INDEX OF SHEETS

SHEET NO.	DESCRIPTION
SEE SHEET 2	

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENTS

FEDERAL AID PROJECT No. F 2022(016)

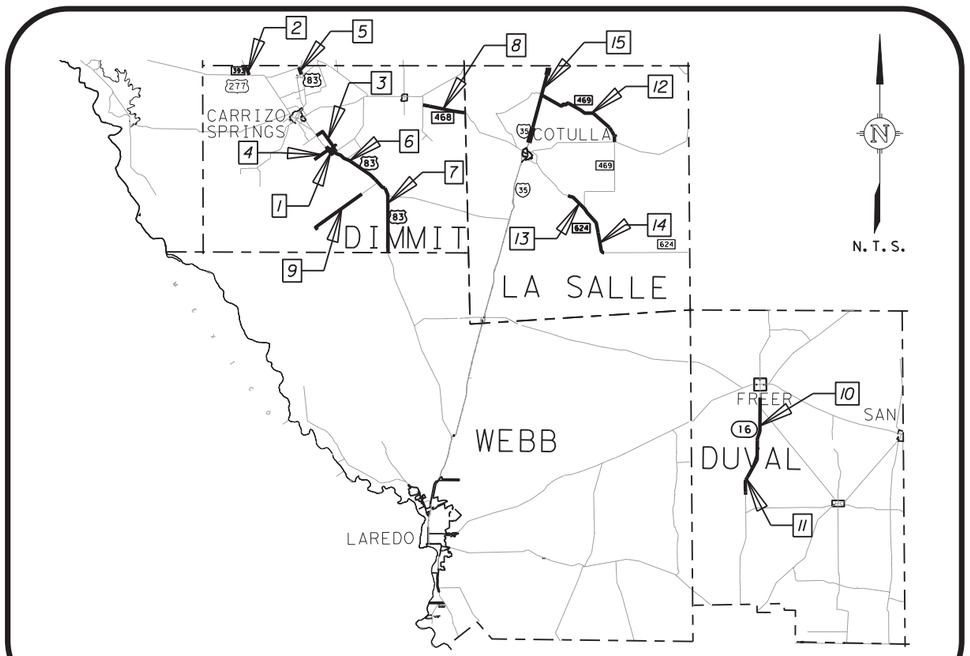
IH 35, etc.
LA SALLE, etc.
CSJ: 0017-08-114, etc.

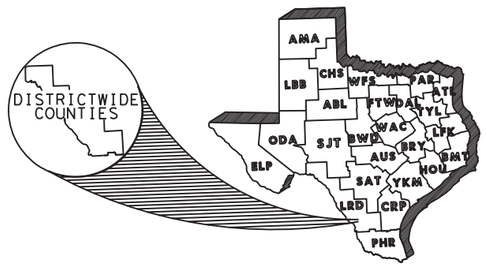
NET LENGTH OF PROJECT: 582,806.40 FT= 110.380 MI

ROADWAY= 575,416.40 FT= 108.980 MILES
BRIDGE = 7,390.00 FT= 1.400 MILES

CONTROLLING LIMITS: FROM: IH 35/BI 35C NORTH INT (EFR), etc.
TO: FRIO COUNTY LINE, etc.

FOR THE CONSTRUCTION OF RESURFACE OF EXISTING HIGHWAY SEAL COAT
CONSISTING OF SEAL COAT & PAVEMENT MARKINGS





EQUATIONS: NONE
EXCEPTIONS: NONE
RAILROAD CROSSINGS: NONE

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

FED.ROAD DIV.NO	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
6	TEXAS	F 2022(016)	1
STATE DIST.NO.	COUNTY	STATE CONTROL NO.	HIGHWAY NO.
22	LA SALLE, etc.	0017-08-114, etc.	IH 35, etc.

DESIGN CRITERIA:	PREVENTATIVE MAINTENANCE
ADT (XXXX):	N/A
ADT (XXXX):	N/A
% TRUCK IN ADT:	N/A
FUNCTIONAL CLASS:	N/A
DESIGN SPEED:	N/A
TDLR REQUIRED	YES ____ NO ✓

FINAL PLANS

LETTING DATE: _____

DATE CONTRACTOR BEGAN WORK: _____

DATE WORK WAS ACCEPTED: _____

CONTRACTOR: _____

TOTAL CONTRACTOR COST: _____

FINALS AS BUILTS

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

_____
AREA ENGINEER

_____
DATE

SUBMITTED FOR LETTING: 6/28/2021
DocuSigned by:
98C72D65D494466...
TRA ... NEER

RECOMMENDED FOR LETTING: 6/28/2021
DocuSigned by:
Jose Franco III
1118D67104534 9C...

RECOMMENDED FOR LETTING: 6/28/2021
DocuSigned by:
Humberto Gonzalez Jr, P.E
F7C3A305BFEB4F2...
DIREC ... PLANNING, & DEVELOPMENT

APPROVED FOR LETTING: 7/1/2021
DocuSigned by:
David Salazar
B741E64FAD8241 ...
D ...

Texas Department of Transportation

6/28/2021 SPACHICA c:\txdot\pw*online*txdot5\salma.pachicano\d0548125\SH16title1sht.dgn

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

_____, P.E.

6/28/2021
DATE

STATE OF TEXAS
LUIS G. URBINA
117019
LICENSED
PROFESSIONAL ENGINEER

NOT TO SCALE

TEXAS DEPARTMENT OF TRANSPORTATION ®

INDEX OF SHEETS

DN: SP	DW: SP	STATE	SHEET NUMBER				SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 1 OF 1				
FED. RD. DIV. NO.	STATE DIST. NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	
6	22	LA SALLE	0017	08	114	IH 35	2

COUNTY	LOCATION	PROJECT CSJ	HIGHWAY	LENGTH		TYPE OF WORK	PROJECT LIMITS	REFERENCE MARKER
				FEET	MILES			
DIMMIT	1	0963-01-035	FM0190	7,455.36	1.412	SEALCOAT	**FROM:** 13TH ST	568 + 1.942
							TO: US 83 NORTH INT	571 + 0.066
	2	0878-02-012	FM0393	8,585.28	1.626	SEALCOAT	**FROM:** ZAVALA COUNTY LINE	402 - 0.059
							TO: US 277	404 + 0.081
	3	1484-01-014	FM1557	26,975.52	5.109	SEALCOAT	**FROM:** US 83 NORTH	412 + 0.786
							TO: FM 190 INTERSECTION	418 + 0.051
	4	0963-02-008	FM1916	15,723.84	2.978	SEALCOAT	**FROM:** FM 190	568 - 0.080
							TO: END OF ROADWAY	571 + 0.000
	5	1813-01-009	FM1918	6,314.88	1.196	SEALCOAT	**FROM:** FM 191	556 - 0.040
							TO: FM 1407	553 + 0.029
	6	0037-06-108	US0083	60,535.20	11.465	SEALCOAT	**FROM:** ASHERTON (REF MRK 642+0.687)	642 + 0.687
							TO: Catarina (Ref Mrk (654+0.30)	654 + 0.264
	7	0037-08-044	US0083	56,216.16	10.647	SEALCOAT	**FROM:** CATARINA (REF MRK 654+0.30)	654 + 0.264
							TO: DIMMIT/WEBB COUNTY LINE	666 + 0.110
	8	1545-01-017	FM0468	35,893.44	6.798	SEALCOAT	**FROM:** FM 1019	430 + 1.452
							TO: La Salle CL	438 + 0.383
	9	2660-01-017	FM2688	46,273.92	8.764	SEALCOAT	**FROM:** 4.356 MILES WEST OF US 83	578 + 0.357
							TO: End of the Road	588 + 0.000
DUVAL	10	0517-04-063	SH0016	10,290.72	1.949	SEALCOAT	**FROM:** 1.69 MILES SOUTH OF US 59	712 + 0.234
							TO: SH 339	714 + 0.174
	11	0517-08-019	SH0016	92,162.40	17.455	SEALCOAT	**FROM:** SH 359	714 + 0.462
							TO: 0.215 MILES NORTH OF FM 2295	730 + 1.933
LA SALLE	12	0852-01-030	FM0469	83,577.12	15.829	SEALCOAT	**FROM:** IH 35	460 - 0.048
							TO: SH 97	474 + 1.811
	13	0652-04-066	FM0624	37,403.52	7.084	SEALCOAT	**FROM:** 9.5 MILES EAST OF SH 97	454 + 1.462
							TO: 3.37 MI SOUTH OF FM 469	462 + 0.513
	14	0652-05-020	FM0624	27,376.80	5.185	SEALCOAT	**FROM:** 3.37 MI SOUTH OF FM 469	462 + 0.514
							TO: 8.394 MI SOUTH OF FM 469	466 + 1.702
	15	0017-08-114	IH0035	68,022.24	12.883	SEALCOAT	**FROM:** IH 35/BI 35C NORTH INT (EFR)	69 + 0.528
							TO: FRIO COUNTY LINE	82 + 0.445
			TOTAL	582,806.40	110.380			

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TEXAS DEPARTMENT OF TRANSPORTATION ®

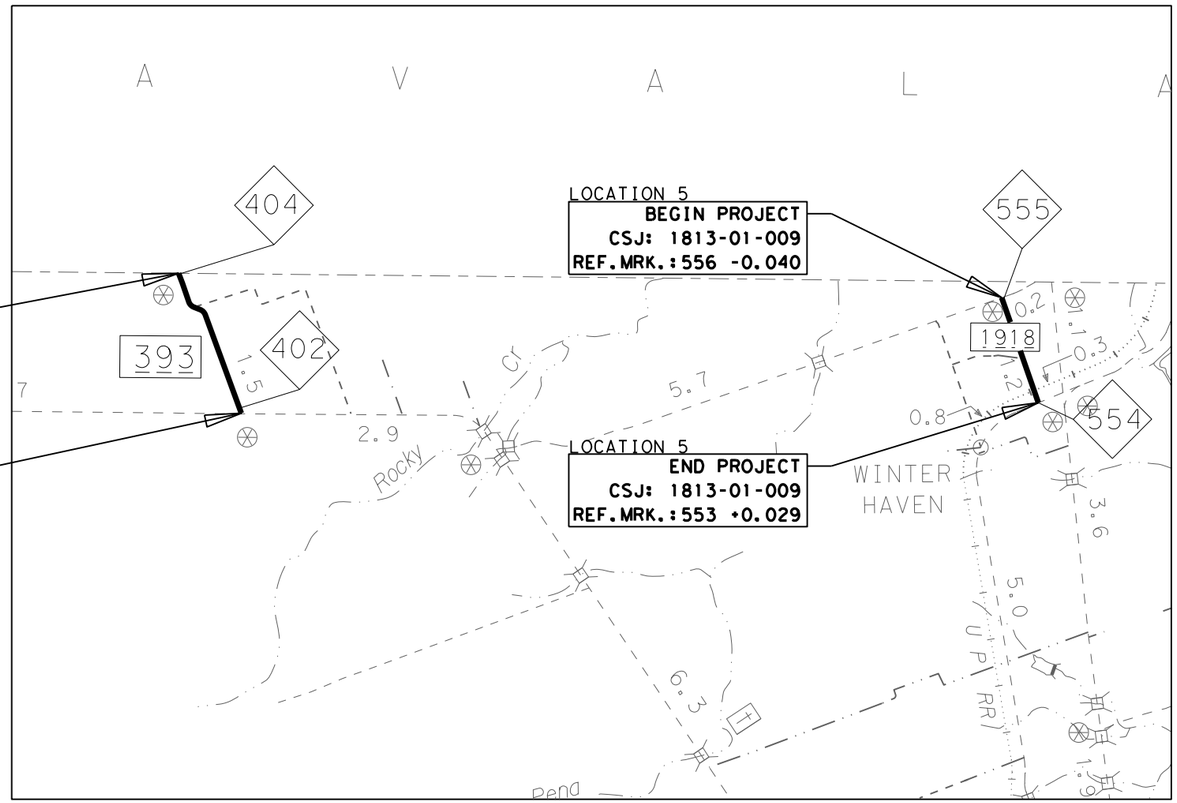
PROJECT LOCATION REFERENCE

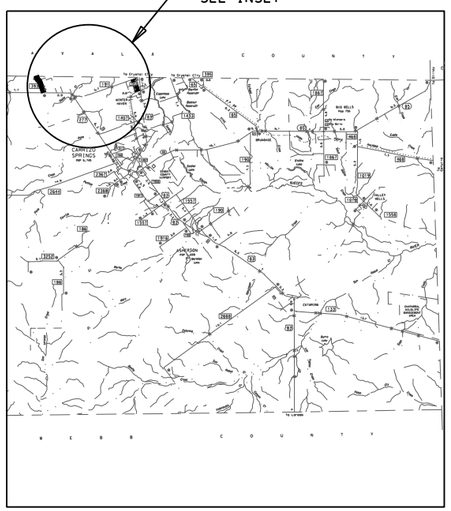
DN: SP	DW: SP	STATE	SHEET NUMBER				SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 1 OF 1				
FED.RD. DIV.NO.	STATE DIST.NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	
6	22	LA SALLE	0017	08	114	IH 35	3

LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
2	FM 393	22-254-0-0878-01-008	CULVERT	25

LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
5	US 1918	22-064-0-0037-05-057	CULVERT	27

NOTES:
REFER TO "PROJECT LOCATION REFERENCE" SHEET FOR PROJECT LIMITS NOT SHOWN.





DIMMIT COUNTY MAP
NOT TO SCALE

N

DIMMIT
COUNTY

STATE OF TEXAS
LUIS G. URBINA
117019
LICENSED PROFESSIONAL ENGINEER

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6/28/2021

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TEXAS DEPARTMENT OF TRANSPORTATION ®

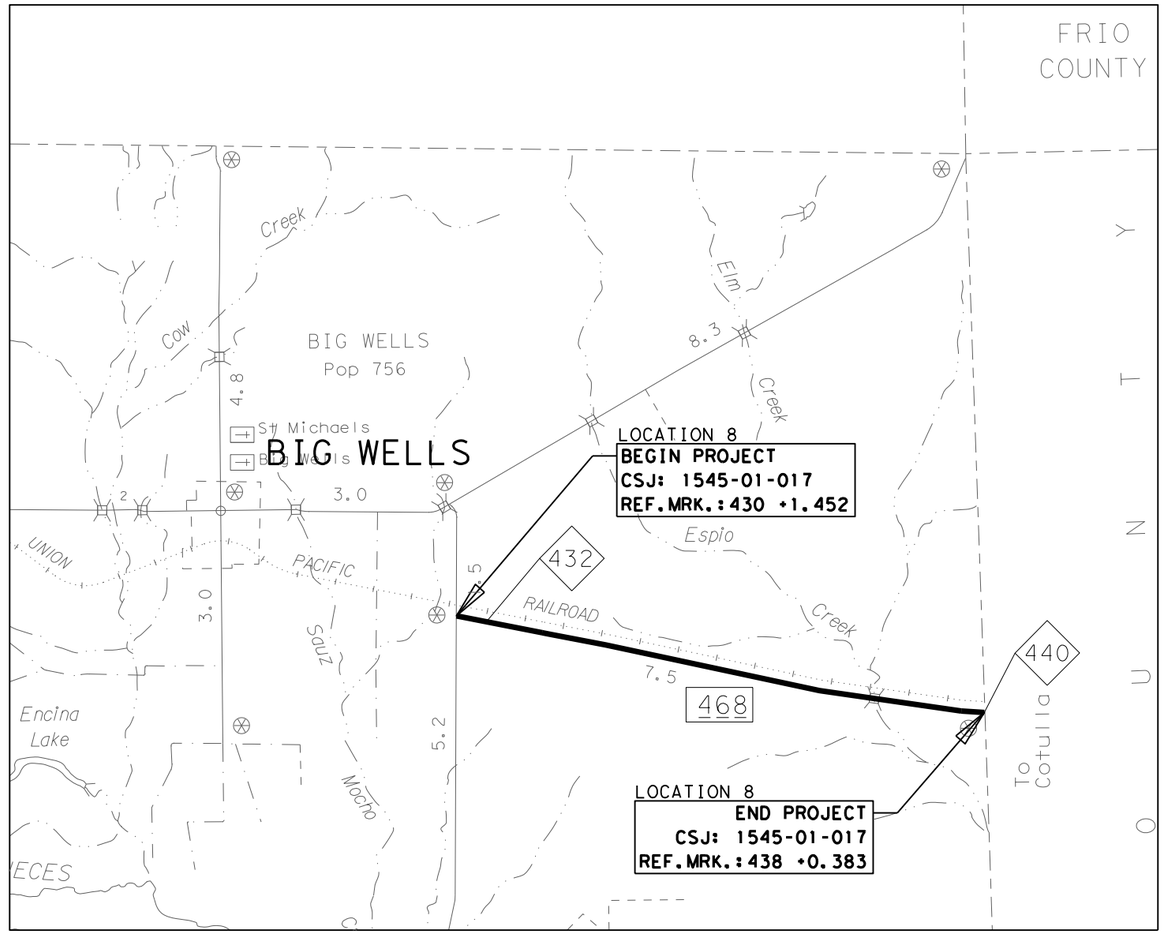
LOCATION MAP (DIMMIT)

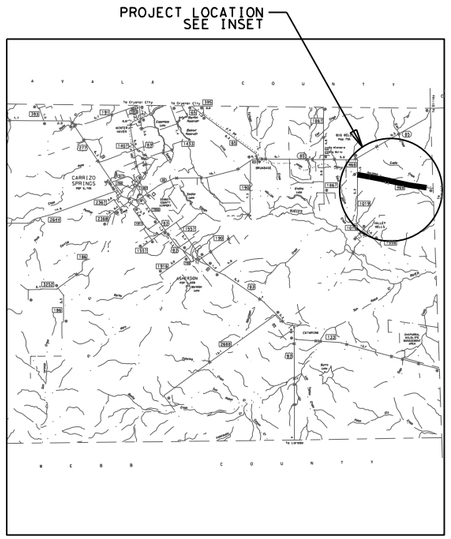
DN: SP	DN: SP	STATE	SHEET NUMBER			SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 1 OF 6			
FED. RD. DIV. NO.	STATE DIST. NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.
6	22	LA SALLE	0017	08	114	IH 35

4

NOTES:
REFER TO "PROJECT LOCATION REFERENCE" SHEET FOR PROJECT LIMITS NOT SHOWN.

LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
8	FM 468	22-064-0-1545-01-001	SPAN	100





DIMMIT COUNTY MAP
NOT TO SCALE

STATE OF TEXAS
LUIS G. URBINA
117019
LICENSED PROFESSIONAL ENGINEER

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TEXAS DEPARTMENT OF TRANSPORTATION ®

LOCATION MAP (DIMMIT)

DN: SP	DW: SP	STATE	SHEET NUMBER				SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 2 OF 6				
FED.RD. DIV.NO.	STATE DIST.NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	
6	22	LA SALLE	0017	08	114	IH 35	5

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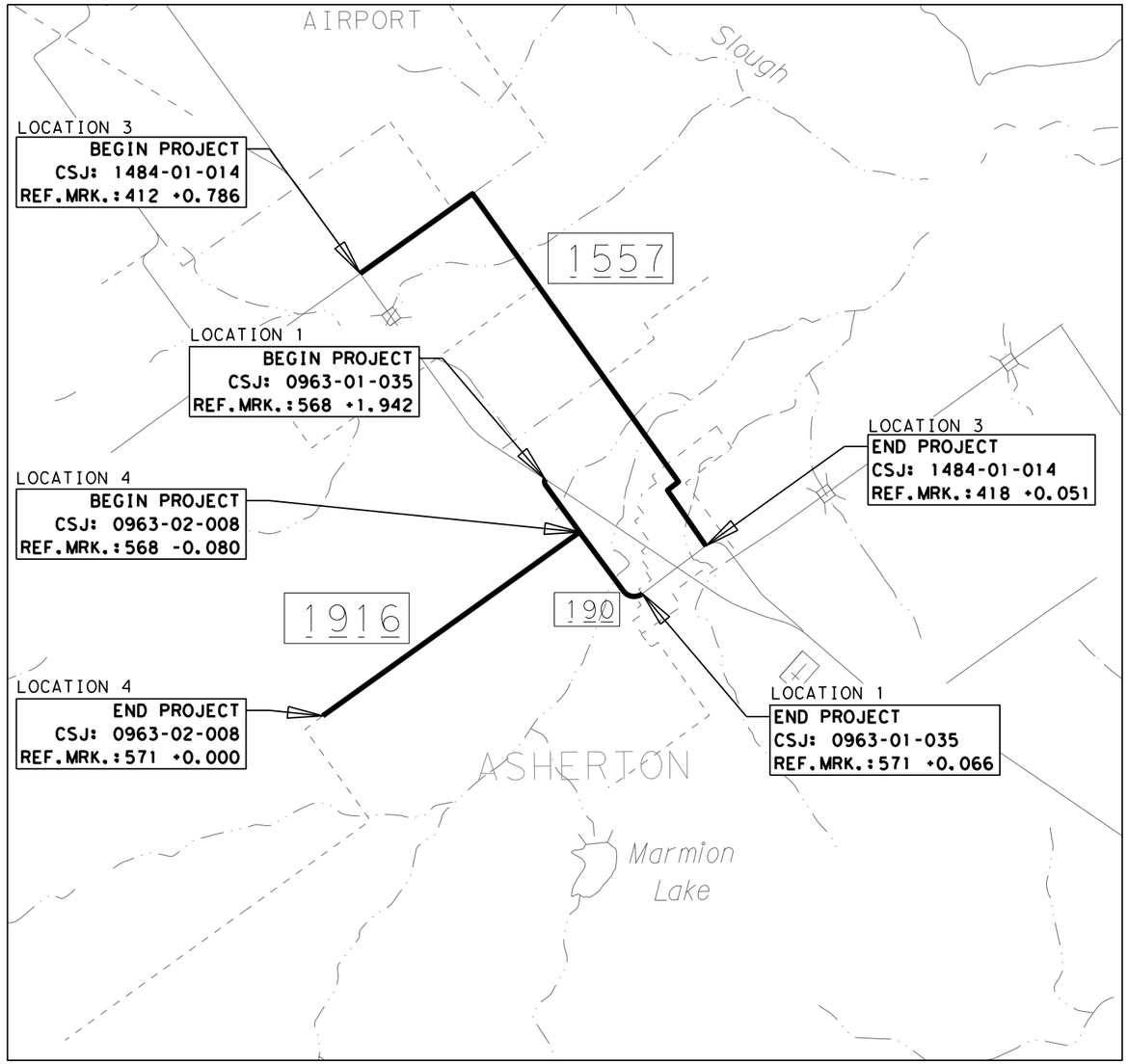
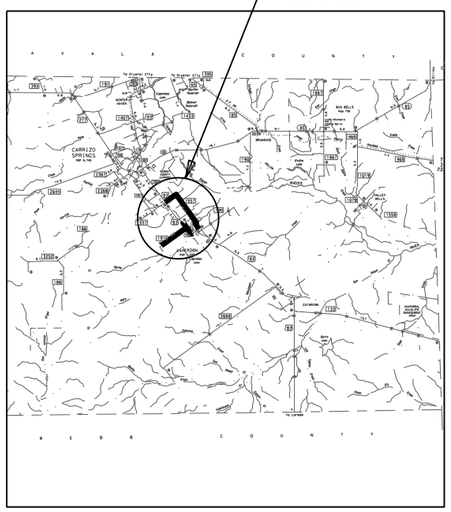
LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
1	US 83	22-064-0-0037-06-065	CULVERT	49
1	US 83	22-064-0-0037-06-066	SPAN	408
1	US 83	22-064-0-0037-06-067	CULVERT	86
1	US 83	22-064-0-0037-06-068	CULVERT	74
1	FM 190	22-064-0-0963-01-011	CULVERT	64
1	FM 190	22-064-0-0963-01-014	SPAN	180
1	FM 190	22-064-0-0963-01-015	SPAN	80
1	FM 190	22-064-0-0963-01-016	SPAN	140
1	FM 1557	22-064-0-1484-01-001	CULVERT	64

LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
3	FM 1557	22-064-0-0037-06-063	CULVERT	63
3	FM 1557	22-064-0-0037-06-064	CULVERT	63
3	FM 1557	22-064-0-0037-06-065	SPAN	49
3	FM 1557	22-064-0-0037-06-066	CULVERT	408
3	FM 1557	22-064-0-0037-06-067	CULVERT	86
3	FM 1557	22-064-0-0037-06-068	CULVERT	74
3	FM 1557	22-064-0-0963-01-011	CULVERT	64
3	FM 1557	22-064-0-0963-01-014	SPAN	180
3	FM 1557	22-064-0-0963-01-015	SPAN	80
3	FM 1557	22-064-0-0963-01-016	SPAN	140
3	FM 1557	22-064-0-1484-01-001	CULVERT	64

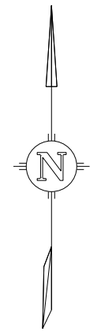
LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
4	FM1916	22-064-0-0037-06-065	SPAN	49
4	FM1916	22-064-0-0037-06-066	CULVERT	408
4	FM1916	22-064-0-0037-06-067	CULVERT	86
4	FM1916	22-064-0-0963-01-014	SPAN	180
4	FM1916	22-064-0-0963-01-015	SPAN	80
4	FM1916	22-064-0-0963-01-016	SPAN	140
4	FM1916	22-064-0-1484-01-001	CULVERT	64

NOTES:
REFER TO "PROJECT LOCATION REFERENCE" SHEET FOR PROJECT LIMITS NOT SHOWN.





DIMMIT COUNTY MAP
NOT TO SCALE



DIMMIT
COUNTY

STATE OF TEXAS
LUIS G. URBINA
117019
LICENSED
PROFESSIONAL ENGINEER

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6/28/2021

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TEXAS DEPARTMENT OF TRANSPORTATION ®

LOCATION MAP (DIMMIT)

DN: SP	DW: SP	STATE	SHEET NUMBER	SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 3 OF 6	

FED. RD. DIV. NO.	STATE DIST. NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	
6	22	LA SALLE	0017	08	114	IH 35	6

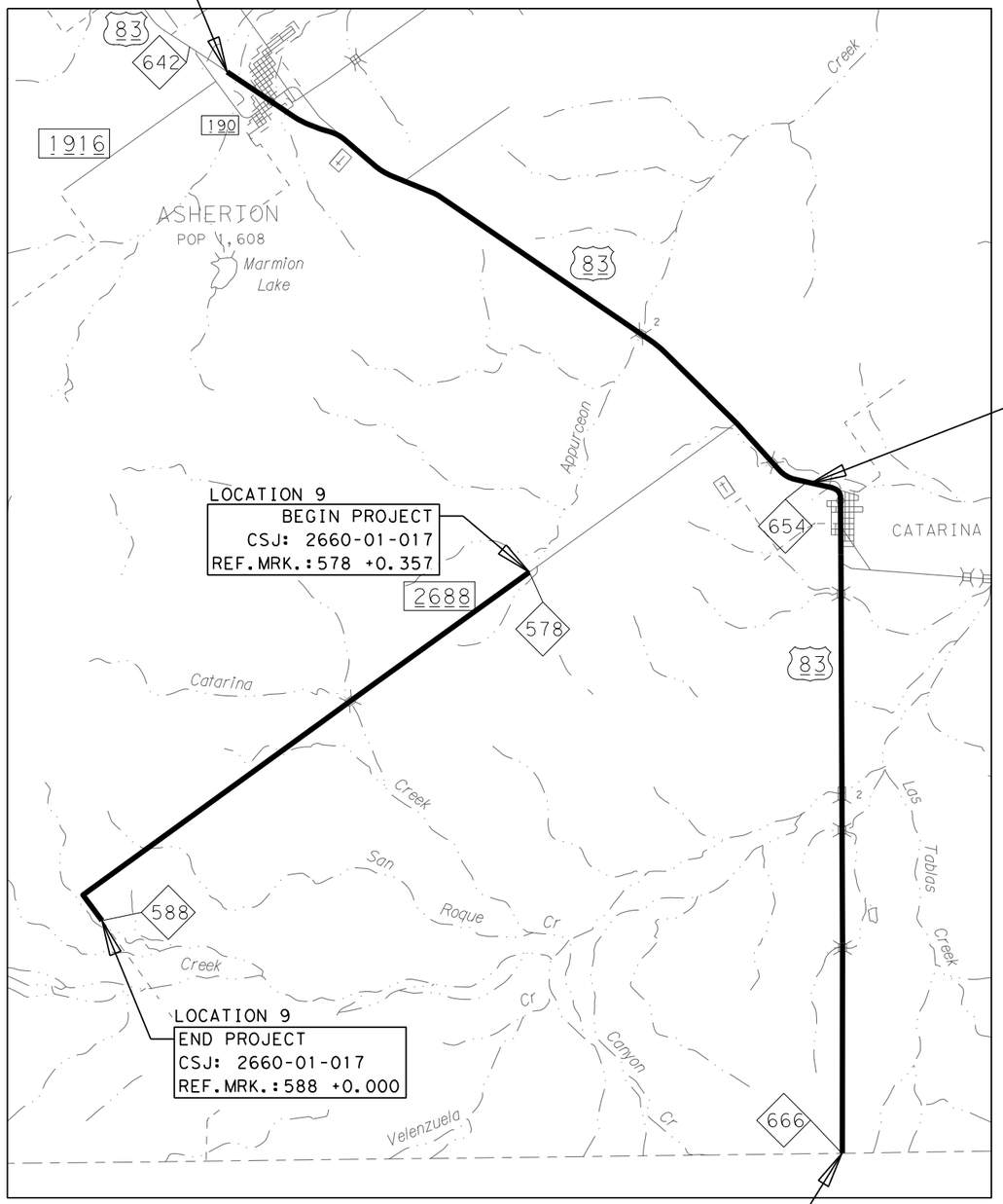
LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
6	US 83	22-064-0-0037-06-065	MBC	49
6	US 83	22-064-0-0037-06-066	SPAN	408
6	US 83	22-064-0-0037-06-067	MBC	86
6	US 83	22-064-0-0037-06-068	MBC	74
6	US 83	22-064-0-0037-06-069	SPAN	200
6	US 83	22-064-0-0037-06-070	MBC	38
6	US 83	22-064-0-0037-06-071	MBC	31
6	US 83	22-064-0-0037-06-128	MBC	30
6	US 83	22-064-0-0963-01-011	MBC	64
6	US 83	22-064-0-0963-01-014	SPAN	180
6	US 83	22-064-0-0963-01-015	SPAN	80
6	US 83	22-064-0-0963-01-016	SPAN	140
6	US 83	22-064-0-1484-01-001	MBC	64

LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
7	US 83	22-064-0-0037-06-070	MBC	38
7	US 83	22-064-0-0037-08-027	MBC	43
7	US 83	22-064-0-0037-08-028	MBC	60
7	US 83	22-064-0-0037-08-029	DECK	949
7	US 83	22-064-0-0037-08-072	MBC	58
7	US 83	22-064-0-0037-08-073	MBC	35
7	US 83	22-064-0-0037-08-127	MBC	31

LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
9	FM 2688	22-064-0-0037-06-070	MBC	38
9	FM 2688	22-064-0-0037-06-128	MBC	30
9	FM 2688	22-064-0-2660-01-001	MBC	21

NOTES:
REFER TO "PROJECT LOCATION REFERENCE" SHEET FOR PROJECT LIMITS NOT SHOWN.

LOCATION 6
BEGIN PROJECT
CSJ: 0037-06-108
REF.MRK.:642 +0.687

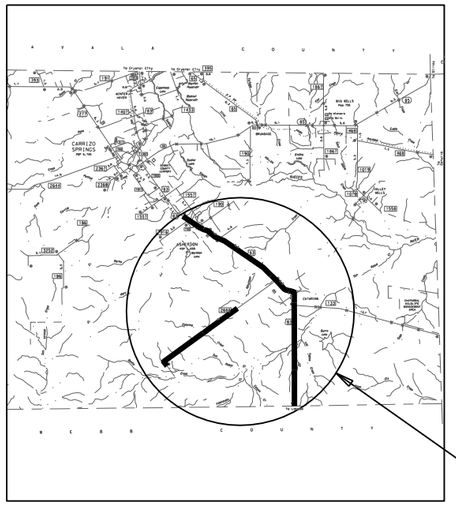


LOCATION 6 AND 7
END PROJECT
CSJ: 0037-06-108
REF.MRK.:654 +0.264
BEGIN PROJECT
CSJ: 0037-08-044
REF.MRK.:654 +0.264

LOCATION 9
BEGIN PROJECT
CSJ: 2660-01-017
REF.MRK.:578 +0.357

LOCATION 9
END PROJECT
CSJ: 2660-01-017
REF.MRK.:588 +0.000

LOCATION 7
END PROJECT
CSJ: 0037-08-044
REF.MRK.:666 +0.110



DIMMIT COUNTY MAP
NOT TO SCALE

N

DIMMIT COUNTY

STATE OF TEXAS
LUIS G. URBINA
117019
LICENSED
PROFESSIONAL ENGINEER

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TEXAS DEPARTMENT OF TRANSPORTATION ®
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LOCATION MAP (DIMMIT)

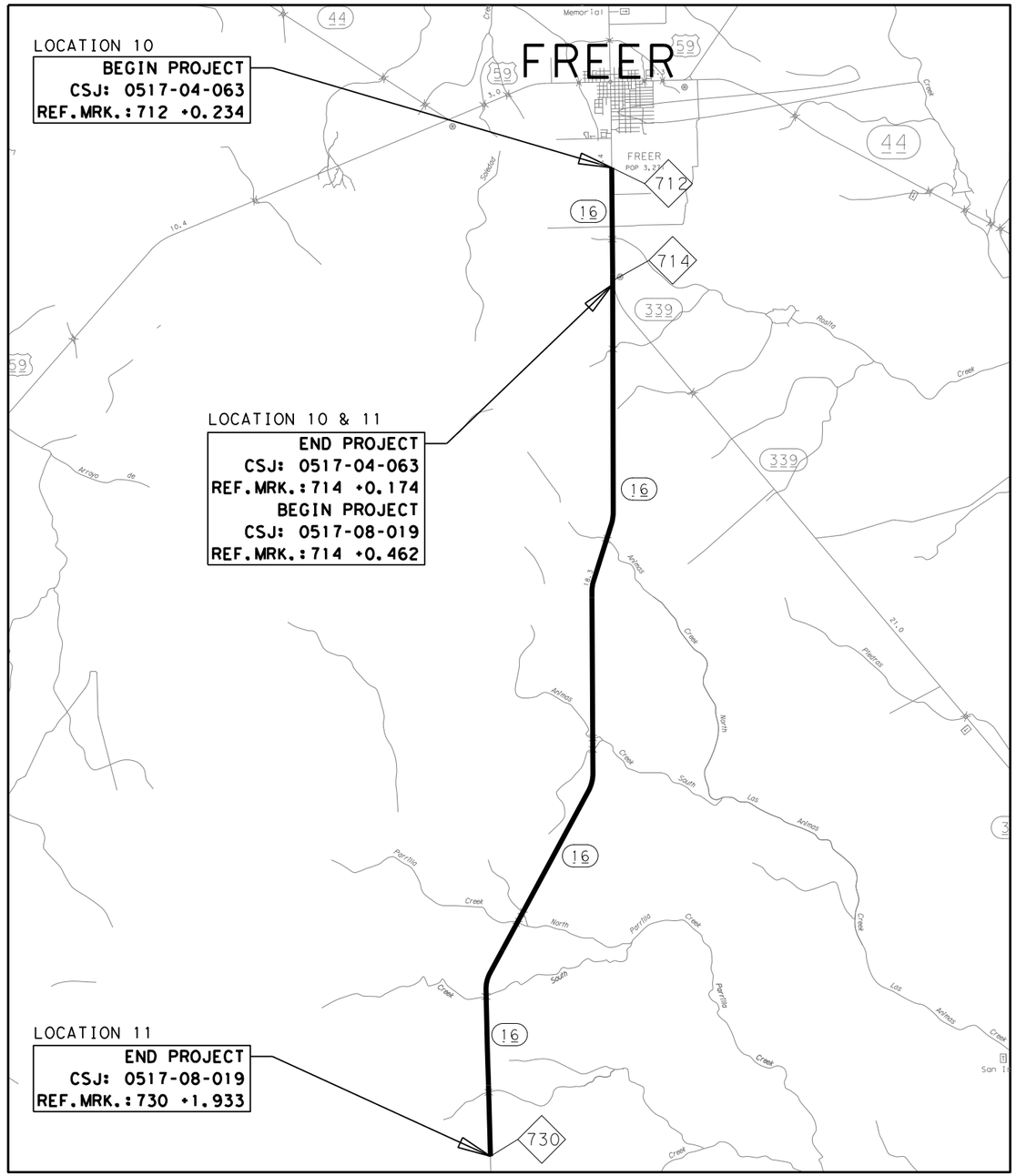
DN: SP	DW: SP	STATE	SHEET NUMBER			SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 4 OF 6			
FED.RD. DIV.NO.	STATE DIST.NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	7
6	22	LA SALLE	0017	08	114	IH 35	

6/28/2021 SPACHICA c:\txdot\pw\online\txdot5\salma.pachicano\d0548125\SH161ocmap*dimmit.dgn

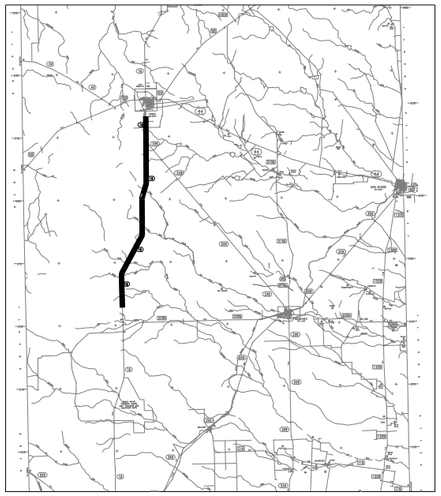
LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
10	SH 16	22-067-0-0517-04-104	MBC	23

LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
11	SH16	22-067-0-0517-08-077	MBC	26
11	SH16	22-067-0-0517-08-078	MBC	39
11	SH16	22-067-0-0517-08-079	MBC	75
11	SH16	22-067-0-0517-08-080	MBC	22
11	SH16	22-067-0-0517-08-081	MBC	30
11	SH16	22-067-0-0517-08-082	MBC	43
11	SH16	22-067-0-0517-08-083	MBC	62
11	SH16	22-067-0-0517-08-084	MBC	44
11	SH16	22-067-0-0517-08-085	MBC	26
11	SH16	22-067-0-0517-08-086	MBC	49
11	SH16	22-067-0-0517-08-087	MBC	32

NOTES:
REFER TO "PROJECT LOCATION REFERENCE" SHEET FOR PROJECT LIMITS NOT SHOWN.



PROJECT LOCATION



DUVAL COUNTY MAP
NOT TO SCALE

DUVAL
COUNTY

STATE OF TEXAS
LUIS G. URBINA
117019
LICENSED PROFESSIONAL ENGINEER

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6/28/2021

NOT TO SCALE

LOCATION MAP (DUVAL)

DN: SP	DW: SP	STATE	SHEET NUMBER				SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 5 OF 6				
FED.RD. DIV.NO.	STATE DIST.NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	
6	22	LA SALLE	0017	08	114	IH 35	8

6/28/2021 SPACHICA c:\txdot\pw\online\txdot5\salma.pachicano\d0548125\SH16locmap*duval.dgn

LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
12	FM 469	22-142-0-0852-01-003	MBC	44
12	FM 469	22-142-0-0852-01-004	MBC	63

LOC. #	HWY	PSN #	TYPE	LENGTH (FT)
15	IH35 EFR	22-142-0-0017-08-030	SPAN	99
15	IH35 EFR	22-142-0-0017-08-131	SPAN	74
15	IH35 EFR	22-142-0-0017-08-148	MBC	34
15	IH35 EFR	22-142-0-0017-08-149	MBC	40
15	IH35 EFR	22-142-0-0017-08-150	MBC	74
15	IH35 EFR	22-142-0-0017-08-151	MBC	34
15	IH35 EFR	22-142-0-0017-08-395	SPAN	135

NOTES:
NO BRIDGES ON FM 624
LOCATION 13 AND LOCATION 14

REFER TO "PROJECT LOCATION REFERENCE" SHEET FOR PROJECT LIMITS NOT SHOWN.

LOCATION 15
END PROJECT
CSJ: 0017-08-114
REF.MRK.: 82+0.445

LOCATION 12
BEGIN PROJECT
CSJ: 0852-01-030
REF.MRK.: 460+0.048

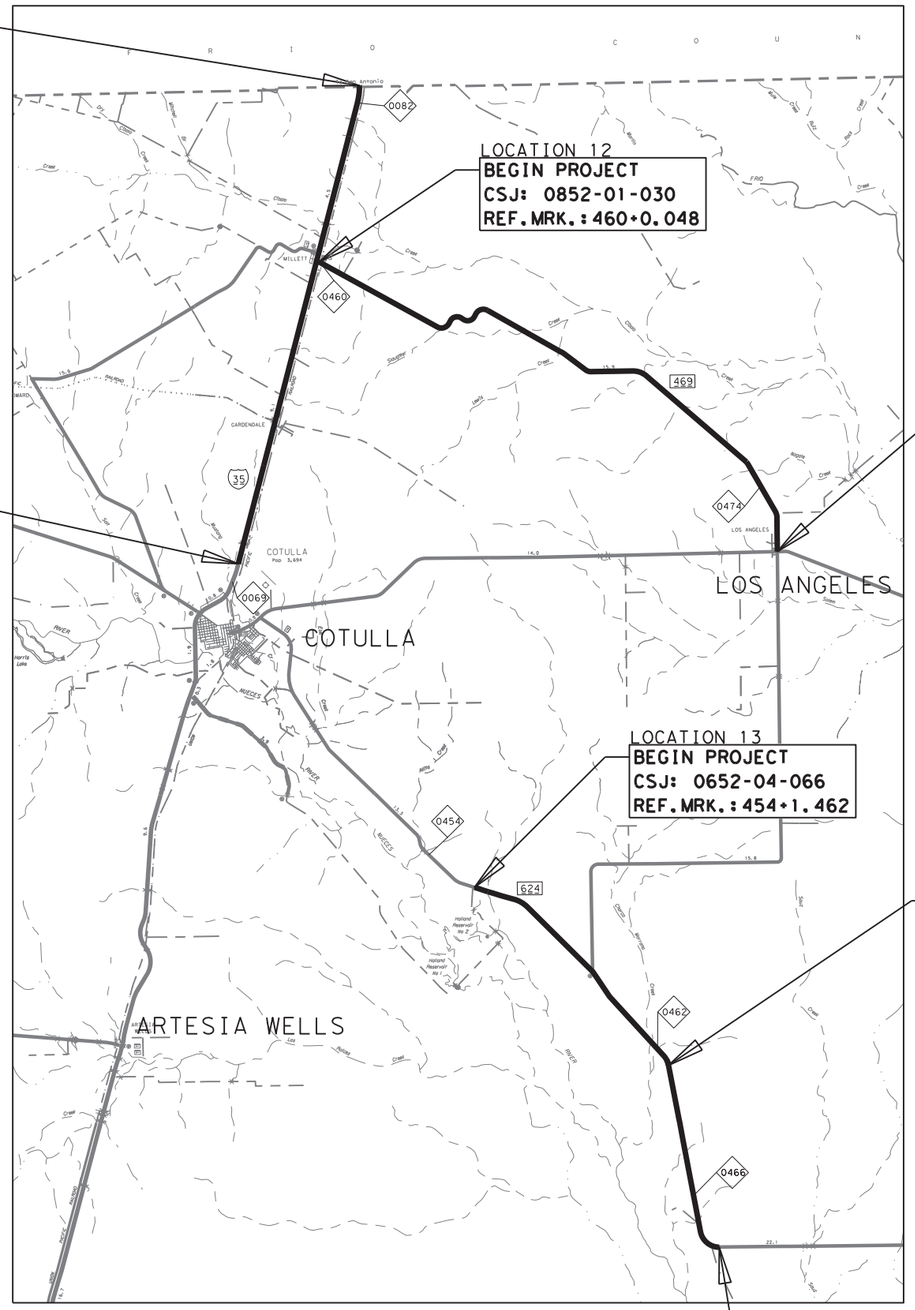
LOCATION 12
END PROJECT
CSJ: 0852-01-030
REF.MRK.: 474+1.811

LOCATION 15
BEGIN PROJECT
CSJ: 0017-08-114
REF.MRK.: 69+0.528

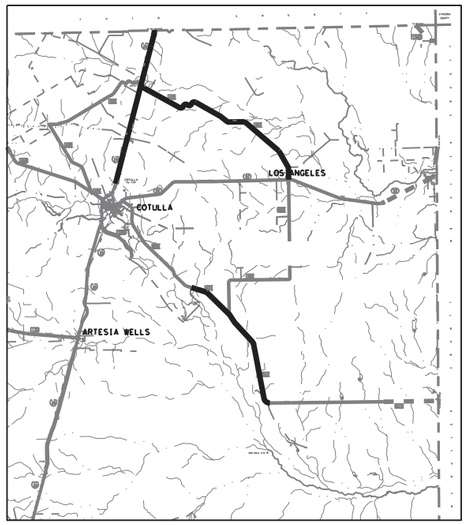
LOCATION 13
BEGIN PROJECT
CSJ: 0652-04-066
REF.MRK.: 454+1.462

LOCATION 13 & 14
END PROJECT
CSJ: 0652-04-066
REF.MRK.: 462+0.513
BEGIN PROJECT
CSJ: 0652-05-020
REF.MRK.: 462+0.514

LOCATION 14
END PROJECT
CSJ: 0652-05-020
REF.MRK.: 466+1.702



PROJECT LOCATION



LA SALLE COUNTY MAP
NOT TO SCALE

N

LA SALLE
COUNTY

STATE OF TEXAS
LUIS G. URBINA
117019
LICENSED
PROFESSIONAL ENGINEER

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DocuSigned by:
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TEXAS DEPARTMENT OF TRANSPORTATION ®
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LOCATION MAP (LA SALLE)

DN: SP	DW: SP	STATE	SHEET NUMBER				SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 6 OF 6				
FED. RD. DIV. NO.	STATE DIST. NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	
6	22	LA SALLE	0017	08	114	IH 35	9

7/2/2021 SPACHICA c:\txdot\pw*online\txdot5\salma.pachicano\d0548125\SH16locmap*laSalle.dgn

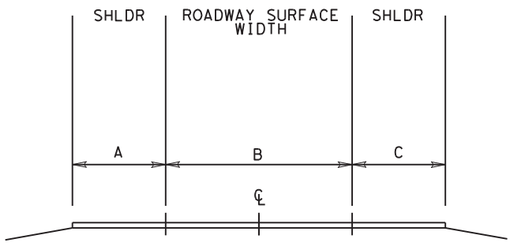
SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
4	12	24	12	4	32	9,884	1	LOC.	1	FM0190	DIMMIT	PB	4S	0.35	110	2780.00
CONCRETE TO REMAIN																180.00
4	12	24	12	4	32	2,987	1	LOC.	1	FM0190	DIMMIT	PB	4S	0.35	110	840.00
CONCRETE TO REMAIN																130.00
4	12	24	12	4	32	1,102	1	LOC.	1	FM0190	DIMMIT	PB	4S	0.35	110	310.00
CONCRETE TO REMAIN																220.00
4	12	24	12	4	32	10,650	1	LOC.	1	FM0190	DIMMIT	PB	4S	0.35	110	2995.36
TOTAL						24,624										7455.4

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
4	12	24	12	4	32	30,525	1	LOC.	2	FM0393	DIMMIT	PB	3S	0.41	90	8585.28
TOTAL						30,525										8585.3

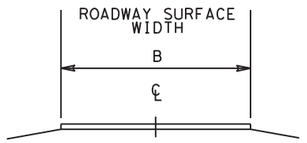
SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
2	12	24	12	2	28	69,176	1	LOC.	3	FM1557	DIMMIT	PB	3S	0.41	90	22235
0	12	24	12	0	24	12,641	2	LOC.	3	FM1557	DIMMIT	PB	4S	0.35	110	4740.52
TOTAL						81,817										26975.5

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
4	12	24	12	4	32	55,907	1	LOC.	4	FM1916	DIMMIT	PB	3S	0.41	90	15723.84
TOTAL						55,907										15723.8

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
0	12	24	12	0	24	16,840	2	LOC.	5	FM1918	DIMMIT	PB	3S	0.41	90	6314.88
TOTAL						16,840										6314.9



TYPICAL SECTION No. 1



TYPICAL SECTION No. 2

NOTES:

-APPLICATION RATES NOTED IN PLANS ARE FOR BIDDING AND ESTIMATION PURPOSES ONLY. ACTUAL APPLICATION RATES SHALL BE DETERMINED AND ADJUSTED AS NECESSARY.

RATES OF APPLICATION

REFER TO TABLE FOR ASPHALT BINDER AND AGGREGATE PRODUCTION RATES.

STATE OF TEXAS
LUIS G. URBINA
117019
LICENSED PROFESSIONAL ENGINEER

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TEXAS DEPARTMENT OF TRANSPORTATION ®

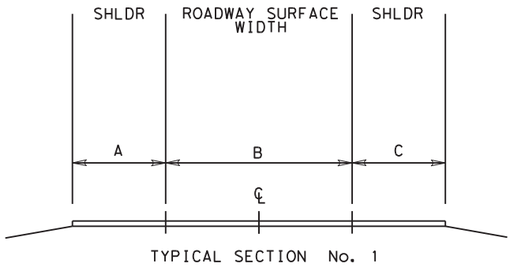
SEAL COAT TYPICAL SECTIONS

DN: SP	DW: SP	STATE	SHEET NUMBER	SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 1 OF 4	

FED. RD. DIV. NO.	STATE DIST. NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	
6	22	LA SALLE	0017	08	114	IH 35	10

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
10	12	24	12	10	44	10,335	1	LOC.	6	US0083	DIMMIT	PD	3	0.41	90	2114.00
10	20	40	20	10	60	24,440	1	LOC.	6	US0083	DIMMIT	PD	3	0.41	90	3666.00
10	12	24	12	10	44	85,966	1	LOC.	6	US0083	DIMMIT	PD	3	0.41	90	17584.00
6	24	48	24	6	60	65,067	1	LOC.	6	US0083	DIMMIT	PD	3	0.41	90	9760.00
10	12	24	12	10	44	56,789	1	LOC.	6	US0083	DIMMIT	PD	3	0.41	90	11616.00
10	20	40	20	10	60	16,667	1	LOC.	6	US0083	DIMMIT	PD	3	0.41	90	2500.00
2	30	60	30	2	64	10,489	1	LOC.	6	US0083	DIMMIT	PD	3	0.41	90	1475.00
10	12	24	12	10	44	57,788	1	LOC.	6	US0083	DIMMIT	PD	3	0.41	90	11820.20
TOTAL						327,541										60535.2

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
10	12	24	12	10	44	3,007	1	LOC.	7	US0083	DIMMIT	PD	3	0.41	90	615.00
10	16	32	16	10	52	54,912	1	LOC.	7	US0083	DIMMIT	PD	3	0.41	90	9504.00
6	33	66	33	6	78	10,227	1	LOC.	7	US0083	DIMMIT	PD	3	0.41	90	1180.00
4	24	48	24	4	56	4,076	1	LOC.	7	US0083	DIMMIT	PD	3	0.41	90	655.00
4	18	36	18	10	50	7,000	1	LOC.	7	US0083	DIMMIT	PD	3	0.41	90	1260.00
10	12	24	12	10	44	88,293	1	LOC.	7	US0083	DIMMIT	PD	3	0.41	90	18060.00
4	18	36	18	10	50	15,000	1	LOC.	7	US0083	DIMMIT	PD	3	0.41	90	2700.00
4	24	48	24	4	56	25,853	1	LOC.	7	US0083	DIMMIT	PD	3	0.41	90	4155.00
4	24	48	24	12	64	21,120	1	LOC.	7	US0083	DIMMIT	PD	3	0.41	90	2970.00
10	12	24	12	10	44	16,353	1	LOC.	7	US0083	DIMMIT	PD	3	0.41	90	3345.00
4	18	36	18	10	50	56,333	1	LOC.	7	US0083	DIMMIT	PD	3	0.41	90	10140.00
10	12	24	12	10	44	7,979	1	LOC.	7	US0083	DIMMIT	PD	3	0.41	90	1632.16
TOTAL						310,154										56216.2



TYPICAL SECTION No. 1

NOTES:

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RATES OF APPLICATION

REFER TO TABLE FOR ASPHALT BINDER AND AGGREGATE PRODUCTION RATES.

STATE OF TEXAS
LUIS G. URBINA
117019
LICENSED PROFESSIONAL ENGINEER

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7/1/2021

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SEAL COAT TYPICAL SECTIONS

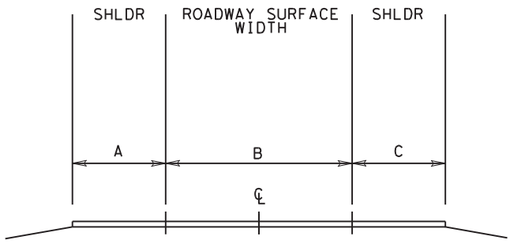
DN: SP	CK: LU	DW: SP	CK: LU	STATE	SHEET NUMBER			SHEET NO.
				TEXAS	SHEET 2 OF 4			
FED. RD. DIV. NO.	STATE DIST. NO.	COUNTY		CONTROL	SECTION	JOB	HIGHWAY NO.	11
6	22	LA SALLE		0017	08	114	IH 35	

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
12	12	24	12	10	46	4,166	1	LOC.	8	FM0468	DIMMIT	PD	3	0.41	90	815
4	12	24	12	4	32	124,723	1	LOC.	8	FM0468	DIMMIT	PD	3	0.41	90	35078.44
TOTAL						128,889										35893.4

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
2	12	24	12	2	28	143,963	1	LOC.	9	FM2688	DIMMIT	PD	3	0.41	90	46273.92
TOTAL						143,963										46273.9

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
10	12	24	12	10	44	7,946	1	LOC.	10	SH0016	DUVAL	PB	3S	0.38	90	1625.42
6	12	24	12	6	36	34,661	1	LOC.	10	SH0016	DUVAL	PB	3S	0.38	90	8665.3
TOTAL						42,608										10290.7

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
6	12	24	12	6	36	368,650	1	LOC.	11	SH0016	DUVAL	PB	3S	0.38	90	92162.40
TOTAL						368,650										92162.4



TYPICAL SECTION No. 1

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TEXAS DEPARTMENT OF TRANSPORTATION ®

SEAL COAT TYPICAL SECTIONS

DN: SP	DW: SP	STATE	SHEET NUMBER			SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 3 OF 4			
FED. RD. DIV. NO.	STATE DIST. NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.
6	22	LA SALLE	0017	08	114	IH 35

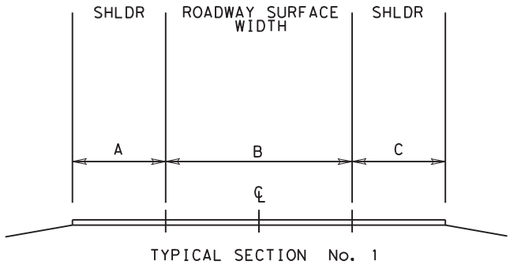
12

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
4	12	24	12	4	32	297,163	1	LOC.	12	FM0469	LA SALLE	PD	3	0.41	90	83577.12
TOTAL						297,163										83577.1

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
4	12	24	12	4	32	132,990	1	LOC.	13	FM0624	LA SALLE	PD	3	0.41	90	37403.52
TOTAL						132,990										37403.5

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
4	12	24	12	4	32	97,340	1	LOC.	14	FM0624	LA SALLE	PD	3	0.41	90	27376.80
TOTAL						97,340										27376.8

SHLDR WIDTH	ROADWAY WIDTH (TRAVEL LANES)			SHLDR WIDTH	SURFACE WIDTH	SURFACE AREA	DESCRIPTION									
A	B			C			TYPICAL SECTION	LOCATION NUMBER		HIGHWAY	COUNTY	TYPE	GRADE	ASPH RATE (GAL/SY)	AGGR RATE (SY/CY)	APPROX. FT.
LT	LT	TOTAL	RT	RT												
FT	FT	FT	FT	FT	FT	SY										
4	12	24	12	4	32	16,356	1	LOC.	15	IH0035	LA SALLE	PB	3	0.41	90	4600.00
CONCRETE TO REMAIN																1040.00
4	12	24	12	4	32	221,804	1	LOC.	15	IH0035	LA SALLE	PB	3	0.41	90	62382.24
TOTAL						238,159										66982.2



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SEAL COAT TYPICAL SECTIONS

DN: SP	DW: SP	STATE	SHEET NUMBER	SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 4 OF 4	

FED. RD. DIV. NO.	STATE DIST. NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	
6	22	LA SALLE	0017	08	114	IH 35	13

7/1/2021 SPACHICA c:\txdot\pw*online\txdot5\salma.pachicano\d0548130\SH16typsec.dgn

GENERAL NOTES:

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

Antonio Reyna – Antonio.Reyna1@txdot.gov
Alberto Chavez – Alberto.Chavez@txdot.gov

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

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

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

Item 5 - Control of the Work

Reference all existing striping and pavement markings in a manner which allow the markings to be re-established. Place extra reference (if needed) to ensure that the markings (lane lines, edge lines, ramp gores, etc.) are in-line with signs on OSB's, TMS arrows, etc.

Item 7 - Legal Relations and Responsibilities

No significant traffic generator events identified.

Jurisdictional Waters of the United States and Project Specific Locations (PSL) Coordination - This project requires permit(s) with environmental resource agencies. There is a high probability that environmentally sensitive areas will be encountered on contractor designated project specific locations (PSLS) for the project (including but not limited to haul roads, equipment staging areas, parking areas, etc.).
Requirements for Work within Jurisdictional Waters of the United States:
The department has been authorized to perform work within designated areas of the project under U.S. Army Corps of Engineers (USACE) nationwide permit (NWP) #14 and/or #3a and/or #3b.
The contractor will not initiate activities in a project specific location (PSL) associated with a U.S. Army Corps of Engineers (USACE) permit area (i.e. an area where the USACE has jurisdiction) that has not been previously evaluated

County: La Salle, etc. **Sheet** 14

Highway: IH35 EFR, etc. **Control: 0017-08-114, etc.**

by the USACE as part of the permitting for this project. Such activities include, but are not limited to, haul roads, equipment staging areas, borrow and disposal sites. Associated defined here includes materials delivered to or from the PSL. The permit area includes all waters of the U.S. and their associated wetlands affected by activities associated with this project. Special restrictions may be required for such work in these USACE jurisdictional areas. The contractor will be responsible for any and all consultations with the USACE regarding activities, including PSLs, which have not been previously evaluated by the USACE. The Contractor will provide the department with a copy of all consultation(s) or approval(s) from the USACE prior to initiating activities.

The contractor may proceed with activities in PSLs that do not affect a USACE permit area if a self determination has been made that the PSL is non-jurisdictional or proper USACE clearances have been obtained in jurisdictional areas or have been previously evaluated by the USACE as part of the permit review of this project. The contractor is solely responsible for documenting any determination(s) that their activities do not affect a USACE permit area. The contractor will maintain copies of their determination(s) for review by the department and/or any regulatory agency.

The disturbed area for all project locations in the Contract, and the Contractor project specific locations (PSLs) within 1 mile of the project limits for the Contract, will further establish the authorization requirements for storm water discharges. The Department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction activities shown on the plans. The Contractor is to obtain required authorization from the TCEQ for Contractor PSLs for construction support activities on or off the ROW. When the total area disturbed in the Contract and PSLs within 1 mile of the project limits exceeds 5 acres, the Contractor shall provide a copy of the Contractor Notice of Intent (NOI) for the PSLs to the Engineer and to the local government operating a municipal separate storm sewer system (MS4) if applicable. If the total area of project disturbed areas and PSLs total between 1-acre but less than 5-acres, the Contractor shall post the appropriate Contractor Construction Site Notice for all Contractor PSLs to be in compliance with TCEQ storm water regulations.

In order to expedite the approval process for PSLs or to eliminate or minimize potential impacts to project progress, initiate coordination efforts with the U.S.A.C.E. within 30 days from the date of "authorization to begin work" for all PSLs that are in areas where the USACE has jurisdiction (i.e. USACE permit areas). If this is not done, the contractor waives the right to request any contract time considerations if project progress is impacted and PSL'S approval is still pending.

Requests submitted to the area engineer will be evaluated on this basis, and will require documentation showing substantial early coordination efforts to expedite the approval process as herein stated. The request will include a detailed chronological summary status with dates of coordination activities with the resource agencies, including those occurring after the initial coordination, to be reviewed and confirmed by the district's environmental section.

For PSLs that fall within USACE permit areas, the Contractor must document and coordinate with the USACE, if required, before any excavation hauled from or embankment hauled into a USACE permit area by either (1) or (2) below.

1. Restricted Use of Materials for Previously Evaluated Permit Areas. The Contractor will document both the project specific location (PSL) and their authorization and the Contractor will maintain copies for review by the Department and/or any regulatory agency. When an area within the project limits has been evaluated by the USACE as part of the permit process for this project, then:
   a. Suitable excavation of required material in the areas shown on the plans and cross sections as specified in Item 110 is used for permanent or temporary fill (Item 132, Embankment) within a USACE permit area may be restricted;
   b. Suitable embankment (Item 132) from within the USACE permit area is used as fill within a USACE evaluated area may be restricted; and,
   c. Unsuitable excavation or excess excavation ["Waste"] (Item 110) that is disposed of at an approved location within a USACE evaluated area may be restricted.

2. Contractor Materials from Areas Other than Previously Evaluated Areas. The Contractor will provide the Department with a copy of all USACE coordination or approvals before initiating any activities for an area within the project limits that has not been evaluated by the USACE or for any off right-of-way locations used for the following, but not limited to, haul roads, equipment staging areas, borrow and disposal sites, including:
   a. Item 132, Embankment, used for temporary or permanent fill within a USACE permit area; and,
   b. Unsuitable excavation or excess excavation ["Waste"] (Item 110, Excavation) that is disposed of outside a USACE evaluated area.

Storm Water Regulations Requirements:
The Contractor shall be responsible for (off ROW) PSLs applicable to the TCEQ Construction General Permit (CGP) requirements and will notify the Engineer of the disturbed acreage within one (1) mile of the project limits. The Contractor

County: La Salle, etc. **Sheet** 15

Highway: IH35 EFR, etc. **Control: 0017-08-114, etc.**

shall obtain any required authorization form the TCEQ for any Contractor PSLs for construction support activities on or off ROW.

The total disturbed areas within the ROW are anticipated at less than one (1) acre and/or this project is classified as "surface work" consisting of an asphalt overlay of an existing roadway without shoulder-up disturbances. Due to this type of construction, the project qualifies for exclusion under the *Construction General Permit* (CGP) issued by the Texas Commission on Environmental Quality (TCEQ) on February 15, 2008. However; should the sum of the Engineer's anticipated disturbances and all of the Contractor's (On ROW and off ROW) PSLs equal or exceed the one (1) acre threshold, both TxDOT and the Contractor shall have project responsibilities under the CGP that reverts to non-exclusion status. To insure project compliance with all applicable water quality regulations, the Contractor shall obtain Engineer approval for all non-depicted areas of disturbance that increases the Engineer's initial soil and vegetation disturbed area estimates before associated work operations start.

Item 8 - Prosecution and Progress

No closures will be allowed on the weekends which include the following holidays: January 1, the last Monday in May, July 4, the first Monday in September, the fourth Thursday in November, December 25 and Easter weekend.

The usual open season for application of asphalt is from: April 1st to September 30th, or as approved in writing by the Engineer. The late start date for the project is May 30th to coincide with the end of the asphalt season. The minimum temperature requirements should be followed for the application of asphalt outside these dates.

Failure to complete work within the seal coat season established by the plans will result in liquidated damages as described in Section 8.6, "Failure to Complete Work on Time." This includes any surface treatment work carried over to the next year.

The Engineer may consider extending working days beyond the end of the seal coat season.
Reimbursement for project overhead will not be considered until project completion has extended beyond the original Contract Time.

Item 9 - Measurement and Payment

Coordinate and provide off-duty law enforcement officers with officially marked vehicles (if patrol cruisers are available from the enforcement agency involved) during the following operations: transitioning to a new sequence of construction, lane closures, *and* during a one-way traffic control situation*)*. For payment through TxDOT state force account method, complete the weekly tracking forms 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.

Submit Material on hand (MOH) payment requests at least 5 working days prior to the end of the month for payment on that month's estimate. For out of town MOH submit requests at least 10 working days prior to the end of the month.

Item 302 - Aggregates for Surface Treatments

Previously tested aggregates delivered to the project, which are found to contain excessive quantities of dust (more than 0.5 percent passing the no. 40 sieve) during pre-coating, stockpiling or hauling operations, can be rejected by the Engineer. Use test method TEX-200-F, Part I for testing.

Item 316 – Seal Coat

A pre-placement meeting must be conducted at least 48 hrs prior to seal coat placement.

Allow a minimum 24 hour curing period between surface events (Emulsion to asphaltic surfaces, between surface treatments and/or asphaltic pavement), or as directed in writing by the Engineer.

Addition of baghouse fines will not be permitted in the production of pre-coated material.

The usual open season for application of asphalt is from: April 1st to September 30th, unless otherwise approved in writing by the Engineer. The minimum temperature requirements should be followed for the application of asphalt outside these dates.

Before starting work, provide a sequence of work and estimated progress schedule meeting the requirements of Section 8.5.2, "Progress Schedule."

Failure to complete work within the seal coat season established by the plans will result in liquidated damages as described in Section 8.6, "Failure to Complete Work on Time." This includes any surface treatment work carried over to the next year.

County: La Salle, etc. **Sheet** 16

Highway: IH35 EFR, etc. **Control: 0017-08-114, etc.**

In addition to other asphalt distributor requirements, the asphalt distributor shall be capable of providing a transversely varied asphalt rate. The Contractor shall demonstrate that the distributor can apply an asphalt rate outside the wheel path locations between 22 and 32 percent higher than the asphalt rate being applied in the wheel paths. The contractor's calibration of the distributor will include verification of this capability and a description of the spray bar(s) and nozzles to be used. The percentage difference in asphalt rate provided by each tested spray bar and nozzle arrangement shall be provided to the Engineer. The Engineer will select the pavements where transversely varied asphalt rate is to be provided and will provide this information at the pre-construction meeting.

The estimated application rate noted in the plans is for locations outside the wheel paths and is for estimation purposes only.

Remove vegetation and blade pavement edges before and after seal coat placement.

Use vacuum sweeper in curb and gutter sections.

Item 500 - Mobilization

"Materials-on-Hand" payments will not be considered in determining percentages used to compute mobilization payments.

Item 502 - Barricades, Signs, and Traffic Handling

Designate, as the Contractor Responsible Person (CRP), an English speaking employee on-call nights and weekends (or any other time that work is not in progress) with a local address and telephone number for maintenance of signs and barricades. This employee will be located within one (1) hour of traveling time to the project site. Notify the Engineer in writing of the name, address and telephone number of this employee. Furnish this information to local law enforcement officials.

The time frame for the Contractor to provide properly maintained traffic control devices before they are considered to be in non-compliance with this Item, is 48 hours regardless of the days of the week involved after notification is done in writing by the Engineer.

When advanced warning flashing arrow panel(s) is/are specified, maintain one standby unit in good condition at the job site ready for immediate use is required.

Provide two-way radios in areas where flagmen do not have visual contact with one another or cannot communicate with one another.

Limit lane closures to a maximum of 2 miles. If more than one lane closure location is desired, provide a minimum of a 2 mile passing zone between locations. Provide a separate sign set up for each location.

Ensure equipment not in use, stockpile aggregate, and other working materials are:
A minimum of 30 feet from the edge of the travel lane;
Do not obstruct traffic or sight distance;
Do not interfere with the access from abutting property; or
Do not interfere with roadway drainage.

Erect signs in locations not obstructing the traveling public's view of the normal roadway signing or necessary sight distance at intersections and curves.

During the holiday time frame of December 21st through January 1st, every effort should be taken to ensure that all travel lanes remain open where possible.

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

Item 506 - Temporary Erosion, Sedimentation, and Environmental Controls

It is not anticipated that any erosion, sedimentation, or environmental control devices will be needed on this project. However, in the event that such controls are necessary, the SW3P for this project shall consist of the use of any temporary erosion control measures deemed necessary by the Engineer and as provided under this item. Payment for this work will be determined in accordance with Article 4.4, "Changes in the Work".

Item 510 - One-Way Traffic Control

Item 658 – Delineator and Object Marker Assemblies

County: La Salle, etc. **Sheet** 17

Highway: IH35 EFR, etc. **Control: 0017-08-114, etc.**

Proposed delineators for this project will consist of oval shape tube flexible post with a quick release embedded anchor insert stub only, such as Flexstake Inc. – 650 series or Shur-Tite – SD series or equal flexible drivable delineators.

Item 666 – Reflectorized Pavement Markings

Reflectivity requirements for Type I will be as per Item 666.

Item 6001 - Portable Changeable Message Sign

Provide Two (2) electronic portable changeable message signs as required by the Engineer. Provide backups and keep operational and available on the jobsite at all times during traffic control operations. The electronic portable changeable message signs will be made available for utilization for the entire duration of the project, including all alternative locations.

Item 6185 – Truck Mounted Attenuator (TMA) and Trailer

Provide 2 Truck Mounted Attenuator as required by the Engineer. Provide backup and keep operational and available on the jobsite at all times during traffic control operations. The Truck Mounted Attenuator will be made available for utilization for the entire duration of the project, including all alternative locations.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0017-08-114 **DISTRICT** Laredo **COUNTY** Dimmit, Duval, La Salle

HIGHWAY FM 1557, FM 190, FM 1916, FM 1918, FM 2688, FM 393, FM 468, FM 469, FM 624, IH 35, SH 16, US 83

			CONTROL SECTION JOB		**0017-08-114**		**0037-06-108**		**0037-08-044**		**0517-04-063**		**0517-08-019**		**0652-04-066**	
			PROJECT ID		**A00177894**		**A00177916**		**A00177910**		**A00123508**		**A00120503**		**A00177903**	
			COUNTY		**La Salle**		**Dimmit**		**Dimmit**		**Duval**		**Duval**		**La Salle**	
			HIGHWAY		**IH 35**		**US 83**		**US 83**		**SH 16**		**SH 16**		**FM 624**	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6015	ASPH (AC-15P)	GAL	99,161.000		134,292.000		127,163.000		16,191.000		140,087.000		54,526.000	
	316-6221	AGGR(TY-PB GR-3S SAC-B)	CY							473.000		4,096.000			
	316-6222	AGGR(TY-PB GR-3 SAC-B)	CY	2,687.000											
	316-6223	AGGR(TY-PB GR-4S SAC-B)	CY												
	316-6238	AGGR(TY-PD GR-3 SAC-B)	CY			3,639.000		3,446.000						1,478.000	
	438-6001	CLEANING AND SEALING EXISTING JOINTS	LF			943.500									
	500-6001	MOBILIZATION	LS	1.000											
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	11.000											
	510-6002	ONE-WAY TRAF CONT (PILOT CAR)	HR	130.000		130.000		130.000		40.000		240.000		80.000	
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA			1,740.000		2,683.000							
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	6,429.000		5,617.000		6,789.000		2,410.000		11,280.000		4,752.000	
	666-6006	REFL PAV MRK TY I (W)4"(DOT)(100MIL)	LF			760.000		2,180.000							
	666-6030	REFL PAV MRK TY I (W)8"(DOT)(100MIL)	LF			175.000									
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF			2,255.000		4,247.000							
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	10.000						26.000					
	666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA			16.000		11.000		4.000					
	666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA			7.000		7.000		2.000					
	666-6093	REFL PAV MRK TY I (W)(RR XING)(100MIL)	EA												
	666-6224	PAVEMENT SEALER 4"	LF	206,101.000		187,816.000		232,288.000		58,516.000		346,663.000		148,194.000	
	666-6283	REF PROF PAV MRK TY I(W)4"(SLD)(090MIL)	LF	148,320.000		112,640.000		132,300.000		37,700.000		228,500.000		104,940.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	43,665.000		55,940.000		74,437.000		15,350.000		96,740.000		32,915.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF	14,116.000		10,246.000		10,185.000		5,466.000		21,423.000		10,339.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF			5,800.000		8,939.000							
	672-6007	REFL PAV MRKR TY I-C	EA			421.000		710.000		120.000					
	672-6009	REFL PAV MRKR TY II-A-A	EA	1,268.000		1,068.000		1,462.000		477.000		2,303.000		935.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF			168,580.000		206,737.000							
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2.000											
	6056-6001	PREFORMED IN-LANE(TRANS) RUMBLE STRIP	LF			40.000									
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF	6,029.000		3,780.000		3,390.000		668.000		441.000		3,836.000	
	6185-6002	TMA (STATIONARY)	DAY	12.000		13.000		13.000		4.000		24.000		8.000	
	6185-6003	TMA (MOBILE OPERATION)	HR	16.000		16.000		16.000		16.000		16.000		16.000	
	08	EROSION CONTROL MAINTENANCE (NON-PART)	LS	1.000											
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000											

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0017-08-114 **DISTRICT** Laredo **COUNTY** Dimmit, Duval, La Salle

HIGHWAY FM 1557, FM 190, FM 1916, FM 1918, FM 2688, FM 393, FM 468, FM 469, FM 624, IH 35, SH 16, US 83

				0652-05-020		0852-01-030		0878-02-012		0963-01-035		0963-02-008		1484-01-014	
		CONTROL SECTION JOB													
		PROJECT ID		A00120517		A00125094		A00125091		A00125090		A00177920		A00119568	
		COUNTY		La Salle		La Salle		Dimmit		Dimmit		Dimmit		Dimmit	
		HIGHWAY		FM 624		FM 469		FM 393		FM 190		FM 1916		FM 1557	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6015	ASPH (AC-15P)	GAL	39,909.000		121,837.000		12,515.000		9,278.000		22,922.000		32,787.000	
	316-6221	AGGR(TY-PB GR-3S SAC-B)	CY					339.000				621.000		769.000	
	316-6222	AGGR(TY-PB GR-3 SAC-B)	CY												
	316-6223	AGGR(TY-PB GR-4S SAC-B)	CY							241.000				115.000	
	316-6238	AGGR(TY-PD GR-3 SAC-B)	CY	1,082.000		3,302.000									
	438-6001	CLEANING AND SEALING EXISTING JOINTS	LF												
	500-6001	MOBILIZATION	LS												
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO												
	510-6002	ONE-WAY TRAF CONT (PILOT CAR)	HR	50.000		140.000		20.000		20.000		30.000		50.000	
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA												
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	3,006.000		8,609.000		945.000		953.000		1,445.000		2,591.000	
	666-6006	REFL PAV MRK TY I (W)4"(DOT)(100MIL)	LF												
	666-6030	REFL PAV MRK TY I (W)8"(DOT)(100MIL)	LF												
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF												
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF			14.000		41.000		65.000		22.000		24.000	
	666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA												
	666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA												
	666-6093	REFL PAV MRK TY I (W)(RR XING)(100MIL)	EA			1.000									
	666-6224	PAVEMENT SEALER 4"	LF	88,659.000		259,106.000		26,548.000		33,279.000		42,098.000		83,708.000	
	666-6283	REF PROF PAV MRK TY I(W)4"(SLD)(090MIL)	LF	56,900.000		169,370.000		17,100.000		19,200.000		32,020.000		54,300.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	26,110.000		73,305.000		7,565.000		13,085.000		6,325.000		24,935.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF	5,649.000		16,431.000		1,883.000		994.000		3,753.000		4,473.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF												
	672-6007	REFL PAV MRKR TY I-C	EA												
	672-6009	REFL PAV MRKR TY II-A-A	EA	616.000		1,760.000		193.000		215.000		271.000		539.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF											158,470.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA												
	6056-6001	PREFORMED IN-LANE(TRANS) RUMBLE STRIP	LF												
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF	1,026.000		3,800.000		252.000		243.000				1,372.000	
	6185-6002	TMA (STATIONARY)	DAY	5.000		14.000		2.000		2.000		3.000		5.000	
	6185-6003	TMA (MOBILE OPERATION)	HR	16.000		16.000		16.000		16.000		16.000		16.000	
	08	EROSION CONTROL MAINTENANCE (NON-PART)	LS												
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0017-08-114 **DISTRICT** Laredo **COUNTY** Dimmit, Duval, La Salle

HIGHWAY FM 1557, FM 190, FM 1916, FM 1918, FM 2688, FM 393, FM 468, FM 469, FM 624, IH 35, SH 16, US 83

			CONTROL SECTION JOB	**1545-01-017**		**1813-01-009**		**2660-01-017**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00177883**		**A00177917**		**A00177844**			
			COUNTY	**Dimmit**		**Dimmit**		**Dimmit**			
			HIGHWAY	**FM 468**		**FM 1918**		**FM 2688**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	316-6015	ASPH (AC-15P)	GAL	52,844.000		6,904.000		59,025.000		929,441.000	
	316-6221	AGGR(TY-PB GR-3S SAC-B)	CY			187.000				6,485.000	
	316-6222	AGGR(TY-PB GR-3 SAC-B)	CY							2,687.000	
	316-6223	AGGR(TY-PB GR-4S SAC-B)	CY							356.000	
	316-6238	AGGR(TY-PD GR-3 SAC-B)	CY	1,432.000				1,600.000		15,979.000	
	438-6001	CLEANING AND SEALING EXISTING JOINTS	LF							943.500	
	500-6001	MOBILIZATION	LS							1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO							11.000	
	510-6002	ONE-WAY TRAF CONT (PILOT CAR)	HR	80.000		20.000		80.000		1,240.000	
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA							4,423.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	4,805.000		554.000		6,581.000		66,766.000	
	666-6006	REFL PAV MRK TY I (W)4"(DOT)(100MIL)	LF							2,940.000	
	666-6030	REFL PAV MRK TY I (W)8"(DOT)(100MIL)	LF							175.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF							6,502.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF			42.000				244.000	
	666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA							31.000	
	666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA							16.000	
	666-6093	REFL PAV MRK TY I (W)(RR XING)(100MIL)	EA							1.000	
	666-6224	PAVEMENT SEALER 4"	LF	154,010.000		16,771.000		193,047.000		2,076,804.000	
	666-6283	REF PROF PAV MRK TY I(W)4"(SLD)(090MIL)	LF	95,390.000		12,680.000		139,160.000		1,360,520.000	
	666-6287	REF PROF PAV MRK TY I(Y)4"(SLD)(090MIL)	LF	51,160.000		2,695.000		38,394.000		562,621.000	
	666-6291	REF PROF PAV MRK TY I(Y)4"(BRK)(090MIL)	LF	7,460.000		1,396.000		15,493.000		129,307.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF							14,739.000	
	672-6007	REFL PAV MRKR TY I-C	EA							1,251.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	1,029.000		105.000		1,275.000		13,516.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF							533,787.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA							2.000	
	6056-6001	PREFORMED IN-LANE(TRANS) RUMBLE STRIP	LF							40.000	
	6056-6002	PREFORMED CENTERLINE RUMBLE STRIP	LF	1,804.000		551.000		4,856.000		32,048.000	
	6185-6002	TMA (STATIONARY)	DAY	8.000		2.000		8.000		123.000	
	6185-6003	TMA (MOBILE OPERATION)	HR	16.000		16.000		16.000		240.000	
	08	EROSION CONTROL MAINTENANCE (NON-PART)	LS							1.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS							1.000	

SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS							
LOCATION	502 6001	510 6002	6185 6002	662 6111	6001 6002	6185 6003	662 6109
	BARRICADES, SIGNS AND TRAFFIC HANDLING	ONE-WAY TRAF CONT (PILOT CAR)	TMA (STATIONARY)	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	PORTABLE CHANGEABLE MESSAGE SIGN	TMA (MOBILE OPERATION)	WK ZN PAV MRK SHT TERM (TAB)TY W
	MO	HR	DAY	EA	EA	HR	EA
1: 0963-01-035		20	2	953		16	
2: 0878-02-012		20	2	945		16	
3: 1484-01-014		50	5	2591		16	
4: 0963-02-008		30	3	1445		16	
5: 1813-01-009		20	2	554		16	
6: 0037-06-108		130	13	5617		16	1740
7: 0037-08-044		130	13	6789		16	2683
8: 1545-01-017		80	8	4805		16	
9: 2660-01-017		80	8	6581		16	
10: 0517-04-063		40	4	2410		16	
11: 0517-08-019		240	24	11280		16	
12: 0852-01-030		140	14	8609		16	
13: 0652-04-066		80	8	4752		16	
14: 0652-05-020		50	5	3006		16	
15: 0017-08-114	11	130	12	6429	2	16	
PROJECT TOTALS	11	1240	123	66766	2	240	4423

SUMMARY OF ROADWAY ITEMS					
LOCATION	316 6015	316 6221	316 6223	316 6238	316 6222
	ASPH (AC-15P)	AGGR(TY-PB GR-3S SAC-B)	AGGR(TY-PB GR-4S SAC-B)	AGGR(TY-PD GR-3 SAC-B)	AGGR(TY-PB GR-3 SAC-B)
	GAL	CY	CY	CY	CY
1: 0963-01-035	9278		241		
2: 0878-02-012	12515	339			
3: 1484-01-014	32787	769	115		
4: 0963-02-008	22922	621			
5: 1813-01-009	6904	187			
6: 0037-06-108	134292			3639	
7: 0037-08-044	127163			3446	
8: 1545-01-017	52844			1432	
9: 2660-01-017	59025			1600	
10: 0517-04-063	16191	473			
11: 0517-08-019	140087	4096			
12: 0852-01-030	121837			3302	
13: 0652-04-066	54526			1478	
14: 0652-05-020	39909			1082	
15: 0017-08-114	99161				2687
PROJECT TOTALS	929442	6485	356	15979	2687

SUMMARY OF BRIDGE ITEMS	
	438 6001
PSN	CLEANING AND SEALING EXISTING JOINTS
	LF
22-064-0-0037-06-066	943.5
PROJECT TOTALS	943.5

NOT TO SCALE

TEXAS DEPARTMENT OF TRANSPORTATION ®

SUMMARY OF QUANTITIES

DN: SP	DW: SP	STATE	SHEET NUMBER			SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 1 OF 2			
FED.RD. DIV.NO.	STATE DIST.NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	21
6	22	LA SALLE	0017	08	114	IH 35	

7/1/2021 SPACHICA c:\txdot\pw*online\txdot5\salma.pachicano\d0548125\SH165SUM.dgn

SUMMARY OF PAVEMENT MARKING ITEMS

LOCATION:CSJ	666 6006 REFL PAV MRK TY I (W)4"(DOT) (100MIL) LF	666 6030 REFL PAV MRK TY I (W)8"(DOT) (100MIL) LF	666 6036 REFL PAV MRK TY I (W)8"(SLD) (100MIL) LF	666 6048 REFL PAV MRK TY I (W)24"(SLD) (100MIL) LF	666 6054 REFL PAV MRK TY I (W)(ARROW) (100MIL) EA	666 6078 REFL PAV MRK TY I (W)(WORD) (100MIL) EA	666 6093 REFL PAV MRK TY I (W)(RR XING)(100 MIL) EA	666 6224 PAVEMENT SEALER 4" LF	666 6283 REF PROF PAV MRK TY I(W)4"(SLD) (090MIL) LF	666 6287 REF PROF PAV MRK TY I(Y)4"(SLD) (090MIL) LF
1: 0963-01-035				65				33279	19200	13085
2: 0878-02-012				41				26548	17100	7565
3: 1484-01-014				24				83708	54300	24935
4: 0963-02-008				22				42098	32020	6325
5: 1813-01-009				42				16771	12680	2695
6: 0037-06-108	760	175	2255		16	7		187816	112640	55940
7: 0037-08-044	2180		4247		11	7		232288	132300	74437
8: 1545-01-017								154010	95390	51160
9: 2660-01-017								193047	139160	38394
10: 0517-04-063				26	2	2		58516	37700	15350
11: 0517-08-019								346663	228500	96740
12: 0852-01-030				14			1	259106	169370	73305
13: 0652-04-066								148194	104940	32915
14: 0652-05-020								88659	56900	26110
15: 0017-08-114				10			2	206101	148320	43665
PROJECT TOTALS	2940	175	6502	244	29	16	3	2076804	1360520	562621

SUMMARY OF PAVEMENT MARKING ITEMS CONT.

LOCATION:CSJ	666 6291 REF PROF PAV MRK TY I(Y)4"(BRK) (090MIL) LF	666 6300 RE PM W/RET REQ TY I (W)4"(BRK) (100MIL) LF	672 6007 REFL PAV MRKR TY I-C EA	672 6009 REFL PAV MRKR TY II-A-A EA	677 6001 ELIM EXT PAV MRK & MRKS (4") LF	6056 6001 PREFORMED IN-LANE(TRANS) RUMBLE STRIP LF	6056 6002 PREFORMED CENTERLINE RUMBLE STRIP LF
1: 0963-01-035	994			215			243
2: 0878-02-012	1883			193			252
3: 1484-01-014	4473			539	79235		1372
4: 0963-02-008	3753			271			0
5: 1813-01-009	1396			105			551
6: 0037-06-108	10246	5800	421	1068	168580	40	3780
7: 0037-08-044	10185	8939	710	1462	206737		3390
8: 1545-01-017	7460			1029			1804
9: 2660-01-017	15493			1275			4856
10: 0517-04-063	5466		120	477			668
11: 0517-08-019	21423			2303			441
12: 0852-01-030	16431			1760			3800
13: 0652-04-066	10339			935			3836
14: 0652-05-020	5649			616			1026
15: 0017-08-114	14116			1268			6029
PROJECT TOTALS	129307	14739	1251	13516	454552	40	32048

NOT TO SCALE

SUMMARY OF QUANTITIES

DN: SP	DW: SP	STATE	SHEET NUMBER	SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 2 OF 2	

FED.RD. DIV.NO.	STATE DIST.NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	
6	22	LA SALLE	0017	08	114	IH 35	22

TCP GENERAL NOTES

1. This is a suggested Traffic Control Plan (TCP). The Contractor may submit an alternate Traffic Control Plan, signed and sealed by a Licensed Professional Engineer in Texas, for approval by the Engineer. When mutually beneficial changes are proposed to the existing Traffic Control Plan and are agreed upon by the Contractor and the Department, the plan sheets may be developed and signed and sealed by the Engineer.

2. Refer to Item 8 "Prosecution and Progress" and project general notes for additional information regarding the Traffic Control Plan.

3. Furnish and install all Traffic Control Plans devices, including but not limited to barricades, signs, and work zone markings, in compliance with the latest version of the Texas Manual on Uniform Traffic Control Devices (TMUTCD), the State Standard Traffic Control Plans (TCP) sheets, and the Barricades and Construction (BC) sheets. Refer to the project general notes for additional information regarding the Traffic Control Plan.

4. Limit the length of lane closures to maximum of two miles. Refer to sequence of construction for further information. Allow for all lanes open to traffic during non-working hours unless otherwise specified in the sequence of construction. Any additional overnight lane closures not specified in the sequence of construction will require approval by the engineer.

5. Verify the location and spacing of signs, barricades, and channelizing devices prior to their placement along vertical curves, horizontal curves, and other geometric constraints to assure visibility to all motorists.

6. The work has been identified by reference location numbers. Various reference locations can be worked on simultaneously when approved by the engineer. Once work has begun at a reference location, it must be worked on continuously through completion. Additional signing to safely guide traffic through the work area will be required as directed by the engineer.

7. Place the traffic control devices only while work is actually in progress or a definite need exists. Always have enough barricades, channelizing devices, and signs at all times to replace those damaged.

8. Cover all existing signs that conflict with the Traffic Control Plan and uncover during non-working hours or as directed by the Engineer. Partial coverage of the sign or coverage by material that will not cover the entire sign all the time is not permitted.

9. Vary the spacing of signs to meet traffic conditions or as directed by the engineer and assure that all traffic control devices and work zone pavement markings are kept in a highly visible condition (clean, upright and at proper location).

10. Maintain the roadway surface and work zone striping within the project while the traffic control plan is in effect. Place and be responsible for all work zone pavement markings in accordance with standard sheets WZ(STPM)-13, BC (10), BC (11) and the TMUTCD.

11. Conduct construction operations so as to provide the least possible interference to traffic and to permit the continuous movement of traffic in all allowable directions at all times or as permitted by the sequence of construction. Provide for safe and convenient access to abutting property, highways, public roads, and street crossings except as otherwise shown on the sequence of construction. The contractor will maintain at all times two-way traffic or a minimum of one lane using a pilot vehicle and flaggers.

12. Place all stockpiled material, waste material, signs, barricades, channelizing devices and work vehicles not in use, at a minimum of 30 feet from the outer edge of the nearest travel lane.

13. Maintain all existing drainage conditions during all construction phases. Handle excavated and stockpiled material in such a way that it will not block drainage.

14. Regulate all construction traffic so as to cause a minimal inconvenience to the traveling public. At the times when it is necessary for trucks to stop, unload or cross roadways under traffic, provide warning signs and flaggers as needed to adequately protect the traveling public.

15. During non-working hours, all drop-offs are to be filled. Refer to standard WZ(UL)-13 for lateral drop-offs and to details shown in plans for longitudinal drop-offs or as directed by the Engineer.

16. Notify the Engineer in writing two weeks prior to shifting of traffic within each phase of the Traffic Control Plan.

17. During the holiday time frame of December 21st through January 1st, every effort should be taken to ensure that all travel lanes remain open where possible.

18. Remove from the work area all loose materials and debris resulting from construction operations at the end of each work day.

19. Maintain a minimum of one through lane open in each direction during working hours except as directed by the Engineer.

20. Implement all required erosion control measures as shown in the plans during the various stages of construction.

21. Moving an existing sign to a temporary location is subsidiary to Item 502. Installations with permanent supports at permanent locations will be paid for under the applicable bid item(s).

22. Use of portable changeable message sign as advance notice of lane closures will be required, as directed by the engineer. For locations that are adjacent to each other, a single sign in advance of the entire work area is acceptable.

23. Place portable changeable message boards at locations requiring lane closures for 1 week(s) before the closures or as directed by the engineer.

24. Additional signs, barricades and channelizing devices may be required to maintain traffic during construction, as shown on TCP standards. Additional signs, barricades, etc. (if any), will be subsidiary to items 502 "Barricades, Signs and Traffic Handling".

25. If the contractor chooses to work multiple locations in urban/rural areas simultaneously, contractor will be responsible for providing all applicable traffic control devices, including portable changeable message boards, and truck mounted attenuators at their own expense.

26. Use of truck mounted attenuators as noted on plans, TxDOT traffic control plan standards, or as directed by the engineer. For locations that are adjacent to each other, a single truck mounted attenuator for the entire work area is acceptable.

27. Refer to BC(6)-21 Portable Changeable Message Sign (PCMS) Standards for a listing of abbreviated words and two-word phrases that are acceptable for use on PCMS. Submit the suggested message for the board to the Engineer for approval.

28. Use plastic drums to channelize traffic when existing pavement markings have been obliterated.

29. Limit the length of daily work to the area of operation that can be completed in one work day in order to allow for two-way traffic at night. Such area must not exceed two (2) miles, unless approved by the engineer. Within the 2 mile section, only close off the area where actual work is being performed.

30. A pilot car and radio equipped flaggers are required for all undivided roadway locations as directed by the engineer. The pilot car with necessary flaggers and/or radio equipped flaggers and all signs, equipment, labor and incidentals required for this method of traffic control will be paid for directly through Item 510.

STATE OF TEXAS
LUIS G. URBINA
117019
LICENSED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by LUIS G. URBINA P.E. 117019, on 6/28/2021

NOT TO SCALE

TEXAS DEPARTMENT OF TRANSPORTATION ®

TCP
GENERAL NOTES

DN: SP	DW: SP	STATE	SHEET NUMBER				SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 1 OF 1				
FED. RD. DIV. NO.	STATE DIST. NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	23
6	22	LA SALLE	0017	08	114	IH 35	

SEQUENCE OF CONSTRUCTION

GENERAL INSTRUCTIONS

THE FOLLOWING WORK WILL BE PERFORMED ON THE ROADWAY. REFER TO THE TCP PHASES, TCP GENERAL NOTES AND CORRESPONDING PLAN SHEETS FOR MORE DETAILED INFORMATION.

INSTALL ALL APPLICABLE BARRICADES, SIGNS, WORK ZONE MARKINGS IN ACCORDANCE WITH TCP, BC AND WZ TxDOT STANDARD SHEETS FOR TRAFFIC CONTROL SETUP.

GENERAL SEQUENCE OF CONSTRUCTION

THESE ARE DISTRICT WIDE ROADWAY SURFACING SEALCOAT PROJECTS. WORK ON EACH ROADWAY PROJECT SHALL BE PERFORMED IN FOUR (4) PHASES.

PHASE I - SET UP ONE WAY TRAFFIC CONTROL.

PHASE II - PLACE SEAL COAT

PHASE III - PLACE FINAL PAVEMENT MARKINGS & RAISED PAVEMENT MARKERS.

PHASE IV - PERFORM FINAL CLEAN UP.

PHASE I USE TCP(SC-1)-21 & TCP(SC-2)-21

SET UP ONE WAY TRAFFIC CONTROL AND PERFORM ROADWAY SWEEPING PRIOR TO SEAL COAT OPERATIONS.

PHASE II USE TCP(SC-1)-21, TCP(SC-2)-21, TCP(SC-6)-21 & TCP(SC-7)-21

SEALCOAT EXISTING PAVEMENT SURFACE AT WIDTH SPECIFIED ON TYPICAL SECTIONS.

REFER TO "PROJECT LOCATION REFERENCE" SHEET FOR LIMITS OF SEALCOAT PLACEMENT.

SEALCOAT WILL INCLUDE ANY LEFT OR RIGHT TURN LANES, FOR THE LIMITS SHOWN ON TYPICAL SECTIONS, WHERE APPLICABLE. PERFORM ROADWAY SWEEPING PRIOR TO SEAL COAT OPERATIONS.

CONCRETE PAVEMENT AREAS AND OTHER SELECTED AREAS, SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, WILL BE LEFT UNDISTURBED.

WHERE APPLICABLE, THE CONTRACTOR WILL PLACE ALL TRAFFIC CONTROL SIGNS, BARRICADES, AND CHANNELIZING DEVICES FOR ONE-WAY TRAFFIC CONTROL OPERATIONS AS SHOWN ON THE TRAFFIC CONTROL PLANS. REFER TO STANDARDS AND CONSTRUCTION STANDARD SHEETS AS WELL AS GENERAL NOTES.

UPON COMPLETION OF ONE LANE, MIRROR SAME WORK TO OTHER LANE.

AT THE END OF EACH DAY, BEFORE OPENING TO TRAFFIC, INSTALL WORK ZONE SHORT TERM TABS TO GUIDE TRAFFIC.

PHASE III-USE TCP (3-1)-13, TCP(3-3)-14

REMOVE WORK ZONE SHORT TERM TABS AND MARKINGS FOR THE LIMITS SHOWN. INSTALL FINAL PAVEMENT MARKINGS. REFER TO PM STANDARDS SHEETS AND SUPPLEMENTAL PAVEMENT MARKINGS SHEETS FOR MORE DETAILS.

INSTALL PAVEMENT MARKING SEALER BEFORE INSTALLING TYPE I PAVEMENT MARKINGS. PAVEMENT MARKING SEALER SHALL BE OF TYPE II.

TYPE I PROFILE PAVEMENT MARKINGS SHALL BE USED FOR ALL LOCATIONS ON CENTERLINES AND EDGELINES. Refer to RS(2)-13, RS(3)-13

PHASE IV

PERFORM FINAL CLEAN UP AND REMOVE ALL BARRICADES, AS DIRECTED BY THE ENGINEER.

STATE OF TEXAS
LUIS G. URBINA
117019
LICENSED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by LUIS G. URBINA P.E. 117019, on

6/28/2021

NOT TO SCALE

TEXAS DEPARTMENT OF TRANSPORTATION ®

TCP SEQUENCE OF WORK

DN: SP	DW: SP	STATE	SHEET NUMBER			SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 1 OF 1			
FED. RD. DIV. NO.	STATE DIST. NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	24
6	22	LA SALLE	0017	08	114	IH 35	

DATE: 6/28/2021 4:58:45 PM
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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

WORKER SAFETY NOTES:

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

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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

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

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

SHEET 1 OF 12

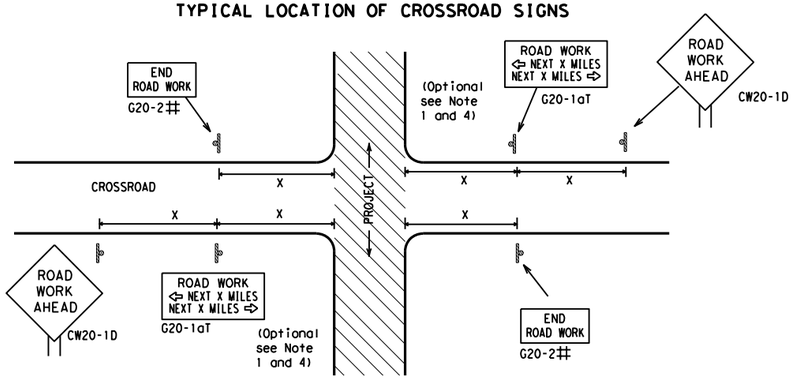
Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13 9-07 8-14 5-10 5-21	0017	08	114	IH 35
	DIST	COUNTY		SHEET NO.
	22	LA SALLE		25

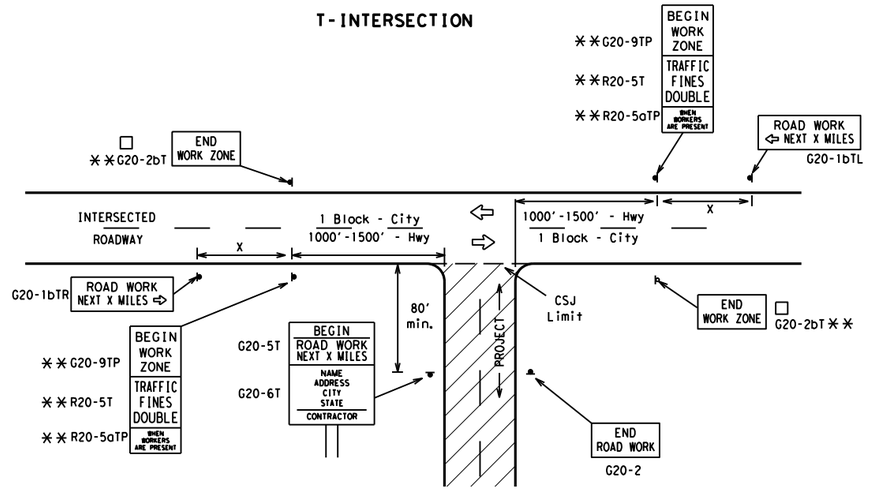
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

SIZE

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

SPACING

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

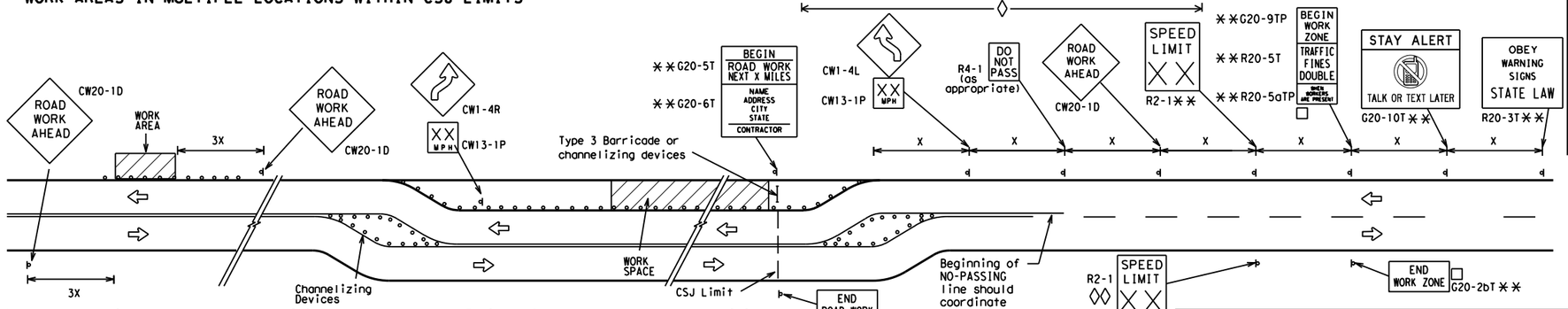
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

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

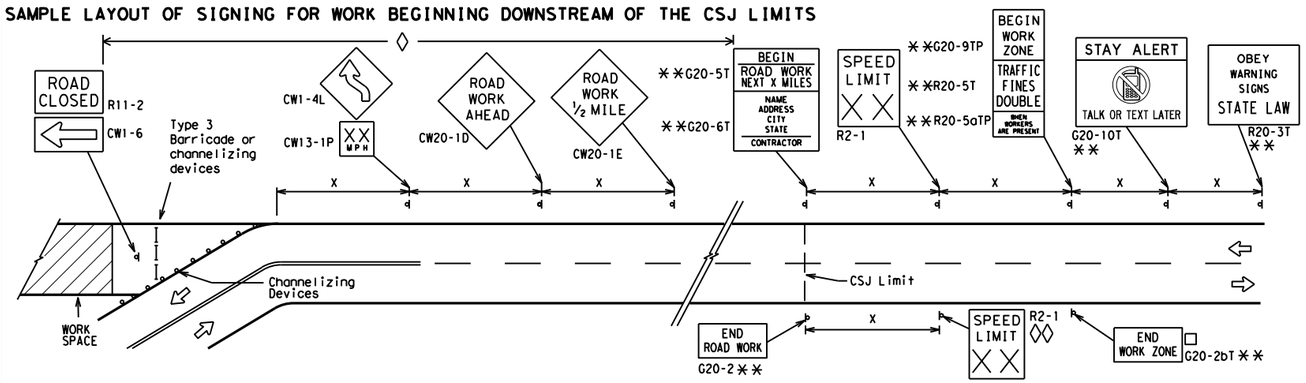
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

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



NOTES

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

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

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

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

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

LEGEND

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

SHEET 2 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	08	114	IH 35
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	22	LA SALLE		26

DATE: 6/28/2021 4:58:45 PM
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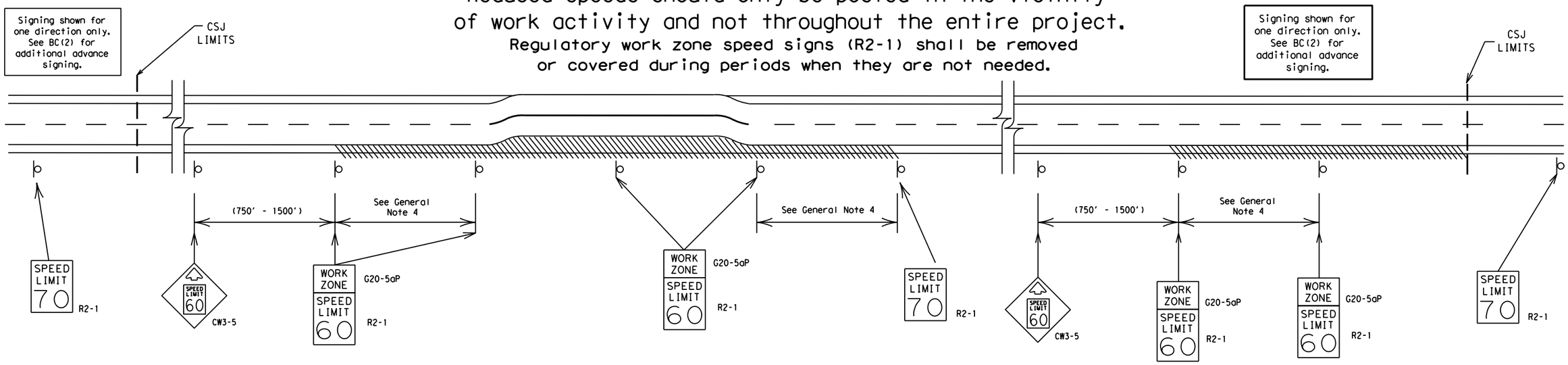
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

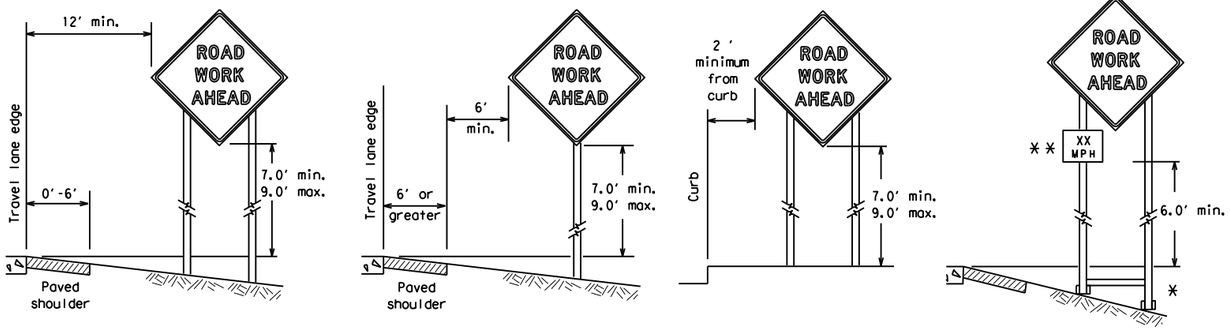
Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	08	114	IH 35
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	22	LA SALLE		27

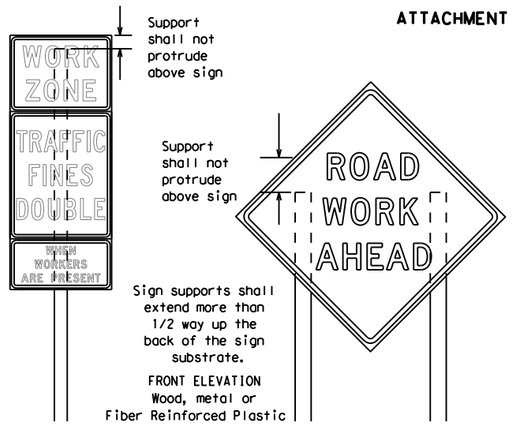
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



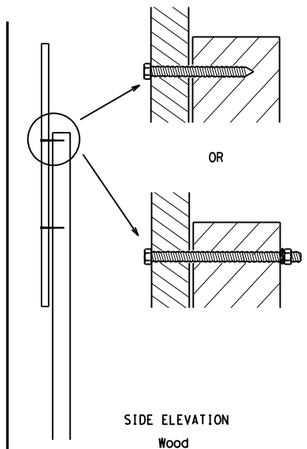
* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS



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

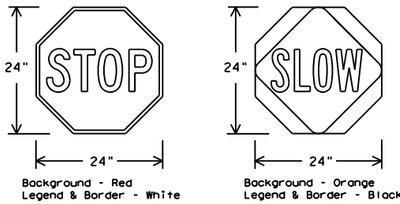


Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

STOP/SLOW PADDLES

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



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

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	08	114	IH 35
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	22	LA SALLE		28

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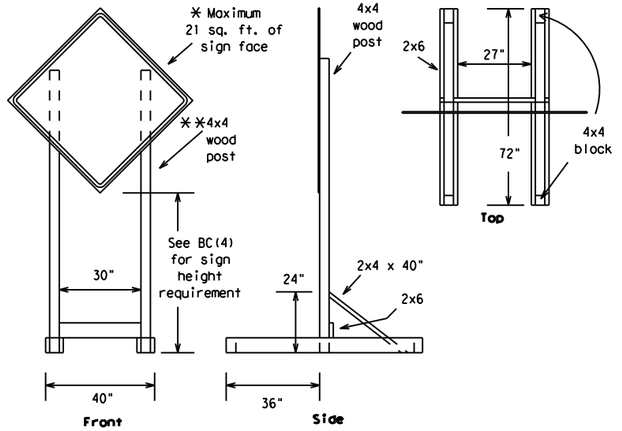
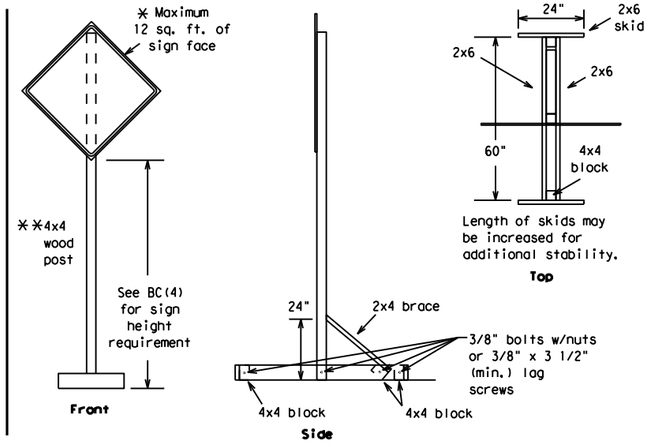
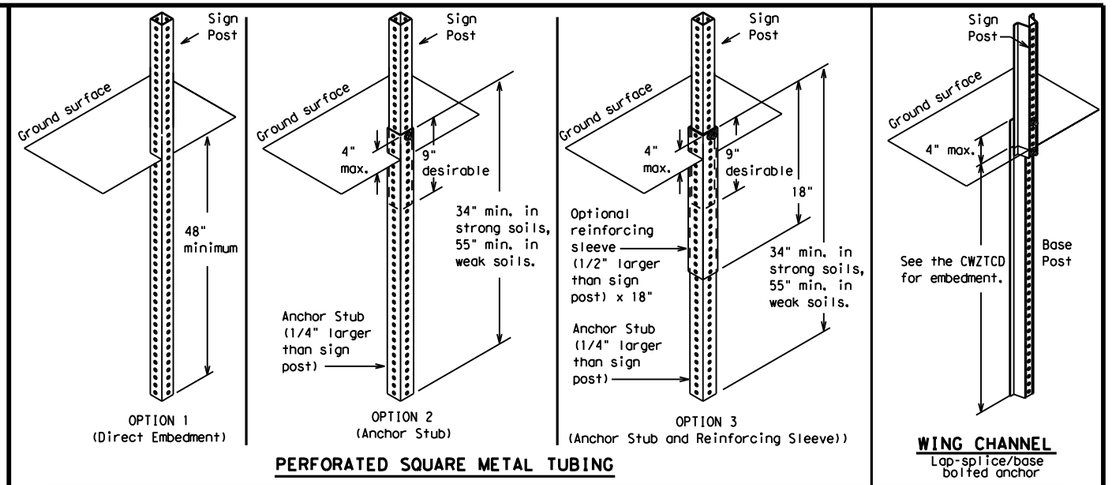




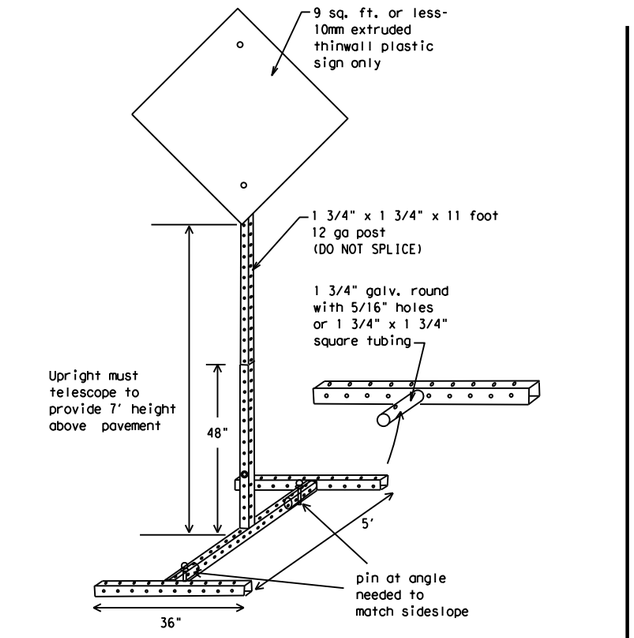
SKID MOUNTED WOOD SIGN SUPPORTS

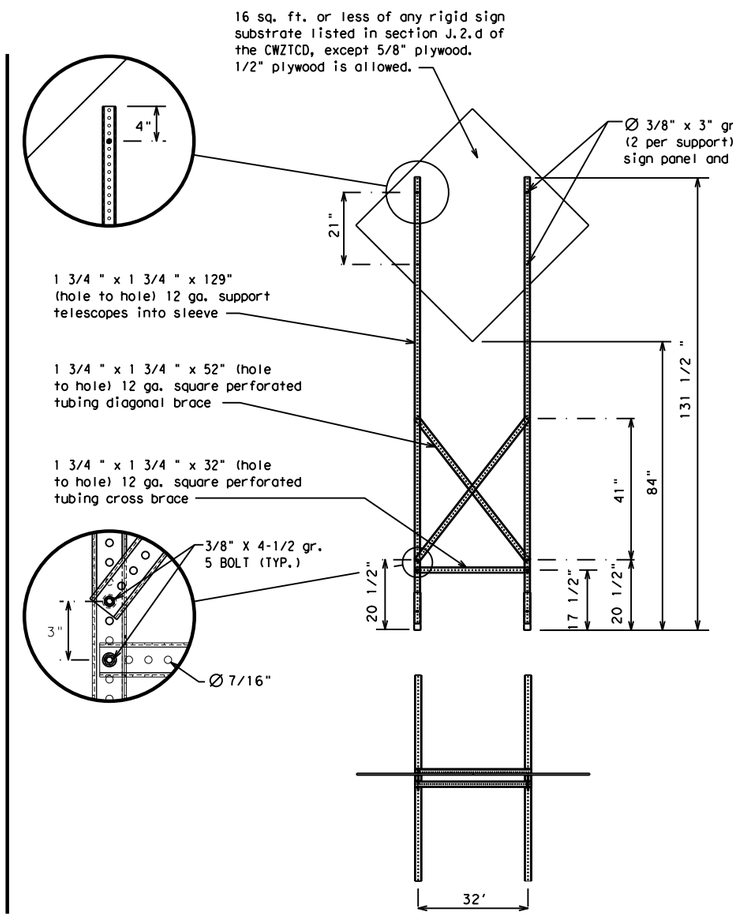
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

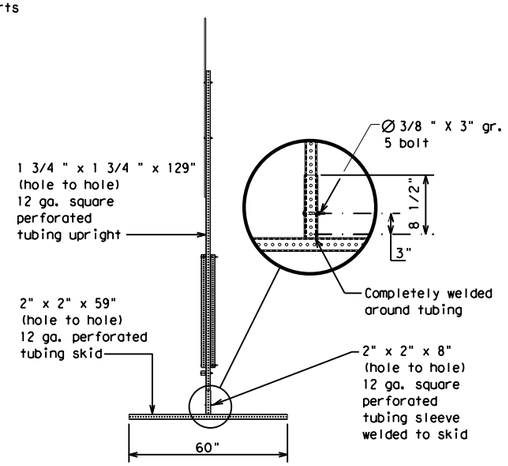


GROUND MOUNTED SIGN SUPPORTS

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

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

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

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

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

SHEET 5 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

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

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

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	08	114	IH 35
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	22	LA SALLE		30

DATE: 6/28/2021 4:58:47 PM
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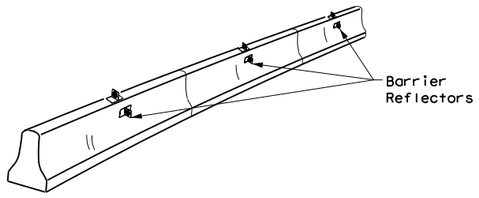
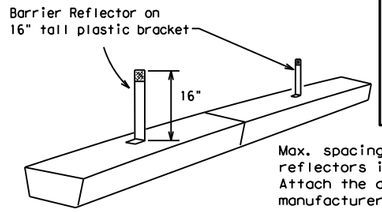
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



CONCRETE TRAFFIC BARRIER (CTB)

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

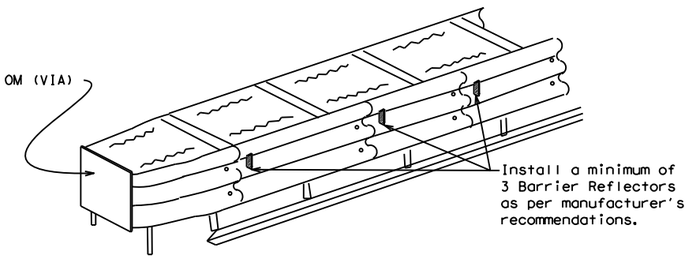


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

LOW PROFILE CONCRETE BARRIER (LPCB)

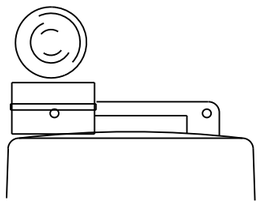


DELINEATION OF END TREATMENTS

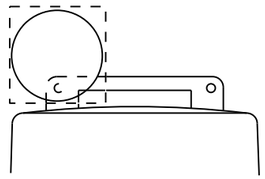
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

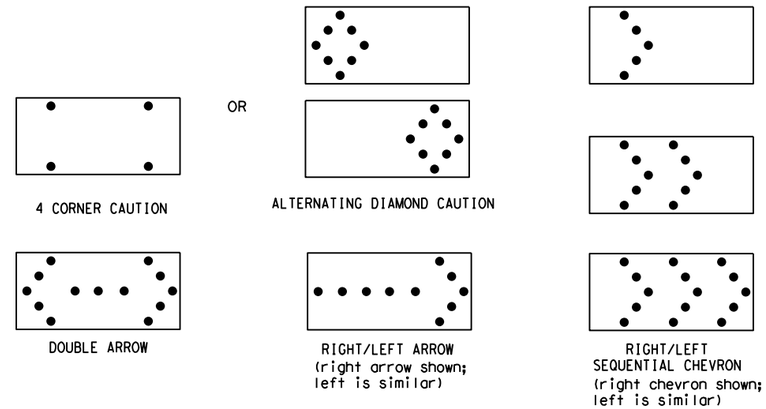
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



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

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

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

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

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	08	114	IH 35
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	22	LA SALLE		31

101

GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

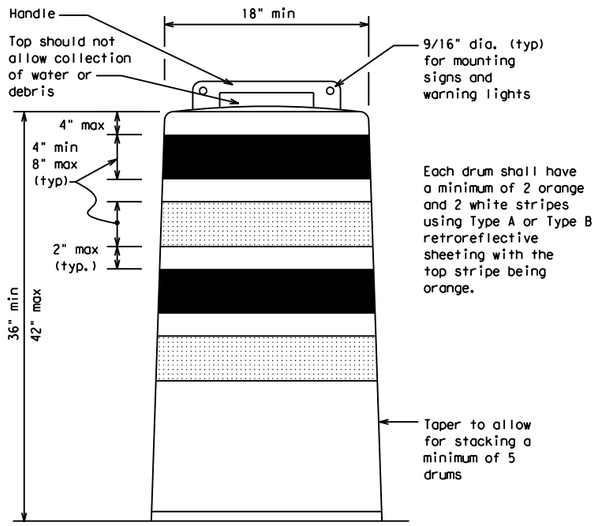
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

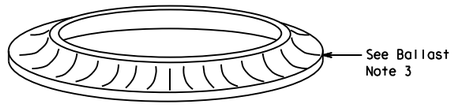
RETROREFLECTIVE SHEETING

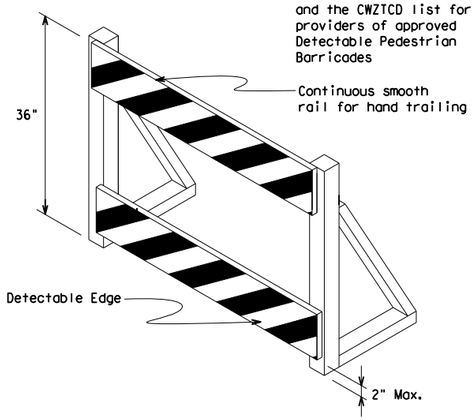
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

BALLAST

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

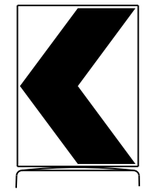




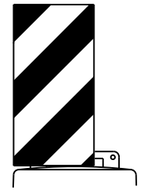


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	08	114	IH 35
4-03 8-14	DIST	COUNTY		SHEET NO.
9-07 5-21	22	LA SALLE		32
7-13				

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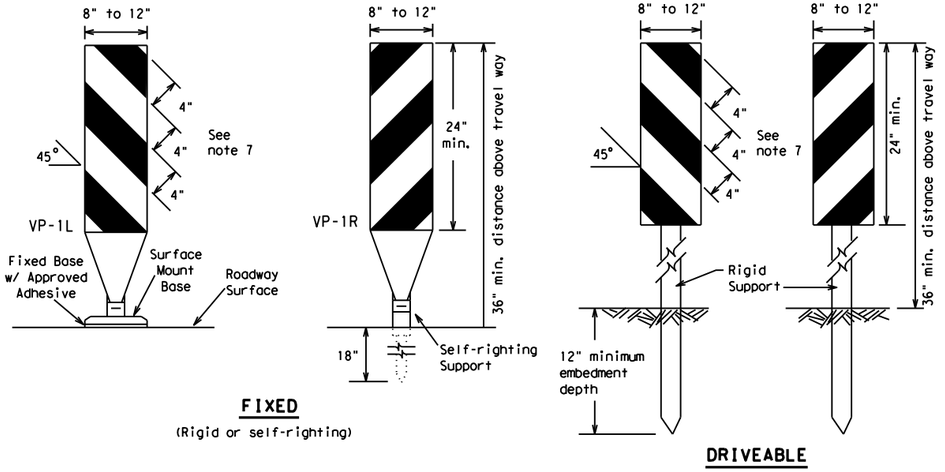
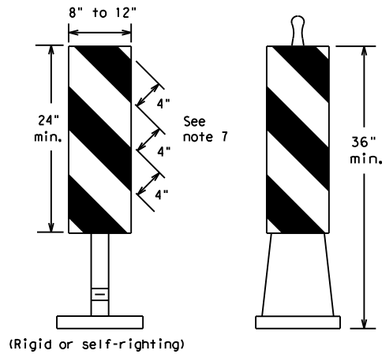


FIXED
(Rigid or self-righting)

DRIVEABLE

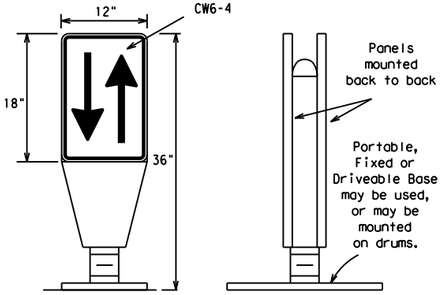


(Rigid or self-righting)

PORTABLE

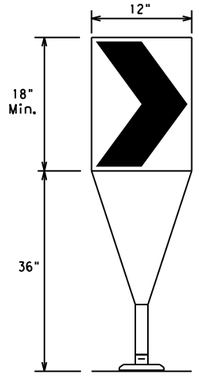
VERTICAL PANELS (VPs)

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



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



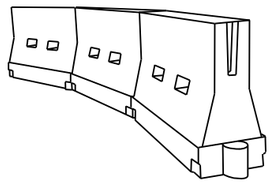
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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REVISIONS	0017	08	114	IH 35
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7-13 5-21	22	LA SALLE		33

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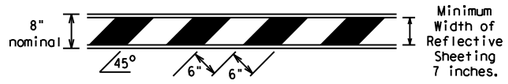
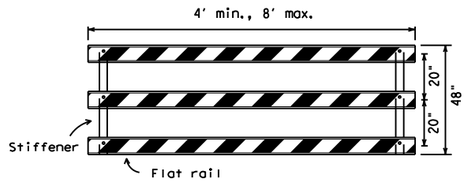
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



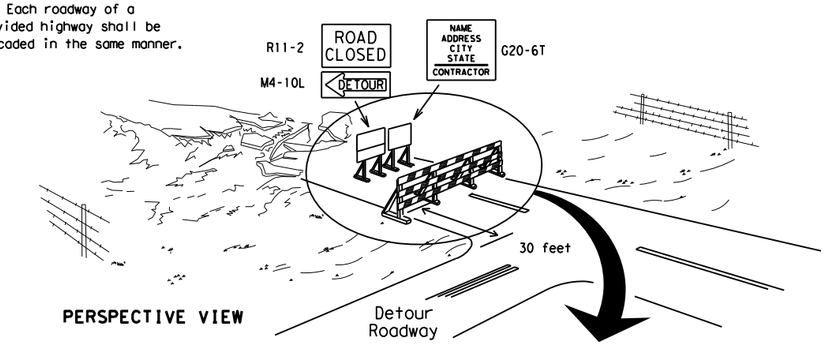
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

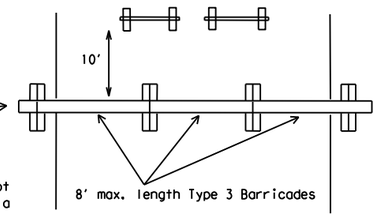
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

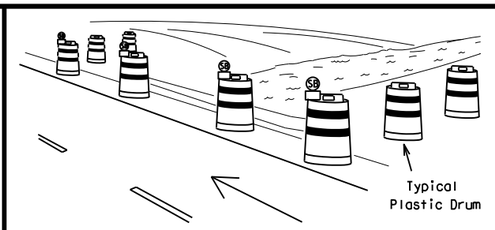
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

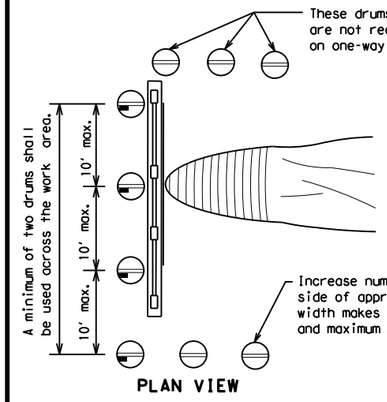
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

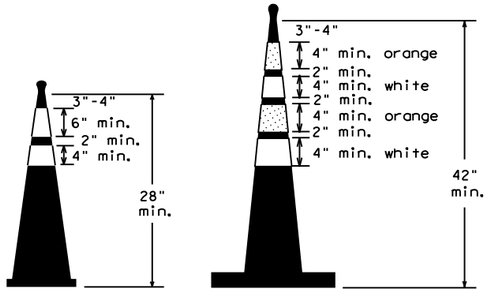
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



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

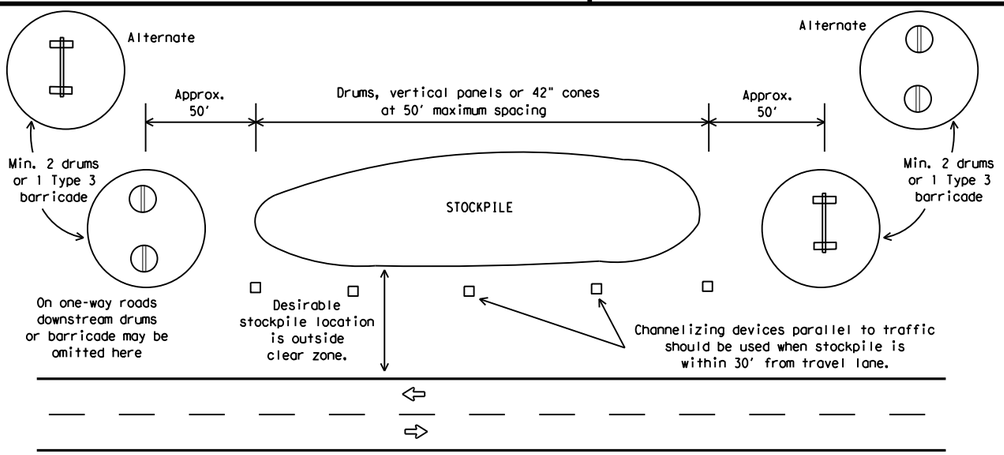
PLAN VIEW

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



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

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

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7-13 5-21	22	LA SALLE		34

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

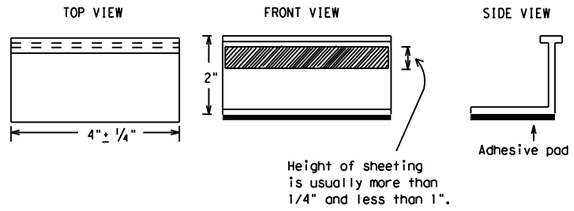
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

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11-02 8-14				

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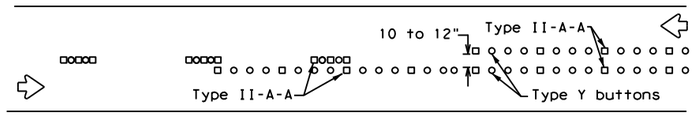
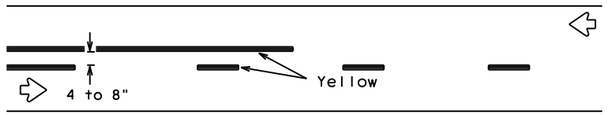
PAVEMENT MARKING PATTERNS

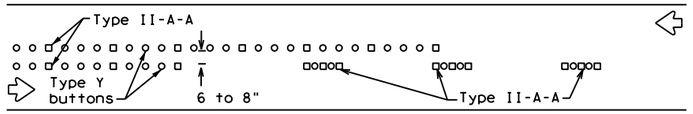
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



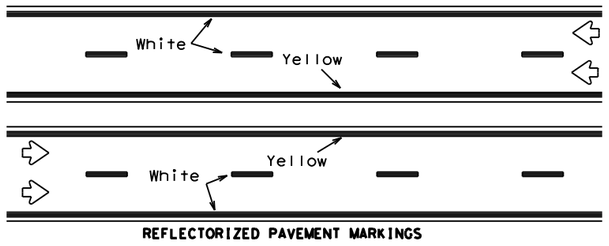
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



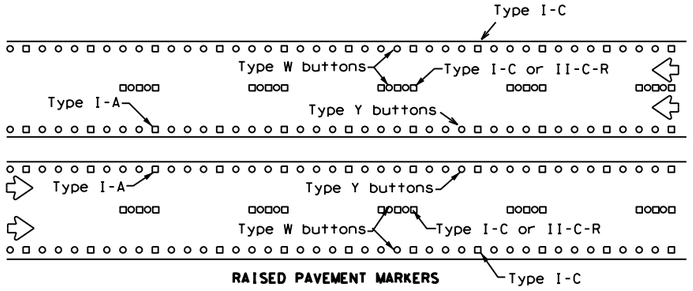
RAISED PAVEMENT MARKERS - PATTERN B

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

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



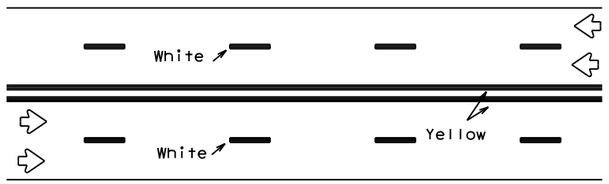
REFLECTORIZED PAVEMENT MARKINGS



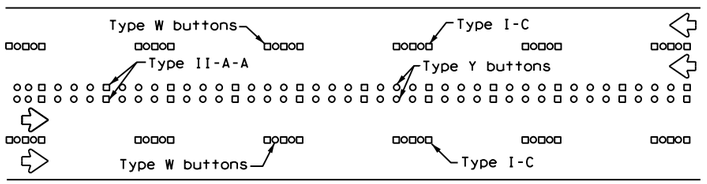
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



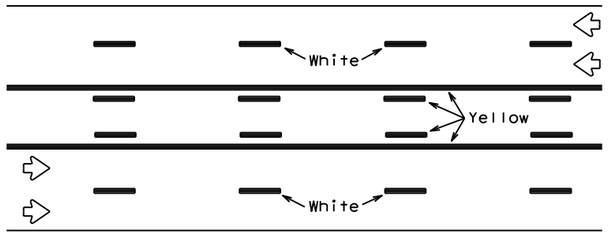
REFLECTORIZED PAVEMENT MARKINGS



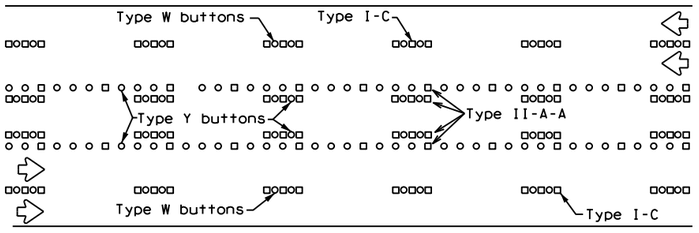
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

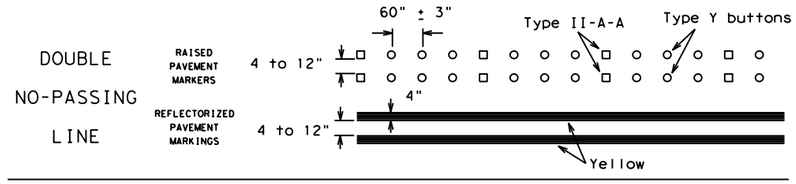
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

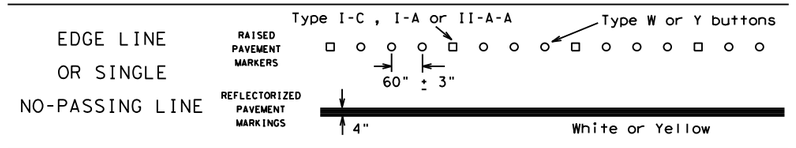
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

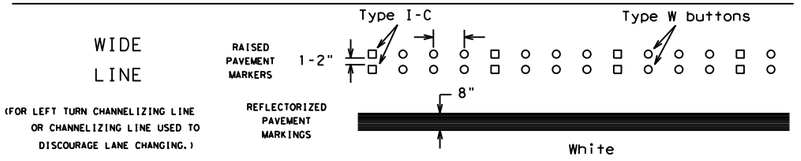


EDGE LINE OR SINGLE NO-PASSING LINE



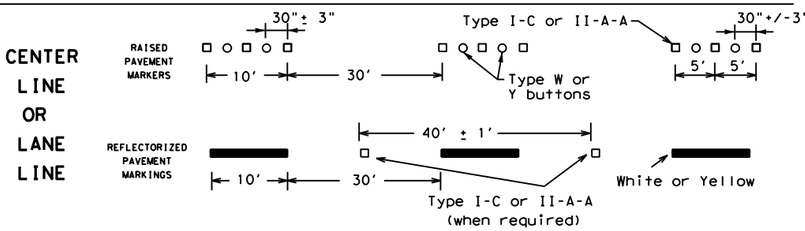
WIDE LINE

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

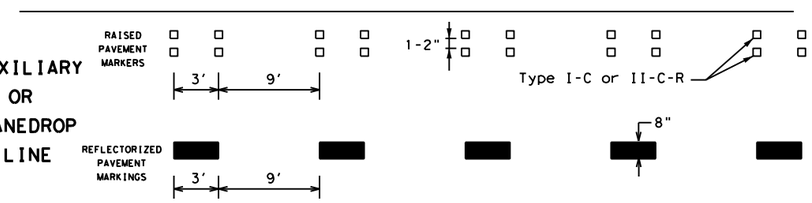


BROKEN LINES

CENTER LINE OR LANE LINE

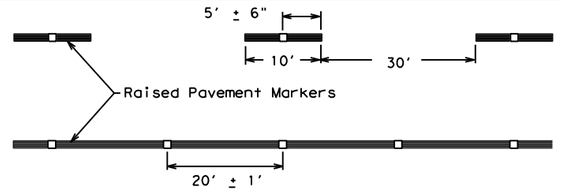


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

SHEET 12 OF 12

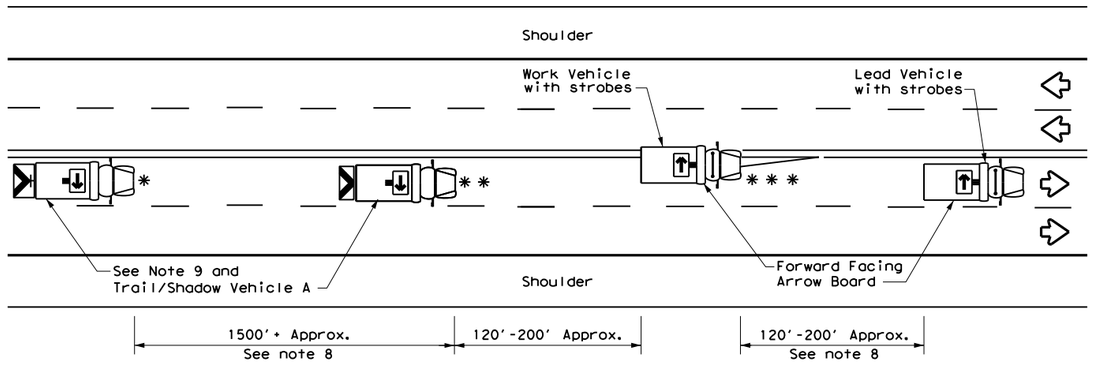
Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

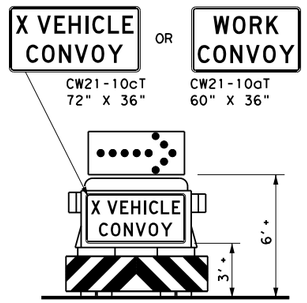
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0017	08	114	IH 35
	DIST	COUNTY		SHEET NO.
	22	LA SALLE		36

106



TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

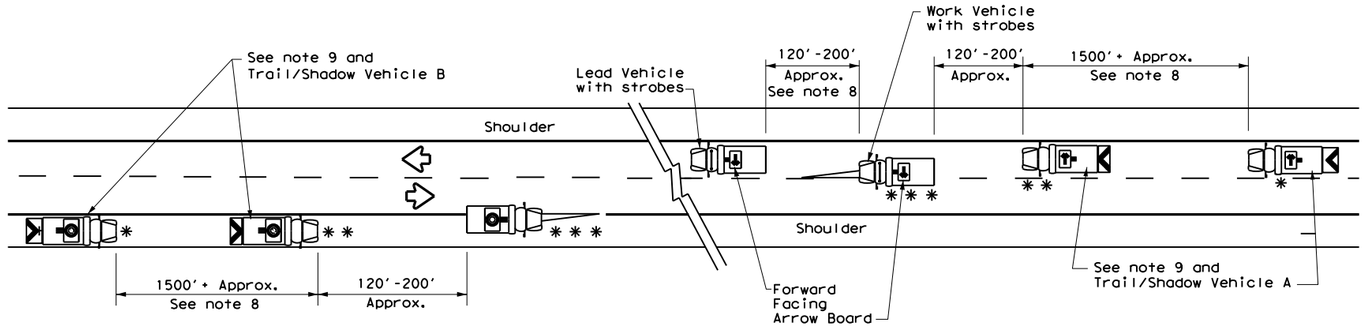
with RIGHT Directional display Flashing Arrow Board

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

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

GENERAL NOTES

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

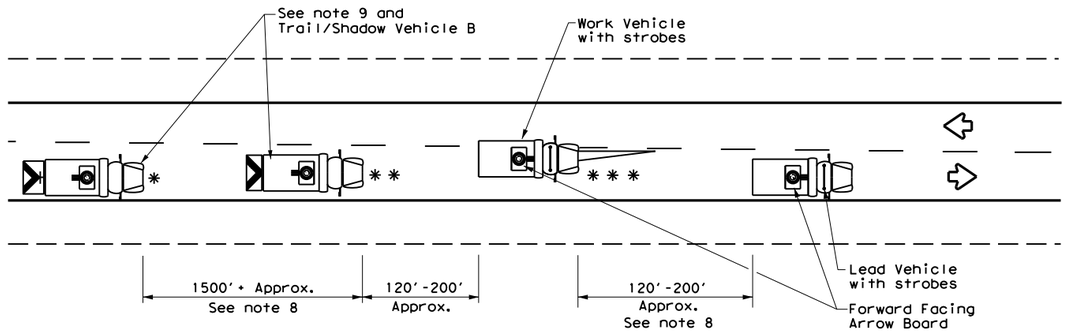


WORK ON SHOULDER

WORK ON TRAVEL LANE

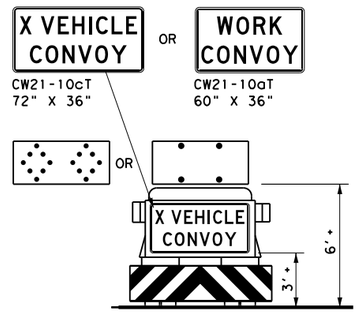
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



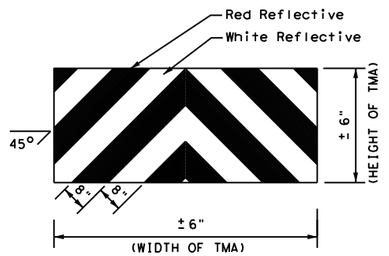
TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board in CAUTION display



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 2-94 4-98 8-95 7-13 1-97	0017	08	114	IH 35
	DIST	COUNTY		SHEET NO.
	22	LA SALLE		37

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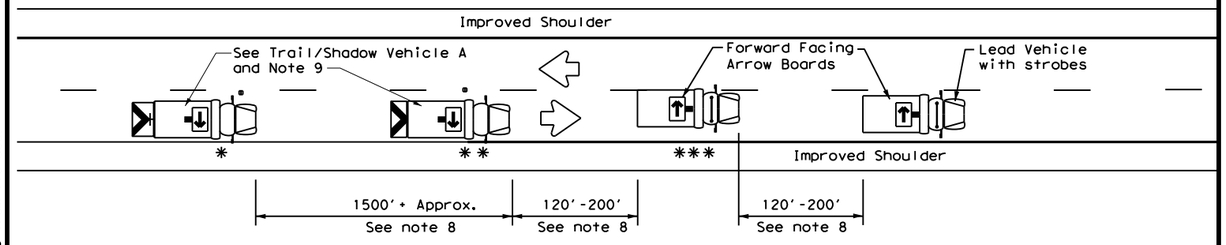
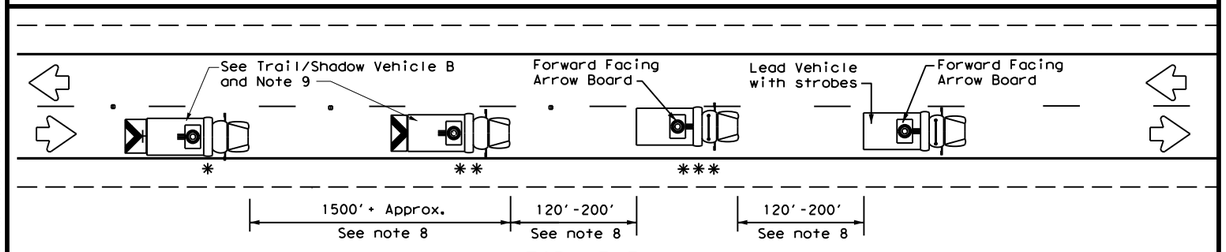


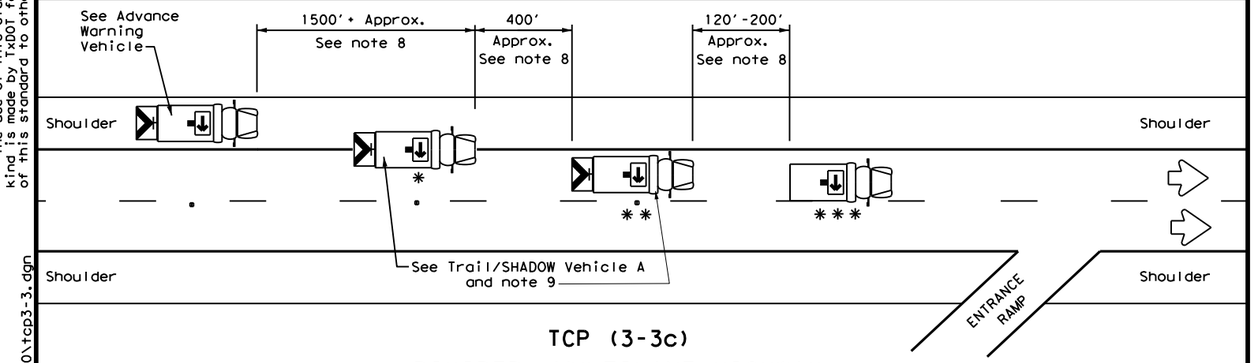
TCP (3-3a)

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



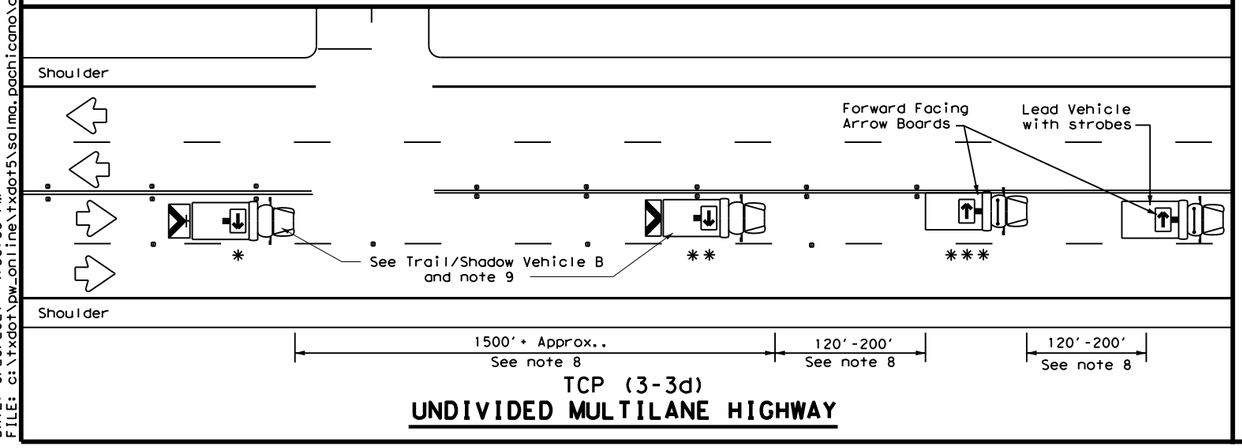
TCP (3-3b)

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



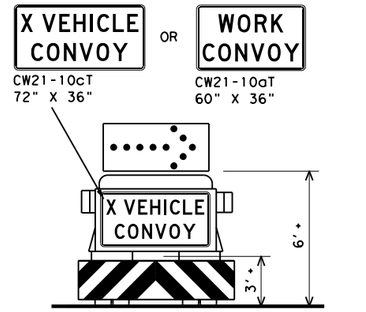
TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



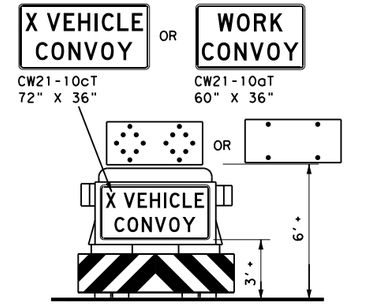
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



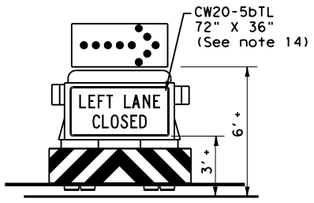
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

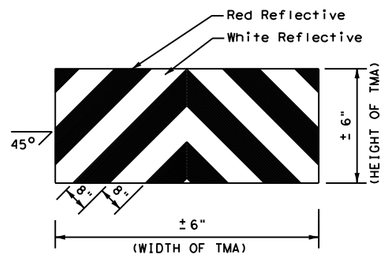


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board
in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
MOBILE OPERATIONS
RAISED PAVEMENT MARKER INSTALLATION/ REMOVAL
TCP(3-3)-14

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©TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
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8-95 7-13	22	LA SALLE		38
1-97 7-14				

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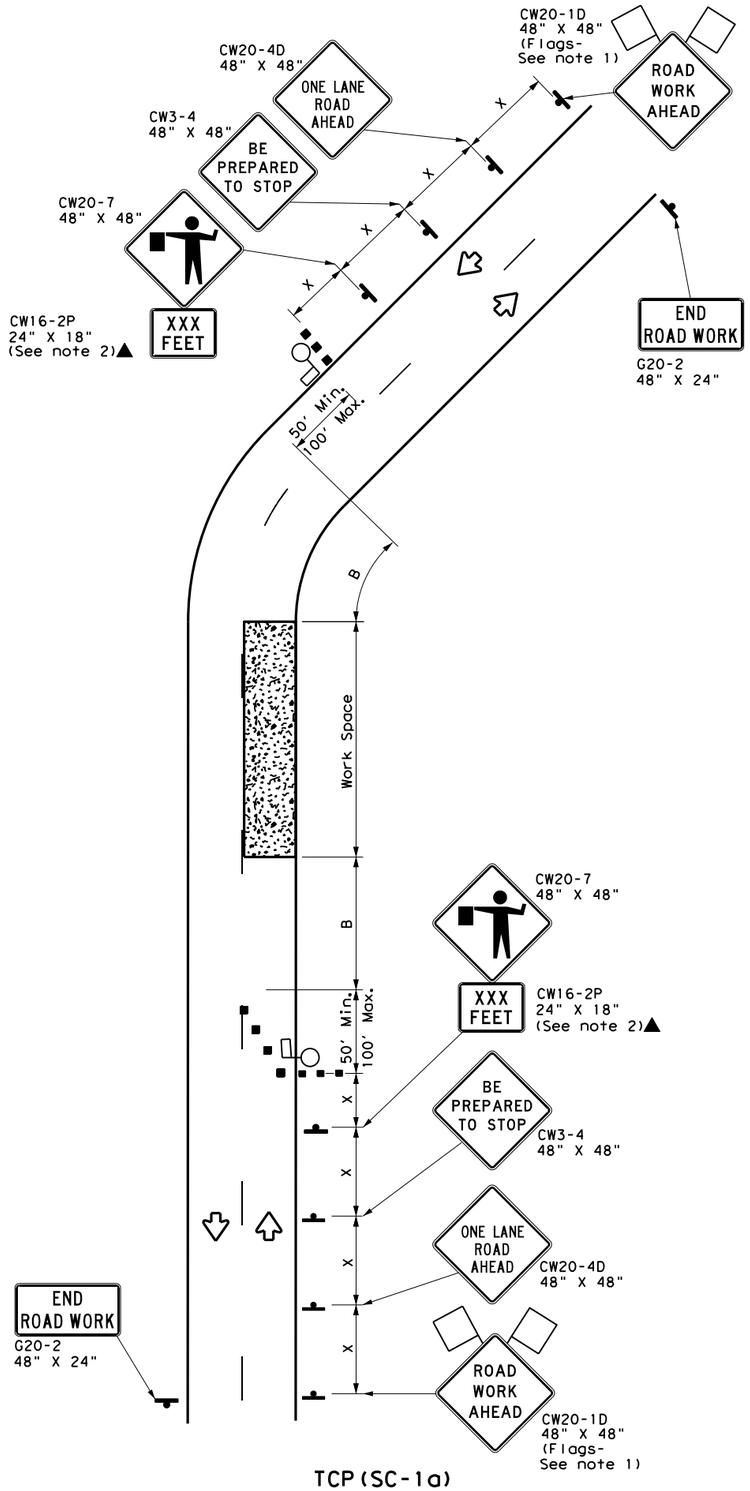
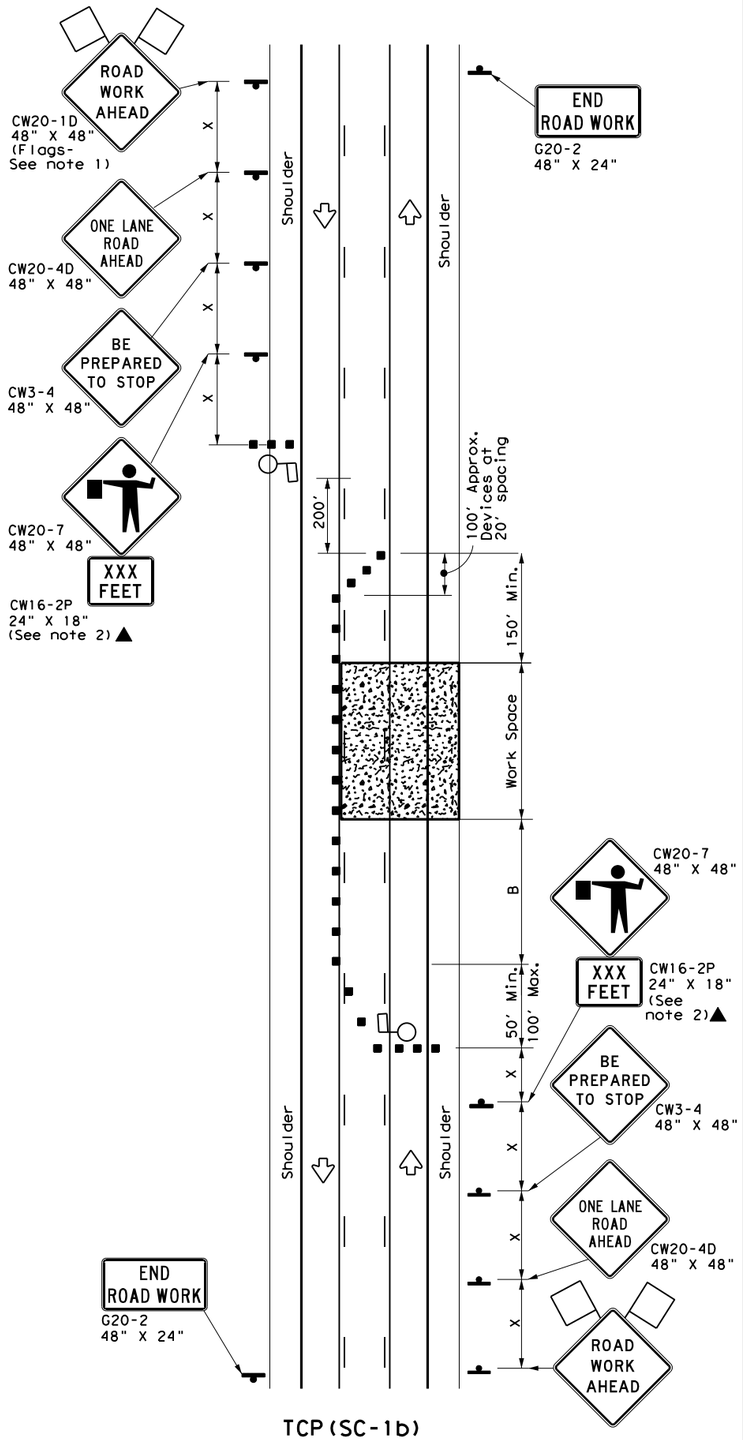


TCP(SC-1a)

ONE LANE TWO-WAY (2 LANES) CONTROL WITH PILOT VEHICLE



TCP(SC-1b)

ONE LANE TWO-WAY (3 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	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
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

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work when approved by the Engineer.
3. The 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.
4. Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger sign is less than 1500 feet.
5. Flaggers should use two-way radios or other methods of communication at all times to control traffic.
6. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.
7. 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).
8. 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 other member of the traffic control crew at the intersection.
9. Temporary rumble strips are not required on seal coat operations.
10. Pilot car is used to guide vehicles through traffic control zone, vehicle 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)

1. Channelizing devices on the center-line may be omitted when a pilot car is leading traffic.

Texas Department of Transportation — Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS

TCP(SC-1)-21

FILE: tcpsc-1-21.dgn	DN:	CK:	DW:	CK:
©TxDOT April 2021	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	22	LA SALLE		39

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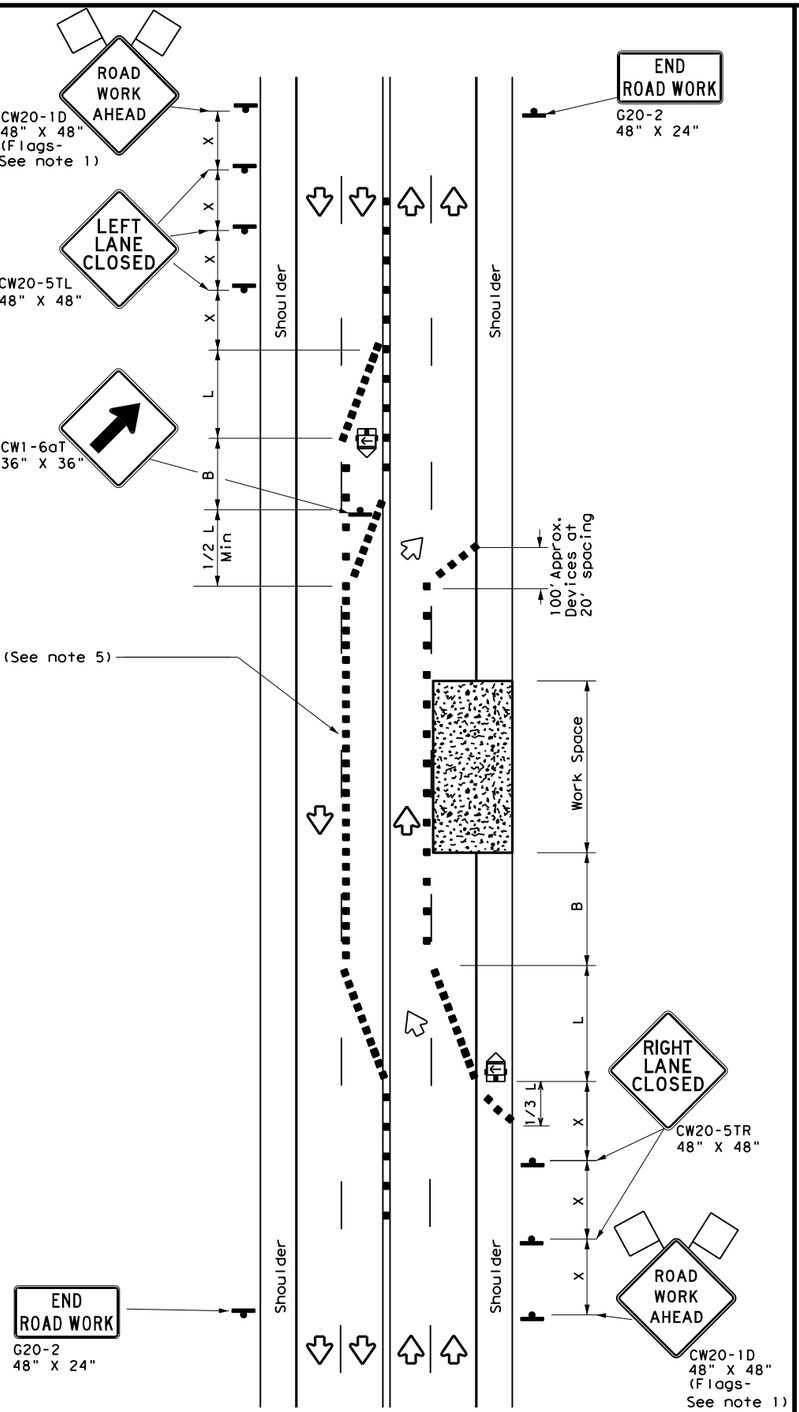
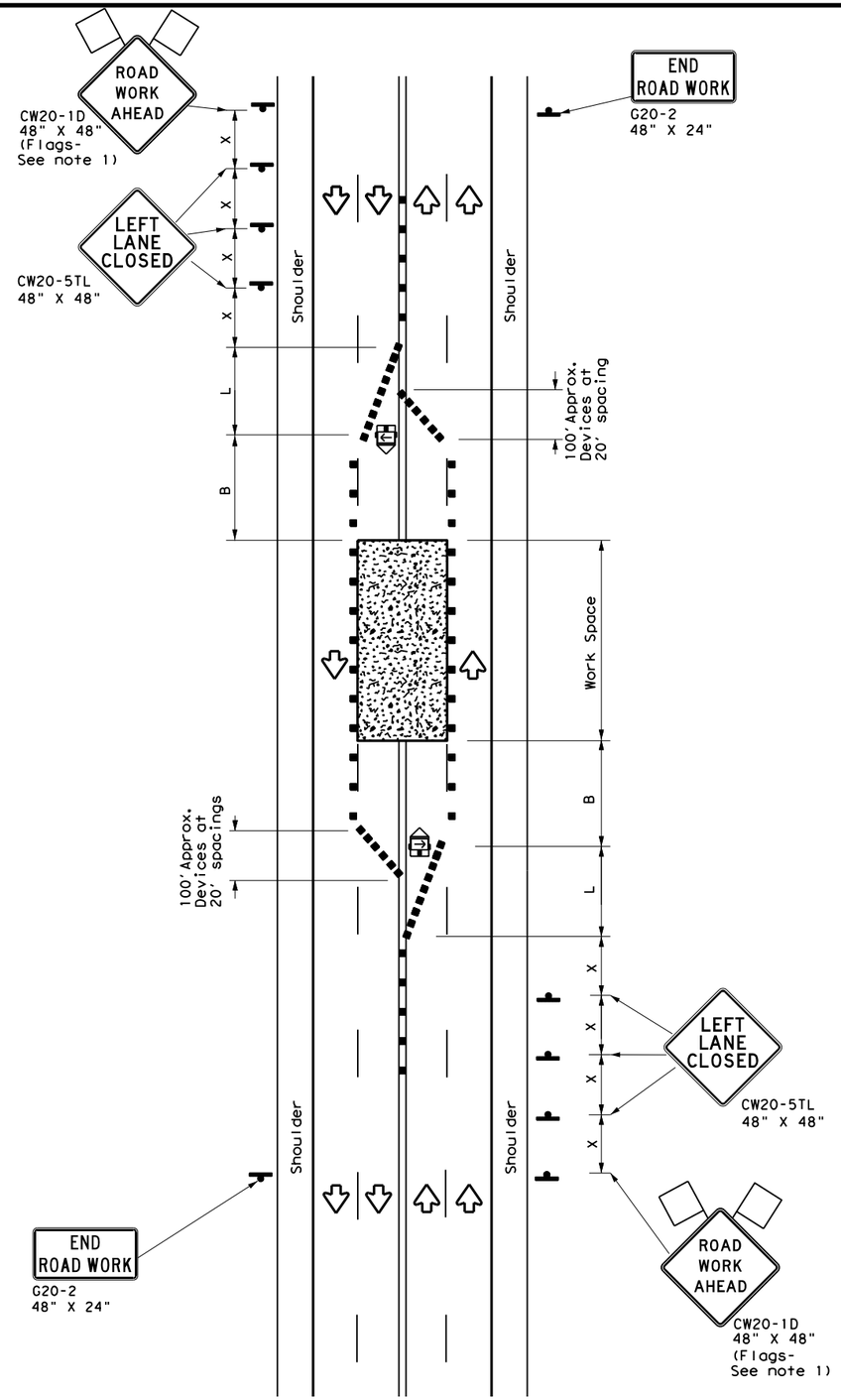


TCP (SC-2a)

ONE LANE CLOSED EACH DIRECTION
CONTROL WITH CHANNELIZING DEVICES



TCP (SC-2b)

CENTER LANES CLOSED
CONTROL WITH CHANNELIZING DEVICES

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

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

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

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
4. 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 other member of the traffic control crew at the intersection.
5. Temporary rumble strips are not required on seal coat operations.

TCP (SC-2a)

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

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(SC-2)-21

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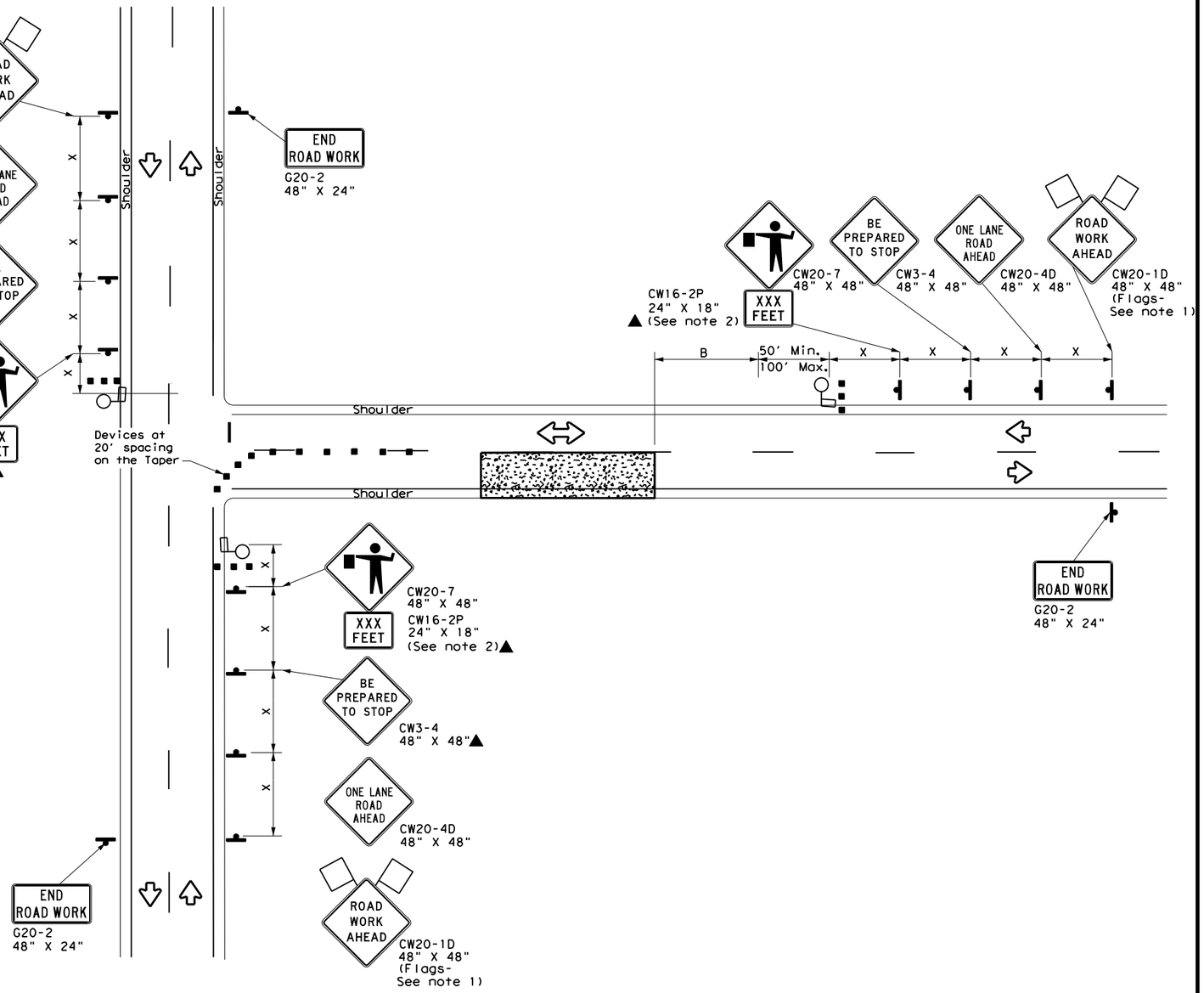

ONE LANE TWO-WAY (T-INTERSECTION) CONTROL WITH PILOT VEHICLE

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

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

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work when approved by the Engineer.
3. The 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.
4. Flaggers should use two-way radios or other methods of communication at all times to control traffic.
5. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.
6. 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).
7. Temporary rumble strips are not required on seal coat operations.
8. Pilot car is used to guide vehicles through traffic control zone, vehicle shall have an identification name displayed and "PILOT CAR, FOLLOW ME" (G20-4) sign or message board mounted in a conspicuous position on rear.

Texas Department of Transportation | Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS

TCP(SC-4)-21

FILE: tcpsc-4-21.dgn	DN:	CK:	DW:	CK:
©TxDOT April 2021	CONT	SECT	JOB	HIGHWAY
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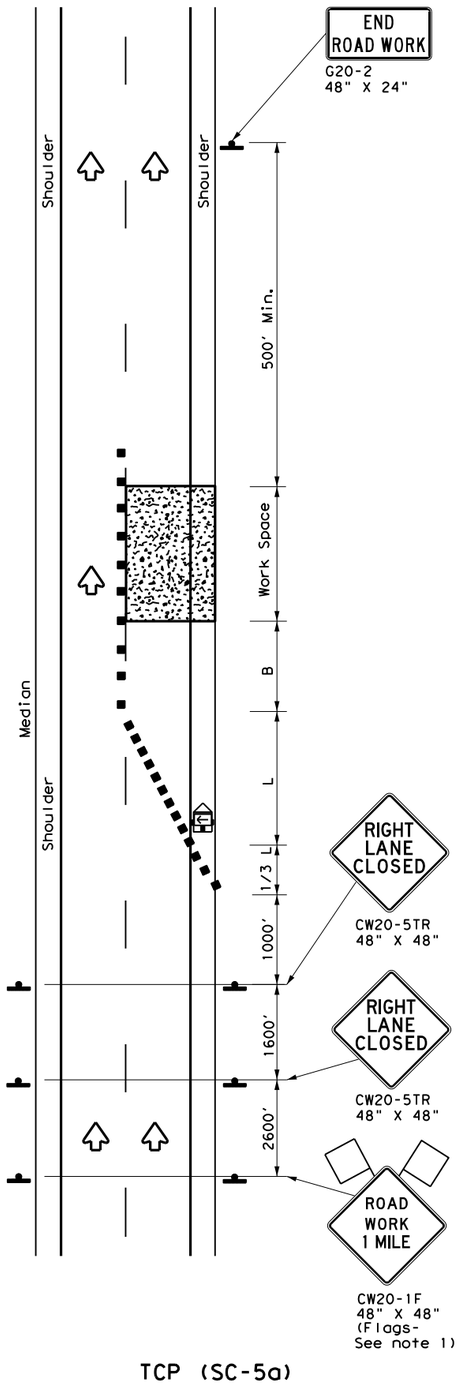
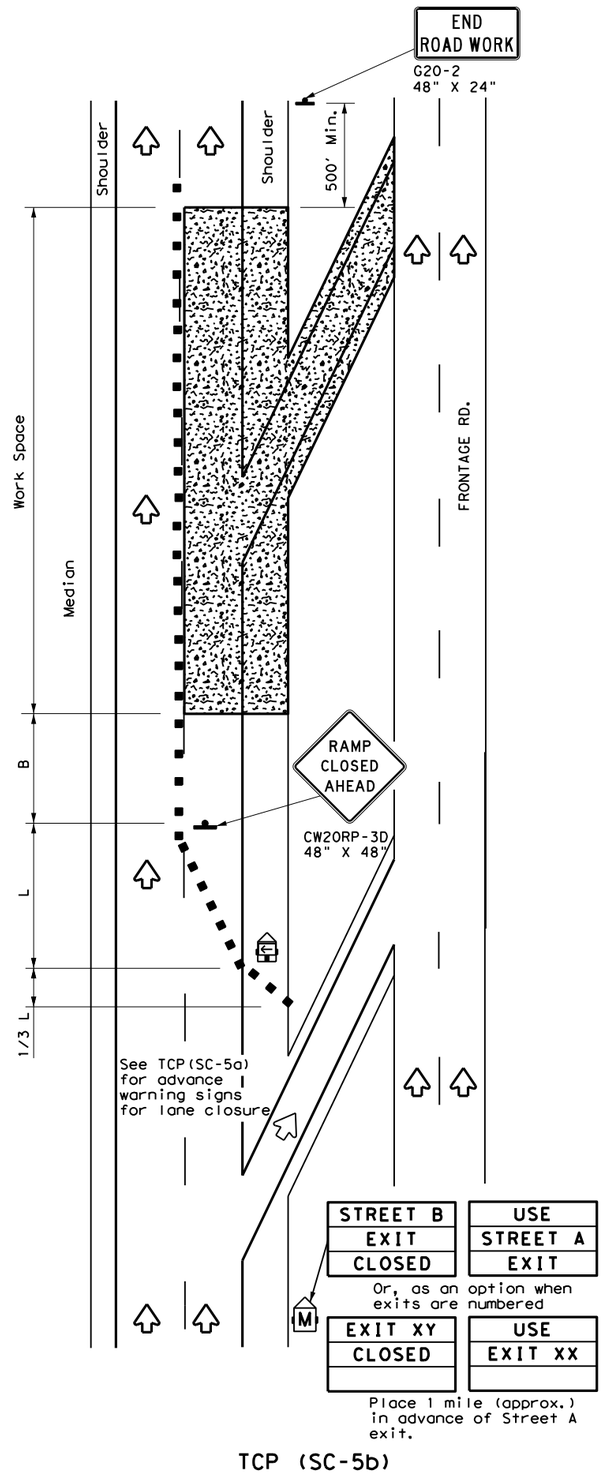
	22	LA SALLE		41



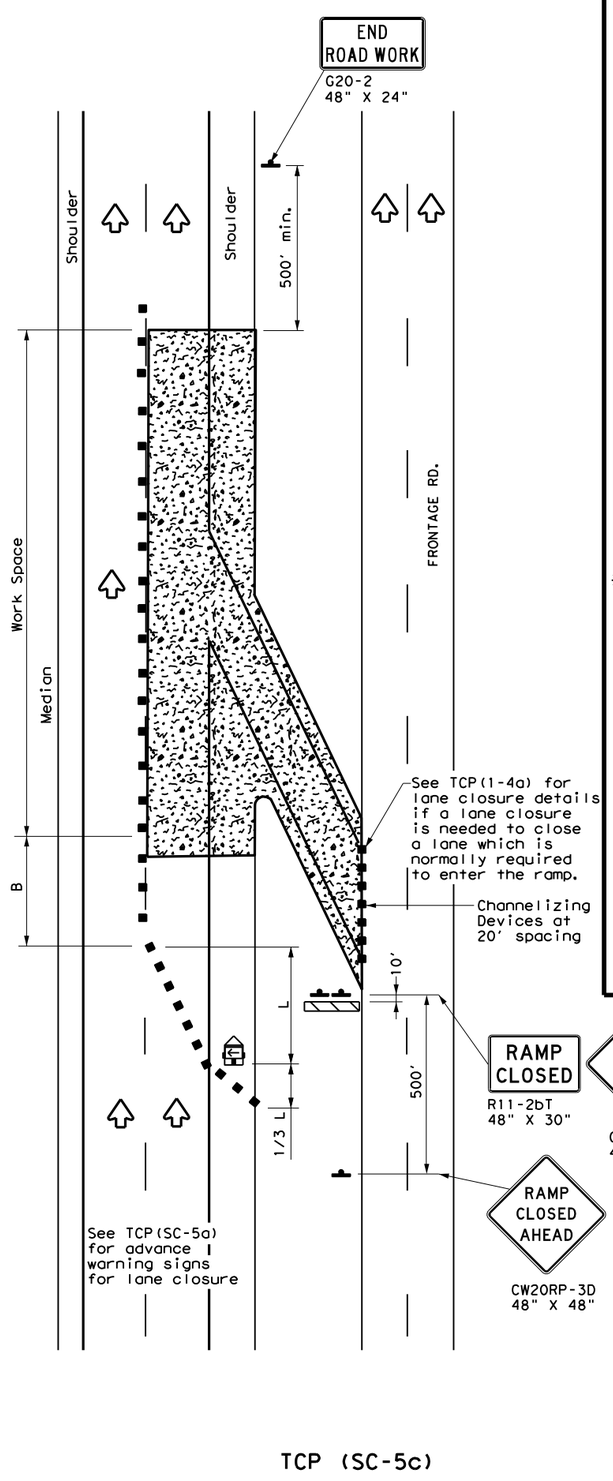
TCP (SC-5a)

ONE LANE CLOSURE



TCP (SC-5b)

LANE AND RAMP CLOSURE AT EXIT RAMPS



TCP (SC-5c)

LANE AND RAMP CLOSURE AT ENTRANCE RAMPS

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Temporary rumble strips are not required on seal coat operations.

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES FOR DIVIDED HIGHWAYS

TCP(SC-5)-21

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©TxDOT April 2021	CONT	SECT	JOB	HIGHWAY
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221

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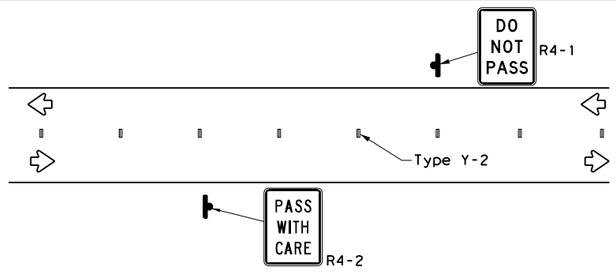
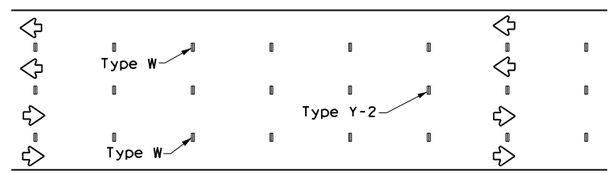
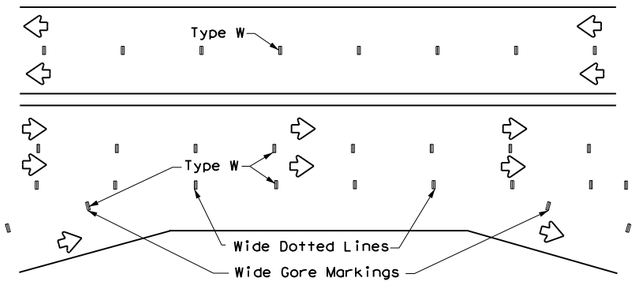
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS (TABS)



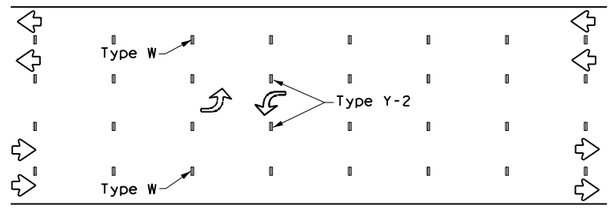
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS

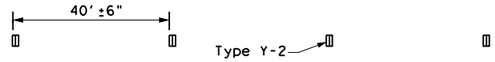


LANE LINES FOR DIVIDED HIGHWAY



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	
BROKEN LINES (FOR CENTER LINE OR LANE LINE)		
WIDE DOTTED LINES (FOR LANE DROP LINES)		
WIDE GORE MARKINGS		

NOTES:

1. Short term pavement markings shall be temporary flexible-reflective roadway marker tabs with protective cover unless otherwise specified elsewhere in plans.
2. Short term pavement markings shall NOT be used to simulate edge lines.
3. Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.
4. Temporary flexible-reflective roadway marker tabs will require normal maintenance replacement when used on roadways with an ADT per lane of up to 7500 vehicles with no more than 10% truck mix. When roadways exceed these values, additional maintenance replacement of devices should be planned.
5. No segment of roadway open to traffic shall remain without permanent pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
6. For exit gores where a lane is being dropped place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are not allowed for this purpose.

TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

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

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

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

   http://www.txdot.gov

Texas Department of Transportation

Traffic Safety Division Standard

WORK ZONE SHORT TERM PAVEMENT MARKINGS FOR SEAL COAT OPERATIONS

TCP(SC-6)-21

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	22	LA SALLE		43

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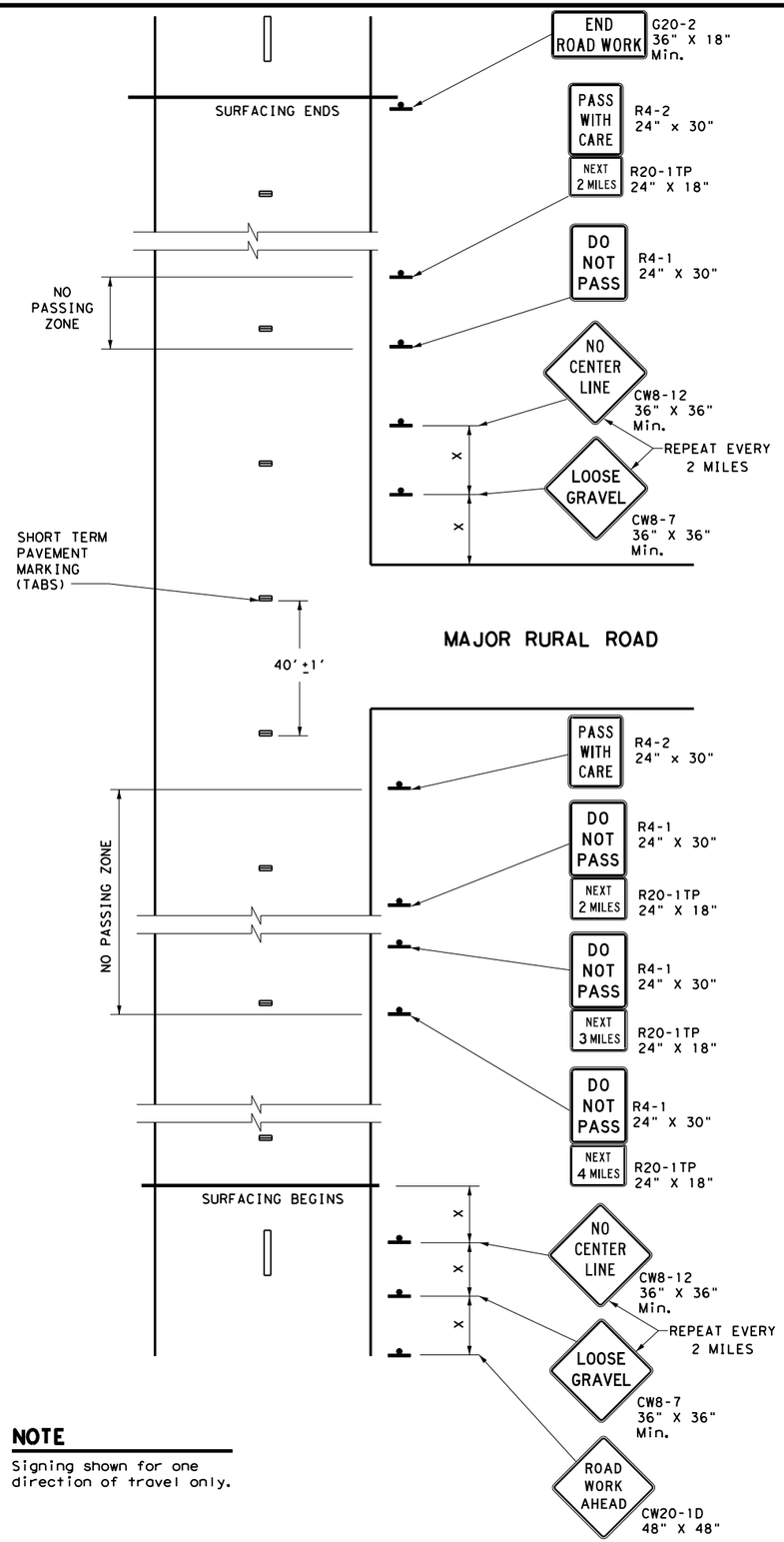
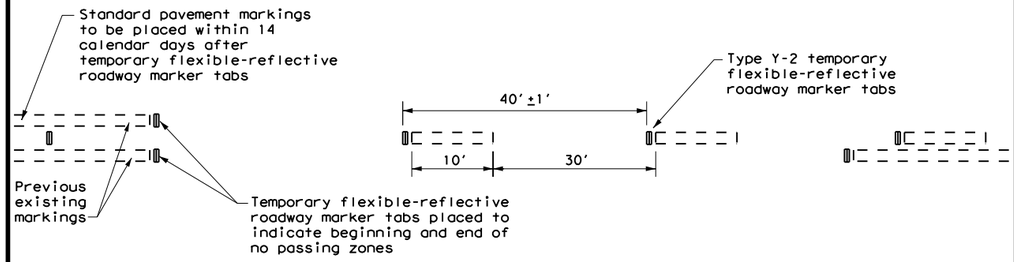


NOTE

Signing shown for one direction of travel only.

NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS



TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS

For seal coat operations

"DO NOT PASS" SIGN (R4-1) 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 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 windshield 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 days 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. R4-1 and R4-2 are to remain in place until standard pavement markings are installed.

"NO CENTER LINE" SIGN (CW8-12)

A. Center line markings are yellow pavement markings that delineate the separation of travel 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 centerline), a NO CENTER LINE (CW8-12) sign should be erected at the beginning of the work area, at approximately 2 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 standard pavement markings are installed.

"LOOSE GRAVEL" SIGN (CW8-7)

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 2 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.

PAVEMENT MARKINGS

A. Temporary markings for surfacing projects shall be Temporary Flexible-reflective Roadway Marker Tabs 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 (2) days before the surfacing is applied. After the surfacing is rolled and swept, the cover over the reflective strip shall be removed.

B. Tabs shall not be used to simulate edge lines.

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 in the sequence shown following the OBEY WARNING SIGNS STATE LAW (R20-3T) and the TRAFFIC FINES DOUBLE (R20-5T) sign, and 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 signs will then be repeated as described above.

Posted Speed *	Minimum Sign Spacing "X" Distance
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. The traffic control devices detailed on this sheet will be furnished and erected as directed by the Engineer on sections of roadway where tabs must be placed prior to the surfacing operation which will cover or obliterate the existing pavement markings.
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 Stantionary 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 will be placed on both right and left sides of the roadway based on roadway conditions as directed by the Engineer.

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC CONTROL DETAILS FOR SEAL COAT OPERATIONS

TCP(SC-7)-21

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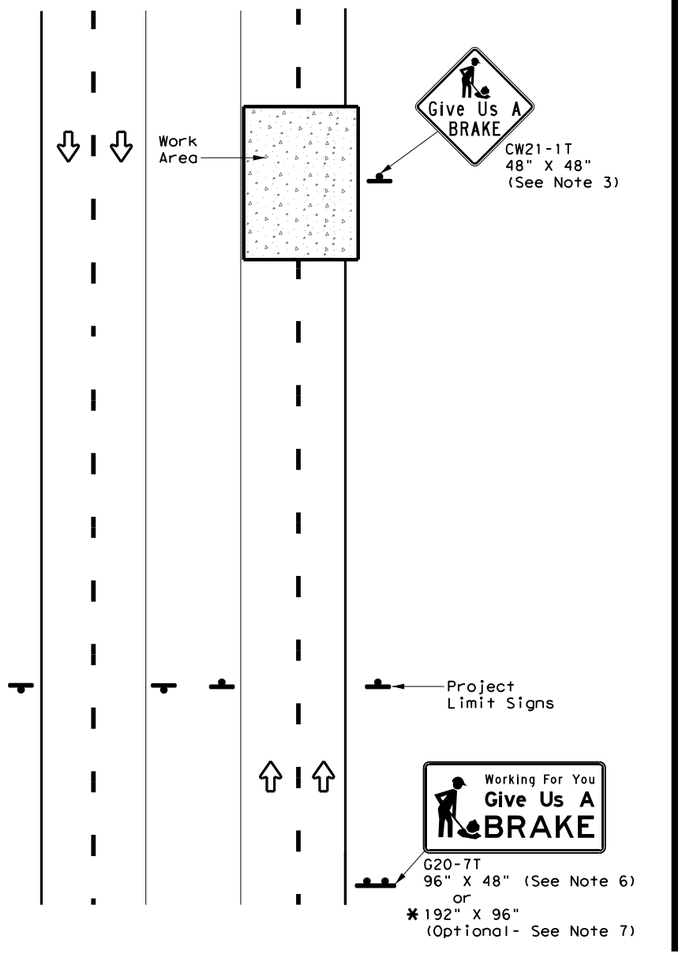
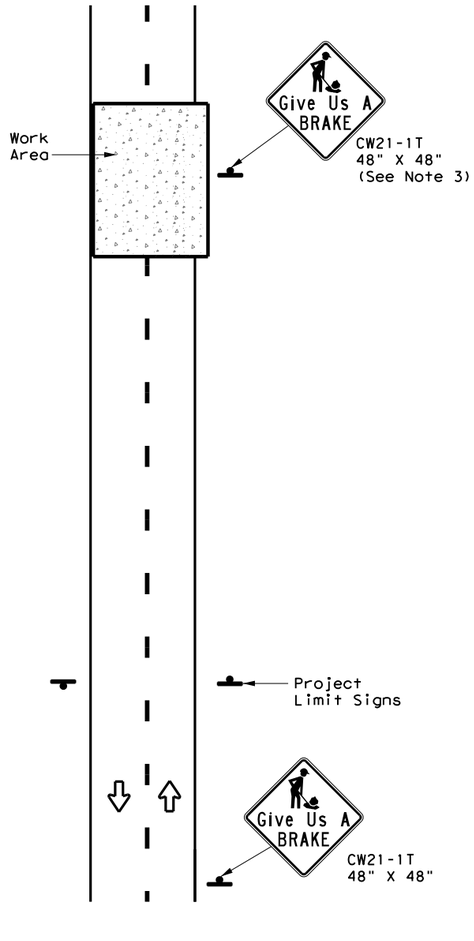


DIVIDED HIGHWAY



UNDIVIDED HIGHWAY

SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

* When the optional larger WORKING FOR YOU GIVE US A BRAKE (G20-7T) 192" x 96" sign is required, the locations shall be noted elsewhere in the plans.

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN	SIGN DIMENSIONS	REFLECTIVE SHEETING	SQ FT	GALVANIZED STRUCTURAL STEEL			DRILLED SHAFT 24" DIA. (LF)
						Size	(LF) ①	(LF) ②	
Orange	G20-7T	Working For You Give Us A BRAKE	96" X 48"	Type B_{FL} or C_{FL}	32	▲	▲	▲	▲
Orange	G20-7T	Working For You Give Us A BRAKE	192" X 96"	Type B_{FL} or C_{FL}	128	W8x18	16	17	12

▲ See Note 6 Below

LEGEND	
	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL}
BLACK	LEGEND & BORDERS	NON-REFLECTIVE ACRYLIC FILM

GENERAL NOTES

1. See BC and SMD sheets for additional sign support details.
2. Sign locations shall be approved by the Engineer.
3. For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
4. Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
5. Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
6. The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
7. The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
   Item 636 - Aluminum Signs
   Item 647 - Large Roadside Sign Supports and Assemblies.
   Item 416 - Drilled Shaft Foundations
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

WZ(BRK)-13

FILE: wzbrk-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
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116

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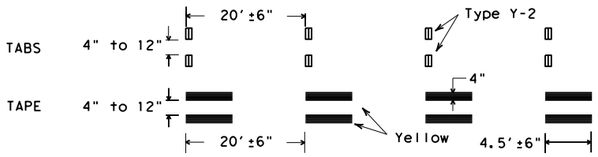
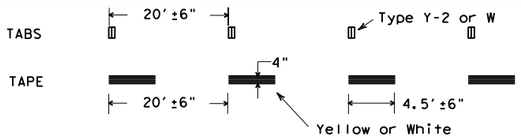
WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

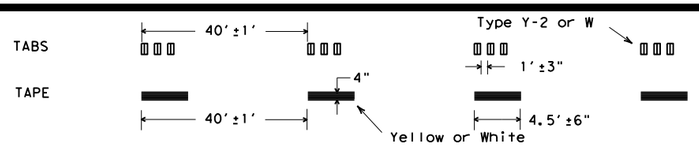


SINGLE NO-PASSING LINE or CHANNELIZATION LINE



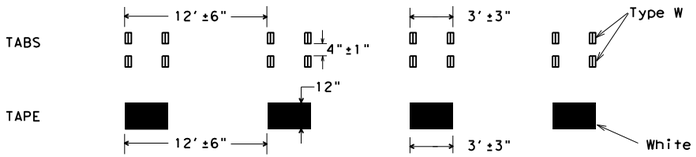
BROKEN LINES

(FOR CENTER LINE OR LANE LINE)

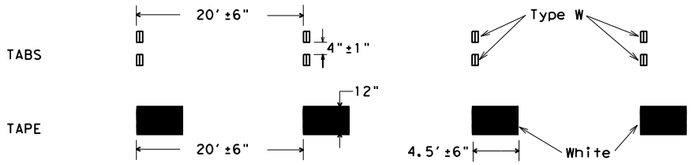


WIDE DOTTED LINES

(FOR LANE DROP LINES)



WIDE GORE MARKINGS



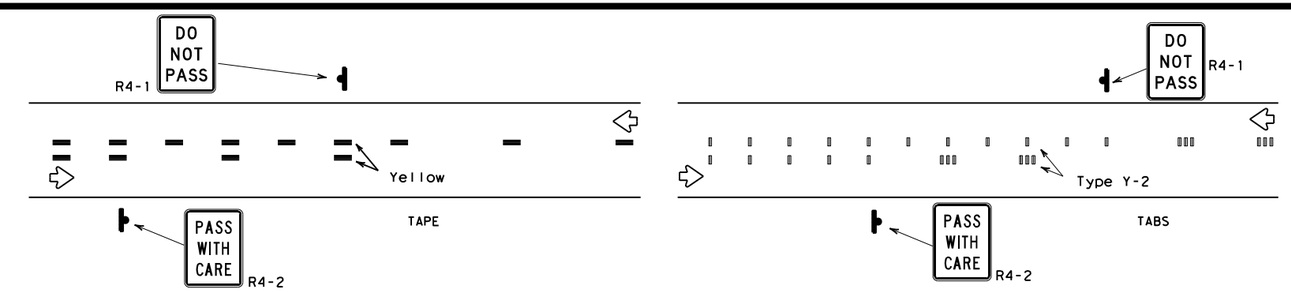
NOTES:

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

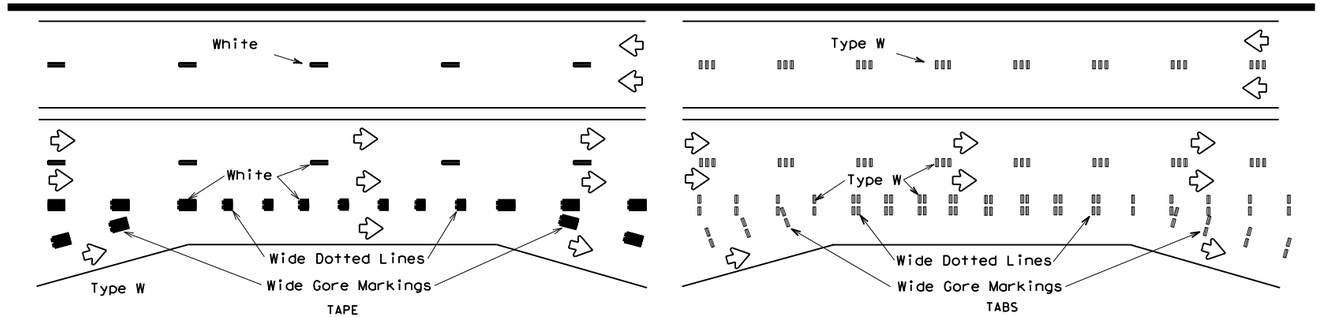
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

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

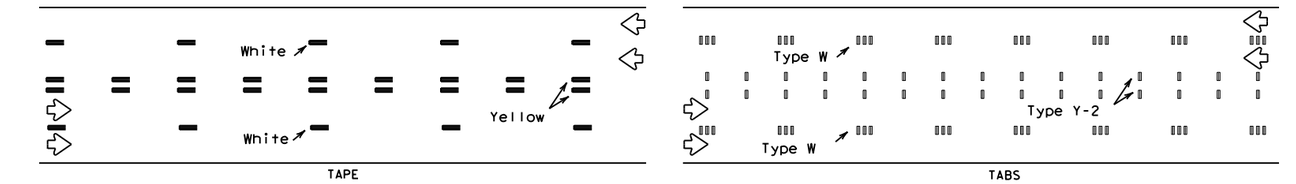
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



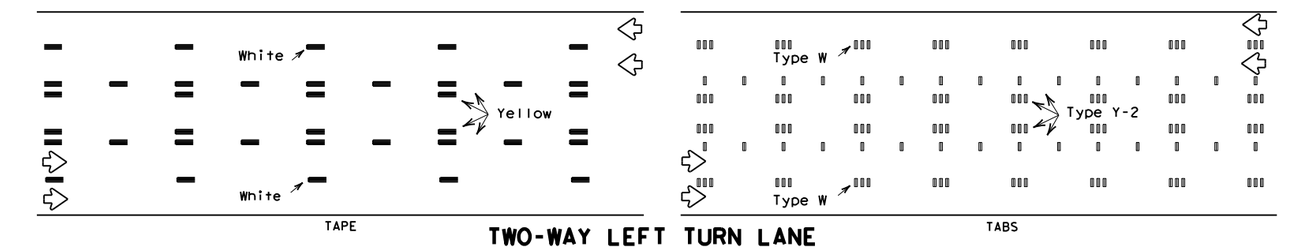
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



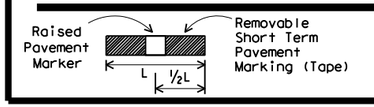
LANE LINES FOR DIVIDED HIGHWAY



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



TWO-WAY LEFT TURN LANE



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

PREFABRICATED PAVEMENT MARKINGS

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

RAISED PAVEMENT MARKERS

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

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

1. DMSs referenced above can be found along with embedded links to their respective MPLs at the following website:
   http://www.txdot.gov/business/contractors_consultants/material_specifications/default.htm

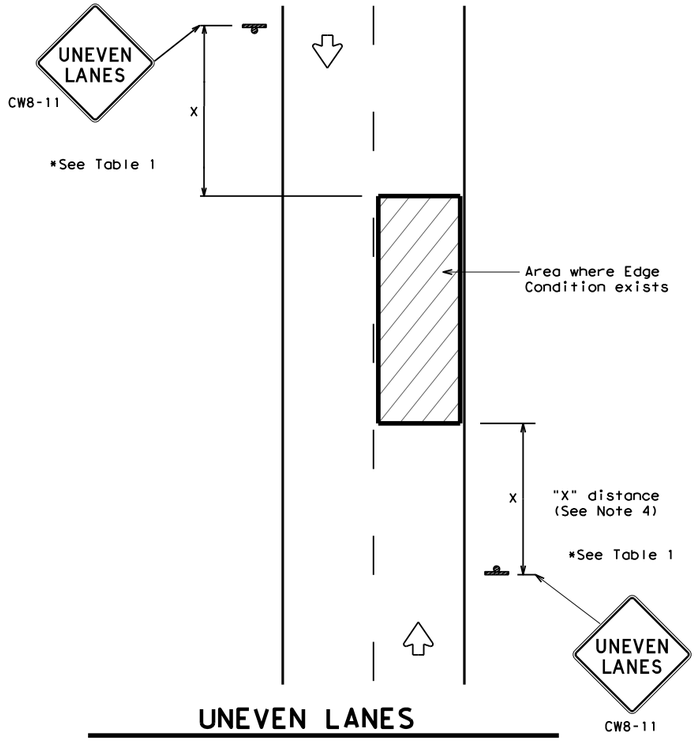
Texas Department of Transportation

Traffic Operations Division Standard

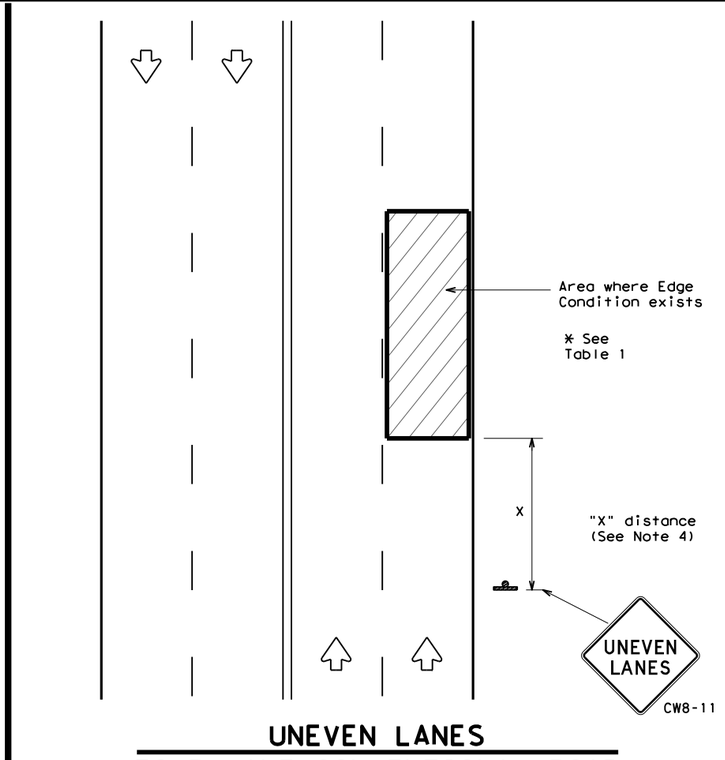
WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ(STPM)-13

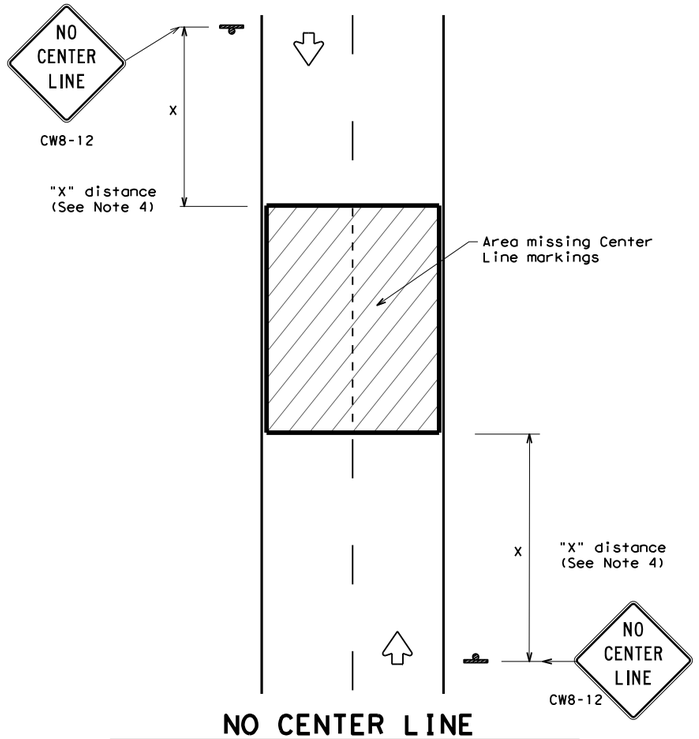
FILE:	wzstpm-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS		0017	08	114	IH 35
1-97		DIST	COUNTY		SHEET NO.
3-03		22	LA SALLE		46
7-13					



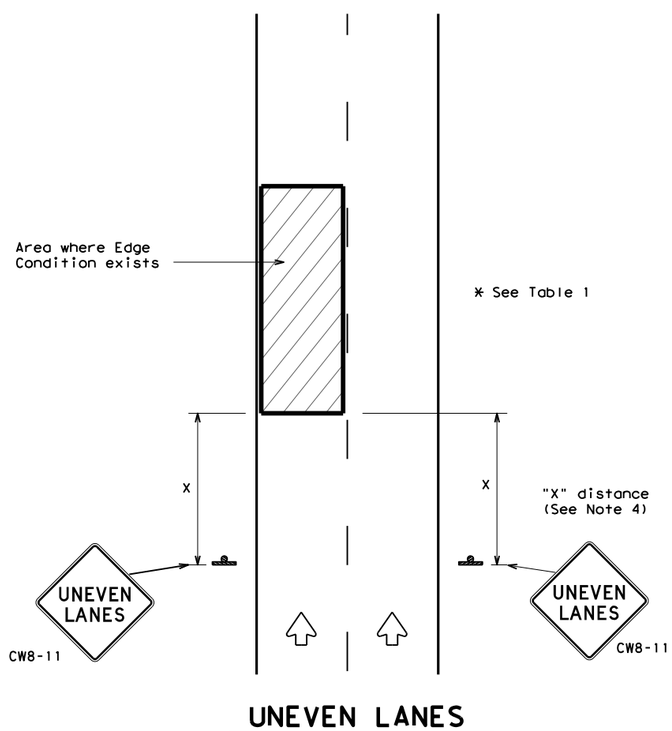
UNEVEN LANES
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
FOUR LANE CONVENTIONAL ROAD



NO CENTER LINE
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
DIVIDED ROADWAY

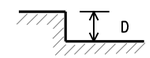
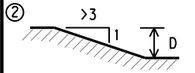
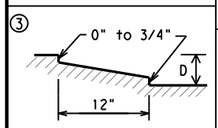
DEPARTMENTAL MATERIAL SPECIFICATIONS	
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY (REMOVABLE) PREFABRICATED PAVEMENT MARKINGS	DMS-8241
SIGN FACE MATERIALS	DMS-8300

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL} SHEETING
BLACK	LEGEND & BORDERS	ACRYLIC NON-REFLECTIVE SHEETING

GENERAL NOTES

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

TABLE 1

Edge Condition	Edge Height (D)	* Warning Devices
① 	Less than or equal to: 1¼" (maximum-planing) 1½" (typical-overlay)	Sign: CW8-11
	Distance "D" may be a maximum of 1 1/4 " for planing operations and 2" for overlay operations if uneven lanes with edge condition 1 are open to traffic after work operations cease.	
② 	Less than or equal to 3"	Sign: CW8-11
③  Notched Wedge Joint	Distance "D" may be a maximum of 3" if uneven lanes with edge condition 2 or 3 are open to traffic after work operations cease. Uneven lanes should not be open to traffic when "D" is greater than 3".	

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

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

Texas Department of Transportation

Traffic Operations Division Standard

SIGNING FOR UNEVEN LANES

WZ(UL)-13

FILE:	wzul-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS		0017	08	114	IH 35
8-95 2-98 7-13		DIST	COUNTY		SHEET NO.
1-97 3-03		22	LA SALLE		47

112

DATE: 6/28/2021 4:59:23 PM
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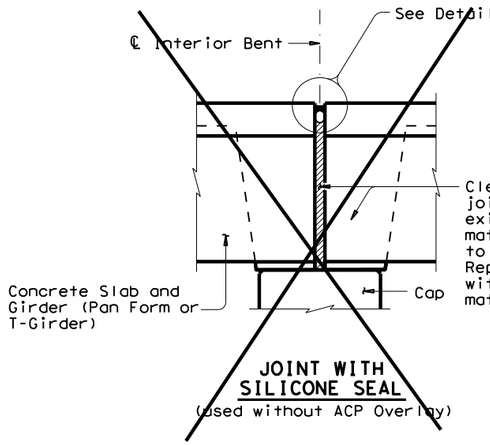
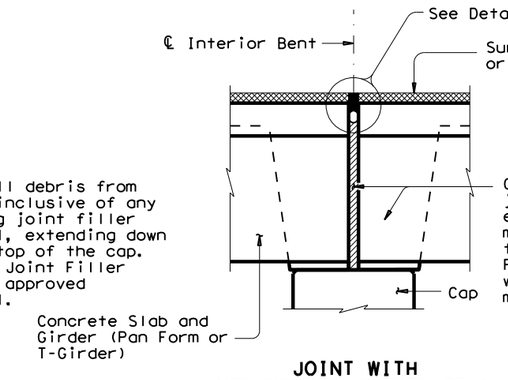


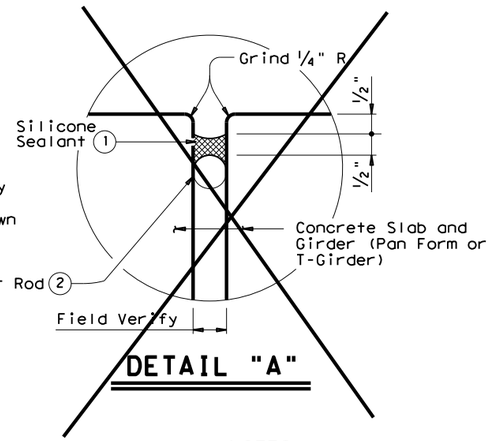
JOINT WITH SILICONE SEAL
(used without ACP Overlay)



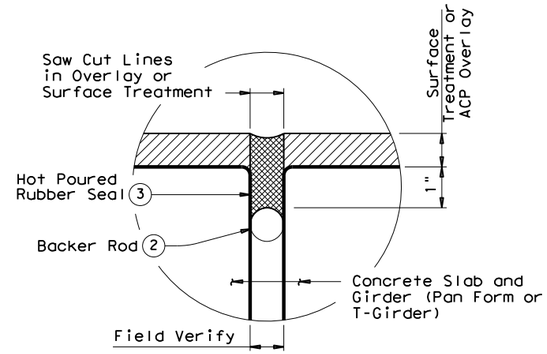
JOINT WITH HOT POURED RUBBER SEAL
(used with ACP Overlay)

EXISTING CONCRETE SLAB & GIRDER JOINT DETAIL

(T-Girder not depicted for clarification purposes.)



DETAIL "A"



DETAIL "B"

NOTES:

(1) ~~Use Class 7 silicone sealant. Prepare joint and seal in accordance with Item 438 "Cleaning and Sealing Joints and Cracks."~~

(2) Backer rod must be 25% larger than joint opening and must be compatible with the sealant.

(3) Use Class 3 hot poured rubber seal. Prepare joint and seal in accordance with Item 438 "Cleaning and Sealing Joints and Cracks."

PROCEDURE FOR CLEANING AND SEALING EXISTING CONCRETE GIRDER JOINT WITH SILICONE SEAL:

1) Clean joint opening of all old expansion materials/devices, dirt, and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints and Cracks." Clean joint out full depth of the joint.

2) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.

3) Place backer rod into joint opening 1" below the top of concrete. The backer rod must be 25% larger than the joint opening.

4) Seal the joint opening with a Class 7 Silicone. Recess seal ½" below top of concrete in travel lanes and ⅛" below top of concrete in shoulders.

PROCEDURE FOR CLEANING AND SEALING EXISTING CONCRETE GIRDER JOINT WITH HOT POURED RUBBER SEAL:

1) Saw cut through the asphalt at the centerline of joint. Make multiple saw cuts to create a ½" minimum joint opening or match the existing joint opening. Clean joint opening of all old expansion materials/devices, bituminous materials, dirt, grease and all other deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints and Cracks."

2) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.

3) Place backer rod into joint opening 1" below the top of concrete. Backer rod must be of the type that can handle the heat and be compatible with the hot poured rubber seal. The backer rod must be 25% larger than the joint opening.

4) Seal the joint opening with a Class 3, "Hot Poured Rubber." Seal flush to the top of the asphaltic concrete pavement.

CSJ: 0037-06-108		
SUMMARY OF BRIDGE ITEMS		
PSN	438 6001 CLEANING AND SEALING EXISTING JOINTS LF	
22-064-0-0037-06-066	943.5	
PROJECT TOTALS	943.5	

GENERAL NOTES:

Verify actual joint condition and bridge configuration prior to begining work and selecting appropriate detail to be used.

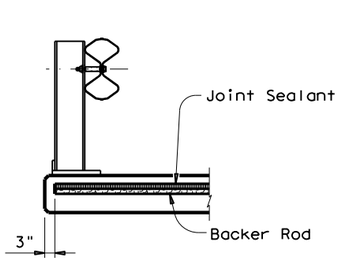
Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting joint opening, and sealing joint is paid for by Item 438, "Cleaning and Sealing Joints and Cracks" and measured by the foot of "Cleaning and Sealing of Existing Joints."

Obtain approval for all tools, equipment, materials and techniques proposed for use to prepare the joint.

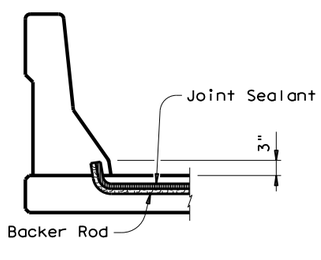
For Class 3 Hot Poured Rubber Seal, provide backer rod compatible with the hot poured rubber sealant and rated for a minimum of 400°F. Provide Class 3 sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in asphalt overlay.

Provide Class 7 silicone sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.

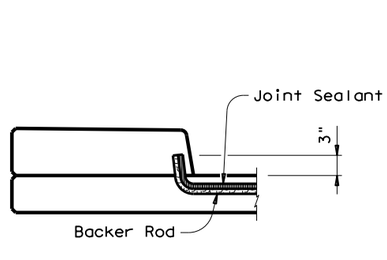
Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 Sealant cannot be effectively placed in the vertical position, a Class 4 Sealant compatible with the Class 7 sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with manufacturer's specifications.



SHOWN AT STEEL RAIL



SHOWN AT BARRIER RAIL



SHOWN AT CURB

JOINT SEALANT TERMINATION DETAILS

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NOT TO SCALE

TEXAS DEPARTMENT OF TRANSPORTATION ®
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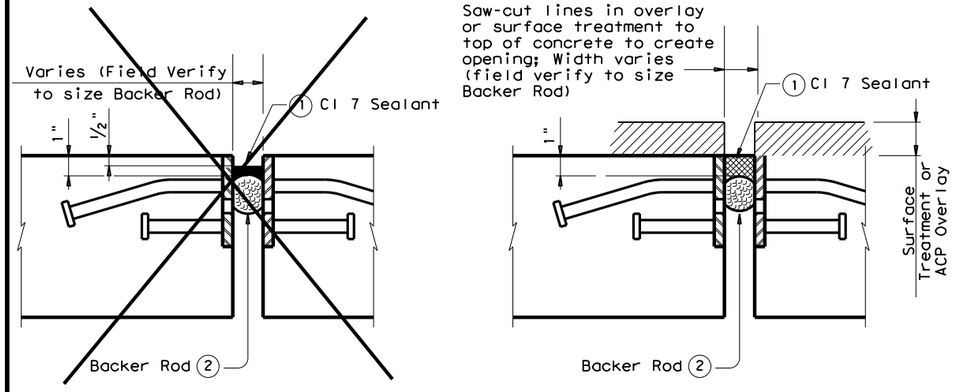
CLEANING AND SEALING EXISTING BRIDGE JOINTS

REVISED: 8/24/12

DN: SP	DW: SP	STATE	SHEET NUMBER	SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 1 OF 2	

FED. RD. DIV. NO.	STATE DIST. NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	
6	22	LA SALLE	0017	08	114	IH 35	48



CLEANING AND SEALING EXISTING ARMOR JOINTS

PROCEDURE FOR CLEANING AND SEALING EXISTING ARMOR JOINTS:

~~1a) FOR DECKS WITHOUT SURFACE TREATMENT:~~
~~Remove existing seal.~~

1b) FOR DECKS WITH SURFACE TREATMENT:
Sawcut through the asphalt at the cenerline of the joint. make multiple sawcuts to create a ½" minimum joint opening or match existing joint opening. Clean joint opening of all deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints and Cracks".

2) Abrasive blast clean existing steel surface where seal is to be placed.

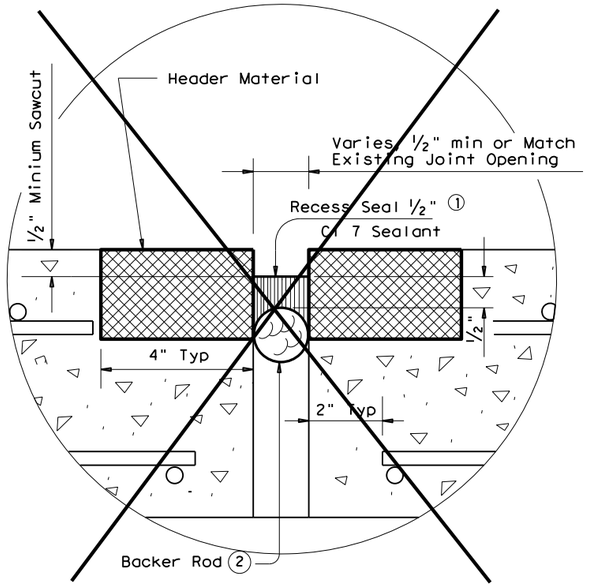
3) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.

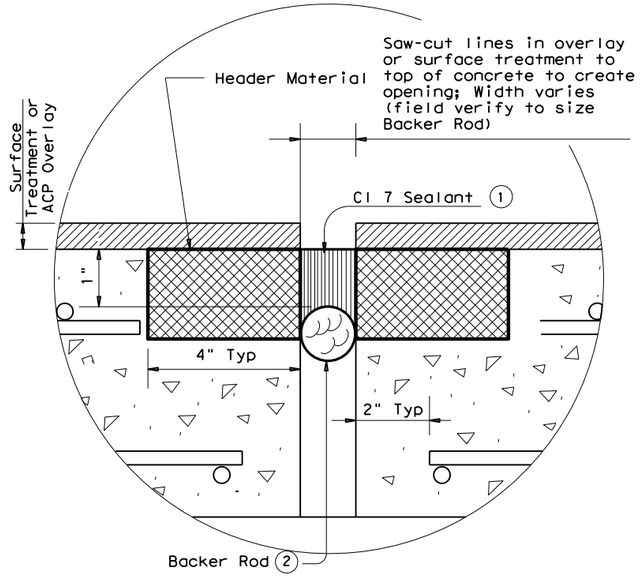
4) Condition of existing steel angle, plate, or rail shall be determined prior to sealing the exist joint. The entire length of existing joint shall be checked and any portion that is determined to be unsound by the Engineer shall be removed and replaced as directed by the Engineer. Compensation for any work beyond the scope of cleaning and sealing will be addressed with the Engineer.

5) Place backer rod into joint opening 1" below the top of concrete. The backer rod must be 25% larger than the joint opening.

~~6a) FOR DECKS WITH NO SURFACE TREATMENT:~~
~~Seal the joint opening with a Class 7 Sealant. Recess seal ½" below top of concrete in travel lanes and ⅛" below top of concrete in shoulders.~~

6b) FOR DECKS WITH SURFACE TREATMENTS:
Seal the joint opening with a Class 7 Sealant flush with top surface of deck, below the surface treatment.





CLEANING AND SEALING EXISTING HEADER JOINTS

PROCEDURE FOR CLEANING AND SEALING EXISTING HEADER JOINTS:

~~1a) FOR DECKS WITHOUT SURFACE TREATMENT:~~
~~Remove existing seal.~~

1b) FOR DECKS WITH SURFACE TREATMENT:
Sawcut through the asphalt at the cenerline of the joint. make multiple sawcuts to create a ½" minimum joint opening or match existing joint opening. Clean joint opening of all deleterious materials in accordance with Item 438, "Cleaning and Sealing Joints and Cracks".

2) Abrasive blast clean existing concrete where seal is to be placed.

3) Obtain approval of cleaned joint prior to proceeding with joint sealing operation.

4) Condition of existing header material shall be determined prior to sealing the exist joint. The entire length of existsing joint shall be checked and any portion that is determined to be unsound by the Engineer shall be removed and replaced as directed by the Engineer. Compensation for any work beyond the scope of cleaning and sealing will be addressed with the Engineer.

5) Place backer rod into joint opening 1" below the top of concrete. The backer rod must be 25% larger than the joint opening.

~~6a) FOR DECKS WITH NO SURFACE TREATMENT:~~
~~Seal the joint opening with a Class 7 Sealant. Recess seal ½" below top of concrete in travel lanes and ⅛" below top of concrete in shoulders.~~

6b) FOR DECKS WITH SURFACE TREATMENTS:
Seal the joint opening with a Class 7 Sealant, flush with top of header material, below the surface treatment.

GENERAL NOTES:

Verify actual joint condition and bridge configuration prior to begining work and selecting appropriate detail to be used.

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting joint opening, and sealing joint is paid for by Item 438, "Cleaning and Sealing Joints and Cracks" and measured by the foot of "Cleaning and Sealing of Existing Joints."

Obtain approval for all tools, equipment, materials and techniques proposed for use to prepare the joint.

For Class 3 Hot Poured Rubber Seal, provide backer rod compatible with the hot poured rubber sealant and rated for a minimum of 400°F. Provide Class 3 sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in asphalt overlay.

Provide Class 7 silicone sealant in accordance with DMS-6310, "Joint Sealants and Fillers" for joints in concrete.

Extend sealant up into rail or curb 3 inches on low side or sides of deck. If the Class 7 Sealant cannot be effectively placed in the vertical position, a Class 4 Sealant compatible with the Class 7 sealant is allowed for the extension of the seal into the curb or rail. Prepare surfaces where sealant is to be placed in accordance with manufacturer's specifications.

NOTES:

1. Use Class 7 sealant that conforms to DMS-6310. Prepare joint and seal in accordance with Item 438 "Cleaning and Sealing Joints and Cracks."
2. Backer rod must be 25% larger than joint opening and must be compatible with the sealant.

STATE OF TEXAS
LUIS G. URBINA
117019
LICENSED
PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by LUIS G. URBINA P.E. 117019, on 6/28/2021

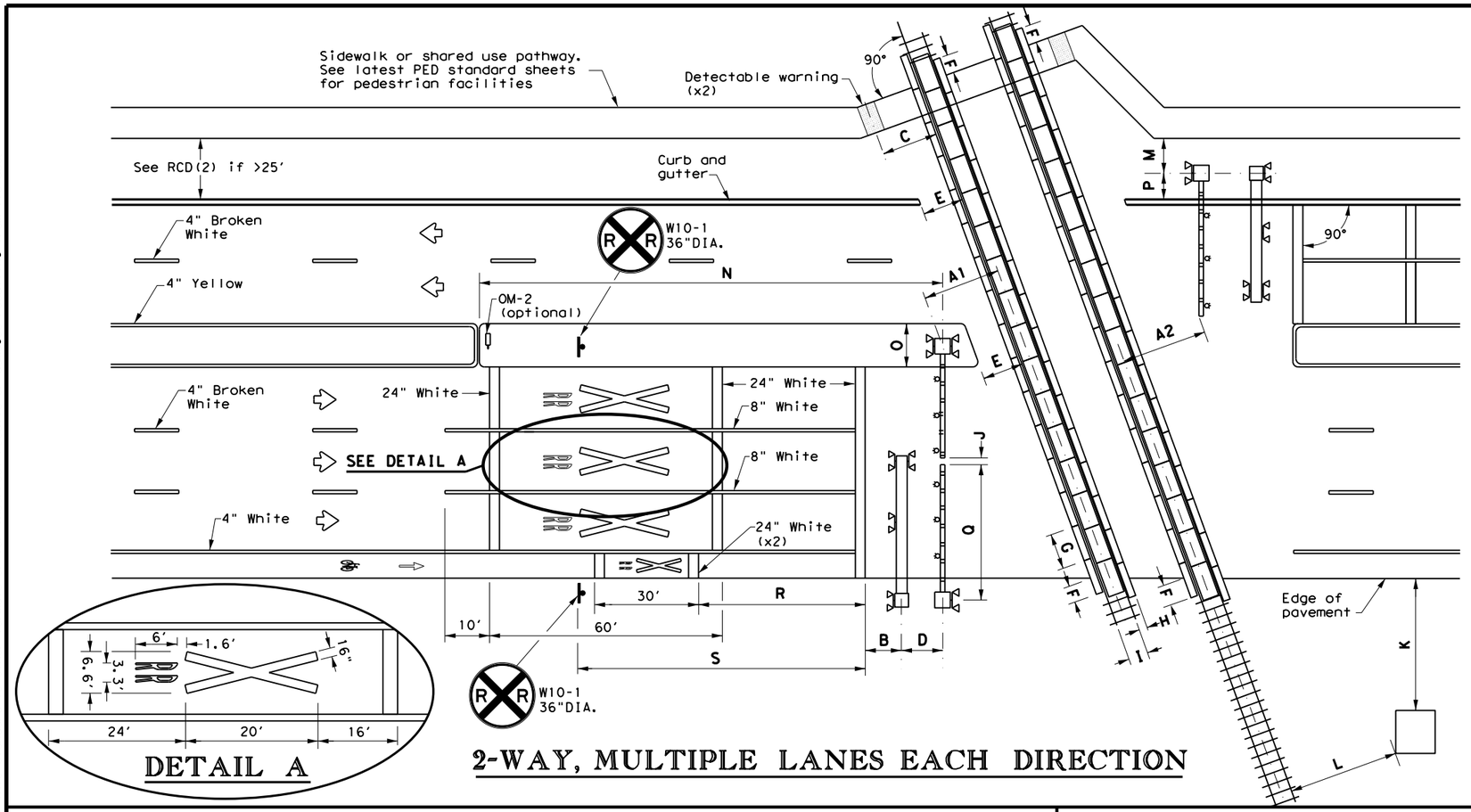
NOT TO SCALE

CLEANING AND SEALING EXISTING BRIDGE JOINTS

REVISED: 10/17/13

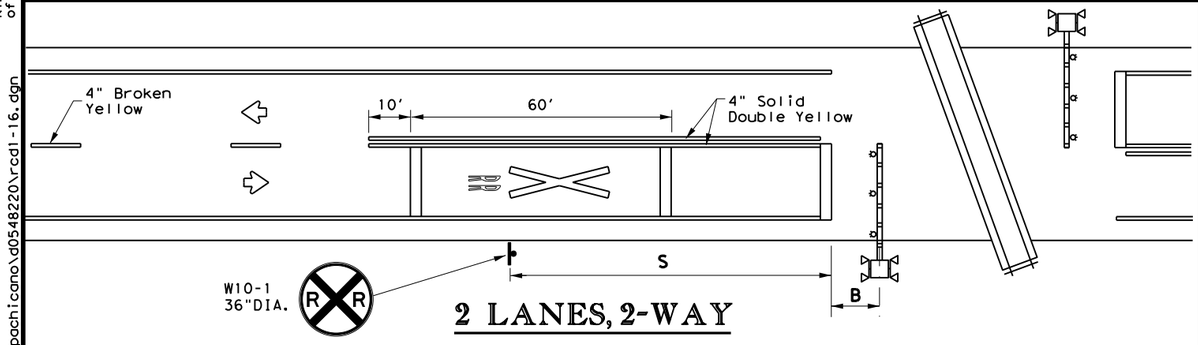
DN: SP	DW: SP	STATE	SHEET NUMBER			SHEET NO.
CK: LU	CK: LU	TEXAS	SHEET 2 OF 2			
FED. RD. DIV. NO.	STATE DIST. NO.	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.
6	22	LA SALLE	0017	08	114	IH 35

49

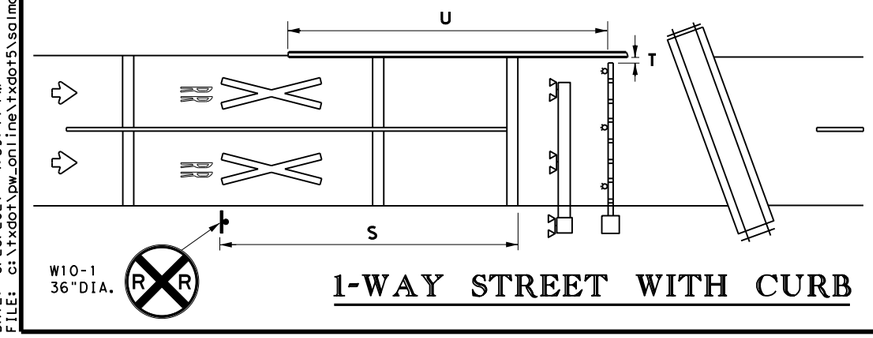


DETAIL A

2-WAY, MULTIPLE LANES EACH DIRECTION



2 LANES, 2-WAY



1-WAY STREET WITH CURB

NOTES

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

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

NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

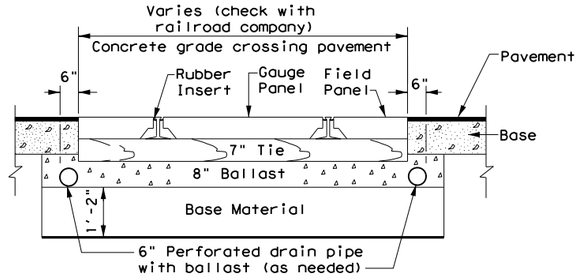
S: Stop line to GRADE CROSSING ADVANCE WARNING (W10-1) sign and adjacent RR Crossing pavement markings. See Table 1. See RCD(2) for other signs.

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

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



CROSSING SURFACE CROSS SECTION

Texas Department of Transportation

Traffic Operations Division Standard

RAILROAD CROSSING DETAILS SIGNING, STRIPING, AND DEVICE PLACEMENT RCD(1)-16

FILE: rcd1-16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT FEBRUARY 2016	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	22	LA SALLE		50

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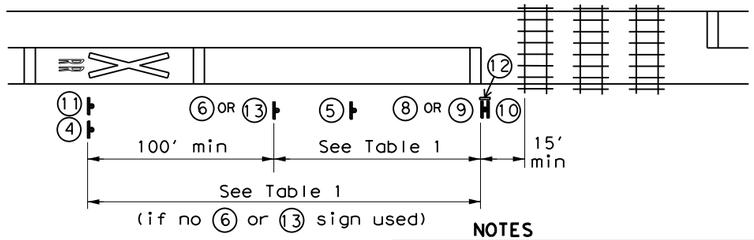
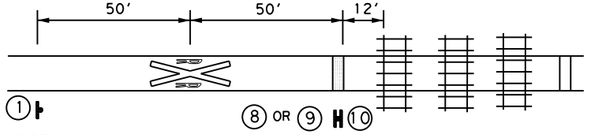


PASSIVE CROSSING

NOTES

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



NOTES

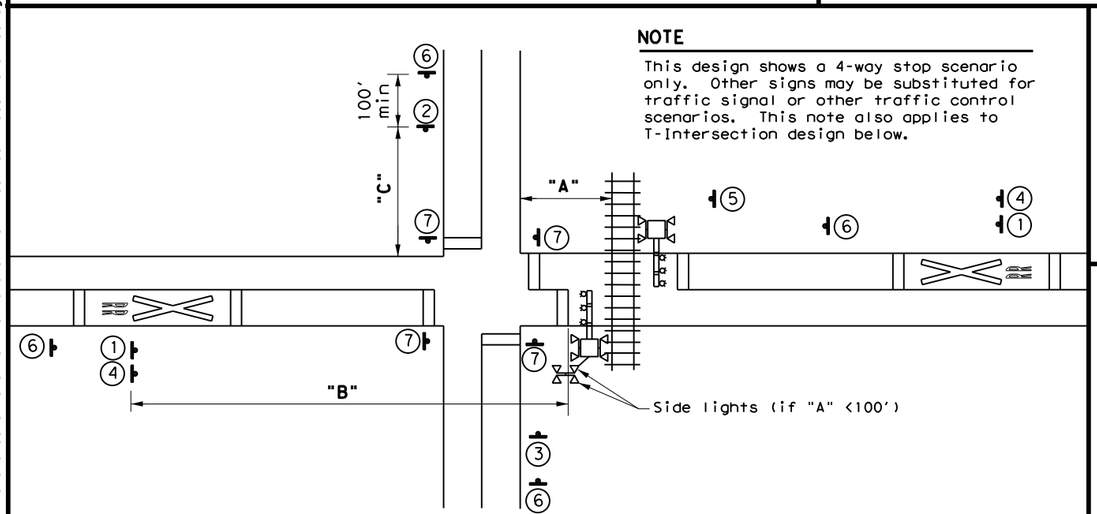
1. A shared use pathway is considered a separate pathway crossing when more than 25' from traveled way of adjacent roadway.
2. Detectable warning used at stop bar.
3. Smaller sign sizes preferred than shown to the right on this sheet.

PATHWAY CROSSING

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

GENERAL NOTES

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

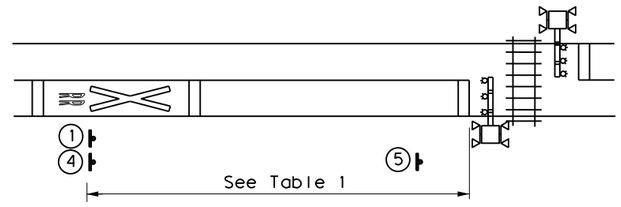


NOTE

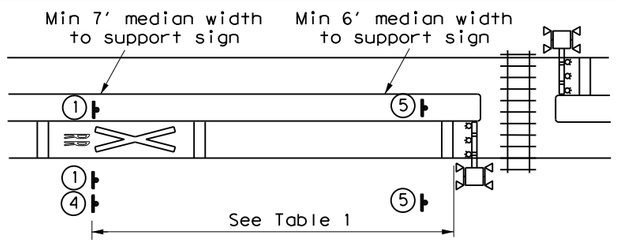
This design shows a 4-way stop scenario only. Other signs may be substituted for traffic signal or other traffic control scenarios. This note also applies to T-Intersection design below.

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

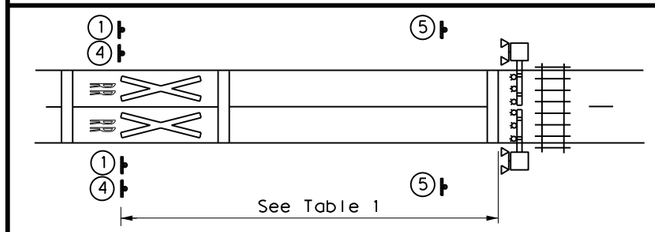
GRADE CROSSING NEAR A PARALLEL STREET



2-WAY



2-WAY WITH MEDIAN



1-WAY

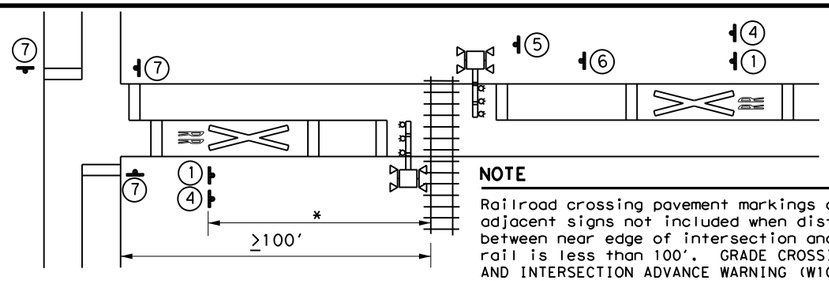
SIGNS

** ① W10-1 36"DIA.	** ② W10-2L 36"X36"	** ③ W10-2R 36"X36"	IF NEEDED ④ W10-5 36"X36" / LOW GROUND CLEARANCE W10-5P 30"x24"
IF NEEDED ⑤ R8-8 24"X30"	IF NEEDED ⑥ W3-1 30"X30"	⑦ STOP R1-1 36"X36" / ALL WAY R1-3P 18"X6"	RAIL CROSSING ROAD 3 TRACKS R15-1 48"X9" / R15-2P 27"X18" / ⑧ STOP R1-1 36"X36"
RAIL CROSSING ROAD 3 TRACKS R15-1 48"X9" / R15-2P 27"X18" / ⑨ YIELD R1-2 48"X48"X48"	RAIL CROSSING ROAD 3 TRACKS R15-1 48"X9" / R15-2P 27"X18" / ⑩	⑪ ** W10-1 36"DIA. / NO GATES OR LIGHTS W10-13P 30"X24"	REPORT EMERGENCY OR PROBLEM 1-800-555-5555 CROSSING 836 597 H — Sign may be placed perpend. to travel lanes. ⑫ I-13 15"X9"
IF NEEDED ⑬ W3-2 30"X30"			

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

NO TRAIN HORN W10-9P 30"X24"

LOW GROUND CLEARANCE W10-5P 30"X24"

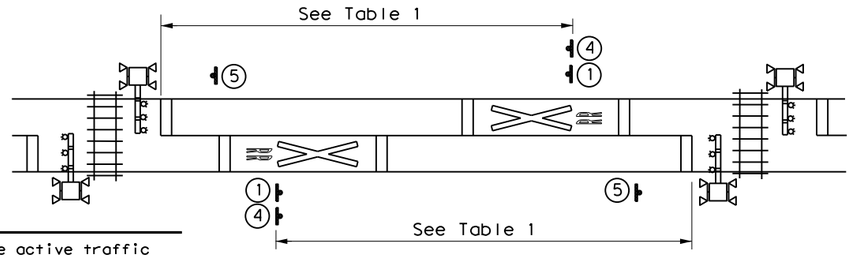


*Use Table 1 if sufficient space exists.

NOTE

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

T-INTERSECTION



NOTE

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

2 ADJACENT CROSSINGS

Texas Department of Transportation

Traffic Operations Division Standard

RAILROAD CROSSING DETAILS SIGNING & STRIPING

RCD(2)-16

FILE: rcd2-16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT FEBRUARY 2016	CONT	SECT	JOB	HIGHWAY
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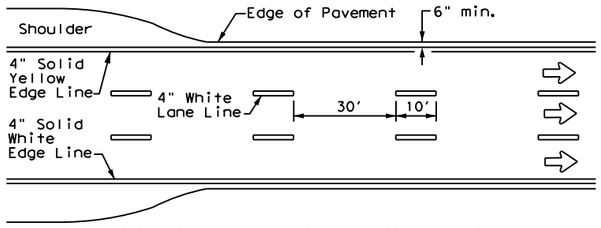
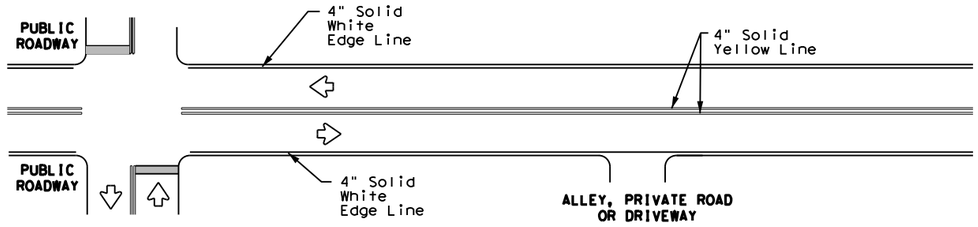
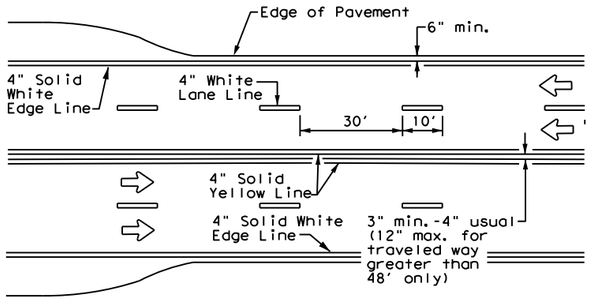


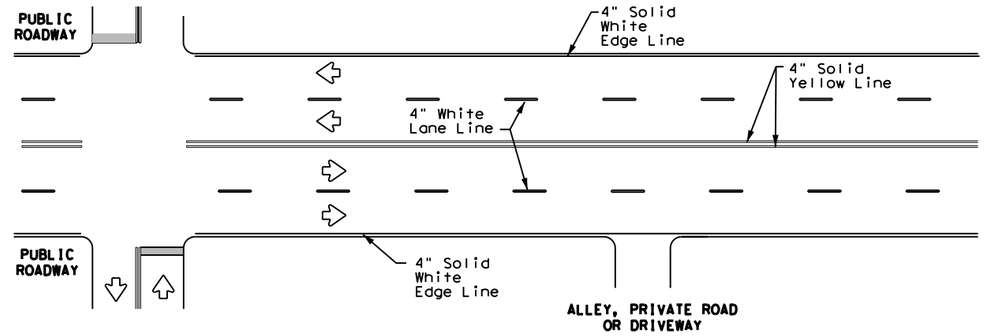
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



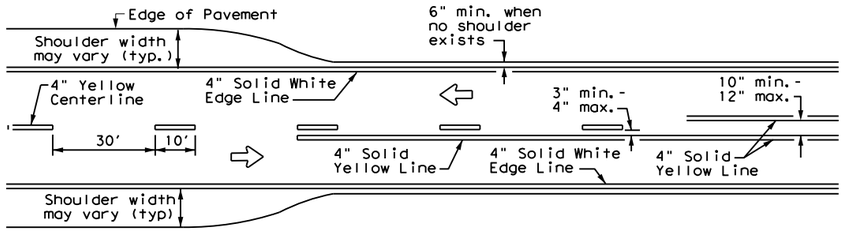
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



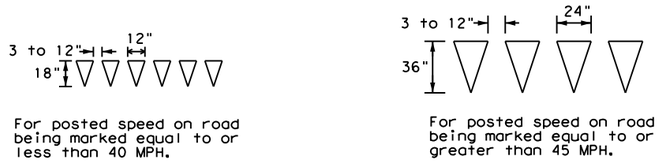
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



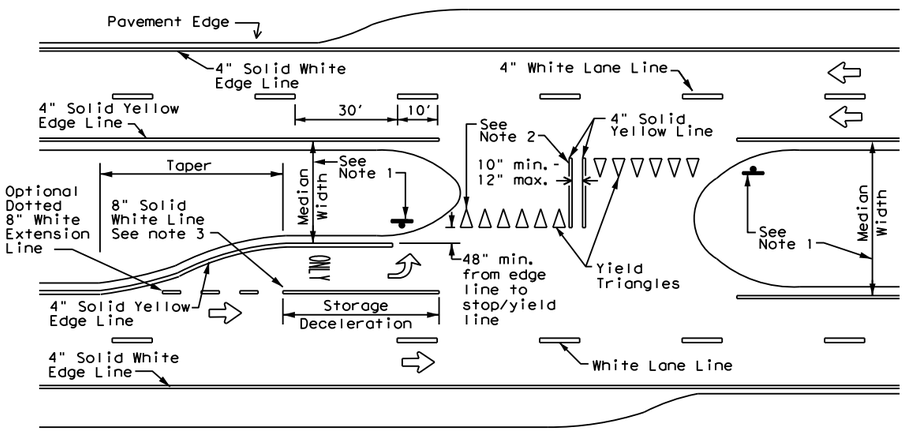
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

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

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

3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

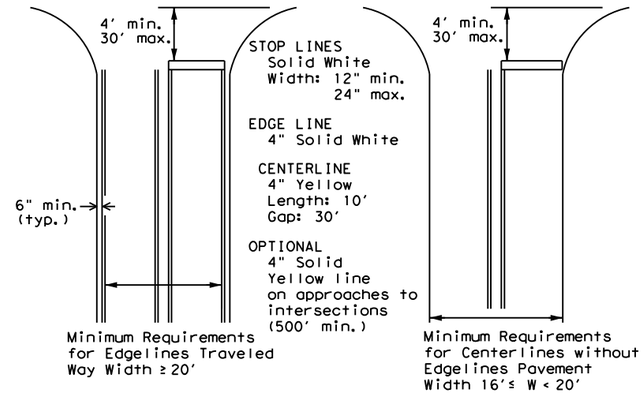
GENERAL NOTES

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

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

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

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



GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-20

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© TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
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8-00 6-20	22	LA SALLE		52

22A

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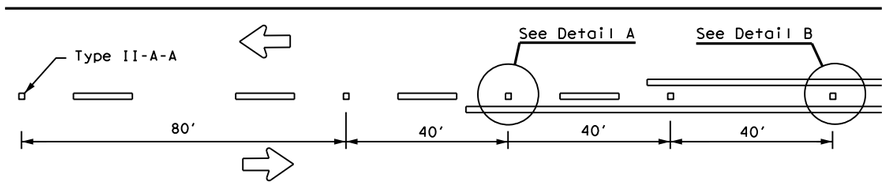
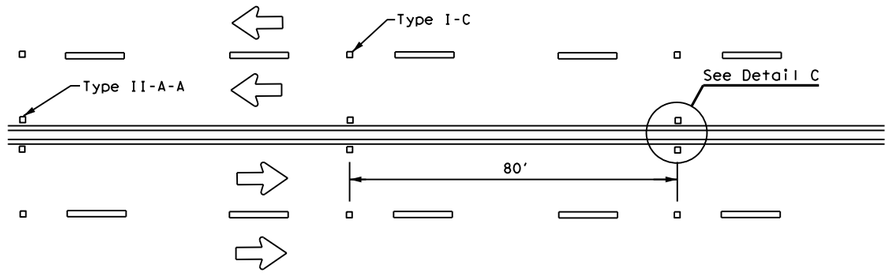
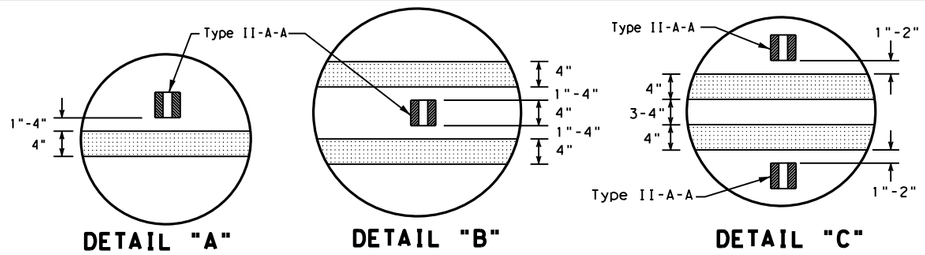
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



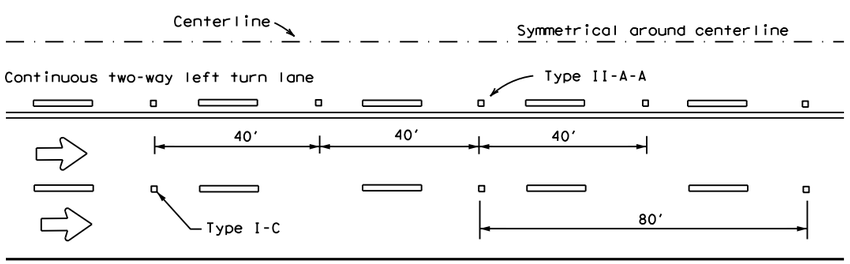
CENTERLINE FOR ALL TWO LANE ROADWAYS



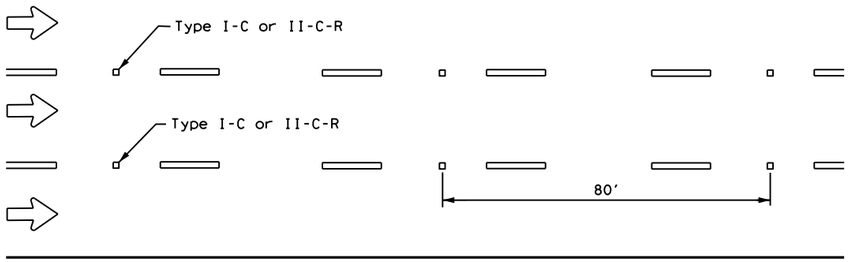
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS



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

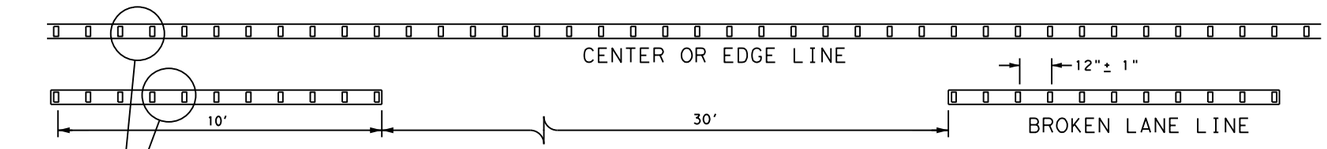


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



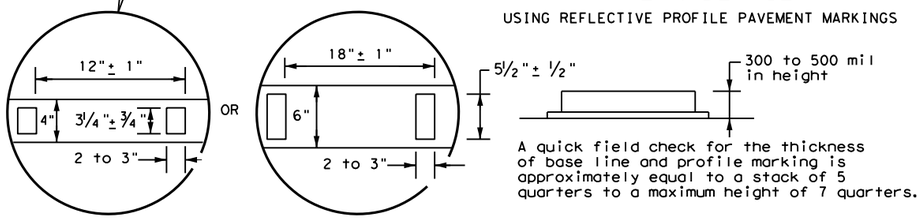
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

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



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS



4" EDGE LINE, CENTER LINE OR LANE LINE

OPTIONAL 6" EDGE LINE, CENTER LINE OR LANE LINE

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

NOTE

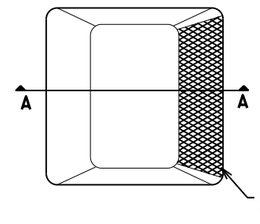
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

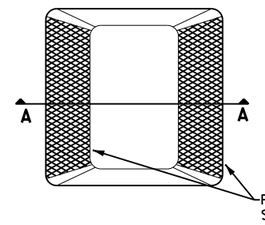
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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

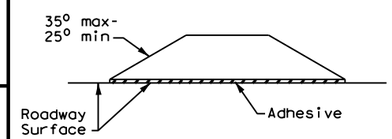
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

Traffic Safety Division Standard

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

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©TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
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	22	LA SALLE		53

22B

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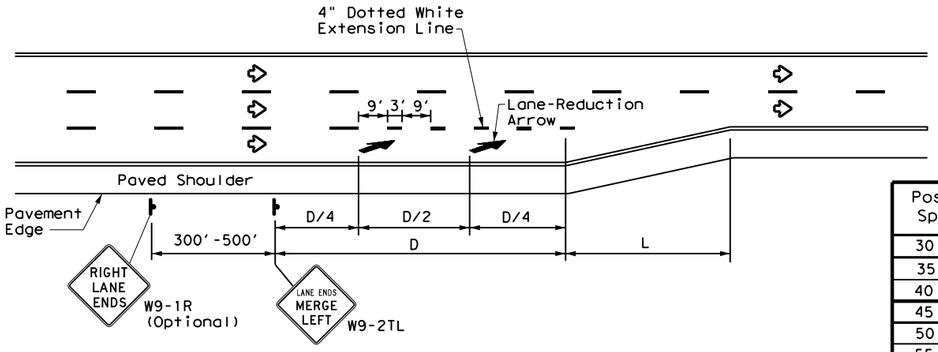
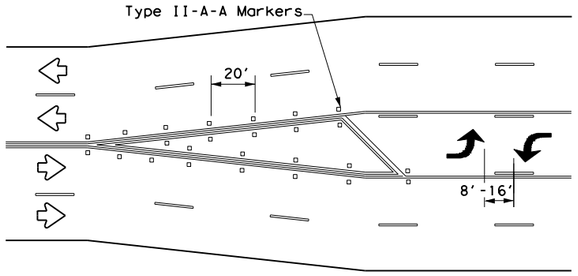


LANE REDUCTION

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

NOTES

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



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

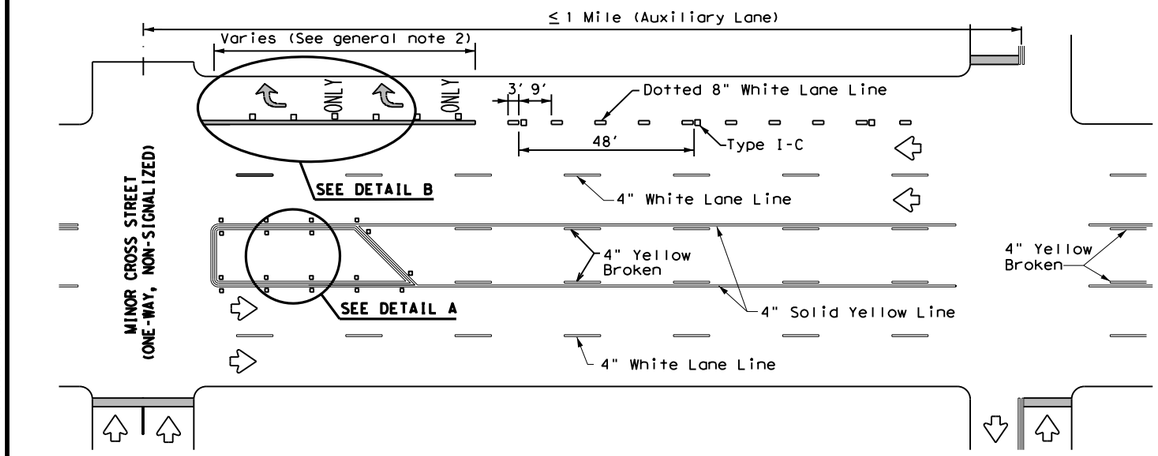
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

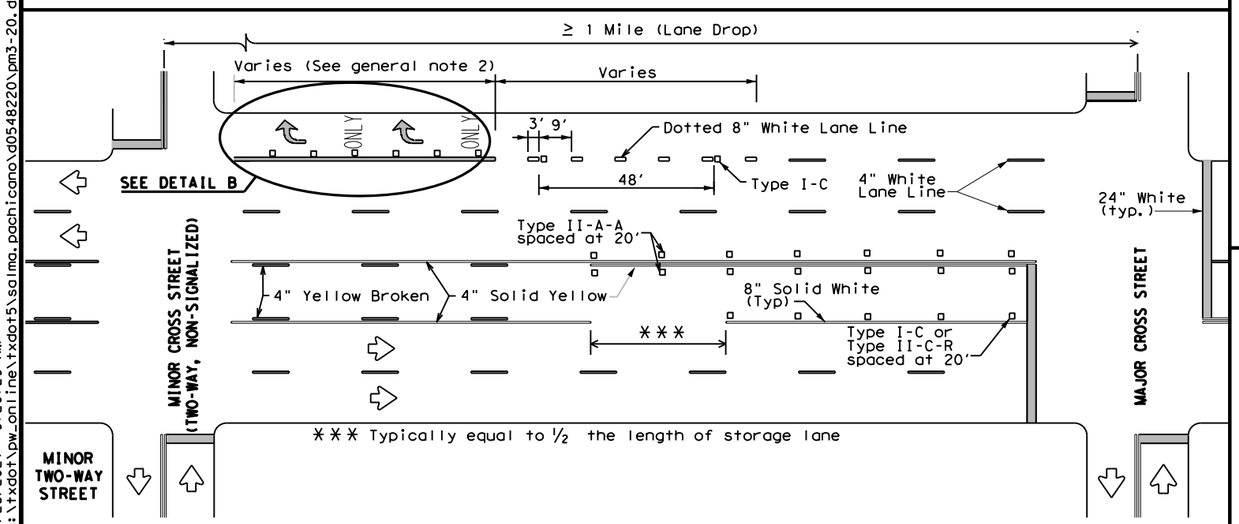
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn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

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

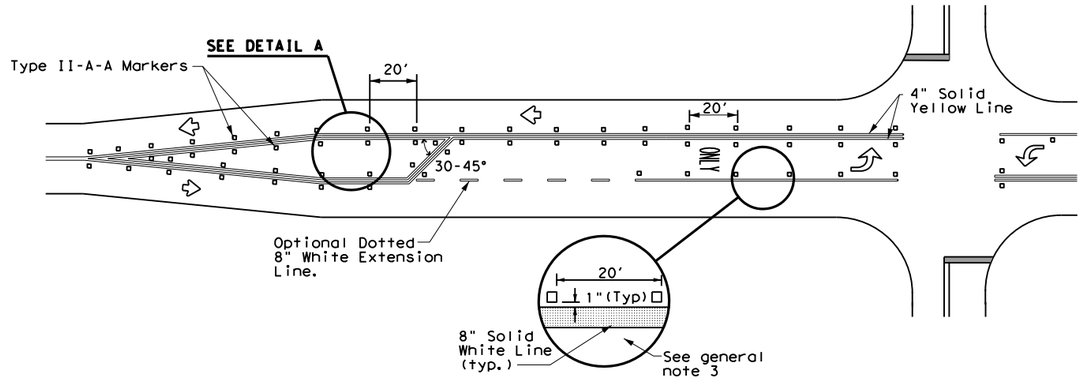
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



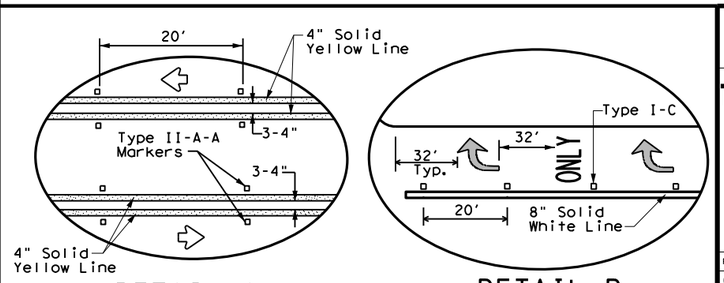
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



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



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



Texas Department of Transportation

Traffic Safety Division Standard

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

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© TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	08	114	IH 35
5-00 2-10	DIST	COUNTY		SHEET NO.
8-00 2-12	22	LA SALLE		54
3-03 6-20				

220

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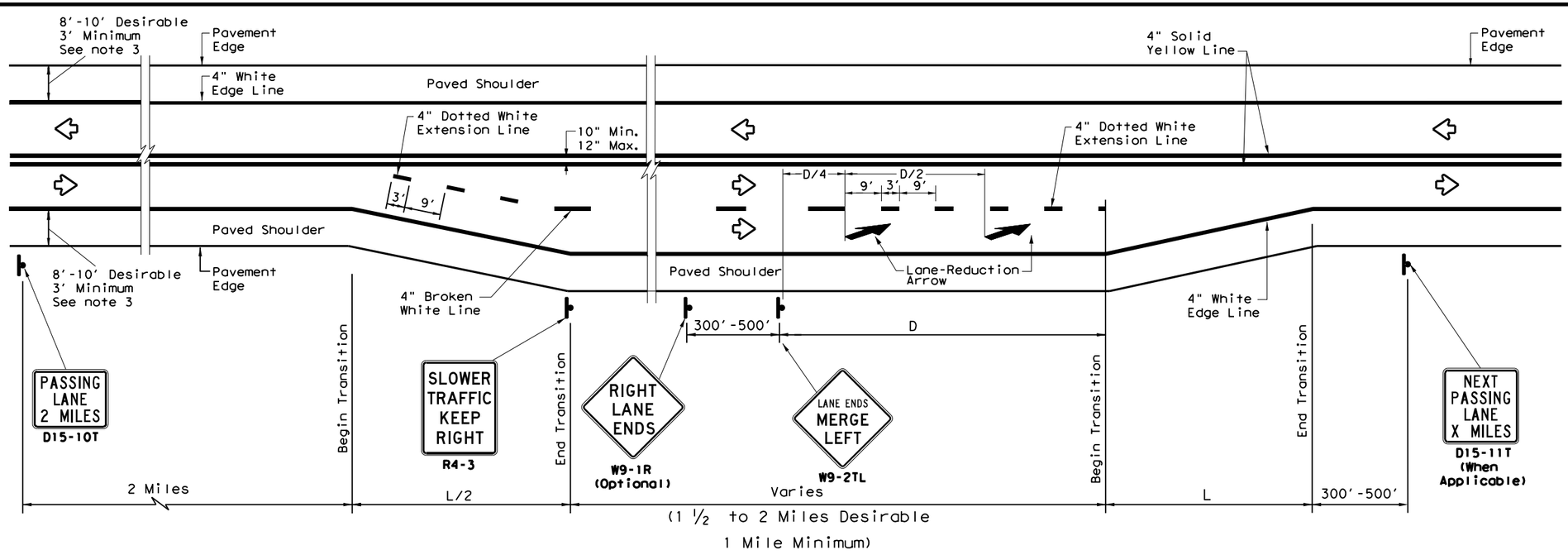

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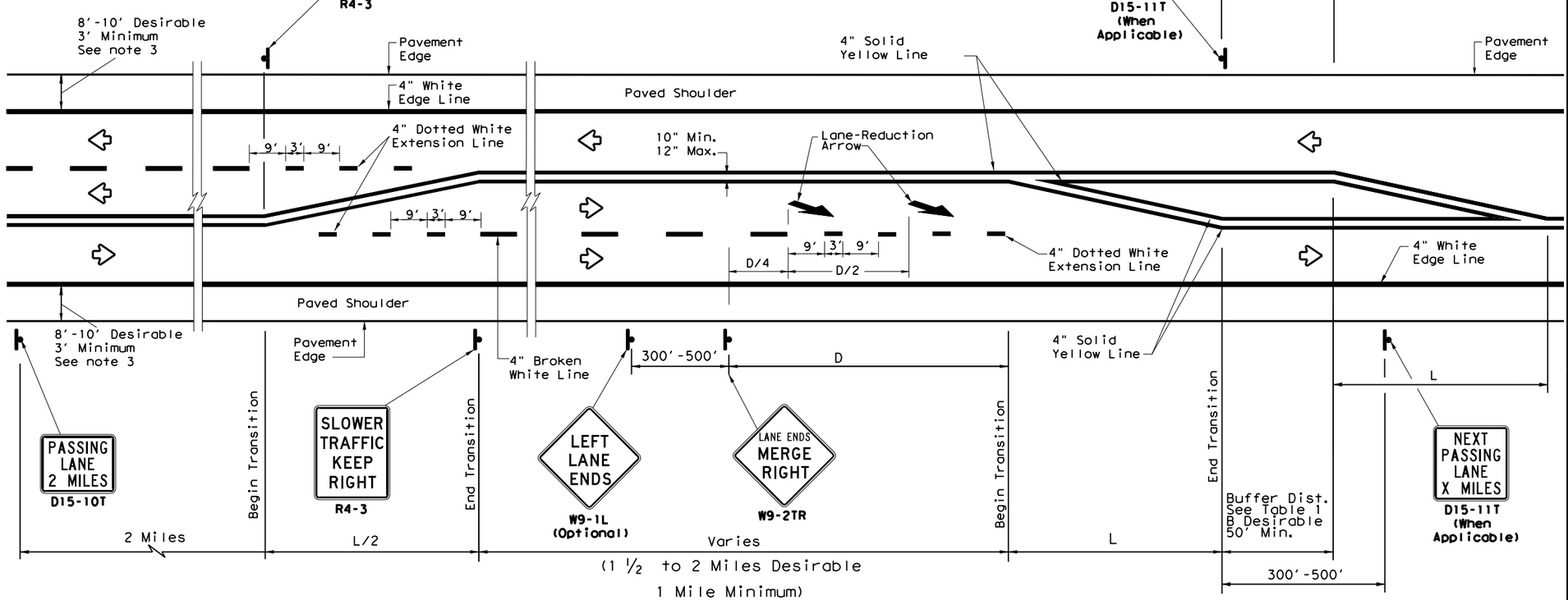

ALTERNATING

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=12x70=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

1. For minimum and desirable design details, see the Roadway Design Manual, Chapter 4, Section 6, Super 2 Highways.
2. For Raised Pavement Markers(RPM) details, see Pavement Markings Standard sheet, PM(2). Note that RPMs are not recommended on the 4" dotted white extension lines.
3. For rumble strip options available for the designed shoulder width, see rumble strip standard sheet RS(4).

Texas Department of Transportation

Traffic Operations Division Standard

TEXAS SUPER 2 PASSING LANES

TS2(PL-1)-18

FILE: ts2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT May 2010	CONT	SECT	JOB	HIGHWAY
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3-12	22	LA SALLE		55
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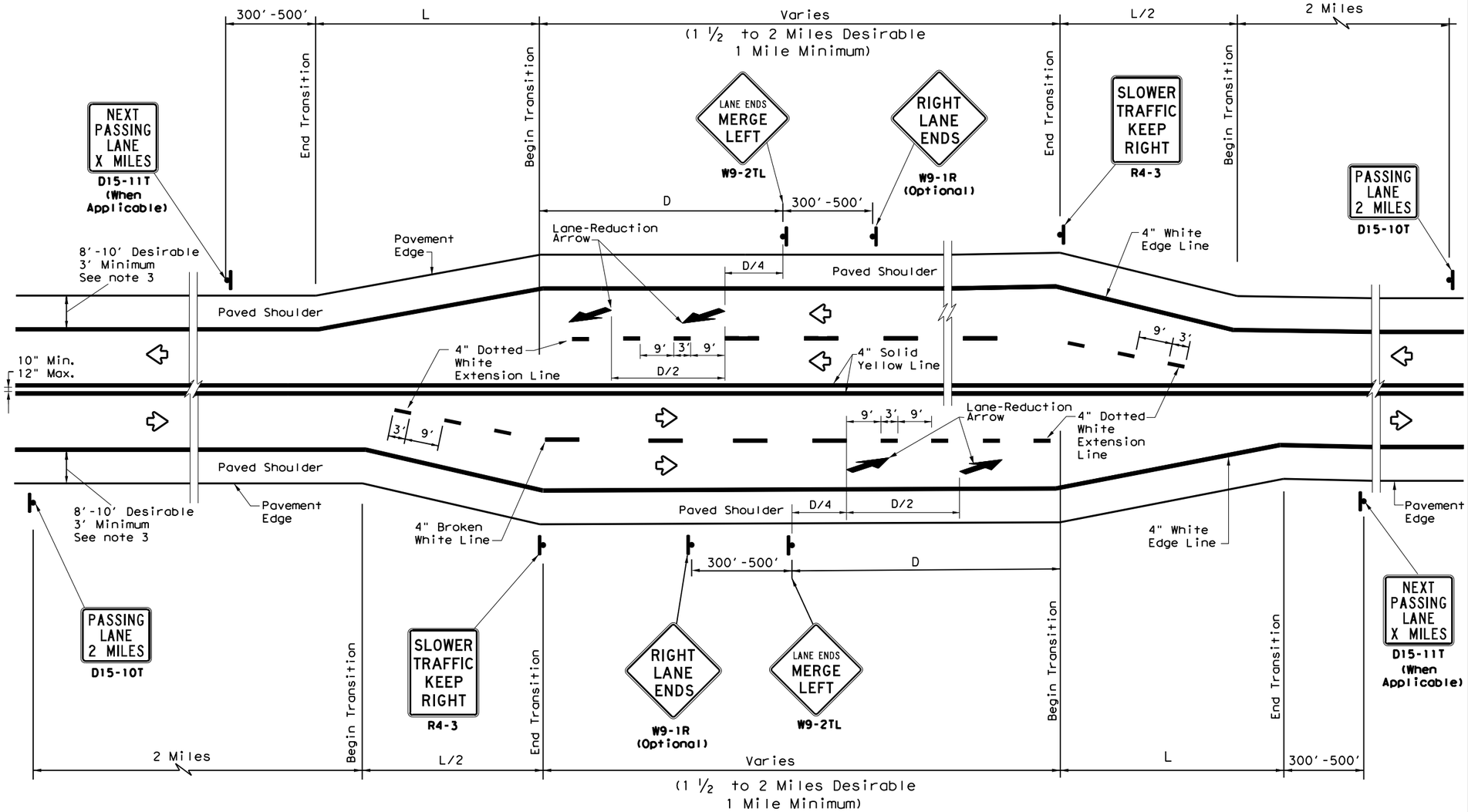

SIDE BY SIDE PASSING LANES

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=12x70=840 ft

TABLE 1
ADVANCE WARNING SIGN DISTANCE (D)

Posted Speed	D (FT)
40	670
45	775
50	885
55	990
60	1100
65	1200
70	1250
75	1350

GENERAL NOTES

1. For minimum and desirable design details, see the Roadway Design Manual, Chapter 4, Section 6, Super 2 Highways.
2. For Raised Pavement Markers(RPM)details, see Pavement Markings Standard sheet, PM(2). Note that RPMs are not recommended on the 4" dotted white extension lines.
3. For rumble strip options available for the designed shoulder width, see rumble strip standard sheet RS(4).

Texas Department of Transportation

Traffic Operations Division Standard

TEXAS SUPER 2 PASSING LANES

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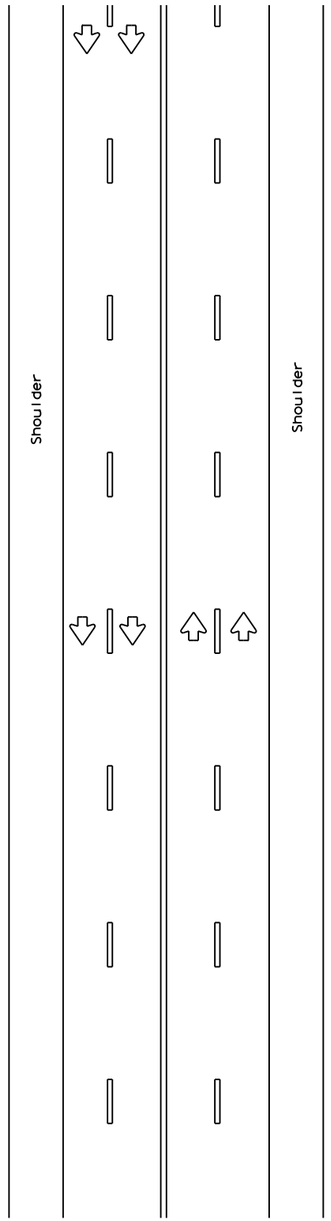
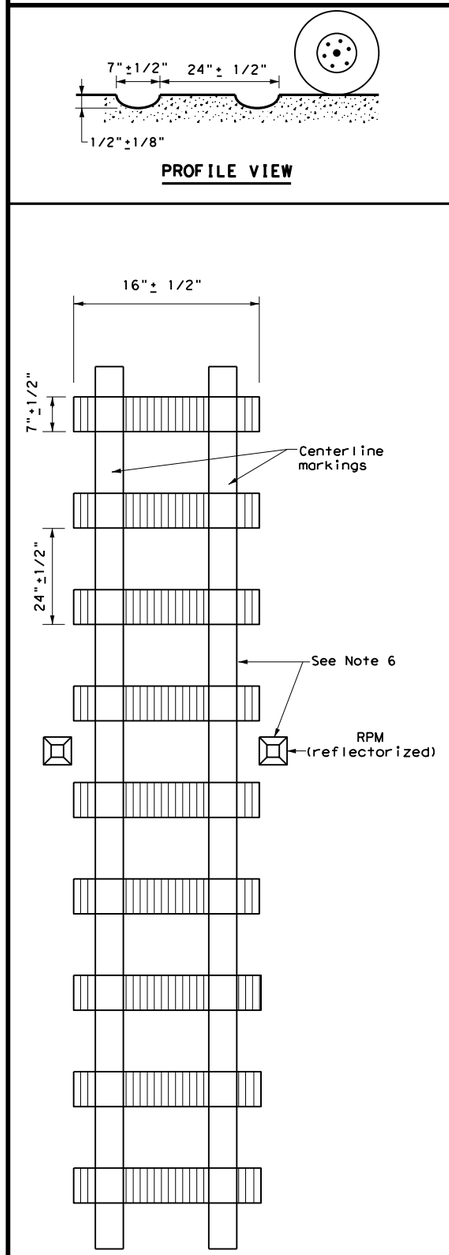
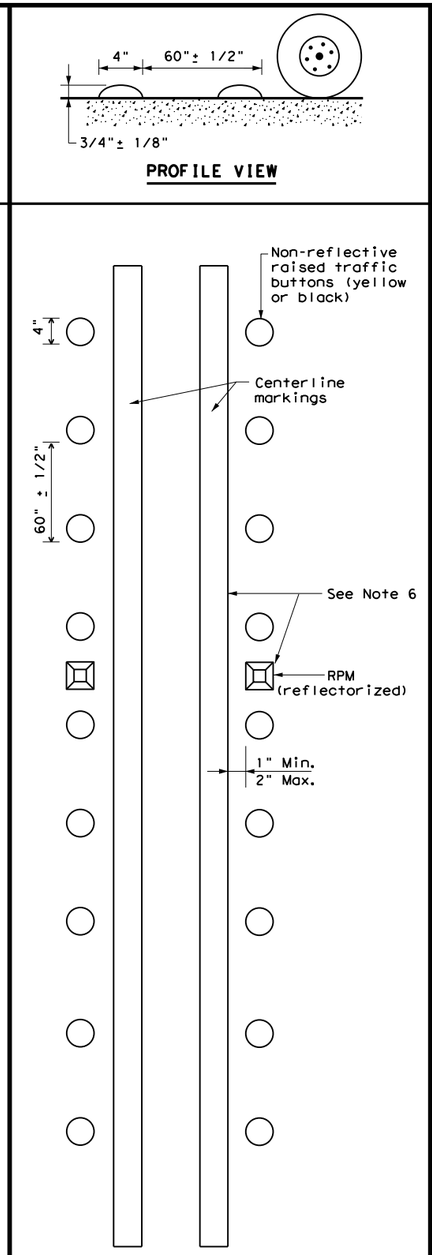
CENTERLINE RUMBLE STRIPS



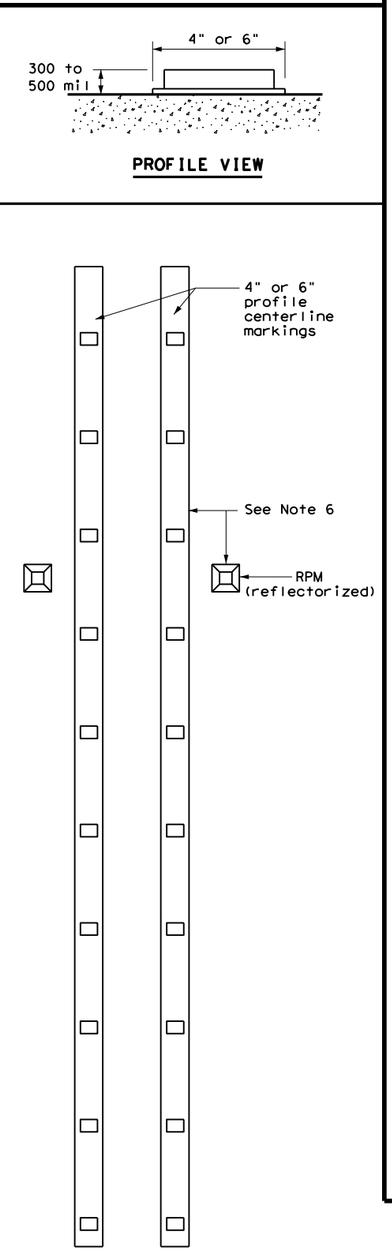
MULTILANE UNDIVIDED HIGHWAY WITH SHOULDER



MILLED CENTERLINE RUMBLE STRIPS



RAISED CENTERLINE 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 edgeline rumble strips or profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
3. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
4. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Operations Division.
5. Breaks in milled centerline rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossing, intersections and driveways with high usage of large trucks.
6. Use Standard Sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings and profile markings.
7. Consideration should be given to noise levels when centerline rumble strips are installed near residential areas, schools, churches, etc. A minimum of 3/8 inch depth of milled rumble strip may be considered in these areas.
8. Pavement markings must be applied over milled centerline rumble strips for normal centerline spacing. For wider medians, specify in the plans the exact placement of the rumble strips. Place the rumble strips under each centerline marking or centered in the middle of the median.

WHEN INSTALLING CENTERLINE RUMBLE STRIPS:

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

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

11. See standard sheet RS(4).

Texas Department of Transportation®

Traffic Operations Division Standard

CENTERLINE RUMBLE STRIPS ON MULTILANE UNDIVIDED HIGHWAYS

RS(2)-13

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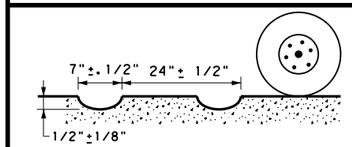
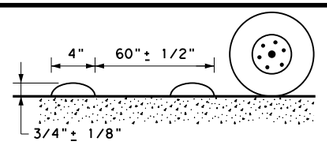
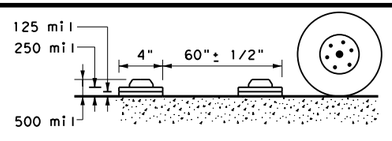
CENTERLINE RUMBLE STRIPS



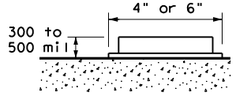
MILLED RUMBLE STRIPS



RAISED TRAFFIC BUTTONS

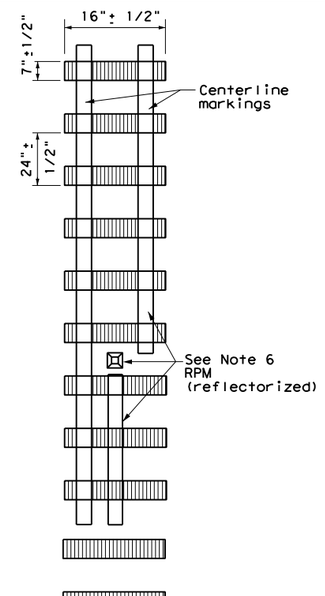


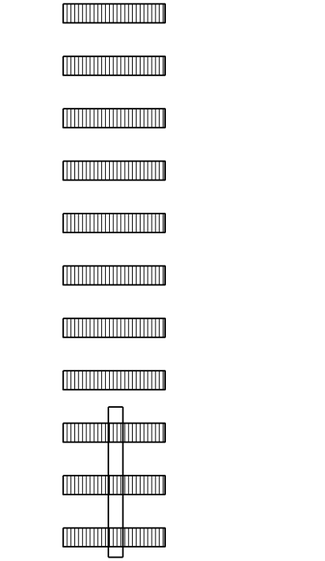
PREFORMED THERMOPLASTIC STRIPS



PROFILE MARKINGS

PROFILE VIEW

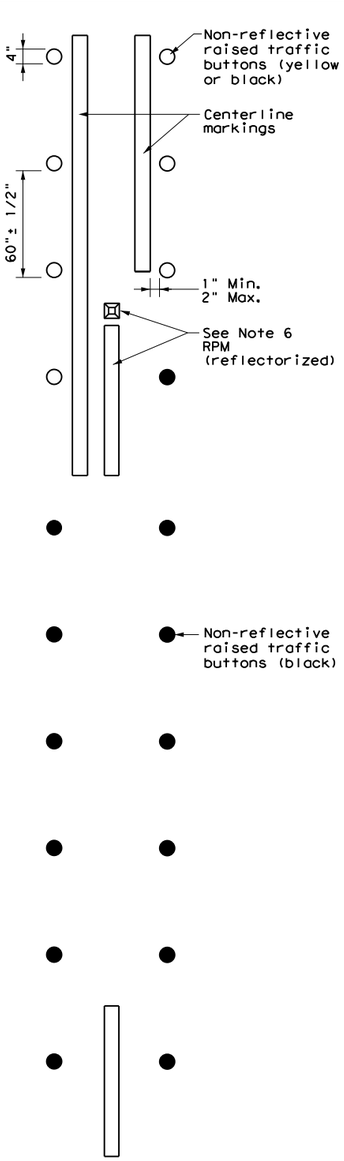




PLAN VIEW
OPTION 1

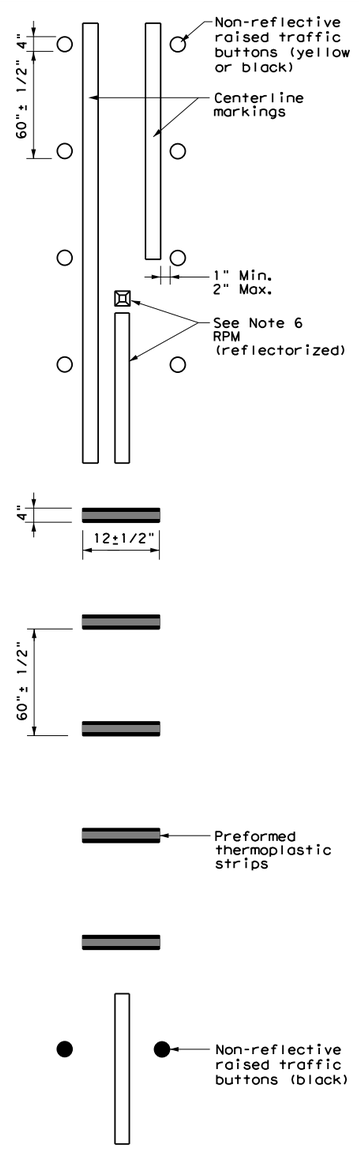
TWO LANE TWO-WAY ROADWAYS

MILLED CENTERLINE RUMBLE STRIPS



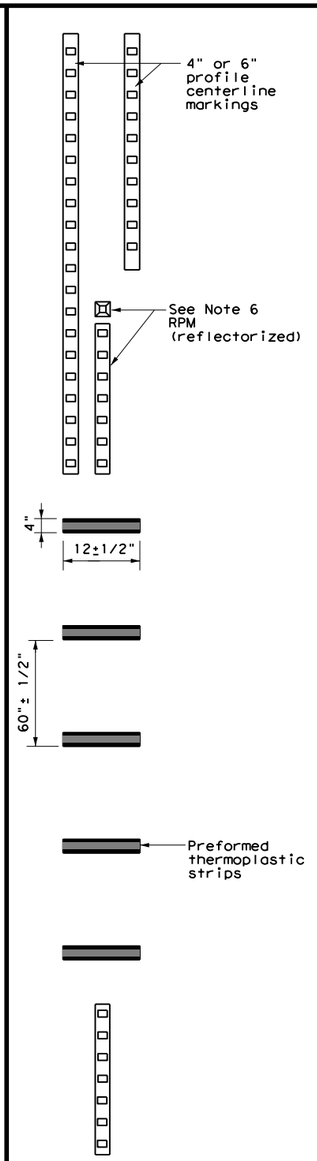
PLAN VIEW
OPTION 2

RAISED CENTERLINE RUMBLE STRIPS



PLAN VIEW
OPTION 3

RAISED CENTERLINE RUMBLE STRIPS AND PREFORMED THERMOPLASTIC STRIPS



PLAN VIEW
OPTION 4

PROFILE CENTERLINE MARKINGS AND PREFORMED THERMOPLASTIC STRIPS

GENERAL NOTES

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

WHEN INSTALLING CENTERLINE RUMBLE STRIPS:

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

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

12. See standard sheet RS(4).

Texas Department of Transportation®
Traffic Operations Division Standard

CENTERLINE RUMBLE STRIPS ON TWO LANE TWO-WAY HIGHWAYS

RS(3)-13

FILE: rs(3)-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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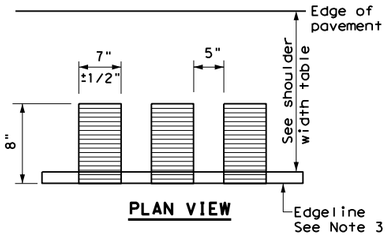
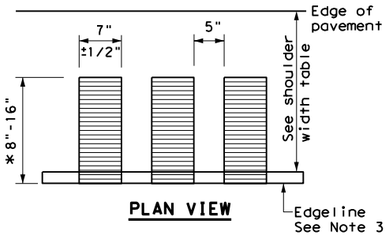


PROFILE VIEW
OPTION 1

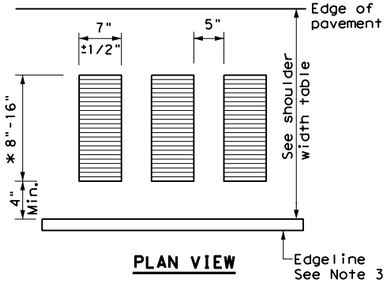
CONTINUOUS MILLED DEPRESSIONS
(Rumble Stripes)



* This distance may vary based on width of shoulder

PROFILE VIEW
OPTION 2

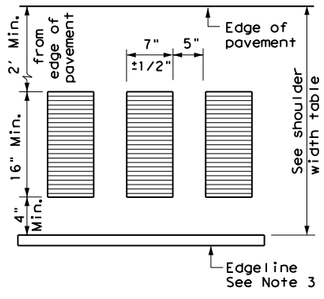
CONTINUOUS MILLED DEPRESSIONS
(Rumble Stripes)



* This distance may vary based on width of shoulder

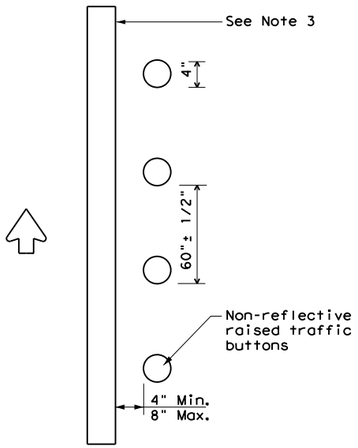
PROFILE VIEW
OPTION 3

CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



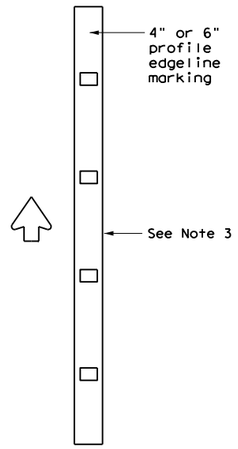
PROFILE VIEW
OPTION 4

CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



PLAN VIEW
OPTION 5

RAISED EDGELINE RUMBLE STRIPS



PLAN VIEW
OPTION 6

PROFILE EDGELINE MARKINGS

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

GENERAL NOTES

1. Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
2. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
3. Use Standard Sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
4. See the table below for determining what options may be used for edgeline rumble strips.

WHEN INSTALLING MILLED DEPRESSION EDGELINE RUMBLE STRIPS:

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

WHEN INSTALLING RAISED OR PROFILE EDGELINE RUMBLE STRIPS:

11. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
12. Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the edgeline when used as a rumble strip. The color of the button should match the color of the adjacent edgeline marking (white or yellow). The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
13. Non-reflective traffic buttons shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
14. Breaks in edgeline rumble strips using raised traffic buttons shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossing, intersections and driveways with high usage of large trucks when installed on conventional highways.
15. The minimum distance between the edgeline and the buttons should be used if the shoulder is less than 8 feet in width.
16. Raised profile thermoplastic markings used as edgelines may substitute for buttons.

Texas Department of Transportation

Traffic Operations Division Standard

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

FILE: rs(4)-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2013	CONT	SECT	JOB	HIGHWAY
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	22	LA SALLE		59

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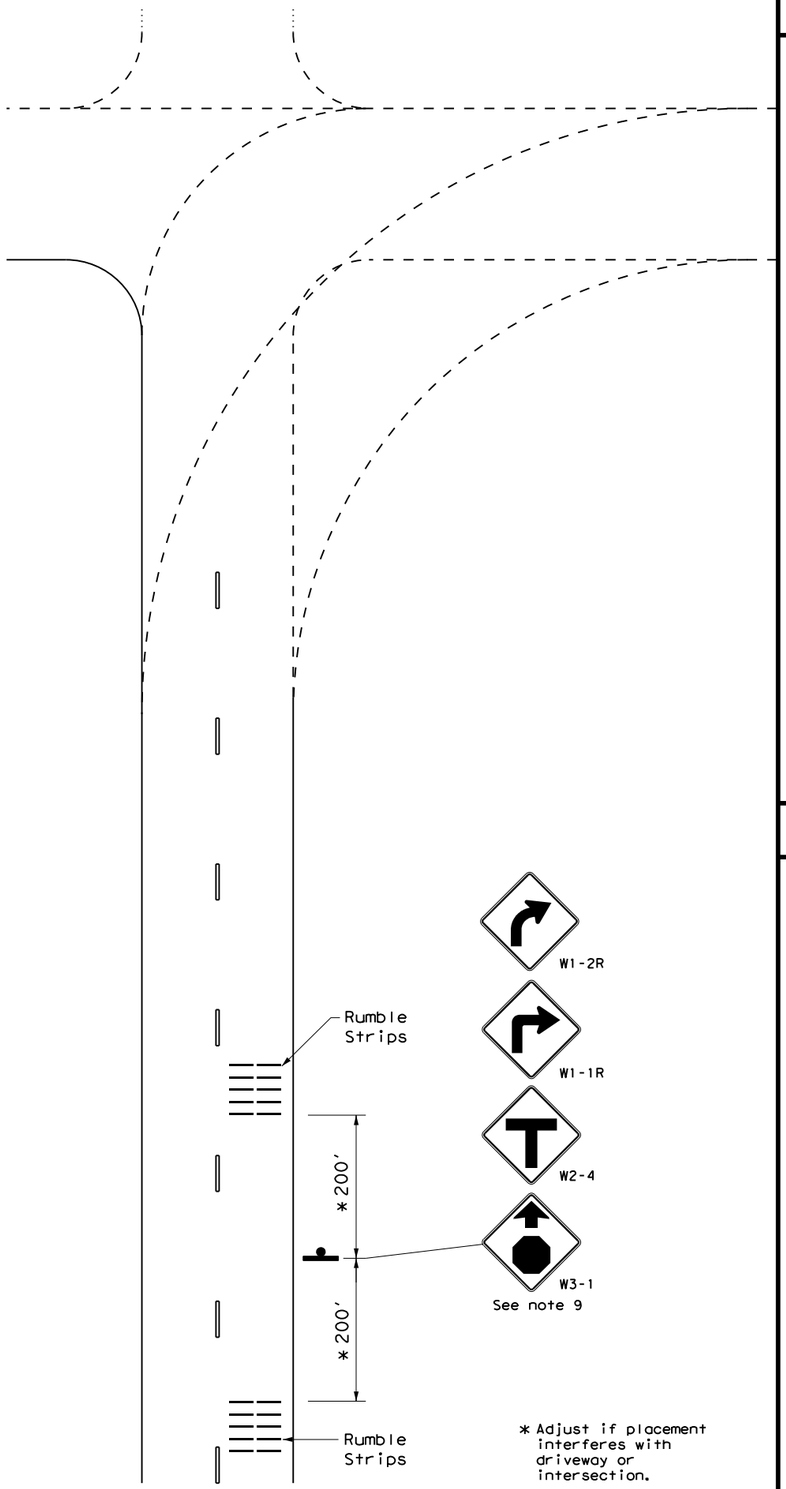
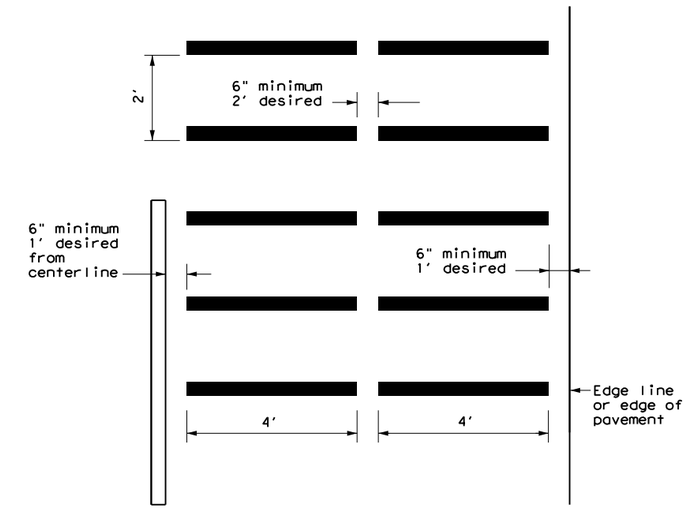


STANDARD PATTERN



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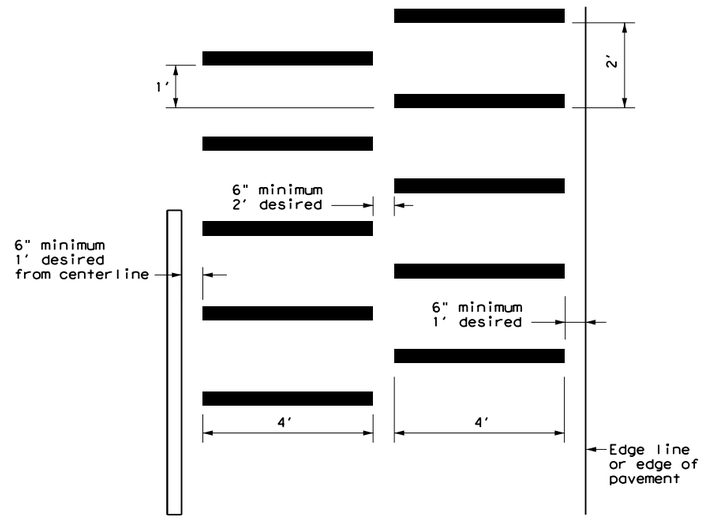

GENERAL NOTES

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 prior to and after the placement of the warning device.

3. The use of rumble strips should not be widespread or used indiscriminately.

4. Preformed black raised rumble strips should be used. They should be installed in accordance with the manufacturer's recommendations.

5. A list of approved, preformed raised rumble strips can be obtained from the Traffic Operations Division.

6. Consideration should be given to noise levels when in -lane or transverse rumble strips are installed near residential areas, schools, churches, etc.

7. The use of the "Rumble Strips Ahead" 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 sign included in the "Texas Manual on Uniform Traffic Control Devices".

8. Consideration should be given to bicyclists. A 12 inch gap from the edge line may be used to accommodate bicyclists when a usable shoulder is not available. Additional gaps in the in -lane or transverse rumble strips are not recommended since they could cause motorists to swerve to avoid the rumble strips.

9. Other signs can be used as conditions warrant.

Texas Department of Transportation

Traffic Operations Division Standard

TRANSVERSE OR IN-LANE RUMBLE STRIPS

RS(5)-13

FILE: rs(5)-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT April 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS	0017	08	114	IH 35
2-10	DIST	COUNTY		SHEET NO.
10-13	22	LA SALLE		60

DATE: 6/25/2021
FILE: c:\txdot\pw_online\txdot5\salma.pachicano\d0548136\EPIC - SealCoast,Overlays,GuardRailsProjects.dgn

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

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

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

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☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

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

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

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

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

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

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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
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Grassy Swales

III. CULTURAL RESOURCES

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

☒ No Action Required ☐ Required Action

Action No.

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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.

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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. Texas Horned Lizard - The Contractor will avoid harvester ant mound in the selection of PSLs where feasible
2. Texas Tortoise -The Contractor should cover utility trenches overnight, and should visually inspect all trenches before filling.
3. Reticulated Collared Lizard - This lizard may potentially occur in the project area. The Contractor shall avoid harming or handeling this species.
4. Texas Indigo Snake - This snake may potentially occur in the project area. The Contractor shall avoid harming or handeling this species.

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	SW3P:	Storm Water Pollution Prevention Plan
DSHS:	Texas Department of State Health Services	PCN:	Pre-Construction Notification
FHWA:	Federal Highway Administration	PSL:	Project Specific Location
MOA:	Memorandum of Agreement	TCEQ:	Texas Commission on Environmental Quality
MOU:	Memorandum of Understanding	TPDES:	Texas Pollutant Discharge Elimination System
MS4:	Municipal Separate Stormwater Sewer System	TPWD:	Texas Parks and Wildlife Department
MBTA:	Migratory Bird Treaty Act	TxDOT:	Texas Department of Transportation
NOT:	Notice of Termination	T&E:	Threatened and Endangered Species
NWP:	Nationwide Permit	USACE:	U.S. Army Corps of Engineers
NOI:	Notice of Intent	USFWS:	U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):
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.

1.

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3.

Texas Department of Transportation — Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
© TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS 12-12-2011 (DS)	0017	08	114	IH 35
05-07-14 ADDED NOTE SECTION IV. 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	DIST	COUNTY		SHEET NO.
	22	LA SALLE		61