 175	0198 - 02 - 037	1	1	1		
20	HENDERSON	US 175	0198 - 02 - 038	1	1	1		
21	HENDERSON	FM 2010	2840 - 02 - 006	1	1	1		
22	HENDERSON	FM 1803	2986 - 01 - 003	1	1	1		
23	HENDERSON	FM 314	1789 - 01 - 015	1	3	3		
24	RUSK	FM 1798	0706 - 02 - 025	1	1	1		
25	RUSK	FM 1798	1669 - 02 - 012	1	1	1		
26	RUSK	FM 1798	0424 - 05 - 028	1	1	1		
<b>SUBTOTALS (1 OF 2)</b>				<b>26</b>	<b>30</b>	<b>30</b>		

[1] TOTAL DAYS FOR NUMBER OF TRUCKS SHOWN.

TRUCK MOUNTED ATTENUATORS (2 OF 2)								
REF. NO.	COUNTY	ROADWAY	CSJ	NUMBER OF TRUCKS	ITEM 505			
					[1] TMA (STATIONARY)	[1] TMA (MOBILE OPERATION)	DAY	DAY
CONTROL CSJ 0191-03-089. ETC								
27	RUSK	SH 323	0592 - 01 - 018	1	1	1		
28	RUSK	FM 13	0591 - 02 - 023	1	1	1		
29	SMITH	SH 135	0378 - 03 - 019	1	1	1		
30	SMITH	FM 2493	0191 - 03 - 089	1	1	1		
31	SMITH	FM 15	0491 - 01 - 011	1	5	5		
32	SMITH	FM 2607	2623 - 01 - 006	1	1	1		
33	SMITH	FM 3341	3402 - 01 - 002	1	1	1		
34	VAN ZANDT	FM 47	0646 - 02 - 034	1	1	1		
35	VAN ZANDT	SH 64	0245 - 01 - 035	1	1	1		
36	VAN ZANDT	FM 16	0522 - 03 - 027	1	1	1		
37	VAN ZANDT	FM 773	1099 - 01 - 009	1	3	3		
38	VAN ZANDT	FM 859	1171 - 02 - 016	1	1	1		
39	VAN ZANDT	FM 2010	2840 - 01 - 006	1	3	3		
40	WOOD	US 69	0190 - 03 - 088	1	3	3		
41	WOOD	FM 2225	2409 - 02 - 007	1	2	2		
42	WOOD	FM 1643	2794 - 01 - 005	1	2	2		
43	WOOD	FM 1647	1674 - 01 - 002	1	1	1		
44	WOOD	FM 2455	1579 - 01 - 002	1	1	1		
45	WOOD	FM 852	0767 - 05 - 009	1	3	3		
46	WOOD	SH 154	0401 - 02 - 036	1	1	1		
47	WOOD	US 80	0096 - 02 - 052	1	1	1		
48	WOOD	FM 312	0492 - 02 - 022	1	1	1		
49	WOOD	FM 312	0492 - 02 - 023	1	1	1		
<b>SUBTOTALS (2 OF 2)</b>				<b>23</b>	<b>37</b>	<b>37</b>		
<b>SUBTOTALS (1 OF 2)</b>				<b>26</b>	<b>30</b>	<b>30</b>		
<b>PROJECT TOTALS</b>				<b>49</b>	<b>67</b>	<b>67</b>		

[1] TOTAL DAYS FOR NUMBER OF TRUCKS SHOWN.



**FM 2493, Etc**  
**QUANTITY SUMMARY SEALCOAT**

©TxDOT 2024 SHEET 3 OF 13


CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST			SHEET NO.
TYL			SMITH, Etc 21

**PAVEMENT MARKING SUMMARY (1 OF 10)**

REF. NO.	COUNTY	ROADWAY	CSJ			ITEM 668	ITEM 533		ITEM 662		ITEM 666								
						PRFB RUMBLE STRIP (BLK)(4') (TRANSVERSE)	[*] MILL RUMBLE STRIPS (ASPHALT) (SHLDR)	[*] MILL RUMBLE STRIPS (ASPH) (CENTERLINE)	WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB) TY Y-2	RE PM TY II (W) TY II (W)						RE PM TY II (Y)		
											LF	LF	LF	EA	EA	LF	LF	LF	LF
<b>CONTROL CSJ 0191-03-089, ETC</b>					LF	LF	LF	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF		
1	ANDERSON	FM 2022	1875	04	002		55,592	27,796		2,637				23	63	1,460	47,954		
2	ANDERSON	FM 323	0891	02	022			83,970		8,596		108,341		150	70	2,870	156,294		
3	ANDERSON	FM 860	0458	03	011		122,266	61,133		5,144					144	5,890	93,523		
4	ANDERSON	FM 2419	2272	01	009			38,634		2,704		63,032		800	140	2,840	49,169		
5	ANDERSON	FM 2022	1875	05	002		25,941	12,971		1,148					70	1,110	20,876		
6	CHEROKEE	US 84	0123	03	024			1,112	296	870		2,580	10,306	66	48	365	15,814		
7	CHEROKEE	US 84	0123	03	023				314	589		2,740	692		100	120	10,706		
8	CHEROKEE	FM 768	1124	01	012	80		44,892		5,216			94,840		48	116	1,100		
9	CHEROKEE	FM 768	1124	02	006		67,946	33,973		3,809					28	400	69,252		
10	CHEROKEE	FM 13	0591	03	010			41,065		3,314		80,604			138	4,630	60,250		
11	CHEROKEE	FM 346	1764	02	008			10,581		1,608		41,684			88	2,760	29,240		
12	CHEROKEE	SL 456	3201	01	009		32,943	16,471		807		32,126		3,541	80	108	2,330		
13	GREGG	SH 300	1385	02	025			9,657	565	518		4,930		130	135	4,615	9,425		
14	GREGG	FM 2275	2158	01	027			21,296	954	2,394		8,315	33,260	72	4,763	140	1,008		
15	GREGG	SS 502	0392	08	024			20,960	1,969	2,121		17,170	1,500		2,424	168	1,271		
16	HENDERSON	FM 3506	3574	01	003		40,747	20,374		2,695			38,288		1,094	60	430		
17	HENDERSON	US 175	0198	01	034				576	1,104		5,020	20,070		1,566		20,070		
18	HENDERSON	US 175	0198	02	036				2,478	4,753		21,600	86,416		5,620	144	86,416		
19	HENDERSON	US 175	0198	02	037				118	396		1,030	7,202		865		7,202		
20	HENDERSON	US 175	0198	02	038				450	862		3,920	15,670		2,205		15,670		
21	HENDERSON	FM 2010	2840	02	006			14,940		1,787			33,594		14	370	32,491		
22	HENDERSON	FM 1803	2986	01	003		39,620	19,810		1,453			39,372		54	2,610	26,411		
23	HENDERSON	FM 314	1789	01	015		128,830	64,415		5,455			130,442		130	150	5,510		
24	RUSK	FM 1798	0706	02	025			6,206		666			12,102				12,102		
25	RUSK	FM 1798	1669	02	012			47,760		4,480			92,302		24	2,220	81,462		
<b>SUBTOTALS (1 OF 10)</b>					<b>80</b>	<b>513,885</b>	<b>598,016</b>	<b>7,720</b>	<b>65,126</b>			<b>67,305</b>	<b>941,843</b>	<b>138</b>	<b>23,388</b>	<b>651</b>	<b>4,198</b>	<b>66,305</b>	<b>1,184,103</b>

[\*] PART OF MILESTONE. SEE GENERAL NOTES ITEM 8.

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**FM 2493, Etc**

**QUANTITY SUMMARY SEALCOAT**

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CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH, Etc		22

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PAVEMENT MARKING SUMMARY (2 OF 10)																	
REF. NO.	COUNTY	ROADWAY	CSJ	ITEM 668	ITEM 533		ITEM 662		ITEM 666								
				PRFB RUMBLE STRIP (BLK)(4') (TRANSVERSE)	[*] MILL RUMBLE STRIPS (ASPHALT) (SHLDR)	[*] MILL RUMBLE STRIPS (ASPH) (CENTERLINE)	WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB) TY Y-2	RE PM TY II (W)						RE PM TY II (Y)		
				LF	LF	LF	EA	EA	6" (DOT)	6" (BRK)	6" (SLD)	8" (DOT)	8" (SLD)	18" (SLD)	24" (SLD)	6" (BRK)	6" (SLD)
<b>CONTROL CSJ 0191-03-089. ETC</b>				LF	LF	LF	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	
26	RUSK	FM 1798	0424 - 05 - 028		36,582	18,291		1,826							20	1,230	33,208
27	RUSK	SH 323	0592 - 01 - 018			67,397		5,184			130,312		585		92	7,230	94,254
28	RUSK	FM 13	0591 - 02 - 023			18,141		4,224			81,710		130		80	6,840	76,795
29	SMITH	SH 135	0378 - 03 - 019				374	3,912	1,279	3,260	79,060		140	106	204	1,190	71,125
30	SMITH	FM 2493	0191 - 03 - 089			9,316	789	1,514		6,881	19,330	167	90			6,248	27,524
31	SMITH	FM 15	0491 - 01 - 011			51,788		4,995			107,632				108	3,650	90,822
32	SMITH	FM 2607	2623 - 01 - 006		32,216	16,108		1,627							56	970	29,574
33	SMITH	FM 3341	3402 - 01 - 002		16,804	8,402		645							12	940	11,735
34	VAN ZANDT	FM 47	0646 - 02 - 034			27,279		1,610			57,264		130		171	4,260	29,275
35	VAN ZANDT	SH 64	0245 - 01 - 035		47,627	23,814		1,787			46,578	63	865		402	4,470	32,489
36	VAN ZANDT	FM 16	0522 - 03 - 027			14,795		1,491			9,230		100		96	1,840	27,112
37	VAN ZANDT	FM 773	1099 - 01 - 009		61,970	30,985		2,511			30,745				42	3,590	45,663
38	VAN ZANDT	FM 859	1171 - 02 - 016			6,575		949			17,312				36	665	17,263
39	VAN ZANDT	FM 2010	2840 - 01 - 006			1,874		202			3,664				22		3,664
40	WOOD	US 69	0190 - 03 - 088		16,154		1,193	2,780		10,400	41,286		4,624		174	2,260	50,546
41	WOOD	FM 2225	2409 - 02 - 007		93,867	46,933		3,887							164	4,600	70,667
42	WOOD	FM 1643	2794 - 01 - 005		60,859	30,429		2,156							140	4,420	39,204
43	WOOD	FM 1647	1674 - 01 - 002		52,277	26,138		1,844							86	3,600	33,533
44	WOOD	FM 2455	1579 - 01 - 002		5,007	2,504		119			4,740				16	430	2,167
45	WOOD	FM 852	0767 - 05 - 009		38,402	19,201		5,446			116,530		460		139	4,270	99,023
46	WOOD	SH 154	0401 - 02 - 036		46,344	23,172		1,842			48,746		314	96	174	4,170	33,489
47	WOOD	US 80	0096 - 02 - 052		161,331	14,937	2,913	7,003		25,396	101,212		1,611		294		127,322
48	WOOD	FM 312	0492 - 02 - 022			44,557		3,608			88,490		133		79	5,126	65,602
49	WOOD	FM 312	0492 - 02 - 023			42,707		3,458			84,816		127		75	4,914	62,878
<b>SUBTOTALS (2 OF 10)</b>					<b>669,440</b>	<b>545,343</b>	<b>5,269</b>	<b>64,621</b>	<b>1,279</b>	<b>45,937</b>	<b>1,068,657</b>	<b>230</b>	<b>9,309</b>	<b>202</b>	<b>2,682</b>	<b>76,913</b>	<b>1,174,934</b>
<b>SUBTOTALS (1 OF 10)</b>				<b>80</b>	<b>513,885</b>	<b>598,016</b>	<b>7,720</b>	<b>65,126</b>		<b>67,305</b>	<b>941,843</b>	<b>138</b>	<b>23,388</b>	<b>651</b>	<b>4,198</b>	<b>66,305</b>	<b>1,184,103</b>
<b>PROJECT TOTALS</b>				<b>80</b>	<b>1,183,325</b>	<b>1,143,359</b>	<b>12,989</b>	<b>129,746</b>	<b>1,279</b>	<b>113,242</b>	<b>2,010,500</b>	<b>368</b>	<b>32,697</b>	<b>853</b>	<b>6,880</b>	<b>143,218</b>	<b>2,359,037</b>

[\*] PART OF MILESTONE. SEE GENERAL NOTES ITEM 8.



**FM 2493, Etc**

**QUANTITY SUMMARY SEALCOAT**


© TxDOT 2024 SHEET 5 OF 13

CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH, Etc		23

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PAVEMENT MARKING SUMMARY (3 OF 10)											
REF. NO.	COUNTY	ROADWAY	CSJ	ITEM 666							
				RE PM							
				TY II							
				(W)							
				(ARROW)	(DBL ARROW)	(LN REDUCT ARROW)	[1] (WORD)	[1] (RR XING)	36" (YLD TRI)	(BIKE ARROW)	(BIKE SYMBOL)
CONTROL CSJ 0191-03-089. ETC				EA	EA	EA	EA	EA	EA	EA	EA
1	ANDERSON	FM 2022	1875 - 04 - 002								
2	ANDERSON	FM 323	0891 - 02 - 022					2	3		
3	ANDERSON	FM 860	0458 - 03 - 011								
4	ANDERSON	FM 2419	2272 - 01 - 009								
5	ANDERSON	FM 2022	1875 - 05 - 002								
6	CHEROKEE	US 84	0123 - 03 - 024	3	2		3		5		
7	CHEROKEE	US 84	0123 - 03 - 023	1			1				
8	CHEROKEE	FM 768	1124 - 01 - 012								
9	CHEROKEE	FM 768	1124 - 02 - 006								
10	CHEROKEE	FM 13	0591 - 03 - 010								
11	CHEROKEE	FM 346	1764 - 02 - 008								
12	CHEROKEE	SL 456	3201 - 01 - 009	12			8		20		
13	GREGG	SH 300	1385 - 02 - 025	23			1				
14	GREGG	FM 2275	2158 - 01 - 027	57			21			22	22
15	GREGG	SS 502	0392 - 08 - 024	68			14				
16	HENDERSON	FM 3506	3574 - 01 - 003	15			11				
17	HENDERSON	US 175	0198 - 01 - 034	13			13		60		
18	HENDERSON	US 175	0198 - 02 - 036	44			44		172		
19	HENDERSON	US 175	0198 - 02 - 037	6			6		32		
20	HENDERSON	US 175	0198 - 02 - 038	14			14		42		
21	HENDERSON	FM 2010	2840 - 02 - 006								
22	HENDERSON	FM 1803	2986 - 01 - 003								
23	HENDERSON	FM 314	1789 - 01 - 015	1	1		1				
24	RUSK	FM 1798	0706 - 02 - 025								
25	RUSK	FM 1798	1669 - 02 - 012								
<b>SUBTOTALS (3 OF 10)</b>				<b>257</b>	<b>3</b>		<b>137</b>	<b>2</b>	<b>334</b>	<b>22</b>	<b>22</b>

[1] 24" WHITE TRANSVERSE LINES ARE INCLUDED WITH ITEM, REFER TO RCD(1)-22



**FM 2493, Etc**

**QUANTITY SUMMARY SEALCOAT**

© TXDOT 2024 SHEET 6 OF 13


CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH, Etc		24



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PAVEMENT MARKING SUMMARY (4 OF 10)													
REF. NO.	COUNTY	ROADWAY	CSJ			ITEM 666							
						REFL PAV MRK							
						TY II							
						WHITE							
						(ARROW)	(DBL ARROW)	(LN REDUCT ARROW)	[1] (WORD)	(RR XING)	36" (YLD TRI)	(BIKE ARROW)	(BIKE SYMBOL)
						EA	EA	EA	EA	EA	EA	EA	EA
<b>CONTROL CSJ 0191-03-089. ETC</b>													
26	RUSK	FM 1798	0424	- 05	- 028								
27	RUSK	SH 323	0592	- 01	- 018	4			4				
28	RUSK	FM 13	0591	- 02	- 023	1			1				
29	SMITH	SH 135	0378	- 03	- 019	5		6	1				
30	SMITH	FM 2493	0191	- 03	- 089	12			2			10	10
31	SMITH	FM 15	0491	- 01	- 011								
32	SMITH	FM 2607	2623	- 01	- 006								
33	SMITH	FM 3341	3402	- 01	- 002								
34	VAN ZANDT	FM 47	0646	- 02	- 034	1			1	1			
35	VAN ZANDT	SH 64	0245	- 01	- 035	9			5				
36	VAN ZANDT	FM 16	0522	- 03	- 027	1			1				
37	VAN ZANDT	FM 773	1099	- 01	- 009								
38	VAN ZANDT	FM 859	1171	- 02	- 016								
39	VAN ZANDT	FM 2010	2840	- 01	- 006								
40	WOOD	US 69	0190	- 03	- 088	14			10	4			
41	WOOD	FM 2225	2409	- 02	- 007								
42	WOOD	FM 1643	2794	- 01	- 005								
43	WOOD	FM 1647	1674	- 01	- 002								
44	WOOD	FM 2455	1579	- 01	- 002								
45	WOOD	FM 852	0767	- 05	- 009	4			4	2			
46	WOOD	SH 154	0401	- 02	- 036	5			5				
47	WOOD	US 80	0096	- 02	- 052	11		1	11				
48	WOOD	FM 312	0492	- 02	- 022	2			2				
49	WOOD	FM 312	0492	- 02	- 023								
USE AS DIRECTED			0191	- 03	- 089								
<b>SUBTOTALS (4 OF 10)</b>						<b>69</b>		<b>7</b>	<b>47</b>	<b>7</b>		<b>10</b>	<b>10</b>
<b>SUBTOTALS (3 OF 10)</b>						<b>257</b>	<b>3</b>		<b>137</b>	<b>2</b>	<b>334</b>	<b>22</b>	<b>22</b>
<b>PROJECT TOTALS</b>						<b>326</b>	<b>3</b>	<b>7</b>	<b>184</b>	<b>9</b>	<b>334</b>	<b>32</b>	<b>32</b>

[1] 24" WHITE TRANSVERSE LINES ARE INCLUDED WITH ITEM, REFER TO RCD(1)-22



FM 2493, Etc

QUANTITY SUMMARY SEALCOAT

© TxDOT 2024 SHEET 7 OF 13

CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST		COUNTY	SHEET NO.
TYL		SMITH, Etc	25




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PAVEMENT MARKING SUMMARY (6 OF 10)															
REF. NO.	COUNTY	ROADWAY	CSJ	ITEM 666						ITEM 672					
				[1] PAVEMENT SLER 6"	[1] PAVEMENT SLER 8"	[1] PAVEMENT SLER 24"	[1] PAVEMENT SLER (ARROW)	[1] PAVEMENT SLER (WORD)	[1] PAVEMENT SLER (YLD TRI)	REFL PAV MRKR TY I-A	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R		
CONTROL CSJ 0191-03-089. ETC				LF	LF	LF	EA	EA	EA	EA	EA	EA	EA		
26	RUSK	FM 1798	0424 - 05 - 028								132		558		
27	RUSK	SH 323	0592 - 01 - 018	160	320		4	2			66		1,615		
28	RUSK	FM 13	0591 - 02 - 02	284							264		1,324		
29	SMITH	SH 135	0378 - 03 - 019								132	212	1,183		
30	SMITH	FM 2493	0191 - 03 - 089	4,084	626	459	6	2			462	447	506		
31	SMITH	FM 15	0491 - 01 - 011								132		1,529		
32	SMITH	FM 2607	2623 - 01 - 006								132		496		
33	SMITH	FM 3341	3402 - 01 - 002	240							66		201		
34	VAN ZANDT	FM 47	0646 - 02 - 034								132		518		
35	VAN ZANDT	SH 64	0245 - 01 - 035								66		573		
36	VAN ZANDT	FM 16	0522 - 03 - 027										463		
37	VAN ZANDT	FM 773	1099 - 01 - 009								66		783		
38	VAN ZANDT	FM 859	1171 - 02 - 016								66		290		
39	VAN ZANDT	FM 2010	2840 - 01 - 006								66		60		
40	WOOD	US 69	0190 - 03 - 088	5,320							66	676	853		
41	WOOD	FM 2225	2409 - 02 - 007								198		1,204		
42	WOOD	FM 1643	2794 - 01 - 005								132		683		
43	WOOD	FM 1647	1674 - 01 - 002								132		583		
44	WOOD	FM 2455	1579 - 01 - 002								66		39		
45	WOOD	FM 852	0767 - 05 - 009								66		1,669		
46	WOOD	SH 154	0401 - 02 - 036								66		587		
47	WOOD	US 80	0096 - 02 - 052	1,140								81	1,101		
48	WOOD	FM 312	0492 - 02 - 022	863							198		1,125		
49	WOOD	FM 312	0492 - 02 - 023	828							198		1,078		
USE AS DIRECTED				0191 - 03 - 089											
<b>SUBTOTALS (6 OF 10)</b>				<b>12,919</b>	<b>946</b>	<b>459</b>	<b>10</b>	<b>4</b>			<b>2,904</b>	<b>1,416</b>	<b>19,021</b>		
<b>SUBTOTALS (5 OF 10)</b>				<b>12,437</b>		<b>135</b>	<b>1</b>	<b>1</b>	<b>8</b>		<b>3,102</b>	<b>3,022</b>	<b>17,950</b>	<b>907</b>	
<b>PROJECT TOTALS</b>				<b>25,356</b>	<b>946</b>	<b>594</b>	<b>11</b>	<b>5</b>	<b>8</b>		<b>6,006</b>	<b>4,437</b>	<b>36,972</b>	<b>907</b>	

[1] FOR CONTRACTOR INFORMATION ONLY. TY-II PAINT SHALL BE USED FOR SELAING PURPOSES.

 Texas Department of Transportation

FM 2493,Etc

QUANTITY SUMMARY SEALCOAT

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CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH,Etc	27	

**PAVEMENT MARKING SUMMARY (7 OF 10)**

REF. NO.	COUNTY	ROADWAY	CSJ	ITEM 677							
				ELIM EXT PM & MRKS (6")	ELIM EXT PM & MRKS (8")	ELIM EXT PM & MRKS (12")	ELIM EXT PM & MRKS (24")	ELIM EXT PM & MRKS (ARROW)	ELIM EXT PM & MRKS (WORD)	ELIM EXT PM & MRKS (36") (YLD TRI)	[*] ELIM EXT PM & MRKS (RUMBLE STRIP)
<b>CONTROL CSJ 0191-03-089, ETC</b>				LF	LF	LF	LF	LF	LF	EA	LF
1	ANDERSON	FM 2022	1875 - 04 - 002								
2	ANDERSON	FM 323	0891 - 02 - 022								165,674
3	ANDERSON	FM 860	0458 - 03 - 011	880							
4	ANDERSON	FM 2419	2272 - 01 - 009								
5	ANDERSON	FM 2022	1875 - 05 - 002								
6	CHEROKEE	US 84	0123 - 03 - 024								
7	CHEROKEE	US 84	0123 - 03 - 023								
8	CHEROKEE	FM 768	1124 - 01 - 012	532							11,660
9	CHEROKEE	FM 768	1124 - 02 - 006								69,652
10	CHEROKEE	FM 13	0591 - 03 - 010								
11	CHEROKEE	FM 346	1764 - 02 - 008	664							
12	CHEROKEE	SL 456	3201 - 01 - 009	772							
13	GREGG	SH 300	1385 - 02 - 025								
14	GREGG	FM 2275	2158 - 01 - 027	3,908			135	1	1	8	
15	GREGG	SS 502	0392 - 08 - 024								
16	HENDERSON	FM 3506	3574 - 01 - 003	1,828							
17	HENDERSON	US 175	0198 - 01 - 034								
18	HENDERSON	US 175	0198 - 02 - 036	1,878							
19	HENDERSON	US 175	0198 - 02 - 037	1,000							
20	HENDERSON	US 175	0198 - 02 - 038								
21	HENDERSON	FM 2010	2840 - 02 - 006								
22	HENDERSON	FM 1803	2986 - 01 - 003								29,021
23	HENDERSON	FM 314	1789 - 01 - 015	975							235,127
24	RUSK	FM 1798	0706 - 02 - 025								
25	RUSK	FM 1798	1669 - 02 - 012								
<b>SUBTOTALS (7 OF 10)</b>				<b>12,437</b>			<b>135</b>	<b>1</b>	<b>1</b>	<b>8</b>	<b>511,134</b>

[\*] PART OF MILESTONE. SEE GENERAL NOTES ITEM 8.

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 Texas Department of Transportation			
FM 2493,Etc			
QUANTITY SUMMARY SEALCOAT			
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CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST		COUNTY	SHEET NO.
TYL		SMITH,Etc	28

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PAVEMENT MARKING SUMMARY (8 OF 10)												
REF. NO.	COUNTY	ROADWAY	CSJ	ITEM 677								
				ELIM EXT PM & MRKS (6")	ELIM EXT PM & MRKS (8")	ELIM EXT PM & MRKS (12")	ELIM EXT PM & MRKS (24")	ELIM EXT PM & MRKS (ARROW)	ELIM EXT PM & MRKS (WORD)	ELIM EXT PM & MRKS (36") (YLD TRI)	[*] ELIM EXT PM & MRKS (RUMBLE STRIP)	
CONTROL CSJ 0191-03-089. ETC				LF	LF	LF	LF	LF	LF	EA	LF	
26	RUSK	FM 1798	0424 - 05 - 028									
27	RUSK	SH 323	0592 - 01 - 018	160	320			4	2			179,852
28	RUSK	FM 13	0591 - 02 - 02	284								65,778
29	SMITH	SH 135	0378 - 03 - 019									
30	SMITH	FM 2493	0191 - 03 - 089	4,084	626	192	459	6	2			
31	SMITH	FM 15	0491 - 01 - 011									202,104
32	SMITH	FM 2607	2623 - 01 - 006									
33	SMITH	FM 3341	3402 - 01 - 002	240								
34	VAN ZANDT	FM 47	0646 - 02 - 034									74,405
35	VAN ZANDT	SH 64	0245 - 01 - 035									19,393
36	VAN ZANDT	FM 16	0522 - 03 - 027									28,952
37	VAN ZANDT	FM 773	1099 - 01 - 009									
38	VAN ZANDT	FM 859	1171 - 02 - 016									
39	VAN ZANDT	FM 2010	2840 - 01 - 006									
40	WOOD	US 69	0190 - 03 - 088	5,320								
41	WOOD	FM 2225	2409 - 02 - 007									
42	WOOD	FM 1643	2794 - 01 - 005									43,624
43	WOOD	FM 1647	1674 - 01 - 002									
44	WOOD	FM 2455	1579 - 01 - 002									
45	WOOD	FM 852	0767 - 05 - 009									3,726
46	WOOD	SH 154	0401 - 02 - 036									
47	WOOD	US 80	0096 - 02 - 05	1,140								
48	WOOD	FM 312	0492 - 02 - 02	863								71,284
49	WOOD	FM 312	0492 - 02 - 02	828								68,324
USE AS DIRECTED			0191 - 03 - 089									
<b>SUBTOTALS (8 OF 10)</b>				<b>12,919</b>	<b>946</b>	<b>192</b>	<b>459</b>	<b>10</b>	<b>4</b>			<b>757,442</b>
<b>SUBTOTALS (7 OF 10)</b>				<b>12,437</b>			<b>135</b>	<b>1</b>	<b>1</b>	<b>8</b>		<b>511,134</b>
<b>PROJECT TOTALS</b>				<b>25,356</b>	<b>946</b>	<b>192</b>	<b>594</b>	<b>11</b>	<b>5</b>	<b>8</b>		<b>1,268,576</b>

[\*] PART OF MILESTONE. SEE GENERAL NOTES ITEM 8.



**FM 2493, Etc**

QUANTITY SUMMARY SEALCOAT


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CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH, Etc	29	

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PAVEMENT MARKING SUMMARY (9 OF 10)										
REF. NO.	COUNTY	ROADWAY	CSJ	ITEM 678						
				PAV SURF PREP FOR MRK (6")	PAV SURF PREP FOR MRK (8")	PAV SURF PREP FOR MRK (24")	PAV SURF PREP FOR MRK (ARROW)	PAV SURF PREP FOR MRK (WORD)	PAV SURF PREP FOR MRK (36") (YLD TRI)	
CONTROL CSJ 0191-03-089. ETC				LF	LF	LF	EA	EA	EA	
1	ANDERSON	FM 2022	1875 - 04 - 002							
2	ANDERSON	FM 323	0891 - 02 - 022							
3	ANDERSON	FM 860	0458 - 03 - 011	880						
4	ANDERSON	FM 2419	2272 - 01 - 009							
5	ANDERSON	FM 2022	1875 - 05 - 002							
6	CHEROKEE	US 84	0123 - 03 - 024							
7	CHEROKEE	US 84	0123 - 03 - 023							
8	CHEROKEE	FM 768	1124 - 01 - 012	532						
9	CHEROKEE	FM 768	1124 - 02 - 006							
10	CHEROKEE	FM 13	0591 - 03 - 010							
11	CHEROKEE	FM 346	1764 - 02 - 008	664						
12	CHEROKEE	SL 456	3201 - 01 - 009	772						
13	GREGG	SH 300	1385 - 02 - 025							
14	GREGG	FM 2275	2158 - 01 - 027	3,908		135	1	1	8	
15	GREGG	SS 502	0392 - 08 - 024							
16	HENDERSON	FM 3506	3574 - 01 - 003	1,828						
17	HENDERSON	US 175	0198 - 01 - 034							
18	HENDERSON	US 175	0198 - 02 - 036	1,878						
19	HENDERSON	US 175	0198 - 02 - 037	1,000						
20	HENDERSON	US 175	0198 - 02 - 038							
21	HENDERSON	FM 2010	2840 - 02 - 006							
22	HENDERSON	FM 1803	2986 - 01 - 003							
23	HENDERSON	FM 314	1789 - 01 - 015	975						
24	RUSK	FM 1798	0706 - 02 - 025							
25	RUSK	FM 1798	1669 - 02 - 012							
<b>SUBTOTALS (9 OF 10)</b>				<b>12,437</b>		<b>135</b>	<b>1</b>	<b>1</b>	<b>8</b>	



**FM 2493, Etc**

**QUANTITY SUMMARY SEALCOAT**

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CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST		COUNTY	SHEET NO.
TYL		SMITH, Etc	30

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**PAVEMENT MARKING SUMMARY (10 OF 10)**

REF. NO.	COUNTY	ROADWAY	CSJ	ITEM 678					
				PAV SURF PREP FOR MRK (6")	PAV SURF PREP FOR MRK (8")	PAV SURF PREP FOR MRK (24")	PAV SURF PREP FOR MRK (ARROW)	PAV SURF PREP FOR MRK (WORD)	PAV SURF PREP FOR MRK (36") (YLD TRI)
<b>CONTROL CSJ 0191-03-089. ETC</b>				<b>LF</b>	<b>LF</b>	<b>LF</b>	<b>EA</b>	<b>EA</b>	<b>EA</b>
26	RUSK	FM 1798	0424 - 05 - 028						
27	RUSK	SH 323	0592 - 01 - 018	160	320		4	2	
28	RUSK	FM 13	0591 - 02 - 02	284					
29	SMITH	SH 135	0378 - 03 - 019						
30	SMITH	FM 2493	0191 - 03 - 089	4,084	626	459	6	2	
31	SMITH	FM 15	0491 - 01 - 011						
32	SMITH	FM 2607	2623 - 01 - 006						
33	SMITH	FM 3341	3402 - 01 - 002	240					
34	VAN ZANDT	FM 47	0646 - 02 - 034						
35	VAN ZANDT	SH 64	0245 - 01 - 035						
36	VAN ZANDT	FM 16	0522 - 03 - 027						
37	VAN ZANDT	FM 773	1099 - 01 - 009						
38	VAN ZANDT	FM 859	1171 - 02 - 016						
39	VAN ZANDT	FM 2010	2840 - 01 - 006						
40	WOOD	US 69	0190 - 03 - 088	5,320					
41	WOOD	FM 2225	2409 - 02 - 007						
42	WOOD	FM 1643	2794 - 01 - 005						
43	WOOD	FM 1647	1674 - 01 - 002						
44	WOOD	FM 2455	1579 - 01 - 002						
45	WOOD	FM 852	0767 - 05 - 009						
46	WOOD	SH 154	0401 - 02 - 036						
47	WOOD	US 80	0096 - 02 - 052	1,140					
48	WOOD	FM 312	0492 - 02 - 022	863					
49	WOOD	FM 312	0492 - 02 - 023	828					
USE AS DIRECTED				0191 - 03 - 089					
<b>SUBTOTALS (10 OF 10)</b>				<b>12,919</b>	<b>946</b>	<b>459</b>	<b>10</b>	<b>4</b>	
<b>SUBTOTALS (9 OF 10)</b>				<b>12,437</b>		<b>135</b>	<b>1</b>	<b>1</b>	<b>8</b>
<b>PROJECT TOTALS</b>				<b>25,356</b>	<b>946</b>	<b>594</b>	<b>11</b>	<b>5</b>	<b>8</b>

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 Texas Department of Transportation

FM 2493,Etc

QUANTITY SUMMARY SEALCOAT

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CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH,Etc	31	

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BASIS OF ESTIMATE				
ITEM		DESCRIPTION	QUANTITY	PAY UNITS
<b>CSJ 0910-00-118</b>				
500	7001	MOBILIZATION	1	LS
502	7001	BARRICADES, SIGNS, AND TRAFFIC HANDLING	3	MO


NOTE: PART OF MILESTONE. SEE GENERAL NOTES ITEM 8.

TRUCK MOUNTED ATTENUATORS			
STAGE OF PROJECT	NUMBER OF TRUCKS	ITEM 505	
		[1] TMA (STATIONARY) DAYS	[1] TMA (MOBILE OPERATION) DAYS
<b>CSJ 0910-00-118</b>			
THERMOPLASTIC MARKINGS	2		48
PROFILE MARKINGS	1	22	
<b>CSJ 2195-02-008</b>			
THERMOPLASTIC MARKINGS	2		1
PROFILE MARKINGS	1	1	
<b>CSJ 1929-01-012</b>			
THERMOPLASTIC MARKINGS	2		1
PROFILE MARKINGS	1	1	
<b>CSJ 0345-09-012</b>			
THERMOPLASTIC MARKINGS	2		1
PROFILE MARKINGS	1	1	
<b>CSJ 2066-01-007</b>			
THERMOPLASTIC MARKINGS	2		1
PROFILE MARKINGS	1	1	
<b>PROJECT TOTAL</b>		<b>26</b>	<b>52</b>

NOTE: PART OF MILESTONE. SEE GENERAL NOTES ITEM 8.

[1] TOTAL DAYS FOR NUMBER OF TRUCKS SHOWN.

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 Texas Department of Transportation			
FM 2493,Etc QUANTITY SUMMARY THERMO			
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CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH,Etc		32




**THERMOPLASTIC PAVEMENT MARKING SUMMARY (1 OF 6)**

REF. NO.	COUNTY	ROADWAY	CS	ITEM 668	ITEM 666											
				[1] PRFB RUMBLE STRIP (BLK) (1')(CENTERLINE)	REFL PAV MRK TY I (100MIL)					REFL PAV MRK TY I (100MIL)				RE PROFILE PM TY I (100MIL)		
					WHITE					WHITE		YELLOW		WHITE	YELLOW	
					8" (SLD)	18" (SLD)	24" (SLD)	6" (DOT)	8" (DOT)	6" (BRK)	6" (SLD)	6" (BRK)	6" (SLD)	6" (SLD)	6" (BRK)	6" (SLD)
LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF				
<b>CSJ 0910-00-118</b>																
102	ANDERSON	US 175	0198 - 03				78			10,490				39,748	3,790	42,666
103	ANDERSON	SH 155	0520 - 08		425	130	187			4,860		4,530	18,140			
104	ANDERSON	FM 2961	3019 - 01	80			60					7,360	64,891			
105	CHEROKEE	FM 235	1150 - 02		174		265							67,154	3,150	55,329
107	CHEROKEE	US 69	0199 - 03		4,322	114	317		40	5,270				22,640	6,040	43,278
108	CHEROKEE	US 69	0199 - 01		4,372		784		50	4,630	14,396	4,200	20,984			
109	CHEROKEE	US 69	0199 - 02		115		48			1,600				6,410		7,842
112	GREGG	US 271	0165 - 03		230		1,279							1,176	938	8,662
113	GREGG	US 271	0248 - 06		667		590							576	1,560	8,226
114	GREGG	FM 2276	2159 - 01		301		186				36,706	2,150	26,839			
115	GREGG	FM 2011	1932 - 01				403							34,275	3,160	50,229
116	HENDERSON	SH 198	1668 - 01		70		135				38,834	8,150	36,081			
117	HENDERSON	SH 198	0646 - 05				54				10,047		10,212			
118	HENDERSON	SH 19	0108 - 04			76	146	110		740				38,672	6,810	47,265
119	HENDERSON	FM 59	0458 - 01		1,308		147				43,452	430	48,450			
120	HENDERSON	BU175G	0198 - 01		443		101			3,150	10,730	1,100	16,478			
121	HENDERSON	RM 2329	2196 - 01				95				74,876	3,960	56,480			
122	RUSK	FM 2012	1933 - 02				498							83,496	4,180	65,309
123	RUSK	US 259	0138 - 02		3,344		255		330	13,610	57,454					55,854
124	RUSK	BU 259	0138 - 02		2,994		50		45	2,660	11,081					2,660
125	RUSK	FM 850	1163 - 02		732	82	554			320				75,604	4,930	51,363
126	SMITH	SL 124	0245 - 16		187		187			360	10,260		11,264			
127	SMITH	SH 110	0505 - 02				81				61,494	1,940	54,118			
128	SMITH	FM 344	0927 - 01		268		79							45,808	1,760	37,146
129	SMITH	FM 849	0429 - 05		857	52	325				54,676	810	53,923			
130	SMITH	FM 2015	1934 - 02		522		242		110		65,304	3,560	54,380			
<b>CSJ: 0910-00-118 SUBTOTALS (1 OF 6)</b>				<b>80</b>	<b>21,331</b>	<b>454</b>	<b>7,146</b>	<b>110</b>	<b>575</b>	<b>47,690</b>	<b>489,310</b>	<b>38,190</b>	<b>472,240</b>	<b>415,559</b>	<b>36,318</b>	<b>475,829</b>

NOTE: 1. QUANTITIES DO NOT REFLECT LEAVE OUTS FOR INTERSECTIONS.  
 2. PART OF MILESTONE. SEE GENERAL NOTES ITEM 8.  
 [1] USE TRANSVERSE RUMBLE STRIPS FOR PREFORMED THERMOPLASTIC STRIPS. CUT TO LENGTH AND SPACE AS SHOWN ON "CENTERLINE RUMBLE STRIPS ON TWO LANE TWO WAY HIGHWAYS" STANDARD

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**FM 2493, Etc**  
**QUANTITY SUMMARY THERMO**

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CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH, Etc		33

CK: DW: CK: DW:

### THERMOPLASTIC PAVEMENT MARKING SUMMARY (2 OF 6)

REF. NO.	COUNTY	ROADWAY	CS	ITEM 668	ITEM 666											
				[1] PRFB RUMBLE STRIP (BLK) (1')(CENTERLINE)	REFL PAV MRK TY I (100MIL)					REFL PAV MRK TY I (100MIL)				RE PROFILE PM TY I (100MIL)		
					WHITE					WHITE		YELLOW		WHITE	YELLOW	
					8" (SLD)	18" (SLD)	24" (SLD)	6" (DOT)	8" (DOT)	6" (BRK)	6" (SLD)	6" (BRK)	6" (SLD)	6" (SLD)	6" (BRK)	6" (SLD)
<b>CSJ 0910-00-118</b>				<b>LF</b>	<b>LF</b>	<b>LF</b>	<b>LF</b>	<b>LF</b>	<b>LF</b>	<b>LF</b>	<b>LF</b>	<b>LF</b>	<b>LF</b>	<b>LF</b>	<b>LF</b>	
131	SMITH	US 69	0190 - 04		16,853		240			19,240	73,998	3,120	71,158			
132	SMITH	SH 64	0245 - 06				55							10,506	720	10,806
133	SMITH	SH 64	0245 - 07		2,869		155				51,462	4,730	39,123			
134	SMITH	US 80	0095 - 08		361		42			4,110	16,640		17,120			
135	VAN ZANDT	FM 47	0646 - 01		141		248							54,394	3,850	32,912
136	VAN ZANDT	SH 110	0505 - 01				102							54,744	1,590	46,869
137	VAN ZANDT	SH 243	0522 - 02		1,745	64	1,592		150		128,622	13,720	70,801			
138	VAN ZANDT	FM 773	1099 - 04	80			189							56,313	3,480	40,872
139	VAN ZANDT	US 80	0095 - 07		980		154			17,020	65,020	410	64,064			
140	VAN ZANDT	SH 19	0108 - 01		930		278				79,526	6,450	47,844			
141	WOOD	FM 852	0767 - 04		230		321							108,902	4,420	89,588
142	WOOD	SH 154	0401 - 02	80	1,948		215		690	40	100,784	7,240	56,212			
143	WOOD	FM 2896	2958 - 02				162							84,950	5,850	62,218
144	WOOD	FM 779	1111 - 01				257							62,224	2,980	50,837
145	WOOD	US 80	0095 - 09		979		388			12,040	53,674		66,582			
146	WOOD	US 80	0096 - 01				138			2,600	10,400	1,770	14,120			
147	WOOD	FM 14	0492 - 03		940	130	648	358	644	7,010				26,370	610	38,094
<b>CSJ: 0910-00-118 SUBTOTALS (2 OF 6)</b>				<b>160</b>	<b>27,976</b>	<b>194</b>	<b>5,184</b>	<b>358</b>	<b>1,484</b>	<b>62,060</b>	<b>580,126</b>	<b>37,440</b>	<b>447,024</b>	<b>458,403</b>	<b>23,500</b>	<b>372,196</b>
<b>CSJ: 0910-00-118 SUBTOTALS (1 OF 6)</b>				<b>80</b>	<b>21,331</b>	<b>454</b>	<b>7,146</b>	<b>110</b>	<b>575</b>	<b>47,690</b>	<b>489,310</b>	<b>38,190</b>	<b>472,240</b>	<b>415,559</b>	<b>36,318</b>	<b>475,829</b>
<b>CSJ: 0910-00-118 TOTALS</b>				<b>240</b>	<b>49,307</b>	<b>648</b>	<b>12,330</b>	<b>468</b>	<b>2,059</b>	<b>109,750</b>	<b>1,069,436</b>	<b>75,630</b>	<b>919,264</b>	<b>873,962</b>	<b>59,818</b>	<b>848,025</b>
<b>CSJ 2195-02-008</b>				<b>CSJ</b>												
101	ANDERSON	FM 2330	2195-02-008				176					16,440	57,242	75,850		
<b>CSJ: 2195-02-008 SUBTOTALS</b>							<b>176</b>					<b>16,440</b>	<b>57,242</b>	<b>75,850</b>		
<b>CSJ 1929-01-012</b>				<b>CSJ</b>												
106	CHEROKEE	FM 1857	1929-01-012				196							108,862	7,970	66,563
<b>CSJ: 1929-01-012 SUBTOTALS</b>							<b>196</b>							<b>108,862</b>	<b>7,970</b>	<b>66,563</b>
<b>CSJ 0345-09-012</b>				<b>CSJ</b>												
110	CHEROKEE	FM 752	0345-09-012		630	56	293							78,052	2,560	58,360
<b>CSJ: 0345-09-012 SUBTOTALS</b>					<b>630</b>	<b>56</b>	<b>293</b>							<b>78,052</b>	<b>2,560</b>	<b>58,360</b>
<b>CSJ 2066-01-007</b>				<b>CSJ</b>												
111	CHEROKEE	FM 752	2066-01-007				155							67,800	350	6,793
<b>CSJ: 2066-01-007 SUBTOTALS</b>							<b>155</b>							<b>67,800</b>	<b>350</b>	<b>6,793</b>
<b>PROJECT TOTALS</b>				<b>240</b>	<b>49,937</b>	<b>704</b>	<b>13,150</b>	<b>468</b>	<b>2,059</b>	<b>109,750</b>	<b>1,069,436</b>	<b>92,070</b>	<b>976,506</b>	<b>1,204,526</b>	<b>70,698</b>	<b>979,741</b>

NOTE: 1. QUANTITIES DO NOT REFLECT LEAVE OUTS FOR INTERSECTIONS.  
 2. PART OF MILESTONE. SEE GENERAL NOTES ITEM 8.  
 [1] USE TRANSVERSE RUMBLE STRIPS FOR PREFORMED THERMOPLASTIC STRIPS. CUT TO LENGTH AND SPACE AS SHOWN ON "CENTERLINE RUMBLE STRIPS ON TWO LANE TWO WAY HIGHWAYS" STANDARD

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**FM 2493, Etc**

**QUANTITY SUMMARY THERMO**

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CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST		COUNTY	SHEET NO.
TYL		SMITH, Etc	34

DATE: 10/15/2024 12:29:17 PM  
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THERMOPLASTIC PAVEMENT MARKING SUMMARY (3 OF 6)															
REF. NO.	COUNTY	ROADWAY	CS	ITEM 668										ITEM 672	
				PREFAB PM TY C										REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A
				WHITE											
				(ARROW)	(DBL ARROW)	(LN REDUCT ARROW)	(WORD)	[1] (RR XING)	(18") (YLD TRI)	(36") (YLD TRI)	(BIKE ARROW)	(BIKE SYMBOL)	BL&WH (ACC PRK)		
CSJ 0910-00-118				EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	
102	ANDERSON	US 175	0198 - 03	38			20			60				212	410
103	ANDERSON	SH 155	0520 - 08	23			3							279	640
104	ANDERSON	FM 2961	3019 - 01												1,188
105	CHEROKEE	FM 235	1150 - 02											35	996
107	CHEROKEE	US 69	0199 - 03	37	1		26			50				645	757
108	CHEROKEE	US 69	0199 - 01	35			24			34		1		448	831
109	CHEROKEE	US 69	0199 - 02	1			1							84	98
112	GREGG	US 271	0165 - 03	8			2	2						12	184
113	GREGG	US 271	0248 - 06	17			3							85	246
114	GREGG	FM 2276	2159 - 01							3				54	396
115	GREGG	FM 2011	1932 - 01												808
116	HENDERSON	SH 198	1668 - 01											5	379
117	HENDERSON	SH 198	0646 - 05												261
118	HENDERSON	SH 19	0108 - 04	2		1								51	854
119	HENDERSON	FM 59	0458 - 01											186	871
120	HENDERSON	BU175G	0198 - 01	12			4							29	532
121	HENDERSON	RM 2329	2196 - 01					2							883
122	RUSK	FM 2012	1933 - 02					2							983
123	RUSK	US 259	0138 - 02	8	2	1	8			64				103	
124	RUSK	BU 259	0138 - 02	1			1							45	
125	RUSK	FM 850	1163 - 02	3			3			10				84	1,085
126	SMITH	SL 124	0245 - 16	6			6			14				132	272
127	SMITH	SH 110	0505 - 02												741
128	SMITH	FM 344	0927 - 01	2			2							16	807
129	SMITH	FM 849	0429 - 05	4			4							279	759
130	SMITH	FM 2015	1934 - 02	12	2		4							36	679
<b>CSJ: 0910-00-118 SUBTOTALS (3 OF 6)</b>				<b>209</b>	<b>4</b>	<b>3</b>	<b>111</b>	<b>6</b>		<b>235</b>		<b>1</b>	<b>2,820</b>	<b>15,660</b>	

NOTE: 1. QUANTITIES DO NOT REFLECT LEAVE OUTS FOR INTERSECTIONS.  
 2. PART OF MILESTONE. SEE GENERAL NOTES ITEM 8.



**FM 2493, Etc**

**QUANTITY SUMMARY THERMO**


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CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH, Etc		35

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THERMOPLASTIC PAVEMENT MARKING SUMMARY (4 OF 6)															
REF. NO.	COUNTY	ROADWAY	CS	ITEM 668									ITEM 672		
				PREFAB PM TY C									REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	
				WHITE											
				(ARROW)	(DBL ARROW)	(LN REDUCT ARROW)	(WORD)	[1] (RR XING)	(18") (YLD TRI)	(36") (YLD TRI)	(BIKE ARROW)	(BIKE SYMBOL)	BL&WH (ACC PRK)		
<b>CSJ 0910-00-118</b>				EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	
131	SMITH	US 69	0190 - 04	86			78			252			933	672	
132	SMITH	SH 64	0245 - 06											256	
133	SMITH	SH 64	0245 - 07	2			1			26			532	1,148	
134	SMITH	US 80	0095 - 08	2			2			14			85	174	
135	VAN ZANDT	FM 47	0646 - 01	5			1						10	675	
136	VAN ZANDT	SH 110	0505 - 01											722	
137	VAN ZANDT	SH 243	0522 - 02	16			6			24			142	1,681	
138	VAN ZANDT	FM 773	1099 - 04											488	
139	VAN ZANDT	US 80	0095 - 07	2						12			36	165	
140	VAN ZANDT	SH 19	0108 - 01							12			166	1,383	
141	WOOD	FM 852	0767 - 04	2			2						31	1,388	
142	WOOD	SH 154	0401 - 02	5	1	1	7						144	1,385	
143	WOOD	FM 2896	2958 - 02											1,175	
144	WOOD	FM 779	1111 - 01				2							704	
145	WOOD	US 80	0095 - 09	12			12						725	325	
146	WOOD	US 80	0096 - 01	10									130	548	
147	WOOD	FM 14	0492 - 03	2		2	2	4					443	1,011	
USE AS DIRECTED									10		2	2			
<b>CSJ: 0910-00-118 SUBTOTALS (4 OF 6)</b>				<b>144</b>	<b>1</b>	<b>3</b>	<b>113</b>	<b>4</b>	<b>10</b>	<b>340</b>	<b>2</b>	<b>2</b>	<b>3,377</b>	<b>13,900</b>	
<b>CSJ: 0910-00-118 SUBTOTALS (3 OF 6)</b>				<b>209</b>	<b>4</b>	<b>3</b>	<b>111</b>	<b>6</b>		<b>235</b>		<b>1</b>	<b>2,820</b>	<b>15,660</b>	
<b>CSJ: 0910-00-118 TOTALS</b>				<b>353</b>	<b>5</b>	<b>6</b>	<b>224</b>	<b>10</b>	<b>10</b>	<b>575</b>	<b>2</b>	<b>2</b>	<b>6,197</b>	<b>29,560</b>	
<b>CSJ 2195-02-008</b>				<b>CSJ</b>											
101	ANDERSON	FM 2330	2195-02-008											919	
<b>CSJ: 2195-02-008 SUBTOTALS</b>														<b>919</b>	
<b>CSJ 1929-01-012</b>				<b>CSJ</b>											
106	CHEROKEE	FM 1857	1929-01-012											1,069	
<b>CSJ: 1929-01-012 SUBTOTALS</b>														<b>1,069</b>	
<b>CSJ 0345-09-012</b>				<b>CSJ</b>											
110	CHEROKEE	FM 752	0345-09-012							8			130	1,024	
<b>CSJ: 0345-09-012 SUBTOTALS</b>										<b>8</b>			<b>130</b>	<b>1,024</b>	
<b>CSJ 2066-01-007</b>				<b>CSJ</b>											
111	CHEROKEE	FM 752	2066-01-007											832	
<b>CSJ: 2066-01-007 SUBTOTALS</b>														<b>832</b>	
<b>PROJECT TOTALS</b>				<b>353</b>	<b>5</b>	<b>6</b>	<b>224</b>	<b>10</b>	<b>10</b>	<b>583</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>6,327</b>	<b>33,404</b>

NOTE: 1. QUANTITIES DO NOT REFLECT LEAVE OUTS FOR INTERSECTIONS.  
 2. PART OF MILESTONE. SEE GENERAL NOTES ITEM 8.



**FM 2493, Etc**  
**QUANTITY SUMMARY THERMO**

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CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH, Etc		36

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**THERMOPLASTIC PAVEMENT MARKING SUMMARY (5 OF 6)**

REF. NO.	COUNTY	ROADWAY	CS	ITEM 666						ITEM 677						ITEM 678						
				PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	ELIM EXT	ELIM EXT	ELIM EXT	ELIM EXT	ELIM EXT	ELIM EXT	ELIM EXT	PAV	PAV	PAV	PAV	PAV	PAV
				SLER (6")	SLER (8")	SLER (24")	SLER (ARROW)	SLER (WORD)	SLER (YLD TRI)	PM & MRKS (6")	PM & MRKS (8")	PM & MRKS (12")	PM & MRKS (24")	PM & MRKS (ARROW)	PM & MRKS (WORD)	PM & MRKS (YLD TRI)	SURF PREP FOR MRK (6")	SURF PREP FOR MRK (8")	SURF PREP FOR MRK (24")	SURF PREP FOR MRK (ARROW)	SURF PREP FOR MRK (WORD)	SURF PREP FOR MRK (YLD TRI)
<b>CSJ 0910-00-118</b>				LF	LF	LF	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF
102	ANDERSON	US 175	0198 - 03	823	128	30	1	1		823	128	170	30	1	1		823	128	30	1	1	
103	ANDERSON	SH 155	0520 - 08	1,152	234	72	4			1,152	234	360	72	4			1,152	234	72	4		
104	ANDERSON	FM 2961	3019 - 01	340						340							340					
105	CHEROKEE	FM 235	1150 - 02																			
107	CHEROKEE	US 69	0199 - 03																			
108	CHEROKEE	US 69	0199 - 01																			
109	CHEROKEE	US 69	0199 - 02																			
112	GREGG	US 271	0165 - 03																			
113	GREGG	US 271	0248 - 06																			
114	GREGG	FM 2276	2159 - 01																			
115	GREGG	FM 2011	1932 - 01																			
116	HENDERSON	SH 198	1668 - 01																			
117	HENDERSON	SH 198	0646 - 05																			
118	HENDERSON	SH 19	0108 - 04																			
119	HENDERSON	FM 59	0458 - 01																			
120	HENDERSON	BU175G	0198 - 01							3,800												
121	HENDERSON	RM 2329	2196 - 01																			
122	RUSK	FM 2012	1933 - 02																			
123	RUSK	US 259	0138 - 02	1,086	543					1,086	543						1,086	543				
124	RUSK	BU 259	0138 - 02																			
125	RUSK	FM 850	1163 - 02																			
126	SMITH	SL 124	0245 - 16																			
127	SMITH	SH 110	0505 - 02																			
128	SMITH	FM 344	0927 - 01																			
129	SMITH	FM 849	0429 - 05	2,125	161		1	1		2,125	161			1	1		2,125	161		1	1	
130	SMITH	FM 2015	1934 - 02																			
<b>CSJ: 0910-00-118 SUBTOTALS (5 OF 6)</b>				<b>5,526</b>	<b>1,066</b>	<b>102</b>	<b>6</b>	<b>2</b>		<b>9,326</b>	<b>1,066</b>	<b>530</b>	<b>102</b>	<b>6</b>	<b>2</b>		<b>5,526</b>	<b>1,066</b>	<b>102</b>	<b>6</b>	<b>2</b>	

NOTE: 1. QUANTITIES DO NOT REFLECT LEAVE OUTS FOR INTERSECTIONS.  
 2. PART OF MILESTONE. SEE GENERAL NOTES ITEM 8.



**FM 2493, Etc**

**QUANTITY SUMMARY THERMO**

© TxDOT 2024 SHEET 6 OF 7


CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH, Etc		37

**THERMOPLASTIC PAVEMENT MARKING SUMMARY (6 OF 6)**

REF. NO.	COUNTY	ROADWAY	CS	ITEM 666						ITEM 677						ITEM 678						
				PAVEMENT SLER (6")	PAVEMENT SLER (8")	PAVEMENT SLER (24")	PAVEMENT SLER (ARROW)	PAVEMENT SLER (WORD)	PAVEMENT SLER (YLD TRI)	ELIM EXT PM & MRKS (6")	ELIM EXT PM & MRKS (8")	ELIM EXT PM & MRKS (12")	ELIM EXT PM & MRKS (24")	ELIM EXT PM & MRKS (ARROW)	ELIM EXT PM & MRKS (WORD)	ELIM EXT PM & MRKS (YLD TRI)	PAV SURF PREP FOR MRK (6")	PAV SURF PREP FOR MRK (8")	PAV SURF PREP FOR MRK (24")	PAV SURF PREP FOR MRK (ARROW)	PAV SURF PREP FOR MRK (WORD)	PAV SURF PREP FOR MRK (YLD TRI)
<b>CSJ 0910-00-118</b>				LF	LF	LF	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF
131	SMITH	US 69	0190 - 04	560						560						560						
132	SMITH	SH 64	0245 - 06																			
133	SMITH	SH 64	0245 - 07	1,100	220		1			1,100	220			1		1,100	220		1			
134	SMITH	US 80	0095 - 08																			
135	VAN ZANDT	FM 47	0646 - 01																			
136	VAN ZANDT	SH 110	0505 - 01																			
137	VAN ZANDT	SH 243	0522 - 02	268	232	56				268	232	176	56			268	232	56				
138	VAN ZANDT	FM 773	1099 - 04																			
139	VAN ZANDT	US 80	0095 - 07																			
140	VAN ZANDT	SH 19	0108 - 01																			
141	WOOD	FM 852	0767 - 04																			
142	WOOD	SH 154	0401 - 02	8,580						8,580						8,580						
143	WOOD	FM 2896	2958 - 02																			
144	WOOD	FM 779	1111 - 01													285						
145	WOOD	US 80	0095 - 09	285						285												
146	WOOD	US 80	0096 - 01																			
147	WOOD	FM 14	0492 - 03																			
USE AS DIRECTED								5		100	100	100	5	5	5						5	
<b>CSJ: 0910-00-118 SUBTOTALS (6 OF 6)</b>				<b>10,793</b>	<b>452</b>	<b>56</b>	<b>1</b>		<b>5</b>	<b>10,793</b>	<b>552</b>	<b>276</b>	<b>156</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>10,793</b>	<b>452</b>	<b>56</b>	<b>1</b>		<b>5</b>
<b>CSJ: 0910-00-118 SUBTOTALS (5 OF 6)</b>				<b>5,526</b>	<b>1,066</b>	<b>102</b>	<b>6</b>	<b>2</b>		<b>9,326</b>	<b>1,066</b>	<b>530</b>	<b>102</b>	<b>6</b>	<b>2</b>		<b>5,526</b>	<b>1,066</b>	<b>102</b>	<b>6</b>	<b>2</b>	
<b>CSJ: 0910-00-118 TOTALS</b>				<b>16,319</b>	<b>1,518</b>	<b>158</b>	<b>7</b>	<b>2</b>	<b>5</b>	<b>20,119</b>	<b>1,618</b>	<b>806</b>	<b>258</b>	<b>12</b>	<b>7</b>	<b>5</b>	<b>16,319</b>	<b>1,518</b>	<b>158</b>	<b>7</b>	<b>2</b>	<b>5</b>
<b>CSJ 2195-02-008</b>				<b>CSJ</b>																		
101	ANDERSON	FM 2330	2195-02-008																			
<b>CSJ: 2195-02-008 SUBTOTALS</b>																						
<b>CSJ 1929-01-012</b>				<b>CSJ</b>																		
106	CHEROKEE	FM 1857	1929-01-012																			
<b>CSJ: 1929-01-012 SUBTOTALS</b>																						
<b>CSJ 0345-09-012</b>				<b>CSJ</b>																		
110	CHEROKEE	FM 752	0345-09-012																			
<b>CSJ: 0345-09-012 SUBTOTALS</b>																						
<b>CSJ 2066-01-007</b>				<b>CSJ</b>																		
111	CHEROKEE	FM 752	2066-01-007																			
<b>CSJ: 2066-01-007 SUBTOTALS</b>																						
<b>PROJECT TOTALS</b>				<b>16,319</b>	<b>1,518</b>	<b>158</b>	<b>7</b>	<b>2</b>	<b>5</b>	<b>20,119</b>	<b>1,618</b>	<b>806</b>	<b>258</b>	<b>12</b>	<b>7</b>	<b>5</b>	<b>16,319</b>	<b>1,518</b>	<b>158</b>	<b>7</b>	<b>2</b>	<b>5</b>

NOTE: 1. QUANTITIES DO NOT REFLECT LEAVE OUTS FOR INTERSECTIONS.  
 2. PART OF MILESTONE. SEE GENERAL NOTES ITEM 8.

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 Texas Department of Transportation			
FM 2493,Etc QUANTITY SUMMARY THERMO			
©TxDOT 2024		SHEET 7 OF 7	
CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY	SHEET NO.	
TYL	SMITH,Etc	38	

CK: DW: CK: DW:

CONSTRUCTION SEQUENCE OF WORK

GENERAL:

1. THE WORK START DATE FOR THIS CONTRACT IS MARCH 1, 2025.
2. MOBILIZE, PLACE WORK ZONE SIGNS AND BARRICADES IN ACCORDANCE WITH APPLICABLE STANDARDS.
3. MAINTAIN ACCESS TO ALL SIDE STREETS AND DRIVEWAYS AT ALL TIMES WITHIN THE PROJECT LIMITS.

MILESTONE:

A MILESTONE IS BEING INCORPORATED INTO THE CONTRACT WITH A WORK START DATE AND BEGINNING OF WORKING DAY CHARGES OF MARCH 1, 2025.

THERMOPLASTIC STRIPING OPERATIONS "THERMO" AND SPECIFIC SEALCOAT OPERATION ITEMS "RUMBLE" TO BE COMPLETED IN 90 CALENDAR DAYS PER ITEM 8 IN GENERAL NOTES.

"THERMO": ALL ITEMS IN REFERENCE TO THE THERMO SECTION OF THE PLAN SET. SEE ITEM 8 IN GENERAL NOTES.

"RUMBLE": SPECIFIC ITEMS IN REFERENCE TO THE SEALCOAT SECTION OF THE PLAN SET. SEE ITEM 8 IN GENERAL NOTES.

1. INSTALL REFLECTORIZED PROFILE PAVEMENT MARKINGS. ("THERMO")
2. ELIMINATE EXISTING CONCRETE PAVEMENT MARKS AND MARKINGS. ("THERMO") \*
3. INSTALL PREFROMED RUMBLE STRIPS, PREFAB AND THERMOPLASTIC REFLECTORIZED PAVEMENT MARKINGS. ("THERMO")
4. ELIMINATE EXISTING PROFILE PAVEMENT MARKINGS. ("RUMBLE")
5. INSTALL MILLED RUMBLE STRIPS. ("RUMBLE")
6. CLEANUP.

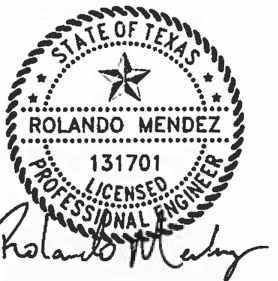
SEAL COAT:

SEAL COAT OPERATIONS MAY BE PERFORMED STARTING MAY 1, 2025. (SEAL COAT SEASON BEGINS MAY 1, 2025 AND ENDS AUGUST 31, 2025)

1. COMPLETE SEALCOAT OPERATIONS AT ALL REFERENCE LOCATIONS.
2. ELIMINATE EXISTING CONCRETE PAVEMENT MARKS AND MARKINGS. \*
3. COMPLETE WORK ZONE STRIPING FOR ALL SEALCOAT REFERENCE LOCATIONS
4. PERFORM FINAL CLEANUP. \*
5. REMOVE ALL WORK ZONE SIGNS, AND BARRICADES.

NOTES:

- \* SEE GENERAL NOTE ITEM 677 FOR BRIDGE JOINT DAMAGES
- \* REFER TO GENERAL NOTES SHEET E FOR RELOCATION OF STOCKPILES



10/03/2024



FM 2493,Etc  
 CONSTRUCTION  
 SEQUENCE OF WORK

2024		SHEET 1 OF 1	
CONT	SECT	JOB	HIGHWAY
0191	03	089,Etc	FM 2493,Etc
DIST	COUNTY		SHEET NO.
TYL	SMITH,Etc		39

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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).

<b>THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT</b> <a href="http://www.txdot.gov">http://www.txdot.gov</a>
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

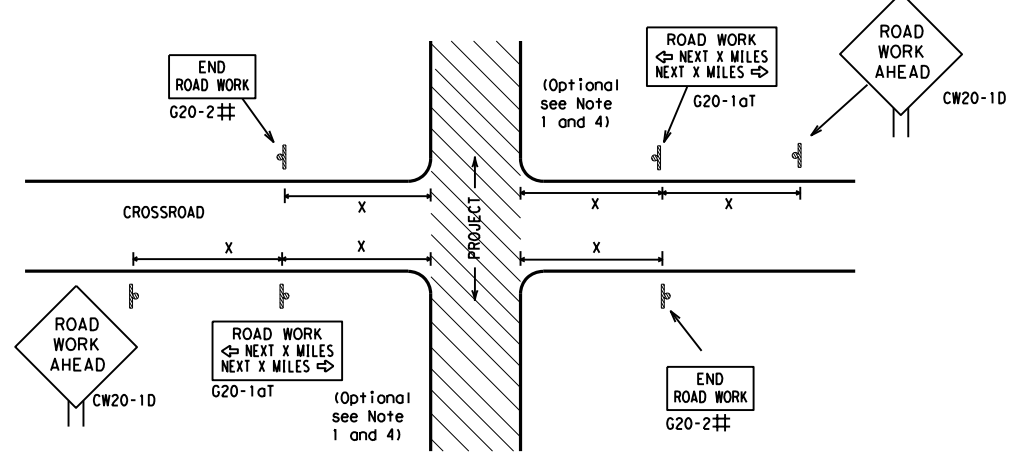
 Texas Department of Transportation		Traffic Safety Division Standard
<b>BARRICADE AND CONSTRUCTION          GENERAL NOTES          AND REQUIREMENTS</b>		
<b>BC (1) - 21</b>		
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© TxDOT November 2002	CONT SECT	JOB HIGHWAY
REVISIONS	0191 03	089, E+c FM 2493, E+c
4-03 7-13		
9-07 8-14		
5-10 5-21	TYL	SMITH, E+c
		SHEET NO. <b>40</b>



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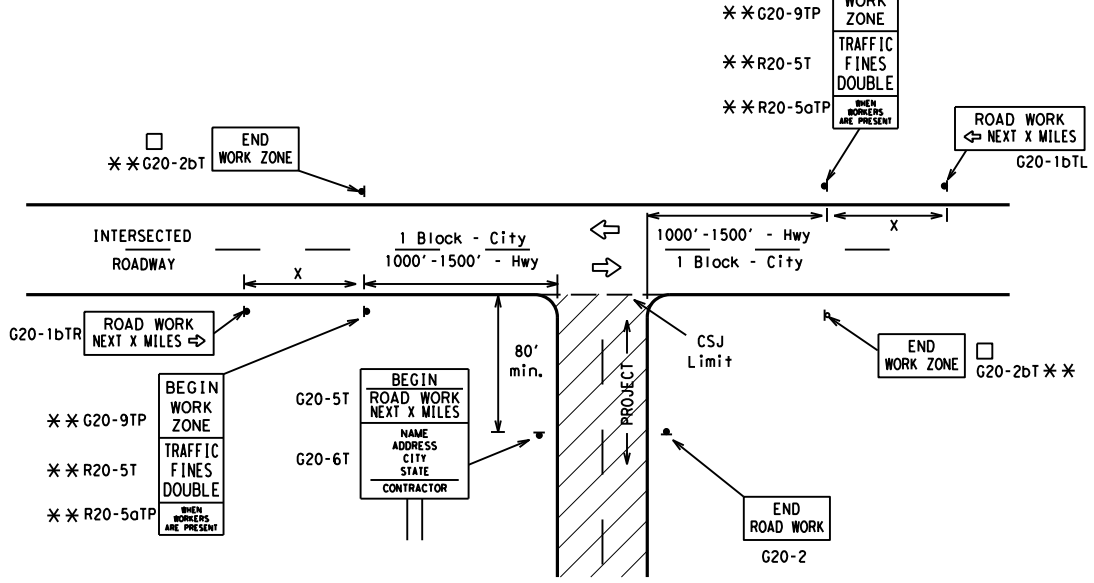
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**TYPICAL LOCATION OF CROSSROAD SIGNS**



- ## 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<sup>1,5,6</sup>**

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

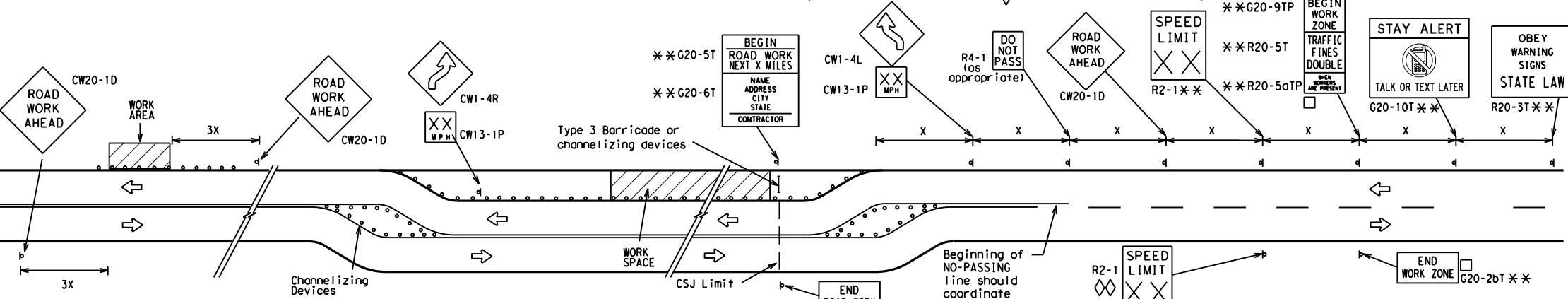
\* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

**GENERAL NOTES**

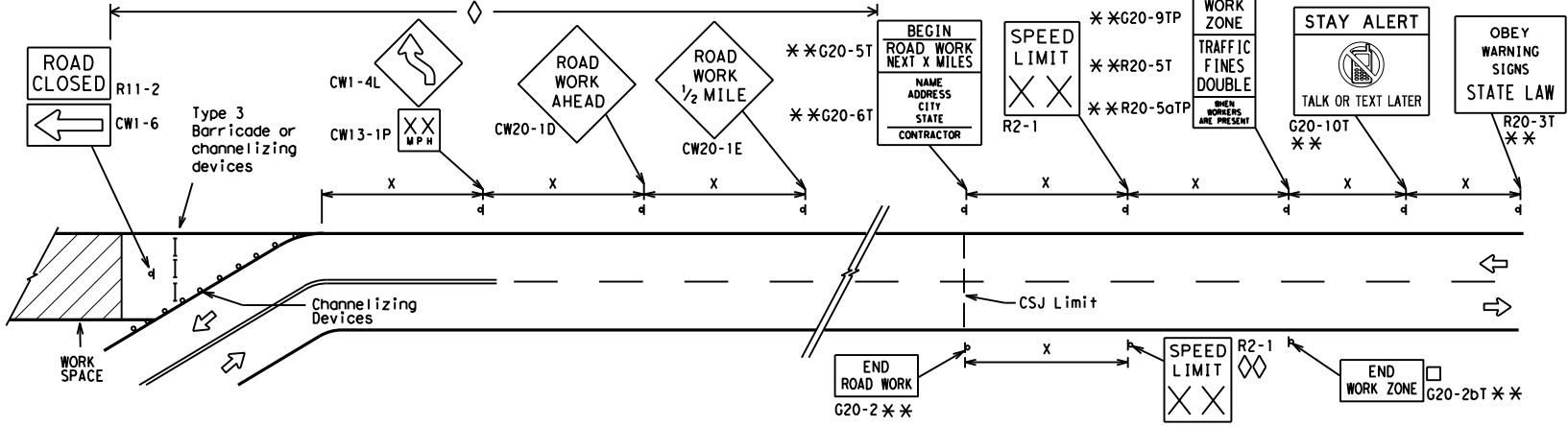
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be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

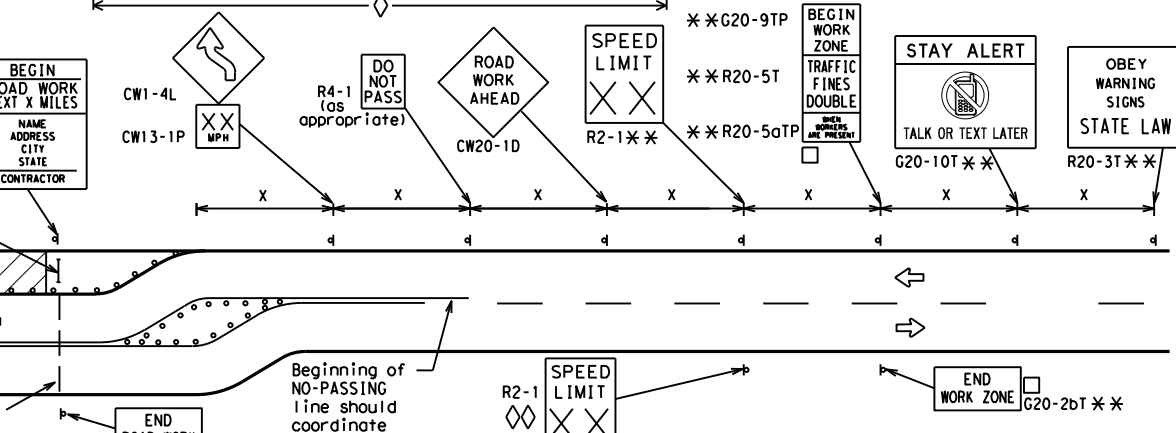


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

Texas Department of Transportation  
 Traffic Safety Division Standard

**BARRICADE AND CONSTRUCTION PROJECT LIMIT**

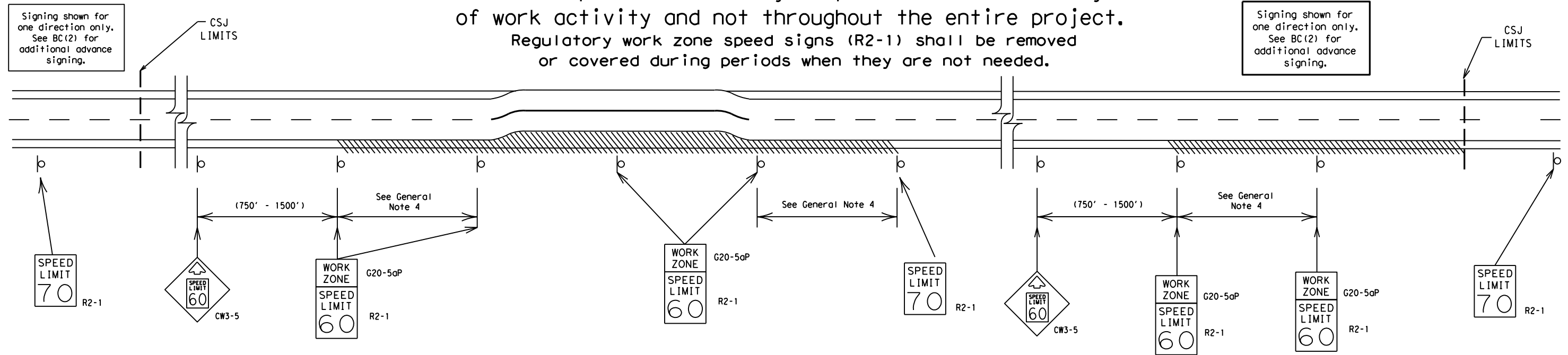
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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089, Etc	FM 2493, Etc
9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	TYL	SMITH, Etc	41	

# 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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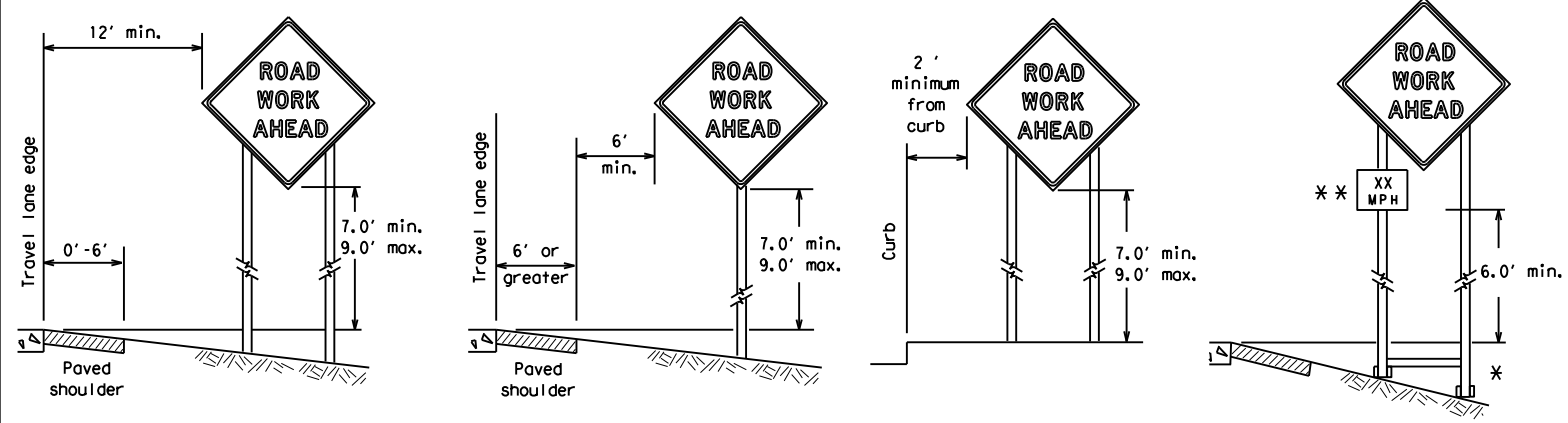
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SHEET 3 OF 12

		Traffic Safety Division Standard	
<h2>BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT</h2>			
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9-07	8-14	JOB:	FM 2493, Etc
7-13	5-21	DIST:	SMITH, Etc
		COUNTY:	
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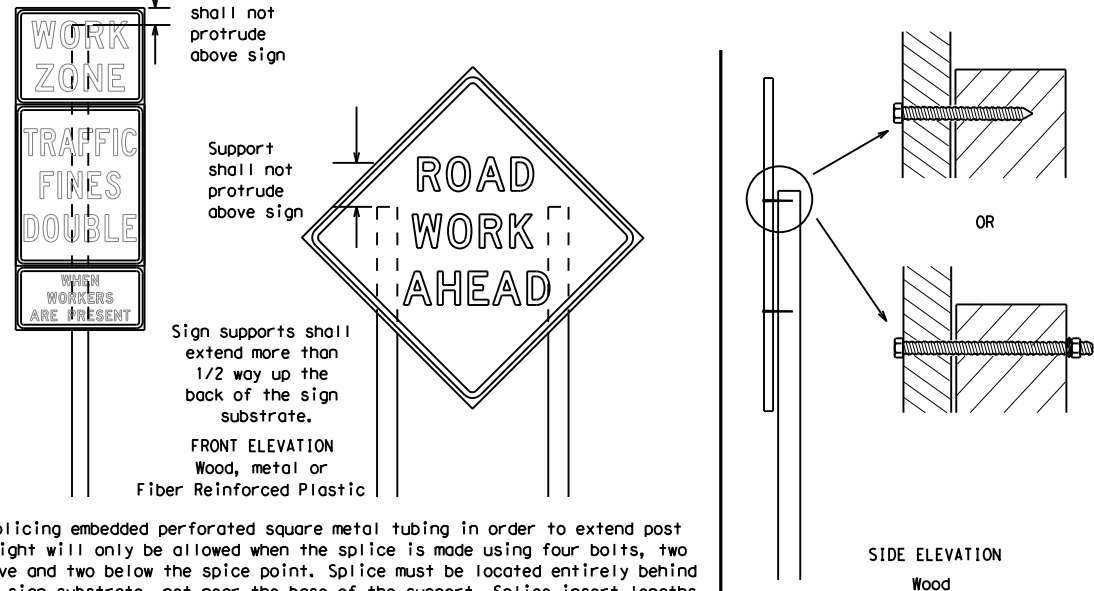
**TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS**



\* 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**



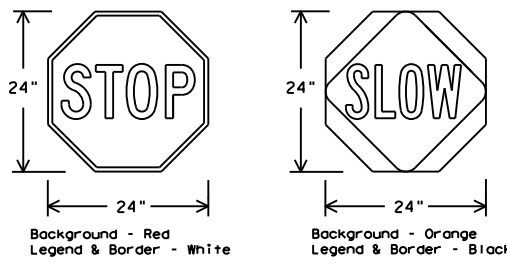
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

**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 retroreflectORIZED when used at night.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B <sub>FL</sub> OR C <sub>FL</sub> 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<sub>FL</sub> or Type C<sub>FL</sub>, 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.

SHEET 4 OF 12



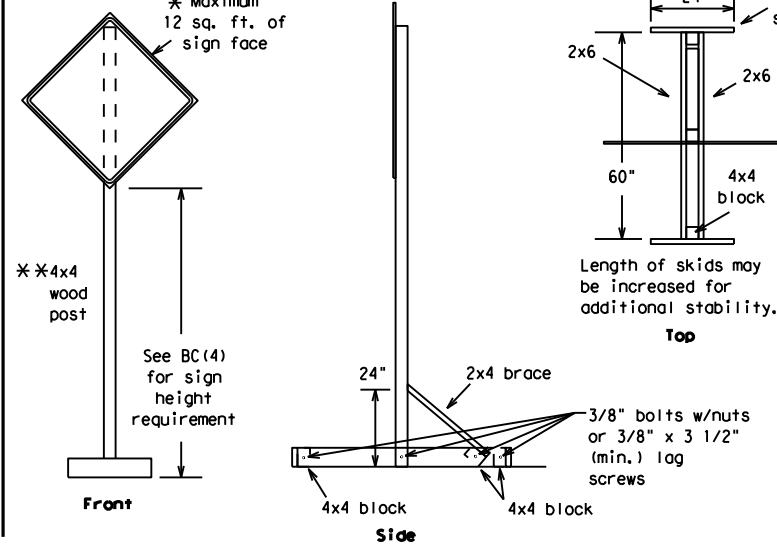
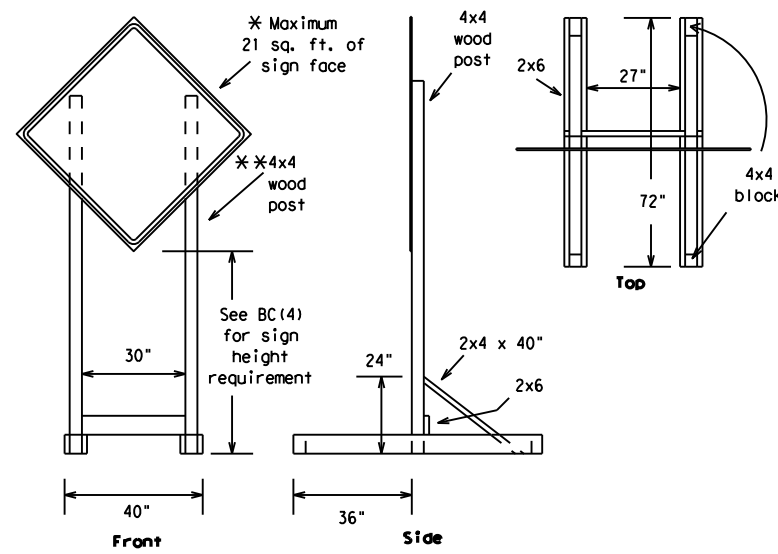
**BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES**

BC (4) - 21

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© TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY				
REVISIONS		0191	03	089, Etc	FM 2493, Etc				
9-07	8-14	DIST	COUNTY	SHEET NO.					
7-13	5-21	TYL	SMITH, Etc	43					

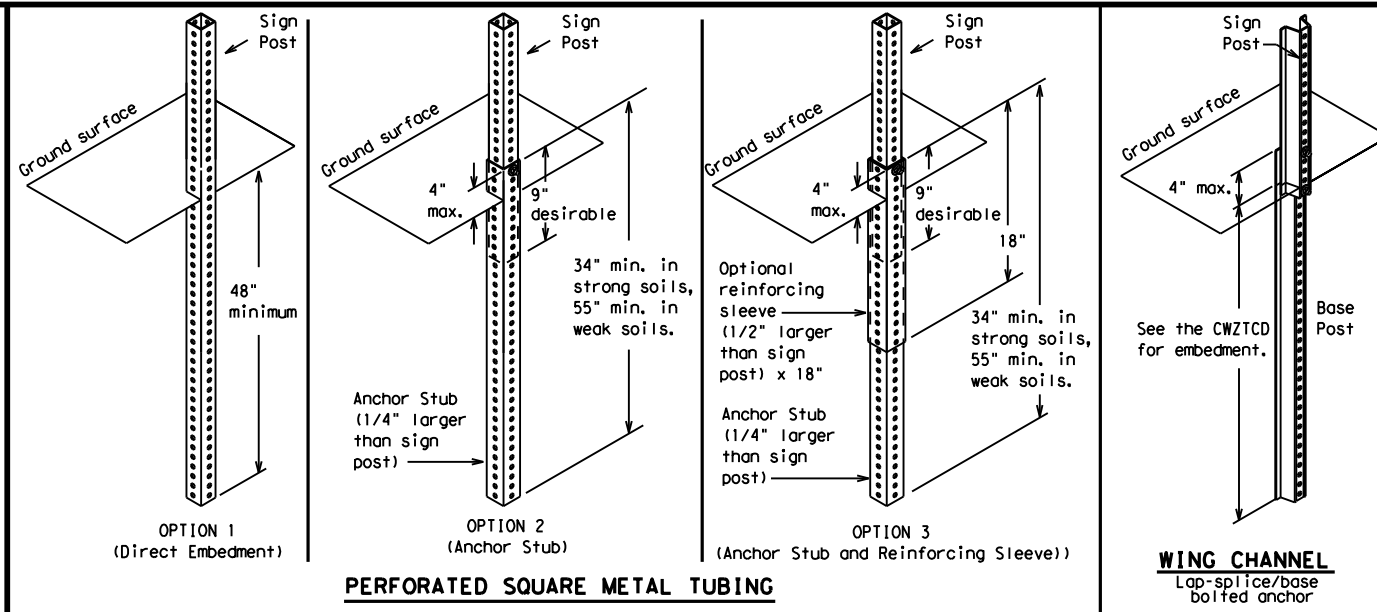
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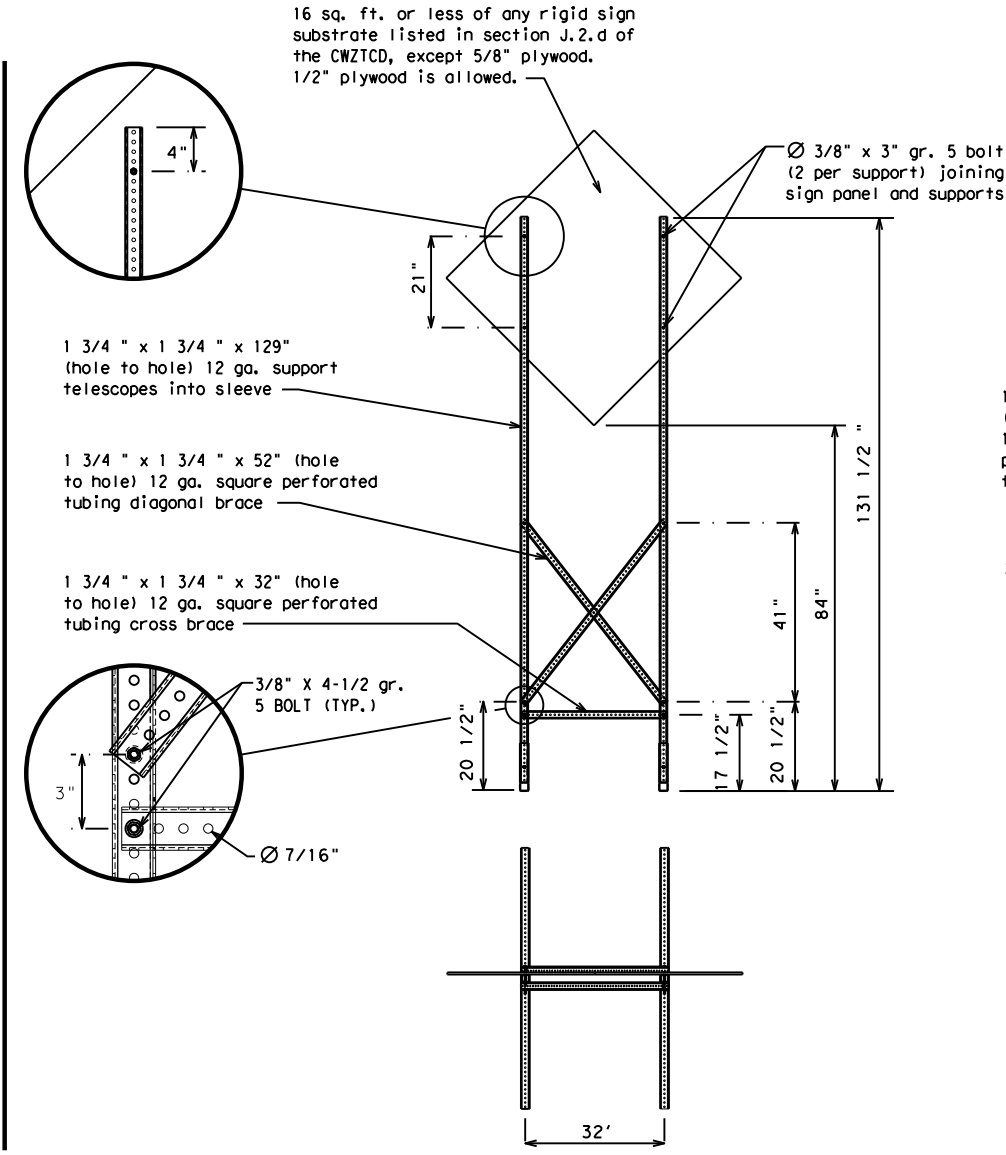
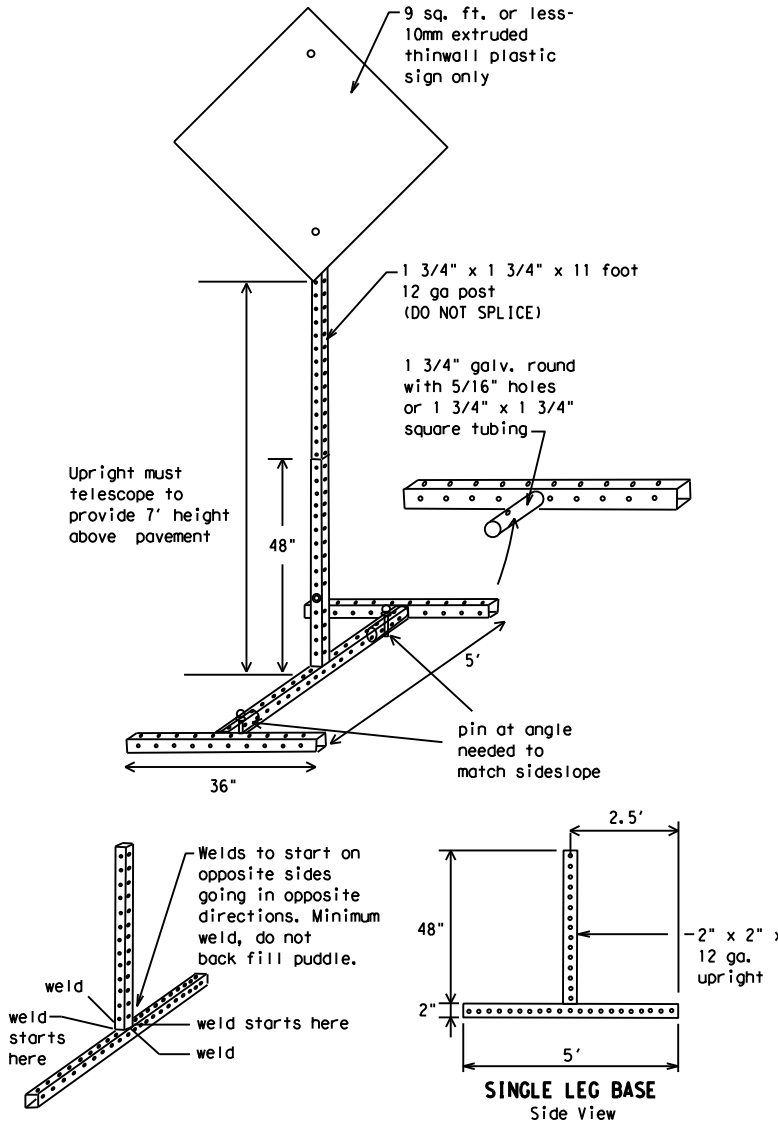
### SKID MOUNTED WOOD SIGN SUPPORTS

\* 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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7-13	5-21	TYL	SMITH, Etc	44					

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

# 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
Hour(s)	HR, HRS	Time Minutes	TIME MIN
Information	INFO	Upper Level	UPR LEVEL
It Is	ITS	Vehicles (s)	VEH, VEHS
Junction	JCT	Warning	WARN
Left	LFT	Wednesday	WED
Left Lane	LFT LN	Weight Limit	WT LIMIT
Lane Closed	LN CLOSED	West	W
Lower Level	LWR LEVEL	Westbound	(route) W
Maintenance	MAINT	Wet Pavement	WET PVMT
		Will Not	WONT

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



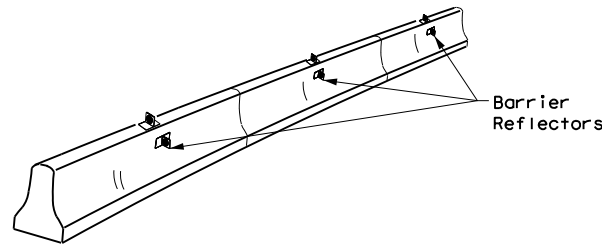
## BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC (6) - 21

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© TxDOT	November 2002	CONT:	SECT:	JOB:	HIGHWAY:				
REVISIONS		0191	03	089, Etc	FM 2493, Etc				
9-07	8-14	DIST:	COUNTY:	SHEET NO.					
7-13	5-21	TYL	SMITH, Etc	45					

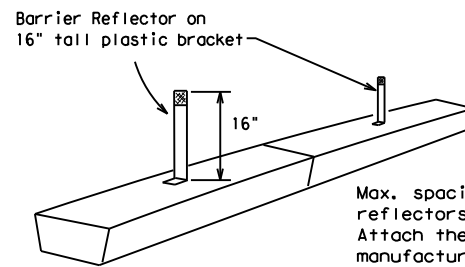
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors 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.

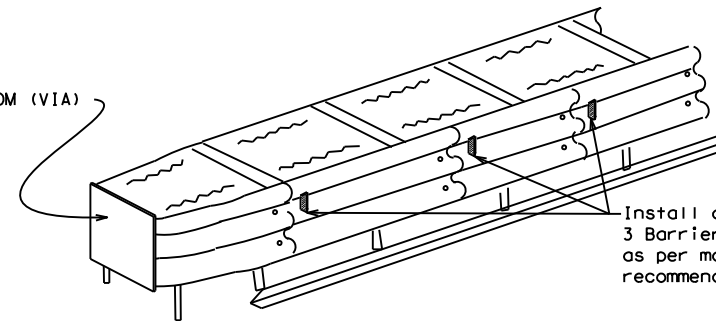


**LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES**

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

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

**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**

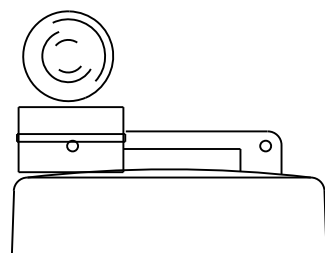
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet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

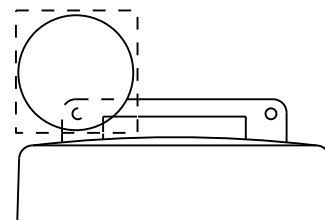
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing 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.



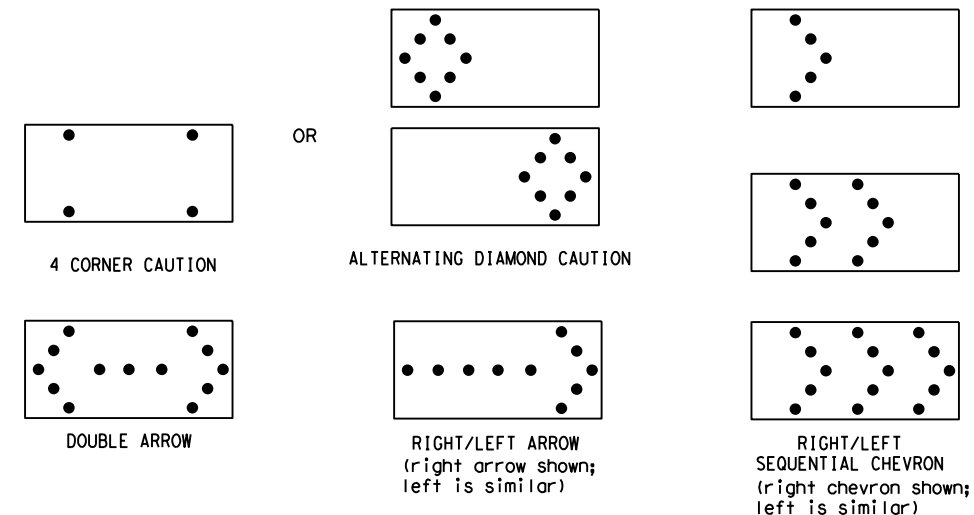
Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



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**

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REVISIONS		0191	03	089, Etc	FM 2493, Etc				
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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**

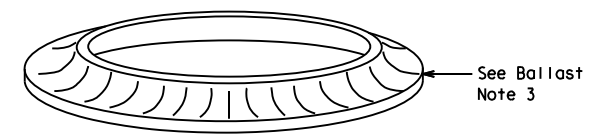
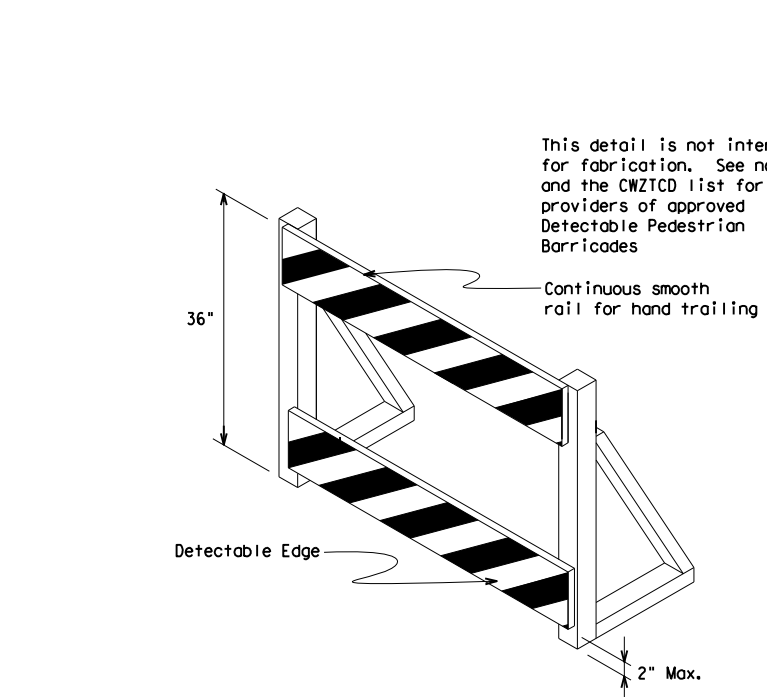
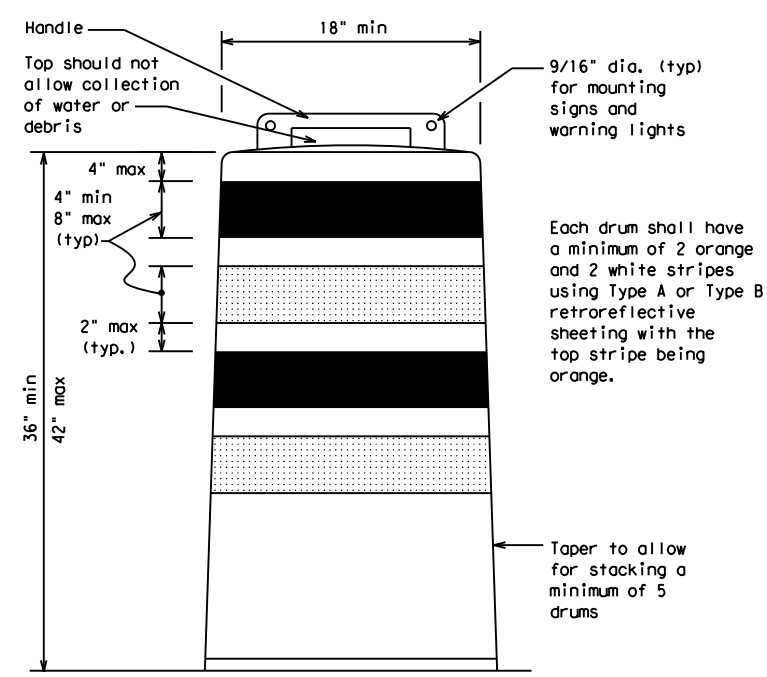
- Pre-qualified plastic drums shall meet the following requirements:
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
  - The body and base shall lock together in such a manner that the body separates from the base when impacted 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.

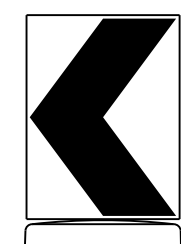
**BALLAST**

- 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.

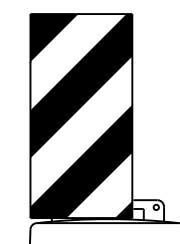


**DETECTABLE PEDESTRIAN BARRICADES**

- 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<sub>FL</sub> or Type C<sub>FL</sub> 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

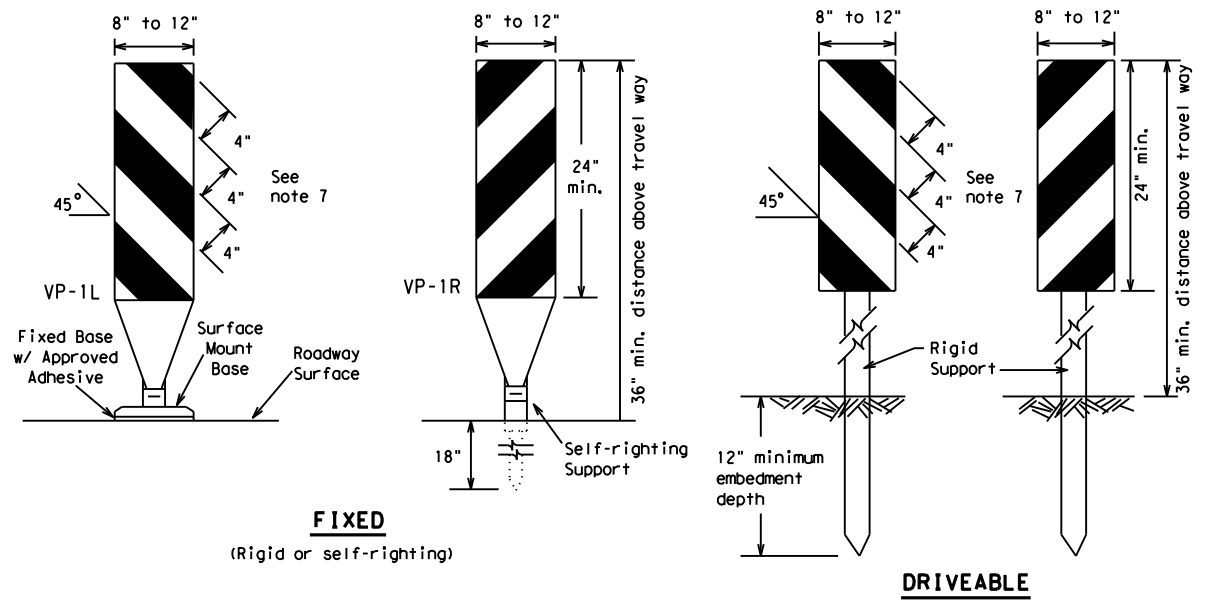


**BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES**

**BC (8) - 21**

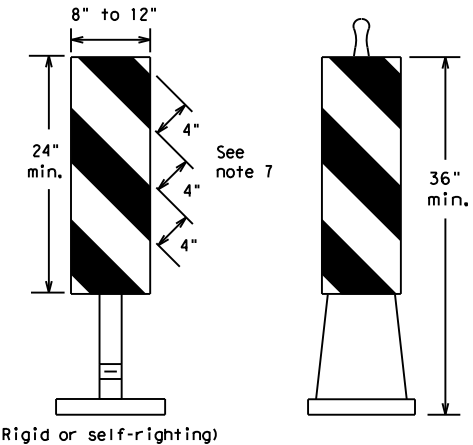
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**FIXED**  
(Rigid or self-righting)

**DRIVEABLE**

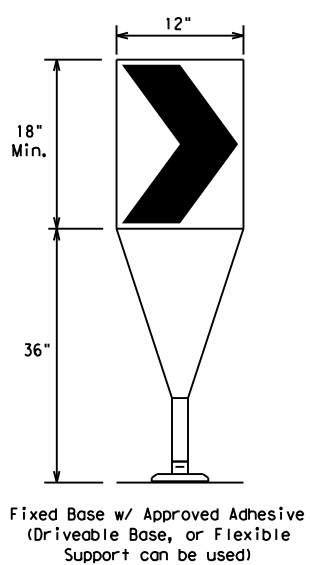


(Rigid or self-righting)

**PORTABLE**

**VERTICAL PANELS (VPs)**

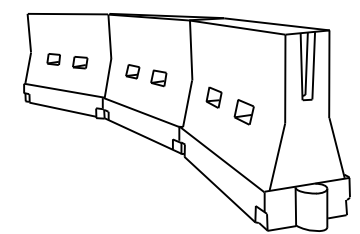
- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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



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

- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
- Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
- To be effective, the chevron should be visible for at least 500 feet.
- Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B<sub>FL</sub> or Type C<sub>FL</sub> 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 <sup>2</sup> / 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	TYL	SMITH, Etc	48	

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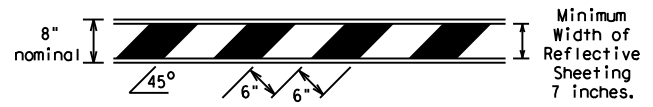
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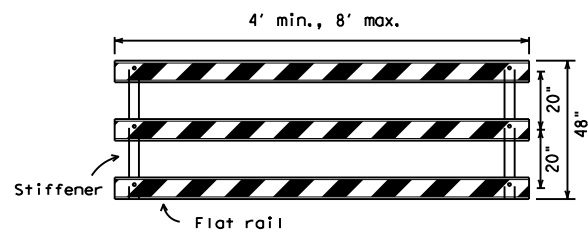
**TYPE 3 BARRICADES**

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.

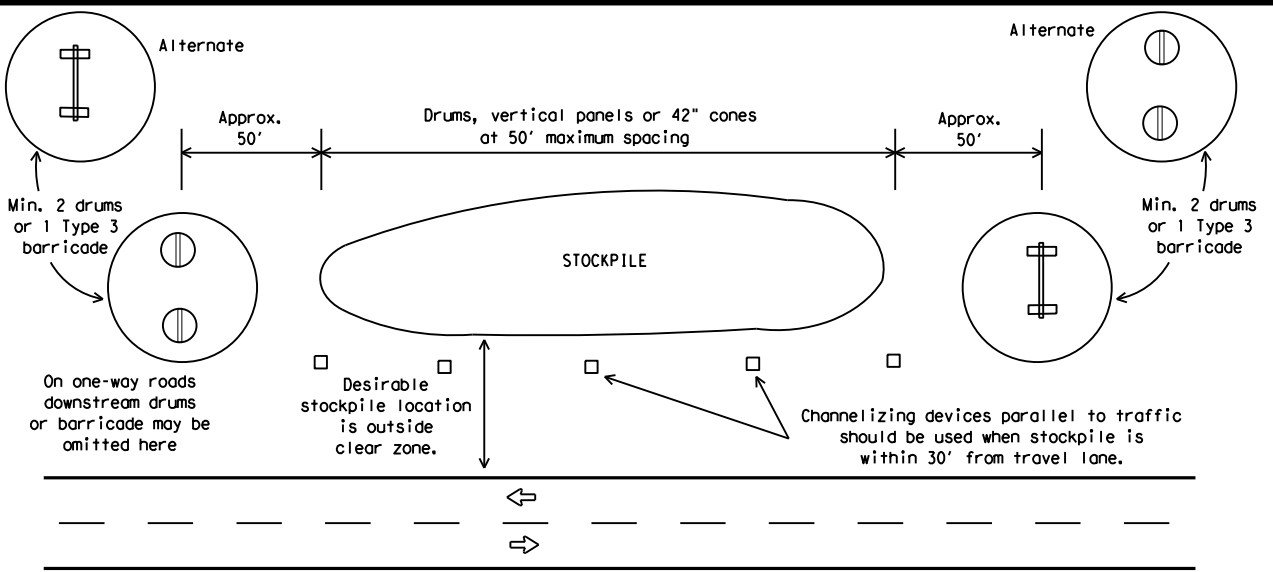
Barricades shall NOT be used as a sign support.



**TYPICAL STRIPING DETAIL FOR BARRICADE RAIL**

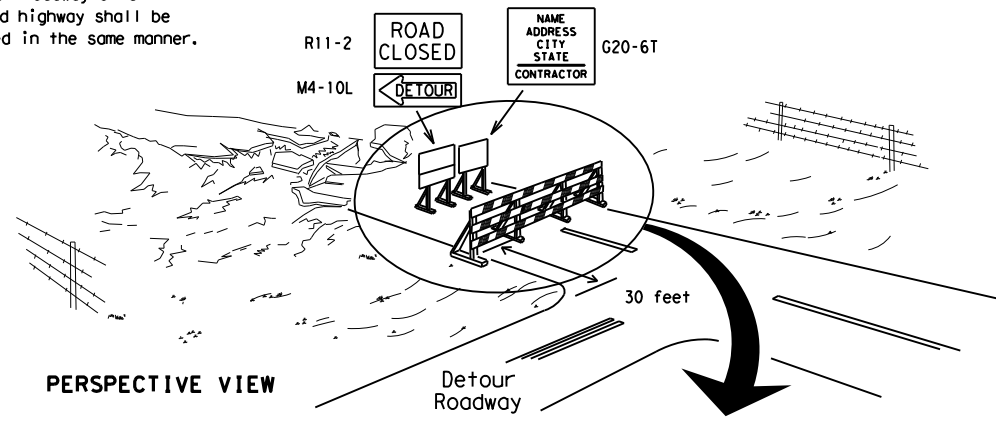


**TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES**



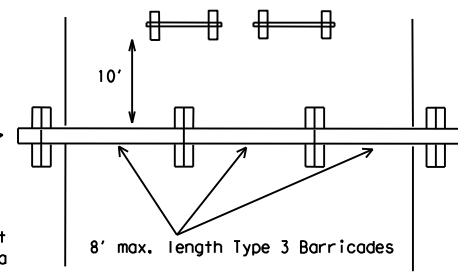
**TRAFFIC CONTROL FOR MATERIAL STOCKPILES**

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



**PERSPECTIVE VIEW**

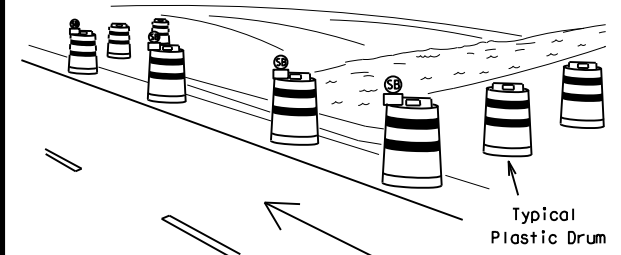
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



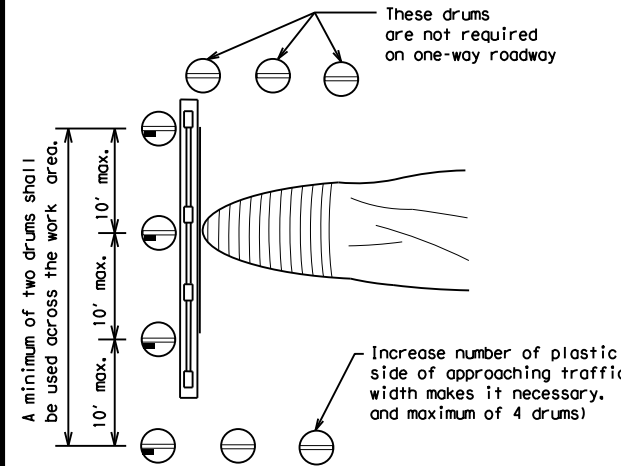
**PLAN VIEW**

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

**TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION**



**PERSPECTIVE VIEW**



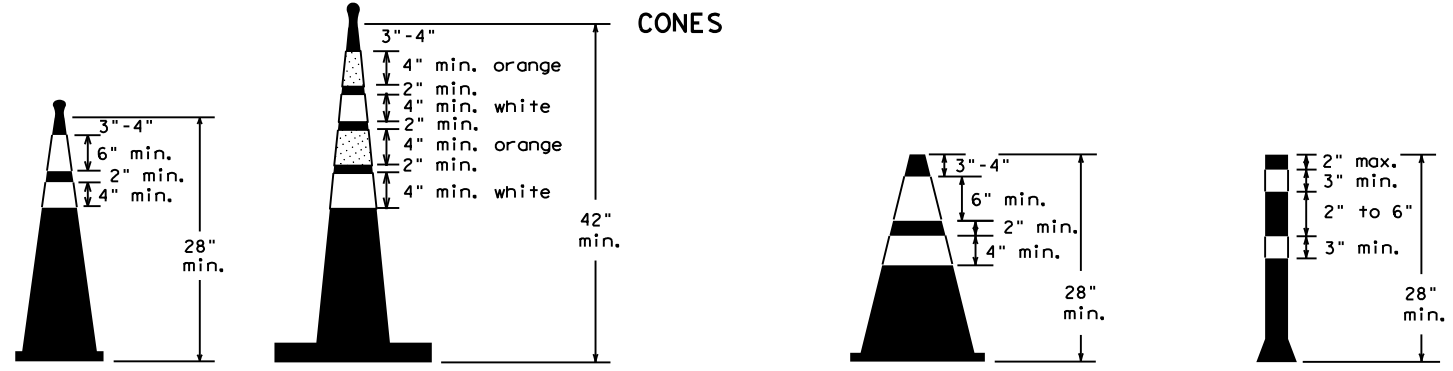
**PLAN VIEW**

**CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS**

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

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

Increase number of plastic drums on the side of approaching traffic if the crown width makes it necessary. (minimum of 2 and maximum of 4 drums)



**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.



**BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES**

**BC (10) -21**

FILE: bc-21.dgn	DN: TxDOT	CR: TxDOT	OW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089, Etc	FM 2493, Etc
9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	TYL	SMITH, Etc	49	

## 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.

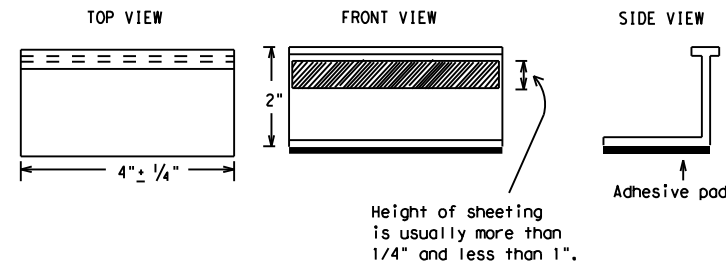
### MAINTAINING WORK ZONE PAVEMENT MARKINGS

- 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	CR: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS		0191	03	089, Etc FM 2493, Etc
2-98	9-07	5-21		
1-02	7-13			
11-02	8-14			
	DIST	COUNTY		SHEET NO.
	TYL	SMITH, Etc		50

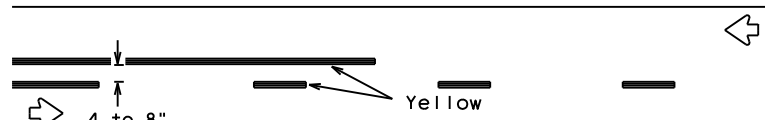
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 9/30/2024 4:52:41 PM  
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## PAVEMENT MARKING PATTERNS

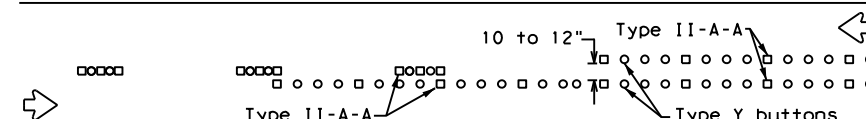


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

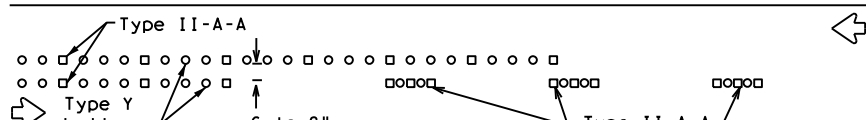


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

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



RAISED PAVEMENT MARKERS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN B

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



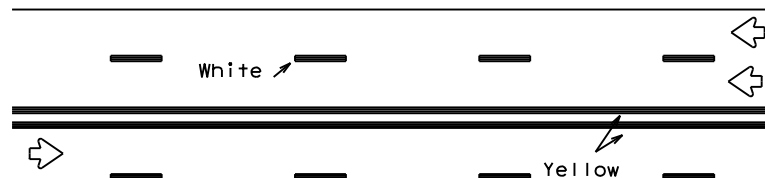
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



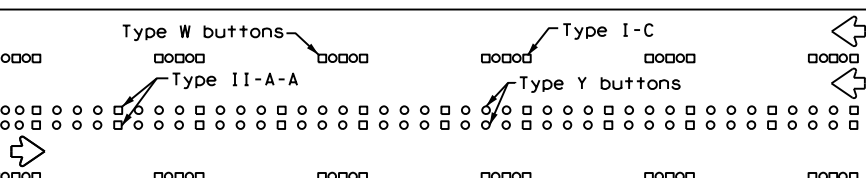
RAISED PAVEMENT MARKERS

## EDGE & LANE LINES FOR DIVIDED HIGHWAY



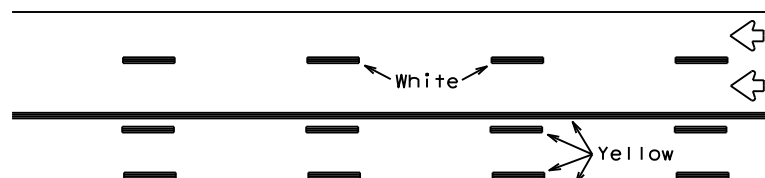
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



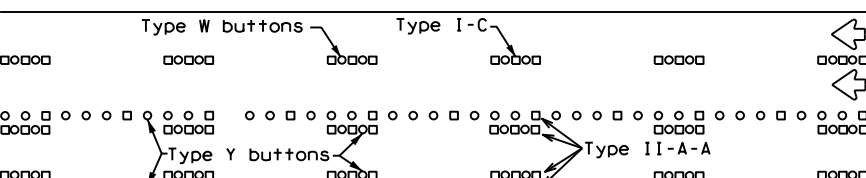
RAISED PAVEMENT MARKERS

## LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

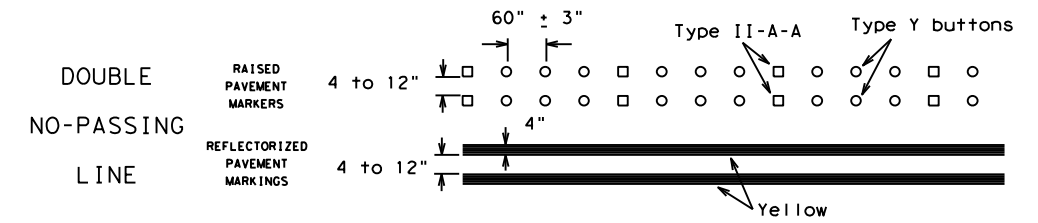
Prefabricated markings may be substituted for reflectorized pavement markings.



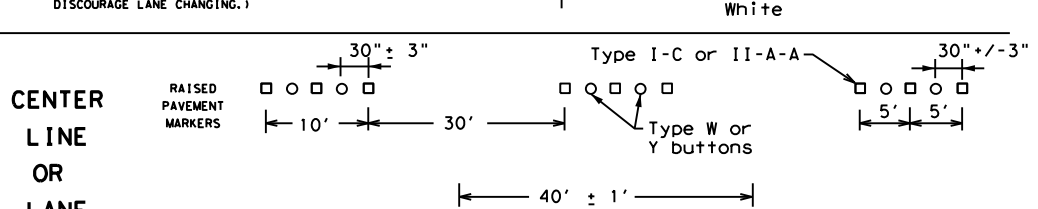
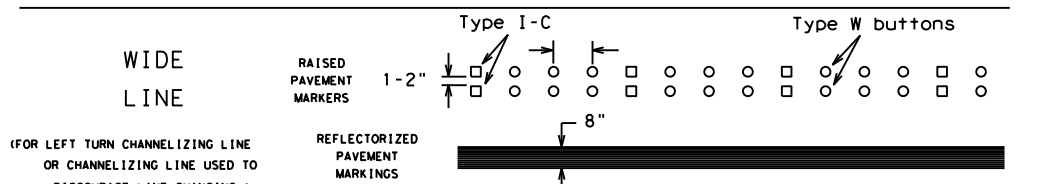
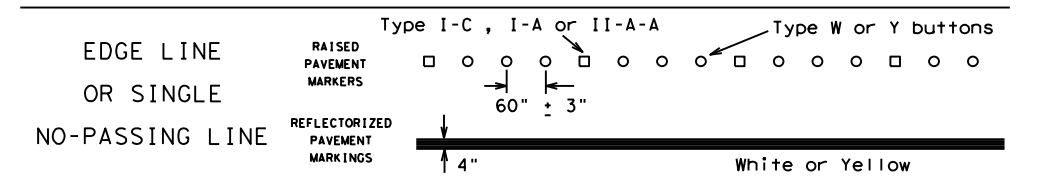
RAISED PAVEMENT MARKERS

## TWO-WAY LEFT TURN LANE

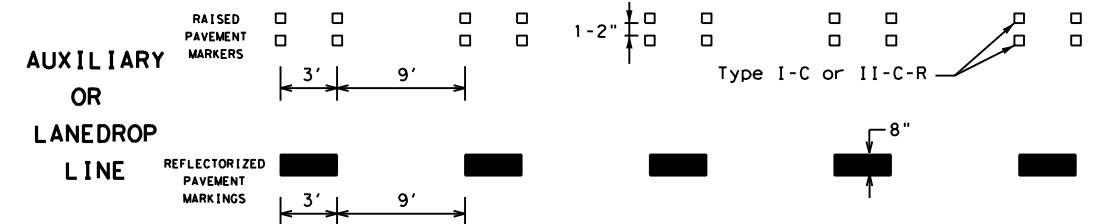
## STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



### SOLID LINES

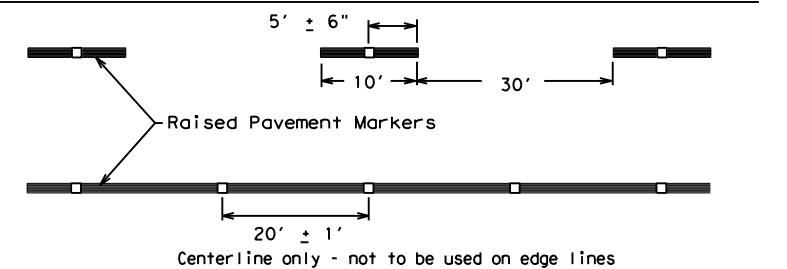


### BROKEN LINES



### REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



SHEET 12 OF 12



## BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089, Etc	FM 2493, Etc
1-97 9-07 5-21	DIST	COUNTY	SHEET NO.	
2-98 7-13	TYL	SMITH, Etc	51	
11-02 8-14				

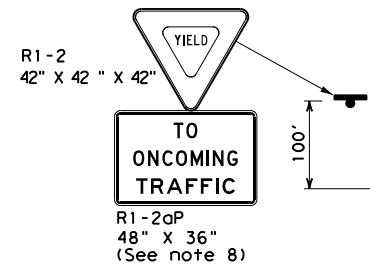
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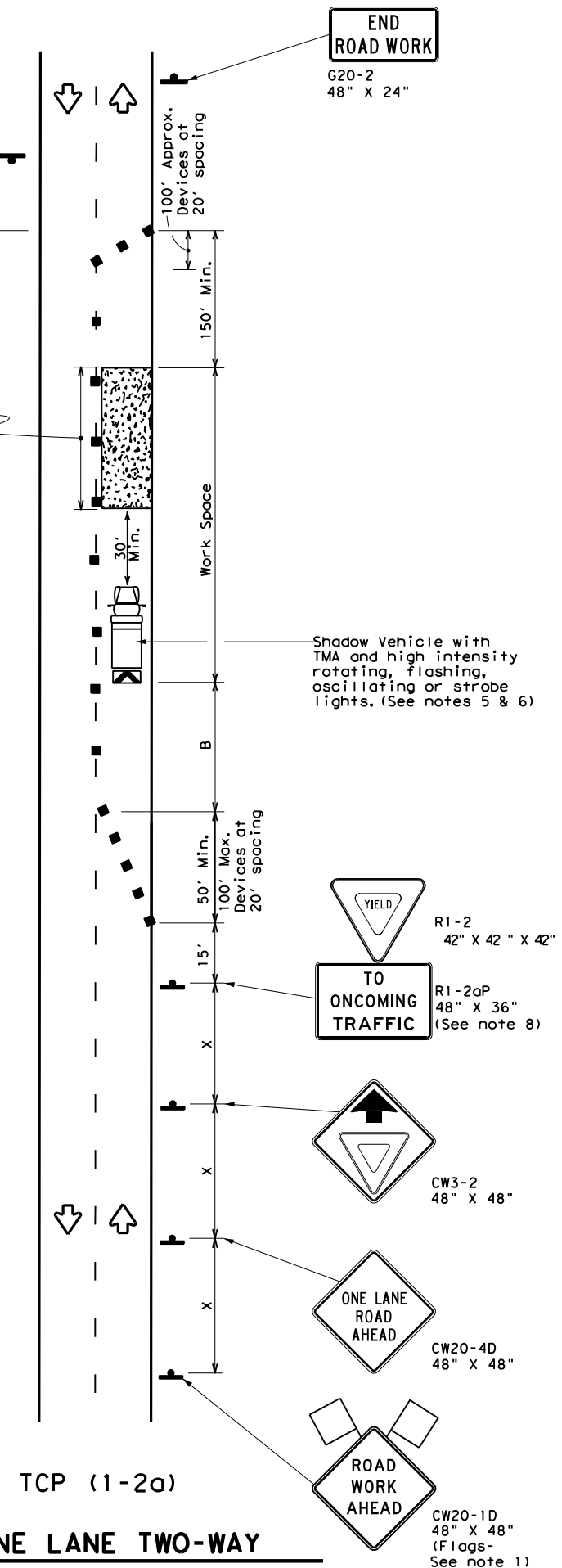
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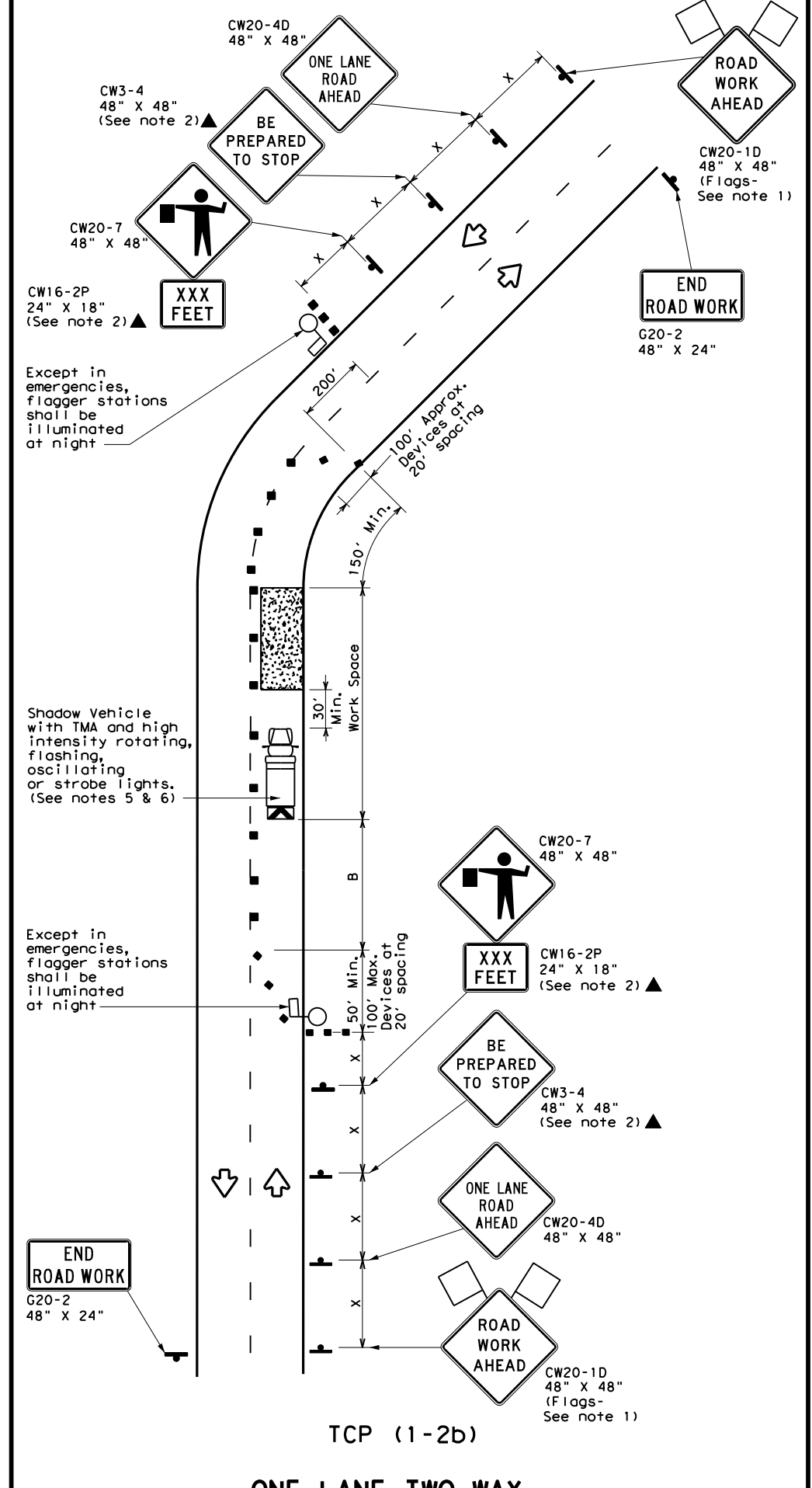
Warning Sign Sequence in Opposite Direction Same as Below



Channelizing devices separate work space from traveled way



**TCP (1-2a)**  
**ONE LANE TWO-WAY CONTROL WITH YIELD SIGNS**  
 (Less than 2000 ADT - See note 7)



**TCP (1-2b)**  
**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 * X	Formula L = $\frac{WS^2}{60}$	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 = $\frac{WS^2}{60}$	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 Operations Division Standard

## TRAFFIC CONTROL PLAN

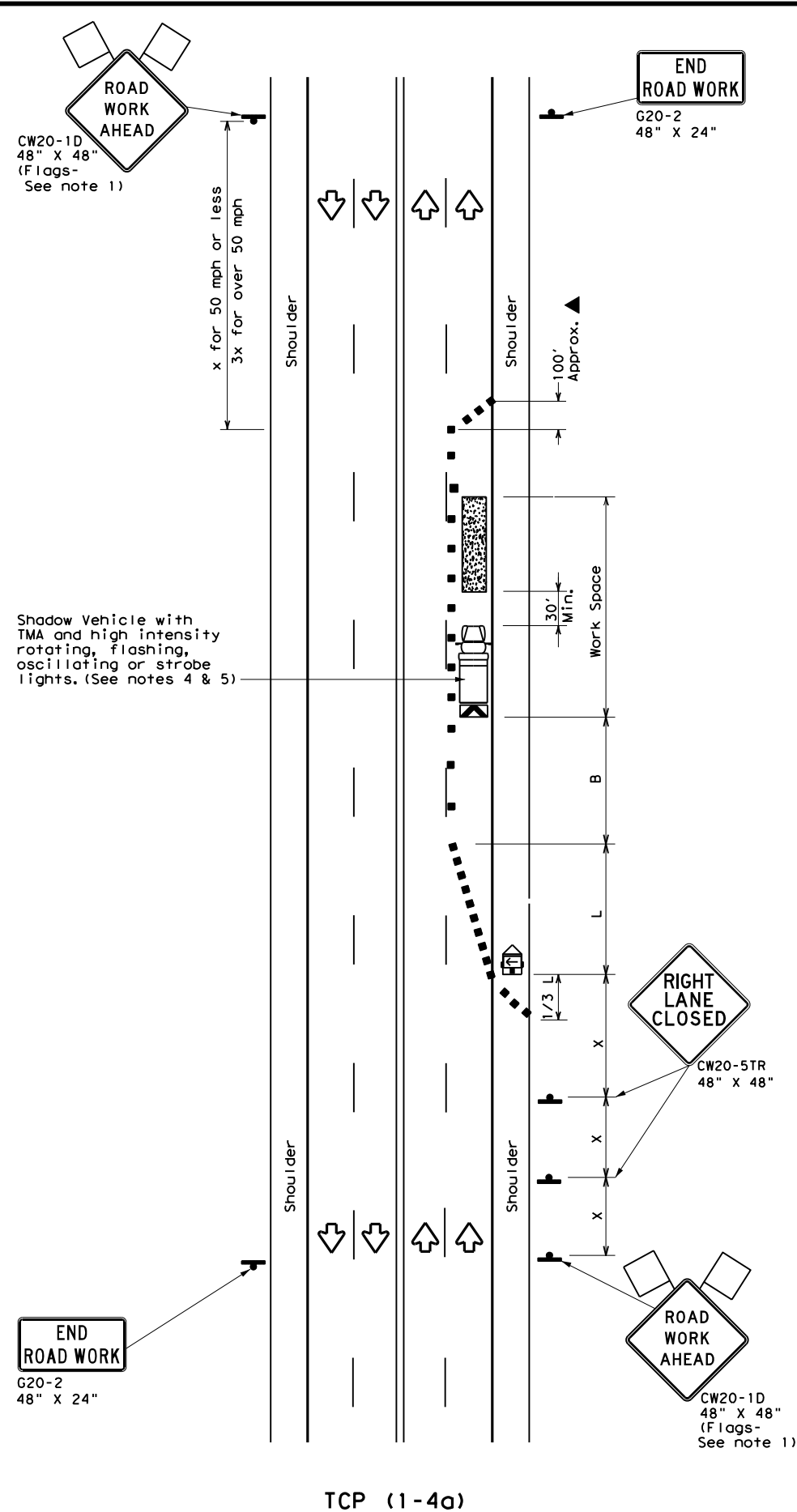
### ONE-LANE TWO-WAY TRAFFIC CONTROL

## TCP (1-2) - 18

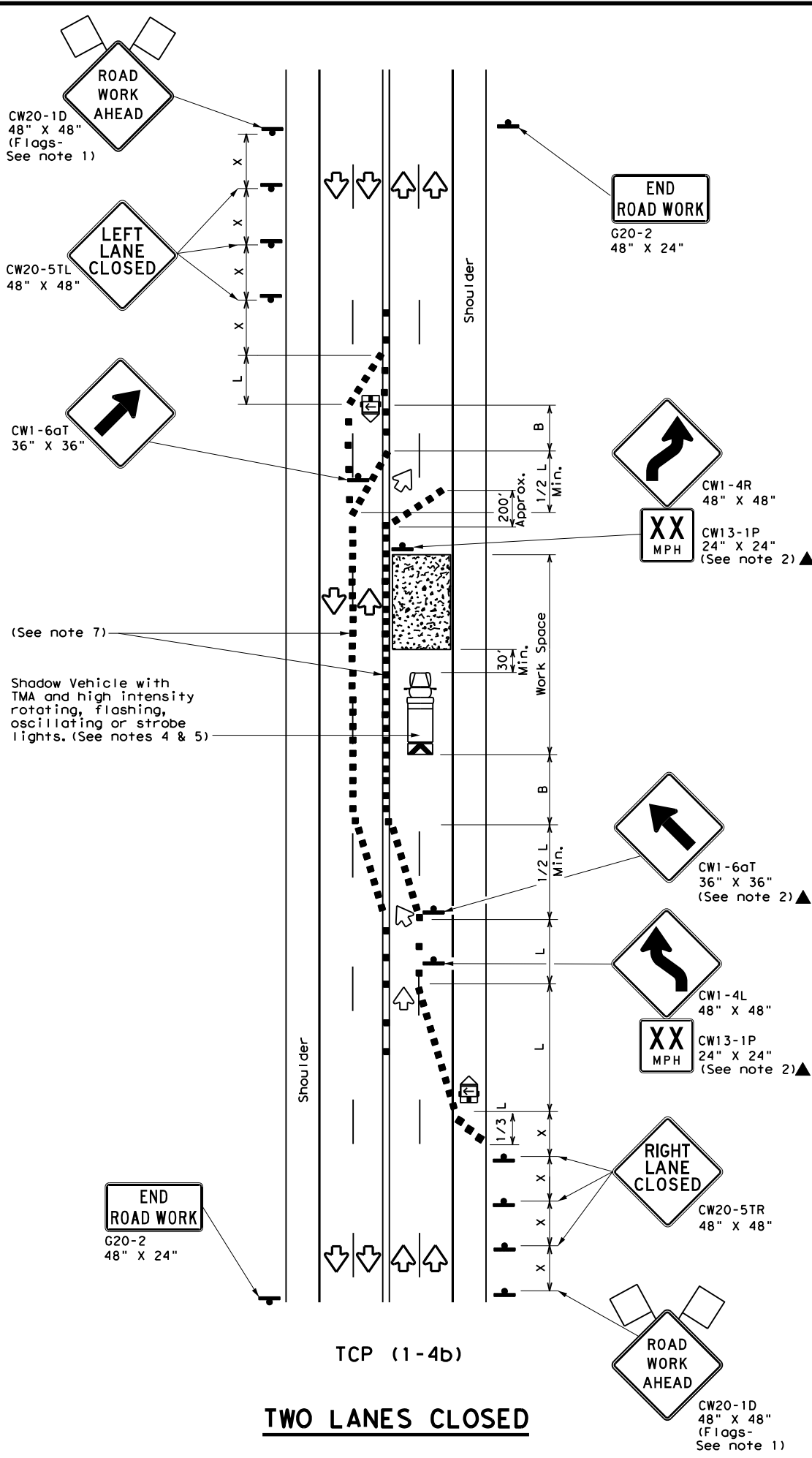
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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4-90 4-98	DIST	COUNTY	SHEET NO.	
2-94 2-12	TYL	SMITH, Etc	52	
1-97 2-18				

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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.

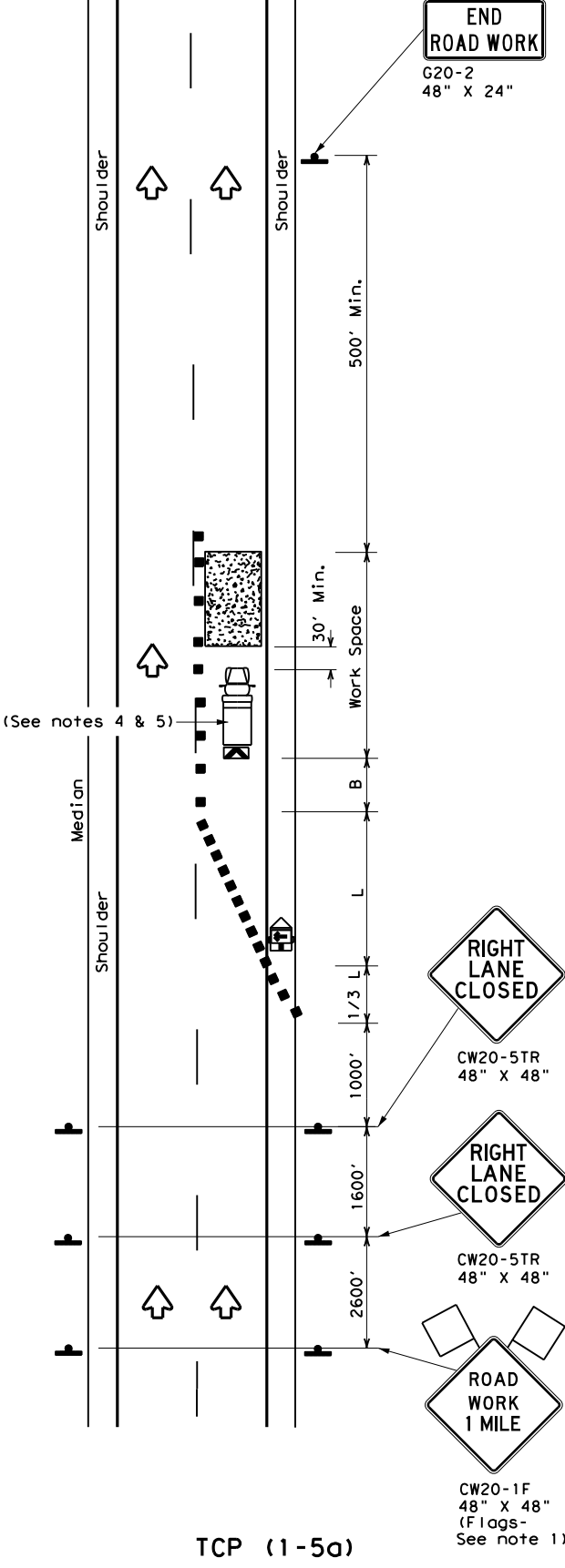
**TCP (1-4b)**

- 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.

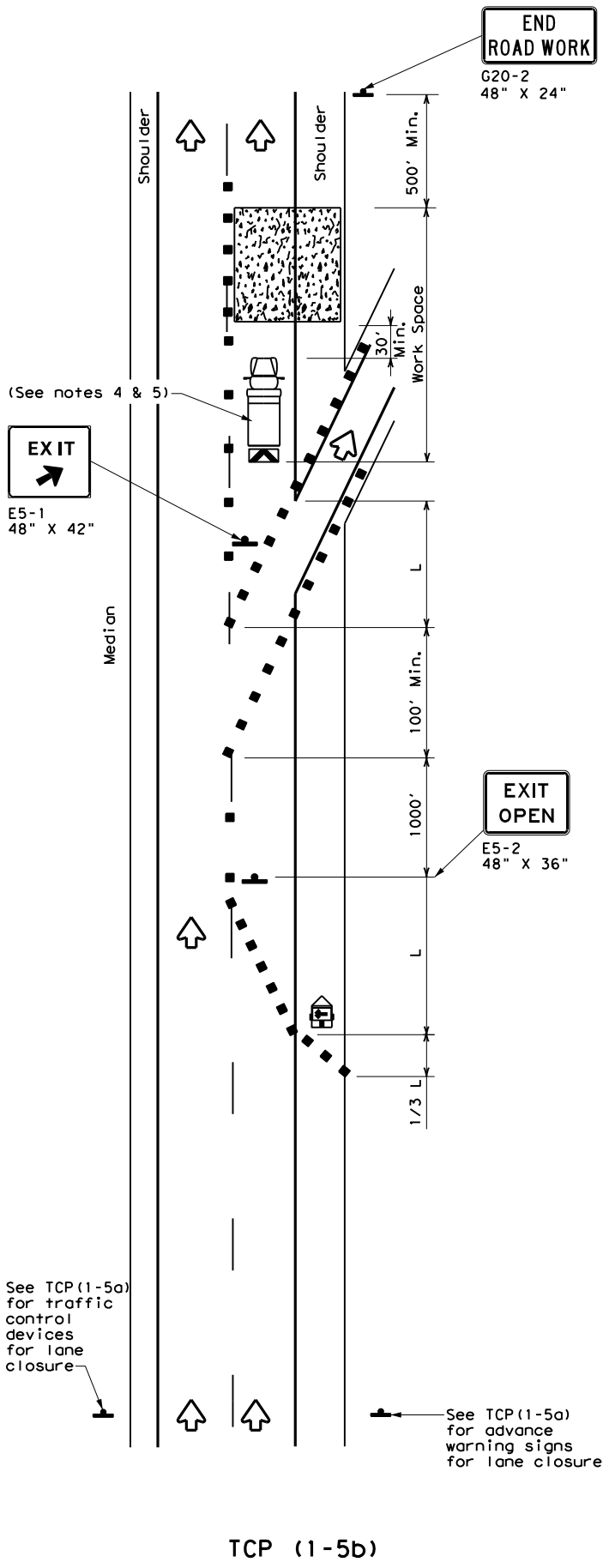
		Traffic Operations Division Standard	
<b>TRAFFIC CONTROL PLAN</b> <b>LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS</b>			
<b>TCP (1-4) - 18</b>			
FILE:	tcp1-4-18.dgn	DN:	CK:
© TxDOT	December 1985	CON:	SECT:
REVISIONS		JOB	HIGHWAY
2-94 4-98		0191 03	089, Etc FM 2493, Etc
8-95 2-12		DIST	COUNTY
1-97 2-18		TYL	SMITH, Etc
			SHEET NO. 53

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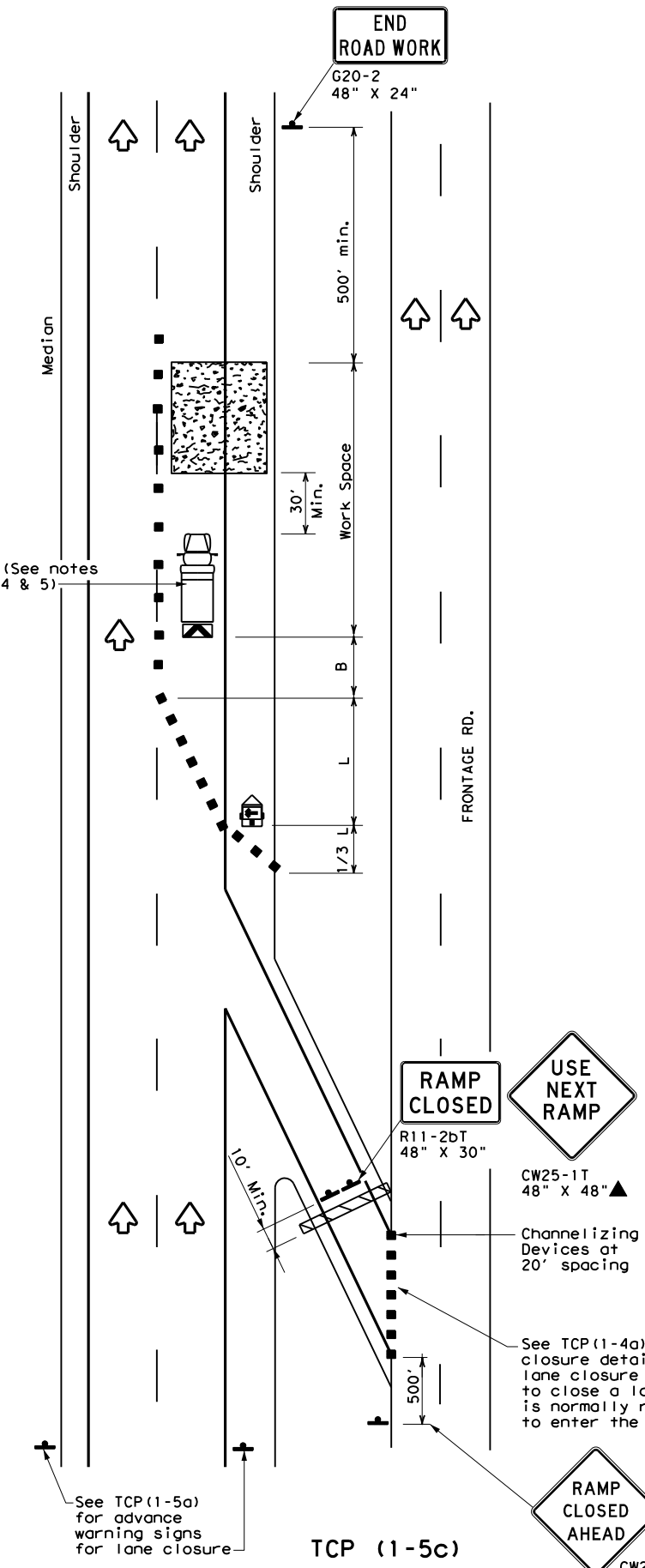
DATE: 9/30/2024 4:53:50 PM  
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**ONE LANE CLOSURE**



**LANE CLOSURE NEAR EXIT RAMPS**



**LANE CLOSURE NEAR ENTRANCE RAMPS**

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			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

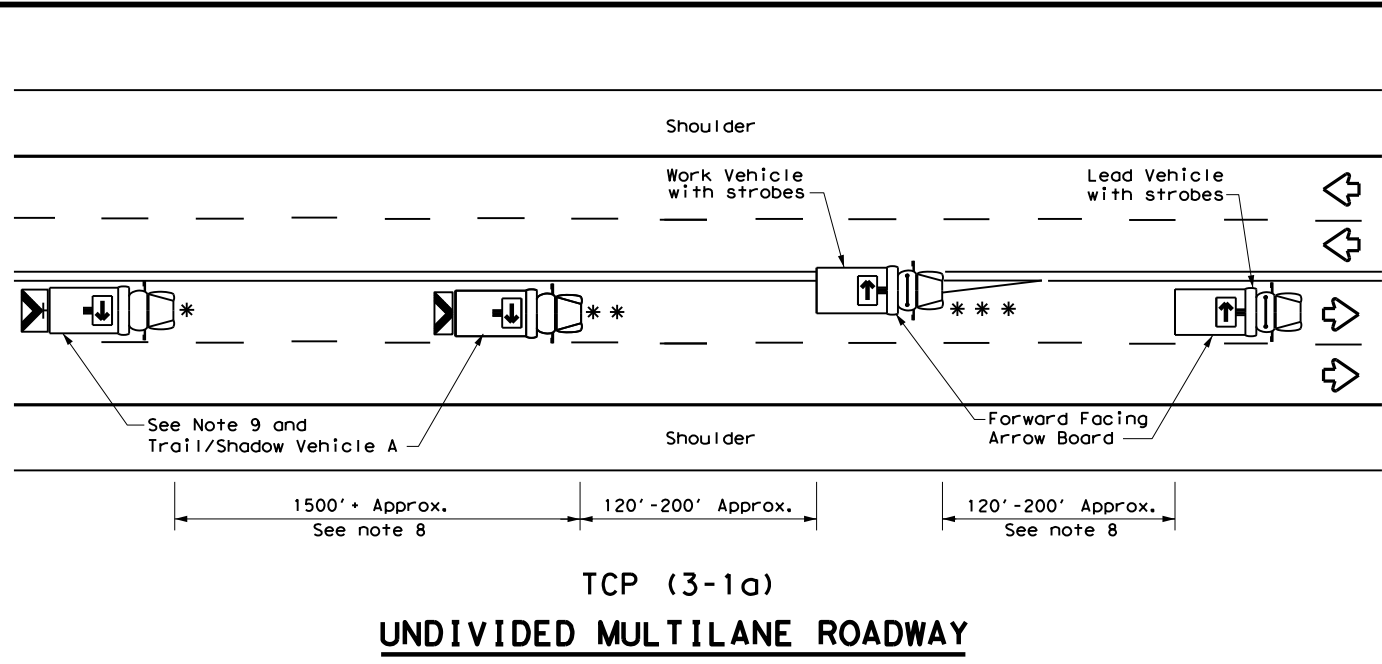
**TRAFFIC CONTROL PLAN  
 LANE CLOSURES FOR  
 DIVIDED HIGHWAYS**

**TCP (1-5) - 18**

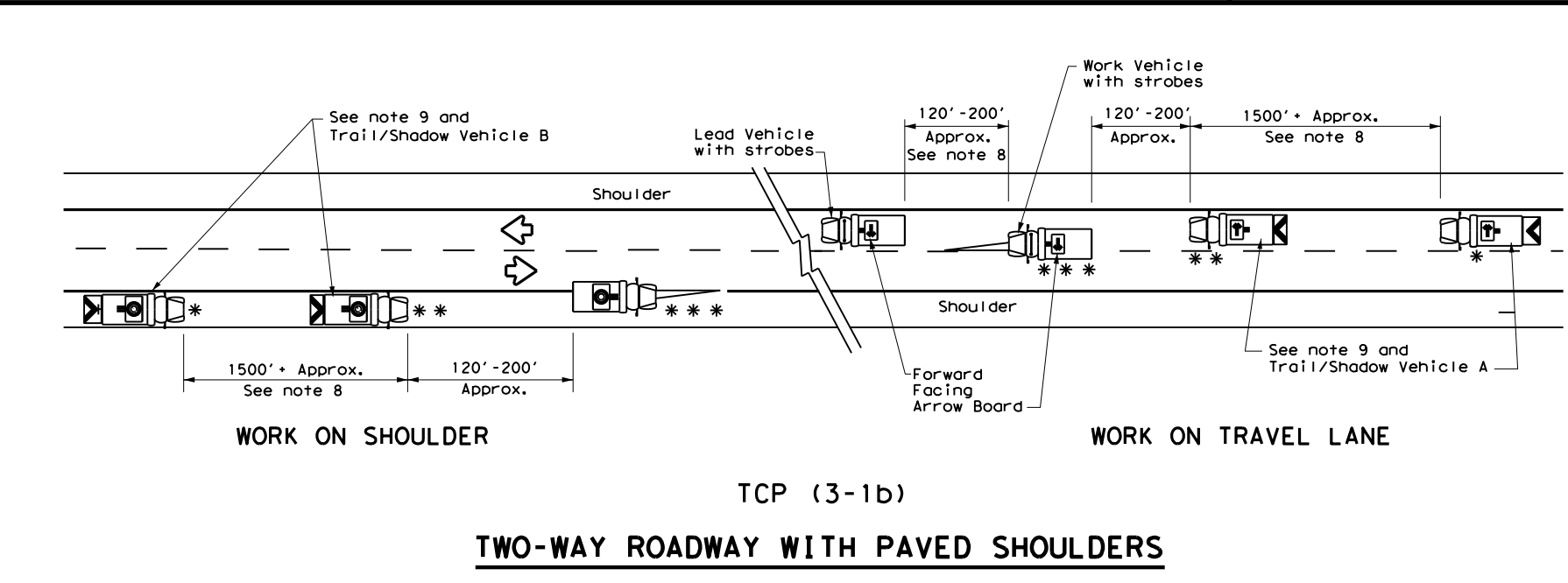
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© TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
2-18	0191	03	089, Etc	FM 2493, Etc
	DIST	COUNTY	SHEET NO.	
	TYL	SMITH, Etc	54	

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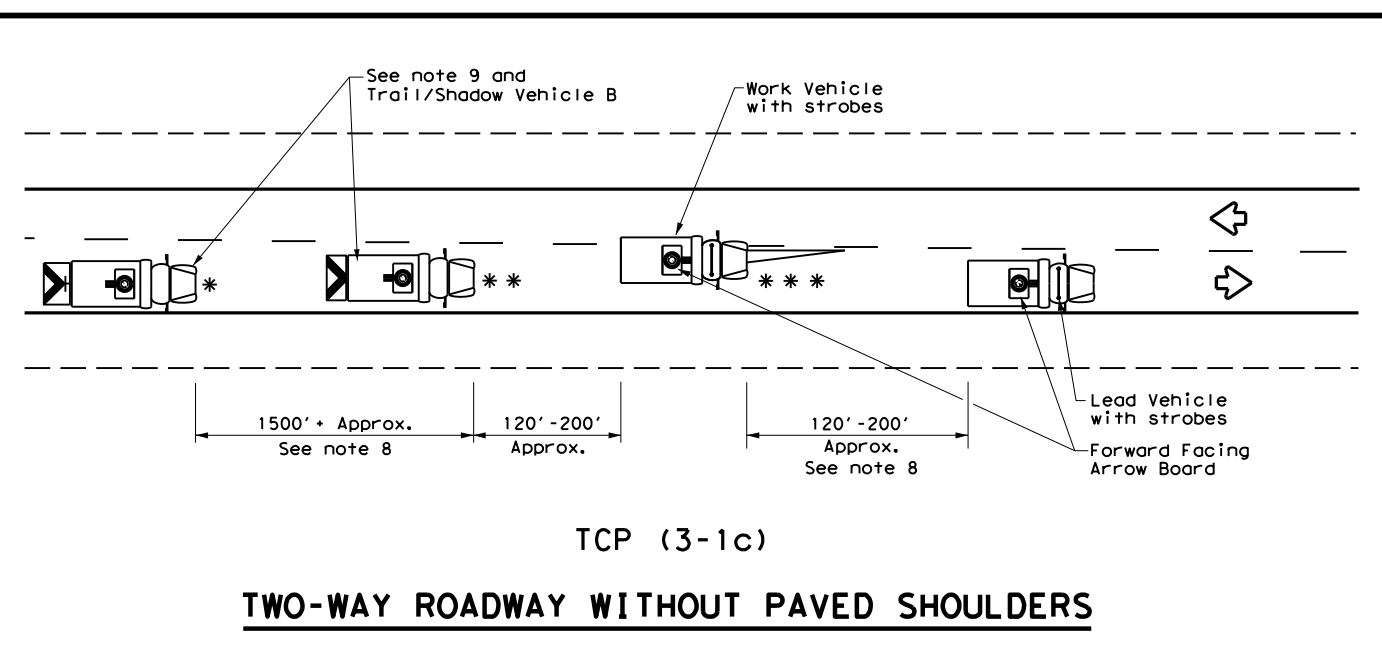
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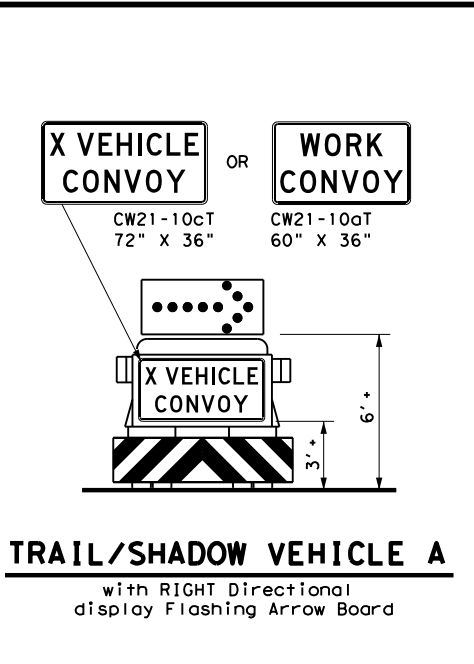
TCP (3-1a)  
**UNDIVIDED MULTILANE ROADWAY**



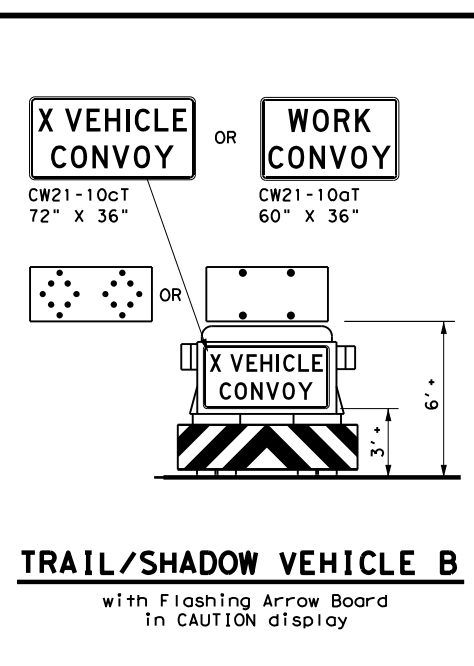
TCP (3-1b)  
**TWO-WAY ROADWAY WITH PAVED SHOULDERS**



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



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



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

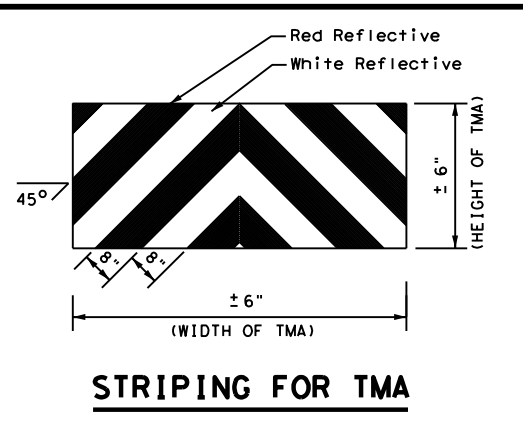
LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**GENERAL NOTES**

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



**STRIPING FOR TMA**

Texas Department of Transportation  
 Traffic Operations Division Standard

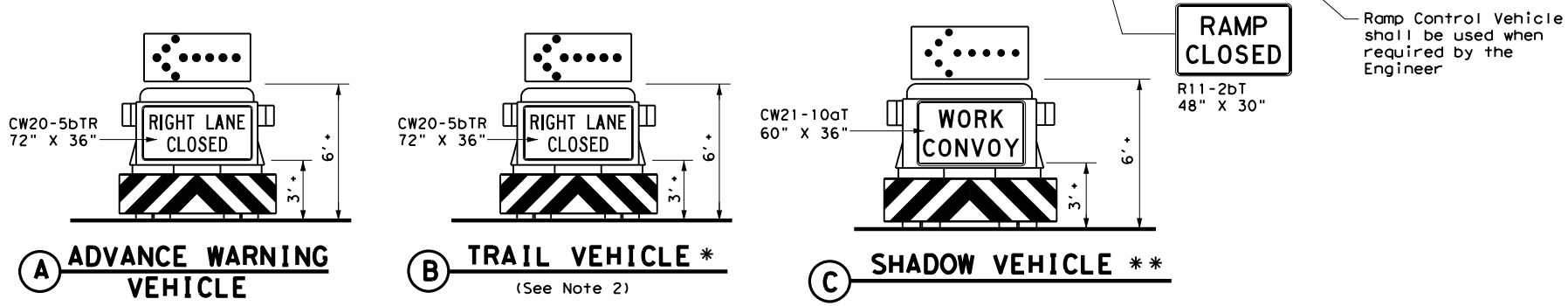
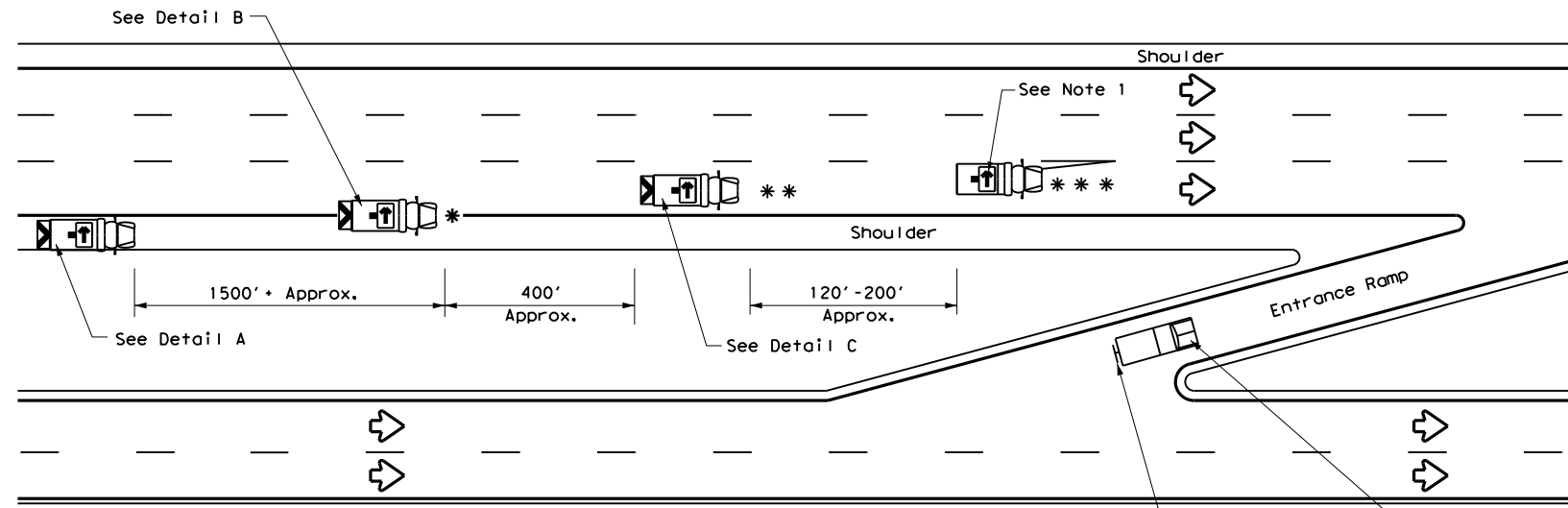
**TRAFFIC CONTROL PLAN  
 MOBILE OPERATIONS  
 UNDIVIDED HIGHWAYS**

**TCP(3-1)-13**

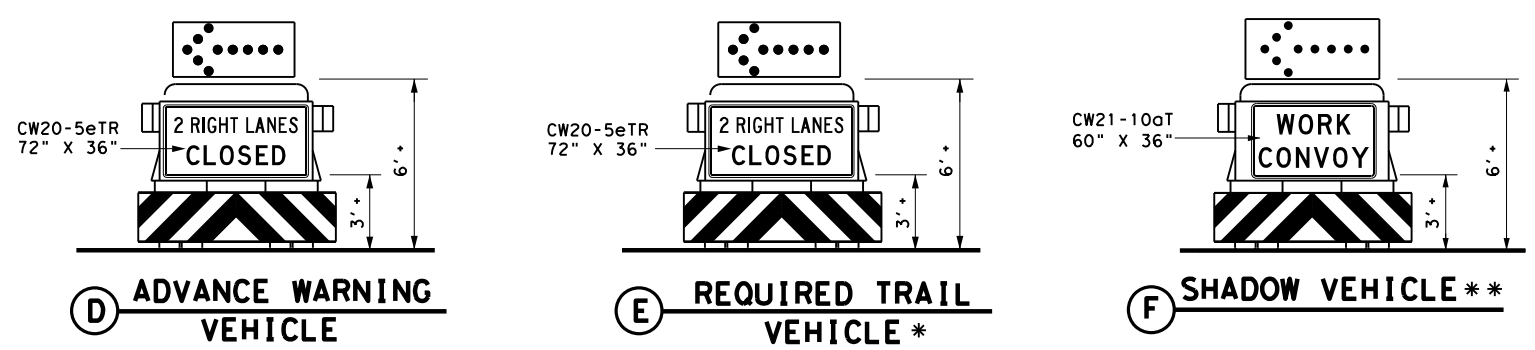
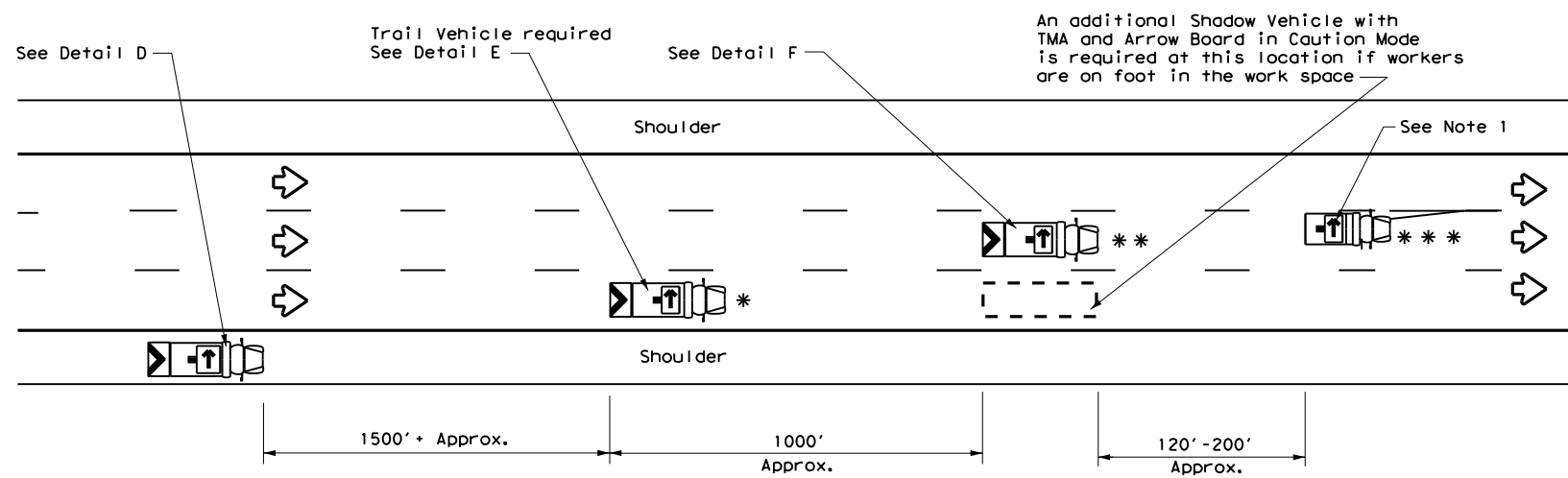
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© TxDOT	December 1985	CONT:	SECT:	JOB:	HIGHWAY:				
REVISIONS		0191	03	089, Etc	FM 2493, Etc				
2-94	4-98								
8-95	7-13								
1-97									
		DIST:	COUNTY:	SHEET NO.					
		TYL	SMITH, Etc	55					

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DATE: 9/30/2024 4:54:37 PM  
 FILE: c:\txdot\pw\_online\txdot3\evan\_barron\d0841219\TCP(3-2)-13.dgn



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



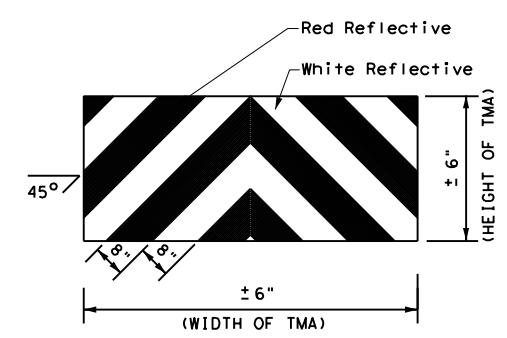
**INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)**

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
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**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.



Texas Department of Transportation  
 Traffic Operations Division Standard

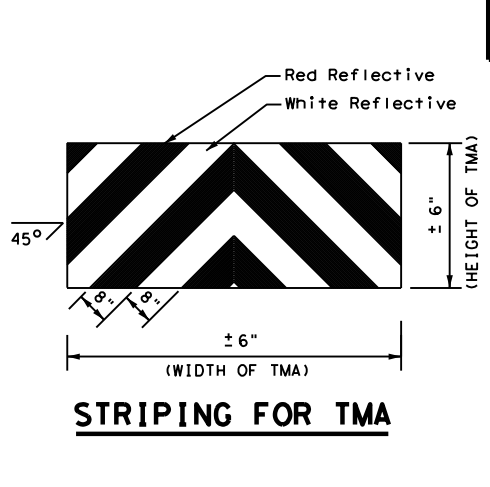
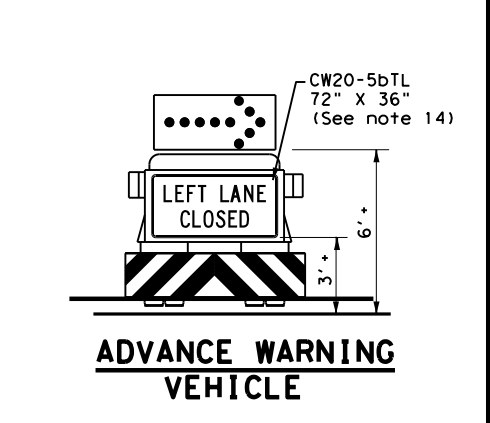
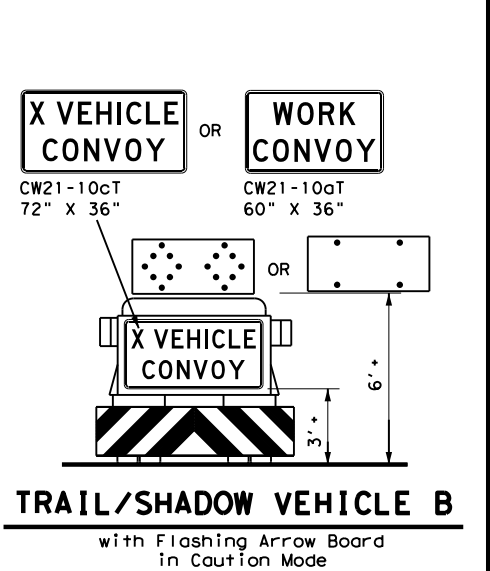
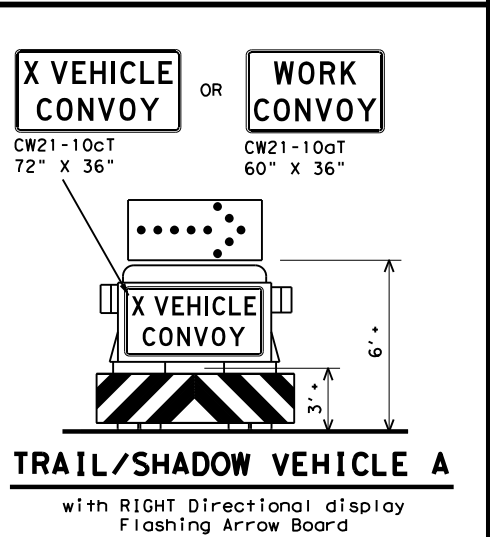
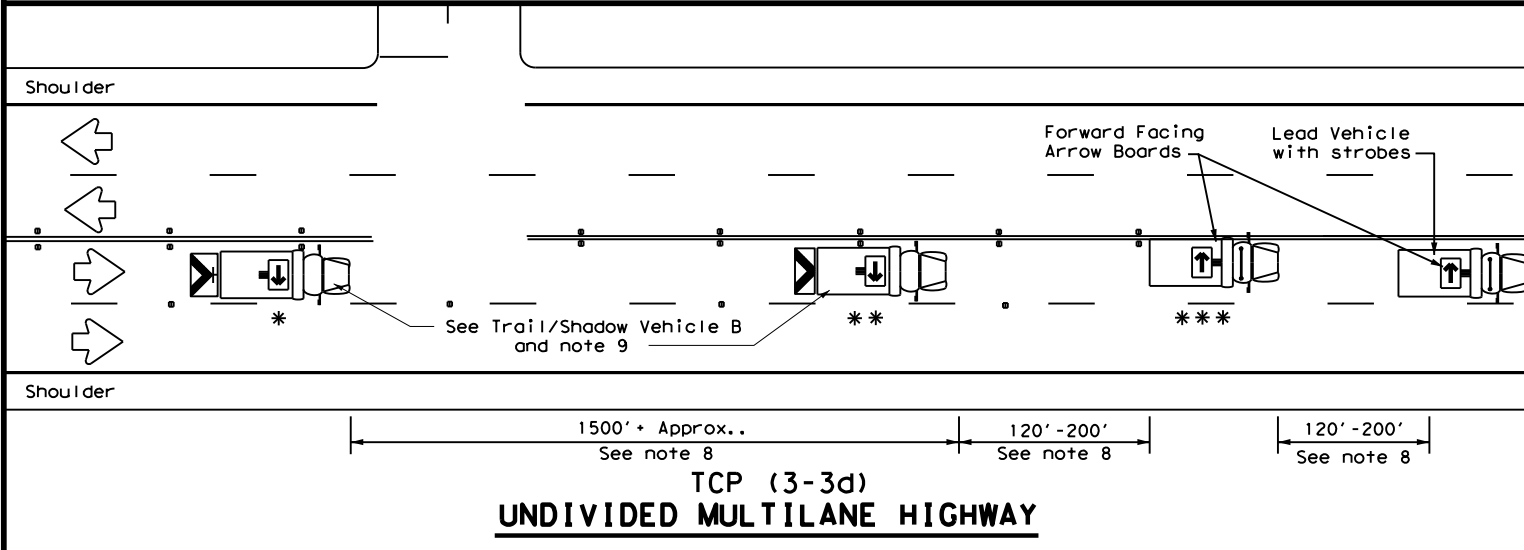
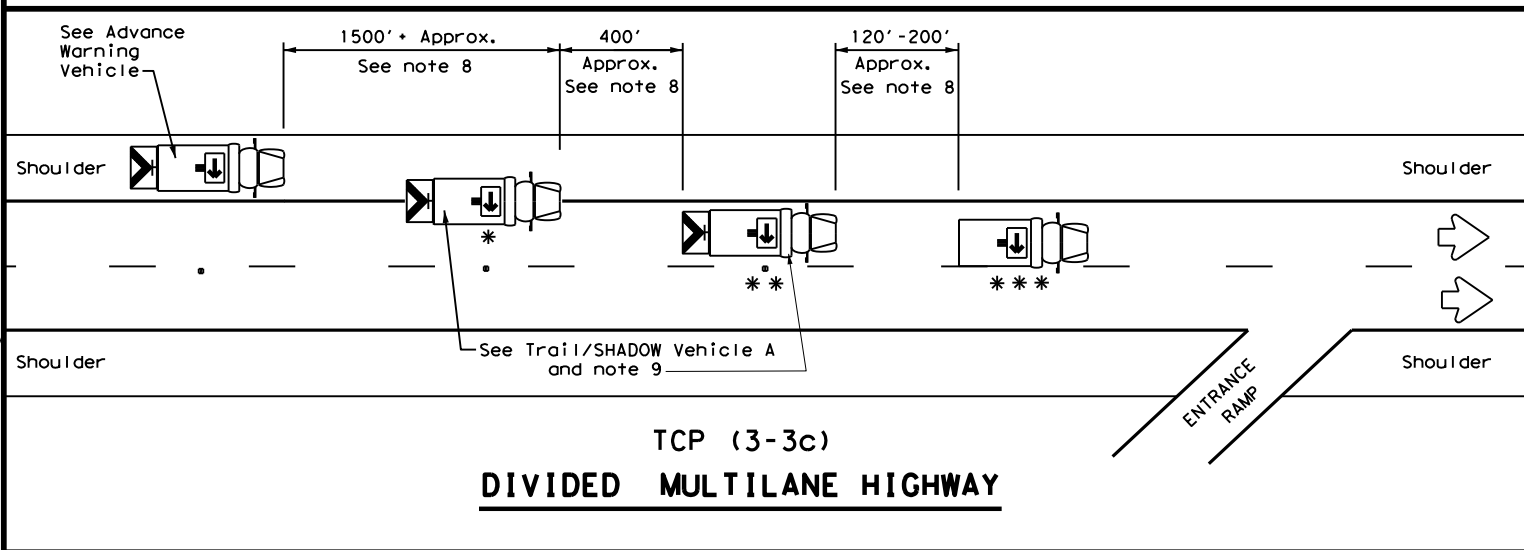
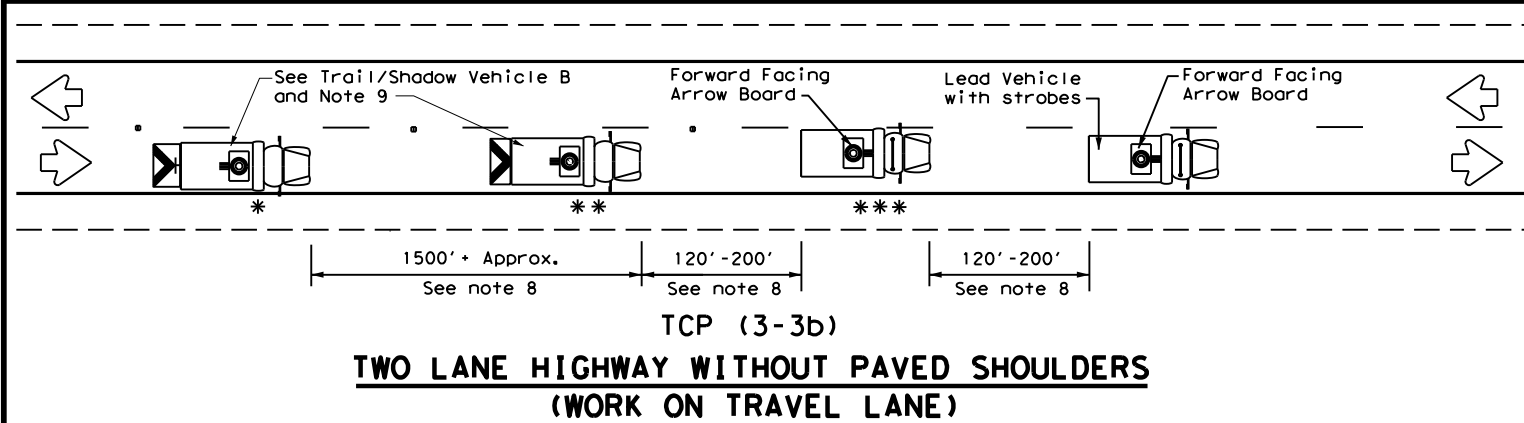
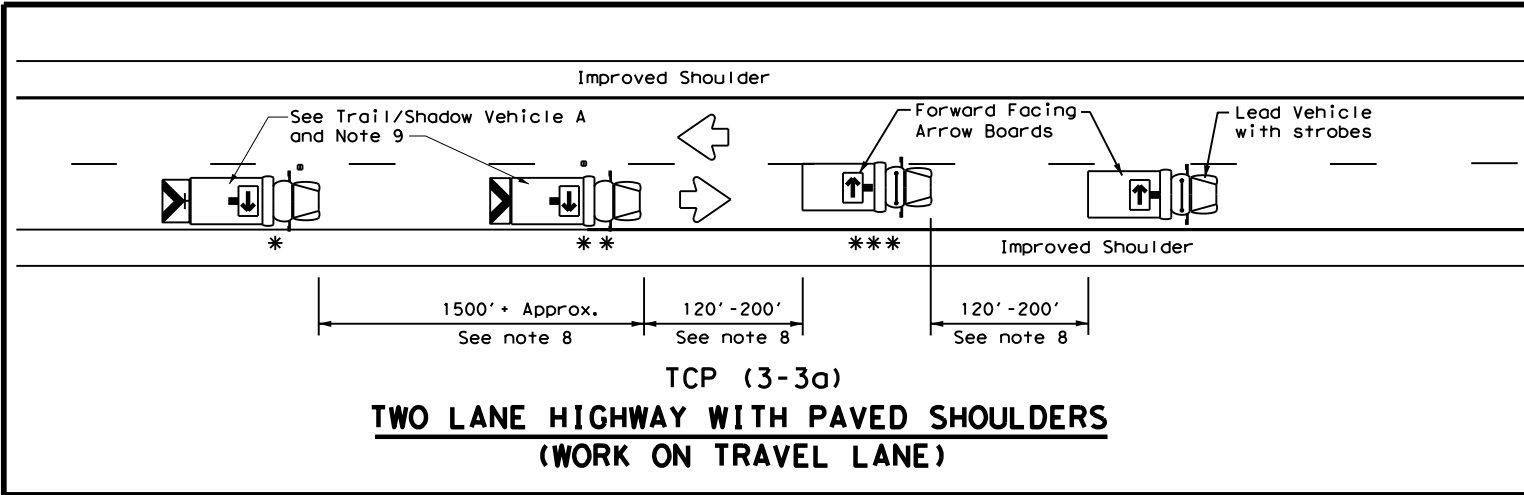
**TRAFFIC CONTROL PLAN  
 MOBILE OPERATIONS  
 DIVIDED HIGHWAYS**

**TCP(3-2)-13**

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089, Etc	FM 2493, Etc
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 7-13	TYL	SMITH, Etc	56	
1-97				



DATE: 9/30/2024 4:54:58 PM  
 FILE: c:\txdot\pw\_online\txdot3\evan\_barron\0841219\TCP(3-3)-14.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**

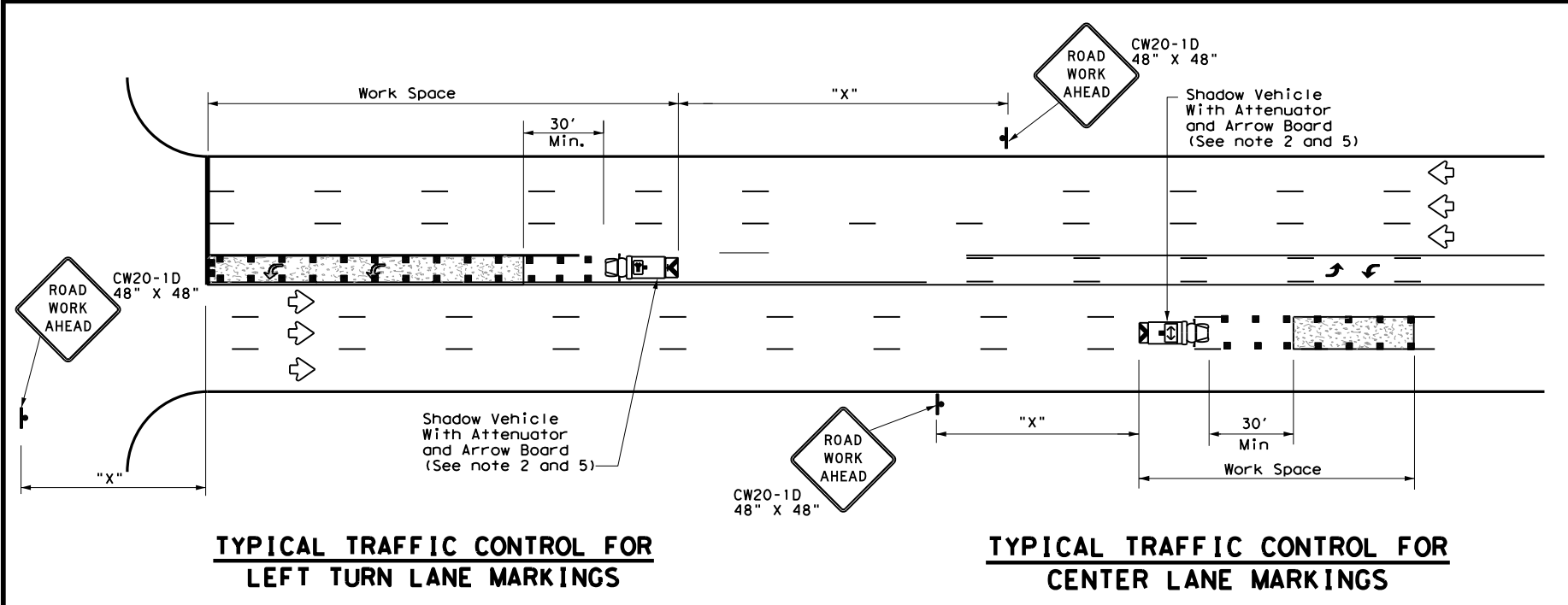
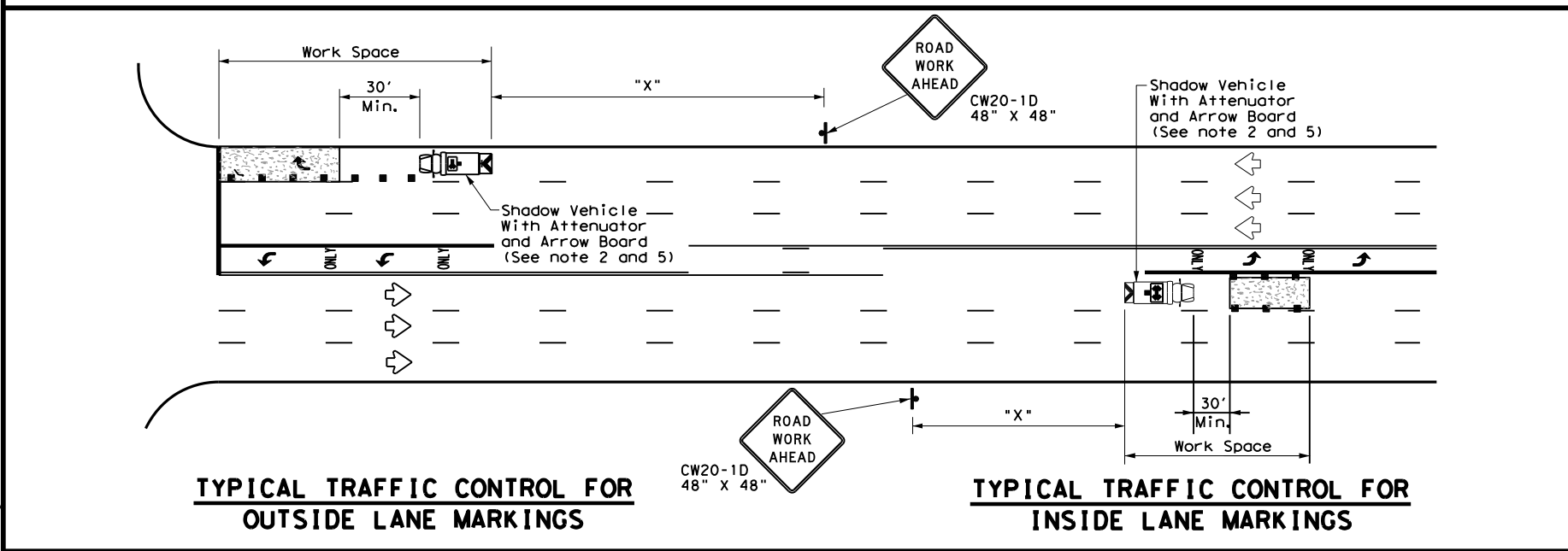
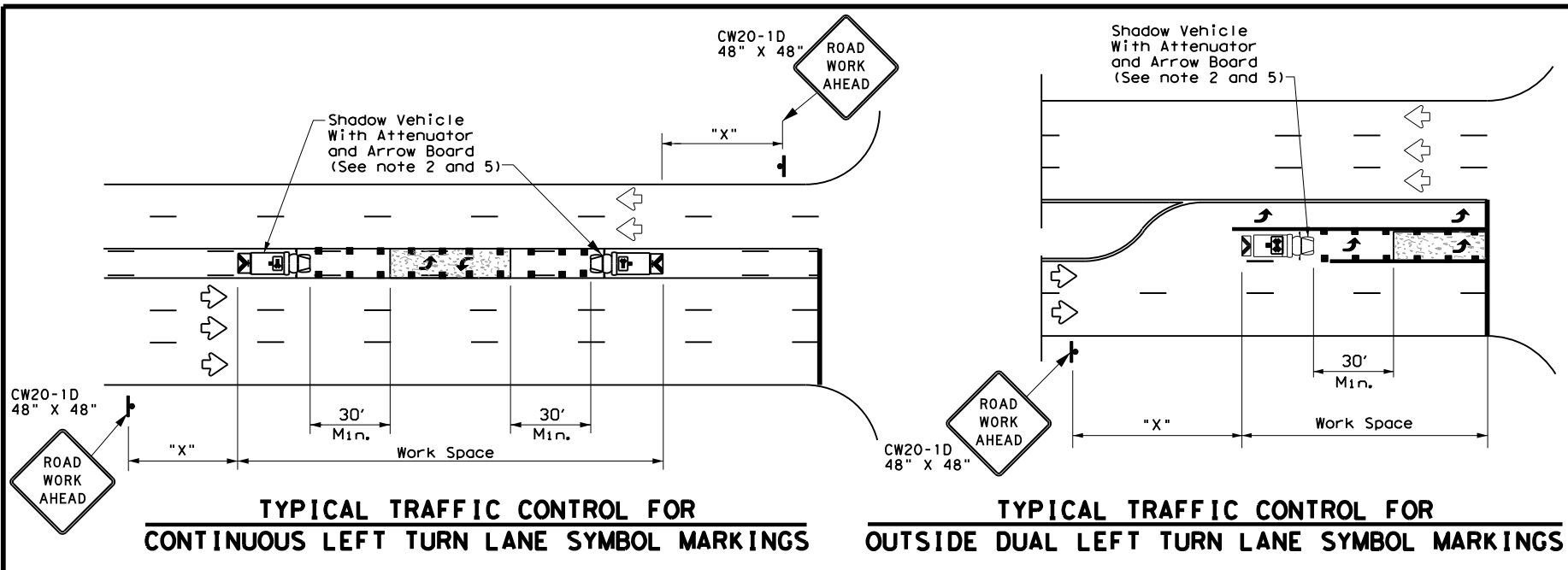
**MARKER INSTALLATION/REMOVAL**

**TCP (3-3) - 14**

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© TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089, Etc	FM 2493, Etc
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 7-13	TYL	SMITH, Etc	57	
1-97 7-14				

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DATE: 9/30/2024 4:55:19 PM  
 FILE: c:\txdot\pw\_online\txdot3\evan\_barron\d0841219\TCP(3-4)-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

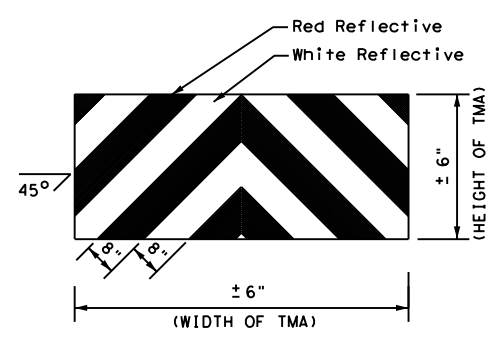
Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS <sup>2</sup> / 60	150'	165'	180'	30'	60'	120'	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.

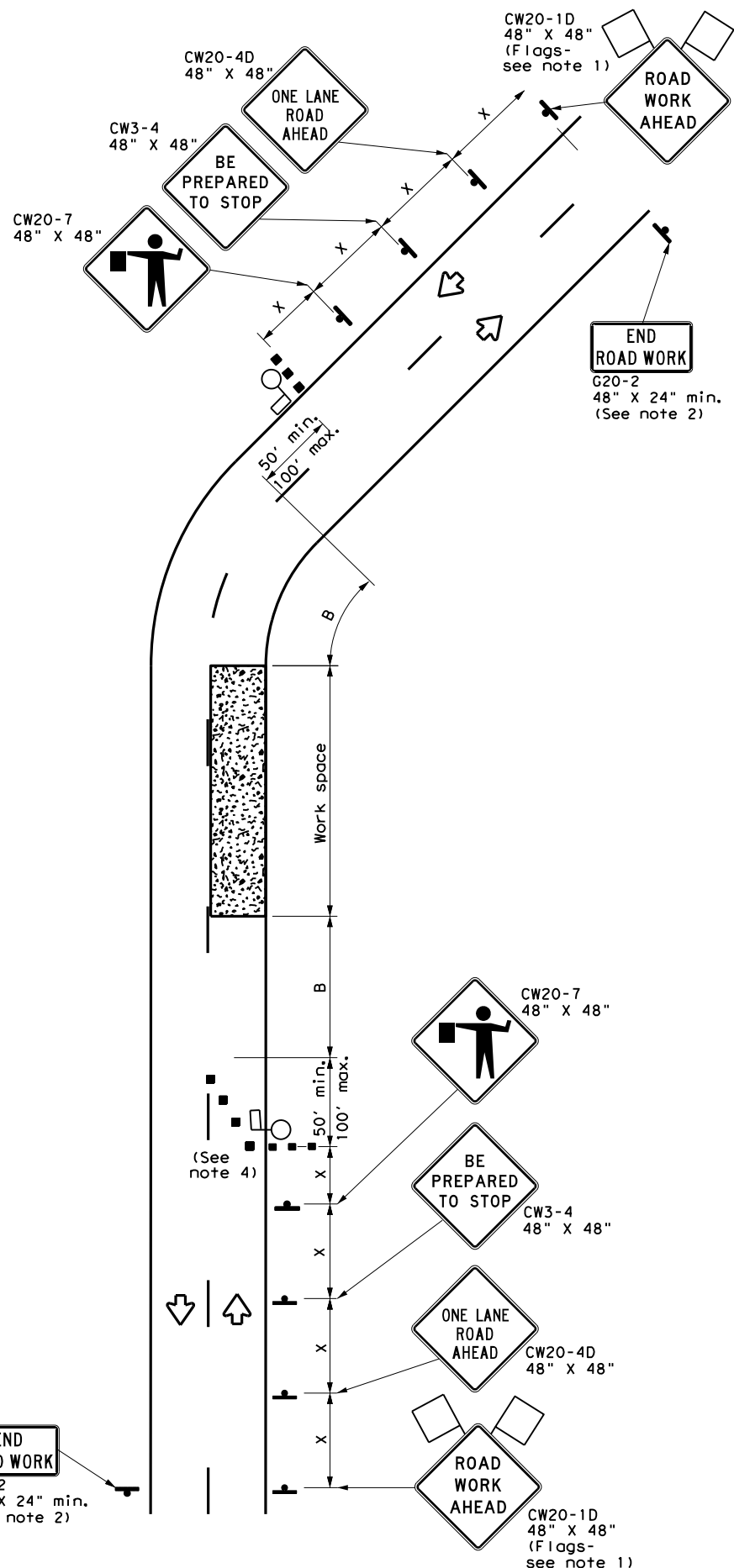


**STRIPING FOR TMA**

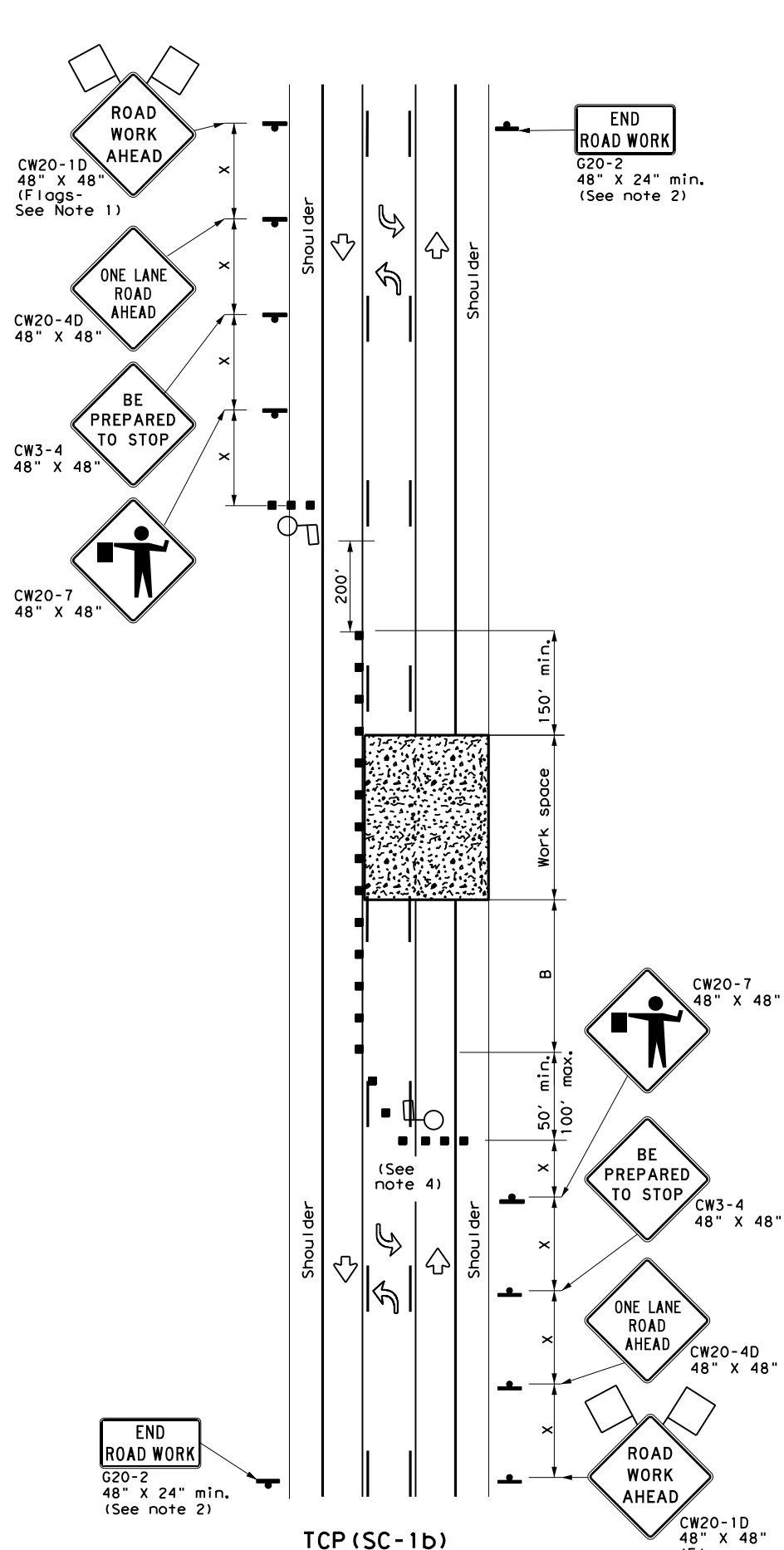
		<b>Traffic Operations Division Standard</b>	
<b>TRAFFIC CONTROL PLAN          MOBILE OPERATIONS FOR          ISOLATED WORK AREAS          UNDIVIDED HIGHWAYS</b>			
<b>TCP(3-4)-13</b>			
FILE:	tcp3-4.dgn	DN:	TxDOT
© TxDOT	July, 2013	CONT SECT:	JOB
REVISIONS:	0191 03	089, Etc	FM 2493, Etc
	DIST:	COUNTY:	SHEET NO.
	TYL	SMITH, Etc	58

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DATE: 9/30/2024 4:55:39 PM  
 FILE: c:\txdot\p\_w\_online\txdot3\evan\_barron\d0841219\TCP(SC-1)-22.dgn



TCP (SC-1a)  
**ONE LANE TWO-WAY (TWO LANES)  
 CONTROL WITH PILOT VEHICLE**



TCP (SC-1b)  
**ONE LANE TWO-WAY (THREE LANES)  
 CONTROL WITH PILOT VEHICLE  
 AND CHANNELIZING DEVICES**

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 Distance "x"	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		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'	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: if project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
- Sign spacing may be increased or an additional ROAD WORK AHEAD (CW20-1D) sign may be used if advance warning ahead of the flagger sign is less than 1500 feet.
- Flaggers should use two-way radios or other methods of communication at all times for traffic control coordination.
- Flaggers should use 24" STOP (CW20-8) / SLOW (CW20-8aT) paddles to control traffic. Flags should be limited to emergency situations.
- 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).
- If the seal coat operation crosses intersections, traffic in these areas must be controlled. Care must be taken to prevent vehicles from crossing the asphalt before the aggregate is placed. This may require positioning additional traffic control personnel (flaggers) at the intersection.
- Temporary rumble strips are not required on seal coat operations.
- The pilot car is used to guide vehicles through traffic control zone. The pilot car shall have an identification name displayed and PILOT CAR, FOLLOW ME (G20-4) sign or message board mounted in a conspicuous position on rear.

**TCP (SC-1a)**

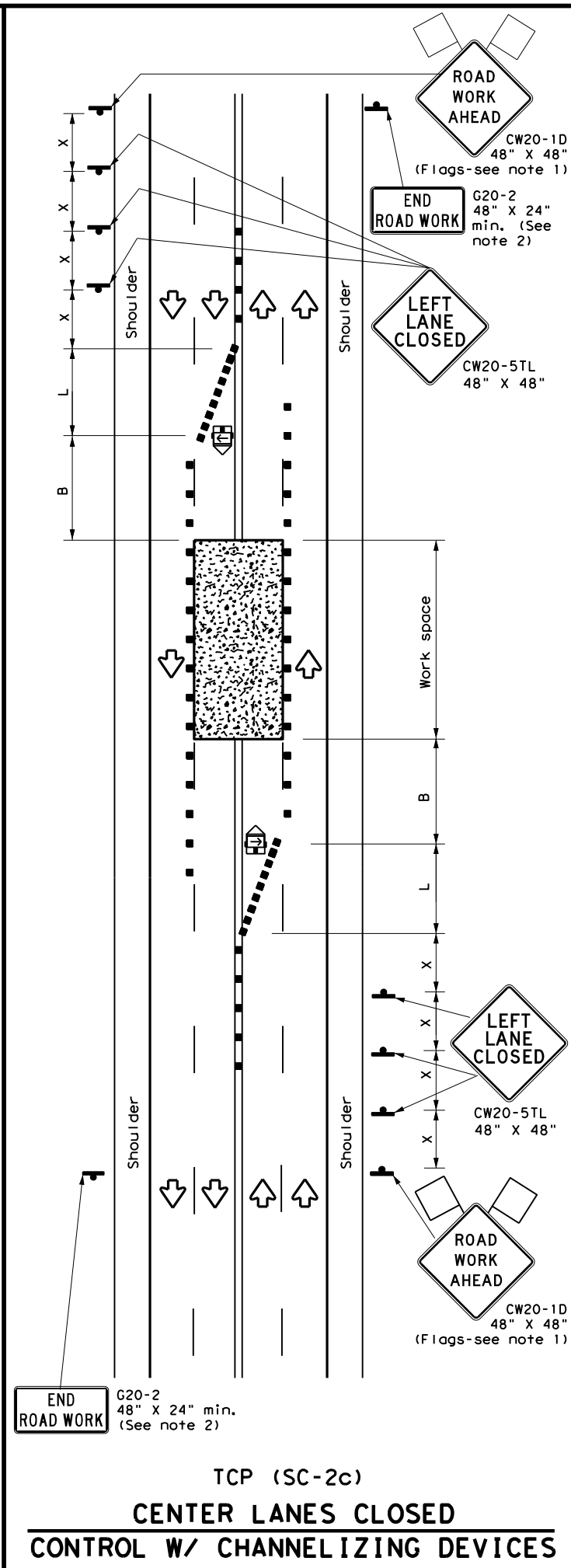
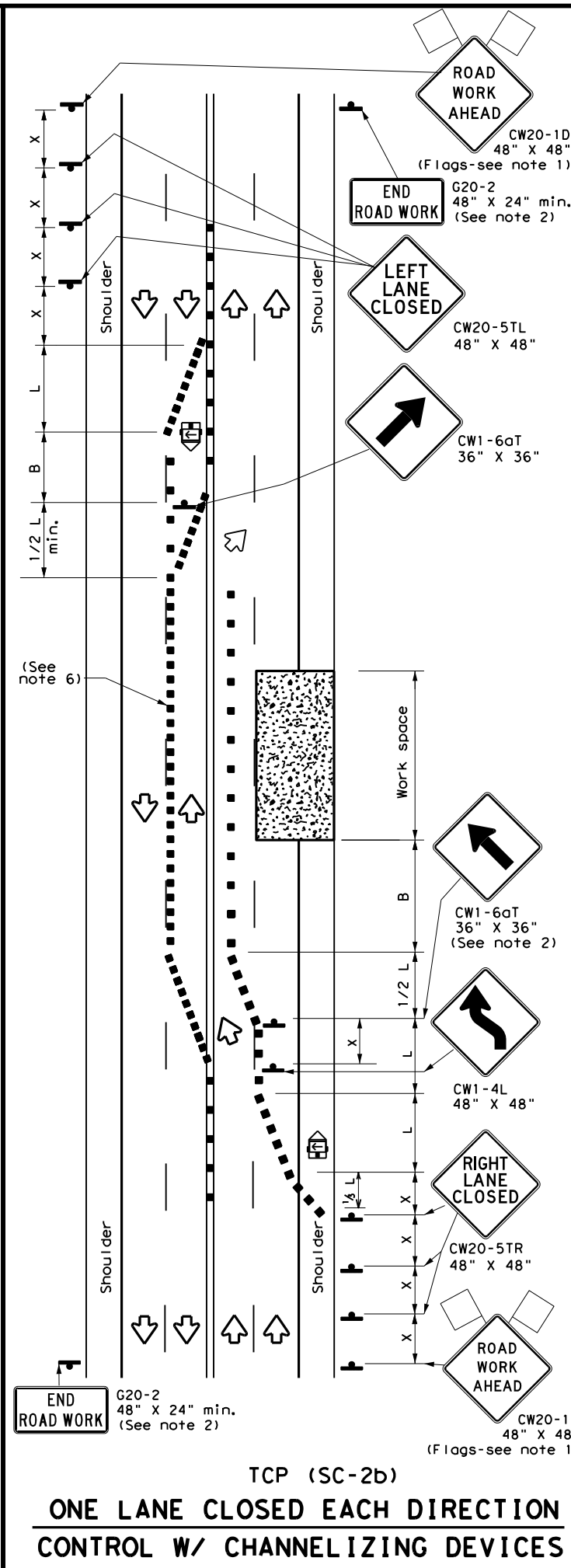
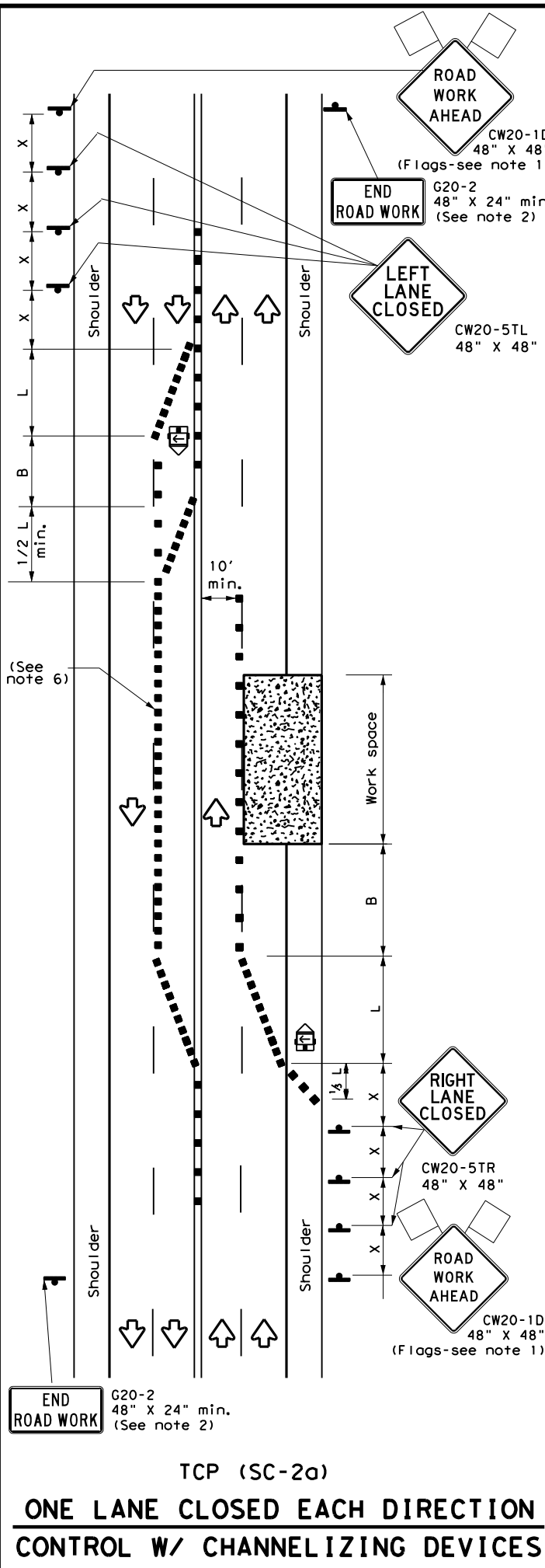
- Channelizing devices on the centerline are not required when a pilot car is leading traffic, unless directed by the Engineer.

SHEET 1 OF 8

		Traffic Safety Division Standard	
<b>TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS ONE-LANE TWO-WAY</b>			
<b>TCP (SC-1) - 22</b>			
FILE: tcpsc-1-22.dgn	DN:	CK:	DW:
© TxDOT October 2022	CONT SECT	JOB	HIGHWAY
4-21 REVISIONS	0191 03	089, Etc	FM 2493, Etc
10-22	DIST	COUNTY	SHEET NO.
	TYL	SMITH, Etc	59

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DATE: 9/30/2024 4:56:01 PM  
 FILE: c:\txdot\pw\_online\txdot3\evan.barron\0841219\TCP (SC-2) -22.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 Distance "x"	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: if project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
  - The ROAD WORK AHEAD (CW20-1D) sign may be repeated if the visibility of the work zone is less than 1500 feet.
  - If the seal coat operation crosses intersections, traffic in these areas must be controlled. Care must be taken to prevent vehicles from crossing the asphalt before the aggregate is placed. This may require positioning additional traffic control personnel (flaggers) at the intersection.
  - Temporary rumble strips are not required on seal coat operations.

**TCP (SC-2a) and (SC-2b)**

- Channelizing devices which separate two-way traffic shall be spaced on tapers at:
  - 20 feet;
  - 15 feet when posted speeds are 35 mph or slower; or
  - at 1/2(S) for tangent sections.
 This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

SHEET 2 OF 8

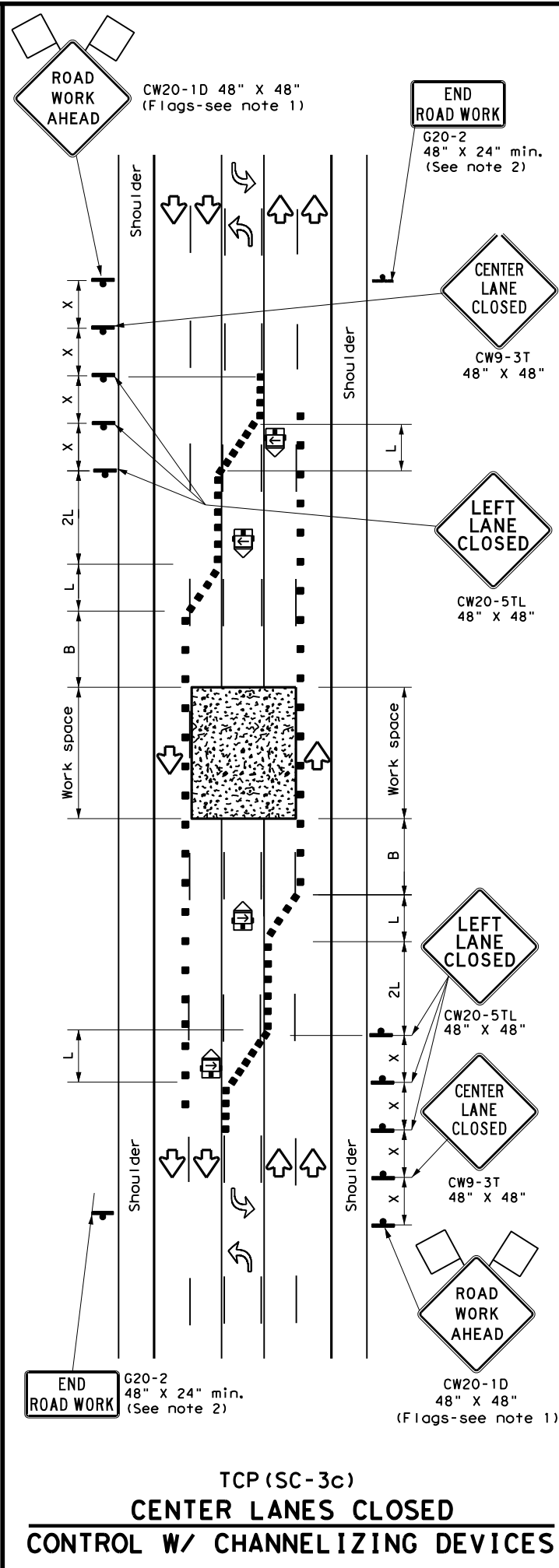
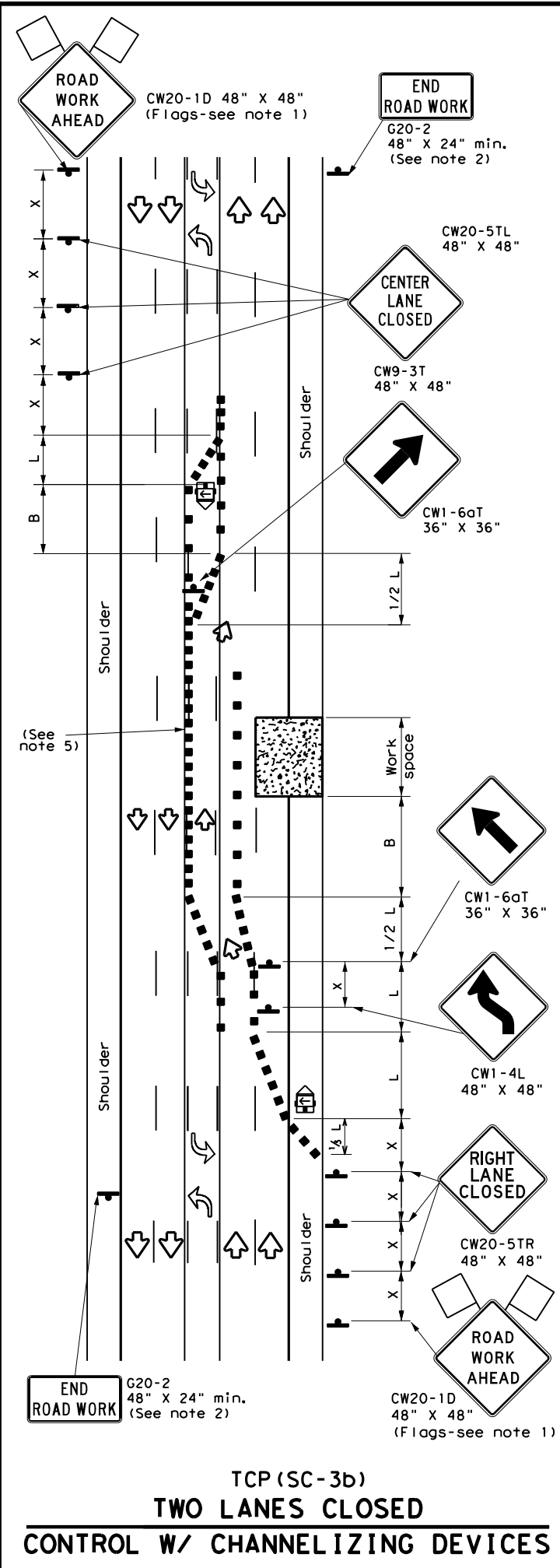
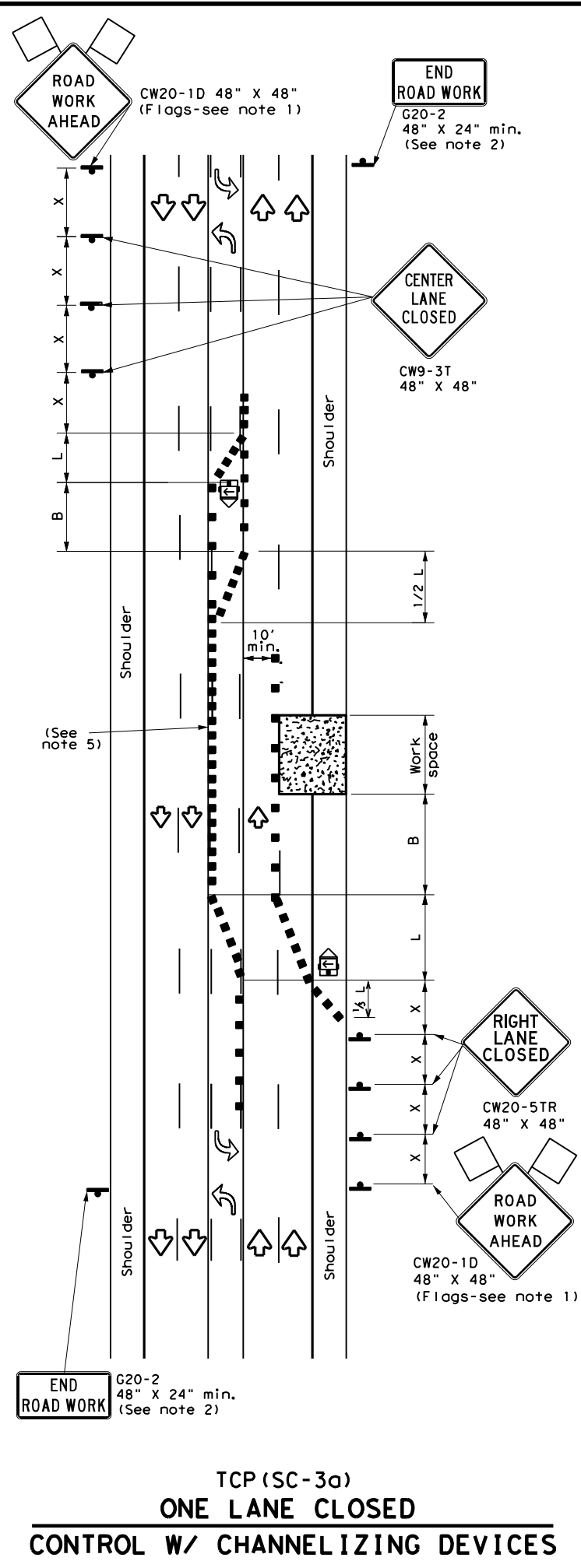
Texas Department of Transportation  
 Traffic Safety Division Standard

**TRAFFIC CONTROL PLAN**  
**SEALCOAT OPERATIONS**  
**MULTILANE ROADS**  
**(UNDIVIDED)**  
**TCP (SC-2) -22**

FILE: tcpsc-2-22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089, Etc	FM 2493, Etc
4-21	DIST	COUNTY	SHEET NO.	
10-22	TYL	SMITH, Etc	60	

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DATE: 9/30/2024 4:56:26 PM  
 FILE: c:\txdot\p\_w\_online\txdot3\evan\_barron\d0841219\TCP(SC-3)-22.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 Distance "X"	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: if project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
  - If the seal coat operation crosses intersections, traffic in these areas must be controlled. Care must be taken to prevent vehicles from crossing the asphalt before the aggregate is placed. This may require positioning additional traffic control personal (flaggers) at the intersection.
  - Temporary rumble strips are not required on seal coat operations.
- TCP (SC-3a) and (SC-3b)**
- Channelizing devices which separate two-way traffic shall be spaced on tapers at:
    - 20 feet;
    - 15 feet when posted speeds are 35 mph or slower; or
    - at 1/2(S) for tangent sections.
 This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

SHEET 3 OF 8

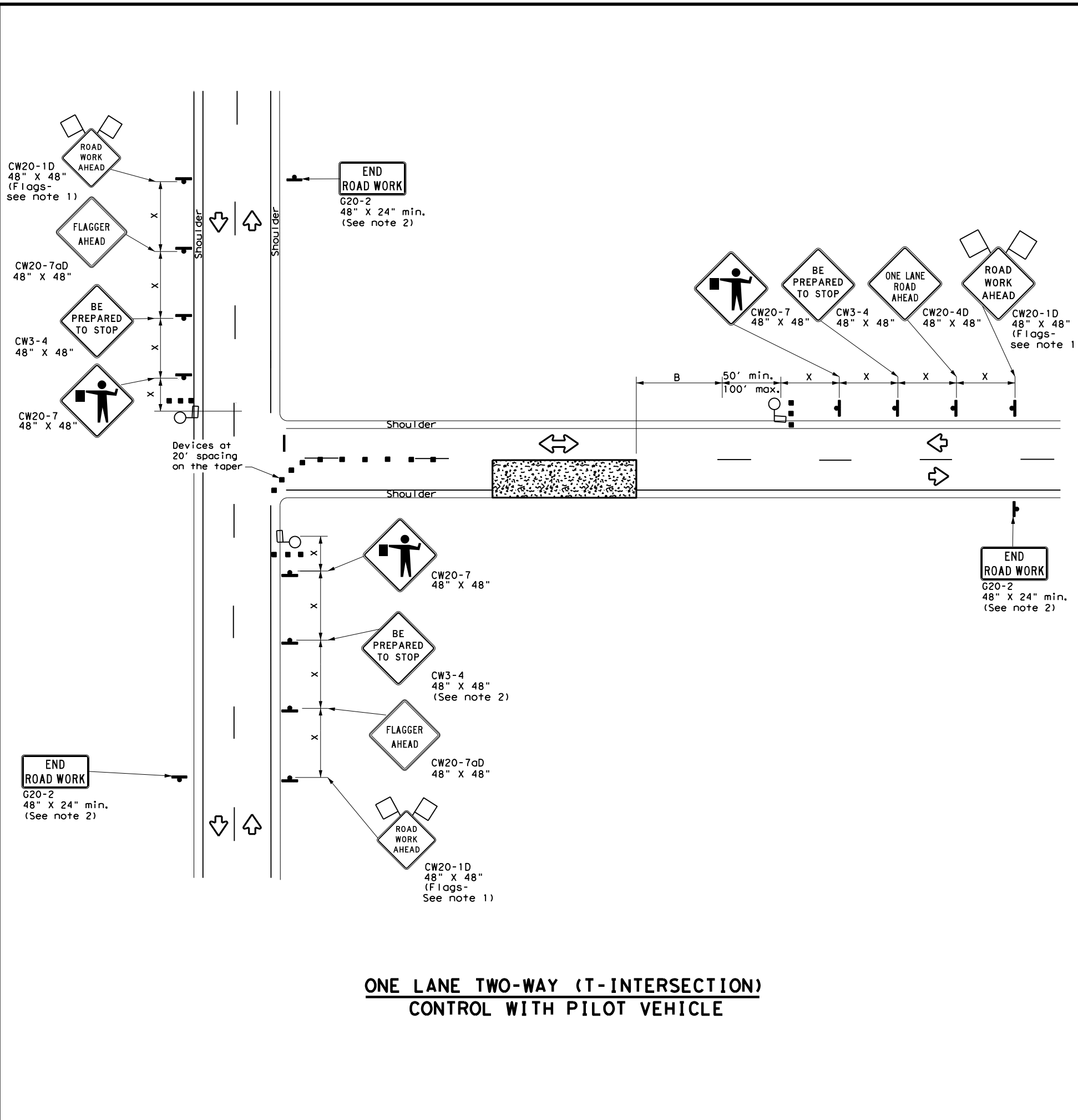
Texas Department of Transportation  
 Traffic Safety Division Standard

**TRAFFIC CONTROL PLAN  
SEAL COAT OPERATIONS  
MULTILANE ROADS  
(W/ CENTER LEFT TURN LANE)  
TCP (SC-3) - 22**

FILE: tcpsc-3-22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089, Etc	FM 2493, Etc
4-21	DIST	COUNTY	SHEET NO.	
10-22	TYL	SMITH, Etc	61	

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DATE: 9/30/2024 4:56:47 PM  
 FILE: c:\txdot\pw\_online\txdot3\evan\_barron\d0841219.TCP(SC-4)-22.dgn



**ONE LANE TWO-WAY (T-INTERSECTION)  
 CONTROL WITH PILOT VEHICLE**

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 Distance "X"	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		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'	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**

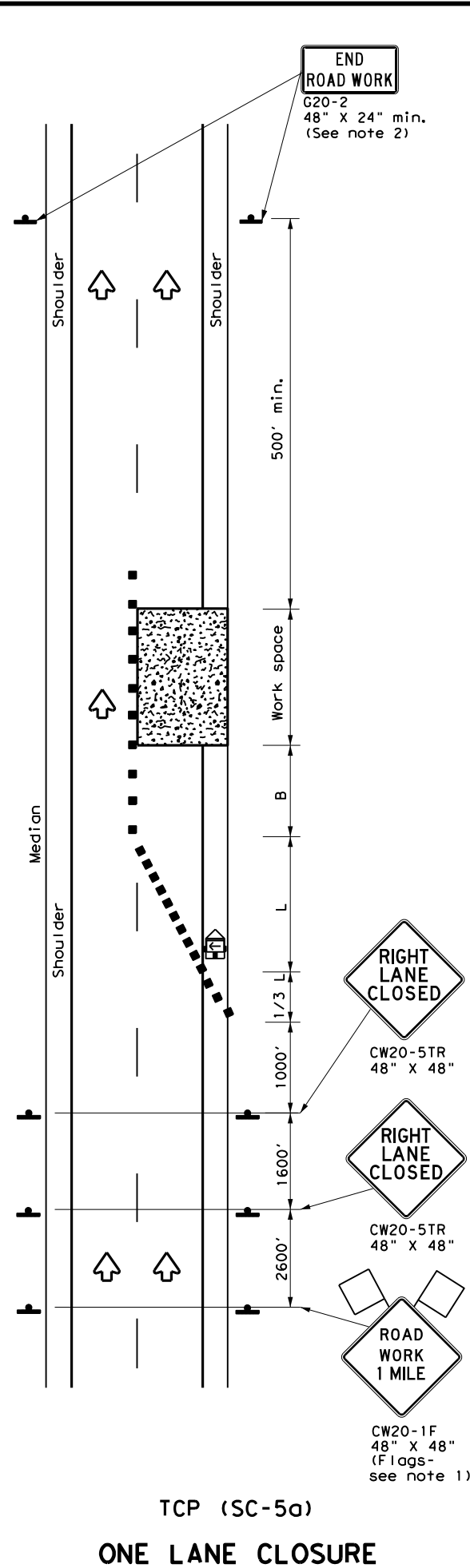
- Flags attached to signs where shown are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except: if project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
- Flaggers should use two-way radios or other methods of communication at all times for traffic control coordination.
- Flaggers should use 24" STOP (CW20-8) / SLOW (CW20-8aT) paddles to control traffic. Flags should be limited to emergency situations.
- 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).
- Temporary rumble strips are not required on seal coat operations.
- The pilot car is used to guide vehicles through traffic control zone. The pilot car shall have an identification name displayed and PILOT CAR, FOLLOW ME (G20-4) sign or message board mounted in a conspicuous position on rear.

SHEET 4 OF 8

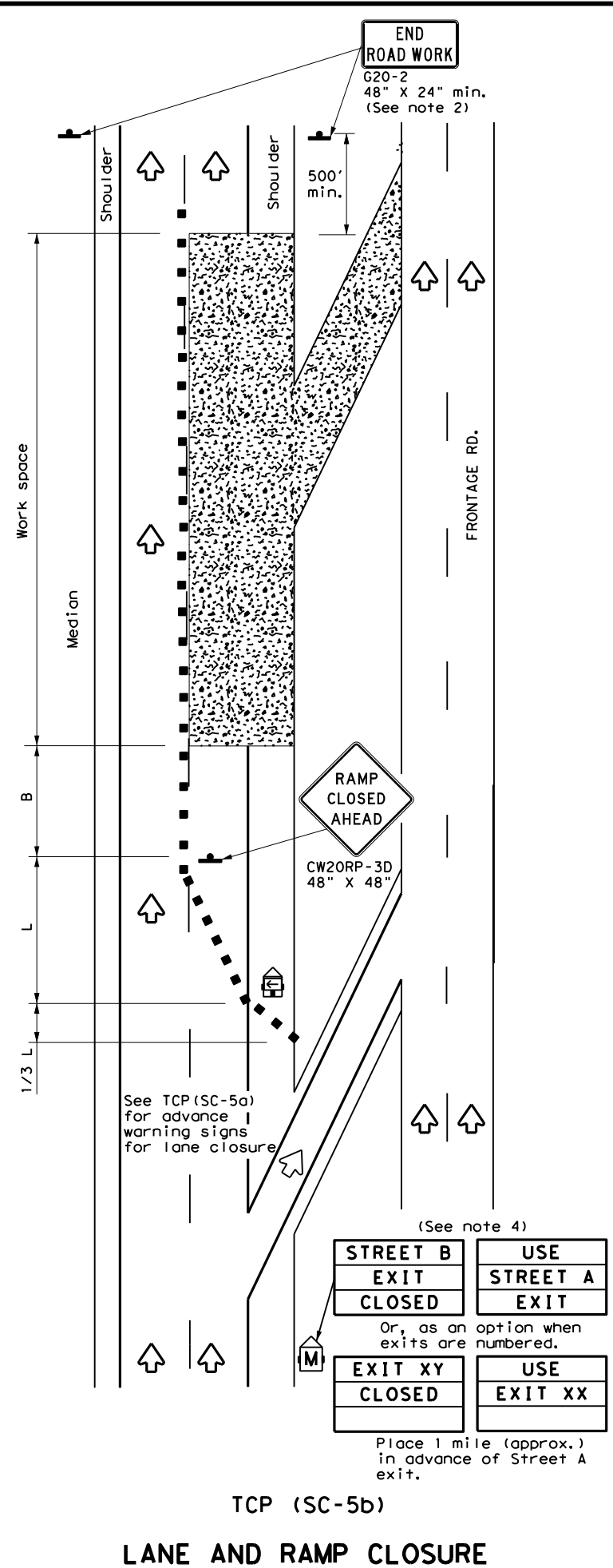
		Traffic Safety Division Standard	
<b>TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS NEAR INTERSECTION</b>			
<b>TCP (SC-4) - 22</b>			
FILE: tcpsc-4-22.dgn	DN:	CK:	DW:
© TxDOT October 2022	CONT	SECT	JOB
REVISIONS	0191	03	089, Etc
4-21	DIST	COUNTY	SHEET NO.
10-22	TYL	SMITH, Etc	62

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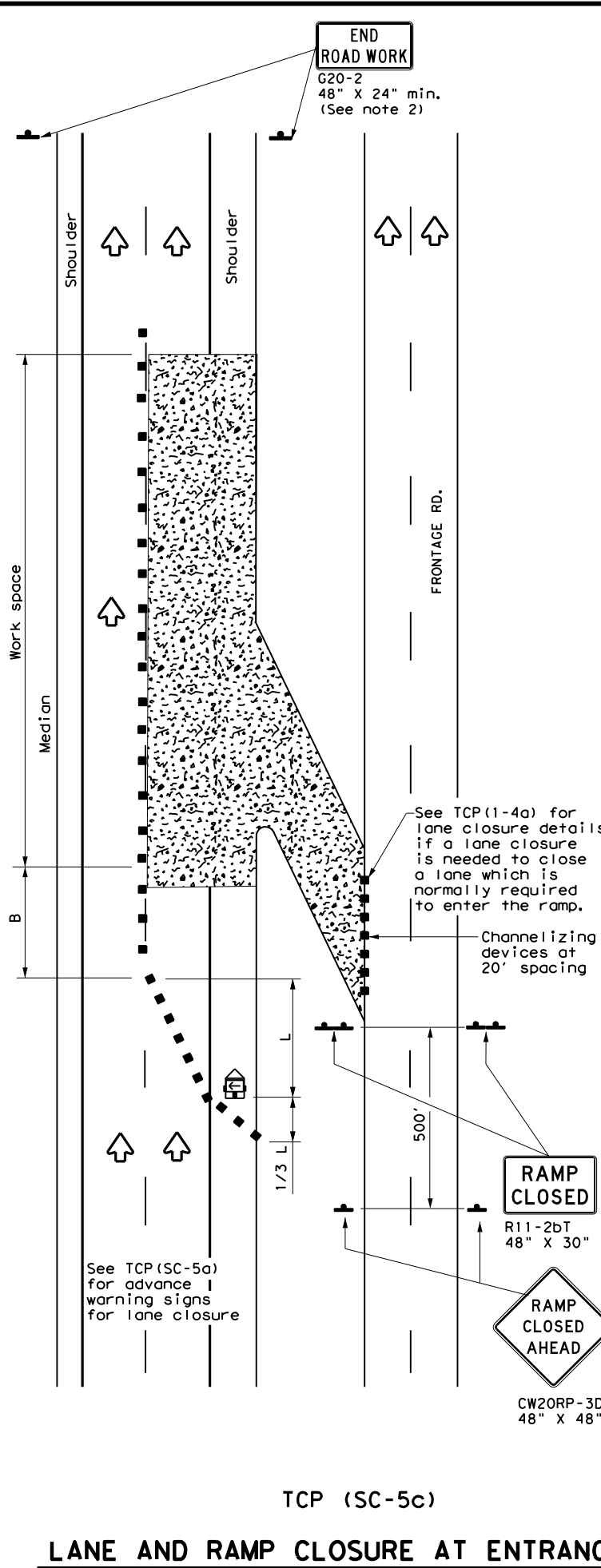
DATE: 9/30/2024 4:57:08 PM  
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TCP (SC-5a)  
**ONE LANE CLOSURE**



TCP (SC-5b)  
**LANE AND RAMP CLOSURE AT EXIT RAMP**



TCP (SC-5c)  
**LANE AND RAMP CLOSURE AT ENTRANCE RAMP**

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 Distance "x"	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:
    - If project signing is present, END ROAD WORK (G20-2) sign is optional with approval by the Engineer.
    - USE NEXT RAMP (CW25-1T) sign is optional with approval by the Engineer.
  - 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.
  - The PCMS may be omitted if: it is replaced with a RAMP CLOSED AHEAD (CW20RP-3D) sign or when a permanent Dynamic Message Sign (DMS) is available in the appropriate location to display a similar message as called for on the PCMS.
  - Temporary rumble strips are not required on seal coat operations.



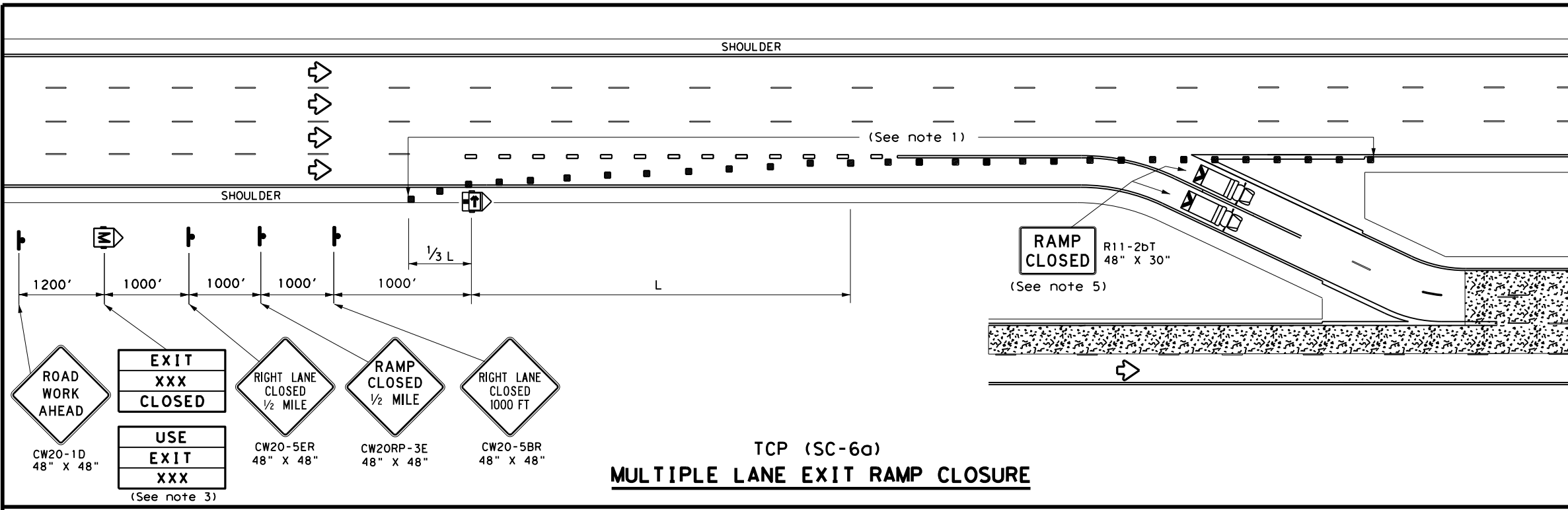
**TRAFFIC CONTROL PLAN  
 SEAL COAT OPERATIONS  
 DIVIDED HIGHWAYS**

**TCP (SC-5) -22**

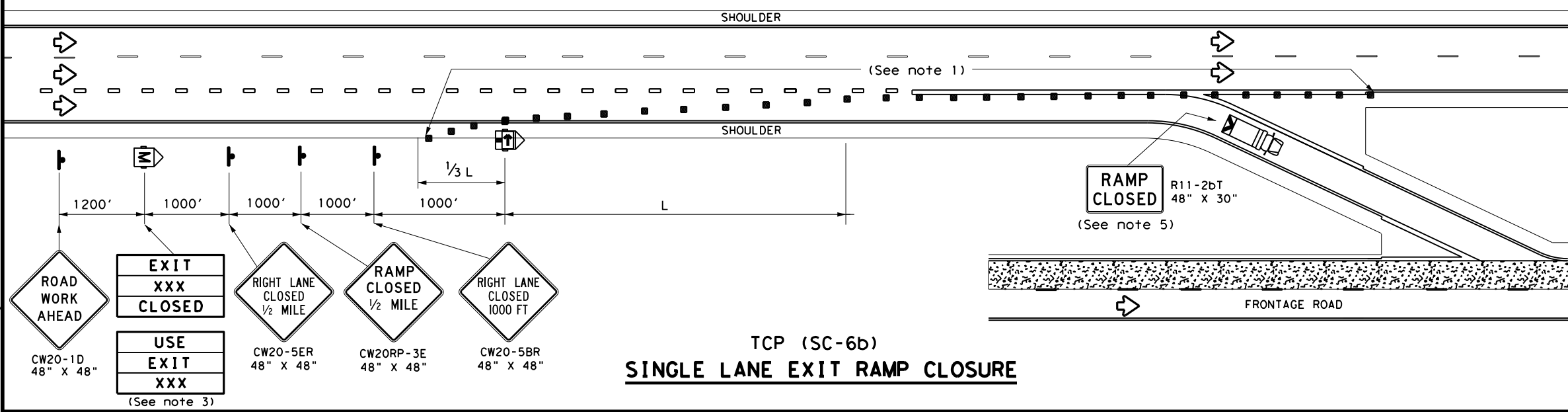
FILE: tcpsc-5-22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089, Etc	FM 2493, Etc
4-21	DIST	COUNTY	SHEET NO.	
10-22	TYL	SMITH, Etc	63	

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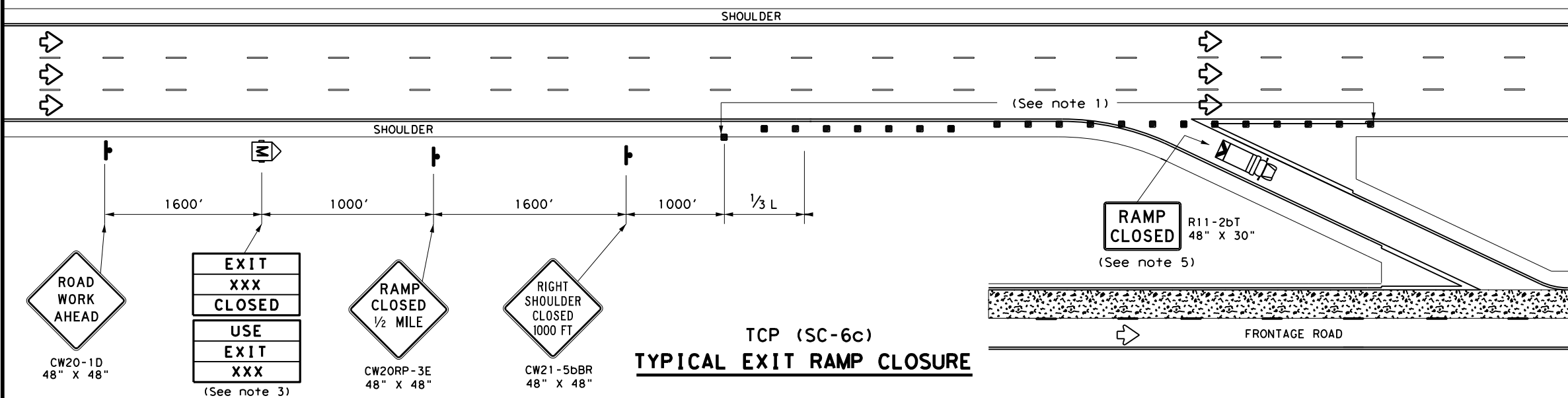
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TCP (SC-6a)  
**MULTIPLE LANE EXIT RAMP CLOSURE**



TCP (SC-6b)  
**SINGLE LANE EXIT RAMP CLOSURE**



TCP (SC-6c)  
**TYPICAL EXIT RAMP CLOSURE**

LEGEND			
	Type 3 Barricade		Channelizing Devices (CDs)
	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 "L" **			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L = WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'
85		850'	935'	1020'	85'	170'	695'

\*\* 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**
- Place channelizing devices at 20' spacings. Tighter spacing allowed as necessary to address field conditions or observed driver behavior.
  - See the Standard Highway Sign Design for Texas (SHSD) for sign details.
  - The PCMS may be omitted if replaced with a RAMP CLOSED AHEAD (CW20RP-3D) sign or when a permanent Dynamic Message Sign (DMS) is available in an appropriate location to display a similar message as called for on the PCMS.
  - When it is determined that a through lane should be closed in addition to the exit ramp, refer to TCP(6-4) for traffic control details.
  - A Truck Mounted Attenuator (TMA), where shown, is REQUIRED and shall have a RAMP CLOSED (R11-2bT) sign mounted on the rear of the truck.

**TRAFFIC CONTROL PLAN  
 SEAL COAT OPERATIONS  
 DIVIDED HIGHWAYS**

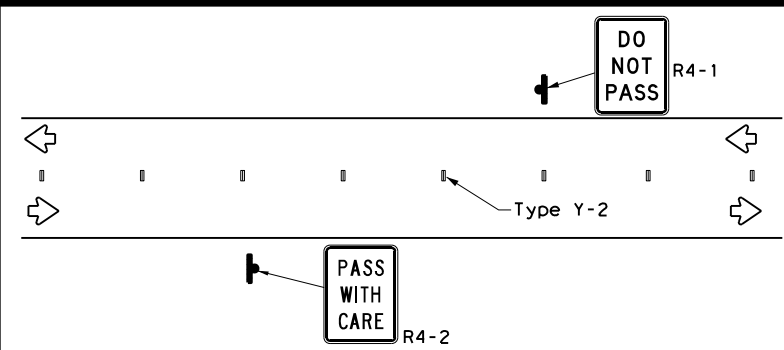
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	DIST	COUNTY	SHEET NO.	
	TYL	SMITH, Etc	64	

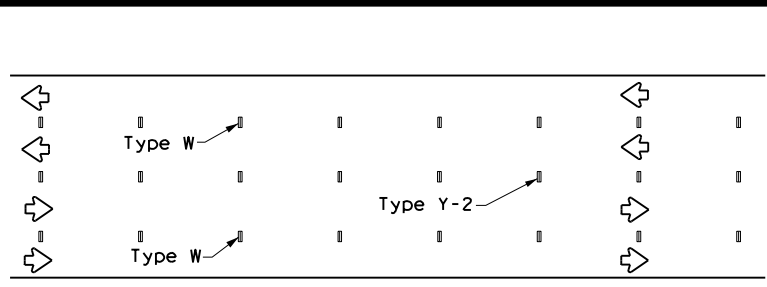


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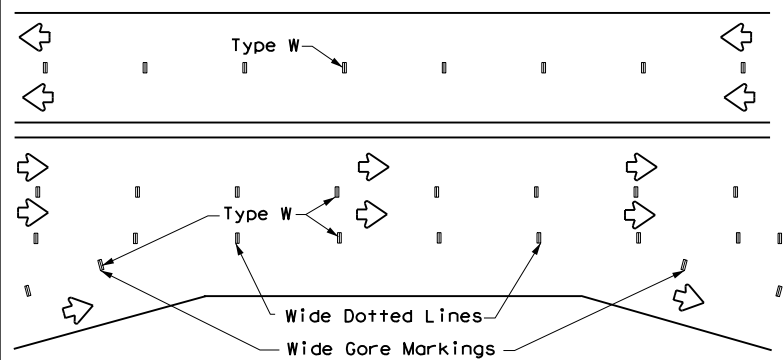
### WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS (TABS)



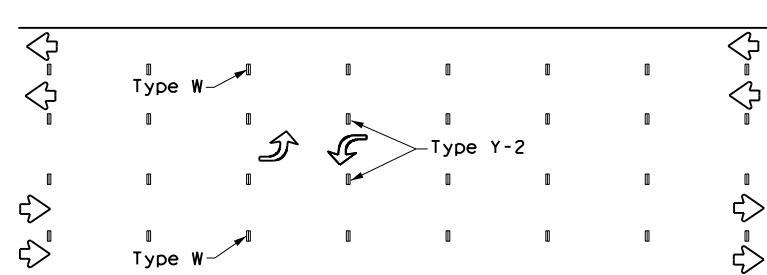
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



LANE LINES FOR DIVIDED HIGHWAY

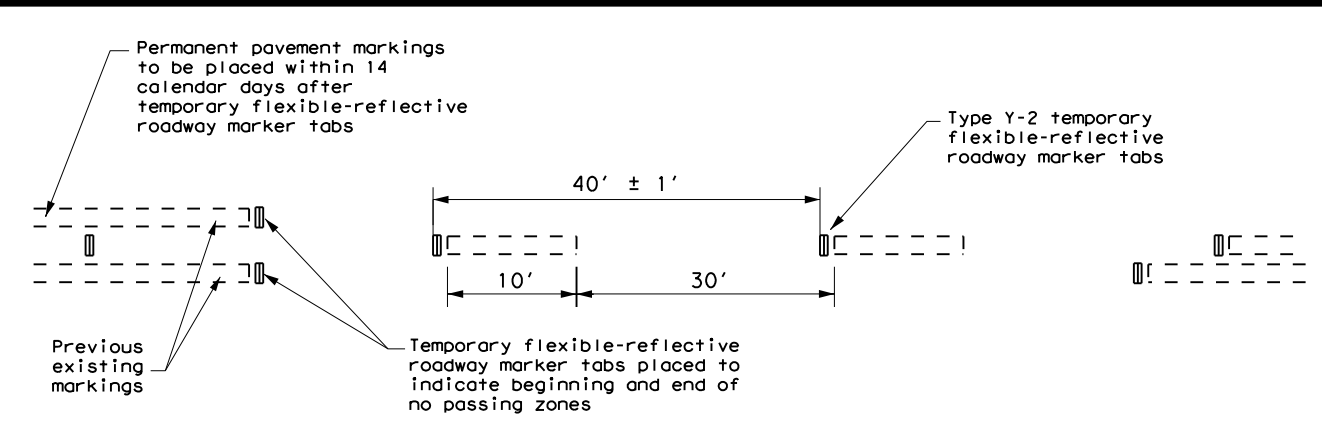


TWO-WAY LEFT TURN LANE

### WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS (TABS)

SOLID LINES	DOUBLE NO-PASSING LINE	
	SINGLE NO-PASSING LINE or CHANNELIZATION LINE	
	8" WIDE SOLID LINE	
BROKEN LINES (FOR CENTER LINE OR LANE LINE)		
WIDE DOTTED LINES (FOR LANE DROP LINES)		
WIDE GORE MARKINGS		

### TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS



#### TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS

- Temporary markings for surfacing projects shall be Temporary Flexible-Reflective Roadway Marker Tabs with protective cover unless otherwise approved by the Engineer. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement no more than two days before the surfacing is applied. After the surfacing is rolled and swept, the protective cover over the reflective strip shall be removed.
- Temporary Flexible-Reflective Roadway Marker Tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with a yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(11).
- Temporary Flexible-Reflective Roadway Marker Tabs will require normal maintenance replacement when used on roadways with an Average Daily Traffic (ADT) per lane of up to 7500 vehicles with no more than 10% truck mix. When roadway volumes exceed these values, additional maintenance replacement of these devices should be planned for.
- When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
- No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 4.
- Tabs shall meet requirements of Departmental Material Specification DMS-8242.
- Tabs shall NOT be used to simulate edge lines.

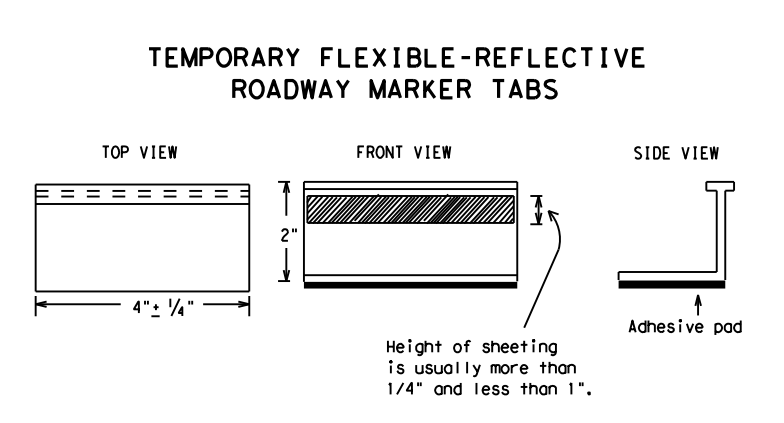
#### NOTES:

- The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
- For exit gores where a lane is being dropped, place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are NOT acceptable.
- Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.

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

- DMSs referenced above may be found along with embedded links to their respective MPLs at the following website: <http://www.txdot.gov>

SHEET 7 OF 8



Traffic Safety Division Standard

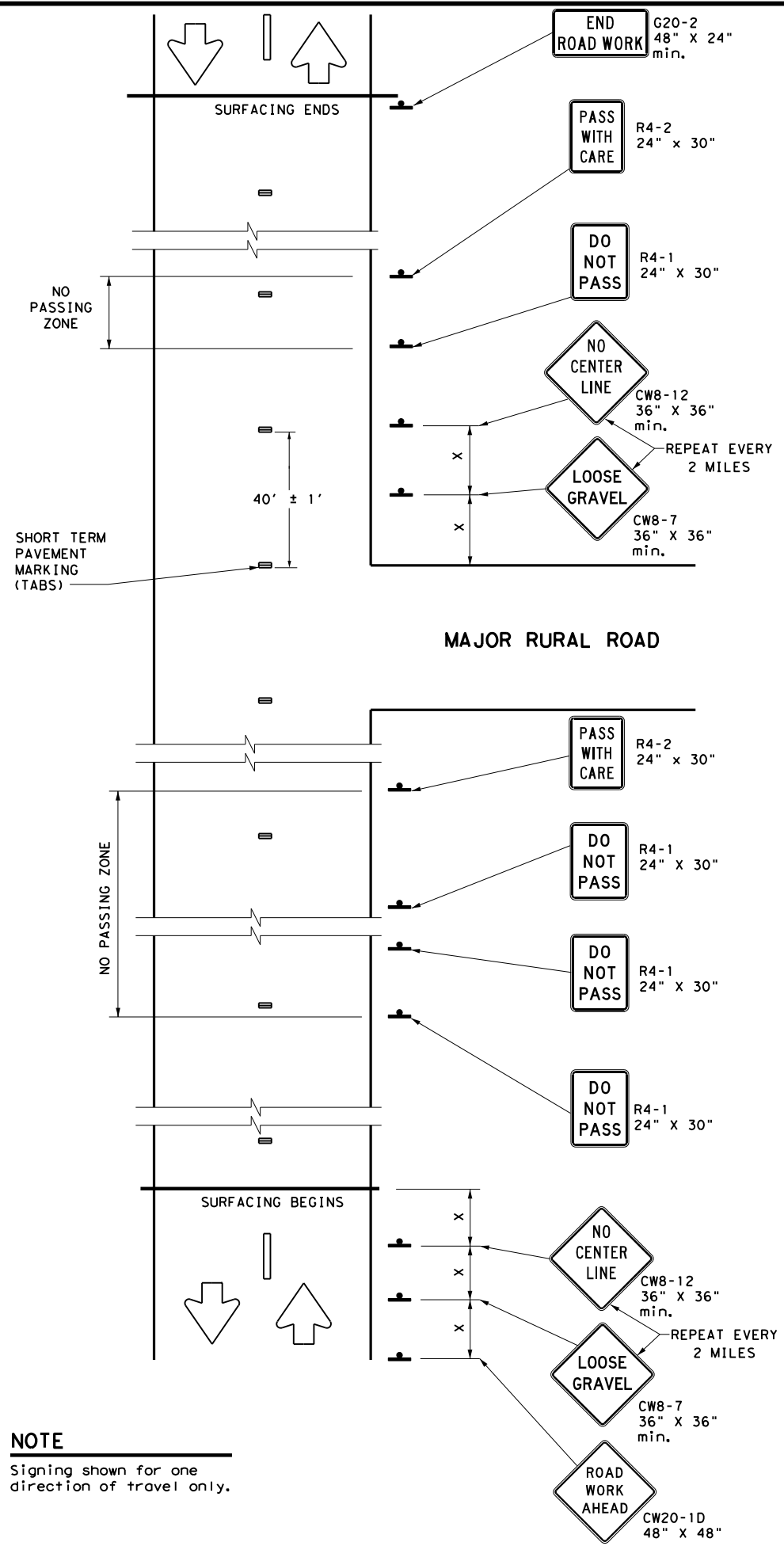
## TEMPORARY PAVEMENT MARKINGS FOR SEAL COAT OPERATIONS

### TCP (SC-7) -22

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©TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089, Etc	FM 2493, Etc
4-21	DIST	COUNTY	SHEET NO.	
10-22	TYL	SMITH, Etc	65	

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**NOTE**  
 Signing shown for one direction of travel only.

**NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS**

**DO NOT PASS (R4-1) SIGN and NO-PASSING ZONES**

- A. Prior to the beginning of construction, all currently striped no-passing zones shall be signed with the DO NOT PASS (R4-1) signs and PASS WITH CARE (R4-2) signs placed at the beginning and end of each zone for each direction of travel, except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.
- B. At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined as a single zone. If passing is to be prohibited over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES (R20-1TP) plaque may be used at the beginning of such zones. The DO NOT PASS sign and the NEXT XX MILES plaque should be repeated every mile to the end of the no-passing zone. In areas where there is a considerable distance between no-passing zones, the end of the no-passing zone may be signed with a PASS WITH CARE sign and a NEXT XX MILES plaque.
- C. Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshields and lights. The DO NOT PASS sign and NEXT XX MILES plaque should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with the existing pavement markings. Also, unless one day of operation completes the entire length of such combined zones, appropriate DO NOT PASS and PASS WITH CARE signs should be placed at the beginning and end of the no-passing zones where the surfacing operation has stopped for the day.
- D. DO NOT PASS and PASS WITH CARE signs are to remain in place until permanent pavement markings are installed.

**NO CENTER LINE (CW8-12) SIGN**

- A. Center line markings are yellow pavement markings that delineate the separation between lanes that have opposite directions of travel on a roadway. Divided highways do not typically have center line markings.
- B. At the time construction activity obliterates the existing center line markings (low volume roads may not have an existing center line), a NO CENTER LINE (CW8-12) sign should be erected at the beginning of the work area, at approximately two mile intervals within the work area, beyond major intersections, and other locations deemed necessary by the Engineer.
- C. The NO CENTER LINE signs are to remain in place until permanent pavement markings are installed.

**LOOSE GRAVEL (CW8-7) SIGN**

- A. When construction begins, a LOOSE GRAVEL (CW8-7) sign should be erected at each end of the work area and repeated at intervals of approximately two miles in rural areas and closer in urban areas.
- B. The LOOSE GRAVEL signs are to remain in place until the condition no longer exists.

**COORDINATION OF SIGN LOCATIONS**

- A. The location of warning signs at the beginning and end of a work area are to be coordinated with other signing typically shown on the Barricade and Construction Standards for project limits to ensure adequate sign spacing.
- B. Where possible, the ROAD WORK AHEAD (CW20-1D), LOOSE GRAVEL (CW8-7), and NO CENTER LINE (CW8-12) signs should be placed:
  - a.) In the sequence shown following the OBEY WARNING SIGNS STATE LAW (R20-3T) sign and the TRAFFIC FINES DOUBLE (R20-5T) sign; and
  - b.) One "X" sign spacing prior to the CONTRACTOR (G20-6T) sign typically located at or near the limits of surfacing.
 LOOSE GRAVEL and NO CENTER LINE sign placements will then be repeated as described above.

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

\* Conventional Roads Only

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

**GENERAL NOTES**

1. Surfacing operations that cover or obliterate existing pavement markings must first have the passing zones clearly marked with tabs as well as having any of the traffic control devices detailed on this sheet furnished and erected as directed by the Engineer.
2. The devices shown on this sheet are to be used to supplement those required by the BC Standards or others required elsewhere in the plans.
3. Signs shall be erected as detailed on the BC Standards or the Compliant Work Zone Traffic Control Devices List (CWZTCD) on supports approved for Short Duration / Short Term Stationary Work Zone Sign Supports.
4. When surfacing operations take place on divided highways, freeways or expressways, the size of diamond shaped construction warning signs shall be 48" x 48".
5. Signs on divided highways, freeways and expressways should be placed on both right and left sides of the roadway based on roadway conditions as directed by the Engineer.

SHEET 8 OF 8



**TRAFFIC CONTROL DETAILS FOR SEAL COAT OPERATIONS**  
**TCP (SC-8) -22**

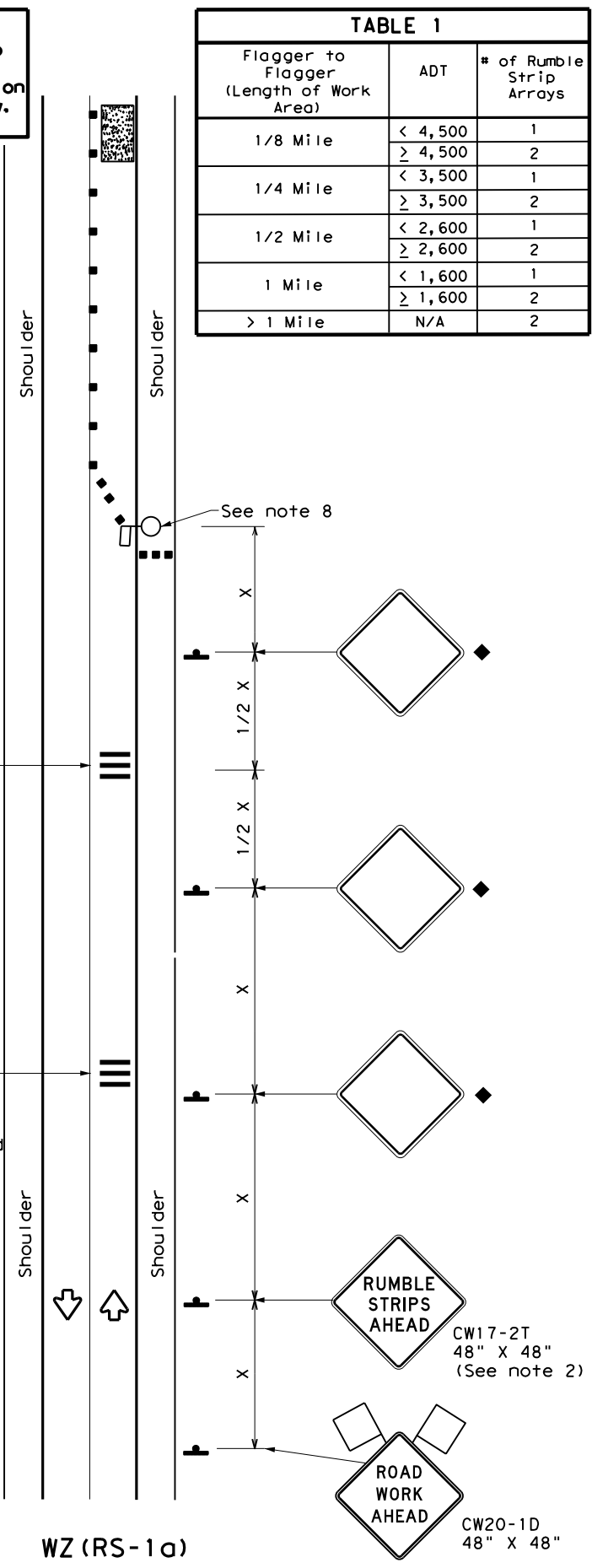
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10-22	TYL	SMITH, Etc	66	

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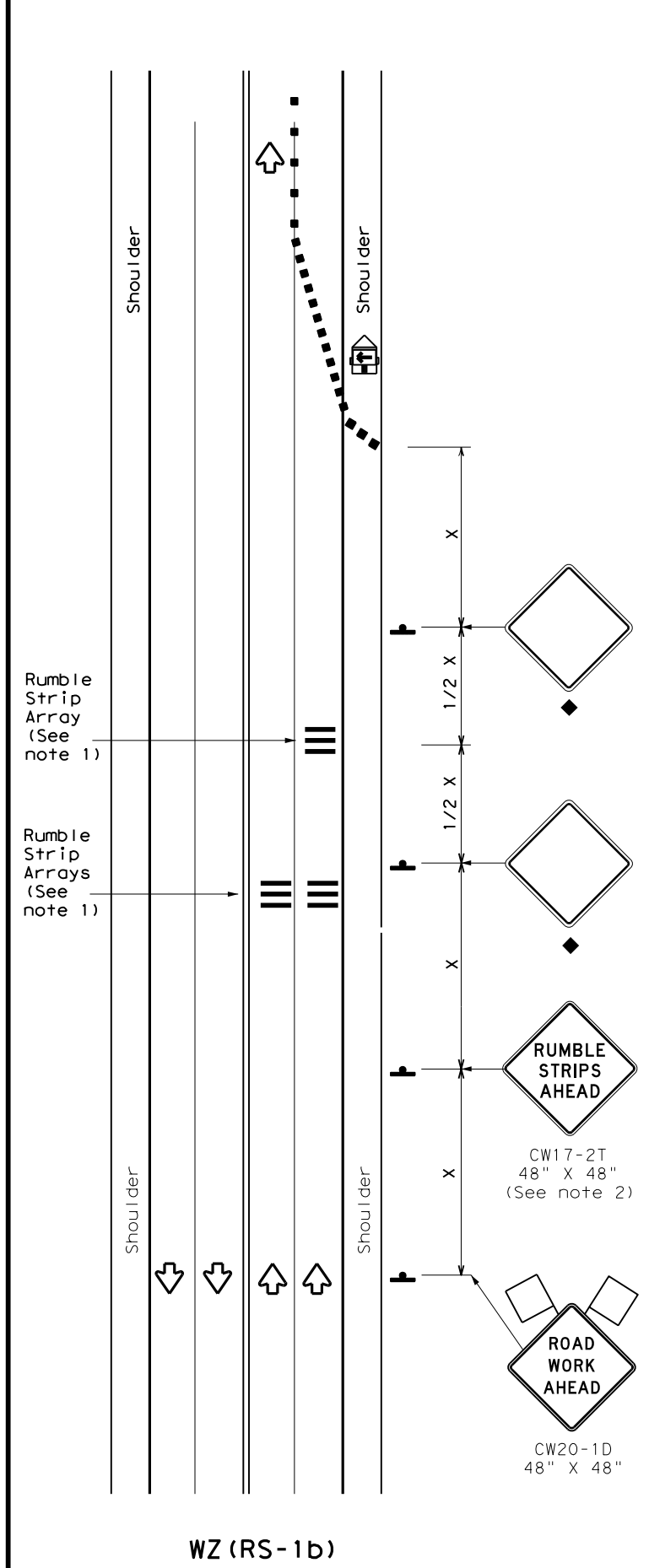
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Warning sign and rumble strip sequence in opposite direction is same as below.

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/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.

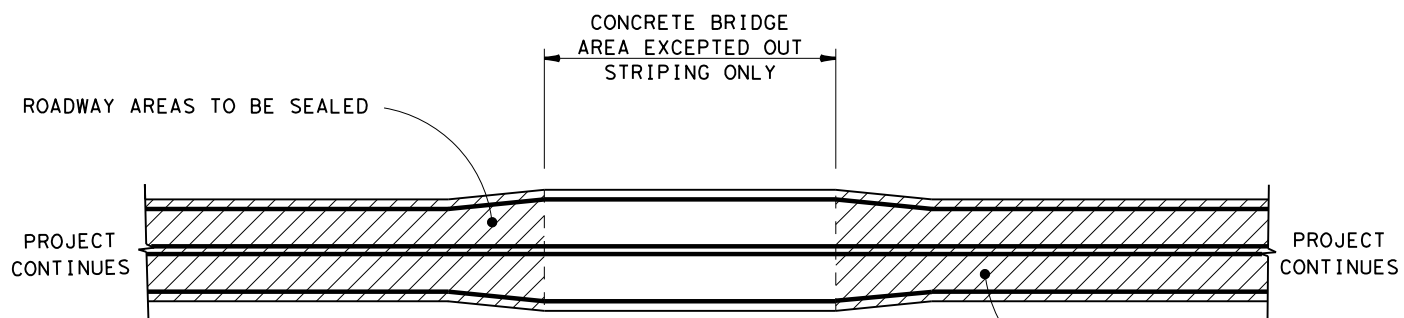
Texas Department of Transportation  
 Traffic Safety Division Standard

## TEMPORARY RUMBLE STRIPS

### WZ (RS) - 22

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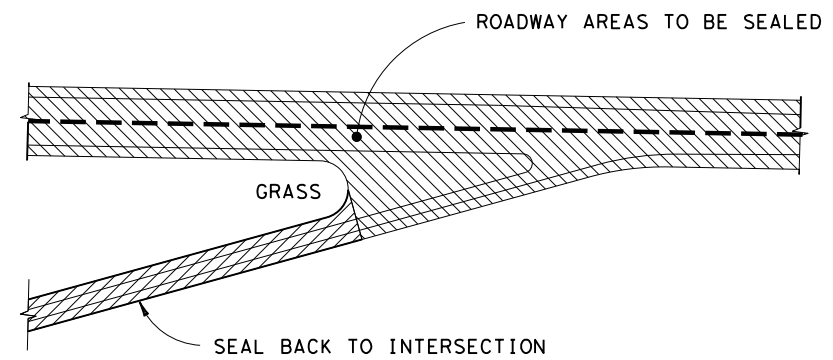
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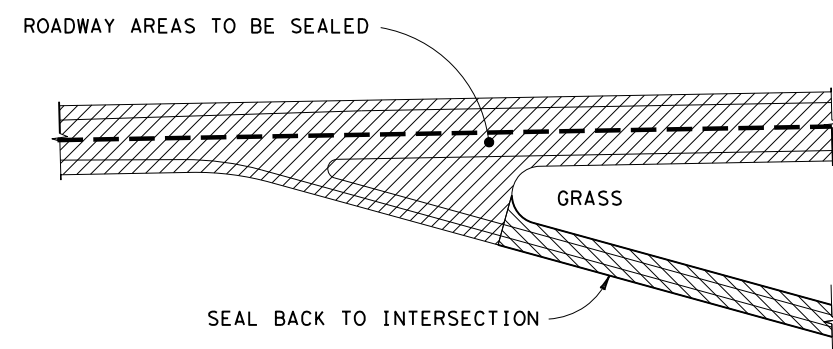
NOTE:

1. SEE ESTIMATE & QUANTITY SUMMARY SHEETS FOR EXACT LOCATION AND DETAILS.
2. CONTRACTOR SHALL ONLY SEAL BRIDGES WHICH HAVE BEEN PREVIOUSLY OVERLAYED OR SEALED. PROPOSED STRIPING SHALL BE PLACED ON ALL BRIDGE DECKS REGARDLESS OF SURFACE.

TYPICAL CONCRETE BRIDGE EXCEPTION SURFACING DETAIL



TYPICAL ENTRANCE RAMP SURFACING DETAIL



TYPICAL EXIT RAMP SURFACING DETAIL



10/03/2024

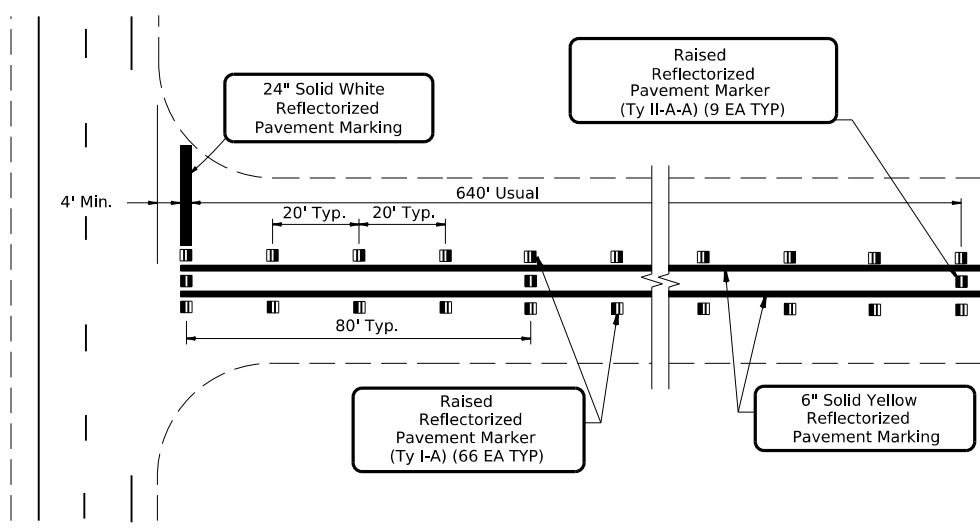


FM 2493, Etc  
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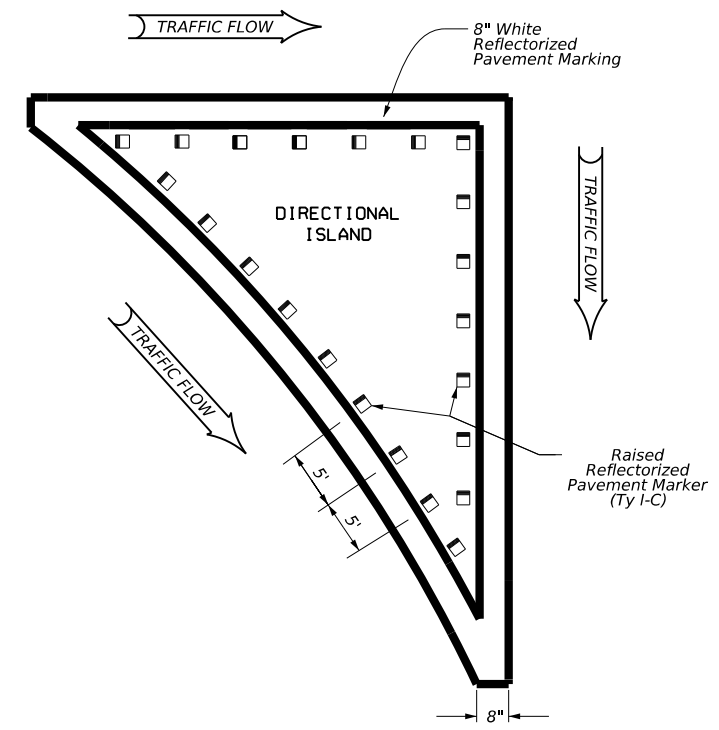
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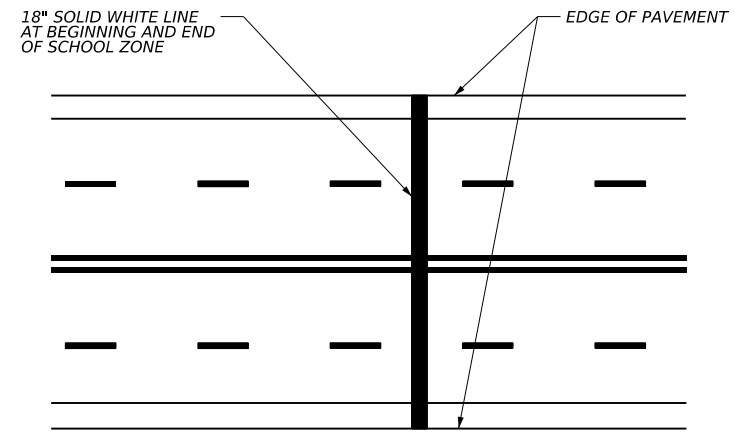
CK:  
DW:  
CK:  
DW:



PAVEMENT MARKING DETAIL  
APPROACHING STOP CONDITION  
(ONLY APPLIES TO PRIMARY ROADWAY BEING SEALED)



TYPICAL DIRECTIONAL ISLAND DETAIL  
AT INTERSECTIONS



SCHOOL ZONE PAVEMENT MARKINGS



10/03/2024



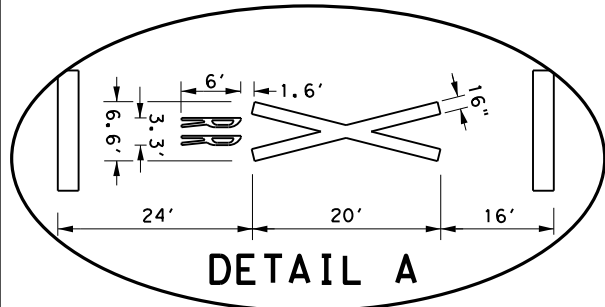
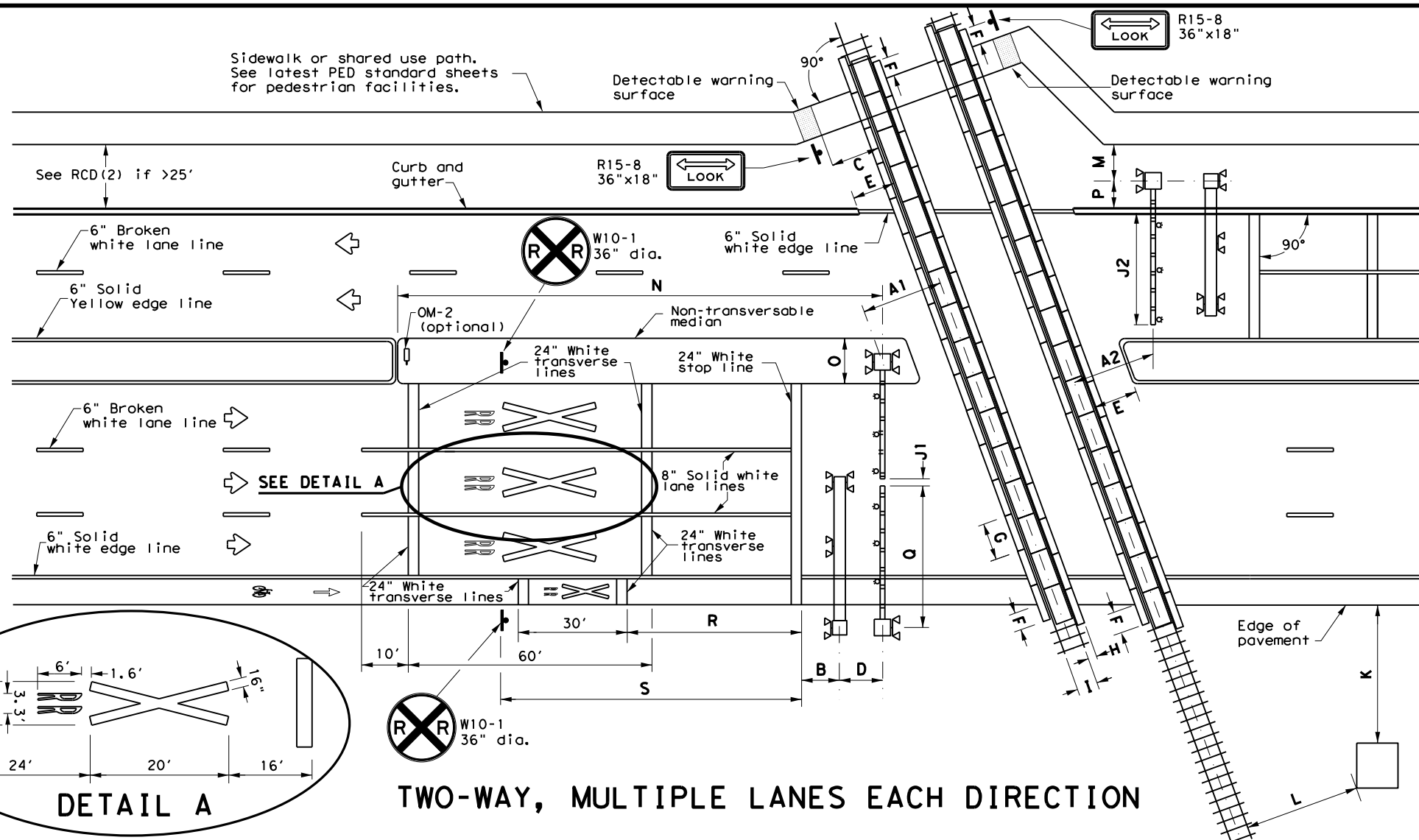
FM 2493, Etc  
PAVEMENT MARKING  
DETAILS

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DIST	COUNTY	SHEET NO.	
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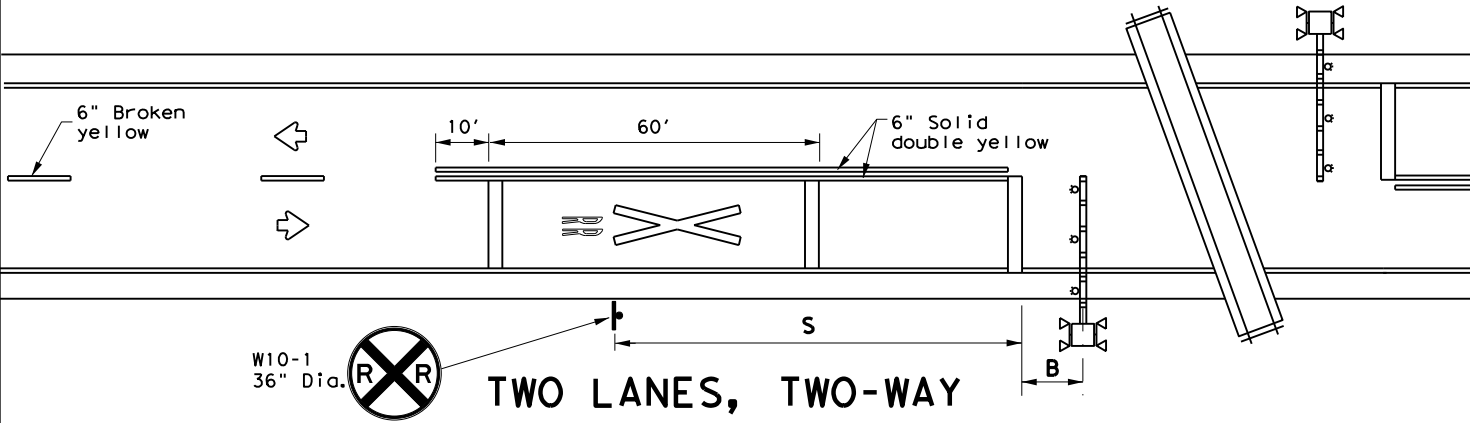
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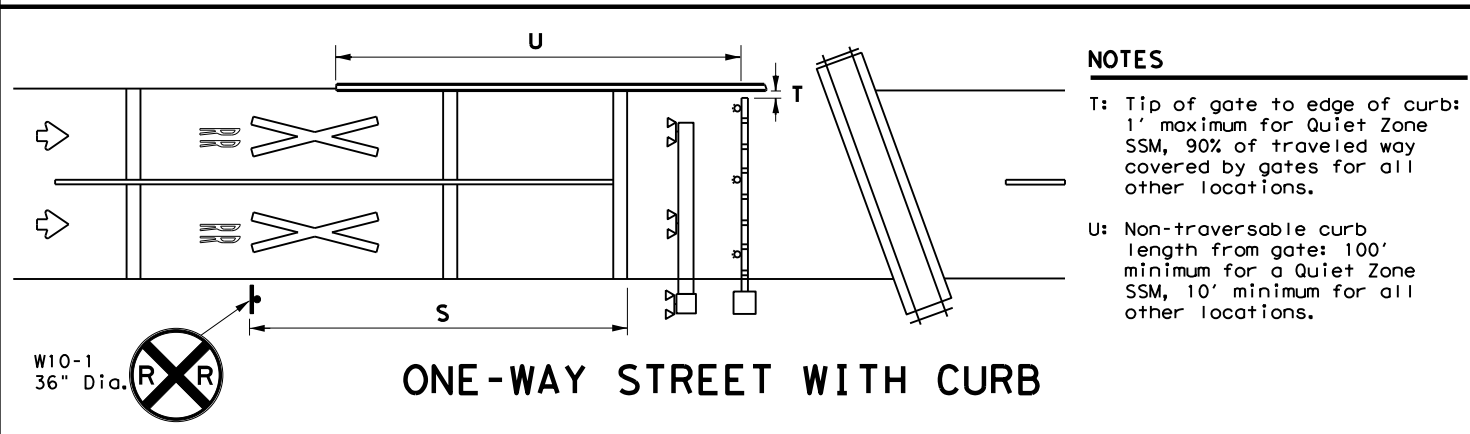
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**TWO-WAY, MULTIPLE LANES EACH DIRECTION**



**TWO LANES, TWO-WAY**



**ONE-WAY STREET WITH CURB**

- NOTES**
- T: Tip of gate to edge of curb: 1' maximum for Quiet Zone SSM, 90% of traveled way covered by gates for all other locations.
  - U: Non-traversable curb length from gate: 100' minimum for a Quiet Zone SSM, 10' minimum for all other locations.

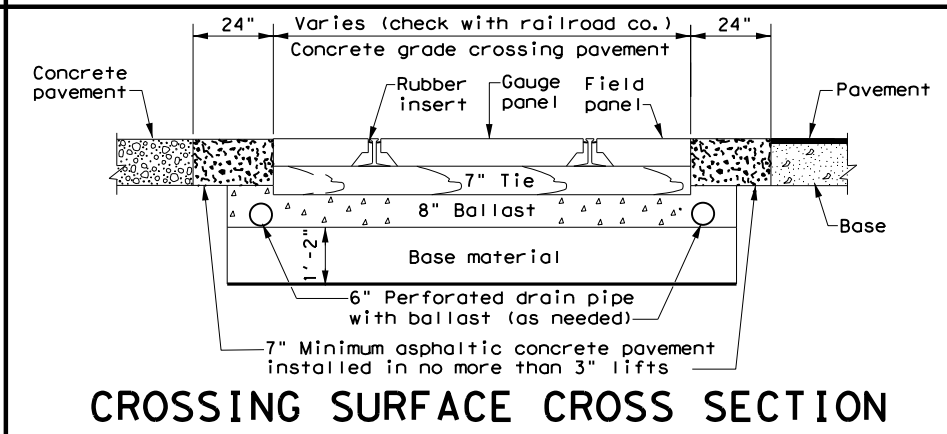
**TABLE 1**

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

**LEGEND**

	Sign
	Object Marker
	Traffic Flow
	Cantilever
	Gate Assembly
	Mast Flasher Pair

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



**CROSSING SURFACE CROSS SECTION**

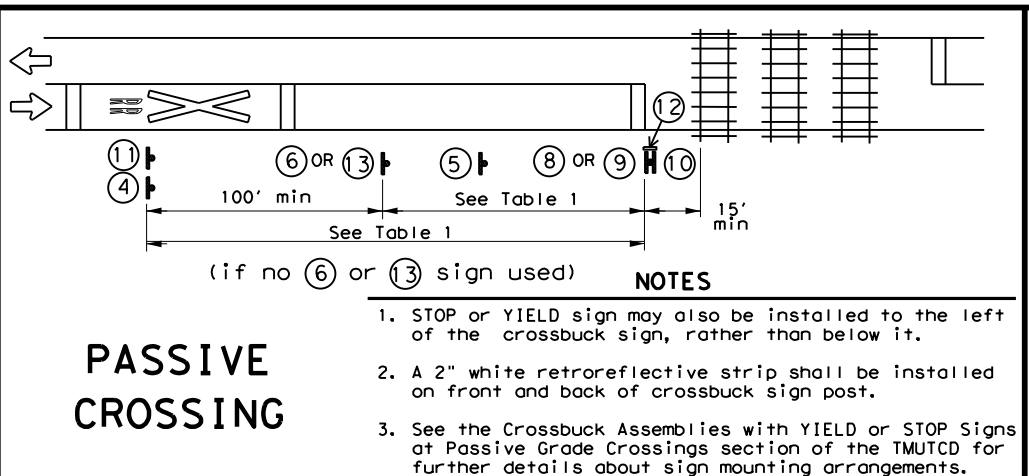
- NOTES**
- A1: Center of RR mast to center of rail: 12' minimum, 15' typical.
  - A2: Tip of gate to center of rail: 12' minimum, 15' typical.
  - B: Center of mast (cantilever, gate, or mast flasher) of nearest active traffic control device to stop line: 8' (NOTE: Stop line may be moved as needed, but should be at least 8' back from gates, if present).
  - C: Near edge of detectable warning surface to nearest rail: 12' minimum.
  - D: Center of gate mast to center of cantilever mast: 6' typical. NOTE: Cantilever may be located in front or behind gates.
  - E: Edge of median or curb to nearest rail: 10' typical. NOTE: Design median edge to be parallel with rail.
  - F: Edge of planking panel from edge of pavement or sidewalk: 3' minimum. NOTE: Field panels need not be in line with gauge panels.
  - G: Length of panels along rail: 8' typical.
  - H: Width of field panel: 2' typical (check with railroad company).
  - I: Distance between rails: 4'- 8'1/2".
  - J1: Tip of gate to tip of gate: 2' maximum.
  - J2: 90% of traveled roadway to be covered by gate.
  - K: Nearest edge of RR cabinet from edge of pavement: 30' typical. NOTE: Cabinet not required to be parallel to edge of pavement.
  - L: Nearest edge of RR cabinet from nearest rail: 25' typical.
  - M: Center of RR mast to edge of sidewalk: 6' minimum.
  - N: Center of gate mast to leading edge of non-traversable median: 100' minimum to qualify as a Quiet Zone SSM. NOTE: 60' will suffice if there is a street intersection within the 100' and all street intersections within 60' are closed.
  - O: Width of median for RR gate assembly: 8'-6" minimum, 10' typical when using median gates. NOTE: Center of gate mast minimum 4'-3" from face of curb.
  - P: Center of RR mast to face of curb: 5'-3" minimum. Center of RR mast to edge of pavement (with shoulder): 7' minimum. Center of RR mast to edge of pavement (no shoulder): 9'-3" minimum. NOTE: Final location determined by the railroad company.
  - Q: Gate length: 28' or less typical, but railroad company may allow up to 32' under special circumstances.
  - R: Stop line to first RR Crossing transverse line (bike lane): 50' typical.
  - S: Stop line to GRADE CROSSING ADVANCE WARNING (W10-1) sign and adjacent RR Crossing pavement markings. See Table 1. See RCD(2) for other signs.

Texas Department of Transportation  
 Traffic Safety Division Standard

**RAILROAD CROSSING DETAILS  
 SIGNING, STRIPING, AND  
 DEVICE PLACEMENT  
 RCD(1)-22**

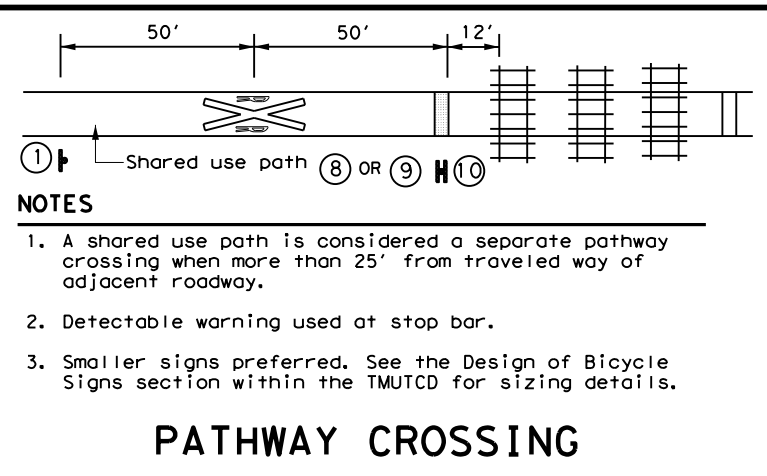
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11-22	TYL	SMITH, Etc	70	

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### PASSIVE CROSSING

- NOTES**
- STOP or YIELD sign may also be installed to the left of the crossbuck sign, rather than below it.
  - A 2" white retroreflective strip shall be installed on front and back of crossbuck sign post.
  - See the Crossbuck Assemblies with YIELD or STOP Signs at Passive Grade Crossings section of the TMUTCD for further details about sign mounting arrangements.

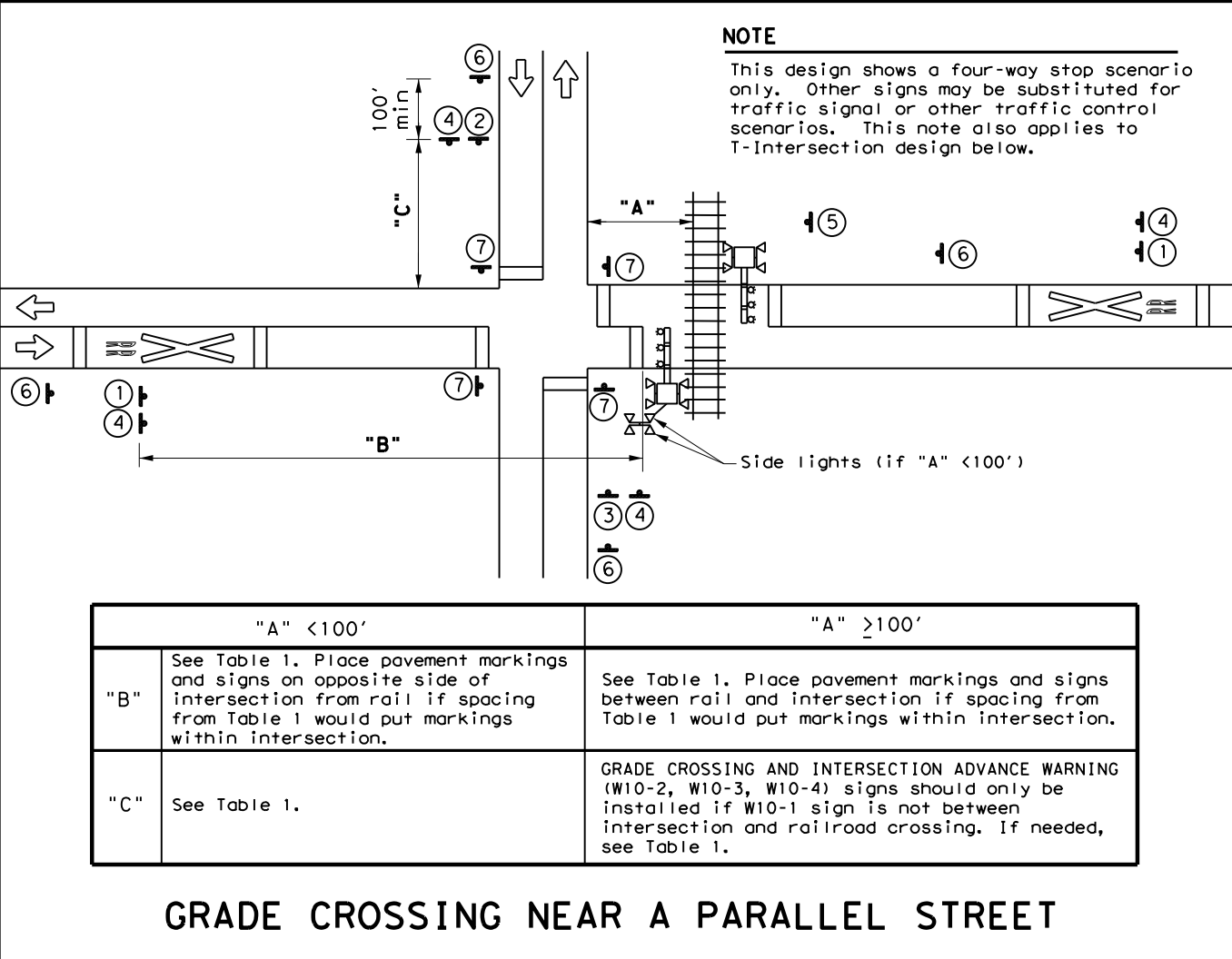


### PATHWAY CROSSING

- NOTES**
- A shared use path is considered a separate pathway crossing when more than 25' from traveled way of adjacent roadway.
  - Detectable warning used at stop bar.
  - Smaller signs preferred. See the Design of Bicycle Signs section within the TMUTCD for sizing details.

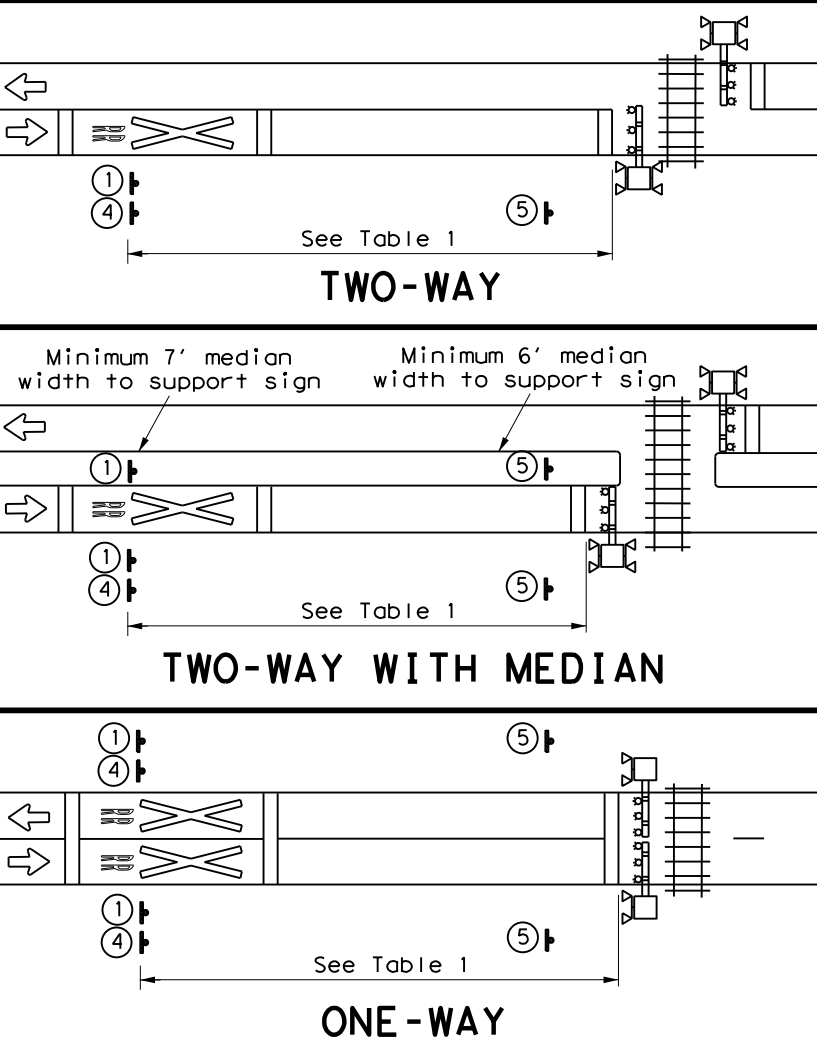
Approach Speed (mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

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



### GRADE CROSSING NEAR A PARALLEL STREET

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



### ONE-WAY

### TWO-WAY WITH MEDIAN

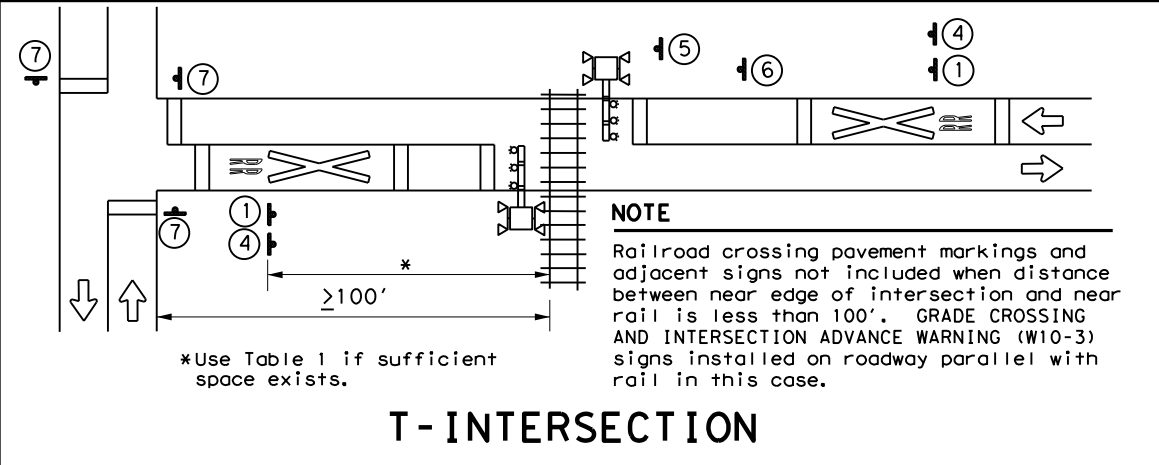
### TWO-WAY

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

### TWO ADJACENT CROSSINGS

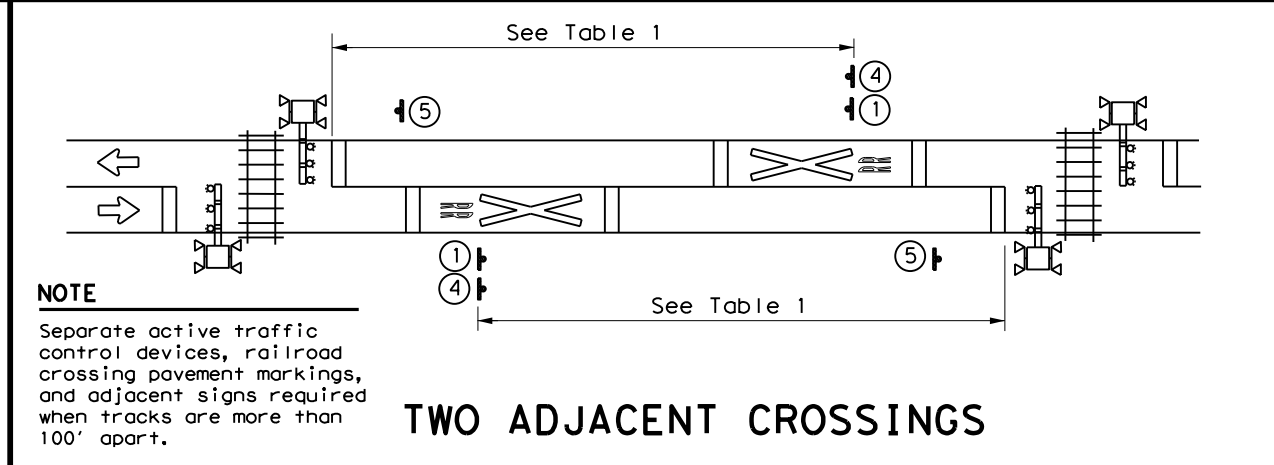
**SIGNS**

1 W10-1 36" Dia.	2 W10-2L 36" X 36"	3 W10-2R 36" X 36"	IF NEEDED W10-5 36" X 36"
5 R8-8 24" X 30"	6 W3-1 30" X 30"	7 R1-1 36" X 36"	R15-1 48" X 9"
R15-2P 27" X 18"	9 R1-2 48" X 48" X 48"	W10-13P 30" X 24"	12 I-13 15" X 9"
W10-13P 30" X 24"	W10-9P 30" X 24"	** Includes a NO TRAIN HORN (W10-9P) plaque if crossing is in a Quiet Zone. If needed, is mounted below W10-2/W10-3/W10-4 signs.	



### T-INTERSECTION

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



Texas Department of Transportation Traffic Safety Division Standard

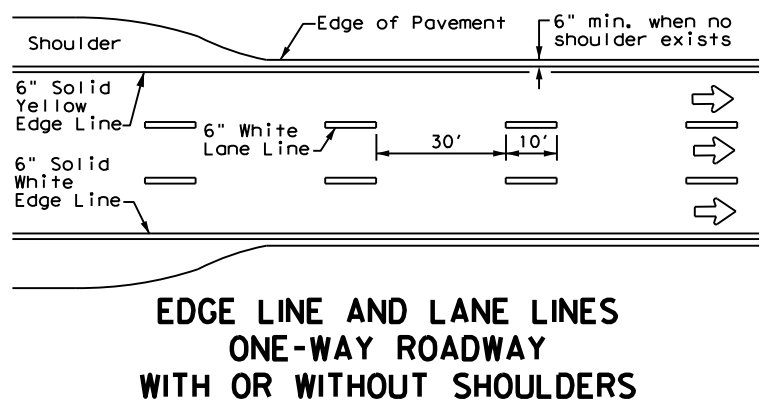
## RAILROAD CROSSING DETAILS SIGNING & STRIPING

### RCD(2)-22

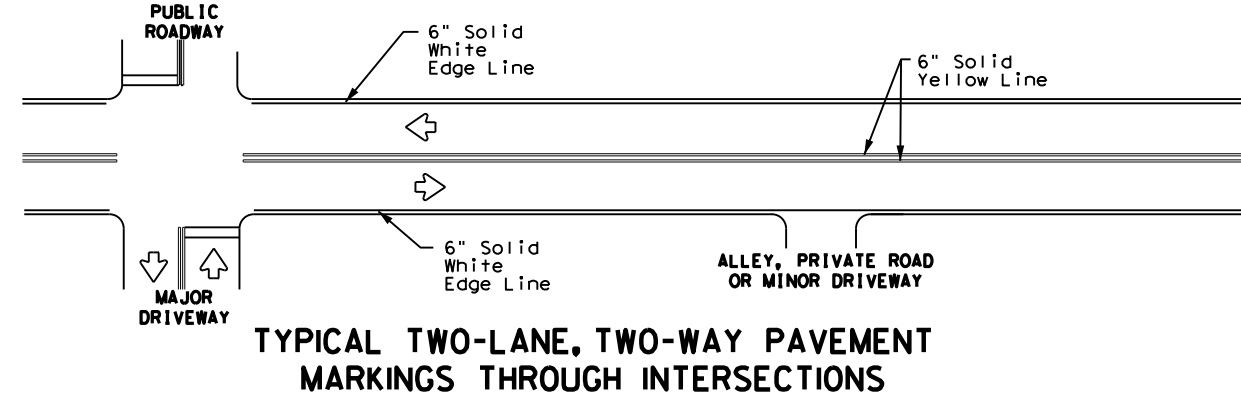
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© TxDOT November 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089, Etc	FM 2493, Etc
2-16	DIST	COUNTY	SHEET NO.	
11-22	TYL	SMITH, Etc	71	

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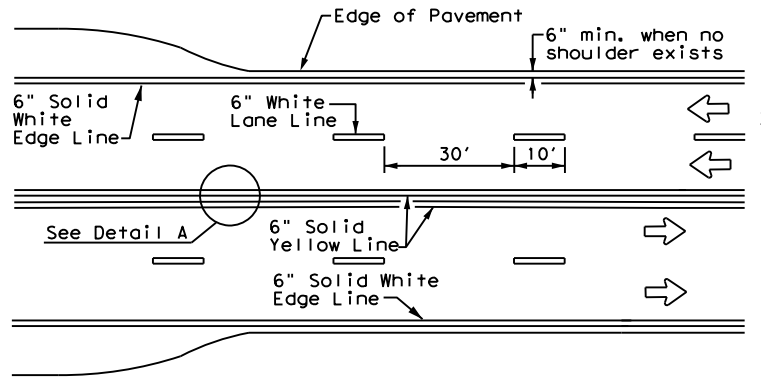
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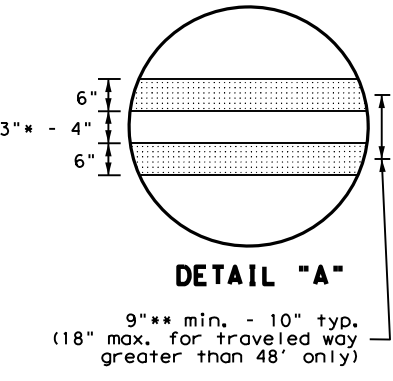
**EDGE LINE AND LANE LINES  
ONE-WAY ROADWAY  
WITH OR WITHOUT SHOULDERS**



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

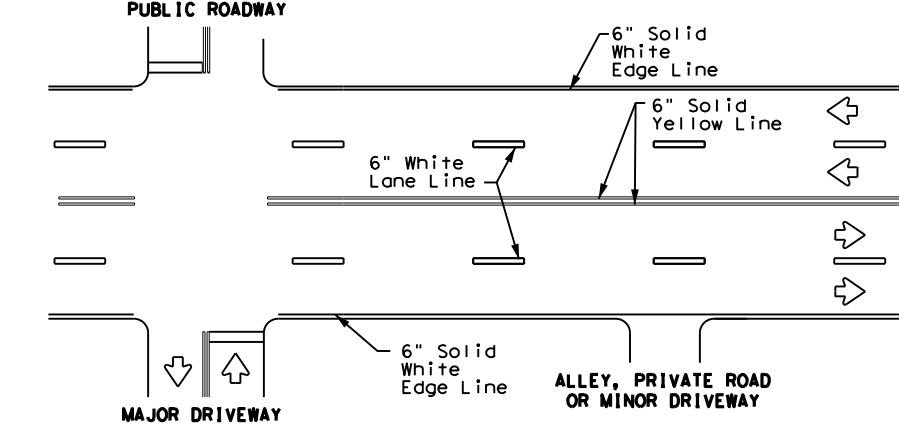


**CENTERLINE AND LANE LINES  
FOUR LANE TWO-WAY ROADWAY  
WITH OR WITHOUT SHOULDERS**

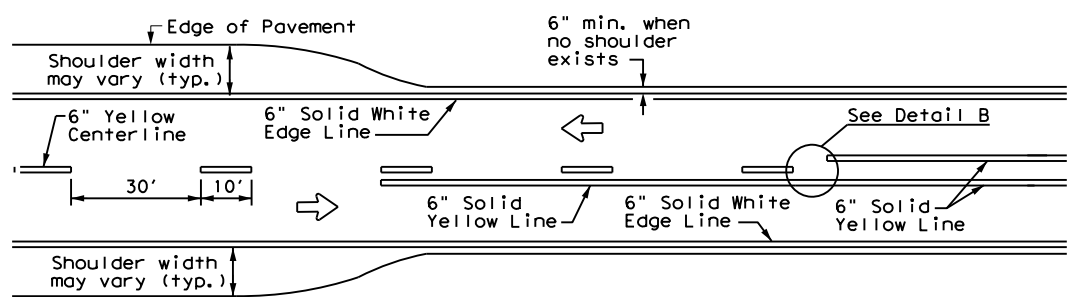


**DETAIL "A"**

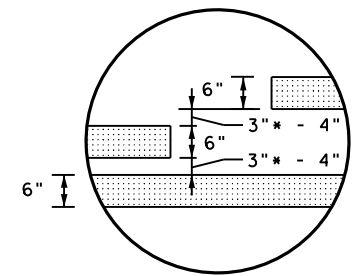
\* 2" minimum for restripe projects when approved by the Engineer.  
 \*\* 8" minimum for restripe projects when approved by the Engineer.



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

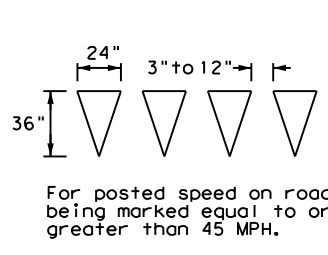


**TWO LANE TWO-WAY ROADWAY  
WITH OR WITHOUT SHOULDERS**

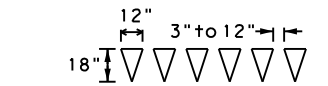


**DETAIL "B"**

\* 2" minimum for restripe projects when approved by the Engineer.



**YIELD LINES**



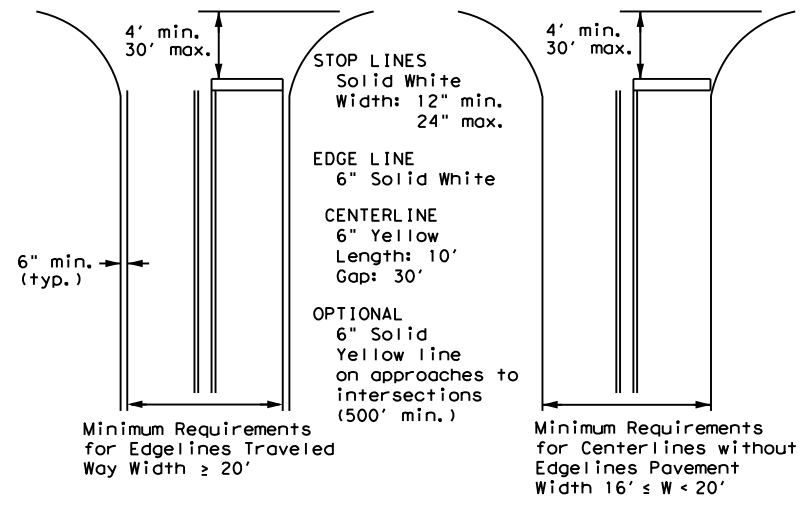
For posted speed on road being marked equal to or less than 40 MPH.

**GENERAL NOTES**

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

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

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

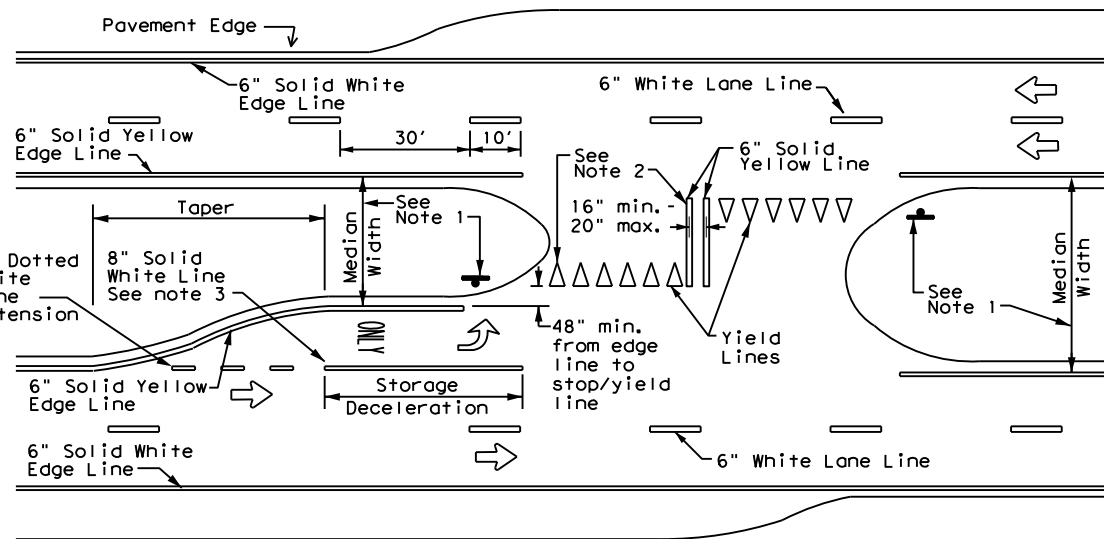


NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

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

**NOTES**

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



**FOUR LANE DIVIDED ROADWAY CROSSOVERS**

Texas Department of Transportation  
 Traffic Safety Division Standard

**TYPICAL STANDARD  
PAVEMENT MARKINGS**

**PM(1)-22**

FILE: pm1-22.dgn	DW: CK:	CK:	CK:
© TxDOT December 2022	CONT SECT	JOB	HIGHWAY
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8-95 3-03 12-22	TYL	SMITH, Etc	72
5-00 2-12			

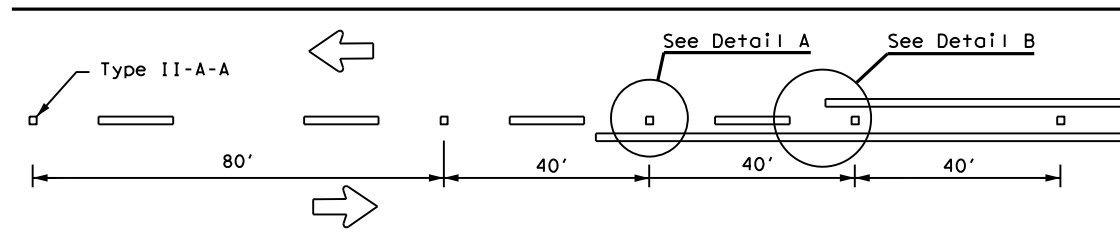
22A



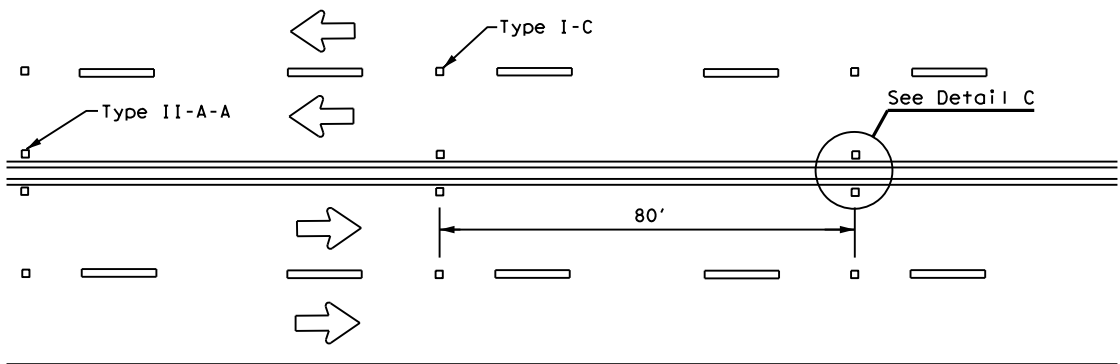
# REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

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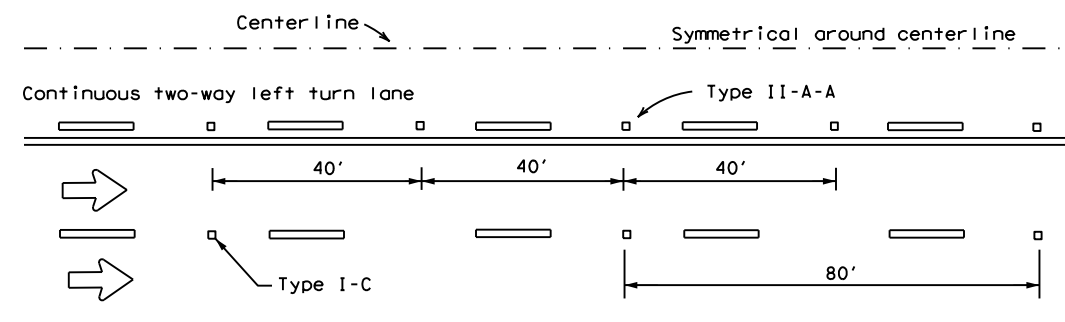
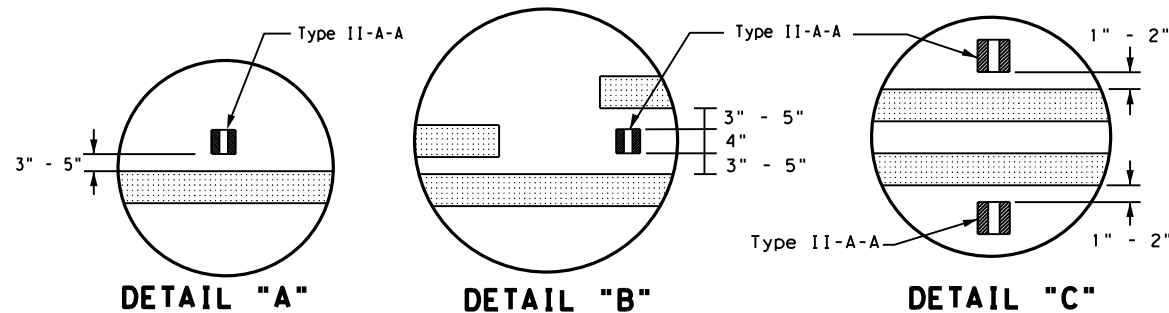
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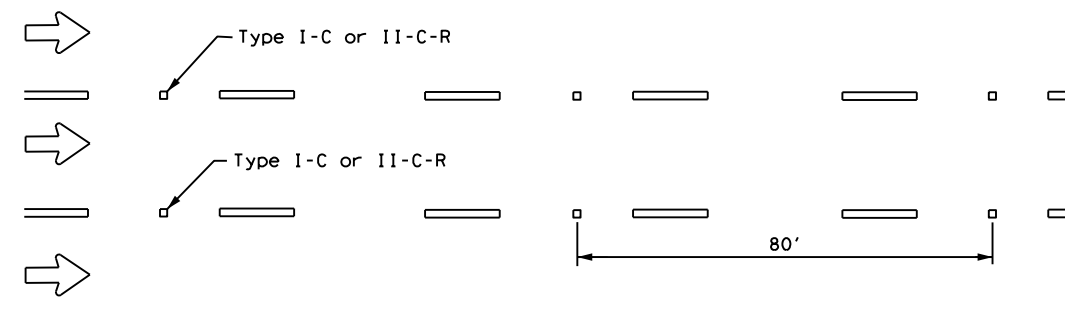
**CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS**



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

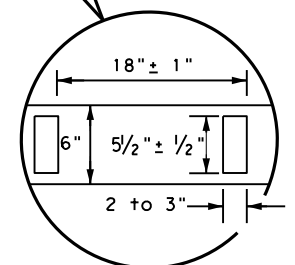
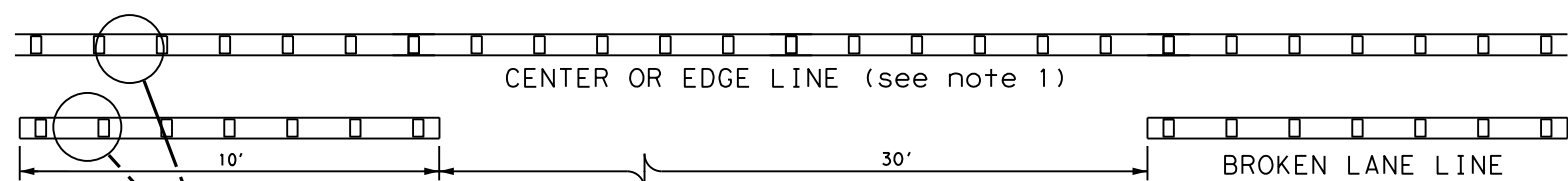


**CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE**

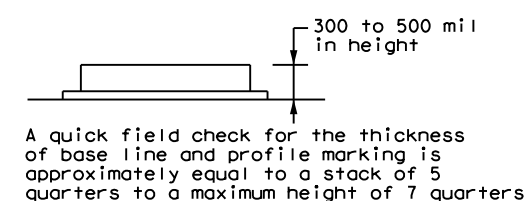


**LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)**

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



**REFLECTORIZED PROFILE  
PATTERN DETAIL**  
USING REFLECTIVE PROFILE PAVEMENT MARKINGS



**NOTES**

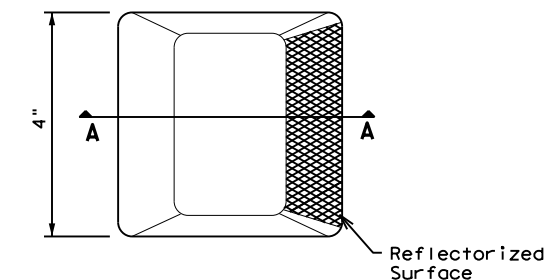
1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

**GENERAL NOTES**

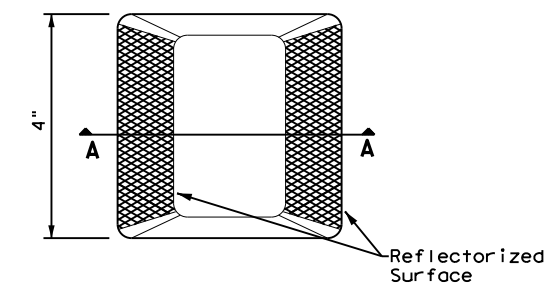
1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians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

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

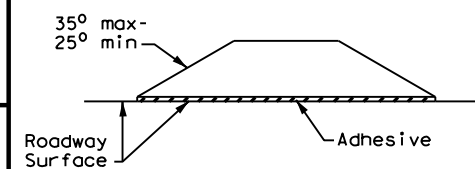
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



**Type I (Top View)**



**Type II (Top View)**



**SECTION A**

**RAISED PAVEMENT MARKERS**

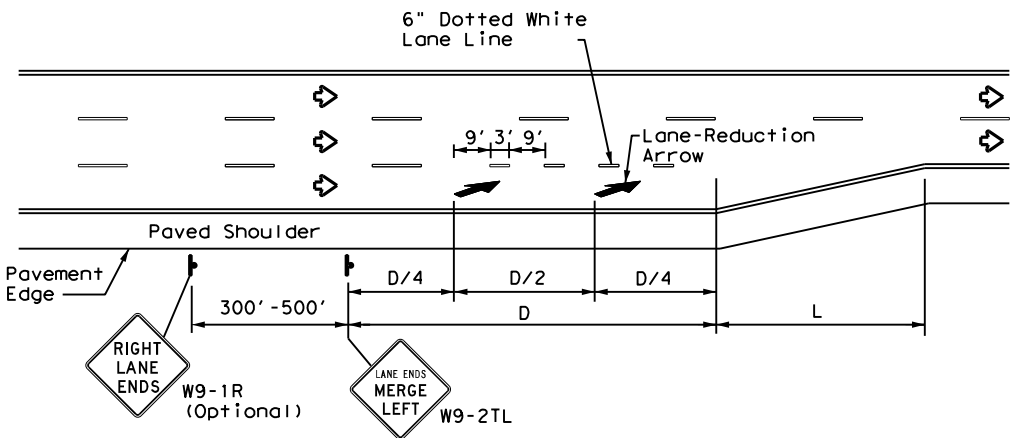


**POSITION GUIDANCE USING  
RAISED MARKERS  
REFLECTORIZED PROFILE  
MARKINGS  
PM(2) - 22**

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089, Etc	FM 2493, Etc
4-77 8-00 6-20	DIST	COUNTY	SHEET NO.	
4-92 2-10 12-22	TYL	SMITH, Etc	73	
5-00 2-12				

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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 RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
- 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.

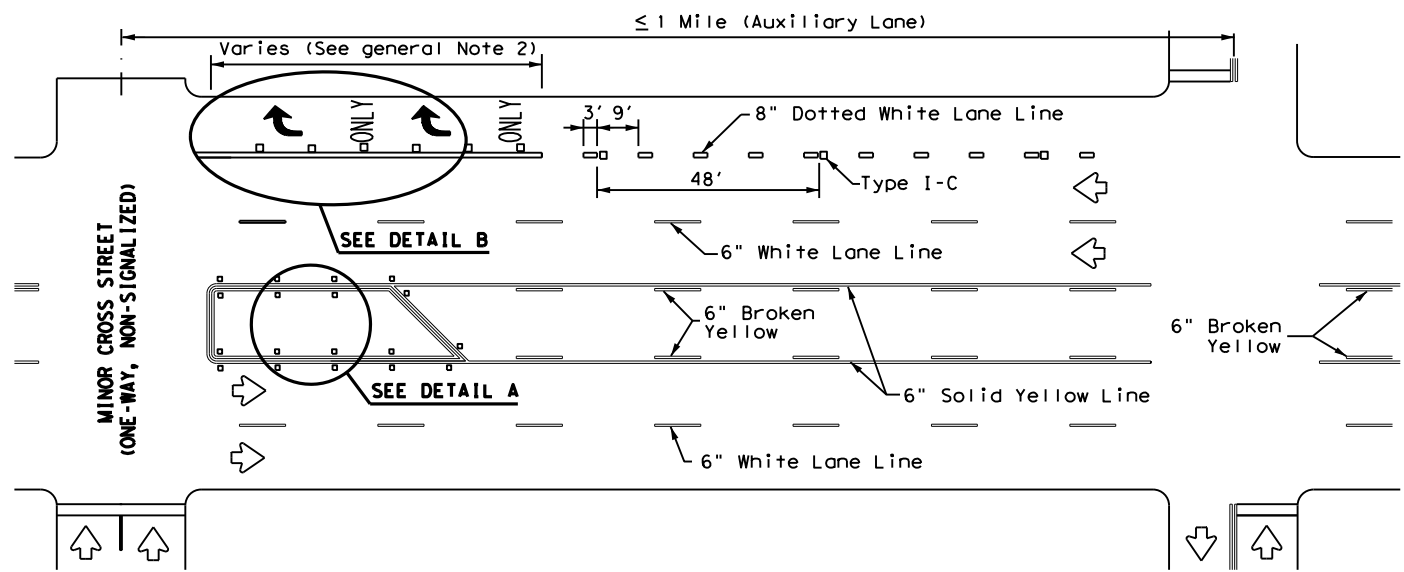
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L = \frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

**GENERAL NOTES**

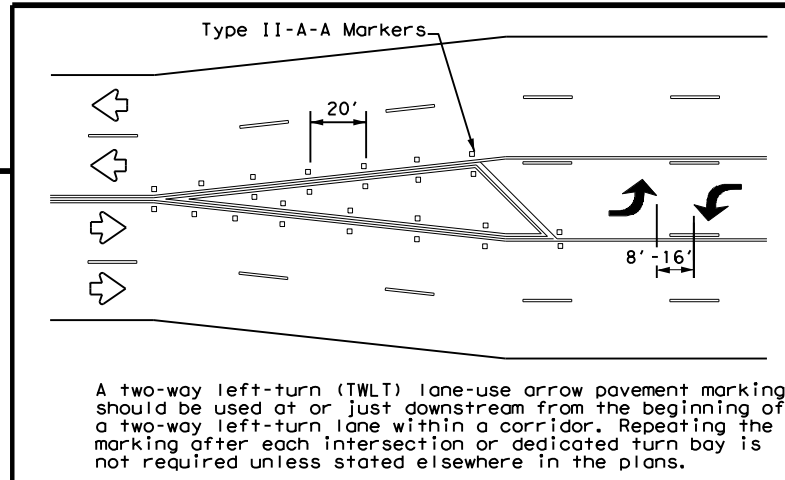
- Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn 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. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

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

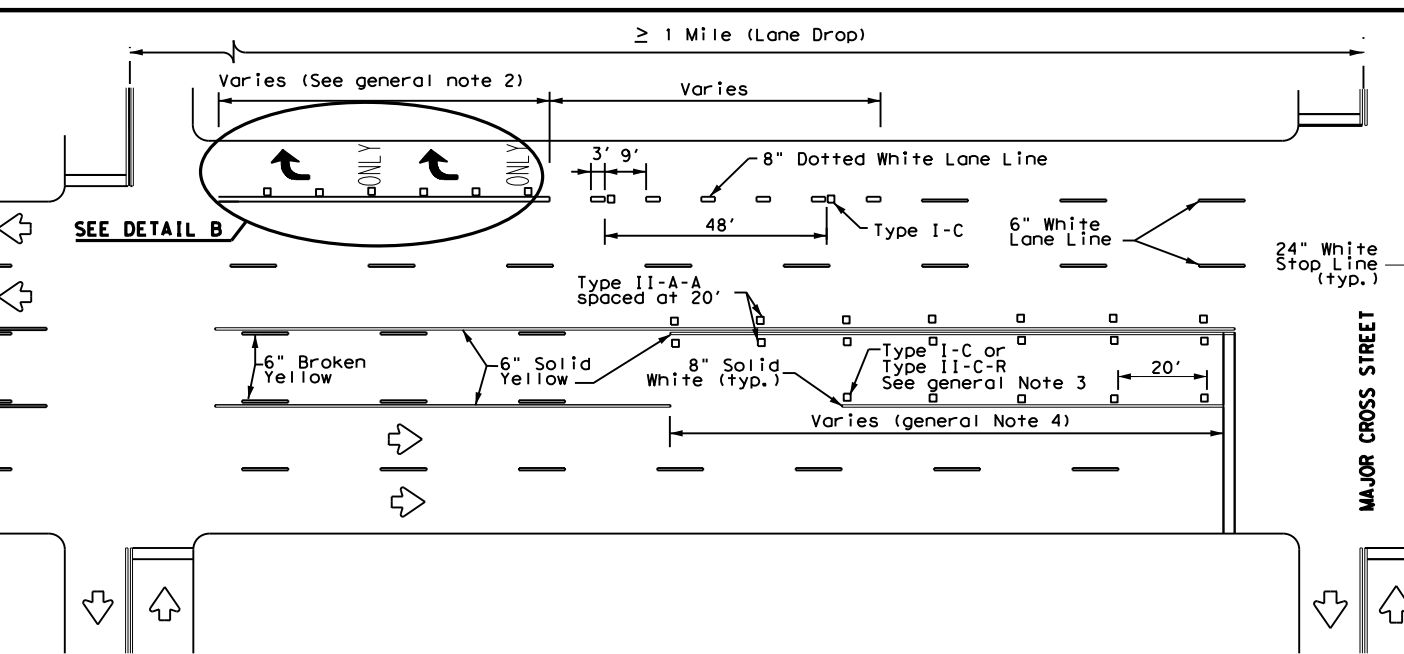
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



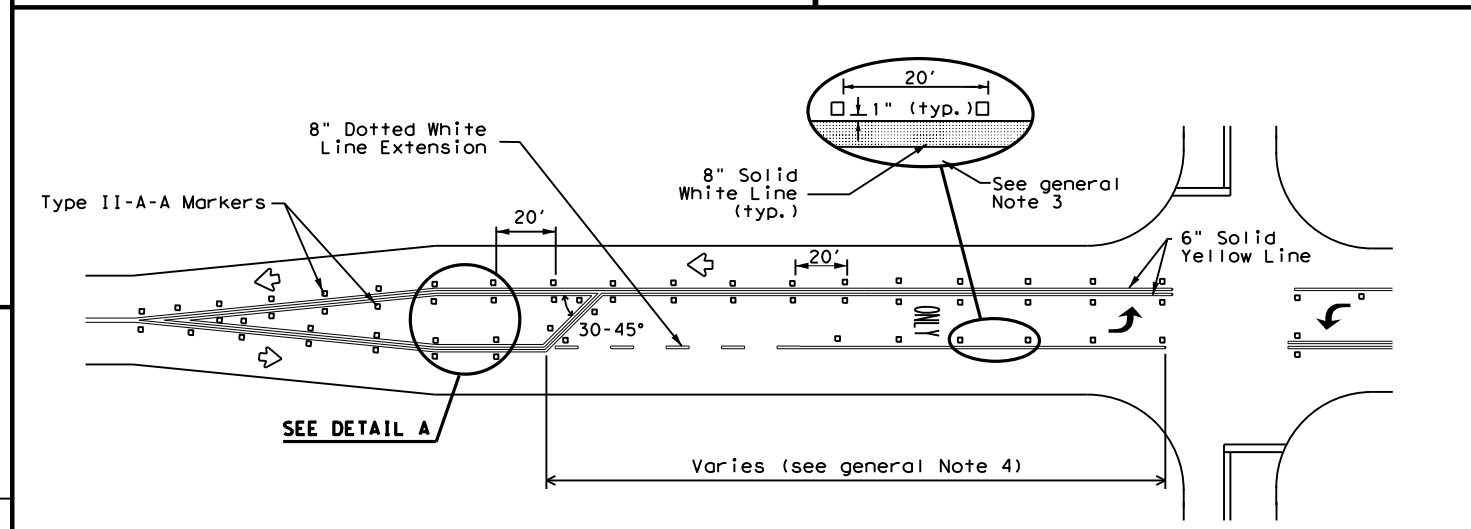
**TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE**



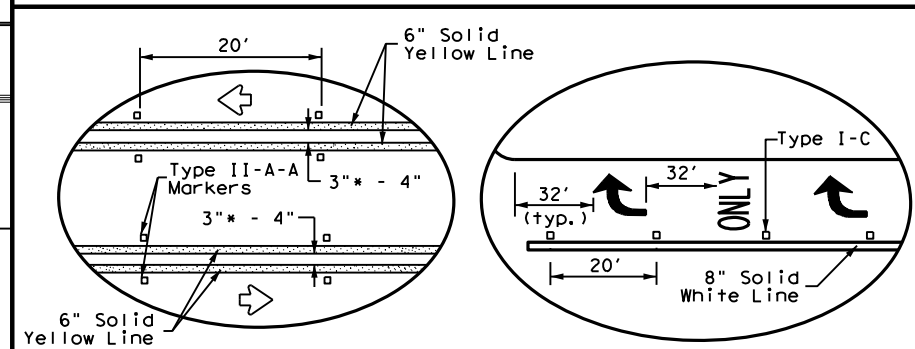
**TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY**



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



**TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS**



**DETAIL A**

**DETAIL B**

\* 2" minimum allowed for restripe projects when approved by the Engineer.

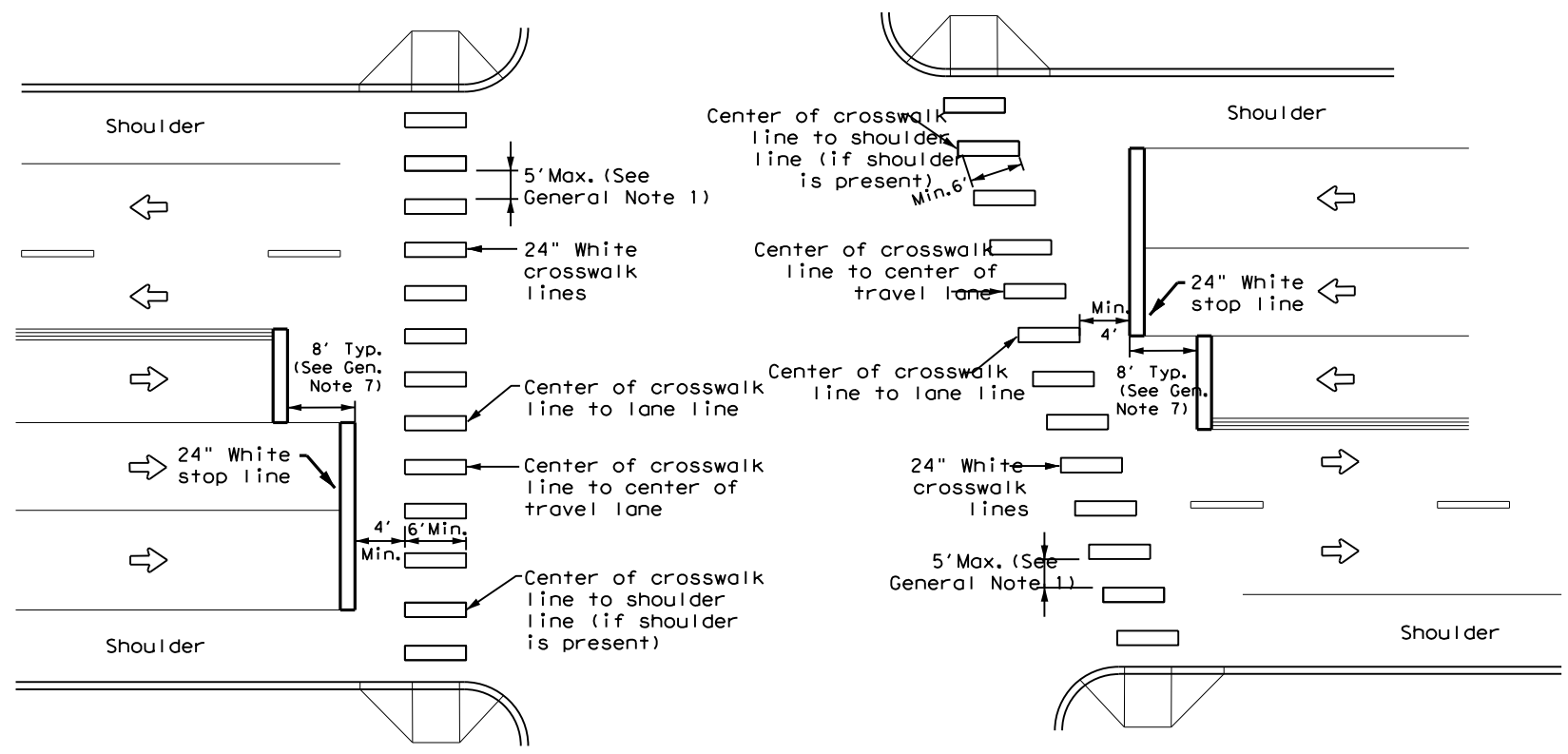
Texas Department of Transportation  
 Traffic Safety Division Standard

**TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-22**

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089, Etc	FM 2493, Etc
4-98 3-03 6-20	DIST	COUNTY	SHEET NO.	
5-00 2-10 12-22	TYL	SMITH, Etc	74	
8-00 2-12				

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DATE: 9/30/2024 5:03:49 PM  
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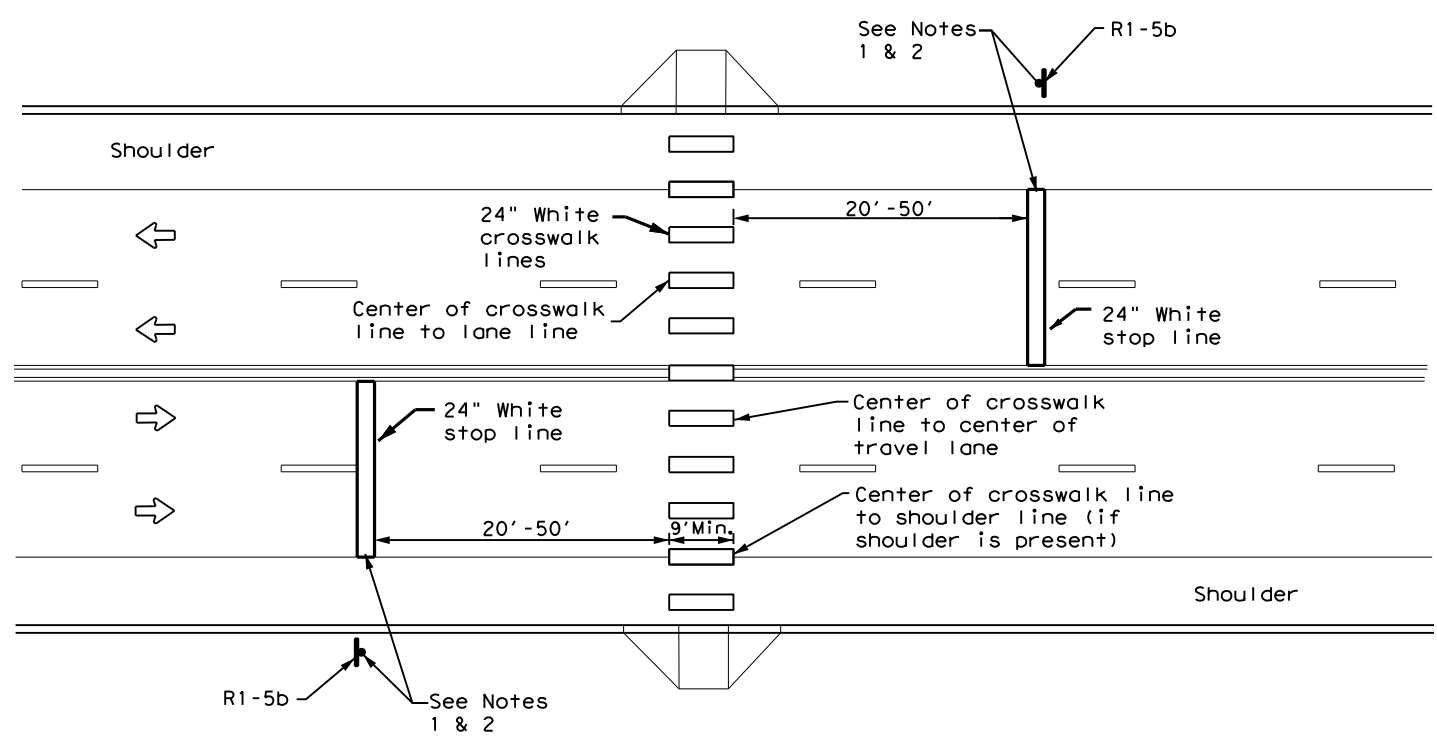
**HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH**

**GENERAL NOTES**

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

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

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



**UNSIGNALIZED MID BLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK**

**NOTES:**

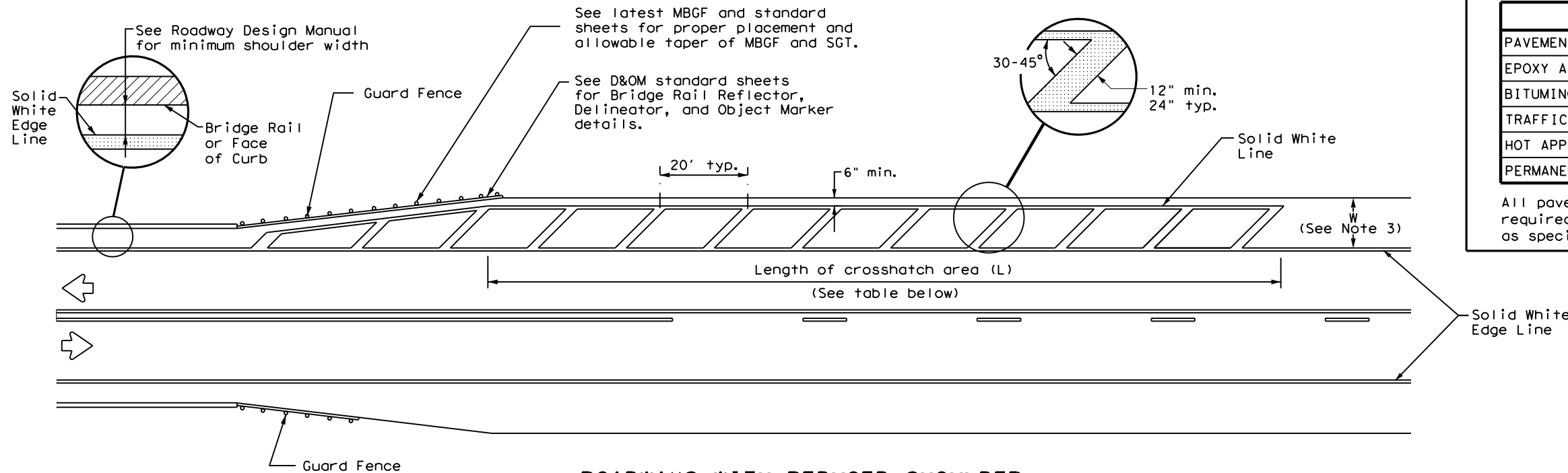
1. Use stop bars with Stop Here For Pedestrians (R1-5b) signs at unsignalized midblock crosswalks.
2. Use stop bars with STOP HERE ON RED (R10-6 or R10-6a) signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

CROSSWALK WIDTH = 9' FOR APPROACH SPEEDS OF 30 MPH OR LESS  
 CROSSWALK WIDTH = 12' FOR APPROACH SPEEDS OF 35 MPH OR MORE

				Traffic Safety Division Standard	
<b>CROSSWALK PAVEMENT MARKINGS</b>					
<b>PM(4)-22A (MOD)</b>					
FILE:	pm4-22a.dgn	DN:	CK:	DW:	CK:
© TxDOT	December 2022	CONT	SECT	JOB	HIGHWAY
12-22	REVISIONS	0191	03	089, Etc	FM 2493, Etc
		DIST	COUNTY	SHEET NO.	
		TYL	SMITH, Etc	75	

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**ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT**

CROSSHATCH LENGTH (L)	
Posted Speed (MPH)	L (ft)
30	300 ft
35	
40	
45	
50	500 ft
55	
60	
65	
70	
75	

**NOTES**

1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 4 inches from the bridge rail or face of curb or 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions.
2. No-passing zone on bridge approach is optional. If used, the no-passing zone shall be a minimum 500 feet long from the beginning of the bridge.
3. The crosshatching should be required if the shoulder width in advance of the bridge is 4 feet or wider and a reduction of at least 3 feet in shoulder width across the bridge occurs.
4. On divided highways, review both the right and left shoulder widths for the need for narrow bridge pavement markings.

**MATERIAL SPECIFICATIONS**

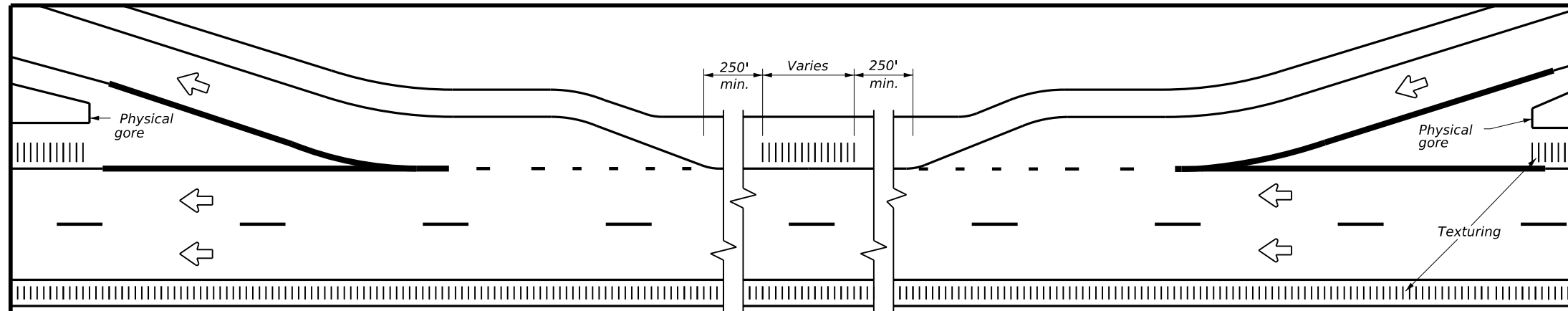
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

				Traffic Safety Division Standard	
<b>PAVEMENT MARKINGS FOR ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT</b> <b>PM(5) - 22</b>					
FILE: pm5-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT	
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0191	03	089, Etc	FM 2493, Etc	
	DIST	COUNTY	SHEET NO.		
	TYL	SMITH, Etc	76		

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TYPICAL RUMBLE STRIP PLACEMENT AT EXIT AND ENTRANCE RAMPS

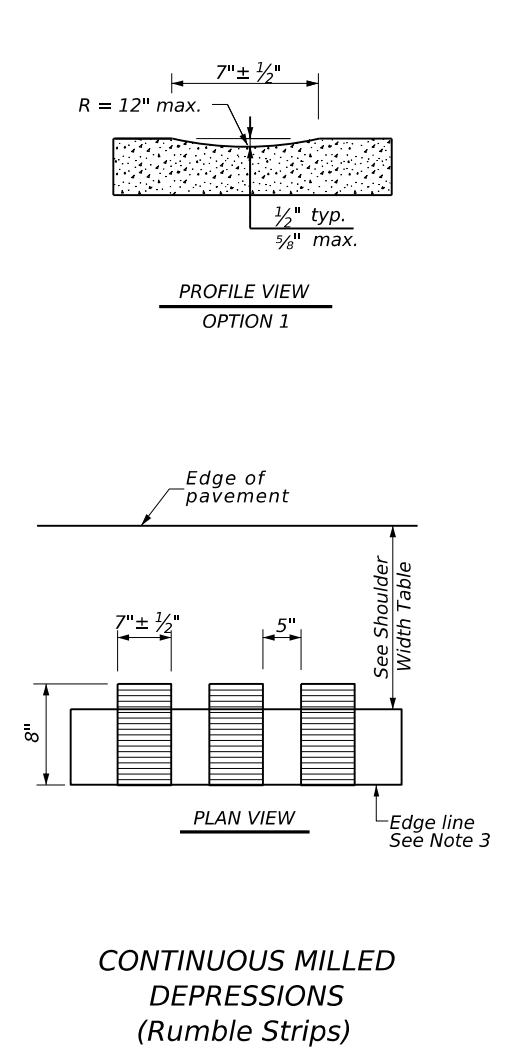
- GENERAL NOTES**
- Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
  - Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble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

**WHEN INSTALLING MILLED DEPRESSION EDGE LINE RUMBLE STRIPS:**

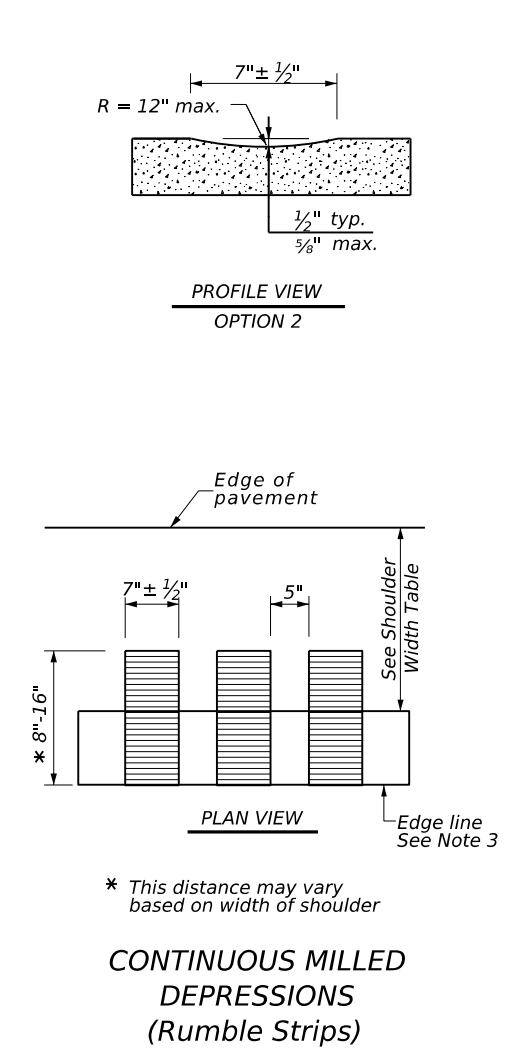
- See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
- Pavement markings can be applied over milled shoulder rumble strips to create an edge line rumble strip.

**WHEN INSTALLING RAISED OR PROFILE EDGE LINE RUMBLE STRIPS:**

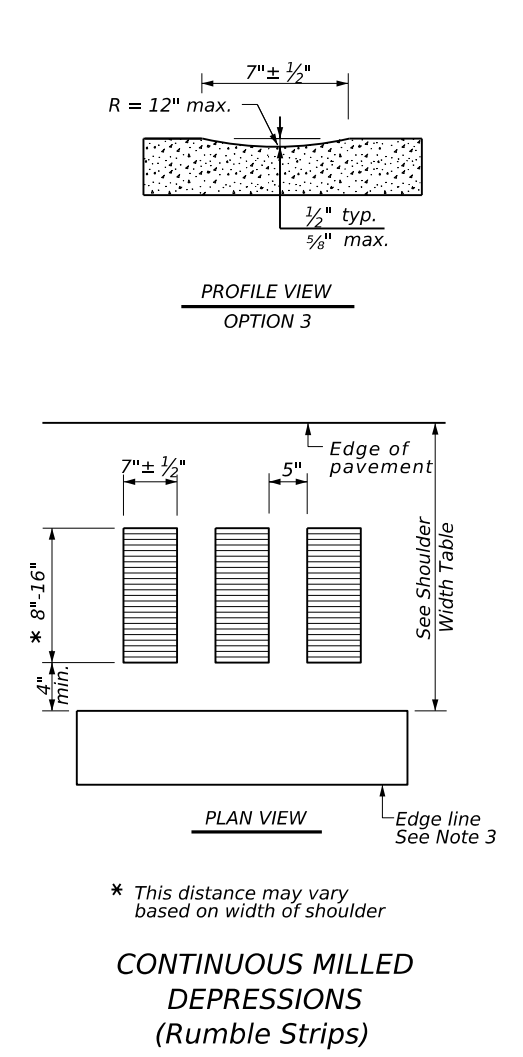
- Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
- Non-reflective traffic buttons shall be placed adjacent to the pavement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



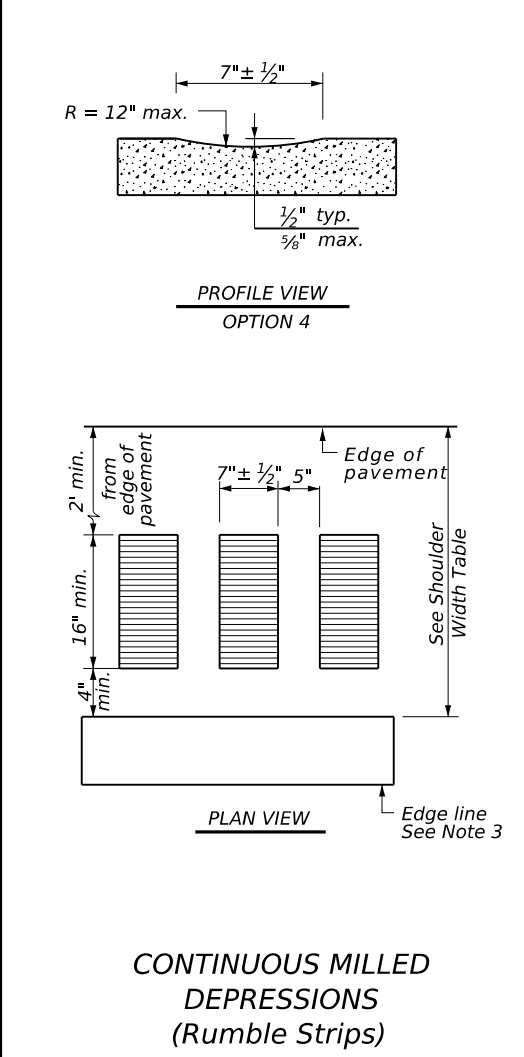
CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



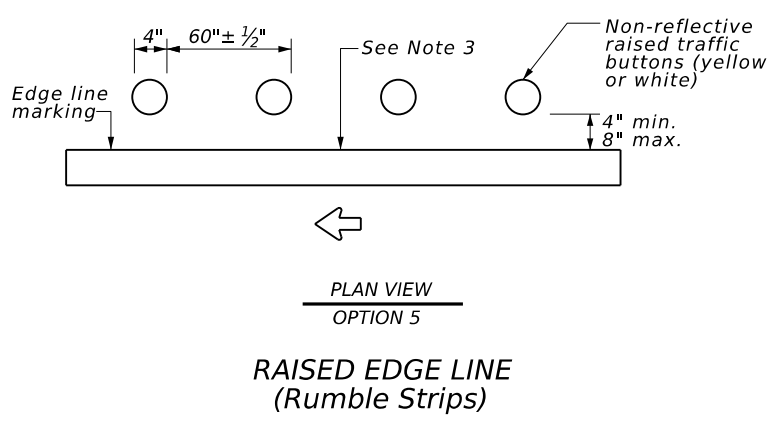
CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



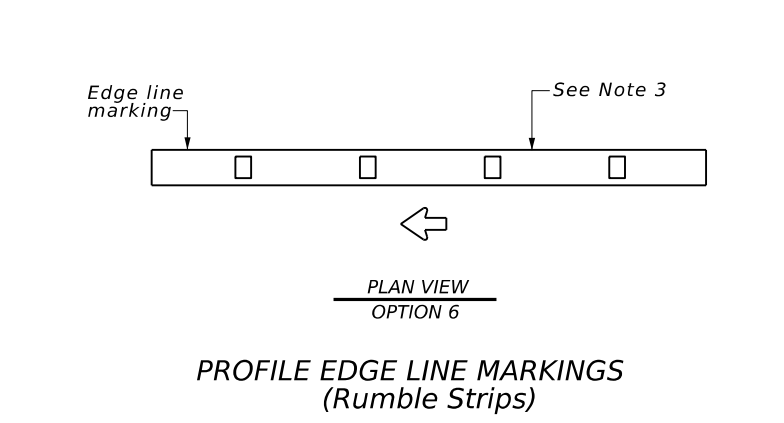
CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



RAISED EDGE LINE (Rumble Strips)



PROFILE EDGE LINE MARKINGS (Rumble Strips)

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

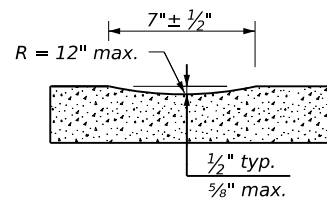
Traffic Safety Division Standard

## EDGE LINE RUMBLE STRIPS ON FREEWAYS AND DIVIDED HIGHWAYS RS(1)-23

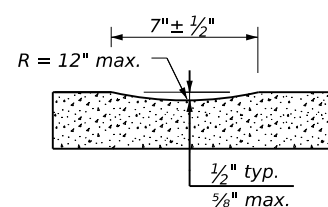
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© TxDOT	January 2023	CONV	SECT	HIGHWAY
REVISIONS	0191	03	089,Etc	FM 2493,Etc
4-06 1-23	DIST	COUNTY	SHEET NO.	
2-10	TYL	SMITH,Etc	77	
10-13				

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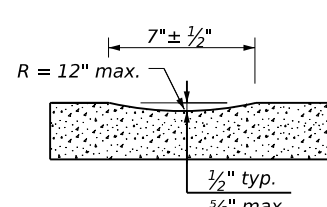
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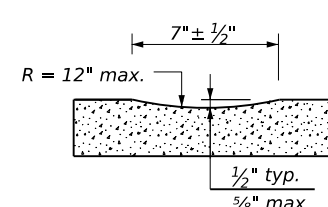
PROFILE VIEW  
OPTION 1



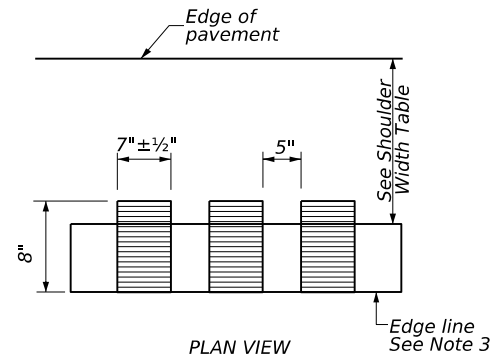
PROFILE VIEW  
OPTION 2



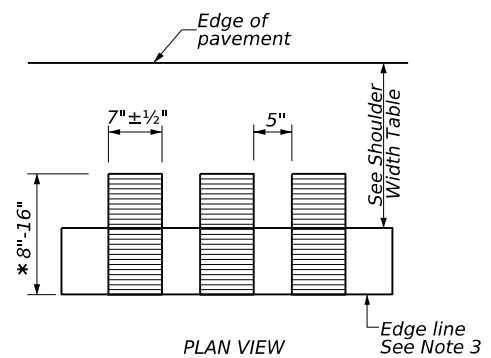
PROFILE VIEW  
OPTION 3



PROFILE VIEW  
OPTION 4

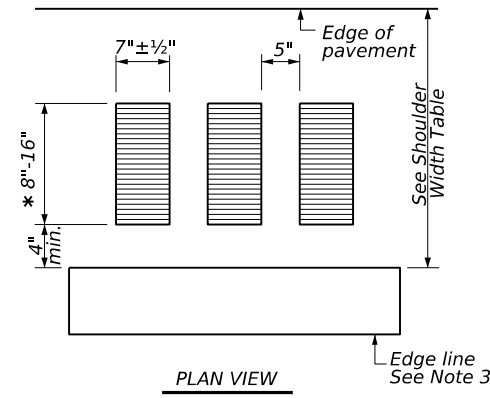


PLAN VIEW



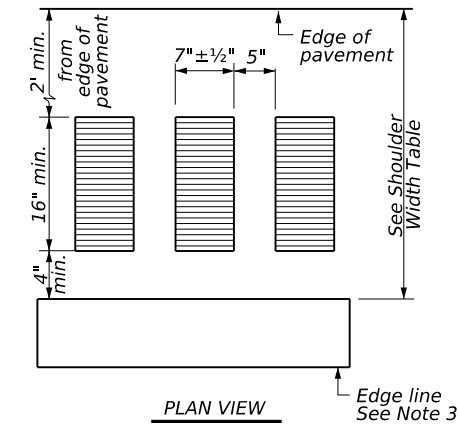
PLAN VIEW

\* This distance may vary based on width of shoulder



PLAN VIEW

\* This distance may vary based on width of shoulder



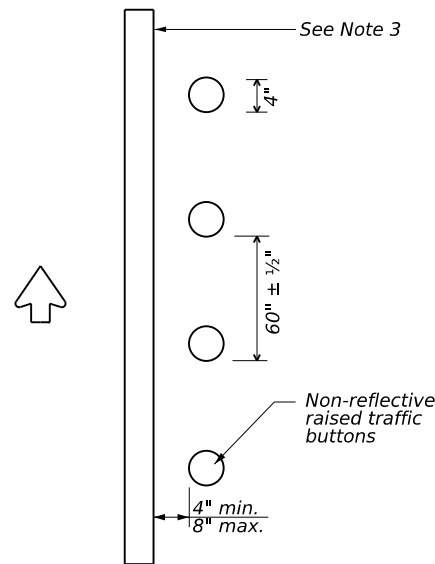
PLAN VIEW

**CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)**

**CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)**

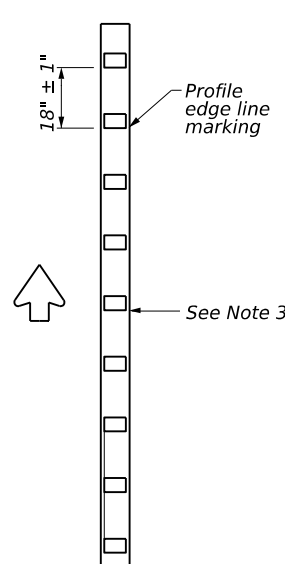
**CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)**

**CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)**



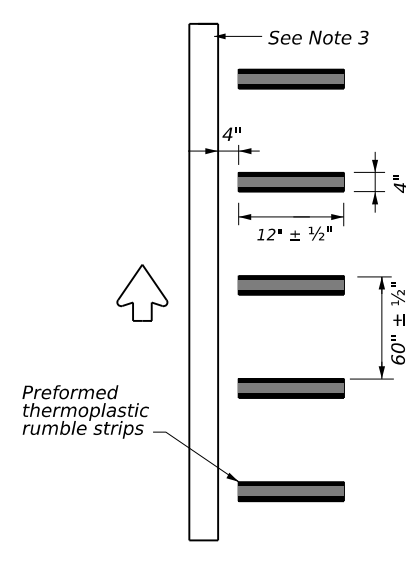
PLAN VIEW  
OPTION 5

**RAISED EDGE LINE (Rumble Strips)**



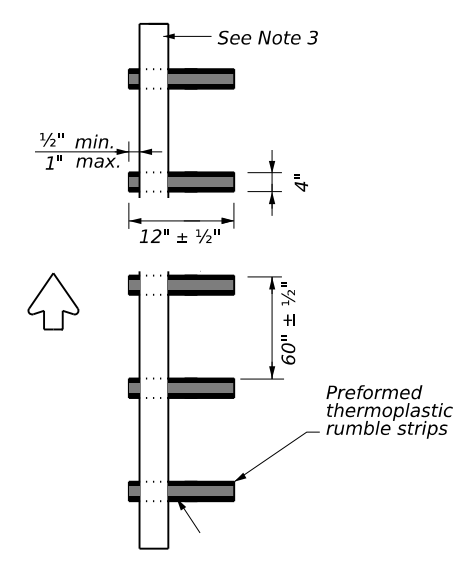
PLAN VIEW  
OPTION 6

**PROFILE EDGE LINE MARKINGS (Rumble Strips)**



PLAN VIEW  
OPTION 7

**PREFORMED THERMOPLASTIC EDGE LINE (Rumble Strips)**



PLAN VIEW  
OPTION 8

**PREFORMED THERMOPLASTIC EDGE LINE (Rumble Strips)**

**GENERAL NOTES**

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

**WHEN INSTALLING MILLED DEPRESSION EDGE LINE RUMBLE STRIPS:**

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

**WHEN INSTALLING RAISED OR PROFILE EDGE LINE RUMBLE STRIPS:**

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

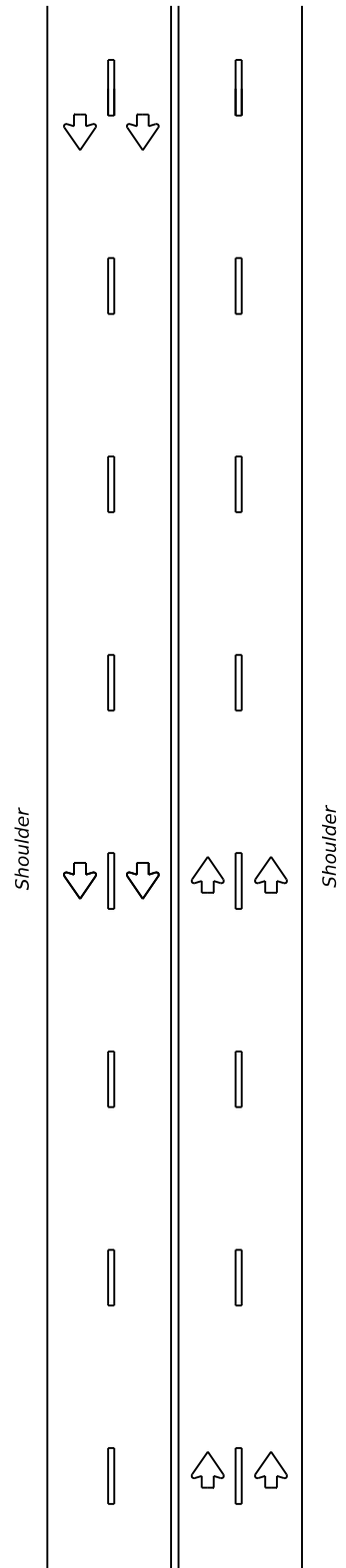
SHOULDER WIDTH TABLE		
EQUAL TO OR LESS THAN 2 FEET	GREATER THAN 2 FEET LESS THAN 4 FEET	EQUAL TO OR GREATER THAN 4 FEET
Option 1, 5, 6 or 8	Option 1, 2, 3, 5, 6 or 7	Option 2, 4, 5, 6 or 7

		<b>Traffic Safety Division Standard</b>	
<b>EDGE LINE RUMBLE STRIPS ON UNDIVIDED OR TWO LANE HIGHWAYS RS(2)-23</b>			
FILE: rs(2)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT	January 2023	CONTRACT NO. 0191	SECTION 03
REVISIONS		089, Etc	FM 2493, Etc
10-13		DIST	COUNTY
1-23		TYL	SMITH, Etc
			SHEET NO. 78

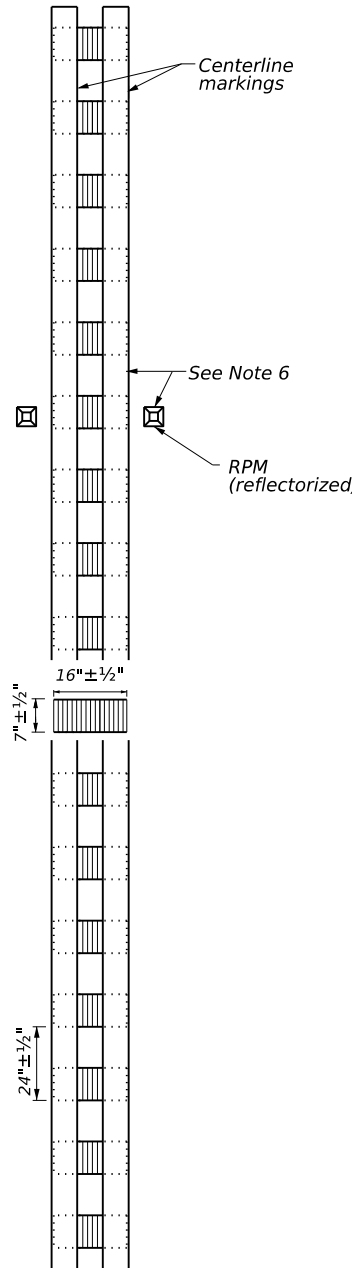
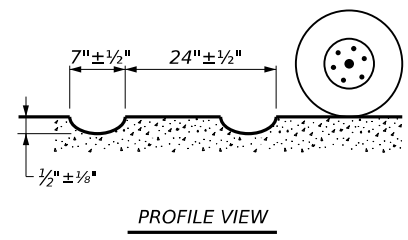
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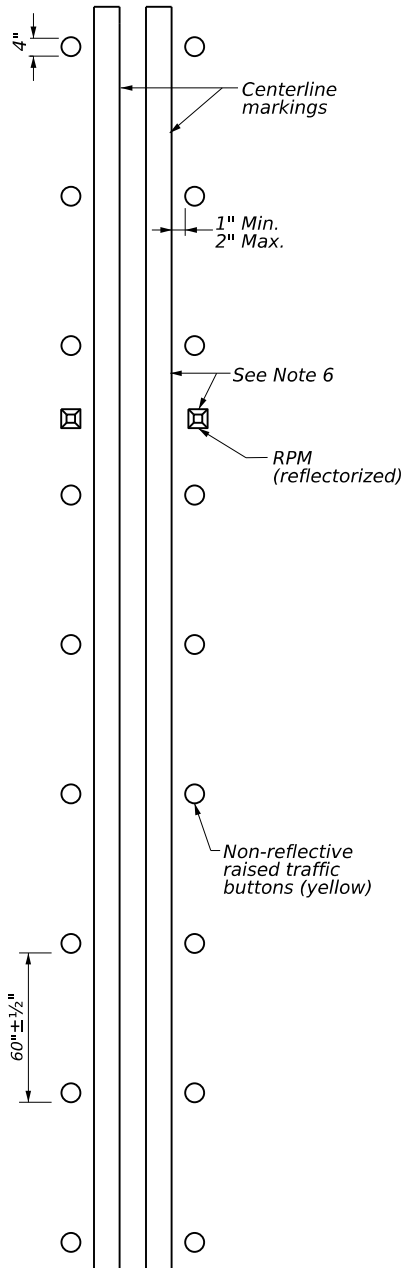
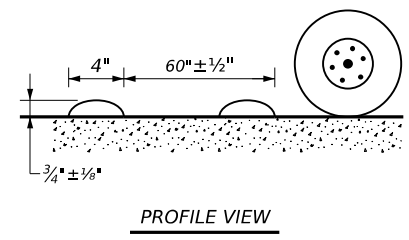
MULTILANE UNDIVIDED HIGHWAY WITH SHOULDER



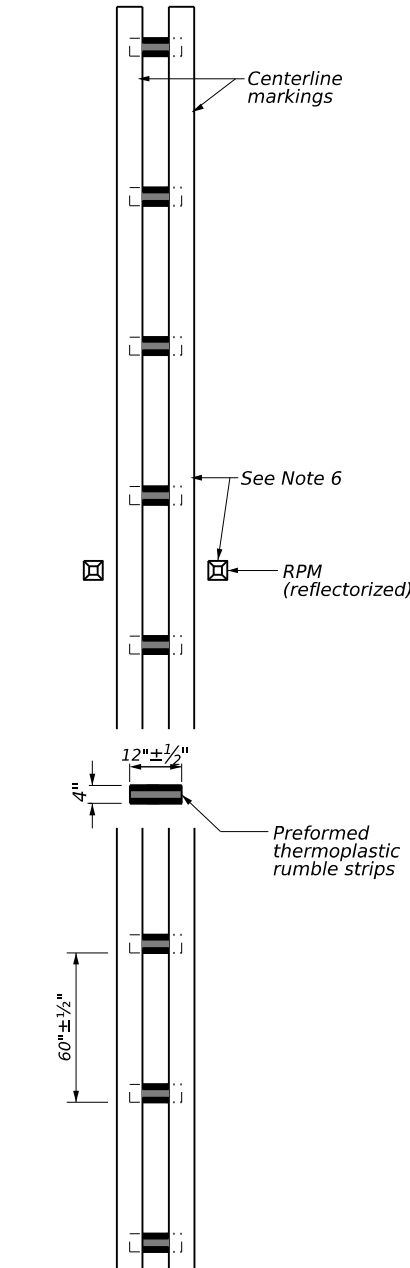
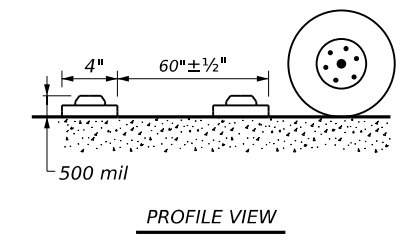
CENTERLINE RUMBLE STRIPS



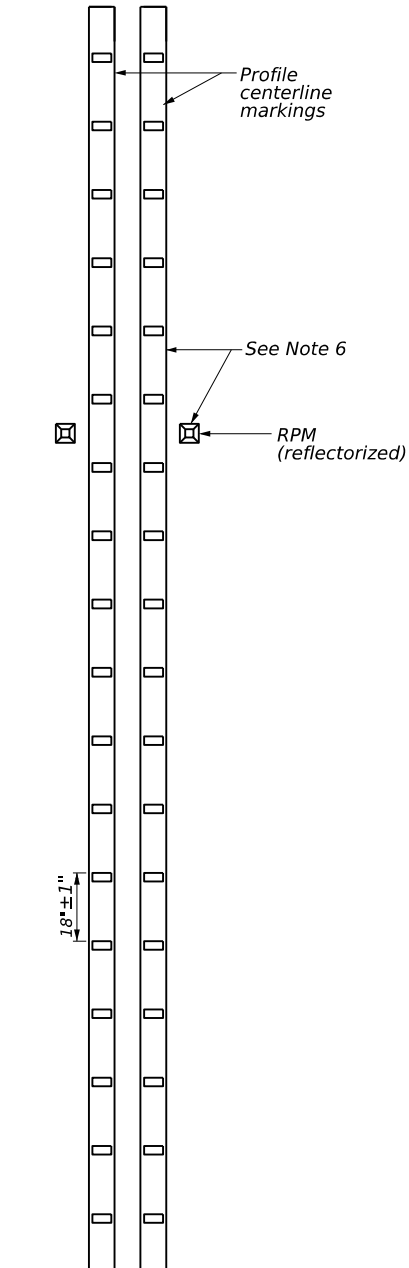
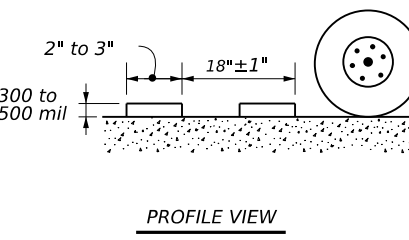
MILLED CENTERLINE RUMBLE STRIPS



RAISED CENTERLINE RUMBLE STRIPS



PREFORMED THERMOPLASTIC RUMBLE STRIPS



PROFILE CENTERLINE MARKINGS

GENERAL NOTES

1. This standard sheet provides guidelines for installing centerline rumble strips on multilane undivided highways.
2. Centerline and edge line rumble strips or profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
3. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
4. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
5. Breaks in milled centerline rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossing, intersections or driveways with high usage of large trucks.
6. Use standard sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings and profile markings.
7. Consideration should be given to noise levels when centerline rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
8. Pavement markings must be applied over milled centerline rumble strips 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.
11. Consideration shall be given to bicyclists. See RS(6).

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

12. See standard sheet RS(2).



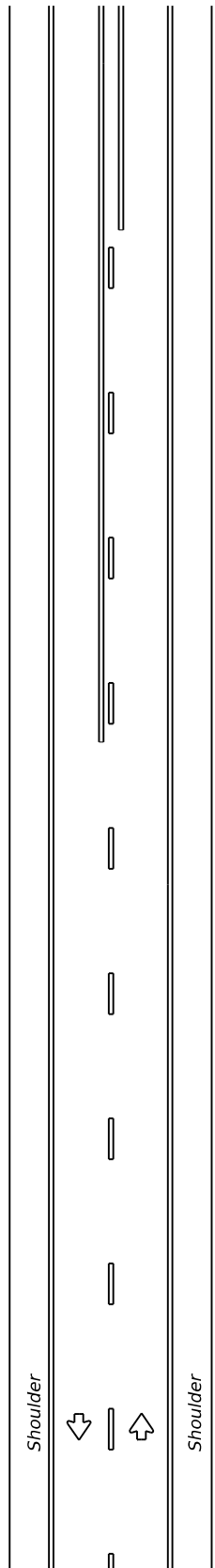
**CENTERLINE RUMBLE STRIPS ON MULTILANE UNDIVIDED HIGHWAYS RS(3)-23**

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© TxDOT	January 2023	CONT	SECT	JOB
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10-13	DIST	COUNTY	SHEET NO.	
1-23	TYL	SMITH, Etc	79	

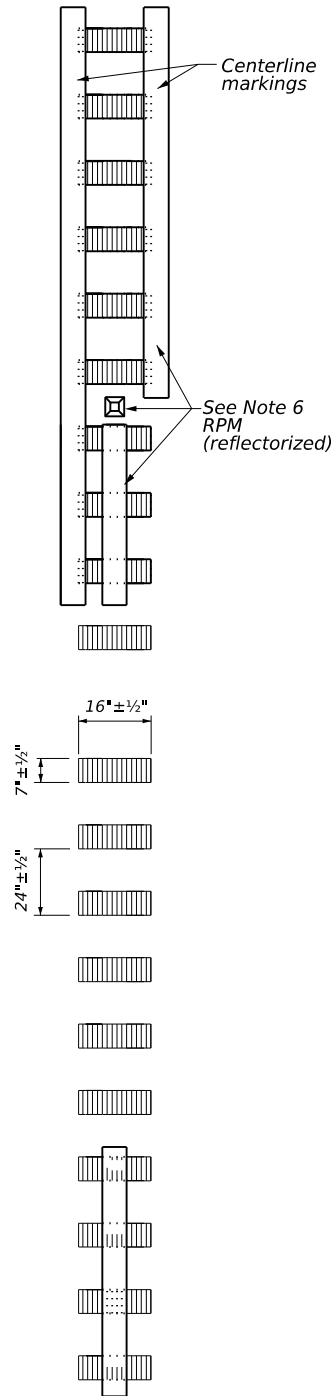
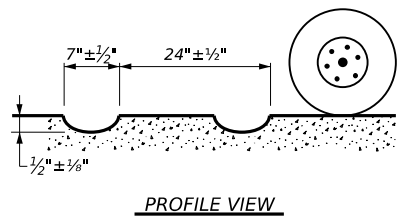
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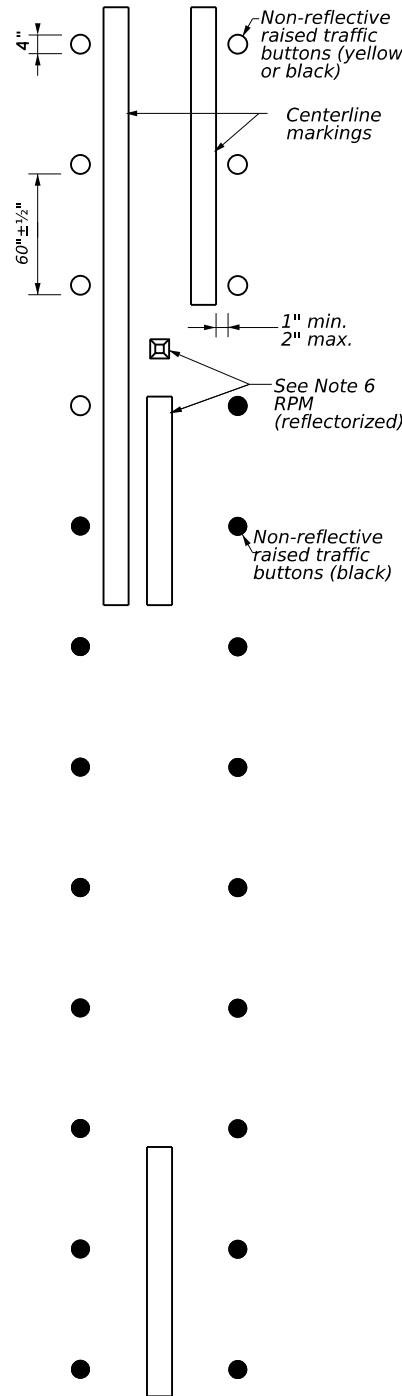
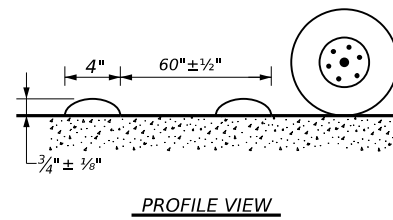
**TWO LANE TWO-WAY HIGHWAYS**



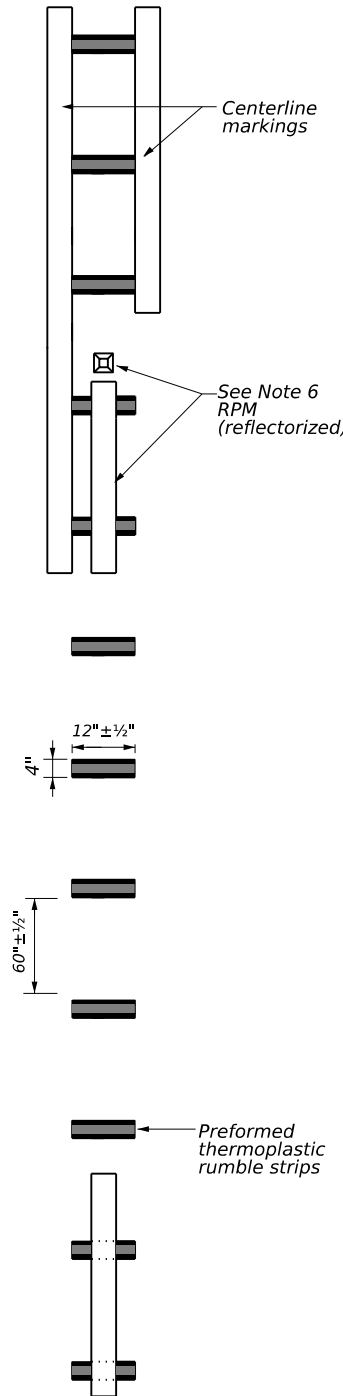
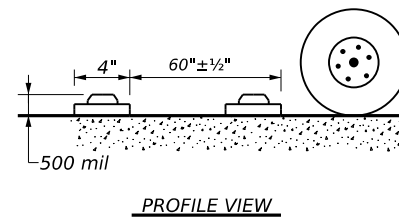
**CENTERLINE RUMBLE STRIPS**



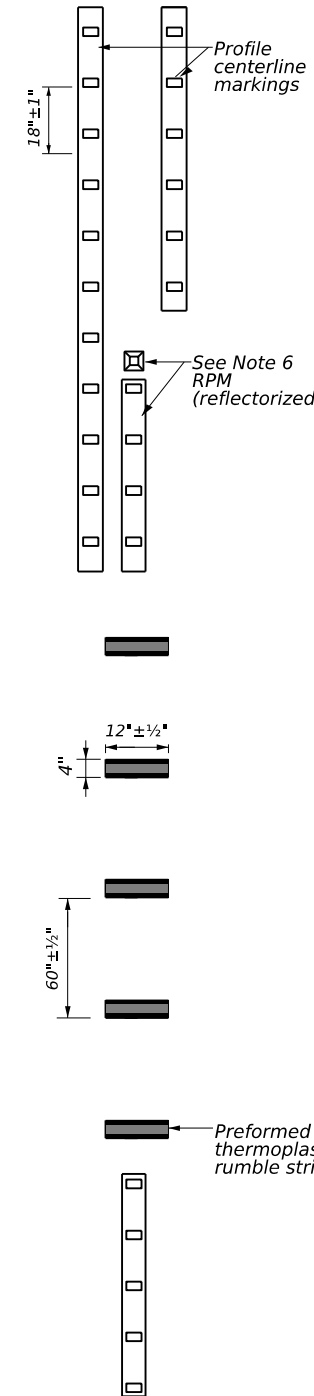
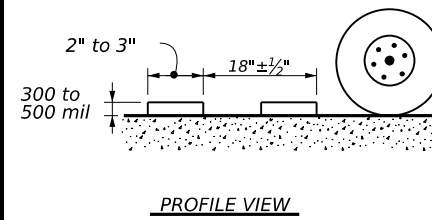
**MILLED CENTERLINE RUMBLE STRIPS**



**RAISED CENTERLINE RUMBLE STRIPS**



**PREFORMED THERMOPLASTIC RUMBLE STRIPS**



**PROFILE CENTERLINE MARKINGS AND PREFORMED THERMOPLASTIC RUMBLE STRIPS**

**GENERAL NOTES**

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

**WHEN INSTALLING CENTERLINE RUMBLE STRIPS:**

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

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

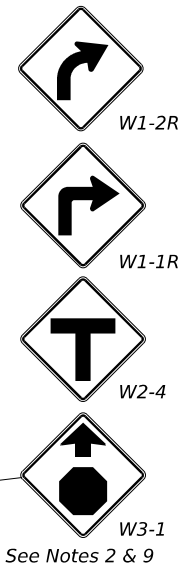
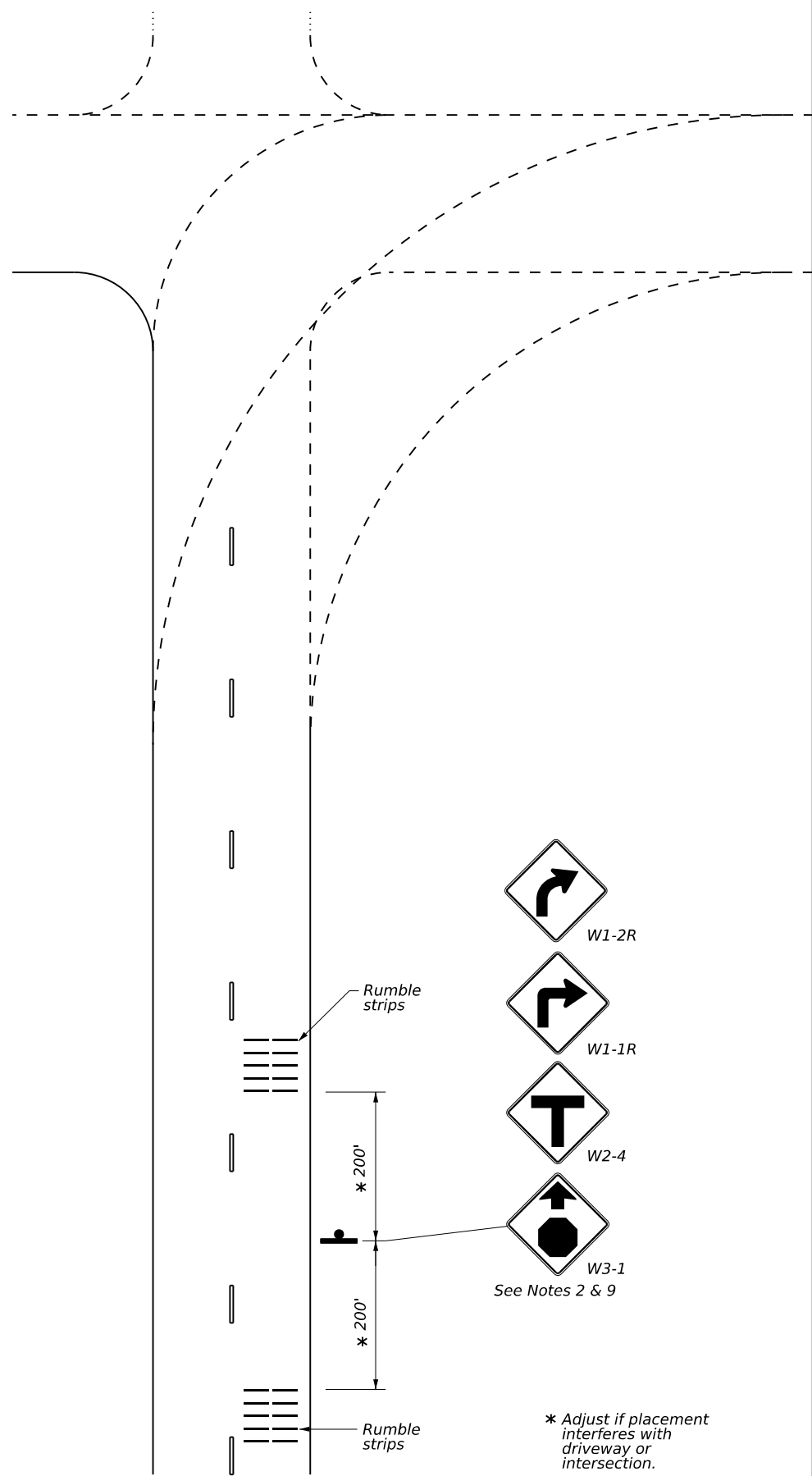
13. See standard sheet RS(2).

<p><b>CENTERLINE RUMBLE STRIPS ON TWO LANE TWO-WAY HIGHWAYS RS(4)-23</b></p>			
FILE: rs(4)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT	January 2023	COM: 0191	SECT: 03
10-13	REVISIONS	JOB: 089,Etc	HIGHWAY: FM 2493,Etc
1-23		DIST: TYL	COUNTY: SMITH,Etc
			SHEET NO.: 80

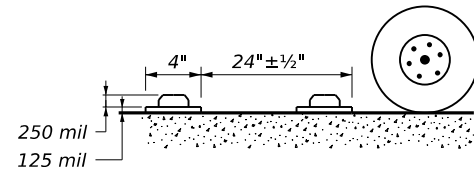


# RUMBLE STRIP TYPICAL APPLICATION

See Note 1

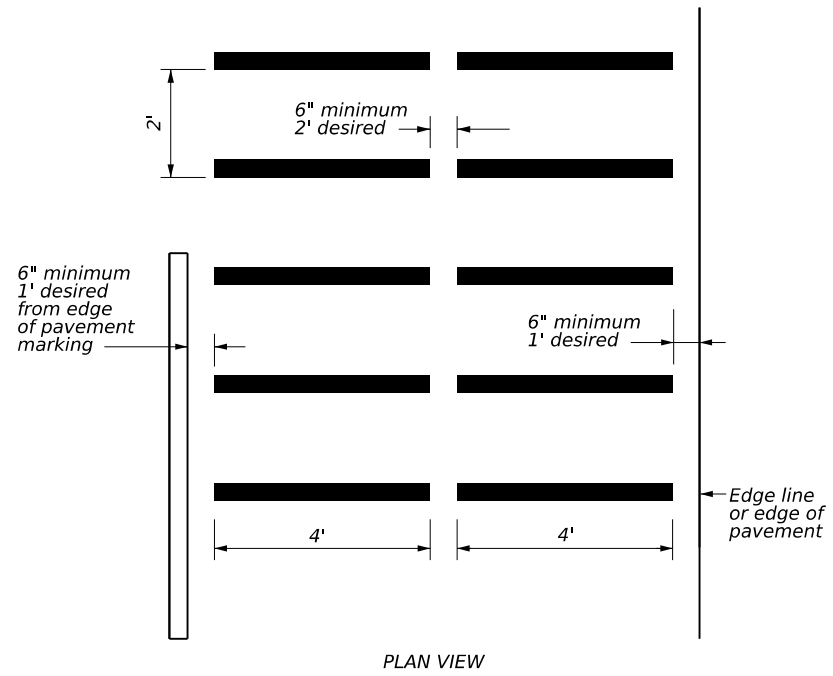


\* Adjust if placement interferes with driveway or intersection.



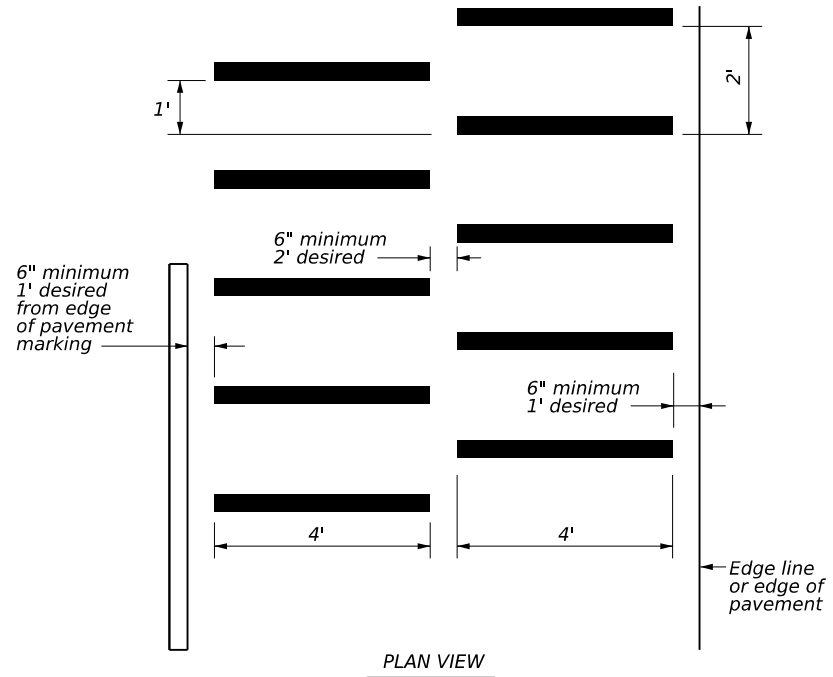
PROFILE VIEW

## RUMBLE STRIP STANDARD PATTERN



PLAN VIEW

## RUMBLE STRIP ALTERNATIVE PATTERN



PLAN VIEW

### GENERAL NOTES

1. Transverse or in-lane rumble strips should only be used at high incident and special geometric locations. These special geometric locations may include: approaches to rural, high speed signalized or stop-controlled intersections with sight restrictions and/or high crash rates, approaches to unexpected urban intersections, approaches to newly installed stop or signalized controlled intersections, approaches to toll plazas, approaches to hazardous horizontal curves, and approaches to railroad grade crossings.
2. When used, the rumble strips shall be placed 200 feet upstream and downstream of the warning sign.
3. The use of rumble strips should not be widespread or indiscriminate.
4. Preformed black raised rumble strips should be used. They should be installed in accordance with the manufacturer's recommendations.
5. Please reference the TxDOT Material Producers List for approved rumble strips (transverse): <http://www.txdot.gov/>
6. Consideration should be given to noise levels when in-lane or transverse rumble strips are to be installed near residential areas, schools, churches, etc.
7. The RUMBLE STRIPS AHEAD (W17-2T) sign may be used in advance of in-lane or transverse rumble strips, based on engineering judgement. This sign is typically not necessary for rumble strip installations built to the guidelines on this standard sheet. When used, this sign should be spaced in advance of the rumble strips based on the Guidelines for Advance Placement of Warning Signs table of the Texas Manual on Uniform Traffic Control Devices.
8. Consideration shall be given to bicyclists. See RS(6).
9. Other signs can be used as conditions warrant.



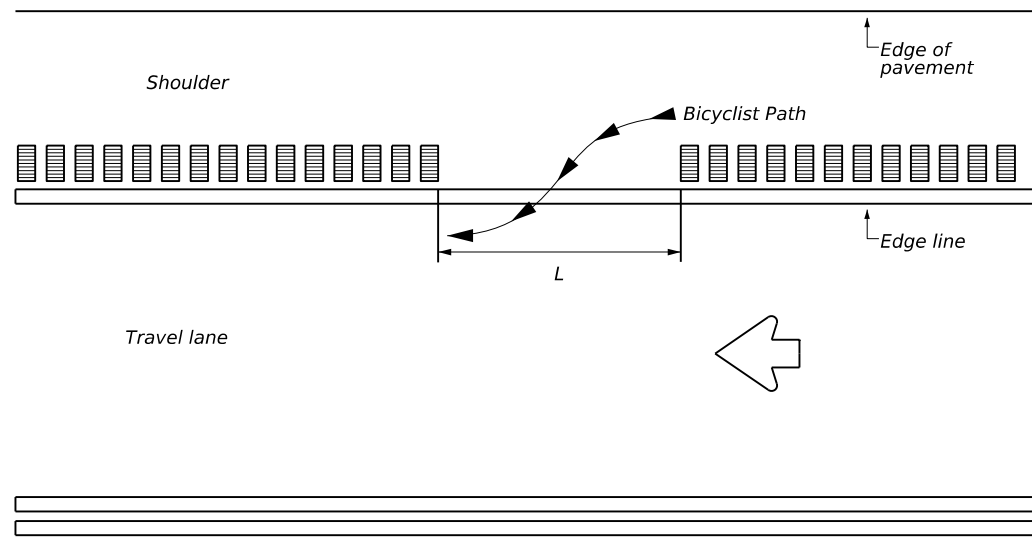
W17-2T

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DATE: FILE:

<h2>TRANSVERSE OR IN-LANE RUMBLE STRIPS</h2> <h3>RS(5)-23</h3>			
FILE: rs(5)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT	January 2023	CONT: 0191	SECT: 03
4-06	1-12	JOB: 089,Etc	HIGHWAY: FM 2493,Etc
2-10		DIST: 10	COUNTY: SMITH,Etc
10-13			SHEET NO.: 81

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RUMBLE STRIP GAP SPACING

GAP LENGTH TABLE (L)	
BICYCLISTS OPERATING ≤ 20 MPH	≥ 15 FEET
BICYCLISTS OPERATING > 20 MPH	≥ 20 FEET*
* Or the rumble strips should be located on the right side of the shoulder to allow bicyclists to avoid them if they encounter a need to enter the travel lane (e.g. a downhill location).	

**GENERAL NOTES**

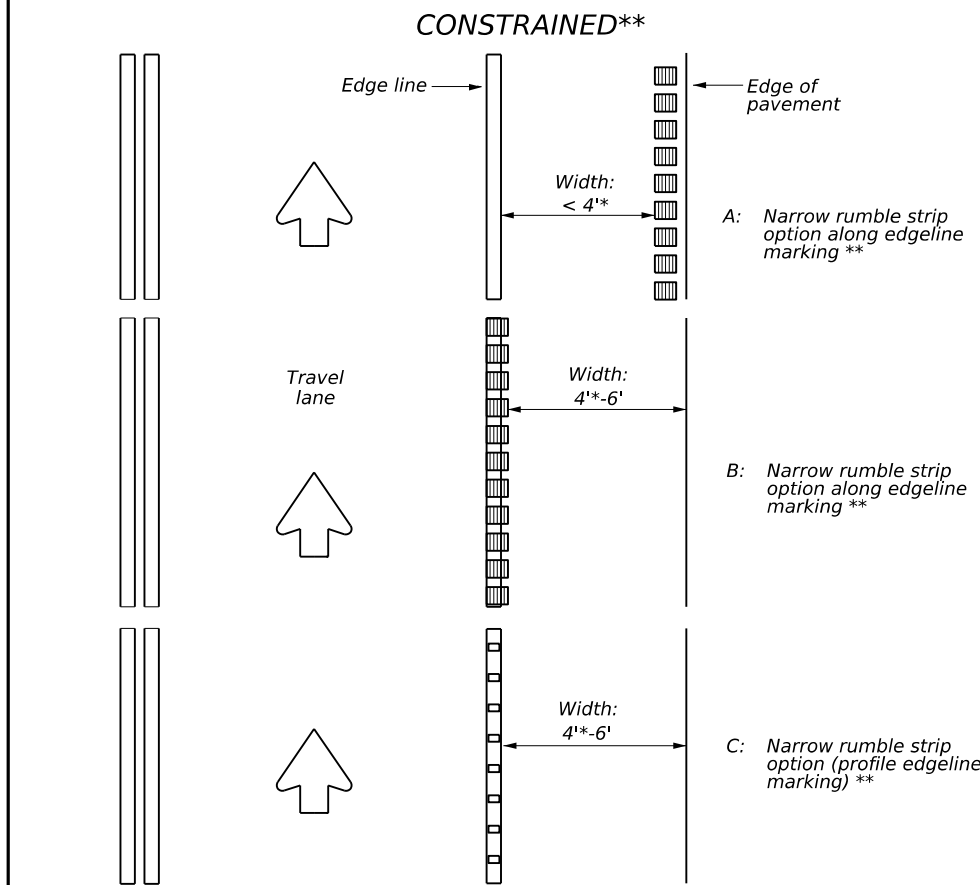
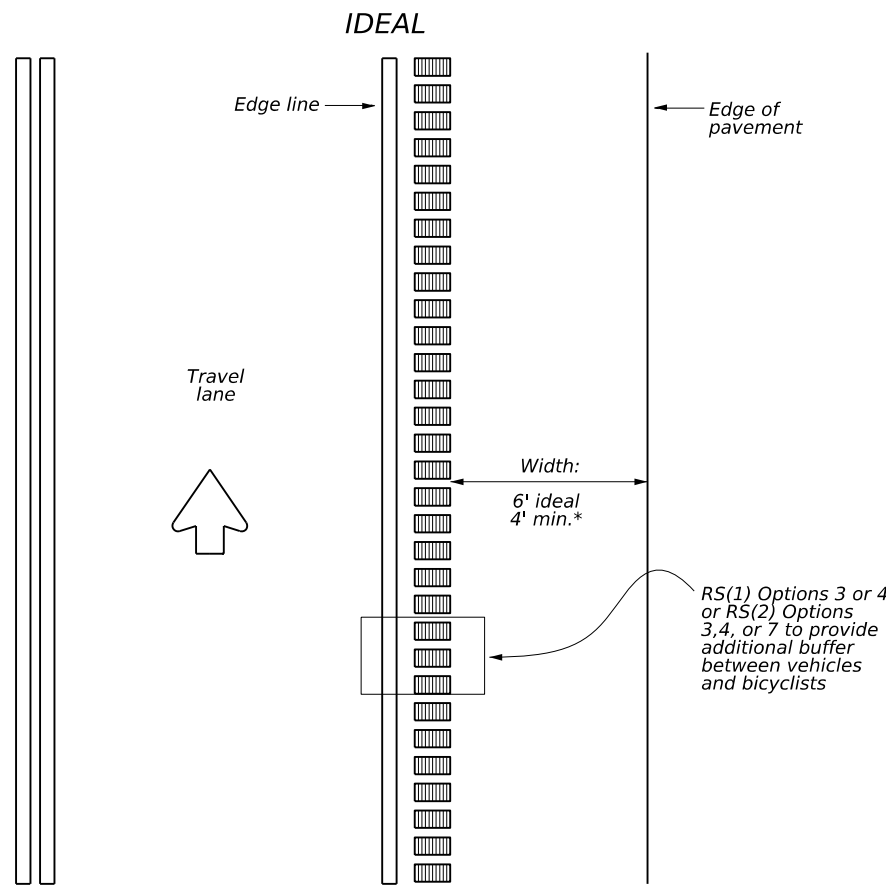
1. The Engineer must consider accommodating bicycles during the planning and implementation of all construction and rehabilitation projects. See the TxDOT Roadway Design Manual (RDM) Bicycle Facilities section for applicable policies, references, and guidance; including additional detail regarding rumble strip gap and horizontal placement, as well as explanation of desirable, minimum, and constrained values.
2. For non-freeway facilities with bike lanes, buffered bike lanes, or bike-accessible shoulders, the Engineer shall place rumble strips considering the safety of and crash risk for bicyclists. The Engineer shall include a detail of rumble strip gap spacing, horizontal spacing from the edge line, and material / installation method in the plans.
3. See RS(5) General Note 8 regarding bicycle safety with transverse (in-line rumble strips).

**GAPS**

4. Rumble strip gaps to allow bicyclists to safely enter or exit a shoulder, as needed. In addition to gaps provided for vehicles (e.g. at cross-streets), the Engineer shall ensure gaps are available every 40 to 60 feet. See Gap Spacing detail. The Engineer should consider significant grades as they affect bicycle speeds in applying the Gap Length Table, for example downhill versus uphill bicycle speeds.

**HORIZONTAL SPACING**

5. Rumble strip horizontal spacing considerations affect bicyclist safety and mobility. The Engineer shall consider desirable, minimum, and constrained widths, as shown in the horizontal placement detail. The Engineer shall apply engineering judgment to choose placement and material options in the Shoulder Width Tables on each RS sheet to optimize safety for all users. Horizontal width for bikes does not include standard drainage inlets, rumble strips, or raised pavement markers (RPMs).



\* 5' minimum if adjacent to curb, guardrail, vertical element, or obstacle.  
 \*\* Options A-C for consideration of horizontal placement using engineering judgment. See RS(1) and RS(2) for rumble strip device options. Care should be taken to consider bicycles in applying the tables by shoulder width. Narrow rumble strip options include RS(1) Options 1, 2, and 6 and RS(2) Options 1, 2, 6, and 8.

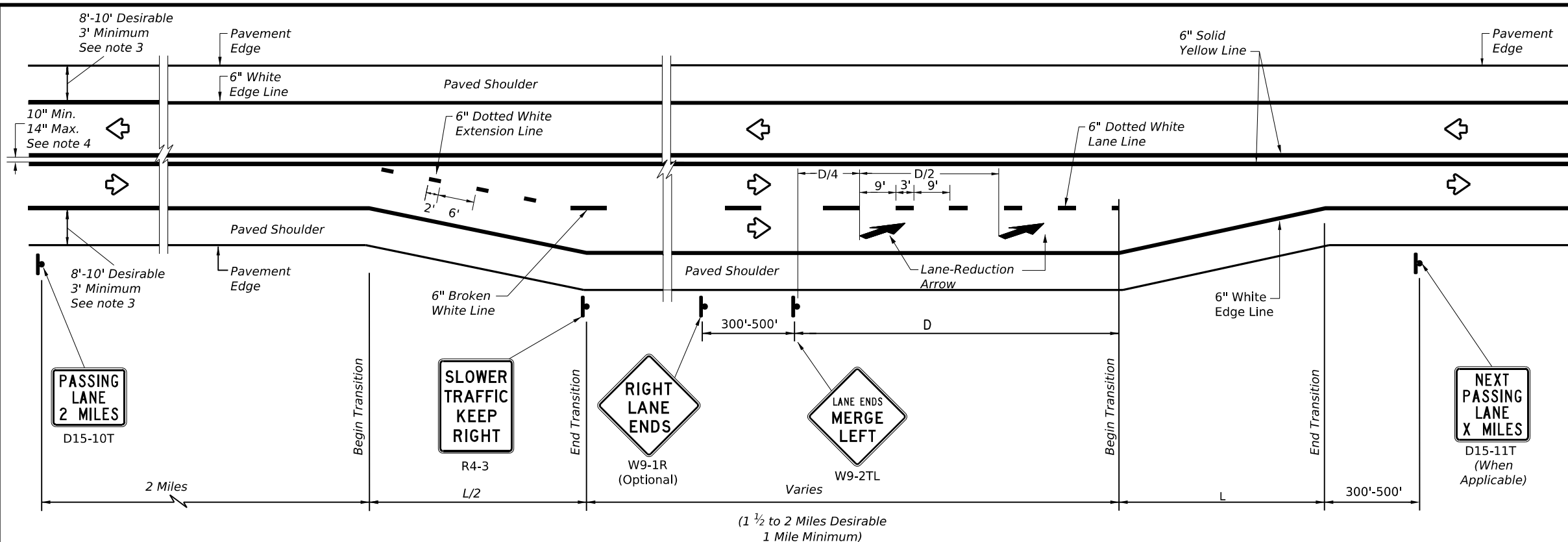
RUMBLE STRIP HORIZONTAL PLACEMENT

				<b>Traffic Safety Division Standard</b>	
<b>RUMBLE STRIP BICYCLE CONSIDERATIONS FOR NON-FREEWAY FACILITIES RS(6)-23</b>					
FILE: rs(6)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	
© TxDOT January 2023	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0191	03	089, Etc	FM 2493, Etc	
1-23	DIST	COUNTY	SHEET NO.		
	10	SMITH, Etc	82		

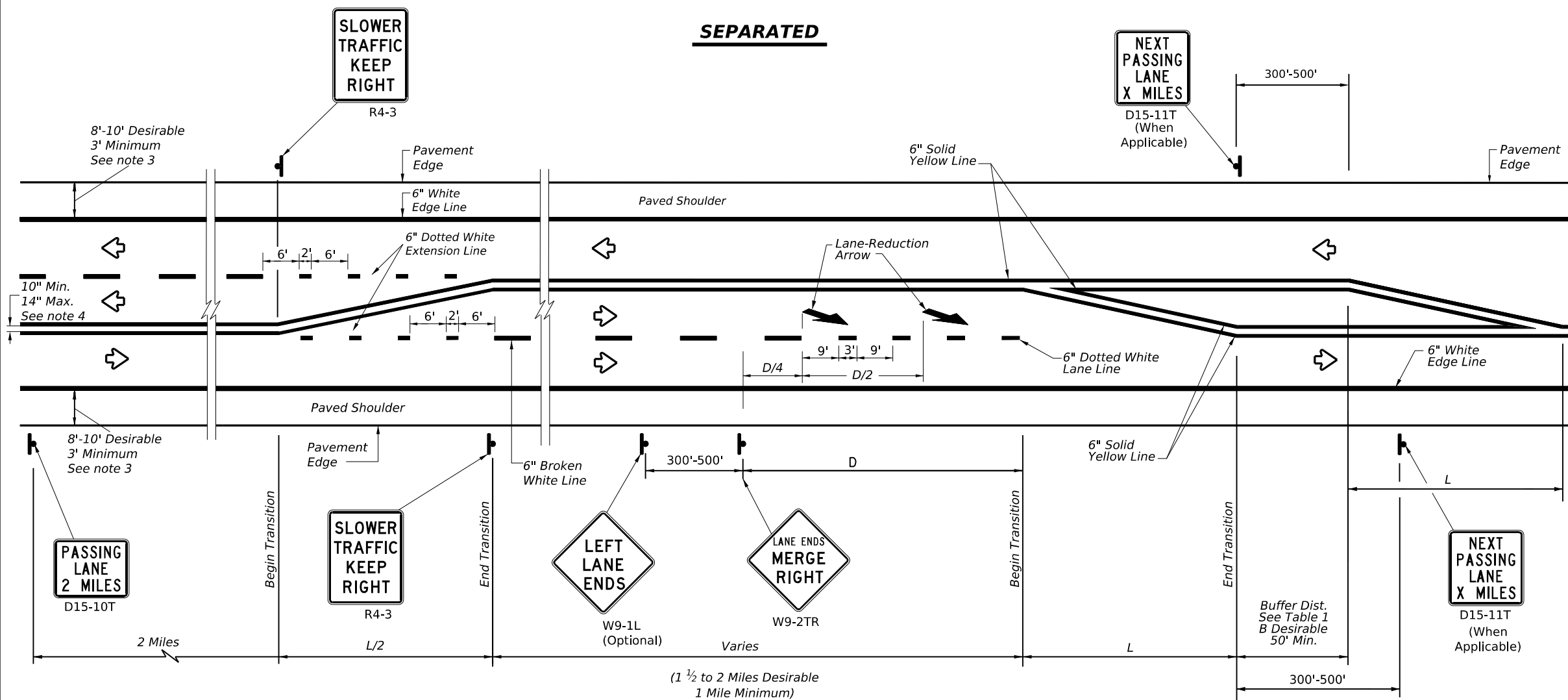
DATE:  
FILE:

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DATE: 9/30/2024 5:06:56 PM  
 FILE: c:\txdot\pw\_online\txdot3\evan\_barron\d0842243\TS2(PL-1)-23.dgn



**SEPARATED**



**ALTERNATING**

LEGEND	
	Sign
	Traffic Flow

TYPICAL TAPER LENGTH (L)	
Formula *	$L = WS$

\* Transition length should be rounded up to nearest 5 foot increment.

L=Length of Transition (FT)  
 W=Width of Offset (FT)  
 S=Posted Speed (MPH)

**EXAMPLE**  
 A 12 foot lane is added on a 70 mph roadway.  
 The length of the transition should be:  
 $L = 12 \times 70 = 840$  ft

**TABLE 1  
 ADVANCE WARNING SIGN  
 DISTANCE (D)  
 AND BUFFER DISTANCE (B)**

Posted Speed	D (FT)	B (FT)
40	670	305
45	775	360
50	885	425
55	990	495
60	1100	570
65	1200	645
70	1250	730
75	1350	820

**GENERAL NOTES**

- For minimum and desirable design details, see the Roadway Design Manual, Chapter 4, Section 6, Super 2 Highways.
- For Raised Pavement Markers (RPM) details, see Pavement Markings Standard sheet, PM(2) - Centerline for All Two Lane Two-Way Roadways. Note that RPMs are not recommended on the 6" dotted white extension lines.
- For rumble strip options available for the designed shoulder width, see Rumble Strip Standard sheet RS(2).
- For pavement marking details, see Pavement Marking Standard sheet PM(1).



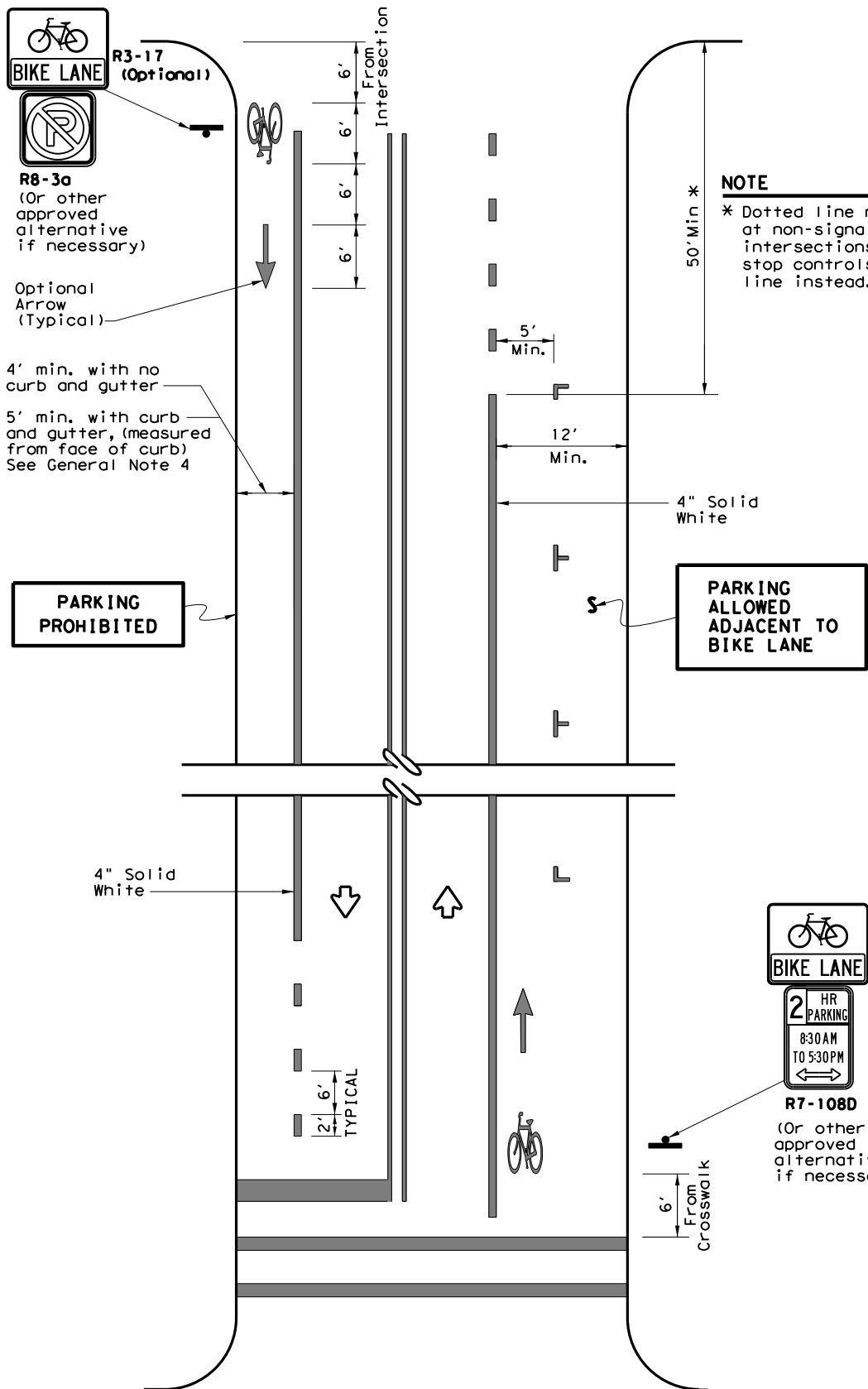
**TEXAS SUPER 2  
 PASSING LANES**

**TS2(PL-1)-23**

FILE: ts2-1-23.dgn	DN:	CK:	DW:	CK:
© TxDOT February 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	0191	03	089,Etc	FM 2493,Etc
5-10 3-18	DIST	COUNTY	SHEET NO.	
2-12 2-23	TYL	SMITH,Etc	83	
3-12				

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DATE: 9/30/2024 5:07:24 PM  
 FILE: c:\txdot\pww\online\txdot3\evan\_barron\d0842243\BLPM-10.dgn



**NOTES**

1. Bicycle lane pavement markings typically repeated after each intersection or signalized driveway.
2. On uninterrupted sections of roadway, bicycle lane pavement markings typically repeated as follows:  
 -1200' for 45 MPH or less roads  
 -2500' for 50 MPH and greater roads.

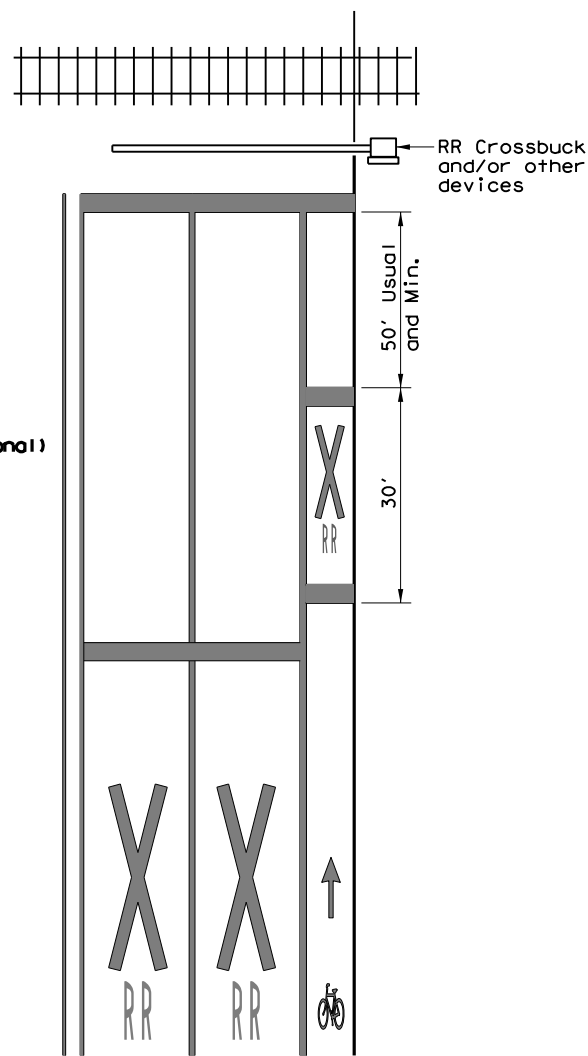
**TWO-WAY STREET**

**GENERAL NOTES**

1. All bicycle lane pavement markings shall be white unless otherwise noted.
2. All pavement marking materials shall meet the required Department Material Specifications as specified by the plans.
3. Exact sign placement and details are shown elsewhere in the plans.
4. The current edition of AASHTO'S Guide for the Development of Bicycle Facilities should be referenced for variations in design, other geometric conditions, and lane width options.
5. Other bicycle lane symbol or word markings as shown in the Texas Manual on Uniform Traffic Control Devices may be used. Details for words, arrows and symbols as shown in the Standard Highway Sign Designs for Texas.
6. The "BIKE LANE" (R3-17) sign with the "AHEAD" (R3-17a) sign mounted directly below should be installed in advance of the beginning of a marked bike lane.
7. The "BIKE LANE" (R3-17) sign with the "END" (R3-17b) sign mounted directly below should be installed at the end of marked bicycle lane.

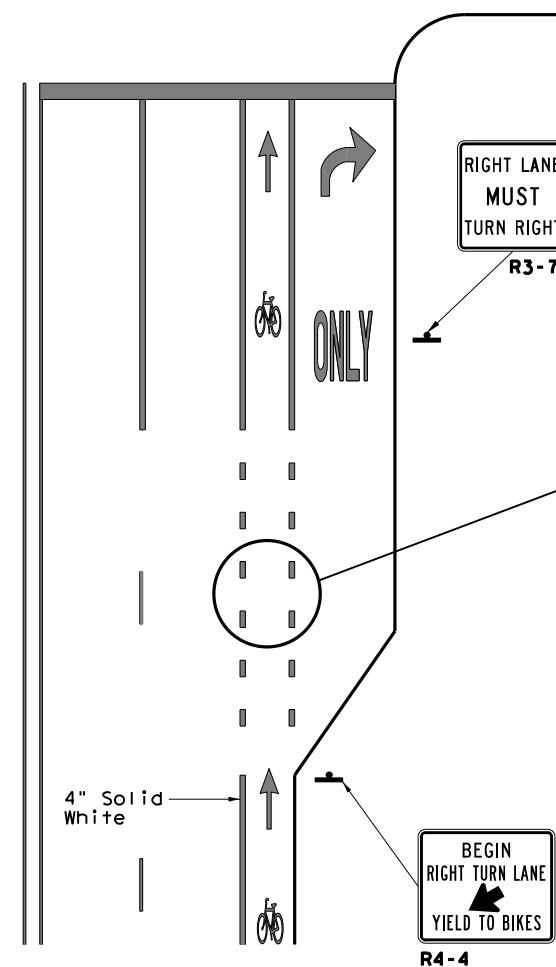
**NOTE**

\* Dotted line not necessary at non-signalized minor intersections with no stop controls; Use solid line instead.



(See RCPM Standard for travel lane details)

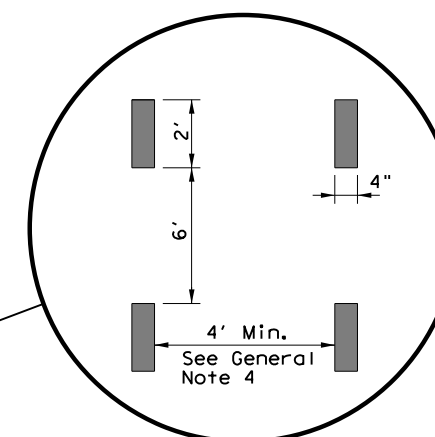
**RAILROAD CROSSING APPROACH**



**RIGHT TURN ONLY LANE**

LEGEND	
	Sign
	Traffic Flow

SPECIFICATION REFERENCE TABLE	
Traffic Paint	DMS-8200
Hot Applied Thermoplastic	DMS-8220
Permanent Prefabricated Pavement Markings	DMS-8240
Glass Traffic Beads	DMS-8290



**DETAIL "A"**

Texas Department of Transportation  
 Traffic Operations Division

**BICYCLE LANE  
 PAVEMENT MARKINGS**

**BLPM-10**

© TxDOT	May 2010	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
REVISIONS					
CONT	SECT	JOB	HIGHWAY		
0191	03	089, Etc	FM 2493, Etc		
DIST	COUNTY		SHEET NO.		
TYL	SMITH, Etc		84		

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**I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)**

This project is adjacent or parallel work, not within RR ROW:  
 DOT No.: 794708D  
 Crossing Type: HIGHWAY AT GRADE (RR AT GRADE)  
 RR Company Operating Track at Crossing: UNION PACIFIC RAILROAD COMPANY [UP]  
 RR Company Owning Track at Crossing: [UP]  
 RR MP: 0136.010  
 RR Subdivision: MINEOLA SUB  
 City: MINEOLA  
 County: WOOD  
 CSJ at this Crossing: 0190-03  
 Latitude: 32.6620965  
 Longitude: -95.4884539

Scope of Work, including any TCP, to be performed by State Contractor:

APPLY SURFACE TREATMENT AND STRIPING TO EXISTING ROADWAY.

Scope of Work to be performed by Railroad Company:

N/A

**II. FLAGGING & INSPECTION**

No. of Days of Railroad Flagging Expected: 1  
 On this project, night or weekend flagging is:  
 Expected  
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) TxDOT will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.  
 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** BNSFinfo@railpros.com  
 Call Center 877-315-0513, Select #1 for flagging  
 **CPKCR** 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 railroad construction inspection into anticipated construction schedule.

Not Required  
 Required. Contact Information for Construction Inspection:

**III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD**

Required.  
 Not Required  
 Railroad Point of Contact: \_\_\_\_\_

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.

**IV. RAILROAD INSURANCE REQUIREMENTS**

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

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.

Escalated Limits	
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

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

**V. CONTRACTOR'S RIGHT OF ENTRY (CROE)**

Not Required  
 Required: UPRR Maintenance Consent Letter. TxDOT to assist  
 Required: TxDOT to assist in obtaining the UPRR CROE  
 Required: Contractor to obtain  
 BNSF: \_\_\_\_\_  
<https://bnsf.railpermitting.com>  
 CPKCR  
[https://jillrpg.360works.com/fmi/webd/rpo\\_web\\_kcs.fmp12](https://jillrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12)  
 Other Railroads: \_\_\_\_\_

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

Approved CROE 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 CROE between the Contractor and the Railroad if required on project.

**VI. RAILROAD COORDINATION MEETING**

A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

**VII. RAILROAD SAFETY ORIENTATION**

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

UPRR, BNSF, CPKCR will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

**VIII. SUBCONTRACTORS**

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

**IX. EMERGENCY NOTIFICATION**

**In Case of Railroad Emergency**  
 Call: UP  
 Railroad Emergency Line at: 800 - 848 - 8715  
 Location: DOT 794708D  
 RR Milepost: 0136.010  
 Subdivision: MINEOLA

**RRD Review Only** DS  
ag  
 Initials: \_\_\_\_\_  
 Date: 11/5/2024

	<b>Rail Division</b>
<b>RAILROAD SCOPE OF WORK</b> PROJECT SPECIFIC DETAILS	
FILE: rr-scope-of-work.pdf	DN: TxDOT    CK:    DW:    CK:
© TxDOT June 2014	CONT SECT JOB HIGHWAY
REVISIONS	0191 03 089, Etc FM 2493, Etc
4/2024	DIST COUNTY SHEET NO.
TYL	SMITH, Etc 85

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**I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)**

This project is adjacent or parallel work, not within RR ROW:  
 DOT No.: 426673S  
 Crossing Type: HIGHWAY UNDERPASS (RR OVER)  
 RR Company Operating Track at Crossing: BLACKLANDS RAILROAD BLR  
 RR Company Owning Track at Crossing: BLACKLANDS RAILROAD BLR  
 RR MP: 1.3  
 RR Subdivision: HOB  
 City: Overton  
 County: Rusk  
 CSJ at this Crossing: 0191-03-089  
 Latitude: 32.2615479  
 Longitude: -94.9732623

Scope of Work, including any TCP, to be performed by State Contractor:  
 APPLY SURFACE TREATMENT AND STRIPING TO EXISTING ROADWAY.

Scope of Work to be performed by Railroad Company:  
 N/A

**II. FLAGGING & INSPECTION**

No. of Days of Railroad Flagging Expected: 0  
 On this project, night or weekend flagging is:  
 Expected  
 Not Expected

Flagging services will be provided by:  
 Railroad Company: 1) TxDOT will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.  
 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** BNSFinfo@railpros.com  
 Call Center 877-315-0513, Select #1 for flagging  
 **CPKCR** 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 railroad construction inspection into anticipated construction schedule.

Not Required  
 Required. Contact Information for Construction Inspection:  
 \_\_\_\_\_

**III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD**

Required.  
 Not Required  
 Railroad Point of Contact: \_\_\_\_\_

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.

**IV. RAILROAD INSURANCE REQUIREMENTS**

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

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.

Escalated Limits	
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

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

**V. CONTRACTOR'S RIGHT OF ENTRY (CROE)**

Not Required  
 Required: UPRR Maintenance Consent Letter. TxDOT to assist  
 Required: TxDOT to assist in obtaining the UPRR CROE  
 Required: Contractor to obtain  
 BNSF: \_\_\_\_\_  
https://bnsf.railpermitting.com  
 CPKCR  
https://jillrpg.360works.com/fmi/webd/rpo\_web\_kcs.fmp12  
 Other Railroads: Angie Huie angie@blacklandsrailroad.com

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

Approved CROE 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 CROE between the Contractor and the Railroad if required on project.

**VI. RAILROAD COORDINATION MEETING**

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UPRR, BNSF, CPKCR will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

**VIII. SUBCONTRACTORS**

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

**IX. EMERGENCY NOTIFICATION**

**In Case of Railroad Emergency**  
 Call: BLACKLANDS RAILROAD (BLR)  
 Railroad Emergency Line at: (877) 439-0738  
 Location: DOT 426673S  
 RR Milepost: 0001.30  
 Subdivision: HOB

RRD Review Only <sup>DS</sup>  
 Initials: ag  
 Date: 11/1/2024

		<b>Rail Division</b>	
<b>RAILROAD SCOPE OF WORK</b> PROJECT SPECIFIC DETAILS			
FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:
© TxDOT June 2014	CONT	SECT	JOB
REVISIONS	0191	03	089, Etc
4/2024	DIST	COUNTY	SHEET NO.
	TYL	SMITH, Etc	86

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**I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)**

This project is adjacent or parallel work, not within RR ROW:  
 DOT No.: 869309D  
 Crossing Type: HIGHWAY AT GRADE (RR AT GRADE)  
 RR Company Operating Track at Crossing: TEXAS & EASTERN RAILROAD, LLC. [TESR]  
 RR Company Owning Track at Crossing: [TESR]  
 RR MP: 0026.120  
 RR Subdivision: NECHES SUB  
 City: PALESTINE  
 County: ANDERSON  
 CSJ at this Crossing: 0191-03-089  
 Latitude: 31.7394390  
 Longitude: 95.5878080

Scope of Work, including any TCP, to be performed by State Contractor:  
 APPLY SURFACE TREATMENT AND STRIPING TO EXISTING ROADWAY.

Scope of Work to be performed by Railroad Company:  
 N/A

**II. FLAGGING & INSPECTION**

No. of Days of Railroad Flagging Expected: 2  
 On this project, night or weekend flagging is:  
 Expected  
 Not Expected

Flagging services will be provided by:  
 Railroad Company: 1) TxDOT will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.  
 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** BNSFinfo@railpros.com  
 Call Center 877-315-0513, Select #1 for flagging  
 **CPKCR** 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:  
 TESR  
 Please contact Dan Volkert for flagging purposes  
 503-756-8651  
 DVolkert@Jag-transport.com

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required  
 Required. Contact Information for Construction Inspection:  
 \_\_\_\_\_

**III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD**

Required.  
 Not Required  
 Railroad Point of Contact: \_\_\_\_\_

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.

**IV. RAILROAD INSURANCE REQUIREMENTS**

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

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.

Escalated Limits	
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

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

**V. CONTRACTOR'S RIGHT OF ENTRY (CROE)**

Not Required  
 Required: UPRR Maintenance Consent Letter. TxDOT to assist  
 Required: TxDOT to assist in obtaining the UPRR CROE  
 Required: Contractor to obtain  
 BNSF: \_\_\_\_\_  
https://bnsf.railpermitting.com  
 CPKCR  
https://jillrpg.360works.com/fmi/webd/rpo\_web\_kcs.fmp12  
 Other Railroads: Chris Cline: ChrisCline@IMGonline.net

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

Approved CROE 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 CROE between the Contractor and the Railroad if required on project.

**VI. RAILROAD COORDINATION MEETING**

A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

**VII. RAILROAD SAFETY ORIENTATION**

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

UPRR, BNSF, CPKCR will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

**VIII. SUBCONTRACTORS**

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

**IX. EMERGENCY NOTIFICATION**

**In Case of Railroad Emergency**  
 Call: TESR  
 Railroad Emergency Line at: 833-261-7790  
 Location: DOT 869309D  
 RR Milepost: 0026.120  
 Subdivision: NECHES SUB

RRD Review Only <sup>DS</sup>  
 Initials: ag  
 Date: 11/5/2024

		<b>Rail Division</b>	
<b>RAILROAD SCOPE OF WORK</b> PROJECT SPECIFIC DETAILS			
FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:
© TxDOT June 2014	CONT	SECT	JOB
0191	03	089, Etc	FM 2493, Etc
4/2024	REVISIONS		
DIST	COUNTY		SHEET NO.
TYL	SMITH, Etc		87

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**I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)**

This project is adjacent or parallel work, not within RR ROW:  
 DOT No.: 331572P  
 Crossing Type: HIGHWAY AT GRADE (RR AT GRADE)  
 RR Company Operating Track at Crossing: KANSAS CITY SOUTHERN RAILWAY COMPANY [CPKCR]  
 RR Company Owning Track at Crossing: [CPKCR]  
 RR MP: 0118.310  
 RR Subdivision: GREENVILLE  
 City: WINNSBORO  
 County: WOOD  
 CSJ at this Crossing: 0767-04  
 Latitude: 32.9596190  
 Longitude: -95.3014270

Scope of Work, including any TCP, to be performed by State Contractor:  
 APPLY SURFACE TREATMENT AND STRIPING TO EXISTING ROADWAY.

Scope of Work to be performed by Railroad Company:  
 N/A

**II. FLAGGING & INSPECTION**

No. of Days of Railroad Flagging Expected: 2  
 On this project, night or weekend flagging is:  
 Expected  
 Not Expected

Flagging services will be provided by:  
 Railroad Company: 1) TxDOT will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.  
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

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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** BNSFinfo@railpros.com  
 Call Center 877-315-0513, Select #1 for flagging  
 **CPKCR** 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 railroad construction inspection into anticipated construction schedule.

Not Required  
 Required. Contact Information for Construction Inspection:  
 \_\_\_\_\_

**III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD**

Required.  
 Not Required  
 Railroad Point of Contact: \_\_\_\_\_

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.

**IV. RAILROAD INSURANCE REQUIREMENTS**

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

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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.

Escalated Limits	
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

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

**V. CONTRACTOR'S RIGHT OF ENTRY (CROE)**

Not Required  
 Required: UPRR Maintenance Consent Letter. TxDOT to assist  
 Required: TxDOT to assist in obtaining the UPRR CROE  
 Required: Contractor to obtain  
 BNSF: \_\_\_\_\_  
https://bnsf.railpermitting.com  
 CPKCR  
https://jillrpg.360works.com/fmi/webd/rpo\_web\_kcs.fmp12  
 Other Railroads: \_\_\_\_\_

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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**VI. RAILROAD COORDINATION MEETING**

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Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

**VIII. SUBCONTRACTORS**

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

**IX. EMERGENCY NOTIFICATION**

**In Case of Railroad Emergency**  
 Call: [CPKCR]  
 Railroad Emergency Line at: 877-527-9464  
 Location: DOT 331572P  
 RR Milepost: 0118.310  
 Subdivision: GREENVILLE

RRD Review Only <sup>DS</sup>  
 Initials: ag  
 Date: 11/5/2024

		<b>Rail Division</b>	
<b>RAILROAD SCOPE OF WORK</b> PROJECT SPECIFIC DETAILS			
FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:
© TxDOT June 2014	CONT	SECT	JOB
0191	03	089, Etc	FM 2493, Etc
4/2024	REVISIONS		
	DIST	COUNTY	SHEET NO.
	TYL	SMITH, Etc	88



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This project is adjacent or parallel work, not within RR ROW:  
 DOT No.: 331566L  
 Crossing Type: HIGHWAY AT GRADE (RR AT GRADE)  
 RR Company Operating Track at Crossing: KANSAS CITY SOUTHERN RAILWAY COMPANY [CPKCR]  
 RR Company Owning Track at Crossing: [CPKCR]  
 RR MP: 0117.600  
 RR Subdivision: GREENVILLE  
 City: WINNSBORO  
 County: WOOD  
 CSJ at this Crossing: 0492-02  
 Latitude: 32.9563750  
 Longitude: -95.2884380

Scope of Work, including any TCP, to be performed by State Contractor:  
 APPLY SURFACE TREATMENT AND STRIPING TO EXISTING ROADWAY.

Scope of Work to be performed by Railroad Company:  
 N/A

**II. FLAGGING & INSPECTION**

No. of Days of Railroad Flagging Expected: 2  
 On this project, night or weekend flagging is:  
 Expected  
 Not Expected

Flagging services will be provided by:  
 Railroad Company: 1) TxDOT will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.  
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

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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** BNSFinfo@railpros.com  
 Call Center 877-315-0513, Select #1 for flagging  
 **CPKCR** 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 railroad construction inspection into anticipated construction schedule.

Not Required  
 Required. Contact Information for Construction Inspection:  
 \_\_\_\_\_

**III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD**

Required.  
 Not Required  
 Railroad Point of Contact: \_\_\_\_\_

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.

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Escalated Limits	
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

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

**V. CONTRACTOR'S RIGHT OF ENTRY (CROE)**

Not Required  
 Required: UPRR Maintenance Consent Letter. TxDOT to assist  
 Required: TxDOT to assist in obtaining the UPRR CROE  
 Required: Contractor to obtain  
 BNSF: \_\_\_\_\_  
https://bnsf.railpermitting.com  
 CPKCR  
https://jillrpg.360works.com/fmi/webd/rpo\_web\_kcs.fmp12  
 Other Railroads: \_\_\_\_\_

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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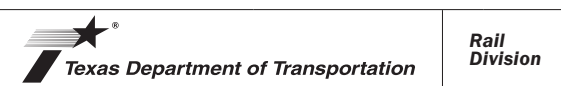
**VIII. SUBCONTRACTORS**

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

**IX. EMERGENCY NOTIFICATION**

**In Case of Railroad Emergency**  
 Call: [CPKCR]  
 Railroad Emergency Line at: 877 - 527 - 9464  
 Location: DOT 331566L  
 RR Milepost: 0117.600  
 Subdivision: NECHES SUB

RRD Review Only <sup>DS</sup>  
 Initials: ag  
 Date: 11/5/2024



**RAILROAD SCOPE OF WORK PROJECT SPECIFIC DETAILS**

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
0191	03	089, Etc	FM 2493, Etc	
4/2024	REVISIONS			
	DIST	COUNTY	SHEET NO.	
	TYL	SMITH, Etc	89	

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**I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)**

This project is adjacent or parallel work, not within RR ROW:  
 DOT No.: 794708D  
 Crossing Type: HIGHWAY AT GRADE (RR AT GRADE)  
 RR Company Operating Track at Crossing: UNION PACIFIC RAILROAD COMPANY  
 RR Company Owning Track at Crossing: UNION PACIFIC RAILROAD COMPANY  
 RR MP: 102.77  
 RR Subdivision: Mineola  
 City: Gladewater  
 County: Gregg  
 CSJ at this Crossing: 0191-03-089  
 Latitude: 32.5346158  
 Longitude: 32.5346158

Scope of Work, including any TCP, to be performed by State Contractor:  
 APPLY THERMO-PLASTIC STRIPING TO EXISTING ROADWAY.  
 See attached sheet for additional railroad crossings.

Scope of Work to be performed by Railroad Company:  
 N/A

**II. FLAGGING & INSPECTION**

No. of Days of Railroad Flagging Expected: 4  
 On this project, night or weekend flagging is:  
 Expected  
 Not Expected

Flagging services will be provided by:  
 Railroad Company: 1) TxDOT will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.  
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

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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** BNSFinfo@railpros.com  
 Call Center 877-315-0513, Select #1 for flagging  
 **CPKCR** 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 railroad construction inspection into anticipated construction schedule.

Not Required  
 Required. Contact Information for Construction Inspection:  
 \_\_\_\_\_

**III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD**

Required.  
 Not Required  
 Railroad Point of Contact: \_\_\_\_\_

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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

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
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 Required: UPRR Maintenance Consent Letter. TxDOT to assist  
 Required: TxDOT to assist in obtaining the UPRR CROE  
 Required: Contractor to obtain  
 BNSF: \_\_\_\_\_  
https://bnsf.railpermitting.com  
 CPKCR  
https://jillrpg.360works.com/fmi/webd/rpo\_web\_kcs.fmp12  
 Other Railroads: \_\_\_\_\_

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

**IX. EMERGENCY NOTIFICATION**

**In Case of Railroad Emergency**  
 Call: UNION PACIFIC RAILROAD COMPANY  
 Railroad Emergency Line at: 800-848-8715  
 Location: DOT 794708D  
 RR Milepost: 102.77  
 Subdivision: Mineola

RRD Review Only <sup>DS</sup>  
 Initials: ag  
 Date: 11/5/2024

		<b>Rail Division</b>	
<b>RAILROAD SCOPE OF WORK</b> PROJECT SPECIFIC DETAILS			
FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:
© TxDOT June 2014	CONT	SECT	JOB
0191	03	089, Etc.	FM 2493, Etc
4/2024	REVISIONS		
	DIST	COUNTY	SHEET NO.
	TYL	Smith, Etc	90



**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.

					
<b>RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS</b>					
FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT	
© TxDOT October 2018	CONT	SECT	JOB	HIGHWAY	
REVISIONS March 2020	0191	03	089, Etc	FM 2493, Etc	
	DIST	COUNTY	SHEET NO.		
	TYL	SMITH, Etc	92		

**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	
<b>RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS</b>					
FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT	
© TxDOT October 2018	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0191	03	089, Etc	FM 2493, Etc	
March 2020	DIST	COUNTY		SHEET NO.	
	TYL	SMITH, Etc		93	

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DATE: 9/30/2024 5:08:09 PM  
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**I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402**

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

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

- 
- No Action Required     Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000

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

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

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

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

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The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
<input type="checkbox"/> Temporary Vegetation	<input type="checkbox"/> Silt Fence	<input type="checkbox"/> Vegetative Filter Strips
<input type="checkbox"/> Blankets/Matting	<input type="checkbox"/> Rock Berm	<input type="checkbox"/> Retention/Irrigation Systems
<input type="checkbox"/> Mulch	<input type="checkbox"/> Triangular Filter Dike	<input type="checkbox"/> Extended Detention Basin
<input type="checkbox"/> Sodding	<input type="checkbox"/> Sand Bag Berm	<input type="checkbox"/> Constructed Wetlands
<input type="checkbox"/> Interceptor Swale	<input type="checkbox"/> Straw Bale Dike	<input type="checkbox"/> Wet Basin
<input type="checkbox"/> Diversion Dike	<input type="checkbox"/> Brush Berms	<input type="checkbox"/> Erosion Control Compost
<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Mulch Filter Berm and Socks
<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks
<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Vegetation Lined Ditches
	<input type="checkbox"/> Stone Outlet Sediment Traps	<input type="checkbox"/> Sand Filter Systems
	<input type="checkbox"/> Sediment Basins	<input type="checkbox"/> Grassy Swales

**III. CULTURAL RESOURCES**

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

- No Action Required     Required Action

Action No.

1. See above guidance for accidental discovery of cultural resources
- 
- 
- 

**IV. VEGETATION RESOURCES**

Preserve native vegetation to the extent practical. Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

- No Action Required     Required Action

Action No.

1. NO ACTION REQUIRED BEYOND ABOVE-MENTIONED SPECS
- 
- 
- 

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

- No Action Required     Required Action

Action No.

1. ADHERE TO DIRECTION CONCERNING MIGRATORY BIRDS LISTED BELOW
- 
- 
- 

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

**LIST OF ABBREVIATIONS**

BMP: Best Management Practice	SPCC: Spill Prevention Control and Countermeasure
CGP: Construction General Permit	SWSP: Storm Water Pollution Prevention Plan
DSHS: Texas Department of State Health Services	PCN: Pre-Construction Notification
FHWA: Federal Highway Administration	PSL: Project Specific Location
MOA: Memorandum of Agreement	TCEQ: Texas Commission on Environmental Quality
MOU: Memorandum of Understanding	TPDES: Texas Pollutant Discharge Elimination System
MS4: Municipal Separate Stormwater Sewer System	TPWD: Texas Parks and Wildlife Department
MBT: Migratory Bird Treaty Act	TxDOT: Texas Department of Transportation
NOT: Notice of Termination	T&E: Threatened and Endangered Species
NWP: Nationwide Permit	USACE: U.S. Army Corps of Engineers
NOI: Notice of Intent	USFWS: U.S. Fish and Wildlife Service

**VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES**

General (applies to all projects):

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

Contact the Engineer if any of the following are detected:

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

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

- Yes     No

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

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

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

- Yes     No

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

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

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

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

- No Action Required     Required Action

Action No.

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- 


**VII. OTHER ENVIRONMENTAL ISSUES**

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

- No Action Required     Required Action

Action No.

- 
- 
- 

 <b>Texas Department of Transportation</b>		<b>Design Division Standard</b>		
<h2 style="margin: 0;">ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS</h2> <h3 style="margin: 0;">EPIC (SEALCOAT)</h3>				
FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
12-12-2011 (DS) REVISIONS	0191	03	089, E+c	FM 2493, E+c
05-07-14 ADDED NOTE SECTION IV.	DIST	COUNTY	SHEET NO.	
01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	TYL	SMITH, E+c	94	



**STORMWATER POLLUTION PREVENTION PLAN (SWP3):**

This SWP3 has been developed in accordance with the TPDES Construction General Permit TXR150000 (CGP). The Texas Department of Transportation (TxDOT) ensures that project specifications include adequate best management practices (BMPs) for this project.

For all projects with soil disturbing activity and for projects that have Environmental, Permits, Issues, and Commitments (EPICs) dependent on stormwater controls and water quality measures TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office, Area Office, or electronically.

This SWP3 is consistent with requirements specified in applicable stormwater plans and the projects environmental permits, issues, and commitments (EPICs). A copy of the CGP is included in Attachment 2.12 of the SWP3 binder.

**1.0 SITE/PROJECT DESCRIPTION**

**1.1 PROJECT CONTROL SECTION JOB (CSJ):**

0910-00-123

**1.2 PROJECT LIMITS:**

From: SEE QUANTITY SUMMARY SHEETS

To: SEE QUANTITY SUMMARY SHEETS

**1.3 PROJECT COORDINATES:**

BEGIN: N/A

END: N/A

**1.4 TOTAL PROJECT AREA (Acres): 614**

**1.5 TOTAL AREA TO BE DISTURBED (Acres): 0**

**1.6 NATURE OF CONSTRUCTION ACTIVITY:**

FOR THE CONSTRUCTION OF TRAFFIC CONTROL DEVICES CONSISTING OF THERMOPLASTIC & PAVEMENT MARKINGS

**1.7 MAJOR SOIL TYPES:**

Soil Type	Description

**1.8 PROJECT SPECIFIC LOCATIONS (PSLs):**

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

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

Type	Sheet #s

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

**1.9 CONSTRUCTION ACTIVITIES:**

(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.5.)

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

- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

**1.10 POTENTIAL POLLUTANTS AND SOURCES:**

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

- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

**1.11 RECEIVING WATERS:**

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

Tributaries	Classified Waterbody

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

**1.12 ROLES AND RESPONSIBILITIES: TxDOT**

- Development of plans and specifications
- Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- Post Construction Site Notice
- Submit NOI/CSN to local MS4
- Perform SWP3 inspections
- Maintain SWP3 records and update to reflect daily operations
- Complete and submit Notice of Termination to TCEQ
- Maintain SWP3 records for 3 years

- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

**1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR**

- Day To Day Operational Control
- Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- Post Construction Site Notice
- Submit NOI/CSN to local MS4
- Maintain schedule of major construction activities
- Install, maintain and modify BMPs
- Complete and submit Notice of Termination to TCEQ
- Maintain SWP3 records for 3 years

- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

**1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:**

MS4 Entity



10/03/2024

**STORMWATER POLLUTION PREVENTION PLAN (SWP3)**

© 2023 July 2023 Sheet 1 of 2  
 Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.			SHEET NO.
	F 2025(255)			54
STATE	STATE DIST.	COUNTY		
TEXAS	10	SMITH		
CONT.	SECT.	JOB	HIGHWAY NO.	
0191	03	089	96	



**STORMWATER POLLUTION PREVENTION PLAN (SWP3):**

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

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

**2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:**

**T / P**

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

**2.2 SEDIMENT CONTROL BMPs:**

**T / P**

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

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

Sediment control BMPs requiring design capacity calculations (See SWP3 Attachment 1.3.):

**T / P**

- Sediment Trap
  - Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
  - 3,600 cubic feet of storage per acre drained
- Sedimentation Basin
  - Not required (<10 acres disturbed)
  - Required (>10 acres) and implemented.
    - Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
    - 3,600 cubic feet of storage per acre drained
  - Required (>10 acres), but not feasible due to:
    - Available area/Site geometry
    - Site slope/Drainage patterns
    - Site soils/Geotechnical factors
    - Public safety
    - Other: \_\_\_\_\_

**2.3 PERMANENT CONTROLS:**

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

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

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

**2.4 OFFSITE VEHICLE TRACKING CONTROLS:**

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

**2.5 POLLUTION PREVENTION MEASURES:**

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

**2.6 VEGETATED BUFFER ZONES:**

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

Type	Stationing	
	From	To

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

**2.7 ALLOWABLE NON-STORMWATER DISCHARGES:**

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

**2.8 DEWATERING:**

Dewatering discharges of accumulated stormwater, groundwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

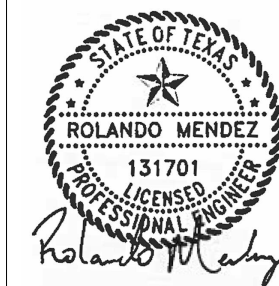
**2.9 INSPECTIONS:**

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

When dewatering activities are present, a daily inspection will be conducted once per day during those activities and documented in accordance with CGP and TxDOT requirements.

**2.10 MAINTENANCE:**

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.



10/03/2024

**STORMWATER POLLUTION PREVENTION PLAN (SWP3)**

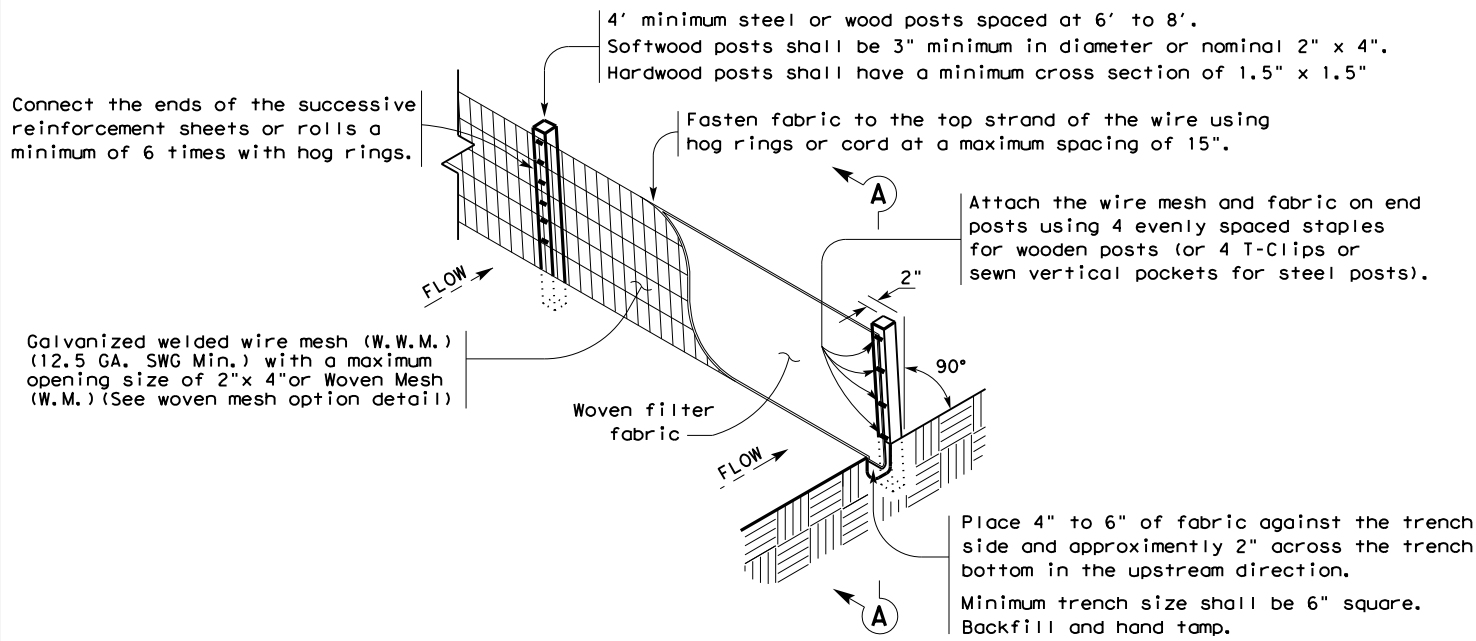
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Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.			SHEET NO.
	F 2025(255)			55
STATE	STATE DIST.	COUNTY		
TEXAS	10	SMITH		
CONT.	SECT.	JOB	HIGHWAY NO.	
0191	03	089	97	

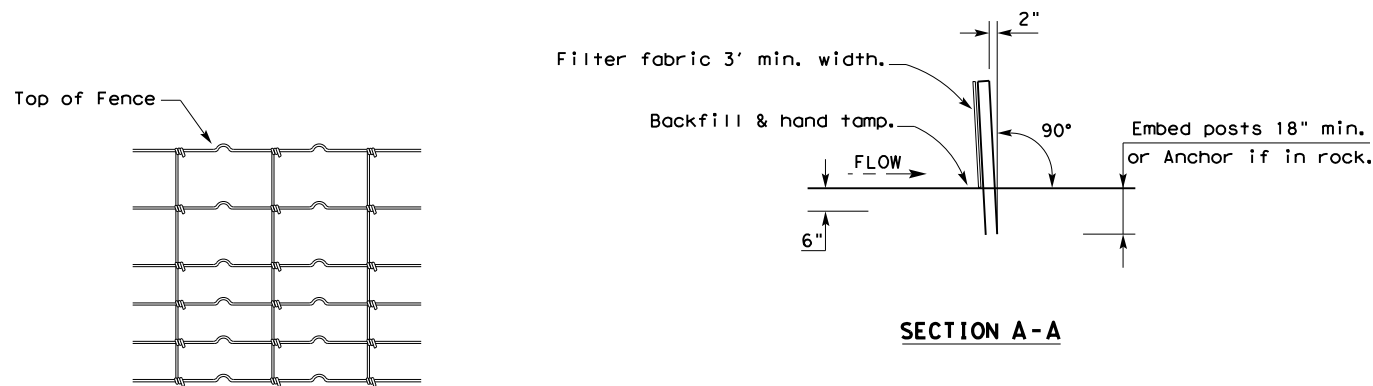
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**TEMPORARY SEDIMENT CONTROL FENCE**

SCF



**HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL**

Galvanized hinge joint knot woven mesh (12.5 GA. SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

**SEDIMENT CONTROL FENCE USAGE GUIDELINES**

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT<sup>2</sup>. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

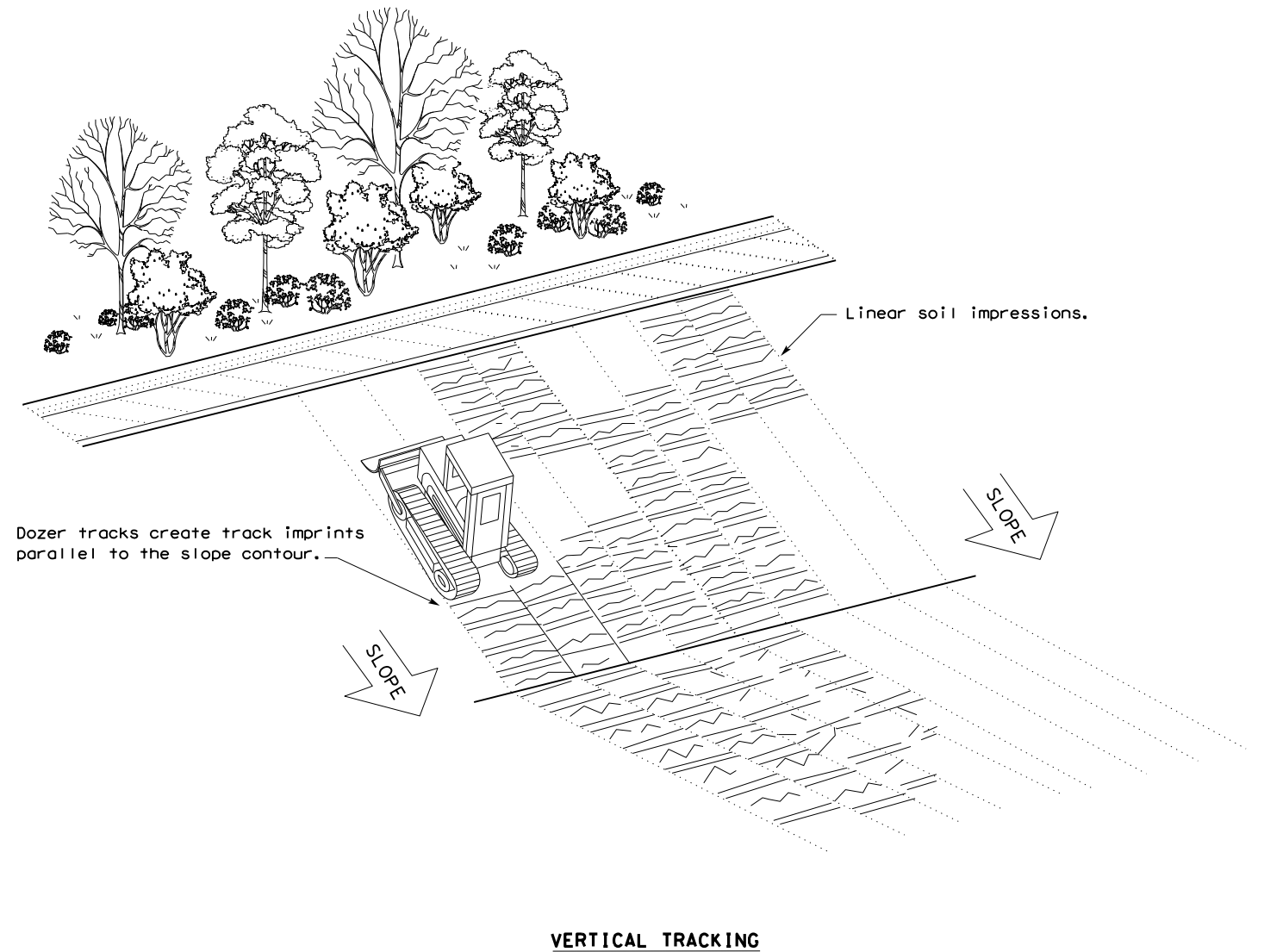
**LEGEND**

Sediment Control Fence

SCF

**GENERAL NOTES**

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continuous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



				Design Division Standard	
<b>TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES FENCE &amp; VERTICAL TRACKING</b> <b>EC(1)-16</b>					
FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS	
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0191	03	089, Etc	FM 2493, Etc	
	DIST	COUNTY		SHEET NO.	
	TYL	SMITH, Etc		<b>98</b>	