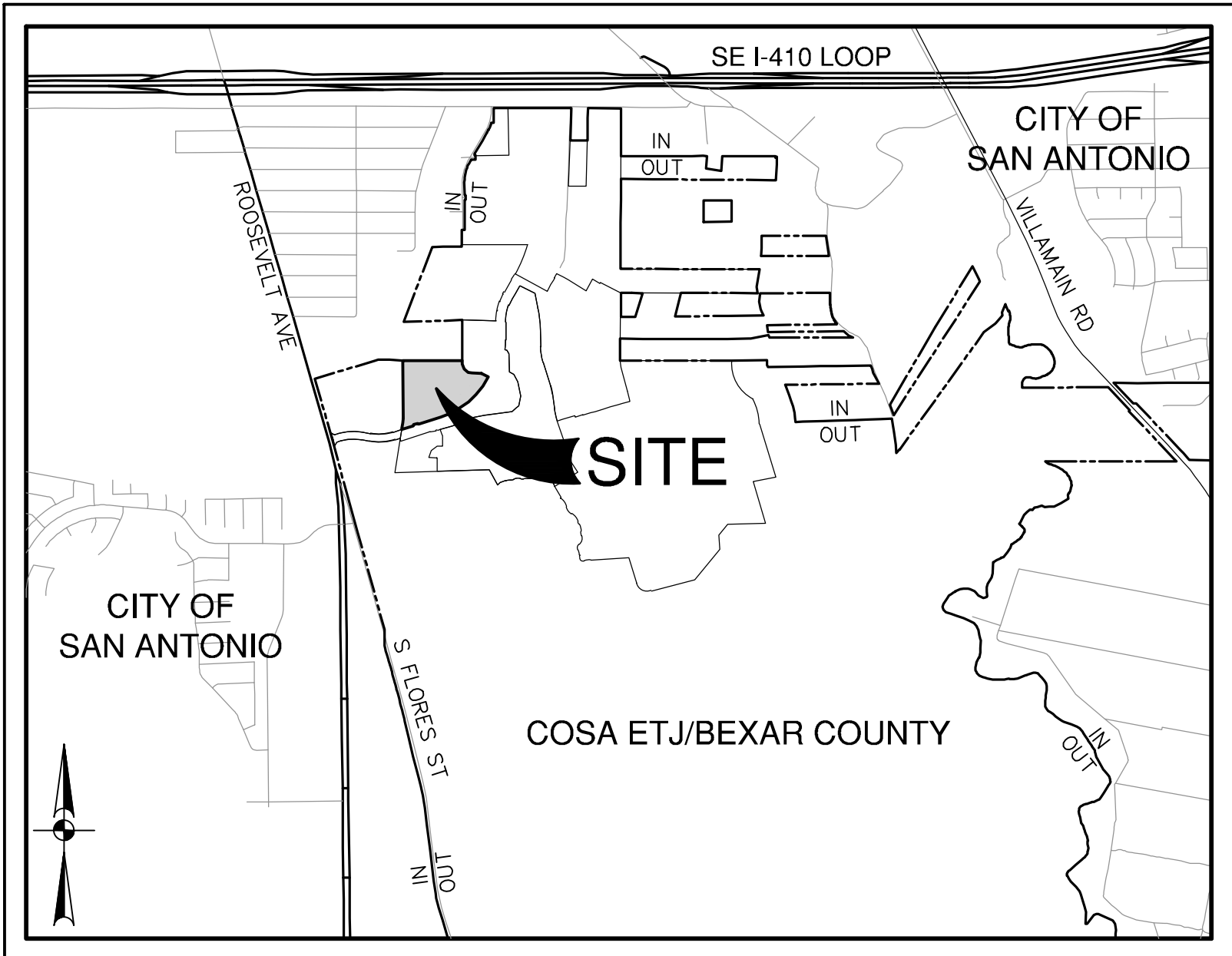


ESPADA TRACT UNIT 1

SAN ANTONIO, TEXAS

CIVIL CONSTRUCTION PLANS

NO.	REVISION DESCRIPTION	DATE
1	REVISED SAWS BLOCK	12/06/23



LOCATION MAP

NOT-TO-SCALE

PREPARED FOR:

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

JULY 2023



SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800



WATER (SAWS PRESSURE ZONE 750)

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 108 TOTAL ACREAGE 18.52			
TOTAL LINEAR FOOTAGE OF PIPE: 3285.71 LF ~ 8" PVC PLAT NO. 23-11800229			
NUMBER OF LOTS 104	SAWS JOB NO. 23-1133		

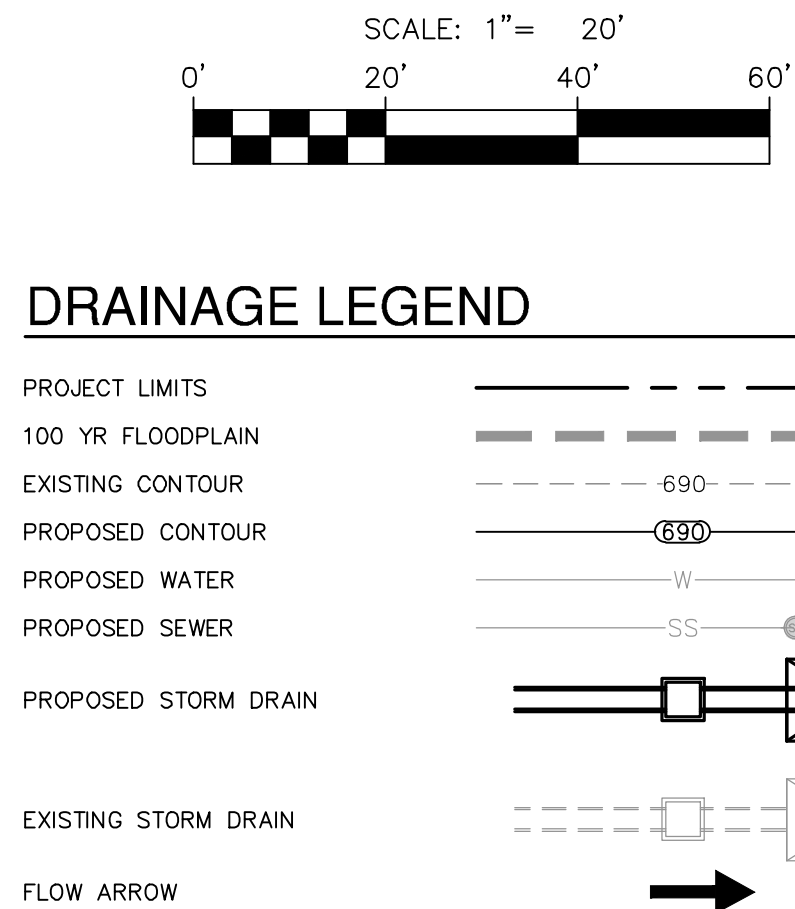
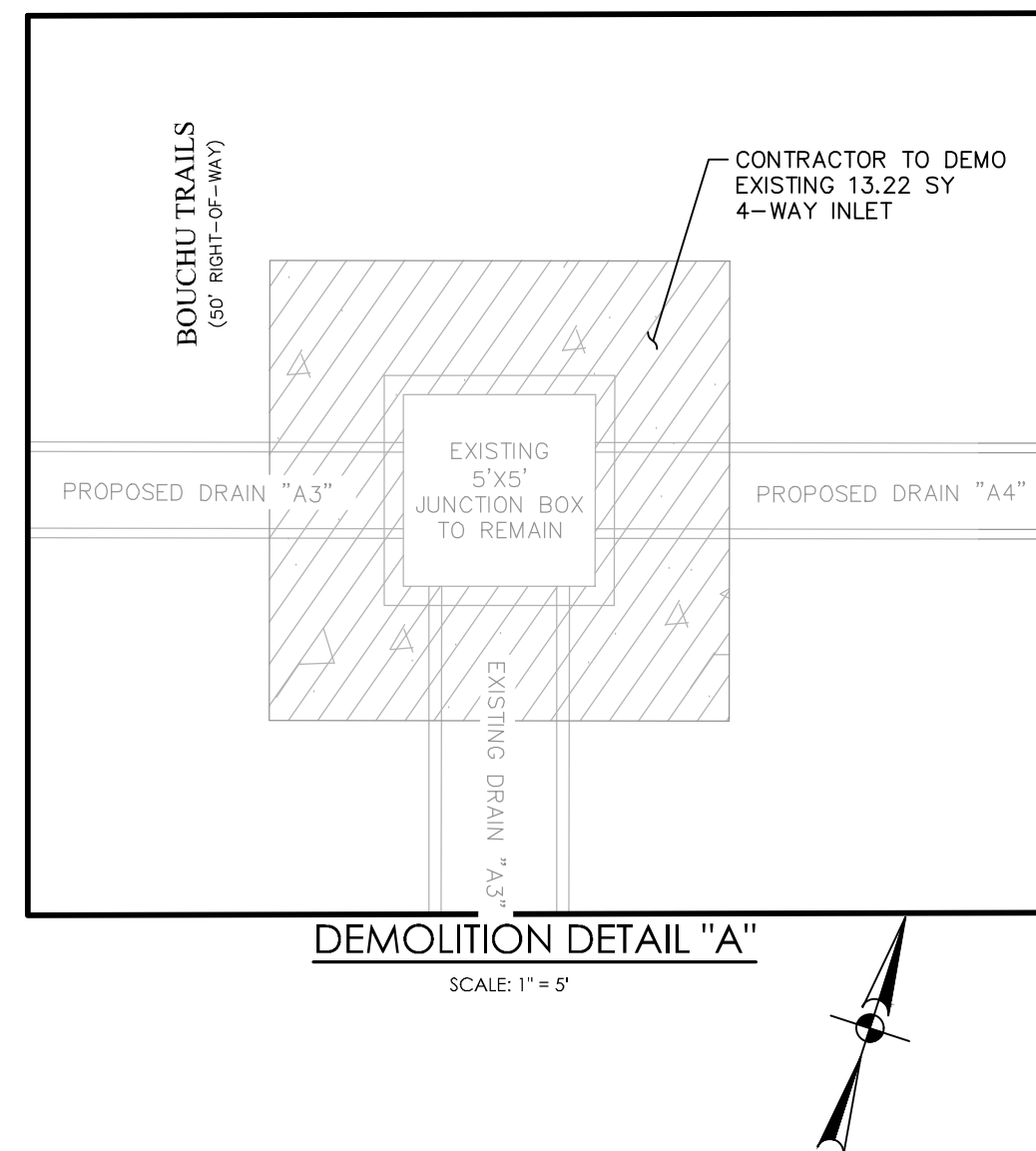
SALADO CREEK - CENTRAL WATERSHED - DOS RIOS W.R.C.

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# 168536 TOTAL EDU'S 104 TOTAL ACREAGE 18.52			
TOTAL LINEAR FOOTAGE OF PIPE: 2802.77 LF ~ 8" PVC PLAT NO. 23-11800229			
NUMBER OF LOTS 104	SAWS JOB NO. 23-1606		

SHEET C0.00

Date: Oct 31, 2023, 9:04am User ID: jzathangorff
File: P:\126\12\12\Design\Civil\00126\0212.dwg

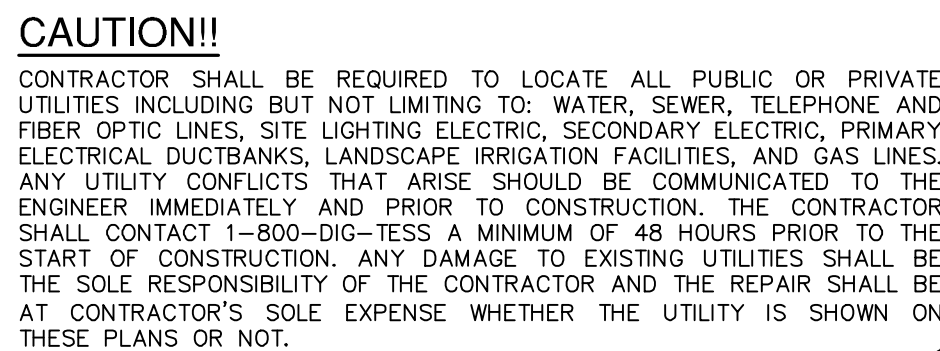
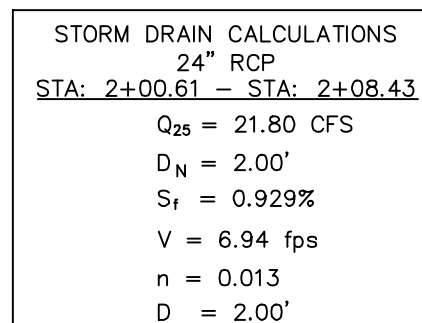
Master Drainage Plan Calculations																							
(Ultimate Development)																							
Ref. Point	Structure / Description	Drainage Areas			Total Flowpath (ft)	Overland/Sheet Flow (Seelye)			Shallow Concentrated Flow - 1**				Channelized Flow**				T _{C-TOT}	Rational Method Q=CIA IDF Curv CoSA A14 PA4					
		#	Area (Ac)	C		L _O (FT)	S _O (ft/ft)	T _O * (MIN)	L _{SC} (FT)	Conduiter***	Slope (ft/ft)	V _{SC} (FPS)	T _{SC} ** (MIN)	L _{CH} (FT)	V _{CH} (FPS)	T _{CH} ** (MIN)		Return Year	Intensity y (in/hr)	Q (cfs)			
1.00	Existing Drain A1	A1	7.37	0.97	870	100	0.01	15				-	-	770	6.0	2.1	17	5	4.91	35.1			
																	17	25	6.76	48.3			
																	17	100	8.42	60.2			
1.01	Existing Drain A2	A2	1.92	0.97	815							-	-		6.0	2.3	5	5	7.85	14.6			
																	5	25	10.92	20.3			
																	5	100	13.65	25.4			
1.01A	Existing Drain A1	A1+A2	9.29	0.97		(Reference Accumulated Flow Rate Table)														0	5	-	43.3
																				0	25	-	58.1
																				0	100	-	71.2
1.02	Existing Drain A1	A1+A2+A3	11.43	0.97		(Reference Accumulated Flow Rate Table)														0	5	-	53.8
																				0	25	-	72.6
																				0	100	-	89.3
1.03	Existing Drain A2	A3	2.14	0.97	530	100	0.01	15				-	-	430	6.0	1.2	16	5	5.06	10.5			
																	16	25	6.99	14.5			
																	16	100	8.71	18.1			
1.04	Street Capacity Check	A4	3.21	0.97	680	100	0.01	15				-	-	580	6.0	1.6	16	5	5.06	15.8			
																	16	25	6.99	21.8			
																	16	100	8.71	27.1			
1.05	Calculation Point	A5	3.66	0.85	545	100	0.01	15	20	U	0.01	1.6	0.2	425	6.0	1.2	16	25	6.99	21.7			
																	16	100	8.71	27.1			
																	0	5	-	15.8			
1.05A	Drain A3 & A4	A4+A5	6.87	0.91		(Reference Accumulated Flow Rate Table)														0	25	-	21.8
																				0	100	-	27.1
1.05B	Existing Drain A3	A4+A5	6.87	0.91		(Reference Accumulated Flow Rate Table)														0	5	-	31.5
																				0	25	-	43.5
																				0	100	-	54.2
1.05C	Existing Drain A1	A1+A2+A3+A4+A5	18.30	0.95		(Reference Accumulated Flow Rate Table)														0	5	-	85.3
																				0	25	-	116.1
																				0	100	-	143.5
1.06	Calculation Point	A6	0.96	0.97	1,515	-	-	-	-	-	-	-	-	1,515	6.0	4.2	5	5	7.85	7.3			
																	5	25	10.92	10.2			
																	5	100	13.65	12.7			
																	0	5	-	10.8			
1.06A	Existing Drain A5	A6	0.96	0.97		(Reference Accumulated Flow Rate Table)														0	25	-	13.8
																				0	100	-	16.1
1.07	Calculation Point	A7	1.40	0.83	470	100	0.02	13	50	U	0.02	2.3	0.4	320	6.0	0.9	14	5	5.42	6.3			
																	14	25	7.53	8.7			
																	14	100	9.39	10.9			
																	0	5	-	6.2			
1.07A	Existing Drain A6	A7	1.40	0.83		(Reference Accumulated Flow Rate Table)														0	25	-	8.0
																				0	100	-	9.3
1.07B	Calculation Point	A1+A2+A3+A4+A5+A6+A7	20.66	0.94		(Reference Accumulated Flow Rate Table)														0	5	-	102.3
																				0	25	-	137.9
																				0	100	-	168.9
1.08	Calculation Point	A8	4.33	0.77	755	100	0.02	13	145	U	0.02	2.3	1.1	510	6.0	1.4	15	5	5.24	17.5			
																	15	25	7.24	24.1			
																	15	100	9.03	30.1			
1.09	Calculation Point	A9	2.04	0.86	440	100	0.01	15	50	U	0.01	1.6	0.5	290	6.0	0.8	16	5	5.06	8.9			
																	16	25	6.99	12.3			
																	16	100	8.71	15.3			
1.09A	Calculation Point	A8+A9	6.37	0.80		(Reference Accumulated Flow Rate Table)														0	5	-	26.5
																				0	25	-	37.1
																				0	100	-	47.0
1.09B	Calculation Point	A1+A2+A3+A4+A5+A6+A7+A8+A9	27.03	0.91		(Reference Accumulated Flow Rate Table)														0	5	-	128.8
																				0	25	-	175.0
																				0	100	-	215.9
1.10	Calculation Point	A10	0.81	0.97	390	-	-	-	-	-	-	-	-	390	6.0	1.1	5	5	7.85	6.2			
																	5	25	10.92	8.6			
																	5	100	13.65	10.7			
																	0	5	-	9.1			
1.10A	Calculation Point	A10	0.81	0.97		(Reference Accumulated Flow Rate Table)														0	25	-	15.5
																				0	100	-	21.7
1.10B	Calculation Point	A1+A2+A3+A4+A5+A6+A7+A8+A9+A10	27.84	0.91		(Reference Accumulated Flow Rate Table)														0	5	-	137.9
																				0	25	-	190.5
																				0	100	-	237.6
1.10C	Calculation Point	A1+A2+A3+A4+A5+A6+A7+A8+A9+A10+C1+C2+C3+C4	43.48	0.89		(Reference Accumulated Flow Rate Table)														0	5	-	198.6
																				0	25	-	274.0
																				0	100	-	341.3
1.11	Calculation Point	A11	3.50	0.77	465	100	0.02	13	95	U	0.01	1.6	1.0	270	6.0	0.8	14	5	5.42	14.6			
																	14	25	5.53	20.3			
																	14	100	9.39	25.3			
1.12	Existing Basin C	A1+A2+A3+A4+A5+A6+A7+A8+A9+A10+A11+C1+C2+C3+C4	46.98	0.88	2,735	100	0.01	15	-	-	-	-	-	2,635	6.0	7.3	22	SEE HEC-HWS					
																				22	SEE HEC-HWS		
																				22	SEE HEC-HWS		
2.00	Calculation Point	B1	129.64	0.90	4,510	100	0.01	15	600	U	0.01	1.6	6.2	3,810	6.0	10.6	31	5	3.62	422.4			
																	31	25	4.96	578.7			
																	31	100	6.14	716.4			
2.01	Existing Drain B2	B2	3.16	0.80	690	100	0.01	15	115	U	0.03	2.8	0.7	475	6.0	1.3	17	5	4.91	12.4			
																	17	25	6.76	17.1			
																	17	100	8.42	21.3			
2.02	Existing Drain B	B1+B2+B5+B6	136.78	0.89	4,510	100	0.01	15	600	U	0.01	1.6	6.2	3,810	6.0	10.6	31	5	3.62	440.7			
																	31	25	4.96	603.8			
																	31	100	6.14	747.4			
2.03	Calculation Point	B3	3.07	0.88	1,165	100	0.01	15	305	U	0.02	2.3	2.2	760	6.0	2.1	19	5	4.63	12.5			
																	19	25	6.37	17.2			
																	19	100	7.93	21.4			
2.04	Calculation Point	B4	1.96	0.92	438	75	0.10	11	-	-	-	-	-	363	6.0	1.0	12	5	5.81	10.5			
																	12	25	8.12	14.6			
																	12	100	10.14	18.3			
2.05	Existing Drain B	B1+B2+B3+B4+B5+B6	141.81	0.89	4,560	100	0.01	15	600	U	0.01	1.6	6.2	3,860	6.0	10.7	31	5	3.62	456.9			
																	31	25	4.96	626.0			
																	31	100	6.14	774.9			
2.06	Drain B5	B5	1.05	0.77	235	100	0.01	15	20	U	0.02	2.3	0.1	115	6.0	0.3	15	5	5.24	4.2			
																	15	25	7.24	5.9			
																	15	100	9.03	7.3			
2.07	Drain B6	B6	2.93	0.77	475	100	0.02	13	205	U	0.02	2.3	1.5	170	6.0	0.5	14	5	5.42	12.2			
																	14	25	7.53	17.0			
																	14	100	9.39	21.2			
3.00	Existing Drain C	C1	7.35	0.97	1,115	100	0.01	15	295	U	0.02	2.3	2.2	720	6.0	2.0	19	5	4.63	33.0			
																	19	25	6.37	45.4			
																	19	100	7.93	56.5			
3.01	Calculation Point	C2	2.41	0.77	490	100	0.01	15	20	U	0.01	1.6	0.2	370	6.0	1.0	16	5	5.06	9.4			
																	16	25	6.99	13.0			
																	16	100	8.71	16.2			
3.01A	Drain C1	C2	2.41	0.77	490	(Reference Accumulated Flow Rate Table)														0	5	-	37.7
																				0	25	-	51.9
																				0	100	-	64.9

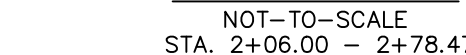
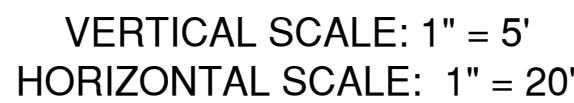


$\Pi = 0.01 \leq 0.75$ OK

DRAINAGE & GRA

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 ELECTRICAL, 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 CONSTRUCTION OF 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.





HYDRAULIC CALCULATIONS—DRAIN "A8" SIDEWALK BOX

$Q_{25} = 24.1 \text{ CFS}$
 $Q_{25} = CA\sqrt{2gh}$ (ORIFICE FLOW EQN.)
 $A = L(0.52)$, $h = 0.52$, $g = 32.2$, $c = 0.70$
 $L = \frac{24.1 \text{ CFS}}{(0.70)(0.52)\sqrt{2(32.2)(0.52)}}$
 $L = 11.44 \text{ FT}$ USE 3 ~ 5 FT SIDEWALK

CHECK WITH WEIR FORMULA

$$h = \left(\frac{Q}{CL} \right)^{2/3} = \left(\frac{24.1}{(3.087)(15)} \right)^{2/3} = 0.65 \text{ FT.}$$

$h = 0.65 < 0.79 \quad \text{OK}$

DRAINAGE & GRADING NOTES:

1. A BEARX COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEARX COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC SIGNAL PLAN WITH THE BEARX COUNTY ENGINEER. ADDITIONAL WARNING SIGNS MAY BE REQUIRED 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 UNDER OR ABOVE GROUND. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN OR NOT SHOWN ON THE PLANS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN OR NOT SHOWN ON THE PLANS, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, AT HIS EXPENSE.

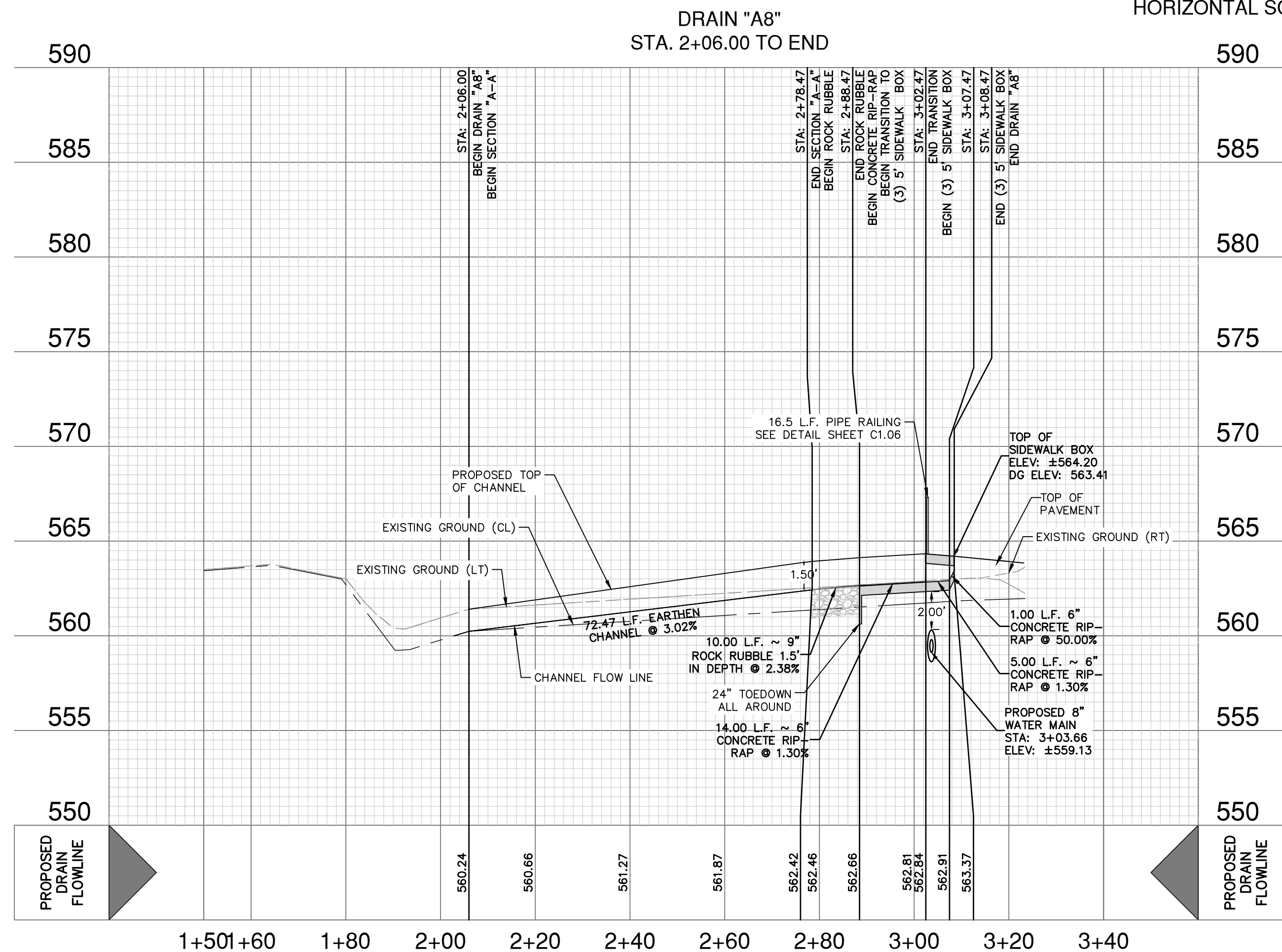
3. ALL CONCRETE FOR TxDOT DRAINAGE STRUCTURES SHALL MEET TxDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
4. REFERENCE DRAWING DETAILS FOR PIPE, TRENCH DETAILS, BOX CULVERT, HEADWALL AND MINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION 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. BEFORE 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.

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. CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARE 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 SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH THE MINIMUM REQUIREMENTS OF THE OSHA REGULATORY 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 OWNER PRIOR TO ANY 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 THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NO.



HYDRAULIC
CALCULATIONS
EARTHEN CHANNEL
STA. 2+06.00 TO 2+78.41

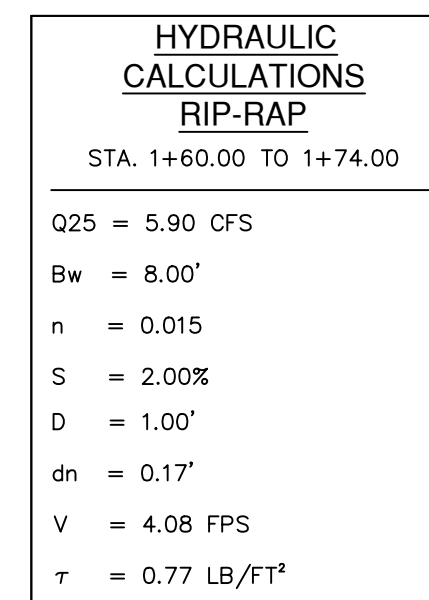
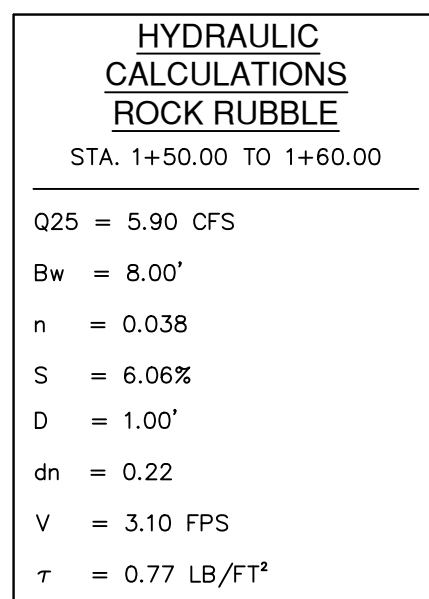
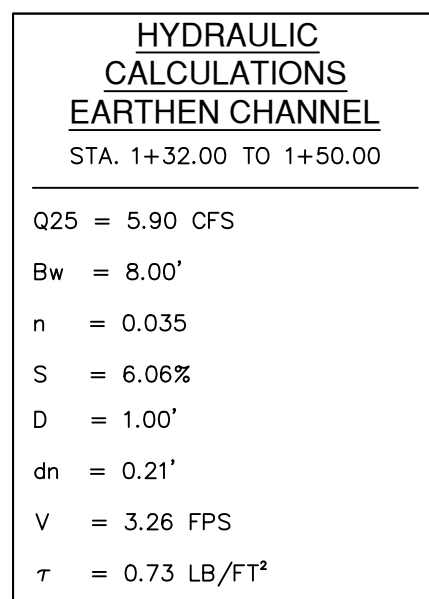
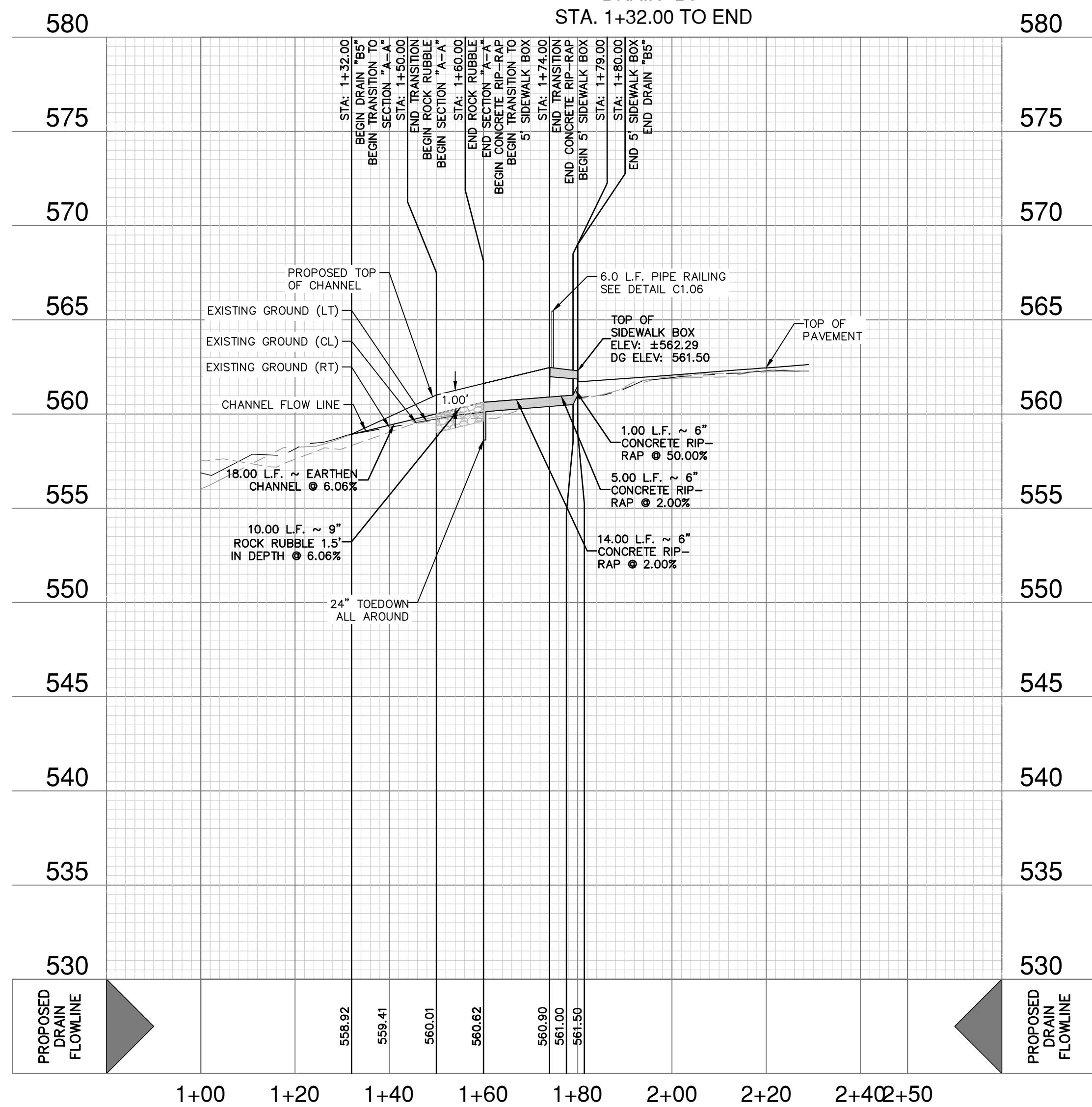
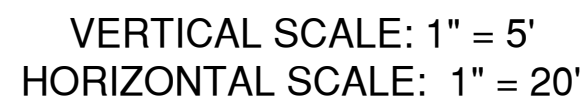
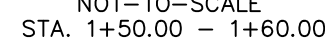
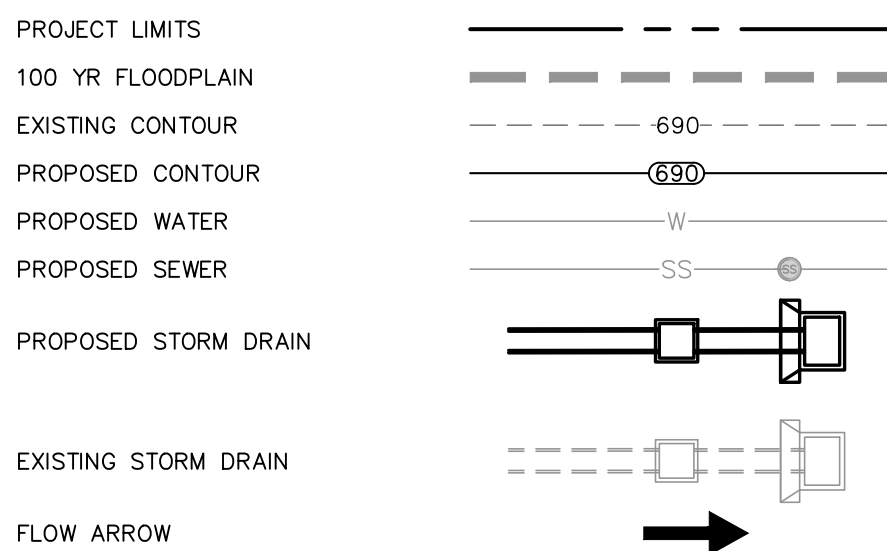
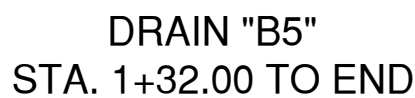
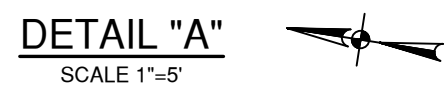
Q25 = 24.10 CFS
Bw = 8.00'
n = 0.035
S = 3.02%
D = 1.50'
dn = 0.56'
V = 4.45 FPS
 $\tau = 0.89 \text{ LB/FT}^2$

HYDRAULIC
CALCULATIONS
ROCK RUBBLE
STA. 2+78.47 TO 2+88.4

Q25 = 24.10 CF
Bw = 8.00'
n = 0.038
S = 2.38%
D = 1.50'
dn = 0.63
V = 3.87 FPS
 $\tau = 0.77 \text{ LB/ft}^2$

HYDRAULIC
CALCULATIONS
RIP-RAP
STA. 2+88.47 TO 3+02.4

Q25 = 24.10 CFS
Bw = 8.00'
n = 0.015
S = 1.30%
D = 1.50'
dn = 0.44'
V = 5.88 FPS
 $\tau = 0.31$ LB/FT



HYDRAULIC CALCULATIONS—DRAIN "B5" SIDEWALK BOX

$$Q_{25} = 5.90 \text{ CFS}$$

$$Q_{25} = CA\sqrt{2gh} \text{ (ORIFICE FLOW EQN.)}$$

$$A = L(0.52), h = 0.52, q = 32.2, c = 0.70$$

$$L = \frac{5.90 \text{ CFS}}{(0.70) (0.52) \sqrt{2} (32.2) (0.52)}$$

L = 2.80 FT USE 1 ~ 5 FT SIDEWALK BOX

CHECK WITH WEIR FORMULA

$$h = \left(\frac{Q}{(CL)} \right)^{2/3} = \left(\frac{5.90}{(3.087)(5)} \right)^{2/3} = 0.53 \text{ FT.}$$

$$h = 0.53 < 0.79 \quad \text{OK}$$

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 AND FLAGMEN MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXISTING 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.

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 TYPES WITHIN THE PROJECT AREA TO DETERMINE THE NECESSITY FOR IMPLEMENTATION OF 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 PROTECTION TO FULLY COMPLY WITH ALL APPLICABLE REGULATORY REQUIREMENTS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH THE FOLLOWING: (1) PRESENCE OF ALL PERSONNEL 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 ELECTRIC, 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 SCHEDULE A 1-800-DIG-TEST A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.



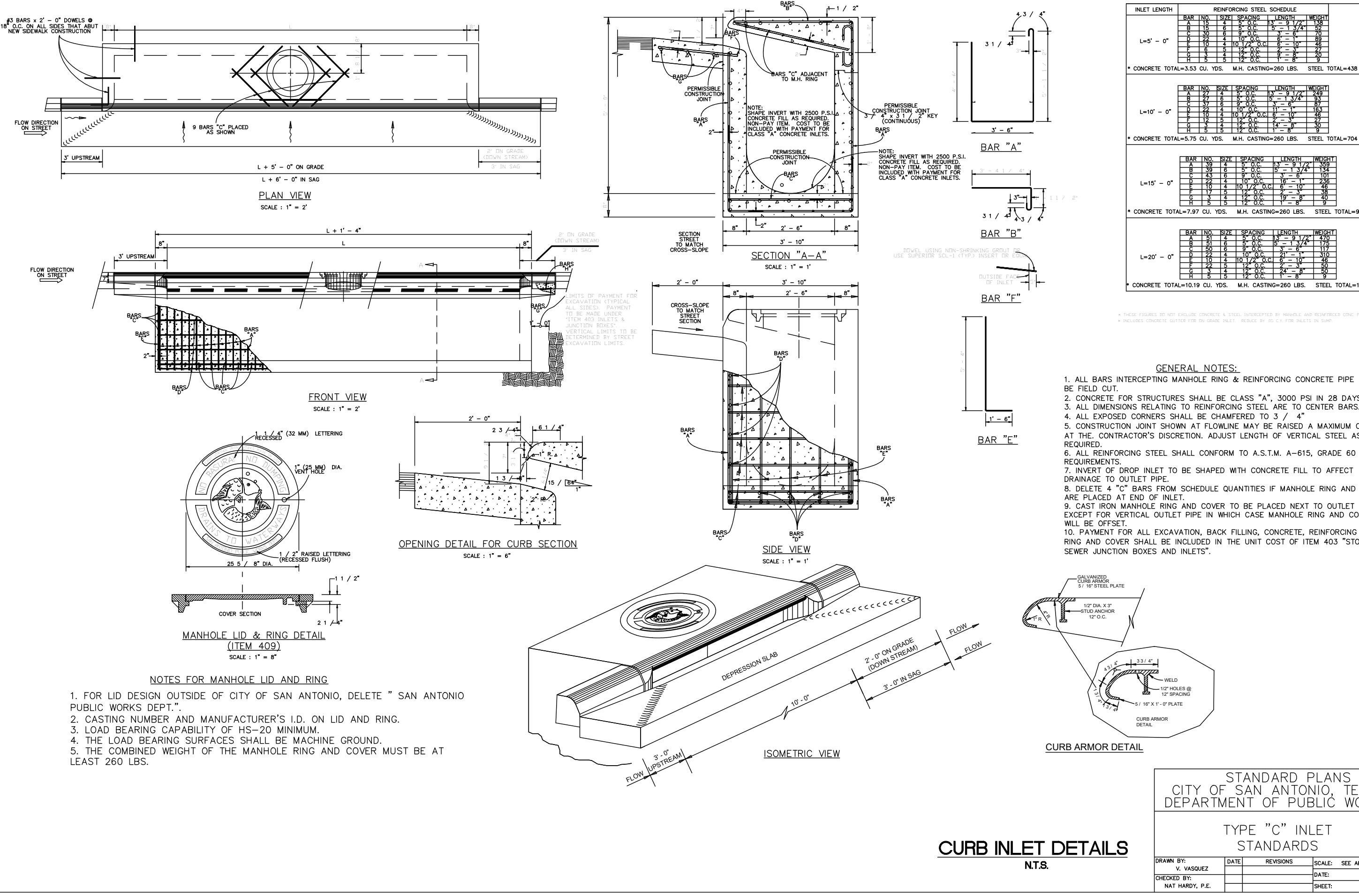
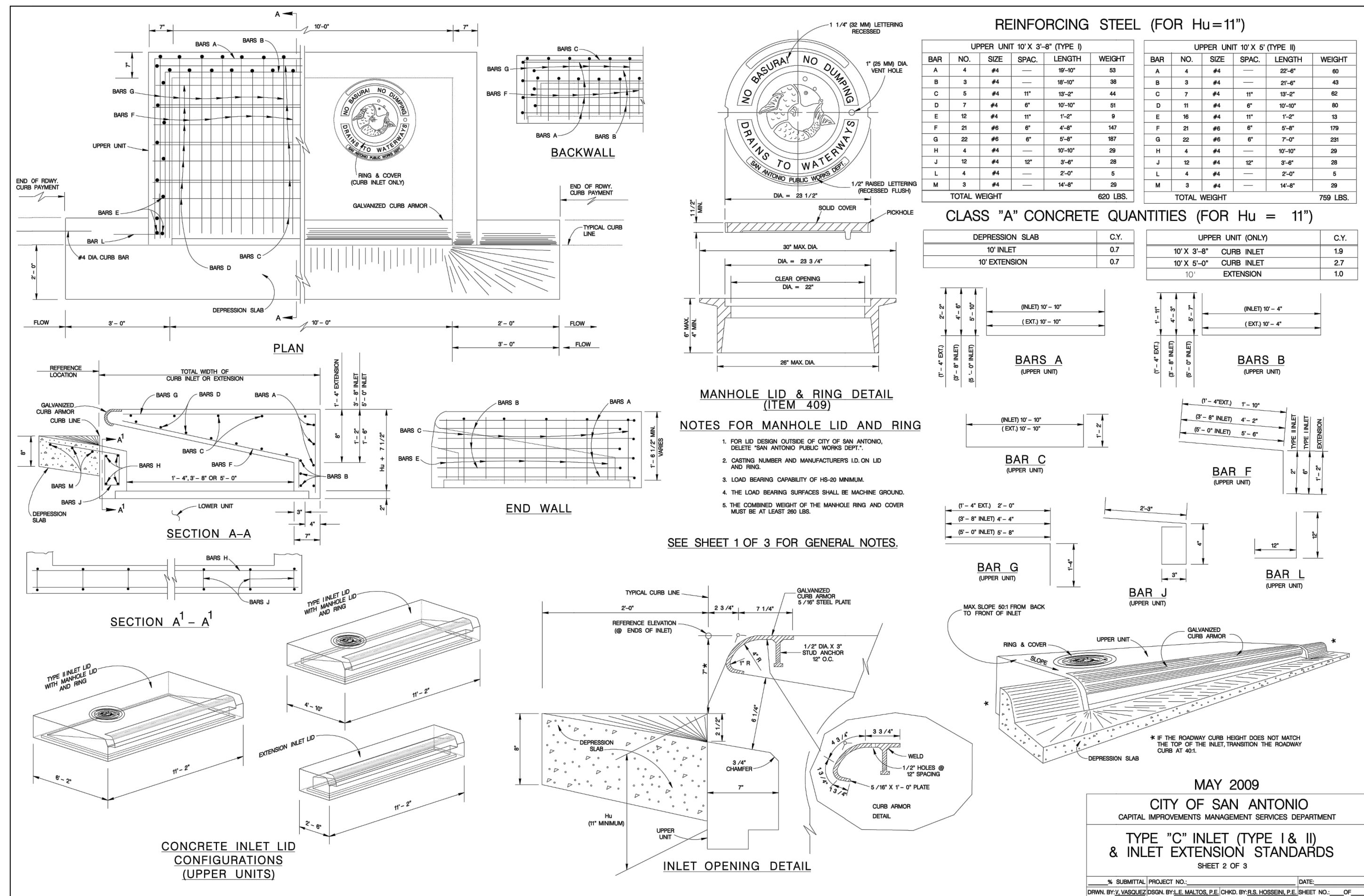
**PAPE-DAWSON
ENGINEERS**

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ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS

DRAIN B5 PLAN & PROFILE (STA. 1+32.00 TO END)

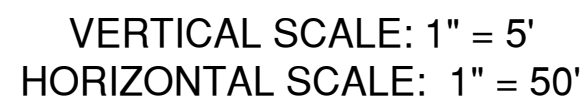
PLAT NO. 23-11800229
JOB NO. 12632-12
DATE JULY 2023
DESIGNER JG
CHECKED DW DRAWN TC
SHEET C1.03



STATE OF TEXAS
EUGENE H. DAWSON III
112792
LICENSED
PROFESSIONAL ENGINEER
10/10/23

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS
DRAINAGE DETAILS

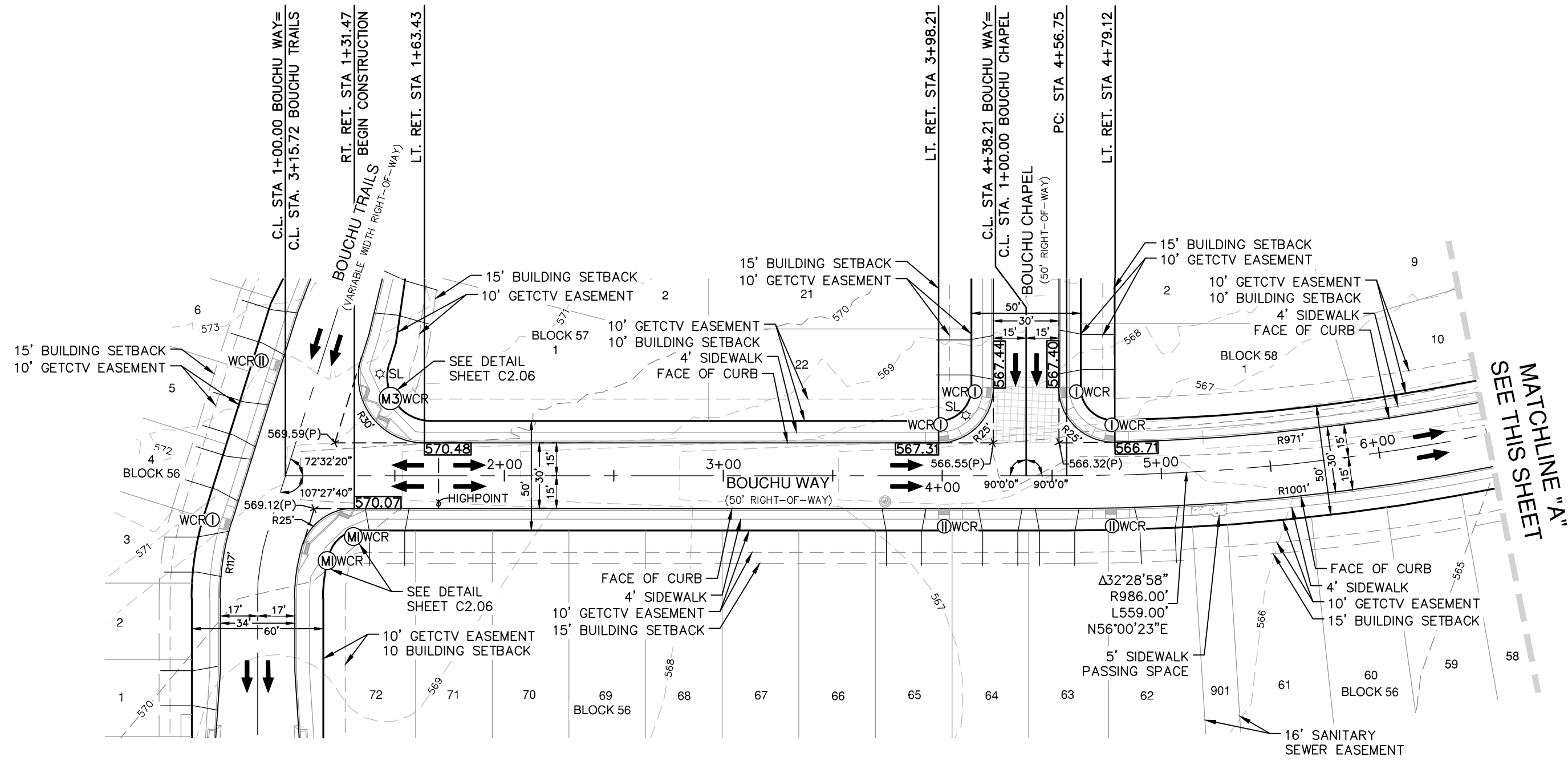
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- NOT-TO-SCALE



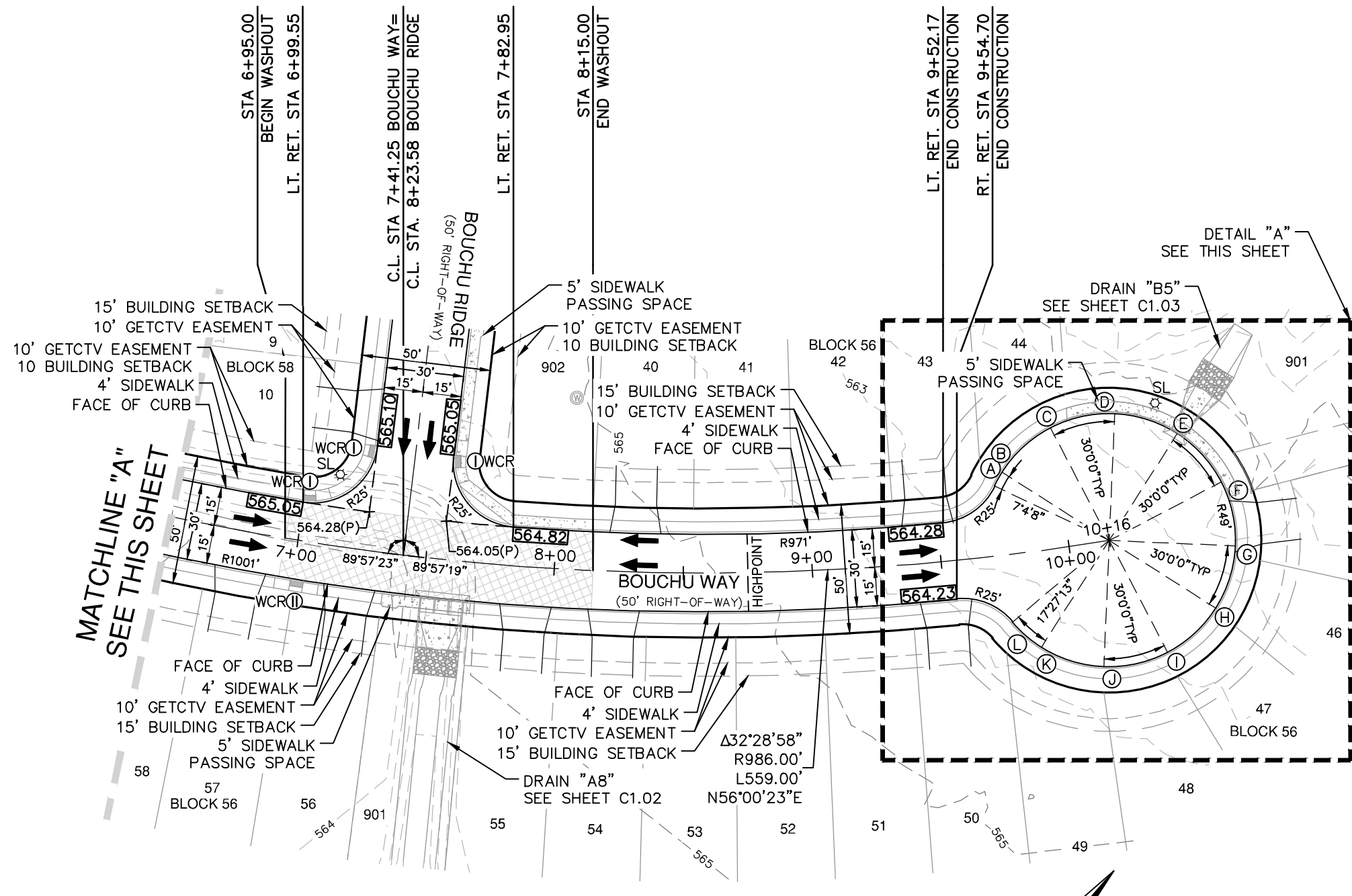
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JOB NO. 12632-12
DATE JULY 2023
DESIGNER JG
CHECKED DW DRAWN TC
SHEET **C2.00**

Date: Oct 24, 2023, 4:40pm User: JD - jrothengraff
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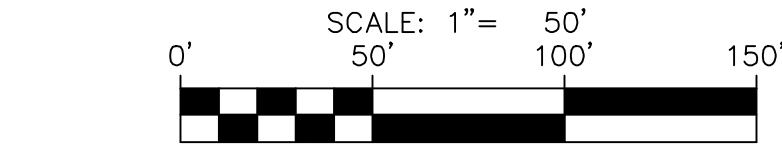
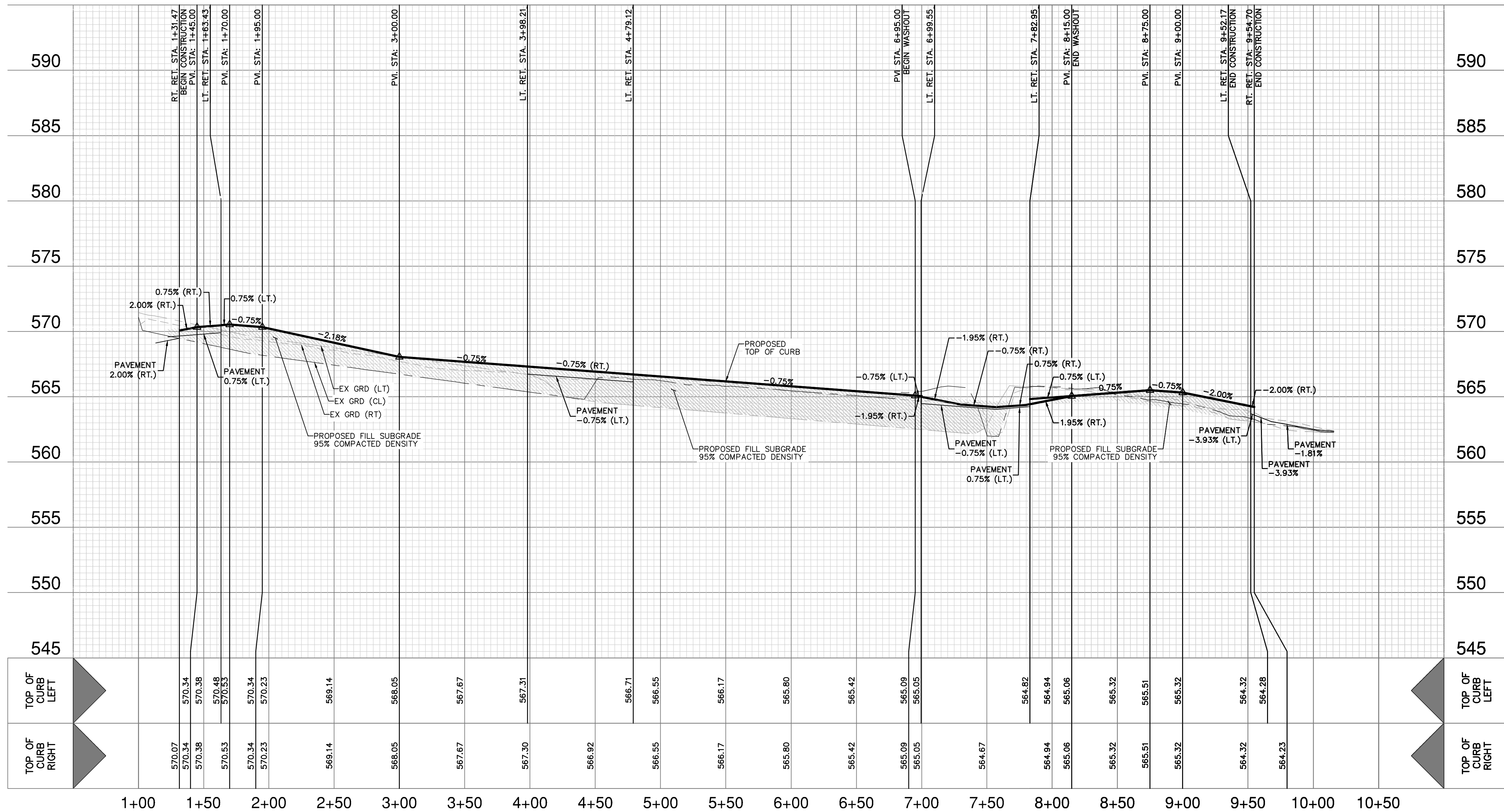
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BOUCHU WAY
STA. 1+31.47 TO END

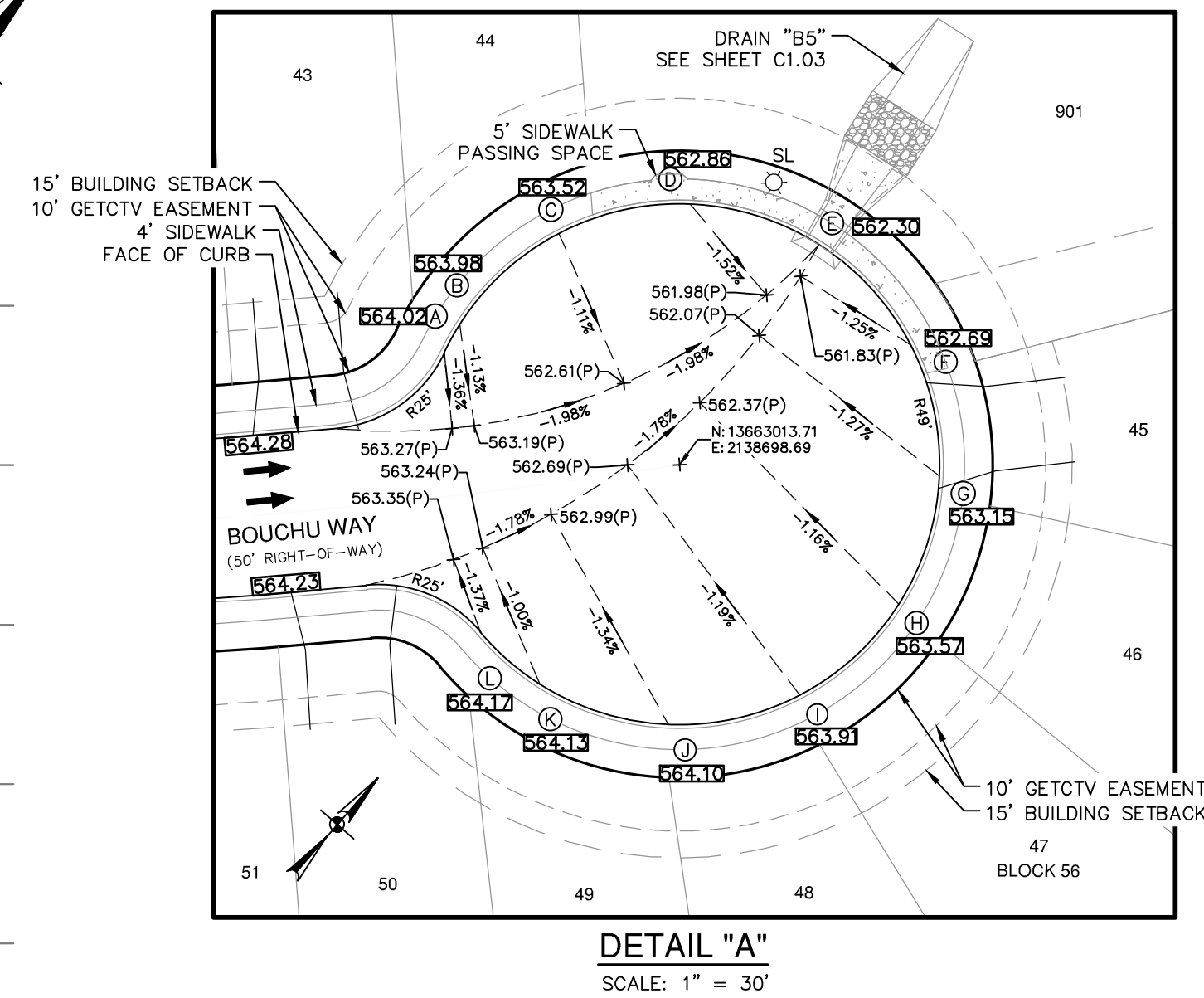


VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



STREET LEGEND

PROJECT LIMITS	---
MAINTAIN GUTTER	---
EXISTING CONTOUR	---
WHEELCHAIR RAMP	---
CENTERLINE	---
RADIUS POINT	---
POINT OF CURVATURE	---
POINT OF TANGENCY	---
RETURN	---
VEHICULAR NON ACCESS EASEMENT	---
DRAINAGE FLOW ARROW	---
TOP OF CURB SPOT ELEVATION	---
PAVEMENT ELEVATION	---
WASHOUT CROWN SECTION	---
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	---
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	---
DRIVEWAY	---
EXISTING WELL	---



STREET 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.
- CONTRACTOR SHALL MATCH EXISTING PAVEMENT AT TIE-IN. IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
- SIDEWALKS SHALL BE CONSTRUCTED 3'-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.
- 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.
- 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.
- 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 (C)(6).
- THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN.

PAPE-DAWSON
ENGINEERS

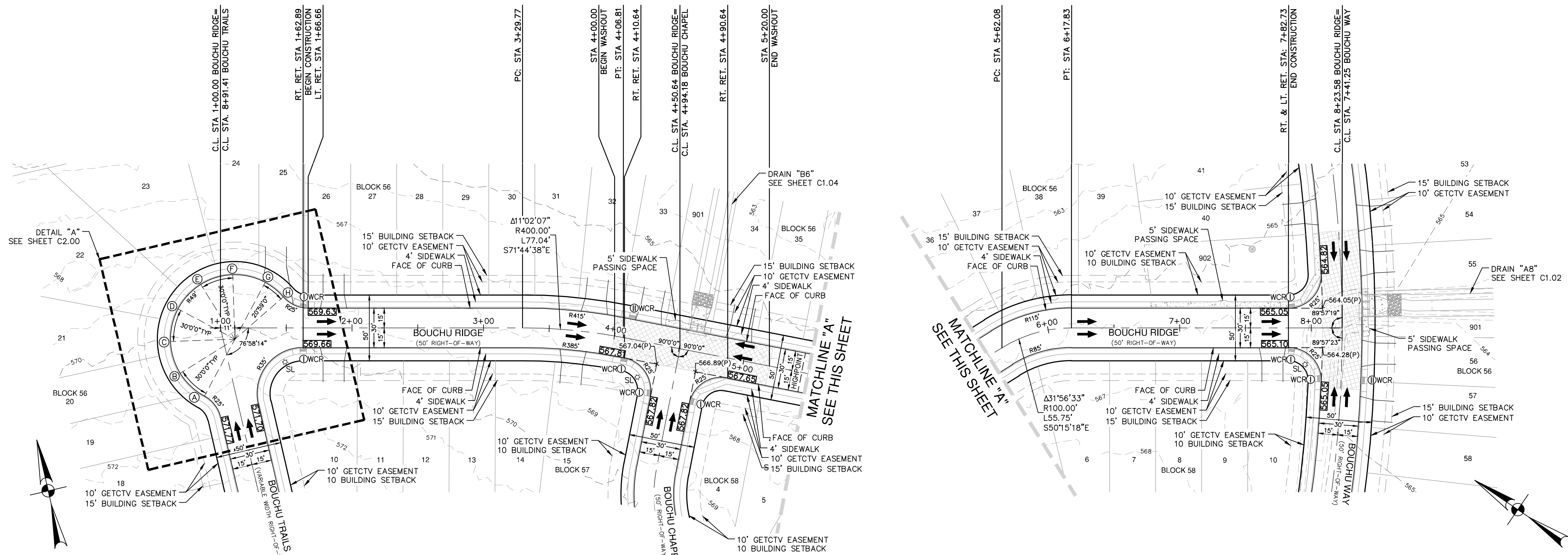
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2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #170 | TEXAS SURVEYING FIRM #10028800

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS
BOUCHU WAY PLAN & PROFILE
(STA. 1+31.47 TO END)

PLAT NO. 23-11800229
JOB NO. 12632-12
DATE JULY 2023
DESIGNER JG
CHECKED DW DRAWN TC
SHEET C2.01

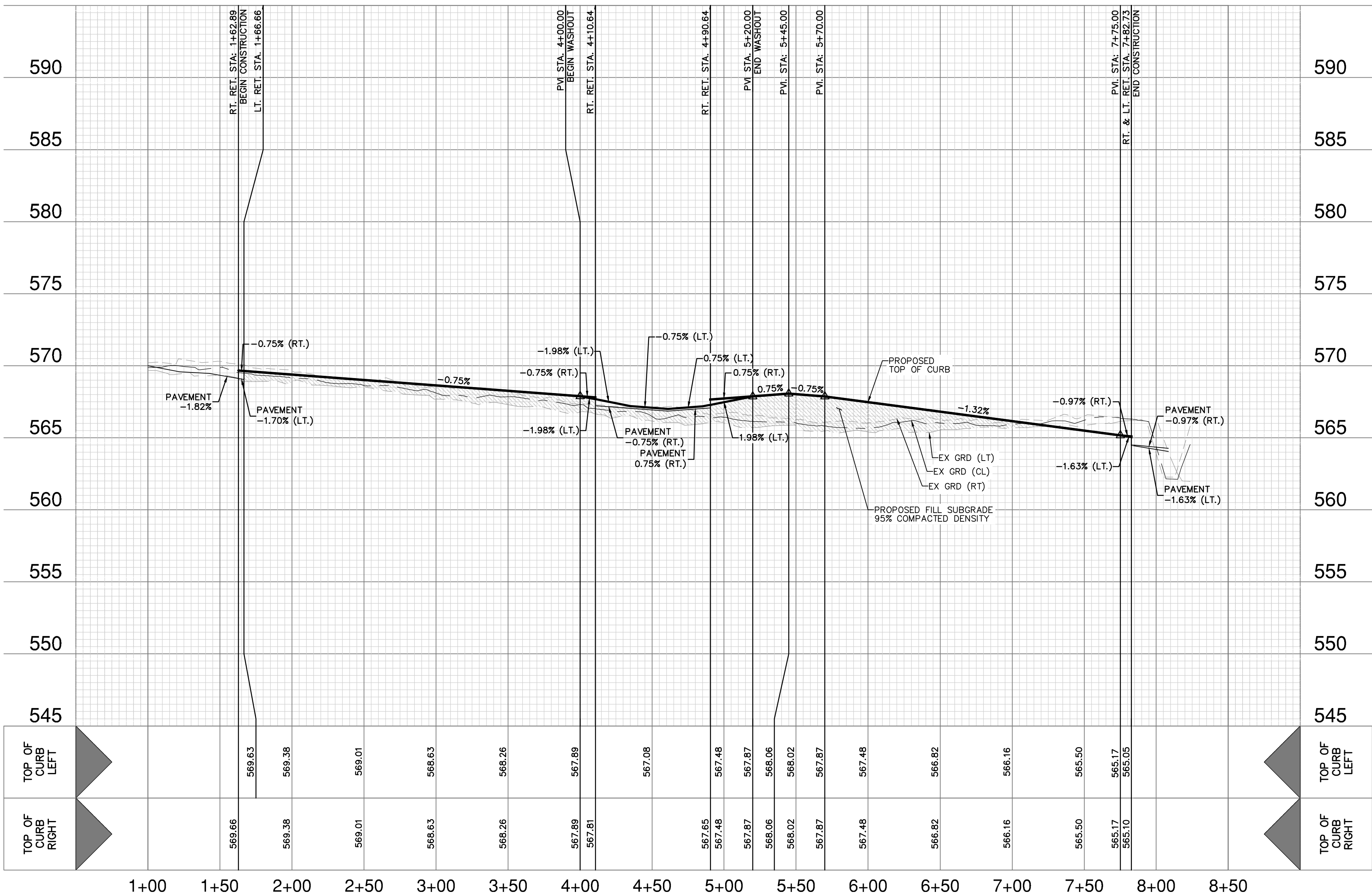
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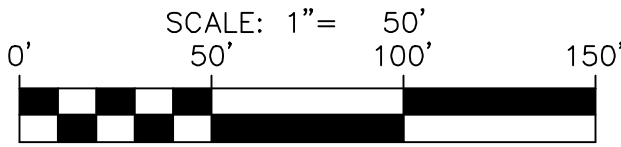
BOUCHU RIDGE
STA. 1+62.89 TO END

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



STREET LEGEND

PROJECT LIMITS	---
MAINTAIN GUTTER	→
EXISTING CONTOUR	--- 970 ---
WHEELCHAIR RAMP	⊕
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
VEHICULAR NON ACCESS EASEMENT	VNAE
DRAINAGE FLOW ARROW	→
TOP OF CURB SPOT ELEVATION	857.00(P) x
PAVEMENT ELEVATION	857.00(P) x
WASHOUT CROWN SECTION	857.00(P) x
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	857.00(P) x
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	857.00(P) x
DRIVEWAY	---
EXISTING WELL	⊙



NO.	REVISION	DATE



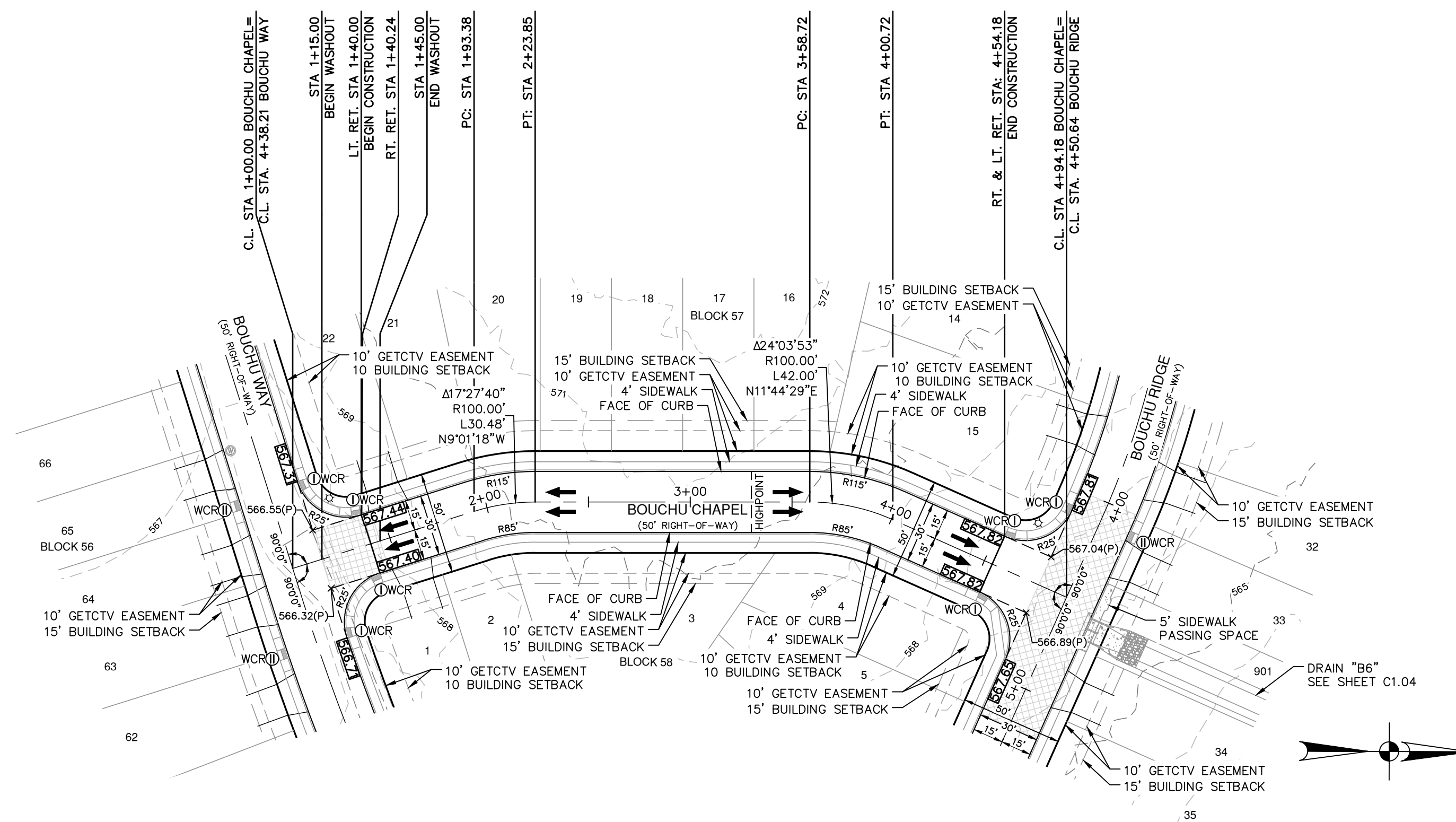
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008800

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS
BOUCHU RIDGE PLAN & PROFILE
(STA. 1+62.89 TO END)

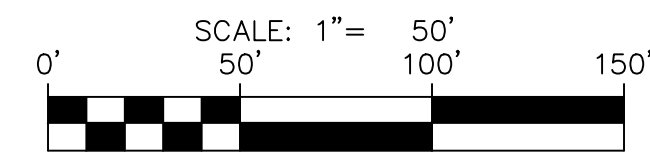
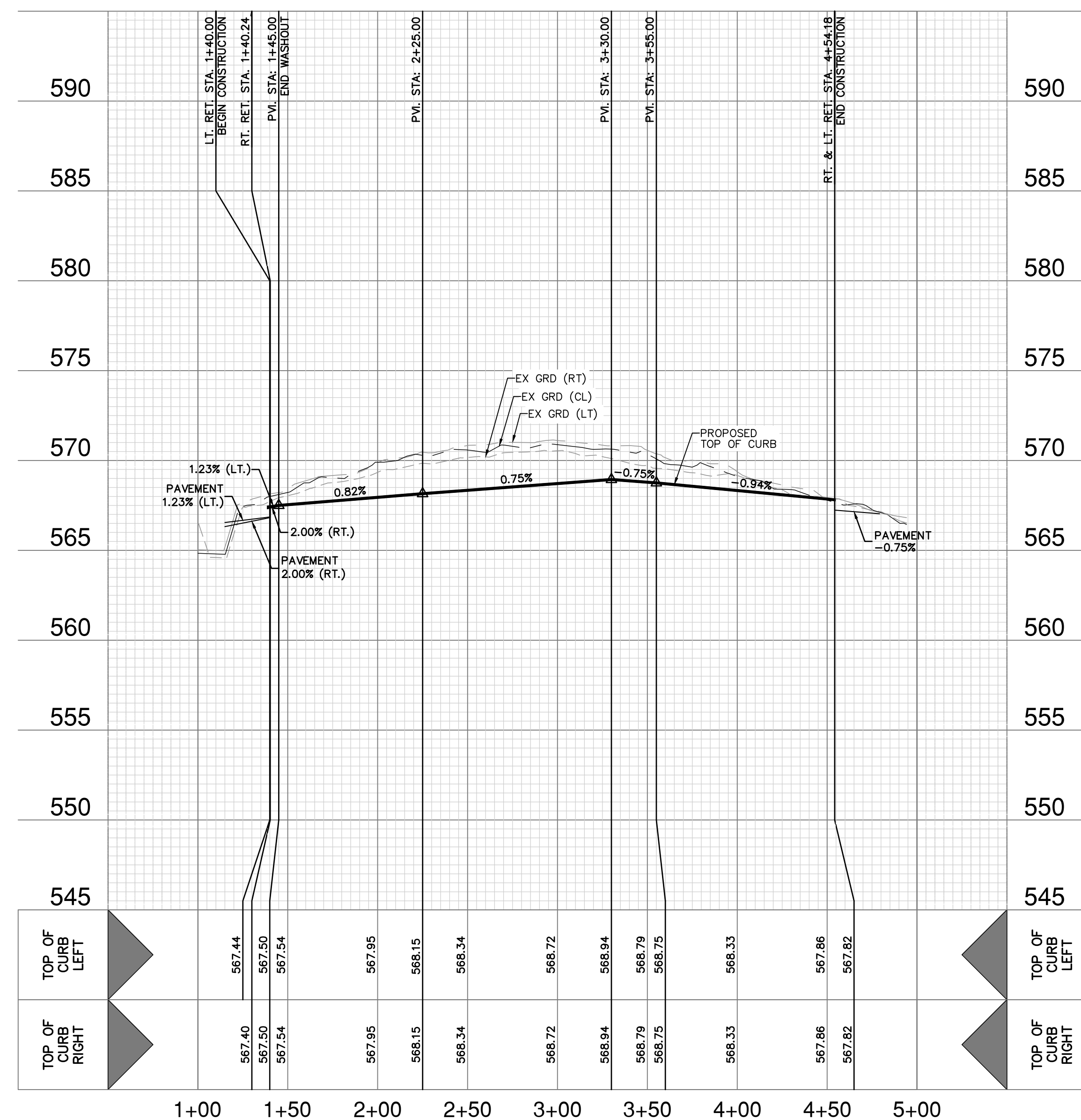
STREET NOTES:

- 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.
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- 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 (D)(6).
- THE CONSTRUCTION OF SIDEWALKS ADJACENT TO ALL 900 SERIES LOTS WILL BE THE RESPONSIBILITY OF THE DEVELOPER AS SHOWN ON THE OVERALL SIGNAGE PLAN.

PLAT NO.	23-11800229
JOB NO.	12632-12
DATE	JULY 2023
DESIGNER	JG
CHECKED	DW DRAWN TC
SHEET	C2.02

BOUCHU CHAPEL
STA. 1+40.00 TO END

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



STREET LEGEND

PROJECT LIMITS	_____
MAINTAIN GUTTER	_____ →
EXISTING CONTOUR	----- 970 -----
WHEELCHAIR RAMP	Ⓢ
CENTERLINE	CL
RADIUS POINT	RP
POINT OF CURVATURE	PC
POINT OF TANGENCY	PT
RETURN	RET
VEHICULAR NON ACCESS EASEMENT	VNAE
DRAINAGE FLOW ARROW	→
TOP OF CURB SPOT ELEVATION	857.30
PAVEMENT ELEVATION	857.00(P) ×
WASHOUT CROWN SECTION	
SIDEWALK (HOMEOWNER'S RESPONSIBILITY)	
SIDEWALK (DEVELOPER'S RESPONSIBILITY)	
DRIVEWAY	
EXISTING WELL	⊙



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ENGINEERS**

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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS

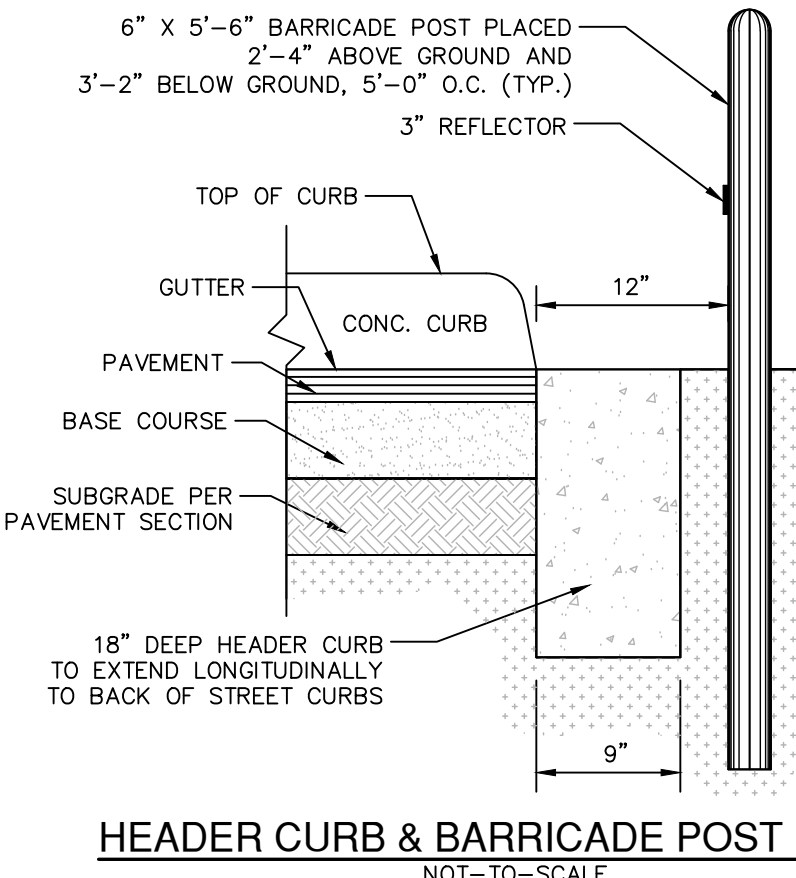
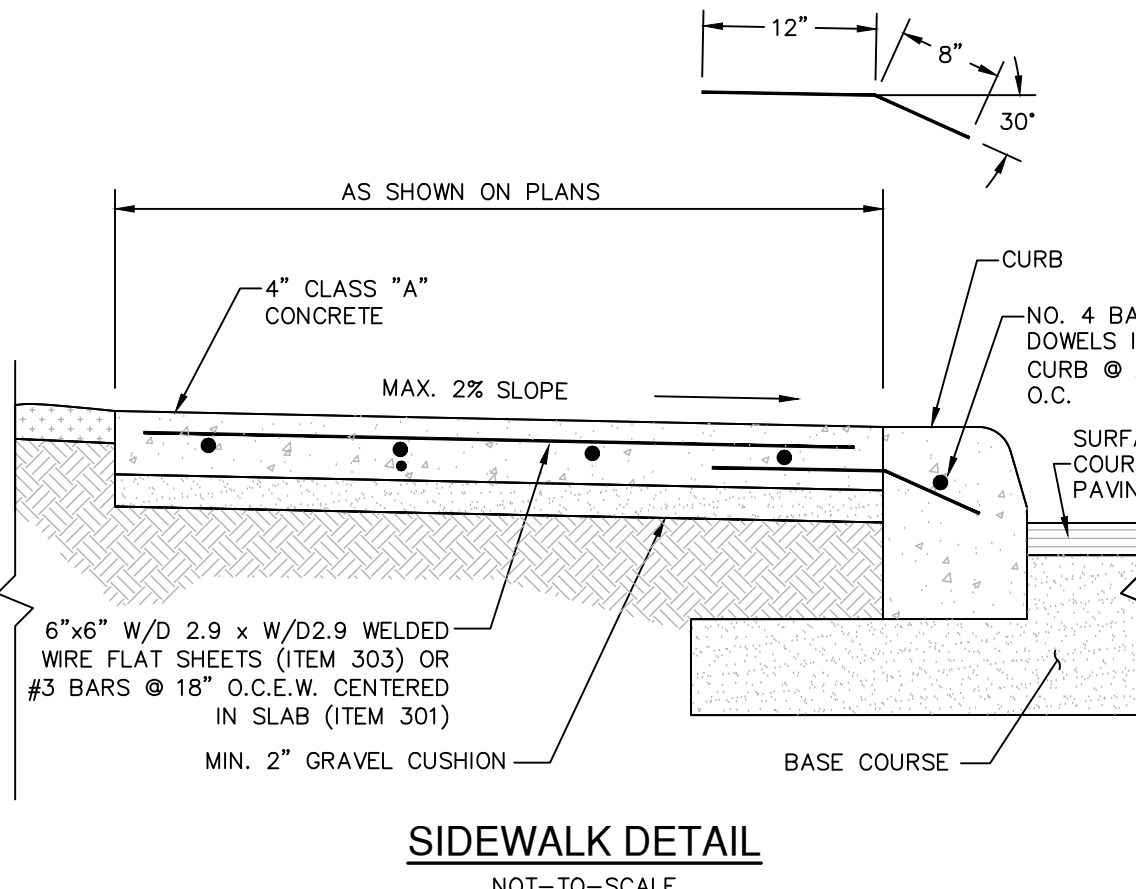
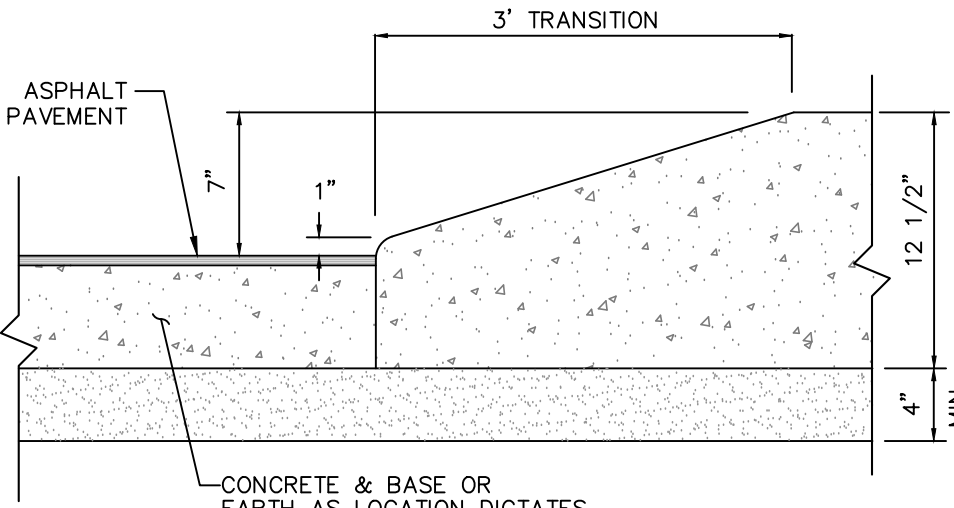
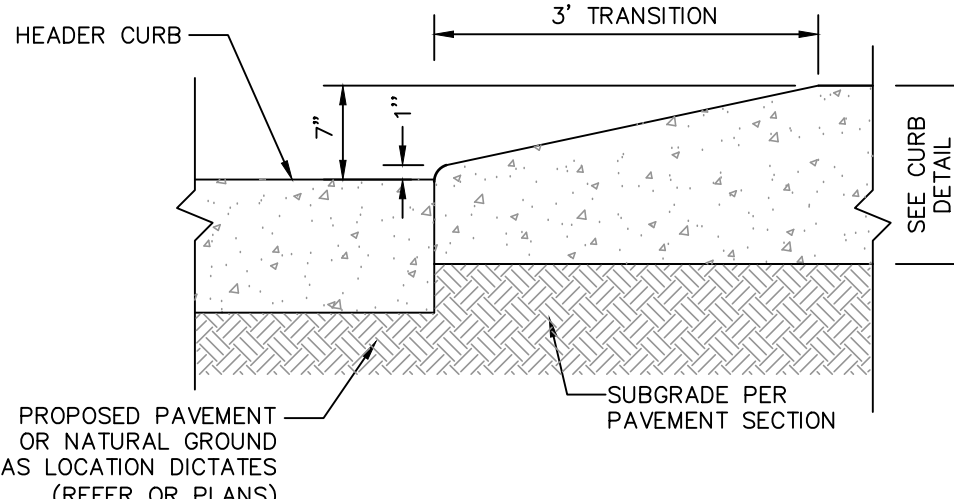
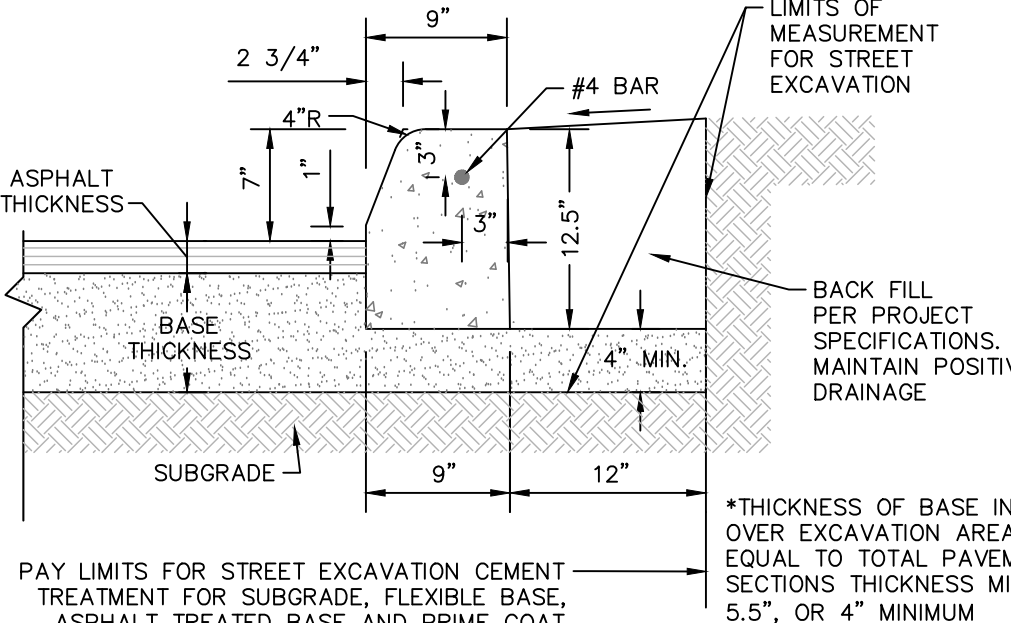
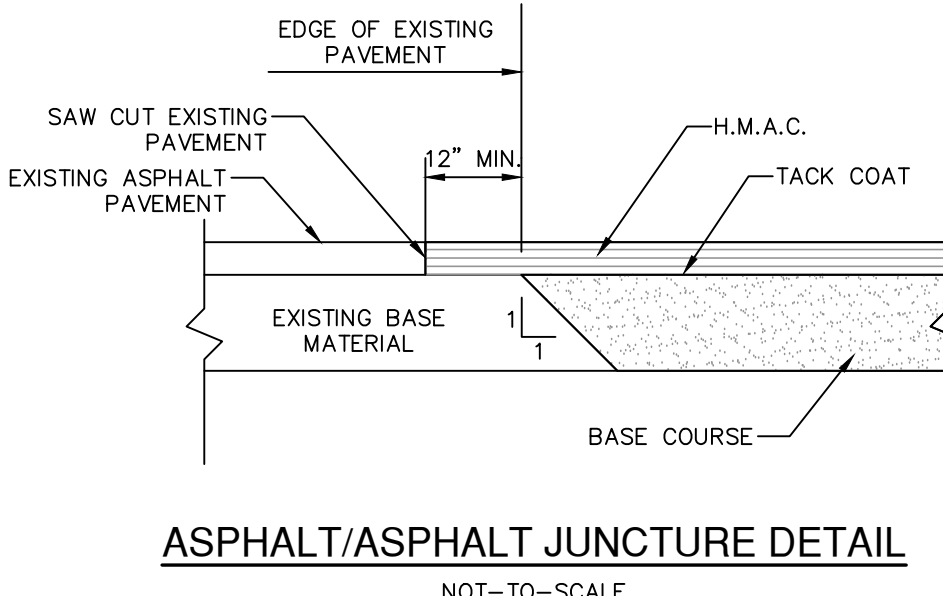
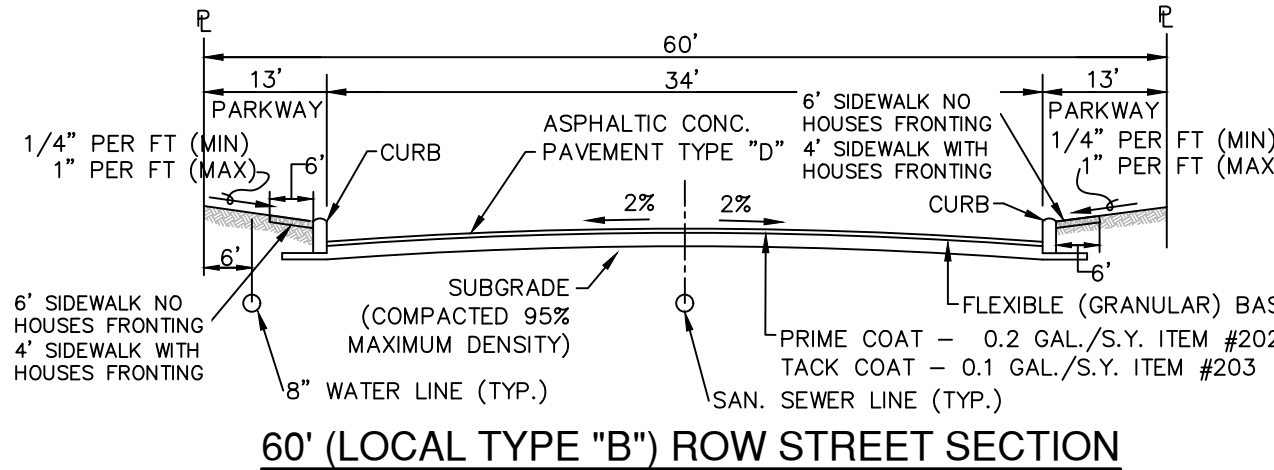
BOUCHU CHAPEL PLAN & PROFILE
(STA. 1+40.00 TO END)

STREET NOTES:

1. A BEYAR COUNTY ROW PERMIT MUST BE OBTAINED BEFORE WORKING IN BEYAR 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 TE-IN, IF EXISTING PAVEMENT ELEVATION DIFFERS SIGNIFICANTLY, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
3. SIDEWALKS SHALL BE CONSTRUCTED 3'-FT FROM THE BACK OF CURB FOR ALL LOCATIONS WHERE THE SIDEWALK IS SHOWN OFF-SET. 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 THE CLEAR VISION EASEMENT TO SUCH AN 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 INSURANCE COMPANY. SUCH CHANGES TO 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.

PLAT NO. 23-11800229
 JOB NO. 12632-12
 DATE JULY 2023
 DESIGNER JG
 CHECKED DW DRAWN TC
 SHEET C2.03

PAVEMENT SECTION DETAIL										
STREET NAME	STATION	TYPE "D" HMAC	TYPE "C" HMAC	TYPE "B" HMAC	GRANULAR BASE COURSE	CEMENT TREATED SUBGRADE	GEOGRID (TENSAR TRIAX TX5)	CBR	STRUCTURAL NUMBER	
BOUCHU TRAILS	1+70.00 TO 4+18.63	2"	2"	2.5"	17.5"	6"	NO	1.8	$\frac{2(.44)}{2.5(.38)} = .88$ $\frac{2(.44)}{17.5(.14)} = 2.45$	5.16
BOUCHU TRAILS	4+18.63 TO END	3"	—	—	12"	6"	NO	1.8	$\frac{3(.44)}{12(.14)} = 1.32$ $\frac{3(.44)}{12(.14)} = 1.68$	3.0
BOUCHU WAY	1+17.82 TO END	3"	—	—	12"	6"	NO	1.8	$\frac{3(.44)}{12(.14)} = 1.32$ $\frac{3(.44)}{12(.14)} = 1.68$	3.0
BOUCHU RIDGE	1+00.00 TO END	3"	—	—	12"	6"	NO	1.8	$\frac{3(.44)}{12(.14)} = 1.32$ $\frac{3(.44)}{12(.14)} = 1.68$	3.0
BOUCHU CHAPEL	1+15.00 TO END	3"	—	—	12"	6"	NO	1.8	$\frac{3(.44)}{12(.14)} = 1.32$ $\frac{3(.44)}{12(.14)} = 1.68$	3.0

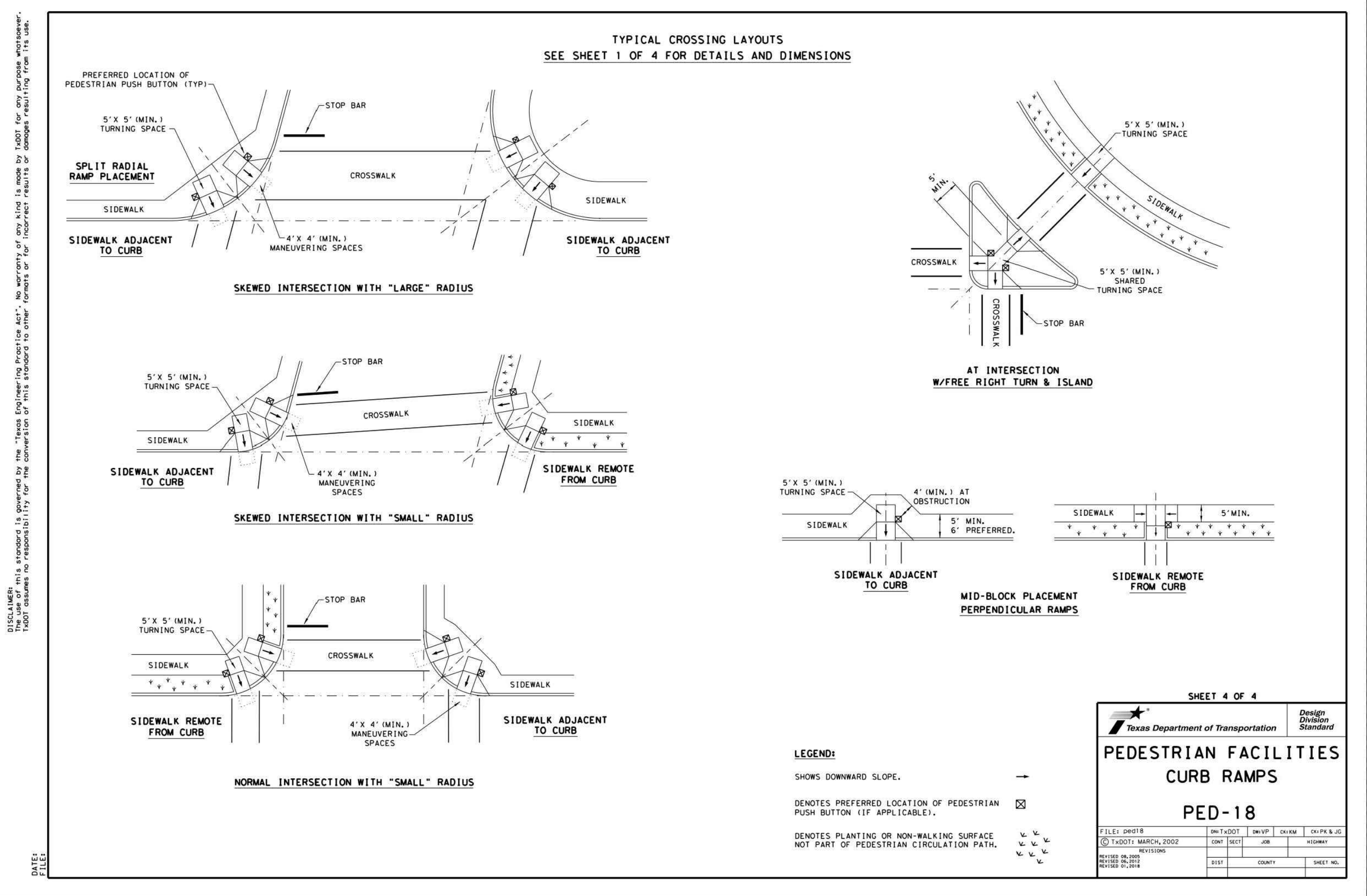
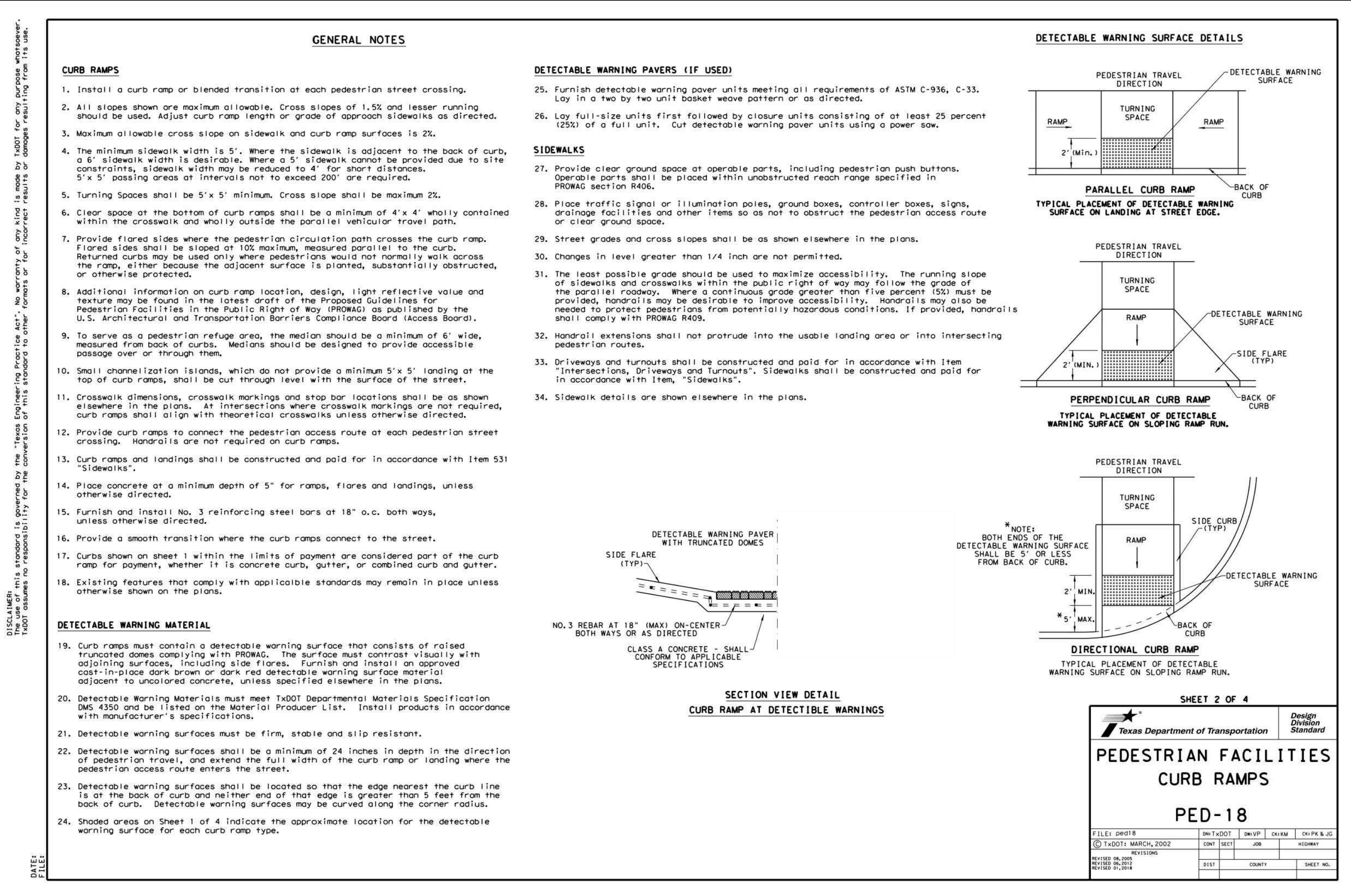


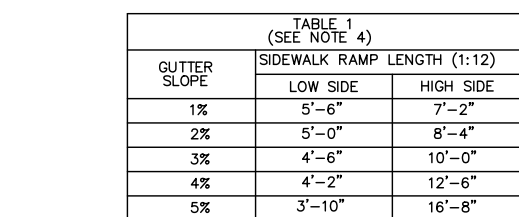
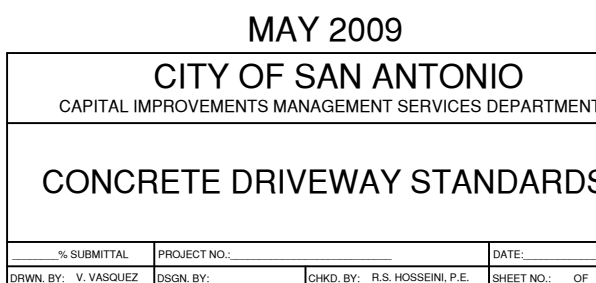
- ## GENERAL NOTES

1. CONTRACTOR SHALL REFERENCE THE PROJECT PAVEMENT DESIGN REPORT PREPARED BY **TTL DATED NOVEMBER 2, 2023.**
2. 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 CEMENT STABILIZATION IS REQUIRED.
3. GEOTECHNICAL ENGINEER SHOULD VERIFY THE STREET SUBGRADE AT THE TIME OF CONSTRUCTION PRIOR TO PLACEMENT OF AGGREGATE BASE.
4. THE FLEXIBLE BASE COURSE SHOULD BE CRUSHED LIMESTONE CONFORMING TO TxDOT STANDARD SPECIFICATIONS, ITEM 247, TYPE A, GRADES 1 OR 2.
5. EACH LIFT OF SOIL SHALL BE MOISTURE CONDITIONED BETWEEN MINUS TWO (-2) AND PLUS THREE (+3) PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AND COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY.
6. IN THE EVENT THAT THE CLAY LIFT 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.
7. UNDERCUT SOFT, WEAK, AND UNSTABLE SOILS BY EXCAVATING BELOW SUBGRADE LEVEL TO EXPOSE STIFF SOILS. THE EXCAVATED SOIL CAN BE USED TO RESTORE THE EXCAVATION SUBGRADE, PROVIDED THAT THE SOILS ARE RELATIVELY FINE AND CLEAN OF DELETERIOUS MATERIAL OR MATERIALS EXCEEDING 3 INCHES 8-INCH MAXIMUM DIMENSIONS. THE EXCAVATED SOIL, OR IMPORTED FILL SOIL, SHALL BE PLACED IN 6-8 INCH MAXIMUM COMPACTED LIFTS. EACH LIFT OF SOIL SHALL BE MOISTURE, CONDITIONED BETWEEN PLUS OR MINUS TWO (+2) PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AND COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH THE STANDARD COMPACTION EFFORT (ASTM D 698). IF UNDERCUTTING DEEPER THAN ABOUT 3 FEET IS NEEDED, CONTACT TTL.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL MATERIAL TESTING WITH THE PROJECT GEOTECHNICAL ENGINEER. TESTING SHALL BE PAID FOR BY THE OWNER.
9. SOIL SUBGRADE AREAS REQUIRING FILL PLACEMENT SHOULD BE SCARIFIED TO A DEPTH OF ABOUT EIGHT (8) INCHES AND MOISTURE CONDITIONED BETWEEN PLUS OF MINUS TWO (+2) POINTS OF THE OPTIMUM MOISTURE CONTENT. EXISTING SUBGRADE SHOULD BE MOISTURE CONDITIONED THEN BE COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH ASTM D 698. THE SUBGRADE SHOULD BE MOISTURE CONDITIONED JUST PRIOR TO FILL PLACEMENT SO THE SUBGRADE MAINTAINS ITS COMPACTION MOISTURE LEVELS AND DOES NOT DRY OUT.
10. A BEARX COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN THE BEARX COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL

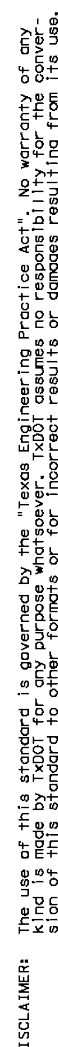
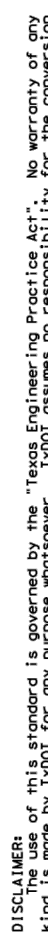
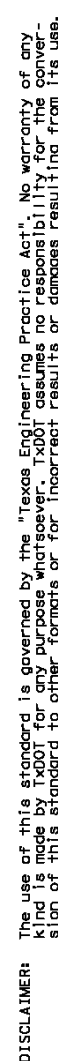
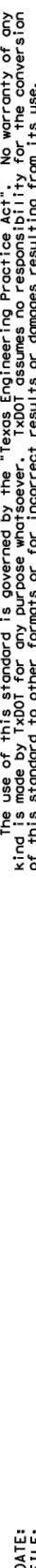
STREET SUBGRADE NOTES

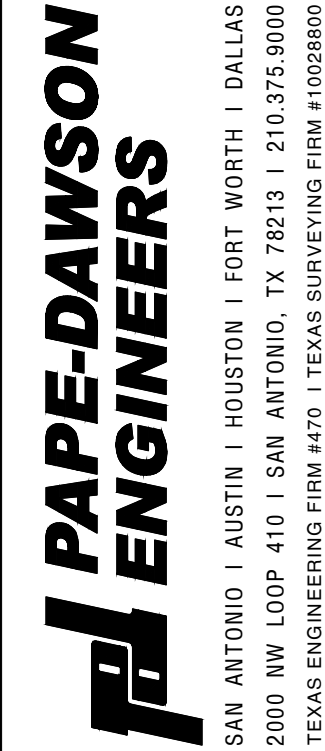
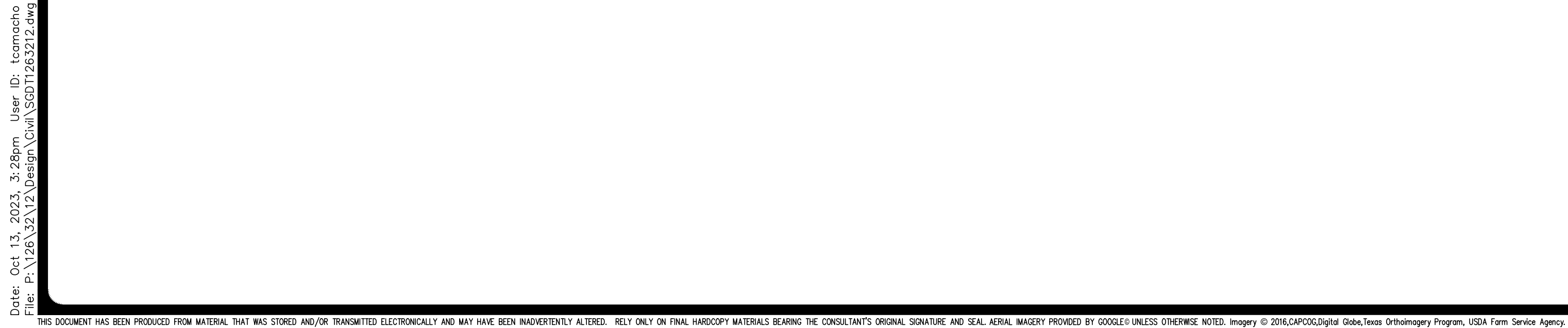
1. IF THE STREET SUBGRADE PLASTICITY INDEX VALUE IS GREATER THAN 20, SUBGRADE TREATMENT IS NEEDED AS PER CITY OF SAN ANTONIO AND BEXAR COUNTY REQUIREMENTS.
2. IF THE SUBGRADE PLASTICITY INDEX VALUE IS 20 OR LESS, SUBGRADE TREATMENT IS NOT NEEDED. THE SUBGRADE SHOULD BE MOISTURE CONDITIONED (COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AT A MINIMUM MOISTURE CONTENT OF OPTIMUM PLUS 2 PERCENT (TEXT114E)).
3. THE SUBGRADE SHOULD BE TREATED USING A MINIMUM OF 5% PORTLAND CEMENT, BY DRY WEIGHT TO A DEPTH OF 6 INCHES.
4. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO TREATMENT. IF THE SOIL SULFATE CONTENT IS HIGH, AN ALTERNATE PROCEDURE / RECOMMENDATION WILL BE NEEDED.
5. CEMENT APPLICATION RATE OF 28 LBS PER SQ YARD OF SOIL IS RECOMMENDED.
6. APPROVED FILL MATERIAL SHOULD BE USED TO RAISE THE GRADE. THE FILL SHOULD BE FREE OF DELETERIOUS MATERIAL WITH THE MINIMUM CBR VALUE OF 1.8 AND PI NOT MORE THAN .35. CEMENT 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 FOR REPAIRABLE TREATMENT.

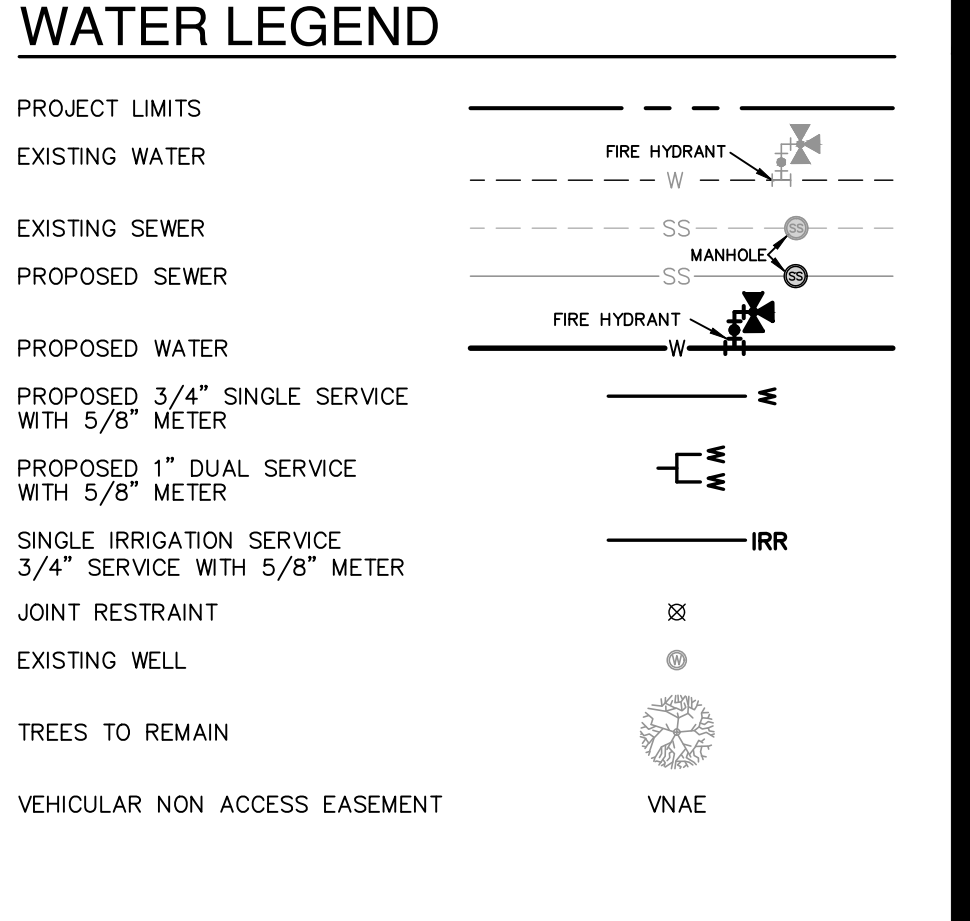
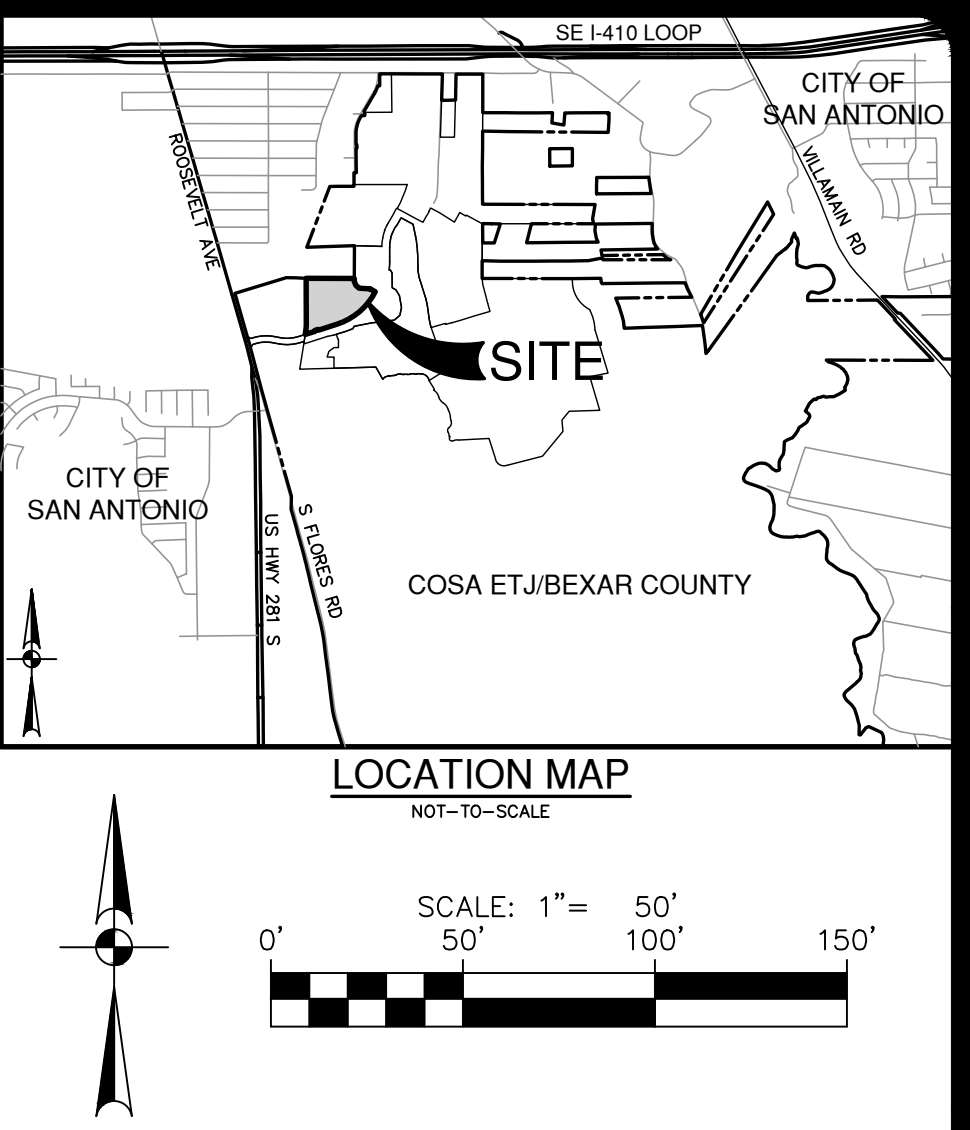
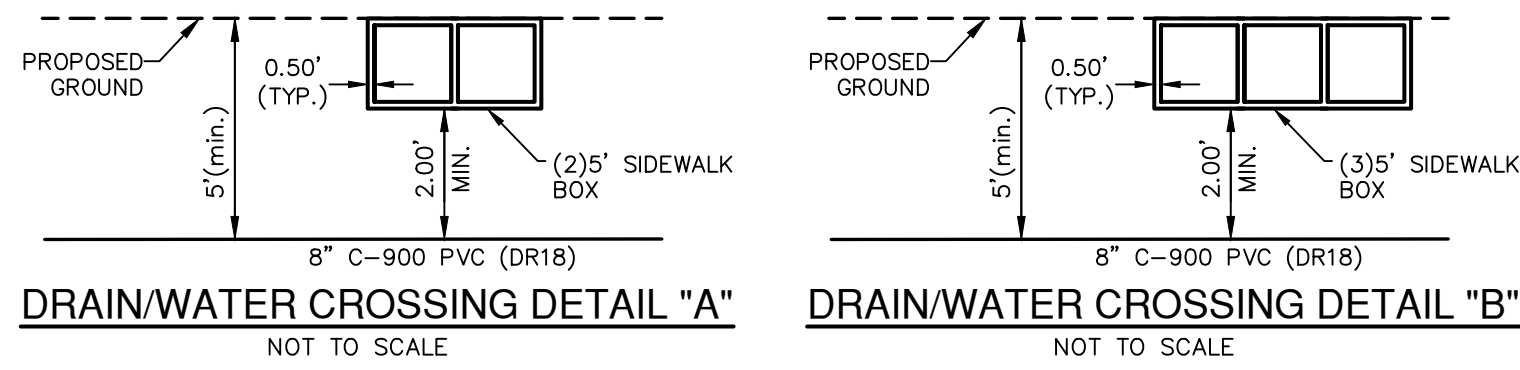
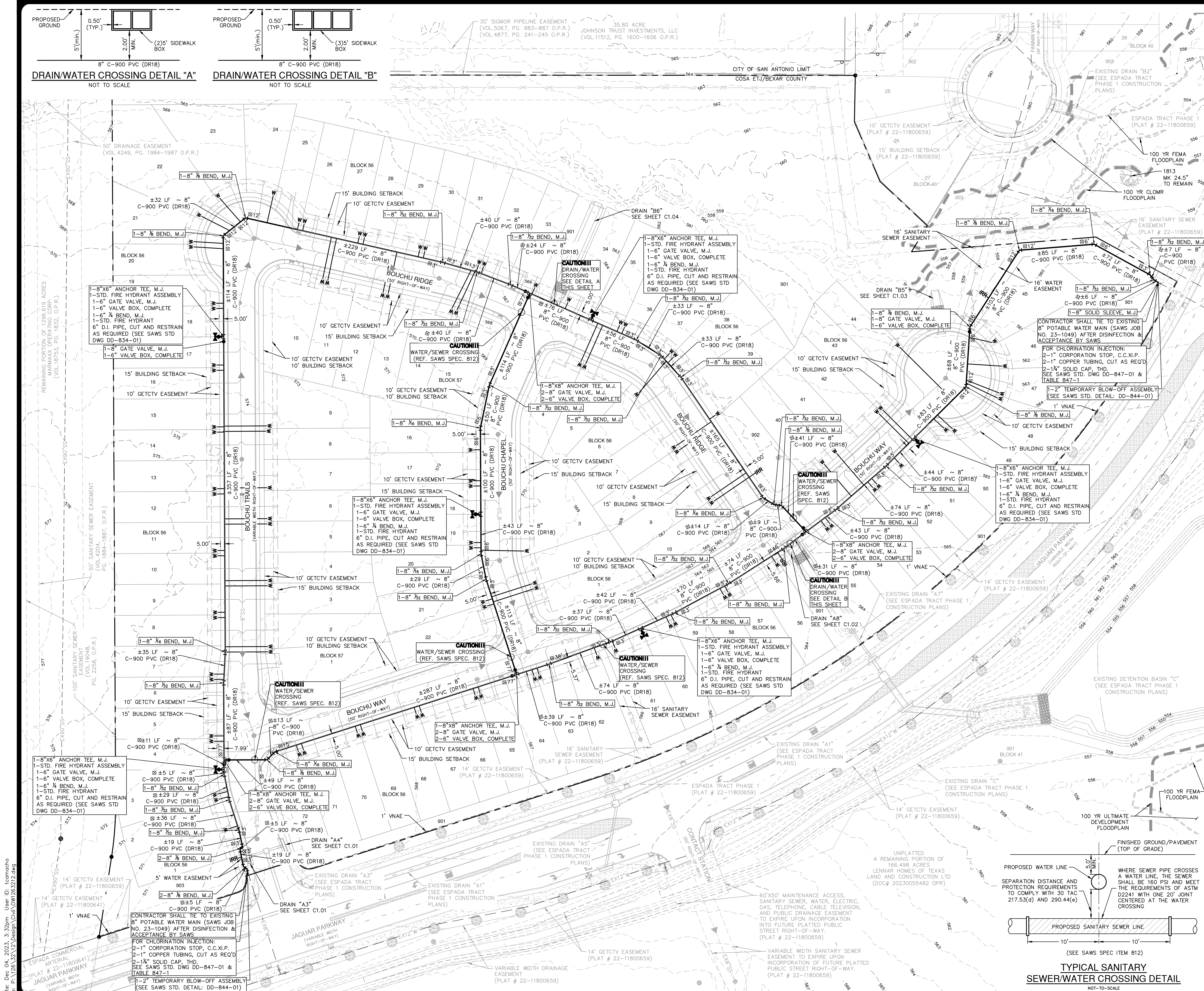




MAY 2009
CITY OF SAN ANTONIO CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT
WHEELCHAIR RAMP STANDARDS







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.

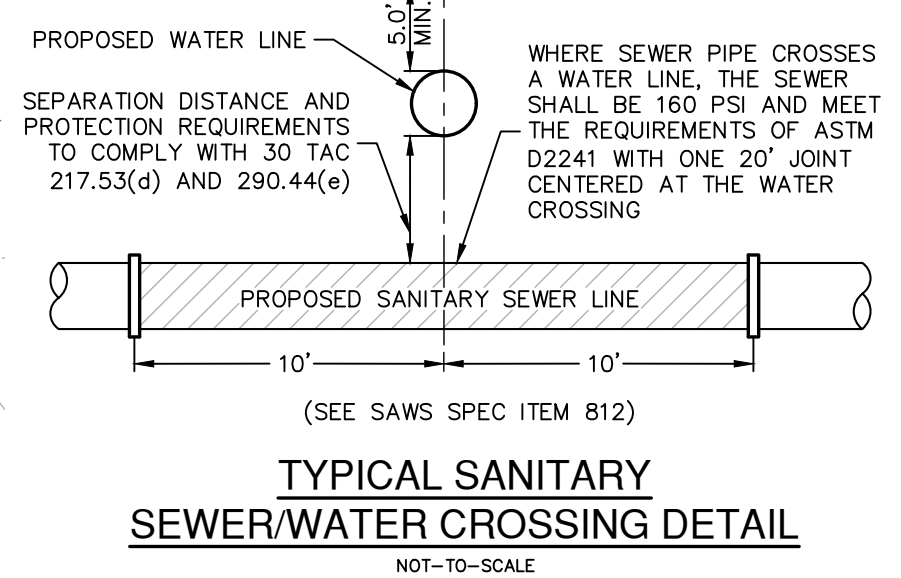
PRESSURE REDUCING VALVE NOTE:
PRESSURE REDUCING VALVE TO BE INSTALLED ON CUSTOMER'S SIDE OF METER BY HOMEOWNER.

PRESSURE NOTE:
CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 565 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 565 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 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 JOINTS ON EACH SIDE OF THE FITTING. JOINT RESTRAINTS AND RETAINER GASKETS SHALL BE CALCULATED BY SAWS APPROVED PROGRAMS. THERE WILL BE NO SEPARATE PAY ITEM FOR RETAINER GLANDS AND OTHER JOINT RESTRAINT 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 750)	
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 108
TOTAL ACRES 18.52	
TOTAL LINEAR FOOTAGE OF PIPE: 2865.71 LF ~ 8" PVC	PLAT NO. 23-11800229
NUMBER OF LOTS 104	SAWS JOB NO. 23-1133



DATE

NO. REVISION

STATE OF TEXAS
EUGENE H. DAWSON
112792
PROFESSIONAL ENGINEER
12/2/23

**PAPE-DAWSON
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #1008860

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS

OVERALL WATER DISTRIBUTION PLAN

PLAT NO. 23-11800229

JOB NO. 12632-12

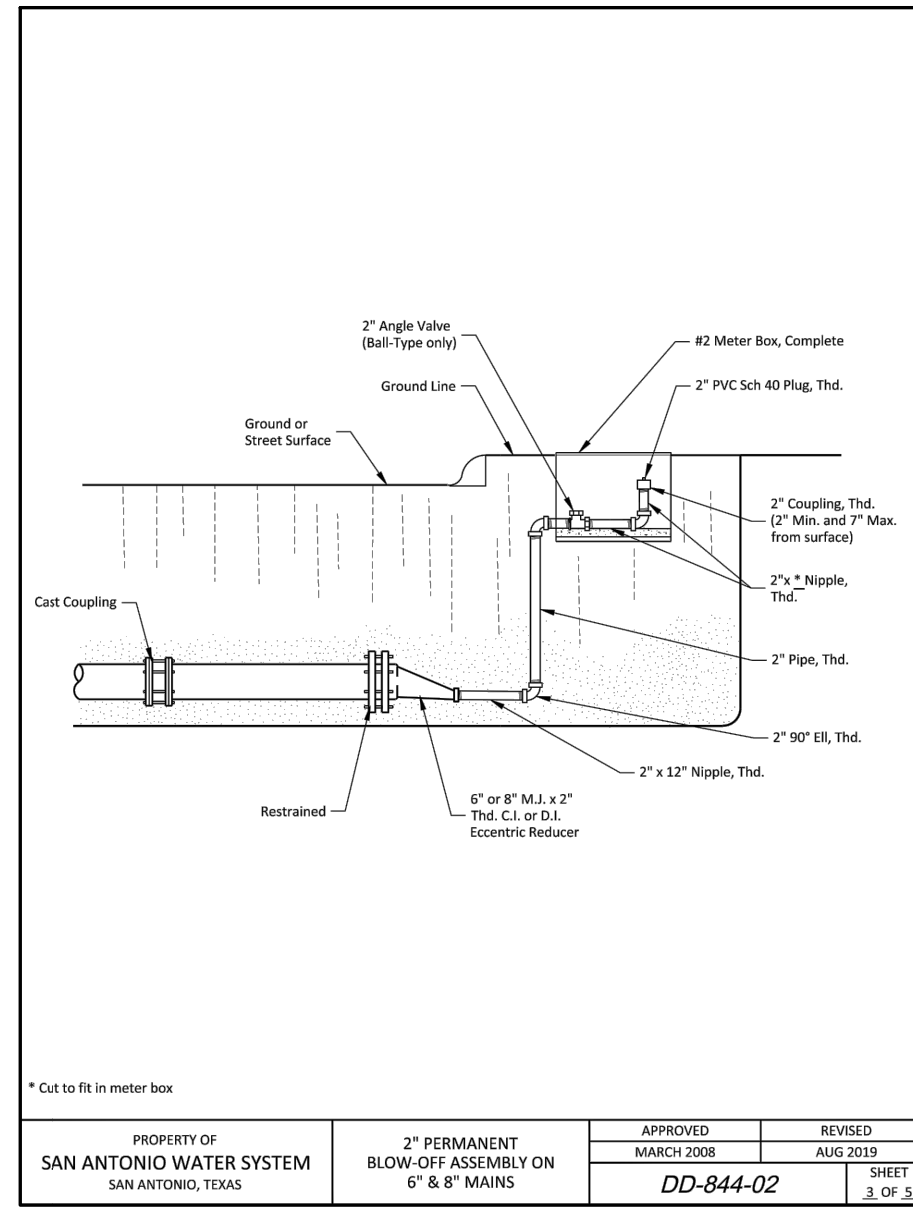
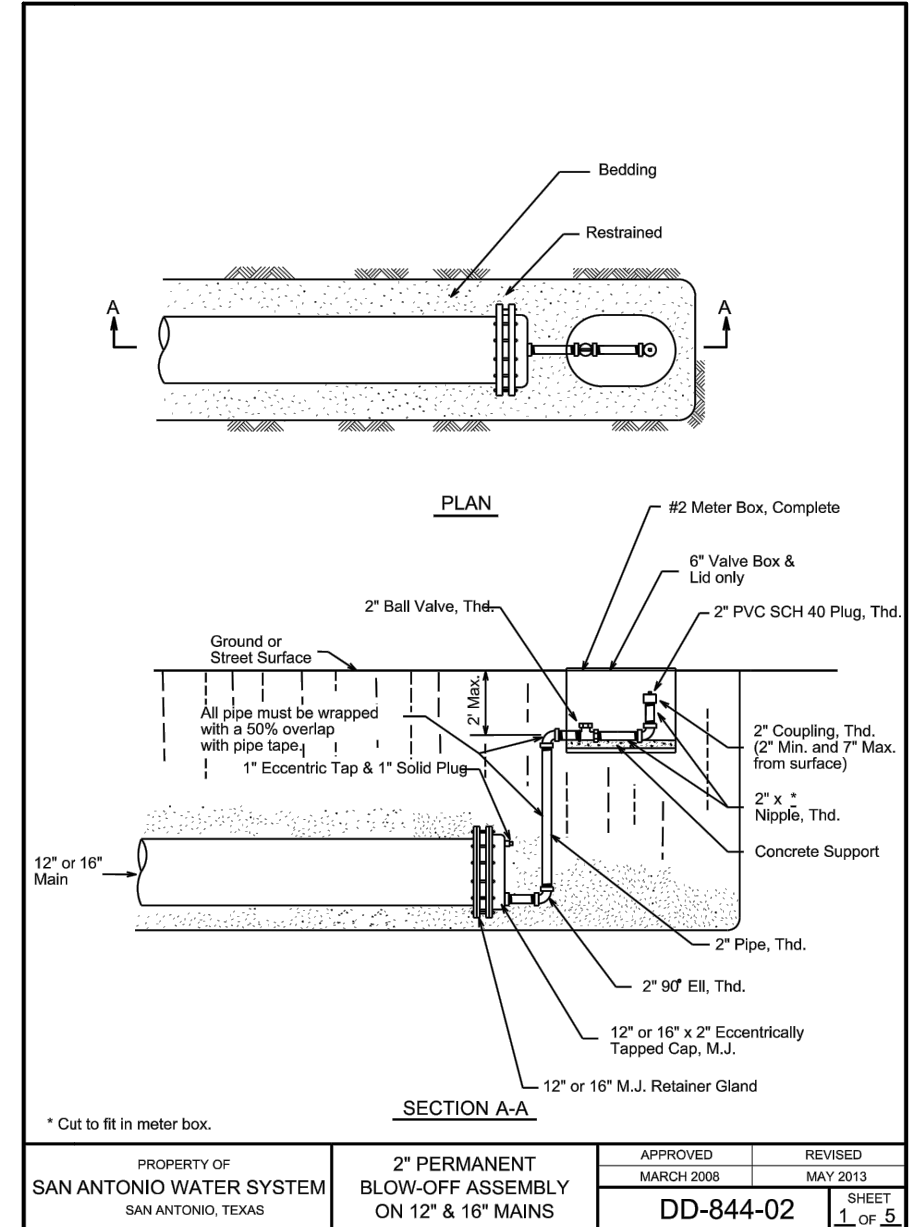
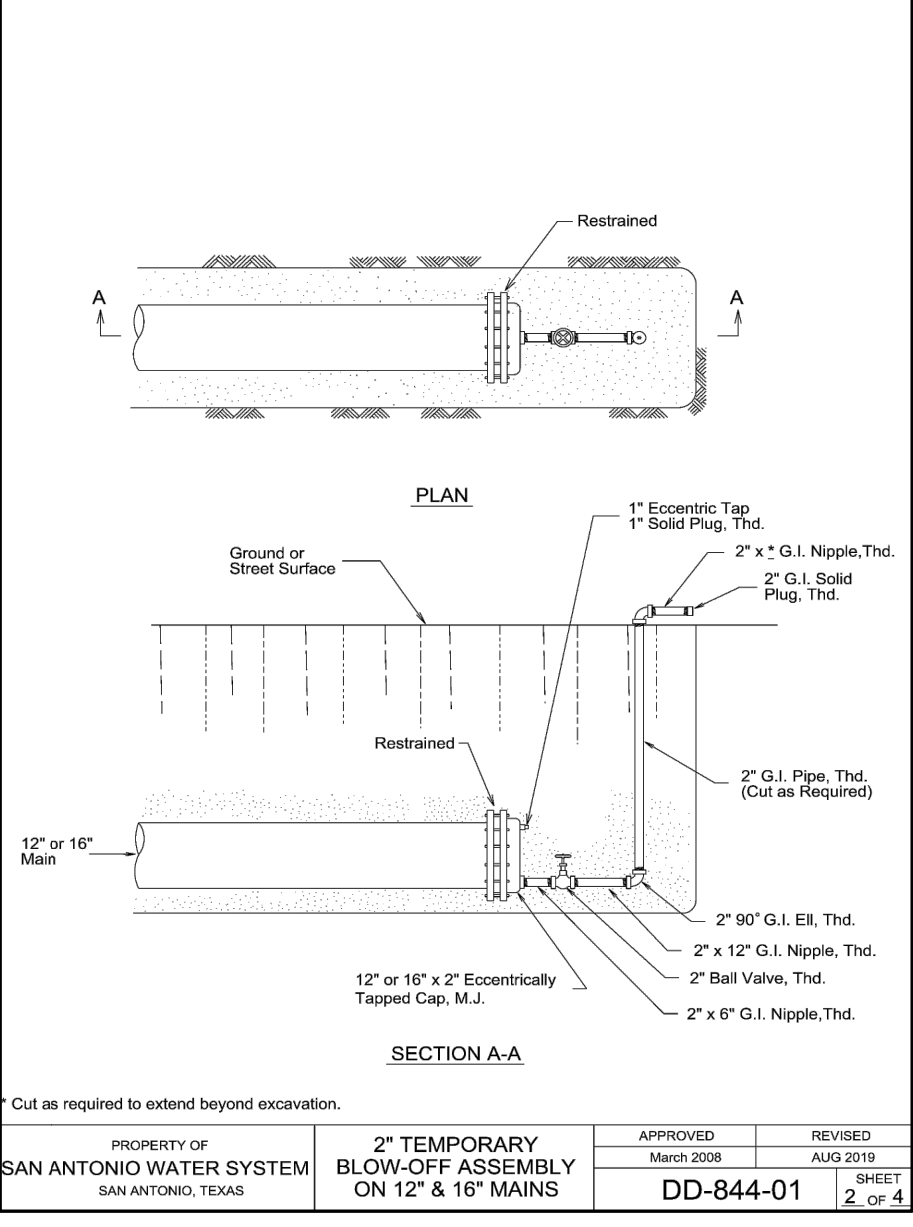
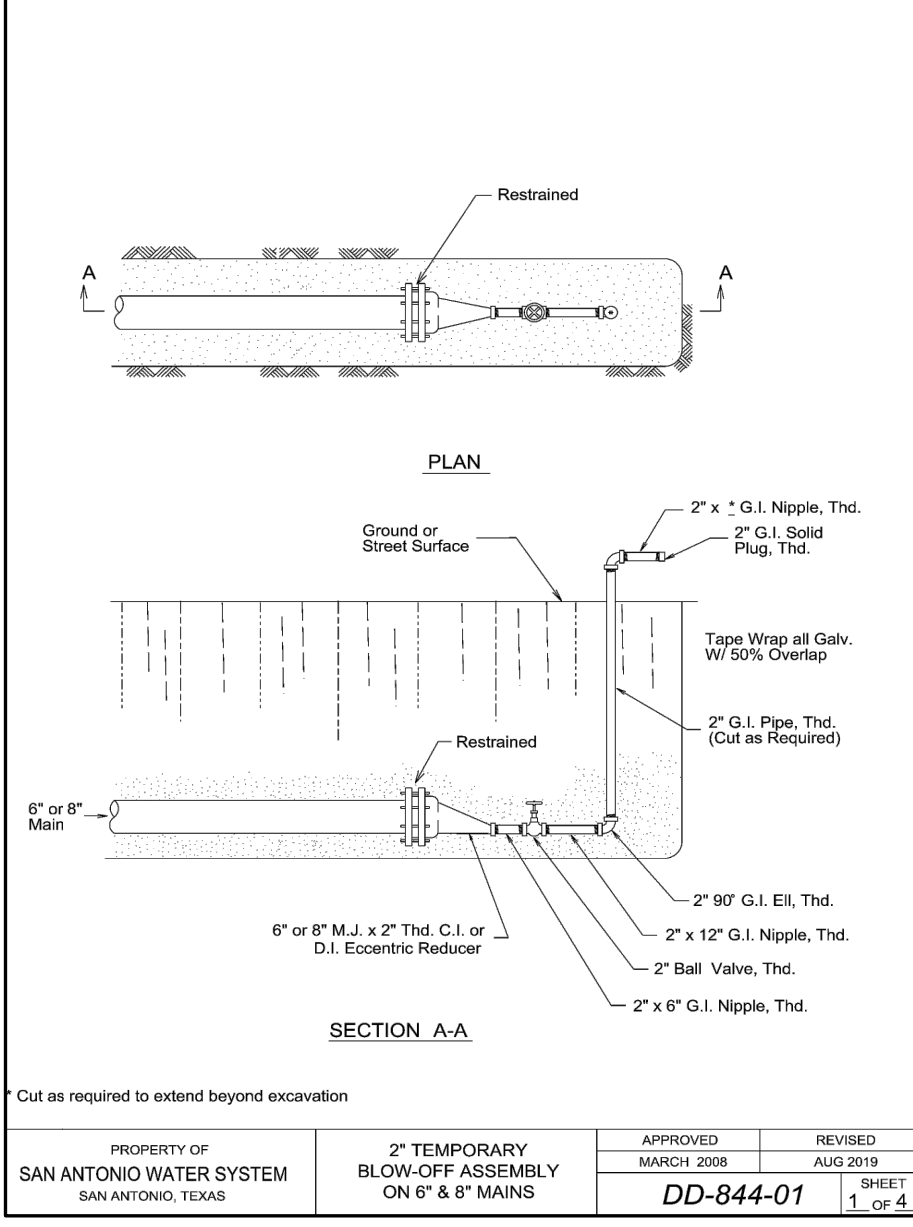
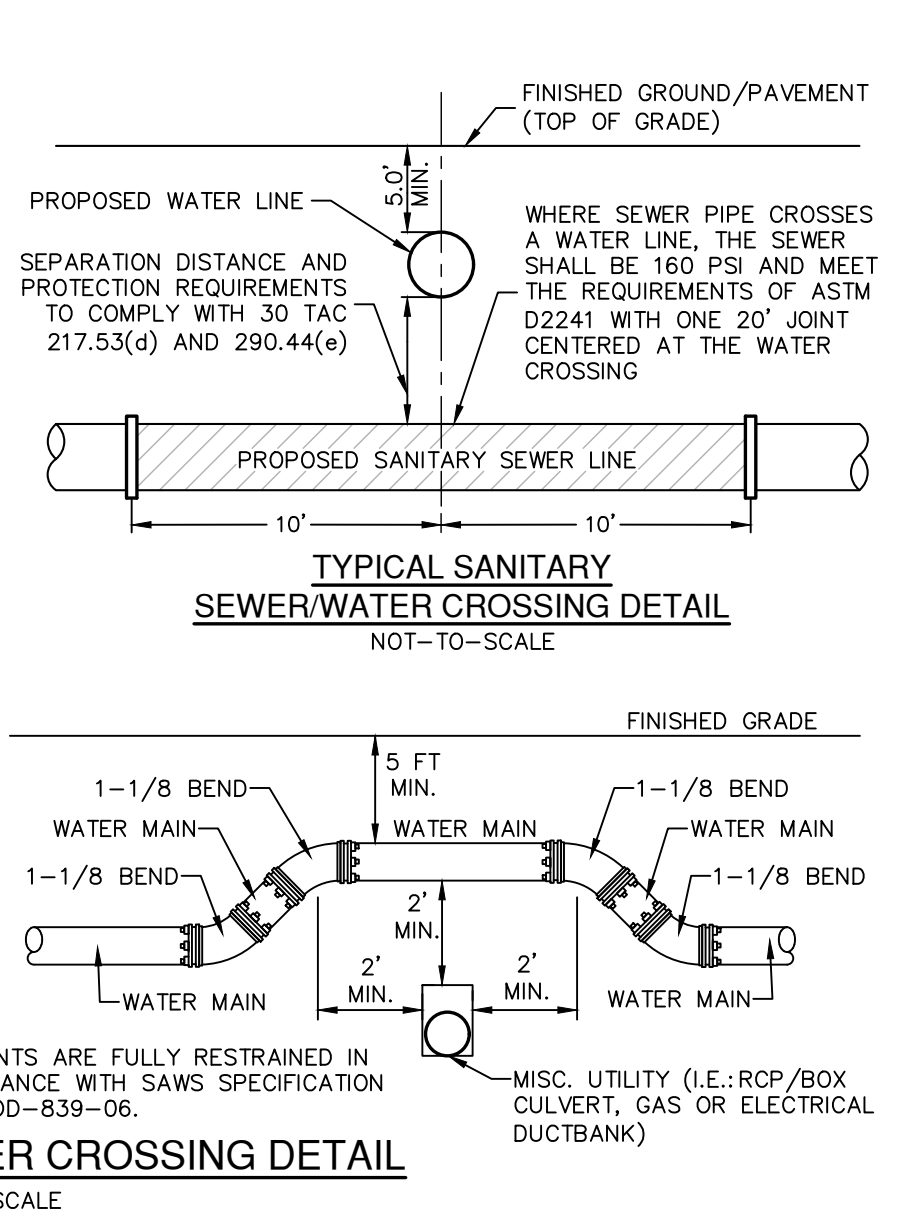
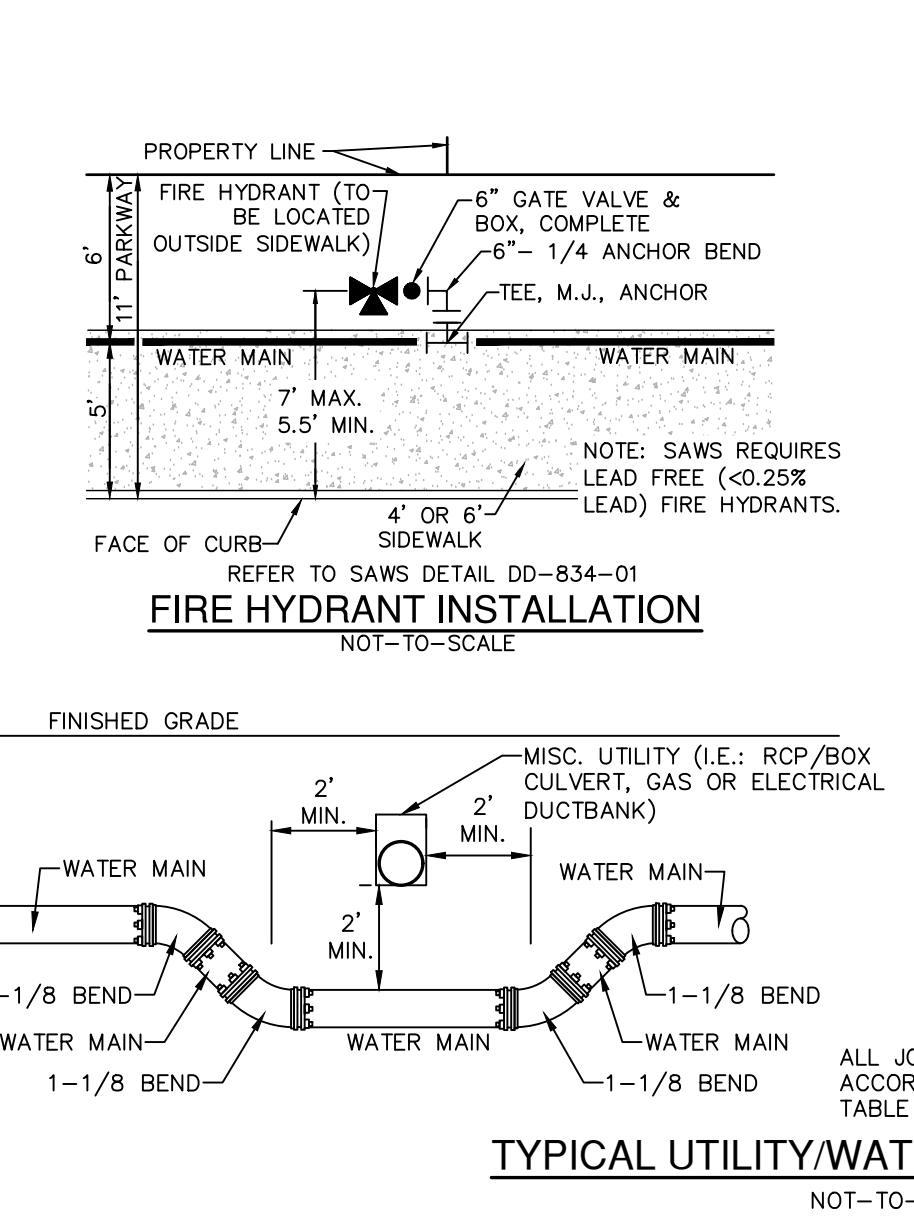
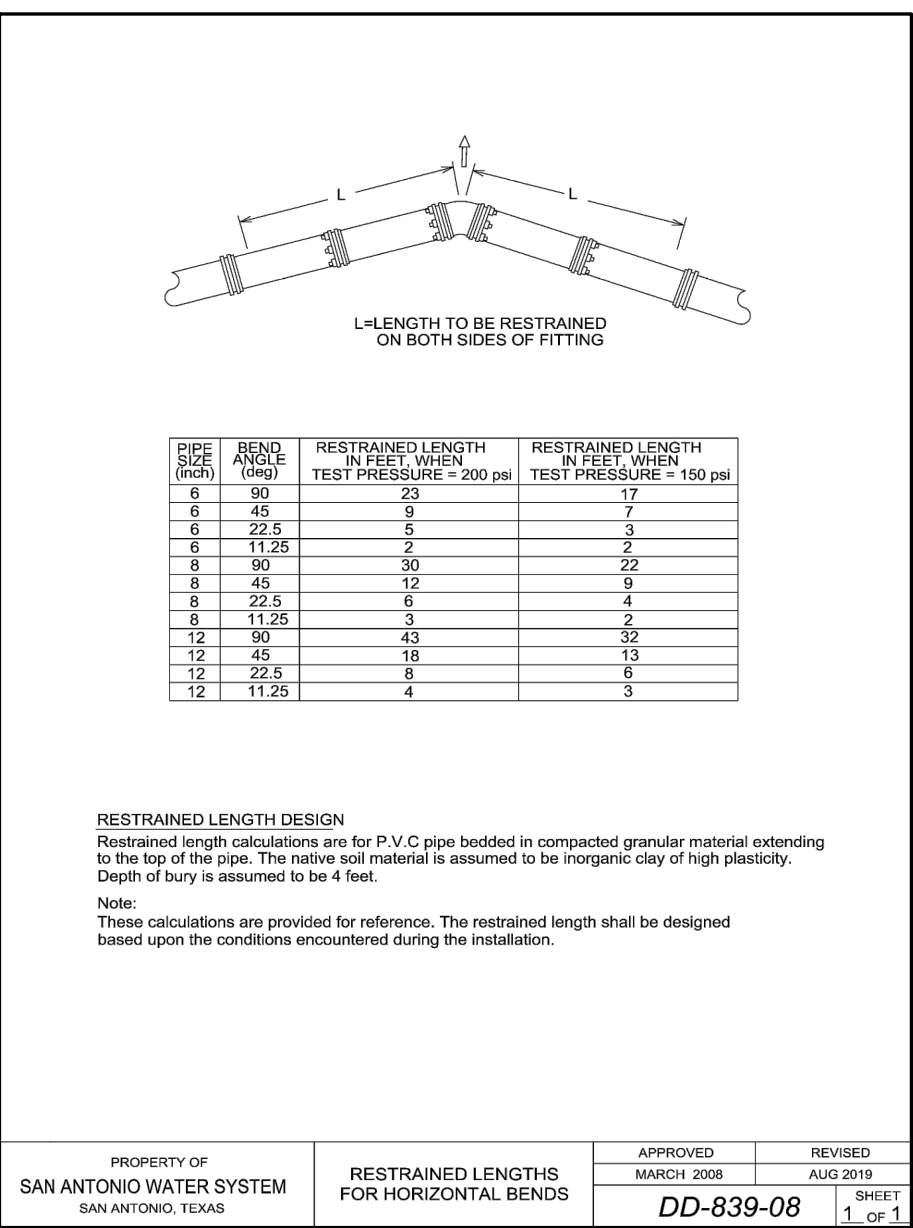
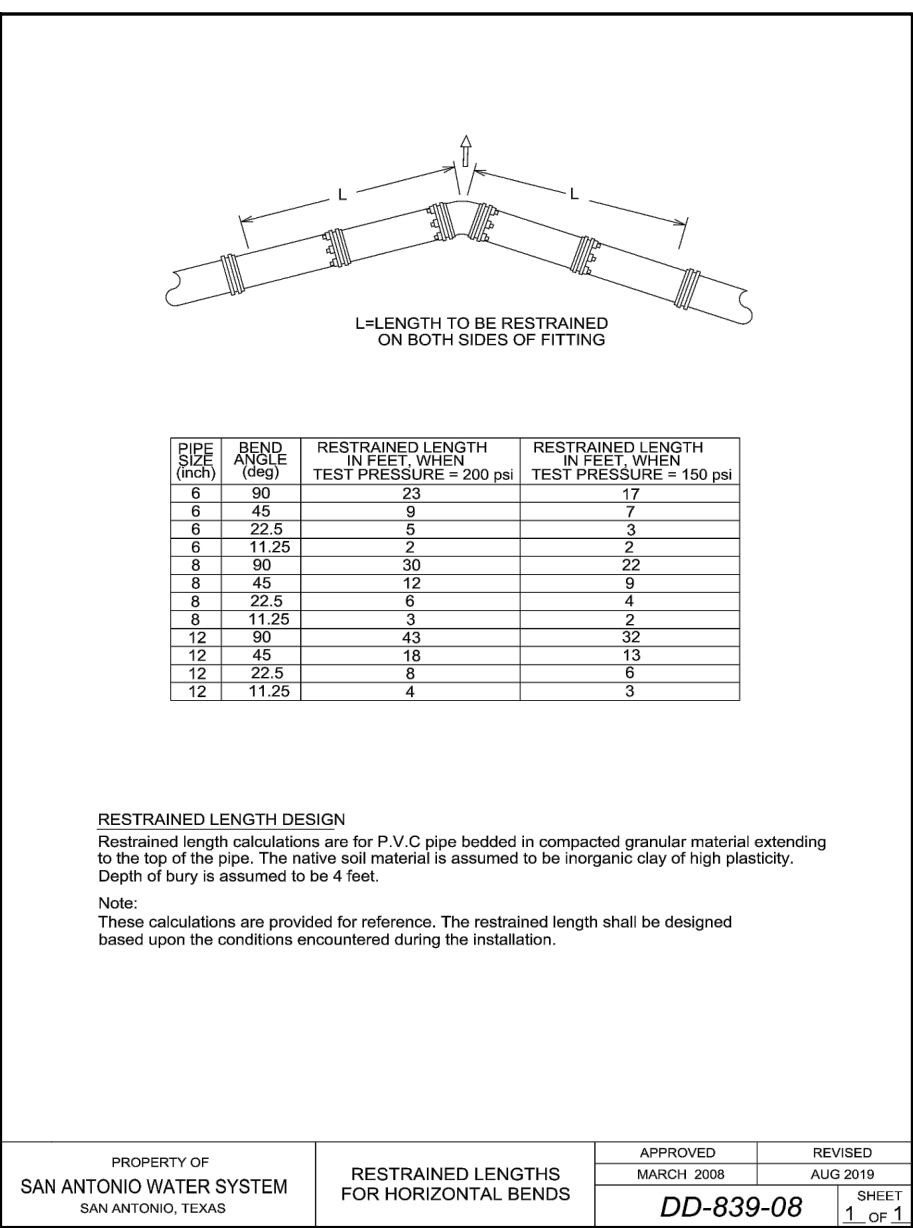
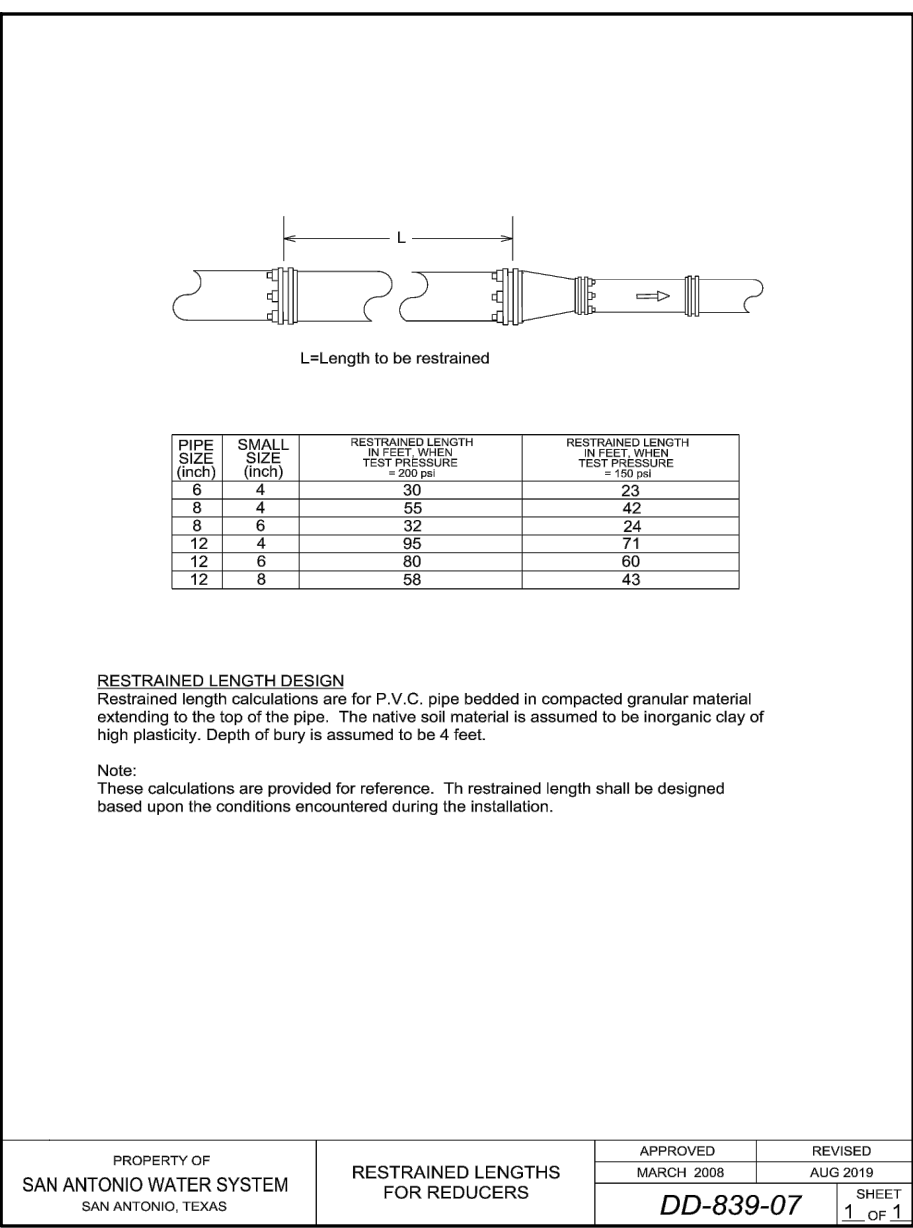
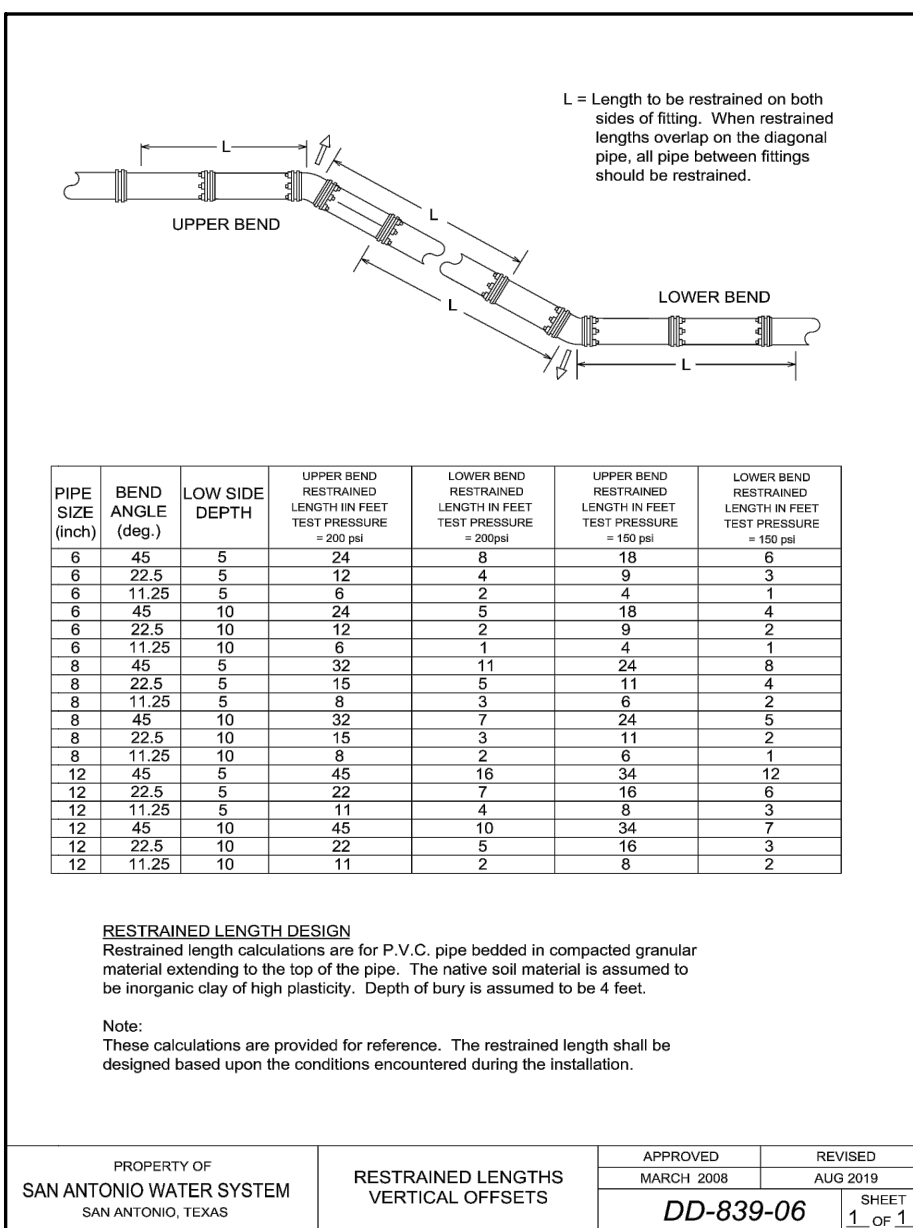
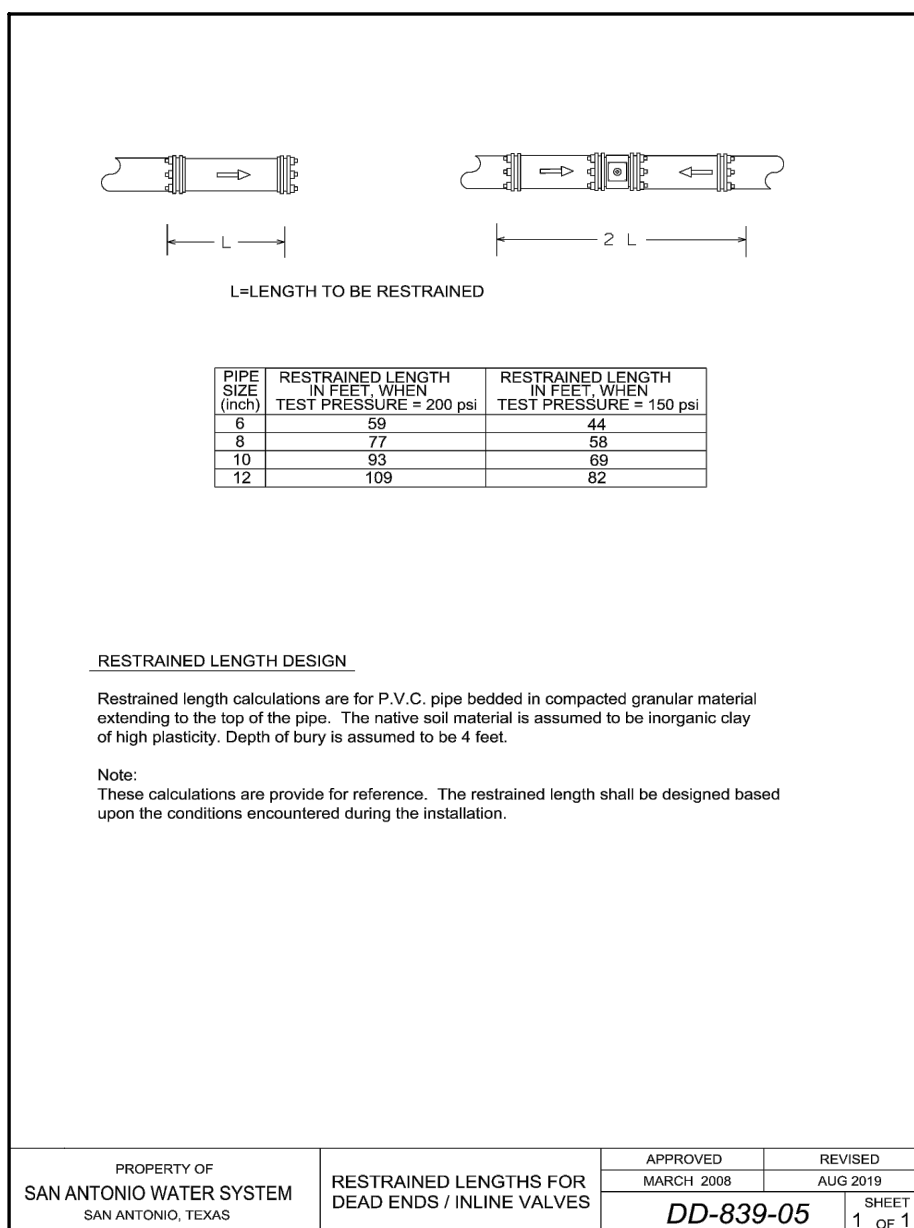
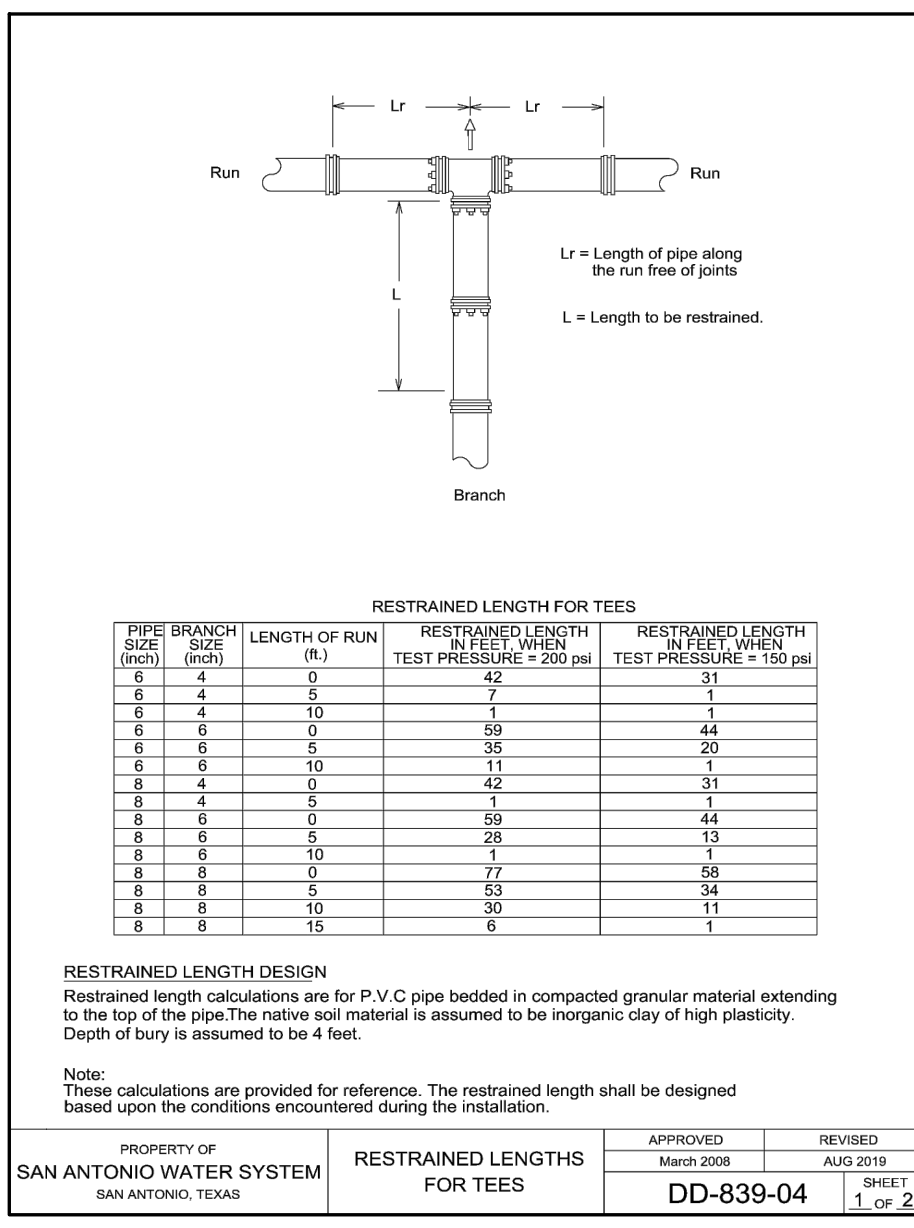
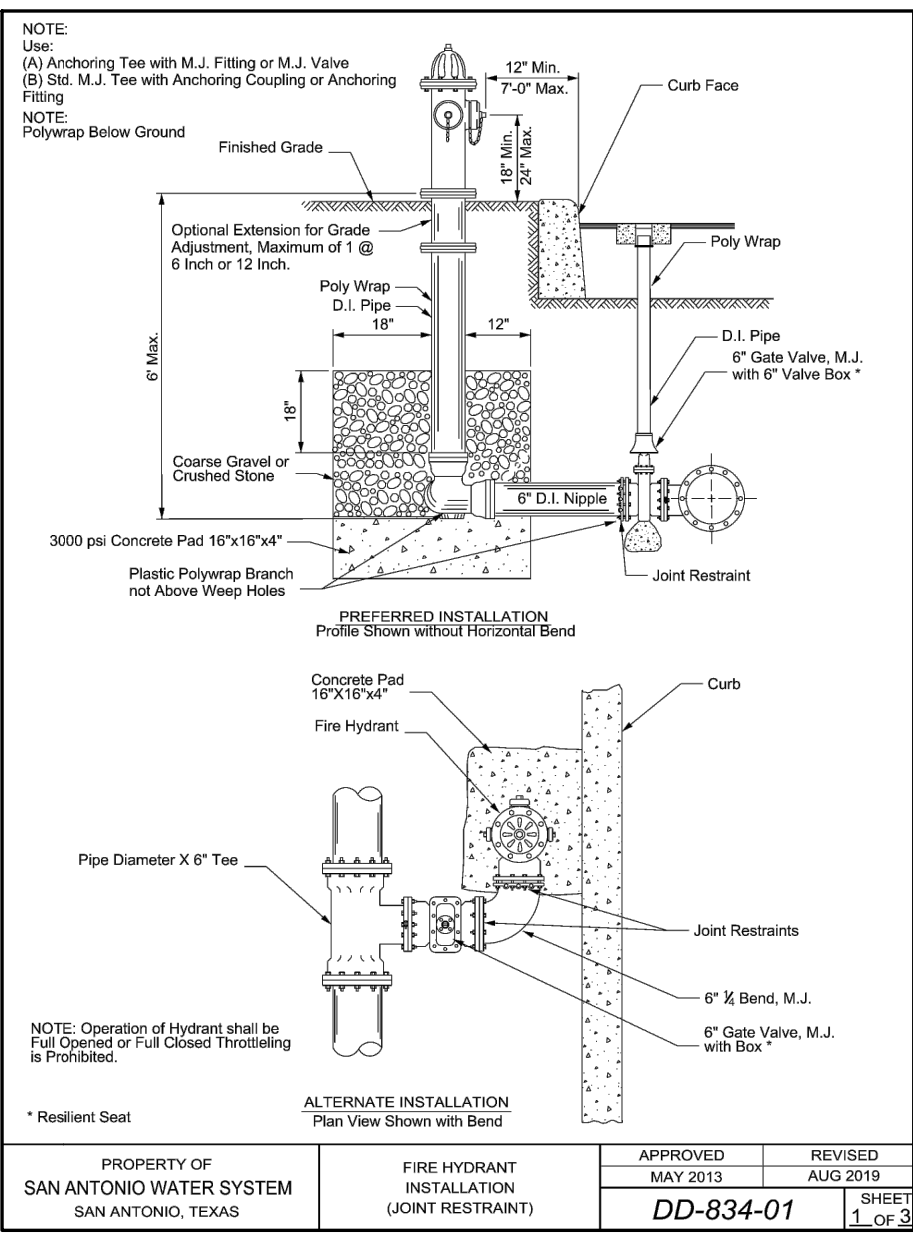
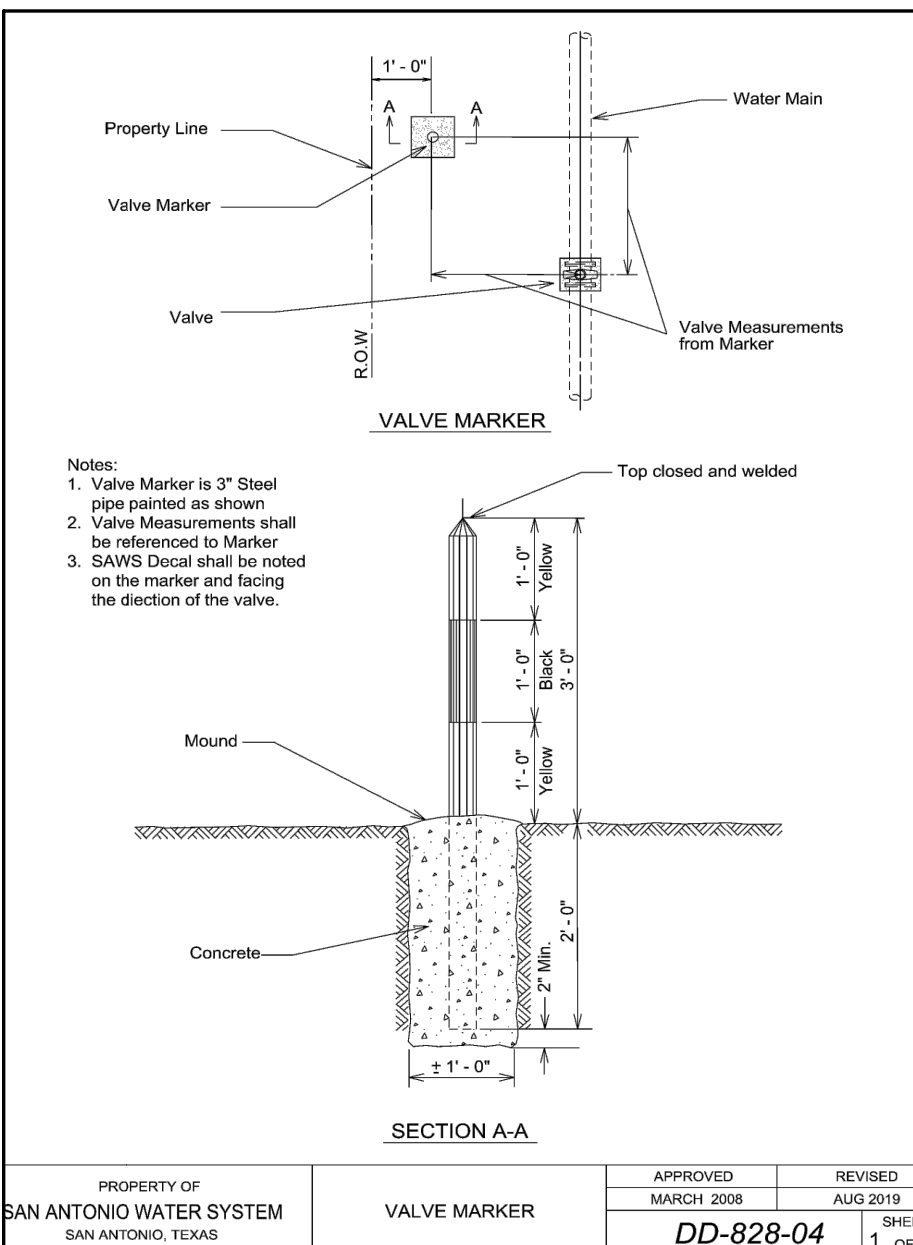
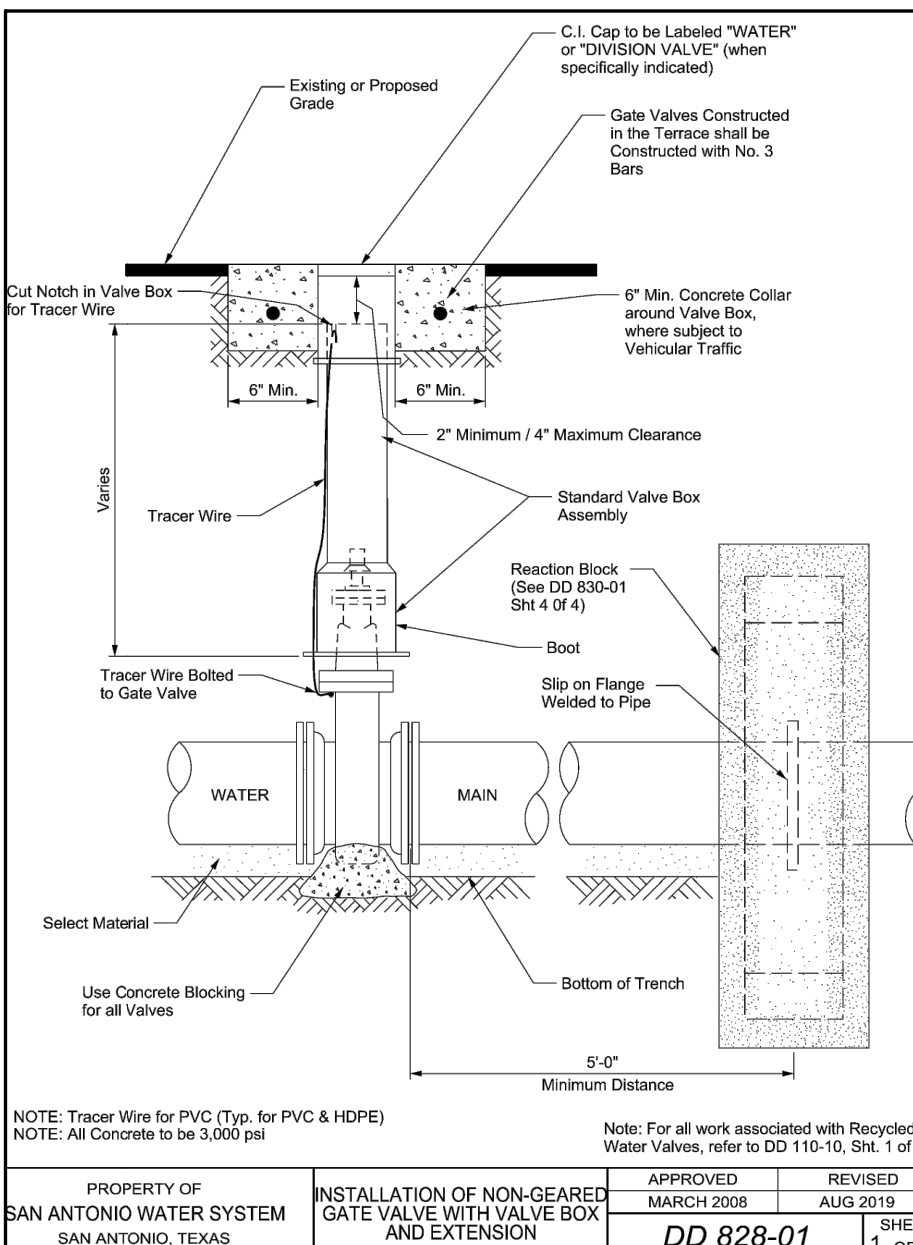
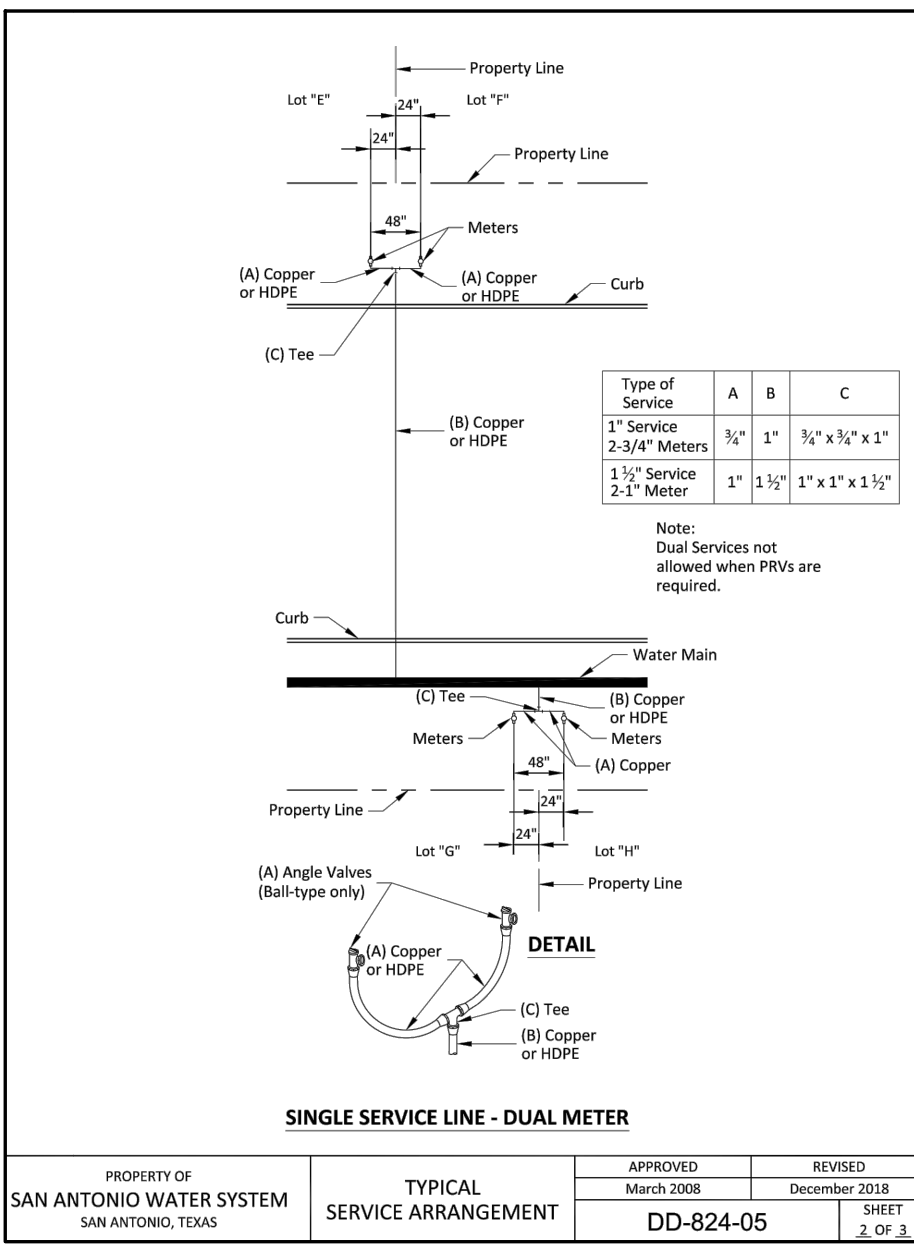
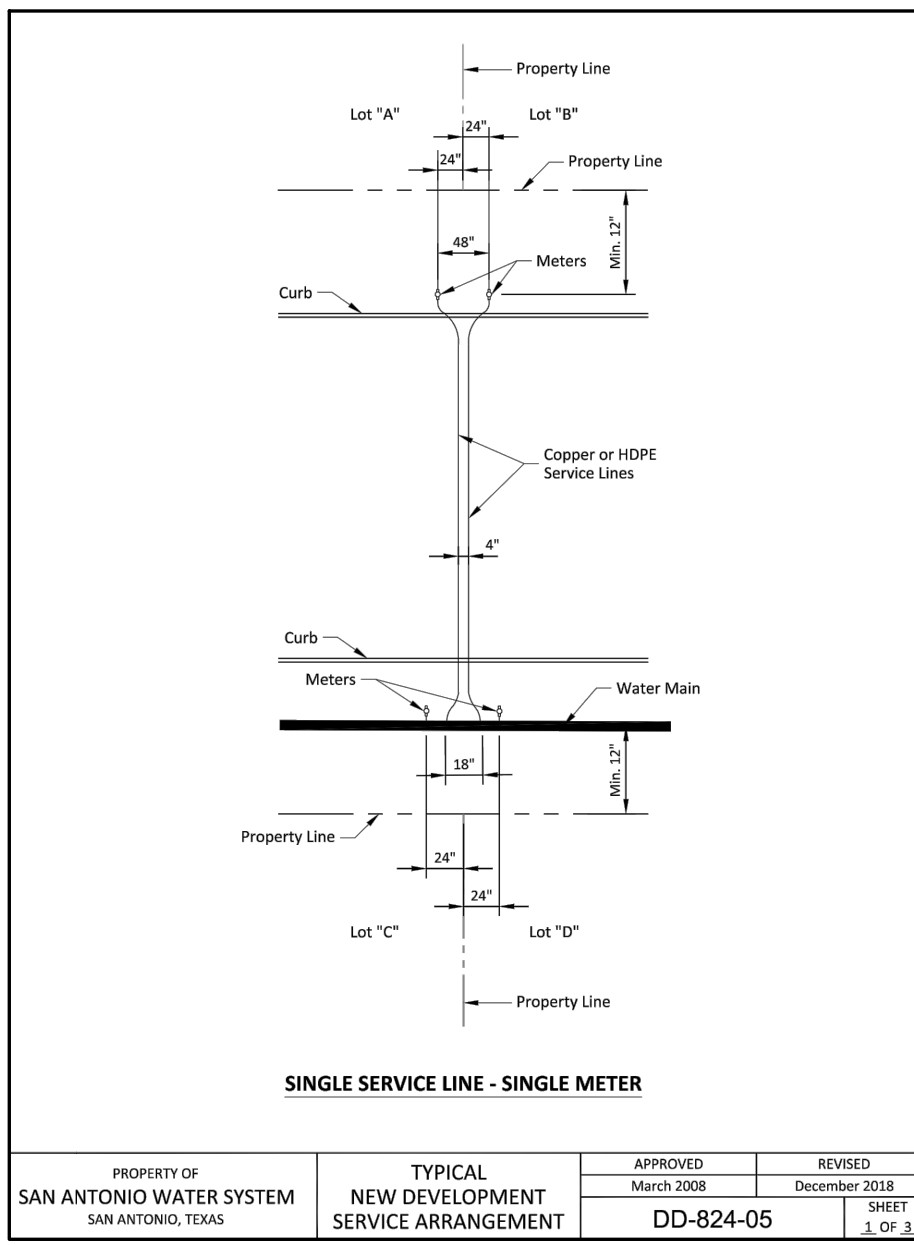
DATE JULY 2023

DESIGNER JG

CHECKED DW

DRAWN TC

SHEET C4.00



WATER (SAWS PRESSURE ZONE 750)

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 108 TOTAL ACREAGE 18.52

TOTAL LINEAR FOOTAGE OF PIPE: 3265.71 LF ~ 87\"/>

PAPE-DAWSON ENGINEERS

SAN ANTONIO • AUSTIN • HOUSTON • FORT WORTH • DALLAS

2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008860

ESPADA TRACT UNIT 1

SAN ANTONIO, TEXAS

OVERALL WATER DISTRIBUTION DETAILS

JOB NO. 23-11800229

DATE JULY 2023

CHECKED DW DRAWN TC

SHEET C4.01

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 DIVISION 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 (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 MARKERS, 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. (NSP)
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 565 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 565 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 750)

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 108 TOTAL ACREAGE 18.52			
TOTAL LINEAR FOOTAGE OF PIPE: 3265.71 LF ~8" PVC PLAT NO 23-11800229			
NUMBER OF LOTS 104		SAWS JOB NO. 23-1133	

DATE	NO.	REVISION



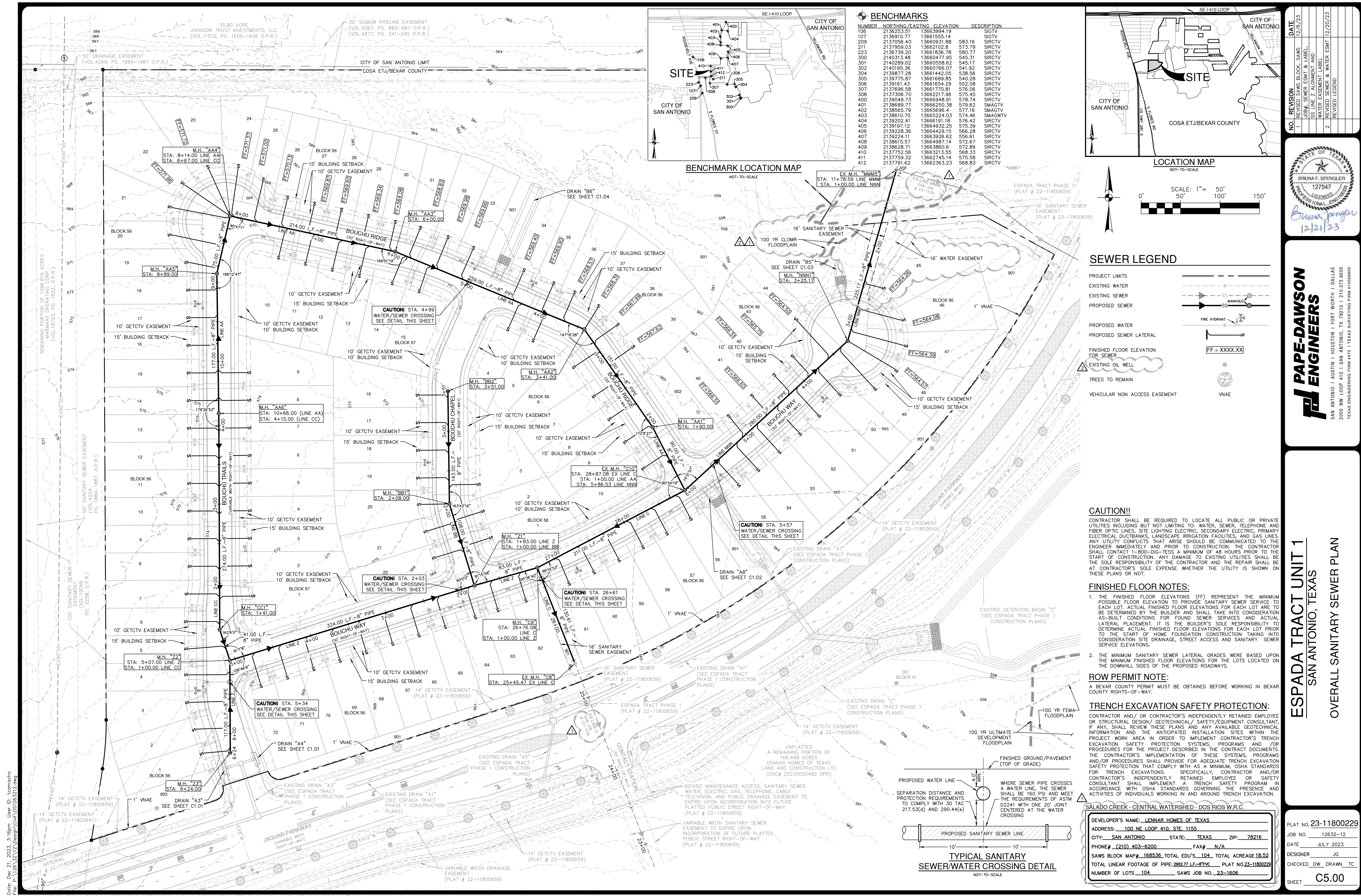
**PAPE-DAWSON
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008860

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS

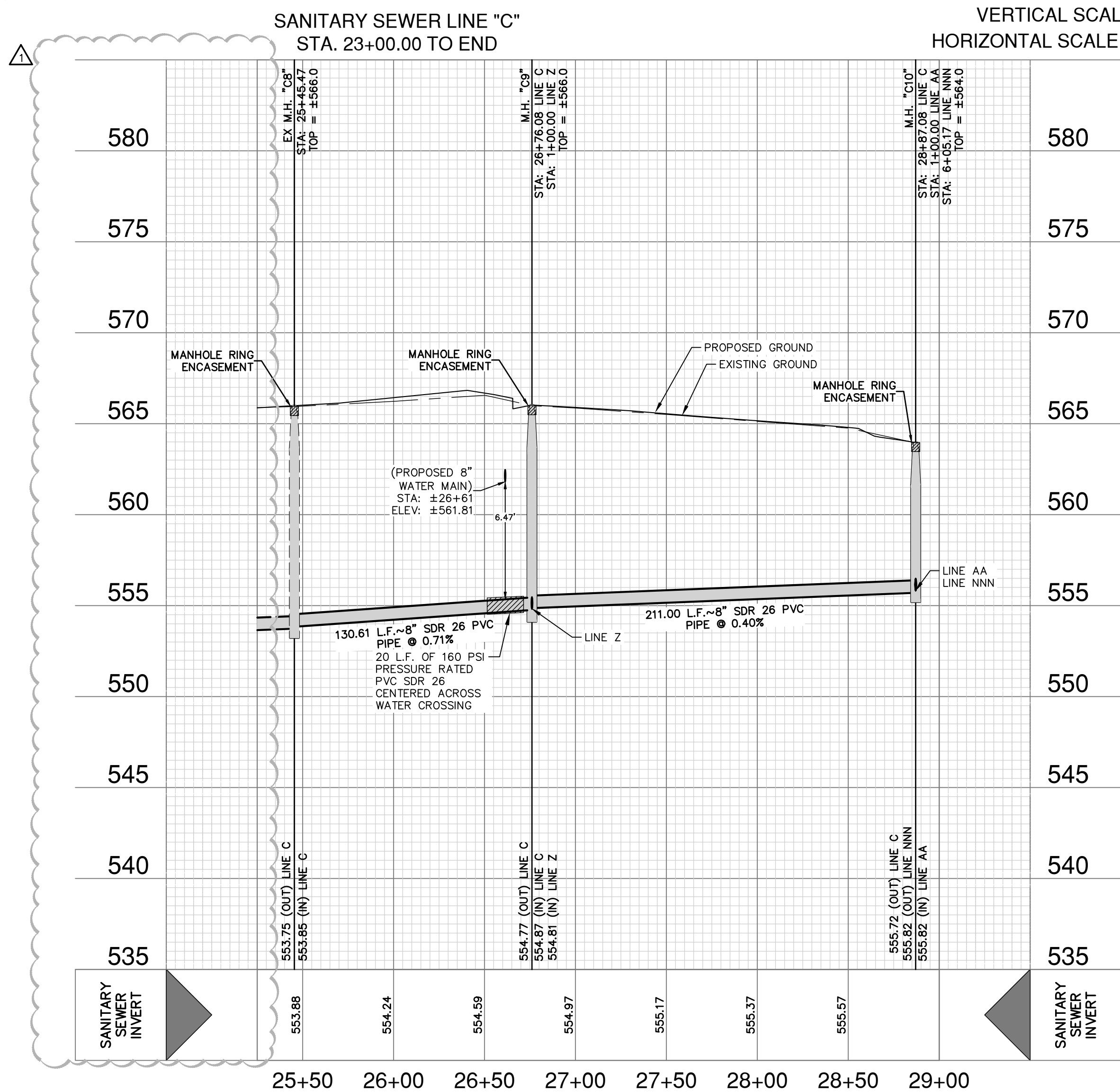
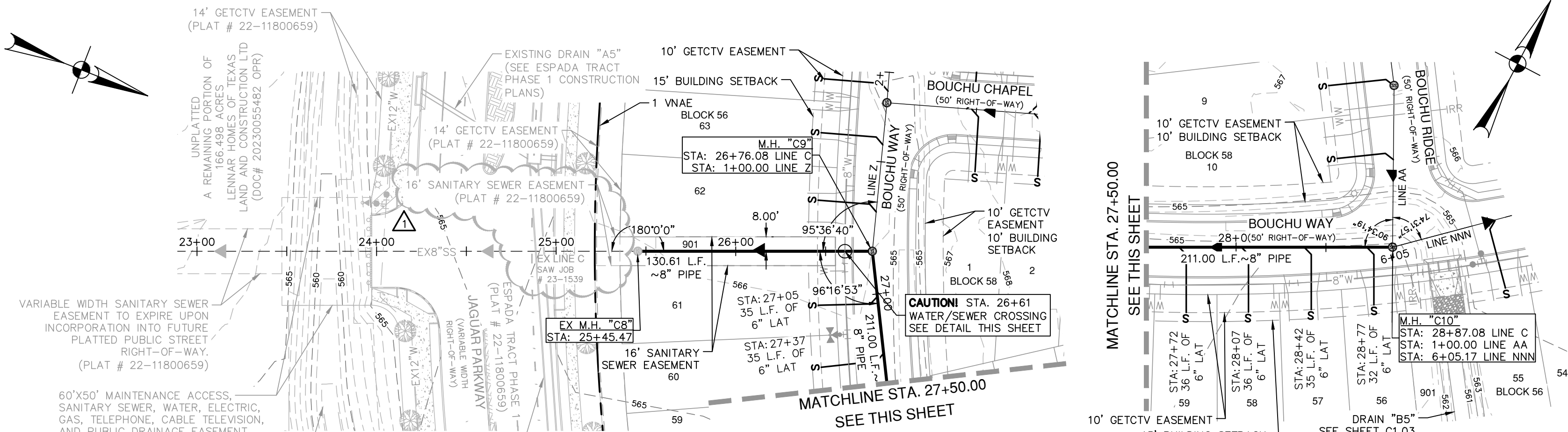
OVERALL WATER DISTRIBUTION NOTES

PLAT NO.	23-11800229
JOB NO.	12632-12
DATE	JULY 2023
DESIGNER	JG
CHECKED	DW DRAWN TC
SHEET	C4.02

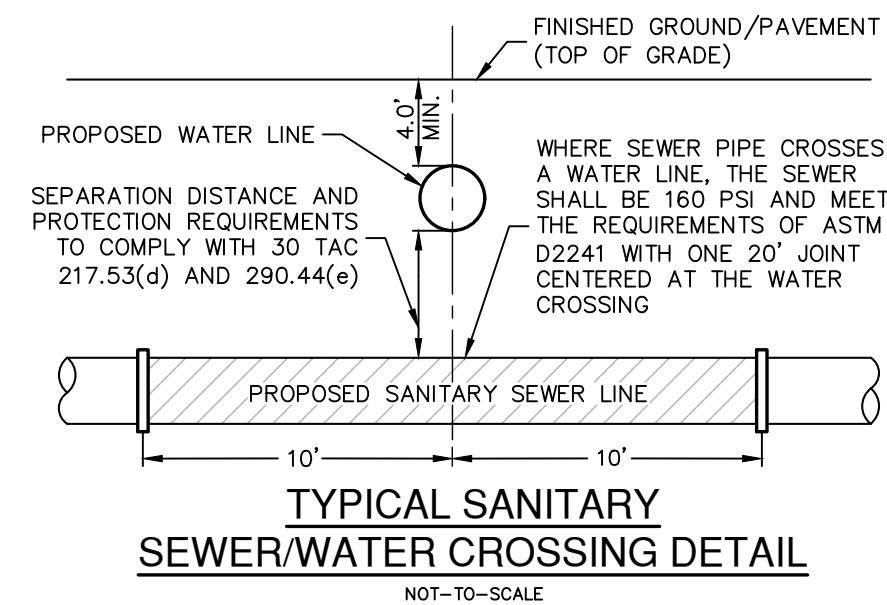
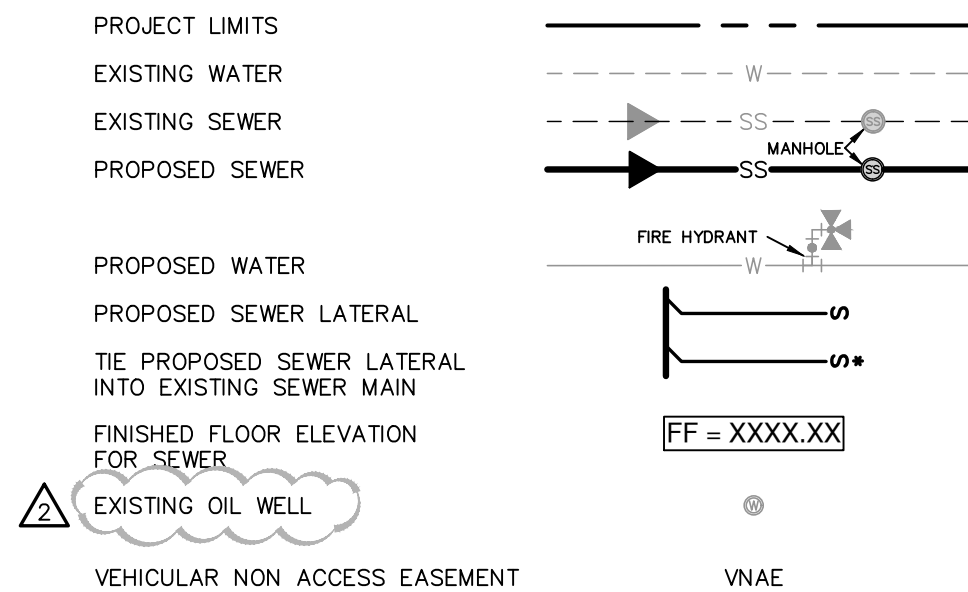


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SEWER LEGEND



CAUTION!!

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7 SALADO CREEK - CENTRAL WATERSHED - DOS RIOS W.R.C.

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# 168536 TOTAL EDU'S 104 TOTAL ACREAGE 18.52			
TOTAL LINEAR FOOTAGE OF PIPE: 2802.77 L.F.~8"VC PLAT NO 23-11800229			
NUMBER OF LOTS 104 SAWS JOB NO. 23-1606			

NO.	REVISION	DATE
1	REVISED SAWS BLOCK, SAWS	12/6/23
2	JOB# SEWER ESMT LABEL AND PROFILE VIEW	12/20/23
2	REVISED LEGEND	



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

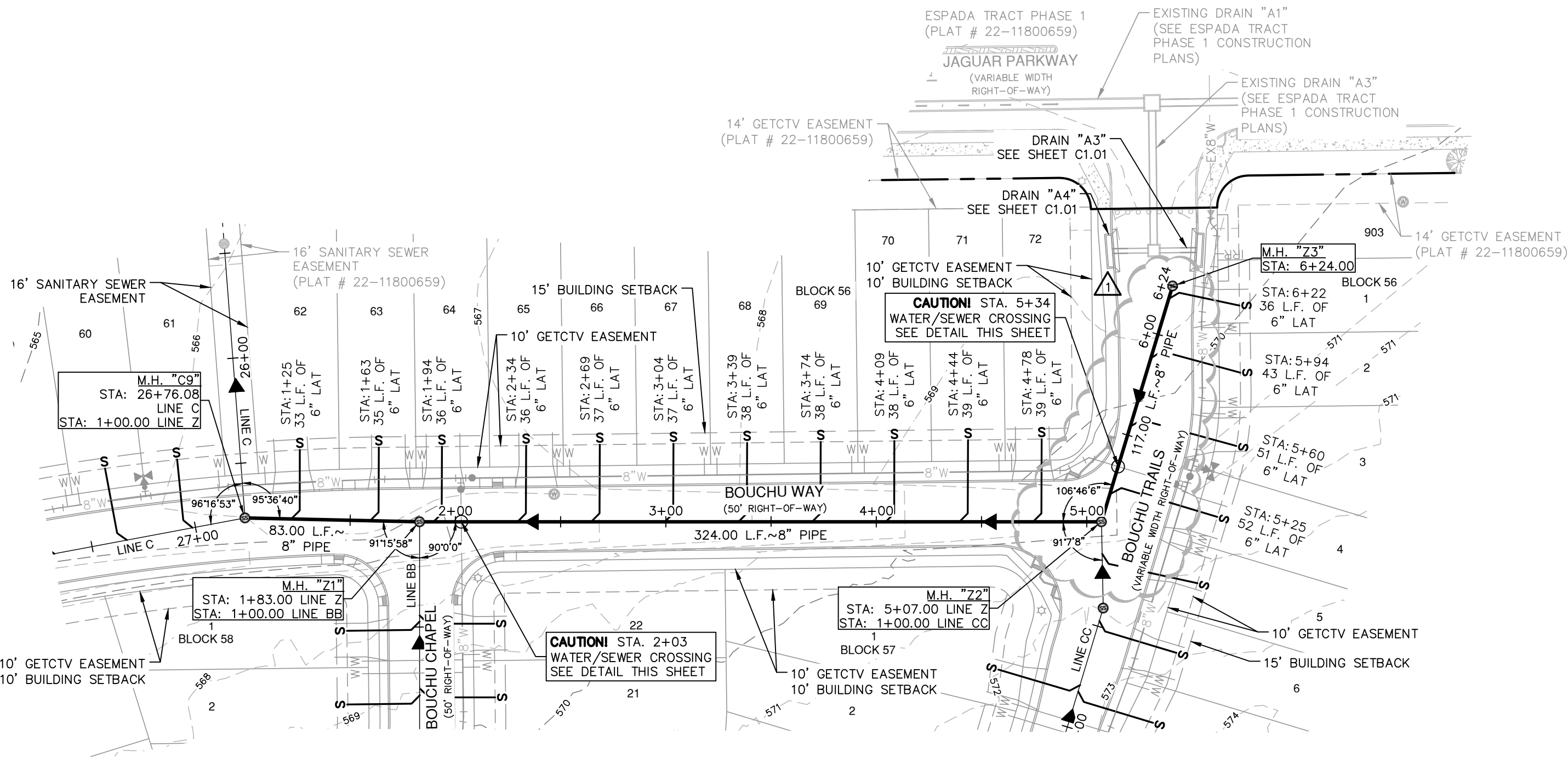
ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS

SS LINE C PLAN & PROFILE (STA 23+00.00 TO END)

PLAT NO	23-11800229
JOB NO.	12632-12
DATE	JULY 2023
DESIGNER	JG
CHECKED	DW DRAWN TC
SHEET	C5.01

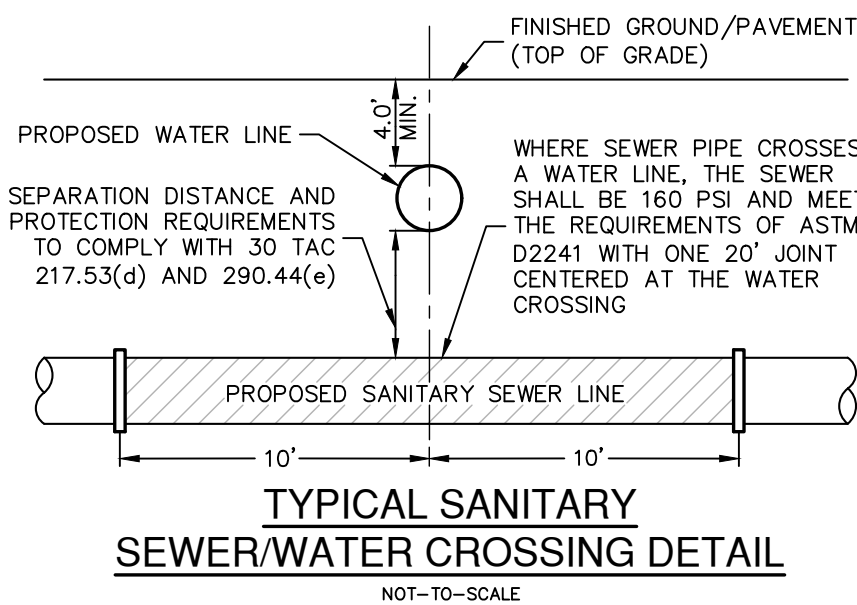
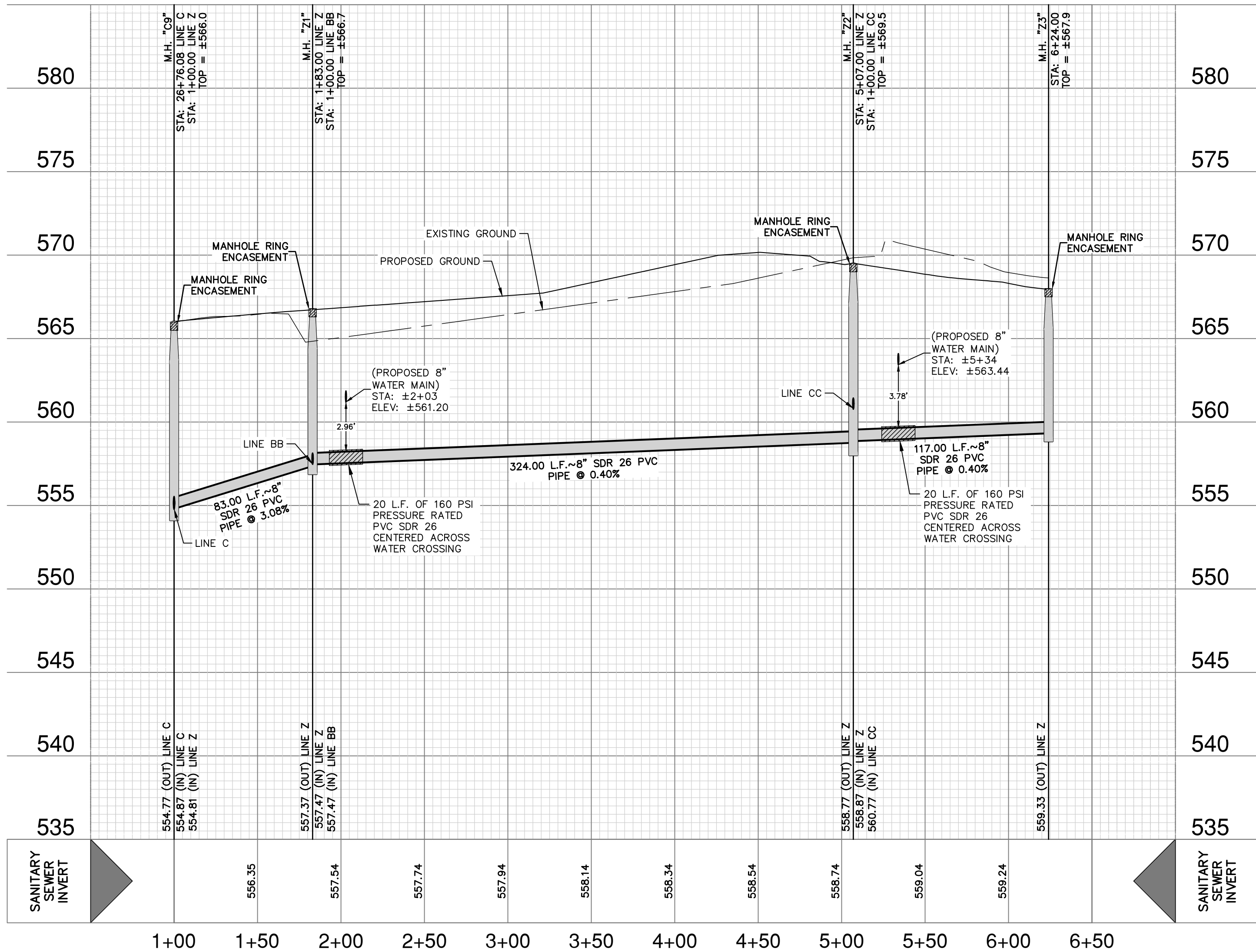
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SANITARY SEWER LINE "Z"
STA. 1+00.00 TO END

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



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SALADO CREEK - CENTRAL WATERSHED - DOS RIOS W.R.C.

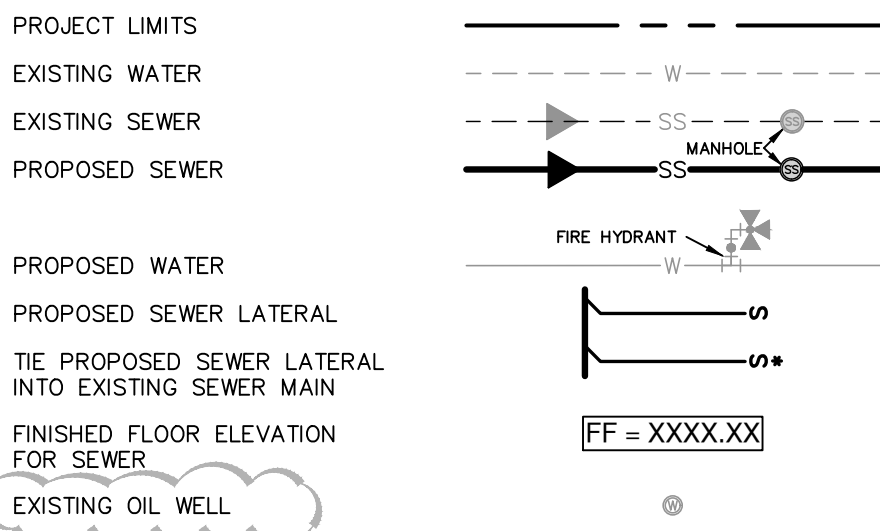
DEVELOPER'S NAME: LENNAR HOMES OF TEXAS
ADDRESS: 100 NE LOOP 410, STE. 1155
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 168536 TOTAL EDU'S 104 TOTAL ACREAGE 18.52
TOTAL LINEAR FOOTAGE OF PIPE: 2902.77 L.F.~8" PVC PLAT NO 23-11800229
NUMBER OF LOTS 104 SAWS JOB NO. 23-1606

**PAPE-DAWSON
ENGINEERS**
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS
SS LINE Z PLAN & PROFILE (STA 1+00.00 TO END)

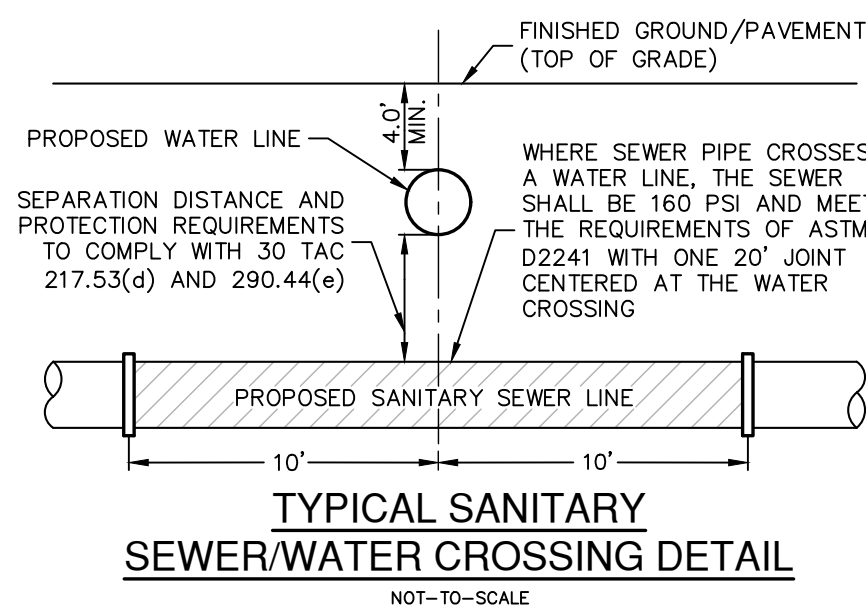
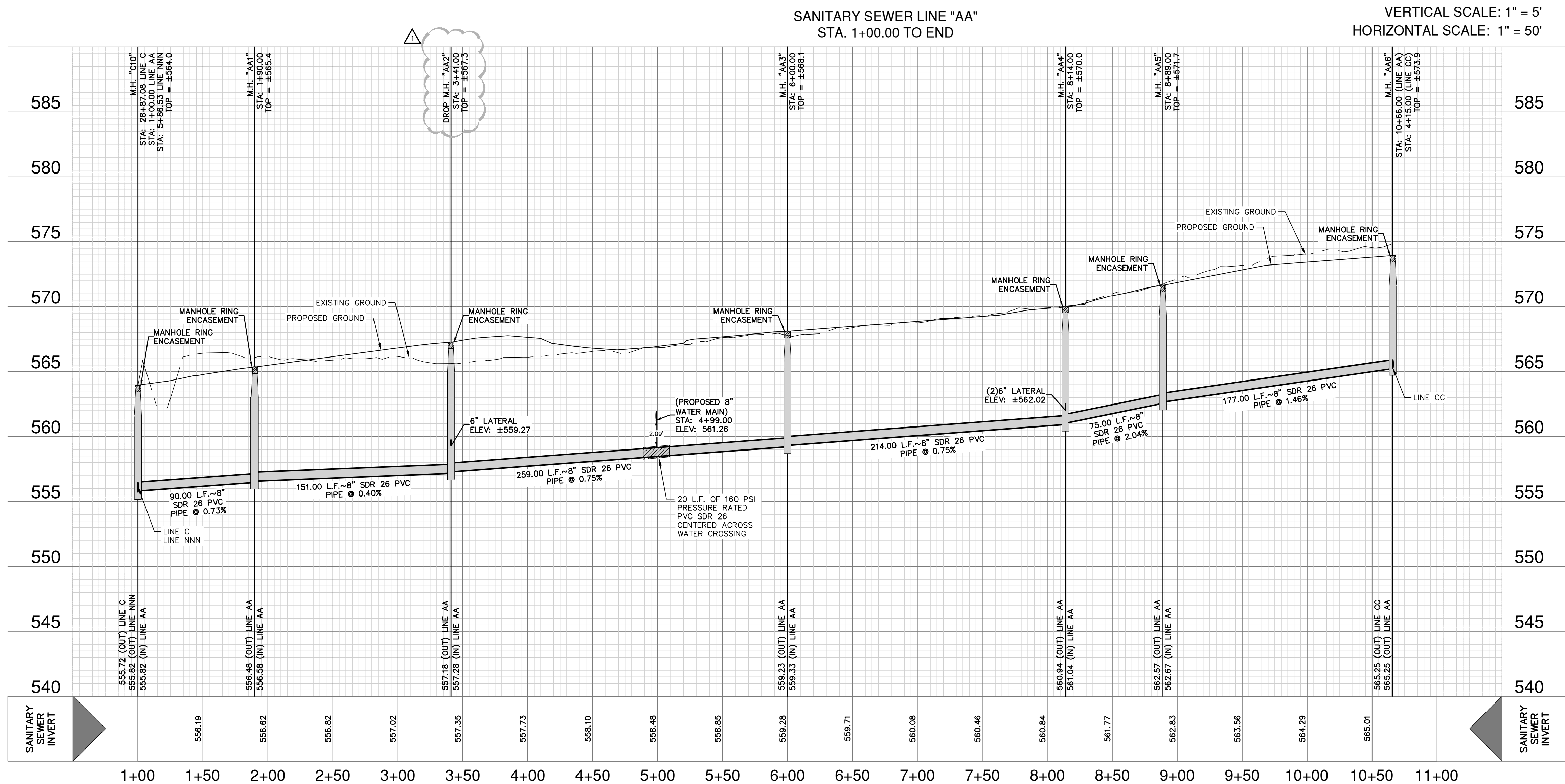
PLAT NO: 23-11800229
JOB NO.: 12632-12
DATE: JULY 2023
DESIGNER: JG
CHECKED: DW DRAWN: TC
SHEET: C5.02

SEWER LEGEND



Date: Dec 21, 2023, 3:19pm User: B. Isomah
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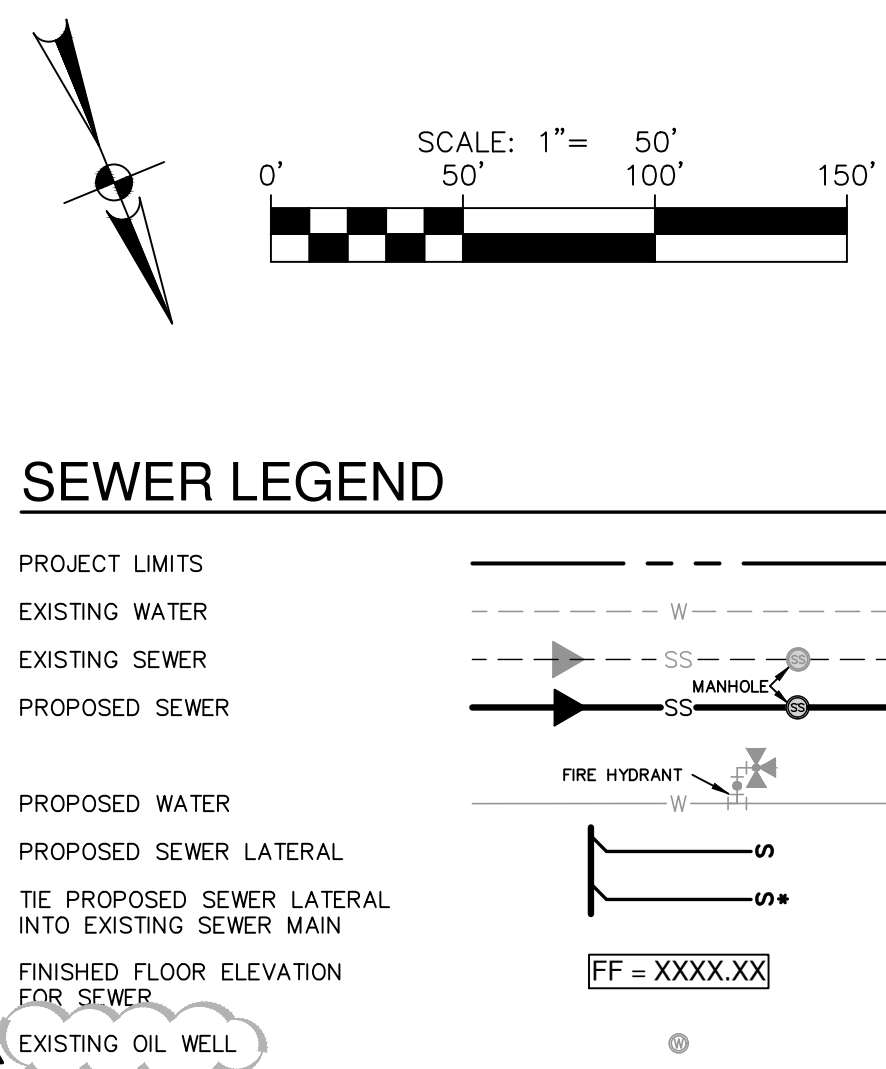
TRENCH EXCAVATION SAFETY PROTECTION:
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DEVELOPER'S NAME: LENNAR HOMES OF TEXAS
ADDRESS: 100 NE LOOP 410, STE. 1155
CITY: SAN ANTONIO STATE: TEXAS ZIP: 78216
PHONE# (210) 403-6200 FAX# N/A
SAWS BLOCK MAP# 168536 TOTAL EDU'S .104 TOTAL ACREAGE 18.52
TOTAL LINEAR FOOTAGE OF PIPE: 2902.77 LF=8" PVC PLAT NO 23-11800229
NUMBER OF LOTS 104 SAWS JOB NO. 23-1606

PAPE-DAWSON ENGINEERS
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2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008860

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS
SS LINE AA PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO 23-11800229
JOB NO. 12632-12
DATE JULY 2023
DESIGNER JG
CHECKED DW DRAWN TC
SHEET C5.03

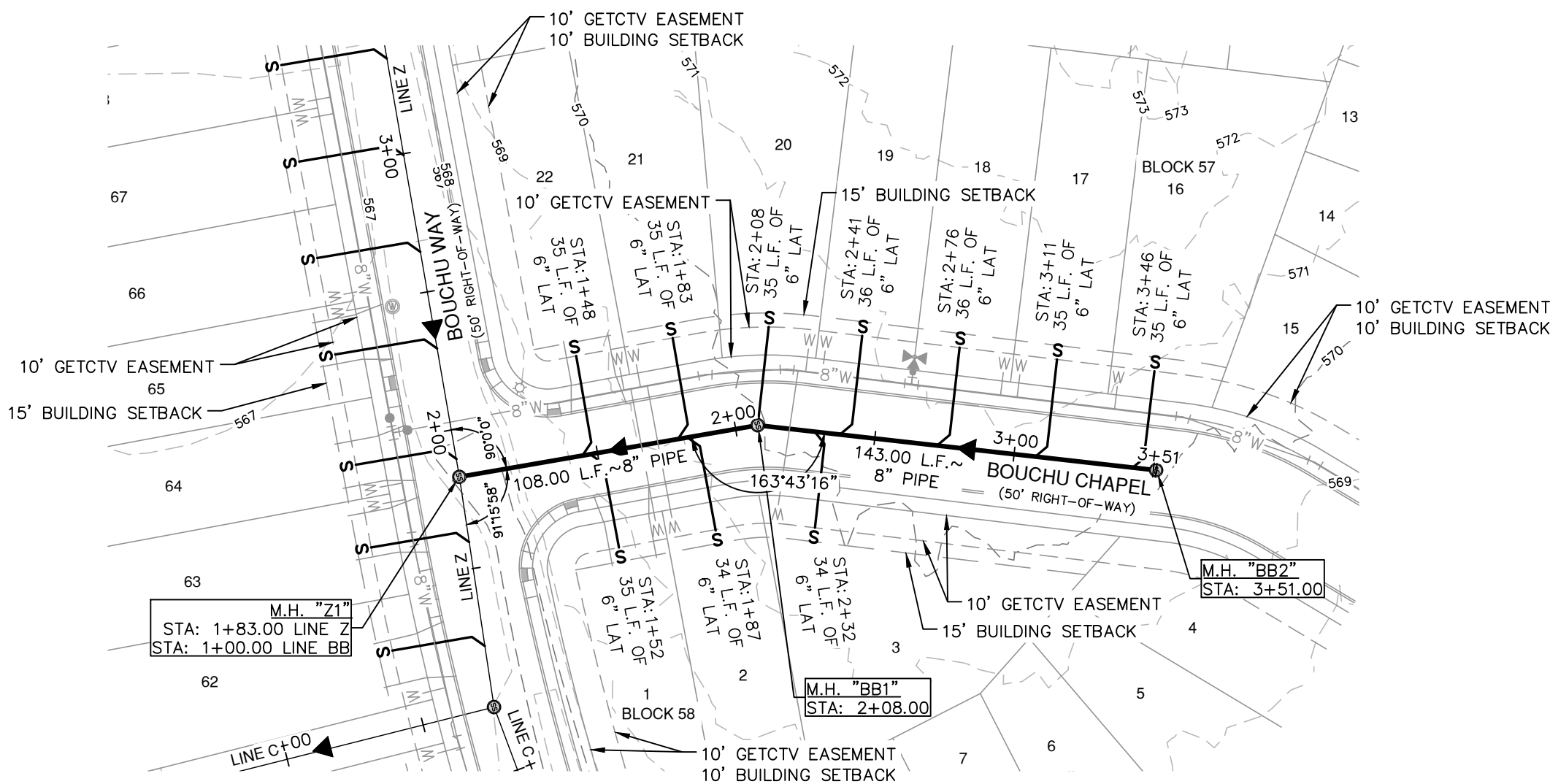


NO.	REVISION	DATE
1	REVISED SAWS BLOCK AND DROPPED MANHOLE	12/6/23
2	REVISED LEGEND	12/20/23



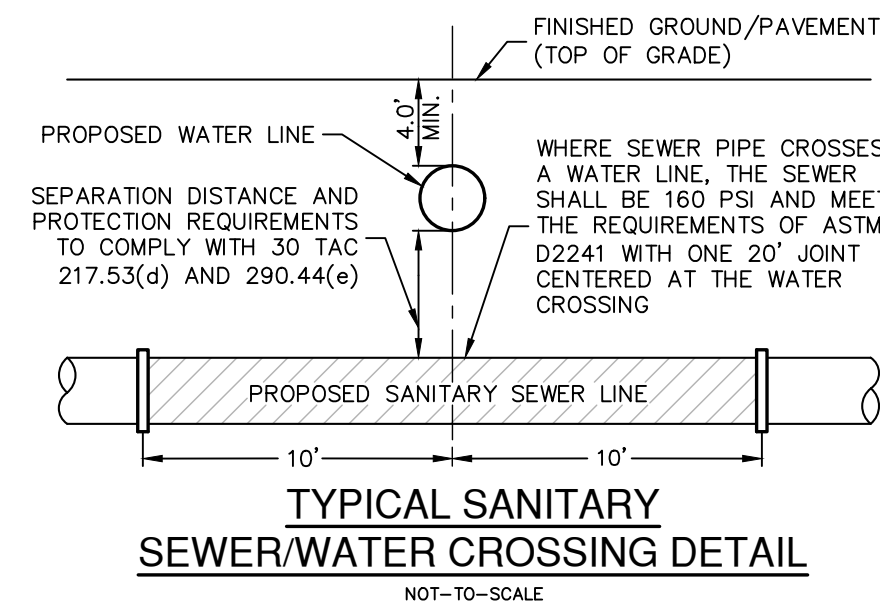
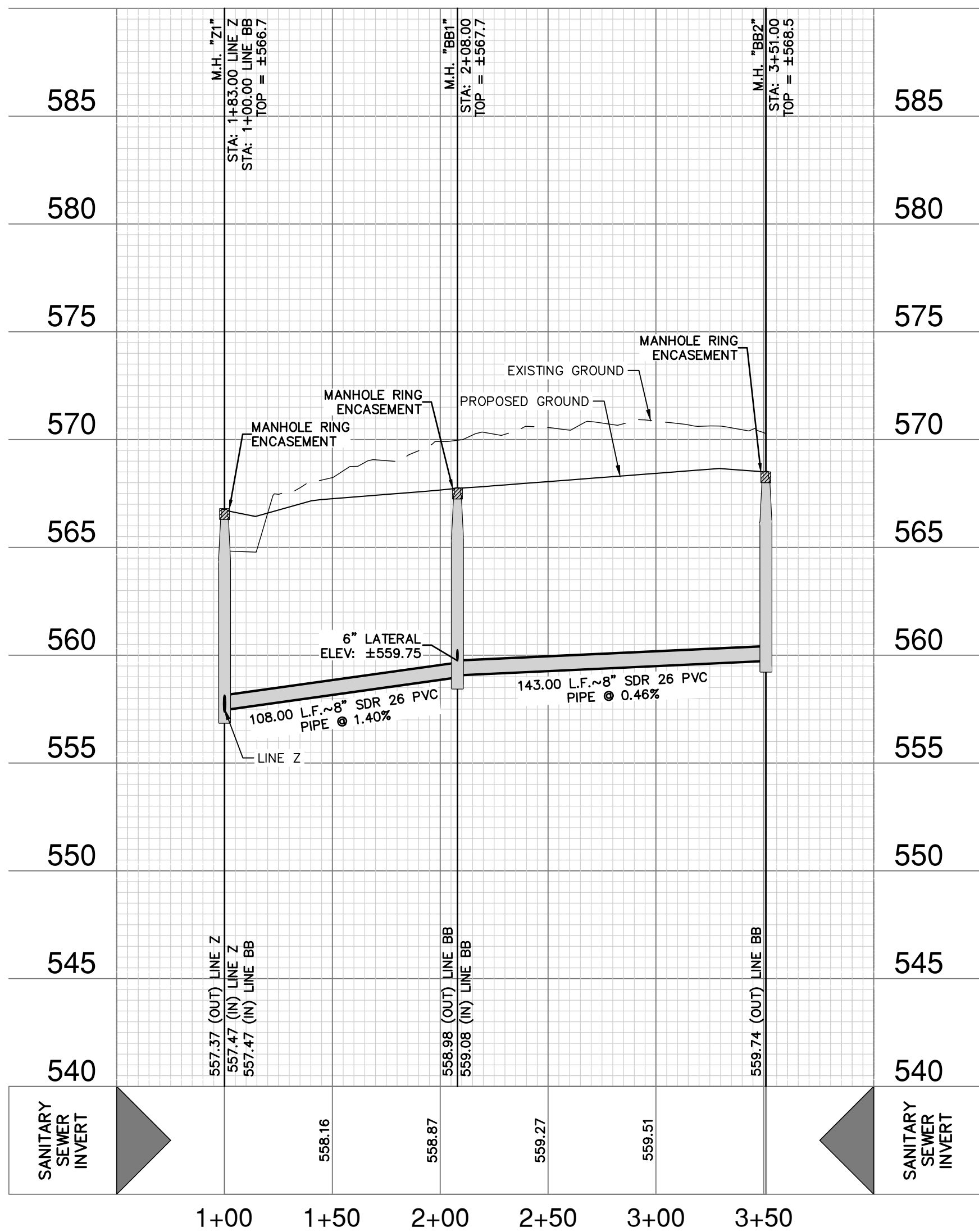
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VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



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△ SALADO CREEK - CENTRAL WATERSHED - DOS RIOS W.R.C.

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# 168536 TOTAL EDU'S 104 TOTAL ACREAGE 18.52
TOTAL LINEAR FOOTAGE OF PIPE: 2902.77 L.F. ~ 8\"/>

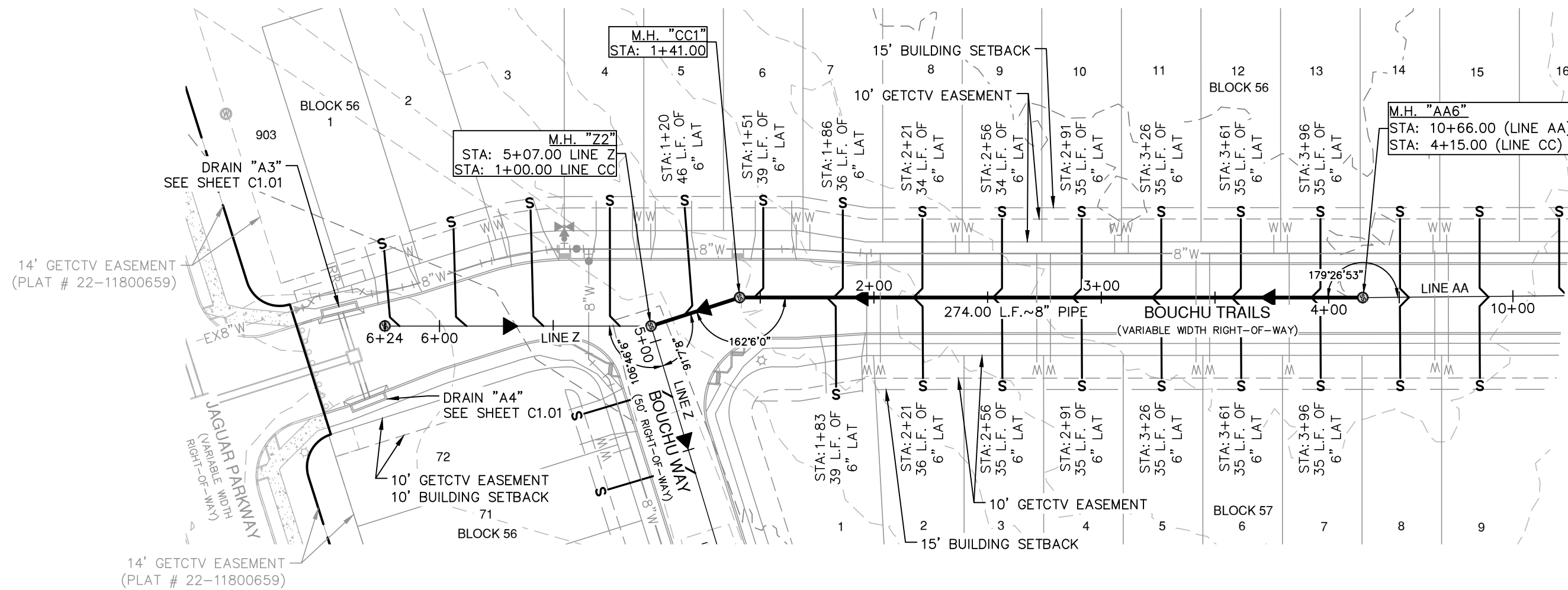
PAPE-DAWSON
ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008860

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS
SS LINE BB PLAN & PROFILE (STA 1+00.00 TO END)

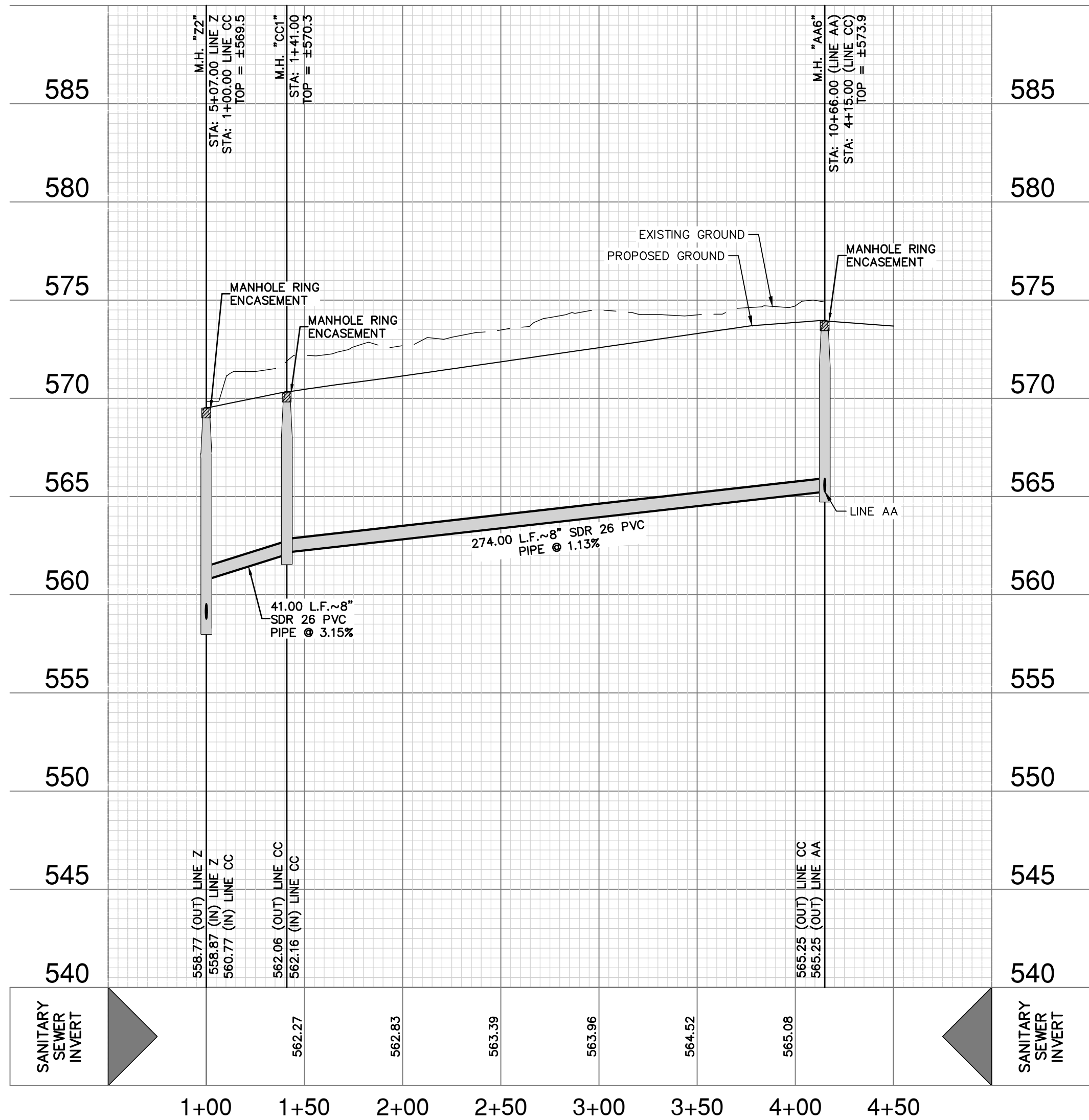
PLAT NO. 23-11800229
JOB NO. 12632-12
DATE JULY 2023
DESIGNER JG
CHECKED DW DRAWN TC
SHEET C5.04

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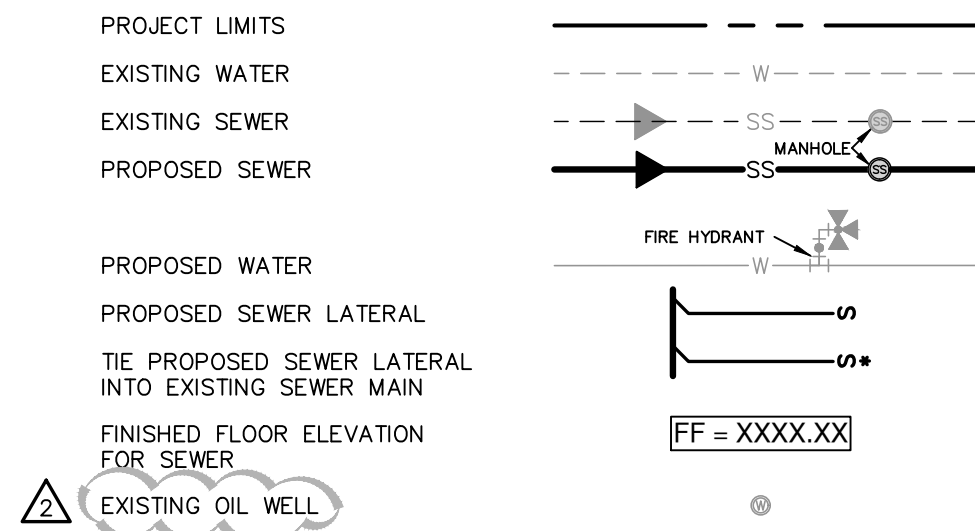
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VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



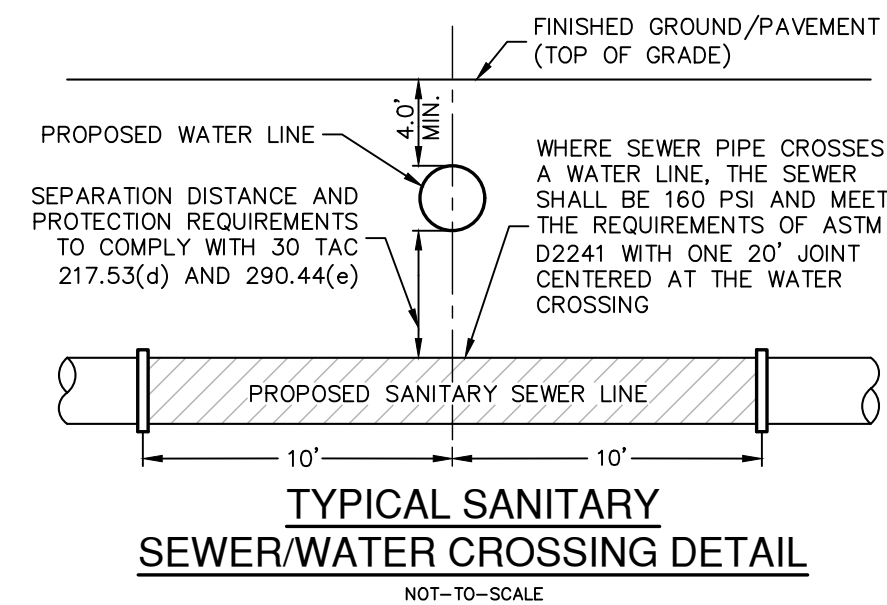
SEWER LEGEND



NO.	REVISION	DATE
1	REVISED SAMS BLOCK	12/5/23
2	REVISED LEGEND	12/20/23



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△ SALADO CREEK - CENTRAL WATERSHED - DOS RIOS W.R.C.

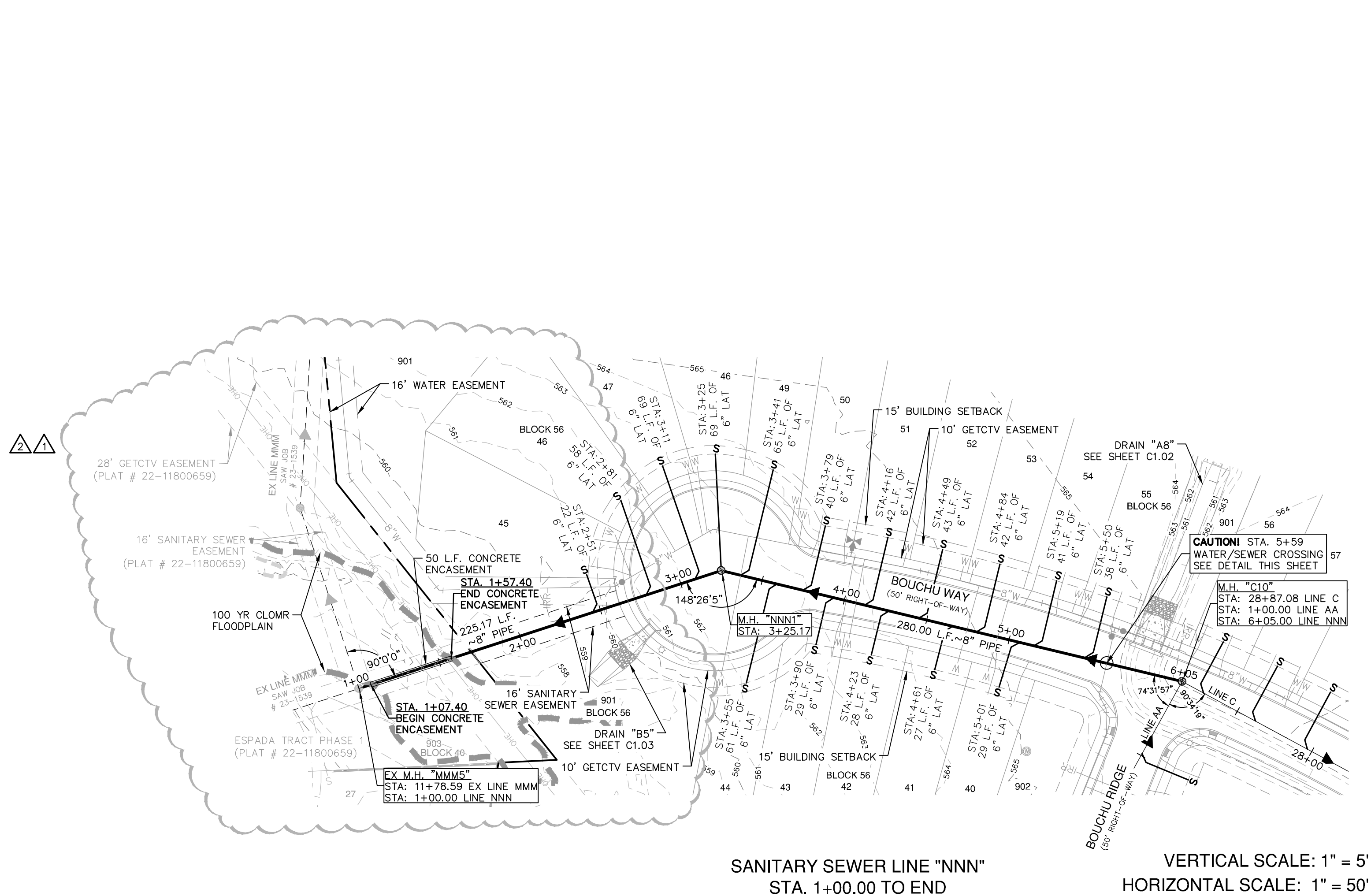
DEVELOPER'S NAME: LENNAR HOMES OF TEXAS			
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CITY: SAN ANTONIO	STATE: TEXAS	ZIP: 78216	
PHONE# (210) 403-6200	FAX# N/A		
SAWS BLOCK MAP# 168536, TOTAL EDU'S 104, TOTAL ACREAGE 18.52			
TOTAL LINEAR FOOTAGE OF PIPE: 2802.77 L.F. ~8" PVC PLAT NO 23-11800229			
NUMBER OF LOTS 104 SAWS JOB NO. 23-1606			

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS
SS LINE CC PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO.	23-11800229
JOB NO.	12632-12
DATE	JULY 2023
DESIGNER	JG
CHECKED	DW DRAWN TC
SHEET	C5.05

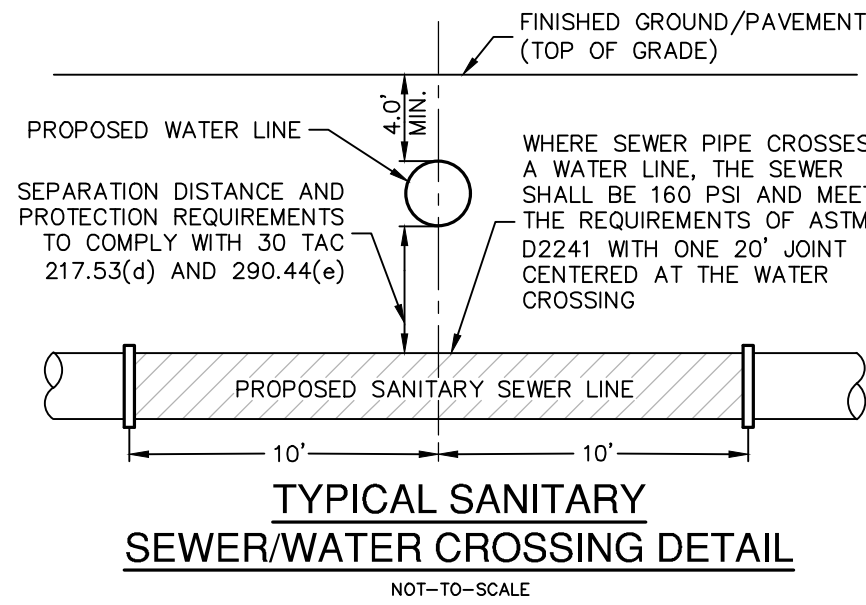
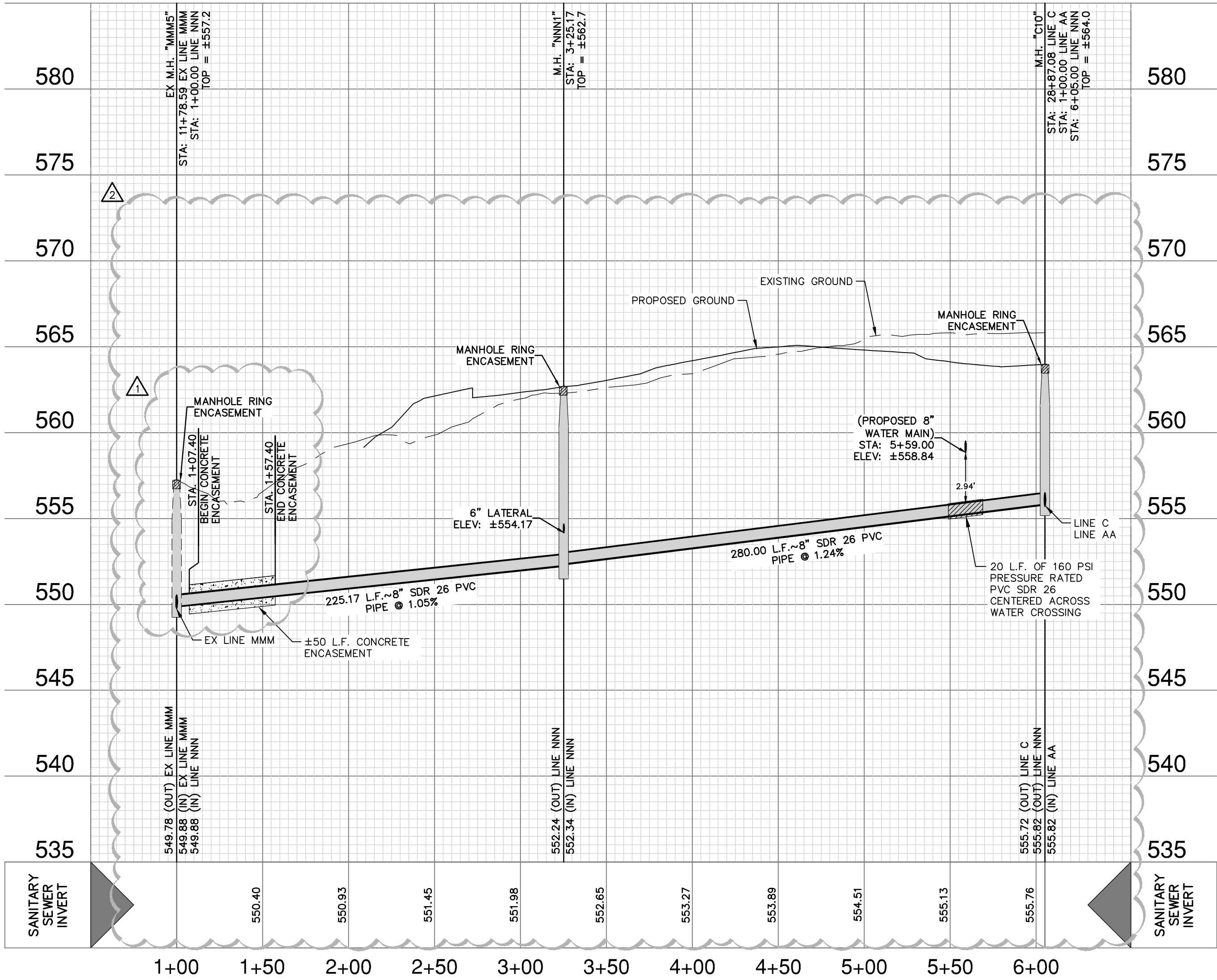
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SANITARY SEWER LINE "NNN"
STA. 1+00.00 TO END

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



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.

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.

△ SALADO CREEK - CENTRAL WATERSHED - DOS RIOS W.R.C.

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		
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TOTAL LINEAR FOOTAGE OF PIPE: 2802.77 L.F. 8" PVC PLAT NO 23-11800223			
NUMBER OF LOTS 104 SAWS JOB NO. 23-1606			

SEWER LEGEND	
PROJECT LIMITS	---
EXISTING WATER	--- W ---
EXISTING SEWER	--- SS ---
PROPOSED SEWER	--- SS ---
PROPOSED WATER	--- W ---
PROPOSED SEWER LATERAL	--- S ---
TIE PROPOSED SEWER LATERAL INTO EXISTING SEWER MAIN	--- S ---
FINISHED FLOOR ELEVATION FOR SEWER	FF = XXXX.XX
EXISTING WELL	○

NO.	REVISION	DATE
1	REVISED SAWS BLOCK, SAWS JOB#, SEWER ESMT & LABEL AND WATER EASEMENT LABEL	12/6/23
2	ADDED CONCRETE ENCASEMENT STATION IN PROFILE VIEW	
2	REVISED PIPE SLOPE, LEGEND, SEWER & WATER ESMT, ADDED CONCRETE ENCASEMENT AND LATERAL TO MH NNN	12/20/23



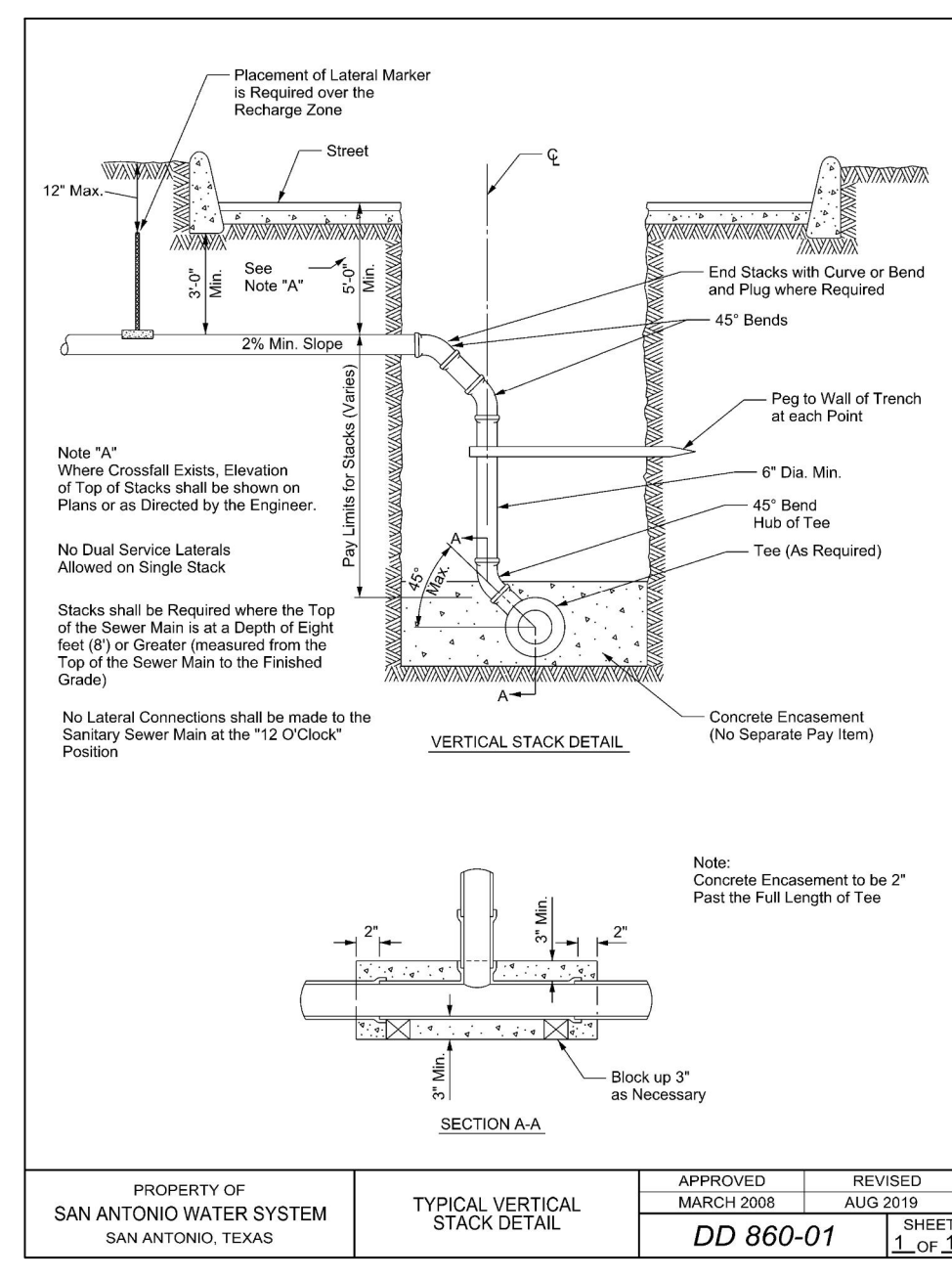
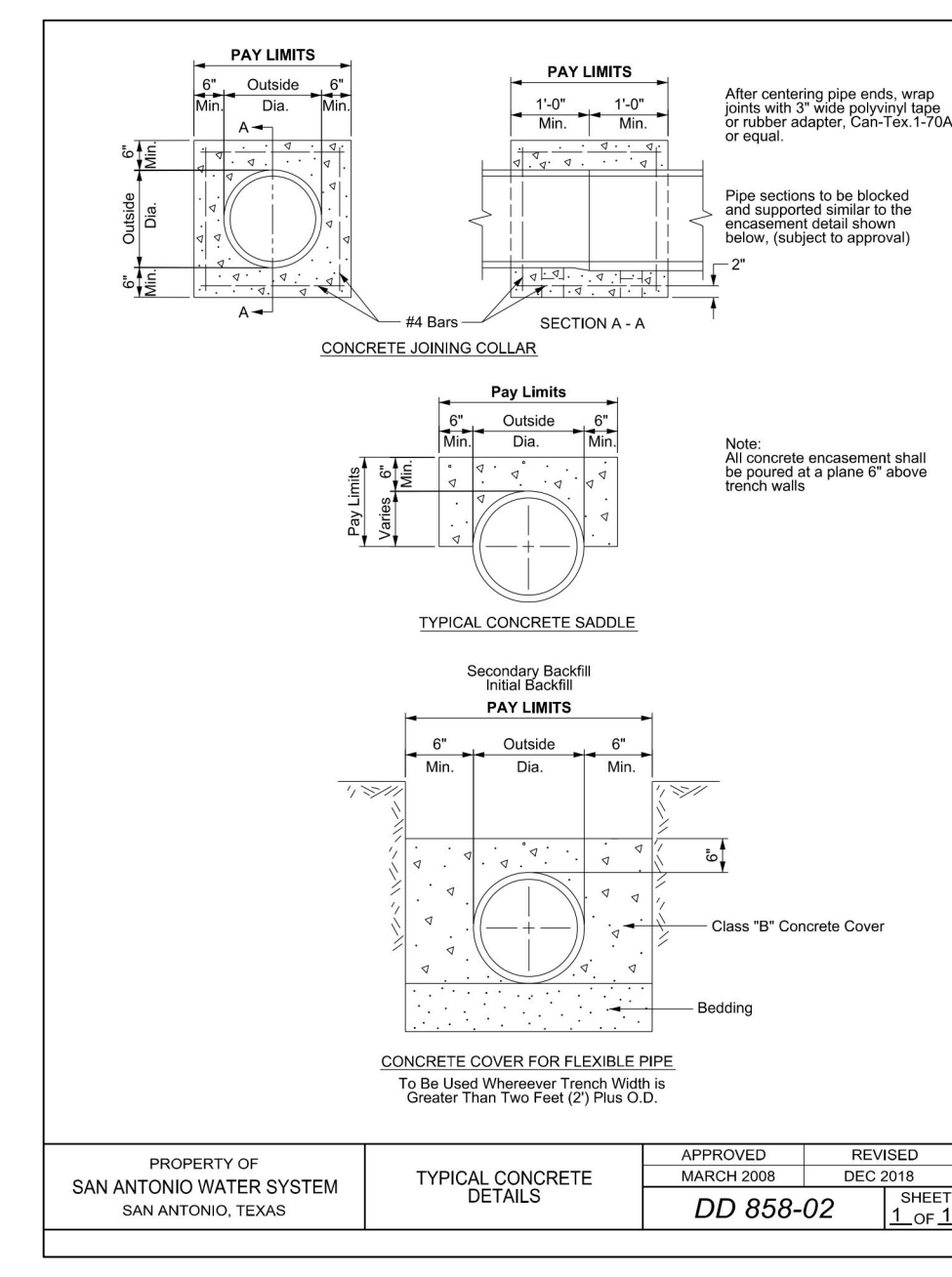
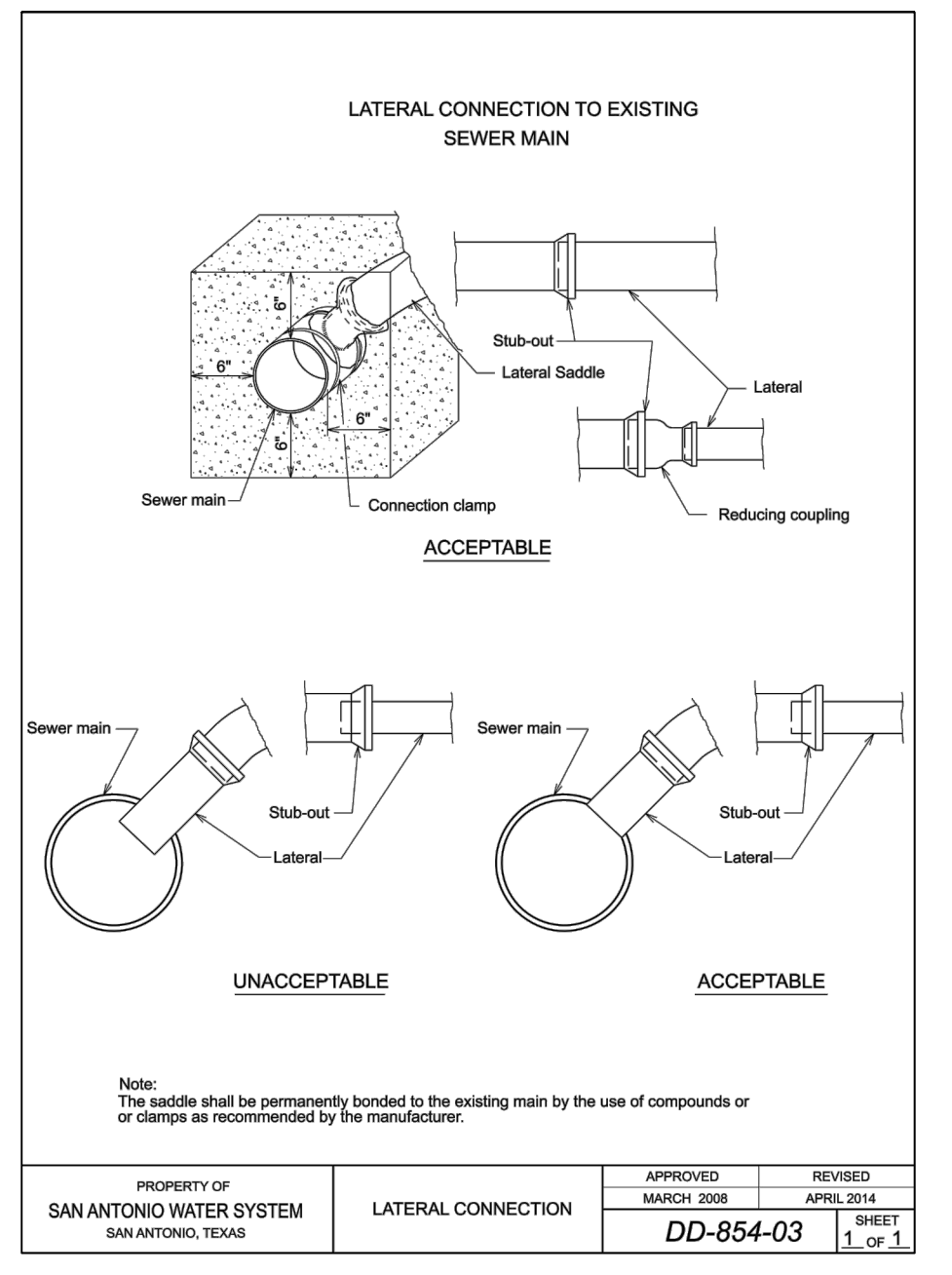
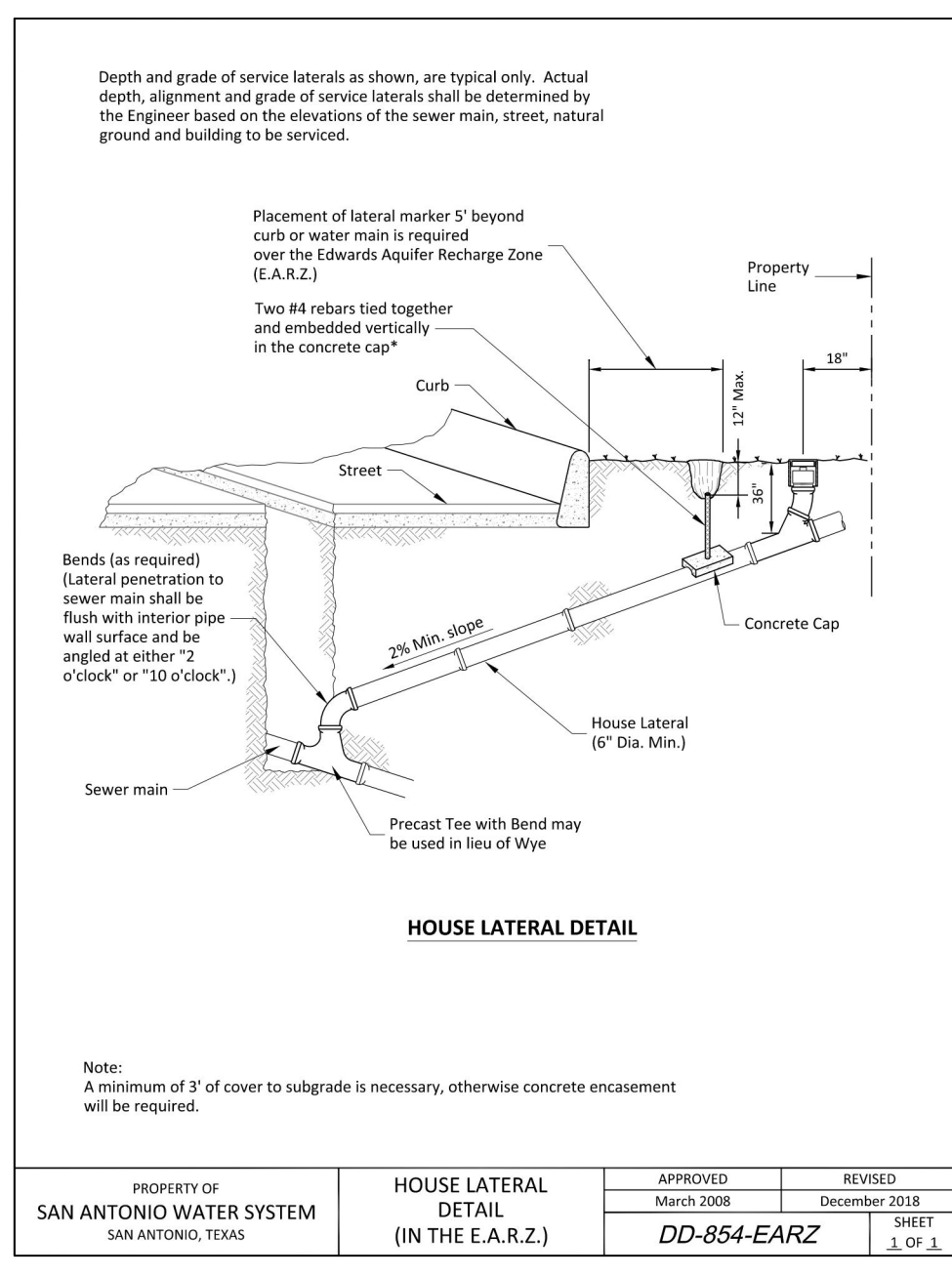
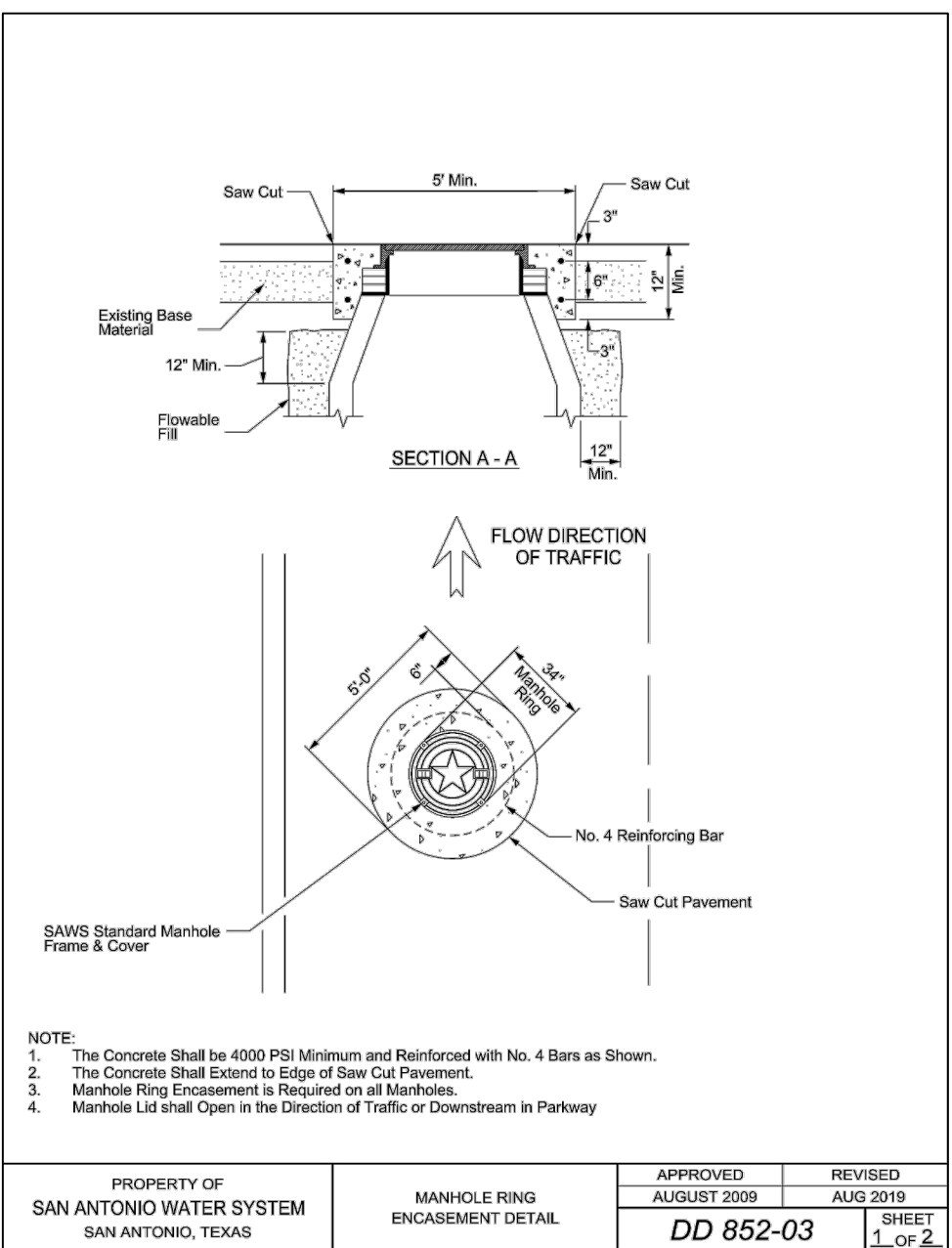
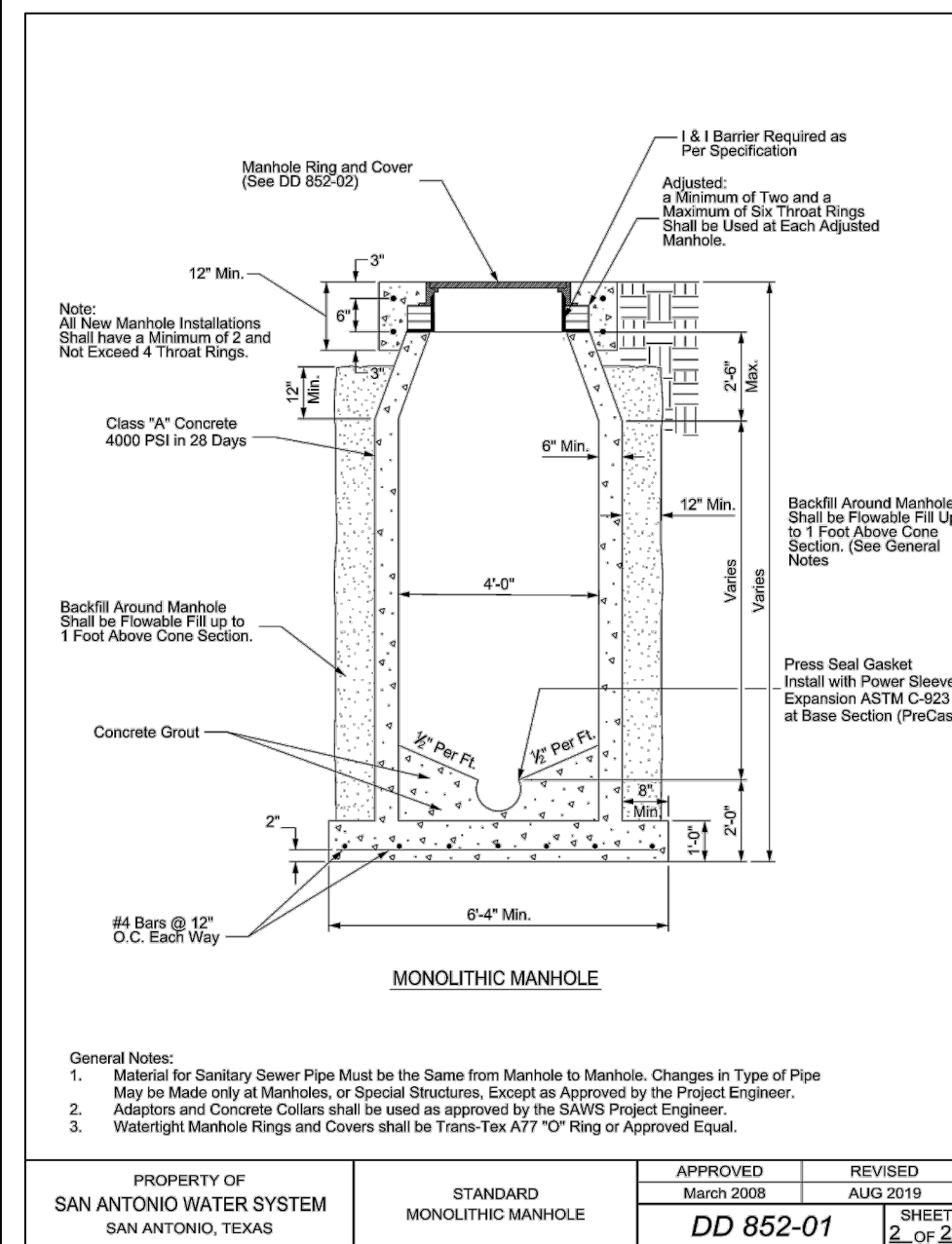
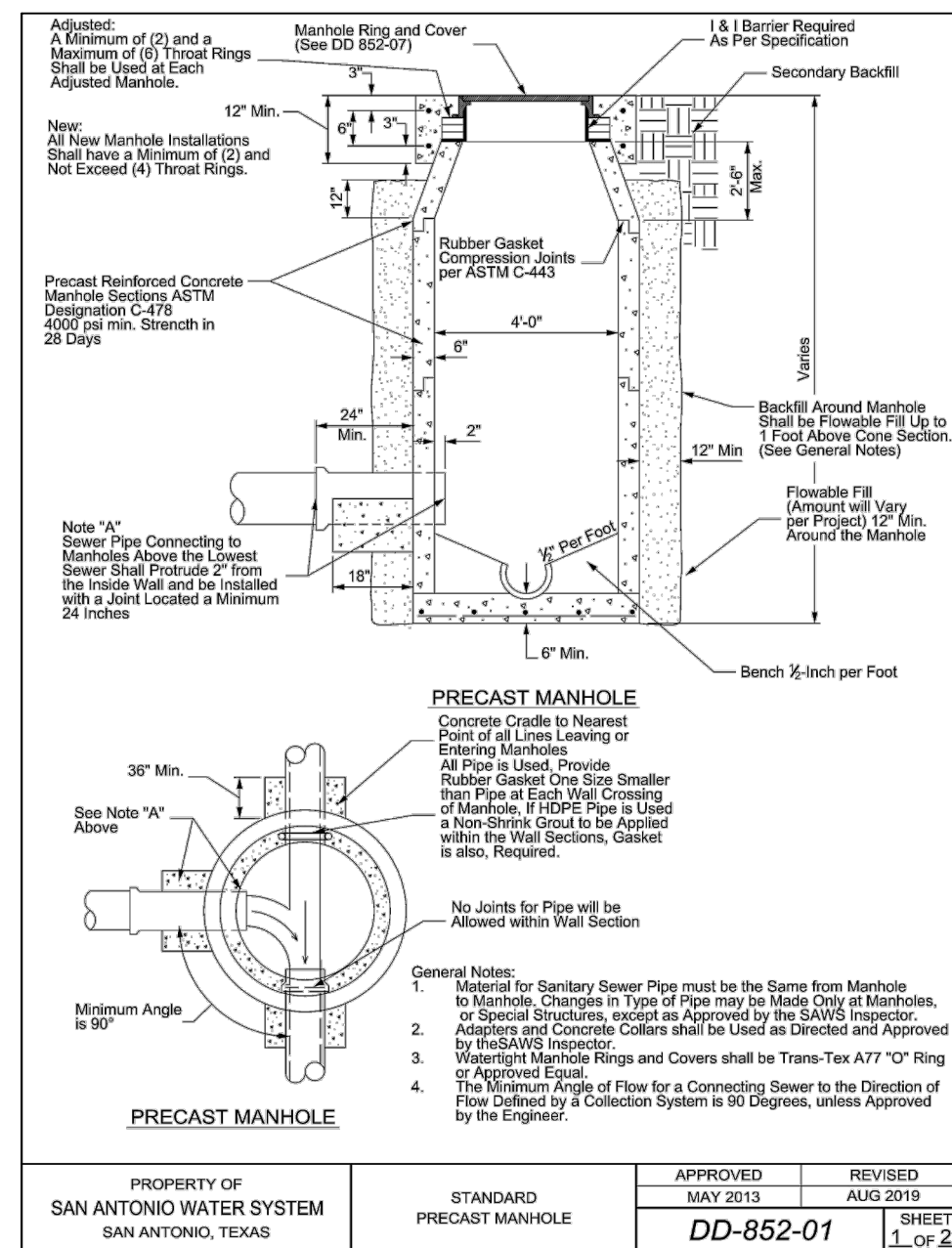
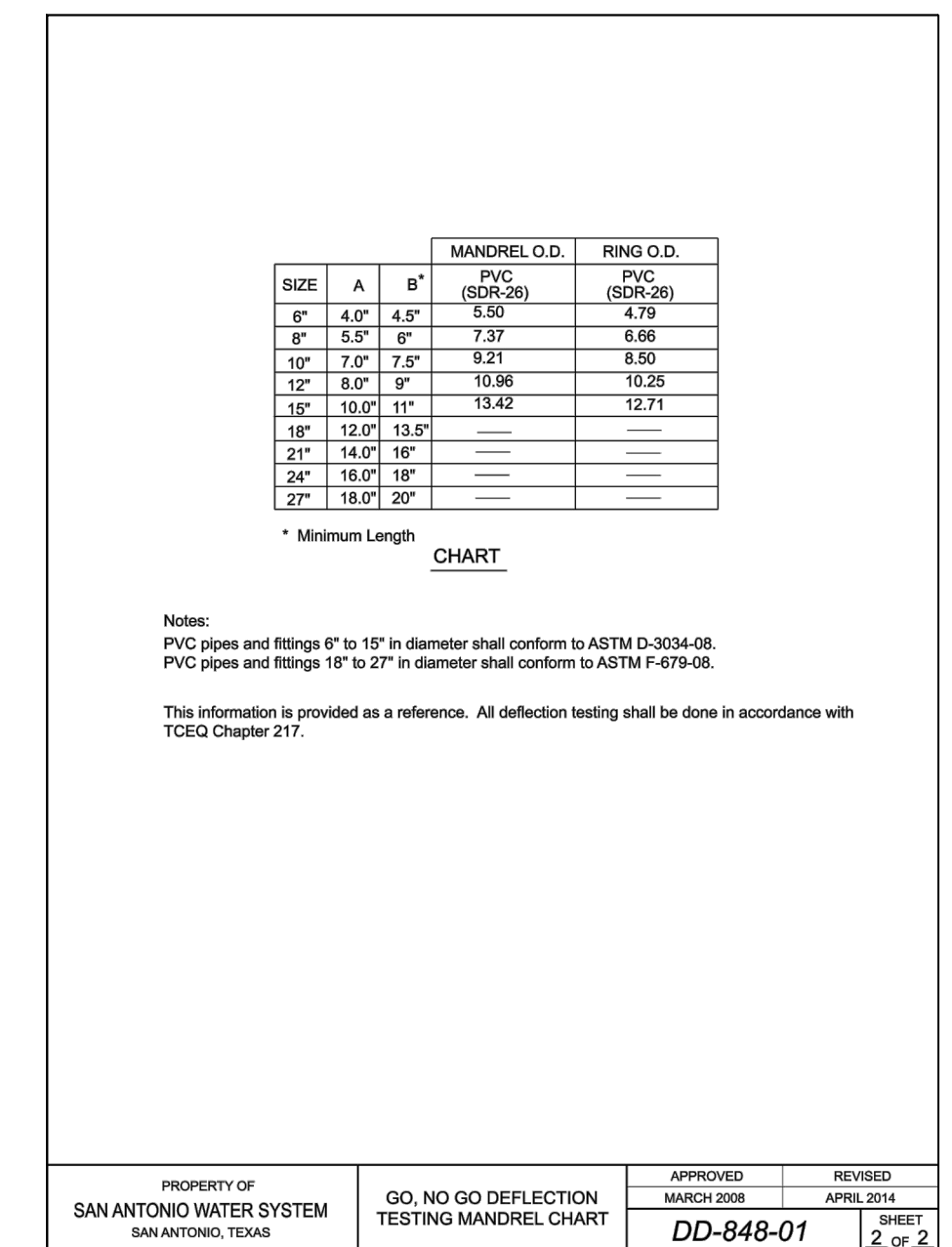
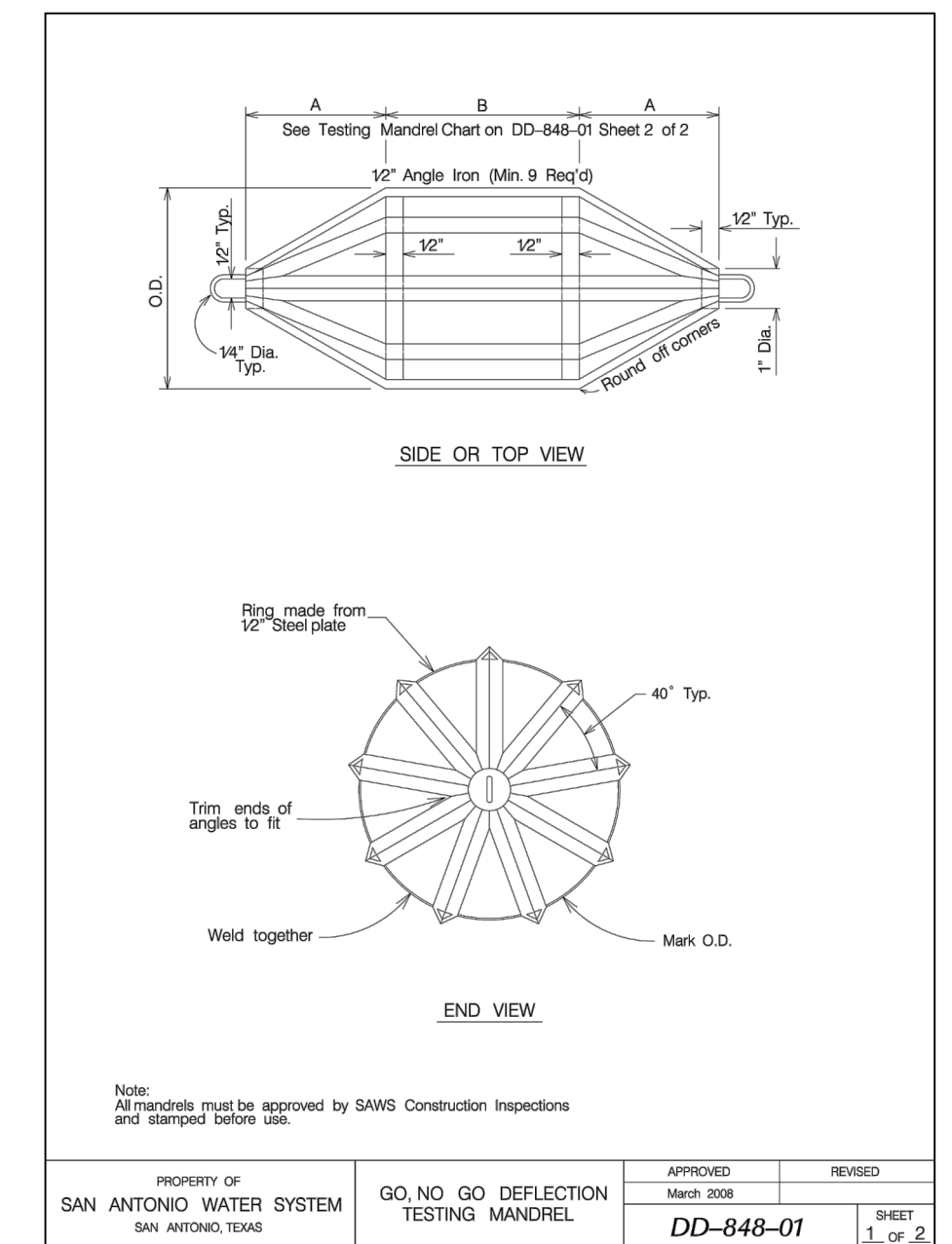
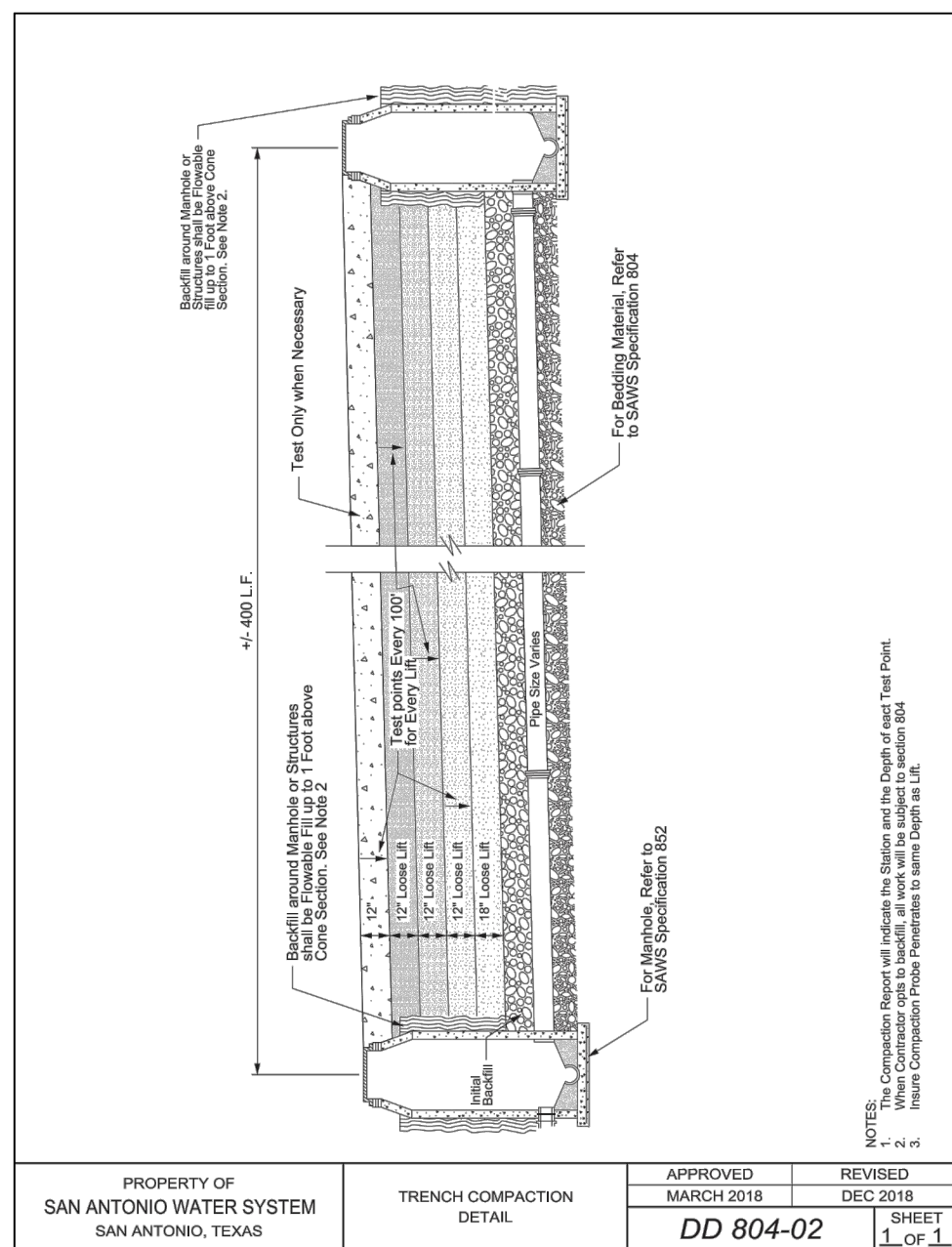
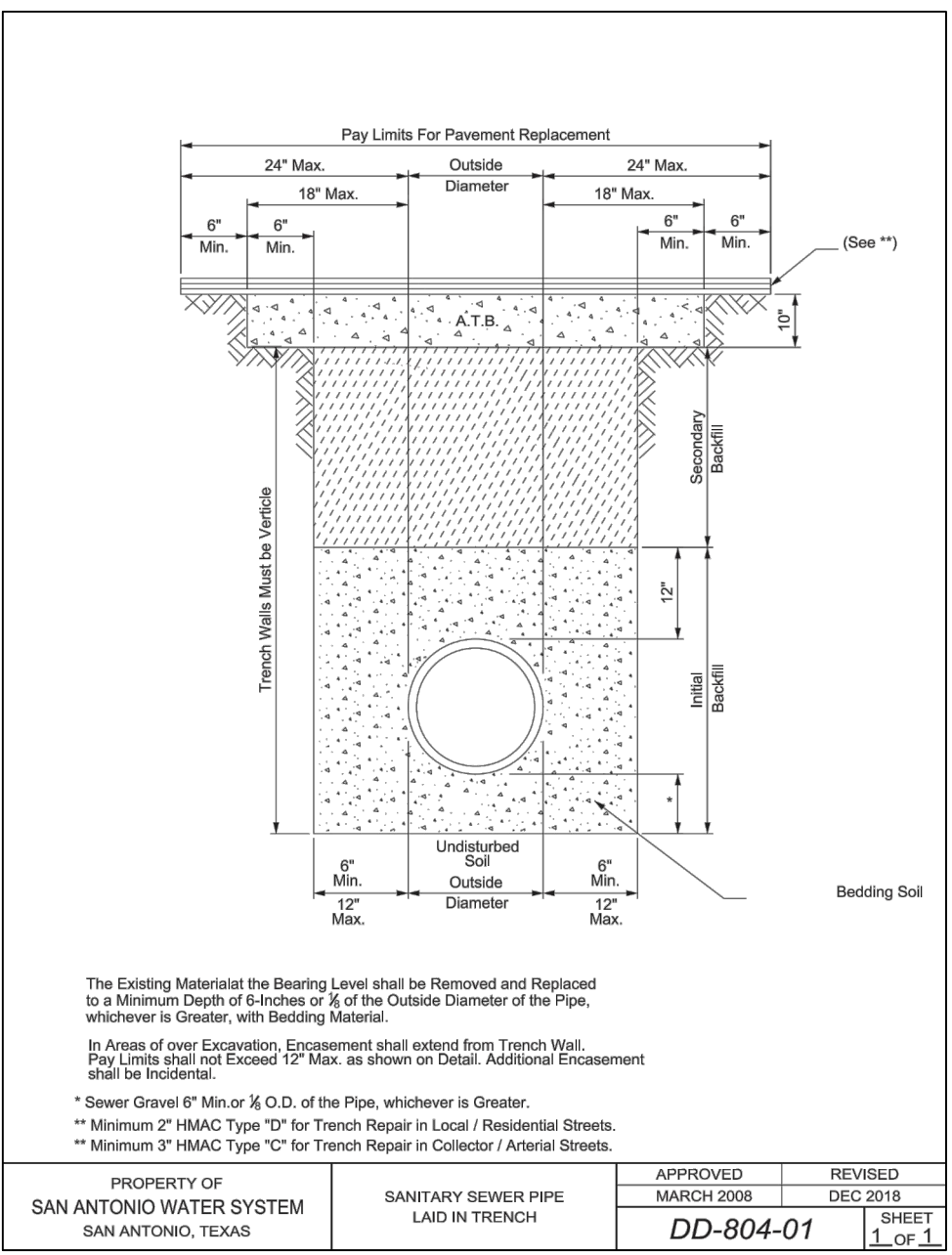
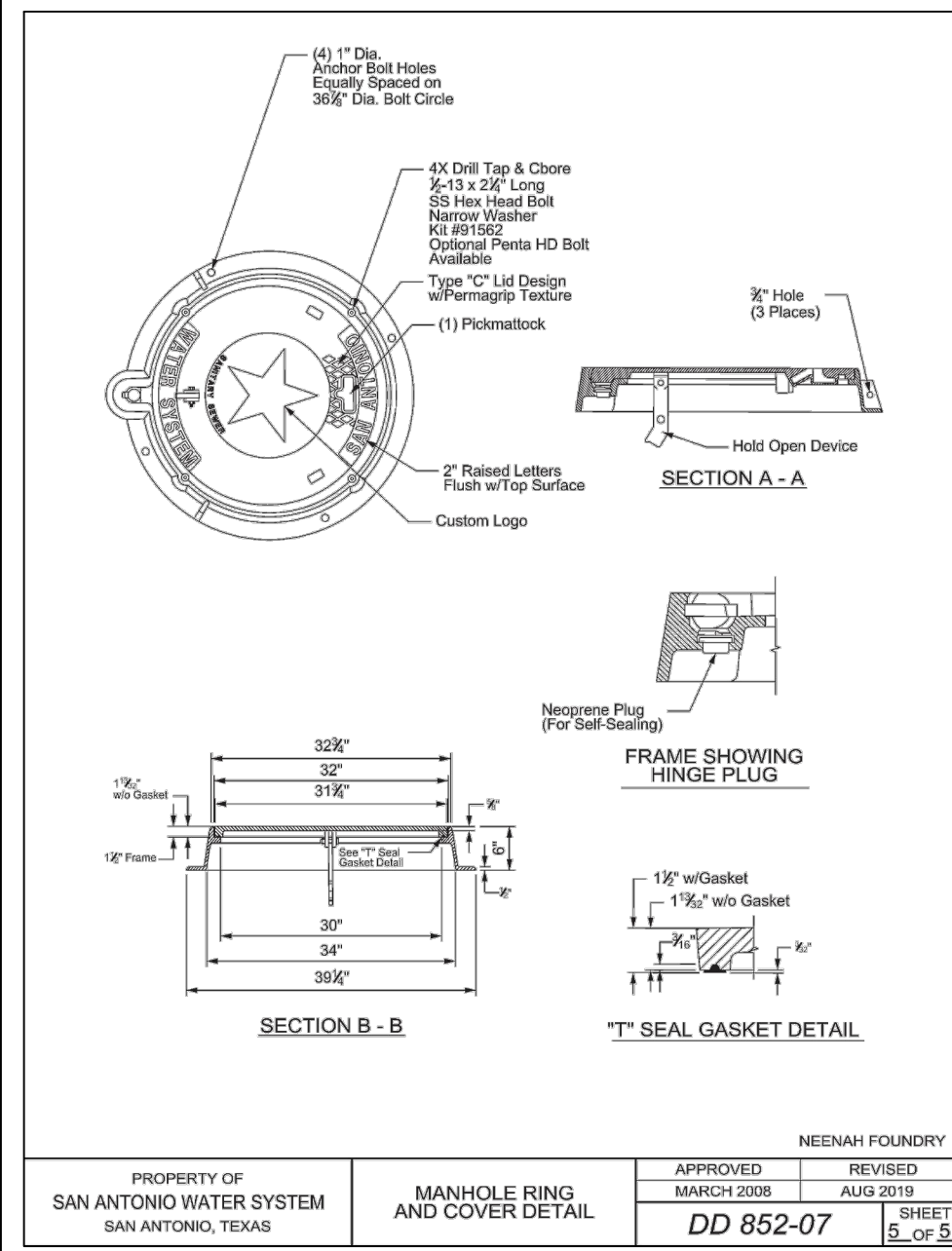
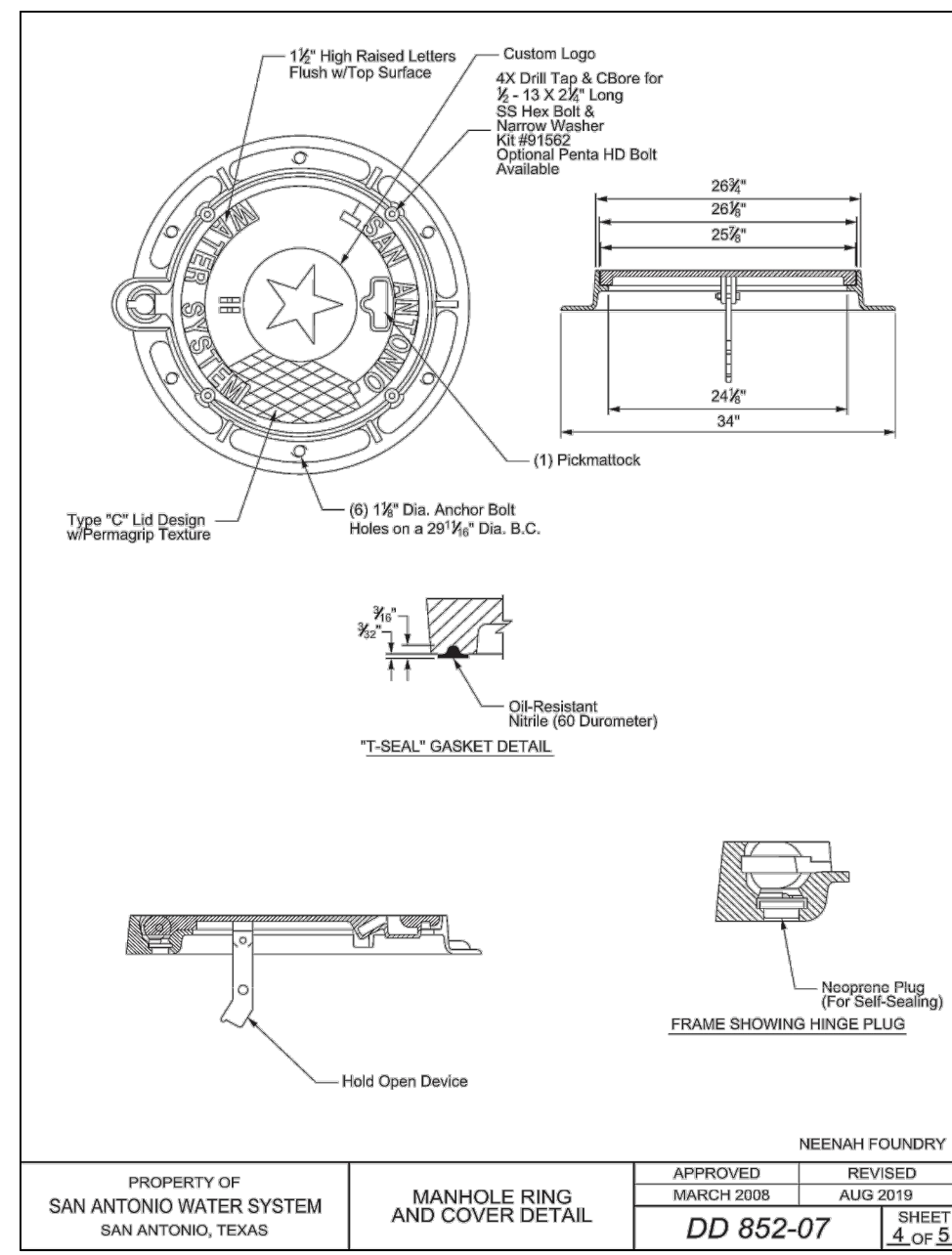
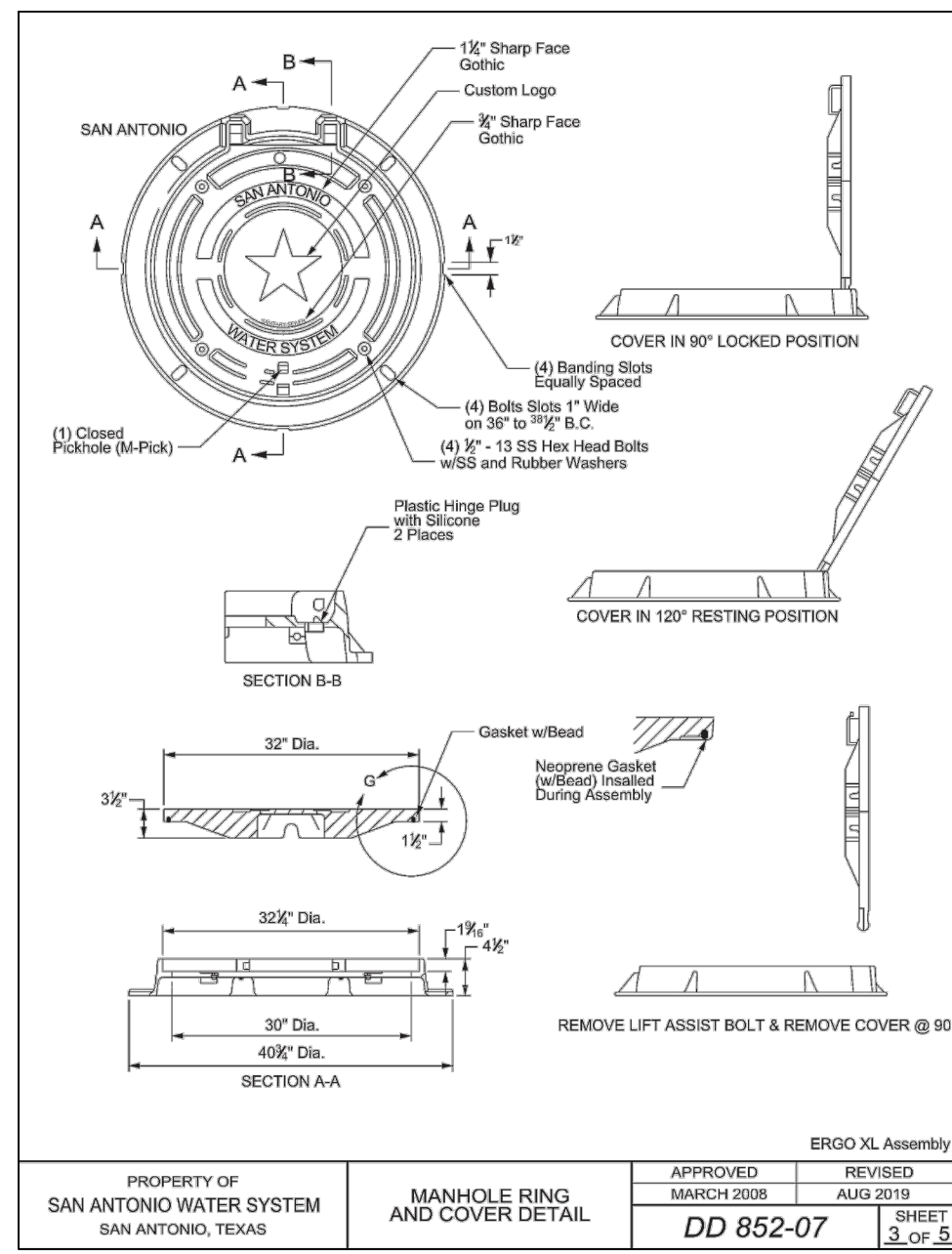
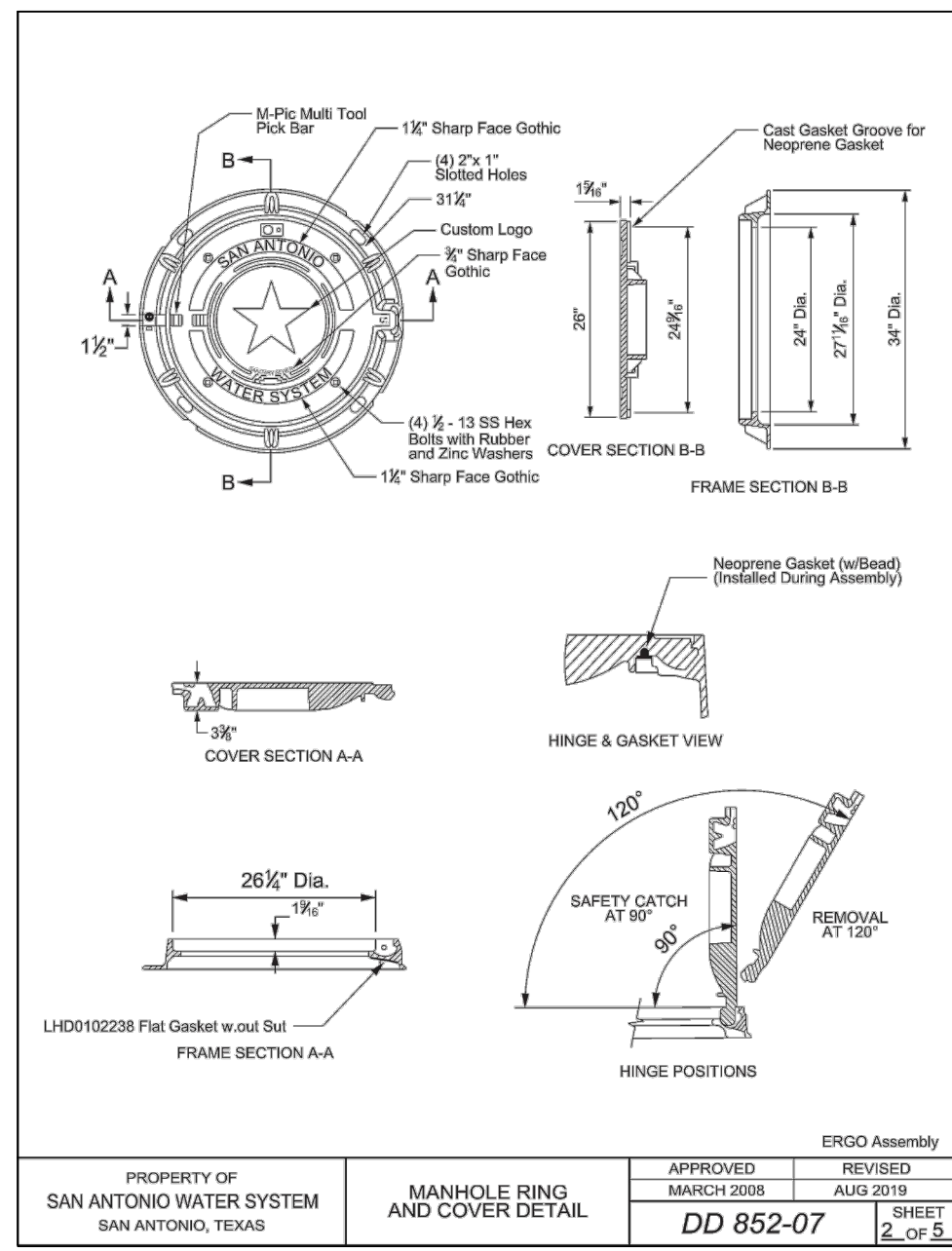
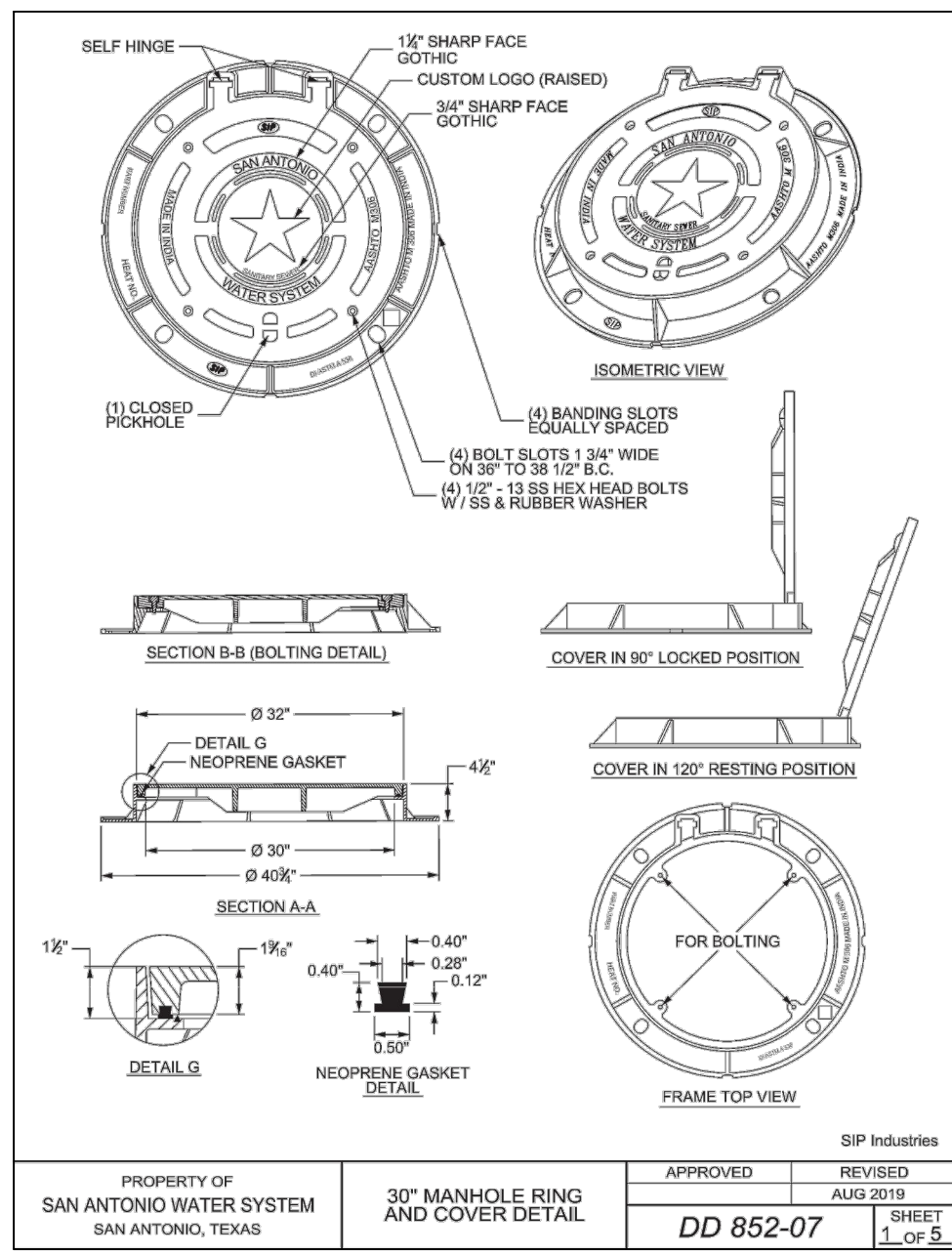
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10088600

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS
SS LINE NNN PLAN & PROFILE (STA 1+00.00 TO END)

PLAT NO.	23-11800229
JOB NO.	12632-12
DATE	JULY 2023
DESIGNER	JG
CHECKED	DW DRAWN TC
SHEET	C5.06

Date: Dec-27-2023 9:15am User: ID: jrothwangrnf
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SALADO CREEK - CENTRAL WATERSHED - DOS RIOS W.R.C.

DEVELOPER'S NAME: LENNAR HOMES OF TEXAS			
ADDRESS: 100 NE LOOP 410, STE. 1155			
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TOTAL LINEAR FOOTAGE OF PIPE: 2902.77 LF ~ 87 PC PLAT NO 23-11800229			
NUMBER OF LOTS 104 SAWS JOB NO. 23-1606			

DATE
12/6/23

NO. REVISION
1 REVISED SAWS BLOCK

Brunna F. Spengler
12/21/23

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS

OVERALL SANITARY SEWER DETAILS

PLAT NO. 23-11800229

JOB NO. 12632-12

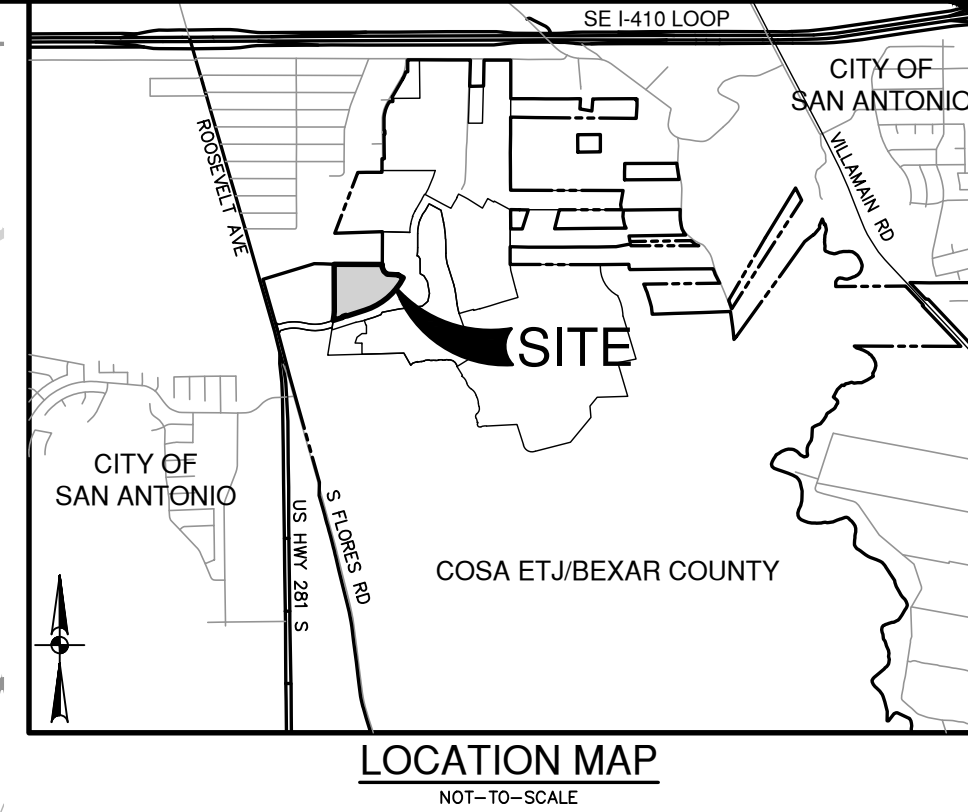
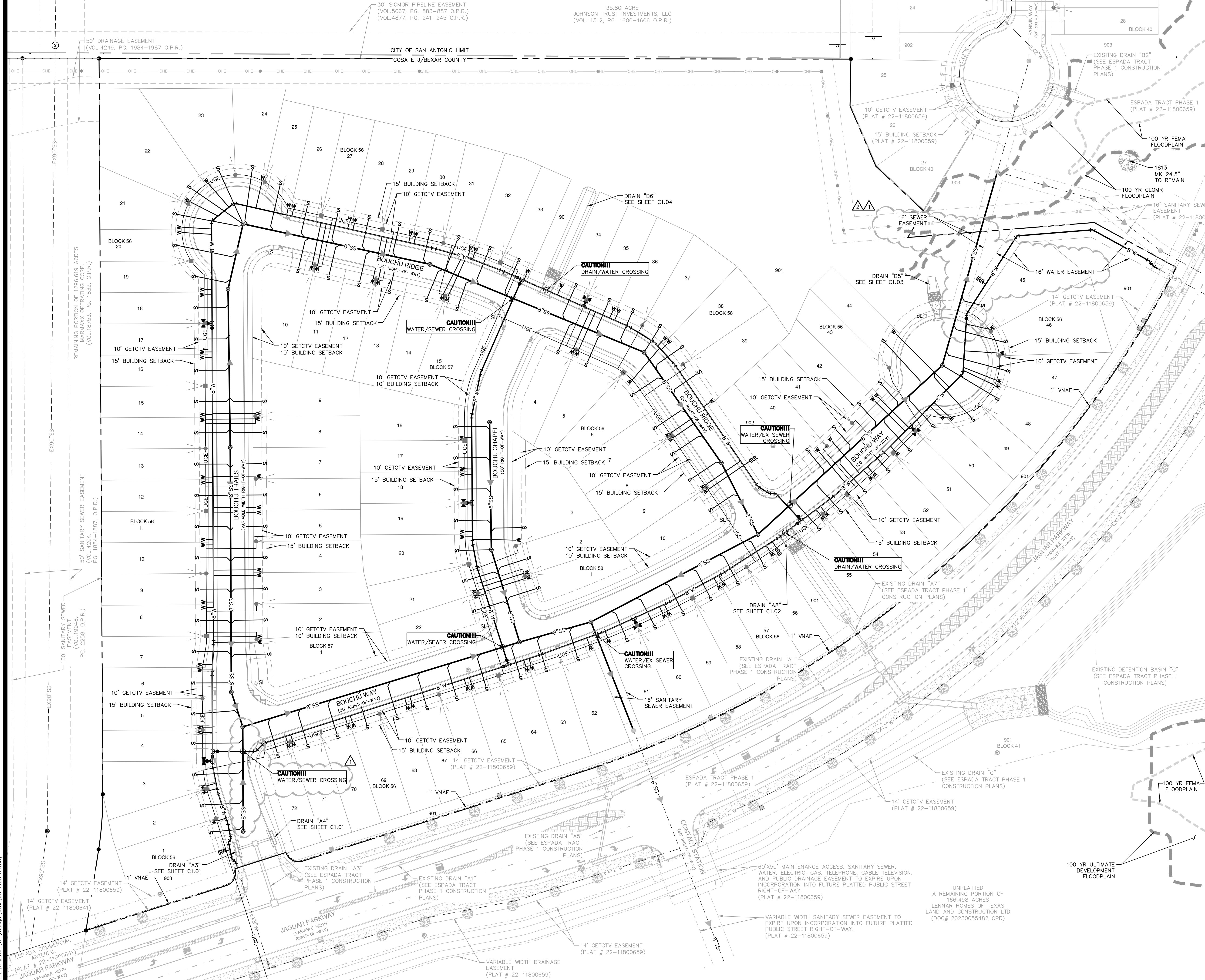
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DESIGNER JG

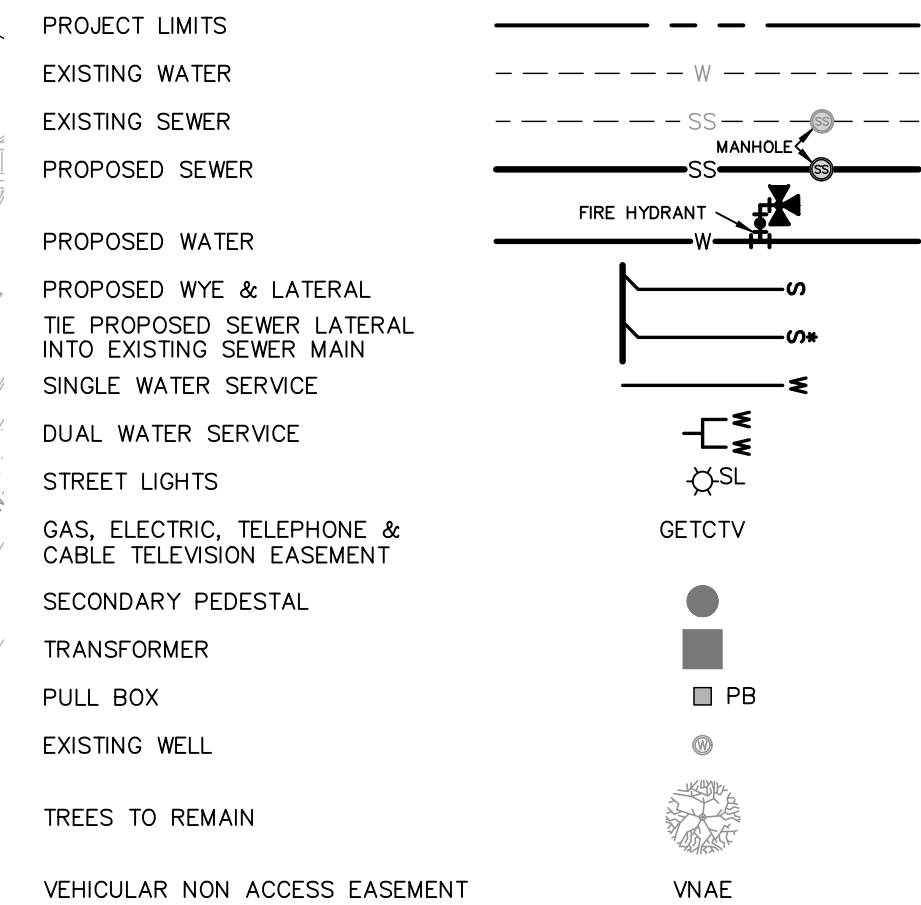
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SHEET C5.07

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UTILITY LEGEND



CONDUIT NOTES:

- CONTRACTOR SHALL INSTALL PERMANENT MARKERS IN PROPOSED CURB WHERE CONDUITS CROSS THE ROADWAY (BOTH SIDES).
- 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.
- ALL CONDUITS SHALL BE EXTENDED BEHIND CURBS OR PROPOSED SIDEWALKS A MINIMUM OF 3 FEET AND CAPPED FOR FUTURE USE.
- 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

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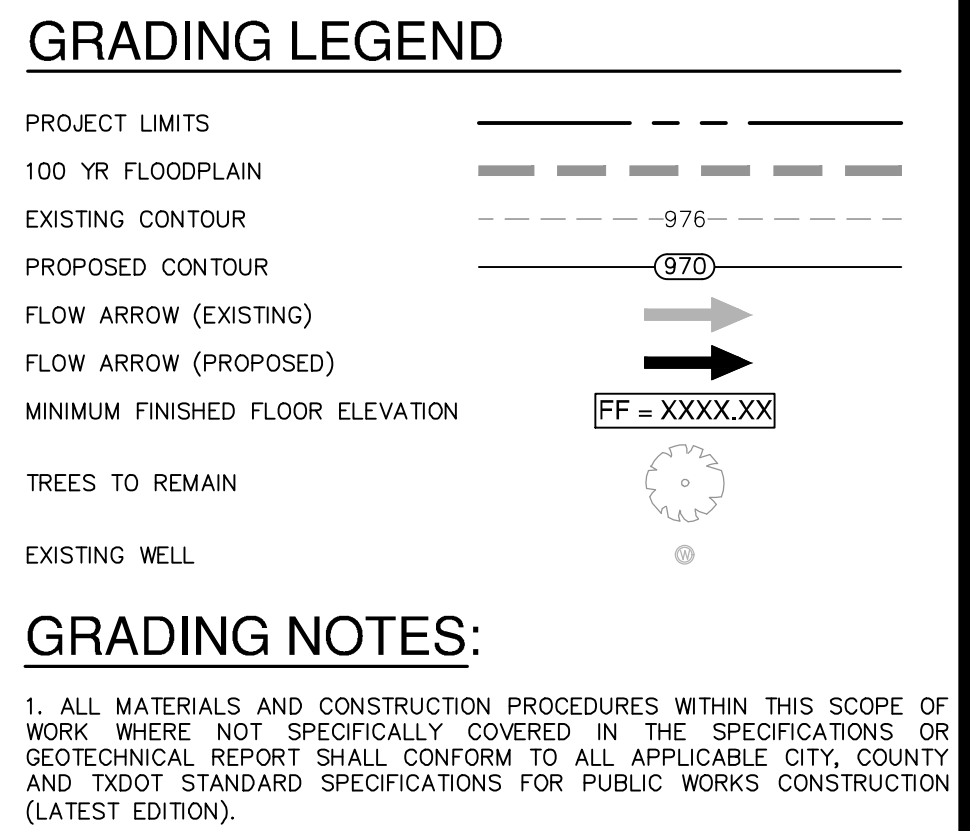
NO.	REVISION	DATE
1	REVISED SEWER EASEMENT & LABEL, SEWER LINE ALIGNMENT	12/6/23
2	REVISED SEWER & WATER ESM	12/20/23



PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #1008860

ESPADA TRACT UNIT 1
SAN ANTONIO, TEXAS
OVERALL UTILITY PLAN

PLAT NO.	23-11800229
JOB NO.	12632-12
DATE	JULY 2023
DESIGNER	JG
CHECKED	DW
DRAWN	TC
SHEET	C6.00



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).

17. POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE SCOPE OF PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.

18. FOR FILL PLACEMENT ON HILL SIDES OR STEEP SLOPE AREAS, THE CONTRACTOR SHALL REFERENCE THE PROJECT SPECIFICATIONS AND GEOTECHNICAL REPORT FOR SPECIAL INSTRUCTIONS REGARDING BENCHING.

19. NO WORK SHALL BE PERFORMED IN A PUBLIC RIGHT-OF-WAY WITHOUT A PERMIT.



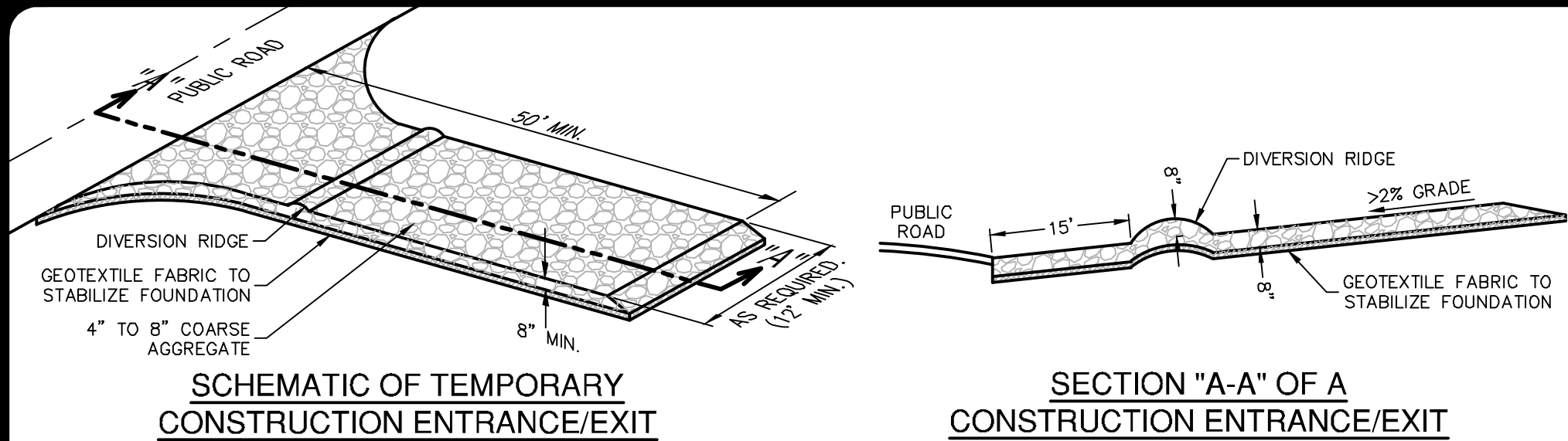
STATE OF TEXAS
BRUNA F. SPENGLER
127547
LICENSED
PROFESSIONAL ENGINEER
1/14/24

PADA TRACT UNIT 1

SAN ANTONIO, TEXAS

OVERALL GRADING PLAN

PLAT NO. 23-11800229
JOB NO. 12632-12
DATE JULY 2023
DESIGNER JG
CHECKED DW DRAWN TC
SHEET C7.00



MATERIALS

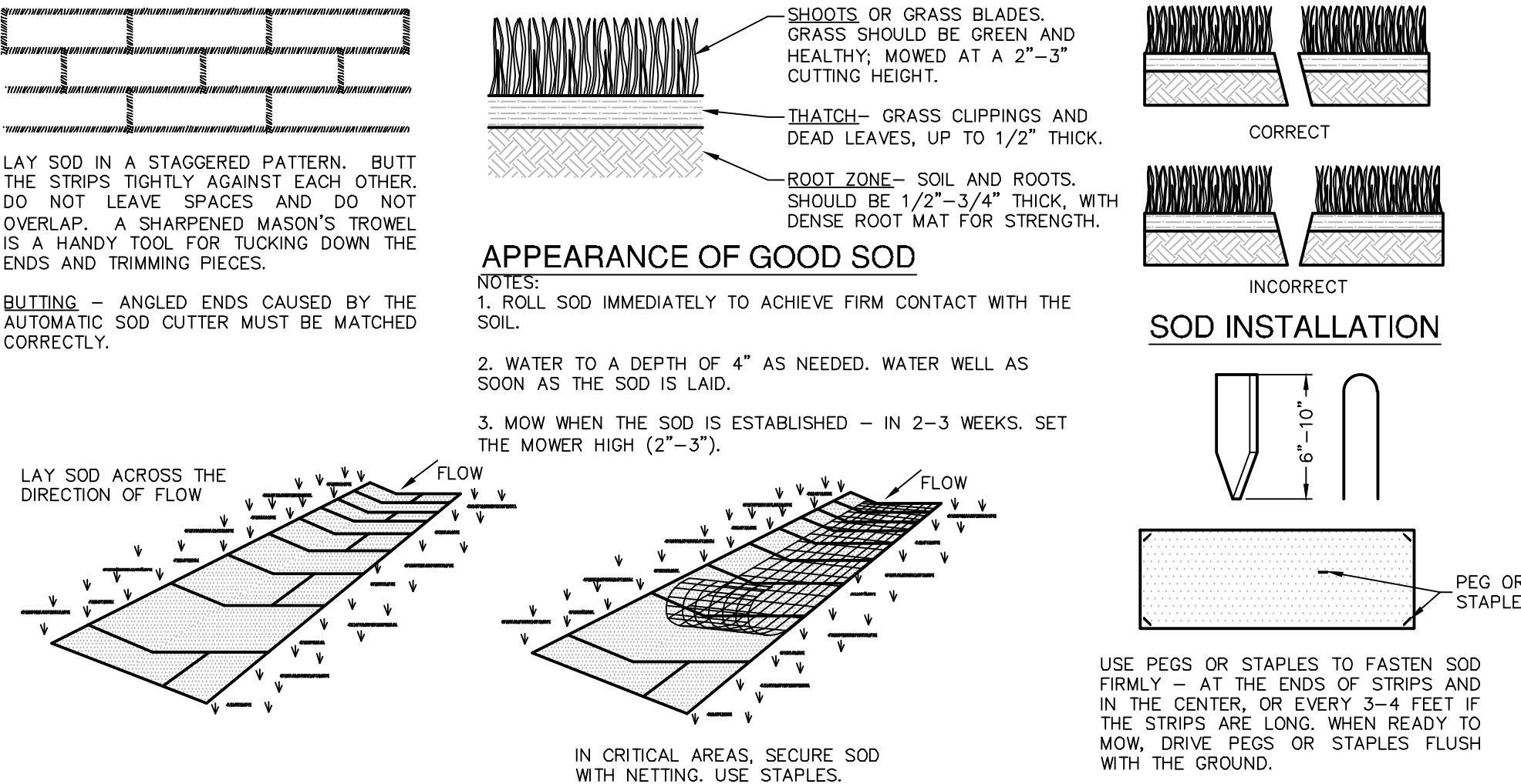
1. THE AGGREGATE SHOULD CONSIST OF 4-INCH TO 8-INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.
2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8-INCHES.
3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD², A MULLEN BURST RATING OF 140 LB/IN², 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 10 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.

STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

NOT-TO-SCALE



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. 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 SOD 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.

SOD INSTALLATION DETAIL

NOT-TO-SCALE

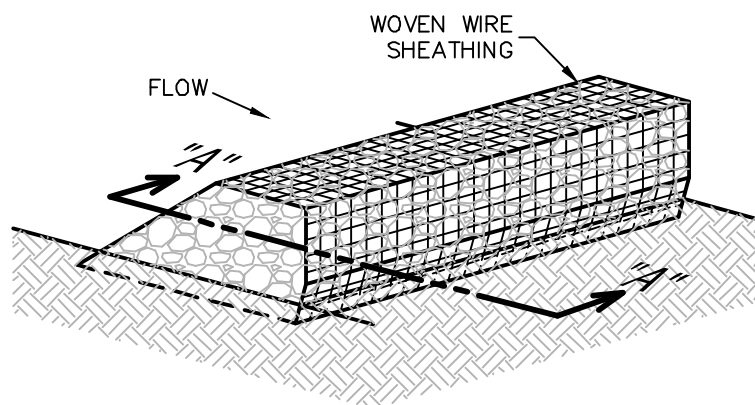
COMMON TROUBLE POINTS

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.



ISOMETRIC PLAN VIEW

ROCK BERMS

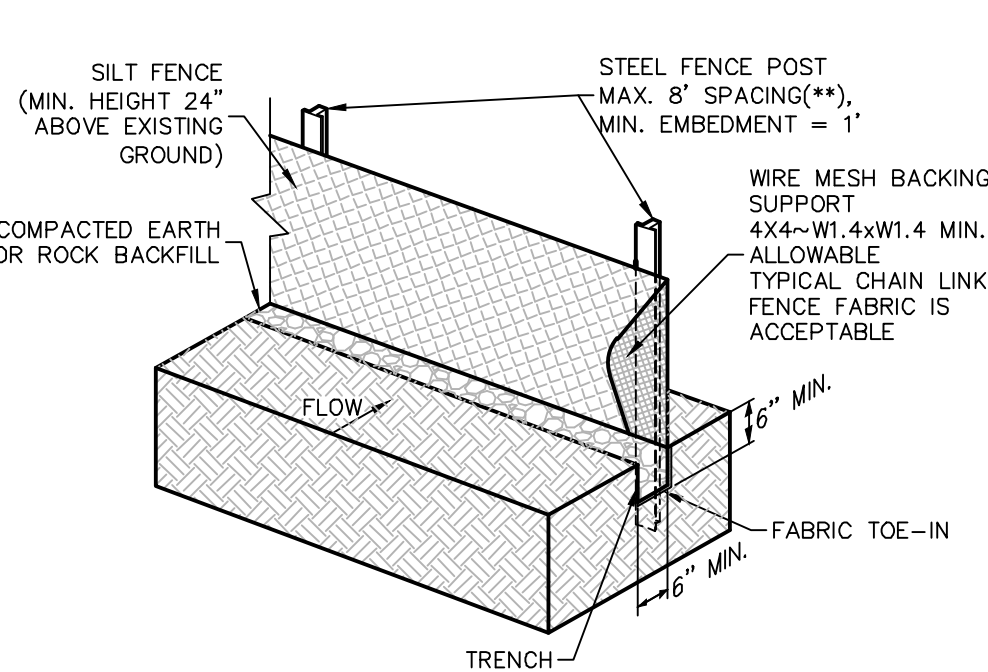
THE PURPOSE OF A ROCK BERM IS TO SERVE AS A CHECK DAM IN AREAS OF CONCENTRATED FLOW, TO INTERCEPT SEDIMENT-LADEN RUNOFF, DETAIN THE SEDIMENT AND RELEASE THE WATER IN SHEET FLOW. THE ROCK BERM SHOULD BE USED WHEN THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES. ROCK BERMS ARE USED IN AREAS WHERE THE 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 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.

ROCK BERM 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 BRINDLE HARDNESS EXCEEDING 140.

3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.

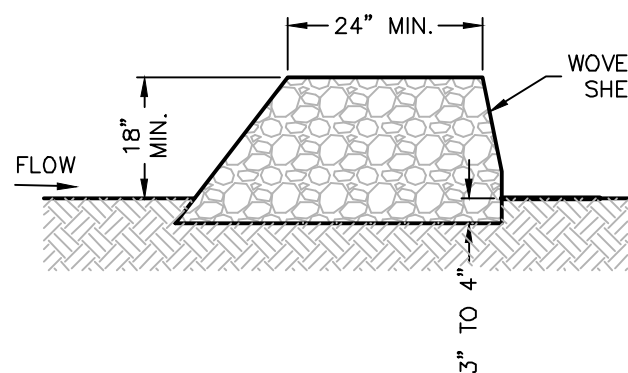
INSTALLATION

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 1/4 ACRE/100 FEET OF FENCE.

SILT FENCE DETAIL

NOT-TO-SCALE



SECTION "A-A"

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 SHOOT RINGS.

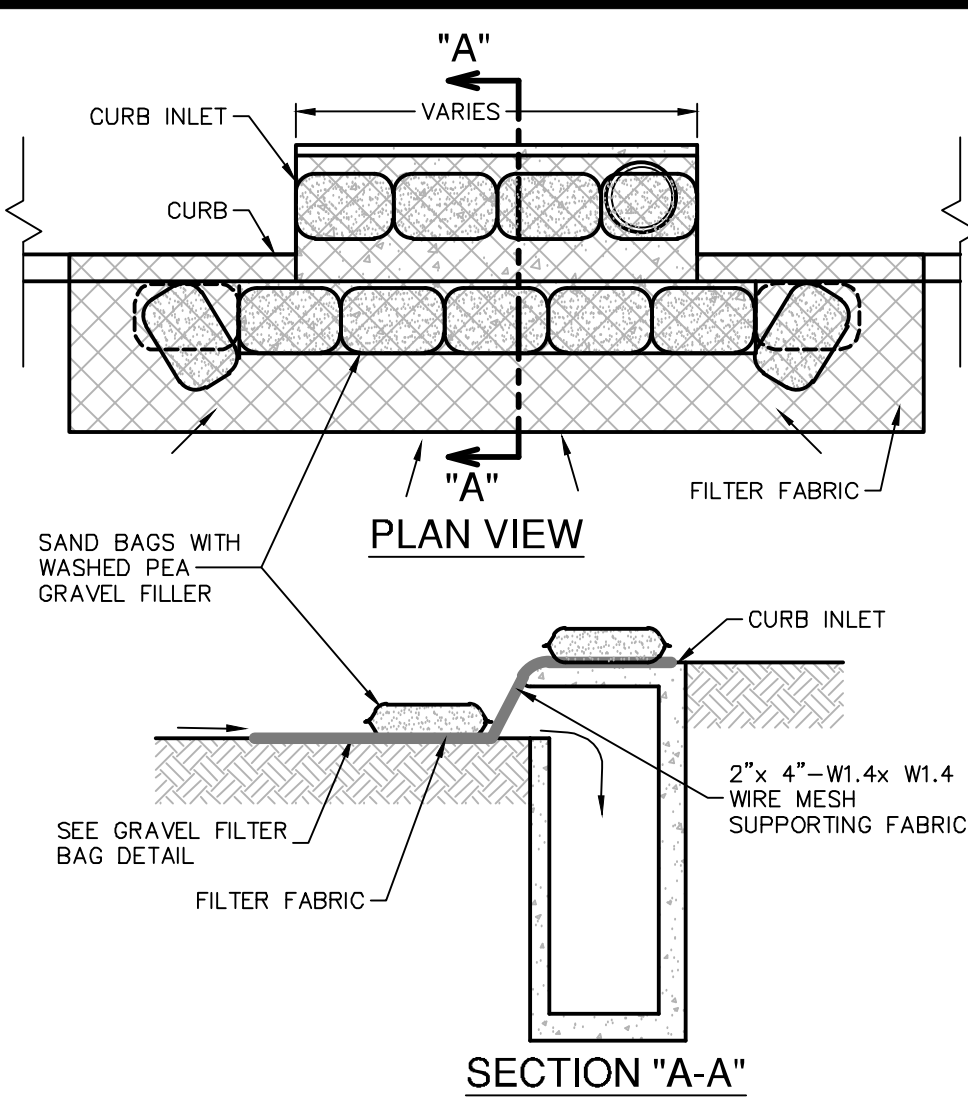
2. CLEAN, OPEN GRADED 3-INCH TO 5-INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5-INCH TO 8-INCH DIAMETER ROCKS MAY BE USED.

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).



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 CUTTER AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SAND BAGS TO BE STACKED TO FORM A CONTINUOUS BARRIER AROUND INLETS.

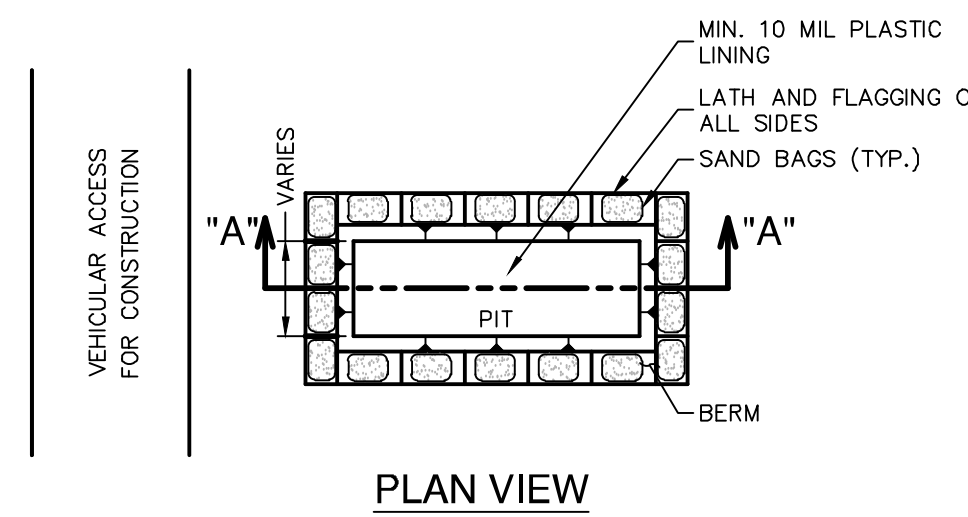
2. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.

INSPECTION AND MAINTENANCE GUIDELINES

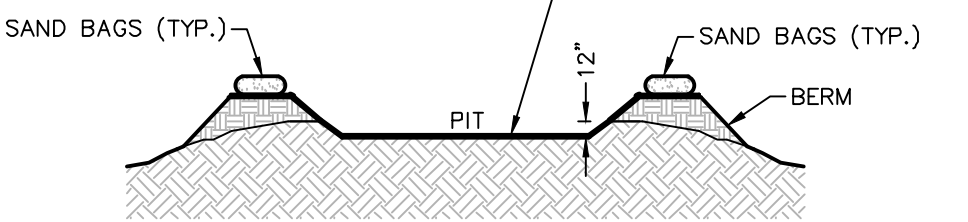
1. INSPECTION SHOULD BE MADE WEEKLY. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
2. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
3. CHECK PLACEMENT OF DEVICE 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

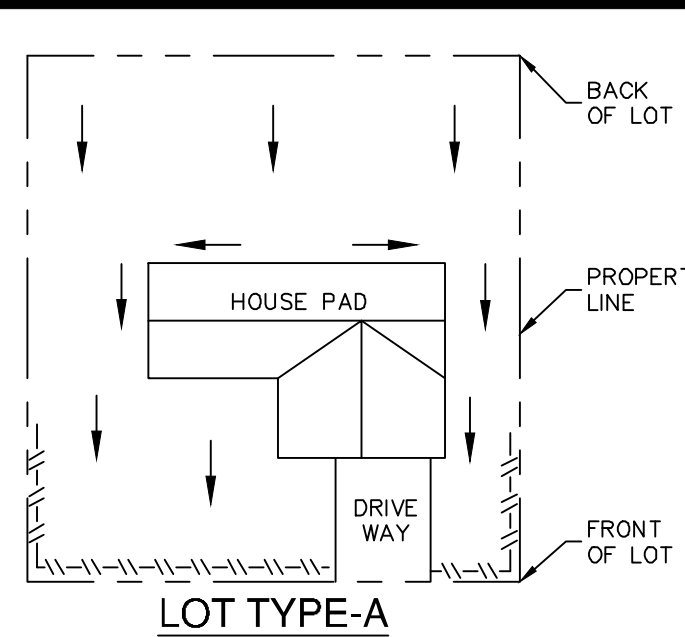
PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

MAINTENANCE

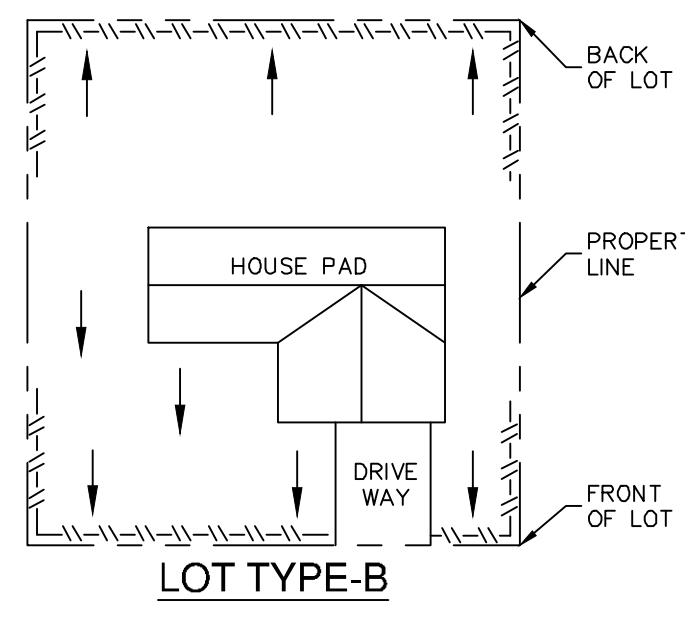
1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF.
2. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.
3. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

CONCRETE TRUCK WASHOUT PIT DETAIL

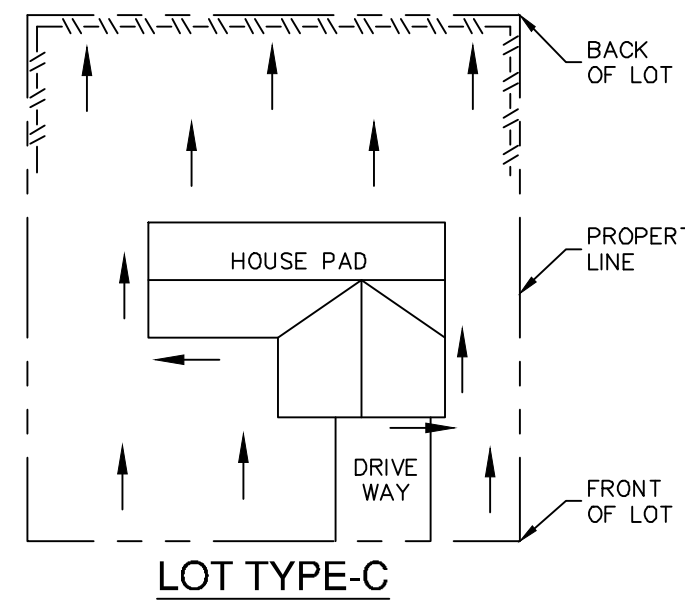
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LOT TYPE-A



LOT TYPE-B



LOT TYPE-C

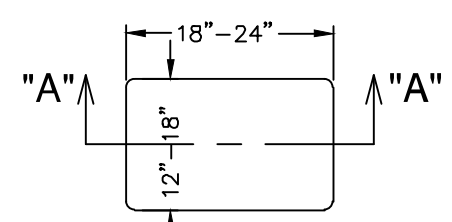
LEGEND

--- SILT FENCE DRAINAGE FLOW

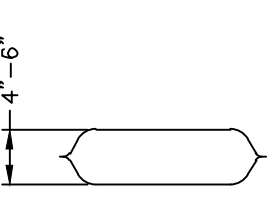
NOTE: SILT FENCE TO BE INSTALLED PER THESE DETAILS AND LOCATED ON THE DOWNGRADIENT SIDE OF EACH LOT LINE OR LIMITS OF CLEARING AS GENERALLY SHOWN ON THE OVERALL SITE PLAN.

TYPICAL HOUSE LOT LAYOUTS

NOT-TO-SCALE



PLAN VIEW

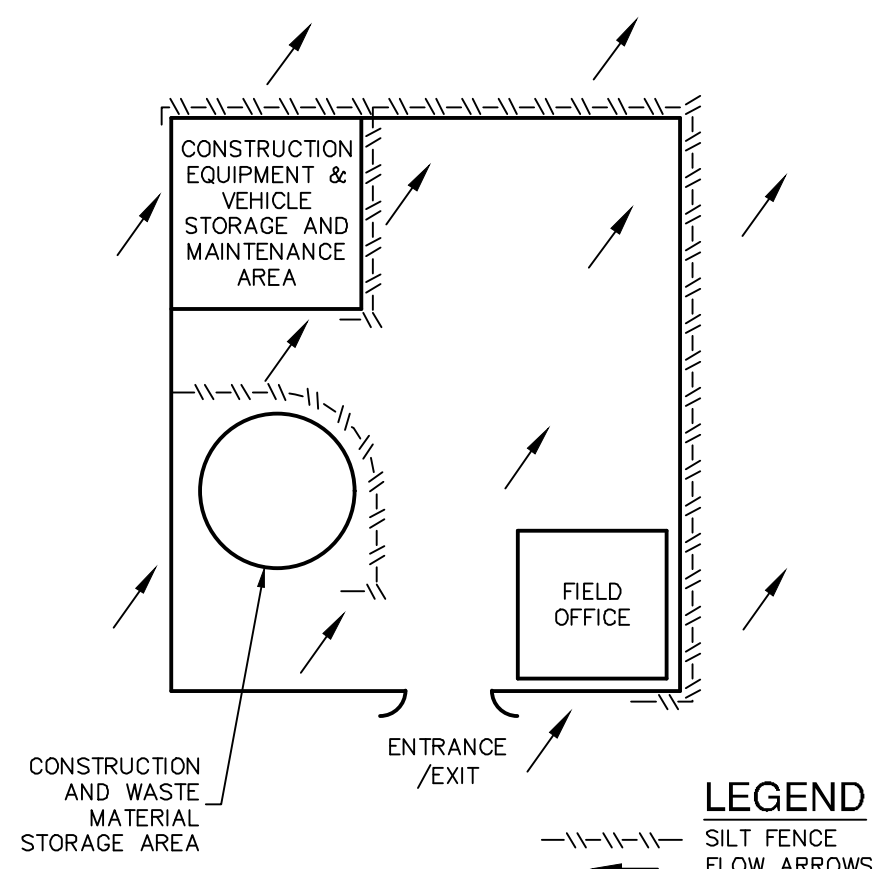


SECTION "A-A"

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



LEGEND

--- SILT FENCE FLOW ARROWS

CONSTRUCTION STAGING AREA

NOT-TO-SCALE

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 1 OF 1

DATE	
NO.	
REVISION	



PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 HW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

ESPADA TRACT UNIT 1 SAN ANTONIO, TEXAS STORM WATER POLLUTION PREVENTION DETAILS

PLAT NO.	23-11800229
JOB NO.	12632-12
DATE	JULY 2023
DRAWN	JG
CHECKED	DW
DRAWN	TC
SHEET	C8.01