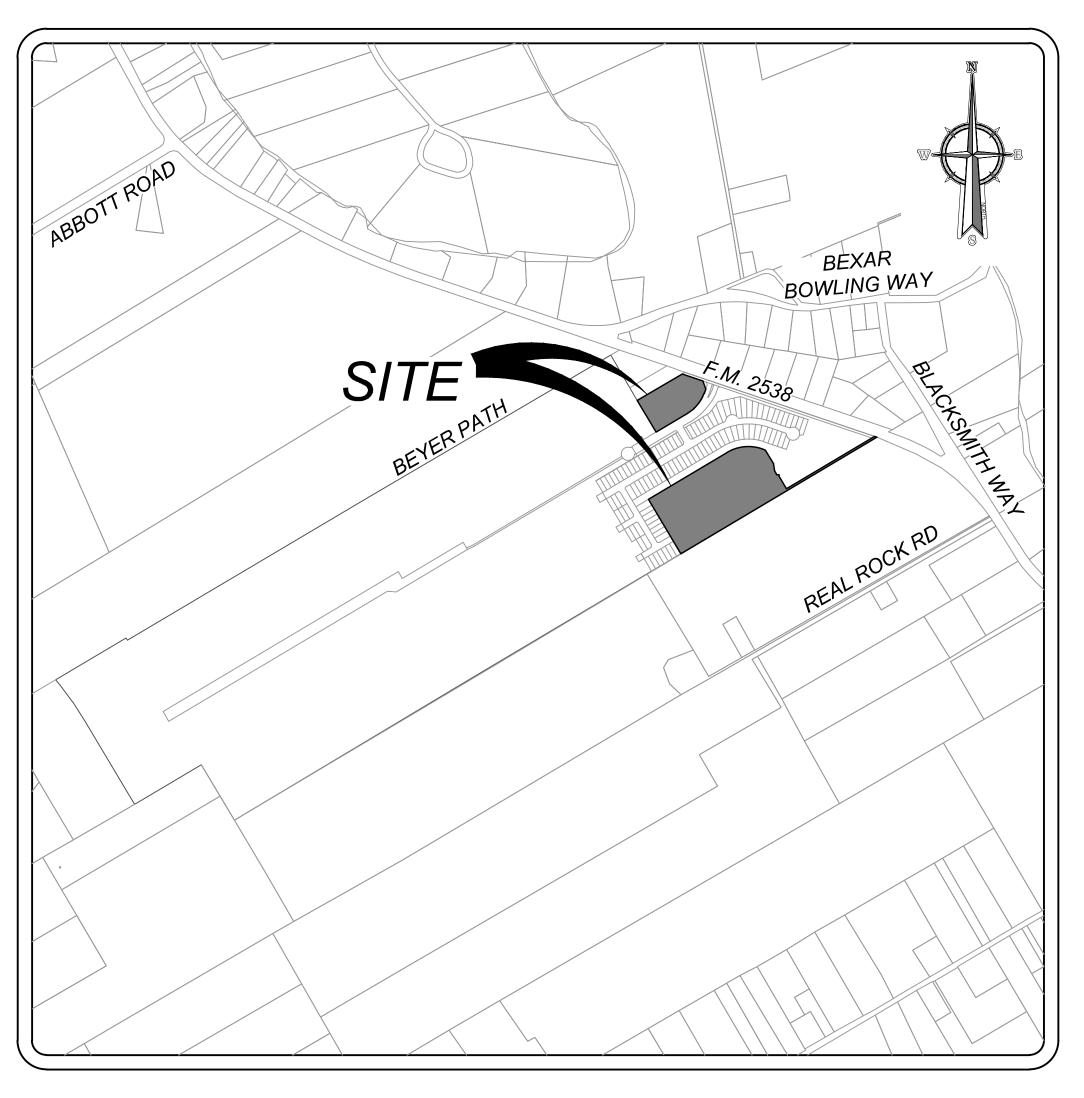
CLEARWATER CREEK PHASE 2 & 9

BEXAR COUNTY, TEXAS

STREET, DRAINAGE, WATER, SANITARY SEWER & UTILITY IMPROVEMENTS



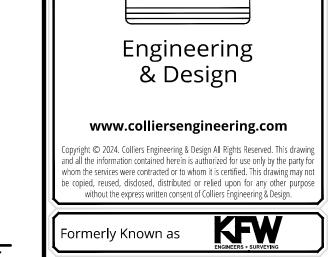
LOCATION MAP

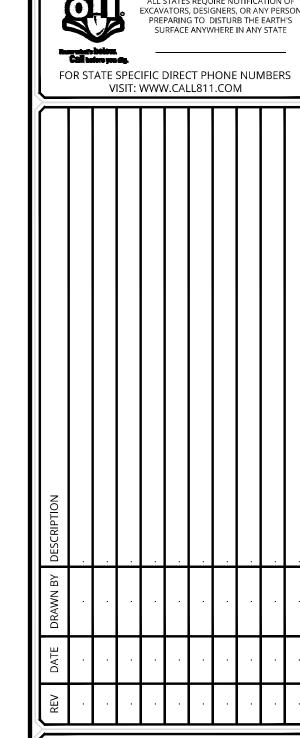
N.T.S.

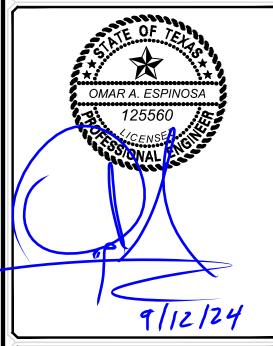
OWNER/DEVELOPER: LENNAR HOMES OF TEXAS LAND & CONSTRUCTION, LTD. 100 NE LOOP 410, SUITE 1155 SAN ANTONIO, TEXAS 78216 PHONE: (210) 403-6282

INDEX

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DESCRIPTION	NO.
COVER SHEET	0.0
OVERALL UTILITY PLAN (1 OF 2)	1.0
OVERALL UTILITY PLAN (2 OF 2)	1.1
MASTER DRAINAGE PLAN (1 OF 2)	2.0
MASTER DRAINAGE PLAN (2 OF 2)	2.1
OVERALL GRADING PLAN (1 OF 2)	3.0
OVERALL GRADING PLAN (1 OF 2)	3.1
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DRAIN "B" PLAN & PROFILE	- <u>- </u>
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	-
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	- 7.0
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	$-\frac{6.6}{6.7}$ — -
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CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

> **BEXAR COUNTY TEXAS**

SAN ANTONIO (KFW)

COVER SHEET

RENCH EXCAVATION SAFETY PROTECTION

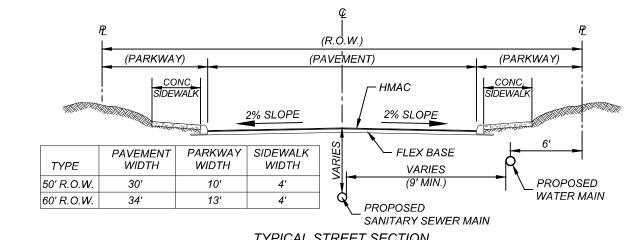
ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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

COMPACTION NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTRATOR, PER EACH 12 INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. PERMITS AND/OR WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

DRY UTILITY CONDUIT NOTE:

CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY



UNPLATTED 1.145 ACRES (DOCUMENT NUMBER 20210018781 O.P.R.) OWNER: RENSHAW ELLIOTT & KELSEY BLOCK 5 C.B. 4022 DEDICATION DRAIN "E" SEE SHEETS 4.4-4.5 SEWER / WATER CROSSING LOT 902\ REFERENCE THIS SHEET FOR DETAIL 19' P.D.E 🚄 14' E.G.T.TV.E V.W.C.V.E 10' E.G.T.TV.E _ _ _ _ _ _ _ _ 10' E.G.T.TV.E V.W.C.V.E. 2 - 4" CONDUITS (FOR PRIVATE USE) hinspaceE12"W = E12"W LOT 903`\ CLEARWATER PL (VARIABLE WIDTH R.O.W.) en increase an experiención describir a partir a contrata de la contrata de la contrata de la contrata de la c

1' V.N.A.E J

BLOCK/1 C.B.4019

CLEARWATER CREEK, PHASE 1A

(PLAT NUMBER 20-11800491)

LEGEND PROPOSED WATER MAIN PROPOSED WATER 3/4" IRRIGATION = ——*R** SERVICE & METER BOX PROPOSED FIRE HYDRANT PROPOSED WATER VALVE PROPOSED 100 WATT STREETLIGHT = 🌣 PROPOSED 250 WATT STREETLIGHT = **☆** PROPOSED SANITARY SEWER MAIN PROPOSED SANITARY SEWER MANHOLE PROPOSED SANITARY SEWER LATERAL ELECTRIC. GAS. TELEPHONE & CABLE TV EASEMENT = E.G.T.TV.E (PLAT# 24-11800030) VARIABLE WIDTH SANITARY SEWER = *V.W.S.S.E* EASEMENT (PLAT# 24-11800030) VARIABLE WIDTH CLEAR VISION = *V.W.C.V.E* EASEMENT (PLAT# 24-11800030) VEHICULAR NON ACCESS EASEMENT = V.N.A.E

= -----EW -

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(PLAT# 24-11800030) EXISTING WATER MAIN

EXISTING FIRE HYDRANT EXISTING WATER VALVE

EXISTING STREET LIGHT

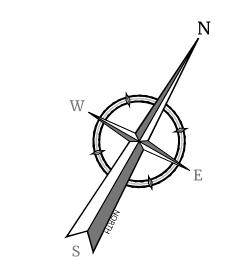
EXISTING SANITARY SEWER MAIN

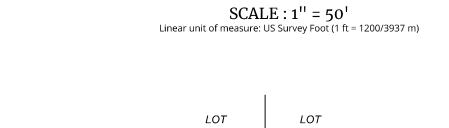
EXISTING SANITARY SEWER MANHOLE

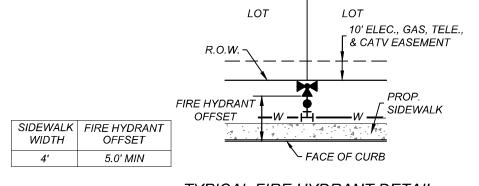
EXISTING OVERHEAD ELECTRIC W/POWER

EXISTING GUY WIRE/OVERHEAD ELECTRIC = ------OHE--

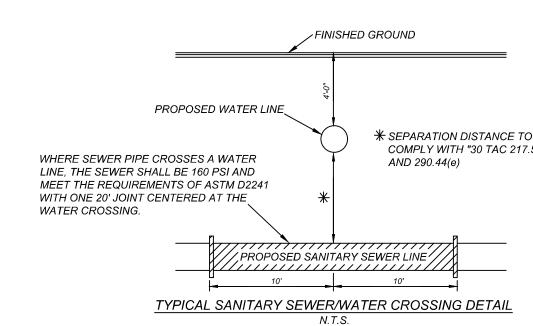


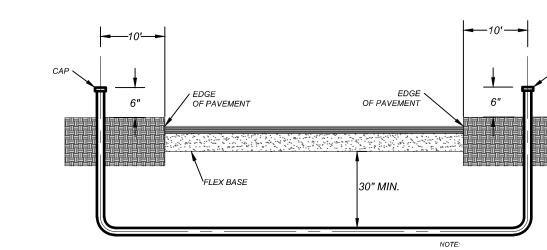






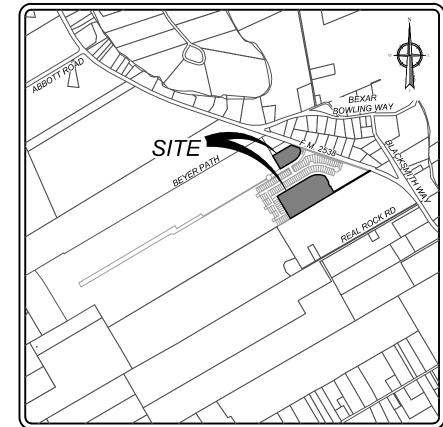
TYPICAL FIRE HYDRANT DETAIL NOT-TO-SCALE

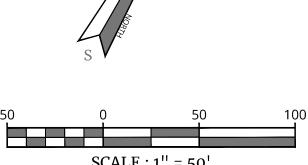


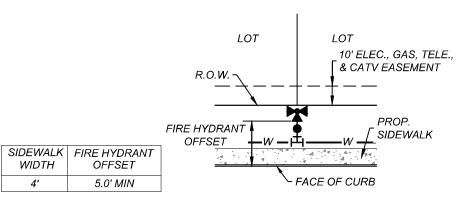


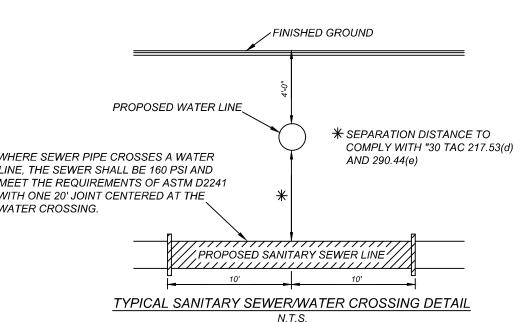
TYPICAL CONDUIT DETAIL NOT-TO-SCALE











CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

OMAR A. ESPINOSA

Colliers

Engineering

& Design

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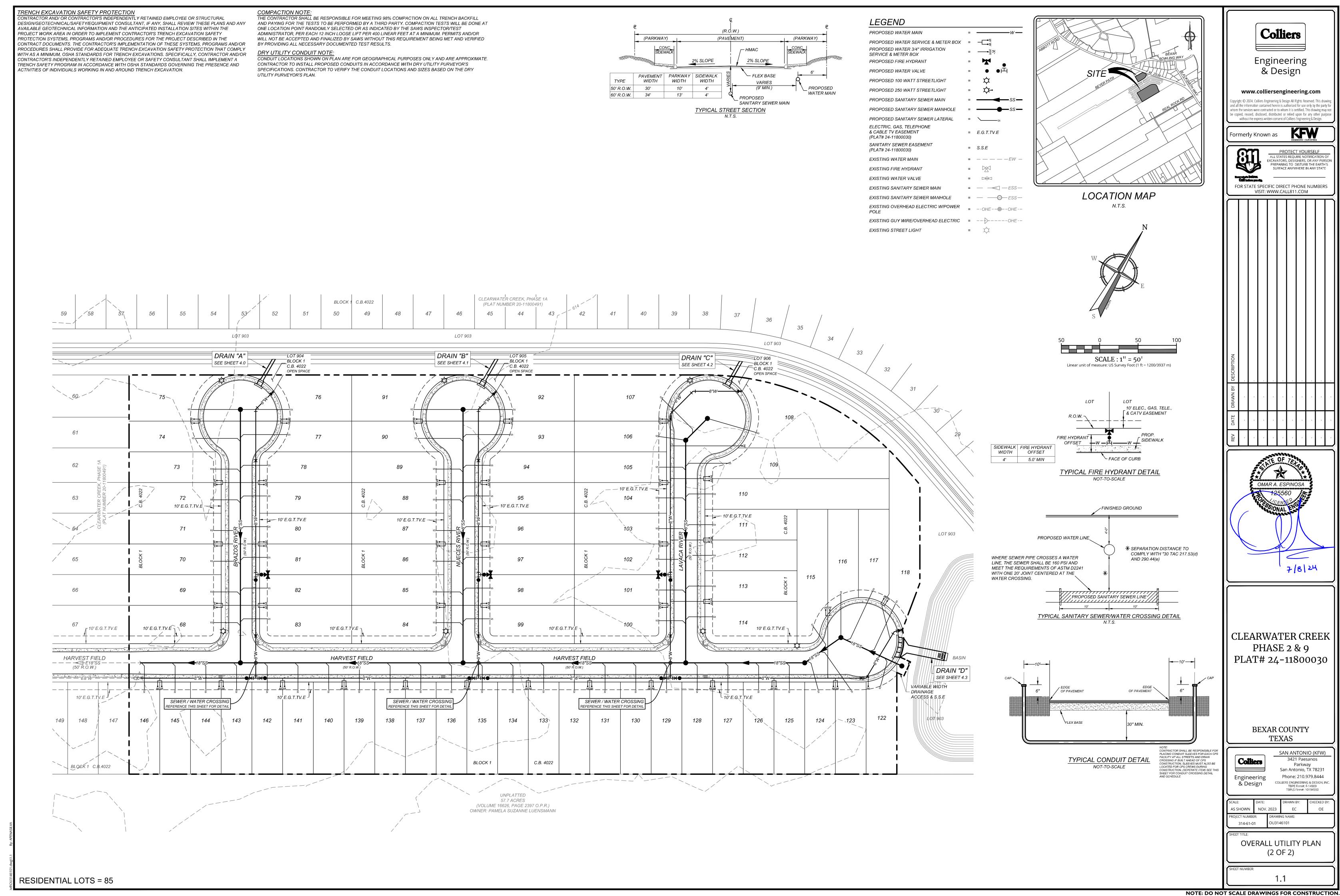


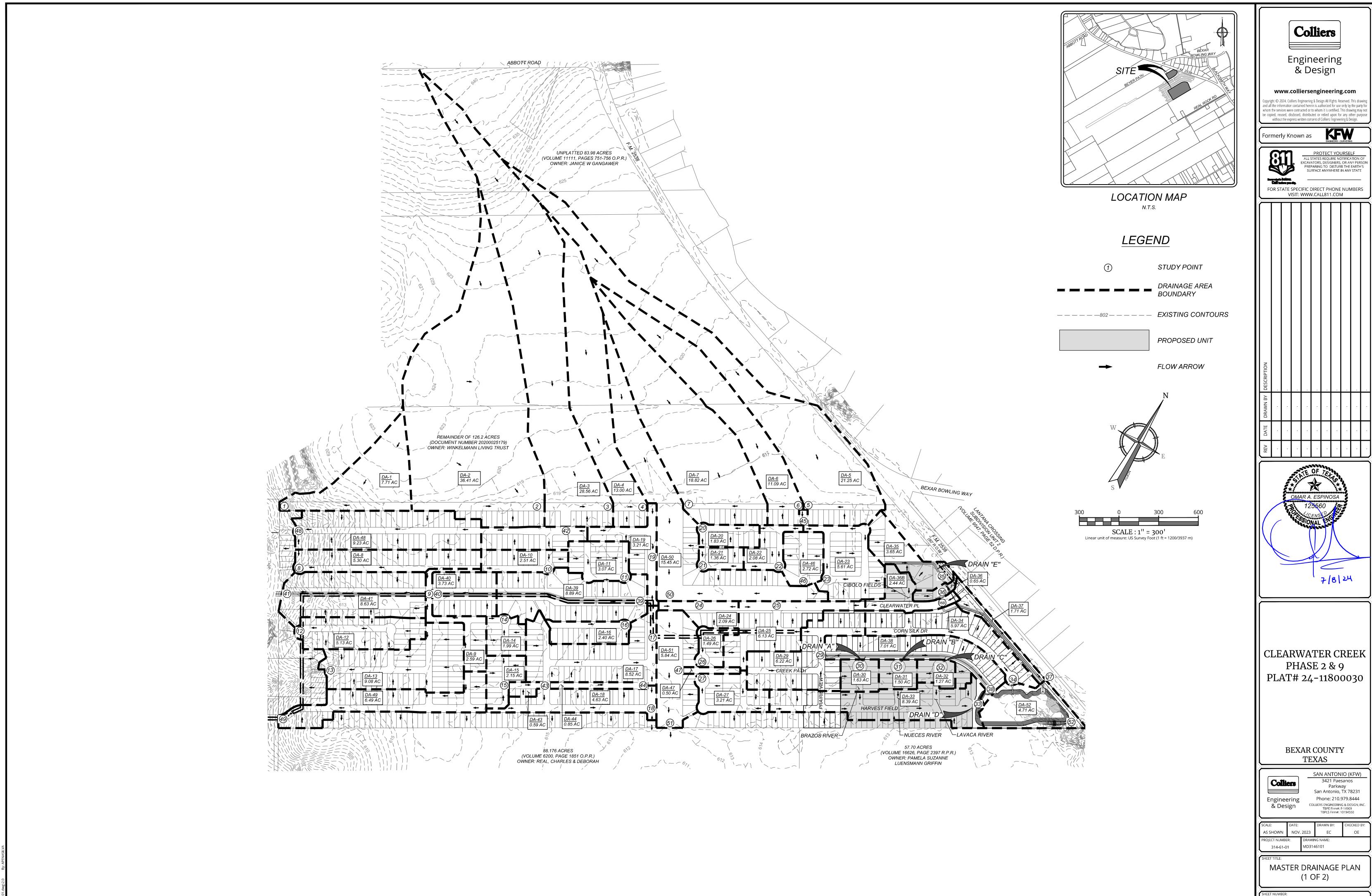
SAN ANTONIO (KFW) 3421 Paesanos Parkway San Antonio, TX 78231 Phone: 210.979.8444 Engineering COLLIERS ENGINEERING & DESIGN, INC TBPE Firm#: F-14909 TBPLS Firm#: 10194550 & Design

AS SHOWN OU3146101 314-61-01

OVERALL UTILITY PLAN

(1 OF 2)





RESIDENTIAL LOTS = 85

Study Point	AREA	(Acres)	С	T _{ovrl} (min)		T _{sc} (min)	T _{ch} (min)	I _{tot} (min)	1 ₅ (In/nr)	1 ₂₅ (1n/nr)	100 (111/111)	Q ₅ (11 / S)	Q_{25} (Tt /S)	Q ₁₀₀ (ft
1	A-1	7.71	0.67	14.00		7.00	1.00	22	4.33	5.98	7.41	22.32	30.80	38.19
2	A-2	36.41	0.68	11.00		8.00	4.00	23	4.23	5.84	7.24	104.42	144.09	178.5
3	A-3 + PT. 2 + PT. 42	67.95	0.68	14.00		8.00	8.00	30	3.70	5.10	6.31	171.11	235.85	291.9
	A-3	28.56	0.67		CARRYOVER.									
4	A-4+PT. 3	80.95	0.68	14.00	CARRYOVER FROM PT. 3	8.00	9.00	31	3.64	5.01	6.21	200.75	276.72	342.5
4	A-4+P1.5 A-4	13.00	0.69	14.00	FROIVIP1.5	8.00	9.00	31	3.04	5.01	0.21	200.73	2/0./2	542.5
5	A-4 A-5	21.25	0.68	13.00		8.00	8.00	29	3.76	5.19	6.42	54.32	74.88	92.7
6	A-6	11.09	0.67	14.00		8.00	4.00	26	3.98	5.49	6.80	29.50	40.68	50.3
7	A-7	18.82	0.69	14.00		8.00	4.00	26	3.98	5.49	6.80	51.32	70.76	87.6
8	A-8	5.30	0.77	11.00		3.00	3.00	17	4.94	6.84	8.50	20.16	27.91	34.6
9	A-9	2.59	0.77	5.00		3.00	1.00	9	6.54	9.17	11.49	13.05	18.28	22.9
10	A-10	2.51	0.77	11.00		3.00	0	14	5.47	7.60	9.48	10.57	14.69	18.3
11	A-11	3.07	0.77	11.00		4.00	0	15	5.28	7.32	9.12	12.48	17.30	21.5
12	A-12	5.13	0.77	11.00		3.00	0	14	5.47	7.60	9.48	21.60	30.02	37.4
13	A-13	9.08	0.77	11.00		3.00	2.00	16	5.10	7.07	8.79	35.67	49.40	61.4
14	A-14	1.99	0.77	11.00		2.00	0	13	5.66	7.89	9.85	8.68	12.09	15.1
15	A-15	2.15	0.77	11.00		2.00	0	13	5.66	7.89	9.85	9.37	13.06	16.3
16	A-16	2.40	0.77	11.00		2.00	0	13	5.66	7.89	9.85	10.46	14.58	18.2
17	A-17	8.52	0.77	11.00		2.00	3.00	16	5.10	7.07	8.79	33.47	46.35	57.6
18	A-18	4.63	0.77	5.00		5.00	1.00	11	6.08	8.50	10.64	21.66	30.29	37.9
19	A-19	3.21	0.77	5.00		4.00	0	9	6.54	9.17	11.49	16.17	22.65	28.4
20 21	A-20 A-21	1.83 1.36	0.77 0.77	11.00 11.00		3.00 2.00	0	14 13	5.47 5.66	7.60 7.89	9.48 9.85	7.70 5.93	10.71 8.26	13.3 10.3
22	A-21 A-22	2.08	0.77	5.00		3.00	0	8	6.81	9.54	11.97	10.90	15.28	19.1
22	A-22 A-23	5.61	0.77	5.00		4.00	0	9	6.81	9.54	11.97	28.26	39.59	49.6
23	A-23 A-24	2.09	0.77	11.00		2.00	0	13	5.66	7.89	9.85	9.11	12.69	15.8
25	A-24 A-25	6.13	0.77	11.00		3.00	1	15	5.28	7.89	9.63	24.92	34.55	43.0
26	A-26	1.49	0.77	5.00		2.00	0	7	7.11	9.95	12.49	8.15	11.42	14.3
27	A-27	3.21	0.77	11.00		2.00	1.00	14	5.47	7.60	9.48	13.51	18.79	23.4
28	A-28	2.46	0.77	11.00		2.00	0	13	5.66	7.89	9.85	10.72	14.94	18.6
29	A-29	6.22	0.77	11.00		3.00	1	15	5.28	7.32	9.12	25.29	35.06	43.6
30	A-30	1.63	0.77	11.00		2.00	0	13	5.66	7.89	9.85	7.11	9.90	12.3
31	A-31	1.50	0.77	11.00		2.00	0	13	5.66	7.89	9.85	6.54	9.11	11.3
32	A-32	1.27	0.77	11.00		2.00	0	13	5.66	7.89	9.85	5.54	7.71	9.6
33	A-33	8.39	0.77	11.00		3.00	3.00	17	4.94	6.84	8.50	31.92	44.18	54.9
34	A-34	5.97	0.77	11.00		3.00	3.00	17	4.94	6.84	8.50	22.71	31.44	39.0
35	A-35	3.65	0.77	11.00		3.00	1.00	15	5.28	7.32	9.12	14.84	20.57	25.6
					CARRYOVER									
36	A-36 + PT. 35	4.30	0.77	11.00	FROM PT. 35	3.00	0.00	14	5.47	7.60	9.48	18.10	25.17	31.3
	A-36	0.65	0.77	11.00		7.00	0.00	10	4.00	6.60	0.04	0.01	10.10	15.4
36B	PT. 36B	2.44	0.77	11.00	CARRYOVER	7.00	0.00	18	4.80	6.63	8.24	9.01	12.46	15.4
27	A 27 - DT 26 - DT 26 D	0.45	0.77	10.00	CARRYOVER	2.00	4.00	17	4.04	C 04	0.50	22.45	44.40	FF 3
37	A-37 + PT. 36+PT. 36B A-37	8.45 1.71	0.77 0.77	10.00	FROM PT. 36	3.00	4.00	17	4.94	6.84	8.50	32.15	44.49	55.3
	A-38 + PT. 29 + PT.	1./1	0.77		CARRYOVER									
38	30 + PT. 31 + PT. 32	17.63	0.77	15.00	FROM PT. 29	4.00	4.00	23	4.23	5.84	7.24	57.46	79.29	98.2
	A-38	7.01												
	A-39 + PT. 10 + PT.				CARRYOVER									
39	11 + PT. 14 + PT. 16	18.86	0.77	10.00	FROM PT. 14	2.00	3.00	15	5.28	7.32	9.12	76.68	106.30	132.3
	A-39	8.89	0.77											
40	A-40	3.73	0.77	11.00		0	1.00	12	5.86	8.19	10.24	16.84	23.51	29.4
					CARRYOVER									
41	A-41 + PT. 9 + PT. 40	14.95	0.77	5.00	FROM PT. 9	3.00	3.00	11	6.08	8.50	10.64	69.94	97.79	122.4
	A-41	8.63	0.77											
42	A-42	2.98	0.77	11.00		4.00	0.00	15	5.28	7.32	9.12	12.12	16.80	20.9
					CARRYOVER									
43	A-43 + PT. 15	2.74	0.77	10.00	FROM PT. 15	2.00	1.00	13	5.66	7.89	9.85	11.95	16.64	20.7
	A-43	0.59	0.77		0.1.00.1.00.1.00									-
4.4	A 44 - DT 42	2.50	0.77	10.00	CARRYOVER	2.00	2.00	15	F 20	7 22	0.12	14.60	20.22	25.3
44	A-44 + PT. 43 A-44	3.59 0.85	0.77 0.77	10.00	FROM PT. 43	2.00	3.00	15	5.28	7.32	9.12	14.60	20.23	25.2
	A-44	0.85	0.77		CARRYOVER									
45	A-45 + PT. 5 + PT. 6	32.52	0.68	12.00	FROM PT. 5	8.00	9.00	29	3.76	5.19	6.42	82.84	114.19	141.3
7.7	A-45	0.18	0.77	12.00	11(01011 1.5	0.00	3.00	2.7	3.70	9.19	0.42	02.04	114.15	171.
	77 13	0.10	0.77		CARRYOVER									<u> </u>
46	A-46 + PT. 45	35.24	0.68	12.00	FROM PT. 45	8.00	10.00	30	3.70	5.10	6.31	89.11	122.83	152.0
<u> </u>	A-46	2.72	0.77			1			-					
	A-47 + PT. 26 + PT.				CARRYOVER									
47	27 + PT. 28	7.66	0.77	10.00	FROM PT. 28	2.00	1.00	13	5.66	7.89	9.85	33.40	46.53	58.1
	A-47	0.50	0.77											
48	A-48	9.23	0.77	11.00		3.00	3.00	17	4.94	6.84	8.50	35.12	48.60	60.4
49	A-49	6.49	0.77	11.00		4.00	3.00	18	4.80	6.63	8.24	23.97	33.15	41.1
	A-50 + PT. 4 + PT. 7 + PT. 19 + PT. 20 + PT. 21 + PT. 22 + PT. 23 +													
	PT. 24 + PT. 25 + PT.													
50	39 + PT. 46	191.63	0.70				HYDROGRA	АРН						
	A-50	15.45	0.77				5110011					<u>i</u>	<u>i</u>	1
	A-51 + PT. 17 + PT.	_0.10	Ų.,,,											
	18 + PT. 44 + PT. 47 +													
51	PT. 50	221.87	0.71				HYDROGRA	APH						
	A-51	5.84	0.77									1	1	
	A-52 + PT. 33 + PT.		· · · · · · · · · · · · · · · · · · ·											
	A 32 11 1. 33 11 1. 1											1	1	
52	34 + PT. 37 + PT. 38	45.15	0.77				HYDROGR	APH						



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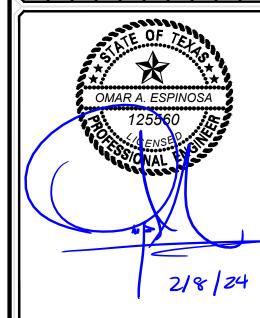
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PRELIMINARY

FOR
CLEARWATER CREEK
PHASE 2 & 9
PLAT# 24-11800030

BEXAR COUNTY TEXAS

ColliersEngineering & Design

SAN ANTONIO (KFW)

3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444

COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

AS SHOWN NOV. 2023 EC

PROJECT NUMBER: DRAWING NAME:

314-61-01 MD3146101

MASTER DRAINAGE PLAN (2

SHEET NUMBER:

GENERAL NOTES:

- 1. ELEVATION SHOWN ON FOUNDATION IS FOR FINISHED FLOOR.
- 2. CONTRACTOR SHALL PROVIDE OWNER ALL NECESSARY DENSITY TESTS FOR FILL LOTS AS REQUIRED BY HUD SPECIFICATIONS.
- 3. HOME BUILDER SHALL REFER TO THE APPROVED SUBDIVISION PLAT TO CONFIRM ALL BUILDING SETBACKS PRIOR TO ANY FOUNDATION WORK.
- 4. AS SOON AS PRACTICAL HOME BUILDER SHALL ESTABLISH VEGETATION (HYDROMULCH, SEEDING, SODDING, ETC...) TO PREVENT EROSION FROM OCCURRING.
- 5. CONTRACTOR SHALL CONTACT ENGINEER REGARDING ANY QUESTIONS ON THE INTENT OF THIS PLAN.
- 6. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS AND TOWARDS THE PROPER DRAINAGE EASEMENT OR STREET RIGHT OF WAY ACCORDING TO THE MASTER DRAINAGE PLAN FOR THE PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW PONDING OF
- 7. ALL ELEVATIONS AND CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVEMENT, CURBS, AND SIDEWALKS MUST BE SUBTRACTED TO OBTAIN SUBGRADE
- 8. GRADING PLAN IS INTENDED FOR USE IN LOT GRADING ONLY. CONTRACTOR SHOULD REFER TO CONSTRUCTION DRAWINGS FOR ALL OTHER GRADES, INCLUDING, BUT NOT LIMITED TO, CHANNELS, ROADS, AND DETENTION PONDS.
- 9. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ALL SWALES.

LEGEND

E. G. T. & TV. E. GAS, ELECTRIC, TELEPHONE, CABLE T.V. EASEMENT

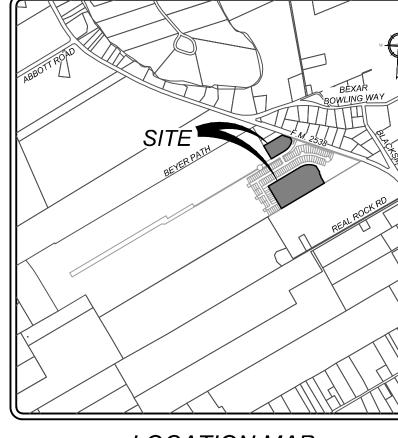


FLOW ARROW

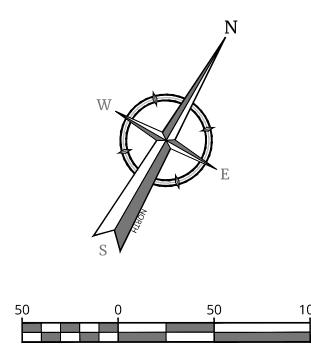


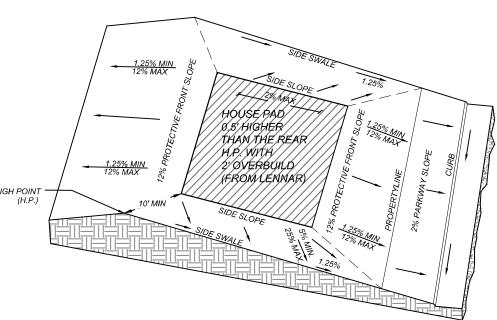
LOT GRADE TYPE PROPOSED DRIVEWAY LOCATION

HIGH POINT

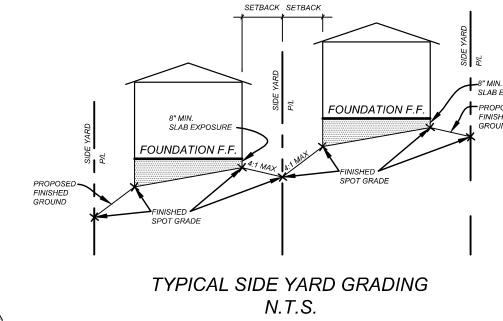


LOCATION MAP

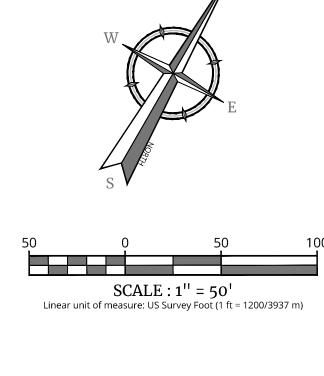


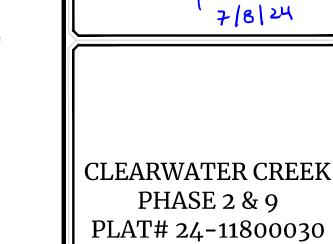


TYPE 'B' LOT GRADING



HOUSE PAD 0.5' HIGHER H.P.WITH 2'OVÉRBUILD (FROM LENNAR)





BEXAR COUNTY **TEXAS**

OMAR A. ESPINOSA

Colliers

Engineering

& Design

www.colliersengineering.com

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Formerly Known as

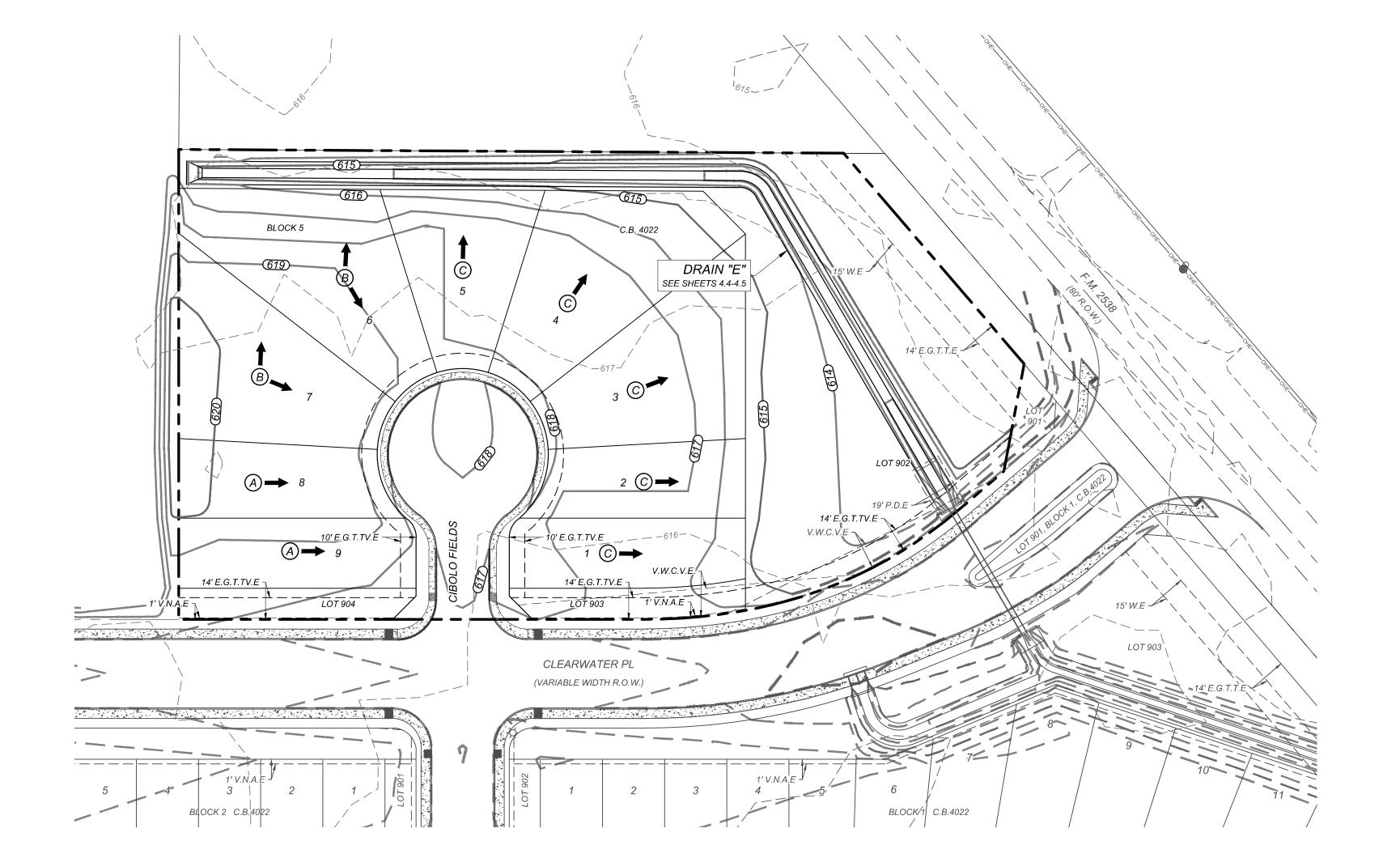
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OVERALL GRADING PLAN (1 OF 2)

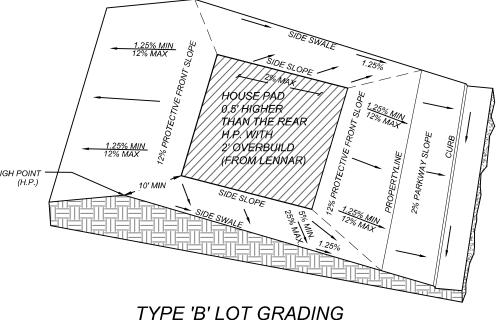
RESIDENTIAL LOTS = 85

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

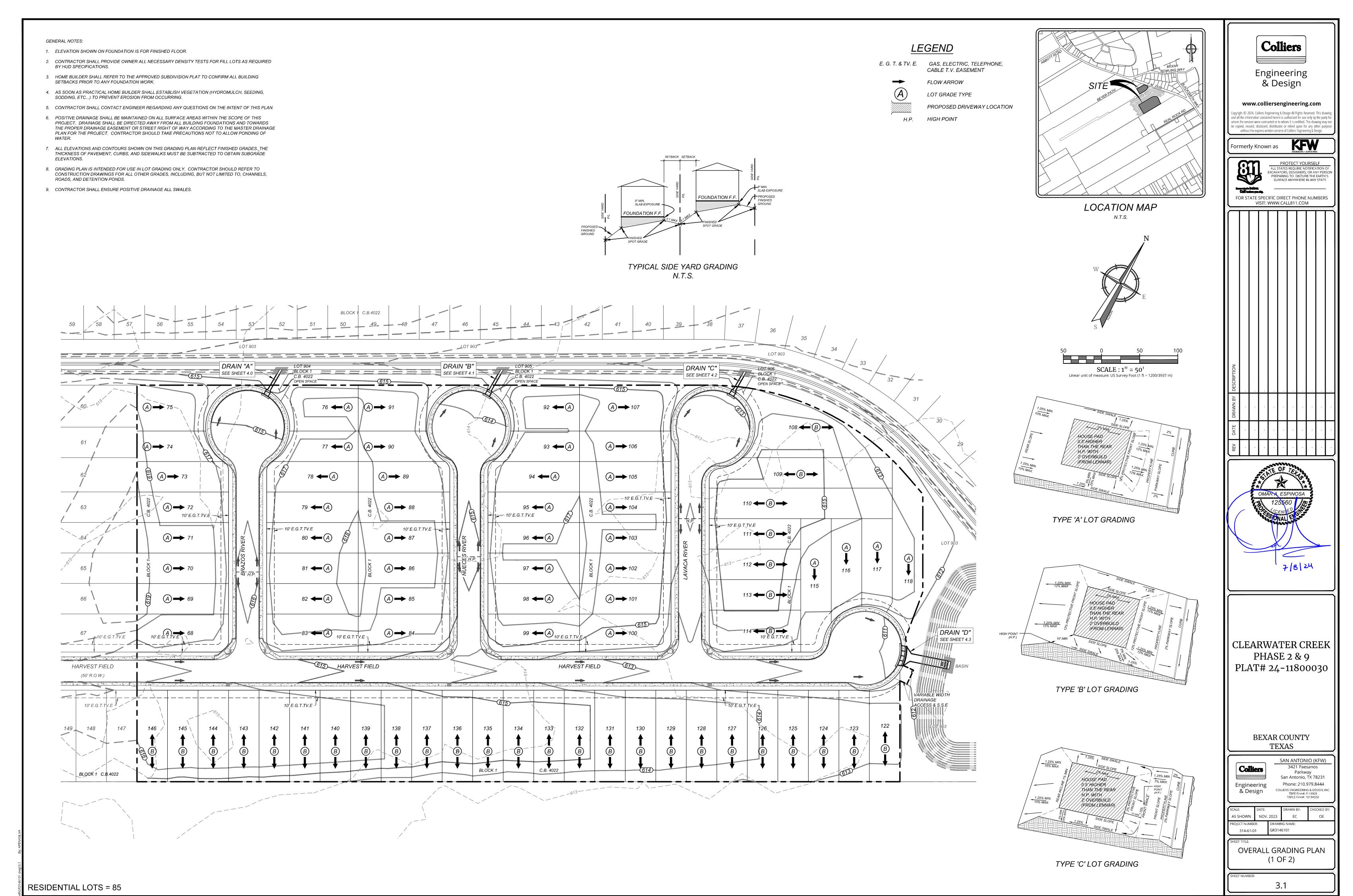


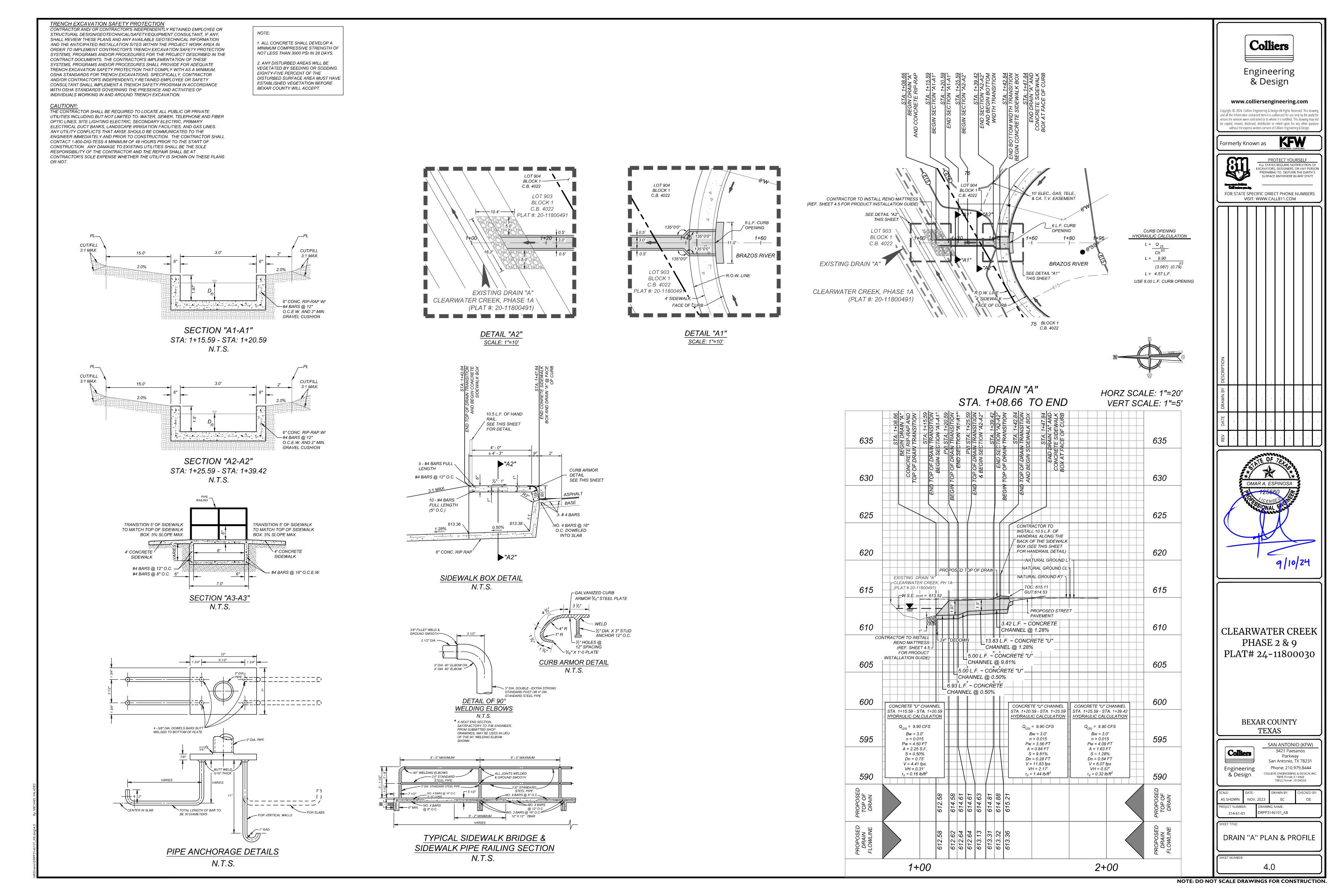
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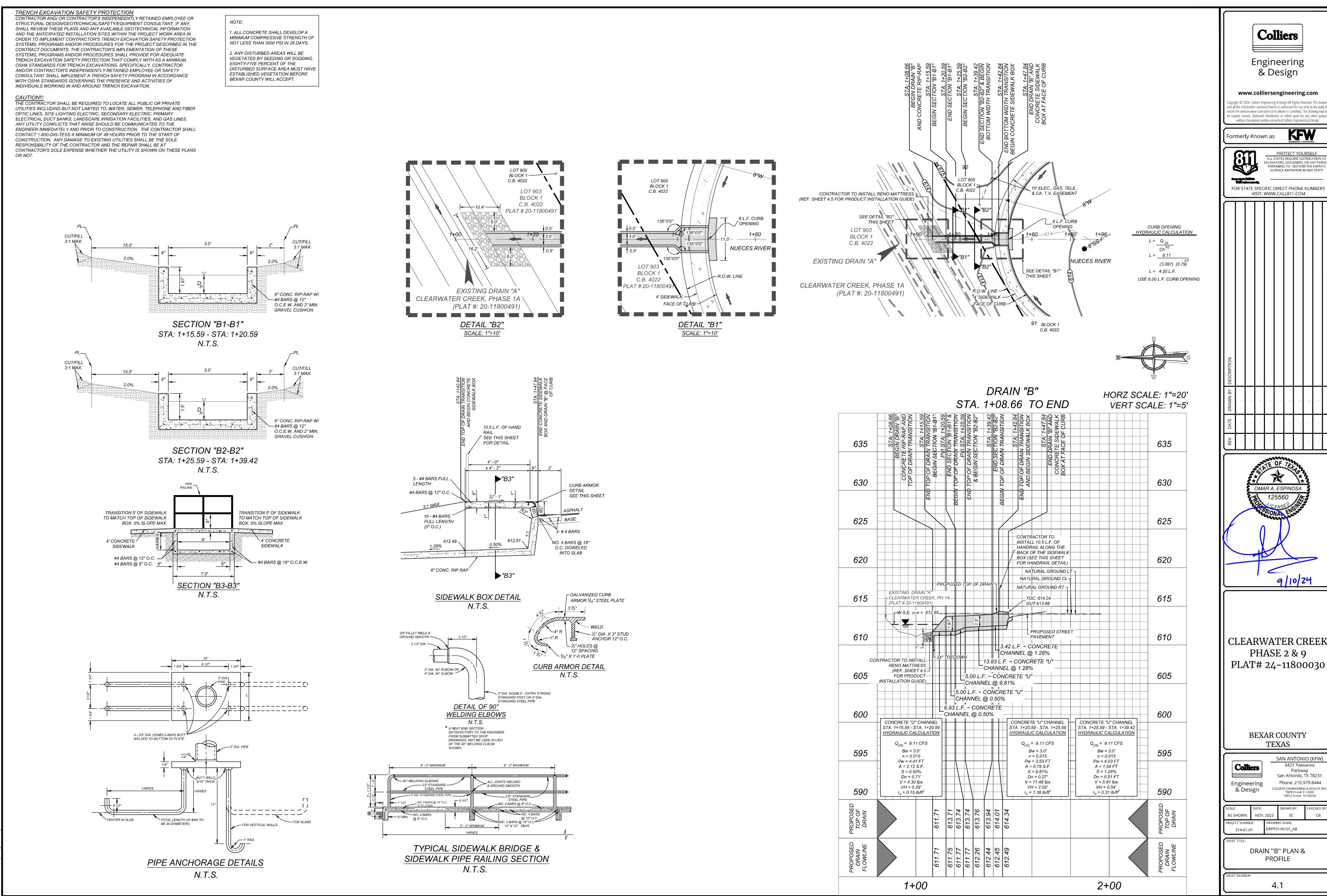
TYPE 'A' LOT GRADING



TYPE 'C' LOT GRADING

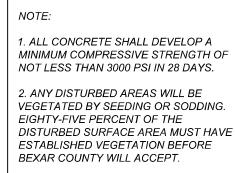




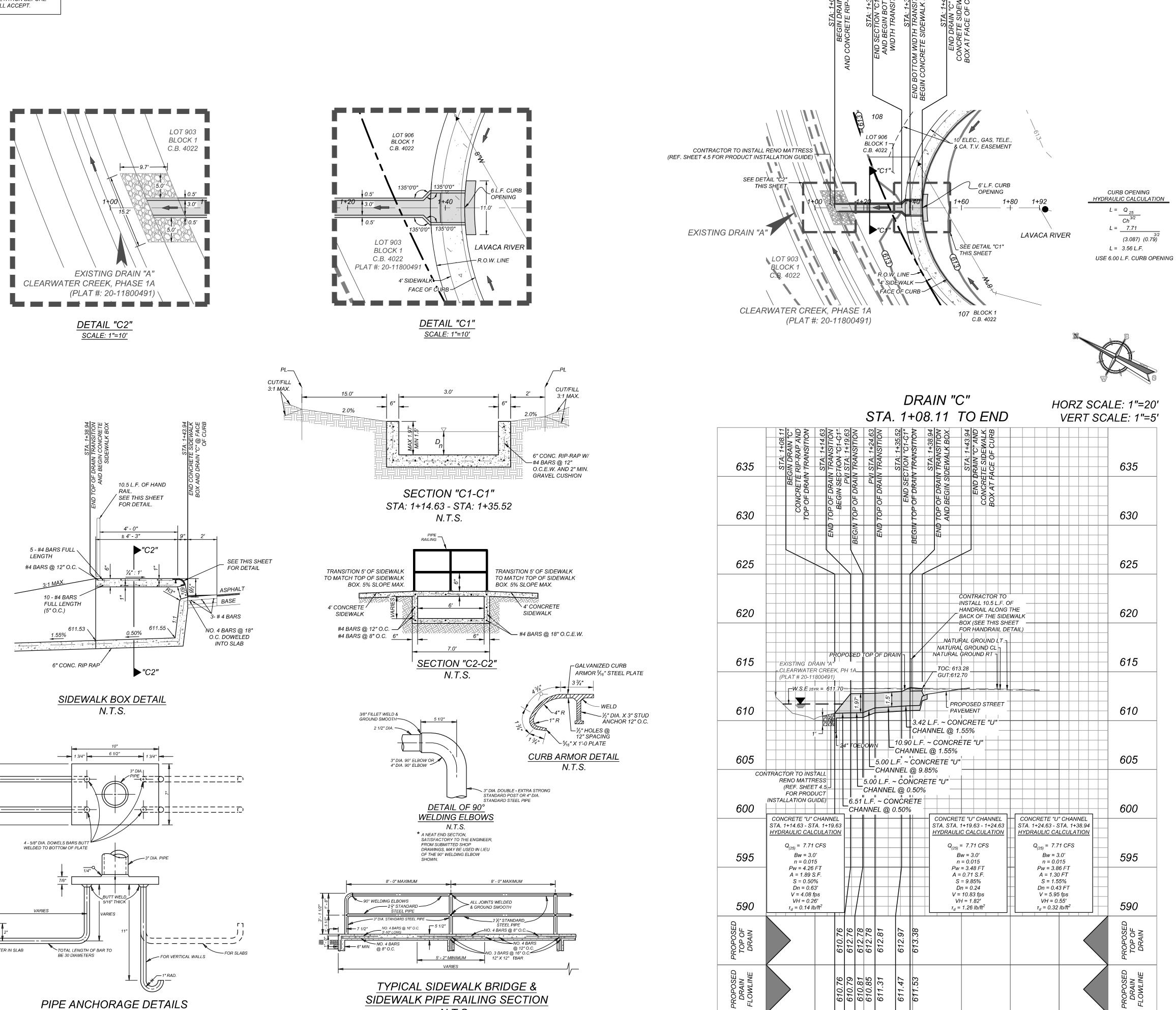


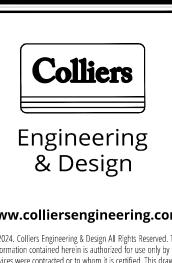
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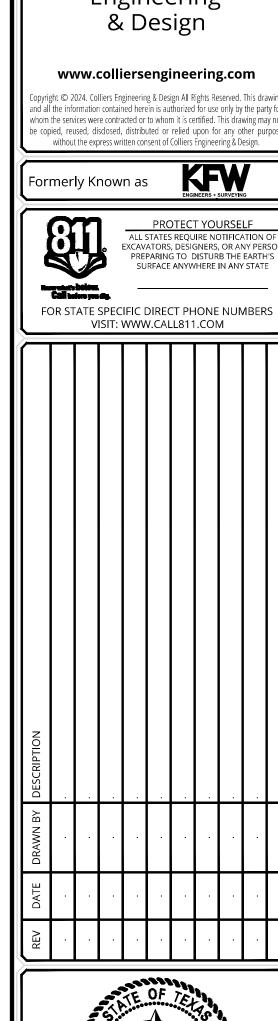
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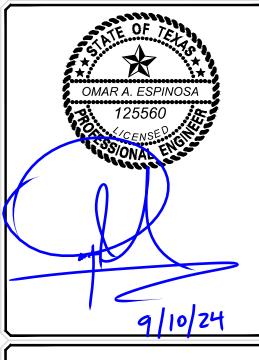


N.T.S.









CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

> BEXAR COUNTY **TEXAS**

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Engineering & Design		Phone: 210.979.84				
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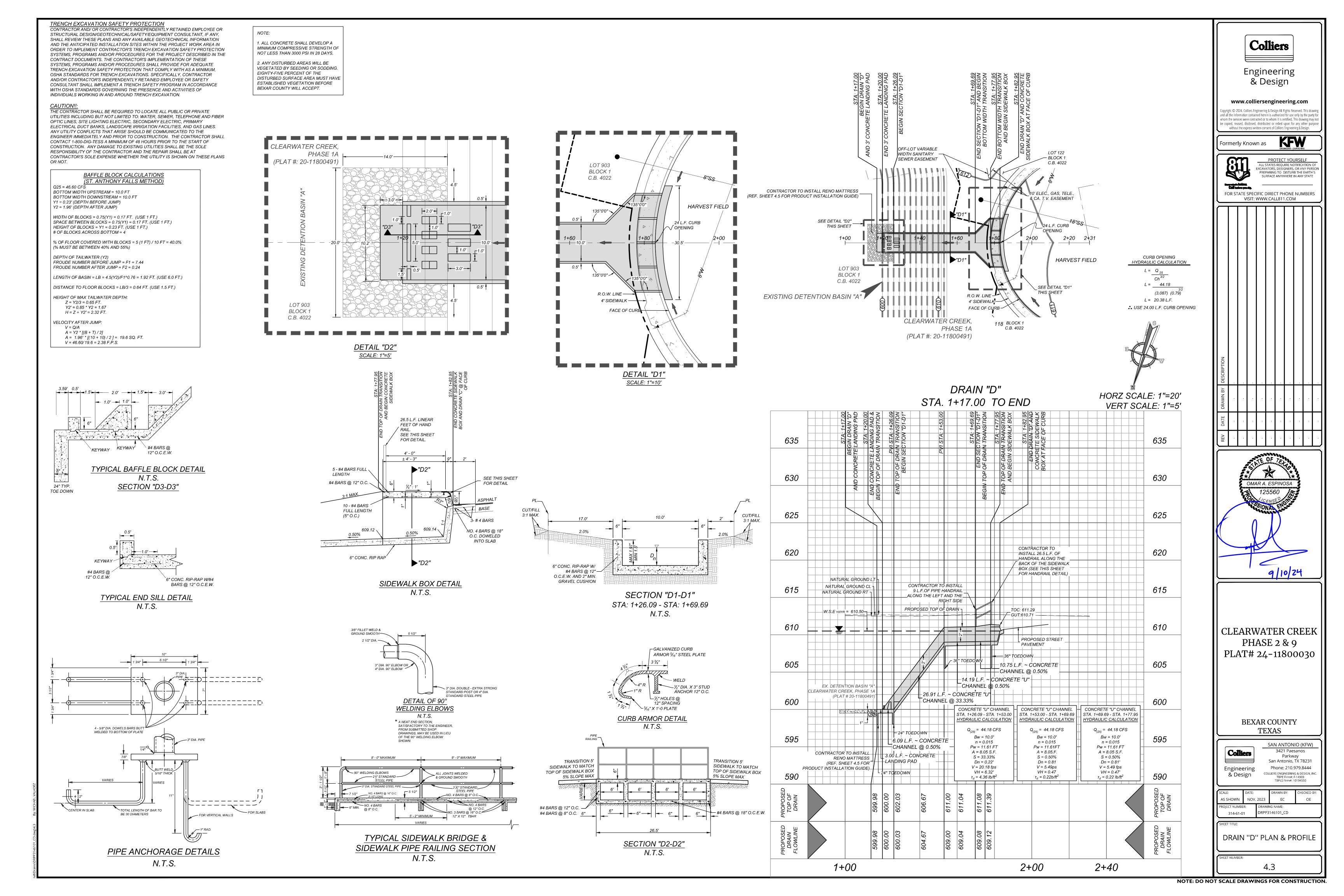
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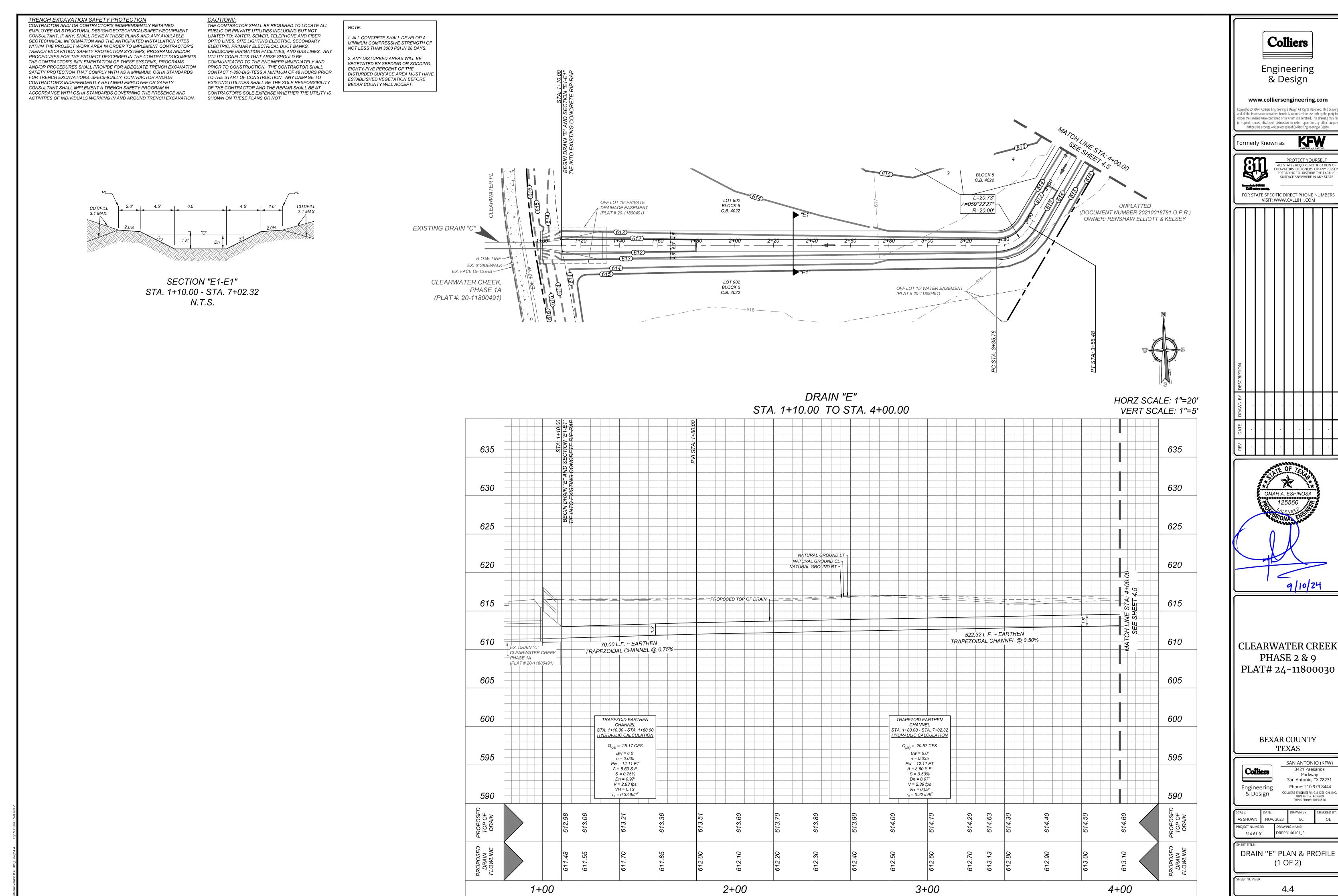
DRAIN "C" PLAN & PROFILE

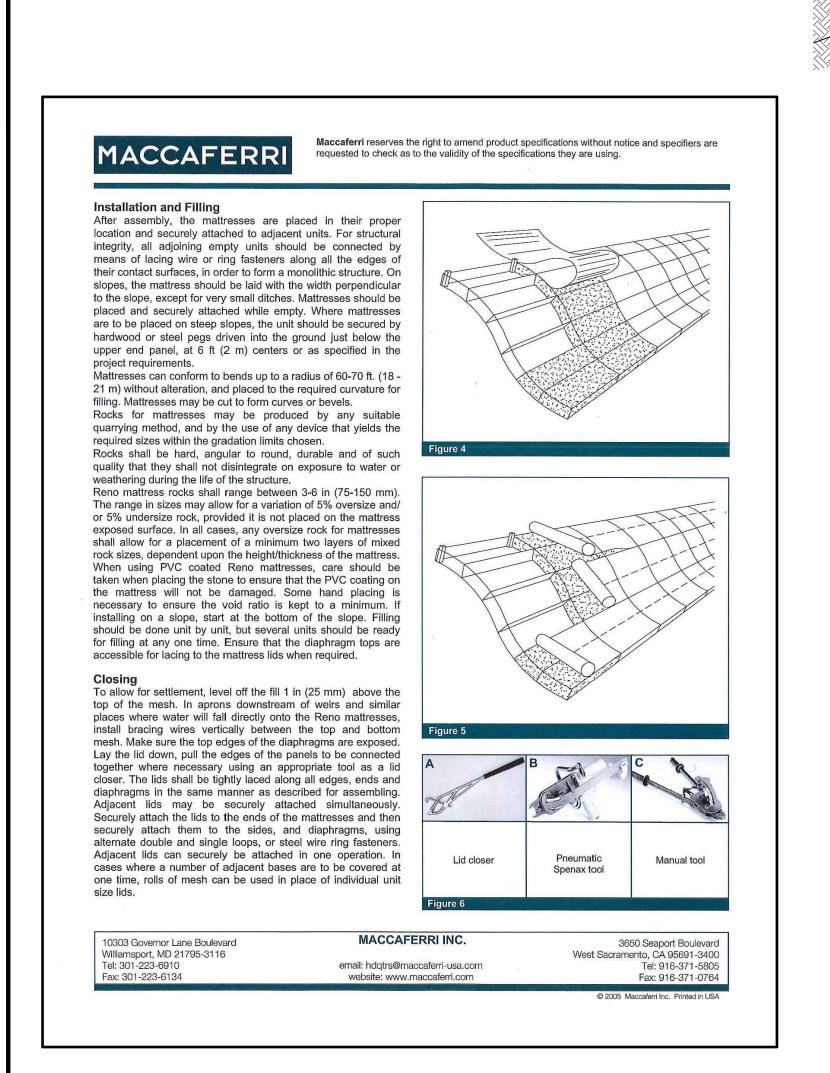
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

2+00

1+00









PRODUCT INSTALLATION GUIDE Rev: 01, Issue Date 04.01.2005

RENO MATTRESS

Material Delivery

Reno mattresses are manufactured with all components mechanically connected at the production facility with the exception of the lid, which is produced separately from the base. All Reno mattresses are supplied in a collapsed form, either folded and bundled or rolled, for shipping. The bundles are banded together at the factory for shipping and handling. Reno mattress bases and lids may be packed in separate bundles. Lacing wire is shipped in coils. Ring fasteners are shipped in boxes. All Reno mattresses are labelled to show their dimensions and the number of pieces per bundle.

The folded units shall be taken out from the bundle and placed on a hard flat surface. Reno mattresses shall be opened, unfolded, and pressed out to their original shape. Front, back and end panels shall be lifted to a vertical position to form an open box shape. End flaps shall be folded and/or overlapped, as appropriate. All edges of the diaphragms and end panels shall be tied or fastened to the front and back of the mattress. The mattresses should be assembled individually, by erecting the sides, ends and diaphragms, ensuring that all creases are in the correct position and the tops of all sides are level.

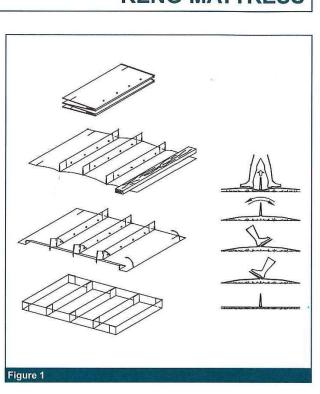
Fastening Procedure

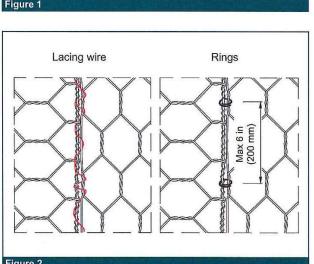
Connect the edges of the mattress by using either lacing wire or ring fasteners. When steel ring fasteners are used, the use of either a mechanical or a pneumatic fastening tool is required. Spacing of the rings shall be in accordance with ASTM A975-97 Table 2, Panel to Panel connection, Pull-Apart Resistance. In any case, ring fasteners spacing shall not exceed 6 in (150 mm). Rings shall be installed at the top and the bottom connections of the end and center diaphragms and along all edges. Care should be taken to ensure the steel ring fastener is completely closed after installation (Fig. 3). When this is not possible, fixing rings must be complemented or replaced with

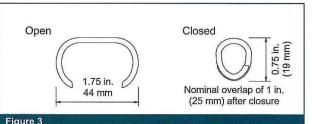
The procedure for using lacing wire consists of cutting a sufficient length of wire, and first looping and/or twisting the lacing wire to the wire mesh. Proceed to lace with alternating double and single loops through every mesh opening approximately every 6 in (150 mm) pulling each loop tight and finally securing the end of the lacing wire to the wire mesh by looping and/or twisting. The use of pliers to aid assembly and wiring of the units using the binding wire supplied with the mattresses is normally recommended.

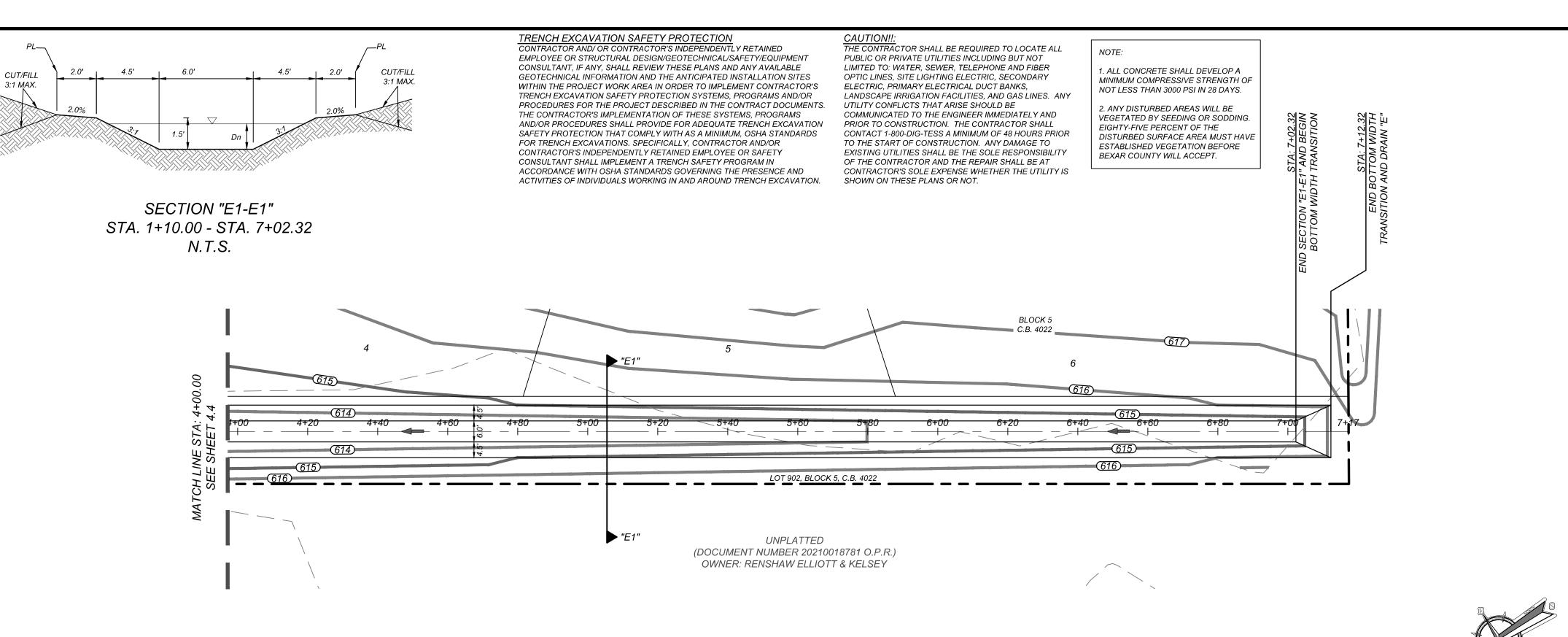
Foundation Preparation

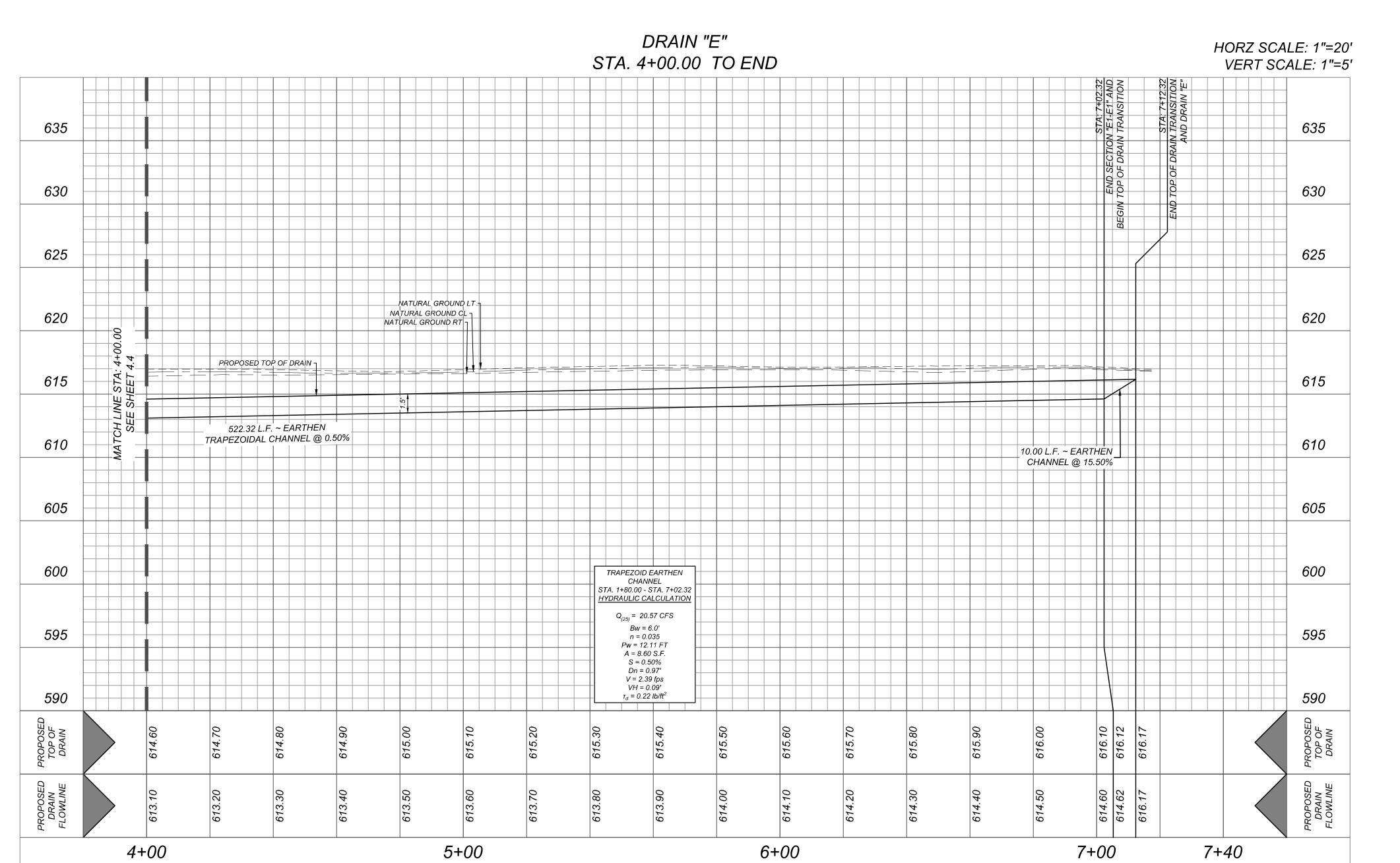
The foundation on which the Reno mattresses are to be placed shall be level, and graded to the elevations as shown on the project construction drawings. The foundation for Reno mattresses shall be free of surface irregularities, loose material, and vegetation in accordance with the project specifications Appropriate measures shall be taken for filtering and drainage of the foundation, as per the project specifications (filter cloth, drain works, etc.). Geotextiles required to be installed behind or underneath Reno mattress structures shall comply with the requirements for subsurface drainage applications.

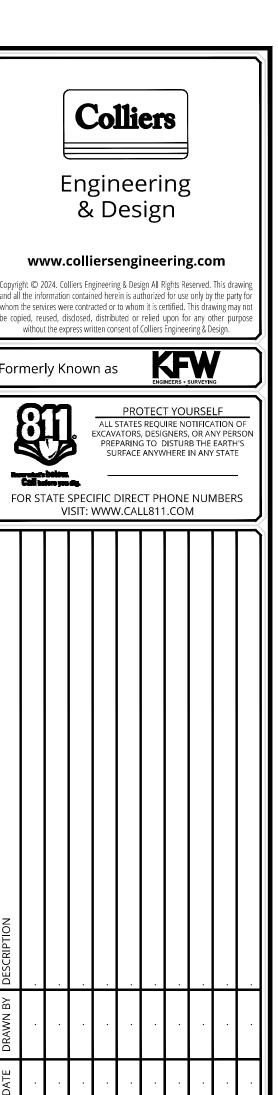


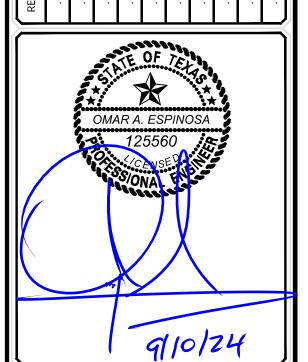












CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

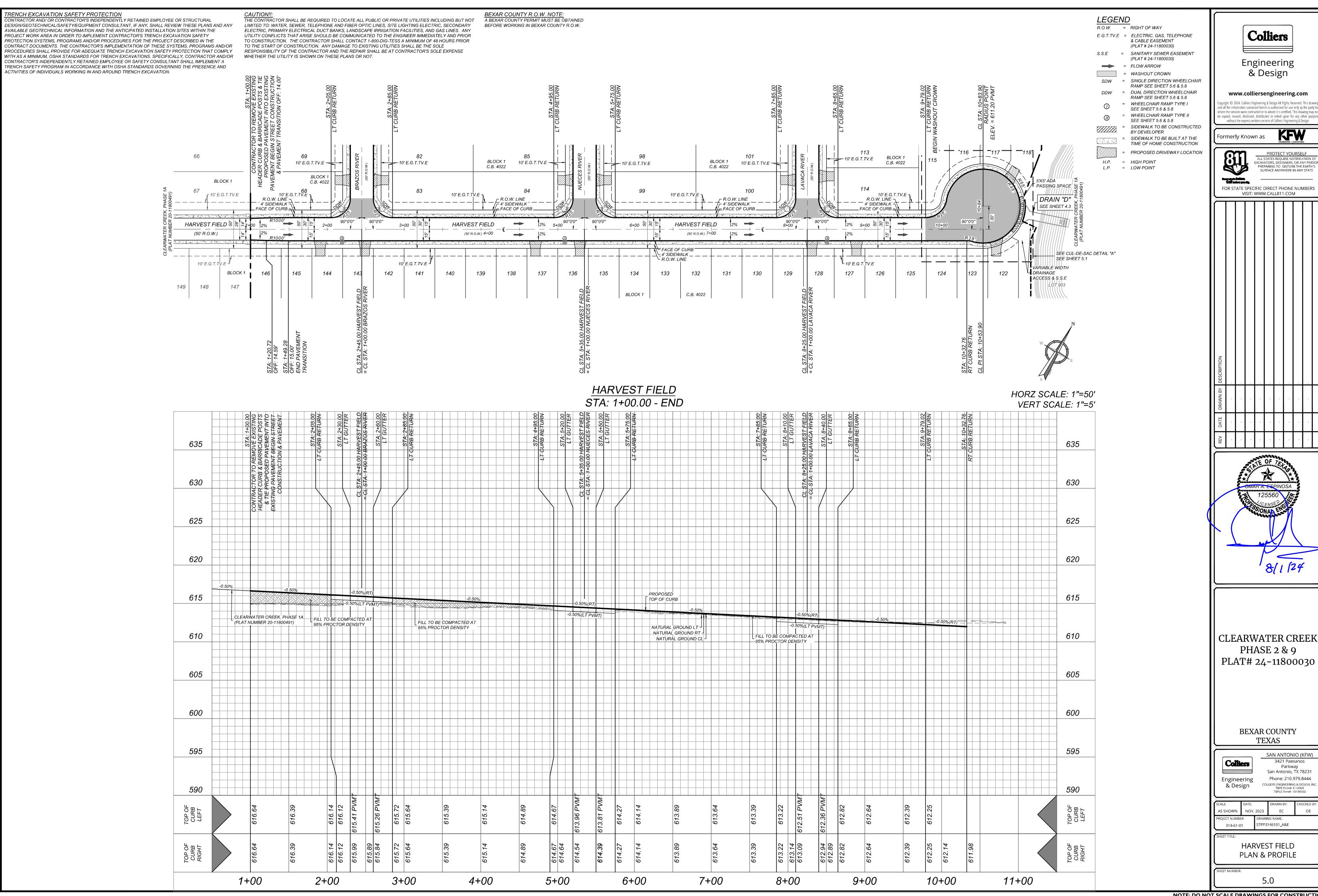
> **BEXAR COUNTY** TEXAS

Colliers Engineering & Design

SAN ANTONIO (KFW) 3421 Paesanos Parkway San Antonio, TX 78231 Phone: 210.979.8444 COLLIERS ENGINEERING & DESIGN, IN TBPE Firm#; F-14909 TBPLS Firm#: 10194550

AS SHOWN RPP3146101_E 314-61-01

DRAIN "E" PLAN & PROFILE (2 OF 2)



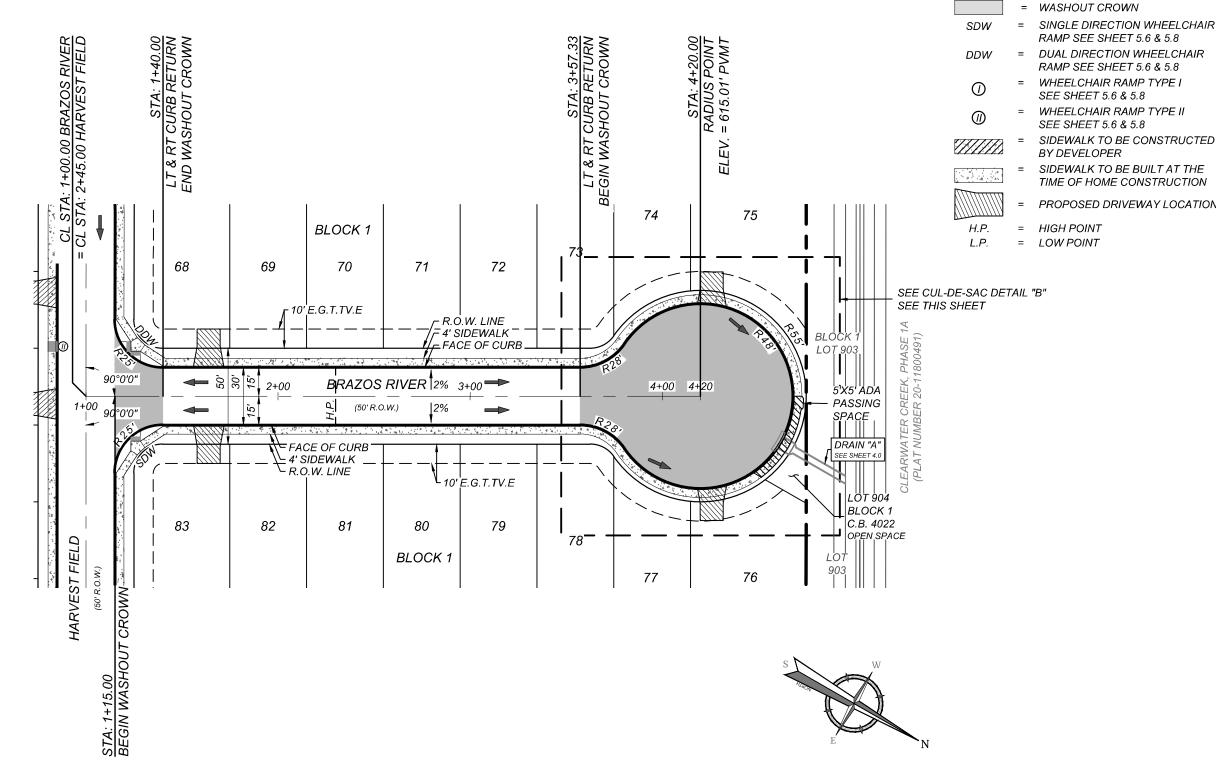
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ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSO PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE R.O.W. LINE ← R.O.W. LINE ′ 115 - 4' SİDEWALK – 4' SIDEWÁLK H.P. HIGH POINT = LOW POINT – FACE OF CURB FACE OF CURB C.B. 4022 FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM PASSING CUL-DE-SAC DETAIL "E" SEE THIS SHEET CIBOLO FIELDS ☑ DRAIN "D" (60' R.O.W.) SEE SHEET 4.3 HARVEST FIELD 4' SIDEWALK 4°46'6" OFF-LOT VARIABLE — WIDTH SANITARY SEWER EASMENT 123 BLOCK 1, C.B. 4022 BLOCK 5, C.B. 4022 CUL-DE-SAC CUL-DE-SACE DETAIL "A" DETAIL "E" SCALE: 1" = 30' SCALE: 1" = 30" HARVEST FIELD CIBOLO FIELDS CIBOLO FIELDS HORZ SCALE: 1"=50" HORZ SCALE: 1"=50' HORZ SCALE: 1"=50' CUL-DE-SAC CUL-DE-SAC STA: 1+00.00 - END VERT SCALE: 1"=5" VERT SCALE: 1"=5' VERT SCALE: 1"=5" 635 640 640 640 630 635 635 635 635 OMAR A. ESPINOSA 625 630 630 620 625 625 625 615 620 620 620 615 PROPOSED TOP OF CURB FILL TO BE COMPACTED AT 95% PROCTOR DENSITY 610 615 615 615 CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030 605 610 610 610 600 605 605 605 605 600 BEXAR COUNTY **TEXAS** 595 600 600 595 600 600 SAN ANTONIO (KFW) Parkway San Antonio, TX 78231 Phone: 210.979.8444 Engineering & Design COLLIERS ENGINEERING & DESIGN, INC TBPE Firm#: F-14909 TBPLS Firm#: 10194550 590 595 595 595 590 595 TPP3146101_A&E 314-61-01 585 590 585 590 TOP OF CURB RIGHT HARVEST FIELD & CIBOLO FIELDS PLAN & PROFILE 2+00 2+50 1+00 NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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. 635 630 625

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BRAZOS RIVER HORZ SCALE: 1"=50' STA: 1+00.00 - END VERT SCALE: 1"=5" 635

630 630 625 625 620 620 PROPOSED TOP OF CURB 615 615 FILL TO BE COMPACTED AT 95% PROCTOR DENSITY 610 610 NATURAL GROUND LT 605 605 600 600 595 595 590 590 TOP OF CURB LEFT TOP OF CURB RIGHT 1+00 2+00 4+00 4+50 3+00

Colliers E.G.T.TV.E = ELECTRIC, GAS, TELEPHONE = SANITARY SEWER EASEMENT Engineering & Design = SINGLE DIRECTION WHEELCHAIR RAMP SEE SHEET 5.6 & 5.8 DUAL DIRECTION WHEELCHAIR www.colliersengineering.com opyright © 2024. Colliers Engineering & Design All Rights Reserved. This draw whom the services were contracted or to whom it is certified. This drawing may n be copied, reused, disclosed, distributed or relied upon for any other purpo without the express written consent of Colliers Engineering & Design. SIDEWALK TO BE CONSTRUCTED SIDEWALK TO BE BUILT AT THE

LEGEND

R.O.W. = RIGHT OF WAY

& CABLE EASEMENT

(PLAT # 24-11800030)

(PLAT # 24-11800030)

= FLOW ARROW

Formerly Known as

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CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

> **BEXAR COUNTY TEXAS**

Engineering & Design

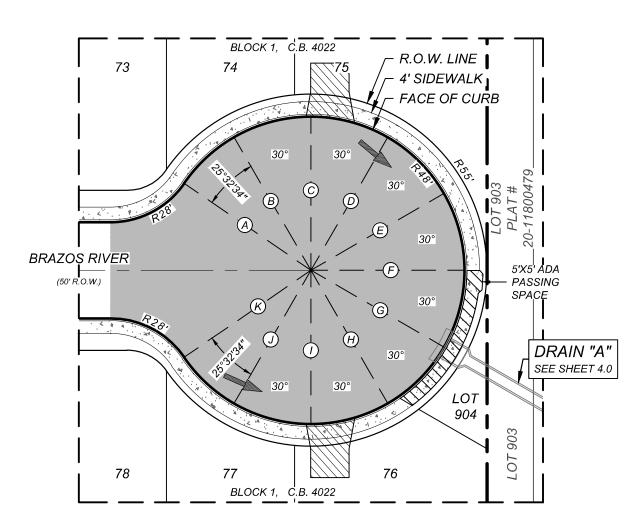
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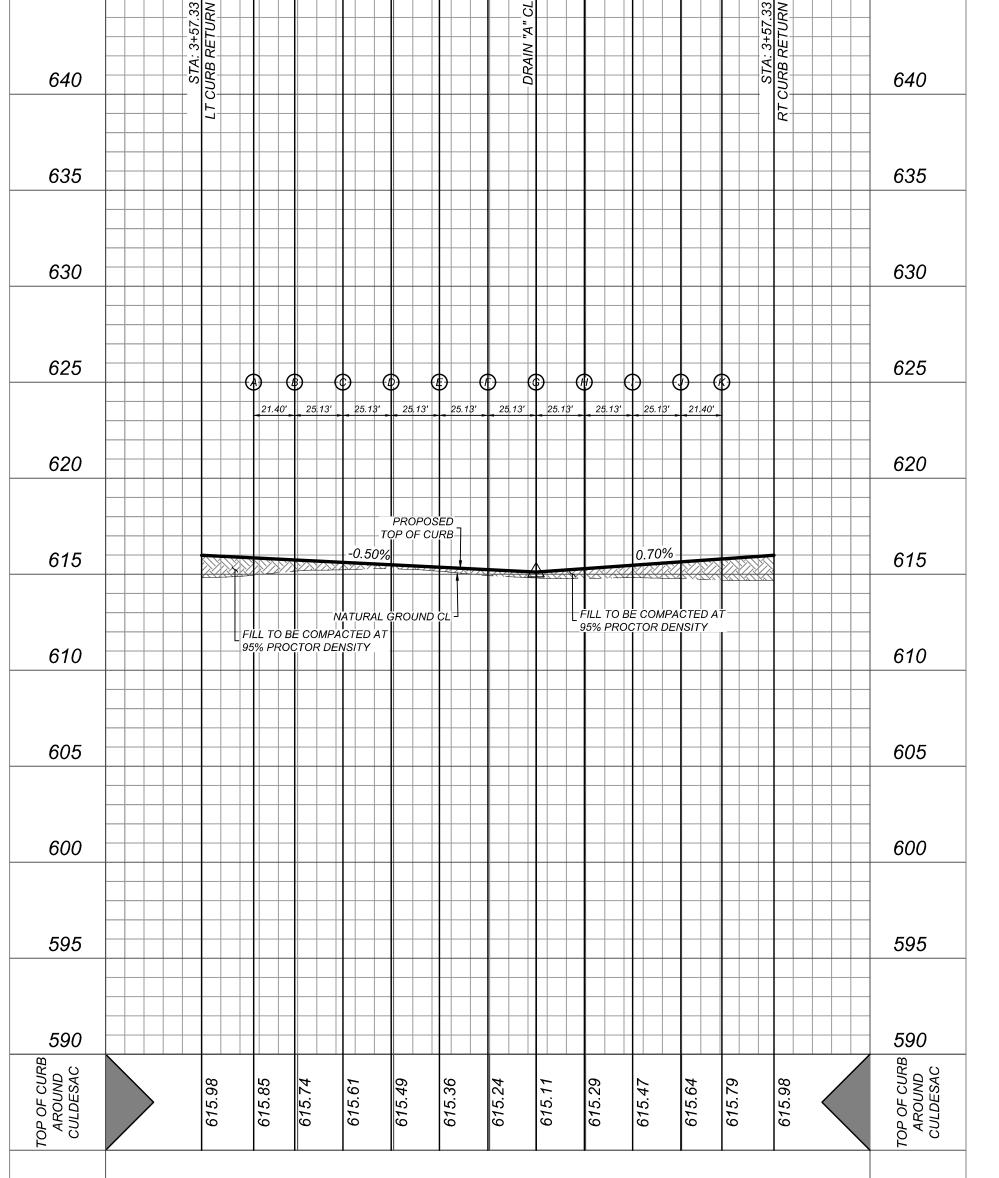
BRAZOS RIVER PLAN & PROFILE

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CUL-DE-SAC DETAIL "B" SCALE : 1" = 30'

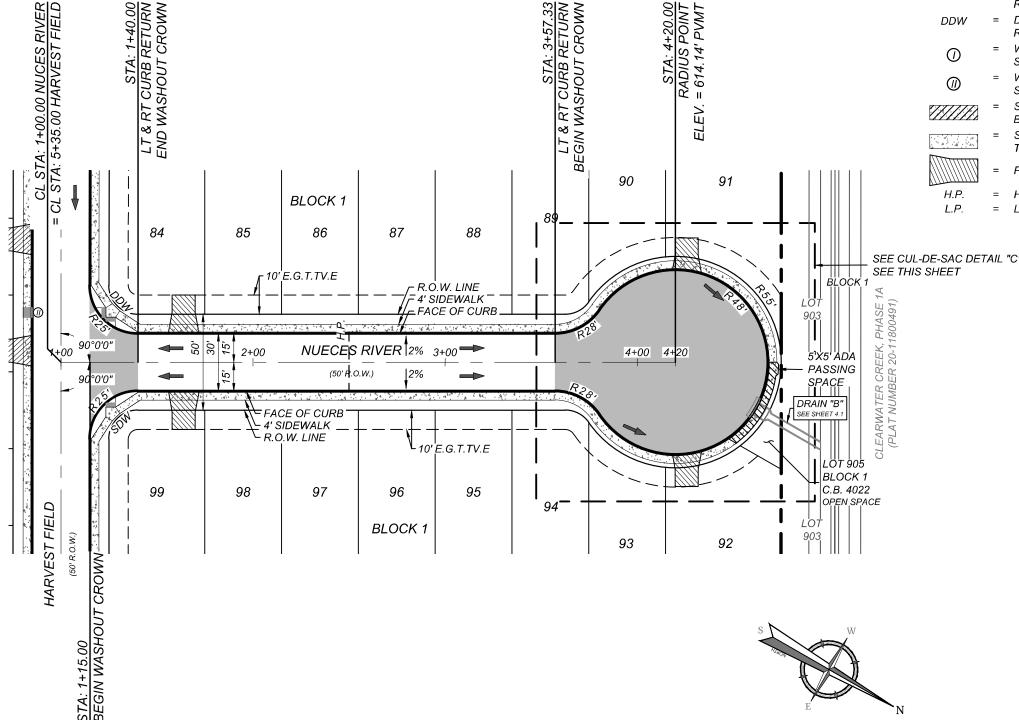
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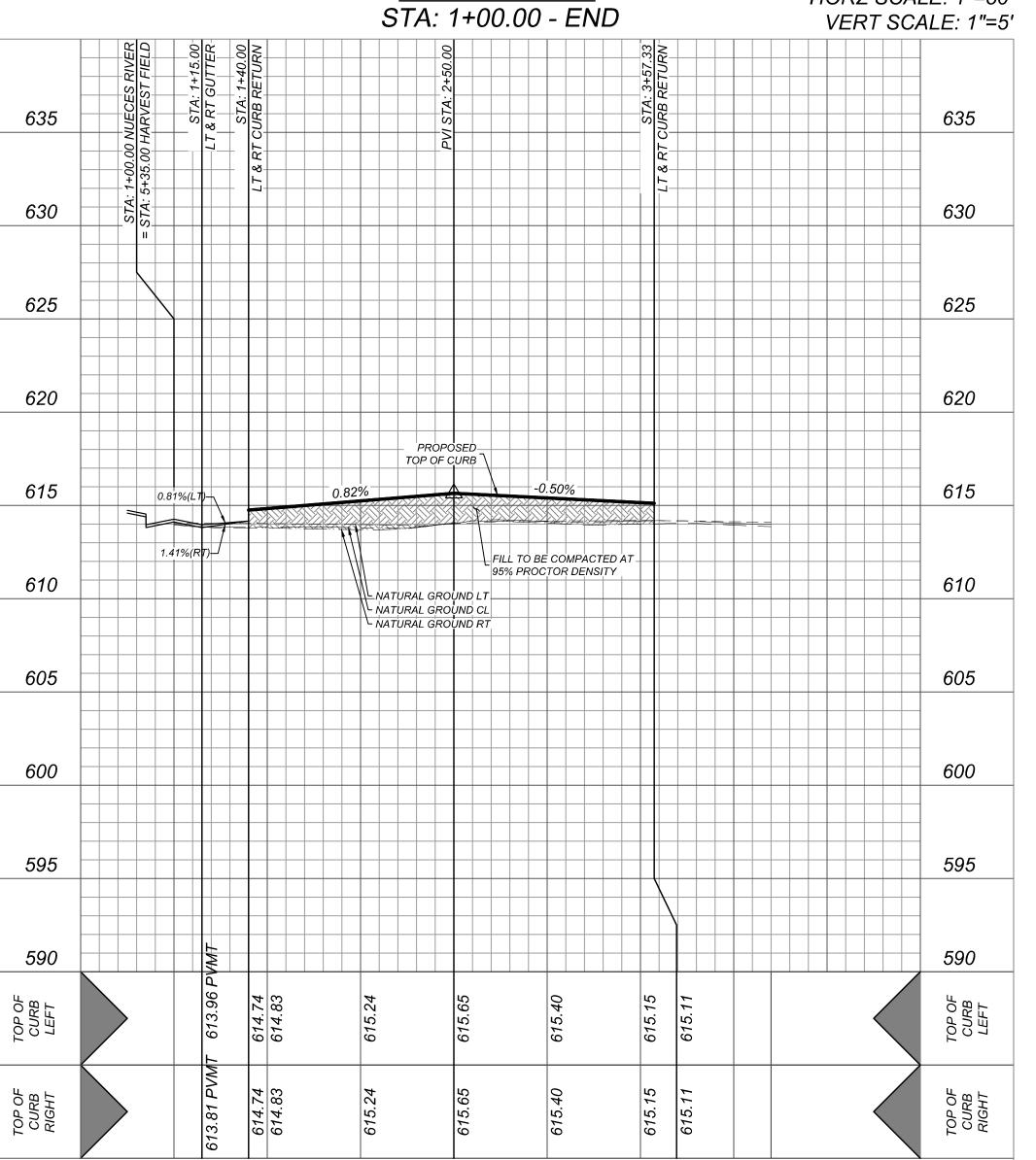
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BEXAR COUNTY R.O.W. NOTE:
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.



HORZ SCALE: 1"=50' VERT SCALE: 1"=5"

4+00 4+50

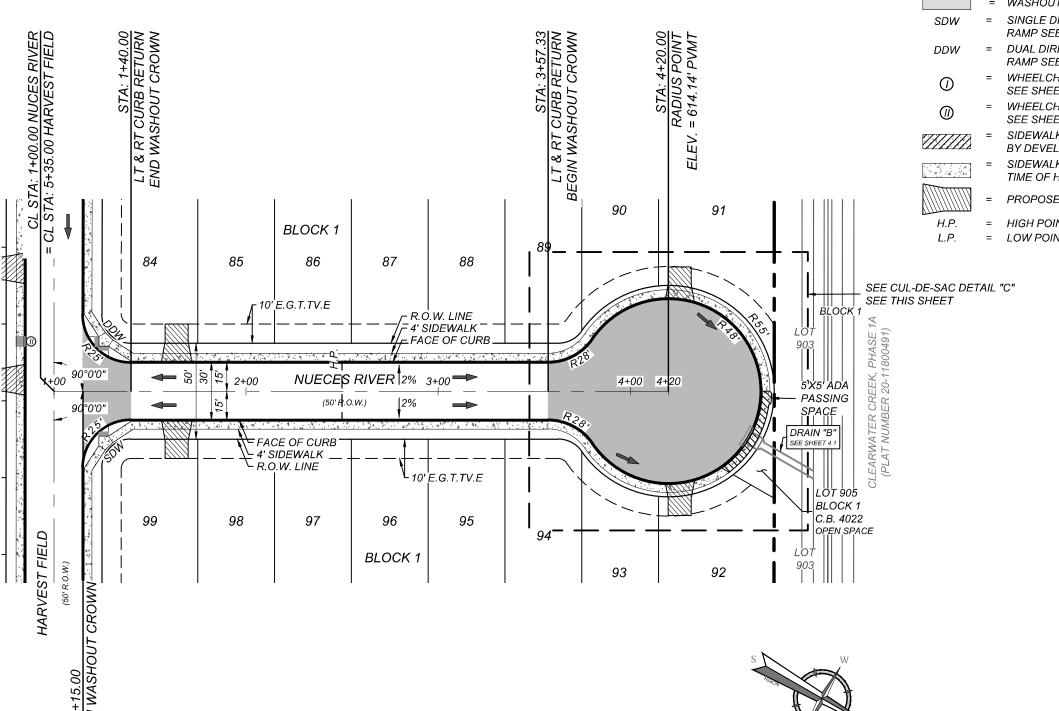


3+00

1+00

2+00

NUECES RIVER



OMAR A. ESPINOSA

PHASE 2 & 9

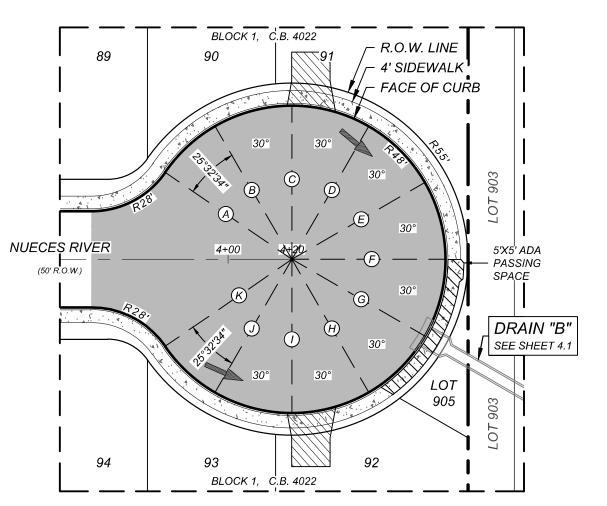
TEXAS

Colliers Engineering & Design

> TPP3146101_BC&D 314-61-01

PLAN & PROFILE

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



NUECES RIVER

<i>ALE: 1'</i> ⊤						-DE-S					
640	STA: 3+57.33 T CURB RETURN									r curb return	640
635	R									<u>L</u> 7	635
630											630
625			25.13'		25.13'	13' 25.13		\$ Q		•	625
620		21.40'	23.13	25.13'	25.73	73 20.15	20,13	25.13'	1.40' 25.13'	2.	620
615			0.70%_				POSED CURB	TOP 0.			615
610	D AT	OMPACTED A	L TO BE C	FI				1	O BE COMPAG ROCTOR DEN	+	610
605						ROUND CL	- NATURAL (605
600											600
595											595
590											590
TOP OF CURB AROUND	615.11	614.77	614.60	614.42	614.24	614.37	614.62	614.74	614.87	615.11	TOP OF CURB AROUND CULDESAC

CUL-DE-SAC DETAIL "C" SCALE : 1" = 30'

HORZ SCALE: 1"=50'

E.G.T.TV.E = ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT

LEGEND

(PLAT # 24-11800030) = SANITARY SEWER EASEMENT (PLAT # 24-11800030) = FLOW ARROW = WASHOUT CROWN

R.O.W. = RIGHT OF WAY

= SINGLE DIRECTION WHEELCHAIR RAMP SEE SHEET 5.6 & 5.8 = DUAL DIRECTION WHEELCHAIR

RAMP SEE SHEET 5.6 & 5.8 = WHEELCHAIR RAMP TYPE I SEE SHEET 5.6 & 5.8 WHEELCHAIR RAMP TYPE II SEE SHEET 5.6 & 5.8 SIDEWALK TO BE CONSTRUCTED

BY DEVELOPER SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION PROPOSED DRIVEWAY LOCATION

= HIGH POINT L.P. = LOW POINT

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CLEARWATER CREEK PLAT# 24-11800030

BEXAR COUNTY

SAN ANTONIO (KFW) 3421 Paesanos Parkway San Antonio, TX 78231 Phone: 210.979.8444 COLLIERS ENGINEERING & DESIGN, INC. TBPE Firm#: F-14909 TBPLS Firm#: 10194550

NUECES RIVER

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. LAVACA RIVER 635 625

620

615

610

605

600

595

CAUTION!!:
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCT BANKS, 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.

− R.O.W. LINE 🖡

- 4' SIDEWALK 🕽

- FACE OF CURB

- PASSING

SEE SHEET 4.2

HORZ SCALE: 1"=50'

VERT SCALE: 1"=5'

635

630

625

615

610

600

595

BLOCK 1, C.B. 4022

BLOCK 1, C.B. 4022

CUL-DE-SAC

DETAIL "D"

SCALE : 1" = 30'

LAVACA RIVER

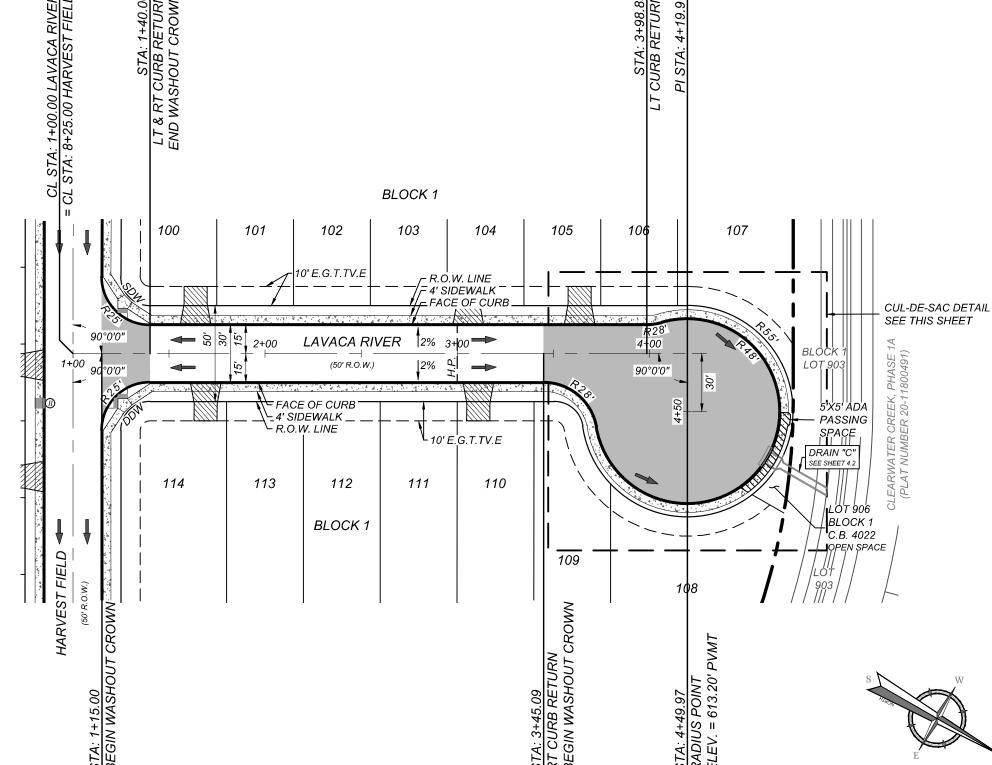
CUL-DE-SAC

109

PROPOSED TOP OF CURB

FILL TO BE COMPACTED AT

BEXAR COUNTY R.O.W. NOTE:
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.

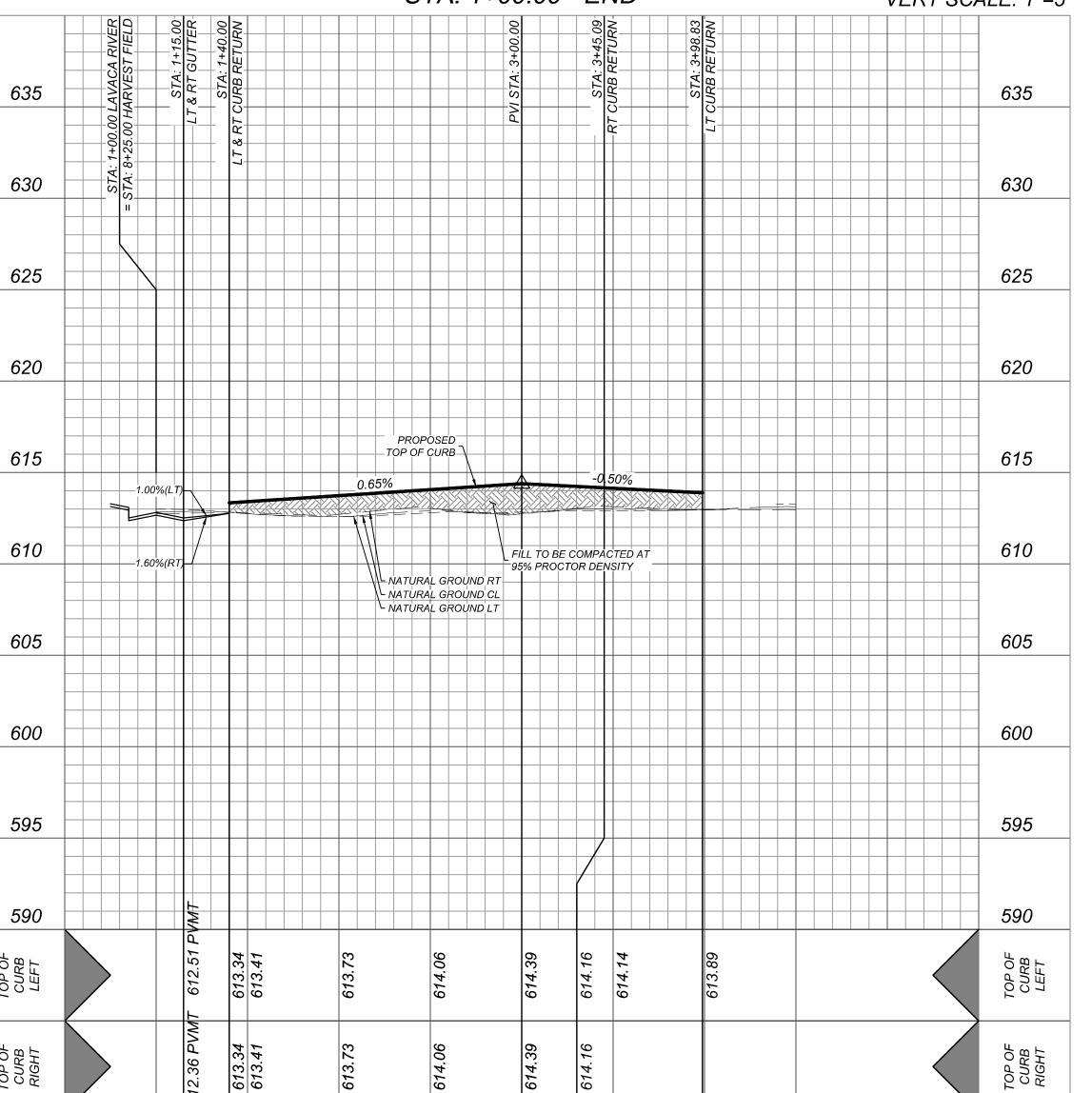


LAVACA RIVER STA: 1+00.00 - END

HORZ SCALE: 1"=50' VERT SCALE: 1"=5"

5+00

4+00



3+00

1+00

2+00

R.O.W. = RIGHT OF WAYE.G.T.TV.E = ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT (PLAT # 24-11800030) = SANITARY SEWER EASEMENT (PLAT # 24-11800030) = FLOW ARROW = WASHOUT CROWN = SINGLE DIRECTION WHEELCHAIR RAMP SEE SHEET 5.6 & 5.8 = DUAL DIRECTION WHEELCHAIR RAMP SEE SHEET 5.6 & 5.8 WHEELCHAIR RAMP TYPE I SEE SHEET 5.6 & 5.8 WHEELCHAIR RAMP TYPE II SEE SHEET 5.6 & 5.8 SIDEWALK TO BE CONSTRUCTED BY DEVELOPER SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION PROPOSED DRIVEWAY LOCATION H.P. = HIGH POINT L.P. = LOW POINT CUL-DE-SAC DETAIL "D"

LEGEND

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CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

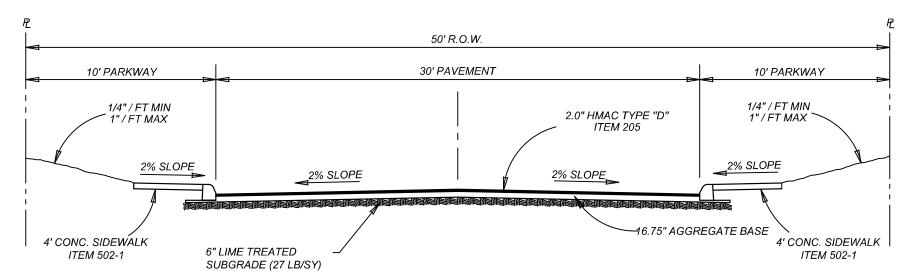
> **BEXAR COUNTY TEXAS**

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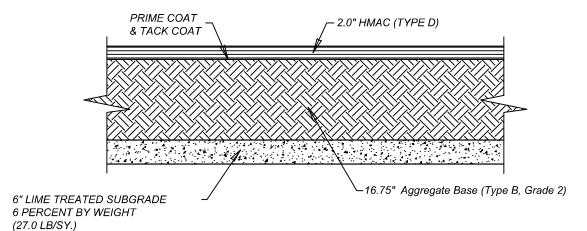
LAVACA RIVER PLAN & PROFILE



TYPICAL LOCAL "A" STREET SECTION

NOT TO SCALE BRAZOS RIVER STA: 1+00.00 TO END NUECES RIVER STA: 1+00.00 TO END LAVACA RIVER STA: 1+00.00 TO END HARVEST FIELD STA: 1+00.00 TO END

Pavement Section 2.0" HMAC Type "D" 16.75" Aggregate Base (Type B, Grade 2) 6.0" Lime Treated Subgrade (27 LB/SY) Total: 24.75" Structural No: 3.705 CBR: 2.0

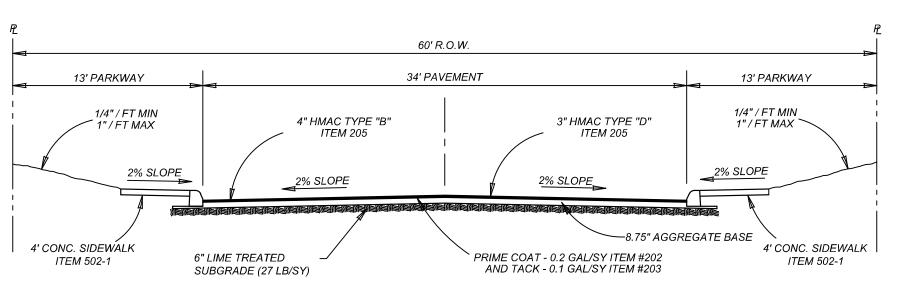


ASPHALT PAVEMENT DETAIL NOT-TO-SCALE DETAIL FOR ALL LOCAL TYPE A

1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT BY FROST GEOSCIENCES, PROJECT NO. FGS-G 20020, DATED 10/2/20

- 2. REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATION FOR ADDITIONAL REQUIREMENTS AND ALTERNATE PAVEMENT SECTIONS.
- 3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. TESTING TO BE

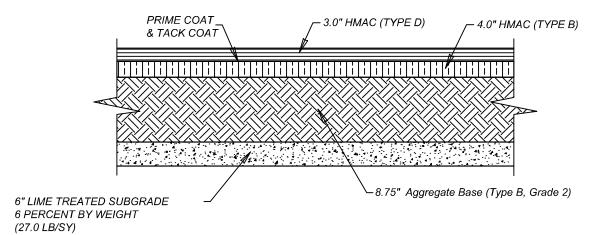
4. CONTRACTOR MAY LEAVE VERTICAL CUT BANKS AT R.O.W. LINE AND MEDIANS PROVIDED PROJECT GEOTECHNICAL ENGINEER DETERMINES ROCK IS COMPETENT TO STAND ON ITS OWN.



TYPICAL LOCAL "B" STREET SECTION

CIBOLO FIELDS STA: 1+00.00 TO END

Pavement Section 3.0" HMAC Type "D" 4.0" HMAC Type "B" 8.75" Aggregate Base (Type B, Grade 2) 6.0" Lime Treated Subgrade (27 LB/SY) Total: 21.75" Structural No: 4.545 CBR: 2.0



ASPHALT PAVEMENT DETAIL

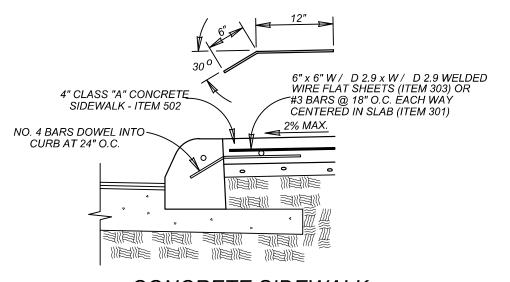
NOT-TO-SCALE DETAIL FOR ALL LOCAL TYPE B

1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT BY FROST GEOSCIENCES, PROJECT NO. FGS-G 20020, DATED 10/2/20

2. REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATION FOR ADDITIONAL REQUIREMENTS AND ALTERNATE PAVEMENT SECTIONS.

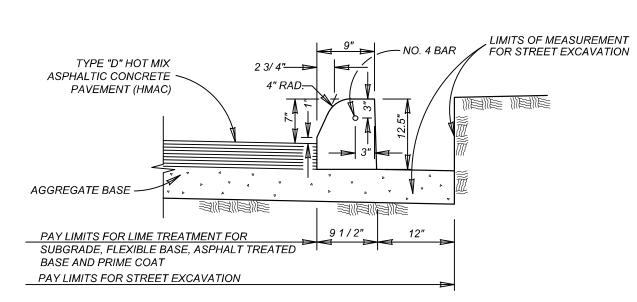
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. TESTING TO BE

4. CONTRACTOR MAY LEAVE VERTICAL CUT BANKS AT R.O.W. LINE AND MEDIANS PROVIDED PROJECT GEOTECHNICAL ENGINEER DETERMINES ROCK IS COMPETENT TO STAND ON ITS OWN.



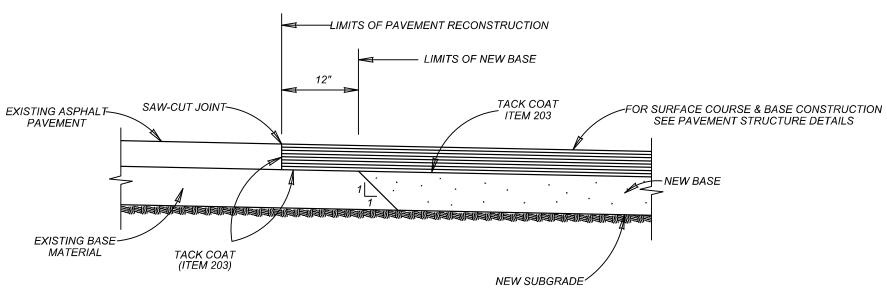
CONCRETE SIDEWALK ABUTTING CURB SECTION

NOT TO SCALE

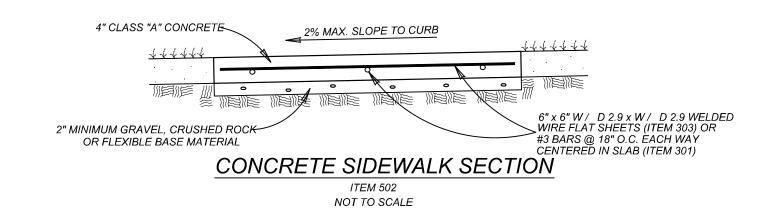


CONCRETE CURB ITEM 500 ON ASPHALT TREATED BASE OR ASPHALTIC CONCRETE BASE

NOT TO SCALE



PAVEMENT JUNCTION DETAILS NOT TO SCALE



GENERAL NOTES:

- 1. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOLUBLE SULPHATE CONTENT PRIOR TO INSTALLATION OF THE LIME OR CEMENT.
- 2. THE APPLICATION RATE OF LIME SHALL BE DETERMINED BASED ON LABORATORY TESTING AND SHALL BE THE LOWEST PERCENTAGE OF LIME THAT PROVIDES AN UNCONFINED COMPRESSIVE STRENGTH (UCS) AT 7-DAYS OF AT LEAST 160 PSI IN ACCORDANCE WITH ASTM D5102 STANDARD TEST METHODS FOR UNCONFINED COMPRESSIVE STRENGTH OF COMPACTED SOIL-LIME MIXTURES (PROCEDURE B) (IN ADDITION, CURING SHOULD OCCUR FOR 7 DAYS AT 40° AND SPECIMENS SHOULD BE SUBJECT TO 24-HR CAPILLARY SOAK PRIOR TO TESTING.

FOR CONSTRUCTION VERIFICATION THE FOLLOWING SHALL BE CONDUCTED IN THE

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

NOTES:

- ANY FILL USED TO RAISE THE SUBGRADE: SHOUD NOT CONTAIN ANY DELETERIOUS MATERIAL.
- SHOULD HAVE A CBR VALUE OF 4.5 OR GREATER
- SHOULD NOT HAVE GRAVELS LARGER THAN 3 INCH IN SIZE SHOULD HAVE THE "LIME PERCENTAGE/APPLICATION RATE" RE-RUN
- PRIOR TO INSTALLATION PI SHOULD BE LESS THAN 20

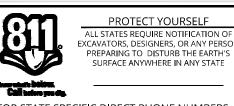
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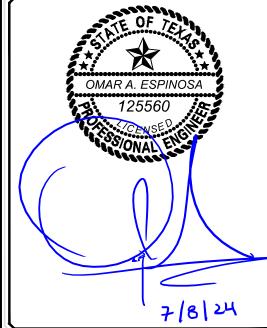
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CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

> **BEXAR COUNTY** TEXAS

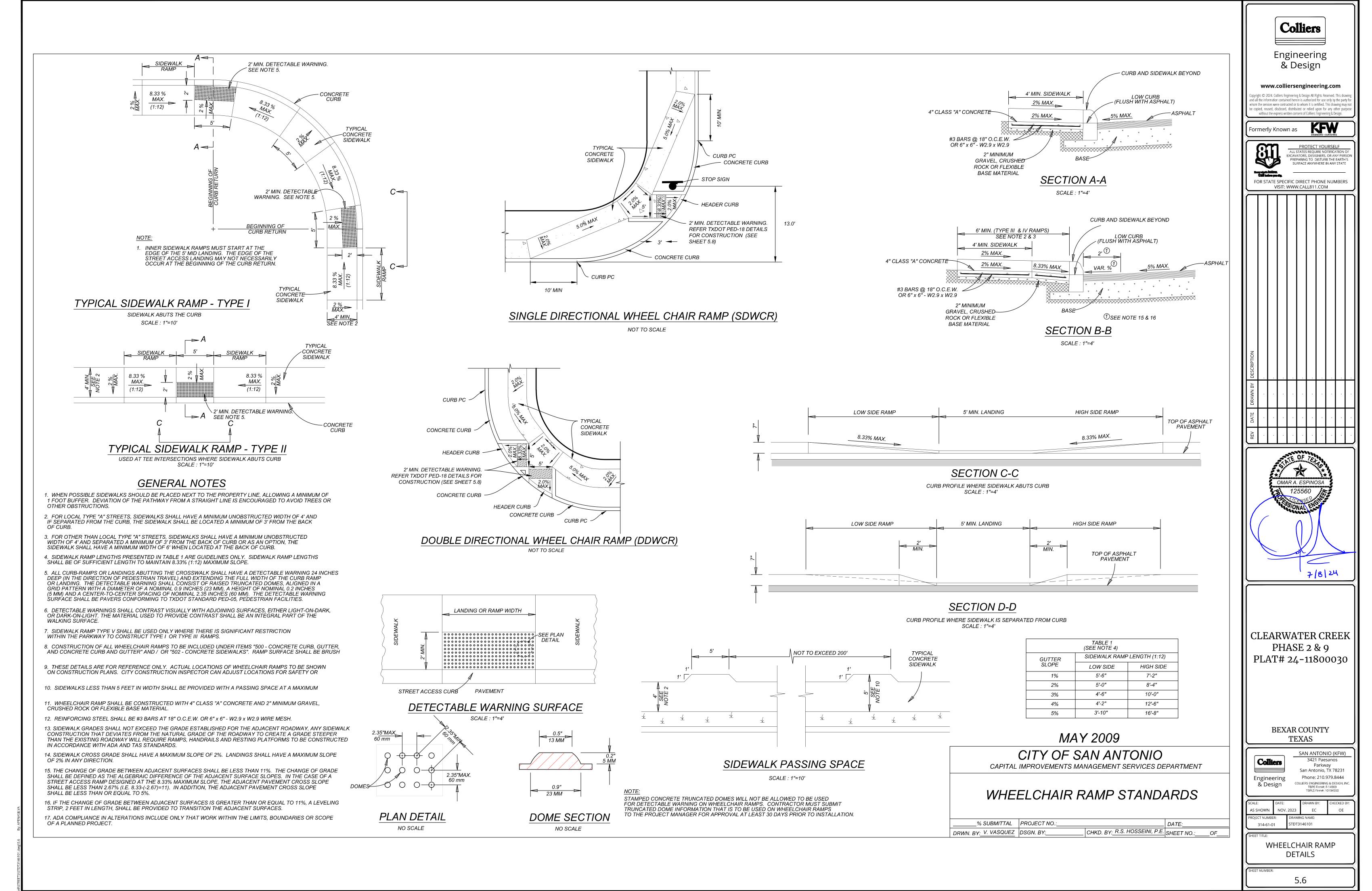
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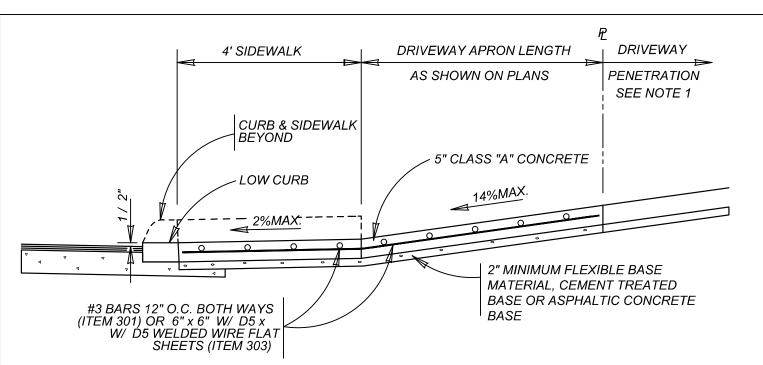
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ГDТ3146101 314-61-01 TYPICAL STREET

DETAILS

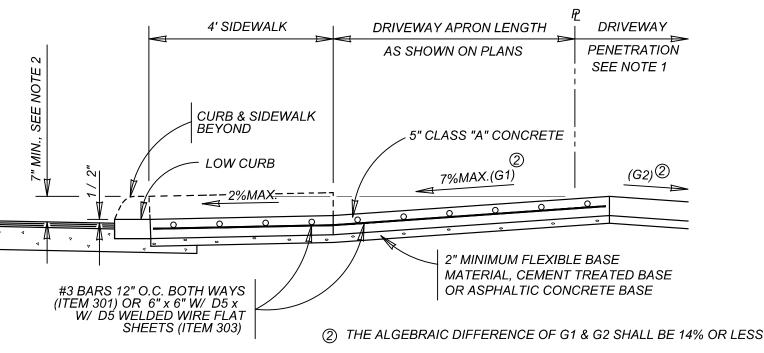
AS SHOWN





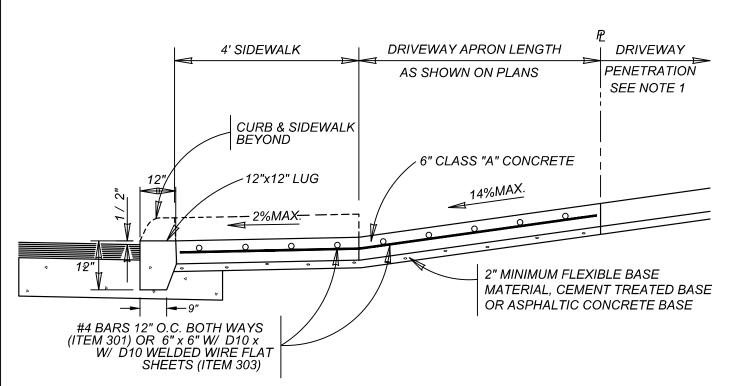
TYPICAL RESIDENTIAL DRIVEWAY SECTION

WITH SIDEWALK ABUTTING CURB ITEM 503.1



TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB ITEM 503.1



TYPICAL COMMERCIAL DRIVEWAY SECTION

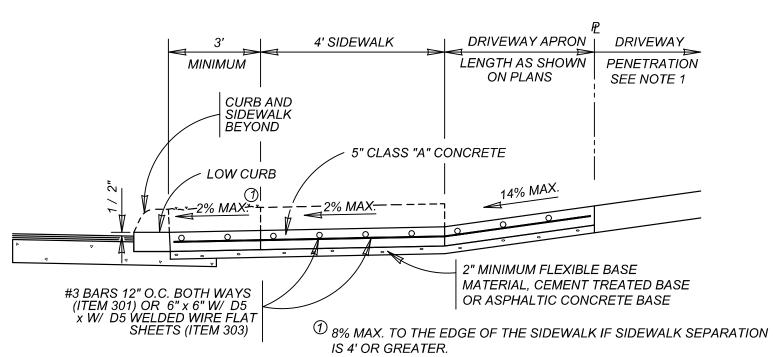
WITH SIDEWALK ABUTTING CURB ITEM 503.2

CONCRETE DRIVEWAY NOTES

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

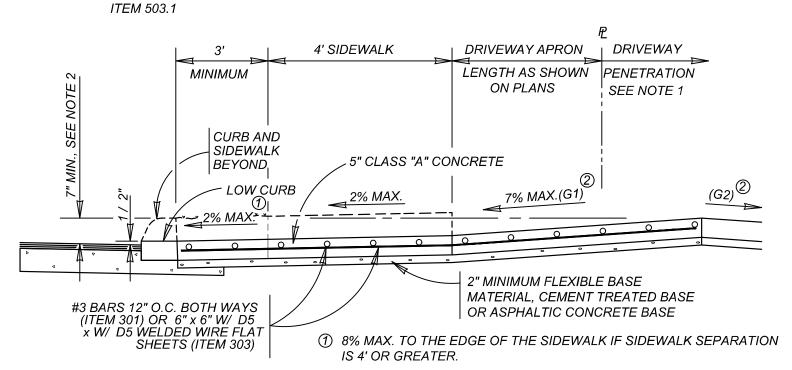
TYPE	MINIMUM	MAXIMUN
RESIDENTIAL	10'	20'
COMMERCIAL - ONE WAY	12'	20'
COMMERCIAL - TWO WAY	24'	30'

- 4. FOR LOCAL TYPE "A" STREETS, SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' FROM THE BACK OF CURB.
- 5. FOR OTHER THAN LOCAL TYPE "A" STREETS, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND SEPARATED A MINIMUM OF 3' FROM THE BACK OF CURB OR, AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
- 6. DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY. DUMMY JOINTS PERPENDICULAR TO THE CURB, AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS, SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
- 7. A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3/8" IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT.
- 8. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE. WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
- 9. SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.



TYPICAL RESIDENTIAL DRIVEWAY SECTION

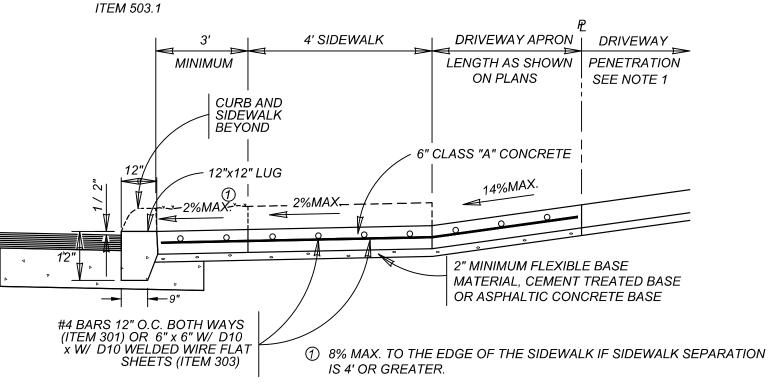
WITH SIDEWALK SEPARATED FROM CURB



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

TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS SEPARATED FROM CURB



TYPICAL COMMERCIAL DRIVEWAY SECTION WITH SIDEWALK SEPARATED FROM CURB

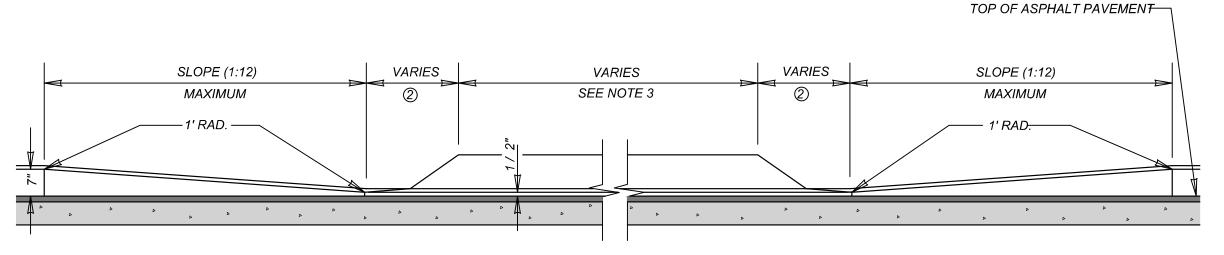
ITEM 503.2

_ 3 / 4" CHAMFER 3 / 4" CHAMFER 6" MINIMUM - 12" MAXIMUM-ASPHALT OR GRAVEL DRIVEWAY 2 - #4 BARS CONTINUOUS -- #3 BARS @ 12" O.C. MAXIMUM 2 - #4 BARS CONTINUOUS 12" MINIMUM - 18" MAXIMUM BELOW FINISHED GRADE 到面景 到面票 12"

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

DRIVEWAY - CONCRETE RETAINING WALL

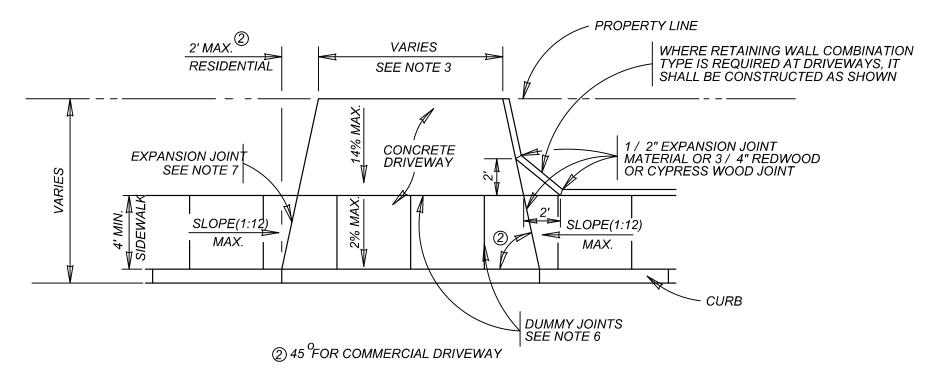
ON COMPACTED SUBGRADE ITEM 307.1



② RESIDENTIAL : 2' MAXIMUM; COMMERCIAL: SEE PLAN VIEW

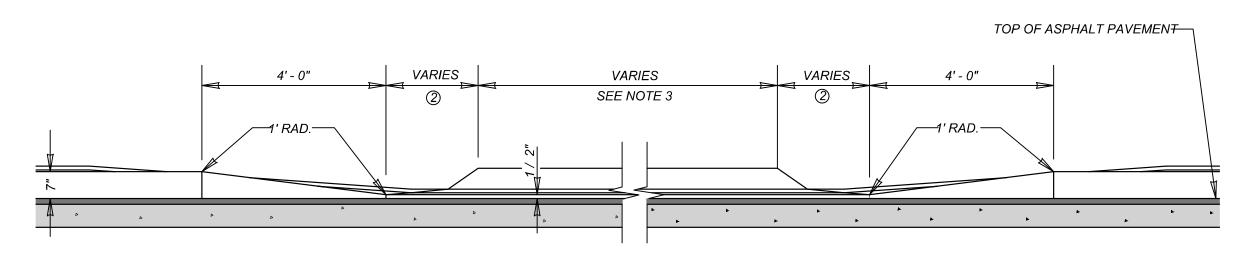
CURB PROFILE AT DRIVEWAY

WITH SIDEWALK ABUTTING CURB



TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK ABUTTING CURB



② RESIDENTIAL : 2' MAXIMUM; COMMERCIAL: SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB WHERE RETAINING WALL COMBINATION TYPE IS REQUIRED AT DRIVEWAYS, IT 2' MAX. SHALL BE CONSTRUCTED AS SHOWN VARIES RESIDENTIAL SEE NOTE 3 - PROPERTY LINE 1 / 2" EXPANSION JOINT MATERIAL OR 3 / 4" REDWOOD EXPANSION JOINT OR CYPRESS WOOD JOINT CONCRETE DRIVEWAY SLOPE (1:12) SLOPE (1:12) MAX. SEE NOTE 4 DUMMY JOINTS SEE NOTE 6 1 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION

> 2 45 FOR COMMERCIAL DRIVEWAY TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK SEPARATED FROM CURB

IS 4' OR GREATER.

MAY 2009

CITY OF SAN ANTONIO CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

CONCRETE DRIVEWAY STANDARDS

% SUBMITTAL	PROJECT NO.:		DATE:	
DRWN. BY: V. VASQUEZ	DSGN. BY:	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.:	OF

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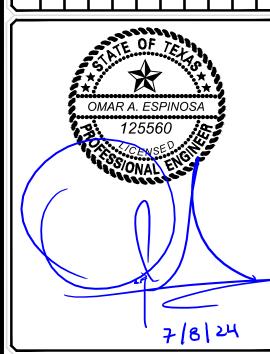
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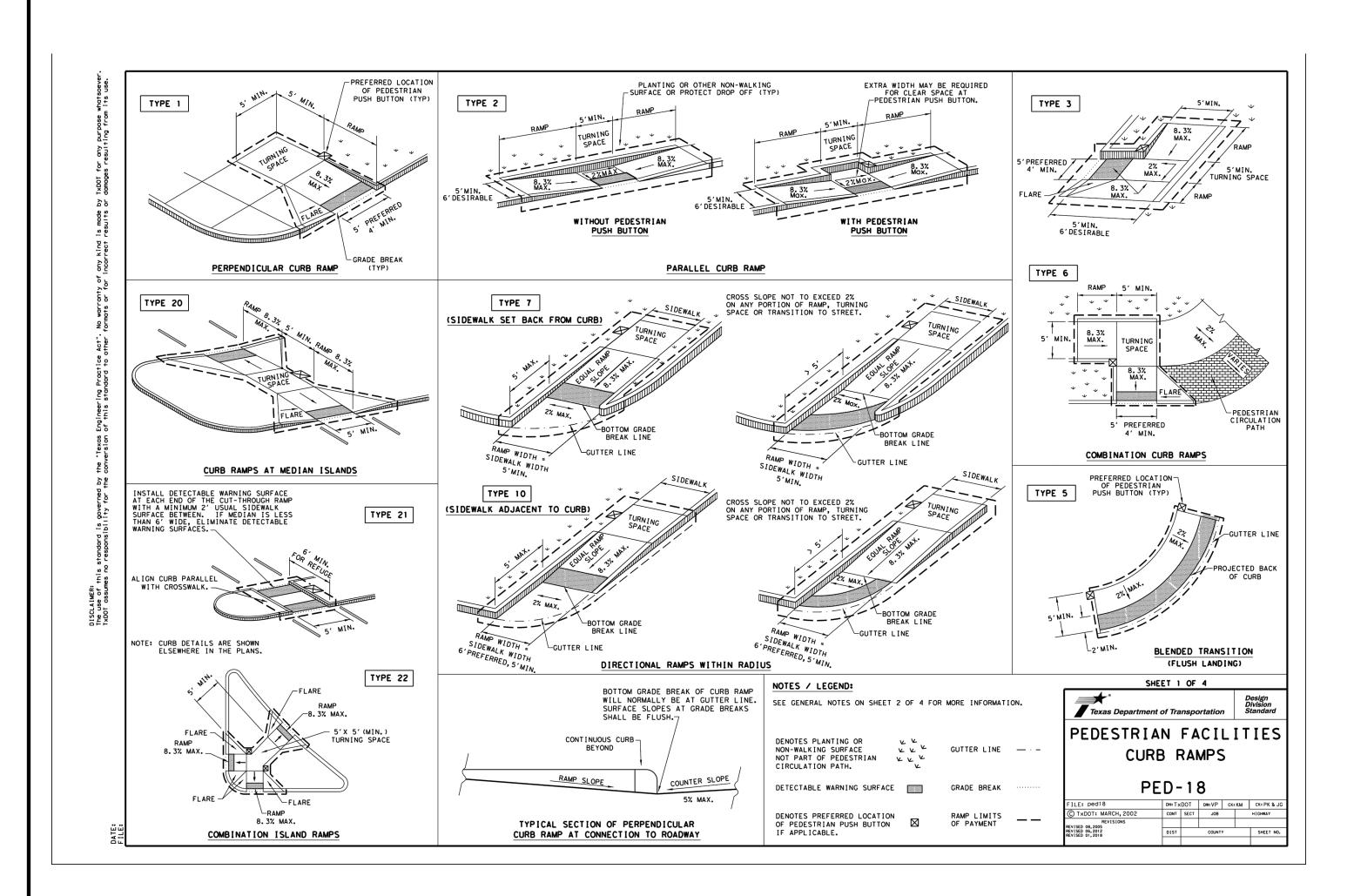
> **BEXAR COUNTY** TEXAS

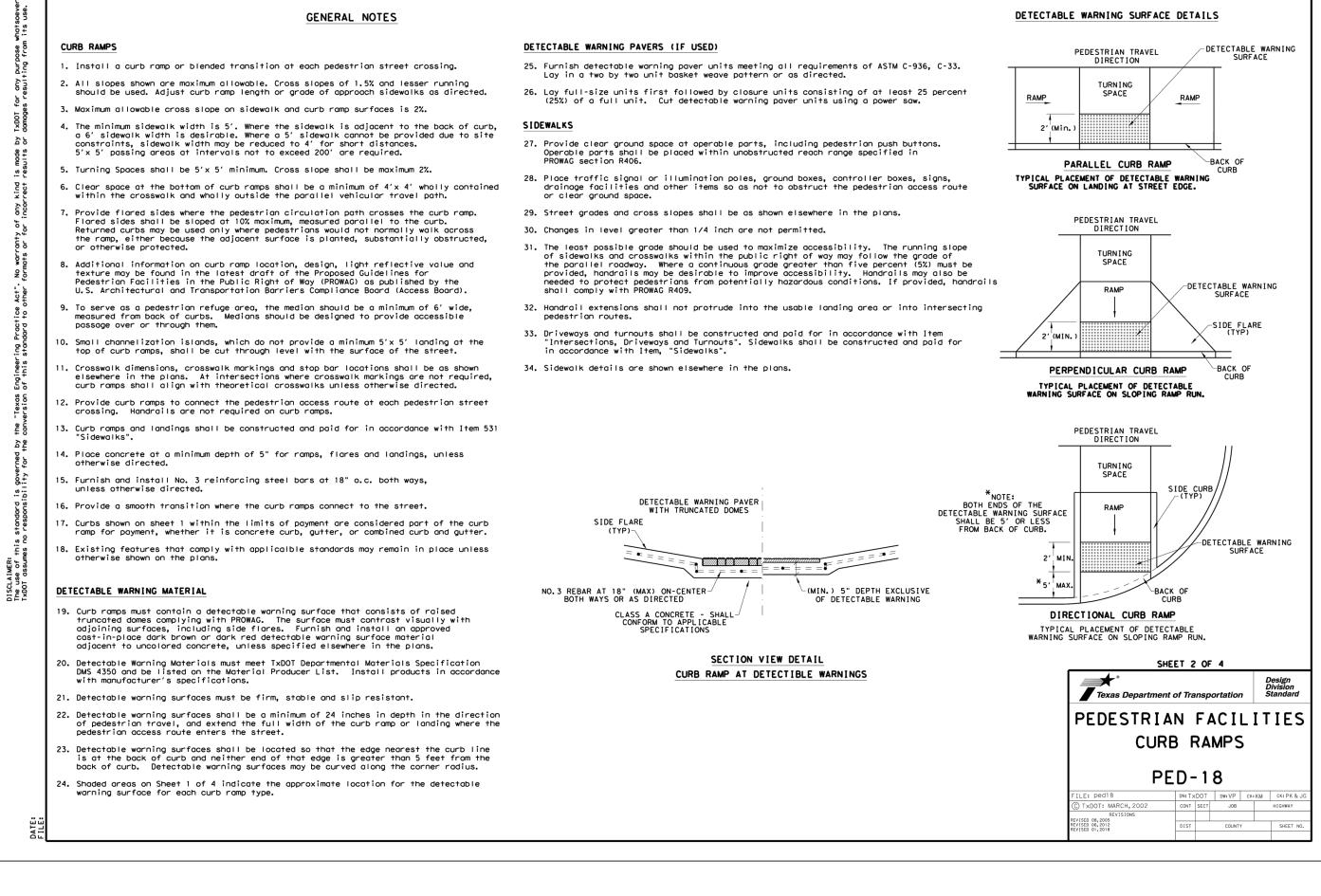
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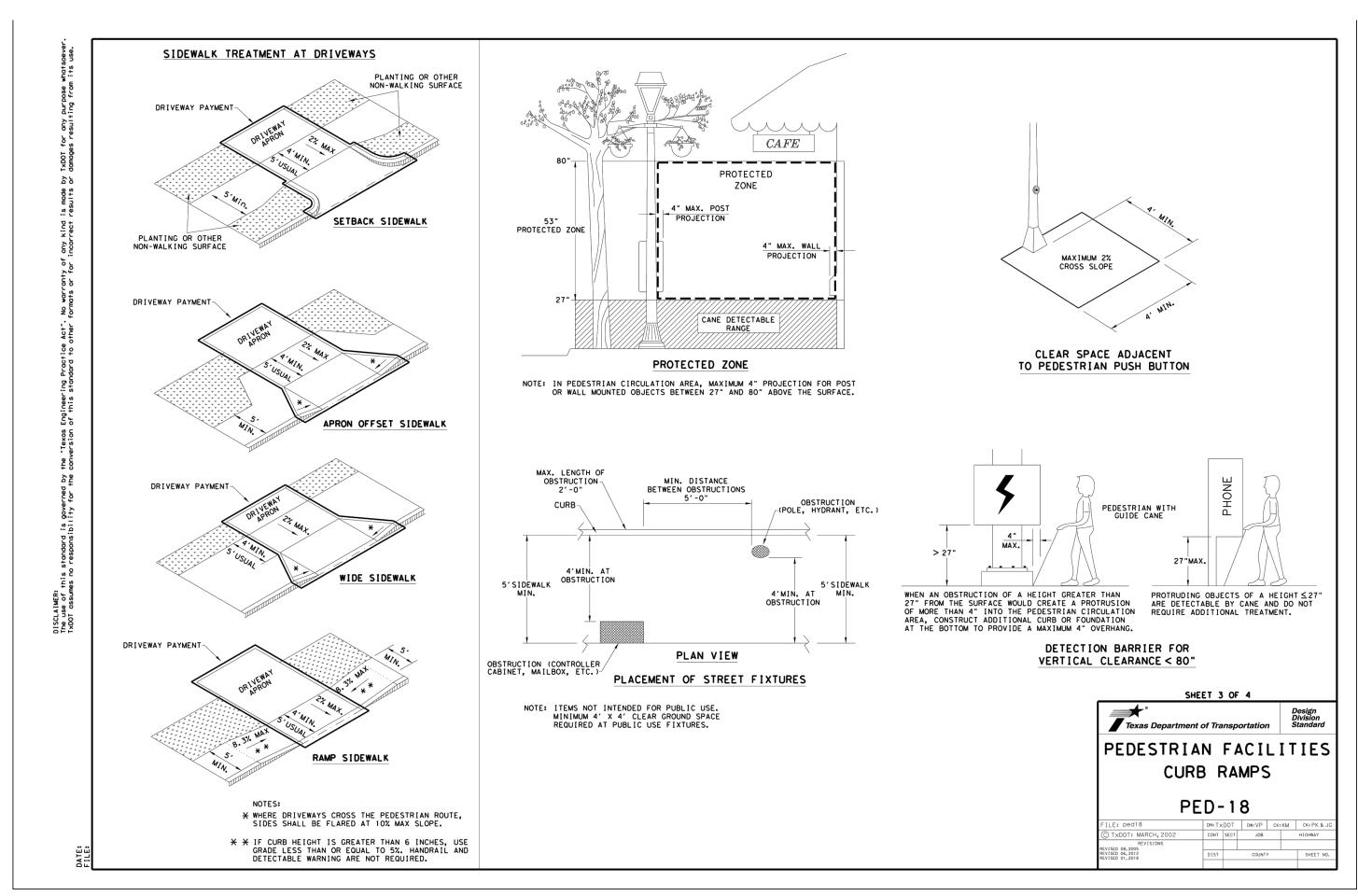
San Antonio, TX 78231 Phone: 210.979.8444 COLLIERS ENGINEERING & DESIGN, IN TBPE Firm#; F-14909 TBPLS Firm#: 10194550

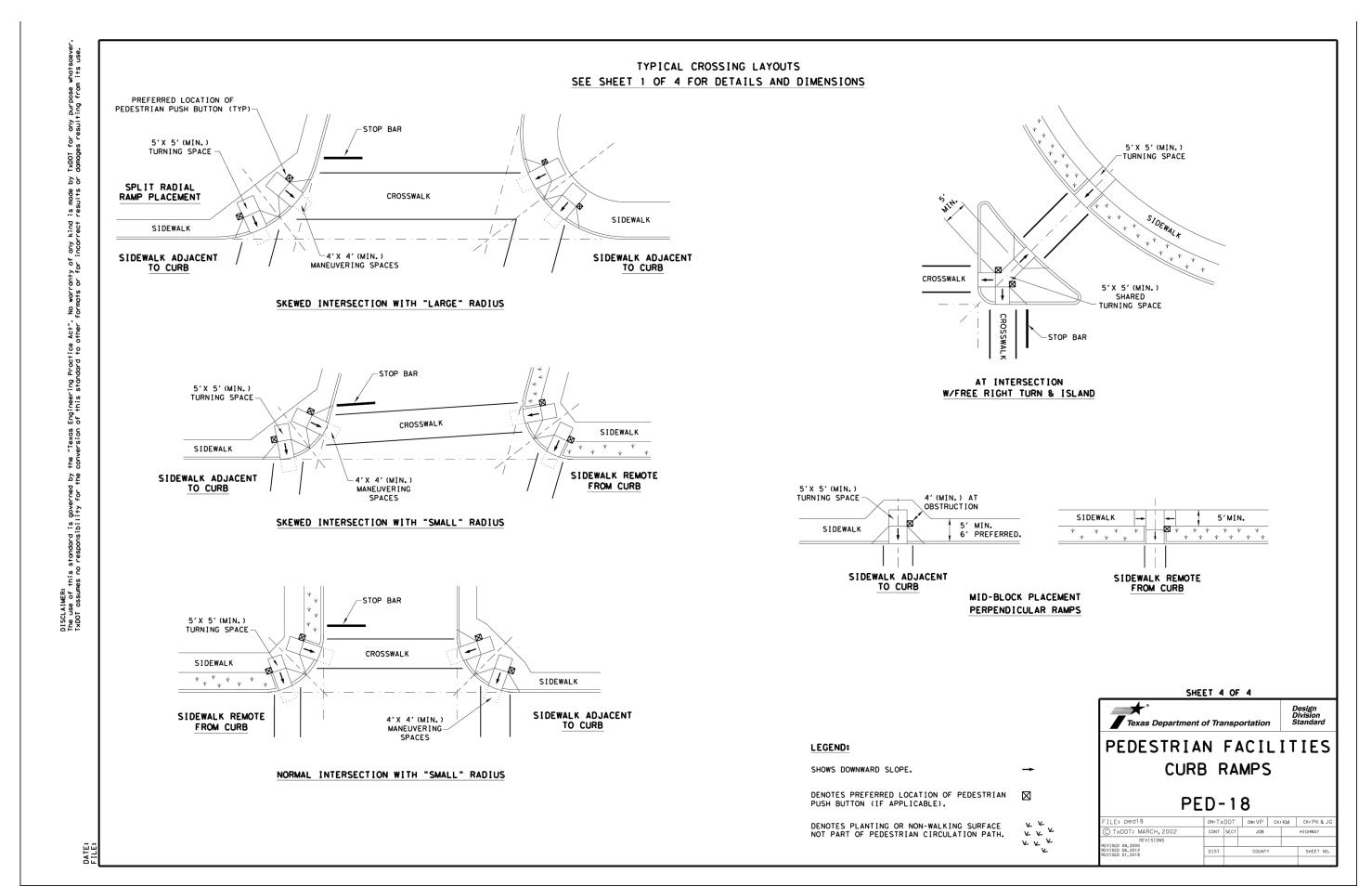
AS SHOWN NOV. 2023 TDT3146101 314-61-01

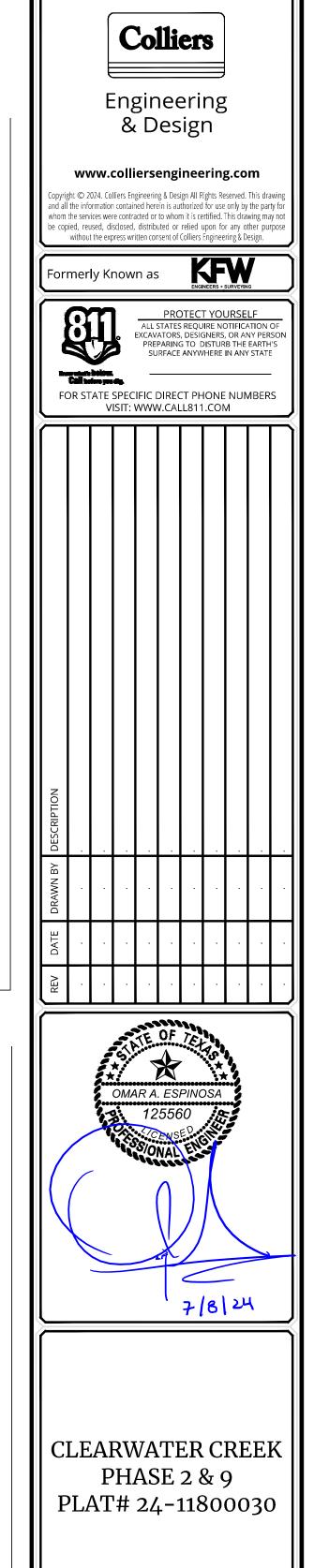
CONCRETE DRIVEWAY DETAILS











BEXAR COUNTY TEXAS



TBPE Firm#: 1-14909
TBPLS Firm#: 10194550

CALE: DATE: DRAWN BY: CHECKED BY:

AS SHOWN NOV. 2023 EC OE

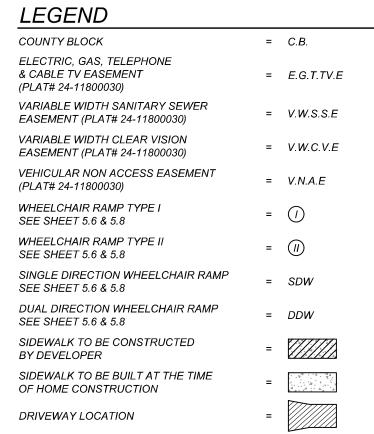
ROJECT NUMBER: DRAWING NAME:

314-61-01 STDT3146101

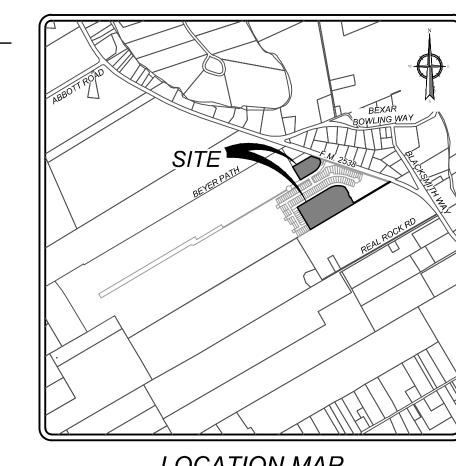
TXDOT PEDESTRIAN
CURB RAMP DETAIL

SHEET NUMBER:

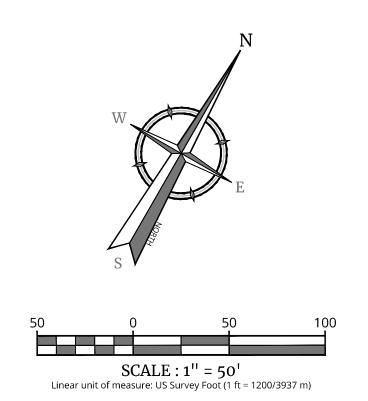
5,6



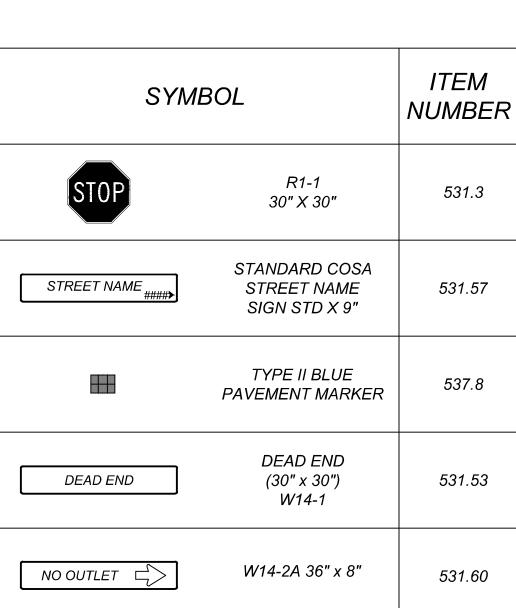
BEXAR COUNTY R.O.W. NOTE:
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.

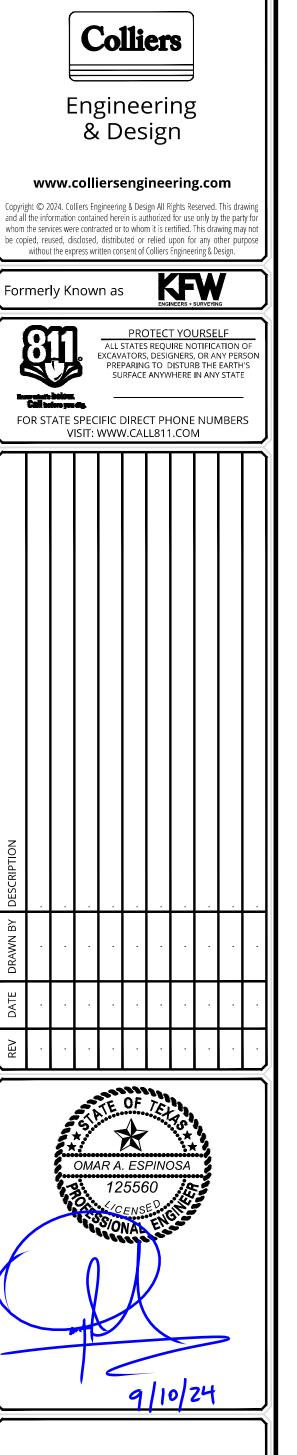


LOCATION MAP



SYM	BOL	ITEM NUMBEI
STOP	R1-1 30" X 30"	531.3
STREET NAME ####	STANDARD COSA STREET NAME SIGN STD X 9"	531.57
	TYPE II BLUE PAVEMENT MARKER	537.8
DEAD END	DEAD END (30" x 30") W14-1	531.53
NO OUTLET	W14-2A 36" x 8"	531.60





CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

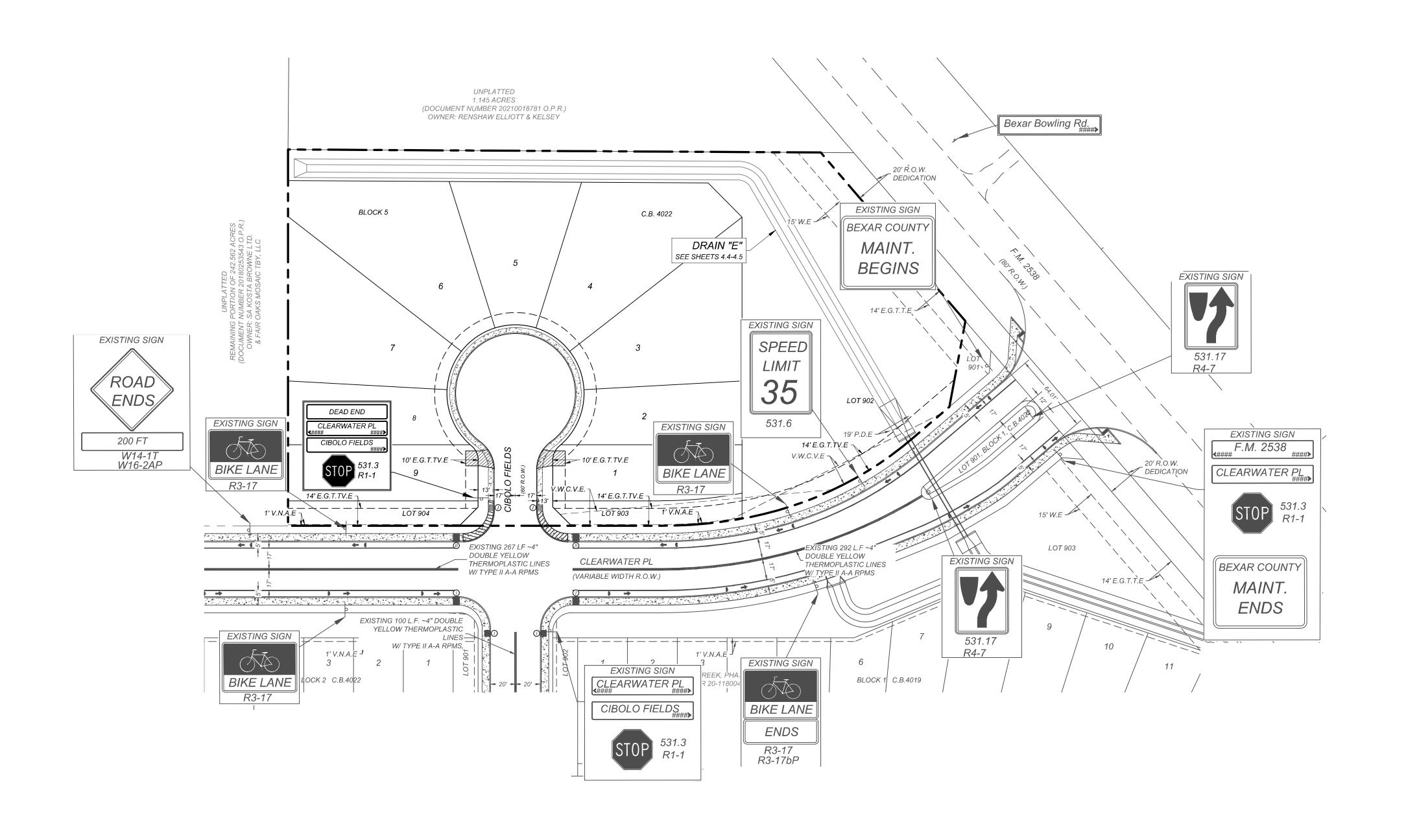
> BEXAR COUNTY **TEXAS**

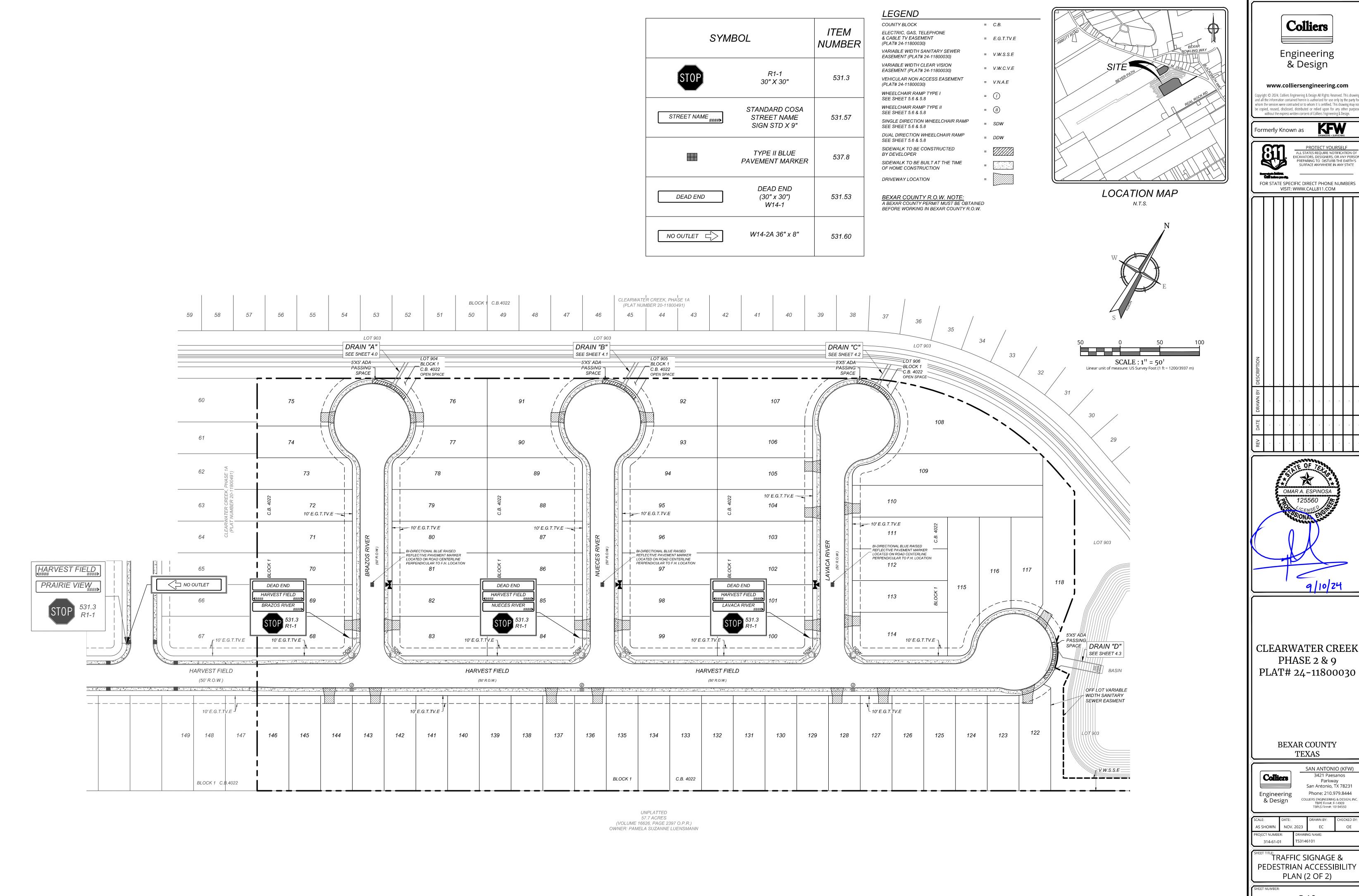
Colliers Engineering & Design

SAN ANTONIO (KFW) 3421 Paesanos Parkway San Antonio, TX 78231 Phone: 210.979.8444 COLLIERS ENGINEERING & DESIGN, INC. TBPE Firm#: F-14909 TBPLS Firm#: 10194550

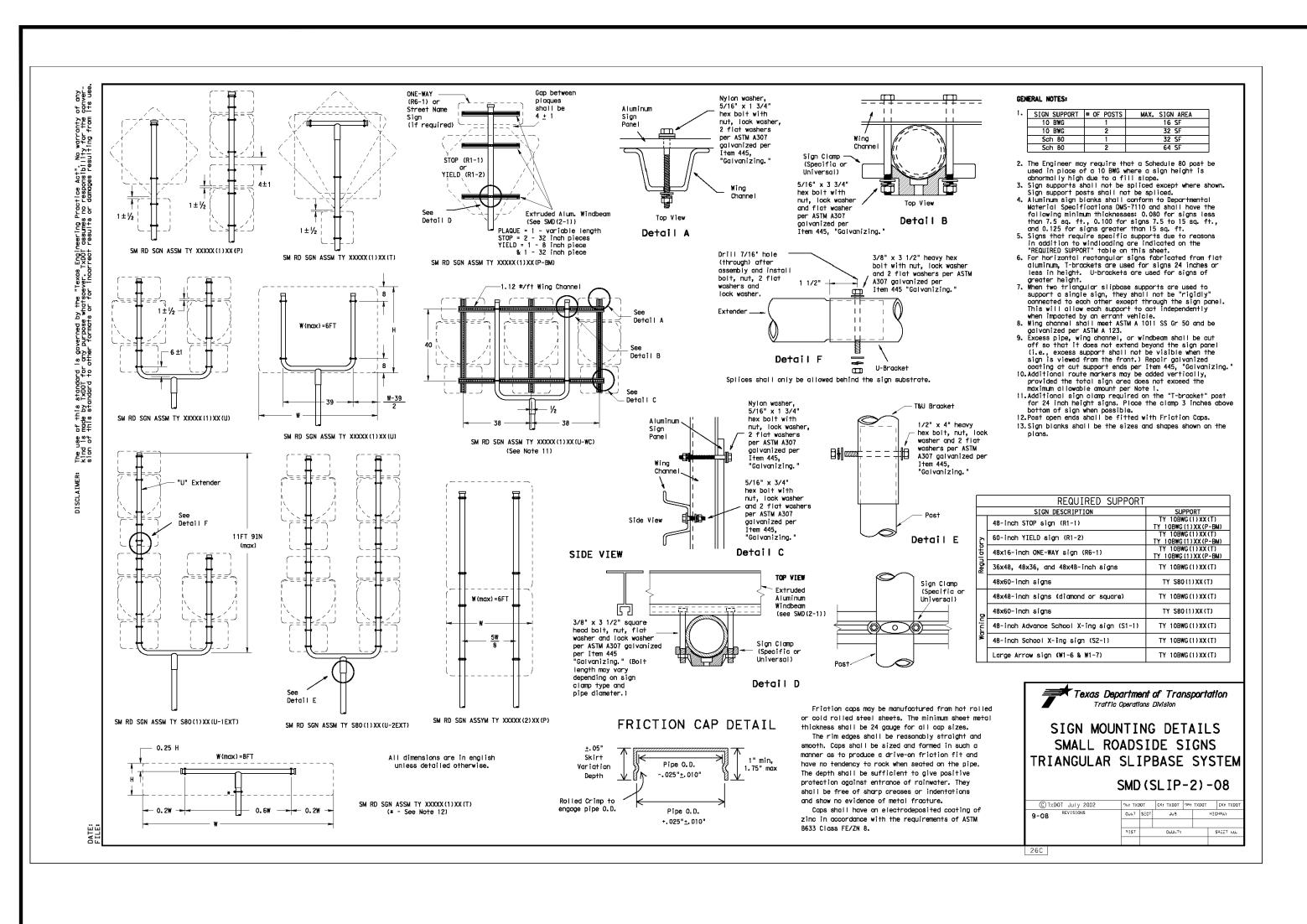
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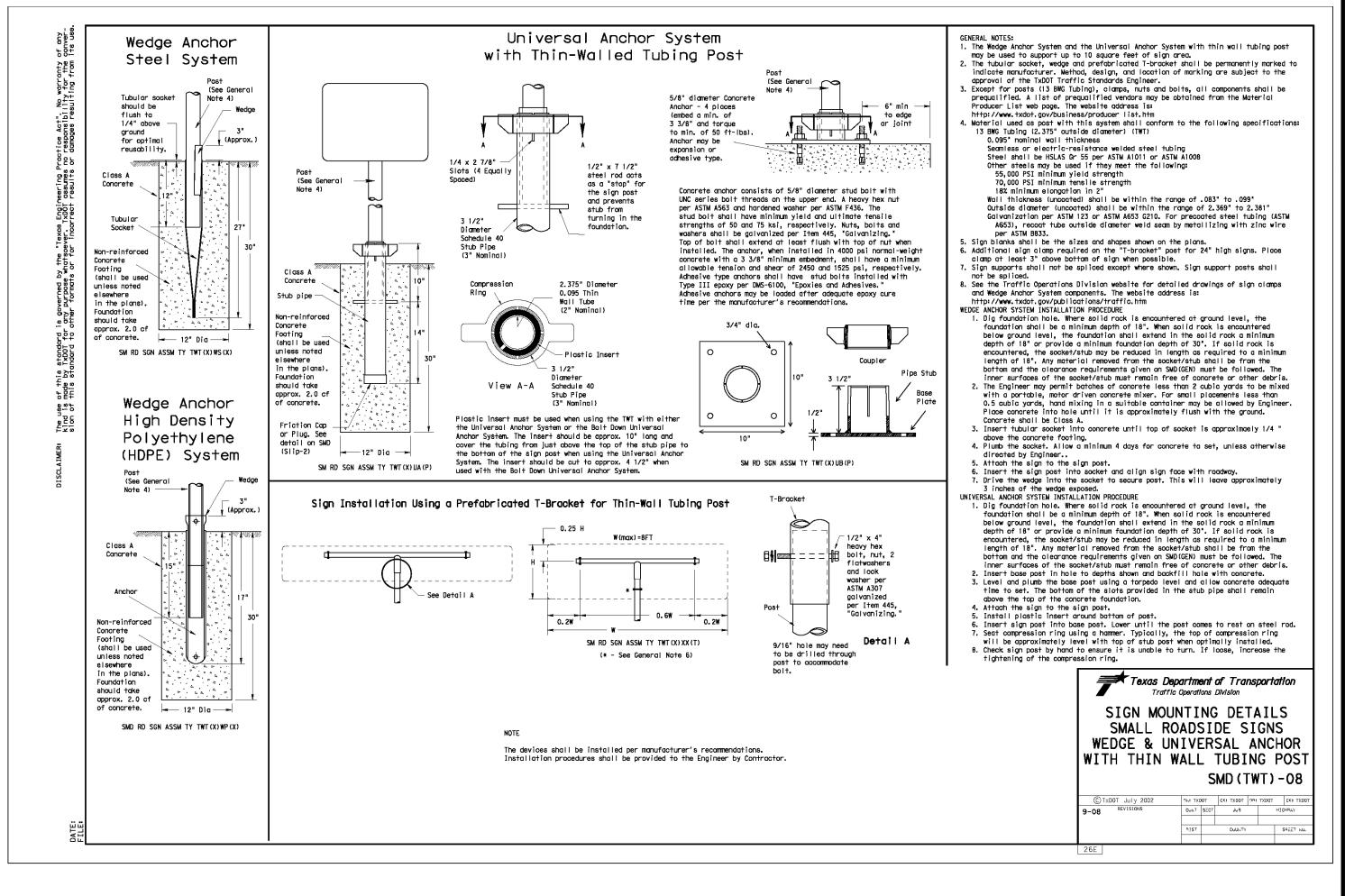
TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN (1 OF 2)

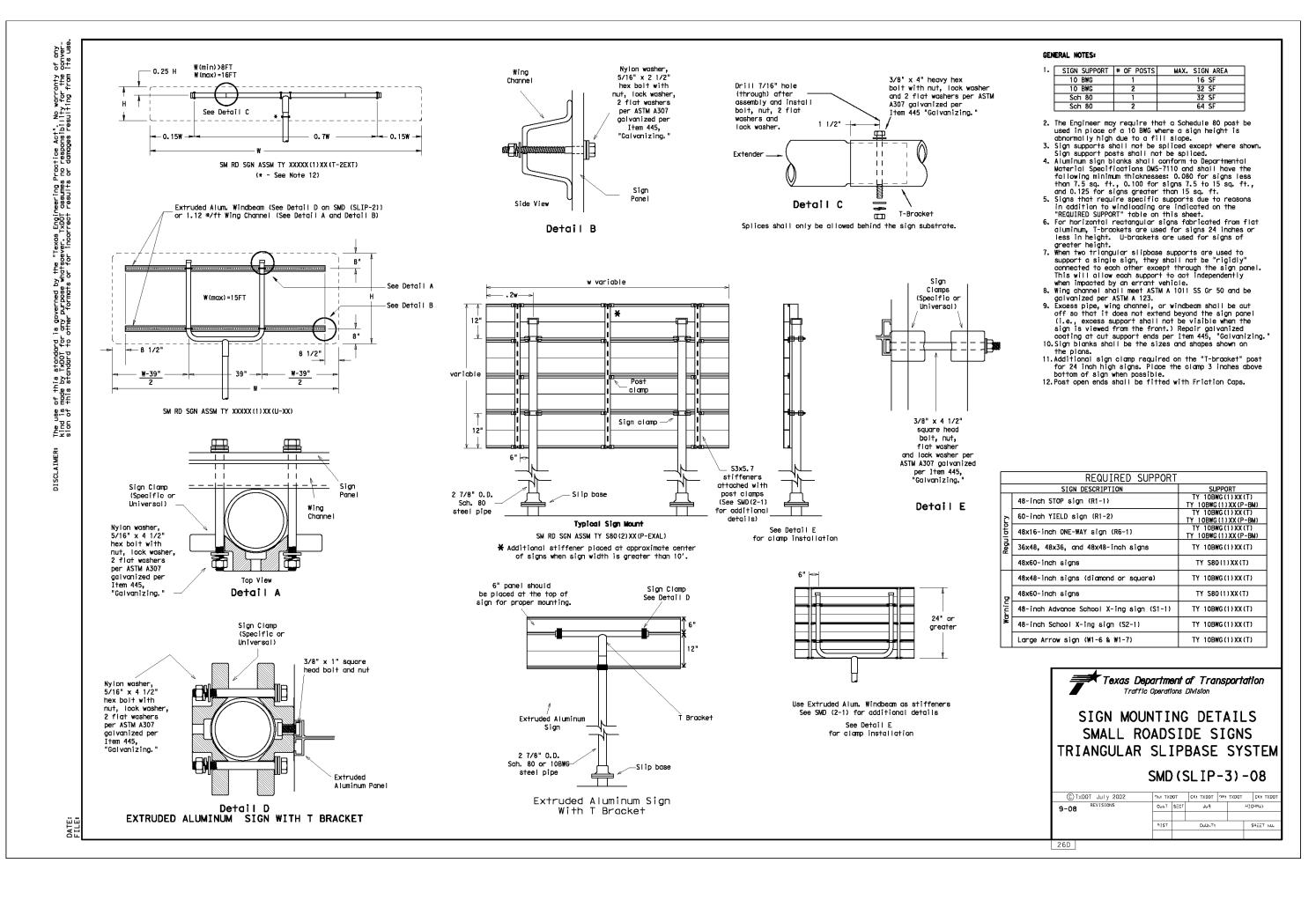


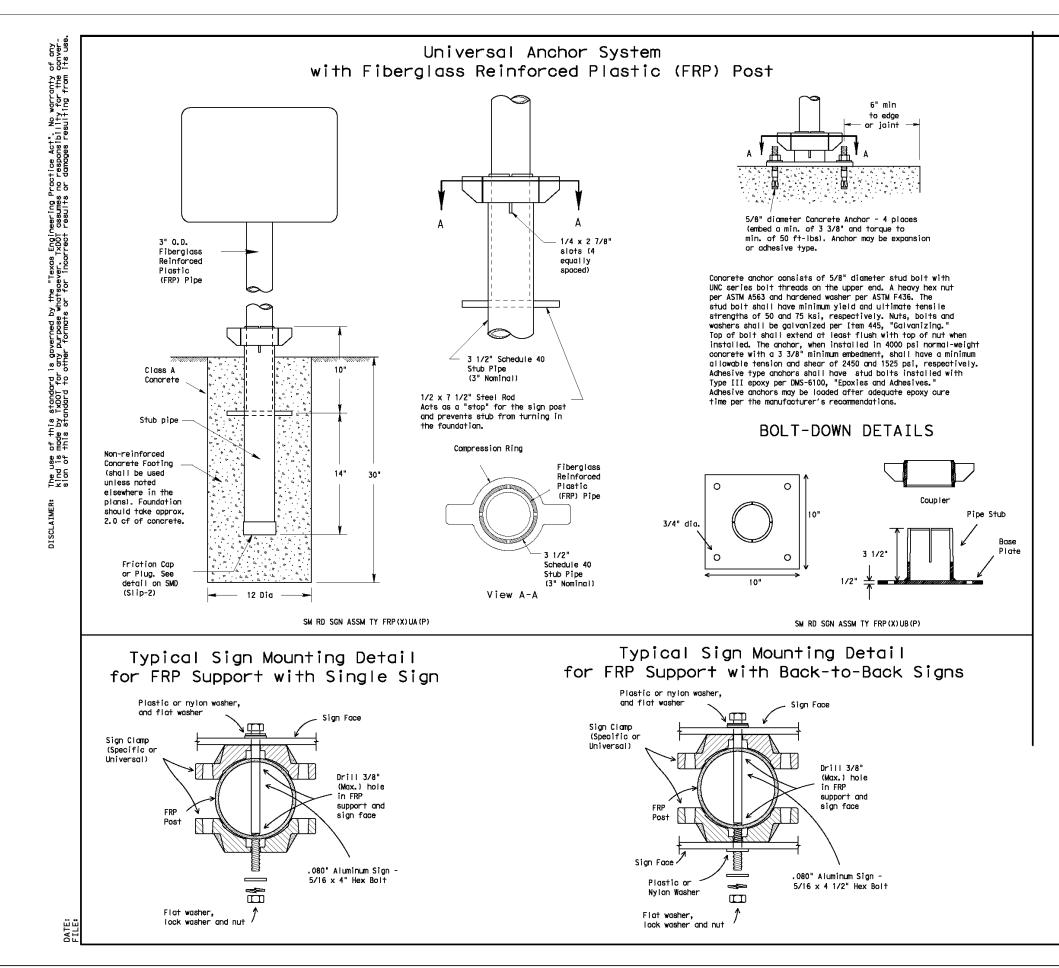


NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.









1. FRP sign supports for a single type sign support may be used for signs up to

to and including 32 square feet.

2. All nuts, boits and washers shall be galvanized per Item 445, "Galvanizing." 3. See the Traffic Operations Division website for detailed drawings of sign http://www.txdot.gov/publications/traffic.htm

FRP POST REQUIREMENTS

 Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.

Prequalification procedures are obtained by writing: Texas Department of Transportation
Traffic Operations Division

Austin, Texas 78701-2483

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is

allowed by Engineer. Concrete shall be Class A.

Insert base post in foundation hale to depths shown and fill hole with concrete. Cut base post from bottom and ensure a minimum of 18" embedment if

installed in solid rook.

4. Level and plumb the base post with coupler using a torpedo level and let concrete set a minimum of 4 days, unless otherwise directed by Engineer.

6. Insert sign post into base post. Lower until the post comes to rest on the

steel rod.
7. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.

8. Check sign to ensure there is no twist. If loose, increase the tightening of

level with top of base post in most instances.

6. Check sign to ensure there is no twist. If loose, increase the tightening of

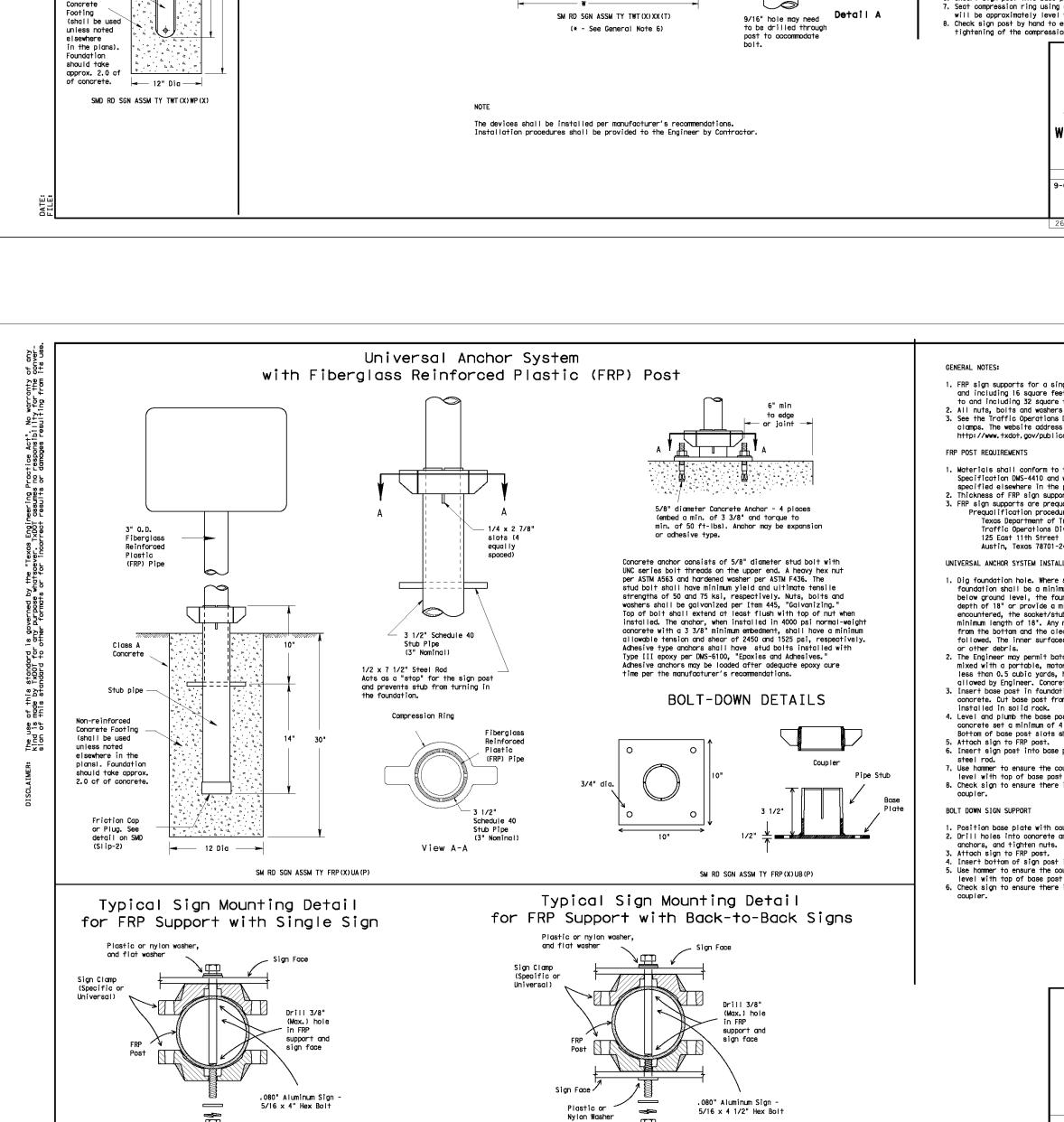
**Texas Department of Transportation SIGN MOUNTING DETAILS

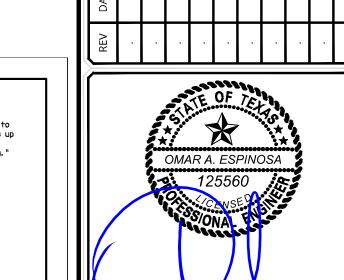
> UNIVERSAL ANCHOR SYSTEM WITH FRP POST SMD (FRP) -08

AS SHOWN NOV. 2023 53146101 314-61-01

(1 OF 2)

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.





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Engineering

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EXCAVATORS, DESIGNERS, OR ANY PER

PREPARING TO DISTURB THE EARTH'

SURFACE ANYWHERE IN ANY STATE

ormerly Known as

and including 16 square feet. Dual post installation may be used for signs up

2. Thickness of FRP sign support is 0.125" + 0.031", - 0.0".

3. FRP sign supports are prequalified by the Traffic Operations Division.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be

followed. The inner surfaces of the socket/stub must remain free of concrete 2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be

Bottom of base post slots shall be above the concrete footing.

5. Attach sign to FRP post.

 Position base plate with coupler on existing concrete.
 Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.

3. Attach sign to FRP post.4. Insert bottom of sign post into pipe stub. 5. Use hammer to ensure the coupler is firmly seated. Top of coupler should be

> **BEXAR COUNTY TEXAS** SAN ANTONIO (K SMALL ROADSIDE SIGNS

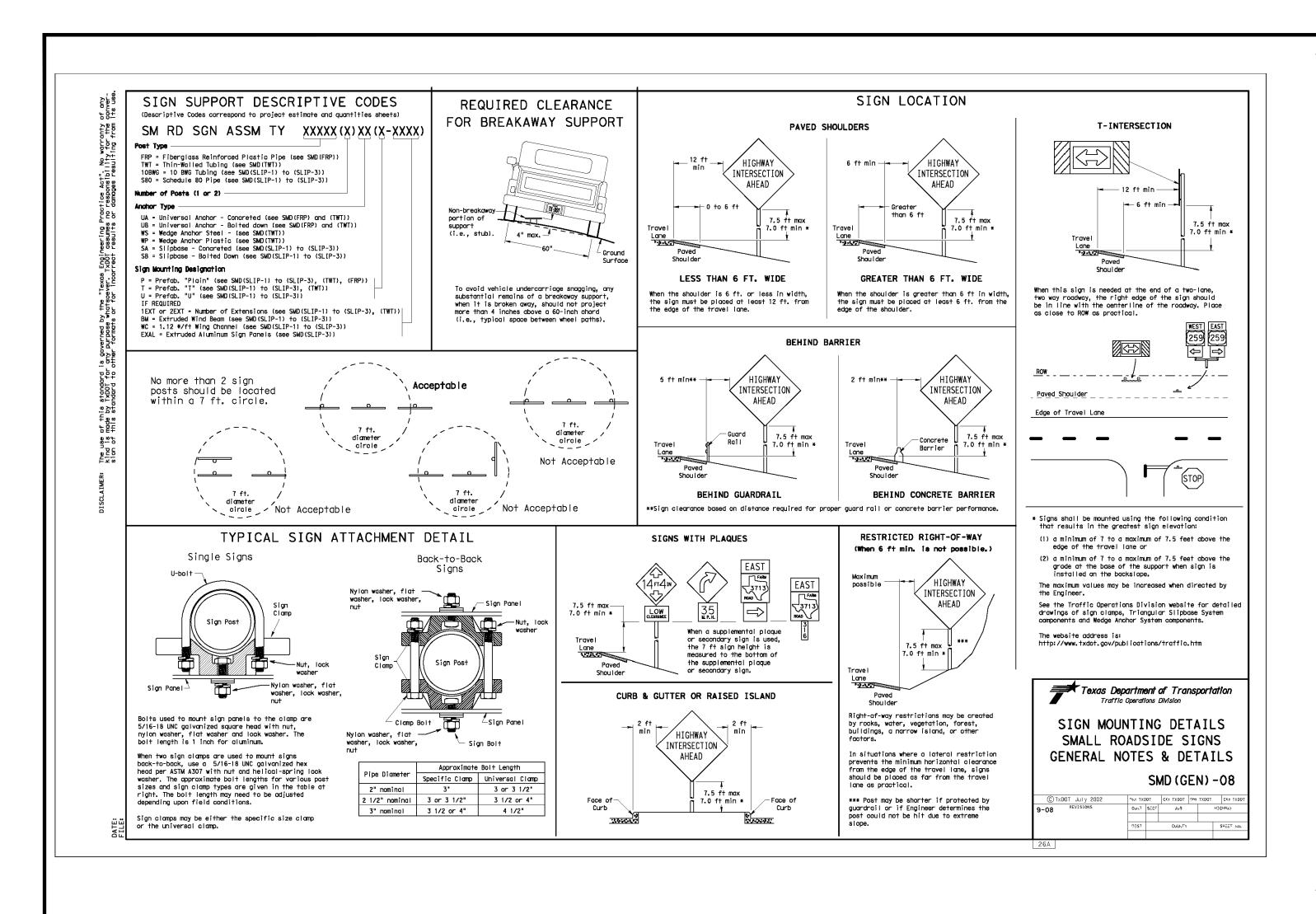
$\overline{}$	SAN ANTONIO (KEV
Colliers	3421 Paesanos
Comers	Parkway
	San Antonio, TX 7823
Engineering	Phone: 210.979.844
& Design	COLLIERS ENGINEERING & DESIGN TBPE Firm#: F-14909
	TBPLS Firm#: 10194550
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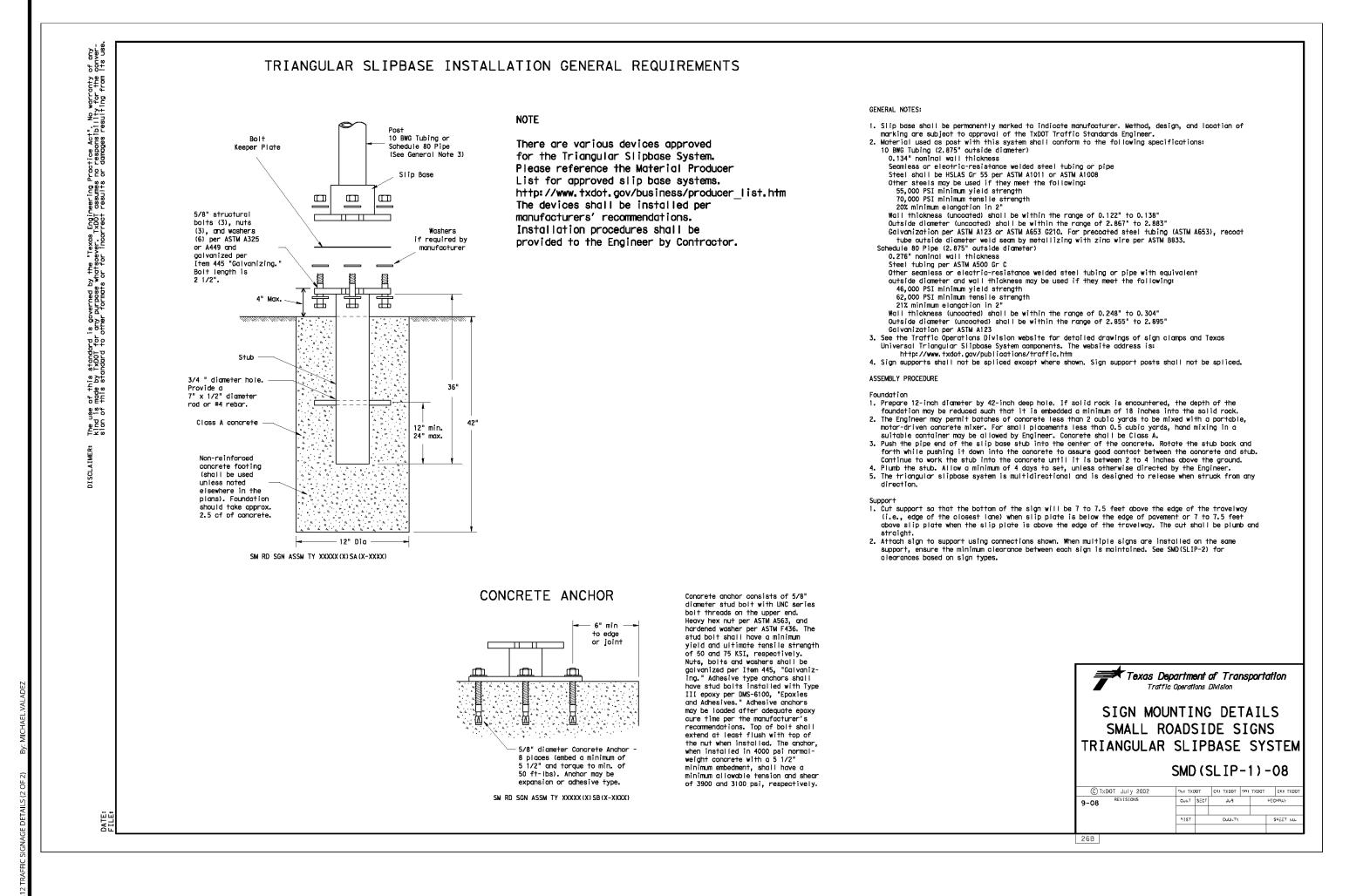
CLEARWATER CREEK

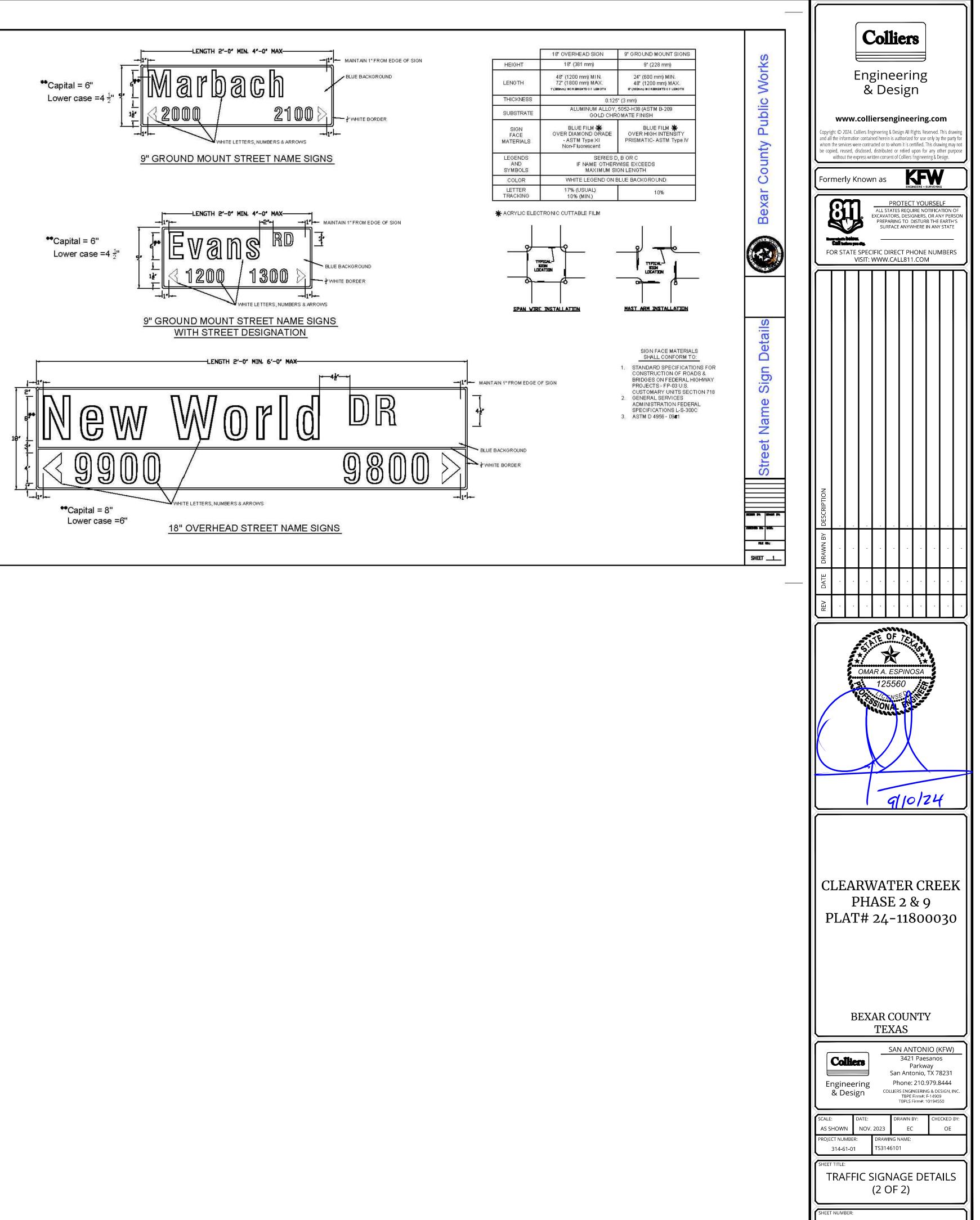
PHASE 2 & 9

PLAT# 24-11800030

TRAFFIC SIGNAGE DETAILS

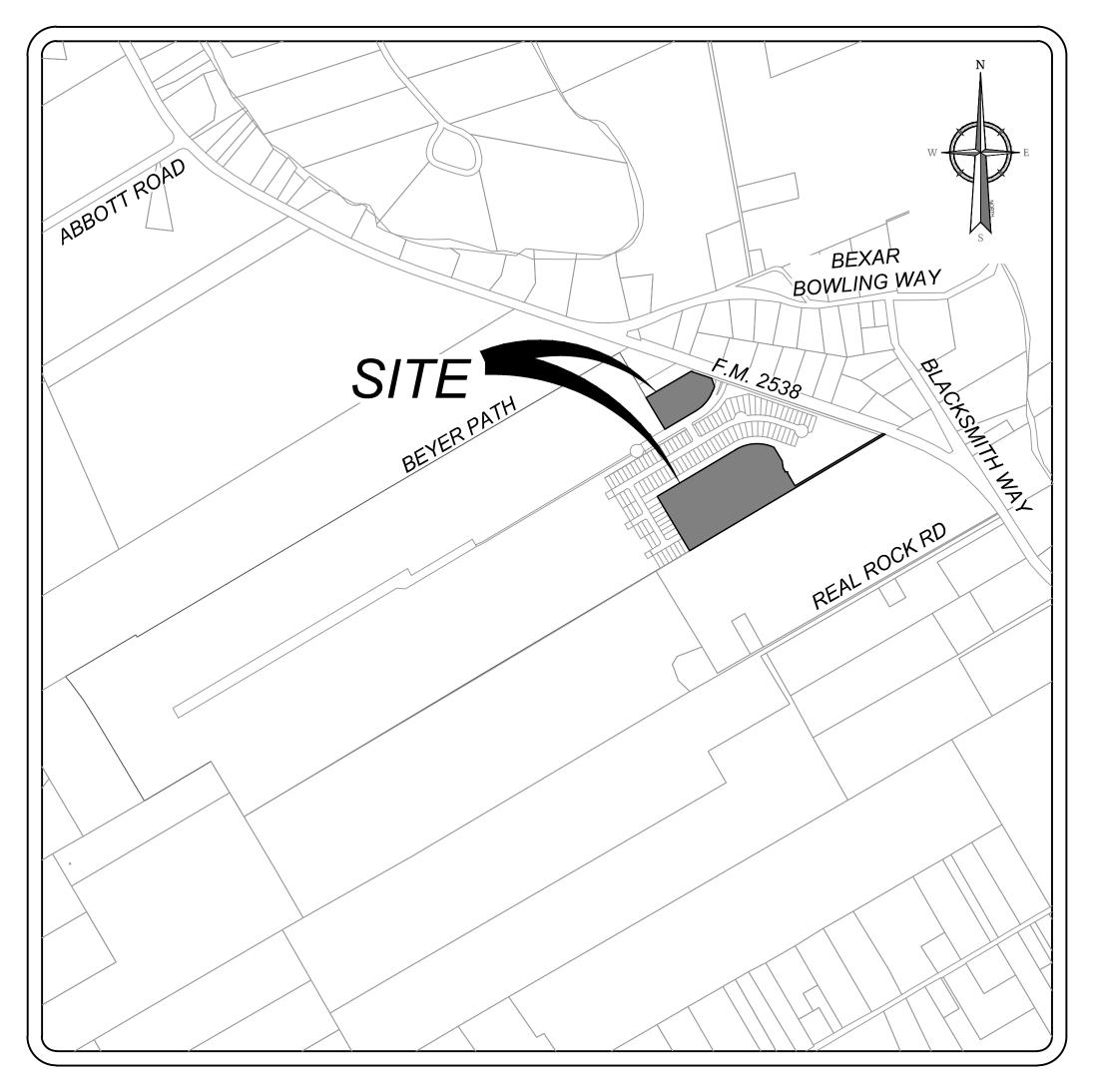






CLEARWATER CREEK PHASE 2 & 9

BEXAR COUNTY, TEXAS SANITARY SEWER IMPROVEMENTS



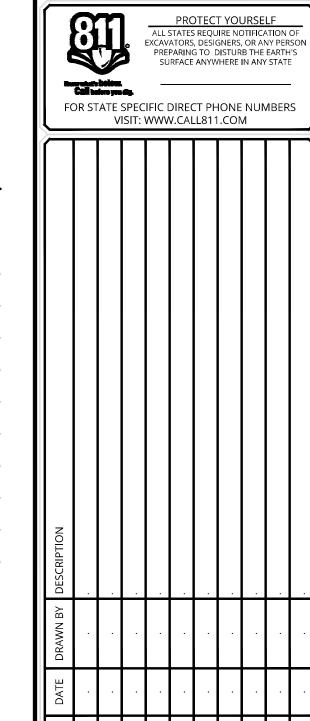
LOCATION MAP

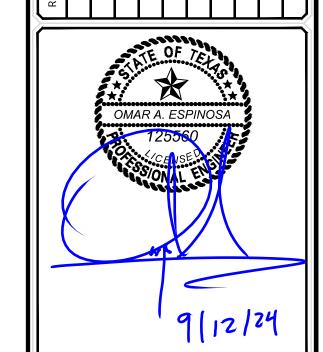
N.T.S.

OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS LAND
& CONSTRUCTION, LTD.
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TEXAS 78216
PHONE: (210) 403-6282

INDEX

DESCRIPTION	SHEET NO.
SANITARY SEWER COVER SHEET	6.0
OVERALL SANITARY SEWER PLAN (1 OF 2)	6.1
OVERALL SANITARY SEWER PLAN (2 OF 2)	6.2
SANITARY SEWER NOTES (1 OF 2)	6.3
SANITARY SEWER NOTES (2 OF 2)	6.4
SANITARY SEWER DETAILS (1 OF 2)	6.5
SANITARY SEWER DETAILS (2 OF 2)	6.6
LINE "B" PLAN & PROFILE	6.7
LINE "G" & "H" PLAN & PROFILE	6.8
LINE "F" & "I" PLAN & PROFILE	6.9





CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

> BEXAR COUNTY TEXAS

Engineering & Design

SCALE: DATE:
AS SHOWN NOV. 2

3421 Paesanos
Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, I
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

SAN ANTONIO (KFW)

LE: DATE: DRAWN I
SHOWN NOV. 2023 EC

JECT NUMBER: DRAWING NAME:

314-61-01 CVOS3146101

SANITARY SEWER
COVER SHEET

SHEET NUMBER:

NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES
1.	SANITARY SEWER PIPE		
	18" SDR 26	LF	1,010
	8" SDR 26	LF	1,104
2.	STANDARD MANHOLE	EACH	11
3.	MANHOLE EXTRA DEPTH	VF	39.5
4.	MANHOLE RING ENCASEMENT	EACH	11
5.	6" SANITARY SEWER LATERAL (SDR 26)	LF	3,563
6.	6" VERTICAL STACKS	VF	131.0
7.	TIE-IN TO EXISTING STUB-OUT	EACH	2
8.	TRENCH EXCAVATION PROTECTION	LF	2,114
9.	TV VIDEO SEWER LINE	LF	2,114

RENCH EXCAVATION SAFETY PROTECTION

ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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

COMPACTION NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTRATOR, PER EACH 12 INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. PERMITS AND/OR WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

> UNPLATTED 1.145 ACRES (DOCUMENT NUMBER 20210018781 O.P.R.)

OWNER: RENSHAW ELLIOTT & KELSEY

MH "F1"

END LINE "F"

10' E.G.T.TV.E →

2 - 4" CONDUITS

(FOR PRIVATE USE) extcolored

C.B. 4022

10' E.G.T.TV.E _ _ _ _ _ _

- HO— — — — E12"W — — — — — H °

CLEARWATER PL

STA: 1+60.00

BEGIN LINE "I"

CONTRACTOR TO REMOVE CAP & TIE INTO EXISTING 8" SEWER LINE

CLEARWATER CREEK, PHASE 1A

(PLAT NUMBER 20-11800491)

DRAIN "E"

LOT 902

19′ P.D.E ✓

BLOCK/1 C.B.4022

15' W.E 🗸

LOT 903`\

14′ E.G.T.T.È.✓

14' E.G.T.TV.E 🦴

1' V.N.A.E J

SEE SHEETS 4.4-4.5

BLOCK 5

8" WATER CROSSING STA: 2+33.00 REF. WATER CROSSING DETAIL THIS SHEET

14' E.G.T.TV.E 7

LEGEND

PROPOSED WATER MAIN PROPOSED FIRE HYDRANT

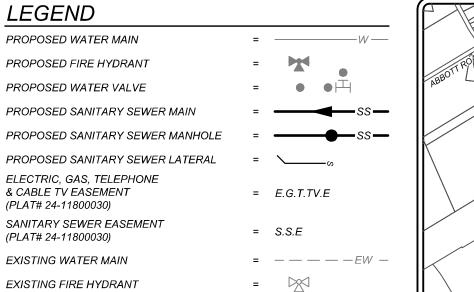
PROPOSED WATER VALVE PROPOSED SANITARY SEWER MAIN

PROPOSED SANITARY SEWER LATERAL ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT (PLAT# 24-11800030)

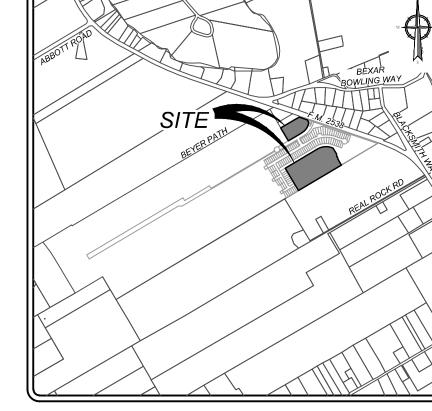
SANITARY SEWER EASEMENT (PLAT# 24-11800030)

EXISTING WATER MAIN EXISTING FIRE HYDRANT EXISTING WATER VALVE

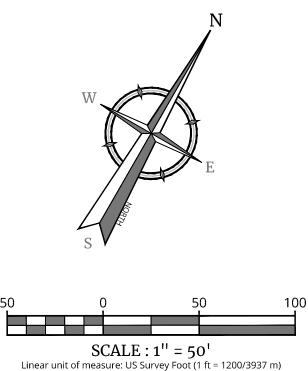
> EXISTING SANITARY SEWER MAIN EXISTING SANITARY SEWER MANHOLE



= ▷8□





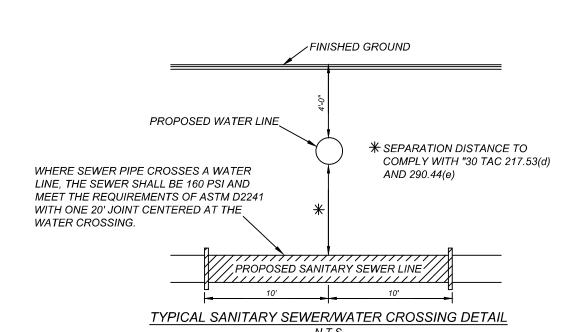


NOTES:

1. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF

CONTROL OF THE PARTY OF THE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.3 & 6.4, SANITARY SEWER GENERAL NOTES, GUADALUPE -BLANCO RIVER AUTHORITY CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.

3. PIPE TYPE DESIGNATIONS ARE SDR 26 FOR 8" & PIPE STIFFNESS (P.S.) 115 PSI FOR 18". 4. SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL. 5. ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING

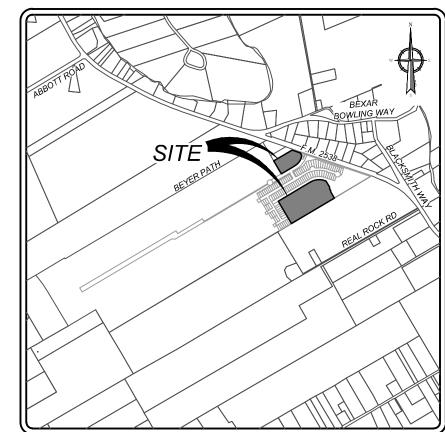


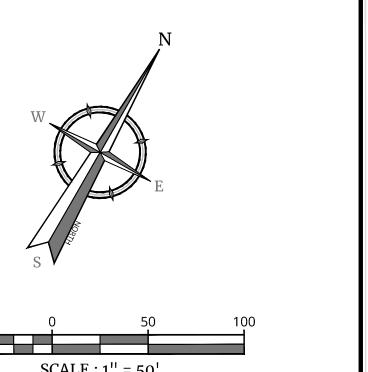
CAUTION!!:

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED 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.

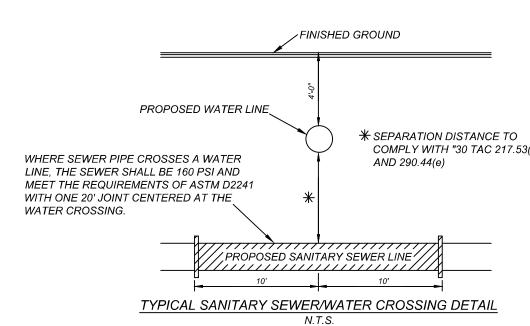
MANHOLE NOTE:
ALL MANHOLES MUST BE WATERTIGHT, WITH WATERTIGHT RINGS AND COVERS. THESE MANHOLES MUST BE VENTED PER SAWS DETAIL DD852-02.

Sewer Utility Quantities Ta	able
6" Sanitary Sewer Lateral	85
Total FD	U = 85





2. SEE THIS SHEET FOR BENCHMARK INFORMATION. AND COVER. SEE SHEET 6.5 FOR DETAILS.



CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

OMAR A. ESPINOSA

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Engineering

& Design

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Formerly Known as

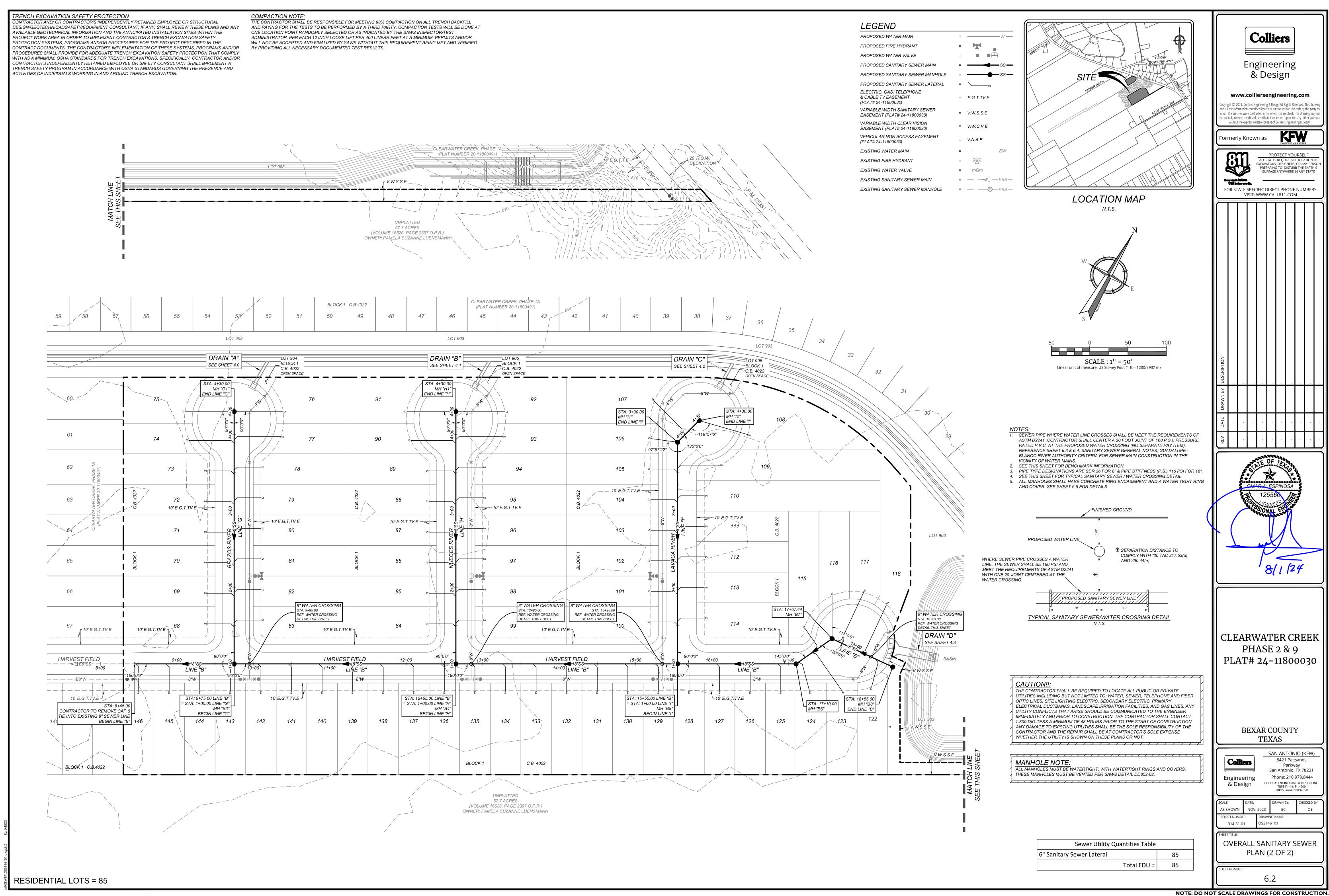
BEXAR COUNTY TEXAS

	SAN ANTONIO (
Colliers	3421 Paesand Parkway
ngineering	San Antonio, TX 7 Phone: 210.979.
& Design	COLLIERS ENGINEERING & D TBPE Firm#: F-1490 TBPLS Firm#: 10194!

OS3146101 314-61-01 $oldsymbol{\Phi}$ VERALL SANITARY SEWER PLA

(1 OF 2)

RESIDENTIAL LOTS = 85



GREEN VALLEY SPECIAL UTILITY DISTRICT SANITARY SEWER SYSTEM GENERAL NOTES:

THE STANDARD SPECIFICATIONS AND DRAWING (DD) ARE PROVIDED AS A TECHNICAL RESOURCE FOR ENGINEERING PROFESSIONALS FOR USE IN DESIGN AND CONSTRUCTION OF SEWER COLLECTION SYSTEMS PROJECTS MANAGED AND CONTRACTED BY THE GREEN VALLEY SPECIAL UTILITY DISTRICT (GVSUD)

GENERAL: THE OWNER, DEVELOPER, ENGINEERING FIRM SHALL SUBMIT TO THE GREEN VALLEY SPECIAL UTILITY DISTRICT (GVSUD) ENGINEER, FOR APPROVAL, TWO (2) COPIES OF ALL PLATES, PLANS AND PROFILES, PLUMBING LAYOUT, WHICH HAVE BEEN DESIGNED AND THE DRAWINGS SEALED BY A REGISTERED PROFESSIONAL ENGINEER. WHEN APPROVED, ONE (1) COPY WILL BE RETURNED TO THE OWNER, DEVELOPER, ENGINEERING FIRM, SO MARKED. THE OWNER WILL BE REQUIRED TO MAKE ALL CHANGES INDICATED BY THE GVSUD ENGINEER, AND RETURN WITH ALL CHANGES, CORRECTIONS, BACK TO GVSUD FOR APPROVAL.

- 1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE GVSUD AND COMPLY WITH:
 - A. CURRENT GVSUD TECHNICAL SPECIFICATIONS FOR UTILITIES CONSTRUCTION.
 - B. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ), FORMERLY TEXAS NATURAL RESOURCE CONSERVATION COMMISSION (TNRCC), DESIGN CRITERIA FOR SEWAGE SYSTEMS 31 TAC 317.1, 31 TAC 317.2 AND 31 TAC 317.3, 30 TAC & 213 40 TAC &217.
- 2. THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE GVSUD INSPECTIONS DIVISION AT (830)914-2330 OR (210)372-2228 48 HOURS PRIOR TO ANY EXCAVATION. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD BEFORE ANY EXCAVATION OR START OF PROJECT.
- 3. WORK SHALL NOT BE PERFORMED ON SATURDAYS, SUNDAYS OR HOLIDAYS BEFORE 7:30 A.M. OR AFTER 4:30 P.M., UNLESS PRIOR APPROVAL IS GRANTED BY THE GVSUD ENGINEER.
 - A. THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES TO INCLUDE SURFACE LATERALS, SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO LOCATION (POT HOLE, VERIFY LOCATION, ELEVATIONS OF ALL) UTILITY SERVICE LINES 48 HOURS PRIOR TO EXCAVATION AND TO PROTECT THE SAME DURING CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGES OF EXISTING UTILITIES AND REPAIRS WILL BE AT THE CONTRACTORS EXPENSE.

EXISTING MANHOLES/SEWER

- 4. CONTRACTOR WILL MAINTAIN SERVICE TO ALL EXISTING SANITARY SEWERS AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR WILL MARK, CLEAN ALL DEBRIS, GRAVEL, DIRT, ETC. OUT OF MANHOLES AND ANY STOPPAGES CAUSED BY DEBRIS DURING CONSTRUCTION. CONTRACTOR WILL UNPLUG STOPPAGE AT CONTRACTORS EXPENSE. ANY DAMAGE TO EXISTING MANHOLES OR SEWER MAIN WILL BE CORRECTED AT THE CONTRACTORS EXPENSE. CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT DAMAGE TO EXISTING OR NEW RINGS, COVERS, OR CONES FROM EQUIPMENT AND MATERIALS USED OR TAKEN THROUGH THE WORK AREA. IF AN EXISTING OR NEW MANHOLE COVER, RING, OR CONE IS DAMAGED BY THE CONTRACTOR IT SHALL BE REPLACED AS DIRECTED BY THE GVSUD INSPECTOR. MANHOLES WILL NEED TO BE RESEALED WITH THE GVSUD APPROVED SEALING. IF SEAL COATING IS BROKEN, CONTRACTOR WILL HAVE MANHOLE RECOATED. RESEAL ALL LEAKS AT CONTRACTORS EXPENSE
 - A. CONTRACTOR TO ENSURE ALL PLUGS USED TO PLUG SEWER LINES, WHILE TESTING THE PROJECT (SUCH AS AIR PLUGS, SCREW TYPE PLUGS, ETC.) ARE LABELED, MARKED OR TAGGED. PROJECT INSPECTOR WILL RECORD HOW MANY PLUGS ARE BEING USED, LOCATION AND I.D., WITHIN COLLECTION SYSTEM. CONTRACTOR WILL REPORT TO PROJECT INSPECTOR OF ANY LOST OR UNRESTRAINED PLUGS INTO SEWER COLLECTION SYSTEM.
 - B. CONTRACTOR WILL BE HELD LIABLE FOR ANY DAMAGES TO SEWER COLLECTION SYSTEM STOPPAGES, OVER-FLOWS, BACKUP INTO HOMES CAUSED BY LOST RUN-AWAY SEWER PLUGS THAT WERE USED ON THAT PROJECT OR OUTFALL LINE WASTEWATER TREATMENT PLANTS.
- C. CONTRACTOR WILL ALSO BE RESPONSIBLE FOR ANY DAMAGE TO WASTEWATER TREATMENT APPARATUS, SUCH AS SCREW PUMPS, ETC. CAUSED BY LOST OF RUN-AWAY SEWER PLUGS. CONTRACTOR WILL BE HELD LIABLE FOR DAMAGES, AS WELL AS COST OF REPAIRS.
- ALL WORK IN THE TEXAS HIGHWAY DEPARTMENT, BEXAR COUNTY, GUADALUPE COUNTY, AND CITY OF CIBOLO RIGHT OF WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT.
- 6. ALL WORK IN PUBLIC STREETS SHALL BE COORDINATED WITH AND APPROVED BY THE BEXAR COUNTY OR GUADALUPE COUNTY PUBLIC WORKS DEPARTMENT TRAFFIC DIVISION AND STREET ENGINEER.
- DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.161, CITY PUBLIC SERVICE MUST MAINTAIN ACCESS
 TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND VALVES THAT ARE
 IN THE PROTECTED AREAS.
- 8. NO TESTING WILL BE PERFORMED PRIOR TO 30 DAYS FROM THE COMPLETE INSTALLATION OF THE SANITARY SEWER LINES.

THE FOLLOWING SEQUENCE WILL BE STRICTLY ADHERED TO:

- A. PULL MANDREL AFTER 30 DAYS OF INSTALLATION
- B. PERFORM AIR TEST
- C. PULL WIPER (AFTER STREET HAS BE ASPHALTED IN NEW SUBDIVISIONS)
- D. VACUUM TEST ALL MANHOLES WITHIN THE PROJECT
- E. CCTV-ALL NEW LINE-PAN (TILL ALL SERVICE LATERALS TO 6"X6" CLEAN OUT. FLOOD ALL LINES BEFORE CCTV, SUMMIT DVD)
- CONTRACTOR SHALL SUBMIT FIELD COPY PLANS AND PROFILES SHOWING AS-BUILT WORK AT END OF PROJECT, CCTV DVD AND COMPACTION DENSITY REPORTS FOR MAIN SEWER LINE AND ALL SERVICE LATERALS TRENCHES. WARRANTY LETTERS ON MATERIALS, WORKMANSHIP FOR 24 MONTHS AFTER FINAL ACCEPTANCE.
- 10. ALL MANHOLES SHALL BE CONSTRUCTED SO THAT THE TOP OF THE RING IS AT LEAST TWELVE (12) INCHES ABOVE THE FINISHED GRADE OF THE SURROUNDING GROUND EXCEPT WHEN LOCATED IN PAVED AREAS. IN PAVED AREAS THE MANHOLE RING SHALL BE FLUSH WITH THE PAVEMENT. ALL NEW INSTALLED MANHOLES WILL BE WITH A 30" INCH OPENING, MINIMUM, WITH THE GVSUD LOGO ON THE COVER. EVERY THIRD MANHOLE COVER WILL HAVE A 1" HOLE FOR A VENT.
- 11. ALL MANHOLES SHALL BE WITH A 30" INCH OPENING, HAVE WATERTIGHT RING AND COVERS, WITH THE GVSUD LOGO. ON PRIVATE PROPERTY, MANHOLE RING AND COVER SHALL BE TYPICAL MANHOLE COVER WATER TIGHT.
 - A. BEFORE BACK FILLING/COMPACTION/CONCRETE ENCASEMENT
 - ALL MANHOLE JOINT SECTION RISERS, CONE SECTIONS AND GRADE RING SHALL BE WRAPPED WITH GATOR WRAP SEALING SYSTEMS, BUTYL ADHESIVE SEALANT WITH A MINIMUM THICKNESS OF 30 MILS. INFI-SHIELD WRAPPED WITH RISER-WRAP SEALING SYSTEM, GATOR WRAP MATERIAL: RUBBER MEETS ASTM C923/MASTIC MEETS ASTM C 990 OR APPROVE BY THE GVSUD ENGINEER SUBSTITUTION ON OUTSIDE FOR I/I, GROUND WATER TABLE.

- 12. IF CONCRETE THROAT RINGS ARE TO BE INSTALLED, A MINIMUM OF TWO AND A MAXIMUM OF FOUR THROAT RINGS WILL BE USED AT EACH MANHOLE FOR ADJUSTMENT.
- 13. INFILTRATION DISHES WILL BE REQUIRED IN MANHOLES <u>WHERE APPLICABLE</u> (I.E., SUCH AS LOW DRAINAGE AREAS) AND EVERY THIRD MANHOLE SHALL BE VENTED. 30" INCH MANHOLE COVER WITH 1" INCH HOLE CENTER OF COVER WHERE APPLICABLE.

Note: Manhole cover inserts shall be FRW Industries, inc., "Inflow Protector-Cover" "Preco Industries Ltd.", "Sewer Guard", or approved equal, and shall be installed in strict accordance with the manufacturer's recommendations. The contractor shall be responsible for making the necessary field measurements for the manufacturer prior to construction.

- A. ALL MANHOLES MUST HAVE 350-400 FEET SPACING BETWEEN MANHOLES TO PROVIDE ACCESS TO SEWER LINES FOR CLEANING, ON THE GVSUD PUBLIC SEWER EASEMENT. A 16 FOOT GATE WITH LOCK WILL BE PROVIDED BY THE CONTRACTOR FOR ACCESS TO CLEANING AND MAINTAINING SEWER LINES.
- B. DROP MANHOLES SHALL BE REQUIRED WHEN THE INFLOW ELEVATION IS MORE THAN TWENTY-FOUR (24) INCHES ABOVE THE OUTFLOW ELEVATION. DROP SHALL BE LOCATED OUTSIDE THE MANHOLE WITH ITS FLOW LINE ELEVATION LOCATED BETWEEN THE CENTER LINE AND TOP OF SEWER LINE.
- ALL MANHOLES WILL BE CONCRETE ENCASEMENT 1 FOOT AROUND RING, 28-INCH DEEP AFTER GATOR WRAP SEALING SYSTEM HAS BEEN APPLIED.
- 15. NEW MANHOLE PROTECTIVE COATING, LINER IS FOR THE PURPOSE OF INFILTRATION BECAUSE OF HIGH WATER TABLE. APPLICATION PROCEDURES ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION AND PER THE FOLLOWING SPECIFICATIONS:
 - A. MANHOLE PROTECTIVE COATING: CONTRACTOR WILL BE RESPONSIBLE FOR MANHOLES ON PROJECT SAFETY ASSESSMENT; CONFINED SPACE ENTRY SET BY OCCUPATIONAL SAFETY AND HEALTH STANDARDS, 29 CFR 1910.146 APP E.
 - B. THE CONTRACTOR, SHALL NOTIFY THE GVSUD UTILITIES INSPECTIONS DEPARTMENT WITH A MINIMUM OF 2 DAYS ADVANCE NOTICE OF THE START OF ANY FIELD SURFACE PREPARATION WORK OF COATING APPLICATION WORK OF MANHOLES.
 - C. ALL NEW MANHOLES IN NEW DEVELOPMENTS SHALL BE 30" INCH OPENING, WATERTIGHT AND THE INTERIOR WALL COATED WITH A GVSUD APPROVED SEWER STRUCTURE FOR ALL MANHOLES, SEWPERCOAT 2000 HR REGULAR, WITH THE REQUIRED ONE-INCH THICK APPLICATION.

APPROVED MATERIALS ARE AS FOLLOWS:

CEMENTITIOUS COATING WITH REQUIRED HALF-INCH THICK APPLICATION

- SEWPERCOAT 2000 HR REGULAR
- REFRATTA HAC 100
- MAXIMUM CA PLUS

EPOXY COATING: WITH SPECIFIED THICKNESS APPLICATION

- AROMATIC POLYUREA SCP DROPLINER REQUIRED THICKNESS 125 MILS
- D. WARRANTY LETTER ON MANHOLE PROTECTIVE COATING FOR 10 YEARS AFTER FINAL ACCEPTANCE OF PROTECTIVE COATINGS CONTRACTOR IS NOT RELIEVED OF ITS RESPONSIBILITIES UNDER THE CONTRACT DOCUMENTS.
 - i. ANY CONNECTIONS TO EXISTING MANHOLES WILL REQUIRE A 36-INCH CRADLE TO SUPPORT INCOMING PIPE. A RUBBER GASKET WILL ALSO BE REQUIRED (CENTERED AT MANHOLE WALL) WITH GROUTING AT INTERIOR AND EXTERIOR PENETRATIONS.
 PENETRATION INTO MANHOLE WILL BE CORE DRILLED. ANY DAMAGE EXITING THE MANHOLE WILL BE REPLACED AT CONTRACTOR'S EXPENSE. IF COATING SEAL IS BROKEN, THE MANHOLE WILL BE RECOATED WITH THE SAME MATERIALS. IF EXISTING SEWER MANHOLE SEAL COATING IS BROKEN, ALL OF MANHOLE WILL BE RELEASED WITH SAME MATERIALS AND ONE-INCH THICKNESS.
 - ii. ANY AND ALL EXISTING MANHOLES WITHIN CONSTRUCTION PROJECT THAT TIE IN, ARE DONE BY CONTRACTOR TO STUB-OUT ADJUSTMENT, RECONSTRUCTION, OR LEAKING. MANHOLE WILL BE COAT SEALED AT CONTRACTOR'S EXPENSE.
 - iii. MANHOLES WITH STUB-OUTS (8") INCH OR LARGER MUST BE LOCATED AT THE END OF ALL SEWER LINES THAT MAY BE EXTENDED IN THE FUTURE. MANHOLES PLACED AT THE END OF THE WASTEWATER COLLECTION SYSTEM PIPES THAT MAY BE EXTENDED IN THE FUTURE MUST INCLUDE STUB-OUTS WITH PLUGS.

<u>PIPING</u>

- 16. THE KIND AND DESCRIPTION OF THE PIPE CONDUIT IS SHOWN ON THE PLANS (IF PVC, SDR AND ASTM/ANSI DESIGNATION CLASS). AS SDR 26 PVC, ASTM D-3034 WITH A MINIMUM STIFFNESS OF 115 PSI TEXAS ADMINISTRATIVE CODE (TAC) RULES TO INCLUDE30 TAC & 213, OR ANY REVISIONS THERE TO APPLICABLE TECQ, 30 TAC 7 217, FOR ALL NEW DEVELOPMENT.
- 17. THE USE OF ASBESTOS CEMENT PIPE WILL BE PROHIBITED UNDER THIS CONTRACT. ALL DUCTILE IRON PIPE USED IN THIS SYSTEM SHALL BE CORROSION PROTECTED ON BOTH THE INTERIOR AND EXTERIOR SURFACES. ALL CORROSION PROTECTION SHALL BE APPLIED AND INSTALLED IN SUCH A MANNER AS TO MAINTAIN A CONTINUOUSLY PROTECTED SURFACE AFTER FINAL PIPE INSTALLATION.
- 18. ALL PVC SEWER PIPE WITH OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH; MINIMUM PIPE STIFFNESS OF 150 PSI.
- 19. ALL SEWER PIPES SHALL HAVE COMPRESSION OR MECHANICAL JOINTS.
- 20. SEWER PIPE CONNECTIONS TO PRECAST MANHOLES SHALL BE APPROVED BY THE GVSUD. THIS CONNECTION SHALL USE FLEXIBLE "BOOT" TYPE CONNECTOR SUCH AS THE PSX POSITIVE SEAL SYSTEM OR ENGINEER APPROVED EQUAL AND COMPLY WITH ASTM C-923. SEWER PIPE CONNECTIONS TO MONOLITHIC MANHOLES WILL BE AS SHOWN ON THE STANDARD DETAIL SHEET. ANY CHANGES IN THESE METHODS MUST BE APPROVED BY GVSUD ENGINEER.
- 21. ALL PIPE TRENCHING, BEDDING AND BACKFILL SHALL BE DONE IN ACCORDANCE WITH APPROPRIATE ASTM/ANSI SPECIFICATIONS [REFERENCE 31 TAC 317.2(A)(5)(A); ASTMC-12 (ANSI A106.2) OR ASTM D-2321 (ANSI K65.171)]. ALL COMPACTION @ 98% DENSITY TESTS ACROSS THE BOARD, 1 RANDOM DENSITY TEST PER LIFT FOR EVERY 400 FEET.
 - A. SAND MIGRATION, SEEPAGE PREVENTION COLLAR WHEN CHANGING THE INITIAL BACKFILL FROM SELECT INITIAL BACKFILL TO OPTIONAL SELECT INITIAL BACKFILL. A TWO (2) FOOT LONG CLASS D CONCRETE ENCASEMENT, EVERY 180 FEET ALONG PIPE AND 20 FEET FROM WALL OF MANHOLE IN EACH DIRECTION. NO EXTRA PAY ITEM.

- B. BEDDING SHALL CONSIST OF TXDOT-GRADE 4 (1 1/2"-1 5/8") COMMONLY KNOWN AS SEWER GRAVEL.
 - i. THE BEDDING SHALL MEET THE FOLLOWING GRADATION:

a. 2" 100.0% b. 1 3/4" 100.0% c. 1 1/2" 100.0% d. 1" 52.6% e. 3/4" 10.7% f. 3/8" 1.3%

- C. SEWER LINE LOCATION
 - SEWER LINES SHALL BE SIZED AND EXTENDED THROUGH THE LIMITS OF A DEVELOPMENT TO SERVE ADJACENT PROPERTY, WITH MANHOLE AND STUB-OUT AT END OF SEWER LINE.
 - a. IN PHASED CONSTRUCTION OF THOROUGHFARES, THE SEWER LINE SHALL BE EXTENDED THE ENTIRE LENGTH OF THE THOROUGHFARE BEING CONSTRUCTED.
 - ii. NO PUBLIC SEWER LINE SHALL BE LOCATED NEARER THAN FIVE (5) FEET FROM ANY TREE.
 - iii. SIZES AND GRADES FOR SANITARY SEWER SHALL BE AS REQUIRED BY THE GVSUD ENGINEER AND CONSIDERATION SHALL BE GIVE AS TO POSSIBLE EXTENSIONS FOR FUTURE DEVELOPMENT. NO SANITARY SEWERS, OTHER THAN LATERALS AND FORCE MAINS, SHALL BE LESS THAN EIGHT (8) INCH IN DIAMETER.
- 22. WHEN SEWER LATERALS ARE TO BE CONNECTED TO EXISTING SEWER MAINS AND NO STUB-OUT HAS BEEN EARLIER PROVIDED, THE CONNECTION MUST BE MADE WITH AN APPROVED SERVICE SADDLE AS PER 31 TAC 313.5(C) (7). NEW INVERT TO BE BUILT, SMOOTH CHANNEL FOR NEW PIPE/SLOPE AT 2% FLOW.
- 23. ALL RESIDENTIAL SERVICE LATERALS SHALL BE SDR 26 WITH RATING OF 115 PSI, BE EXTENDED TO THE PROPERTY LINE AT (6 X 6) CAPPED AND SEALED. ATTACH SEWER BURIAL TAPE TO THE END OF ALL SEWER LATERALS AND BRING UP TO THE GROUND LEVEL FOR MARKER (GREEN). (SEE HOUSE LATERALS DETAILS)
 - AA. SEWER SERVICE LATERALS. THE SIZES AND LOCATIONS OF LATERALS SHALL BE DESIGNATED AS FOLLOWS UNLESS OTHERWISE DIRECTED BY THE GVSUD ENGINEER:
 - i. IN GENERAL FOR SINGLE FAMILY DWELLING, THE LATERAL SIZE SHALL BE FOUR (4) INCH MINIMUM. HOUSE LATERALS SHALL BE IN STALL CENTER OF THE LOT AND SHALL HAVE A TEN(10) FOOT SEPARATION FROM THE WATER SERVICE. THE SERVICE SHALL THEN BE EXTENDED AT A FORTY-FIVE (45) DEGREE ANGLE TO FOUR (4) FEET ABOVE THE FINISHED GRADE AND CAPPED. USE SEWER BURIAL TAPE TO MARK ALL SEWER SERVICE LATERALS.
 - MULTIPLE UNITS, APARTMENTS, LOCAL RETAIL AND COMMERCIAL SIX (6) INCH MINIMUM, MANUFACTURING AND INDUSTRIAL - EIGHT (8) INCH MINIMUM, OR LARGER AS REQUIRED.

TRAPS AND INTERCEPTORS (FOG - TECQ)

UNIFORM PLUMBING CODE, CITY OF SAN ANTONIO BUILDING INSPECTIONS DEPARTMENT. ALL COMMERCIAL BUILDINGS WILL HAVE TRAPS (FOG-TECQ).

OIL SEPARATORS

WHICH INCLUDE OIL SEPARATOR-GASOLINE SERVICE STATIONS, CAR WASHES, GARAGES, DRY CLEANERS, CHEMICAL PLANTS, GAS PLANTS, HIDE PROCESSORS, TESTING LABORATORIES, OR ANY PLACE WHERE OIL OR SOLVENTS MAY BE INTRODUCED IN TO THE SANITARY SEWER SYSTEM. THE SIZING CRITERIA FOR OIL SEPARATORS SHALL BE BASED ON THE G.P.M. RATE OF ALL FIXTURES, APPLIANCE OR APPURTENANCE, DRAINING INTO SEWER SYSTEM.

SAND INTERCEPTORS

SAND INTERCEPTORS SHALL BE INSTALLED IN THE SEWER SYSTEM OF THE FOLLOWING ESTABLISHMENTS, GARAGES, CAR WASHES, SERVICE STATIONS, OR ANY PLACE OF BUSINESS WHERE HEAVY SOLIDS MAY BE INTRODUCED INTO THE SANITARY SEWER SYSTEM. THE SIZING CRITERIA FOR A SAND INTERCEPTOR SHALL BE BASED ON THE REQUIRED G.P.M. X 12 MINUTE RETENTION TIMES TO OBTAIN THE TANK SIZE IN GALLONS CAPACITY.

AUTOMATIC CAR WASHES

WITH HIGH PRESSURE SPRAYS AND/OR BRUSHES INSTALL A 50 G.P.M. INTERCEPTOR. MINIMUM, FOR A 4-BAY VEHICLE WASH, THE SIZE OF THE INTERCEPTOR SHALL INCREASE 10 G.P.M. FOR EACH ADDITIONAL WASH BAY OVER 4. SINGLE BAY OR PORTABLE WASHER TYPE VEHICLE WASHES SHALL INSTALL A 20 G.P.M. INTERCEPTOR MINIMUM.

NEUTRALIZING DEVICES

IN NO CASE SHALL CORROSIVE LIQUIDS, SPENT ACIDS, OR OTHER HARMFUL CHEMICALS WHICH MIGHT DESTROY OR INJURE A DRAIN, SEWER, SOIL, OR WASTE PIPE, OR WHICH MIGHT CREATE NOXIOUS OR TOXIC FUMES, DISCHARGE INTO THE SANITARY SEWER SYSTEM WITH OUT BEING THOROUGHLY NEUTRALIZED BY PASSING THOROUGHLY CONSTRUCTED AND ACCEPTABLE NEUTRALIZING DEVICE. SUCH DEVICE SHALL BE PROVIDED WITH A SUFFICIENT INTAKE OF NEUTRALIZING MEDIUM, CONSISTING OF LIMESTONE OR MARBLE CHIPS, SO AS THE MAKE ITS CONTENTS NON-INJURIOUS BEFORE BEING DISCHARGED INTO THE SANITARY SEWER SYSTEM.

LINT TRAPS

PUBLIC AND PRIVATE WASHATERIAS AND COMMERCIAL LAUNDRIES SHALL INSTALL A LINT TRAP EQUIPPED WITH A CONVENIENTLY LOCATED AND EASILY REMOVABLE WIRE BASKET OR OTHER SIMILAR DEVICE THAT WILL PREVENT THE STRINGS, RAGS, BUTTONS, OR OTHER PROHIBITED MATERIAL FROM ENTERING THE SANITARY SEWER SYSTEM. THE BASKET OR OTHER SIMILAR DEVICE SHALL PREVENT PASSAGE TO THE SANITARY SEWER SYSTEM OF SOLIDS GREATER THAN 1/2" INCH DIAMETER. THE LINT TRAP SIZE SHALL BE BASED ON THE TOTAL G.P.M. OF ALL FIXTURES, APPLIANCES AND APPURTENANCES DRAINING TO IT IN LIEU OF A LINT TRAP, A LINT INTERCEPTOR MAY BE INSTALL. THE INTERCEPTOR SHALL BE SIZED AND DESIGNED BY A TEXAS REGISTERED ENGINEER WITH HIS SEAL AND SIGNATURE ON THE DRAWINGS.

	GREEN VALLEY OFFICE OF UNITY OFFICE OF UNITY OFFICE OF UNITY OFFICE OFFI	GREEN VAL	LEY SPECIAL UTILITY DISTRICT STANDARD DETAILS	SANITARY SEWER SYSTEM GENERAL NOTES (1 OF 2)		
		REVISED:		THE ARCHITECT/ENGINEER ASSUMES	DETAIL NO.	
			OCTOBER 2021	RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	G-1	



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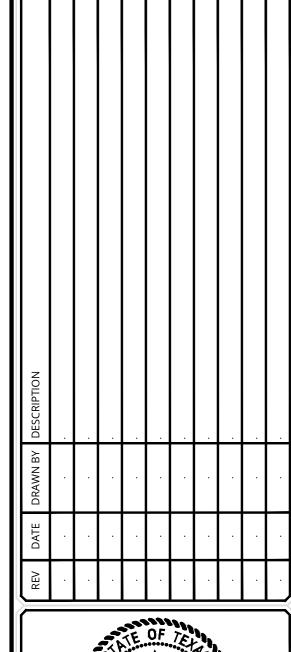
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TBPLS Firm#: 10194550

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SANITARY SEWER NOTES (1 OF 2)

NOV. 2023

SILVER RECOVERY UNITS

SILVER RECOVERY UNITS SHALL BE INSTALLED IN WASTE LINES(S) LEADING FROM X-RAY PROCESSING, PHOTOGRAPHIC PROCESSING, AND/OR ANY PROCEDURES IN ESTABLISHMENT SUCH AS MEDICAL LABS, DENTAL LABS, PHOTO FINISHERS, PRINTERS, GRAPHIC ARTS PRODUCTION FACILITIES, HOSPITAL FACILITIES, VETERINARY HOSPITALS, OR OTHER ESTABLISHMENTS WHERE SILVER MAY BE INTRODUCED INTO THE SANITARY SEWER SYSTEM.

SOLID INTERCEPTORS

SOLIDS INTERCEPTORS SHALL BE INSTALLED WHEN PRE-TREATMENT OF WASTE STREAMS IS NECESSARY TO PREVENT SOLIDS GREATER THAN $\frac{1}{2}\!\!^{"}$ IN DIAMETER, WHICH MAY CAUSE LINE STOPPAGE FROM ENTERING THE SANITARY SEWER SYSTEM.

INTERCEPTORS

- a. INTERCEPTORS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN APPROVED BY THE GVSUD CONSISTING OF A MINIMUM OF TWO COMPARTMENTS WITH FITTINGS DESIGNED FOR GREASE RETENTION AND PROVIDE FOR A MINIMUM OF TWELVE (12) MINUTES RETENTION
- b. THERE SHALL BE AN ADEQUATE NUMBER OF MANHOLES TO PROVIDE ACCESS FOR CLEANING ALL AREAS OF AN INTERCEPTOR, ONE MANHOLE PER TRAP COMPARTMENT. MANHOLE COVERS SHALL BE GAS TIGHT IN CONSTRUCTION HAVING A MINIMUM OPENING DIMENSION OF 20 INCHES (0.5 M).
- c. IN AREAS WHERE TRAFFIC MAY EXIST THE INTERCEPTOR SHALL BE DESIGNED TO HAVE ADEQUATE REINFORCEMENT AND COVER.
- d. ALL INTERCEPTORS SHALL HAVE THE SIZE OF THE INTERCEPTOR (IN GALLON PER MINUTE OR GALLON CAPACITY) PERMANENTLY AFFIXED TO THE DEVICE.
- e. ALL CONCRETE UTILIZED IN THE CONSTRUCTION OF INTERCEPTOR SHALL HAVE A MINIMUM STRENGTH OF 3000 PSI.
- f. AN EFFLUENT SAMPLING WELL ON ALL INTERCEPTORS SHALL BE REQUIRED. THE SAMPLE WELL SHALL HAVE A RISER A MINIMUM OF 6" INCHES IN DIAMETER AND SHALL BE INSTALLED AFTER THE CONFLUENCE OF ALL WASTE STREAMS FROM THE FACILITY AND PRIOR TO DISCHARGING INTO SANITARY SEWER COLLECTION SYSTEM. THE WELL SHALL BE PERPENDICULAR TO THE EFFLUENT LATERAL TO ALLOW VISUAL OBSERVATION OF THE FLOW STREAM AND PROVIDE FOR SAMPLING OF WASTEWATER.

WATERTIGHT TESTING (24 HOURS)

- g. ALL INTERCEPTORS SHALL BE WATER TESTED OUT AT JOB SITE AFTER BEING INSTALLED (PLUG BOTH ENDS AND FILL TO TOP OF INTERCEPTOR). INTERCEPTOR SHALL SHOW NO LEAKAGE FROM SECTION SEAMS, PINHOLES, OR OTHER IMPERFECTIONS. ANY LEAKAGE IS CAUSE FOR REJECTION. WHEN LEAKAGE OCCURS, ADDITIONAL WATER TESTING SHALL BE MADE. AFTER CORRECTING MEASURE TEST, REPORTS SHALL SHOW TOTAL NUMBER OF INTERCEPTORS TESTED. WHEN LEAKAGE OCCURS, CORRECTIVE MEASURES TAKEN SHALL BE REPORTED BY GVSUD INSPECTORS. GVSUD INSPECTORS SHALL RECORD IN DAILY LOG WITH PROJECT NAME, DATE IT WAS TESTED AND COMPLETED.
- B. MANHOLES WILL BE REQUIRED ON SIX (6) INCH AND LARGER LATERALS WHERE THEY CONNECT TO THE MAIN.
 - a. LATERALS WILL NOT BE ATTACHED TO SEWER MAINS THAT ARE DEEPER THAN TWELVE (12) FEET.
 - FITTINGS ARE NOT PERMITTED ON LATERALS BETWEEN THE WYE AND THE PROPERTY LINE.
 - c. DEEP CUT OR DROP CONNECTIONS SHALL NOT BE PERMITTED.
 - d. A MINIMUM OF ONE (1) LATERAL PER BUILDING SHALL BE REQUIRED. ALSO, A MINIMUM OF ONE (1) LATERAL PER RESIDENTIAL LOT SHALL BE REQUIRED. DUPLEXES SHALL HAVE TWO (2) LATERALS THAT SHALL BE INDEPENDENTLY ATTACHED TO THE MAIN.
 - e. ALL SEWER LATERAL CROSSING WATER MAINS SHALL CONFORM TO THE REQUIREMENTS OF THE TCEQ CHAPTER 317 (DESIGN CRITERIA FOR SEWERAGE SYSTEMS) LATEST REVISION, SDR 26 150 PSI, OR DUCTILE IRON PIPE, CONCRETE ENCASEMENT.
- 24. WHERE REQUIRED CONCRETE ENCASEMENT SHALL BE PLACED FOR FULL WIDTH OF THE TRENCH TO A PLAIN SIX (6) INCHES ABOVE THE TOP OF THE PIPE WITH PAY UNITS AS SHOWN ON THE STANDARD DETAILS SHEET.
- 25. A MINIMUM OF FOUR (4) FEET OF COVER IS TO BE MAINTAINED OVER THE SANITARY SEWER MAIN AND LATERALS AT GRADE, OTHERWISE CONCRETE ENCASEMENT IS REQUIRED.
- 26. WHERE POROUS MATERIAL, INCLUDING "SUBGRADE FILLER" IS USED FOR BACKFILL IN THE BEDDING AND INITIAL BACKFILL ZONES, SEEPAGE RETAINERS ARE REQUIRED AT AN APPROXIMATE OF 180 FEET. RETAINERS SHALL CONSIST OF CLASS "D" CONCRETE ENCASEMENT. THE RETAINERS SHALL EXTEND FROM THE BOTTOM OF THE TRENCH TO THE TOP OF THE GRANULAR MATERIAL FOR THE ENTIRE TRENCH WIDTH. ENCASEMENT SHALL BE 24 INCHES LONG. NO EXTRA PAY ITEM

BLASTING

- 27. WHEN ALLOWABLE, BLASTING SHALL BE PREFORMED IN ACCORDANCE WITH THE ABOVE CRITERIA ESTABLISHED BY THE NATIONAL FIRE PROTECTION ASSOCIATION 312 TAC 313.5(C) (6).
- 28. BLASTING SEWER LINE EXCAVATION MUST BE DONE IN SUCH A MANNER AS TO MINIMIZE THE FRACTURING OF ROCK BEYOND THE REQUIRED EXCAVATION. THE CONTRACTOR SHALL CONSIDER THE ELEVATION OF THE EXISTING SANITARY SEWER MAIN IN RELATION TO THE BLASTING CHARGE AND RELATIVE DIRECTION OF EXISTING AND PROPOSED TRENCHES. BLASTING WITHIN SUCH AREAS SHALL BE ACCOMPLISHED ONLY BY QUALIFIED BLASTING CONTRACTORS WHO HOLD BLASTING LICENSES FROM A QUALIFIED AGENCY SUCH AS THE SAN ANTONIO FIRE DEPARTMENT IN BEXAR COUNTY. ANY DAMAGE TO EXISTING SANITARY SEWERS RESULTING FROM BLASTING SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT HIS OWN EXPENSE.
- 29. NO BLASTING SHALL BE PERFORMED WITHIN 75 FEET OF EXISTING UTILITIES.

TESTING

- 30. ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH THE FOLLOWING:
 - A. 317.2(A)(5)(B); DEFLECTION TEST FOR FLEXIBLE AND SEMI-RIGID PIPE CONDUCTED AFTER FINAL BACKFILL AS BEEN IN PLACE AT LEAST 30 DAYS.
- B. 317.2(A)(4)(A) & (B) OR GVSUD SPECIFICATIONS INFILTRATION AND OR EXFILTRATION AND OR LOW-PRESSURE AIR TEST.
- C. 313.5(C)(10)(C) OR GVSUD SPECIFICATIONS: ALL MANHOLES AND WET WELLS MUST BE TESTED SEPARATELY AND INDEPENDENTLY OF THE COLLECTION LINES.
- D. IN THE EVENT THAT TESTING REQUIREMENTS CONFLICT, THE LATEST TCEQ DESIGN CRITERIA SHALL BE USED.
- 31. SEWER LINES SHALL BE TESTED FROM MANHOLE TO MANHOLE.
- 32. SANITARY SEWER CONNECTIONS MADE DIRECTLY TO EXISTING MANHOLES WHICH REQUIRE PENETRATION INTO MANHOLE WILL BE CORE DRILLED. ANY DAMAGE TO EXISTING MANHOLE WILL BE REPLACED AT CONTRACTORS EXPENSE AND WILL REQUIRE SUCCESSFUL TESTING OF THE EXISTING MANHOLE IN ACCORDANCE WITH THE GVSUD SPECIFICATIONS. HANG A GOLF BALL IN FRONT OF CAMERA, PIPE GRADE IS OUT OF TOLERANCE IF GOLF BALL BECOMES 50% SUBMERGED.
- 33. AFTER CONSTRUCTION, TESTING WILL BE DONE BY PAN/TILT TV CAMERA BY THE CONTRACTOR AND OBSERVED BY INSPECTOR, WASTEWATER ENGINEERING PERSONNEL AND CONTRACTOR AS CAMERA IS RUN THROUGH THE LINES. PAN/TILT ALL 6" SERVICE LATERALS TO 6"X6" STUB-OUT. VIDEOS MUST INCLUDE SUBDIVISION NAME, MANHOLE NUMBER, SERVICE LATERAL STATION NUMBER, FLOW DIRECTION, LOCATION ANY ABNORMALITIES, SUCH AS BROKEN PIPE OR MISALIGNED, JOINT, GRAVEL, DIRT, MUST BE CLEANED OUT, REPLACE AT CONTRACTOR'S EXPENSE. NEW SEWER SYSTEM WILL BE FLOODED WITH H20 BEFORE BEING TV. ALL SEWER LINES MUST BE PRESSURE CLEANED TO INCLUDE SERVICE LATERALS 6" INCH TO STUB-OUT. ALL VIDEOS SHALL BE SUBMITTED IN DVD FORMAT WITH WRITTEN REPORTS.
- 34. A COPY OF ALL TESTING REPORTS INCLUDING BACKFILL COMPACTION TESTS SHALL BE FORWARDED TO GVSUD.
 - A. DENSITY TEST WILL BE REQUIRED ON ALL SANITARY SEWER TRENCHES INCLUDING SERVICE LATERALS. SERVICE LATERALS TO BE CHOSEN RANDOMLY BY FIELD INSPECTOR. DENSITIES ON SERVICE LATERAL SHALL NOT EXCEED 25% OF TOTAL NUMBER OF SERVICES.

EXCAVATION

- 35. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTORS TRENCH EXCAVATION SAFETY SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTORS IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITHIN OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
- 36. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NOT PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100 YEAR FLOODPLAIN WITHOUT AN APPROVED FLOODPLAIN PERMIT.
- 37. WATER JETTING THE BACKFILL WITHIN A STREET WILL NOT BE PERMITTED. SANITARY SEWER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO GVSUD SPECIFICATIONS.

WATERLINE CROSSING

38. WHERE THE MINIMUM 9 FOOT SEPARATION DISTANCE BETWEEN SEWER LINES AND WATERLINES CANNOT BE MAINTAINED, THE INSTALLATION OF SEWER LINES SHALL BE IN STRICT ACCORDANCE WITH TCEQ RULES (31 TAC 317.3 APPENDIX E), SDR 26 ASTM 150 PSI OR CONCRETE ENCASEMENT DUCT IRON.

EROSION AND SEDIMENTATION

- 39. THE TCEQ AND THE ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIRE EROSION AND SEDIMENTATION CONTROL FOR CONSTRUCTION OF SEWER COLLECTION SYSTEMS. DEVELOPER OR AUTHORIZED REPRESENTATIVE SHALL PROVIDE EROSION AND SEDIMENTATION CONTROL AS NOTED ON THE PROJECT PLAN AND PROFILE SHEETS.
- 40. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED BY THE CONTRACTOR AT FINAL ACCEPTANCE OF THE PROJECT BY GVSUD.

SUPPLEMENTING

- 41. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER PAY ITEM 10 WHICH IT RELATES TO.
- 42. UNLESS THE DEVELOPMENT IS PRIVATELY OWNED, THE DEVELOPERS DEDICATES THE SANITARY SEWER MAIN AND MANHOLES TO THE GVSUD. UPON COMPLETION BY THE DEVELOPER AND FINAL ACCEPTANCE BY THE GVSUD. GVSUD WILL OWN AND MAINTAIN THE SANITARY SEWER MAINS AND MANHOLES WHICH ARE LOCATED WITHIN THIS PARTICULAR SUBDIVISION.
- 43. WORK COMPLETED BY CONTRACTOR WHICH HAS NOT RECEIVED A WORK ORDER OR THE CONSENT OF THE GVSUD CONSTRUCTION INSPECTION DIVISION WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.
- 44. GVSUD IS NOT TO BE RESPONSIBLE FOR ANY ABNORMALITIES ON STUB-OUT, INVERT, GRADE OR SLOPE FOR ANY EXISTING MANHOLE TIE IN OR SERVICE LATERAL TIE IN.
- 45. ENGINEER, DEVELOPER, AND BUILDER, WILL HAVE PLUMBER AND CONTRACTOR WITH BID PRICE ON NEW INSTALLATION OF ALL 4" INCH SEWER SERVICE LATERALS TO COMPLY WITH TRENCH SAFETY (OSHA) SHORING PROTECTION ON ALL NEW INSTALLATION OF 4" INCH SEWER SERVICE LATERALS. GVSUD WILL NOT BE HELD RESPONSIBLE FOR ANY INJURIES OR DEATH CAUSED BY TRENCH FAILURE OR A WRONG OR DAMAGE DONE TO A PERSON OR TO HIS PROPERTY, OSHA GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
- 46. ALL 4" INCH SEWER SERVICE LATERALS WILL BE HYDRAULIC TESTED AND OR LOW AIR PRESSURE TESTED. ALL 4" INCH SEWER SERVICE LATERALS WILL BE TELEVISED (TV) FROM 4" INCH CLEAN OUT AT OUTSIDE EACH RESIDENCE TO 6"X6" CLEAN OUT. CONTRACTOR AND PLUMBER WILL SUBMIT REPORTS AND/OR VIDEOS TO GVSUD, WITH THE FOLLOWING INFORMATION: SUBDIVISION NAME, LOT NUMBER, BLOCK

NUMBER, STATION NUMBER, STREET NAME AND ADDRESS OF EACH SEWER SERVICE LATERAL.

PLUMBER WILL BE PROVIDED PLAN/PROFILE BY ENGINEER/BUILDER. PLUMBER WILL WORK CLOSELY WITH THE GVSUD INSPECTOR ON DAILY TESTING AND TELEVISION BY MAKING ARRANGEMENTS 48 HOURS IN ADVANCE. SEWER SERVICE LATERALS THAT HAVE NOT BEEN INSPECTED OR APPROVED AND/OR COVERED UP, WILL HAVE TO BE RE-DUG AT CONTRACTOR/PLUMBER EXPENSE AND RE-INSPECTED.

- A. A PROPERTY LINE CLEAN OUT (6"X6") SHALL BE INSTALLED FOR RESIDENTIAL SERVICES. CLEAN OUTS IN THE SIDEWALK OR DRIVEWAY SHALL HAVE A CAST IRON BOOT. CLEAN OUT NOT LOCATED IN A SIDEWALK OR DRIVEWAY SHALL BE LOCATED ON REINFORCED CONCRETE PAD A MINIMUM OF TWELVE (12") INCHES BY TWELVE (12") INCHES BY SIX (6") INCHES THICK. ALL PROPERTY LINE CLEAN OUTS SHALL INCLUDE A LID WITH SEWER IN GREEN COLOR.
- 47. N1 FENCING: ANY AND ALL FENCING, INCLUDING ELECTRIC FENCE, WHETHER OR NOTE IDENTIFIED ON THE PLANS, MUST BE MAINTAINED AT ALL TIMES. ANY AND ALL DAMAGES DIRECTLY ATTRIBUTED TO THE CONTRACTOR MUST BE REPLACED TO EQUAL OR BETTER CONDITIONS AT THE CONTRACTOR'S EXPENSE AND AS APPROVED BY THE PROJECT MANAGER. GAPS IN THE FENCING MUST BE PROVIDED AT ALL LOCATIONS WHERE THE SEWER LINE EASEMENT CROSSES FENCING. FENCING REQUIRED TO MAINTAIN LIVESTOCK MUST BE MAINTAINED AT ALL TIMES.
- 48. N2 DAMAGE TO ADJACENT LAND: THE CONTRACTOR MUST AVOID DAMAGE TO ADJACENT LAND OUTSIDE THE IDENTIFIED CONSTRUCTION LIMITS. ANY AND ALL CLAIMS DIRECTORY ATTRIBUTED TO THE CONTRACTOR RESULTING FROM HIS STRAYING BEYOND THE CONSTRUCTION LIMITS MUST BE SETTLED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE APPROPRIATE LANDOWNER.
- 49. N3 PROPERTY OWNER ACCESS: THE CONTRACTOR MUST MAINTAIN ACCESS FOR PRIVATE INDIVIDUALS AT ALL TIMES. IF NORMAL ACCESS IS DAMAGED DURING CONSTRUCTION THE CONTRACTOR MUST REPLACE THE ACCESS TO EQUAL OR BETTER CONDITIONS AT THE CONTRACTOR'S EXPENSE, AS APPROVED BY THE ENGINEER.
- 50. N4 CONTRACTOR IS RESPONSIBLE FOR LOCATION AND PROTECTION ALL UTILITIES WHETHER OR NOT SHOWN ON THE PLANS. SHOULD THE CONTRACTOR DAMAGE ANY UTILITIES THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS TO REPAIR THE UTILITIES TO THEIR ORIGINAL CONDITION. CONTRACTOR IS SOLELY RESPONSIBLE FOR LOST REVENUE, LOSSES, ETC CLAIMED BY UTILITY COMPANIES DUE TO CONTRACTORS WORK. CONTRACTOR SHALL NOTIFY GVSUD AND IMPACTED UTILITY COMPANIES 48 HRS. PRIOR TO BEGINNING WORK. CONTRACTOR SHALL VERIFY THE LOCATION OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
- 51. N5 CLEARING PERMANENT EASEMENTS: THE LIMITS OF BOTH THE EXISTING AND PARALLEL SEWER LINES PERMANENT EASEMENTS, AS DELINEATED IN THESE PLANS, MUST BE CLEARED IN ACCORDANCE WITH THE SPECIFICATION. THE CONTRACTOR MAY BE DIRECTED BY THE ENGINEER TO PROTECT AND AVOID CERTAIN TRESS WITHIN THE LIMITS OF THE PERMANENT CONSTRUCTION EASEMENTS. ALL BRUSH MUST BE REMOVED FROM SITE. NO BRUSH PILES TO REMAIN AFTER CONSTRUCTION. BURNING OF BRUSH OR TRASH WILL NOT BE ACCEPTABLE.
- 52. N7 CONTRACTOR SHALL PROVIDE APPROPRIATE SAFE ACCESS AND BARRICADE WORK AT ALL TIMES TO PROTECT THE PUBLIC. THIS INCLUDES SUBSTANTIAL BARRICADES AROUND ALL TRENCHES, BORE PITS, OPEN EXCAVATIONS, EQUIPMENT, ETC. THE SITE MUST BE LEFT IN SECURE SAFE CONDITION AT NIGHT. IT IS THE CONTRACTORS RESPONSIBILITY TO TAKE NECESSARY PRECAUTIONS TO PROTECT THE PUBLIC THROUGHOUT THE DURATION OF THE PROJECT.
- 53. N14 SHOULD CONTRACTOR SELECT A TRENCH EXCAVATION PROCEDURE THAT EXTENDS THE LIMITS OF SEEDING OR PAVING AND FINAL SITE PREPARATION (I.E. SLOPE BACK PROTECTION SYSTEM) HE WILL BE RESPONSIBLE FOR MEETING PLAN AND SPECIFICATION REQUIREMENTS TO THE NEW LIMITS AT NO ADDITIONAL COST TO GVSUD.
- 54. N16 WARNING: NOTE THAT CERTAIN PORTIONS OF THE PROJECT MAY PARALLEL AND/OR CROSS EXISTING UTILITIES. THE CONTRACTORS WILL BE REQUIRED TO PROTECT EXISTING UTILITIES. ADDITIONAL SUPPORTIVE SHORING MAY BE REQUIRED. IT IS SPECIFICALLY THE CONTRACTORS RESPONSIBILITY TO PROTECT HIS WORKERS, EXISTING UTILITIES, AND FINISHED WORK THROUGHOUT THE JOB.
- 55. N17 OVERHEAD ELECTRIC, CITY PUBLIC SERVICE (CPS) AN APPROPRIATELY SAFE OVERHEAD CLEARANCE MUST BE MAINTAINED BETWEEN ALL EQUIPMENT AND PERSONNEL. THE CONTRACTOR SHALL NOTIFY CITY PUBLIC SERVICE AT 353-2700 AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION IN THE VICINITY OF THE CPS OVERHEAD ELECTRIC LINE CONTRACTOR SHALL MAINTAIN CPS RECOMMENDED CLEARANCE REQUIREMENTS.
- 56. N23 BYPASS PUMPING: THE CONTRACTOR IS RESPONSIBLE FOR ALL BYPASS PUMPING REQUIRED TO COMPLETE THE WORK. BYPASS PUMPS SHALL BE ADEQUATE TO HANDLE PEAK FLOW EVENTS DURING STORM EVENTS. CONTRACTOR SHALL HAVE STANDBY PUMPS AVAILABLE TO BYPASS FLOW IN CASE PRIMARY PUMP FAILS. CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR ALL COSTS FOR CLEANUP OF AN
- UNAUTHORIZED DISCHARGE AND ANY ASSOCIATED FINES.

 57. N26 CONTRACTOR SHALL BACKFILL ALL OPEN TRENCHES AT THE END OF THE DAY. CONTRACTOR SHALL NO INSTALL MORE PIPE THAN CAN BE COVERED. NO OPEN TRENCHES WILL BE PERMITTED OVERNIGHT ALL END OF OPEN PIPE WILL BE PLUGGED OVERNIGHT.
- 58. N33 THE PROJECT AREA MAY BE SUBJECT TO ARCHEOLOGICAL MONITORING, SHOULD THE CONTRACTOR ENCOUNTER ANY ARCHEOLOGICAL DEPOSITS DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL STOP ALL WORK IN THE AREA OF THE DEPOSITS AND IMMEDIATELY CALL THE PROJECT MANAGER.
- 59. N37 CONTRACTOR TO NOTE THAT PORTIONS OF THE CONSTRUCTION ARE WITHIN THE LIMITS OF THE 100 YEAR FLOODPLAIN. THE CONTRACTOR IS REQUIRED TO KEEP THE CHANNEL CLEAR OF POTENTIAL OBSTRUCTIONS TO FLOOD FLOWS. POTENTIAL OBSTRUCTIONS INCLUDE HEAVY CONSTRUCTION EQUIPMENT, TEMPORARY ROADS ACROSS CHANNEL, EXCAVATED MATERIAL, STOCKPILED DEBRIS, ETC. UNDER THREATENING WEATHER CONDITIONS WHERE FLOODING IS LIKELY, OBSTRUCTIONS SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR AT NO ADDITIONAL COST TO GVSUD. THE CONTRACTOR ASSUMES ALL RISK FOR UNFINISHED WORK.

—'GREEN VALLEY

GREEN VALLEY SPECIAL UTILITY DISTRICT

STANDARD DETAILS

OCTOBER 2021

SANITARY SEWER SYSTEM

GENERAL NOTES (2 OF 2)

DETAIL NO.

G-2

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE

USE OF THIS STANDARD.

Colliers SAN ANTONIO (KFW)

3421 Paesanos
Parkway

Colliers

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San Antonio, TX 78231

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314-61-01 OS3146101

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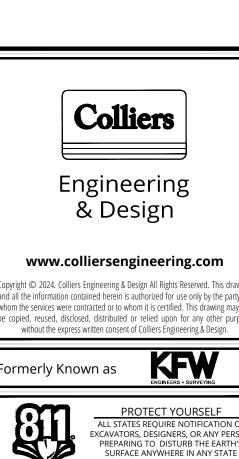
SANITARY SEWER NOTES

RAWN BY:

(2 OF 2)

6.4

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



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PRELIMINARY

CLEARWATER CREEK

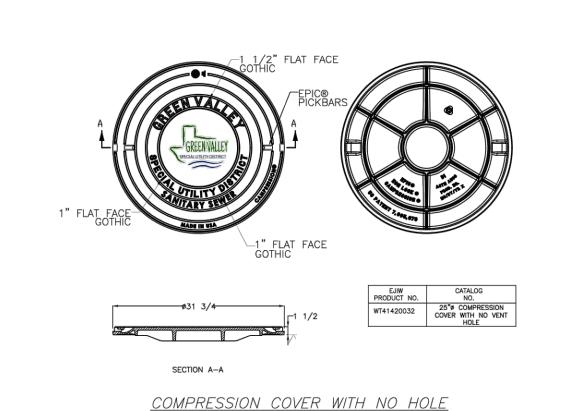
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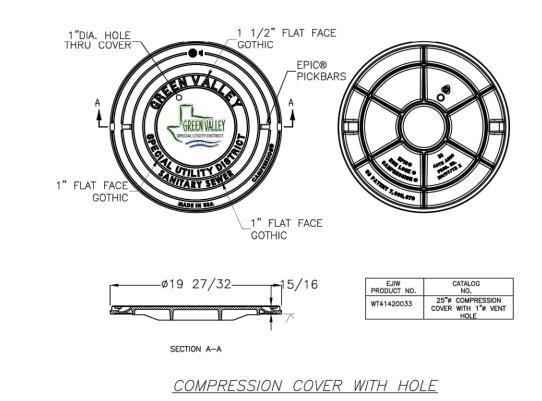
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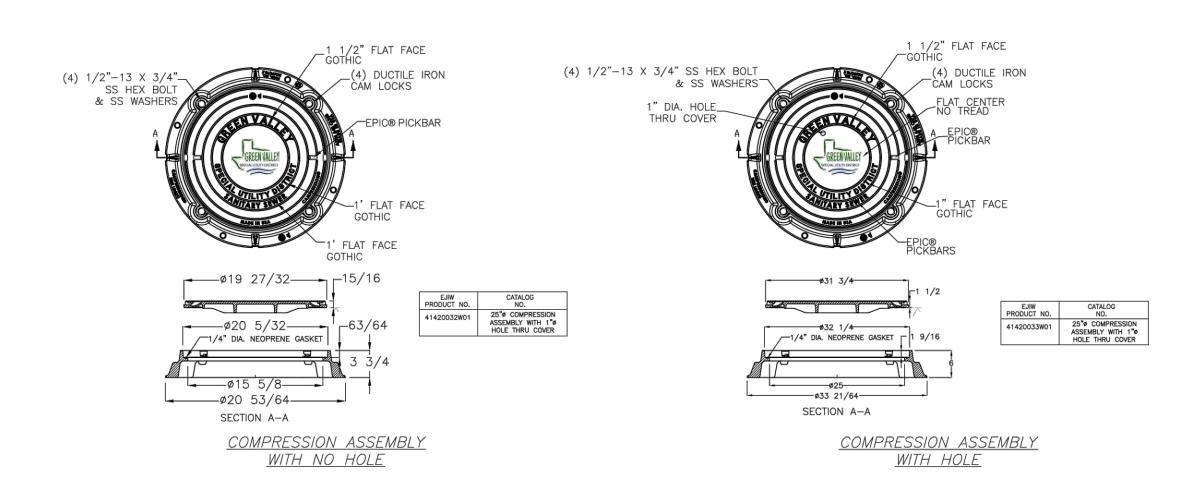
BEXAR COUNTY

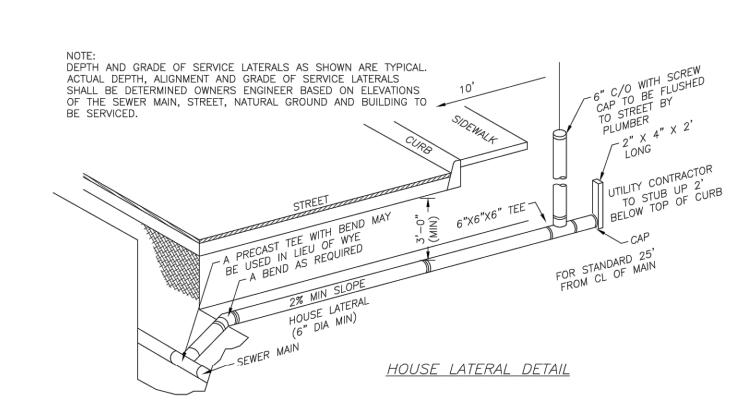
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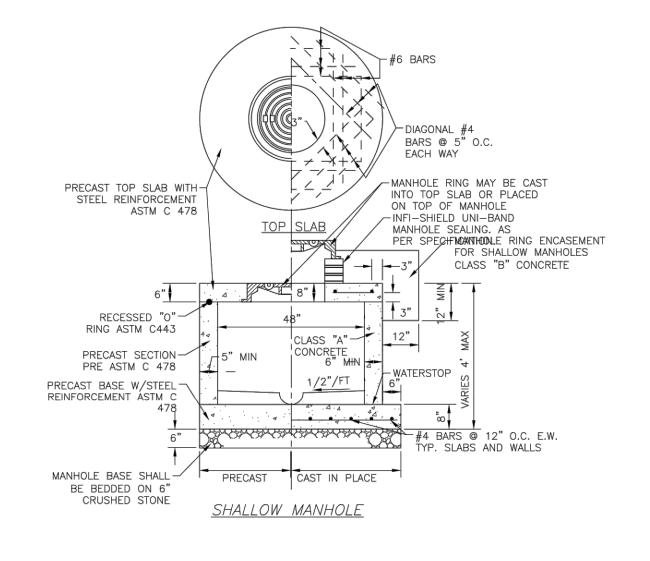
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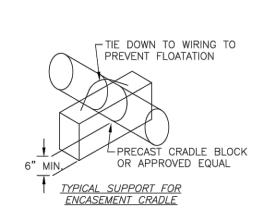




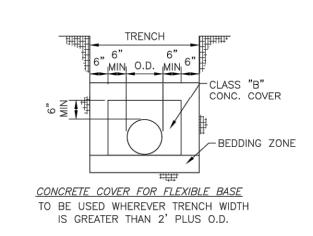


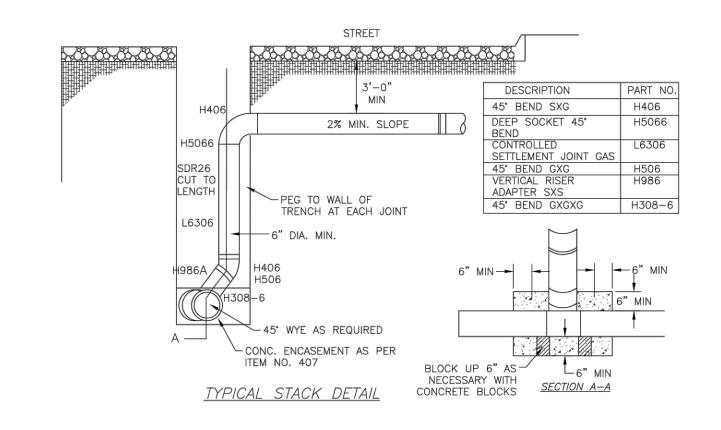


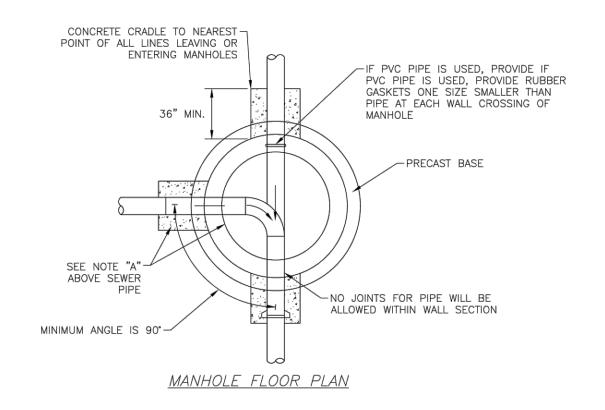




CONCRETE ENCASEMENT, CRADLES, SADDLES AND COLLAR DETAILS







SANITARY SEWER GENERAL NOTES ALL NEW EXISTING SANITARY SEWER MAINS AND MANHOLES IN THIS PROJECT ARE TO REMAIN ACTIVE AND SHALL BE PROTECTED BY THE CONTRACTOR. ALL LINES AND MANHOLES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR RECONSTRUCTED BY THE CONTRACTOR AT NO ADDITIONAL COST. NOTIFY GVSUD'S UTILITY INSPECTORS AT (210)372-2223 PRIOR TO ENCASING.

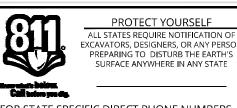
THE EXISTING CONDITIONS OF SEWER MAINS AND MANHOLES HAVE BEEN DOCUMENTED BY GVSUD. A PRE-PRECONSTRUCTION VIDEO OF THE LINES AND PHYSICAL SURVEY OF THE MANHOLES WILL BE USED TO DETERMINE THE PRE-EXISTING CONDITION OF THE SEWER SYSTEM. IF POST CONSTRUCTION INSPECTION WORK SHOWS PORTIONS OF SANITARY SEWER MAINS OR MANHOLES DAMAGED BY THE CONTRACTOR, THE CONTRACTOR SHALL REPAIR OR REPLACE THE SEWER MAIN AT THEIR EXPENSE, TO THE APPROVAL OF GVSUD'S INSPECTORS OR ENGINEER.

CDEENNIALEY		CIAL UTILITY DISTRICT RD DETAILS	SANITARY SEWE STANDARD DETA		
SPECIAL UTILITY DISTRICT	REVISED:		THE ARCHITECT/ENGINEER ASS	UMES	DETAIL NO.
	OCTOB	ER 2021	RESPONSIBILITY FOR APPROPR USE OF THIS STANDARD.	RIATE	S-2

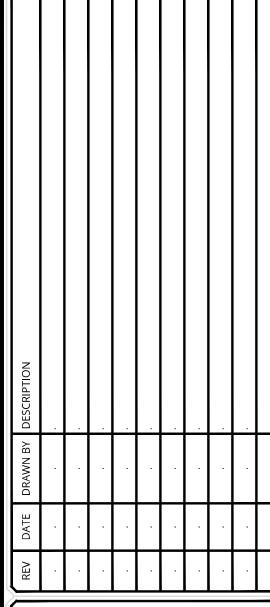
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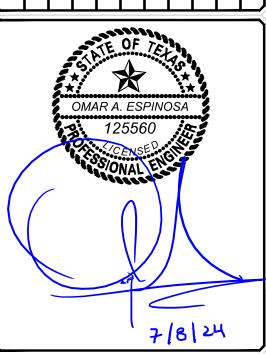
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CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

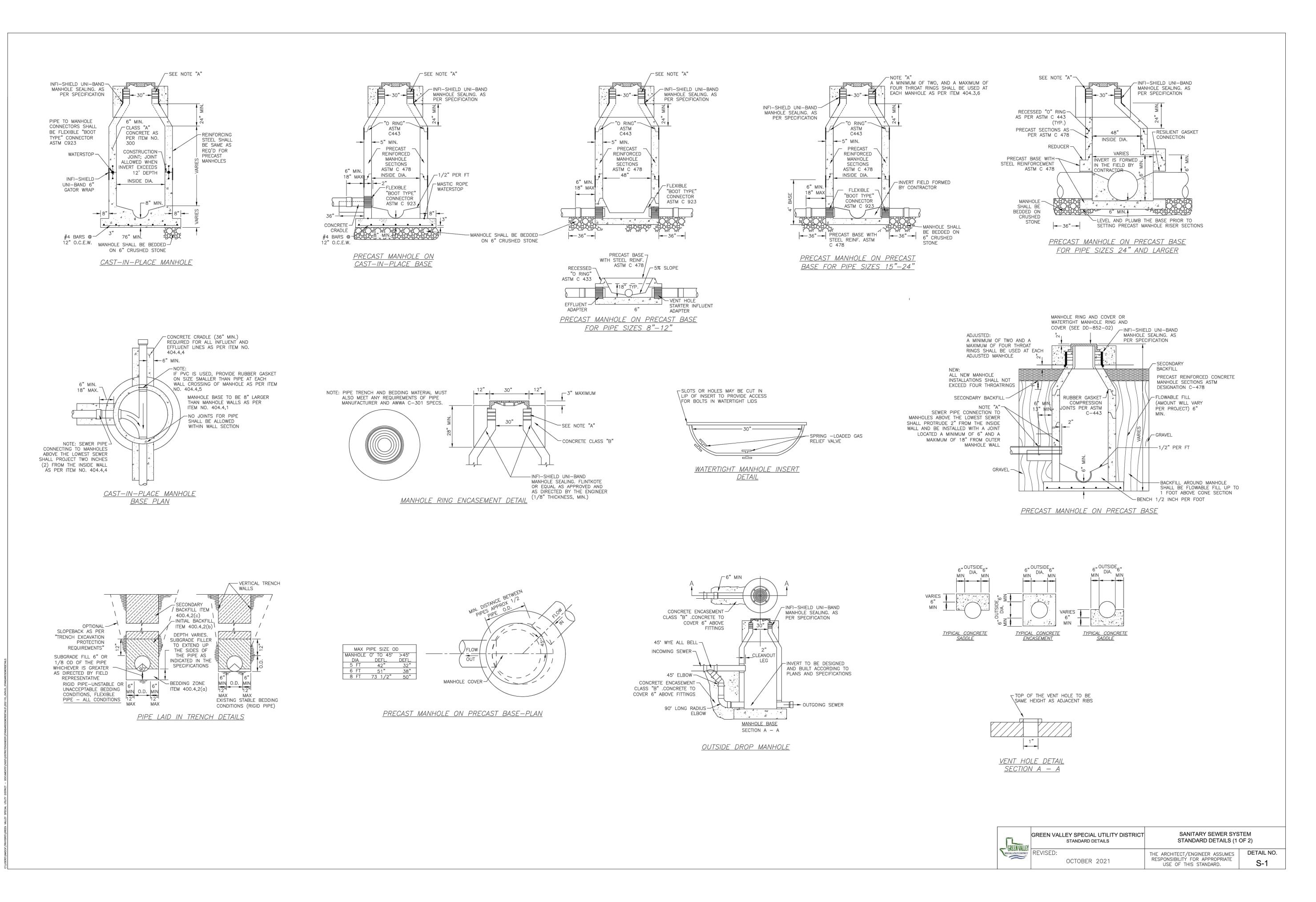
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AS SHOWN NOV. 2023 OS3146101 314-61-01

SANITARY SEWER DETAILS (1 OF 2)



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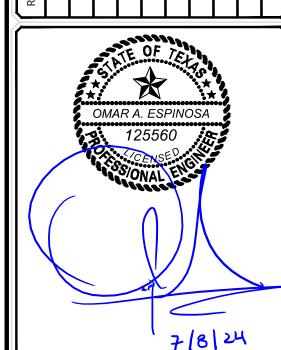
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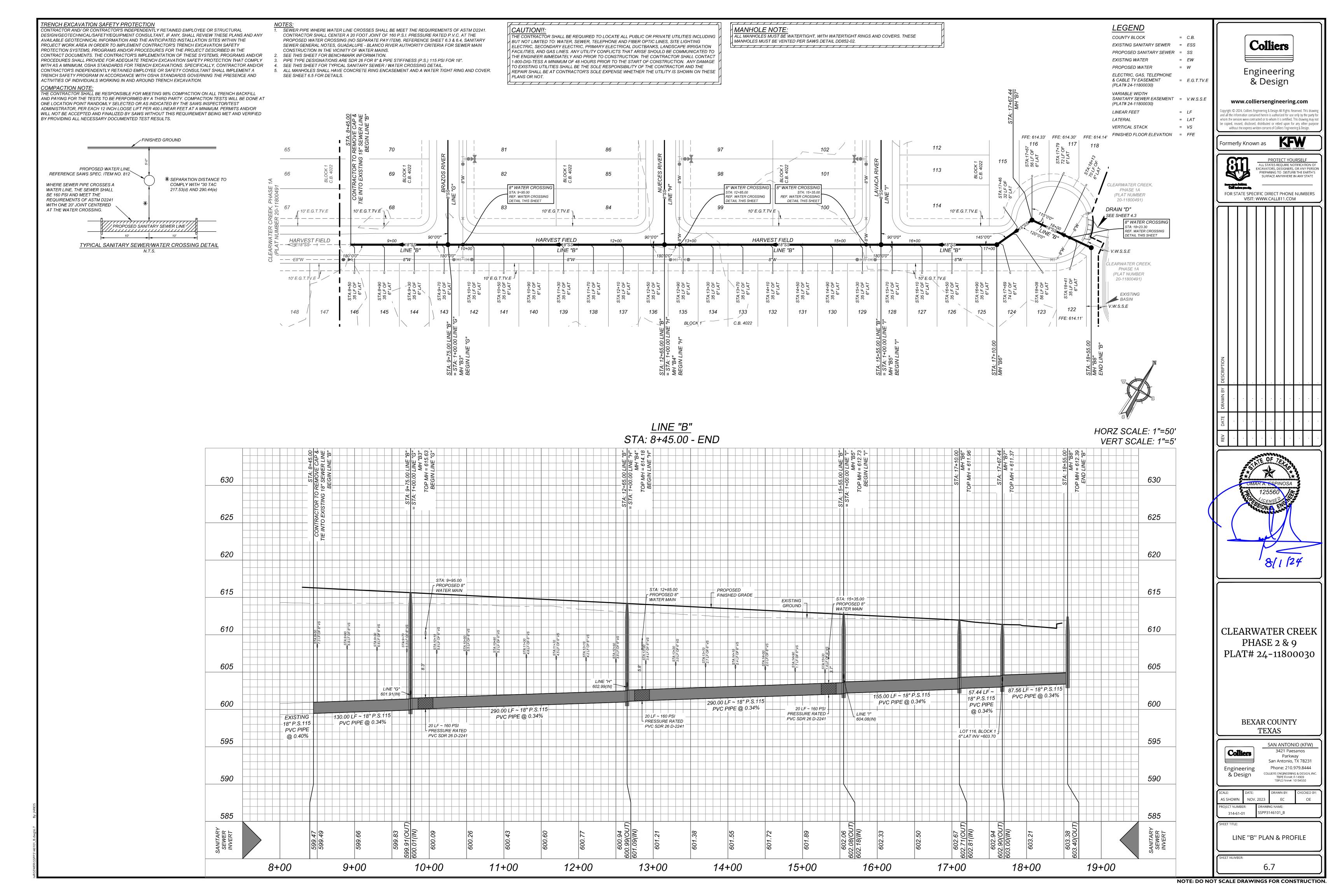
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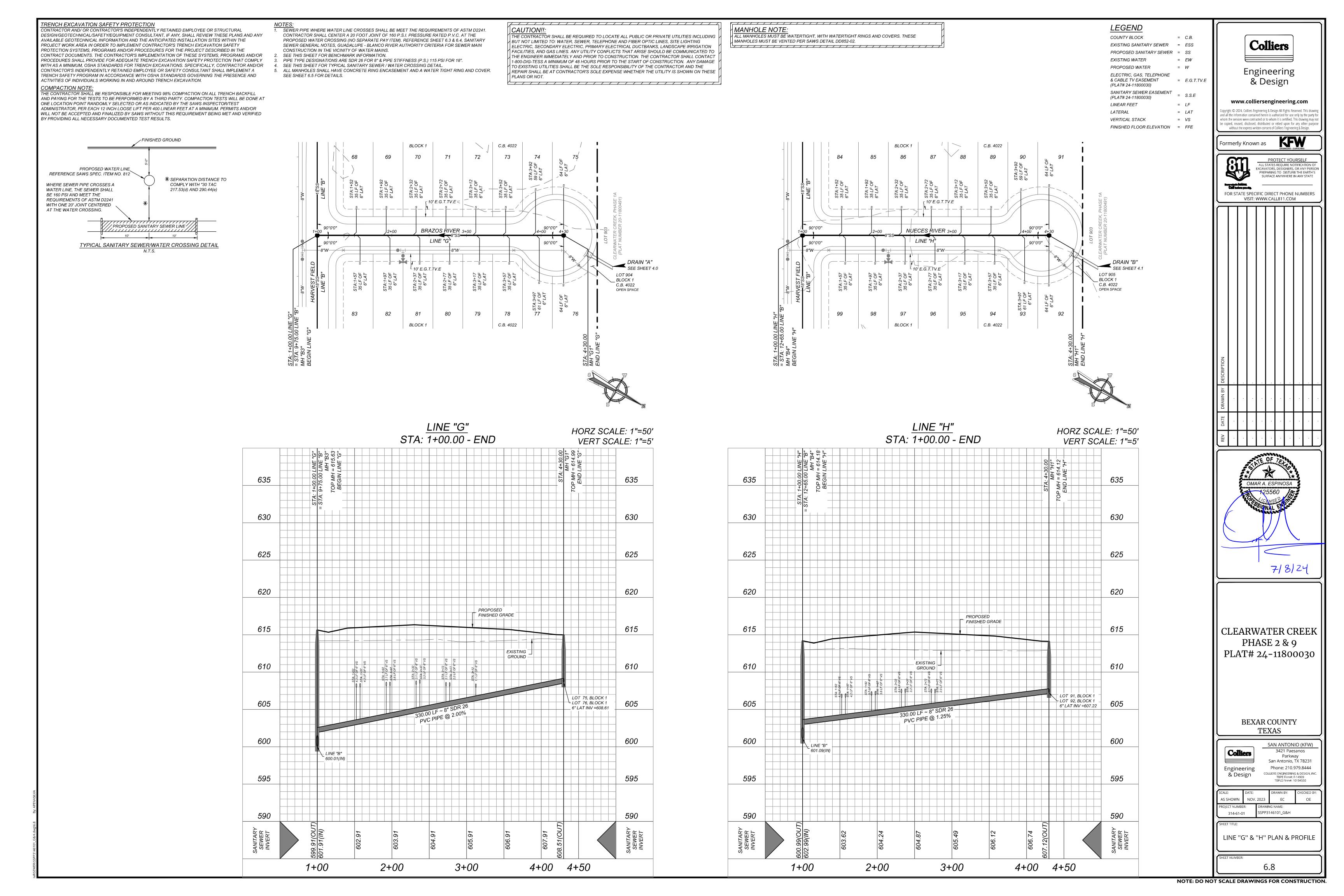
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SANITARY SEWER DETAILS
(2 OF 2)

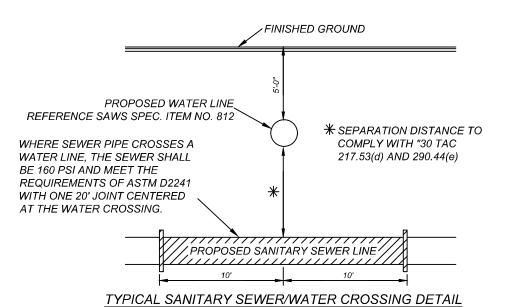




RENCH EXCAVATION SAFETY PROTECTION CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE

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 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.

COMPACTION NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTRATOR, PER EACH 12 INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. PERMITS AND/OR WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

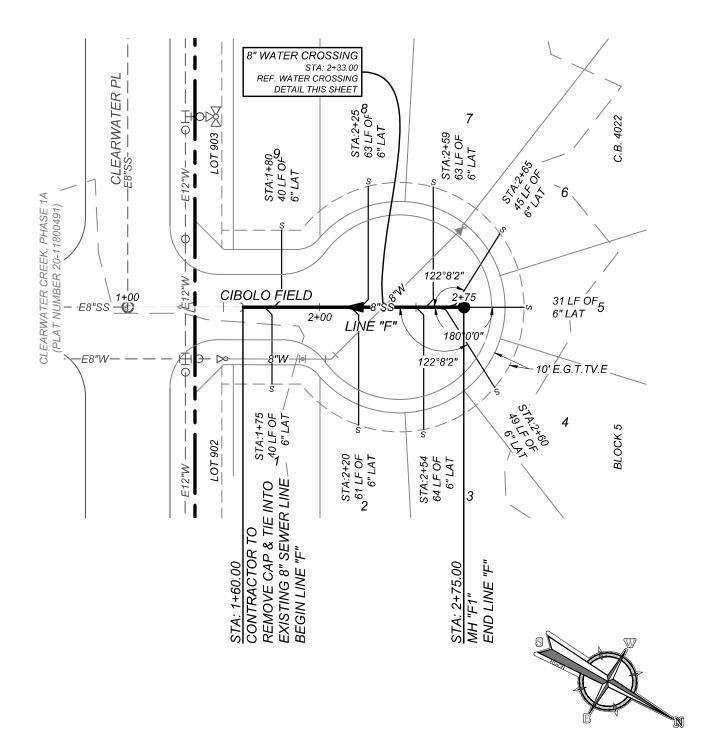


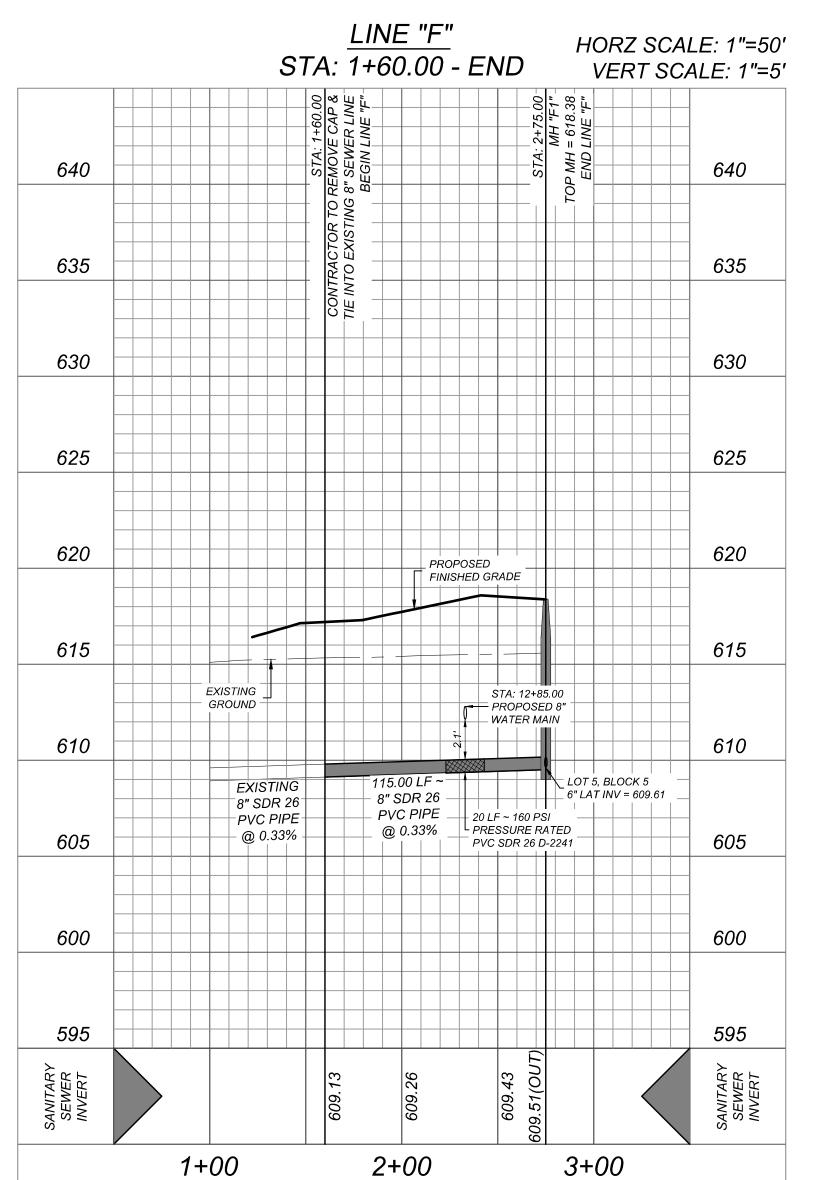
NOTES: 1. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241

- CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.3 & 6.4, SANITARY SEWER GENERAL NOTES, GUADALUPE - BLANCO RIVER AUTHORITY CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS. SEE THIS SHEET FOR BENCHMARK INFORMATION.
- PIPE TYPE DESIGNATIONS ARE SDR 26 FOR 8" & PIPE STIFFNESS (P.S.) 115 PSI FOR 18". SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.
- ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER. SEE SHEET 6.5 FOR DETAILS.

THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED 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.

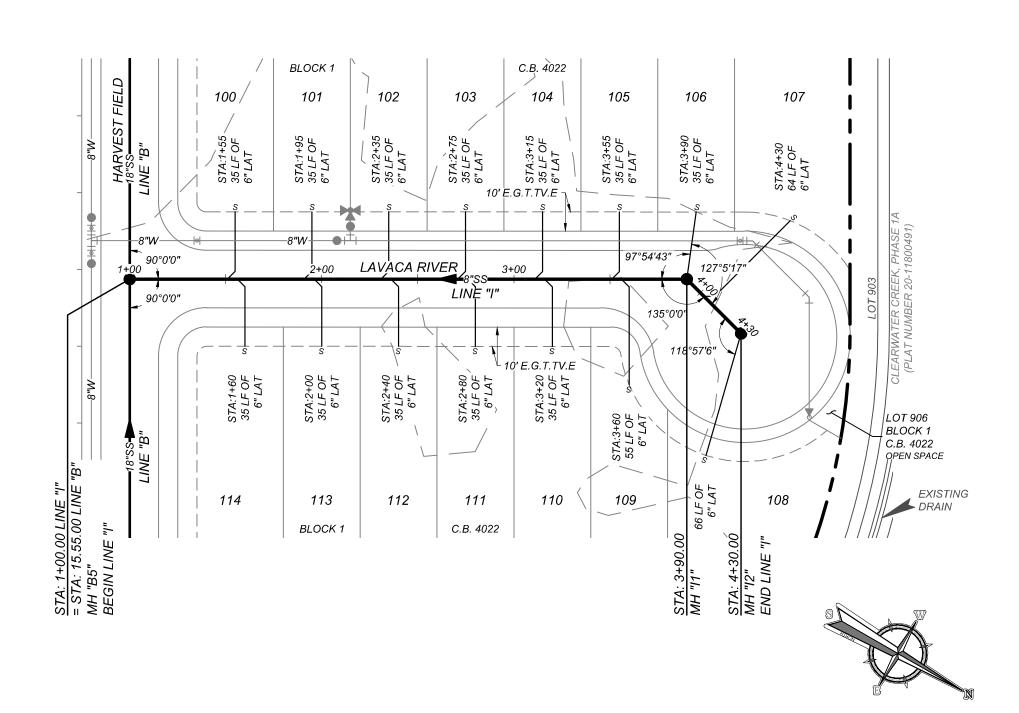
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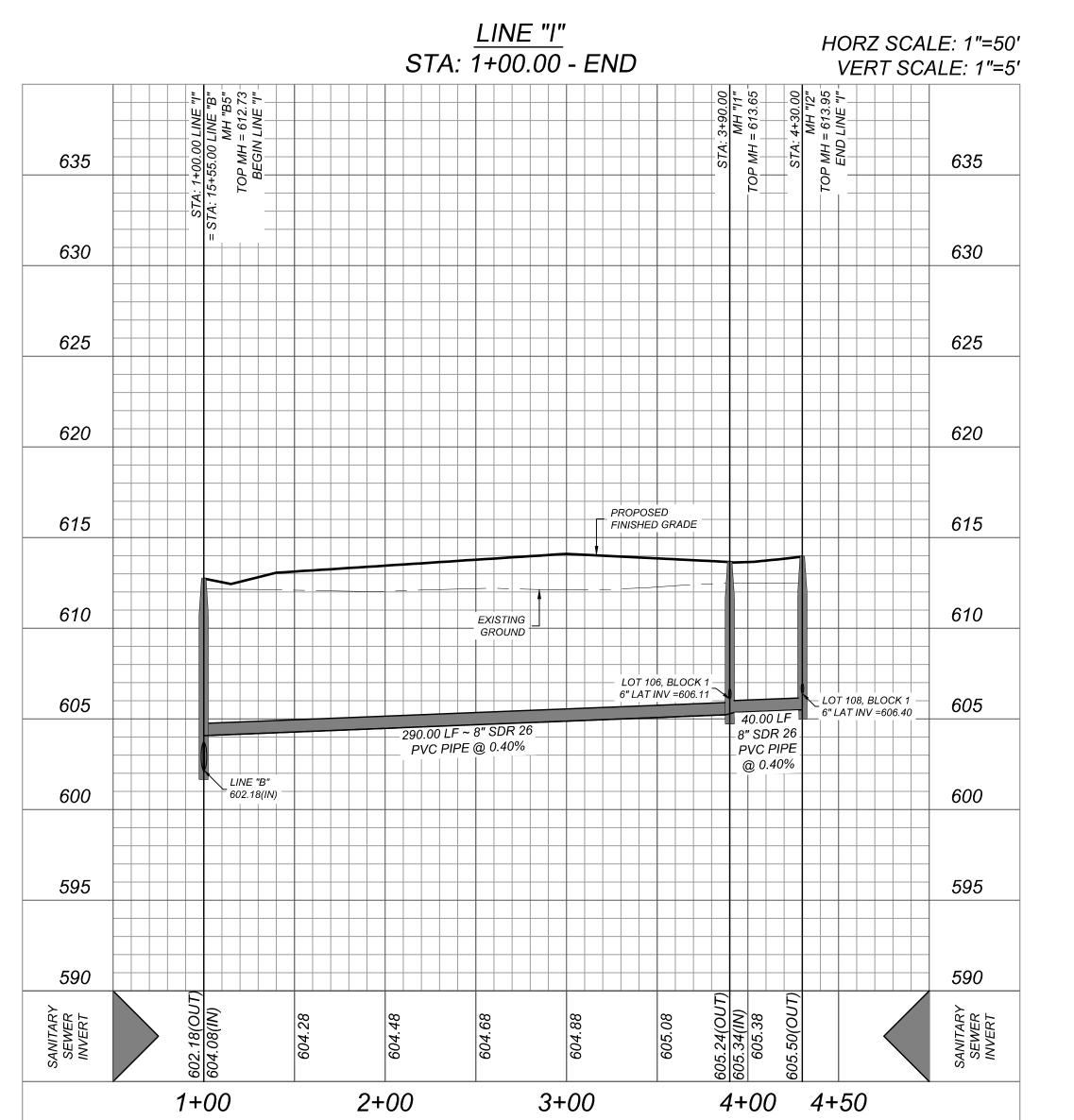


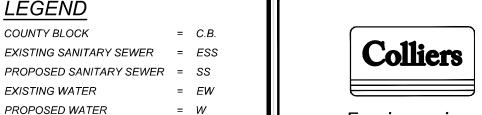


ALL MANHOLES MUST BE WATERTIGHT, WITH WATERTIGHT RINGS AND COVERS. THESE MANHOLES MUST BE VENTED PER SAWS DETAIL DD852-02.

MANHOLE NOTE:







= E.G.T.TV.E

= LF

= LAT

= VS

<u>LEGEND</u>

COUNTY BLOCK

EXISTING WATER

PROPOSED WATER

(PLAT# 24-11800030)

(PLAT# 24-11800030)

VERTICAL STACK

LINEAR FEET

LATERAL

ELECTRIC, GAS, TELEPHONE

SANITARY SEWER EASEMENT

FINISHED FLOOR ELEVATION = FFE

& CABLE TV EASEMENT

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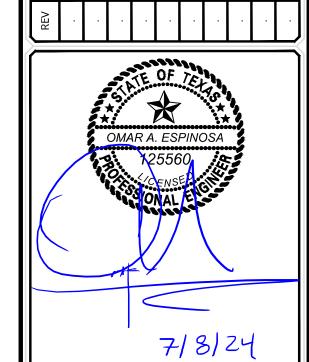
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CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

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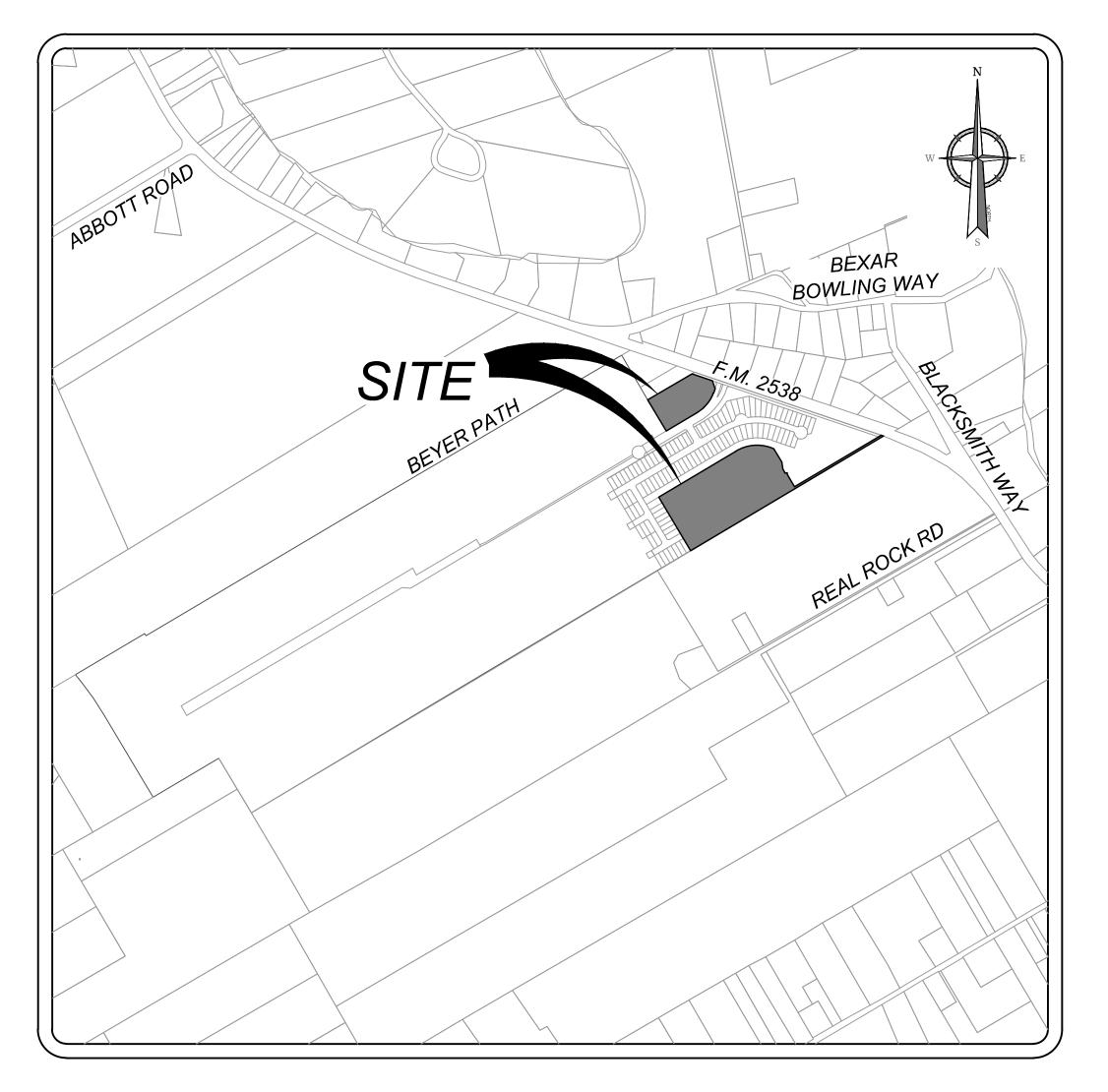
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LINE "F" & "I" PLAN & PROFILE

CLEARWATER CREEK PHASE 2 & 9

BEXAR COUNTY, TEXAS WATER IMPROVEMENTS



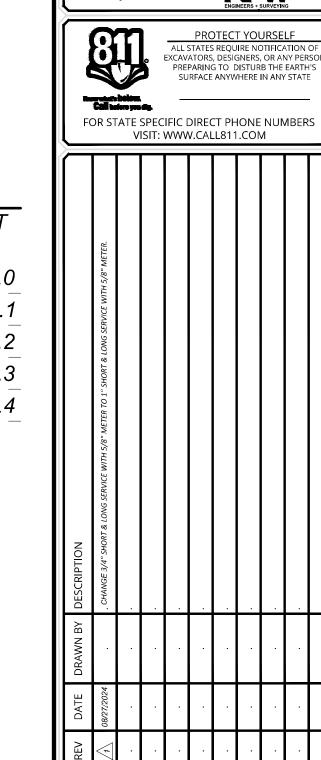
LOCATION MAP

N.T.S.

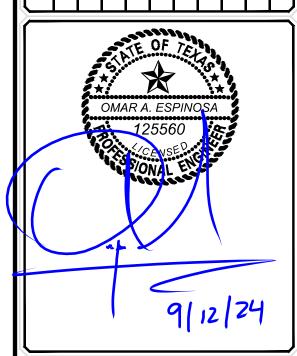
OWNER/DEVELOPER:
LENNAR HOMES OF TEXAS LAND
& CONSTRUCTION, LTD.
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TEXAS 78216
PHONE: (210) 403-6282

INDEX

DESCRIPTION	SHEET NO.
WATER DISTRIBUTION COVER SHEET	7.0
WATER DISTRIBUTION PLAN (1 OF 2)	7.1
WATER DISTRIBUTION PLAN (2 OF 2)	7.2
TYPICAL WATER NOTES & DETAILS (1 OF 2)	7.3
TYPICAL WATER NOTES & DETAILS (2 OF 2)	7.4



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314-61-01 CVOW3146101

WATER DISTRIBUTION COVER SHEET

7.0

	NO.	DESCRIPTION	UNIT OF MEASURE	APPROX. QUANTITIES
	1.	TRENCH EXCAVATION PROTECTION	LF	2,393
	2.	HYDROSTATIC TESTING	LF	2,393
	3.	MACHINE CHLORINATION	LF	2,393
	4.	8" C-900 PVC PIPE	LF	1,678
\wedge	5.	8" DI PIPE	LF	715
1	6.	DUCTILE IRON FITTINGS	TON	0.81
	7	8" GATE VALVE & BOXES, M.J.	EACH	6
>	8.	1" SHORT DUAL SERVICE W/ 5/8" METERS	EACH	25
	9.	1" LONG DUAL SERVICE W/ 5/8" METERS	EACH	16
	10	374 SHORT SINGLE SERVICE W/ 5/8" METER	EACH	2
	11.	3/4" LONG SINGLE SERVICE W/ 5/8" METER	EACH	1
	12.	3/4" IRRIGATION SERVICE W/ 3/4" METER	EACH	1
	13.	FIRE HYDRANT ASSEMBLY	EACH	3
	14.	2" BLOWOFFS (PERM)	EACH	5
	15.	8" WATER TIE IN	EACH	2
	16.	CAST IRON METER BOXES	EACH	86

RENCH EXCAVATION SAFETY PROTECTION

ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

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

JOINT RESTRAINT NOTE:

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

HE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE GVSUD INSPECTOR/TEST ADMINISTRATOR, PER EACH 12 INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. PERMITS AND/OR WILL NOT BE ACCEPTED AND FINALIZED BY GVSUD WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

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 1,000 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

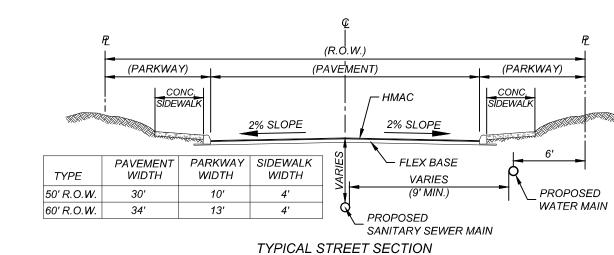
WATER PLAN NOTE: ALL VALVES SHALL READ "OPEN RIGH

2. ALL PVC PIPE TO BE 0909 CL 235 PVC.) 3. DISHIPECTION SHALL BE BY MACRIME CHLORINATION 4. MOISTURE DENSITY COMPACTION TESTING FREQUENCY - WATER MAIN TRENCHES REQUIRED EVERY 300 LF FOR EACH VERTICAL FOOT OF COMPACTED BACKFILL. SERVICES RANDOMLY SELECTED AS REQUIRED BY GVSUD INSPECTOR. 5. ALL TESTING AND TEST REPORTS SHALL BE COORDINATED WITH GVSUD INSPECTOR BY THE CONTRACTOR.

6. ALL DUCTILE IRON PIPE TO BE AMERICAN, ZINC COATED, AWWA/ANSI C-151. 7. CONTRACTOR TO UTILIZE APPROVED WATER LINE STOPS AND/OR MUELLER INSERTION-VALVES TO MINIMIZE WATER OUTAGES AS REQUIRED BY GVSUD DURING CONSTRUCTION. 8. FIRE HYDRANTS SHALL BE MUELLER OR EJ TYPE AND SHALL BE 1' MINIMUM AND 7' MAXIMUM FROM THE BACK OF CURB.

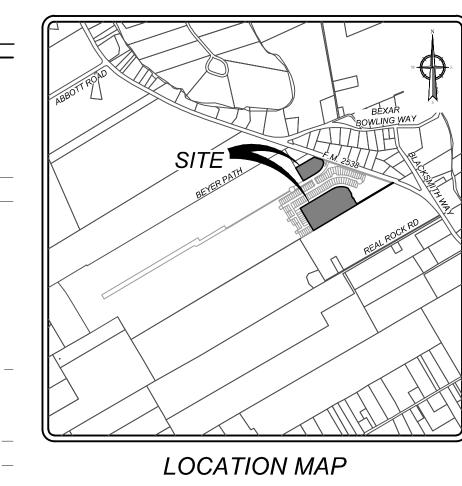
CAUTION!!:

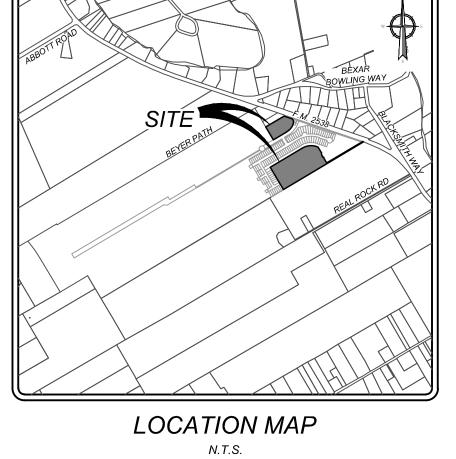
THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT 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.

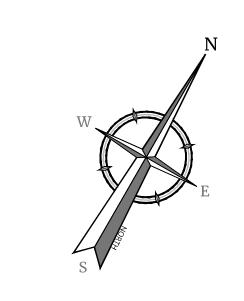


PROPOSED WATER MAIN PROPOSED WATER 3/4" IRRIGATION = ——*R** SERVICE & METER BOX PROPOSED FIRE HYDRANT PROPOSED WATER VALVE PROPOSED SANITARY SEWER MAIN = ———SS— PROPOSED SANITARY SEWER MANHOLE = ———SS— ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT = E.G.T.TV.E (PLAT# 24-11800030) VARIABLE WIDTH SANITARY SEWER = *V.W.S.S.E* EASEMENT (PLAT# 24-11800030) VARIABLE WIDTH CLEAR VISION = *V.W.C.V.E* EASEMENT (PLAT# 24-11800030) VEHICULAR NON ACCESS EASEMENT = *V.N.A.E* (PLAT# 24-11800030) EXISTING WATER MAIN = EXISTING FIRE HYDRANT EXISTING WATER VALVE = 🖂 EXISTING SANITARY SEWER MAIN EXISTING SANITARY SEWER MANHOLE EXISTING OVERHEAD ELECTRIC W/POWER = --OHE--⊗--OHE--EXISTING GUY WIRE/OVERHEAD ELECTRIC = ---

LEGEND

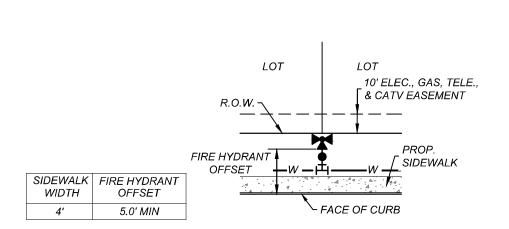




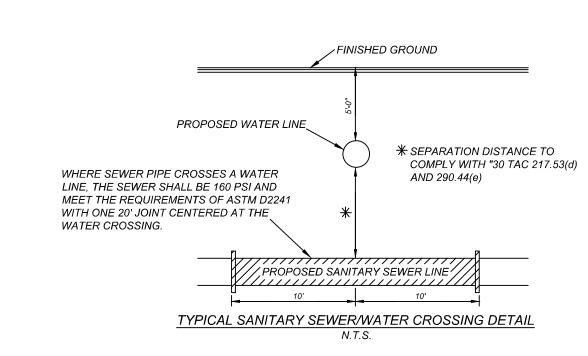


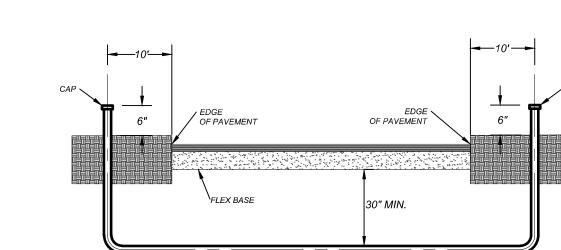
SCALE: 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)



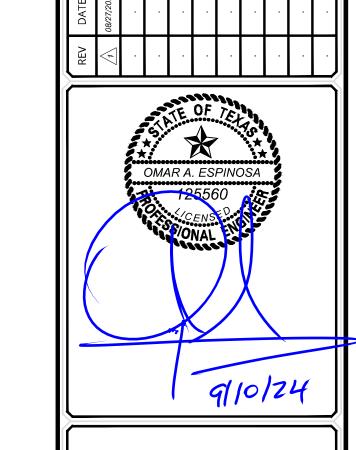
TYPICAL FIRE HYDRANT DETAIL NOT-TO-SCALE







A	
Water Utility Quantities Table	~~~
1" Short Single Service with 5/8" Meter	2
1" Long Single Service with 5/8" Meter	1
1 Short Dual Service With 5/8 Meter	
1" Long Dual Service with 5/8" Meter	13
1" Irrigation Service with 3/4" Meter	1
Total EDU =	86.5



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Formerly Known as

CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

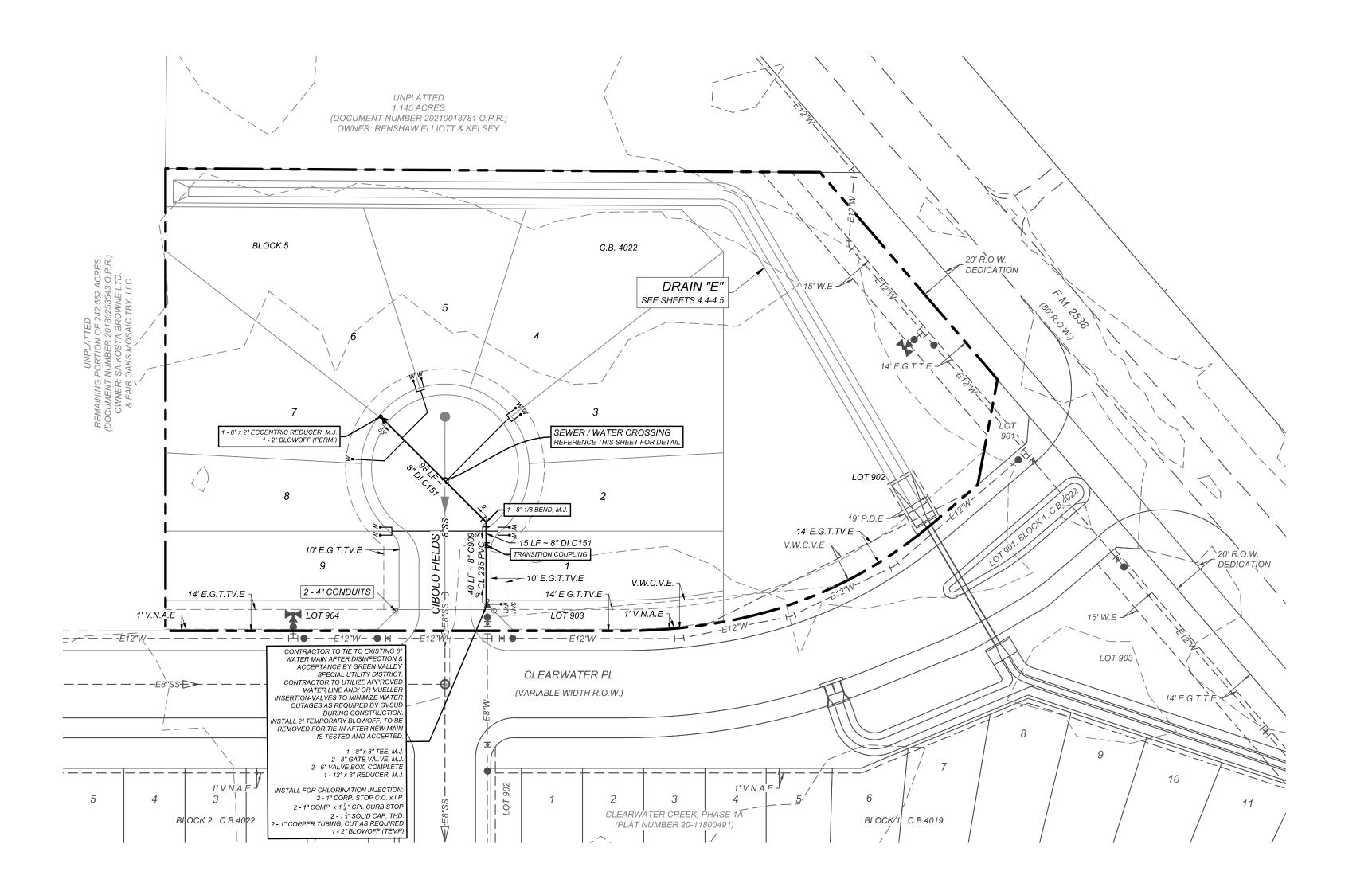
> **BEXAR COUNTY** TEXAS

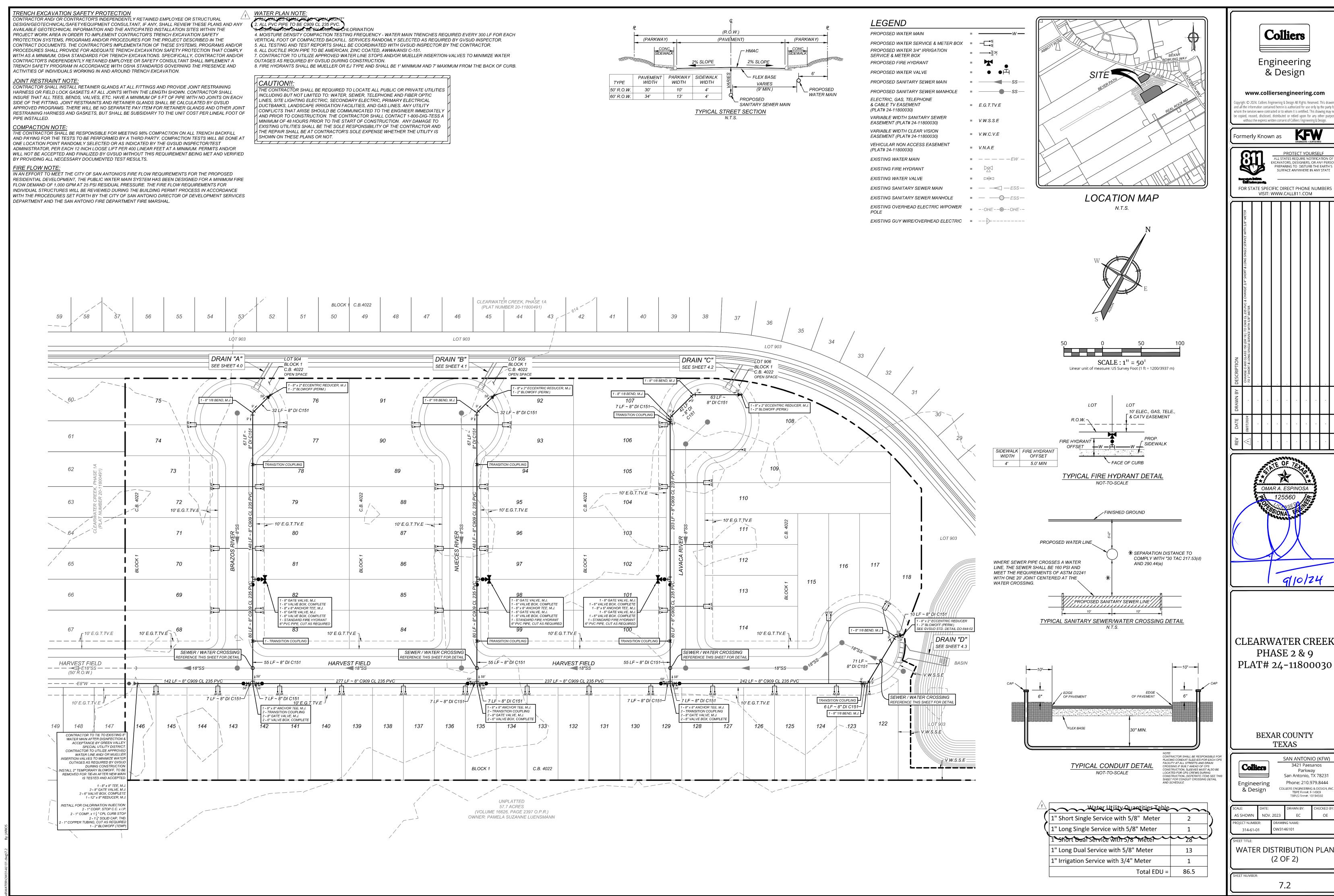
> > SAN ANTONIO (KFW)

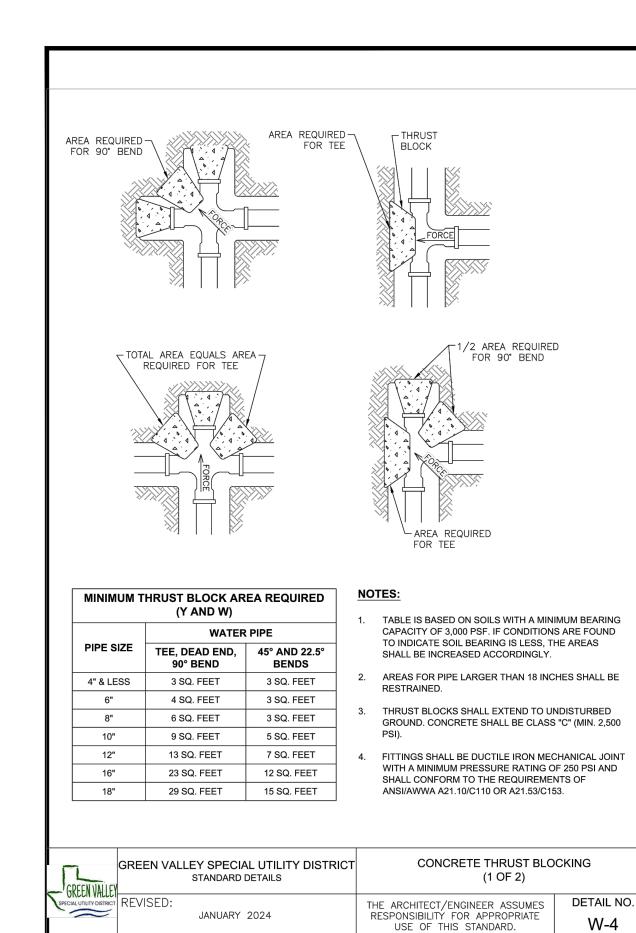
3421 Paesanos

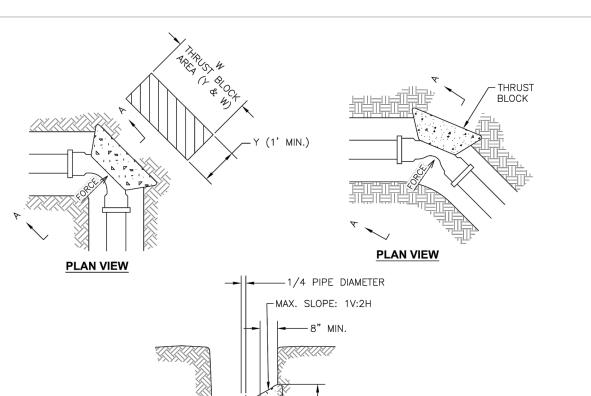
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AS SHOWN	NOV.	2023	EC	OE
ROJECT NUMBER:		DRAWI	NG NAME:	

314-61-01 OW3146101 WATER DISTRIBUTION PLAN (1 OF 2)









SECTION VIEW (A-A)

MINIMUM THRUST BLOCK AREA REQUIRED (Y AND W)

12 SQ. FEET

15 SQ. FEET

GREEN VALLEY SPECIAL UTILITY DISTRICT

STANDARD DETAILS

JANUARY 2024

WATER PIPE TEE, DEAD END, 45° AND 22.5° 90° BEND BENDS 3 SQ. FEET 3 SQ. FEET 4 SQ. FEET 3 SQ. FEET 6 SQ. FEET 3 SQ. FEET 9 SQ. FEET 5 SQ. FEET 13 SQ. FEET 7 SQ. FEET

23 SQ. FEET

29 SQ. FEET

18"

- TABLE IS BASED ON SOILS WITH A MINIMUM BEARING CAPACITY OF 3,000 PSF. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
- AREAS FOR PIPE LARGER THAN 18 INCHES SHALL BE THRUST BLOCKS SHALL EXTEND TO UNDISTURBED
- 4. FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT WITH A MINIMUM PRESSURE RATING OF 250 PSI AND SHALL CONFORM TO THE REQUIREMENTS OF

ANSI/AWWA A21.10/C110 OR A21.53/C153.

THE ARCHITECT/ENGINEER ASSUMES

RESPONSIBILITÝ FOR APPROPRIATE

USE OF THIS STANDARD.

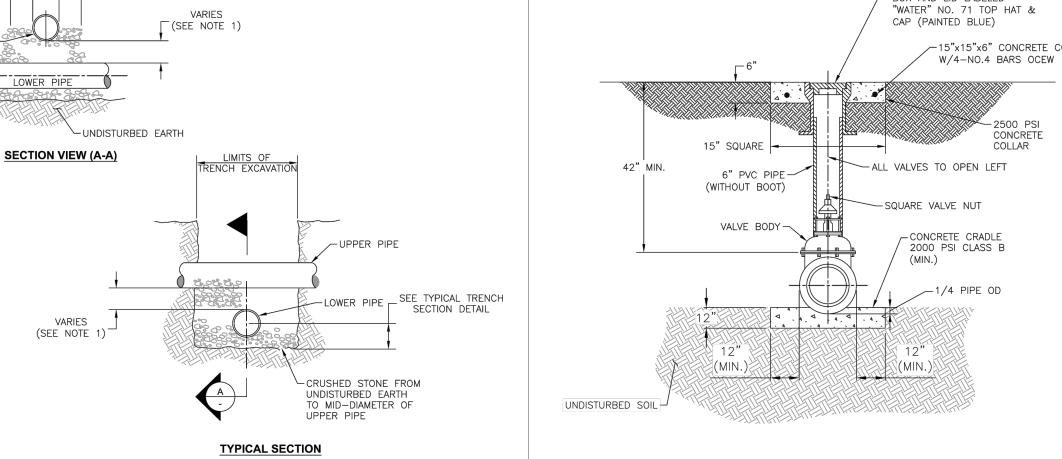
GROUND. CONCRETE SHALL BE CLASS "C" (MIN. 2,500

CONCRETE THRUST BLOCKING

(2 OF 2)

DETAIL NO.

W-4



MAINTAIN A MINIMUM 5 FOOT HORIZONTAL AND 2 FOOT VERTICAL SEPARATION FROM

UTILITIES CROSSING DETAIL

THE ARCHITECT/ENGINEER ASSUMES | DETAIL NO.

W-10

RESPONSIBILITÝ FOR APPROPRIATE

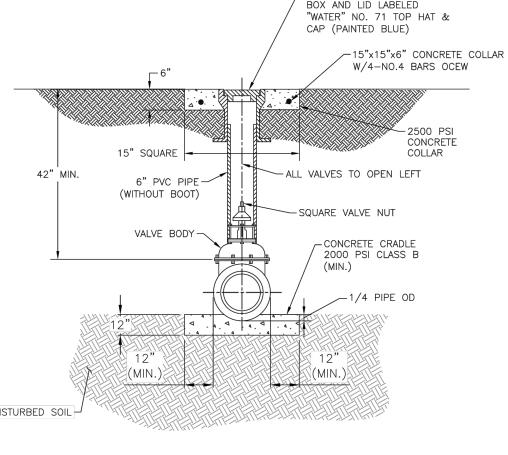
USE OF THIS STANDARD.

- BETWEEN UTILITIES AND WATER AND WASTEWATER PIPES AND SERVICES. GAS. ELECTRIC, CABLE, ETC. TO BE LOCATED OPPOSITE SIDES OF PROPERTIES.
- 2. UTILITY CROSSINGS SEPARATED BY LESS THAN 5 FEET SHALL BE ENCASED WITH A MINIMUM OF 6 INCHES OF CONCRETE.
- SPECIFICATIONS: BEDDING MATERIAL MUST BE APPROVED BY AUTHORIZED GVSUD PERSONNEL, BEFORE START OF JOB.
- 4. AT ANY CREEK CROSSING OR DRAINAGE DITCH THE MAIN SHALL BE ENCASED WITH STEEL PIPE AND/OR 6 INCHES CONCRETE ENCASEMENT TO WITHIN 10 FEET OUTSIDE OF CREEK OR DRAINAGE DITCH AREA.
- 5. PIPE JOINTS SHALL BE AT LEAST 9 FEET HORIZONTALLY FROM CROSSINGS.

GREEN VALLEY SPECIAL UTILITY DISTRICT

STANDARD DETAILS

JANUARY 2024



-CAST IRON "LINCOLN HAT"

- WFLD 2 1/2 INCH X 2 INCH DEEP SOCKET TO 1 INCH (SCHEDULE 40) ROUND STEM EXTENSION AND ON OPERATING NUT. FOR PIPE EXTENSIONS OVER 10 FEET. STEM EXTENSION SHALL BE A SCHEDULE 80 PIPE VALVE EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 3 FEET DEEP FROM FINISHED GRADE. VALVE
- EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 18 TO 24 INCHES FROM FINISHED
- CONCRETE COLLARS TO BE INSTALLED ON ALL VALVE BOXES LOCATED OUTSIDE PAVEMENT. SEE APPROPRIATE VALVE BOX ADJUSTMENT DETAILS.
- 4. GATE VALVES SHALL BE MUELLER TYPE OR APPROVED EQUAL.

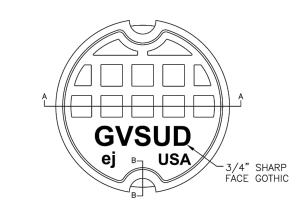
STANDARD DETAILS

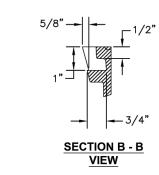
FEBRUARY 2021

5. FOR VALVE DEEPER THAN 5 FEET, ADD EXTENSION. 6. VALVE TURNS UNDERNEATH CAP.

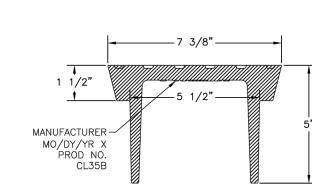


USE OF THIS STANDARD.









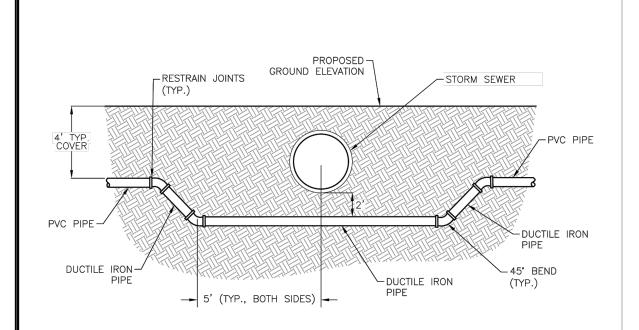
SECTION A - A

- 1. VALVE BOX COVER SHALL BE EJ GROUP, INC. \$71 VALVE BOX COVER PRODUCT NUMBER 33171011, OR APPROVED EQUIVALENT WITH GVSUD LOGO.
- 2. TYPICAL FILLET IS 3/16 INCH RADIUS.
- 3. LETTERING SHALL BE 3/4 INCH SHARP FACE GOTHIC AND LOCATED AS SHOWN.
- 4. LID REQUIRES TWO (2) PICK SLOTS.
- 5. THE MANUFACTURER'S IDENTIFICATION, CASTING NUMBER, AND THE COUNTRY WHERE CAST, SHALL BE DISTINCTLY CAS'

6.	DRAFT AND SHRINKAGE ALLOWANCE SHALL BE IN ACCORDANCE WITH NORMAL FOUNDRY PRACTI
7.	FINISH BY REMOVING FINS AND FLASHING AND PAINT WITH BLACK ASPHALT COATING.

	GREEN VALLEY	GREEN VALLEY SPECIAL UTILITY DISTRICT STANDARD DETAILS	VALVE BOX CASTING	LID
).	SPECIAL UTILITY DISTRICT	REVISED:	THE ARCHITECT/ENGINEER ASSUMES	DETAIL NO.

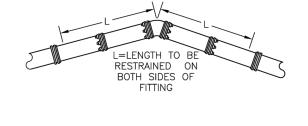
USE OF THIS STANDARD.



- 1. MAINTAIN 24 INCH (MIN.) SEPARATION FROM STORM SEWER LINE.
- 2. 45° BENDS MUST BE THRUST BLOCKED AND RESTRAINED AT

- BOTTOM BENDS. SEE STANDARD DETAIL.

VALLEY-	GREEN VALLEY SPECIAL UTILITY DISTRICT STANDARD DETAILS	STORM SEWER CROSSING	
	REVISED:	THE ARCHITECT/ENGINEER ASSUMES	DETAIL
	JANUARY 2024	RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	W- ²



RESTRAINED LENGTH FOR BENDS

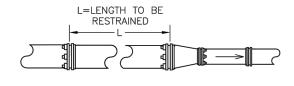
PIPE SIZE (INCHES)	BEND ANGLE (DEG)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 PSI
6	90	23
6	45	9
6	22.5	5
6	11.25	2
8	90	30
8	45	12
8	22.5	6
8	11.25	3
12	90	43
12	45	18
12	22.5	8
12	11.25	4
16	90	63
16	45	26
16	22.5	13
16	11.25	7
24	90	85
24	45	35
24	22.5	17
24	11.25	9

- O THE TOP OF THE PIPE. NATIVE SOIL MATERIAL IS ASSUMED TO BE INORGANIC CLAY OF HIGH PLASTICITY. DEPTH
- 2. THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BASED

RESTRAINED LENGTH CALCULATIONS FOR P.V.C PIPE BEDDED IN COMPACTED GRANULAR MATERIAL EXTENDING

3. CONTRACTOR SHALL RESTRAIN ALL JOINTS WITHIN THE REQUIRED RESTRAINT DISTANCE PLUS THE NEXT JOINT

REEN VALLEY-	GREEN VALLEY SPECIAL UTILITY DISTRICT STANDARD DETAILS	BEND RESTRAINED LENGTH DESIGN	
	REVISED: JANUARY 2024	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	DETAIL NO W-18



RESTRAINED LENGTH FOR REDUCERS

PIPE SIZE (INCHES)	SMALL SIZE (INCHES)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 PSI
6	4	30
8	4	55
8	6	32
12	4	95
12	6	80
12	8	58
16	4	131
16	6	120
16	8	104
16	12	60
24	16	110

UPPER PIPE

- . RESTRAINED LENGTH CALCULATIONS FOR P.V.C PIPE BEDDED IN COMPACTED GRANULAR MATERIAL EXTENDING TO THE TOP OF THE PIPE. NATIVE SOIL MATERIAL IS ASSUMED TO BE INORGANIC CLAY OF HIGH PLASTICITY.
- 2. THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BASED UPON THE CONDITIONS ENCOUNTERED DURING INSTALLATION.
- 3. CONTRACTOR SHALL RESTRAIN ALL JOINTS WITHIN THE REQUIRED RESTRAINT DISTANCE PLUS THE NEXT JOINT OUTSIDE THE REQUIRED RESTRAINT DISTANCE.

L Breen Valley	GREEN VALLEY SPECIAL UTILITY DISTRICT STANDARD DETAILS	REDUCER RESTRAINED LENGTH DESIGN	
CIAL UTILITY DISTRICT	1	THE ARCHITECT/ENGINEER ASSUMES	DETAIL NO
	JANUARY 2024	RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	W-19



STANDARDS AND DESIGN CRITERIA OF GREEN VALLEY SPECIAL UTILITY DISTRICT (GVSUD). 2. PVC MAINS 12-INCHES AND BELOW SHALL CONFORM TO AWWA C-909 PRESSURE CLASS 235 OR ABOVE DEPENDING ON SYSTEM PRESSURES. PVC MAIN GREATER THAN 12 INCHES SHALL CONFORM TO AWWA C-900 DR 18 OR ABOVE DEPENDING ON SYSTEM PRESSURES. WATER MAINS SHALL HAVE AN ABSOLUTE MINIMUM DEPTH OF 5-FEET BELOW ROADWAY LEVEL AND 42-INCHES IN ALL OTHER AREAS.

1. ALL WORKMANSHIP AND MATERIALS FOR THE WATER SYSTEM SHALL CONFORM TO THE WATER

- 3. ALL WATER MAIN DUCTILE IRON FITTINGS SHALL BE MECHANICAL JOINT AND CONFORM TO ANSI/AWWA C-153 OR C-110. ALL BOLTS SHALL HAVE KOPR KOTE OR APPROVED EQUAL ANTI-SEIZE CORROSION RESISTANT COATING. VALVES SHALL BE ATTACHED TO TEES BY FOSTER ADAPTOR OR ANCHOR NIPPLE FOSTER ADAPTER ANCHOR NIPPLE OR FORD LINLELANGE RETAINER GLANDS AND THRUST BLOCKS SHALL BE USED ON ALL FITTINGS AND VALVES. 4. TRACER WIRE SHALL BE INSTALLED ON ALL PIPELINES INCLUDING SERVICE LINES AND
- BROUGHT INTO VALVE AND METER BOXES FOR LOCATING PURPOSES. INSULATED WATER PROOF CONNECTORS SHALL BE USED TO SPLICE WIRES TOGETHER. A 12-INCH-WIDE DETECTABLE METAL TAPE SHALL BE PLACED ABOVE BEDDING INITIAL BACKFILL. 5. EXCEEDING MAXIMUM DEFLECTION IS PROHIBITED. THE ANGULAR DEFLECTION AT BELL-SPIGOT JOINTS SHOULD NOT EXCEED ONE (1) DEGREE. THIS WILL PRODUCE A 4-INCH OFFSET FOR EVERY 20-FOOT SECTION OF PIPE. JOINT DEFLECTION IS ACHIEVED AFTER THE JOINT IS ASSEMBLED IN STRAIGHT ALIGNMENT AND DEFLECTED TO THE REFERENCE MARK. THE BELL SHOULD BE BRACED TO ALLOW THE FREE END TO MOVE LATERALLY UNDER STEADY
- EXCEED THE MAXIMUM DEFLECTION ALLOWED OR TO DAMAGE THE PIPE WITH MACHINERY. ABRUPT CHANGES IN DIRECTION SHALL BE ACCOMPLISHED WITH FITTINGS. 6. OVER STRESSING THE BELL BY OVER INSERTING THE JOINTS, OVERBELLING, AND PASSING THE INSERTION REFERENCE MARK IS PROHIBITED AND WILL REQUIRE REMOVAL AND

PRESSURE USING A PRY BAR OR OTHER SUITABLE MEANS. CARE SHOULD BE TAKEN NOT TO

REINSTALLATION. 7. STANDARD FIRE HYDRANT SHALL INCLUDE HYDRANT, 6-INCH RESILIENT GATE VALVE AND BOX, ANCHOR FITTINGS, DUCTILE IRON PIPE, AND ALL APPURTENANCES. HYDRANTS SHALL BE LIMITED TO THOSE MANUFACTURED BY MUELLER, AVK, AMERICAN FLOW, CLOW, OR EAST JORDAN, ONLY MUELLER HYDRANTS AND EJ SHALL BE USED IN CITY OF CIBOLO'S JURISDICTION. HYDRANT UPPER BARREL SHALL BE FACTORY PAINTED RED. HYDRANTS SHALL HAVE A STORTZ CONNECTION ON STEAMER NOZZLE. FITTINGS FOR PLUG SHALL BE FULLY RESTRAINED AND TIED TO VALVE.





- 8. VALVES SHALL BE AWWA APPROVED RESILIENT WEDGE SEATED GATE VALVE, OPEN LEFT, AND LIMITED TO THOSE MANUFACTURED BY MUELLER, AVK, AMERICAN FLOW, CLOW, OR EAST
- 9. VALVES ARE PROHIBITED IN ADA RAMPS, CURBS, AND ROADWAYS. VALVES ARE PROHIBITED IN SIDEWALKS IN CITY OF NEW BRAUNFELS. 10. METER BOXES ARE PROHIBITED IN ANY SIDEWALKS, DRIVEWAYS, OR ROADWAYS.
- 11. SMALL SERVICE TAPS SHALL BE EITHER 1-INCH OR 2 INCH AND SHALL BE REHAU MUNICIPEX WITH CTS 200 PSI PLASTIC INSERT. SMALL SERVICE TAPS TO BE MADE WITH SINGLE BRASS STRAP TAPPING SADDLE WITH IRON PIPE THREADS. EXCEPTION: IF LOCATED WITHIN CITY OF CIBOLO- SERVICE TAPS TO BE MADE WITH DOUBLE STAINLESS STRAP EPOXY COATING SADDLES WITH IRON PIPE THREADS
- 12. CASING REQUIRED FOR ALL LONG SMALL SERVICES. 1 INCH SERVICE REQUIRES 3 INCH CASING AND 2 INCH SERVICE REQUIRES 4 INCH CASING. CASING SHALL BE PVC SCHEDULE 40 OR
- 13. SINGLE 5/8" & 3/4" METER BOXES SHALL BE DFW36C 16" X 11". DUAL 5/8" & 3/4" METER BOXES SHALL BE DFW38C 17" X 15". 1-INCH METER BOXES SHALL BE DFW65C-14-1A 15 1/4" X 30 3/8". ALL METER BOXES SHALL BE PLASTIC WITH LIDS HAVING REBAR, ARM, AND KNOCKOUT.

14. THE FORD U BRANCH IS TO BE USED ON ALL DUAL SERVICES (U48-43Q) WITH THE 5/8" X 3/4"

- FEMALE THREAD ANGLE HEAD. ALL OTHER ANGLE HEADS WILL BE THE FORD Q NUT. ALL CORPORATION STOPS WILL BE IPS X Q NUT. ALL BRASS VALVES TO BE 'BALL' TYPE MINIMUM 200 PSI PRESSURE RATING. "CC" THREADED CORPORATION STOPS PROHIBITED. 15. TAPPING MACHINES UTILIZED FOR INSTALLING ANY TYPE OF TAP 1-INCH TO 2-INCHES WILL BE OF THE PURGE TYPE, WHICH AT THE TIME OF TAPPING SHALL EXPEL ALL CHIPS AND RESIDUE
- TO ATMOSPHERE THROUGH AN APPROPRIATE OUTLET AND/OR BE ABLE TO RETAIN THE 16. ALL WATER MAIN, PIPE, CASINGS, FITTINGS, AND VALVES SHALL BE LAID IN MANUFACTURED SAND EMBEDMENT PER DETAILS. THE SAND SHALL FULLY ENCASE ALL PIPES, INCLUDING FITTINGS AND VALVES, BY A MINIMUM OF 12-INCHES. ALL FITTINGS AND VALVES ARE TO RECEIVE THRUST BLOCKING, FOSTER ADAPTER, ANCHOR NIPPLE, FORD UNI-FLANGE RETAINER

GLAND JOINT RESTRAINTS, AND BELL JOINT RESTRAINTS WHEN SPECIFIED BY GVSUD OR THE

- 17. CONTRACTOR TO CURB CUT V'S FOR VALVES AND X'S FOR METERS. 18. PRIOR TO CONSTRUCTION OF THE SEWER AND WATER MAINS, ALL R.O.W. ROADWAYS AND PARKWAY SHALL HAVE REFERENCE SURVEY STAKING AND BE EXCAVATED OR PROPERLY FILLED TO SUB-GRADE ELEVATION.



GVSUD CONSTRUCTION PLAN GENERAL NOTES

- 19. SURVEY STAKING OFFSETS ARE REQUIRED FOR ALL WATER MAIN AND APPURTENANCES. 20. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM AVAILABLE RECORDS AND ARE NOT GUARANTEED. CONTRACTOR SHALL INVESTIGATE AND FIELD VERIFY UTILITY LOCATIONS A MINIMUM OF 300 LF AHEAD OF CROSSING AND TIE-IN LOCATIONS. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO AND FOR MAINTENANCE PROTECTION OF THE EXISTING UTILITIES, WHETHER THEY ARE SHOWN ON THE PLANS OR NOT.
- 21. ALL WASTEWATER PIPES CROSSING THE POTABLE WATER DISTRIBUTION SYSTEM WILL BE HELD IN STRICT ACCORDANCE WITH TCEQ RULES AND REGULATIONS. PROPOSED SUB-GRADE LIMITS AND DIMENSIONS MUST BE SHOWN ON THE PLANS. AND CONSTRUCTION PROCEDURES WILL BE INSPECTED TO VERIFY COMPLIANCE WITH TCEQ 290.44(E).
- 22. OTHER UTILITIES SHALL NOT BE LOCATED CLOSER THAN 3-FEET TO WATER MAINS 23. THE GREEN VALLEY INSPECTOR SHALL BE NOTIFIED AT LEAST FORTY-EIGHT HOURS PRIOR TO BACK FILLING OR TESTING.
- 24. A FIELD PRE-CONSTRUCTION MEETING SHALL BE HELD BEFORE CONSTRUCTION BEGINS AND MATERIAL SHALL BE AVAILABLE ON-SITE FOR INSPECTION. 25. CONTRACTOR SHALL CHLORINATE NEW MAINS PER TCEQ AND ANSI/AWWA C651 AND
- DECHLORINATE DURING FLUSHING PER ANSI/AWWA C655; THE CONTRACTOR SHALL COORDINATE WITH THE GVSUD INSPECTOR TO WITNESS CHLORINATING AND PRESSURE TESTING OF NEW MAINS. ALL TEST RESULTS MUST BE PROVIDED TO GVSUD. 26. OPERATION OF EXISITNG VALVES IN THE GVSUD WATER DISTRIBUTION SYSTEM SHALL ONLY BE
- AS APPROVED BY GVSUD AND IN THE PRESENCE OF GVSUD PERSONNEL. THE CONTRACTOR SHALL NOTIFY GVSUD WHEN A VALVE NEEDS TO BE OPERATED AND MAY ONLY OPERATE A VALVE IN THE PRESENCE OF THE GVSUD INSPECTOR. 27. NEW WATER MAINS AND APPURTENANCES SHALL PASS PRESSURE TESTING AND PASS THE
- MINIMUM PUBLIC HEALTH STANDARDS FOR BACTERIOLOGICAL QUALITY TESTING PRIOR TO ANY TIE IN TO THE EXISTING GVSUD WATER SYSTEM AS REQUIRED BY TCEQ AND ANSI/AWWA. 28. HYDROSTATIC PRESSURE TESTING SHALL BE EVERY 200 LF (MAX) OF LINE OR AS APPROVED BY
- THE ENGINEER. ALL ERRORS OF WORKMANSHIP SHALL BE CORRECTED IMMEDIATELY. ALL PARTS OF THE PIPELINE SHALL BE BACKFILLED AND BRACED SUFFICIENTLY TO PREVENT 29. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY
- CONSULTANT SHALL IMPLEMENT A TRENCH AND CONFINED SPACE ENTRY SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION AND ALL RELATED WORK. ANY



TRENCH PROTECTION SAFETY VIOLATION WILL BE DOCUMENTED AND WILL RESULT IN AN IMMEDIATE WORK STOPPAGE BY THE GVSUD INSPECTOR AT MINUMUM UNTIL THE NEXT

- 30. CONTRACTOR MUST PROTECT ALL UNATTENDED TRENCHES AND EXCAVATIONS WITH TEMPORARY FENCING.
- 31. NO TREES MAY BE PLANTED IN THE AREAS DESIGNATED AS WATER OR UTILITY EASEMENTS, OR AREAS WHERE WATER MAINS AND WATER SERVICE CROSSINGS EXIST OR ARE PLANNED TO BE CONSTRUCTED.
- 32. ALL GARBAGE OR SPOIL MATERIAL FROM THE WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE.
- 33. CONTRACTOR SHALL PROVIDE "AS-BUILT" WATER LINE PLANS AT THE PRELIMINARY WALK THRU FOR THE GVSUD INSPECTOR AND ENGINEER. THE PLANS SHALL LIST MATERIAL MANUFACTURERS, LINE LENGTH FROM FITTING TO FITTING, AND TAP LOCATIONS.
- 34. GPS FILES SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER AND GVSUD INSPECTOR FOR THE PLAN OF RECORD. CONTRACTOR SHALL PROVIDE AN ASCII COMMA DELIMITED OR EXCEL FILE CONTAINING THREE-DIMENSIONAL GPS SURVEY POINTS WITH FOUR (4) DECIMAL PLACES OF PRECISION, LESS THAN FOUR (4) INCHES OF HORIZONTAL POSITION ACCURACY, AND LESS THAN EIGHT (8) INCHES OF VERTICAL POSITION ACCURACY. POINTS SHALL BE PROVIDED FOR A MINIMUM OF THREE (3) CONTROL POINTS AND ALL FITTINGS, APPURTENANCES, ENCASEMENTS, VAULTS, AND TANKS. THE ENGINEER SHALL FURNISH PLAN OF RECORD DRAWINGS TO GVSUD FOR APPROVAL HAVING FINAL MEASUREMENTS AND THAT MATCH THE GPS 'X', 'Y', AND 'Z' COORDINATES.
- 35. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH ALL THE INFORMATION AS REQUIRED SO THAT THE ENGINEER CAN SUPPLY GVSUD THE GIS PACKAGE FOR APPROVAL. 36. A FINAL WALK THRU FOR FINAL FIELD ACCPETANCE WILL BE SCHEDULED WITH THE CONTRACTOR AFTER THE PRELIMINARY WALK THRU PUNCH LIST ITEMS HAVE BEEN
- COMPLETED AND AFTER THE GIS PACKAGE IS APPROVED AND ACCEPTED BY GVSUD. 37. GVSUD CONTACT NUMBER: 830-914-2330

REVISED: JULY 22,2022



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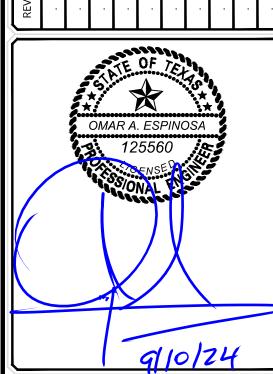
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W-12



CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

> BEXAR COUNTY TEXAS

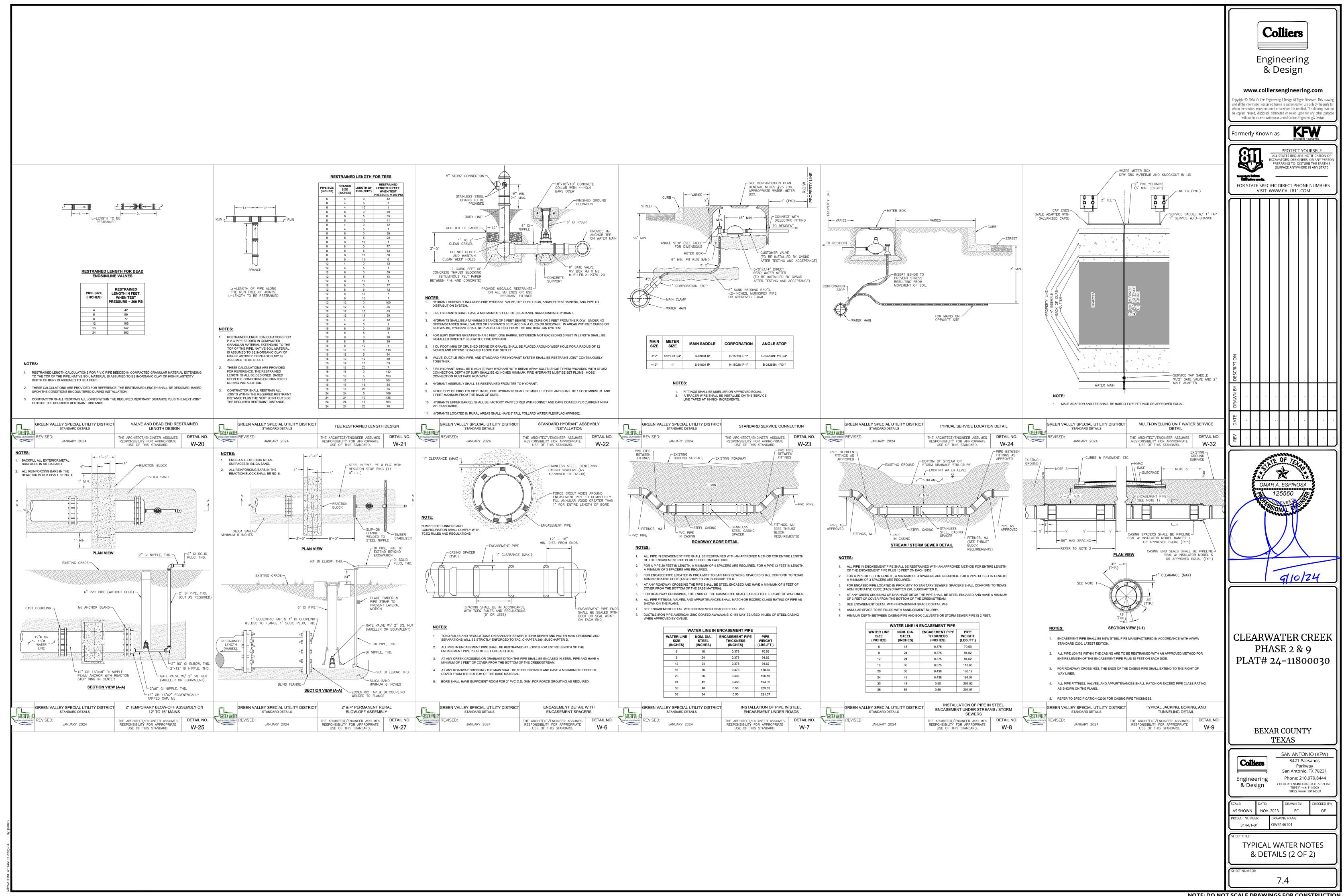
SAN ANTONIO (KFW) Engineering & Design

3421 Paesanos Parkway San Antonio, TX 78231 Phone: 210.979.8444 COLLIERS ENGINEERING & DESIGN, IN TBPLS Firm#: 10194550

DW3146101 314-61-01

TYPICAL WATER NOTES

& DETAILS (1 OF 2)





DRAIN "E" SEE SHEETS 4.4-4.5

CLEARWATER CREEK, PHASE 1A (PLAT NUMBER 20-11800491)

BLOCK/1 C.B.4022

LOT 903 \

UNPLATTED 1.145 ACRES (DOCUMENT NUMBER 20210018781 O.P.R.)

OWNER: RENSHAW ELLIOTT & KELSEY

CONSTRUCTION SILT FENCE

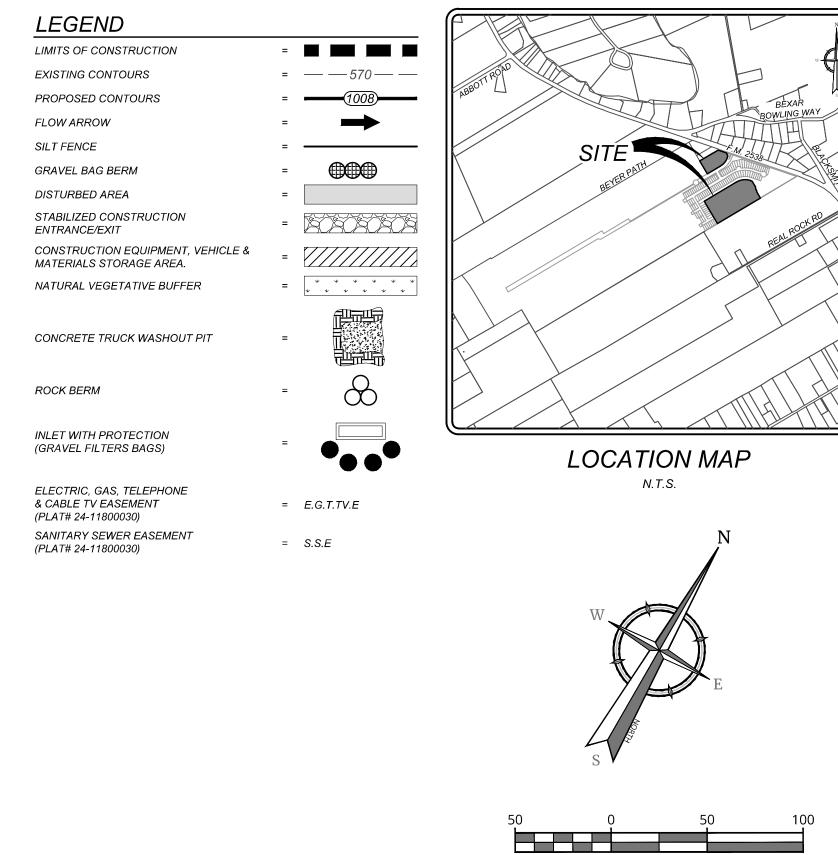
STABILIZED CONSTRUCTION ENTRANCE

CLEARWATER PL

(VARIABLE WIDTH R.O.W.)

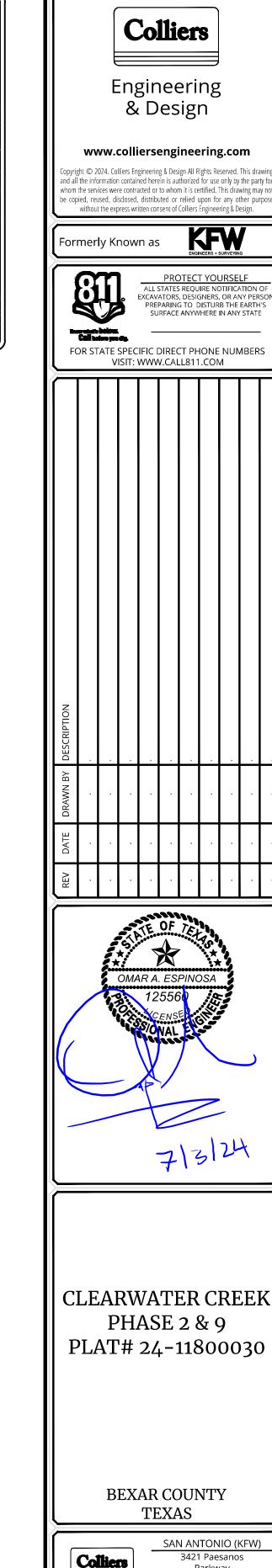
BLOCK 5

CONSTRUCTION EQUIPMENT
AND MATERIALS STORAGE AREA



SCALE: 1" = 50'

Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)



CLEARWATER CREEK PHASE 2 & 9 PLAT# 24-11800030

BEXAR COUNTY

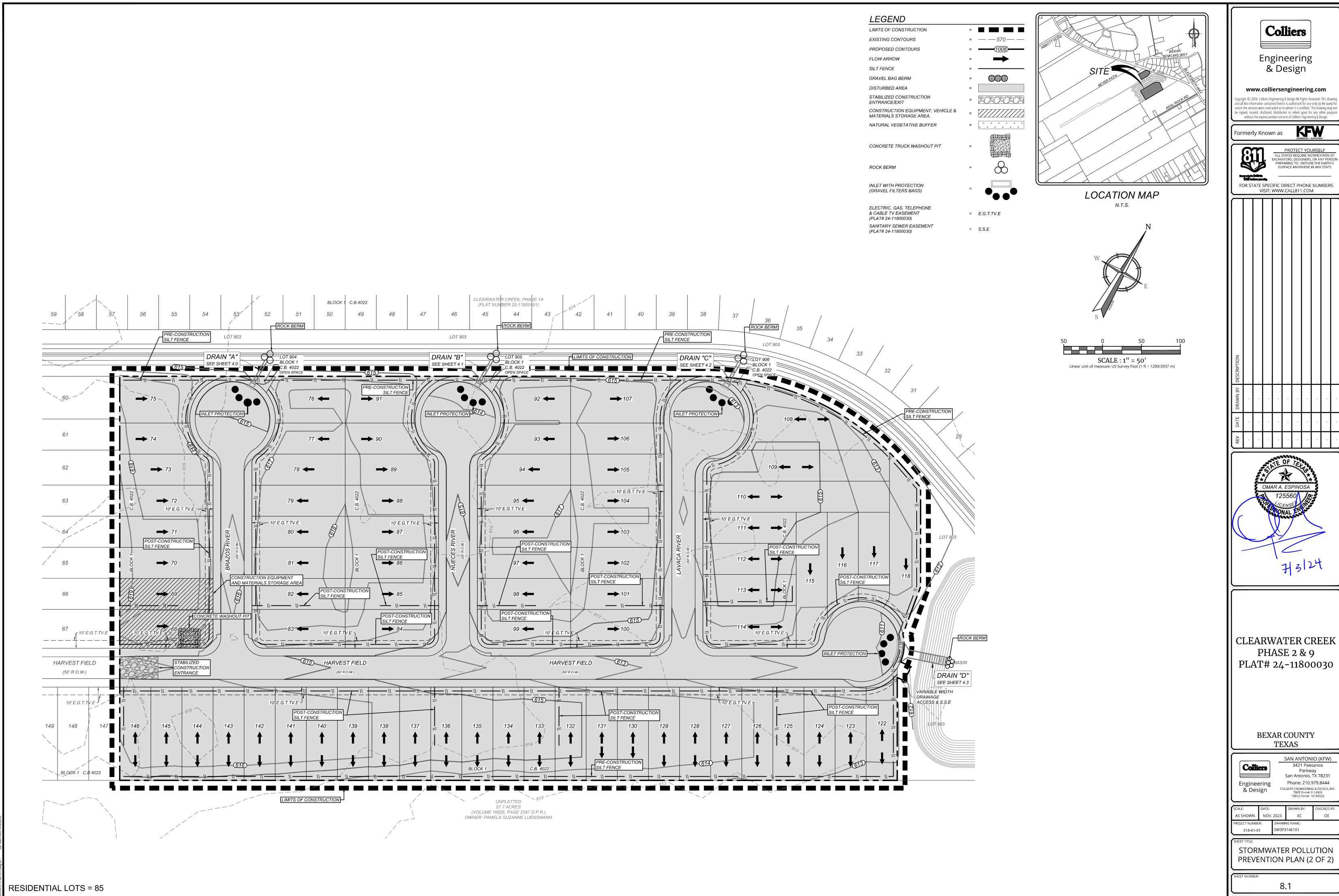
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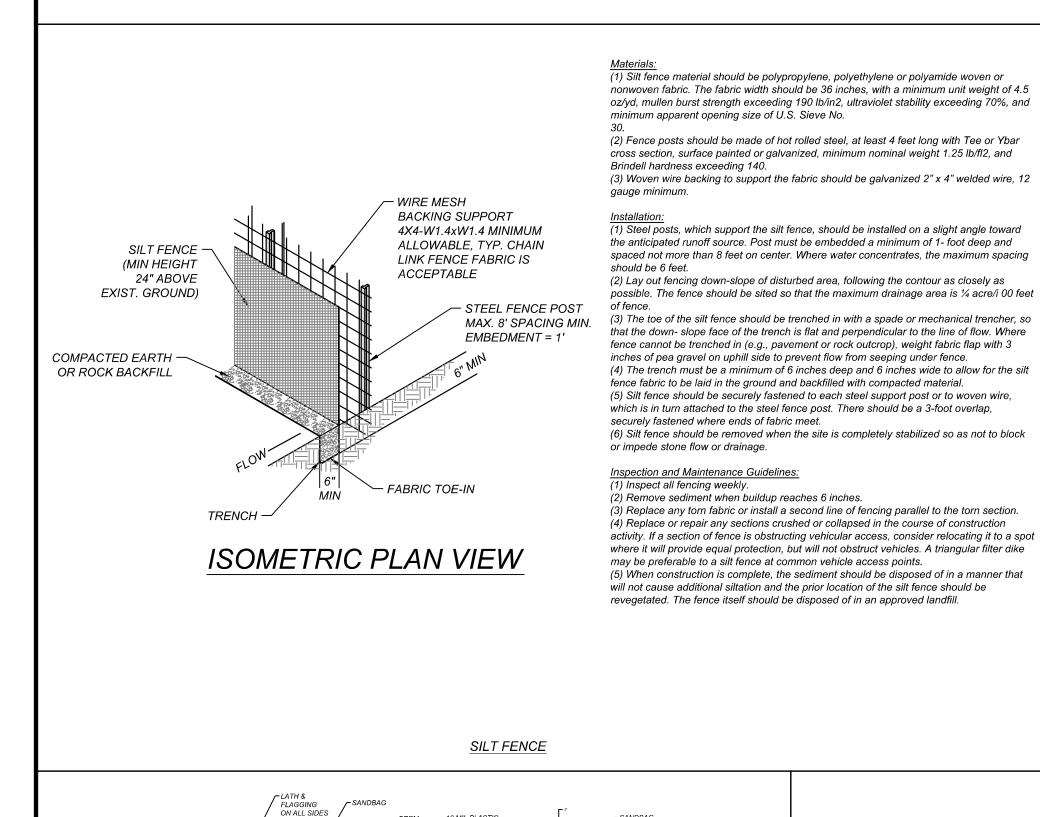
SAN ANTONIO (KFW) 3421 Paesanos Parkway San Antonio, TX 78231 Phone: 210.979.8444 COLLIERS ENGINEERING & DESIGN, INC. TBPE Firm#: F-14909 TBPLS Firm#: 10194550

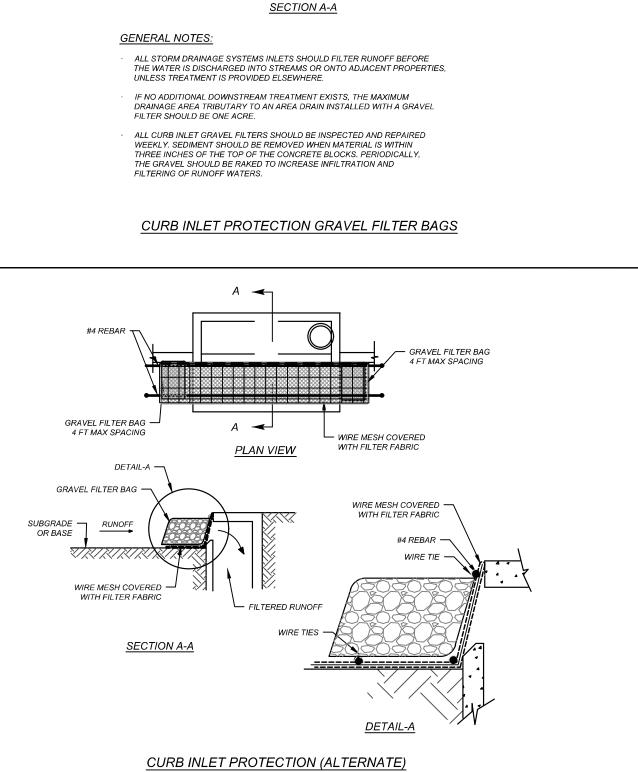
SW3P3146101 STORMWATER POLLUTION

PREVENTION PLAN (1 OF 2)

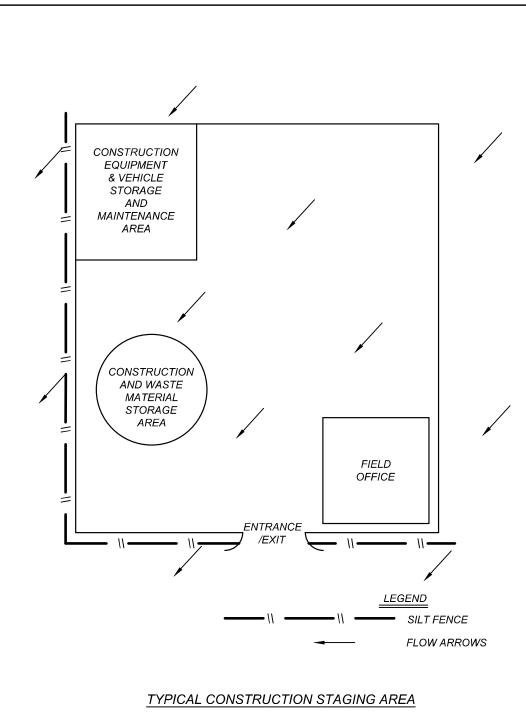
RESIDENTIAL LOTS = 85

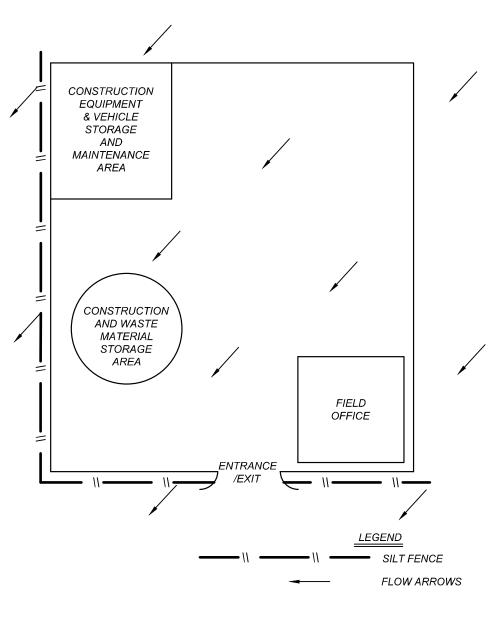


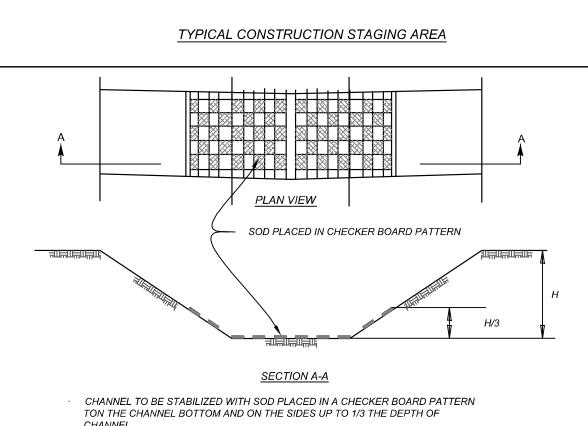


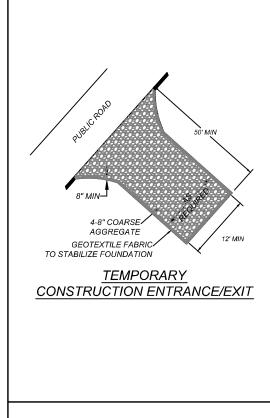


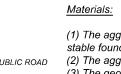
└ FILTERED RUNOFF











(1) The aggregate should consist of 4 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 (4) If a washing facility is required, a level area with a minimum of 4 inch diameter washed stone or commercial rack should be included in the plans. Divert wastewater to a sediment trap or basin.

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OMAR A. ESPINOSA

CLEARWATER CREEK

PHASE 2 & 9

PLAT# 24-11800030

BEXAR COUNTY

TEXAS

SAN ANTONIO (KFW)

3421 Paesanos Parkway

San Antonio, TX 78231

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF
EXCAVATORS, DESIGNERS, OR ANY PERSO
PREPARING TO DISTURB THE EARTH'S
SURFACE ANYWHERE IN ANY STATE

Formerly Known as

Recorded bolder. Call before you do

Installation: (North Carolina, 1993)

(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 to 8 inches high with 3:1 (H:V) side slopes, across the foundation approximately 15 feet from the entrance to divert runoff away from the public road. (5) Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are anticipated. (6) Place stone to dimensions and grade shown on plans. Leave surface smooth and slope for drainage.

(7) Divert all surface runoff and drainage from the stone pad to a sediment trap or basin. (8) Install pipe under pad as needed to maintain proper public road drainage.

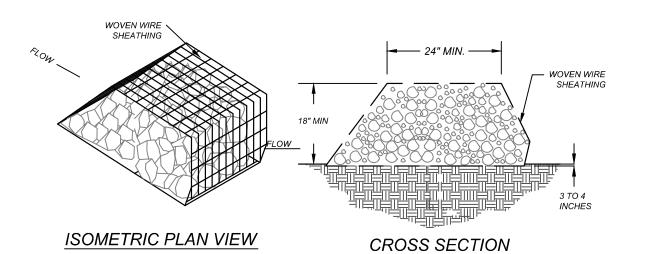
FABRIC CROSS-SECTION OF A CONSTRUCTION ENTRANCE/EXIT

) 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 andlor 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

(5) All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

STABILIZED CONSTRUCTION ENTRANCE / EXIT



(1) The berm structure should be. secured with a woven wire sheathing having maximum opening of 1 inch and a minimum wire diameter of 20 gauge galvanized and should be secured with shoat rings. (2) Clean, open graded 3- to 5-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used

(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 Figure 1-28), to a height not less than

(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, airl 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.

Inspection and Maintenance Guidelines: (1) Inspection should be made weekly by the responsible party. For installations

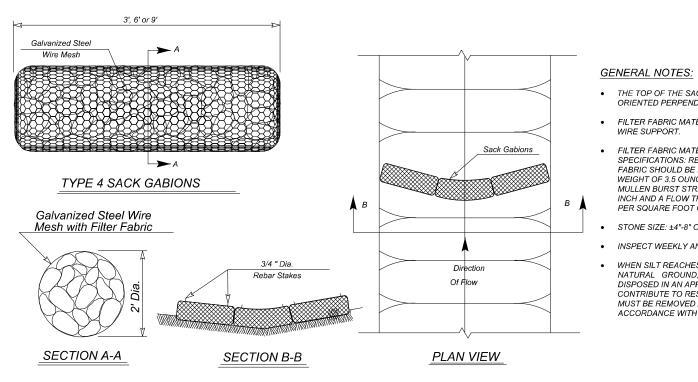
in streambeds, additional daily inspections should be made. (2) Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.

(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

ROCK BERM



THE TOP OF THE SACK GABIONS SHOULD BE LEVEL AND ORIENTED PERPENDICULAR TO THE DIRECTION OF FLOW.

FILTER FABRIC MATERIAL SHALL BE FASTENED TO WOVEN

 FILTER FABRIC MATERIAL SHOULD MEET THE FOLLOWING SPECIFICATIONS: RESISTANT TO ULTRAVIOLET LIGHT, FABRIC SHOULD BE NON-WOVEN GEOTEXTILE WITH MINIMUM VEIGHT OF 3.5 OUNCES PER SQUARE YARD, MINIMUM MULLEN BURST STRENGTH OF 200 POUNDS PER SQUARE INCH AND A FLOW THRU RATE OF 120 GALLONS PER MINUTE PER SQUARE FOOT OF FRONTAL AREA.

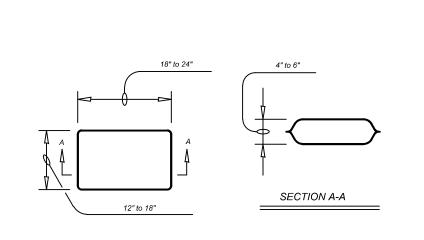
STONE SIZE: ±4"-8" OPEN GRADED CRUSHED LIMESTONE.

 INSPECT WEEKLY AND REPAIR OR REPLACE AS NEEDED. WHEN SILT REACHES A DEPTH OF 50% OR MORE ABOVE NATURAL GROUND, SILT SHALL BE REMOVED AND DISPOSED IN AN APPROVED MANNER THAT WILL NOT

> TBPLS Firm#: 10194550 AS SHOWN NOV. 2023 AWING NAME: SW3P3146101 314-61-01

STORMWATER POLLUTION

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN

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

WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION

FROM STORM WATER RUNOFF AND AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS.

CONCRETE TRUCK WASHOUT PIT

SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.

GENERAL NOTES:

GENERAL NOTES:

THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE. POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN UNIT WEIGHT OF 4
OUNCES/SY, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET

THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM TO COARSE GRAVEL (0.31

GRAVEL FILTER BAG DETAIL

CHANNEL LINING

TYPE 4 SACK GABIONS

CONTRIBUTE TO RESILTATION. CONTAMINATED SEDIMENT MUST BE REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH APPLICABLE REGULATIONS.

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PREVENTION DETAILS

RESIDENTIAL LOTS = 85