Date and Time Plotted: 4/30/2014 5:10:29 PM

CITY OF WESLACO

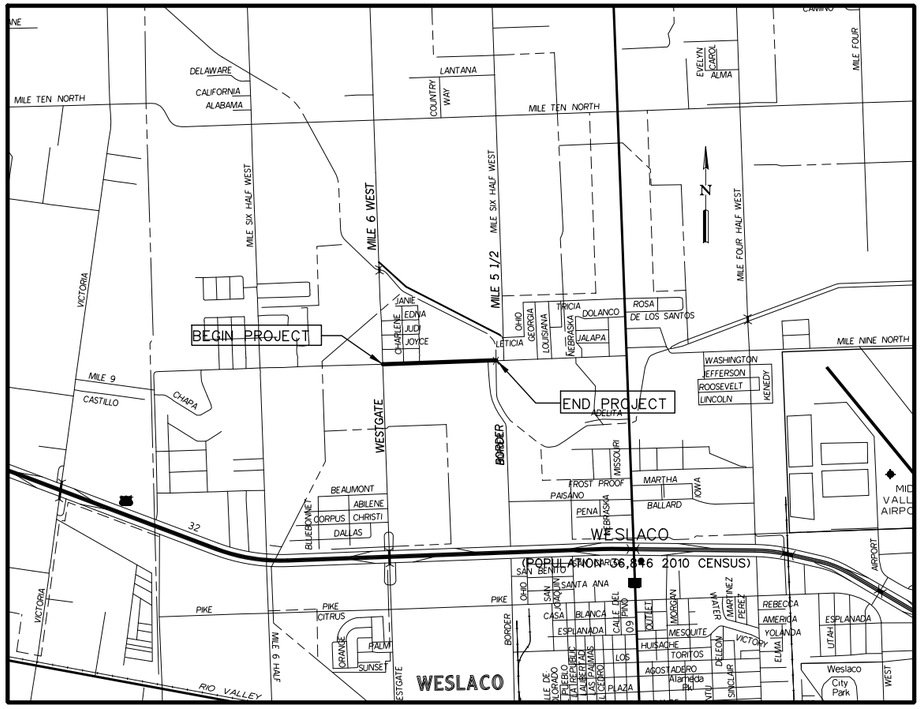
CONSTRUCTION OF DETENTION POND AND RECONSTRUCTION OF SUGARCANE DR FROM MILE 6W (WESTGATE) TO MILE 5 1/2 WEST (BORDER)

WESLACO CITY OFFICIALS

DAVID SUAREZ	MAYOR
JOHN F. "JOHNNY" CUELLAR	MAYOR PRO TEM
DAVID R. FOX	COMMISSIONER
OLGA M NORIEGA	COMMISSIONER
GERARDO "JERRY" TAFOLLA	COMMISSIONER
LUPE V. RIVERA	COMMISSIONER
FIDEL L. PENA	COMMISSIONER
LEONARDO OLIVARES	CITY MANAGER

HIDALGO COUNTY OFFICIALS

A.C. CUELLAR, JR.	COMMISSIONER Pct. 1
HECTOR "TITO" PALACIOS	COMMISSIONER Pct. 2
JOE M. FLORES	COMMISSIONER Pct. 3
JOSEPH PALACIOS	COMMISSIONER Pct. 4
RAMON GARCIA	COUNTY JUDGE



PLANS APPROVED

CONCURRENCE:
CITY OF WESLACO
LEONARDO OLIVARES
CITY MANAGER
DATE: _____

NAME _____ TITLE _____

CONCURRENCE:
CITY OF WESLACO
CITY ENGINEER
DATE: _____

NAME _____ TITLE _____

PLANS APPROVED:
CITY OF WESLACO
DAVID SALINAS
PUBLIC UTILITIES DIRECTOR
DATE: _____

NAME _____ TITLE _____

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED
PROFESSIONAL ENGINEER

MARK D. CORBITT DATE 4/30/2014

THE COUNTY OF HIDALGO TEXAS

HIDALGO COUNTY

CITY ON THE GROW
CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TEDSI
TBPE F-1640
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898

File Name: Mark
File Name: ...\CSJ\General\sug-TITLE.dgn

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2	INDEX OF SHEETS
3	PROJECT LAYOUT
4	HORIZONTAL & VERTICAL CONTROL DATA
5	TYPICAL SECTIONS
6	EARTHWORKS
7	ESTIMATE AND QUANTITIES SHEET
SHEET NO.	TRAFFIC CONTROL PLAN
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75 - 90	SUGARCANE DR CROSS SECTION SHEETS

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

4/28/2014
DATE

MARK D. CORBITT , P.E.

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT — DATE 4/28/2014

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CITY OF WESLACO

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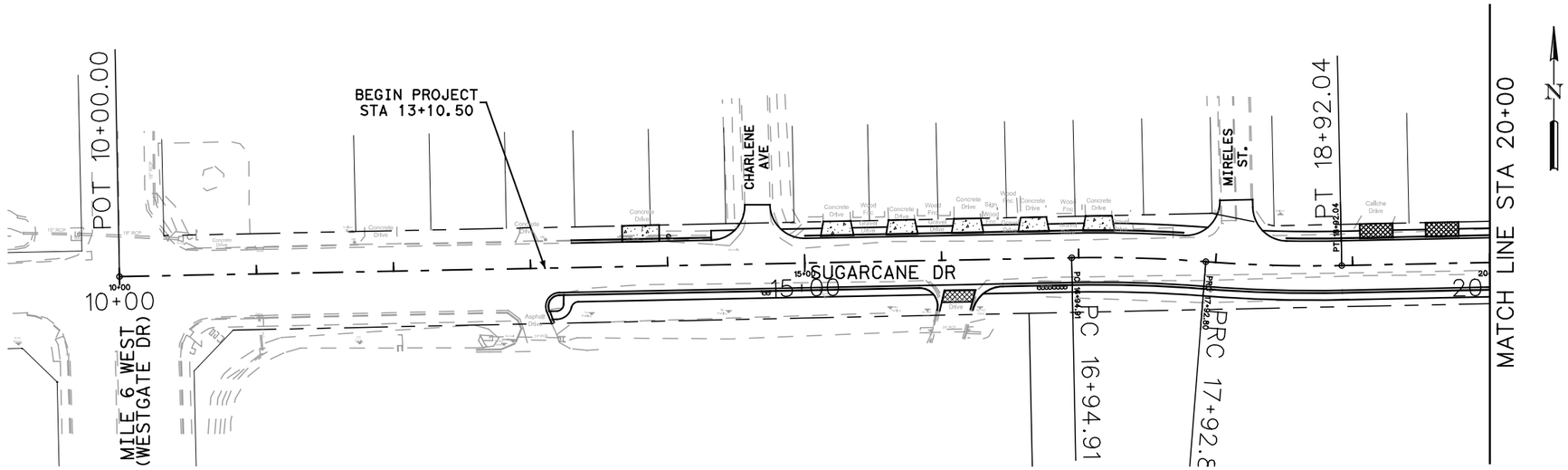
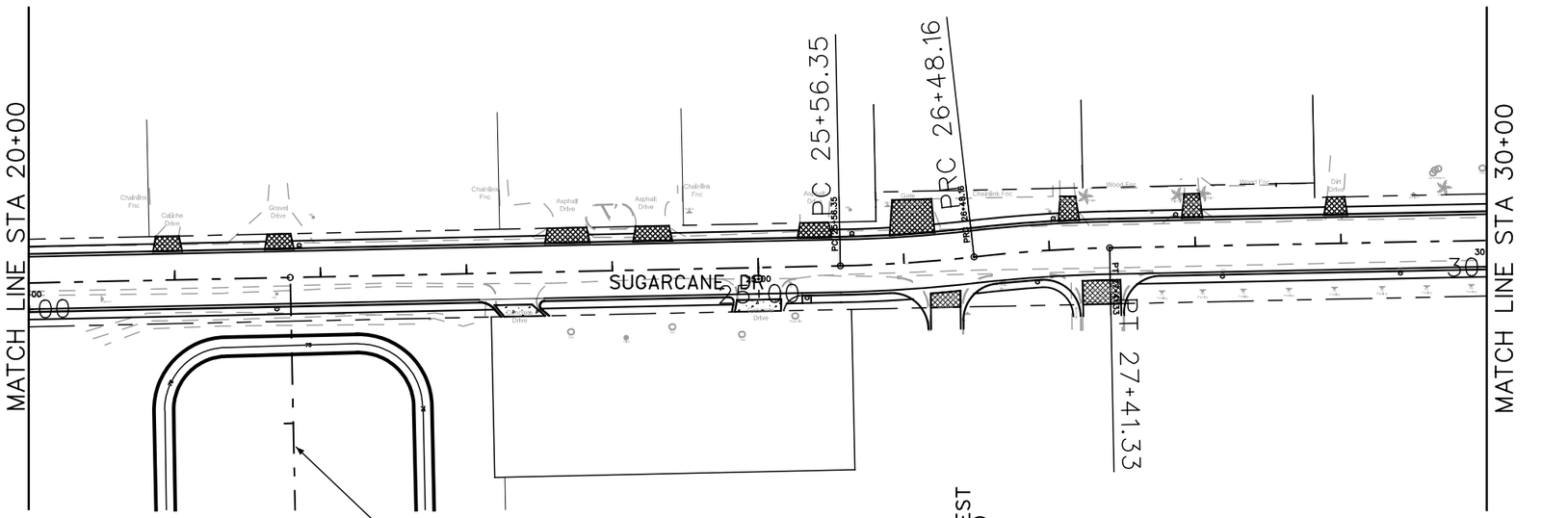
TBPE F-1640

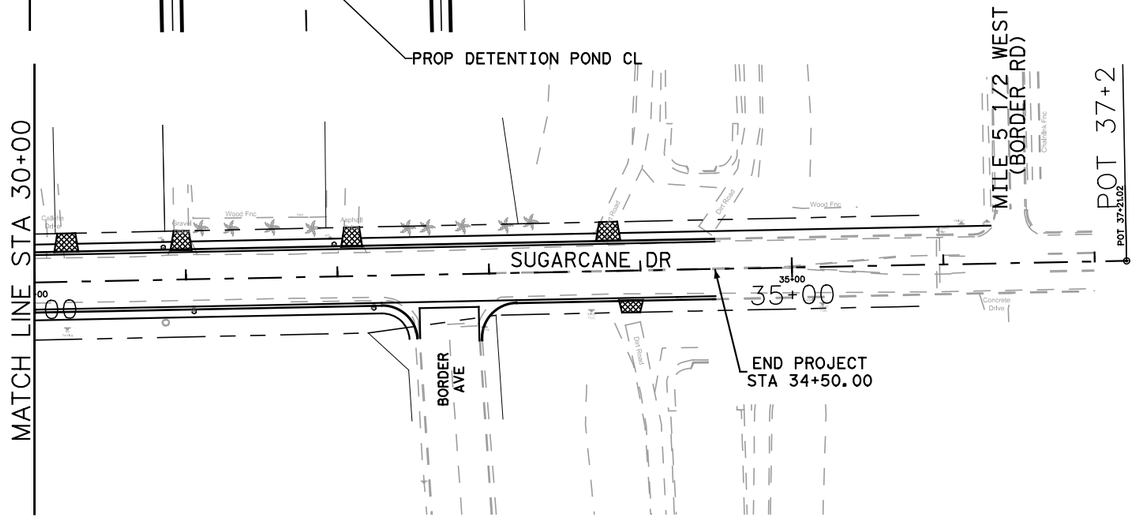
SUGARCANE DR

INDEX OF SHEETS

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			2
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE







NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT — DATE 4/25/2014

CITY ON THE GROW
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SUGARCANE DR

PROJECT LAYOUT

SCALE 1"=100'

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.			SHEET NO.
				3
STATE	DIST.	COUNTY		
TEXAS		HIDALGO		
CONT.	SECT.	JOB	HIGHWAY NO.	
			SUGARCANE	

Beginning chain SUG-CL description

Point 1 N 16,593,268.4943 E 1,145,901.5154 Sta 10+00.00

Course from 1 to PC SUG-CL-1 N 88° 52′ 00.53" E Dist 694.9144

Curve Data

Curve SUG-CL-1

P.I.	Station	17+43.90	N	16,593,283.2060	E 1,146,645.2671
	Delta =	5° 36′ 30.69" (RT)			
	Degree =	5° 43′ 46.48"			
	Tangent =	48.9827			
	Length =	97.8872			
	Radius =	1,000.0000			
	External =	1.1989			
	Long Chord =	97.8482			
	Mid. Ord. =	1.1975			
P.C.	Station	16+94.91	N	16,593,282.2373	E 1,146,596.2939
P.T.	Station	17+92.80	N	16,593,279.3839	E 1,146,694.1005
C.C.			N	16,592,282.4329	E 1,146,616.0705
	Back = N	88° 52′ 00.53" E			
	Ahead = S	85° 31′ 28.78" E			
	Chord Bear = S	88° 19′ 44.12" E			

Curve Data

Curve SUG-CL-2

P.I.	Station	18+42.46	N	16,593,275.5088	E 1,146,743.6110
	Delta =	5° 41′ 10.20" (LT)			
	Degree =	5° 43′ 46.48"			
	Tangent =	49.6619			
	Length =	99.2423			
	Radius =	1,000.0000			
	External =	1.2324			
	Long Chord =	99.2016			
	Mid. Ord. =	1.2309			
P.C.	Station	17+92.80	N	16,593,279.3839	E 1,146,694.1005
P.T.	Station	18+92.04	N	16,593,276.5582	E 1,146,793.2618
C.C.			N	16,594,276.3349	E 1,146,772.1305
	Back = S	85° 31′ 28.78" E			
	Ahead = N	88° 47′ 21.02" E			
	Chord Bear = S	88° 22′ 03.88" E			

Course from PT SUG-CL-2 to PC SUG-CL-3 N 88° 47′ 21.02" E Dist 664.3047

Curve Data

Curve SUG-CL-3

P.I.	Station	26+02.29	N	16,593,291.5666	E 1,147,503.3468
	Delta =	5° 15′ 37.84" (LT)			
	Degree =	5° 43′ 46.48"			
	Tangent =	45.9389			
	Length =	91.8132			
	Radius =	1,000.0000			
	External =	1.0546			
	Long Chord =	91.7810			
	Mid. Ord. =	1.0535			
P.C.	Station	25+56.35	N	16,593,290.5959	E 1,147,457.4182
P.T.	Station	26+48.16	N	16,593,296.7442	E 1,147,548.9930
C.C.			N	16,594,290.3726	E 1,147,436.2868
	Back = N	88° 47′ 21.02" E			
	Ahead = N	83° 31′ 43.18" E			
	Chord Bear = N	86° 09′ 32.10" E			

Curve Data

Curve SUG-CL-4

P.I.	Station	26+94.78	N	16,593,301.9983	E 1,147,595.3139
	Delta =	5° 20′ 17.35" (RT)			
	Degree =	5° 43′ 46.48"			
	Tangent =	46.6179			
	Length =	93.1683			
	Radius =	1,000.0000			
	External =	1.0860			
	Long Chord =	93.1346			
	Mid. Ord. =	1.0848			
P.C.	Station	26+48.16	N	16,593,296.7442	E 1,147,548.9930
P.T.	Station	27+41.33	N	16,593,302.9203	E 1,147,641.9226
C.C.			N	16,592,303.1159	E 1,147,661.6992
	Back = N	83° 31′ 43.18" E			
	Ahead = N	88° 52′ 00.53" E			
	Chord Bear = N	86° 11′ 51.86" E			

Course from PT SUG-CL-4 to 2 N 88° 52′ 00.53" E Dist 979.6943

Point 2 N 16,593,322.2952 E 1,148,621.4254 Sta 37+21.02

Ending chain SUG-CL description

Beginning chain P-DETPND description

Point 62407 N 16,593,282.6251 E 1,147,080.2999 Sta 10+00.00

Course from 62407 to 62408 S 1° 12′ 38.98" E Dist 1,310.0131

Point 62408 N 16,591,972.9045 E 1,147,107.9823 Sta 23+10.01

Ending chain P-DETPND description

Beginning profile SUG-PR-P description:

		STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	13+30.00	78.184				
VPC		17+00.00	76.858	-0.358	K = 246.0		
Low Point		17+88.17	76.700				
VPI	2	18+00.00	76.500		200.000	100.000	100.000
VPT		19+00.00	76.955	0.455			
VPI	3	20+20.00	77.500	0.455			
VPC		20+75.00	77.390	-0.200	K = 373.2		
Low Point		21+49.65	77.315				
VPI	4	22+25.00	77.090		300.000	150.000	150.000
VPT		23+75.00	77.996	0.604			
VPI	5	26+35.16	79.566	0.604			
VPI	6	32+25.00	80.746	0.200			
VPI	7	34+50.00	81.921	0.522			

Ending profile SUG-PR-P description

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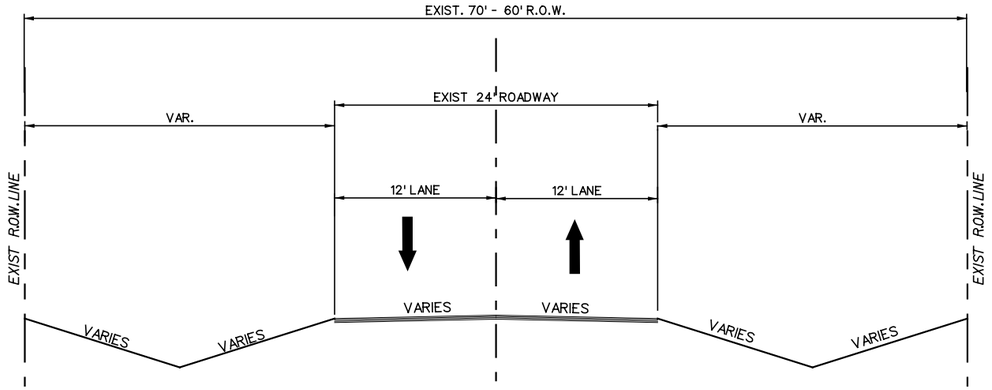
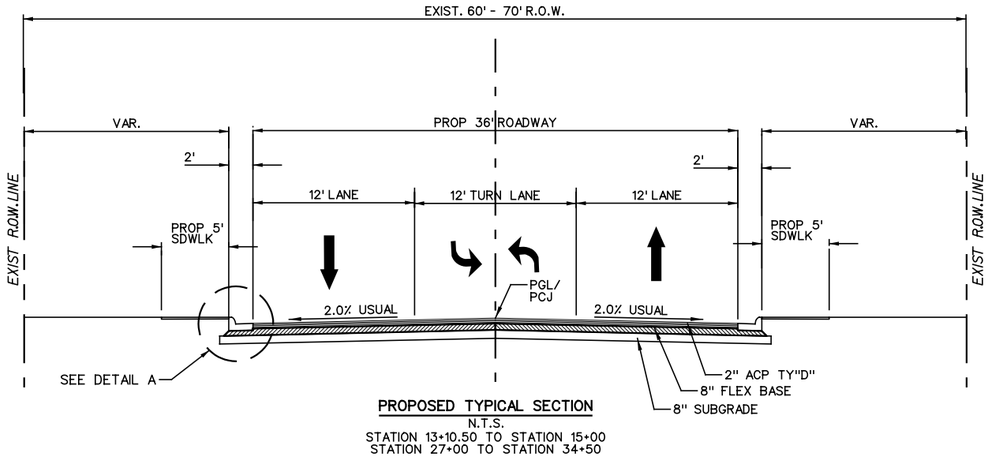
SUGARCANE DR

HORIZONTAL CONTROL DATA

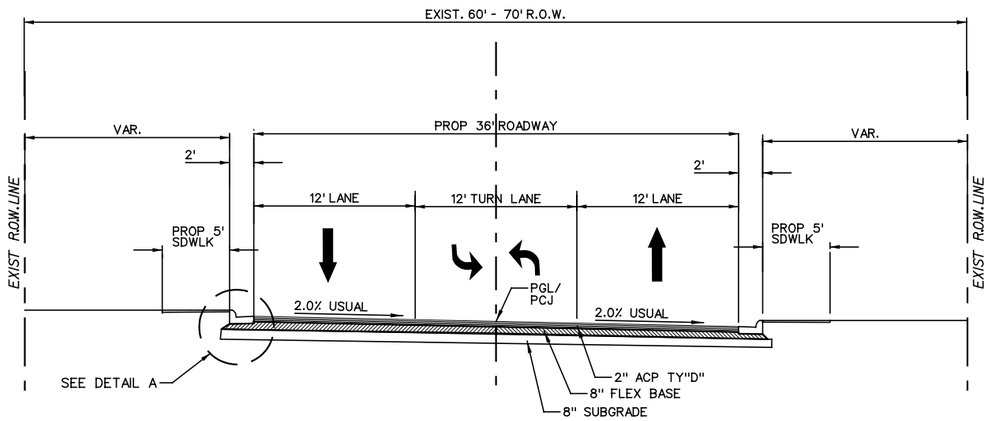
FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			4
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE



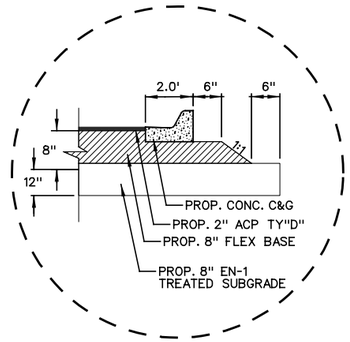
EXISTING TYPICAL SECTION
N.T.S.



PROPOSED TYPICAL SECTION
N.T.S.
STATION 13+10.50 TO STATION 15+00
STATION 27+00 TO STATION 34+50



PROPOSED TYPICAL SECTION
N.T.S.
STATION 15+00 TO STATION 17+00 (TRANSITION)
STATION 17+00 TO STATION 25+00.00
STATION 25+00 TO STATION 27+00 (TRANSITION)



DETAIL A
N.T.S.

NOTES:

PGL - PROFILE GRADE LINE
PCJ - PERMISSIBLE CONSTRUCTION JOINT

PERMISSIBLE CONSTRUCTION JOINTS SHALL FALL ON THE PROPOSED ROADWAY CENTERLINE.

ALL GRADING SHALL BE WITHIN THE EXISTING RIGHT OF WAY LIMITS.

WHERE REQUIRED BY FIXTURES OR UNUSUAL CONDITIONS THE GOVERNING SLOPES MAY BE VARIED WHEN SPECIFICALLY DIRECTED BY THE ENGINEER.

THE SUBGRADE SHALL BE SHAPED,BLADED,ROLLED AND PROOF ROLLED A MINIMUM DISTANCE OF 24" BEYOND THE EDGE OF THE PROPOSED BASE COURSE.

PROOF ROLLING WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE VARIOUS ITEMS.

ENGINEER OR OWNER MUST BE PRESENT WHEN PROOF ROLLING SUBGRADE. CHECK FOR PUMPING OR OTHER IRREGULARITIES IN SUBGRADE. IF UNSUITABLE MATERIAL IS FOUND REMOVE AND FILL WITH SUITABLE MATERIAL AND RECOMPACT.

A STATION EQUAL TO 100 FT.

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SUGARCANE DR

EXIST AND PROP TYPICAL SECTIONS

N.T.S.

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			5
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE

Station	Material Name	End Areas (sq. ft.)	Unadjusted Volumes (cu. yd.)	Adjusted Volumes (cu. yd.)	Mult Factor	Mass Ordinate
13+50.00 SOIL						
	Excavation	33.8	0	0	1.00	
	Fill	6.4	0	0	1.00	0
14+00.00 SOIL						
	Excavation	35.9	65	65	1.00	
	Fill	4.4	10	10	1.00	55
14+50.00 SOIL						
	Excavation	33.4	64	64	1.00	
	Fill	4.6	8	8	1.00	111
15+00.00 SOIL						
	Excavation	28.8	58	58	1.00	
	Fill	9.5	13	13	1.00	156
15+50.00 SOIL						
	Excavation	32.5	57	57	1.00	
	Fill	8.5	17	17	1.00	196
16+00.00 SOIL						
	Excavation	39.8	67	67	1.00	
	Fill	4.0	12	12	1.00	251
16+50.00 SOIL						
	Excavation	43.0	77	77	1.00	
	Fill	4.9	8	8	1.00	320
17+00.00 SOIL						
	Excavation	49.0	85	85	1.00	
	Fill	5.8	10	10	1.00	395
17+50.00 SOIL						
	Excavation	57.3	98	98	1.00	
	Fill	3.7	9	9	1.00	484
18+00.00 SOIL						
	Excavation	57.2	106	106	1.00	
	Fill	5.0	8	8	1.00	582
18+50.00 SOIL						
	Excavation	54.9	104	104	1.00	
	Fill	6.5	11	11	1.00	675
19+00.00 SOIL						
	Excavation	51.5	99	99	1.00	
	Fill	6.5	12	12	1.00	762
19+50.00 SOIL						
	Excavation	48.7	93	93	1.00	
	Fill	6.5	12	12	1.00	843
20+00.00 SOIL						
	Excavation	46.0	88	88	1.00	
	Fill	7.1	13	13	1.00	918
20+50.00 SOIL						
	Excavation	49.9	89	89	1.00	
	Fill	6.1	12	12	1.00	995
21+00.00 SOIL						
	Excavation	63.0	105	105	1.00	
	Fill	8.5	14	14	1.00	1086
21+50.00 SOIL						
	Excavation	71.2	124	124	1.00	
	Fill	8.9	16	16	1.00	1194
22+00.00 SOIL						
	Excavation	74.6	135	135	1.00	
	Fill	11.1	19	19	1.00	1310
22+50.00 SOIL						
	Excavation	73.4	137	137	1.00	
	Fill	15.0	24	24	1.00	1423
23+00.00 SOIL						
	Excavation	95.1	156	156	1.00	
	Fill	4.6	18	18	1.00	1561
23+50.00 SOIL						
	Excavation	106.2	186	186	1.00	
	Fill	0.0	4	4	1.00	1743
24+00.00 SOIL						
	Excavation	88.9	181	181	1.00	
	Fill	1.8	2	2	1.00	1922
24+50.00 SOIL						
	Excavation	89.9	166	166	1.00	
	Fill	0.0	2	2	1.00	2086
25+00.00 SOIL						
	Excavation	82.4	160	160	1.00	
	Fill	0.2	0	0	1.00	2246
25+50.00 SOIL						
	Excavation	68.6	140	140	1.00	
	Fill	4.1	4	4	1.00	2382
26+00.00 SOIL						
	Excavation	88.3	145	145	1.00	
	Fill	0.0	4	4	1.00	2523
26+50.00 SOIL						
	Excavation	81.1	157	157	1.00	
	Fill	0.0	0	0	1.00	2680
27+00.00 SOIL						
	Excavation	88.4	157	157	1.00	
	Fill	0.0	0	0	1.00	2837
27+50.00 SOIL						
	Excavation	79.1	155	155	1.00	
	Fill	0.0	0	0	1.00	2992
28+00.00 SOIL						
	Excavation	77.2	145	145	1.00	
	Fill	0.0	0	0	1.00	3137
28+50.00 SOIL						
	Excavation	68.7	135	135	1.00	
	Fill	2.3	2	2	1.00	3270
29+00.00 SOIL						
	Excavation	70.9	129	129	1.00	
	Fill	0.0	2	2	1.00	3397
29+50.00 SOIL						
	Excavation	67.4	128	128	1.00	
	Fill	0.0	0	0	1.00	3525
30+00.00 SOIL						
	Excavation	65.6	123	123	1.00	
	Fill	0.9	1	1	1.00	3647
30+50.00 SOIL						
	Excavation	61.0	117	117	1.00	
	Fill	2.8	3	3	1.00	3761
31+00.00 SOIL						
	Excavation	62.2	114	114	1.00	
	Fill	0.6	3	3	1.00	3872
31+50.00 SOIL						
	Excavation	58.6	112	112	1.00	
	Fill	1.8	2	2	1.00	3982
32+00.00 SOIL						
	Excavation	56.5	107	107	1.00	
	Fill	3.2	5	5	1.00	4084
32+50.00 SOIL						
	Excavation	47.9	97	97	1.00	
	Fill	3.9	7	7	1.00	4174
33+00.00 SOIL						
	Excavation	44.6	86	86	1.00	
	Fill	3.9	7	7	1.00	4253
33+50.00 SOIL						
	Excavation	50.9	88	88	1.00	
	Fill	0.7	4	4	1.00	4337
34+00.00 SOIL						
	Excavation	53.5	97	97	1.00	
	Fill	0.0	1	1	1.00	4433
34+50.00 SOIL						
	Excavation	40.6	87	87	1.00	
	Fill	0.0	0	0	1.00	4520

GRAND SUMMARY TOTALS

Material Name	Unadjusted Volumes (cu. yd.)	Adjusted Volumes (cu. yd.)	Mult Factor
SOIL			
Excavation	4819	4819	1.00
Fill	299	299	1.00

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SUGARCANE DR

SUMMARY OF EARTHWORK QUANTATIES

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.			SHEET NO.
				6
STATE	DIST.	COUNTY		
TEXAS		HIDALGO		
CONT.	SECT.	JOB	HIGHWAY NO.	
			SUGARCANE	

Date and Time Plotted: 4/25/2014 5:19:29 PM

File Name: Jason2
File Name: ...\CSJ\General\SUG_EWK.dgn

SUMMARY OF BASE BID QUANTITIES

PLAN SHEET NO.	STATION LIMITS	100-2001 PREPARING R.O.W.	110-2002 EXCAVATION (CHANNEL)	132-2006 EMBANKMENT (FINAL) (DENS CONT) (TY C)	164-2023 CELL FBR MLCH SEED (PERM) (RURAL) (CLAY)	432-2001 RIPRAP (CONC) (4 IN)	462-2003 CONC BOX CULV (4 FT X 2 FT)	464-2003 RC PIPE (CL III) (18 IN)	465-2005 MANH (COMPL) (TY M)	465-2012 INLET (COMPL) (TY A)	465-2103 INLET (COMPL) (TY F)	465-2104 INLET EXT (TY A)	465-2109 INLET EXT (TY F)	465-2113 INLET (COMPL) (TY CC)	531-2003 CONC SIDEWALKS (5') (6")	531-2041 CONC RAMPS (TY 10)	467-2177 SET (TY I) (S=4FT) (HW=3FT) (6:1)(P)	467-2288 SET(TYII) (24 IN)(RCP) (6:1)(P)	479-2001 ADJUST MANHOLES	502-2001 BARRICADES, SIGNS AND TRAFFIC HANDLING	529-2012 CONC CURB & GUTTER (TY A) (BARRIER)	529-2020 CONC CURB & GUTTER (TY A) (VALLEY GUTTER)
		AC	CY	CY	SY	CY	LF	LF	EA	EA	EA	EA	EA	EA	LF	EA	EA	EA	EA	MO	LF	LF
THROUGHOUT THE PROJECT	SUGARCANE DR	6	13236	40	34936	5	375	1020	4	2	2	4	2	1	1635	10	1	1	2	3	4100	139
PROJECT TOTALS		6	13236	40	34936	5	375	1020	4	2	2	4	2	1	1635	10	1	1	2	3	4100	139

SUMMARY OF BASE BID QUANTITIES (CONT'D)

PLAN SHEET NO.	STATION LIMITS	1122-2002 ROCK FILTER DAMS (INSTALL) (TY 2)	1122-2009 ROCK FILTER DAMS (REMOVE)	1122-2017 CONSTRUCTION EXITS (INSTALL) (TY 2)	1122-2019 CONSTRUCTION EXITS (REMOVE)	1122-2037 TEMP SED CTRL FNC (INSTALL)	1122-2048 BIOGRD EROSN CONT LOGS (INSTALL) (12" DIA)	1122-2056 BIOGRD EROSN CONT LOGS (REMOVE)	1122-2057 TEMP SED CTRL FNC (REMOVE)
		LF	LF	SY	SY	LF	LF	LF	LF
THROUGHOUT THE PROJECT	SUGARCANE DR	100	100	312	312	3000	30	30	3000
PROJECT TOTALS		100	100	312	312	3000	30	30	3000

SUMMARY OF ADD ON BID 1 QUANTITIES

PLAN SHEET NO.	STATION LIMITS	100-2002 PREPARING R.O.W.	110-2001 EXCAVATION (ROADWAY)	132-2006 EMBANKMENT (FINAL) (DENS CONT) (TY C)	164-2023 CELL FBR MLCH SEED (PERM) (RURAL) (CLAY)	247-2204 FL BS (CMP IN PLC) (TY E GR 4) (8")	3000 EN-1 ROADBOND (0.0075 GAL/SY)	3000 EN-1 TRT (MIX EXST MATL & NEW BASE)(DC)(8")	310-2001 PRIME COAT (MC-30)	3268-2047 D-GR HMA TY-D SAC-A PG76-22	530-2010 DRIVEWAYS (CONC)	530-2011 DRIVEWAYS (ACP)	560-2011 MAILBOX INSTALL-S (TWG POST) TY 2 FND	560-2013 MAILBOX INSTALL-D (TWG POST) TY 2 FND	560-2024 MAILBOX INSTALL-M (TWG POST) TY 2 FND	644-2001 IN SM RD SN SUP & AM TY10BWG(1) SA(P)	644-2059 RELOCATE SM RD SN SUP & AM	644-2060 REMOVE SM RD SN SUP & AM	666-2048 REFL PAV MRK TY I (W) 24" (SLD) (100MIL)	666-2105 REFL PAV MRK TY I (Y) 4" (BRK) (100MIL)
		STA	CY	CY	SY	SY	GAL	SY	GAL	TON	SY	SY	EA	EA	EA	EA	EA	EA	LF	LF
THROUGHOUT THE PROJECT	SUGARCANE DR	21.37	5100	510	2912	10058	78	10293	1804	514	36	545	14	1	2	7	1	5	52	1180
PROJECT TOTALS		21.37	5100	510	2912	10058	78	10293	1804	514	36	545	14	1	2	7	1	5	52	1180

SUMMARY OF ADD ON BID 1 QUANTITIES (CONT'D)

PLAN SHEET NO.	STATION LIMITS	666-2111 REFL PAV MRK TY I (Y) 4" (SLD) (100MIL)	672-2015 REFL PAV MRK TY I-A-A	666-2054 REFL PAV MRK TY I (W) (ARROW) (100MIL)	1122-2017 CONSTRUCTION EXITS (INSTALL) (TY 2)	1122-2019 CONSTRUCTION EXITS (REMOVE)	1122-2048 BIOGRD EROSN CONT LOGS (INSTALL) (12" DIA)	1122-2056 BIOGRD EROSN CONT LOGS (REMOVE)	WATER LINE ADJUSTMENT
		LF	EA	EA	SY	SY	LF	LF	LS
THROUGHOUT THE PROJECT	SUGARCANE DR	4524	238	10	312	312	60	60	1
PROJECT TOTALS		4524	238	10	312	312	60	60	1

SUMMARY OF ADD ON BID 2 QUANTITIES

PLAN SHEET NO.	STATION LIMITS	531-2003 CONC SIDEWALKS (5') (6")	531-2041 CONC RAMPS (TY 10)
		LF	EA
THROUGHOUT THE PROJECT	SUGARCANE DR	1731	4
PROJECT TOTALS		1731	4

NO.	DATE	REVISION	APP.

CITY ON THE GROW — CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TEDSI
TBPE F-1640
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898

SUGARCANE DR

SUMMARY TABLES OF ESTIMATED QUANTITIES

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			7
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE

GENERAL:

USE A POWER-BROOM WHEN CLEANING THE ROADWAY AS NEEDED.

REMOVE & DISPOSE ALL MATERIAL NOT DEEMED SALVAGEABLE BY THE ENGINEER, UNLESS OTHERWISE SHOWN ON THE PLANS.

DO NOT BLOCK DRAINAGE WHEN HANDLING & STOCKPILING EXCAVATED MATERIAL.

MAINTAIN ACCESS FOR ALL LOCAL VEHICLES TO DRIVEWAYS AND INTERSECTIONS THROUGH ALL PHASES OF CONSTRUCTION.ACCESS SHALL BE MAINTAINED AS ALL WEATHER ROADS AT ALL TIMES.TEMPORARY CLOSURES WILL BE ALLOWED DURING CONTRACTOR'S WORK HOURS FROM ENGINEER.

TRAFFIC CONTROL DEVICES:

AT THE COMMENCEMENT OF THE PROJECT, ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCEPTABLE CONDITION, AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, AS PER GUIDELINES FOR TEMPORARY TRAFFIC CONTROL DEVICES AND FEATURES.

CONTRACTOR SHALL HAVE A SUFFICIENT AMOUNT OF TRAFFIC CONTROL DEVICES IN ACCEPTABLE CONDITION TO REPLACE ANY DAMAGED TRAFFIC CONTROL DEVICE WITHIN 24 HOURS OF NOTIFICATION.

PROVIDE ADDITIONAL SIGNS AND BARRICADES AS NECESSARY TO ADDRESS FIELD CONSTRUCTIBILITY & VISIBILITY.

REMOVE OR COVER ALL EXISTING SIGNS WHICH ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLAN.

ADJUST STOP SIGNS AS NEEDED ON INTERSECTING STREETS DURING THE VARIOUS CONSTRUCTION PHASES. DO NOT REMOVE ANY EXISTING STOP SIGNS UNTIL TEMPORARY SIGNS ARE IN PLACE.

COORDINATE THE TRAFFIC CONTROL PLAN AND THE VARIOUS SEQUENCES OF CONSTRUCTION WITH ADJACENT CONSTRUCTION PROJECTS IF APPLICABLE, TO ENSURE THE UNINTERRUPTED AND SAFE FLOW OF TRAFFIC.

NOTIFY THE ENGINEER IN WRITING WHEN MAJOR TRAFFIC CHANGES ARE TO BE MADE. NOTIFICATIONS MUST BE GIVEN A MINIMUM OF THREE WORKING DAYS PRIOR TO THE CHANGE.

SAFETY:

PROTECT EXPOSED PITS THAT MUST REMAIN OPEN DURING NON-WORKING HOURS AS PER OSHA REQUIREMENTS.

PROJECT SPECIFIC NOTES:

THE CONTRACTOR MAY SUBMIT AN ALTERNATE TCP TO THE ENGINEER FOR APPROVAL. PRIOR TO SUBMITTING AN ALTERNATE TCP, THE CONTRACTOR SHALL OBTAIN APPROVAL BY THE ENGINEER.

NO PHASE OF CONSTRUCTION SHALL START UNTIL COMPLETION OF THE PREVIOUS PHASE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

ALL SIGNS, BARRICADES, WORK ZONE MARKINGS AND DEVICES SHALL BE IN ACCORDANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (T.M.U.T.C.D), LATEST REVISIONS AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

ADEQUATE SIGNS AND BARRICADES SHALL BE INSTALLED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO OPENING ANY ROADWAY SECTION TO TRAFFIC. THE ENGINEER MAY DIRECT THE CONTRACTOR TO FURNISH ADDITIONAL SIGNS, BARRICADES, AND CHANNELIZING DEVICES, AS REQUIRED TO MAINTAIN TRAFFIC AND MOTORIST SAFETY DURING CONSTRUCTION.

THE CONTRACTOR SHALL ASSURE THAT BARRICADES, SIGNS, CHANNELIZING DEVICES AND TRAFFIC HANDLING DEVICES ARE MAINTAINED IN A CLEAN AND FUNCTIONAL CONDITION AT ALL TIMES,INCLUDING MAINTENANCE DUE TO ACTS OF VANDALISM OR ACCIDENT.

CONTRACTOR SHALL UTILIZE TRAFFIC CONTROL DEVICES AS SHOWN ON THE PLANS ON A PER PHASE BASIS. THEREFORE, ANY DEVICES UTILIZED IN A PREVIOUS PHASE THAT CONFLICT WITH THE TRAFFIC CONTROL FOR THE CURRENT PHASE SHALL BE REMOVED.

ALL TEMPORARY SIGNING AND STRIPING SHALL BE THE RESPONSIBILTY OF THE CONTRACTOR.

DETOUR SIGNING AND STRIPING SHALL BE AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH THE T.M.U.T.C.D.

PLASTIC CONSTRUCTION FENCING (MINIMUM 4 FEET HIGH), SHALL BE USED AROUND ALL OPEN EXCAVATION, AS REQUIRED OR DIRECTED BY THE ENGINEER. THIS REQUIREMENT INCLUDES EXCAVATION OF DETENTION POND.

ALL DRUMS USED ON THE PROJECT FOR TRAFFIC CONTROL SHALL BE PLASTIC. PLASTIC DRUMS SHALL BE USED IN ACCORDANCE WITH THE PLANS AND MANUFACTURERS RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.

WHEN CONNECTING PROPOSED ROADWAY AND/OR DETOURS TO SECTIONS OF EXISTING PAVEMENT BEING USED BY TRAFFIC AND SUCH OPERATIONS RESULT IN A DROP-OFF OF MORE THAN (2) INCHES, A 3:1 SLOPE WILL BE REQUIRED. THE SLOPE MUST BE CONSTRUCTED WITH A COMPACTED MATERIAL CAPABLE OF SUPPORTING VEHICLES, AS APPROVED BY THE ENGINEER. THIS WORK SHALL BE DONE EXPEDITIOUSLY DURING DAYLIGHT HOURS. FLAGGERS AND APPROPRIATE SIGNING TO SAFELY GUIDE TRAFFIC THROUGH THE WORK AREA WILL BE REQUIRED, AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL NOT LEAVE ANY OPEN TRENCHES OR EXCAVATIONS OVERNIGHT, UNLESS PROTECTED AND APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL IMPLEMENT ALL REQUIRED EROSION CONTROL MEASURES AND PROVIDE A COPY OF NOT TO THE CITY IN ACCORDANCE WITH TEXAS GENERAL PERMIT.

CONTRACTOR SHALL IMPLEMENT TRENCH EXCAVATION PROTECTION IN ACCORDANCE WITH OSHA STDS.

PROJECT SPECIFIC NOTES (CONT):

THE CONTRACTOR SHALL RESTORE TRAFFIC AND SITE TO ORIGINAL CONDITION UPON COMPLETION OF THE PROJECT. ALL TEMPORARY SIGNING AND TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE PROJECT. MATERIALS FURNISHED, INSTALLED AND REMOVED BY THE CONTRACTOR SHALL BECOME PROPERTY OF THE CONTRACTOR, UNLESS OTHERWISE SHOWN ON THE PLANS. MAINTAIN ALL ADVANCE WARNING SIGNS IN PLACE UNTIL PROJECT HAS BEEN ACCEPTED BY OWNER AS COMPLETED.

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT DATE 4/25/2014

CITY ON THE GROW
CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
1201 E. Expressway 83
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TEDSI
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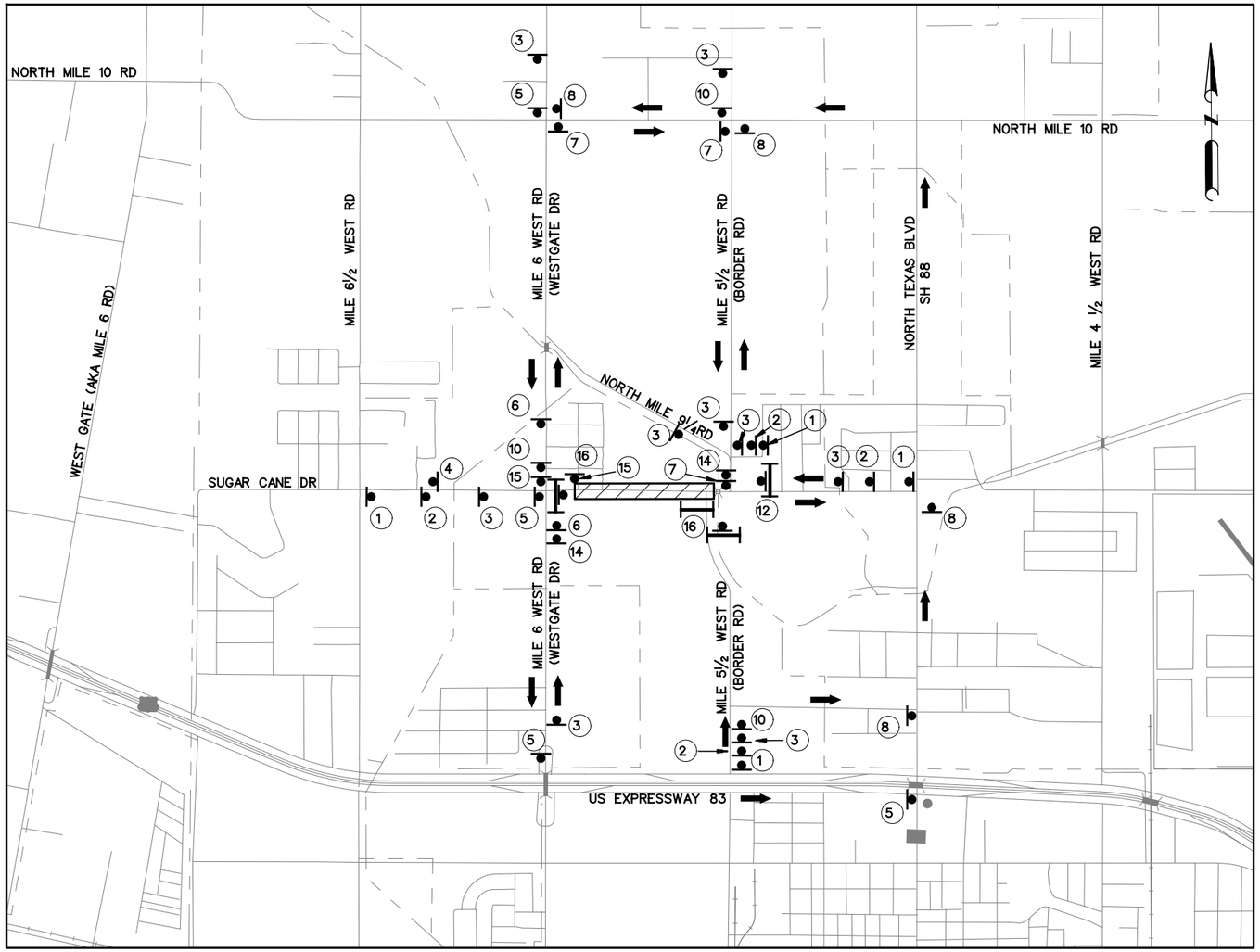
SUGARCANE DR

TRAFFIC CONTROL PLAN GENERAL NOTES

SHEET 1 OF 1

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			8
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE



LEGEND

- CONSTRUCTION AREA
- TYPE 3 BARRICADE W/R11-4
- TYPE 3 BARRICADE
- POST MOUNTED SIGN
- DIRECTIONAL ARROW

NOTES:

1. REFER TO "BC" AND "TCP STANDARDS" FOR SIGN SPACING AND ADDITIONAL SIGNING.

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT DATE 4/28/2014

CITY ON THE GROW
CITY OF WESLACO

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SUGARCANE DR

TRAFFIC CONTROL PLAN
SUGAR CANE DR

SCALE: N.T.S. SHEET 1 OF 2

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.	SHEET NO.
		9

STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE

1. ROAD WORK AHEAD — CW20-1D 48"X48"
2. ROAD CLOSED AHEAD — CW20-3D 48"X48"
3. DETOUR AHEAD — CW20-2D 48"X48"
4. END DETOUR — M4-8A 24"X18"
5. Sugar Cane Dr M4-12T 36"X12" / EAST M3-2 24"X12" / DETOUR M4-9L 30"X24"
6. Sugar Cane Dr M4-12T 36"X12" / EAST M3-2 24"X12" / DETOUR M4-9S 30"X24"
7. Sugar Cane Dr M4-12T 36"X12" / EAST M3-2 24"X12" / DETOUR M4-9R 30"X24"
8. Sugar Cane Dr M4-12T 36"X12" / WEST M3-4 24"X12" / DETOUR M4-9L 30"X24"
9. Sugar Cane Dr M4-12T 36"X12" / WEST M3-4 24"X12" / DETOUR M4-9S 30"X24"
10. Sugar Cane Dr M4-12T 36"X12" / WEST M3-4 24"X12" / DETOUR M4-9R 30"X24"
12. R11-4 60"X30" — ROAD CLOSED TO THRU TRAFFIC / DETOUR — M4-10R 48"X18"
13. R11-4 60"X30" — ROAD CLOSED TO THRU TRAFFIC / DETOUR — M4-10L 48"X18"
14. R3-1 36"X36"
15. R3-2 36"X36"
16. ROAD CLOSED TO THRU TRAFFIC — R11-4 60"X30"

DATE:
FILE:

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

WORKER SAFETY APPAREL NOTES:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel" 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.

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

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

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

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

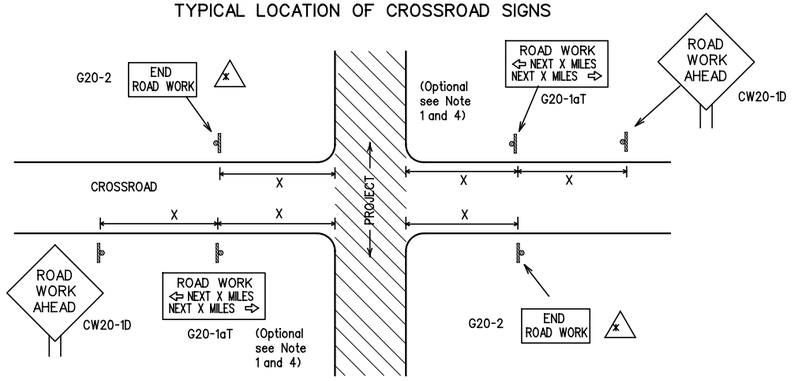
BC(1)-13

FILE: bc-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				SUGARCANE
4-03 5-10	DIST	COUNTY		SHEET NO.
9-07 7-13		HIDALGO		10

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

DATE:
FILE:

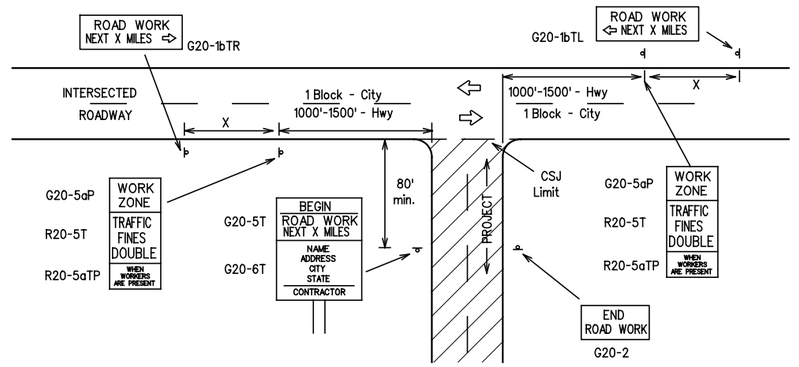
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

SIZE

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

SPACING

Posted Speed	Sign Spacing "X" Δ
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]

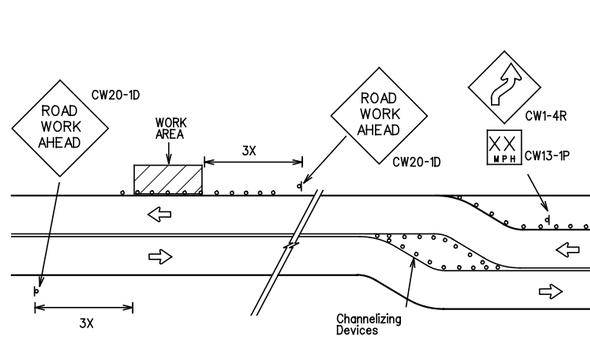
⁂ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

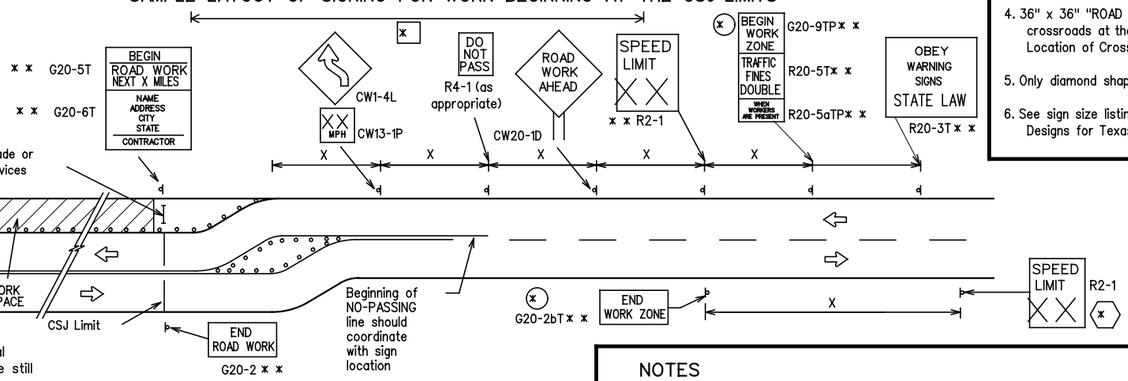
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

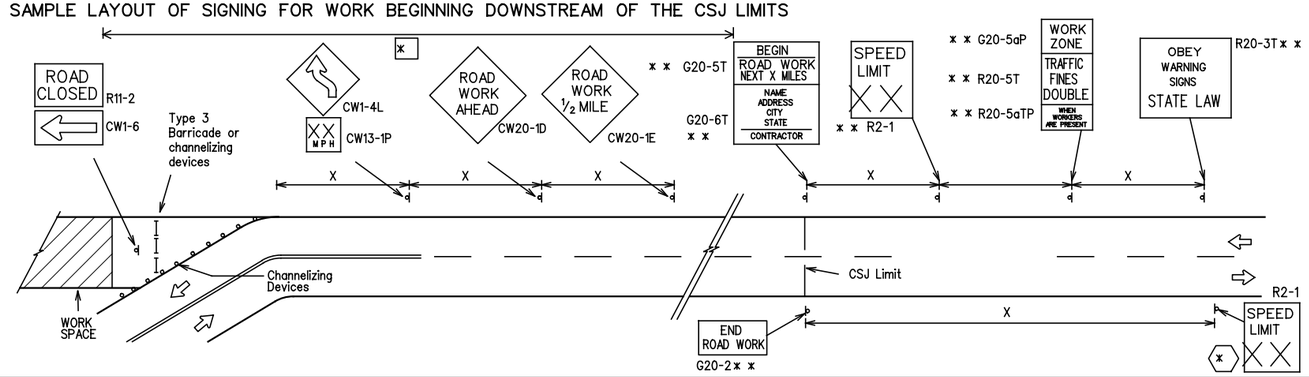


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



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



NOTES

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

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

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

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

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

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

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-13

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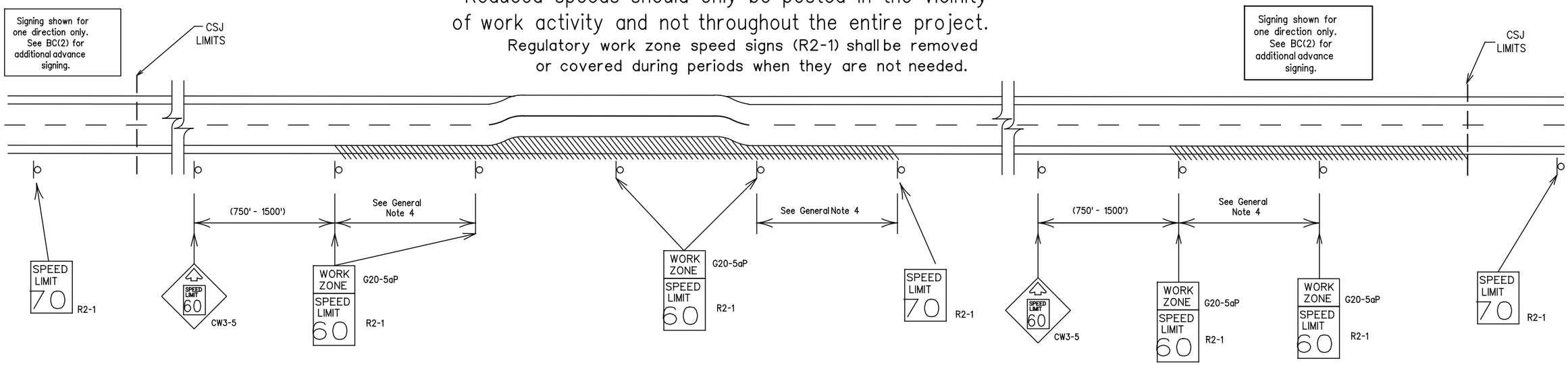
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

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Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-13

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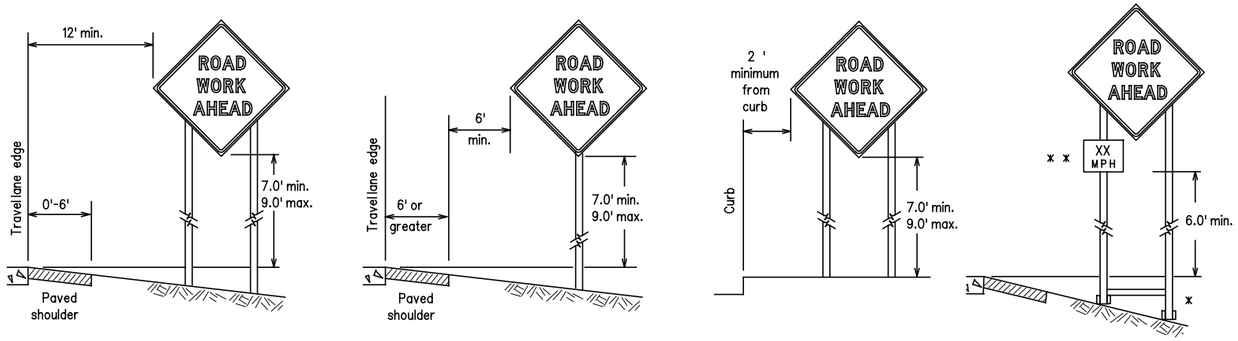
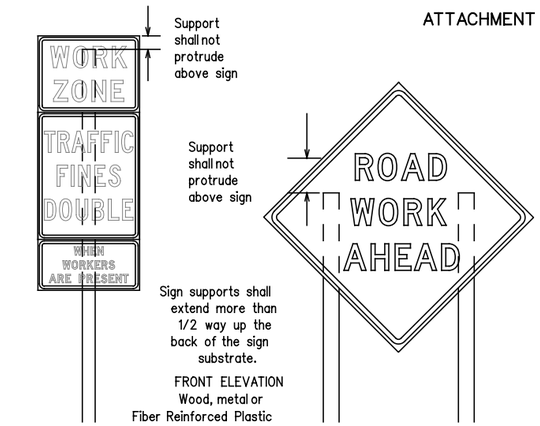
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



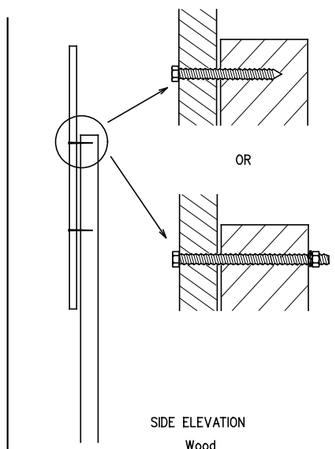
* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS



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

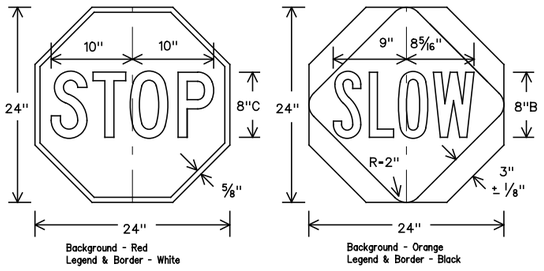


Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

STOP/SLOW PADDLES

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



CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

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BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-13

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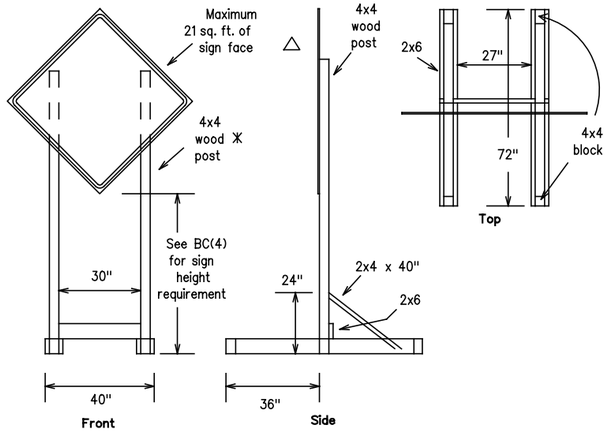
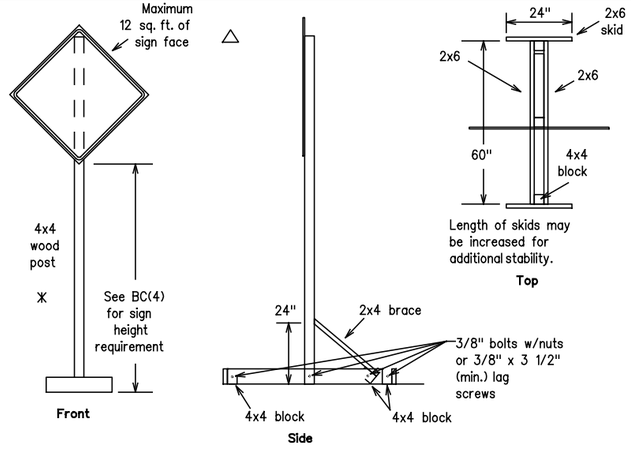
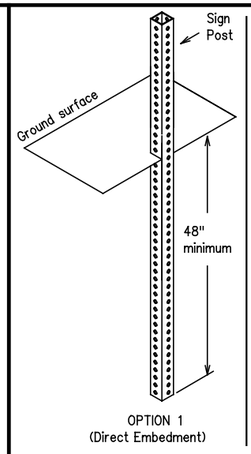
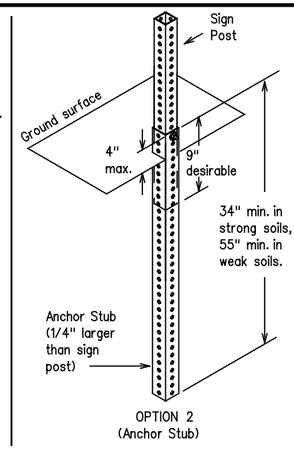


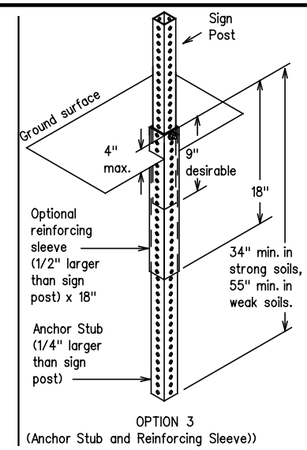


SKID MOUNTED WOOD SIGN SUPPORTS

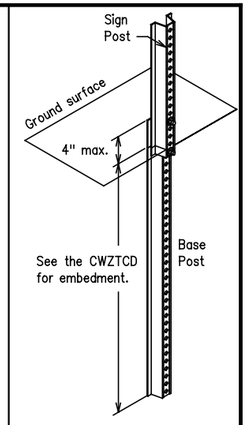
LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS □







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.

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

WOOD POST SYSTEM FOR GROUND MOUNTED SIGN SUPPORTS

SKID MOUNTED PERFORATED SQUARE STEEL TUBING 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.

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Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-13

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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 Operations Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-13

FILE: bc-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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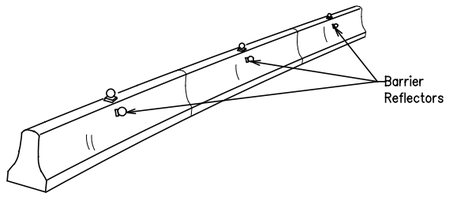
REVISIONS				SUGARCANE
9-07	DIST	COUNTY		SHEET NO.
7-13		HIDALGO		15

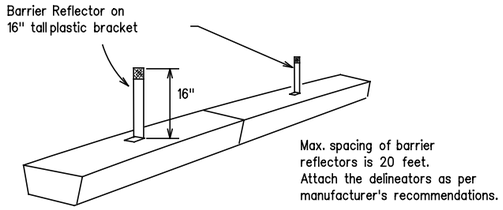
DATE:
FILE:

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

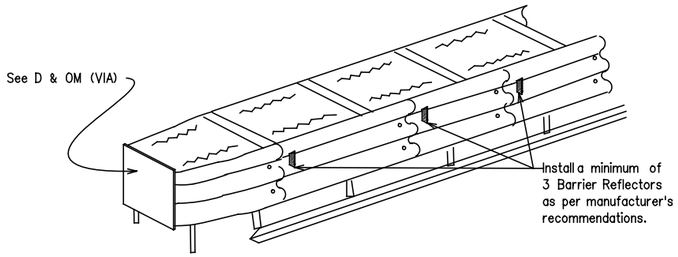


CONCRETE TRAFFIC BARRIER (CTB)

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



LOW PROFILE CONCRETE BARRIER (LPCB)

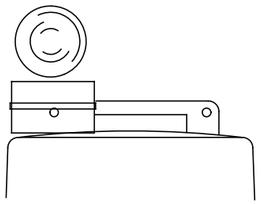


DELINEATION OF END TREATMENTS

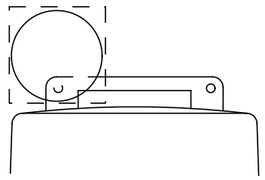
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

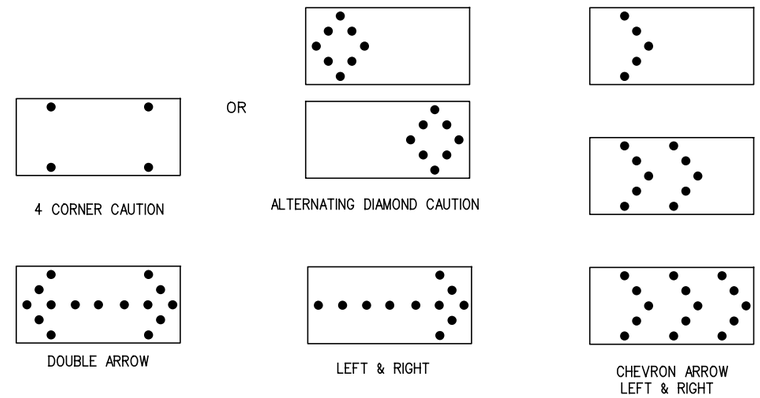
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



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

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

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the National Cooperative Highway Research Report No. 350 (NCHRP 350) or the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

Texas Department of Transportation

Traffic Operations Division Standard

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

BC(7)-13

FILE: bc-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				SUGARCANE
9-07	DIST	COUNTY		SHEET NO.
7-13		HIDALGO		16

DATE:
FILE:

GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

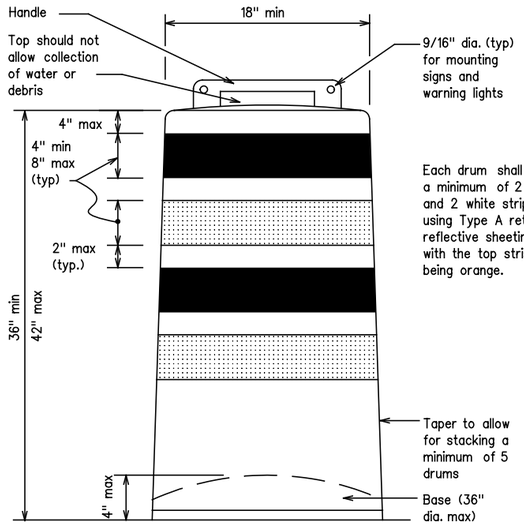
1. Plastic drums shall be a two-piece design: the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

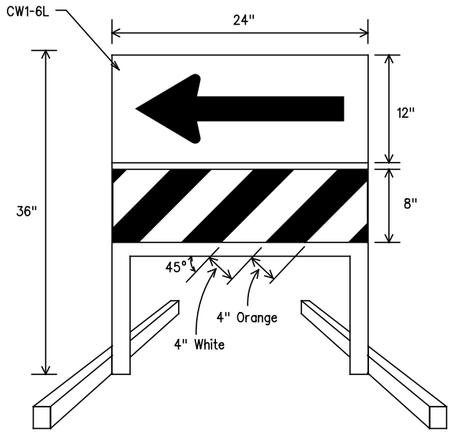
RETROREFLECTIVE SHEETING

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

BALLAST

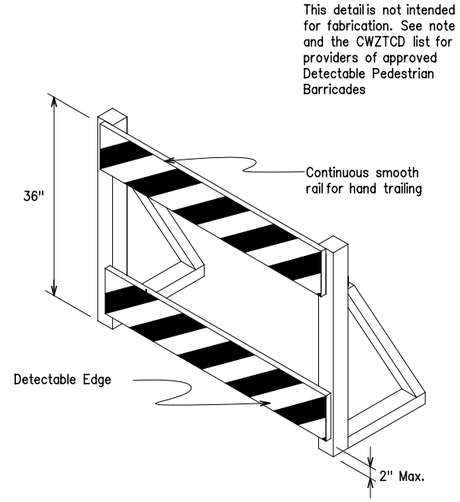
1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other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





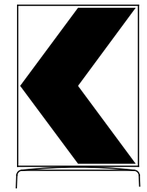
DIRECTION INDICATOR BARRICADE

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

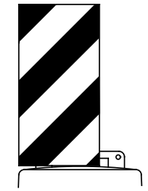


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-13

FILE: bc-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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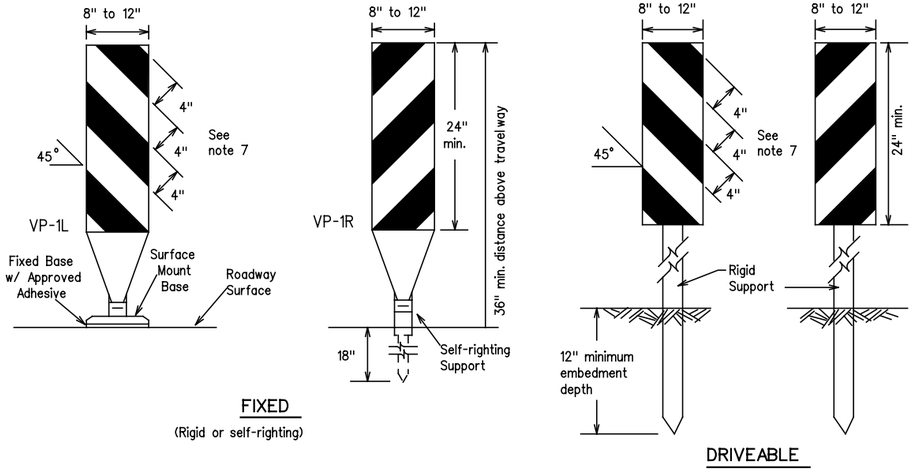
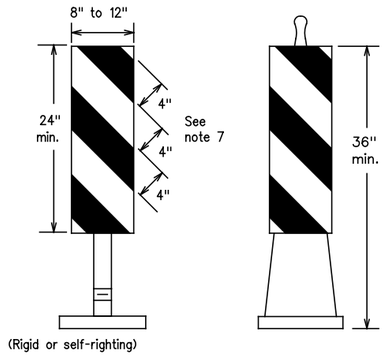
REVISIONS				SUGARCANE
4-03 7-13	DIST	COUNTY		SHEET NO.
9-07		HIDALGO		17



FIXED

(Rigid or self-righting)

DRIVEABLE

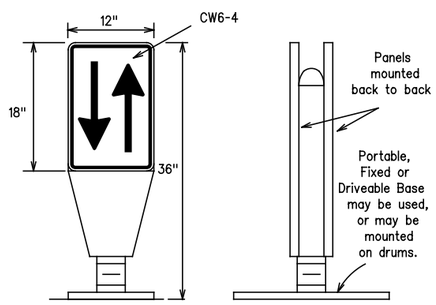


(Rigid or self-righting)

PORTABLE

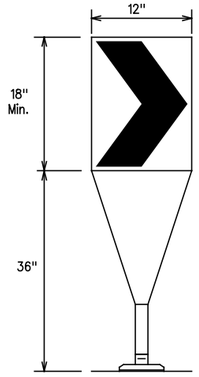
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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

VERTICAL PANELS (VPs)



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



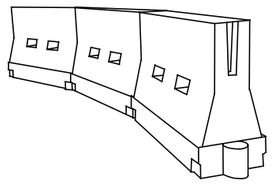
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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 or Type C conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-13

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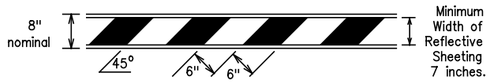
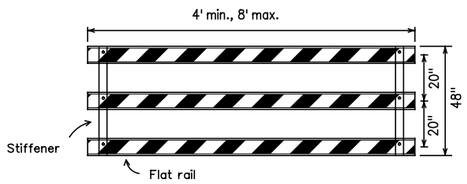
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



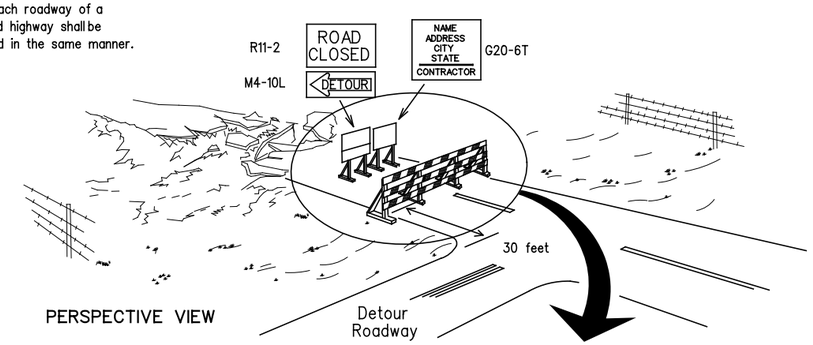
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

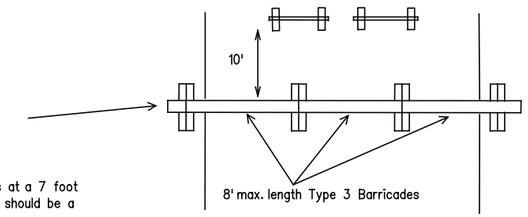
Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.

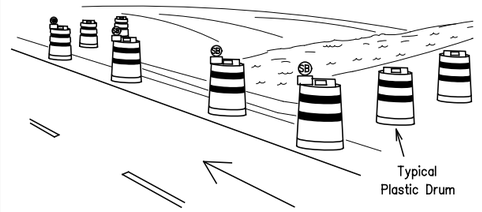
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

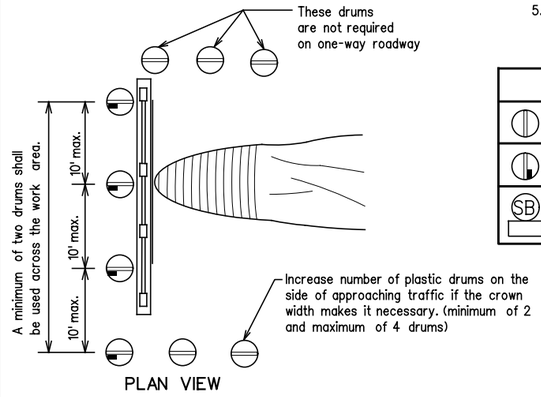
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

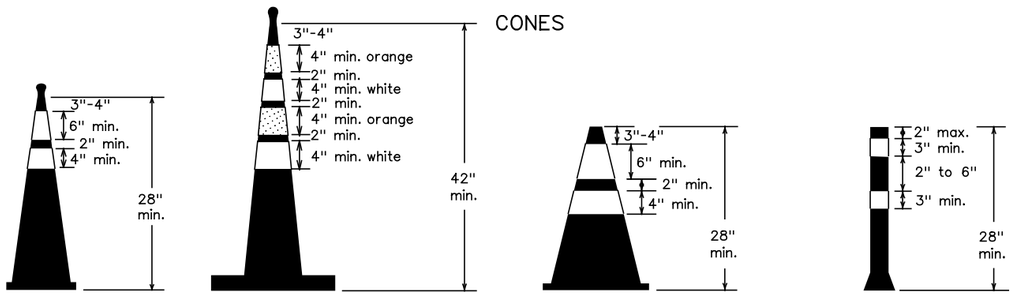
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



PLAN VIEW

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

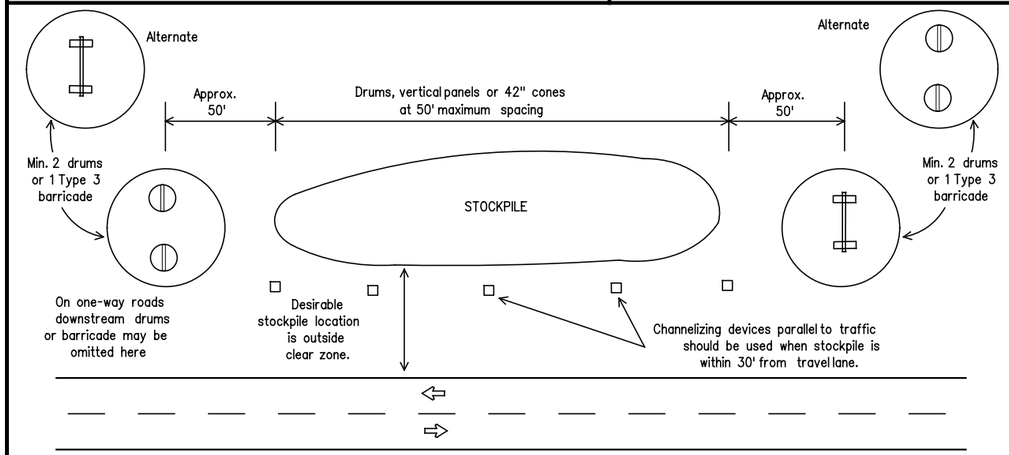
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



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

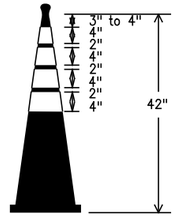
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

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



EDGELINE CHANNELIZER

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

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-13

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

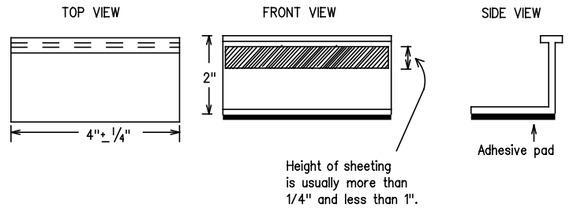
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-13

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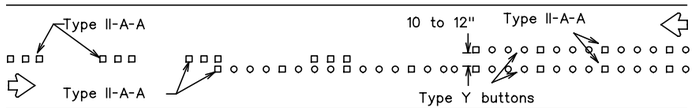
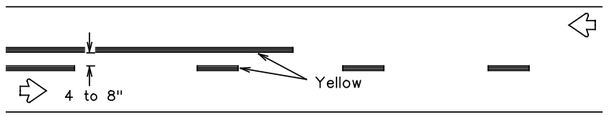
PAVEMENT MARKING PATTERNS

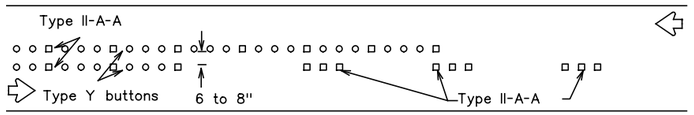
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



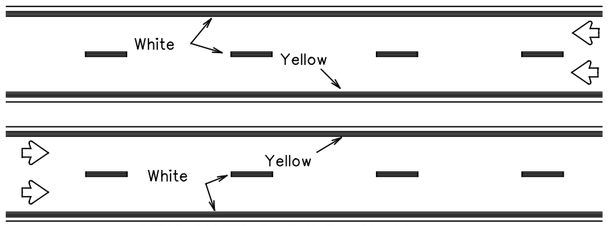
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



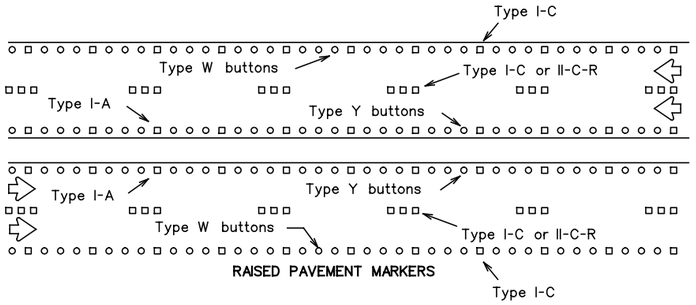
RAISED PAVEMENT MARKERS - PATTERN B

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

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



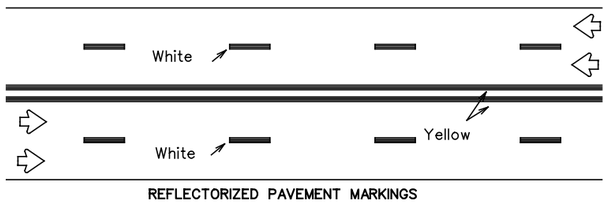
REFLECTORIZED PAVEMENT MARKINGS



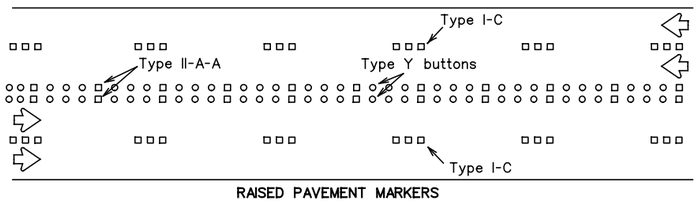
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



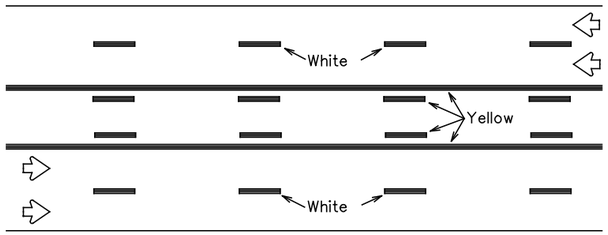
REFLECTORIZED PAVEMENT MARKINGS



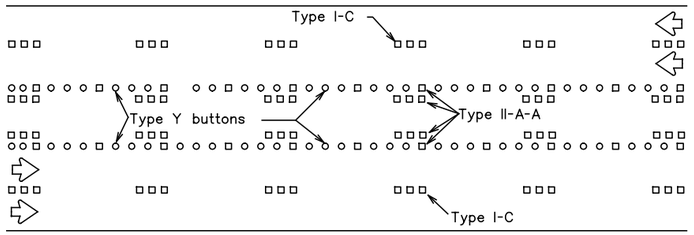
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

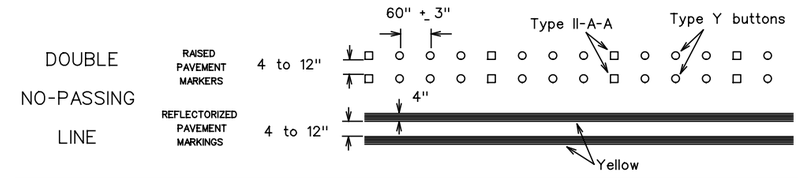
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

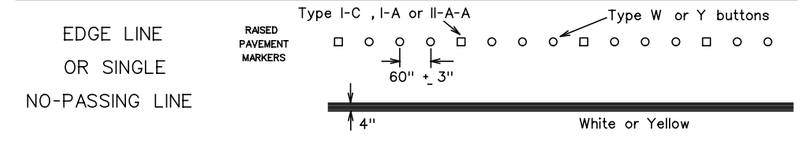
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

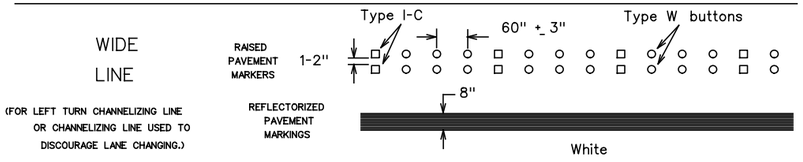


EDGE LINE OR SINGLE NO-PASSING LINE



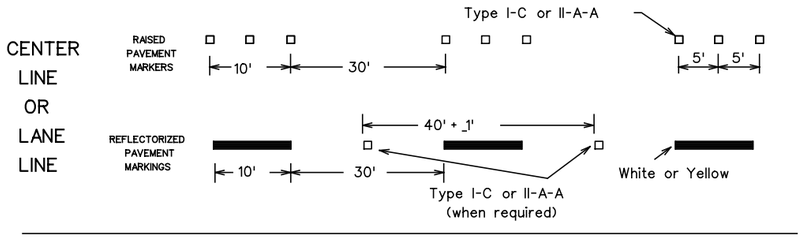
WIDE LINE

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

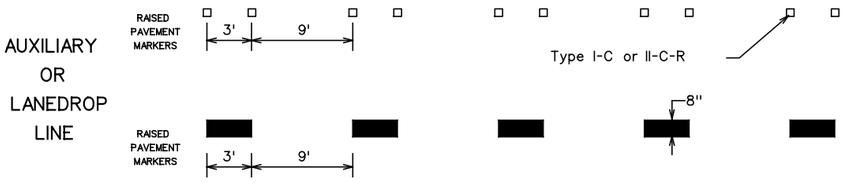


BROKEN LINES

CENTER LINE OR LANE LINE

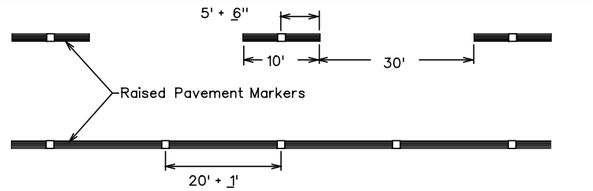


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

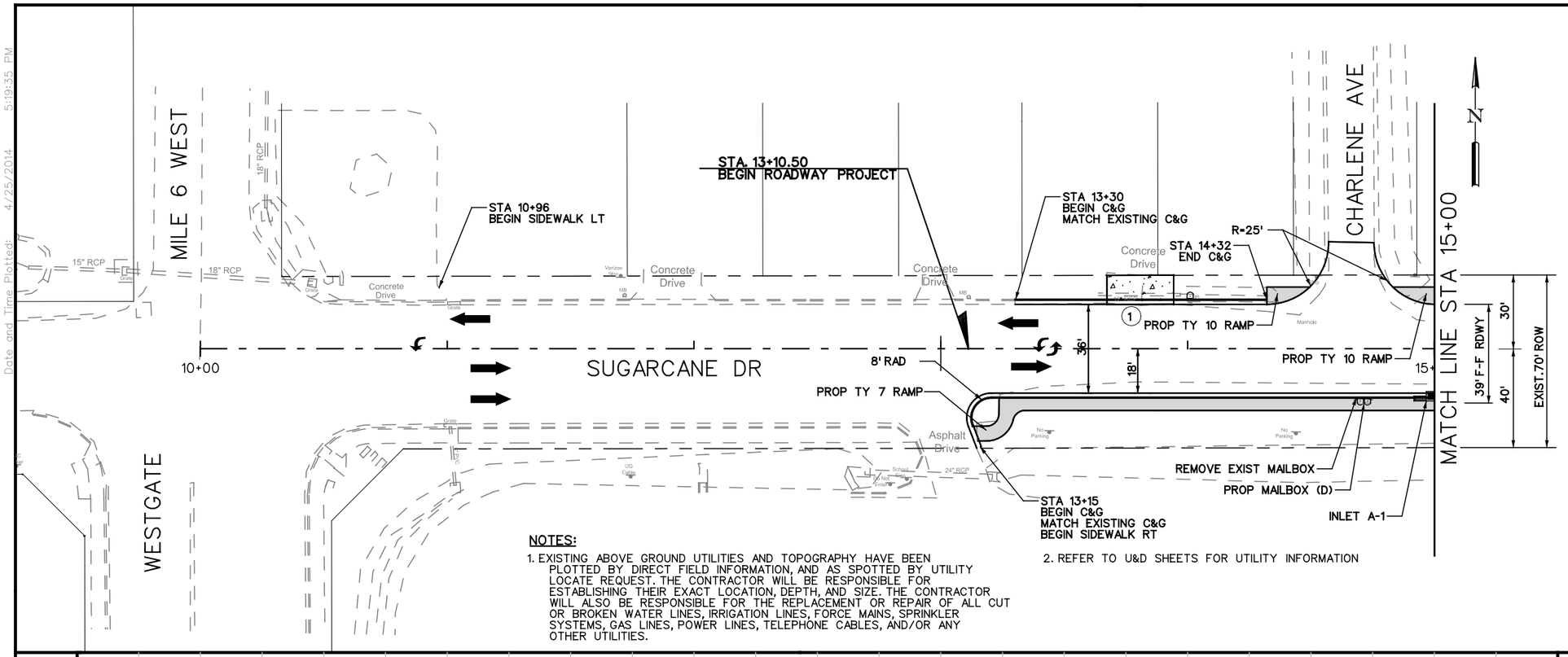
Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-13

FILE: bc-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS				SUGARCANE
1-97 11-02 7-13	DIST	COUNTY		SHEET NO.
2-98 9-07		HIDALGO		21



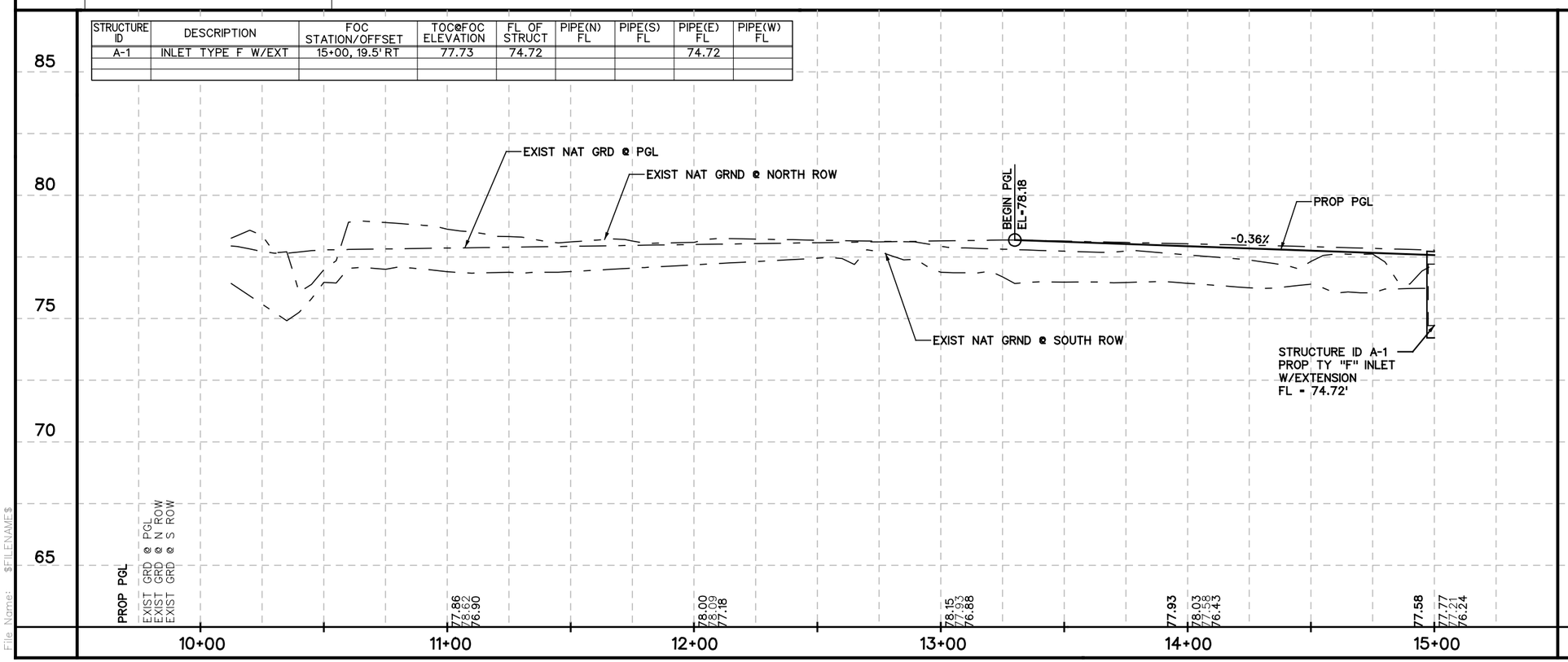
LEGEND

- EXIST R.O.W.
- EXIST ROADWAY
- ASPHALT DRIVEWAY
- CONCRETE DRIVEWAY
- DRIVEWAY ID NUMBER
- PROP SIDEWALK
- TRAFFIC FLOW ARROWS

NOTES:

1. EXISTING ABOVE GROUND UTILITIES AND TOPOGRAPHY HAVE BEEN PLOTTED BY DIRECT FIELD INFORMATION, AND AS SPOTTED BY UTILITY LOCATE REQUEST. THE CONTRACTOR WILL BE RESPONSIBLE FOR ESTABLISHING THEIR EXACT LOCATION, DEPTH, AND SIZE. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR THE REPLACEMENT OR REPAIR OF ALL CUT OR BROKEN WATER LINES, IRRIGATION LINES, FORCE MAINS, SPRINKLER SYSTEMS, GAS LINES, POWER LINES, TELEPHONE CABLES, AND/OR ANY OTHER UTILITIES.
2. REFER TO U&D SHEETS FOR UTILITY INFORMATION

STRUCTURE ID	DESCRIPTION	FOC STATION/OFFSET	TOC@FOC ELEVATION	FL OF STRUCT	PIPE(N) FL	PIPE(S) FL	PIPE(E) FL	PIPE(W) FL
A-1	INLET TYPE F W/EXT	15+00, 19.5' RT	77.73	74.72			74.72	



NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT — DATE 4/25/2014

CITY ON THE GROW — CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TEDSI
TBPE F-1640
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898

SUGARCANE RD

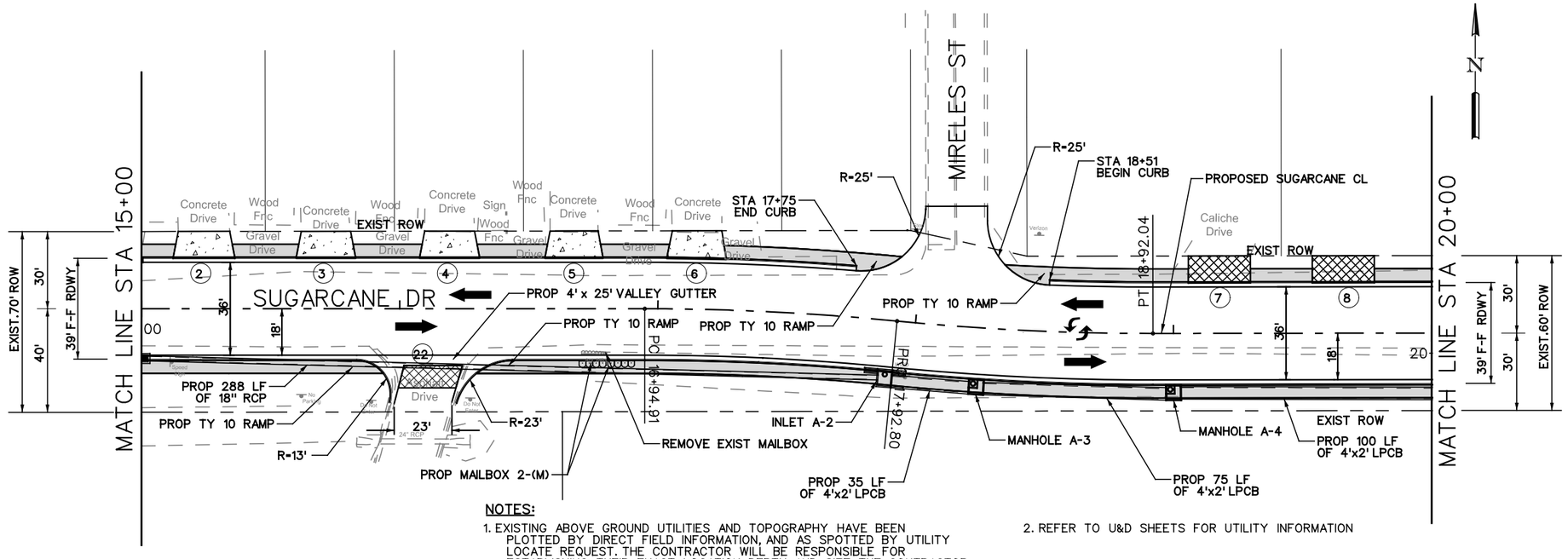
PLAN & PROFILE

STA 10+00 TO STA 15+00

SCALE :1"=50-H
1"=10'-V

SHEET 1 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			22
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGAR CANE DR.



LEGEND

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- EXIST ROADWAY
- ASPHALT DRIVEWAY
- CONCRETE DRIVEWAY
- DRIVEWAY ID NUMBER
- PROP SIDEWALK
- TRAFFIC FLOW ARROWS

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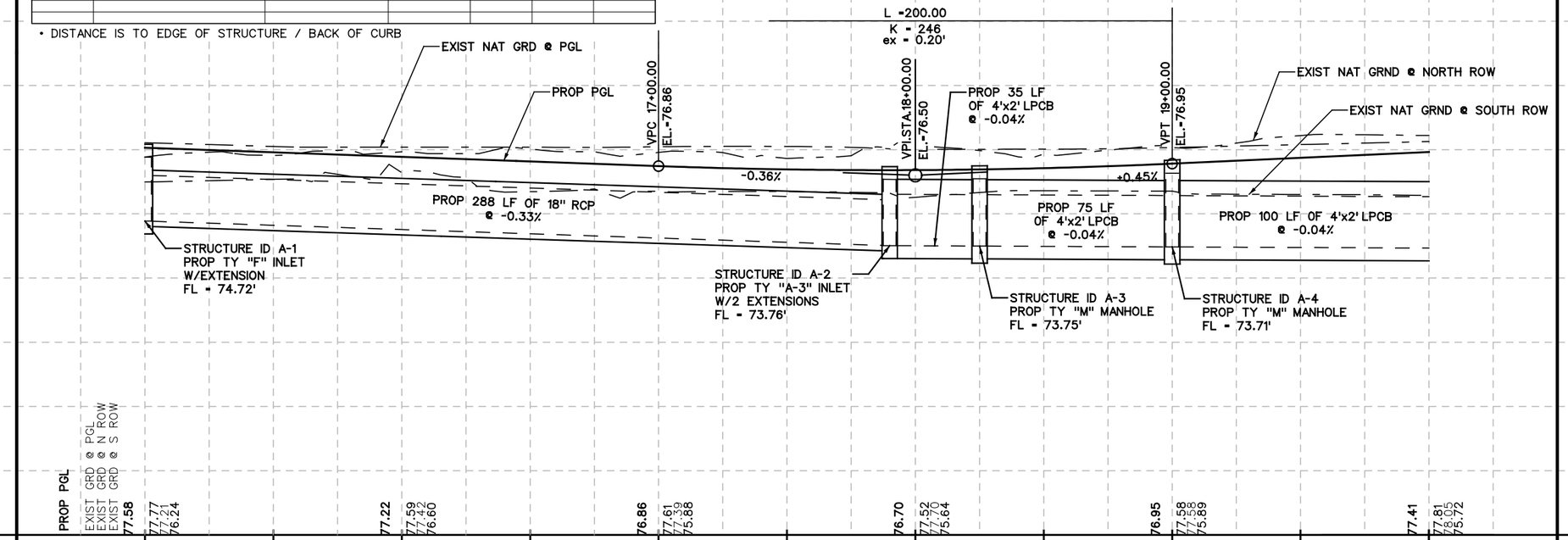
NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT DATE 4/25/2014

STRUCTURE ID	DESCRIPTION	FOC STATION/OFFSET	TOC@FOC ELEVATION	FL OF STRUCT	PIPE(E) FL	PIPE(W) FL
A-1	INLET TYPE F W/EXT	15+00, 19.5' RT	77.73	74.72	74.72	74.72
A-2	INLET TYPE A-3 W/2 EXT	17+90, 19.5' RT	76.84	73.76	73.76	73.76
A-3	MANHOLE TYPE M	• 18+25, 20' RT		73.75	73.75	73.75
A-4	MANHOLE TYPE M	• 19+00, 20' RT		74.71	73.75	73.75

• DISTANCE IS TO EDGE OF STRUCTURE / BACK OF CURB



CITY ON THE GROW
CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TBPE F-1640
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898

SUGARCANE RD

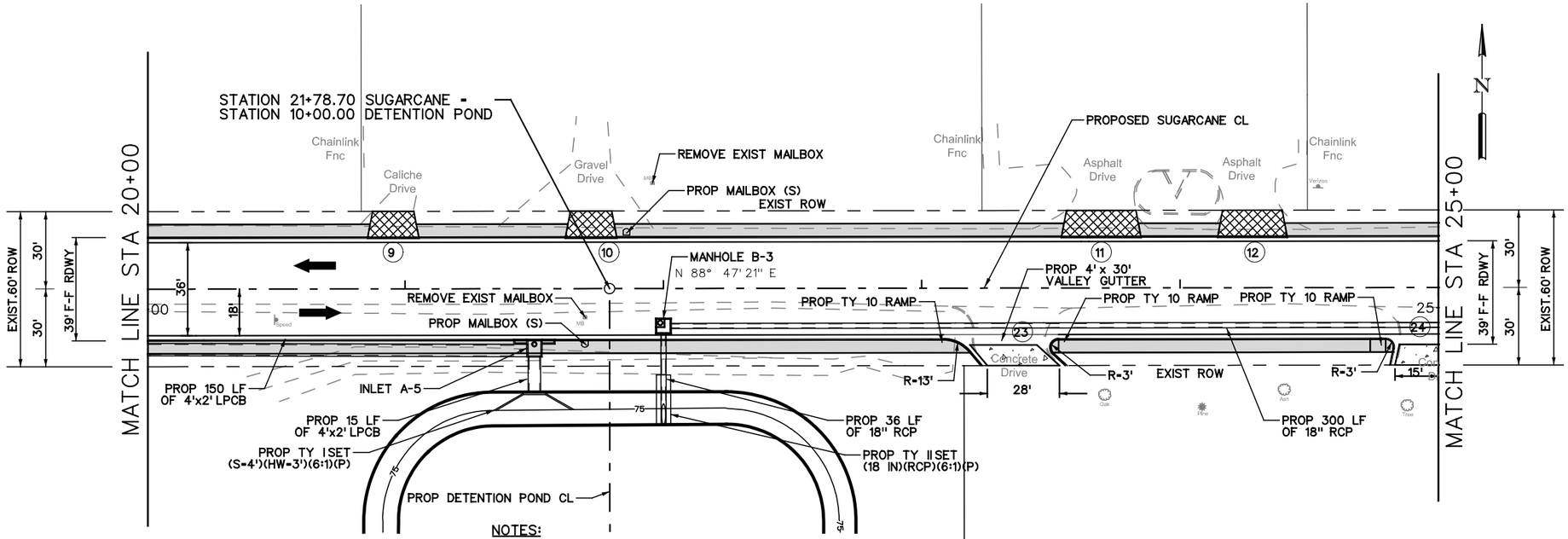
PLAN & PROFILE

STA 15+00 TO STA 20+00

SCALE :1"=50-H
1"=10'-V

SHEET 2 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			23
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGAR CANE DR.



LEGEND

- EXIST R.O.W.
- EXIST ROADWAY
- ASPHALT DRIVEWAY
- CONCRETE DRIVEWAY
- DRIVEWAY ID NUMBER
- PROP SIDEWALK
- TRAFFIC FLOW ARROWS

NOTES:

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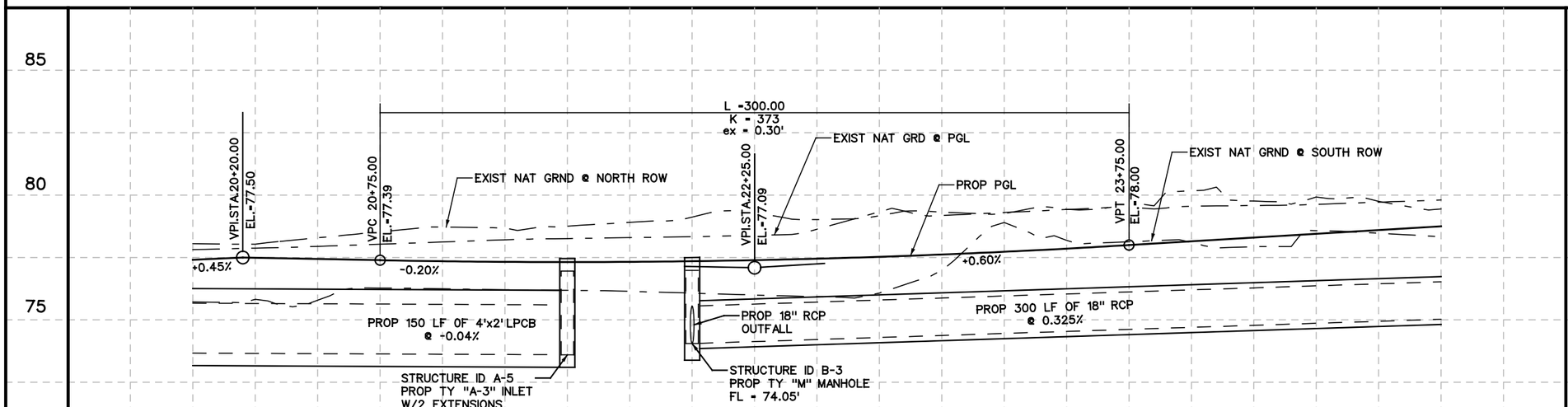


STRUCTURE ID	DESCRIPTION	FOC STATION/OFFSET	TOC@FOC ELEVATION	FL OF STRUCT	PIPE(N) FL	PIPE(S) FL	PIPE(E) FL	PIPE(W) FL
A-5	INLET TYPE A-3 W/2 EXT	21+50, 19.5' RT	77.45	73.60		73.60	73.60	
O-1	OUTFALL	21+50, 40' RT		73.55	73.55			
B-3	MANHOLE TYPE M	• 22+00, 14.5' RT		74.05		74.05		74.05
O-2	OUTFALL	22+00, 52.66' RT		74.00	74.00			

• DISTANCE IS TO CENTER OF STRUCTURE, NOT FOC

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT DATE 4/25/2014

CITY ON THE GROW
CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TEDSI TBPE F-1640
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898

SUGARCANE RD

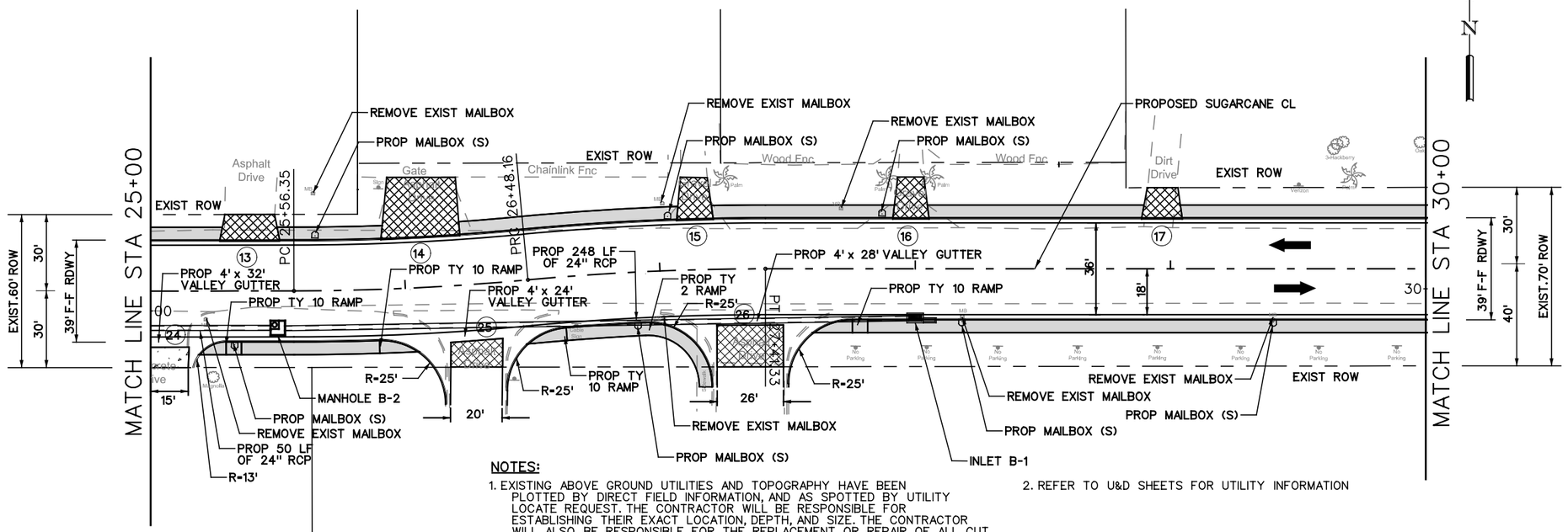
PLAN & PROFILE

STA 20+00 TO STA 25+00

SCALE :1"=50-H
1"=10'-V

SHEET 3 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			24
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGAR CANE DR.



LEGEND

- EXIST R.O.W.
- EXIST ROADWAY
- ASPHALT DRIVEWAY
- CONCRETE DRIVEWAY
- DRIVEWAY ID NUMBER
- PROP SIDEWALK
- TRAFFIC FLOW ARROWS

N

NOTES:

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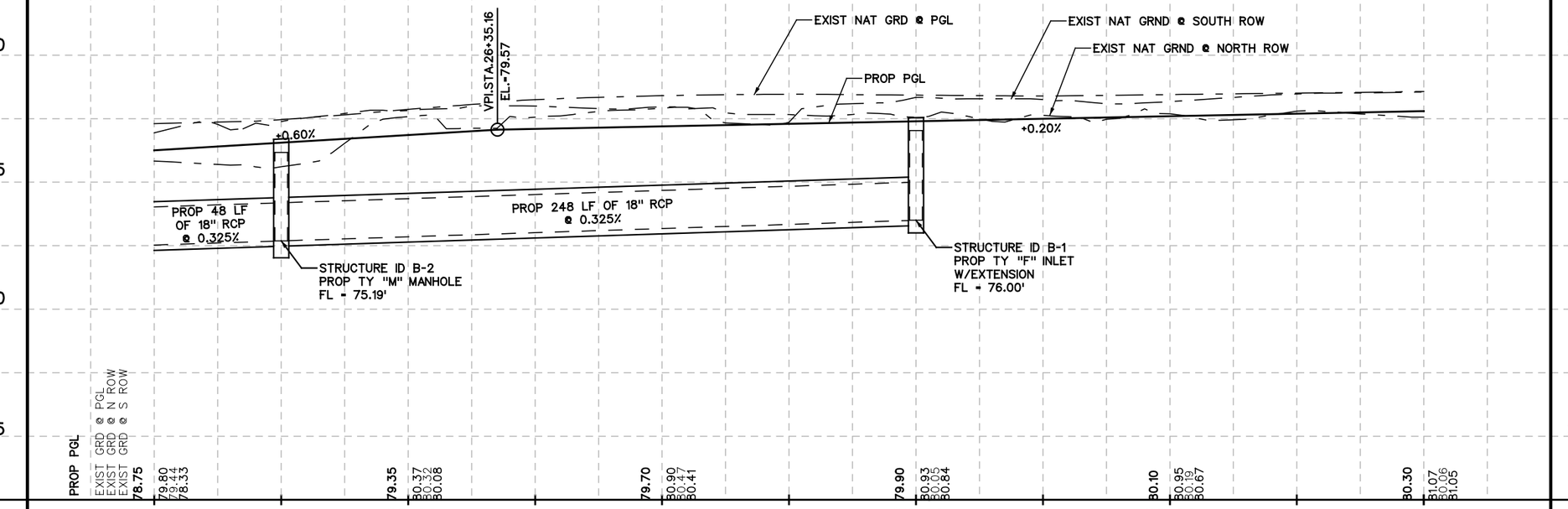
NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT — DATE 4/25/2014

STRUCTURE ID	DESCRIPTION	FOC STATION/OFFSET	TOC@FOC ELEVATION	FL OF STRUCT	PIPE(E) FL	PIPE(W) FL
B-1	MANHOLE TYPE M	• 25+50, 14.5' RT		75.19	75.19	75.19
B-2	INLET TYPE F W/EXT	28+00, 19.5' RT	77.54	76.00		76.00

• DISTANCE IS TO CENTER OF STRUCTURE, NOT FOC



CITY ON THE GROW — CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TEDSI
TBPE F-1640
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898

SUGARCANE RD

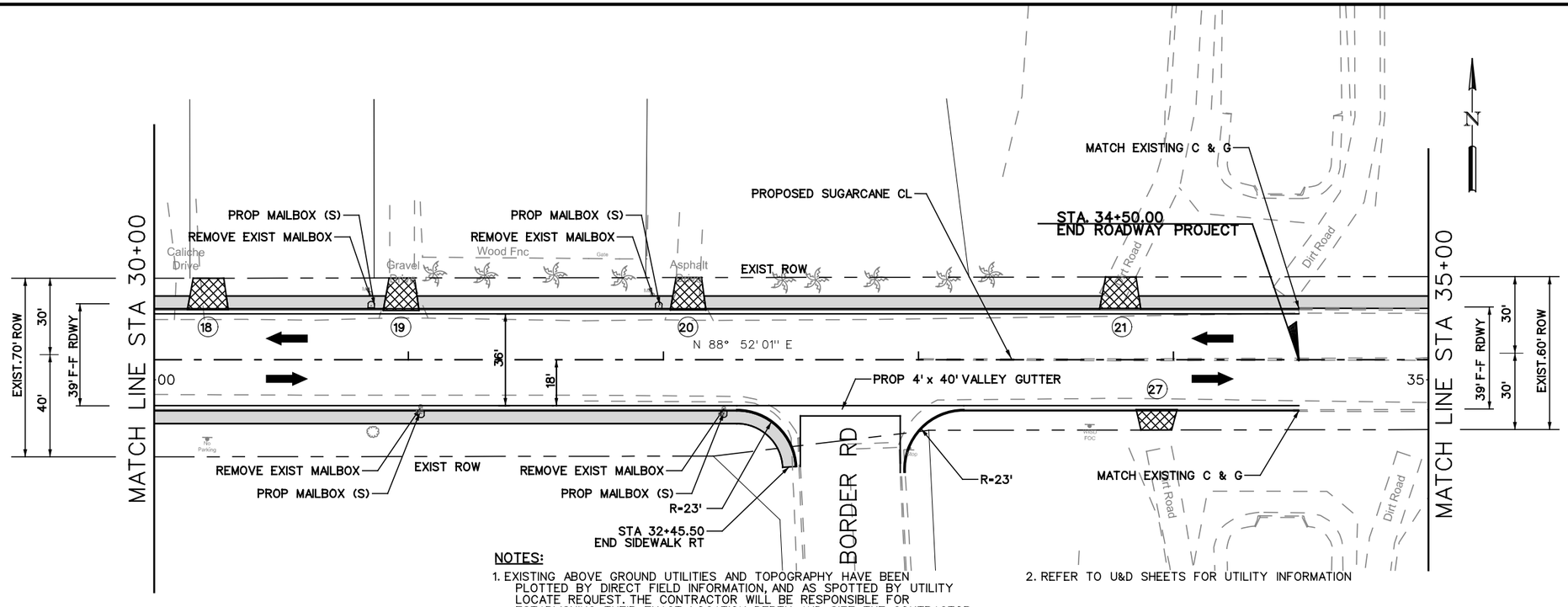
PLAN & PROFILE

STA 25+00 TO STA 30+00

SCALE :1"=50-H
1"=10'-V

SHEET 4 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			25
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGAR CANE DR.



LEGEND

- EXIST R.O.W.
- EXIST ROADWAY
- ASPHALT DRIVEWAY
- CONCRETE DRIVEWAY
- DRIVEWAY ID NUMBER
- PROP SIDEWALK
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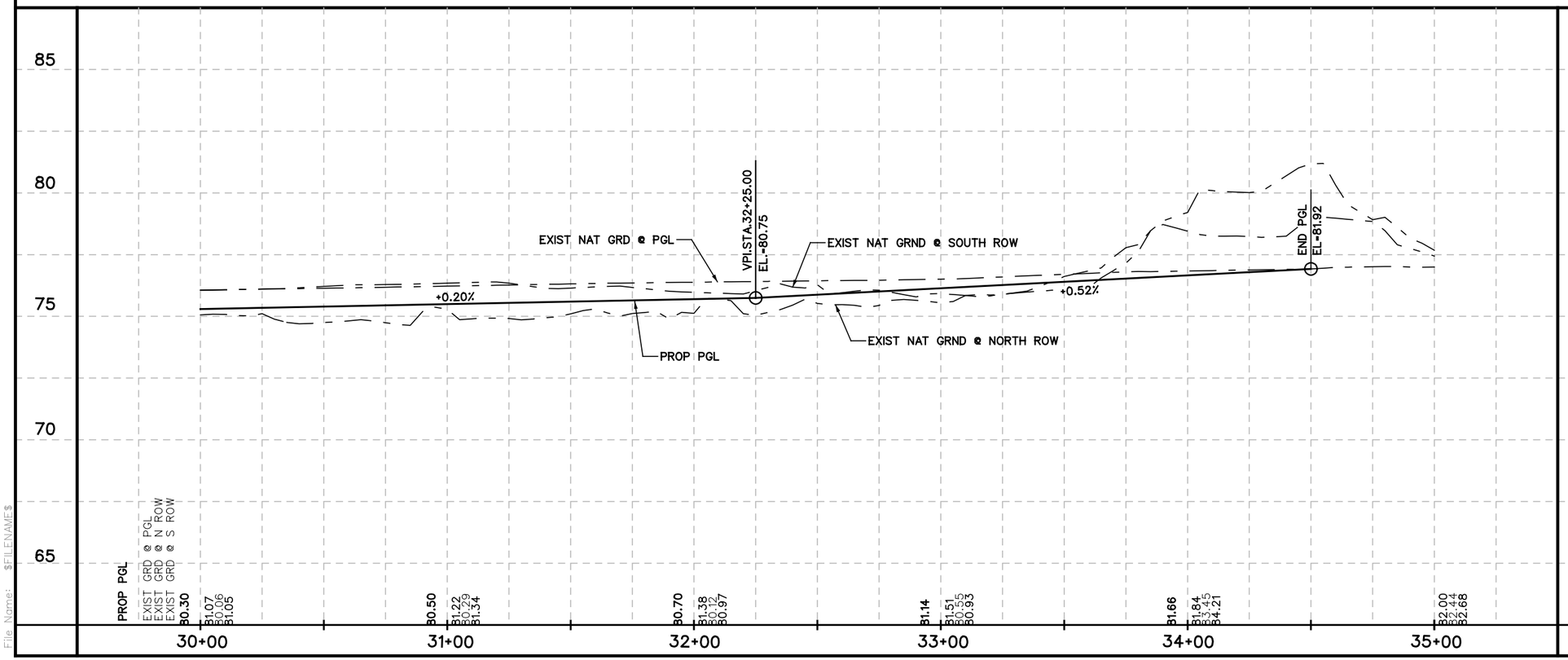

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
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CITY ON THE GROW
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Consulting Engineers
1201 E. Expressway 83
Mission, Texas 78572
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TBPE F-1640

SUGARCANE RD

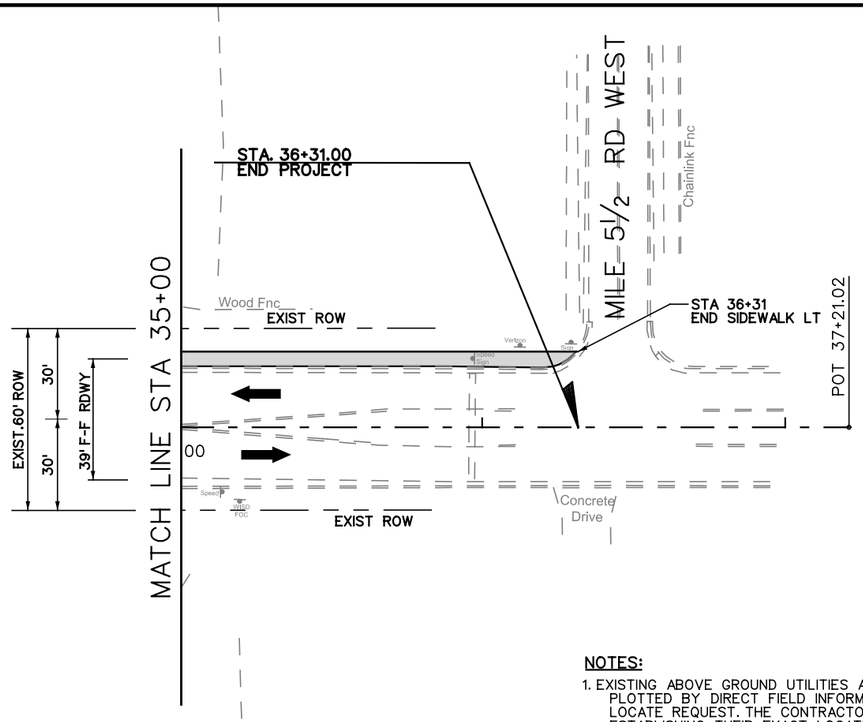
PLAN & PROFILE

STA 30+00 TO STA 35+00

SCALE :1"=50-H
1"=10'-V

SHEET 5 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			26
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGAR CANE DR.



LEGEND

- EXIST R.O.W.
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- DRIVEWAY ID NUMBER
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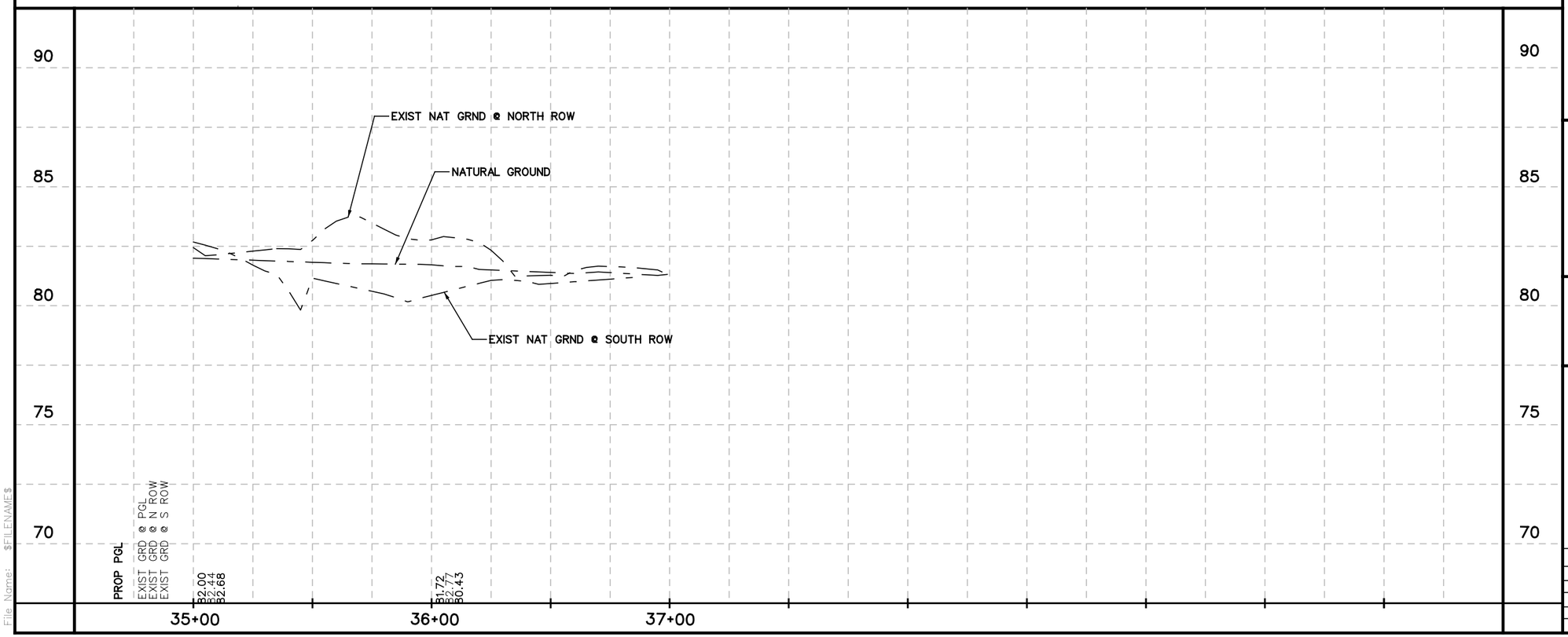

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
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CITY ON THE GROW
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1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898
TEDSI
TBPE F-1640

SUGARCANE RD

PLAN & PROFILE

STA 35+00 TO END

SCALE :1"=50-H
1"=10'-V

SHEET 6 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			27
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGAR CANE DR.

SUGARCANE							
ID	STATION	OFFSET	DRIVEWAYS PROP CONCRETE	DRIVEWAYS PROP ASPHALT	LENGTH @ R.O.W.	LENGTH @ EOP	LENGTH FROM FOC TO ROW
			SY	SY	LF	LF	LF
1	13+80	LT	36		27'	27'	10.5'
2	15+24	LT		26	20'	24'	10.5'
3	15+71	LT		25	19'	23'	10.5'
4	16+19	LT		25	19'	23'	10.5'
5	16+67	LT		25	19'	23'	10.5'
6	17+14	LT		26	19'	23'	11'
7	19+18	LT		28	24'	24'	10.5'
8	19+66	LT		28	24'	24'	10.5'
9	20+95	LT		21	16'	20'	10.5'
10	21+72	LT		21	16'	20'	10.5'
11	23+70	LT		34	27'	31'	10.5'
12	24+28	LT		30	23'	27'	10.5'
13	25+39	LT		26	20'	24'	10.5'
14	26+07	LT		76	27'	31'	24'
15	27+14	LT		24	11'	15'	17'
16	27+98	LT		23	11'	15'	16.5'
17	28+97	LT		20	12'	16'	12'
18	30+21	LT		20	12'	16'	12'
19	27+14	LT		17	10'	14'	12'
20	27+98	LT		17	10'	14'	12'
21	28+97	LT		20	12'	16'	12'
22	16+13	RT		22	22'	22'	20'
23	23+32	RT	24		28'	26'	10.5'
24	25+00	RT	28		32'	30'	10.5'
25	26+28	RT		24	20'	20'	11'
26	27+35	RT		48	26'	26'	20.5'
27	28+97	RT		13	12'	16'	8'
TOTAL			88	639			

DRIVEWAY NOTES:

REFER TO STANDARDS FOR DRIVEWAY DETAILS.

NO.	DATE	REVISION	APP.

STATE OF TEXAS
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REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT DATE 4/25/2014

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CITY OF WESLACO

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SUGARCANE RD

DRIVEWAY TABLE

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			28
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGAR CANE DR.

Date and Time Plotted: 4/25/2014 5:19:41 PM

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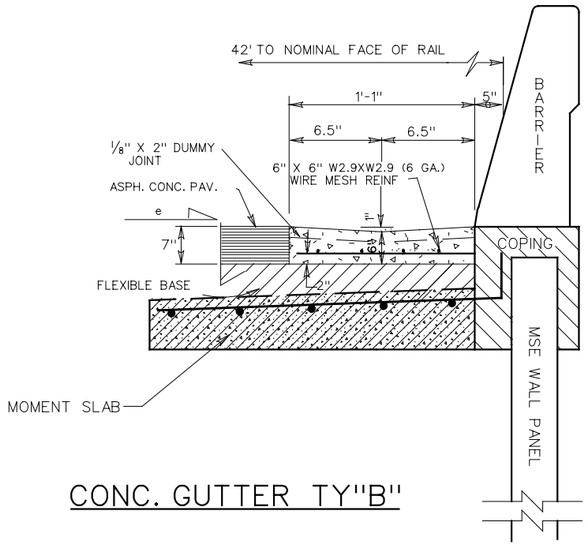
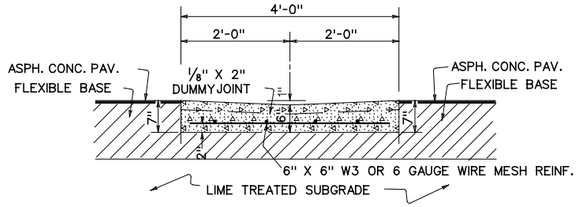
File Name: $FILENAME$

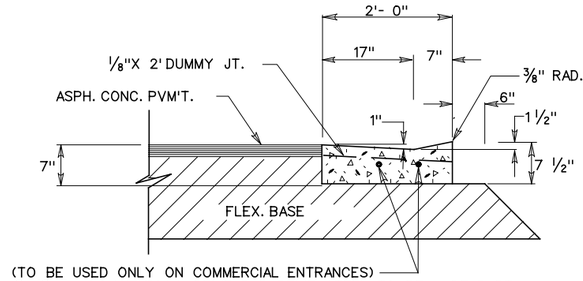


CONC. GUTTER TY"B"



4' CONC. VALLEY GUTTER (TY"A")

TO BE USED WHERE REQUIRED TO CARRY DRAINAGE WATER ACROSS SIDE STREETS



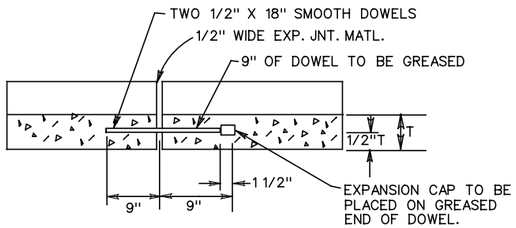
(TO BE USED ONLY ON COMMERCIAL ENTRANCES)
2-NO. 5 LONGITUDINAL REINF. BAR REINF. STEEL TO BE MADE PART OF ITEM "CONC. CURB & GUTTER." THE LENGTH OF REINFORCING STEEL WILL BE THE WIDTH OF THE PROP. COMMERCIAL ENTRANCE PLUS FOUR FEET.

CONC. GUTTER

NOTE:

CONCRETE GUTTER TO BE USED ONLY WHERE PERMITTED BY TEXAS DEPARTMENT OF TRANSPORTATION REGULATIONS FOR ACCESS DRIVEWAYS.

2' VALLEY GUTTER SHALL BE PAID FOR AS CONC. CURB AND GUTTER . CONCRETE CURB & GUTTER & CONCRETE CURB SHALL BE MEASURED FOR PAYMENT ALONG FACE OF CURB AT FLOW LINE.

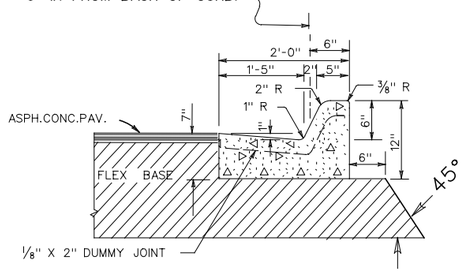


DETAIL EXPANSION JOINT

LONGITUDINAL SECTION THRU CURB AND/OR C&G. REINFORCING STEEL (WHEN USED) SHALL NOT CROSS EXPANSION JOINTS. STEEL SHALL BE TERMINATED 3" ± 1" FROM FACE OF THE JOINT.

1/2" PREMOLDED EXPANSION JOINT MATERIAL SHALL BE INSTALLED WHERE CONC. CURB & GUTTER ABUTS CONC. CURB, OR WHERE CONC. CURB & GUTTER OR CONC. CURB ABUT INLETS, BRIDGE WINGWALLS, BRIDGE ABUT-MENTS AND/OR ANY OTHER LOCATIONS SPECIFIED BY THE ENGINEER. MAX. SPACING = 105'

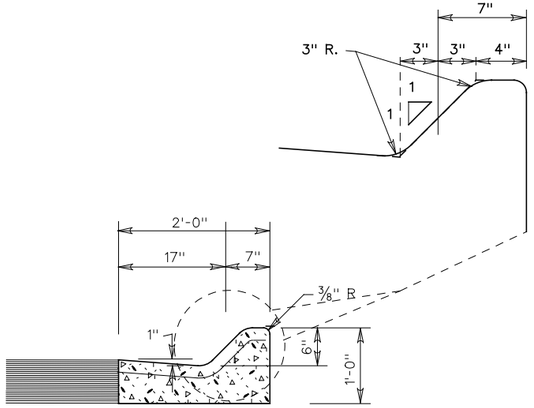
ALL HORIZONTAL DIMENSIONS AND RADII SHOWN ON PLANS, RELATING TO CURB & GUTTER, ARE TO A POINT 6" IN FROM BACK OF CURB.



CONC. CURB & GUTTER TY "A" (BARRIER)

NOTE:
EXPANSION JOINTS

1/2" PREMOLDED EXPANSION JOINT MATERIAL SHALL BE INSTALLED WHERE CONC. CURB & GUTTER ABUTS CONC. CURB, OR WHERE CONC. CURB & GUTTER OR CONC. CURB ABUT INLETS, BRIDGE WINGWALLS, BRIDGE ABUT-MENTS AND/OR ANY OTHER LOCATIONS SPECIFIED BY THE ENGINEER. MAX. SPACING = 105'

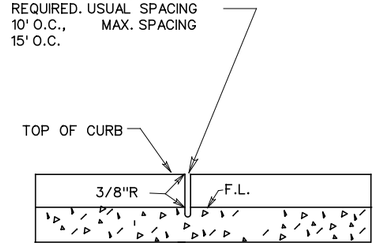


CONC. CURB & GUTTER TY. "B" (MOUNTABLE)

NOTE:
WHERE PROPOSED CURB & GUTTER IS TO BE CONNECTED TO EXIST. CURB & GUTTER IT SHOULD BE DONE AT THE EXIST. GUTTER FLOW LINE ELEVATION.

1/2" PREMOLDED EXPANSION JOINT MATERIAL SHALL BE INSTALLED WHERE CONC. CURB & GUTTER ABUTS CONC. CURB, OR WHERE CONC. CURB & GUTTER OR CONC. CURB ABUT INLETS, BRIDGE WINGWALLS, BRIDGE ABUT-MENTS AND/OR ANY OTHER LOCATIONS SPECIFIED BY THE ENGINEER. MAX. SPACING = 105'

JOINTS MAY BE FORMED WITH 1/8" METAL PLATES NO FILLER REQUIRED. USUAL SPACING 10' O.C., MAX. SPACING 15' O.C.



DETAIL DUMMY JOINT

NOTE:
DUMMY JOINTS TO BE USED ON CURB & CUTTER, CONC. MEDIAN AND ALL TYPE OF VALLEY GUTTERS JOINTS TO BE LOCATED BY THE ENGINEER.

PHARR DISTRICT STANDARD

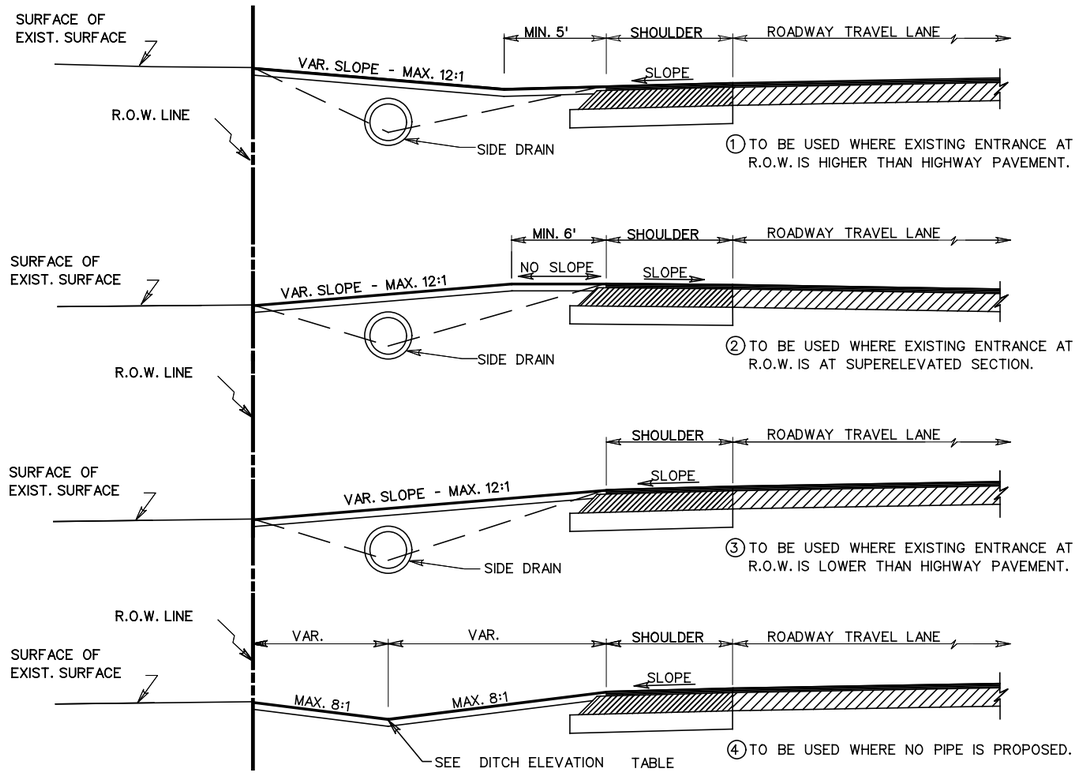
TEXAS DEPARTMENT OF TRANSPORTATION

CURB & GUTTER DETAILS

REV. 4/02

C&G.DGN

FED.RD. DIV.NO.	STATE AID PROJECT NO.			FILE NO.			SHEET NO.
6							29
STATE	STATE DIST.NO.	COUNTY	CONT.	SECT.	JOB		HIGHWAY NO.
TEXAS	21	HIDALGO					SUGARCANE DR



NOTES:

ALL ENTRANCES CONSTRUCTED ON THIS PROJECT ARE SUBJECT TO CONCURRENCE WITH EXISTING GOVERNING REGULATIONS AS SET OUT BY THE STATE HIGHWAY COMMISSION.

ENTRANCE'S BASE AND SURFACING MAY BE EXTENDED BEYOND R.O.W. LINE AS REQUIRED TO MEET EXISTING GRADE IN A SATISFACTORY MANNER OF WHICH NO STEEPER THAN 12:1 SLOPE WILL BE CONSTRUCTED.

ALL FLEXIBLE BASE USED FOR PRIVATE DRIVES & COMMERCIAL DRIVES WILL NOT REQUIRE LIME TREATMENT.

EXACT LOCATIONS, DIMENSIONS, AND TYPE TO BE ESTABLISHED DURING CONSTRUCTION BY THE ENGINEER.

PROP. WIDTH OF DRIVEWAYS TO MATCH EXISTING WIDTH AT R.O.W. LINE.

114 #/SY ACP (COMPACTED) IS EQUAL TO 1 IN. DEPTH
171 #/SY ACP (COMPACTED) IS EQUAL TO 1½IN. DEPTH.

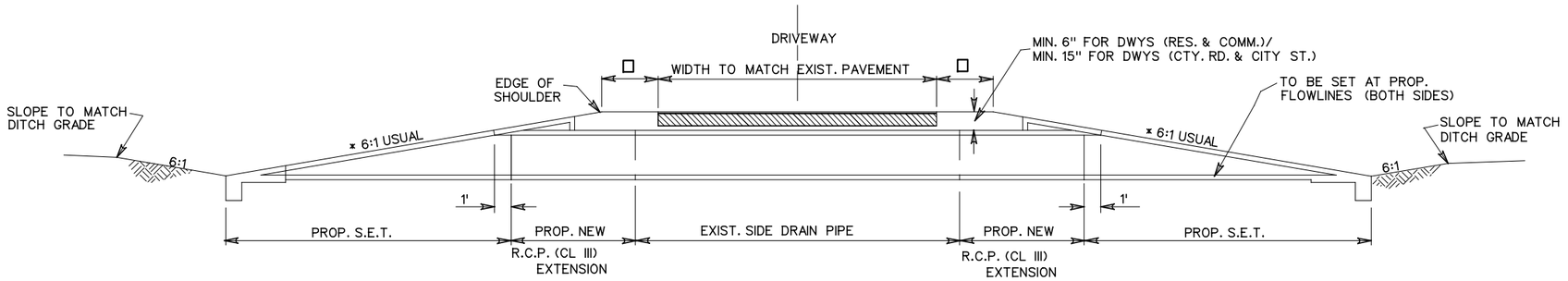
SIDE DRAINS TO BE INSTALLED WHERE ROADWAY DITCH DRAINAGE IS NECESSARY, AS INDICATED ON PLANS AND/OR AS DIRECTED BY THE ENGINEER.

SIDE DRAINS TO BE INSTALLED WITH A MINIMUM OF 6" COVER BY PROPOSED RESIDENTIAL & COMMERCIAL MATERIAL OR 15" COVER OF PROPOSED COUNTY RD. & CITY STREET ROADWAY MATERIAL.

AVERAGE DIMENSIONS SHOWN ON TABLE OF DRIVEWAYS ARE FOR ESTIMATING PURPOSES ONLY.

THE RATE OF PRIME SHALL BE 0.10 GAL/SY FOR PRIVATE AND/OR COMMERCIAL DRIVEWAYS AND 0.20 GAL/SY FOR PUBLIC DRIVEWAYS.

TYPICAL ENTRANCE PROFILE FOR DRIVEWAYS W/OUT C&G



□ - 1' MIN. ON DRIVEWAYS (RES. & COMM.)
2' MIN. ON DRIVEWAYS (COUNTY RD. & CITY ST.)

* - 6:1 SLOPE USUAL
UNLESS OTHERWISE NOTED ON PLANS

PHARR DISTRICT STANDARD

TEXAS DEPARTMENT OF TRANSPORTATION

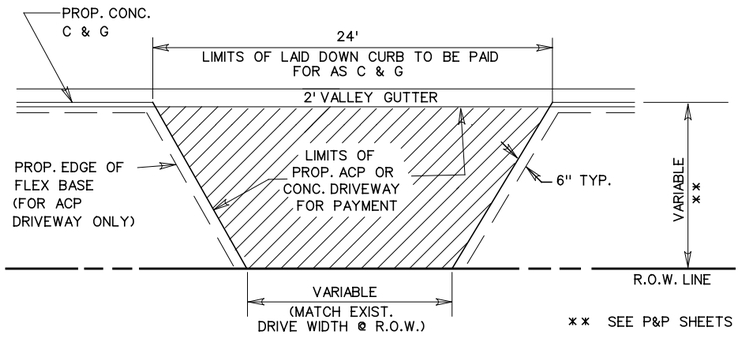
DRIVEWAY PROFILE DETAILS

REV. 4/05

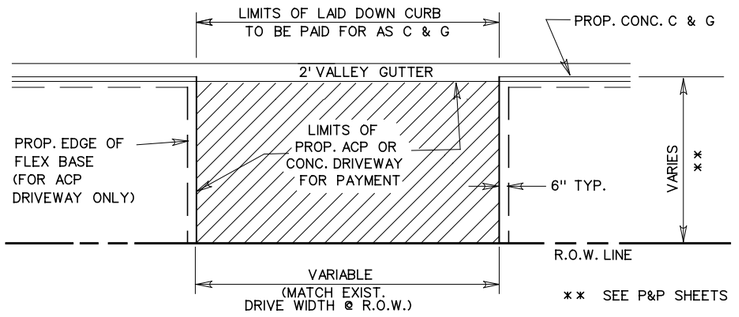
DRIVEWAY1.DGN

FED.RD. DIV.NO.	STATE AID PROJECT NO.		FILE NO.			SHEET NO.
6						30
STATE	STATE DIST.NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	PHR	HIDALGO				SUGARCANE DR

PRIVATE AND COMMERCIAL DRIVES WITH CURB & GUTTER



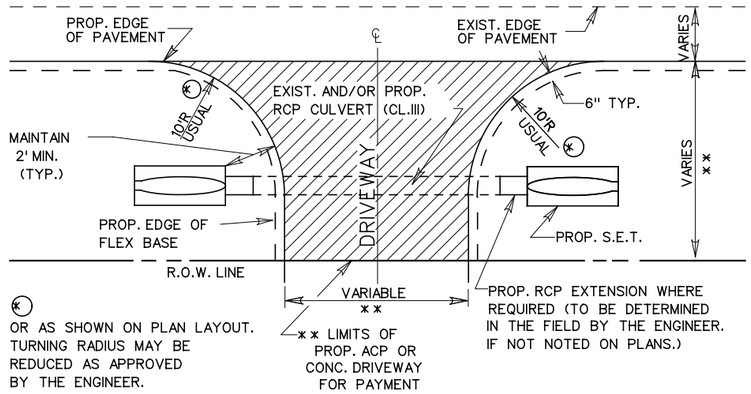
PLAN OF PRIVATE AND COMMERCIAL DRIVES
(W/DRIVEWAY WIDTH LESS THAN 24')



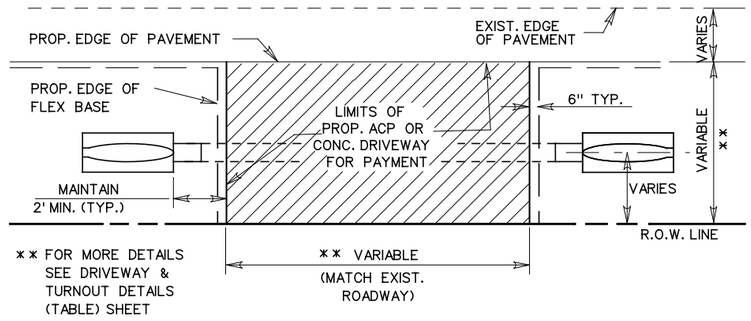
PLAN OF PRIVATE AND COMMERCIAL DRIVES
(W/DRIVEWAY WIDTH EQUAL TO OR GREATER THAN 24' @ R.O.W. LINE)

N.T.S.

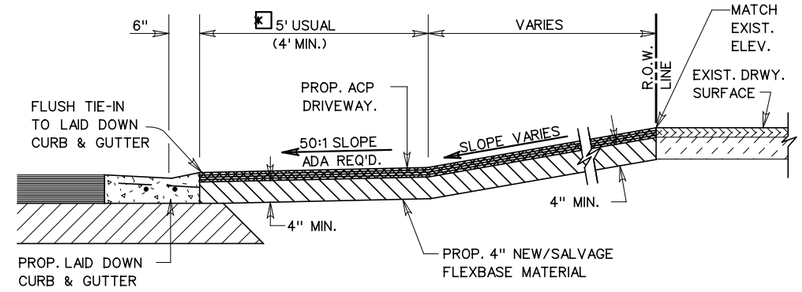
PRIVATE AND COMMERCIAL DRIVES WITHOUT CURB & GUTTER



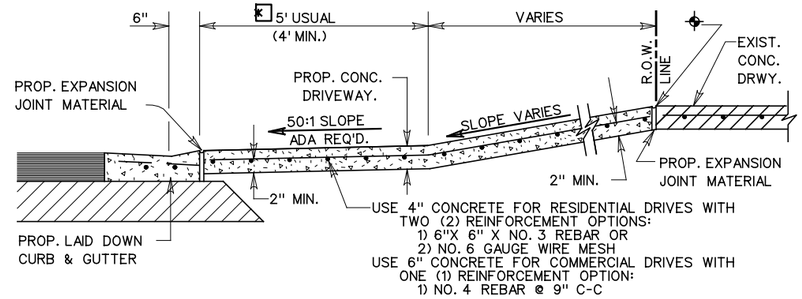
PLAN OF PRIVATE AND COMMERCIAL DRIVES
(W/DRIVEWAY WIDTH LESS THAN 24')



PLAN OF PRIVATE AND COMMERCIAL DRIVES
(W/DRIVEWAY WIDTH EQUAL TO OR GREATER THAN 24' @ R.O.W. LINE)



TYPICAL ASPH. CONC. PVM'T. DRIVEWAY SECTION
N.T.S.

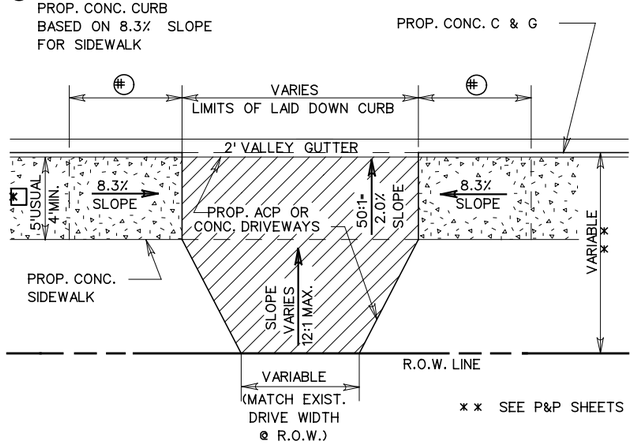


TYPICAL CONCRETE DRIVEWAY SECTION
N.T.S.

CONC. SHALL BE SAW CUT TO THE LIMITS OF REMOVAL WHERE APPLICABLE.

PROP./FUTURE SIDEWALK CROSSING LOCATION UNLESS SHOWN ELSEWHERE ON P&P SHEETS. SEE P&P SHEETS FOR PROP. SIDEWALK LOCATION IF SIDEWALKS ARE INCLUDED AS PART OF PROJECT. REFER TO STATE STANDARDS - PEDESTRIAN FACILITIES - FOR ADDITIONAL REQUIREMENTS.

LIMITS OF SLOPE FOR PROP. CONC. CURB BASED ON 8.3% SLOPE FOR SIDEWALK

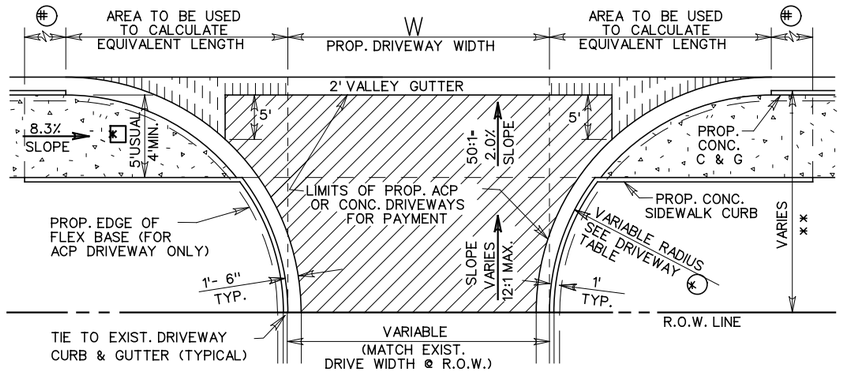


PLAN OF PRIVATE AND COMMERCIAL DRIVES WITH ADA REQ'D CROSS SLOPE FOR SIDEWALK

PROP./FUTURE CONC. SIDEWALK LOCATION UNLESS SHOWN ELSEWHERE ON P&P SHEETS. REFER TO STATE STANDARDS - PEDESTRIAN FACILITIES - FOR ADDITIONAL REQUIREMENTS.

N.T.S.

PRIVATE AND COMMERCIAL DRIVES WITH CURB & GUTTER



PLAN OF PRIVATE AND COMMERCIAL DRIVES
SEE P&P SHEETS FOR LOCATIONS OF DRIVES
N.T.S.

PROP./FUTURE CONC. SIDEWALK LOCATION UNLESS SHOWN ELSEWHERE ON P&P SHEETS. REFER TO STATE STANDARDS - PEDESTRIAN FACILITIES - FOR ADDITIONAL REQUIREMENTS.

LIMITS OF SLOPE FOR PROP. CONC. CURB BASED ON 8.3% SLOPE FOR SIDEWALK

LF EQUIVALENT TABLE FOR PAYMENT LIMITS OF 2' VALLEY GUTTER

LF OF VALLEY GUTTER= W + X1 + X2	
WHERE X1 AND X2 MAY VARY DEPENDING ON RADIUS	
Prop. Driveway Radius	X1 or X2 (Sq Ft Area / 2') Equivalent LF Length
5'	1
8'	2
10'	4
12'	6
15'	9
18'	12
20'	15
22'	18
25'	24
28'	30
30'	34

SEE DRIVEWAY TABLE FOR LIMITS OF LAID DOWN CURB TO BE PAID FOR AS CURB AND GUTTER

DRIVEWAY TYPES

TY PB-1
EXIST. PRIVATE OR COMMERCIAL DRIVEWAYS TO BE CONSTRUCTED AS SHOWN WITH 4" NEW AND/OR SALVAGE FLEX. BASE, PRIMED AND SURFACED WITH \ 114#/SY ACP.

CONCRETE (RESIDENTIAL)
EXIST. PRIVATE DRIVEWAYS TO BE CONSTRUCTED AS SHOWN WITH 4" CONCRETE. TO BE PAID FOR BY THE SQ.YD.

CONCRETE (COMMERCIAL)
EXIST. BUSINESS DRIVEWAYS TO BE CONSTRUCTED AS SHOWN WITH 6" CONCRETE. TO BE PAID FOR BY THE SQ.YD.

PHARR DISTRICT STANDARD

TEXAS DEPARTMENT OF TRANSPORTATION

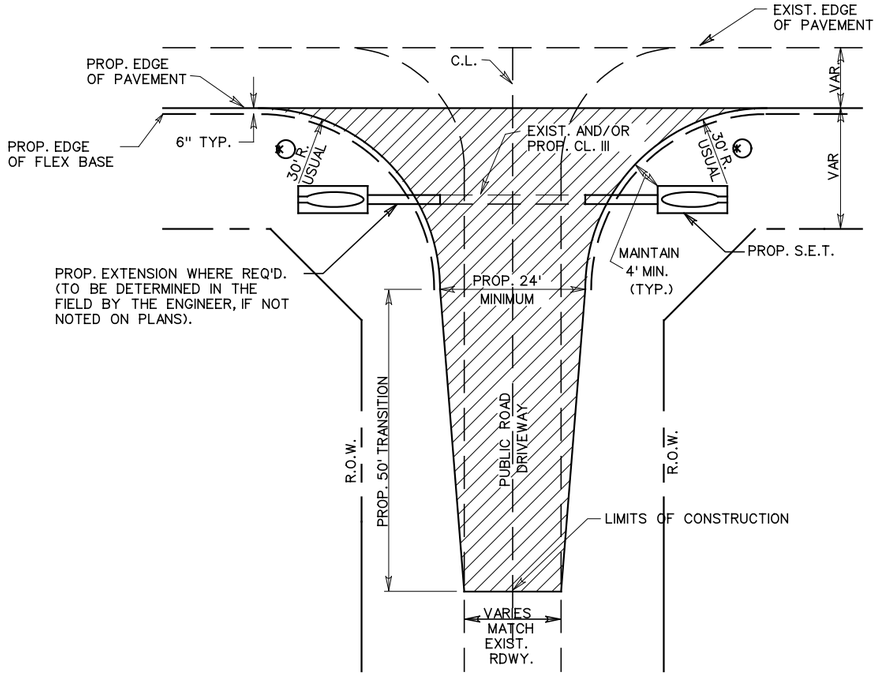
DRIVEWAY DETAILS PRIVATE (RESIDENTIAL-COMMERCIAL)

REV. 11/10

DRIVEWAY2.DGN

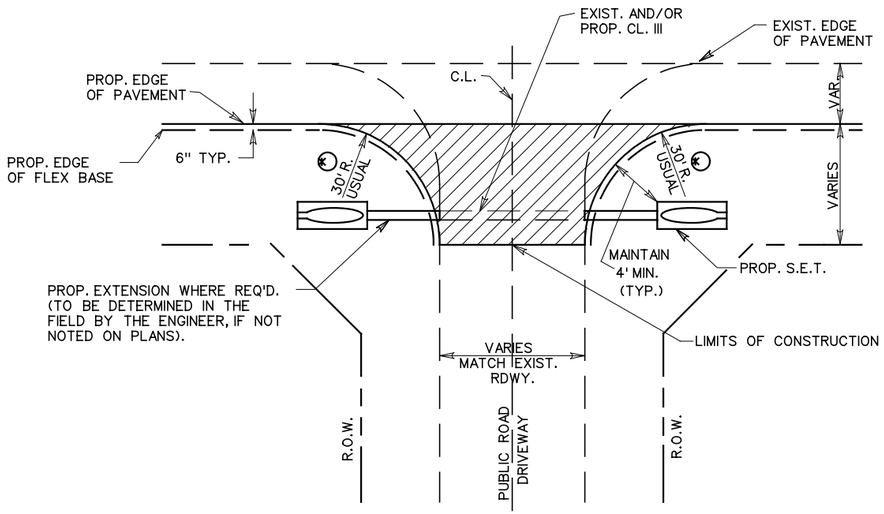
FED.RD. DIV.NO.	PROJECT NO.		FILE NO.				SHEET NO.
6							31
STATE	STATE DIST.NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.	
TEXAS	PHR	HIDALGO				SUGARCANE DR.	

AD-76-0



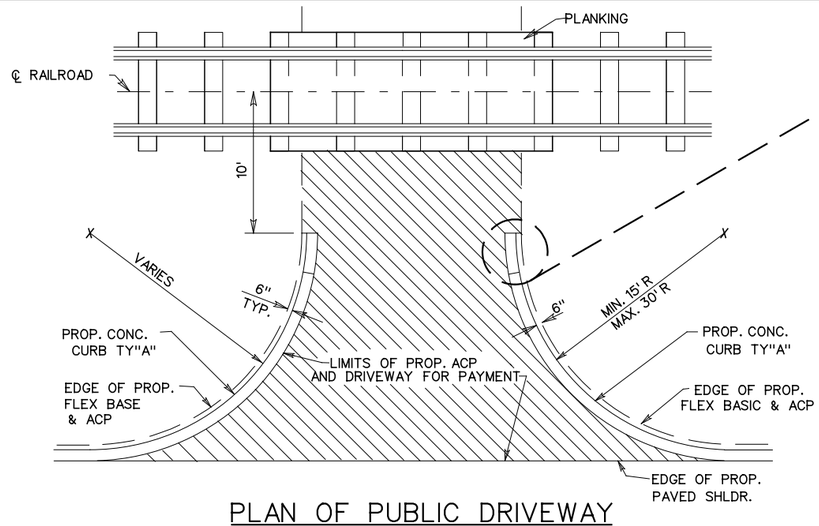
TYPICAL DETAIL

(WHEN EXIST. ROADWAY WIDTH LESS THAN 24'.)

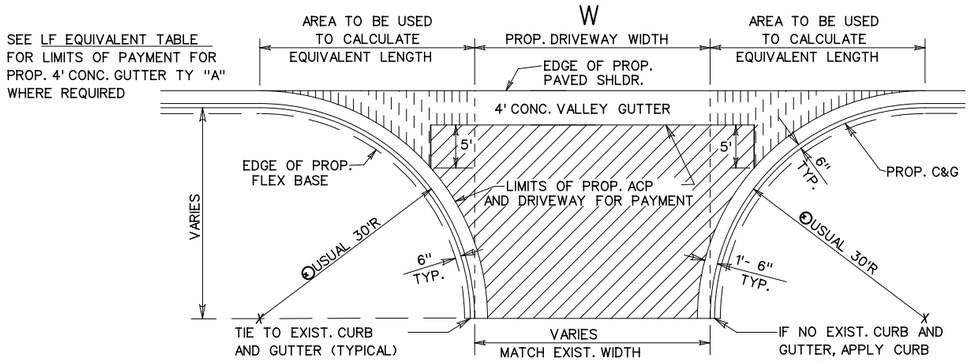


TYPICAL DETAIL

(WHEN EXIST. ROADWAY WIDTH EQUAL TO OR GREATER THAN 24'.)



PLAN OF PUBLIC DRIVEWAY ADJACENT TO R.R. CROSSING



PLAN OF PUBLIC DRIVEWAY

TY P

EXIST. PAVED DRIVEWAYS TO BE SURFACED W/171#/SY ACP.

TY PRB1

EXIST. PAVED, CALICHE AND/OR GRAVEL DRIVEWAYS TO BE SCARIFIED AND RECONTRUCTED WITH 4" NEW FLEX. BASE W/1% LIME TO MATCH THE PROPOSED WIDENED SECTION, THEN PRIMED AND SURFACED WITH 171#/SY ACP

TY PBS1

EXIST. UNPAVED PUBLIC DRIVEWAYS TO BE CONSTRUCTED AS SHOWN WITH 12" LIME TREAT. SUBGRADE, 8" FLEX. BASE 1% LIME, THEN PRIMED AND SURFACED WITH 171#/SY ACP.

TY PBS2

EXIST. DRIVEWAY TO BE CONSTRUCTED SAME AS ROADWAY.

LF EQUIVALENT TABLE FOR PAYMENT LIMITS OF 4'CONC. GUTTER TY."A"

LF OF VALLEY GUTTER= W + X1 + X2

WHERE X1 AND X2 MAY VARY DEPENDING ON RADIUS

Prop. Driveway Radius	X1 or X2 (Sq Ft Area / 4') Equivalent LF Length
10	3
15	7
20	12
25	19
30	27
35	37
40	48
45	61
50	75
55	91
60	109
65	127
70	148
75	170

GENERAL NOTES:

AVERAGE DIMENSIONS SHOWN ON TABLE OF DRIVEWAYS ARE FOR ESTIMATING PURPOSES ONLY.

LOCATIONS LISTED ON THE TABLE ARE APPROXIMATE, EXACT LOCATIONS, DIMENSIONS, AND TYPE TO BE ESTABLISHED DURING CONSTRUCTION BY THE ENGINEER AS REQUIRED.

(E) SEE DRIVEWAY TABLE, TURNING RADIUS MAY BE REDUCED AS APPROVED BY THE ENGINEER.

SEE TABLE OF DRIVEWAYS FOR TOTAL LENGTH OF PROP. 4' CONC. VALLEY GUTTER FOR EACH LOCATION.

PHARR DISTRICT STANDARD

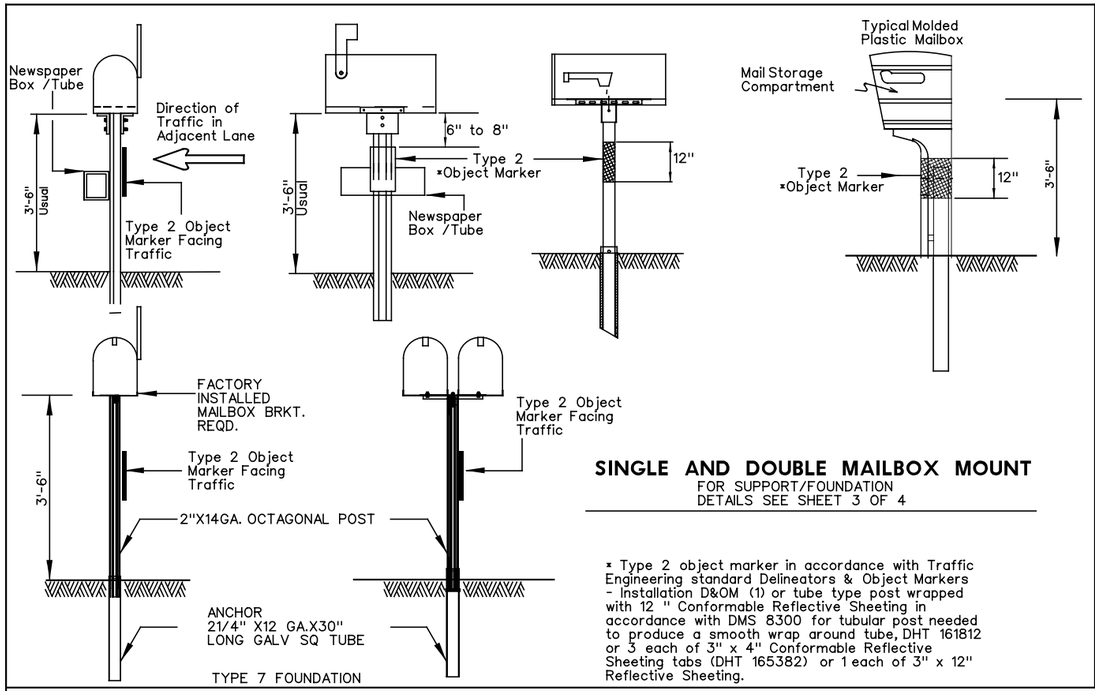
TEXAS DEPARTMENT OF TRANSPORTATION

DRIVEWAY DETAILS PUBLIC (COUNTY ROAD-CITY STREET)

REV. 4/05

DRIVEWAY3.DGN

FED.RD. DIV.NO.	STATE AID PROJECT NO.			FILE NO.			SHEET NO.
6							32
STATE	STATE DIST.NO.	COUNTY		CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21	HIDALGO					SUGARCANE DR

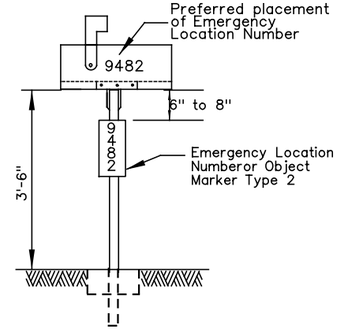


SINGLE AND DOUBLE MAILBOX MOUNT

FOR SUPPORT/FOUNDATION DETAILS SEE SHEET 3 OF 4

* Type 2 object marker in accordance with Traffic Engineering standard Delineators & Object Markers - Installation D&OM (1) or tube type post wrapped with 12 " Conformable Reflective Sheeting in accordance with DMS 8300 for tubular post needed to produce a smooth wrap around tube, DHT 161812 or 3 each of 3" x 4" Conformable Reflective Sheeting tabs (DHT 165382) or 1 each of 3" x 12" Reflective Sheeting.

Note: Mailbox installations in sidewalk areas shall be in accordance with the Design Division standard PED-05 for pedestrian facilities.



PLACEMENT OF EMERGENCY LOCATION NUMBER

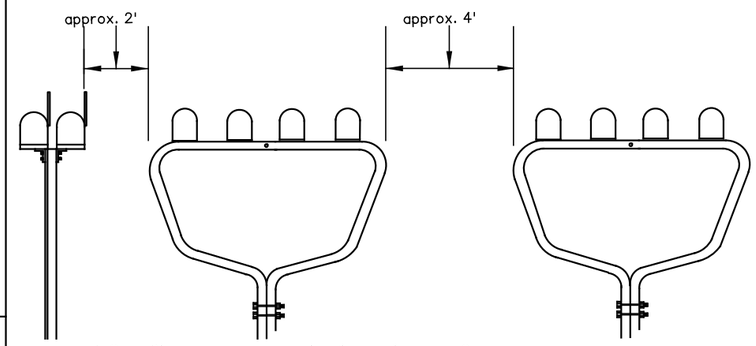
Location Number shall be placed on: 1. A yellow, type A plate with class 1 flat surface reflective sheeting in accordance with DMS 8600. The color of numbers shall be black. or 2: A green or blue plate with white numbers attached to post beside the object marker. Other contrasting color configuration, as approved , may be used. (Use Same type plate as used for the type 2 Object Marker. Recommended sign size is 6" by 15")

Mailboxes shall be made of light weight sheet metal or light weight plastic. Heavy steel, cast iron or decorative mailboxes shall not be used on the state highway system.

TYPICAL MAILBOX SIZE				LIGHT WEIGHT MATERIAL	
				SHEET METAL	**PLASTIC
	LENGTH	WIDTH	HEIGHT	MAXIMUM WEIGHT	
SIZE	INCHES			POUNDS	
SMALL	19 1/2	6	7	5	5
MEDIUM	22 1/2	8	11 1/2	7	7
LARGE	23 1/2*	11 1/2*	13 1/2*	10	10

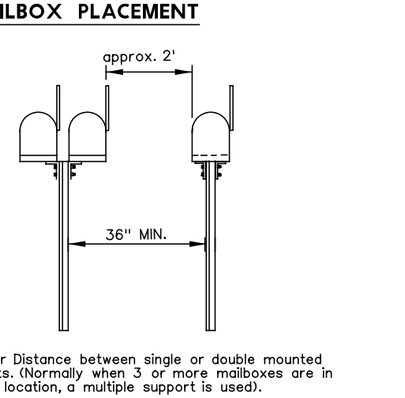
* Maximum allowed dimensions for mailbox
** Excluding Molded Plastic on 4 X 4 Post

MAILBOX SIZES



4' Clear Distance between multiple installations and 2' clearance between double or single installations and the multiple installation. DHT *'s 164116 or 149339.

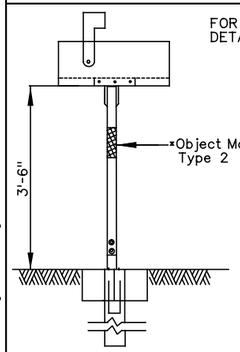
MULTIPLE MAILBOX PLACEMENT

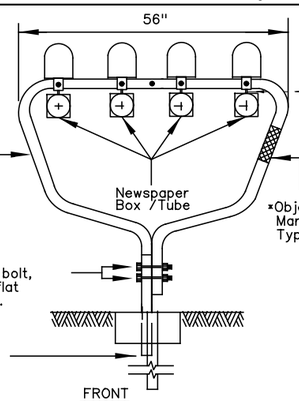


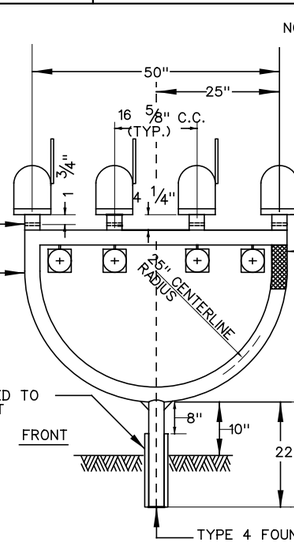
Clear Distance between single or double mounted posts. (Normally when 3 or more mailboxes are in one location, a multiple support is used).

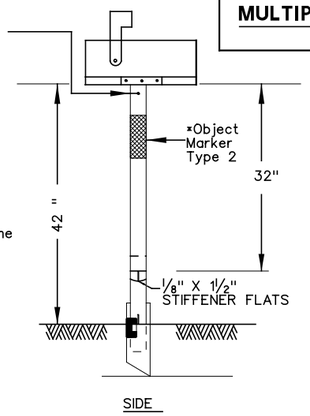
SINGLE & DOUBLE MAILBOX PLACEMENT

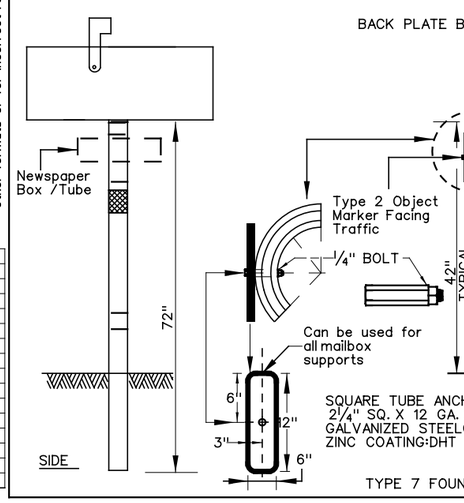
FOR SUPPORT/FOUNDATION DETAILS SEE SHEET 3 OF 4











DOUBLE AND MULTIPLE MAILBOX MOUNT

FOR SUPPORT/FOUNDATION DETAILS SEE SHEET 3 OF 4

NEWSPAPER RECEPTACLE

A light weight receptacle for newspaper delivery can be attached to mailbox posts as shown on this page if the receptacle:

- Does not touch the mailbox.
- Does not present a hazard to traffic or delivery of the mail.
- Does not extend beyond the front of the mailbox.
- Does not display advertising, except the publication title.
- Newspaper receptacles on separate supports are prohibited.

MULTIPLE MAILBOX MOUNT

INDEX OF MAILBOX DETAIL SHEETS

Note on DHT Number

See Table of Applicable DHT Numbers on sheet 4 of 4 for DHT description.

REVISIONS
04/03/06: Added New Multiply Mount, DHT: 164116.
04/03/06: Added general note numbers 6 & 7. Sheet & title block renumbered.
08/02/06: Added Maximum weight for typical mailbox sizes.
10/9/2009 Added new mailbox post
10/19/2009 Added sheet 4 of 4
01/07/2011 Added note disallowing newspaper receptacle separate support
01/07/2009:Added pedestrian facilities stds note.
07/07/2011: Revised note to allow more color options for emergency location number. Included type 2 object marker attachment details for the wrap around and tube type.

Standard Plans

Texas Department of Transportation

Maintenance Division

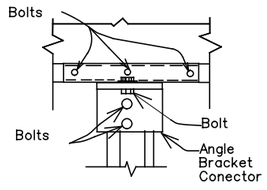
MAILBOX MOUNTING AND SPACING

MB-11(1)

Sheet 1 of 4

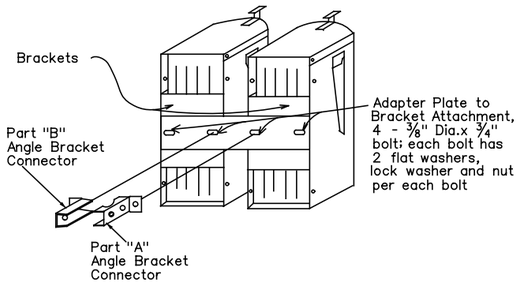
FILE: MB10(1).DGN	DN: JEO	CK: LJB	DW: JEO	CK: RDB	NEG:	
©TxDOT JANUARY 2011	DIST	FED REG	FEDERAL AID PROJECT			SHEET
		6				33
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	HIDALGO					SUGARCANE DR

LEVELS DISPLAYED
1 2



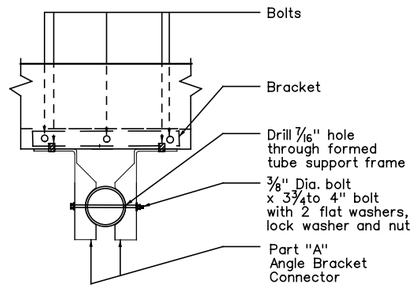
For bolt sizes see details below for "SMALL MAILBOX" and "MEDIUM AND LARGE MAILBOXES"

SINGLE MAILBOX CONNECTION

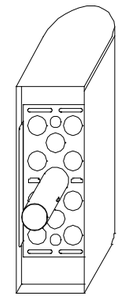


DOUBLE MAILBOX CONNECTION

(Not permitted for Large Mailboxes)

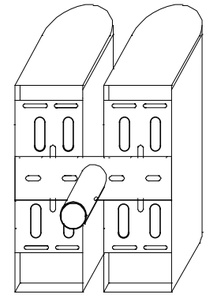


MULTIPLE MAILBOX CONNECTION



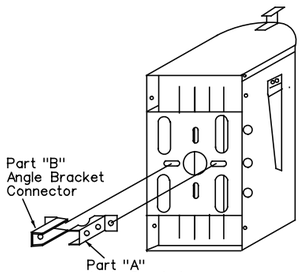
WELDED SINGLE MAILBOX BRACKET CONNECTION

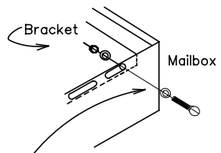
To be used with 2 3/8" OD RR or thinwall Steel posts.



WELDED DOUBLE MAILBOX BRACKET CONNECTION WITH ADAPTER PLATE

To be used with thinwall Steel posts. Not to be used with RR posts.



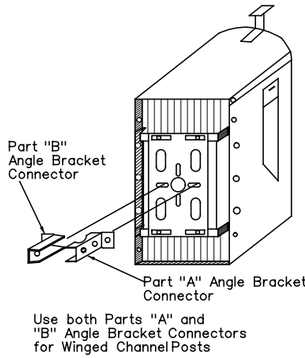


Bracket to mailbox attachment: 6 - 1/4" Dia. x 3/4" bolt w/ 2 flat washers and nut per each bolt.

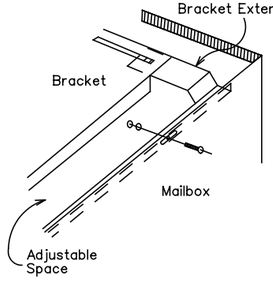
Angle to bracket attachment: 2 - 3/8" Dia. x 3/4" bolt with 2 flat washers, lock washer and nut per each bolt.

Angle to 2 - 3/8" Dia. x 2 1/2" bolt with 2 flat washers, lock washer and nut per each bolt.

SMALL MAILBOX



Use both Parts "A" and "B" Angle Bracket Connectors for Winged Channel Posts



Bracket to mailbox attachment: 6 - 1/4" Dia. x 3/4" bolt w/2 flat washers and nut per each bolt.

Bracket to bracket extension attachment: 2 - 1/4" Dia. x 3/4" carriage bolt w/ flat washer, lock washer and nut per bolt (4 bolts required if 2 bracket extensions are used).

Angle to bracket attachment: 2 - 3/8" Dia. x 3/4" bolt w/2 flat washers, lock washer and nut per each bolt.

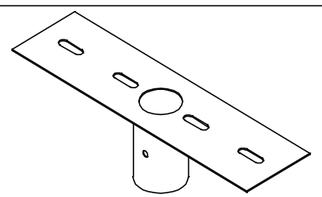
Angle to mailbox support attachment: 2 - 3/8" Dia. x 2 1/2" bolt w/2 flat washers, lock washer, and nut per each bolt.

Medium size mailboxes - one extension bracket
Large size mailboxes - two extension brackets

MEDIUM AND LARGE MAILBOXES

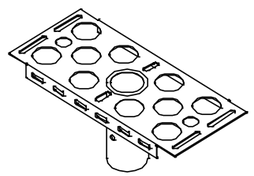
GENERAL NOTES

1. Connecting hardware detailed on this sheet is for the hardware that the Department stocks at the Regional Warehouses. This hardware is available to the contractor only when so stated elsewhere in the plans or specification.
2. Hardware for mounting mailboxes to the support/foundation furnished by industry should be used when shown on the Maintenance Divisions "Approved Products List." Only mailbox hardware that have been crash tested in accordance with NCHRP Report 350, will be on the approved list.
3. Hardware furnished by industry shall be erected in accordance with the manufacturer's recommendation.
4. Bracket and bracket extension shall be constructed of 14 gauge galvanized steel sheet metal.
5. The angles, brackets and adapter plates shall be constructed of 12 gauge galvanized steel sheet metal.
6. Items with evidence of damage to the galvanized coating or wet storage stains (white rust) will not be accepted.



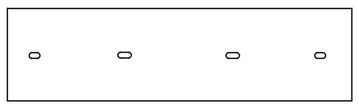
DHT 162323

For use with galvanized thinwall steel posts DHT • 143426 or powder-coated thinwall steel post DHT • 162911.



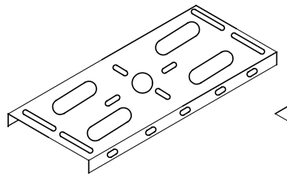
DHT 161443

For use with RCR post DHT • 161442 or galvanized thinwall steel post DHT • 143426 or powder-coated thinwall steel post. DHT • 162911.



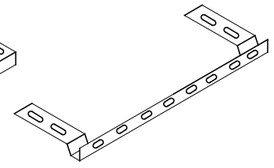
DHT #3789

Used for mounting two Mailboxes on the same post.



DHT 148939

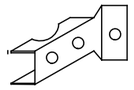
Mailbox Bracket



DHT 148938

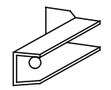
Used for extending 6" wide bracket to attach larger mailboxes.

Bracket Extension



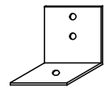
DHT 159489

Part "A" Angle Bracket Connector



DHT 159490

Part "B" Angle Bracket Connector

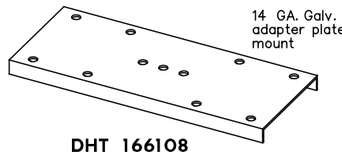


DHT 2917

Angle Bracket For Temporary Mailbox

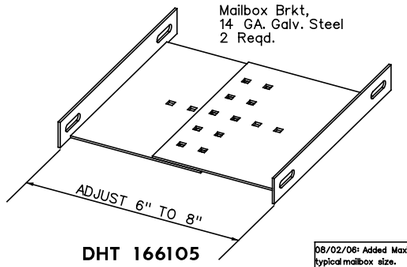
Note on DHT Number

See Table of Applicable DHT Numbers on sheet 4 of 4 for DHT description and unit of measure.



14 GA. Galv. Steel adapter plate for double mount

DHT 166108



DHT 166105

HARDWARE AT TXDOT REGIONAL WAREHOUSES

Brackets and adapter plate shown in this section should be available to the Contractor when stated elsewhere in plans or specifications.

08/02/06: Added Maximum weight for typical mailbox size.
10/08/2009:Added Accessibility stds note
10/9/2009 Added new mailboxpost

Standard Plans

Texas Department of Transportation

Maintenance Division

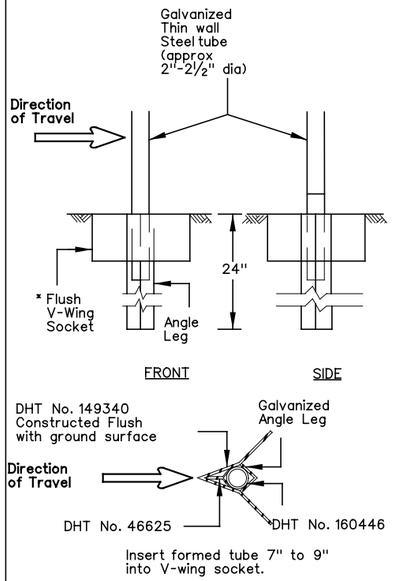
MAILBOX BRACKET CONNECTING DETAILS

MB-11(1)

Sheet 2 of 4

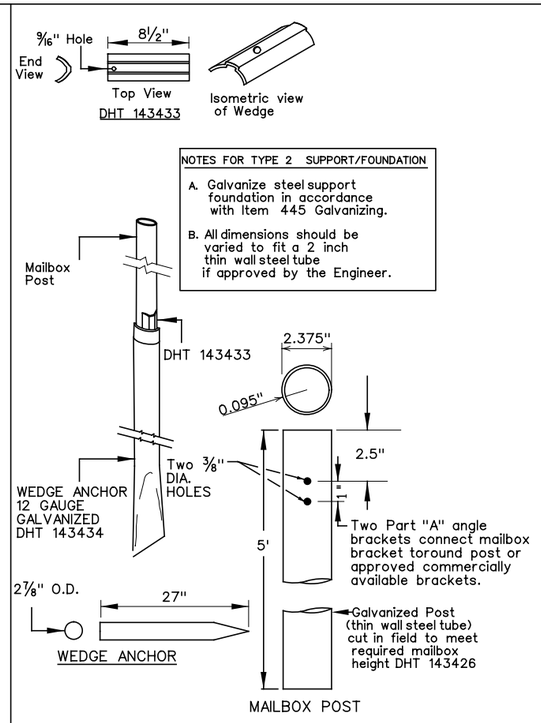
FILE: MB10(1).DGN	DN: JEO	CK: LJB	DW:	CK: RDB	NEG:	
© TxDOT JANUARY 2011	DIST	FED REG	FEDERAL AID PROJECT			SHEET
REVISIONS 02/02/05 06/08/05: Added general note numbers 6 & 7. Sheet & title block renumbered.11/14/05:Deleted sheet4. 10/28/2009 added sheet 4		6				34
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	HIDALGO					SUGARCANE DR

LEVELS DISPLAYED
1 2



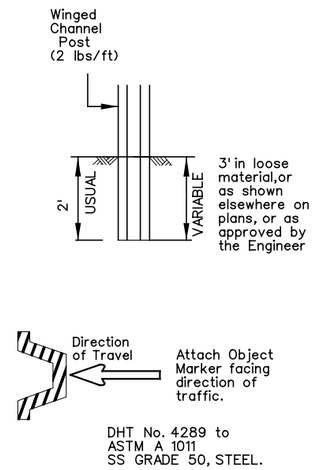
TYPE 1 SUPPORT/FOUNDATION

THIN WALL STEEL TUBE w/ V-LOC ANCHORAGE



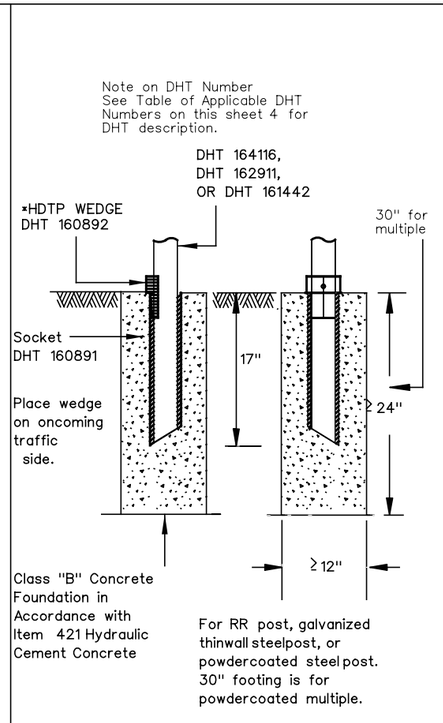
TYPE 2 SUPPORT/FOUNDATION

THIN WALL STEEL TUBE w/ WEDGE ANCHOR SYSTEM



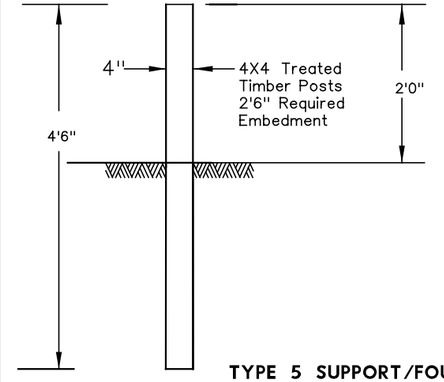
TYPE 3 SUPPORT/FOUNDATION

WINGED CHANNEL POST



TYPE 4 SUPPORT/FOUNDATION

FOR WHITECOATED STEEL POST, MULTIPLE POST, AND RECYCLED RUBBER.

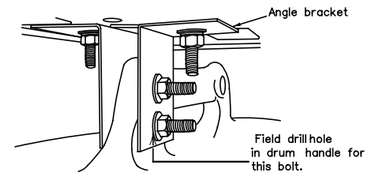


TYPE 5 SUPPORT/FOUNDATION

FOR ONE PIECE MOLDED PLASTIC MAILBOX

ONE PIECE MOLDED PLASTIC MAILBOXES

Molded Plastic Mailboxes shall be installed on 4"x4" treated timber posts only. The use of steel pipe or structural tubing in place of timber post is prohibited.

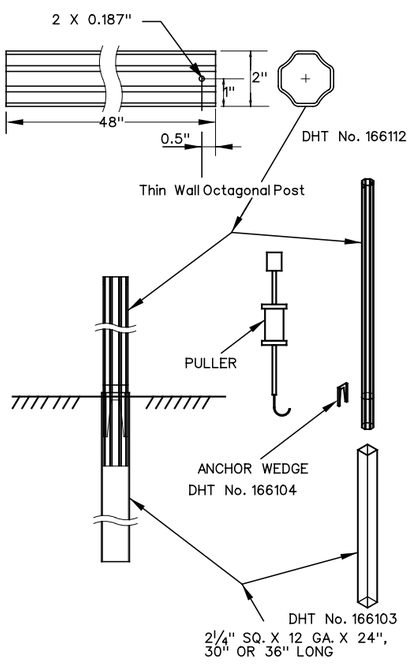


Placed on approved plastic drum as shown in the Compliant Work Zone Traffic Control Devices (CWZTCD).

Existing attachment hardware shall be used unless damaged. Damaged hardware shall be replaced.

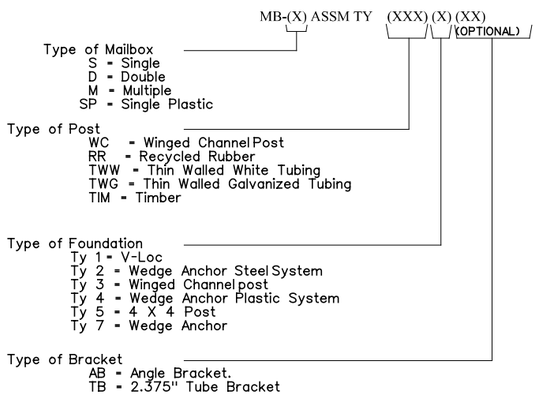
TYPE 6 TEMPORARY MAILBOX SUPPORT

CONNECTION DETAIL



TYPE 7 MAILBOX SUPPORT/FOUNDATION

CONNECTION DETAIL



GENERAL NOTES

1. Erect post plumb or vertical.
2. When galvanized part is required galvanize in accordance with Item 445.
3. type 1, 2, 3, 4 or 7 supports or foundation can be used for single or double mailbox installations. The RCR post should be used only for a single installation with a small mailbox. The Type 5 support/foundation is used for the single molded plastic mailbox. The Type 4 support/foundation is used for the 2.375" O.D. RR post, thin wall steel post, and white multiple mailbox post.
4. The Type 1 or type 7 support/foundation can be used for a multiple mailbox mount.
5. The Type 4 support should be used with thin wall steel pipe for the medium, large and double mailbox installations.
6. Use a concrete footing as shown or when directed. Concrete footing will be required when soils do not hold the support/foundations in a stable condition.

DOUBLE AND LARGE MAILBOXES MUST BE ON STEEL POST.

*HDTP: High density thermoplastic polyesters

LEVELS DISPLAYED
1 2

REVISIONS
06/08/05: Added general note numbers 6 & 7. Sheet & title block renumbered.11/14/05:Deleted sheet4.
08/03/06: Added DHT table,Mailbox descriptive codes and bid items.
10/9/2009 Added new mailboxpost
10/28/2009: Moved DHT table to sheet 4 deleted general notes 7 & 8

Standard Plans

Texas Department of Transportation

Maintenance Division

MAILBOX SUPPORT/ FOUNDATION

Sheet 3 of 4

MB-11(1)

FILE: MB10(1).DGN	DN: JEO	CK: LJB	DW: JEO	CK: RDB	NEG:	
	DIST	FED REG	FEDERAL AID PROJECT			SHEET
REVISIONS 01/07/2011: Added note 7 for mailboxes installed in areas with sidewalks.		6				35
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	HIDALGO					SUGARCANE DR

TABLE OF APPLICABLE DHT NUMBERS	
DHT NUMBER	DESCRIPTION
FOUNDATIONS	
46625	WEDGE FOR V-WING SOCKET FOR TYPE 1 FOUNDATION
149340	V-WING SOCKET FOR TYPE 1 FOUNDATION
143433	WEDGE FOR TYPE 2 FOUNDATION
143434	ANCHOR FOR TYPE 2 FOUNDATION
166103	ANCHOR FOR TYPE 7 FOUNDATION
160891	SOCKET FOR TYPE 4 FOUNDATION
160892	WEDGE FOR TYPE 4 FOUNDATION
166104	WEDGE FOR TYPE 7 FOUNDATION
POSTS	
4289	WINGED CHANNEL MAILBOX POST
149339	MULTIPLE MAILBOX POST (GALVANIZED TUBING)
164116	MULTIPLE MAILBOX POST (WHITE COATED)
166114	MULTIPLE MAILBOX POST (WHITE COATED OCTAGONAL)
166153	MULTIPLE MAILBOX POST (GALVANIZED OCTAGONAL)
161442	RECYCLED RUBBER POST. FOR SMALL MAILBOX ONLY
143426	THIN-WALL GALVANIZED STEEL TUBE 2.375" OUTER DIAMETER
162911	THINWALL WHITE STEEL TUBE 2.375" OUTER DIAMETER
166152	SINGLE OR DOUBLE THIN-WALL MAILBOX POST GALVANIZED 2" OCTAGONAL
166112	SINGLE OR DOUBLE THIN-WALL MAILBOX POST WHITECOATED 2" OCTAGONAL
REFLECTIVE SHEETING	
161812	REFLECTIVE SHEETING FOR EMERGENCY LOCATION NUMBER PANEL
CONNECTING HARDWARE	
2917	ANGLE BRACKET USED FOR TEMPORARY MAILBOX SUPPORT
166105	BRACKET FOR SINGLE MOUNTING OF MAILBOXES (MOUNTING KIT)
3789	PLATE FOR DOUBLE MOUNTING OF MAILBOXES
166108	BRACKET FOR DOUBLE MOUNTING OF MAILBOXES (MOUNTING KIT)
166111	BRACKET FOR MULTIPLE MOUNTING OF MAILBOXES (MOUNTING KIT)
148939	BRACKET FOR ATTACHING SMALL OR MEDIUM SIZE MAIL BOX
148938	EXTENDER TO BRACKET FOR ATTACHING LARGE MAILBOX
159489	ANGLE BRACKET PART A
159490	ANGLE BRACKET PART B
162323	BRACKET FOR DOUBLE MOUNTING OF MAILBOXES ON THINWALL STEEL POST, GALVANIZED OR POWDERCOATED.
161443	BRACKET FOR ATTACHING MAILBOX TO RECYCLED RUBBER POST AND TO MULTIPLE WHITE MAILBOX POST
158358	CASTING (NEWSPAPER RECEPTACLE BRACKET)
163731	U-BOLT (NEWSPAPER RECEPTACLE BRACKET)

LEVELS DISPLAYED
1 2

Standard Plans

Texas Department of Transportation

Maintenance Division

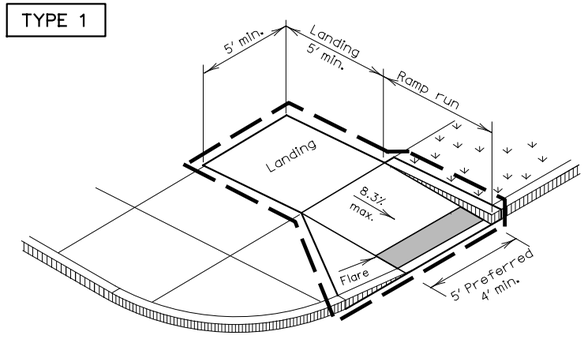
TABLE OF DHT NUMBERS

Sheet 4 of 4

MB-11(1)

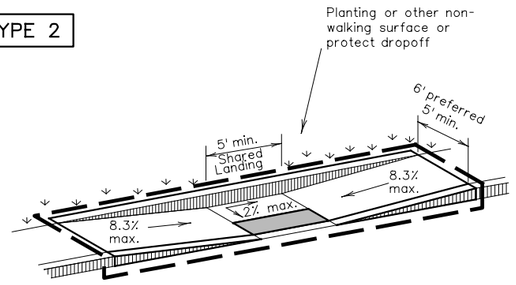
FILE: MB10(1).DGN	DN: JEO	CK: LJB	DW: JEO	CK: RDB	NEG:	
©TxDOT JANUARY 2011	DIST	FED REG	FEDERAL AID PROJECT			SHEET
10/28/09 REVISIONS		6				36
	COUNTY			CONTROL	SECT	JOB	HIGHWAY
	HIDALGO						SUGARCANE DR

TYPE 1



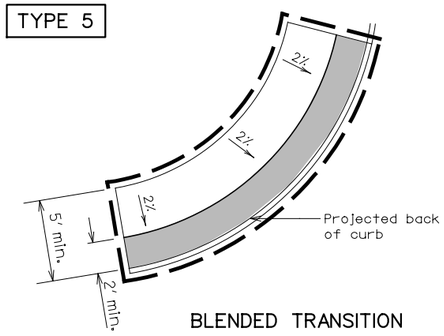
PERPENDICULAR CURB RAMP

TYPE 2



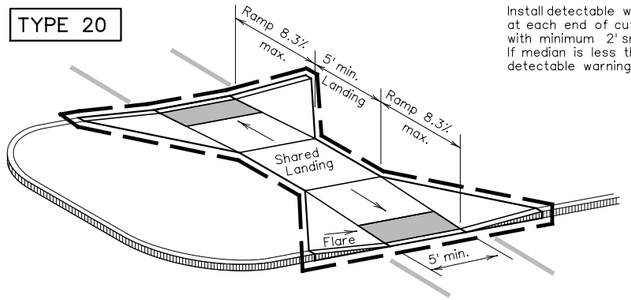
PARALLEL CURB RAMP
(Use only where water will not pond in the landing.)

TYPE 5



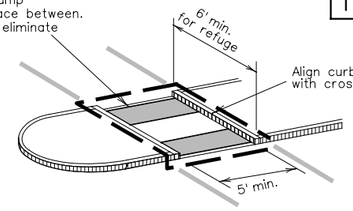
BLENDED TRANSITION

TYPE 20



Install detectable warning surface at each end of cut-through ramp with minimum 2' smooth surface between. If median is less than 6' wide, eliminate detectable warning surfaces.

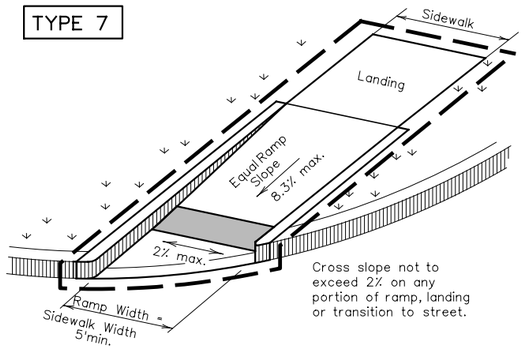
TYPE 21



Curb details are shown elsewhere in the plans.

CURB RAMPS AT MEDIAN ISLANDS

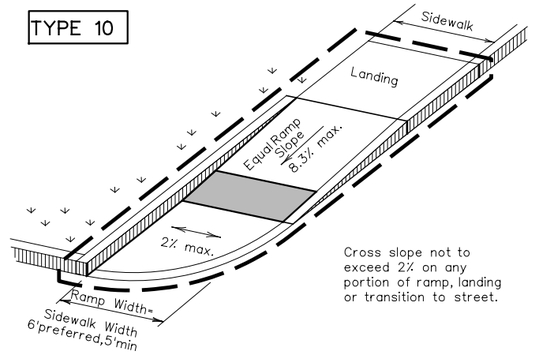
TYPE 7



Cross slope not to exceed 2% on any portion of ramp, landing or transition to street.

(Sidewalk set back from curb)

TYPE 10

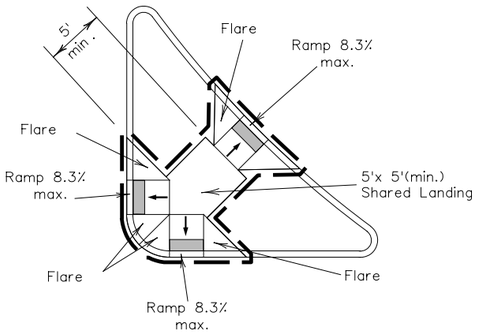


Cross slope not to exceed 2% on any portion of ramp, landing or transition to street.

(Sidewalk adjacent to curb)

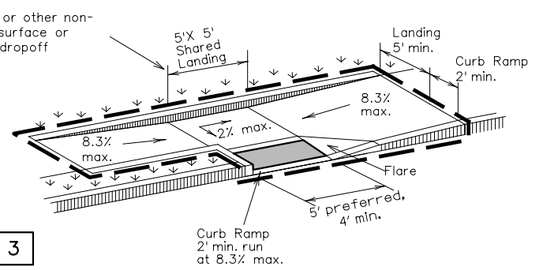
DIRECTIONAL RAMPS WITHIN RADIUS

TYPE 22

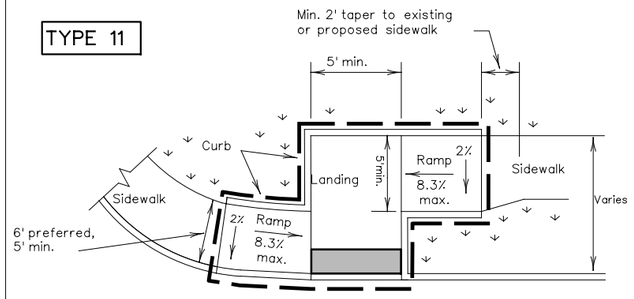


COMBINATION ISLAND RAMPS

TYPE 3

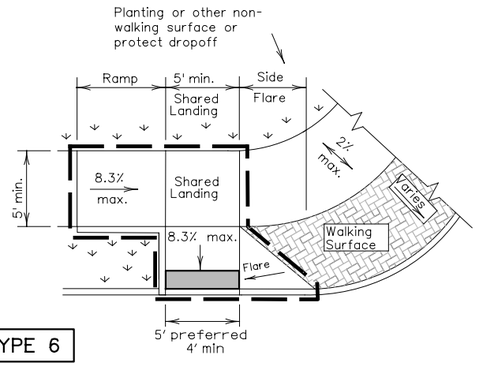


TYPE 11



OFFSET PARALLEL CURB RAMP

TYPE 6



COMBINATION CURB RAMPS

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.

Ramp Limits of Payment

Detectable Warning Surface

SHEET 1 OF 4

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

FILE: ped12a.dgn	DN: TxDOT	CK: RM	DW: TxDOT	CK: VP		
© TxDOT March 2002	CONT	SECT	JOB		HIGHWAY	
REVISIONS					SUGARCANE DR	
VP June 13, 2012	DIST	COUNTY			SHEET NO.	
		HIDALGO			37	

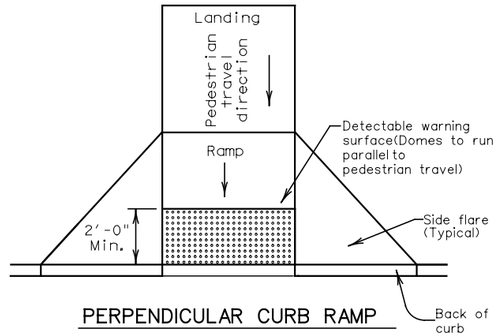
General Notes

Curb Ramps

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Lesser slopes that will still drain properly should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. 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.
4. Landings shall be 5′x 5′ minimum with a maximum 2% slope in any direction.
5. Maneuvering 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.
6. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
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 current edition of the Texas Accessibility Standards (TAS) and 16 TAC 68.102.
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. Handrails are not required on curb ramps. Provide curb ramps wherever on accessible route crosses (penetrates) a curb.
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. Provide a smooth transition where the curb ramps connect to the street.
16. 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.
17. Existing features that comply with TAS may remain in place unless otherwise shown on the plans.

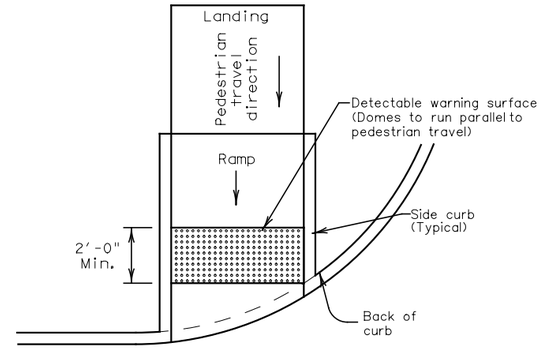
Detectable Warning Material

18. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with Section 705 of the TAS. 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.
19. 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.
20. Detectable warning surfaces must be slip resistant and not allow water to accumulate.
21. Detectable warning surfaces shall be a minimum of 24" 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.
22. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb. Align the rows of domes to be perpendicular to the grade break between the ramp run and the street. Detectable warning surfaces may be curved along the corner radius.
23. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.



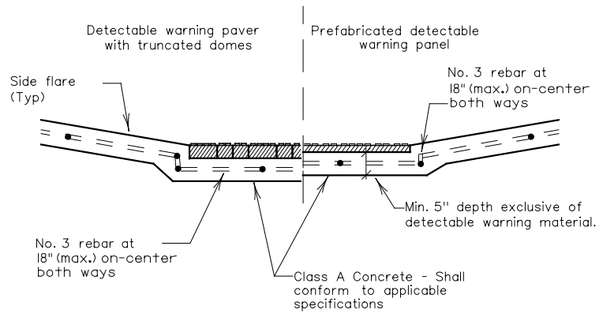
PERPENDICULAR CURB RAMP

Typical placement of detectable warning surface on sloping ramp run.

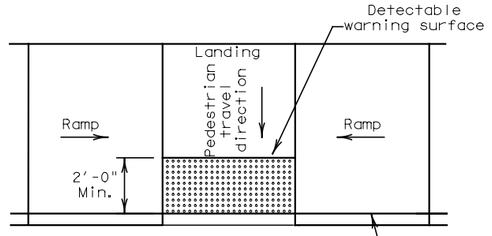


DIRECTIONAL CURB RAMP

Typical placement of detectable warning surface on sloping ramp run.



SECTION: CURB RAMP AT DETECTABLE WARNING



PARALLEL CURB RAMP

Typical placement of detectable warning surface on landing at street edge.

DETECTABLE WARNINGS

Detectable Warning Pavers

24. 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.
25. Lay full-size units first followed by closure units consisting of at least 25 percent of a full unit. Cut detectable warning paver units using a power saw.

Sidewalks

26. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within one or more reach ranges specified in TAS 308.
27. 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.
28. Street grades and cross slopes shall be as shown elsewhere in the plans.
29. Changes in level greater than 1/4 inch are not permitted.
30. 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 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 TAS 505.
31. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
32. 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".
33. Sidewalk details are shown elsewhere in the plans.

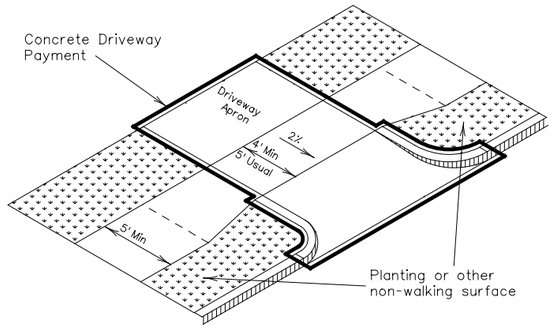
Texas Department of Transportation

Design Division Standard

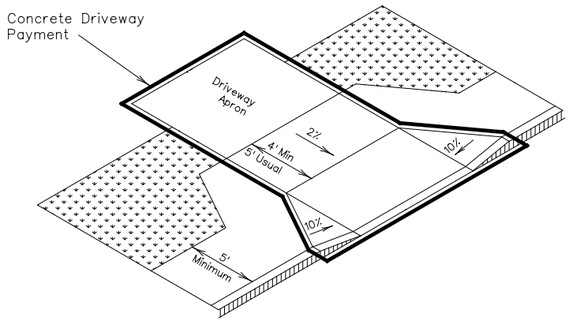
PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

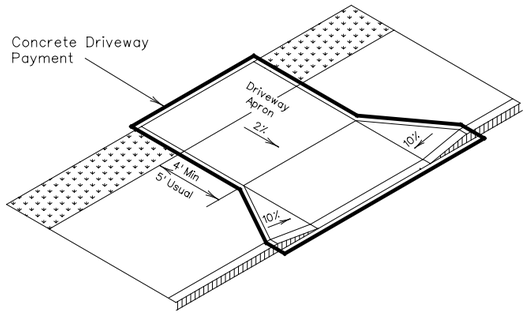
FILE: ped12a.dgn	DN: TxDOT	CK: RM	DW: TxDOT	CK: VP		
©TxDOT March 2002	CONT	SECT	JOB	HIGHWAY		
REVISIONS				SUGARCANE DR		
VP June 13, 2012	DIST	COUNTY		SHEET NO.		
		HIDALGO		38		



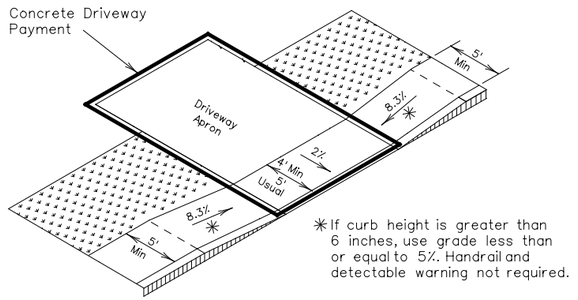
Setback sidewalk



Apron offset sidewalk



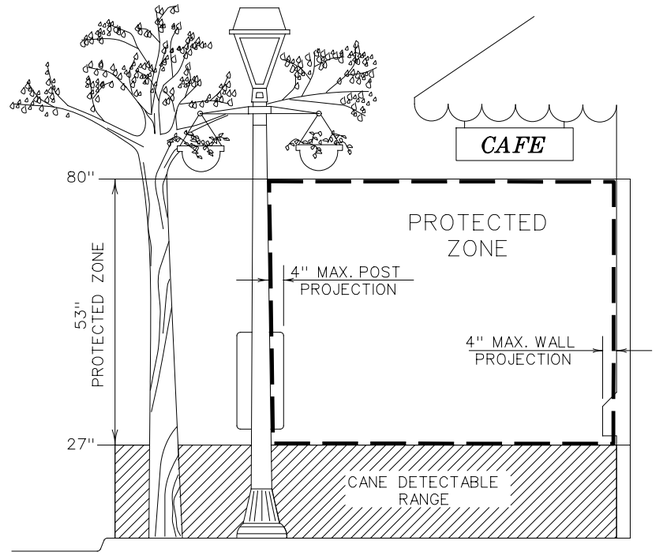
Wide sidewalk



*If curb height is greater than 6 inches, use grade less than or equal to 5%. Handrail and detectable warning not required.

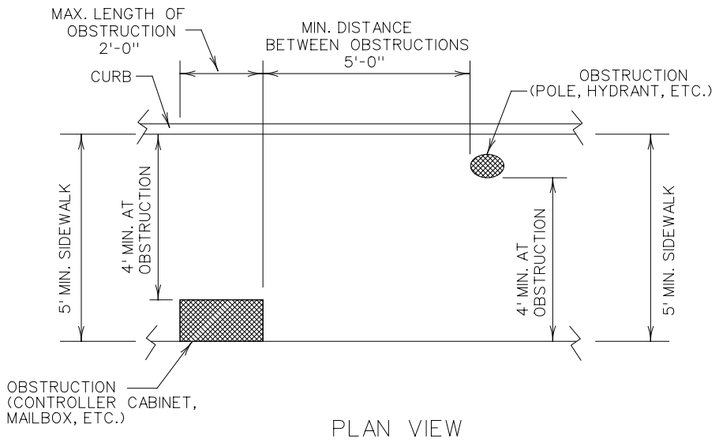
Ramp sidewalk

SIDEWALK TREATMENT AT DRIVEWAYS



PROTECTED ZONE

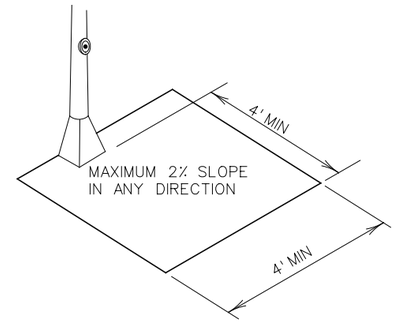
In pedestrian circulation area, maximum 4" projection for post or wall mounted objects between 27"and 80" above the surface.



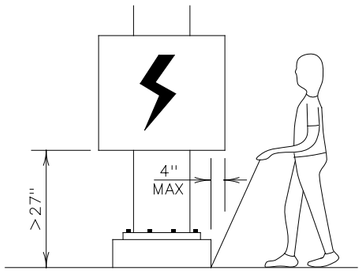
PLAN VIEW

PLACEMENT OF STREET FIXTURES

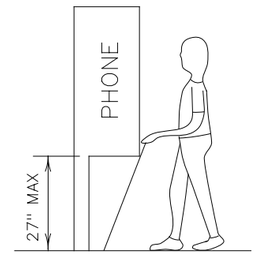
(ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' x 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.)



CLEAR GROUND 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"

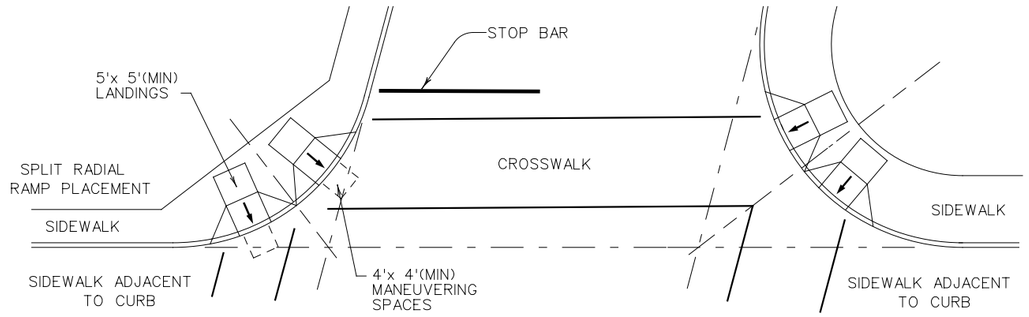
Texas Department of Transportation

Design Division Standard

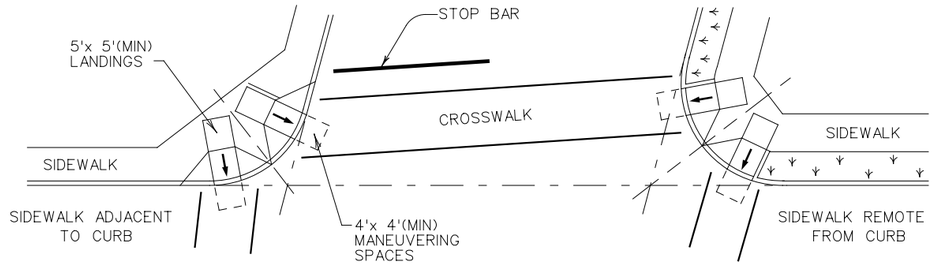
PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

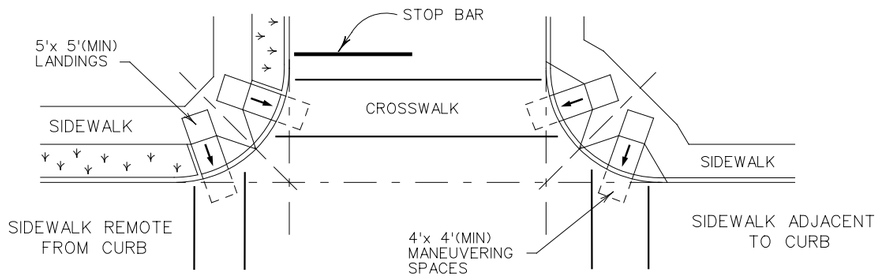
FILE: ped12a.dgn	DN: TxDOT	CK: RM	DW: TxDOT	CK: VP		
©TxDOT March 2002	CONT	SECT	JOB		HIGHWAY	
REVISIONS					SUGARCANE DR	
VP June 13, 2012	DIST	COUNTY			SHEET NO.	
		HIDALGO			39	



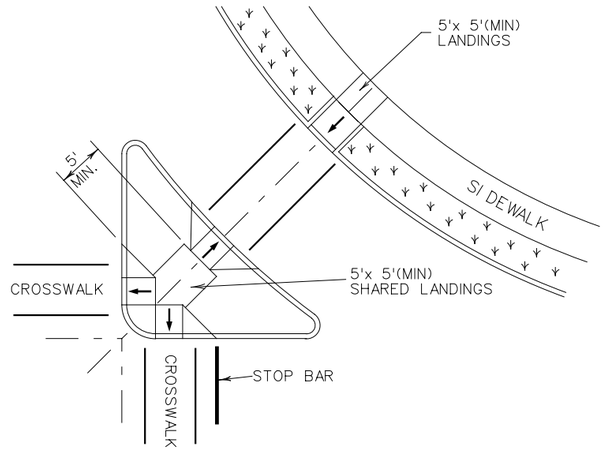
SKEWED INTERSECTION WITH "LARGE" RADIUS



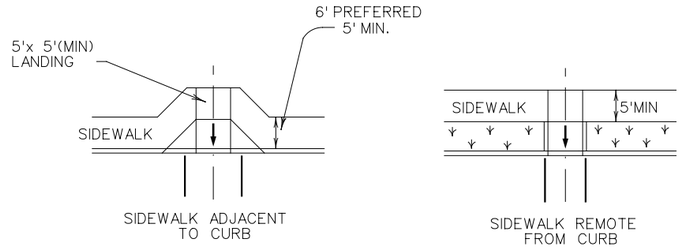
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

TYPICAL CROSSING LAYOUTS

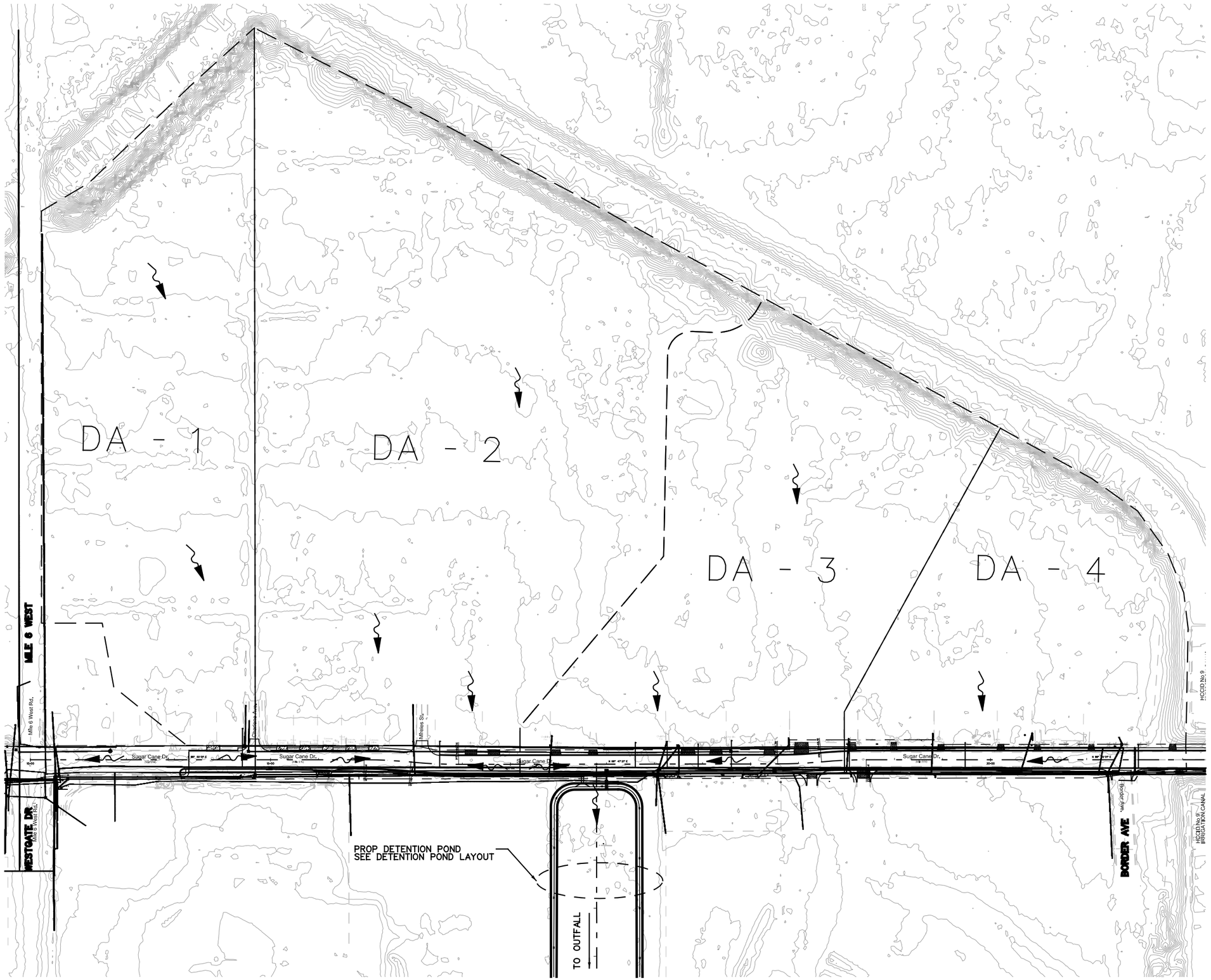
SHEET 4 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES
CURB RAMPS

PED-12A

FILE: ped12a.dgn	DN: TxDOT	CK: RM	DW: TxDOT	CK: VP		
© TxDOT March 2002	CONT	SECT	JOB	HIGHWAY		
REVISIONS				SUGARCANE DR		
VP June 13, 2012	DIST	COUNTY		SHEET NO.		
		HIDALGO		40		



LEGEND

- LIMITS OF DRAINAGE AREA
- DA XX — DRAINAGE AREA DESIGNATION
- FLOW DIRECTION
- EXIST. DRAIN DITCH
- CONTOUR

N

NOTES:

1. ALL WATERSHEDS ARE UNDER 200 AC. THE RATIONAL METHOD WAS USED TO DETERMINE ALL PEAKFLOWS.
2. MIN. TIME OF CONCENTRATION = 10 MINUTES.
3. SEE HYDROLOGIC DATASHEET FOR CALCULATIONS.
4. WATERSHED DELINEATION IS BASED ON AVAILABLE LIDAR DATA.

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT — DATE 4/25/2014

CITY ON THE GROW
CITY OF WESLACO

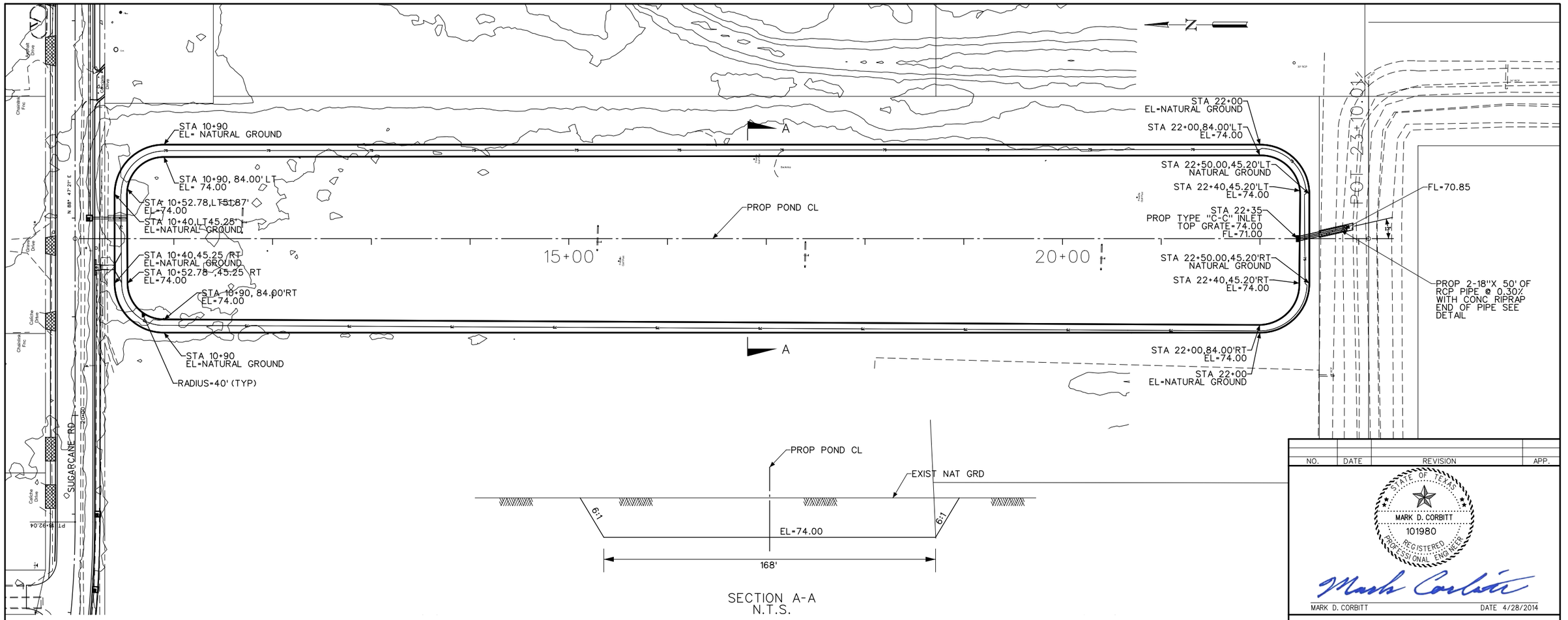
TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898
TEDSI
TBPE F-1640

SUGARCANE DR

DRAINAGE AREA MAP

SCALE: 1" = 200'

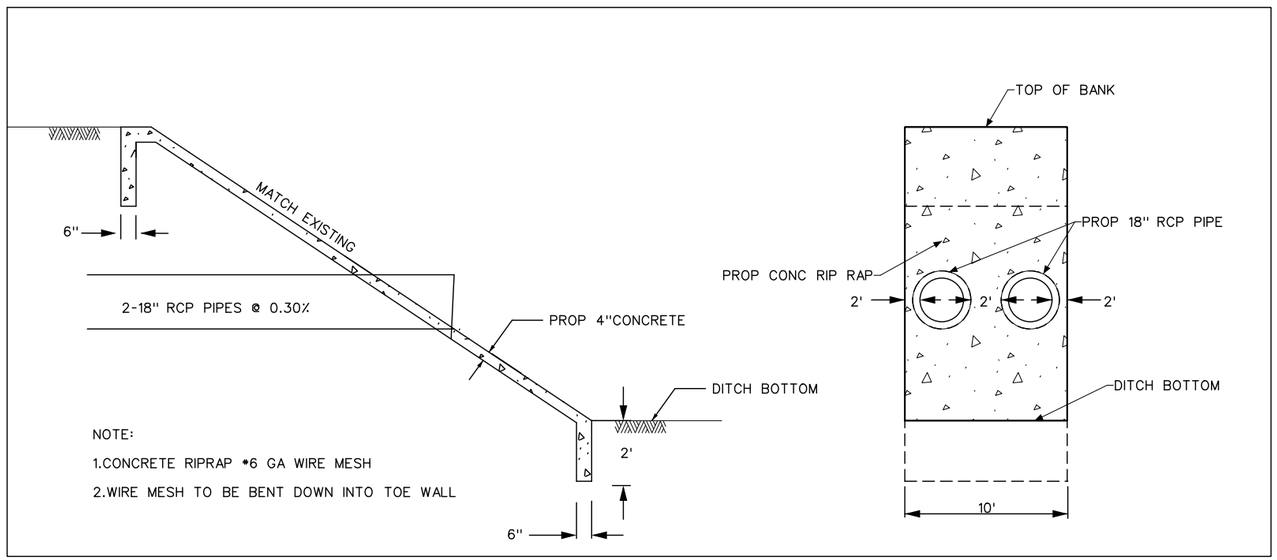
FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			41
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE



SECTION A-A
N.T.S.

```
**********************************************************************
**                                                                  **
** Plane To TIN Volume Report -- Fri Mar 28 01:08:02 2014           **
**                                                                  **
** From Elevation <75.000> to TIN DET POND.tin                      **
**                                                                  **
** Prismoidal Volume                                                **
**                                                                  **
**                  AVAILABLE DETENTION VOLUME                      **
**********************************************************************
**    Total VOL    = 7650.377 Cubic Yards                          **
**                     or 1545101  Gallons                          **
**                     or 4.74     AC-FT                            **
**                                                                  **
**                                                                  **
**********************************************************************

**********************************************************************
**                                                                  **
** TIN to TIN Volume Report -- Fri Mar 28 00:59:40 2014             **
**                                                                  **
** From TIN PROP DET POND - MC.tin to TIN sugar.tin                 **
**                                                                  **
** Prismoidal Volume                                                **
**                                                                  **
**          TOTAL CUT VOLUME FOR PROPOSED DETENTION POND            **
**********************************************************************
**                                                                  **
**              Total Cut = 13235.258 Cubic Yards                   **
**             Total Fill = 39.514 Cubic Yards                      **
**                N  Area = 98854.260 Sq Yards                      **
**                Balance = 13195.744 Cubic Yards                   **
**                                                                  **
**********************************************************************
```



DETAIL A

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT — DATE 4/28/2014

CITY ON THE GROW
CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TEDSI
TBPE F-1640
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898

SUGARCANE DR
PROPOSED DETENTION POND

SCALE: 1" = 100'

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			42
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE

SUGAR CANE RD. LINK COMPUTATIONS

Link - ID	Upstream Node	Downstream Node	Number of Barrels	Rise	Span	Actual Length	Hydraulic Length	Slope	Invert Upstream	Invert Downstream	Discharge	Capacity	Soffit Upstream	HGL Upstream	EGL Upstream	Soffit Downstream	HGL Downstream	EGL Downstream	Manning's N Value	Actual Velocity Upstream	Actual Velocity Downstream	Uniform Velocity	Critical Velocity	Actual Depth Upstream	Actual Depth Downstream	Uniform Depth	Critical Depth	Friction Slope	Critical Slope
				(ft.)	(ft.)	(ft.)	(ft.)	(%)	(ft.)	(ft.)	(cfs)	(cfs)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)	(ft.)		(fps)	(fps)	(fps)	(fps)	(ft.)	(ft.)	(ft.)	(ft.)		
L1	A-1	A-2	1	1.50		282.77	289.23	0.3320	74.72	73.76	6.78	7.05	76.22	76.46	78.43	75.26	75.43	75.61	0.012	3.84	3.84	4.23	5.37	1.50	1.50	1.276	1.008	0.0030	0.0060
L3	A-5	O-1	1	2.00	4.00	18.25	18.25	0.1500	73.56	73.53	29.19	37.86	75.56	75.05	75.42	75.53	75.00	75.38	0.012	4.91	4.97	4.54	6.17	1.49	1.47	1.609	1.183	0.0020	0.0040
L4	B-1	B-2	1	1.50		249.73	249.73	0.3240	77.04	76.23	4.09	6.97	78.54	78.19	78.19	77.73	77.01	77.31	0.012	2.82	4.44	3.91	4.44	1.15	0.78	0.858	0.775	0.0030	0.0050
L5	B-2	B-3	1	1.50		350.00	350.00	0.5230	76.23	74.40	4.09	8.85	77.73	77.01	77.31	75.90	75.15	75.48	0.012	4.44	4.64	4.64	4.44	0.78	0.75	0.748	0.775	0.0050	0.0050
L6	B-3	O-2	1	1.50		38.16	38.16	1.0480	74.40	74.00	4.09	12.53	75.90	75.18	75.48	75.50	74.63	75.16	0.012	4.44	5.86	6.02	4.44	0.78	0.63	0.613	0.775	0.0110	0.0050
L-2A	A-2	A-3	1	2.00	4.00	30.19	36.47	0.0550	73.76	73.74	22.31	22.89	75.76	75.43	75.61	75.74	75.40	75.58	0.012	3.33	3.36	2.82	5.64	1.67	1.66	1.98	0.989	0.0010	0.0040
L-3A	A-3	A-4	1	2.00	4.00	71.09	76.55	0.0550	73.74	73.70	22.31	22.92	75.74	75.40	75.58	75.70	75.33	75.51	1.012	3.36	3.42	2.82	5.64	1.66	1.63	1.98	0.989	0.0010	0.0040
L-4A	A-4	A-5	1	2.00	4.00	244.51	250.01	0.0550	73.70	73.56	22.31	22.92	75.70	75.33	75.51	75.56	75.05	75.42	2.012	3.42	3.76	2.82	5.64	1.63	1.49	1.98	0.989	0.0010	0.0040

SUGAR CANE RD. INLET HYDRAULICS

Inlet ID	Discharge	Supplied Discharge	By Pass Flow Into	By Pass Node ID	Max By Pass	By Pass Flow	Capacity	Type	Profile Type	Elevation (Gutter)	Computed Ponded Width	Max Ponded Width	Computed Ponded Depth	Max Ponded Depth	Length Required	Curb Length	Curb Depression	Curb Height	Curb Depression Width	Spread N	Composite Spread Slope	Inlet to Gutter Offset
	(cfs)	(cfs)	(cfs)		(cfs)	(cfs)	(cfs)			(feet)	(feet)	(feet)	(feet)	(feet)	(feet)	(feet)	(feet)	(feet)	(feet)			(feet)
A-1	6.78	6.78	0.00	A-2	5	0.01	6.77	Curb	On Grade	77.22	17.51	25.00	0.35	0.50	14.043	13.7	0.42	0.42	1.5	0.015	0.0200	0
A-2	15.539	15.53	0.01	0	0	0.00	14.39	Curb	Sag	76.34	19.49	25.00	0.53	0.50	15.519	15	0.42	0.42	1.5	0.015	0.0270	0
A-5	6.88	6.88	0.00	0	0	0.00	10.33	Curb	Sag	76.96	19.07	25.00	0.38	0.50	15.519	10	0.42	0.42	1.5	0.015	0.0200	0
B-1	4.09	4.09	0.00	A-5	5	0.00	4.09	Curb	On Grade	79.54	16.16	25.00	0.32	0.50	9.22	13.7	0.42	0.42	1.5	0.015	0.0200	0

Sugarcane Dr - Preliminary T_c Calculations (Velocity Method)

Analysis Method	Drainage Area	Area	Area	Area	Elevation Change	Slope	Longest Flowpath	SHEET FLOW L	SHEET FLOW S	SHEET FLOW n	SHALLOW CONCENTRATED FLOW L	SHALLOW CONCENTRATED FLOW K	SHALLOW CONCENTRATED FLOW S	SHALLOW CONCENTRATED FLOW V	CHANNEL FLOW LENGTH L	CHANNEL FLOW LENGTH R	CHANNEL FLOW LENGTH S	CHANNEL FLOW LENGTH n	CHANNEL FLOW LENGTH V	TRAVEL TIMES Ts	TRAVEL TIMES Tsc	TRAVEL TIMES Tch	Tc	Tp
		(sqft)	(ac)	(mi2)	(ft)	(ft/ft)	(ft)	(ft)	(ft/ft)		(ft)		(ft/ft)	(ft/s)	(ft)	(ft)	(ft/ft)	(%)	(ft/s)	(min)	(min)	(min)	(min)	(hr)
RATIONAL	DA-1	535905	12.3	0.019	8.0	0.0052	1550	50	0.0052	0.150	415	0.457	0.0052	1.08	1085	1.40	0.0052	0.0270	4.96	7.90	6.38	3.64	18	0.2
RATIONAL	DA-2	1079992	24.8	0.039	8.0	0.0043	1868	50	0.0043	0.150	884	0.457	0.0043	0.99	934	1.40	0.0043	0.0270	4.52	8.51	14.93	3.44	27	0.3
RATIONAL	DA-3	560426	12.9	0.020	8.0	0.0057	1406	50	0.0057	0.150	1075	0.457	0.0057	1.14	281	1.40	0.0057	0.0270	5.21	7.60	15.75	0.90	24	0.3
RATIONAL	DA-4	366671	8.4	0.013	8.0	0.0066	1217	50	0.0066	0.150	924	0.457	0.0066	1.22	243	1.40	0.0066	0.0270	5.60	7.17	12.59	0.72	20	0.2

Sugarcane Dr - Preliminary T_c Calculations (Velocity Method)

AREA ID	AREA (ac)	AREA (mi2)	C	Tc (min)	Tp (hr)	INTENSITY 5 year (in/hr)	RATIONAL METHOD RESULTS 5 year (cfs)
DA-1	12.3	0.019	0.38	18	0.2	1.4500	6.78
DA-2	24.8	0.039	0.35	27	0.3	1.7900	15.53
DA-3	12.9	0.020	0.32	24	0.3	1.6700	6.88
DA-4	8.4	0.013	0.32	20	0.2	1.5200	4.09

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT DATE 4/25/2014

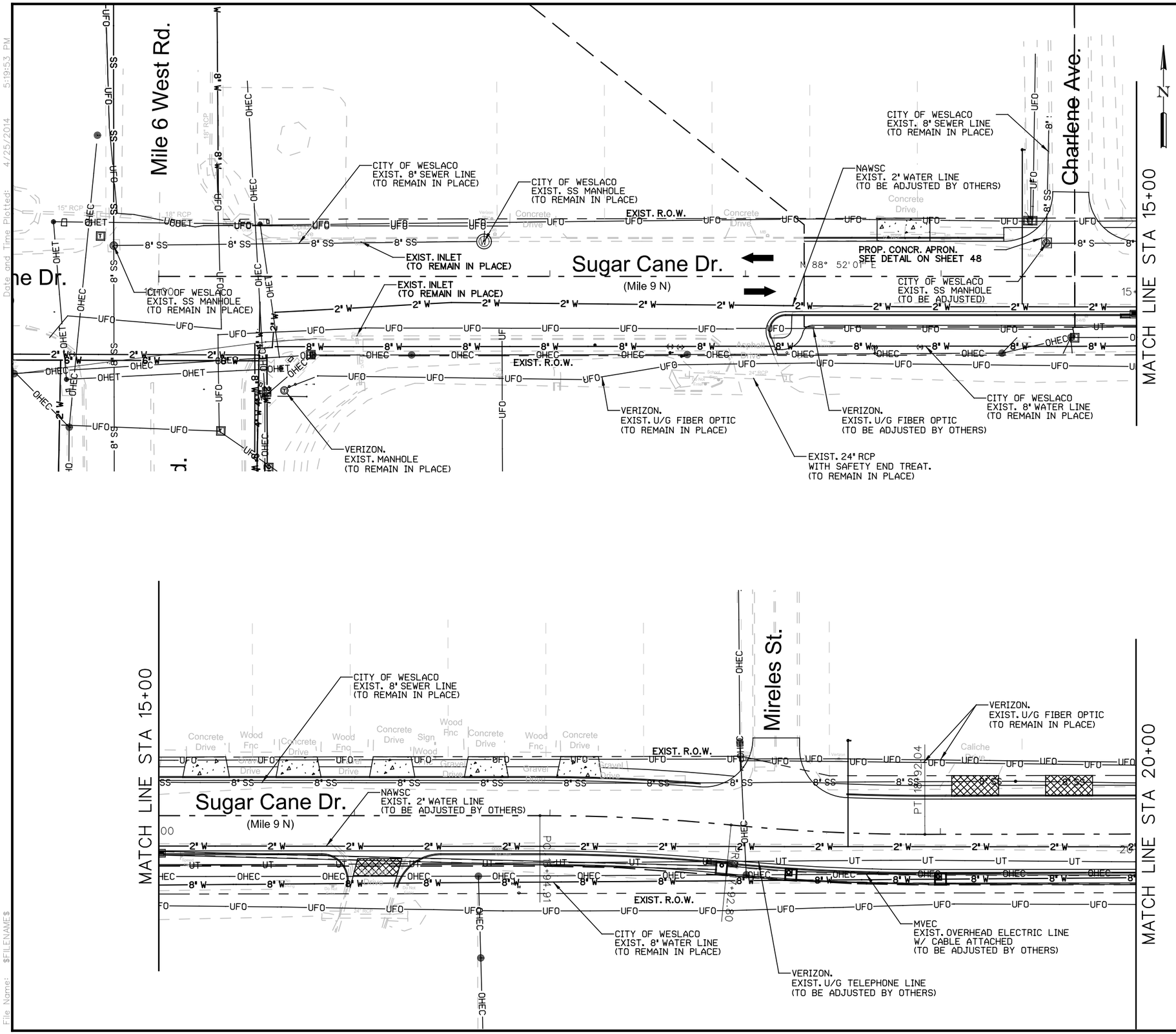
CITY ON THE GROW
CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TEDSI
TBPE F-1640
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898

SUGARCANE DR

HYDROLOGIC DATA SHEET

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			43
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE



LEGEND:

- # W — EXIST. # (DIAM INCH) WATER LINE
- # FM — EXIST. # (DIAM INCH) FORCE MAIN SANITARY SEWER LINE
- # SS — EXIST. # (DIAM INCH) SANITARY SEWER LINE
- # G — EXIST. # (DIAM INCH) GAS PIPELINE
- UFO — EXIST. UNDEGROUND FIBER OPTIC CABLE
- UT — EXIST. UNDERGROUND CABEL/TELE LINE
- OHE — EXIST. OVERHEAD ELECTRIC LINE
- HVTL — EXIST. HIGH VOLTAGE TRANSMISSION LINE
- UE — EXIST. UNDERGROUND ELECTRIC LINE
- OHEC — EXIST. OVERHEAD ELECTRIC LINE WITH CABLE LINE ATTACHED
- OHEFC — EXIST. OVERHEAD ELECTRIC LINE WITH FIBER OPTIC AND CABLE LINE ATTACHED
- (W) EXISTING SANITARY SEWER MANHOLE
- T EXISTING TEL/CABLE PED.
- DIRECTION OF FLOW
- OUTFALL CHANNEL FLOW

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT — DATE 4/25/2014

CITY ON THE GROW
CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TEDSI
TBPE F-1640
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898

SUGARCANE RD

UTILITY & DRAINAGE LAYOUT

STA 10+00.00 TO STA 20+00.00

SCALE : 1"=50' — SHEET 1 OF 3

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			44
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGAR CANE DR.

Date and Time Plotted: 4/25/2014 5:19:53 PM
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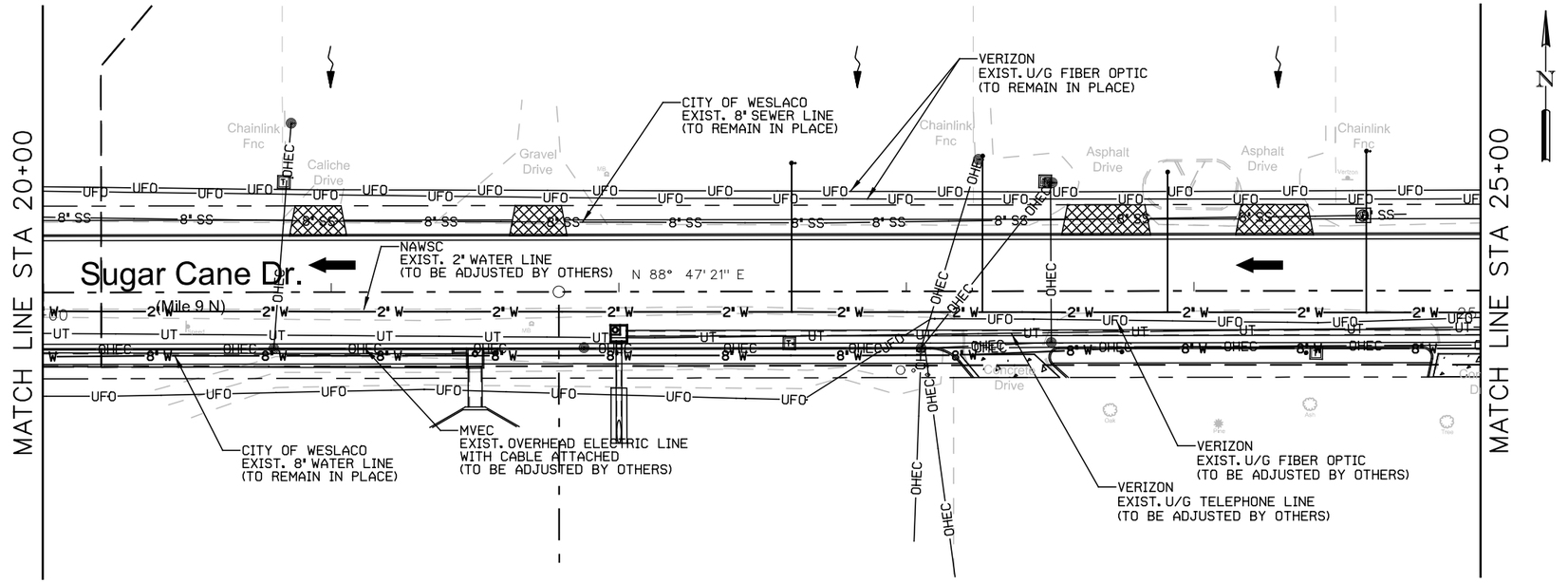
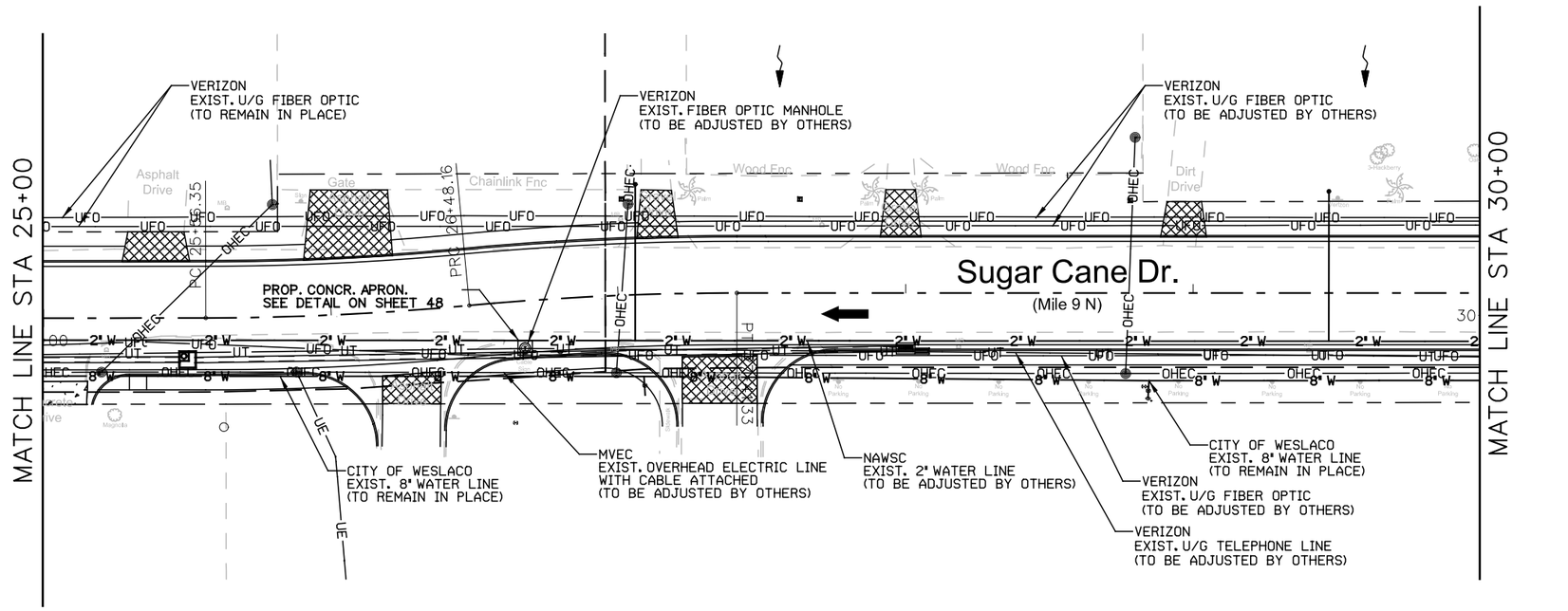
File Name: $FILENAME$





LEGEND:

# W	EXIST. # (DIAM INCH) WATER LINE
# FM	EXIST. # (DIAM INCH) FORCE MAIN SANITARY SEWER LINE
# SS	EXIST. # (DIAM INCH) SANITARY SEWER LINE
# G	EXIST. # (DIAM INCH) GAS PIPELINE
UFO	EXIST. UNDEGROUND FIBER OPTIC CABLE
UT	EXIST. UNDERGROUND CABEL/TELE LINE
OHE	EXIST. OVERHEAD ELECTRIC LINE
HVTL	EXIST. HIGH VOLTAGE TRANSMISSION LINE
UE	EXIST. UNDERGROUND ELECTRIC LINE
OHEC	EXIST. OVERHEAD ELECTRIC LINE WITH CABLE LINE ATTACHED
OHEFC	EXIST. OVERHEAD ELECTRIC LINE WITH FIBER OPTIC AND CABLE LINE ATTACHED
W	EXISTING SANITARY SEWER MANHOLE
T	EXISTING TEL/CABLE PED.
	DIRECTION OF FLOW
	OUTFALL CHANNEL FLOW

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT — DATE 4/25/2014

CITY ON THE GROW
CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TEDSI
TBPE F-1640
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898

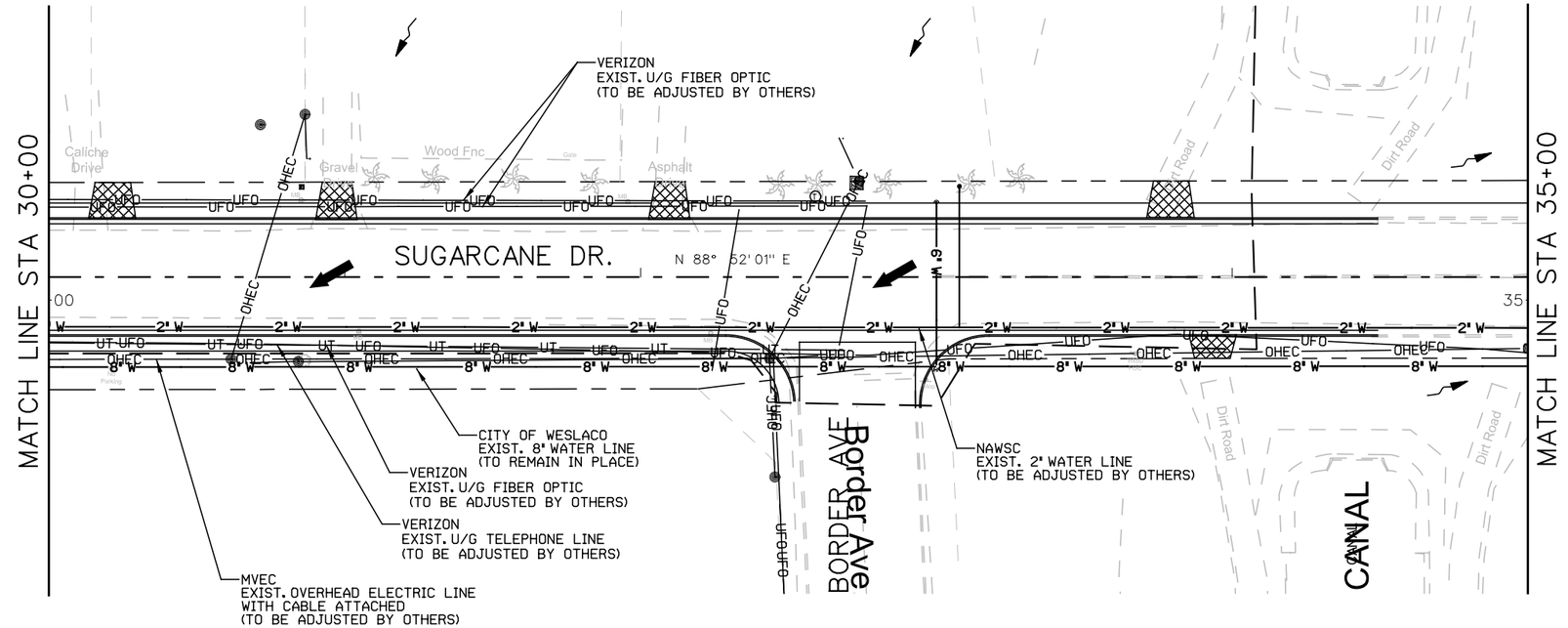
SUGARCANE RD

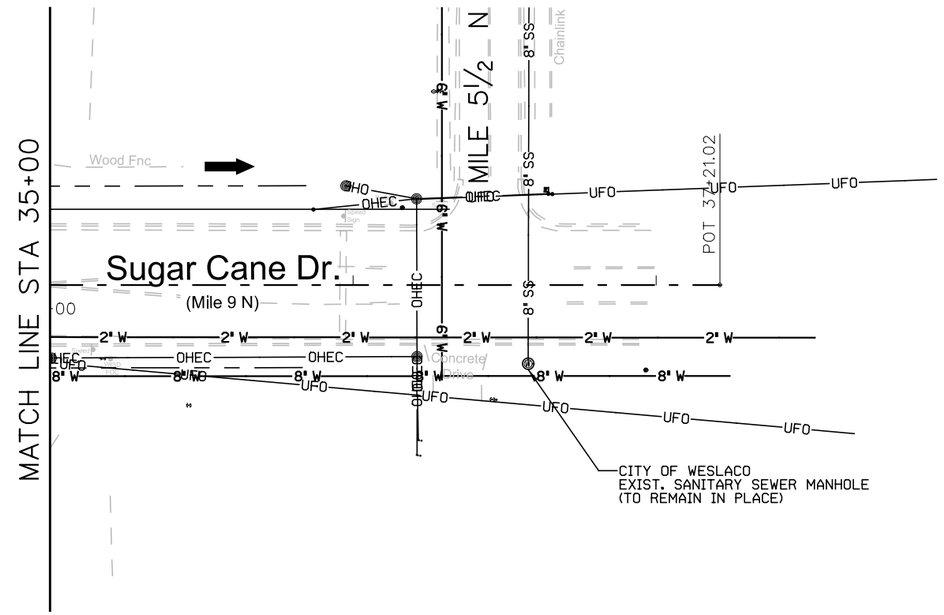
UTILITY & DRAINAGE LAYOUT

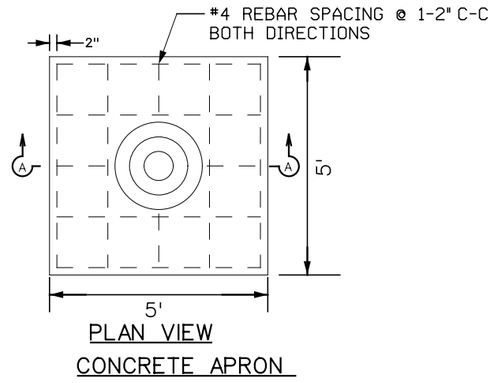
STA 20+00.00 TO STA 30+00.00

SCALE : 1"=50' SHEET 2 OF 3

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			45
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGAR CANE DR.







(SUBSIDUARY TO ITEM 479 "ADJUST MANHOLE

NOTE:

1. ALL MANHOLES ARE TO BE ADJUSTED TO CONFORM TO PROPOSED PAVEMENT CROSS SLOPE

LEGEND:

# W	EXIST. # (DIAM INCH) WATER LINE
# FM	EXIST. # (DIAM INCH) FORCE MAIN SANITARY SEWER LINE
# SS	EXIST. # (DIAM INCH) SANITARY SEWER LINE
# G	EXIST. # (DIAM INCH) GAS PIPELINE
UFO	EXIST. UNDEGROUND FIBER OPTIC CABLE
UT	EXIST. UNDERGROUND CABEL/TELE LINE
OHE	EXIST. OVERHEAD ELECTRIC LINE
HVTL	EXIST. HIGH VOLTAGE TRANSMISSION LINE
UE	EXIST. UNDERGROUND ELECTRIC LINE
OHEC	EXIST. OVERHEAD ELECTRIC LINE WITH CABLE LINE ATTACHED
OHEFC	EXIST. OVERHEAD ELECTRIC LINE WITH FIBER OPTIC AND CABLE LINE ATTACHED
(W)	EXISTING SANITARY SEWER MANHOLE
T	EXISTING TEL/CABLE PED.
	DIRECTION OF FLOW
	OUTFALL CHANNEL FLOW

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT — DATE 4/25/2014

CITY ON THE GROW
CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898
TEDSI
TBPE F-1640

SUGARCANE RD

UTILITY & DRAINAGE LAYOUT

STA 30+00.00 TO STA 37+21.02

SCALE : 1"=50' SHEET 3 OF 3

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			46
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGAR CANE DR.

Date and Time Plotted: 4/25/2014 5:19:55 PM
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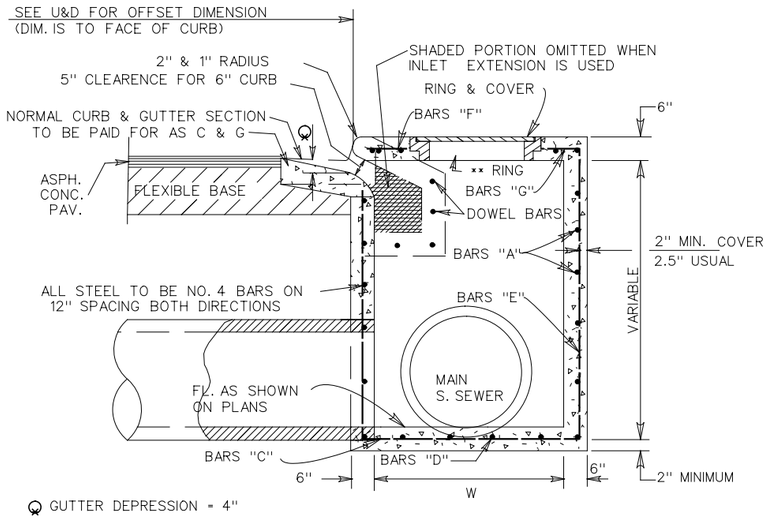
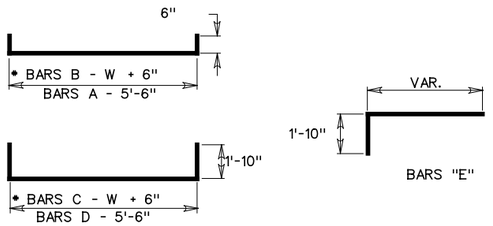
File Name: $FILENAME$

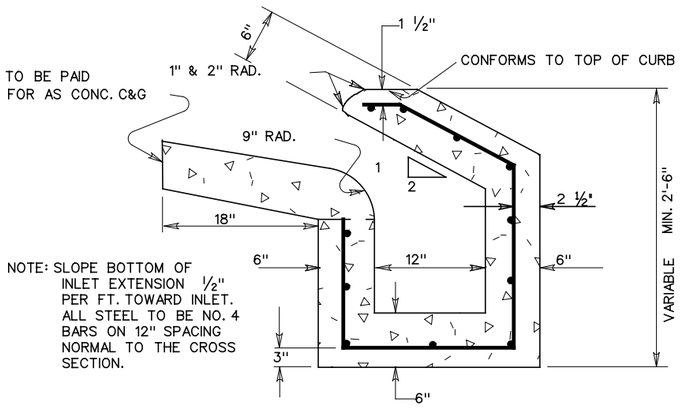


INLET TY "A"
To be used with Curb & Gutter

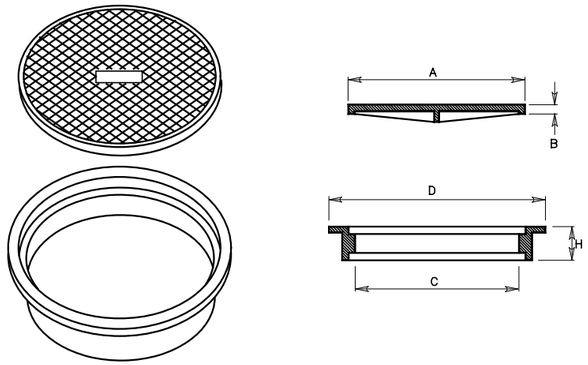
SECTION A-A



REINFORCING STEEL DETAILS



SECTION B-B
INLET EXTENSION



INLET TYPE	W	MAX PIPE SIZE ALLOW (DIA.)
A	3'-0"	24"
A-1	4'-0"	36"
A-2	5'-0"	48"
A-3	6'-0"	60"

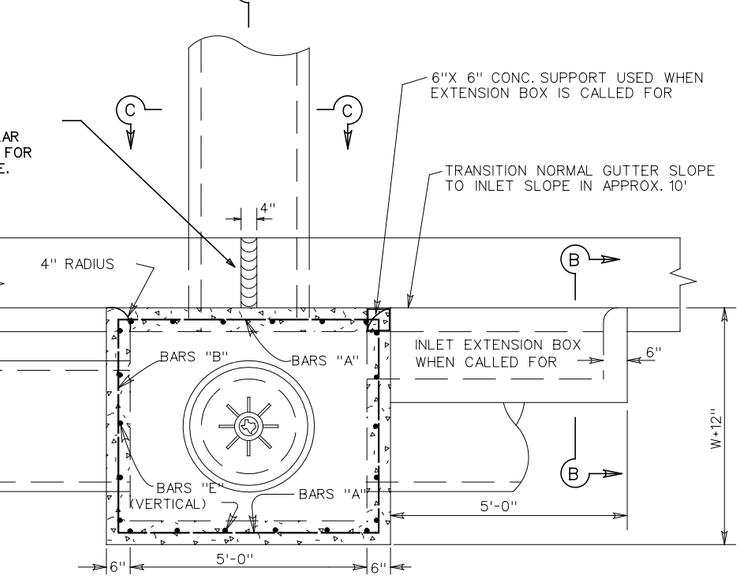
LID			RING				TOTAL WT.
"A"	"B"	WEIGHT	"C"	"D"	"H"	WEIGHT	
25⅝"	1"	125 lbs. (min)	24	32	5	185 lbs.	310 lbs.

RING & COVER

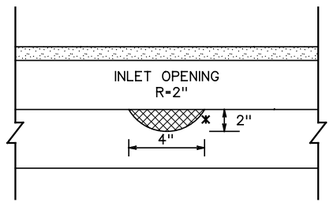
NOTES:

RINGS AND COVERS OF SLIGHTLY DIFFERENT DIMENSIONS BUT APPROXIMATELY THE SAME WEIGHT MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER. RING AND COVER TO BE SUBSIDIARY.

MANHOLE COVERS SHALL BE EAST JORDAN IRON WORKS CITY OF WESLACO COVER OR EQUIVALENT. ALL MANHOLE COVERS ARE SUBJECT TO FINAL APPROVAL BY THE CITY OF WESLACO OR ITS DESIGNATED REPRESENTATIVE.



PLAN



CURB OPENING DETAIL
SECTION C-C
FRONT

* CURB OPENING TO BE LEFT IN PLACE UNTIL THE FINAL LIFT OF HOT MIX IS IN PLACE. CURB OPENING TO BE FILLED WITH EPOXY & MORTAR AS PER ITEM 421. EPOXY & MORTAR TO BE SUBSIDIARY TO ITEM 465.

STATE OF TEXAS
MARK CORBITT
101980
REGISTERED
PROFESSIONAL ENGINEER

MARK CORBITT — DATE 4/25/2014

PHARR DISTRICT STANDARD

TEXAS DEPARTMENT OF TRANSPORTATION

INLET TY "A" DETAIL

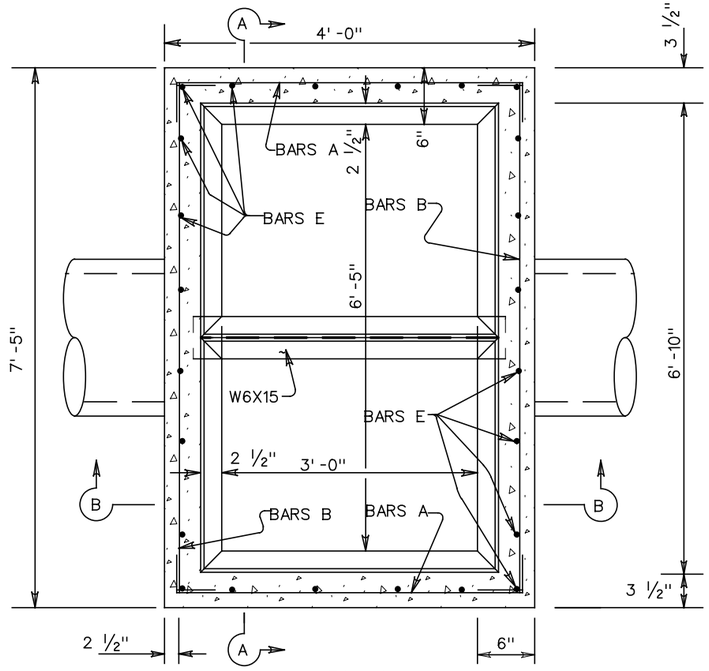
REV. 08/13

INLETA.DGN

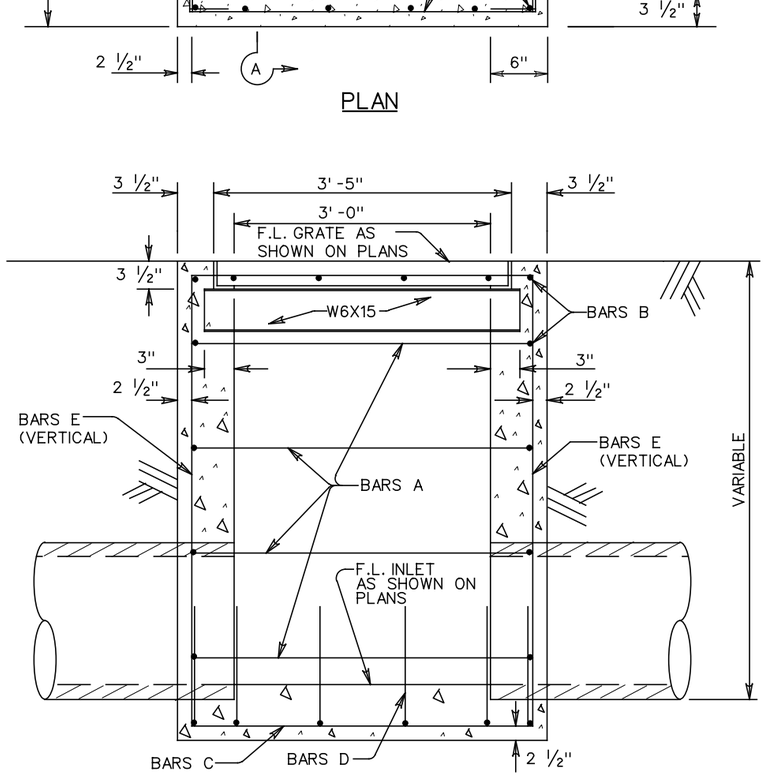
FED.RD. DIV.NO.	PROJECT NO.	FILE NO.	SHEET NO.
6			47

STATE	STATE DIST.NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21					

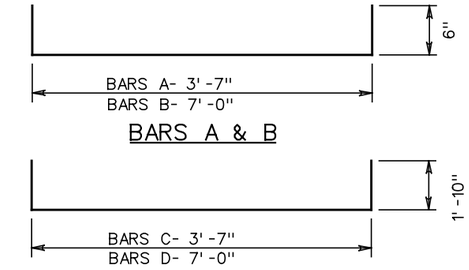
N.T.S.

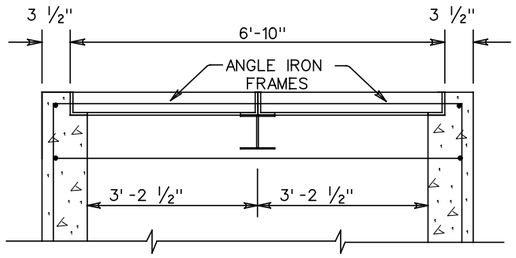


PLAN

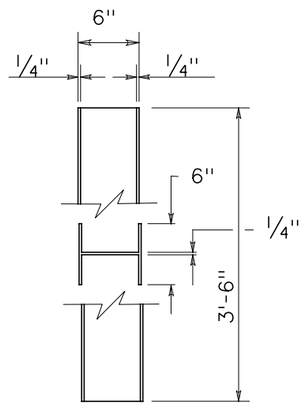


SEC. B-B

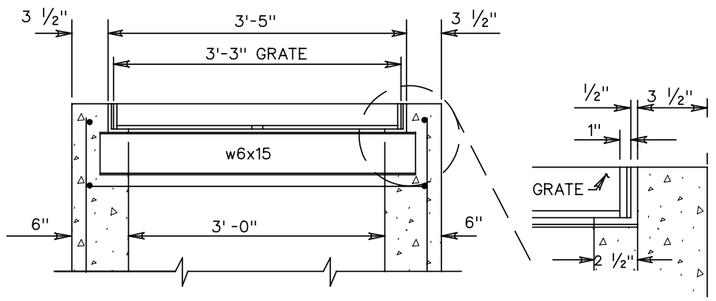




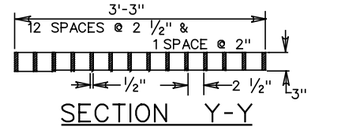
SEC. A-A



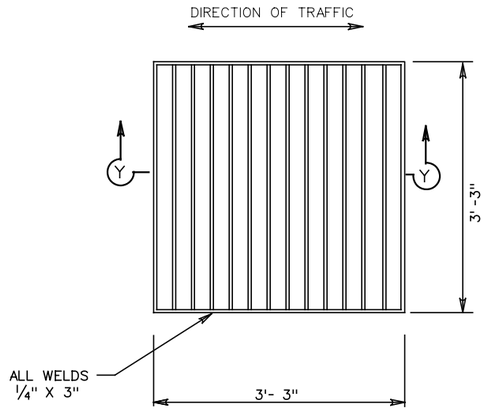
I-BEAM DETAILS
W 6 X 15



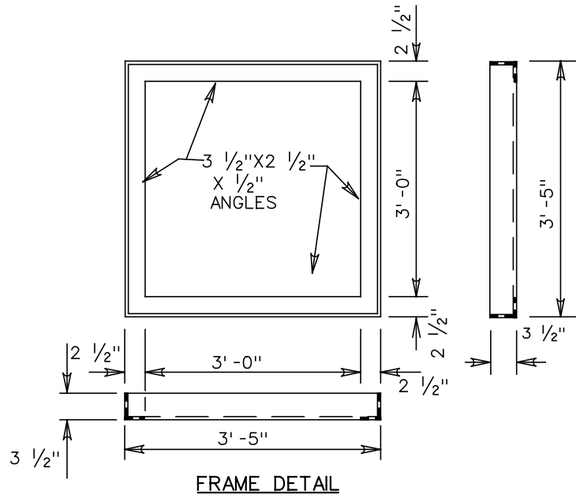
SEC. B-B
(DETAIL W/GRATE)



SECTION Y-Y



SECTION Y-Y
GRATE DETAILS



FRAME DETAIL
TWO FRAMES PER INLET
TO BE SUBSIDIARY TO INLET ITEM

NOTE: ALL STEEL REINFORCING TO BE NO. 4 BARS ON 1' -0" SPACING IN BOTH DIRECTIONS
ALL STEEL TO BE GR. 60.

PHARR DISTRICT STANDARD

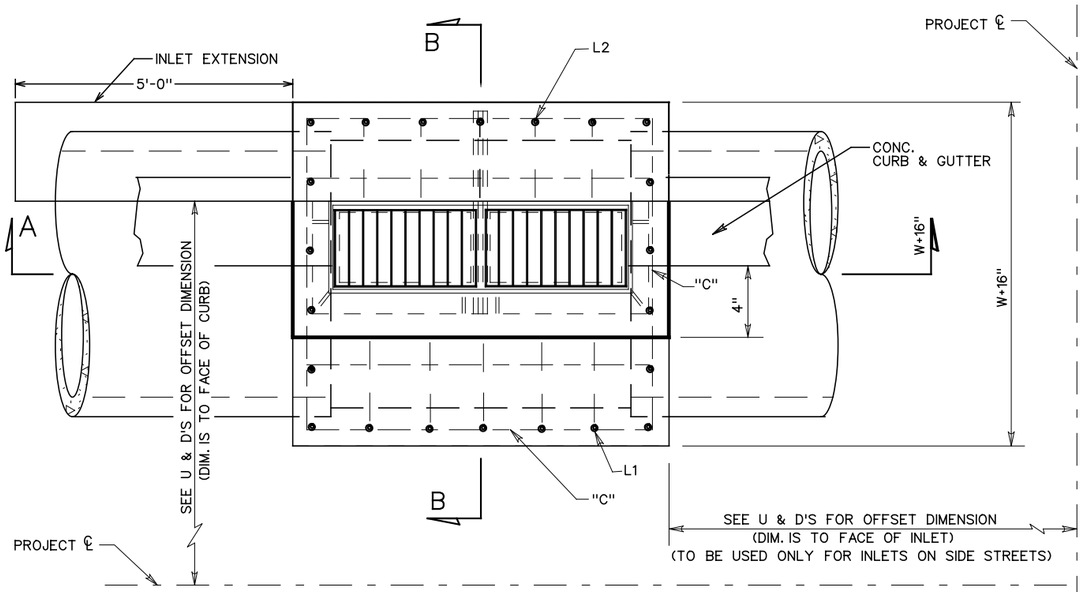
TEXAS DEPARTMENT OF TRANSPORTATION

INLET TY "CC" DETAIL

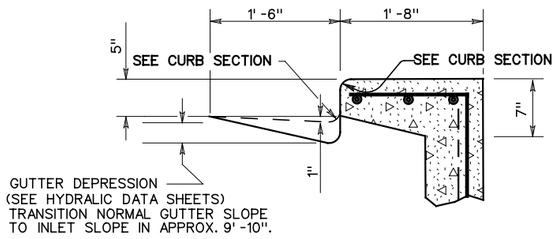
REV. 03/04 INLETCC.DGN

FED.RD. DIV.NO.	FILE NO.	PROJECT NO.	SHEET NO.
6			48

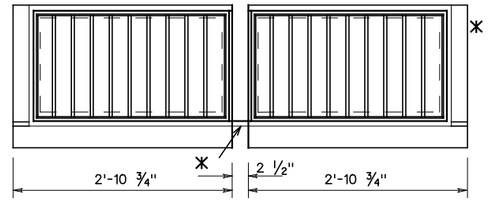
STATE	STATE DIST.NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21	HIDALGO				



PLAN VIEW

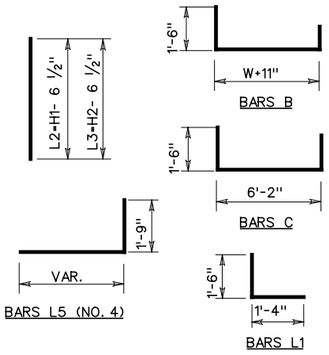


CURB SECTION DETAIL

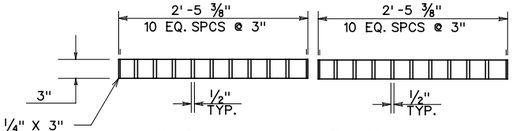


FRAMES AND GRATE TOP VIEW
TO BE SUBSIDIARY TO INLET ITEM

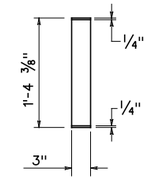
CONTRACTOR IS TO LEAVE THE GAP OPEN UNTIL THE FINAL LIFT OF HOT MIX IS LAID FOR DRAINAGE. THEN THE CONTRACTOR IS TO FILL IN THE GAP WITH EPOXY & MORTAR AS PER ITEM 421. THE MORTAR IS SUBSIDIARY TO ITEM 465. PROVIDE A 4" X 2 ½"X ¾" STEEL SPACER PLATE TO BE WELDED TO THE BOTTOM FRONT OF ONE OF THE FRAMES.



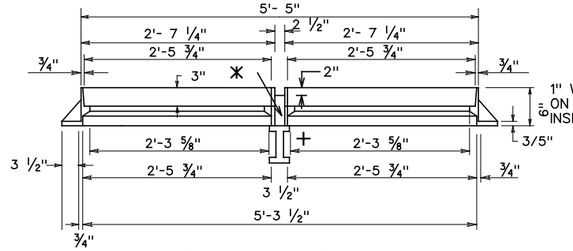
REINFORCING STEEL DETAILS



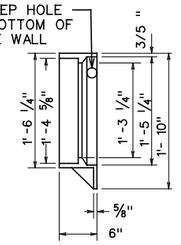
GRATE ELEV. SECTION



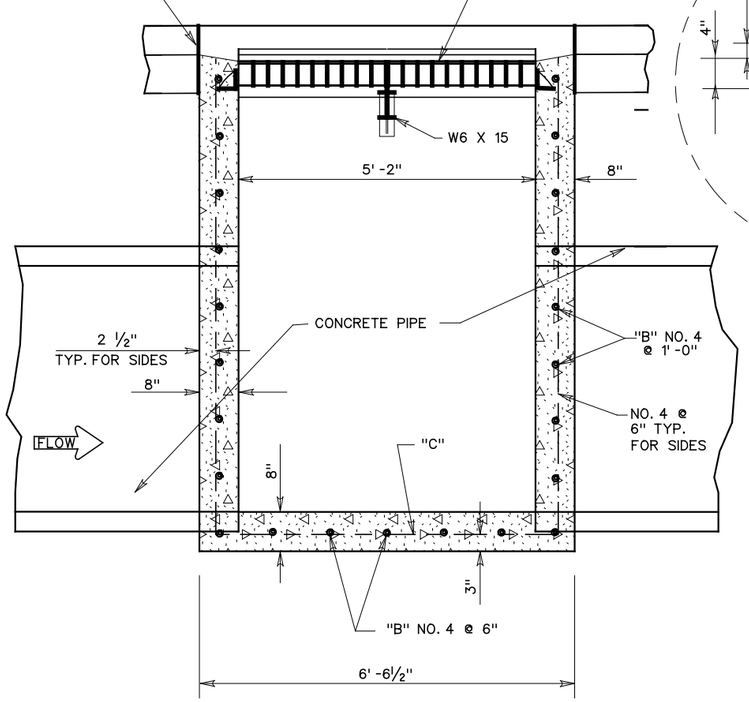
GRATE SECTION



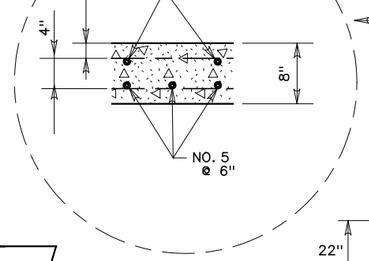
FRAME ELEVATION

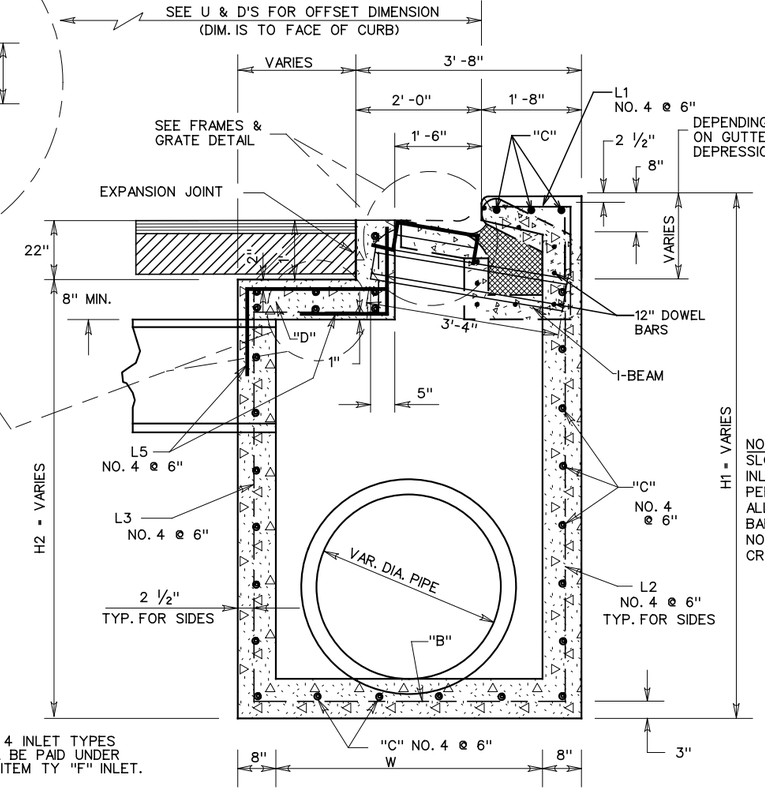


FRAME SECTION



SECTION A-A

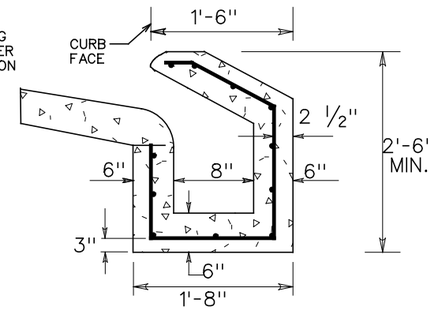




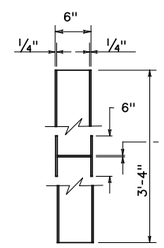
SECTION B-B

	INLET TYPE	W	MAX PIPE SIZE ALLOW (DIA.)
*	F	3'-0"	24"
*	F-1	4'-0"	36"
*	F-2	5'-0"	48"
*	F-3	6'-0"	60"

* ALL 4 INLET TYPES WILL BE PAID UNDER BID ITEM TY "F" INLET.



INLET EXTENSION



I-BEAM DETAILS
W 6 X 15

NOTE:
SLOPE BOTTOM OF INLET EXTENSION ½" PER FT. TOWARD INLET. ALL STEEL TO BE NO. 4 BARS ON 12" SPACING NORMAL TO THE CROSS SECTION.

NOTE: ALL REINFORCEMENT BARS SHALL BE GRADE 60.

PHARR DISTRICT STANDARD

Texas Department of Transportation

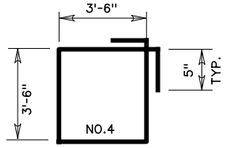
TY "F" INLET DETAILS

REV. 6/04

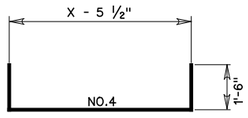
INLETF.DGN

FED.RD. DIV.NO.	STATE AID PROJECT NO.		FILE NO.				SHEET NO.
6							49
STATE	STATE DIST.NO.	COUNTY	CONT.	SECT.	JOB		HIGHWAY NO.
TEXAS	21						

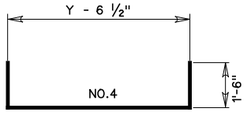
N.T.S.



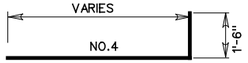
BARS O



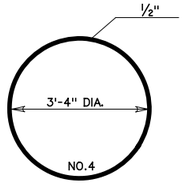
BARS B



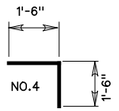
BARS C



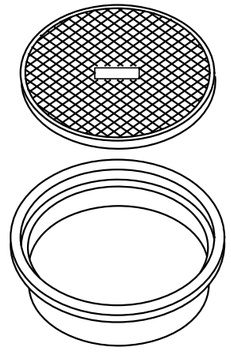
BARS L 1



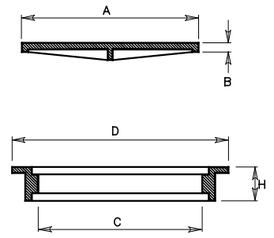
CONCENTRIC BAR

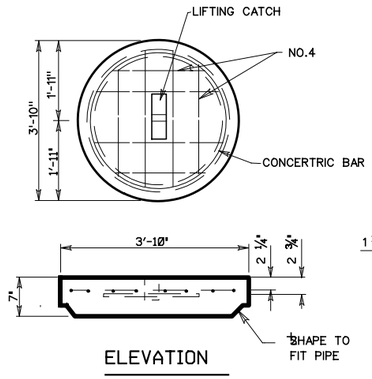


BARS L 2

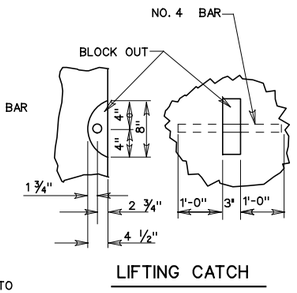


RING & COVER DETAILS (STEEL)
(SUBSIDIARY)





ELEVATION



LIFTING CATCH

LID			RING				TOTAL WT.
"A"	"B"	WEIGHT	"C"	"D"	"H"	WEIGHT	
25⅝"	1"	125 lbs. (min)	24	32	5	185 lbs.	310 lbs.

CONCRETE PIPE RISER COVER
OPTIONAL PRECAST CONCRETE LIFT-OFF COVER
(SUBSIDIARY)

GENERAL NOTES

UNLESS OTHERWISE SHOWN IN THE PLANS. PAYMENT WILL BE MADE FOR EACH MANHOLE OF THE TYPE M.
EXPOSED EDGES SHALL BE CHAMFERED 3/4".
ALTERNATE DESIGN DRAWINGS BEARING THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER WILL BE ACCEPTABLE FOR PRECAST CONSTRUCTION OF MANHOLES

SHOP DRAWINGS WILL NOT BE REQUIRED.

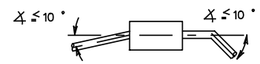
ALL MANHOLES LOCATED ON PAVED SURFACES WILL BE CONSTRUCTED WITH A COVER OF THE TYPE THAT WILL ENABLE IT TO BE BOLTED TO THE RING.

THE CONTRACTOR MAY WITH THE APPROVAL OF THE ENGINEER FURNISH MANHOLES OF EQUIVALENT STRUCTURAL DESIGN.

IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL. BLOCK-OUTS PIPES, ANCHOR BOLTS OR OTHER REINFORCING STEEL. THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.

THE RISER MAY BE CONSTRUCTED OF REINFORCED CONCRETE AS SHOWN OR OF REINFORCED CONCRETE PIPE, CLASS III, IN ACCORDANCE WITH ASTM DESIGNATION C-76. IF PIPE IS USED, JOINTS SHALL CONFORM TO THE ITEM "REINFORCED CONCRETE PIPE CULVERTS". PRECAST CONCRETE LIFT OFF COVER MAY BE SUBSTITUTED FOR "RING AND COVER".

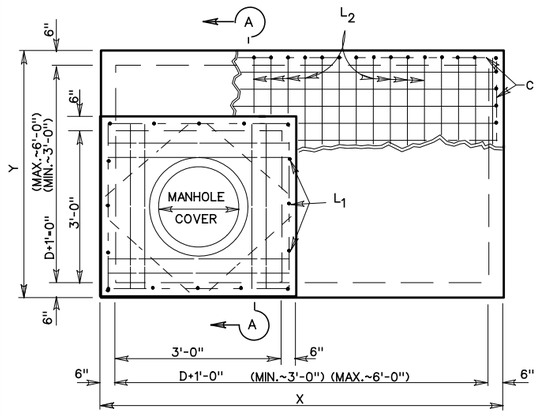
CONNECTING PIPES SHOULD WITHIN 10 DEG. OF NORMAL TO INLET GRATE IF NECESSARY. PIPE ELBOW OR CURBED APPROACH ALIGNMENT SHOULD BE USED TO STAY WITHIN THIS LIMIT.



PIPES MAY ENTER ALL WALLS. THE MAXIMUM LEGTH OF PIPE THAT CAN BE ACCOMODATED IS 60". MORE THAN ONE PIPE MAY ENTER A SIDE SUBJECT TO THE MAXIMUM BOX DIMENSIONS SHOWN. THE CLEAR DISTANCE BETWEEN ADJACEMENT PIPES SHOULD BE 9" MINIMUM.

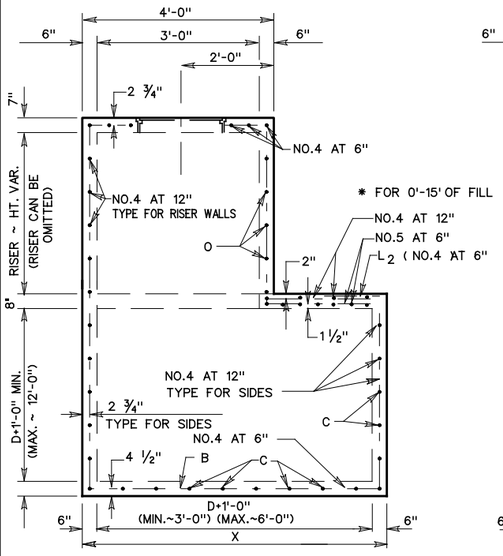
MANHOLE COVERS SHALL BE EAST JORDAN IRON WORKS CITY OF WESLACO COVER OR EQUIVALENT. ALL MANHOLE COVERS ARE SUBJECT TO FINAL APPROVAL BY THE CITY OF WESLACO OR ITS DESIGNATED REPRESENTATIVE.

MANHOLE WITH CAST-IN-PLACE RISER

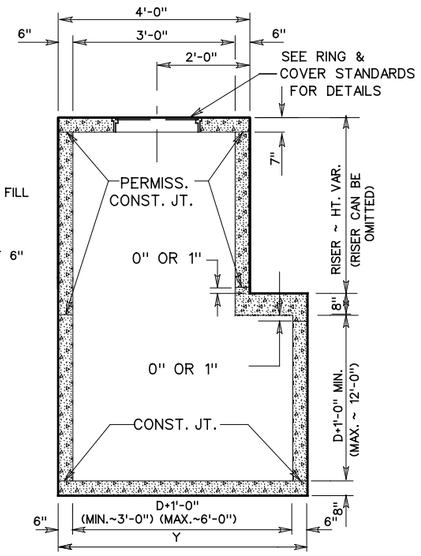


PLAN

NOTE:
RISER, EITHER CAST-IN-PLACE OR CONCRETE PIPE. MAY BE LOCATED IN ANY CORNER. DISTANCE TO ROAD Q IS FROM CENTER OF STRUCTURE.

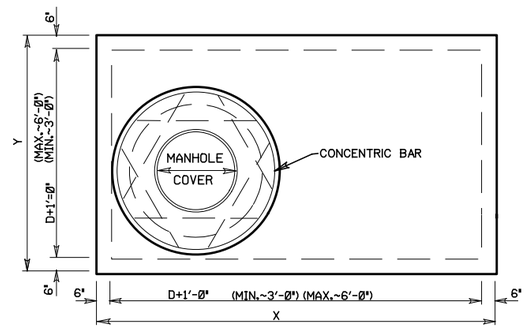


ELEVATION

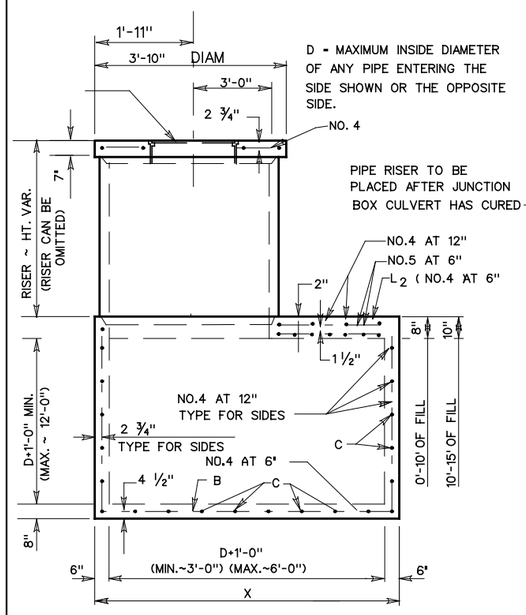


SECTION A-A

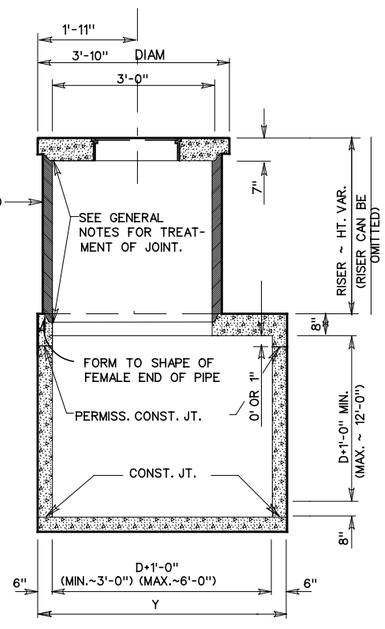
OPTIONAL MANHOLE WITH PIPE RISER



PLAN



ELEVATION



SECTION B-B

N.T.S.

STATE OF TEXAS
MARK CORBITT
101980
REGISTERED
PROFESSIONAL ENGINEER

Mark Corbitt

MARK CORBITT DATE 4/25/2014

PHARR DISTRICT STANDARD

TEXAS DEPARTMENT OF TRANSPORTATION

TYPE "M" MANHOLE (JUNCTION BOX WITH ACCESS)

REV. 08/13 MANHOLE2.DGN

FED.RD. DIV.NO.	PROJECT NO.	FILE NO.	SHEET NO.
6			50

STATE	STATE DIST.NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21					

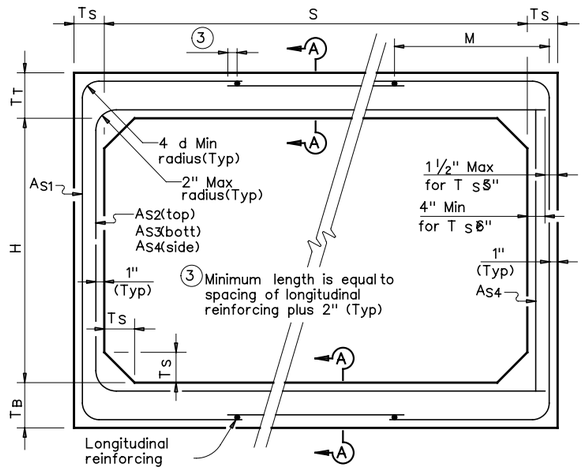
DATE:
FILE:

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (in ²/ft) ②								Lift Weight (Tons) ①
S (ft)	H (ft)	T_T (in)	T_B (in)	T_S (in)	(ft)	(in)	A_{S1}	A_{S2}	A_{S3}	A_{S4}	A_{S5}	A_{S6}	A_{S7}	A_{S8}	
4	2	7.5	6	5	<2	-	0.18	0.27	0.15	0.12	0.18	0.18	0.18	0.14	4.5
4	2	5	5	5	2<3	38	0.18	0.19	0.17	0.12	-	-	-	-	3.6
4	2	5	5	5	3-5	38	0.13	0.13	0.13	0.12	-	-	-	-	3.6
4	2	5	5	5	10	38	0.12	0.12	0.12	0.12	-	-	-	-	3.6
4	2	5	5	5	15	38	0.14	0.16	0.16	0.12	-	-	-	-	3.6
4	2	5	5	5	20	38	0.18	0.20	0.21	0.12	-	-	-	-	3.6
4	2	5	5	5	25	38	0.23	0.25	0.25	0.12	-	-	-	-	3.6
4	2	5	5	5	30	38	0.28	0.30	0.30	0.12	-	-	-	-	3.6
4	3	7.5	6	5	<2	-	0.18	0.31	0.18	0.12	0.18	0.18	0.18	0.14	5.0
4	3	5	5	5	2<3	38	0.15	0.23	0.20	0.12	-	-	-	-	4.1
4	3	5	5	5	3-5	38	0.12	0.16	0.16	0.12	-	-	-	-	4.1
4	3	5	5	5	10	38	0.12	0.14	0.14	0.12	-	-	-	-	4.1
4	3	5	5	5	15	38	0.12	0.18	0.18	0.12	-	-	-	-	4.1
4	3	5	5	5	20	38	0.14	0.23	0.24	0.12	-	-	-	-	4.1
4	3	5	5	5	25	38	0.17	0.29	0.29	0.12	-	-	-	-	4.1
4	3	5	5	5	30	38	0.21	0.35	0.35	0.12	-	-	-	-	4.1
4	4	7.5	6	5	<2	-	0.18	0.33	0.20	0.12	0.18	0.18	0.18	0.14	5.5
4	4	5	5	5	2<3	38	0.12	0.26	0.23	0.12	-	-	-	-	4.6
4	4	5	5	5	3-5	38	0.12	0.18	0.18	0.12	-	-	-	-	4.6
4	4	5	5	5	10	38	0.12	0.15	0.15	0.12	-	-	-	-	4.6
4	4	5	5	5	15	38	0.12	0.19	0.20	0.12	-	-	-	-	4.6
4	4	5	5	5	20	38	0.12	0.25	0.25	0.12	-	-	-	-	4.6
4	4	5	5	5	25	38	0.14	0.31	0.31	0.12	-	-	-	-	4.6
4	4	5	5	5	30	38	0.17	0.37	0.37	0.12	-	-	-	-	4.6

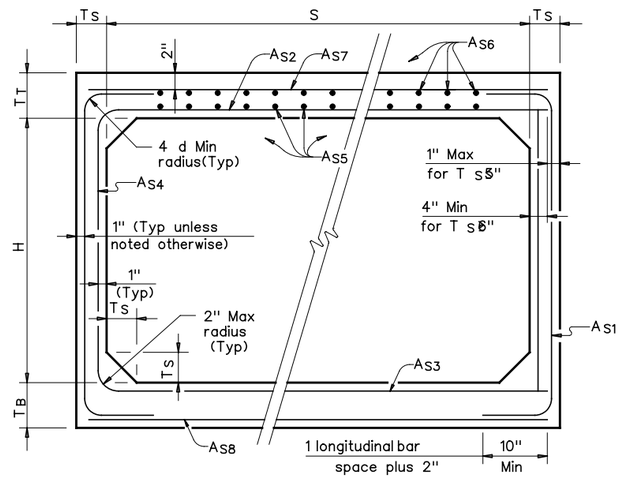
① For Box Length = 8'-0"

② A_{S1} thru A_{S4} & A_{S7} and A_{S8} are minimum required areas of reinforcement per linear foot of box length. A_{S6} and A_{S5} are minimum required areas of reinforcement per linear foot of box width.



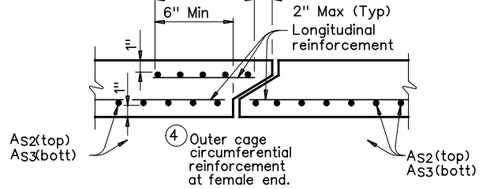
CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT



SECTION A-A

(TOP AND BOTTOM SLAB JOINT REINFORCEMENT)

GENERAL NOTES:

Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.

All concrete shall be Class "H" Concrete with a minimum compressive strength of 5,000 psi.

See SCP-MD standard sheet for miscellaneous details and notes not shown.

In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Shop plans for alternate designs shall be submitted in accordance with Item "Precast Concrete Structures".

HL93 LOADING

Texas Department of Transportation

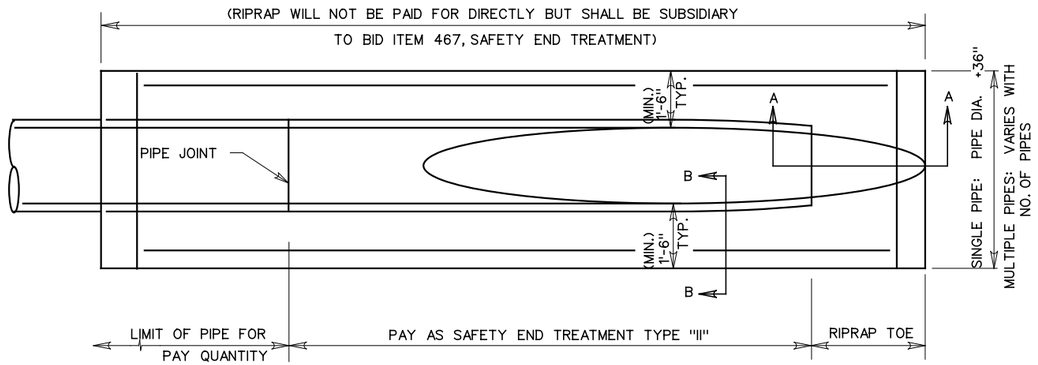
Bridge Division Standard

SINGLE BOX CULVERTS PRECAST

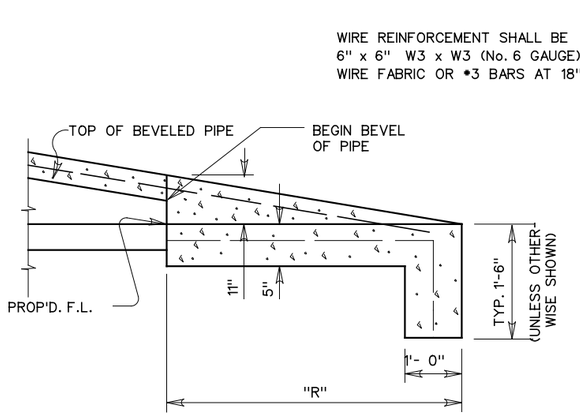
4'-0" SPAN

SCP-4

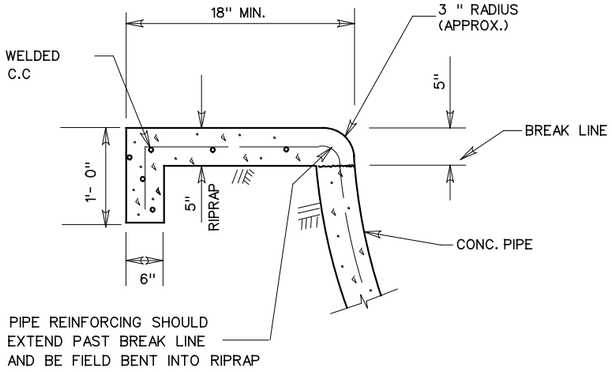
FILE: scp04ste.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				51



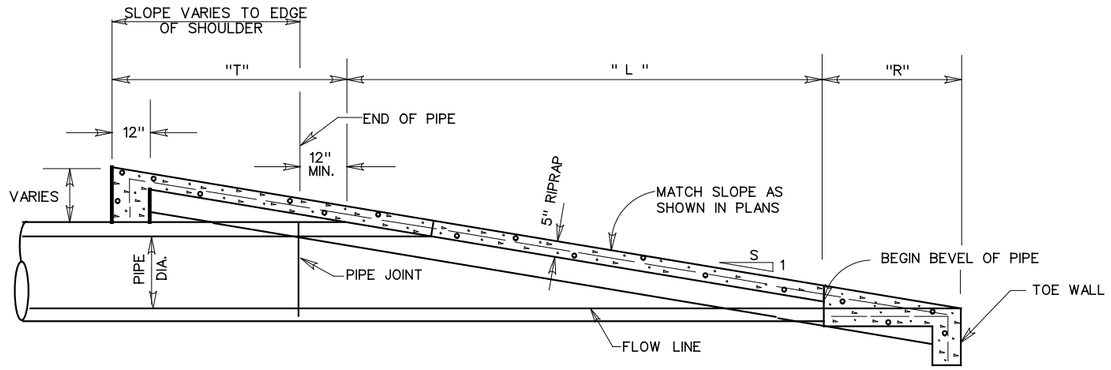
PLAN VIEW



SEC. A-A



SEC. B-B



ELEVATION
SAFETY END TREATMENT

SAFETY END TREATMENT PIPE LENGTHS

PIPE DIA. (IN.)	"L"			
	3:1	4:1	5:1	6:1
12	2'-0"	2'-8"	3'-4"	4'-0"
15	2'-9"	3'-8"	4'-7"	5'-6"
18	3'-6"	4'-8"	5'-10"	7'-0"
24	5'-1½"	6'-10"	8'-6½"	10'-3"
30	6'-9"	9-0"	11'-3"	13'-6"
36	8'-6"	11'-4"	14'-2"	17'-0"
42	10'-1½"	13'-6"	16'-10½"	20'-3"
48	11'-9"	15'-8"	19'-7"	23'-6"

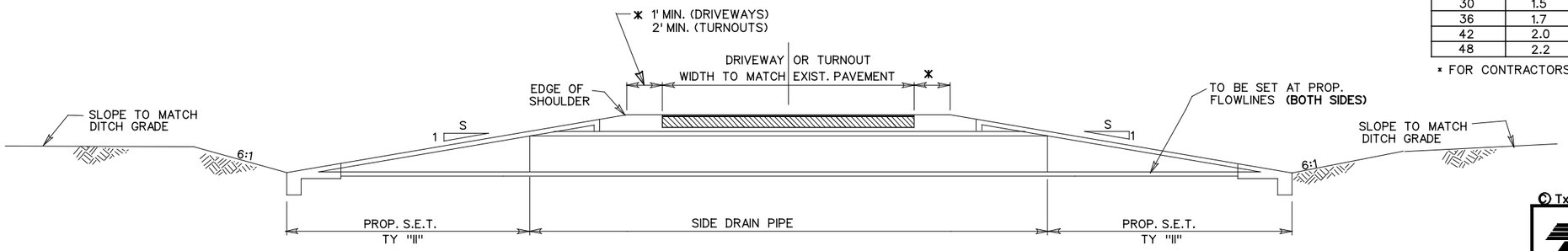
RIPRAP TOE LENGTHS

SLOPE	" R "	"T"
3:1	2'-9"	1'-9"
4:1	3'-8"	2'-4"
5:1	4'-7"	2'-11"
6:1	5'-6"	3'-6"

ESTIMATED RIPRAP VOLUME (CY)

PIPE DIA. (IN.)				
	3:1	4:1	5:1	6:1
12	.9	1.1	1.3	1.6
15	1.0	1.2	1.5	1.8
18	1.1	1.4	1.6	1.9
24	1.3	1.6	2.0	2.3
30	1.5	1.9	2.3	2.7
36	1.7	2.2	2.7	3.2
42	2.0	2.5	3.1	3.6
48	2.2	2.8	3.4	4.1

* FOR CONTRACTORS INFORMATION ONLY (SINGLE PIPE)



TYPICAL SIDEDRAIN SECTION

NOTE:

ALL EXCAVATION AND BACKFILL REQUIRED AT ALL PIPE SIDE DRAIN CONNECTIONS, ADJUSTMENTS AND/OR EXTENSIONS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO THE BID ITEMS INVOLVED AND IN ACCORDANCE WITH ITEM 400 "STRUCTURAL EXCAVATION".

PHARR DISTRICT STANDARDS

TEXAS DEPARTMENT OF TRANSPORTATION

SAFETY END TREATMENT DETAILS

REV. 11/10

SET.DGN

FED.RD. DIV.NO.	STATE AID PROJECT NO.		FILE NO.				SHEET NO.
6							52
STATE	STATE DIST.NO.	COUNTY	CONT.	SECT.	JOB		HIGHWAY NO.
TEXAS	21						

DATE:
FILE:

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

Maximum Wingwall Height Hw	W	X	Y	Z	Variable Reinforcing Bars J 1 Size	Bars J 1 Spa	Bars J 2 Size	Bars J 2 Spa	Estimated Quantities per ft of wing length (2~Wings) (3) Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'- 8"	1'- 9"	1'- 3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'- 2"	2'- 0"	1'- 6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'- 8"	2'- 3"	1'- 9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'- 2"	2'- 6"	2'- 0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'- 8"	2'- 9"	2'- 3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'- 2"	3'- 0"	2'- 6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'- 8"	3'- 3"	2'- 9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'- 2"	3'- 6"	3'- 0"	1'- 0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'- 8"	4'- 0"	3'- 0"	1'- 1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'- 2"	4'- 6"	3'- 0"	1'- 3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2~Wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

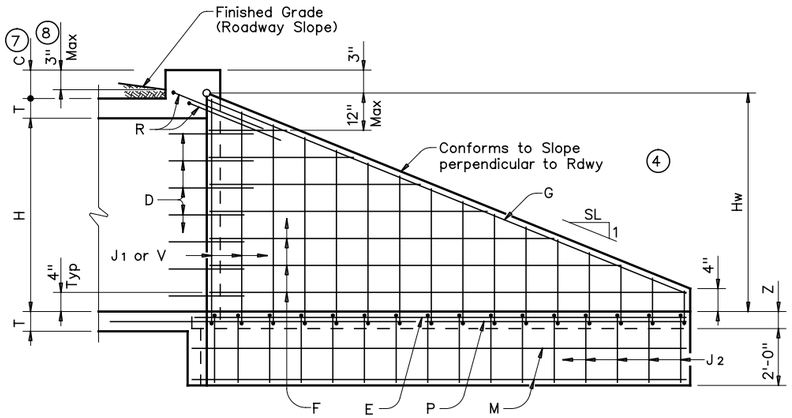
Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)
Hw = H + T + C - 0.250'
A = (Hw - 0.333') (SL)
B = (A) Tangent (30°)
Lw = (A) Cosine (30°)
For Cast-in-place culverts:
Ltw = (N) (S) (N+ 1) (U)
For Precast culverts:
Ltw = (N) (2U - S) (N+ 1) (0.500')
Total Wingwall Area (Two Wings ~ S.F.)=(Hw - 0.333')*(Lw)

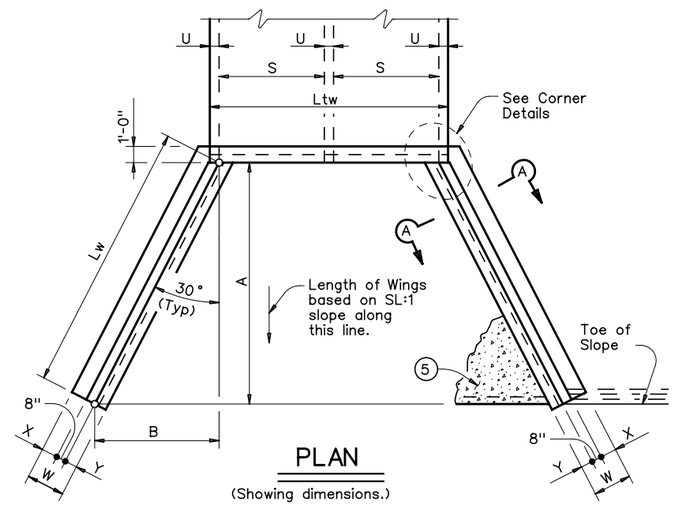
Hw = Height of Wingwall
SL:1 = Side Slope Ratio (Horizontal:1 Vertical)
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans

See applicable box culvert standard for H, S, T, and U values.



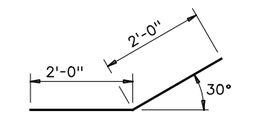
INSIDE ELEVATION

(Showing reinforcing. Culvert and Culvert Toewall reinforcing not shown for clarity.)

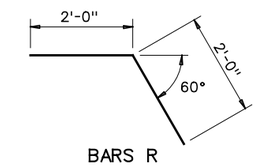


PLAN

(Showing dimensions.)



BARS D



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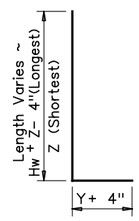
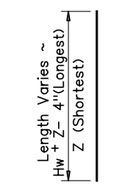
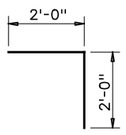


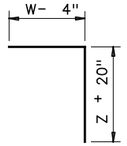
BARS J1



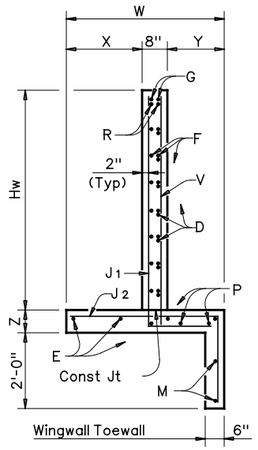
BARS V



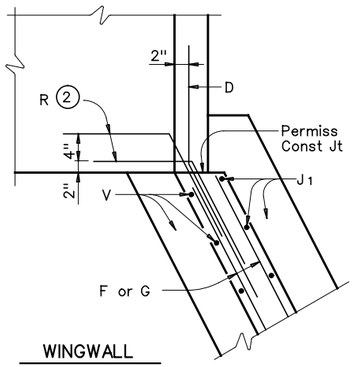
BARS L



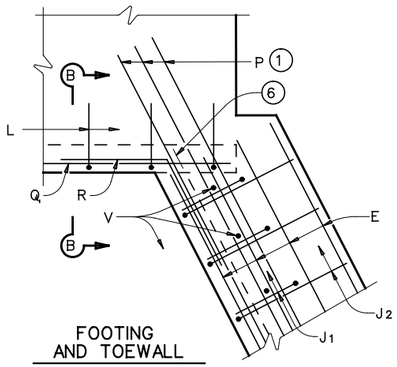
BARS J2



SECTION A-A



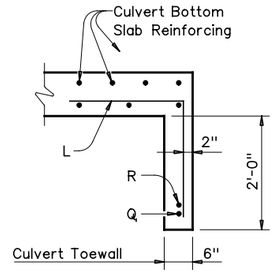
WINGWALL



FOOTING AND TOEWALL

CORNER DETAILS

(Culvert and Culvert Toewall reinforcing not shown for clarity.)



SECTION B-B (5)

(1) Extend Bars P 3'-0" minimum into bottom slab of Box Culvert.

(2) Adjust to fit as necessary to maintain 1 1/4" clear cover and 4" minimum between bars.

(3) Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by Lw.

(4) Recommended values of Slope are: 2:1, 3:1, 4:1, & 6:1.

(5) When shown elsewhere on the plans, a 5" deep concrete riprap shall be constructed. Payment for riprap shall be as required by Item 432, "Riprap". Unless otherwise shown on the plans or directed by the Engineer, the riprap shall have a 6" wide by 1'-6" deep reinforced concrete toewall along all edges adjacent to natural ground; the toewall shall be reinforced by extending typical riprap reinforcing into the toewall; construction joints or grooved joints, oriented in the direction of flow, shall extend across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.

(6) At Contractor's option, Culvert Toewall may be ended flush with Wingwall Toewall. Adjust reinforcing from that shown as necessary.

(7) 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-CM standard. For structures with traffic rail, other than T6, refer to RAC standard.

(8) For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

All reinforcing steel shall be Grade 60.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

All reinforcing bars shall be adjusted to provide a minimum of 1 1/4" clear cover.

When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.

See BCS sheet for additional dimensions and information.

The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

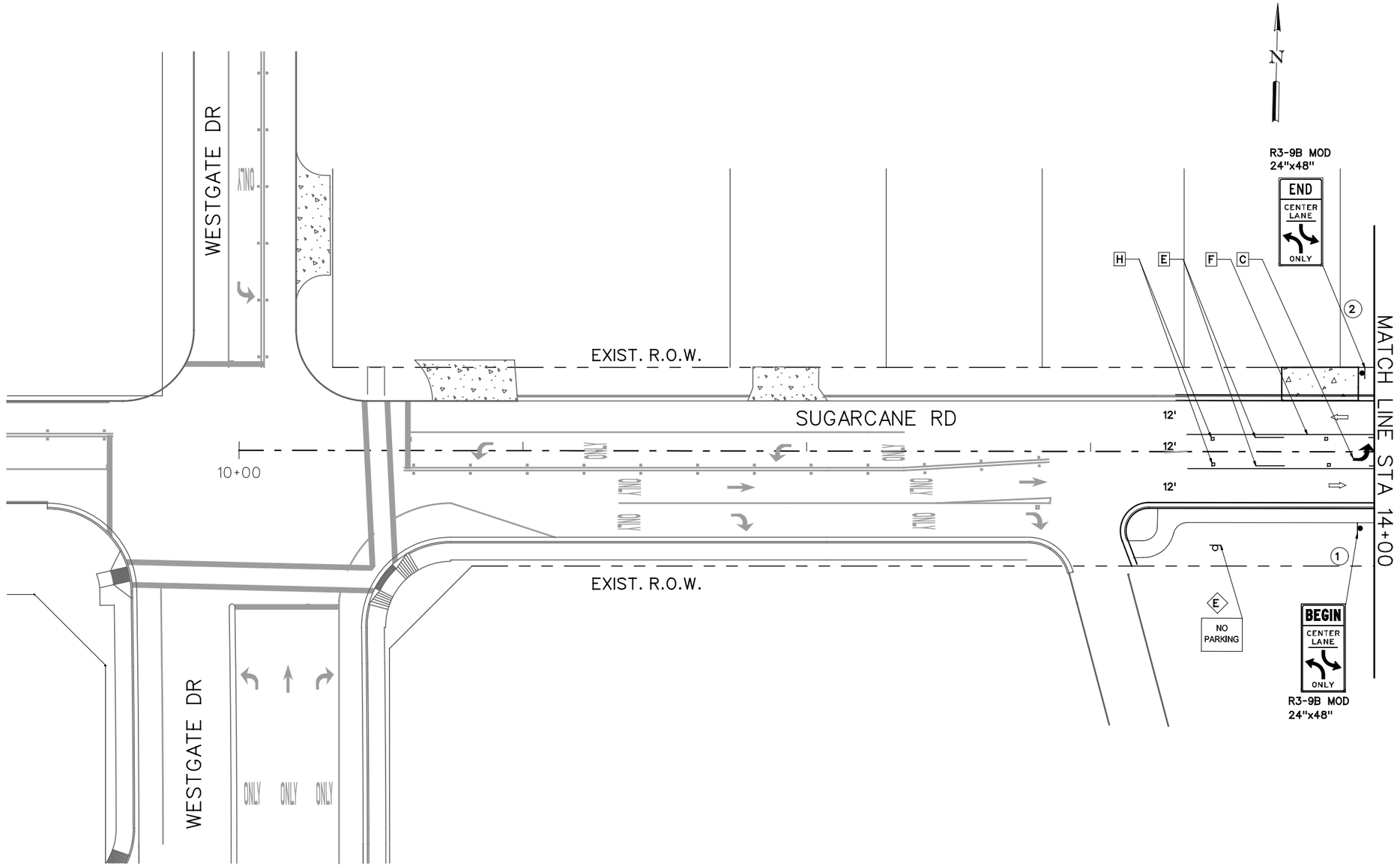
Texas Department of Transportation

Bridge Division Standard

CONCRETE WINGWALLS
WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS

FW-0

FILE: fw-0stde.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
11-10: Add note for synthetic fibers.	DIST	COUNTY		SHEET NO.
				53



PAVEMENT MARKINGS LEGEND

(REFL PAV MRK TYPE I)(100 MIL)

- A (W)(08")(SLD)
- B (W)(24")(SLD)
- C (W)(ARROW)
- D (W)(WORD)
- E (Y)(04")(BRK)
- F (Y)(04")(SLD)

RAISED PAVEMENT MARKERS

- G TYPE I-C
- H TYPE II-A-A
- DIRECTION OF TRAFFIC FLOW

SIGNING LEGEND

- PROPOSED SMALL SIGN
- (R) EXISTING SMALL SIGN TO BE REMOVED
- (E) EXISTING SIGN TO REMAIN IN PLACE
- (RL) EXISTING SIGN TO BE RELOCATED

NOTES:

PROPOSED SMALL SIGNS SHALL BE INSTALLED USING NEW POST AND PANELS.

REMOVAL OF EXISTING SMALL SIGNS SHALL INCLUDE POST AND PANEL. THE FOUNDATION SHALL BE REMOVED TO 2 FT BELOW FINISHED GRADE.

ALL SIGNS TO BE REMOVED ARE TO BE DELIVERED TO THE CITY OF WESLACO PUBLIC FACILITIES BUILDING.

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT DATE 4/28/2014

CITY ON THE GROW
CITY OF WESLACO

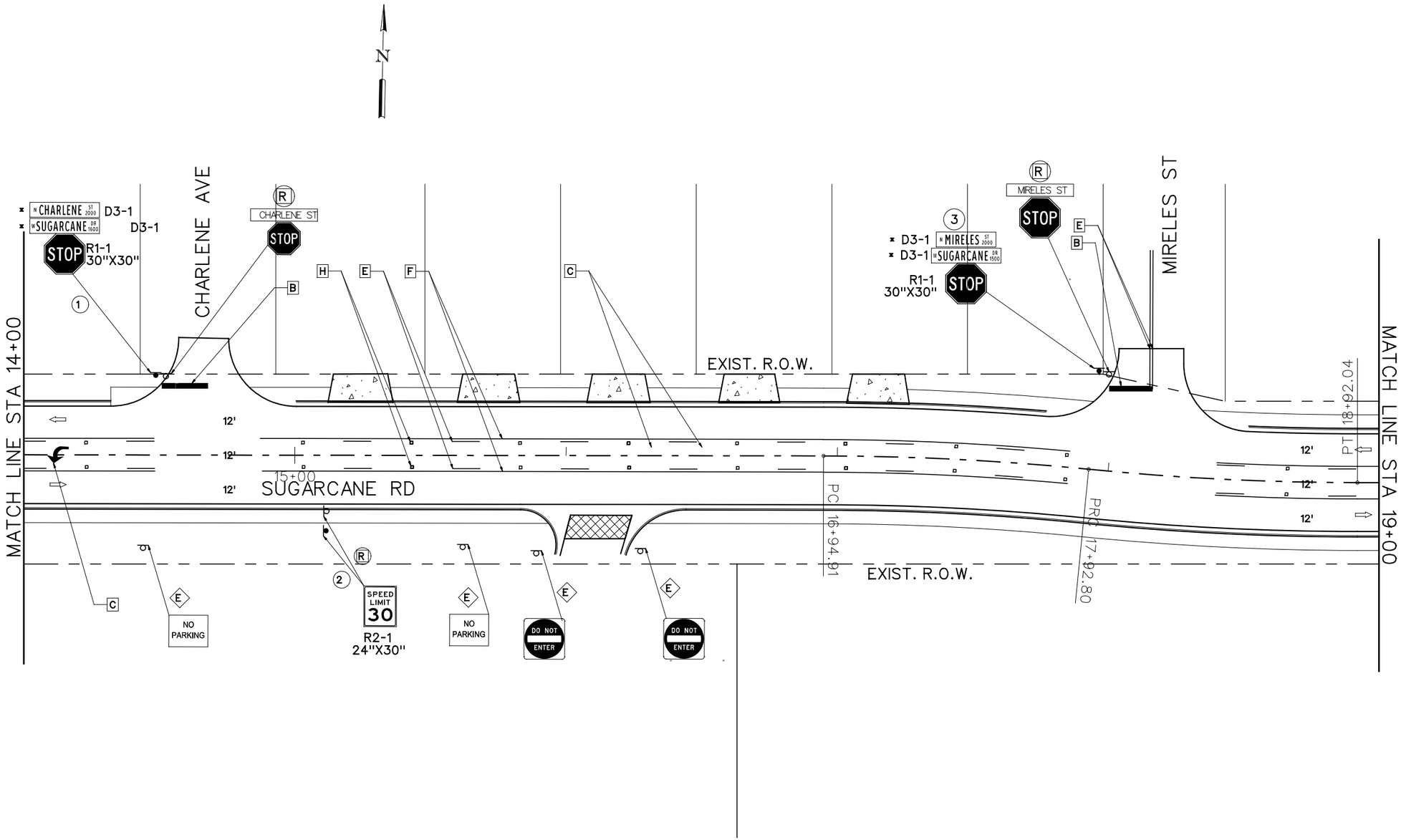
TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TBPE F-1640
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898

SUGARCANE DR

SIGNING AND PAVEMENT MARKINGS LAYOUT

SCALE :1"=40' SHEET 1 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			54
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE DR



PAVEMENT MARKINGS LEGEND

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D	(W)(WORD)
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F	(Y)(04")(SLD)

RAISED PAVEMENT MARKERS

G	TYPE I-C
H	TYPE II-A-A
⇦	DIRECTION OF TRAFFIC FLOW

SIGNING LEGEND

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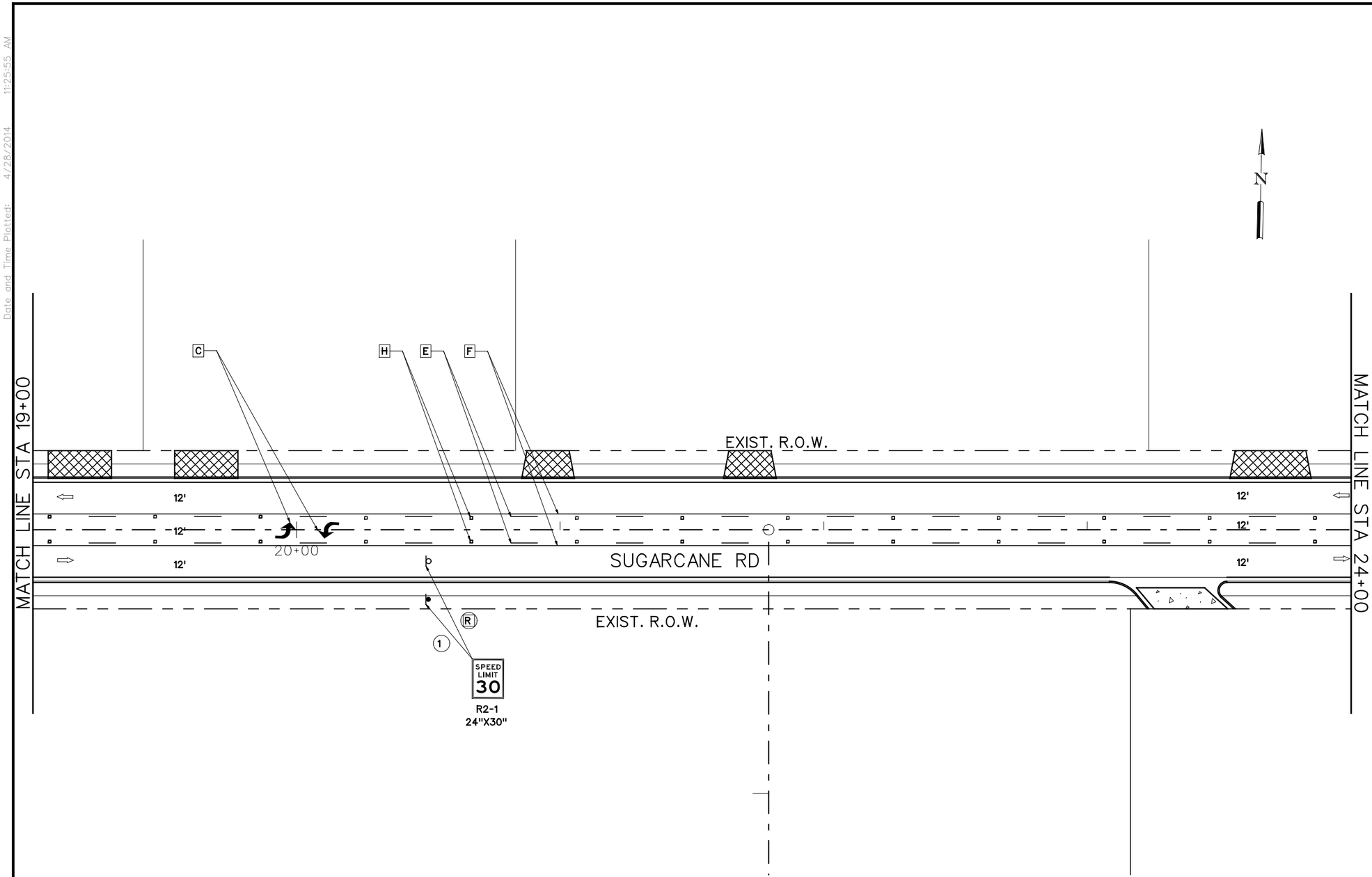
SUGARCANE DR

SIGNING AND PAVEMENT MARKINGS LAYOUT

SCALE :1"=40' SHEET 2 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			55
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE DR



PAVEMENT MARKINGS LEGEND

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- D (W)(WORD)
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RAISED PAVEMENT MARKERS

- G TYPE I-C
- H TYPE II-A-A
- ⇦ DIRECTION OF TRAFFIC FLOW

SIGNING LEGEND

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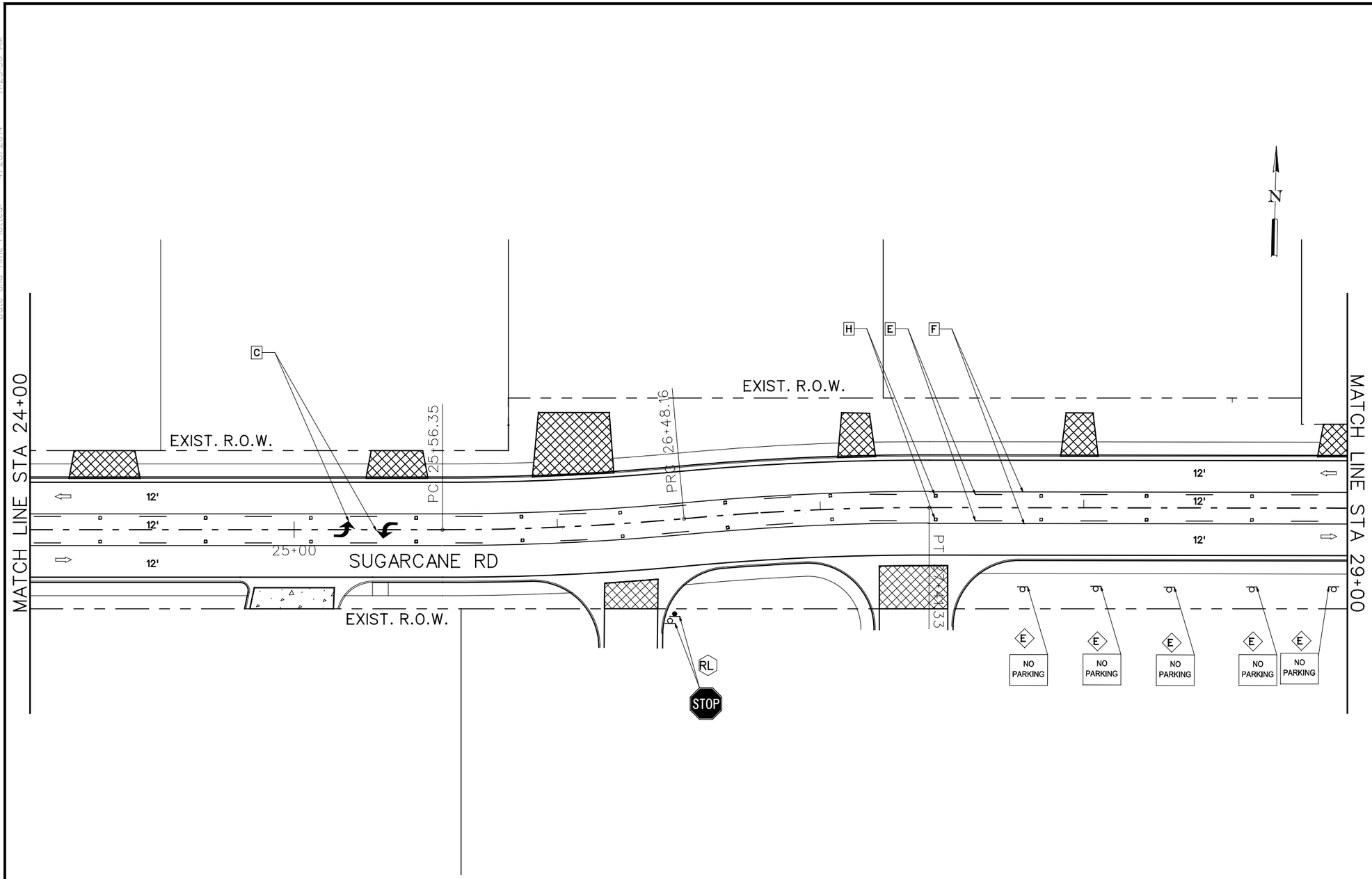
SUGARCANE DR

SIGNING AND PAVEMENT MARKINGS LAYOUT

SCALE :1"=40' SHEET 3 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			56
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE DR



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RAISED PAVEMENT MARKERS

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- ⇦ DIRECTION OF TRAFFIC FLOW

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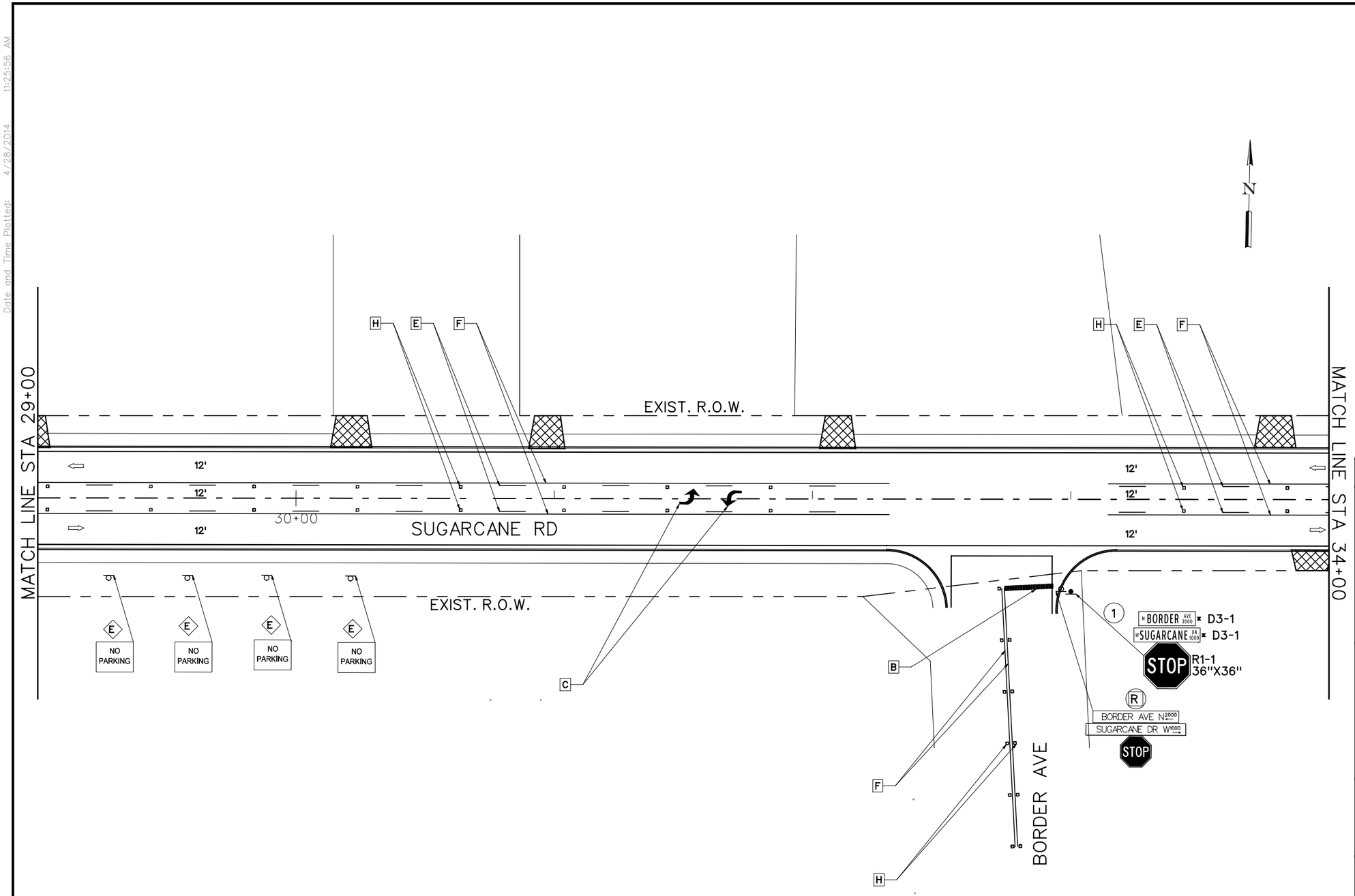
SUGARCANE DR

SIGNING AND PAVEMENT MARKINGS LAYOUT

SCALE :1"=40' — SHEET 4 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			57
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE DR



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- D (W)(WORD)
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RAISED PAVEMENT MARKERS

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- H TYPE II-A-A
- ⇦ DIRECTION OF TRAFFIC FLOW

SIGNING LEGEND

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SIGNING AND PAVEMENT MARKINGS LAYOUT

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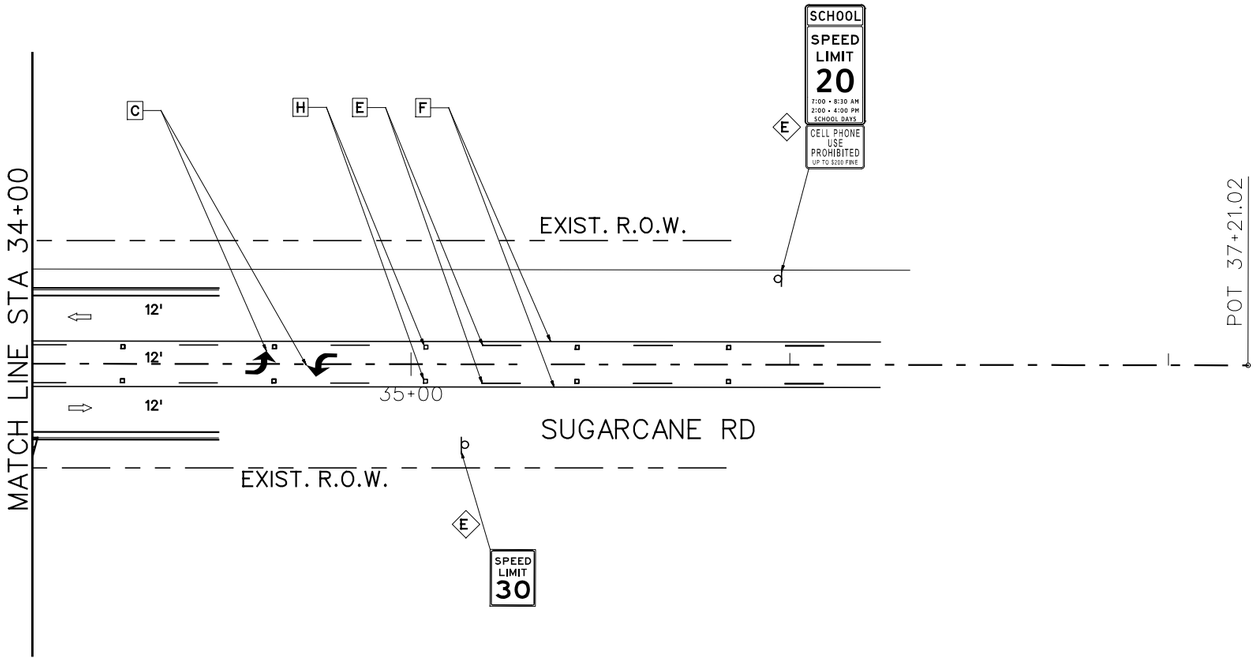
SCALE :1"=40' SHEET 5 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.			SHEET NO.
				58
STATE	DIST.	COUNTY		
TEXAS		HIDALGO		
CONT.	SECT.	JOB	HIGHWAY NO.	
			SUGARCANE DR	



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- C (W)(ARROW)
- D (W)(WORD)
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RAISED PAVEMENT MARKERS

- G TYPE I-C
- H TYPE II-A-A
- DIRECTION OF TRAFFIC FLOW

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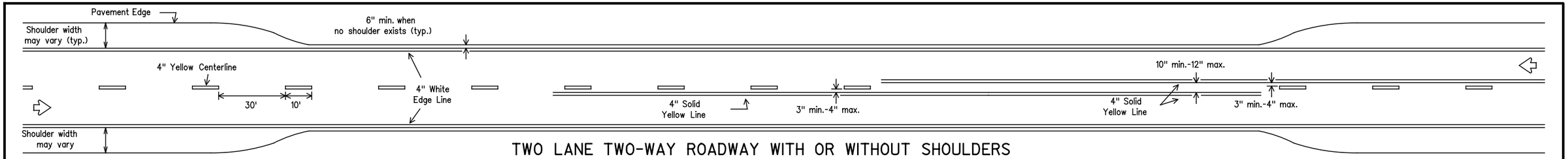
SIGNING AND PAVEMENT MARKINGS LAYOUT

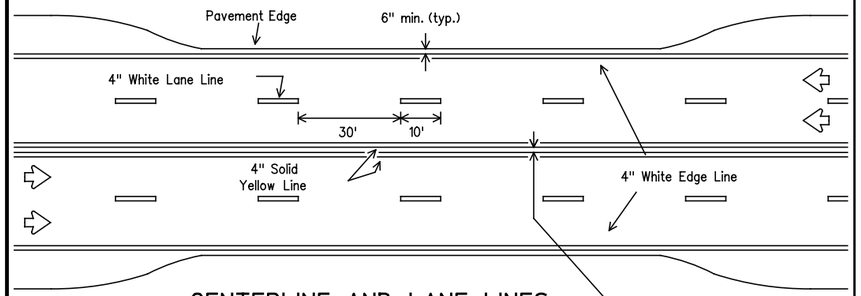
SCALE :1"=40' SHEET 6 OF 6

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			59
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE DR

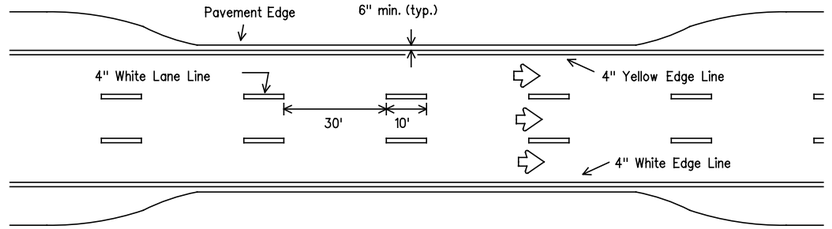
S7-1T
24"x18"



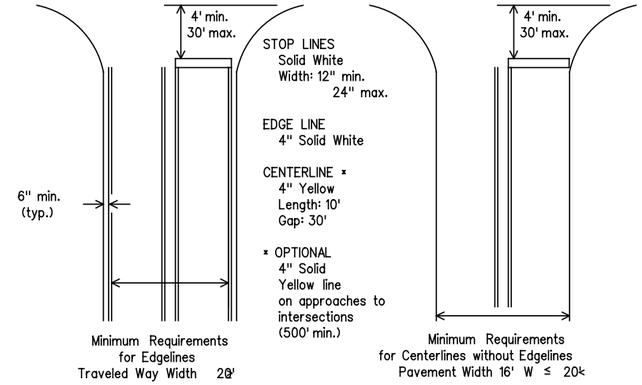
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



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

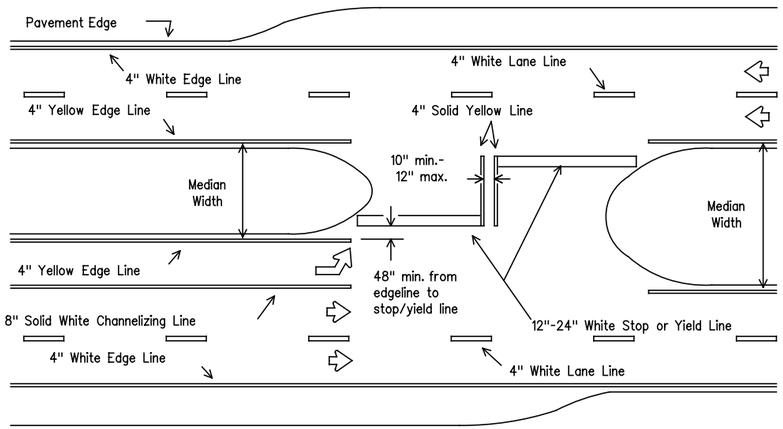


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



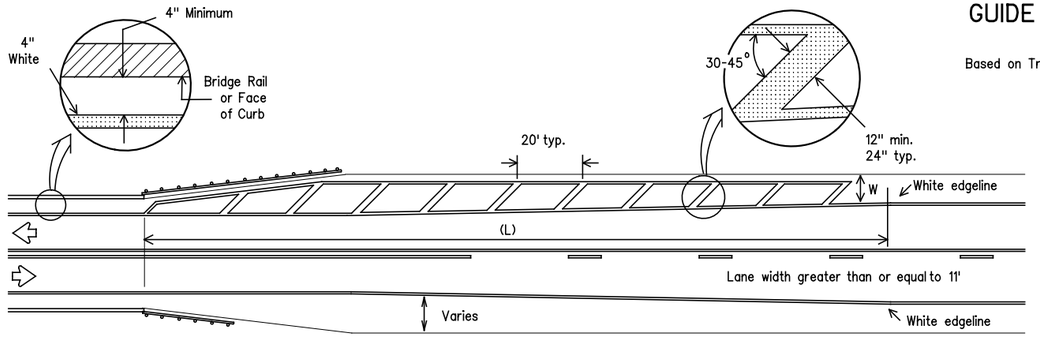
GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways



All medians shall be field measured to determine the location of necessary striping. Stop/Yield bars and centerlines shall be placed when the median width is greater than 30 ft. The median width is defined as the area between two roadways of a divided highway measured from edge of traveled way to edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges and of opposite approaches of the same intersection. The narrow median width will be the controlling width to determine if markings are required.

FOUR LANE DIVIDED ROADWAY INTERSECTIONS



NOTES:

1. No-passing zone on bridge approach is optional but if used, it shall be a minimum 500 feet long.
2. For crosshatching length (L) see Table 1.
3. The width of the offset (W) and the required crosshatching width is the full shoulder width in advance of the bridge.
4. The crosshatching is not required if delineators or barrier reflectors are used along the structure.
5. For guard fence details, refer elsewhere in the plans.

ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

TABLE 1 - TYPICAL LENGTH (L)

Posted Speed *	Formula
≤ 40	$L = \frac{WS^2}{60}$
≥ 45	L=WS

* 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit. Crosshatching length should be rounded up to nearest 5 foot increment.

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

EXAMPLES:

An 8 foot shoulder in advance of a bridge reduces to 4 feet on a 70 MPH roadway. The length of the crosshatching should be:

L = 8 x 70 = 560 ft.

A 4 foot shoulder in advance of a bridge reduces to 2 feet on a 40 MPH roadway. The length of the crosshatching should be:

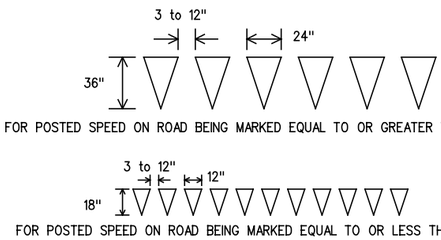
L = 4(40) ² 60 = 106.67 ft. rounded to 110 ft.

GENERAL NOTES

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

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

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



YIELD LINES

Texas Department of Transportation
Traffic Operations Division

TYPICAL STANDARD PAVEMENT MARKINGS

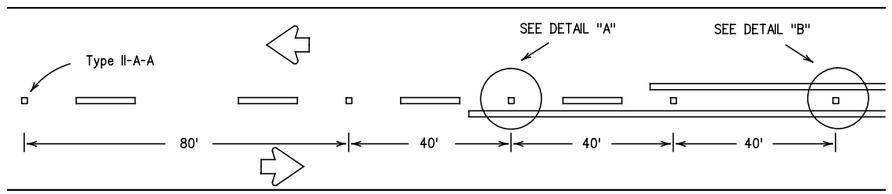
PM(1)-12

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

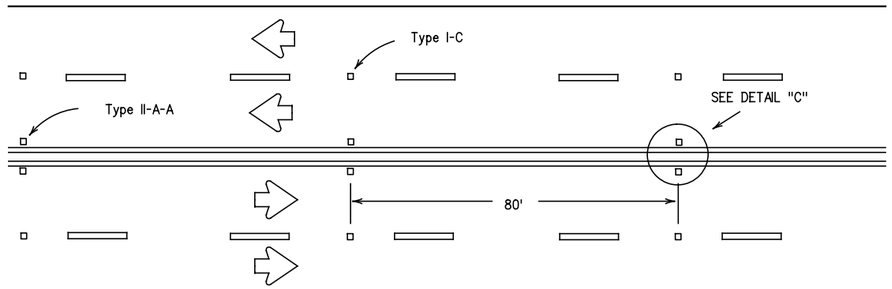
REVISIONS	CONT	SECT	JOB	HIGHWAY
8-95 2-12				SUGARCANE DR
5-00	DIST	COUNTY		SHEET NO.
8-00		HIDALGO		60
3-03				

DATE:
FILE:

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

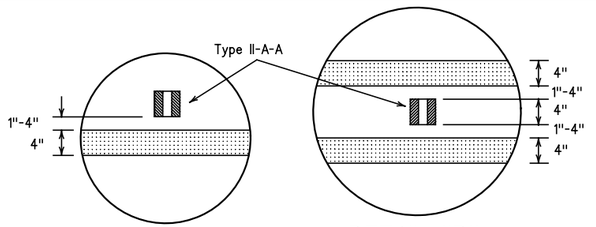


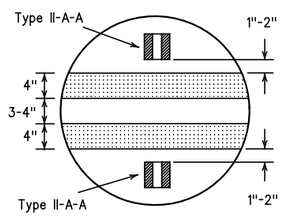
CENTERLINE FOR ALL TWO LANE ROADWAYS

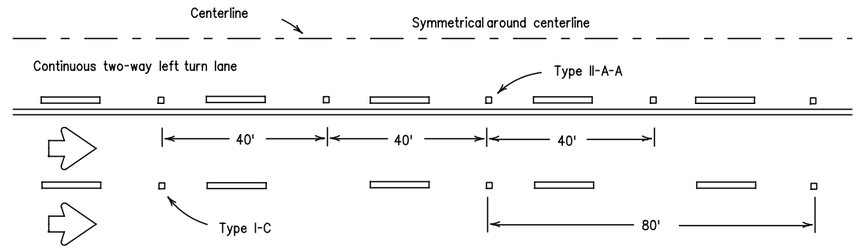


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS

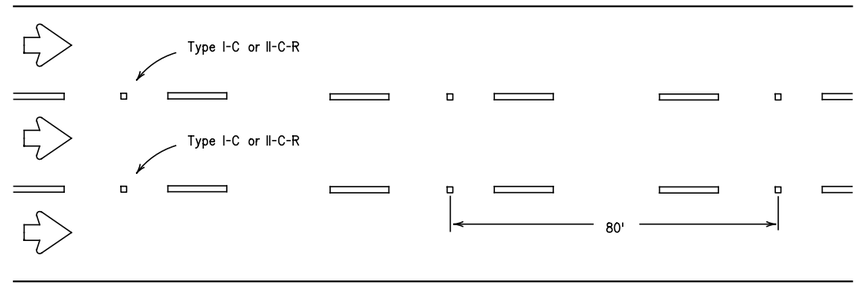
Raised pavement marker Type I-C, clear face toward normal traffic, shall be placed on 80-foot centers.





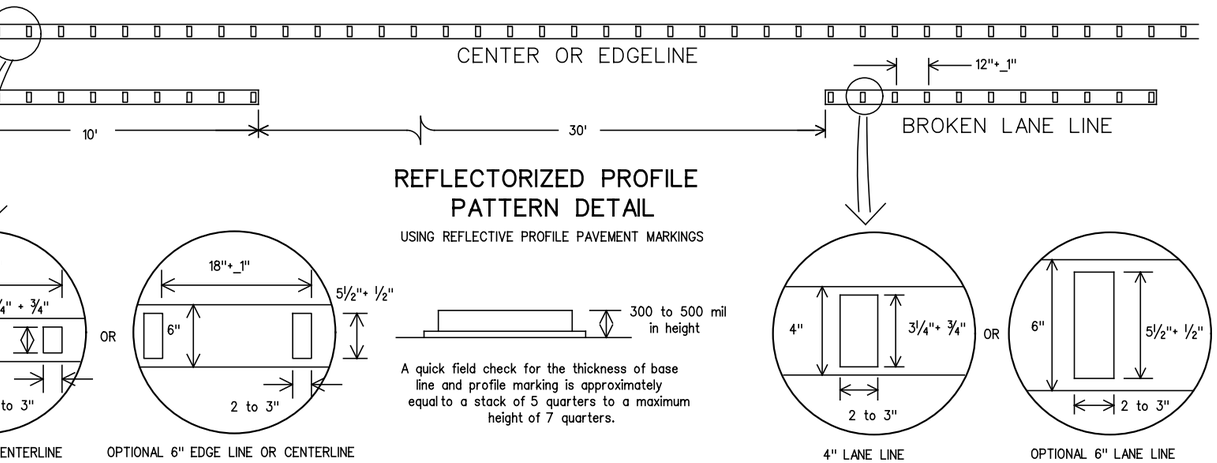


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



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.



4" EDGE LINE OR CENTERLINE

OPTIONAL 6" EDGE LINE OR CENTERLINE

4" LANE LINE

OPTIONAL 6" LANE LINE

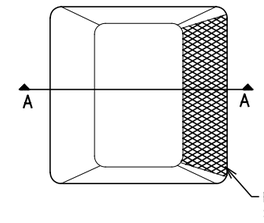
NOTE:
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

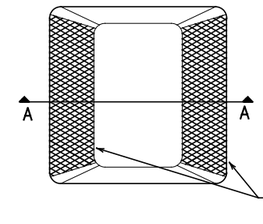
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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

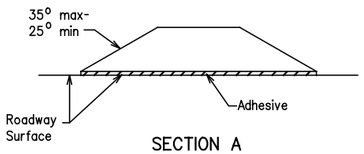
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation
Traffic Operations Division

POSITION GUIDANCE USING RAISED MARKERS
REFLECTORIZED PROFILE MARKINGS
PM(2)-12

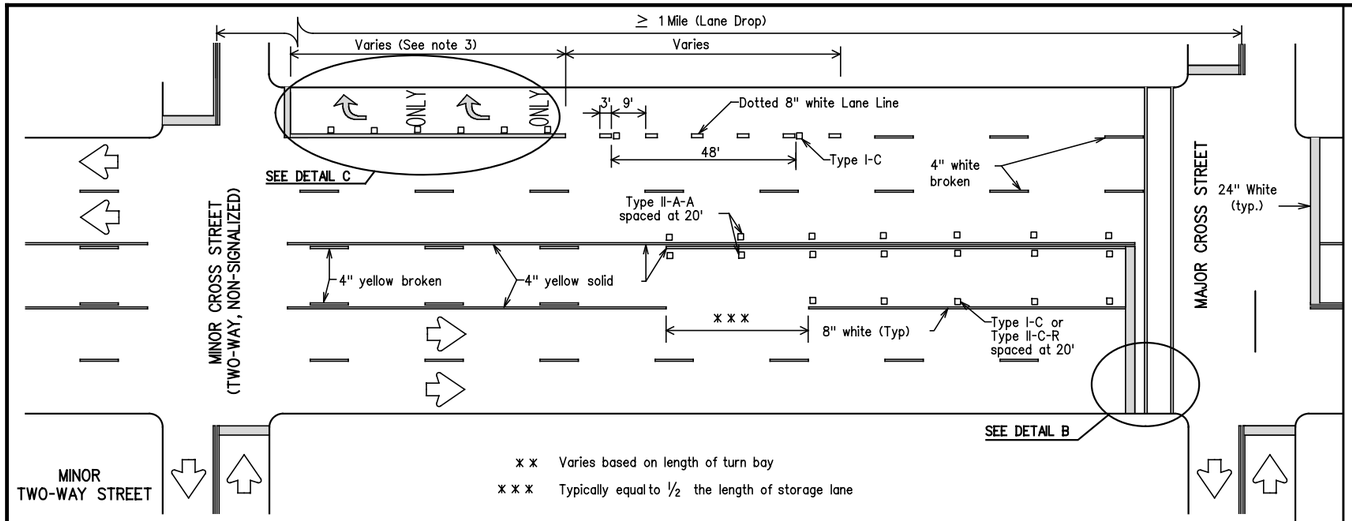
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS		CONT	SECT	JOB	HIGHWAY
4-92	2-10				SUGARCANE DR
5-00	2-12	DIST	COUNTY		SHEET NO.
8-00			HIDALGO		61
2-08					

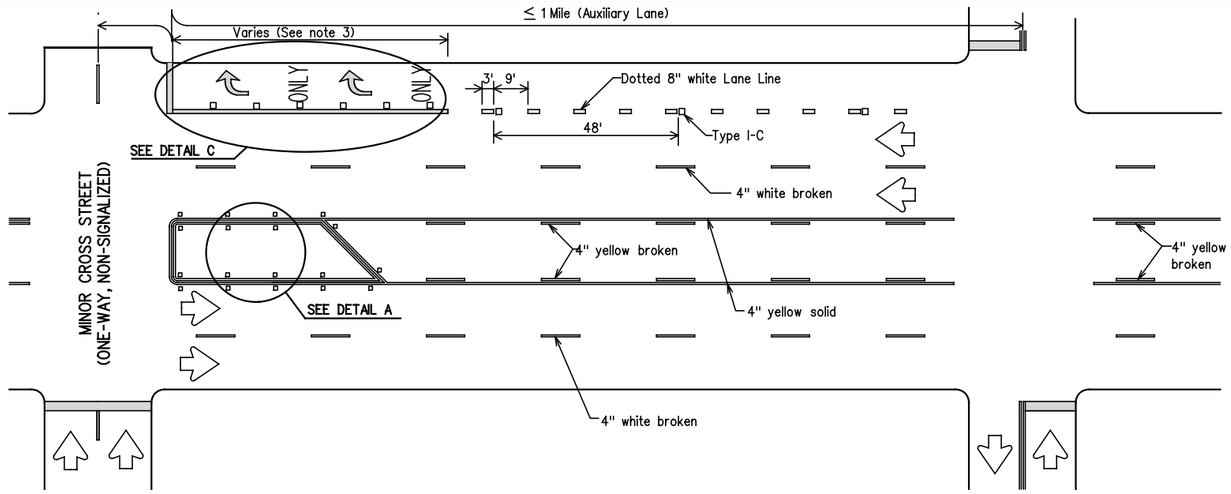
22B

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

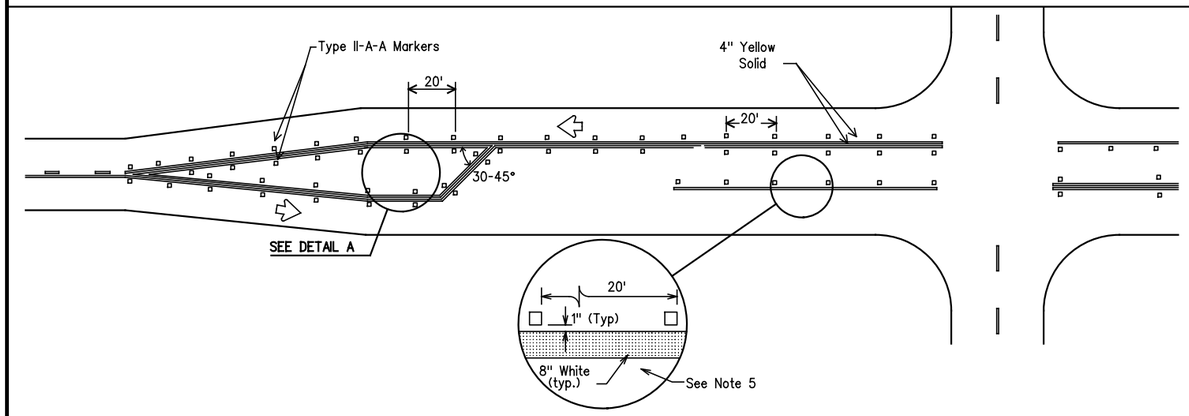
DATE:
FILE:



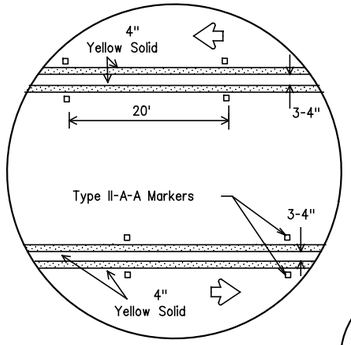
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



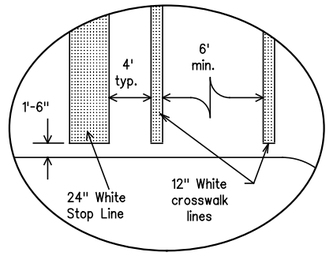
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS

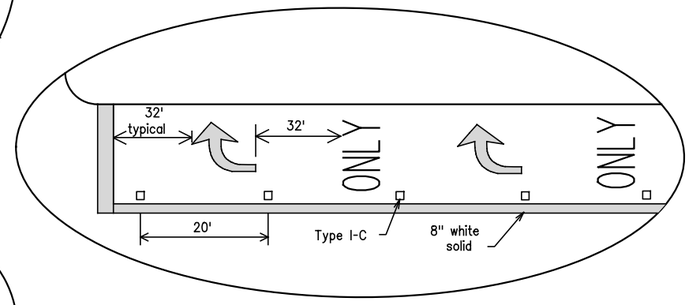


DETAIL A



Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

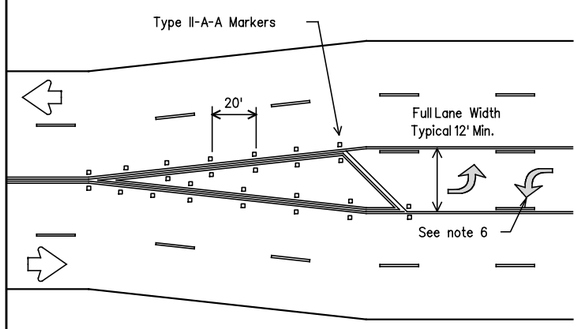
DETAIL B



DETAIL C

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

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



TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

1. Refer elsewhere in plans for additional RPM placement and details.
2. 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 as shown in the Standard Highway Sign Designs for Texas.
3. When lane used word and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
4. Other crosswalk paterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used.
5. Raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Raised pavement marker Type II-C-R with divided highways and raised medians.
6. 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.

Texas Department of Transportation
Traffic Operations Division

PAVEMENT MARKINGS FOR TWO-WAY LEFT TURN LANES DIVIDED HIGHWAYS AND RURAL LEFT TURN BAYS

PM(3)-12

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

REVISIONS
5-00 2-12
8-00
3-03
2-10

CONT	SECT	JOB	HIGHWAY
			SUGARCANE DR
DIST	COUNTY		SHEET NO.
	HIDALGO		62

DATE:
FILE:

22C

DATE: 4/28/2014 11:25:58 AM
FILE: P:\2008\2008-092-2 COW Sugarcane\Design\CSJ\Standards\Signing\smdgen.dgn

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)

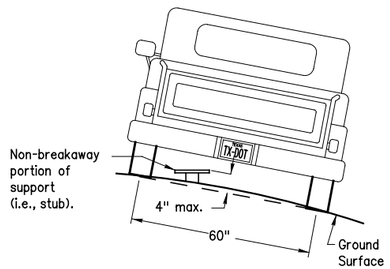
Anchor Type

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-3))

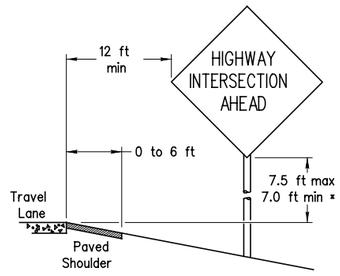
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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).

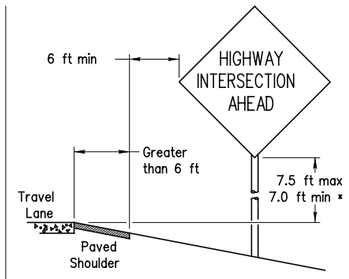
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

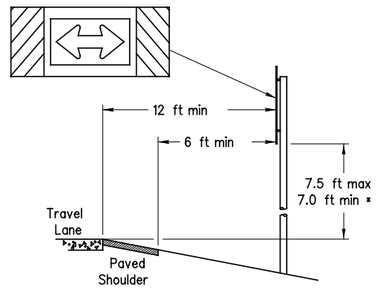
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



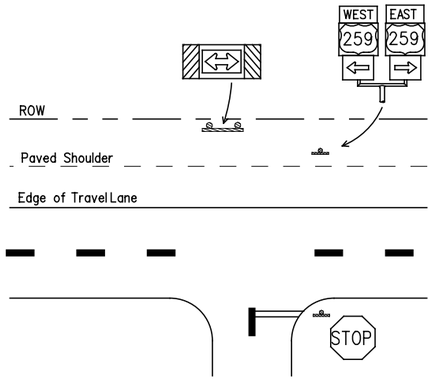
GREATER THAN 6 FT. WIDE

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.

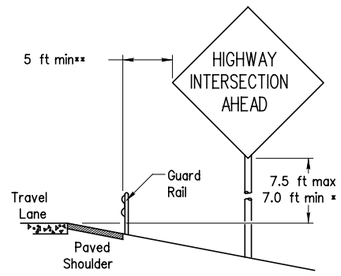
T-INTERSECTION



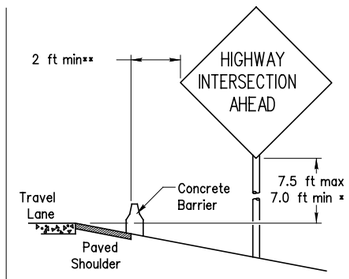
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

SIGN LOCATION (continued)

* 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

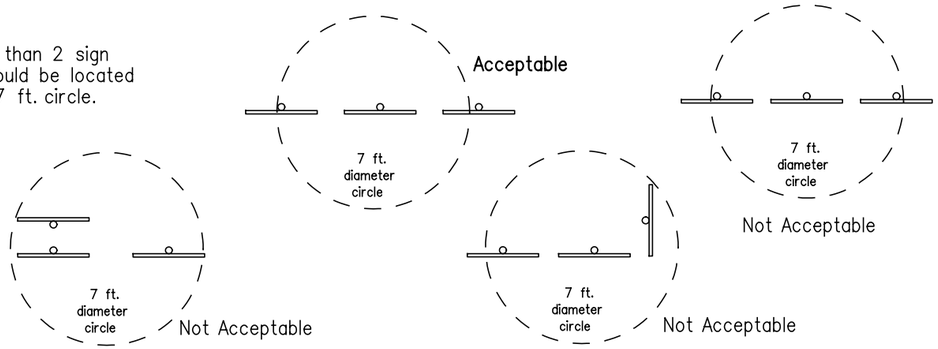
(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

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.

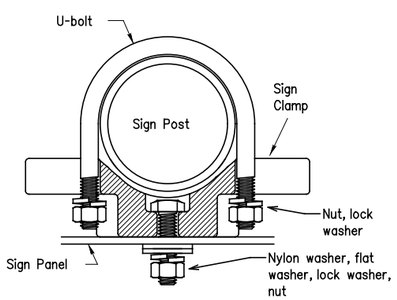
The website address is:
http://www.txdot.gov/publications/traffic.htm

No more than 2 sign posts should be located within a 7 ft. circle.



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

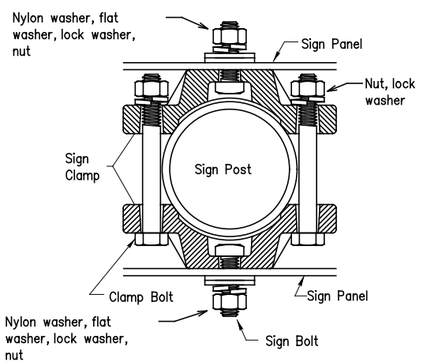


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

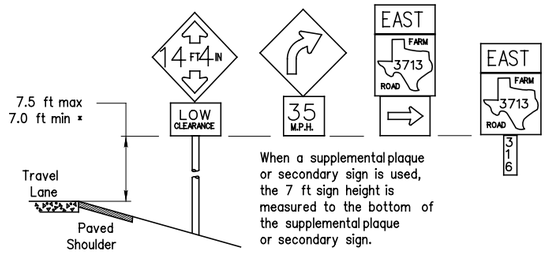
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



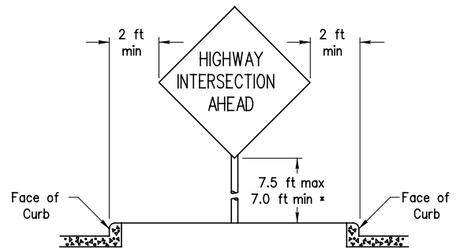
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



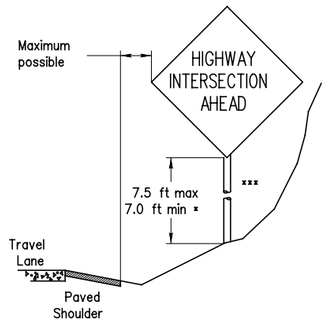
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

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

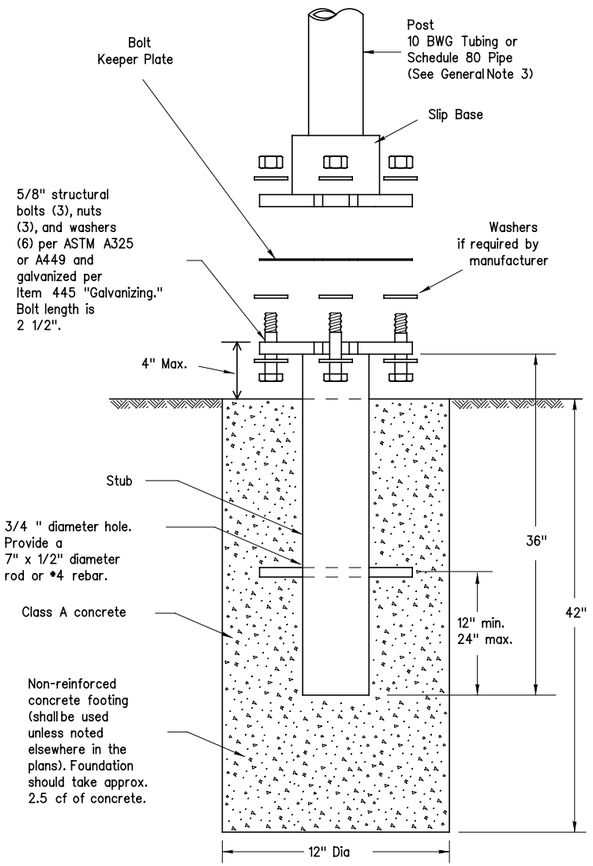
SMD(GEN)-08

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

CONT	SECT	JOB	HIGHWAY
9-08			SUGARCANE DR
DIST	COUNTY		SHEET NO.
	HIDALGO		63

REVISIONS

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:

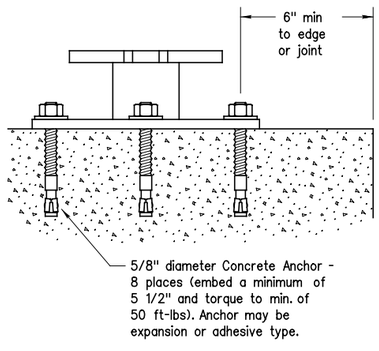
1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   - 10 BWG Tubing (2.875" outside diameter)
     - 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.

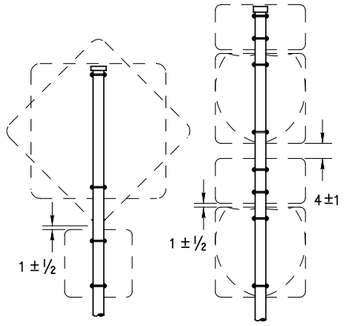
Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

©TxDOT July 2002	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
9-08				SUGARCANE DR
	DIST	COUNTY		SHEET NO.
		HIDALGO		64

DATE:
FILE:



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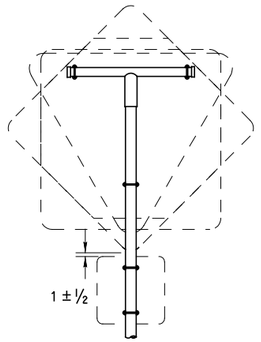

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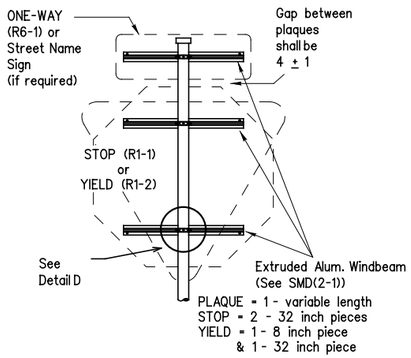

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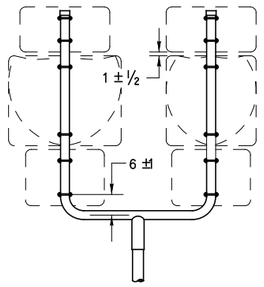
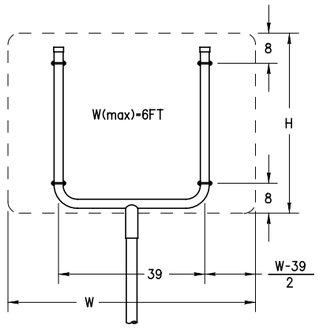


SM RD SGN ASSM TY XXXXX(1)XX(U)



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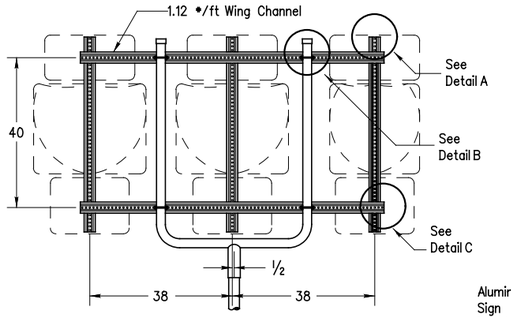
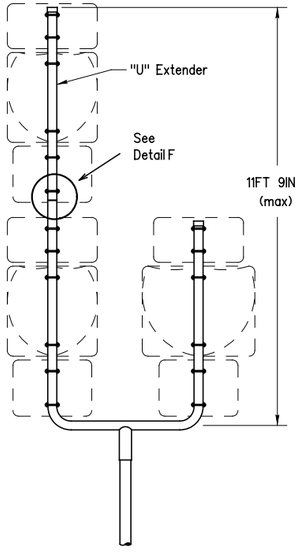


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)



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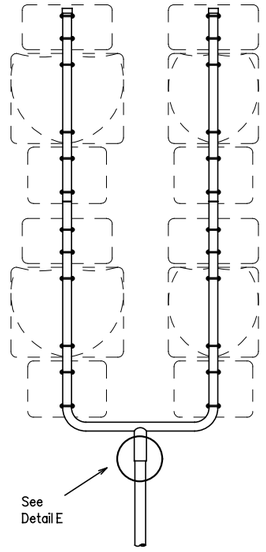

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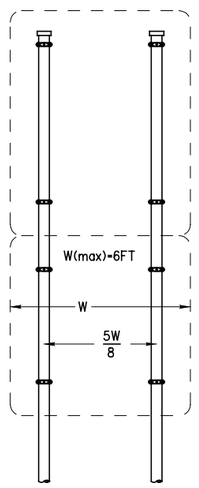
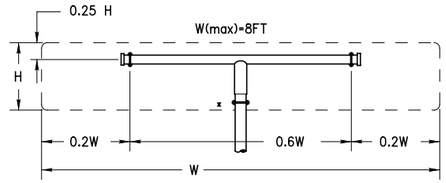
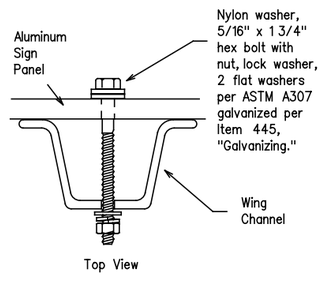


SM RD SGN ASSYM TY XXXXX(2)XX(P)

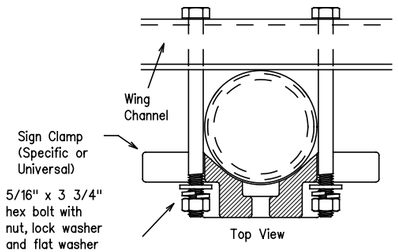


SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

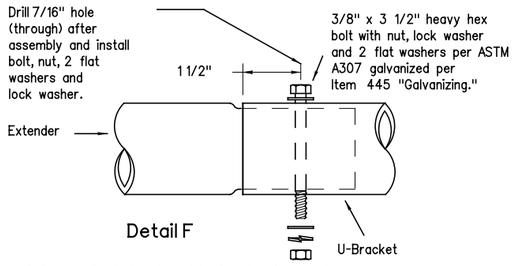
All dimensions are in english unless detailed otherwise.



Detail A

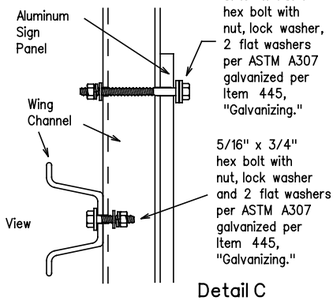


Detail B

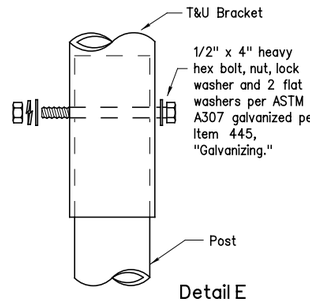


Detail F

Splices shall only be allowed behind the sign substrate.

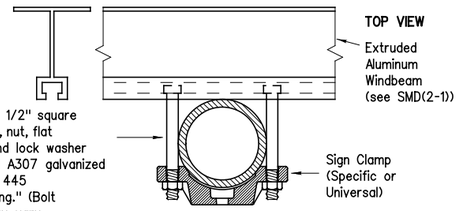


Detail C

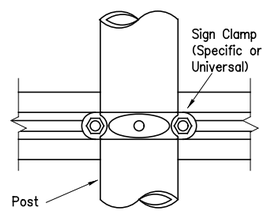


Detail E

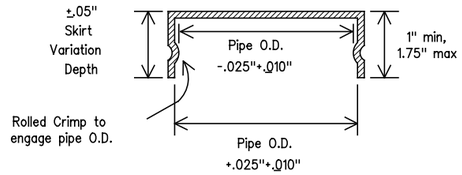
SIDE VIEW



Detail D



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:

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. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
10. 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.
11. Post open ends shall be fitted with Friction Caps.
12. 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

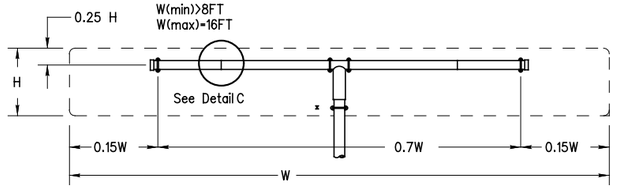
SMD(SLIP-2)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
			SUGARCANE DR
DIST	COUNTY		SHEET NO.
	HIDALGO		65

9-08 REVISIONS

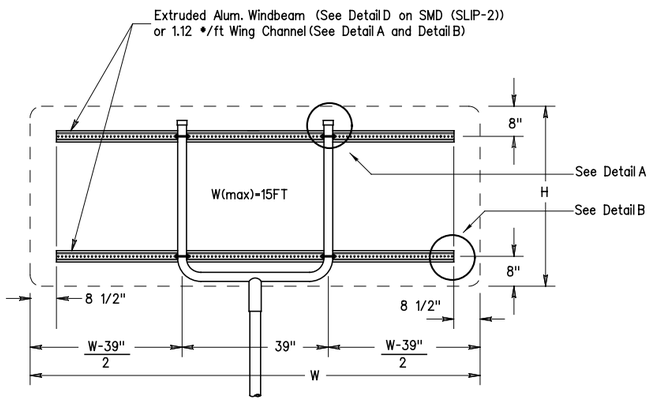
DATE:
FILE:

DATE:
FILE:

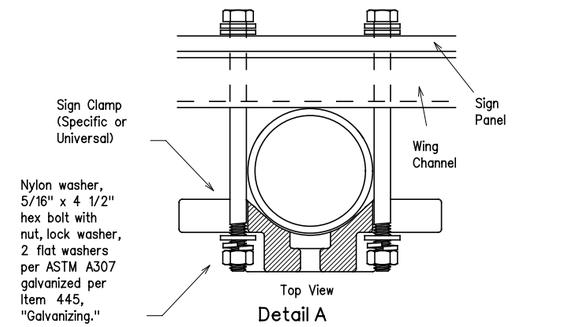


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

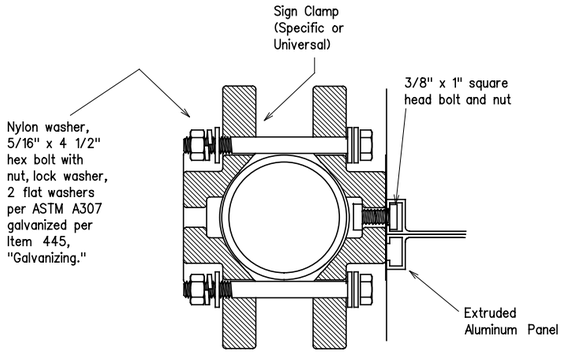
(* - See Note 12)



SM RD SGN ASSM TY XXXXX(1)XX(U-XX)

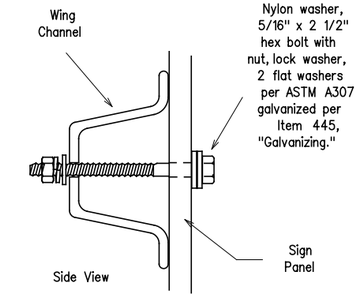


Detail A

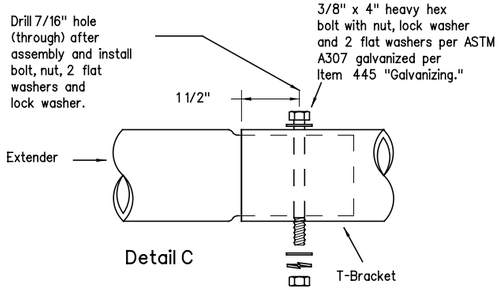


Detail D

EXTRUDED ALUMINUM SIGN WITH T BRACKET

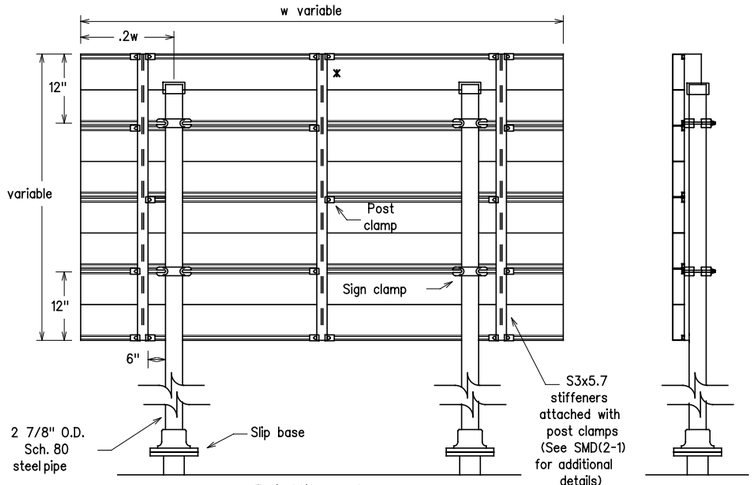


Detail B



Detail C

Splices shall only be allowed behind the sign substrate.

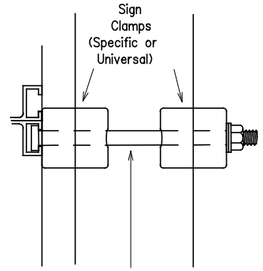


Typical Sign Mount

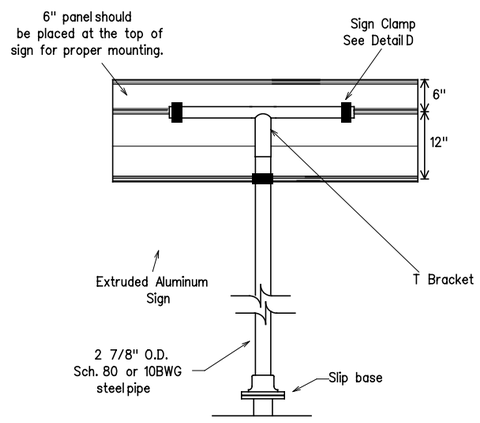
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

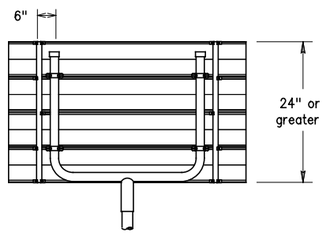
See Detail E
for clamp installation



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

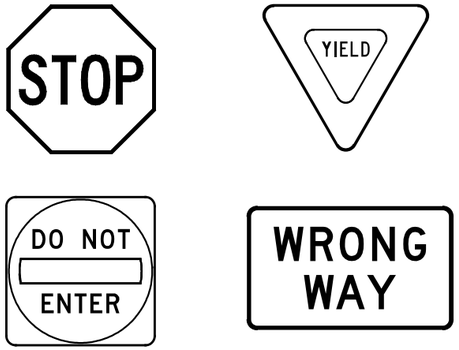
REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
				SUGARCANE DR
	DIST	COUNTY		SHEET NO.
		HIDALGO		66

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

DATE:
FILE:

REQUIREMENTS FOR RED BACKGROUND REGULATORY SIGNS

(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	WHITE	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING
LEGEND	RED	TYPE B OR C SHEETING

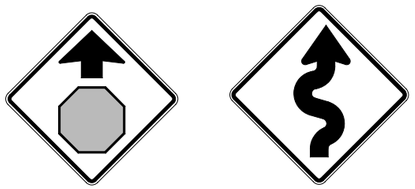
REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND,BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND,BORDERS AND SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR WARNING SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR SCHOOL SIGNS

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND,BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
6. Colored legend shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to background sheeting, or combination thereof.
7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
8. Mounting details for roadside mounted signs are shown in the "SMD series" Standard Plan Sheets.

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

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(4)-13

FILE: tsr4-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS				SUGARCANE DR
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08		HIDALGO		67

DATE:
FILE:

SUMMARY OF SMALL SIGNS

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

Post Type
FRP = Fiberglass
TWT = Thin-Wall
10BWG = 10 BWG
S80 = Sch 80

Posts (1 or 2)

Anchor Type
UA=Univer-Conc
UB=Univer-Bolt
SA=Slip-Conc
SB=Slip-Bolt
WS=Wedge Steel
WP=Wedge Plastic

Mounting Designation
P = Prefab. "Plain"
T = Prefab. "T"
U = Prefab. "U"

1EXT or 2EXT = # of Ext.
BM = Extruded Wind Beam
WC = 1.12 #/ft Wing Chan.
EXAL= Extruded Aluminum

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN TEXT	DIMENSIONS	ALUMINUM TYPE A	ALUMINUM TYPE G	Post Type	Posts (1 or 2)	Anchor Type	Mounting Designation	
54	1	R3-9B MOD	BEGIN CENTER LANE ONLY	24"x48"	A		10BWC	1	SA	T	
	2	R3-9B MOD	END CENTER LANE ONLY	24"x48"	A		10BWC	1	SA	T	
55	1	R1-1	STOP	30"x30"	A		10BWC	1	SA	T	
	2	R2-1	SPEED LIMIT 30	24"x30"	A		10BWC	1	SA	T	
	3	R1-1	STOP	30"x30"	A		10BWC	1	SA	T	
56	1	R2-1	SPEED LIMIT 30	24"x30"	A		10BWC	1	SA	T	
58	1	R1-1	STOP	30"x30"	A		10BWC	1	SA	T	

ALUMINUM SIGN BLANKS (TYPE A)

Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

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.

REVISIONS	
DN: TxDOT	11-93
CK: TxDOT	7-02
DW: TxDOT	8-95
CK: TxDOT	2-07
DW: TxDOT	1-02
CK: TxDOT	9-08

SUMMARY OF SMALL SIGNS
SOSS

DIST	COUNTY	HIGHWAY
	HIDALGO	SUGARCANE DR

CONT | SECT | JOB | SHEET NO.
68

18

SITE DESCRIPTION

PROJECT LIMITS:
Sugarcane Rd - Westgate to Mile 5½ North and Detention Pond

PROJECT SITE MAPS:

*Project Location Map: Title Sheet (Sheet 3)
*Drainage Patterns: Drainage Area Maps (Sheet 41)
*Approx. Slopes Anticipated After Major Gradings and Areas of Soil Distrubance: Typ Sects (Sheets 5)
*Major Controls and Locations of Stabilization Practices: SW3P Site Map Sheets (Sheet 65)
*Surface Waters and Discharge Locations: Drainage and Culvert Layout Sheets (Sheet 42)

PROJECT DESCRIPTION:
Reconstruction & widening of a non-freeway facility to a 2 lane undivided urban street consisting of: Reconstructing, widening, grading, Curb & Gutter, lime treat subgrade, flexible base, asphaltic concrete pavement, signing, and striping.

MAJOR SOIL DISTURBING ACTIVITIES: *Preparing right of way, grading, excavation and embankment operations for roadway and liming of subgrade.*

TOTAL PROJECT AREA: *10.4 Acres*

TOTAL AREA TO BE DISTURBED: *10.4 Acres (100%)*

WEIGHTED RUNOFF COEFFICIENT: *DA 1-3 : 0.41 - 0.47*

EXISTING CONDITION OF SOIL & VEGETATIVE

Subgrade soils - clay, plastic in nature
36% of project is covered with existing roadway
64% is covered with various grasses.

NAME OF RECEIVING WATERS:
The Main Drain Ditch which is part of City of Weslaco Ditch network will eventually drain into the Laguna Madre approximately 5 miles south of Port Mansfield

ENDANGERED SPECIES, DESIGNATED CRITICAL HABITAT AND HISTORICAL PROPERTY:

There are a potential presence of Species of Concern (SOC) within the project area that include: Ferruginous pygmy owl, Texas Botteri's sparrow, Western burrowing owl, plain spotted skunk, Texas indigo snake, Black striped snake, Texas horned lizard, Texas tortoise, South Texas siren (Large form and Siren sp I), Black-spotted newt, Mexican treefrog, Sheep frog, White-lipped frog, and Mexican mud-plantain.

State law prohibits the taking (incidental or otherwise) of state listed Species of Concern, where take is defined as the collection, hooking, hunting, netting, shooting, or snare by any means or devices.

The documentation satisfying TPDES Construction General Permit eligibility pertaining to the existence or of any protective action taken with regards to endangered species or designated critical habitat or historical property in this project area is contained in the project's Environmental Impact Study and can be viewed under an Open Records Act.

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

____ TEMPORARY SEEDING
____ MULCHING (Hay or Straw)
____ BUFFER ZONES
____ PLANTING
P SEEDING
____ SODDING
____ BIODEGRADABLE EROSION CONTROL SOCKS
____ PRESERVATION OF NATURAL RESOURCES
____ FLEXIBLE CHANNEL LINER
____ RIGID CHANNEL LINER
____ SOIL RETENTION BLANKET
____ COMPOST MANUFACTURED COMPOST
____ OTHER: (Specify Practice)

STRUCTURAL PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

____ SILT FENCES
T BIODEGRADABLE EROSION CONTROL SOCKS
____ HAY BALES
T ROCK FILTER DAMS
____ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
____ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
____ DIVERSION DIKE AND SWALE COMBINATIONS
____ PIPE SLOPE DRAINS
____ PAVED FLUMES
____ ROCK BEDDING AT CONSTRUCTION EXIT
T TIMBER MATTING AT CONSTRUCTION EXIT
____ PIPE MATTING OR EQUAL AT CONSTRUCTION EXIT
____ CHANNEL LINERS
____ SEDIMENT TRAPS
____ SEDIMENT BASINS
____ STORM INLET SEDIMENT TRAP
____ STONE OUTLET STRUCTURES
P CURBS AND GUTTERS
____ STORM SEWERS
____ VELOCITY CONTROL DEVICES
____ OTHER: (Specify Practice)

STORM WATER MANAGEMENT:
Storm water drainage will be provided by Curb and Gutter. These Gutters will carry drainage within the row to low points in the roadway where cross drainage may occur and ultimately to the designated outfall.

STORM WATER MANAGEMENT ACTIVITIES:

The order of activities will be as follows:
1.- Install perimeter controls, clear R.O.W. on side where construction will take place, and make required utility adjustments
2. Install Proposed Crossings/Inlets, Install erosion controls along roadway outfalls as shown on SW3P Sheets.
3. Construct proposed roadway.
4. Seed each section completed with Prep. seeding from roadway to right of way.

NON-STORM WATER MANAGEMENT DISCHARGES:
Non-storm water discharges should be filtered, or held in retention basins, before being allowed to mix with storm water. These discharges consist of non-polluted ground water, spring water, foundation and/or footing drain water; and water used for dust control, pavement washing and vehicle wastewater containing no detergents.

OTHER REQUIREMENTS & PRACTICES

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: *All erosion and sediment controls will be maintained in good working order. If a repair is necessary, it will be done at the earliest date possible, but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from heavy equipment. The areas adjacent to creeks and drainage ways shall have priority followed by devices protecting storm sewer inlets.*

INSPECTION: *For areas of the construction site that have not been finally stabilized, area used for storage of materials, structural control measures, and locations where vehicles enter or exit the site, personnel provided by the permittee and familiar with the SW3P must inspect disturbed areas at least once every fourteen (14) calendar days and within twenty-four (24) hours of the end of a storm event 0.5 inches or greater.*

WASTE MATERIALS: *All waste materials will be collected and stored in a securely lidded dumpster. All trash and construction debris from the site will be deposited as necessary at a local dump. No construction waste material will be buried on site.*

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): *At a minimum, any products in the following categories to be hazardous: Paints, Acids for cleaning masonry surfaces, Cleaning Solvents, Asphalt products, Chemical additives for soil stabilization, or Concrete curing compounds and additives. In the event of a spill which may be hazardous, the spill Coordinator should be contacted immediately. Emptying of excess concrete should not be allowed on site. Likewise, washout of concrete trucks should not be performed on site. These discharges are considered non-allowable non-storm water discharges. Concrete trucks should never be allowed to dump into storm drains or sanitary sewers.*

SANITARY WASTE: *All sanitary waste will be collected from the portable units as necessary or as required by local regulation by a licensed sanitary waste management contractor.*

OFFSITE VEHICLE TRACKING: *The Contractor shall be required, on a regular basis or as may be directed by the Engineer, to dampen haul roads for dust control, stabilize construction entrances and to remove excess dirt from the roadway.*

MANAGEMENT PRACTICES: *(Example Below - May be used as applicable, revised or expanded)*
1. Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas shall not be located in any wet land, water body or stream bed.
2. Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor in a manner to minimize the runoff of pollutants.
3. All waterways shall be cleared as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, or debris or other obstructions placed during construction operations that are not a part of the finished work.

OTHER:
1. Construction Materials List of materials stored on job site to be provided by Contractor.
2. The project SW3P File shall be located at the project field office or within the Contractor's mobile office at all times and shall contain the N.O.I., CGP, Signature Authorization, Certification/Qualification Statements, Inspection Reports, Required Maps, and the TPDES Permit, Part II. This File to be persented to authorized State and Federal Agents upon request.

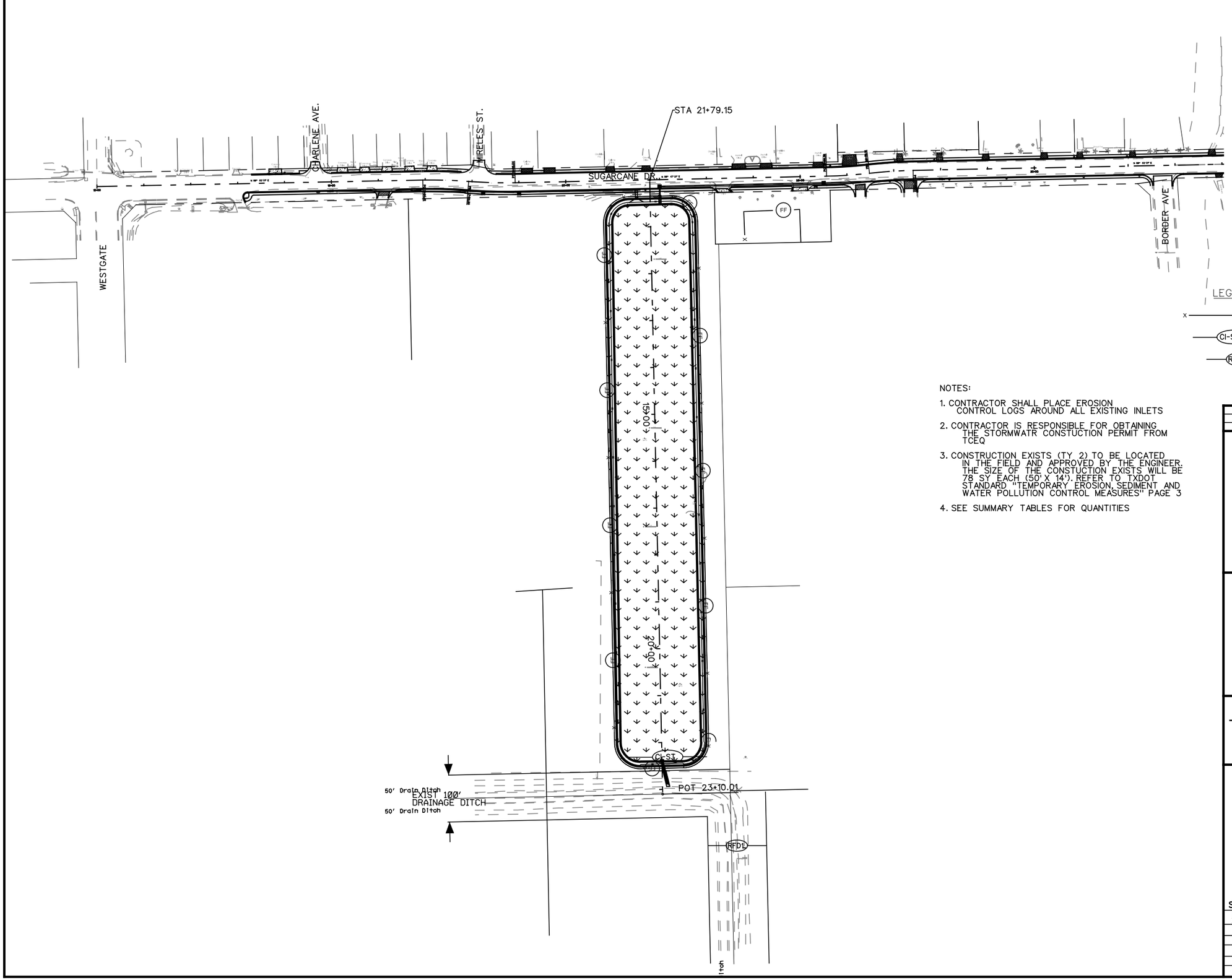
Texas Department of Transportation

TxDOT STORM WATER POLLUTION PREVENTION PLAN (SW3P)

REV. 11/12 SW3P.DGN

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6		69

STATE	DIST.	COUNTY	
TEXAS	PHARR	HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.



LEGEND

- TEMPORARY SEDIMENT CONTROL FENCE
- CURB INLET SEDIMENT TRAP
- TEMPORARY ROCK FILTER DAM
- PROP SEEDING

NOTES:

1. CONTRACTOR SHALL PLACE EROSION CONTROL LOGS AROUND ALL EXISTING INLETS
2. CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE STORMWATR CONSTUCTION PERMIT FROM TCEQ
3. CONSTRUCTION EXISTS (TY 2) TO BE LOCATED IN THE FIELD AND APPROVED BY THE ENGINEER. THE SIZE OF THE CONSTUCTION EXISTS WILL BE 78 SY EACH (50' X 14'). REFER TO TXDOT STANDARD "TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES" PAGE 3
4. SEE SUMMARY TABLES FOR QUANTITIES

NO.	DATE	REVISION	APP.

STATE OF TEXAS
MARK D. CORBITT
101980
REGISTERED PROFESSIONAL ENGINEER

MARK D. CORBITT — DATE 4/25/2014

CITY ON THE GROW
CITY OF WESLACO

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TEDSI
TBPE F-1640
1201 E. Expressway 83
Mission, Texas 78572
(956) 424-7898

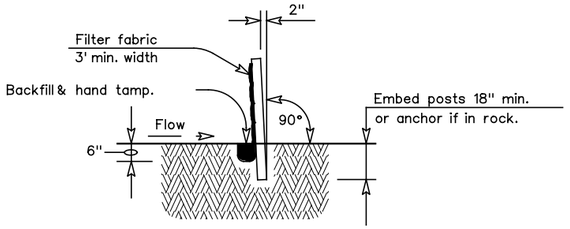
SUGARCANE DR

SW3P LAYOUT DETENTION POND

SCALE 1" = 200' — SHEET 1 OF 1

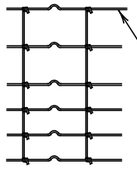
FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			70
STATE	DIST.	COUNTY	
TEXAS		HIDALGO	
CONT.	SECT.	JOB	HIGHWAY NO.
			SUGARCANE

DATE:
FILE:



SECTION A-A

Galv. Hinge joint knot woven mesh (12.5 Ga. Min.) requires a minimum of five horizontal wires spaced at a max.12 inches apart and all vertical wires spaced at a max. 12 inches apart.



Hinge Joint Knot Woven Mesh (Option)

GENERAL NOTES

1. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLAN SHEET LEGEND

Sediment Control Fence —— SCF ——

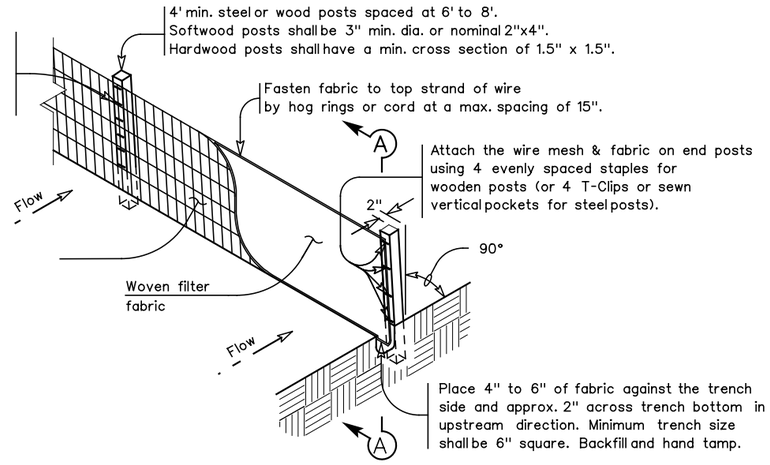
SEDIMENT CONTROL FENCE USAGE GUIDELINES

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

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

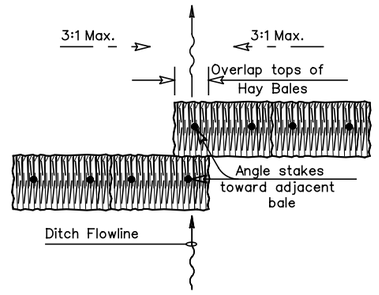
Connect the ends of successive reinforcement sheets or rolls a min. of 6 times with hog rings.

Galv. Welded wire mesh (W.W.M.) with a max. opening size of 2"x 4", or Woven Mesh (W.M.) (See Detail)

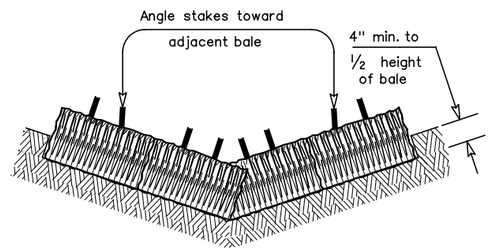


TEMPORARY SEDIMENT CONTROL FENCE

SCF



PLAN VIEW



PROFILE VIEW

PLANS SHEET LEGEND

Baled Hay —— BH ——

BALED HAY USAGE GUIDELINES

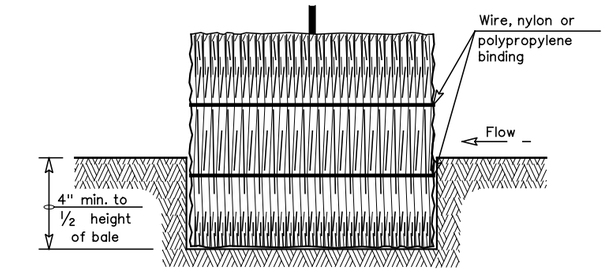
A Baled Hay installation may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A two year storm frequency may be used to calculate the flow rate to be filtered. The installation should be sized to filter a maximum flow thru rate of 5 GPM/FT^2 of cross sectional area. Baled hay may be used at the following locations:

1. Where the runoff approaching the baled hay flows over disturbed soil for less than 100'. If the slope of the disturbed soil exceeds 10%, the length of slope upstream the baled hay should be less than 50'.
2. Where the installation will be required for less than 3 months.
3. Where the contributing drainage area is less than ½ acre.

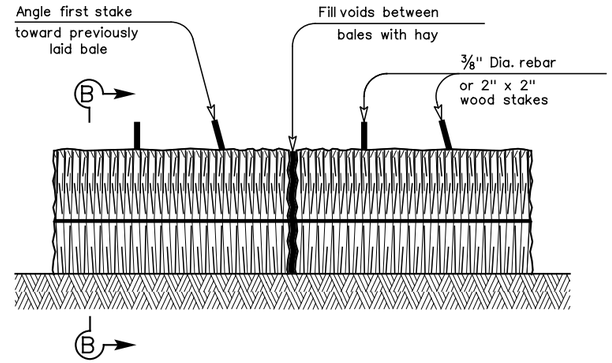
For Baled Hay installations in small ditches, the additional following considerations apply:

1. The ditch sideslopes should be graded as flat as possible to maximize the drainage flowrate thru the hay.
2. The ditch should be graded large enough to contain the overtopping drainage when sediment has filled to the top of the baled hay.

Bales should be replaced usually every 2 months or more often during wet weather when loss of structural integrity is accelerated.



SECTION B-B



BALED HAY FOR EROSION CONTROL

BH

GENERAL NOTES

1. Hay bales shall be a minimum of 30" in length and weigh a minimum of 50 Lbs.
2. Hay bales shall be bound by either wire or nylon or polypropylene string. The bales shall be composed entirely of vegetative matter.
3. Hay bales shall be embedded in the soil a minimum of 4" and where possible ½ the height of the bale.
4. Hay bales shall be placed in a row with ends tightly abutting the adjacent bales. The bales shall be placed with bindings parallel to the ground.
5. Hay bales shall be securely anchored in place with ⅜" Dia. rebar or 2" x 2" wood stakes, driven through the bales. The first stake shall be angled towards the previously laid bale to force the bales together.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation

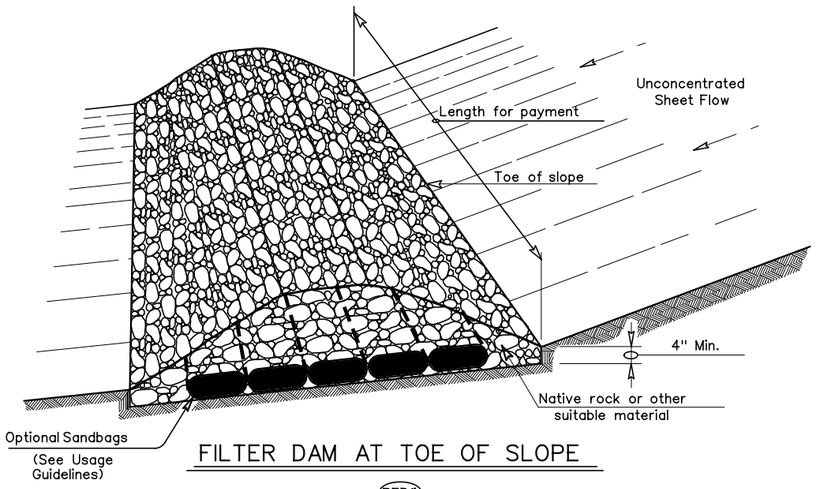
Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & BALED HAY

EC(1)-09

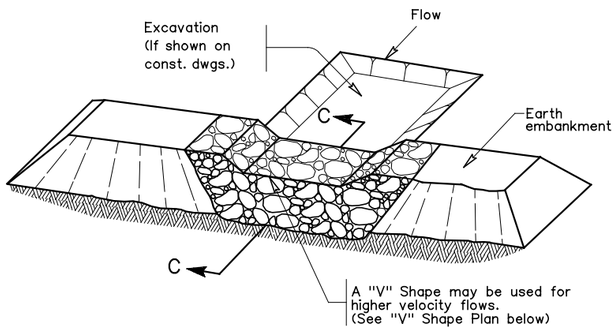
FILE: ec109.dgn	DN: TxDOT	CK: AM	DW: TV	CK: BD		
©TxDOT June 1993	CONT	SECT	JOB	HIGHWAY		
REVISIONS				SUGARCANE DR		
	DIST	COUNTY		SHEET NO.		
	PHR	HIDALGO		71		



FILTER DAM AT TOE OF SLOPE

RFD1

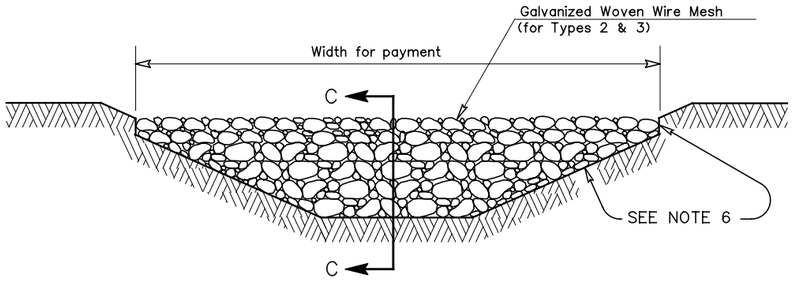
TYPE 1



FILTER DAM AT SEDIMENT TRAP

RFD1 OR RFD2

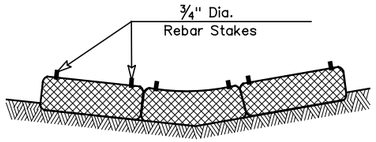
TYPE 1 OR TYPE 2



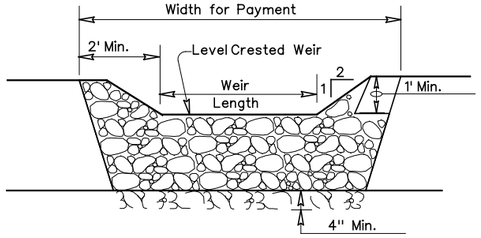
FILTER DAM AT CHANNEL SECTIONS

RFD1 OR RFD2 OR RFD3

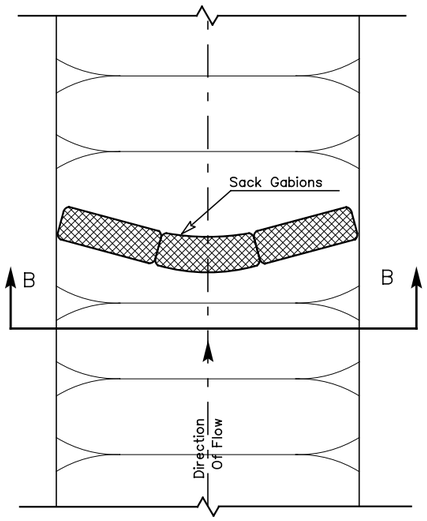
TYPE 1 OR TYPE 2



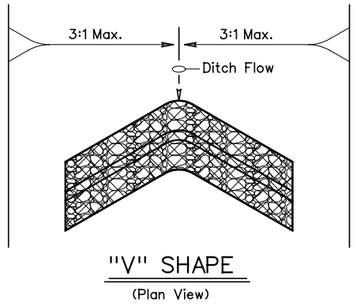
SECTION B-B



PROFILE

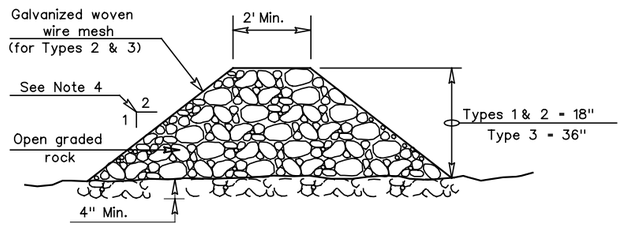


PLAN VIEW



"V" SHAPE

(Plan View)



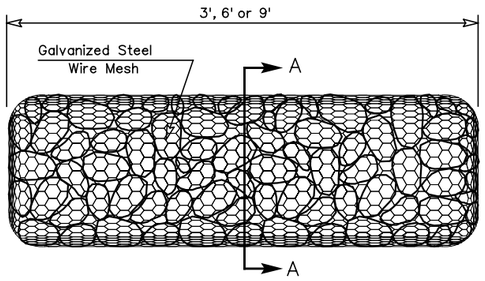
SECTION C-C

PLANS SHEET LEGEND

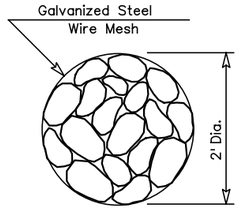
Type 1 Rock Filter Dam — RFD1

Type 2 Rock Filter Dam — RFD2

Type 3 Rock Filter Dam — RFD3



TYPE 4 (SACK GABIONS)



SECTION A-A

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT ^{2} of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (18" high with no wire mesh): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approx. 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. In stream use the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with ¾" dia. rebar stakes.
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

LEVELS DISPLAYED

60

1

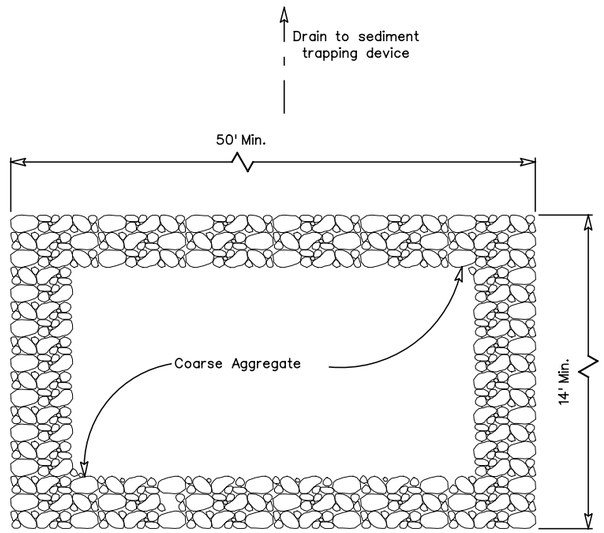
Texas Department of Transportation
Design Division (Roadway)

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

EC(2)-93

FILE: EC293.DGN	DN: HEJ	CK: HEJ	DW: BGD	CK:
© TxDOT JUNE 1993	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS	PHR			72
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	HIDALGO				SUGARCANE DR



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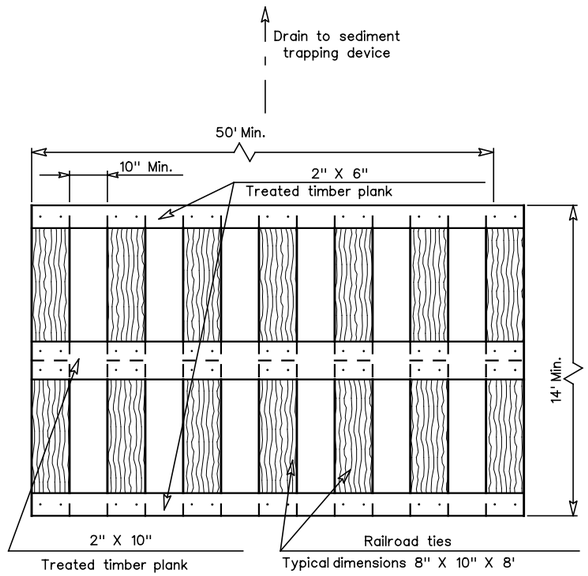

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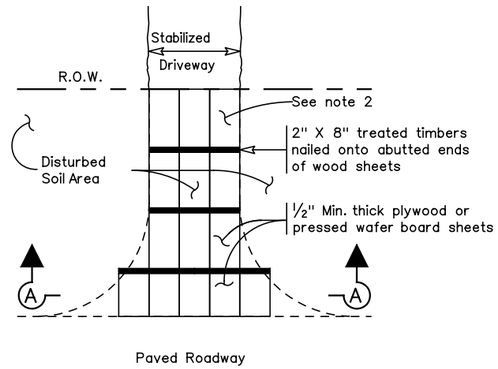

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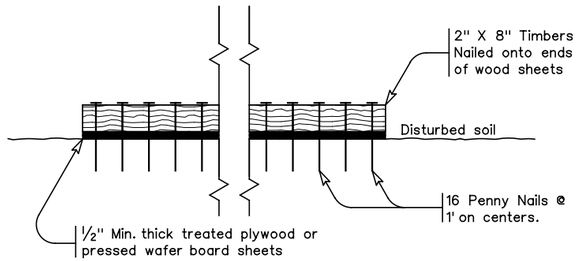
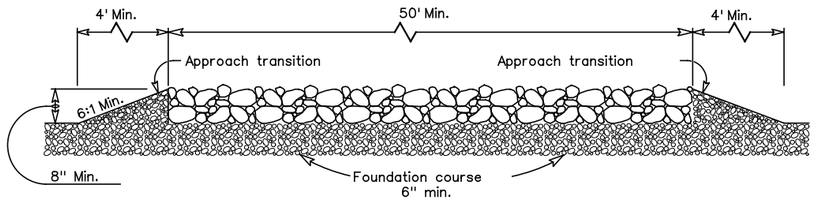


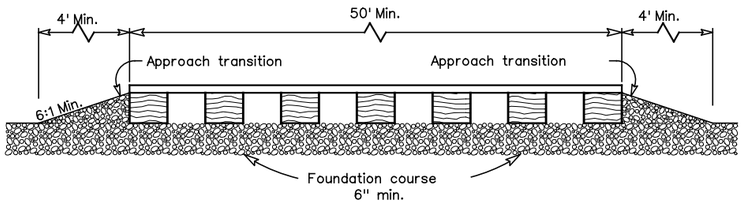
SECTION A-A

CONSTRUCTION EXIT (TYPE 3)



PROFILE

CONSTRUCTION EXIT (TYPE 1)



PROFILE

CONSTRUCTION EXIT (TYPE 2)

GENERAL NOTES

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

GENERAL NOTES

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
2. The treated timber planks shall be attached to the railroad ties with ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

GENERAL NOTES

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

LEVELS DISPLAYED
1
BGI

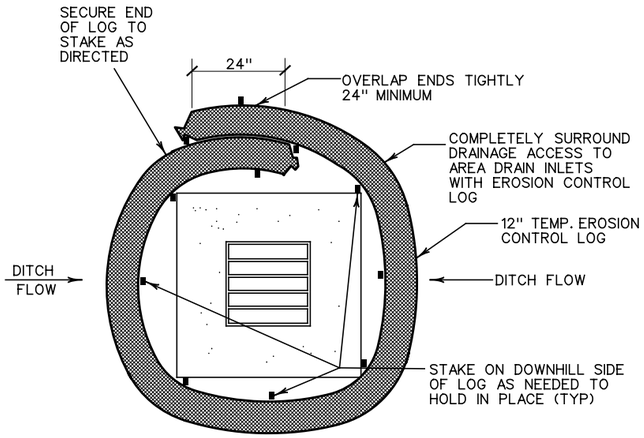
Texas Department of Transportation
Design Division (Roadway)

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

CONSTRUCTION EXITS

EC(3)-93

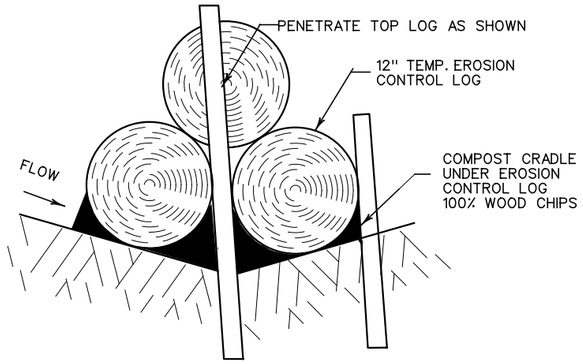
FILE: EC393.DGN	DN: HEJ	CK: HEJ	DW: BGD	CK:	
©TxDOT JUNE 1993	DISTRICT	FEDERAL AID PROJECT			SHEET
REVISIONS	PHR				73
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	HIDALGO					SUGARCANE DR



DROP INLET SEDIMENT TRAP

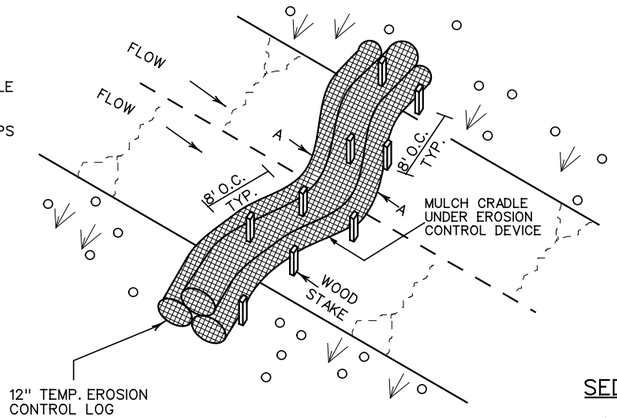
NTS

DI-ST



DITCH LINE SEDIMENT TRAP A-A

DL-ST



DITCH LINE SEDIMENT TRAP

DL-ST

PLANS SHEET LEGEND

DI-ST — DROP INLET SEDIMENT TRAP

DL-ST — DITCH LINE SEDIMENT TRAP

BOCI-ST — BACK OF CURB INLET SEDIMENT TRAP

ROW-ST — RIGHT OF WAY SEDIMENT TRAP

CI-ST — CURB INLET SEDIMENT TRAP

SEDIMENT BASIN & TRAP USAGE GUIDELINES

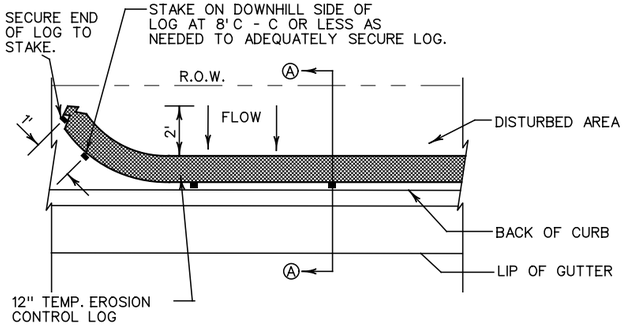
A sediment trap may be used to precipitate sediment out of runoff draining from an unstabilized area.

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).

Sediment traps should be placed in the following locations:

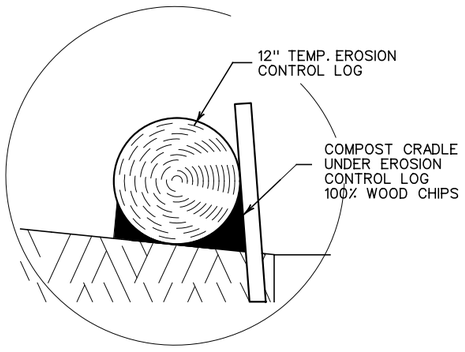
1. Immediately preceding drain inlets
2. Just before the drainage enters a water course
3. Just before the drainage leaves the right of way
4. Just before the drainage leaves the construction limits where drainage flows away from the project

The trap should be cleaned when the capacity has been reduced by ½ or the sediment has accumulated to a depth of 1', whichever is less.
Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for seperately.

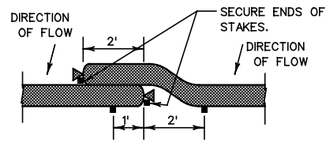


PLAN VIEW

NTS

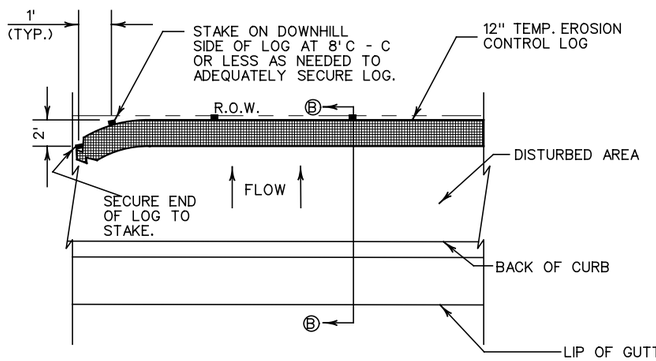


COMPOST CRADLE



LAP DETAIL

NTS

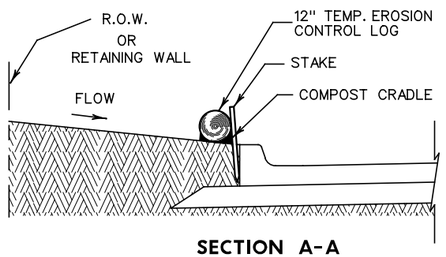


PLAN VIEW

NTS

GENERAL NOTES

1. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED. MAXIMUM LENGTH OF LOGS SHALL BE 30' FOR 12" DIAMETER LOGS.
2. 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.
3. STUFF LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE DENSITY THAT WILL HOLD SHAPE WITHOUT EXCESSIVE DEFORMATION.
4. STAKES SHALL BE 2" X 2" WOOD 4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG.
5. COMPOST CRADLE MATERIAL IS INCIDENTAL AND WILL NOT BE PAID FOR SEPARATELY.

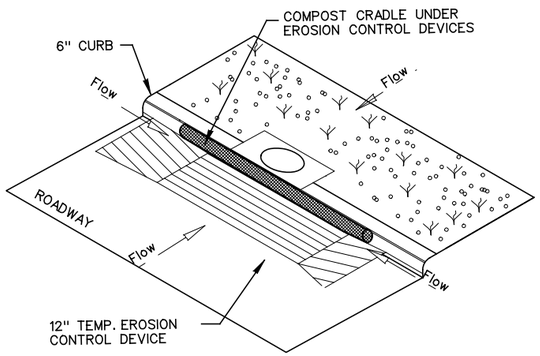


SECTION A-A

BACK OF CURB INLET SEDIMENT TRAP

NTS

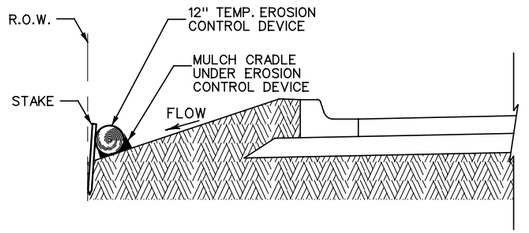
BOCI-ST



CURB INLET SEDIMENT TRAP

NTS

CI-ST



SECTION B-B

RIGHT-OF-WAY SEDIMENT TRAP

NTS

ROW-ST

PHARR DISTRICT STANDARD

Texas Department of Transportation
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TEMPORARY EROSION CONTROL LOGS
TECL-06 (PHR)

FED.RD. DIV.NO.	PROJECT NO.		HIGHWAY NO.
6			SUGARCANE DR
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	PHARR	HIDALGO	74
CONTROL	SECTION	JOB	

LEVELS DISPLAYED

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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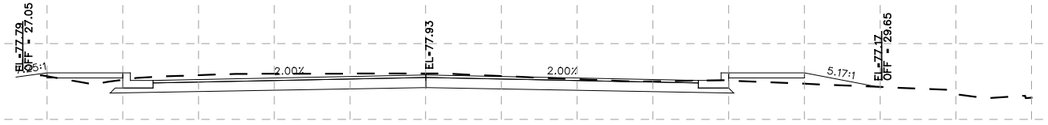

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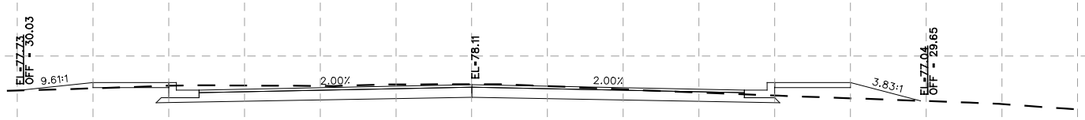

13+50.00

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PROPOSED CROSS SECTIONS
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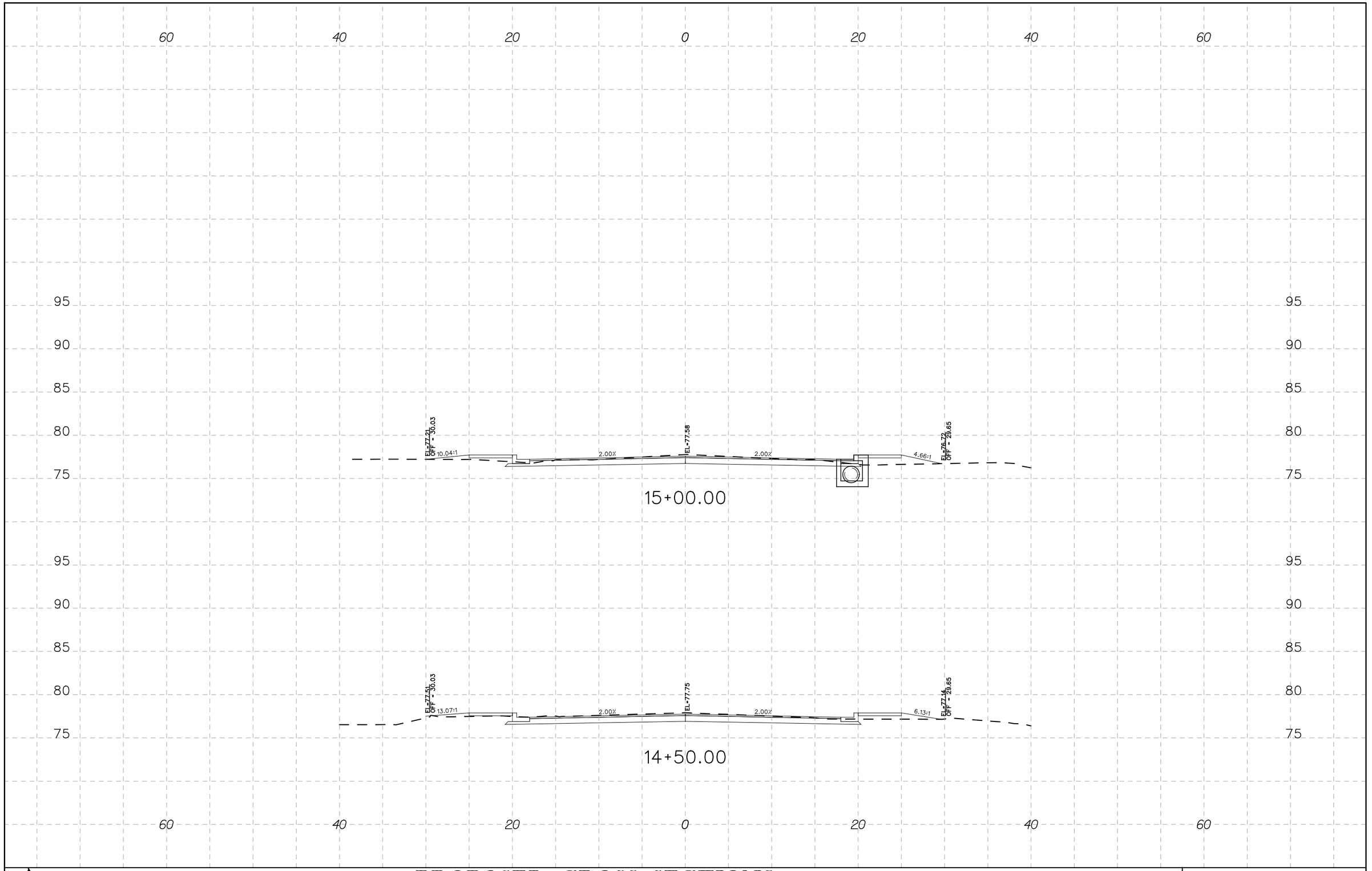
SHEET NO. 75



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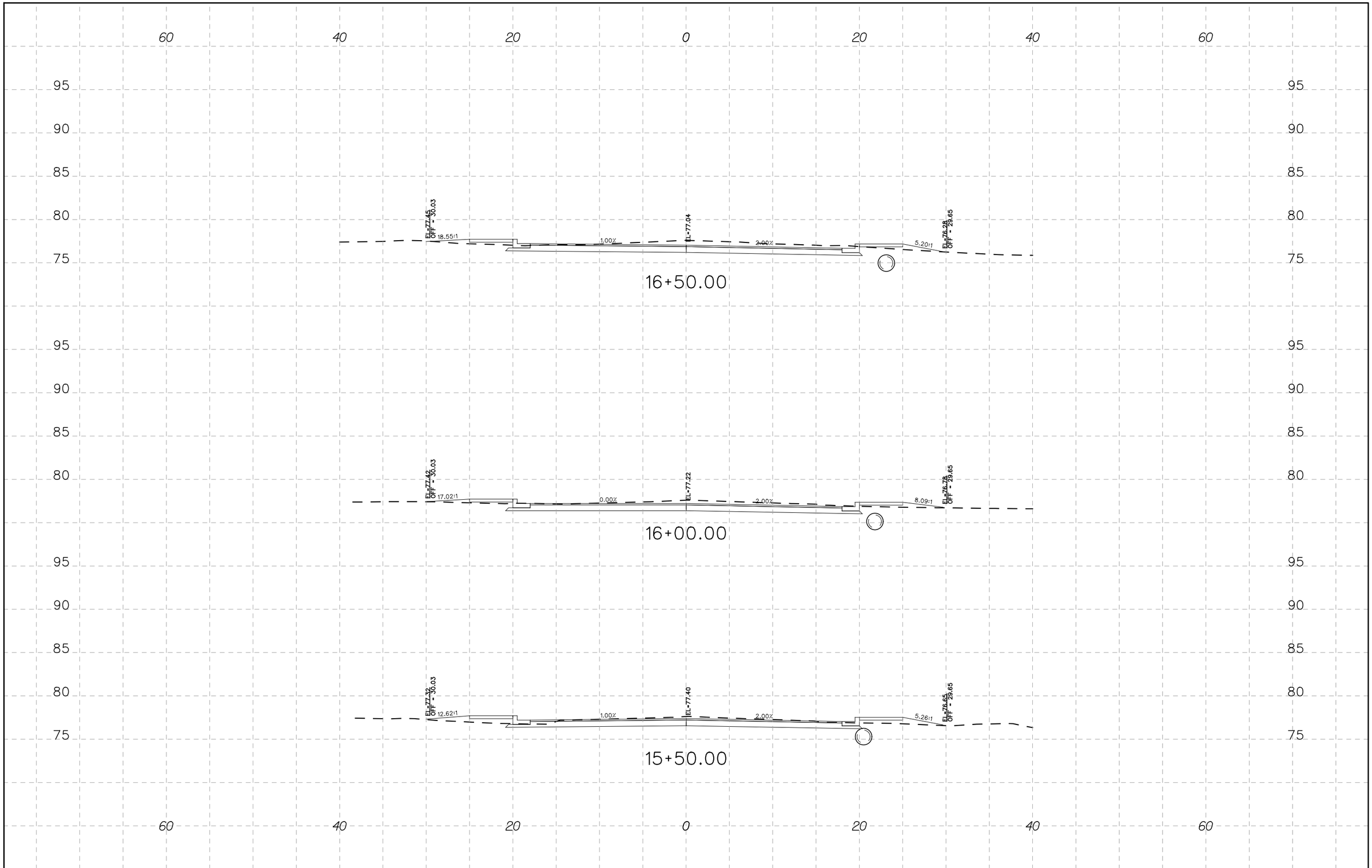

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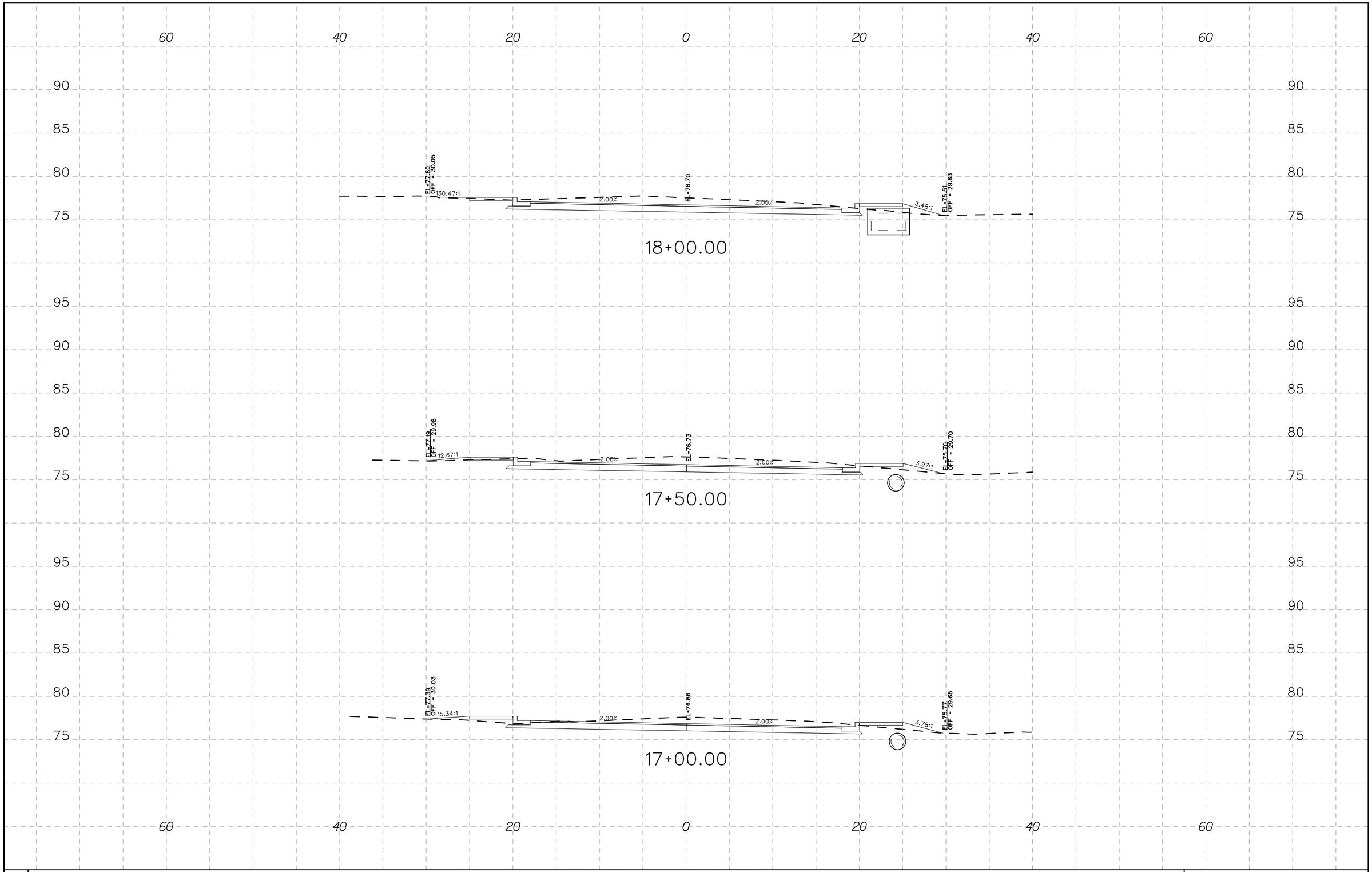

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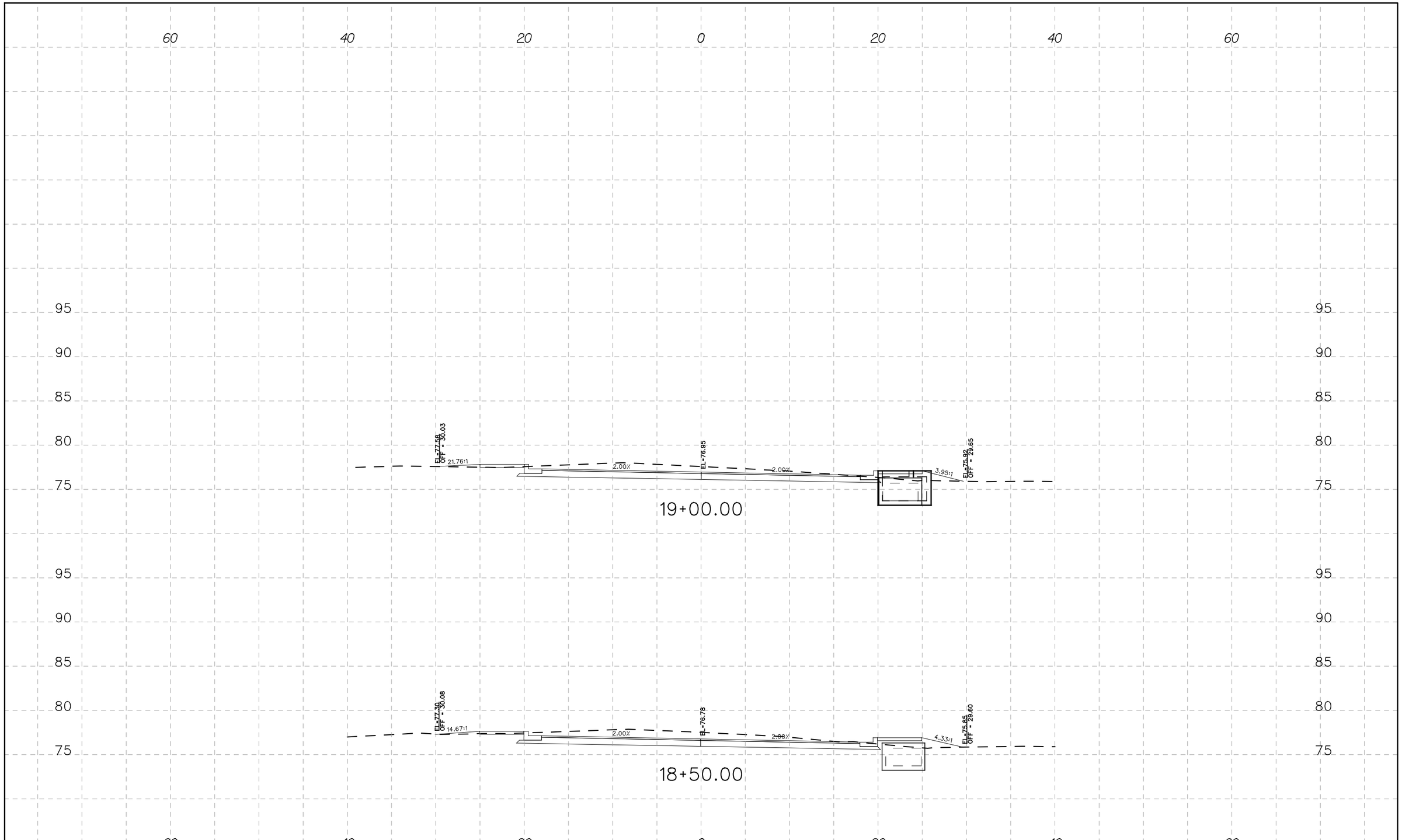

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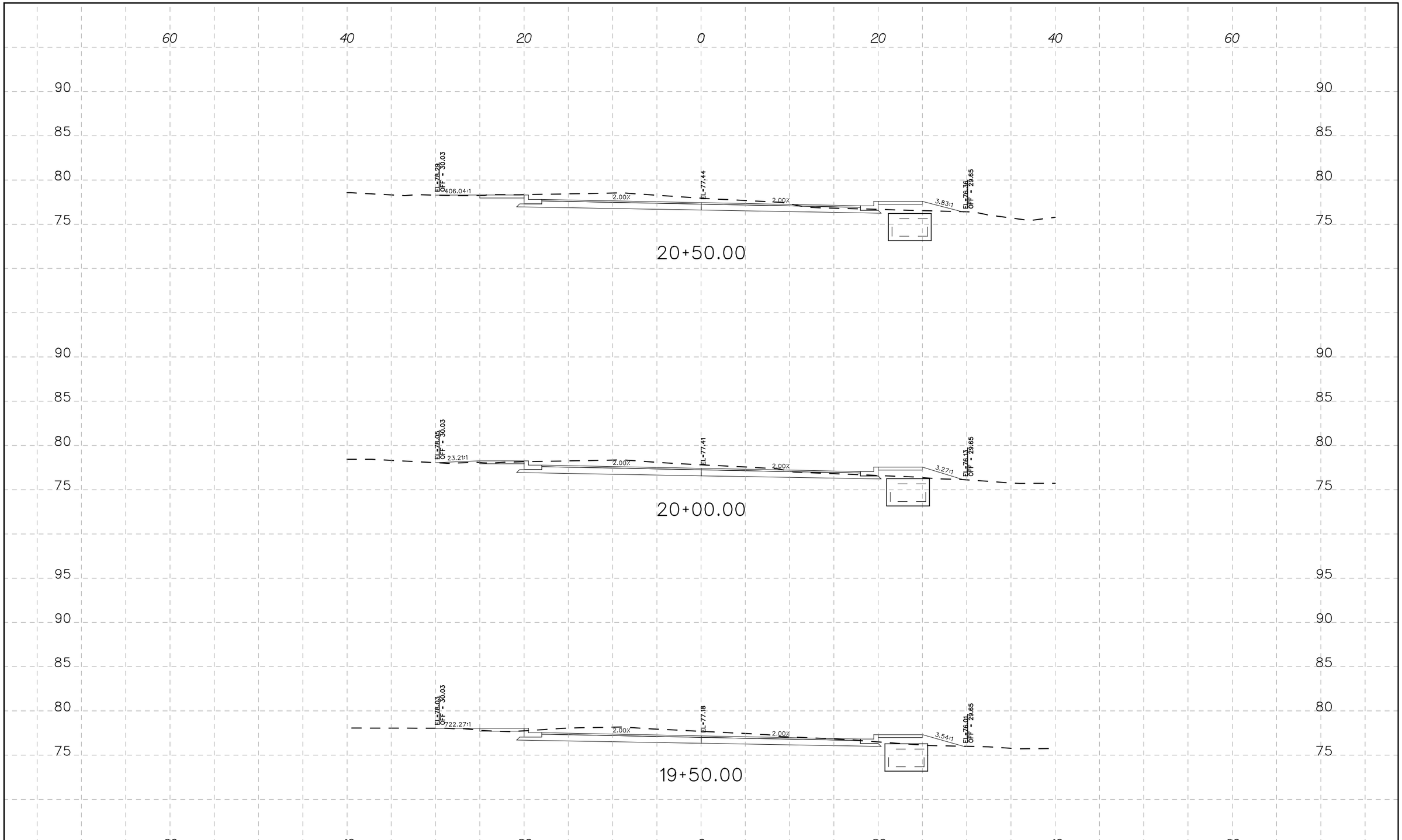

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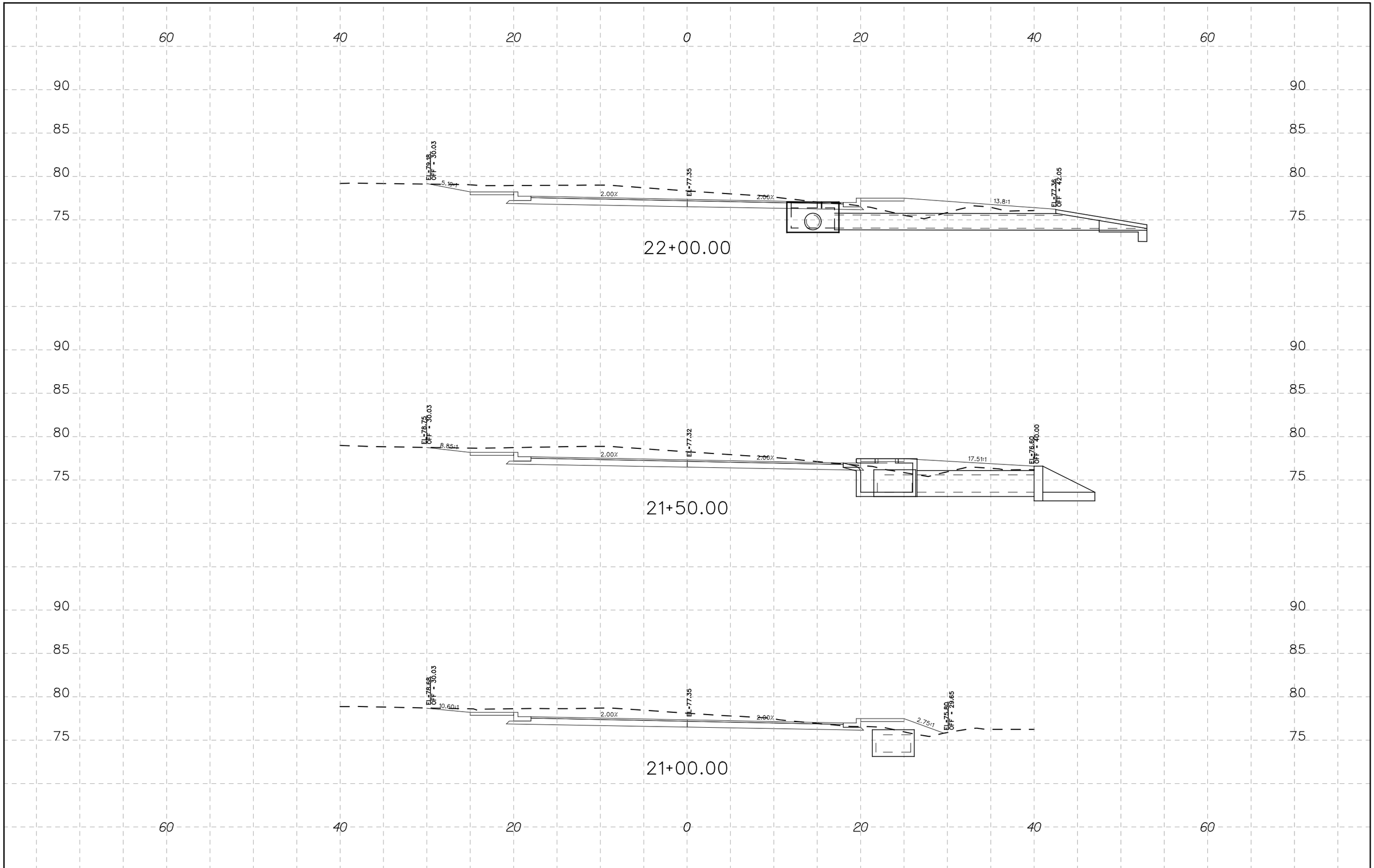

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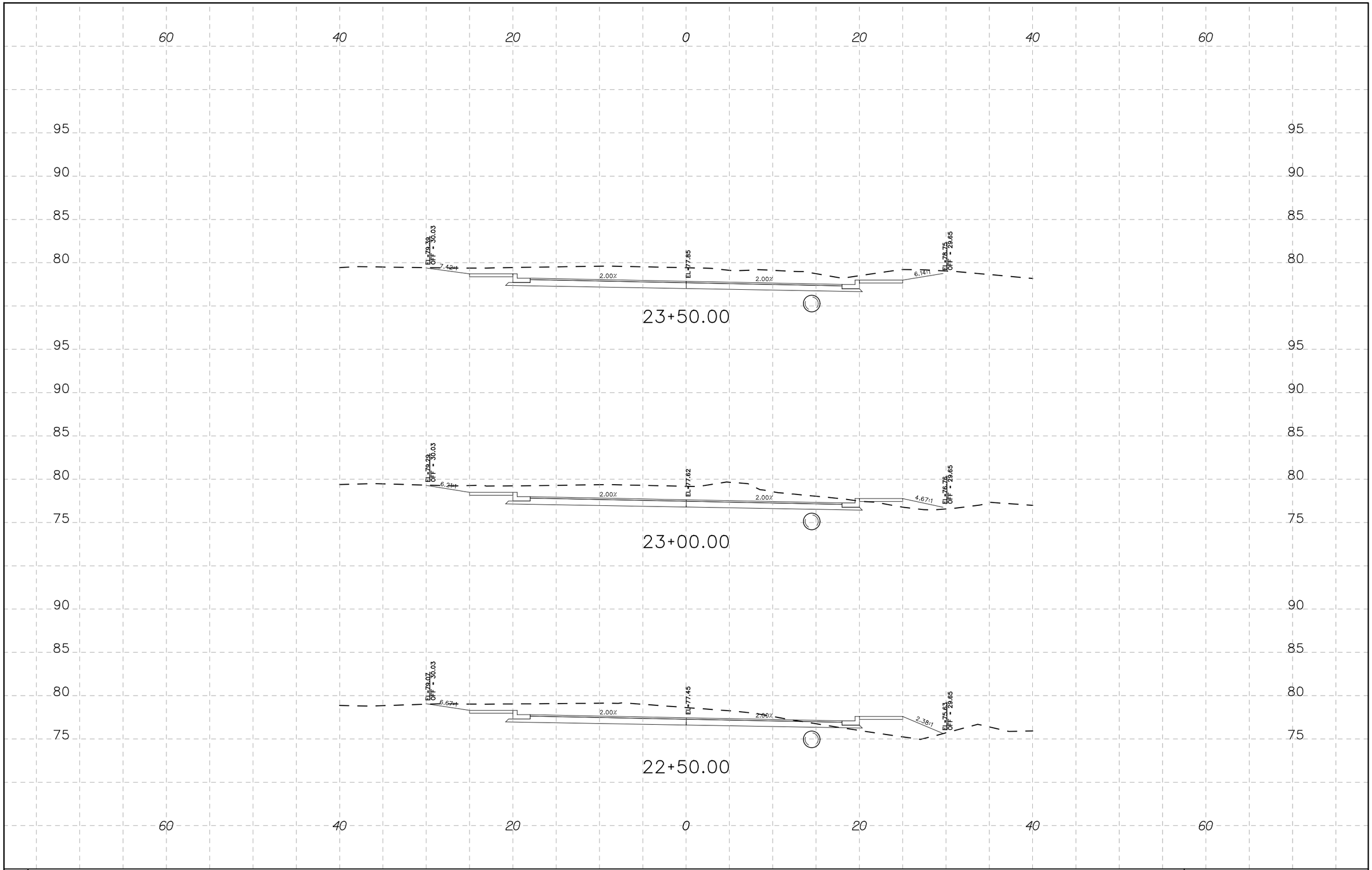

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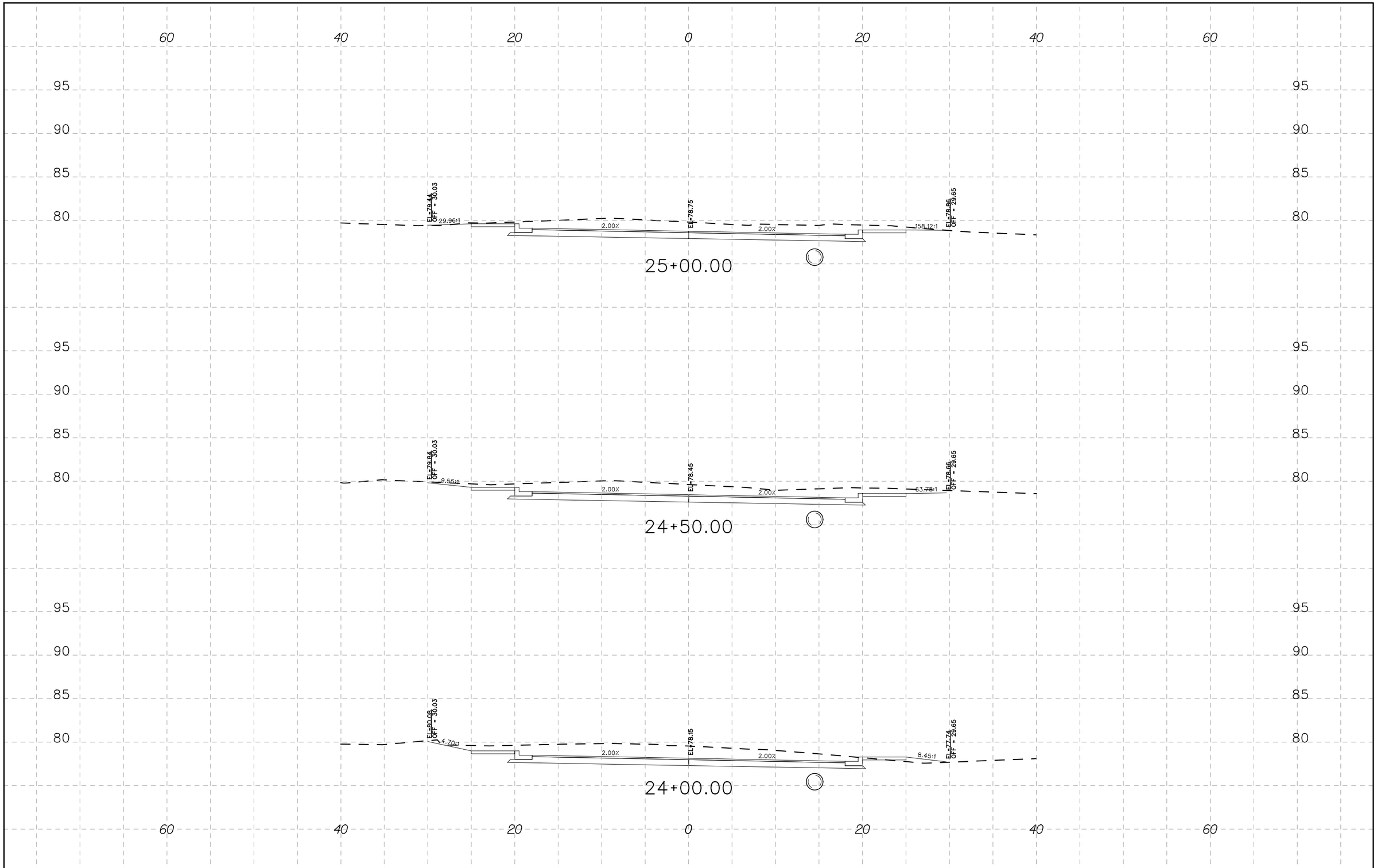
SUGARCANE DRIVE

CITY OF WESLACO



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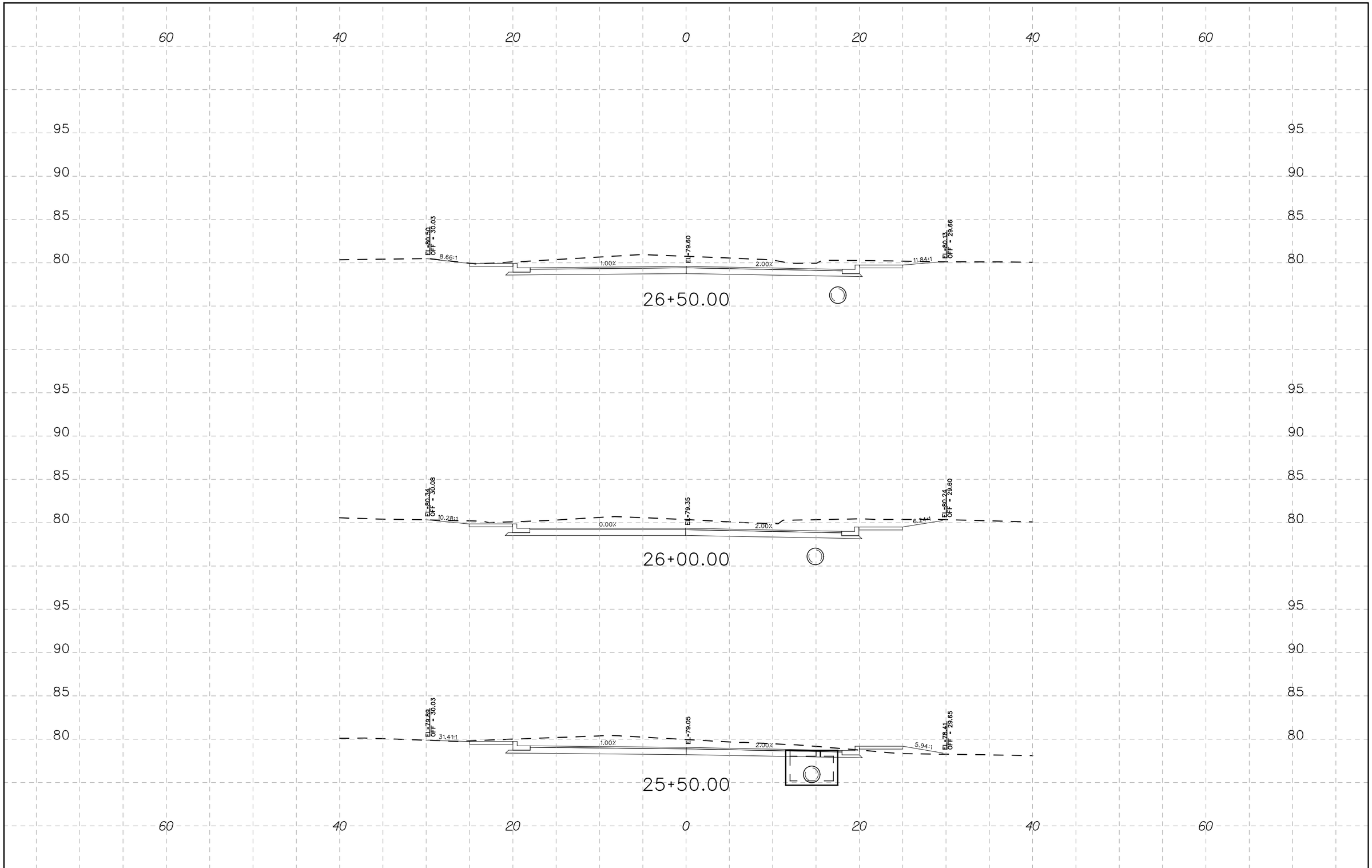
PROPOSED CROSS SECTIONS
SUGARCANE DRIVE

CITY OF WESLACO



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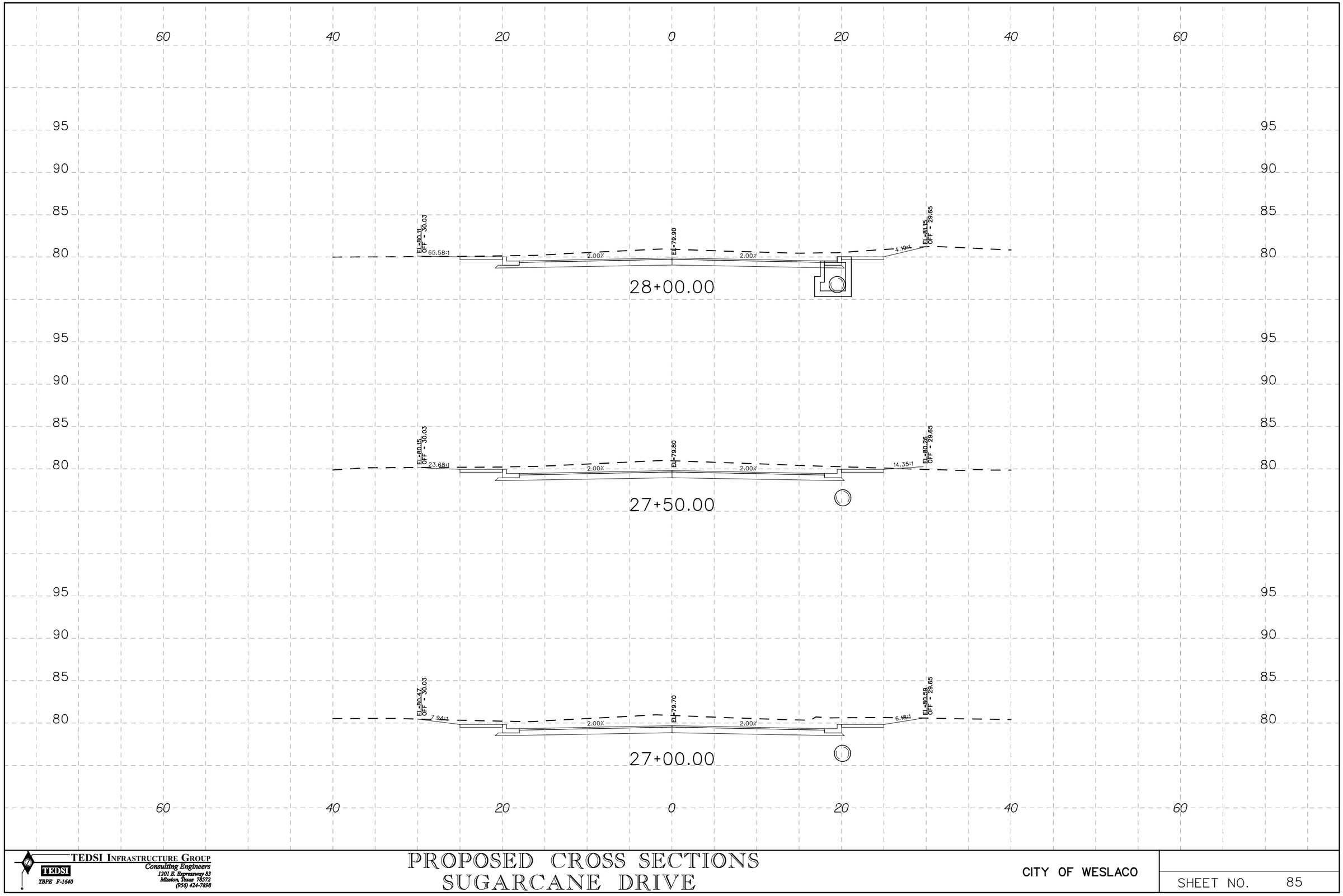
PROPOSED CROSS SECTIONS
SUGARCANE DRIVE

CITY OF WESLACO



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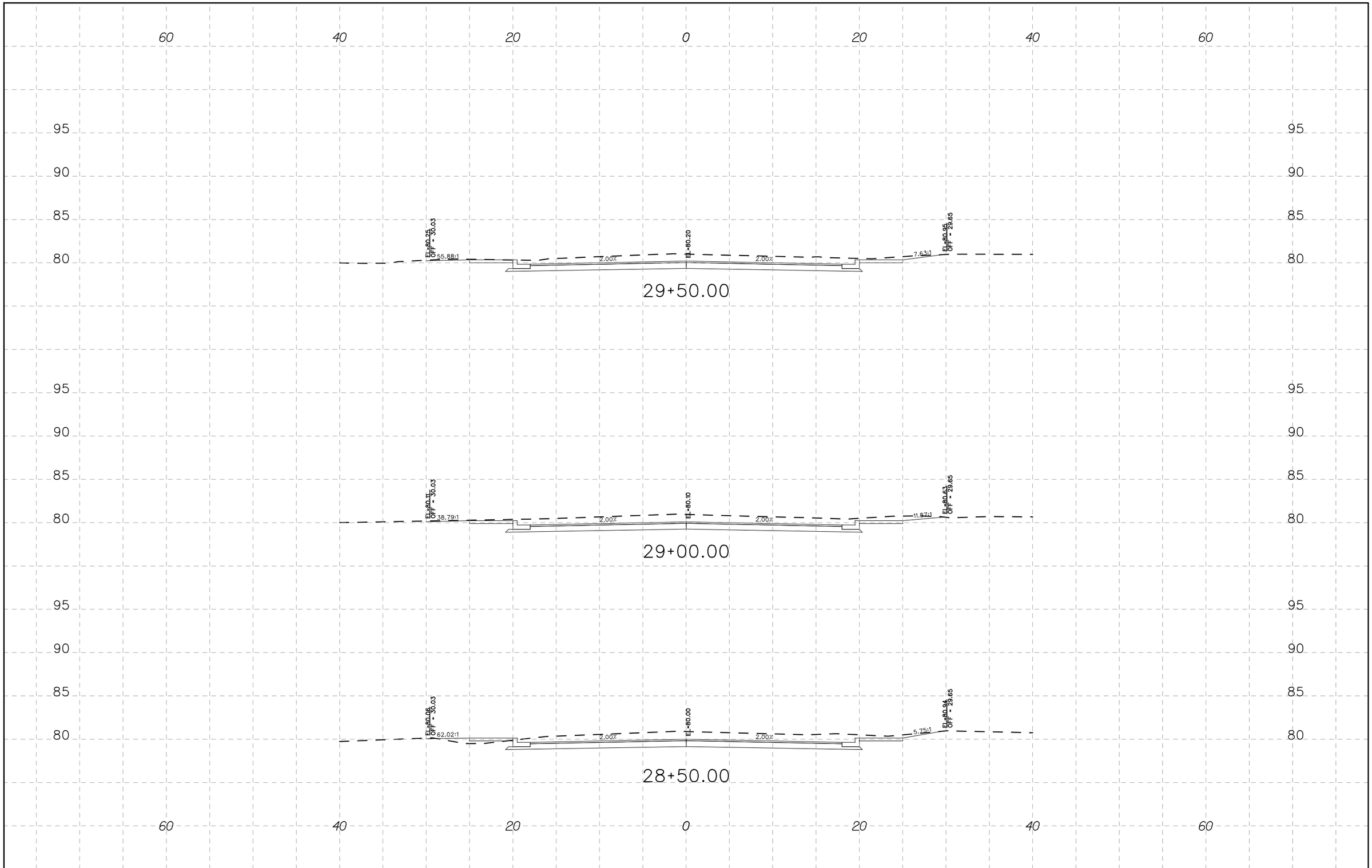
PROPOSED CROSS SECTIONS
SUGARCANE DRIVE

CITY OF WESLACO



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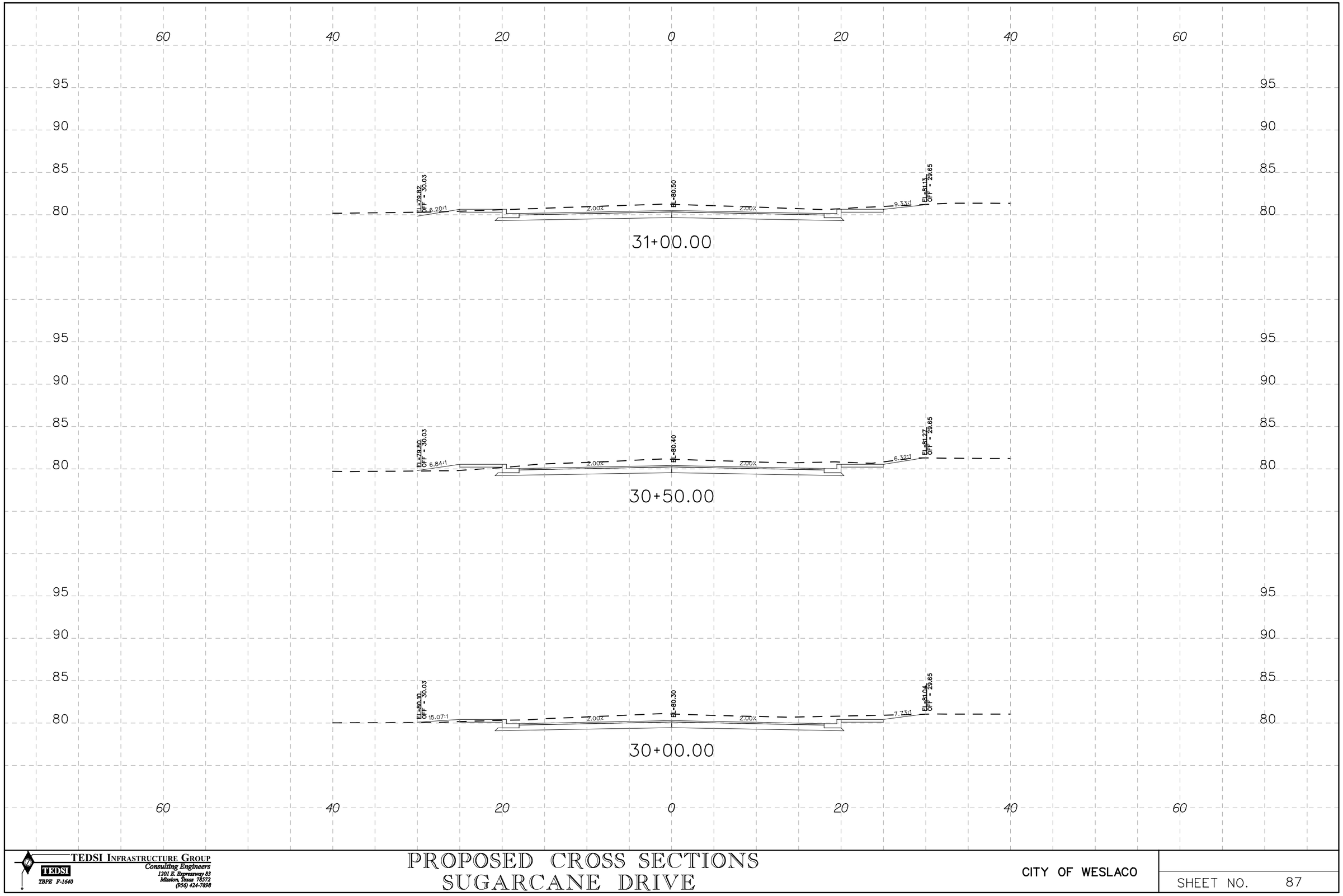
PROPOSED CROSS SECTIONS
SUGARCANE DRIVE

CITY OF WESLACO

SHEET NO. 86



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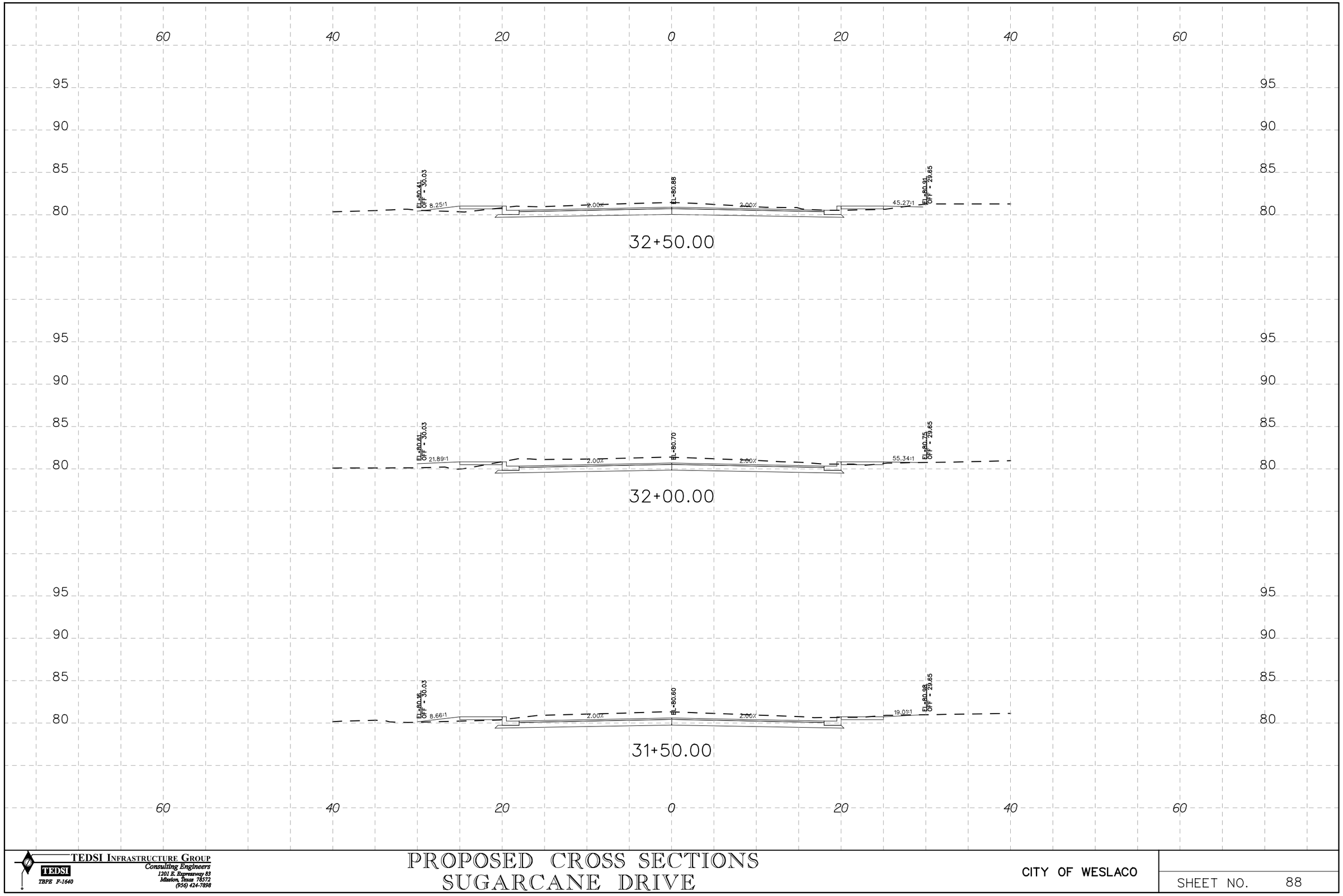
PROPOSED CROSS SECTIONS
SUGARCANE DRIVE

CITY OF WESLACO



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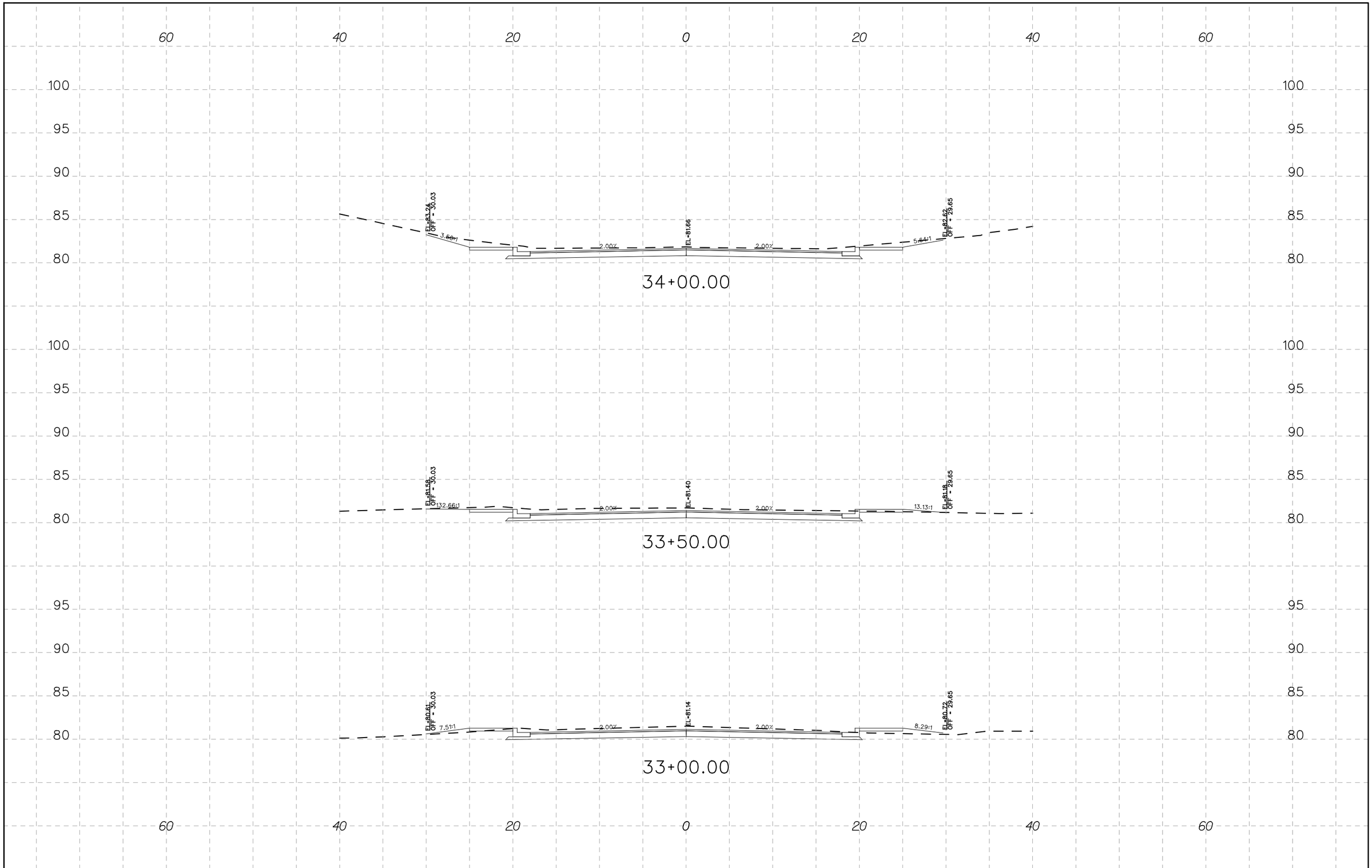
PROPOSED CROSS SECTIONS
SUGARCANE DRIVE

CITY OF WESLACO



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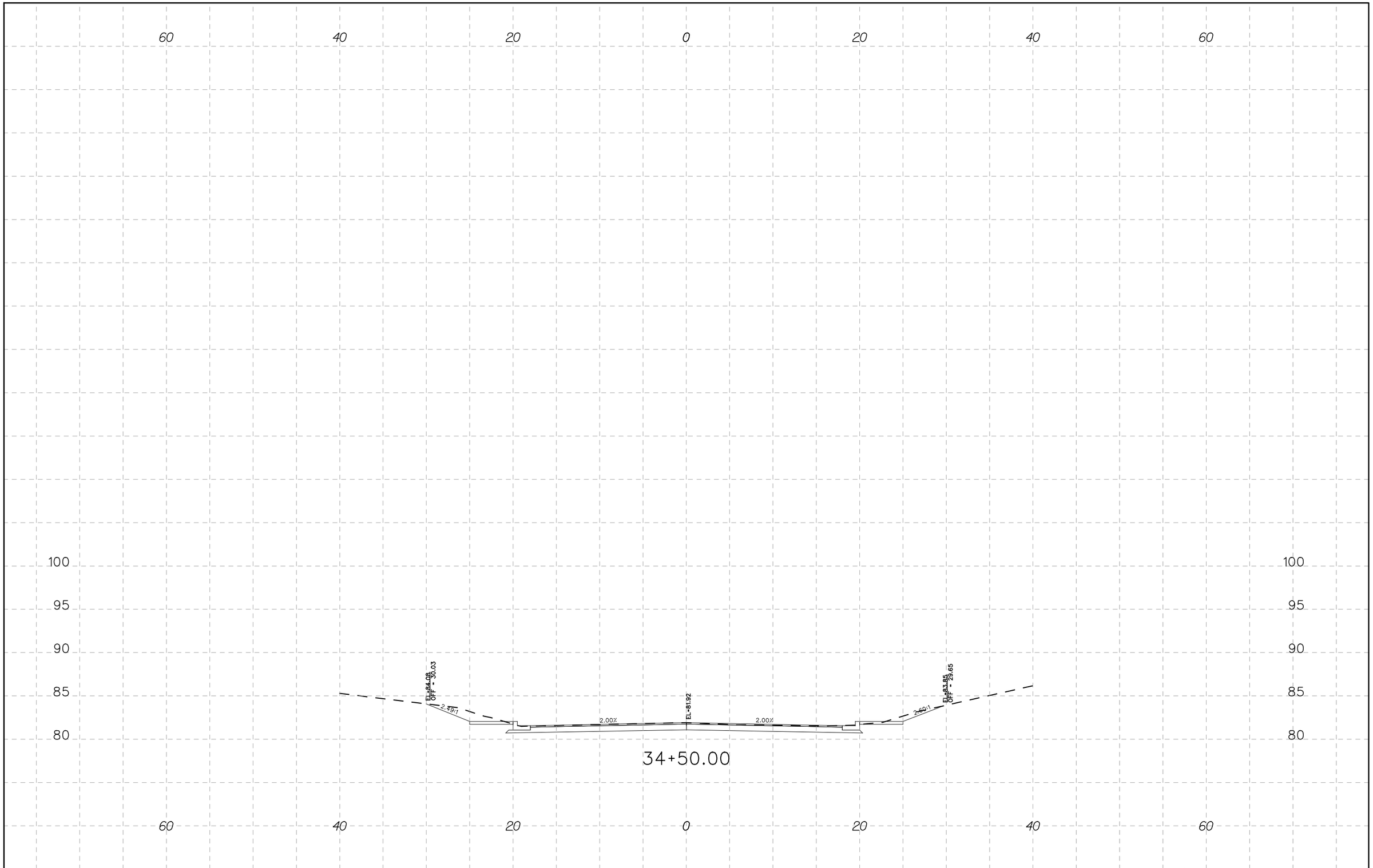
PROPOSED CROSS SECTIONS
SUGARCANE DRIVE

CITY OF WESLACO

SHEET NO. 89



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PROPOSED CROSS SECTIONS
SUGARCANE DRIVE

CITY OF WESLACO

SHEET NO. 90