STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

US 62
EL PASO COUNTY

PROJECT No.: C 374-2-120, ETC.

CSJ: 0374-02-120, ETC.

CSJ: 0002-12-027
NET LENGTH OF ROADWAY = 5,970.5 FT. = 1.13 MI.
NET LENGTH OF BRIDGE = 629.50 FT. = 0.12 MI.
NET LENGTH OF PROJECT = 6,600.00 FT. = 1.25 MI.

CSJ: 0374-02-120
NET LENGTH OF ROADWAY = 26,716.80 FT. = 5.06 MI.
NET LENGTH OF BRIDGE = 0.00 FT. = 0.00 MI.
NET LENGTH OF PROJECT = 26,716.80 FT. = 5.06 MI.

NET LENGTH OF PROJECT = 33,316.80 FT. = 6.31 MI.

LIMITS: CSJ: 0002-12-027 FROM SH 20 (ALAMEDA AVE) TO MAGRUDER ST
CSJ: 0374-02-120 FROM MAGRUDER ST TO GLOBAL REACH DR

FOR THE CONSTRUCTION OF OVERLAY CONSISTING OF: MILL AND INLAY

DESIGN SPEED = 45 MPH
A.D.T. (2022) = 40,866
A.D.T. (2042) = 57,212

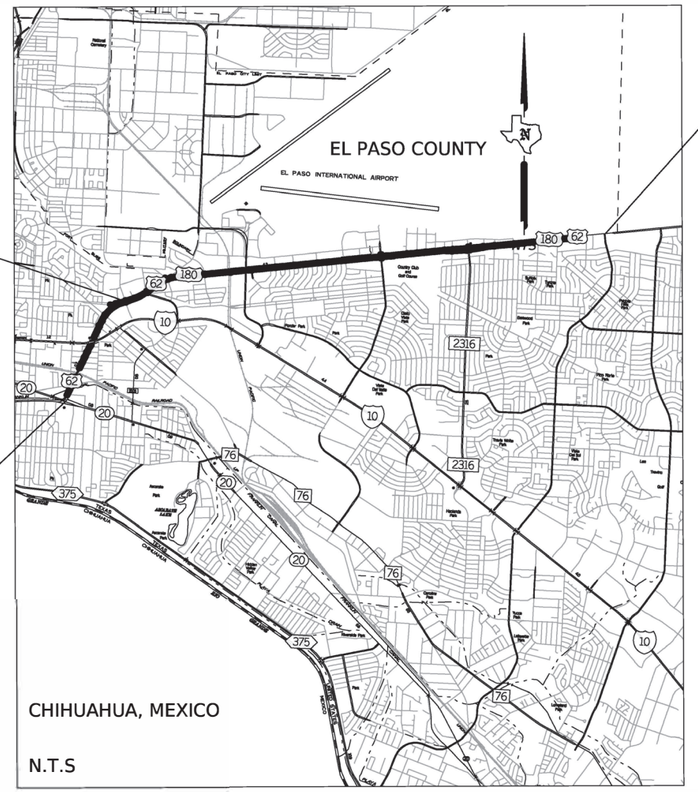
STATE AID PROJECT NO.			
C 374-2-120, ETC			
CONT	SECT	JOB	HIGHWAY
0374	02	120,ETC.	US 62
DIST	COUNTY		SHEET NO.
24	EL PASO		1

SEE SHEET 2 FOR INDEX OF SHEETS

FINAL

CONTRACTOR: _____
LETTING DATE: _____
TIME CHARGES BEGAN: _____
DATE CONTRACTOR BEGAN WORK: _____
DATE WORK WAS COMPLETED: _____
DATE WORK WAS ACCEPTED: _____
TOTAL DAYS CHARGED: _____
ORIGINAL CONTRACT AMOUNT: _____
AMOUNT OF CONTRACT AMENDMENTS: _____
FINAL CONTRACT COST: _____
DATE: _____ *20* _____

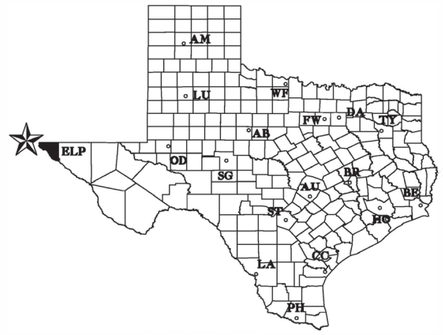
_____
AREA ENGINEER



END PROJECT
CSJ: 0374-02-120
STA: 338+09.42 ℄ US 62
MP: 17.695
REF MRK: 28+0.686
LAT: 31.7980515
LONG: -106.3326573

END PROJECT
CSJ: 0002-12-027
MP: 10.852
BEGIN PROJECT
CSJ: 0374-02-120
MP: 12.64
STA: 70+23.71
REF MRK: 23+0.615
LAT: 31.7841072
LONG: -106.4165311

BEGIN PROJECT
CSJ: 0002-12-027
STA: 07+85.35 ℄ US 62
MP: 9.606
REF MRK: 22+0.353
LAT: 31.7685871
LONG: -106.4260393



KEY TO COUNTIES

OMEGA ENGINEERS, INC.
6090 SURETY DR., SUITE 104
EL PASO, TX 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

PREPARED BY:

_____ _____
ANTONIO R. RAMIREZ, PE — DATE
PROJECT MANAGER
OMEGA ENGINEERS, INC.
FIRM # F-2147

EXCEPTIONS: NONE
EQUATIONS: NONE
TDLR INSPECTION NOT REQUIRED
RAILROAD CROSSINGS: UNION PACIFIC RAILROAD COMPANY
-AT PAISANO DR RR MP 824.700
-AT MONTANA AVE RR MP 2.270

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

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: SPECIAL LABOR PROVISIONS FOR STATE PROJECTS (000--008)

Texas Department of Transportation®

1/4/2024
DocuSigned by:
Eduardo Perales, P.E.
2778C60AB5F7426...
SAFETY REVIEW COMMITTEE CHAIRMAN

1/4/2024
DocuSigned by:
L. Raul Ortega Jr., P.E.
0F1750B98760474...
PLANNING AND DEVELOPMENT

1/4/2024
DocuSigned by:
Tomas Trevino, P.E.
7A68C5EA0D94496...

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	GENERAL
1	TITLE SHEET
2	INDEX OF SHEETS
3-7	PROJECT LAYOUT
8-9	EXISTING TYPICAL SECTIONS
10-11	PROPOSED TYPICAL SECTIONS
12	CORE REPORT
13, 13A-13I	GENERAL NOTES
14, 14A-14B	ESTIMATE & QUANTITY
15-18	QUANTITY SUMMARIES
19	SOSS
20	TEMPORARY CONSTRUCTION LICENSE SHEET
21	ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC)

	TRAFFIC CONTROL PLAN
22-24	TRAFFIC CONTROL PLAN NARRATIVE
25	TCP TYPICALS PHASE 1
26	TCP TYPICALS PHASE 2
27	TCP TYPICALS PHASE 3
28-29	TCP DETAILS
30	TREATMENT FOR VARIOUS EDGE CONDITIONS

	TRAFFIC CONTROL PLAN STANDARDS
31-42	#BC(1)-21 THRU BC(12)-21
43	#TCP(2-4)-18
44	#TCP(2-6)-18
45	#TCP(3-1)-13
46	#TCP(3-2)-13
47	#TCP(3-3)-14
48	#TCP(3-4)-13
49	#WZ(BRK)-13
50	#WZ(UL)-13
51	#WZ(STPM)-23

	ROADWAY DETAILS
52-55	SURVEY CONTROL INDEX SHEET
56	HORIZONTAL & VERTICAL CONTROL SHEET
57-58	HORIZONTAL ALIGNMENT DATA
59-72	ROADWAY LAYOUT
73-75	MEDIAN LAYOUT
76-77	ROADWAY DETAILS

	ROADWAY STANDARDS
78	*CCCG-22 (MOD)
79-82	*PED-18

	DRAINAGE
83	DRAINAGE POND 1 LAYOUT
84	DRAINAGE FLUME DETAILS

	BRIDGE
85	BRIDGE JOINT REPAIR LAYOUT
86	BRIDGE JOINT DETAILS
87	CLEANING AND SEALING EXISTING BRIDGE JOINTS

	SIGNING & PAVEMENT MARKINGS
88-101	SIGNING & PAVEMENT MARKINGS LAYOUT
102	SIGNS DETAILS

	SIGNING & PAVEMENT MARKINGS STANDARDS
103-104	*D&OM(1)-20 THRU D&OM(2)-20
105-109	*PM(1)-22 THRU PM(5)-22
110	*RCD(1)-22
111	*RCD(2)-22
112	*SMD(GEN)-08
113	*SMD(SLIP-1)-08
114	*SMD(SLIP-2)-08
115	*SMD(SLIP-3)-08
116	*SMD(FRP)-08
117	*SMD(TWT)-08
118	*SMD(TY G)-08

	RAILROAD EXHIBITS
119	PAISANO DR & UNION PACIFIC RAILROAD
120	MONTANA AVE & BUFFALO SOLDIER RD EXHIBIT

	RAILROAD STANDARDS
121-122	RAILROAD SCOPE OF WORK
123-124	RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

	ENVIRONMENTAL ISSUES
125-126	STORM WATER POLLUTION PREVENTION PLAN (SWP3)
127-129	*EC(9)-16

STATE OF TEXAS
JORGE L. NAVARRETE
146579
LICENSED
PROFESSIONAL ENGINEER

12/29/2023

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH "#" HAVE BEEN SELECTED BY ME OR UNDER MY SUPERVISION AND ARE APPLICABLE TO THE PROJECT.

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED
PROFESSIONAL ENGINEER

12/29/2023

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OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

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GENERAL
INDEX OF SHEETS

SHEET 1 OF 1

		FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
DSN	OEI	24	SEE TITLE SHEET		2
CHK	OEI	STATE	DIST.	COUNTY	
DRN	OEI	TEXAS	ELP	EL PASO	
CHK	OEI	CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

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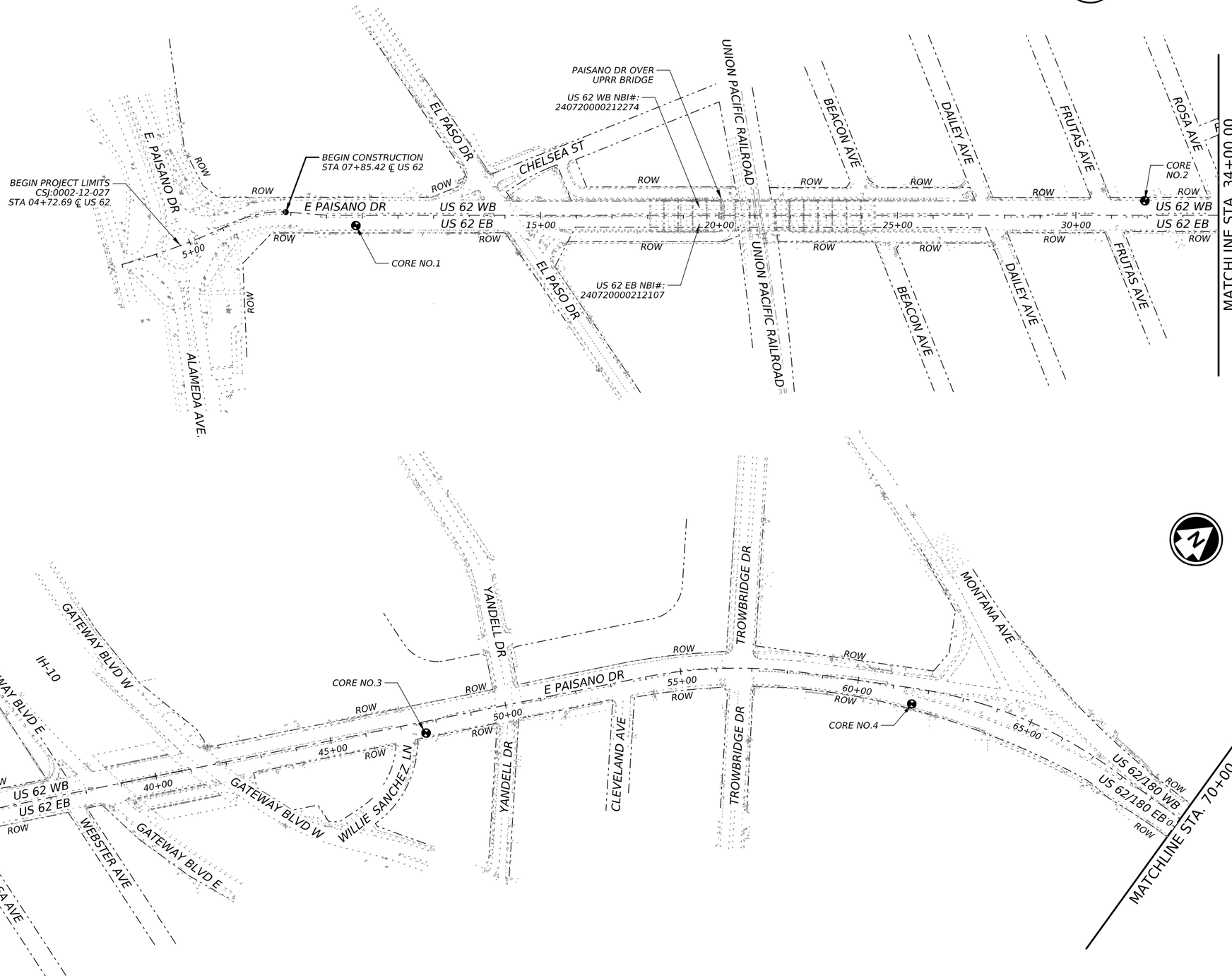

LEGEND

- RIGHT OF WAY
- CENTER LINE

NOTES:

1. SEE HORIZONTAL ALIGNMENT DATA SHEETS FOR ADDITIONAL INFORMATION.
2. SEE ROADWAY LAYOUT SHEETS FOR ADDITIONAL INFORMATION.
3. SEE PAVEMENT MARKING SHEETS FOR ADDITIONAL INFORMATION.
4. SEE POND LAYOUT FOR ADDITIONAL INFORMATION.
5. SEE GENERAL CORE REPORT FOR ADDITIONAL INFORMATION.

0 150 300
SCALE: 1"=300'

DATE	BY	REV	REVISION

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ANTONIO R RAMIREZ
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12/28/2023

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GENERAL

PROJECT LAYOUT

SHEET 1 OF 5

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN		24	SEE TITLE SHEET	3
CHK		STATE	DIST.	COUNTY
DRN		TEXAS	ELP	EL PASO
CHK		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

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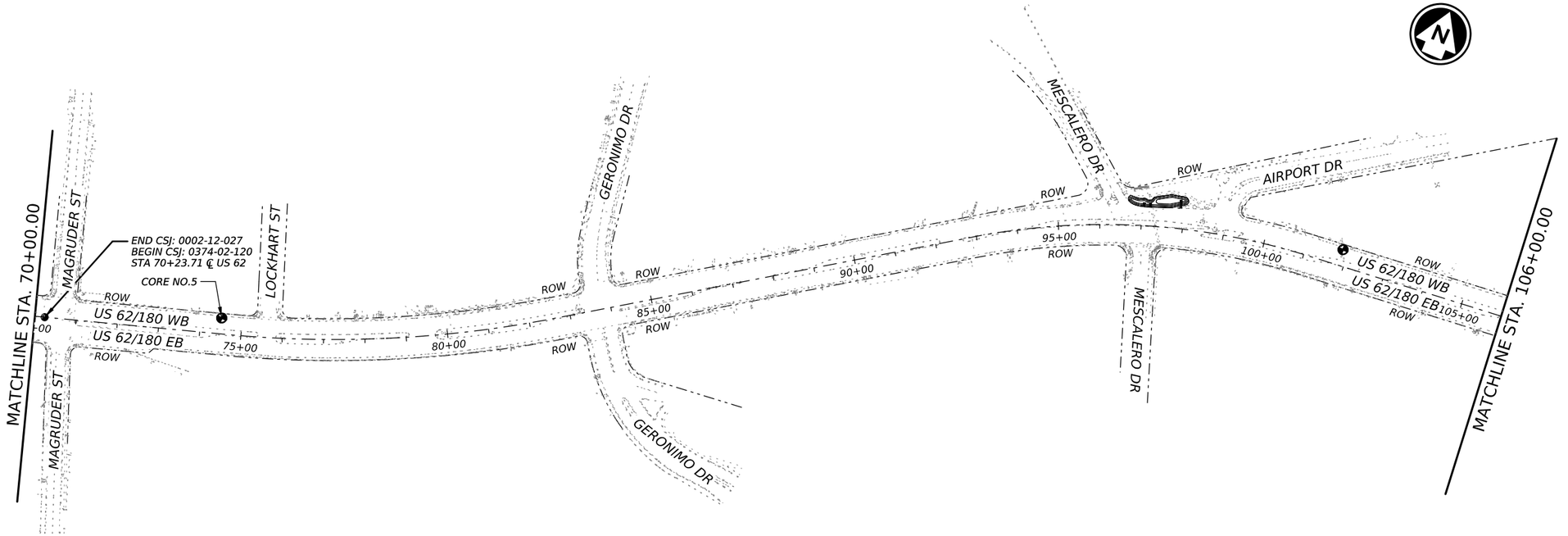

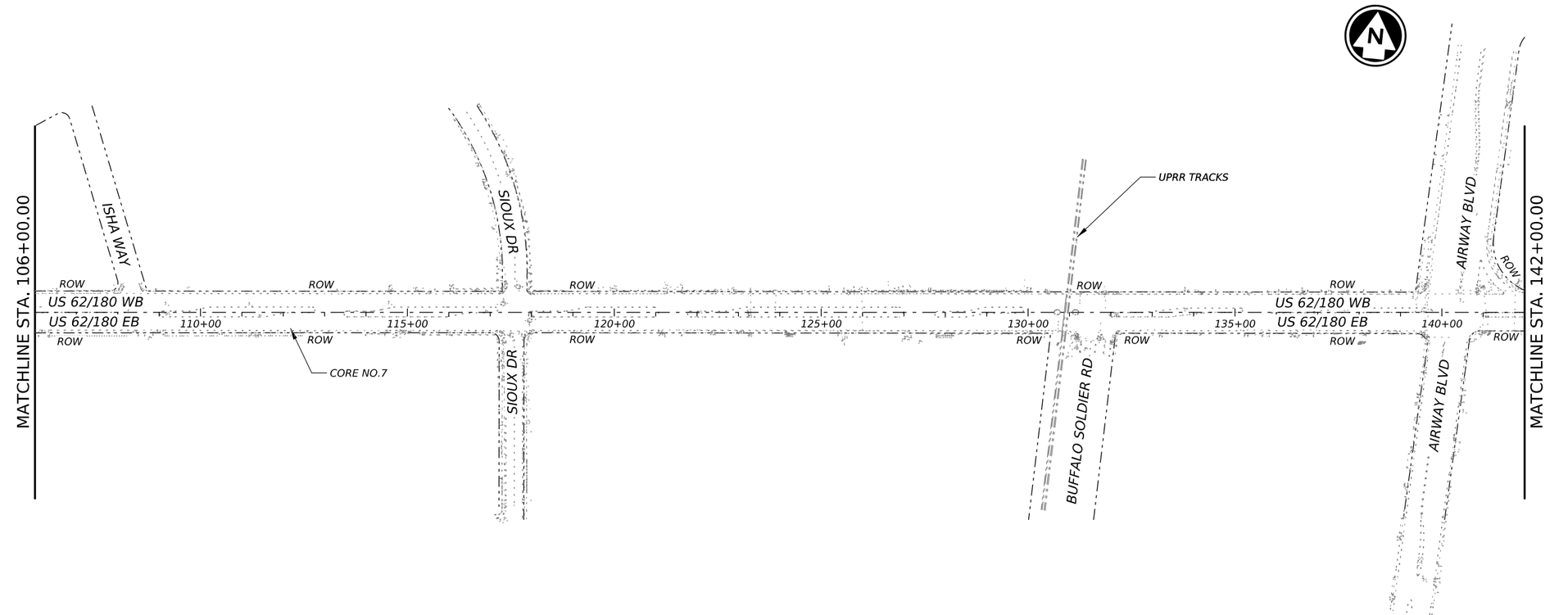

LEGEND

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- CENTER LINE

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GENERAL

PROJECT LAYOUT

SHEET 2 OF 5

DSN		FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
CHK		24	SEE TITLE SHEET		4
DRN		STATE	DIST.	COUNTY	
CHK		TEXAS	ELP	EL PASO	
		CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

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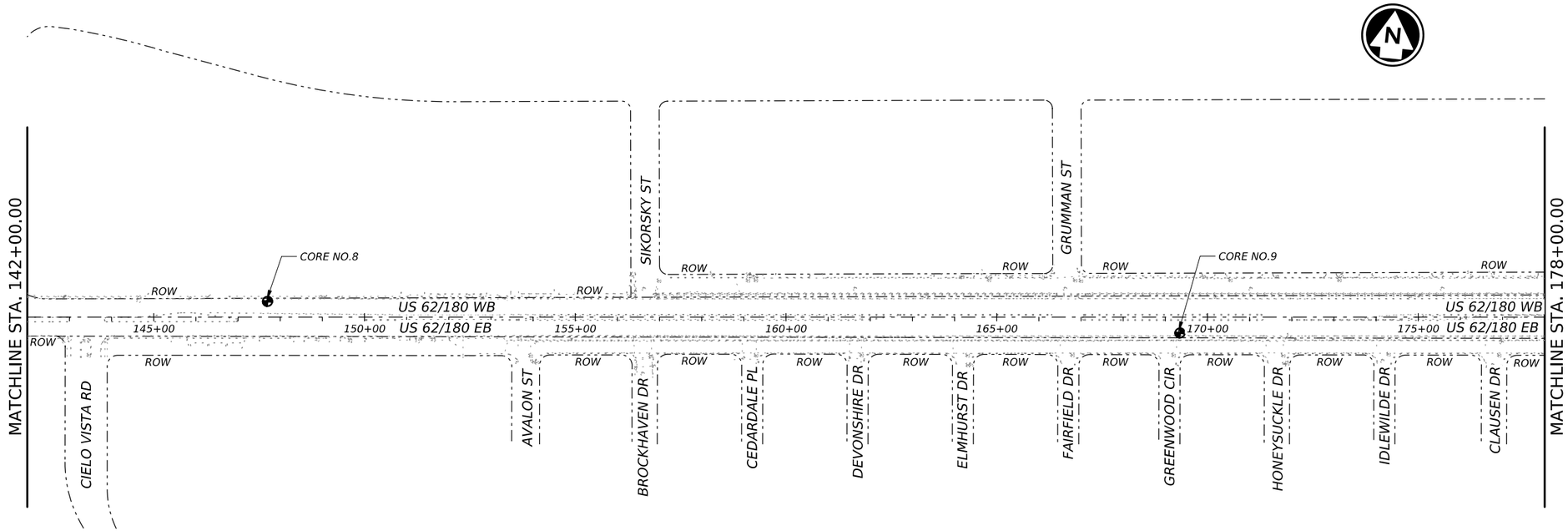

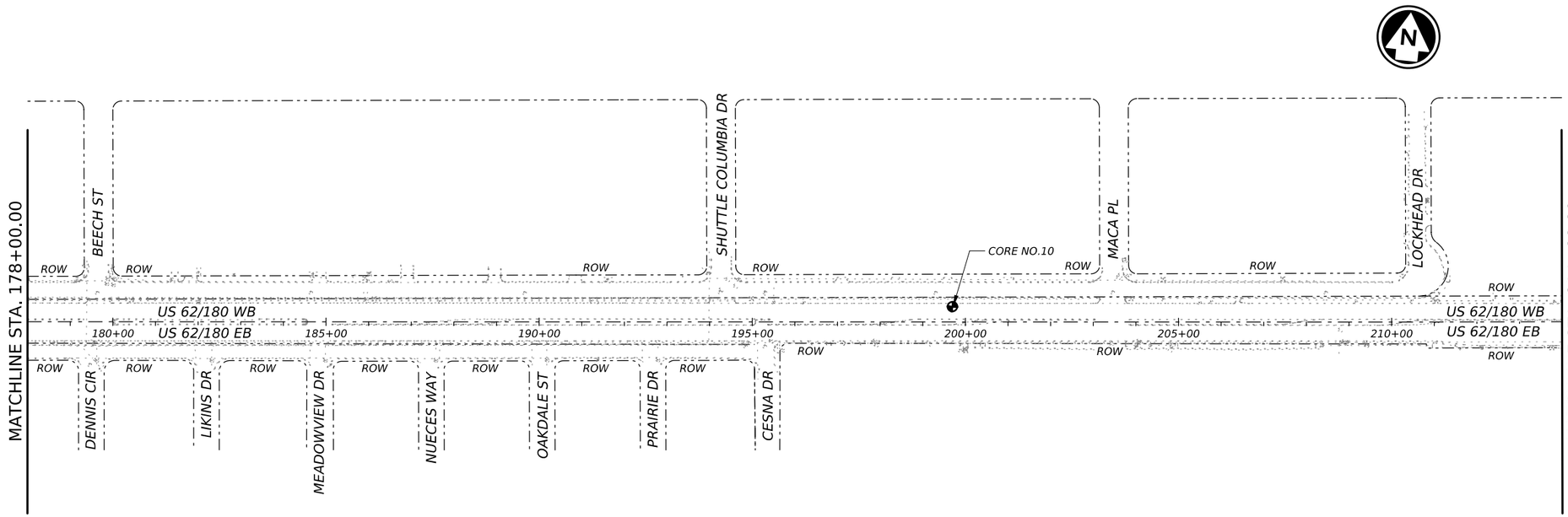

LEGEND

- RIGHT OF WAY
- CENTER LINE

NOTES:

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0 150 300
SCALE: 1"=300'

DATE	BY	REV	REVISION

STATE OF TEXAS
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GENERAL

PROJECT LAYOUT

SHEET 3 OF 5

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN		24	SEE TITLE SHEET	5
CHK		STATE	DIST.	COUNTY
DRN		TEXAS	ELP	EL PASO
CHK		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

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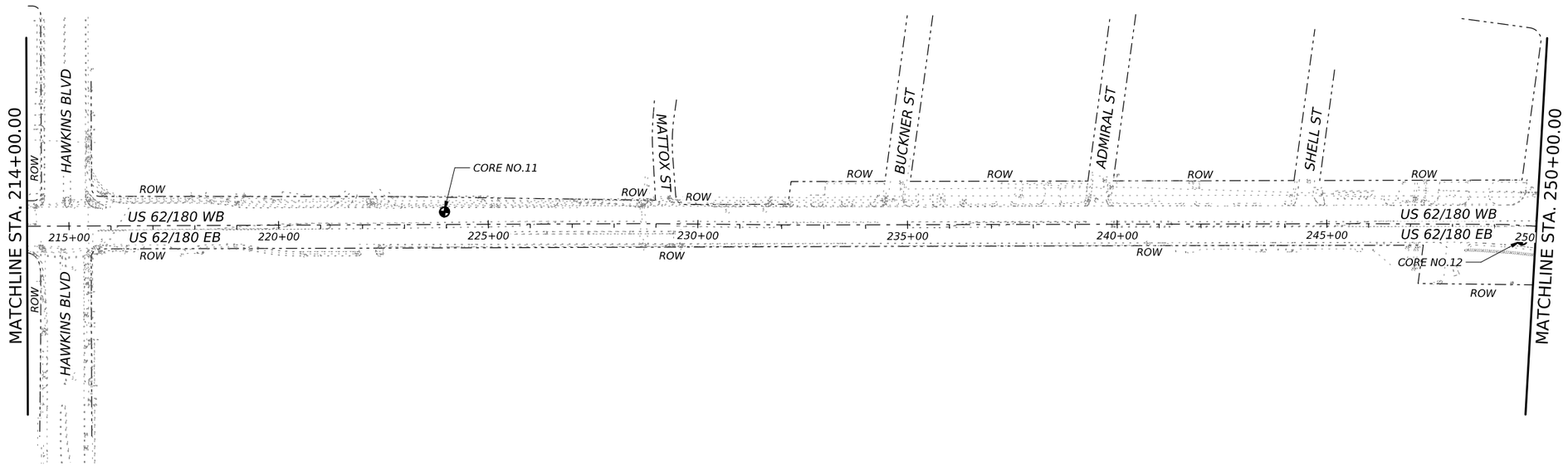

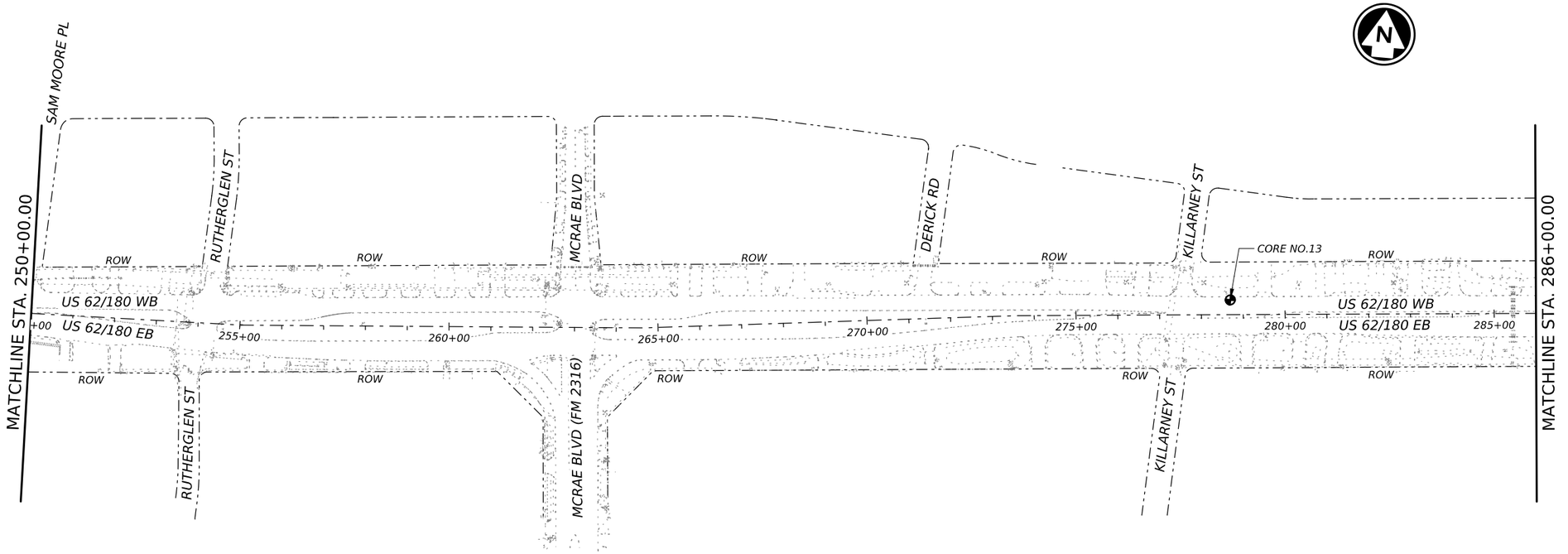

LEGEND

- RIGHT OF WAY
- CENTER LINE

NOTES:

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0 150 300
SCALE: 1"=300'

DATE	BY	REV	REVISION

STATE OF TEXAS
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12/28/2023

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GENERAL

PROJECT LAYOUT

SHEET 4 OF 5

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN		24	SEE TITLE SHEET	6
CHK		STATE	DIST.	COUNTY
DRN		TEXAS	ELP	EL PASO
CHK		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

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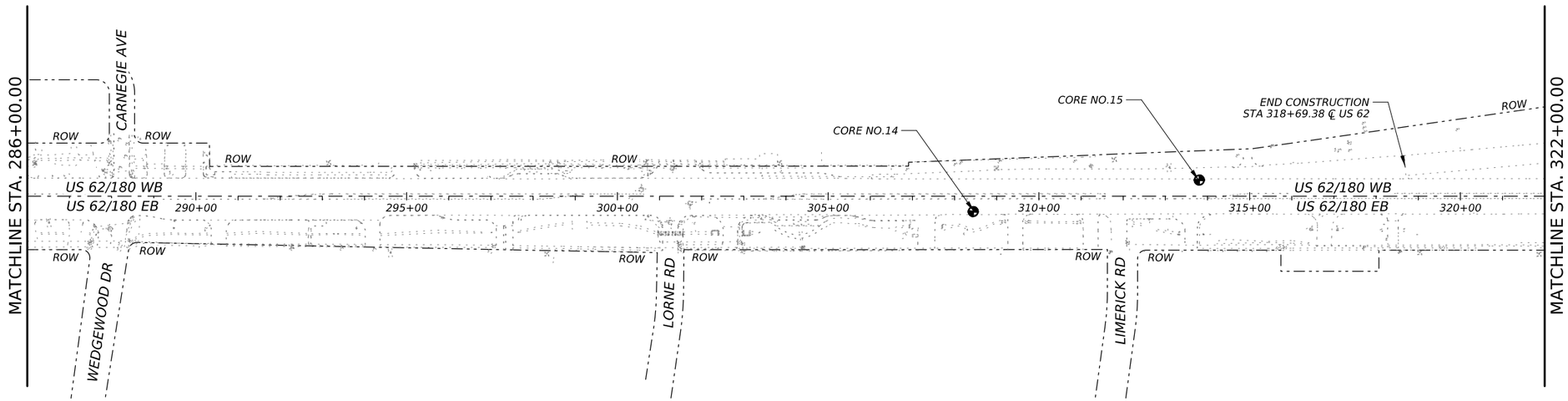

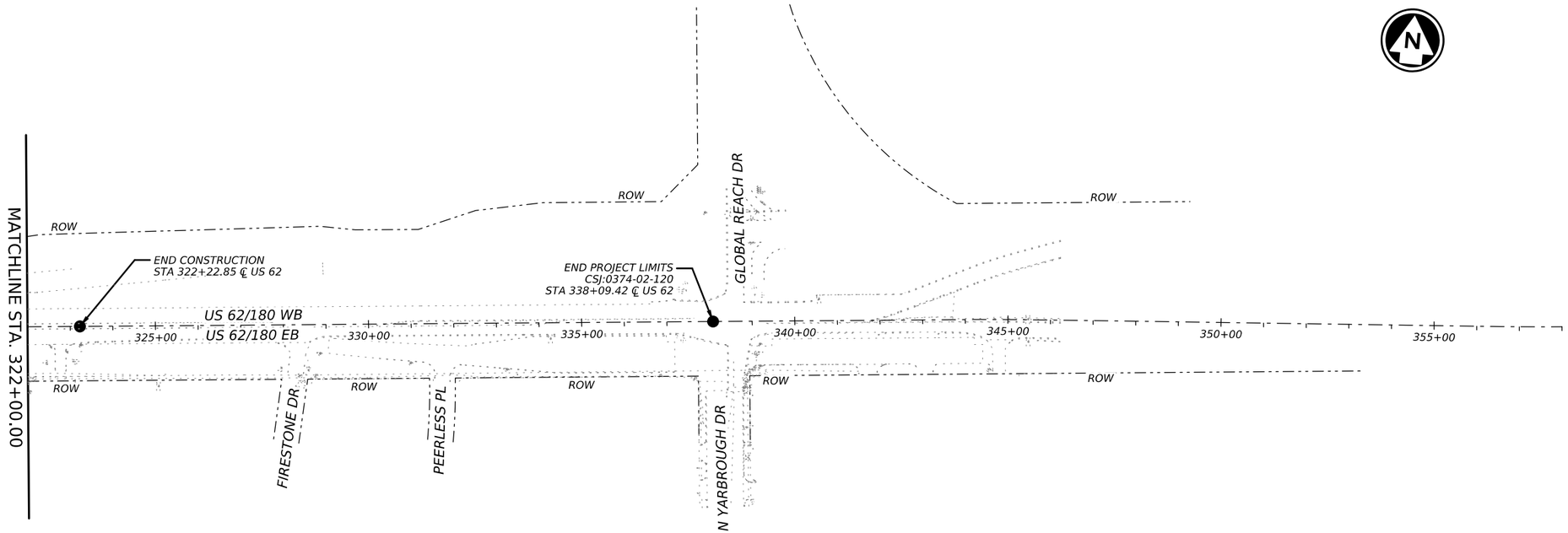

LEGEND

- RIGHT OF WAY
- CENTER LINE

NOTES:

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2. SEE ROADWAY LAYOUT SHEETS FOR ADDITIONAL INFORMATION.
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0 150 300
SCALE: 1"=300'

DATE	BY	REV	REVISION

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GENERAL

PROJECT LAYOUT

SHEET 5 OF 5

DSN		FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
CHK		24	SEE TITLE SHEET		7
DRN		STATE	DIST.	COUNTY	
CHK		TEXAS	ELP	EL PASO	
		CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

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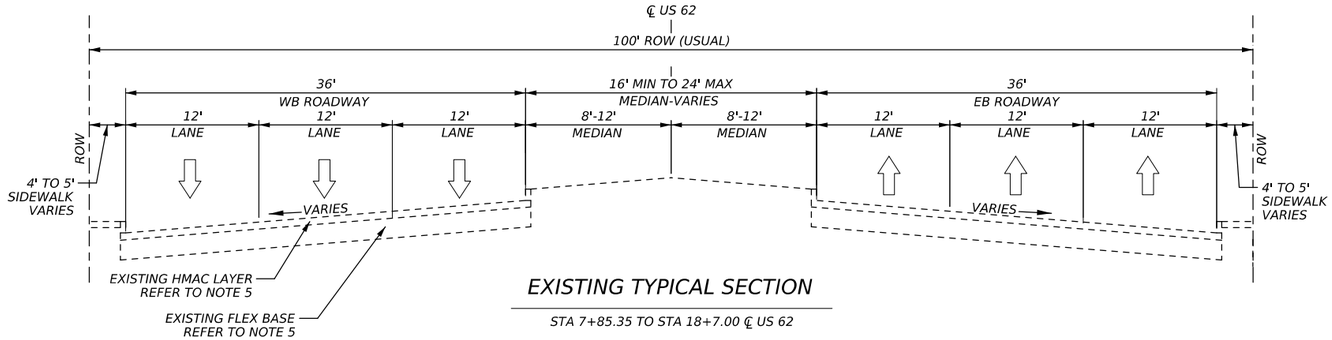
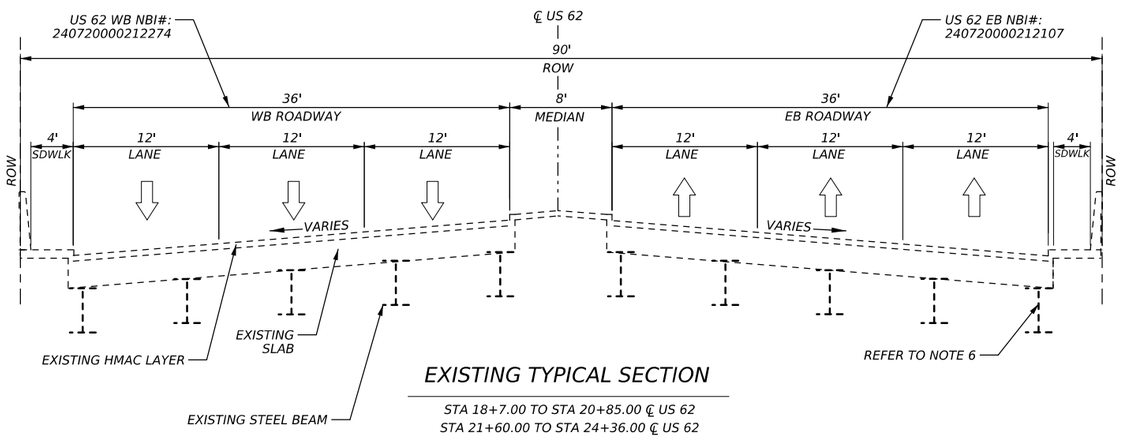


EXISTING TYPICAL SECTION

STA 7+85.35 TO STA 18+7.00 ℄ US 62



EXISTING TYPICAL SECTION

STA 18+7.00 TO STA 20+85.00 ℄ US 62
STA 21+60.00 TO STA 24+36.00 ℄ US 62

LEGEND

- 5" MILL & INLAY
- 2" MILL & INLAY
- 0" TO 2" MICRO MILLING

NOTES:

1. TYPICAL SECTIONS ARE FOR GENERAL INFORMATION ONLY. REFER TO STANDARDS FOR PROPER CONSTRUCTION.
2. SEE HORIZONTAL ALIGNMENT DATA SHEETS FOR ADDITIONAL INFORMATION.
3. ALL DIMENSIONS ARE TO THE FACE OF CURB, THE NOMINAL FACE OF RAIL, OR TO THE EDGE OF PAVEMENT UNLESS OTHERWISE INDICATED.
4. SEE ROADWAY LAYOUT SHEETS FOR INFORMATION.
5. REFER TO CORE TEST REPORT SHEET FOR ACTUAL ACP PAVEMENT DEPTH AT VARIOUS LOCATIONS.
6. REFER TO AS BUILTS FOR ADDITIONAL INFORMATION ON EXISTING BRIDGE BEAMS AS SHOWN.
7. DURING THE 5" INLAY, IN ADDITION TO THE HORIZONTAL APPLICATION OF UNDERSEAL MEMBRANE, PRIME COAT MUST BE APPLIED TO THE EXPOSED BASE LAYER MATERIAL, OR AS DIRECTED BY THE ENGINEER. TACK COAT OR UNDERSEAL MEMBRANE, OR ANY OTHER SUITABLE MATERIAL DIRECTED BY THE ENGINEER, MUST BE APPLIED TO ALL EXPOSED VERTICAL SURFACES OF THE EXISTING PAVEMENT STRUCTURE AFTER 5" PAVEMENT STRUCTURE REMOVAL. TACK COAT IS SUBSIDIARY TO ITEM 3077.
8. REFER TO THE ROADWAY PLAN LAYOUTS FOR FLEXIBLE PAVEMENT STRUCTURE REPAIR LOCATIONS.
9. REFER TO THE ROADWAY DETAIL SHEETS FOR FLEXIBLE PAVEMENT STRUCTURE REPAIR DETAILS.

SCALE: N.T.S.

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

2/5/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

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GENERAL
EXISTING
TYPICAL SECTIONS

SHEET 1 OF 2

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	8
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

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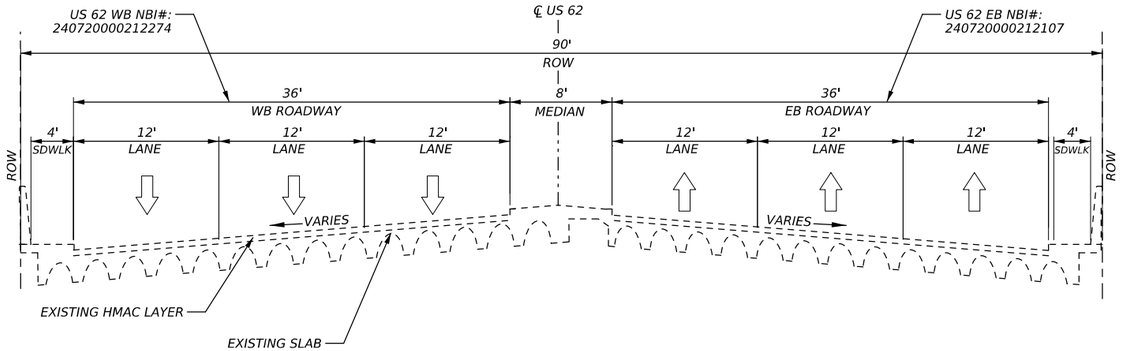
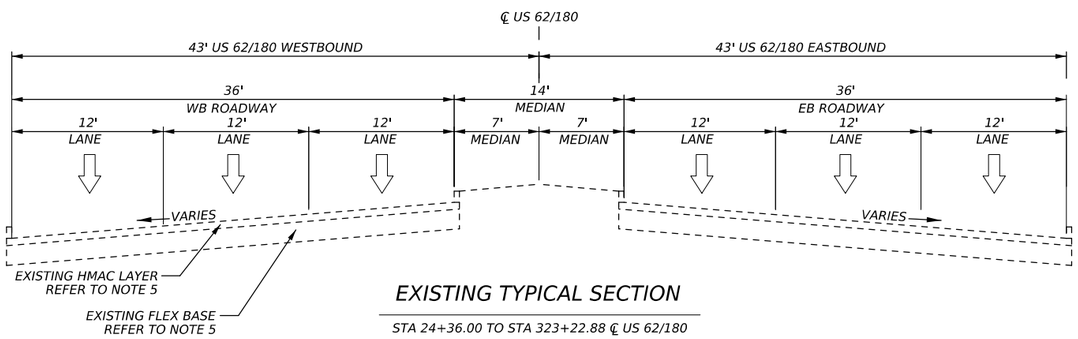


EXISTING TYPICAL SECTION

STA 20+85.00 TO STA 21+60.00 ℄ US 62



EXISTING TYPICAL SECTION

STA 24+36.00 TO STA 323+22.88 ℄ US 62/180

LEGEND

- 5" MILL & INLAY
- 2" MILL & INLAY
- 0" TO 2" MICRO MILLING

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8. REFER TO THE ROADWAY PLAN LAYOUTS FOR FLEXIBLE PAVEMENT STRUCTURE REPAIR LOCATIONS.
9. REFER TO THE ROADWAY DETAIL SHEETS FOR FLEXIBLE PAVEMENT STRUCTURE REPAIR DETAILS.

SCALE: N.T.S.

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

2/5/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

Texas Department of Transportation®

US62|US180

GENERAL
EXISTING
TYPICAL SECTIONS

SHEET 2 OF 2

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
CHK	OEI	24	SEE TITLE SHEET	9
DRN	OEI	STATE	DIST.	COUNTY
CHK	OEI	TEXAS	ELP	EL PASO
		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/5/2024
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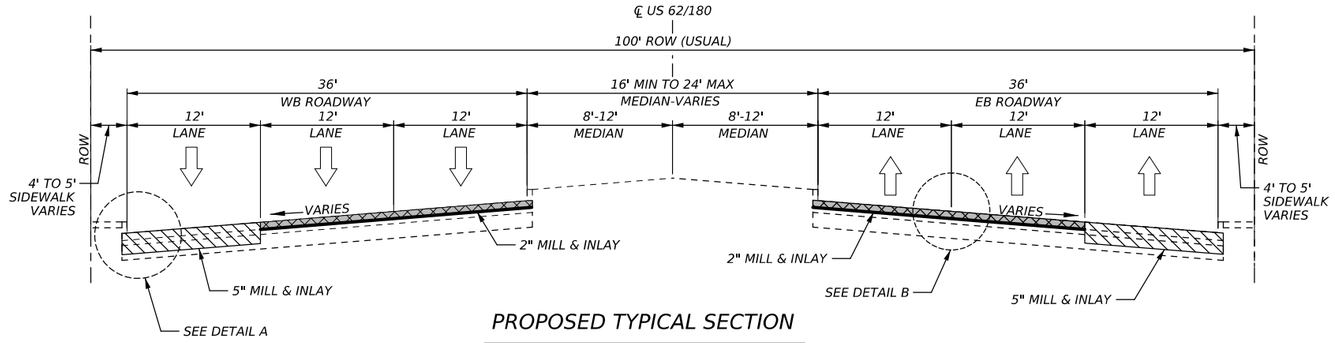
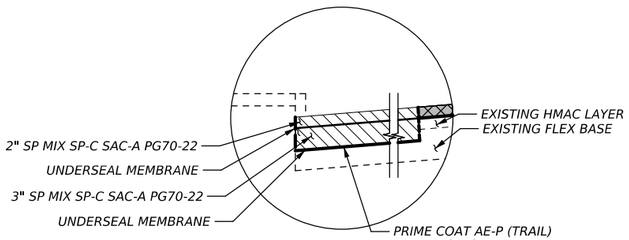


PROPOSED TYPICAL SECTION

STA 7+85.53 TO STA 18+7.00 ℄ US 62/180
STA 24+36.00 TO STA 138+97.00 ℄ US 62/180

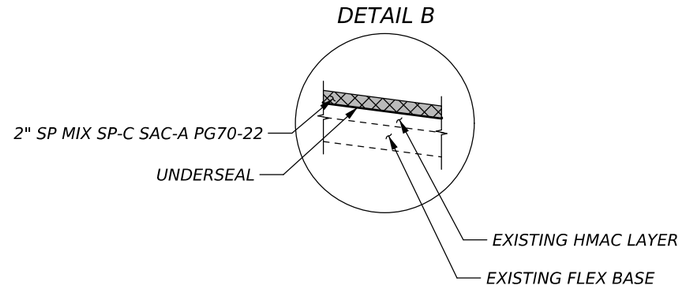
DETAIL A



DETAIL A

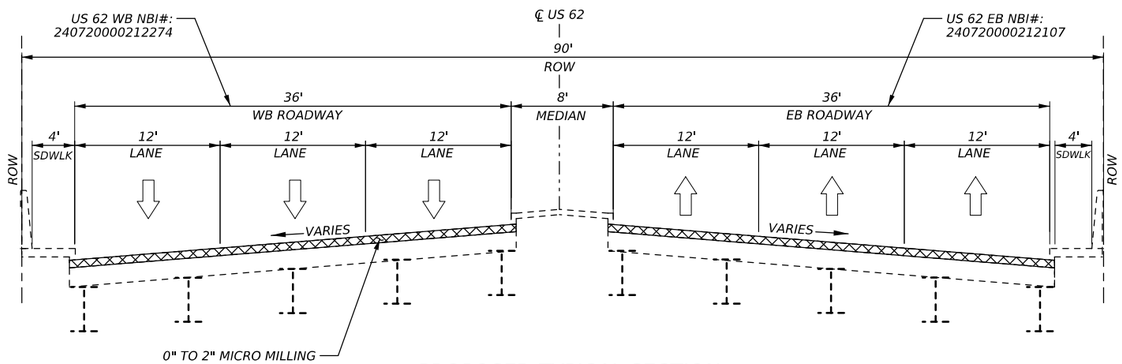
REFER TO ROADWAY SHEETS FOR 5" MILL & INLAY EXACT LOCATIONS AT THE OUTSIDE LANE OF BOTH EB AND WB DIRECTIONS

DETAIL B



DETAIL B

REFER TO ROADWAY SHEETS FOR 2" MILL & INLAY EXACT LOCATIONS



PROPOSED TYPICAL SECTION

STA 18+7.00 TO STA 20+85.00 ℄ US 62
STA 21+60.00 TO STA 24+36.00 ℄ US 62

LEGEND

- 5" MILL & INLAY
- 2" MILL & INLAY
- 0" TO 2" MICRO MILLING

NOTES:

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SCALE: N.T.S.

DATE	BY	REV	REVISION

STATE OF TEXAS
JORGE LUIS NAVARRETE
136599
LICENSED PROFESSIONAL ENGINEER
2/5/2024

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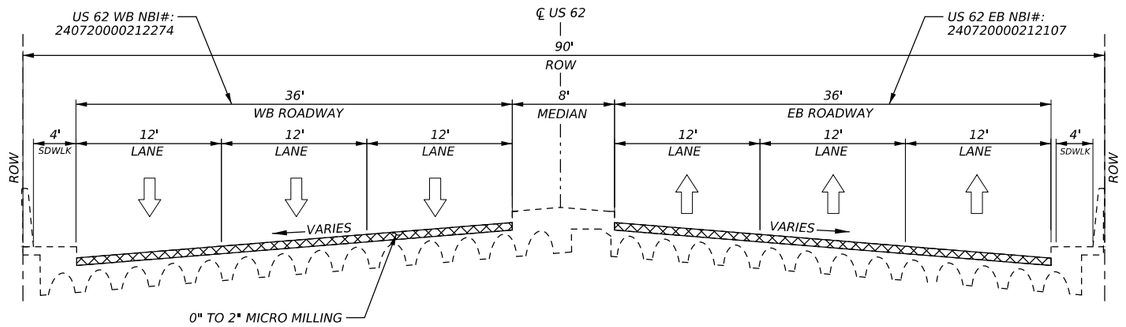
Texas Department of Transportation®

US62|US180

GENERAL PROPOSED TYPICAL SECTIONS

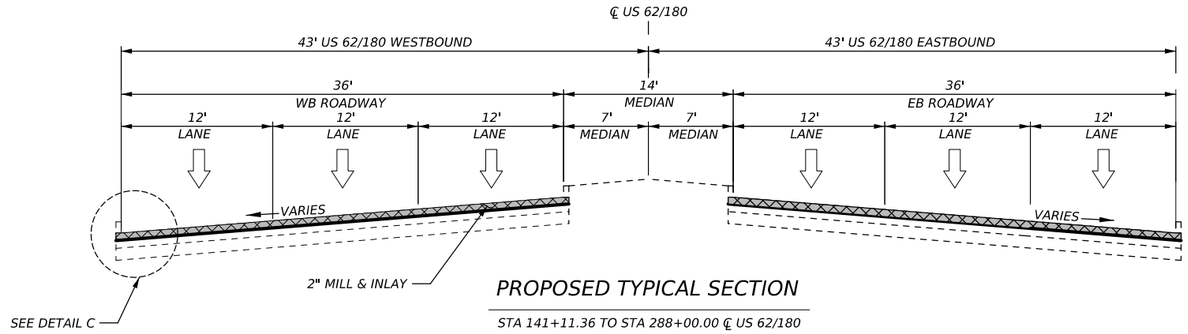
DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
CHK	OEI	24	SEE TITLE SHEET	10
DRN	OEI	STATE	DIST.	COUNTY
CHK	OEI	TEXAS	ELP	EL PASO
		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/5/2024
FILE: c:\pw\workingdir\omega-app02.omegaengineers.local_omega-prod\omega_lcamarena\dms18810\US 62 - US62-S-RDWY-TYP04.dgn



PROPOSED TYPICAL SECTION

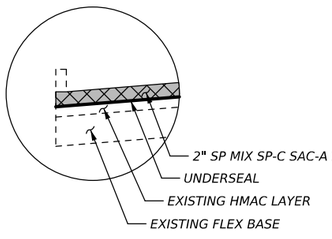
STA 20+85.00 TO STA 21+60.00 ℄ US 62



PROPOSED TYPICAL SECTION

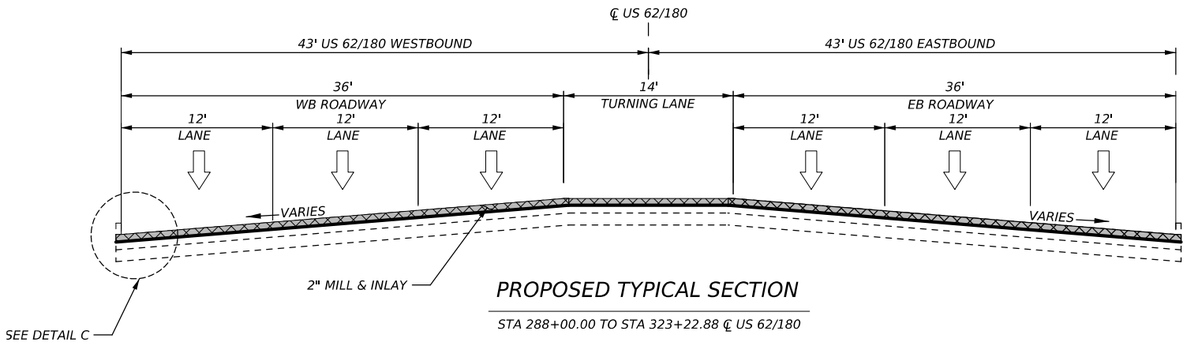
STA 141+11.36 TO STA 288+00.00 ℄ US 62/180

DETAIL C



DETAIL C

REFER TO ROADWAY SHEETS FOR
2" MILL & INLAY LOCATIONS



PROPOSED TYPICAL SECTION

STA 288+00.00 TO STA 323+22.88 ℄ US 62/180

LEGEND

- 5" MILL & INLAY
- 2" MILL & INLAY
- 0" TO 2" MICRO MILLING

NOTES:

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SCALE: N.T.S.

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

2/5/2024

OMEGA ENGINEERS, INC.
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GENERAL PROPOSED TYPICAL SECTIONS

SHEET 2 OF 2

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	11
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/5/2024
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_lcamarena\dms18810\US 62 - US62-S-RDWY-TYP05.dgn

CSJ: 0002-12-027 / 0374-02-120

Core No. 1	
Location	
RM	22.5 R
Lat.	31°46'11.63"N
Long.	106°25'32.23"W
Direction	
Lane	R1
Bound	NB
Thickness	
HMAC	5"
Base	2 Sac

Core No. 2	
Location	
RM	22.9 L
Lat.	31°46'32.19"N
Long.	106°25'23.43"W
Direction	
Lane	L1
Bound	SB
Thickness	
HMAC	4-5/8"
Base	11 1/4"

Core No. 11	
Location	
RM	26.5
Lat.	31°47'36.22"N
Long.	106°22'8.28"W
Direction	
Lane	K6
Bound	SB
Thickness	
HMAC	4-7/8"
Base	17"

Core No. 12	
Location	
RM	27
Lat.	31°47'39.40"N
Long.	106°21'38.73"W
Direction	
Lane	K1
Bound	NB
Thickness	
HMAC	7-1/2"
Base	9-3/4"

Core No. 3	
Location	
RM	23.2 R
Lat.	31°46'46.36"N
Long.	106°25'15.86"W
Direction	
Lane	R1
Bound	NB
Thickness	
HMAC	5-5/8"
Base	9"

Core No. 4	
Location	
RM	23.5 R
Lat.	31°46'58.05"N
Long.	106°25'7.98"W
Direction	
Lane	R1
Bound	NB
Thickness	
HMAC	6"
Base	11"

Core No. 13	
Location	
RM	27.5
Lat.	31°47'44.31"N
Long.	106°21'5.61"W
Direction	
Lane	K6
Bound	SB
Thickness	
HMAC	3-7/8"
Base	12"

Core No. 14	
Location	
RM	28.13
Lat.	31°47'48.11"N
Long.	106°20'31.42"W
Direction	
Lane	K1
Bound	NB
Thickness	
HMAC	6-3/8"
Base	N/A

Core No. 5	
Location	
RM	23.7 L
Lat.	31°47'4.46"N
Long.	106°24'55.36"W
Direction	
Lane	L1
Bound	SB
Thickness	
HMAC	4-5/8"
Base	15 1/2"

Core No. 6	
Location	
RM	24.2 L
Lat.	31°47'17.76"N
Long.	106°24'28.04"W
Direction	
Lane	L1
Bound	SB
Thickness	
HMAC	2-7/8"
Base	13"

Core No. 15	
Location	
RM	28.23
Lat.	31°47'49.65"N
Long.	106°20'25.41"W
Direction	
Lane	K6
Bound	SB
Thickness	
HMAC	7"
Base	N/A

Core No. 7	
Location	
RM	24.4 R
Lat.	31°47'18.56"N
Long.	106°24'16.11"W
Direction	
Lane	R1
Bound	NB
Thickness	
HMAC	4-7/8"
Base	9"

Core No. 8	
Location	
RM	25
Lat.	31°47'24.70"N
Long.	106°23'35.58"W
Direction	
Lane	K6
Bound	SB
Thickness	
HMAC	8-1/2"
Base	N/A

Core No. 9	
Location	
RM	25.5
Lat.	31°47'27.25"N
Long.	106°23'10.67"W
Direction	
Lane	K1
Bound	NB
Thickness	
HMAC	6-1/2"
Base	N/A

Core No. 10	
Location	
RM	26.07
Lat.	31°47'32.57"N
Long.	106°22'36.06"W
Direction	
Lane	K6
Bound	SB
Thickness	
HMAC	5-1/2"
Base	N/A

NOTE: FOR CONTRACTOR INFORMATION PURPOSES ONLY

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
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TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

US62|US180

GENERAL
CORE REPORT

SHEET 1 OF 1

		FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
DSN	OEI	24	SEE TITLE SHEET		12
CHK	OEI	STATE	DIST.	COUNTY	
DRN	OEI	TEXAS	ELP	EL PASO	
CHK	OEI	CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

DATE: 12/28/2023
FILE: c:\pw\workingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18804\US62-S-GEN-CORE01.dgn

********** General Notes **********

2014 Specification Book

Specification Data

Table 1

Basis of Estimate

Item	Description	Rate[1]
310	Prime Coat[2] AE-P (TRAIL) for flexible pavement repairs	0.15 gal/sy
351	Flexible Pavement Structure Repair (6")	See note 4
3077	Tack Coat[3] (For flexible pavement repair)	0.15 gal/sy
3077	SP Mixes SP-C SAC-A PG70-22	1 in = 110 lb/sy
3002	Membrane Underseal	0.20 gal/sy

1. **Deviation from the rates shown will require approval.**
2. **Prime Coat will be subsidiary to Item 351 for flexible pavement repair areas. Prime Coat will be paid for the 6-in mill areas. Tack Coat between lifts will be subsidiary to item 351.**
3. **Tack Coat will be used on vertical wall of 6" Mill and Inlay, as shown and as directed by the Engineer. Rate shown is based on the desired residual application of 0.15 gal/sy. Tack Coat will be subsidiary to item 3077.**
4. **Provide six (6) inches of SP-C SAC-A PG 70-22 (EXEMPT) for all repairs, 1 in. = 110 lbs./sy, will not be measured but will be subsidiary to Item 351, "Flexible Pavement Structure Repair".**

General Requirements

Maintain the entire project area in a neat and orderly manner throughout the duration of the work. Remove all construction litter and undesirable vegetation within the right of way inside the project limits. This work will be subsidiary to the various bid items.

General Project Description

This is a preventative maintenance project includes asphaltic pavement mill and inlay, pavement full depth repair at various areas, sidewalk and ADA ramp improvements, curb extension, and repairs, as well as minor drainage improvements on US62 (Paisano Dr). and US62/180 Montana Ave. in El Paso County, TX.

Traffic

Contact the Engineer or the City when construction operations are within 400 feet of a signalized intersection to determine/verify the location of loop detectors, conduit, ground-boxes, etc. Repair or replace any signal equipment damaged by construction operations. The method of repair or replacement shall be pre-approved and inspected. This work shall be completed at the Contractor's expense.

Inform the Engineer and the respective utility companies, when it becomes apparent that the utility lines will interfere with the work in progress.

The following Standard Detail sheets have been modified:

- CCCG-22 (MOD)

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

West Area Office:

Jonathan Concha, P.E.	**Aldo Madrid, P.E.**	**Monica Ruiz, P.E.**
West El Paso Area Engineer	**Director of Construction**	**District Construction Engineer**
Jonathan.Concha@txdot.gov	Aldo.Madrid@txdot.gov	Monica.Ruiz@txdot.gov

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractor's dashboard located at the following address:

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

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

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

Schedule and perform all work to ensure proper drainage during the course of construction or maintenance operations. All labor, tools, equipment, and supervision required to ensure drainage, removal, and handling of water shall be considered incidental work.

Item 5 – Control of Work

The Department will furnish horizontal and vertical reference points. The Contractor must verify horizontal and vertical reference points with conventional survey methods before proceeding with construction activities. Verification must be submitted for review and approval to the Department's R.P.L.S. prior to the start of construction. Any discrepancies not reported will be at no additional cost to the Department.

The plan datum for this project is NAD 83 for horizontal and NAVD 88 for elevation based.

Keep traveled surfaces used in hauling operations clear and free of dirt or other materials.

Coordinate with respective utility owners before adjusting existing utility manholes, meters, valve covers, etc.

Coordinate to complete all required adjustments within the project duration acceptable to the Department and each applicable Utility Agency.

The Contractor shall coordinate with El Paso Water Utility for adjustments of their existing utility manholes, meters, valve covers, etc.

Existing pavement, utilities, structures, street furniture, etc. damaged as a result of construction operations will be repaired at no additional cost to the Department.

Protect from damage and destruction all areas of the right of way, which are not included in the actual limits of the proposed construction areas. Restore any area disturbed or damaged to a condition "as good as" or "better than" prior to the start of construction operation. This work will be at the Contractor's expense.

Item 7 – Legal Relations and Responsibilities

Comply with all requirements of the Environmental Permits Issues and Commitments (EPIC) Sheet.

Do not discharge any liquid pollutants from vehicles onto the roadside. Immediately clean spills and dispose in compliance with local, state, and federal regulations to the satisfaction of the Engineer at no additional cost to the Department.

Occupational Safety & Health Administration (OSHA) regulations prohibit operations that bring people or equipment within 10 ft. of an energized electrical line. Where workers and/or equipment may be close to an energized electrical line, notify the electrical power company and make all necessary adjustments to ensure the safety of workers near the energized line.

Provide notification two weeks prior to the beginning of construction to the City of El Paso – Streets and Maintenance Department at tcp@elpasotexas.gov when traffic control devices encroach City ROW or traffic control setup impacts City streets.

Unless otherwise approved, no lane closure that restricts or interferes with traffic shall be allowed from noon on the day preceding to 10:00PM on the day after the following holiday schedule.

a) New Year's Eve and New Year's Day (December 31 through January 1);
b) Easter Holiday Weekend (Friday through Sunday);
c) Memorial Day Weekend (Friday through Monday);
d) Independence Day (July 3 through noon on July 5);
e) Labor Day Weekend (Friday through Monday);
f) Thanksgiving Holiday (Wednesday through Sunday); and
g) Christmas Holiday (December 23 through December 26).

No significant traffic generator events identified.

Law Enforcement Personnel

Coordinate with TxDOT Engineer for off-duty Law enforcement assistance when needed to direct traffic during significant closures and detours, as approved unless otherwise directed by the Engineer. The officer shall monitor or direct traffic during the closure as directed by the Engineer. Patrol vehicles must be clearly marked to correspond with the officer's agency and equipped with appropriate lights to identify them as law enforcement. For patrol vehicles not owned by a law enforcement agency, markings will be retroreflective and legible from 100 ft. from both sides and the rear of the vehicle. Lights will be high intensity and visible from all angles.

The Contractor is to submit a written request at least 48 hours prior to the need for law enforcement to the Engineer. The Engineer will make arrangements with the respective entity to formally request the services.

Fees resulting from contractor-initiated cancellations shall be the Contractor's responsibility.

The method used to direct traffic at signalized intersections shall be as approved by the Engineer. Additional officers and vehicles may be provided when approved or directed.

Show proof of certification by the Texas Commission on Law Enforcement Standards.

Complete the daily tracking form provided by the department and submit proof of payment such as canceled checks for the approved invoices that have been billed to the project no later than 30 days from the invoice date.

No payment will be made for law enforcement personnel needed for moving equipment or payment for drive time to/from the event site.

Minimums, scheduling fees, etc. will not be paid; TxDOT will consider paying cancellation fees on a case-by-case basis.

Item 8 – Prosecution and Progress

The Engineer may suspend the work, wholly or in part, and will provide notice and reasons for the suspension in writing as shown in item 8.4.

Hot Mix Asphalt Pavement work will not be performed from November 1 to March 31 or when the weather conditions do not meet the specification for the performance of hot mix operations as directed. Inclement weather days have been accounted for on the contract time determination for the projects. Time suspension will only be authorized in writing by the Engineer.

Working days will be calculated in accordance with Section 8.3.1.4., “Standard Workweek.”

Create and maintain a CPM schedule.

Submit baseline schedule and obtain approval prior to beginning construction. The monthly progress payment will be held if the monthly update is not submitted.

Provide a Project Schedule Summary Report on a monthly basis along with the monthly progress schedule.

All work and lane closures are restricted to night-time hours from 9 PM to 6 AM Sunday through Thursday unless otherwise directed in writing.

Other work such as concrete curb repair, sidewalk reconstruction, pond excavation, median demolition and reconstruction, new median construction will be allowed during the workday with the appropriate TCP as shown on plans and approved by the engineer.

Item 9 – Measurement and Payment

Monthly progress payments will be made for items of work completed by the 27th day of each month. Any work completed after the 27th will be included for payment in the subsequent monthly progress payment.

Submit Material on Hand (MOH) payment requests at least **two (2)** working days prior to the 27th of the month for payment consideration on that month’s estimate.

Item 100 – Preparing Right of Way

This item will be used to remove existing landscape irrigation systems encountered within the ROW that will interfere with the proposed work. Irrigation system should be alter/removed only for locations within the project limits, irrigation pipes should be properly capped. Irrigation systems

partially impacted by the proposed improvements should be left functional. All work, materials, and incidentals required for removal and repair of irrigation systems will be subsidiary to this Item.

Removal of existing loose aggregate, concrete, asphalt, and any other materials deleterious to plant growth encountered within the limits during initial grading is subsidiary to this Item.

Item 104 – Removing Concrete

All concrete removals will be paid under this item.

All work items described under item 104.3 required to saw-cut, as shown on the plans, or as directed is considered subsidiary to this Item.

Item 110 – Excavation

To eliminate all drop-off conditions, construct tapers as directed. This work will not be paid for directly but will be considered subsidiary to pertinent bid items.

Excavate and shape the shallow pond as detailed in the drainage detail sheets. All excavation and shaping work will be paid under this item. Removal of loose aggregate will be considered subsidiary to this Item.

Item 301 – Asphalt Antistripping Agents

Hydrated Lime shall be added as an Antistripping additive between the rates of 1.0% minimum and 2.0% maximum by weight for Items 3076, 3077, 3080, 3081, and 3082. If the Hamburg Wheel Test cannot be met within these limits, Liquid Antistripping Agents may be used in conjunction with lime for Items 3076, 3077, 3080, 3081, and 3082 as approved by the Engineer.

Item 310 – Prime Coat

This item will only be used under Item 351. No direct payment will be made for prime coat but will be considered subsidiary to Item 351 when used for Flexible Pavement Structure areas.

Cure prime coat for at least 48 hr. prior to beginning hot-mix asphalt placement operations, unless otherwise directed. Prime coat AE-P (TRAIL) diluted and rolled into exposed base.

When multi option is allowed, provide AE-P, SS-1H, CSS-1H or other material approved by the Engineer.

Contractor to provide a test sample of prime coat to the engineer prior to production. Material must be tested and approved by the engineer prior to application.

Place seal coat or pavement course as shown on the plans within 14 calendar days of initial prime coat application. Otherwise, reapply prime coat as directed by the Engineer. Reapplication of the prime coat will be at the Contractor's expense.

Item 351 – Flexible Pavement Structure Repair

Provide Six (6) inches of SP-C PG 70-22 (EXEMPT) for all repairs. SP-C PG 70-22 (EXEMPT) will not be measured but will be subsidiary to Item 351, "Flexible Pavement Structure Repair."

SP-C PG 70-22 (EXEMPT) will be placed in 2-in lifts. The final pavement layer will be placed and paid later under the pertinent pay item.

Hydrated Lime shall be used as an antistripping agent at a rate of 1.0% in accordance with Item 301 "Asphalt Antistripping Agents" for all HMA used for Item 351.

Perform repairs on locations shown in plans, as per plan quantities or as directed by the Engineer.

Repair pavement edges to the line and grade of the original pavement. The sides of the repair area shall be made square by saw cutting or other approved methods. Any loose and foreign material shall be removed. Repair areas must be cleaned and dried prior to the application of underseal membrane (or any other material as directed by the Engineer) and prime coat.

Underseal membrane, tack coat or any other suitable material as directed by the Engineer must be applied between lifts of 2-in of SP-C PG 70-22 (EXEMPT). Underseal membrane, tack coat or any other suitable material as directed by the Engineer must also be applied to all exposed vertical surfaces of the existing pavement structure after 6 in pavement structural removal.

Prime coat must be applied to the horizontal surfaces when base layer material is exposed. AE-P (TRAIL) is to be applied as prime coat at 0.15 gal/sy to repaired area surfaces unless otherwise directed. Waste material is to be removed and disposed of as directed or approved.

Use of a motor grader will not be permitted unless otherwise directed by the Engineer.

Proof rolling or other approved compacting methods as directed by the Engineer shall be required in the event that Flex Base or Subgrade is exposed. Payment is subsidiary to this item.

Item 354 – Planing and Texturing Pavement

The bridge deck is to be planed and textured, remove all excess material. Do not broom material to the sides of the bridge, under guardrail, etc. Cover or protect all lateral drains, sealed expansion joints, rails on bridge, and all railroad tracks encountered below as approved by the Engineer. Clean all these features if they weren't properly protected. This work is subsidiary to the bid item. Refer to Item 438, "Cleaning and Sealing Existing Joints," for procedures and methods.

Contractor shall use micro-milling to address corrective action locations identified in coordination with the Engineer based on item 585 "Surface Test Type B" results. This corrective process will

take place upon completion of milling operations and prior to placement of the final surface. Contractor is responsible for the finished riding surface.

Contractor shall furnish flood light towers at stockpile locations for work performed during night hours. Provide sufficient equipment to stockpile materials during the milling operations at the designated locations shown on plans or as directed by the Engineer.

The planning machine shall be capable of restoring pavement profile with a non-contact leveling system. The non-contact leveling system shall have a minimum of three sensors dispersed the length of the machine.

Construct a taper with an asphaltic mixture at all uneven transverse joints left by the planing operation if open to traffic. Transitions shall be at 10 feet for every 1 inch. Asphaltic material will be subsidiary to this item of work.

Taper milling to match existing inlets, driveways, gutter lines, bus pads, and ADA ramp grade elevations as directed.

The contractor shall field verify the asphaltic concrete pavement thickness on bridge decks prior to starting the planing operations. This work will be subsidiary to Item 354.

During planing operations on the bridge, caution is to be taken to not damage the concrete bridge deck, particularly near the bridge joints during the removal of the asphaltic material.

Any damage to the concrete bridge deck or bridge joints is to be reported to the Engineer and repaired at the Contractor's expense based on the compliance of the Engineer and in accordance with Item 429.

Department will retain ownership of planed materials. The asphalt removed under this item shall be salvaged and stockpiled in separate stockpiles as directed by the Engineer at the location listed below. RAP generated through the required work on the contract is available for the Contractor's use when shown under Item 134 or the HMA items of work, if applicable.

- 12695 McCombs St.

Contact the West Area Maintenance Supervisor at (915) 757-5900 for coordination prior to delivery of materials. Stack in piles 12 to 13 feet maximum height. Hauling of material and incidentals to complete this work is subsidiary to this Item.

Contractor shall verify asphaltic concrete pavement thickness on bridge decks prior to planning operations. This will be subsidiary to this item.

During planning operation on the bridge, caution is to be taken as to not damage the concrete bridge deck in particularly near the bridge joints during the removal of asphaltic material, any damage to the concrete bridge deck or bridge joints is to be reported to the engineer and repaired at the contractor's expense to the satisfaction of the engineer.

Item 420 – Concrete Substructures

A total of three concrete flumes will be constructed in the proposed shallow pond located at the intersection between Montana Ave. and Mescalero Dr.

Concrete must be provided in accordance with Item 421, “Hydraulic Cement Concrete.” All concrete shall be 3,000 psi Class A. Compaction beneath structures shall be considered subsidiary to Item 420.

All concrete shall be reinforced as detailed in the plans. Rebar reinforcement shall be considered subsidiary to this work item.

Provide membrane curing compounds in accordance with DMS-4650, “Hydraulic Cement Concrete Curing Materials and Evaporation Retardants.”

The transportation and placement of concrete shall be performed using appropriate equipment and construction methods in accordance with the specifications indicated in section 3 (“Equipment”) and section 4 (“Construction”) of work item 420.

Item 429 – Concrete Structure Repair

Specific damaged areas of the bridge deck located along Paisano Dr. over Union Pacific Railroad will be determined in the field at the discretion of the engineer.

Provide Class HES concrete designed to attain a minimum average compressive strength of 1,800 psi within the allowed lane closure time. Use material meeting the requirements of DMS-4655, “Concrete Repair Materials,” Type A unless otherwise directed by the Engineer.

The use of ready-mix concrete will be permitted.

Prior to placement of concrete, cover and protect all structures including concrete curbs, concrete railing, stamped concrete, etc.

Tine texturing will be required unless otherwise directed.

Do not use impact drills for drilling holes for tie bars. A rotary core type bit is required to prevent damage to the pavement that will remain in place.

Additional equipment must be available at all times to ensure that possible delays caused by equipment breakdown are kept to a minimum.

Place construction, sawed and contraction joints in accordance with the Concrete Paving Detail Sheet. Use Method A unless otherwise directed.

Quantities provide on plans for bridge deck repair quantities provide on plans are to be used at the discretion of the engineer.

The concrete removed from the roadway will not be stockpiled on the right of way. All material must be disposed of off the right of way and not visible to the traveling public from a State maintained roadway unless otherwise approved.

All work required to saw-cut existing Continuously Reinforced Concrete Pavement (CRCP) as shown on the plans, or as directed by the Engineer, will not be paid for directly but will be subsidiary to the various bid items.

All permanent pavement markings which are removed during the removal of the existing concrete pavement are to be replaced as directed by the Engineer.

Use Department approved products to accomplish full depth, horizontal and vertical concrete repairs. Follow the procedures outlined in the Concrete Repair Manual unless approved otherwise. Submit for approval all materials and methods of application at least 3 weeks before beginning any repair work.

Maintain bridge components so that they shall remain free of all debris during construction. This work will not be paid directly but shall be considered subsidiary to the pertinent items.

Item 438 –Cleaning and Sealing joints.

Provide Class 3 “Hot Poured Rubber”, in accordance with DMS-6310.

Existing join seal material to be removed by sawing unless otherwise approved.

Clean and seal entire length of all joints in concrete pavement and bridges.

After the removal of the existing joint sealant material is complete, the vertical joint faces will be cleaned by sandblasting. Protective measures shall be taken to avoid any residue becoming in contact with Union pacific Railroad. Contractor to provide to protect the RR track under the bridge for any debris that may fall as old concrete is removed.

Collect and dispose of all removed material on a daily basis.

Air blast all joints to remove loose material prior placing proposed sealant.

Item 502 – Barricades, Signs, and Traffic Handling

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

Additional signs and barricades, placed as directed, will be considered subsidiary to this Item

In accordance with Section 7.2.6.1, designate, in writing, a Contractor Responsible Person (CRP) and a CRP alternate to take full responsibility for the set-up, maintenance, and necessary corrective measures of the traffic control plan. The CRP or CRP alternate must be present at site

and implement the initial set up of every traffic control phase/stage, at each location, and/or each call out, for the entire duration of the project.

At the written request of the Engineer, immediately remove the CRP or CRP alternate from the project if, in the opinion of the Engineer, is not competent, not present at initial TCP set-ups, or does not perform in a proper, skillful, or safe manner. These individuals shall not be reinstated without written consent of the Engineer.

CRP and CRP alternate must be trained using Department approved training. Provide a copy of the certificate of completion to the Engineer for project records.

All contractor workers involved with the traffic control implementation and maintenance must participate and complete a Department approved training course. Provide a copy of the certificate of completion to the Engineer for project records. Refer to “Traffic Control Training” Material Producer List https://ftp.txdot.gov/pub/txdot-info/cmd/mpl/tct.pdf for Department approved training.

Contractor may choose to train workers involved with the traffic control implementation and maintenance with a contractor developed training in lieu of Department approved training. Contractor developed training must be equivalent to the Department approved training. Provide the Engineer a copy of the course curriculum for pre-approval, prior to conducting the Contractor developed training. Provide the Engineer a copy of the log of attendees after training completion for project records.

Existing regulatory signs, route marker auxiliaries, guide signs, and warning signs that must be removed due to pavement work shall be relocated temporarily and erected on approved supports at locations shown in the plans, or as directed. This work will not be paid for directly but is considered subsidiary to this Item.

Notify the Department officials when major traffic changes are to be made, such as detours. Coordinate with the Department on all traffic changes. Advance notification for the following week’s work must be made by 5 P.M. on Wednesdays.

If Law Enforcement Personnel is required by the Engineer, coordinate with local law enforcement as directed or agreed. Complete the weekly tracking form provided by the Department and submit invoices with 5% allowance for Law Enforcement payments by Contractor that agree with the tracking form for payment at the end of each month where approved services were provided.

Provide access to intersecting side roads, driveways, and medians at all times, unless otherwise directed.

Any approved change to the sequence of work or TCP, must be signed and sealed by a Contractor’s Licensed Professional Engineer assuming full responsibility for any additional barricade signs and devices needed.

Use striping operations to channelize traffic into the newly completed roadway, as directed. Maintain shoulders and median areas in a condition capable of serving as emergency paths, as approved. This work will be subsidiary to this Item.

Use portable changeable message signs (PCMS) to alert public of construction two weeks prior to construction.

Use flaggers when directed. Provide two-way radio communication for all flaggers.

Place and maintain sufficient additional warning signs, beacons, delineators, and barricades to warn and guide the public of all hazards in the construction zone limits at all times, and as directed.

Use flashing arrow boards on all tapers for each lane closure.

Some signs, barricades, and channelization devices may not be shown at the precise or measured position. Place the barricades, devices, or signs, with approval, in positions to meet field conditions.

Use Type A flashing warning lights or delineators to mark open excavation, footings, foundations, or other obstructions near lanes that may be open to traffic, as directed.

Remove or cover signs that do not apply to current conditions at the end of each day’s work.

Repair or replace all signs damaged by the public or due to weather events.

All project signs shall be maintained free of litter, debris, or sediment build up at the base supports. This work is subsidiary to this item of work.

All project limits signs shown on BC (2) or on the project line diagram shall be installed using ground mounted supports unless otherwise approved by the engineer. Fill any holes left by barricade or sign supports and restore the area to its original condition.

Safety Contingency

The Contractor Force Account “Safety Contingency” that has been established for this project is intended to be utilized for work zone enhancement, to improve the effectiveness of the TCP 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

Place Best Method Practices (BMP’s) in locations as designated in the plans or as directed to meet field conditions.

Place a weatherproof bulletin board containing the Texas Commission on Environmental Quality (TCEQ) required information on the project at a site as directed. Post the following documents:

1. TCEQ “TPDES Storm Water Program” Construction Site Notice; Primary Construction Site Notices from both Contractor and Department, completed and signed.
2. TCEQ “Primary Notice of Intents,” from both Contractor and Department; and
3. TCEQ “TPDES Permit.”
4. Place rain gauge(s) at locations as designated.

The total disturbed area for this project is **8.02 Acres**. Establish the authorization requirements for Storm Water Discharges for soil disturbed area in this project, all project locations in the Contract, and Contractor Project Specific Locations (PSLs), within one mile of the project limits. Both the Department and the Contractor shall obtain an authorization to discharge storm water from TCEQ for the construction activities shown on the plans. Obtain required authorization from the TCEQ for any Contractor PSLs for construction support activities on or off right of way. When the total area disturbed for all projects in the Contract and PSLs within one mile of the project limits exceeds five acres, provide a copy of the Contractor Notice of Intent (NOI) PSLs on the right of way to the Engineer (to the appropriate Municipal Separate Storm Sewer System (MS4) Operator when on an Off-system State route).

Best Method Practices (BMP’s) may be adjusted to meet field conditions, or as directed. Engineer will verify all locations prior to placement of BMPs. Within the project limits, keep all inlets functional as long as possible to accept storm water as part of the Storm Water Pollution Prevention Plan (SWP3), as directed.

The erosion control will be paid at the time of their initial placement. Any required replacement will be paid by Force Account.

Sandbags required to secure in place erosion control logs will not be paid for directly but will be considered subsidiary to items 506.

Item 528 – Colored Textured Concrete and Landscape Pavers

Wire mesh will not be allowed for this Item. Reinforce all colored-stamped concrete using bar reinforcement conforming to Item 440, “Reinforcement for Concrete,” as shown in the plans or as directed.

Apply color sealant to all colored-textured concrete per the manufacturer’s specifications subsidiary to this Item.

Use Sand (C-3) antiquing release agent and Franciscan Red (B-14) hardener from the following sources:

Bomanit®e Corp. P.O. Box 599 Madera, CA 93639-0599 (209) 673-2411	Concrete Stamping Store 373 E. 1750 North Suite D Vineyard, UT 84057 (801) 224-2599	Brickform-Rafco Products 11061 Jersey Blvd. Rancho Cucamonga, CA 91730 (800) 483-9628 (909) 484-3318 Fax
Decosup Inc. Headquarters 8232 NW 56 St. Miami, FL 33166 (305) 468-9998 (800) 788-0014	L.M. Scofield Co. 6533 Bandini Blvd. Los Angeles, CA 90040 (323) 720-3000 (323) 720-3030 Fax	

Install colored-textured concrete on the locations shown on the roadway layout sheets in the Ashlar Slate pattern as indicated on the “Roadway Details” Sheet.

Expansion, longitudinal and contraction joints, all saw-cuts, incidentals, and materials require to complete this work will be as shown in the Median Curb Detail sheets and are subsidiary to this item.

Embankment TY A material for construction is subsidiary to this item.

Item 529 – Concrete Curb, Gutter and Combined Curb and Gutter

Use Class A concrete for these Items, unless otherwise shown on the plans. Wire mesh and fibers for concrete will not be allowed. Reinforce all concrete using reinforcement conforming to Item 440, “Reinforcement for concrete,” as shown on the plans or as directed.

Construct the curb opening as detailed in the plans, or as directed, to ensure roadway drainage to the shallow pond. Payment will be made under this Item. All required manipulations or incidentals required to complete the work will be considered subsidiary to these items.

Perform all requiring grading for proposed concrete curb, gutter, and combined curb and gutter construction as shown on the plans. All grading, including excavation and fill/embankment will be subsidiary to this Item.

After construction, restore the adjacent surface to a condition approved by the Engineer. Consider this work subsidiary to this Item.

Item 530 – Intersections, Driveways, and Turnouts

The existing roadway and driveways are to be saw-cut to a straight and neat line when proposed sidewalks are being constructed across them. The area then will be cleaned out prior to concrete placement. This work is subsidiary to this Item.

Use Class A or P concrete for all concrete driveways, unless otherwise shown on the plans.

High early strength concrete for proposed driveways to be available as deemed necessary and as directed.

Item 531 – Sidewalk

The ADA ramp dimensions and locations shown in the plans may be adjusted, as directed, to match the field conditions. Any such modification will not be paid directly but will be subsidiary to this Item.

Modify the sidewalk expansion joint spacing to 20 ft. spacing where waterlines may exist under the sidewalk. This work will not be paid for directly but will be subsidiary to this Item.

Provide textured finish for wheelchair ramps as directed.

Perform all work under this Item to conform to ADA and TDLR standards.

Perform all requiring grading for proposed sidewalks construction as shown on the plans. All grading, including excavation, fill, and embankment will be subsidiary to this Item.

Detectable warning surface for new ramps shall be made from a Department approved surface applied vitrified polymer composite tile, red in color.

Item 585 – Ride Quality for Pavement Surfaces

Use Surface Test Type B to govern ride quality.

Use diamond grinding or equivalent to correct areas of localized roughness. Diamond grinding shall be performed on lane width for all areas requiring corrective action. For flexible pavements, use CSS-1H emulsion to fog seal the corrected areas. The work performed, materials furnished, certification and recertification, traffic control for all testing, and materials will not be measured or paid directly but will be subsidiary to pertinent pay items.

The contractor shall take care to ensure satisfactory profile results in the intermediate paving layers (mixture) to eliminate corrective action for excessive deviations in the final surface layers.

Use Surface Test Type B to govern ride quality for finished riding surfaces of travel lanes. Notify the District Laboratory 48 hours prior to conducting Surface Test Type B. Properly mark all starting/ending points and leave-out sections prior to testing. Deliver test results within 24 hours of testing. Provide all profile measurements in electronic data to ELP-LAB@txdot.gov using the format specified in Tex-1001-S.

“Payment Adjustment, Schedule 2” will be used for the travel lanes.

An IRI > 95 will require corrective action.

Use diamond grinding or equivalent to correct areas of localized roughness. For flexible pavements, use CSS-1H emulsion to fog seal the corrected areas.

Item 658 – Delineator and Object Marker Assemblies

Verify all locations with the Engineer prior to installation.

Removal and proper disposal of all existing delineators, object markers, and any non-standard hardware assemblies are not paid directly, but will be considered subsidiary to pertinent items for payment.

Item 644 – Small Roadside Sign Assemblies

Stake all sign locations and receive approval prior to sign placement.

The 2-1/2 inch, Schedule 10 post will meet the following requirements:

- 0.120 in. nominal wall thickness
- Seamless or electric-resistance welded steel tubing or pipe
- Steel will be HSLAS Grade 55 per ASTM A1011 or ASTM A1008

Other steel may be used, if it meets the following:

- 55,000 psi minimum yield strength
- 70,000 psi minimum tensile strength
- 20% minimum elongation in 2 in.
- Wall thickness (uncoated) to be within the range of 0.108 in. to 0.132 in. galvanization per ASTM A123 or ASTM A653 G90

For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metalizing with zinc wire per ASTM B833.

Verify all post lengths to ensure the proper sign height. Remove and replace any sign installed incorrectly. This work will be done at no expense to the Department.

Provide Texas Universal Triangular Slip Base Bolt clamp type for all signs as shown on SMD (Slip-1)-08.

As directed, some regulatory and guide signs will be relocated before construction begins. Mark and locate each reference marker perpendicular to the road and along the right of way, or as directed, prior to removal. Re-erect reference markers at their original location upon completion of construction.

All signs removed will remain property of the Department.

Item 662 – Work Zone Pavement Markings

In those areas where existing pavement markings are to be covered or removed, field locate and record the existing pavement markings by survey or other approved method by the Engineer as directed. Place final striping on these locations, if in compliance with the latest striping standard shown on the plans.

Remove and properly dispose of tabs upon completion of the final striping. This work is considered subsidiary to various bid items.

Place raised pavement markers in accordance with applicable standards and as directed. Payment will be for final placement under Item 672.

Item 666 –Retroreflectorized Pavement Markings

Use a pilot line for final striping and remove pilot line after all striping is complete. Removal will be in accordance with the methods specified in Item 677, “Eliminating Existing Pavement Markings and Markers,” and will be subsidiary to this Item.

Air blasting is required as pavement surface preparation.

In those areas where existing pavement markings are to be covered or removed, field locate and record the existing pavement markings by survey or other approved method by the Engineer as directed. Place final striping on these locations. If in compliance with the latest striping standard shown on the plans after all pavement for the project has been completed.

TY II Pavement marking will be utilized for temporary traffic control operations on the final striping location.

Item 672 – Raised Pavement Markers

Use a pilot line for final pavement markers and remove pilot line after all striping is complete. Remove pilot line in accordance with the methods specified in Item 677, “Eliminating Existing Pavement Markings and Markers,” and will be subsidiary to this Item.

Air blasting is required for pavement surface preparation.

Do not place raised pavement markers when the pavement surface temperature is below 60°F.

Completely remove all existing raised pavement markers from pavement where raised pavement markers are proposed as shown in the plans. This will include all RPMs in the surrounding area of the proposed RPM. Removal of raised pavement markers is subsidiary to various bid items

Raised pavement marking spacing must be in compliance with the standard requirements shown on the plans.

Item 3002 – Membrane Underseal

Prepare the roadway surface prior to placing Underseal Membrane to the satisfaction of the Engineer. Some areas may require more extensive cleaning than other areas. This work will not be paid for directly but will be subsidiary to pertinent items.

Use Spray Applied Underseal Membrane prior to the placement of the 2-in SP-C PG70-22 layer along the entire width of the roadway. Underseal Membrane will also be applied in flexible pavement structural repair areas as previously indicated on Item 351 of the General Notes. The locations of the areas of application of the Underseal Membrane have been represented in the General Proposed Typical Sections.

The minimum application rates are listed in Table 2. The engineer may adjust the application rate taking into consideration the existing pavement surface conditions.

Table 2

Material	Minimum Application Rate	Conversion Factor
Spray Applied Underseal Membrane	0.20 GAL/SY	1.0 (see note 1)

For estimating purposes, the Underseal Membrane is applied at a rate of 0.20 Gal/SY.

1. For estimating purposes 1.0 Gallon of Spray Applied Underseal Membrane is equivalent to 1.0 Gallon of Underseal Course. Refer to Special Specification SS3002 for information and specifications.

Item 3077 – Superpave Mixtures

Use Surface Aggregate Classification “A” material for all surface mixes.

In place of typical tack materials shown in Table 18 under Item 3096, use a tracking resistant asphalt interlayer (TRAIL) material as a tack coat. TRAIL shall only be required prior to the final riding surface layer of HMA. Approved TRAIL products are found on TxDOT’s Material Producer List under Asphalt Interlayer (Tracking Resistant) at:

https://www.txdot.gov/business/resources/materials.html

Hydrated Lime shall be added as an additive as per Item 301 “Asphalt Antistripping Agents” between the rates of 1% minimum and 2.0% maximum by weight. If the Hamburg Wheel Test cannot be met within these limits, Liquid Antistripping agents as approved by the Engineer may be used in conjunction with lime.

Supply Warm-Mix Asphalt (WMA) under this Item.

When Reclaimed Asphalt Pavement (RAP) is used in the production of hot-mix asphaltic concrete, use fractionated RAP. Do not exceed 10.0% of Fractionated RAP on surface mixtures. Department-owned RAP generated through the required work on the Contract is available for the

Contractor's use. Contractor may use Contractor-owned fractionated RAP and replace it with an equal quantity of Department-owned RAP when RAP is generated through the required work on the Contract.

Use of Recycled Asphalt Shingles (RAS) is not allowed for any mixtures.

Substitute PG Binders (grade dumping) will not be allowed for any mixtures.

Obtain the current version of the templates at http://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/forms/site-manager.html Submit electronically to the Engineer.

Design the mixture at 50 gyrations (Ndesign).

Do not cover with asphaltic material, any existing survey monuments, manholes, or valve covers, etc. Adjustments will be done in coordination with the respective utility owners.

Place a string line or other suitable marking to ensure smooth, neat lines, or as directed. Provide smooth transitions to existing driveways and intersections.

Provide a minimum of 40 ft skis during paving operations to ensure smooth final surface.

Place longitudinal joints approximately 6 in. from the stripe, or as directed by the Engineer. Avoid placing joint under the wheel path. Avoid placing longitudinal joints on the outside travel lane on multi-lane roadway.

Operate the spreading and finishing machine at a uniform forward speed consistent with the plant production rate, hauling capability, and roller train capacity to result in a continuous operation. The speed will be slow enough, so that stopping between trucks is not ordinarily required. If the Engineer determines non-uniform delivery of material is affecting the HMA placement, the Engineer may require the paving operations to cease until acceptable methods are employed to minimize starting and stopping of the paver.

Place the HMA during paving season only (from April 1st to October 31st), unless otherwise approved by the Engineer.

Taper ACP placed at curb inlets, drainage inlets, and slotted drains as shown on plans.

After completion of pavement work under overpass structure(s), measure the lowest vertical clearance for each structure in US Customary Units, under the direction of the Engineer and El Paso Bridge Section.

Item 6001 – Portable Changeable Message Sign

Provide messages as directed.

Portable Changeable Message Sign to be available as deemed necessary.

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

All TMA Operators must participate in a TMA workshop to be conducted by the El Paso District Safety Office, on the proper use of TMAs, prior to working on Department Right of Way (ROW). A certificate of completion will be issued to TMA Operators that successfully complete the TMA workshop. The certificate of completion must be carried by TMA Operators at all times while working on Department right of way.

Acquire the TCP and TMA Operator's certificates of completion prior to the authorization to begin work. No time suspension will be granted and no traffic control work will be allowed without certificates of completion.

In addition to the shadow vehicles with Truck Mounted Attenuator (TMA) that are specified as being required on the traffic control plan for this project, provide 2 additional shadow vehicle(s) with TMA for TCP (2-4)-18 as detailed on General Note 6 of this standard sheet, and TCP (2-6)-18 as detailed on General Note 7 of this standard sheet.

Therefore, 2 total shadow vehicles with TMA will be required for this type of work. The Contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs needed for the project.

The supporting vehicle for the TMA shall have a minimum gross (i.e., ballasted) vehicular weight of 19,000 pounds.

Basis of Estimate for Stationary TMAs				
		TMA (Stationary)		
Phase	Standard	Required	Additional	TOTAL
1	TCP (2-4)-18 TCP (2-6)-18	1	2	3
2	TCP (2-4)-18 TCP (2-6)-18	1	2	3

Basis of Estimate for Mobile TMAs				
		TMA (Mobile)		
Phase	Standard	Required	Additional	TOTAL
FINAL TCP PHASE	TCP (3-1)-13	2		2
	TCP (3-2)-13	2		2
	TCP (3-3)-14	2		2
	TCP (3-4)-13	2		2

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0374-02-120 **DISTRICT** El Paso **COUNTY** El Paso
HIGHWAY US 62

			CONTROL SECTION JOB		**0002-12-027**		**0374-02-120**		TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00134531**		**A00134532**			
			COUNTY		**El Paso**		**El Paso**			
			HIGHWAY		**US 62**		**US 62**			
ALT	**BID CODE**	**DESCRIPTION**		**UNIT**	EST.	FINAL	EST.	FINAL		
	100-6001	PREPARING ROW		AC			0.100		0.100	
	104-6011	REMOVING CONC (MEDIANS)		SY			95.000		95.000	
	104-6015	REMOVING CONC (SIDEWALKS)		SY	66.000				66.000	
	104-6021	REMOVING CONC (CURB)		LF	180.000		652.000		832.000	
	105-6005	REMOVING STAB BASE AND ASPH PAV (3")		SY	15,522.000		17,864.000		33,386.000	
	110-6003	EXCAVATION (SPECIAL)		CY			240.000		240.000	
	132-6001	EMBANKMENT (FINAL)(ORD COMP)(TY A)		CY			183.800		183.800	
	310-6005	PRIME COAT (AE-P)		GAL	2,334.000		2,686.000		5,020.000	
	351-6002	FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")		SY	1,941.000		3,951.000		5,892.000	
	354-6020	PLANE ASPH CONC PAV(0" TO 1")		SY	3,979.000		18,739.000		22,718.000	
	354-6045	PLANE ASPH CONC PAV (2")		SY	47,185.000		204,478.000		251,663.000	
	354-6068	PLANE ASPH CONC PAV (2"-3")		SY			22,945.000		22,945.000	
	354-6220	PLANE ASPH CONC PAV (0" TO 2" MICRO)		SY	4,527.000				4,527.000	
	420-6007	CL A CONC (FLUME)		CY			2.000		2.000	
	429-6005	CONC STR REPAIR(DECK REP (FULL DEPTH))		SF	900.000				900.000	
	432-6028	RIPRAP (STONE COMMON)(GROUT)(6 IN)		CY			1.000		1.000	
	438-6004	CLEANING AND SEALING EXIST JOINTS(CL7)		LF	1,620.000				1,620.000	
	479-6005	ADJUSTING MANHOLES (WATER VALVE BOX)		EA	2.000				2.000	
	500-6001	MOBILIZATION		LS			1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING		MO	5.000		11.000		16.000	
	506-6042	BIODEG EROSN CONT LOGS (INSTL) (18")		LF	385.000		952.000		1,337.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)		LF	385.000		952.000		1,337.000	
	528-6001	COLORED TEXTURED CONC (4")		SY			2,178.000		2,178.000	
	529-6002	CONC CURB (TY II)		LF	3,375.000		11,836.000		15,211.000	
	531-6002	CONC SIDEWALKS (5")		SY	113.000				113.000	
	531-6013	CURB RAMPS (TY 10)		EA	5.000				5.000	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)		EA	3.000		4.000		7.000	
	644-6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)		EA	1.000		1.000		2.000	
	644-6017	IN SM RD SN SUP&AM TY10BWG(2)SA(P)		EA	1.000				1.000	
	644-6033	IN SM RD SN SUP&AM TYS80(1)SA(U)		EA	1.000				1.000	
	644-6034	IN SM RD SN SUP&AM TYS80(1)SA(U-1EXT)		EA	1.000				1.000	
	644-6067	IN SM RD SN SUP&AM (INST SIGN ONLY)		EA			1.000		1.000	
	644-6076	REMOVE SM RD SN SUP&AM		EA	7.000		4.000		11.000	
	658-6065	INSTL DEL ASSM (D-SY)SZ 1(BRF)GF2(BR)		EA			10.000		10.000	
	658-6085	INSTL DEL ASSM (D-SW)SZ 1(WFLX)SRF(BR)		EA			62.000		62.000	
	662-6005	WK ZN PAV MRK NON-REMOV (W)6"(BRK)		LF	21,500.000		94,350.000		115,850.000	
	662-6012	WK ZN PAV MRK NON-REMOV (W)8"(SLD)		LF	3,250.000		13,200.000		16,450.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0374-02-120 **DISTRICT** El Paso **COUNTY** El Paso
HIGHWAY US 62

				CONTROL SECTION JOB	0002-12-027		0374-02-120		TOTAL EST.	TOTAL FINAL
				PROJECT ID	A00134531		A00134532			
				COUNTY	El Paso		El Paso			
				HIGHWAY	US 62		US 62			
ALT	BID CODE	DESCRIPTION	UNIT		EST.	FINAL	EST.	FINAL		
	662-6016	WK ZN PAV MRK NON-REMOV (W)24"(SLD)	LF		2,680.000		5,480.000		8,160.000	
	662-6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF		80.000		8,000.000		8,080.000	
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA		2,220.000		9,670.000		11,890.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA		10.000		1,000.000		1,010.000	
	666-6020	REFL PAV MRK TY I (W)6"(LNDP)(090MIL)	LF				768.000		768.000	
	666-6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF		1,475.000		4,403.000		5,878.000	
	666-6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF		3,653.000		13,885.000		17,538.000	
	666-6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF		2,127.000		4,515.000		6,642.000	
	666-6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA		24.000		84.000		108.000	
	666-6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA		17.000		73.000		90.000	
	666-6092	REFL PAV MRK TY I (W)(RR XING)(090MIL)	EA				6.000		6.000	
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF		21,464.000		94,328.000		115,792.000	
	666-6173	REFL PAV MRK TY II (W) 6" (LNDP)	LF				768.000		768.000	
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF		399.000		896.000		1,295.000	
	666-6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF		1,475.000		4,403.000		5,878.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF		4,083.000		14,455.000		18,538.000	
	666-6182	REFL PAV MRK TY II (W) 24" (SLD)	LF		2,666.000		5,506.000		8,172.000	
	666-6184	REFL PAV MRK TY II (W) (ARROW)	EA		24.000		87.000		111.000	
	666-6192	REFL PAV MRK TY II (W) (WORD)	EA		17.000		75.000		92.000	
	666-6196	REFL PAV MRK TY II (W) (RR XING)	EA				6.000		6.000	
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF		76.000		7,810.000		7,886.000	
	666-6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA		8.000		40.000		48.000	
	666-6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF		20,146.000		93,359.000		113,505.000	
	666-6308	RE PM W/RET REQ TY I (W)6"(SLD)(090MIL)	LF		399.000		399.000		798.000	
	666-6320	RE PM W/RET REQ TY I (Y)6"(SLD)(090MIL)	LF		76.000		7,810.000		7,886.000	
	666-6440	REFL PAV MRK TY II (Y)(CURB)	LF		3,922.000		14,460.000		18,382.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA		4.000		396.000		400.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA		476.000		1,822.000		2,298.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF		1,168.000		415.000		1,583.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")	LF		498.000		1,023.000		1,521.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF		514.000		1,129.000		1,643.000	
	678-6002	PAV SURF PREP FOR MRK (6")	LF		1,318.000		969.000		2,287.000	
	678-6004	PAV SURF PREP FOR MRK (8")	LF		430.000		570.000		1,000.000	
	678-6008	PAV SURF PREP FOR MRK (24")	LF		539.000		991.000		1,530.000	
	678-6009	PAV SURF PREP FOR MRK (ARROW)	EA				3.000		3.000	
	678-6016	PAV SURF PREP FOR MRK (WORD)	EA				2.000		2.000	
	678-6033	PAV SURF PREP FOR MRK (RPM)	EA		39.000		69.000		108.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0374-02-120 **DISTRICT** El Paso **COUNTY** El Paso
HIGHWAY US 62

				CONTROL SECTION JOB	0002-12-027		0374-02-120		TOTAL EST.	TOTAL FINAL
				PROJECT ID	A00134531		A00134532			
				COUNTY	El Paso		El Paso			
				HIGHWAY	US 62		US 62			
ALT	BID CODE	DESCRIPTION	UNIT		EST.	FINAL	EST.	FINAL		
	690-6006	REMOVAL OF GROUND BOXES	EA				1.000		1.000	
	3002-6001	MEMBRANE UNDERSEAL	GAL		6,336.000		41,934.000		48,270.000	
	3077-6022	SP MIXES SP-C SAC-A PG70-22	TON		7,814.000		28,102.000		35,916.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA		2.000		2.000		4.000	
	6185-6002	TMA (STATIONARY)	DAY		60.000		193.000		253.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY		4.000		16.000		20.000	
	08	CONTRACTOR FORCE ACCOUNT SAFETY CONTINGENCY (NON-PARTICIPATING)	LS		1.000				1.000	
		CONTRACTOR FORCE ACCOUNT EROSION CONTROL MAINTENANCE (NON-PARTICIPATING)	LS		1.000				1.000	
		CONTRACTOR FORCE ACCOUNT RAILROAD FLAGGING (NON-PARTICIPATING)	LS		1.000				1.000	
		CONTRACTOR FORCE ACCOUNT LAW ENFORCEMENT (NON-PARTICIPATING)	LS		1.000				1.000	

TRAFFIC CONTROL SUMMARY *(*)*

PROJECT	500 6001 MOBILIZATION	502 6001 BARRICADES, SIGNS AND TRAFFIC HANDLING	662 6005 WK ZN PAV MRK NON-REMOV (W)6"(BRK)	662 6012 WK ZN PAV MRK NON-REMOV (W)8"(SLD)	662 6016 WK ZN PAV MRK NON-REMOV (W)24"(SLD)	662 6037 WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	662 6109 WK ZN PAV MRK SHT TERM (TAB)TY W	662 6111 WK ZN PAV MRK SHT TERM (TAB)TY Y-2	3077 6022 SP MIXES SP-C SAC-A PG70-22 ***(**)***	6001 6002 PORTABLE CHANGEABLE MESSAGE SIGN	6185 6002 TMA (STATIONARY)	6185 6005 TMA (MOBILE OPERATION)
	LS	MO	LF	LF	LF	LF	EA	EA	TON	EA	DAY	DAY
CSJ: 0002-12-027	0	5	21,500	3,250	2,680	80	2,220	10	48	2	60	4
CSJ: 0374-02-120	1	10	94,350	13,200	5,480	8,000	9,670	1,000	104	2	193	16
PROJECT TOTALS	1	15	115,850	16,450	8,160	8,080	11,890	1,010	152	4	253	20

(*) WK ZN SHT TERM TABS TY W & Y-2 QUANTITIES SHOWN INCLUDES AN EXTRA 25% TO CONTEMPLATE DOUBLE TAB USAGE BEFORE OPENING TO TRAFFIC DURING THE MILLING AND FINAL SURFACE PAVING OPERATION, AND WHEN NEEDED AS DIRECTED BY THE ENGINEER.

(**) SUPERPAVE MIX TO BE USED FOR WEDGE CONDITIONS AND DRIVEWAY ACCESS AS NECESSARY OR DIRECTED BY THE ENGINEER.

ROADWAY SUMMARY

SHEET	100 6001 PREPARING ROW	110 6003 EXCAVATION (SPECIAL)	132 6001 EMBANKMENT (FINAL)(ORD COMP)(TY A)	310 6001 PRIME COAT (MULTI OPTION)	351 6002 FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")	354 6020 PLANE ASPH CONC PAV(0" TO 1") ***(***)***	354 6045 PLANE ASPH CONC PAV (2")	354 6068 PLANE ASPH CONC PAV (2"-3")	354 6220 PLANE ASPH CONC PAV (0" TO 2" MICRO)	420 6007 CL A CONC (FLUME)	429 6005 CONC STR REPAIR(DECK REP (FULL DEPTH))
	AC	CY	CY	GAL	SY	SY	SY	SY	SY	CY	SF
ROADWAY LAYOUT US 62/180 (MONTANA AVE)											
CSJ 0002-12-027											
SHEET 1 OF 14				434	1,728	781	7,910		4,240		848
SHEET 2 OF 14				821		1,394	17,214		287		52
SHEET 3 OF 14				1,079	213	1,804	22,061				
CONTINGENCY											
SUBTOTAL	**0**	**0**	**0**	**2,334**	**1,941**	**3,979**	**47,185**	**0**	**4,527**	**0**	**900**
CSJ 0374-02-120											
SHEET 3 OF 14				124	0	173	2,135				
SHEET 4 OF 14				965	263	1,850	22,575				
SHEET 5 OF 14		240		919	71	1,662	20,447			2	
SHEET 6 OF 14			13.5	678	0	1,512	18,492	176			
SHEET 7 OF 14	0.1		42		0	1,739	18,271	3,200			
SHEET 8 OF 14					0	1,736	18,230	3,200			
SHEET 9 OF 14			0.3		0	1,977	21,206	3,200			
SHEET 10 OF 14			4		132	1,934	20,542	3,200			
SHEET 11 OF 14					0	2,060	22,259	3,200			
SHEET 12 OF 14					2,091	1,883	17,960	3,200			
SHEET 13 OF 14			124		598	1,554	16,214	2,373			
SHEET 14 OF 14					796	659	6,147	1,196			
CONTINGENCY											
SUBTOTAL	**0.1**	**240**	**183.8**	**2,686**	**3,951**	**18,739**	**204,478**	**22,945**	**0**	**2**	**0**
PROJECT TOTALS	**0.1**	**240**	**183.8**	**5,020**	**5,892**	**22,718**	**251,663**	**22,945**	**4,527**	**2**	**900**

(***) TO BE USED AT THE DISCRETION OF THE ENGINEER FOR RIDE QUALITY ADJUSTMENT.

ROADWAY SUMMARY

SHEET	432 6028 RIPRAP (STONE COMMON)(GROUT)(6 IN)	438 6004 CLEANING AND SEALING EXIST JOINTS(CL7)	479 6005 ADJUSTING MANHOLES (WATER VALVE BOX)	528 6001 COLORED TEXTURED CONC (4")	529 6002 CONC CURB (TY II)	531 6002 CONC SIDEWALKS (5")	531 6013 CURB RAMPS (TY 10)	3002 6001 MEMBRANE UNDERSEAL	3077 6022 SP MIXES SP-C SAC-A PG70-22
	CY	LF	EA	SY	LF	SY	EA	GAL	TON
ROADWAY LAYOUT US 62/180 (MONTANA AVE)									
CSJ 0002-12-027									
SHEET 1 OF 14		1,440						1,006	1,509
SHEET 2 OF 14		180			67	42	2	2,352	3,099
SHEET 3 OF 14			2		308	71	3	2,978	4,011
CONTINGENCY					3,000				
SUBTOTAL	**0**	**1,620**	**2**	**0**	**3,375**	**113**	**5**	**6,336**	**8,619**
CSJ 0374-02-120									
SHEET 3 OF 14								263	418
SHEET 4 OF 14								3,232	3,900
SHEET 5 OF 14	1							2,870	3,596
SHEET 6 OF 14				156	277			2,835	3,051
SHEET 7 OF 14				503	1,392			4,296	2,365
SHEET 8 OF 14								4,287	2,359
SHEET 9 OF 14				4	62			4,883	2,686
SHEET 10 OF 14				43	758			4,750	2,614
SHEET 11 OF 14								5,093	2,802
SHEET 12 OF 14								4,233	2,328
SHEET 13 OF 14				1,472	4,347			3,722	2,049
SHEET 14 OF 14								1,470	810
CONTINGENCY					5,000				
SUBTOTAL	**1**	**0**	0	**2,178**	**11,836**	**0**	**0**	**41,934**	**28,978**
PROJECT TOTALS	**1**	**1,620**	**2**	**2,178**	**15,211**	**113**	**5**	**48,270**	**37,597**

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR. STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

US62|US180

TRAFFIC CONTROL PLAN AND ROADWAY QUANTITY SUMMARIES

SHEET 1 OF 4

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	15
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT. JOB	HIGHWAY NO.
		0374	02 120, ETC.	US 62, ETC

DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18804\US62- US62-S-GEN-SUM1.dgn

REMOVALS SUMMARY					
	104	104	104	105	690
	6011	6015	6021	6005	6006
SHEET	REMOVING CONC (MEDIANS)	REMOVING CONC (SIDEWALKS)	REMOVING CONC (CURB)	REMOVING STAB BASE & ASPH PAV (3")	REMOVAL OF GROUND BOXES
	SY	SY	LF	SY	EA
ROADWAY LAYOUT US 62/180 (MONTANA AVE)					
CSJ 0002-12-027					
SHEET 1 OF 14				2,884	
SHEET 2 OF 14		54	86	5,461	
SHEET 3 OF 14		12	94	7,177	
SUBTOTAL	**0**	**66**	**180**	**15,522**	
CSJ 0374-02-120					
SHEET 3 OF 14				823	
SHEET 4 OF 14				6,422	
SHEET 5 OF 14			22	6,110	
SHEET 6 OF 14	24		72	4,509	1
SHEET 7 OF 14	22		558		
SHEET 8 OF 14					
SHEET 9 OF 14	4				
SHEET 10 OF 14	45				
SHEET 11 OF 14					
SHEET 12 OF 14					
SHEET 13 OF 14					
SHEET 14 OF 14					
SUBTOTAL	**95**		**652**	**17,864**	**1**
PROJECT TOTALS	**95**	**66**	**832**	**33,386**	**1**

FULL DEPTH REPAIR LIMITS					
AREA ID	SURFACE (SY)	COORDINATES			
		BEGINNING		END	
		LAT	LONG	LAT	LONG
1	73	31.79	-106.37	31.79	-106.37
2	158	31.80	-106.34	31.80	-106.34
3	71	31.79	-106.41	31.79	-106.41
4	622	31.80	-106.35	31.80	-106.35
5	352	31.80	-106.35	31.80	-106.35
6	107	31.80	-106.34	31.80	-106.34
7	374	31.80	-106.34	31.80	-106.34
8	403	31.80	-106.34	31.80	-106.34
9	125	31.79	-106.41	31.79	-106.41
10	67	31.79	-106.41	31.79	-106.41
11	179	31.79	-106.36	31.79	-106.36
12	800	31.80	-106.35	31.80	-106.35
13	342	31.80	-106.35	31.80	-106.35
14	59	31.79	-106.37	31.79	-106.37
15	148	31.80	-106.35	31.80	-106.35
16	71	31.79	-106.41	31.79	-106.41

(*) FOR CONTRACTOR INFORMATION PURPOSES ONLY
WORK TO BE PAID UNDER ITEM 0351-6002 FLEXIBLE PAVEMENT STRUCTURE REPAIR (6") SY

PAVEMENT MARKINGS SUMMARY											
	644	644	644	644	644	644	644	658	658	666	666
	6001	6004	6017	6033	6034	6067	6076	6065	6085	6020	6032
SHEET	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	IN SM RD SN SUP&AM TY10BWG(2)SA(P)	IN SM RD SN SUP&AM TYS80(1)SA(U)	IN SM RD SN SUP&AM TYS80(1)SA(U-1EXT)	IN SM RD SN SUP&AM (INST SIGN ONLY)	REMOVE SM RD SN SUP&AM	INSTL DEL ASSM (D-SY)SZ 1(BRF)GF2(BR)	INSTL DEL ASSM (D-SW)SZ 1(WFLX)SRF(BR)	REFL PAV MRK TY I (W)6"(LNDP)(090MIL)	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)
	EA	EA	EA	EA	EA	EA	EA	EA	EA	LF	LF
ROADWAY LAYOUT US 62/180 (MONTANA AVE)											
CSJ 0002-12-027											
SHEET 1 OF 14					1		1				349
SHEET 2 OF 14	2	1		1			4				458
SHEET 3 OF 14	1		1				2				668
SUBTOTAL	**3**	**1**	**1**	**1**	**1**	**0**	**7**	**0**	**0**	**0**	**1,475**
CSJ 0374-02-120											
SHEET 3 OF 14											
SHEET 4 OF 14	1						1				758
SHEET 5 OF 14	1						1	10	43		397
SHEET 6 OF 14	2	1					2			150	415
SHEET 7 OF 14											458
SHEET 8 OF 14											258
SHEET 9 OF 14						1				618	324
SHEET 10 OF 14									19		410
SHEET 11 OF 14											534
SHEET 12 OF 14											560
SHEET 13 OF 14											289
SHEET 14 OF 14											
SUBTOTAL	**4**	**1**	**0**	**0**	**0**	**1**	**4**	**10**	**62**	**768**	**4,403**
PROJECT TOTALS	**7**	**2**	**1**	**1**	**1**	**1**	**11**	**10**	**62**	**768**	**5,878**

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

2/5/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

US62|US180

REMOVALS, SIGNING AND PAVEMENT MARKINGS QUANTITY SUMMARIES

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
CHK	OEI	24	SEE TITLE SHEET		16
		STATE	DIST.	COUNTY	
DRN	OEI	TEXAS	ELP	EL PASO	
		CONT.	SECT.	JOB	HIGHWAY NO.
CHK	OEI	0374	02	120, ETC.	US 62, ETC

DATE: 2/5/2024
FILE: c:\pw\workingdir\omega-app02.omegaengineers.local_omega-prod\omega_lcamarena\dms18804\US62- US62-S-GEN-SUM2.dgn

PAVEMENT MARKINGS SUMMARY

SHEET	666 6035 REFL PAV MRK TY I (W)8"(SLD)(090MIL) LF	666 6047 REFL PAV MRK TY I (W)24"(SLD)(090MIL) LF	666 6053 REFL PAV MRK TY I (W)(ARROW)(090MIL) EA	666 6077 REFL PAV MRK TY I (W)(WORD)(090MIL) EA	666 6092 REFL PAV MRK TY I (W)(RR XING)(090MIL) EA	666 6171 REFL PAV MRK TY II (W) 6" (BRK) LF	666 6173 REFL PAV MRK TY II (W) 6" (LNDP) LF	666 6174 REFL PAV MRK TY II (W) 6" (SLD) LF	666 6177 REFL PAV MRK TY II (W) 8" (LNDP) LF	666 6178 REFL PAV MRK TY II (W) 8" (SLD) LF	666 6182 REFL PAV MRK TY II (W) 24" (SLD) LF	666 6184 REFL PAV MRK TY II (W) (ARROW) EA	666 6192 REFL PAV MRK TY II (W) (WORD) EA	666 6196 REFL PAV MRK TY II (W) (RR XING) EA	666 6210 REFL PAV MRK TY II (Y) 6" (SLD) LF
ROADWAY LAYOUT US 62/180 (MONTANA AVE)															
CSJ 0002-12-027															
SHEET 1 OF 14	556	417	5	6		5,685			349	556	417	5	6		
SHEET 2 OF 14	534	731	8	2		8,993			458	964	1,270	8	2		
SHEET 3 OF 14	2,563	979	11	9		6,786		399	668	2,563	979	11	9		76
SUBTOTAL	**3,653**	**2,127**	**24**	**17**	**0**	**21,464**	**0**	**399**	**1,475**	**4,083**	**2,666**	**24**	**17**	**0**	**76**
CSJ 0374-02-120															
SHEET 3 OF 14	106	312	1	1		374		48		106	312	1	1		26
SHEET 4 OF 14	1,295	449	11	10		9,257		101	758	1,295	449	11	10		
SHEET 5 OF 14	1,091	889	11	4		9,029			397	1,091	889	11	4		
SHEET 6 OF 14	1,312	570	8	7	6	8,239	150		415	1,360	1,271	9	7	6	
SHEET 7 OF 14	851	24	6	6		9,600			458	851	24	6	6		
SHEET 8 OF 14	825		6	6		9,600			258	825		6	6		
SHEET 9 OF 14	1,768	668	9	9		9,232	618		324	1,768	668	9	9		292
SHEET 10 OF 14	2,860	268	11	10		8,080			410	2,860	268	11	10		4,164
SHEET 11 OF 14	1,740	906	7	7		8,736			534	1,740	906	7	7		
SHEET 12 OF 14	1,140	131	9	9		9,782			560	1,140	131	9	9		
SHEET 13 OF 14	897	298	3	3		8,810			289	1,419	588	5	5		
SHEET 14 OF 14			2	1		3,589		747				2	1		3,328
SUBTOTAL	**13,885**	**4,515**	**84**	**73**	**6**	**94,328**	**768**	**896**	**4,403**	**14,455**	**5,506**	**87**	**75**	**6**	**7,810**
PROJECT TOTALS	**17,538**	**6,642**	**108**	**90**	**6**	**115,792**	**768**	**1,295**	**5,878**	**18,538**	**8,172**	**111**	**92**	**6**	**7,886**

PAVEMENT MARKINGS SUMMARY

SHEET	666 6217 REFL PAV MRK TY II (Y) (MED NOSE) EA	666 6305 RE PM W/RET REQ TY I (W)6"(BRK)(090MIL) LF	666 6308 RE PM W/RET REQ TY I (W)6"(SLD)(090MIL) LF	666 6320 RE PM W/RET REQ TY I (Y)6"(SLD)(090MIL) LF	666 6440 REFL PAV MRK TY II (Y)(CURB) LF	672 6009 REFL PAV MRKR TY II-A-A EA	672 6010 REFL PAV MRKR TY II-C-R EA	677 6001 ELIM EXT PAV MRK & MRKS (4") LF	677 6003 ELIM EXT PAV MRK & MRKS (8") LF	677 6007 ELIM EXT PAV MRK & MRKS (24") LF	678 6002 PAV SURF PREP FOR MRK (6") LF	678 6004 PAV SURF PREP FOR MRK (8") LF
ROADWAY LAYOUT US 62/180 (MONTANA AVE)												
CSJ 0002-12-027												
SHEET 1 OF 14	1	5,685			992		100					
SHEET 2 OF 14	4	7,675			1,535		162	1,168	498	514	1,318	430
SHEET 3 OF 14	3	6,786	399	76	1,395	4	214					
SUBTOTAL	**8**	**20,146**	**399**	**76**	**3,922**	**4**	**476**	**1,168**	**498**	**514**	**1,318**	**430**
CSJ 0374-02-120												
SHEET 3 OF 14	1	374	48	26			11					
SHEET 4 OF 14	7	9,257	101		1,018		183					
SHEET 5 OF 14	10	9,029			218		168					
SHEET 6 OF 14	9	8,063			242		173	141	140	556	176	48
SHEET 7 OF 14	1	9,600			1,994		163					
SHEET 8 OF 14	3	9,600			1,915		162					
SHEET 9 OF 14	1	9,232		292	2,745	19	150					
SHEET 10 OF 14	1	8,080		4,164	1,399	210	244					
SHEET 11 OF 14	5	8,736			771		197					
SHEET 12 OF 14	1	9,782			1,876		202					
SHEET 13 OF 14	1	8,017	797		2,282		115	274	883	573	793	522
SHEET 14 OF 14		3,589	747	3,328		167	54					
SUBTOTAL	**40**	**93,359**	**1,693**	**7,810**	**14,460**	**396**	**1,822**	**415**	**1,023**	**1,129**	**969**	**570**
PROJECT TOTALS	**48**	**113,505**	**2,092**	**7,886**	**18,382**	**400**	**2,298**	**1,583**	**1,521**	**1,643**	**2,287**	**1,000**

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR. STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

Texas Department of Transportation®

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SIGNING AND PAVEMENT MARKINGS (CONT.) QUANTITY SUMMARIES

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
		24	SEE TITLE SHEET	17
CHK	OEI	STATE	DIST.	COUNTY
		TEXAS	ELP	EL PASO
DRN	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC
CHK	OEI			

DATE: 12/28/2023
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PAVEMENT MARKINGS SUMMARY				
SHEET	678 6008 PAV SURF PREP FOR MRK (24") LF	678 6016 PAV SURF PREP FOR MRK (WORD) EA	678 6009 PAV SURF PREP FOR MRK (ARROW) EA	678 6033 PAV SURF PREP FOR MRK (RPM) EA
ROADWAY LAYOUT US 62/180 (MONTANA AVE)				
CSJ 0002-12-027				
SHEET 1 OF 14				
SHEET 2 OF 14	539			39
SHEET 3 OF 14				
SUBTOTAL	**539**	**0**	**0**	**39**
CSJ 0374-02-120				
SHEET 3 OF 14				
SHEET 4 OF 14				
SHEET 5 OF 14				
SHEET 6 OF 14	701		1	6
SHEET 7 OF 14				
SHEET 8 OF 14				
SHEET 9 OF 14				
SHEET 10 OF 14				
SHEET 11 OF 14				
SHEET 12 OF 14				
SHEET 13 OF 14	290	2	2	63
SHEET 14 OF 14				
SUBTOTAL	**991**	**2**	**3**	**69**
PROJECT TOTALS	**1,530**	**2**	**3**	**108**

STORM WATER POLLUTION PREVENTION PLAN SUMMARY		
SHEET	506 6042 BIODEG EROSN CONT LOGS (INSTL) (18") LF	506 6043 BIODEG EROSN CONT LOGS (REMOVE) LF
ROADWAY LAYOUT US 62/180 (MONTANA AVE)		
CSJ 0002-12-027		
SHEET 1 OF 14	108	108
SHEET 2 OF 14	205	205
SHEET 3 OF 14	72	72
SUBTOTAL	**385**	**385**
CSJ 0374-02-120		
SHEET 3 OF 14		
SHEET 4 OF 14		
SHEET 5 OF 14	345	345
SHEET 6 OF 14	37	37
SHEET 7 OF 14		
SHEET 8 OF 14		
SHEET 9 OF 14		
SHEET 10 OF 14	54	54
SHEET 11 OF 14	151	151
SHEET 12 OF 14	215	215
SHEET 13 OF 14	11	11
SHEET 14 OF 14	139	139
SUBTOTAL	**952**	**952**
PROJECT TOTALS	**1,337**	**1,337**

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR. STE 104
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SIGNING AND PAVEMENT MARKINGS (CONT.) AND SWP3 QUANTITY SUMMARIES

SHEET 4 OF 4

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	18
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

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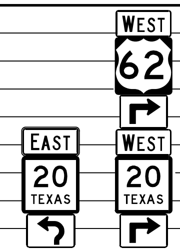
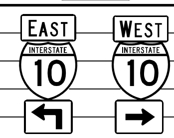
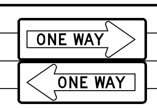
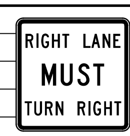
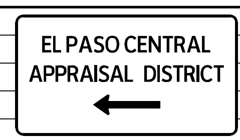
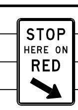
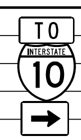
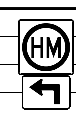
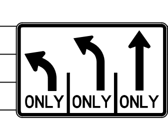
SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
1 OF 1												
88	1	M3-4 M1-4 M5-1R M3-3/M3-4 M1-6T M5-3/M5-1R		24 X 12 24 X 24 21 X 15 24 X 12 24 X 24 21 X 15	X		SCH80	1	SA	U	1EXT	
89	2	R2-1		30 X 36	X		10BWG	1	SA	P		
89	3	M3-3B/M3-4B M1-1 M5-1LB/M5-1RB		24 X 12 24 X 24 21 X 15	X		SCH80	1	SA	U		
89 93	4 12	M6-1R M6-1L		54 X 18	X		10BWG	1	SA	T		
89	5	R2-1		30 X 36	X		10BWG	1	SA	P		
90	6	R3-7R		36 X 36	X		10BWG	1	SA	P		
90	7	D3-3bTL		66 X 36	X		10BWG	2	SA	P		
91	8	M1-4 M1-4		24 X 24 30 X 24	X		10BWG	1	SA	P		
92	9	R10-6R		24 X 36	X		10BWG	1	SA	P		
93	10	M4-5B M1-1 M5-1RB		24 X 12 24 X 24 21 X 15	X		10BWG	1	SA	P		
93	11	R14-2 M5-1L		24 X 24 21 X 15	X		10BWG	1	SA	P		
96	13	R3-8LLS		48 X 30			MOUNTED ON TRAFFIC SIGNAL ARM					

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

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Texas Department of Transportation
Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16ex.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120,ETC.	US 62,ETC
4-16 8-16	DIST		COUNTY	SHEET NO.
	24		EL PASO	19

18

TEMPORARY CONSTRUCTION LICENSE							
PROP ID	OWNER NAME	PHYSICAL ADDRESS	ROADWAY LAYOUT SHEET NO	EB/WB	STA	IMPROVEMENTS	STATUS
277476	DICK JAMES GROUP LP	5800 MONTANA AVE EL PASO, TX 79925	3 OF 15	EB	64+04.20 TO 67+61.50	RIGHT TURN LANE PAVEMENT REHAB	APPROVED TCL
59917	CASA CR PROPERTIES LLC	5815 MONTANA AVE EL PASO, TX 79925	3 OF 15	WB	66+22.40 TO 66+59.70	RIGHT TURN LANE PAVEMENT REHAB	APPROVED TCL
337673	CLRL LLC	5855 MONTANA AVE EL PASO, TX 79925	3 OF 15	WB	67+19.90 TO 68+48.90	RIGHT TURN LANE PAVEMENT REHAB	APPROVED TCL
147701	CITY OF EL PASO	1600 HAWKINS BLVD EL PASO, TX 79925	9 OF 15	WB	215+54.20 TO 215+81.60	RIGHT TURN LANE PAVEMENT REHAB	APPROVED TCL
690113	CITY OF EL PASO	8836 MONTANA AVE EL PASO, TX 79925	10 OF 15	EB	219+65.90 TO 221+91.50	RIGHT TURN LANE PAVEMENT REHAB	APPROVED TCL
22899	CITY OF EL PASO	8901 MONTANA AVE EL PASO, TX 79925	10 OF 15	WB	228+82.10 TO 228+98.40	RIGHT TURN LANE PAVEMENT REHAB	APPROVED TCL

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

1/18/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
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GENERAL TEMPORARY CONSTRUCTION LICENSE SHEET

SHEET 1 OF 1

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
CHK	OEI	24	SEE TITLE SHEET		20
DRN	OEI	STATE	DIST.	COUNTY	
CHK	OEI	TEXAS	ELP	EL PASO	
		CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

DATE: 1/18/2024
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DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18804\US62-2-GEN-EPIC_01.dgn

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

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

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

1. Texas Department of Transportation
2. City of El Paso
3. El Paso Water

☐ 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 per TPDES Permit TXR 150000 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. in accordance with TPDES Permit TXR 150000.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

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

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

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

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

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

1.
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4.

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

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☒ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☒ Biodeg Erosion Control Logs	☐ 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.

1.
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3.

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.
2.
3.

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.

1.
2.
3.

VII. OTHER ENVIRONMENTAL ISSUES

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

☒ No Action Required ☐ Required Action

Action No.

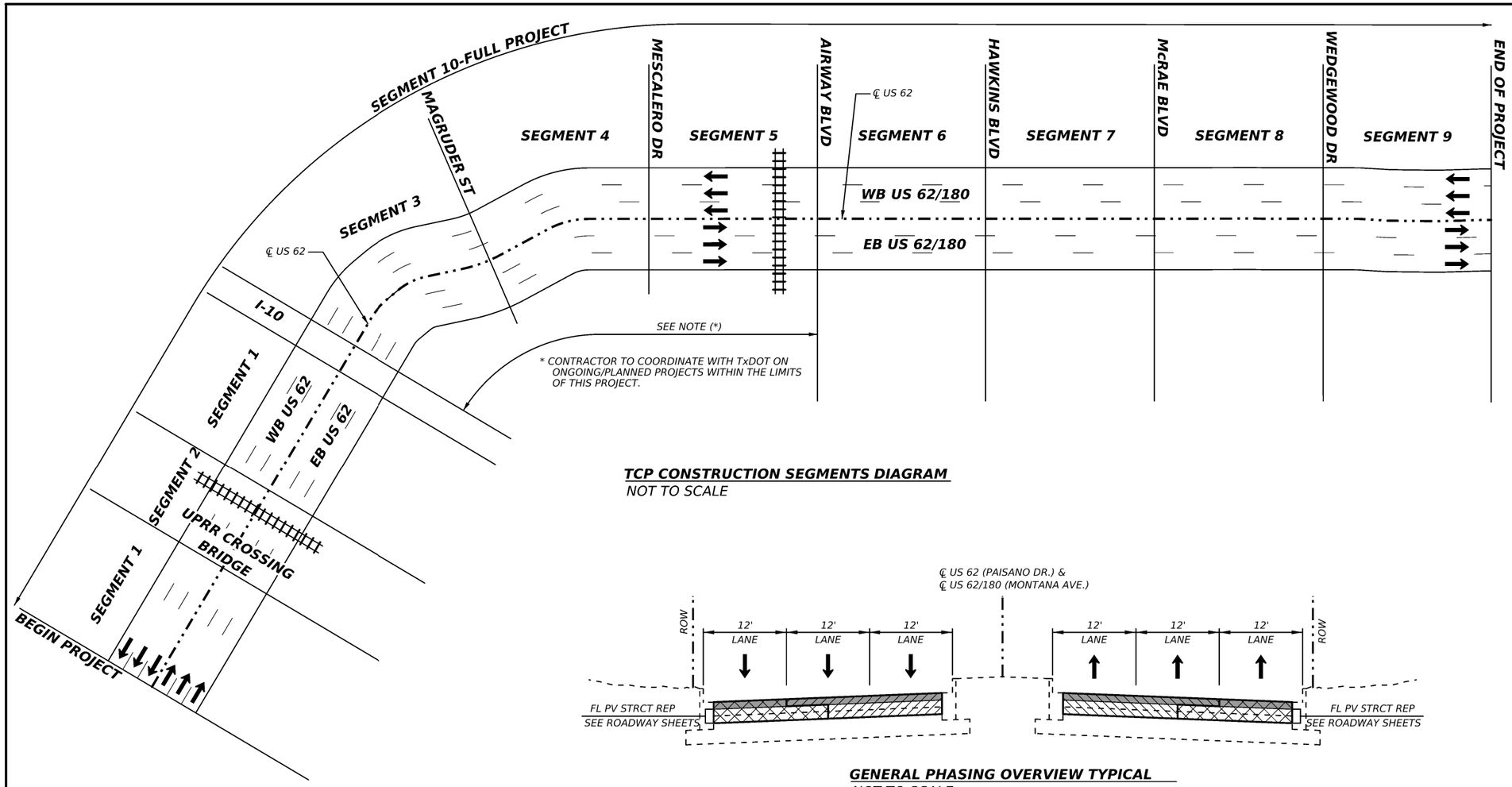
1.
2.
3.

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) 05-07-14 ADDED NOTE SECTION IV. 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	0374	02	120,ETC.	US 62,ETC
	DIST	COUNTY		SHEET NO.
	24	EL PASO		21



TCP CONSTRUCTION SEGMENTS DIAGRAM
NOT TO SCALE

GENERAL PHASING OVERVIEW TYPICAL
NOT TO SCALE

CONSTRUCTION SEGMENTS:

THE PROJECT CONSISTS OF 10 CHRONOLOGICAL ORDER WORK SEGMENTS AS FOLLOWS:

SEGMENT 1: BEGIN PROJECT TO S. UPRR OVERPASS BRIDGE JOINT &
N. UPRR OVERPASS BRIDGE JOINT TO I-10 GTWY BLVD E. JOINT
SEGMENT 2: US 62 UPRR OVERPASS BRIDGE
SEGMENT 3: I-10 GTWY BLVD W. JOINT TO MAGRUDER ST- (EB LANES ONLY)
SEGMENT 4: MAGRUDER ST TO MESCALERO DR- (EB LANES ONLY)
SEGMENT 5: MESCALERO DR TO AIRWAY BLVD- (EB LANES ONLY)
SEGMENT 6: AIRWAY BLVD TO HAWKINS BLVD
SEGMENT 7: HAWKINS BLVD TO McRAE BLVD
SEGMENT 8: McRAE BLVD TO WEDGEWOOD DR
SEGMENT 9: WEDGEWOOD DR TO END OF PROJECT

ALL OTHER SEGMENTS MUST BE COMPLETED PRIOR TO STARTING BELOW REMAINING SEGMENTS:

SEGMENT 5: MESCALERO DR TO AIRWAY BLVD- (WB LANES ONLY)
SEGMENT 4: MAGRUDER ST TO MESCALERO DR- (WB LANES ONLY)
SEGMENT 3: I-10 GTWY BLVD W. JOINT TO MAGRUDER ST- (WB LANES ONLY)
SEGMENT 10: FULL PROJECT

TYPICAL CIRCUITAL SEQUENCE

PHASES TO COMPLETE A WORK SEGMENT IS AS FOLLOWS:

PHASE 1:

-EB & WB FROM CURB TO CURB
-CONSTRUCTION OF EB OUTSIDE LANE, OUTERMOST HALF OF THE EB CENTER LANE AND RIGHT TURNLANES
-CONSTRUCTION OF WB OUTSIDE LANE, OUTERMOST HALF OF THE WB CENTER LANE AND RIGHT TURN LANES

PHASE 2:

-CONSTRUCTION OF EB INSIDE LANE, INNERMOST HALF OF THE EB CENTER LANE AND LEFT TURN LANES
-CONSTRUCTION OF WB INSIDE LANE, INNERMOST HALF OF THE WB CENTER LANE AND LEFT TURN LANES

FINAL TCP PHASE-FULL PROJECT

-INSIDE AND OUTSIDE LANE CLOSURES AND MOBILE OPERATIONS

SCALE: N.T.S.

DATE	BY	REV	REVISION

STATE OF TEXAS
JORGE L. NAVARRETE
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2/6/2024

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TRAFFIC CONTROL PLAN NARRATIVE

SHEET 1 OF 3

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	22
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/6/2024
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\jnavarrete-admin\dms18809\U62-S-TCP-NARRA01.dgn

GENERAL NOTES TO CONTRACTOR:

1. FULL CONSTRUCTION OF THIS PROJECT MUST BE PERFORMED DURING NIGHTTIME PERIODS. CURB REPAIR MAY BE EXEMPTED AND WORKED DURING DAYTIME (NON-PEAK HOURS), UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

2. DAILY MILLING PAVEMENT REMOVAL AND PAVING WILL BE LIMITED TO THE LENGTH THAT CAN BE COMPLETED DURING A NIGHTTIME WORK PERIOD. ALL LANES SHALL BE MAINTAINED OPEN DURING DAY TIME HOURS. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

3. ANY LONGITUDINAL DIFFERENCE IN ELEVATION SHALL BE TAPERED TO MEET MINIMUM 3:1 SLOPE AND PROVIDE SIGNAGE PER STANDARD WZ(UL)-13 AT LOCATIONS WHERE THIS CONDITION EXISTS, WHEN THE PARTICULAR SECTION HAS TO BE OPEN TO TRAFFIC.

4. CONTRACTOR TO PROVIDE ACCESS TO ALL INTERSECTIONS, DRIVEWAYS AND MEDIAN CROSSOVERS AT ALL TIMES.

5. CONTRACTOR SHALL MATCH EXISTING CROSS SLOPES FOR ALL LANES AND SHOULDERS BASED ON EXISTING AND/OR AND PROPOSED TYPICAL SECTIONS.

6. PHASES CAN BE COMBINED IF APPROVED BY THE ENGINEER.

7. THE MILLED ASPHALT WILL BE TRANSPORTED AND STORED AT A DESIGNATED TxDOT LOCATION SITE.

8. THE CONTRACTOR WILL ONLY BE ALLOWED TO PERFORM WORK AT A SEGMENT AT A TIME THROUGH COMPLETION OF THAT SEGMENT BEFORE STARTING ON THE FOLLOWING SEGMENT UNLESS OTHERWISE APPROVED BY THE ENGINEER.

9. FLEXIBLE PAVEMENT BASE REPAIR TO BE FIELD VERIFIED AS DETERMINED BY THE ENGINEER.

10. CONTRACTOR TO RECEIVE PRIOR AUTHORIZATION BY THE ENGINEER TO COMMENCE ANY CONSTRUCTION AT SEGMENT 3,4 AND 5.

SEGMENTS 1 AND 3 THROUGH 5

PHASE 1: EB & WB OUTSIDE LANE, OUTERMOST HALF OF THE CENTER LANE AND RIGHT TURN LANES

1. INSTALL TCP SIGNS, TEMPORARY CHANNELIZING DEVICES AND OTHER TRAFFIC CONTROL MEASURES AS SHOWN IN THE TCP TYPICAL SECTIONS AND TXDOT BC STANDARD SHEETS.

2. INSTALL EROSION CONTROL DEVICES AS REQUIRED IN THE PLANS AND/OR DIRECTED BY THE ENGINEER.

3. IN THE DIRECTION OF TRAFFIC, MILL 2” OF EXISTING PAVEMENT STRUCTURE AT ALL LANES FROM CURB TO CURB AT A PARTICULAR AREA WITHIN THE WORK SECTION.

4. EXPOSED BASE MATERIAL SHALL BE TREATED AND FULL LANE WIDTHS SHALL BE PAVED WITH 2” OF SP MIX SP-C SAC-A PG70-22 WITHIN THE SAME WORK PERIOD BEFORE OPENING TO TRAFFIC.

5. IN THE DIRECTION OF TRAFFIC, MILL/REMOVE THE REMAINING 3" OF EXISTING PAVEMENT STRUCTURE AT OUTSIDE LANE.

6. REPAIR/CONSTRUCT CURB AND ADA IMPROVEMENTS ADJOINING OUTSIDE LANE. REFER TO ROADWAY SHEETS FOR PROPOSED LIMITS.

7. LOCATE FLEXIBLE PAVEMENT STRUCTURE REPAIR AREAS AS SHOWN IN ROADWAY SHEETS WITHIN THE 18' FL PVMNT STR REP LIMITS AS SHOWN IN TCP TYPICALS. SAW CUT PERIMETER OF FULL DEPTH REPAIR AREAS AND REMOVE EXISTING PAVEMENT.

8. PRIME AND TREAT EXISTING BASE MATERIAL IF EXPOSED. PAVE WITH 3" AT OUTSIDE LANE AND 4" AT FL PVMNT REP AREAS OF SP MIX SP-C SAC-A PG70-22 WITHIN THE SAME WORK PERIOD BEFORE OPENING TO TRAFFIC.

9. INLAY FINAL RIDING LAYER W/ 2” OF SP MIX SP-C SAC-A PG70-22 IN THE DIRECTION OF TRAFFIC AT OUTSIDE LANE. FINAL GRADES SHALL MATCH EXISTING GRADES INCLUDING EXISTING BUS STATION CONCRETE SLABS, INTERSECTION CONCRETE JOINTS, AND CONCRETE RIGHT/LEFT TURN LANES.

10. INSTALL TEMPORARY TRAFFIC TABS TO ORIGINAL LANE CONFIGURATION WITH WZPM(TABS). WITHIN 14 CALENDAR DAYS, STRIPE ON FINAL LOCATIONS WITH WK ZN PAV MRK NON-REMOVABLE/PAINT AND BEADS.

11. MOVE AND RESET CHANNELIZING DEVICES PRIOR TO BEGINNING PHASE 2.

PHASE 2: EB & WB INSIDE LANE, INNERMOST HALF OF THE CENTER LANE AND LEFT TURN LANES

1. INSTALL TCP SIGNS, TEMPORARY CHANNELIZING DEVICES AND OTHER TRAFFIC CONTROL MEASURES AS SHOWN IN THE TCP TYPICAL SECTIONS AND TXDOT BC STANDARD SHEETS.

2. INSTALL EROSION CONTROL DEVICES AS REQUIRED IN THE PLANS AND/OR DIRECTED BY THE ENGINEER.

3. LOCATE FLEXIBLE PAVEMENT STRUCTURE REPAIR AREAS AS SHOWN IN ROADWAY SHEETS WITHIN THE 18' FL PVMNT STR REP LIMITS AS SHOWN IN TCP TYPICALS. SAW CUT PERIMETER OF FULL DEPTH REPAIR AREAS AND REMOVE EXISTING PAVEMENT.

4. REPAIR/CONSTRUCT CURB IMPROVEMENTS ADJOINING INSIDE LANE. REFER TO ROADWAY SHEETS FOR PROPOSED LIMITS.

5. PRIME AND TREAT EXISTING BASE MATERIAL IF EXPOSED. PAVE WITH 3" AT OUTSIDE LANE AND 4" AT FL PVMNT REP AREAS OF SP MIX SP-C SAC-A PG70-22 WITHIN THE SAME WORK PERIOD BEFORE OPENING TO TRAFFIC.

6. INLAY FINAL RIDING LAYER W/ 2” OF SP MIX SP-C SAC-A PG70-22 IN THE DIRECTION OF TRAFFIC AT CENTER AND INSIDE LANES. FINAL GRADES SHALL MATCH EXISTING GRADES INCLUDING EXISTING BUS STATION CONCRETE SLABS, INTERSECTION CONCRETE JOINTS, AND CONCRETE RIGHT/LEFT TURN LANES.

7. INSTALL TEMPORARY TRAFFIC TABS TO ORIGINAL LANE CONFIGURATION WITH WZPM(TABS). WITHIN 14 CALENDAR DAYS, STRIPE ON FINAL LOCATIONS WITH WK ZN PAV MRK NON-REMOVABLE/PAINT AND BEADS.

8. MOVE AND RESET CHANNELIZING DEVICES PRIOR TO BEGINNING THE FINAL TCP PHASE.

SEGMENT 2: US 62 UPRR OVERPASS BRIDGE

PHASE 1: EB & WB OUTSIDE LANE AND OUTERMOST HALF OF CENTER LANE

1. INSTALL TCP SIGNS, TEMPORARY CHANNELIZING DEVICES AND OTHER TRAFFIC CONTROL MEASURES AS SHOWN IN THE TCP TYPICALS SECTIONS AND TXDOT BC STANDARD SHEETS.

2. INSTALL EROSION CONTROL DEVICES AS REQUIRED IN THE PLANS AND/OR DIRECTED BY THE ENGINEER.

3. IN THE DIRECTION OF TRAFFIC, MICRO MILL 3/4" TO 2" AND EXPOSE BRIDGE DECK AND PREVENT ANY BRIDGE DECK DAMAGES. CLEAN AND FLUSH EXISTING BRIDGE DECK.

4. PROPERLY CLEAN AND SEAL BRIDGE JOINTS.

5. INSTALL TEMPORARY TRAFFIC TABS TO ORIGINAL LANE CONFIGURATION WITH WZPM(TABS). WITHIN 14 CALENDAR DAYS, STRIPE ON FINAL LOCATIONS WITH WK ZN PAV MRK NON-REMOVABLE/PAINT AND BEADS.

6. MOVE AND RESET CHANNELIZING DEVICES PRIOR TO BEGINNING PHASE 2.

PHASE 2: EB & WB INSIDE LANE, INNERMOST HALF OF THE CENTER LANE

1. SAME AS PHASE 1.

2. MOVE AND RESET CHANNELIZING DEVICES PRIOR TO BEGINNING FINAL TCP PHASE.

NOTES:

1. CONSTRUCTION OF RIGHT AND LEFT TURN LANES SHALL BE EXPEDITED WITH LIMITED LANE CLOSURES WITHIN PHASE 1 AND PHASE 2 RESPECTIVELY.

2. FULL CONSTRUCTION OF THIS PROJECT MUST BE PERFORMED DURING NIGHTTIME PERIODS, UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

SCALE: N.T.S.

DATE	BY	REV	REVISION

STATE OF TEXAS
JORGE L. NAVARRETE
146579
PROFESSIONAL LICENSED ENGINEER

2/2/2024

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TRAFFIC CONTROL PLAN NARRATIVE

SHEET 2 OF 3

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	23
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/2/2024
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\jnavarrete-admin\dms18809\US62-S-TCP-NARRA02.dgn

SEGMENTS 6 THROUGH 9

PHASE 1: EB & WB OUTSIDE LANE, OUTERMOST HALF OF THE CENTER LANE AND RIGHT TURN LANES

1. INSTALL TCP SIGNS, TEMPORARY CHANNELIZING DEVICES AND OTHER TRAFFIC CONTROL MEASURES AS SHOWN IN THE TCP TYPICAL SECTIONS AND TXDOT BC STANDARD SHEETS.
2. INSTALL EROSION CONTROL DEVICES AS REQUIRED IN THE PLANS AND/OR DIRECTED BY THE ENGINEER.
3. IN THE DIRECTION OF TRAFFIC, MILL 2" OF EXISTING PAVEMENT STRUCTURE AT ALL LANES FROM CURB TO CURB AT A PARTICULAR AREA WITHIN THE WORK SECTION.
4. EXPOSED BASE MATERIAL SHALL BE TREATED AND FULL LANE WIDTHS SHALL BE PAVED WITH 2" OF SP MIX SP-C SAC-A PG70-22 WITHIN THE SAME WORK PERIOD BEFORE OPENING TO TRAFFIC.
5. LOCATE FLEXIBLE PAVEMENT STRUCTURE REPAIR AREAS AS SHOWN IN ROADWAY SHEETS WITHIN THE 18' FL PVMNT STR REP LIMITS AS SHOWN IN TCP TYPICALS. SAW CUT PERIMETER OF FULL DEPTH REPAIR AREAS AND REMOVE EXISTING PAVEMENT.
6. REPAIR/CONSTRUCT CURB IMPROVEMENTS ADJOINING OUTSIDE LANE. REFER TO ROADWAY SHEETS FOR PROPOSED LIMITS.
7. PRIME AND TREAT EXISTING BASE MATERIAL IF EXPOSED. PAVE WITH 4" OF SP MIX SP-C SAC-A PG70-22 WITHIN THE SAME WORK PERIOD BEFORE OPENING TO TRAFFIC.
8. INLAY FINAL RIDING LAYER W/ 2" OF SP MIX SP-C SAC-A PG70-22 IN THE DIRECTION OF TRAFFIC AT OUTSIDE LANE. FINAL GRADES SHALL MATCH EXISTING GRADES INCLUDING EXISTING BUS STATION CONCRETE SLABS, INTERSECTION CONCRETE JOINTS, AND CONCRETE RIGHT/LEFT TURN LANES.
9. INSTALL TEMPORARY TRAFFIC TABS TO ORIGINAL LANE CONFIGURATION WITH WZPM(TABS). WITHIN 14 CALENDAR DAYS, STRIPE ON FINAL LOCATIONS WITH WK ZN PAV MRK NON-REMOVABLE/PAINT AND BEADS.
10. MOVE AND RESET CHANNELIZING DEVICES PRIOR TO BEGINNING THE FINAL TCP PHASE.

PHASE 2: EB INSIDE LANE, INNERMOST HALF OF THE CENTER LANE AND LEFT TURN LANES

1. INSTALL TCP SIGNS, TEMPORARY CHANNELIZING DEVICES AND OTHER TRAFFIC CONTROL MEASURES AS SHOWN IN THE TCP TYPICAL SECTIONS AND TXDOT BC STANDARD SHEETS.
2. INSTALL EROSION CONTROL DEVICES AS REQUIRED IN THE PLANS AND/OR DIRECTED BY THE ENGINEER.
3. LOCATE FLEXIBLE PAVEMENT STRUCTURE REPAIR AREAS AS SHOWN IN ROADWAY SHEETS WITHIN THE 18' FL PVMNT STR REP LIMITS AS SHOWN IN TCP TYPICALS. SAW CUT PERIMETER OF FULL DEPTH REPAIR AREAS AND REMOVE EXISTING PAVEMENT.
4. REPAIR/CONSTRUCT CURB IMPROVEMENTS ADJOINING INSIDE LANE. REFER TO ROADWAY SHEETS FOR PROPOSED LIMITS.
5. PRIME AND TREAT EXISTING BASE MATERIAL IF EXPOSED. PAVE WITH 4" OF SP MIX SP-C SAC-A PG70-22 WITHIN THE SAME WORK PERIOD BEFORE OPENING TO TRAFFIC.
6. INLAY FINAL RIDING LAYER W/ 2" OF SP MIX SP-C SAC-A PG70-22 IN THE DIRECTION OF TRAFFIC AT CENTER AND INSIDE LANES. FINAL GRADES SHALL MATCH EXISTING GRADES INCLUDING EXISTING BUS STATION CONCRETE SLABS, INTERSECTION CONCRETE JOINTS, AND CONCRETE RIGHT/LEFT TURN LANES.
7. INSTALL TEMPORARY TRAFFIC TABS TO ORIGINAL LANE CONFIGURATION WITH WZPM(TABS). WITHIN 14 CALENDAR DAYS, STRIPE ON FINAL LOCATIONS WITH WK ZN PAV MRK NON-REMOVABLE/PAINT AND BEADS.
8. MOVE AND RESET CHANNELIZING DEVICES PRIOR TO BEGINNING THE FINAL TCP PHASE.

FINAL TCP PHASE-FULL PROJECT

1. REMOVE WORKZONE MARKING TABS.
2. RESTRIPE TO FINAL LANE CONFIGURATION WITH PERMANENT PAVEMENT MARKINGS.
3. FINAL CLEAN-UP OF ROW FOR ENTIRE PROJECT.
4. REMOVE ALL PROJECT LIMIT TEMPORARY SIGNS.

NOTES:

1. CONSTRUCTION OF RIGHT AND LEFT TURN LANES SHALL BE EXPEDITED WITH LIMITED LANE CLOSURES WITHIN PHASE 1 AND PHASE 2 RESPECTIVELY.
2. FULL CONSTRUCTION OF THIS PROJECT MUST BE PERFORMED DURING NIGHTTIME PERIODS, UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

TCP SELECTION TABLE

CSJ	ROADWAY	PHASE	TYPE OF WORK	STANDARD SHEET
0002-120-027	US 62 & US 62/180	1 & 2	2" MILLING & PAVING 3" MILLING & PAVING	TCP (2-4)-18, TCP (2-6)-18, WZ(UL)-13
		1 & 2	FULL-DEPTH FLEXIBLE PAVEMENT REPAIR	TCP (2-4)-18, TCP (2-6)-18
		1 & 2	WORK ZONE SHORT TERM PAVEMENT MARKINGS	TCP (2-4)-18, TCP (2-6)-18, WZ(STPM)-23
		FINAL TCP PHASE	PERMANENT PAVEMENT MARKINGS	TCP(3-1)-13, TCP(3-2)-13, TCP(3-4)-14, TCP(3-4)-13
		1 & 2	BRIDGE DECK OVERLAY MILLING	TCP (2-4)-18,TCP (2-6)-18
		1 & 2	CURB & GUTTER AND ADA UPGRADES	TCP (2-4)-18,TCP (2-6)-18
0374-02-120	US US 62/180	1 & 2	2" MILLING & PAVING 3" MILLING AND PAVING	TCP (2-4)-18, TCP (2-6)-18, WZ(UL)-13
		1	DRAINAGE IMPROVEMENTS	TCP (2-4)-18, TCP (2-6)-18
		1 & 2	FULL-DEPTH FLEXIBLE PAVEMENT REPAIR	TCP (2-4)-18, TCP (2-6)-18
		1 & 2	WORK ZONE SHORT TERM PAVEMENT MARKINGS	TCP (2-4)-18, TCP (2-6)-18, WZ(STPM)-23
		FINAL TCP PHASE	PERMANENT PAVEMENT MARKINGS	TCP(3-1)-13, TCP(3-2)-13, TCP(3-4)-14, TCP(3-4)-13
		1 & 2	CURB & GUTTER AND ADA UPGRADES	TCP (2-4)-18, TCP (2-6)-18

SCALE: N.T.S.

DATE	BY	REV	REVISION

STATE OF TEXAS
JORGE L. NAVARRETE
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2/6/2024

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TRAFFIC CONTROL PLAN NARRATIVE

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
CHK	OEI	24	SEE TITLE SHEET	24
DRN	OEI	STATE	DIST.	COUNTY
CHK	OEI	TEXAS	ELP	EL PASO
		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/6/2024
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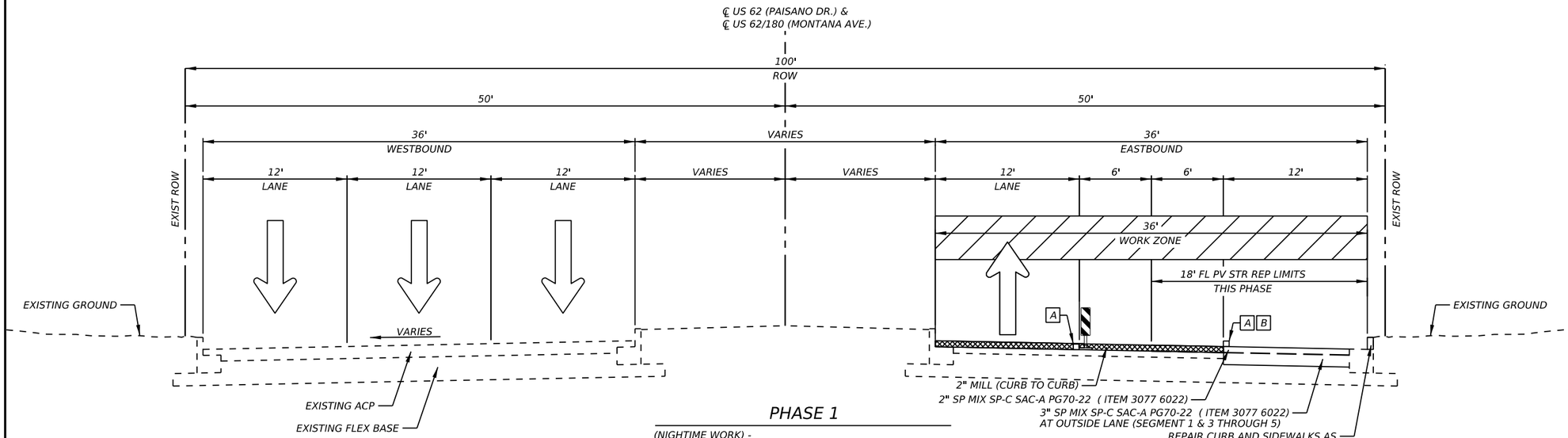


PHASE 1

(NIGHTIME WORK) -
PHASE 1:

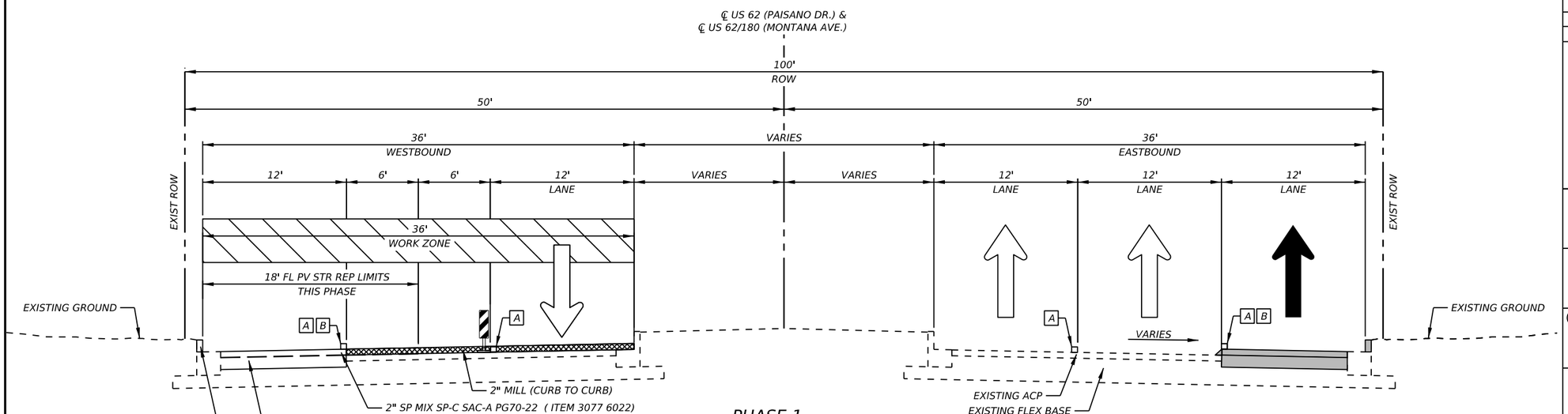
1. MILL 2" OF ACP FROM CURB TO CURB AT EB DIRECTION
2. MILL 4" AND INLAY 4" OF SP MIX SP-C SAC-A PG70-22 AT FULL DEPTH REPAIR AREAS (AS SHOWN IN ROADWAY SHEETS) WITHIN 18' FL PV STR REP LIMITS.
3. CURB & ADA IMPROVEMENTS
4. INLAY 2" OF SP MIX SP-C SAC-A PG70-22 AT OUTSIDE LANE

LEGEND

- 2" MILL-INITIAL TCP PHASE
- CONSTRUCTED IN CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- PROP TRAFFIC FLOW
- EXIST TRAFFIC FLOW
- VERTICAL PANEL
- A — WRK ZN PV MRK (TAB) W (BRK)
- B — WK ZN PAV MRK NON-REMOV (W) 6" (BRK) & BEADS
- C — RE PM W/RET REQ TY I 6" (100 MIL)

NOTES:

1. APPLY TRAFFIC CONTROL PLAN SETUP AS DESCRIBED IN THE TCP SELECTION TABLE AND TCP TYPICAL SECTION, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. CONTRACTOR MUST CLEAR ALL TABS PRIOR TO THE APPLICATION OF NON-REMOVABLE/PAINT BEADS WRK ZN PAV MRK ON FINAL STRIPING LOCATIONS. REFER TO PAVEMENT MARKING SHEETS FOR PROPOSED FINAL STRIPING CONFIGURATION/LOCATION.
3. FLAGGERS TO BE USED DURING WORKING HOURS.
4. FLEXIBLE PAVEMENT BASE REPAIR TO BE FIELD VERIFIED. QUANTITIES PROVIDED ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.



PHASE 1

(NIGHTIME WORK) -
PHASE 1:

1. MILL 2" OF ACP FROM CURB TO CURB AT WB DIRECTION.
2. MILL 4" AND INLAY 4" OF SP MIX SP-C SAC-A PG70-22 AT FULL DEPTH REPAIR AREAS (AS SHOWN IN ROADWAY SHEETS) WITHIN 18' FL PV STR REP LIMITS.
3. CURB & ADA IMPROVEMENTS
4. INLAY 2" OF SP MIX SP-C SAC-A PG70-22 AT OUTSIDE LANE

SCALE: N.T.S.

DATE	BY	REV	REVISION

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TCP TYPICALS
PHASE 1

SHEET 1 OF 1

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
CHK	OEI	24	SEE TITLE SHEET		25
DRN	OEI	STATE	DIST.	COUNTY	
CHK	OEI	TEXAS	ELP	EL PASO	
		CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

DATE: 2/2/2024
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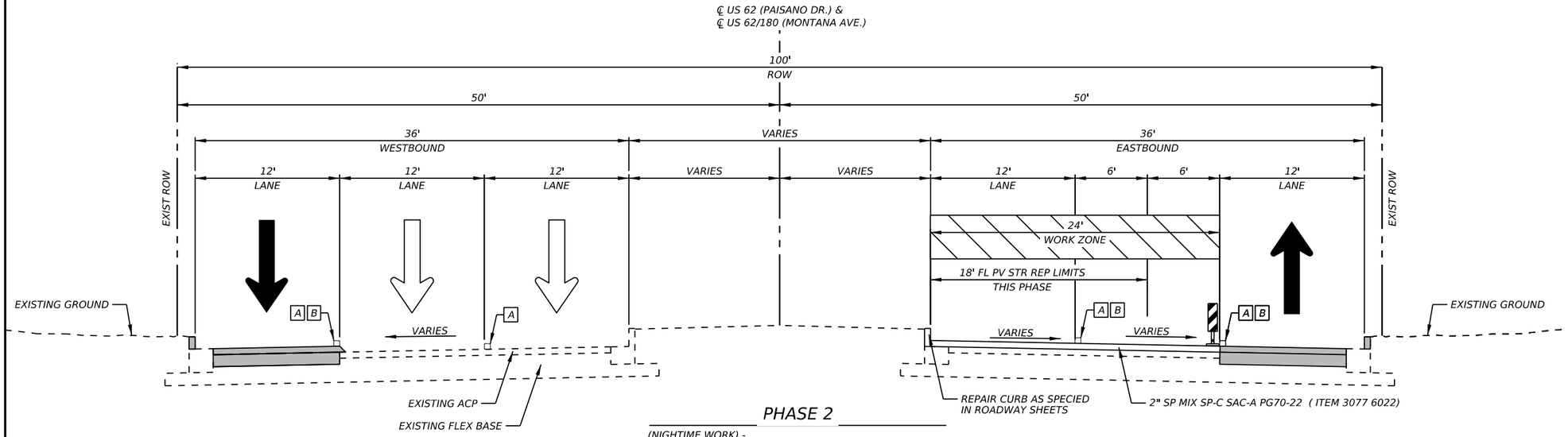

PHASE 2

(NIGHTIME WORK) -

1. MILL 4" AND INLAY 4" OF SP MIX SP-C SAC-A PG70-22 AT FULL DEPTH REPAIR AREAS (AS SHOWN IN ROADWAY SHEETS) WITHIN 18' FL PV STR REP LIMITS.
2. CURB & ADA IMPROVEMENTS
3. INLAY 2" OF SP MIX SP-C SAC-A PG70-22 AT CENTER AND INSIDE LANE.

LEGEND

- 2" MILL-INITIAL TCP PHASE
- CONSTRUCTED IN CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- PROP TRAFFIC FLOW
- EXIST TRAFFIC FLOW
- VERTICAL PANEL
- A — WRK ZN PV MRK (TAB) W (BRK)
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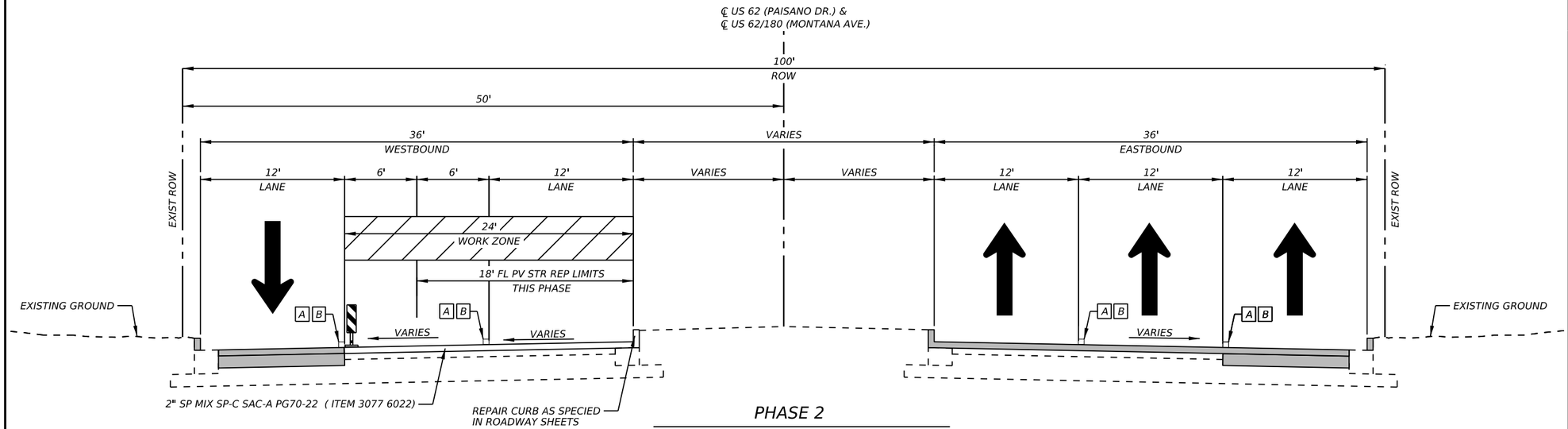
- C — RE PM W/RET REQ TY I 6" (100 MIL)

NOTES:

1. APPLY TRAFFIC CONTROL PLAN SETUP AS DESCRIBED IN THE TCP SELECTION TABLE AND TCP TYPICAL SECTION, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. CONTRACTOR MUST CLEAR ALL TABS PRIOR TO THE APPLICATION OF NON-REMOVABLE/PAINT BEADS WRK ZN PAV MRK ON FINAL STRIPING LOCATIONS. REFER TO PAVEMENT MARKING SHEETS FOR PROPOSED FINAL STRIPING CONFIGURATION/LOCATION.
3. FLAGGERS TO BE USED DURING WORKING HOURS.
4. FLEXIBLE PAVEMENT BASE REPAIR TO BE FIELD VERIFIED. QUANTITIES PROVIDED ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.



PHASE 2

(NIGHTIME WORK) -

1. MILL 4" AND INLAY 4" OF SP MIX SP-C SAC-A PG70-22 AT FULL DEPTH REPAIR AREAS (AS SHOWN IN ROADWAY SHEETS) WITHIN 18' FL PV STR REP LIMITS.
2. CURB & ADA IMPROVEMENTS
3. INLAY 2" OF SP MIX SP-C SAC-A PG70-22 AT CENTER AND INSIDE LANE.

SCALE: N.T.S.

DATE	BY	REV	REVISION

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TCP TYPICALS PHASE 2

SHEET 1 OF 1

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	26
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/2/2024
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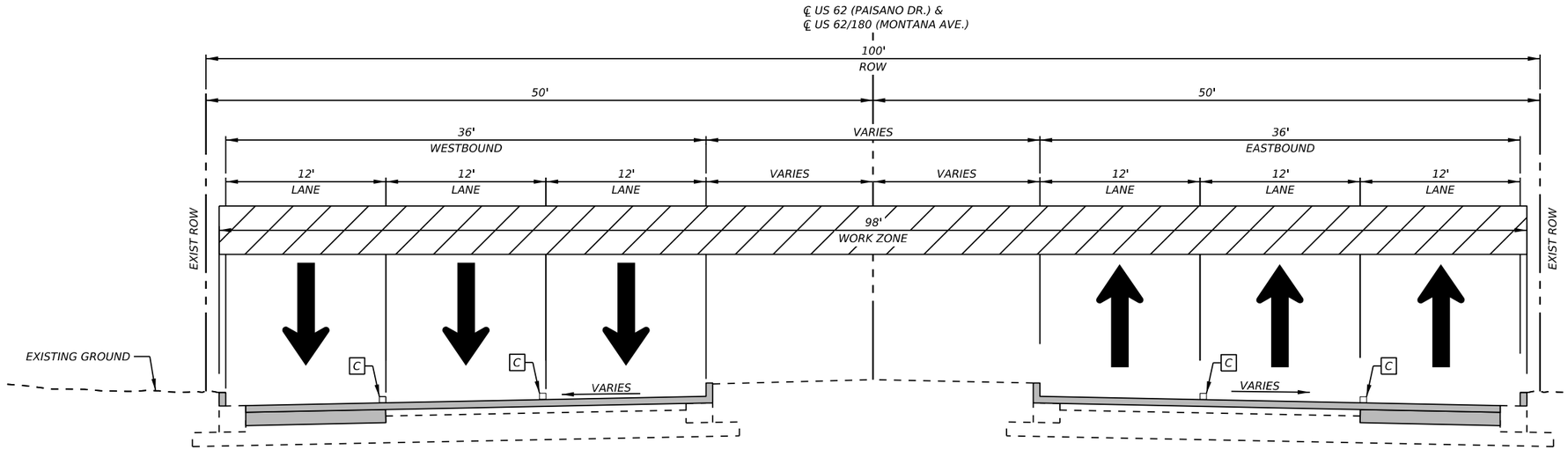

FINAL TCP PHASE

FINAL STRIPING AND CLEAN UP

LEGEND

- 2" MILL-INITIAL TCP PHASE
- CONSTRUCTED IN CURRENT PHASE
- CONSTRUCTED IN PREVIOUS PHASE
- PROP TRAFFIC FLOW
- EXIST TRAFFIC FLOW
- VERTICAL PANEL
- A — WRK ZN PV MRK (TAB) W (BRK)
- B — WK ZN PAV MRK NON-REMOV (W) 6" (BRK) & BEADS
- C — RE PM W/RET REQ TY I 6" (100 MIL)

NOTES:

1. APPLY TRAFFIC CONTROL PLAN SETUP AS DESCRIBED IN THE TCP SELECTION TABLE AND TCP TYPICAL SECTION, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. CONTRACTOR MUST CLEAR ALL TABS PRIOR TO THE APPLICATION OF NON-REMOVABLE/PAINT BEADS WRK ZN PAV MRK ON FINAL STRIPING LOCATIONS. REFER TO PAVEMENT MARKING SHEETS FOR PROPOSED FINAL STRIPING CONFIGURATION/LOCATION.
3. FLAGGERS TO BE USED DURING WORKING HOURS.
4. FLEXIBLE PAVEMENT BASE REPAIR TO BE FIELD VERIFIED. QUANTITIES PROVIDED ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.

SCALE: N.T.S.

DATE	BY	REV	REVISION

STATE OF TEXAS
JORGE L. NAVARRETE
146579
LICENSED PROFESSIONAL ENGINEER

2/2/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
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TCP TYPICALS PHASE 3

SHEET 1 OF 1

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	27
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/2/2024
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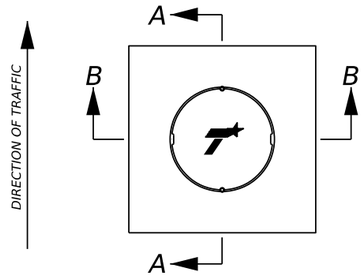
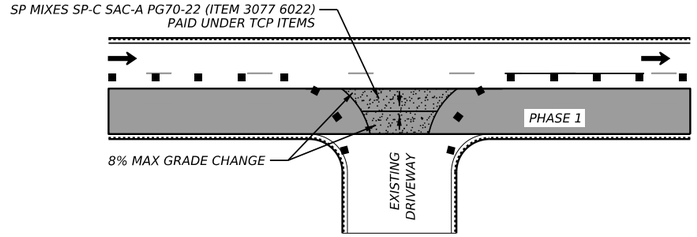


MANHOLE /WATER VALVE CONSTRUCTION PROTECTION PLAN

N.T.S

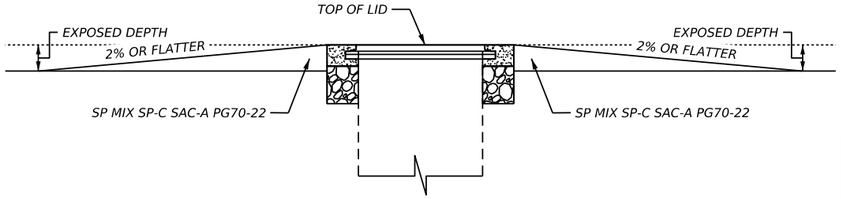


TYPICAL DRIVEWAY ACCESS DETAIL

N.T.S

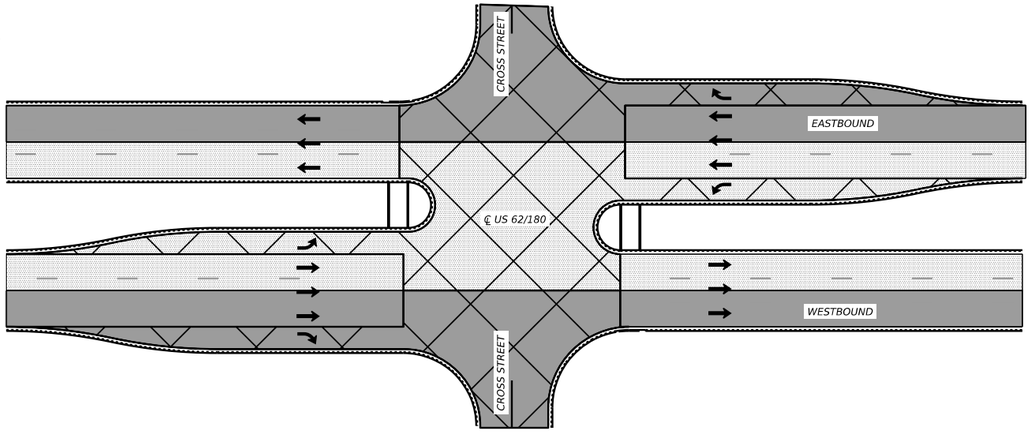
LEGEND

- PHASE 1-FL PV STR REP LIMITS
- PHASE 2-FL PV STR REP LIMITS
- EXPEDITED CONSTRUCTION/ LIMIT CLOSURES
- PROP TRAFFIC FLOW
- EXISTING TRAFFIC FLOW
- CHANNELIZING DEVICES



LONGITUDINAL MANHOLE/WATER VALVE PROTECTION WEDGE (A-A)

N.T.S

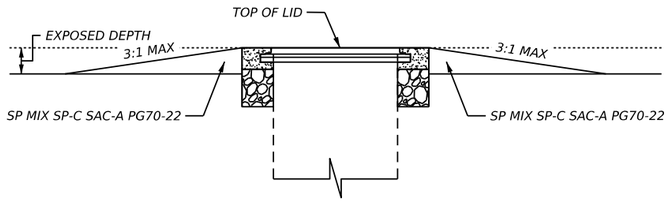


INTERSECTION CONSTRUCTION OVERVIEW

N.T.S

NOTES:

1. ALL TRAFFIC MOVEMENTS AT ALL INTERSECTION SHALL REMAIN ACCESSIBLE. FLAGGERS TO BE PRESENT AT ALL INTERSECTION CONSTRUCTION OPERATIONS.
2. CONTRACTOR TO PROVIDE ACCESS TO DRIVEWAYS, CROSS STREETS AND MEDIAN OPENINGS AT ALL TIMES.
3. REFER TO TCP STANDARDS FOR CHANNELIZING DEVICE SPACING AND TAPERS.
4. REFER TO ROADWAY SUMMARY QUANTITY TABLE FOR TEMPORARY PAVEMENT QUANTITY AVAILABLE UNDER ITEM (3080 6001) FOR MANHOLE/WATERVALVE PROTECTION WEDGE.



TRANSVERSAL MANHOLE/WATER VALVE PROTECTION WEDGE (B-B)

N.T.S

SCALE: N.T.S.

DATE	BY	REV	REVISION

STATE OF TEXAS
JORGE L. NAVARRETE
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PROFESSIONAL ENGINEER

2/2/2024

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TCP DETAILS

SHEET 1 OF 2

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	28
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/2/2024
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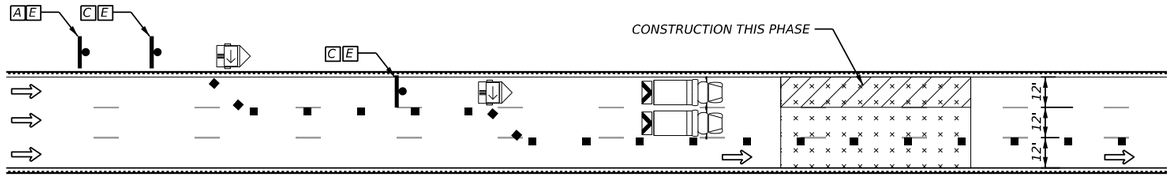
NIGHT-TIME



TWO LANE CLOSURE DURING INSIDE LANE CONSTRUCTION

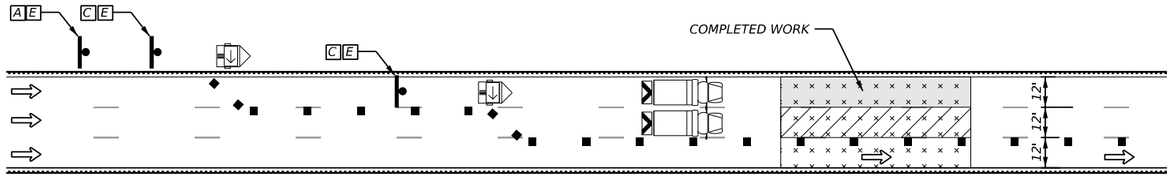
N.T.S

DAY-TIME

TRAFFIC FLOW DURING DAYTIME

N.T.S

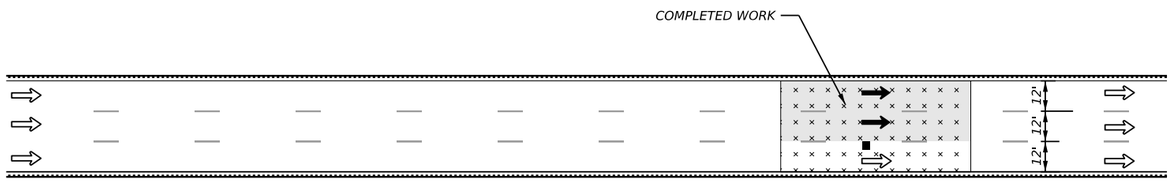
NIGHT-TIME



TWO LANE CLOSURE DURING CENTER LANE CONSTRUCTION

N.T.S

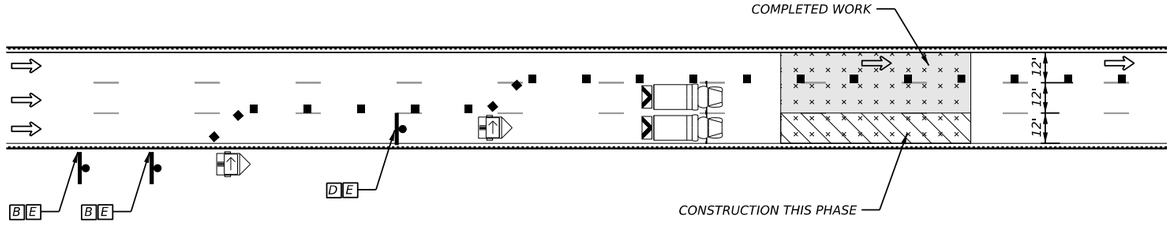
DAY-TIME



TRAFFIC FLOW DURING DAYTIME

N.T.S

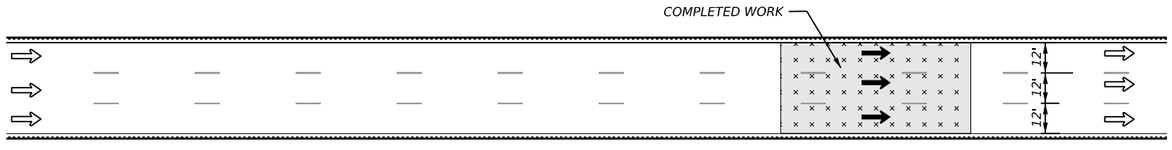
NIGHT-TIME



TWO LANE CLOSURE DURING OUTSIDE LANE CONSTRUCTION

N.T.S

DAY-TIME



TRAFFIC FLOW DURING DAYTIME

N.T.S

CW20-5aTL
48" X 48"

A

CW20-5aTR
48" X 48"

B

CW20-5TL
48" X 48"

C

CW20-5TR
48" X 48"

D

CW16-3aP
30" X 12"

E

LEGEND

- CONSTRUCTION THIS PHASE
- 6" FL PV STRUCT REP
- COMPLETED IN PREVIOUS PHASE
- PROP TRAFFIC FLOW
- EXISTING TRAFFIC FLOW
- CHANNELIZING DEVICES

NOTES:

1. ALL TRAFFIC MOVEMENTS AT ALL INTERSECTION SHALL REMAIN ACCESSIBLE. FLAGGERS TO BE PRESENT AT ALL INTERSECTION CONSTRUCTION OPERATIONS.
2. CONTRACTOR TO PROVIDE ACCESS TO DRIVEWAYS, CROSS STREETS AND MEDIAN OPENINGS AT ALL TIMES.
3. REFER TO TCP STANDARDS FOR TAPERS, SIGNAGE AND CHANNELIZING DEVICES SPACING.
4. REFER TO ROADWAY SUMMARY QUANTITY TABLE FOR TEMPORARY PAVEMENT QUANTITY AVAILABLE UNDER ITEM (3080 6001) FOR MANHOLE/WATERVALVE PROTECTION WEDGE.
5. REFER TO "BC" STANDARD SHEETS FOR PROPER ADVANCE WARNING SIGNS.

USE TCP DETAILS SHOWN HEREIN AS APPLICABLE. REFER TO TCP TYPICALS FOR PROPER SEQUENCING.

SCALE: N.T.S.

DATE	BY	REV	REVISION

STATE OF TEXAS
JORGE L. NAVARRETE
146579
LICENSED PROFESSIONAL ENGINEER

2/2/2024

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TCP DETAILS

SHEET 2 OF 2

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	29
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

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DEFINITION OF TREATMENT ZONES FOR VARIOUS EDGE CONDITIONS

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

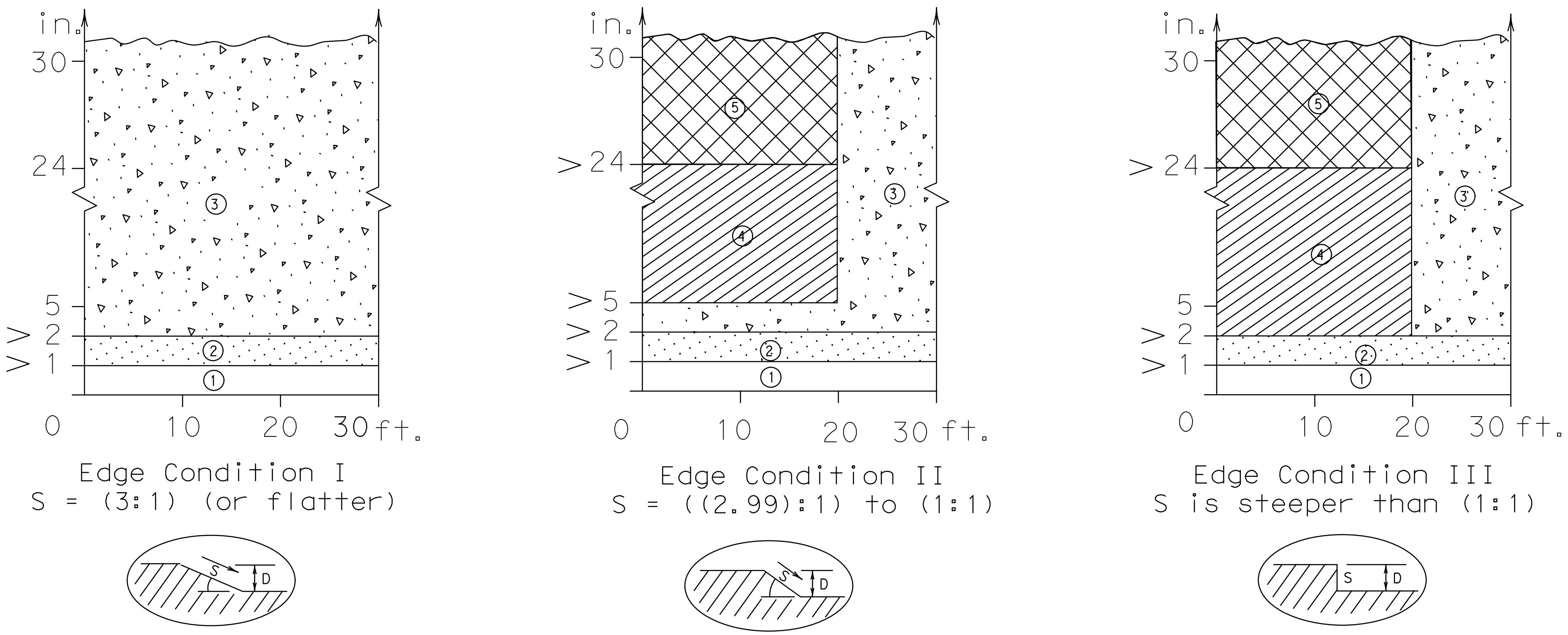
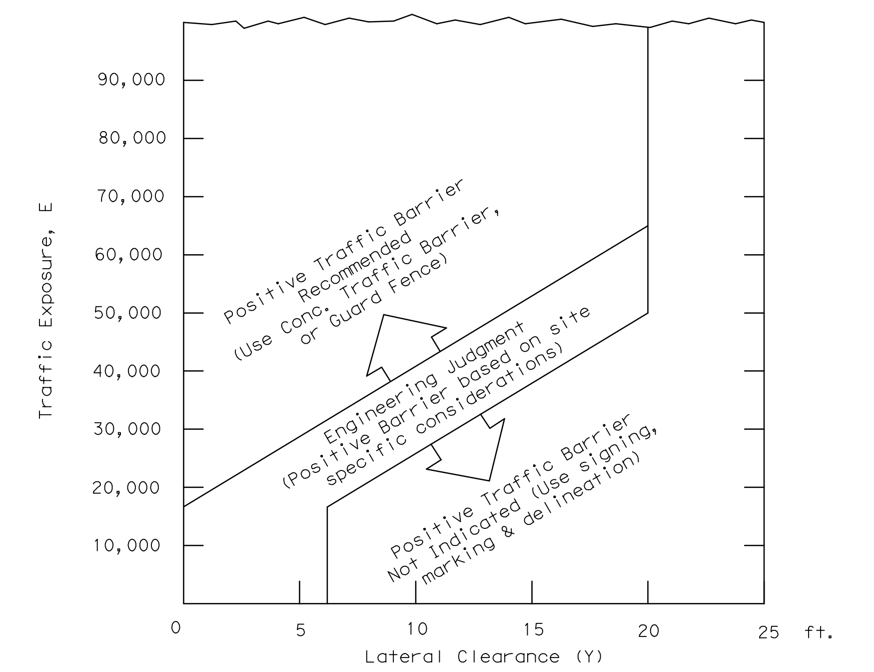
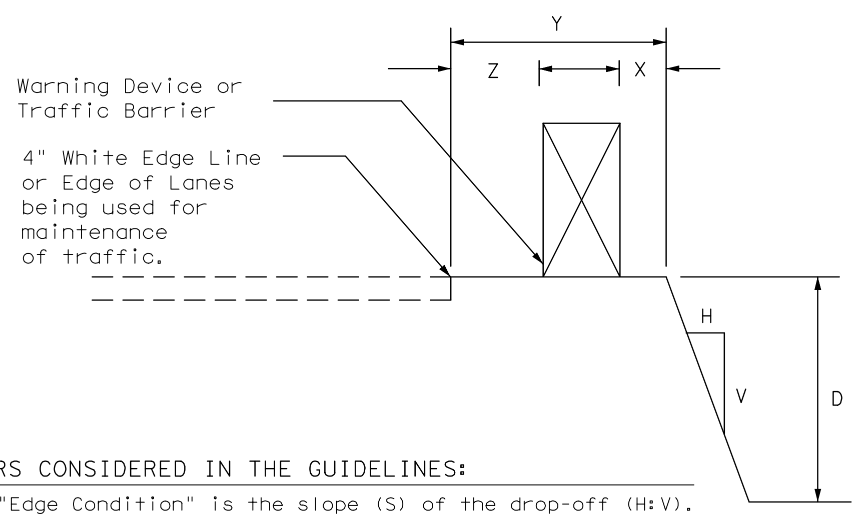


FIGURE-1: CONDITIONS INDICATING USE OF POSITIVE BARRIER FOR ZONE 5



1. E = ADT x T
   Where ADT is that portion of the average daily traffic volume traveling within 20 feet (generally two adjacent lanes) of the edge dropoff condition; and, T is the duration time in years of the dropoff condition.
2. Figure-1 provides a practical approach to the use of positive barriers for the protection of vehicles from pavement drop-offs. Other factors, such as the presence of heavy machinery, construction workers, or the mix and volume of traffic may make the use of positive barriers appropriate, even when the edge condition alone may not justify the use of a barrier.
3. An approved end treatment should be provided for any positive barrier end located within the clear zone.

These guidelines apply to temporary traffic control areas or work zones where continuous pavement edges or drop-offs exists parallel and adjacent to a lane used by traffic. The edge conditions may be present between shoulders and travel lanes, between adjacent or opposing travel lanes, or at intermediate points across the width of the paved surface. Due to the variability in construction operations, tolerances in the variables may be allowed by the engineer. These guidelines do not apply to short term operations. These guidelines do not constitute a rigid standard or policy; rather, they are guidance to be used in conjunction with engineering judgement. These guidelines may be updated on the Design Division's on-line manuals.



Zone	Treatment Types Guidelines:
①	No treatment
②	CW 8-11 "Uneven Lanes" signs.
③	CW 8-9a Shoulder Drop-Off" or CW 8-11 signs plus vertical panels.
④	CW8-9a or CW 8-11, signs plus drums. Where restricted space precludes the use of drums, use vertical panels. An edge slope to that of the profered Edge Condition I.
⑤	Check indications (Figure-1) for possitive barrier. Where positive barrier is not indicated, the treatment shown above for Zone-4 may be used after consideration of other applicable factors.

FACTORS CONSIDERED IN THE GUIDELINES:

1. The "Edge Condition" is the slope (S) of the drop-off (H:V). The "Edge Height is the depth of the drop-off "D".
2. Distance "X" is to be the maximum practical under job conditions. Two feet minimum for high speed conditions. Distance "Y" is the lateral clearance from edge of travel lane to edge of dropoff. Distance "Z" does not have a minimum.
3. In addition to the factors considered in the guidelines, each construction zone drop-off situation should be analyzed individually, taking into account other variables, such as: traffic mix, posted speed in the construction zone, horizontal curvature, and the practicality of the treatment options.
4. The conditions for indicating the use of positive or protective barriers are given by Zone-5 and Figure-1. Traffic barriers are primarily applicable for high speed conditions. Urban areas with speeds of 30 mph or less may have a lesser need for signing, delineation, and barriers. Right-angled edges, however, with "D" greater than 2 inches and located within a lateral offset of 6 feet, may indicate a higher level of treatment.
5. If the distance "Y" must be less than 3 feet, the use of a positive barrier may not be feasible. In such a case, consider either: 1) narrowing the lanes to a desired 11 to 12 feet or 10 foot minimum (see CW20-8 sign), or 2) provide an edge slope such as Edge Condition I.

Edge Condition Notes:

1. Edge Condition I: Most vehicles are able to traverse an edge condition with a slope rate of (3 to 1) or flatter. The slope must be constructed with a compacted material capable of supporting vehicles.
2. Edge Condition II: Most vehicles are able to traverse an edge condition with a slope between (2.99 to 1) and (1 to 1) so long as "D" does not exceed 5 inches. Under-carriage drag on most automobiles will occur when "D" exceeds 6 inches. As "D" exeeds 24 inches, the possibility for rollover is greater in most vehicles.
3. Edge Condition III: When slopes are greater than (1 to 1) and where "D" is greater than 2 inches, a more difficult control factor may exist for some vehicles, if not properly treated. For example, where "D" is greater than 2 inches and up to 24 inches different types of vehicles may experience different steering control at different edge heights. Automobiles might experience more steering control differential when "D" is greater than 2 inches and up to 5 inches. Trucks, particularly those with high loads, have more steering control differential when "D" is greater than 5 inches and up to 24 inches. When "D" exceeds 24 inches, the possibility of rollover is greater for most vehicles.
4. Milling or overlay operations that result in Edge Condition III should not be in place without appropriate warning treatments, and these conditions should not be left in place for extended periods of time.

Engineer's Seal

Date 12/28/2023

Texas Department of Transportation

Traffic Safety Division Standard

TREATMENT FOR VARIOUS EDGE CONDITIONS

FILE: edgecon.dgn	DN:	CK:	DW:	CK:
©TxDOT August 2000	CONT	SECT	JOB	HIGHWAY
REVISIONS 03-01 08-01 9-21	0374	02	120, ETC.	US 62, ETC
	DIST		COUNTY	SHEET NO.
	24		EL PASO	30

DATE: 3:42:53 PM
FILE: Treatment for various edge conditions

DATE: 12/28/2023 3:43:16 PM
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio espar2\dms19940\bc-21 1 of 12.dgn

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

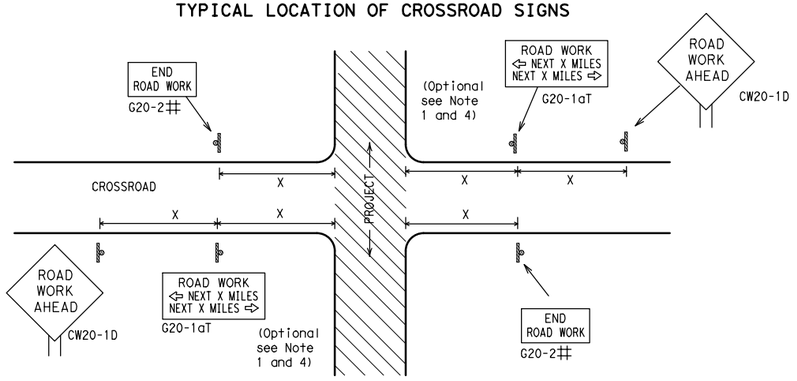
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

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	0374	02	120,ETC.	US 62,ETC
	DIST	COUNTY		SHEET NO.
	24	EL PASO		31

DATE: 12/28/2023 3:43:38 PM
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega.sergio.esparza.dms19940\bc-21_2 of 12.dgn

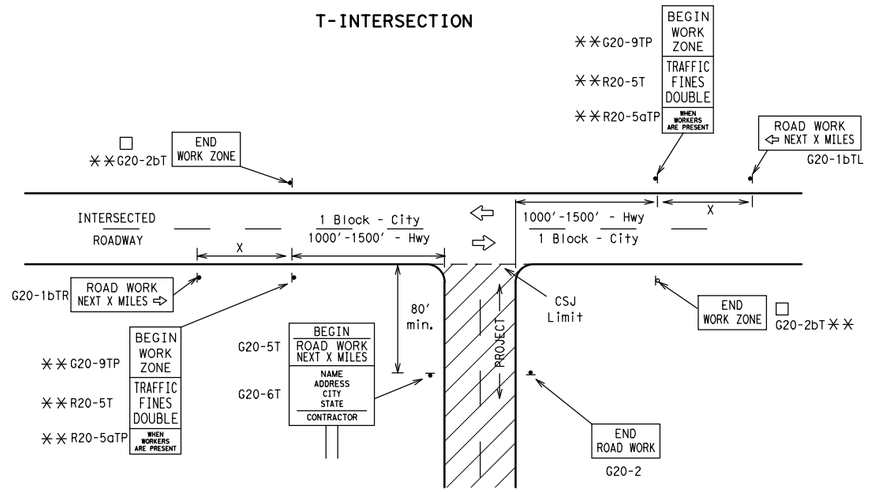
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

SIZE

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

SPACING

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

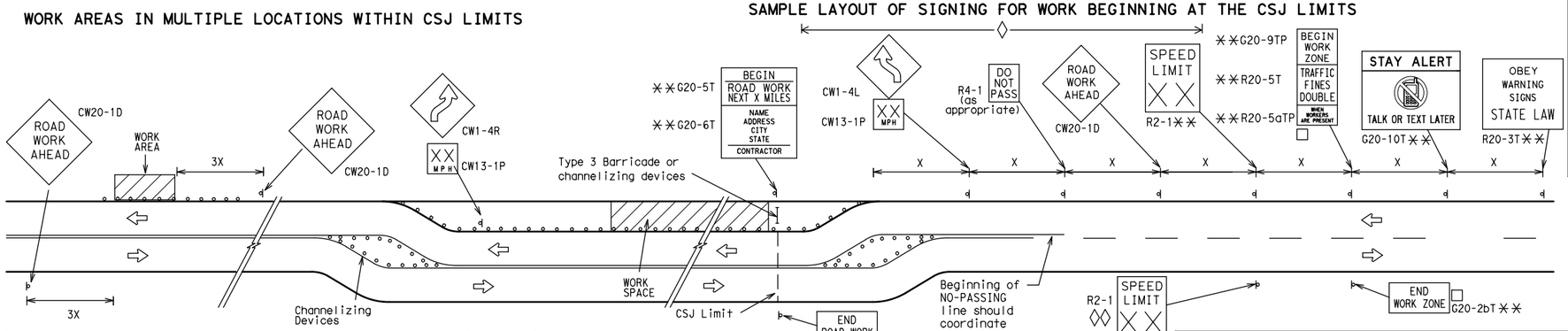
✳ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

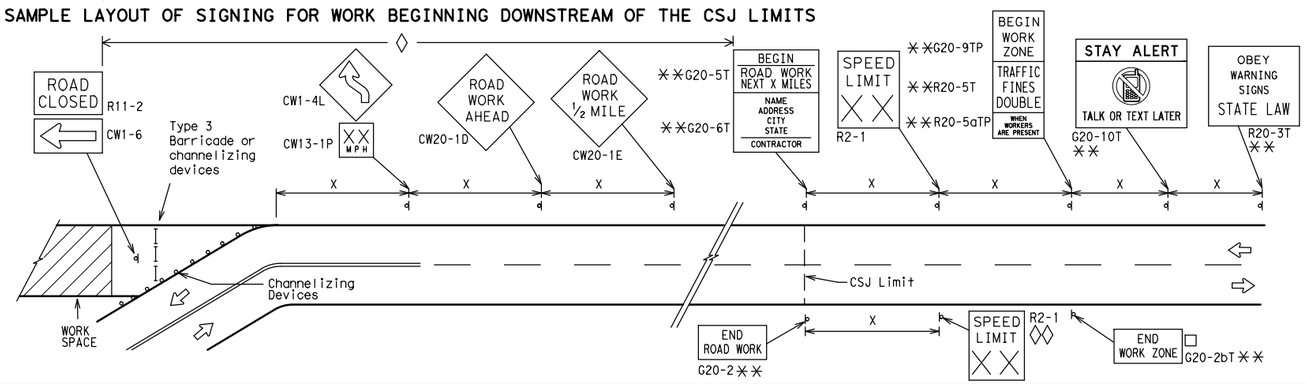
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

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



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

NOTES

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

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

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

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

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

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

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	0374	02	120,ETC.	US 62,ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	24	EL PASO		32

DATE: 12/28/2023 3:43:59 PM
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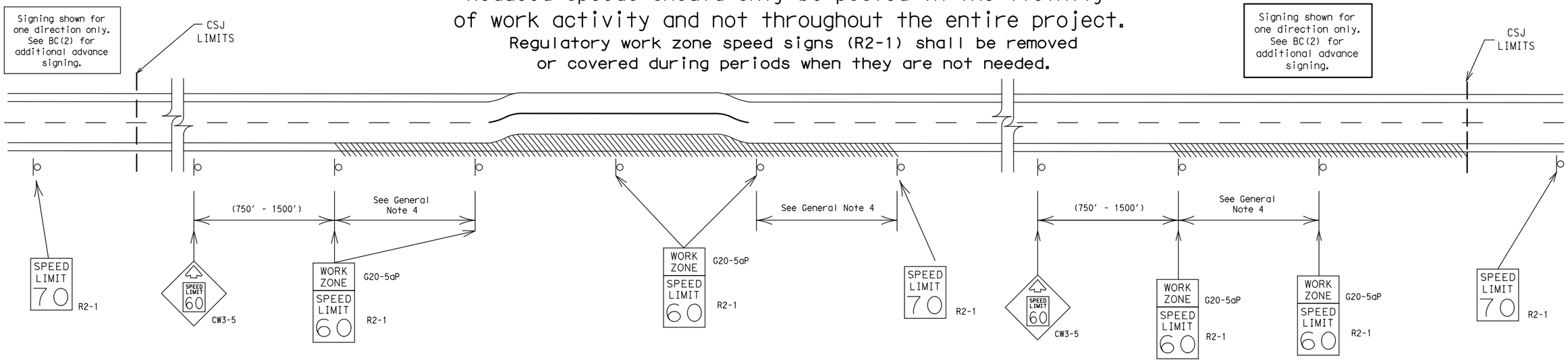
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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7-13 5-21	24	EL PASO		33

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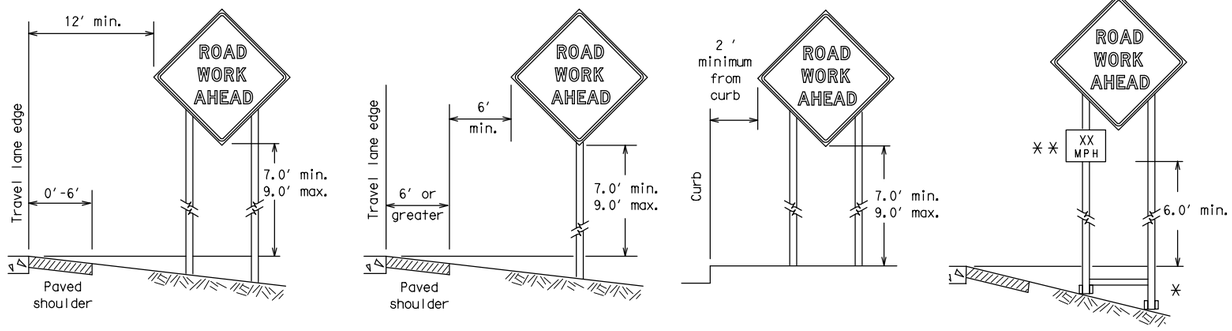
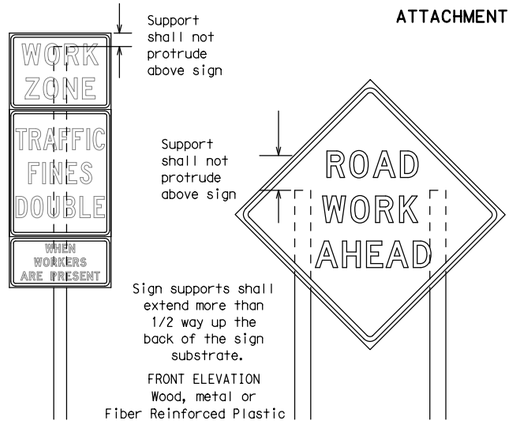
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

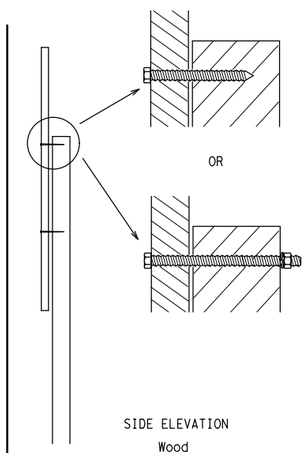


⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS





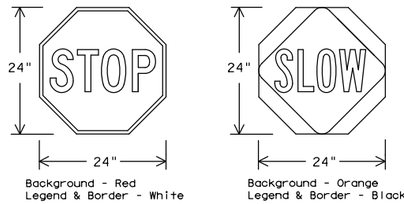
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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

STOP/SLOW PADDLES

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



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

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

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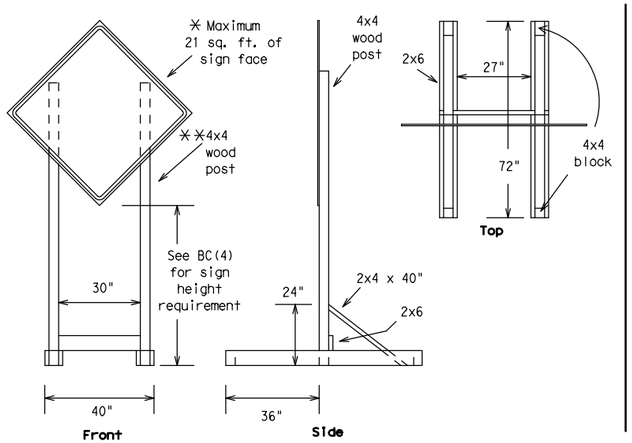
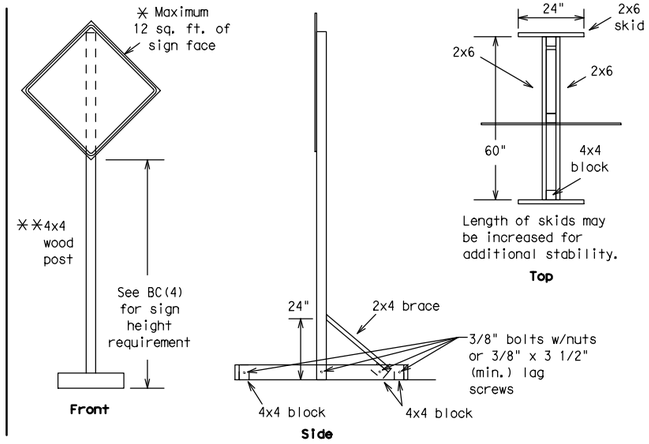
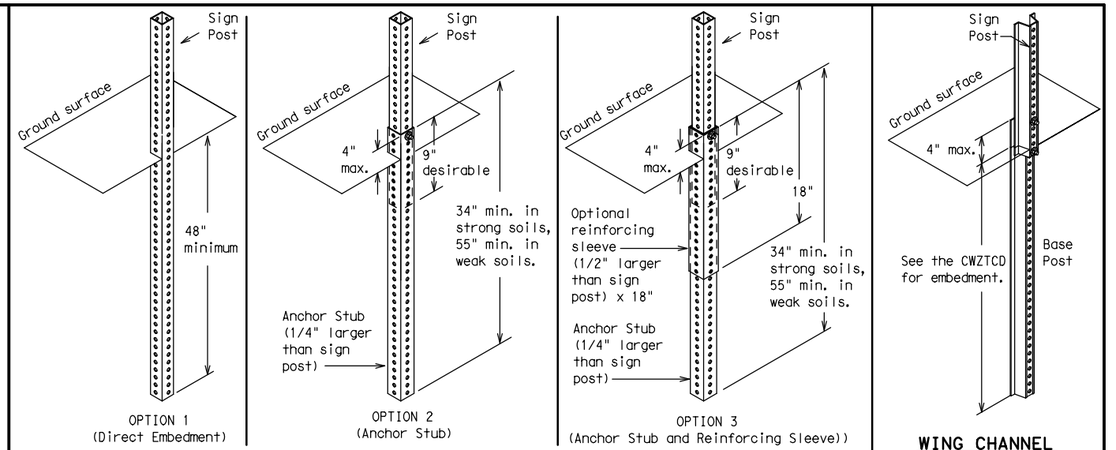




SKID MOUNTED WOOD SIGN SUPPORTS

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

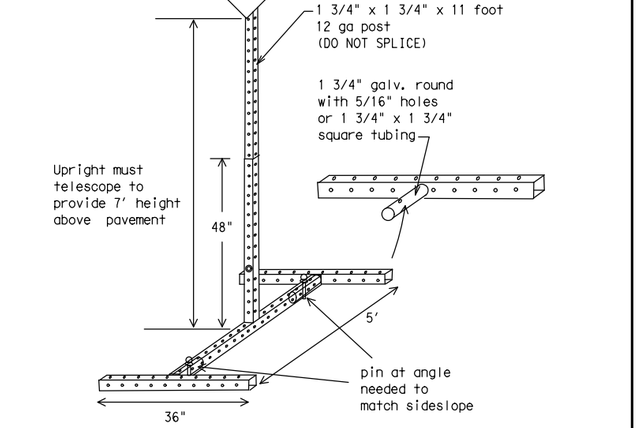


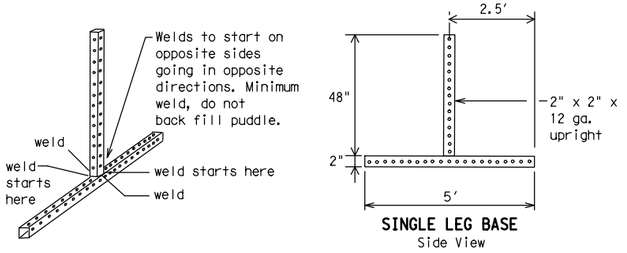
PERFORATED SQUARE METAL TUBING

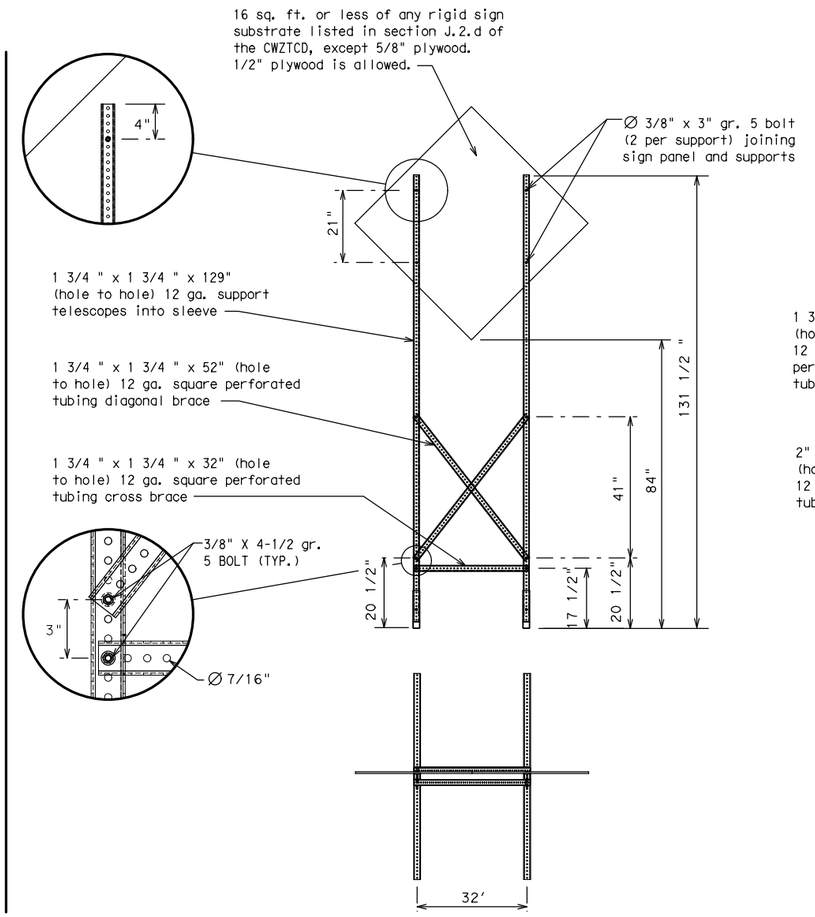
WING CHANNEL
Lap-splice/base bolted anchor

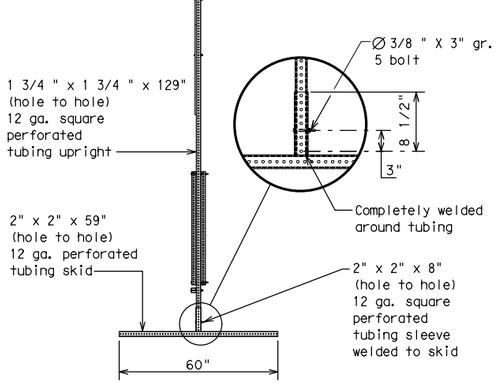
GROUND MOUNTED SIGN SUPPORTS

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









SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

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

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

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120,ETC.	US 62,ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	24	EL PASO		36

100

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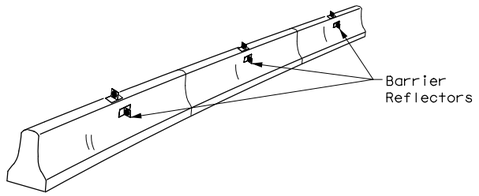
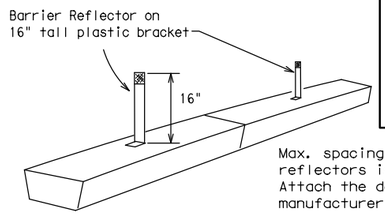
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost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



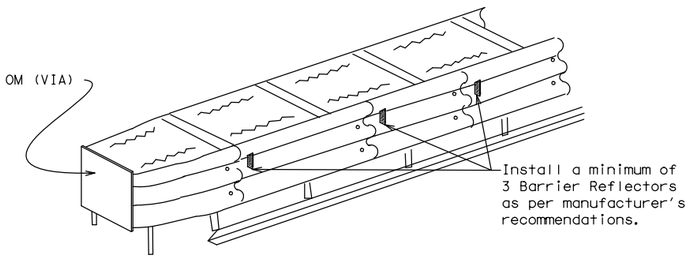
CONCRETE TRAFFIC BARRIER (CTB)

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)



DELINEATION OF END TREATMENTS

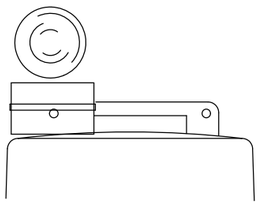
LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

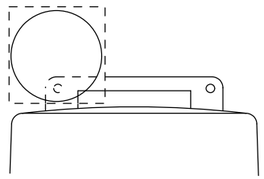
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

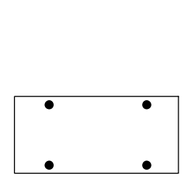
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

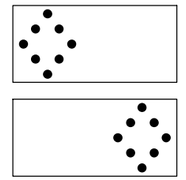
Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

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

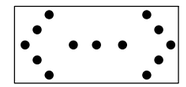


4 CORNER CAUTION

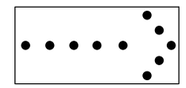
OR



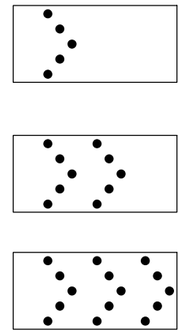
ALTERNATING DIAMOND CAUTION



DOUBLE ARROW



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



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

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

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

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

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

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120,ETC.	US 62,ETC
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	24	EL PASO		37

101

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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

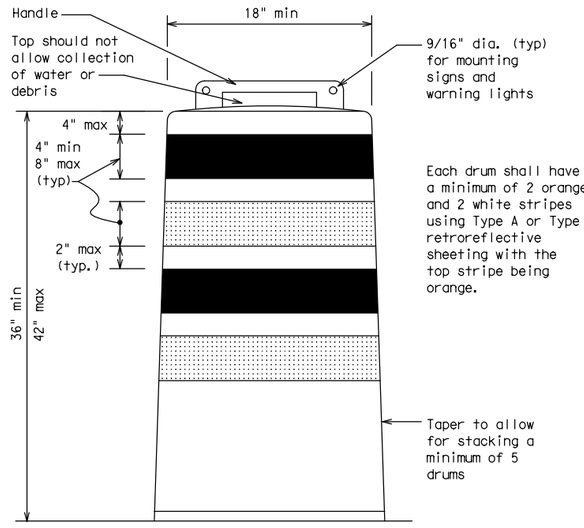
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

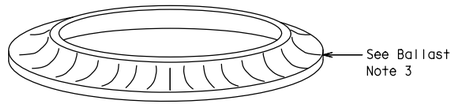
RETROREFLECTIVE SHEETING

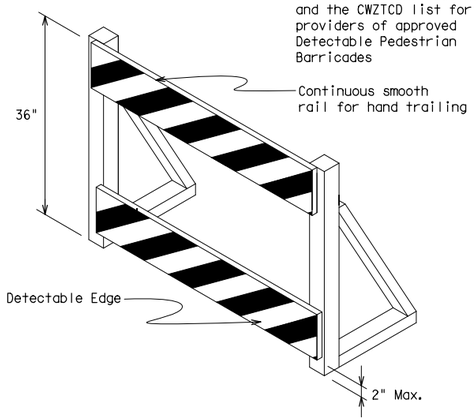
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

BALLAST

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

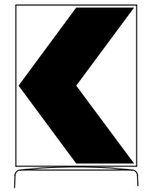




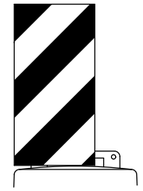


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

.

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120,ETC.	US 62,ETC
4-03 8-14	DIST	COUNTY		SHEET NO.
9-07 5-21	24	EL PASO		38
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102

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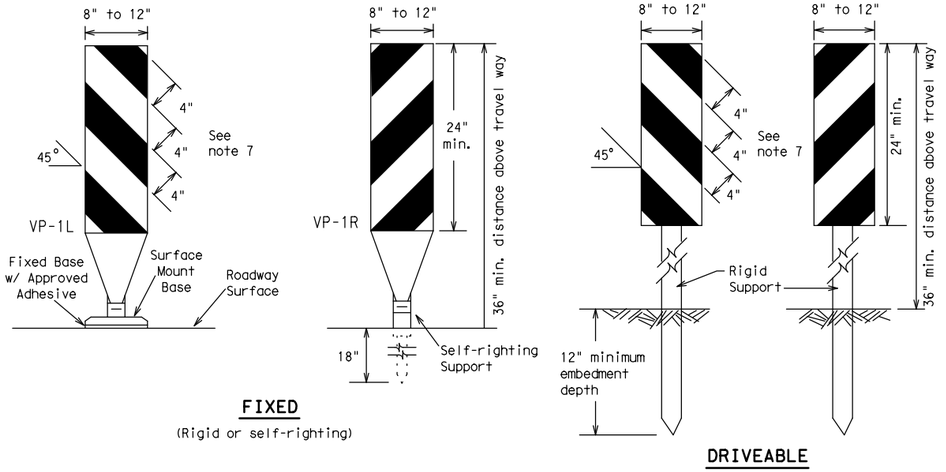
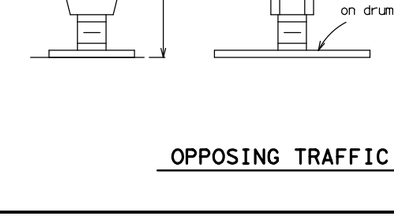


FIXED
(Rigid or self-righting)

DRIVEABLE

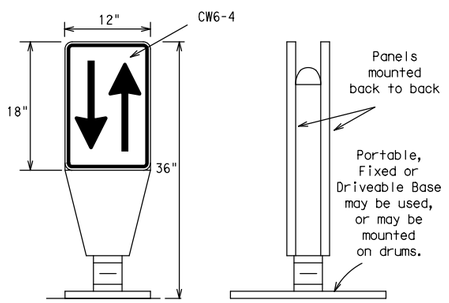


(Rigid or self-righting)

PORTABLE

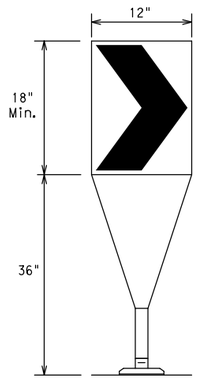
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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

VERTICAL PANELS (VPs)



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



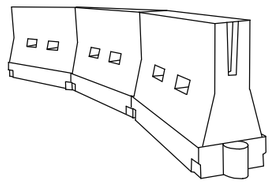
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

Posted Speed	Formula	Minimum Desirable Taper Lengths ✻✻			Suggested Maximum Spacing of Channelizing Devices	
		10′ Offset	11′ Offset	12′ Offset	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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7-13 5-21	24	EL PASO		39

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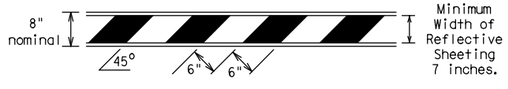
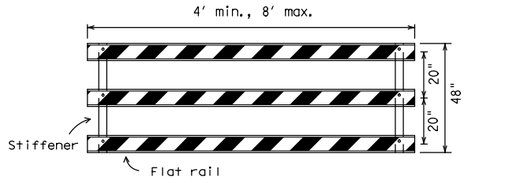
TYPE 3 BARRICADES

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.



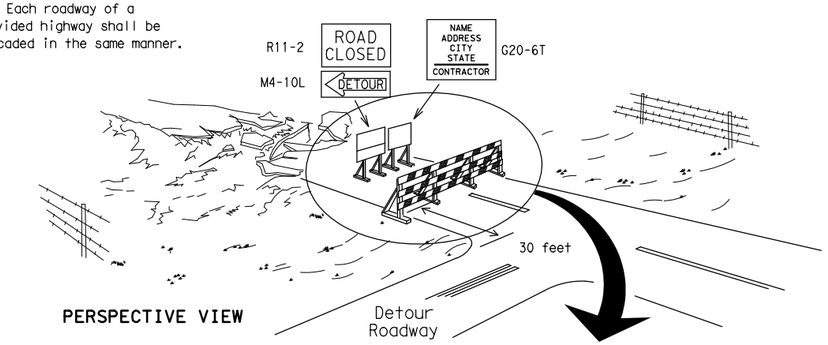
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

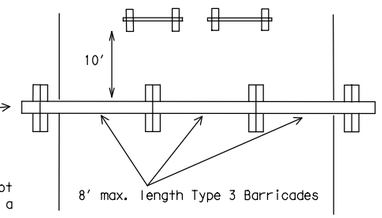
TYPICAL PANEL DETAIL
FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

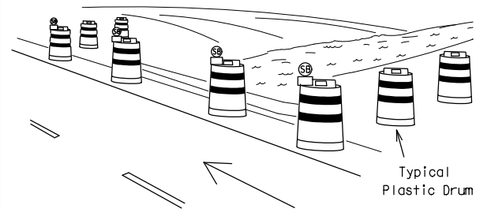
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

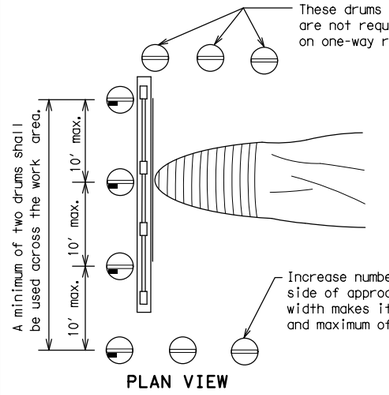
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

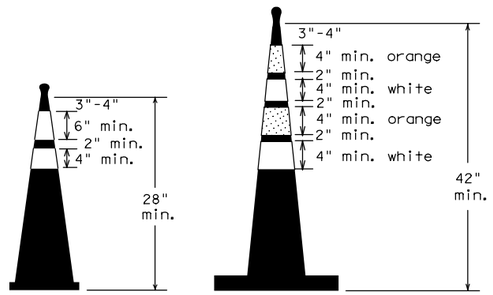
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder 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.



PLAN VIEW

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

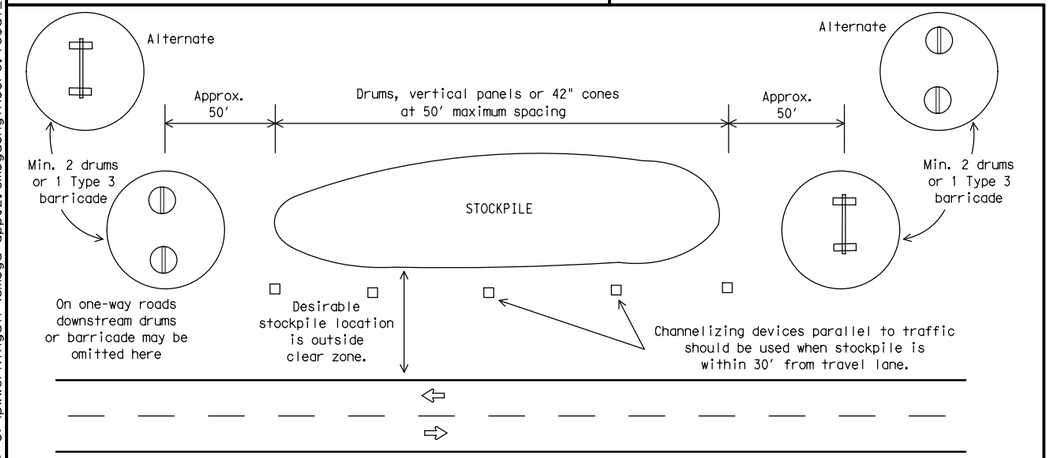
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



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

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

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers 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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REVISIONS	0374	02	120,ETC.	US 62,ETC
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7-13 5-21	24	EL PASO		40

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.

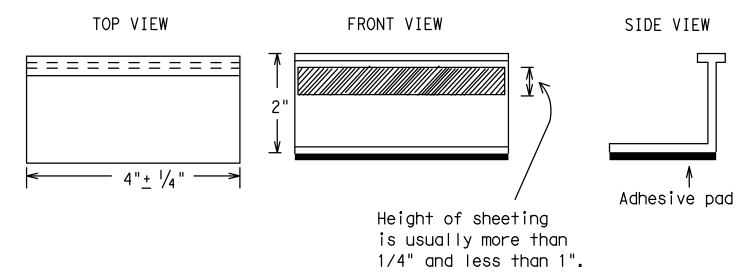
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-98 9-07 5-21 1-02 7-13 11-02 8-14	0374	02	120,ETC.	US 62,ETC
	DIST		COUNTY	SHEET NO.
	24		EL PASO	41

105

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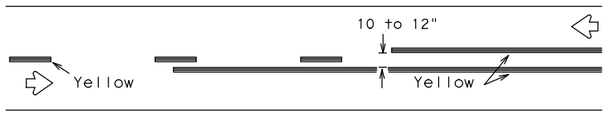
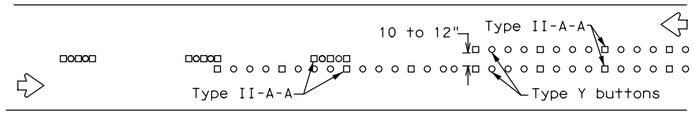
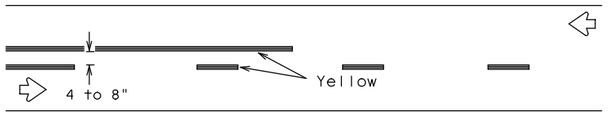
PAVEMENT MARKING PATTERNS



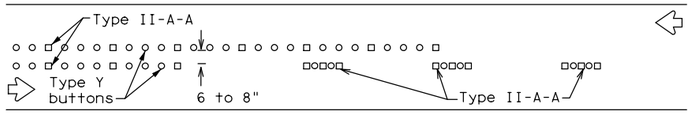
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



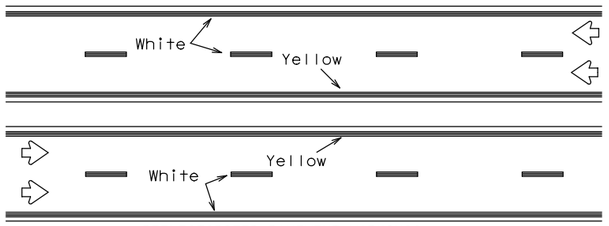
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



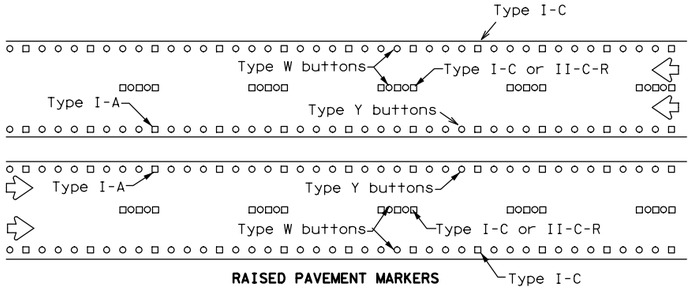
RAISED PAVEMENT MARKERS - PATTERN B

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

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



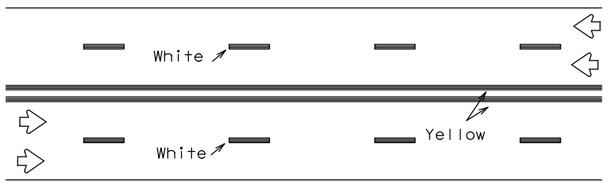
REFLECTORIZED PAVEMENT MARKINGS



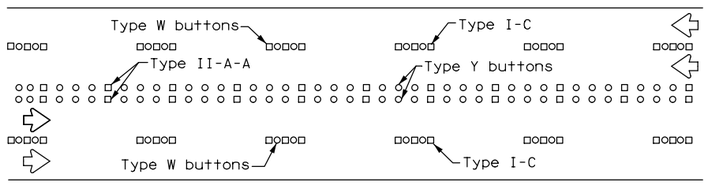
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



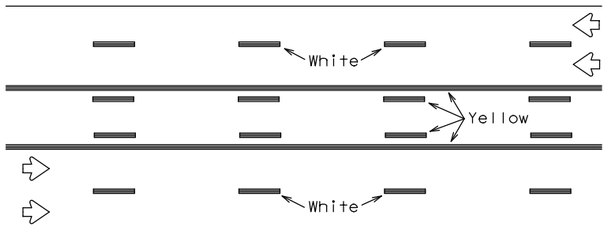
REFLECTORIZED PAVEMENT MARKINGS



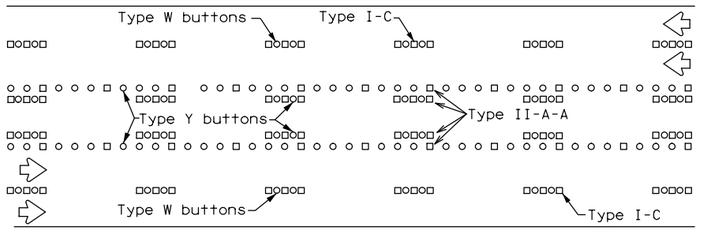
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

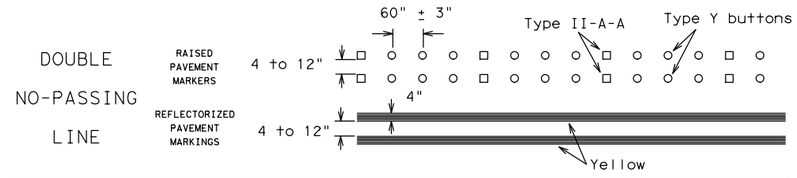
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

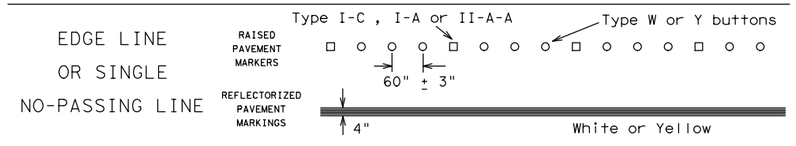
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

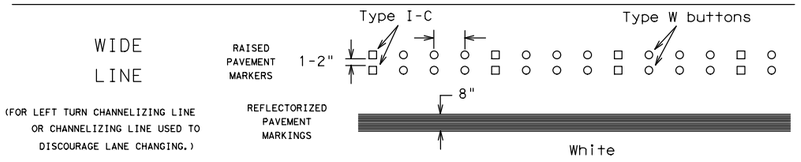


EDGE LINE OR SINGLE NO-PASSING LINE



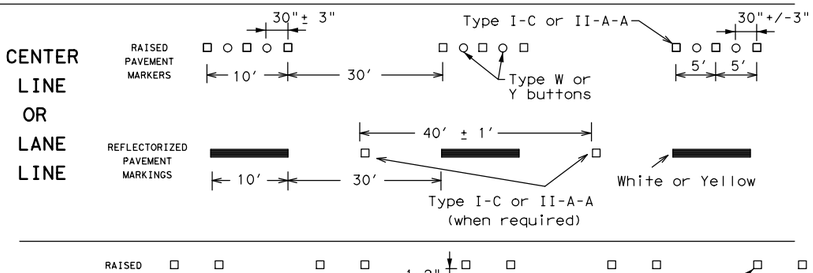
WIDE LINE

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

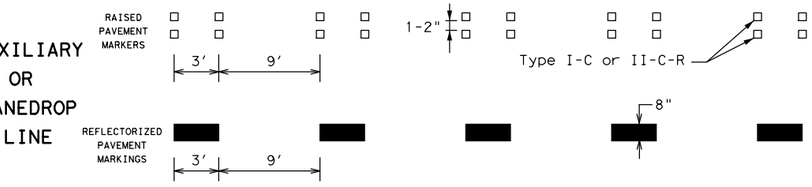


BROKEN LINES

CENTER LINE OR LANE LINE

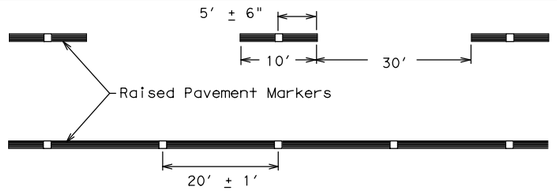


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0374	02	120,ETC.	US 62,ETC
	DIST	COUNTY		SHEET NO.
	24	EL PASO		42

106

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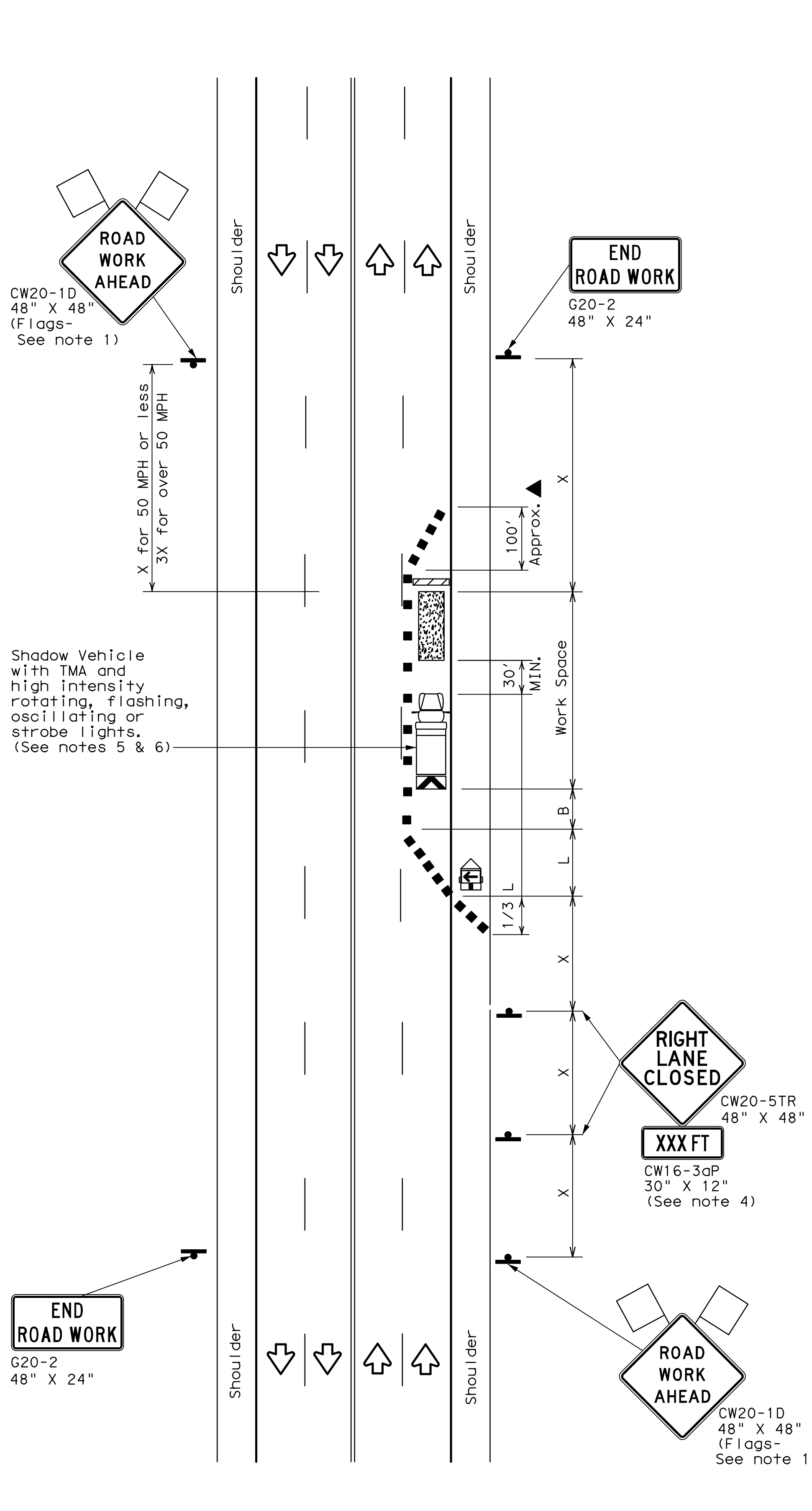
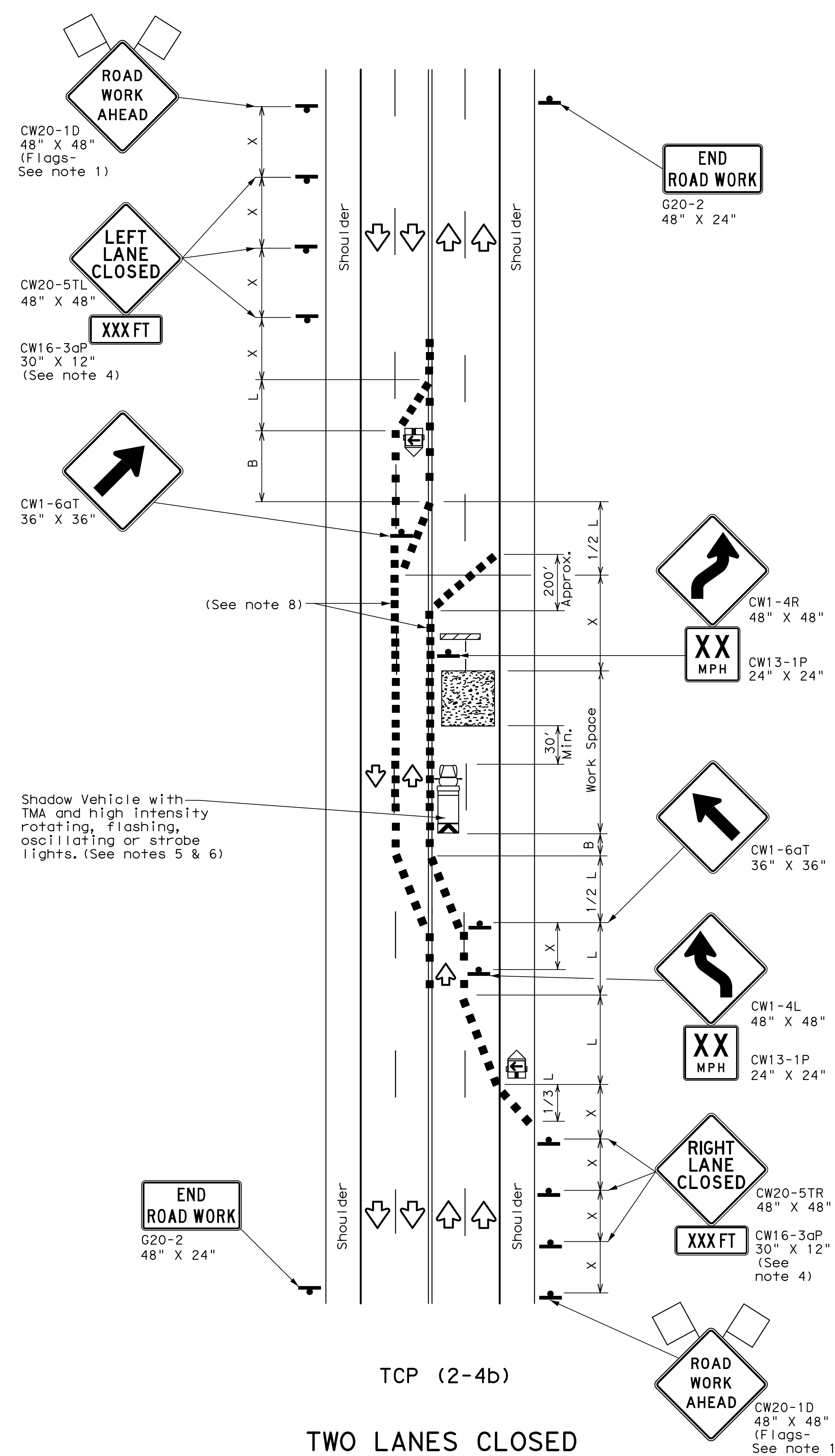


TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

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

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

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

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

GENERAL NOTES

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

TCP (2-4a)

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

TCP (2-4b)

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

FILE: 43	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0374	02	120,ETC.	US 62,ETC
1-97 2-12	DIST		COUNTY	SHEET NO.
4-98 2-18	24		EL PASO	43

164

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TCP (2-6a)

ONE LANE CLOSURE

TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS

TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

LEGEND

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

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

✱ Conventional Roads Only

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

TYPICAL USAGE

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
LANE CLOSURES ON
DIVIDED HIGHWAYS

TCP(2-6)-18

FILE: 44		DN:	CK:	DW:	CK:
©TxDOT	December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18		0374	02	120, ETC.	US 62, ETC
		DIST		COUNTY	SHEET NO.
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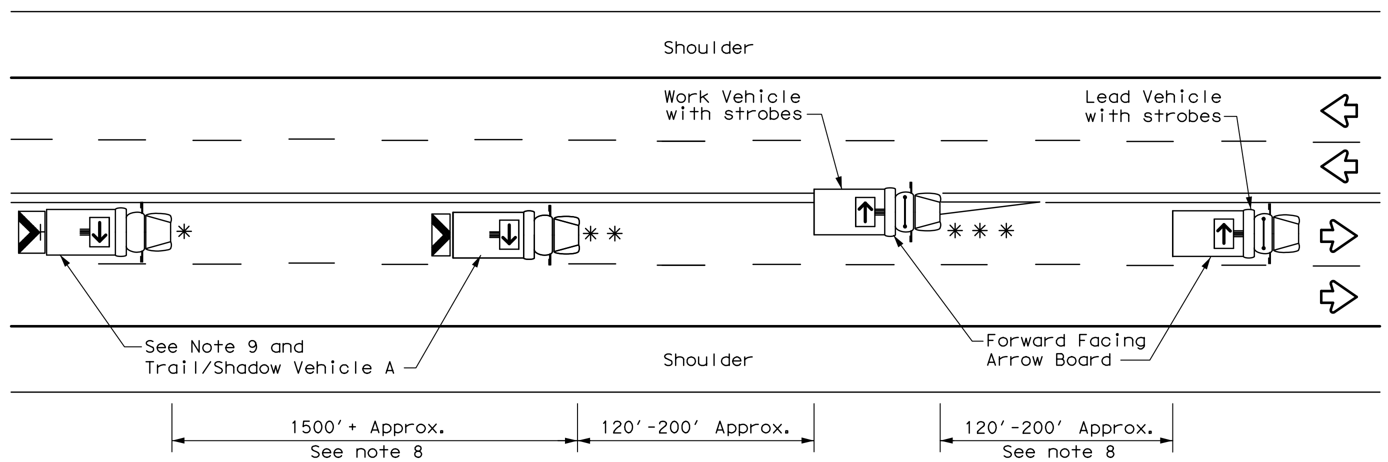
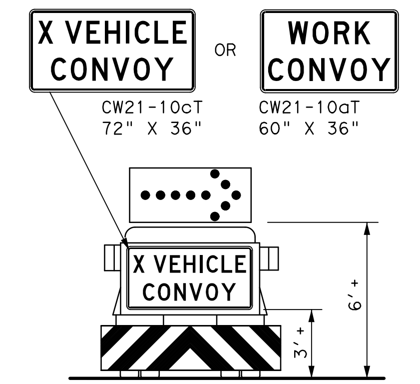
166



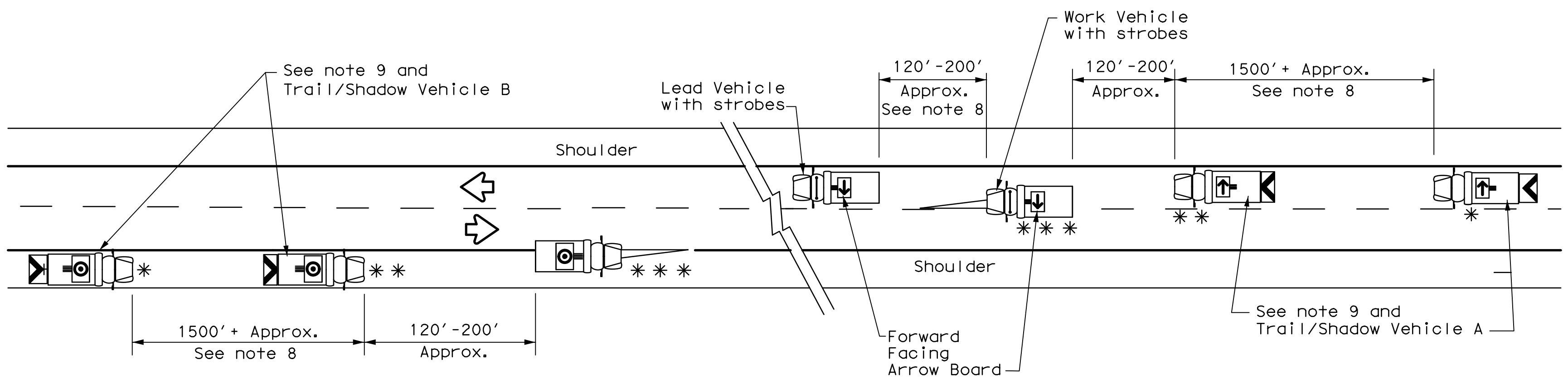
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

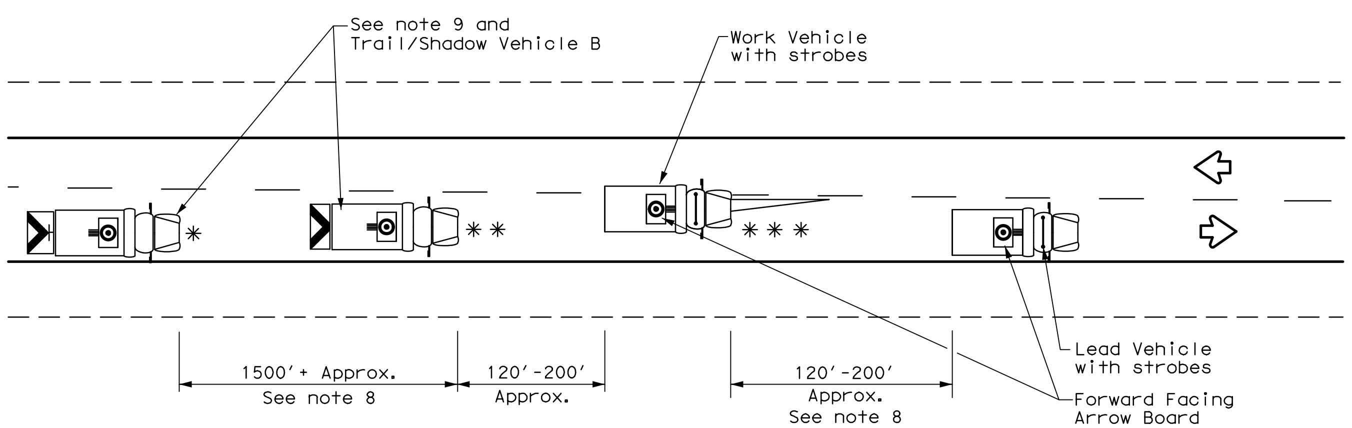


WORK ON SHOULDER

WORK ON TRAVEL LANE

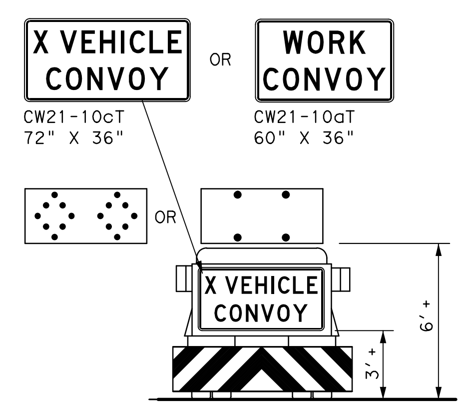
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board in CAUTION display

LEGEND

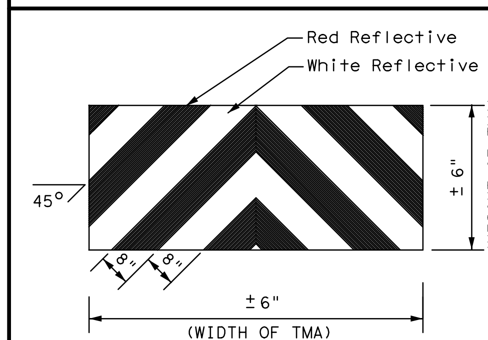
		ARROW BOARD DISPLAY	
*	Trail Vehicle		
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE

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

GENERAL NOTES

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



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

TCP(3-1)-13

FILE: tcp3-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	0374	02	120,ETC.	US 62,ETC
	DIST		COUNTY	SHEET NO.
	24		EL PASO	45

175

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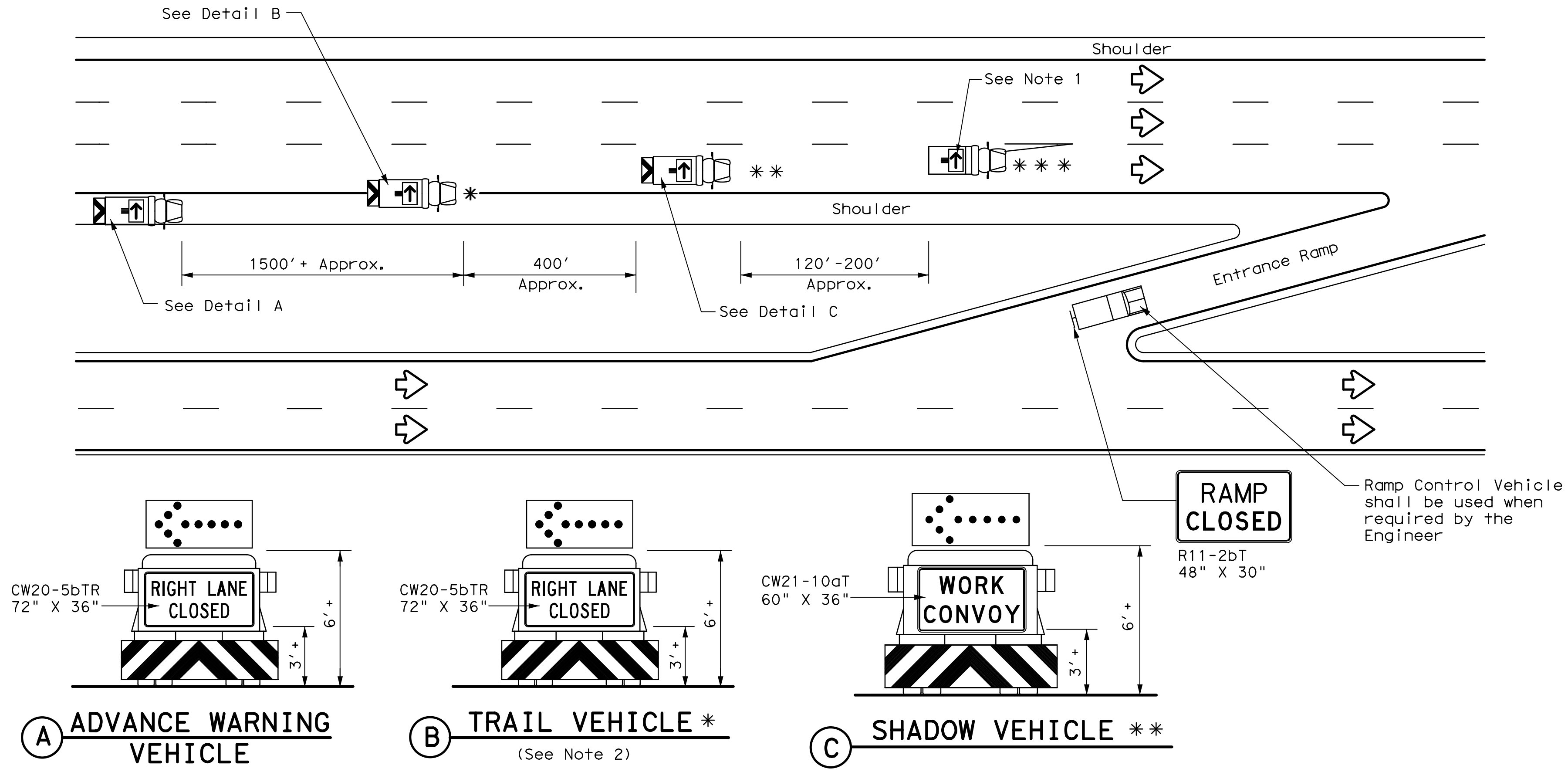
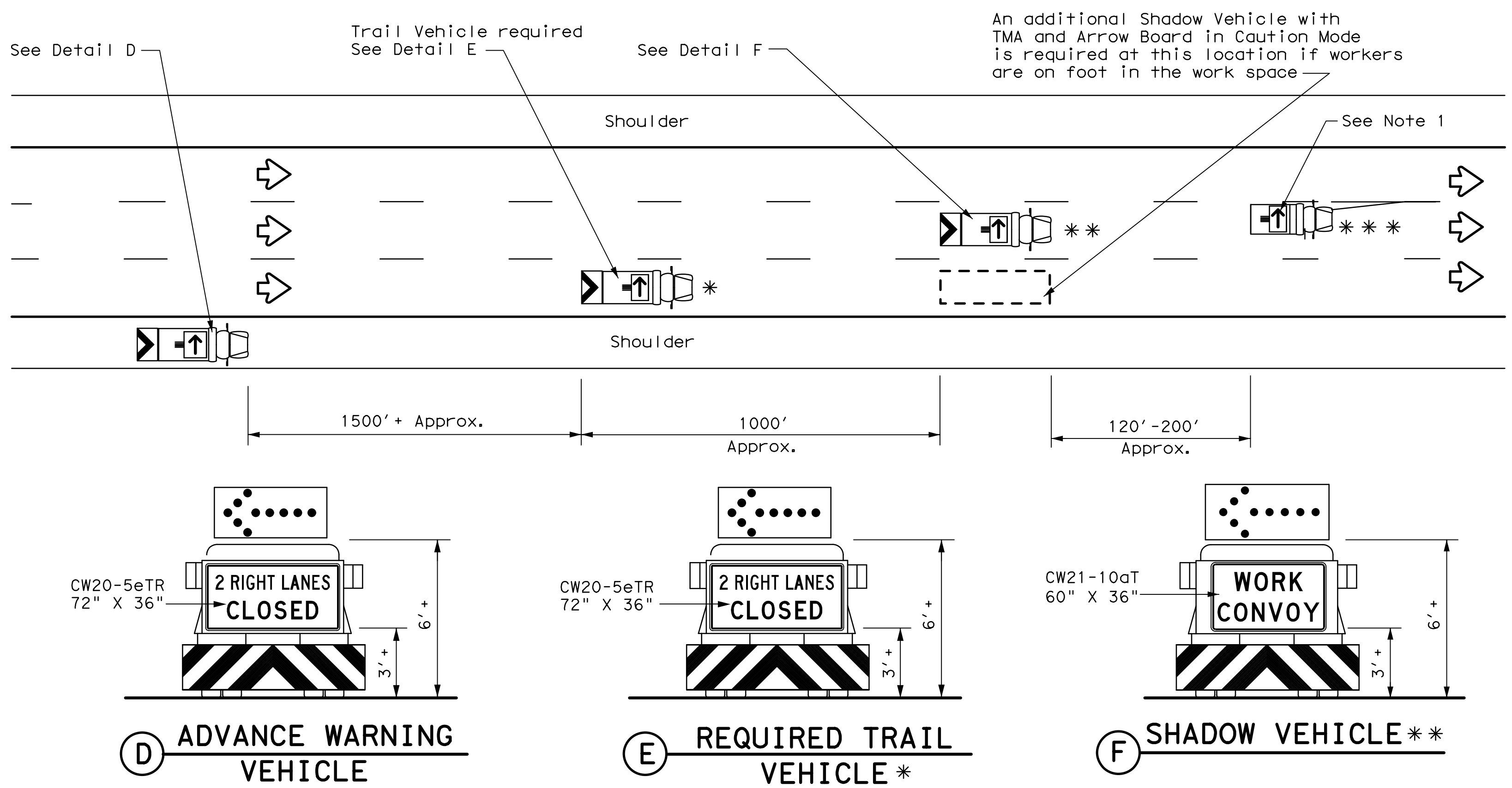


RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



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

LEGEND

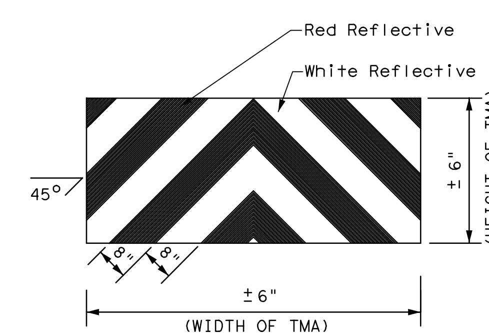
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE

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

GENERAL NOTES

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



STRIPING FOR TMA

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS

TCP(3-2)-13

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©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	0374	02	120, ETC.	US 62, ETC
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176

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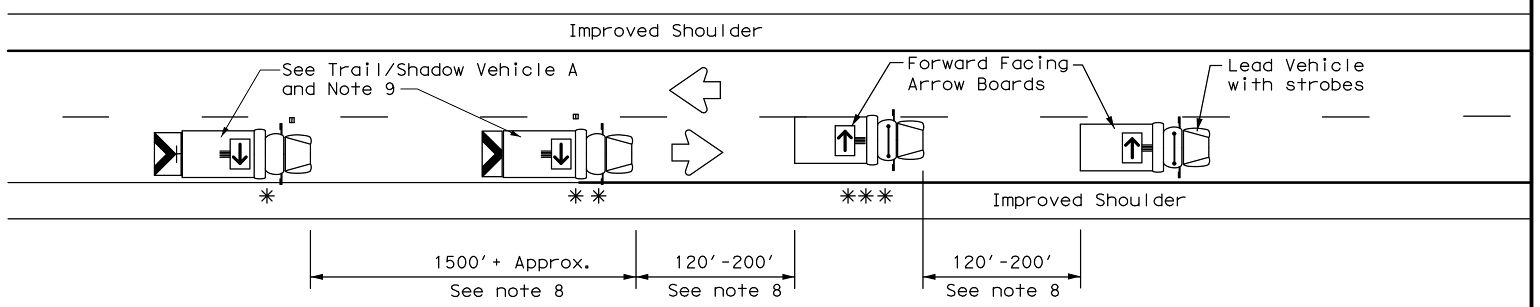
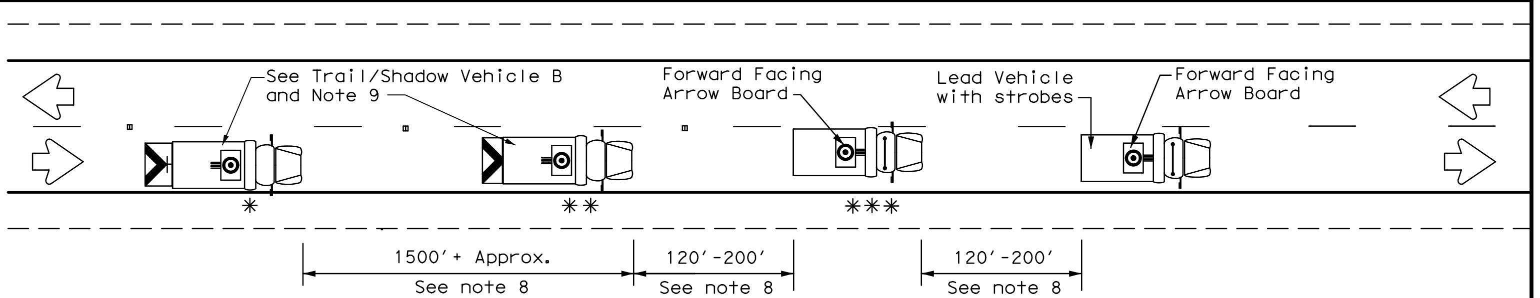


TCP (3-3a)

TWO LANE HIGHWAY WITH PAVED SHOULDERS

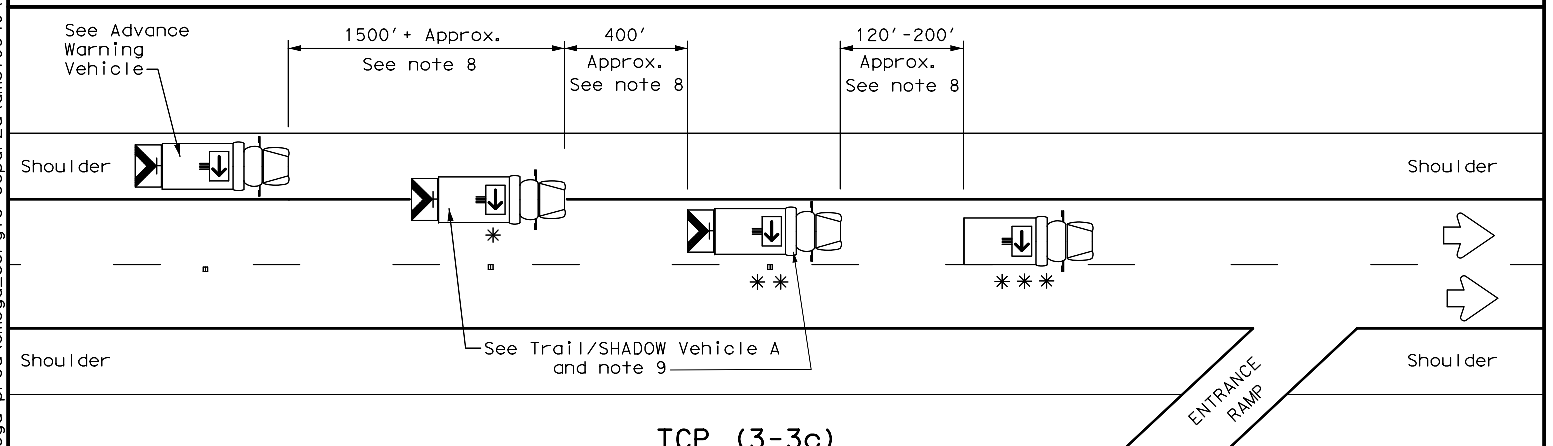
(WORK ON TRAVEL LANE)



TCP (3-3b)

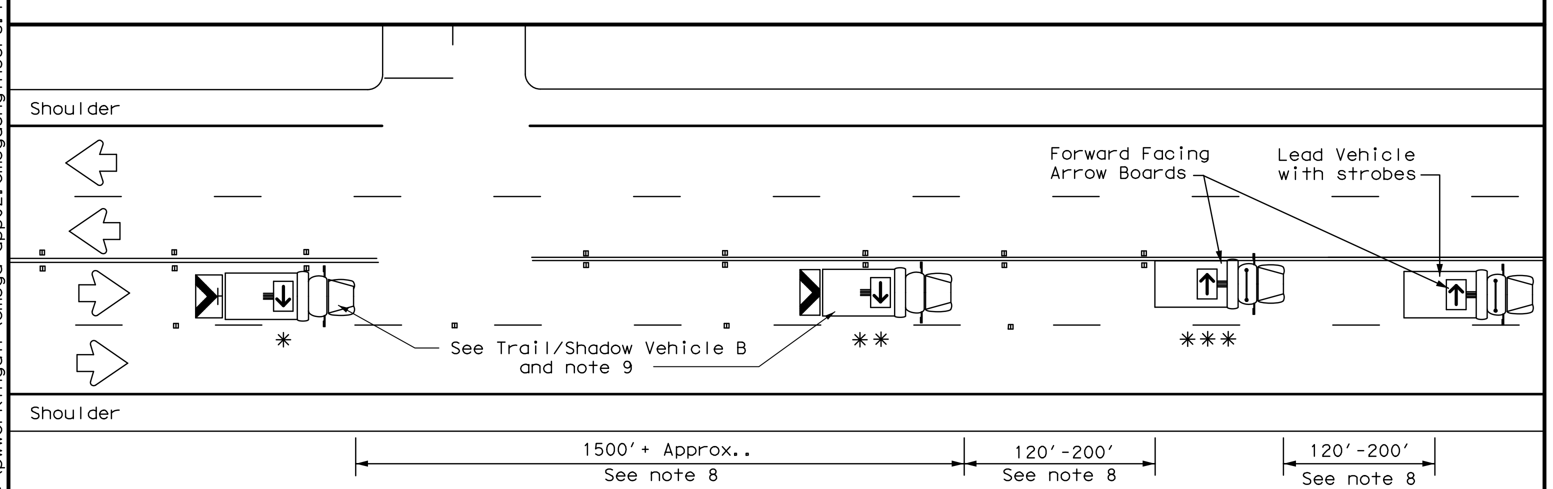
TWO LANE HIGHWAY WITHOUT PAVED SHOULDERS

(WORK ON TRAVEL LANE)



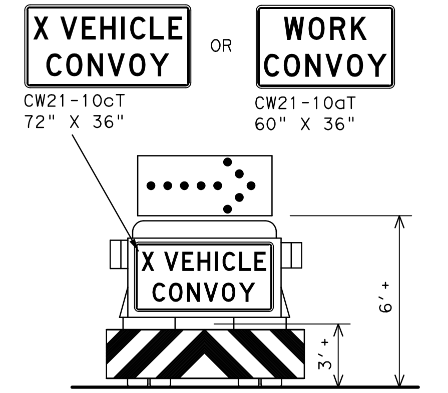
TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



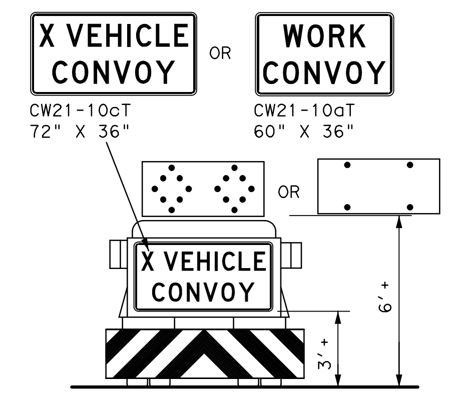
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



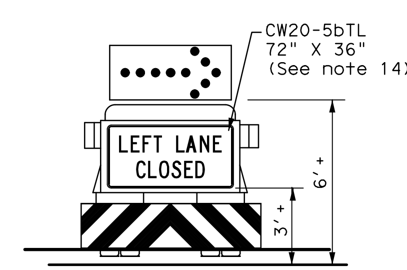
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

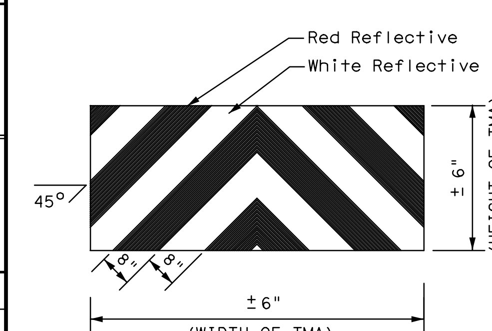


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

LEGEND

Symbol	Description	Symbol	ARROW BOARD DISPLAY
*	Trail Vehicle		
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		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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	24		EL PASO	47

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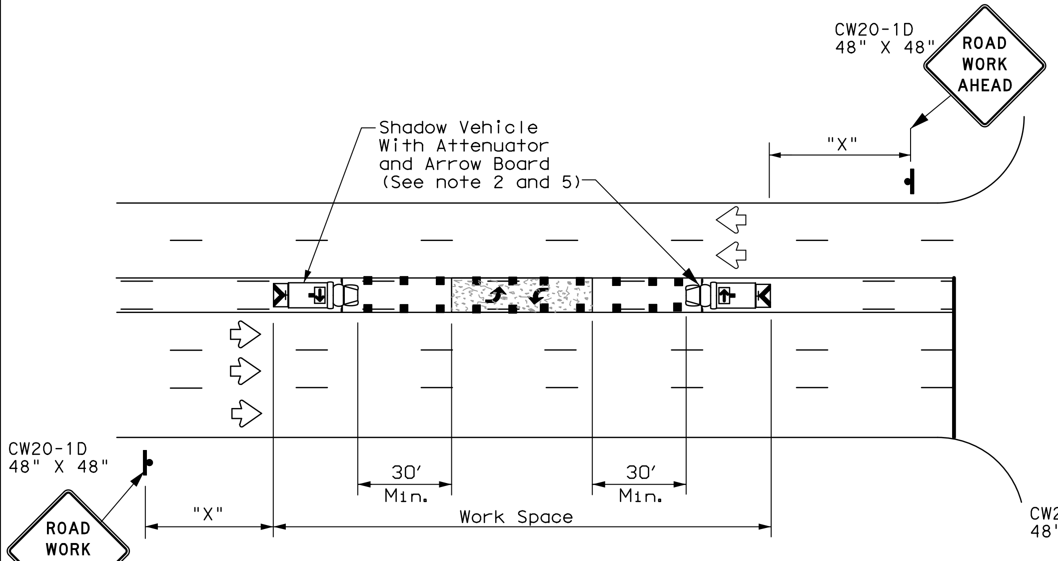
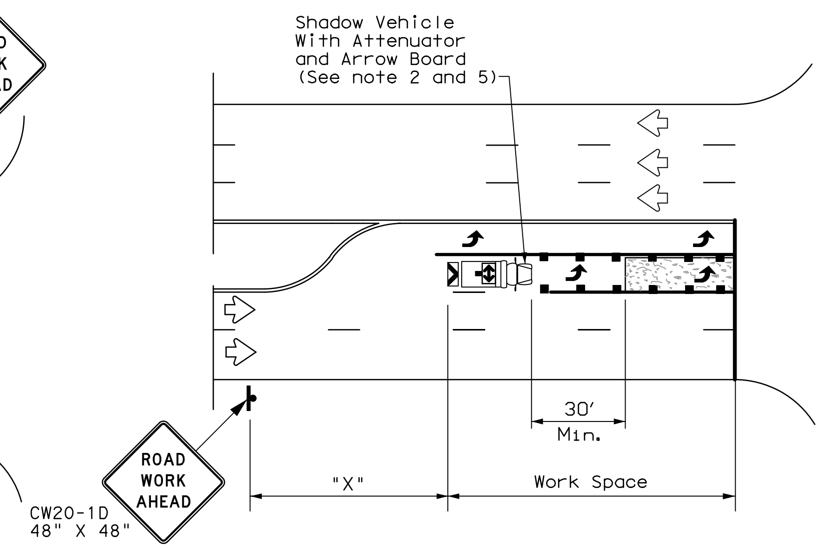
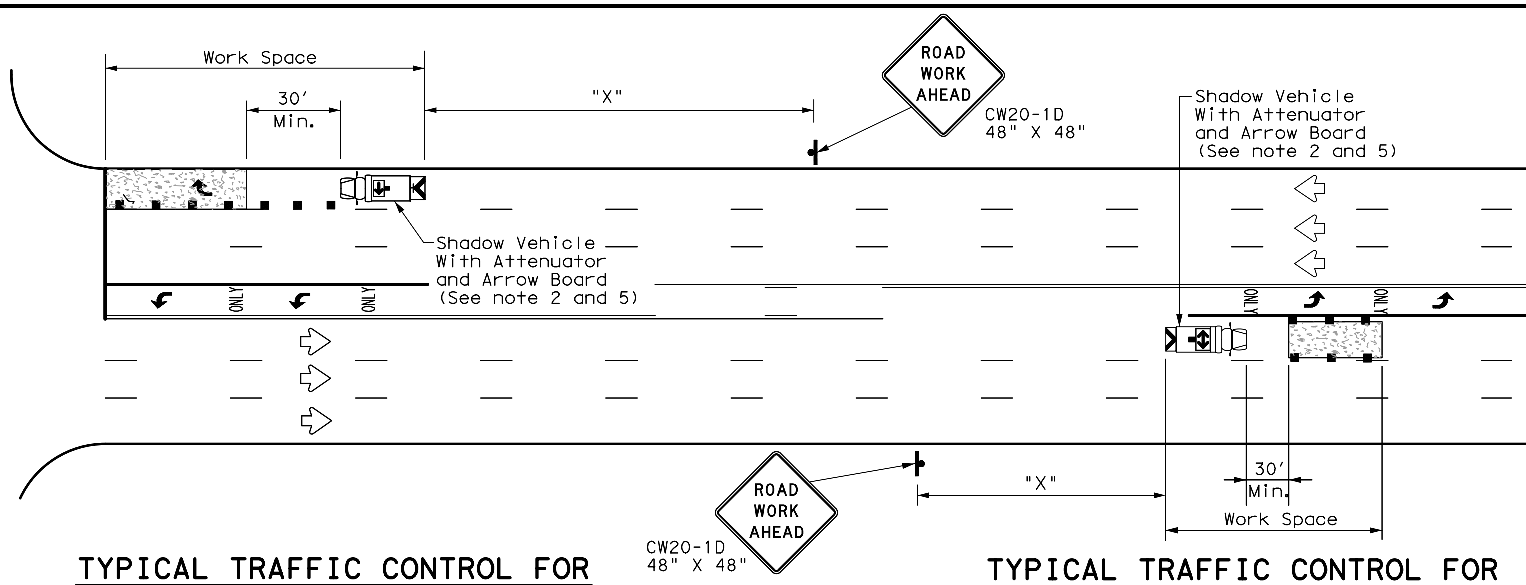


TYPICAL TRAFFIC CONTROL FOR
CONTINUOUS LEFT TURN LANE SYMBOL MARKINGS

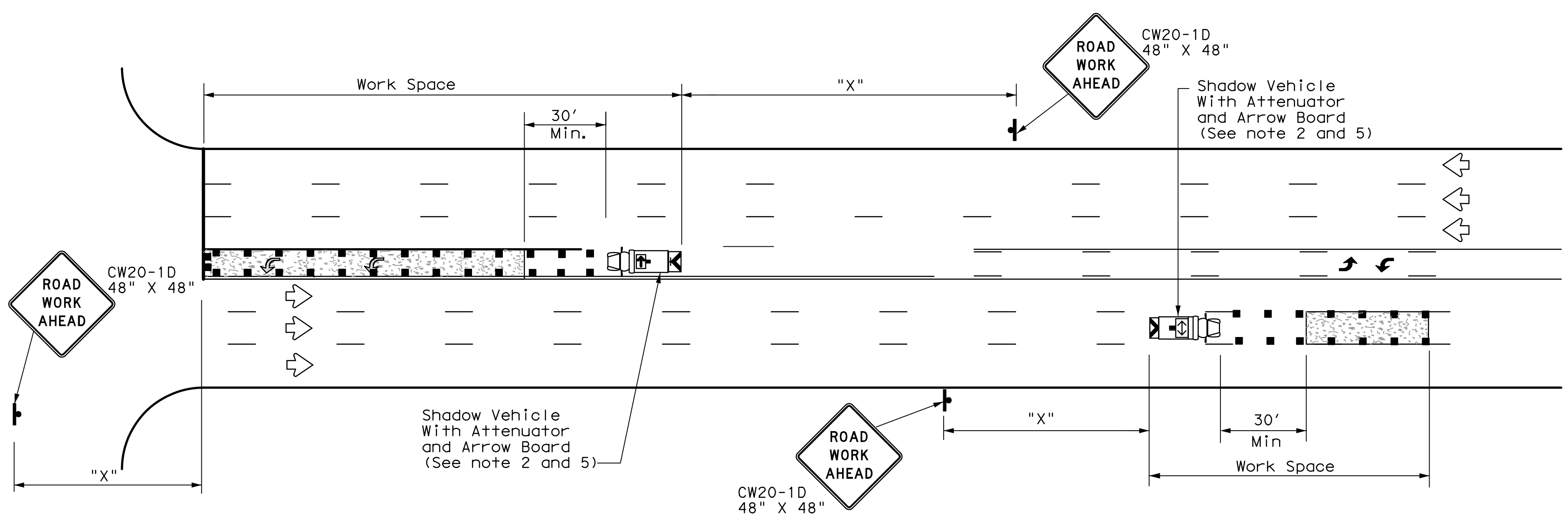


TYPICAL TRAFFIC CONTROL FOR
OUTSIDE DUAL LEFT TURN LANE SYMBOL MARKINGS



TYPICAL TRAFFIC CONTROL FOR
OUTSIDE LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR
INSIDE LANE MARKINGS



TYPICAL TRAFFIC CONTROL FOR
LEFT TURN LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR
CENTER LANE MARKINGS

LEGEND

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

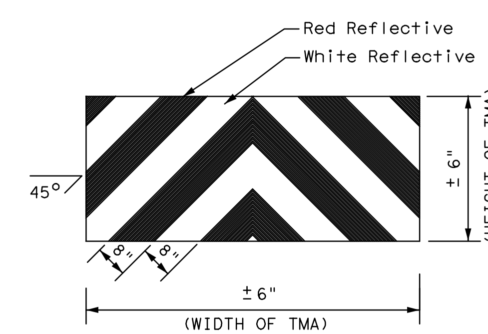
Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'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

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

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

GENERAL NOTES

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



STRIPING FOR TMA

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS FOR ISOLATED WORK AREAS UNDIVIDED HIGHWAYS

TCP(3-4)-13

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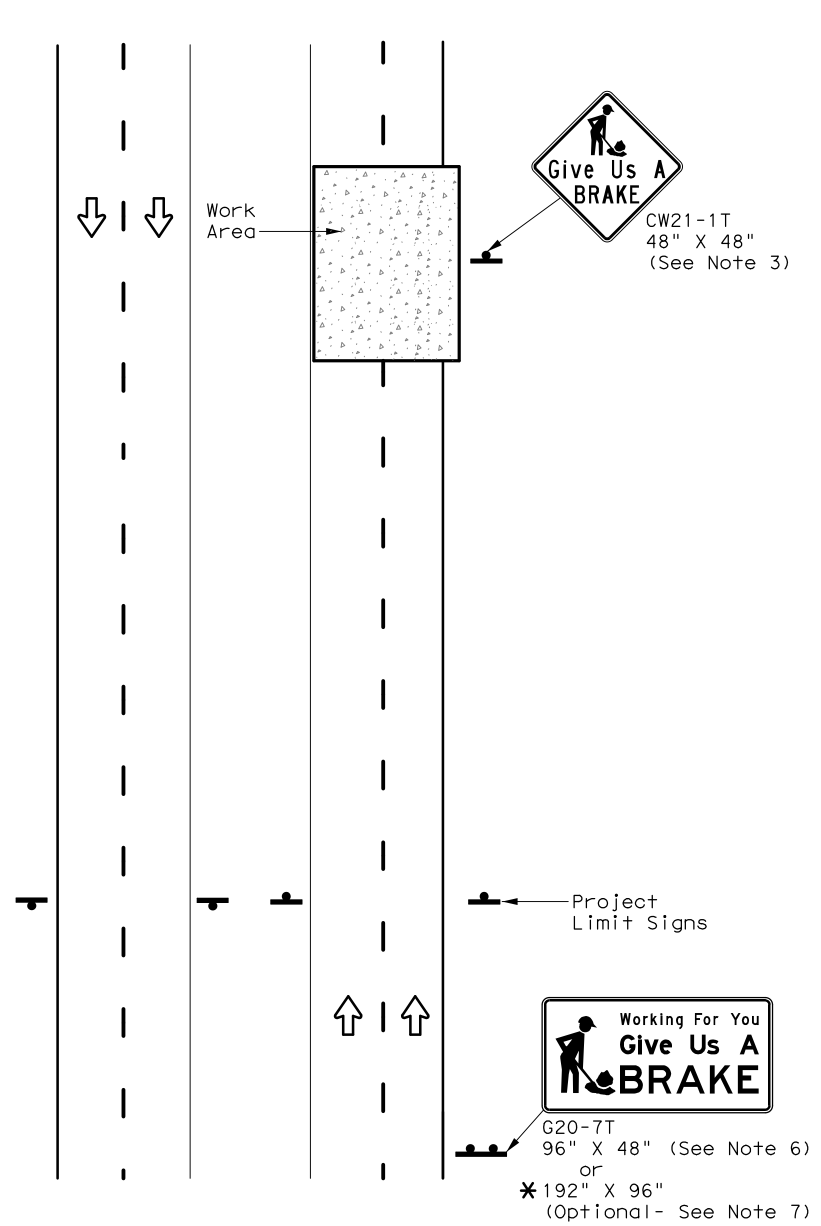
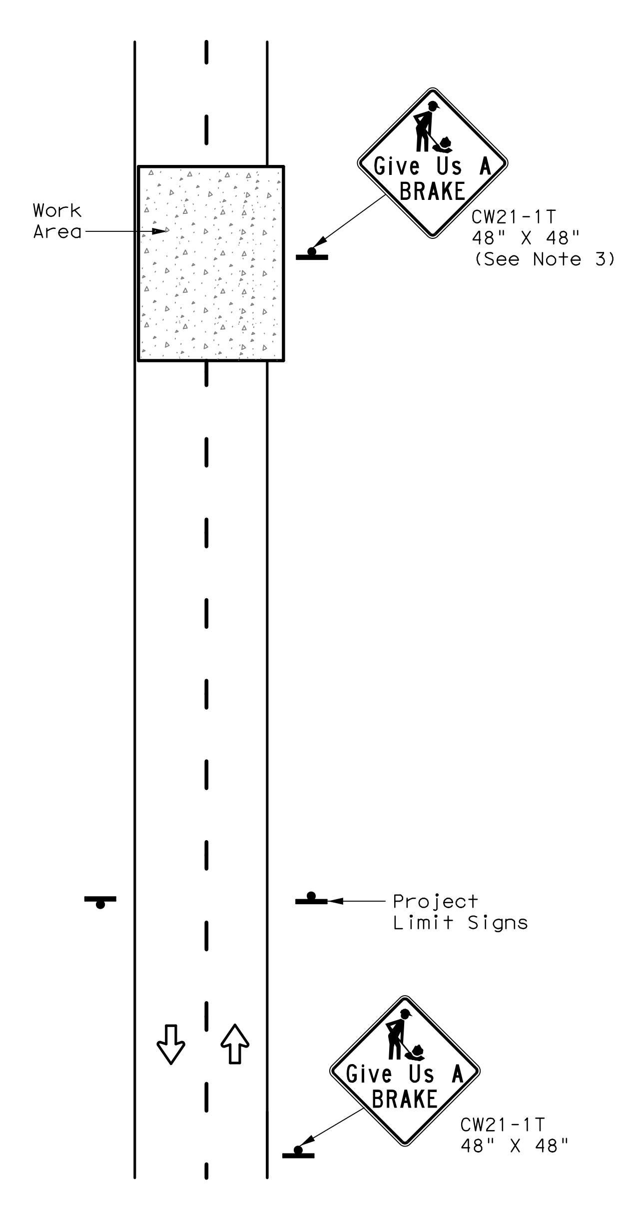
©TxDOT July, 2013	CONT 0374	SECT 02	JOB 120, ETC.	HIGHWAY US 62, ETC
REVISIONS	DIST 24		COUNTY EL PASO	SHEET NO. 48

178



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 Size	(LF) ①	(LF) ②	DRILLED SHAFT 24" DIA. (LF)
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

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©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
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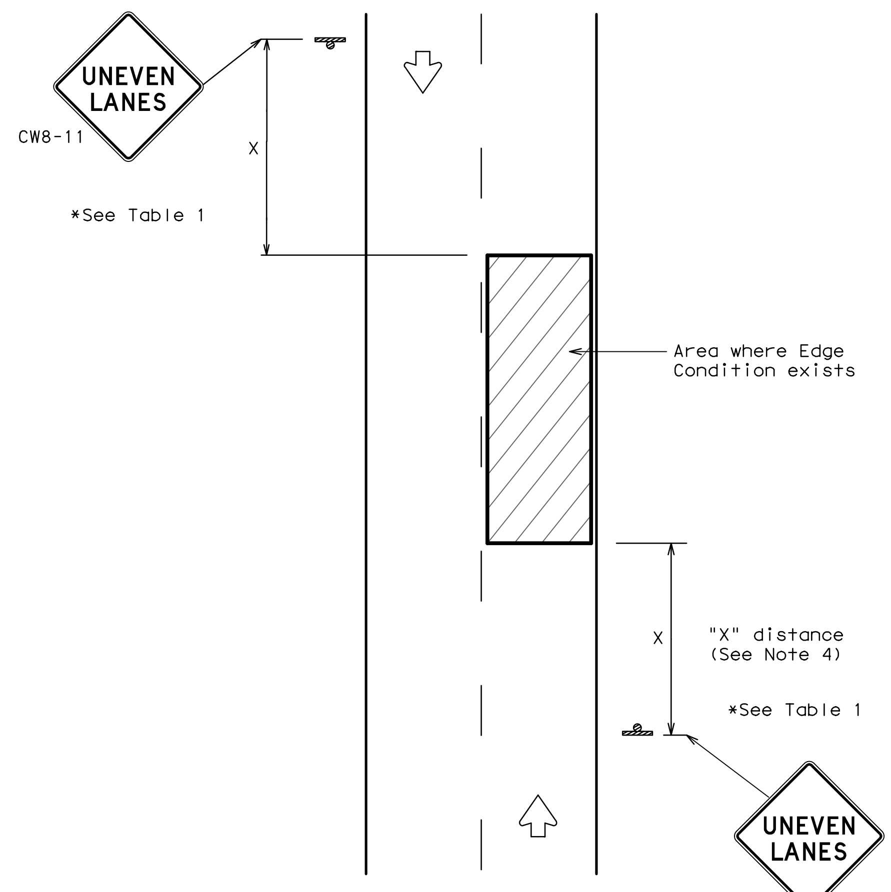
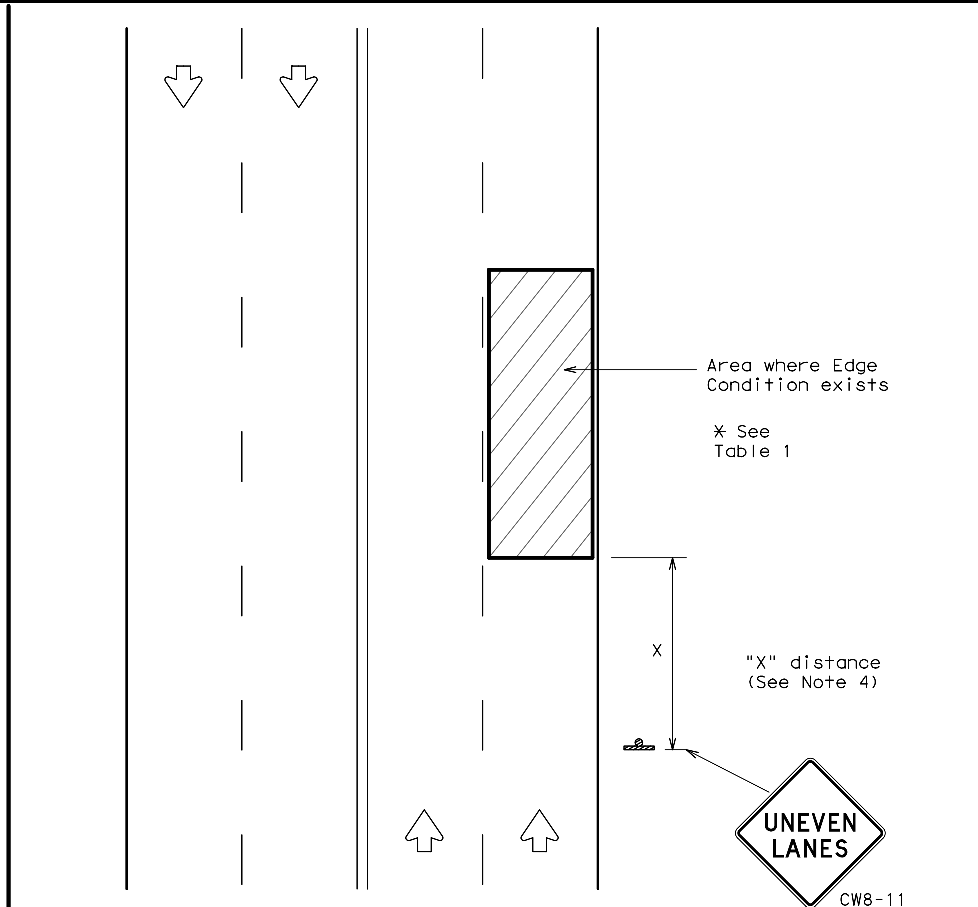
6-96 5-98 7-13 / 8-96 3-03	DIST 24		COUNTY EL PASO	SHEET NO. 49

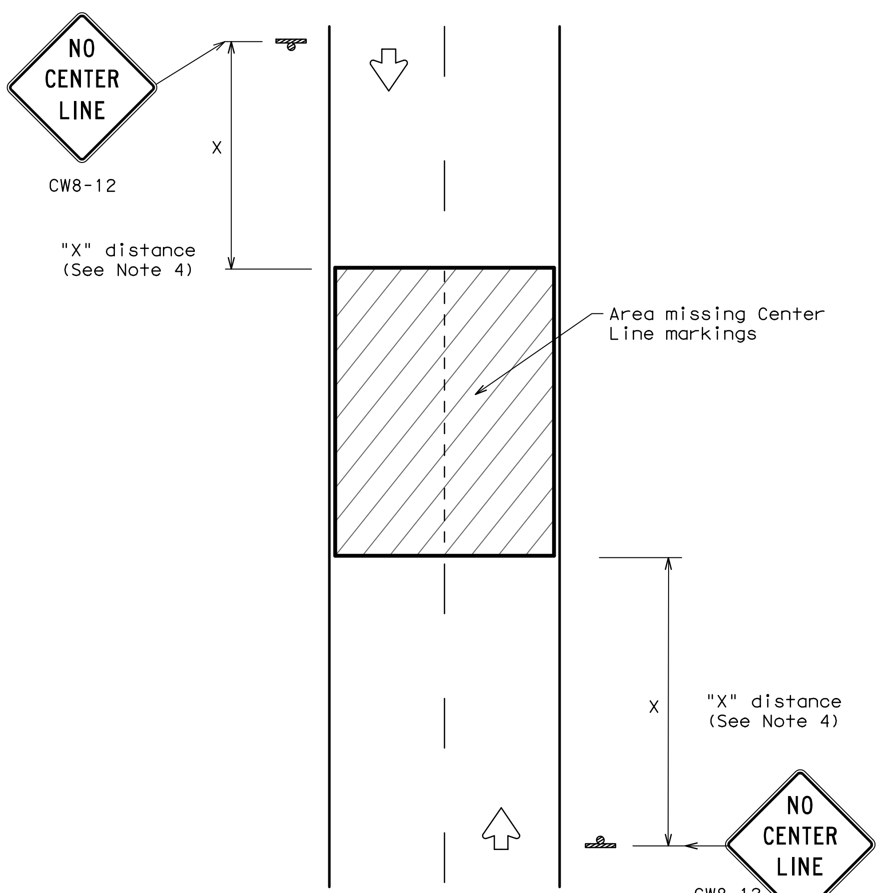
116



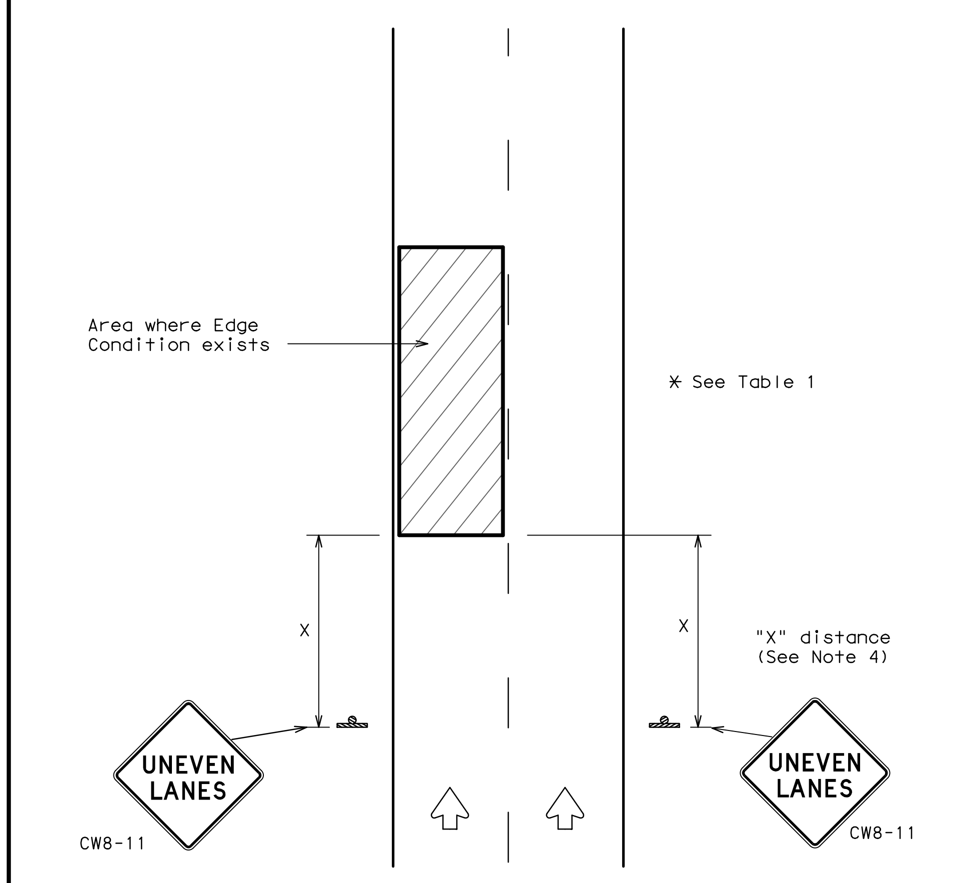
UNEVEN LANES
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
FOUR LANE CONVENTIONAL ROAD



NO CENTER LINE
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
DIVIDED ROADWAY

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

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

GENERAL NOTES

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

TABLE 1

Edge Condition	Edge Height (D)	* Warning Devices
① (D)	Less than or equal to: 1¼" (maximum-planing) 1½" (typical-overlay)	Sign: CW8-11
	Distance "D" may be a maximum of 1 1/4 " for planing operations and 2" for overlay operations if uneven lanes with edge condition 1 are open to traffic after work operations cease.	
② (>3, 1, D)	Less than or equal to 3"	Sign: CW8-11
③ (0" to 3/4", D, 12") Notched Wedge Joint	Distance "D" may be a maximum of 3" if uneven lanes with edge condition 2 or 3 are open to traffic after work operations cease. Uneven lanes should not be open to traffic when "D" is greater than 3".	

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

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

Texas Department of Transportation — Traffic Operations Division Standard

SIGNING FOR UNEVEN LANES

WZ(UL)-13

FILE: wzul-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
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8-95 2-98 7-13	DIST		COUNTY	SHEET NO.
1-97 3-03	24		EL PASO	50

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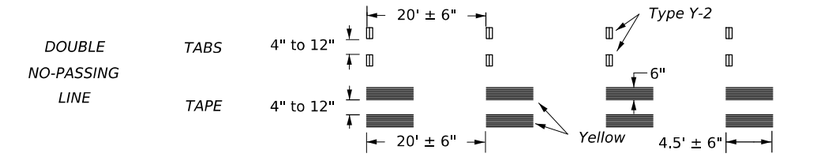
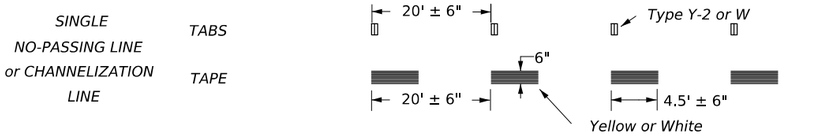
WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

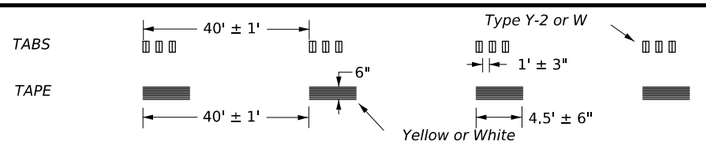


SINGLE NO-PASSING LINE or CHANNELIZATION LINE



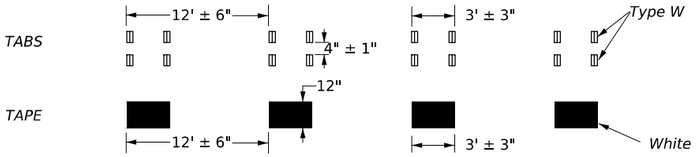
BROKEN LINES

(FOR CENTER LINE OR LANE LINE)

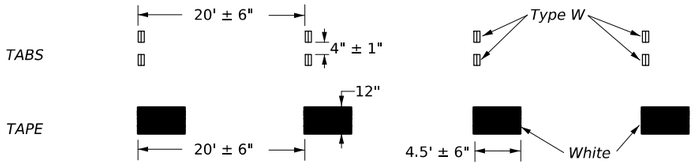


WIDE DOTTED LINES

(FOR LANE DROP LINES)



WIDE GORE MARKINGS



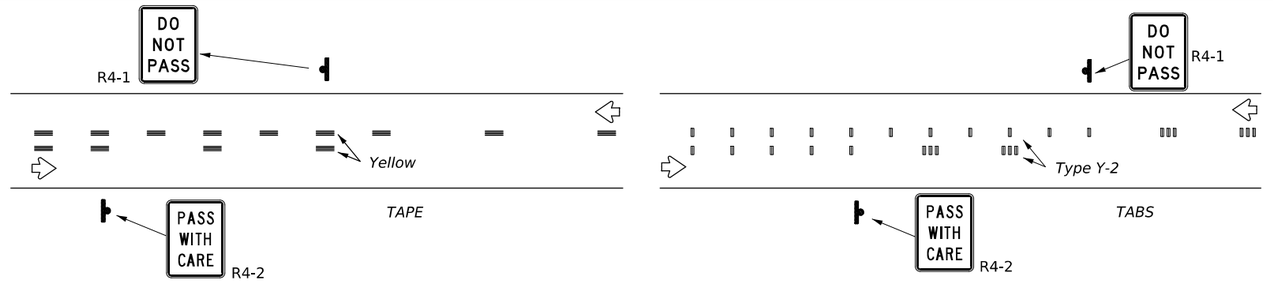
NOTES:

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.

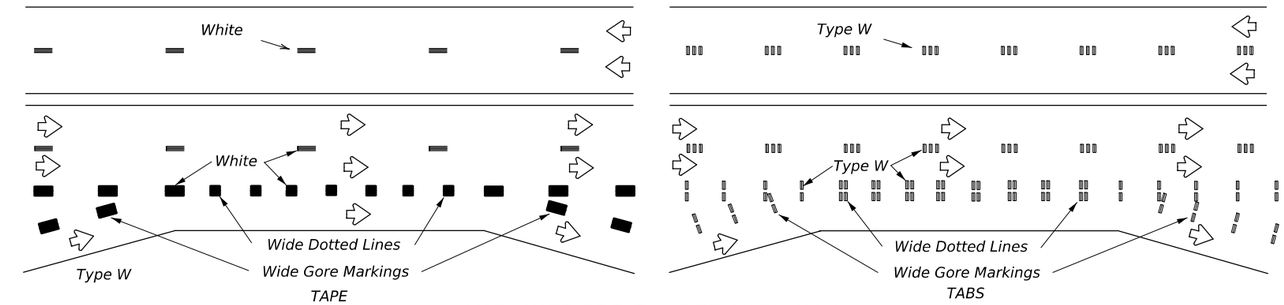
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

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.

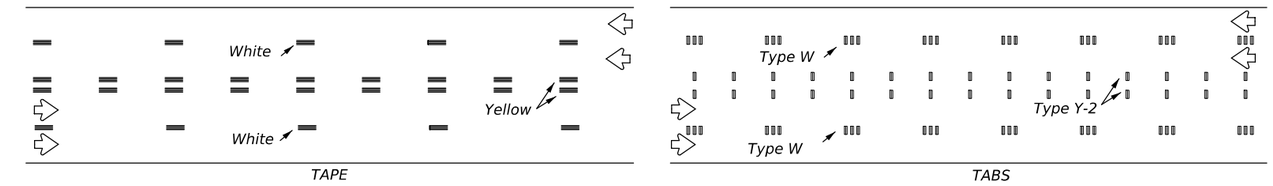
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



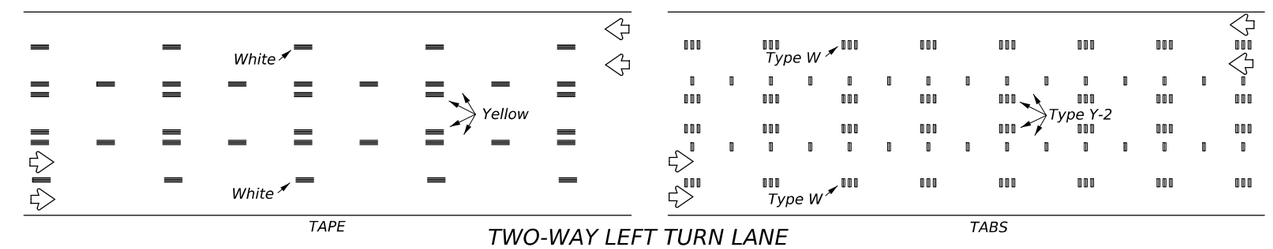
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



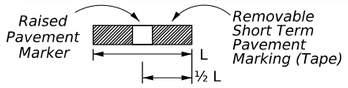
LANE LINES FOR DIVIDED HIGHWAY



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 Safety Division Standard

WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ(STPM)-23

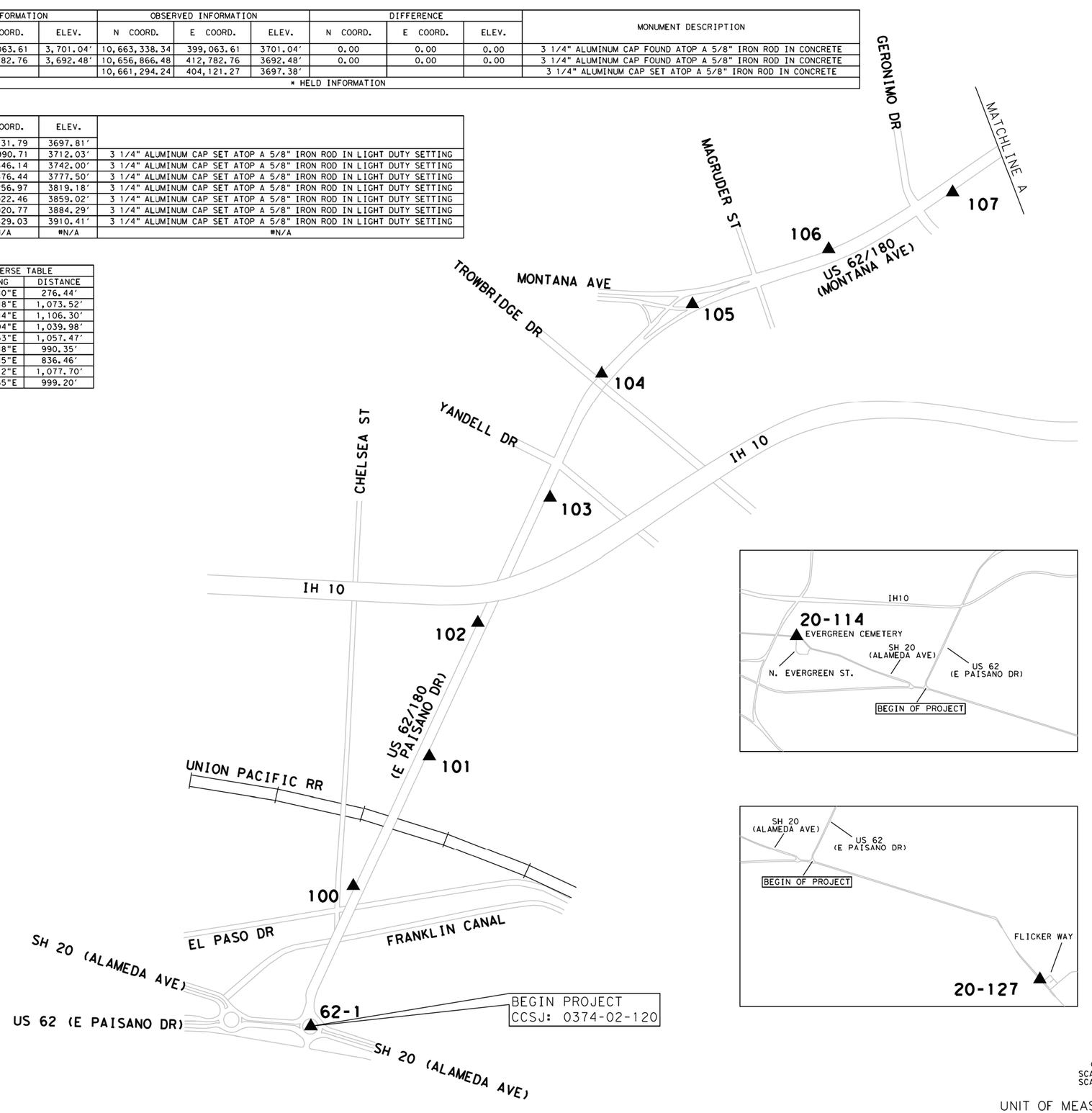
FILE: wzstpm-23.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120,ETC.	US 62,ETC
4-92 7-13	DIST	COUNTY		SHEET NO.
1-97 2-23	24	EL PASO		51
3-03				

111

PRIMARY CONTROL POINT NAME	PUBLISHED INFORMATION			OBSERVED INFORMATION			DIFFERENCE			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	N COORD.	E COORD.	ELEV.	N COORD.	E COORD.	ELEV.	
20-114	10,663,338.34	399,063.61	3,701.04′	10,663,338.34	399,063.61	3701.04′	0.00	0.00	0.00	3 1/4" ALUMINUM CAP FOUND ATOP A 5/8" IRON ROD IN CONCRETE
20-127	10,656,866.48	412,782.76	3,692.48′	10,656,866.48	412,782.76	3692.48′	0.00	0.00	0.00	3 1/4" ALUMINUM CAP FOUND ATOP A 5/8" IRON ROD IN CONCRETE
62-1				10,661,294.24	404,121.27	3697.38′				3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN CONCRETE
* HELD INFORMATION										

	N COORD.	E COORD.	ELEV.	
	10,662,321.87	404,431.79	3697.81′	
101	10,663,276.60	404,990.71	3712.03′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
102	10,664,253.96	405,346.14	3742.00′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
103	10,665,168.85	405,876.44	3777.50′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
104	10,666,083.17	406,256.97	3819.18′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
105	10,666,589.91	406,922.46	3859.02′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
106	10,666,995.89	407,920.77	3884.29′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
107	10,667,412.39	408,829.03	3910.41′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
	#N/A	#N/A	#N/A	#N/A

SURVEY CONTROL MONUMENT INVERSE TABLE			
FROM	TO	BEARING	DISTANCE
20-119	62-1	S75°26′40"E	276.44′
62-1	100	N16°48′48"E	1,073.52′
100	101	N30°20′44"E	1,106.30′
101	102	N19°59′04"E	1,039.98′
102	103	N30°05′53"E	1,057.47′
103	104	N22°35′48"E	990.35′
104	105	N52°42′45"E	836.46′
105	106	N67°52′12"E	1,077.70′
106	107	N65°21′55"E	999.20′



LEGEND

▲ SURVEY CONTROL MONUMENT

NOTES:

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2. TXDOT MONUMENTS 20-114 AND 20-127 WERE HELD FOR HORIZONTAL CONTROL, AS PUBLISHED. HORIZONTAL SURVEY METHOD: STATIC AND RTK GPS.

3. ALL ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), USING GEOID 12A.

4. TXDOT MONUMENTS 20-114, 20-119, AND 20-127 WERE HELD FOR VERTICAL CONTROL, AS PUBLISHED. VERTICAL SURVEY METHOD: DIGITAL LEVEL.

5. SURVEY CONTROL MEETS THE SPECIFICATIONS FOR TXDOT SURVEY LEVEL 2 AND 3 GPS SURVEYS.

STATE OF TEXAS
REGISTERED
ROBERT M ANGUIANO
6347
PROFESSIONAL
LAND SURVEYOR

09/14/2022

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THE SURVEY CONTROL INFORMATION HAS BEEN ACCEPTED AND INCORPORATED INTO THIS PS&E.

GRAPHIC SCALE

0′ 200′ 400′ 800′

SCALE: 1"=400′ (22" x 34")
SCALE: 1"=800′ (11" x 17")

UNIT OF MEASUREMENT: U.S. SURVEY FEET

Texas Department of Transportation

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CONSULTING ENGINEERS
CIVIL • ENVIRONMENTAL • SURVEY
12940 Country Parkway
San Antonio, TX 78216
Telephone: (210) 349-3271
TBPELS #10004100

US 62/180
SURVEY CONTROL INDEX SHEET

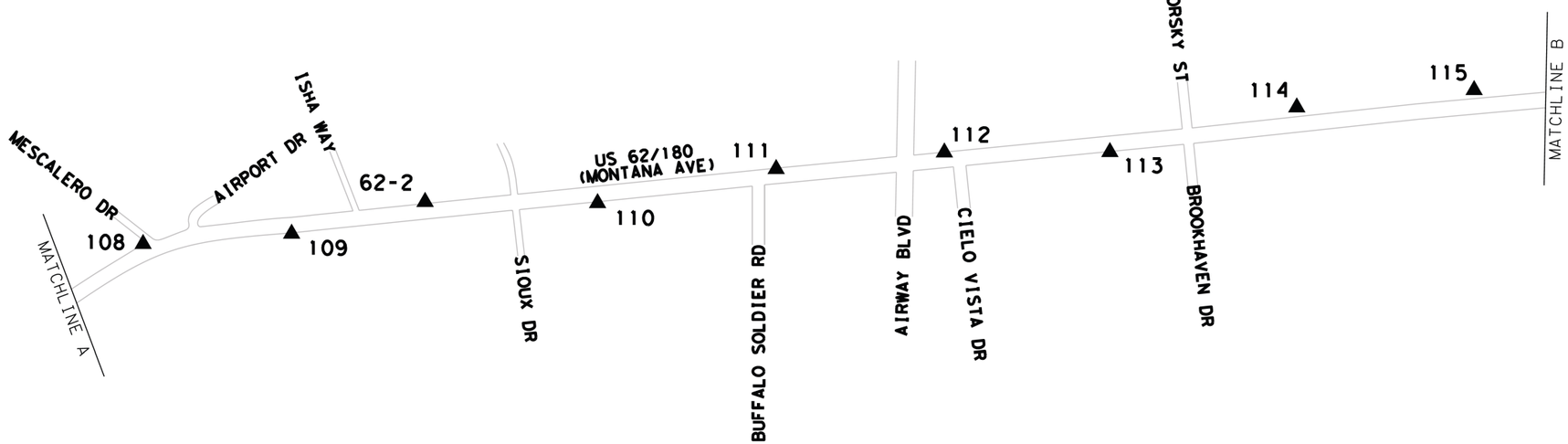
PAGE 1 OF 4

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
	TEXAS				US 62/180
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
ELP	EL PASO	0374	02	120	52

PRIMARY CONTROL POINT NAME	PUBLISHED INFORMATION			OBSERVED INFORMATION			DIFFERENCE			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	N COORD.	E COORD.	ELEV.	N COORD.	E COORD.	ELEV.	
62-2				10,668,257.60	411,209.34	3916.44'				3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN CONCRETE

SECONDARY CONTROL POINT NAME	OBSERVED INFORMATION			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	
108	10,668,014.61	409,574.96	3913.47'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
109	10,668,073.60	410,433.25	3913.86'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
110	10,668,250.76	412,206.25	3920.75'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
111	10,668,447.32	413,238.92	3924.67'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
112	10,668,543.07	414,213.55	3925.07'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
113	10,668,545.21	415,169.51	3929.63'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
114	10,668,803.00	416,248.90	3934.82'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
115	10,668,902.63	417,276.00	3941.10'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING

SURVEY CONTROL MONUMENT INVERSE TABLE			
FROM	TO	BEARING	DISTANCE
107	108	N51°05'05"E	958.69'
108	109	N86°04'06"E	860.31'
109	62-2	N76°39'44"E	797.60'
62-2	110	S89°36'25"E	996.94'
110	111	N79°13'23"E	1,051.21'
111	112	N84°23'21"E	979.32'
112	113	N89°52'18"E	955.96'
113	114	N76°34'04"E	1,109.75'
114	115	N84°27'34"E	1,031.92'
115	116	N84°13'09"E	1,018.83'



LEGEND

▲ SURVEY CONTROL MONUMENT

N

NOTES:

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5. SURVEY CONTROL MEETS THE SPECIFICATIONS FOR TXDOT SURVEY LEVEL 2 AND 3 GPS SURVEYS.

STATE OF TEXAS
REGISTERED
ROBERT M ANGUIANO
6347
PROFESSIONAL
LAND SURVEYOR
09/14/2022

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THE SURVEY CONTROL INFORMATION HAS BEEN ACCEPTED AND INCORPORATED INTO THIS PS&E.

GRAPHIC SCALE

0' 200' 400' 800'

SCALE: 1"=400' (22" x 34")
SCALE: 1"=800' (11" x 17")

UNIT OF MEASUREMENT: U.S. SURVEY FEET

Texas Department of Transportation

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TBPELS #10004100

US 62/180
SURVEY CONTROL INDEX SHEET

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
	TEXAS				US 62/180
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
ELP	EL PASO	0374	02	120	53

PRIMARY CONTROL POINT NAME	PUBLISHED INFORMATION			OBSERVED INFORMATION			DIFFERENCE			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	N COORD.	E COORD.	ELEV.	N COORD.	E COORD.	ELEV.	
62-3				10,669,378.03	422,544.47	3957.51′				3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN CONCRETE

SECONDARY CONTROL POINT NAME	OBSERVED INFORMATION			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	
116	10,669,005.25	418,289.65	3945.29′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
117	10,668,926.22	419,397.05	3951.20′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
118	10,669,229.25	420,546.47	3953.09′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
119	10,669,198.48	421,748.68	3959.00′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
120	10,669,373.42	423,467.85	3956.32′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
121	10,669,562.19	424,399.21	3958.09′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
122	10,669,649.92	425,383.30	3951.04′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
123	10,669,742.11	426,330.40	3947.25′	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING

SURVEY CONTROL MONUMENT INVERSE TABLE			
FROM	TO	BEARING	DISTANCE
115	116	N84°13′09"E	1,018.83′
116	117	S85°55′05"E	1,110.22′
117	118	N75°13′51"E	1,188.69′
118	119	S88°32′02"E	1,202.60′
119	62-3	N77°17′09"E	815.80′
62-3	120	S89°42′51"E	923.39′
120	121	N78°32′33"E	950.30′
121	122	N84°54′20"E	987.99′
122	123	N84°26′25"E	951.58′
123	124	N84°13′21"E	849.46′

LEGEND

▲ SURVEY CONTROL MONUMENT

NOTES:

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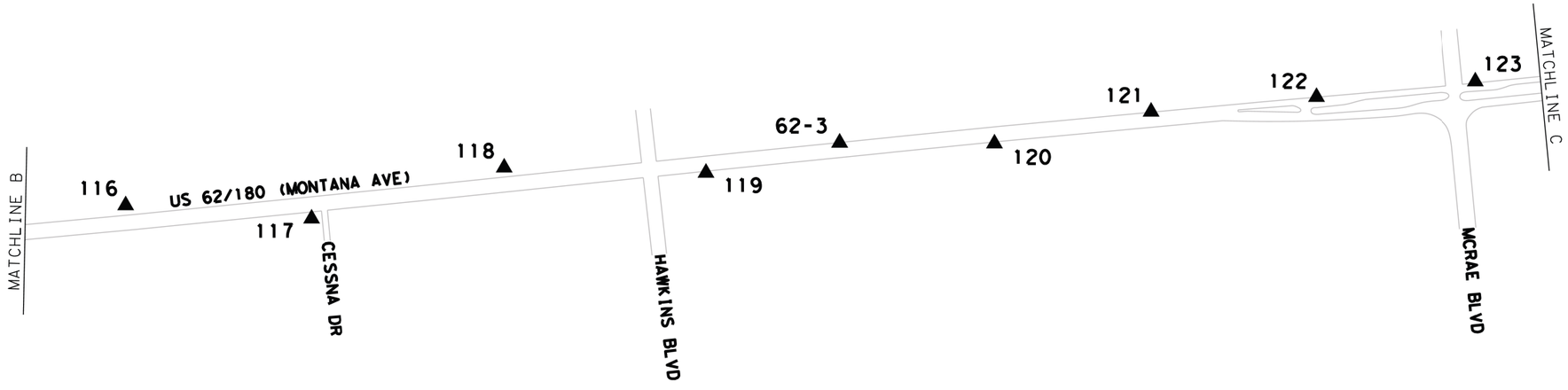

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GRAPHIC SCALE
0′ 200′ 400′ 800′
SCALE: 1"=400′ (22" x 34")
SCALE: 1"=800′ (11" x 17")

UNIT OF MEASUREMENT: U.S. SURVEY FEET

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US 62/180
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	TEXAS					US 62/180
STATE DIST. NO.	COUNTY		CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
ELP	EL PASO		0374	02	120	54

PRIMARY CONTROL POINT NAME	PUBLISHED INFORMATION			OBSERVED INFORMATION			DIFFERENCE			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	N COORD.	E COORD.	ELEV.	N COORD.	E COORD.	ELEV.	
62-4				10,670,347.51	434,137.38	3984.00'				3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN CONCRETE

SECONDARY CONTROL POINT NAME	OBSERVED INFORMATION			MONUMENT DESCRIPTION
	N COORD.	E COORD.	ELEV.	
124	10,669,827.62	427,175.55	3948.37'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
125	10,669,926.07	428,166.58	3939.42'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
126	10,669,894.96	429,106.74	3941.70'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
127	10,670,123.22	430,086.86	3955.07'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
128	10,670,075.49	431,033.85	3960.68'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
129	10,670,377.75	431,991.54	3973.43'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
130	10,670,248.83	433,025.25	3979.38'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING
131	10,670,810.05	435,127.50	3986.48'	3 1/4" ALUMINUM CAP SET ATOP A 5/8" IRON ROD IN LIGHT DUTY SETTING

SURVEY CONTROL MONUMENT INVERSE TABLE			
FROM	TO	BEARING	DISTANCE
123	124	N84°13'21"E	849.46'
124	125	N84°19'36"E	995.91'
125	126	S88°06'17"E	940.67'
126	127	N76°53'24"E	1,006.35'
127	128	S87°06'53"E	948.19'
128	129	N72°29'01"E	1,004.26'
129	130	S82°53'28"E	1,041.72'
130	62-4	N84°55'46"E	1,116.50'
62-4	131	N64°57'36"E	1,092.83'

LEGEND

▲ SURVEY CONTROL MONUMENT

NOTES:

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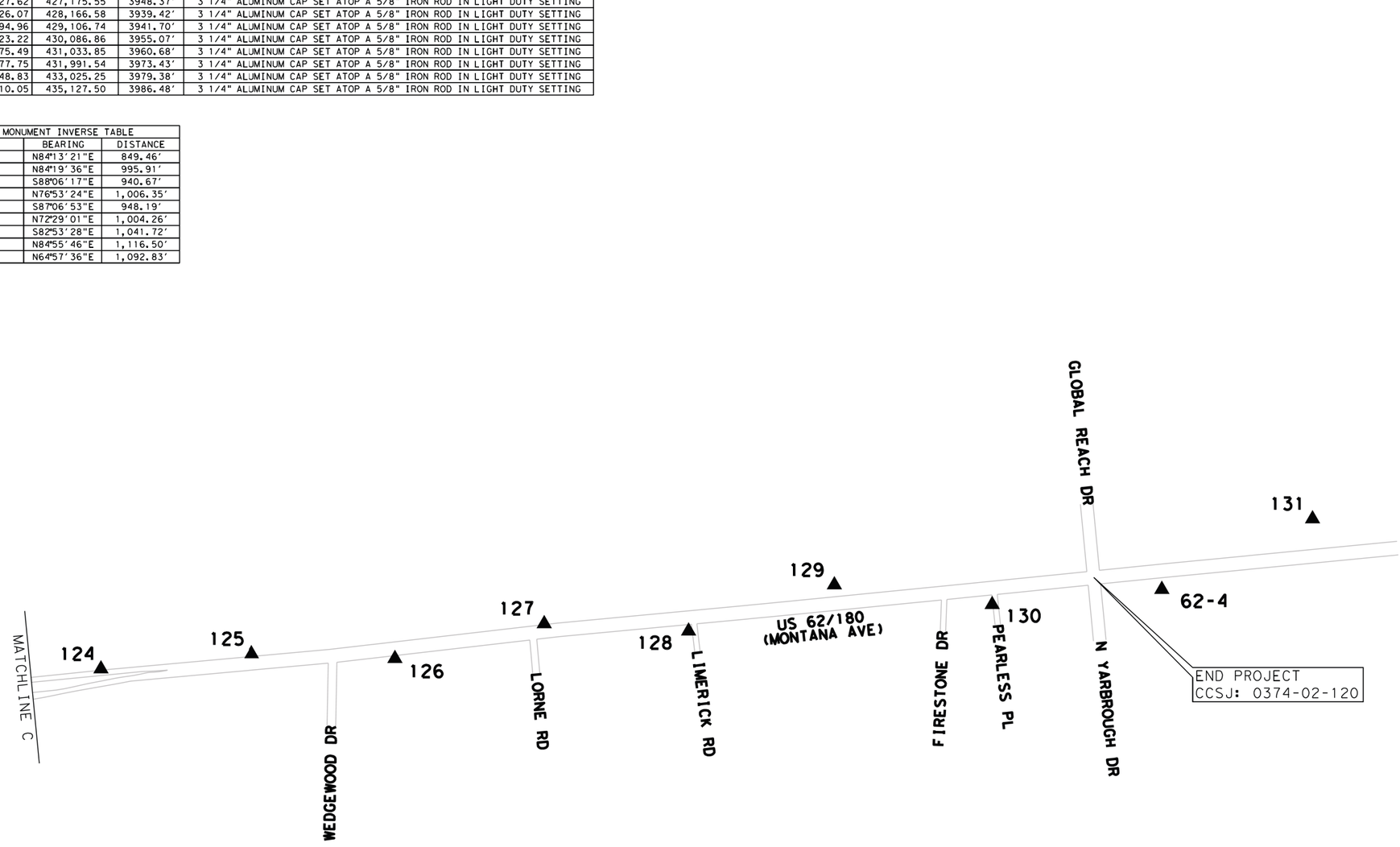
THE CONTROL POINTS SHOWN HEREIN WERE DETERMINED BY A SURVEY MADE ON THE GROUND AND UNDER MY SUPERVISION.



GRAPHIC SCALE

0' 200' 400' 800'

SCALE: 1"=400' (22" x 34")
SCALE: 1"=800' (11" x 17")

UNIT OF MEASUREMENT: U.S. SURVEY FEET

THE SURVEY CONTROL INFORMATION HAS BEEN ACCEPTED AND INCORPORATED INTO THIS PS&E.

Texas Department of Transportation

VICKREY & ASSOCIATES, LLC.
CONSULTING ENGINEERS
CIVIL • ENVIRONMENTAL • SURVEY
12940 Country Parkway
San Antonio, TX 78216
Telephone: (210) 349-3271
TBPELS #10004100

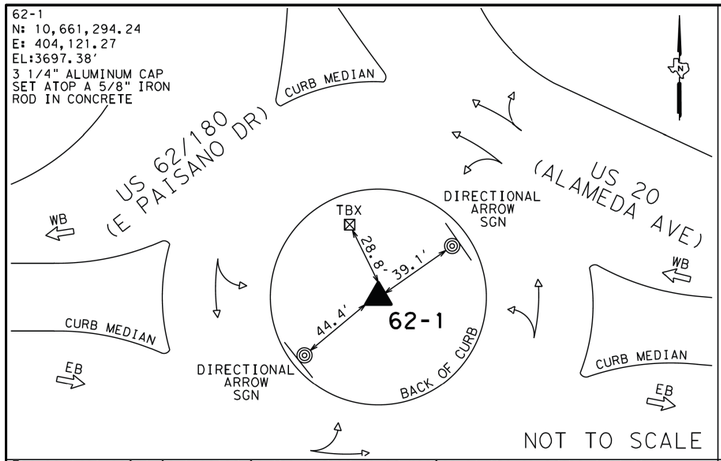
US 62/180

SURVEY CONTROL INDEX SHEET

PAGE 4 OF 4

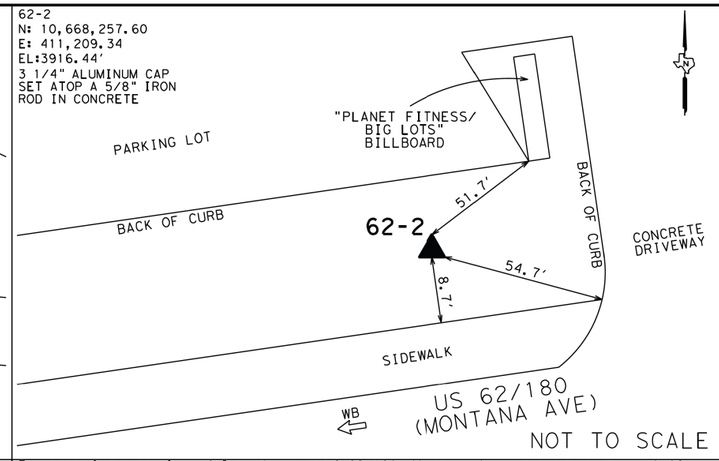
FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
	TEXAS				US 62/180
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
ELP	EL PASO	0374	02	120	55

62-1
N: 10,661,294.24
E: 404,121.27
EL:3697.38'
3 1/4" ALUMINUM CAP
SET ATOP A 5/8" IRON
ROD IN CONCRETE



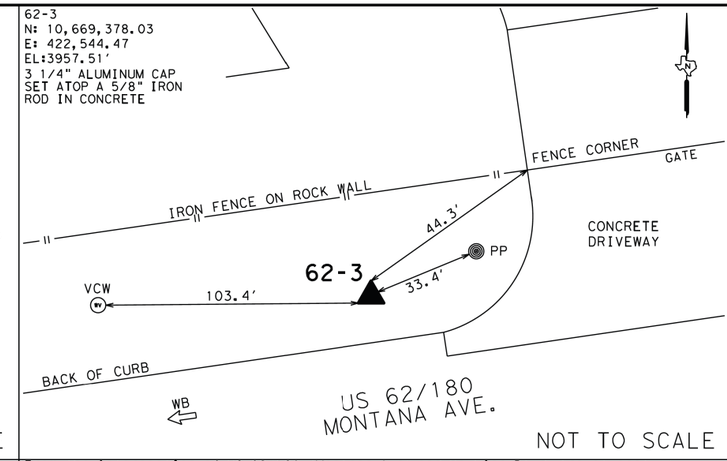
The control point is located in the curbed round median at the roundabout at the intersection of US 62/180 (E Paisano Dr) and SH 20 (Alameda Ave).

62-2
N: 10,668,257.60
E: 411,209.34
EL:3916.44'
3 1/4" ALUMINUM CAP
SET ATOP A 5/8" IRON
ROD IN CONCRETE



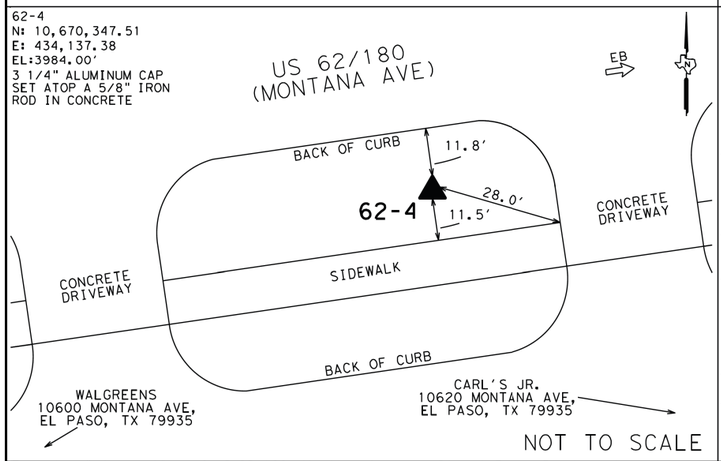
From the intersection of Isha Way and US 62/180 (Montana Ave), travel east +/- 0.09 mile. The control point is located on the north side of US 62/180 (Montana Ave).

62-3
N: 10,669,378.03
E: 422,544.47
EL:3957.51'
3 1/4" ALUMINUM CAP
SET ATOP A 5/8" IRON
ROD IN CONCRETE



From the intersection of US 62/180 (Montana Ave) and Hawkins Blvd, travel east +/- .22 mile. The control point is located on the north side of US 62/180 (Montana Ave).

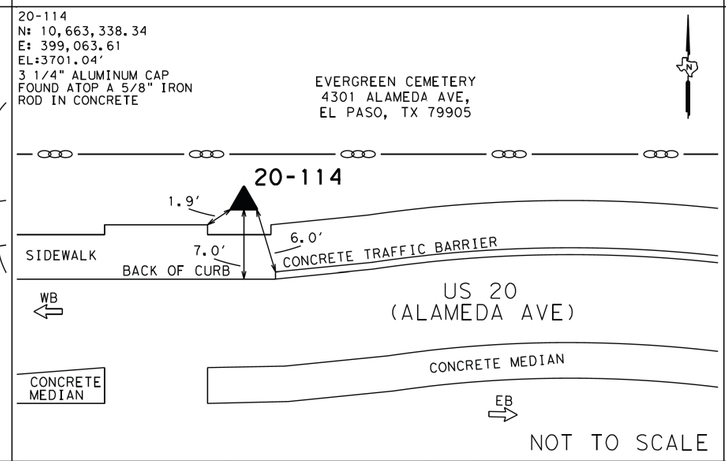
62-4
N: 10,670,347.51
E: 434,137.38
EL:3984.00'
3 1/4" ALUMINUM CAP
SET ATOP A 5/8" IRON
ROD IN CONCRETE



From the intersection of US 62/180 (Montana Ave) and Global Reach Dr, travel east +/- 0.07 mile. The control point is located on the south side of US 62/180 (Montana Ave).

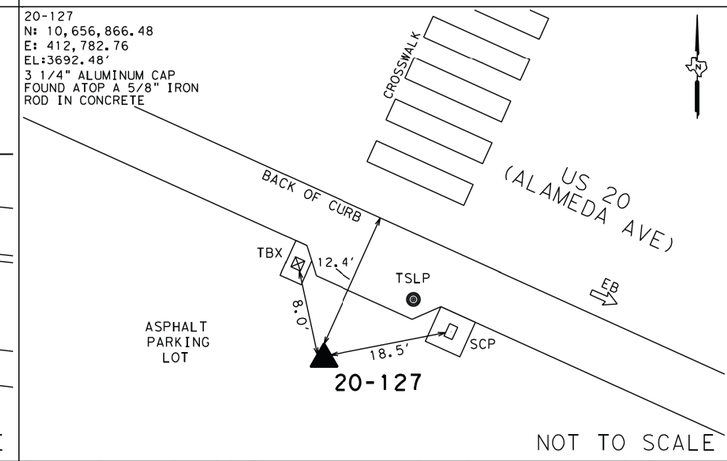
20-114
N: 10,663,338.34
E: 399,063.61
EL:3701.04'
3 1/4" ALUMINUM CAP
FOUND ATOP A 5/8" IRON
ROD IN CONCRETE

EVERGREEN CEMETERY
4301 ALAMEDA AVE,
EL PASO, TX 79905



From the intersection of SH 20 (Alameda Ave) and N Boone St, travel east +/- 0.07 mile. The control point is located on the north side of SH 20 (Alameda Ave).

20-127
N: 10,656,866.48
E: 412,782.76
EL:3692.48'
3 1/4" ALUMINUM CAP
FOUND ATOP A 5/8" IRON
ROD IN CONCRETE



From the intersection of SH 20 (Alameda Ave) and Delta Dr, travel east +/- 0.27 mile. The control point is located on the southwest side of SH 20 (Alameda Ave).

NOTES:

1. ALL COORDINATES ARE BASED ON NORTH AMERICAN DATUM OF 1983 (NAD 83) (2011 ADJUSTMENT), EPOCH 2010.00, TEXAS COORDINATE SYSTEM, CENTRAL ZONE. ALL DISTANCES ARE SURFACE VALUES AND MAY BE CONVERTED TO GRID BY DIVIDING BY THE SURFACE ADJUSTMENT FACTOR OF 1.000231. ALL MEASUREMENTS ARE IN U.S. SURVEY FEET.

2. TXDOT MONUMENTS 20-114 AND 20-127 WERE HELD FOR HORIZONTAL CONTROL, AS PUBLISHED. HORIZONTAL SURVEY METHOD: STATIC AND RTK GPS.

3. ALL ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), USING GEOID 12A.

4. TXDOT MONUMENTS 20-114, 20-119, AND 20-127 WERE HELD FOR VERTICAL CONTROL, AS PUBLISHED. VERTICAL SURVEY METHOD: DIGITAL LEVEL.

5. SURVEY CONTROL MEETS THE SPECIFICATIONS FOR TXDOT SURVEY LEVEL 2 AND 3 GPS SURVEYS.

LEGEND

▲ SURVEY CONTROL MONUMENT

STATE OF TEXAS
REGISTERED
ROBERT M ANGUIANO
6347
PROFESSIONAL
LAND SURVEYOR

09/14/2022

THE CONTROL POINTS SHOWN HEREIN WERE DETERMINED BY A SURVEY MADE ON THE GROUND AND UNDER MY SUPERVISION.

THE SURVEY CONTROL INFORMATION HAS BEEN ACCEPTED AND INCORPORATED INTO THIS PS&E

DESIGN ENGINEER DATE

Texas Department of Transportation

VICKREY & ASSOCIATES, LLC.
CONSULTING ENGINEERS
CIVIL • ENVIRONMENTAL • SURVEY
12940 Country Parkway
San Antonio, TX 78216
Telephone: (210) 349-3271
TBPELS #10004100

US 62/180
HORIZONTAL & VERTICAL CONTROL SHEET
SHEET 1 OF 1

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
	TEXAS				US 62/180
STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
ELP	EL PASO	0374	02	120	56

US 62 | US 180 ALIGNMENT DATA

REFER TO ROADWAY LAYOUTS

* BENTLEY HORIZONTAL ALIGNMENT REVIEW
* Alignment name: US 62

	STATION	NORTHING	EASTING
Element: Circular			
PC( )	300.00 R1	10661121.93	404089.30
PI( )	467.24 R1	10661286.58	404118.57
CC( )		10661421.21	402405.69
PRC( )	633.41 R1	10661453.79	404115.38
Radius:	1710.00		
Delta:	11.17° Left		
Degree of Curvature(Arc):	3.35°		
Length:	333.41		
Tangent:	167.24		
Chord:	332.88		
Middle Ordinate:	8.12		
External:	8.16		
Tangent Direction:	N10.08°E		
Radial Direction:	S79.92°E		
Chord Direction:	N4.49°E		
Radial Direction:	N88.91°E		
Tangent Direction:	N1.09°W		
Element: Circular			
PRC( )	633.41 R1	10661453.79	404115.38
PI( )	702.78 R1	10661523.15	404114.06
CC( )		10661459.50	404415.32
PT( )	769.76 R1	10661586.05	404143.32
Radius:	300.00		
Delta:	26.04° Right		
Degree of Curvature(Arc):	19.10°		
Length:	136.35		
Tangent:	69.37		
Chord:	135.18		
Middle Ordinate:	7.71		
External:	7.92		
Tangent Direction:	N1.09°W		
Radial Direction:	N88.91°E		
Chord Direction:	N11.93°E		
Radial Direction:	S65.05°E		
Tangent Direction:	N24.95°E		
Element: Linear			
PT( )	769.76 R1	10661586.05	404143.32
PI( )	777.48 R1	10661593.04	404146.57
Tangential Direction:	N24.95°E		
Tangential Length:	7.72		
Element: Linear			
PI( )	777.48 R1	10661593.04	404146.57
PI( )	902.15 R1	10661701.62	404207.85
Tangential Direction:	N29.44°E		
Tangential Length:	124.67		
Element: Linear			
PI( )	902.15 R1	10661701.62	404207.85
PC( )	5385.13 R1	10665763.95	406103.77
Tangential Direction:	N25.02°E		
Tangential Length:	4482.98		
Element: Circular			
PC( )	5385.13 R1	10665763.95	406103.77
PI( )	5622.01 R1	10665978.61	406203.95
CC( )		10665182.44	407349.75
PT( )	5854.28 R1	10666147.37	406370.19
Radius:	1375.00		
Delta:	19.55° Right		
Degree of Curvature(Arc):	4.17°		
Length:	469.16		
Tangent:	236.88		
Chord:	466.89		
Middle Ordinate:	19.96		
External:	20.26		
Tangent Direction:	N25.02°E		
Radial Direction:	S64.98°E		
Chord Direction:	N34.79°E		
Radial Direction:	S45.43°E		
Tangent Direction:	N44.57°E		
Element: Linear			
PT( )	5854.28 R1	10666147.37	406370.19
PC( )	6151.62 R1	10666359.19	406578.85
Tangential Direction:	N44.57°E		
Tangential Length:	297.34		

US 62 | US 180 ALIGNMENT DATA

REFER TO ROADWAY LAYOUTS

* BENTLEY HORIZONTAL ALIGNMENT REVIEW
* Alignment name: US 62

	STATION	NORTHING	EASTING
Element: Circular			
PC( )	6151.62 R1	10666359.19	406578.85
PI( )	6460.89 R1	10666579.52	406795.88
CC( )		10665481.99	407469.36
PT( )	6757.99 R1	10666673.23	407090.61
Radius:	1250.00		
Delta:	27.79° Right		
Degree of Curvature(Arc):	4.58°		
Length:	606.36		
Tangent:	309.27		
Chord:	600.43		
Middle Ordinate:	36.59		
External:	37.69		
Tangent Direction:	N44.57°E		
Radial Direction:	S45.43°E		
Chord Direction:	N58.47°E		
Radial Direction:	S17.64°E		
Tangent Direction:	N72.36°E		
Element: Linear			
PT( )	6757.99 R1	10666673.23	407090.61
PC( )	7461.80 R1	10666886.49	407761.34
Tangential Direction:	N72.36°E		
Tangential Length:	703.82		
Element: Circular			
PC( )	7461.80 R1	10666886.49	407761.34
PI( )	7864.48 R1	10667008.50	408145.08
CC( )		10669545.33	406915.97
PT( )	8261.63 R1	10667234.04	408478.67
Radius:	2790.00		
Delta:	16.43° Left		
Degree of Curvature(Arc):	2.05°		
Length:	799.82		
Tangent:	402.67		
Chord:	797.09		
Middle Ordinate:	28.61		
External:	28.91		
Tangent Direction:	N72.36°E		
Radial Direction:	S17.64°E		
Chord Direction:	N64.15°E		
Radial Direction:	S34.06°E		
Tangent Direction:	N55.94°E		
Element: Linear			
PT( )	8261.63 R1	10667234.04	408478.67
PC( )	9290.60 R1	10667810.38	409331.09
Tangential Direction:	N55.94°E		
Tangential Length:	1028.98		
Element: Circular			
PC( )	9290.60 R1	10667810.38	409331.09
PI( )	9708.79 R1	10668044.60	409677.52
CC( )		10666439.34	410258.07
PT( )	10109.82 R1	10668086.15	410093.64
Radius:	1655.00		
Delta:	28.36° Right		
Degree of Curvature(Arc):	3.46°		
Length:	819.22		
Tangent:	418.18		
Chord:	810.88		
Middle Ordinate:	50.43		
External:	52.02		
Tangent Direction:	N55.94°E		
Radial Direction:	S34.06°E		
Chord Direction:	N70.12°E		
Radial Direction:	S5.70°E		
Tangent Direction:	N84.30°E		
Element: Linear			
PT( )	10109.82 R1	10668086.15	410093.64
PI( )	21064.66 R1	10669174.57	420994.27
Tangential Direction:	N84.30°E		
Tangential Length:	10954.84		
Element: Linear			
PI( )	21064.66 R1	10669174.57	420994.27
PI( )	22870.36 R1	10669357.83	422790.65
Tangential Direction:	N84.17°E		
Tangential Length:	1805.70		
Element: Linear			
PI( )	22870.36 R1	10669357.83	422790.65
PI( )	23233.55 R1	10669389.88	423152.42
Tangential Direction:	N84.94°E		
Tangential Length:	363.19		

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

US62|US180

HORIZONTAL ALIGNMENT DATA

SHEET 1 OF 2

		FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
DSN	OEI	24	SEE TITLE SHEET		57
CHK	OEI	STATE	DIST.	COUNTY	
DRN	OEI	TEXAS	ELP	EL PASO	
CHK	OEI	CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

DATE: 12/28/2023
FILE: c:\pw\workingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18810\US62-S-RDWY-HAL01.dgn

US 62 | US 180 ALIGNMENT DATA

REFER TO ROADWAY LAYOUTS

* BENTLEY HORIZONTAL ALIGNMENT REVIEW
* Alignment name: US 62

	STATION	NORTHING	EASTING
Element: Linear			
PI( )	23233.55 R1	10669389.88	423152.42
PI( )	24574.69 R1	10669523.36	424486.90
Tangential Direction:	N84.29°E		
Tangential Length:	1341.14		
Element: Linear			
PI( )	24574.69 R1	10669523.36	424486.90
PI( )	24925.86 R1	10669555.46	424836.60
Tangential Direction:	N84.76°E		
Tangential Length:	351.17		
Element: Linear			
PI( )	24925.86 R1	10669555.46	424836.60
PI( )	25501.88 R1	10669578.28	425412.17
Tangential Direction:	N87.73°E		
Tangential Length:	576.02		
Element: Linear			
PI( )	25501.88 R1	10669578.28	425412.17
PI( )	26466.43 R1	10669663.44	426372.95
Tangential Direction:	N84.94°E		
Tangential Length:	964.55		
Element: Linear			
PI( )	26466.43 R1	10669663.44	426372.95
PI( )	27359.63 R1	10669777.64	427258.82
Tangential Direction:	N82.65°E		
Tangential Length:	893.20		
Element: Linear			
PI( )	27359.63 R1	10669777.64	427258.82
PC( )	34384.15 R1	10670474.45	434248.69
Tangential Direction:	N84.31°E		
Tangential Length:	7024.52		
Element: Circular			
PC( )	34384.15 R1	10670474.45	434248.69
PI( )	34472.14 R1	10670483.38	434336.23
CC( )		10663301.67	434980.34
PT( )	34560.12 R1	10670490.17	434423.96
Radius:	7210.00		
Delta:	1.40° Right		
Degree of Curvature(Arc):	0.79°		
Length:	175.97		
Tangent:	87.99		
Chord:	175.97		
Middle Ordinate:	0.54		
External:	0.54		
Tangent Direction:	N84.18°E		
Radial Direction:	S5.82°E		
Chord Direction:	N84.87°E		
Radial Direction:	S4.43°E		
Tangent Direction:	N85.57°E		
Element: Linear			
PT( )	34560.12 R1	10670490.17	434423.96
PC( )	35657.07 R1	10670574.82	435517.64
Tangential Direction:	N85.57°E		
Tangential Length:	1096.95		
Element: Circular			
PC( )	35657.07 R1	10670574.82	435517.64
PI( )	35736.90 R1	10670580.98	435597.23
CC( )		10677763.32	434961.25
PT( )	35816.73 R1	10670588.90	435676.67
Radius:	7210.00		
Delta:	1.27° Left		
Degree of Curvature(Arc):	0.79°		
Length:	159.66		
Tangent:	79.83		
Chord:	159.66		
Middle Ordinate:	0.44		
External:	0.44		
Tangent Direction:	N85.57°E		
Radial Direction:	S4.43°E		
Chord Direction:	N84.94°E		
Radial Direction:	S5.69°E		
Tangent Direction:	N84.31°E		
Element: Linear			
PT( )	35816.73 R1	10670588.90	435676.67
POT( )	56634.77 R1	10672654.58	456391.97
Tangential Direction:	N84.31°E		
Tangential Length:	20818.04		

C7

C8

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

Texas Department of Transportation®

US62|US180

HORIZONTAL ALIGNMENT DATA

SHEET 2 OF 2

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	58
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
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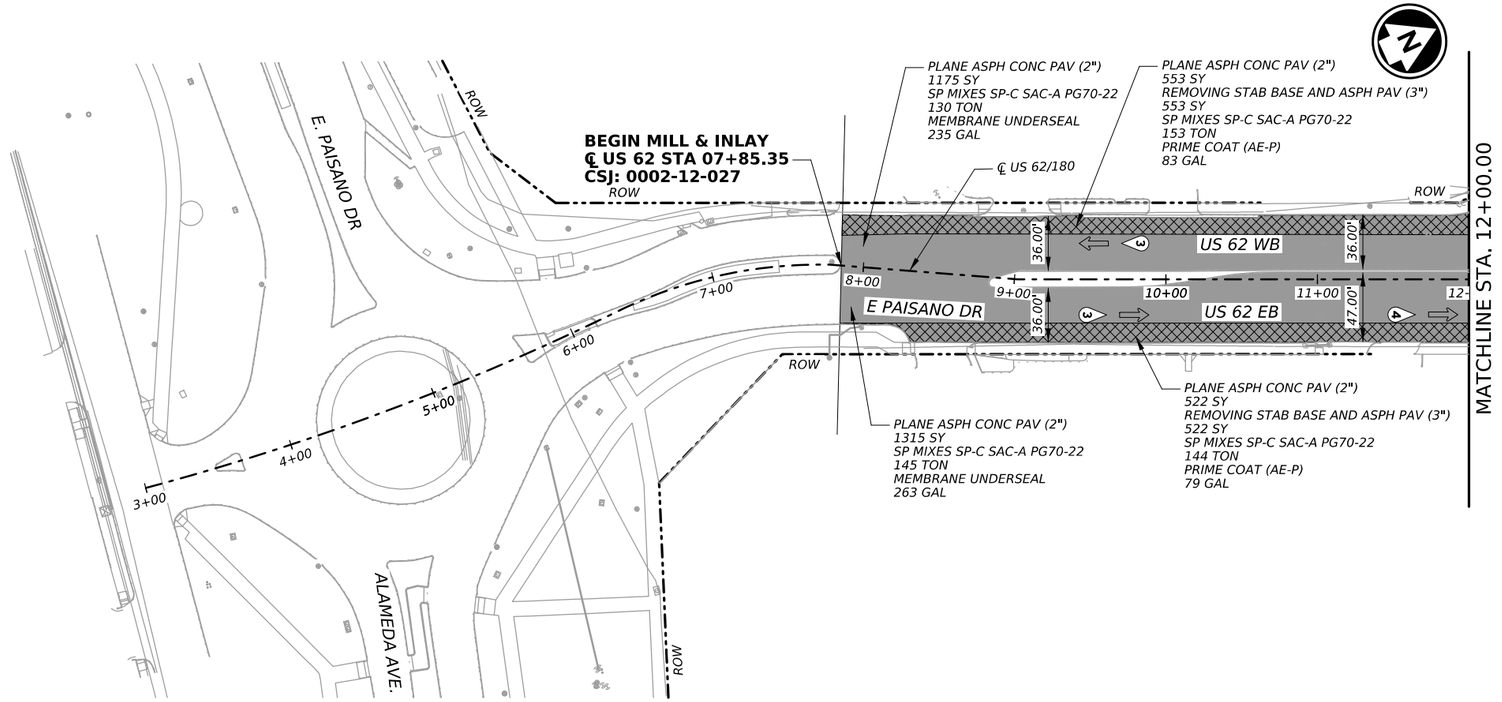
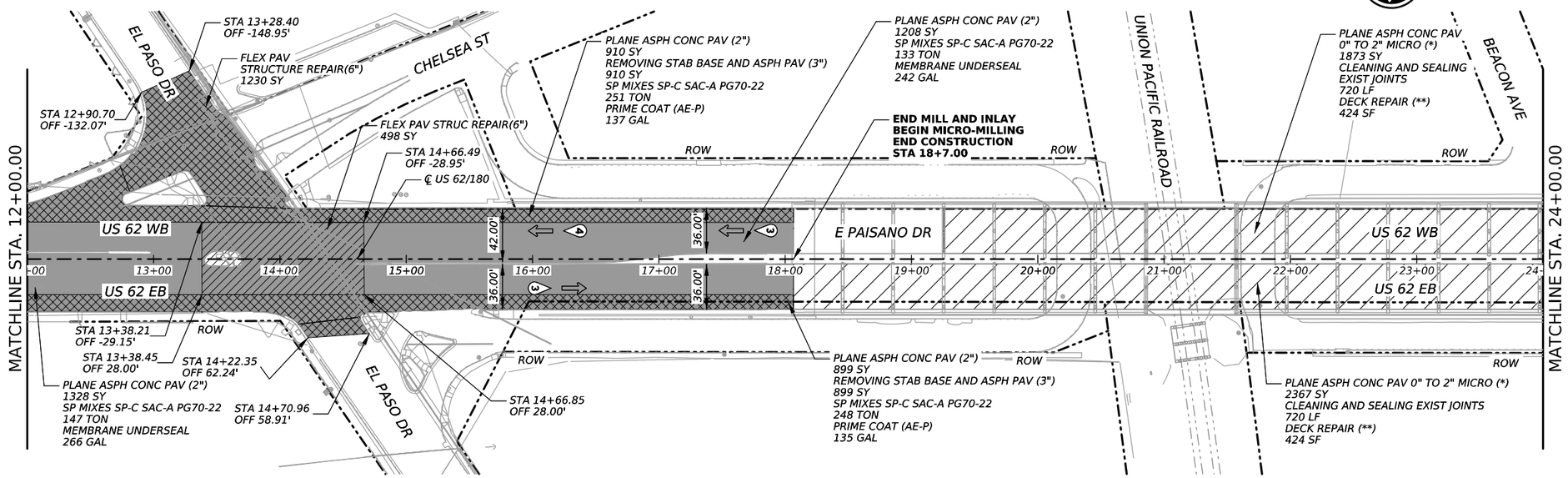


ROADWAY SUMMARY (CSJ 0002-12-027)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
310	6005	PRIME COAT (AE-P)	GAL	434
351	6002	FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")	SY	1,728
354	6045	PLANE ASPH CONC PAV (2")	SY	7,910
354	6220	PLANE ASPH CONC PAV (0" TO 2" MICRO) (*)	SY	4,240
429	6005	CONC STR REPAIR(DECK REP (FULL DEPTH)) (**)	SF	848
438	6004	CLEANING AND SEALING EXIST JOINTS(CL7)	LF	1,440
3002	6001	MEMBRANE UNDERSEAL	GAL	1,006
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	1,351

REMOVALS SUMMARY (CSJ 0002-12-027)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	2,884

(*) BRIDGE PAVEMENT SURFACE VARIES FROM 0" (EXPOSED SLAB) TO 2" IN SEVERAL LOCATIONS. TYPICALLY, THE PAVEMENT SURFACE HAS AN AVERAGE THICKNESS OF 3/4".

(**) FULL DEPTH CONCRETE STRUCTURAL DECK REPAIR AREAS TO BE DETERMINED AT THE DISCRETION OF THE ENGINEER AFTER PLANING. REFER TO BRIDGE JOINT REPAIR LAYOUT.



LEGEND

- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.
7. REFER TO ROADWAY JOINT DETAILS SHEET FOR HMAC TO BRIDGE APPROACH SLAB CONNECTION.
8. REFER TO BRIDGE JOINT REPAIR LAYOUTS FOR INFORMATION ON PROPOSED BRIDGE WORK.
9. ITEM 429 QUANTITIES TO BE USED AT THE DISCRETION OF THE ENGINEER BASED ON FIELD FINDINGS.

0 50 100

SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

2/6/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

US62|US180

ROADWAY LAYOUT
BEGIN TO STA 24+00

SHEET 1 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	59
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/6/2024
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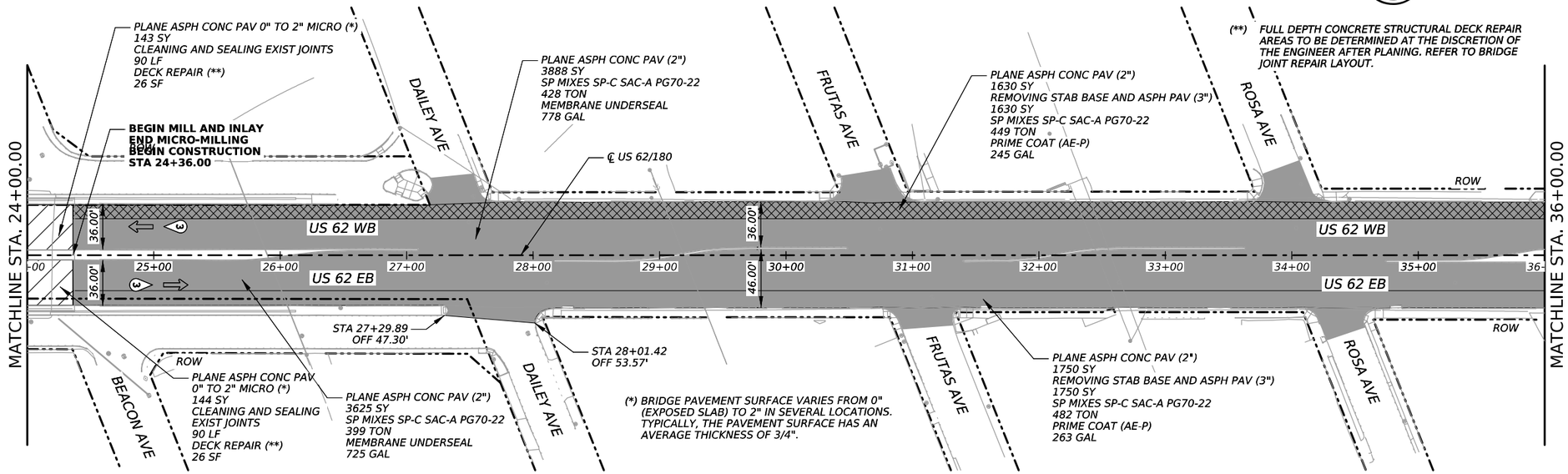


LEGEND

- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.
7. REFER TO HMAC TO CRCP JOINT DETAIL SHEET FOR CONNECTION AT IH10.
8. REFER TO BRIDGE JOINT REPAIR LAYOUTS FOR INFORMATION ON PROPOSED BRIDGE WORK.

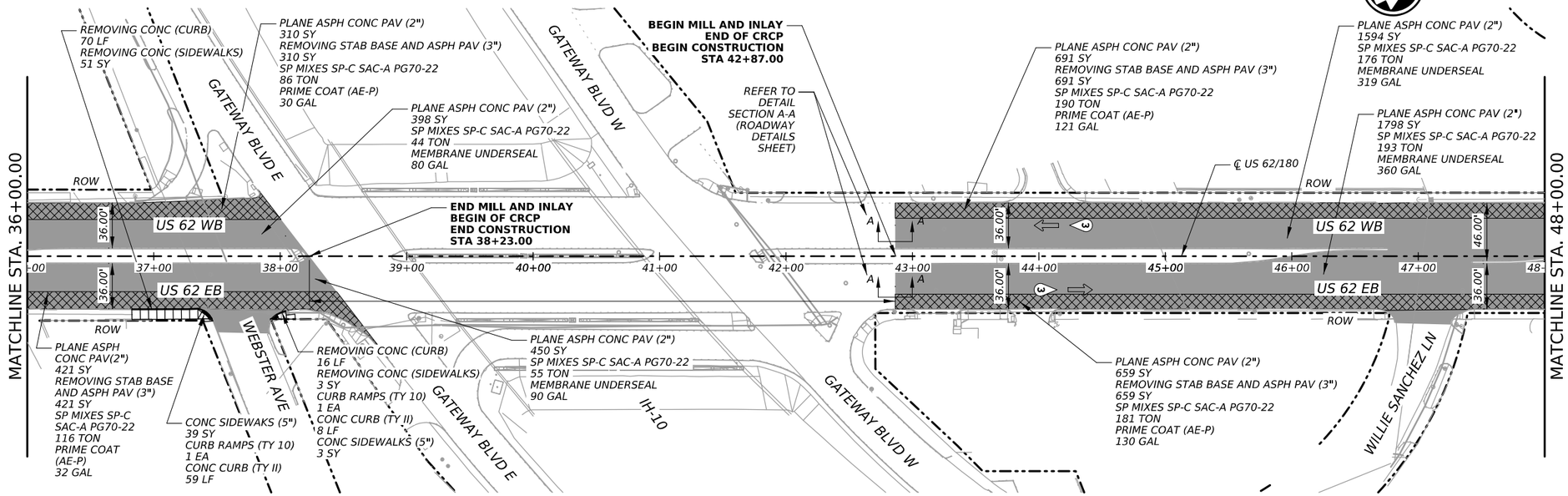
ROADWAY SUMMARY (CSJ 0002-12-027)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
310	6005	PRIME COAT (AE-P)	GAL	821
354	6045	PLANE ASPH CONC PAV (2")	SY	17,214
354	6220	PLANE ASPH CONC PAV (0" TO 2" MICRO) (*)	SY	287
429	6005	CONC STR REPAIR(DECK REP (FULL DEPTH)) (**)	SF	52
438	6004	CLEANING AND SEALING EXIST JOINTS(CL7)	LF	180

ROADWAY SUMMARY (CSJ 0002-12-027)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
529	6002	CONC CURB (TY II)	LF	67
531	6002	CONC SIDEWALKS (5")	SY	42
531	6013	CURB RAMPS (TY 10)	EA	2
3002	6001	MEMBRANE UNDERSEAL	GAL	2,352
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	2,799

REMOVALS SUMMARY (CSJ 0002-12-027)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
104	6015	REMOVING CONC (SIDEWALKS)	SY	54
104	6021	REMOVING CONC (CURB)	LF	86
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	5461

0 50 100

SCALE: 1"=100'



DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED
PROFESSIONAL ENGINEER

2/6/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS,COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

US62|US180

ROADWAY LAYOUT
STA 24+00 TO STA 48+00

SHEET 2 OF 14

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
CHK	OEI	24	SEE TITLE SHEET		60
DRN	OEI	STATE	DIST.	COUNTY	
CHK	OEI	TEXAS	ELP	EL PASO	
		CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

DATE: 2/6/2024
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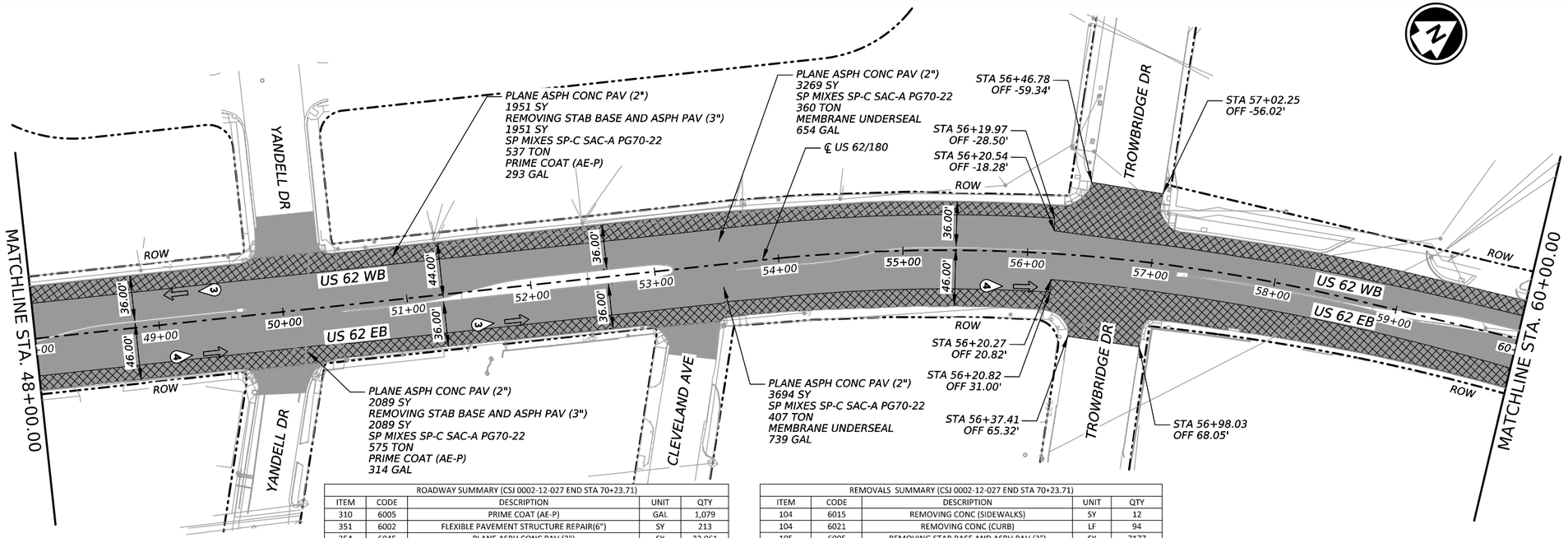
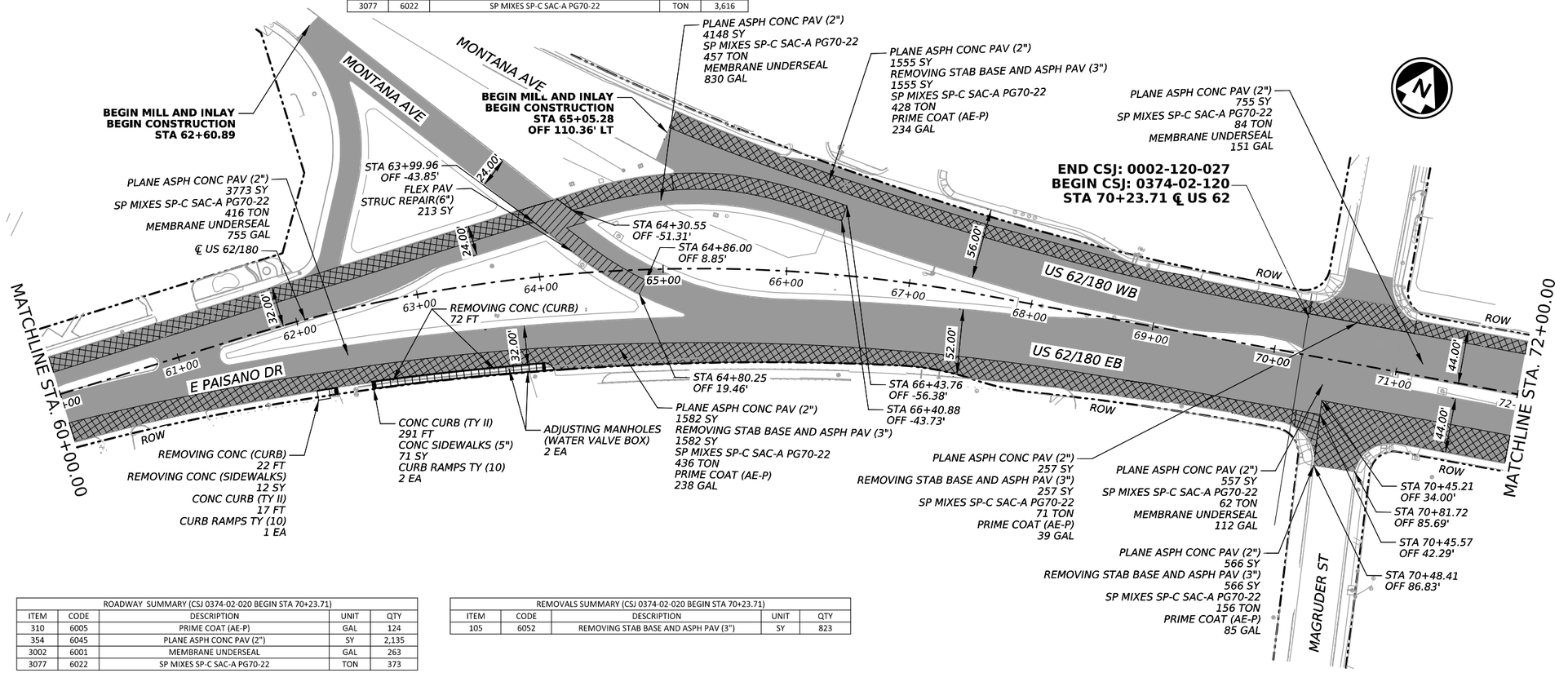


ROADWAY SUMMARY (CSJ 0002-12-027 END STA 70+23.71)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
310	6005	PRIME COAT (AE-P)	GAL	1,079
351	6002	FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")	SY	213
354	6045	PLANE ASPH CONC PAV (2")	SY	22,061
479	6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	2
529	6002	CONC CURB (TY II)	LF	308
531	6002	CONC SIDEWALKS (5")	SY	71
531	6013	CURB RAMPS (TY 10)	EA	3
3002	6001	MEMBRANE UNDERSEAL	GAL	2,978
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	3,616

REMOVALS SUMMARY (CSJ 0002-12-027 END STA 70+23.71)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
104	6015	REMOVING CONC (SIDEWALKS)	SY	12
104	6021	REMOVING CONC (CURB)	LF	94
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	7177



ROADWAY SUMMARY (CSJ 0374-02-020 BEGIN STA 70+23.71)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
310	6005	PRIME COAT (AE-P)	GAL	124
354	6045	PLANE ASPH CONC PAV (2")	SY	2,135
3002	6001	MEMBRANE UNDERSEAL	GAL	263
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	373

REMOVALS SUMMARY (CSJ 0374-02-020 BEGIN STA 70+23.71)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
105	6052	REMOVING STAB BASE AND ASPH PAV (3")	SY	823

LEGEND

- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.

0 50 100

SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

2/6/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

Texas Department of Transportation®

US62|US180

ROADWAY LAYOUT
STA 48+00 TO STA 72+00

SHEET 3 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	61
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/6/2024
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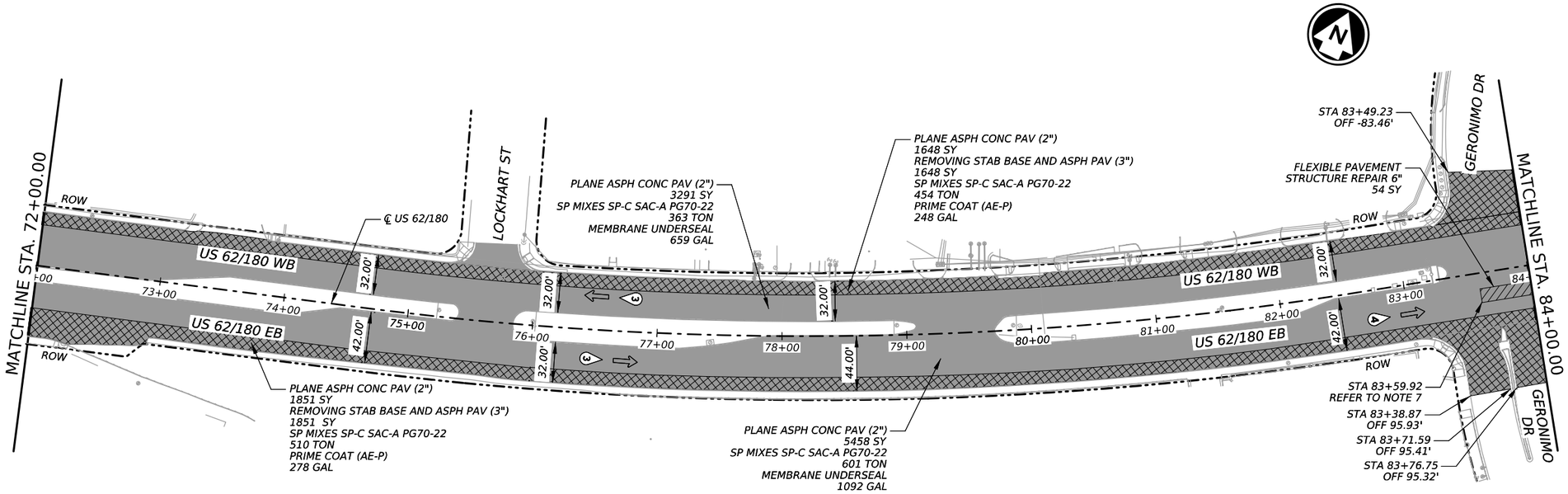


LEGEND

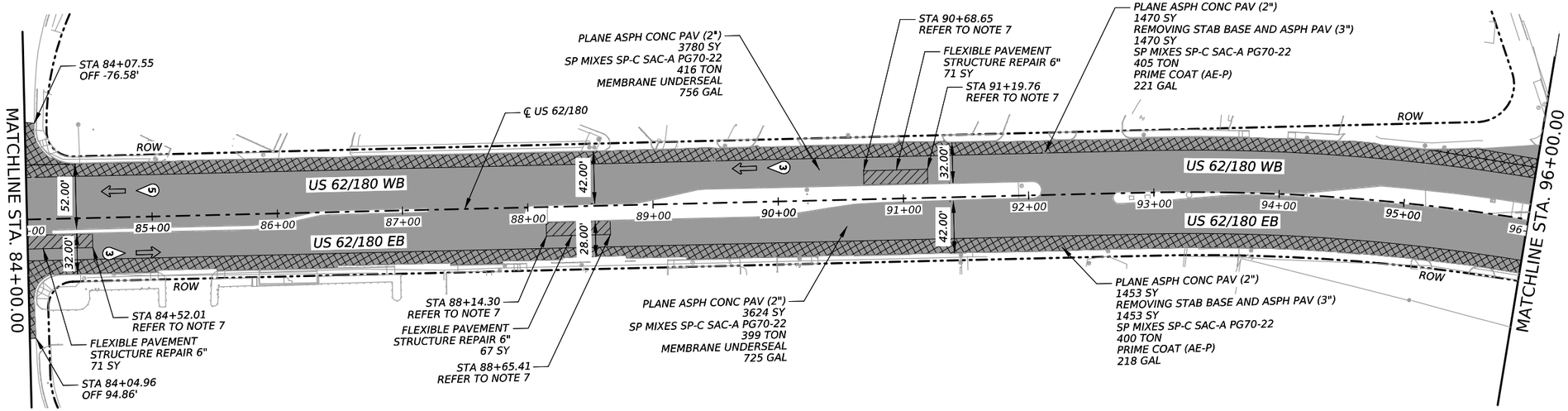
- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.
7. REFER TO FULL DEPTH REPAIR LIMITS TABLE FOR ADDITIONAL INFORMATION. TABLE LOCATED ON PAGE NO. 16 OF THE PLAN SET, ON SHEET 2 OF 4 OF THE QUANTITY SUMMARIES.

ROADWAY SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
310	6005	PRIME COAT (AE-P)	GAL	965
351	6002	FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")	SY	263
354	6045	PLANE ASPH CONC PAV (2")	SY	22,575
3002	6001	MEMBRANE UNDERSEAL	GAL	3,232
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	3,548

REMOVALS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	6422



0 50 100

SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

2/6/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

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ROADWAY LAYOUT
STA 72+00 TO STA 96+00

SHEET 4 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	62
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/6/2024
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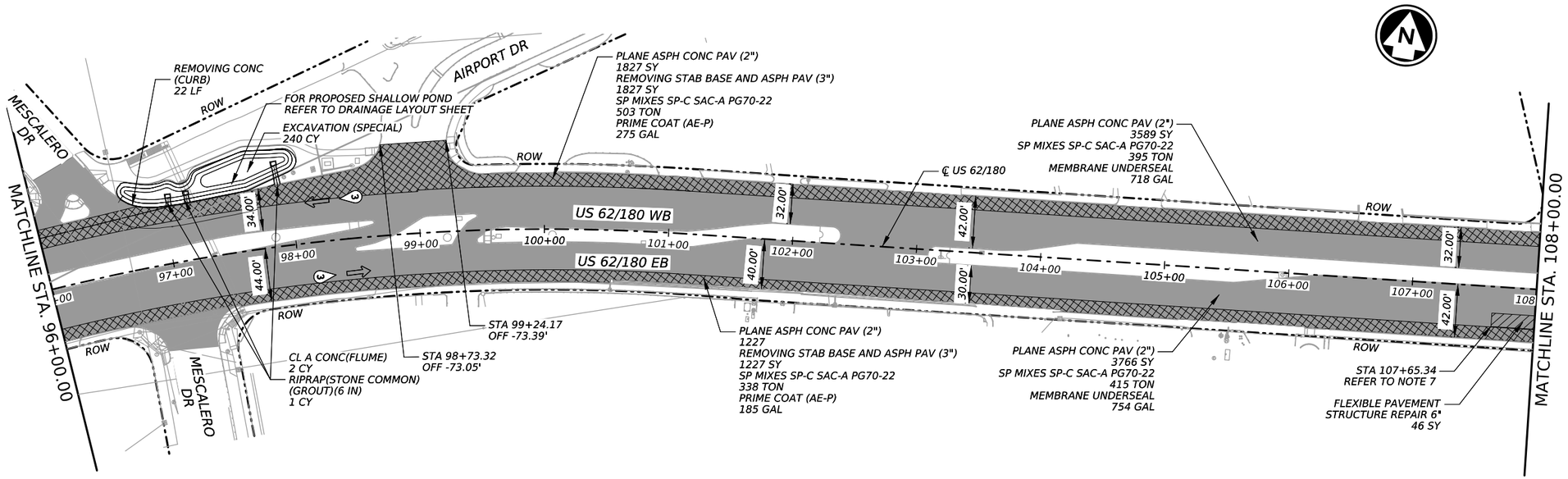
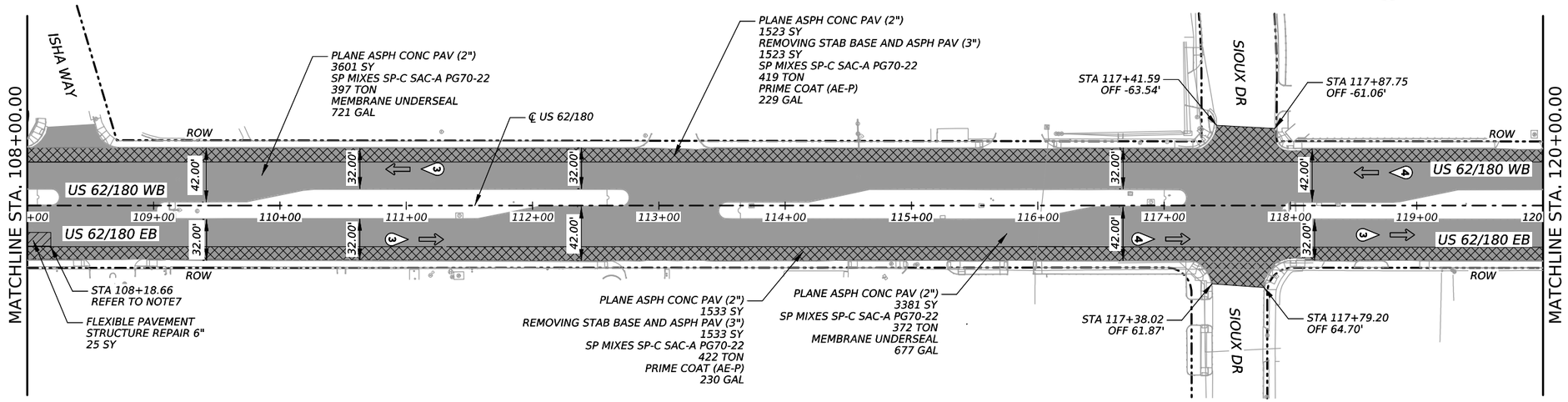


ROADWAY SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
110	6003	EXCAVATION (SPECIAL)	CY	240
310	6005	PRIME COAT (AE-P)	GAL	919
351	6002	FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")	SY	71
354	6045	PLANE ASPH CONC PAV (2")	SY	20,447
420	6007	CL A CONC (FLUME)	CY	2
432	6028	RIPRAP (STONE COMMON)(GROUT)(6 IN)	CY	1
3002	6001	MEMBRANE UNDERSEAL	GAL	2,870
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	3,261

REMOVALS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	22
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	6110



LEGEND

- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.
7. REFER TO FULL DEPTH REPAIR LIMITS TABLE FOR ADDITIONAL INFORMATION. TABLE LOCATED ON PAGE NO. 16 OF THE PLAN SET, ON SHEET 2 OF 4 OF THE QUANTITY SUMMARIES.

0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER
2/6/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

Texas Department of Transportation®

US62|US180

ROADWAY LAYOUT
STA 96+00 TO STA 120+00

SHEET 5 OF 14

		FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
DSN	OEI	24	SEE TITLE SHEET		63
CHK	OEI	STATE	DIST.	COUNTY	
DRN	OEI	TEXAS	ELP	EL PASO	
CHK	OEI	CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

DATE: 2/6/2024
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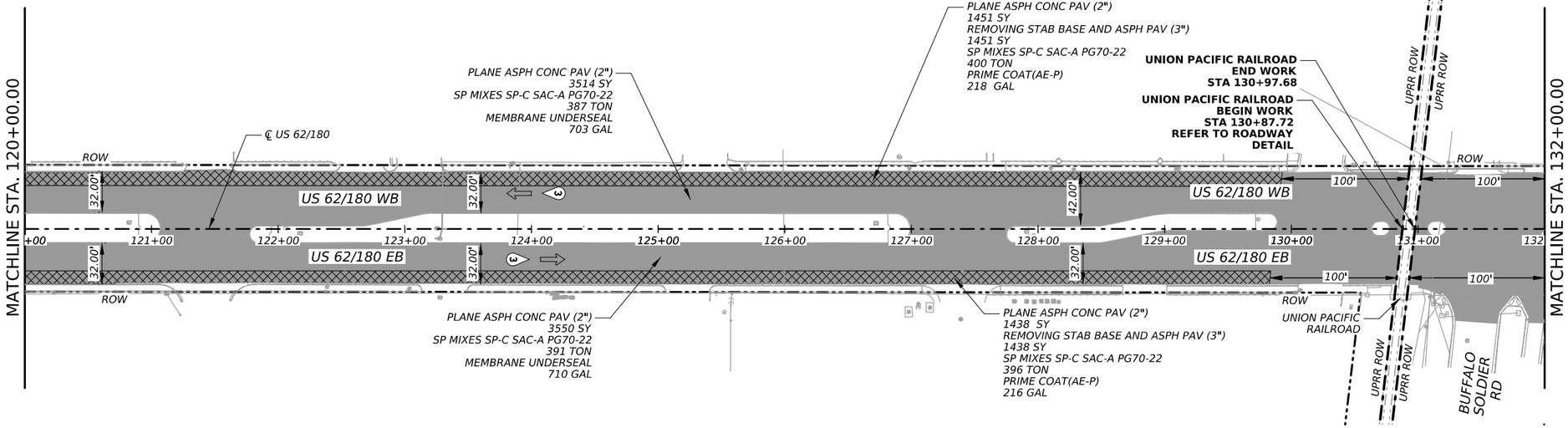


LEGEND

- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

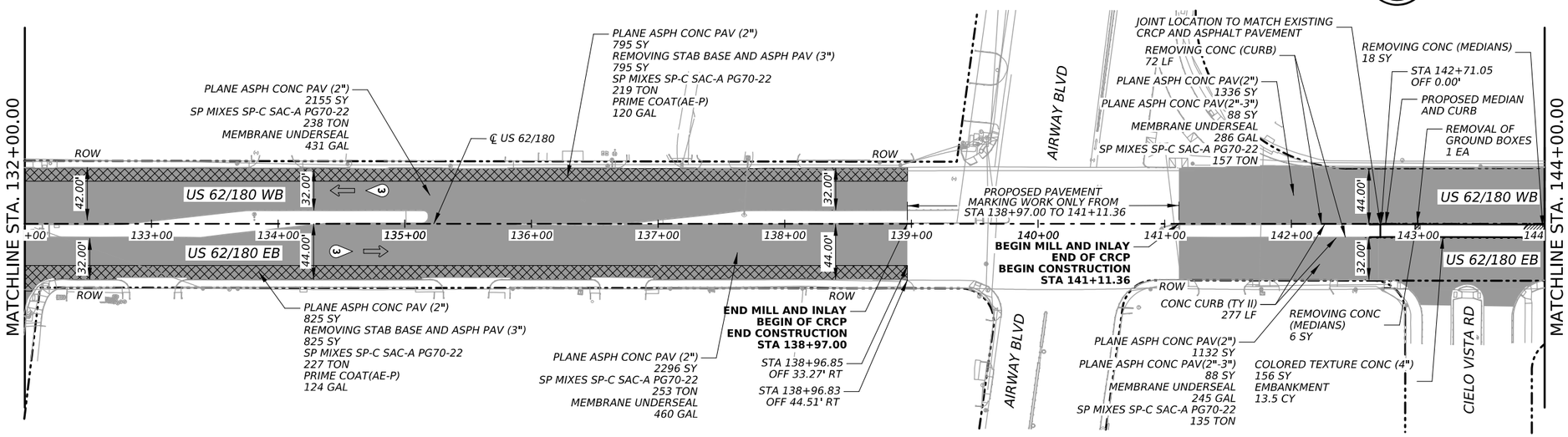
1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.
7. FOR STAMPED AND COLORED MEDIANS REFER TO ROADWAY DETAILS SHEET.

ROADWAY SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
132	6001	EMBANKMENT (FINAL)(ORD COMP)(TY A)	CY	13.5
310	6005	PRIME COAT (AE-P)	GAL	678
354	6045	PLANE ASPH CONC PAV (2")	SY	18,492
354	6068	PLANE ASPH CONC PAV (2"-3") ***(*)***	SY	176
528	6001	COLORED TEXTURED CONC (4")	SY	156
529	6002	CONC CURB (TY II)	LF	277
3002	6001	MEMBRANE UNDERSEAL	GAL	2,835
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	2,803

REMOVALS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
104	6011	REMOVING CONC (MEDIANS)	SY	24
104	6021	REMOVING CONC (CURB)	LF	72
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	4,509
690	6006	REMOVAL OF GROUND BOXES	EA	1

5" MILL & INLAY TO START 100 FT AWAY FROM EACH SIDE OF THE UPRR ROW ALONG EB AND WB DIRECTIONS OF MONTANA AVE.

(*) AT CURB LOCATIONS ALONG THE OUTSIDE LANE, PLANNING (2"-3") WILL BE PERFORMED TO EXPOSE EXISTING CURB. REFER TO NOTE 5.



0 50 100

SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED
PROFESSIONAL ENGINEER

2/6/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

US62|US180

ROADWAY LAYOUT
STA 120+00 TO STA 144+00

SHEET 6 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	64
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT. / JOB	HIGHWAY NO.
		0374	02 / 120, ETC.	US 62, ETC

DATE: 2/6/2024
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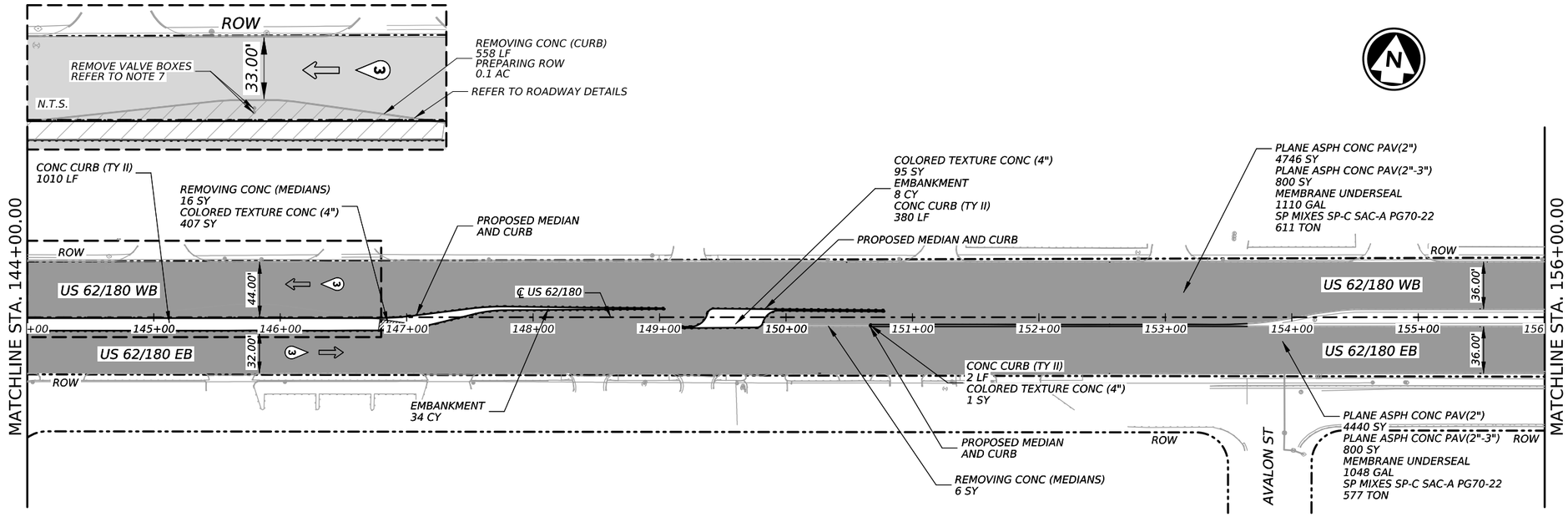


LEGEND

- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

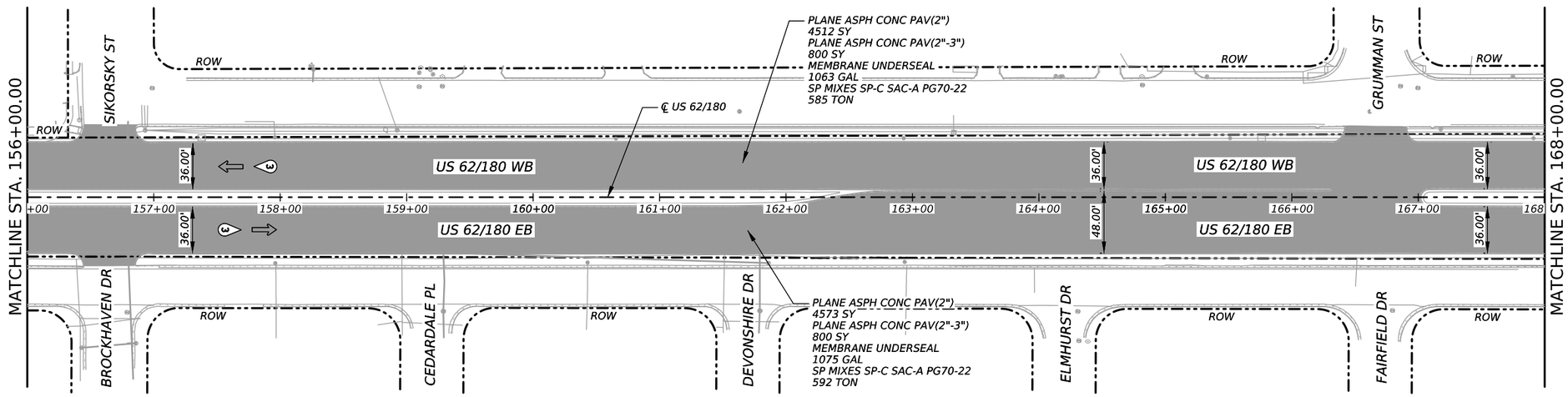
1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.
7. ITEM 100 WILL BE USED TO REMOVE EXISTING LOOSE AGGREGATE, REMOVE EXISTING TREES/PLANTS, REMOVAL OF IRRIGATION SYSTEMS, AND THE CAPPING OF IRRIGATION PIPES. ALL WORK, MATERIALS, AND INCIDENTALS REQUIRED FOR REMOVAL AND REPAIR OF IRRIGATION SYSTEMS WILL BE SUBSIDIARY TO THIS ITEM.

0 50 100
SCALE: 1"=100'

ROADWAY SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
100	6001	PREPARING ROW	AC	0.1
132	6001	EMBANKMENT (FINAL)(ORD COMP)(TY A)	CY	42
354	6045	PLANE ASPH CONC PAV (2")	SY	18,271
354	6068	PLANE ASPH CONC PAV (2"-3") **(*)**	SY	3,200
528	6001	COLORED TEXTURED CONC (4")	SY	503
529	6002	CONC CURB (TY II)	LF	1,392
3002	6001	MEMBRANE UNDERSEAL	GAL	4,296
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	2,365

REMOVALS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
104	6011	REMOVING CONC (MEDIANS)	SY	22
104	6021	REMOVING CONC (CURB)	LF	558

(*) AT CURB LOCATIONS ALONG THE OUTSIDE LANE, PLANNING (2"-3") WILL BE PERFORMED TO EXPOSE EXISTING CURB. REFER TO NOTE 5.



DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER
2/5/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

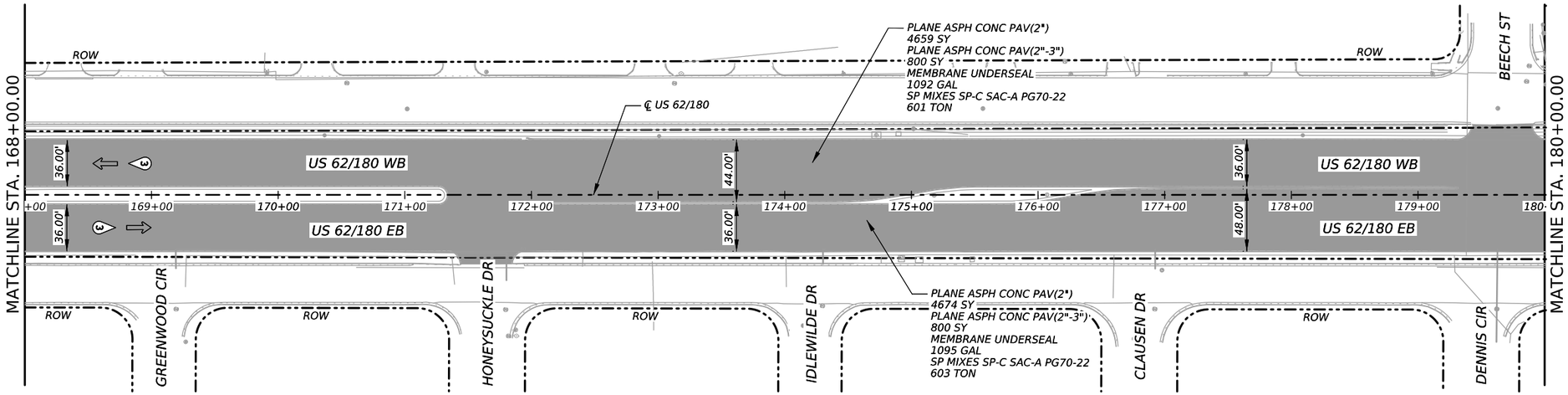
US62|US180

ROADWAY LAYOUT
STA 144+00 TO STA 168+00

SHEET 7 OF 14

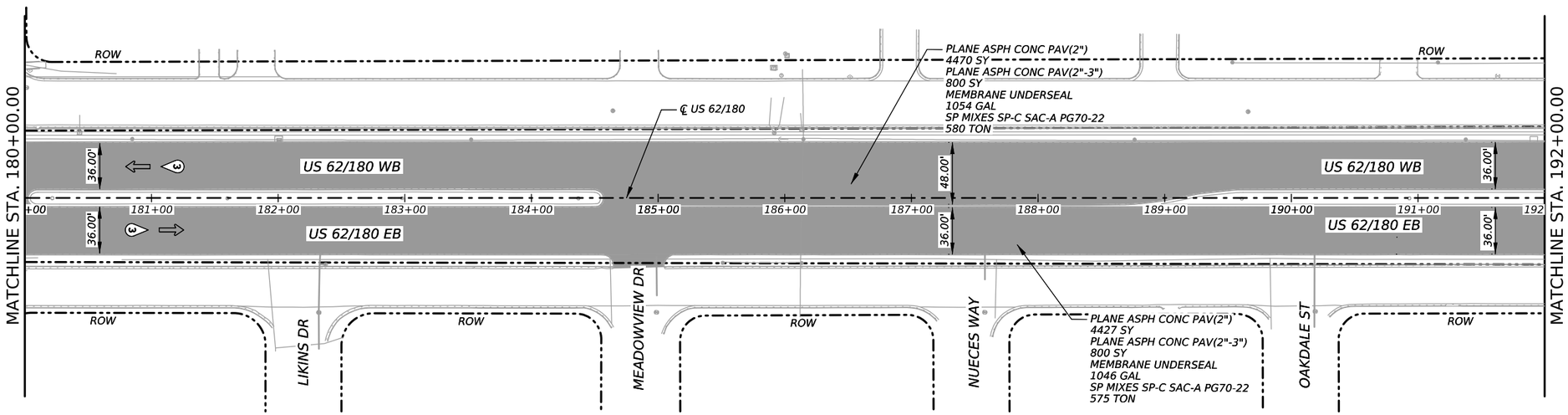
		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	65
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/5/2024
FILE: c:\pw\workingdir\omega-app02.omegaengineers.local_omega-prod\omega_lcamarena\dms18810\US 62 - US62-S-RDWY-PLN07.dgn



ROADWAY SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
354	6045	PLANE ASPH CONC PAV (2")	SY	18,230
354	6068	PLANE ASPH CONC PAV (2"-3") (*)	SY	3,200
3002	6001	MEMBRANE UNDERSEAL	GAL	4,287
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	2,359

(*) AT CURB LOCATIONS ALONG THE OUTSIDE LANE, PLANNING (2"-3") WILL BE PERFORMED TO EXPOSE EXISTING CURB. REFER TO NOTE 5.



LEGEND

- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.

0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER
2/5/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

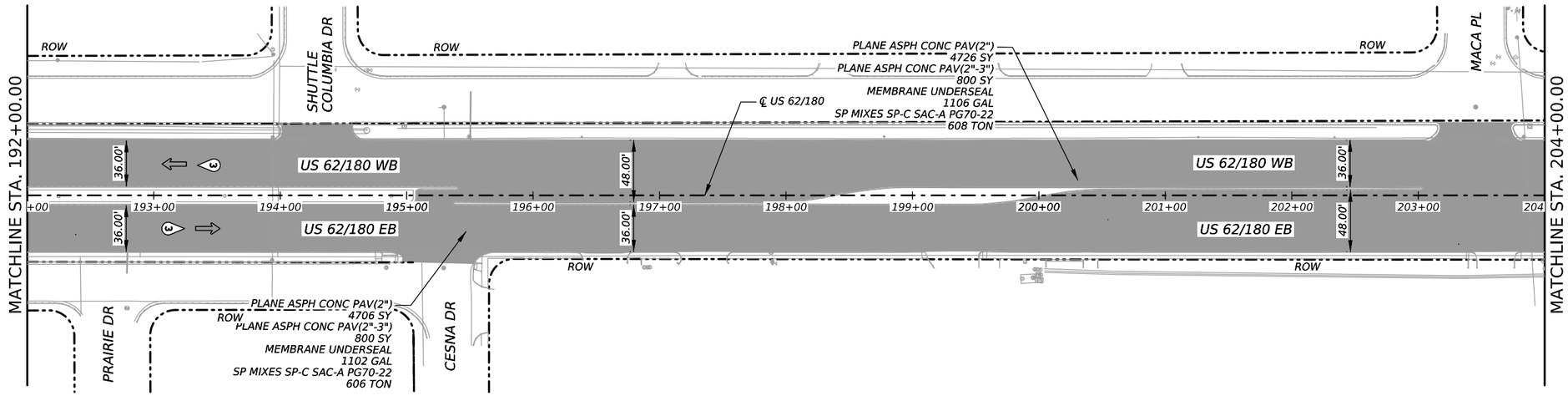
US62|US180

ROADWAY LAYOUT
STA 168+00 TO STA 192+00

SHEET 8 OF 14

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
CHK	OEI	24	SEE TITLE SHEET	66
DRN	OEI	STATE	DIST.	COUNTY
CHK	OEI	TEXAS	ELP	EL PASO
		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

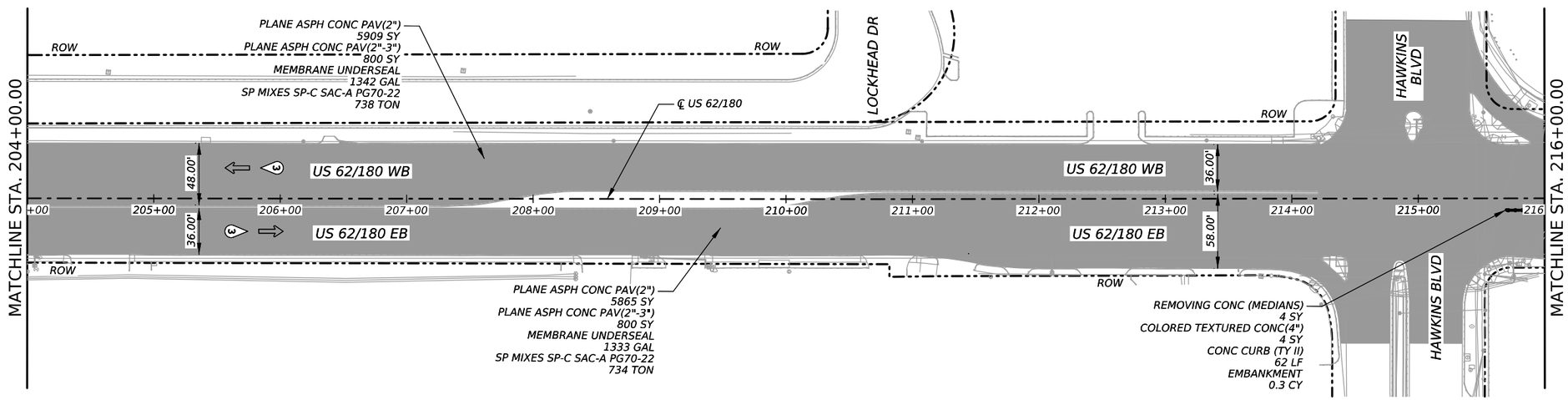
DATE: 2/5/2024
FILE: c:\pw\workingdir\omega-app02.omegaengineers.local_omega-prod\omega_lcamarena\dms18810\US 62 - US62-S-RDWY-PLN08.dgn



ROADWAY SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
132	6001	EMBANKMENT (FINAL)(ORD COMP)(TY A)	CY	0.3
354	6045	PLANE ASPH CONC PAV (2")	SY	21,206
354	6068	PLANE ASPH CONC PAV (2"-3") ***(*)***	SY	3,200
528	6001	COLORED TEXTURED CONC (4")	SY	4
529	6002	CONC CURB (TY II)	LF	62
3002	6001	MEMBRANE UNDERSEAL	GAL	4,883
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	2,686

REMOVALS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
104	6011	REMOVING CONC (MEDIANS)	SY	4

(*) *AT CURB LOCATIONS ALONG THE OUTSIDE LANE, PLANNING (2"-3") WILL BE PERFORMED TO EXPOSE EXISTING CURB. REFER TO NOTE 5.*



LEGEND

- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.

0 50 100

SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER
2/5/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

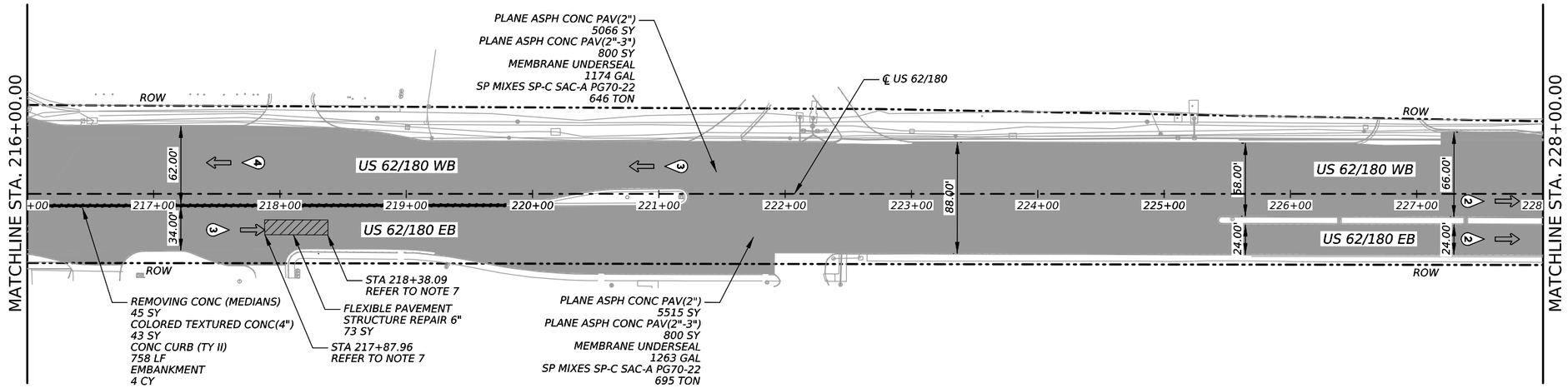
US62|US180

ROADWAY LAYOUT
STA 192+00 TO STA 216+00

SHEET 9 OF 14

		FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
DSN	OEI	24	SEE TITLE SHEET		67
CHK	OEI	STATE	DIST.	COUNTY	
DRN	OEI	TEXAS	ELP	EL PASO	
CHK	OEI	CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

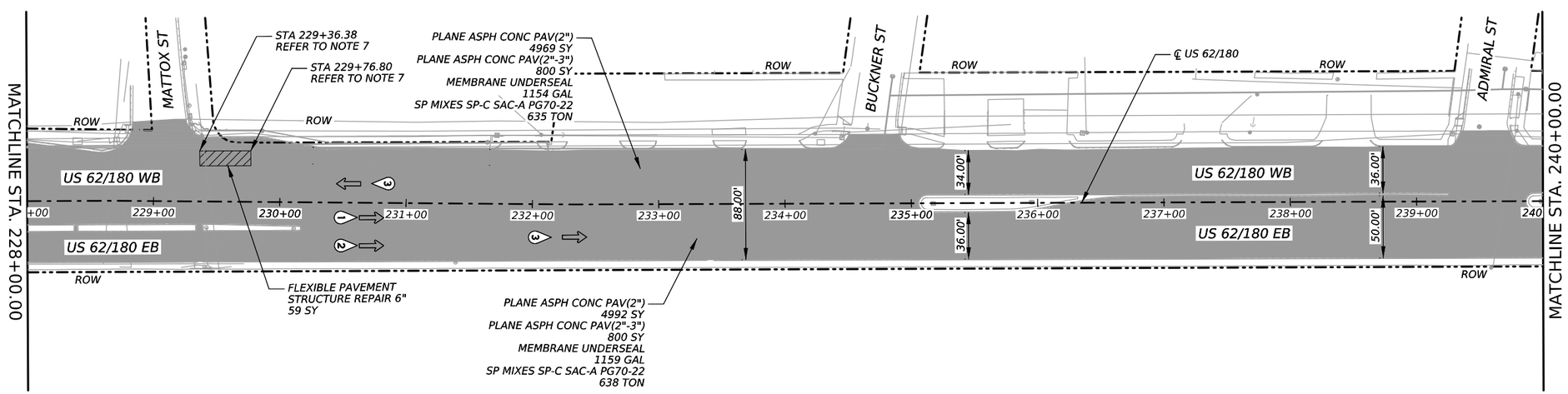
DATE: 2/5/2024
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_\camarenaldms18810\US 62 - US62-S-RDWY-PLN09.dgn



ROADWAY SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
132	6001	EMBANKMENT (FINAL)(ORD COMP)(TY A)	CY	4
351	6002	FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")	SY	132
354	6045	PLANE ASPH CONC PAV (2")	SY	20,542
354	6068	PLANE ASPH CONC PAV (2"-3") ***(*)***	SY	3,200
528	6001	COLORED TEXTURED CONC (4")	SY	43
529	6002	CONC CURB (TY II)	LF	758
3002	6001	MEMBRANE UNDERSEAL	GAL	4,750
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	2,614

REMOVALS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
104	6011	REMOVING CONC (MEDIANS)	SY	45

(*) *AT CURB LOCATIONS ALONG THE OUTSIDE LANE, PLANNING (2"-3") WILL BE PERFORMED TO EXPOSE EXISTING CURB. REFER TO NOTE 5.*



LEGEND

- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.
7. REFER TO FULL DEPTH REPAIR LIMITS TABLE FOR ADDITIONAL INFORMATION. TABLE LOCATED ON PAGE NO. 16 OF THE PLAN SET, ON SHEET 2 OF 4 OF THE QUANTITY SUMMARIES.

0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER
2/5/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

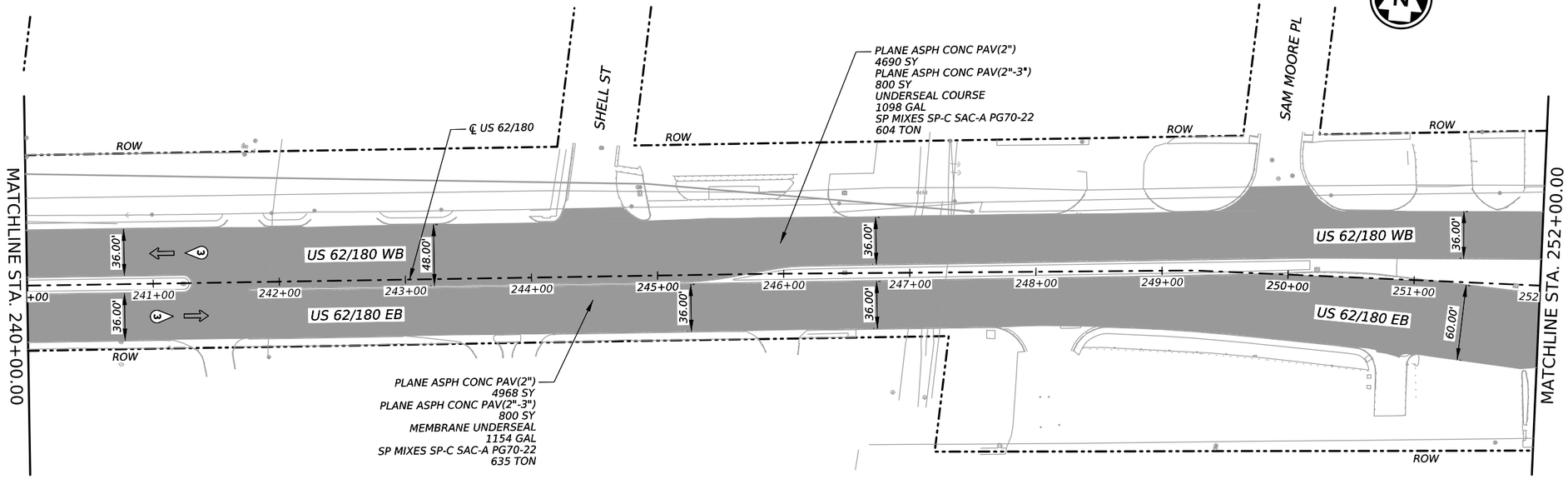
US62|US180

ROADWAY LAYOUT
STA 216+00 TO STA 240+00

SHEET 10 OF 14

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
CHK	OEI	24	SEE TITLE SHEET	68
DRN	OEI	STATE	DIST.	COUNTY
CHK	OEI	TEXAS	ELP	EL PASO
		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/5/2024
FILE: c:\pw\working\dir\omega-app02.omegaengineers.local_omega-prod\omega_lcamarena\dms18810\US 62 - US62-S-RDWY-PLN10.dgn



LEGEND

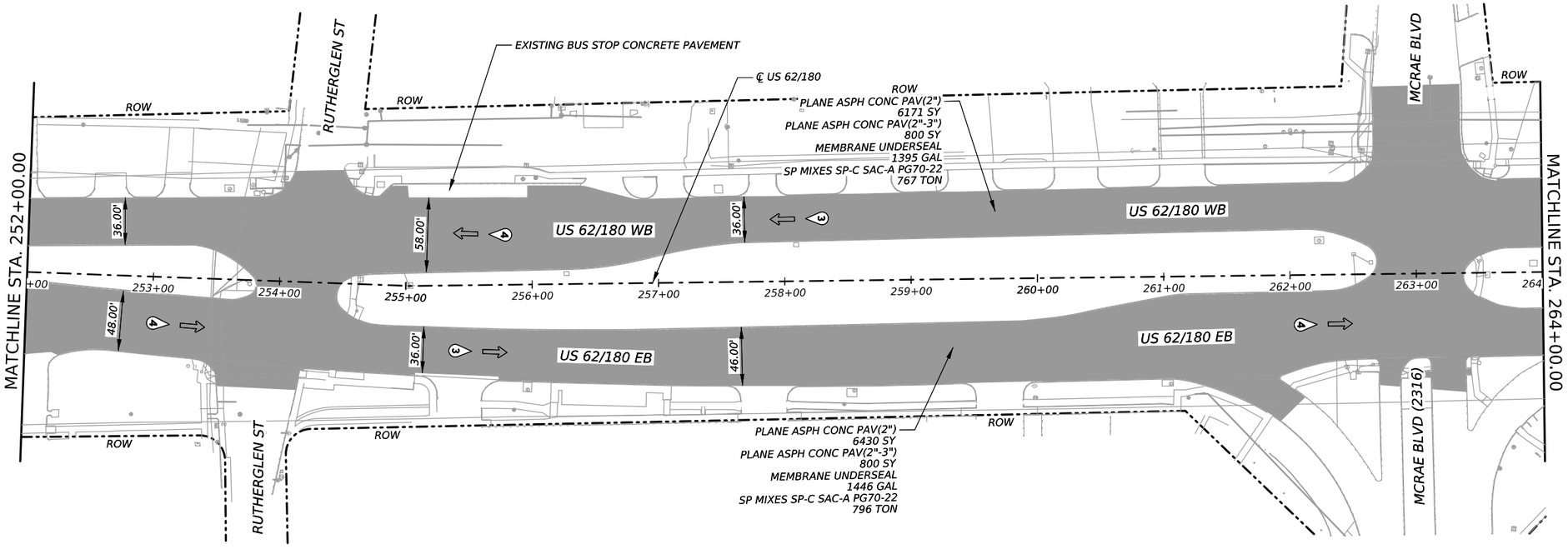
- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.

ROADWAY SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
354	6045	PLANE ASPH CONC PAV (2")	SY	22,259
354	6068	PLANE ASPH CONC PAV (2"-3") *(*)*	SY	3,200
3002	6001	MEMBRANE UNDERSEAL	GAL	5,093
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	2,802

(*) AT CURB LOCATIONS ALONG THE OUTSIDE LANE, PLANNING (2"-3") WILL BE PERFORMED TO EXPOSE EXISTING CURB. REFER TO NOTE 5.



0 50 100

SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

2/5/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

US62|US180

ROADWAY LAYOUT
STA 240+00 TO STA 264+00

SHEET 11 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	69
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/5/2024
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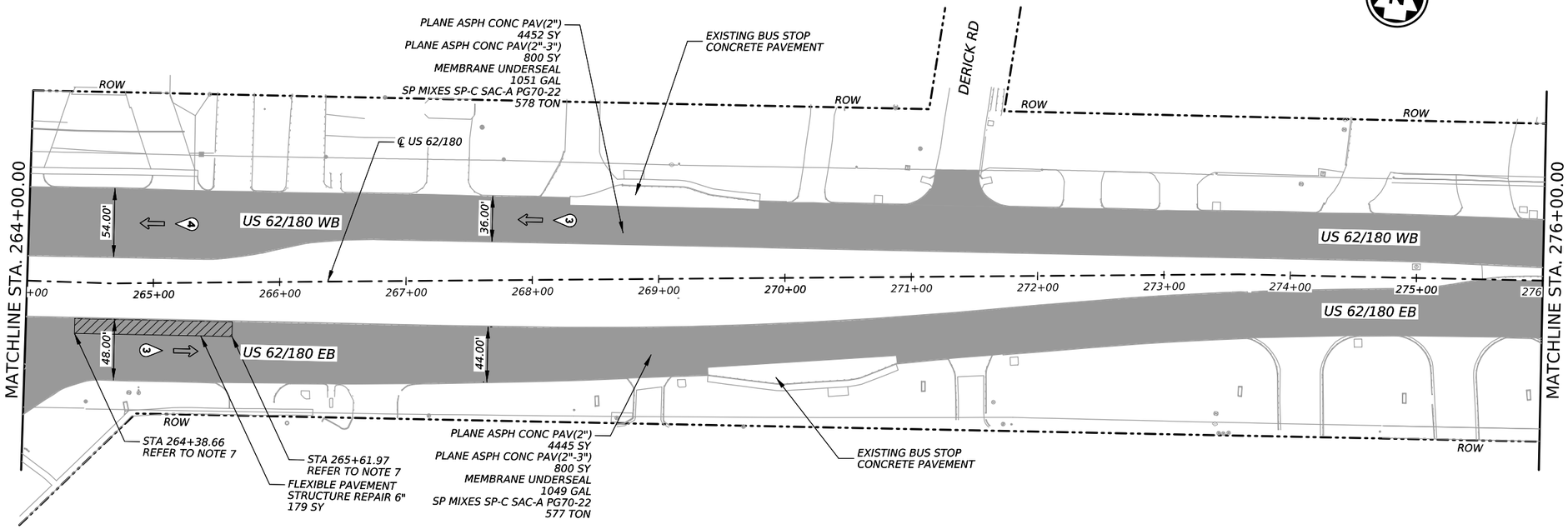


LEGEND

- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

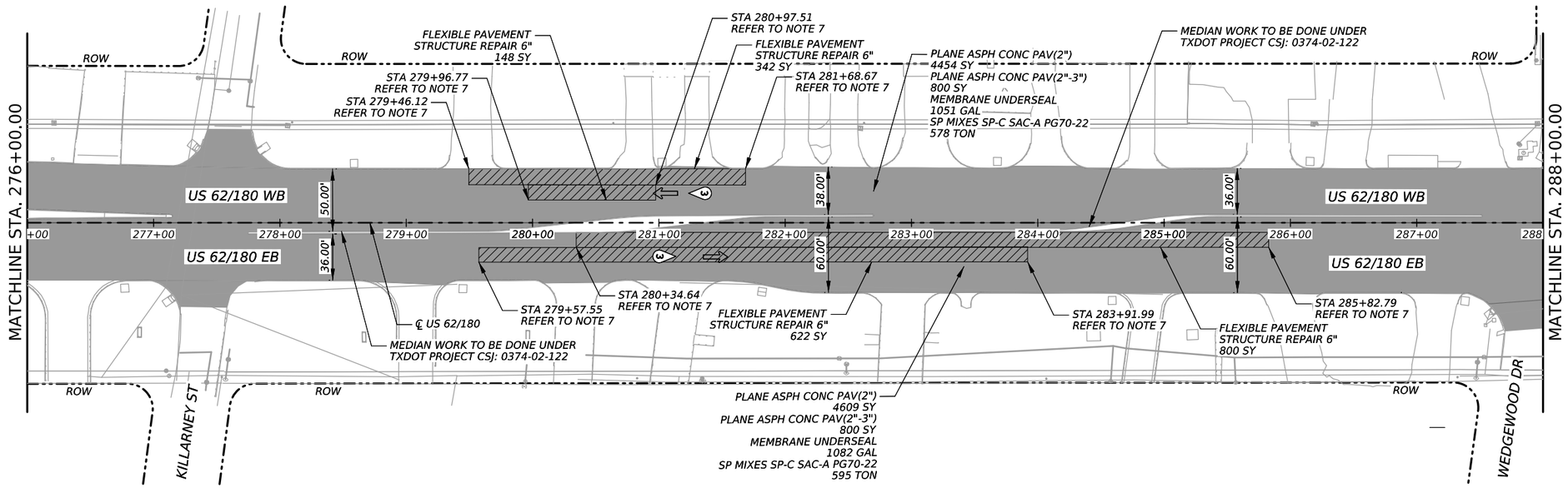
1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.
7. REFER TO FULL DEPTH REPAIR LIMITS TABLE FOR ADDITIONAL INFORMATION. TABLE LOCATED ON PAGE NO. 16 OF THE PLAN SET, ON SHEET 2 OF 4 OF THE QUANTITY SUMMARIES.

0 50 100

SCALE: 1"=100'

ROADWAY SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
351	6002	FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")	SY	2,091
354	6045	PLANE ASPH CONC PAV (2")	SY	17,960
354	6068	PLANE ASPH CONC PAV (2"-3") *(*)*	SY	3,200
3002	6001	MEMBRANE UNDERSEAL	GAL	4,233
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	2,328

(*) AT CURB LOCATIONS ALONG THE OUTSIDE LANE, PLANNING (2"-3") WILL BE PERFORMED TO EXPOSE EXISTING CURB. REFER TO NOTE 5.



DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

2/6/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS,COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

Texas Department of Transportation®

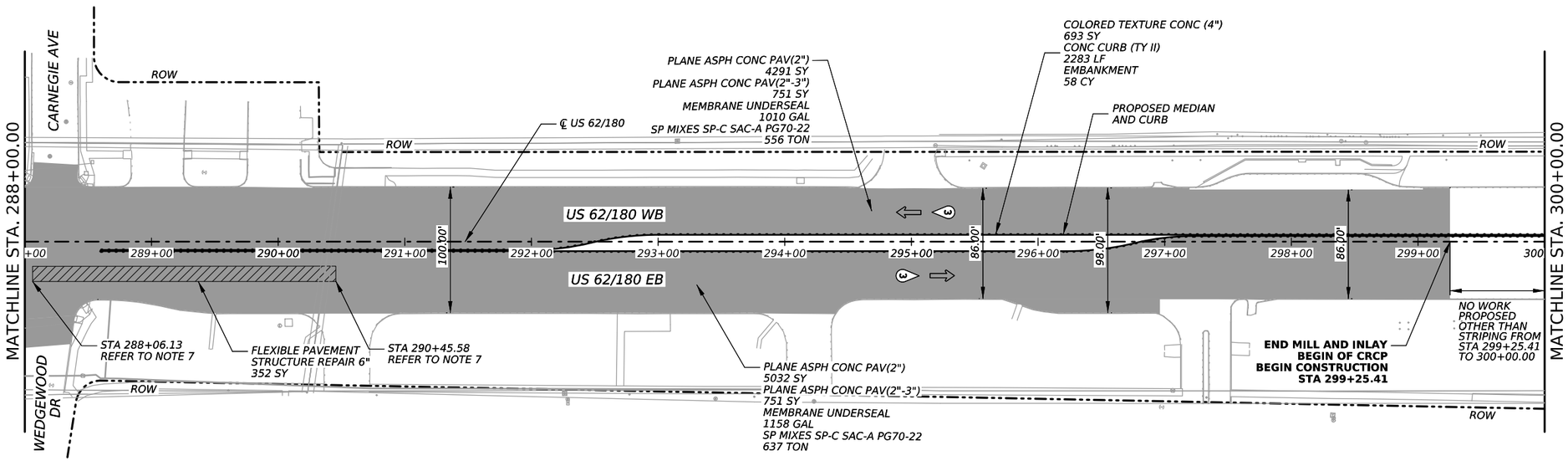
US62|US180

ROADWAY LAYOUT
STA 264+00 TO STA 288+00

SHEET 12 OF 14

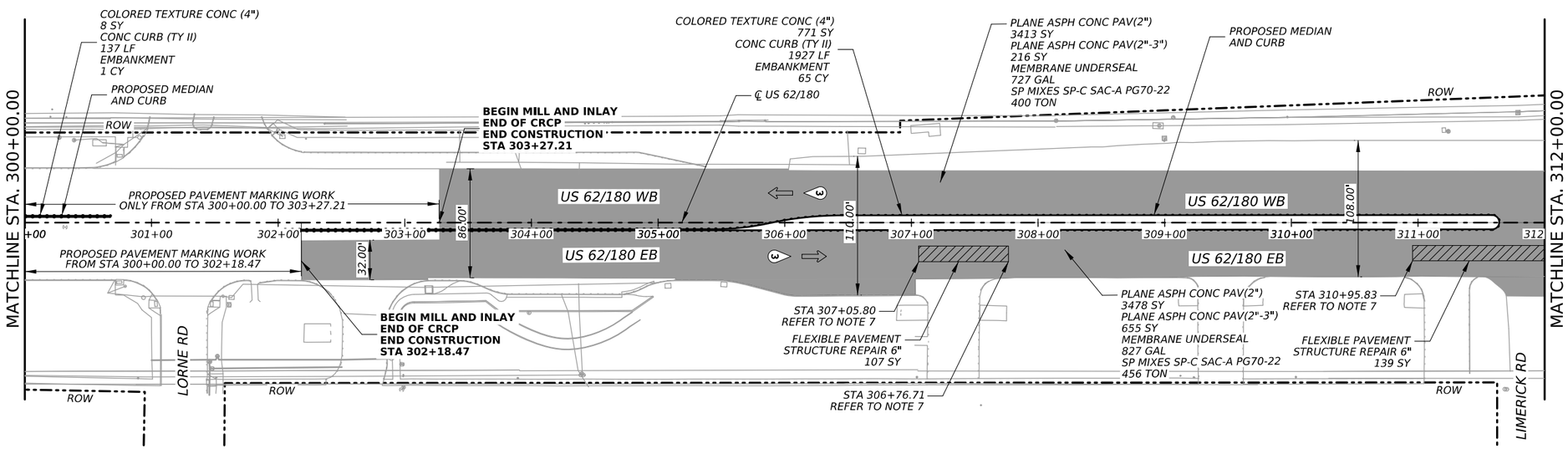
DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
CHK	OEI	24	SEE TITLE SHEET	70
DRN	OEI	STATE	DIST.	COUNTY
CHK	OEI	TEXAS	ELP	EL PASO
		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/6/2024
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_lcamarenaldms18810\US 62 - US62-S-RDWY-PLN12.dgn



ROADWAY SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
132	6001	EMBANKMENT (FINAL)(ORD COMP)(TY A)	CY	124
351	6002	FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")	SY	598
354	6045	PLANE ASPH CONC PAV (2")	SY	16,214
354	6068	PLANE ASPH CONC PAV (2"-3") *(*)*	SY	2,373
528	6001	COLORED TEXTURED CONC (4")	SY	1,472
529	6002	CONC CURB (TY II)	LF	4,347
3002	6001	MEMBRANE UNDERSEAL	GAL	3,722
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	2,049

(*) AT CURB LOCATIONS ALONG THE OUTSIDE LANE, PLANNING (2"-3") WILL BE PERFORMED TO EXPOSE EXISTING CURB. REFER TO NOTE 5.



LEGEND

- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
6. 2" MILL AND INLAY LIMITS AT ALL ADJACENT CROSS STREETS WILL BE PAID UP TO THE RADIUS OF RETURN.
7. REFER TO FULL DEPTH REPAIR LIMITS TABLE FOR ADDITIONAL INFORMATION. TABLE LOCATED ON PAGE NO. 16 OF THE PLAN SET, ON SHEET 2 OF 4 OF THE QUANTITY SUMMARIES.

0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER
2/5/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR. STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

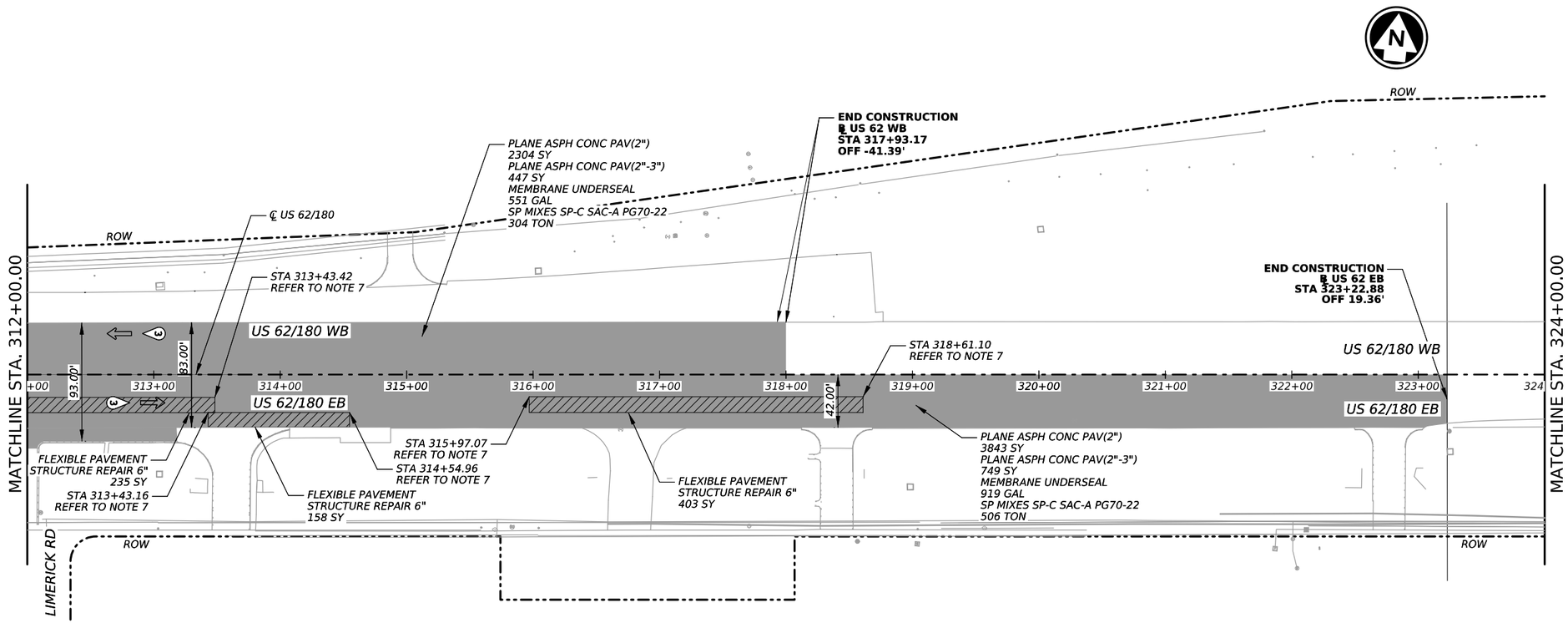
US62|US180

ROADWAY LAYOUT
STA 288+00 TO STA 312+00

SHEET 13 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	71
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/5/2024
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_lcamarena\dms18810\US 62 - US62-S-RDWY-PLN13.dgn



LEGEND

- PROPOSED MILL AND INLAY (2")
- PROPOSED MICRO-MILLING (0" - 2")
- PROPOSED MILL AND INLAY (5")
- PROPOSED FLEXIBLE STRUCTURE REPAIR (6")
- EXISTING DIRECTION OF TRAFFIC
- EXISTING LANES
- RIGHT OF WAY

NOTES:

1. BEGIN/END WORK SHALL BE AT HMAC/CRCP JOINT OR AT BEGIN/END OF HMAC BRIDGE JOINTS.
2. DRIVEWAY/ INTERSECTION WORK WILL EXTEND TO ROW LIMITS.
3. PAVEMENT AND/OR CURB RETURNS AS SHOWN REMOVED NEED TO BE REPLACED THE SAME DAY.
4. QUANTITIES PROVIDED FOR MILL AND INLAY ARE TO BE USED AT THE DISCRETION OF THE ENGINEER.
5. IN OUTSIDE LANE LOCATIONS, EXISTING CURB MUST BE EXPOSED AFTER MILL & INLAY. REFER TO THE DETAIL "CONCRETE CURB AND CURB AND GUTTER" ON THE ROADWAY DETAIL SHEET.
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7. REFER TO FULL DEPTH REPAIR LIMITS TABLE FOR ADDITIONAL INFORMATION. TABLE LOCATED ON PAGE NO. 16 OF THE PLAN SET, ON SHEET 2 OF 4 OF THE QUANTITY SUMMARIES.

0 50 100

SCALE: 1"=100'

ROADWAY SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
351	6002	FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")	SY	796
354	6045	PLANE ASPH CONC PAV (2")	SY	6,147
354	6068	PLANE ASPH CONC PAV (2"-3") ***(*)***	SY	1,196
3002	6001	MEMBRANE UNDERSEAL	GAL	1,470
3077	6022	SP MIXES SP-C SAC-A PG70-22	TON	810

(*) *AT CURB LOCATIONS ALONG THE OUTSIDE LANE, PLANNING (2"-3") WILL BE PERFORMED TO EXPOSE EXISTING CURB. REFER TO NOTE 5.*

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

2/6/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

Texas Department of Transportation®

US62|US180

ROADWAY LAYOUT
STA 312+00 TO STA 336+00

SHEET 14 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	72
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

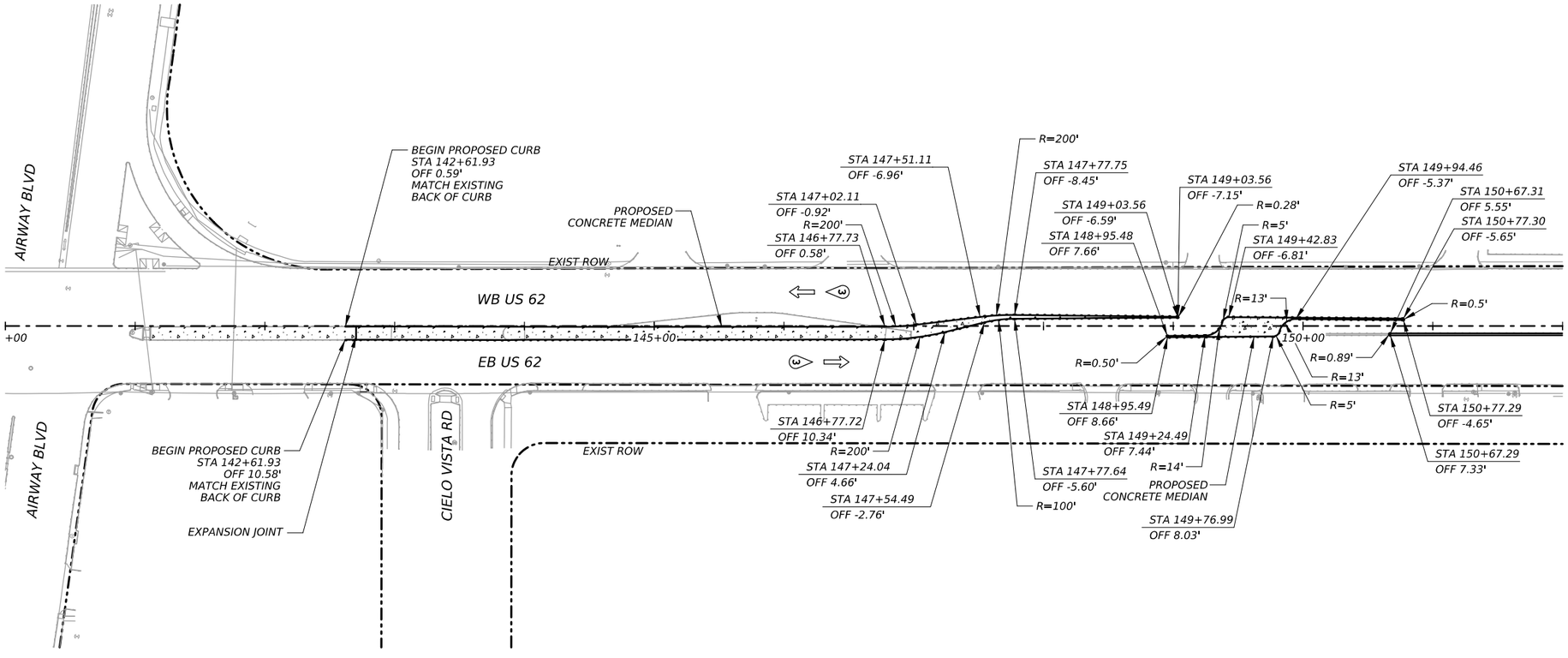
DATE: 2/6/2024
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_lcamarena\dms18810\US 62 - US62-S-RDWY-PLN14.dgn

LEGEND

- DIRECTION OF TRAFFIC
- NUMBER OF LANES
- PROPOSED MEDIAN

NOTES:

1. POINTS AND RADIUS DIMENSIONS ARE AT BACK OF CURB.



(*) EXPANSION JOINT LOCATION TO MATCH EXISTING CRCP AND ASPHALT PAVEMENT

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

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MEDIAN LAYOUT

SHEET 1 OF 3

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	73
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
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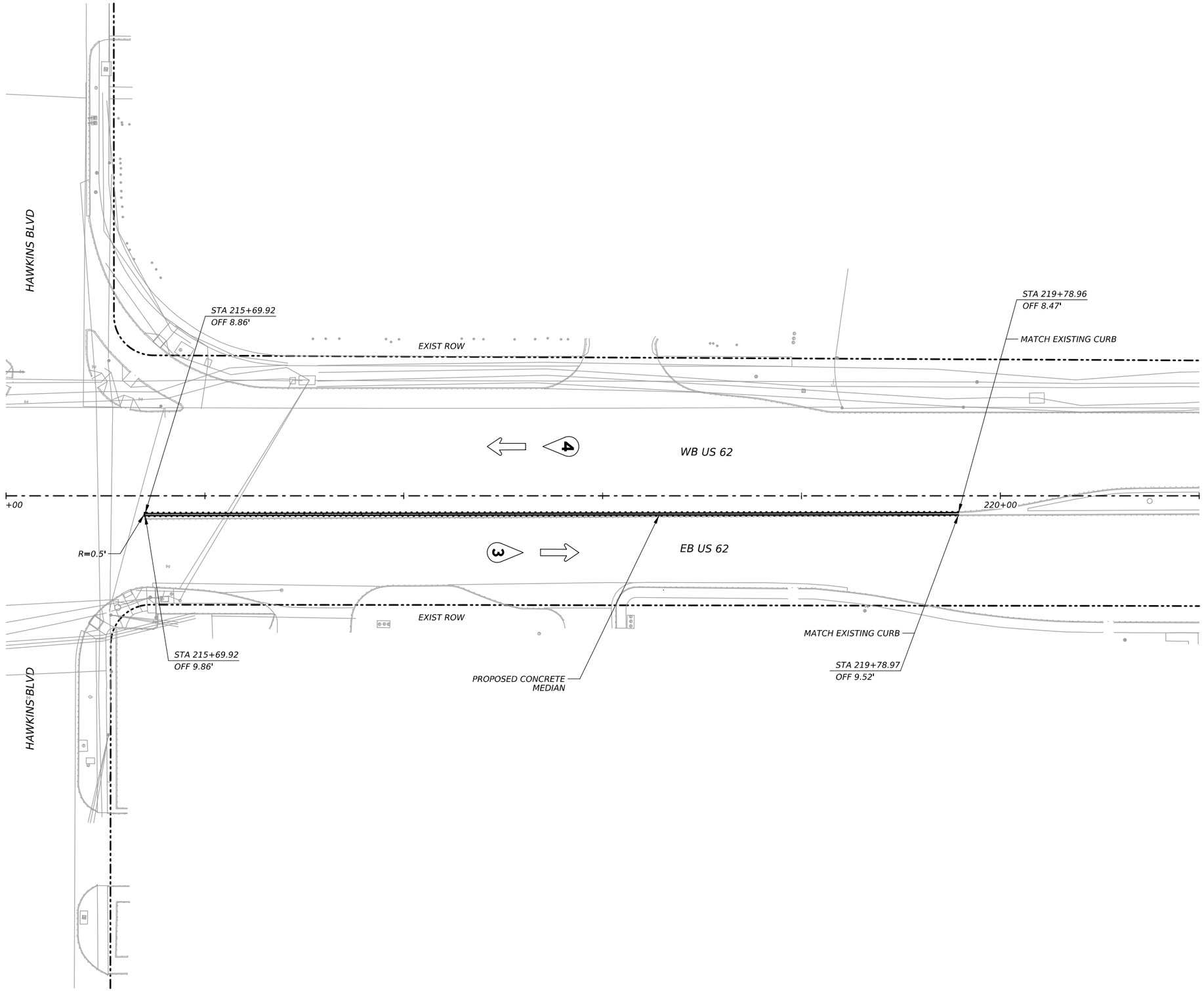

LEGEND

- DIRECTION OF TRAFFIC
- NUMBER OF LANES
- PROPOSED MEDIAN

NOTES:

1. POINTS AND RADIUS DIMENSIONS ARE AT BACK OF CURB.

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MEDIAN LAYOUT

SHEET 2 OF 3

		FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
DSN	OEI	24	SEE TITLE SHEET		74
CHK	OEI	STATE	DIST.	COUNTY	
DRN	OEI	TEXAS	ELP	EL PASO	
CHK	OEI	CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

DATE: 12/28/2023
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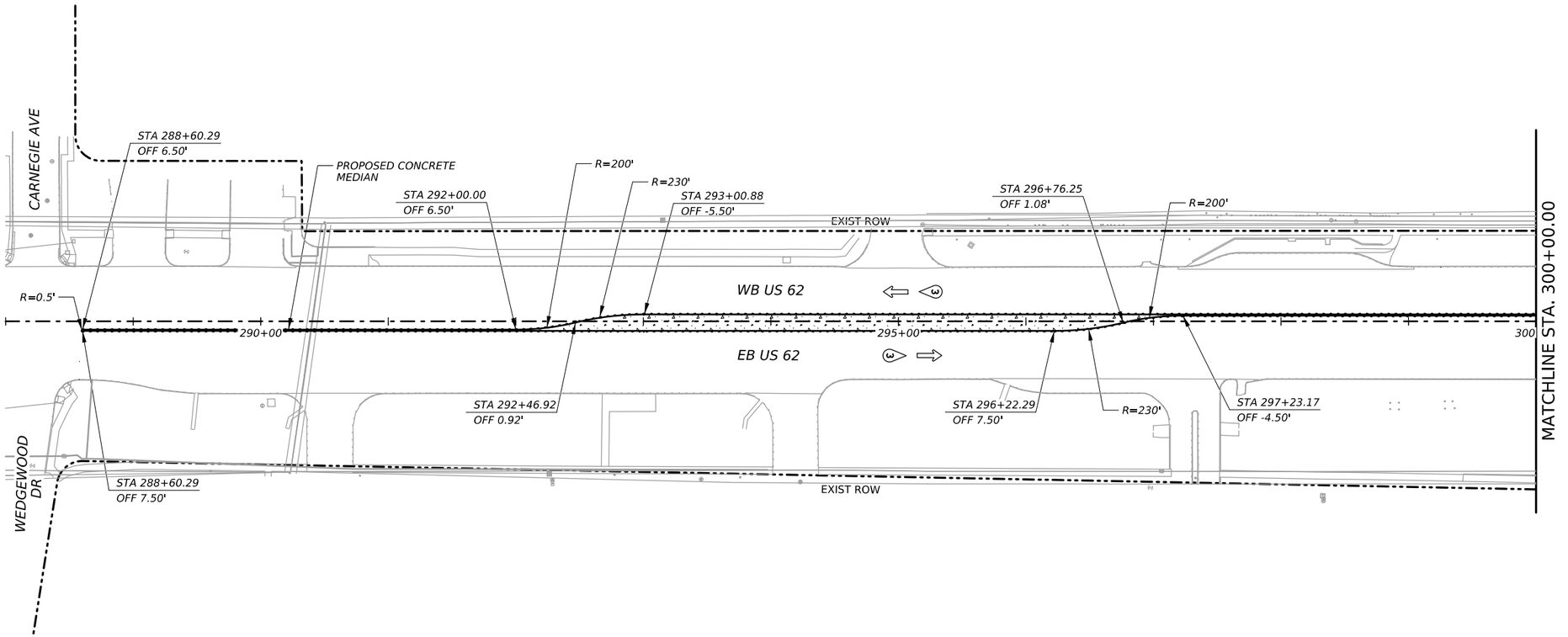

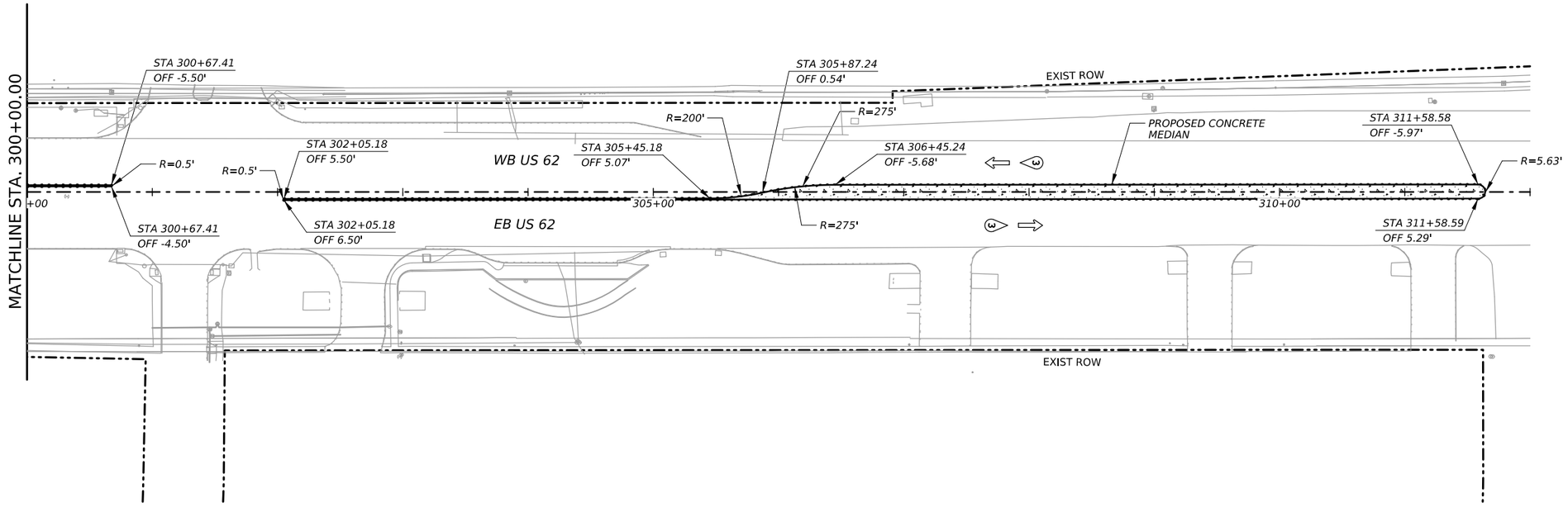

LEGEND

- DIRECTION OF TRAFFIC
- NUMBER OF LANES
- PROPOSED MEDIAN

NOTES:

1. POINTS AND RADIUS DIMENSIONS ARE AT BACK OF CURB.

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MEDIAN LAYOUT

SHEET 3 OF 3

		FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
DSN	OEI	24	SEE TITLE SHEET		75
CHK	OEI	STATE	DIST.	COUNTY	
DRN	OEI	TEXAS	ELP	EL PASO	
CHK	OEI	CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

DATE: 12/28/2023
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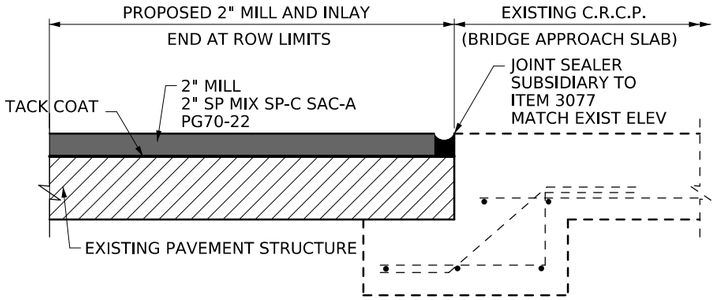
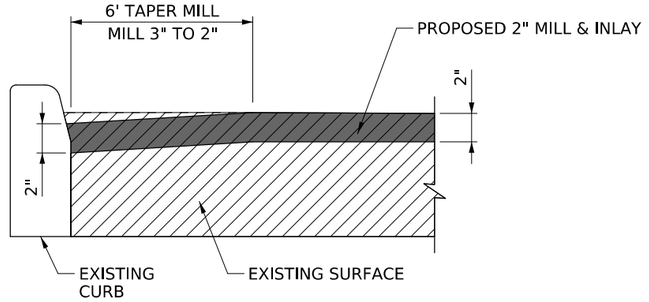


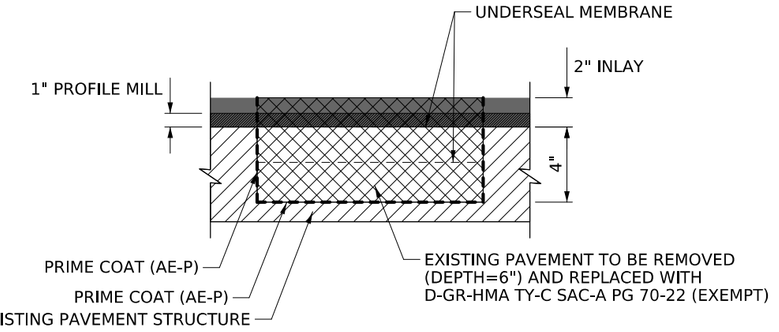
PROPOSED ASPHALT TO CRCP TRANSITION DETAIL SECTION A-A

SCALE: NTS



CURBED SECTION END TREATMENT TYPICAL DETAIL

SCALE: NTS

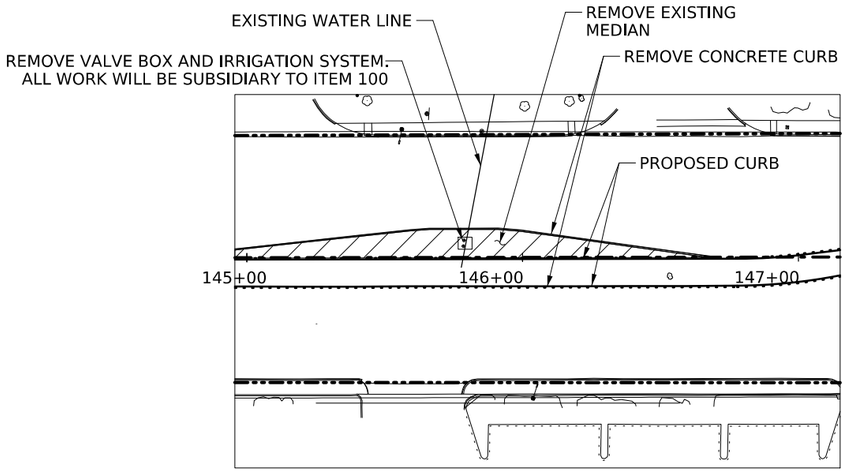


FLEXIBLE PAVEMENT REPAIR DETAIL

SCALE: NTS

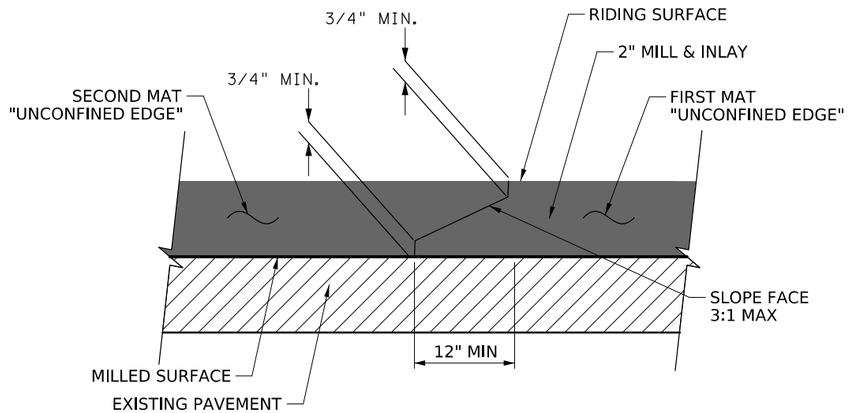
FLEXIBLE PAVEMENT REPAIR DETAIL NOTES

1. *EXACT LOCATIONS MUST BE VERIFIED WITH THE ENGINEER. QUANTITIES WILL BE ADJUSTED AS DIRECTED BY THE ENGINEER*
2. *PROVIDE MATERIALS OF TYPE AND GRADE AS SHOWN BELOW AND IN ACCORDANCE WITH ITEM 3077, "EXEMPT PRODUCTION" THE FOLLOWING DATA IS FOR THE CONTRACTOR'S INFORMATION ONLY AND WILL BE SUBSIDIARY TO ITEM 351, "FLEXIBLE PAVEMENT STRUCTURE REPAIR": SP-C SAC-A PG70-22 (EXEMPT, 1 IN = 110 LBS/SY) PRIME COAT = 0.15 GAL/SY UNDERSEAL MEMBRANE = 0.20 GAL/SY*
3. *IF FLEX BASE IS EXPOSED, PRIME COAT IS TO BE APPLIED FOR PROPER BONDING, WHEN NO FLEX BASE IS EXPOSED, UNDERSEAL MEMBRANE SHALL BE APPLIED TO BOND WITH EXISTING PAVEMENT.*
4. *CONTRACTOR TO PROVIDE CLEAN SAW-CUT EDGES.*
5. *PLACE 6" OF PROPOSED MIXTURE AND COMPACT TO REQUIRED DENSITY. MATCH THE EXISTING PAVEMENT STRUCTURE ELEVATION.*
6. *SEE PROPOSED PAVEMENT DETAILS FOR LOCATIONS OF PAVEMENT REPAIR.*



VALVE BOX ADJUSTMENT DETAIL AT CIELO VISTA MEDIAN

SCALE: NTS



LONGITUDE "WEDGE" JOINT DETAIL

SCALE: NTS

LONGITUDE "WEDGE" JOINT DETAIL NOTES

1. *CONSTRUCT LONGITUDAL JOINTS BY TAPERING THE SURFACE TREATMENT MAT.*
2. *EXTEND THE TAPERED PORTION BEYOND THE NORMAL PAYING LANE WIDTH TO AVOID JOINTS AND TAPERS IN THE WHEEL PATH.*
3. *CONSTRUCT THE TAPERED PORTION OF THE MAT USING A STRIKE OFF DEVICE THAT WILL PROVIDE A UNIFORM SLOPE AND WILL NOT RESTRICT THE MAIN SCREED.*
4. *COMPACT THE TAPER USING A PNEUMATIC ROLLER OR A STATIC WHEEL ROLLER WITHOUT DAMAGING THE NOTCH.*
5. *APPLY TACK COAT TO THE IN-PLACE TAPER BEFORE PLACING THE ADJACENT MAT.*
6. *FINAL DENSITY REQUIREMENTS FOR THE ENTIRE PAVEMENT INCLUDING THE TAPERED AREA WILL REMAIN UNCHANGED.*
7. *THE ENGINEER MAY WAIVE THE TAPERED JOINT REQUIREMENTS.*
8. *FULL PAVING OF ALL LANES AND SHOULDERS BY THE END OF EACH DAY'S PRODUCTION WILL REQUIRE A TAPERED JOINT.*
9. *INLAY OPERATIONS TO MATCH THE EXISTING PAVEMENT GRADE ELEVATION.*
10. *MATCH EXISTING ROADWAY CROSS SLOPE AND OUTSIDE EDGE PAVEMENT.*

SCALE: N.T.S.

DATE	BY	REV	REVISION

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2/5/2024

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OMEGAENGINEERS,COM
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P:915 308 6415 F:281 647 9184

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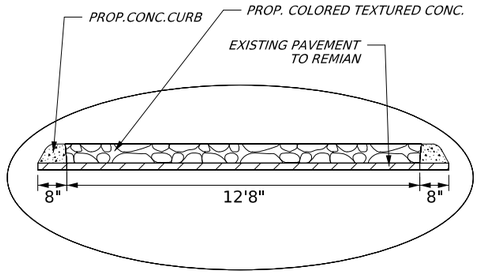
ROADWAY

DETAILS

SHEET 1 OF 1

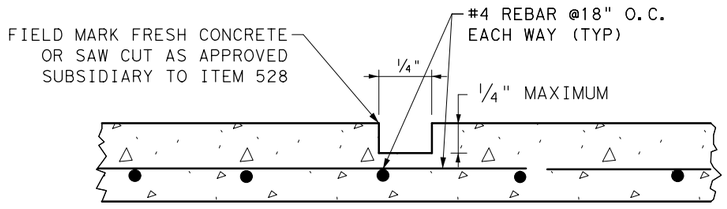
DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
CHK	OEI	24	SEE TITLE SHEET		76
DRN	OEI	STATE	DIST.	COUNTY	
CHK	OEI	TEXAS	ELP	EL PASO	
		CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

DATE: 2/5/2024
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_lcamarenaldms18810\US 62 - US62-S-RDWY-MISC-DTLS_01.dgn



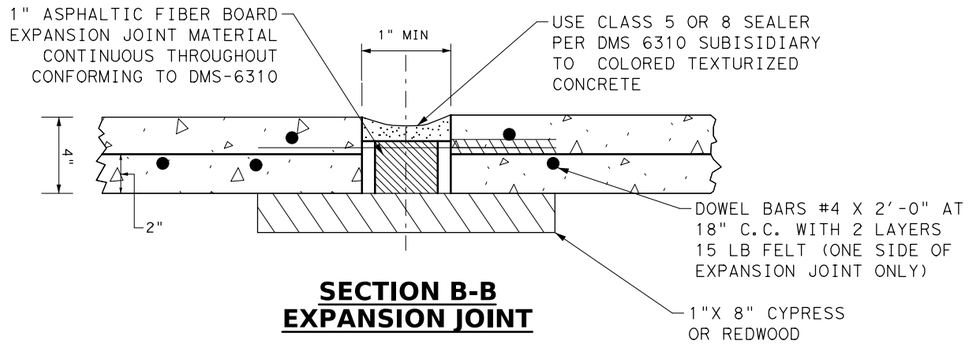
DETAIL "D"

NOT TO SCALE



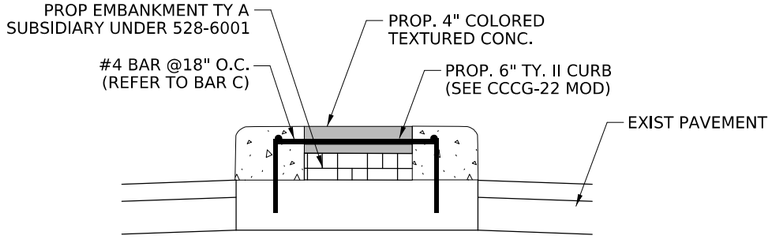
SECTION A-A CONTROL JOINT

NOT TO SCALE

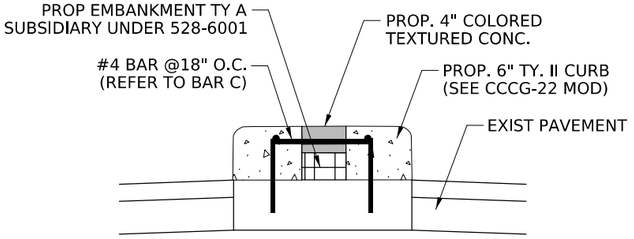


SECTION B-B EXPANSION JOINT

SCALE: NTS



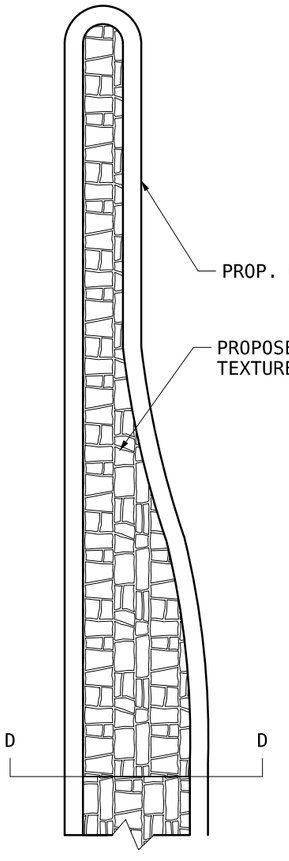
CURB DETAIL (MEDIAN WIDTH VARIES 2'0" - 14'6")



CURB DETAIL (MEDIAN WIDTH = 1')

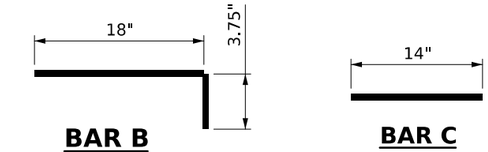
NOTES:

1. *ROUND EXPOSED SHARP EDGES WITH A ROUNDING TOOL, TO A MINIMUM RADIUS OF ¼ INCH*
2. *EXPANSION AND CONTRACTION JOINTS SHALL BE CONSTRUCTED TO MATCH PAVEMENT JOINTS IN ALL CURBS AND CURB AND GUTTER ADJACENT TO JOINTED CONCRETE PAVEMENT. WHERE PLACEMENT OF CURB OR CURB AND GUTTER IS NOT ADJACENT TO CONCRETE PAVEMENT, EXPANSION JOINTS SHALL BE PROVIDED AT STRUCTURES, CURB RETURNS AT STREETS, AND AT LOCATIONS DIRECTED BY THE ENGINEER*



MEDIAN DETAIL A

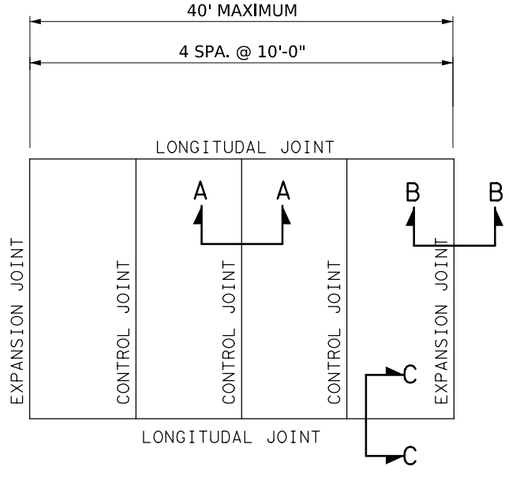
SCALE: NTS

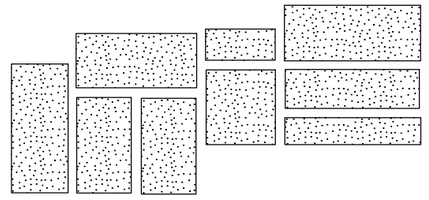


BAR B

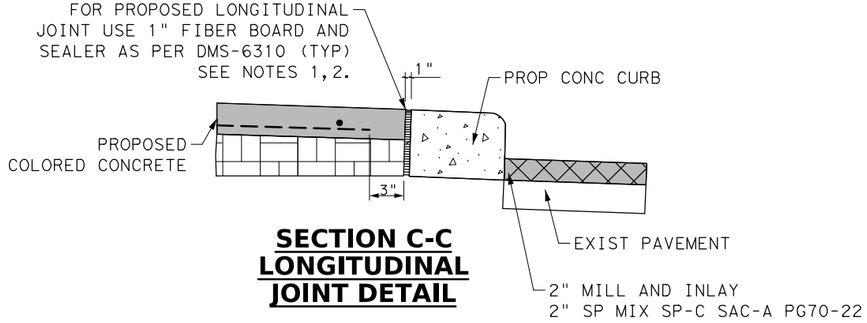
BAR B WILL BE LAPPED ON MEDIANS WITH WIDTH GREATER THAN 2'

BAR C





COLORED TEXTURED CONCRETE PATTERN: "ASHLAR SLATE"



SECTION C-C LONGITUDINAL JOINT DETAIL

SCALE: NTS

SCALE: N.T.S.

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ROADWAY

DETAILS

SHEET 2 OF 2

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	77
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
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DATE: 12/29/2023
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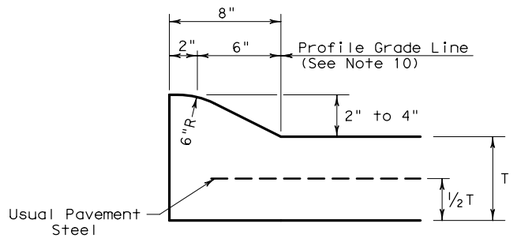
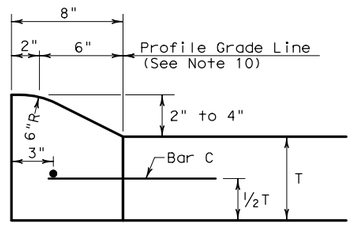
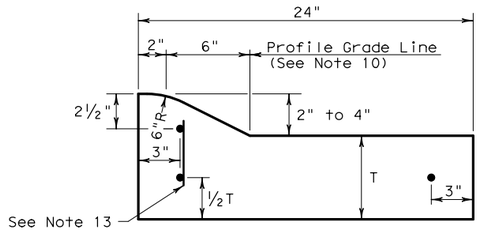


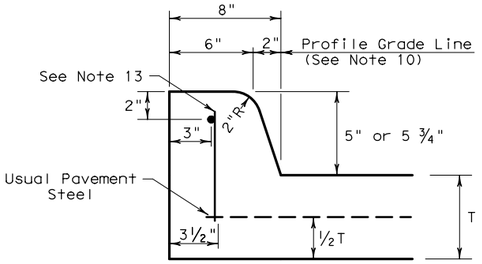
TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



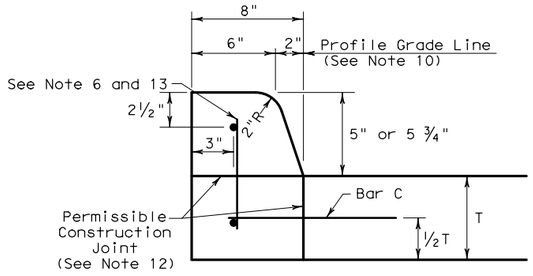
TYPE I CURB
2" - 4" HEIGHT



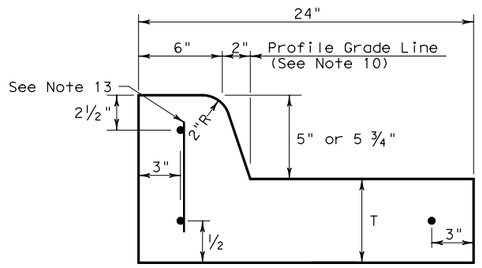
TYPE I CURB AND GUTTER
2" - 4" HEIGHT



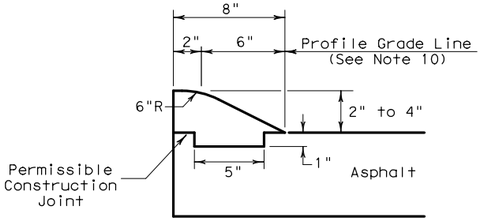
TYPE II CURB (MONOLITHIC)
5" - 5 ¾" HEIGHT



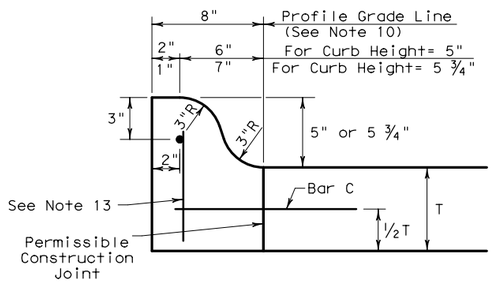
TYPE II CURB
5" - 5 ¾" HEIGHT



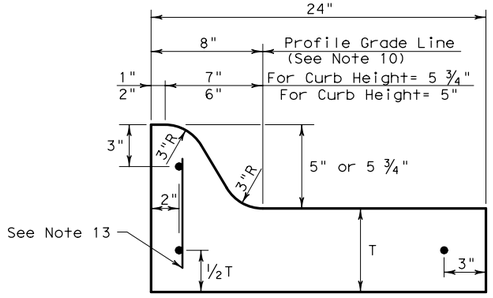
TYPE II CURB AND GUTTER
5" - 5 ¾" HEIGHT



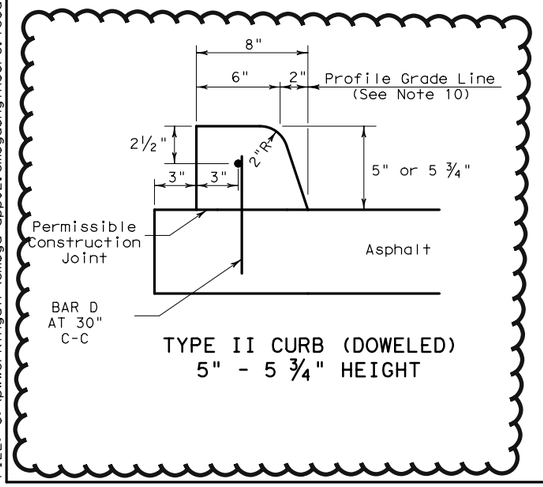
TYPE III CURB (KEYED)
2" - 4" HEIGHT



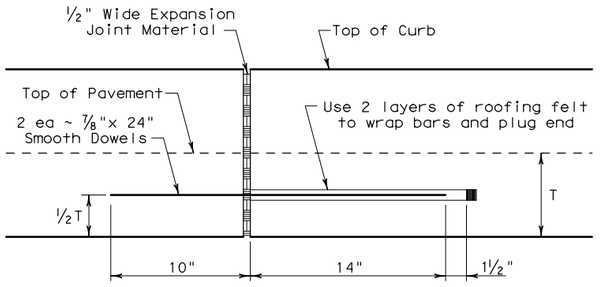
TYPE IIa CURB
5" - 5 ¾" HEIGHT



TYPE IIa CURB AND GUTTER
5" - 5 ¾" HEIGHT

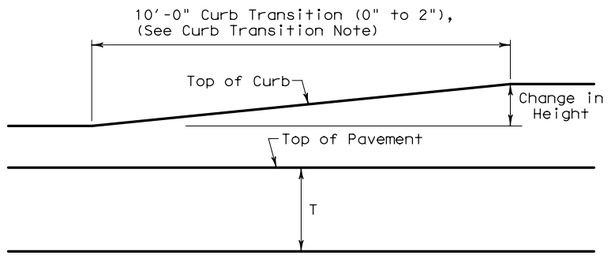


TYPE II CURB (DOWELED)
5" - 5 ¾" HEIGHT



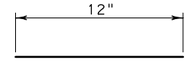
EXPANSION JOINT DETAIL

CURB TRANSITION NOTE:
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.



CURB TRANSITION
Note: To be paid for as Highest Curb

BAR B



BAR C

GENERAL NOTES

1. All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
2. Concrete shall be Class A.
3. When reinforcing bars are used, they shall be No.4 unless otherwise shown. The use of fiber reinforced concrete in lieu of reinforcing steel is acceptable. Use fibers meeting the requirements of DMS 4550, "Fibers for Concrete," and dose fibers in accordance with Material Producers List (MPL) "Fibers for Class A and B Concrete Applications."
4. Round exposed sharp edges with a rounding tool, to a minimum radius of ¼ inch.
5. All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
6. Where concrete curb is to be placed on existing concrete pavement, Bar B may be drilled and grouted in place, or may be inserted into fresh concrete.
7. Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
8. Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C~C.
9. Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
10. Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
12. When horizontal permissible construction joints are used, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans. Reinforcing steel for curb section shall then conform to that required for concrete curb.
13. Bar B placement as needed (typically at four ft. C-C) to support curb reinforcing steel during concrete placement.

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED
PROFESSIONAL ENGINEER

12/29/2023

Texas Department of Transportation

Design Division Standard

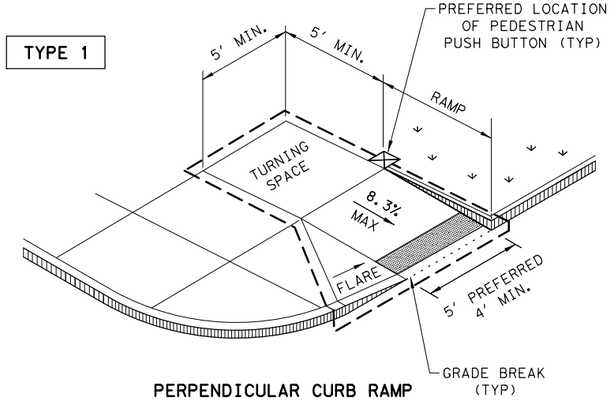
CONCRETE CURB AND CURB AND GUTTER

CCCG-22 (MOD)

FILE: cccg21.dgn	DN: TXDOT	CK: AN	DW: CS	CK: KM
©TxDOT: JUNE 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120,ETC.	US 62,ETC
	DIST	COUNTY		SHEET NO.
	24	EL PASO		78

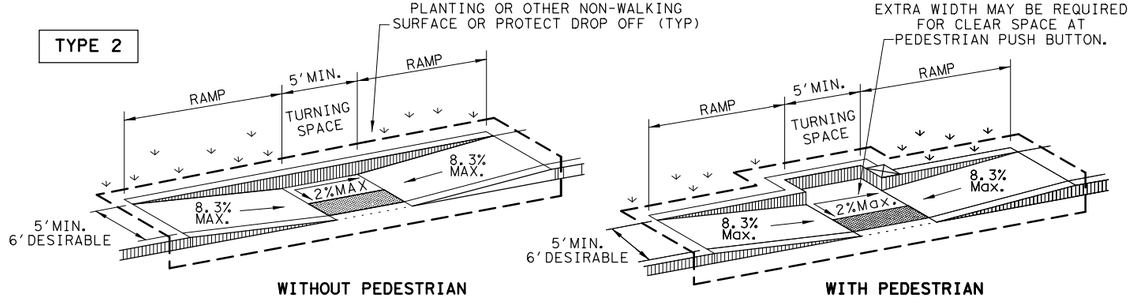
DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms19942\ped18-1.dgn

TYPE 1



PERPENDICULAR CURB RAMP

TYPE 2

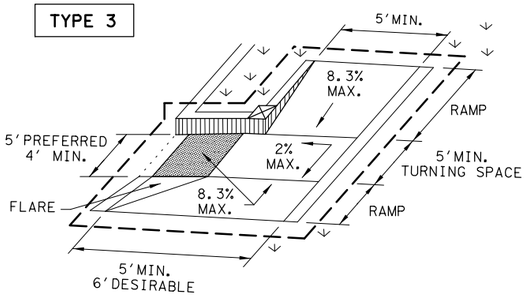


WITHOUT PEDESTRIAN PUSH BUTTON

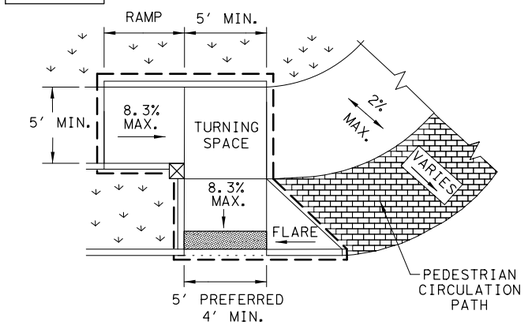
WITH PEDESTRIAN PUSH BUTTON

PARALLEL CURB RAMP

TYPE 3

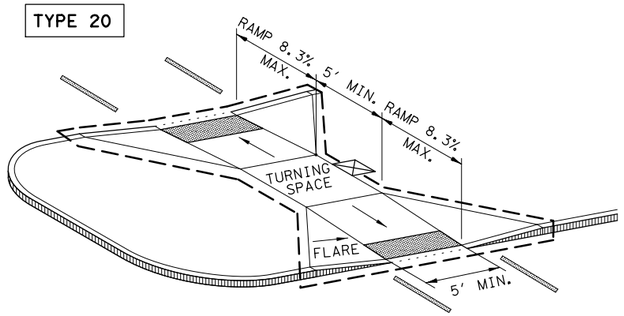


TYPE 6



COMBINATION CURB RAMPS

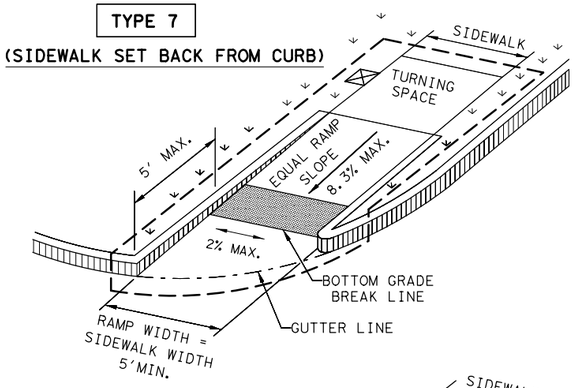
TYPE 20



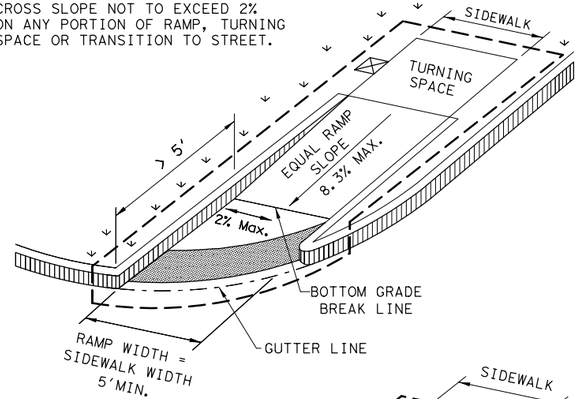
CURB RAMPS AT MEDIAN ISLANDS

TYPE 7

(SIDEWALK SET BACK FROM CURB)

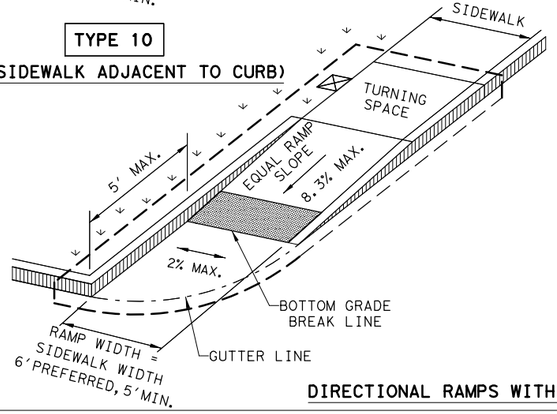


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.

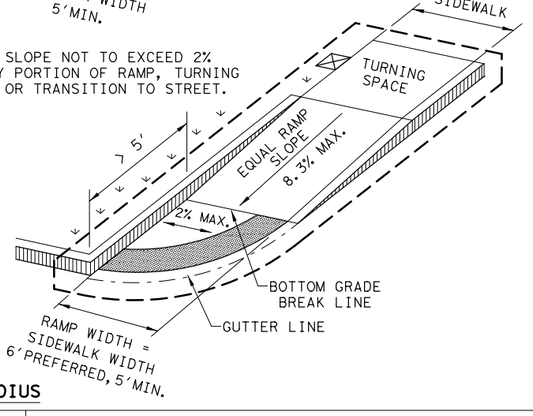


TYPE 10

(SIDEWALK ADJACENT TO CURB)

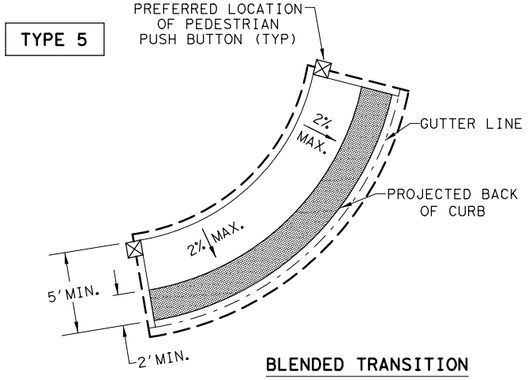


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



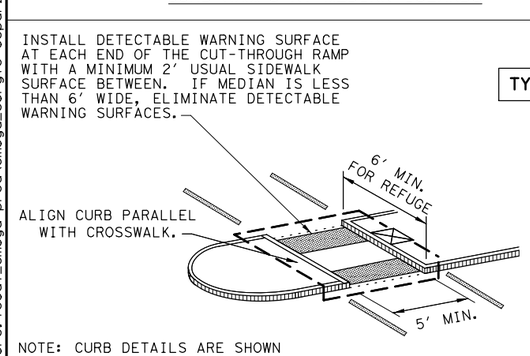
DIRECTIONAL RAMPS WITHIN RADIUS

TYPE 5



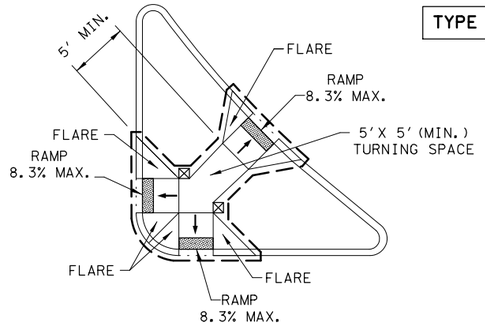
BLENDED TRANSITION
(FLUSH LANDING)

TYPE 21

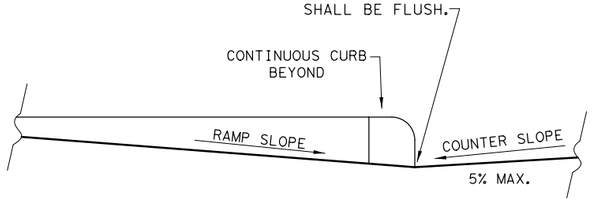


NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120, ETC.	US 62, ETC
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY		SHEET NO.
	24	EL PASO		79

DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms19942\ped18-2.dgn

GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5′. Where the sidewalk is adjacent to the back of curb, a 6′ sidewalk width is desirable. Where a 5′ sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4′ for short distances. 5′x 5′ passing areas at intervals not to exceed 200′ are required.
5. Turning Spaces shall be 5′x 5′ minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4′x 4′ wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6′ wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5′x 5′ landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicalble standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

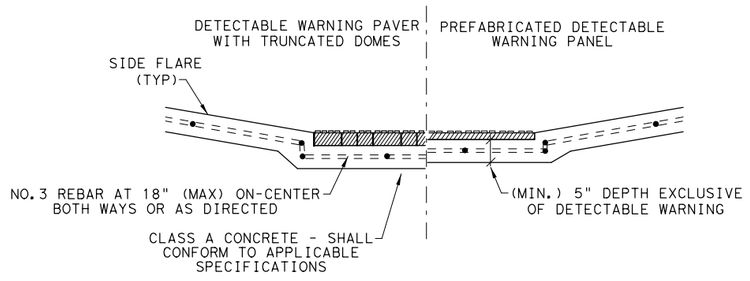
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

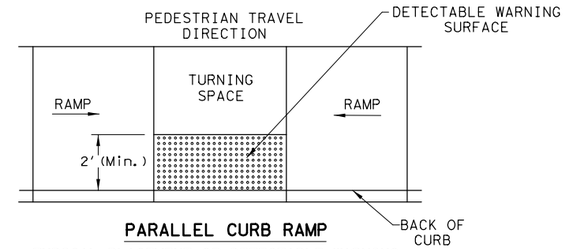
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.



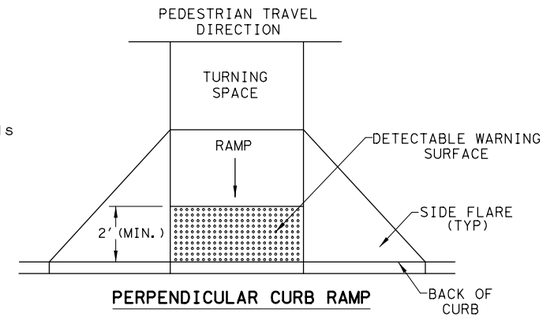
SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

DETECTABLE WARNING SURFACE DETAILS



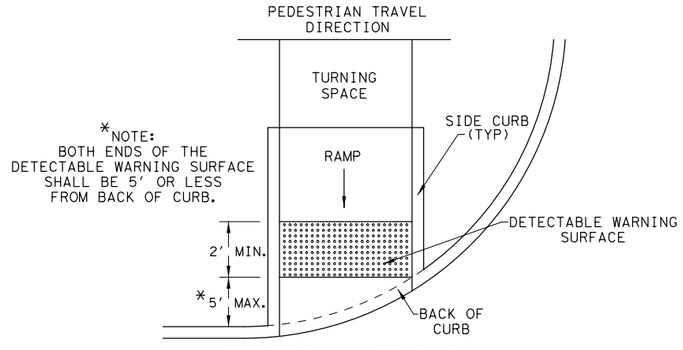
PARALLEL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

Texas Department of Transportation | Design Division Standard

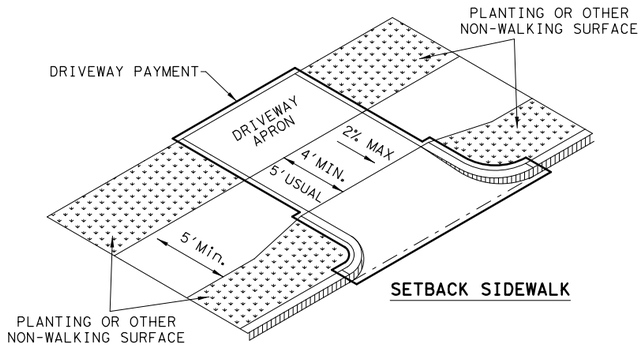
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

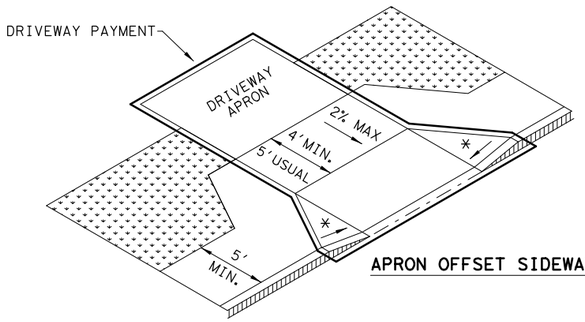
FILE: ped18	DN: TxDOT	CK: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120, ETC.	US 62, ETC
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY		SHEET NO.
	24	EL PASO		80

DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms19942\ped18-3.dgn

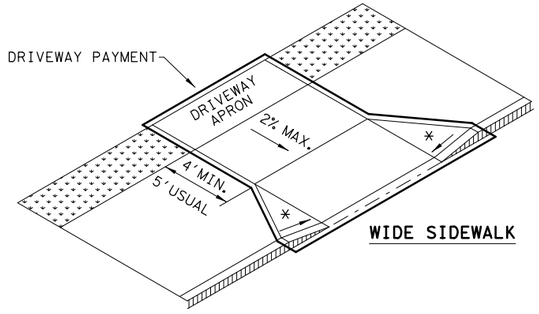
SIDEWALK TREATMENT AT DRIVEWAYS



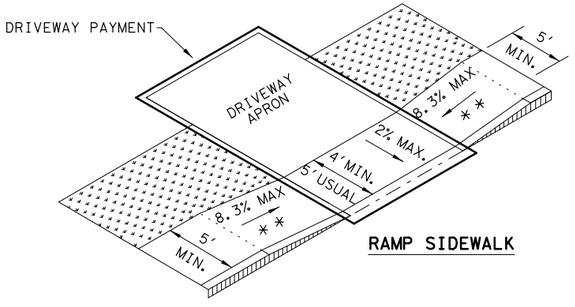
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

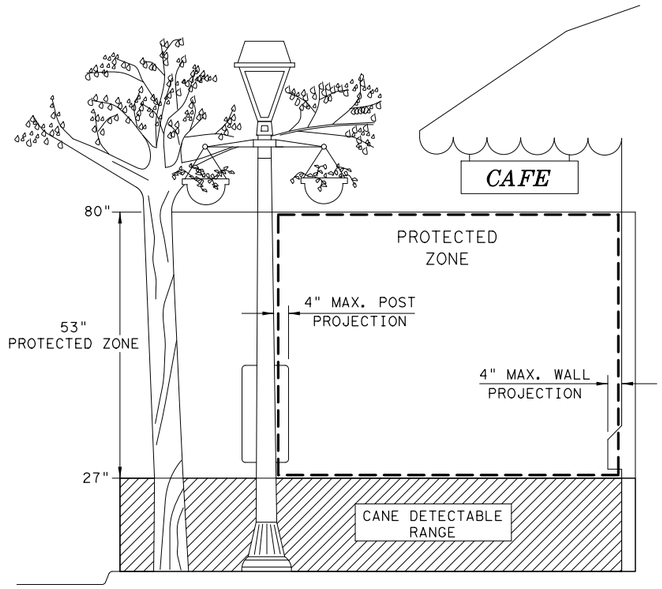


RAMP SIDEWALK

NOTES:

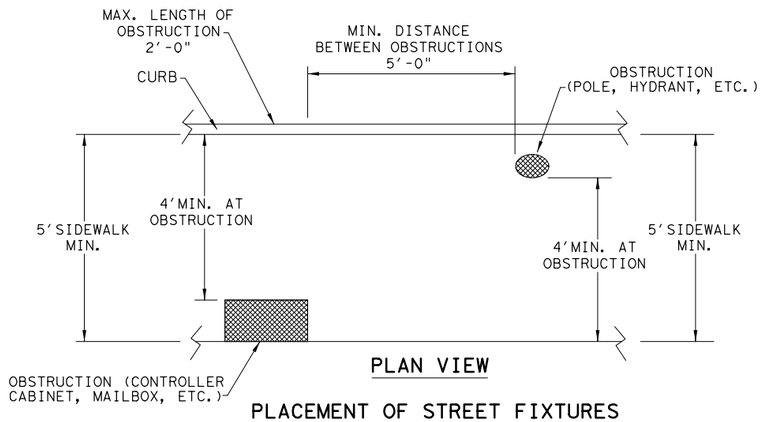
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

* * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



PROTECTED ZONE

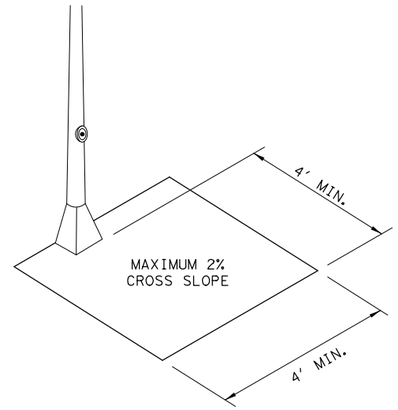
NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



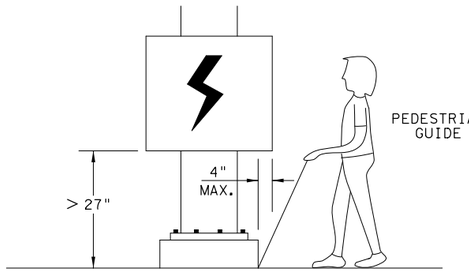
PLAN VIEW

PLACEMENT OF STREET FIXTURES

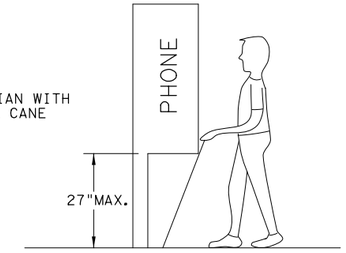
NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.



PROTRUDING OBJECTS OF A HEIGHT ≤27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

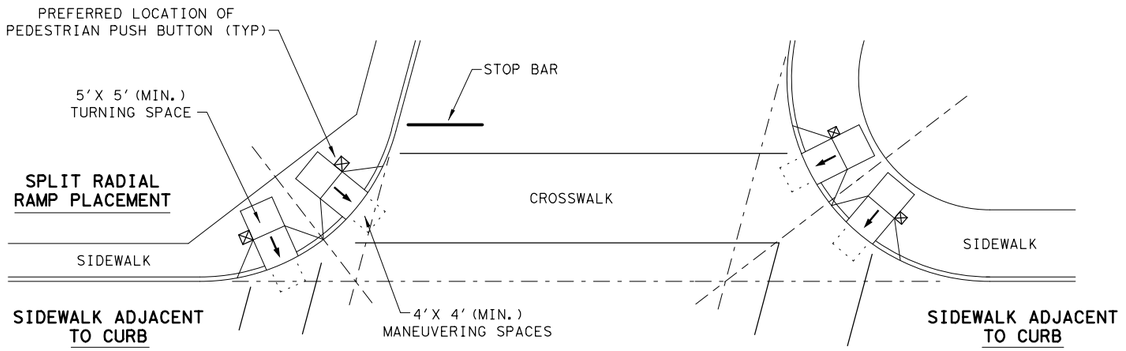
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120, ETC.	US 62, ETC
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY		SHEET NO.
	24	EL PASO		81

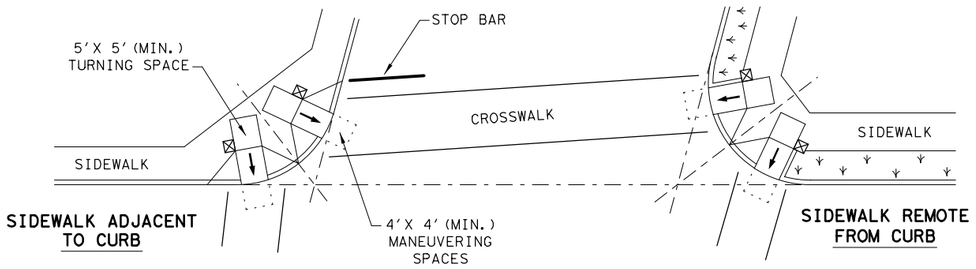
DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms19942\ped18-4.dgn

TYPICAL CROSSING LAYOUTS

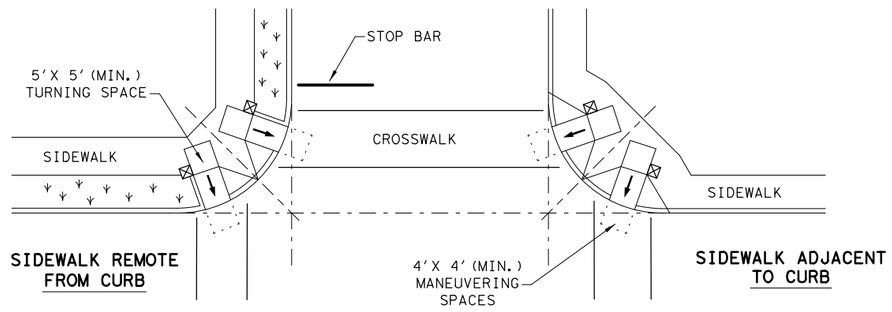
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



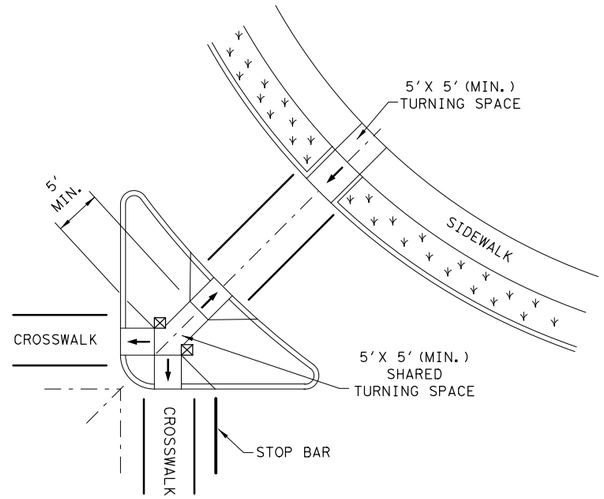
SKEWED INTERSECTION WITH "LARGE" RADIUS



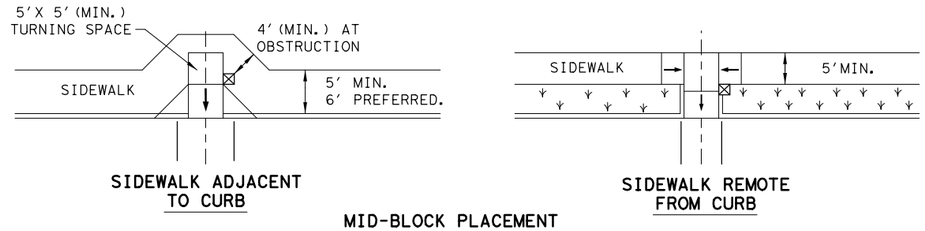
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ☒

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

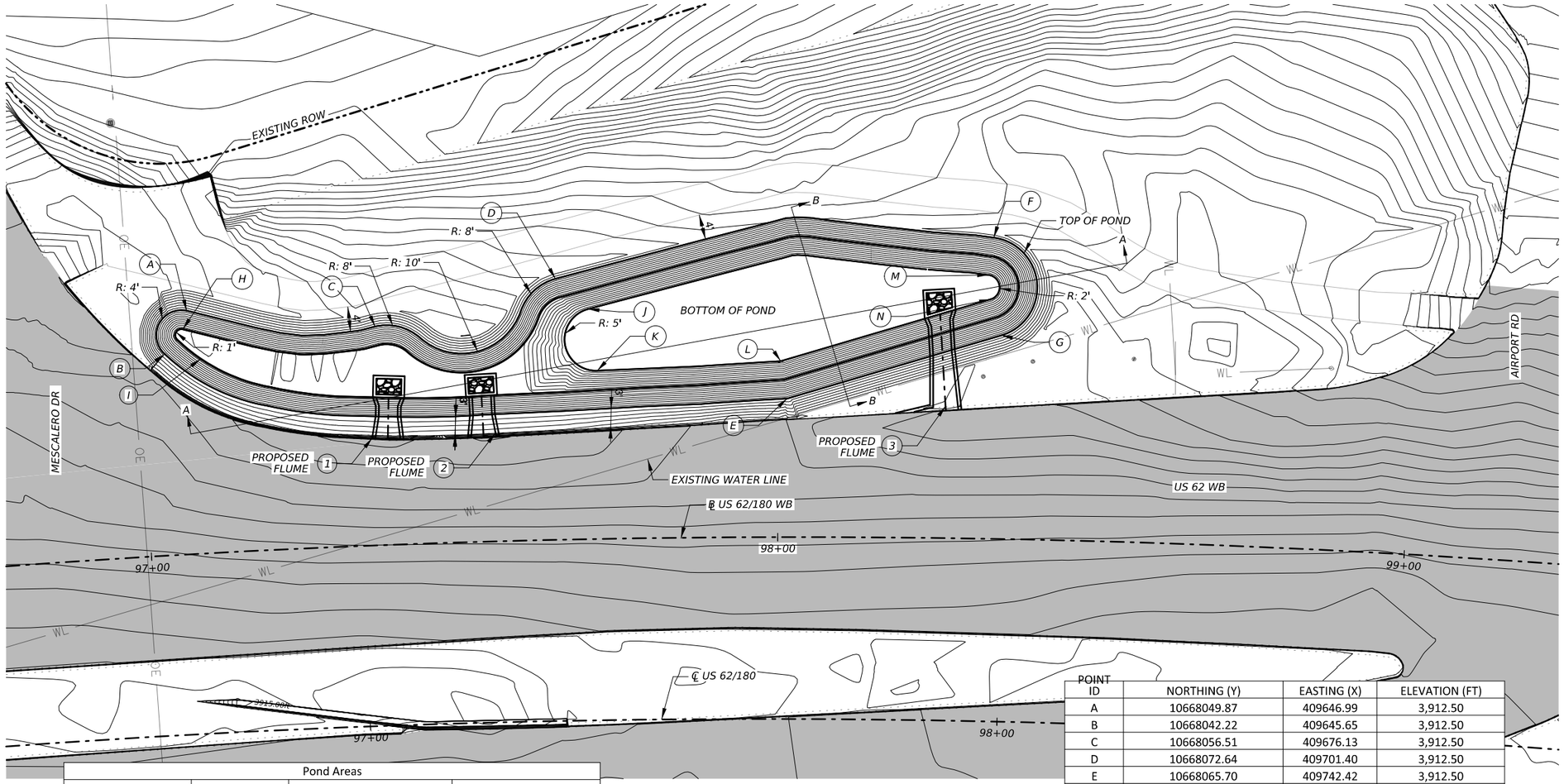
SHEET 4 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120, ETC.	US 62, ETC
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY		SHEET NO.
	24	EL PASO		82



LEGEND

PROP R.O.W.

PROP ROADWAY IMPROVEMENTS

NOTES:

1. CONTRACTOR MUST FIELD VERIFY LOCATION OF ALL EXISTING UTILITIES BEFORE ANY EXCAVATION TAKES PLACE.
2. SEE FLUME DETAIL SHEET FOR ADDITIONAL INFORMATION.
3. REFER TO ROADWAY SHEETS FOR EXCAVATION AND CONCRETE FLUME PAY ITEMS.

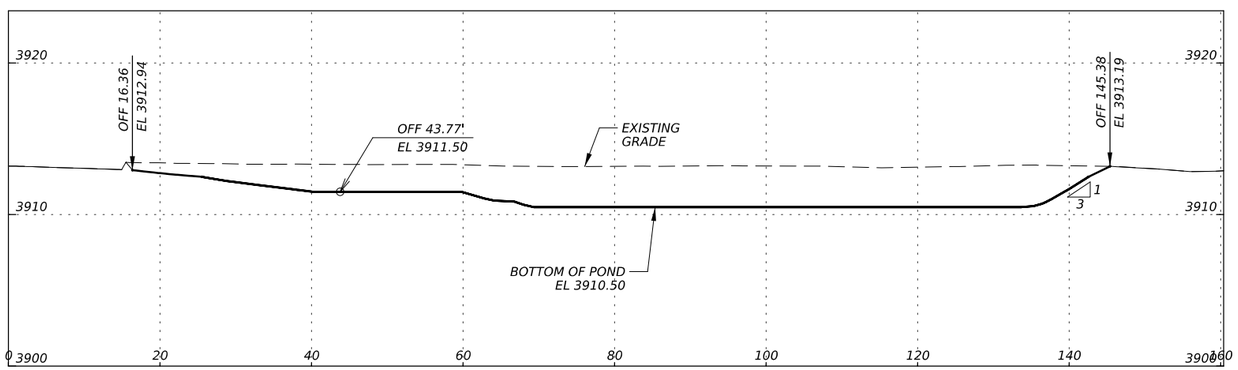
HORIZ. 0 10' 20'

SCALE IN FEET

DATE	BY	REV	REVISION

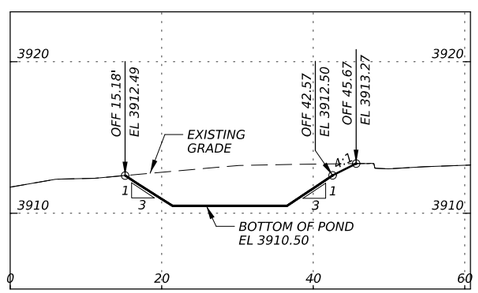
Pond Areas			
CONTOUR	CONTOUR AREA (FT2)	CONTOUR AREA (AC)	ACCUMULATED VOLUME (AC-FT)
3,912.50	2,543.00	0.058	0.072
3,911.50	2,262.00	0.052	0.024
3,910.50	789.00	0.018	0.000

POINT ID	NORTHING (Y)	EASTING (X)	ELEVATION (FT)
A	10668049.87	409646.99	3,912.50
B	10668042.22	409645.65	3,912.50
C	10668056.51	409676.13	3,912.50
D	10668072.64	409701.40	3,912.50
E	10668065.70	409742.42	3,912.50
F	10668100.19	409766.02	3,912.50
G	10668085.69	409771.91	3,912.50
H	10668046.88	409647.20	3,911.50
I	10668044.97	409646.87	3,911.50
J	10668069.60	409707.80	3,910.50
K	10668060.70	409712.21	3,910.50
L	10668071.06	409739.63	3,910.50
M	10668094.28	409767.07	3,910.50
N	10668090.66	409768.54	3,910.50



SECTION A-A

SCALE 1"=20' H
1"=10' V



SECTION B-B

SCALE 1"=20' H
1"=10' V

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

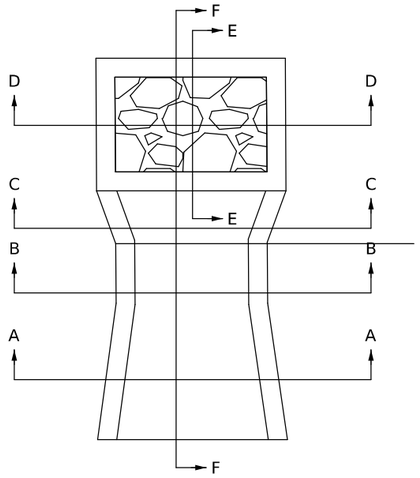
US62|US180

DRAINAGE
POND 1 LAYOUT

SHEET 1 OF 1

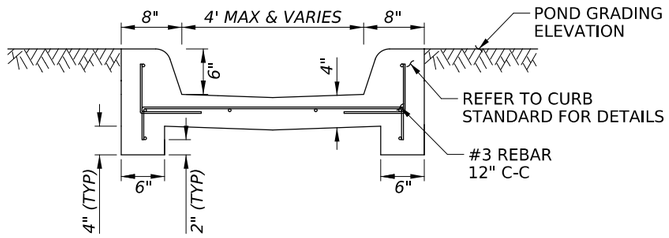
DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
		24	SEE TITLE SHEET		83
CHK	OEI	STATE	DIST.	COUNTY	
DRN	OEI	TEXAS	ELP	EL PASO	
		CONT.	SECT.	JOB	HIGHWAY NO.
CHK	OEI	0374	02	120, ETC.	US 62, ETC

DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18812\US62-S-DRG01.dgn



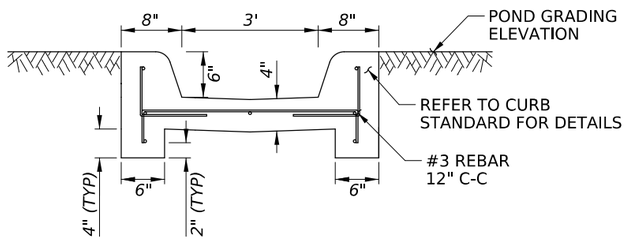
TYPICAL FLUME DETAIL

PLAN VIEW
SCALE:NTS



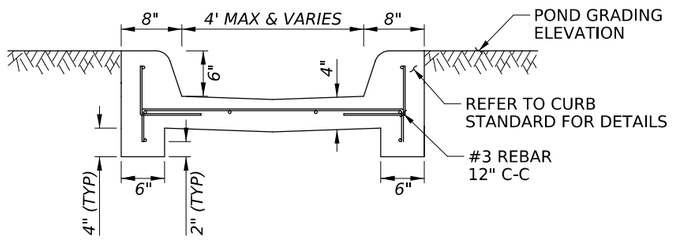
TYPICAL FLUME DETAIL

SECTION A-A
SCALE:NTS



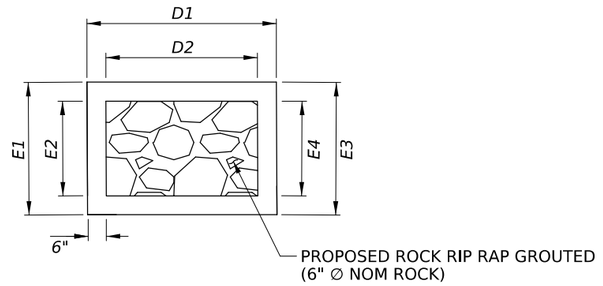
TYPICAL FLUME DETAIL

SECTION B-B
SCALE:NTS



TYPICAL FLUME DETAIL

SECTION C-C
SCALE:NTS



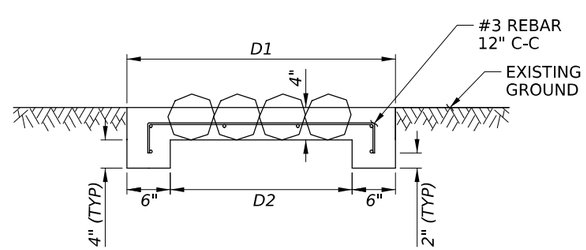
TYPICAL FLUME DETAIL

ROCK PAD PLAN VIEW
SCALE:NTS

FLUME DIMENSIONS						
FLUME NO	D1	D2	E1	E2	E3	E4
1	5	4	3.5	2.5		
2	5	4	3.5	2.5		
3	5	4	4.5	3.4	3.6	2.5

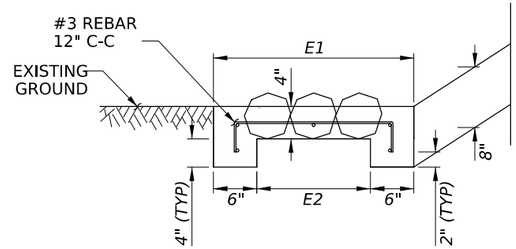
NOTES:

1. FOR PAY ITEMS REFER TO ROADWAY PLAN LAYOUT.



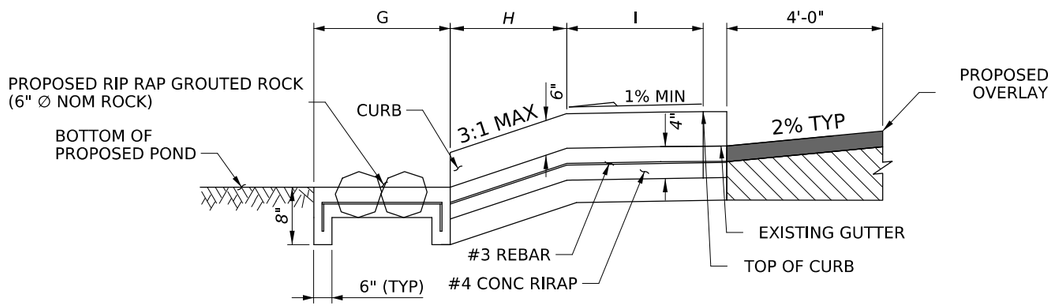
TYPICAL FLUME DETAIL

SECTION D-D
SCALE:NTS



TYPICAL FLUME DETAIL

SECTION E-E
SCALE:NTS



TYPICAL FLUME DETAIL

SECTION F-F
SCALE:NTS

FLUME DIMENSIONS			
FLUME NO	G	H	I
1	3.6	3	3.5
2	3.5	3	3.5
3	9.1	6.2	4

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

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6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

Texas Department of Transportation®

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DRAINAGE
FLUME DETAILS

SHEET 1 OF 1

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
		24	SEE TITLE SHEET		84
CHK	OEI	STATE	DIST.	COUNTY	
		TEXAS	ELP	EL PASO	
DRN	OEI	CONT.	SECT.	JOB	HIGHWAY NO.
CHK	OEI	0374	02	120, ETC.	US 62, ETC

DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18812\US62-DRNG-MISC-DTLS-01.dgn

CHELSEA ST

UNION PACIFIC RAILROAD

BEACON AVE

(*) FULL DEPTH CONCRETE STRUCTURAL DECK REPAIR AREAS TO BE DETERMINED BY THE ENGINEER AFTER PLANING.
WORK TO BE PERFORMED IN ACCORDANCE WITH ITEM 429-6005 CONC STR REPAIR (DECK REP (FULL DEPTH)). REFER TO CONCRETE REPAIR MANUAL FOR MORE INFORMATION.

FULL BRIDGE DECK REPAIR (*) SEE DETAIL 1

BEGIN CONSTRUCTION
℄ US 62 WB
STA 17+85.54
OFF -24.00'

438-6004 CLEANING AND SEALING EXISTING JOINTS (CL7) 45 FT/JOINT

438-6004 CLEANING AND SEALING EXISTING JOINTS (CL7) 45 FT/JOINT

ROW

ROW

ROW

END CONSTRUCTION
℄ US 62 WB
STA 24+57.42
OFF -24.00'

36.00'

36.00'

20+00

25+00

③ US 62 WB

③ US 62 EB

END CONSTRUCTION
℄ US 62 EB
STA 24+57.42
OFF 24.00'

ROW

ROW

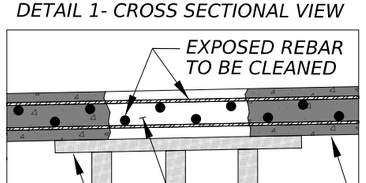
BEGIN CONSTRUCTION
℄ US 62 EB
STA 17+85.54
OFF 24.00'

438-6004 CLEANING AND SEALING EXISTING JOINTS (CL7) 45 FT/JOINT

438-6004 CLEANING AND SEALING EXISTING JOINTS (CL7) 45 FT/JOINT

354 6220 PLANE ASPH CONC PAV (0" TO 2" MICRO) TO BE PERFORMED IN AREAS DETERMINED BY THE ENGINEER

DETAIL 1- CROSS SECTIONAL VIEW



BEACON AVE

NOTES

BRIDGES NBI NUMBERS

1. NBI NUMBER: 240720000212107
   ROUTE: US 62 EB
2. NBI NUMBER: 240720000212274
   ROUTE: US 62 WB

FULL DEPTH DECK REPAIR

1. FAST SETTING CONCRETE (CLASS HES) SHALL BE USED AS SHOWN IN DETAIL 1.
2. FULL DEPTH DECK REPAIR TO BE USED AT THE DISCRETION OF THE ENGINEER.

CLEANING AND SEALING JOINTS

1. PROVIDE CLASS 7 "SILICONE", IN ACCORDANCE WITH DMS-6310.
2. EXISTING JOINT SEAL MATERIAL TO BE REMOVED BY SAWING UNLESS OTHERWISE APPROVED.
3. CLEAN AND SEAL ENTIRE LENGTH OF JOINT AS SHOWN IN THE BRIDGE JOINT REPAIR. LAYOUTS SEE DETAILS 2 AND 3.
4. AFTER THE REMOVAL OF THE EXISTING JOINT SEALANT MATERIAL IS COMPLETE, THE VERTICAL JOINT FACES WILL BE CLEANED BY SANDBLASTING. PROTECTIVE MEASURES SHALL BE TAKEN TO AVOID ANY RESIDUE BECOMING IN CONTACT WITH MAIN LANE TRAFFIC ON US 62 PAISANO DR.
5. COLLECT AND DISPOSE OF ALL REMOVED MATERIAL ON A DAILY BASIS.
6. AIR BLAST ALL JOINTS TO REMOVE LOOSE MATERIAL PRIOR TO PLACING PROPOSED SEALANT.

LF OF JOINTS TO BE CLEANED AND SEALED

1. ROUTE US 62 EB: 810 LF
2. ROUTE US 62 WB: 810 LF

DATE	BY	REV	REVISION

STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER

12/28/2023

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BRIDGE JOINT REPAIR LAYOUT

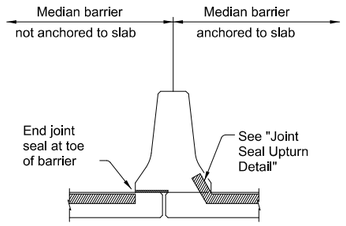
SHEET 1 OF 1

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
CHK	OEI	24	SEE TITLE SHEET		85
DRN	OEI	STATE	DIST.	COUNTY	
CHK	OEI	TEXAS	ELP	EL PASO	
		CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

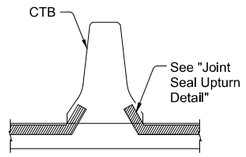
DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18814\US62-S-BRG-JOINT-REPAIR.dgn

APPROVED PRECOMPRESSED FOAM SEAL MANUFACTURERS

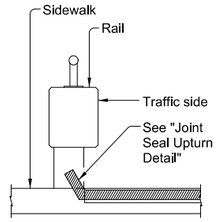
MANUFACTURER	SEAL TYPE
Watson Bowman Acme	Wabo FS
SSI	Silspec SES
Sealtite	Sealtite 50N
EMSEAL	BEJS



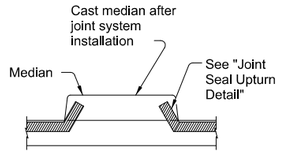
WITH OPEN DECK JOINT BELOW MEDIAN BARRIER



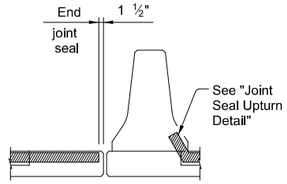
AT CONCRETE TRAFFIC BARRIER



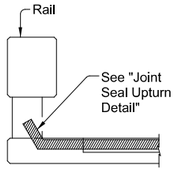
AT SIDEWALK BEHIND BRIDGE RAIL



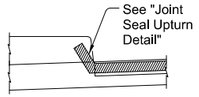
AT RAISED MEDIAN



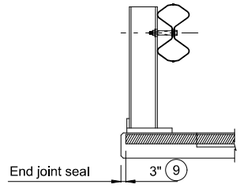
WITH OPEN DECK JOINT ADJACENT TO MEDIAN BARRIER



AT CONCRETE BRIDGE RAIL



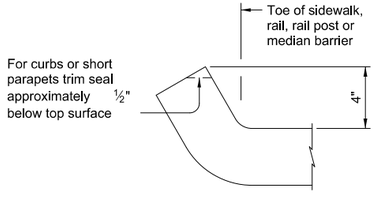
AT SIDEWALK



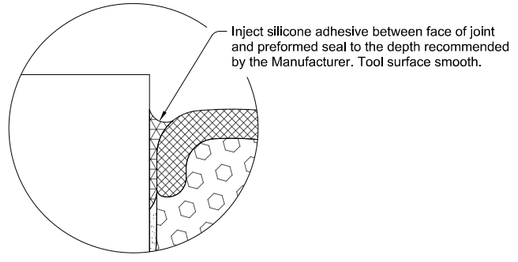
AT STEEL POST BRIDGE RAIL

JOINT SEALANT TERMINATION DETAILS

(9) 1 ½" for precompressed foam and silicone seal



JOINT SEAL UPTURN DETAIL



SILICONE INJECTION

(1) Use Class 7 joint sealant in accordance with DMS-6310, "Joint Sealants and Fillers." Prepare joint and seal in accordance with Item 438 "Cleaning and Sealing Joints."

(2) Provide backer rod 25% larger than joint opening and compatible with the sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.

(3) Backer rod must be compatible with the hot poured rubber sealant and rated for a minimum of 400°F.

(4) Match existing joint opening or set at a minimum:
- a. 1" at 70°F when the distance between joints is 150 ft or less
- b. 2" at 70°F when the distance between joints is greater than 150 ft.
- c. As directed by the Engineer.

(5) Cleaning and sealing existing header joints does not necessitate replacement of existing header material.

(6) Maximum thickness is 4".

DATE	BY	REV	REVISION

STATE OF TEXAS
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12/28/2023

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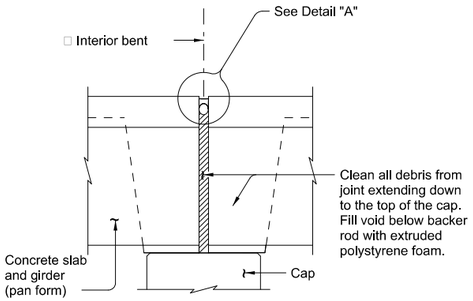
BRIDGE JOINT DETAILS

SHEET 1 OF 1

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
CHK	OEI	24	SEE TITLE SHEET	86
DRN	OEI	STATE	DIST.	COUNTY
CHK	OEI	TEXAS	ELP	EL PASO
		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

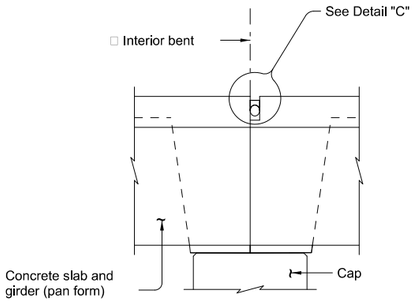
DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18814\US62-S-BRG-JOINT-DETAILS.dgn

DATE:
FILE:

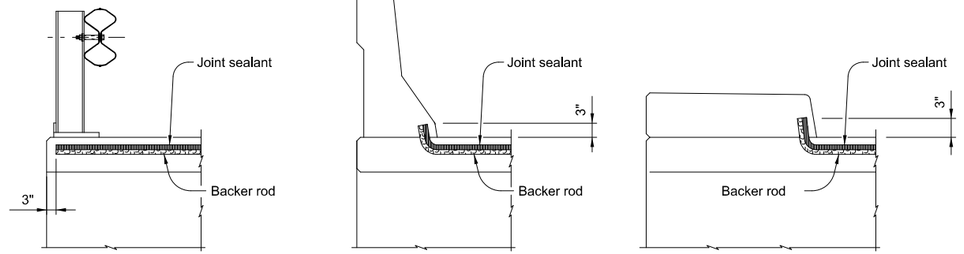


JOINT WITH SILICONE SEAL

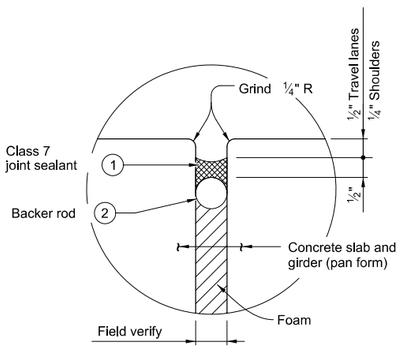
(Used without ACP overlay)



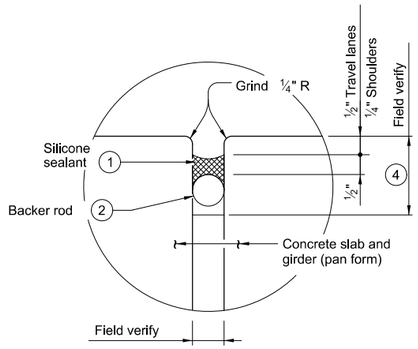
FIXED JOINT



JOINT SEALANT TERMINATION DETAILS



DETAIL "A"



DETAIL "C"

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

2) Provide backer rod 25% larger than joint opening and compatible with the sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.

3) Backer rod may be omitted if existing joint depth is less than 1 ½".

4) Backer rod must be compatible with the hot poured rubber sealant and rated for a minimum of 400°F.

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

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

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

3) Fill void with extruded polystyrene foam.

4) Place backer rod into joint opening 1" below the top of concrete.

5) Seal the joint opening with a Class 7 joint sealant. Recess seal ½" below top of concrete in travel lanes and ¼" below top of concrete in shoulders.

PROCEDURE FOR CLEANING AND SEALING EXISTING FIXED JOINTS:

1) Remove existing seal and debris from recess.

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

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

4) Place backer rod into joint opening 1" below the top of concrete.

5) Seal the joint opening with a Class 7 joint sealant. Recess seal ½" below top of concrete in travel lanes and ¼" below top of concrete in shoulders.

GENERAL NOTES:

Cleaning existing joint opening (full depth) of all debris, providing and placing backer rod, saw-cutting asphalt overlay, and sealing joint is paid for by Item 438, "Cleaning and Sealing Joints" and measured by the linear foot.
Obtain approval for all tools, equipment, materials and techniques proposed to clean and seal the joint.
Provide Class 7 joint 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 joint sealant cannot be effectively placed in the vertical position, a Class 4 joint sealant compatible with the Class 7 joint sealant is allowed , at the discretion of the engineer, 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.

12/28/2023

PAISANO DR BRIDGE AS-BUILT INFORMATION OVER THE RAILROAD WAS OBTAINED FROM CSJ: 002-12-748 DATED 07/27/1962

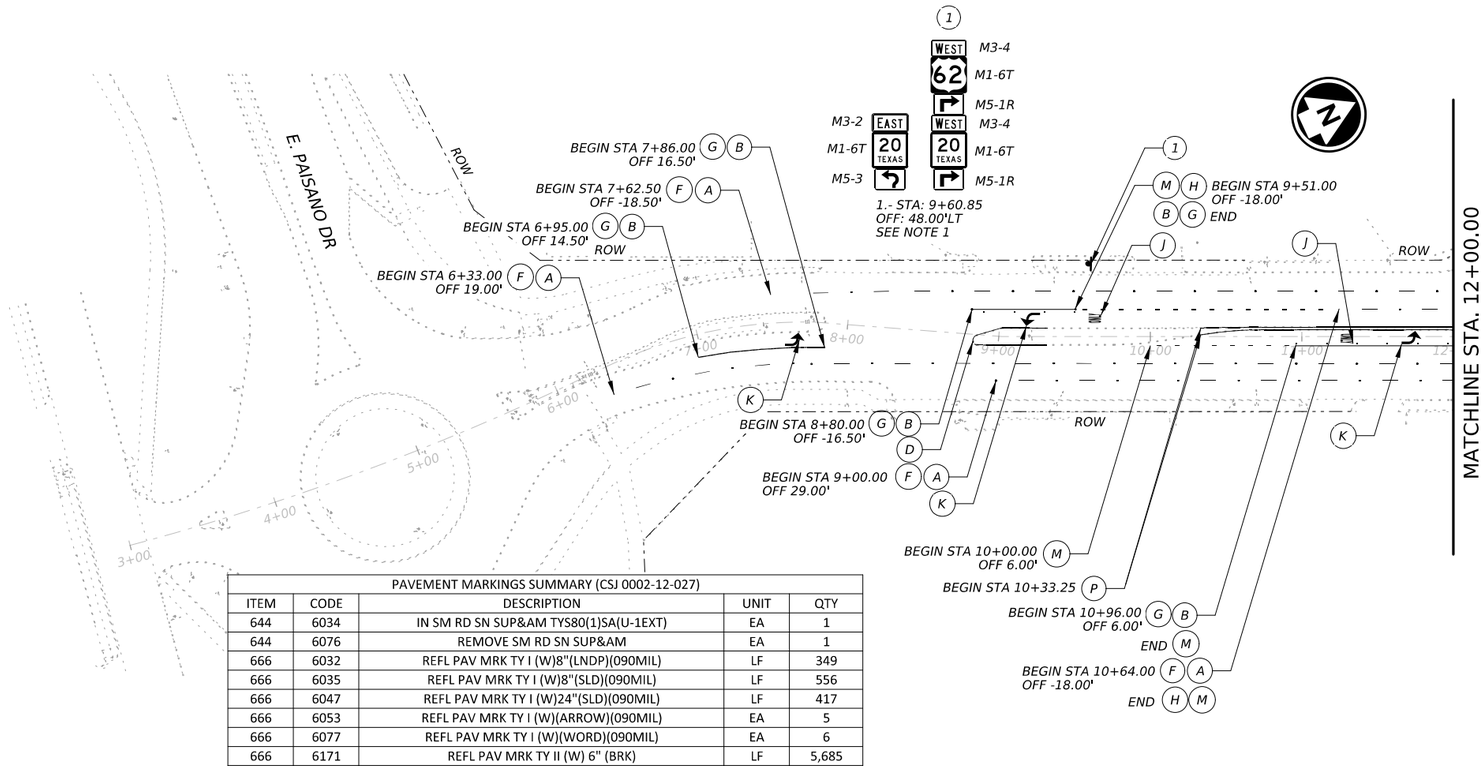
Texas Department of Transportation — Bridge Division

CLEANING AND SEALING EXISTING BRIDGE JOINTS

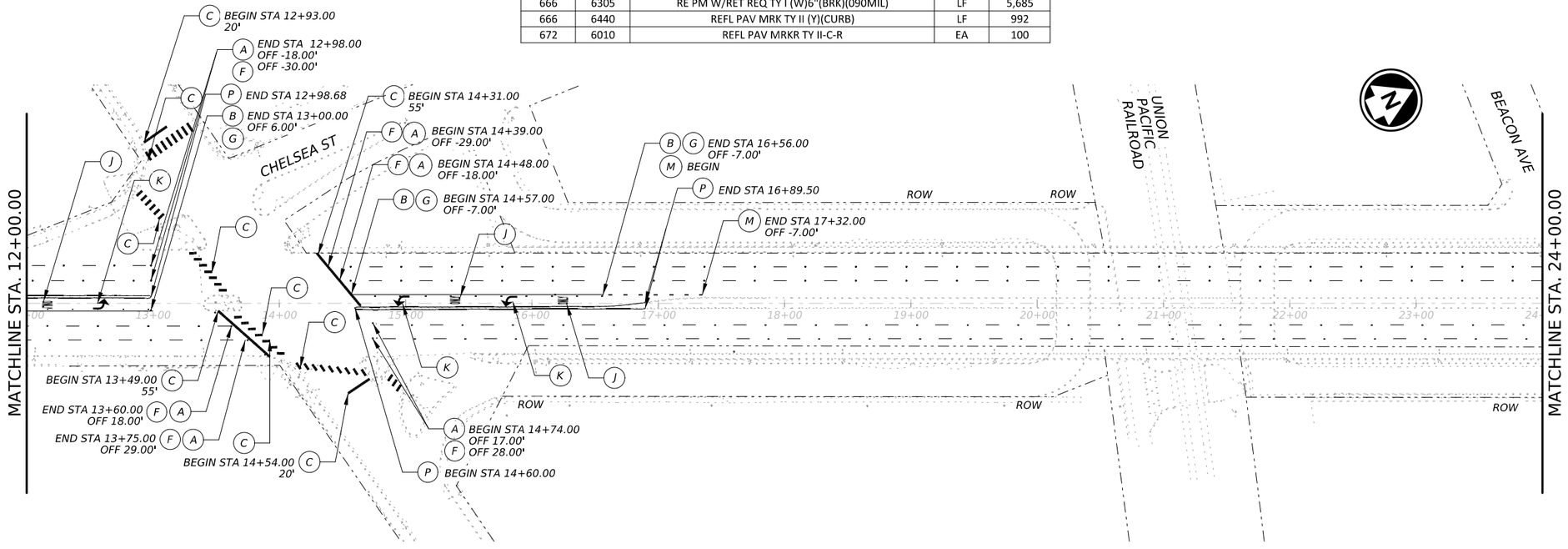
(PAN GIRDER BRIDGES)

NBI: 240720000212107
NBI: 240720000212274

FILE: 87	DN:	CK:	DW:	CK:
©TxDOT August 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120, ETC.	US 62, ETC.
	DIST	COUNTY		SHEET NO.
	ELP	EL PASO		87



PAVEMENT MARKINGS SUMMARY (CSJ 0002-12-027)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
644	6034	IN SM RD SN SUP&AM TYS80(1)SA(U-1EXT)	EA	1
644	6076	REMOVE SM RD SN SUP&AM	EA	1
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	349
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	556
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	417
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	5
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	6
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	5,685
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	349
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	556
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	417
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	5
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	6
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	1
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	5,685
666	6440	REFL PAV MRK TY II (Y)(CURB)	LF	992
672	6010	REFL PAV MRKR TY II-C-R	EA	100



LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
2. REFER TO ROADWAY PLANS FOR REMOVING & PREP STRIPING

0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER
12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

US62|US180

SIGNING & PAVEMENT MARKING LAYOUT

SHEET 1 OF 14

		FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
DSN	OEI	24	SEE TITLE SHEET		88
CHK	OEI	STATE	DIST.	COUNTY	
DRN	OEI	TEXAS	ELP	EL PASO	
CHK	OEI	CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

DATE: 12/28/2023
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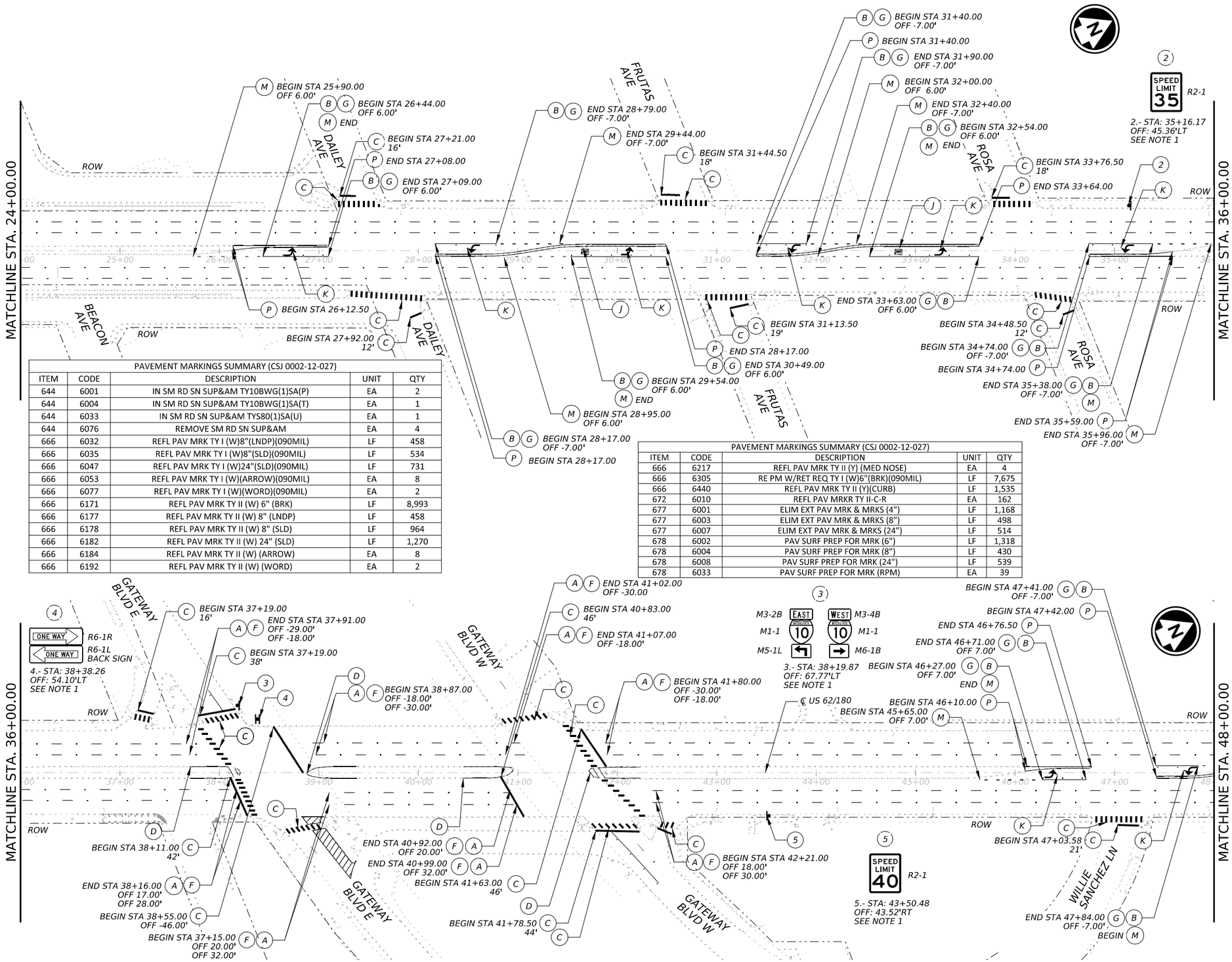

PAVEMENT MARKINGS SUMMARY (CSJ 0002-12-027)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
644	6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	2
644	6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	1
644	6033	IN SM RD SN SUP&AM TYS80(1)SA(U)	EA	1
644	6076	REMOVE SM RD SN SUP&AM	EA	4
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	458
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	534
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	731
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	8
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	2
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	8,993
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	458
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	964
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	1,270
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	8
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	2

PAVEMENT MARKINGS SUMMARY (CSJ 0002-12-027)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	4
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	7,675
666	6440	REFL PAV MRK TY II (Y)(CURB)	LF	1,535
672	6010	REFL PAV MRKR TY II-C-R	EA	162
677	6001	ELIM EXT PAV MRK & MRKS (4")	LF	1,168
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	498
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	514
678	6002	PAV SURF PREP FOR MRK (6")	LF	1,318
678	6004	PAV SURF PREP FOR MRK (8")	LF	430
678	6008	PAV SURF PREP FOR MRK (24")	LF	539
678	6033	PAV SURF PREP FOR MRK (RPM)	EA	39

LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
2. REFER TO ROADWAY PLANS FOR REMOVING & PREP STRIPING

0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
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12/28/2023

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US62|US180

SIGNING & PAVEMENT MARKING LAYOUT

SHEET 2 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	89
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
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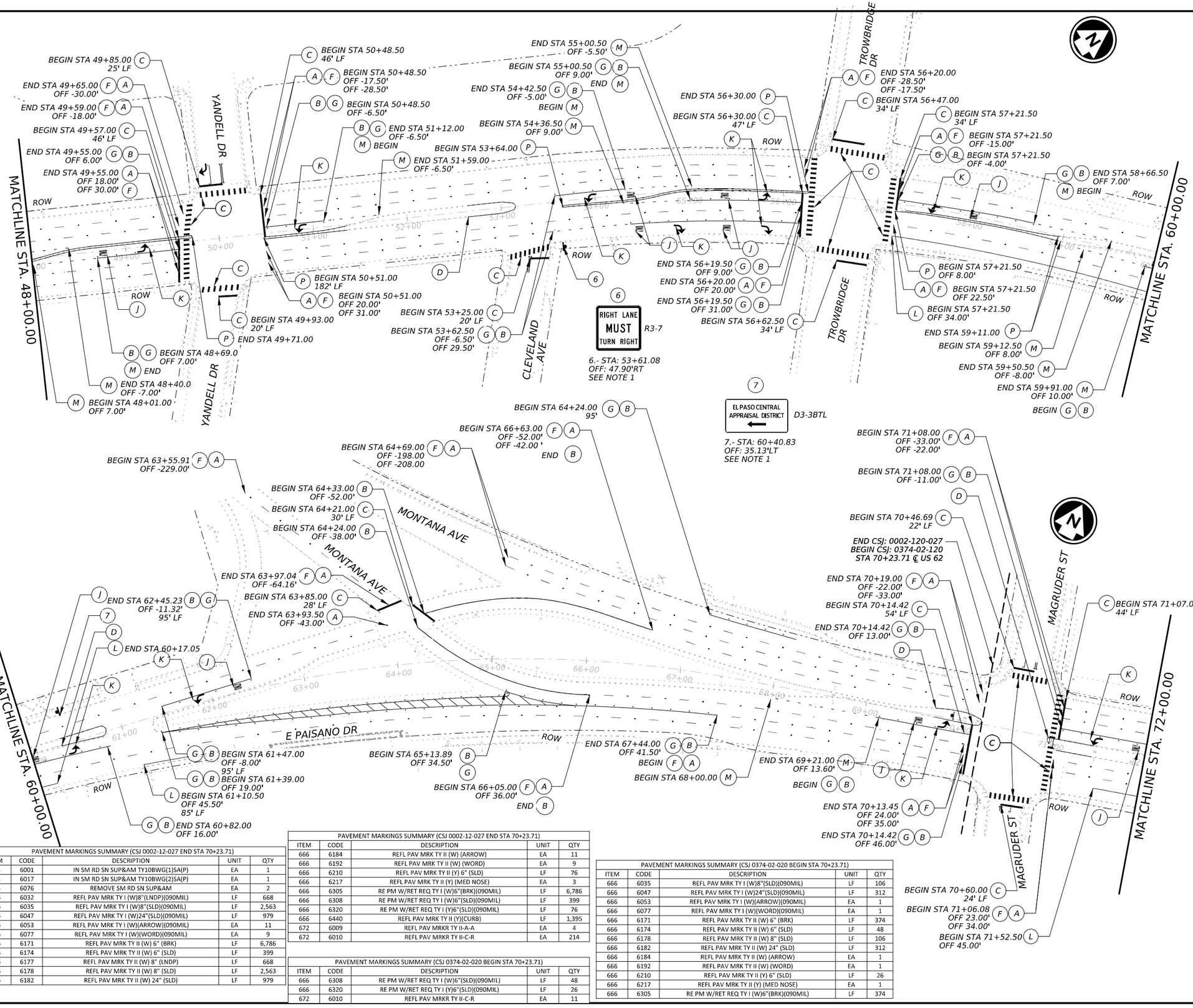

LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
2. REFER TO ROADWAY PLANS FOR REMOVING & PREP STRIPING

SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
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12/28/2023

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6090 SURETY DR, STE 104
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US62|US180

SIGNING & PAVEMENT MARKING LAYOUT

SHEET 3 OF 14

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
CHK	OEI	24	SEE TITLE SHEET	90
DRN	OEI	STATE: TEXAS	DIST.: ELP	COUNTY: EL PASO
CHK	OEI	CONT.: 0374	SECT.: 02	JOB: 120, ETC.
				HIGHWAY NO.: US 62, ETC

PAVEMENT MARKINGS SUMMARY (CSJ 0002-12-027 END STA 70+23.71)

ITEM	CODE	DESCRIPTION	UNIT	QTY
644	6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
644	6017	IN SM RD SN SUP&AM TY10BWG(2)SA(P)	EA	1
644	6076	REMOVE SM RD SN SUP&AM	EA	2
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	668
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	2,563
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	979
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	11
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	9
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	6,786
666	6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	399
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	668
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	2,563
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	979

PAVEMENT MARKINGS SUMMARY (CSJ 0002-12-027 END STA 70+23.71)

ITEM	CODE	DESCRIPTION	UNIT	QTY
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	11
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	9
666	6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	76
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	3
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	6,786
666	6308	RE PM W/RET REQ TY I (W)6"(SLD)(090MIL)	LF	399
666	6320	RE PM W/RET REQ TY I (Y)6"(SLD)(090MIL)	LF	76
666	6440	REFL PAV MRK TY II (Y)(CURB)	LF	1,395
672	6009	REFL PAV MRKR TY II-A-A	EA	4
672	6010	REFL PAV MRKR TY II-C-R	EA	214

PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020 BEGIN STA 70+23.71)

ITEM	CODE	DESCRIPTION	UNIT	QTY
666	6308	RE PM W/RET REQ TY I (W)6"(SLD)(090MIL)	LF	48
666	6320	RE PM W/RET REQ TY I (Y)6"(SLD)(090MIL)	LF	26
672	6010	REFL PAV MRKR TY II-C-R	EA	11

PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020 BEGIN STA 70+23.71)

ITEM	CODE	DESCRIPTION	UNIT	QTY
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	106
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	312
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	1
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	1
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	374
666	6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	48
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	106
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	312
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	1
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	1
666	6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	26
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	1
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	374

DATE: 12/28/2023
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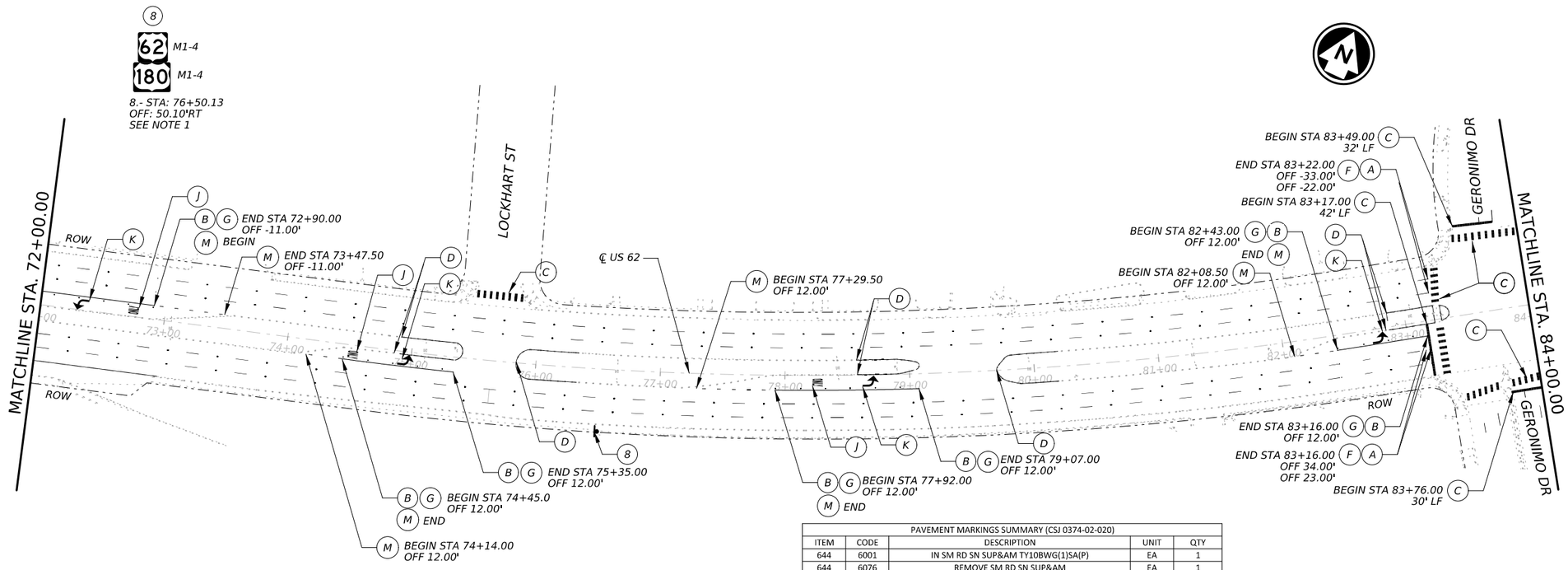

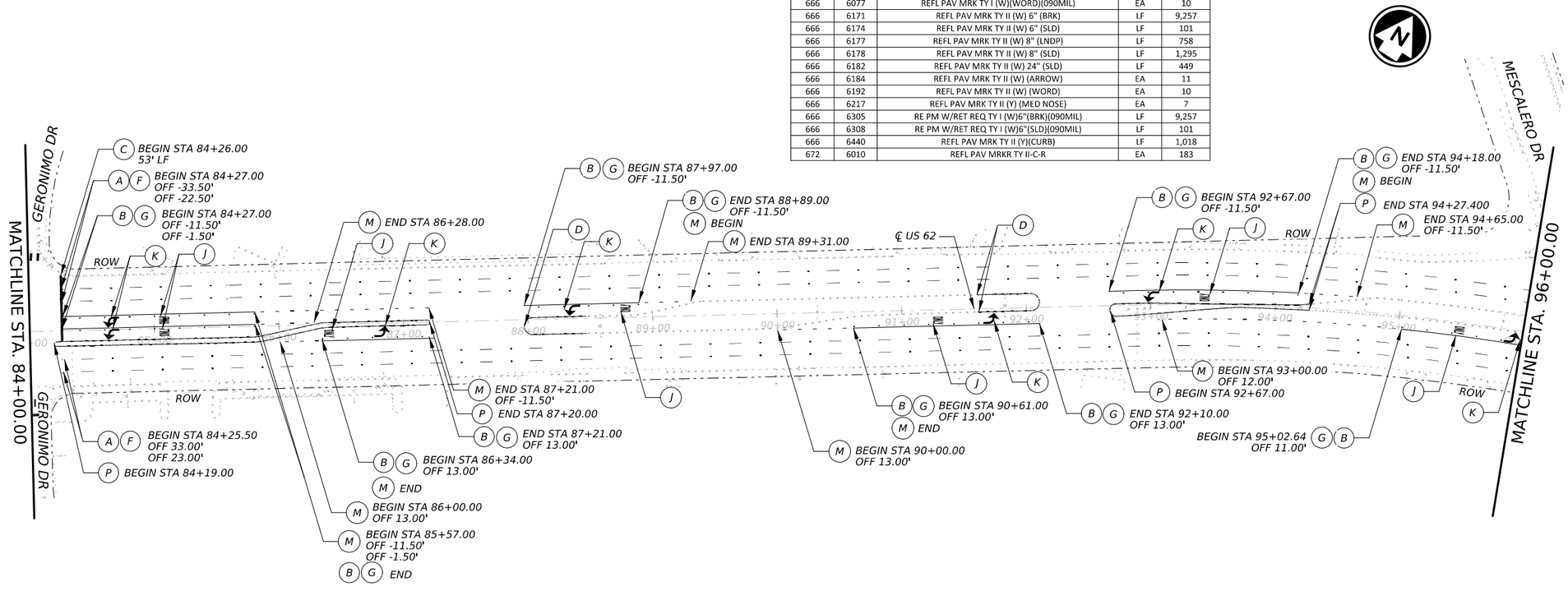

PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
644	6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
644	6076	REMOVE SM RD SN SUP&AM	EA	1
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	758
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	1,295
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	449
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	11
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	10
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	9,257
666	6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	101
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	758
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	1,295
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	449
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	11
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	10
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	7
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	9,257
666	6308	RE PM W/RET REQ TY I (W)6"(SLD)(090MIL)	LF	101
666	6440	REFL PAV MRK TY II (Y)(CURB)	LF	1,018
672	6010	REFL PAV MRKR TY II-C-R	EA	183

LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
2. REFER TO ROADWAY PLANS FOR REMOVING & PREP STRIPING

0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER
12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

US62|US180

SIGNING & PAVEMENT MARKING LAYOUT

SHEET 4 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	91
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
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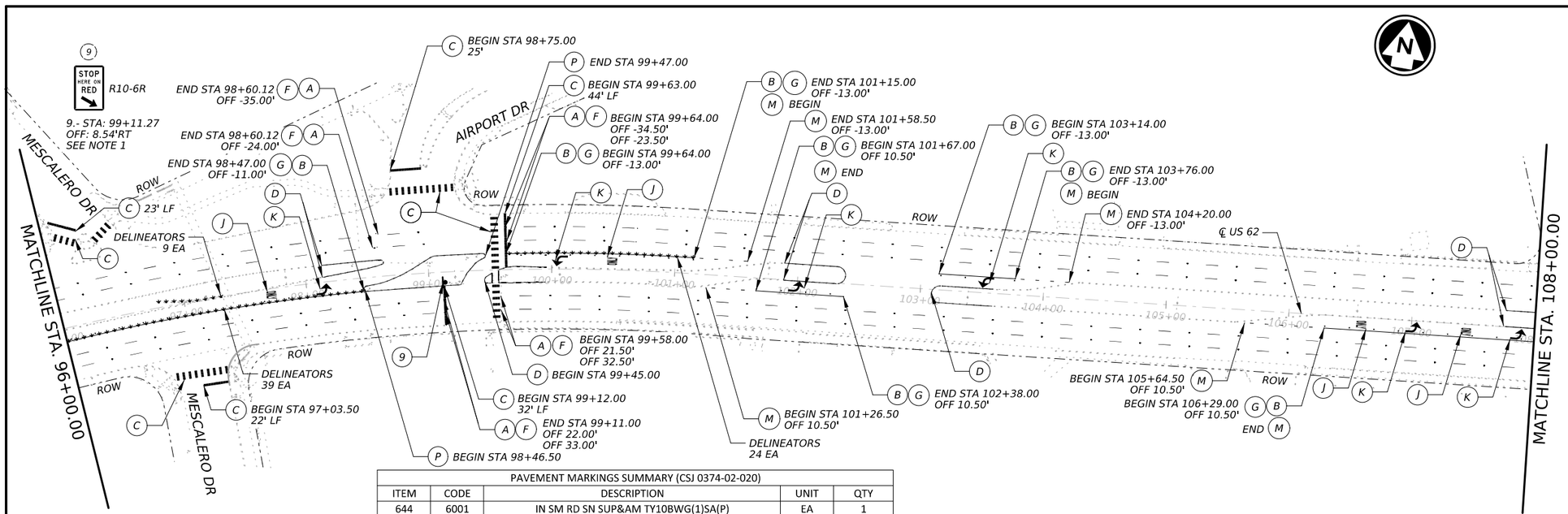
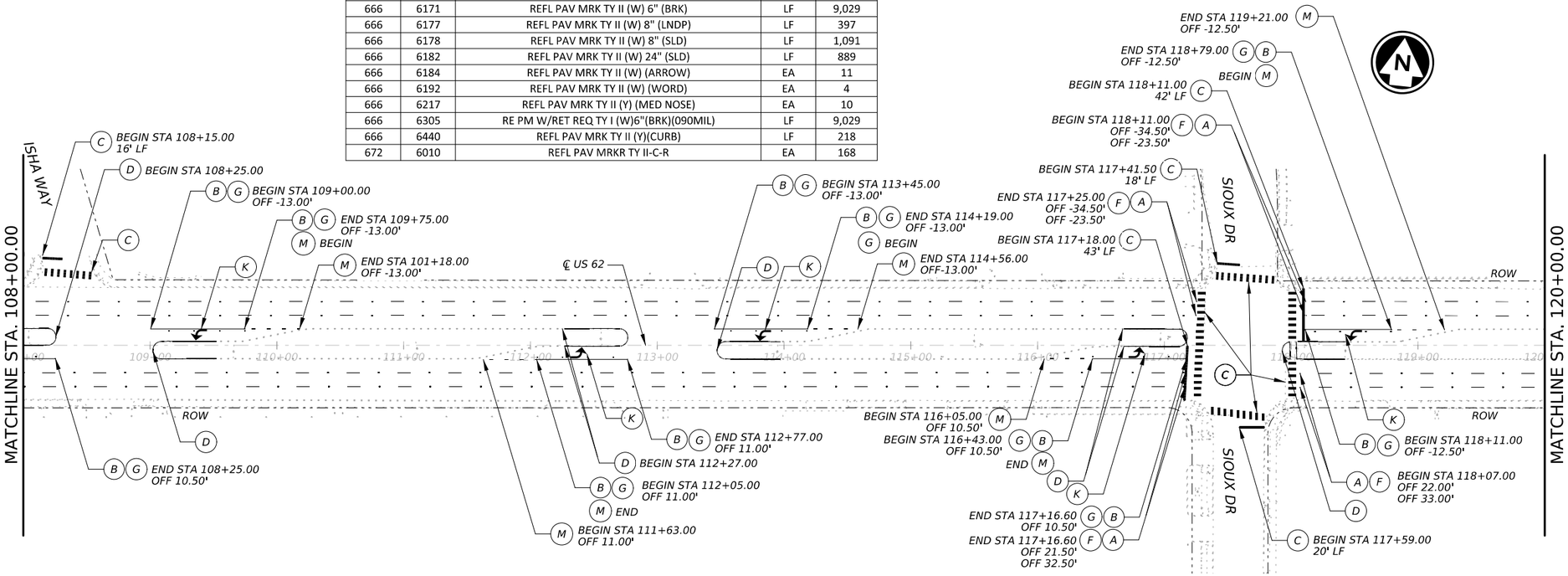


PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
644	6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
644	6076	REMOVE SM RD SN SUP&AM	EA	1
658	6065	INSTL DEL ASSM (D-SY)SZ 1(BRF)GF2(BR)	EA	10
658	6085	INSTL DEL ASSM (D-SW)SZ 1(WFLX)SRF(BR)	EA	43
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	397
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	1,091
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	889
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	11
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	4
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	9,029
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	397
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	1,091
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	889
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	11
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	4
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	10
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	9,029
666	6440	REFL PAV MRK TY II (Y)(CURB)	LF	218
672	6010	REFL PAV MRKR TY II-C-R	EA	168



LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
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0 50 100
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12/28/2023

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SIGNING & PAVEMENT MARKING LAYOUT

SHEET 5 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	92
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
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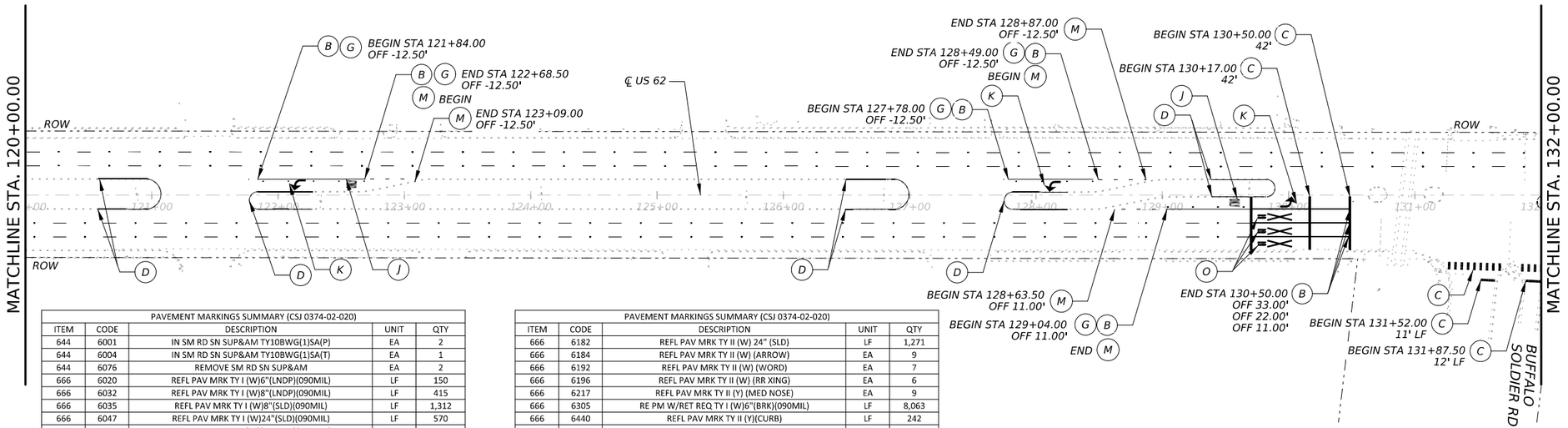
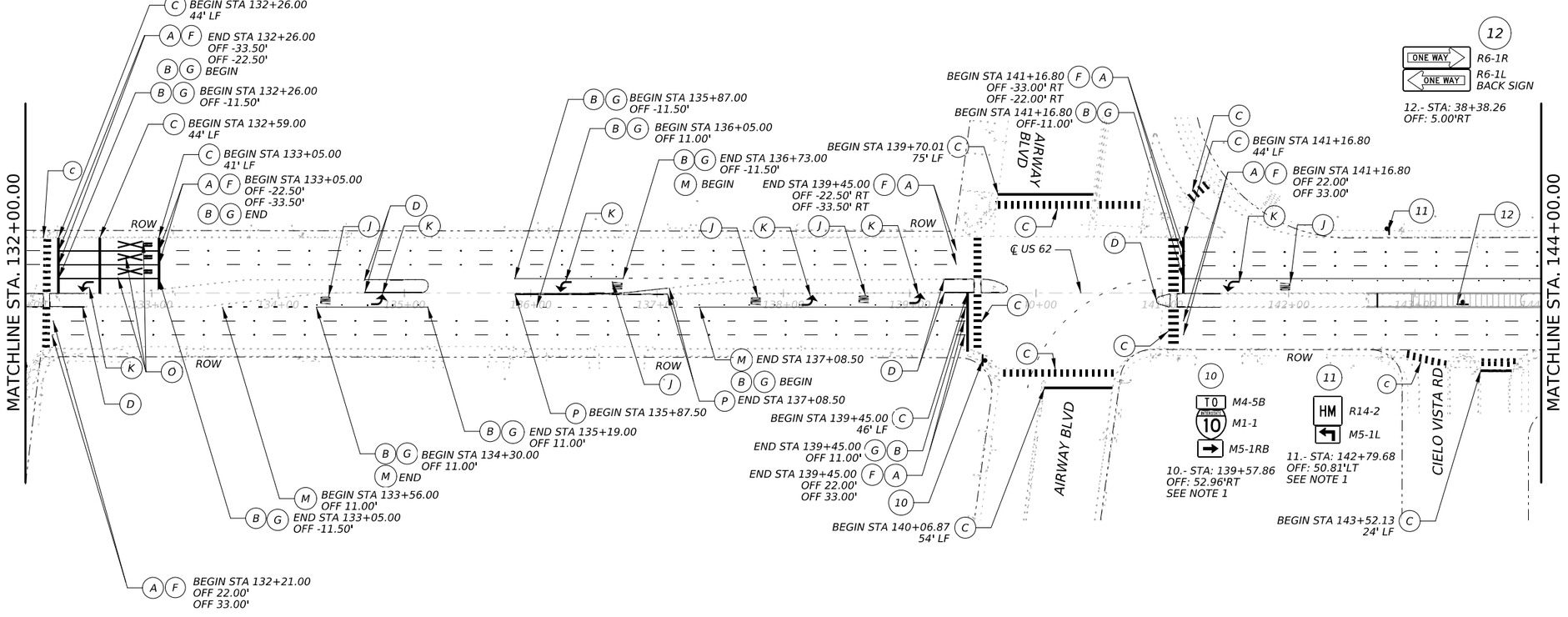


PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
644	6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	2
644	6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	1
644	6076	REMOVE SM RD SN SUP&AM	EA	2
666	6020	REFL PAV MRK TY I (W)6"(LNDP)(090MIL)	LF	150
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	415
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	1,312
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	570
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	8
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	7
666	6092	REFL PAV MRK TY I (W)(RR XING)(090MIL)	EA	6
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	8,239
666	6173	REFL PAV MRK TY II (W) 6" (LNDP)	LF	150
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	415
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	1,360

PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	1,271
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	9
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	7
666	6196	REFL PAV MRK TY II (W) (RR XING)	EA	6
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	9
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	8,063
666	6440	REFL PAV MRK TY II (Y)(CURB)	LF	242
672	6010	REFL PAV MRKR TY II-C-R	EA	173
677	6001	ELIM EXT PAV MRK & MRKS (4")	LF	141
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	140
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	556
678	6002	PAV SURF PREP FOR MRK (6")	LF	176
678	6004	PAV SURF PREP FOR MRK (8")	LF	48
678	6008	PAV SURF PREP FOR MRK (24")	LF	701
678	6009	PAV SURF PREP FOR MRK (ARROW)	EA	1
678	6033	PAV SURF PREP FOR MRK (RPM)	EA	6



LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
2. REFER TO ROADWAY PLANS FOR REMOVING & PREP STRIPING

SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER
12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

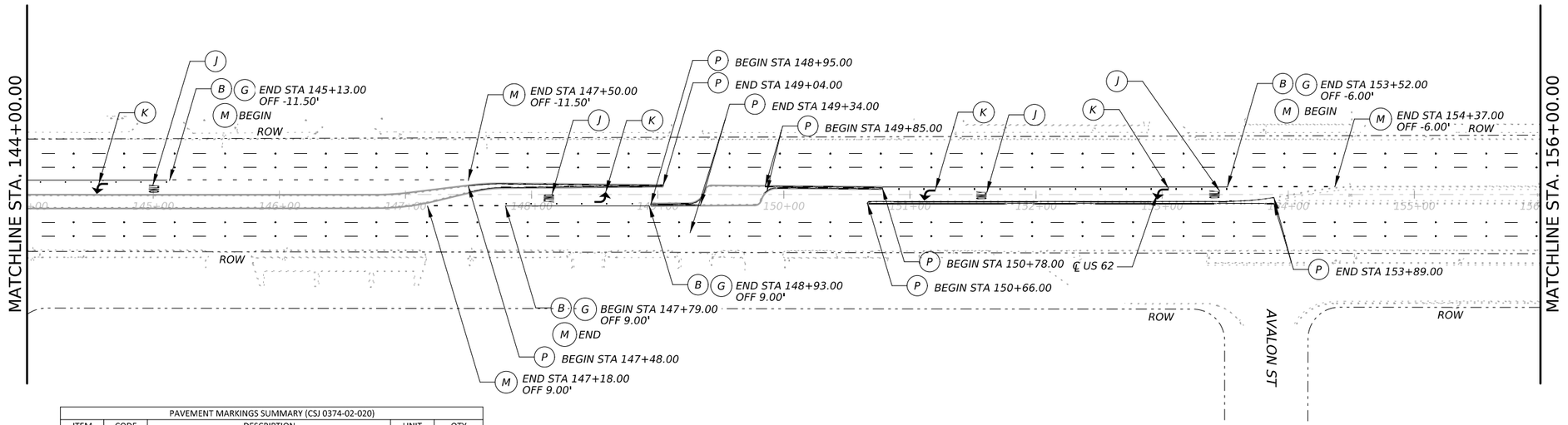
US62|US180

SIGNING & PAVEMENT MARKING LAYOUT

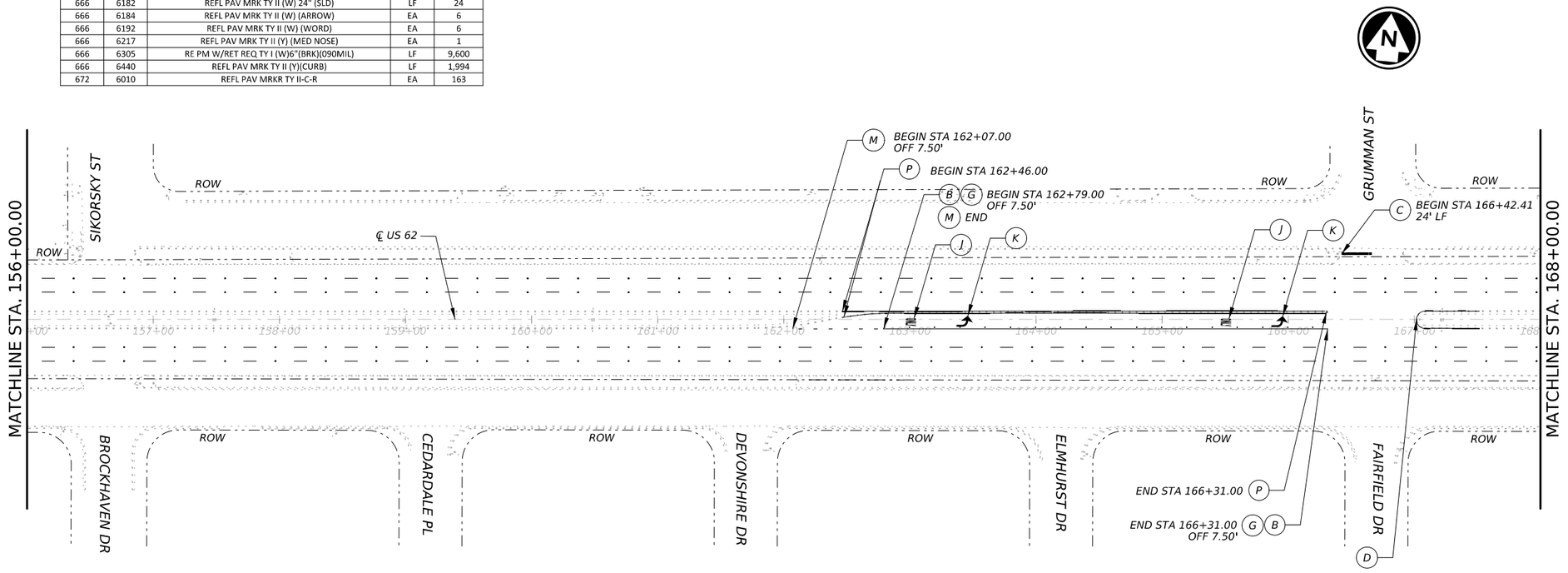
SHEET 6 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	93
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18819\US62-S-SPM06.dgn



PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	458
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	851
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	24
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	6
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	6
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	9,600
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	458
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	851
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	24
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	6
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	6
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	1
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	9,600
666	6440	REFL PAV MRK TY II (Y)(CURB)	LF	1,994
672	6010	REFL PAV MRKR TY II-C-R	EA	163



LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
2. REFER TO ROADWAY PLANS FOR REMOVING & PREP STRIPING

0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER
12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

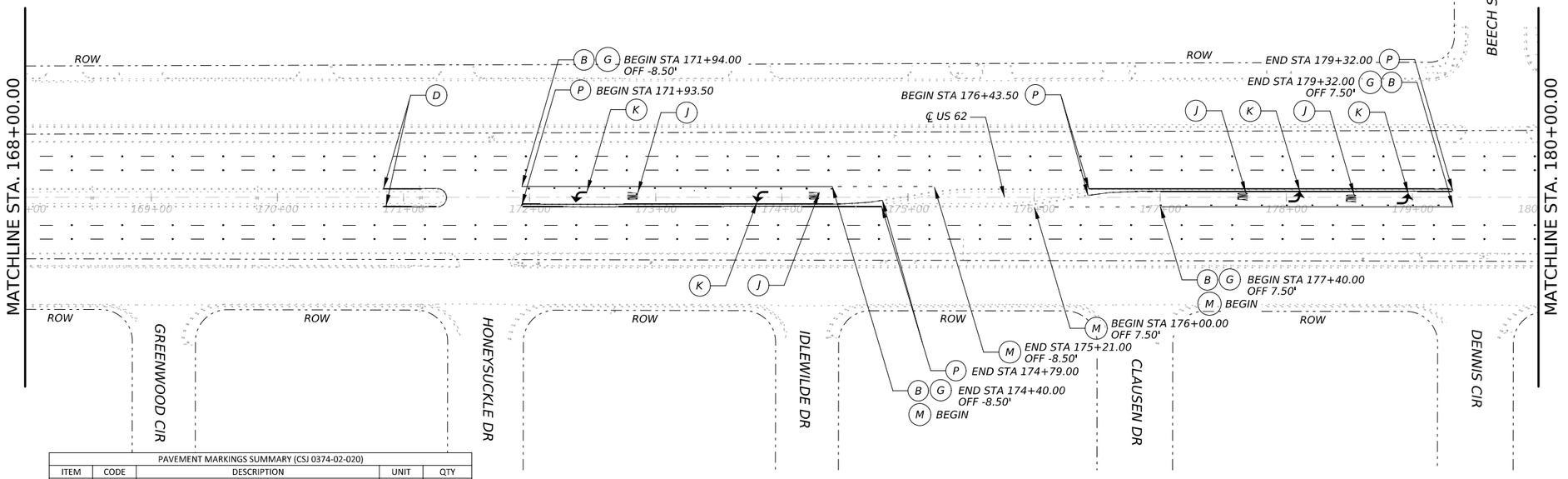
US62|US180

SIGNING & PAVEMENT MARKING LAYOUT

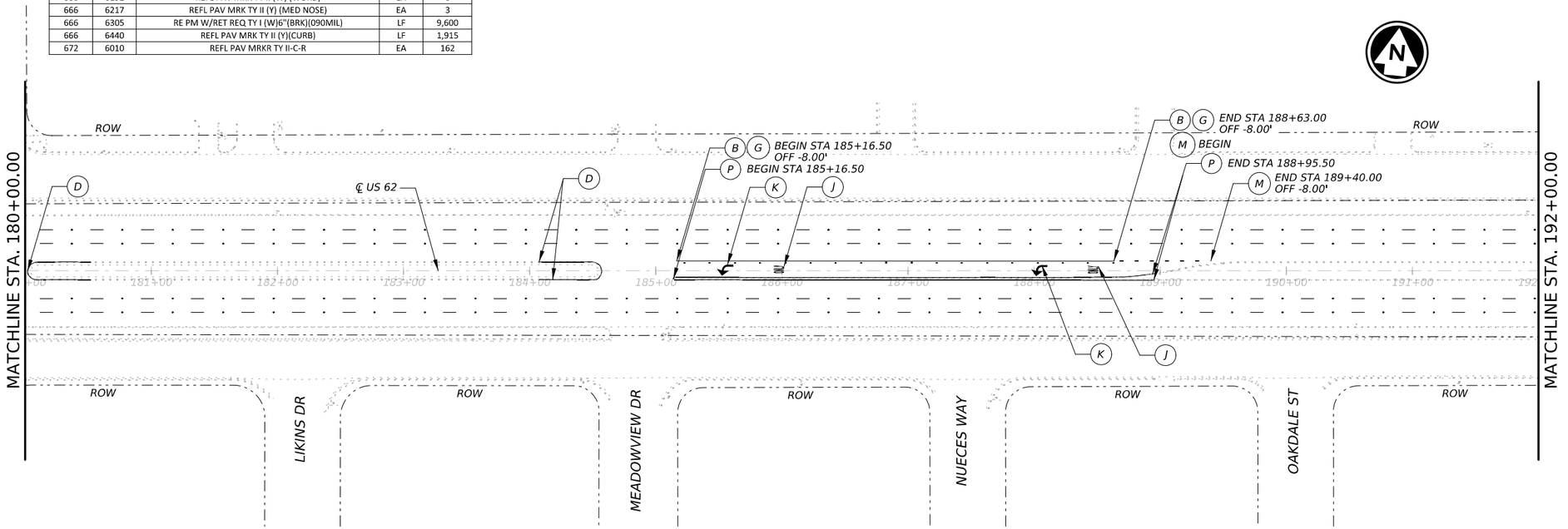
SHEET 7 OF 14

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
CHK	OEI	24	SEE TITLE SHEET	94
DRN	OEI	STATE	DIST.	COUNTY
CHK	OEI	TEXAS	ELP	EL PASO
		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparzaldms18819\US62-S-SPM07.dgn



PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	258
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	825
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	6
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	6
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	9,600
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	258
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	825
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	6
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	6
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	3
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	9,600
666	6440	REFL PAV MRK TY II (Y)(CURB)	LF	1,915
672	6010	REFL PAV MRKR TY II-C-R	EA	162



LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
2. REFER TO ROADWAY PLANS FOR REMOVING & PREP STRIPING

0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

Texas Department of Transportation®

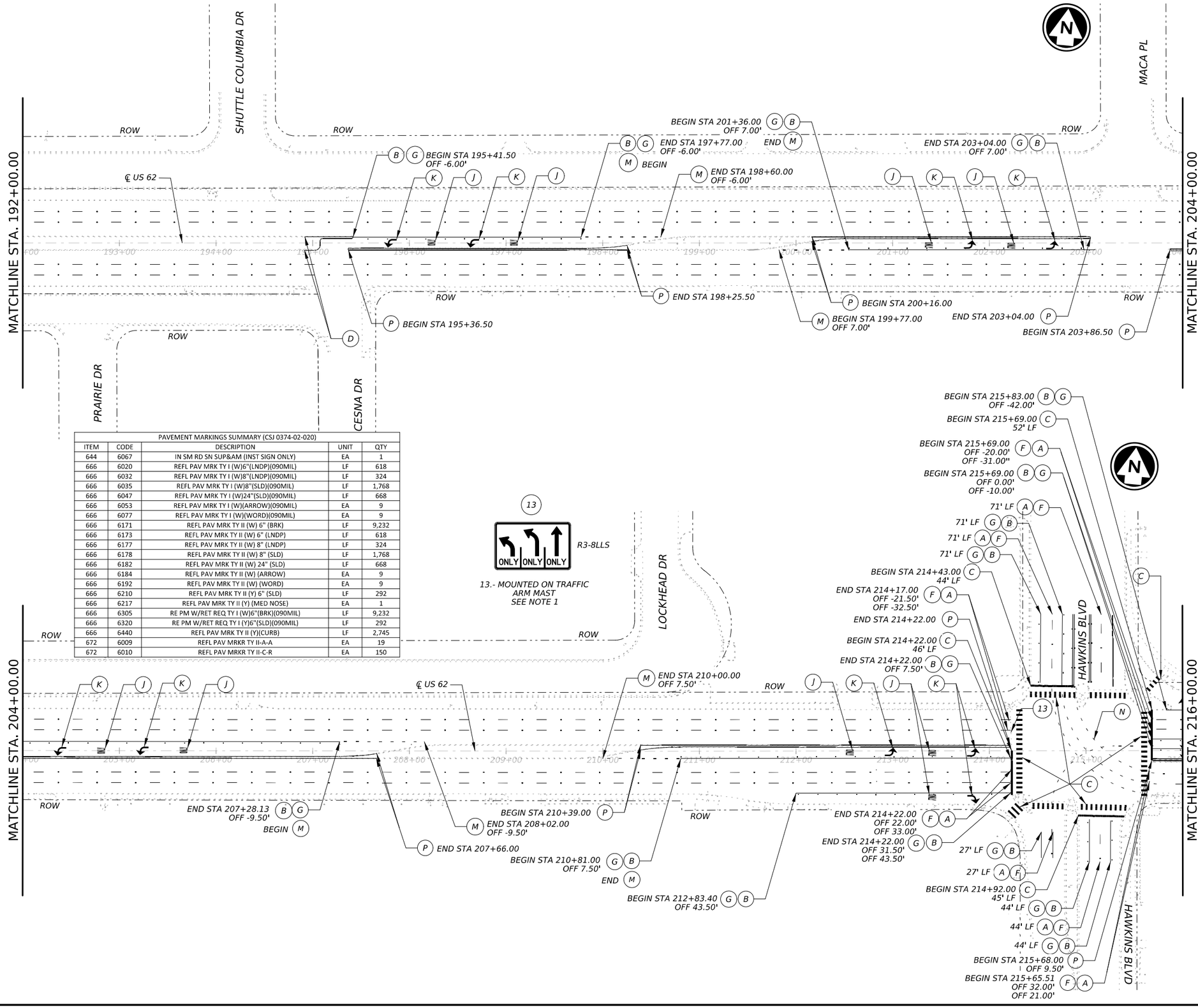
US62|US180

SIGNING & PAVEMENT MARKING LAYOUT

SHEET 8 OF 14

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
CHK	OEI	24	SEE TITLE SHEET	95
DRN	OEI	STATE	DIST.	COUNTY
CHK	OEI	TEXAS	ELP	EL PASO
		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18819\US62-S-SPM08.dgn



PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
644	6067	IN SM RD SN SUP&AM (INST SIGN ONLY)	EA	1
666	6020	REFL PAV MRK TY I (W)6"(LNDP)(090MIL)	LF	618
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	324
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	1,768
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	668
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	9
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	9
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	9,232
666	6173	REFL PAV MRK TY II (W) 6" (LNDP)	LF	618
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	324
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	1,768
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	668
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	9
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	9
666	6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	292
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	1
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	9,232
666	6320	RE PM W/RET REQ TY I (Y)6"(SLD)(090MIL)	LF	292
666	6440	REFL PAV MRK TY II (Y)(CURB)	LF	2,745
672	6009	REFL PAV MRKR TY II-A-A	EA	19
672	6010	REFL PAV MRKR TY II-C-R	EA	150

LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
2. REFER TO ROADWAY PLANS FOR REMOVING & PREP STRIPING

SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

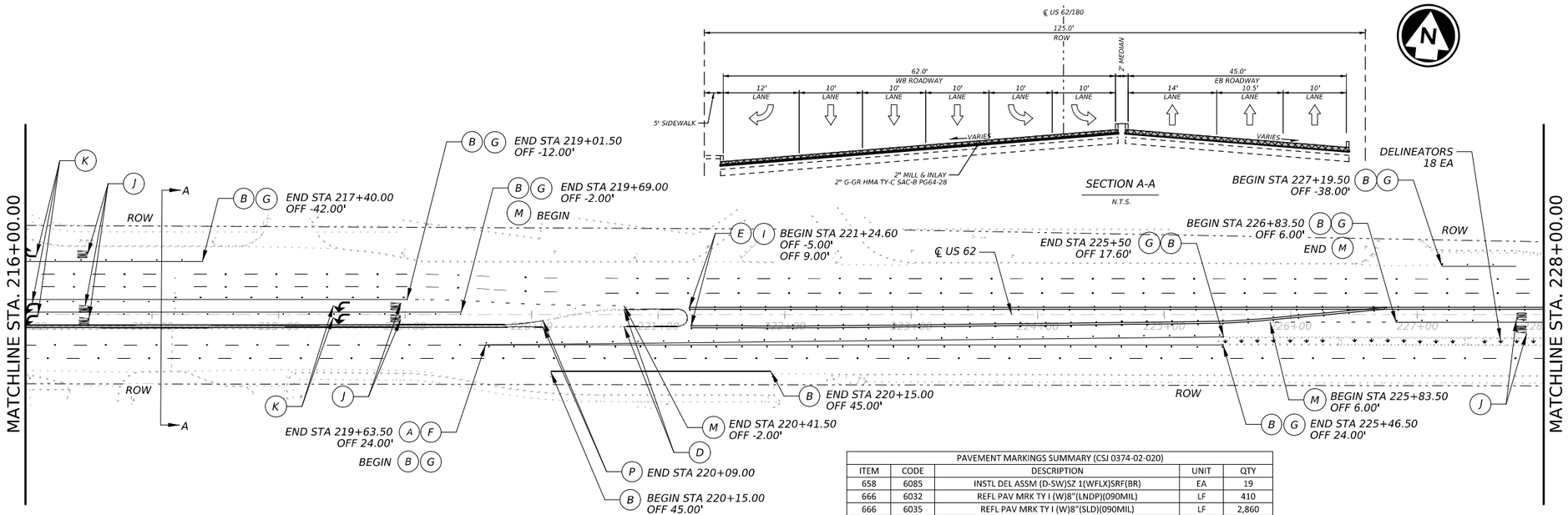
US62|US180

SIGNING & PAVEMENT MARKING LAYOUT

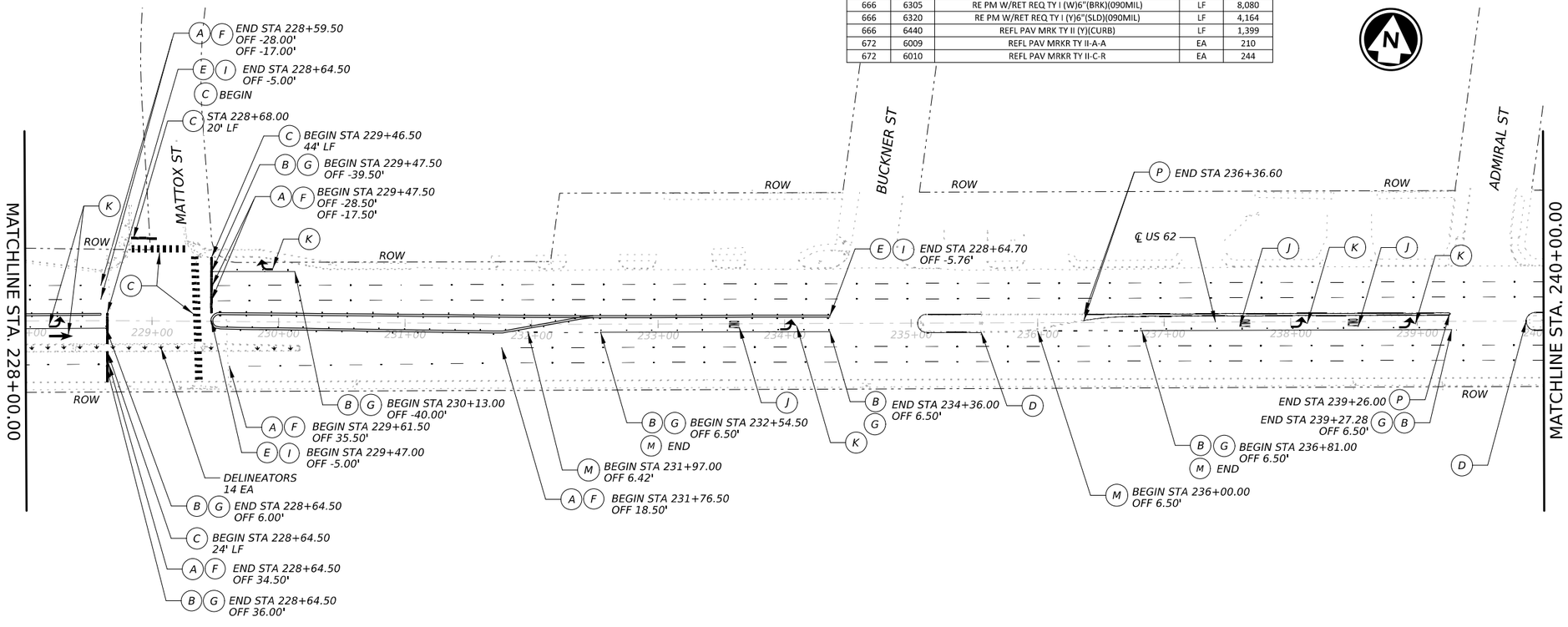
SHEET 9 OF 14

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
CHK	OEI	24	SEE TITLE SHEET	96
DRN	OEI	STATE	DIST.	COUNTY
CHK	OEI	TEXAS	ELP	EL PASO
		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18819\US62-S-SPM09.dgn



PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
658	6085	INSTL DEL ASSM (D-SW)SZ 1(WFLX)SRF(BR)	EA	19
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	410
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	2,860
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	268
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	11
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	10
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	8,080
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	410
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	2,860
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	268
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	11
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	10
666	6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	4,164
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	1
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	8,080
666	6320	RE PM W/RET REQ TY I (Y)6"(SLD)(090MIL)	LF	4,164
666	6440	REFL PAV MRK TY II (Y)(CURB)	LF	1,399
672	6009	REFL PAV MRKR TY II-A-A	EA	210
672	6010	REFL PAV MRKR TY II-C-R	EA	244



LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
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0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR. STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

US62|US180

SIGNING & PAVEMENT MARKING LAYOUT

SHEET 10 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	97
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
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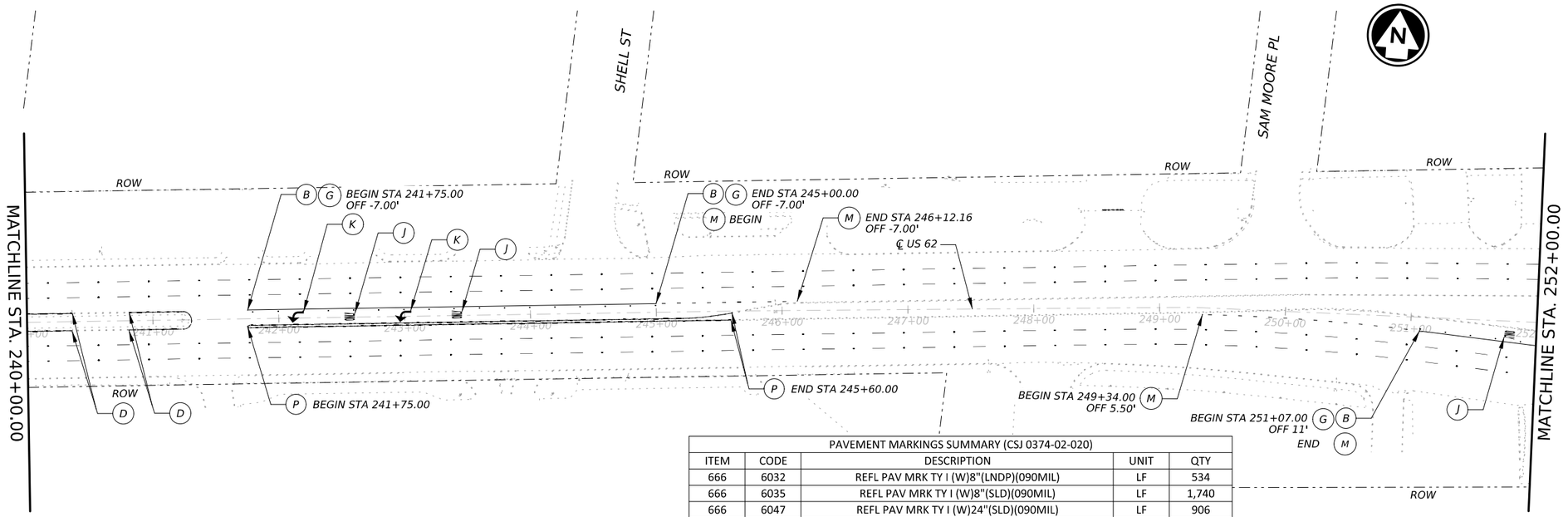
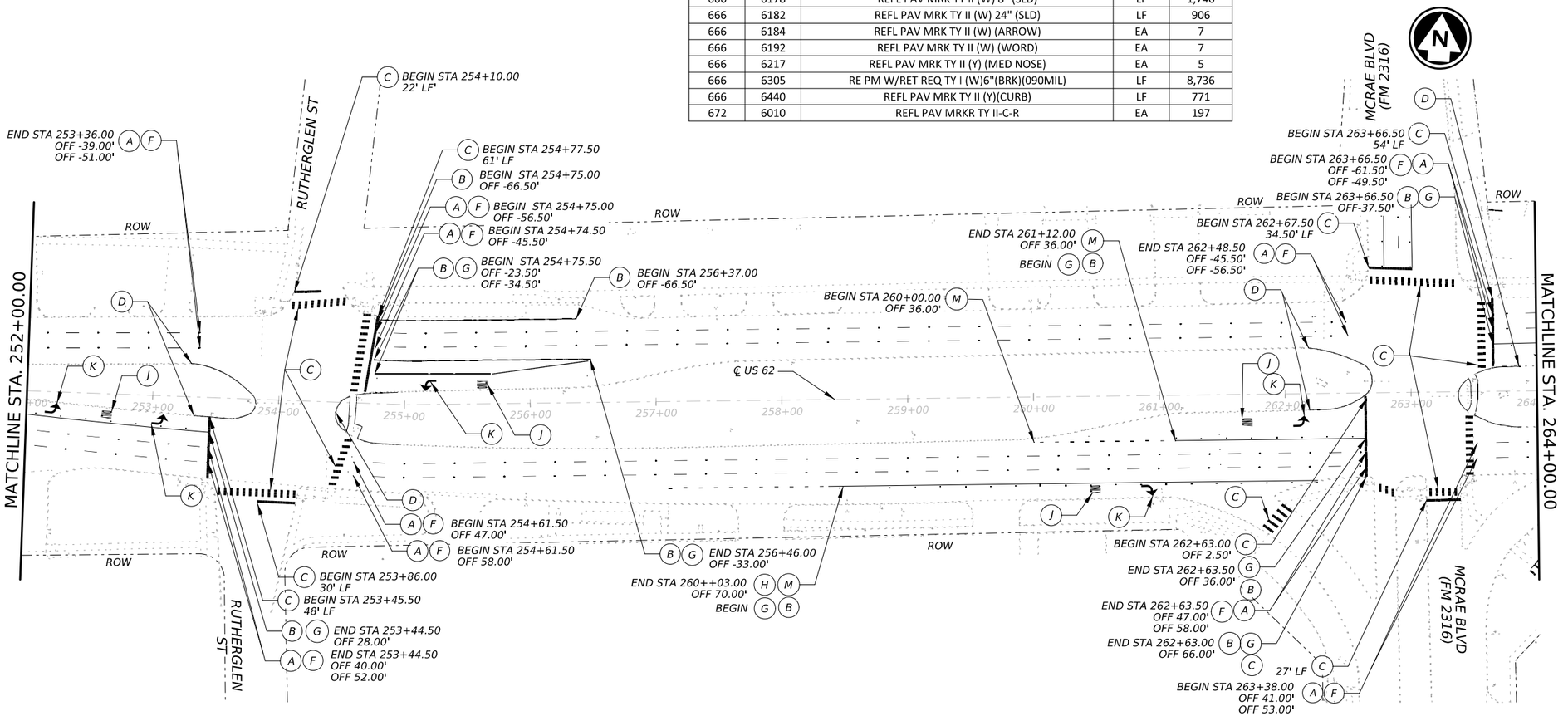


PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	534
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	1,740
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	906
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	7
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	7
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	8,736
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	534
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	1,740
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	906
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	7
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	7
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	5
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	8,736
666	6440	REFL PAV MRK TY II (Y)(CURB)	LF	771
672	6010	REFL PAV MRKR TY II-C-R	EA	197



LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
2. REFER TO ROADWAY PLANS FOR REMOVING & PREP STRIPING

0 50 100
SCALE: 1"=100'

DATE	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

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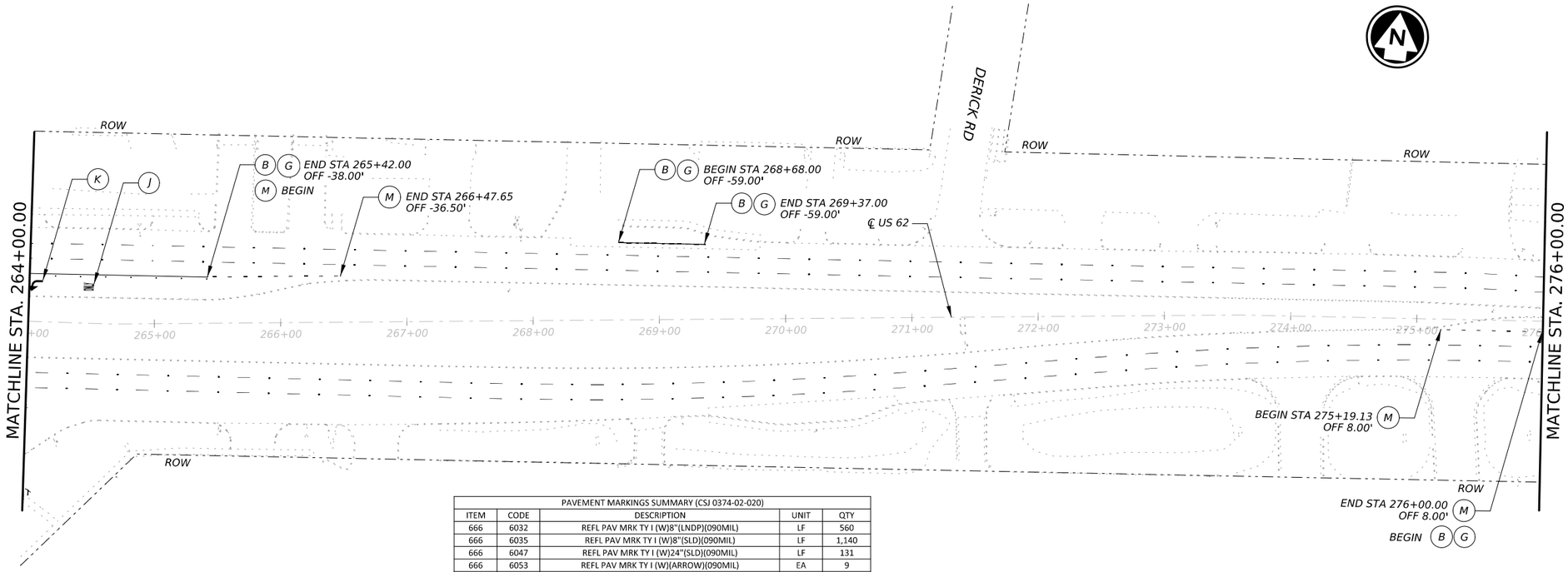
US62|US180

SIGNING & PAVEMENT MARKING LAYOUT

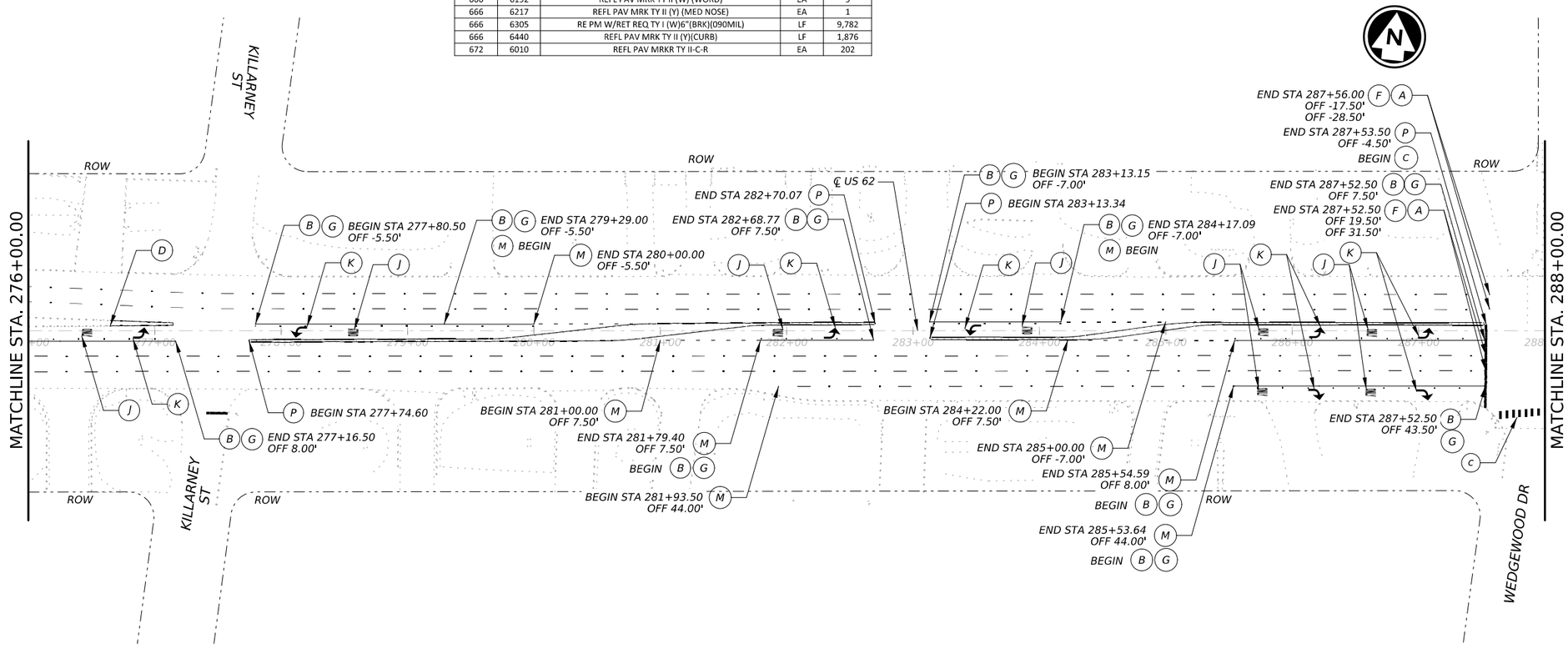
SHEET 11 OF 14

DSN	OEI	FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
CHK	OEI	24	SEE TITLE SHEET	98
DRN	OEI	STATE	DIST.	COUNTY
CHK	OEI	TEXAS	ELP	EL PASO
		CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18819\US62-S-SPM11.dgn



PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	560
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	1,140
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	131
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	9
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	9
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	9,782
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	560
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	1,140
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	131
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	9
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	9
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	1
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	9,782
666	6440	REFL PAV MRK TY II (Y)(CURB)	EA	1,876
672	6010	REFL PAV MRKR TY II-C-R	EA	202



LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
2. REFER TO ROADWAY PLANS FOR REMOVING & PREP STRIPING

0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER
12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE FIrm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

Texas Department of Transportation®

US62|US180

SIGNING & PAVEMENT MARKING LAYOUT

SHEET 12 OF 14

		FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
DSN	OEI	24	SEE TITLE SHEET		99
CHK	OEI	STATE	DIST.	COUNTY	
DRN	OEI	TEXAS	ELP	EL PASO	
CHK	OEI	CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

DATE: 12/28/2023
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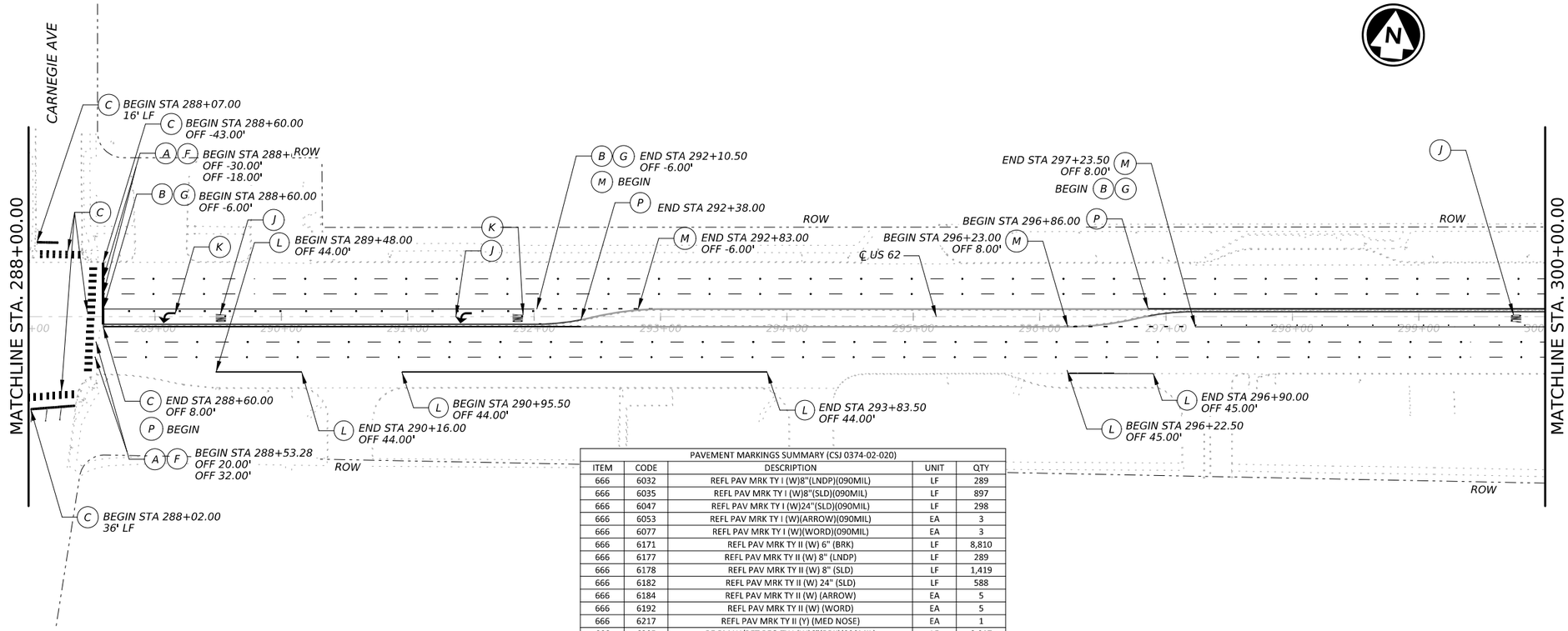
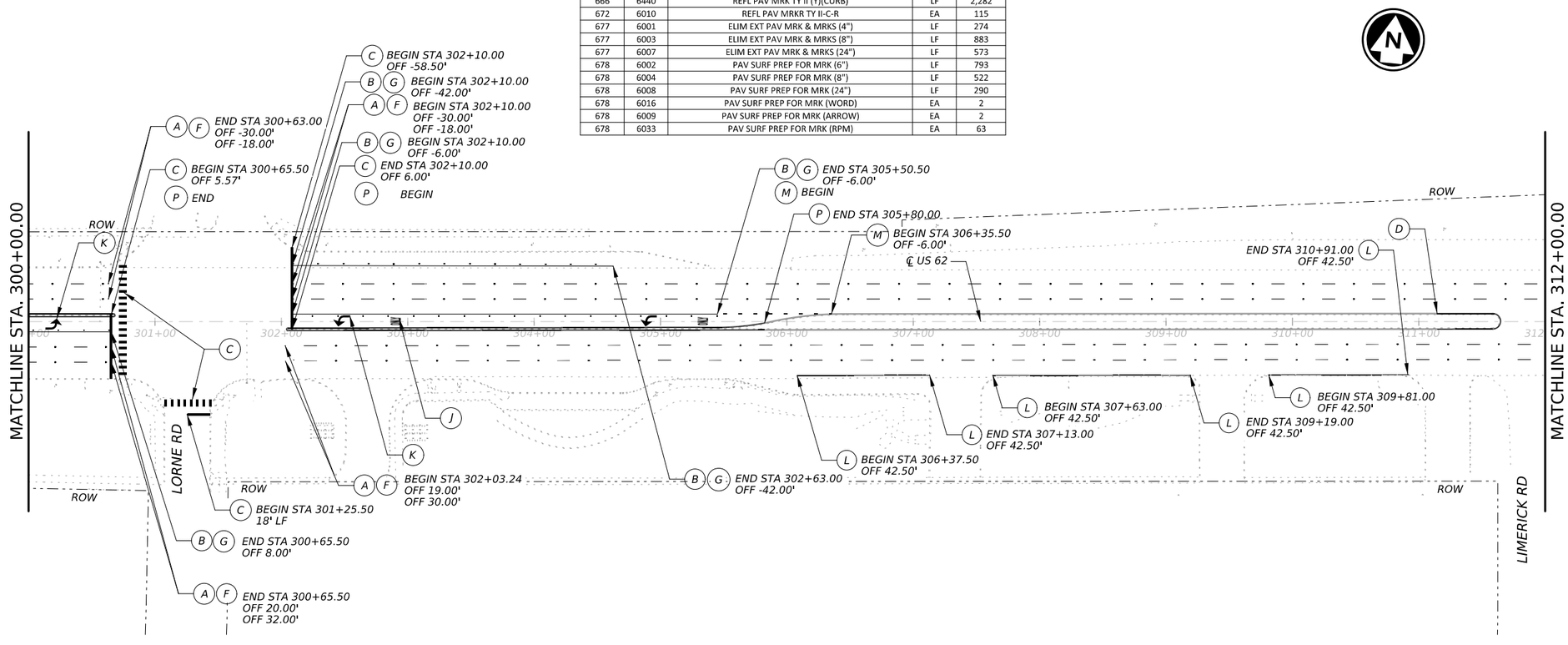


PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
666	6032	REFL PAV MRK TY I (W)8"(LNDP)(090MIL)	LF	289
666	6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	897
666	6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	298
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	3
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	3
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	8,810
666	6177	REFL PAV MRK TY II (W) 8" (LNDP)	LF	289
666	6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	1,419
666	6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	588
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	5
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	5
666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	1
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	8,017
666	6308	RE PM W/RET REQ TY I (W)6"(SLD)(090MIL)	LF	797
666	6440	REFL PAV MRK TY II (Y)(CURB)	LF	2,282
672	6010	REFL PAV MRKR TY II-C-R	EA	115
677	6001	ELIM EXT PAV MRK & MRKS (4")	LF	274
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	883
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	573
678	6002	PAV SURF PREP FOR MRK (6")	LF	793
678	6004	PAV SURF PREP FOR MRK (8")	LF	522
678	6008	PAV SURF PREP FOR MRK (24")	LF	290
678	6016	PAV SURF PREP FOR MRK (WORD)	EA	2
678	6009	PAV SURF PREP FOR MRK (ARROW)	EA	2
678	6033	PAV SURF PREP FOR MRK (RPM)	EA	63



LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET
- OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
2. REFER TO ROADWAY PLANS FOR REMOVING & PREP STRIPING

0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
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OMEGAENGINEERS.COM
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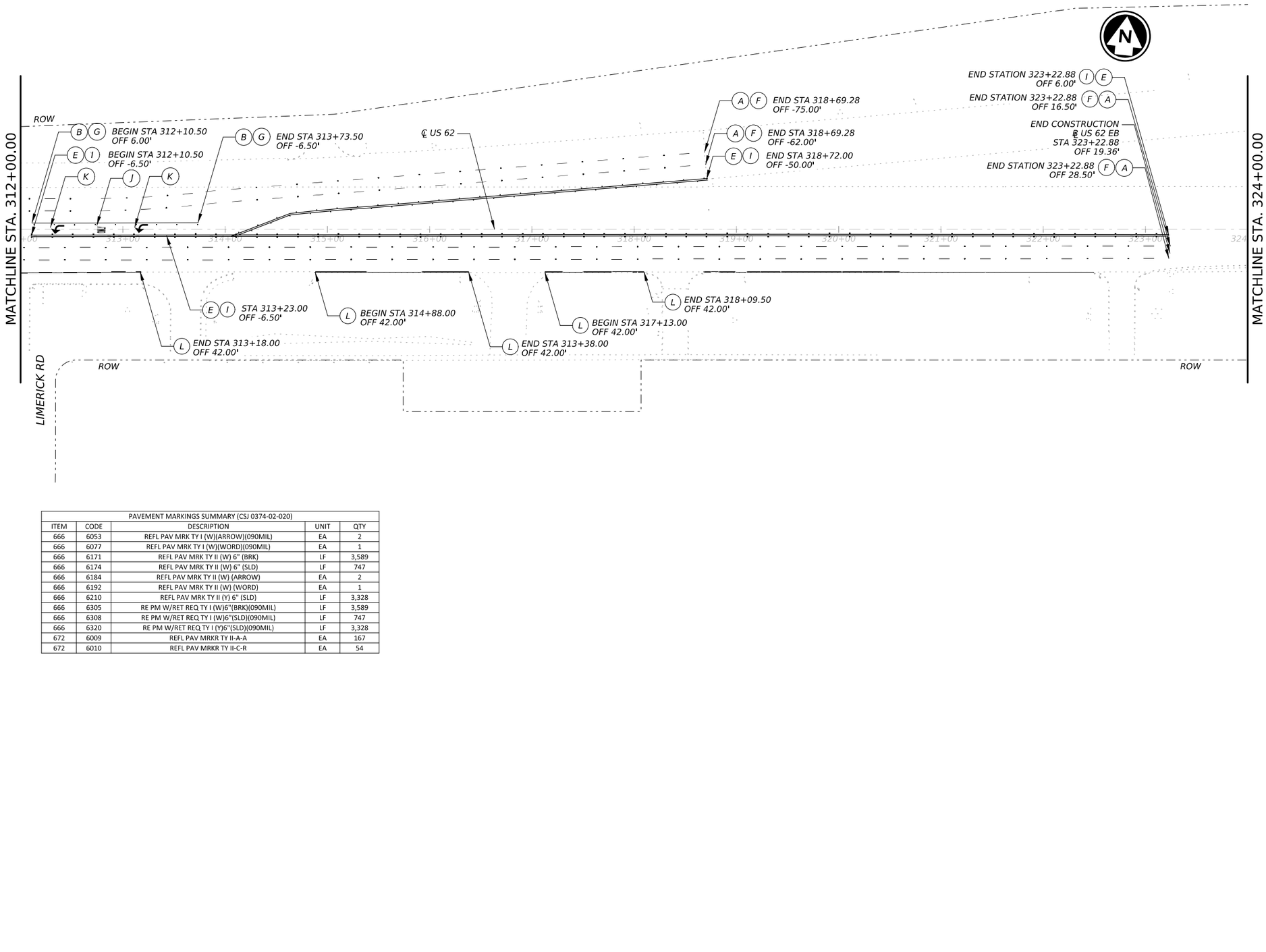
SIGNING & PAVEMENT MARKING LAYOUT

SHEET 13 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	100
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparzaldms18819\US62-S-SPM13.dgn



PAVEMENT MARKINGS SUMMARY (CSJ 0374-02-020)				
ITEM	CODE	DESCRIPTION	UNIT	QTY
666	6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	2
666	6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	1
666	6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	3,589
666	6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	747
666	6184	REFL PAV MRK TY II (W) (ARROW)	EA	2
666	6192	REFL PAV MRK TY II (W) (WORD)	EA	1
666	6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	3,328
666	6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	3,589
666	6308	RE PM W/RET REQ TY I (W)6"(SLD)(090MIL)	LF	747
666	6320	RE PM W/RET REQ TY I (Y)6"(SLD)(090MIL)	LF	3,328
672	6009	REFL PAV MRKR TY II-A-A	EA	167
672	6010	REFL PAV MRKR TY II-C-R	EA	54

LEGEND

- (A) 6 IN WHITE BREAK
- (B) 8 IN WHITE SOLID
- (C) 24 IN WHITE SOLID
- (D) YELLOW MEDIAN NOSE (EA)
- (E) 6 IN DOUBLE YELLOW SOLID
- (F) RPM TY II-C-R @80'
- (G) RPM TY II-C-R @20'
- (H) RPM TY II-C-R @48'
- (I) RPM TY II-A-A @20'
- (J) WORD
- (K) ARROW
- (L) 6 IN WHITE SLD
- (M) 8 IN WHITE LNDP
- (N) 6 IN WHITE LNDP
- (O) RAIL ROAD
- (P) CURB YELLOW (LF)
- (#) SIGN ID STATION & OFFSET

OBJECT MARKER

NOTES:

1. EXISTING SIGN TO BE REMOVED SHALL BE PAID UNDER ITEM 644 6076
2. REFER TO ROADWAY PLANS FOR REMOVING & PREP STRIPING

0 50 100
SCALE: 1"=100'

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
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Texas Department of Transportation®

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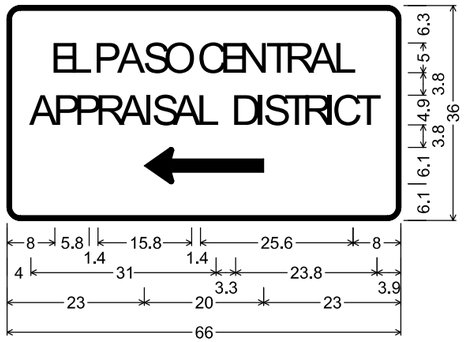
SIGNING & PAVEMENT MARKING LAYOUT

SHEET 14 OF 14

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	101
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparzaldms18819\US62-S.SPM14.dgn



2.3" Radius, 0.8" Border, White on Green;
"EL PASO CENTRAL", ClearviewHwy-3-W specified length;
"APPRAISAL DISTRICT", ClearviewHwy-3-W specified length;

SCALE: N.T.S.

DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
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OMEGAENGINEERS.COM
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P:915 308 6415 F:281 647 9184

Texas Department of Transportation®

US62|US180

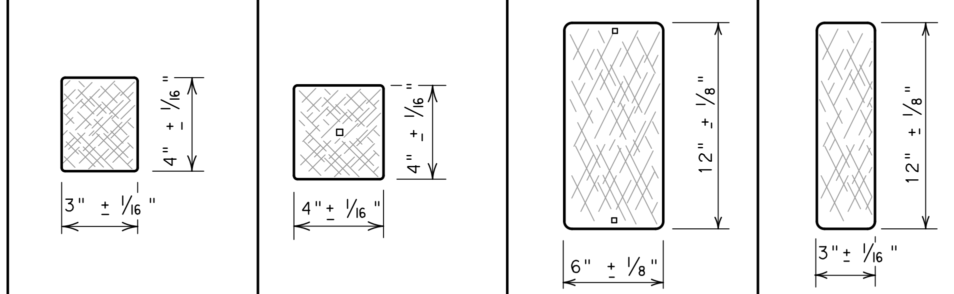
SIGNS
DETAILS

SHEET 1 OF 1

		FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
DSN	OEI	24	SEE TITLE SHEET		102
CHK	OEI	STATE	DIST.	COUNTY	
DRN	OEI	TEXAS	ELP	EL PASO	
CHK	OEI	CONT.	SECT.	JOB	HIGHWAY NO.
		0374	02	120, ETC.	US 62, ETC

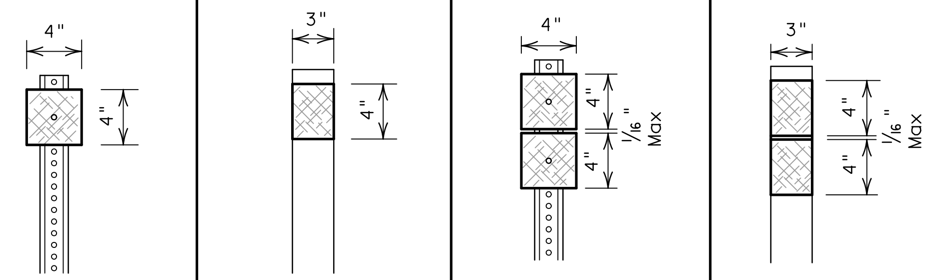
DATE: 12/28/2023
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local_omega-prod\omega_sergio esparza\dms18819\US62-SIGN-DTLS_01.dgn

REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS



	SIZE 1	SIZE 2	SIZE 3	SIZE 4
DEVICE				
SHEETING	Yellow, White or Red Type B or C reflective sheeting			
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (flx). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.			

DELINEATORS



	SINGLE		DOUBLE	
DEVICE	1-Size 2 reflector unit	1-Size 1 reflector unit	2-Size 2 reflector units	2-Size 1 reflector units
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting			
POST TYPE	WC	YFLX, WFLX	WC	YFLX, WFLX
MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

D & OM DESCRIPTIVE CODES

INSTL DEL ASSM (D-XX)SZ X (XXXX)XXX(XX)

NUMBER OF REFLECTORS
S = Single
D = Double

COLOR OF REFLECTORS
W = White
Y = Yellow
R = Red

REFLECTOR UNIT SIZE
1 or 2

TYPE OF POST OR DELINEATOR
WC = Wing Channel Post
YFLX = Yellow Flexible Post
WFLX = White Flexible Post
BRF = Barrier Reflector

TYPE OF MOUNT
GND = Embedded (drivable or set in concrete)
CTB = Concrete Barrier Mount
GF1 or GF2 = Guard Fence Attachment
SRF = Surface Mount

DIRECTION
If Required
BI = Bi-Directional
BR = Bi-Directional with red on back

INSTL OM ASSM (OM-XX) (XXXX)XXX(XX)

TYPE OF OBJECT MARKER
1, 2, 3, or 4

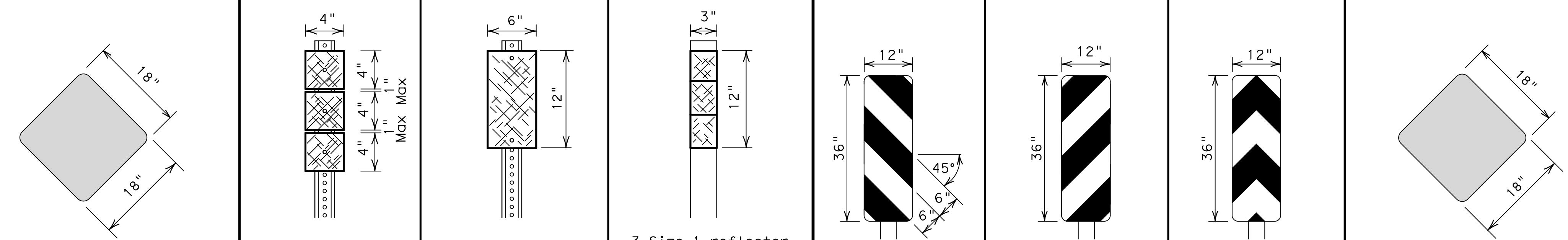
NUMBER OF REFLECTORS OR DIRECTION
X = 3-Size 2 reflector units (Type 2 only)
Y = 1-Size 3 reflector unit (Type 2 only)
Z = 3-Size 1 or 1-Size 4 reflector unit(s)(Type 2 only)
L = Left Side (Type 3 Object Marker only)
R = Right Side (Type 3 Object Marker only)
C = Center (Type 3 Object Marker only)

TYPE OF POST
WC = Wing Channel Post
WFLX = White Flexible Post
TWT = Thin Walled Tubing

TYPE OF MOUNT
GND = Embedded (drivable)
SRF = Surface Mount
WAS = Wedge Anchor Steel
WAP = Wedge Anchor Plastic

DIRECTION
If Required
BI = Bi-Directional

OBJECT MARKERS

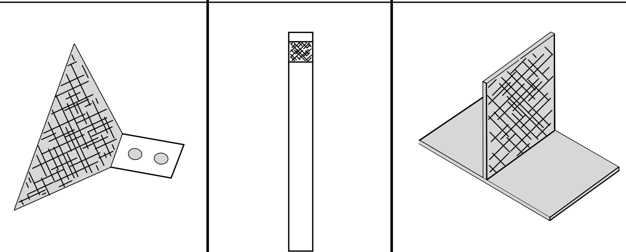


	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_{FL} or C_{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_{FL} or C_{FL} Sheeting			Red -Type B_{FL} or C_{FL} Sheeting
POST TYPE	TWT	WC	WC	WFLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

DEPARTMENTAL MATERIAL SPECIFICATIONS

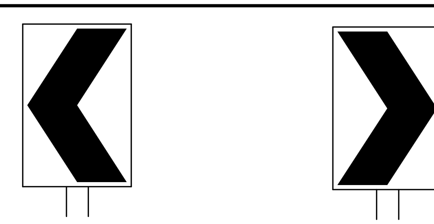
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

BARRIER REFLECTORS (BRF)



	GF1	GF2	CTB
DEVICE			
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.		
SHEETING	Yellow, White, Red		
NOTE	1. Reflective sheeting shall have a minimum dimension of 3 inches and minimum surface area of 9 square inches.		

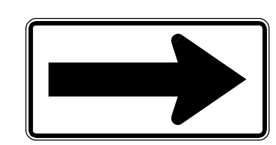
CHEVRONS



W1-8

DEVICE	W1-8			
SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	

ONE DIRECTION LARGE ARROW



W1-6

DEVICE	W1-6	
SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

NOTE

1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies).

2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6).

NOTE:

Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

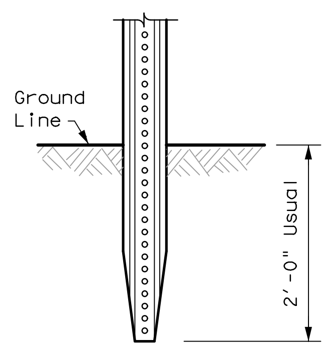
FILE:	dom1-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT	August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS		0374	02	120,ETC.	US 62,ETC
10-09 3-15 4-10 7-20		DIST		COUNTY	SHEET NO.
		24		EL PASO	103

20A

POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

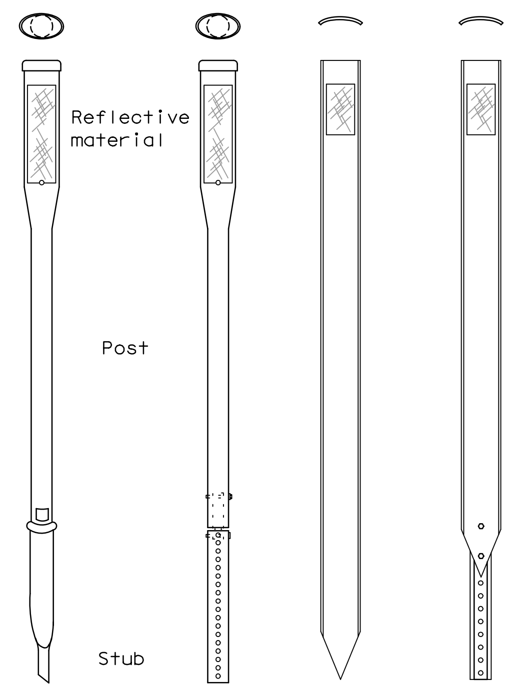


NOTES

1. Embedded Wing Channel (WC) post option may be used for Type 2 Object Markers and Delineators only.
2. 1.12 lbs/ft steel per ASTM A 1011 SS Gr. 50, or ASTM A499.

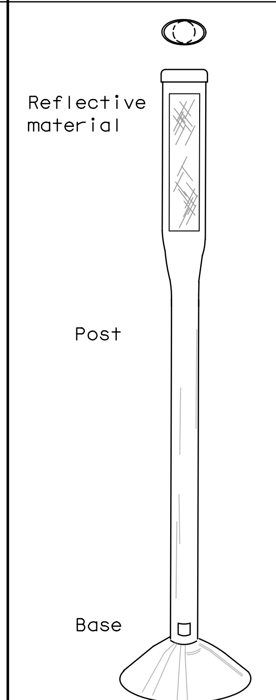
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



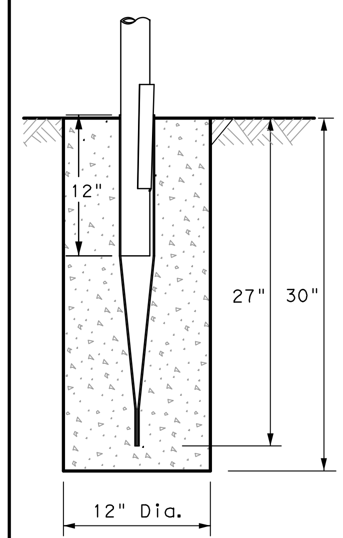
SURFACE MOUNT

NOTES

1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices.
2. Install per manufacturer's recommendations.
3. Post length may vary to meet field conditions.
4. When using yellow delineators with flexible posts to separate opposing direction of travel, such as centerline or median use, the flexible posts shall be yellow.

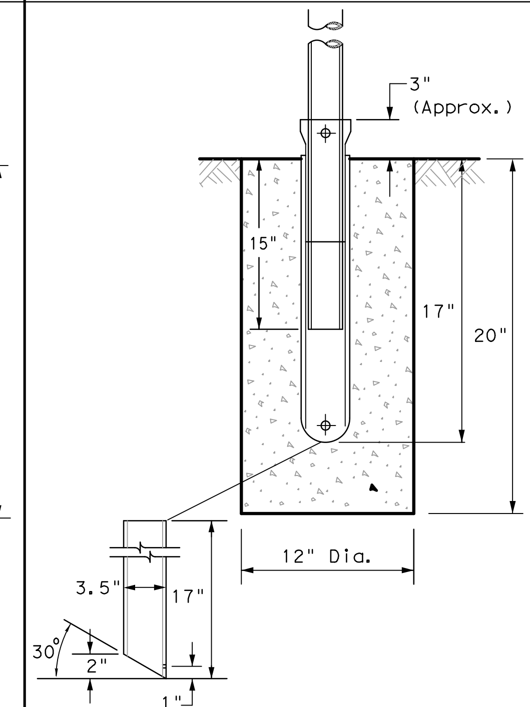
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

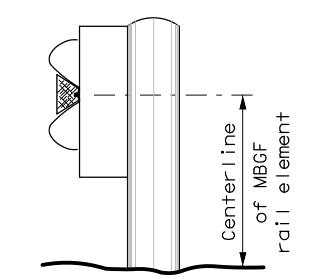
NOTE

1. Install per manufacturer's recommendations.

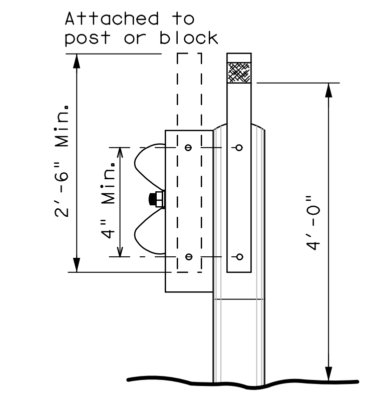
TYPE OF BARRIER MOUNTS

GUARD FENCE ATTACHMENT

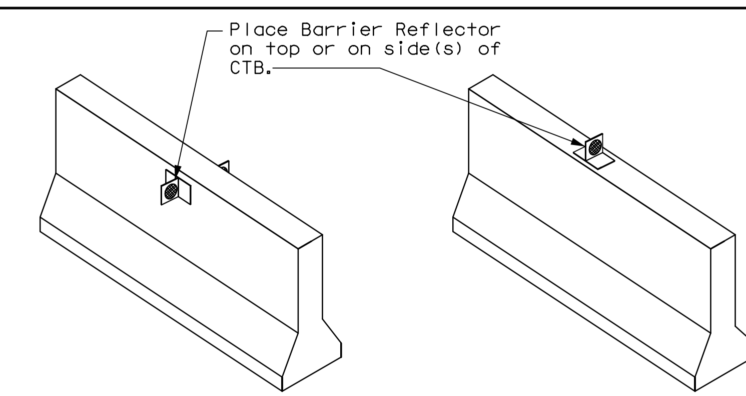
GF1



GF2



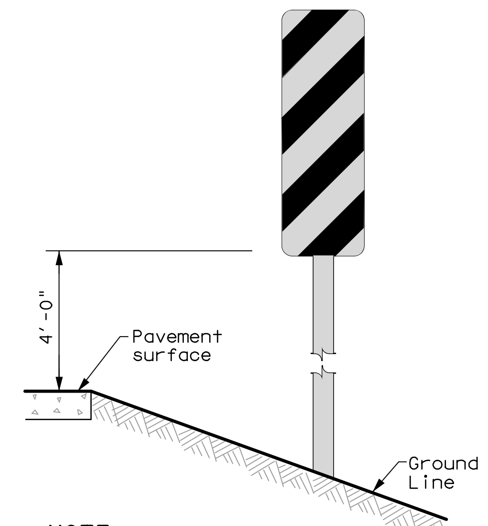
CONCRETE TRAFFIC BARRIER (CTB)



GENERAL NOTES

1. Place delineators on a section of roadway at a consistent distance from the edge of pavement.
2. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction.
3. When Type 2 object markers and delineators are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker or delineator as close to the desired height as possible.
4. Install all delineators, object markers and barrier reflectors in accordance with the manufacturer's recommendation.
5. Barrier reflectors should be installed a minimum of 18 inches above the edge of the pavement surface.
6. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane.

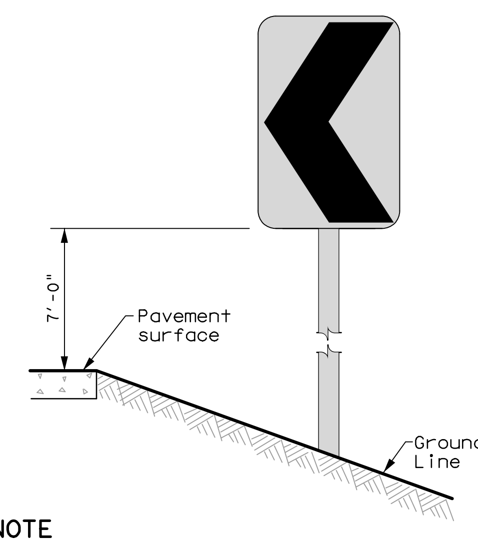
TYPES 1,3, AND 4 OBJECT MARKERS AND CHEVRONS



NOTE

Mounting at 4 feet to the bottom of the chevron is permitted for chevrons that will not exceed a height of 6'-6" to the top of the chevron (sizes 24" x 30" and smaller)

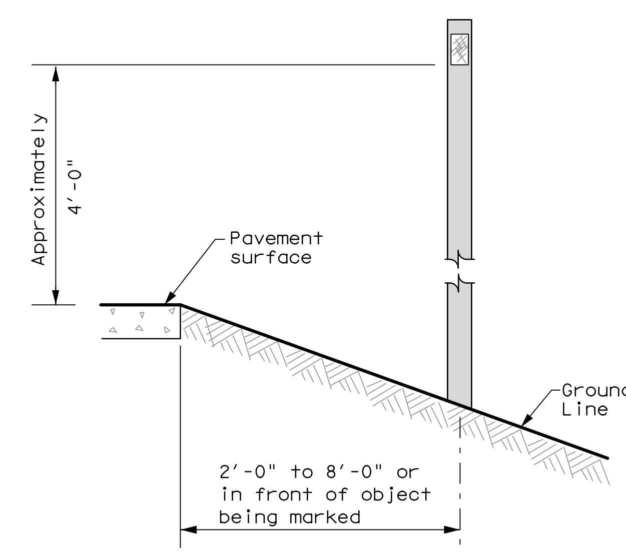
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



NOTE

Chevrons 30" x 36" and larger shall be mounted at a height of 7' to the bottom of the chevron. Chevron sign and ONE DIRECTION LARGE ARROW sign (W1-9T) shall be installed per SMD standard sheets and paid under item 644.

DELINEATORS AND TYPE 2 OBJECT MARKERS



See general notes 1, 2 and 3.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

FILE: dom2-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120, ETC.	US 62, ETC
10-09 3-15	DIST		COUNTY	SHEET NO.
4-10 7-20	24		EL PASO	104

20B

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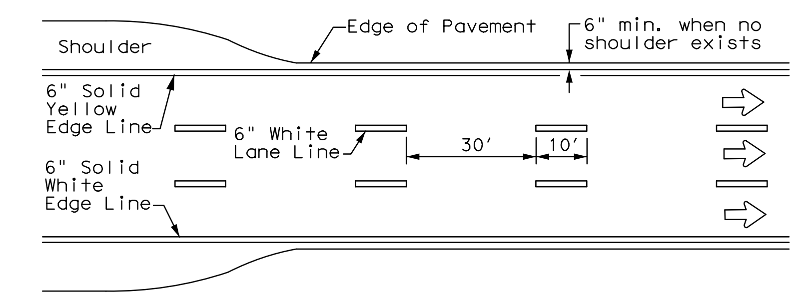
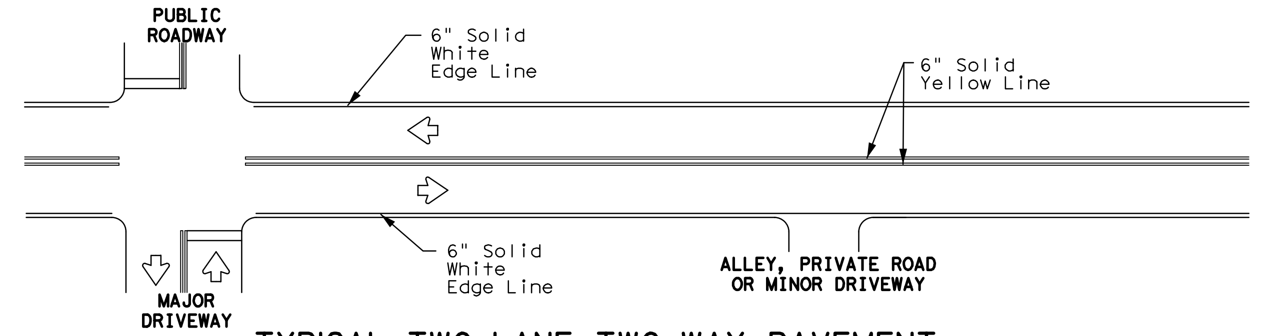


EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



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

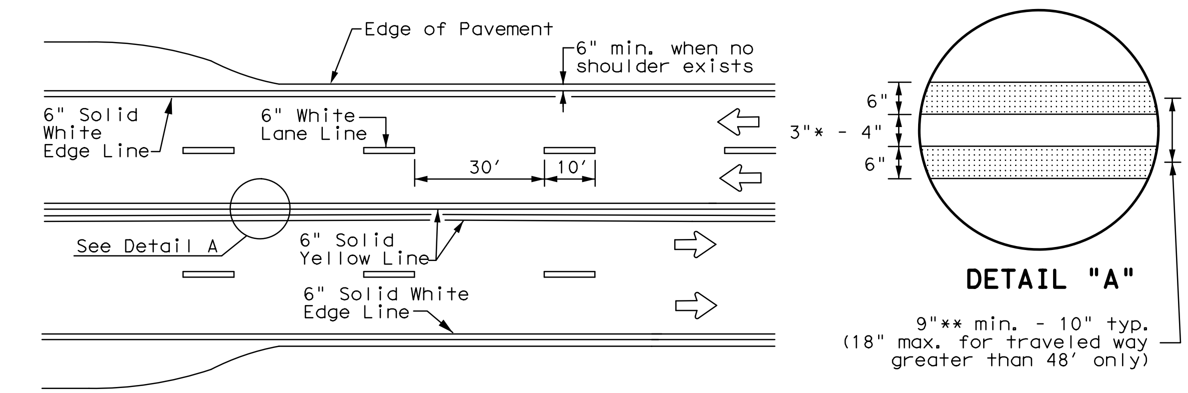
GENERAL NOTES

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

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

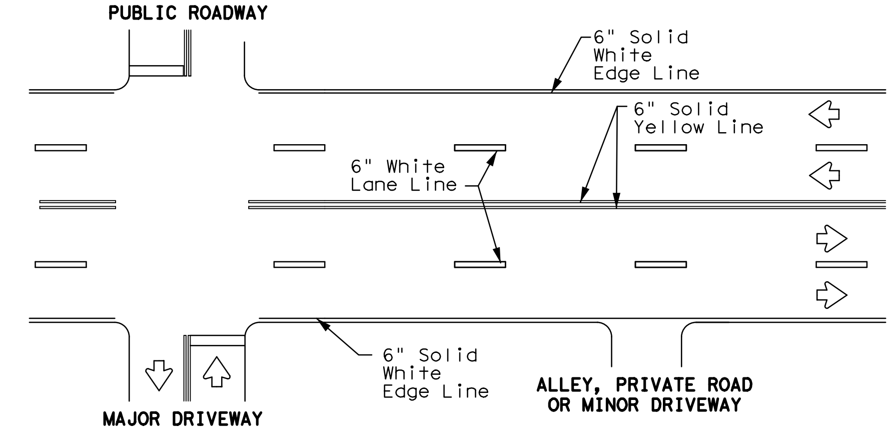
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

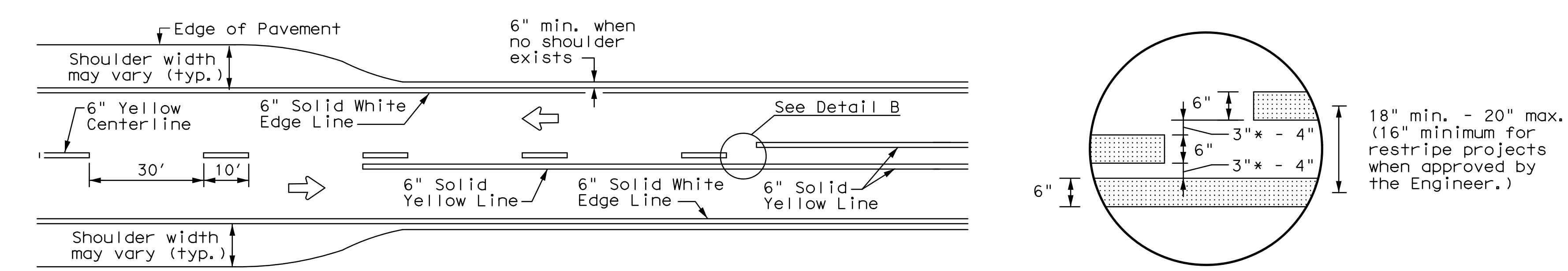


CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS

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



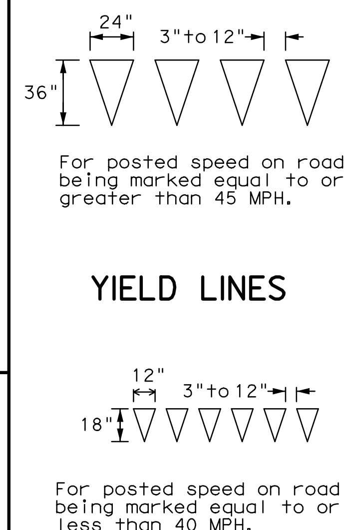
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS

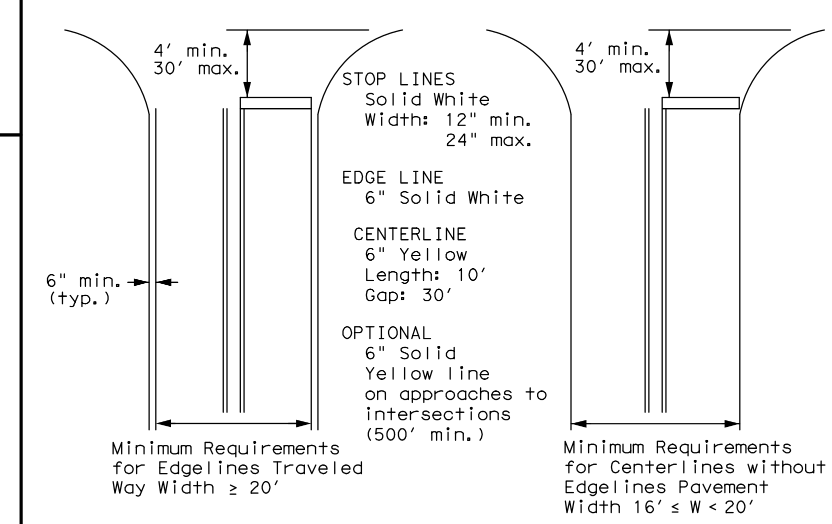


TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS

DETAIL "B"

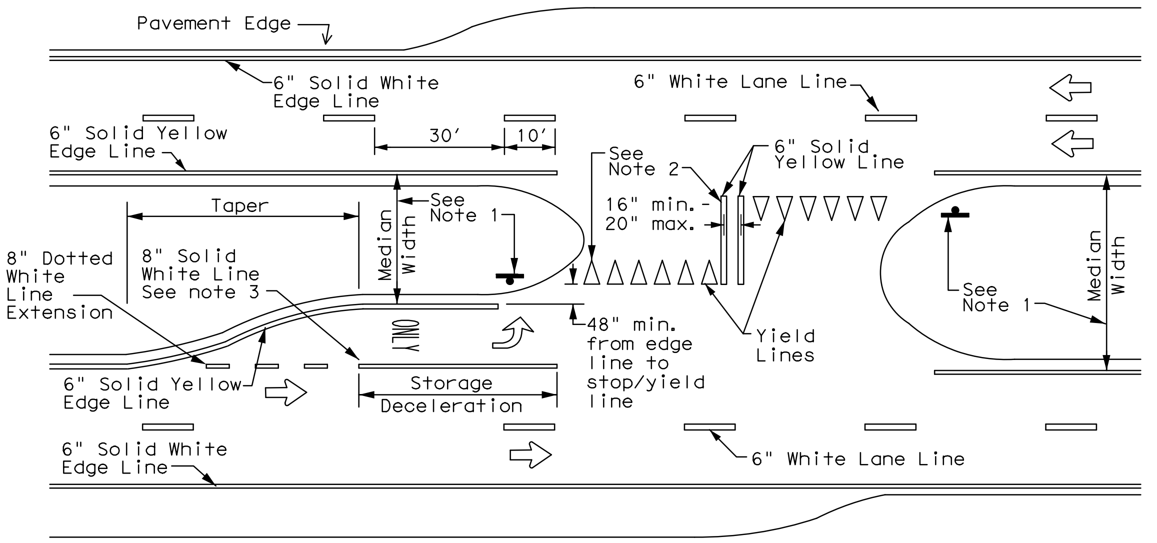
* 2" minimum for restripe projects when approved by the Engineer.





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

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



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

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

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

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

Texas Department of Transportation — Traffic Safety Division Standard

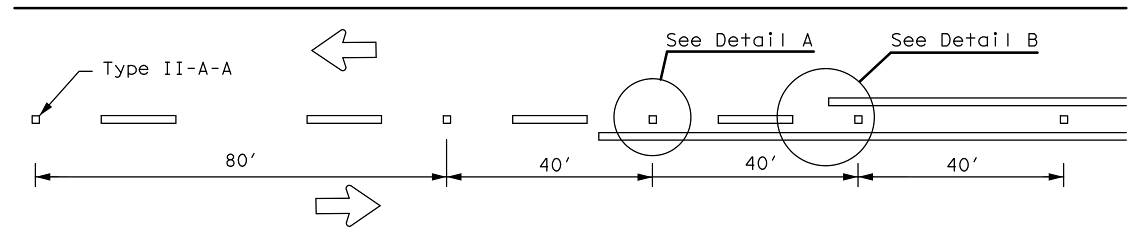
TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

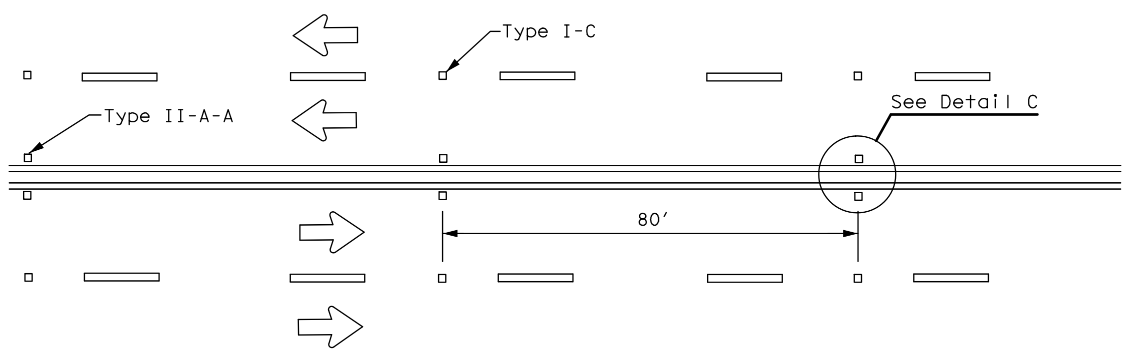
FILE: 105	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 11-78 8-00 6-20	0374	02	120, ETC.	US 62, ETC
8-95 3-03 12-22	DIST		COUNTY	SHEET NO.
5-00 2-12	24		EL PASO	105

22A

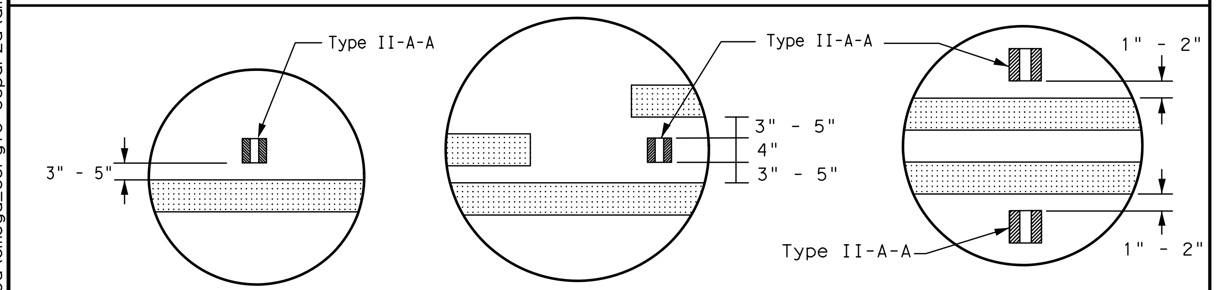
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



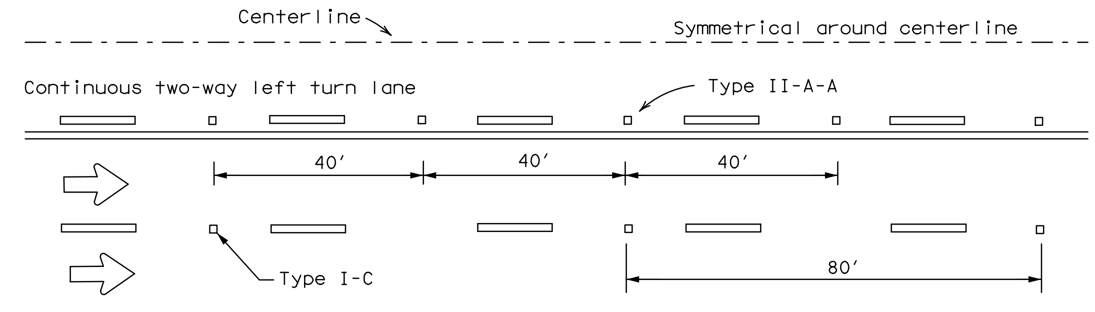
CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS



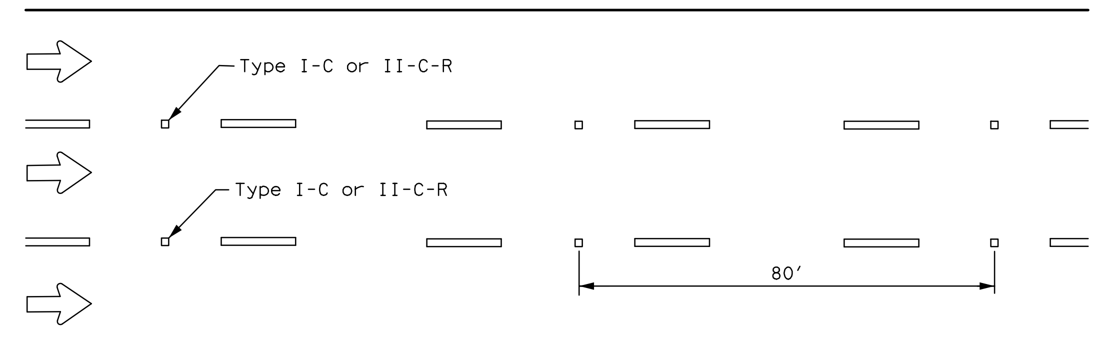
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS



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



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



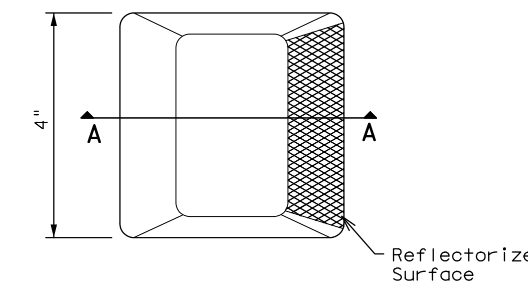
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

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

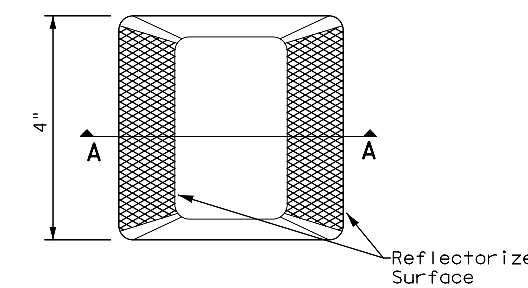
See Note 3.

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

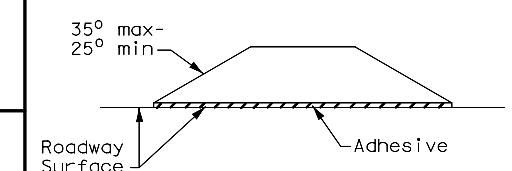
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

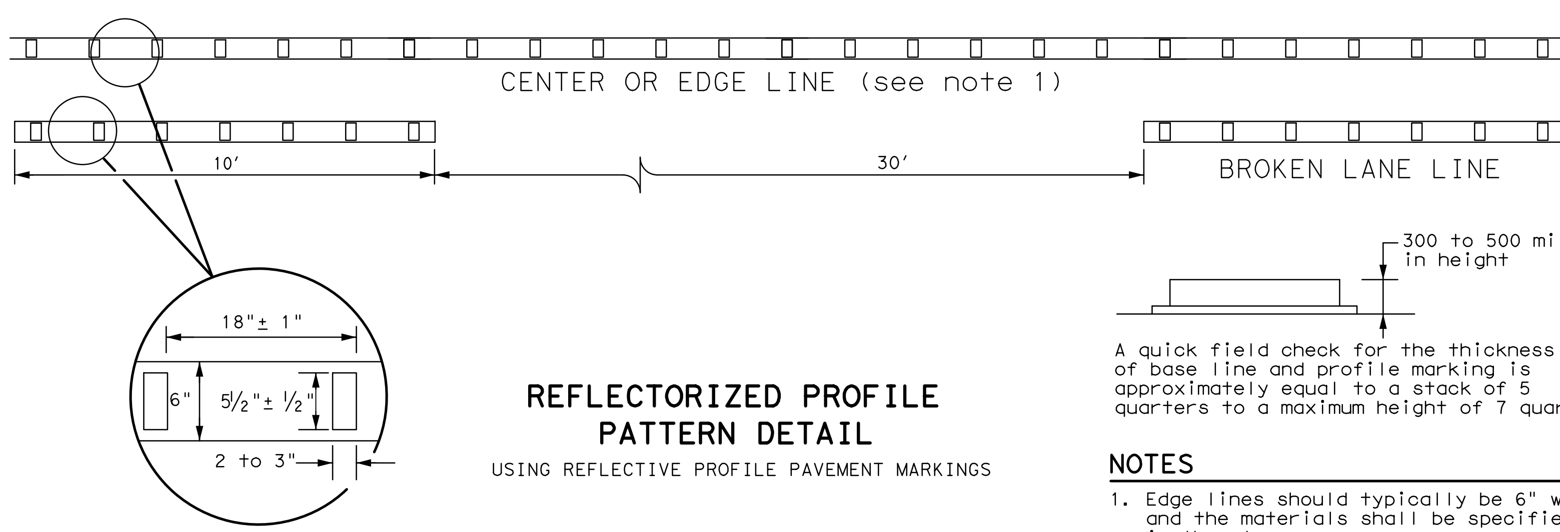


Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



6" EDGE LINE, 6" CENTERLINE OR 6" LANE LINE

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

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

NOTES

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

GENERAL NOTES

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

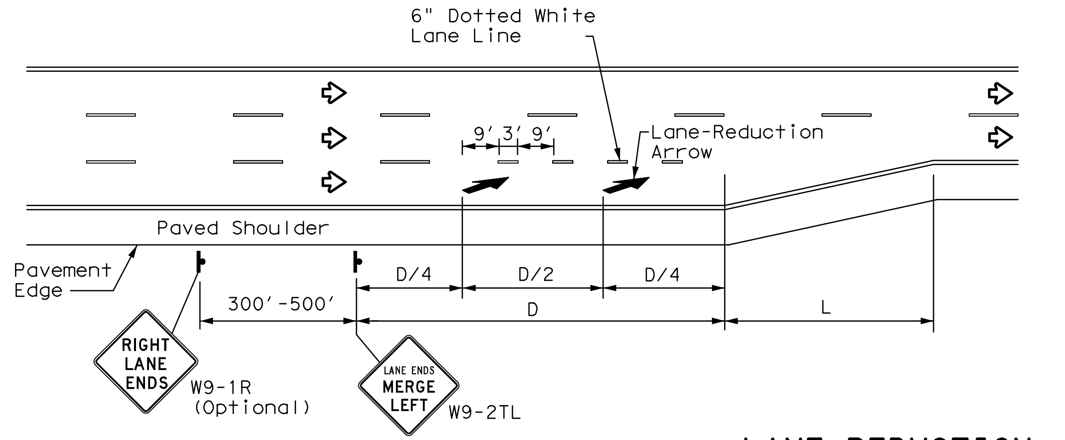
Texas Department of Transportation

Traffic Safety Division Standard

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

FILE: 106	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-77 8-00 6-20 / 4-92 2-10 12-22 / 5-00 2-12	0374	02	120, ETC.	US 62, ETC
	DIST		COUNTY	SHEET NO.
	24		EL PASO	106

22B



LANE REDUCTION

NOTES

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

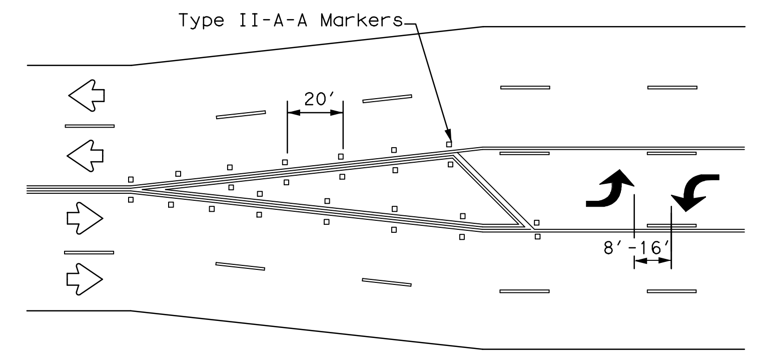
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L = \frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

GENERAL NOTES

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

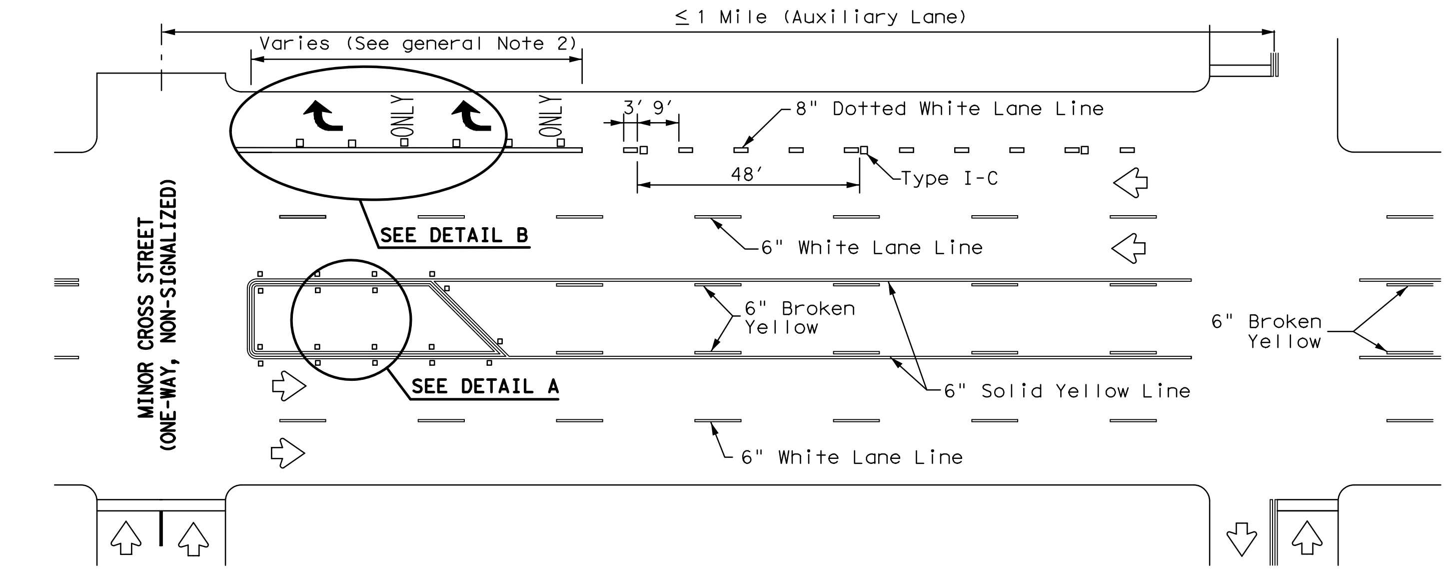
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

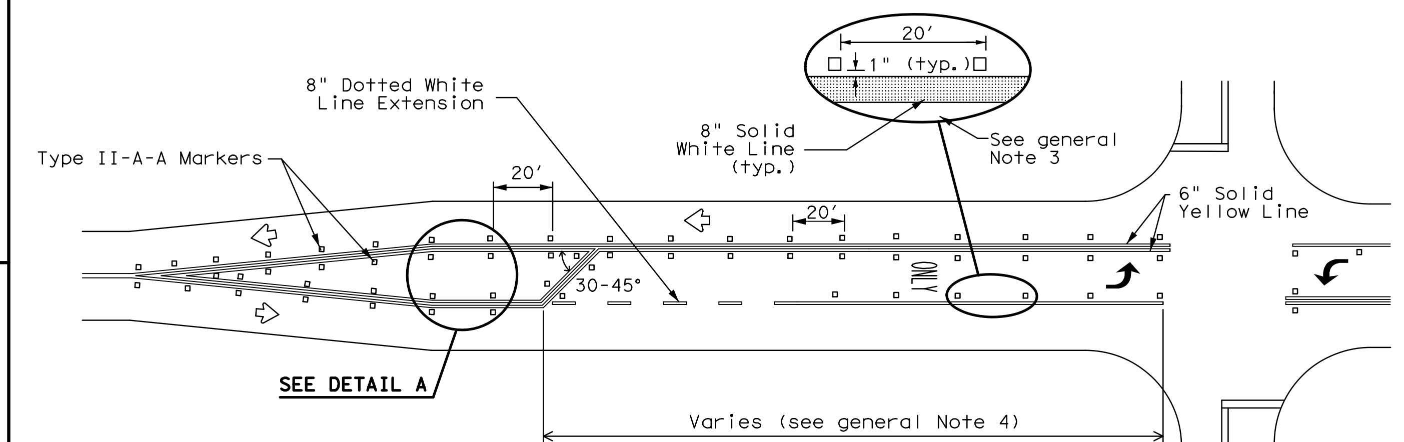


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

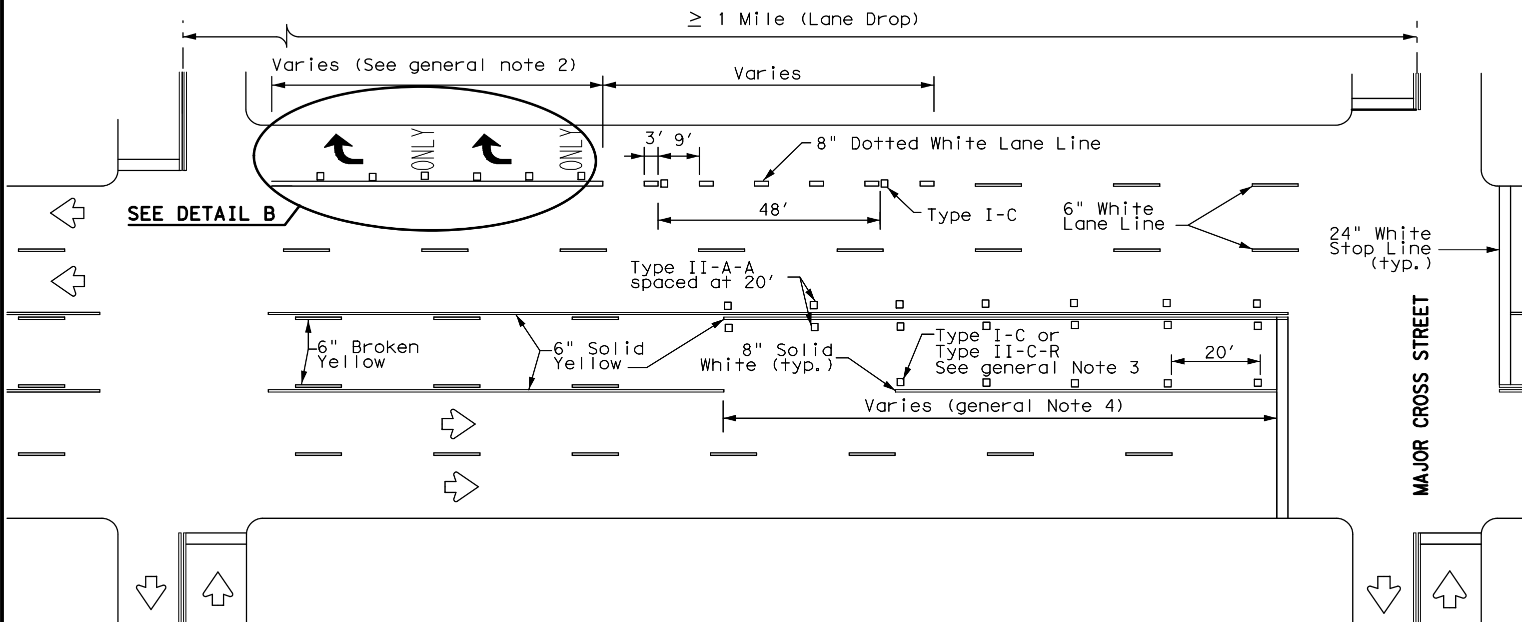
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



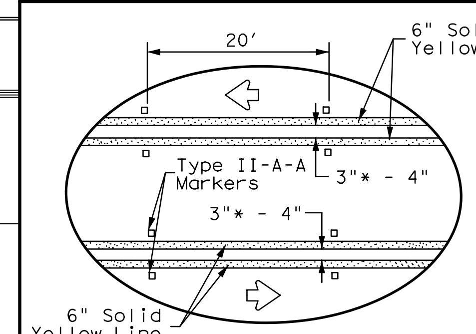
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



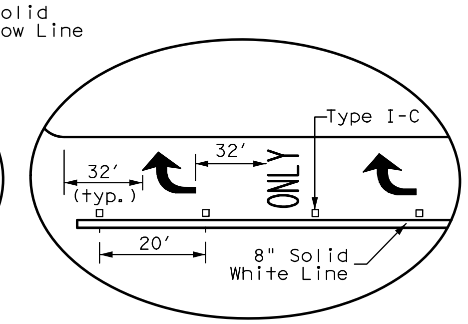
TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



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



DETAIL A



DETAIL B

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

Texas Department of Transportation

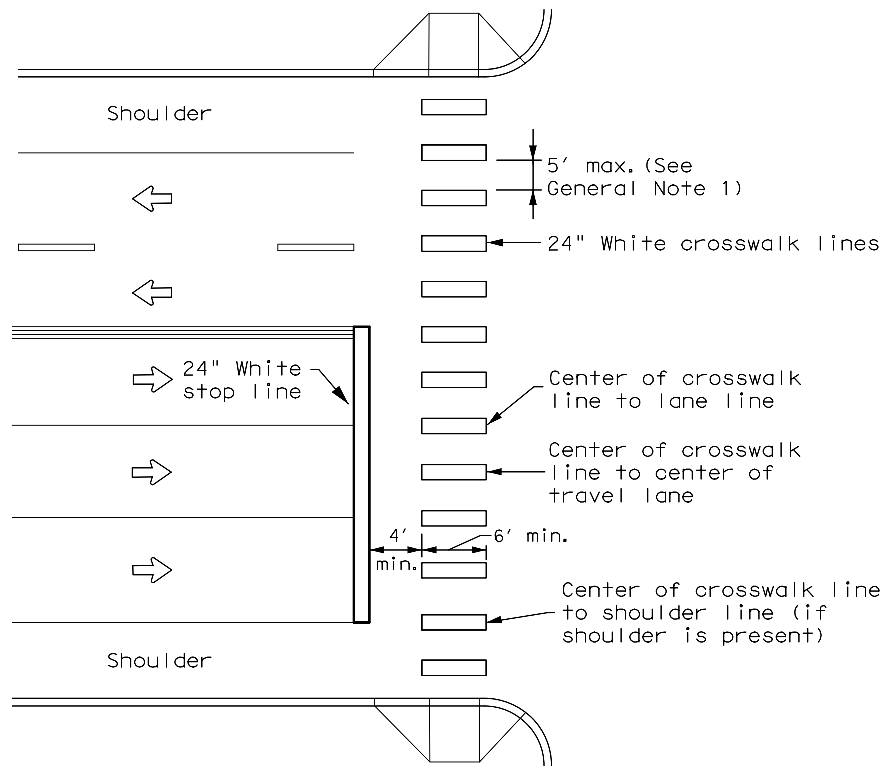
Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-22

FILE: 107	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12	0374	02	120, ETC.	US 62, ETC
	DIST		COUNTY	SHEET NO.
	24		EL PASO	107

22C



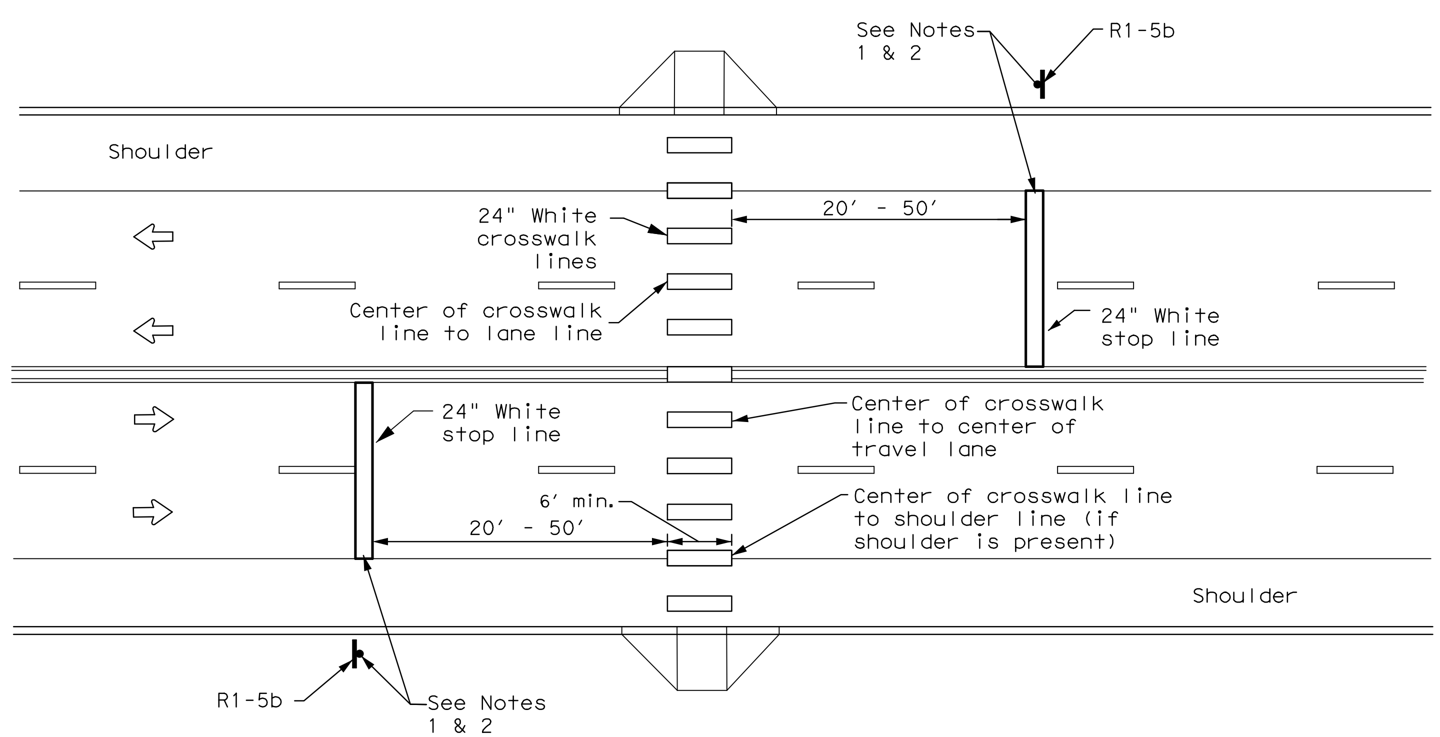
HIGH-VISIBILITY LONGITUDINAL CROSSWALK
AT CONTROLLED APPROACH

GENERAL NOTES

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

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

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



UNSIGNALIZED MIDBLOCK HIGH-VISIBILITY
LONGITUDINAL CROSSWALK

NOTES:

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

Texas Department of Transportation

Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS

PM(4)-22A

FILE: 108	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120,ETC.	US 62,ETC
6-20 6-22 12-22 22D	DIST		COUNTY	SHEET NO.
	24		EL PASO	108

DATE: 12/28/2023 4:15:21 PM
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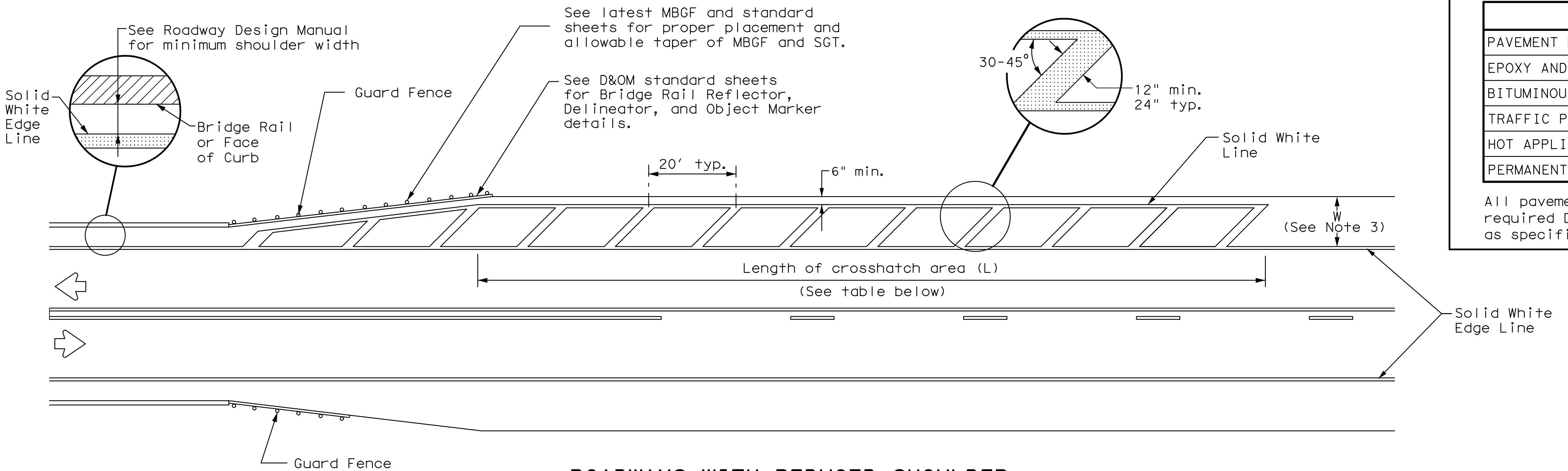

ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

NOTES

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

PAVEMENT MARKINGS FOR ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

PM(5)-22

FILE: 109	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120, ETC.	US 62, ETC
	DIST	COUNTY		SHEET NO.
	24	EL PASO		109

22E

DATE:
FILE:

DATE: 12/28/2023 4:16:06 PM
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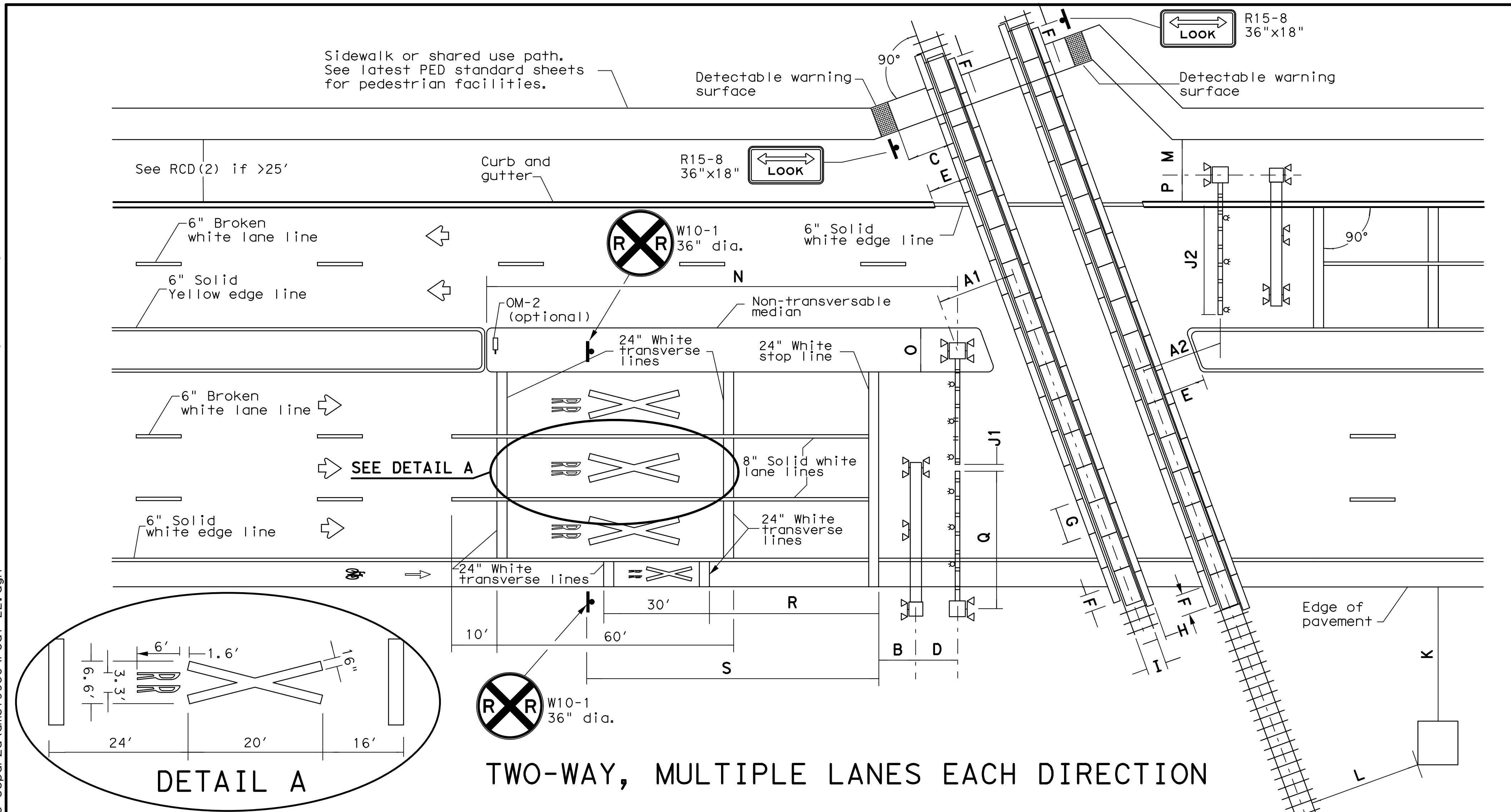


NOTES

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

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

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

C: Near edge of detectable warning surface to nearest rail: 12' minimum.

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

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

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

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

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

I: Distance between rails: 4'- 8'1/2".

J1: Tip of gate to tip of gate: 2' maximum.

J2: 90% of traveled roadway to be covered by gate.

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

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

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

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

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

P: Center of RR mast to face of curb: 5'-3" minimum. Center of RR mast to edge of pavement (with shoulder): 7' minimum. Center of RR mast to edge of pavement (no shoulder): 9'-3" minimum. NOTE: Final location determined by the railroad company.

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

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

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

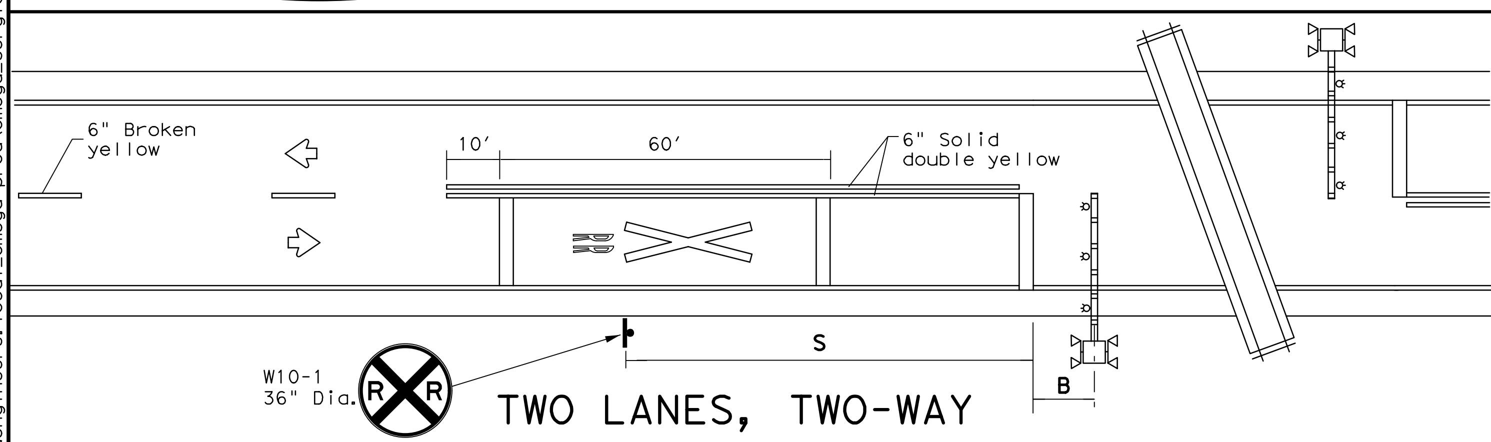
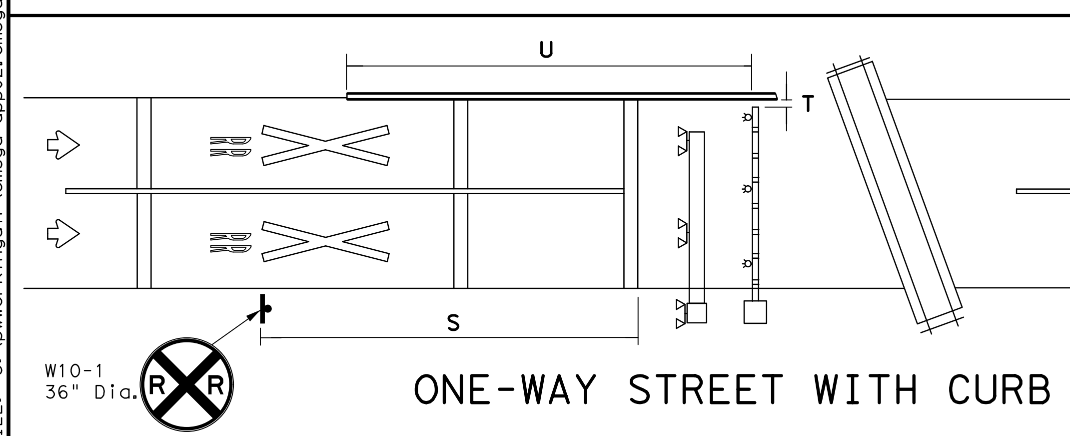


TABLE 1	
Approach Speed (mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

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

GENERAL NOTES

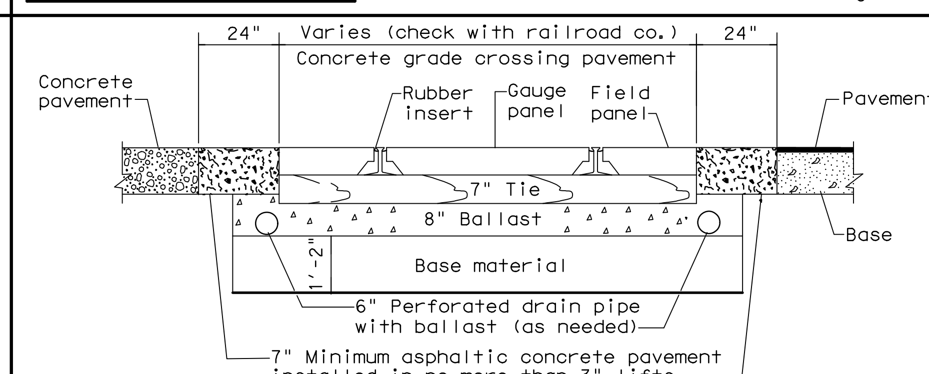
1. Medians and curbs must be non-traversable to qualify as a Quiet Zone Supplementary Safety Measure (SSM). Non-traversable curbs in Quiet Zones are 6" tall minimum and used on roadways where speed does not exceed 40 mph.
2. Raised pavement markers may be used to supplement striping. See PM(2) and PM(3) 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.



NOTES

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

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



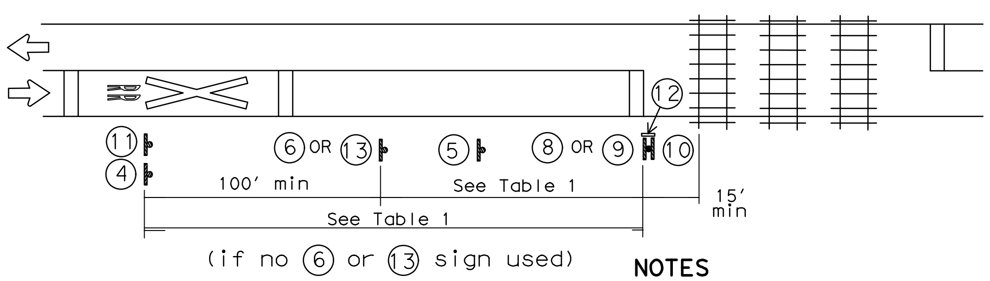
CROSSING SURFACE CROSS SECTION

Texas Department of Transportation

Traffic Safety Division Standard

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

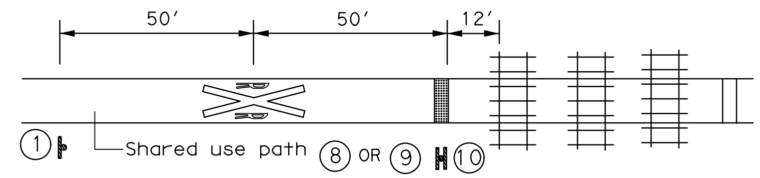
FILE: 110	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120, ETC.	US 62, ETC
2-16 11-22	DIST		COUNTY	SHEET NO.
	24		EL PASO	110



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.
3. See the Crossbuck Assemblies with YIELD or STOP Signs at Passive Grade Crossings section of the TMUTCD for further details about sign mounting arrangements.



NOTES

1. A shared use path 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 signs preferred. See the Design of Bicycle Signs section within the TMUTCD for sizing details.

PATHWAY CROSSING

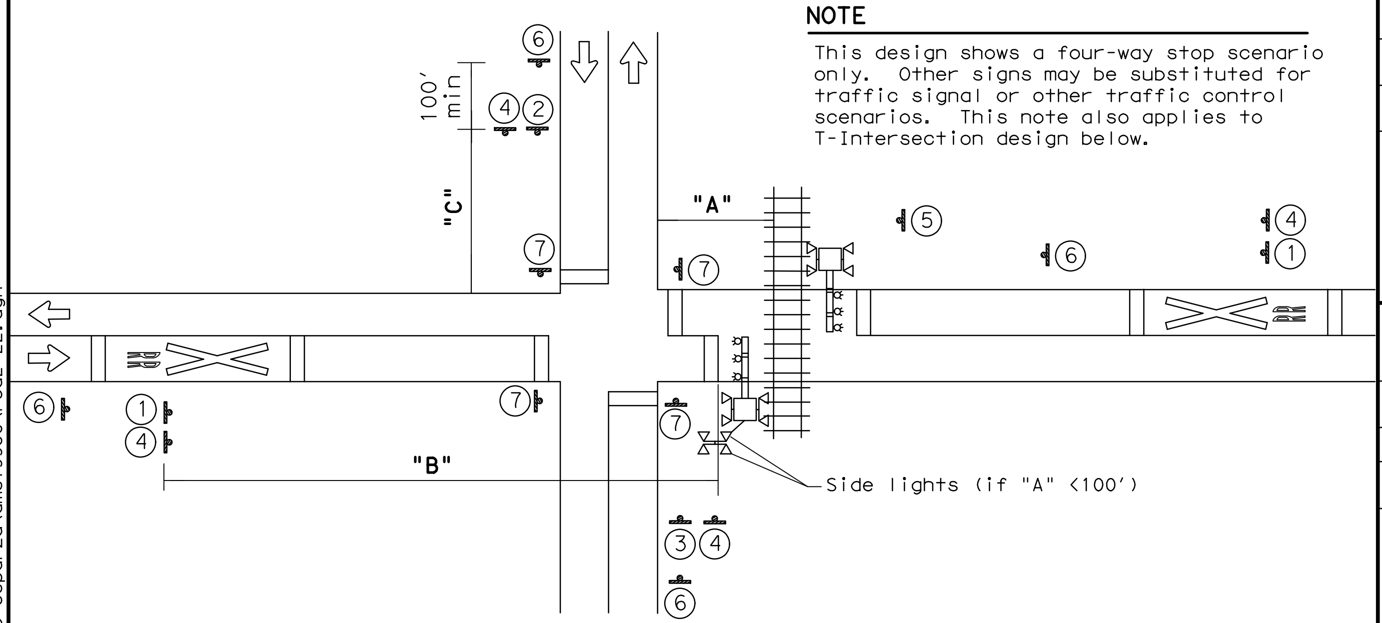
TABLE 1	
Approach Speed (mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

GENERAL NOTES

1. Railroad company to provide active traffic control devices, CROSSBUCK (R15-1), NUMBER OF TRACKS (R15-2P) plaque (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 the Placement of Warning Signs section 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.

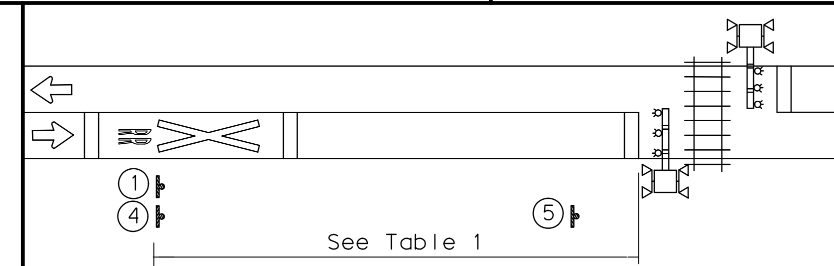
NOTE

This design shows a four-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.

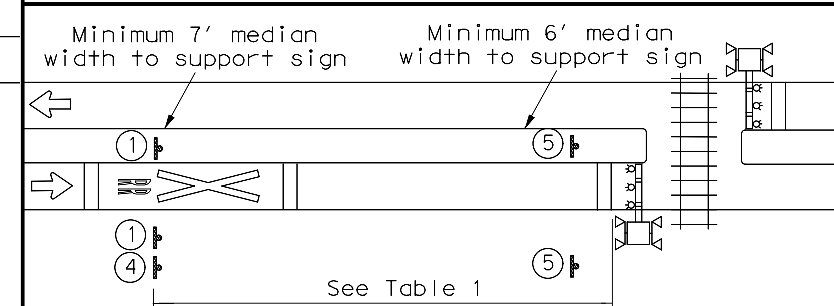


	"A" <100'	"A" ≥100'
"B"	See Table 1. Place pavement markings and signs on opposite side of intersection from rail if spacing from Table 1 would put markings within intersection.	See Table 1. Place pavement markings and signs between rail and intersection if spacing from Table 1 would put markings within 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.

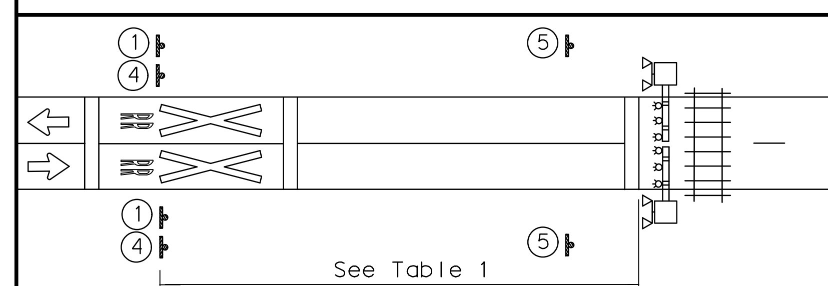
GRADE CROSSING NEAR A PARALLEL STREET



TWO-WAY

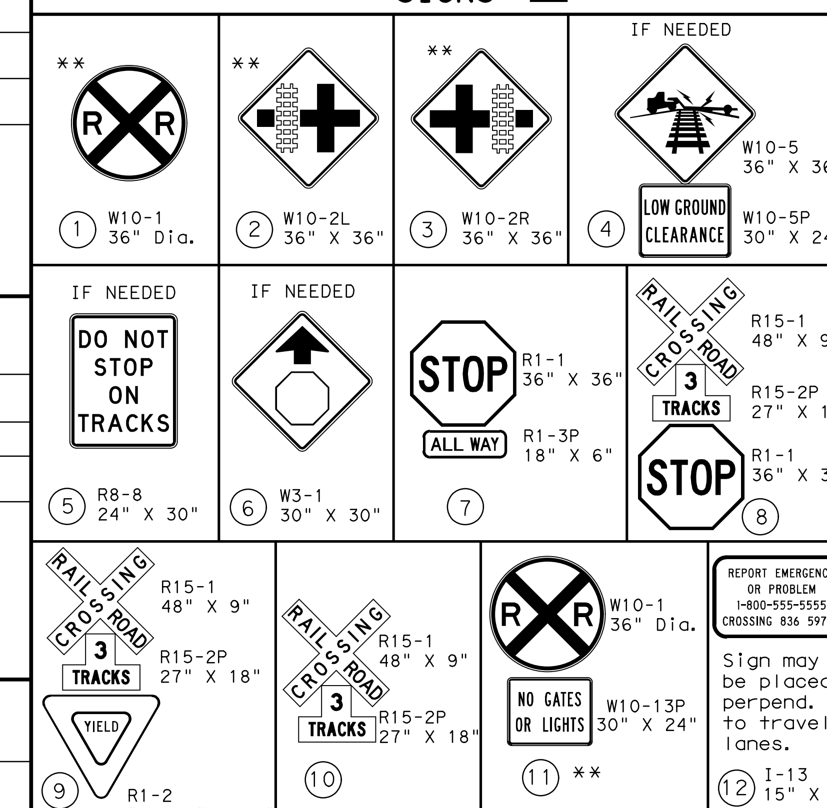


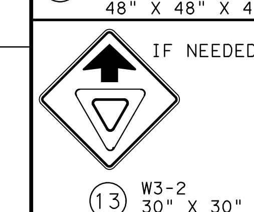
TWO-WAY WITH MEDIAN



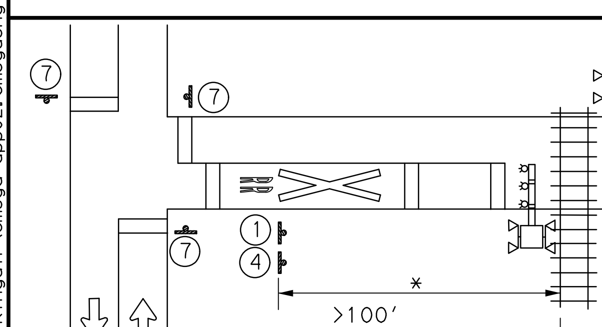
ONE-WAY

SIGNS





** Includes a NO TRAIN HORN (W10-9P) plaque if crossing is in a Quiet Zone. If needed, is mounted below W10-2/W10-3/W10-4 signs.

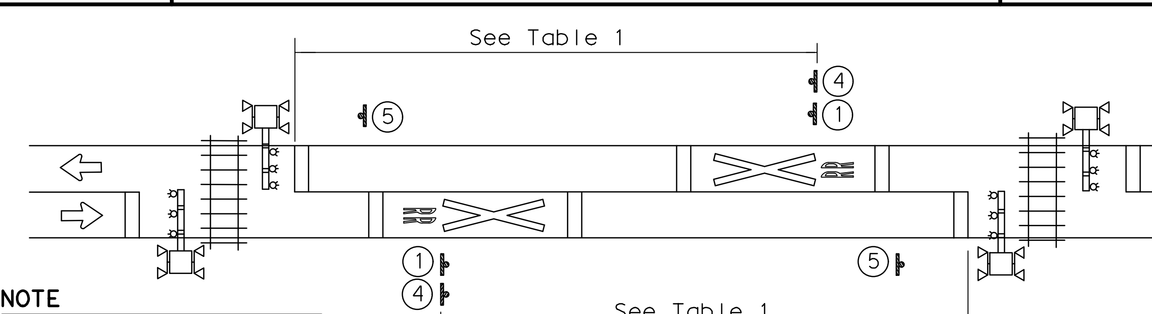


*Use Table 1 if sufficient space exists.

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.

TWO ADJACENT CROSSINGS

Texas Department of Transportation | Traffic Safety Division Standard

RAILROAD CROSSING DETAILS SIGNING & STRIPING

RCD(2)-22

FILE: 111	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-16 11-22	0374	02	120, ETC.	US 62, ETC
	DIST		COUNTY	SHEET NO.
	24		EL PASO	111

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

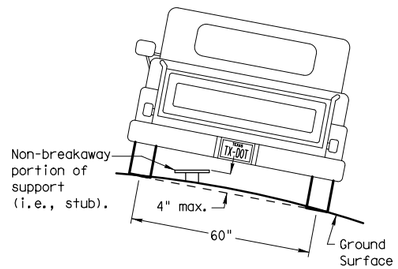
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

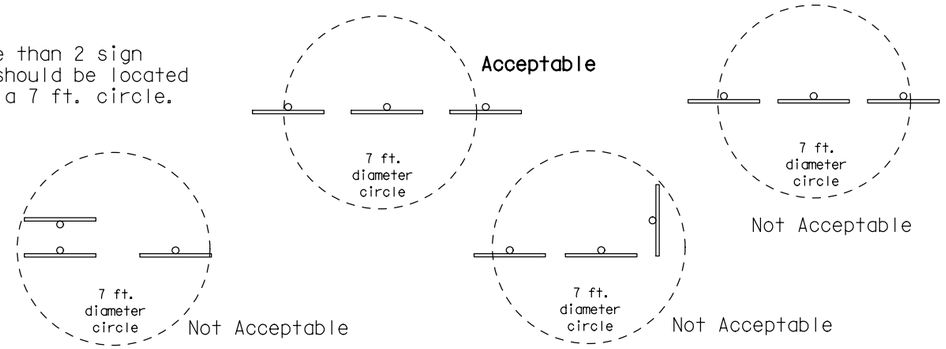
P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-1))

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



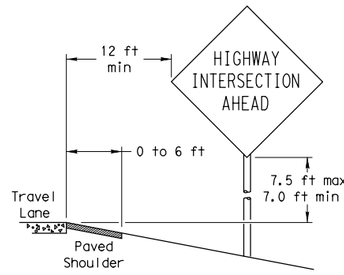
To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

No more than 2 sign posts should be located within a 7 ft. circle.



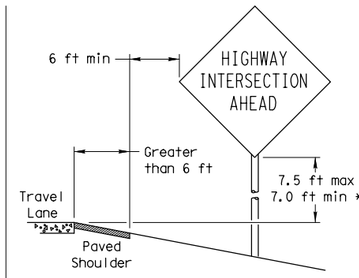
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

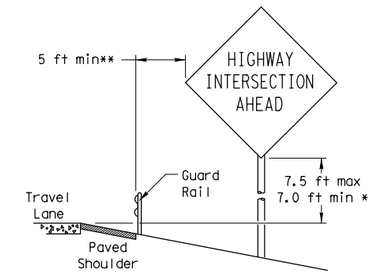
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



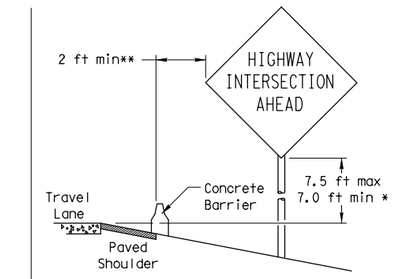
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

BEHIND BARRIER



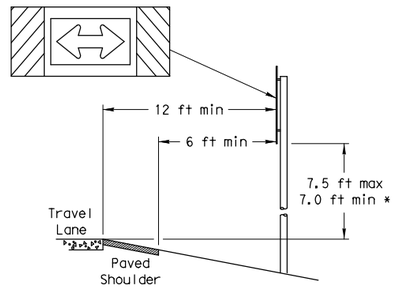
BEHIND GUARDRAIL



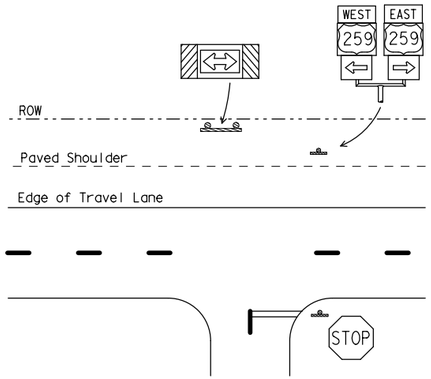
BEHIND CONCRETE BARRIER

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

T-INTERSECTION



When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

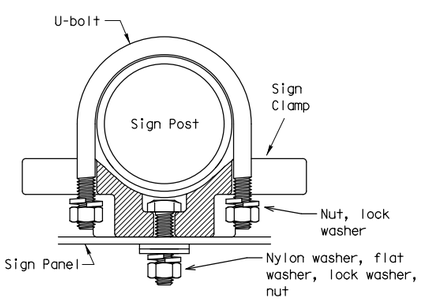
The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

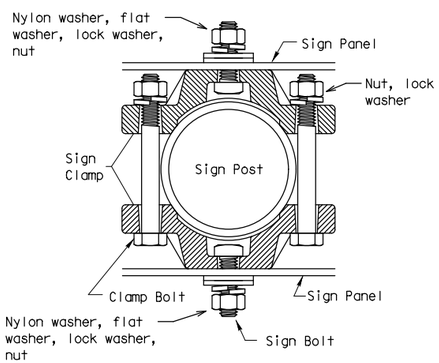


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

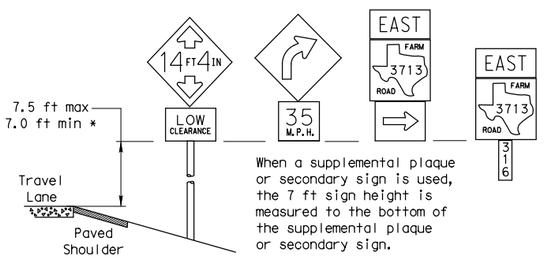
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



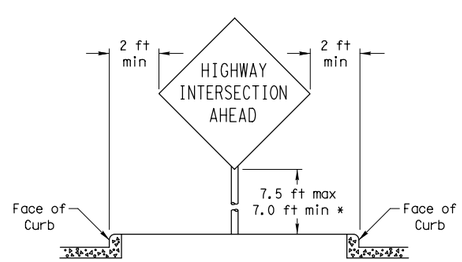
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



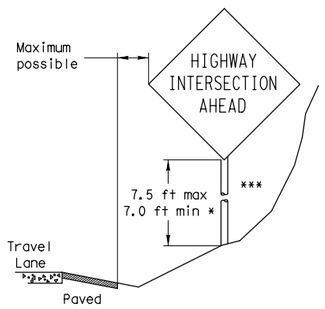
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
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	24	EL PASO		112

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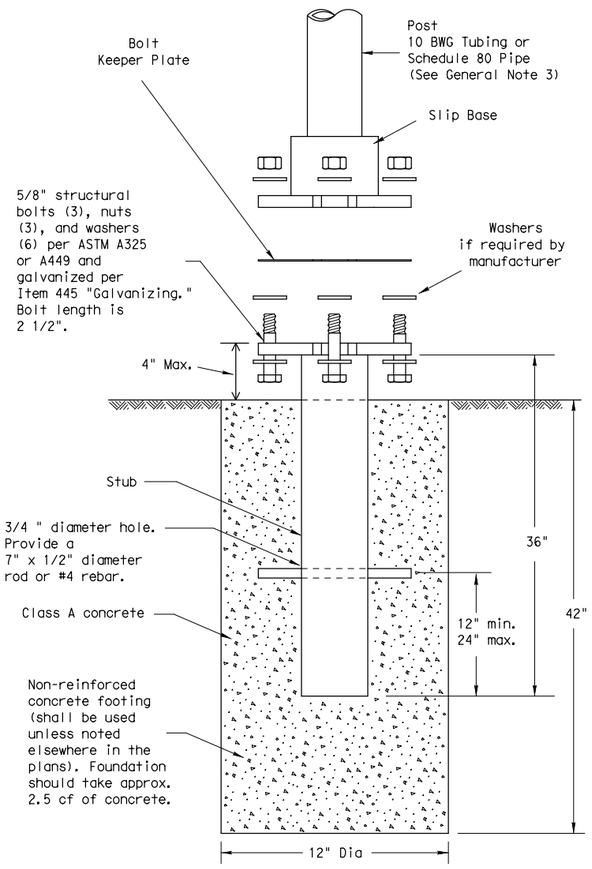
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

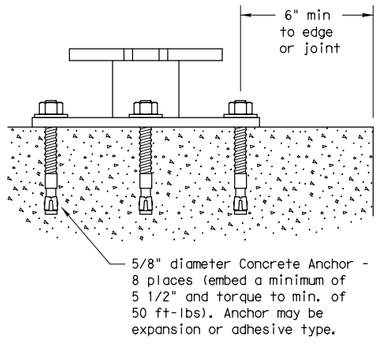
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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

REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY
0374	02	120,ETC.	US 62,ETC

DIST	COUNTY	SHEET NO.
24	EL PASO	113

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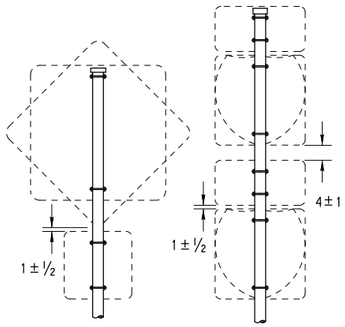
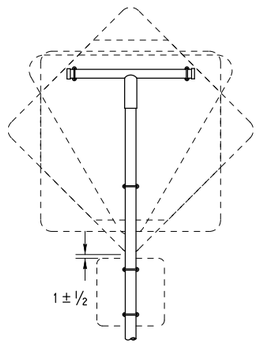
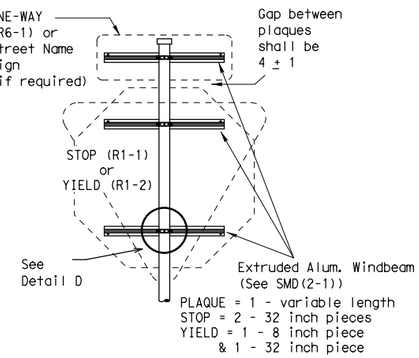


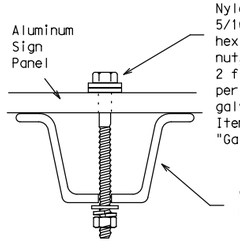
SM RD SGN ASSM TY XXXXX(1)XX(P)



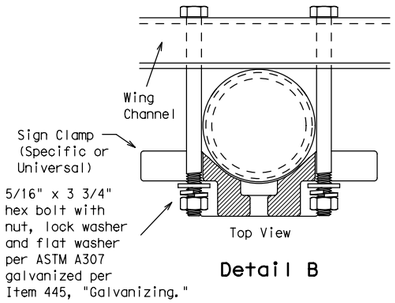
SM RD SGN ASSM TY XXXXX(1)XX(T)



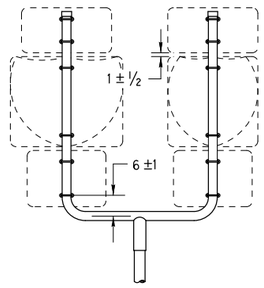
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



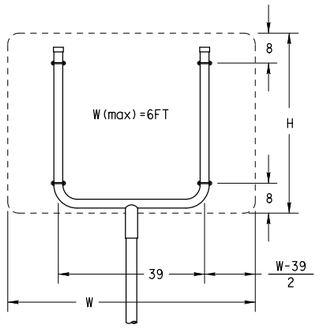
Detail A



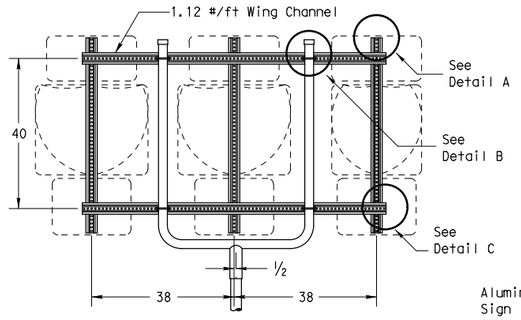
Detail B



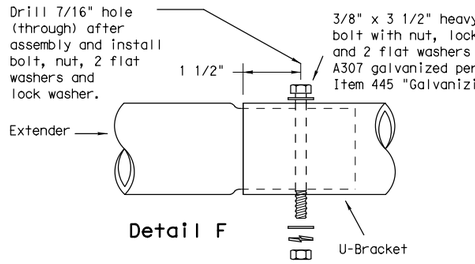
SM RD SGN ASSM TY XXXXX(1)XX(U)



SM RD SGN ASSM TY XXXXX(1)XX(U)

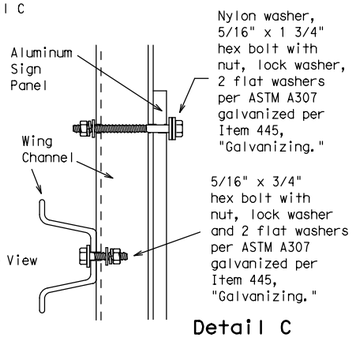


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

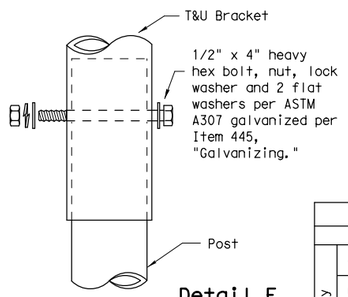


Detail F

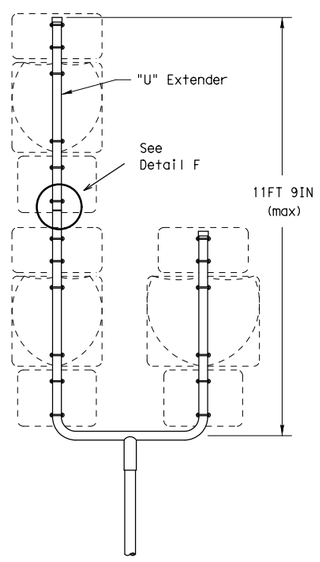
Splices shall only be allowed behind the sign substrate.



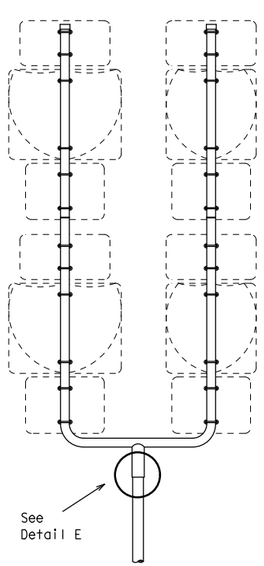
Detail C



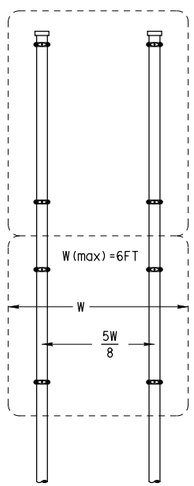
Detail E



SM RD SGN ASSM TY S80(1)XX(U-1EXT)

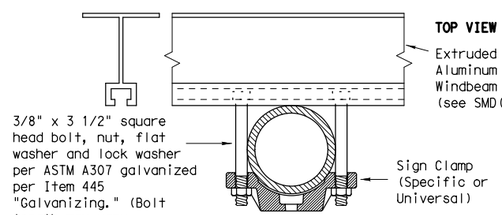


SM RD SGN ASSM TY S80(1)XX(U-2EXT)

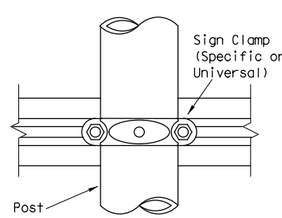


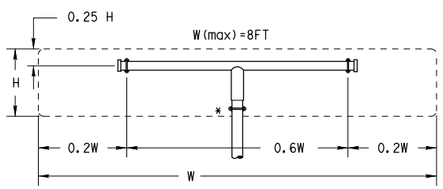
SM RD SGN ASSYM TY XXXXX(2)XX(P)

SIDE VIEW



Detail D

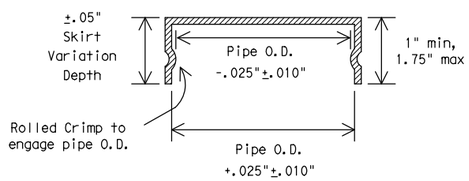




SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

GENERAL NOTES:

1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

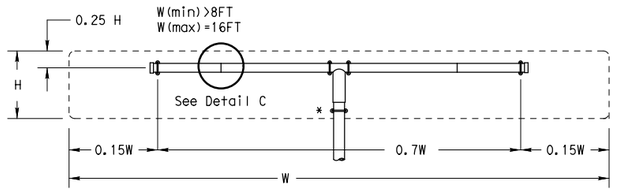
SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

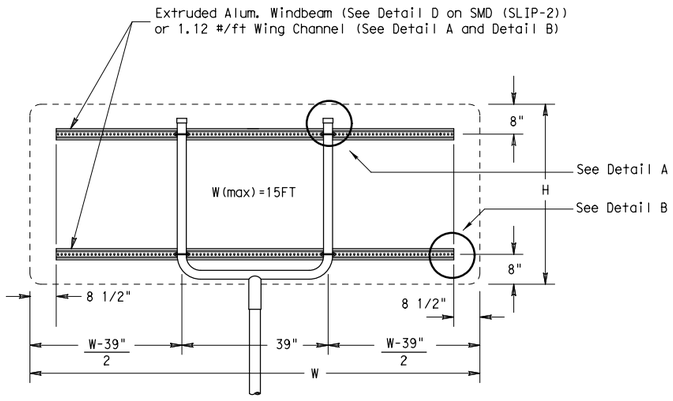
REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0374	02	120,ETC.	US 62,ETC
	DIST	COUNTY		SHEET NO.
	24	EL PASO		114

26C

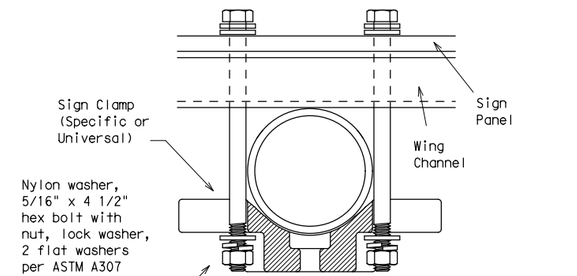
DATE: 12/28/2023 4:17:58 PM
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local*omega-prod\omega*sergio.esparza\dms19938\smds3.dgn



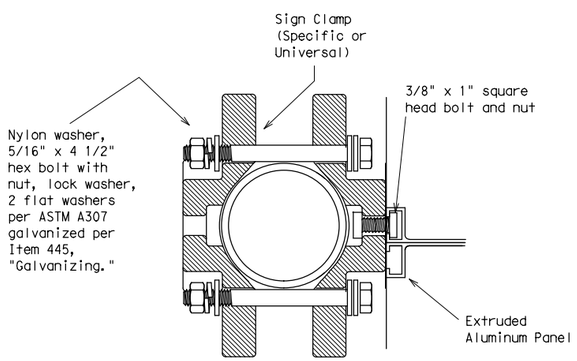
SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)



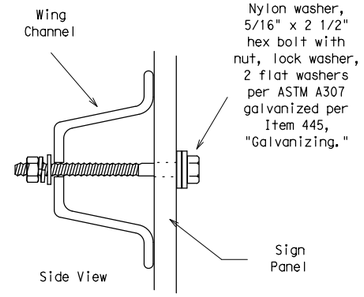
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



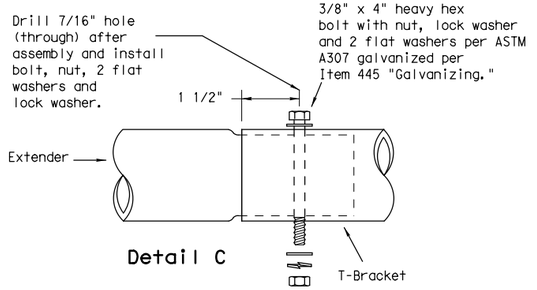
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET

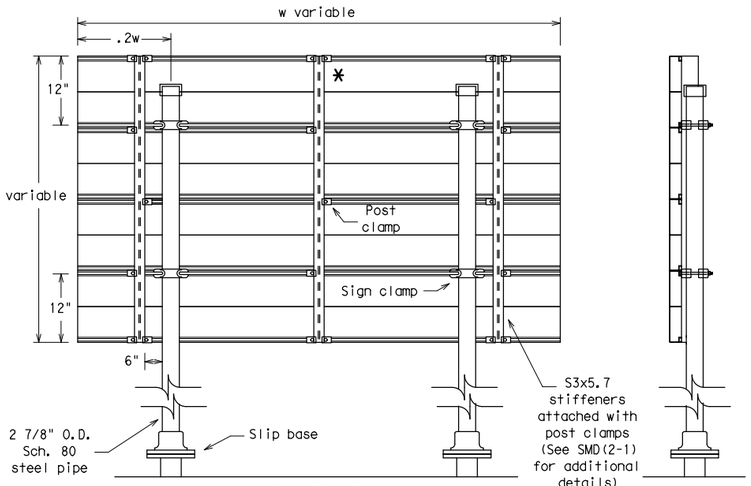


Detail B



Detail C

Splices shall only be allowed behind the sign substrate.

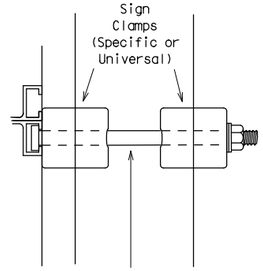


Typical Sign Mount

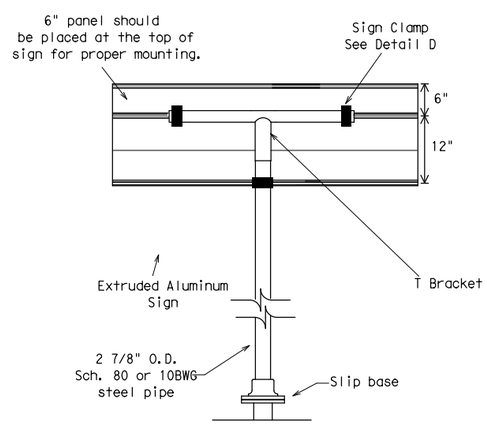
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

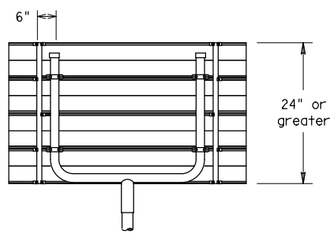
See Detail E
for clamp installation



Detail E



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
2. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
3. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
4. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
5. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
6. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
7. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
8. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
9. Sign blanks shall be the sizes and shapes shown on the plans.
10. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
11. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

REVISIONS
9-08

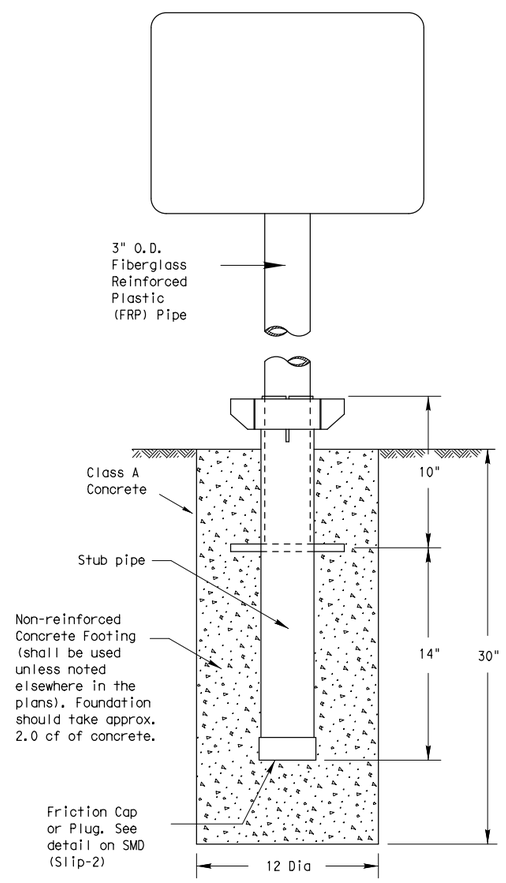
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

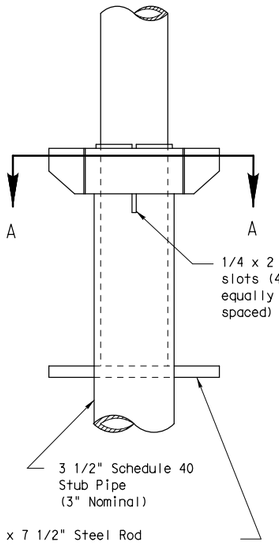
CONT	SECT	JOB	HIGHWAY
0374	02	120,ETC.	US 62,ETC

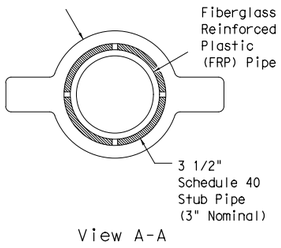
DIST	COUNTY	SHEET NO.
24	EL PASO	115

DATE: 12/28/2023 4:18:21 PM
FILE: c:\pwworkingdir\omega-app02_omegaengineers.local_omega-prod\omega_sergio esparza\dms19938\smdfrp.dgn

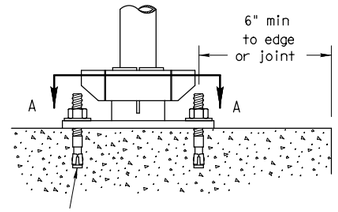
Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post





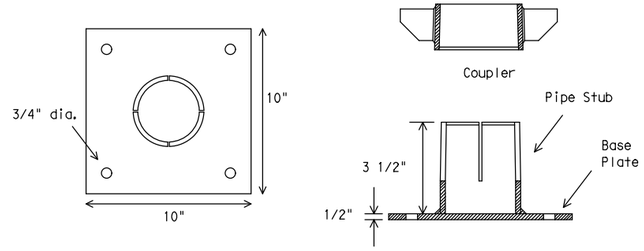


SM RD SGN ASSM TY FRP(X)UA(P)



Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

BOLT-DOWN DETAILS



SM RD SGN ASSM TY FRP(X)UB(P)

GENERAL NOTES:

1. FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
2. All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing."
3. See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: http://www.txdot.gov/publications/traffic.htm

FRP POST REQUIREMENTS

1. Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
2. Thickness of FRP sign support is 0.125" + 0.031", - 0.0".
3. FRP sign supports are prequalified by the Traffic Operations Division. Prequalification procedures are obtained by writing:
   Texas Department of Transportation
   Traffic Operations Division
   125 East 11th Street
   Austin, Texas 78701-2483

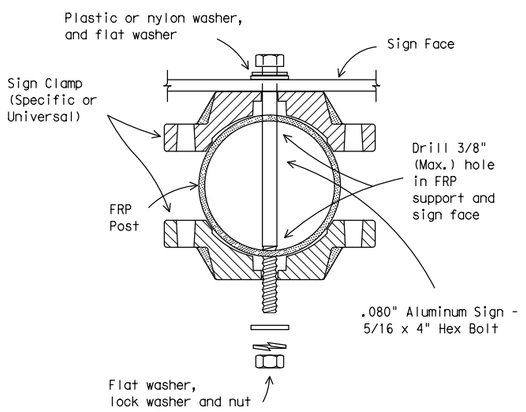
UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Insert base post in foundation hole to depths shown and fill hole with concrete. Cut base post from bottom and ensure a minimum of 18" embedment if installed in solid rock.
4. Level and plumb the base post with coupler using a torpedo level and let concrete set a minimum of 4 days, unless otherwise directed by Engineer. Bottom of base post slots shall be above the concrete footing.
5. Attach sign to FRP post.
6. Insert sign post into base post. Lower until the post comes to rest on the steel rod.
7. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
8. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

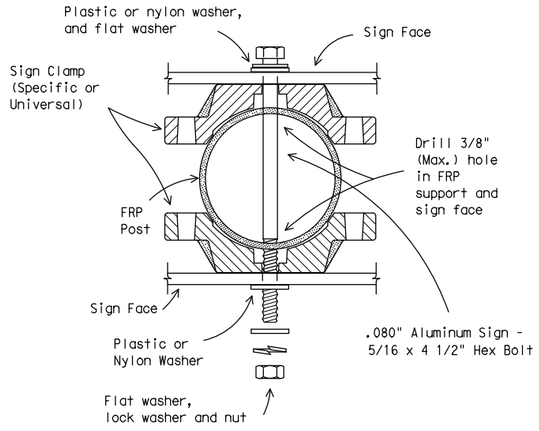
BOLT DOWN SIGN SUPPORT

1. Position base plate with coupler on existing concrete.
2. Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
3. Attach sign to FRP post.
4. Insert bottom of sign post into pipe stub.
5. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
6. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

Typical Sign Mounting Detail for FRP Support with Single Sign



Typical Sign Mounting Detail for FRP Support with Back-to-Back Signs



Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS UNIVERSAL ANCHOR SYSTEM WITH FRP POST

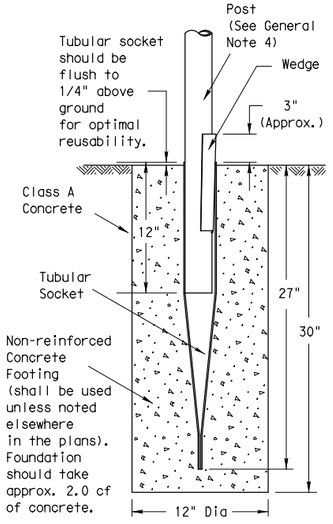
SMD(FRP)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
0374	02	120,ETC.	US 62,ETC
DIST	COUNTY		SHEET NO.
24	EL PASO		116

9-08 REVISIONS

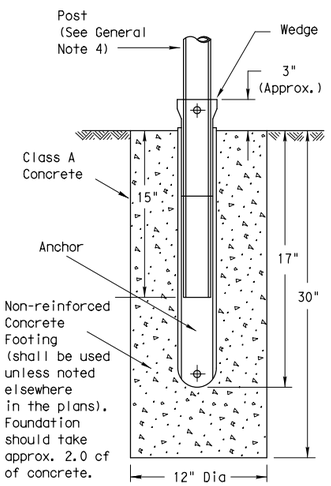
DATE: 12/28/2023 4:18:43 PM
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local#omega-prod#omega#sergio esparza\dms19938\smdtwt.dgn

Wedge Anchor Steel System



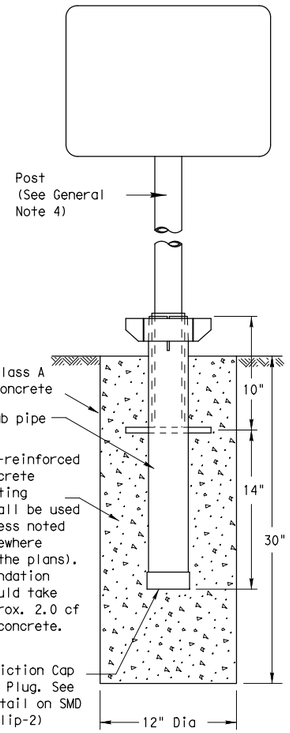
SM RD SGN ASSM TY TWT(X)WS(X)

Wedge Anchor High Density Polyethylene (HDPE) System

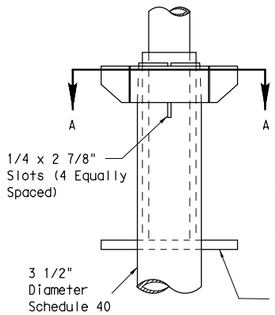


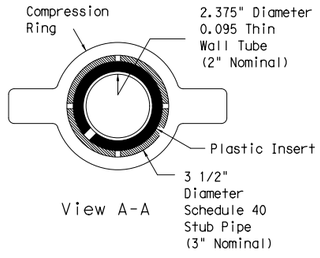
SMD RD SGN ASSM TY TWT(X)WP(X)

Universal Anchor System with Thin-Walled Tubing Post



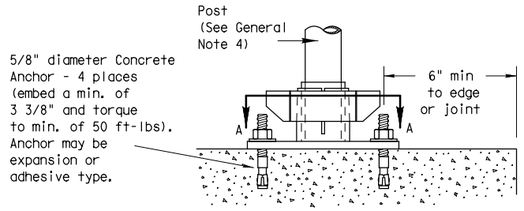
SM RD SGN ASSM TY TWT(X)UA(P)



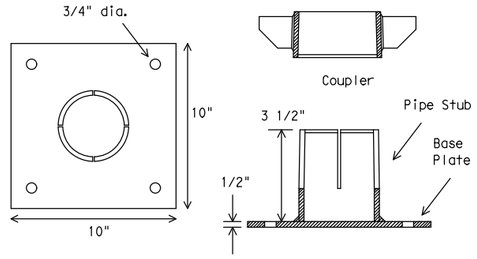


View A-A

Plastic insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.

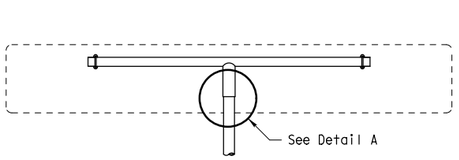


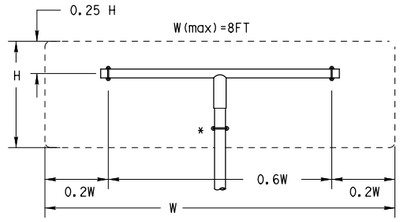
Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.



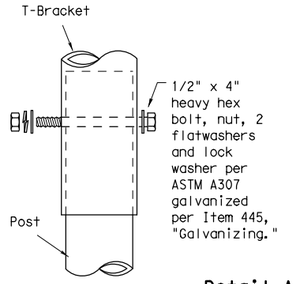
SM RD SGN ASSM TY TWT(X)UB(P)

Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post





SM RD SGN ASSM TY TWT(X)XX(T)
(* - See General Note 6)



Detail A

9/16" hole may need to be drilled through post to accommodate bolt.

NOTE

The devices shall be installed per manufacturer's recommendations.
Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts (13 BWG Tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: http://www.txdot.gov/business/producer list.htm
4. Material used as post with this system shall conform to the following specifications:
   13 BWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal wall thickness
   Seamless or electric-resistance welded steel tubing
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   18% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .083" to .099"
   Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   Galvanization per ASTM 123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: http://www.txdot.gov/publications/traffic.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
3. Insert tubular socket into concrete until top of socket is approximaely 1/4 " above the concrete footing.
4. Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer..
5. Attach the sign to the sign post.
6. Insert the sign post into socket and align sign face with roadway.
7. Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. Insert base post in hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
4. Attach the sign to the sign post.
5. Install plastic insert around bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod.
7. Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
8. Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST

SMD(TWT)-08

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

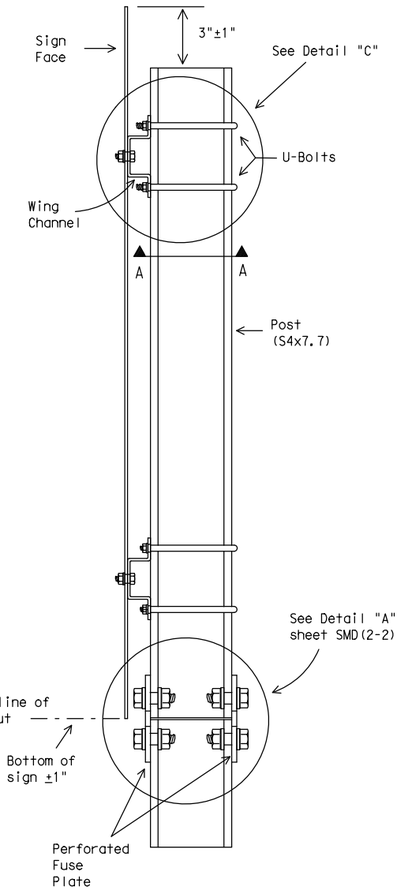
9-08 REVISIONS

CONT	SECT	JOB	HIGHWAY
0374	02	120,ETC.	US 62,ETC
DIST	COUNTY		SHEET NO.
24	EL PASO		117

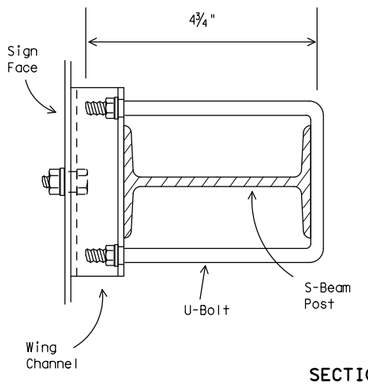
26E

DATE: 12/28/2023 4:19:05 PM
FILE: c:\pwworkingdir\omega-app02.omegaengineers.local*omega-prod\omega*sergio.esparza\dms19938\smdtyg08.dgn

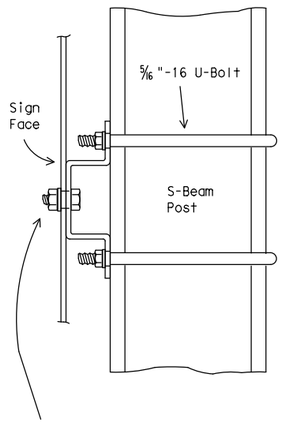
WING CHANNEL CLAMP DETAIL FOR TYPE G MOUNT



SIDE VIEW

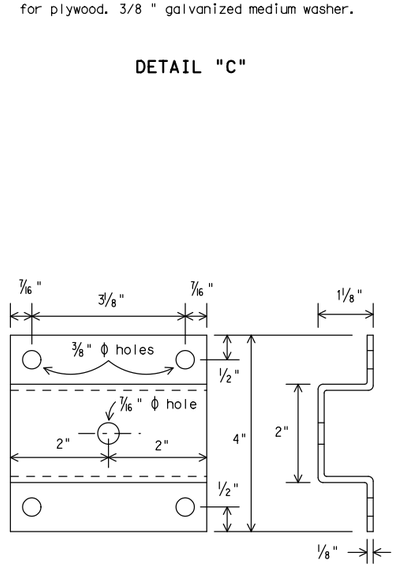


SECTION A-A



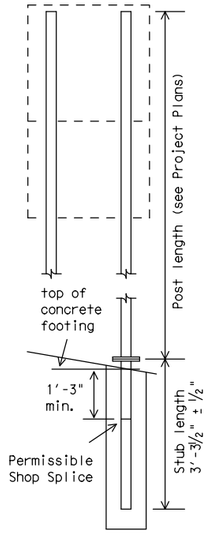
Galvanized steel or aluminum self-locking hex. head nut. 3/8 " - 16 x 3/4 " hex. head bolt for sheet metal. 3/8 " - 16 x 1 1/4 " hex. head bolt for plywood. 3/8 " galvanized medium washer.

DETAIL "C"

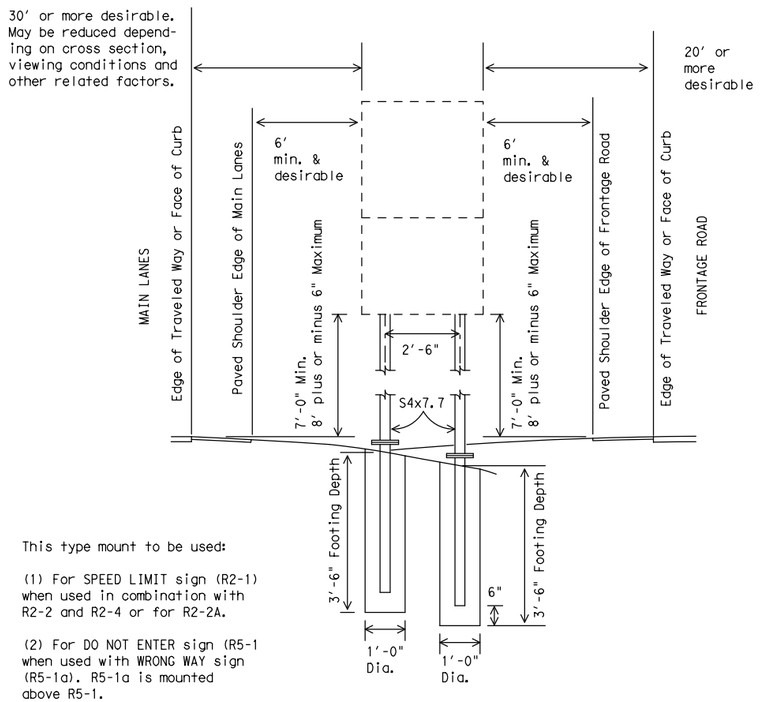


WING CHANNEL

Wing channel, 4" width x 1⅛" depth x ⅛" thickness, shall be aluminum (ASTM B221 6061-T6 or B308 6061-T6), galvanized steel (ASTM A36) or stainless steel (ASTM A167 type 304, No. 2B finish).



The weight of one S4x7.7 post is equal to 112.2 lbs. plus 7.7 lbs./ft x (post length in feet minus 10 ft). The weight of 112.2 lbs. includes 10 feet of post length, post foundation stub, related connection plates, friction fuse plate, and all high strength bolts, nuts and washers.



This type mount to be used:

(1) For SPEED LIMIT sign (R2-1) when used in combination with R2-2 and R2-4 or for R2-2A.

(2) For DO NOT ENTER sign (R5-1 when used with WRONG WAY sign (R5-1a). R5-1a is mounted above R5-1.

DEPARTMENTAL MATERIAL SPECIFICATIONS
SIGN HARDWARE DMS-7120

GENERAL NOTES:

1. Design conforms with AASHTO Specifications for the design and construction of structural supports for highway signs.
2. Materials and fabrication shall conform to the requirements of the Department material specifications.
3. Structural steel shall be "Low-Alloy Steel" for non-bridge structures per Item 442, "Metal For Structures."
4. Parts shall be saw cut either before galvanizing and the galvanized cut cleaned of zinc build-up, or saw cut after galvanizing and the cut surface repaired per Item 445, "Galvanizing." (Cut surface will not be treated until plate is installed and all bolts fully tightened.)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS, TYPE G SUPPORT

SMD(TY G)-08

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

REVISIONS
1-97
9-08

CONT	SECT	JOB	HIGHWAY
0374	02	120, ETC.	US 62, ETC

DIST	COUNTY	SHEET NO.
24	EL PASO	118

PROPOSED WORK FOR LOCATION 1

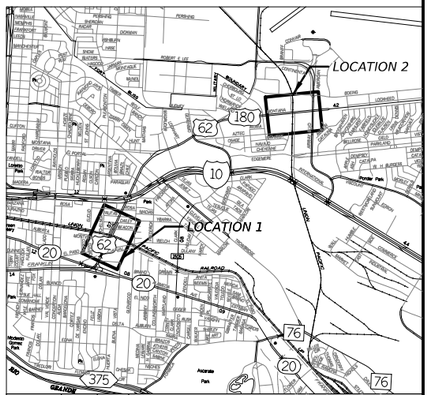
0-IN to 2-IN MILL AND BRIDGE JOINT CLEANING AND SEALING. WORK WILL BE PERFORMED ON GRADE SEPARATED PAVEMENT SURFACE ONLY.

LEGEND

0-IN TO 2-IN PAVEMENT MILL LIMITS

N.T.S.

KEY MAP



DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

12/28/2023

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

Texas Department of Transportation®

US62|US180

PAISANO DR & UNION PACIFIC RAILROAD EXHIBIT

SHEET 1 OF 2

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	119
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 12/28/2023
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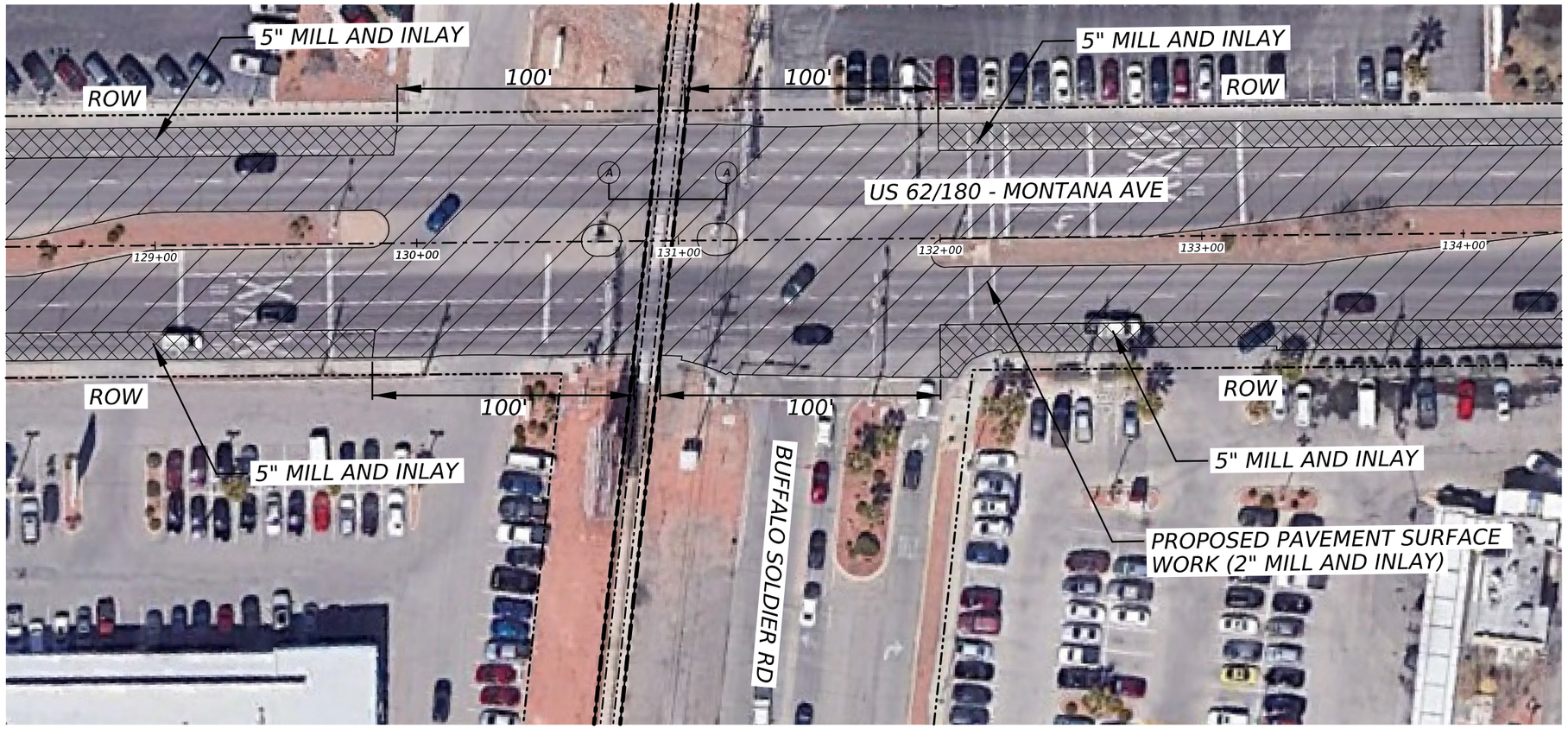
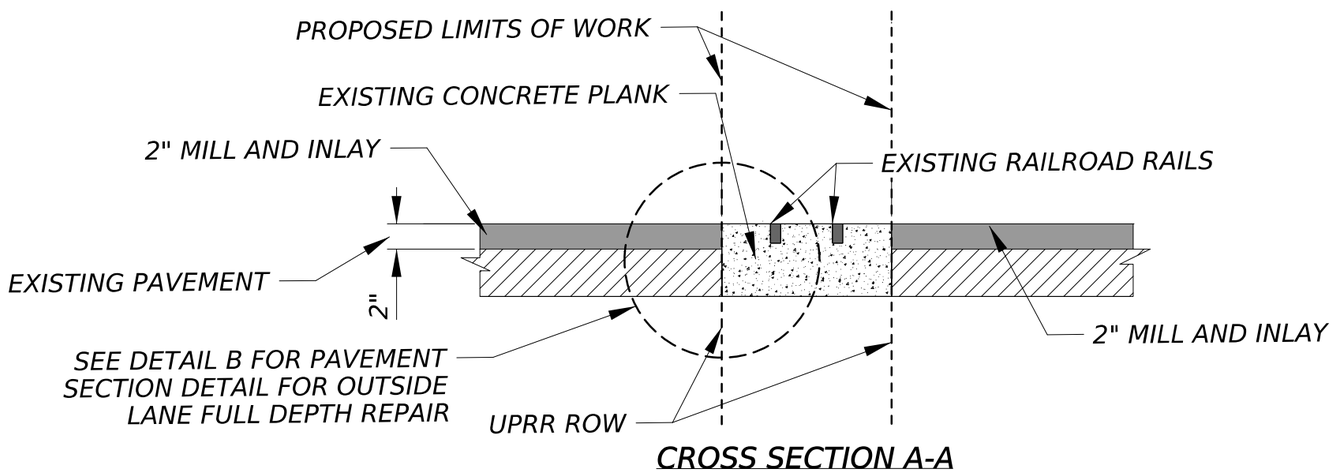




CROSS SECTION A-A

NOTES:
5" MILL AND INLAY TO START 100 FT AWAY FROM EACH SIDE OF THE UPRR ROW ALONG EB AND WB DIRECTIONS OF MONTANA AVE

PROPOSED WORK FOR LOCATION 2

MILL AND INLAY. ROADWAY WORK WILL BE PERFORMED ON PAVEMENT SURFACE ONLY.

LEGEND

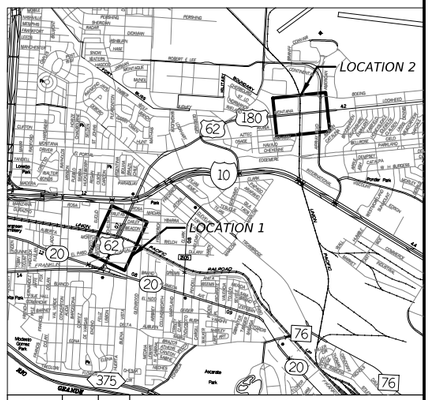
2" MILL AND INLAY

5" MILL AND INLAY

0 25 50

SCALE: 1"=50'

KEY MAP



DATE	BY	REV	REVISION

STATE OF TEXAS
ANTONIO R RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

2/5/2024

OMEGA ENGINEERS, INC.
6090 SURETY DR, STE 104
EL PASO, TEXAS 79905
OMEGAENGINEERS.COM
TX PE Firm Reg. No. F-2147
P:915 308 6415 F:281 647 9184

US62|US180

MONTANA AVE &
BUFFALO SOLDIER RD
EXHIBIT

SHEET 2 OF 2

		FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
DSN	OEI	24	SEE TITLE SHEET	120
CHK	OEI	STATE	DIST.	COUNTY
DRN	OEI	TEXAS	ELP	EL PASO
CHK	OEI	CONT.	SECT.	JOB / HIGHWAY NO.
		0374	02	120, ETC. / US 62, ETC

DATE: 2/5/2024
FILE: c:\pw\workingdir\omega-app02.omegaengineers.local_omega-prod\omega_lcamarena\dms18762\US62-EXHIBIT02-BUFFALO SOLDIER RD-STRUCTURES.dgn

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

☐ This project is adjacent or parallel work, not within RR ROW:

DOT No.: 741213F
Crossing Type: RR under
RR Company Operating Track at Crossing: Union Pacific Railroad Company
RR Company Owning Track at Crossing: Union Pacific Railroad Company
RR MP: 824.700
RR Subdivision: Valentine Sub
City: El Paso
County: El Paso
CSJ at this Crossing: 0002-12-027
Latitude: 31.7728214
Longitude: -106.4243491

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

3/4" to 2" Mill and bridge joint cleaning & sealing. All work will be performed on grade separated pavement surface only.

Scope of Work to be performed by Railroad Company:

None

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 15

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

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

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

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

☐ **BNSF** BNSFinfo@railprosfs.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

☑ Not Required
☐ Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

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

IV. RAILROAD INSURANCE REQUIREMENTS

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

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

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

Escalated Limits

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

Railroad Protective Liability Limits

☐ Not Required	
☑ Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	$2,000,000 / $6,000,000
☐ Bridge Structure Projects. Includes new construction or replacement of overpass/ underpass structures	$5,000,000 / $10,000,000
☐ Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

☐ Not Required
☑ Required: UPRR Maintenance Consent Letter. TxDOT to assist
☐ Required: TxDOT to assist in obtaining the UPRR CROE
☐ Required: Contractor to obtain
- ☐ BNSF: _____
  https://bnsf.railpermitting.com
- ☐ CPKCR
  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- ☐ Other Railroads: _____

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

Approved CROE templates are not to be modified by the Contractor.

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

VI. RAILROAD COORDINATION MEETING

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

VII. RAILROAD SAFETY ORIENTATION

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

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

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

VIII. SUBCONTRACTORS

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

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call: Union Pacific Railroad Company
Railroad Emergency Line at: 800-848-8715
Location: DOT 741213F
RR Milepost: 824.700
Subdivision: Valentine

RRD Review Only
Initials: _____
Date: 01/24/2024

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:	
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY	
REVISIONS	6/2023	0374	02	120, ETC		US 62	
		DIST	COUNTY			SHEET NO.	
		ELP	EL PASO			121	

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

☐ This project is adjacent or parallel work, not within RR ROW:

DOT No.: 741264R
Crossing Type: At-Grade
RR Company Operating Track at Crossing: Union Pacific Railroad Company
RR Company Owning Track at Crossing: Union Pacific Railroad Company
RR MP: 2.270
RR Subdivision: Fort Bliss Ind
City: El Paso
County: El Paso
CSJ at this Crossing: 0374-02-120
Latitude: 31.7892808
Longitude: -106.3985503

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

2" Mill & Inlay up to 100' in each direction approaching planking. remaining limits outside of RR ROW is 6" Mill and Inlay.

Scope of Work to be performed by Railroad Company:

None

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 15

On this project, night or weekend flagging is:

☐ Expected
☑ Not Expected

Flagging services will be provided by:

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

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

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

☐ **BNSF** BNSFinfo@railprosfs.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

☑ Not Required
☐ Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

☐ Required.
☑ Not Required

Railroad Point of Contact: _____

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

IV. RAILROAD INSURANCE REQUIREMENTS

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

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

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

Escalated Limits

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

Railroad Protective Liability Limits

☐ Not Required	
☑ Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	$2,000,000 / $6,000,000
☐ Bridge Structure Projects. Includes new construction or replacement of overpass/ underpass structures	$5,000,000 / $10,000,000
☐ Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

☐ Not Required
☑ Required: UPRR Maintenance Consent Letter. TxDOT to assist
☐ Required: TxDOT to assist in obtaining the UPRR CROE
☐ Required: Contractor to obtain
- ☐ BNSF: _____
  https://bnsf.railpermitting.com
- ☐ CPKCR
  https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- ☐ Other Railroads: _____

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

Approved CROE templates are not to be modified by the Contractor.

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

VI. RAILROAD COORDINATION MEETING

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

VII. RAILROAD SAFETY ORIENTATION

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

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

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

VIII. SUBCONTRACTORS

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

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call: Union Pacific Railroad Company
Railroad Emergency Line at: 800-848-8715
Location: DOT 741264R
RR Milepost: 2.270
Subdivision: Fort Bliss Ind

RRD Review Only
Initials: _____
Date: 01/24/2024

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf		DN: TxDOT	CK:	DW:		CK:	
© TxDOT June 2014		CONT	SECT	JOB		HIGHWAY	
REVISIONS		0374	02	120, ETC		US 62	
6/2023		DIST	COUNTY			SHEET NO.	
		ELP	EL PASO			122	

PART 1 - GENERAL

1.01 DESCRIPTION

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

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

1.02 REQUEST FOR INFORMATION / CLARIFICATION

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

1.03 PLANS / SPECIFICATIONS

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

PART 2 - UTILITIES AND FIBER OPTIC

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

PART 3 - CONSTRUCTION

3.01 GENERAL

A. Perform all work in compliance with all applicable Railroad, Federal Railroad Administration (FRA), and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of railroad train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.

B. Construction activities within 15 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 15 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.

C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor machinery and materials at least 50 feet from the Railroad's nearest track.

D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with Railroad approval.

E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.

F. Railroad requirements do not allow work within 50 feet of track centers when a train passes the work site and all personnel must clear the area within 50 feet of the track centerline and secure all equipment. Additional allowances may be pursued as outlined in 3.02 and 3.03.

G. All permanent clearances shall be verified before project closing.

3.02 RAILROAD OPERATIONS

A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.

B. All railroad tracks within and adjacent to the contract site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.

C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:

1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a railroad flag person will be required. At the direction of the railroad flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.

2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. Railroad flag persons will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

A. Do not perform any work within Railroad Right of Way without a valid executed Right of Entry Agreement if required on this project.

B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right of Way and observe the Railroad's rules and regulations with respect thereto.

C. Perform all work upon Railroad Right of Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.15 for railroad flagging requirements.

D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
1. Exactly what the work entails.
2. The days and hours that work will be performed.
3. The exact location of work, and proximity to the tracks.
4. The type of window requested and the amount of time requested.
5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.

E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

3.04 INSURANCE

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

3.05 RAILROAD SAFETY ORIENTATION

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

"UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other railroads. Refer to Railroad specific contractor right of entry for training information."

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

3.06 COOPERATION

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

3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

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

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

3.08 APPROVAL OF REDUCED CLEARANCES

A. Maintain minimum track clearances during construction as specified in Section 3.07.

B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.

C. Do not commence work involving an approved infringement without receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
	CONT	SECT	JOB	HIGHWAY
REVISIONS March 2020	0374	02	120,ETC.	US 62,ETC
	DIST	COUNTY		SHEET NO.
	24	EL PASO		123

3.09 MAINTENANCE OF RAILROAD FACILITIES

A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.

B. Perform all such maintenance and repair of damages due to the Contractors's operations at Contractor's expense.

C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the project site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.10 SITE INSPECTIONS BY RAILROAD's DESIGNATED REPRESENTATIVE

A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
   1. Pre-construction meetings.
   2. Pile driving/drilling of caissons or drilled shafts.
   3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
   4. Erection of precast concrete or steel bridge superstructure.
   5. Placement of waterproofing (prior to placing ballast on bridge deck).
   6. Completion of the bridge structure.

B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.

C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.11 RAILROAD REPRESENTATIVES

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

A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other railroad facilities may be subject to settlement or movement.

C. During any clearing, grubbing, excavation or grading in proximity to railroad facilities, which, in the opinion of the Railroad Designated Representative, may endanger railroad facilities or operations.

D. During any Contractor's operations when, in the opinion of the Railroad Designated Representative, railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.

E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.12 COMMUNICATIONS AND SIGNAL LINES

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

3.13 TRAFFIC CONTROL

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

3.14 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".

B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

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

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

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

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

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

3.15 RAILROAD FLAGGING

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

3.16 CLEANING OF RIGHT-OF-WAY

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

Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS March 2020	0374	02	120,ETC.	US 62,ETC
	DIST	COUNTY		SHEET NO.
	24	EL PASO		124

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

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

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

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
0374-02-120, ETC STATE AID PROJECT NO:
C 374-2-120, ETC.

1.2 PROJECT LIMITS:

From: SH 20 (ALAMEDA AVE)

To: GLOBAL REACH DR

1.3 PROJECT COORDINATES:

BEGIN: (Lat) 31.7685871, (Long) -106.4260393

END: (Lat) 31.7980515, (Long) -106.3326573

1.4 TOTAL PROJECT AREA (Acres): 64.77

1.5 TOTAL AREA TO BE DISTURBED (Acres): 8.02

1.6 NATURE OF CONSTRUCTION ACTIVITY:

FOR THE CONSTRUCTION OF OVERLAY CONSISTING OF: MILL AND INLAY

1.7 MAJOR SOIL TYPES:

Soil Type	Description

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):

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

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

Type	Sheet #s

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

1.9 CONSTRUCTION ACTIVITIES:

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

- ☐ Mobilization
- ☐ Install sediment and erosion controls
- ☐ Mill 6-in pavement surface as shown in the plans.
- ☐ Compact and prime base to required density, Pave the 6-in flexible pavemement repair in 2-in lifts,
- ☐ 2-in mill pavement section.
- ☐ Pave the 2 in pavement section for recent mill sections.
- ☐ Install new pedestrian facilities as shown on the plans.
- ☐ Repeat steps for all TCP phases.
- ☐ Grade and excavate shallow pond & construct concrete flumes.
- ☐ Install final striping and signs.
- ☐ Perform final project clean up & remove Traffic control devices.

1.10 POTENTIAL POLLUTANTS AND SOURCES:

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

☐ Other: _____

☐ Other: _____

☐ Other: _____

1.11 RECEIVING WATERS:

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

Tributaries	Classified Waterbody
No Receiving waters identified within project limits.	

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

1.12 ROLES AND RESPONSIBILITIES: TxDOT

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

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

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

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

MS4 Entity
City of El Paso

STATE OF TEXAS
ANTONIO R. RAMIREZ
134499
LICENSED PROFESSIONAL ENGINEER

1/2/2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

July 2023 Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
24	SEE TITLE SHEET		125
STATE	STATE DIST.	COUNTY	
TEXAS	ELP	EL PASO	
CONT.	SECT.	JOB	HIGHWAY NO.
0374	02	120, ETC.	US 62, ETC

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

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

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

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

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

2.2 SEDIMENT CONTROL BMPs:

T / P

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

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

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

T / P

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

2.3 PERMANENT CONTROLS:

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

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To
Not applicable		

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

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

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

2.5 POLLUTION PREVENTION MEASURES:

- ☒ Chemical Management
- ☒ Concrete and Materials Waste Management
- ☒ Debris and Trash Management
- ☐ Dust Control
- ☒ Sanitary Facilities
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.6 VEGETATED BUFFER ZONES:

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

Type	Stationing	
	From	To
Not applicable		

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

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

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

2.8 DEWATERING:

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

2.9 INSPECTIONS:

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

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

2.10 MAINTENANCE:

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

1/2/2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

July 2023 Sheet 2 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
24	SEE TITLE SHEET		126
STATE	STATE DIST.	COUNTY	
TEXAS	ELP	EL PASO	
CONT.	SECT.	JOB	HIGHWAY NO.
0374	02	120, ETC.	US 62, ETC

DATE: 12/28/2023
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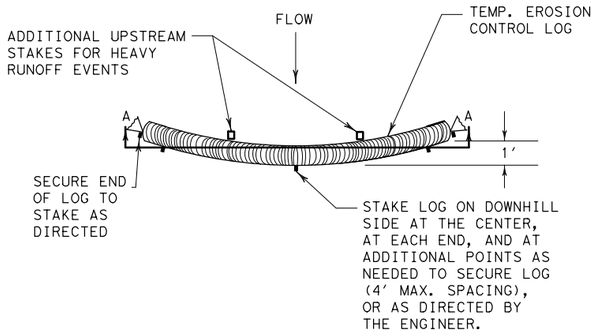
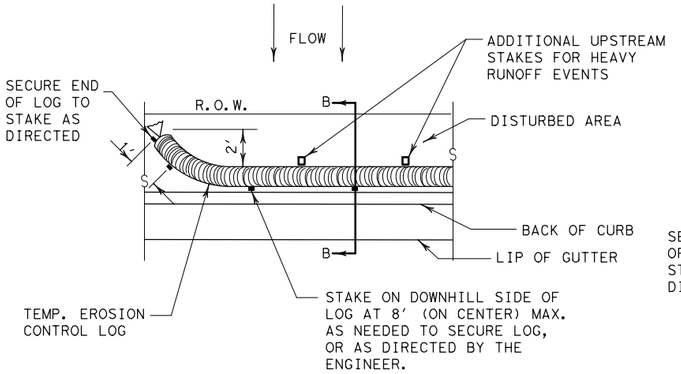
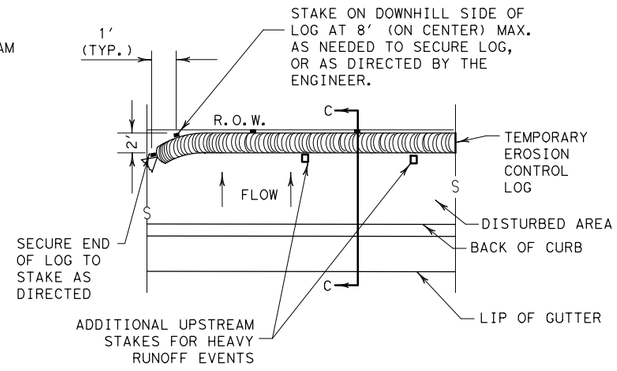


PLAN VIEW



PLAN VIEW



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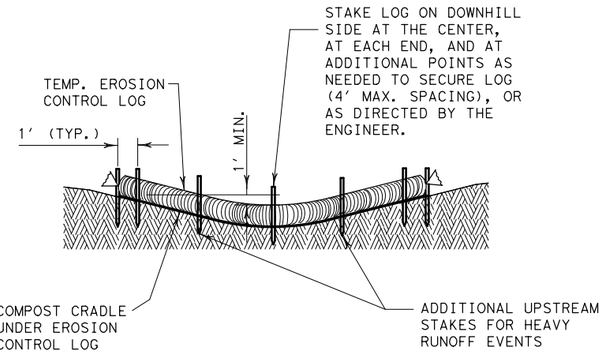
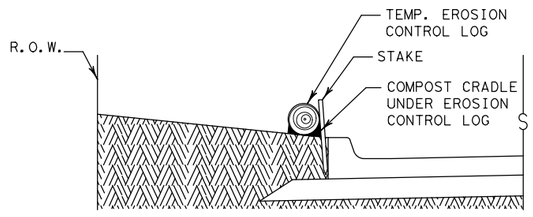


SECTION A-A

EROSION CONTROL LOG DAM

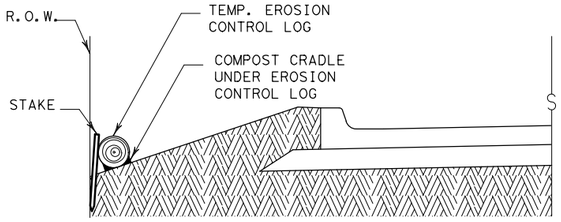
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

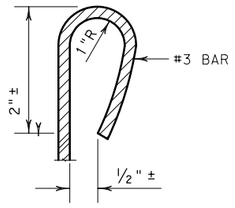
CL-BOC



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



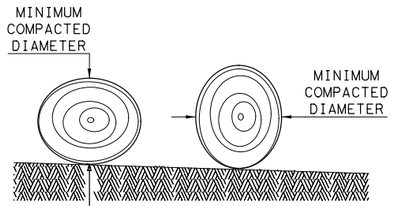
REBAR STAKE DETAIL

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT		CK: KM		DW: LS/PT		CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY		
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	DIST	COUNTY			SHEET NO.		
	24	EL PASO			127		

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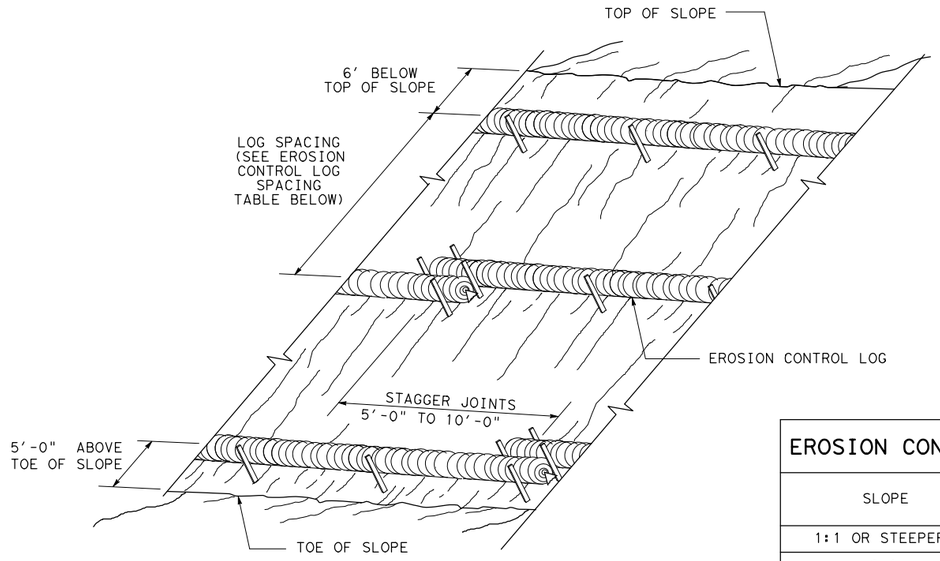
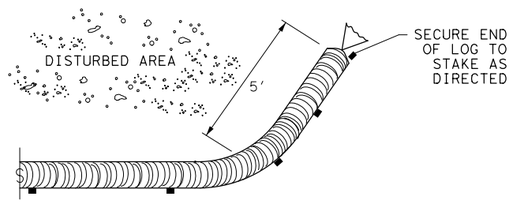


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

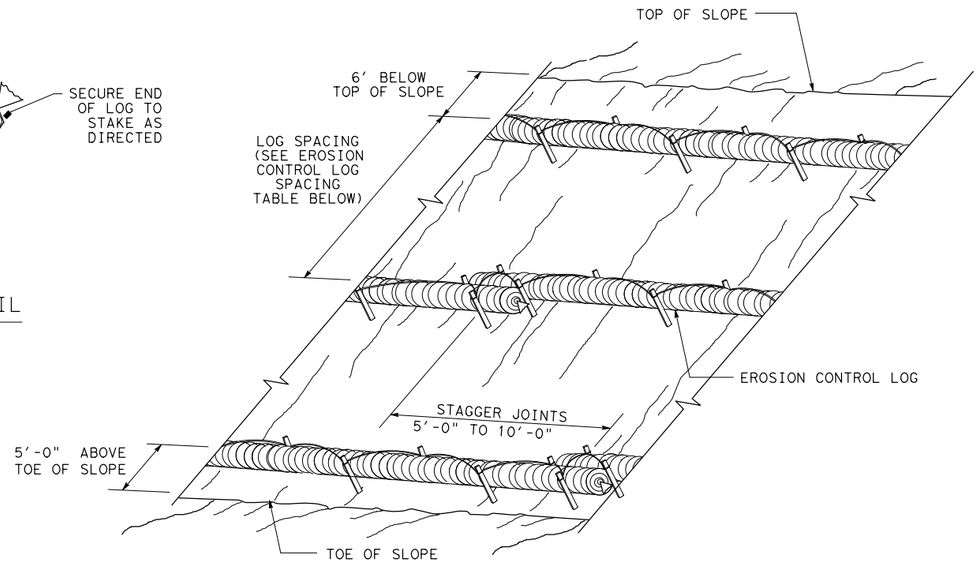
CL-SST



END SECTION RAP DETAIL

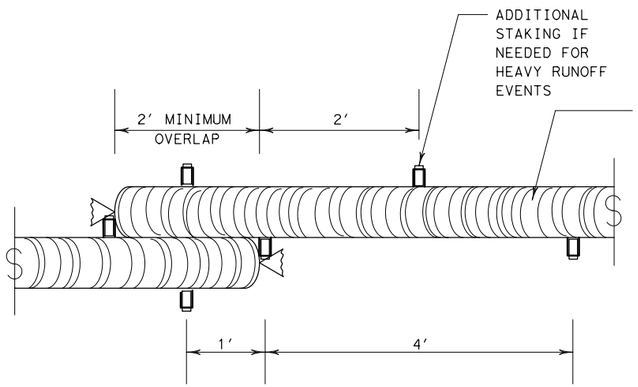
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

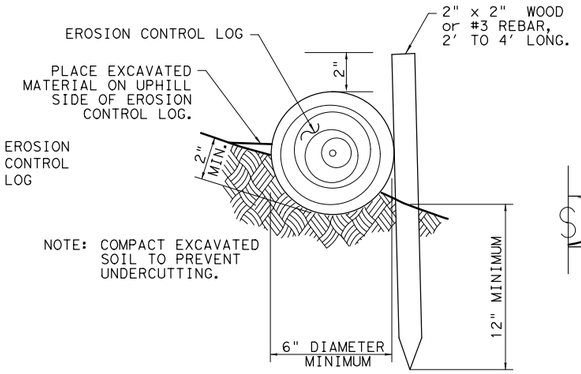
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

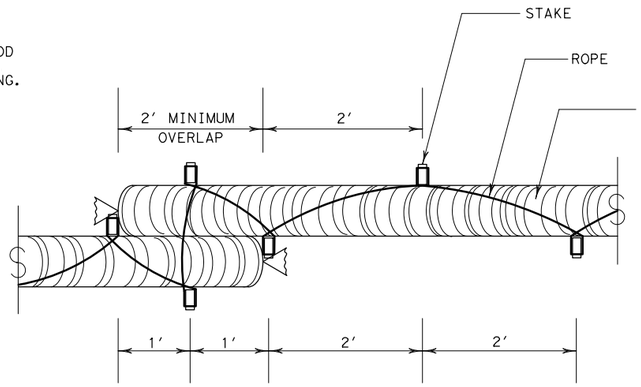


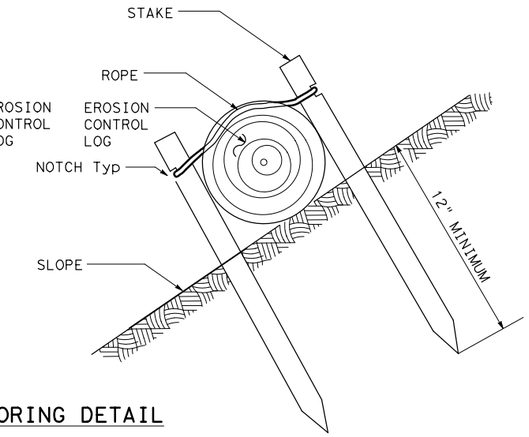


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

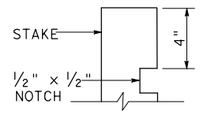
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC(9)-16

FILE: ec116	DN: TxDOT		CK: KM		DW: LS/PT		CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY		
REVISIONS	0374	02	120,ETC.		US 62,ETC		
	DIST	COUNTY				SHEET NO.	
	24	EL PASO				128	

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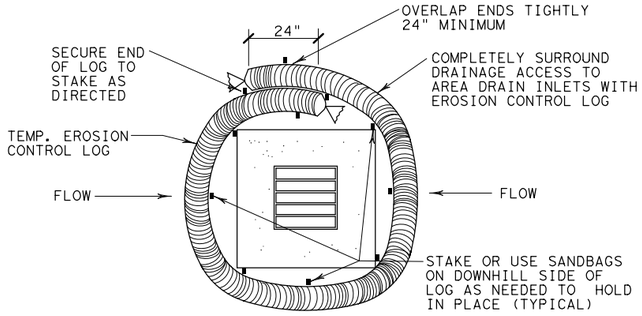
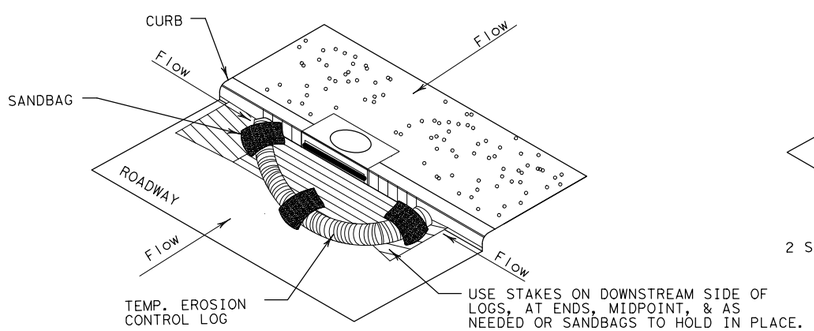


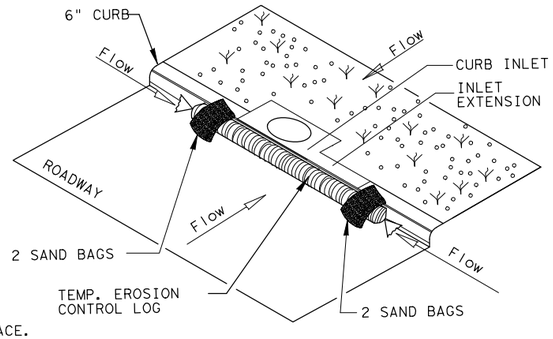
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

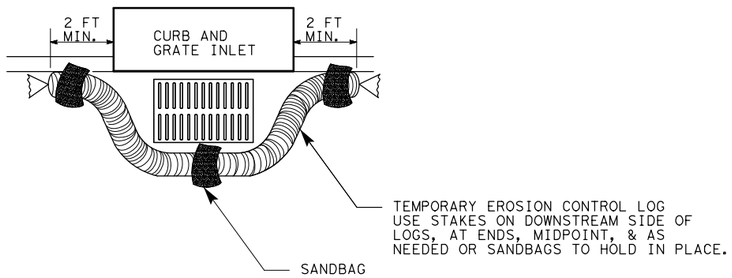
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

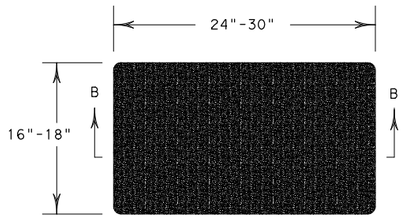
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI

SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0374	02	120,ETC.	US 62,ETC
	DIST	COUNTY		SHEET NO.
	24	EL PASO		129