GUAJOLOTE RANCH COLLECTOR PHASE 1

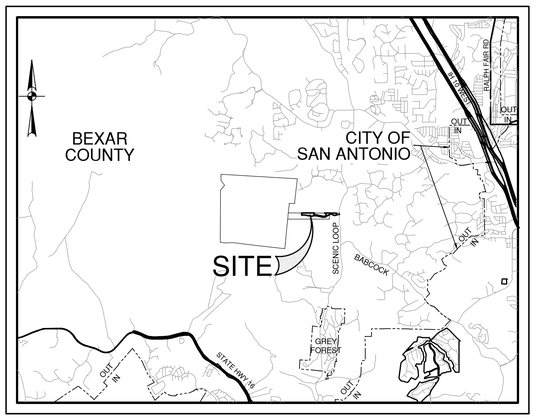
BEXAR COUNTY, TEXAS

CIVIL CONSTRUCTION PLANS

NO.	REVISION	DATE
1	ADDED GUARDRAIL PLANS	12/23/25

Sheet List Table

Sheet Title	Sheet Description	Sheet Number
COVER SHEET		C0.00
PROPOSED DRAINAGE PLAN		C1.00
POST-DEVELOPMENT DRAINAGE CALCULATIONS		C1.01
ULTIMATE DRAINAGE PLAN		C1.02
ULTIMATE DRAINAGE CALCULATIONS		C1.03
DRAIN A - PLAN AND PROFILE	STA. 1+00.00 TO END	C1.04
DRAIN B - PLAN AND PROFILE	STA. 1+00.00 TO END	C1.05
DRAIN C - PLAN AND PROFILE	STA. 1+00.00 TO END	C1.06
DRAIN C - DETAILS		C1.07
DRAIN D1 - PLAN AND PROFILE	STA. 1+00.00 TO END	C1.08
DRAIN D2 & E - PLAN AND PROFILE	STA. 1+03.00 TO END & STA. 1+05.50 TO END	C1.09
DRAIN F - PLAN AND PROFILE	STA. 0+90.50 TO END	C1.10
DRAIN F DETAILS		C1.11
INTERCEPTOR CHANNEL G - PLAN AND PROFILE	STA. 0+90.00 TO 5+00.00	C1.12
INTERCEPTOR CHANNEL G - PLAN AND PROFILE	STA. 5+00.00 TO 9+00.00	C1.13
INTERCEPTOR CHANNEL G - PLAN AND PROFILE	STA. 9+00.00 TO 13+00.00	C1.14
INTERCEPTOR CHANNEL G - PLAN AND PROFILE	STA. 13+00.00 TO END	C1.15
DRAINAGE DETAILS	SHEET 1 OF 3	C1.20
DRAINAGE DETAILS	SHEET 2 OF 3	C1.30
DRAINAGE DETAILS	SHEET 3 OF 3	C1.40
GUAJOLOTE RANCH - PLAN AND PROFILE	STA. 1+00.00 TO 11+50.00	C2.00
GUAJOLOTE RANCH - PLAN AND PROFILE	STA. 11+50.00 TO 22+50.00	C2.01
GUAJOLOTE RANCH - PLAN AND PROFILE	STA. 22+50.00 TO 33+50.00	C2.02
GUAJOLOTE RANCH - PLAN AND PROFILE	STA. 33+50.00 TO 43+00.00	C2.03
GUAJOLOTE RANCH - PLAN AND PROFILE	STA. 43+00.00 TO END	C2.04
STREET DETAILS	SHEET 1 OF 4	C2.10
STREET DETAILS	SHEET 2 OF 4	C2.20
STREET DETAILS	SHEET 3 OF 4	C2.30
STREET DETAILS	SHEET 4 OF 4	C2.40



LOCATION MAP

SCALE: NTS

PREPARED FOR:

LENNAR HOMES OF TEXAS
100 NE LOOP 410, STE. 1155
SAN ANTONIO TX, 78216

DECEMBER 2025

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

Sheet List Table

Sheet Title	Sheet Description	Sheet Number
OVERALL SIGNAGE PLAN	SHEET 1 OF 2	C3.00
OVERALL SIGNAGE PLAN	SHEET 2 OF 2	C3.01
OVERALL SIGNAGE DETAILS	SHEET 1 OF 3	C3.10
OVERALL SIGNAGE DETAILS	SHEET 2 OF 3	C3.20
OVERALL SIGNAGE DETAILS	SHEET 3 OF 3	C3.30
OVERALL WATER DISTRIBUTION PLAN	SHEET 1 OF 2	C4.00
OVERALL WATER DISTRIBUTION PLAN	SHEET 2 OF 2	C4.01
WATER DISTRIBUTION DETAILS		C4.10
WATER DISTRIBUTION NOTES		C4.20
OVERALL UTILITY PLAN	SHEET 1 OF 2	C5.00
OVERALL UTILITY PLAN	SHEET 2 OF 2	C5.01
STORM WATER POLLUTION PREVENTION PLAN	SHEET 1 OF 4	C8.00
STORM WATER POLLUTION PREVENTION PLAN	SHEET 2 OF 4	C8.01
STORMWATER POLLUTION PREVENTION PLAN	SHEET 3 OF 4	C8.02
STORMWATER POLLUTION PREVENTION PLAN	SHEET 4 OF 4	C8.03
STORM WATER POLLUTION PREVENTION PLAN DETAILS	SHEET 1 OF 2	C8.10
STORM WATER POLLUTION PREVENTION PLAN DETAILS	SHEET 2 OF 2	C8.20
BASIN A		C9.00
BASIN A DETAILS		C9.01
BASIN B		C9.10
BASIN B DETAILS		C9.11
BASIN C		C9.20
BASIN C DETAILS		C9.21
OVERALL GRADING PLAN		C10.00
GRADING PLAN	SHEET 1 OF 11	C10.01
GRADING PLAN	SHEET 2 OF 11	C10.02
GRADING PLAN	SHEET 3 OF 11	C10.03
GRADING PLAN	SHEET 4 OF 11	C10.04
GRADING PLAN	SHEET 5 OF 11	C10.05
GRADING PLAN	SHEET 6 OF 11	C10.06
GRADING PLAN	SHEET 7 OF 11	C10.07
GRADING PLAN	SHEET 8 OF 11	C10.08
GRADING PLAN	SHEET 9 OF 11	C10.09
GRADING PLAN	SHEET 10 OF 11	C10.10
GRADING PLAN	SHEET 11 OF 11	C10.11
GRADING DETAILS		C10.12
GUARDRAIL PLAN	SHEET 1 OF 3	C11.00
GUARDRAIL PLAN	SHEET 2 OF 3	C11.01
GUARDRAIL PLAN	SHEET 3 OF 3	C11.02

1

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

WATER (SAWS PRESSURE ZONE 1610)

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS
ADDRESS: 100 NE LOOP 410, STE. 1155
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 170536 TOTAL EDU'S 10 TOTAL ACREAGE 28.387
TOTAL LINEAR FOOTAGE OF PIPE: 457 L.F. - 8"PVC, 5,042 L.F. - 16"PVC PLAT NO. 25-1180026
NUMBER OF LOTS 0 SAWS JOB NO. 25-1096

SHEET C0.00

PLAT NO. 25-11800226 PD JOB NO. 12356-10 GUAJOLOTE RANCH COLLECTOR PHASE 1

Date: Dec. 23, 2025, 2:06pm User ID: rhethert
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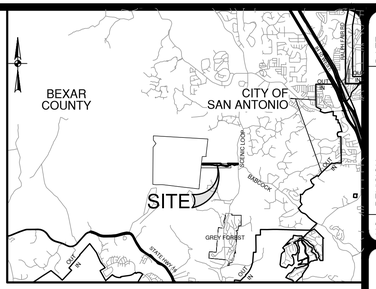

LOCATION MAP

SCALE: NTS

0' 200' 400' 600'

SCALE: 1"= 200'

MASTER DRAINAGE LEGEND

- PROJECT LIMITS
- EXISTING CONTOUR (1350)
- 100 YR FLOODPLAIN
- SHEET FLOW
- SHALLOW CONCENTRATED FLOW
- DRAINAGE AREA BOUNDARY
- PROPOSED DIRECTION OF FLOW
- DRAINAGE CALCULATION POINT (1)
- DRAINAGE AREA (AREA A 3.47 AC)

12/15/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

PROPOSED DRAINAGE PLAN

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AJR DRAWN JQ
SHEET C1.00

AREA BYPASS B1 134.36 AC
AREA BYPASS C1 32.30 AC
AREA C1.2 8.06 AC
AREA C4 6.24 AC
AREA C4 3.36 AC
AREA C3 2.07 AC
AREA C2 0.38 AC
AREA BASIN C 1.25 AC
AREA BYPASS C3 10.38 AC
AREA BYPASS B3 8.05 AC
AREA B3 2.57 AC
AREA B2 1.50 AC
AREA BASIN B 0.43 AC
AREA BYPASS B2 4.19 AC
AREA BYPASS A1 11.22 AC
AREA A1 1.92 AC
AREA A2 1.41 AC
AREA BYPASS A2 0.18 AC

100YR UD FLOODPLAIN (PER FLOOD STUDY PREPARED BY PAPE-DAWSON)

DRAIN A
DRAIN B
DRAIN C
DRAIN D-1 & D-2
DRAIN E
DRAIN F
INTERCEPTOR CHANNEL G
BATCH DETENTION BASIN A
BATCH DETENTION BASIN B
BATCH DETENTION BASIN C

CALLED 10.300 ACRES TIMOTHY AND VICKY MYERS COUNTY BLOCK 4614 (VOL. 18989, PG. 2200, O.P.R.)
CALLED 11.272 ACRES ROBERT AND SUSAN DICKERSON (VOL. 11495, PG. 942, O.P.R.)
LOT 4, BLOCK 2 REPLAT J & H SUBDIVISION (VOL.9606, PGS. 90-91, D.P.R.)
LOT 5, BLOCK 2 REPLAT J & H SUBDIVISION (VOL. 9606, PGS. 90-91, D.P.R.)
TRACT 1, LOT 3, J&J SUBDIVISION I X'EL DEVELOPMENT, LLC COUNTY BLOCK 4613 (VOL.9609, PG. 90, P.R.)
CALLED 10.2672 ACRES MICHAEL AND PAULA FLECK COUNTY BLOCK 4613 (DOC.# 20190081012, O.P.R.)
FUTURE GUAJOLOTE RANCH UNIT 1

SCENIC LOOP ROAD (VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)

Date: Dec 15, 2025, 4:04pm User ID: jvazquez
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Post Development Calculations

Ref. Point	Structure / Description	Drainage Areas #	Area (Ac)	C	Total Flowpath (ft)	Overland/Sheet Flow (Seelye) L_O (FT)	S_O (ft/ft)	T_O* (MIN)	Shallow Concentrated Flow - 1** L_{SC} (FT)	Condition***	Slope (ft/ft)	V_{SC} (FPS)	T_{SC}** (MIN)	Shallow Concentrated Flow - 2** L_{SC} (FT)	Condition***	Slope (ft/ft)	V_{SC} (FPS)	T_{SC}** (MIN)	Channelized Flow** L_{CH} (FT)	V_{CH} (FPS)	T_{CH}** (MIN)	$T_{C\text{-}TOT}$	T_{LAG}	Rational Method Q=CIA IDF Curve: CoSA_A14_P42 Return Year	Intensity (in/hr)	Q (cfs)
1	CONCENTRATION POINT	BYPASS A1	11.22	HEC-HMS	1,292	100	0.20	8	971	U	0.07	4.3	3.8				-	-	221	6.0	0.6	12	7.2	1		20.0
																						12	7.2	5	HEC-HMS	43.2
																						12	7.2	25		72.9
																						12	7.2	100		99.3
2	CURB INLET	A1	1.92	0.80	643	100	0.03	12	241	U	0.07	4.3	0.9				-	-	302	6.0	0.8	13	7.8	1	3.86	5.9
																						13	7.8	5	5.71	8.8
																						13	7.8	25	7.96	12.2
																						13	7.8	100	10.02	15.4
3	CURB INLET	A2	1.41	0.88	596	100	0.02	14				-	-				-	-	496	6.0	1.4	15	9.0	1	3.60	4.5
																						15	9.0	5	5.32	6.6
																						15	9.0	25	7.40	9.2
																						15	9.0	100	9.27	11.5
4	CONCENTRATION POINT	A1+A2	3.33	0.83	596	100	0.02	14				-	-				-	-	496	6.0	1.4	15	9.0	1	3.60	10.0
																						15	9.0	5	5.32	14.7
																						15	9.0	25	7.40	20.5
																						15	9.0	100	9.27	25.6
5	CONCENTRATION POINT	BYPASS A1+BYPASS A2+A	14.73	HEC-HMS																				1		21.8
																								5	HEC-HMS	48.3
																								25		82.5
																								100		112.7
6	CONCENTRATION POINT	BYPASS B1	134.36	0.71	3,854	100	0.20	8	293	U	0.38	9.9	0.5				-	-	3,461	6.0	9.6	18	10.8	1		198.4
																						18	10.8	5	HEC-HMS	427.7
																						18	10.8	25		720.7
																						18	10.8	100		981.8
7	CONCENTRATION POINT	BYPASS B2	4.19	0.53	645	100	0.01	20	545	U	0.13	5.8	1.6				-	-		-	-	21	12.6	1		3.5
																						21	12.6	5	HEC-HMS	7.9
																						21	12.6	25		13.7
																						21	12.6	100		18.8
8	CONCENTRATION POINT	BYPASS B3	8.05	0.53	336	100	0.07	10	236	U	0.06	4.0	1.0				-	-		-	-	11	6.6	1		13.8
																						11	6.6	5	HEC-HMS	31.4
																						11	6.6	25		54.0
																						11	6.6	100		74.0
9	CURB INLET	B1	6.97	0.83	1,904	100	0.10	9	276	U	0.17	6.7	0.7				-	-	1,528	6.0	4.2	13	7.8	1	3.86	22.3
																						13	7.8	5	5.71	33.0
																						13	7.8	25	7.96	46.0
																						13	7.8	100	10.02	58.0
10	CONCENTRATION POINT	B2	2.61	0.85	668	100	0.10	9	568	U	0.09	4.8	2.0				-	-		-	-	11	6.6	1		2.6
																						11	6.6	5	HEC-HMS	5.9
																						11	6.6	25		10.1
																						11	6.6	100		18.8
11	CURB INLET	B3	2.57	0.97	1,574	26	0.04	7				-	-				-	-	1,548	6.0	4.3	11	6.6	1	4.12	10.3
																						11	6.6	5	6.13	15.3
																						11	6.6	25	8.56	21.3
																						11	6.6	100	10.81	26.9
12	CONCENTRATION POINT	B1+B3	9.54	0.87	1,956	100	0.10	9	276	U	0.17	6.7	0.7				-	-	1,580	6.0	4.4	14	8.4	1	4.12	34.2
																						14	8.4	5	5.51	45.7
																						14	8.4	25	7.67	63.7
																						14	8.4	100	9.64	80.0
13	CONCENTRATION POINT	BYPASS B1+BYPASS B2+BYPASS B3+B1+B2+BA	157.64	HEC-HMS																				1		235.7
																								5	HEC-HMS	498.7
																								25		835.2
																								100		1,138.8
14	INTERCEPTOR CHANNEL	C1.1	6.24	0.72	692	100	0.11	10	549	U	0.11	5.4	1.7				-	-	43	6.0	0.1	11	6.6	1	4.12	18.5
																						11	6.6	5	6.13	27.5
																						11	6.6	25	8.56	38.5
																						11	6.6	100	10.81	48.6
15	INTERCEPTOR CHANNEL	C1.1+C1.2	14.31	0.73	1,151	100	0.11	10	1,051	U	0.09	4.8	3.6				-	-		-	-	13	7.8	1	3.86	40.3
																						13	7.8	5	5.71	59.6
																						13	7.8	25	7.96	83.2
																						13	7.8	100	10.02	104.7
16	CONCENTRATION POINT	C2	0.38	0.53	224	100	0.07	10	124	U	0.10	5.1	0.4				-	-		-	-	10	6.0	1	4.25	0.9
																						10	6.0	5	6.36	1.3
																						10	6.0	25	8.88	1.8
																						10	6.0	100	11.23	2.3
17	CURB INLET	C3	2.07	0.97	1,293	26	0.04	7				-	-				-	-	1,267	6.0	3.5	10	6.0	1	4.25	8.5
																						10	6.0	5	6.36	12.8
																						10	6.0	25	8.88	17.8
																						10	6.0	100	11.23	22.5
18	CURB INLET	C4	3.36	0.93	1,317	52	0.80	3				-	-				-	-	1,265	6.0	3.5	10	6.0	1	4.25	13.3
																						10	6.0	5	6.36	19.9
																						10	6.0	25	8.88	27.7
																						10	6.0	100	11.23	35.1
19	CONCENTRATION POINT	C3+C4	5.43	0.95	1,375	52	0.80	3				-	-				-	-	1,323	6.0	3.7	10	6.0	1	4.25	21.9
																						10	6.0	5	6.36	32.8
																						10	6.0	25	8.88	45.8
																						10	6.0	100	11.23	57.9
20	CONCENTRATION POINT	BYPASS C1+C1	-	-	2,076	100	0.14	9	1,976	U	0.07	4.3	7.7				-	-		-	-	16	9.6	1		77.5
																						16	9.6	5	HEC-HMS	165.0
																						16	9.6	25		276.8
																						16	9.6	100		375.7
21	CONCENTRATION POINT	BYPASS C2	5.81	0.64	912	100	0.03	12	812	U	0.07	4.3	3.2				-	-		-	-	15	9.0	1		8.8
																						15	9.0	5	HEC-HMS	20.1
																						15	9.0	25		34.6
																						15	9.0	100		47.5
22	CONCENTRATION POINT	BYPASS C3	5.34	0.91	791	100	0.07	10	691	U	0.06	4.0	2.9				-	-		-	-	12	7.2	1		17.2
																						12	7.2	5	HEC-HMS	39.2
																						12	7.2	25		67.3
																						12	7.2	100		92.4
23	CONCENTRATION POINT	BYPASS C1+BYPASS C2+BYPASS C3+C1+C2+BA	58.08	HEC-HMS																				1		108.5
																								5	HEC-HMS	233.9
																								25		391.1
																								100		530.8

Rational Method Time of Concentration
*Seelye Chart or TR-55 Eqn. 3-3
**As Calculated using Mannings or TR-55 Figure 3-1 or 6 ft/s

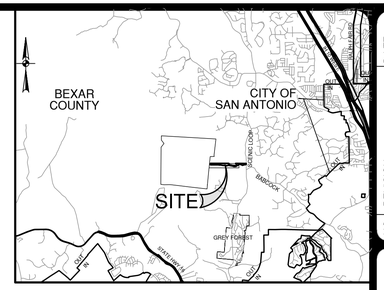
$$T_o = \frac{(0.007(n*L)^{0.8})}{(P2^{0.5}*s^{0.4})} * 60$$

From TR-55 Figure 3-1**

$$v = \frac{k}{n} R^{2/3} S_o^{1/2}$$

$$k = 1.486\ ft^{1/3}/s$$

S: For Streets: n = 0.018, R = 0.2 (Adapted from Mannings)
P: For Paved: n = 0.025, R = 0.2
U: For Unpaved: n = 0.05, R = 0.4
D: For Default: v = 6 fps



LOCATION MAP
SCALE: NTS

NO.	REVISION	DATE

12/15/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS
POST-DEVELOPMENT DRAINAGE CALCULATIONS

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED bb DRAWN JQ
SHEET C1.01

Date: Dec 15, 2025, 4:05pm User ID: jvazquez
File: P:\123\56\10\Design\Civil\250728-INT_DRMP 1235610.dwg

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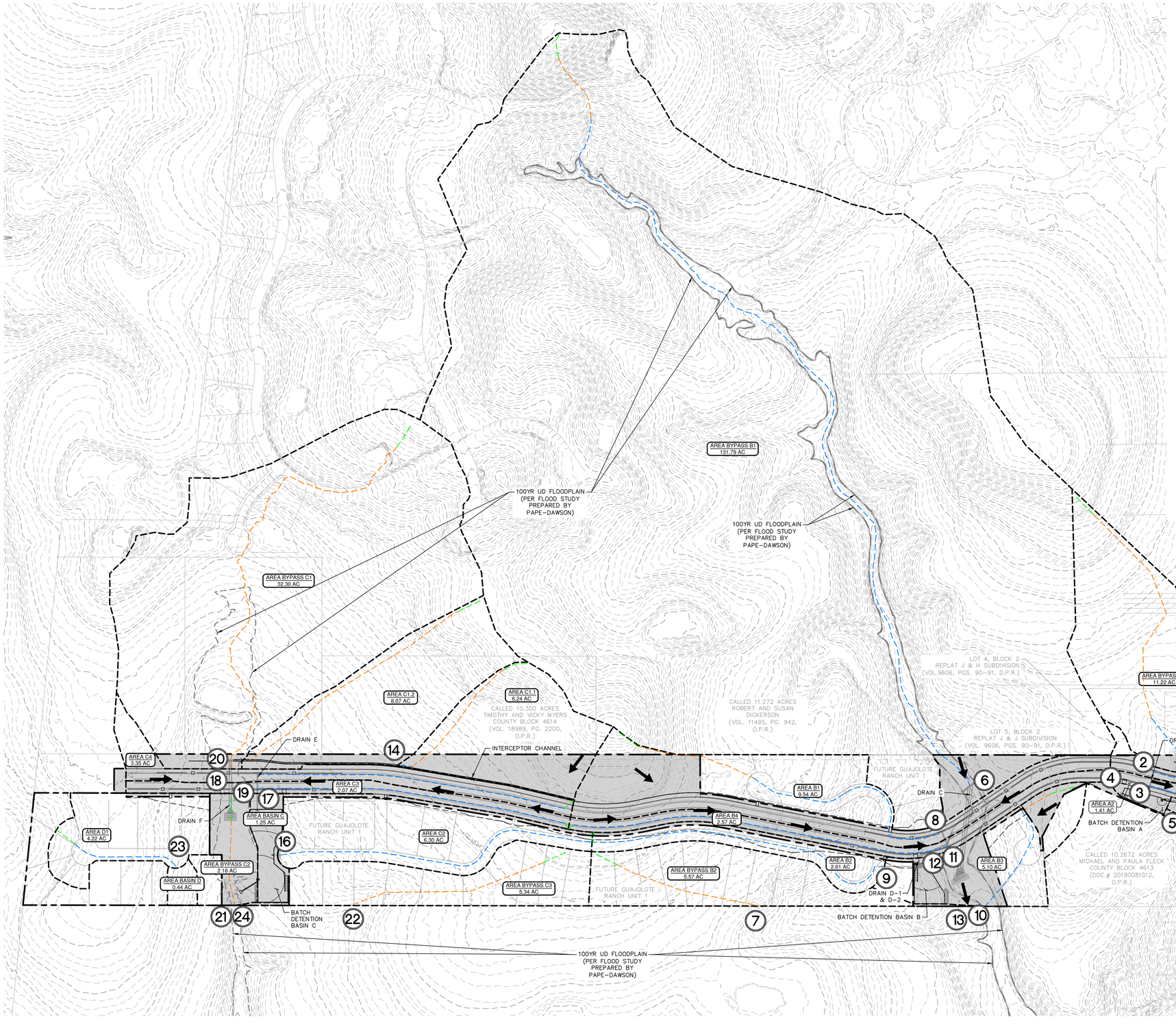

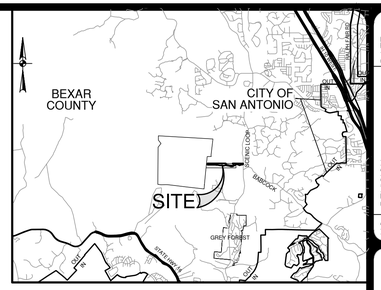

LOCATION MAP

SCALE: NTS

0' 200' 400' 600'

SCALE: 1"= 200'

MASTER DRAINAGE LEGEND

PROJECT LIMITS	
EXISTING CONTOUR	1350
100 YR FLOODPLAIN	
SHEET FLOW	
SHALLOW CONCENTRATED FLOW	
DRAINAGE AREA BOUNDARY	
PROPOSED DIRECTION OF FLOW	
DRAINAGE CALCULATION POINT	1
DRAINAGE AREA	AREA A 3.47 AC

NO.	REVISION	DATE

12/15/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
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PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

ULTIMATE DRAINAGE PLAN

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED JQ DRAWN JQ
SHEET C1.02

Date: Dec 15, 2025, 4:05pm User ID: Jvazquez
File: P:\123\56\10\Design\Civil\DRMP 1235610.dwg

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GUAJOLOTE RANCH COLLECTOR PHASE 1
PD#: 12356-10

Ultimate Development Calculations

Ref. Point	Structure / Description	Drainage Areas #	Area (Ac)	C	Total Flowpath (ft)	Overland/Sheet Flow (Seelye) L_O (FT)	S_O (ft/ft)	T_O* (MIN)	Shallow Concentrated Flow - 1** L_{SC} (FT)	Condition***	Slope (ft/ft)	V_{SC} (FPS)	T_{SC}** (MIN)	Shallow Concentrated Flow - 2** L_{SC} (FT)	Condition***	Slope (ft/ft)	V_{SC} (FPS)	T_{SC}** (MIN)	Channelized Flow** L_{CH} (FT)	V_{CH} (FPS)	T_{CH}** (MIN)	$T_{C\text{-}TOT}$	T_{LAG}	Rational Method Q=CIA IDF Curve: CoSA_A14_PA2 Return Year	Intensity (in/hr)	Q (cfs)
1	CONCENTRATION POINT	BYPASS A1	11.22		1,307	100	0.20	8	1,207	U	0.07	4.3	4.7				-	-		-	-	12	7.2	1		20.0
																						12	7.2	5	HEC-HMS	43.2
																						12	7.2	25		72.9
																						12	7.2	100		99.3
2	CURB INLET	A1	2.13	0.82	341	100	0.03	12	241	U	0.07	4.3	0.9				-	-		-	-	12	7.2	1	3.99	7.0
																						12	7.2	5	5.92	10.3
																						12	7.2	25	8.25	14.4
																						12	7.2	100	10.41	18.2
3	CURB INLET	A2	1.33	0.89	596	100	0.02	14				-	-				-	-	496	6.0	1.4	15	9.0	1	3.60	4.3
																						15	9.0	5	5.32	6.3
																						15	9.0	25	7.40	8.8
																						15	9.0	100	9.27	11.0
4	CONCENTRATION POINT	A1+A2	3.46	0.85	596	100	0.02	14				-	-				-	-	496	6.0	1.4	15	9.0	1	3.60	10.6
																						15	9.0	5	5.32	15.6
																						15	9.0	25	7.40	21.8
																						15	9.0	100	9.27	27.3
5	CONCENTRATION POINT	BYPASS A1+BYPASS A2	14.86	HEC-HMS																				1	HEC-HMS	21.8
																								5		48.3
																								25		82.5
																								100		112.7
6	CONCENTRATION POINT	BYPASS B1	131.79	0.71	3,859	100	0.20	8	298	U	0.38	9.9	0.5				-	-	3,461	6.0	9.6	18	10.8	1		178.5
																						18	10.8	5	HEC-HMS	384.9
																						18	10.8	25		650.3
																						18	10.8	100		886.0
7	CONCENTRATION POINT	BYPASS B2	5.57	0.64	706	100	0.06	10	606	U	0.06	4.0	2.6				-	-		-	-	12	7.2	1		11.4
																						12	7.2	5	HEC-HMS	23.1
																						12	7.2	25		38.1
																						12	7.2	100		51.3
8	CURB INLET	B1	9.54	0.77	1,549	100	0.15	9	487	U	0.14	6.0	1.3				-	-	962	6.0	2.7	13	7.8	1	3.86	28.4
																						13	7.8	5	5.71	41.9
																						13	7.8	25	7.96	58.5
																						13	7.8	100	10.02	73.6
9	CONCENTRATION POINT	B2	2.61	0.83	1,313	38	0.26	6				-	-				-	-	1,275	6.0	3.5	10	6.0	1	4.25	9.2
																						10	6.0	5	6.36	13.8
																						10	6.0	25	8.88	19.2
																						10	6.0	100	11.23	24.3
10	CONCENTRATION POINT	B3	5.10	0.67	697	100	0.08	10	140	U	0.14	6.0	0.4				-	-	457	6.0	1.3	11	6.6	1	4.12	14.1
																						11	6.6	5	6.13	20.9
																						11	6.6	25	8.56	29.2
																						11	6.6	100	10.81	36.9
11	CURB INLET	B4	2.57	0.97	1,574	26	0.04	7				-	-				-	-	1,548	6.0	4.3	11	6.8	1	3.99	9.9
																						11	6.8	5	6.13	15.3
																						11	6.8	25	8.56	21.3
																						11	6.8	100	10.81	26.9
12	CONCENTRATION POINT	B1+B4	12.11	0.81	2,167	100	0.15	9	487	U	0.14	6.0	1.3				-	-	1,580	6.0	4.4	14	8.4	1	3.73	36.6
																						14	8.4	5	5.51	54.0
																						14	8.4	25	7.67	75.2
																						14	8.4	100	9.64	94.6
13	CONCENTRATION POINT	BYPASS B1+BYPASS B2+B1+B2+B3+B4	157.18	HEC-HMS																				1	HEC-HMS	222.6
																								5		465.3
																								25		780.6
																								100		1,060.2
14	INTERCEPTOR CHANNEL	C1.1	6.24	0.72	692	100	0.11	10	549	U	0.11	5.4	1.7				-	-	43	6.0	0.1	11	6.6	1	4.12	18.5
																						11	6.6	5	6.13	27.5
																						11	6.6	25	8.56	38.5
																						11	6.6	100	10.81	48.6
15	INTERCEPTOR CHANNEL	C1.1+C1.2	14.31	0.73	1,151	100	0.11	10	1,051	U	0.09	4.8	3.6				-	-		-	-	13	7.8	1	3.86	40.3
																						13	7.8	5	5.71	59.6
																						13	7.8	25	7.96	83.2
																						13	7.8	100	10.02	104.7
16	INTERCEPTOR CHANNEL	C2	6.30	0.72	1,380	38	0.26	6				-	-				-	-	1,342	6.0	3.7	10	6.0	1	#N/A	#N/A
																						10	6.0	5	6.36	28.8
																						10	6.0	25	8.88	40.3
																						10	6.0	100	11.23	50.9
17	CURB INLET	C3	2.07	0.97	1,293	26	0.04	7				-	-				-	-	1,267	6.0	3.5	10	6.0	1	4.25	8.5
																						10	6.0	5	6.36	12.8
																						10	6.0	25	8.88	17.8
																						10	6.0	100	11.23	22.5
18	CURB INLET	C4	3.35	0.93	1,317	52	0.80	3				-	-				-	-	1,265	6.0	3.5	10	6.0	1	4.25	13.2
																						10	6.0	5	6.36	19.8
																						10	6.0	25	8.88	27.7
																						10	6.0	100	11.23	35.0
19	CURB INLET	C3+C4	5.42	0.95	1,375	52	0.80	3				-	-				-	-	1,323	6.0	3.7	10	6.0	1	4.25	21.9
																						10	6.0	5	6.36	32.7
																						10	6.0	25	8.88	45.7
																						10	6.0	100	11.23	57.8
20	CONCENTRATION POINT	BYPASS C1+C1	-	-	2,076	100	0.14	9	1,976	U	0.07	4.3	7.7				-	-		-	-	16	9.6	1		79.3
																						16	9.6	5	HEC-HMS	166.7
																						16	9.6	25		278.1
																						16	9.6	100		376.7
21	CONCENTRATION POINT	BYPASS C2	2.18	HEC-HMS	446	100	0.14	13	346	U	0.08	4.7	1.2				-	-		-	-	14	8.4	1		3.3
																						14	8.4	5	HEC-HMS	7.5
																						14	8.4	25		12.9
																						14	8.4	100		17.7
22	CONCENTRATION POINT	BYPASS C3	5.34	-	1,375	100	0.08	10	1,275	U	0.06	4.0	5.4				-	-		-	-	15	9.0	1		9.9
																						15	9.0	5	HEC-HMS	20.1
																						15	9.0	25		33.2
																						15	9.0	100		44.7
23	CONCENTRATION POINT	D1	4.22	0.71	535	92	0.03	12				-	-				-	-	443	6.0	1.2	13	7.8	1	3.86	11.6
																						13	7.8	5	5.71	17.1
																						13	7.8	25	7.96	23.8
																						13	7.8	100	10.02	30.0
24	CONCENTRATION POINT	BYPASS C1+ BYPASS C2+BYPASS C3+C1+C2+BASIN C+D1+BASIN D	59.20	HEC-HMS																				1		98.4
																								5	HEC-HMS	215.9
																								25		354.3
																								100		475.8

Rational Method Time of Concentration
*Seelye Chart or TR-55 Eqn. 3-3
**As Calculated using Mannings or TR-55 Figure 3-1 or 6 ft/s

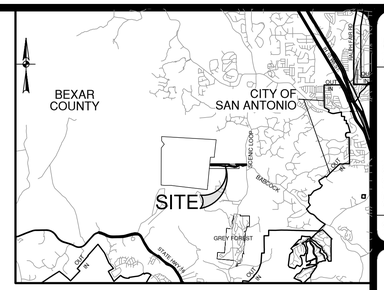
$$T_o = \frac{(0.007(n*L)^{0.8})}{(P2^{0.5}*S^{0.4})} * 60$$

From TR-55 Figure 3-1**

$$v = \frac{k}{n} R^{2/3} S_o^{1/2}$$

$$k = 1.486\ ft^{1/3}/s$$

S: For Streets: n = 0.018, R = 0.2 (Adapted from Mannings)
P: For Paved: n = 0.025, R = 0.2
U: For Unpaved: n = 0.05, R = 0.4
D: For Default: v = 6 fps



LOCATION MAP
SCALE: NTS

NO.	REVISION	DATE

12/15/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS
ULTIMATE DRAINAGE CALCULATIONS

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AJR DRAWN JQ
SHEET C1.03

Date: Dec 15, 2025, 4:05pm User ID: Jvasquez
File: P:\123\56\10\Design\Civil\DRMP 1235610.dwg

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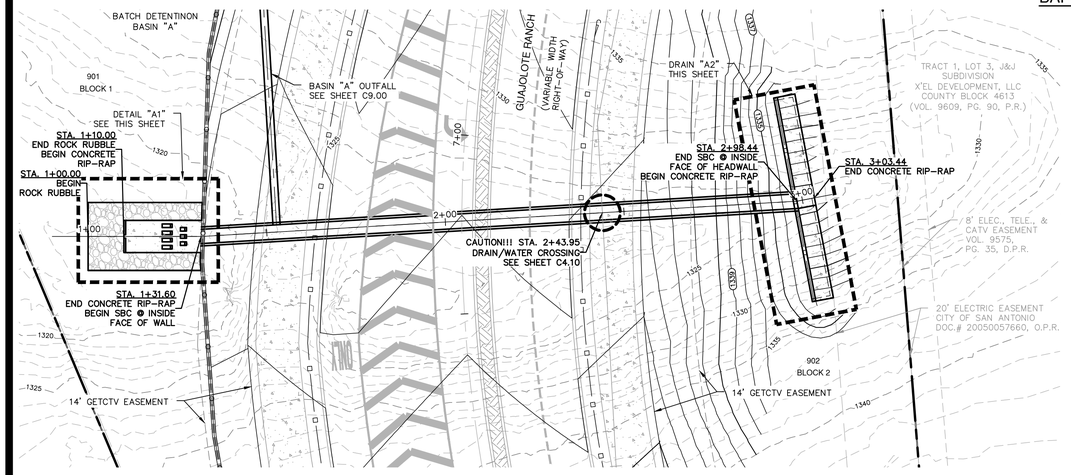
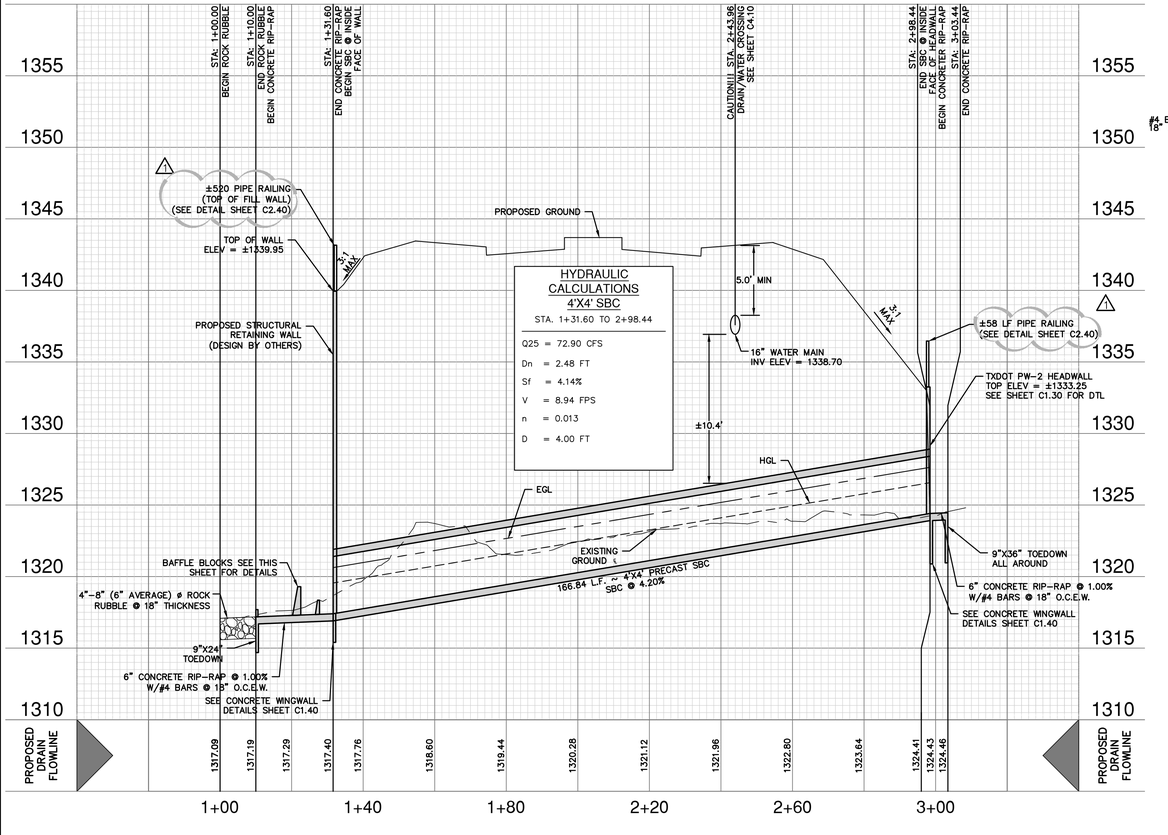
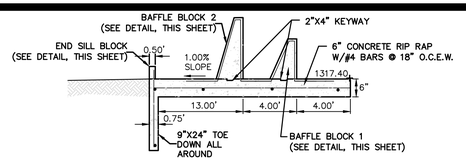


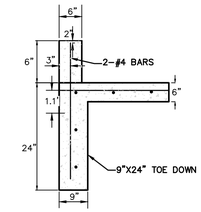
DRAIN "A"
STA. 1+00.00 TO END

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'

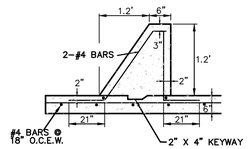




DETAIL "B"
BAFFLE BLOCK DETAILS
NOT-TO-SCALE



END SILL BLOCK DETAIL
NOT-TO-SCALE



BAFFLE BLOCK 1 DETAIL
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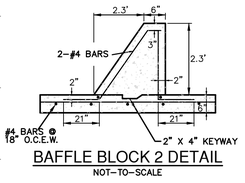

BAFFLE BLOCK 2 DETAIL
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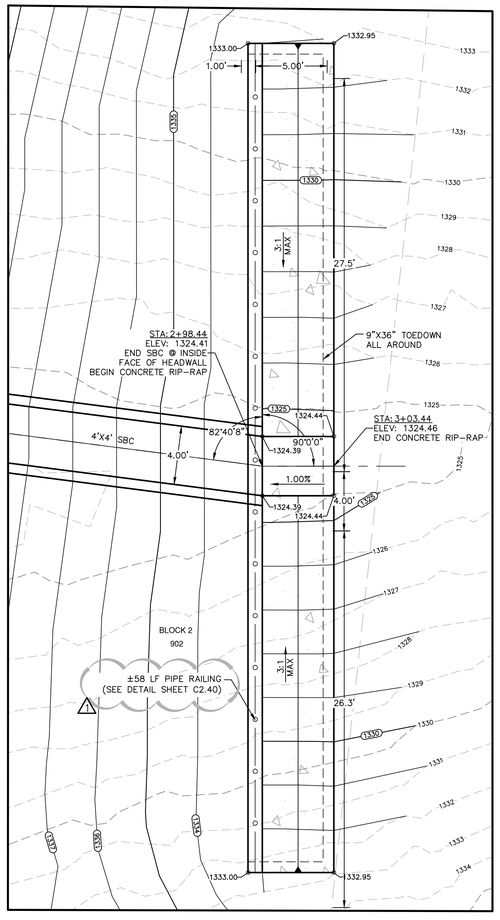
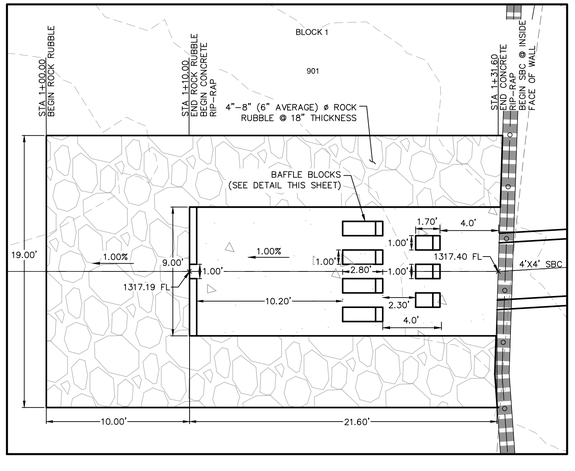


DETAIL "A2"
SCALE: 1" = 5'



DETAIL "A1"
SCALE: 1" = 5'

SCALE: 1" = 20'
0' 20' 40' 60'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- RETAINING WALL
- EXISTING CONTOUR 1295
- PROPOSED CONTOUR 1295
- PROPOSED WATER W
- PROPOSED STORM DRAIN
- FLOW ARROW

DRAINAGE & GRADING NOTES:

1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
3. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
4. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
5. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
6. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
7. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

NO.	REVISION	DATE
1	RAILING	12/23/25

12/23/25
STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

DRAIN A - PLAN AND PROFILE
STA. 1+00.00 TO END

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BD DRAWN JO
SHEET C1.04

Date: Dec 23, 2025, 2:42pm User ID: Jvazquez
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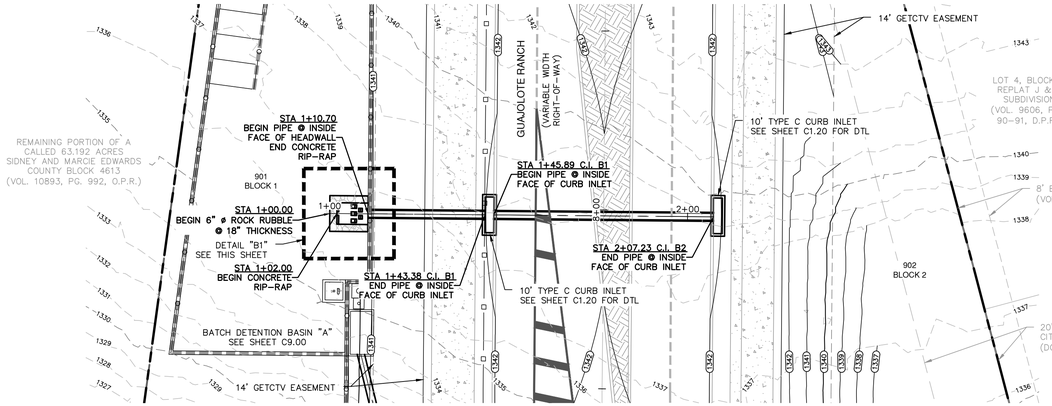
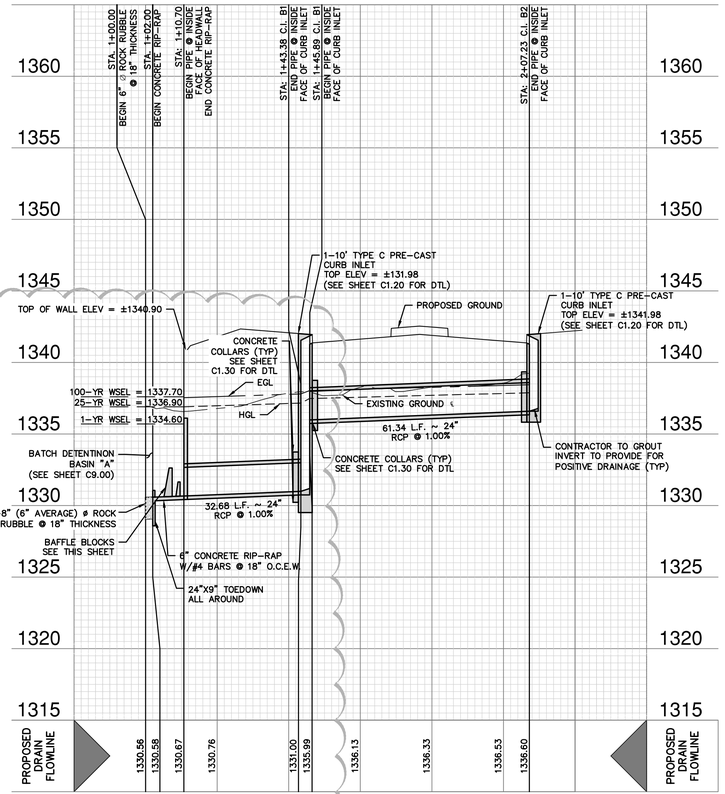
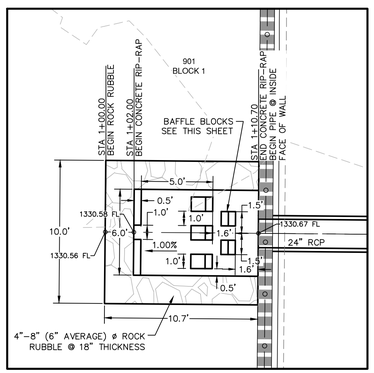


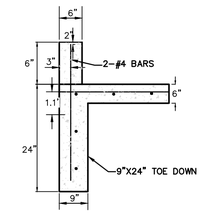
DRAIN "B"
STA. 1+00.00 TO END

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'

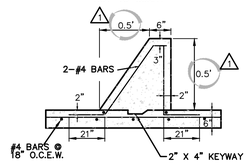




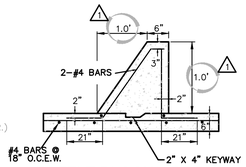
DETAIL "B1"
SCALE: 1" = 5'



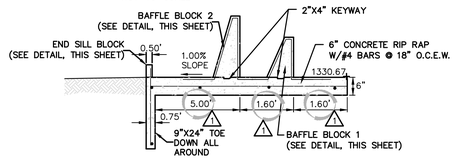
END SILL BLOCK DETAIL
NOT-TO-SCALE



BAFFLE BLOCK 1 DETAIL
NOT-TO-SCALE



BAFFLE BLOCK 2 DETAIL
NOT-TO-SCALE



DETAIL "B"
BAFFLE BLOCK DETAILS
NOT-TO-SCALE

CURB INLET B1 HYDRAULIC CALCULATIONS–DRAIN "B"
TOTAL Q_{25} = 8.70 CFS

$Q_{25} = Cw \times L \times H^{3/2}$ (WEIR FORMULA)

$Cw = 3.087$, $H = 0.79$

$$L = \frac{8.70 \text{ CFS}}{(3.087)\ (0.79)^{3/2}}$$

L = 4.01 FT USE 1 ~ 10' CURB INLET

CHECK WITH WEIR FORMULA

$$H = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{8.70}{(3.087)\ (10)}\right)^{2/3} = 0.43 \text{ FT.}$$

H = 0.43 < 0.79 OK

CURB INLET B2 HYDRAULIC CALCULATIONS–DRAIN "B"
TOTAL Q_{25} = 12.70 CFS

$Q_{25} = Cw \times L \times H^{3/2}$ (WEIR FORMULA)

$Cw = 3.087$, $H = 0.79$

$$L = \frac{12.70 \text{ CFS}}{(3.087)\ (0.79)^{3/2}}$$

L = 5.86 FT USE 1 ~ 10' CURB INLET

CHECK WITH WEIR FORMULA

$$H = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{12.70}{(3.087)\ (10)}\right)^{2/3} = 0.55 \text{ FT.}$$

H = 0.55 < 0.79 OK

HYDRAULIC CALCULATIONS 24" RCP STA. 1+10.70 TO 1+43.38	
Q25	= 20.10 CFS
Dn	= 2.00 FT
Sf	= 0.79%
V	= 6.40 FPS
n	= 0.013
D	= 2.00 FT

HYDRAULIC CALCULATIONS 24" RCP STA. 1+45.89 TO 2+07.23	
Q25	= 12.70 CFS
Dn	= 1.49 FT
Sf	= 1.00%
V	= 5.07 FPS
n	= 0.013
D	= 2.00 FT

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- RETAINING WALL
- EXISTING CONTOUR 1295
- PROPOSED CONTOUR 1295
- PROPOSED WATER W
- PROPOSED STORM DRAIN
- FLOW ARROW

DRAINAGE & GRADING NOTES:

1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
3. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
4. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
5. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
6. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
7. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

OPEN EARTHEN CHANNEL NOTE:
CONTRACTOR SHALL REFERENCE TABLE 9.3.8.1 – "RETARDATION CLASS FOR LINING MATERIALS" PROVIDED ON SHEET C1.20 AND SUPPLIED RETARDANCE CLASS (RC) FOR CHOICE OF COVER WITHIN OPEN EARTHEN CHANNEL CROSS-SECTIONS.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:
1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

TRENCH EXCAVATION SAFETY PROTECTION:
CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

NO.	REVISION	DATE
1	DRAIN DEPTH & HYDRAULICS	12/23/25

12/23/25
STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

DRAIN B - PLAN AND PROFILE
STA. 1+00.00 TO END

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BAD DRAWN JQ
SHEET C1.05

Date: Dec 23, 2025, 2:32pm User ID: Jvazquez
File: P:\123\56\10\Design\Civil\DRB 1235610.dwg
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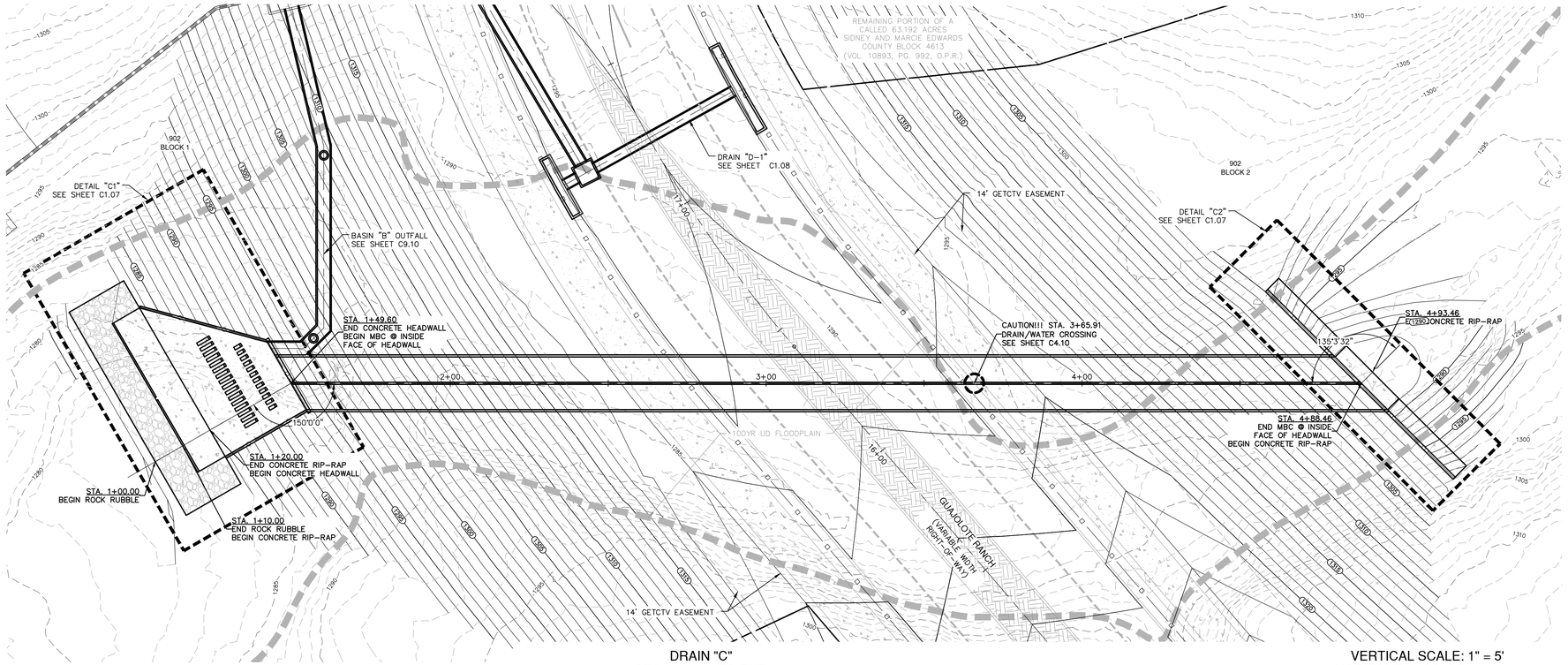
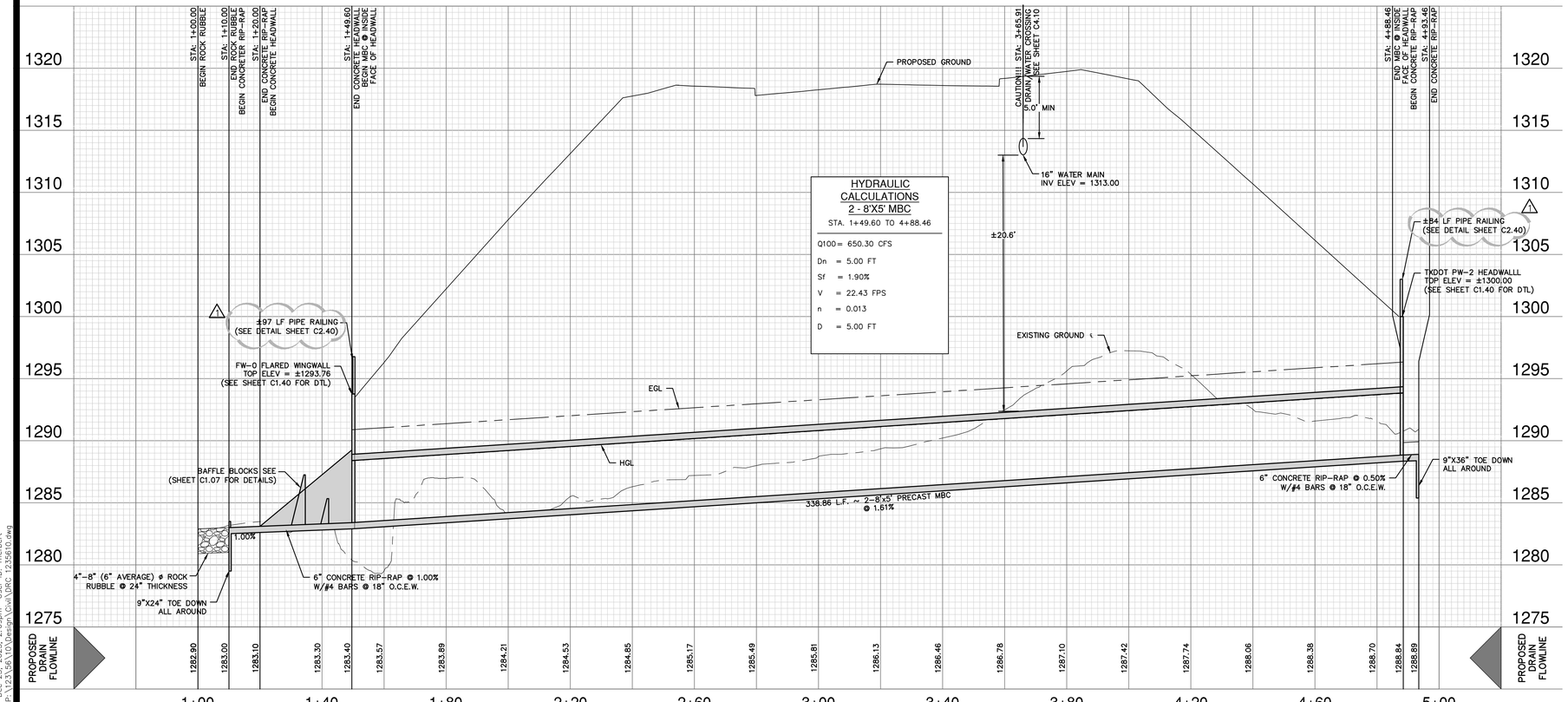


DRAIN "C"
STA. 1+00.00 TO END

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



SCALE: 1"= 20'
0' 20' 40' 60'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- RETAINING WALL
- EXISTING CONTOUR 1295
- PROPOSED CONTOUR 1295
- PROPOSED WATER W
- PROPOSED STORM DRAIN
- FLOW ARROW

DRAINAGE & GRADING NOTES:

1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
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4. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
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6. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
7. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.
8. BOX CULVERT MANHOLES MAY BE INSTALLED IMMEDIATELY BEFORE OR AFTER HORIZONTAL POINT OF INTERSECTION FOR CONSTRUCTABILITY IF DEEMED APPROPRIATE BY THE CONTRACTOR.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

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CAUTION!!

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NO.	REVISION	DATE
1	REVISED PIPE RAILING CALLOUTS	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

DRAIN C - PLAN AND PROFILE
STA. 1+00.00 TO END

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BD DRAWN JO
SHEET C1.06

Date: Dec 23, 2025, 2:09pm User ID: rherbert
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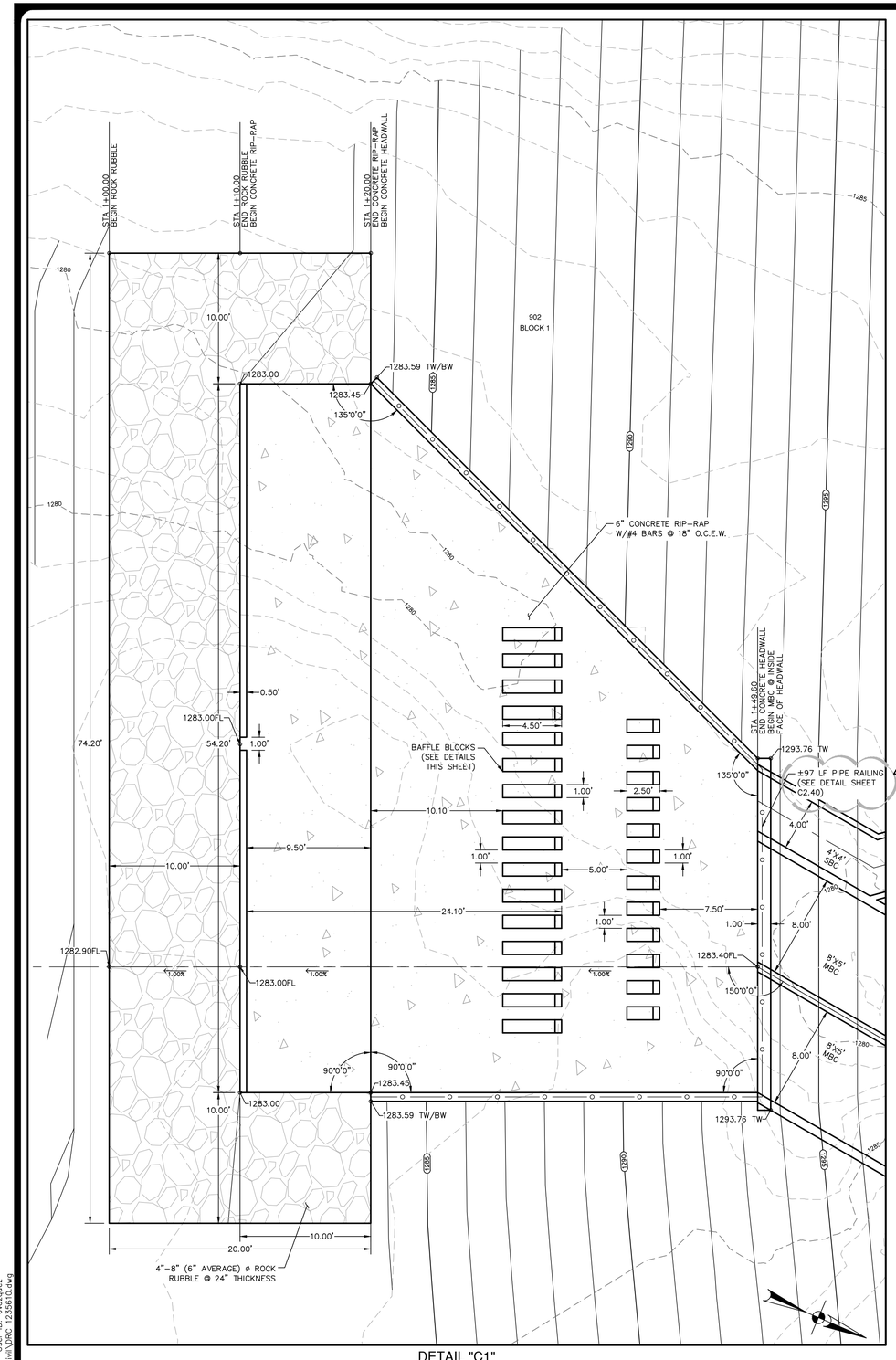
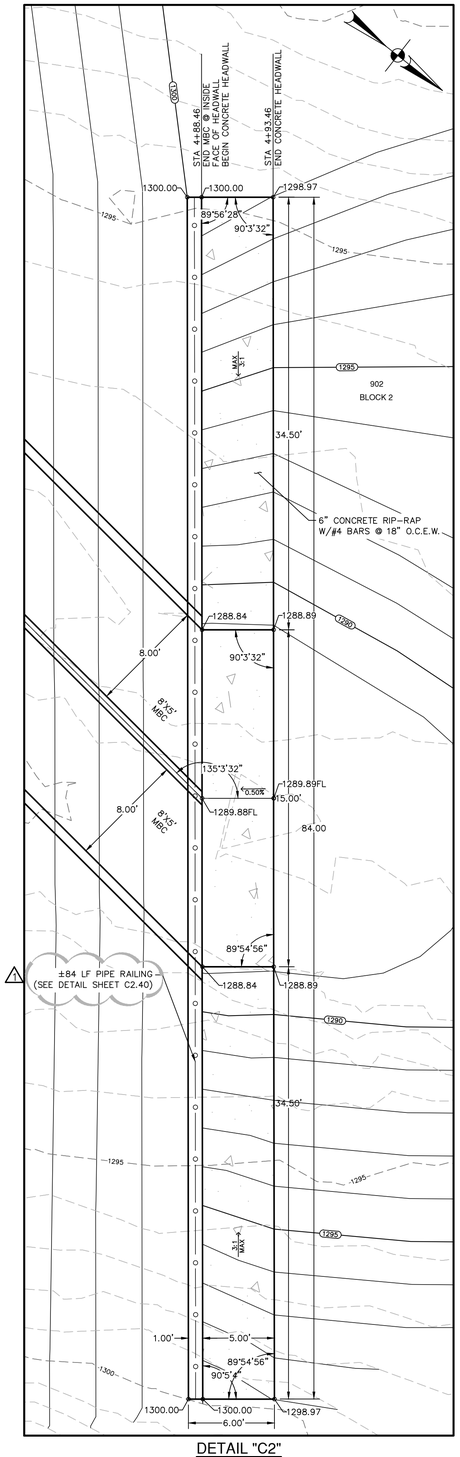


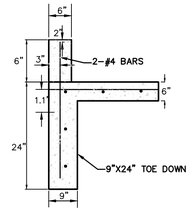
DETAIL "C1"
SCALE: 1" = 5'



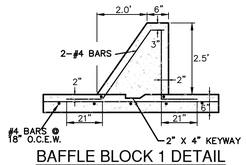
DETAIL "C2"
SCALE: 1" = 5'

DRAINAGE LEGEND

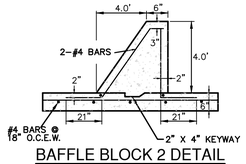
PROJECT LIMITS
100 YR FLOODPLAIN
RETAINING WALL
EXISTING CONTOUR 1295
PROPOSED CONTOUR 1295
PROPOSED WATER W
PROPOSED STORM DRAIN
FLOW ARROW
TREES TO REMAIN



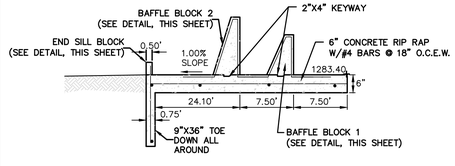
END SILL BLOCK DETAIL
NOT-TO-SCALE



BAFFLE BLOCK 1 DETAIL
NOT-TO-SCALE



BAFFLE BLOCK 2 DETAIL
NOT-TO-SCALE



DETAIL "B"
BAFFLE BLOCK DETAILS
NOT-TO-SCALE

DRAINAGE & GRADING NOTES:

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NO.	REMISION	DATE
1	REVISED PIPE RAILING	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS
DRAIN C - DETAILS

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C1.07

Date: Dec 23, 2025, 3:16pm User ID: Jvazquez
File: P:\123\356\10\Design\Civil\DRC 1235610.dwg
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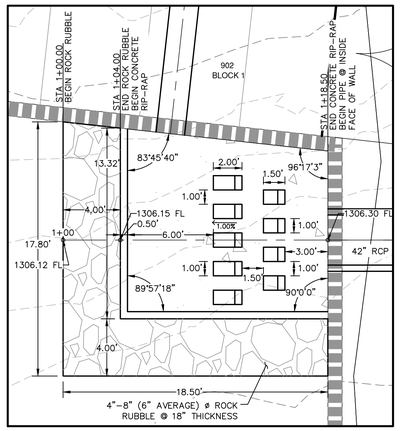
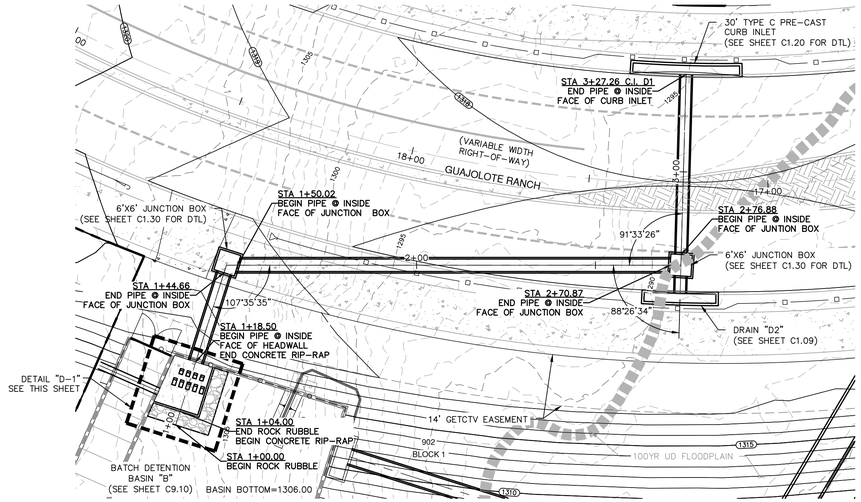


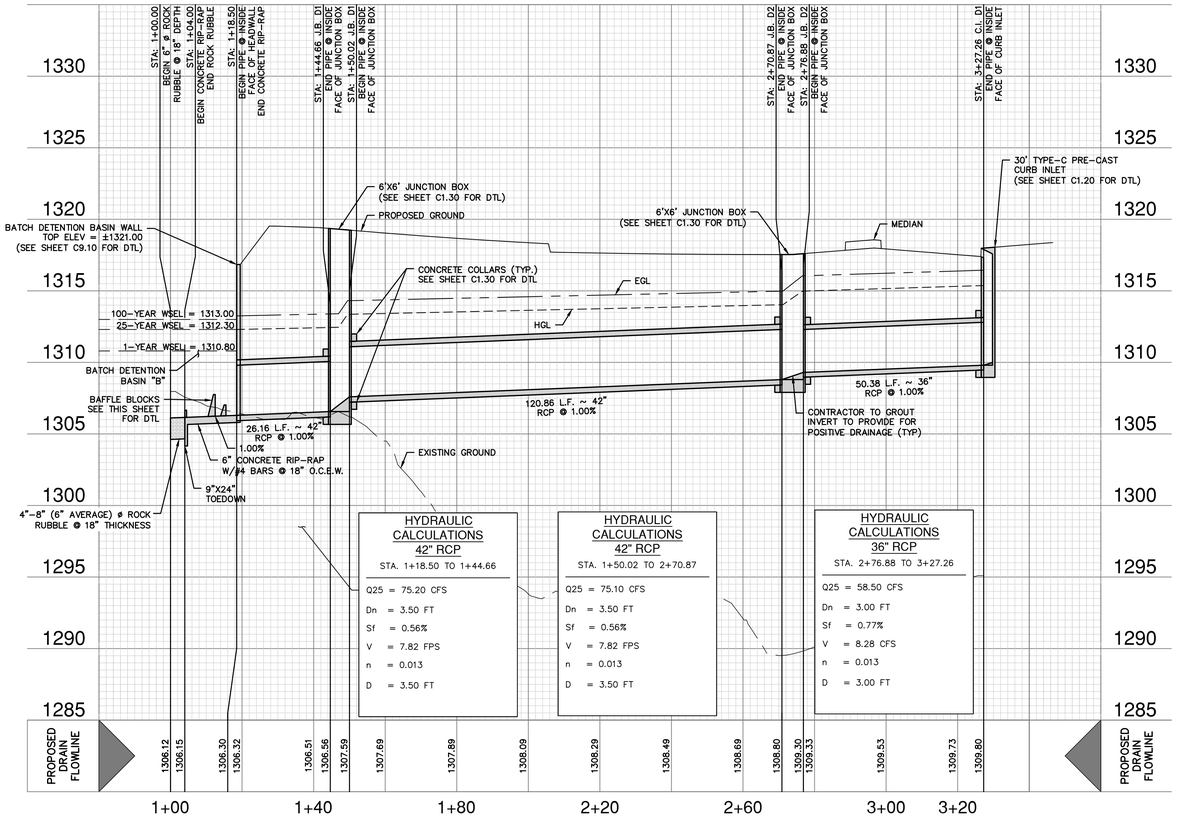
DETAIL "D-1"

SCALE: 1" = 5'



DRAIN "D1"
STA. 1+00.00 TO END

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS
42" RCP
STA. 1+18.50 TO 1+44.66

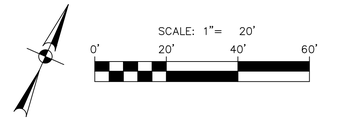
Q25 = 75.20 CFS
Dn = 3.50 FT
Sf = 0.56%
V = 7.82 FPS
n = 0.013
D = 3.50 FT

HYDRAULIC CALCULATIONS
42" RCP
STA. 1+50.02 TO 2+70.87

Q25 = 75.10 CFS
Dn = 3.50 FT
Sf = 0.56%
V = 7.82 FPS
n = 0.013
D = 3.50 FT

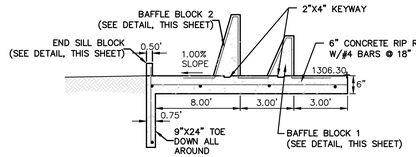
HYDRAULIC CALCULATIONS
36" RCP
STA. 2+76.88 TO 3+27.26

Q25 = 58.50 CFS
Dn = 3.00 FT
Sf = 0.77%
V = 8.28 CFS
n = 0.013
D = 3.00 FT



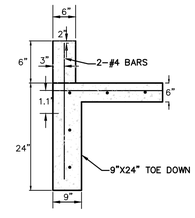
DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- RETAINING WALL
- EXISTING CONTOUR — 1295
- PROPOSED CONTOUR — 1295
- PROPOSED WATER — W
- PROPOSED STORM DRAIN
- FLOW ARROW



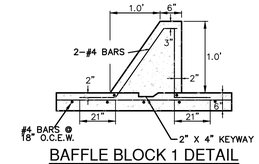
DETAIL "B"
BAFFLE BLOCK DETAILS

NOT-TO-SCALE



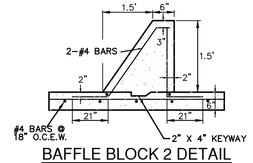
END SILL BLOCK DETAIL

NOT-TO-SCALE



BAFFLE BLOCK 1 DETAIL

NOT-TO-SCALE



BAFFLE BLOCK 2 DETAIL

NOT-TO-SCALE

CURB INLET HYDRAULIC CALCULATIONS–DRAIN "D1"

TOTAL Q_{25} = 58.50 CFS

$Q_{25} = Cw \times L \times H^{3/2}$ (WEIR FORMULA)

Cw = 3.087, H = 0.79

$$L = \frac{58.58 \text{ CFS}}{(3.087)\ (0.79)^{3/2}}$$

L = 26.99 FT USE 1 ~ 30' CURB INLET

CHECK WITH WEIR FORMULA

$$H = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{58.50}{(3.087)\ (20)}\right)^{2/3} = 0.74 \text{ FT.}$$

H = 0.74 < 0.79 OK

DRAINAGE & GRADING NOTES:

1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
3. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
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6. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
7. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

TRENCH EXCAVATION SAFETY PROTECTION:

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CAUTION!!

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NO.	REVISION	DATE

12/15/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

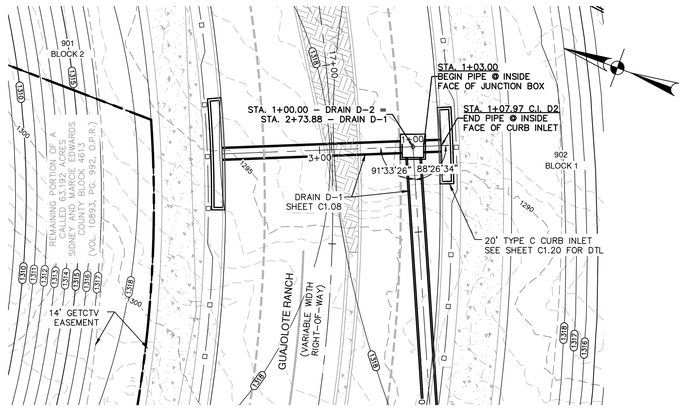
GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

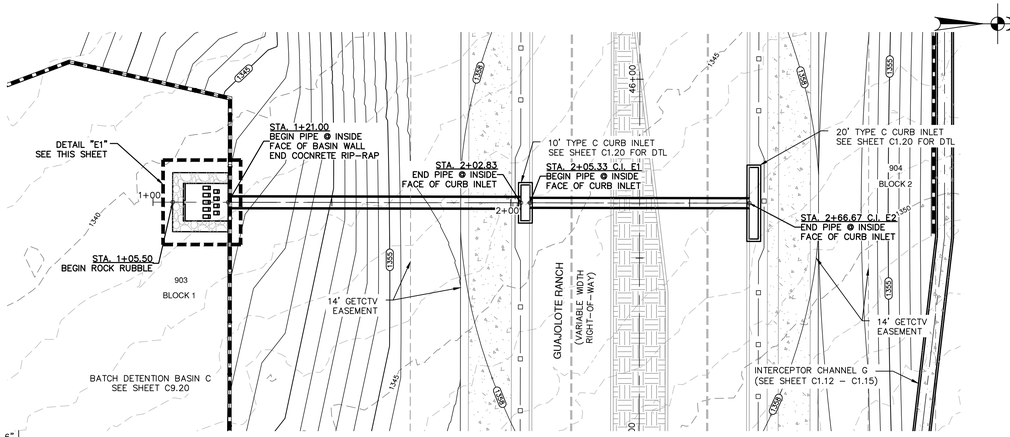
DRAIN D1 - PLAN AND PROFILE
STA. 1+00.00 TO END

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AR DRAWN JQ
SHEET C1.08

Date: Dec 15, 2025, 4:11pm User ID: Jvazquez
File: P:\123\s6\10\Design\Civil\DRD 12356t10.dwg

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. AERIAL IMAGERY PROVIDED BY GOOGLE© UNLESS OTHERWISE NOTED. Imagery © 2016,CAPCOG,Digital Globe,Texas Orthoimagery Program, USDA Farm Service Agency.



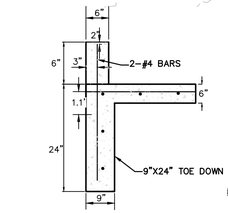


SCALE: 1"= 20'

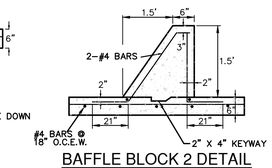
0' 20' 40' 60'

DRAINAGE LEGEND

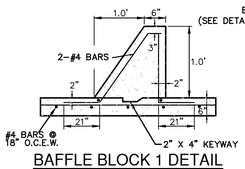
- PROJECT LIMITS
- 100 YR FLOODPLAIN
- RETAINING WALL
- EXISTING CONTOUR — 1295
- PROPOSED CONTOUR — 1295
- PROPOSED WATER — W
- PROPOSED STORM DRAIN
- FLOW ARROW



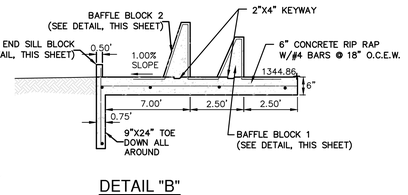
END SILL BLOCK DETAIL
NOT–TO–SCALE



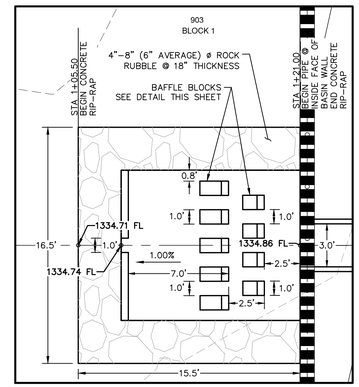
BAFFLE BLOCK 2 DETAIL
NOT–TO–SCALE



BAFFLE BLOCK 1 DETAIL
NOT–TO–SCALE



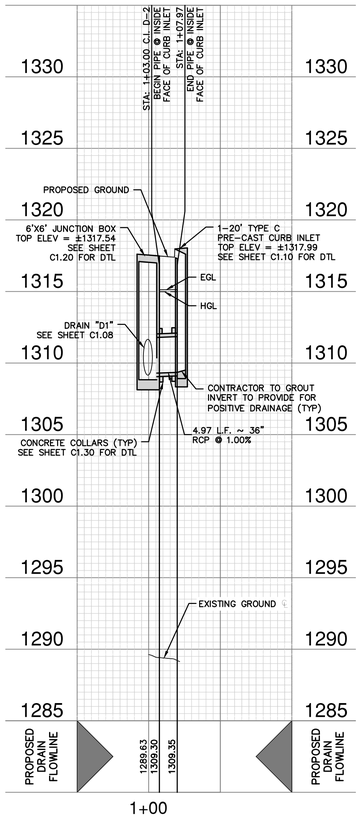
DETAIL "B"
BAFFLE BLOCK DETAILS
NOT–TO–SCALE



DETAIL "E1"
SCALE: 1" = 5'

DRAIN "D2"
STA. 1+03.00 TO END

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS
36" RCP - DRAIN D2
STA. 1+03.00 TO 1+07.97

Q25 = 21.30 CFS
Dn = 3.00 FT
Sf = 10.20%
V = 3.01 CFS
n = 0.013
D = 3.00 FT

CURB INLET HYDRAULIC CALCULATIONS–DRAIN "D2"

TOTAL Q_{25} = 21.30 CFS

$Q_{25} = Cw \times L \times H^{3/2}$ (WEIR FORMULA)

Cw = 3.087, H = 0.79

$$L = \frac{21.30 \text{ CFS}}{(3.087)\ (0.79)^{3/2}}$$

L = 9.83 FT USE 1 ~ 20' CURB INLET

CHECK WITH WEIR FORMULA

$$H = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{21.30}{(3.087)\ (20)}\right)^{2/3} = 0.49 \text{ FT.}$$

H = 0.49 < 0.79 OK

CURB INLET E1 HYDRAULIC CALCULATIONS–DRAIN "E"

TOTAL Q_{25} = 17.80 CFS

$Q_{25} = Cw \times L \times H^{3/2}$ (WEIR FORMULA)

Cw = 3.087, H = 0.79

$$L = \frac{17.80 \text{ CFS}}{(3.087)\ (0.79)^{3/2}}$$

L = 8.21 FT USE 1 ~ 10' CURB INLET

CHECK WITH WEIR FORMULA

$$H = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{17.80}{(3.087)\ (10)}\right)^{2/3} = 0.69 \text{ FT.}$$

H = 0.69 < 0.79 OK

CURB INLET E2 HYDRAULIC CALCULATIONS–DRAIN "E"

TOTAL Q_{25} = 27.70 CFS

$Q_{25} = Cw \times L \times H^{3/2}$ (WEIR FORMULA)

Cw = 3.087, H = 0.79

$$L = \frac{27.70 \text{ CFS}}{(3.087)\ (0.79)^{3/2}}$$

L = 12.78 FT USE 1 ~ 20' CURB INLET

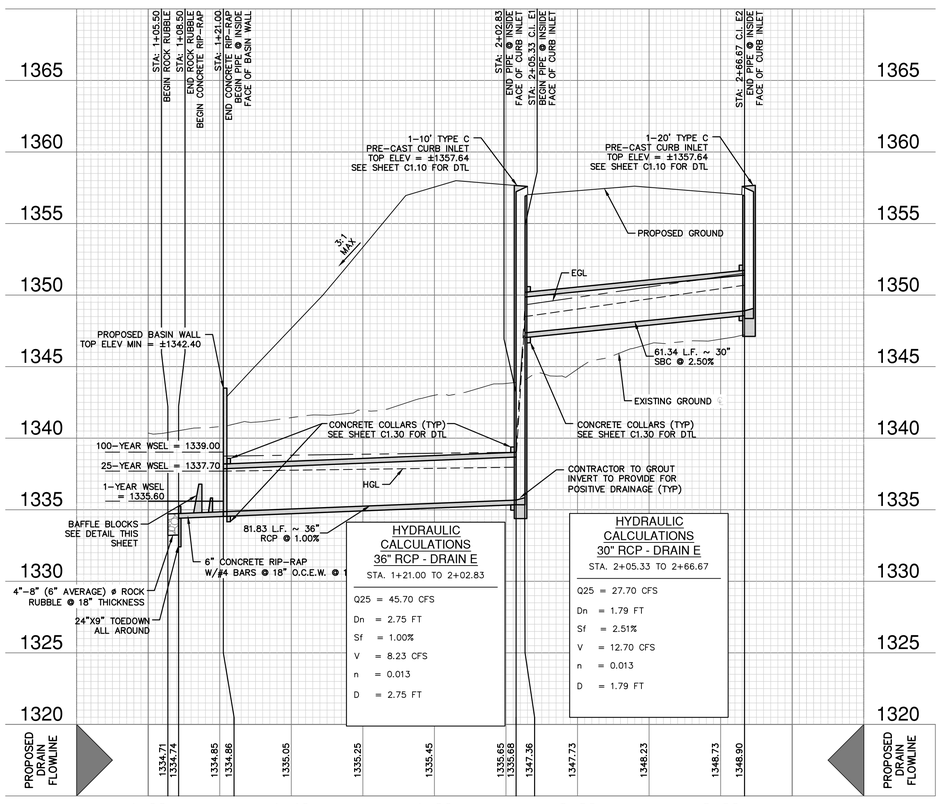
CHECK WITH WEIR FORMULA

$$H = \left(\frac{Q}{(CL)}\right)^{2/3} = \left(\frac{27.70}{(3.087)\ (20)}\right)^{2/3} = 0.59 \text{ FT.}$$

H = 0.59 < 0.79 OK

DRAIN "E"
STA. 1+05.50 TO END

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS
36" RCP - DRAIN E
STA. 1+21.00 TO 2+02.83

Q25 = 45.70 CFS
Dn = 2.75 FT
Sf = 1.00%
V = 8.23 CFS
n = 0.013
D = 2.75 FT

HYDRAULIC CALCULATIONS
30" RCP - DRAIN E
STA. 2+05.33 TO 2+66.67

Q25 = 27.70 CFS
Dn = 1.79 FT
Sf = 2.51%
V = 12.70 CFS
n = 0.013
D = 1.79 FT

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4. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
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7. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

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2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

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NO.	REVISION	DATE

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER
12/15/25

PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

DRAIN D2 & E - PLAN AND PROFILE
STA. 1+03.00 TO END & STA. 1+05.50 TO END

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED [illegible] DRAWN JQ
SHEET C1.09

Date: Dec 15, 2025, 4:13pm User ID: Jvasquez
File: P:\123\56\10\Design\Civil\DRE 1235610.dwg

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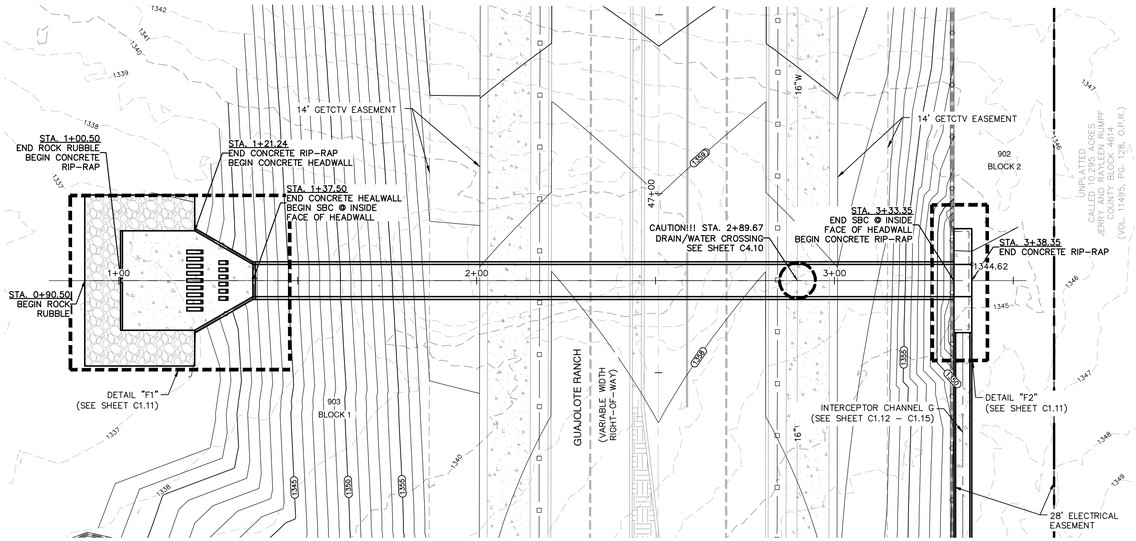


SCALE: 1"= 20'

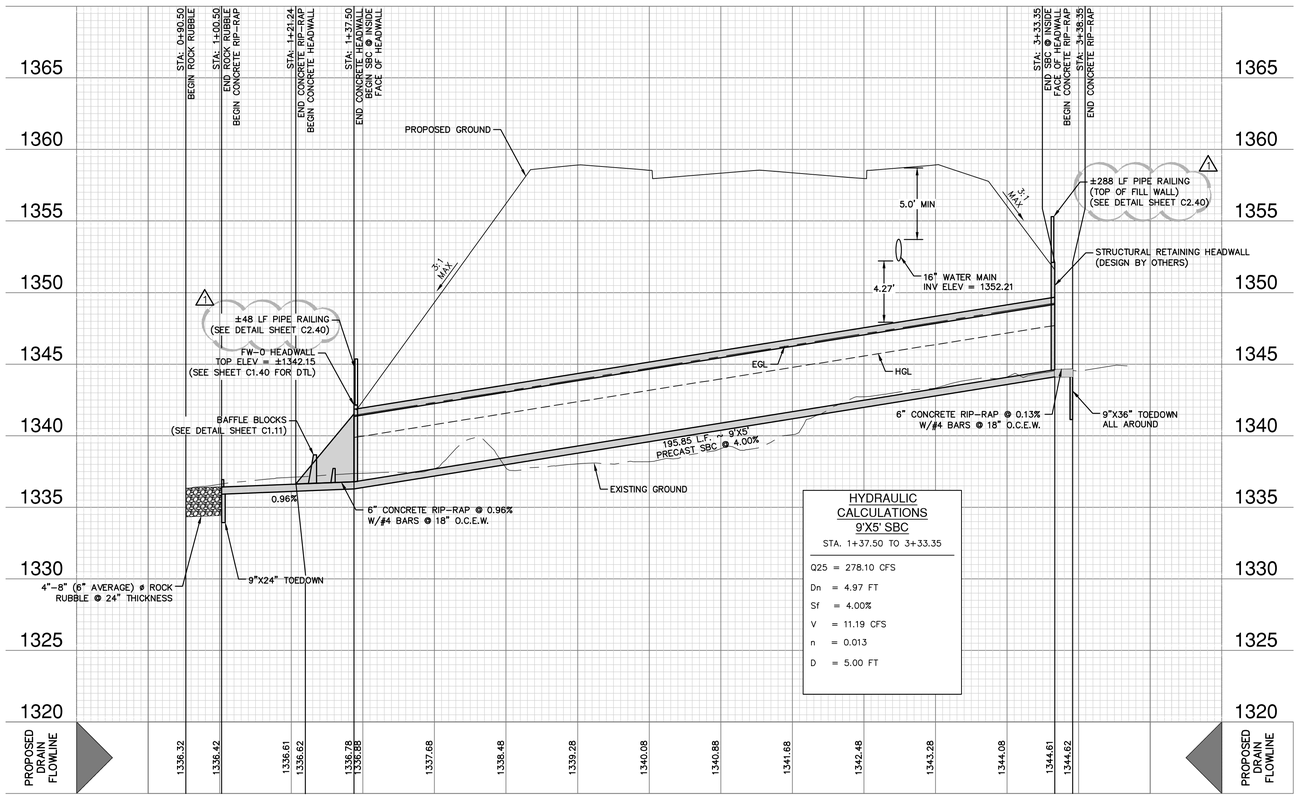
0' 20' 40' 60'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- RETAINING WALL
- EXISTING CONTOUR (1295)
- PROPOSED CONTOUR (1295)
- PROPOSED WATER (W)
- PROPOSED STORM DRAIN
- FLOW ARROW

DRAIN "F"
STA. 0+90.50 TO END

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS
9'X5' SBC

STA. 1+37.50 TO 3+33.35

Q25	= 278.10 CFS
Dn	= 4.97 FT
Sf	= 4.00%
V	= 11.19 CFS
n	= 0.013
D	= 5.00 FT

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CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

NO.	REVISION	DATE
1	RAILING	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

DRAIN F - PLAN AND PROFILE
STA. 0+90.50 TO END

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AJR DRAWN JQ
SHEET C1.10

Date: Dec 23, 2025, 2:11pm User ID: rherbert
File: P:\123\56\10\Design\Civil\DRF 1235610.dwg

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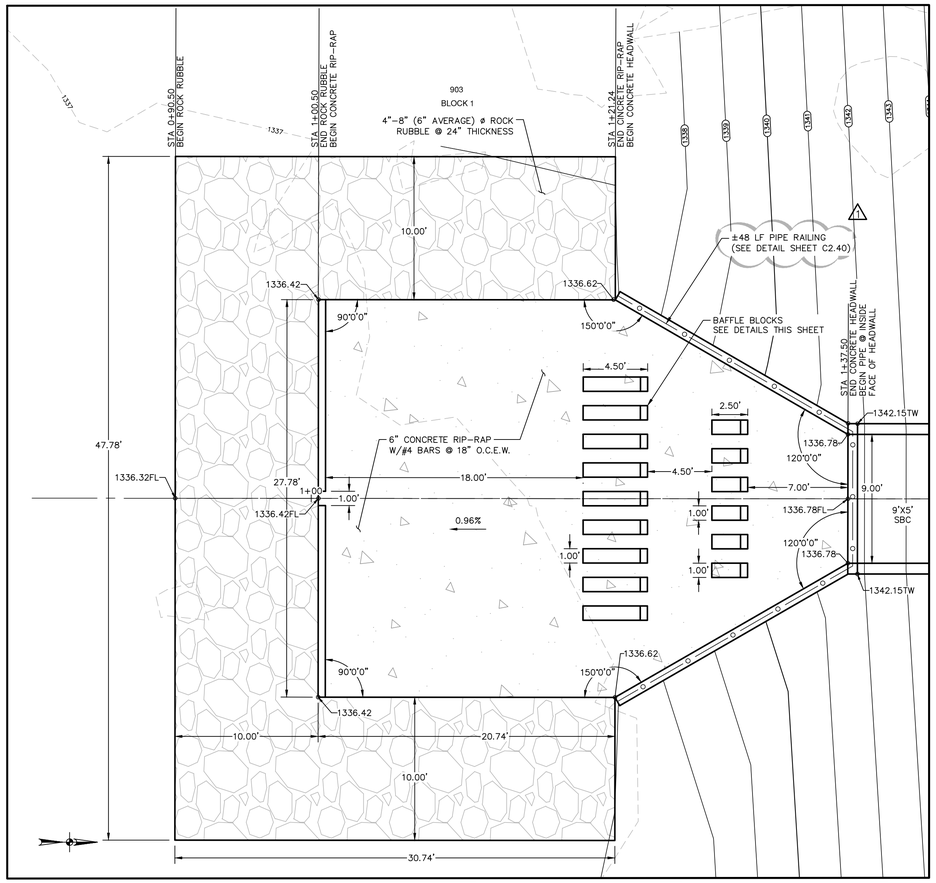
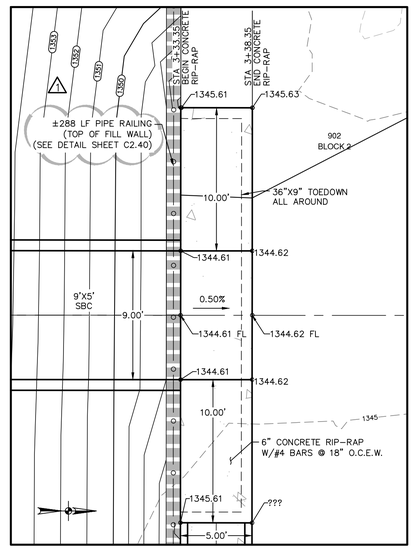


DETAIL "F1"
SCALE: 1" = 5'



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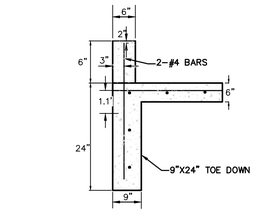
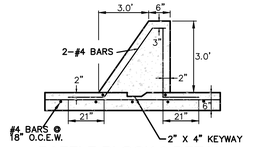


END SILL BLOCK DETAIL
NOT-TO-SCALE



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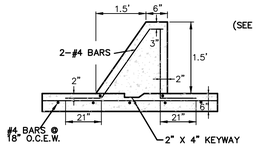

BAFFLE BLOCK 1 DETAIL
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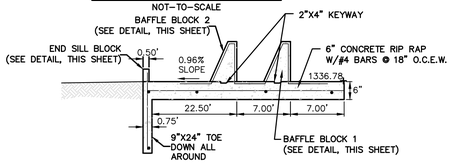

DETAIL "B"
BAFFLE BLOCK DETAILS
NOT-TO-SCALE

SCALE: 1"= 5'
0' 5' 10' 15'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- RETAINING WALL
- EXISTING CONTOUR — 1295
- PROPOSED CONTOUR — 1295
- PROPOSED WATER — W
- PROPOSED STORM DRAIN
- FLOW ARROW
- TREES TO REMAIN
- CONCRETE SIDEWALK
- LANDSCAPE AREA

DRAINAGE & GRADING NOTES:

1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
3. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
4. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
5. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
6. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
7. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
2. NO CONSTRUCTION MATERIAL AND/OR WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF THE EXISTING NATURAL DRAINAGE OR PLACED WITHIN THE LIMITS OF THE EXISTING FLOOD PLAIN.

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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NO.	REVISION	DATE
1	RAILING	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

DRAIN F DETAILS

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BAD DRAWN JQ
SHEET C1.11

Date: Dec 23, 2025, 3:18pm User ID: Jvazquez
File: P:\123\56\10\Design\Civil\DRF 1235610.dwg

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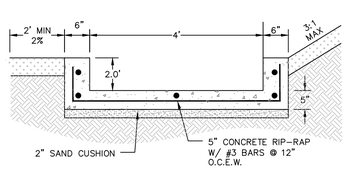

SECTION A-A

STA: 1+00.00 TO 2+06.07
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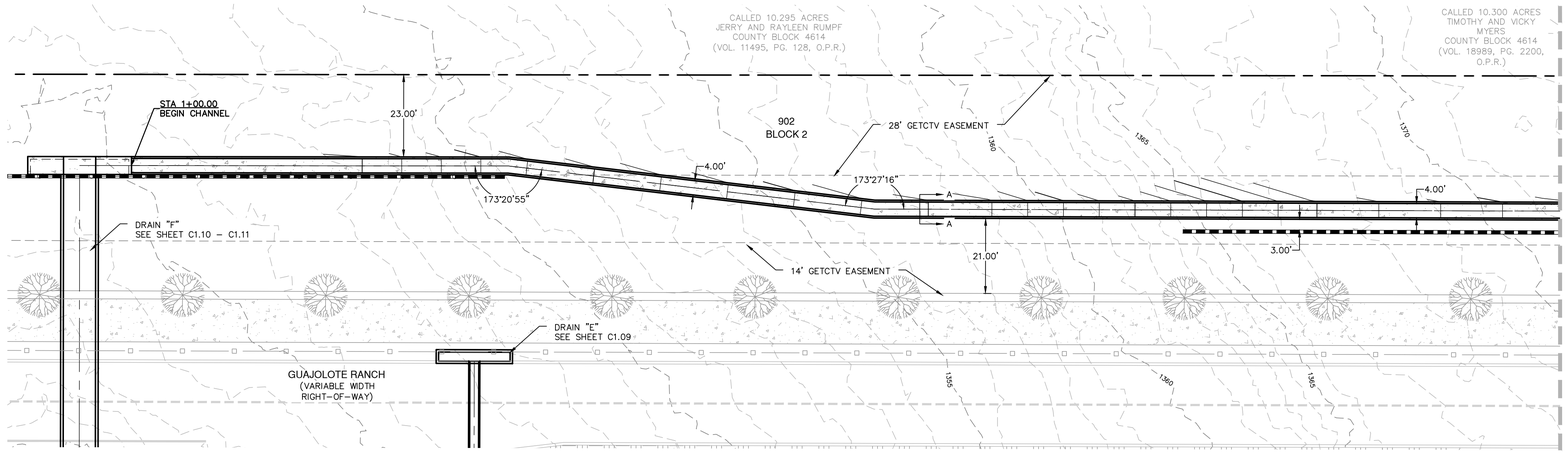
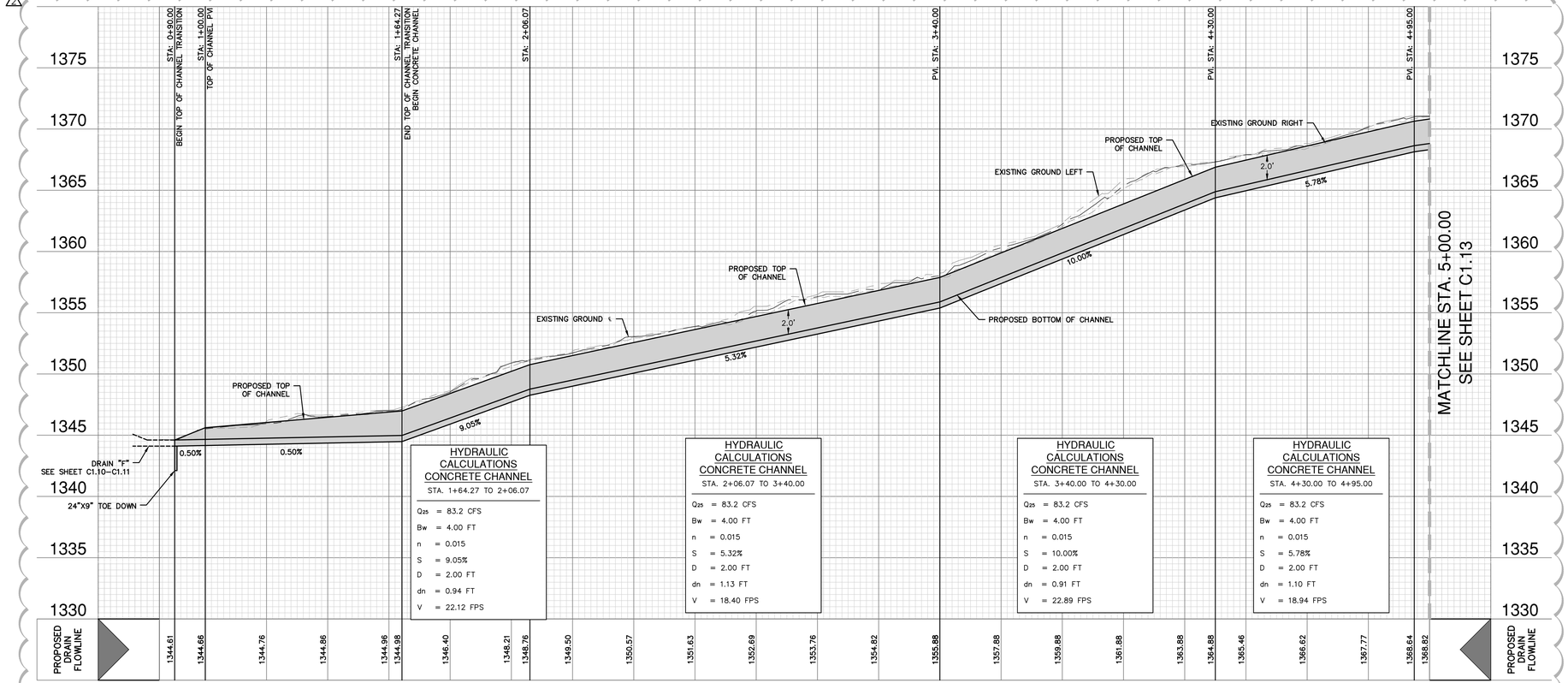


MATCHLINE STA. 5+00.00
SEE SHEET C1.13

INTERCEPTOR CHANNEL "G"
STA. 1+00.00 TO 5+00.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



MATCHLINE STA. 5+00.00
SEE SHEET C1.13

HYDRAULIC CALCULATIONS CONCRETE CHANNEL
STA. 1+64.27 TO 2+06.07

Q_{25}	= 83.2 CFS
Bw	= 4.00 FT
n	= 0.015
S	= 9.05%
D	= 2.00 FT
dn	= 0.94 FT
V	= 22.12 FPS

HYDRAULIC CALCULATIONS CONCRETE CHANNEL
STA. 2+06.07 TO 3+40.00

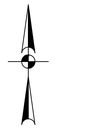
Q_{25}	= 83.2 CFS
Bw	= 4.00 FT
n	= 0.015
S	= 5.32%
D	= 2.00 FT
dn	= 1.13 FT
V	= 18.40 FPS

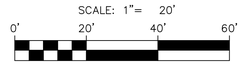
HYDRAULIC CALCULATIONS CONCRETE CHANNEL
STA. 3+40.00 TO 4+30.00

Q_{25}	= 83.2 CFS
Bw	= 4.00 FT
n	= 0.015
S	= 10.00%
D	= 2.00 FT
dn	= 0.91 FT
V	= 22.89 FPS

HYDRAULIC CALCULATIONS CONCRETE CHANNEL
STA. 4+30.00 TO 4+95.00

Q_{25}	= 83.2 CFS
Bw	= 4.00 FT
n	= 0.015
S	= 5.78%
D	= 2.00 FT
dn	= 1.10 FT
V	= 18.94 FPS





DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- RETAINING WALL
- EXISTING CONTOUR — 1295
- PROPOSED CONTOUR — 1295
- PROPOSED WATER — W
- PROPOSED STORM DRAIN
- FLOW ARROW

DRAINAGE & GRADING NOTES:

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4. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
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6. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
7. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

OPEN EARTHEN CHANNEL NOTE:

CONTRACTOR SHALL REFERENCE TABLE 9.3.8.1 – "RETARDATION CLASS FOR LINING MATERIALS" PROVIDED ON SHEET C1.20 AND SUPPLIED RETARDANCE CLASS (RC) FOR CHOICE OF COVER WITHIN OPEN EARTHEN CHANNEL CROSS-SECTIONS.

BEXAR COUNTY FLOOD PLAIN GENERAL CONSTRUCTION NOTES:

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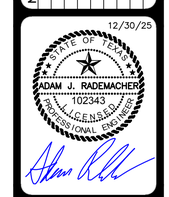
NO.	REVISION	DATE
1	REVISED PIPE RAILING CALLOUTS	12/23/25
2	REVISED CHANNEL ELEVATIONS	12/30/25

12/30/25



PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

INTERCEPTOR CHANNEL G - PLAN AND PROFILE
STA. 1+00.00 TO 5+00.00

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED DR DRAWN JQ
SHEET C1.12

Date: Dec. 30, 2025, 3:06pm User ID: jorroyo
File: P:\123\56\10\Design\Civil\DR01235610.dwg

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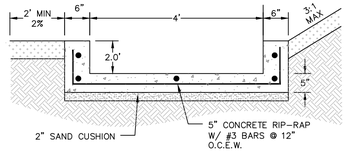
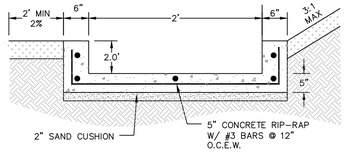


SECTION A-A

STA: 1+00.00 TO 2+06.07
NOT-TO-SCALE



SECTION B-B

STA: 1+00.00 TO 2+06.07
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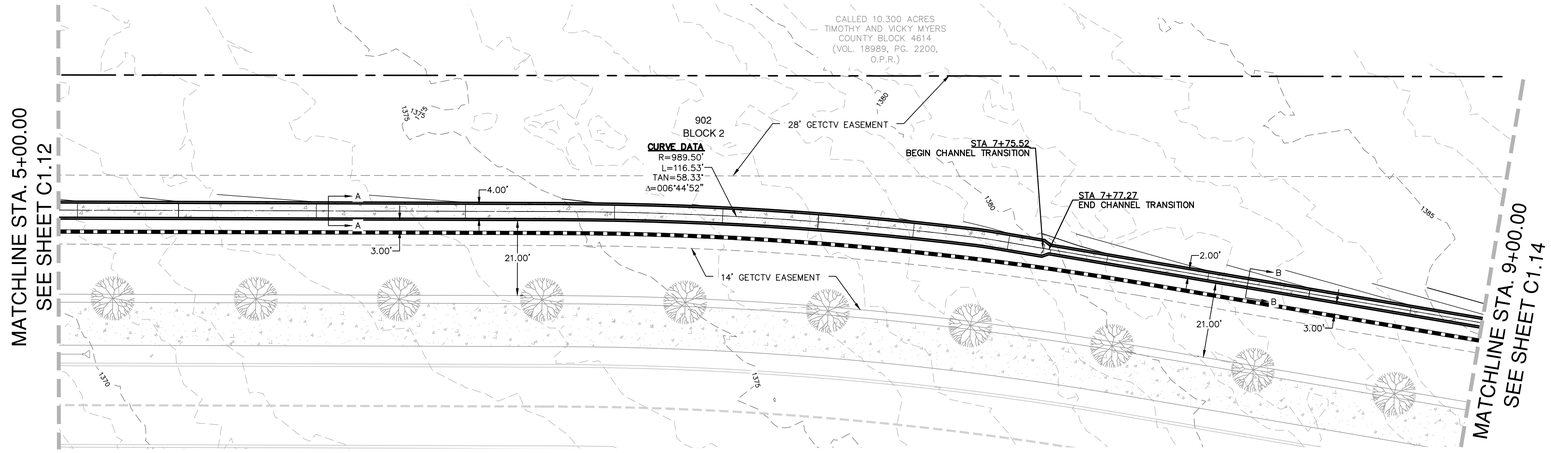
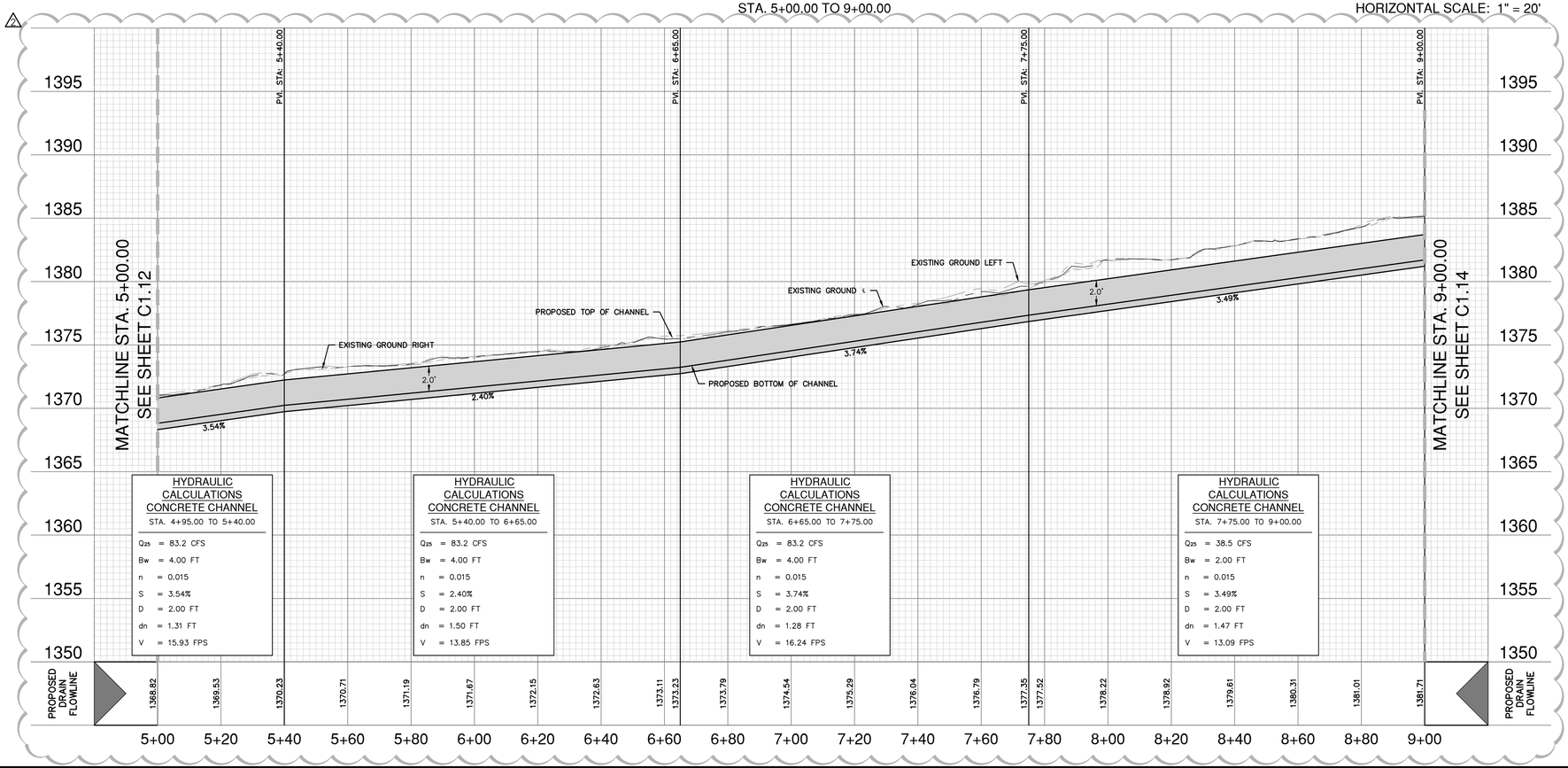


INTERCEPTOR CHANNEL "G"
STA. 5+00.00 TO 9+00.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



SCALE: 1"= 20'
0' 20' 40' 60'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- RETAINING WALL
- EXISTING CONTOUR 1295
- PROPOSED CONTOUR 1295
- PROPOSED WATER W
- PROPOSED STORM DRAIN
- FLOW ARROW

DRAINAGE & GRADING NOTES:

1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
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1. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
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TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

NO.	REVISION	DATE
1	RAISED M. CROSS-SECTION	12/15/25
2	REVISED CHANNEL ELEVATIONS	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

INTERCEPTOR CHANNEL G - PLAN AND PROFILE
STA. 5+00.00 TO 9+00.00

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C1.13

Date: Dec. 30, 2025, 3:06pm User ID: jarroyo
File: P:\123\56\10\Design\Civil\DR01230610.dwg

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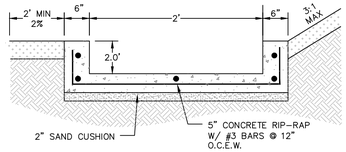
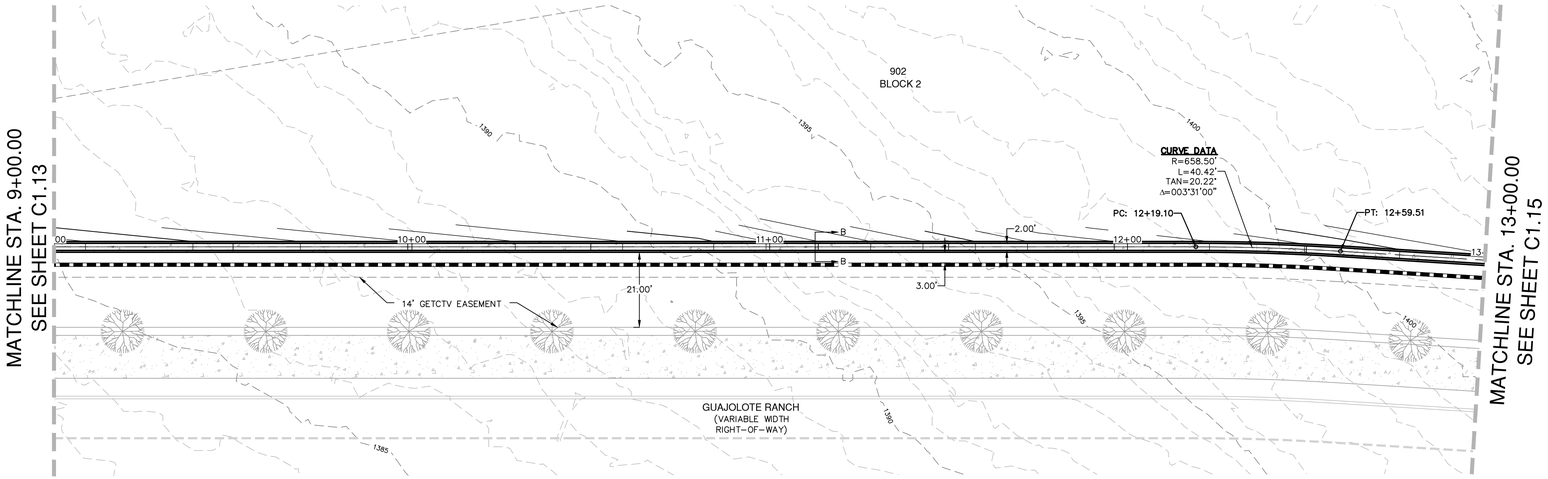


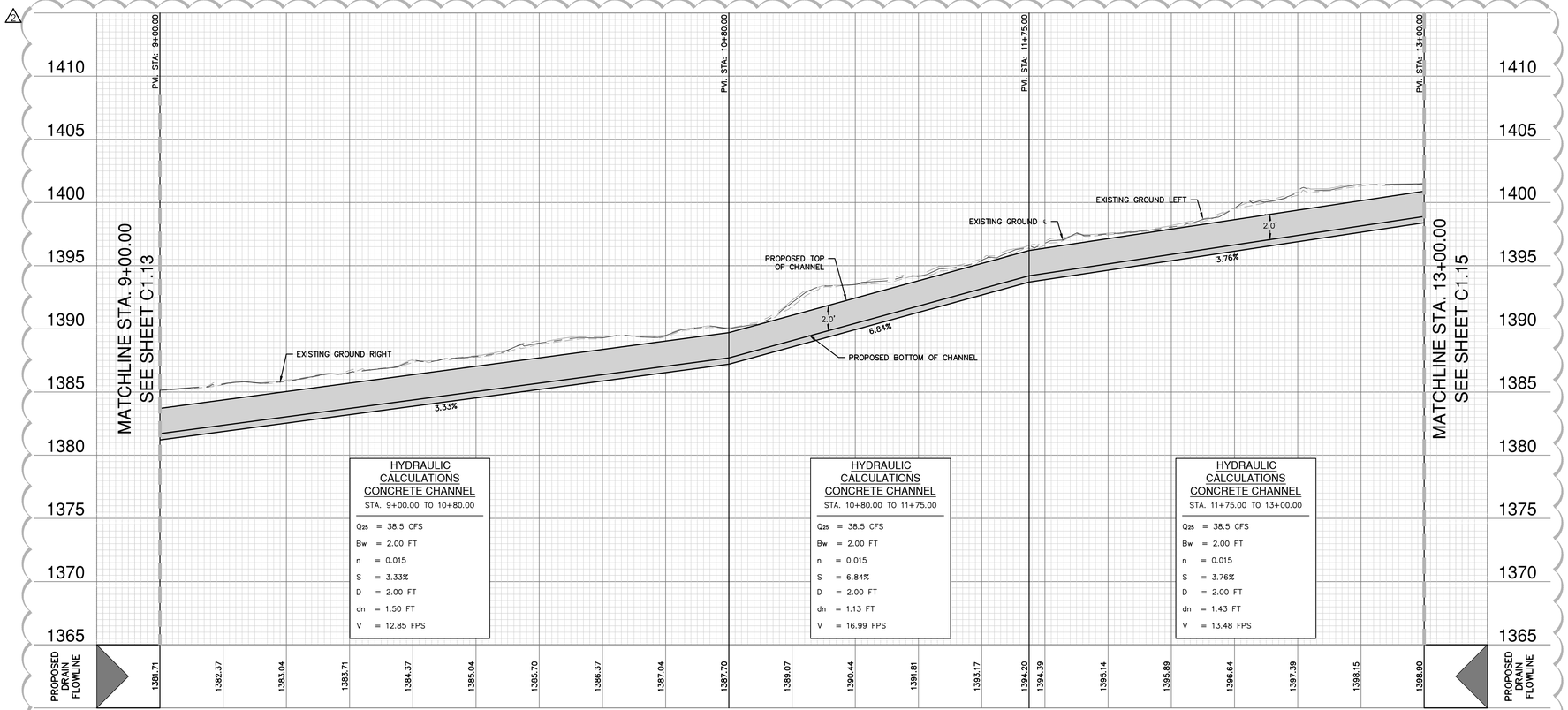
SECTION B-B

STA: 1+00.00 TO 2+06.07
NOT-TO-SCALE



INTERCEPTOR CHANNEL "G"
STA. 9+00.00 TO 13+00.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



SCALE: 1"= 20'
0' 20' 40' 60'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- RETAINING WALL
- EXISTING CONTOUR (1295)
- PROPOSED CONTOUR (1295)
- PROPOSED WATER (W)
- PROPOSED STORM DRAIN
- FLOW ARROW

DRAINAGE & GRADING NOTES:

1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
3. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
4. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
5. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
6. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.
7. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.

OPEN EARTHEN CHANNEL NOTE:

CONTRACTOR SHALL REFERENCE TABLE 9.3.8.1 – "RETARDATION CLASS FOR LINING MATERIALS" PROVIDED ON SHEET C1.20 AND SUPPLIED RETARDANCE CLASS (RC) FOR CHOICE OF COVER WITHIN OPEN EARTHEN CHANNEL CROSS-SECTIONS.

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NO.	REVISION	DATE
1	RAILING & CROSS-SECTION	12/15/25
2	REVISED CHANNEL ELEVATIONS	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

INTERCEPTOR CHANNEL G - PLAN AND PROFILE
STA. 9+00.00 TO 13+00.00

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED DR DRAWN JQ
SHEET C1.14

Date: Dec 30, 2025, 3:06pm User ID: jorroyo
File: P:\123\56\10\Design\Civil\DRG\123610.dwg

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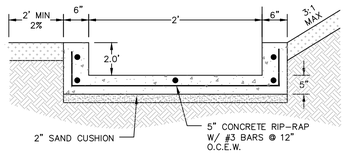
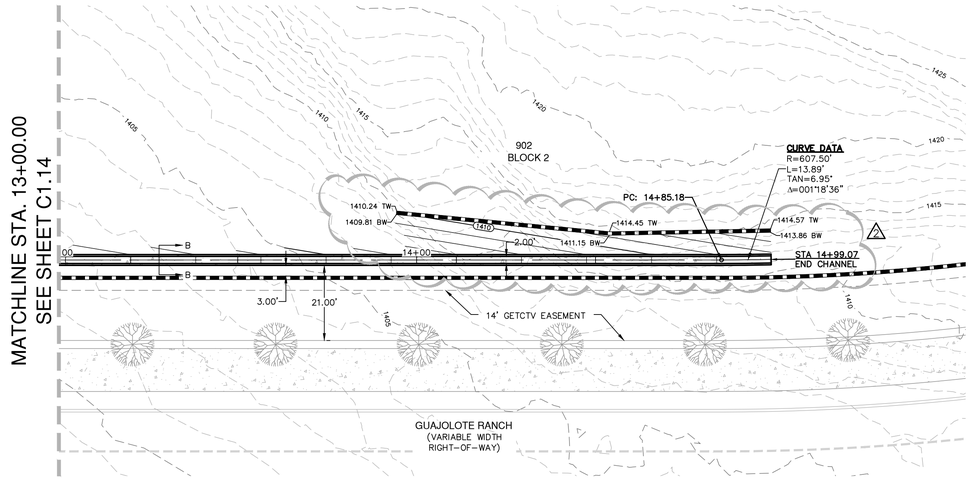


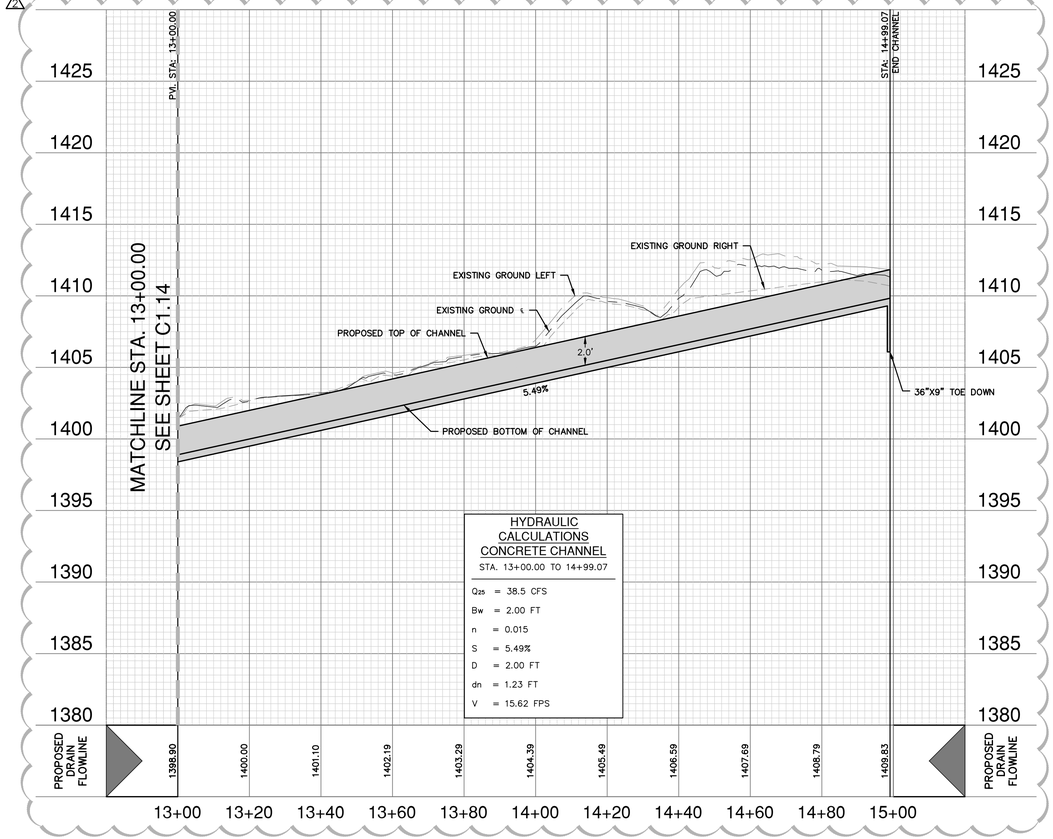
SECTION B-B

STA: 1+00.00 TO 2+06.07
NOT-TO-SCALE



INTERCEPTOR CHANNEL "G"
STA. 13+00.00 TO END

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS
CONCRETE CHANNEL
STA. 13+00.00 TO 14+99.07

Qss	=	38.5 CFS
Bw	=	2.00 FT
n	=	0.015
S	=	5.49%
D	=	2.00 FT
dn	=	1.23 FT
V	=	15.62 FPS

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- RETAINING WALL
- EXISTING CONTOUR — 1295
- PROPOSED CONTOUR — 1295
- PROPOSED WATER — W
- PROPOSED STORM DRAIN
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NO.	REVISION	DATE
1	RAILING & CROSS-SECTION	12/15/25
2	REVISED CHANNEL ELEVATIONS	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

INTERCEPTOR CHANNEL G - PLAN AND PROFILE
STA. 13+00.00 TO END

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED DR DRAWN JQ
SHEET C1.15

Date: Dec 30, 2025, 3:06pm User ID: jorroyo
File: P:\123\56\10\Design\Civil\DR012356l0.dwg

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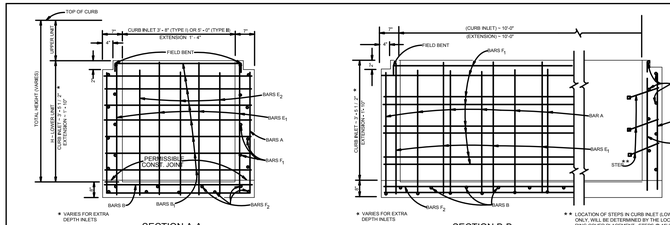


SECTION A-A

SECTION B-B

REINFORCING STEEL

LOWER UNIT 10' X 3' - 8" (TYPE I)

BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	4'-6"
B_1	VARIES	#4	12"	4'-6"
E_1	20	#4	18" ±	VARIES
E_2	6	#3	18" ±	VARIES
F_1	VARIES	#4	12" ±	10'-10"
F_2	9	#4	—	10'-10"

LOWER UNIT 10' X 5' - 0" (TYPE II)

BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	6'-10"
B_1	VARIES	#4	12"	6'-10"
E_1	22	#4	18" ±	VARIES
E_2	3	#3	18" ±	VARIES
F_1	VARIES	#4	12" ±	10'-10"
F_2	11	#4	—	10'-10"

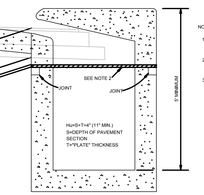
GENERAL NOTES

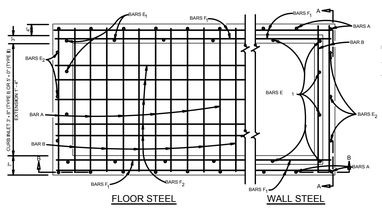
1. 9' INLETS AND 8' EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE "E" (1 C).
2. TYPE "C-9" INLET TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN-LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTORS INFORMATION ONLY.
4. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
5. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
6. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 1 1 / 2".
7. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A-615, GRADE 60 REQUIREMENTS.
8. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3 / 4".
9. DEPRESSION SLAB SHALL RECEIVE A WOOD FLOAT FINISH.
10. FACE OF INLET TO CONFORM TO FACE OF CURB LINE.
11. ALL BARS INTERCEPTING MANHOLE RING & COVER SHALL BE CUT OR BENT.
12. PAYMENT FOR ALL EXCAVATION, BACK-FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".
13. CAST IRON MANHOLE RING AND COVER TO BE PLACED NEXT TO OUTLET PIPE, EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
14. GALVANIZED BOLTS, NUTS, WASHERS, PLATES AND GASKETS ARE SUBSIDIARY TO INLETS.
15. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MEANS TO LIFT AND PLACE THE INLETS, WHEN USING PRECAST UNITS.
16. ALL BARS AT PIPE BLOCKOUT LOCATIONS SHALL BE CUT OR BEND.
17. ALL LOWER UNITS SHALL RECEIVE INVERT MORTAR SHAPING.
18. PIPE BLOCKOUTS IN INLET WALLS SHOULD NOT EXCEED 3' BEYOND THE OUTER SHELL OF THE PIPE, TAKING INTO ACCOUNT THE SKEW OF THE PIPE, AS NECESSARY. CONSTRUCTION JOINT MAY BE RAISED A MAXIMUM OF 6".

PHASE CONSTRUCTION

NOTES FOR PHASE CONSTRUCTION (WHEN DIRECTED BY THE ENGINEER):

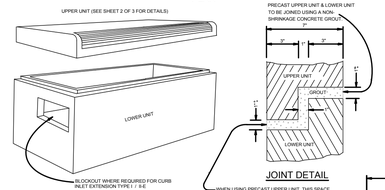
1. THE CURB INLET AND EXTENSION SHALL BE CONSTRUCTED TO A DEPTH "Hu" BELOW THE INLET AND EXTENSION GUTTER LINE ELEVATION.
2. CAP THE CURB INLET AND EXTENSION WITH A STEEL PLATE APPROVED BY THE ENGINEER AND CONSTRUCT THE ROADWAY OVER THE PLATE.
3. AFTER THE ROADWAY IS COMPLETED, BUT PRIOR TO THE FINAL HMAC OVERLAY, SAW CUT THE PAVEMENT, REMOVE THE PLATE, AND COMPLETE THE UPPER PORTION OF THE CURB INLET AND/OR EXTENSION.





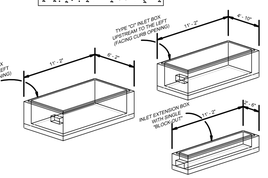
FLOOR STEEL WALL STEEL

PLAN



JOINT DETAIL

WHEN USING PRECAST UPPER UNIT, THIS SPACE IS FOR MAKING MINOR HORIZONTAL AND VERTICAL ADJUSTMENTS TO ACCOMODATE A FIT BETWEEN THE UPPER AND LOWER UNIT THAT ALLOWS FOR A MATCH LINE AND GRADE BETWEEN THE ROADWAY CURB AND THE UPPER UNIT OF THE INLET.



CONCRETE INLET BOX CONFIGURATIONS (LOWER UNITS)

BARS A (LOWER UNIT)

MAY 2009

CITY OF SAN ANTONIO

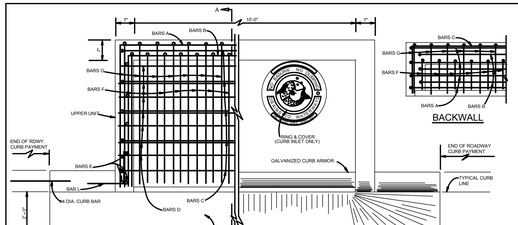
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS

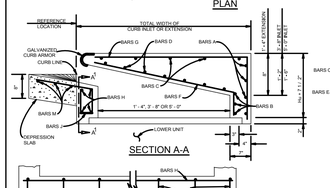
SHEET 1 OF 3

% SUBMITTAL	PROJECT NO.	DATE
DRAWN BY: V. VASQUEZ	DSGN. BY: J.E. WALTON, P.E.	CHKD. BY: R.S. HODGEN, P.E.

SHEET NO. ____OF____

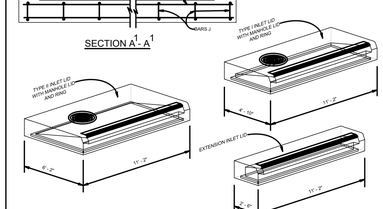


PLAN

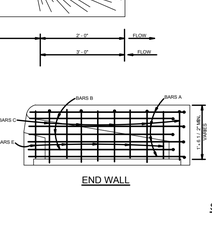


SECTION A-A

SECTION A - A[1]

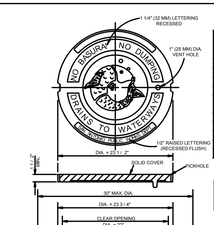


CONCRETE INLET LID CONFIGURATIONS (UPPER UNITS)



END WALL

BACKWALL

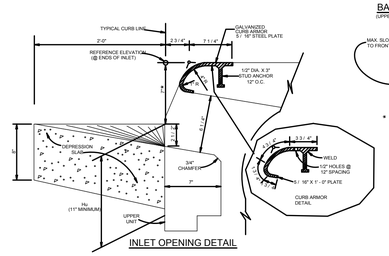


MANHOLE LID & RING DETAIL (ITEM 409)

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT."
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.

SEE SHEET 1 OF 3 FOR GENERAL NOTES.



INLET OPENING DETAIL

REINFORCING STEEL (FOR Hu=11")

UPPER UNIT 10' X 3'-8" (TYPE I)

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	10'-10"	53
B	3	#4	—	10'-10"	38
C	5	#4	11"	13'-2"	44
D	7	#4	6"	10'-10"	51
E	12	#4	11"	1'-2"	9
F	21	#6	6"	4'-8"	147
G	22	#6	6"	5'-8"	187
H	4	#4	—	10'-10"	29
J	12	#4	12"	3'-6"	28
K	4	#3	—	2'-0"	5
M	5	#4	—	14'-8"	29
TOTAL WEIGHT					620 LBS.

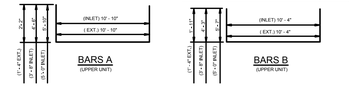
UPPER UNIT 10' X 3'-8" (TYPE II)

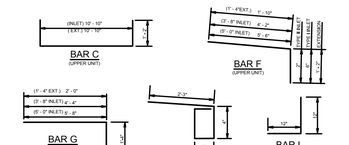
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	22'-6"	60
B	3	#4	—	21'-6"	43
C	7	#4	11"	13'-2"	62
D	7	#4	6"	10'-10"	80
E	18	#4	11"	1'-2"	13
F	21	#6	6"	5'-8"	179
G	22	#6	6"	7'-0"	231
H	4	#4	—	10'-10"	29
J	12	#4	12"	3'-6"	28
K	4	#3	—	2'-0"	5
M	5	#4	—	14'-8"	29
TOTAL WEIGHT					759 LBS.

CLASS "A" CONCRETE QUANTITIES (FOR Hu = 11")

DEPRESSION SLAB	C.Y.
10' INLET	0.7
10' EXTENSION	0.7

UPPER UNIT (ONLY)	C.Y.
10' X 3'-8" CURB INLET	1.9
10' X 5'-0" CURB INLET	2.7
10' EXTENSION	1.0





MAY 2009

CITY OF SAN ANTONIO

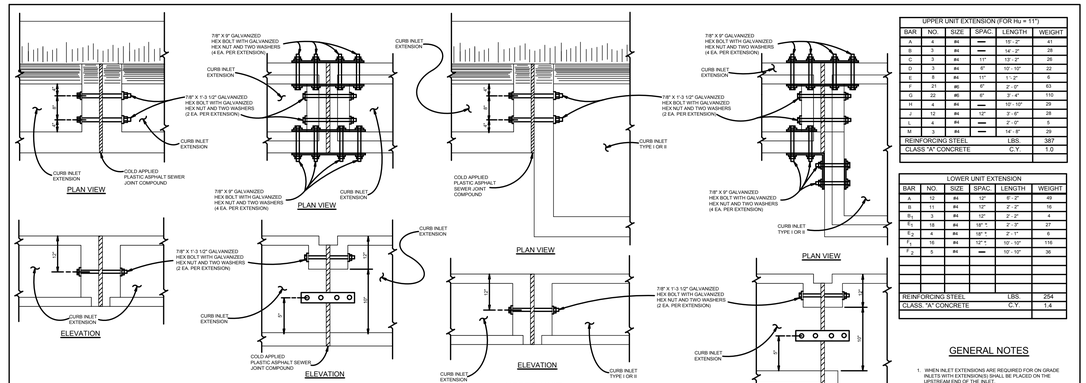
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS

SHEET 2 OF 3

% SUBMITTAL	PROJECT NO.	DATE
DRAWN BY: V. VASQUEZ	DSGN. BY: J.E. WALTON, P.E.	CHKD. BY: R.S. HODGEN, P.E.

SHEET NO. ____OF____

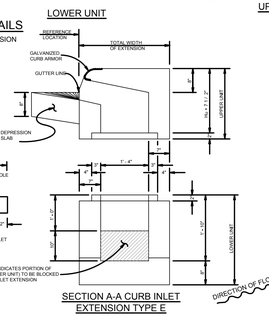


INLET BOLTING DETAILS

SHOWING EXTENSION TO EXTENSION

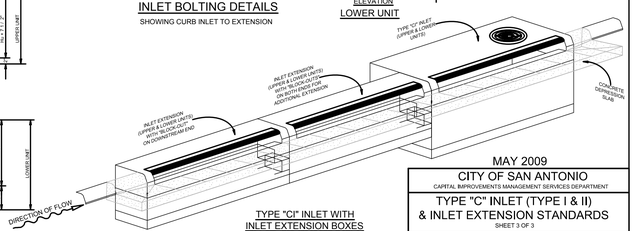
INLET BOLTING DETAILS

SHOWING CURB INLET TO EXTENSION



HATCHED AREA INDICATES PORTION OF CURB INLET (LOWER UNIT) TO BE BLOCKED OUT FOR CURB INLET EXTENSION.

SECTION A-A CURB INLET EXTENSION TYPE E



TYPE "CI" INLET WITH INLET EXTENSION BOXES

UPPER UNIT EXTENSION (FOR Hu = 11")					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	10'-2"	41
B	3	#4	—	14'-2"	28
C	3	#4	11"	10'-2"	26
D	3	#4	6"	10'-10"	22
E	8	#4	11"	1'-2"	6
F	21	#6	6"	2'-0"	63
G	22	#6	6"	3'-4"	110
H	4	#4	—	10'-10"	29
J	12	#4	12"	3'-6"	28
K	4	#3	—	2'-0"	5
M	3	#4	—	14'-8"	29
REINFORCING STEEL				LBS.	387
CLASS "A" CONCRETE				C.Y.	1.0

LOWER UNIT EXTENSION					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	10	#4	12"	5'-2"	49
B	11	#4	12"	2'-2"	16
B_1	3	#3	12"	2'-2"	4
E_1	18	#4	18" ±	2'-7"	27
E_2	4	#3	18" ±	2'-1"	5
F_1	16	#4	12" ±	10'-10"	116
F_2	5	#4	—	10'-10"	36
REINFORCING STEEL				LBS.	254
CLASS "A" CONCRETE				C.Y.	1.4

GENERAL NOTES

1. WHEN INLET EXTENSIONS ARE REQUIRED FOR ON GRADE INLETS WITH EXTENSIONS(S) SHALL BE PLACED ON THE UPSTREAM END OF THE INLET.
2. FOR CURB INLET EXTENSION REINFORCING STEEL NOTES & VARIOUS OTHER APPLICABLE DETAILS NOT FOUND ON THIS SHEET, REFER TO SHEETS 1 & 2.

MAY 2009

CITY OF SAN ANTONIO

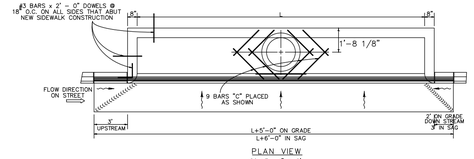
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS

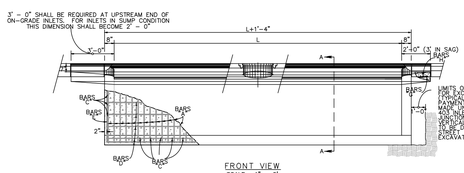
SHEET 3 OF 3

% SUBMITTAL	PROJECT NO.	DATE
DRAWN BY: V. VASQUEZ	DSGN. BY: J.E. WALTON, P.E.	CHKD. BY: R.S. HODGEN, P.E.

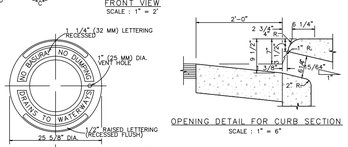
SHEET NO. ____OF____



PLAN VIEW
SCALE : 1" = 2"

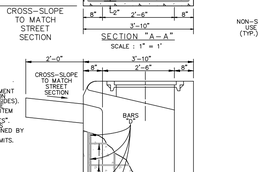


FRONT VIEW
SCALE : 1" = 2"



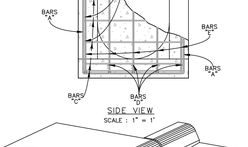
MANHOLE LID & RING DETAIL (ITEM 409)
SCALE : 1" = 6"

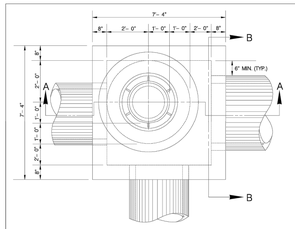
OPENING DETAIL FOR CURB SECTION
SCALE : 1" = 6"



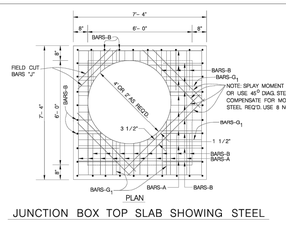
CROSS-SLOPE TO MATCH STREET SECTION

SECTION "A-A"
SCALE : 1" = 1"


CROSS-SLOPE TO MATCH STREET SECTION
LIMITS OF PAYMENT FOR EXCAVATION (CURB INLET SHAPES) AND PAYMENT OF ITEM 403 "STORM SEWER JUNCTION BOXES". NOT TO BE DETERMINED BY STREET EXCAVATION LIMITS.
BARS "A"
BARS "A"
BARS "A"

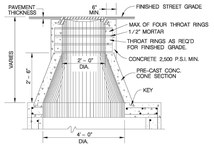


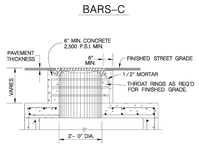
PLAN



PLAN

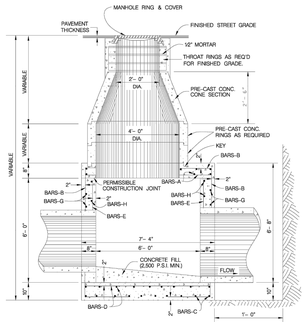
JUNCTION BOX TOP SLAB SHOWING STEEL



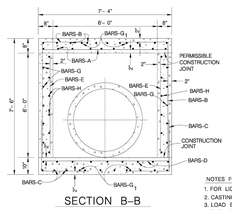


VARIATION OF VERTICAL STACK

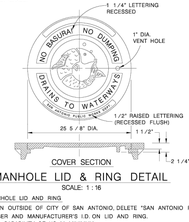
VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF THE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.



SECTION A–A



SECTION B–B



COVER SECTION

MANHOLE LID & RING DETAIL

SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT."
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.

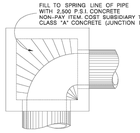
SCHEDULE FOR REINFORCING STEEL

SHAPE	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	21	4	9" O.C.	7'– 1"	99
	B	46	5	8" O.C.	8'– 6"	408
	C	46	5	8" O.C.	5'– 3"	252
STRAIGHT	D	21	4	9" O.C.	7'– 1"	99
STRAIGHT	E	28	3	12" O.C.	5'– 11"	62
STRAIGHT	G	20	4	12" O.C.	7'– 1"	95
STRAIGHT	G_1	8	4	AS SHOWN	6'– 1"	33
STRAIGHT	H	27	3	12" O.C.	7'– 1"	72
STRAIGHT	J	8	6	3 1/2" O.C.	4'– 11"	59
					TOTAL	1,179 LBS.

CLASS "A" CONCRETE – 6.84 CU. YDS. (DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

★ NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE-DESIGN ON STEEL REQ'D.

1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A" 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3 /4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM A–15. THE DEFORMATION SHALL CONFORM TO ASTM A–305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD–CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
8. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 – "STORM SEWER JUNCTION BOXES AND INLETS".



CURVED DEFLECTOR DETAIL

JANUARY 2005

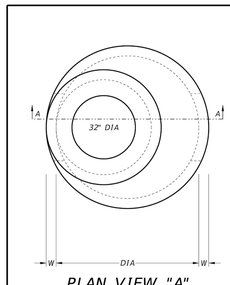
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

6'x6'x6' JUNCTION BOX STANDARDS

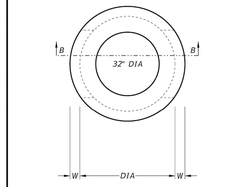
% SUBMITTAL	PROJECT NO.	DATE:
DRWN BY:	DSGN BY:	CHKD. BY:
		SHEET NO. OF

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 incorrect results or damages resulting from the use of this standard that is incorrectly adapted or used.

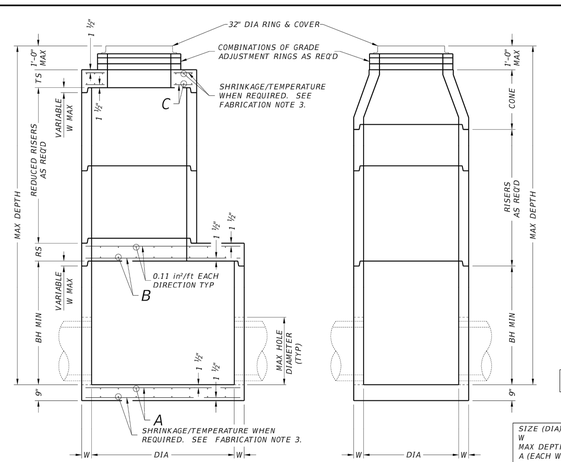
DATE:
FILE:



PLAN VIEW "A"



PLAN VIEW "B"



SECTION A-A

ROUND REDUCED RISER OPTION
SHOWING FLAT SLAB TOP

SECTION B-B

ROUND RISER OPTION
SHOWING CONE

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR. Provide circumferential reinforcing steel in vertical walls of base, riser and cone in accordance with ASTM C478.
3. Slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Minimum steel area = 0.11 in²/ft each way.
4. Manufacture base and risers to nearest 3" increments.
5. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is $\frac{3}{4}$".
6. Provide lifting devices in conformance with Manufacturer's recommendations.
7. Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.

INSTALLATION NOTES:

1. Cones may be concentric or eccentric. Reduction cones are acceptable. See Manufacturer for cone dimensions.
2. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to cylinder.
3. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or $\frac{1}{2}$ the joint depth, whichever is greater.
4. Do not grout rubber gasket joints without Manufacturer's recommendation.
5. Initial installation of grade adjustment rings is limited to 1'-0" Max as shown.
6. Grade adjustment rings may be increased to 2'-0" Max when future construction affects final grade of structure. Make adjustments greater than 2'-0" with additional risers. Adjustments may be made up to the Max depth shown. Structure must be evaluated if Max depth will be exceeded.

GENERAL NOTES:

1. Designed according to ASTM C478.
2. Payment for manhole is per Item 465, "Junction Boxes, Manholes, and Inlets" by type and size.
3. Pipe OD + placement tolerance must be equal or less than Max hole diameter. For rigid pipe, placement tolerance is 4" Max, 2" Min. For flexible pipe, consult boot/seal manufacturer's specification for placement tolerance.

Cover dimensions are clear dimensions, unless noted otherwise.

SIZE (DIA)	48 in	60 in	72 in
W	5 in	6 in	7 in
MAX DEPTH	25 ft	25 ft	25 ft
A (EACH WAY)	0.22 in²/ft	0.30 in²/ft	0.45 in²/ft
B (EACH WAY)	N/A	0.37 in²/ft	0.62 in²/ft
C (EACH WAY)	0.24 in²/ft	0.46 in²/ft	0.46 in²/ft
BH MIN	12 in	36 in	36 in
TS	9 in	9 in	9 in
RS	N/A	9 in	12 in
REDUCED RISER DIA	N/A	48 in	48/60 in
MAX HOLE DIA	32 in	40 in	54 in

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

PRECAST ROUND MANHOLE

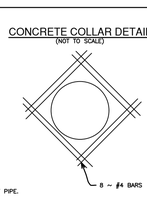
PRM

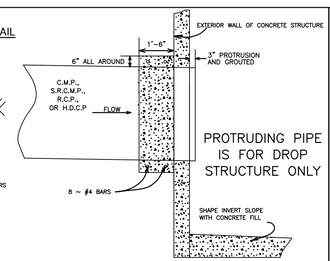
FILE: CD-PRM-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
3/2023 – Corrected TS and RS callout	DIST	COUNTY		SHEET NO.

CONCRETE COLLAR DETAIL

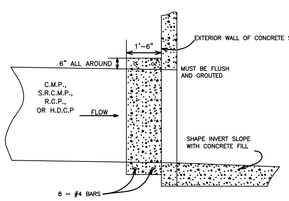
(NOT TO SCALE)

1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A," 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM. A–15. THE DEFORMATION SHALL CONFORM TO ASTM. A–305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD–CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (3,000 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).

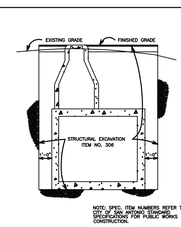




PROTRUDING PIPE IS FOR DROP STRUCTURE ONLY



PIPE FLUSH WITH INVERT



STRUCTURAL EXCAVATION AT DRAINAGE INLETS

(NOT TO SCALE)

STRUCTURAL EXCAVATION AT JUNCTION BOXES

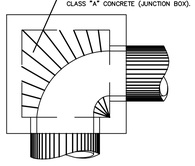
(NOT TO SCALE)

JANUARY 2006

STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEVELOPMENT SERVICES

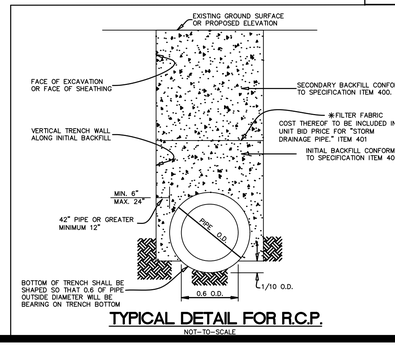
CONCRETE COLLAR DETAIL

DRAWN BY: ANDREW VONTER, P.E.	DATE	REVISIONS	SCALE: SEE ABOVE
CHECKED BY: SAM BENT, P.E.			DATE: 19 JANUARY 2006
			SHEET: 1 OF 1



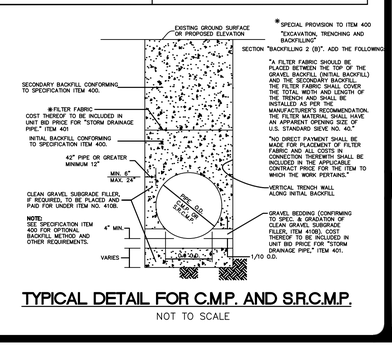
CURVED DEFLECTOR DETAIL

(NOT TO SCALE)



TYPICAL DETAIL FOR R.C.P.

NOT–TO–SCALE



TYPICAL DETAIL FOR C.M.P. AND S.R.C.M.P.

NOT TO SCALE

Date: Dec 15, 2025, 4:19pm User ID: Jvazquez
File: P:\123\56\10\Design\Civil\DROT 1235610.dwg

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NO.	REVISION	DATE

12/15/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

DRAINAGE DETAILS
SHEET 2 OF 3

PLAT NO.	25-11800226
JOB NO.	12356–10
DATE	DECEMBER 2025
DESIGNER	IA
CHECKED	DRAWN JQ
SHEET	C1.30

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DATE:
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TABLE OF DIMENSIONS AND REINFORCING STEEL
(Wings for one structure end)

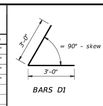
Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing length (2-wings) ③		Estimated Quantities per ft of TS (1-toewall)	
					Bars J1		Bars J2					
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (lb/ft)	Conc (CY/ft)	Reinf (lb/ft)	Conc (CY/ft)
2'-6"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	48.64	0.406	6.85	0.071
2'-9"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	49.31	0.424	6.85	0.071
3'-0"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	49.98	0.444	6.85	0.071
3'-3"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	53.32	0.462	6.85	0.071
3'-6"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	53.98	0.480	6.85	0.071
4'-0"	3'-2"	1'-2"	1'-0"	7"	#4	1'-0"	#4	1'-0"	55.77	0.532	6.85	0.071
4'-6"	3'-2"	1'-2"	1'-0"	7"	#4	1'-0"	#4	1'-0"	59.77	0.568	6.85	0.071
5'-0"	3'-9"	1'-7"	1'-2"	7"	#4	1'-0"	#4	1'-0"	63.45	0.632	6.96	0.075
5'-6"	3'-9"	1'-7"	1'-2"	7"	#4	1'-0"	#4	1'-0"	67.46	0.668	6.96	0.075
6'-0"	4'-4"	2'-0"	1'-4"	7"	#5	1'-0"	#5	1'-0"	80.67	0.730	7.07	0.078
6'-6"	4'-4"	2'-0"	1'-4"	7"	#5	1'-0"	#5	1'-0"	85.05	0.768	7.07	0.078
7'-0"	5'-0"	2'-3"	1'-9"	8"	#5	1'-0"	#5	1'-0"	92.15	0.864	8.07	0.093
7'-6"	5'-0"	2'-3"	1'-9"	8"	#5	1'-0"	#5	1'-0"	96.54	0.902	8.07	0.093
8'-0"	5'-0"	2'-8"	1'-10"	8"	#5	6"	#5	6"	139.04	0.962	8.13	0.095
8'-6"	5'-6"	2'-8"	1'-10"	8"	#5	6"	#5	6"	144.47	1.000	8.13	0.095
9'-6"	6'-0"	2'-10"	2'-2"	9"	#5	6"	#5	6"	156.93	1.136	8.41	0.110
10'-6"	6'-5"	3'-0"	2'-5"	9"	#6	6"	#5	6"	196.27	1.234	8.57	0.117
11'-6"	7'-2"	3'-6"	2'-8"	11"	#6	6"	#6	6"	230.13	1.438	9.52	0.140
12'-6"	7'-8"	3'-9"	2'-11"	11'-0"	#7	6"	#6	6"	283.41	1.592	9.74	0.157
13'-6"	8'-2"	4'-0"	3'-2"	1'-2"	#8	6"	#6	6"	348.72	1.804	10.02	0.186
14'-6"	8'-10"	4'-3"	3'-5"	1'-4"	#9	6"	#6	6"	432.94	2.046	10.30	0.218
15'-6"	9'-6"	4'-10"	3'-8"	1'-6"	#9	6"	#7	6"	489.52	2.302	11.24	0.253
16'-0"	9'-11"	5'-0"	3'-11"	1'-7"	#9	6"	#7	6"	505.72	2.448	11.47	0.279

TABLE OF WINGWALL REINFORCING (2-wings)

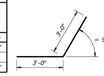
Bar	Size	No.	Spa
D1	#6	–	1'-0"
D2	#6	–	1'-0"
E1	#4	–	1'-0"
F	#4	–	1'-0"
G	#6	–	8"
M1	#4	4	–
P	#4	–	1'-0"
V	#4	–	1'-0"

TABLE OF TOEWALL REINFORCING

Bar	Size	No.	Spa
J3	#4	–	1'-0"
M2	#4	2	–
E2	#4	–	1'-0"



BARS D1



BARS D2

WING DIMENSION FORMULAS:
(All values are in feet.)

Hw = H + T + C
Lw = (Hw) (SL) + cosine (θ) for Type PW-1
= (Hw – T) (SL) + cosine (θ) for Type PW-2 and Hw ≥ 4'
= (Hw – 0.5T) (SL) + cosine (θ) for Type PW-2 and Hw < 4'

For cast-in-place culverts:
Ltw = [(N) (2 U + S) + (N – 1) (0.5')] + cosine (θ)
Total Wingwall Area (two wings – SF)
= (2)(Hw)(Lw) for Type PW-1
= (2)(Hw)(Lw) – 6 SF for Type PW-2 and Hw ≥ 4'
= (2)(Hw)(Lw) – 1.5 SF for Type PW-2 and Hw < 4'

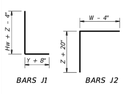
For precast culverts:
Ltw = (N) (2U + S) + (N – 1) (0.5')
Total wingwall area (two wings – SF) = (Hw + 0.333) (Lw)

Hw = Height of wingwall
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans
SL:1 = Channel slope ratio (horizontal:1 vertical, usual value is 2:1)
θ = Culvert skew

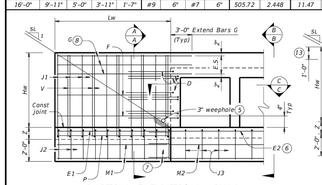
See applicable box culvert standard sheet for S, H, T, and U values.

1. Skew = 0°
2. At discharge end, chamber may be ½" minimum.
3. For 15° skew – 1"
   For 30° skew – 2"
   For 45° skew – 3"
4. Quantities shown are for two Type PW-1 wings. Adjust concrete volume for Type PW-2 wings. To determine estimated quantities for two wings, multiply the tabulated values by Lw. Quantities shown do not include weight of Bars D.
5. Provide weepholes for Hw = 5'-0" and greater. Fill around weepholes with coarse gravel.
6. Extend Bars E2 1'-6" minimum into the wingwall footing.
7. Lap Bars M1 1'-6" minimum with Bars M2.
8. Place Bars G as shown, equally spaced at 8" maximum. Provide at least two pairs of Bars G per wing.
9. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
10. For vehicle safety, the following requirements must be met:
    - For structures without bridge rail, construct curbs no more than 3" above finished grade.
    - For structures with bridge rail, construct curbs flush with finished grade.

    Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
11. 1'-0" Typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.
12. 3'-0" for Hw < 4'.
13. 6" for Hw < 4'.

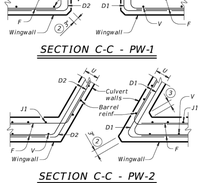


BARS J1 BARS J2 BARS J3 BARS V



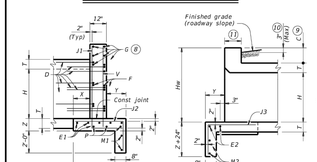
PARTIAL ELEVATION - PW-1

PARTIAL ELEVATION - PW-2



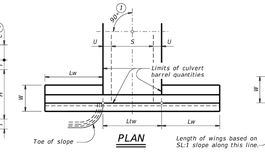
SECTION C-C - PW-1

SECTION C-C - PW-2



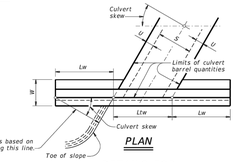
SECTION A-A
(Showing wing reinforcement.)

SECTION B-B
(Showing wing reinforcement.)



PLAN

DETAILS FOR NON-SKEWED BOX CULVERTS



PLAN

DETAILS FOR SKEWED BOX CULVERTS
(Showing 30° skew.)

DESIGNER NOTES:
Type PW-1 can be used for all applications and must be used if railing is to be mounted to the wingwall.
Type PW-2 can only be used for applications without a railing mounted to the wingwall.

MATERIAL NOTES:
Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.

GENERAL NOTES:
Designed in accordance with AASHTO LRFD Bridge Design Specifications.
Depth of toewalls for wingwalls and culverts may be reduced or eliminated when founded on solid rock, when directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for wingwall type and additional dimensions and information.
Quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for the Contractor's information only.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

Texas Department of Transportation — Bridge Division Standard

CONCRETE WINGWALLS WITH PARALLEL WINGS FOR BOX CULVERTS TYPES PW-1 AND PW-2

PW

FILE: CD-PW-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
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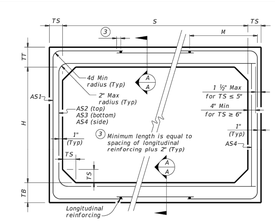
REVISIONS	DIST	COUNTY		SHEET NO.

BOX DATA

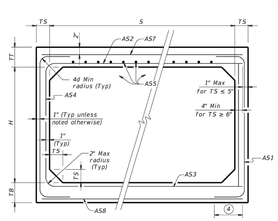
SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) ②							① Lift Weight (tons)
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	
4	2	7.5	6	5	< 2	–	0.18	0.27	0.15	0.12	0.18	0.14	4.5	
4	2	5	5	5	2 < 3	38	0.18	0.19	0.17	0.12	–	–	–	3.6
4	2	5	5	5	3 – 5	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	0.14	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	0.14	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 AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



CORNER OPTION "A" CORNER OPTION "B"

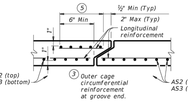
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

④ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A
(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
Provide Class H concrete (f'c = 5,000 psi).

GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for 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. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

SINGLE BOX CULVERTS PRECAST 4'-0" SPAN

SCP-4

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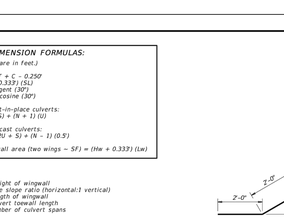
REVISIONS	DIST	COUNTY		SHEET NO.

BOX DATA

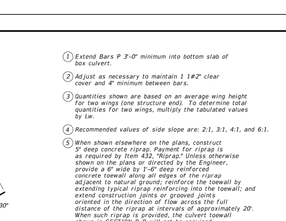
SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) ②							① Lift Weight (tons)
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	
5	2	8	7	6	< 2	–	0.19	0.27	0.18	0.14	0.19	0.19	0.17	6.0
5	2	6	6	6	2 < 3	44	0.22	0.20	0.16	0.14	–	–	–	5.1
5	2	6	6	6	3 – 5	44	0.16	0.14	0.14	0.14	–	–	–	5.1
5	2	6	6	6	10	36	0.15	0.14	0.14	0.14	–	–	–	5.1
5	2	6	6	6	15	36	0.20	0.18	0.18	0.14	–	–	–	5.1
5	2	6	6	6	20	36	0.26	0.23	0.24	0.14	–	–	–	5.1
5	2	6	6	6	25	36	0.33	0.29	0.29	0.14	–	–	–	5.1
5	2	6	6	6	30	36	0.39	0.34	0.35	0.14	–	–	–	5.1
5	3	8	7	6	< 2	–	0.19	0.31	0.21	0.14	0.19	0.19	0.17	6.6
5	3	6	6	6	2 < 3	45	0.18	0.24	0.19	0.14	–	–	–	5.7
5	3	6	6	6	3 – 5	36	0.14	0.17	0.16	0.14	–	–	–	5.7
5	3	6	6	6	10	36	0.14	0.16	0.17	0.14	–	–	–	5.7
5	3	6	6	6	15	35	0.16	0.21	0.22	0.14	–	–	–	5.7
5	3	6	6	6	20	35	0.21	0.27	0.28	0.14	–	–	–	5.7
5	3	6	6	6	25	35	0.26	0.34	0.34	0.14	–	–	–	5.7
5	3	6	6	6	30	35	0.31	0.41	0.41	0.14	–	–	–	5.7
5	4	8	7	6	< 2	–	0.19	0.33	0.24	0.14	0.19	0.19	0.17	7.2
5	4	6	6	6	2 < 3	45	0.16	0.27	0.22	0.14	–	–	–	6.3
5	4	6	6	6	3 – 5	45	0.14	0.19	0.18	0.14	–	–	–	6.3
5	4	6	6	6	10	36	0.14	0.18	0.18	0.14	–	–	–	6.3
5	4	6	6	6	15	35	0.14	0.23	0.24	0.14	–	–	–	6.3
5	4	6	6	6	20	35	0.17	0.30	0.31	0.14	–	–	–	6.3
5	4	6	6	6	25	35	0.21	0.37	0.38	0.14	–	–	–	6.3
5	4	6	6	6	30	35	0.25	0.44	0.45	0.14	–	–	–	6.3
5	5	8	7	6	< 2	–	0.19	0.35	0.26	0.14	0.19	0.19	0.17	7.8
5	5	6	6	6	2 < 3	45	0.14	0.29	0.24	0.14	–	–	–	6.9
5	5	6	6	6	3 – 5	45	0.14	0.21	0.20	0.14	–	–	–	6.9
5	5	6	6	6	10	45	0.14	0.19	0.20	0.14	–	–	–	6.9
5	5	6	6	6	15	36	0.14	0.24	0.25	0.14	–	–	–	6.9
5	5	6	6	6	20	35	0.15	0.31	0.32	0.14	–	–	–	6.9
5	5	6	6	6	25	35	0.18	0.38	0.39	0.14	–	–	–	6.9
5	5	6	6	6	30	35	0.21	0.46	0.47	0.14	–	–	–	6.9

① For box length = 8'-0"
② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



CORNER OPTION "A" CORNER OPTION "B"

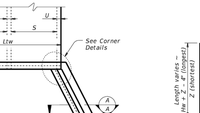
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

④ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A
(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
Provide Class H concrete (f'c = 5,000 psi).

GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for 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. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

SINGLE BOX CULVERTS PRECAST 5'-0" SPAN

SCP-5

FILE: CD-SCP05-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

TABLE OF DIMENSIONS AND REINFORCING STEEL
(Wings for one structure end)

Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing length (2-wings) ③		Estimated Quantities per ft of TS (1-toewall)	
					Bars J1		Bars J2					
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (lb/ft)	Conc (CY/ft)	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'-0"	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	–
H	#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'-0"
Q	#4	1	–
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION 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) (0.5')

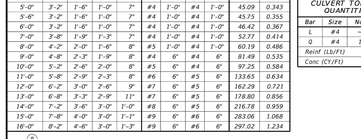
Total wingwall area (two wings – SF) = (Hw + 0.333) (Lw)

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

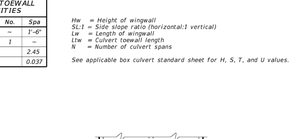
See applicable box culvert standard sheet for H, S, T, and U values.

1. Extend Bars P 3'-0" minimum into bottom slab of box culvert.
2. Adjust as necessary to maintain 1 1#2" 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 side slope are: 2:1, 3:1, 4:1, and 6:1.
5. When shown elsewhere on the plans, construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap." Unless otherwise shown on the plans or directed by the Engineer, provide a 6" wide by 1'-6" deep reinforced concrete toewall along all edges of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints between the toewall and the riprap a distance at 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 as needed.
7. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
8. For vehicle safety, the following requirements must be met:
   - For structures without bridge rail, construct curbs no more than 3" above finished grade.
   - For structures with bridge rail, construct curbs flush with finished grade.

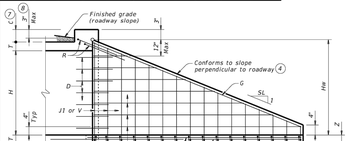
   Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.



INSIDE ELEVATION
(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)



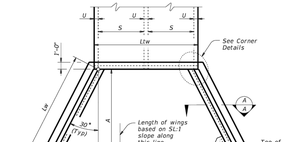
PLAN
(Showing dimensions.)



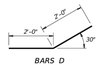
SECTION A-A

WINGWALL

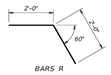
CORNER DETAILS
(Culvert and culvert toewall reinforcing not shown for clarity.)



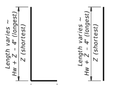
SECTION B-B ⑤



BARS D



BARS R



BARS J1

BARS V

BARS L

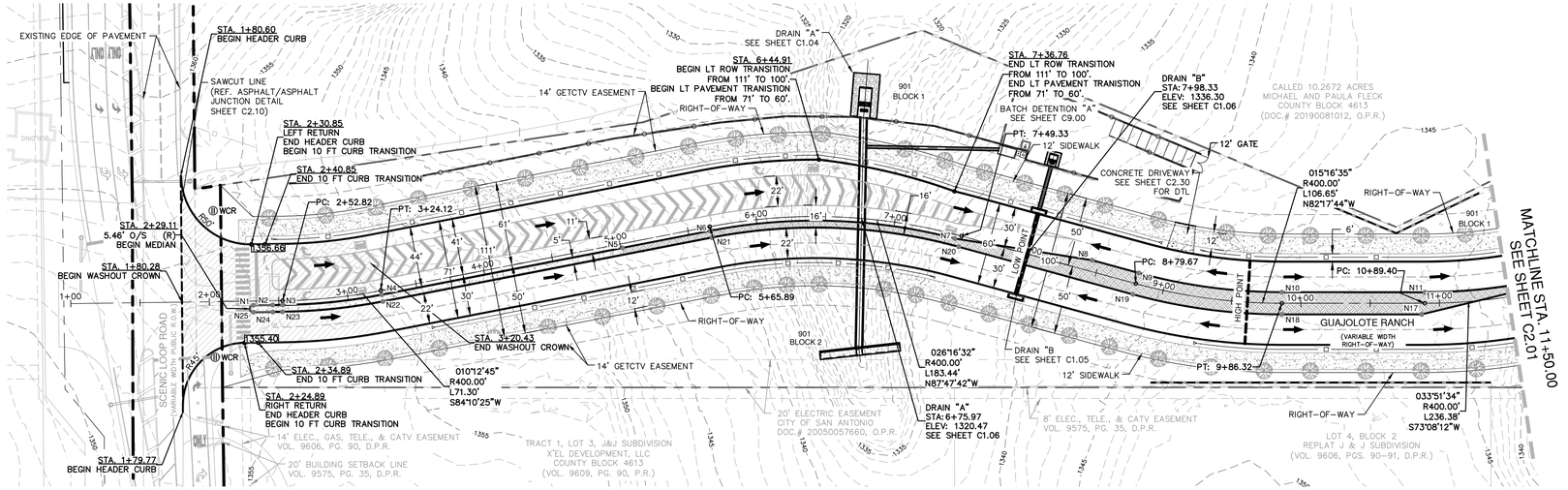
W – 4"
Z – 20"

NODE TABLE		
NODE	CENTERLINE STATION	CENTERLINE OFFSET
N1	2+31.61	3.00 (R)
N2	2+45.59	3.00 (R)
N3	2+52.74	3.00 (R)
N4	3+24.12	3.00 (R)
N5	5+01.04	3.00 (R)
N6	5+65.89	3.00 (R)
N7	7+44.92	3.00 (R)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N8	8+44.89	−8.00 (L)
N9	8+79.67	−8.00 (L)
N10	9+86.32	−8.00 (L)
N11	10+89.40	−8.00 (L)
N12	13+18.05	−8.00 (L)
N13	13+74.63	−8.00 (L)
N14	13+74.63	−4.00 (L)

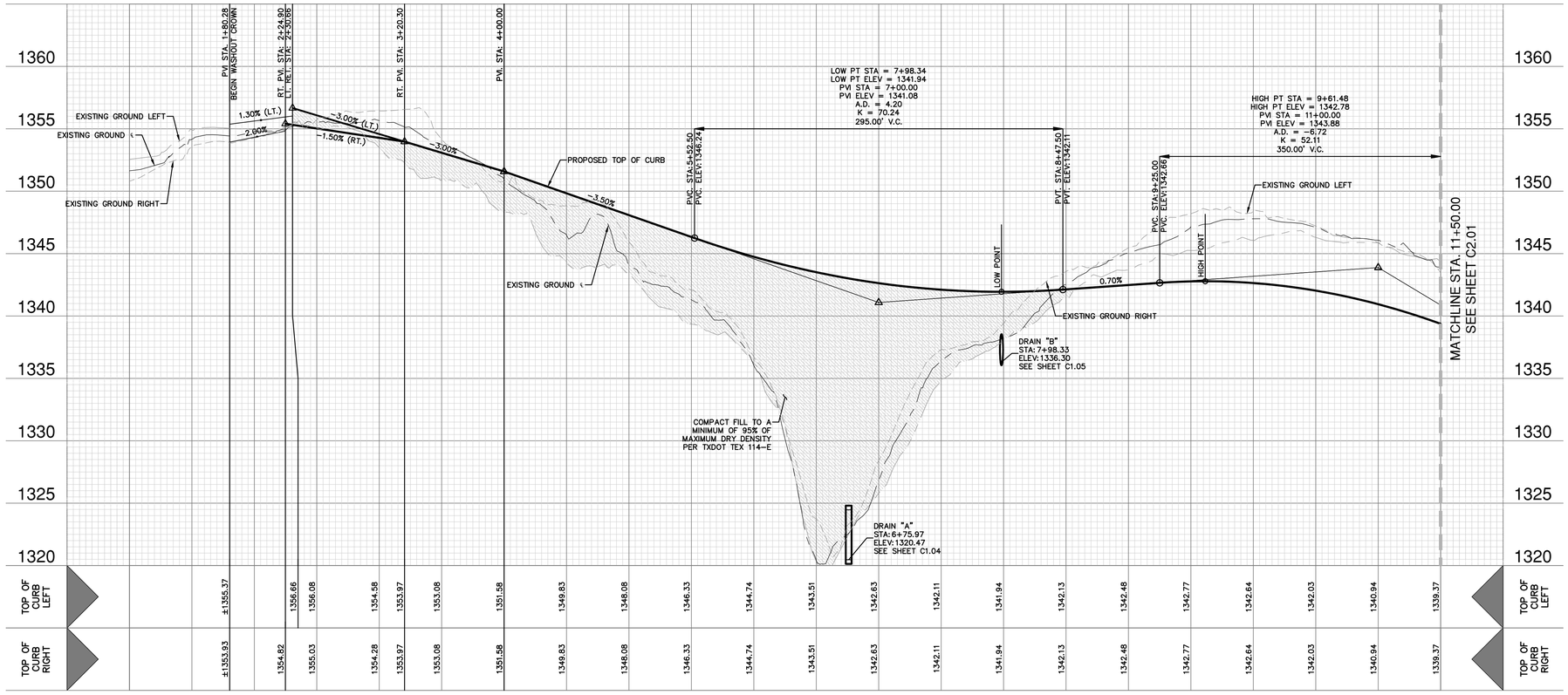
NODE	CENTERLINE STATION	CENTERLINE OFFSET
N15	13+18.21	−4.00 (L)
N16	11+87.12	−4.00 (L)
N17	10+87.12	8.00 (R)
N18	9+86.32	8.00 (R)
N19	8+79.67	8.00 (R)
N20	7+49.33	8.00 (R)
N21	5+65.89	8.00 (R)

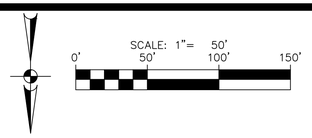
NODE	CENTERLINE STATION	CENTERLINE OFFSET
N22	3+24.12	8.00 (R)
N23	2+52.74	8.00 (R)
N24	2+45.59	8.00 (R)
N25	2+31.61	8.00 (R)
N26	14+52.89	−7.96 (L)
N27	16+43.08	−8.00 (L)
N28	19+43.96	−8.00 (L)



GUAJOLOTE RANCH
STA. 1+00.00 TO 11+50.00

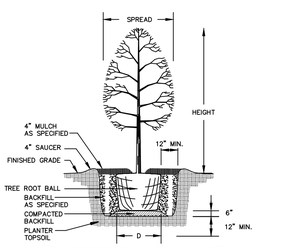
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'





STREET LEGEND

- PROJECT LIMITS
- MAINTAIN GUTTER
- EXISTING CONTOUR — 1350
- RETAINING WALL
- WHEELCHAIR RAMP — ⓘ WCR
- CENTERLINE — CL
- RADIUS POINT — RP
- POINT OF CURVATURE — PC
- POINT OF TANGENCY — PT
- RETURN — RET
- DRAINAGE FLOW ARROW
- TOP OF CURB SPOT ELEVATION — 1349.57
- PAVEMENT ELEVATION — 1350.57(P) ×
- WASHOUT CROWN SECTION
- SIDEWALK (DEVELOPER'S RESPONSIBILITY)
- LANDSCAPE AREA
- STREET SCAPE TREES
- TXDOT TRAFFIC RAIL
- 100YR UD FLOODPLAIN



NEW TREE PLANTING DETAIL

STREETSCAPE TREE PLANTING NOTES:

LARGE TREES (PER UDC) TO BE PLANTED EVERY 40 FEET PER DETAIL.

1. SPECIES OF TREES TO BE DETERMINED BY DEVELOPER'S PROJECT LANDSCAPE ARCHITECT TO CONFORM WITH THE STREETSCAPE PLANTING STANDARDS.
2. DEVELOPER TO PROVIDE IRRIGATION ON PLANTED STREET TREES FOR A MINIMUM OF 3 YEARS.
3. ALL LANDSCAPING SHALL COMPLY WITH THE CLEAR VISION AREAS DEFINED BY THE LATEST VERSION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."
4. TYPES OF TREES AND SPACING ARE BASED ON UNDERGROUND ELECTRIC, IF OVERHEAD ELECTRIC IS REQUIRED BY CPS, PLANS WILL BE REVISED TO REFLECT CHANGES IN SIZE, TYPE, AND SPACING OF TREES. PER THE UDC.

STREET NOTES:

1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TIE-IN. IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
3. SIDEWALKS SHALL BE CONSTRUCTED 5-FT FROM THE BACK OF CURB FOR ALL LOCATIONS WHERE THE SIDEWALK IS SHOWN OFFSET. REFER TO STREET DETAIL SHEET FOR SIDEWALK AND RAMP DETAILS.
4. NO PERMANENT STRUCTURES HIGHER THAN 3 FEET, AND LOWER THAN 8 FEET ABOVE THE PAVEMENT, INCLUDING STRUCTURES, WALLS, FENCES, AND VEGETATION, SHALL BE CONSTRUCTED OR ALLOWED WITHIN THE CLEAR VISION EASEMENT. CONTRACTOR SHALL GRADE AREAS WITHIN CLEAR VISION EASEMENTS SUCH THAT THE ELEVATION WITHIN THE CLEAR VISION EASEMENT IS NOT HIGHER THAN 3 FEET ABOVE THE ADJACENT TOP OF PAVEMENT.
5. DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.
6. CHANGES IN THE SIDEWALK LOCATION FOR A MAXIMUM LINEAR DISTANCE OF TWO HUNDRED (200) FEET ARE PERMITTED TO BE APPROVED BY THE FIELD INSPECTOR WITHOUT AMENDING THE STREET PLAN OR UTILITY LAYOUT PER UDC SECTION 35-506 (Q)(6).
7. THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN.

NO.	REVISION	DATE

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GUAJOLOTE RANCH - PLAN AND PROFILE
STA. 1+00.00 TO 11+50.00

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BD DRAWN JQ
SHEET C2.00

Date: Dec 23, 2025, 3:27pm User ID: jorroyo
File: P:\123\56\10\Design\Civil\GUAJOLOTE 123561O.dwg

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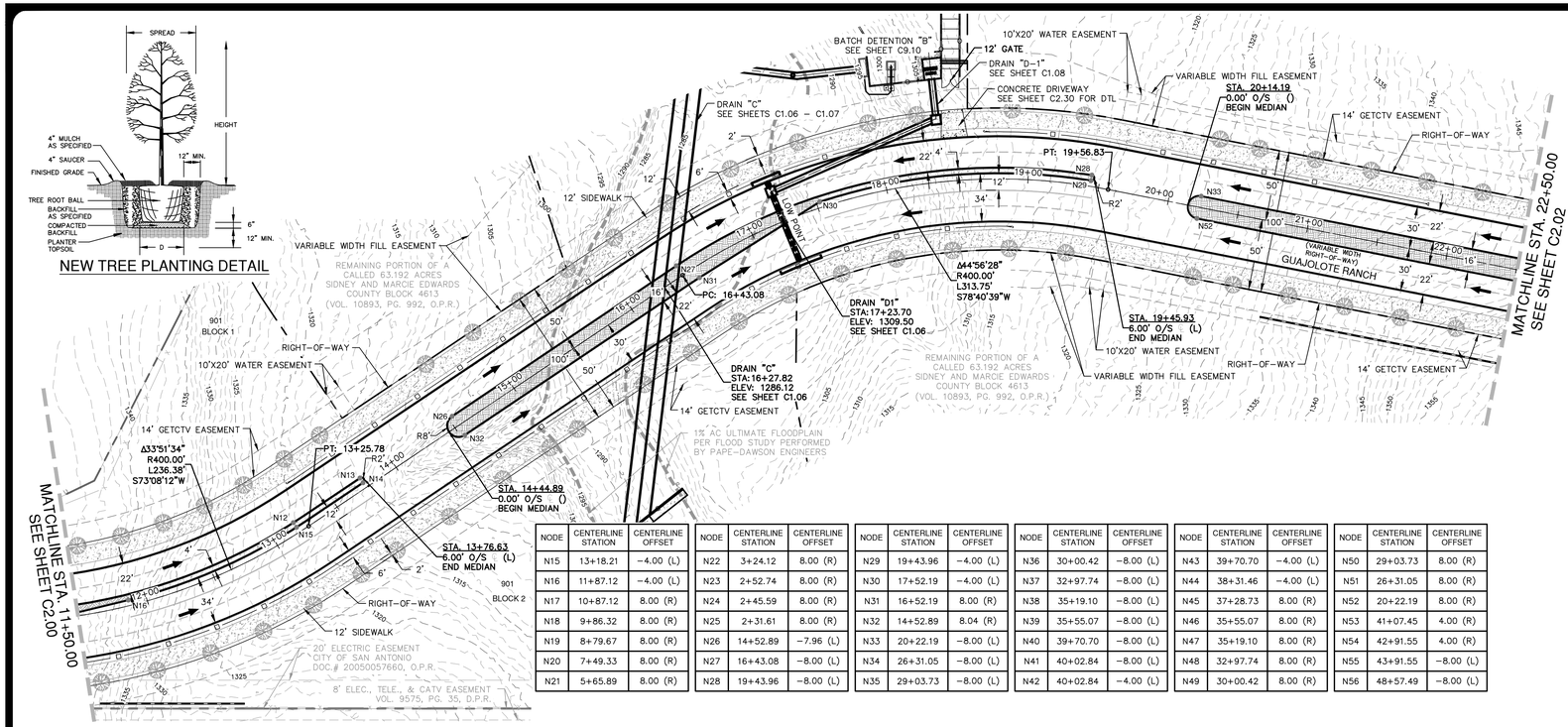
NEW TREE PLANTING DETAIL



NODE	CENTERLINE STATION	CENTERLINE OFFSET
N15	13+18.21	-4.00 (L)
N16	11+87.12	-4.00 (L)
N17	10+87.12	8.00 (R)
N18	9+86.32	8.00 (R)
N19	8+79.67	8.00 (R)
N20	7+49.33	8.00 (R)
N21	5+65.89	8.00 (R)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N22	3+24.12	8.00 (R)
N23	2+52.74	8.00 (R)
N24	2+45.59	8.00 (R)
N25	2+31.61	8.00 (R)
N26	14+52.89	-7.96 (L)
N27	16+43.08	-8.00 (L)
N28	19+43.96	-8.00 (L)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N29	19+43.96	-4.00 (L)
N30	17+52.19	-4.00 (L)
N31	16+52.19	8.00 (R)
N32	14+52.89	8.04 (R)
N33	20+22.19	-8.00 (L)
N34	26+31.05	-8.00 (L)
N35	29+03.73	-8.00 (L)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N36	30+00.42	-8.00 (L)
N37	32+97.74	-8.00 (L)
N38	35+19.10	-8.00 (L)
N39	35+55.07	-8.00 (L)
N40	39+70.70	-8.00 (L)
N41	40+02.84	-8.00 (L)
N42	40+02.84	-4.00 (L)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N43	39+70.70	-4.00 (L)
N44	38+31.46	-4.00 (L)
N45	37+28.73	8.00 (R)
N46	35+55.07	8.00 (R)
N47	35+19.10	8.00 (R)
N48	32+97.74	8.00 (R)
N49	30+00.42	8.00 (R)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N50	29+03.73	8.00 (R)
N51	26+31.05	8.00 (R)
N52	20+22.19	8.00 (R)
N53	41+07.45	4.00 (R)
N54	42+91.55	4.00 (R)
N55	43+91.55	-8.00 (L)
N56	48+57.49	-8.00 (L)

STREETSCAPE TREE PLANTING NOTES:

LARGE TREES (PER UDC) TO BE PLANTED EVERY 40 FEET PER DETAIL.

1. SPECIES OF TREES TO BE DETERMINED BY DEVELOPER'S PROJECT LANDSCAPE ARCHITECT TO CONFORM WITH THE STREETSCAPE PLANTING STANDARDS.
2. DEVELOPER TO PROVIDE IRRIGATION ON PLANTED STREET TREES FOR A MINIMUM OF 3 YEARS.
3. ALL LANDSCAPING SHALL COMPLY WITH THE CLEAR VISION AREAS DEFINED BY THE LATEST VERSION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."
4. TYPES OF TREES AND SPACING ARE BASED ON UNDERGROUND ELECTRIC, IF OVERHEAD ELECTRIC IS REQUIRED BY CPS, PLANS WILL BE REVISED TO REFLECT CHANGES IN SIZE, TYPE, AND SPACING OF TREES, PER THE UDC.

STREET NOTES:

1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TIE-IN. IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
3. SIDEWALKS SHALL BE CONSTRUCTED 5-FT FROM THE BACK OF CURB FOR ALL LOCATIONS WHERE THE SIDEWALK IS SHOWN OFFSET. REFER TO STREET DETAIL SHEET FOR SIDEWALK AND RAMP DETAILS.
4. NO PERMANENT STRUCTURES HIGHER THAN 3 FEET, AND LOWER THAN 8 FEET ABOVE THE PAVEMENT, INCLUDING STRUCTURES, WALLS, FENCES, AND VEGETATION, SHALL BE CONSTRUCTED OR ALLOWED WITHIN THE CLEAR VISION EASEMENT. CONTRACTOR SHALL GRADE AREAS WITHIN CLEAR VISION EASEMENTS SUCH THAT THE ELEVATION WITHIN THE CLEAR VISION EASEMENT IS NOT HIGHER THAN 3 FEET ABOVE THE ADJACENT TOP OF PAVEMENT.
5. DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.
6. CHANGES IN THE SIDEWALK LOCATION FOR A MAXIMUM LINEAR DISTANCE OF TWO HUNDRED (200) FEET ARE PERMITTED TO BE APPROVED BY THE FIELD INSPECTOR WITHOUT AMENDING THE STREET PLAN OR UTILITY LAYOUT PER UDC SECTION 35-506 (Q)(6).
7. THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN.

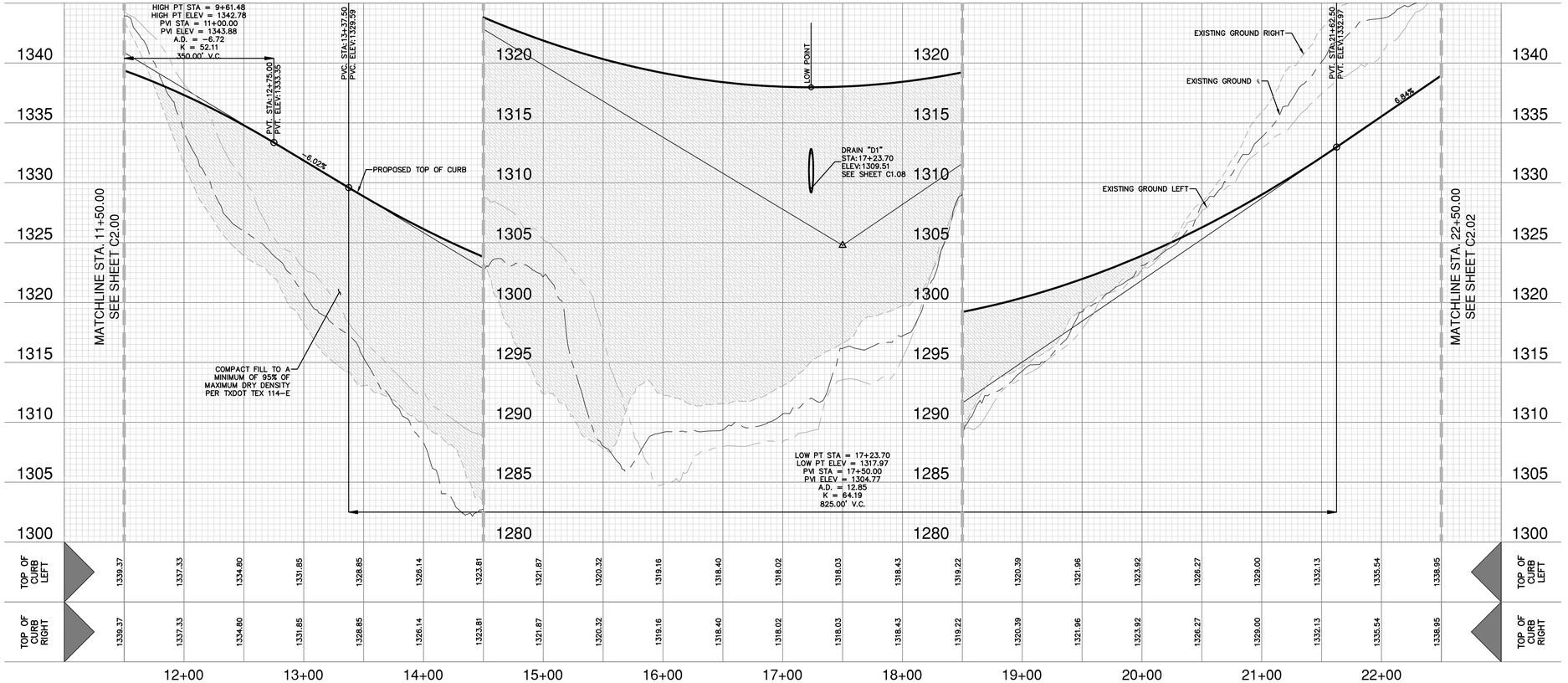
SCALE: 1"= 50'
0' 50' 100' 150'

STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	1350
RETAINING WALL	
WHEELCHAIR RAMP	ⓘ WCR
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	1349.57
PAVEMENT ELEVATION	1350.57(P)×
WASHOUT CROWN SECTION	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
LANDSCAPE AREA	
STREET SCAPE TREES	
TXDOT TRAFFIC RAIL	
100YR UD FLOODPLAIN	

GUAJOLOTE RANCH
STA. 11+50.00 TO 22+50.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



NO.	REVISION	DATE

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

GUAJOLOTE RANCH - PLAN AND PROFILE
STA. 11+50.00 TO 22+50.00

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BAD DRAWN JQ
SHEET C2.01

Date: Dec 23, 2025, 3:33pm User ID: jarroyo
File: P:\123\356\10\Design\Civil\GUAJOLOTE 1235610.dwg

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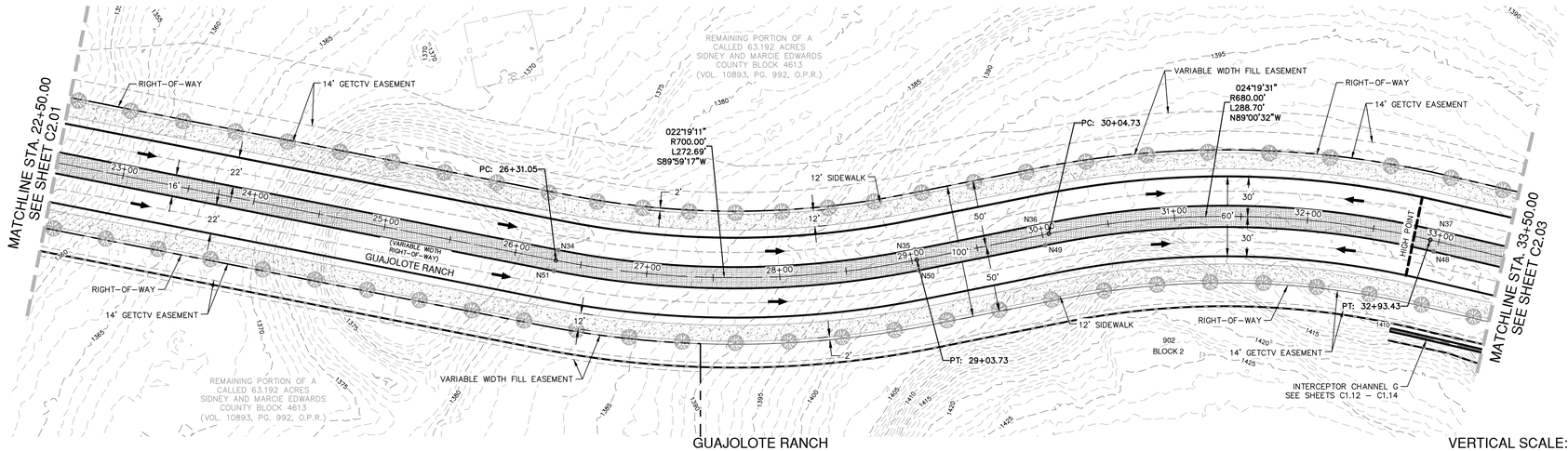
NODE	CENTERLINE STATION	CENTERLINE OFFSET
N29	19+43.96	−4.00 (L)
N30	17+52.19	−4.00 (L)
N31	16+52.19	8.00 (R)
N32	14+52.89	8.04 (R)
N33	20+22.19	−8.00 (L)
N34	26+31.05	−8.00 (L)
N35	29+03.73	−8.00 (L)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N36	30+00.42	−8.00 (L)
N37	32+97.74	−8.00 (L)
N38	35+19.10	−8.00 (L)
N39	35+55.07	−8.00 (L)
N40	39+70.70	−8.00 (L)
N41	40+02.84	−8.00 (L)
N42	40+02.84	−4.00 (L)

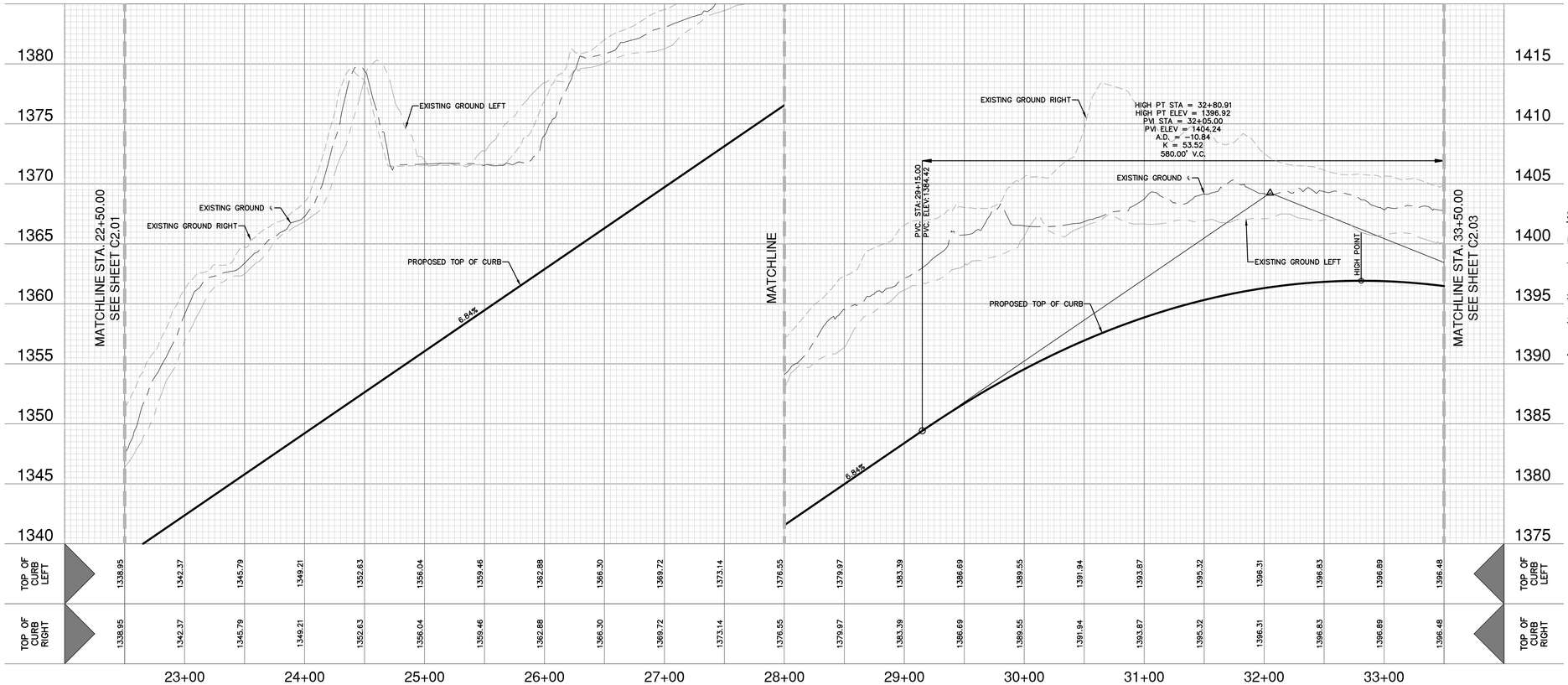
NODE	CENTERLINE STATION	CENTERLINE OFFSET
N43	39+70.70	−4.00 (L)
N44	38+31.46	−4.00 (L)
N45	37+28.73	8.00 (R)
N46	35+55.07	8.00 (R)
N47	35+19.10	8.00 (R)
N48	32+97.74	8.00 (R)
N49	30+00.42	8.00 (R)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N50	29+03.73	8.00 (R)
N51	26+31.05	8.00 (R)
N52	20+22.19	8.00 (R)
N53	41+07.45	4.00 (R)
N54	42+91.55	4.00 (R)
N55	43+91.55	−8.00 (L)
N56	48+57.49	−8.00 (L)



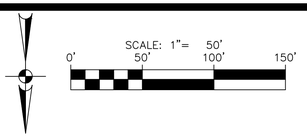
GUAJOLOTE RANCH
STA. 22+50.00 TO 33+50.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	1350
RETAINING WALL	
WHEELCHAIR RAMP	WCR
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	1349.57
PAVEMENT ELEVATION	1350.57(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
LANDSCAPE AREA	
STREET SCAPE TREES	
TXDOT TRAFFIC RAIL	
100YR UD FLOODPLAIN	



NEW TREE PLANTING DETAIL

STREETSCAPE TREE PLANTING NOTES:

LARGE TREES (PER UDC) TO BE PLANTED EVERY 40 FEET PER DETAIL.

1. SPECIES OF TREES TO BE DETERMINED BY DEVELOPER'S PROJECT LANDSCAPE ARCHITECT TO CONFORM WITH THE STREETSCAPE PLANTING STANDARDS.
2. DEVELOPER TO PROVIDE IRRIGATION ON PLANTED STREET TREES FOR A MINIMUM OF 3 YEARS.
3. ALL LANDSCAPING SHALL COMPLY WITH THE CLEAR VISION AREAS DEFINED BY THE LATEST VERSION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."
4. TYPES OF TREES AND SPACING ARE BASED ON UNDERGROUND ELECTRIC, IF OVERHEAD ELECTRIC IS REQUIRED BY CPS, PLANS WILL BE REVISED TO REFLECT CHANGES IN SIZE, TYPE, AND SPACING OF TREES. PER THE UDC.

STREET NOTES:

1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TIE–IN. IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
3. SIDEWALKS SHALL BE CONSTRUCTED 5–FT FROM THE BACK OF CURB FOR ALL LOCATIONS WHERE THE SIDEWALK IS SHOWN OFFSET. REFER TO STREET DETAIL SHEET FOR SIDEWALK AND RAMP DETAILS.
4. NO PERMANENT STRUCTURES HIGHER THAN 3 FEET, AND LOWER THAN 8 FEET ABOVE THE PAVEMENT, INCLUDING STRUCTURES, WALLS, FENCES, AND VEGETATION, SHALL BE CONSTRUCTED OR ALLOWED WITHIN THE CLEAR VISION EASEMENT. CONTRACTOR SHALL GRADE AREAS WITHIN CLEAR VISION EASEMENTS SUCH THAT THE ELEVATION WITHIN THE CLEAR VISION EASEMENT IS NOT HIGHER THAN 3 FEET ABOVE THE ADJACENT TOP OF PAVEMENT.
5. DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.
6. CHANGES IN THE SIDEWALK LOCATION FOR A MAXIMUM LINEAR DISTANCE OF TWO HUNDRED (200) FEET ARE PERMITTED TO BE APPROVED BY THE FIELD INSPECTOR WITHOUT AMENDING THE STREET PLAN OR UTILITY LAYOUT PER UDC SECTION 35–506 (Q)(6).
7. THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN.

NO.	REVISION	DATE

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

GUAJOLOTE RANCH - PLAN AND PROFILE
STA. 22+50.00 TO 33+50.00

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BD DRAWN JQ
SHEET C2.02

Date: Dec 23, 2025, 3:28pm User ID: jorroyo
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NODE TABLE		
NODE	CENTERLINE STATION	CENTERLINE OFFSET
N1	2+31.61	3.00 (R)
N2	2+45.59	3.00 (R)
N3	2+52.74	3.00 (R)
N4	3+24.12	3.00 (R)
N5	5+01.04	3.00 (R)
N6	5+65.89	3.00 (R)
N7	7+44.92	3.00 (R)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N8	8+44.89	−8.00 (L)
N9	8+79.67	−8.00 (L)
N10	9+86.32	−8.00 (L)
N11	10+89.40	−8.00 (L)
N12	13+18.05	−8.00 (L)
N13	13+74.63	−8.00 (L)
N14	13+74.63	−4.00 (L)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N15	13+18.21	−4.00 (L)
N16	11+87.12	−4.00 (L)
N17	10+87.12	8.00 (R)
N18	9+86.32	8.00 (R)
N19	8+79.67	8.00 (R)
N20	7+49.33	8.00 (R)
N21	5+65.89	8.00 (R)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N22	3+24.12	8.00 (R)
N23	2+52.74	8.00 (R)
N24	2+45.59	8.00 (R)
N25	2+31.61	8.00 (R)
N26	14+52.89	−7.96 (L)
N27	16+43.08	−8.00 (L)
N28	19+43.96	−8.00 (L)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N29	19+43.96	−4.00 (L)
N30	17+52.19	−4.00 (L)
N31	16+52.19	8.00 (R)
N32	14+52.89	8.04 (R)
N33	20+22.19	−8.00 (L)
N34	26+31.05	−8.00 (L)
N35	29+03.73	−8.00 (L)

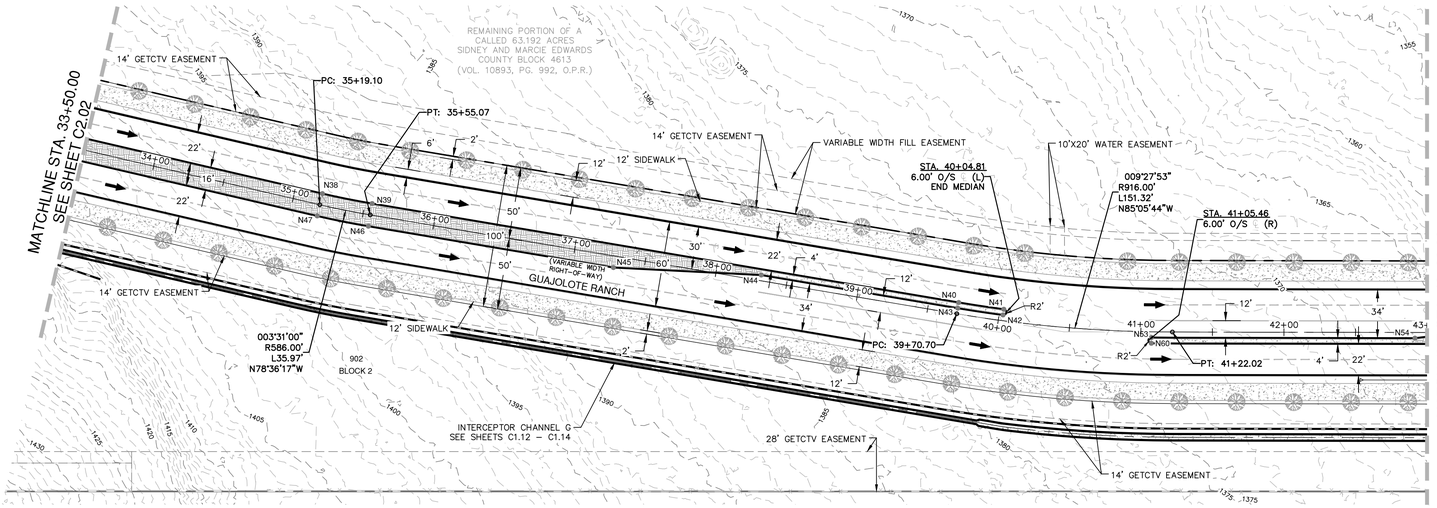
NODE	CENTERLINE STATION	CENTERLINE OFFSET
N36	30+00.42	−8.00 (L)
N37	32+97.74	−8.00 (L)
N38	35+19.10	−8.00 (L)
N39	35+55.07	−8.00 (L)
N40	39+70.70	−8.00 (L)
N41	40+02.84	−8.00 (L)
N42	40+02.84	−4.00 (L)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N43	39+70.70	−4.00 (L)
N44	38+31.46	−4.00 (L)
N45	37+28.73	8.00 (R)
N46	35+55.07	8.00 (R)
N47	35+19.10	8.00 (R)
N48	32+97.74	8.00 (R)
N49	30+00.42	8.00 (R)

NODE	CENTERLINE STATION	CENTERLINE OFFSET
N50	29+03.73	8.00 (R)
N51	26+31.05	8.00 (R)
N52	20+22.19	8.00 (R)
N53	41+07.45	4.00 (R)
N54	42+91.55	4.00 (R)
N55	43+91.55	−8.00 (L)
N56	48+57.49	−8.00 (L)

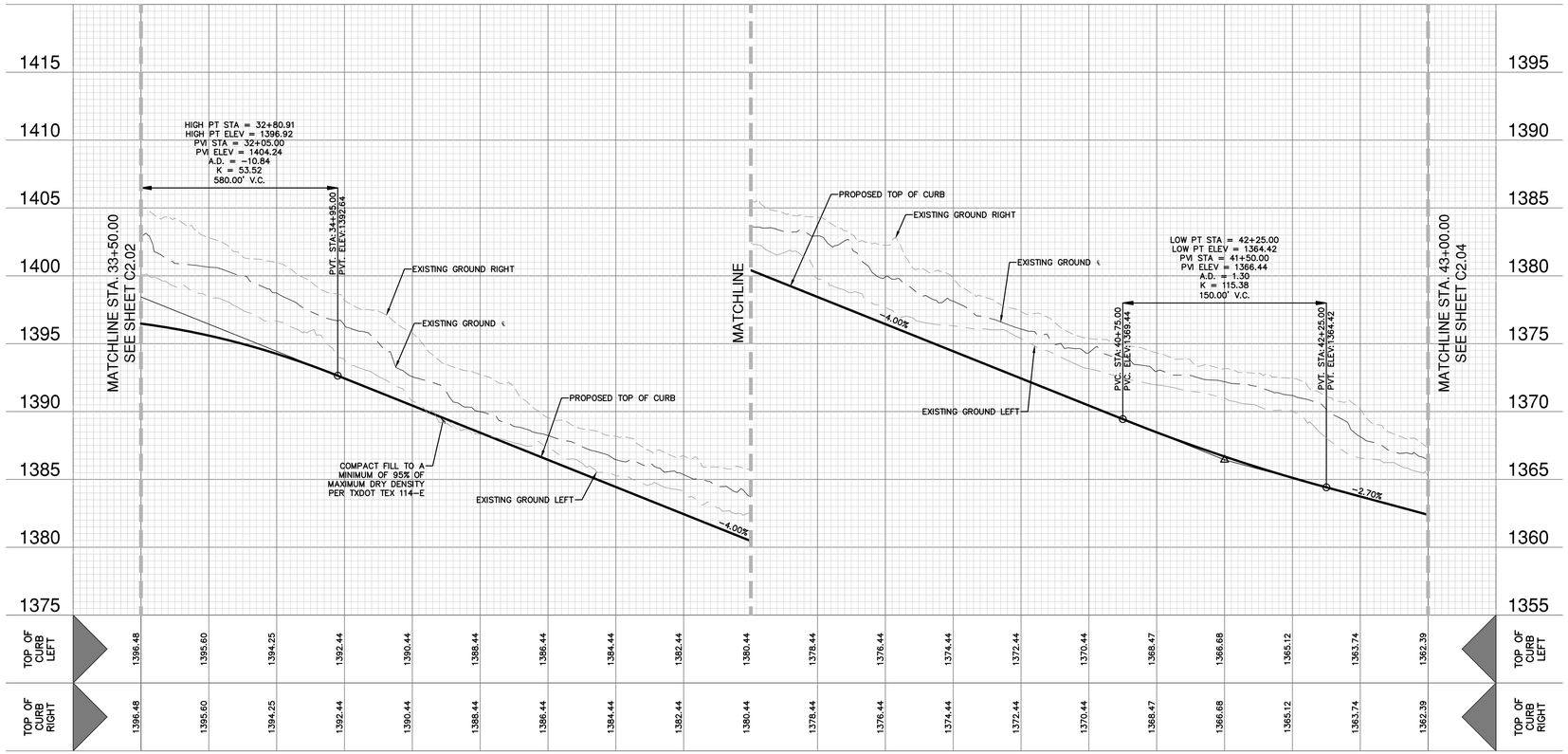
NODE	CENTERLINE STATION	CENTERLINE OFFSET
N57	48+57.49	−4.00 (L)
N58	46+40.40	−4.00 (L)
N59	45+40.40	8.00 (R)
N60	41+07.45	8.00 (R)
N61	49+22.49	−8.00 (L)
N62	50+62.13	−8.00 (L)
N63	50+62.13	8.00 (R)

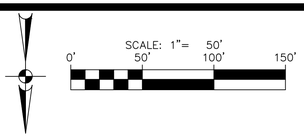
NODE	CENTERLINE STATION	CENTERLINE OFFSET
N64	49+22.49	8.00 (R)



GUAJOLOTE RANCH
STA. 33+50.00 TO 43+00.00

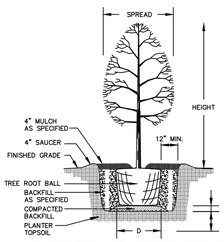
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'





STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	1350
RETAINING WALL	
WHEELCHAIR RAMP	ⓘ WCR
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	1349.57
PAVEMENT ELEVATION	1350.57(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
LANDSCAPE AREA	
STREET SCAPE TREES	
TXDOT TRAFFIC RAIL	
100YR UD FLOODPLAIN	



NEW TREE PLANTING DETAIL

STREETSCAPE TREE PLANTING NOTES:

LARGE TREES (PER UDC) TO BE PLANTED EVERY 40 FEET PER DETAIL.

1. SPECIES OF TREES TO BE DETERMINED BY DEVELOPER'S PROJECT LANDSCAPE ARCHITECT TO CONFORM WITH THE STREETSCAPE PLANTING STANDARDS.
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STREET NOTES:

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3. SIDEWALKS SHALL BE CONSTRUCTED 5–FT FROM THE BACK OF CURB FOR ALL LOCATIONS WHERE THE SIDEWALK IS SHOWN OFFSET. REFER TO STREET DETAIL SHEET FOR SIDEWALK AND RAMP DETAILS.
4. NO PERMANENT STRUCTURES HIGHER THAN 3 FEET, AND LOWER THAN 8 FEET ABOVE THE PAVEMENT, INCLUDING STRUCTURES, WALLS, FENCES, AND VEGETATION, SHALL BE CONSTRUCTED OR ALLOWED WITHIN THE CLEAR VISION EASEMENT. CONTRACTOR SHALL GRADE AREAS WITHIN CLEAR VISION EASEMENTS SUCH THAT THE ELEVATION WITHIN THE CLEAR VISION EASEMENT IS NOT HIGHER THAN 3 FEET ABOVE THE ADJACENT TOP OF PAVEMENT.
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6. CHANGES IN THE SIDEWALK LOCATION FOR A MAXIMUM LINEAR DISTANCE OF TWO HUNDRED (200) FEET ARE PERMITTED TO BE APPROVED BY THE FIELD INSPECTOR WITHOUT AMENDING THE STREET PLAN OR UTILITY LAYOUT PER UDC SECTION 35–506 (Q)(6).
7. THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN.

NO.	REVISION	DATE

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

GUAJOLOTE RANCH - PLAN AND PROFILE
STA. 33+50.00 TO 43+00.00

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BD DRAWN JQ
SHEET C2.03

Date: Dec 23, 2025, 3:29pm User ID: jorroyo
File: P:\123\56\10\Design\Civil\GUAJOLOTE 123561O.dwg

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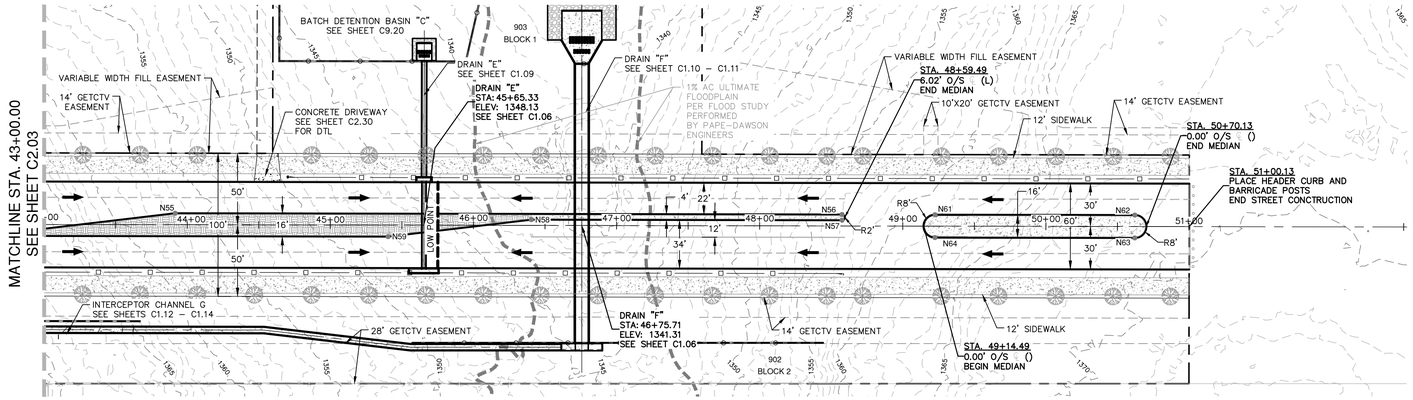
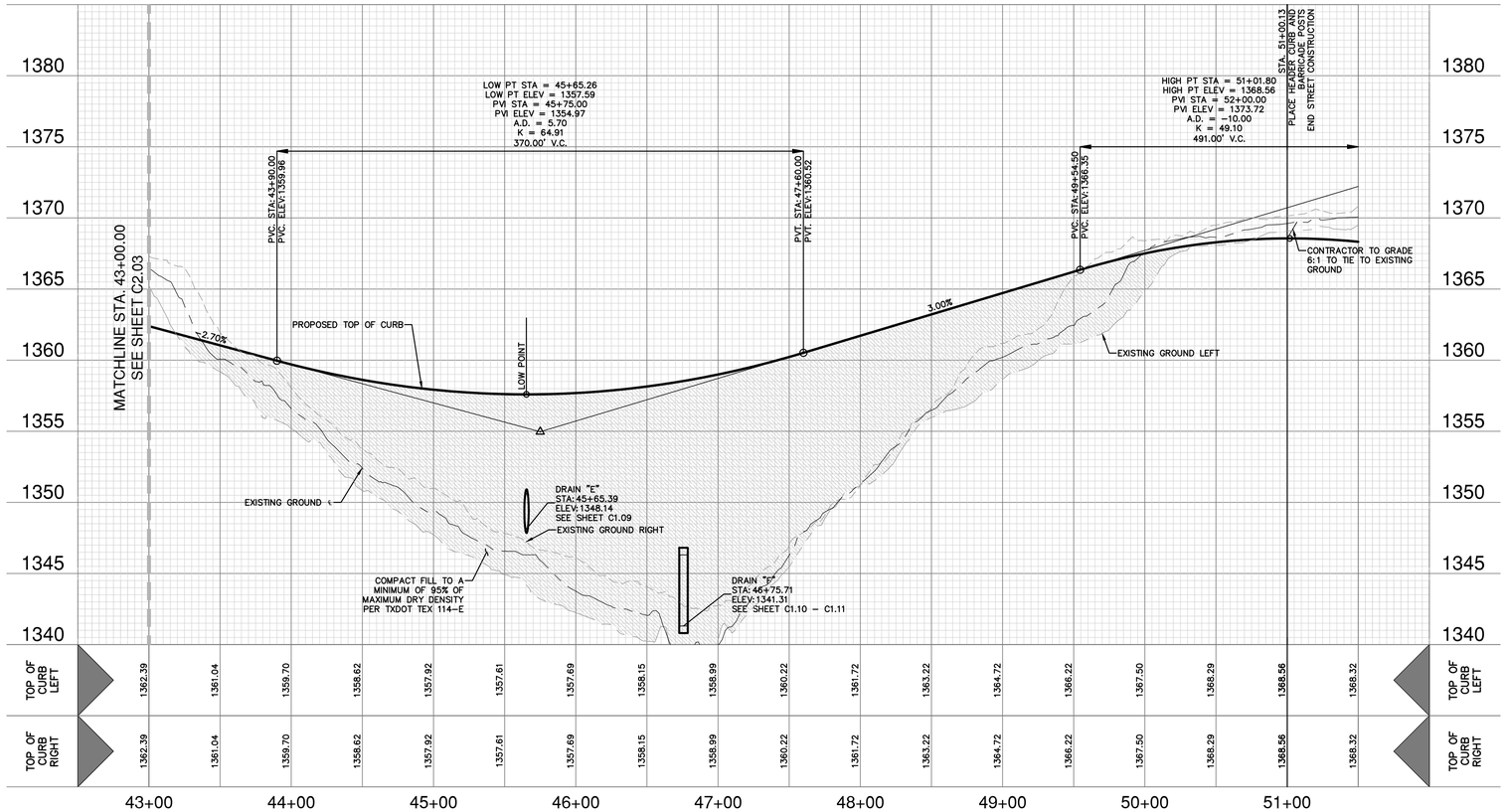


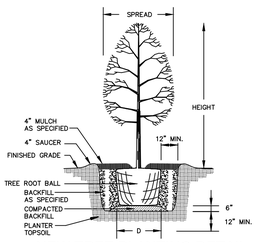
GUAJOLOTE RANCH
STA. 43+00.00 TO END

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



STREET LEGEND

PROJECT LIMITS	
MAINTAIN GUTTER	
EXISTING CONTOUR	1350
RETAINING WALL	
WHEELCHAIR RAMP	WCR
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
DRAINAGE FLOW ARROW	
TOP OF CURB SPOT ELEVATION	1349.57
PAVEMENT ELEVATION	1350.57(P)
WASHOUT CROWN SECTION	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
LANDSCAPE AREA	
STREET SCAPE TREES	
TXDOT TRAFFIC RAIL	
100YR UD FLOODPLAIN	



NEW TREE PLANTING DETAIL

STREETSCAPE TREE PLANTING NOTES:

LARGE TREES (PER UDC) TO BE PLANTED EVERY 40 FEET PER DETAIL.

1. SPECIES OF TREES TO BE DETERMINED BY DEVELOPER'S PROJECT LANDSCAPE ARCHITECT TO CONFORM WITH THE STREETSCAPE PLANTING STANDARDS.
2. DEVELOPER TO PROVIDE IRRIGATION ON PLANTED STREET TREES FOR A MINIMUM OF 3 YEARS.
3. ALL LANDSCAPING SHALL COMPLY WITH THE CLEAR VISION AREAS DEFINED BY THE LATEST VERSION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."
4. TYPES OF TREES AND SPACING ARE BASED ON UNDERGROUND ELECTRIC, IF OVERHEAD ELECTRIC IS REQUIRED BY CPS, PLANS WILL BE REVISED TO REFLECT CHANGES IN SIZE, TYPE, AND SPACING OF TREES. PER THE UDC.

STREET NOTES:

1. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TIE-IN. IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
3. SIDEWALKS SHALL BE CONSTRUCTED 5-FT FROM THE BACK OF CURB FOR ALL LOCATIONS WHERE THE SIDEWALK IS SHOWN OFFSET. REFER TO STREET DETAIL SHEET FOR SIDEWALK AND RAMP DETAILS.
4. NO PERMANENT STRUCTURES HIGHER THAN 3 FEET, AND LOWER THAN 8 FEET ABOVE THE PAVEMENT, INCLUDING STRUCTURES, WALLS, FENCES, AND VEGETATION, SHALL BE CONSTRUCTED OR ALLOWED WITHIN THE CLEAR VISION EASEMENT. CONTRACTOR SHALL GRADE AREAS WITHIN CLEAR VISION EASEMENTS SUCH THAT THE ELEVATION WITHIN THE CLEAR VISION EASEMENT IS NOT HIGHER THAN 3 FEET ABOVE THE ADJACENT TOP OF PAVEMENT.
5. DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.
6. CHANGES IN THE SIDEWALK LOCATION FOR A MAXIMUM LINEAR DISTANCE OF TWO HUNDRED (200) FEET ARE PERMITTED TO BE APPROVED BY THE FIELD INSPECTOR WITHOUT AMENDING THE STREET PLAN OR UTILITY LAYOUT PER UDC SECTION 35-506 (Q)(6).
7. THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN.

NO.	REVISION	DATE

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

GUAJOLOTE RANCH - PLAN AND PROFILE
STA. 43+00.00 TO END

PLAT NO.	25-11800226
JOB NO.	12356-10
DATE	DECEMBER 2025
DESIGNER	IA
CHECKED	BD
DRAWN	JQ
SHEET	C2.04

Date: Dec 23, 2025, 3:30pm User ID: jorroyo
File: P:\123\56\10\Design\Civil\GUAJOLOTE 1235610.dwg

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3.0 PAVEMENT DESIGN RECOMMENDATIONS

3.1 Pavement Design Parameters

PSI understands that flexible pavements will be considered for this project. Therefore, pavement design recommendations based on the criteria presented in the *City of San Antonio Transportation & Capital Improvements Design Guidance Manual* (adopted October 2017) a traffic loading of 100,000 and 1,000,000 18-kip Equivalent Single Axle Loads (ESALs) for flexible pavement was evaluated for a street classification of Local Streets Type A without bus traffic and with bus traffic, respectively. A traffic load of 2,000,000 18-kip ESALs for flexible pavement was evaluated for a street classification of Collector and Local Type B streets. A traffic load of 3,000,000 18-kip ESALs for flexible pavement was evaluated for a street classification of Arterial streets. PSI utilized the "AASHTO Guide for Design of Pavement Structures" published by the American Association of State Highway and Transportation Officials to evaluate the pavement thickness recommendations in this report. This method of design considers pavement performance, traffic, roadbed soil, pavement materials, environment, drainage, and reliability. Each of these items is incorporated into the design methodology. PSI is available to provide laboratory testing and engineering evaluation to refine the site-specific design parameters and sections, upon request.

PSI collected bulk soil samples of the native soils encountered at the site to conduct Atterberg Limits, Percent Finer than the No. 200 Sieve, California Bearing Ratio (CBR) test, and Lime Series Testing. The results for the Moisture Density Relationship and the CBR Tests are presented in the Appendix. The following table presents a summary of the results from our laboratory testing performed on the native soil.

Table 3.1: Native Soil Test Summary

Material	Liquid Limit (ASTM D4318)	Plasticity Index (ASTM D4318)	Percent Passing No. 200 Sieve	Laboratory CBR Value (ASTM D1883)	Optimum MC (ASTM D698-12)	95% Max Dry Density (ASTM D698-12)
Sandy Clean Lean (CL) (bulk sample)	44	19	55	7.8	21 %	94.5

Table 3.2: Lime Series Results

% Lime By Weight	pH	PI
0	10.91	19
2	12.23	7
4	12.41	5
6	12.42	6
8	12.48	3
10	12.45	3

Based on the results of the laboratory testing, PSI has provided recommended pavement sections for pavements constructed on an improved subgrade. Details regarding the basis for this design are presented in the table below.

Table 3.3: Pavement Design Parameters and Assumptions

City of San Antonio Local Type A Streets	
Reliability, percent	70
Initial Serviceability Index, Flexible Pavement	4.2
Terminal Serviceability Index	2.0
Design Traffic Loading, Flexible Pavement	100,000 ESALs without bus traffic and 1,000,000 ESALs with bus traffic
Standard Deviation, Flexible Pavement	0.45
Subgrade California Bearing Ratio (CBR)	7
Subgrade Modulus of Subgrade Reaction, k in pci	170
City of San Antonio Collector and Local B Streets	
Reliability, percent	90
Initial Serviceability Index, Flexible Pavement	4.2
Terminal Serviceability Index	2.5
Design Traffic Loading, Flexible Pavement	2,000,000 ESALs
Standard Deviation, Flexible Pavement	0.45
Subgrade California Bearing Ratio (CBR)	7
Subgrade Modulus of Subgrade Reaction, k in pci	170
City of San Antonio Arterial Streets	
Reliability, percent	95
Initial Serviceability Index, Flexible Pavement	4.2
Terminal Serviceability Index	2.5
Design Traffic Loading, Flexible Pavement	3,000,000 equivalent single axle loads (ESALs)
Standard Deviation, Flexible Pavement	0.45
Subgrade California Bearing Ratio (CBR)	7
Subgrade Modulus of Subgrade Reaction, k in pci	170

Asphaltic concrete pavements founded on top of expansive soils will be subjected to PVM soil movements estimated and presented in this report. These potential soil movements are typically activated to some degree during the life of the pavement. Consequently, pavements can be expected to crack and require periodic maintenance to reduce damage to the pavement structure.

During the paving life, maintenance to seal surface cracks within asphalt paving should be undertaken to achieve the desired paving life. Perimeter drainage should be controlled to prevent or retard influx of surface water from areas surrounding the paving. Water penetration leads to paving degradation. Water penetration into base or subgrade materials, sometimes due to irrigation or surface water infiltration leads to pre-mature paving degradation. Curbs should be used in conjunction with asphalt paving to reduce potential for infiltration of moisture into the base course. Curbs should extend the full depth of the base course and should

extend at least 3 inches into the underlying clayey subgrade. The base layer should be tied into the area inlets to drain water that may collect in the base.

Material specifications, construction considerations, and section requirements are presented in following sections.

The presented recommended pavement sections are based on the field and laboratory test results for the project, local pavement design practice, design assumptions presented herein and previous experience with similar projects. The project Civil Engineer should verify that the ESAL and other design values are appropriate for the expected traffic and design life of the project. PSI should be notified in writing if the assumptions or design parameters are incorrect or require modification.

3.2 Pavement Section Recommendations

PSI anticipated that the roadways and parking areas will be used primarily by passenger vehicles and delivery vehicles. PSI is providing parking and drive area sections based on experience with similar facilities constructed on similar soil conditions for the design traffic loading anticipated.

3.2.1 Flexible Pavement

Recommendations for flexible asphaltic concrete pavement for roadways and parking areas are provided below.

Figure 3.1: Flexible Pavement Typical Section

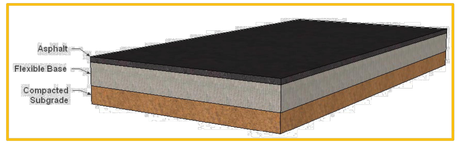
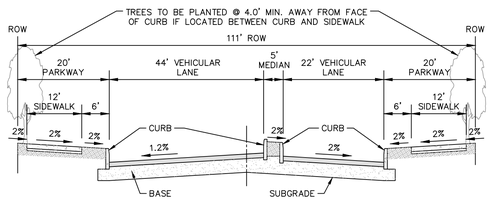


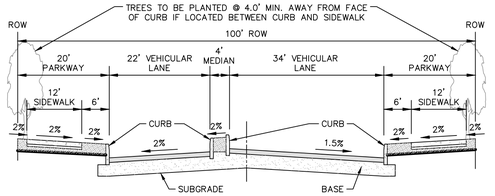
Table 3.4: Flexible Pavement Section Options

Material	Thicknesses			
Traffic Type	Local Type A without bus traffic	Local Type A with bus traffic	Collector and Local Type B	Arterial
Design Traffic Load, ESALs	100,000	1,000,000	2,000,000	3,000,000
Hot Mix Asphaltic Concrete Type D	2.5 inches	3 inches	4 inches	4.5 inches
Import Flexible Base	6 inches	10 inches	12 inches	14 inches
Compacted Subgrade[1]	6"			

1. Lime treatment of subgrade to a depth of 6-inches will be required for subgrade with a PI greater than 20. Treatment will require application rate of about 17.0 pounds per square yard for 6-inches of treatment. The actual application rate should be determined at the time of construction from a lime series test on the blended native subgrade soils at the final subgrade elevation.



100' COLLECTOR STREET SECTION - RIGHT TURN LANE
NOT–TO–SCALE



100' COLLECTOR STREET SECTION - LEFT TURN LANE
NOT–TO–SCALE

GENERAL NOTES:

CONTRACTOR SHALL REFERENCE THE PROJECT PAVEMENT DESIGN REPORT PREPARED BY **PROFESSIONAL SERVICE INDUSTRIES, INC.** DATED **APRIL 2ND, 2025.**

1. CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEER TO VERIFY THE SUB GRADE CONDITION PRIOR TO PLACING ANY BASE MATERIAL. GEOTECHNICAL ENGINEER SHALL DETERMINE THE SUB GRADE CONDITION AND IF LIME STABILIZATION IS REQUIRED.
2. GEOTECHNICAL ENGINEER SHOULD VERIFY THE STREET SUBGRADE AT THE TIME OF CONSTRUCTION PRIOR TO PLACEMENT OF AGGREGATE BASE.
3. THE FLEXIBLE BASE COURSE SHOULD BE CRUSHED LIMESTONE CONFORMING TO TXDOT STANDARD SPECIFICATIONS, ITEM 247, TYPE A, GRADES 1 OR 2.
4. THE MOISTURE CONTENT OF THE FILL SHOULD BE MAINTAINED WITHIN THE RANGE OF OPTIMUM WATER CONTENT TO 3 PERCENTAGE POINTS ABOVE THE OPTIMUM WATER CONTENT UNTIL PERMANENTLY COVERED.
5. IN THE EVENT THAT THE CLAY FILL USED IS DIFFERENT THAN THE EXISTING SUBGRADE, THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT COULD BE INVALIDATED AND THE DESIGN ENGINEER MUST BE CONSULTED TO DETERMINE IF ADDITIONAL CBR TESTING AND THICKER PAVEMENT SECTIONS ARE REQUIRED.
6. WHERE PAVEMENT SUBGRADE IS LOCATED WITHIN 2–FEET OF THE EXISTING GROUND SURFACE (STRATUM 1 CLAYS), MOISTURE CONDITIONED SUBGRADE WILL BE REQUIRED. GEOTECHNICAL ENGINEER SHOULD VERIFY THE STREET SUBGRADE AT THE TIME OF CONSTRUCTION PRIOR TO PLACEMENT OF AGGREGATE BASE TO DETERMINE WHERE THE MOISTURE CONDITIONED SUBGRADE IS NEEDED. REFERENCE GEOTECHNICAL ENGINEERING REPORT FOR MORE INFORMATION.
7. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL MATERIAL TESTING WITH THE PROJECT GEOTECHNICAL ENGINEER. TESTING SHALL BE PAID FOR BY THE OWNER.
8. FILL MATERIAL SHOULD BE NATIVE ON–SITE MATERIAL, FREE OF DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 2 AND A PI WITHIN RANGE OF 5 AND 20. THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN DIAMETER. LIME OR CEMENT APPLICATION RATES SHOULD BE RE–EVALUATED FOR THE FILL MATERIAL. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES. CONTRACTOR TO VERIFY EXACT SPECIFICATIONS WITH PROJECT GEOTECHNICAL ENGINEERING REPORT.
9. A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN THE BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.

STREET SUBGRADE NOTES:

1. IF THE STREET SUBGRADE PLASTICITY INDEX VALUE IS GREATER THAN 20, SUBGRADE STABILIZATION IS NEEDED AS PER CITY OF SAN ANTONIO REQUIREMENTS.
2. IF THE SUBGRADE PLASTICITY INDEX VALUE IS 20 OR LESS. SUBGRADE STABILIZATION IS NOT NEEDED. THE SUBGRADE SHOULD BE MOISTURE CONDITIONED (COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AT A MINIMUM MOISTURE CONTENT OF OPTIMUM PLUS 2 PERCENT (TEX114E)).
3. THE SUBGRADE SHOULD BE STABILIZED USING 6 PERCENT LIME TO A DEPTH OF 6 INCHES AS NOTED ABOVE.
4. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO STABILIZATION. IF THE SOIL SULFATE CONTENT IS HIGH, AN ALTERNATE PROCEDURE / RECOMMENDATION WILL BE NEEDED.
5. LIME APPLICATION RATE OF 27.5 LBS PER SQ YARD FOR 6 INCH DEPTH OF STABILIZATION IS RECOMMENDED.
6. APPROVED FILL MATERIAL SHOULD BE USED TO RAISE THE GRADE. THE FILL SHOULD BE FREE OF DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 2.5. LIME APPLICATION RATES SHOULD BE RE–EVALUATED AND TESTED FOR SULFATE CONTENT PRIOR TO USE OF THE FILL MATERIAL. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES.
7. THE SUBGRADE SHOULD BE PROOF ROLLED TO IDENTIFY SOFT AREAS BEFORE STABILIZATION.

LIME NOTES:

FOR LIME STABILIZATION CONSTRUCTION VERIFICATION THE FOLLOWING SHALL BE CONDUCTED ON THE FIELD:

1. AFTER INITIAL MIXING THE SOIL–LIME MIXTURE SHALL MELLOW FOR A PERIOD OF TWO TO THREE (2–3) DAYS. MAINTAIN MOISTURE DURING MELLOWING.
2. AFTER MELLOWING AND FINAL MIXING, THE PULVERIZATION SHALL BE CHECKED USING THE FOLLOWING CRITERIA (REMOVE NON–SLAKING AGGREGATES RETAINED ON THE ¾ INCH SIEVE FROM THE SAMPLE):
   - MINIMUM PASSING 1½" SIEVE 100
   - MINIMUM PASSING ¾" SIEVE 85
   - MINIMUM PASSING NO. 4 SIEVE 60
3. SAMPLE SOIL–LIME MIXTURE FOR DETERMINATION OF MAXIMUM DRY DENSITY (MDD). IN THE LABORATORY, MOLD SPECIMENS TO 95% OF MDD AT OPTIMUM MOISTURE CONTENT AND VERIFY UCS TO BE AT LEAST 160 PSI IN ACCORDANCE WITH PROCEDURE OUTLINED IN THE BEXAR COUNTY FLEXIBLE PAVEMENT DESIGN CRITERIA GUIDE FOR MIXTURE DESIGN.
4. COMPACT AND CHECK FIELD DENSITY (MINIMUM OF 95% OF MDD REQUIRED).
5. CURE FOR AN ADDITIONAL 2 TO 5 DAYS (TOTAL MELLOWING AND CURING TIME SHOULD TOTAL AT LEAST 5 DAYS).
6. VERIFY DEPTH OF LIME STABILIZED LAYER TO DEPTH AS NOTED ON PLAN TO WITHIN +/– 1.0 INCH.

Table 3.7: Compaction and Testing Recommendations for Pavement Areas

Location	Material	Density Test Method	Soil Type	Percent Compaction	Optimum Moisture Content	Testing Frequency
Pavement Areas	Subgrade, General Fill Soil, Low PI Material	Tex-114-E	PI ≥ 25	94% to 98%	0 to +4%	1 per 10,000 SF; min. 3 tests
			PI < 25	≥ 95%	0 to +4%	
	Flexible Base Material	TEX-113-E	COSA Item 200	≥ 95%	±3%	1 per 5,000 SF; min. 3 per lift
				≥ 100%	±2%	

3.2.3 Chemical Attack Potential for Degradation of Lime Treated Subgrade

The concentration of water-soluble sulfates is considered to be a good indicator of the potential chemical attack on concrete and adverse reaction with lime. Based on the TxDOT San Antonio District Pavement Design Standards Operating Procedure (effective since September 1, 2022) the amount of water-soluble sulfate in soil can be used to evaluate ability to employ lime as chemical stabilizer for treatment of subgrade.

Table 3.8: Level of Sulfates for Treatment Option

Water Soluble Sulfate in soil (ppm)	Level of Sulfates
< 3000 PPM	Low
3000 - 7000	Moderate
>7000	High

The result of the laboratory sulfate ion concentration test performed on a soil sample obtained at the site is as follows.

Table 3.9: Sulfate Test Results

Boring Locations	Depth (ft)	Sulfate Content (ppm)
B - 01	0 – 1.5	< 100

Based on the test result of the selected soil sample, the sulfate ion concentration is approximately less than 100 ppm and the potential for reactions within lime exposed to sulfates is low. Evaluations of soluble sulfate content contained within the selected samples suggest lime treatment is applicable. The actual verification of sulfate content be determined at the time of construction by TEX-145-E procedure.

Table 3.5: Flexible Pavement Section Options (Geogrid)

Material	Thicknesses			
Traffic Type	Local Type A without bus traffic	Local Type A with bus traffic	Collector and Local Type B	Arterial
Design Traffic Load, ESALs	100,000	1,000,000	2,000,000	3,000,000
Hot Mix Asphaltic Concrete Type D	1.5 inches	2.5 inches	3 inches	3.5 inches
Import Flexible Base	6 inches	8 inches	9 inches	11 inches
Geogrid[1]	Yes			
Compacted Subgrade[2]	6 inches			

1. Tensar+ Geogrid HX145 or equivalent for Local Type A, Collector and Local Type B. Tensar+ HX5.5 or equivalent for Arterial Streets.
2. Lime treatment of subgrade to a depth of 6-inches will be required for subgrade with a PI greater than 20. Treatment will require application rate of about 17.0 pounds per square yard for 6-inches of treatment. The actual application rate should be determined at the time of construction from a lime series test on the blended native subgrade soils at the final subgrade elevation.

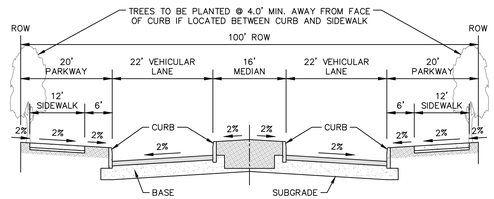
3.2.2 General Pavement Design and Construction Recommendations

Table 3.6: Pavement Design and Construction Recommendations

Minimum Undercut Depth	6 inches or as needed to remove roots
Reuse Excavated Soils	Must be free of roots and debris and meet material requirements of intended use
Exposed Subgrade Treatment	**Proof-roll subgrade with rubber-tired vehicle weighing at least 20 tons. A representative of the Geotechnical Engineer should be present during proof-roll.**
Proof-Rolled Pumping and Rutting Areas	Excavate to firmer materials and replace with compacted general or select fill under direction of a representative of the Geotechnical Engineer
General Fill	Materials free of roots, debris, and other deleterious materials with a maximum rock size of 4 inches with a CBR greater than 3
Minimum General Fill Thickness	As required to achieve grade
Maximum General Fill Loose Lift Thickness	9 Inches
Lime Treatment	The lime treatment, if needed, is to be performed in general accordance with COSA Item 108. Subgrade stabilized with lime should achieve a pH of 12.4 or greater.
Flexible Base	COSA Item 200
Maximum Flexible Base Loose Lift Thickness	6 Inches
Hot Mix Asphaltic Concrete	COSA Item 205 Type D

PAVEMENT SECTION DETAIL

STREET NAME	STATION	TYPE "D" HMAC	CRUSHED LIMESTONE BASE	LIME STABILIZED SUBGRADE	GEOGRID (TENSAR TRIAX TX5)	CBR
GUAJOLOTE RANCH	1+00.00 TO END	4"	12"	6"	NO	7



100' COLLECTOR STREET SECTION
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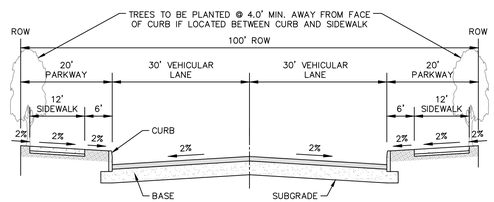

100' COLLECTOR STREET SECTION - NO MEDIAN
NOT–TO–SCALE

NO. REVISION DATE

12/15/25

STATE OF TEXAS
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TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

STREET DETAILS
SHEET 1 OF 4

PLAT NO. 25-11800226
JOB NO. 12356–10
DATE DECEMBER 2025
DESIGNER IA
CHECKED bb DRAWN JQ
SHEET C2.10

Date: Dec 15, 2025, 4:25pm User ID: Jvazquez
File: P:\123\56\10\Design\Civil\STD? 1235610.dwg

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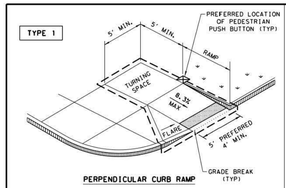

PERPENDICULAR CURB RAMP

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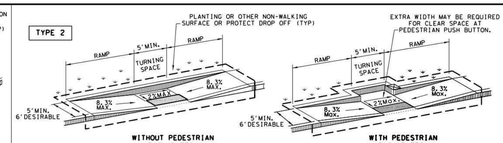

WITHOUT PEDESTRIAN PUSH BUTTON

WITH PEDESTRIAN PUSH BUTTON

PARALLEL CURB RAMP

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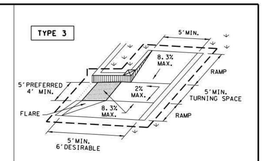

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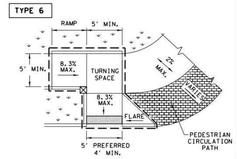
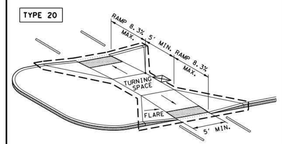


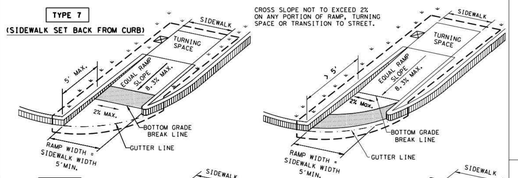
COMBINATION CURB RAMPS

TYPE 20

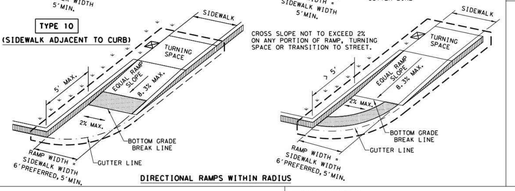


CURB RAMPS AT MEDIAN ISLANDS

TYPE 7
(SIDEWALK SET BACK FROM CURB)

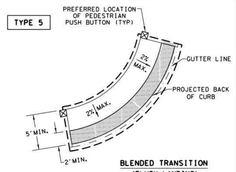


TYPE 10
(SIDEWALK ADJACENT TO CURB)



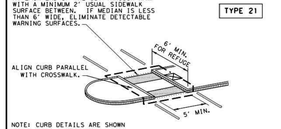
DIRECTIONAL RAMPS WITHIN RADIUS

TYPE 5



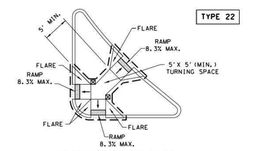
BLENDED TRANSITION (FLUSH LANDING)

TYPE 21

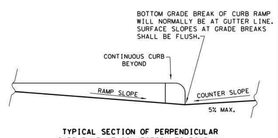


NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	CK:	DW: VP	CK: KM	CK: PK & JG
©TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS: REVISED 08.2005, REVISED 05.2010, REVISED 07.2014	DIST	COUNTY			SHEET NO.

GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5'x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5'x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4'x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5'x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

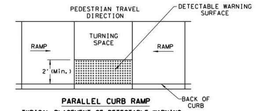
DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

SIDEWALKS

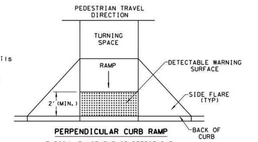
27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

DETECTABLE WARNING SURFACE DETAILS



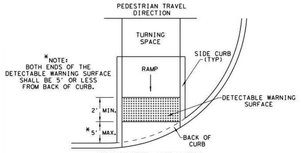
PARALLEL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



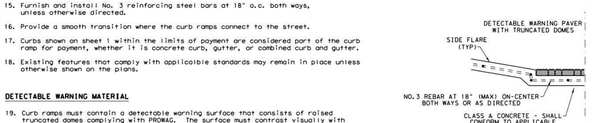
PERPENDICULAR CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

SHEET 2 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	CK:	DW: VP	CK: KM	CK: PK & JG
©TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS: REVISED 08.2005, REVISED 05.2010, REVISED 07.2014	DIST	COUNTY			SHEET NO.

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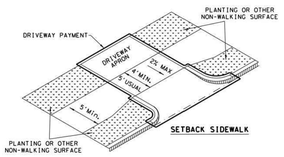
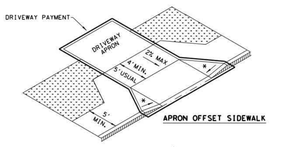
DATE:
FILE:

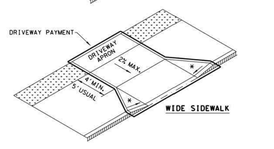
SIDEWALK TREATMENT AT DRIVEWAYS



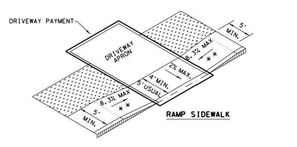
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



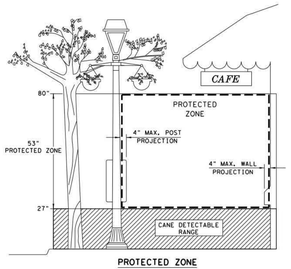
WIDE SIDEWALK



RAMP SIDEWALK

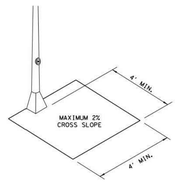
NOTES:
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

** IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%, HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.

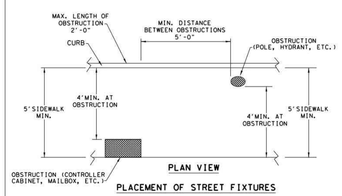


PROTECTED ZONE

NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



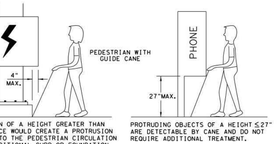
CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



PLAN VIEW

PLACEMENT OF STREET FIXTURES

NOTE: ITEMS NOT INTENDED FOR PUBLIC USE, MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



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"

SHEET 3 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

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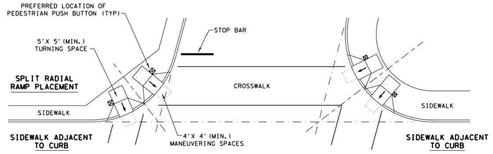
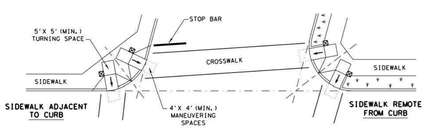
DATE:
FILE:

TYPICAL CROSSING LAYOUTS

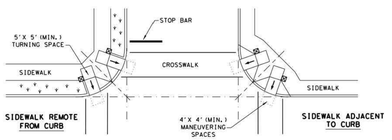
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



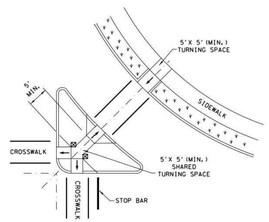
SKEWED INTERSECTION WITH "LARGE" RADIUS



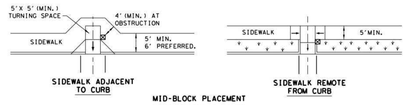
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

LEGEND:

SHOWS DOWNWARD SLOPE.

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE).

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

SHEET 4 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

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NO.	REVISION	DATE

12/15/25

STATE OF TEXAS
ADAM J. RADEMACHER
102345
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

STREET DETAILS
SHEET 2 OF 4

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AR DRAWN JQ
SHEET C2.20

Date: Dec 15, 2025, 4:25pm User ID: Jvazquez
File: P:\123\56\10\Design\Civil\STD\ 1235610.dwg

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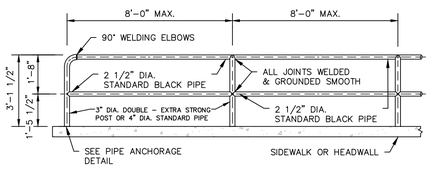
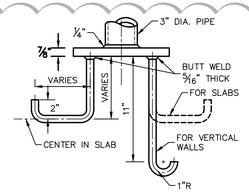
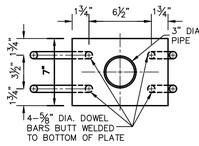


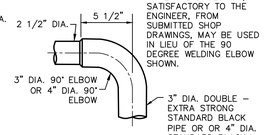
NOTES:
1. FOR CONSTRUCTION WITHIN THE CITY OF SAN ANTONIO ETJ AND/OR BEXAR COUNTY, PIPE SHALL BE STANDARD BLACK PIPE PAINTED WITH 1 COAT OF READ PRIMER AND 2 COATS OF ALUMINUM PAINT

PIPE RAILING DETAIL
NOT-TO-SCALE



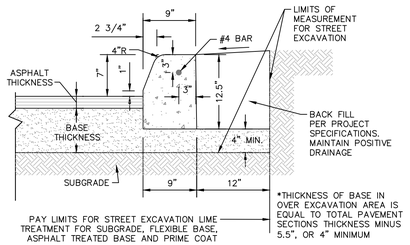


PIPE ANCHORAGE DETAIL
NOT-TO-SCALE



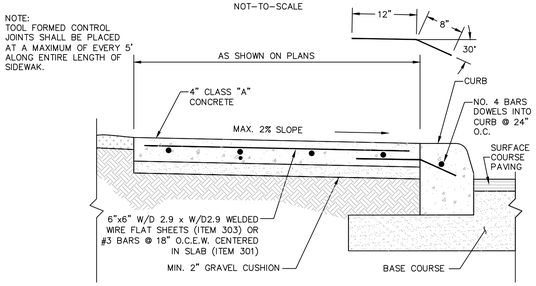
* A NEAT END SECTION, SATISFACTORY TO THE ENGINEER, FROM SUBMITTED SHOP DRAWINGS, MAY BE USED IN LIEU OF THE 90 DEGREE WELDING ELBOW SHOWN.

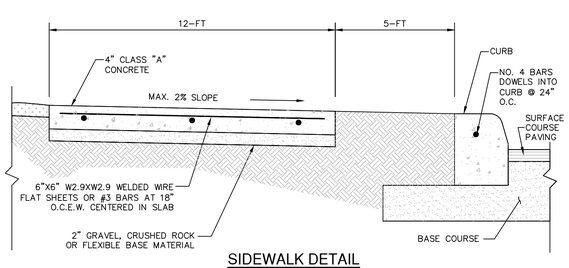
90° WELDING ELBOWS DETAIL
NOT-TO-SCALE



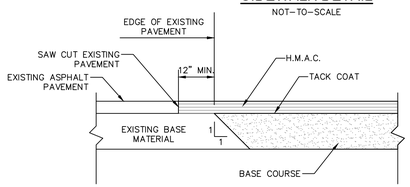
CONCRETE CURB DETAIL
NOT-TO-SCALE

NOTE:
TOOL FORMED CONTROL JOINTS SHALL BE PLACED AT A MAXIMUM OF EVERY 5' ALONG ENTIRE LENGTH OF SIDEWAK.

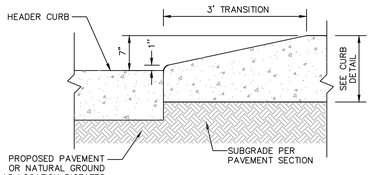




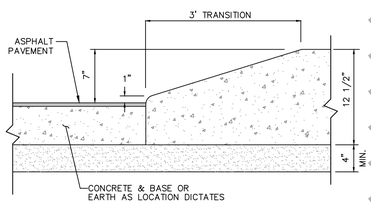
SIDEWALK DETAIL
NOT-TO-SCALE



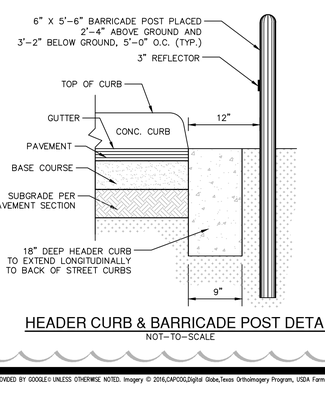
ASPHALT/ASPHALT JUNCTURE DETAIL
NOT-TO-SCALE



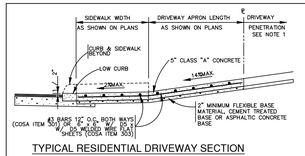
CURB TRANSITION DETAIL (FROM HEADER CURB TO STANDARD CURB)
NOT-TO-SCALE



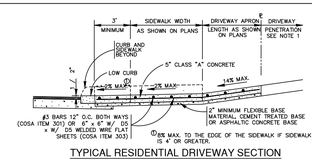
CURB TRANSITION DETAIL (FROM PAVEMENT TO STANDARD CURB)
NOT-TO-SCALE



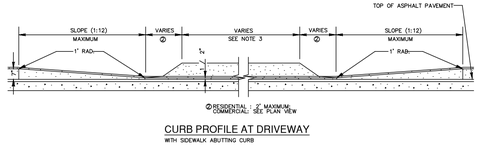
HEADER CURB & BARRICADE POST DETAIL
NOT-TO-SCALE



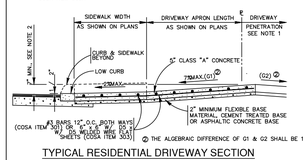
TYPICAL RESIDENTIAL DRIVEWAY SECTION
WITH SIDEWALK ABUTTING CURB
COSA ITEM 503.1



TYPICAL RESIDENTIAL DRIVEWAY SECTION
WITH SIDEWALK SEPARATED FROM CURB
COSA ITEM 503.1

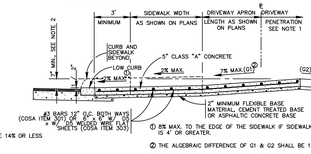


CURB PROFILE AT DRIVEWAY
WITH SIDEWALK ABUTTING CURB



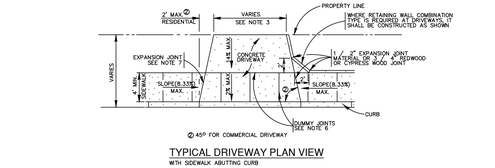
TYPICAL RESIDENTIAL DRIVEWAY SECTION
WITH SIDEWALK ABUTTING CURB
COSA ITEM 503.1

① THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

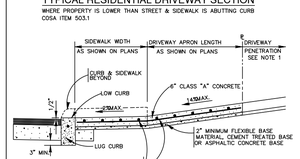


TYPICAL RESIDENTIAL DRIVEWAY SECTION
WITH SIDEWALK SEPARATED FROM CURB
COSA ITEM 503.1

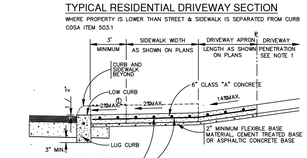
① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.
② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS



CURB PROFILE AT DRIVEWAY
WITH SIDEWALK ABUTTING CURB

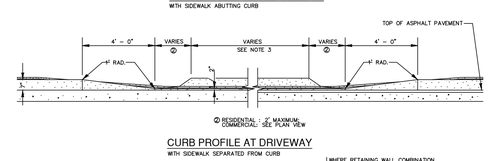


TYPICAL COMMERCIAL DRIVEWAY SECTION
WITH SIDEWALK ABUTTING CURB
COSA ITEM 503.2

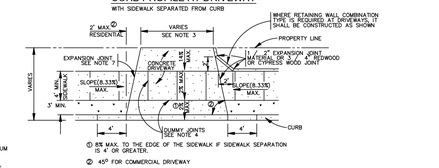


TYPICAL COMMERCIAL DRIVEWAY SECTION
WITH SIDEWALK SEPARATED FROM CURB
COSA ITEM 503.2

① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.



CURB PROFILE AT DRIVEWAY
WITH SIDEWALK SEPARATED FROM CURB



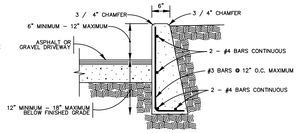
TYPICAL DRIVEWAY PLAN VIEW
WITH SIDEWALK SEPARATED FROM CURB

CONCRETE DRIVEWAY NOTES

1. DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT MAY BE NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY WITH A MAXIMUM DRIVEWAY SLOPE. THIS PORTION OF THE DRIVEWAY SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS AS MAY APPLY:
   A.) CONCRETE DRIVEWAY PAD FOR UNDER ITEM NO. 503.1 OR 503.2.
   B.) ASPHALTIC CONCRETE DRIVEWAY PAD FOR UNDER COSA ITEM NO. 503.4 AND SHALL INCLUDE A MINIMUM OF 1" ASPHALT TYPE 'D' & 6" FLEXIBLE BASE
   C.) GRAVEL DRIVEWAY PAD FOR UNDER ITEM NO. 503.5 AND SHALL INCLUDE A MINIMUM OF 6" FLEXIBLE BASE
2. 7" MINIMUM HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE. IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY PENETRATION ON PRIVATE PROPERTY.
3. THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE COUNTY ENGINEER, THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

TYPE	MAXIMUM
RESIDENTIAL (UP TO 2 CAR GARAGE)	20'
RESIDENTIAL (MORE THAN 2 CAR GARAGE)	28'
COMMERCIAL	40'
INDUSTRIAL	40'

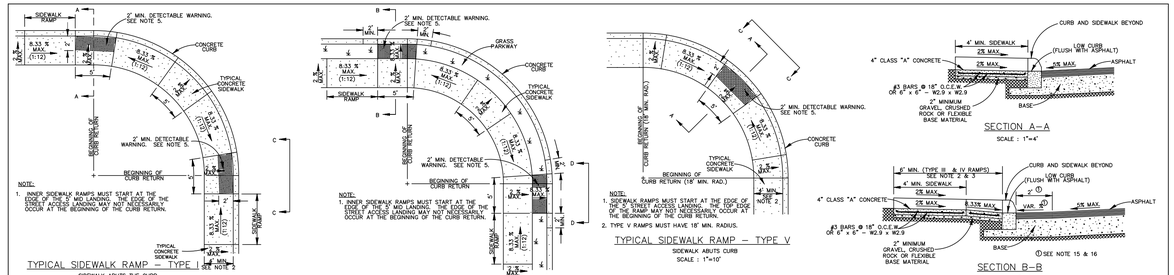
4. DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY. DUMMY JOINTS PERPENDICULAR TO THE CURB, AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS, SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
5. A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3 /8" IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT.
6. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% MAXIMUM SLOPE. WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%
7. SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.



NOTE:
1. COST OF REINFORCEMENT TO BE INCLUDED IN UNIT COST OF COSA ITEM 307.1.
2. CONCRETE RETAINING WALL COMBINATION TYPE SHALL BE USED FOR CONCRETE DRIVEWAYS.

DRIVEWAY - CONCRETE RETAINING WALL
ON COMPACTED SUBGRADE
COSA ITEM 307.1

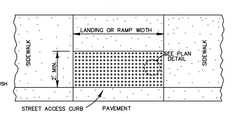
BEXAR COUNTY
CONCRETE DRIVEWAY STANDARDS
DATE: FEBRUARY 2024



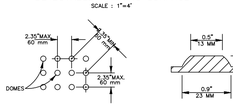
NOTE:
1. INNER SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' MID LANDING. THE EDGE OF THE STREET ACCESS LANDING MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.
2. TYPE V RAMPS MUST HAVE 18' MIN. RADIUS.

GENERAL NOTES

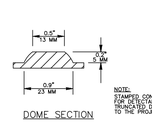
1. WHEN POSSIBLE SIDEWALKS SHOULD BE PLACED NEXT TO THE PROPERTY LINE, ALLOWING A MINIMUM OF 1 FOOT BUFFER. DEVIATION OF THE PATHWAY FROM A STRAIGHT LINE IS ENCOURAGED TO AVOID TREES OR OTHER OBSTRUCTIONS.
2. FOR LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4', AND 6' SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 7' FROM THE BACK OF CURB.
3. FOR OTHER THAN LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND SEPARATED A MINIMUM OF 5' FROM THE BACK OF CURB OR AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
4. SIDEWALK RAMP LENGTHS PRESENTED IN TABLE 1 ARE GUIDELINES ONLY. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE.
5. ALL CURB-RAMPS OR LANDINGS ABUTTING THE CROSSWALK SHALL HAVE A DETECTABLE WARNING 24 INCHES DEEP ON THE DIRECTION OF PEDESTRIAN TRAVEL AND EXTENDING THE FULL WIDTH OF THE CURB RAMP OR LANDING. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES IN A SQUARE GRID PATTERN WITH A DIAMETER OF A NOMINAL 0.9 INCHES (23 MM), A HEIGHT OF NOMINAL 0.2 INCHES (5 MM) AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCHES (60 MM). THE DETECTABLE WARNING SURFACE SHALL BE PAVERS CONFORMING TO TXDOT STANDARD PED-18, PEDESTRIAN FACILITIES.
6. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
7. SIDEWALK RAMP TYPE V SHALL BE USED ONLY WHERE THERE IS SIGNIFICANT RESTRICTION WITHIN THE PARKWAY TO CONSTRUCT TYPE I OR TYPE III RAMPS.
8. CONSTRUCTION OF ALL WHEELCHAIR RAMPS TO BE INCLUDED UNDER ITEMS "500 – CONCRETE CURB, GUTTER, AND CONCRETE CURB AND GUTTER" AND / OR "502 – CONCRETE SIDEWALKS". RAMP SURFACE SHALL BE BRUSH FINISHED.
9. THESE DETAILS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS OF WHEELCHAIR RAMPS TO BE SHOWN ON CONSTRUCTION PLANS. CITY CONSTRUCTION INSPECTOR CAN ADJUST LOCATIONS FOR SAFETY OR UTILITY CLEARANCE.
10. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.
11. WHEELCHAIR RAMP SHALL BE CONSTRUCTED WITH 4" CLASS "A" CONCRETE AND 2" MINIMUM GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL.
12. REINFORCING STEEL SHALL BE #3 BARS AT 18" O.C.E.W. OR 6" x 6" – W2.9 x W2.9 WIRE MESH.
13. SIDEWALK GRADES SHALL NOT EXCEED THE GRADE ESTABLISHED FOR THE ADJACENT ROADWAY. ANY SIDEWALK CONSTRUCTION THAT DEVIATES FROM THE NATURAL GRADE OF THE ROADWAY TO CREATE A GRADE STEEPER THAN THE EXISTING ROADWAY WILL REQUIRE RAMPS, HANDRAILS AND RESTING PLATFORMS TO BE CONSTRUCTED IN ACCORDANCE WITH ADA AND TAS STANDARDS.
14. SIDEWALK CROSS GRADE SHALL HAVE A MAXIMUM SLOPE OF 2%. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
15. THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES SHALL BE LESS THAN 11%. THE CHANGE OF GRADE SHALL BE DEFINED AS THE ALGEBRAIC DIFFERENCE OF THE ADJACENT SURFACE SLOPES. IN THE CASE OF A SHALLOW SLOPE LESS THAN 2% (E.G. 1.5% MAXIMUM SLOPE), THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN 2.67% (I.E. 4.2% – 1.67%=11). IN ADDITION, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 5%.
16. IF THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES IS GREATER THAN OR EQUAL TO 11%, A LEVELING STRIP, 2 FEET IN LENGTH, SHALL BE PROVIDED TO TRANSITION THE ADJACENT SURFACES.
17. ADA COMPLIANCE IN ALTERATIONS INCLUDE ONLY THAT WORK WITHIN THE LIMITS, BOUNDARIES OR SCOPE



DETECTABLE WARNING SURFACE
SCALE : 1"=4"

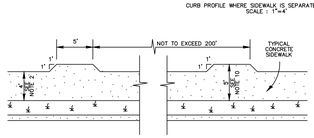


PLAN DETAIL



DOME SECTION

NOTE:
STAMPED CONCRETE TRUNCATED DOMES WILL NOT BE ALLOWED TO BE USED FOR DETECTABLE WARNING ON WHEELCHAIR RAMPS. CONTRACTOR MUST SUBMIT TRUNCATED DOME INFORMATION THAT IS TO BE USED ON WHEELCHAIR RAMPS TO THE PROJECT MANAGER FOR APPROVAL AT LEAST 30 DAYS PRIOR TO INSTALLATION.



SIDEWALK PASSING SPACE
SCALE : 1"=10'

TABLE 1
(SEE NOTE 4)

GUTTER SLOPE	SIDEWALK RAMP LENGTH (1:12)	
	LOW SIDE	HIGH SIDE
1%	5'-6"	7'-2"
2%	5'-0"	8'-4"
3%	4'-6"	10'-0"
4%	4'-2"	12'-4"
5%	3'-10"	16'-8"

MAY 2009
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT
WHEELCHAIR RAMP STANDARDS
PROJECT NO.: DATE:
DSGN BY: CHKD. BY: R.S. HOSSERLI, P.E. SHEET NO.: OF

NO.	REVISION	DATE
1	ADDED DETAILS	12/30/25

12/30/25

ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

STREET DETAILS
SHEET 3 OF 4

PLAT NO.	25-11800226
JOB NO.	12356-10
DATE	DECEMBER 2025
DESIGNER	IA
CHECKED	BB
DRAWN	JQ
SHEET	C2.30

Date: Dec. 30, 2025, 3:19pm User ID: BBracezele
File: P:\123\56\10\Design\Civil\STDT 123561 0.dwg

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DISCLAIMER:
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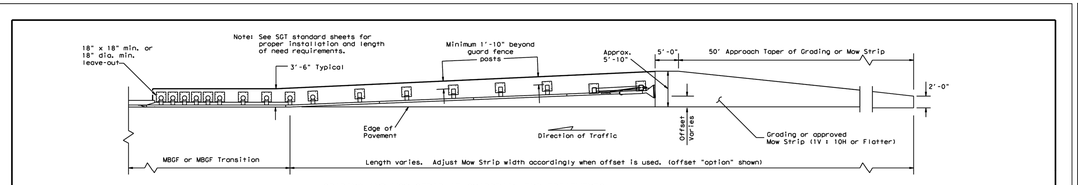
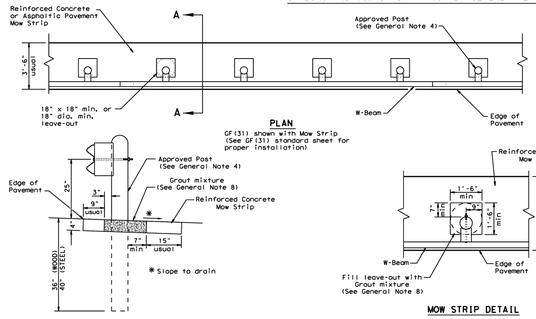


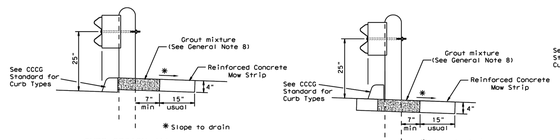
GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS

Notes Site Condition(s)

Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.

Approach grading or mow strip may be decreased or eliminated, as directed by the Engineer.





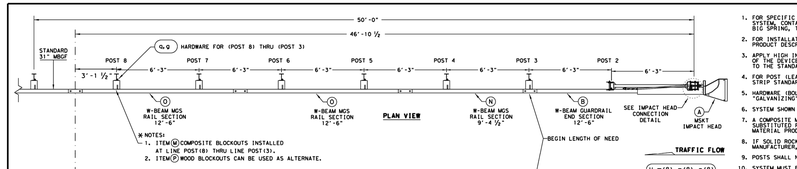
Texas Department of Transportation — Design Division Standard

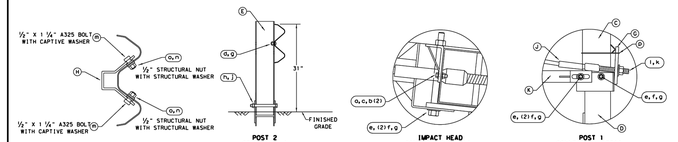
METAL BEAM GUARD FENCE (MOW STRIP) TL-3 MASH COMPLIANT

GF(31)MS-19

FILE: gf31ms19_dgn	DN:TxDOT	CK:KM	DW:VP	CK:CCL/AG
©TxDOT: NOVEMBER 2019 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

DATE: 12/30/25





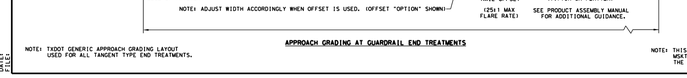
ITEM	QTY	MAIN SYSTEM COMPONENTS	ITEM NUMBERS
A	1	MSKT IMPACT HEAD	M53000
B	1	W-BEAM GUARDRAIL END SECTION, 12' Go.	SF1300
C	1	POST 1 - TOP (6" X 8" X ⅜" TUBE)	M7PHP1A
D	1	POST 1 - BOTTOM (6" WSX15)	M7PHP1B
E	1	POST 2 - ASSEMBLY TOP	LMP2A
F	1	POST 2 - ASSEMBLY BOTTOM (6" WSX9)	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	GROUND STRUT	M5785
L	6	WSX9 OR W6X8.5 STEEL POST	P621
M	6	COMPOSITE BLOCKOUTS	CBSP-14
N	1	W-BEAM MGS RAIL SECTION (9'-4 ½")	G12025
P	1	W-BEAM MGS RAIL SECTION (12'-6")	G12034
P	6	WOOD BLOCKOUT 6" X 8" X 14"	P675
Q	1	W-BEAM MGS RAIL SECTION (25'-0")	G1209
SMALL HARDWARE			
a	2	⅝" x 1" HEX BOLT (GRD 5)	B5160104A
b	4	⅝" WASHER	M0516
c	2	⅝" HEX NUT	N0516
d	25	⅝" Dia. x 1 ¼" SPLICE BOLT (POST 2)	B5801.22
e	2	⅝" Dia. x 9" HEX BOLT (GRD A449)	B5809044
f	3	⅝" WASHER	W050
g	33	⅝" Dia. H.G.R NUT	N050
h	1	⅞" Dia. x 8 ½" HEX BOLT (GRD A449)	B340854A
j	1	¾" Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	½" x 1 ¼" A325 BOLT WITH CAPTIVE WASHER	S8124
n	8	½" STRUCTURAL NUTS	N0124
o	8	1 ¼" O.D. x ⅝" I.D. STRUCTURAL WASHERS	W0124
D	1	BEARING PLATE RETAINER TIE	C7-100ST
Q	6	⅝" x 10" H.G.R. BOLT	B5810.02
r	1	OBJECT MARKER 18" X 18"	E3151

ALTERNATIVE ITEMS NOT SHOWN: ※ ※ ※ ITEM(P) 8" WOOD-BLOCKOUT ※※ ITEM(Q) 25'GUARD FENCE PANEL

SEE NOTES ※

GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: ROAD SYSTEMS, INC. (432)263-2435. 3616 OLD HOWARD COUNTY AIRPORT, BIG SPRING, TX 79720
2. FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE: MSKT END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL (PUBLICATION-062717).
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE END TERMINAL IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
6. SYSTEM SHOWN USING STEEL WIDE FLANGE POSTS WITH COMPOSITE BLOCKOUTS.
7. A COMPOSITE MATERIAL BLOCKOUTS THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS OF SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
8. IF SOLID ROCK IS ENCOUNTERED IN THE AREA OF (POST 1) AND / OR (POST 2) CONTACT THE MANUFACTURER, & REFER TO THE LATEST ROADWAY MSKT STANDARD FOR INSTALLATION GUIDANCE.
9. POSTS SHALL NOT BE SET IN CONCRETE.
10. SYSTEM MUST BE ATTACHED TO STANDARD 31" MBGF.
11. UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE MSKT SYSTEM BE CURVED.
12. A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCROACHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.
13. THE SYSTEM IS SHOWN WITH TWO 12'-6" MBGF PANELS, ONE 25'-0" MBGF PANEL IS ALSO ALLOWED IN THE SYSTEM.
14. A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POSTS 3-8 TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST. SPECIAL DRIVING CAP TO BE USED ON LOWER POSTS 1 & 2 TO PREVENT DAMAGE TO THE WELDED PLATES.



APPROACH GRADING AT GUARDRAIL END TREATMENTS

NOTE: TXDOT GENERIC APPROACH GRADING LAYOUT USED FOR ALL TANGENT TYPE END TREATMENTS.

NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE MSKT END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Texas Department of Transportation — Design Division Standard

SINGLE GUARDRAIL TERMINAL MSKT-MASH-TL-3

SGT(12S)31-18

FILE: sgt12s3118_dgn	DN:TxDOT	CK:KM	DW:VP	CK:CCL/AG
©TxDOT: APRIL 2018 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

NO.	REVISION	DATE
1	REPLACED DETAILS	12/30/25

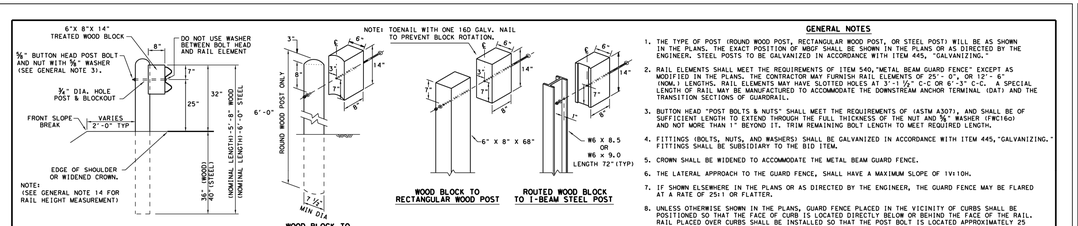
12/30/25
STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

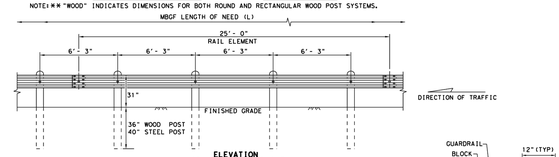
GUAJOLOTE RANCH COLLECTOR PHASE 1

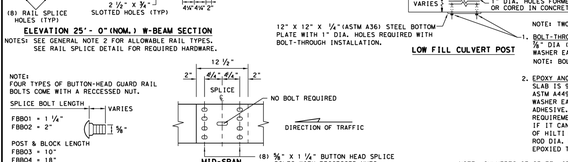
BEXAR COUNTY, TEXAS

STREET DETAILS
SHEET 4 OF 4

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.

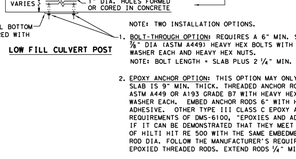






GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540,"METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'- 0", OR 12'- 6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 ½" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND ⅜" WASHER (FWC16G) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445,"GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210,"COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13. FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
14. GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL. MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.



NOTE: TRANSISTIONS TO BRIDGE RAILS OR TRAFFIC BARRIERS. SEE GF(31)TL3 TR STANDARD FOR HIGH-SPEED TL-3 TRANSITIONS. SEE GF(31)TL2 TR STANDARD FOR LOW-SPEED TL-2 TRANSITIONS.

NOTE: TWO INSTALLATION OPTIONS.

1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. ⅝" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS. NOTE: BOLT LENGTH = SLAB PLUS 2 ¼" MIN.
2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE ¾" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS ½" MIN. BEYOND NUT.

NOTE: CULVERTS OF 25 FT. OR LESS, SEE GF(31)LS STANDARD FOR "LONG SPAN" OPTION.

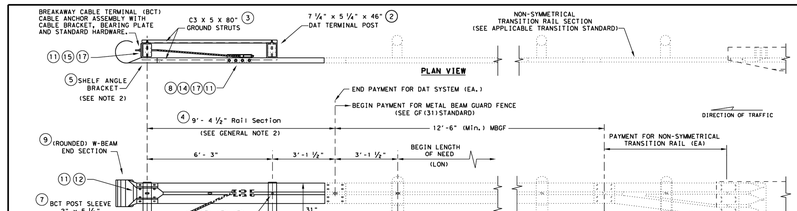
Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE TL-3 MASH COMPLIANT

GF(31)-19

FILE: gf3119_dgn	DN:TxDOT	CK:KM	DW:VP	CK:CCL/AG
©TxDOT: NOVEMBER 2019 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

DATE: 12/30/25



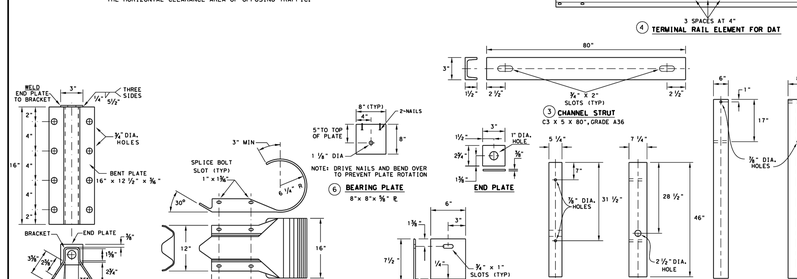
GENERAL NOTES

1. THE DETAIL SHOWN IS THE MINIMUM LENGTH OF NEED (LON) FOR A DOWNSTREAM ANCHOR TERMINAL (DAT) CONNECTED TO A CONCRETE RAIL.
2. THE RAIL SECTION AT THE END POST IS SUPPORTED BY THE SHELF ANGLE BRACKET. THE RAIL ELEMENT IS NOT ATTACHED TO THE END POST.
3. THE FOUNDATION TUBES SHALL NOT PROJECT MORE THAN 3 ¾" ABOVE THE FINISHED GRADE.
4. ALL HARDWARE FOR DAT SHALL BE ASTM A307 UNLESS OTHERWISE SHOWN.
5. REFER TO GF(31) SHEET FOR TERMINAL CONNECTION DETAILS.

MOW STRIP INSTALLATION

IF A MOW STRIP IS REQUIRED WITH THE DAT INSTALLATION, THE LEAVE-OUT AREA AROUND THE STEEL FOUNDATION TUBES AND THE TWO CHANNEL STRUTS MAY BE OMITTED. THIS WILL REQUIRE A FULL POUR AT THE FOUNDATION TUBES.

#	(DAT) PARTS LIST	QTY
1	STEEL FOUNDATION TUBE	2
2	DAT TERMINAL POST	2
3	CHANNEL STRUT	2
4	TERMINAL RAIL ELEMENT	1
5	SHELF ANGLE BRACKET	1
6	BCT BEARING PLATE	1
7	BCT POST SLEEVE	1
8	GUARDRAIL ANCHOR BRACKET	1
9	(ROUNDED)W-BEAM END SECTION	1
10	BCT CABLE ANCHOR	1
11	RECESSED NUT, GUARDRAIL	20
12	1 ¼" BUTTON HEAD BOLT	4
13	10" BUTTON HEAD BOLT	2
14	⅝" X 2" HEX HEAD BOLT	8
15	⅝" X 8" HEX HEAD BOLT	4
16	⅝" X 10" HEX HEAD BOLT	2
17	⅝" FLAT WASHER	18



Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE (DOWNSTREAM ANCHOR TERMINAL) TL-3 MASH COMPLIANT

GF(31)DAT-19

FILE: gf31dat19_dgn	DN:TxDOT	CK:KM	DW:VP	CK:CCL/AG
©TxDOT: NOVEMBER 2019 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.

DATE: 12/30/25

PLAT NO.	25-11800226
JOB NO.	12356-10
DATE	DECEMBER 2025
DESIGNER	IA
CHECKED	BB DRAWN JQ
SHEET	C2.40

Date: Dec. 30, 2025, 3:20pm User ID: BBreazeale
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BEXAR COUNTY ROW NOTES:

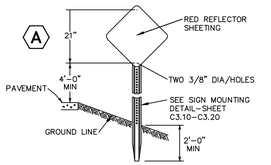
A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.

DRIVEWAY NOTE:

DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.

TRENCH EXCAVATION SAFETY PROTECTION:

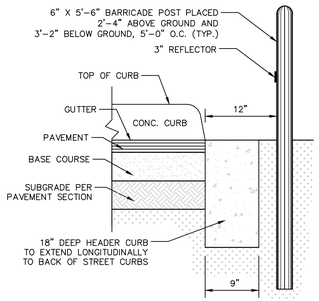
CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.



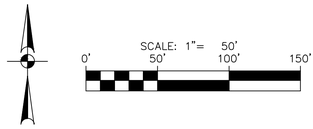
UNITS MOUNTED ON 0.080" THICK SHEET ALUMINUM CONFORMING WITH ASTM B-209 ALLOY 6061-T6.

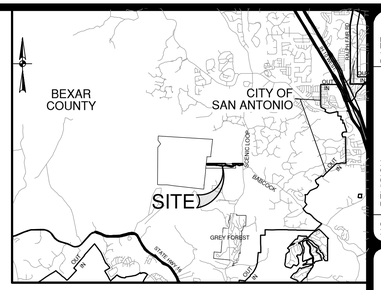
TYPE 4 OM4-3
18" x 18"

OBJECT MARKER TYPE 4
NOT-TO-SCALE



HEADER CURB & BARRICADE POST DETAIL
NOT-TO-SCALE

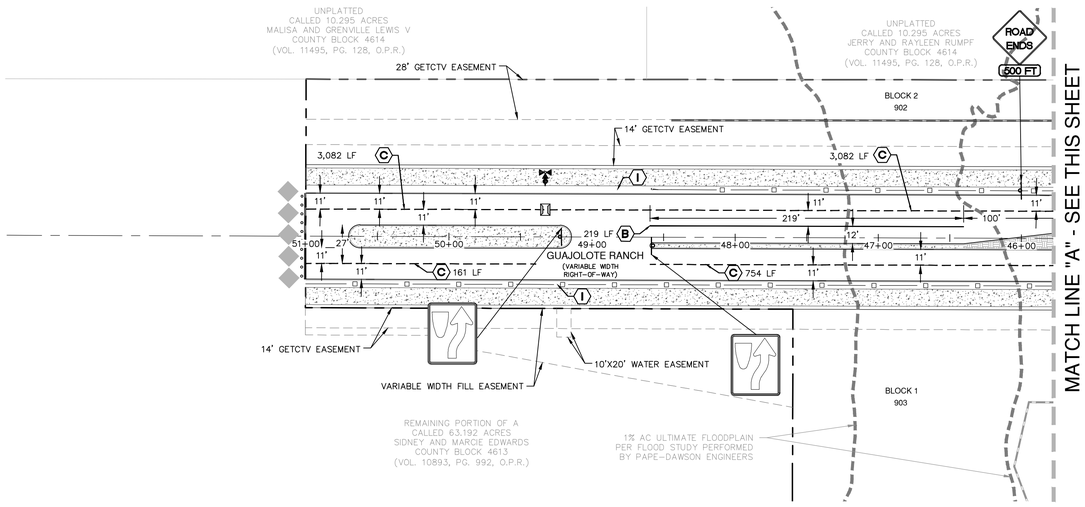


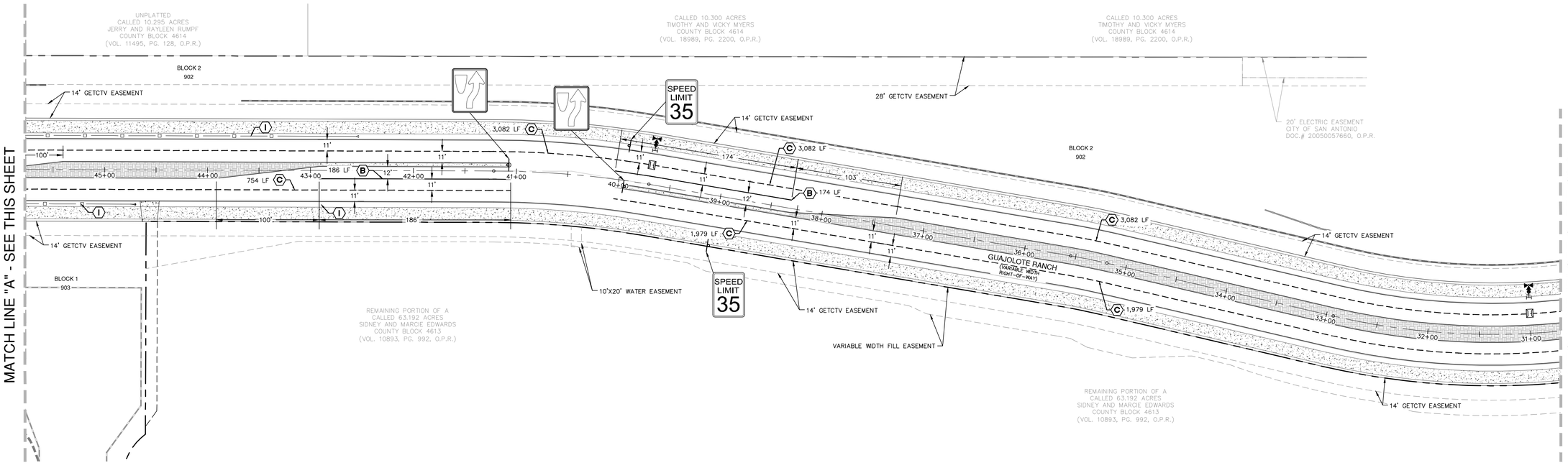


LOCATION MAP
SCALE: NTS

SYMBOL		ITEM NUMBER
	UNIT BOUNDARY	
	SIDEWALK (SITEWORK CONTRACTOR RESPONSIBILITY)	
	TYPE II BLUE RAISED PAVEMENT MARKERS – NO SEPARATE PAY ITEM (N.T.S.)	
	END OF ROAD MARKER OM4-3	
	HEADER CURB W/ BARRICADE POSTS	
WCR	WHEELCHAIR RAMP	
Street Name	STREET SIGN	531.57
ROAD ENDS / 500 FT	W14-1T	
ROAD ENDS / 500 FT	W16-2aP	

SYMBOL		ITEM NUMBER
STOP	R1-1 (30"X30")	531.3
SPEED LIMIT 35	R2-1 (30"X36")	531.6
	R4-7 24"X30" / R4-7C 18"X30"	531.17
(B)	WHITE 8" SOLID LINE – THERMOPLASTIC WITH TYPE II C-R RPMS (962 LF)	
(C)	WHITE 6" BROKEN LINE –THERMOPLASTIC WITH TYPE II C-R RPMS (8,710 LF)	
(D)	WHITE LEFT, RIGHT OR STRIAGHT ARROW STANDARD PAVEMENT MARKING – THERMOPLASTIC	
(E)	WHITE 24" STOP BAR – THERMOPLASTIC (44 LF)	
(F)	WHITE 24" CROSSWALK – THERMOPLASTIC (170 LF TOTAL)	
(G)	YELLOW 8" SOLID LINES PAINTED AROUND PERIMETER WITH 24" SOLID DIAGONAL YELLOW LINES STRIPED IN THE PATTERN SHOWN WITH TEMPORARY WORK ZONE PAINT (LANE CLOSURES ARE A TEMPORARY CONDITION)	
(H)	WHITE "ONLY" STANDARD PAVEMENT MARKING – THERMOPLASTIC	
(I)	PROPOSED GUARD RAIL (REF. SHEETS C11.00 – C11.02 FOR LENGTHS)	





NO.	REVISION	DATE
1	REVISED STRIPING	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

OVERALL SIGNAGE PLAN
SHEET 1 OF 2

PLAT NO.	25-11800226
JOB NO.	12356-10
DATE	DECEMBER 2025
DESIGNER	IA
CHECKED	DRAWN JQ
SHEET	C3.00

Date: Dec 23, 2025, 2:16pm User ID: rherbert
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CALLED 11.272 ACRES
ROBERT AND SUSAN
DICKERSON
(VOL. 11495, PG. 942, O.P.R.)

20' ELECTRIC EASEMENT
CITY OF SAN ANTONIO
DOC.# 20050057660, O.P.R.

REMAINING PORTION OF A
CALLED 63.192 ACRES
SIDNEY AND MARCIE EDWARDS
COUNTY BLOCK 4613
(VOL. 10893, PG. 992, O.P.R.)

MATCH LINE "B" SEE SHEET C3.00

BLOCK 2
902

SPEED LIMIT 35

3,082 LF (C)

1,979 LF (C)

10'X20' WATER EASEMENT

14' GETCTV EASEMENT

VARIABLE WIDTH FILL EASEMENT

GUAJOLOTE RANCH
(VARIABLE WIDTH RIGHT-OF-WAY)

LD 87.690°

190 LF (B)

1,697 LF (C)

507 LF (C)

MATCH LINE "C" - SEE THIS SHEET

SYMBOL		ITEM NUMBER
	UNIT BOUNDARY	
	SIDEWALK (SITEWORK CONTRACTOR RESPONSIBILITY)	
	TYPE II BLUE RAISED PAVEMENT MARKERS – NO SEPARATE PAY ITEM (N.T.S.)	
	END OF ROAD MARKER OM4-3	
	HEADER CURB W/ BARRICADE POSTS	
WCR	WHEELCHAIR RAMP	
Street Name	STREET SIGN	531.57
ROAD ENDS / 500 FT	W14-1T / W16-2aP	

SYMBOL		ITEM NUMBER
STOP	R1-1 (30"X30")	531.3
SPEED LIMIT 35	R2-1 (30"X36")	531.6
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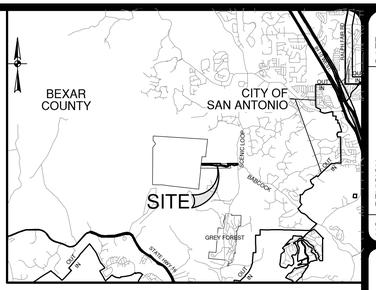
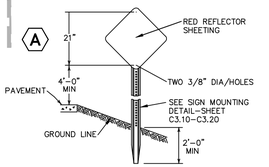
(H)	WHITE "ONLY" STANDARD PAVEMENT MARKING – THERMOPLASTIC	
(I)	PROPOSED GUARD RAIL (REF. SHEETS C11.00 – C11.02 FOR LENGTHS)	



LOCATION MAP
SCALE: NTS

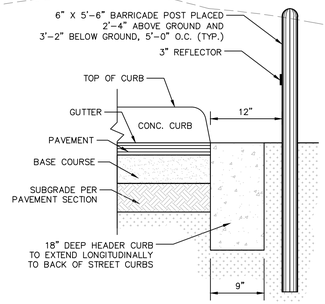
SCALE: 1"= 50'
0' 50' 100' 150'



UNITS MOUNTED ON 0.080" THICK SHEET ALUMINUM CONFORMING WITH ASTM B-209 ALLOY 6061-T6.

TYPE 4 OM4-3
18" x 18"

OBJECT MARKER TYPE 4
NOT-TO-SCALE



HEADER CURB & BARRICADE POST DETAIL
NOT-TO-SCALE

LOT 5, BLOCK 2
REPLAT J & J SUBDIVISION
(VOL. 9606, PGS. 90-91, D.P.R.)

LOT 4, BLOCK 2
REPLAT J & J SUBDIVISION
(VOL. 9606, PGS. 90-91, D.P.R.)

8' ELEC., TELE., & CATV EASEMENT
VOL. 9575, PG. 35, D.P.R.

TRACT 1, LOT 3, J&J SUBDIVISION
X'EL DEVELOPMENT, LLC
COUNTY BLOCK 4613
(VOL. 9609, PG. 90, P.R.)

20' BUILDING SETBACK LINE
VOL. 9575, PG. 35, D.P.R.

14' ELEC., GAS, TELE., & CATV EASEMENT
VOL. 9606, PG. 90, D.P.R.

1% AC ULTIMATE FLOODPLAIN PER FLOOD STUDY PERFORMED BY PAPE-DAWSON ENGINEERS

BLOCK 2
901

1,697 LF (C)
194 LF (B)
530 LF (C)
507 LF (C)
190 LF (B)

14' GETCTV EASEMENT

10'X20' WATER EASEMENT

VARIABLE WIDTH FILL EASEMENT

BLOCK 1
901

CALLED 10.2672 ACRES
MICHAEL AND PAULA FLECK
COUNTY BLOCK 4613
(DOC.# 20190081012, O.P.R.)

20' ELECTRIC EASEMENT
CITY OF SAN ANTONIO
DOC.# 20050057660, O.P.R.

44 LF (E)
170 LF TOTAL (F)
WCR

SCENIC LOOP ROAD
GUAJOLOTE RANCH
STOP

0.059 ACRE R.O.W. DEDICATION
BEXAR COUNTY, TEXAS
DOC.# 20040288107, O.P.R.

SCENIC LOOP ROAD
(VARIABLE WIDTH PUBLIC R.O.W.)

BEXAR COUNTY ROW NOTES:
A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.

DRIVEWAY NOTE:
DRIVEWAYS SHOWN ON THIS PLAN ARE FOR THE SOLE PURPOSE OF INDICATING A POTENTIAL CONFLICT WITH CURB RAMP, DRAINAGE INFRASTRUCTURE, OR OTHER CONFLICT. DRIVEWAY LOCATION IS SUBJECT TO CHANGE BASED ON HOME SELECTION AND FINAL LOT DESIGN.

TRENCH EXCAVATION SAFETY PROTECTION:
CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NO.	REMISION	DATE
1	REVISED STRIPING	12/23/25

12/23/25
STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

OVERALL SIGNAGE PLAN
SHEET 2 OF 2

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C3.01

Date: Dec 23, 2025, 2:16pm User ID: rherbert
File: P:\12356\10\Design\Civil\SG 1235610.dwg

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DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by the Texas Department of Transportation for any purpose whatsoever. The Texas Department of Transportation assumes no responsibility for the use of this standard other than for highway purposes on or directly connected with the state highway system. The user of this standard is cautioned to make the necessary modifications or adaptations to conform to the intended use and agrees to indemnify the Texas Department of Transportation from any and all damages and liability arising from any such use.

DATE: 7/15/25

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))
SR0 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

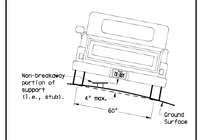
Anchor Type

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))

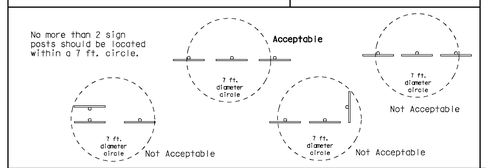
Sign Mounting Designation

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:
TEXT or (EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BW = 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

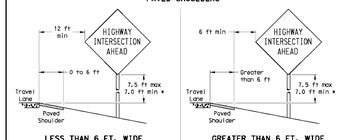


To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).



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. WIDTH

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

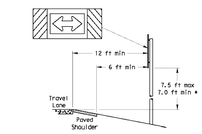
BEHIND BARRIER

BEHIND GUARDRAIL

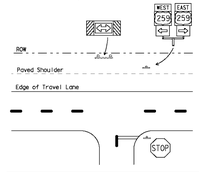
BEHIND CONCRETE BARRIER

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

T-INTERSECTION



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



* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 ft to a maximum of 7.5 feet above the edge of the travel lane or

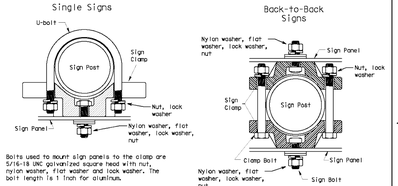
(2) a minimum of 7 ft to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

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

TYPICAL SIGN ATTACHMENT DETAIL



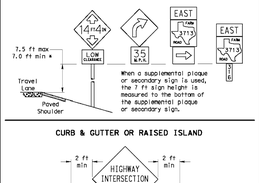
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

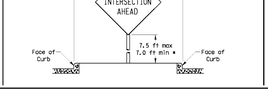
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



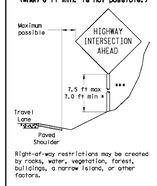
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

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

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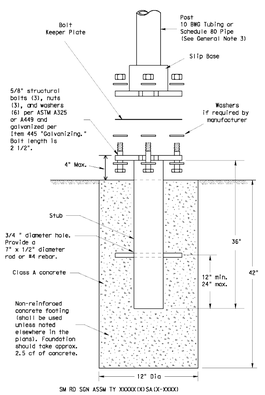
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)XX(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:

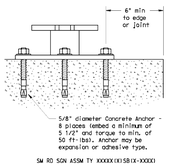
1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   0.134" nominal wall thickness
   Seamless or electric-resistance welded steel tubing or pipe
   Steel shall be HSLAS GF 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the followings:
   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 per ASTM A653 G210, for prepainted steel tubing (ASTM A653), recoat tube outside diameter weld seam by retail12ng 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 followings:
   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 the Engineer. Concrete shall be Class A.
3. Push the pipe and of the slip base snug 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 traveiway (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 traveiway. 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 SMG-8100, "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

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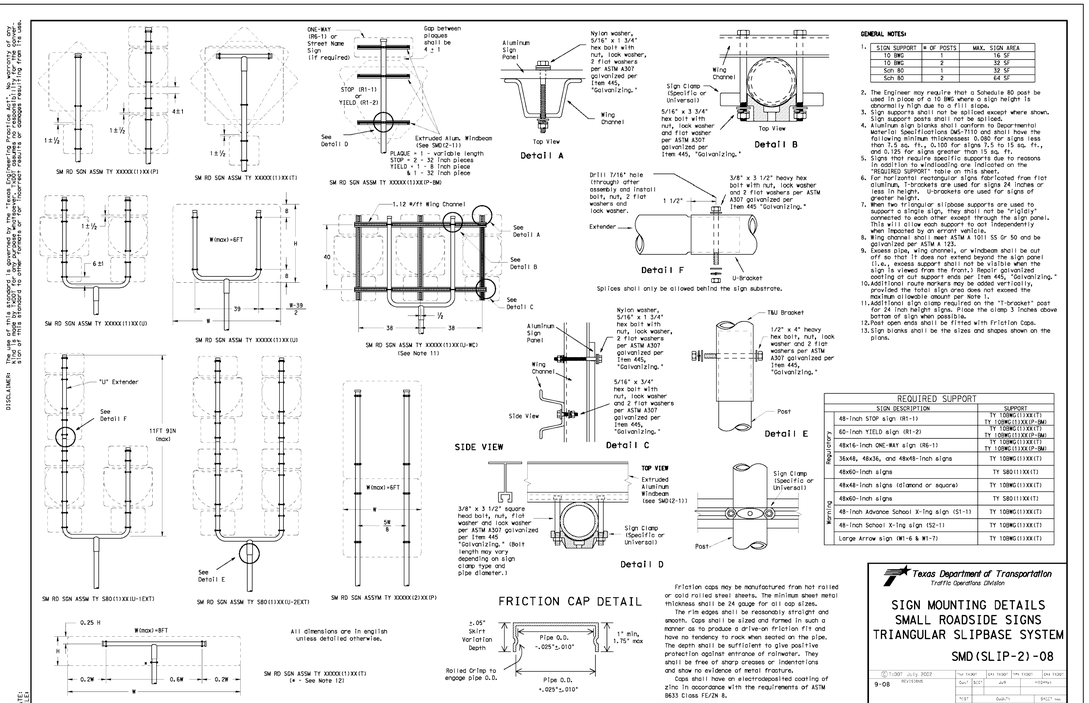

FRICTION CAP DETAIL

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 thicknessess: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs from 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. Triangular sign supports are 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 height does not exceed the maximum allowable height per note 1.
10. Additional sign clamps 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. Slip 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 SB0(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
Warning	48x60-inch signs	TY SB0(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

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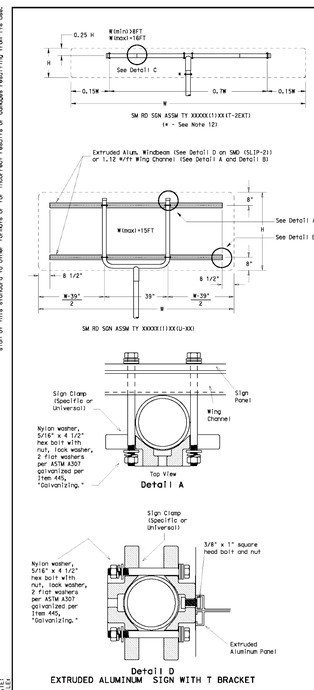
9-08	REVISIONS				



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 thicknessess: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs from 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. Triangular sign supports are 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. Slip blanks shall be the sizes and shapes shown on the plans.
10. Additional sign clamps 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 SB0(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
Warning	48x60-inch signs	TY SB0(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

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9-08	REVISIONS				

NO.	REVISION	DATE

12/15/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

OVERALL SIGNAGE DETAILS
SHEET 1 OF 3

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED bb DRAWN JQ
SHEET C3.10

Date: Dec 15, 2025, 4:30pm User ID: Jvazquez
File: P:\123\56\10\Design\Civil\SGDT 1235610.dwg

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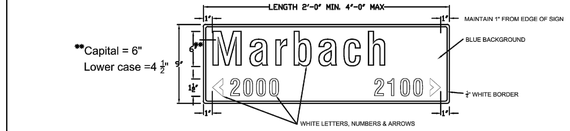
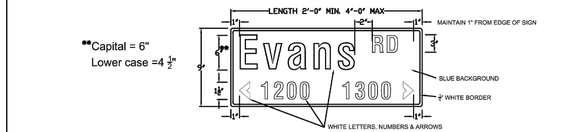
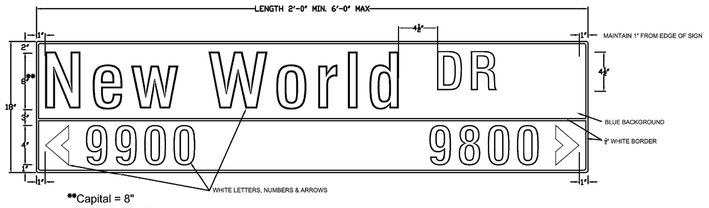


9" GROUND MOUNT STREET NAME SIGNS



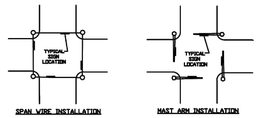
9" GROUND MOUNT STREET NAME SIGNS
WITH STREET DESIGNATION



18" OVERHEAD STREET NAME SIGNS

	18" OVERHEAD SIGN	9" GROUND MOUNT SIGNS
HEIGHT	18" (381 mm)	9" (228 mm)
LENGTH	48" (1200 mm) MIN. 72" (1800 mm) MAX. 6" (150mm) INCREMENTS OF LENGTH	24" (600 mm) MIN. 48" (1200 mm) MAX. 6" (150mm) INCREMENTS OF LENGTH
THICKNESS	0.125" (3 mm)	
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209 GOLD CHROMATE FINISH	
SIGN FACE MATERIALS	BLUE FILM ✱ OVER DIAMOND GRADE - ASTM Type XI Non-Fluorescent	BLUE FILM ✱ OVER HIGH INTENSITY PRISMATIC- ASTM Type IV
LEGENDS AND SYMBOLS	SERIES D, 8 OR C IF NAME OTHERWISE EXCEEDS MAXIMUM SIGN LENGTH	
COLOR	WHITE LEGEND ON BLUE BACKGROUND	
LETTER TRACKING	17% (USUAL) 10% (MIN.)	10%

✱ ACRYLIC ELECTRONIC CUTTABLE FILM



SIGN FACE MATERIALS SHALL CONFORM TO:

1. STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS & BRIDGES ON FEDERAL HIGHWAY PROJECTS - FP-03 U.S. CUSTOMARY UNITS SECTION 718
2. GENERAL SERVICES ADMINISTRATION FEDERAL SPECIFICATIONS L-S-300C
3. ASTM D-4956 - 03a1

Bexar County Public Works

Street Name Sign Details

ISSUED ON: ISSUED BY:
CHECKED BY: DATE:
FILE No.

SHEET 1

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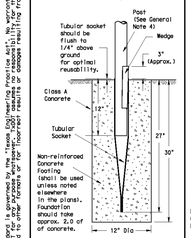
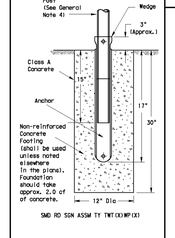
FILE:

Wedge Anchor Steel System



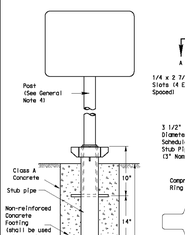
SM RD SGN ASSM TY TWT(X)WS(X)

Wedge Anchor High Density Polyethylene (HDPE) System



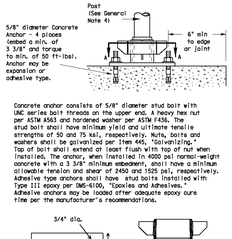
SMD RD SGN ASSM TY TWT(X)WP(X)

Universal Anchor System with Thin-Walled Tubing Post

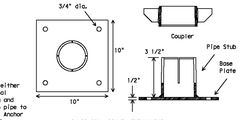


SM RD SGN ASSM TY TWT(X)UA(P)

Plastic Insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 12" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.



Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 pst, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.



SM RD SGN ASSM TY TWT(X)UB(P)

GENERAL NOTES:

1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer, Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts (13 BWG tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: https://www.txdot.gov/business/producer list.htm
4. Material used as post with this system shall conform to the following specifications:
   13 BWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal thickness
   Seamless or electric-resistance welded steel tubing
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the followings:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   18% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .083" to .099"
   Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   Galvanization per ASTM 123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Additional sign clamp required on the T-bracket post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: http://www.txdot.gov/publications/traffic.htm

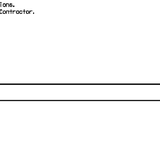
WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
3. Insert tubular socket into concrete until top of socket is approximately 1/4 " above the concrete footing.
4. Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer.
5. Attach the sign to the sign post.
6. Insert the sign post into socket and align sign face with roadway.
7. Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. Insert base post in hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
4. Attach the sign to the sign post.
5. Install plastic insert around bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod.
7. Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
8. Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post



NOTE

The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
WEDGE & UNIVERSAL ANCHOR
WITH THIN WALL TUBING POST
SMD(TWT)-08

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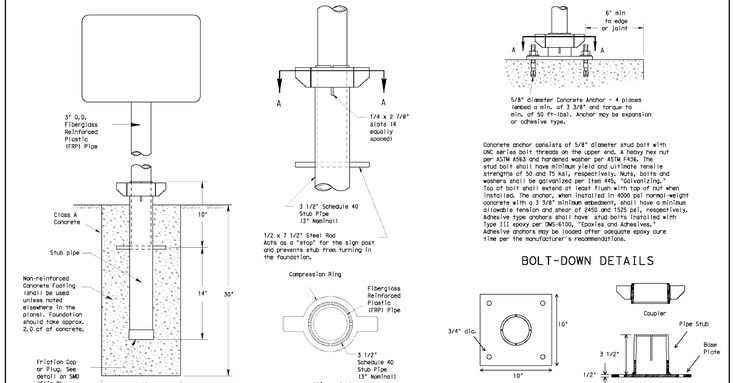
Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post



Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

BOLT-DOWN DETAILS

SM RD SGN ASSM TY FRP(X)UA(P)

SM RD SGN ASSM TY FRP(X)UB(P)

GENERAL NOTES:

1. FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
2. All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing."
3. See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: https://www.txdot.gov/publications/traffic.htm

FRP POST REQUIREMENTS

1. Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
2. Thickness of FRP sign support is 0.125" + 0.031", - 0.0".
3. FRP sign supports are prequalified by the Traffic Operations Division.
   Prequalification procedures are obtained by writing:
   Texas Department of Transportation
   Traffic Operations Division
   125 East 11th Street
   Austin, Texas 78701-2483

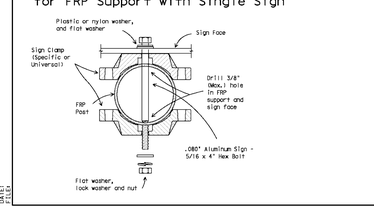
UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Bottom of base post slots shall be above the concrete footing.
3. Attach sign to FRP post.
4. Insert sign post into base post. Lower until the post comes to rest on the steel rod.
5. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
6. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

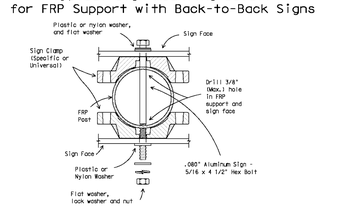
BOLT DOWN SIGN SUPPORT

1. Position base plate with coupler on existing concrete.
2. Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
3. Attach sign to FRP post.
4. Insert bottom of sign post into pipe stub.
5. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
6. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

Typical Sign Mounting Detail for FRP Support with Single Sign



Typical Sign Mounting Detail for FRP Support with Back-to-Back Signs



Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
UNIVERSAL ANCHOR SYSTEM
WITH FRP POST
SMD(FRP)-08

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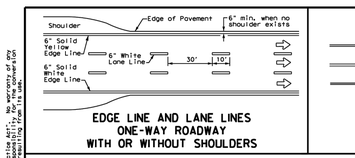
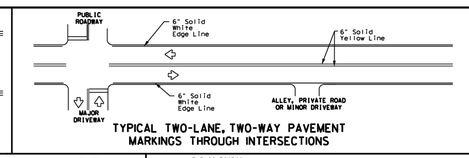
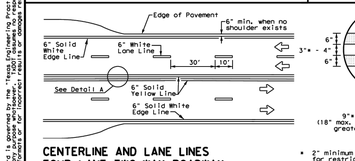


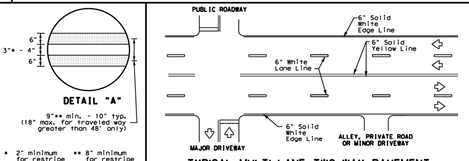
EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



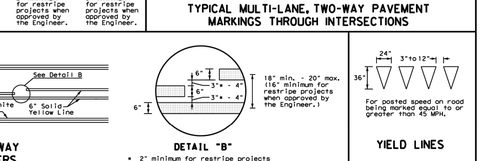
TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS



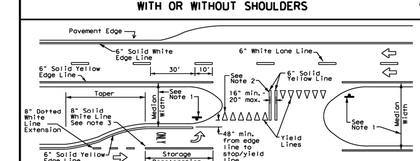
CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



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



TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



FOUR LANE DIVIDED ROADWAY CROSSOVERS

DETAIL "B"

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

DETAIL "A"

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

NOTES

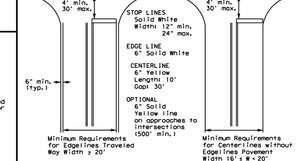
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling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

GENERAL NOTES

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

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

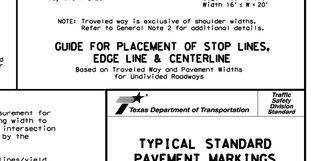
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



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

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Roadways



Texas Department of Transportation
Traffic Operations Division
Traffic Safety Division Standard

TYPICAL STANDARD
PAVEMENT MARKINGS

PM(1)-22

FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
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11-78 8-00 6-20				
8-95 3-03 12-22	DIST	COUNTY		SHEET NO.
5-00 2-12				

DATE:
FILE:

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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

NO.	REVISION	DATE

12/15/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS
OVERALL SIGNAGE DETAILS
SHEET 2 OF 3

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AB DRAWN JQ
SHEET C3.20

Date: Dec 15, 2025, 4:30pm User ID: Jvazquez
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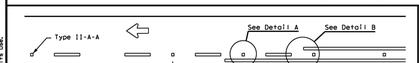
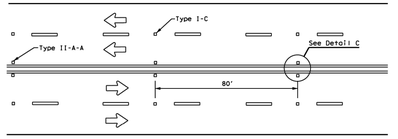
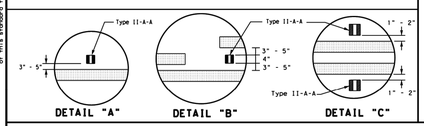
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

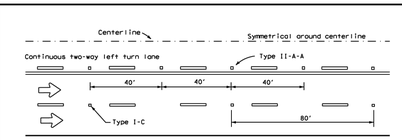


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

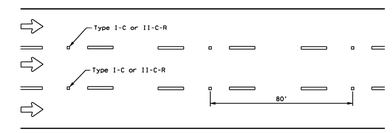


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS





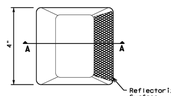
CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



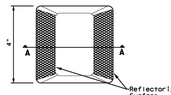
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

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

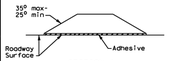
See Note 3.



Type I (Top View)



Type II (Top View)

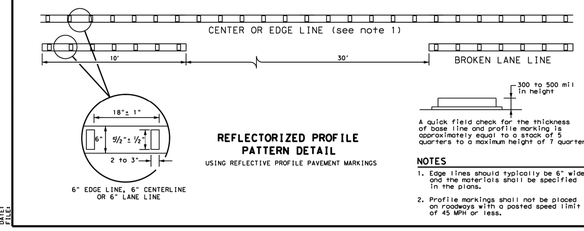


SECTION A

RAISED PAVEMENT MARKERS

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.



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

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

NOTES

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

GENERAL NOTES

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

Texas Department of Transportation — Traffic Safety Division Standard

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

FILE:	pm2-22.dgn	DN:	CK:	DW:	CK:
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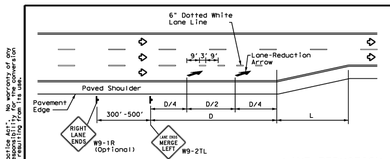
REVISIONS					
4-17 8-00 6-20		DIST	COUNTY		SHEET NO.
4-92 2-10 12-22					
9-00 2-12					

ED#1

DATE:
FILE:



LANE REDUCTION

NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of shortened passing lanes that would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS21(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

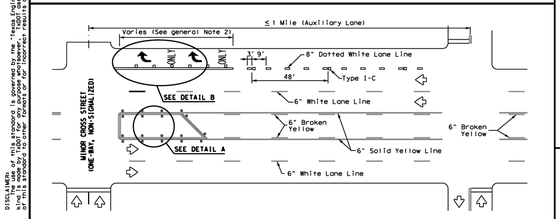
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	L = WS² / 60
35 MPH	565	
40 MPH	670	
45 MPH	775	
50 MPH	885	
55 MPH	990	L=WS
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

GENERAL NOTES

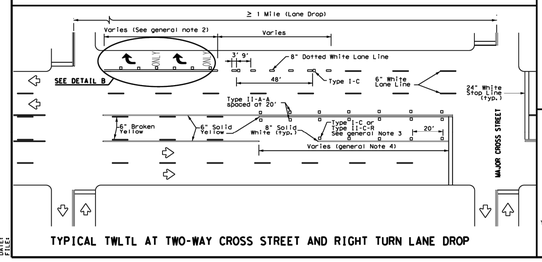
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection became mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of sufficient length. Lane use word and arrow markings may be used in other lanes and turn bays for emphasis.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

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

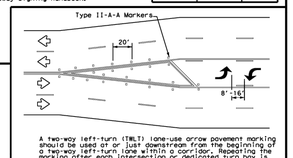
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



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

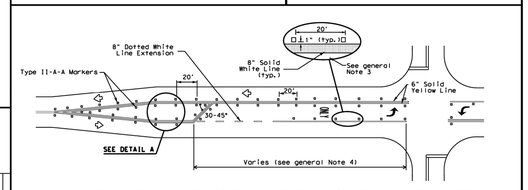


TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP

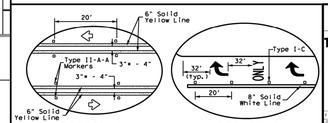


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a TWLT section. The use of additional arrows beyond the marking at each intersection or dedicated turning bay is not required unless stated elsewhere in the plans.

TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



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

Texas Department of Transportation — Traffic Safety Division Standard

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

FILE:	pm3-22.dgn	DN:	CK:	DW:	CK:
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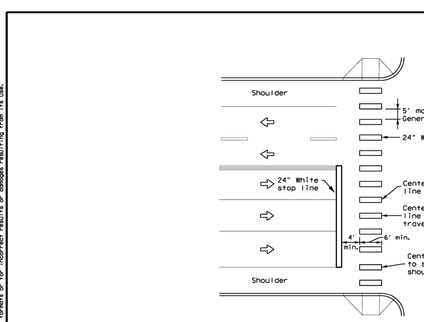
REVISIONS					
4-98 3-03 6-20		DIST	COUNTY		SHEET NO.
5-00 2-10 12-22					
8-00 2-12					

ED#1

DATE:
FILE:



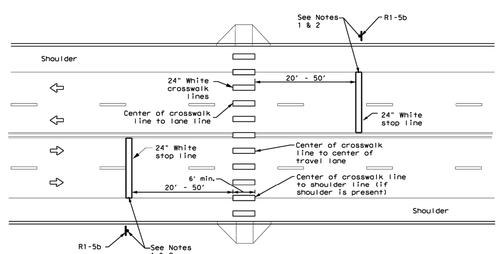
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

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

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

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



UNSIGNALIZED MIDBLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES:

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

Texas Department of Transportation — Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS PM(4)-22A

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6-22					
12-22					

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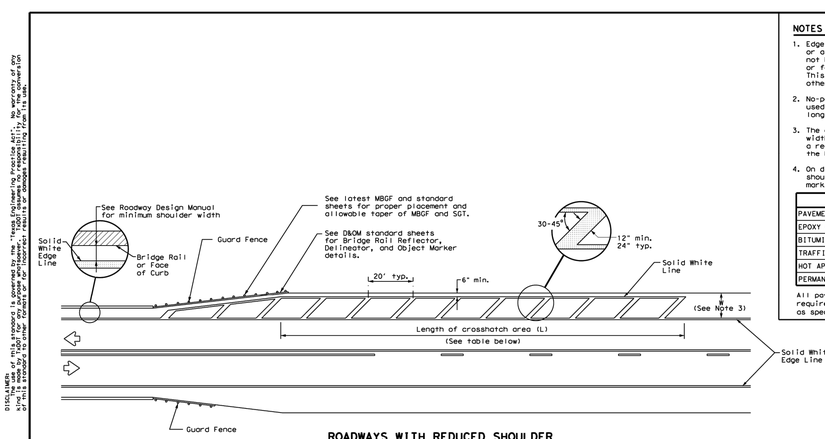

ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

NOTES

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

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

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

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

Texas Department of Transportation — Traffic Safety Division Standard

PAVEMENT MARKINGS FOR ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT PM(5)-22

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		DIST	COUNTY		SHEET NO.

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DATE:
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12/15/25

STATE OF TEXAS — ADAM J. RADEMACHER — 102345 — LICENSED — PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

OVERALL SIGNAGE DETAILS
SHEET 3 OF 3

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED bb DRAWN JQ
SHEET C3.30

Date: Dec 15, 2025, 4:30pm User ID: Jvazquez
File: P:\12356\10\Design\Civil\SIGDT 1235610.dwg
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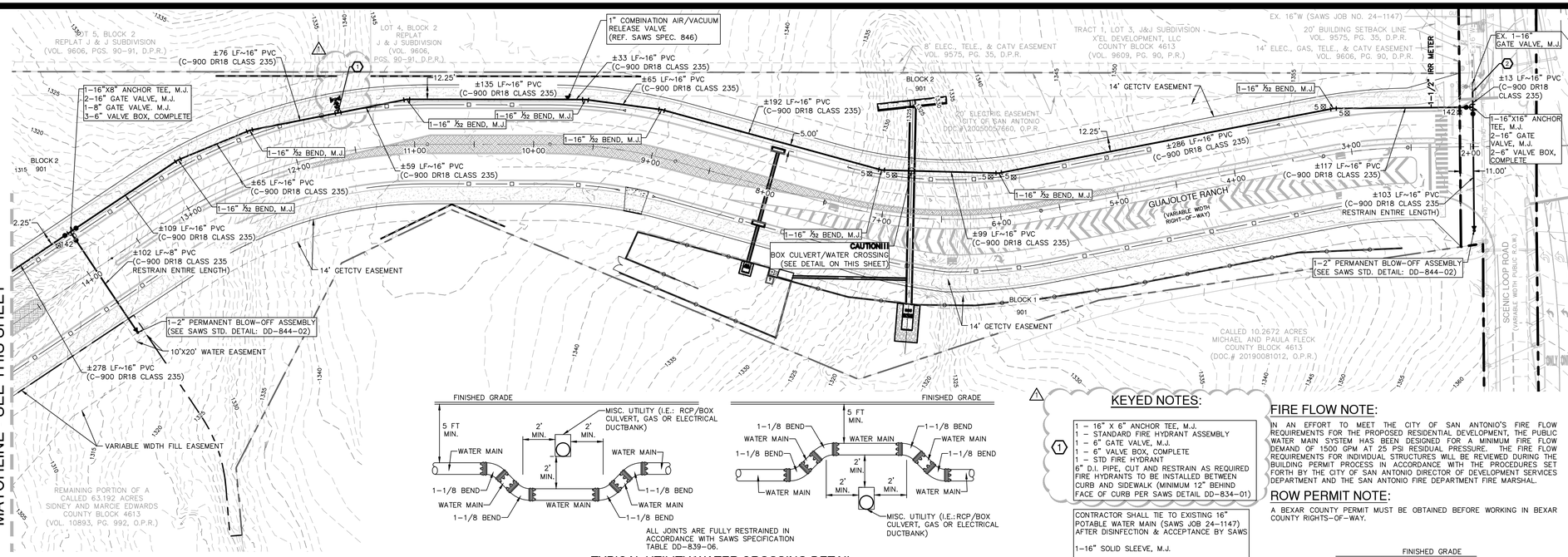


TYPICAL UTILITY/WATER CROSSING DETAIL

NOT-TO-SCALE

KEYED NOTES:

1 – 16" X 6" ANCHOR TEE, M.J.
1 – STANDARD FIRE HYDRANT ASSEMBLY
1 – 6" GATE VALVE, M.J.
1 – 6" VALVE BOX, COMPLETE
1 – STD FIRE HYDRANT
6" D.I. PIPE, CUT AND RESTRAIN AS REQUIRED FIRE HYDRANTS TO BE INSTALLED BETWEEN CURB AND SIDEWALK (MINIMUM 12" BEHIND FACE OF CURB PER SAWS DETAIL DD-834-01)

CONTRACTOR SHALL TIE TO EXISTING 16" POTABLE WATER MAIN (SAWS JOB 24-1147) AFTER DISINFECTION & ACCEPTANCE BY SAWS

1-16" SOLID SLEEVE, M.J.

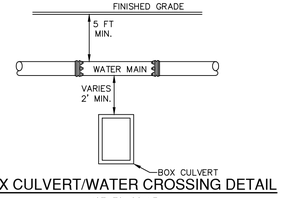
FOR CHLORINATION INJECTION:
2-1" CORPORATION STOP, C.C.XI.P.
1-1" COPPER TUBING, CUT AS REQUIRED
2-1" COMP. X 1 ¼ COUPLING, CORP. STOP
2-1 ¼" THD. SOLID CAPS, THR.
1-2" TEMPORARY BLOWOFF

FIRE FLOW NOTE:

IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1500 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

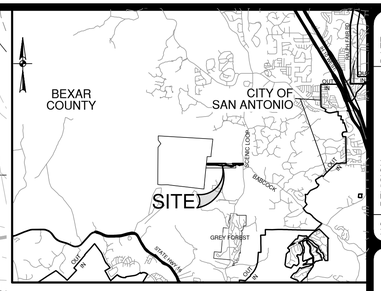
ROW PERMIT NOTE:

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHTS-OF-WAY.



BOX CULVERT/WATER CROSSING DETAIL

NOT-TO-SCALE



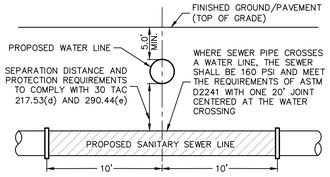
LOCATION MAP

SCALE: NTS

SCALE: 1"= 50'
0' 50' 100' 150'

WATER LEGEND

PROJECT LIMITS
EXISTING WATER — FIRE HYDRANT — W
PROPOSED WATER — FIRE HYDRANT — W
SINGLE 1" IRRIGATION SERVICE — IRR
JOINT RESTRAINT ⊠
GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT — GETCTV
OVERHEAD UTILITY LINE — UTILITY POLE — OHP — OHU

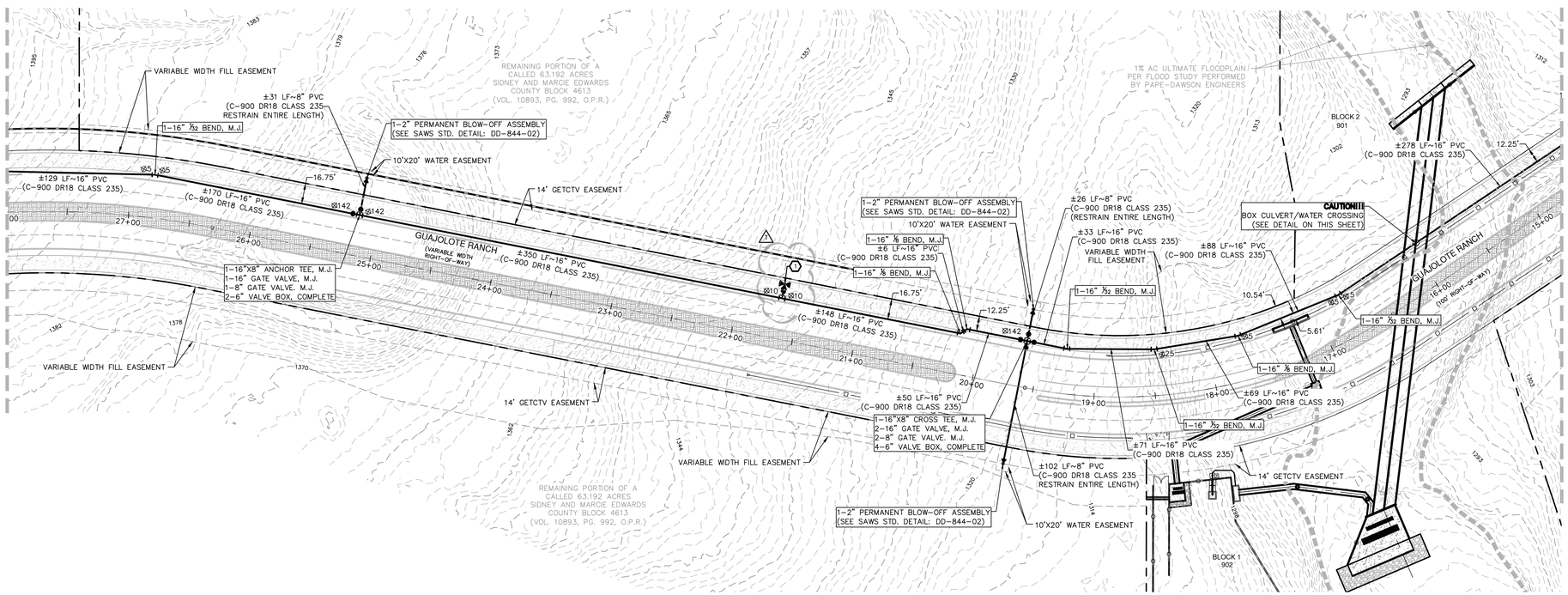


(SEE SAWS SPEC ITEM 812)

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE

MATCH LINE SEE SHEET C4.01



MATCHLINE "A" - SEE THIS SHEET

PRESSURE REDUCING VALVE NOTE:

PRESSURE REDUCING VALVE TO BE INSTALLED ON CUSTOMER'S SIDE OF METER BY HOMEBUILDER.

PRESSURE NOTE:

CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 1425 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 1425 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF *PRV IS/ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED.
*NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).

JOINT RESTRAINT NOTE:

CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSES OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING. JOINT RESTRAINTS AND RETAINER GLANDS SHALL BE CALCULATED BY SAWS APPROVED PROGRAMS. THERE WILL BE NO SEPARATE PAY ITEM FOR RETAINER GLANDS AND OTHER JOINT RESTRAINING HARNESSES AND GASKETS, BUT SHALL BE SUBSIDIARY TO THE UNIT COST PER LINEAL FOOT OF PIPE INSTALLED.

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

WATER (SAWS PRESSURE ZONE 1610)

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS
ADDRESS: 100 NE LOOP 410, STE. 1155
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 170536 TOTAL EDU'S 10 TOTAL ACREAGE 28.387
TOTAL LINEAR FOOTAGE OF PIPE: 5,042 LF. ~ 16"PVC 457 LF. ~ 8"PVC PLAT NO. 25-1180026
NUMBER OF LOTS 0 SAWS JOB NO. 25-1096

NO.	REMISON	DATE
1	REVISED FIRE HYD. INSTALLATION	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

OVERALL WATER DISTRIBUTION PLAN
SHEET 1 OF 2

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C4.00

Date: Dec 23, 2025, 3:33pm User ID: Jacquez
File: P:\12356\10\Design\Civil\GW 1235610.dwg

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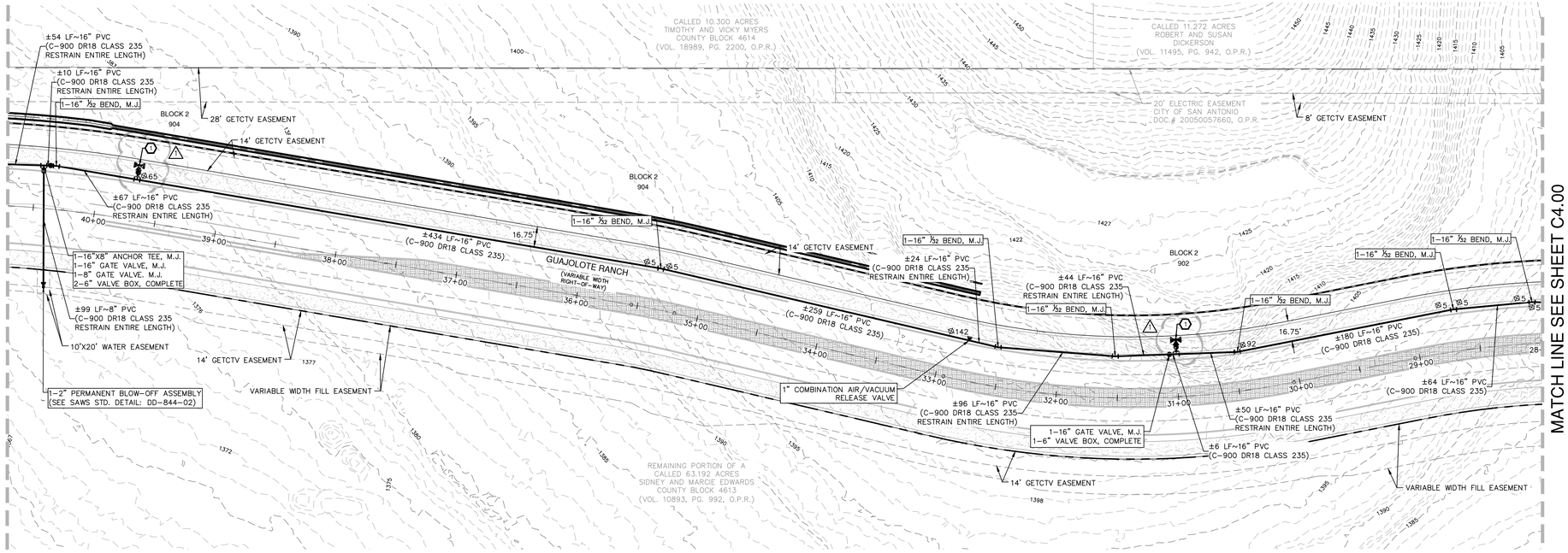

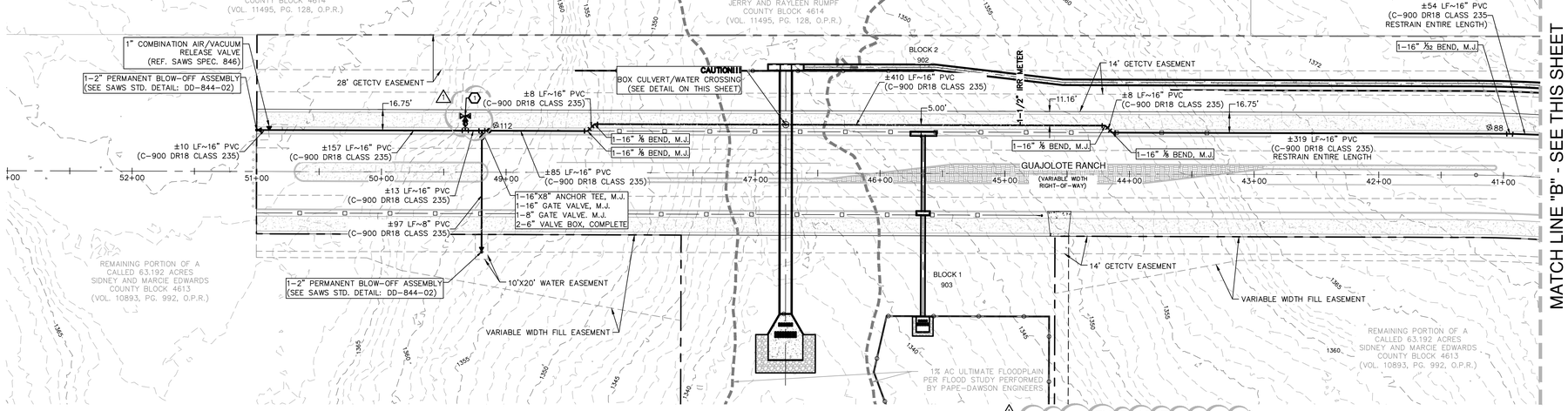

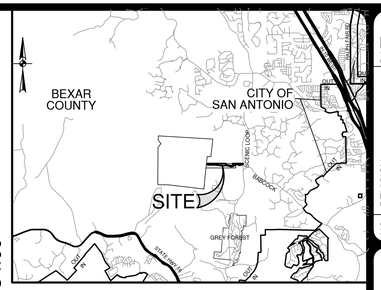

LOCATION MAP

SCALE: NTS

SCALE: 1"= 50'

0' 50' 100' 150'

WATER LEGEND

- PROJECT LIMITS
- EXISTING WATER — FIRE HYDRANT
- PROPOSED WATER — FIRE HYDRANT
- SINGLE 1" IRRIGATION SERVICE — IRR
- JOINT RESTRAINT
- GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT — GETCTV
- OVERHEAD UTILITY LINE — UTILITY POLE

(SEE SAWS SPEC ITEM 812)

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE

PRESSURE REDUCING VALVE NOTE:

PRESSURE REDUCING VALVE TO BE INSTALLED ON CUSTOMER'S SIDE OF METER BY HOMEBUILDER.

PRESSURE NOTE:

CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 1425 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 1425 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF *PRV IS/ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED.
*NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).

JOINT RESTRAINT NOTE:

CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSES OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING. JOINT RESTRAINTS AND RETAINER GLANDS SHALL BE CALCULATED BY SAWS APPROVED PROGRAMS. THERE WILL BE NO SEPARATE PAY ITEM FOR RETAINER GLANDS AND OTHER JOINT RESTRAINING HARNESSES AND GASKETS, BUT SHALL BE SUBSIDIARY TO THE UNIT COST PER LINEAL FOOT OF PIPE INSTALLED.

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KEYED NOTES:

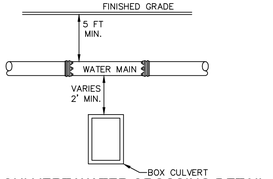
1. 1 – 16" X 6" ANCHOR TEE, M.J.
   1 – STANDARD FIRE HYDRANT ASSEMBLY
   1 – 6" GATE VALVE, M.J.
   1 – 6" VALVE BOX, COMPLETE
   1 – STD FIRE HYDRANT
   6" D.I. PIPE, CUT AND RESTRAIN AS REQUIRED FIRE HYDRANTS TO BE INSTALLED BETWEEN CURB AND SIDEWALK (MINIMUM 12" BEHIND FACE OF CURB PER SAWS DETAIL DD-834-01)

FIRE FLOW NOTE:

IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1500 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

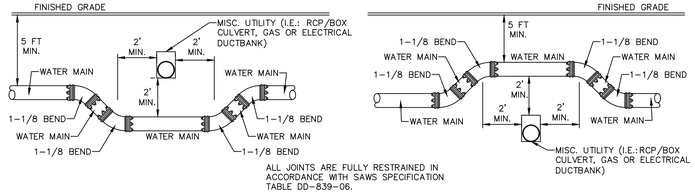
ROW PERMIT NOTE:

A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHTS-OF-WAY.



BOX CULVERT/WATER CROSSING DETAIL

NOT-TO-SCALE



TYPICAL UTILITY/WATER CROSSING DETAIL

NOT-TO-SCALE

WATER (SAWS PRESSURE ZONE 1610)

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS
ADDRESS: 100 NE LOOP 410, STE. 1155
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 170536 TOTAL EDU'S 10 TOTAL ACREAGE 28.387
457 LF. ~ 8"PVC
TOTAL LINEAR FOOTAGE OF PIPE: 5,042 LF. ~ 16"PVC PLAT NO. 25-11800226
NUMBER OF LOTS 0 SAWS JOB NO. 25-1096

NO.	REMSION	DATE
1	REVISED FIRE HYD. INSTALLATION	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

OVERALL WATER DISTRIBUTION PLAN
SHEET 2 OF 2

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BD DRAWN JQ
SHEET C4.01

Date: Dec 23, 2025, 3:34pm User ID: Jvazquez
File: P:\123\36\10\Design\Civil\OW 123610.dwg

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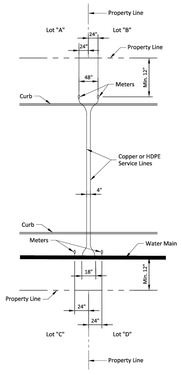
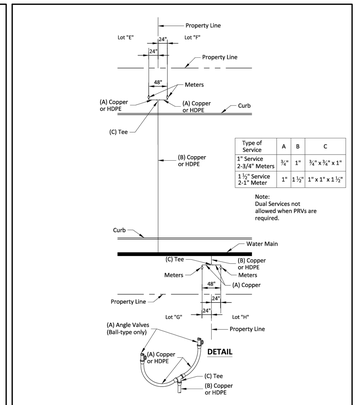


SINGLE SERVICE LINE - SINGLE METER

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL NEW DEVELOPMENT SERVICE ARRANGEMENT	March 2008	December 2018
		DD-824-05	SHEET 1 OF 3

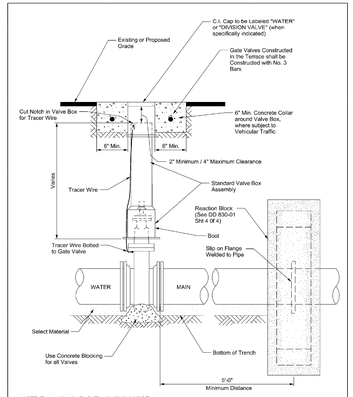


Type of Service	A	B	C
1" Service 2-3/4" Meters	¾"	1"	¾" x ¾" x 1"
1 ½" Service 2-1" Meter	1"	1½"	1" x 1" x 1 ½"

Note:
Dual Services not allowed when PRVs are required.

SINGLE SERVICE LINE - DUAL METER

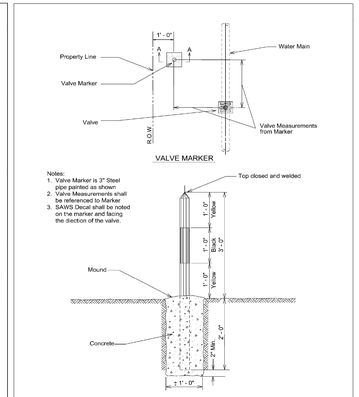
PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL SERVICE ARRANGEMENT	March 2008	December 2018
		DD-824-05	SHEET 2 OF 3



NOTE: Tracer Wire for PVC (Typ. for PVC & HDPE)
NOTE: All Concrete to be 3,000 psi

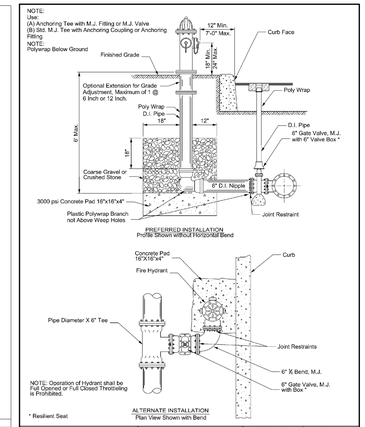
Note: For all work associated with Recycled Water Valves, refer to DD 110-10, Sht. 1 of 1

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	INSTALLATION OF NON-GEARED GATE VALVE WITH VALVE BOX AND EXTENSION	MARCH 2008	AUG 2019
		DD 828-01	SHEET 1 OF 1

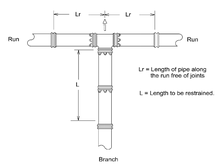


Notes:
1. Valve Marker is 3" Steel pipe painted as shown
2. Valve Measurements shall be referenced to Marker
3. SAWS Decal shall be noted on the marker and facing the diection of the valve.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	VALVE MARKER	MARCH 2008	AUG 2019
		DD-828-04	SHEET 1 OF 1



PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	FIRE HYDRANT INSTALLATION (JOINT RESTRAINT)	MAY 2013	AUG 2019
		DD-834-01	SHEET 1 OF 2



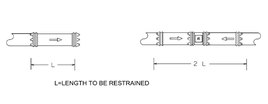
RESTRAINED LENGTH FOR TEES

PIPE SIZE (inch)	BRANCH SIZE (inch)	LENGTH OF RUN (ft.)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi
6	4	0	42	31
6	4	5	7	1
6	4	10	1	1
6	6	0	59	44
6	6	5	35	20
6	6	10	11	1
8	4	0	42	31
8	4	5	1	1
8	6	0	59	44
8	6	5	28	13
8	6	10	1	1
8	8	0	77	58
8	8	5	53	34
8	8	10	30	11
8	8	15	6	1

RESTRAINED LENGTH DESIGN
Restrained length calculations are for P.V.C pipe bedded in compacted granular material extending to the top of the pipe.The native soil material is assumed to be inorganic clay of high plasticity.
Depth of bury is assumed to be 4 feet.

Note:
These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	RESTRAINED LENGTHS FOR TEES	March 2008	AUG 2019
		DD-839-04	SHEET 1 OF 2



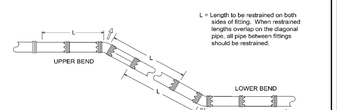
L=LENGTH TO BE RESTRAINED

PIPE SIZE (inch)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi
6	59	44
8	77	58
10	93	69
12	109	82

RESTRAINED LENGTH DESIGN
Restrained length calculations are for P.V.C. pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provide for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	RESTRAINED LENGTHS FOR DEAD ENDS / INLINE VALVES	MARCH 2008	AUG 2019
		DD-839-05	SHEET 1 OF 1

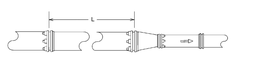


PIPE SIZE (inch)	BEND ANGLE (deg.)	LOW SIDE DEPTH	UPPER BEND RESTRAINED LENGTH IN FEET TEST PRESSURE = 200 psi	LOWER BEND RESTRAINED LENGTH IN FEET TEST PRESSURE = 200 psi	UPPER BEND RESTRAINED LENGTH IN FEET TEST PRESSURE 150 psi	LOWER BEND RESTRAINED LENGTH IN FEET TEST PRESSURE = 150 psi
6	45	5	29	7	19	2
6	22.5	5	12	4	9	3
6	11.25	5	6	2	4	1
6	45	10	24	5	18	4
6	22.5	10	12	2	9	2
6	11.25	10	6	1	4	1
8	45	5	32	11	24	8
8	22.5	5	15	5	11	4
8	11.25	5	8	3	6	2
8	45	10	32	7	24	5
8	22.5	10	15	3	11	2
8	11.25	10	8	2	6	1
12	45	5	45	16	34	12
12	22.5	5	22	7	16	6
12	11.25	5	11	4	8	3
12	45	10	45	10	34	7
12	22.5	10	22	5	16	3
12	11.25	10	11	2	8	2

RESTRAINED LENGTH DESIGN
Restrained length calculations are for P.V.C. pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	RESTRAINED LENGTHS VERTICAL OFFSETS	MARCH 2008	AUG 2019
		DD-839-06	SHEET 1 OF 1

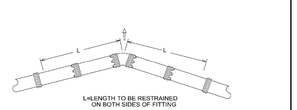


PIPE SIZE (inch)	SMALL SIZE (inch)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi
6	4	30	23
8	4	55	42
8	6	32	24
12	4	80	62
12	6	80	60
12	8	58	43

RESTRAINED LENGTH DESIGN
Restrained length calculations are for P.V.C. pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

Note:
These calculations are provided for reference. Th restrained length shall be designed based upon the conditions encountered during the installation.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	RESTRAINED LENGTHS FOR REDUCERS	MARCH 2008	AUG 2019
		DD-839-07	SHEET 1 OF 1

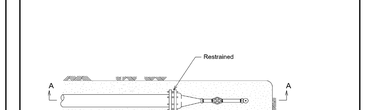


PIPE SIZE (inch)	BEND ANGLE (deg)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 psi	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 150 psi
6	90	23	17
6	45	9	7
6	22.5	5	3
6	11.25	2	2
8	90	30	22
8	45	12	9
8	22.5	6	4
8	11.25	3	2
12	90	43	32
12	45	18	13
12	22.5	8	6
12	11.25	4	3

RESTRAINED LENGTH DESIGN
Restrained length calculations are for P.V.C pipe bedded in compacted granular material extending to the top of the pipe. The native soil material is assumed to be inorganic clay of high plasticity. Depth of bury is assumed to be 4 feet.

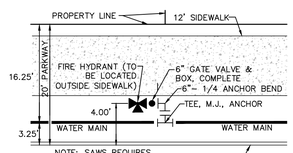
Note:
These calculations are provided for reference. The restrained length shall be designed based upon the conditions encountered during the installation.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	RESTRAINED LENGTHS FOR HORIZONTAL BENDS	MARCH 2008	AUG 2019
		DD-839-08	SHEET 1 OF 1



* Cut as required to extend beyond excavation

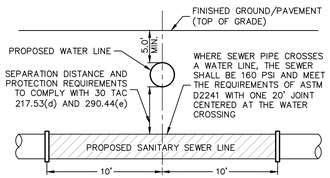
PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	2" TEMPORARY BLOW-OFF ASSEMBLY ON 6" & 8" MAINS	MARCH 2008	AUG 2019
		DD-844-01	SHEET 1 OF 4



REFER TO SAWS DETAIL DD-834-01

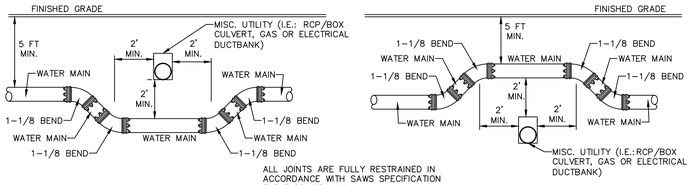
FIRE HYDRANT INSTALLATION

NOT-TO-SCALE



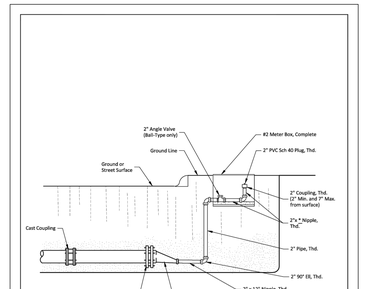
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE



TYPICAL UTILITY/WATER CROSSING DETAIL

NOT-TO-SCALE



* Cut to fit in meter box

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	2" PERMANENT BLOW-OFF ASSEMBLY ON 6" & 8" MAINS	MARCH 2008	AUG 2019
		DD-844-02	SHEET 3 OF 3

WATER (SAWS PRESSURE ZONE 1610)

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS
ADDRESS: 100 NE LOOP 410, STE. 1155
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 170536 TOTAL EDU'S 10 TOTAL ACREAGE 28.387
TOTAL LINEAR FOOTAGE OF PIPE: 457 L.F. - 8"PVC, 5,042 L.F. - 16"PVC PLAT NO. 25-1180026
NUMBER OF LOTS 0 SAWS JOB NO. 25-1096

DATE
NO. REVISION

12/15/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS
WATER DISTRIBUTION DETAILS

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AB DRAWN JQ
SHEET C4.10

Date: Dec 15, 2025, 4:32pm User ID: Juazquez
File: P:\123\36\10\Design\Civil\OWOT 1235610.dwg

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SAWS CONSTRUCTION NOTES

(LAST REVISED JANUARY 2022)

SAWS GENERAL SECTION

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:

   A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM"; TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER"; TAC TITLE 30 PART 1 CHAPTER 290.
   B. CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE";
   C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION";
   D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION";
   E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).

2. THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE APPROVED COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY SAWS CONSTRUCTION INSPECTION DIVISON TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WORK REQUIREMENTS. WORK COMPLETED BY THE CONTRACTOR WITHOUT AN APPROVED COUNTER PERMIT AND/OR A GCP WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.

3. THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.

4. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-2973, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.

5. LOCATION AND DEPTH OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 1 WEEK PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.

6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES AT LEAST 1-2 WEEKS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS FACILITIES. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:

   - SAWS UTILITY LOCATES: HTTP://WWW.SAWS.ORG/SERVICE/LOCATES
   - COSA DRAINAGE (210) 207-0724 OR (210) 207-6026
   - COSA TRAFFIC SIGNAL OPERATIONS (210) 206-8480
   - COSA TRAFFIC SIGNAL DAMAGES (210) 207-3951
   - TEXAS STATE WIDE ONE CALL LOCATOR 1-800-545-6005 OR 811

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION IF DAMAGES ARE MADE AS A RESULT OF THE PROJECT'S CONSTRUCTION.

8. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) AND/OR BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS.

9. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.

10. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.

11. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

    WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE SAWS INSPECTION CONSTRUCTION DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND WORK. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

    ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT HOLIDAY/WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION.

12. COMPACTION NOTE (ITEM 804): THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND FOR PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY THE SAWS INSPECTOR AND/OR THE TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

13. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO SAWS CONSTRUCTION INSPECTION DIVISION.

SAWS WATER NOTES

1. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.

   - FOR WATER MAINS 12" OR HIGHER: SAWS EMERGENCY OPERATIONS CENTER (210) 233-2014

2. ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE WHICH IS KNOWN TO CONTAIN ASBESTOS- CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCURS. SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE".

3. VALVE REMOVAL: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, THE CONTROL VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REMOVED AND REPLACED WITH A CAP/PLUG. (NSPI)

4. SUITABLE ANCHORAGE/THRUST BLOCKING OR JOINT RESTRAINT SHALL BE PROVIDED AT ALL OF THE FOLLOWING MAIN LOCATIONS: DEAD ENDS, PLUGS, CAPS, TEES, CROSSES, VALVES, AND BENDS, IN ACCORDANCE WITH THE STANDARD DRAWINGS DD-839 SERIES AND ITEM NO. 839, IN THE SAWS STANDARD SPECIFICATIONS FOR CONSTRUCTION.

5. ALL VALVES SHALL READ "OPEN RIGHT".

6. PRVS REQUIRED: CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 1425 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 1425 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF *PRV IS/ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED. *NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).

7. PIPE DISINFECTION WITH DRY HTH FOR PROJECTS LESS THAN 800 LINEAR FEET. (ITEM NO. 847.3): MAINS SHALL BE DISINFECTED WITH DRY HTH WHERE SHOWN IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE INSPECTOR, AND SHALL NOT EXCEED A TOTAL LENGTH OF 800 FEET. THIS METHOD OF DISINFECTION WILL ALSO BE FOLLOWED FOR MAIN REPAIRS. THE CONTRACTOR SHALL UTILIZE ALL APPROPRIATE SAFETY MEASURE TO PROTECT HIS PERSONNEL DURING DISINFECTION OPERATIONS.

8. BACKFLOW PREVENTION DEVICES:

   - ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS ARE REQUIRED TO HAVE BACKFLOW PREVENTION DEVICES.
   - ALL COMMERCIAL BACKFLOW PREVENTION DEVICES MUST BE APPROVED BY SAWS PRIOR TO INSTALLATION.

9. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, AND SAWS HAS RELEASED THE MAIN FOR TIE-IN AND USE.

10. DIVISION VALVES: DIVISION VALVES SHOWN ON PLANS OR NOT SHOWN ON PLANS BUT FOUND IN THE FIELD SHALL ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF AND ONLY WITH PRIOR WRITTEN APPROVAL OF THE SAWS DIRECTOR OF PRODUCTION AND OPERATIONS AND PROPER COORDINATION WITH ALL SAWS DEPARTMENTS. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE INSPECTOR A MINIMUM OF TWO WEEKS IN ADVANCE TO START THE COORDINATION PROCESS AND WILL BE INFORMED BY THE INSPECTOR WHEN THE DIVISION VALVE WILL BE OPERATED BY THE SAWS DISTRIBUTION AND COLLECTION STAFF. THE DIVISION VALVE CAN ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF MEMBER NOT THE INSPECTOR OR THE CONTRACTOR. OPERATION OF A DIVISION VALVE WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE SAWS DISTRIBUTION AND COLLECTION STAFF WILL CONSTITUTE A MATERIAL BREACH OF ANY WRITTEN SAWS CONTRACT OR PERMIT IN ADDITION TO SUBJECTING THE CONTRACTOR TO LIABILITY FOR ANY AND ALL FINES, FEES, OR OTHER DAMAGES, DIRECT OR CONSEQUENTIAL, THAT MAY ARISE FROM OR BE CAUSED BY THE OPERATION OF THE VALVE WITHOUT PRIOR WRITTEN PERMISSION. PLEASE BE INFORMED THAT THE APPROVAL OF THE OPERATION OR OPENING OR CLOSING OF A DIVISION VALVE CAN TAKE SEVERAL WEEKS FOR APPROVAL. DIVISION VALVES WILL ALSO HAVE A VALVE LID LABELED DIVISION VALVE AND A LOCKING MECHANISM INSTALLED WITH A KEY. THE LOCK AND KEY MECHANISM WILL BE PAID FOR BY THE CONTRACTOR BUT WILL BE INSTALLED BY SAWS DISTRIBUTION AND COLLECTION STAFF.

PROJECT WATER NOTES

1. MACHINE CHLORINATION BY THE S.A.W.S.
2. ALL 8", 12" AND 16" PIPE SHALL BE P.V.C. C-900 CLASS 235 DR 18.
3. ALL MAINS SHALL BE HYDROSTATICALLY TESTED BY THE CONTRACTOR, AS PROVIDED FOR IN THE SPECIAL CONDITIONS.
4. THE WATER LINES WILL BE SET FROM THE STREET HUBS BEFORE THIS CONTRACT BEGINS. STREET CUT SHEETS WILL BE SUPPLIED TO THE CONTRACTOR. THERE SHOULD BE NO ADDITIONAL STAKES REQUIRED, AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE SITE AND VERIFY THAT ALL STAKES REQUIRED FOR HIS WORK ARE IN PLACE AT THE TIME THE CONSTRUCTION BEGINS. IF ANY STAKES ARE MISSING THE ENGINEER SHOULD BE NOTIFIED IMMEDIATELY. AFTER CONSTRUCTION BEGINS, ALL CONSTRUCTION STAKES, MARKS, ETC., SHALL BE CAREFULLY PRESERVED BY THE CONTRACTOR, AND IN CASE OF DESTRUCTION OR REMOVAL BY THE CONTRACTOR, HIS EMPLOYEE OR ANY OTHER MEANS, SUCH STAKES, MARKS, ETC., SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH ALL THE FINAL MEASUREMENTS, TAPS AND LENGTH OF SERVICE CONNECTIONS.
6. THE LOT CORNERS WILL BE SET BY THE ENGINEER FOR INSTALLATION OF ALL WATER SERVICES. THESE LOT CORNERS SHALL BE CAREFULLY PRESERVED BY THE CONTRACTOR SO THE METER BOXES CAN BE SET IN PHASE II. ANY LOT CORNER DESTROYED OR REMOVED BY THE CONTRACTOR, HIS EMPLOYEES, OR BY ANY OTHER MEANS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
7. STREETS WILL HAVE BEEN EXCAVATED DOWN TO SUBGRADE AND THE PARKWAY WILL BE CUT DOWN TO TOP OF CURB BY THE STREET CONTRACTOR, PRIOR TO CONSTRUCTION OF THE WATER MAINS. IT WILL BE THE UTILITY CONTRACTOR'S RESPONSIBILITY TO PROVIDE A PAD FOR HIS EQUIPMENT.
8. WATER METER BOXES IF APPLICABLE SHALL BE INSTALLED NINE FEET FROM FACE OF CURB TO CENTER OF THE METER BOX.
9. ALL GARBAGE OR SPOIL MATERIAL FROM THIS WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR, AT HIS EXPENSE.
10. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED AND THE S.A.W.S. RELEASES THE MAIN FOR TIE-IN AND USE.
11. UNIT PRICE BID FOR "STANDARD FIRE HYDRANT ASSEMBLY" SHALL INCLUDE FIRE HYDRANT, 6-INCH GATE VALVE AND 6-INCH VALVE BOX COMPLETE, ANCHOR BEND, AND ALL 6-INCH DI PIPE REQUIRED (DI PIPE REQUIRED SHALL INCLUDE ALL PIPE FROM THE TEE ON THE MAIN LINE TO THE FIRE HYDRANT).
12. WHEN SEWER LINES ARE INSTALLED IN THE VICINITY OF WATER MAINS, SUCH INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS" (1988 OR ANY REVISIONS THERETO).
13. A CLEAR SPACE SHALL BE PROVIDED AROUND ALL FIRE HYDRANTS. THIS AREA SHOULD HAVE A MINIMUM DIAMETER OF 3.0' AND BE CLEAN OF VERTICAL OBSTRUCTIONS, VALVES, AND METER BOXES.
14. SAWS REQUIRES LEAD FREE (< 0.25%) FIRE HYDRANTS.
15. UNLESS OTHERWISE NOTED ALL SERVICES SHALL BE 3/4" WITH 5/8" METER.

WATER (SAWS PRESSURE ZONE 1610)

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS
ADDRESS: 100 NE LOOP 410, STE. 1155
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 170536 TOTAL EDU'S 10 TOTAL ACREAGE 28.387
TOTAL LINEAR FOOTAGE OF PIPE: 457 L.F. ~ 8"PVC, 5,042 L.F. ~ 16"PVC PLAT NO. 25-1180026
NUMBER OF LOTS 0 SAWS JOB NO. 25-1096

NO.	REVISION	DATE

12/15/25

STATE OF TEXAS
ADAM J. RADEMACHER
102345
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

WATER DISTRIBUTION NOTES

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AR DRAWN JQ
SHEET C4.20

Date: Dec 15, 2025, 4:32pm User ID: jvasquez
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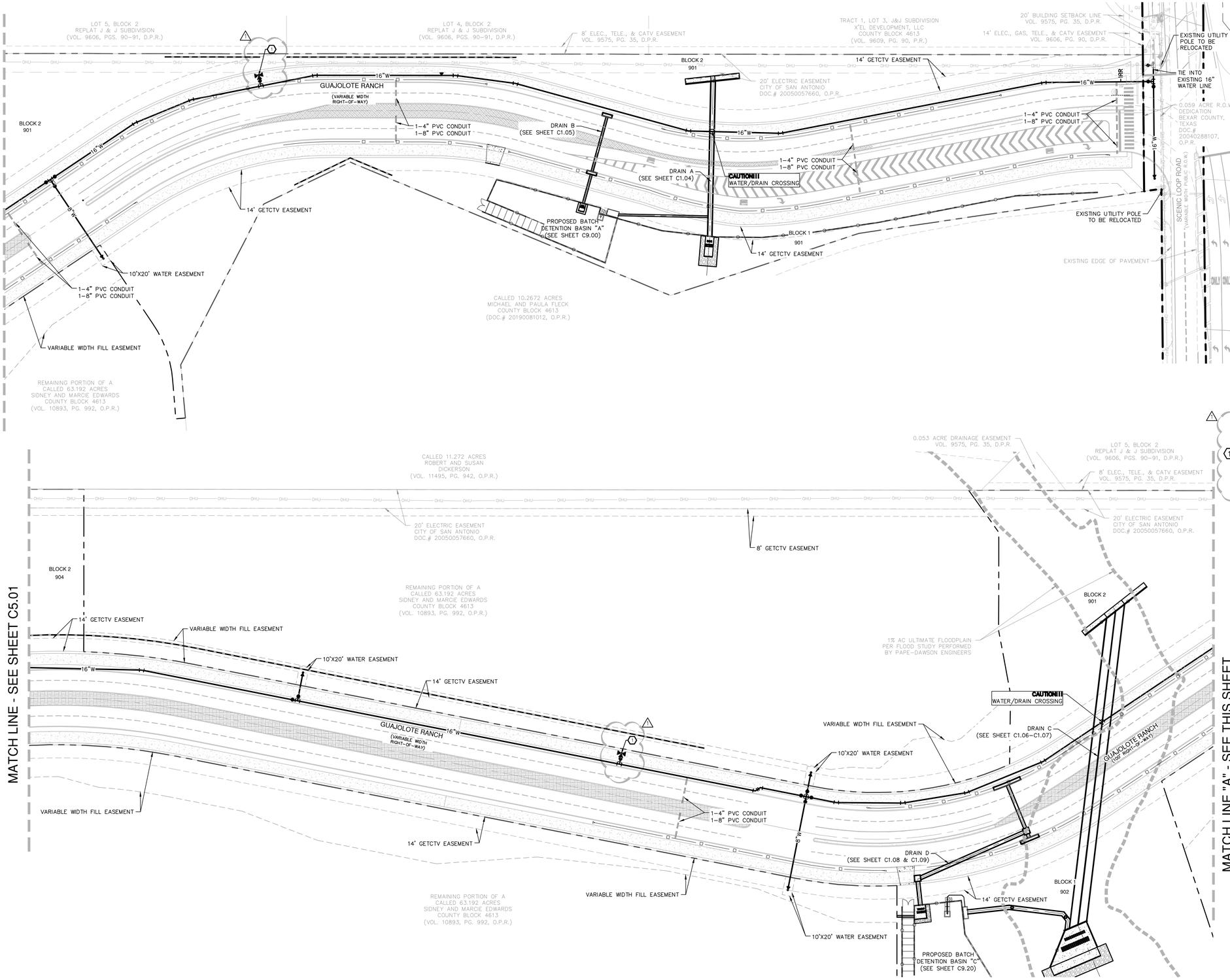

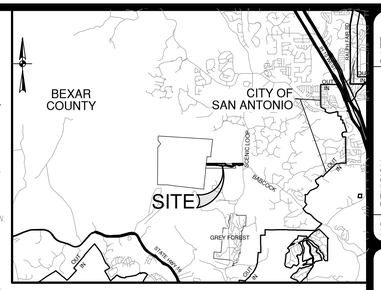

LOCATION MAP

SCALE: NTS

SCALE: 1"= 50'

0' 50' 100' 150'

UTILITY LEGEND

PROJECT LIMITS	
EXISTING WATER	W
PROPOSED WATER	FIRE HYDRANT, W
STREET LIGHTS	SL
GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT	GETCTV
TREE, SEE TREE PRESERVATION PLANS	
100 YR FLOODPLAIN	
RETAINING WALL	

KEYED NOTES:

1 - 16" X 6" ANCHOR TEE, M.J.
1 - STANDARD FIRE HYDRANT ASSEMBLY
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD FIRE HYDRANT
6" D.I. PIPE, CUT AND RESTRAIN AS REQUIRED
FIRE HYDRANTS TO BE INSTALLED BETWEEN CURB AND SIDEWALK (MINIMUM 12" BEHIND FACE OF CURB PER SAWS DETAIL DD-834-01)

CONDUIT NOTES:

1. CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
2. CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW PROPOSED FINISHED GRADE. SCHEDULE 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.
3. ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
4. ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATIONS INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

NO.	REVISION	DATE
1	REVISED FIRE HYD. INSTALLATION	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

OVERALL UTILITY PLAN
SHEET 1 OF 2

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BDC DRAWN JQ
SHEET C5.00

Date: Dec 23, 2025, 2:16pm User ID: rherbert
File: P:\123\56\10\Design\Civil\OU 1235610.dwg

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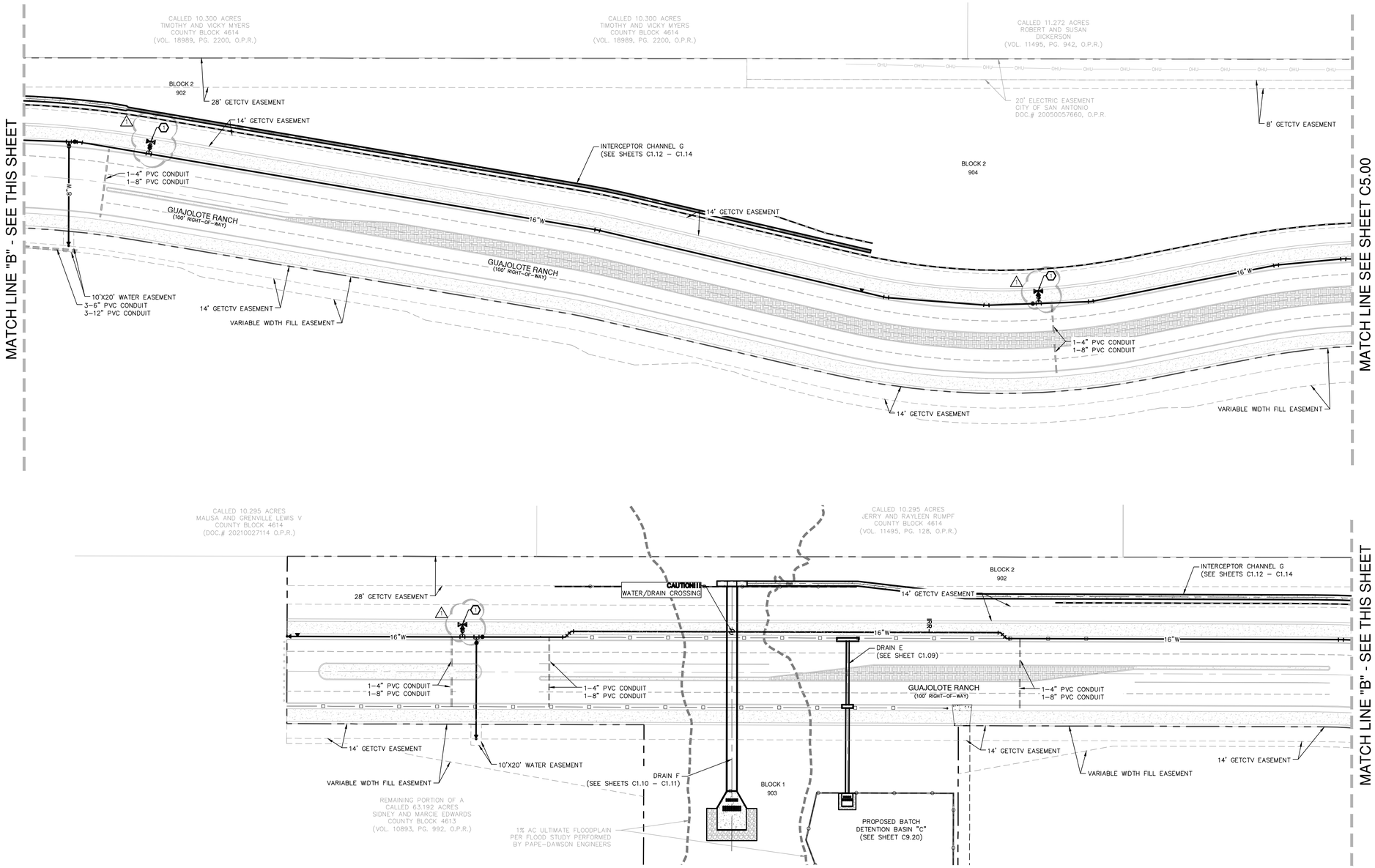

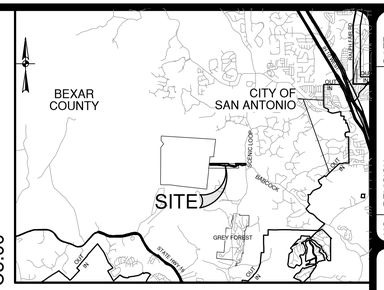

LOCATION MAP

SCALE: NTS

SCALE: 1"= 50'

0' 50' 100' 150'

UTILITY LEGEND

PROJECT LIMITS	
EXISTING WATER	W
PROPOSED WATER	FIRE HYDRANT, W
STREET LIGHTS	SL
GAS, ELECTRIC, TELEPHONE & CABLE TELEVISION EASEMENT	GETCTV
TREE, SEE TREE PRESERVATION PLANS	
100 YR FLOODPLAIN	
RETAINING WALL	

KEYED NOTES:

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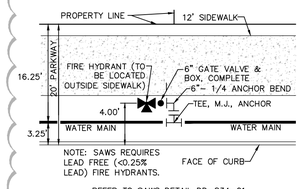
CURB AND SIDEWALK (MINIMUM 12" BEHIND
FACE OF CURB PER SAWS DETAIL DD–834–01)



REFER TO SAWS DETAIL DD–834–01

FIRE HYDRANT INSTALLATION

NOT–TO–SCALE

CONDUIT NOTES:

1. CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
2. CONDUITS SHALL BE PVC WITH MINIMUM BURY OF 36 INCHES BELOW PROPOSED FINISHED GRADE. SCHEDULE 80 TO BE USED FOR CPS CONDUITS, ALL OTHER CONDUITS ARE SCHEDULE 40.
3. ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
4. ALL CONDUIT SLEEVES TO BE USED FOR ELECTRIC, GAS, OR TELECOMMUNICATION UTILITY CROSSINGS SHALL BE INSTALLED TO MEET OR EXCEED DESIGN REQUIREMENTS FOR THE UTILITY AGENCY WHICH THEY ARE SERVING, INCLUDING BUT NOT LIMITED TO THE DEPTH, TRENCH PLACEMENT, AND PROXIMITY TO OTHER UTILITIES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING AND INSTALLING THE CONDUIT SLEEVES TO MEET THESE SPECIFICATIONS INCLUDING COORDINATING WITH THE UTILITY AGENCY FOR ANY REQUIRED INSPECTIONS

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT 1–800–DIG–TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

NO.	REMISION	DATE
1	REVISED FIRE HYD. INSTALLATION	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

OVERALL UTILITY PLAN
SHEET 2 OF 2

PLAT NO. 25-11800226
JOB NO. 12356–10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C5.01

Date: Dec 23, 2025, 2:17pm User ID: rherbert
File: P:\123\56\10\Design\Civil\OU 1235610.dwg

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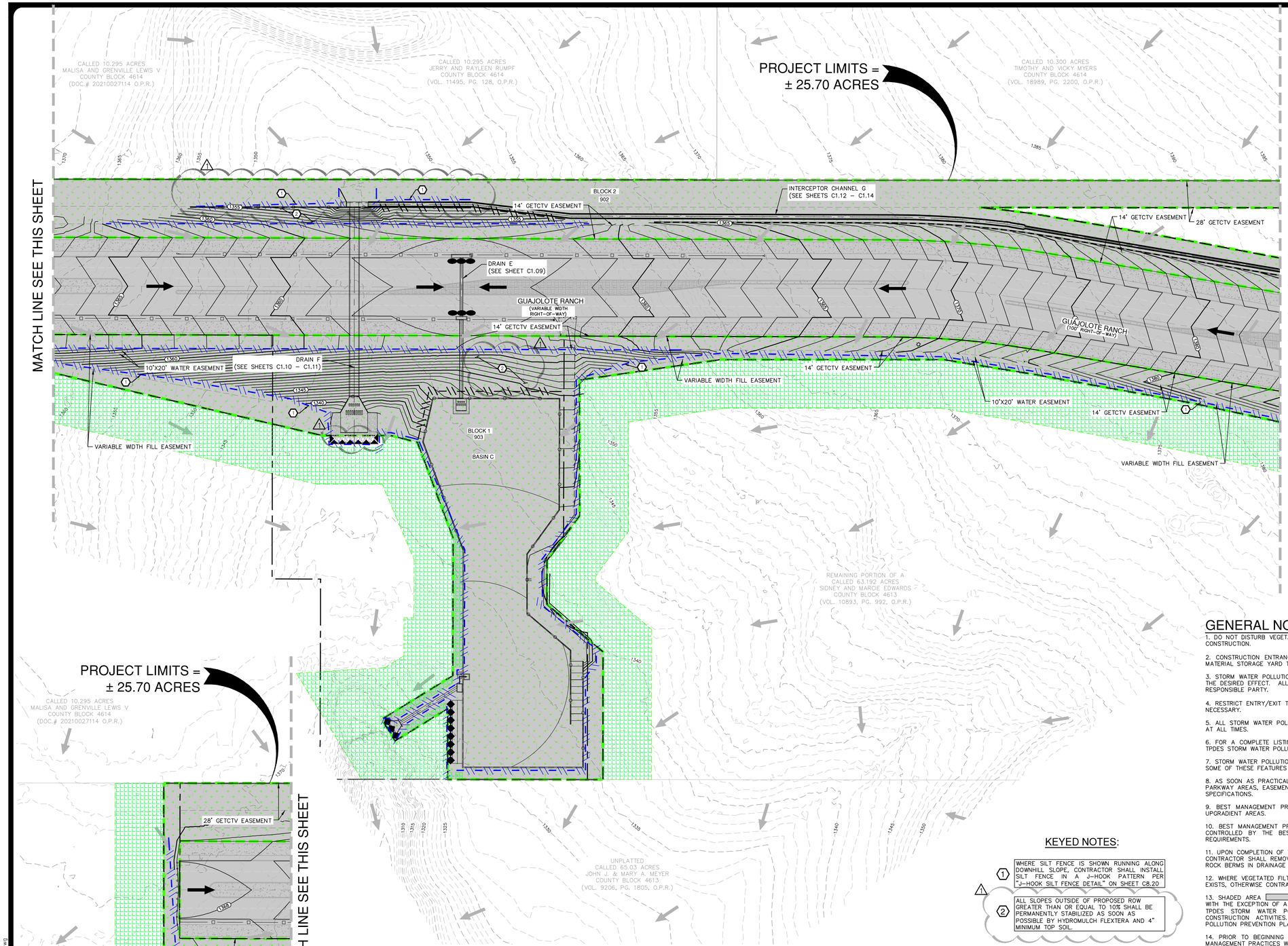

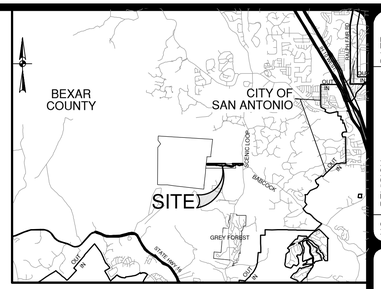

LOCATION MAP

SCALE: NTS

SCALE: 1"= 50'

0' 50' 100' 150'

SWPPP LEGEND

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- PROPOSED CONTOUR 1375
- FLOW ARROW (EXISTING)
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- SILT FENCE – PHASE 1
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KEYED NOTES:

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2. ALL SLOPES OUTSIDE OF PROPOSED ROW GREATER THAN OR EQUAL TO 10% SHALL BE PERMANENTLY STABILIZED AS SOON AS POSSIBLE BY HYDROMULCH FLEXTERA AND 4" MINIMUM TOP SOIL.

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SWP3 MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

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EXHIBIT 2

NO.	REMARK	DATE
1	REVISED BMP MEASURES	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

STORM WATER POLLUTION PREVENTION PLAN
SHEET 1 OF 4

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AJR DRAWN JQ
SHEET C8.00

Date: Dec 23, 2025, 2:17pm User ID: rherbert
File: P:\123\06\10\Design\Civil\SWPPP 1235610.dwg

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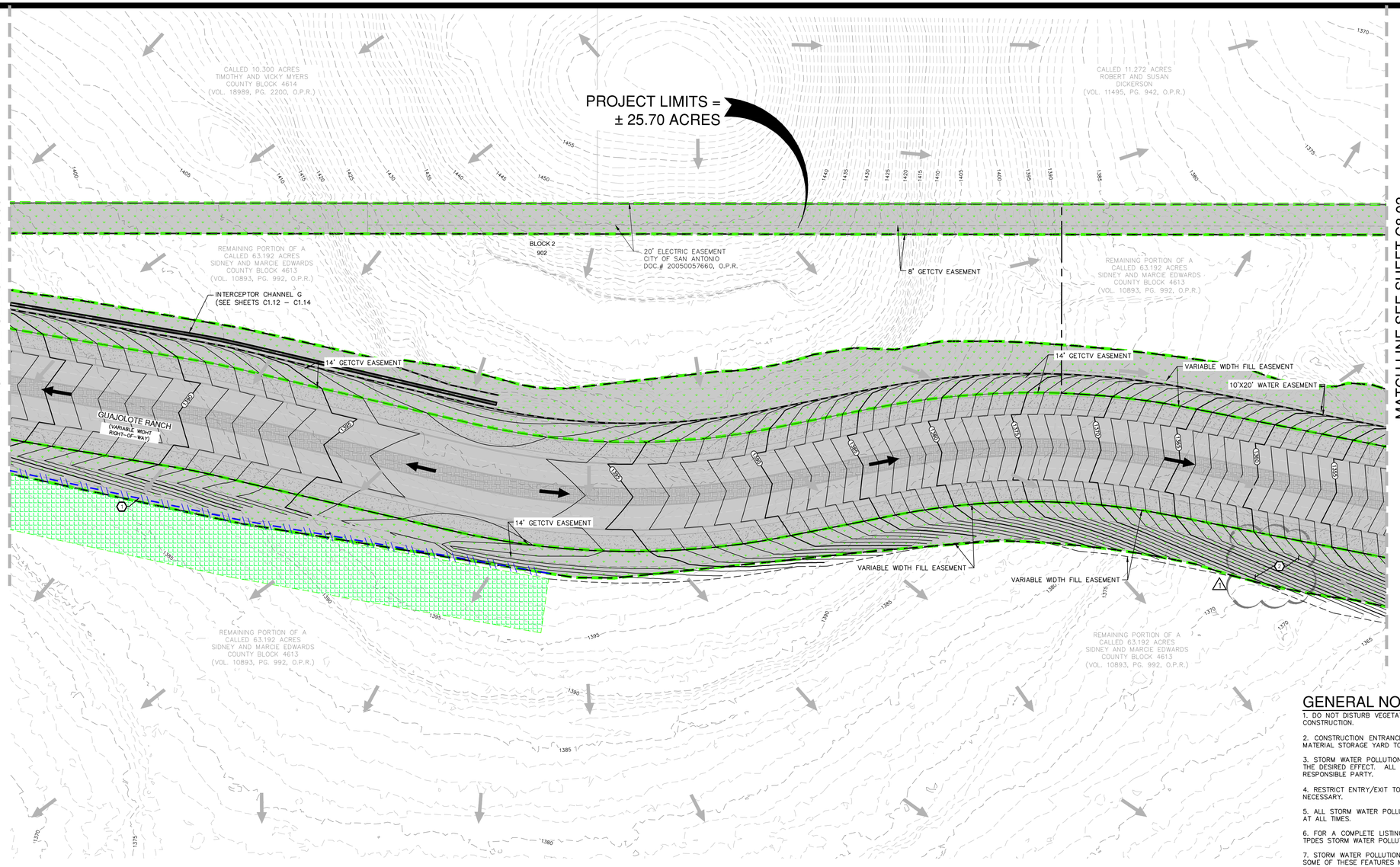

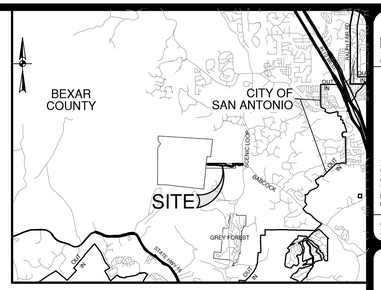

LOCATION MAP

SCALE: NTS

SCALE: 1"= 50'

0' 50' 100' 150'

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- PROPOSED CONTOUR (1375)
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EXHIBIT 2

NO.	REMSION	DATE
1	REVISED BMP MEASURES	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

STORM WATER POLLUTION PREVENTION PLAN
SHEET 2 OF 4

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BAD DRAWN JQ
SHEET C8.01

Date: Dec 23, 2025, 2:17pm User ID: rherbert
File: P:\123\56\10\Design\Civil\SWPPP 1235610.dwg

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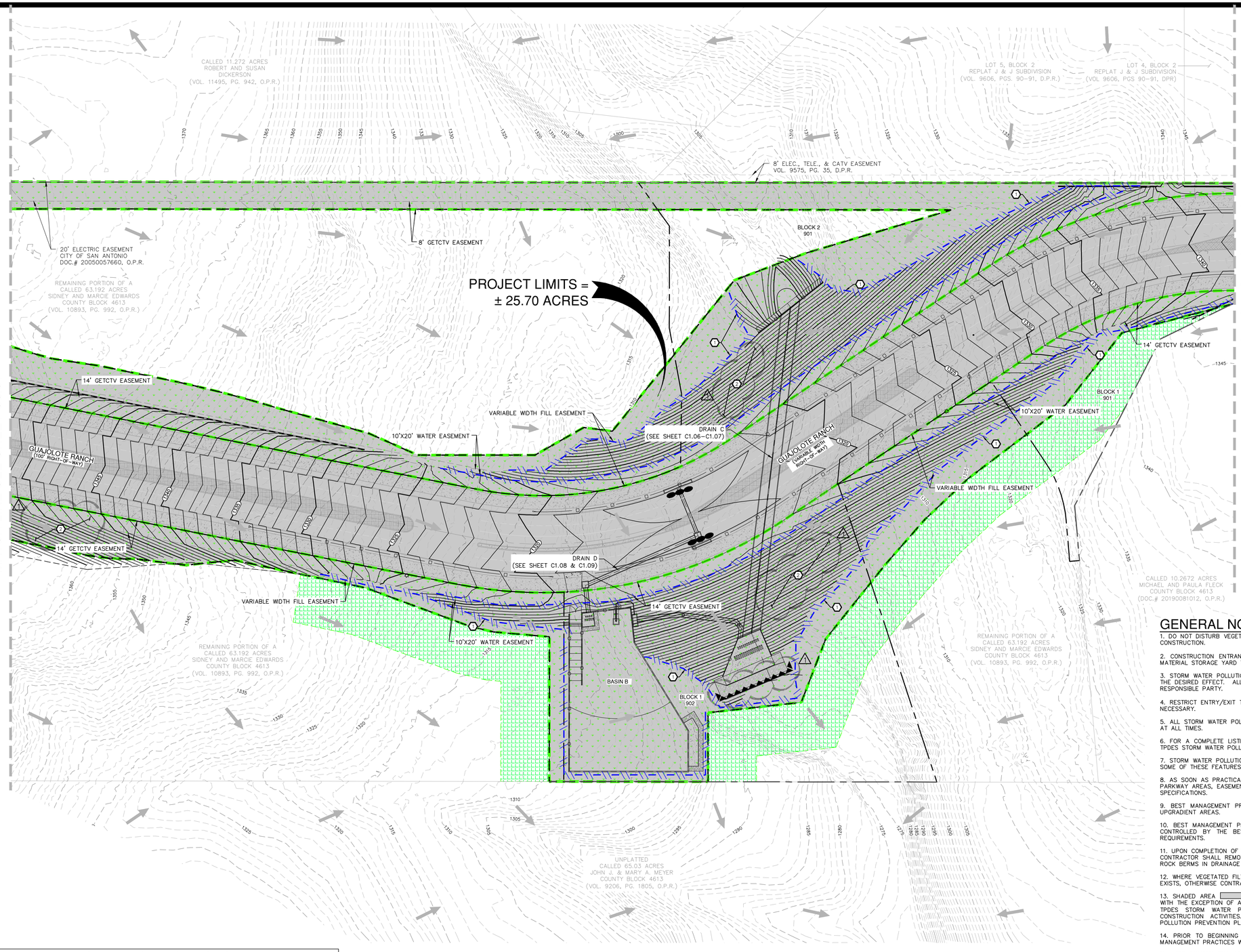

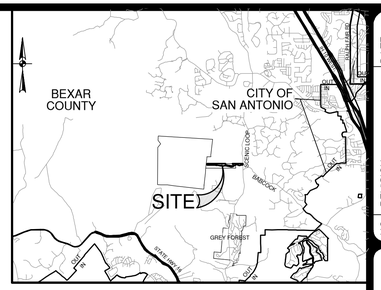

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EXHIBIT 2

NO.	REMARK	DATE
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12/23/25

STATE OF TEXAS
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BEXAR COUNTY, TEXAS

STORMWATER POLLUTION PREVENTION PLAN
SHEET 3 OF 4

PLAT NO. 25-11800226
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CHECKED BAR DRAWN JQ
SHEET C8.02

Date: Dec 23, 2025, 2:17pm User ID: rherbert
File: P:\123\56\10\Design\Civil\SWPPP 1235610.dwg

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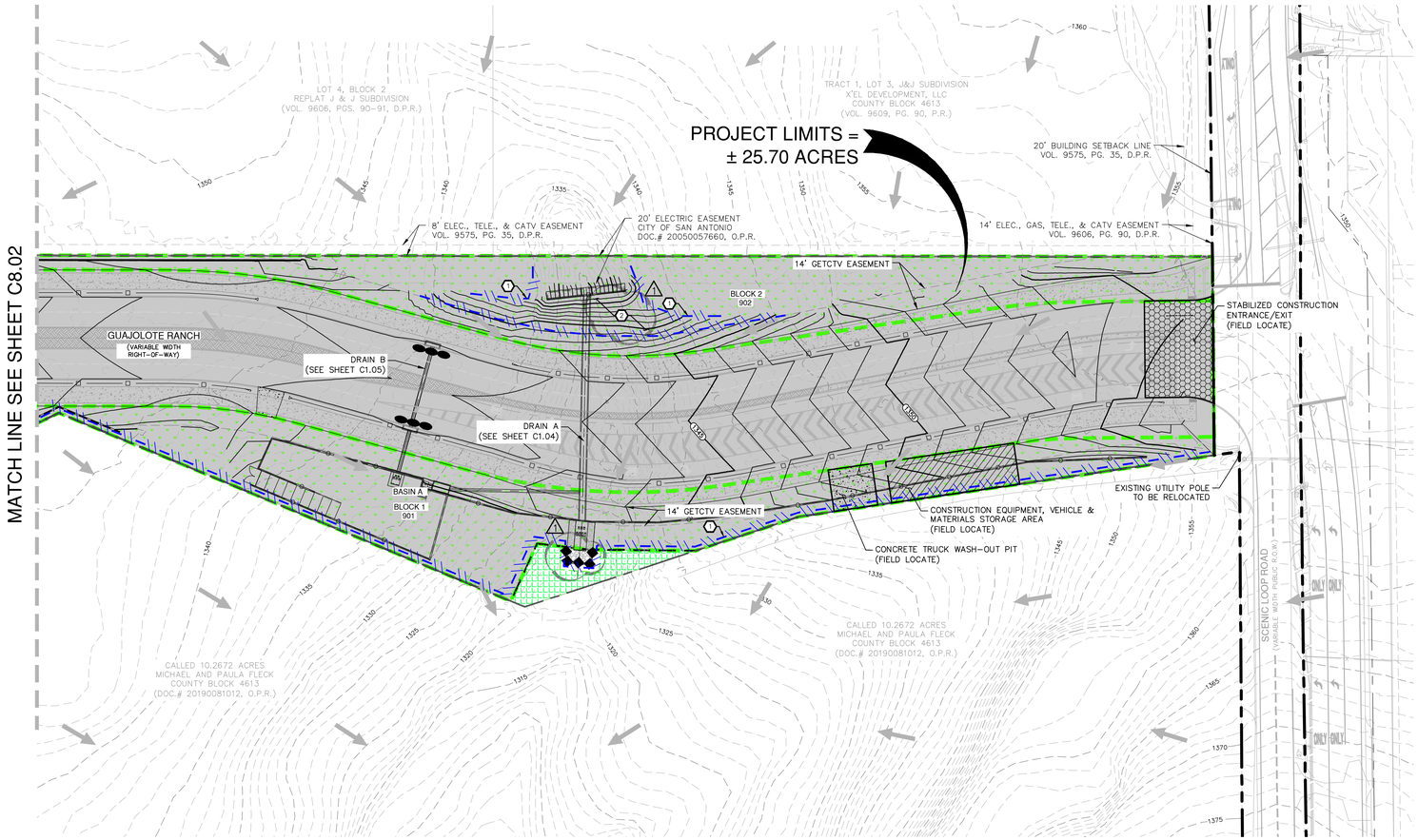
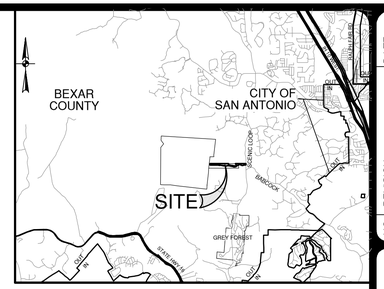


KEYED NOTES:

1. WHERE SILT FENCE IS SHOWN RUNNING ALONG DOWNHILL SLOPE, CONTRACTOR SHALL INSTALL SILT FENCE IN A J-HOOK PATTERN PER "J-HOOK SILT FENCE DETAIL" ON SHEET C8.20
2. ALL SLOPES OUTSIDE OF PROPOSED ROW GREATER THAN OR EQUAL TO 10% SHALL BE PERMANENTLY STABILIZED AS SOON AS POSSIBLE BY HYDROMULCH FLEXTERA AND 4" MINIMUM TOP SOIL.

SWP3 MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION



LOCATION MAP

SCALE: NTS

SCALE: 1"= 50'

0' 50' 100' 150'

SWPPP LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (1376)
- PROPOSED CONTOUR (1375)
- FLOW ARROW (EXISTING)
- FLOW ARROW (PROPOSED)
- SILT FENCE – PHASE 1
- SILT FENCE – PHASE 1 & 2 (SEE NOTE 17)
- ROCK BERM (18")
- TXDOT TYPE 3 ROCK BERM (36")
- GRAVEL FILTER BAGS
- GRATE INLET PROTECTION
- SEDIMENT CONTROL ROLLS
- LIMITS OF DISTURBED AREA
- STABILIZED CONSTRUCTION ENTRANCE/EXIT (FIELD LOCATE)
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (FIELD LOCATE)
- CONCRETE TRUCK WASH-OUT PIT (FIELD LOCATE)
- AREA TO BE PERMANENTLY STABILIZED/VEGETATED
- NATIVE VEGETATED FILTER STRIP (SHOWN AS 50-FT WHERE POSSIBLE) (CONTRACTOR SHALL NOT DISTURB)

GENERAL NOTES

1. DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.
2. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH-OUT PIT, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD.
3. STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. ALL MODIFICATIONS ARE TO BE NOTED ON THIS EXHIBIT AND SIGNED AND DATED BY THE RESPONSIBLE PARTY.
4. RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.
5. ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.
6. FOR A COMPLETE LISTING OF TEMPORARY STORM WATER POLLUTION PREVENTION CONTROLS REFER TO THE TPDES STORM WATER POLLUTION PREVENTION PLAN.
7. STORM WATER POLLUTION PREVENTION STRUCTURES SHOULD BE CONSTRUCTED WITHIN THE SITE BOUNDARIES. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES ON THIS PLAN FOR VISUAL CLARITY.
8. AS SOON AS PRACTICAL, ALL DISTURBED SOIL THAT WILL NOT BE COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENT AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE PROJECT SPECIFICATIONS.
9. BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UPGRADIENT AREAS.
10. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.
11. UPON COMPLETION OF THE PROJECT, INCLUDING SITE STABILIZATION, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES, PAYING SPECIAL ATTENTION TO ROCK BERMS IN DRAINAGE FEATURES.
12. WHERE VEGETATED FILTER STRIPS ARE INDICATED, CONTRACTOR SHALL VERIFY THAT SUFFICIENT VEGETATION EXISTS, OTHERWISE CONTRACTOR SHALL PLACE SILT FENCING IN LIEU OF VEGETATED FILTER STRIP.
13. SHADED AREA ▭ DENOTES LIMITS OF DISTURBED AREAS. OTHER AREAS WITHIN THE PROJECT LIMITS, WITH THE EXCEPTION OF A CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD, ARE NOT A PART OF THIS TPDES STORM WATER POLLUTION PREVENTION PLAN (SWP3) AND WILL NOT BE DISTURBED BY CIVIL CONSTRUCTION ACTIVITIES. HOUSE CONSTRUCTION ACTIVITIES WILL REQUIRE A SEPARATE STORM WATER POLLUTION PREVENTION PLAN.
14. PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE PLACEMENT OF TEMPORARY BEST MANAGEMENT PRACTICES WITHIN TXDOT RIGHT-OF-WAY WITH TXDOT.
15. CPS ENERGY WILL FUNCTION AS A SECONDARY OPERATOR ON THIS PROJECT AND WILL BE INSTALLING ELECTRIC UTILITIES FOR ON-SITE CONSTRUCTION AND OFF-SITE FEED TO THE PROJECT.
16. A BEXAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN ANY BEXAR COUNTY ROW.
17. "SILT FENCE – PHASES 1 & 2" IS TO BE INSTALLED PRIOR TO CONSTRUCTION AND THEN REPLACED AFTER CONSTRUCTION.
18. STRAW WADDLE TO BE INSTALLED ON TOP OF WALLS AND ON TOP OF STEEP SLOPE AREAS AND DOWN THE SLOPE EVERY 10-FEET.

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES-STORM WATER POLLUTION PREVENTION PLAN (SWP3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 2

NO.	REVISION	DATE
1	REVISED BMP MEASURES	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

STORMWATER POLLUTION PREVENTION PLAN
SHEET 4 OF 4

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AJR DRAWN JQ
SHEET C8.03

Date: Dec 23, 2025, 2:17pm User ID: rherbert
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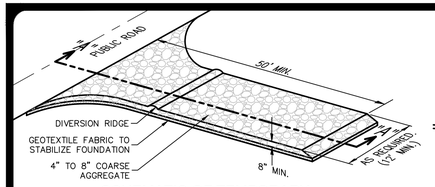
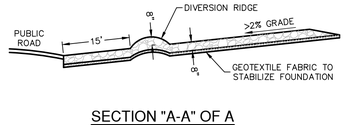


SCHEMATIC OF TEMPORARY CONSTRUCTION ENTRANCE/EXIT



SECTION "A-A" OF A CONSTRUCTION ENTRANCE/EXIT

MATERIALS

1. THE AGGREGATE SHOULD CONSIST OF 4–INCH TO 8–INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.

2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8–INCHES.

3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD^2, A MULLEN BURST RATING OF 140 LB/IN^2, AND AN EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.

4. IF A WASHING FACILITY IS REQUIRED, A LEVEL AREA WITH A MINIMUM OF 4–INCH DIAMETER WASHED STONE OR COMMERCIAL ROCK SHOULD BE INCLUDED IN THE PLANS. DIVERT WASTEWATER TO A SEDIMENT TRAP OR BASIN.

INSTALLATION

1. AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.

2. THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.

3. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.

4. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6–INCHES TO 8–INCHES HIGH WITH 3:1 (H:V) SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.

5. PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.

6. PLACE STONE TO DIMENSIONS AND GRADE SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.

7. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.

8. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.

COMMON TROUBLE POINTS

1. INADEQUATE RUNOFF CONTROL–SEDIMENT WASHES ONTO PUBLIC ROAD.

2. STONE TOO SMALL OR GEOTEXTILE FABRIC ABSENT, RESULTS IN MUDDY CONDITION AS STONE IS PRESSED INTO SOIL.

3. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC–EXTEND PAD BEYOND THE MINIMUM 50–FOOT LENGTH AS NECESSARY.

4. PAD NOT FLARED SUFFICIENTLY AT ROAD SURFACE, RESULTS IN MUD BEING TRACKED ON TO ROAD AND POSSIBLE DAMAGE TO ROAD.

5. UNSTABLE FOUNDATION – USE GEOTEXTILE FABRIC UNDER PAD AND/OR IMPROVE FOUNDATION DRAINAGE.

INSPECTION AND MAINTENANCE GUIDELINES

1. THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.

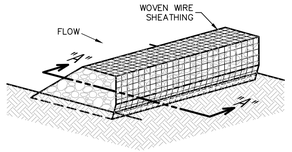
3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.

4. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

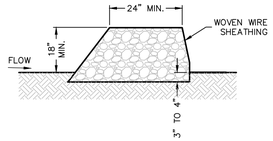
5. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

NOT–TO–SCALE



ISOMETRIC PLAN VIEW



SECTION "A-A"

ROCK BERMS

THE PURPOSE OF A ROCK BERM IS TO SERVE AS A CHECK DAM IN AREAS OF CONCENTRATED FLOW, TO INTERCEPT SEDIMENT–LADEN RUNOFF, DETAIN THE SEDIMENT AND RELEASE THE WATER IN SHEET FLOW. THE ROCK BERM SHOULD BE USED WHEN THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES. ROCK BERMS ARE USED IN AREAS WHERE THE VOLUME OF RUNOFF IS TOO GREAT FOR A SILT FENCE TO CONTAIN. THEY ARE LESS EFFECTIVE FOR SEDIMENT REMOVAL THAN SILT FENCES, PARTICULARLY FOR FINE PARTICLES, BUT ARE ABLE TO WITHSTAND HIGHER FLOWS THAN A SILT FENCE. AS SUCH, ROCK BERMS ARE OFTEN USED IN AREAS OF CHANNEL FLOWS (DITCHES, GULLIES, ETC.). ROCK BERMS ARE MOST EFFECTIVE AT REDUCING BED LOAD IN CHANNELS AND SHOULD NOT BE SUBSTITUTED FOR OTHER EROSION AND SEDIMENT CONTROL MEASURES FARTHER UP THE WATERSHED.

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.

2. REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.

3. REPAIR ANY LOOSE WIRE SHEATHING.

4. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.

5. THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

MATERIALS

1. THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOAT RINGS.

2. CLEAN, OPEN GRADED 3–INCH TO 5–INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5–INCH TO 8–INCH DIAMETER ROCKS MAY BE USED.

INSTALLATION

1. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.

2. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.

3. PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM TO A HEIGHT NOT LESS THAN 18".

4. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.

5. BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.

6. THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

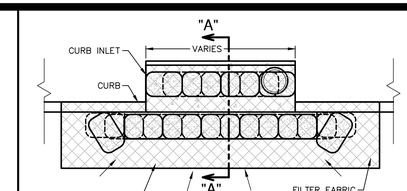
COMMON TROUBLE POINTS

1. INSUFFICIENT BERM HEIGHT OR LENGTH (RUNOFF QUICKLY ESCAPES OVER THE TOP OR AROUND THE SIDES OF BERM).

2. BERM NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND ONE SIDE).

ROCK BERM DETAIL

NOT–TO–SCALE



PLAN VIEW

SECTION "A-A"

GENERAL NOTES

1. CONTRACTOR TO INSTALL 2"x4"–W1.4xW1.4 WIRE MESH SUPPORTING FILTER FABRIC OVER THE INLET OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR WIRE TIES AT THIS LOCATION. SAND BAGS FILLED WITH WASHED PEA GRAVEL SHOULD BE PLACED ON TOP OF WIRE MESH ON TOP OF THE INLET AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SANDBAGS FILLED WITH WASHED PEA GRAVEL SHOULD ALSO BE PLACED ALONG THE GUTTER AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SAND BAGS TO BE STACKED TO FORM A CONTINUOUS BARRIER AROUND INLETS.

2. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.

2. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.

3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.

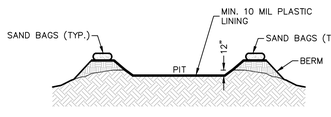
4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.

5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

BAGGED GRAVEL CURB INLET PROTECTION DETAIL

NOT–TO–SCALE

PLAN VIEW



SECTION "A-A"

GENERAL NOTES

1. DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.

2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.

3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.

4. LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES OR WATER BODIES.

5. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE CONSTRUCTED WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

MATERIALS

PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

MAINTENANCE

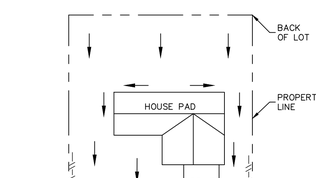
1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF.

2. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.

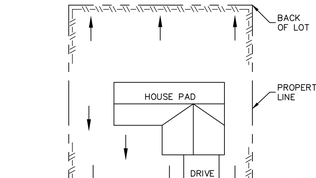
3. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

CONCRETE TRUCK WASHOUT PIT DETAIL

NOT–TO–SCALE



LOT TYPE-A



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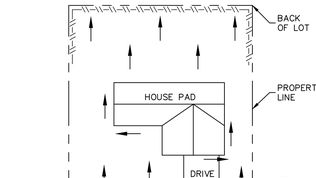


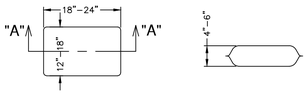
LOT TYPE-C

NOTE: SILT FENCE TO BE INSTALLED PER THESE DETAILS AND LOCATED ON THE DOWNGRADIENT SIDE OF EACH LOT LINE OR LIMITS OF CLEARING AS GENERALLY SHOWN ON THE OVERALL SITE PLAN.

LEGEND
SILT FENCE
DRAINAGE FLOW

TYPICAL HOUSE LOT LAYOUTS

NOT–TO–SCALE



PLAN VIEW

SECTION "A-A"

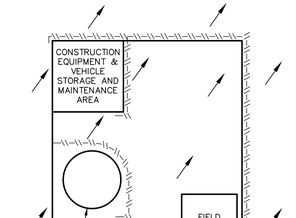
NOTES:
1. THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN. UNIT WEIGHT OF 4 OUNCES/SY, HAVE A MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%.

2. THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM WASHED PEA GRAVEL TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER).

3. SAND SHALL NOT BE USED TO FILL THE FILTER BAGS.

GRAVEL FILTER BAG DETAIL

NOT–TO–SCALE



CONSTRUCTION STAGING AREA

NOT–TO–SCALE

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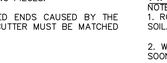
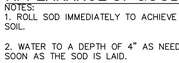
EXHIBIT 3



LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

BUTTING – ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.



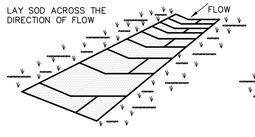
APPEARANCE OF GOOD SOD

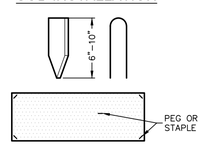
NOTES:
1. ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.

2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.

3. MOW WHEN THE SOD IS ESTABLISHED – IN 2–3 WEEKS. SET THE MOWER HIGH (2"–3").

SOD INSTALLATION





USE PEGS OR STAPLES TO FASTEN SOD FIRMLY – AT THE ENDS OF STRIPS AND IN THE CENTER, OR EVERY 3–4 FEET IF THE STRIPS ARE LONG. WHERE READY TO MOW, DRIVE PEGS OR STAPLES FLUSH WITH THE GROUND.

MATERIALS

1. SOD SHOULD BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" INCH (± 1/4" INCH) AT THE TIME OF CUTTING. THIS THICKNESS SHOULD EXCLUDE SHOOT GROWTH AND THATCH.

2. PIECES OF SOD SHOULD BE CUT TO THE SUPPLIER'S STANDARD WIDTH AND LENGTH, WITH A MAXIMUM ALLOWABLE DEVIATION IN ANY DIMENSION OF 5%. TORN OR UNEVEN PADS SHOULD NOT BE ACCEPTABLE.

3. STANDARD SIZE SECTIONS OF SOD SHOULD BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED FROM A FIRM GRASP ON ONE END OF THE SECTION.

4. SOD SHOULD BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS.

SITE PREPARATION

1. PRIOR TO SOIL PREPARATION, AREAS TO BE SODDED SHOULD BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLAN.

2. THE SURFACE SHOULD BE CLEARED OF ALL TRASH, DEBRIS AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD INTERFERE WITH PLANTING, FERTILIZING OR MAINTENANCE OPERATIONS.

3. FERTILIZE ACCORDING TO SOIL TESTS. FERTILIZER NEEDS CAN BE DETERMINED BY A SOIL TESTING LABORATORY OR REGIONAL RECOMMENDATIONS CAN BE MADE BY COUNTY AGRICULTURAL EXTENSION AGENTS. FERTILIZER SHOULD BE WORKED INTO THE SOIL TO A DEPTH OF 3 INCHES WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT. ON SLOPING LAND, THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE CONTOUR.

INSTALLATION IN CHANNELS

1. SOD STRIPS IN WATERWAYS SHOULD BE LAID PERPENDICULAR TO THE DIRECTION OF FLOW. CARE SHOULD BE TAKEN TO BUTT ENDS OF STRIPS TIGHTLY (SEE FIGURE ABOVE).

2. AFTER ROLLING OR TAMPING, SOD SHOULD BE PEGGED OR STAPLED TO RESIST WASHOUT DURING THE ESTABLISHMENT PERIOD. MESH OR OTHER NETTING MAY BE PEGGED OVER THE SOD FOR EXTRA PROTECTION IN CRITICAL AREAS.

GENERAL INSTALLATION (VA. DEPT. OF CONSERVATION, 1992)

1. SOD SHOULD NOT BE CUT OR LAID IN EXCESSIVELY WET OR DRY WEATHER. SOD ALSO SHOULD NOT BE LAID ON SOIL SURFACES THAT ARE FROZEN.

2. DURING PERIODS OF HIGH TEMPERATURE, THE SOIL SHOULD BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD, TO COOL THE SOIL AND REDUCE ROOT BURNING AND DIEBACK.

3. THE FIRST ROW OF SOD SHOULD BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND BUTTING TIGHTLY AGAINST EACH OTHER. LATERAL JOINTS SHOULD BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. CARE SHOULD BE EXERCISED TO ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS (SEE FIGURE ABOVE).

4. ON SLOPES 3:1 OR GREATER, OR WHEREVER EROSION MAY BE A PROBLEM, SOD SHOULD BE LAID WITH STAGGERED JOINTS AND SECURED BY STAPLING OR OTHER APPROVED METHODS. SOD SHOULD BE INSTALLED WITH THE LENGTH PERPENDICULAR TO THE SLOPE (ON CONTOUR).

5. AS SODDING OF CLEARLY DEFINED AREAS IS COMPLETED, SOD SHOULD BE ROLLED OR TAMPED TO PROVIDE FIRM CONTACT BETWEEN ROOTS AND SOIL.

6. AFTER ROLLING, SOD SHOULD BE IRRIGATED TO A DEPTH SUFFICIENT THAT THE UNDERSIDE OF THE SOD PAD AND THE SOIL 4 INCHES BELOW THE SOD IS THOROUGHLY WET.

7. UNTIL SUCH TIME A GOOD ROOT SYSTEM BECOMES DEVELOPED, IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHOULD BE PERFORMED AS OFTEN AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF AT LEAST 4 INCHES.

8. THE FIRST MOWING SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED, USUALLY 2–3 WEEKS. NOT MORE THAN ONE THIRD OF THE GRASS LEAF SHOULD BE REMOVED AT ANY ONE CUTTING.

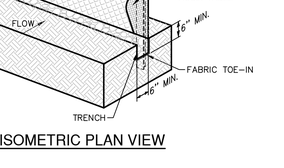
INSPECTION AND MAINTENANCE GUIDELINES

1. SOD SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT TO LOCATE AND REPAIR ANY DAMAGE.

2. DAMAGE FROM STORMS OR NORMAL CONSTRUCTION ACTIVITIES SUCH AS TIRE RUTS OR DISTURBANCE OF SWALE STABILIZATION SHOULD BE REPAIRED AS SOON AS PRACTICAL.

SOD INSTALLATION DETAIL

NOT–TO–SCALE



ISOMETRIC PLAN VIEW

SILT FENCE

A SILT FENCE IS A BARRIER CONSISTING OF GEOTEXTILE FABRIC SUPPORTED BY METAL POSTS TO PREVENT SOIL AND SEDIMENT LOSS FROM A SITE. WHEN PROPERLY USED, SILT FENCES CAN BE HIGHLY EFFECTIVE AT CONTROLLING SEDIMENT FROM DISTURBED AREAS. THEY CAUSE RUNOFF TO POND, ALLOWING HEAVIER SOLIDS TO SETTLE OUT. IF NOT PROPERLY INSTALLED, SILT FENCES ARE NOT LIKELY TO BE EFFECTIVE.

THE PURPOSE OF A SILT FENCE IS TO INTERCEPT AND DETAIN WATER–BORN SEDIMENT FROM UNPROTECTED AREAS OF A LIMITED EXTENT. SILT FENCE IS USED DURING THE PERIOD OF CONSTRUCTION NEAR THE PERIMETER OF A DISTURBED AREA TO INTERCEPT SEDIMENT WHILE ALLOWING WATER TO PERCOLATE THROUGH. THIS FENCE SHOULD REMAIN IN PLACE UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. SILT FENCE SHOULD NOT BE USED WHERE THERE IS A CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY. IF CONCENTRATED FLOW OCCURS AFTER INSTALLATION, CORRECTIVE ACTION MUST BE TAKEN SUCH AS PLACING A ROCK BERM IN THE AREAS OF CONCENTRATED FLOW.

SILT FENCING WITHIN THE SITE MAY BE TEMPORARILY MOVED DURING THE DAY TO ALLOW CONSTRUCTION ACTIVITY PROVIDED IT IS REPLACED AND PROPERLY ANCHORED TO THE GROUND AT THE END OF THE DAY. SILT FENCES ON THE PERIMETER OF THE SITE OR AROUND DRAINAGE WAYS SHOULD NOT BE MOVED AT ANY TIME.

MATERIALS

1. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN2, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NUMBER 30.

2. FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR Y–BAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM WEIGHT 1.25 LB/FT, AND BRINDELL HARDNESS EXCEEDING 140.

3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.

INSTALLATION

1. STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1–FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.

2. LAY OUT FENCING DOWN–SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS ¼ ACRE/100 FEET OF FENCE.

3. THE TOE OF THE SILT FENCE SHOULD BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN–SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT OR ROCK OUTCROP), WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

4. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

5. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHOULD BE A 3–FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

6. SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

COMMON TROUBLE POINTS

1. FENCE NOT INSTALLED ALONG THE CONTOUR CAUSING WATER TO CONCENTRATE AND FLOW OVER THE FENCE.

2. FABRIC NOT SEATED SECURELY TO GROUND (RUNOFF PASSING UNDER FENCE).

3. FENCE NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND SIDES).

4. FENCE TREATING TOO LARGE AN AREA, OR EXCESSIVE CHANNEL FLOW (RUNOFF OVERTOPS OR COLLAPSES FENCE).

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECT ALL FENCING WEEKLY, AND AFTER RAINFALL.

2. REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.

3. REPLACE TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.

4. REPLACE OR REPAIR SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY. IF A SECTION OF FENCE IS OBSTRUCTING VEHICULAR ACCESS, CONSIDER RELOCATING IT TO A SPOT WHERE IT WILL PROVIDE EQUAL PROTECTION, BUT WILL NOT OBSTRUCT VEHICLES. A TRIANGULAR FILTER DIKE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.

5. WHEN CONSTRUCTION IS COMPLETE, THE SEDIMENT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ADDITIONAL SILTATION AND THE PRIOR LOCATION OF THE SILT FENCE SHOULD BE REVEGETATED. THE FENCE ITSELF SHOULD BE DISPOSED OF IN AN APPROVED LANDFILL.

SILT FENCE DETAIL

NOT–TO–SCALE

NO.	REVISION	DATE

12/15/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

STORM WATER POLLUTION PREVENTION PLAN DETAILS

SHEET 1 OF 2

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED ATC DRAWN JQ
SHEET C8.10

Date: Dec 15, 2025, 4:41pm User ID: Jvazquez
File: P:\123\56\10\Design \Civil\SWPPPDT 1235610.dwg

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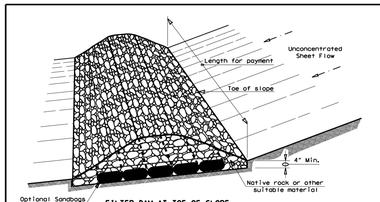
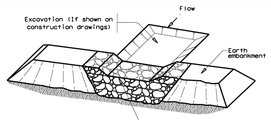
DATE:



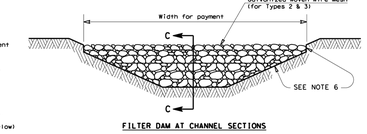
FILTER DAM AT TOE OF SLOPE

RFD1



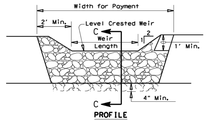
FILTER DAM AT SEDIMENT TRAP

RFD1 OR RFD2

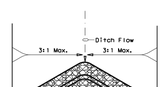


FILTER DAM AT CHANNEL SECTIONS

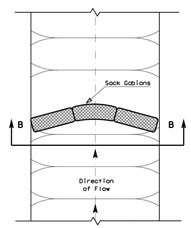
RFD1 OR RFD2 OR RFD3



PROFILE

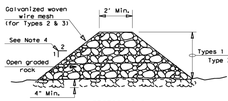


"V" SHAPE PLAN VIEW

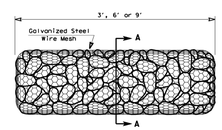


PLAN VIEW

SECTION B-B

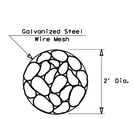


SECTION C-C



TYPE 4 (SACK GABIONS)

RFD4



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/FT² 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 (3" to 6" aggregate): 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 (approximately 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) (3" to 6" aggregate): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh (4" to 8" aggregate): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions) (3" to 6" aggregate): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

Type 5: Provide rock filter dams as shown on plans.

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. For 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, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 ½" x 3 ¼".
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.

PLAN SHEET LEGEND

Type 1 Rock Filter Dam — RFD1
Type 2 Rock Filter Dam — RFD2
Type 3 Rock Filter Dam — RFD3
Type 4 Rock Filter Dam — RFD4

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

EC(2)-16

FILE: ec216	DN:TxDOT	CK: EB	DW: VP	CK: LS
©TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

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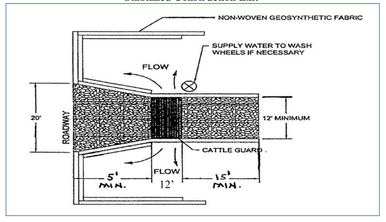
EXHIBIT F

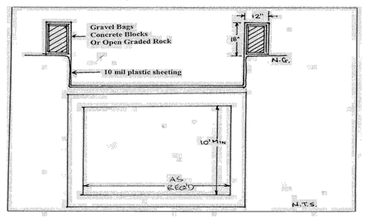
Stabilized Construction Exit



1. **THE GRID CONSISTS OF PIPES OR TUBES WITH A MINIMUM DIAMETER OF 3 INCHES, AND SPACED SUCH THAT THERE IS A MINIMUM CLEAR DISTANCE OF 4 1/2 INCHES BETWEEN THEM. ELEVATE THE GRID ABOVE THE GROUND SURFACE A MINIMUM OF 8 INCHES TO ALLOW WATER, DEBRIS AND SOIL TO DRAIN.**
2. **THE GRID SHALL BE DESIGNED TO SUPPORT THE WEIGHT OF ANY AND ALL VEHICLES ENTERING AND LEAVING THE CONSTRUCTION SITE.**
3. **THE GRID SHALL BE FIRMLY PLACED IN THE GROUND AT THE EXIT, AND SHALL BE OF SUFFICIENT LENGTH THAT THE AGITATION WILL REMOVE THE SOIL FROM THE TIRES, OR A MINIMUM OF 12 FEET.**
4. **AT THE STREET SIDE APPROACH OF THE GRID, THERE SHALL BE AN IMPERVIOUS SURFACE OR IT SHALL CONSIST OF 3" X 5" ANGULAR CRUSHED STONE/ROCK 5 FEET IN LENGTH MINIMUM, AND 8 INCHES DEEP, MINIMUM. ON THE JOB SITE SIDE OF THE GRID, THERE SHALL BE 3" X 5" ANGULAR CRUSHED STONE/ROCK 15 FEET IN LENGTH, MINIMUM, 8 INCHES DEEP, MINIMUM. THE STEEL GRID WILL BE BETWEEN THE STREET SIDE APPROACH AND THE JOB SITE CRUSHED STONE/ROCK. ALL CRUSHED STONE/ROCK SHALL HAVE FILTER FABRIC PLACED BENEATH IT.**
5. **THE STEEL GRID AREA SHALL BE USED AS THE TIRE WASH AREA. WHEN TIRE WASH IS IN USE (RAINY OR MUDDY DAYS), THE AREA SHALL BE MANNED AND THE TIRES SHALL BE WASHED USING A HIGH PRESSURE HOSE/NOZZLE.**
6. **THE AREA BENEATH THE GRID SHALL BE SLOPED SUCH THAT DEBRIS, SOIL AND WATER SHALL BE DIVERTED BACK ON TO THE CONSTRUCTION SITE OR TO A SEDIMENT BASIN. NO WATER, SOIL OR DEBRIS SHALL LEAVE THE CONSTRUCTION SITE, AND THE RESULTING DISCHARGE SHALL BE DISPOSED OF PROPERLY.**

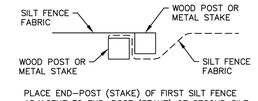
EXHIBIT G

Concrete Truck Washout



1. **THE EXCAVATION FOR THE CONCRETE TRUCK WASHOUT SHALL BE A MINIMUM OF 10 FEET WIDE AND OF SUFFICIENT LENGTH AND DEPTH TO ACCOMMODATE 7 GALLONS OF WASHOUT WATER AND CONCRETE PER TRUCK PER DAY AND/OR 50 GALLONS OF WASHOUT WATER AND CONCRETE PER PUMP TRUCK PER DAY.**
2. **IN THE EVENT THAT THE CONCRETE TRUCK WASHOUT IS CONSTRUCTED ABOVE GROUND, IT SHALL BE 10 FEET WIDE AND 10 FEET LONG, WITH THE SAME REQUIREMENTS FOR CONTAINMENT AS DESCRIBED IN ITEM 1.**
3. **THE CONTAINMENT AREA SHALL BE LINED WITH 10 MIL PLASTIC SHEETING WITHOUT HOLES OR TEARS. WHERE THERE ARE SEAMS, THESE SHALL BE SECURED ACCORDING TO MANUFACTURERS' DIRECTIONS.**
4. **THE BERM CONSISTING OF GRAVEL BAGS, CONCRETE BLOCKS OR OPEN GRADED ROCK SHALL BE NO LESS THAN 18 INCHES HIGH AND NO LESS THAN 12 INCHES WIDE.**
5. **THE PLASTIC SHEETING SHALL BE OF SUFFICIENT SIZE SO THAT IT WILL OVERLAP THE TOP OF THE CONTAINMENT AREA AND BE WRAPPED AROUND THE GRAVEL BAGS, CONCRETE BLOCKS OR OPEN GRADED ROCK AT LEAST 2 TIMES.**
6. **THE GRAVEL BAGS OR CONCRETE BLOCKS SHALL BE PLACED ABUTTING EACH OTHER TO FORM A CONTINUOUS BERM AROUND THE OUTER PERIMETER OF THE CONTAINMENT AREA.**
7. **THE WASHOUT MATERIAL IN THE CONTAINMENT AREA SHALL NOT EXCEED 50% OF CAPACITY AT ANY ONE TIME.**
8. **SOLIDS SHALL BE REMOVED FROM CONTAINMENT AREA AND DISPOSED OF PROPERLY. ANY DAMAGE TO THE PLASTIC SHEETING SHALL BE REPAIRED OR SHEETING REPLACED BEFORE THE NEXT USE.**

ATTACHING TWO SILT FILTER FENCES
(NOT APPLICABLE FOR J-HOOKS)



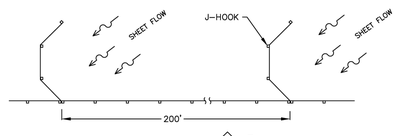
PLACE END-POST (STAKE) OF FIRST SILT FENCE ADJACENT TO END-POST (STAKE) OF SECOND SILT FENCE WITH FABRIC POSITIONED AS SHOWN

STEP 1

ROTATE POSTS (STAKES) TOGETHER 180 DEG. CLOCKWISE AND DRIVE BOTH POSTS (STAKES) 18" INTO GROUND

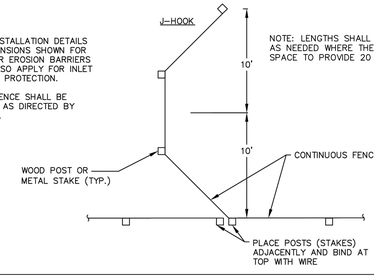
STEP 2

SILT FILTER J-HOOK PLACEMENT



NOTES:

1. THE INSTALLATION DETAILS AND DIMENSIONS SHOWN FOR PERIMETER EROSION BARRIERS SHALL ALSO APPLY FOR INLET AND PIPE PROTECTION.
2. SILT FENCE SHALL BE REMOVED AS DIRECTED BY ENGINEER.



NOTE: LENGTHS SHALL BE REDUCED AS NEEDED WHERE THERE IS NOT ADEQUATE SPACE TO PROVIDE 20 FOOT SECTIONS.

J-HOOK SILT FENCE DETAIL

NOT-TO-SCALE

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES-STORM WATER POLLUTION PREVENTION PLAN (SWP3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 3

NO.	REVISION	DATE
1	ADDED DETAILS	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

STORM WATER POLLUTION PREVENTION PLAN DETAILS
SHEET 2 OF 2

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED bb DRAWN JQ
SHEET C8.20

Date: Dec 23, 2025, 3:22pm User ID: Jvazquez
File: P:\123\56\10\Design\Civil\SWPPPDT 123561O.dwg

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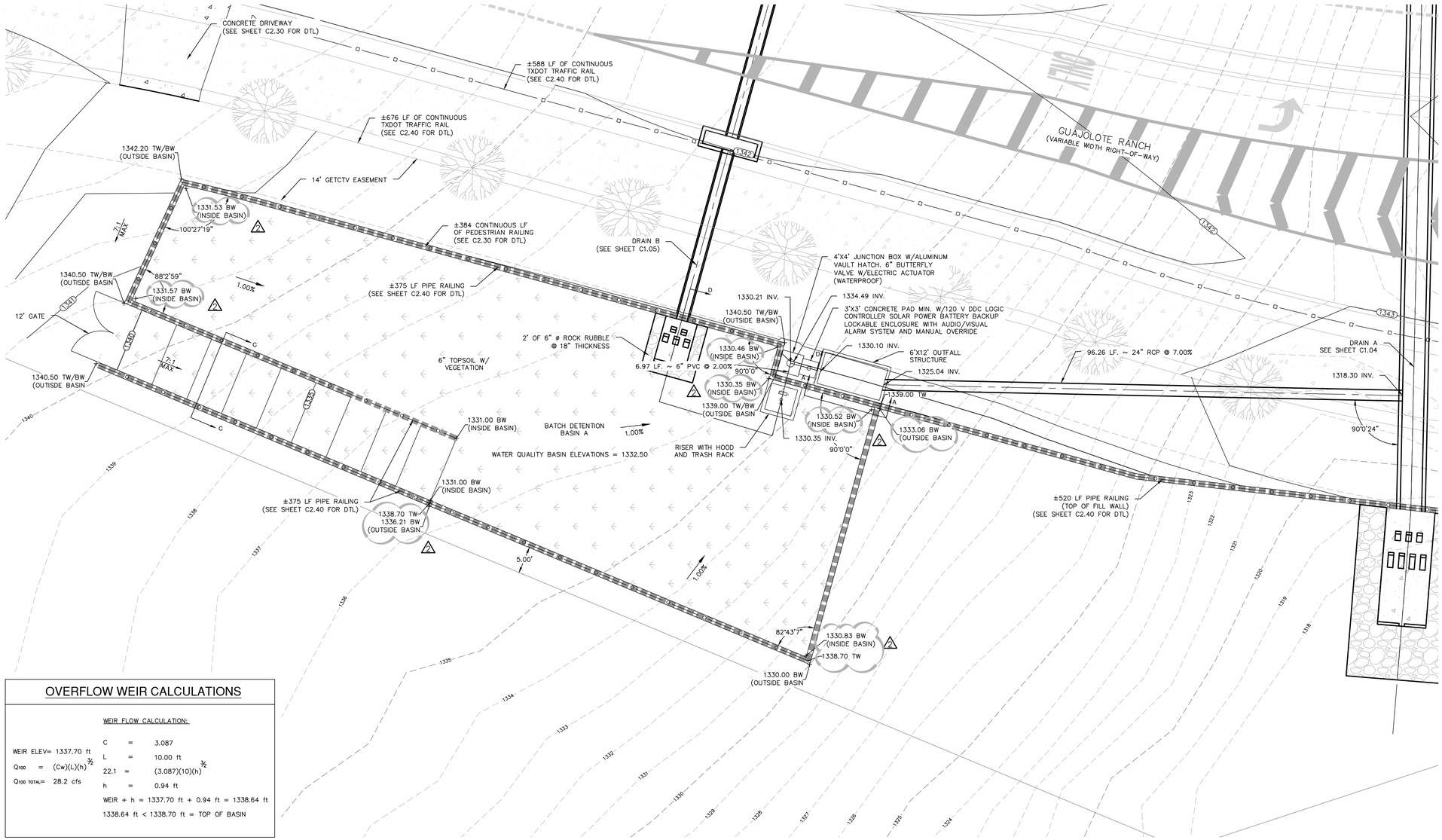


OVERFLOW WEIR CALCULATIONS

WEIR ELEV= 1337.70 ft

$Q_{100} = (Cw)(L)(h)^{3/2}$

$Q_{100\ TOTAL}$= 28.2 cfs

WEIR FLOW CALCULATION:

C = 3.087

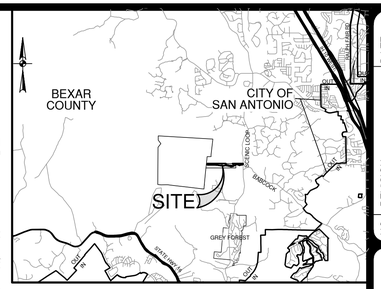
L = 10.00 ft

22.1 = $(3.087)(10)(h)^{3/2}$

h = 0.94 ft

WEIR + h = 1337.70 ft + 0.94 ft = 1338.64 ft

1338.64 ft < 1338.70 ft = TOP OF BASIN



LOCATION MAP

SCALE: NTS

SCALE: 1"= 10'

0' 10' 20' 30'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR UD FLOODPLAIN
- EXISTING CONTOUR — 1290
- PROPOSED CONTOUR — 1300
- TOP OF BERM — TB
- BOTTOM OF BERM — BB
- TOP OF WALL — TW
- TOP OF BERM — BW
- PROPOSED SWALE
- PROPOSED WALL (REF GRADING PLANS FOR WALL TYPES)
- AREA TO BE PERMANENTLY STABILIZED/VEGETATED
- PROPOSED CONCRETE
- PROPOSED ROCK RUBBLE
- PROPOSED STORM DRAIN

DRAINAGE & GRADING NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
2. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
3. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF NEW BRAUNFELS WILL ACCEPT.
6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.
7. ALL RCP SHALL BE AASHTO M170 CLASS III RCP.
8. GUADALUPE COUNTY DOES NOT MAINTAIN SIDEWALKS, CURB AND GUTTER, CURB RAMPS, PAVERS, LUMINARIES, STORM SEWER, OR DETENTION APPURTENANCES.
9. MARION OAKS MUNICIPAL UTILITY DISTRICT OF GUADALUPE COUNTY SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF DRAINAGE STRUCTURES, PONDS, AND EASEMENTS DESIGNATED WITHIN THE SUBJECT PROPERTY. MAINTENANCE RESPONSIBILITY FOR DRAINAGE WILL NOT BE ACCEPTED BY THE COUNTY OTHER THAN THAT ACCEPTED IN CONNECTION WITH DRAINING OR PROTECTING THE ROAD SYSTEM. MAINTENANCE RESPONSIBILITY FOR STORM WATER MANAGEMENT CONTROLS WILL REMAIN WITH THE MARION OAKS MUNICIPAL UTILITY DISTRICT OF GUADALUPE COUNTY.

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT "TEXAS 811" A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

FLOODPLAIN NOTE

NO PORTION OF ANY LOT ON THIS PROJECT IS WITHIN AN INDICATED SPECIAL FLOOD HAZARD ZONE ACCORDING TO THE FEMA FIRM MAP NO. 48187C0245F EFFECTIVE DATE 11/02/2007.

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF POLLUTION ABATEMENT ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 4

NO.	REVISION	DATE
1	REVISED BASIN DESIGN	12/15/25
2	BASIN SPOT ELEVATIONS	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

BASIN A

PLAT NO. 25-11800226

JOB NO. 12356-10

DATE DECEMBER 2025

DESIGNER IA

CHECKED BB DRAWN JQ

SHEET C9.00

Date: Dec 30, 2025, 3:24pm User ID: iarroyo
File: P:\123\56\10\Design\Civil\BA-A 1235610.dwg

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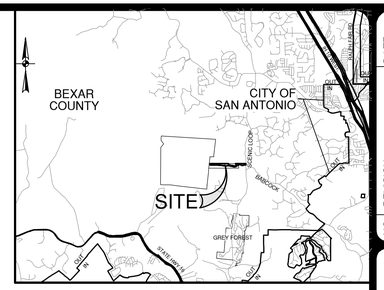


LOCATION MAP

SCALE: NTS

NO.	REVISION	DATE
1	REVISED BASIN DETAILS	12/23/25

12/23/25

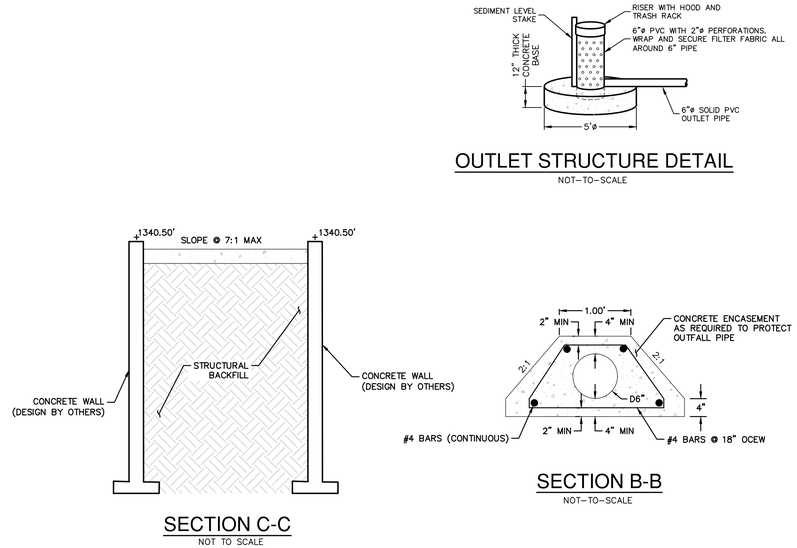
STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

BASIN A DETAILS



SECTION C-C

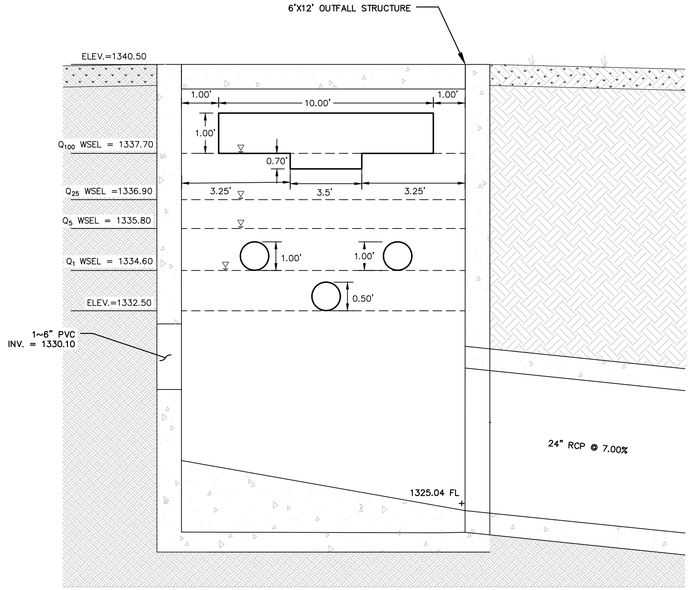
NOT TO SCALE

OUTLET STRUCTURE DETAIL

NOT-TO-SCALE

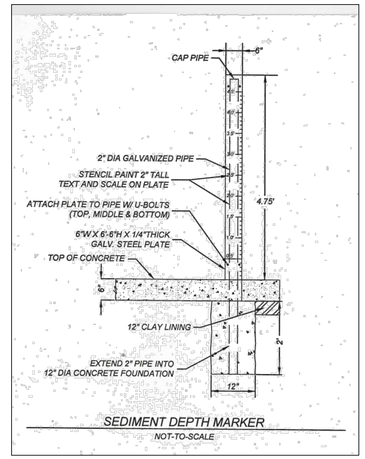
SECTION B-B

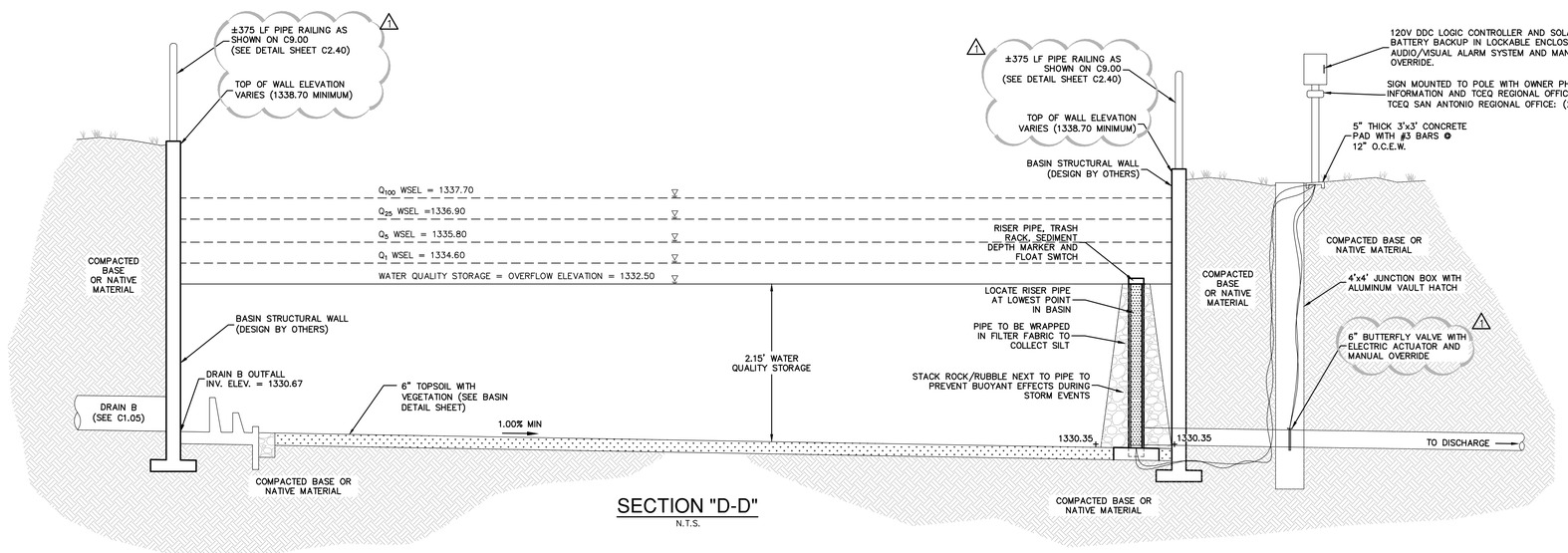
NOT-TO-SCALE



SECTION "A-A"

NOT TO SCALE





SECTION "D-D"

N.T.S.

NOTES TO CONTRACTOR

FOR EACH PHASE OF BASIN CONSTRUCTION

1. CONTRACTOR IS ADVISED THAT TCEQ DOES NOT ALLOW CHANGES TO PERMANENT POLLUTION ABATEMENT MEASURES WITHOUT THEIR PRIOR APPROVAL.

2. CONTRACTOR SHALL NOTIFY CERTIFYING ENGINEER WHEN BASIN CONSTRUCTION HAS PROGRESSED TO THE FOLLOWING MILESTONES:

   a.) REINFORCING STEEL FOR BASIN OVERFLOW WALL OR RIP-RAP HAS BEEN SET, CONCRETE HAS NOT BEEN PLACED AND DRAIN PIPE IS IN PLACE. CONTRACTOR SHALL PROVIDE ENGINEER WITH SURVEY DATA WHICH DEMONSTRATES THE RISER PIPE HAS BEEN SET AT PROPER ELEVATION AND GRADE.

   b.) BASIN HAS BEEN COMPLETELY FINISHED INCLUDING SOD OR SEED PLACEMENT ON SIDE SLOPES (WHERE APPLICABLE).

3. WORK SHALL NOT CONTINUE ON THE BASIN UNTIL THE ENGINEER HAS HAD AN OPPORTUNITY TO OBSERVE THE STATUS OF CONSTRUCTION AT EACH STAGE. CONTRACTOR SHALL PROVIDE ENGINEER A MINIMUM OF 24 HOURS ADVANCE NOTICE PRIOR TO TIME THE BASIN WILL BE AT THE REQUIRED STAGE.

4. UPON SUBSTANTIAL COMPLETION, OR AS REQUESTED BY ENGINEER, CONTRACTOR TO PROVIDE CERTIFYING ENGINEER WITH FIELD SHOTS VERIFYING ELEVATIONS OF THE FOLLOWING:

- TOP OF BANK/WALL AT EACH CORNER OF BASIN
- TOE OF SLOPE AT EACH CORNER OF BASIN (INSIDE BASIN TOE)
- SPLASH PAD/INLET PIPES
- OVERFLOW WEIR

5. BEFORE FINAL ACCEPTANCE OF CONSTRUCTION BY THE OWNER, THE CONTRACTOR WILL REMOVE ALL TRASH, DEBRIS, AND ACCUMULATED SILT FROM THE BASINS AND REESTABLISH THEM TO THE PROPER OPERATING CONDITION.

6. THE MINIMUM DRAIN TIME FOR A FULL BASIN IS 48 HOURS. THE CONTRACTOR SHALL RESTRICT THE FLOW THROUGH THE BASIN BY ADJUSTING THE GATE VALVE ON THE DISCHARGE PIPE SO AS TO PROVIDE THE MINIMUM 48 HOUR DRAW-DOWN TIME.

NOTES:

1. CONTRACTOR SHALL INSTALL AND ESTABLISH VEGETATION IN BASIN PER BASIN DETAIL SHEET PRIOR TO SITE CLOSEOUT.

2. UPON COMPLETION OF CONSTRUCTION, AND IN ACCORDANCE WITH TCEQ REGULATIONS, ALL PERMANENT BMP'S (FILTER STRIPS AND BASIN) MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.

3. ALL AREAS DISTURBED AS PART OF CONSTRUCTION OF BASIN SHALL BE REVEGETATED PRIOR TO COMPLETION.

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF POLLUTION ABATEMENT ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 5

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED bb DRAWN JQ
SHEET C9.01

Date: Dec 23, 2025, 2:18pm User ID: rherbert
File: P:\12356\10\Design\Civil\BA-A 1235610.dwg

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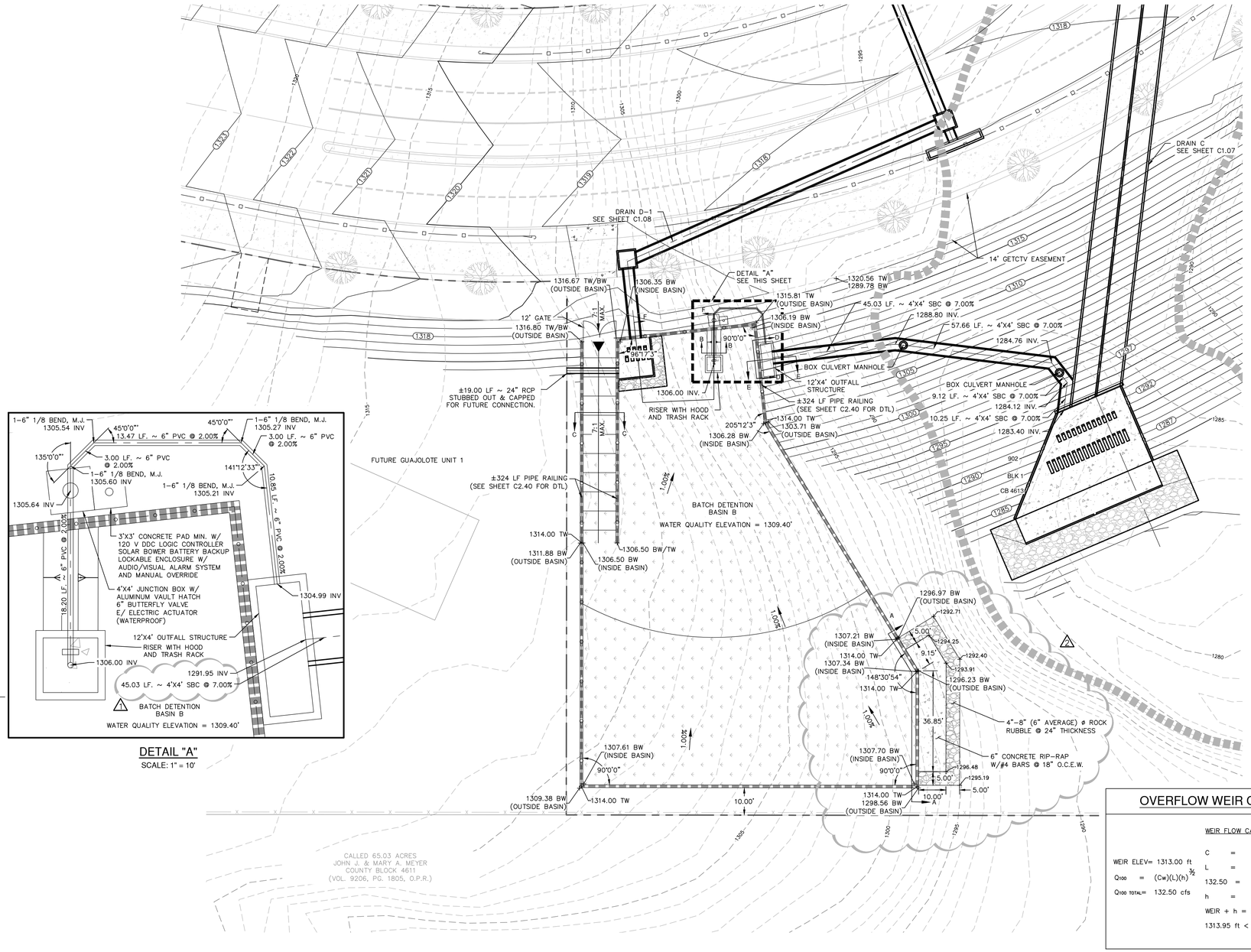
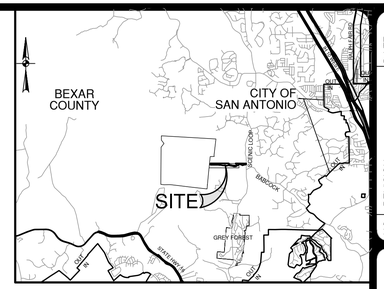


DETAIL "A"
SCALE: 1" = 10'



LOCATION MAP
SCALE: NTS

SCALE: 1"= 20'
0' 20' 40' 60'

DRAINAGE LEGEND

PROJECT LIMITS	
100 YR UD FLOODPLAIN	
EXISTING CONTOUR	1290
PROPOSED CONTOUR	1300
TOP OF BERM	TB
BOTTOM OF BERM	BB
TOP OF WALL	TW
TOP OF BERM	BW
PROPOSED SWALE	
PROPOSED CONCRETE WALL	
AREA TO BE PERMANENTLY STABILIZED/VEGETATED	
PROPOSED CONCRETE	
PROPOSED ROCK RUBBLE	
PROPOSED STORM DRAIN	

FLOODPLAIN NOTE
NO PORTION OF ANY LOT ON THIS PROJECT IS WITHIN AN INDICATED SPECIAL FLOOD HAZARD ZONE ACCORDING TO THE FEMA FIRM MAP NO. 48187C0245F EFFECTIVE DATE 11/02/2007.

DRAINAGE & GRADING NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
2. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
3. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF NEW BRAUNFELS WILL ACCEPT.
6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.
7. ALL RCP SHALL BE AASHTO M170 CLASS III RCP.
8. GUADALUPE COUNTY DOES NOT MAINTAIN SIDEWALKS, CURB AND GUTTER, CURB RAMPS, PAVERS, LUMINARIES, STORM SEWER, OR DETENTION APPURTENANCES.
9. MARION OAKS MUNICIPAL UTILITY DISTRICT OF GUADALUPE COUNTY SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF DRAINAGE STRUCTURES, PONDS, AND EASEMENTS DESIGNATED WITHIN THE SUBJECT PROPERTY. MAINTENANCE RESPONSIBILITY FOR DRAINAGE WILL NOT BE ACCEPTED BY THE COUNTY OTHER THAN THAT ACCEPTED IN CONNECTION WITH DRAINING OR PROTECTING THE ROAD SYSTEM. MAINTENANCE RESPONSIBILITY FOR STORM WATER MANAGEMENT CONTROLS WILL REMAIN WITH THE MARION OAKS MUNICIPAL UTILITY DISTRICT OF GUADALUPE COUNTY.

CAUTION!!
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT "TEXAS 811" A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

OVERFLOW WEIR CALCULATIONS

WEIR ELEV= 1313.00 ft

$Q_{100} = (Cw)(L)(h)^{3/2}$

$Q_{100\ TOTAL} = 132.50$ cfs

WEIR FLOW CALCULATION:

C = 3.087

L = 46.00 ft

$132.50 = (3.087)(46)(h)^{3/2}$

h = 0.95 ft

WEIR + h = 1313.00 ft + 0.95 ft = 1313.95 ft

1313.95 ft < 1314.00 ft = TOP OF BASIN

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF POLLUTION ABATEMENT ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 4

NO.	REMSION	DATE
1	ADDED PIPE STUB OUT & REVISED FLOW TO OUTFALL	12/23/25
2	SPOT ELEVATIONS	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

BASIN B

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C9.10

Date: Dec 30, 2025, 3:08pm User ID: jarroyo
File: P:\123\06\10\Design\Civil\BA-B 1235610.dwg

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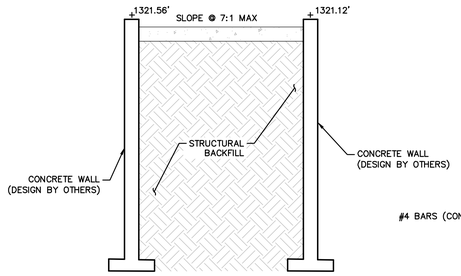
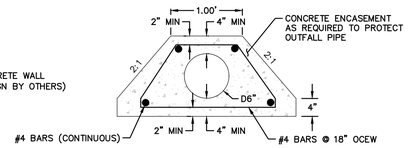
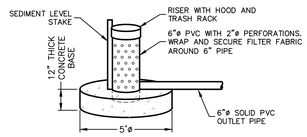


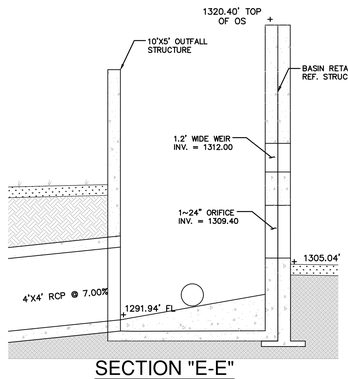
SECTION C-C
NOT TO SCALE



SECTION B-B
NOT-TO-SCALE



OUTLET STRUCTURE DETAIL
NOT-TO-SCALE



SECTION "E-E"
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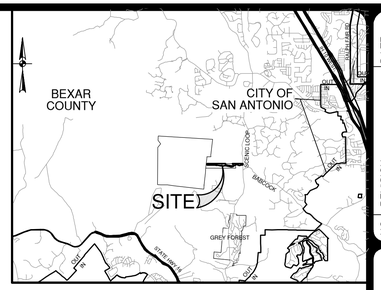
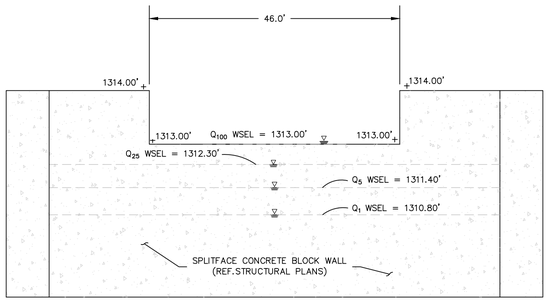


LOCATION MAP
SCALE: NTS



SECTION A-A
NOT TO SCALE

OVERFLOW WEIR CALCULATIONS

WEIR FLOW CALCULATION:

WEIR ELEV= 1313.00 ft

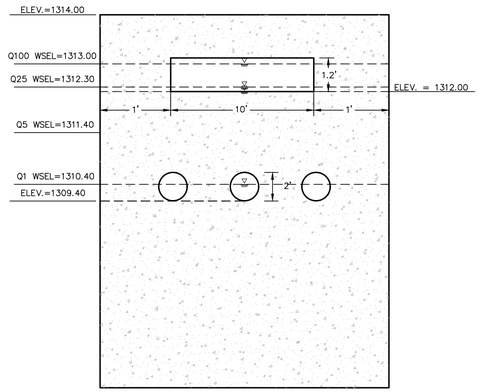
$Q_{100} = (Cw)(L)(h)^{3/2}$

$Q_{100\ TOTAL} = 132.50$ cfs

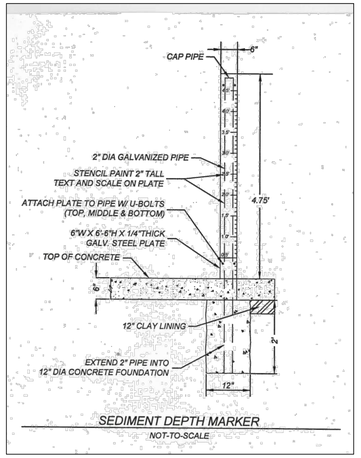
C	=	3.087
L	=	46.00 ft
132.50	=	$(3.087)(46)(h)^{3/2}$
h	=	0.95 ft

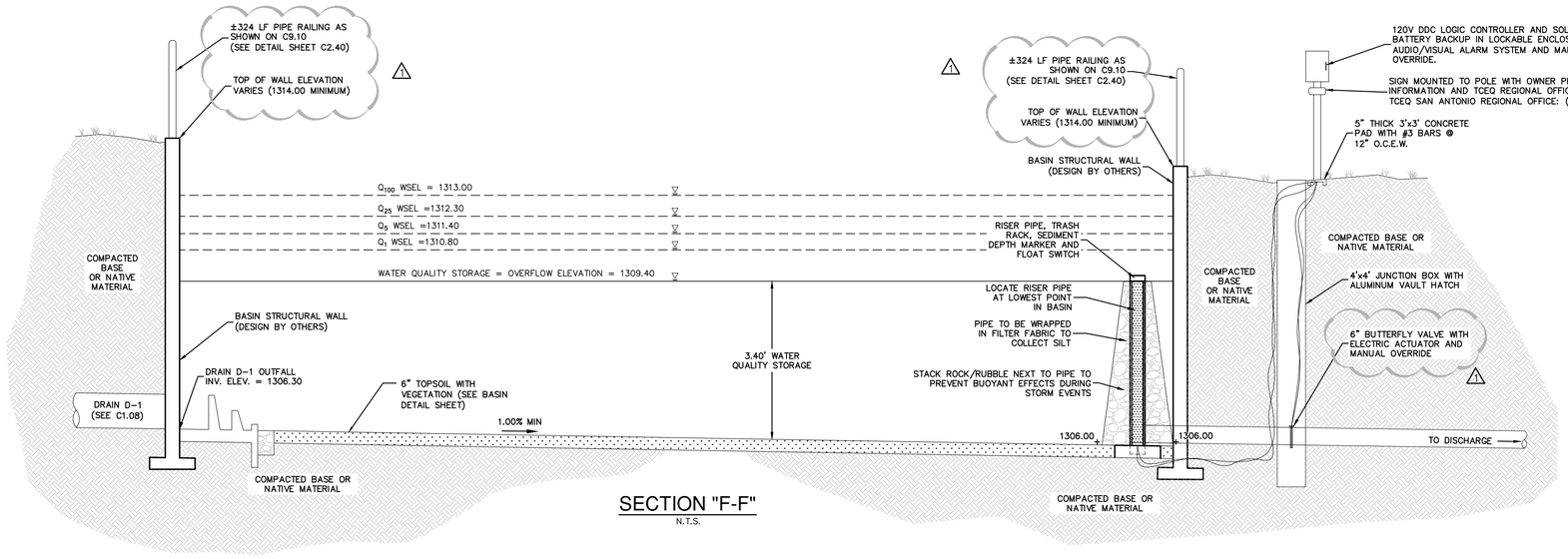
WEIR + h = 1313.00 ft + 0.95 ft = 1313.95 ft

1313.95 ft < 1314.00 ft = TOP OF BASIN



SECTION "D-D"
(NOT TO SCALE)





SECTION "F-F"
N.T.S.

NOTES TO CONTRACTOR

FOR EACH PHASE OF BASIN CONSTRUCTION

1. CONTRACTOR IS ADVISED THAT TCEQ DOES NOT ALLOW CHANGES TO PERMANENT POLLUTION ABATEMENT MEASURES WITHOUT THEIR PRIOR APPROVAL.

2. CONTRACTOR SHALL NOTIFY CERTIFYING ENGINEER WHEN BASIN CONSTRUCTION HAS PROGRESSED TO THE FOLLOWING MILESTONES:

   a.) REINFORCING STEEL FOR BASIN OVERFLOW WALL OR RIP-RAP HAS BEEN SET, CONCRETE HAS NOT BEEN PLACED AND DRAIN PIPE IS IN PLACE. CONTRACTOR SHALL PROVIDE ENGINEER WITH SURVEY DATA WHICH DEMONSTRATES THE RISER PIPE HAS BEEN SET AT PROPER ELEVATION AND GRADE.

   b.) BASIN HAS BEEN COMPLETELY FINISHED INCLUDING SOD OR SEED PLACEMENT ON SIDE SLOPES (WHERE APPLICABLE).

3. WORK SHALL NOT CONTINUE ON THE BASIN UNTIL THE ENGINEER HAS HAD AN OPPORTUNITY TO OBSERVE THE STATUS OF CONSTRUCTION AT EACH STAGE. CONTRACTOR SHALL PROVIDE ENGINEER A MINIMUM OF 24 HOURS ADVANCE NOTICE PRIOR TO TIME THE BASIN WILL BE AT THE REQUIRED STAGE.

4. UPON SUBSTANTIAL COMPLETION, OR AS REQUESTED BY ENGINEER, CONTRACTOR TO PROVIDE CERTIFYING ENGINEER WITH FIELD SHOTS VERIFYING ELEVATIONS OF THE FOLLOWING:

- TOP OF BANK/WALL AT EACH CORNER OF BASIN
- TOE OF SLOPE AT EACH CORNER OF BASIN (INSIDE BASIN TOE)
- SPLASH PAD/INLET PIPES
- OVERFLOW WEIR

5. BEFORE FINAL ACCEPTANCE OF CONSTRUCTION BY THE OWNER, THE CONTRACTOR WILL REMOVE ALL TRASH, DEBRIS, AND ACCUMULATED SILT FROM THE BASINS AND REESTABLISH THEM TO THE PROPER OPERATING CONDITION.

6. THE MINIMUM DRAIN TIME FOR A FULL BASIN IS 48 HOURS. THE CONTRACTOR SHALL RESTRICT THE FLOW THROUGH THE BASIN BY ADJUSTING THE GATE VALVE ON THE DISCHARGE PIPE SO AS TO PROVIDE THE MINIMUM 48 HOUR DRAW-DOWN TIME.

NOTES:

1. CONTRACTOR SHALL INSTALL AND ESTABLISH VEGETATION IN BASIN PER BASIN DETAIL SHEET PRIOR TO SITE CLOSEOUT.

2. UPON COMPLETION OF CONSTRUCTION, AND IN ACCORDANCE WITH TCEQ REGULATIONS, ALL PERMANENT BMP'S (FILTER STRIPS AND BASIN) MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.

3. ALL AREAS DISTURBED AS PART OF CONSTRUCTION OF BASIN SHALL BE REVEGETATED PRIOR TO COMPLETION.

NO.	REMARK	DATE
1	REVISED BASIN DETAILS	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

BASIC B DETAILS

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BAD DRAWN JQ
SHEET C9.11

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF POLLUTION ABATEMENT ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 5

Date: Dec 23, 2025, 2:18pm User ID: rherbert
File: P:\123\56\10\Design\Civil\BA-B 1235610.dwg

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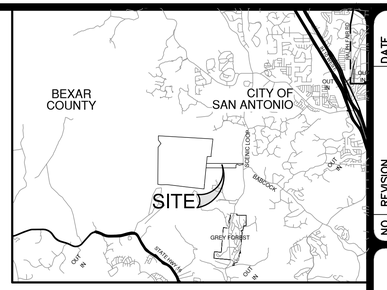
FLOODPLAIN NOTE

NO PORTION OF ANY LOT ON THIS PROJECT IS WITHIN AN INDICATED SPECIAL FLOOD HAZARD ZONE ACCORDING TO THE FEMA FIRM MAP NO. 48187C0245F EFFECTIVE DATE 11/02/2007.

CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT "TEXAS 811" A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.



LOCATION MAP

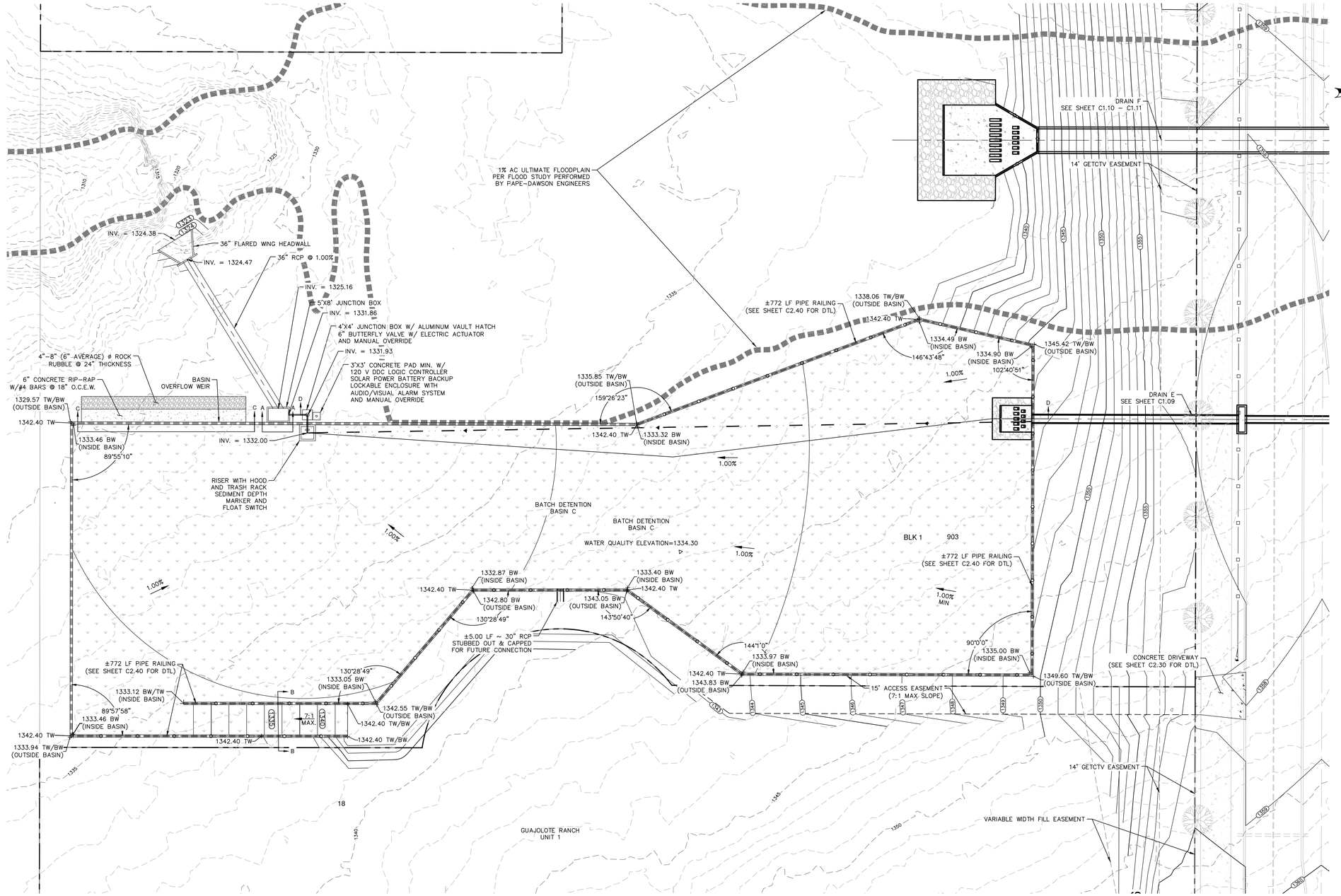
SCALE: NTS

NO.	REVISION	DATE
1	ADDED PIPE STUB OUT AND PIPE RAILING CALLOUTS	12/23/25
2	ADDED EXISTING GROUND	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

SCALE: 1"= 20'
0' 20' 40' 60'



DRAINAGE LEGEND

PROJECT LIMITS	
100 YR UD FLOODPLAIN	
EXISTING CONTOUR	1290
PROPOSED CONTOUR	1300
TOP OF BERM	TB
BOTTOM OF BERM	BB
TOP OF WALL	TW
TOP OF BERM	BW
PROPOSED SWALE	
PROPOSED CONCRETE WALL	
AREA TO BE PERMANENTLY STABILIZED/VEGETATED	
PROPOSED CONCRETE	
PROPOSED ROCK RUBBLE	
PROPOSED STORM DRAIN	

DRAINAGE & GRADING NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
2. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
3. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF NEW BRAUNFELS WILL ACCEPT.
6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.
7. ALL RCP SHALL BE AASHTO M170 CLASS III RCP.
8. GUADALUPE COUNTY DOES NOT MAINTAIN SIDEWALKS, CURB AND GUTTER, CURB RAMPS, PAVERS, LUMINARIES, STORM SEWER, OR DETENTION APPURTENANCES.
9. MARION OAKS MUNICIPAL UTILITY DISTRICT OF GUADALUPE COUNTY SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF DRAINAGE STRUCTURES, PONDS, AND EASEMENTS DESIGNATED WITHIN THE SUBJECT PROPERTY. MAINTENANCE RESPONSIBILITY FOR DRAINAGE WILL NOT BE ACCEPTED BY THE COUNTY OTHER THAN THAT ACCEPTED IN CONNECTION WITH DRAINING OR PROTECTING THE ROAD SYSTEM. MAINTENANCE RESPONSIBILITY FOR STORM WATER MANAGEMENT CONTROLS WILL REMAIN WITH THE MARION OAKS MUNICIPAL UTILITY DISTRICT OF GUADALUPE COUNTY.

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

BASIN C

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

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EXHIBIT 4

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED DAR DRAWN JQ
SHEET C9.20

Date: Dec 30, 2025, 3:08pm User ID: iarroyo
File: P:\123\56\10\Design\Civil\BA-C 1235610.dwg

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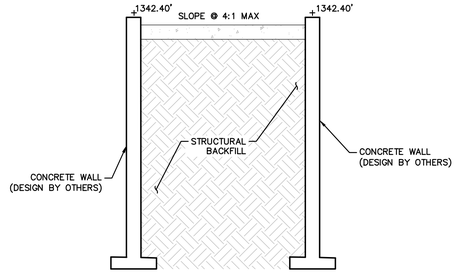
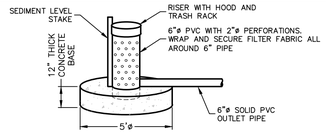
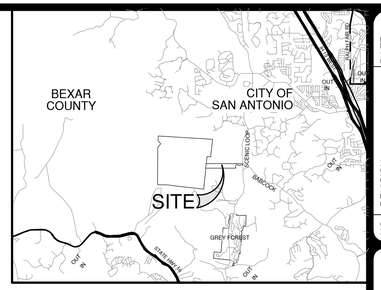


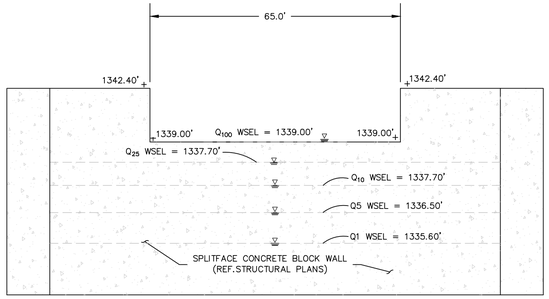
SECTION B-B
NOT TO SCALE



OUTLET STRUCTURE DETAIL
NOT-TO-SCALE



LOCATION MAP
SCALE: NTS



SECTION C-C
NOT TO SCALE

OVERFLOW WEIR CALCULATIONS

WEIR ELEV= 1339.00 ft

$Q_{100} = (Cw)(L)(h)^{3/2}$

$Q_{100\ TOTAL}$ = 120.70 cfs

WEIR FLOW CALCULATION:

C = 3.087

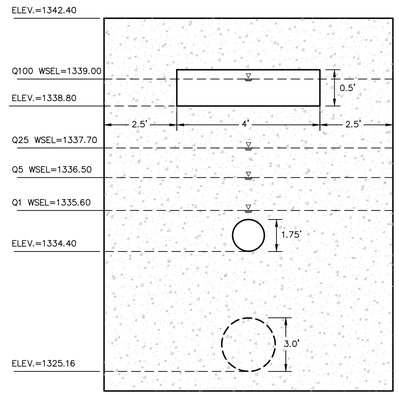
L = 65.00 ft

$120.70 = (3.087)(65)(h)^{3/2}$

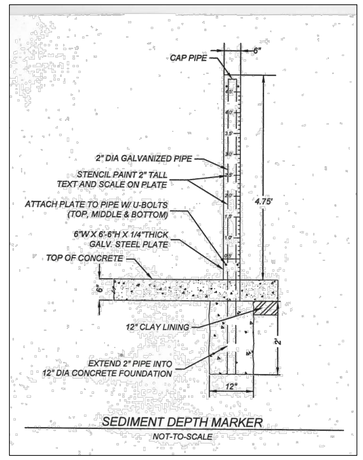
h = 0.99 ft

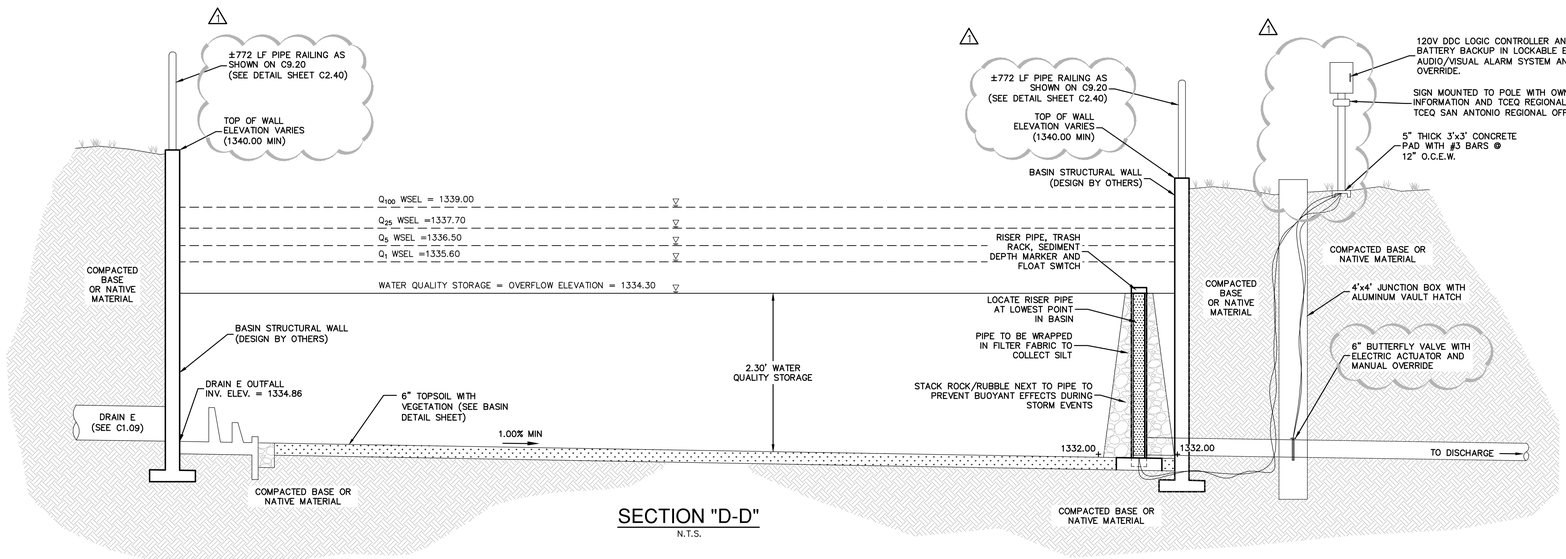
WEIR + h = 1339.00 ft + 0.71 ft = 1339.71 ft

1339.71 ft + < 1342.40 ft = TOP OF BASIN



SECTION "A-A"
(NOT TO SCALE)





SECTION "D-D"
N.T.S.

NOTES TO CONTRACTOR
FOR EACH PHASE OF BASIN CONSTRUCTION

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2. CONTRACTOR SHALL NOTIFY CERTIFYING ENGINEER WHEN BASIN CONSTRUCTION HAS PROGRESSED TO THE FOLLOWING MILESTONES:

a.) REINFORCING STEEL FOR BASIN OVERFLOW WALL OR RIP-RAP HAS BEEN SET, CONCRETE HAS NOT BEEN PLACED AND DRAIN PIPE IS IN PLACE. CONTRACTOR SHALL PROVIDE ENGINEER WITH SURVEY DATA WHICH DEMONSTRATES THE RISER PIPE HAS BEEN SET AT PROPER ELEVATION AND GRADE.

b.) BASIN HAS BEEN COMPLETELY FINISHED INCLUDING SOD OR SEED PLACEMENT ON SIDE SLOPES (WHERE APPLICABLE).

3. WORK SHALL NOT CONTINUE ON THE BASIN UNTIL THE ENGINEER HAS HAD AN OPPORTUNITY TO OBSERVE THE STATUS OF CONSTRUCTION AT EACH STAGE. CONTRACTOR SHALL PROVIDE ENGINEER A MINIMUM OF 24 HOURS ADVANCE NOTICE PRIOR TO TIME THE BASIN WILL BE AT THE REQUIRED STAGE.

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- TOP OF BANK/WALL AT EACH CORNER OF BASIN
- TOE OF SLOPE AT EACH CORNER OF BASIN (INSIDE BASIN TOE)
- SPLASH PAD/INLET PIPES
- OVERFLOW WEIR

5. BEFORE FINAL ACCEPTANCE OF CONSTRUCTION BY THE OWNER, THE CONTRACTOR WILL REMOVE ALL TRASH, DEBRIS, AND ACCUMULATED SILT FROM THE BASINS AND REESTABLISH THEM TO THE PROPER OPERATING CONDITION.

6. THE MINIMUM DRAIN TIME FOR A FULL BASIN IS 48 HOURS. THE CONTRACTOR SHALL RESTRICT THE FLOW THROUGH THE BASIN BY ADJUSTING THE GATE VALVE ON THE DISCHARGE PIPE SO AS TO PROVIDE THE MINIMUM 48 HOUR DRAW-DOWN TIME.

NOTES:

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EXHIBIT 5

NO.	REMARK	DATE
1	REVISED FENCING CALLOUT	12/23/25

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

BASIN C DETAILS

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED bb DRAWN JQ
SHEET C9.21

Date: Dec 23, 2025, 2:19pm User ID: rherbert
File: P:\123\56\10\Design\Civil\BA-C 1235610.dwg

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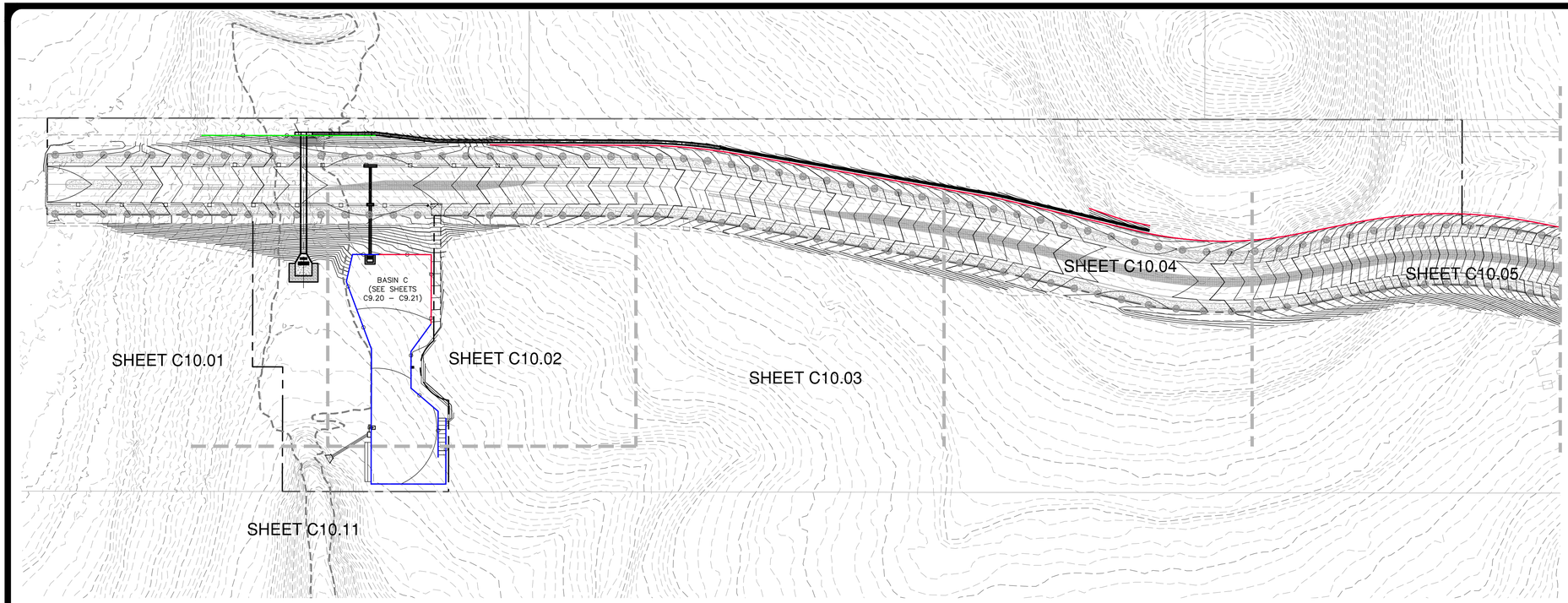

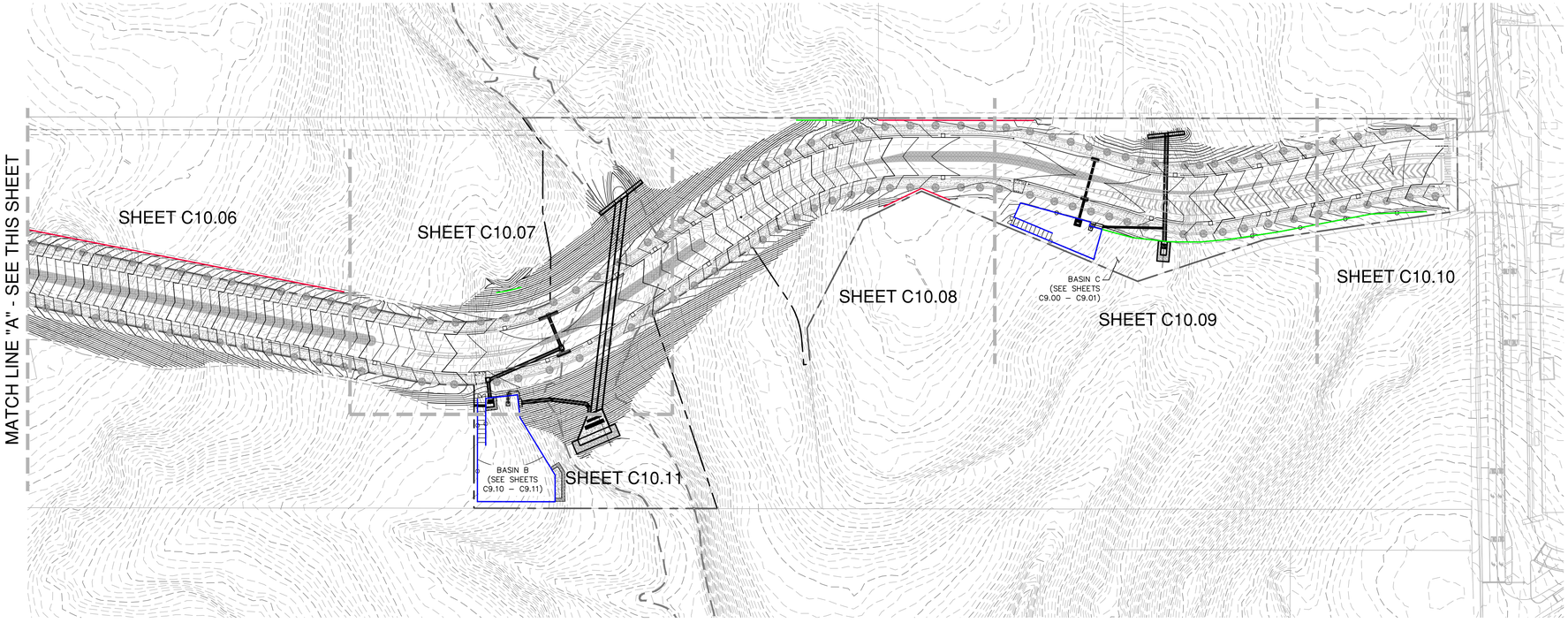

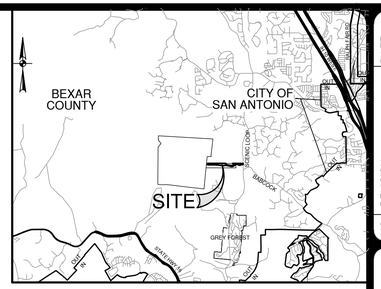

LOCATION MAP

SCALE: NTS

SCALE: 1"= 100'

0' 100' 200' 300'

GRADING LEGEND

PROJECT LIMITS	
FILL WALL (SEE DTL SHEET C10.12) (BY SEPARATE WALL CONTRACTOR)	
CUT WALL (SEE DTL SHEET C10.12) (BY SEPARATE WALL CONTRACTOR)	
CONCRETE CANTILEVER OR FILL WALLS (SEE NOTE 20) (BY GENERAL CONTRACTOR)	
EXISTING CONTOUR	1320
PROPOSED CONTOUR	1320
FLOW ARROW (EXISTING)	
FLOW ARROW (PROPOSED)	
SPOT ELEVATION TOP WALL	○1376.75 TW
SPOT ELEVATION BOTTOM WALL	○1375.25 BW

GRADING NOTES:

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THIS SCOPE OF WORK WHERE NOT SPECIFICALLY COVERED IN THE SPECIFICATIONS OR GEOTECHNICAL REPORT SHALL CONFORM TO ALL APPLICABLE CITY, COUNTY AND TXDOT STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION).

2. SITE PREPARATION, GRADING, EXCAVATION AND FILL SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT AND SPECIFICATIONS.

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11. THE CONTRACTOR SHALL OBTAIN GRADES SHOWN HEREON WITHIN +/– ONE–TENTH (0.10) FOOT.

12. IN PROPOSED PAVING AREAS, STREET DESIGN PLANS SHALL CONTROL. ALL EARTHEN SLOPES SHALL BE A MAXIMUM OF 3:1 AND A MINIMUM OF 1.0% UNLESS OTHERWISE SHOWN.

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NO.	REVISION	DATE
1	CUT WALLS & FILL WALLS	12/15/25
2	NOTE 21	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

OVERALL GRADING PLAN

PLAT NO. 25-11800226
JOB NO. 12356–10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C10.00

Date: Dec 30, 2025, 3:36pm User ID: jarroyo
File: P:\123\56\10\Design\Civil\GR123561O.dwg
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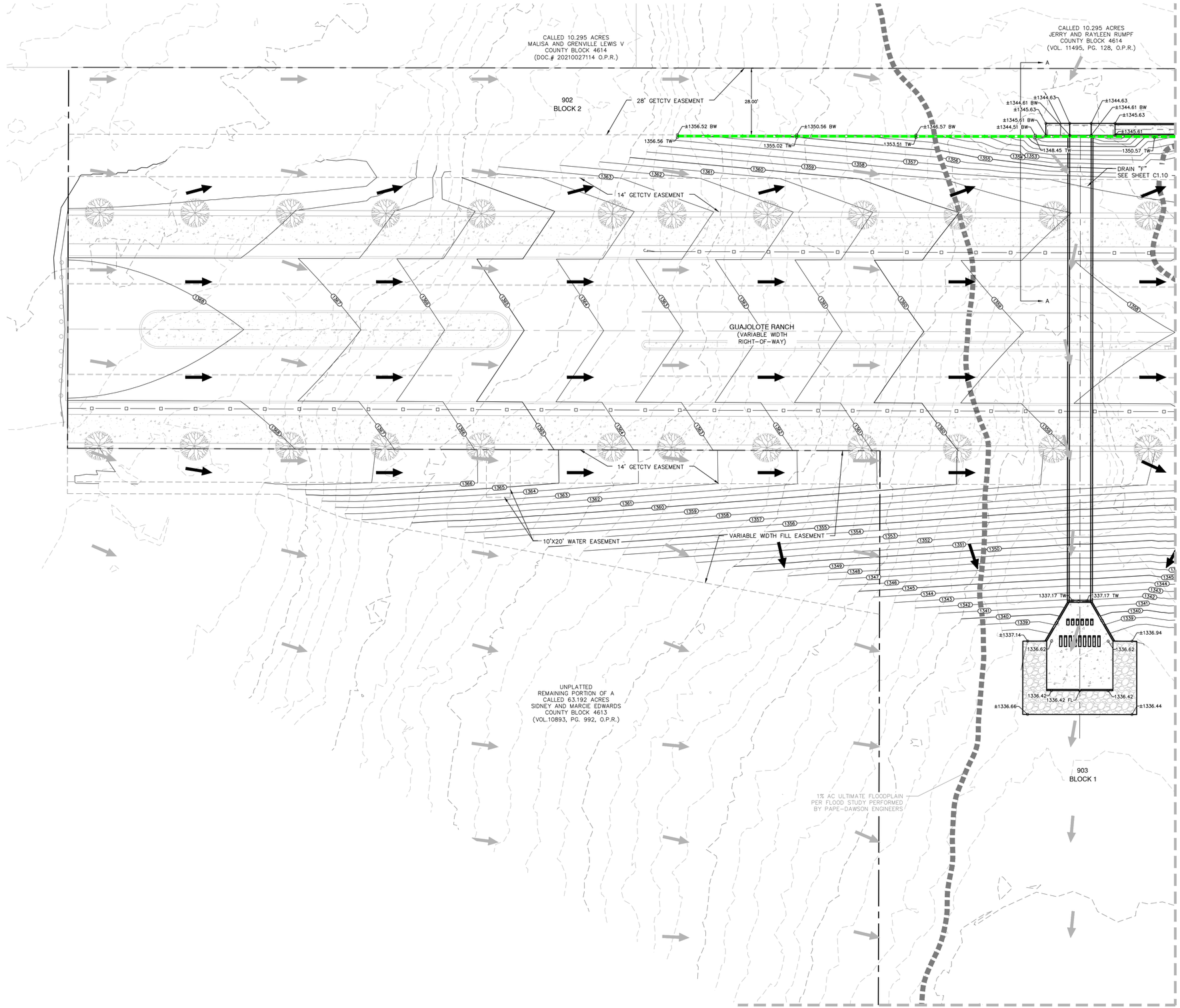

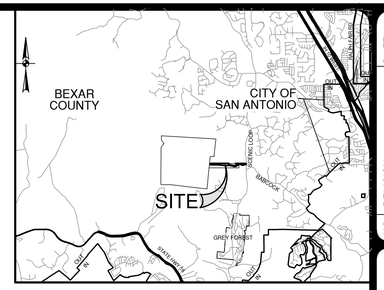

LOCATION MAP

SCALE: NTS

SCALE: 1"= 20'

0' 20' 40' 60'

GRADING LEGEND

PROJECT LIMITS	
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CUT WALL (SEE DTL SHEET C10.12) (BY SEPARATE WALL CONTRACTOR)	
CONCRETE CANTILEVER OR FILL WALLS (SEE NOTE 20) (BY GENERAL CONTRACTOR)	
EXISTING CONTOUR	1320
PROPOSED CONTOUR	1320
FLOW ARROW (EXISTING)	
FLOW ARROW (PROPOSED)	
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NO.	REVISION	DATE
1	NOTE 21	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GRADING PLAN
SHEET 1 OF 11

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C10.01

Date: Dec 30, 2025, 3:37pm User ID: iarroyo
File: P:\123\56\10\Design\Civil\GR123561O.dwg

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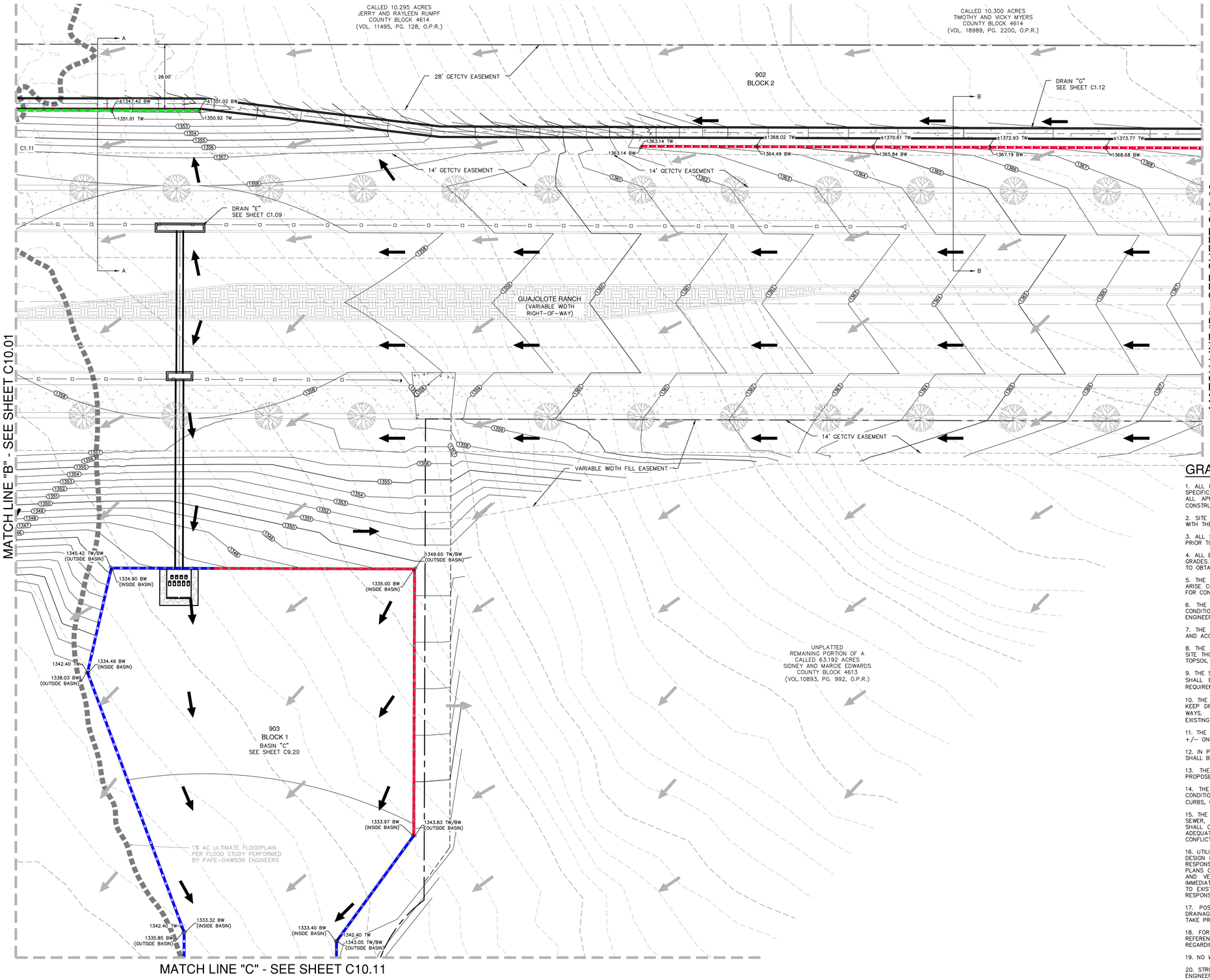

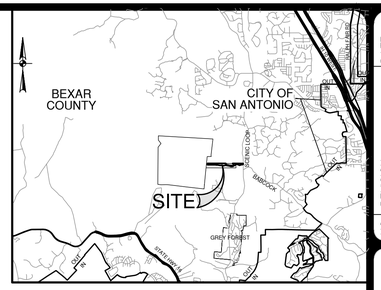

LOCATION MAP

SCALE: NTS

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NO.	REVISION	DATE
1	NOTE 21	12/30/25

12/30/25

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GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GRADING PLAN
SHEET 2 OF 11

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C10.02

Date: Dec 30, 2025, 3:38pm User ID: jarroyo
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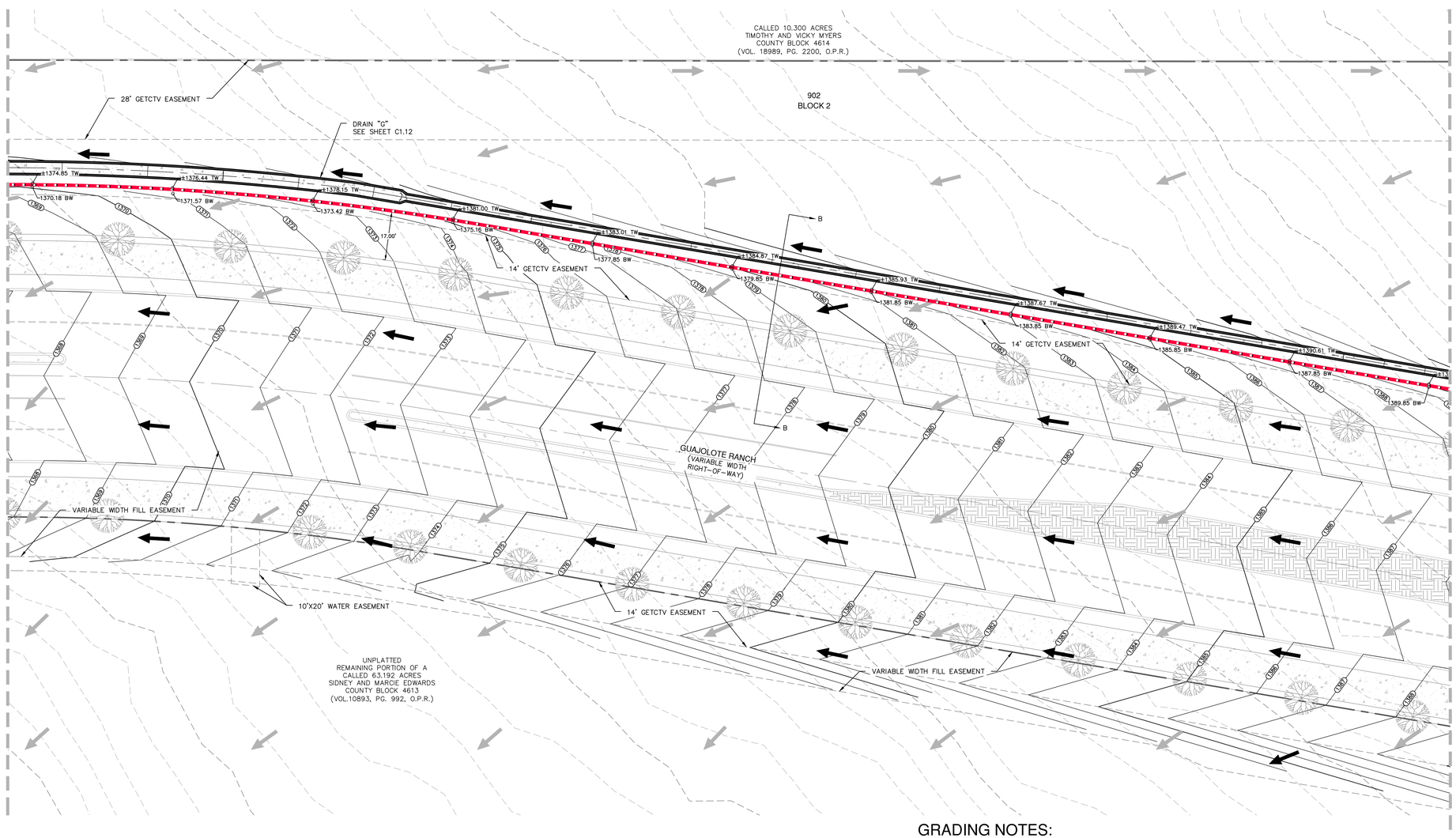

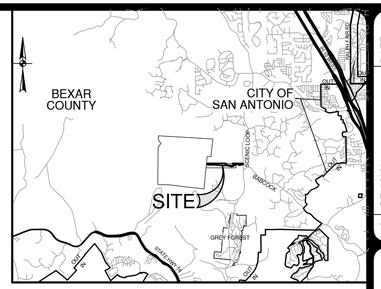

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NO.	REVISION	DATE
1	NOTE 21	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GRADING PLAN
SHEET 3 OF 11

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AR DRAWN JQ
SHEET C10.03

Date: Dec. 30, 2025, 3:38pm User ID: jarroyo
File: P:\123\56\10\Design\Civil\GR1235610.dwg

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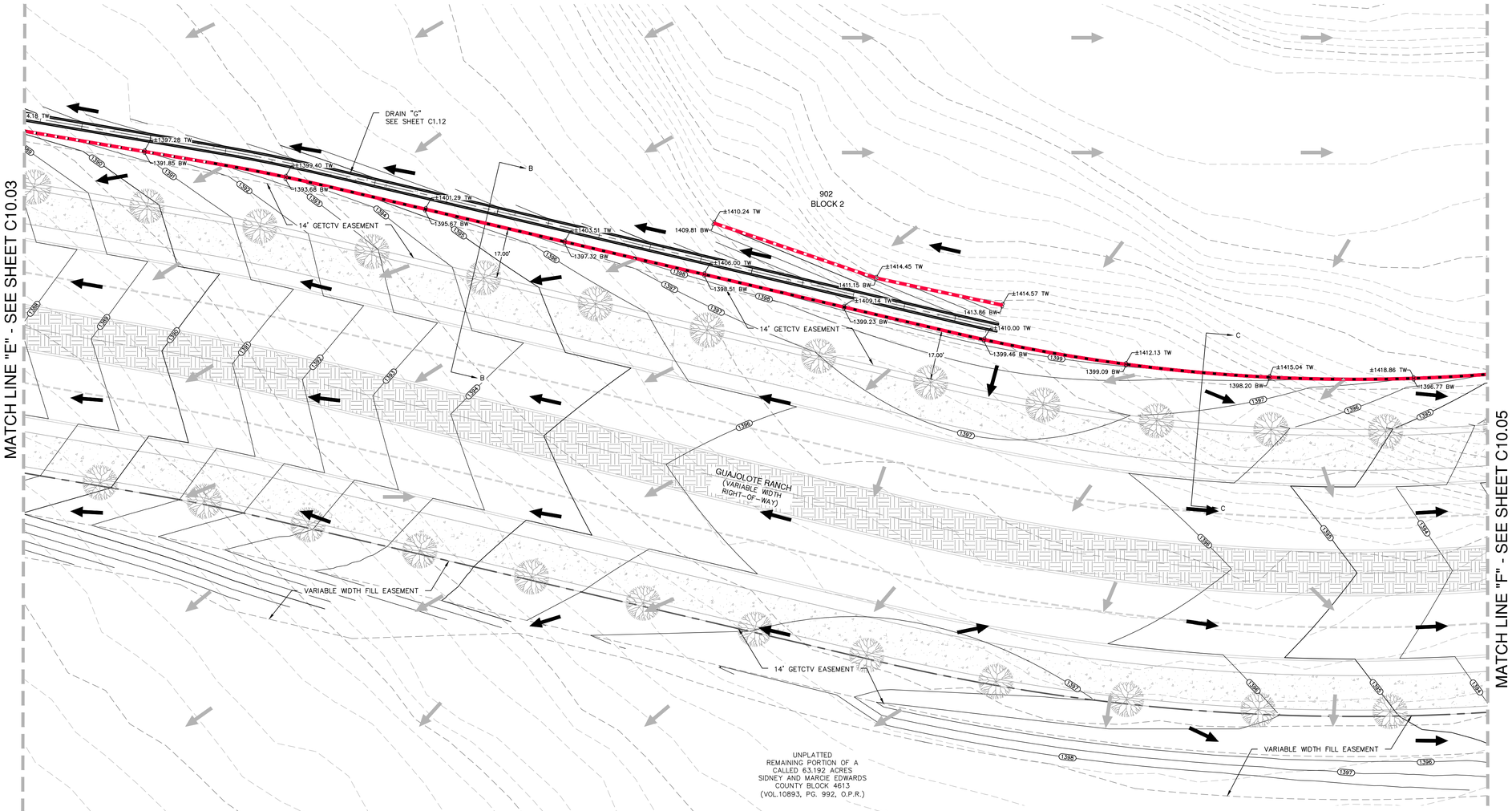

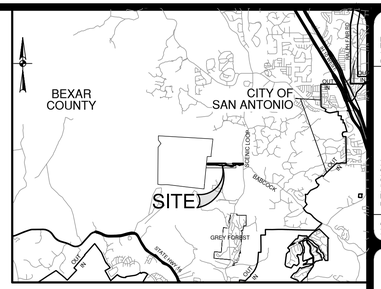

LOCATION MAP

SCALE: NTS

SCALE: 1"= 20'

0' 20' 40' 60'

GRADING LEGEND

PROJECT LIMITS	
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CUT WALL (SEE DTL SHEET C10.12) (BY SEPARATE WALL CONTRACTOR)	
CONCRETE CANTILEVER OR FILL WALLS (SEE NOTE 20) (BY GENERAL CONTRACTOR)	
EXISTING CONTOUR	1320
PROPOSED CONTOUR	1320
FLOW ARROW (EXISTING)	
FLOW ARROW (PROPOSED)	
SPOT ELEVATION TOP WALL	○1376.75 TW
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NO.	REMISION	DATE
1	ADDED CUT WALL NOTE 21	12/15/25
2		12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GRADING PLAN
SHEET 4 OF 11

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED bb DRAWN JQ
SHEET C10.04

Date: Dec. 30, 2025, 3:38pm User ID: jarroyo
File: P:\12356\10\Design\Civil\GR1235610.dwg

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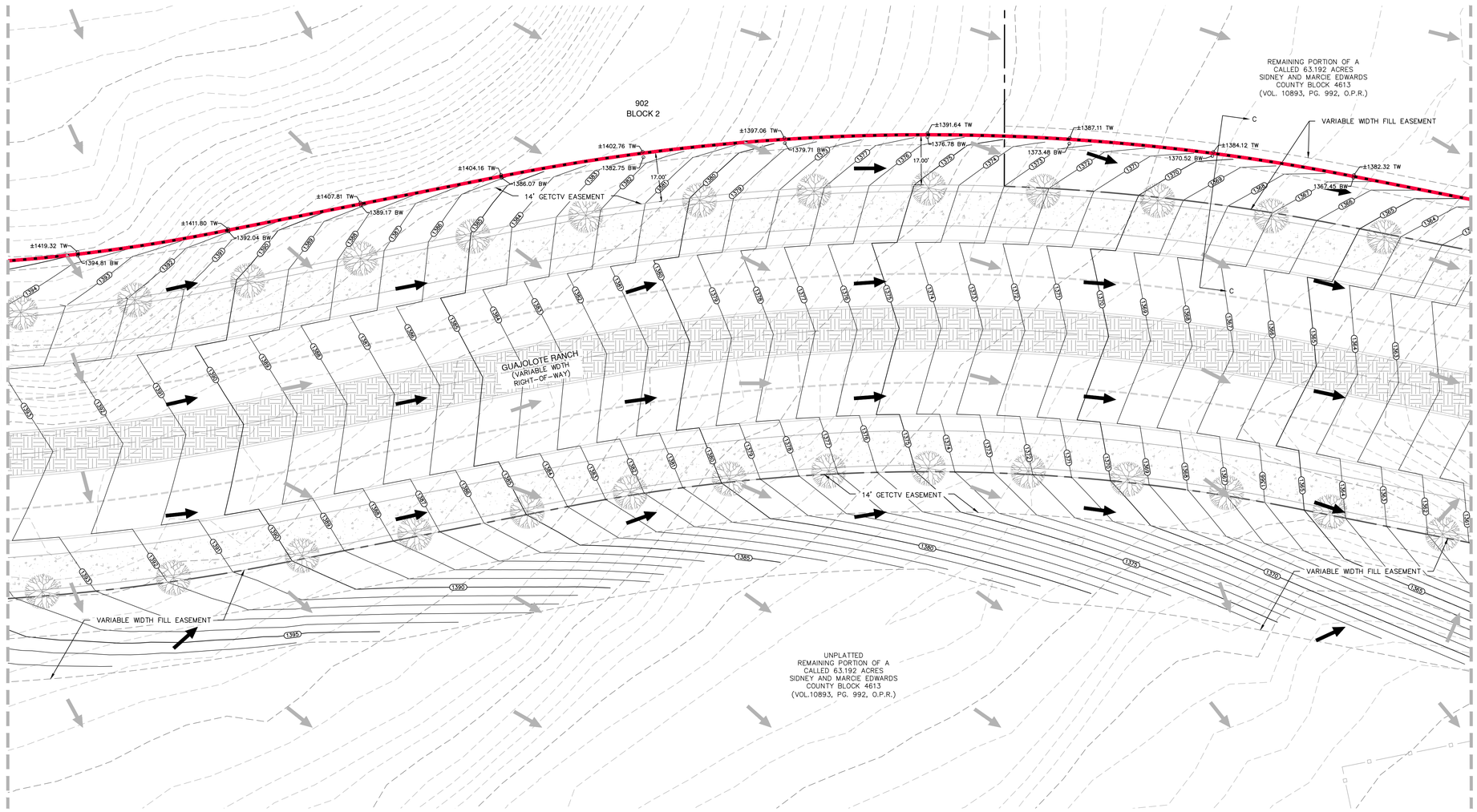

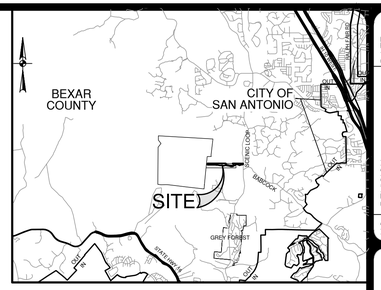

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NO.	REVISION	DATE
1	NOTE 21	12/30/25

12/30/25

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GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GRADING PLAN
SHEET 5 OF 11

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C10.05

Date: Dec. 30, 2025, 3:39pm User ID: jarroyo
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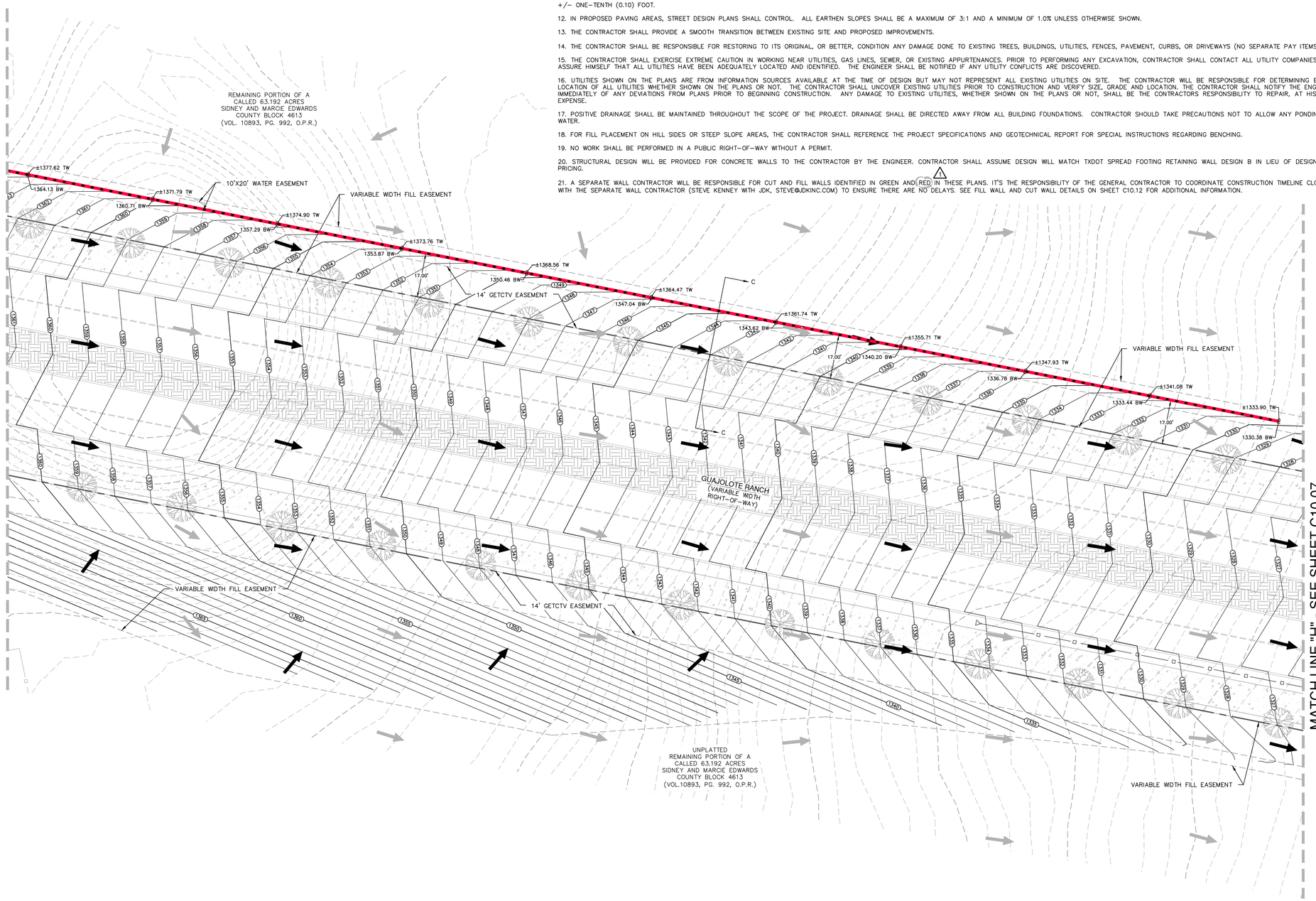

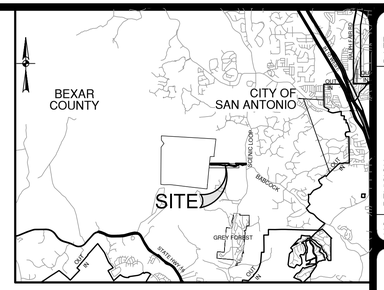

LOCATION MAP

SCALE: NTS

SCALE: 1"= 20'

0' 20' 40' 60'

GRADING LEGEND

PROJECT LIMITS	
FILL WALL (SEE DTL SHEET C10.12) (BY SEPARATE WALL CONTRACTOR)	
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EXISTING CONTOUR	1320
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FLOW ARROW (EXISTING)	
FLOW ARROW (PROPOSED)	
SPOT ELEVATION TOP WALL	○1376.75 TW
SPOT ELEVATION BOTTOM WALL	○1375.25 BW

NO.	REVISION	DATE
1	NOTE 21	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GRADING PLAN
SHEET 6 OF 11

PLAT NO. 25-11800226
JOB NO. 12356–10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C10.06

Date: Dec 30, 2025, 3:39pm User ID: jarroyo
File: P:\123\56\10\Design\Civil\GR123561O.dwg

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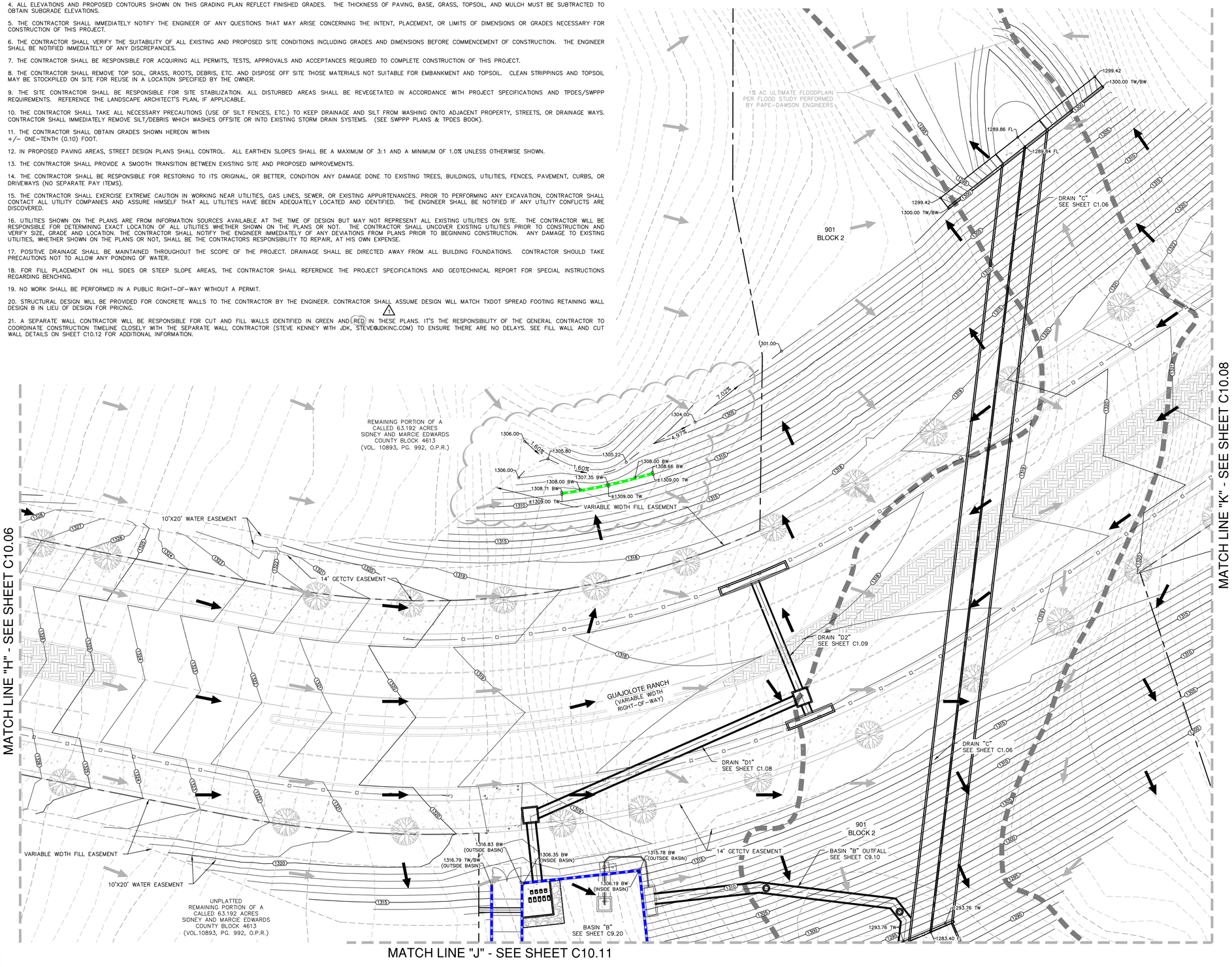

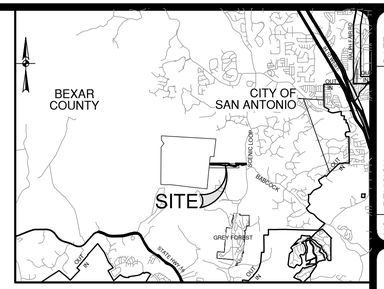

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PROPOSED SWALE	
FLOW ARROW (EXISTING)	
FLOW ARROW (PROPOSED)	
SPOT ELEVATION TOP WALL	○1376.75 TW
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NO.	REMISION	DATE
1	WALL, GRADING, & NOTE 21	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GRADING PLAN
SHEET 7 OF 11

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C10.07

Date: Dec. 30, 2025, 3:40pm User ID: jarroyo
File: P:\123\56\10\Design\Civil\GR123561O.dwg

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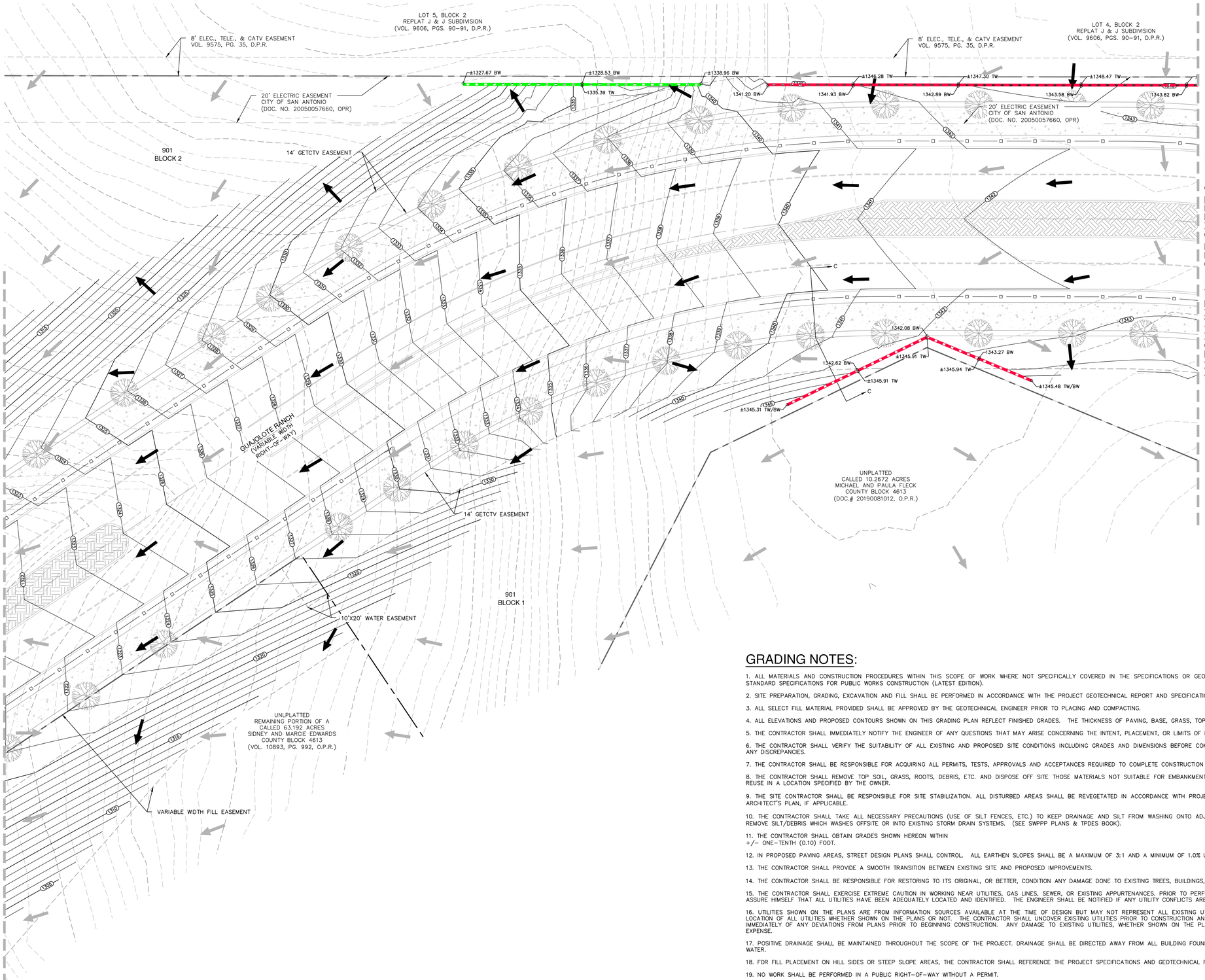

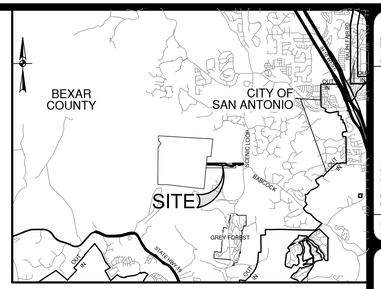

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NO.	REVISION	DATE
1	BASIN A, CUT WALL, & FILL	12/23/25
2	NOTE 21	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE–DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GRADING PLAN
SHEET 8 OF 11

PLAT NO. 25-11800226
JOB NO. 12356–10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C10.08

Date: Dec 30, 2025, 3:41pm User ID: jarroyo
Files: P:\123\56\10\Design\Civil\GR123561O.dwg

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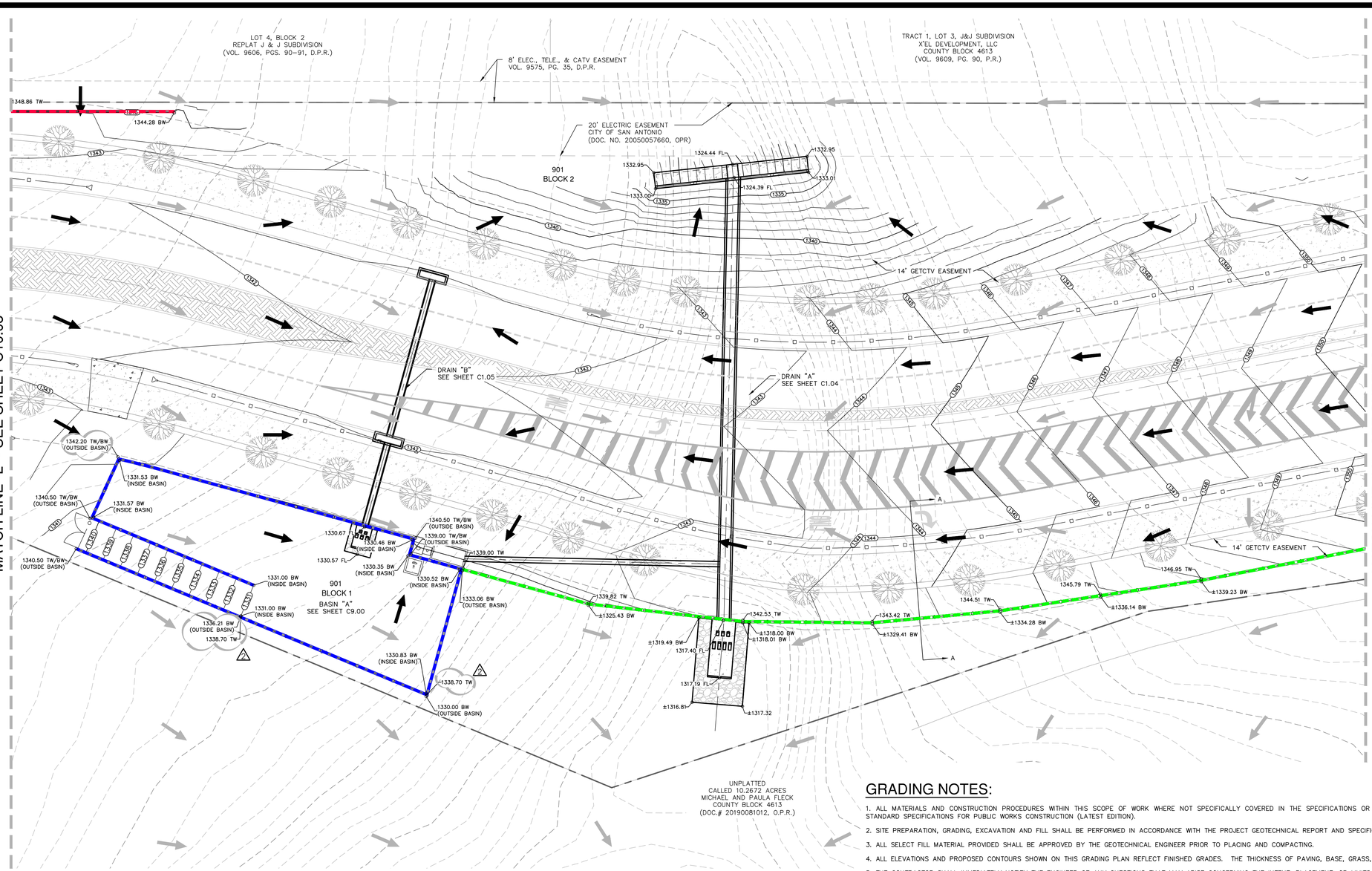

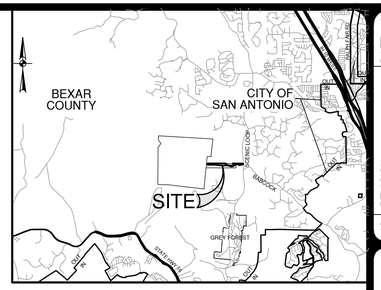

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NO.	REVISION	DATE
1	BASIN A, CUT WALL, & FILL	12/23/25
2	BASIN SPOT ELEVATIONS & NOTE	12/30/25

12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GRADING PLAN
SHEET 9 OF 11

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED DAR DRAWN JO
SHEET C10.09

Date: Dec 30, 2025, 3:41pm User ID: jarroyo
File: P:\123\56\10\Design\Civil\GR123610.dwg

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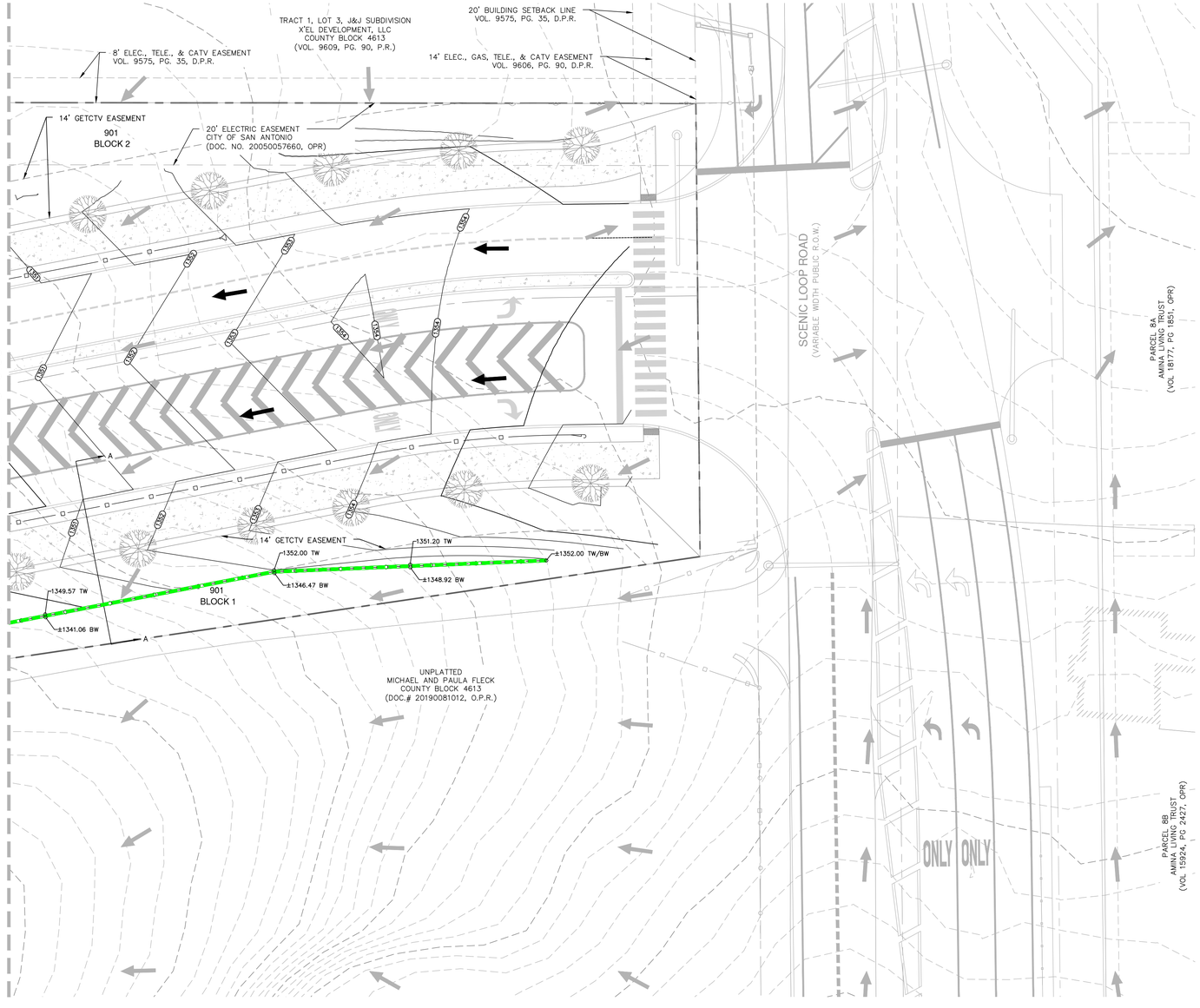

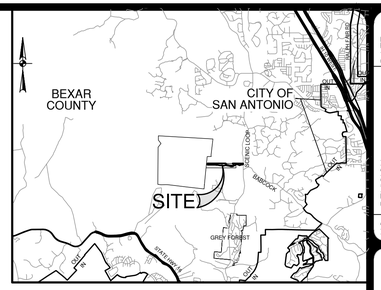

LOCATION MAP

SCALE: NTS

SCALE: 1"= 20'

0' 20' 40' 60'

GRADING LEGEND

PROJECT LIMITS	
FILL WALL (SEE DTL SHEET C10.12) (BY SEPARATE WALL CONTRACTOR)	
CUT WALL (SEE DTL SHEET C10.12) (BY SEPARATE WALL CONTRACTOR)	
CONCRETE CANTILEVER OR FILL WALLS (SEE NOTE 20) (BY GENERAL CONTRACTOR)	
EXISTING CONTOUR	1320
PROPOSED CONTOUR	1320
FLOW ARROW (EXISTING)	
FLOW ARROW (PROPOSED)	
SPOT ELEVATION TOP WALL	○1376.75 TW
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GRADING NOTES:

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THIS SCOPE OF WORK WHERE NOT SPECIFICALLY COVERED IN THE SPECIFICATIONS OR GEOTECHNICAL REPORT SHALL CONFORM TO ALL APPLICABLE CITY, COUNTY AND TXDOT STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION).

2. SITE PREPARATION, GRADING, EXCAVATION AND FILL SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT AND SPECIFICATIONS.

3. ALL SELECT FILL MATERIAL PROVIDED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING AND COMPACTING.

4. ALL ELEVATIONS AND PROPOSED CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVING, BASE, GRASS, TOPSOIL, AND MULCH MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.

5. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.

6. THE CONTRACTOR SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE COMMENCEMENT OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.

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1	NOTE 21	12/30/25

12/30/25

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GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GRADING PLAN
SHEET 10 OF 11

PLAT NO. 25-11800226
JOB NO. 12356–10
DATE DECEMBER 2025
DESIGNER IA
CHECKED BB DRAWN JQ
SHEET C10.10

Date: Dec. 30, 2025, 3:42pm User ID: jarroyo
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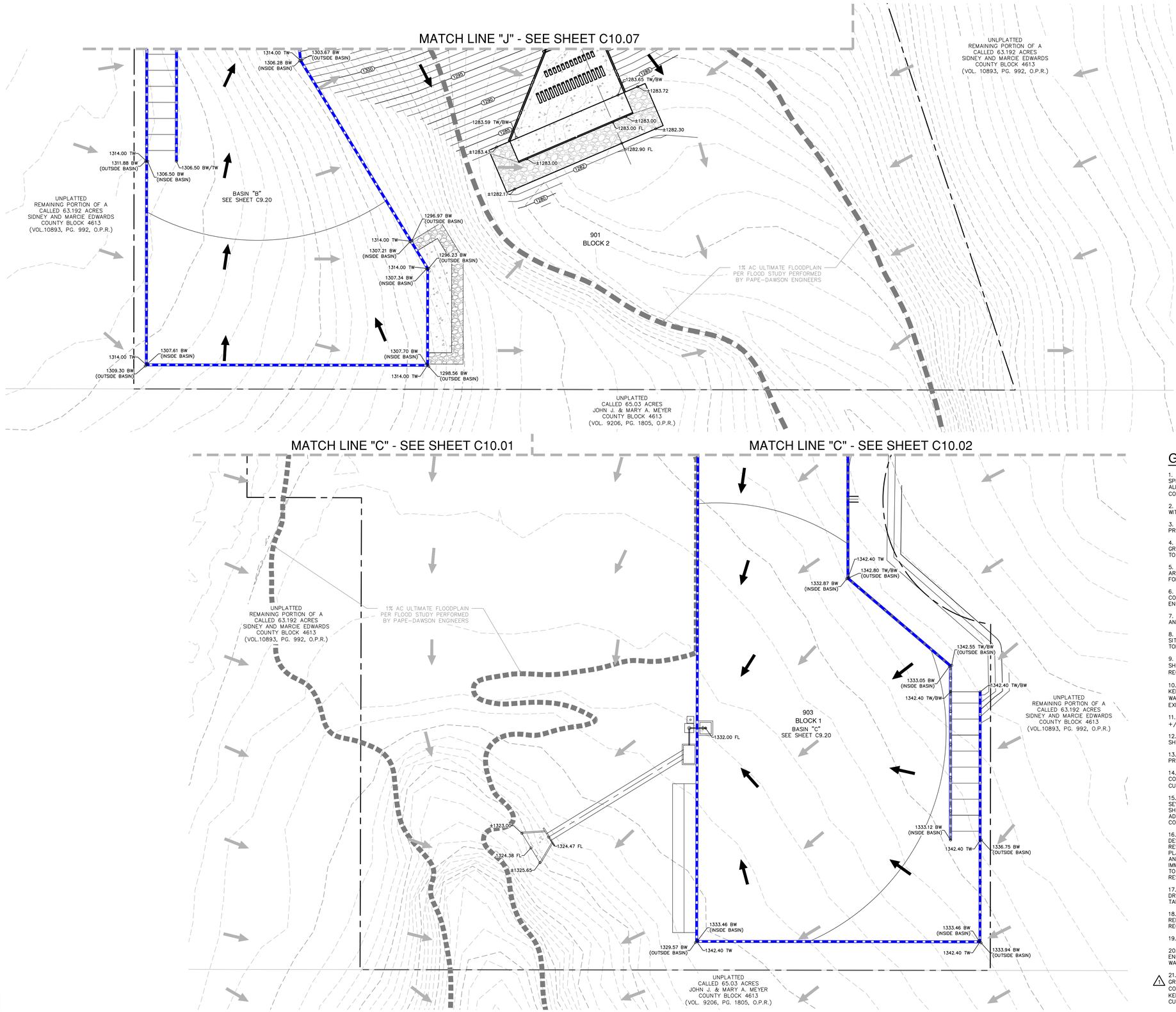

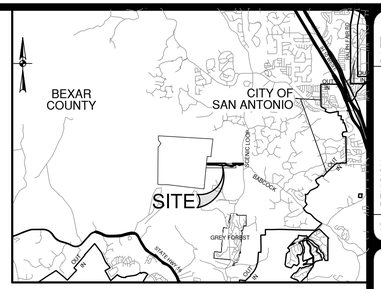

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NO.	REVISION	DATE
1	NOTE 21	12/30/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER
12/30/25

PAPE-DAWSON
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TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GRADING PLAN
SHEET 11 OF 11

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
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Date: Dec 30, 2025, 3:43pm User ID: jarroyo
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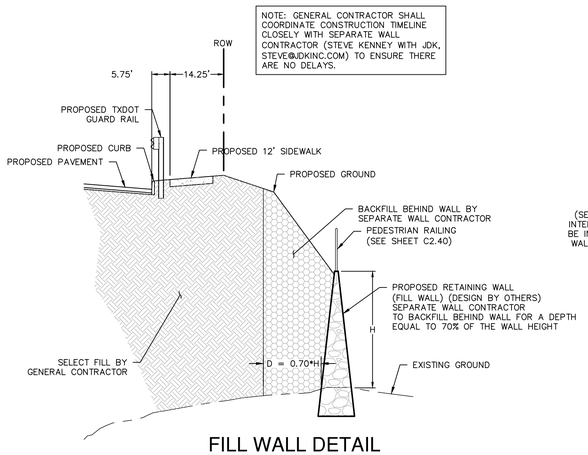
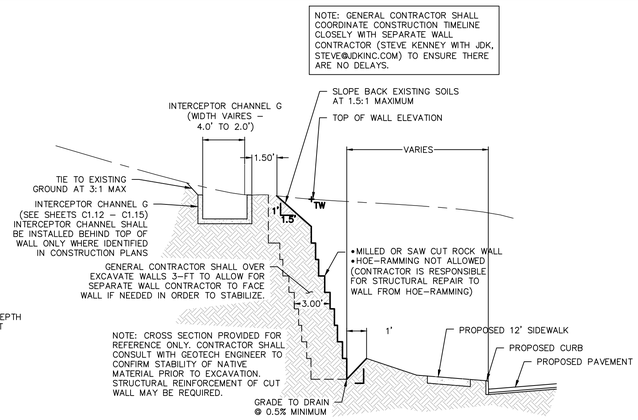


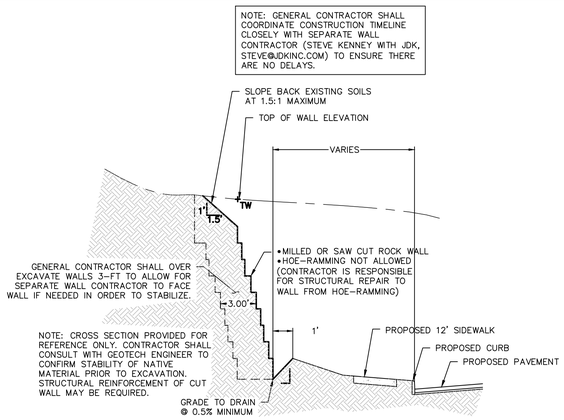
FILL WALL DETAIL
SECTION A-A

NOT-TO-SCALE



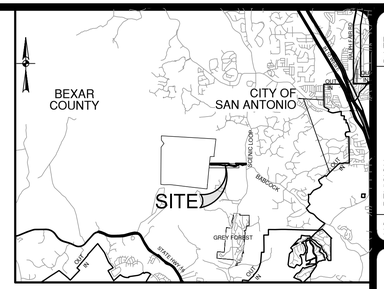
CUT WALL DETAIL
SECTION B-B

NOT-TO-SCALE



CUT WALL DETAIL
SECTION C-C

NOT-TO-SCALE



LOCATION MAP

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2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

GRADING DETAILS

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED bb DRAWN JQ
SHEET C10.12

Date: Dec 15, 2025, 4:52pm User ID: Jvasquez
File: P:\123\56\10\Design\Civil\GR123610.dwg

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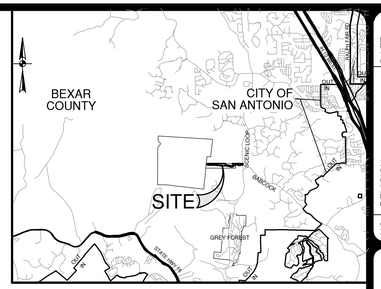


LOCATION MAP

SCALE: NTS

SCALE: 1"= 40'

0' 40' 80' 120'

BARRIER LENGTH OF NEED CALCULATION:

A.D.T. > 750

G.U. = 3.250 FT

D.U. = 57.513 FT > 30 FT; USE 30 FT

L.U. = $250 - \left(\frac{250}{D.U.}\right)$ X G.U.

L.U. = $250 - \left(\frac{250}{30}\right)$ X 3.250

L.U. = 222.92 FT

L.T. = L.U. + L.P. + L.D.

L.T. = 222.92 + 354.035 + 0

L.T. = 576.95 FT

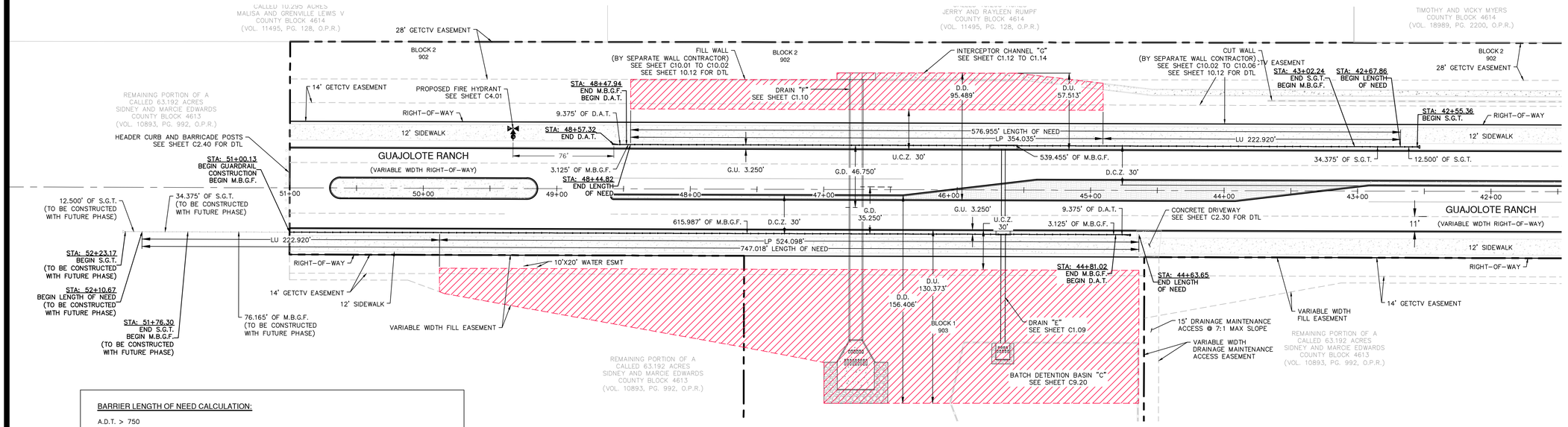
G.D. = 46.750 FT

D.D. = 95.489 FT > 30 FT; USE 30 FT

L.D. = $250 - \left(\frac{250}{D.D.}\right)$ X G.D.

L.D. = $250 - \left(\frac{250}{30}\right)$ X 46.750

L.D. = −139.58 FT < 0 FT; USE 0 FT



BARRIER LENGTH OF NEED CALCULATION:

A.D.T. > 750

G.U. = 3.250 FT

D.U. = 130.373 FT > 30 FT; USE 30 FT

L.U. = $250 - \left(\frac{250}{D.U.}\right)$ X G.U.

L.U. = $250 - \left(\frac{250}{30}\right)$ X 3.250

L.U. = 222.92 FT

L.T. = L.U. + L.P. + L.D.

L.T. = 222.92 + 524.098 + 0

L.T. = 747.018 FT

G.D. = 46.250 FT

D.D. = 156.406 FT > 30 FT; USE 30 FT

L.D. = $250 - \left(\frac{250}{D.D.}\right)$ X G.D.

L.D. = $250 - \left(\frac{250}{30}\right)$ X 32.250

L.D. = −18.75 FT < 0 FT; USE 0 FT

LEGEND

A.D.T.	AVERAGE DAILY TRIPS
C.Z.	CLEAR ZONE
D.D.	DISTANCE FROM EDGE OF TRAVEL LANE TO FAR SIDE OF AREA OF CONCERN OR TO OUTSIDE EDGE OF CLEAR ZONE FOR DOWNSTREAM TRAFFIC (WHICHEVER IS LEAST)
D.U.	DISTANCE FROM EDGE OF TRAVEL LANE TO FAR SIDE OF AREA OF CONCERN OR TO OUTSIDE EDGE OF CLEAR ZONE FOR UPSTREAM TRAFFIC (WHICHEVER IS LEAST)
G.D.	GUARD FENCE OFFSET FROM EDGE OF OPPOSING DIRECTION OF TRAVEL LANE (CENTERLINE)
G.U.	GUARD FENCE OFFSET FROM EDGE OF TRAVEL LANE ADJACENT TO PROPOSED GUARD FENCE
L.D.	LENGTH OF DOWNSTREAM BARRIER NEEDED
L.F.	LINEAR FEET
L.P.	LENGTH OF BARRIER PARALLEL TO THE AREA OF CONCERN NEEDED
L.T.	LENGTH OF GUARD FENCE NEEDED
L.U.	LENGTH OF UPSTREAM BARRIER NEEDED
Ⓐ	SINGLE GUARDRAIL TERMINAL (S.G.T.) SEE DETAIL SHEET C11.10
Ⓑ	METAL BEAM BUARD FENCE (M.B.G.F.) SEE DETAIL SHEET C11.10
Ⓒ	DOWNSTREAM ANCHOR TERMINAL (D.A.T.) SEE DETAIL SHEET C11.10
	AREA OF CONCERN

NO.	REVISION	DATE

12/23/25

STATE OF TEXAS
ADAM J. RADEMACHER
102343
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GUARDRAIL PLAN
SHEET 1 OF 3

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AJR DRAWN JQ
SHEET C11.00

Date: Dec 23, 2025, 2:22pm User ID: rherbert
File: P:\123\56\10\Design\Civil\GRAL 1235610.dwg

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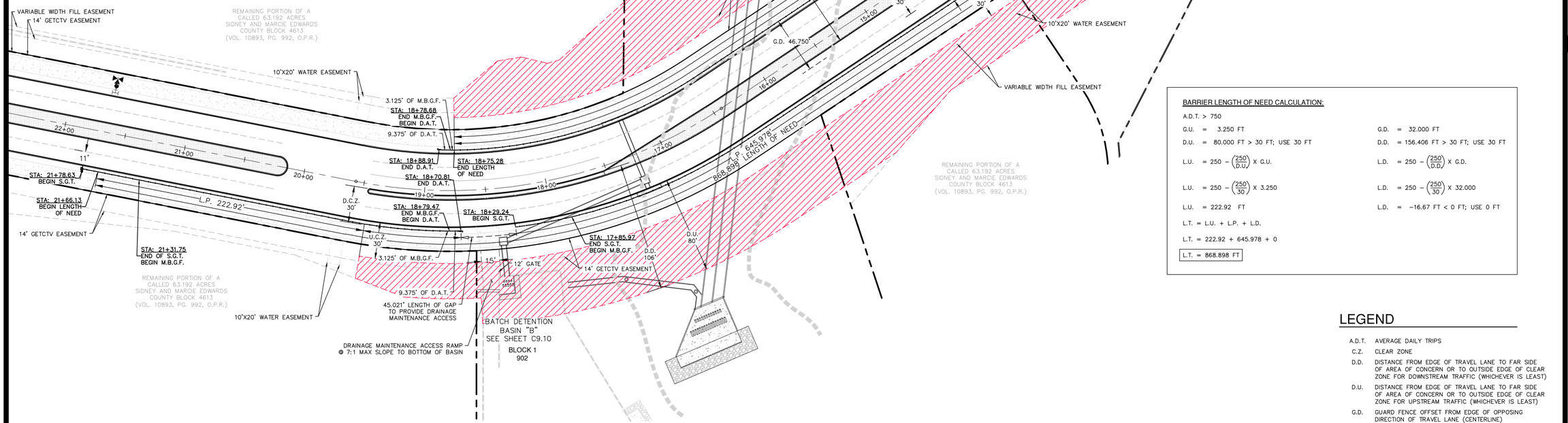

BARRIER LENGTH OF NEED CALCULATION:

A.D.T. > 750

G.U. = 3.250 FT	G.D. = 46.750 FT
D.U. = 61.000 FT > 30 FT; USE 30 FT	D.D. = 95.489 FT > 30 FT; USE 30 FT
L.U. = $250 - \left(\frac{250}{D.U.}\right)$ X G.U.	L.D. = $250 - \left(\frac{250}{D.D.}\right)$ X G.D.
L.U. = $250 - \left(\frac{250}{30}\right)$ X 3.250	L.D. = $250 - \left(\frac{250}{30}\right)$ X 46.750
L.U. = 222.92 FT	L.D. = −139.583 FT < 0 FT; USE 0 FT

L.T. = L.U. + L.P. + L.D.

L.T. = 222.92 + 710.733 + 0

L.T. = 933.653 FT

BARRIER LENGTH OF NEED CALCULATION:

A.D.T. > 750

G.U. = 3.250 FT	G.D. = 32.000 FT
D.U. = 80.000 FT > 30 FT; USE 30 FT	D.D. = 156.406 FT > 30 FT; USE 30 FT
L.U. = $250 - \left(\frac{250}{D.U.}\right)$ X G.U.	L.D. = $250 - \left(\frac{250}{D.D.}\right)$ X G.D.
L.U. = $250 - \left(\frac{250}{30}\right)$ X 3.250	L.D. = $250 - \left(\frac{250}{30}\right)$ X 32.000
L.U. = 222.92 FT	L.D. = −16.67 FT < 0 FT; USE 0 FT

L.T. = L.U. + L.P. + L.D.

L.T. = 222.92 + 645.978 + 0

L.T. = 868.898 FT

LEGEND

A.D.T.	AVERAGE DAILY TRIPS
C.Z.	CLEAR ZONE
D.D.	DISTANCE FROM EDGE OF TRAVEL LANE TO FAR SIDE OF AREA OF CONCERN OR TO OUTSIDE EDGE OF CLEAR ZONE FOR DOWNSTREAM TRAFFIC (WHICHEVER IS LEAST)
D.U.	DISTANCE FROM EDGE OF TRAVEL LANE TO FAR SIDE OF AREA OF CONCERN OR TO OUTSIDE EDGE OF CLEAR ZONE FOR UPSTREAM TRAFFIC (WHICHEVER IS LEAST)
G.D.	GUARD FENCE OFFSET FROM EDGE OF OPPOSING DIRECTION OF TRAVEL LANE (CENTERLINE)
G.U.	GUARD FENCE OFFSET FROM EDGE OF TRAVEL LANE ADJACENT TO PROPOSED GUARD FENCE
L.D.	LENGTH OF DOWNSTREAM BARRIER NEEDED
L.F.	LINEAR FEET
L.P.	LENGTH OF BARRIER PARALLEL TO THE AREA OF CONCERN NEEDED
L.T.	LENGTH OF GUARD FENCE NEEDED
L.U.	LENGTH OF UPSTREAM BARRIER NEEDED
Ⓐ	SINGLE GUARDRAIL TERMINAL (S.G.T.) SEE DETAIL SHEET C11.10
Ⓑ	METAL BEAM BUARD FENCE (M.B.G.F.) SEE DETAIL SHEET C11.10
Ⓒ	DOWNSTREAM ANCHOR TERMINAL (D.A.T.) SEE DETAIL SHEET C11.10
	AREA OF CONCERN

NO.	REVISION	DATE

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STATE OF TEXAS
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2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GUAJOLOTE RANCH COLLECTOR PHASE 1
BEXAR COUNTY, TEXAS

GUARDRAIL PLAN
SHEET 2 OF 3

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED DRAWN JQ
SHEET C11.01

Date: Dec. 23, 2025, 2:22pm User ID: rhebert
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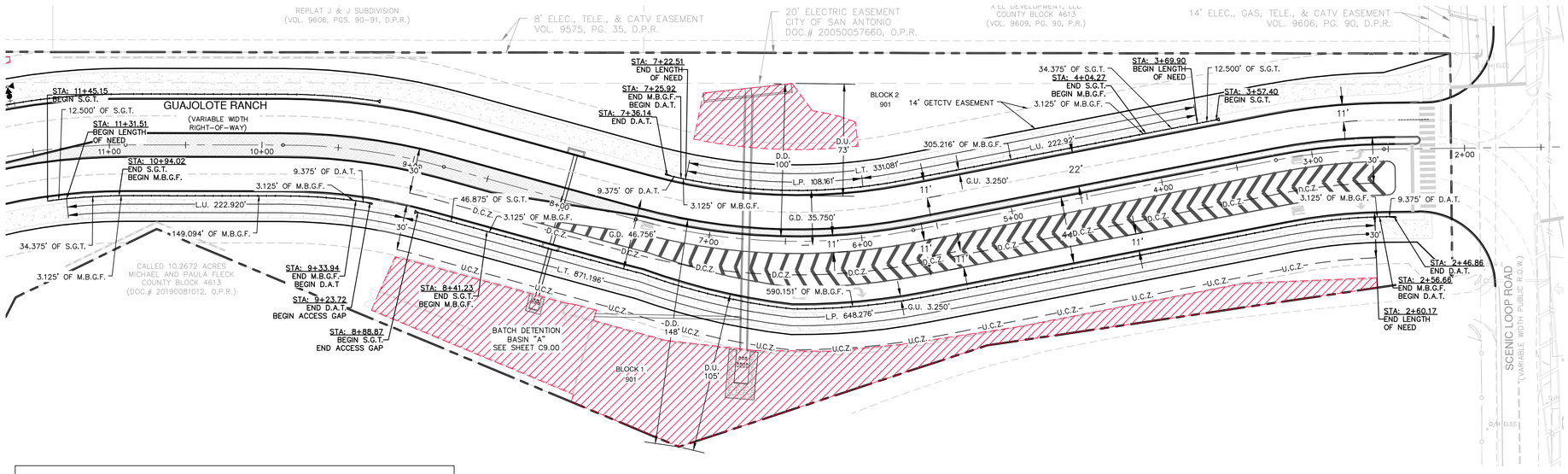


BARRIER LENGTH OF NEED CALCULATION:

A.D.T. > 750

G.U. = 3.250 FT

D.U. = 130.373 FT > 30 FT; USE 30 FT

L.U. = $250 - \left(\frac{250}{D.U.}\right) \times G.U.$

L.U. = $250 - \left(\frac{250}{30}\right) \times 3.250$

L.U. = 222.92 FT

L.T. = L.U. + L.P. + L.D.

L.T. = 222.92 + 648.276 + 0

L.T. = 871.196 FT

G.D. = 46.756 FT

D.D. = 156.406 FT > 30 FT; USE 30 FT

L.D. = $250 - \left(\frac{250}{D.D.}\right) \times G.D.$

L.D. = $250 - \left(\frac{250}{30}\right) \times 46.756$

L.D. = −139.63 FT < 0 FT; USE 0 FT

BARRIER LENGTH OF NEED CALCULATION:

A.D.T. > 750

G.U. = 3.250 FT

D.U. = 73.000 FT > 30 FT; USE 30 FT

L.U. = $250 - \left(\frac{250}{D.U.}\right) \times G.U.$

L.U. = $250 - \left(\frac{250}{30}\right) \times 3.250$

L.U. = 222.92 FT

L.T. = L.U. + L.P. + L.D.

L.T. = 222.92 + 108.161 + 0

L.T. = 331.081 FT

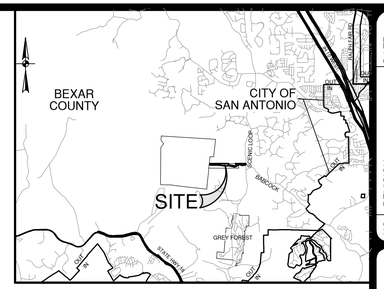
G.D. = 35.750 FT

D.D. = 95.489 FT > 30 FT; USE 30 FT

L.D. = $250 - \left(\frac{250}{D.D.}\right) \times G.D.$

L.D. = $250 - \left(\frac{250}{30}\right) \times 35.750$

L.D. = −47.917 FT < 0 FT; USE 0 FT



LOCATION MAP

SCALE: NTS

SCALE: 1"= 40'

0' 40' 80' 120'

LEGEND

A.D.T.	AVERAGE DAILY TRIPS
C.Z.	CLEAR ZONE
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GUAJOLOTE RANCH COLLECTOR PHASE 1

BEXAR COUNTY, TEXAS

GUARDRAIL PLAN
SHEET 3 OF 3

PLAT NO. 25-11800226
JOB NO. 12356-10
DATE DECEMBER 2025
DESIGNER IA
CHECKED AJR DRAWN JQ
SHEET C11.02

Date: Dec 23, 2025, 2:22pm User ID: rherbert
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