

STREET AND DRAINAGE CONSTRUCTION PLANS

- COVER SHEET
- C1 - CONSTRUCTION GENERAL NOTES
- C2 - OVERALL DRAINAGE MASTER PLAN
- C3 - STREET PLAN & PROFILE - EARP BLVD
- C4 - STREET PLAN & PROFILE - HIGHLAND PASS
- C5 - STREET PLAN & PROFILE - DRYLANDER WAY
- C6 - STREET PLAN & PROFILE - BROKEN HOLLOW
- C7 - STREET PLAN & PROFILE - FRONTIER WAY & CLANTON PASS
- C8 - TRAFFIC SIGNAGE PLAN
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- C36 - UTILITY PLAN
- C37 - STORM WATER POLLUTION PREVENTION PLAN

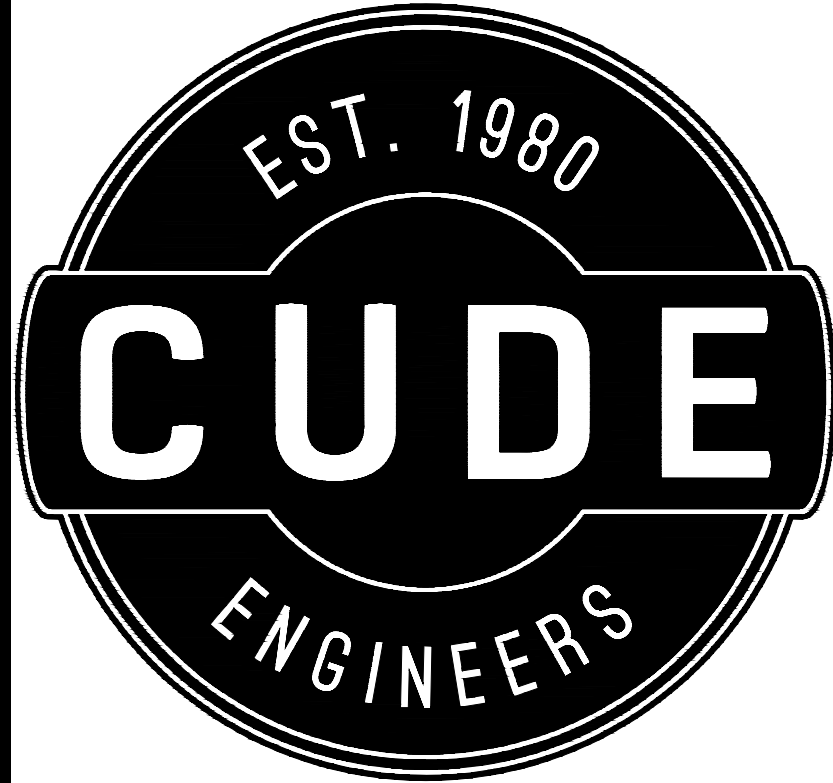
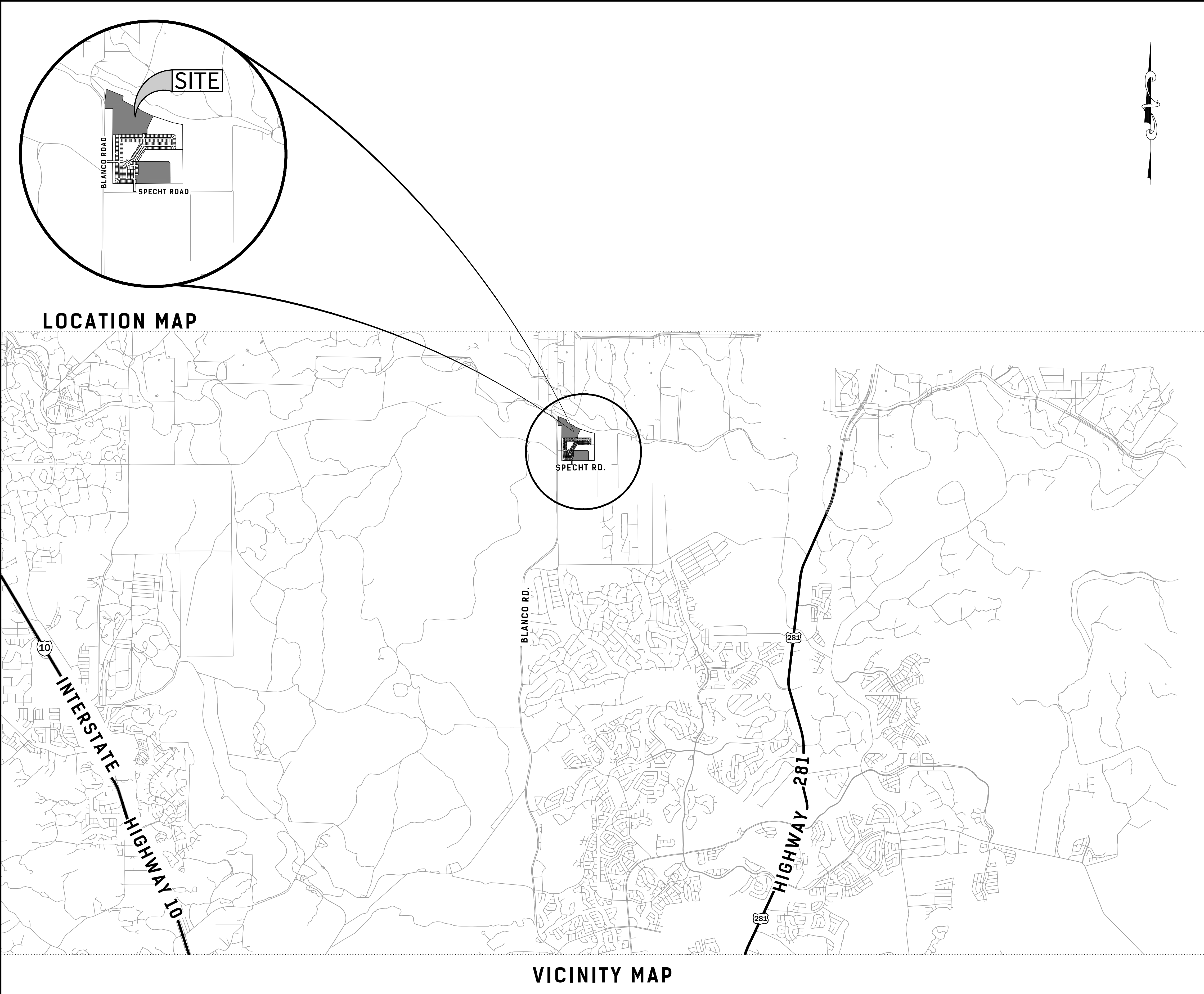
* STANDARD DETAILS ADOPTED FOR THIS CONSTRUCTION SET.

UPPER - EAST SEWERSHED - DOS RIOS \ LEON CREEK

Developer's Name	MERITAGE HOMES OF TEXAS, L.L.C.			
Developer's Address	2722 WEST BITTERS ROAD, SUITE 200			
City	SAN ANTONIO	State	TEXAS	Zip 78231
Phone #	(210) 298-4294	Fax #		
SAWS Block Map #	156690	Total EDU's	152	Total Acreage 65.64
Total Linear Footage of Pipe	3,899.55 L.F. OF 8" SS - SDR 26		Plat No.	23-11800329
Number of Lots	152	SAWS Job No.	23-1641	

PRESSURE ZONE 1400 HGL

Developer's Name	MERITAGE HOMES OF TEXAS, L.L.C.			
Developer's Address	2722 WEST BITTERS ROAD, SUITE 200			
City	SAN ANTONIO	State	TEXAS	Zip 78231
Phone #	(210) 298-4294	Fax #		
SAWS Block Map #	084-622	Total EDU's	156	Total Acreage 65.64
Total Linear Footage of Pipe	8" W - 3135 L.F.		Plat No.	23-11800329
Number of Lots	152	SAWS Job No.	23-1172	



ESTANCIA RANCH
UNIT 3
CONSTRUCTION PLANS



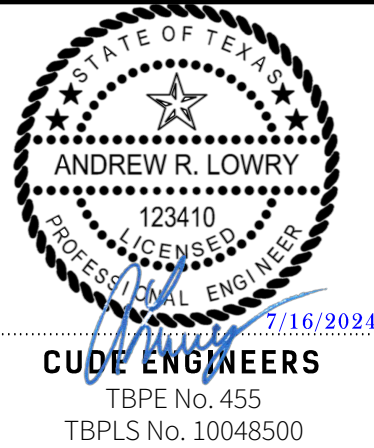
DEVELOPER:
MERITAGE HOMES OF TEXAS, L.L.C.
CONTACT PERSON: TONDA ALEXANDER
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SAN ANTONIO, TX 78231
TEL: (210) 402-6045
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DRAWN BY
CG/TCD/XV
CHECKED BY
XV/AL

DATE
07/16/2024
PROJECT NO.
03473.010

PLAT NO.
LAND-PLAT- 23-11800329
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500



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GENERAL NOTES

- ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR CONSTRUCTION JUNE 2008, OR LATEST.
- NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS, BUT NOT INCLUDED IN THE BID PROPOSAL. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED IN THE PAY ITEM TO WHICH IT RELATES.
- THE CONTRACTOR SHALL PROVIDE ACCESS FOR THE DELIVERY OF MAIL BY THE U.S. POSTAL SERVICE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION ANY DAMAGE DONE TO EXISTING FENCES, CONCRETE ISLANDS, STREET PAVING, CURBS, SHRUBS, BUSHES OR DRIVEWAYS. (NO SEPARATE PAY ITEM).
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL SIGNS AND BARRICADES ARE PROPERLY INSTALLED AND MAINTAINED. ALL LOCATIONS AND DISTANCES WILL BE DECIDED UPON IN THE FIELD BY THE CONTRACTOR, USING THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". THE CITY'S CONSTRUCTION INSPECTOR AND TRAFFIC ENGINEERING REPRESENTATIVE WILL ONLY BE RESPONSIBLE TO INSPECT BARRICADES AND SIGNS. IF, IN THE OPINION OF THE TRAFFIC ENGINEERING REPRESENTATIVE AND THE CONSTRUCTION INSPECTOR, THE BARRICADES AND SIGNS DO NOT CONFORM TO ESTABLISHED STANDARDS OR ARE INCORRECTLY PLACED OR ARE INSUFFICIENT IN QUANTITY TO PROTECT THE GENERAL PUBLIC, THE CONSTRUCTION INSPECTOR SHALL HAVE THE OPTION TO STOP OPERATIONS UNTIL SUCH TIME AS THE CONDITIONS ARE CORRECTED.
- IF THE NEED ARISES, ADDITIONAL BARRICADES AND DIRECTIONAL DEVICES MAY BE ORDERED BY THE TRAFFIC ENGINEERING REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
- DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.171 C.P.S. MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
- CONTRACTOR SHALL NOTIFY THE CITY INSPECTOR TWENTY FOUR (24) HOURS PRIOR TO BACKFILL OF ANY UTILITY TRENCHES TO SCHEDULE FOR DENSITY TEST AS REQUIRED.
- CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION STAKES, MARKS, ETC. IF ANY ARE DESTROYED OR REMOVED BY THE CONTRACTOR OR HIS EMPLOYEES, THEY SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION TO DETERMINE THE LOCATION OF EXISTING UTILITIES. CONTRACTOR SHALL NOTIFY THE FOLLOWING AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO EXCAVATION OPERATION:

SAN ANTONIO WATER SYSTEM (SAWS)	233-2010
BEXAR METROPOLITAN WATER DISTRICT (BEXAR MET)	354-6538 / 357-5741
CITY OF HELOTES	210-695-8877
BEXAR COUNTY	210-335-6700
TEXAS STATE WIDE ONE CALL LOCATOR	1-800-344-8377
- CITY PUBLIC SERVICE ENERGY	
- TIME WARNER	
- AT&T	
- MCI	
- THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM AVAILABLE RECORDS AND ARE NOT GUARANTEED, BUT SHALL BE INVESTIGATED AND VERIFIED BY THE CONTRACTOR BEFORE STARTING WORK. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE TO AND FOR THE MAINTENANCE AND PROTECTION OF THE EXISTING UTILITIES EVEN IF THEY ARE NOT SHOWN ON THE PLANS. LOCATION AND DEPTH OF EXISTING UTILITIES SHOWN HERE ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION AND HE SHALL BE RESPONSIBLE FOR PROTECTION OF SAME DURING CONSTRUCTION.
- ALL WASTE MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HIS SOLE RESPONSIBILITY TO DISPOSE OF THIS MATERIAL OFF THE LIMITS OF THE PROJECT. NO WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF EXISTING ARTIFICIAL OR NATURAL DRAINAGE.
- THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIAL IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.
- THE CONTRACTOR SHALL MAINTAIN ALL ADJOINING STREETS AND TRAVELED ROUTES FREE FROM SPILLED AND /OR TRACKED CONSTRUCTION MATERIALS AND /OR DEBRIS.
- IF THE CONTRACTOR ENCOUNTERS ANY ARCHAEOLOGICAL DEPOSITS DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR MUST STOP EXCAVATION IMMEDIATELY, CONTACT THE CITY INSPECTOR, AND CALL THE CITY HISTORIC PRESERVATION OFFICE AT 207-7306 OR 207-3327 FOR AN ARCHAEOLOGICAL INVESTIGATION. THE CONTRACTOR CANNOT BEGIN EXCAVATION AGAIN WITHOUT WRITTEN PERMISSION FROM THE CITY.

IF MORE THAN THREE (3) DAYS ARE REQUIRED FOR INVESTIGATION (NOT INCLUDING HOLIDAY AND WEEKENDS) AND IF THE CONTRACTOR IS UNABLE TO WORK IN OTHER AREAS, THEN THE CONTRACTOR WILL BE ALLOWED TO NEGOTIATE FOR ADDITIONAL CONSTRUCTION TIME UPON WRITTEN REQUEST WITHIN TEN (10) DAYS AFTER THE FIRST NOTICE TO THE CITY OF ARCHAEOLOGICAL INVESTIGATION FOR EACH EVENT.

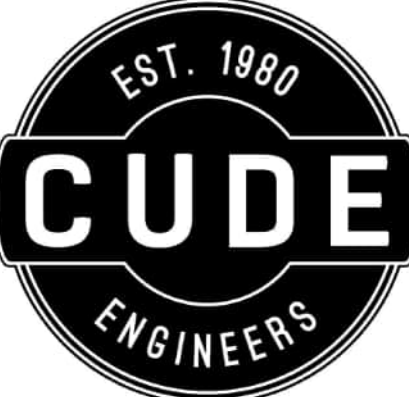
IF THE TIME REQUIRED FOR INVESTIGATION IS LESS THAN OR EQUAL TO THREE (3) DAYS FOR EACH EVENT, CONTRACT DURATION WILL NOT BE EXTENDED.
- IF SUSPECTED CONTAMINATION IS ENCOUNTERED DURING CONSTRUCTION OPERATIONS, C.O.S.A. SHALL BE NOTIFIED IMMEDIATELY WHEN CONTAMINATED SOILS AND /OR GROUNDWATER ARE ENCOUNTERED AT LOCATIONS NOT IDENTIFIED IN THE PLANS. THE NOTIFICATION SHOULD INCLUDE THE STATION NUMBER, TYPE OF CONTAMINATED MEDIA, EVIDENCE OF CONTAMINATION AND MEASURES TAKEN TO CONTAIN THE CONTAMINATED MEDIA AND PREVENT PUBLIC ACCESS. THE CONTAMINATED SOIL AND /OR GROUNDWATER SHALL NOT BE REMOVED FROM THE LOCATION WITHOUT PRIOR C.O.S.A. APPROVAL.

THE CONTRACTOR MUST STOP THE EXCAVATION IMMEDIATELY AND CONTACT THE C.O.S.A. INSPECTOR. THE CONTRACTOR CANNOT BEGIN EXCAVATION ACTIVITIES WITHOUT WRITTEN PERMISSION FROM THE CITY.
- CONTRACTOR IS TO INCLUDE A MAILBOX POST BLOCKOUT FOR VACANT LOTS AND ALL RESIDENCES WHICH DO NOT HAVE MAILBOXES AT THE CURB. BLOCKOUTS ARE PROVIDED FOR FUTURE USE BY THE POST OFFICE.

- CONTRACTOR SHALL NOT REMOVE OR ADJUST ANY VIA FACILITIES. THE CONTRACTOR MUST CONTACT VIA FOURTEEN DAYS PRIOR, FOR THE REMOVAL OF BENCHES, STOP POLES OR ANY OTHER VIA FACILITIES THAT MAY BE PRESENT. PLEASE PROVIDE THIRTY DAYS PRIOR NOTICE FOR SHELTER REMOVAL (TELEPHONE NOS: (210) 362-2155 OR (210) 362-2096). THE CONTRACTOR WILL BE LIABLE FOR ANY DAMAGES TO VIA FACILITIES NOT REMOVED BY VIA. THE CONTRACTOR IS REQUIRED TO REPLACE ALL FLATWORK REMOVED OR DAMAGED IN THE COURSE OF EXECUTING THE CONTRACT UNLESS OTHERWISE NOTED BY VIA. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING VIA FACILITIES IF ADJACENT TO WORK AREA.

TREE PROTECTION AND PRESERVATION GENERAL NOTES

- NO UTILITY OR STREET EXCAVATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
 - TREE PROTECTION FENCING SHALL BE REQUIRED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. DURING CONSTRUCTION ACTIVITY, AT LEAST A SIX-INCH LAYER OF COARSE MULCH SHALL BE PLACED AND MAINTAINED OVER THE ROOT PROTECTION ZONE (NO SEPARATE PAY ITEM).
 - THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR FOR GUIDANCE.
 - ROOTS WILL BE CUT WITH A ROCK SAW OR BY HAND, NOT BY AN EXCAVATOR OR OTHER ROAD CONSTRUCTION EQUIPMENT.
 - ALL CURB AND SIDEWALK WORK SHALL USE ALTERNATIVE CONSTRUCTION METHODS TO MINIMIZE EXTENSIVE ROOT DAMAGE TO TREES (REFER TO DETAILS).
 - EXPOSED ROOTS SHALL BE COVERED AT THE END OF THE DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH, OR WET BURLAP.
 - NO EQUIPMENT, VEHICLES OR MATERIALS SHALL OPERATE OR BE STORED WITHIN THE ROOT PROTECTION ZONE OF ANY TREE NEAR THE PROJECT. ROOT PROTECTION ZONE IS 1 FOOT OF RADIUS PER INCH OF TREE'S DIAMETER. A 10-INCH DIAMETER TREE WOULD HAVE A 10 FOOT RADIUS ROOT PROTECTION ZONE AROUND THE TREE. ROOTS OR BRANCHES IN CONFLICT WITH THE CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. OAK WOUNDS SHALL BE PAINTED OVER WITHIN 30 MINUTES TO PREVENT OAK WILT.
 - SAPLINGS, SHRUBS OR BUSHES TO BE CLEARED FROM THE PROTECTED ROOT ZONE AREA OF A LARGE TREE SHALL BE REMOVED BY HAND AS DESIGNATED BY THE INSPECTOR.
 - NO WIRES, NAILS OR OTHER MATERIAL MAY BE ATTACHED TO PROTECTED TREES.
 - TREES, TREE LIMBS, BUSHES AND SHRUBS LOCATED IN THE CITY STREET OR ALLEY RIGHT-OF-WAY OR PERMANENT EASEMENTS WHICH INTERFERE WITH PROPOSED CONSTRUCTION ACTIVITIES SHALL BE PROPERLY PRUNED FOLLOWING THE ANSI A-300 STANDARDS FOR PRUNING.
 - NO EXCESSIVE TREE TRIMMING WILL BE PERMITTED.
 - ALL DEBRIS GENERATED BY THE PRUNING AND TRIMMING OF THE TREES AND /OR BUSHES SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF PROPERLY (NO SEPARATE PAY ITEM).
 - TREES MUST BE MAINTAINED IN GOOD HEALTH THROUGHOUT THE CONSTRUCTION PROCESS. MAINTENANCE MAY INCLUDE, BUT NOT LIMITED TO: WATERING THE ROOT PROTECTION ZONE, WASHING FOLIAGE, FERTILIZATION, PRUNING, ADDITIONAL MULCH APPLICATIONS AND OTHER MAINTENANCE AS NEEDED ON THE PROJECT.
 - ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST.
 - TREES WHICH ARE DAMAGED OR LOST DUE TO THE CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE CITY'S SATISFACTION.
 - TREE PLANTING FOR MITIGATION OR ENHANCEMENT: ALL PLANTED TREES SHALL BE MAINTAINED IN A HEALTHY CONDITION AT ALL TIMES. THIS INCLUDES IRRIGATION, FERTILIZING, PRUNING AND OTHER MAINTENANCE AS NEEDED ON THE PROJECT. TREES THAT DIE WITHIN TWELVE (12) MONTHS SHALL BE REPLACED WITH A TREE OF EQUAL SIZE AND SPECIES.
- ACCESSIBILITY REQUIREMENTS
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN VEHICULAR AND PEDESTRIAN ACCESS AT ALL TIMES TO LOCAL RESIDENCES AND BUSINESSES.
 - WHEN THE WORK REQUIRES THE EXCAVATION OF THE STREET AND THE REMOVAL OF THE EXISTING DRIVEWAY APPROACHES AND SIDEWALKS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY ALL-WEATHER ACCESS TO THE BUSINESSES AND RESIDENCES. THE TEMPORARY DRIVEWAY APPROACHES SHALL BE CONSTRUCTED WITH FLEXIBLE BASE OR GRAVEL MATERIAL AT NO SEPARATE COST TO THE CITY.
 - PRIOR TO INITIATING THE CONSTRUCTION OF NEW DRIVEWAY APPROACHES, THE CONTRACTOR SHALL GIVE ADVANCE WARNING IN PERSON, OR IN WRITING, OF AT LEAST 48 HOURS TO EACH RESIDENCE THAT WILL BE IMMEDIATELY AFFECTED, SO THAT ALTERNATE PLANS MAY BE MADE BY THE RESIDENTS.
 - FOR BUSINESSES WITH MORE THAN ONE DRIVEWAY, AT LEAST ONE DRIVEWAY SHALL REMAIN OPEN WHILE THE OTHER NEW DRIVEWAY APPROACHES ARE CONSTRUCTED. FOR BUSINESSES WITH ONLY ONE DRIVEWAY, THE NEW DRIVEWAY APPROACH SHALL BE CONSTRUCTED IN HALF WIDTHS, UNLESS A TEMPORARY ASPHALT DRIVEWAY IS FIRST INSTALLED AT NO SEPARATE COST TO THE CITY.



4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
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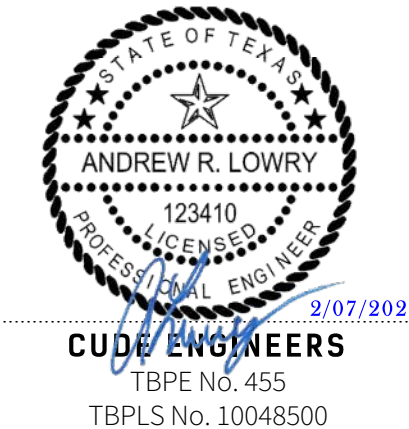
ESTANCIA RANCH SUBDIVISION

UNIT 3

CONSTRUCTION GENERAL NOTES

DATE
02/07/2024
PROJECT NO.
03473.010
DRAWN BY
CG/TCD/XV
CHECKED BY
XV/AL

REVISIONS	
DATE	
1	
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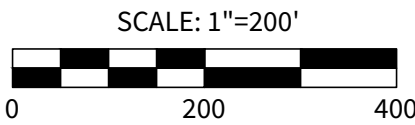
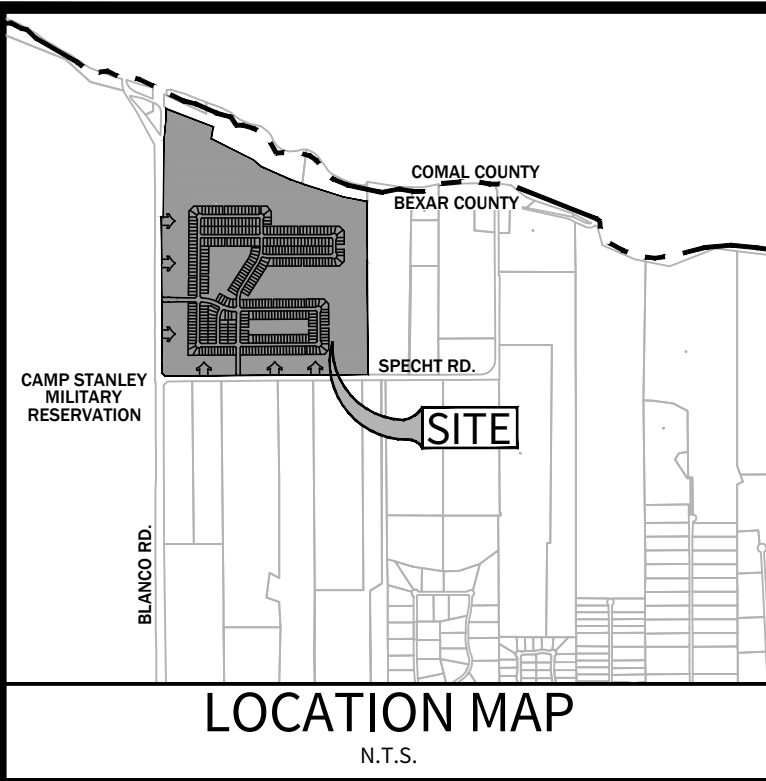


CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
23-11800329

C1

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LEGEND

SUBDIVISION BOUNDARY

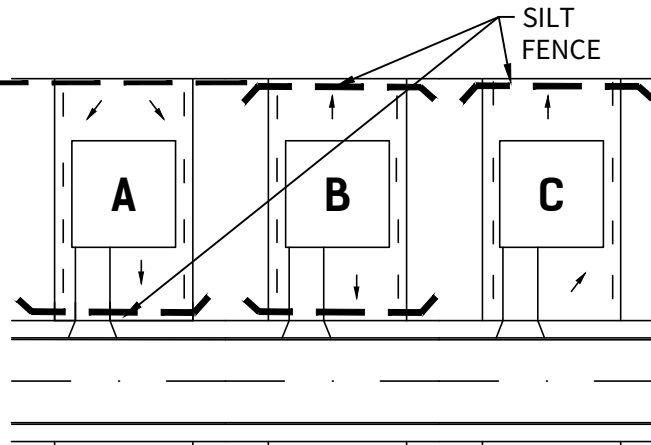
UNIT BOUNDARY

DRAINAGE AREA

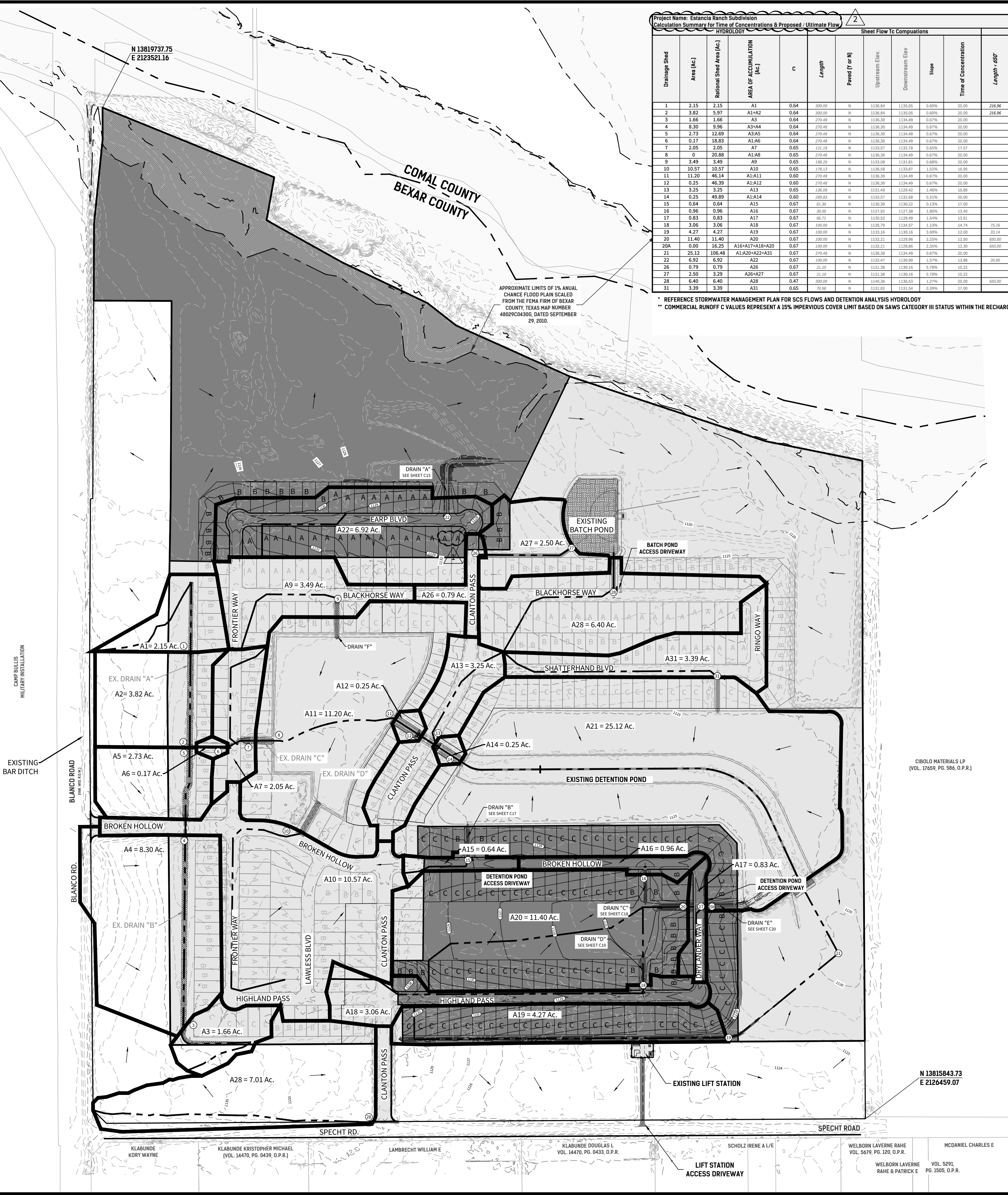
Tc FLOW PATH

ACCUMULATION POINT

1% ANNUAL CHANCE FLOODPLAIN



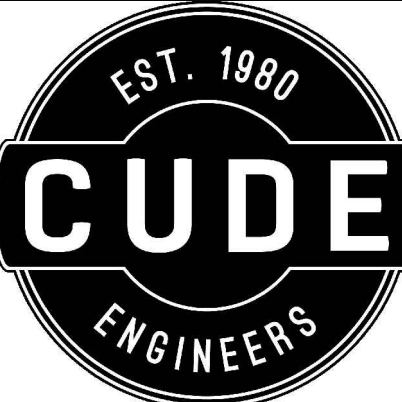
TYPICAL LOT SITE PLAN
N.T.S.



Project Name: Estancia Ranch Subdivision Calculation Summary for Time of Concentrations & Proposed / Ultimate Flow															Precipitation Area Atlas 14 - PA1												
HYDROLOGIC																											
Sheet Flow Tc Computations															Shallow Conc. Tc Computations												
Drainage Shed	Area (Ac.)	Rational Shed Area (Ac.)	AREA OF ACCUMULATION (Ac.)	C	Length	Paved (Y or N)	Upstream Elev.	Downstream Elev.	Slope	Time of Concentration	Length - 65'	Paved (Y or N)	Downstream Elev.	Slope	Time of Concentration	Length	Velocity (fps)	Time of Concentration	Overall	INTENSITY	IS	I25	I100	Q5	Q25	Q100	Drainage Shed
1	2.15	2.15	A1	0.64	300.00	N	1136.84	1135.05	0.60%	20.00	216.96	N	1133.62	0.66%	2.76	278.42	6	0.78	23.54	4.23	5.88	7.41	5.82	8.09	10.20	1	
2	3.82	5.97	A1+A2	0.64	300.00	N	1136.84	1135.05	0.60%	20.00	216.96	N	1133.62	0.66%	2.76	632.62	6	1.78	24.52	4.14	5.76	7.26	15.82	22.01	27.74	2	
3	1.66	1.66	A3	0.64	270.48	N	1136.30	1134.49	0.67%	20.00						280.88	6	0.81	20.81	4.40	6.26	7.90	4.77	6.65	8.39	3	
4	8.30	9.96	A3+A4	0.64	270.48	N	1136.30	1134.49	0.67%	20.00						762.25	6	2.12	22.12	4.36	6.07	7.65	27.79	38.69	48.76	4	
5	2.73	12.69	A3+A5	0.64	270.48	N	1136.30	1134.49	0.67%	20.00						1187.71	6	3.08	23.08	4.27	5.94	7.49	34.68	48.24	60.83	5	
6	0.17	18.83	A1+A6	0.64	270.48	N	1136.30	1134.49	0.67%	20.00						1253.71	6	3.48	23.48	4.23	5.89	7.42	50.98	70.98	89.42	6	
7	2.05	2.05	A7	0.65	121.18	N	1133.07	1132.78	0.60%	19.97						266.68	6	0.99	18.56	4.76	6.64	8.40	6.34	8.85	11.19	7	
8	0	20.81	A1+A8	0.65	270.48	N	1136.30	1134.49	0.67%	20.00						1253.68	6	3.48	23.48	4.23	5.89	7.42	57.41	79.94	100.70	8	
9	3.49	3.49	A9	0.65	188.29	N	1133.08	1131.81	0.68%	20.00						297.82	6	1.11	21.11	4.46	6.21	7.84	10.12	14.09	17.79	9	
10	10.57	10.57	A10	0.65	178.13	N	1136.38	1133.87	1.30%	15.90						280.17	6	2.49	19.44	4.65	6.48	8.19	31.95	44.52	56.27	10	
11	11.20	46.14	A1+A11	0.60	270.48	N	1136.30	1134.49	0.67%	20.00						2795.62	6	4.99	24.99	4.10	5.70	7.19	113.50	157.80	199.05	11	
12	0.25	46.39	A1+A12	0.60	270.48	N	1136.30	1134.49	0.67%	20.00						2813.62	6	5.33	25.32	4.07	5.67	7.14	113.28	157.82	198.73	12	
13	3.25	3.25	A13	0.65	180.88	N	1131.40	1129.42	1.14%	15.89						422.81	6	1.17	17.07	4.97	6.94	8.78	10.50	14.66	18.55	13	
14	0.25	49.89	A1+A14	0.60	289.63	N	1133.07	1132.08	0.31%	20.00						2017.62	6	3.88	26.88	4.03	5.60	7.06	120.61	167.63	211.31	14	
15	0.64	0.64	A15	0.67	61.30	N	1130.30	1130.22	0.13%	17.00						215.63	6	0.69	5.00	7.88	11.13	14.14	3.38	4.77	6.06	15	
16	0.96	0.96	A16	0.67	80.00	N	1127.52	1127.38	1.80%	13.40						34.26	6	0.36	5.00	7.88	11.13	14.14	5.07	7.16	9.09	16	
17	0.83	0.83	A17	0.67	66.71	N	1130.30	1129.69	1.04%	13.51						111.43	6	0.31	5.00	7.88	11.13	14.14	4.38	6.19	7.86	17	
18	3.06	3.06	A18	0.67	100.00	N	1135.70	1134.57	1.13%	14.74						1205.25	6	2.93	18.50	4.77	6.65	8.41	9.78	13.63	17.24	18	
19	4.27	4.27	A19	0.67	100.00	N	1133.16	1130.16	3.00%	12.00						1208.19	6	3.36	15.47	5.24	7.32	9.28	14.99	20.94	26.55	19	
20	11.40	11.40	A20	0.67	100.00	N	1132.21	1129.36	2.25%	12.90						438.89	6	1.22	21.63	4.41	6.14	7.74	33.68	46.90	59.12	20	
20A	0.00	16.25	A16+A17+A18+A20	0.67	100.00	N	1132.21	1129.36	2.35%	12.90						438.89	6	1.22	21.66	4.42	6.15	7.76	46.12	66.96	84.49	20A	
21	25.12	106.48	A1+A20+A21	0.67	270.48	N	1136.30	1134.49	0.67%	20.00						2886.28	6	11.07	31.07	3.67	5.11	6.43	251.82	364.56	458.73	21	
22	6.92	6.92	A22	0.67	100.00	N	1132.47	1130.50	1.27%	13.86						251.56	6	0.98	14.99	5.32	7.44	9.44	24.67	34.49	43.77	22	
26	5.79	0.79	A26	0.67	22.40	N	1131.08	1130.18	0.79%	10.22						489.27	6	1.14	11.35	6.06	8.55	10.86	3.21	4.53	5.75	26	
27	2.50	0.29	A26+A27	0.67	22.40	N	1131.08	1130.18	0.79%	10.22						788.45	6	2.35	12.41	5.83	8.22	10.43	12.85	16.12	22.59	27	
28	6.40	6.40	A28	0.47	300.00	N	1140.36	1136.53	1.27%	20.00						131.51	6	0.37	29.15	3.80	5.28	6.64	11.43	15.88	19.97	28	
31	3.39	3.39	A31	0.65	70.99	N	1131.62	1131.54	0.09%	17.00						788.14	6	2.10	19.19	4.68	6.53	8.25	10.31	14.39	18.18	31	

* REFERENCE STORMWATER MANAGEMENT PLAN FOR SCS FLOWS AND DETENTION ANALYSIS HYDROLOGY
** COMMERCIAL RUNOFF C VALUES REPRESENT A 15% IMPERVIOUS COVER LIMIT BASED ON SAWS CATEGORY III STATUS WITHIN THE RECHARGE ZONE

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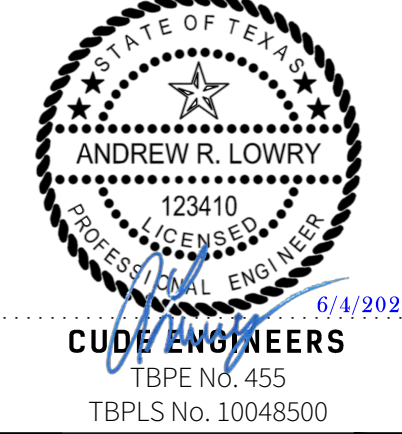
ESTANCIA RANCH SUBDIVISION

UNIT 3

OVERALL MASTER DRAINAGE PLAN

DATE
06/04/2024
PROJECT NO.
03473.010
DRAWN BY
CG/TCD/XV
CHECKED BY
XV/AL

REVISIONS									
DATE	1	2	3	4	5	6	7	8	9
	1	2	3	4	5	6	7	8	9



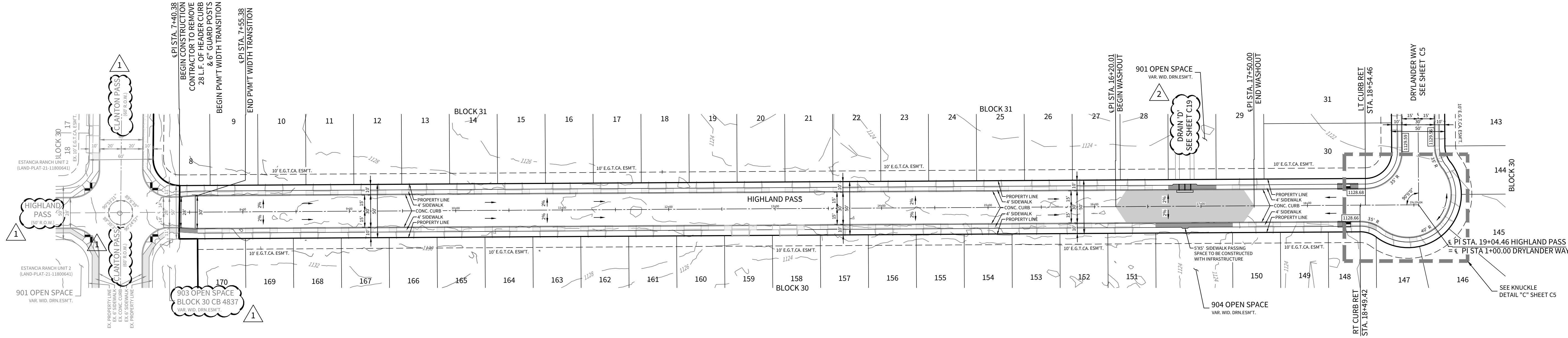
PLAT NO.
23-11800329

C2

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LEGEND

PAVEMENT OUTER LINE

DRIVEWAY TO BE BUILT WITH HOMEBUILDING

STREET WASHOUT - SEE DETAIL SHEET C9

SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE

5' x 5' SIDEWALK PASSING LANE TO BE CONSTRUCTED AT TIME OF HOMEBUILDING

ADA SIDEWALK CURB RAMP - SEE DETAIL SHEET C14

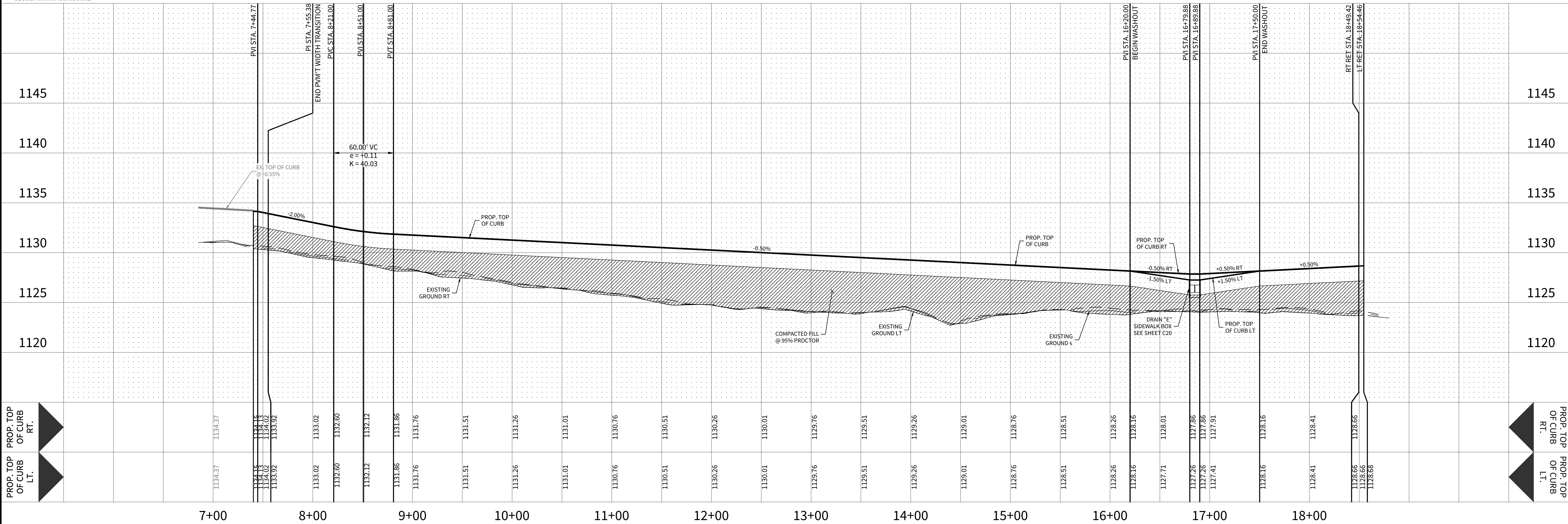
ONLY ADA RAMPS WITH A 900 SERIES OPEN SPACE WILL BE BUILT WITH INFRASTRUCTURE

HIGHLAND PASS

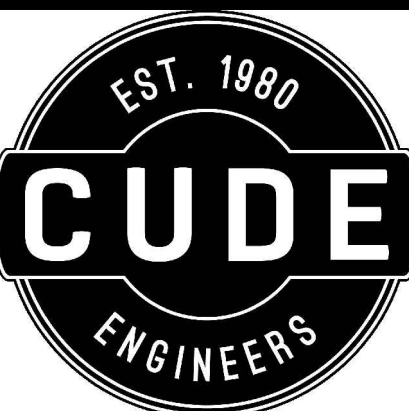
STA. 7+40.38 TO STA. 19+04.46

NOTE: A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHT OF WAY.

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



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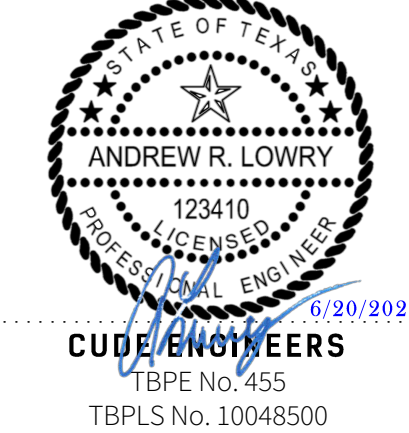
ESTANCIA RANCH SUBDIVISION

UNIT 3

STREET PLAN & PROFILE - HIGHLAND PASS

DATE	06/20/2024
PROJECT NO.	03473.010
DRAWN BY	CG/TCD/XV
CHECKED BY	XV/AL

REVISIONS	1. 2024-04-29	2. 2024-05-20	3. 2024-05-20	4. 2024-05-20	5. 2024-05-20	6. 2024-05-20	7. 2024-05-20	8. 2024-05-20	9. 2024-05-20
DATE	1. 2024-04-29	2. 2024-05-20	3. 2024-05-20	4. 2024-05-20	5. 2024-05-20	6. 2024-05-20	7. 2024-05-20	8. 2024-05-20	9. 2024-05-20
REVISIONS	1. 2024-04-29	2. 2024-05-20	3. 2024-05-20	4. 2024-05-20	5. 2024-05-20	6. 2024-05-20	7. 2024-05-20	8. 2024-05-20	9. 2024-05-20



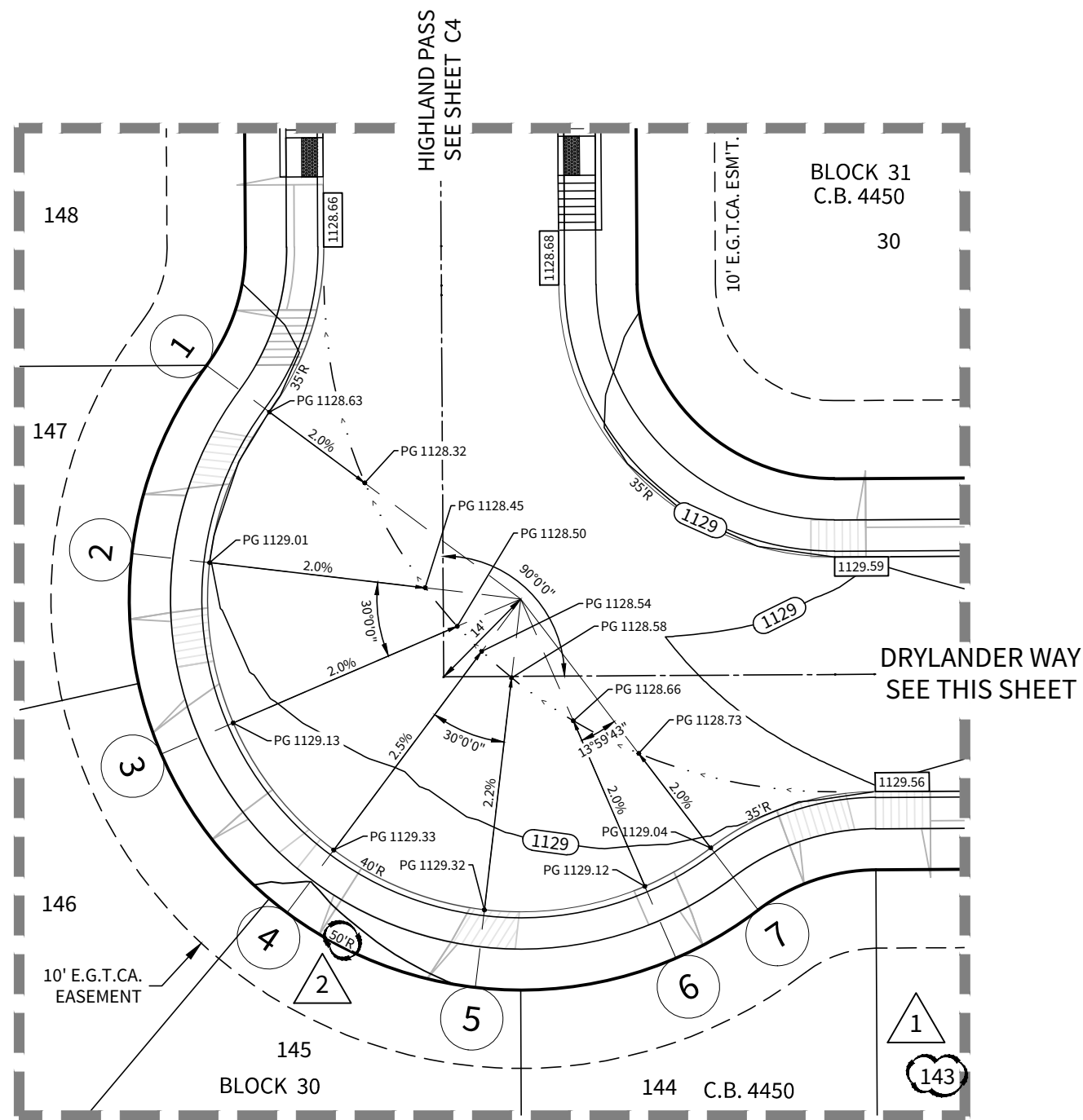
PLAT NO.
23-11800329

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KNUCKLE DETAIL "C"

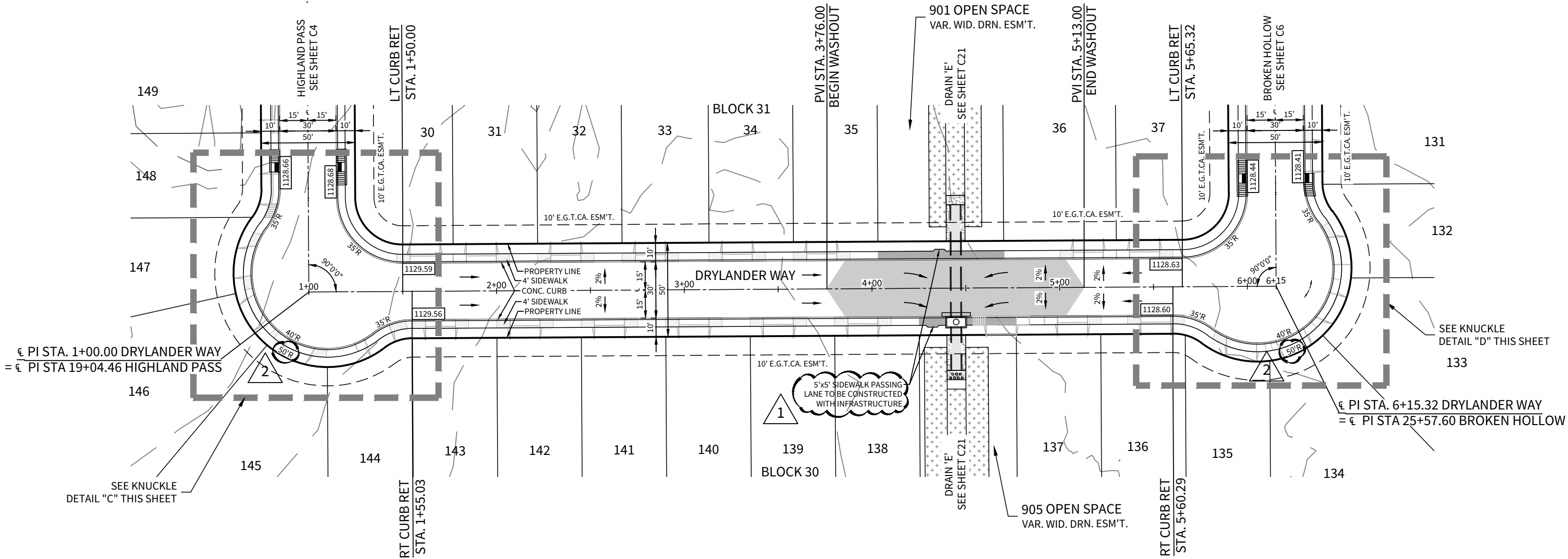
SCALE: 1" = 20'

KNUCKLE BACK OF CURB ELEVATIONS	
NUMBER	TOC ELEV.
1	1129.21
2	1129.58
3	1129.71
4	1129.91
5	1129.82
6	1129.70
7	1129.62

LEGEND

- PAVEMENT OUTER LINE
- DRIVEWAY TO BE BUILT WITH HOMEBUILDING
- STREET WASHOUT - SEE DETAIL SHEET C9
- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE
- 5' x 5' SIDEWALK PASSING LANE TO BE CONSTRUCTED AT TIME OF HOMEBUILDING
- ADA SIDEWALK CURB RAMP - SEE DETAIL SHEET C14

ONLY ADA RAMPS WITH A 900 SERIES OPEN SPACE WILL BE BUILT WITH INFRASTRUCTURE

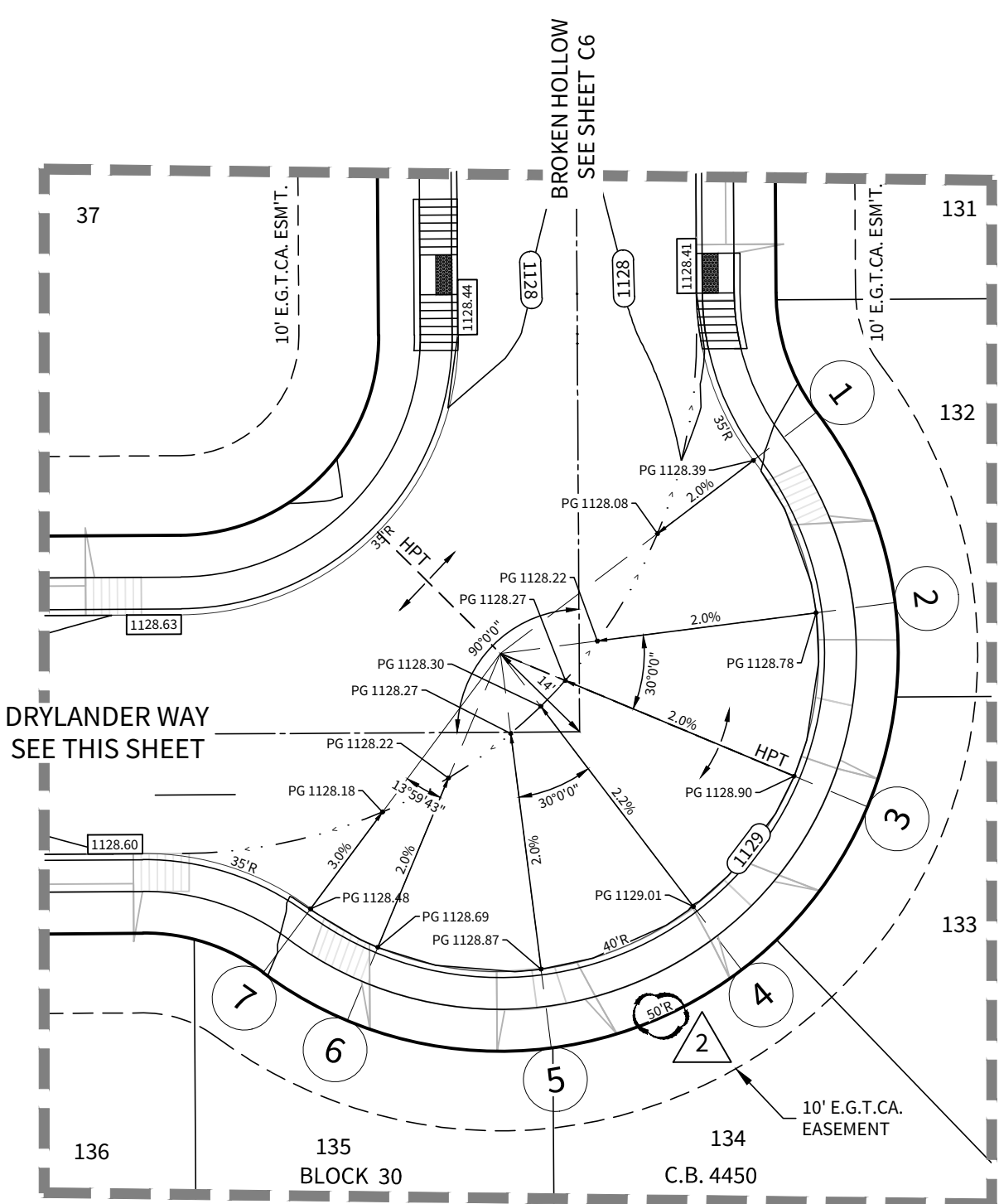
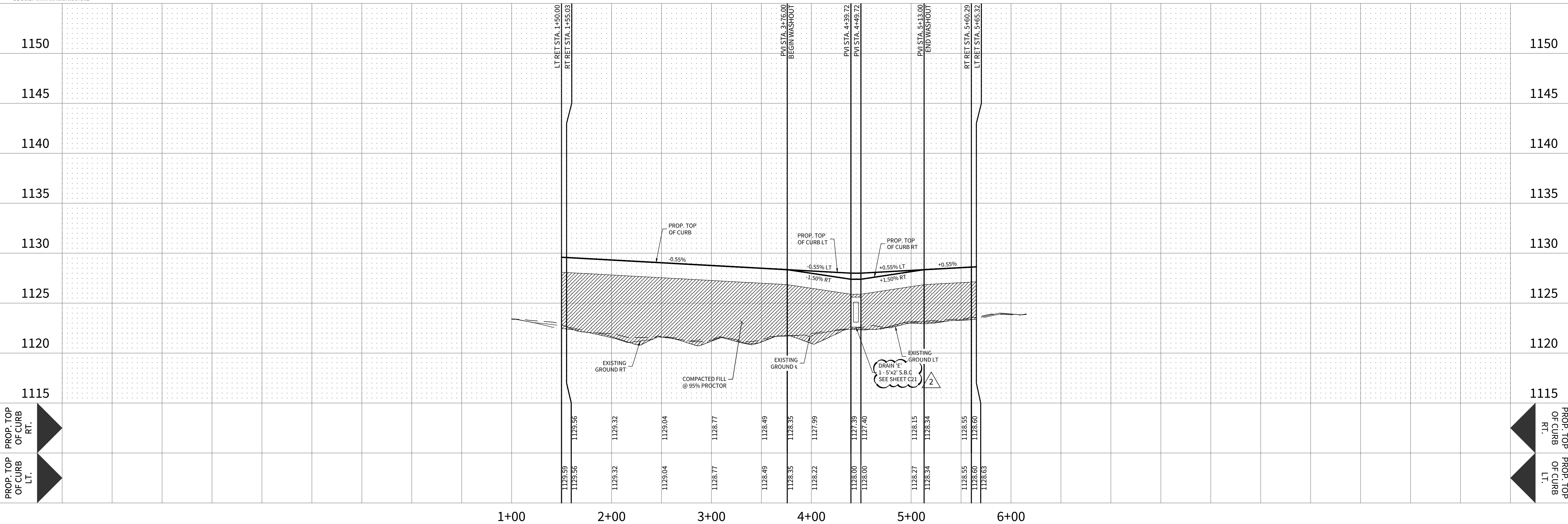


DRYLANDER WAY

STA. 1+00.00 TO STA. 6+15.32

NOTE: A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHT OF WAY.

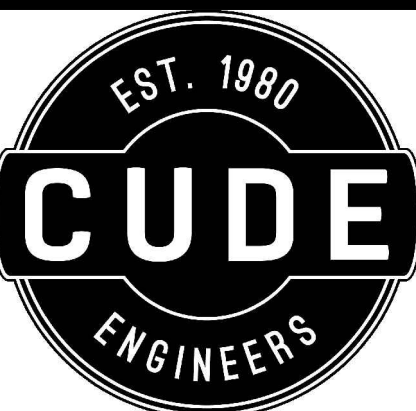
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



KNUCKLE DETAIL "D"

SCALE: 1" = 20'

KNUCKLE BACK OF CURB ELEVATIONS	
NUMBER	TOC ELEV.
1	1128.97
2	1129.36
3	1129.48
4	1129.58
5	1129.45
6	1129.26
7	1129.06



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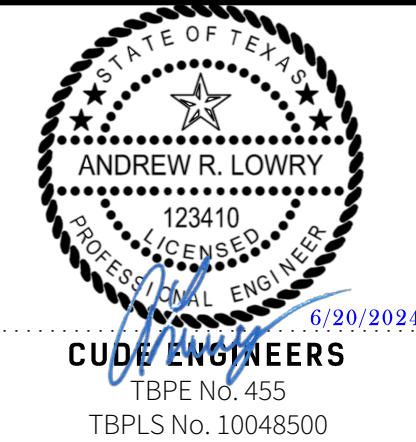
ESTANCIA RANCH SUBDIVISION

UNIT 3

STREET PLAN & PROFILE - DRYLANDER WAY

DATE	
06/20/2024	
PROJECT NO.	
03473.010	
DRAWN BY	
CG/TCD/XV	
CHECKED BY	
XV/AL	

REVISIONS	
1	2024-04-29
2	2024-05-20
3	
4	
5	
6	
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9	



PLAT NO.
23-11800329

C5

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LEGEND

PAVEMENT OUTER LINE

DRIVEWAY TO BE BUILT WITH HOMEBUILDING

STREET WASHOUT - SEE DETAIL SHEET C9

SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE

5' x 5' SIDEWALK PASSING LANE TO BE CONSTRUCTED AT TIME OF HOMEBUILDING

ADA SIDEWALK CURB RAMP - SEE DETAIL SHEET C14

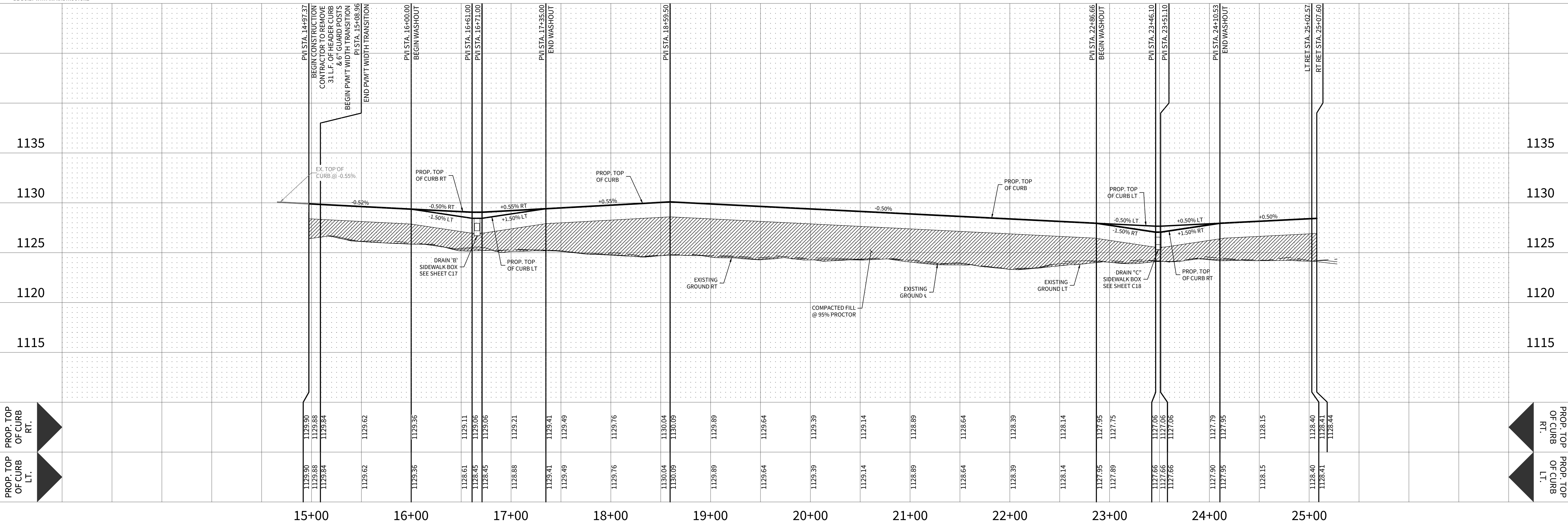
ONLY ADA RAMP WITH A 900 SERIES OPEN SPACE WILL BE BUILT WITH INFRASTRUCTURE

BROKEN HOLLOW

STA. 14+97.37 TO STA. 25+57.60

NOTE: A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHT OF WAY.

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



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ESTANCIA RANCH SUBDIVISION

UNIT 3

STREET PLAN & PROFILE - BROKEN HOLLOW

DATE	06/20/2024
PROJECT NO.	03473.010
DRAWN BY	CG/TCD/XV
CHECKED BY	XV/AL

DATE	1. 2024-04-29 2. 2024-05-20	REVISIONS	1. REVISION 1: 2024-04-29 2. REVISION 2: 2024-05-20
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STATE OF TEXAS

ANDREW R. LOWRY

123410

6/20/2024

CUDE ENGINEERS

TBPE No. 455

TBPLS No. 10048500

PLAT NO.
23-11800329

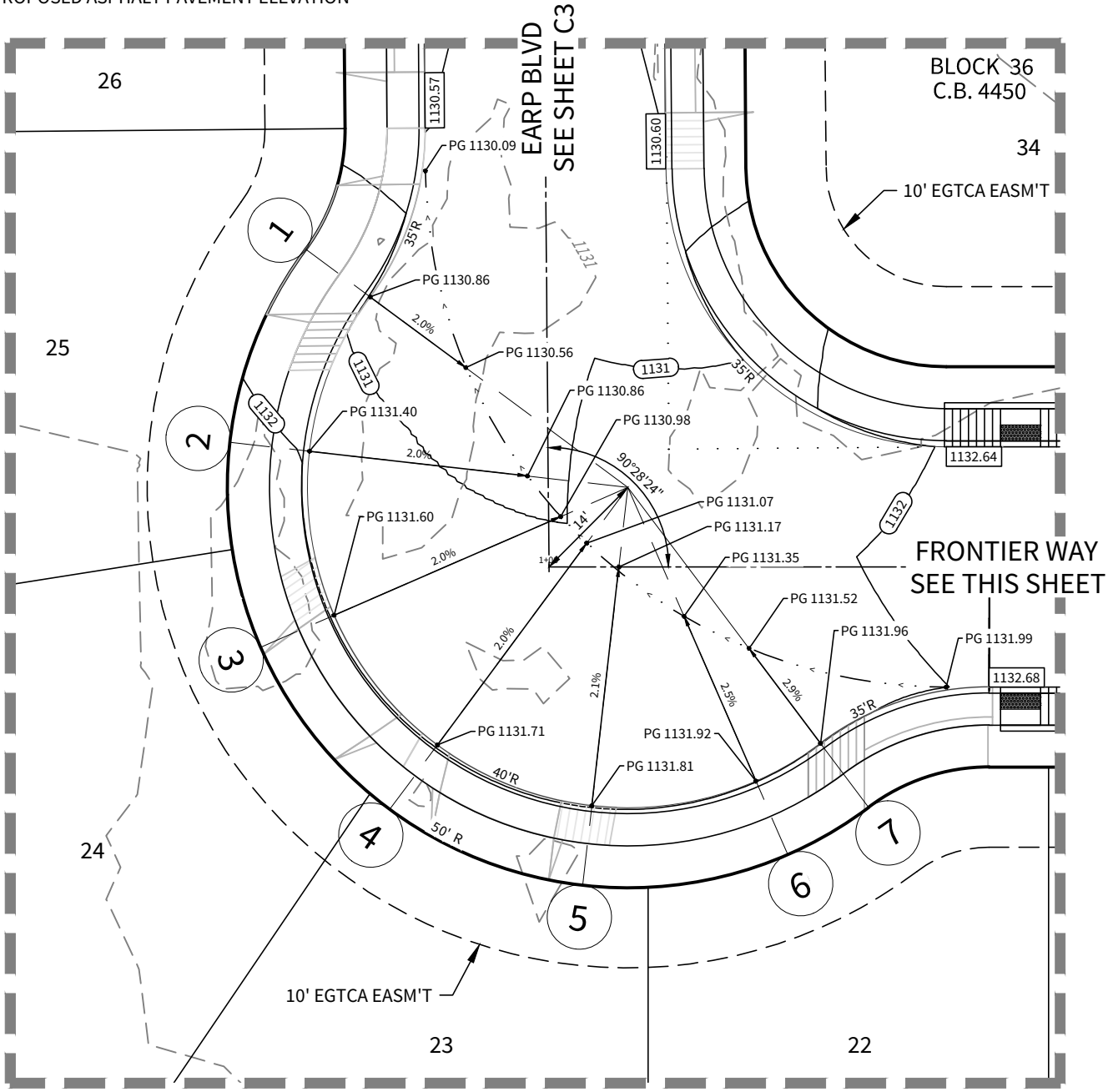
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ELEVATIONS:

XXXXXX PROPOSED TOP OF CONCRETE CURB ELEVATION
XXXXXX PROPOSED ASPHALT PAVEMENT ELEVATION



KNUCKLE DETAIL "A"

SCALE: 1" = 20'

KNUCKLE BACK OF CURB ELEVATIONS	
NUMBER	TOC ELEV.
1	1131.44
2	1131.98
3	1132.18
4	1132.29
5	1132.39
6	1132.50
7	1132.54

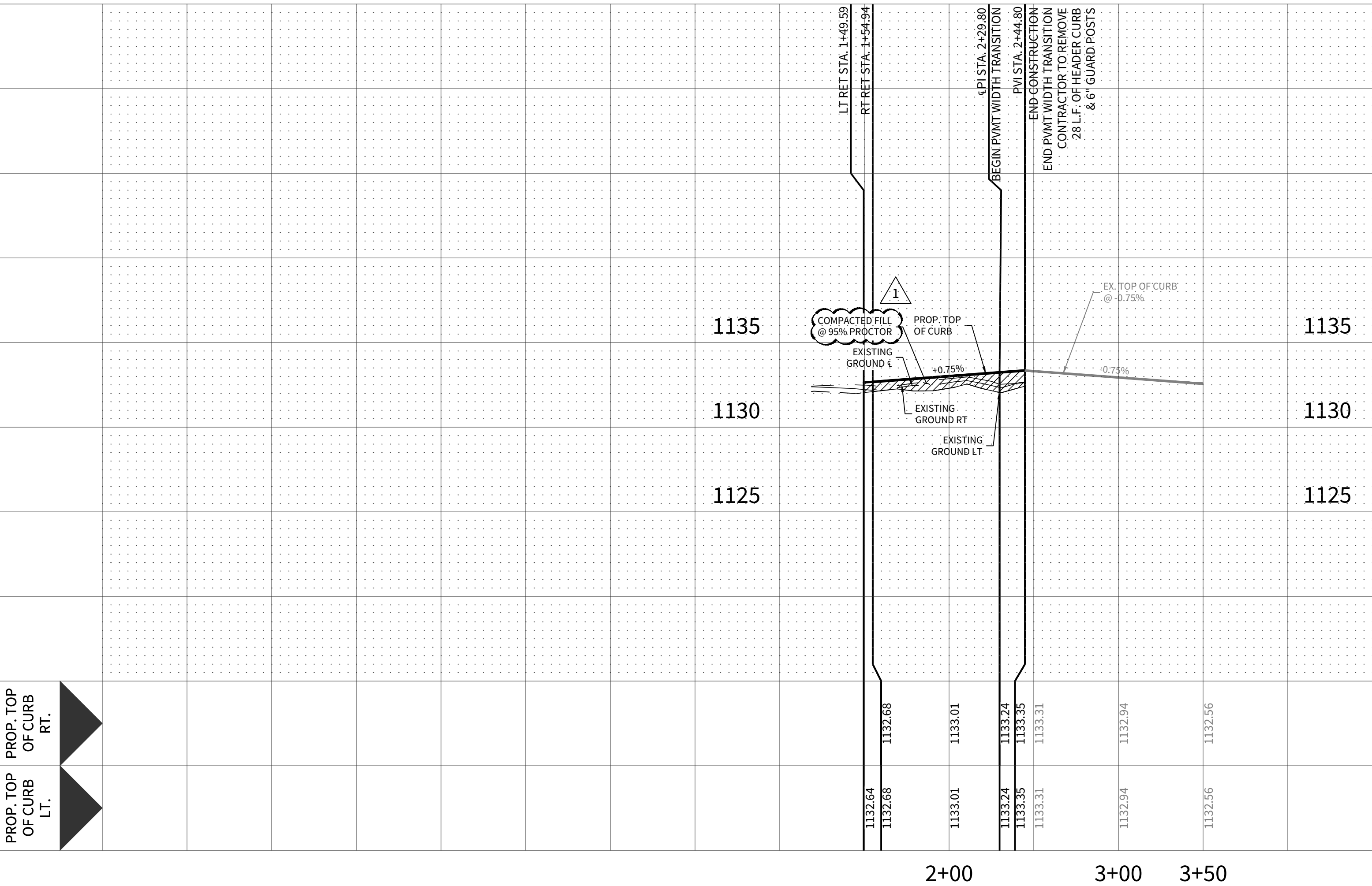
LEGEND

- PAVEMENT OUTER LINE
- DRIVEWAY TO BE BUILT WITH HOMEBUILDING
- STREET WASHOUT - SEE DETAIL SHEET C9
- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE
- 5' x 5' SIDEWALK PASSING LANE TO BE CONSTRUCTED AT TIME OF HOMEBUILDING
- ADA SIDEWALK CURB RAMP - SEE DETAIL SHEET C14

ONLY ADA RAMPS WITH A 900 SERIES OPEN SPACE WILL BE BUILT WITH INFRASTRUCTURE

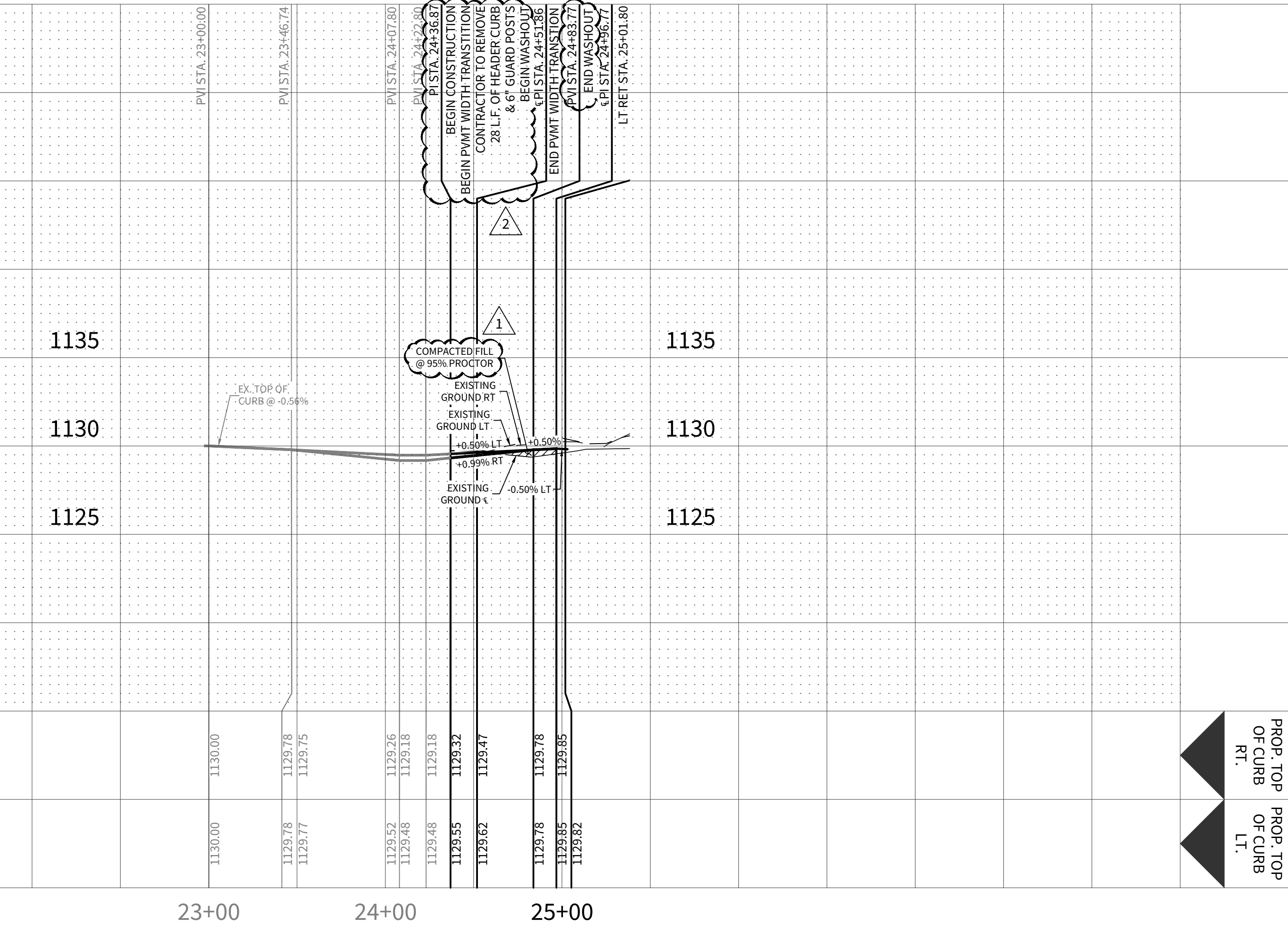
FRONTIER WAY

STA. 1+00.00 TO STA. 2+44.80



CLANTON PASS

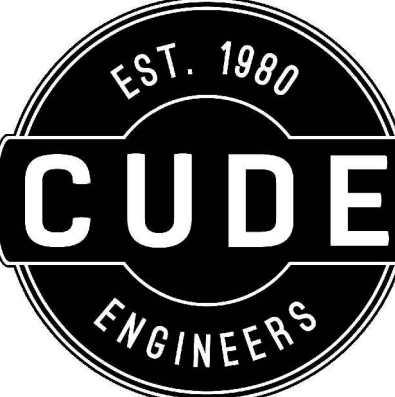
STA. 24+36.87 TO STA. 25+51.80



NOTE: A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHT OF WAY.

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

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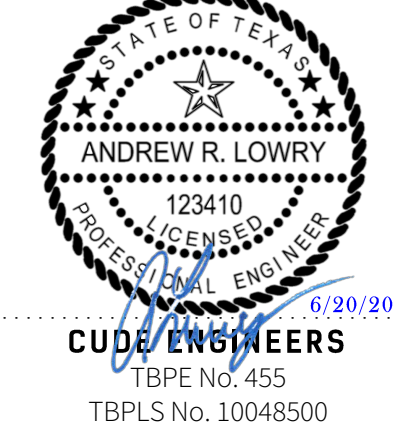
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ESTANCIA RANCH SUBDIVISION UNIT 3

STREET PLAN & PROFILE - FRONTIER WAY & CLANTON PASS

DATE
06/20/2024
PROJECT NO.
03473.010
DRAWN BY
CG/TCD/XV
CHECKED BY
XV/AL

REVISIONS	
DATE	DESCRIPTION
1. 2024-04-29	ADDED 200' WASHOUT TO CLANTON PASS
2. 2024-05-20	STA. REV. LOT NUMBER
3. 2024-05-20	ADDED BEGIN AND END WASHOUT



CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

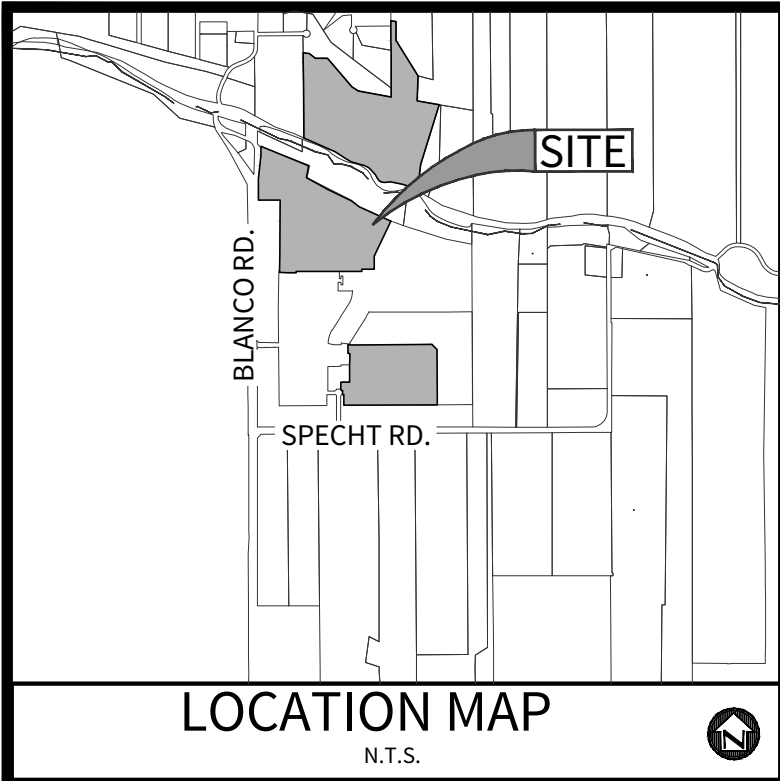
PLAT NO.
23-11800329

C7

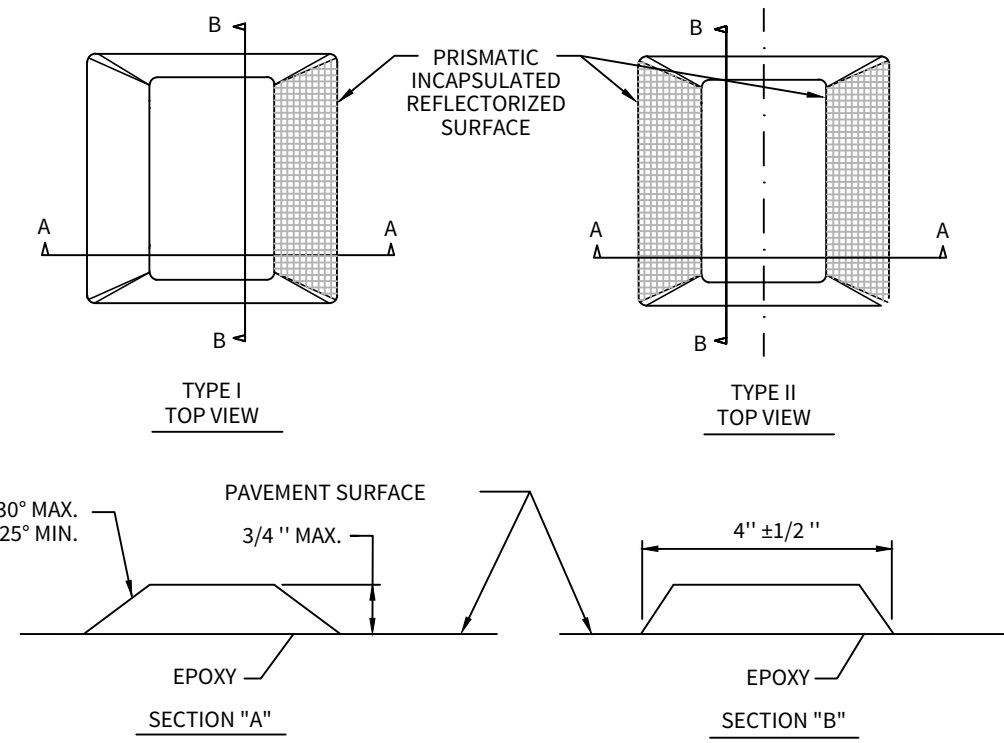
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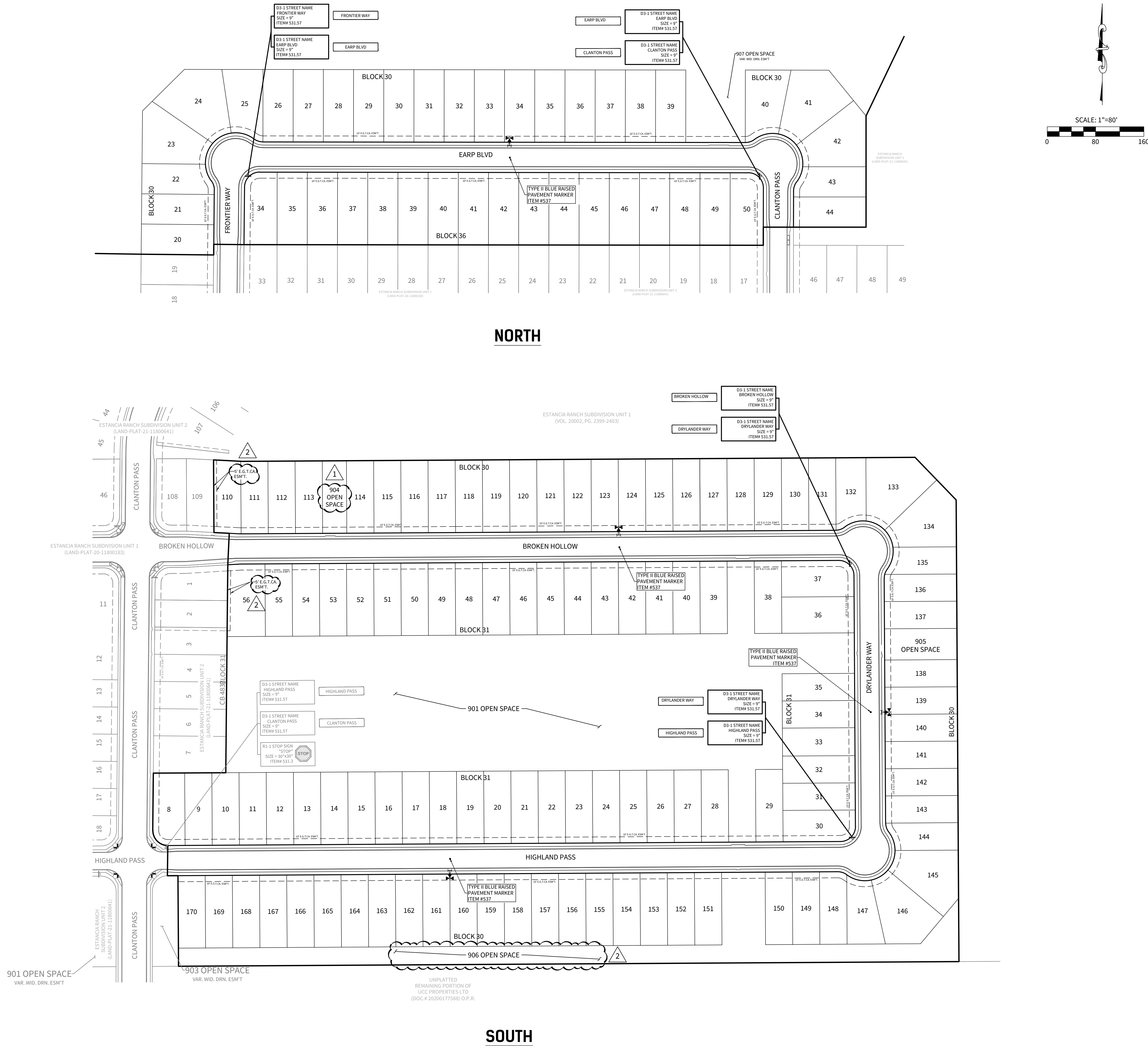
NOTE: A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY RIGHT OF WAY



- 1) REFLECTORIZED BLUE - FIRE HYDRANT
- 2) ADHESIVE SHALL BE APPLIED IN SUFFICIENT TO ENSURE THE FOLLOWING:
 - a) 100 PERCENT OF THE BONDING AREA OF RAISED PAVEMENT MARKERS SHALL BE IN CONTACT WITH THE ADHESIVE.
 - b) RAISED PAVEMENT MARKERS SHALL NOT BE IN CONTACT WITH THE PAVEMENT SURFACE, BUT SHALL BE SEATED ON A CONTINUOUS LAYER OF ADHESIVE.
 - c) BITUMINOUS ADHESIVE FOR MARKERS ON BITUMINOUS PAVEMENTS. EPOXY ADHESIVE FOR MARKERS ON PORTLAND CEMENT CONCRETE PAVEMENTS. EPOXY ADHESIVE SHALL BE MACHINE MIXED.
- 3) RAISED PAVEMENT MARKERS SHALL BE FREE OF RUST, SCALE, DIRT, OIL, GREASE, MOISTURE, OR CONTAMINATES WHICH MIGHT ADVERSELY AFFECT THE ADHESIVE BOND. ADHESIVE OR ANY OTHER MATERIAL THAT IMPAIRS THE FUNCTIONAL REFLECTIVITY WILL NOT BE ACCEPTABLE.
- 4) PLACEMENT OF RAISED PAVEMENT MARKERS SHALL BE 4 FEET OFF STREET CENTELINE TOWARD ITEM MARKED.

PAVEMENT REFLECTORS DETAIL

N.T.S.



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ESTANCIA RANCH SUBDIVISION

UNIT 3

TRAFFIC SIGNAGE PLAN

DATE	06/20/2024
PROJECT NO.	03473.010
DRAWN BY	CG/TCD/XV
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DATE	REVISIONS
1. 2024-04-29	1. REVISION LOT 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

STATE OF TEXAS

ANDREW R. LOWRY

123410

PROFESSIONAL ENGINEER

CUDE ENGINEERS

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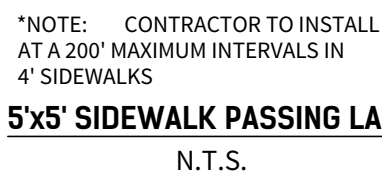
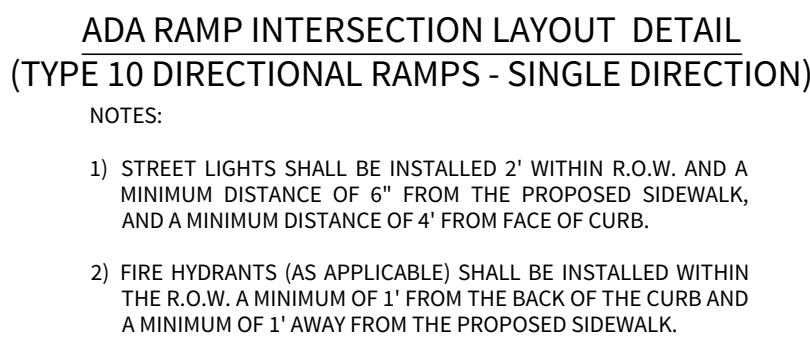
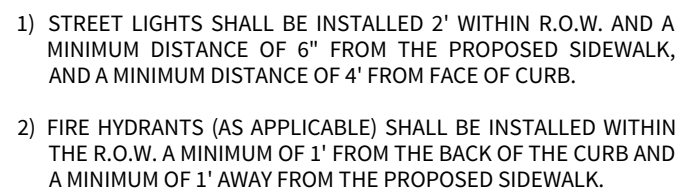
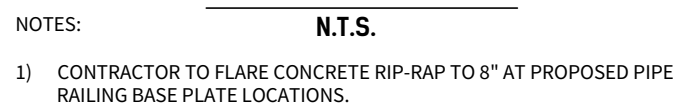
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THE LOCATIONS AND DEPTHS OF ALL EXISTING UTILITIES, INCLUDING SERVICE LATERALS AND DRAINAGE STRUCTURES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND DEPTHS OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT, AND TO PROTECT THE SAME DURING CONSTRUCTION.



STREET TYPE	HMAC TYPE "D"	HMAC TYPE "C"	HMAC TYPE "B"	BASE UNDER CURB	AGGREGATE BASE (TYPE A GRADE 2)	LIME STABILIZED SUBGRADE (30.5 LB/SY)	LIME STABILIZED SUBGRADE (40.5 LB/SY)	STRUCTURAL NUMBER
LOCAL A (CBR = 2.5)	2"	---	---	---	10"	6"	---	2.76

1. IF THE SUBGRADE PLASTICITY INDEX VALUE IS GREATER THAN 20, SUBGRADE STABILIZATION IS REQUIRED.
2. PAVEMENT SECTION REQUIRED IS TO BE DETERMINED BY GEOTECHNICAL ENGINEER ON-SITE.
3. FOR CONSTRUCTION VERIFICATION THE FOLLOWING SHALL BE CONDUCTED IN THE FIELD:
 - AFTER INITIAL MIXING THE SOIL-LIME MIXTURE SHALL MELLOW FOR A PERIOD OF TWO TO THREE (2-3) DAYS
 - AFTER MELLOWING AND FINAL MIXING, THE PULVERIZATION SHALL BE CHECKED USING THE FOLLOWING CR
 - RETAINED ON THE $\frac{3}{8}$ INCH SIEVE FOR THE SAMPLE:

- MINIMUM PASSING 1- $\frac{3}{8}$ " SIEVE	100
- MINIMUM PASSING $\frac{3}{8}$ " SIEVE	85
- MINIMUM PASSING NO. 4 SIEVE	60
 - SAMPLE SOIL-LIME MIXTURE FOR DETERMINATION OF MAXIMUM DRY DENSITY (MDD). IN THE LABORATORY, MOISTURE CONTENT AND VERFIC UCS TO BE AT LEAST 160 PSI IN ACCORDANCE TO PROCEDURE OUTLINED.
 - COMPACT AND CHECK FIELD DENSITY (MINIMUM OF 95% FOLD REQUIRED).
 - CURE FOR ADDITIONAL 2 TO 5 DAYS (TOTAL MELLOWING AND CURING TIME SHOULD TOTAL AT LEAST 5 DAYS)
 - VERIFY DEPTH OF LIME STABILIZED LAYER TO DEPTH AS NOTED ON PLAN TO WITHIN +/- 1.0 INCH.

- BASED ON THE THICKNESS OF THE CLAYS ENCOUNTERED IN THE BORINGS, WE ANTICIPATE THE FINAL PAVEMENT SUBGRADE PLASTICITY INDEX VALUE TO BE EITHER GREATER THAN 20 OR LESS THAN 20. AS PER BEAR COUNTY REQUIREMENTS, SUBGRADE STABILIZATION IS NEEDED WHEN THE PLASTICITY INDEX VALUES ARE GREATER THAN 20.
- IF THE PAVEMENT SUBGRADE PLASTICITY INDEX VALUES ARE GREATER THAN 20, THEN:
 - LIME SERIES SHOULD BE RUN TO DETERMINE THE APPLICATION RATE OF LIME. FOR PLANNING PURPOSES AN APPLICATION RATE OF 7 PERCENT LIME CONTENT MAY BE USED.
 - THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO STABILIZATION. IF THE SOIL SULFATE CONTENT IS OVER 3000 PPM, AN ALTERNATE PROCEDURE WILL BE NEEDED.
 - LIME APPLICATION RATE OF 30.5 lbs PER sq YARD FOR 6-INCH DEPTH OF STABILIZATION AND 40.5 lbs PER sq YARD FOR 8-INCH DEPTH OF STABILIZATION IS RECOMMENDED (BASED ON THE ASSUMED RATE OF 7 PERCENT.)
 - CEMENT STABILIZATION MAY BE USED IN LIEU OF LIME STABILIZATION. PLEASE CONTACT THE GEOTECH ENGINEER TO DETERMINE CEMENT APPLICATION RATES BASED ON SITE CONDITIONS.

- INPUT PARAMETERS ARE SHOWN IN TABLE NO. 6. PLEASE CALL US TO PROVIDE PAVEMENT RECOMMENDATIONS, IF NEEDED, FOR DIFFERENT INPUT VALUES.
- IF REPETITIVE TRUCK OR HEAVY TRUCK TRAFFIC IS ANTICIPATED, PLEASE CONTACT US FOR REVISED PAVEMENT RECOMMENDATIONS.
- PAVEMENT SECTION RECOMMENDATIONS ARE BASED ON A SUBGRADE CBR VALUE OF 2.5. THE PAVEMENT RECOMMENDATIONS ARE NOT BASED ON THE SHRINK / SWELL CHARACTERISTICS OF THE UNDERLYING SOILS. THE PAVEMENT CAN EXPERIENCE CRACKING AND DEFORMATION DUE TO SHRINKAGE AND SWELLING CHARACTERISTICS OF THE SOILS AS DESCRIBED IN THE VERTICAL MOVEMENTS SECTION OF THIS REPORT.
- IF WATER IS ALLOWED TO GET UNDERNEATH THE ASPHALT OR IF MOISTURE CONTENT OF THE BASE OR SUBGRADE CHANGES SIGNIFICANTLY, THEN PAVEMENT DISTRESS WILL OCCUR. MOISTURE SECHING OR FLATION UNDERNATH THE ASPHALT PAVEMENT SURFACE MAY BE REDUCED BY INSTALLING A VERTICAL MOISTURE BARRIER, SUCH AS DEEPER CURBS; CURBS EXTENDING A MINIMUM OF 6 INCHES INTO SUBGRADE.

- FILL USED TO RAISE THE GRADE - APPROVED FILL MATERIAL SHOULD HAVE A MINIMUM CBR VALUE OF 2.5 AND PLASTICITY INDEX VALUE OF 60 OR LESS. LIME APPLICATION RATES SHOULD BE RE-EVALUATED AND TESTED FOR SULFATE CONTENT PRIOR TO USE OF THE FILL MATERIAL.
- THE FILL MATERIAL SHOULD BE APPROVED BY THE GEOTECHNICAL ENGINEER, FREE OF DELETERIOUS MATERIAL, AND THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN SIZE. THE MATERIAL SHOULD BE PLACED AND COMPACTED AS PER APPLICABLE CITY / COUNTY GUIDELINES.

- AT THE TIME OF CONSTRUCTION, THE FINAL PAVEMENT SUBGRADE SHOULD BE OBSERVED AND VERIFIED BY A REPRESENTATIVE OF INTEC

ESTANCIA RANCH SUBDIVISION
UNIT 3
STANDARD STREET DETAILS

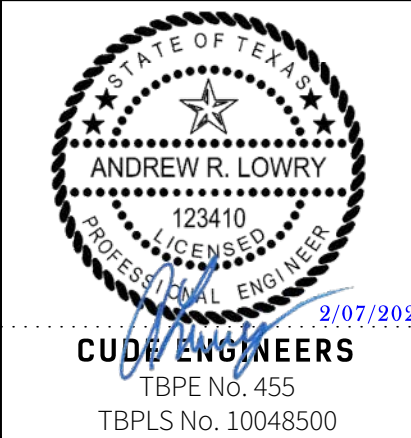
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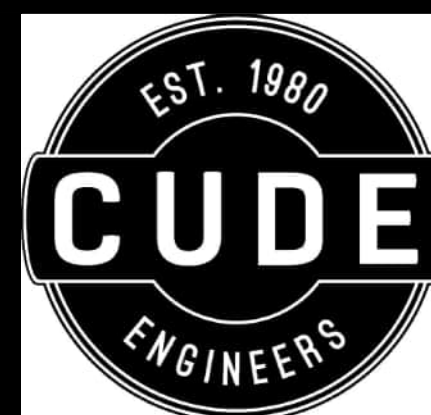
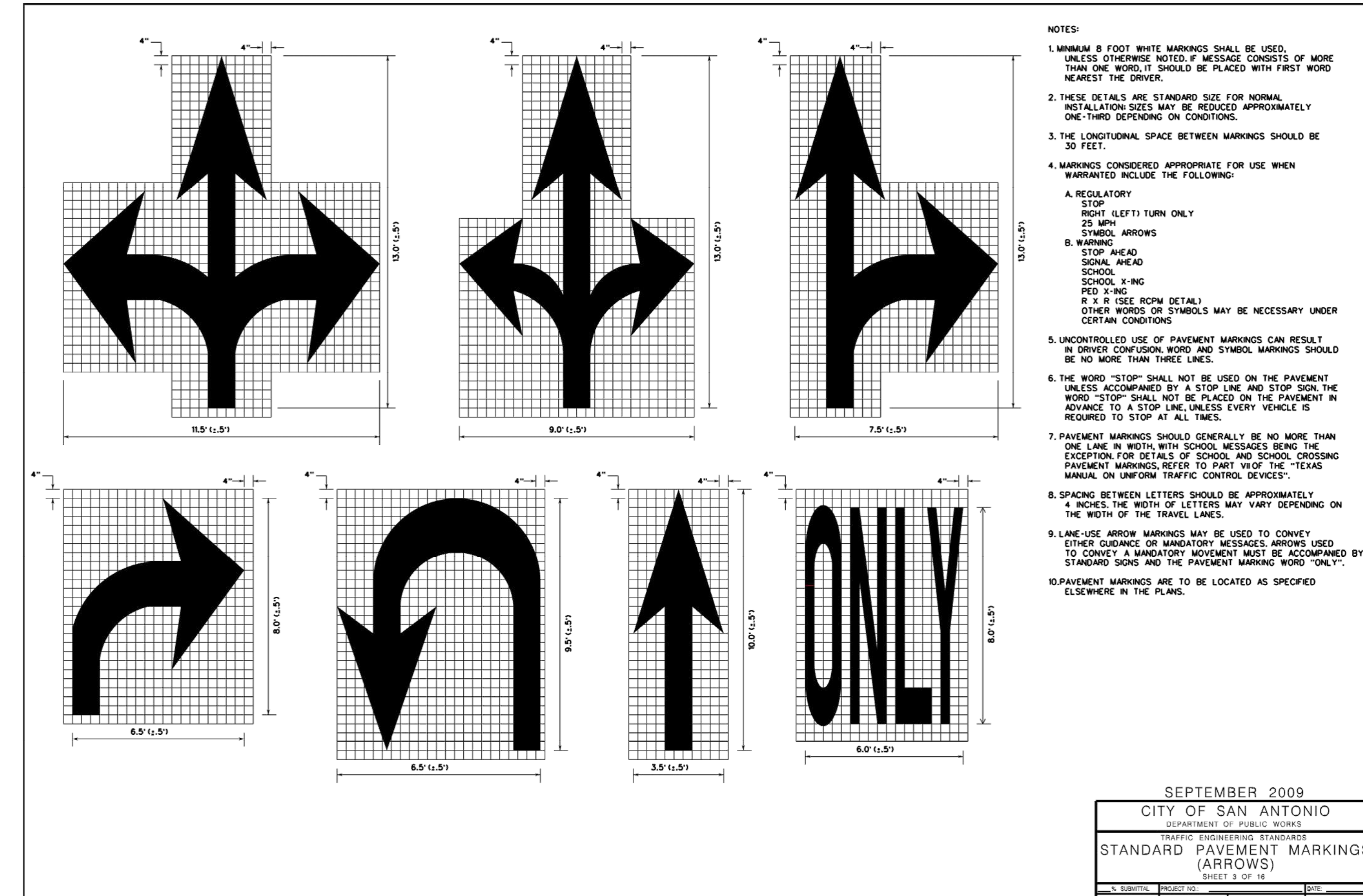
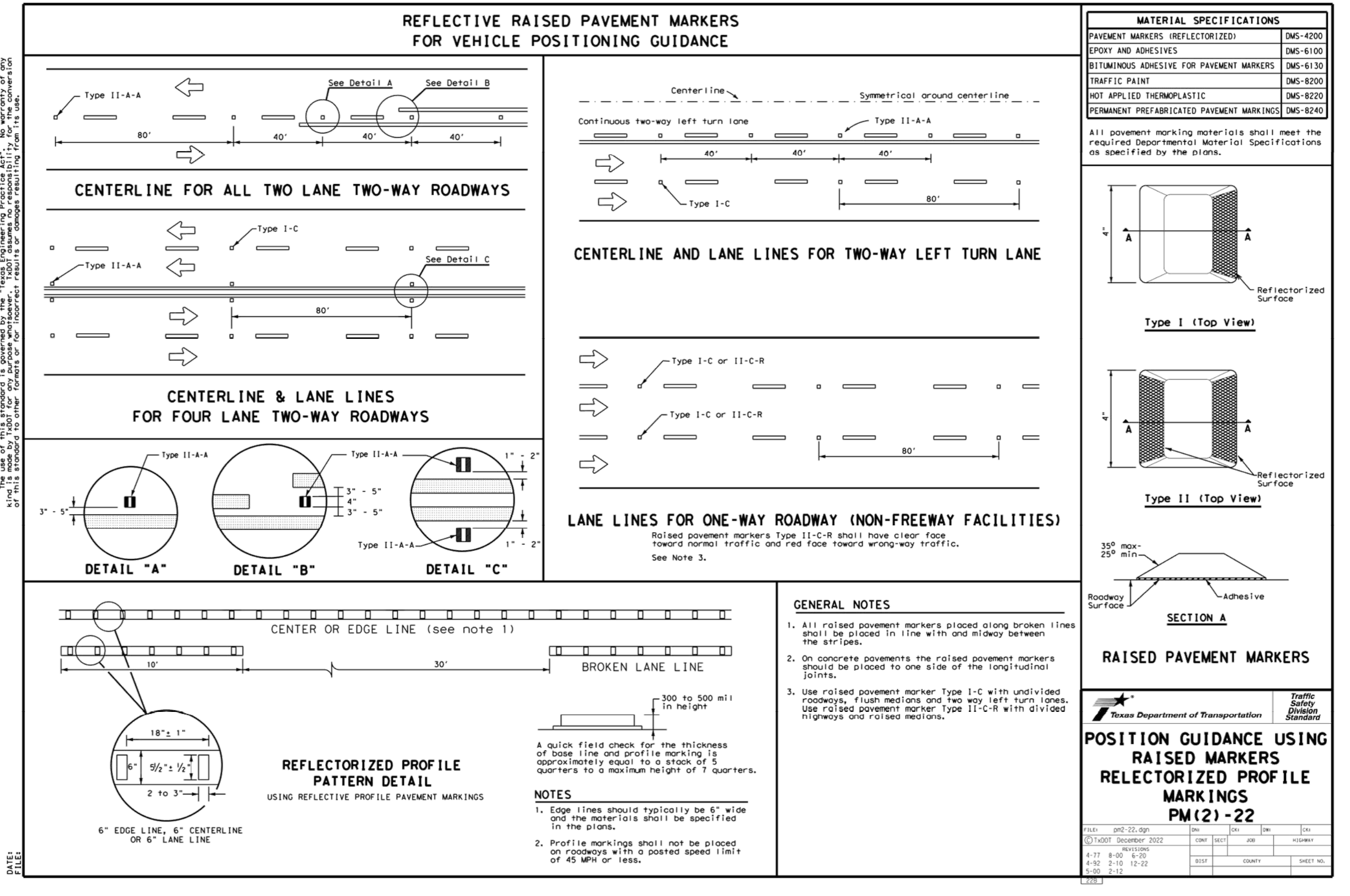
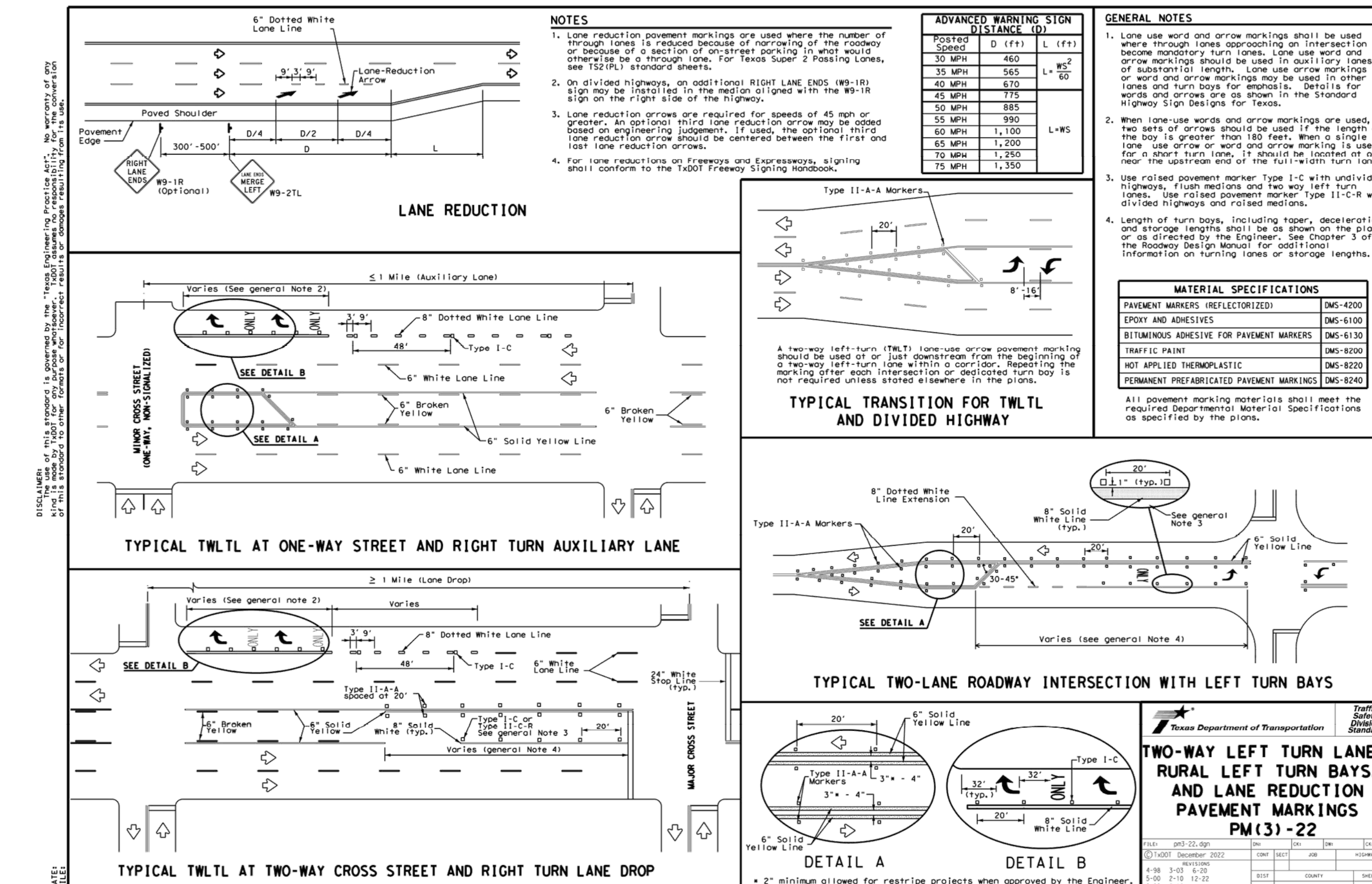
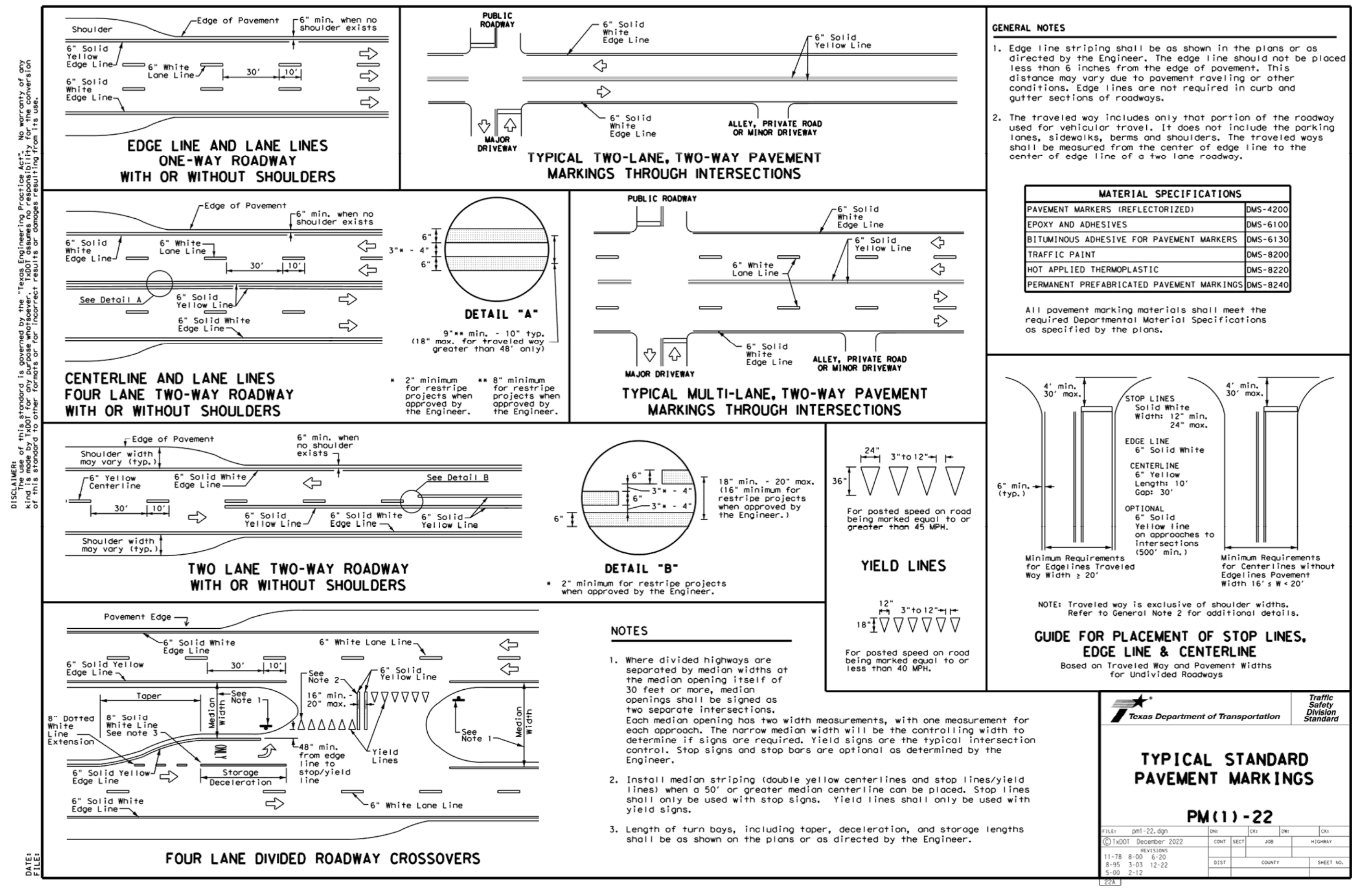
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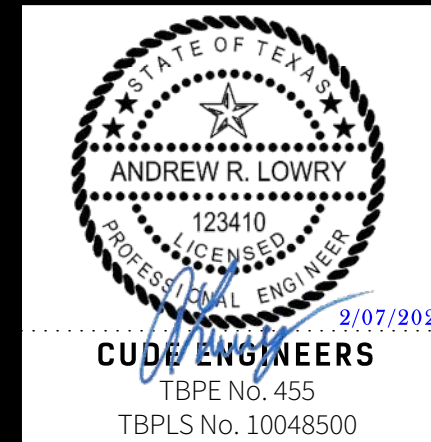


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UNIT 3
TXDOT PAVEMENT MARKING DETAILS

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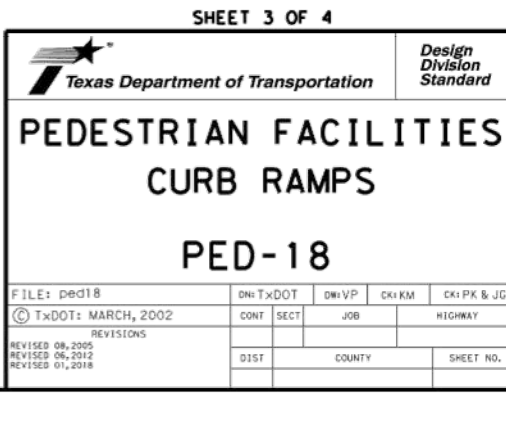
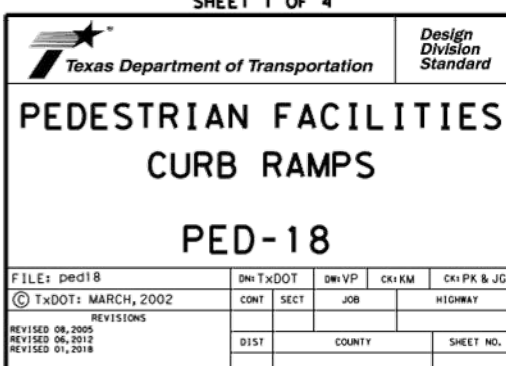
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GENERAL NOTES

CURB RAMPS

2. Install a curb ramp or blended transition at each pedestrian street crossing.
3. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp slopes is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, the sidewalk width shall be 5 feet. Where the sidewalk is terminated, due to space constraints, sidewalk width may be reduced 4" for short distances. The remaining areas at intervals not to exceed 20' are required.
5. Turning Spaces shall be 5' x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4' x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be a minimum of 2' wide. Curb ramps may be terminated, or returned curbs may be used only where pedestrians would not normally walk across the curb ramp. Where the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for the Design and Construction of Safe Streets of May 2010, as adopted by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, medians less than 6' wide shall be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5' x 5' landing at the top of the curb ramp, shall be designed to provide a minimum 5' x 5' landing.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, the stop bar shall be at least 10' from the intersection.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 of the Standard Specifications for Construction of Streets and Highways, unless otherwise directed.
14. Place concrete at a minimum 4" depth.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramp connects to the street.
17. Curb ramps shall be either in the limits of payment or considered part of curb and gutter. Payment shall be either in concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless

DETECTABLE WARNING MATERIAL

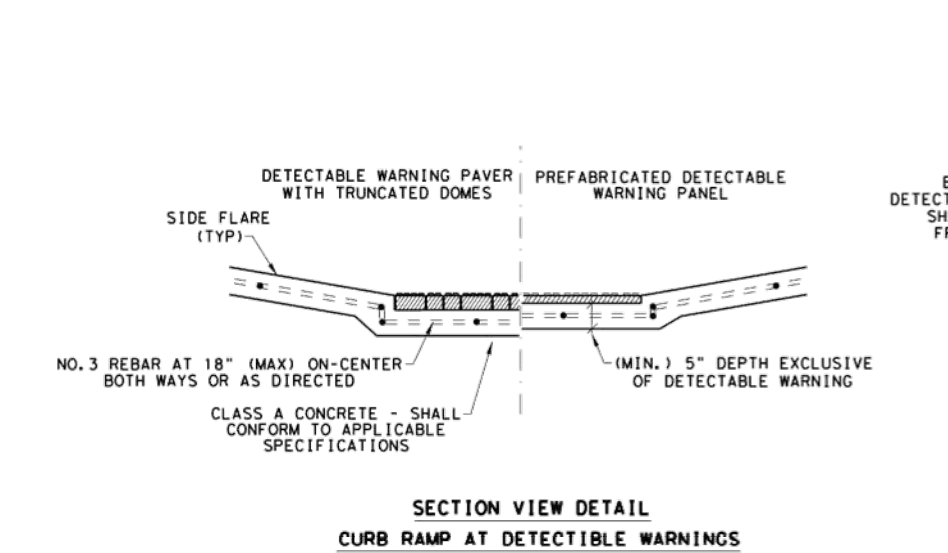
1. **Curb ramps** must contain a detectable warning surface that consists of raised truncated domes complying with **1910WAG**. The surface must contrast visually with the surrounding pavement. The surface must be made of a material that is not cost-in-place dark brown or dark red detectable warning surface material. The surface must be unobstructed and free of any debris.
2. **Detectable warning surfaces** must meet **19001 Departmental Materials Specification DMS-4350** and be listed on the **Material Product List**. Install products in accordance with manufacturer's instructions.
3. **Detectable warning surfaces** must be firm, stable and slip resistant.
4. **Detectable warning surfaces** shall be a minimum of 14 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
5. **Detectable warning surfaces** shall be installed at the edge of the curb ramp. The line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
6. **Shoed areas** on **Sheet 1** of **4** indicate the approximate location for the detectable warning surface for each curb ramp.

DETECTABLE WARNING PAVERS (IF USED)

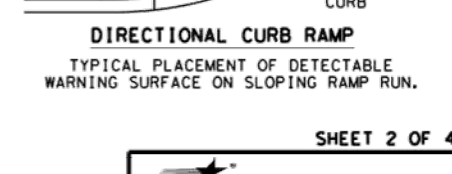
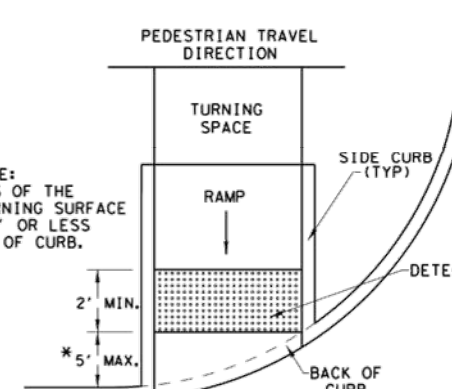
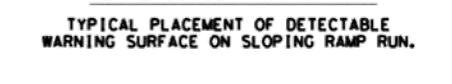
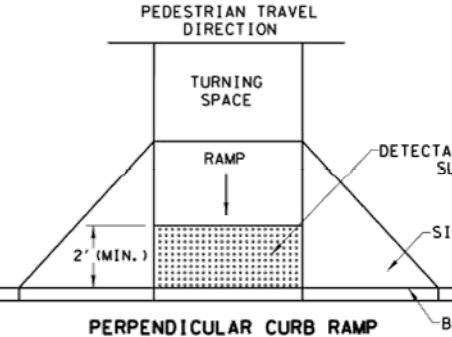
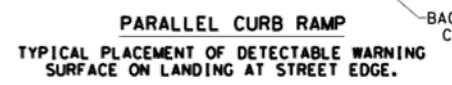
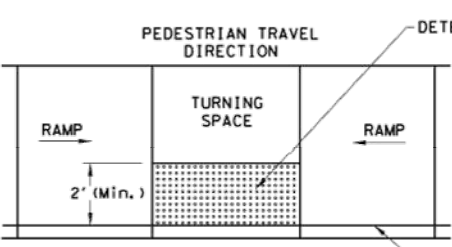
25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using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

SIDEWALKS

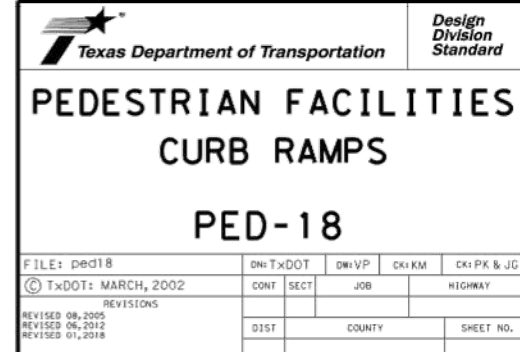
27. Provide clear ground surface at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in Section 04080.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the existing ground surface, provided the slope is not greater than five percent (5%) but shall comply with ADAAG may be desirable to improve accessibility. Handrails may also be provided for areas with slopes greater than five percent hazardous conditions. If provided, handrails shall comply with FROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into Intersection.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.



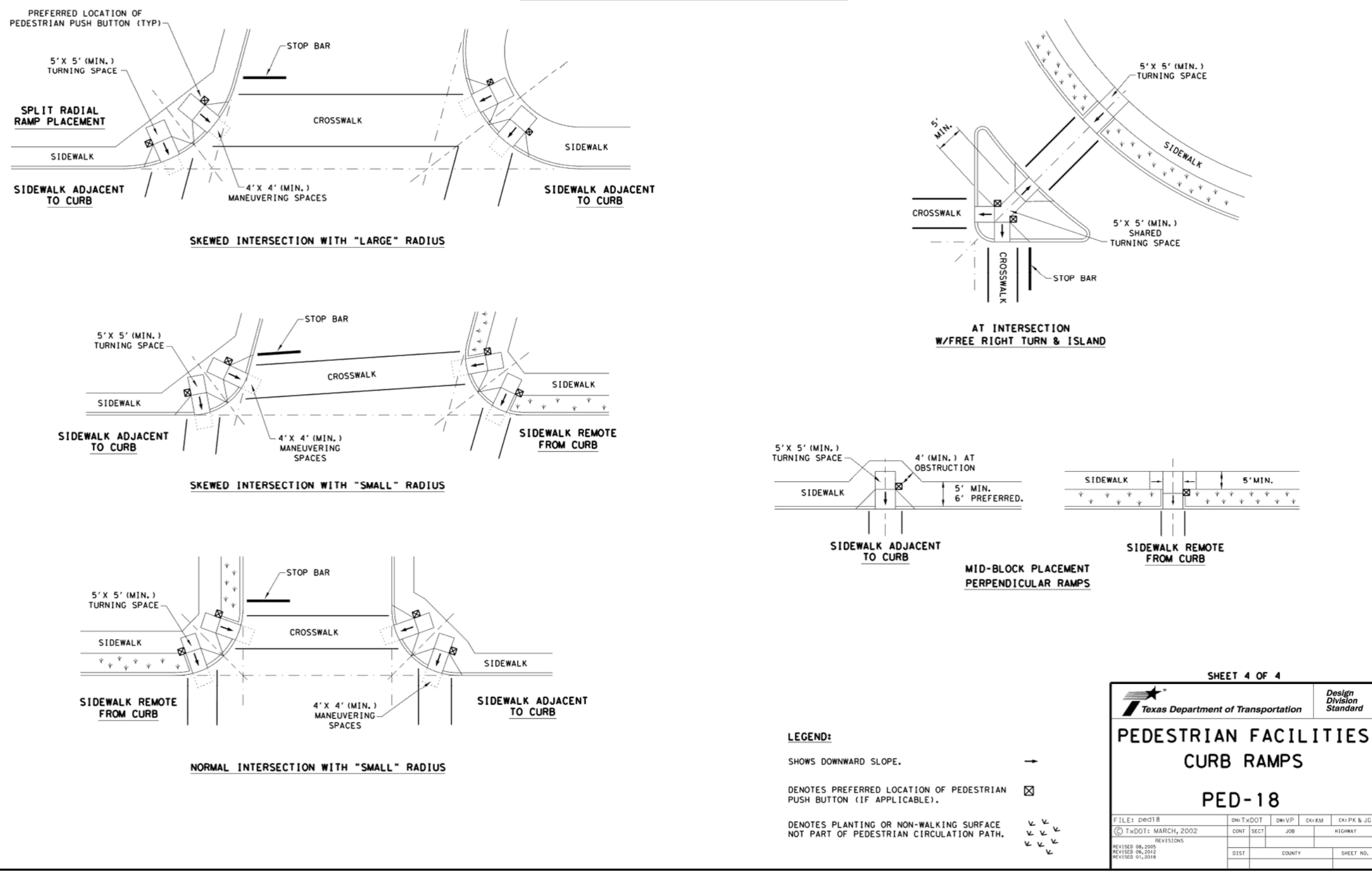
DETECTABLE WARNING SURFACE DETAILS



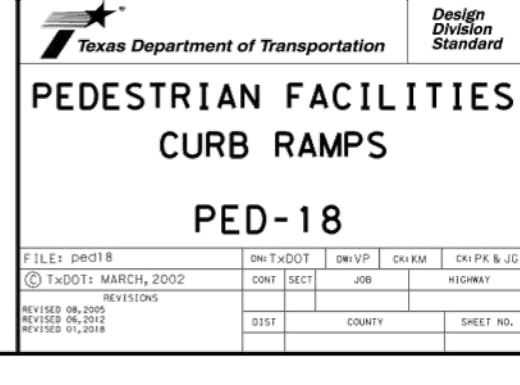
SHEET 2 OF 4



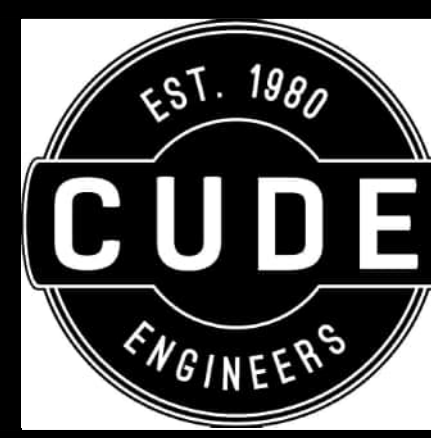
TYPICAL CROSSING LAYOUTS
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



SHEET 4 OF 4



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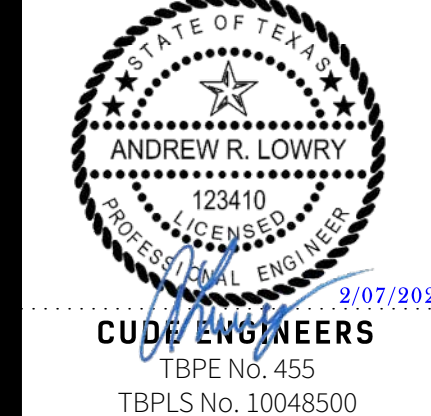
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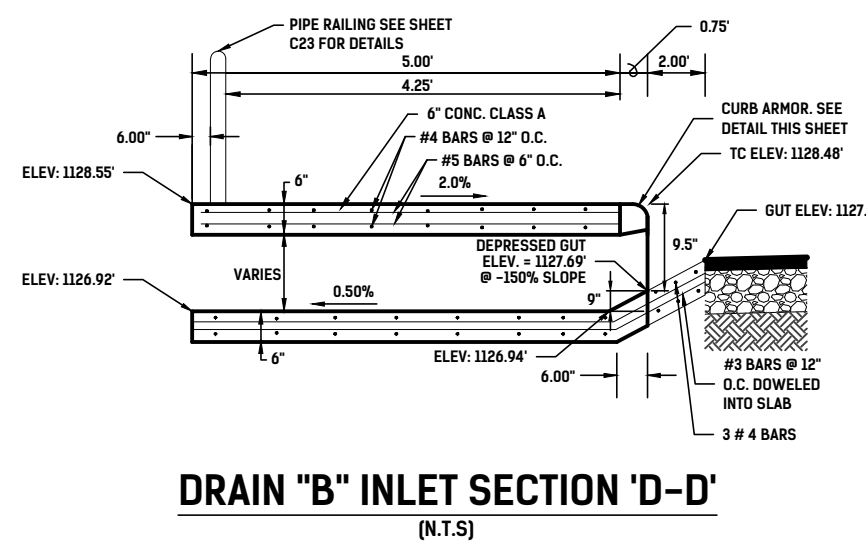
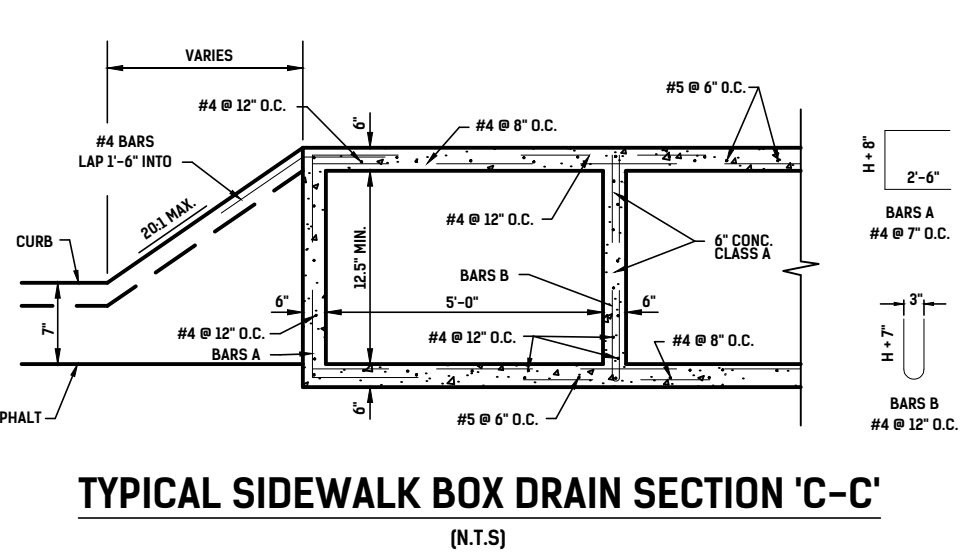
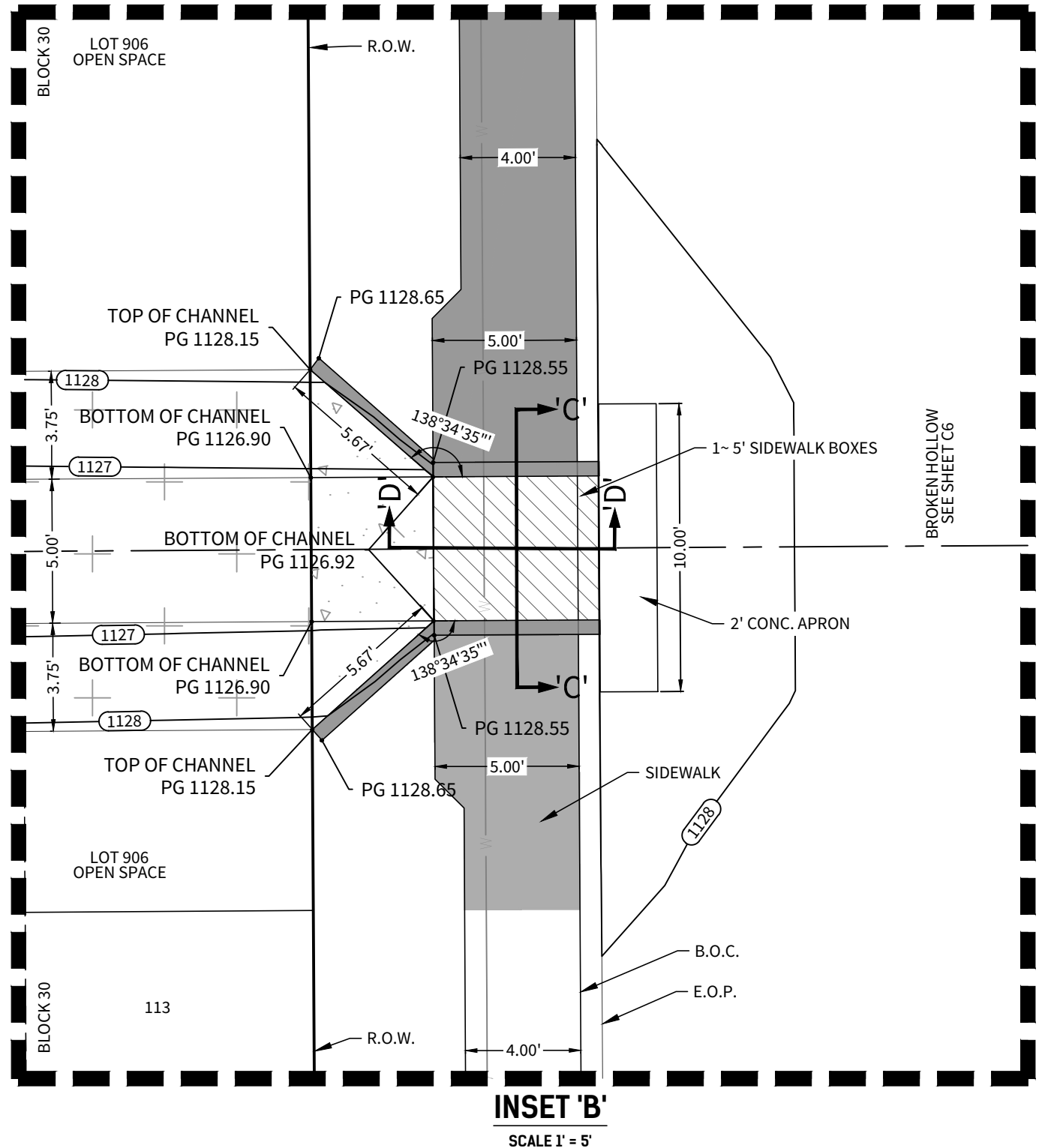
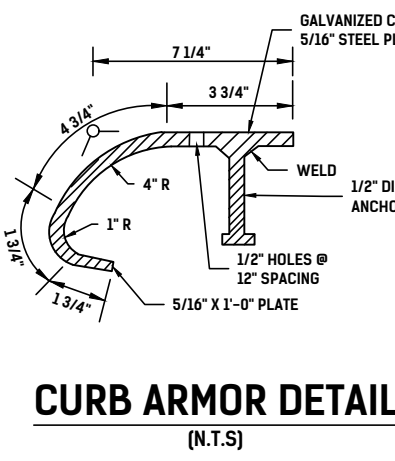
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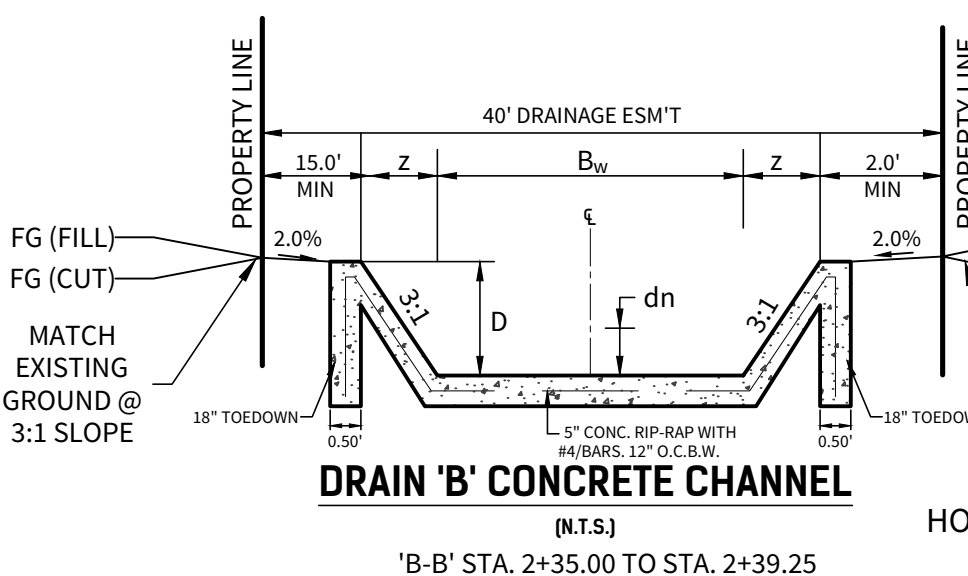
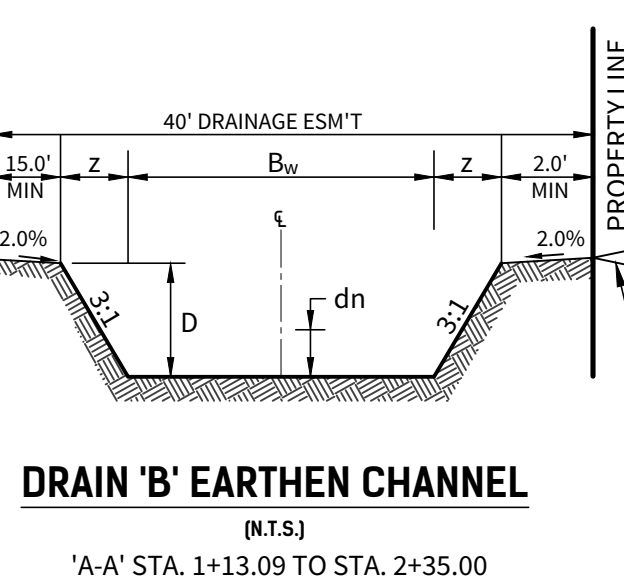


SIDEWALK BOX OPENING
WEIR EQUATION
 $Q_{25} = CL(H)^{3/2}$
 $Q_{25} = 4.77 \text{ C.F.S.}$
 $C = 3.087$
 $H = 0.79'$
 $L = 4.77 \text{ C.F.S.}$
 $(3.087)(0.79)^{3/2}$
 $L = 2.20'$
USE 1 ~ 5 FT SIDEWALK BOXES

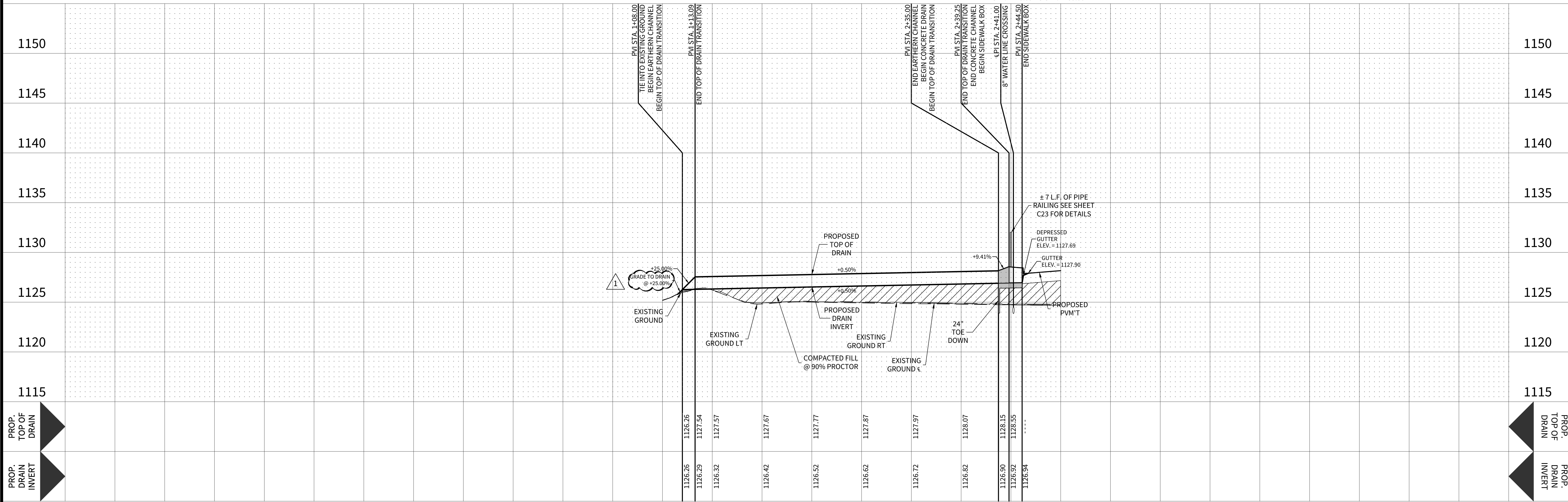
DRAIN 'B'

STA. 1+00.00 TO END

	"A-A"
Q_{25} (cfs)	4.77
B_w (ft)	5.00'
z (ft)	3.75'
n	0.035
D (ft)	1.25'
S (%)	0.50
d_n (ft)	0.48
V (fps)	1.54
T (lb/ft ² x 2)	0.12



	"B-B"
Q_{25} (cfs)	4.77
B_w (ft)	5.00'
z (ft)	3.75'
n	0.013
D (ft)	1.25'
S (%)	0.50
d_n (ft)	0.27
V (fps)	3.04
T (lb/ft ² x 2)	0.07



1+00 2+00



LEGEND

- OVERALL UNIT BOUNDARY ---
PROPOSED LOT LINE ---
PROPOSED RIGHT OF WAY ---
E.G.T.CA. EASEMENT ---
EXISTING 1' CONTOUR ---
EXISTING 5' CONTOUR ---
PROPOSED 1' CONTOUR ---
PROPOSED 5' CONTOUR ---
CONCRETE RIP RAP ---
EARTHEN DRAINAGE CHANNEL ---
GABION MATTRESS ---

NOTES

- ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI IN 28 DAYS
- IMPROVED EARTHEN CHANNELS AND DETENTION PONDS WILL BE VEGETATE BY SEEDING OR SOODING. EIGHT-FIVE PERCENT (85%) OF THE CHANNEL SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT THE CHANNEL FOR MAINTENANCE

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San Antonio, Texas 78231
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ESTANCIA RANCH SUBDIVISION UNIT 3 DRAIN PLAN & PROFILE - DRAIN 'B'

DATE	04/30/2024
PROJECT NO.	03473.010
DRAWN BY	CG/TCD/XV
CHECKED BY	XV/AL

REVISIONS	
DATE	2024-04-29
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

STATE OF TEXAS
ANDREW R. LOWRY
123410
LICENSED PROFESSIONAL ENGINEER
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
23-11800329

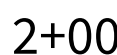
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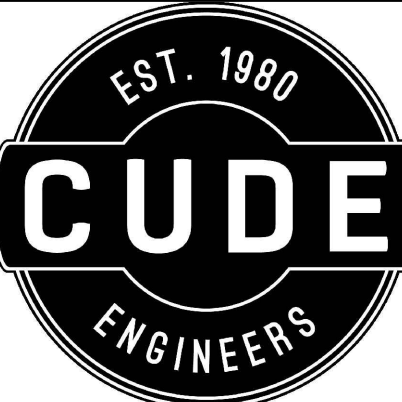
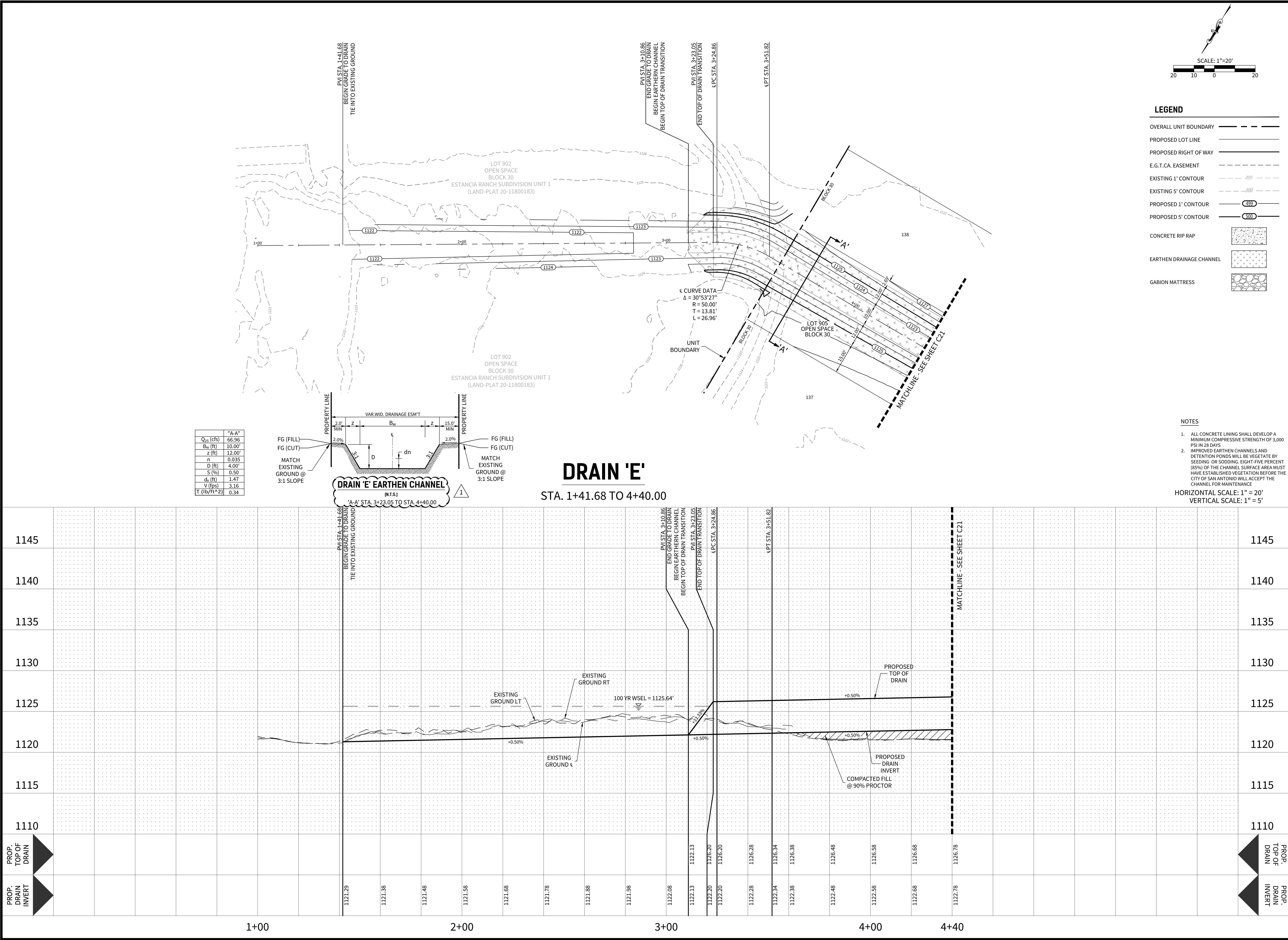
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VERTICAL SCALE: 1" = 5'



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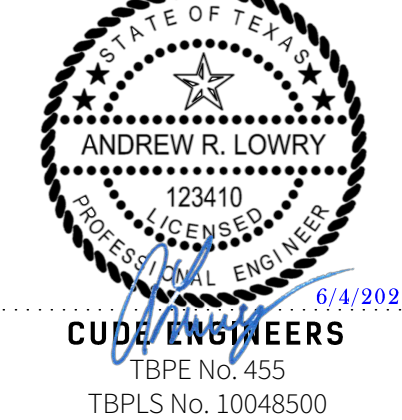


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ESTANCIA RANCH SUBDIVISION
UNIT 3
DRAIN PLAN & PROFILE - DRAIN 'E'

DATE
06/04/2024
PROJECT NO.
03473.010
DRAWN BY
CG/TCD/XV
CHECKED BY
XV/AL

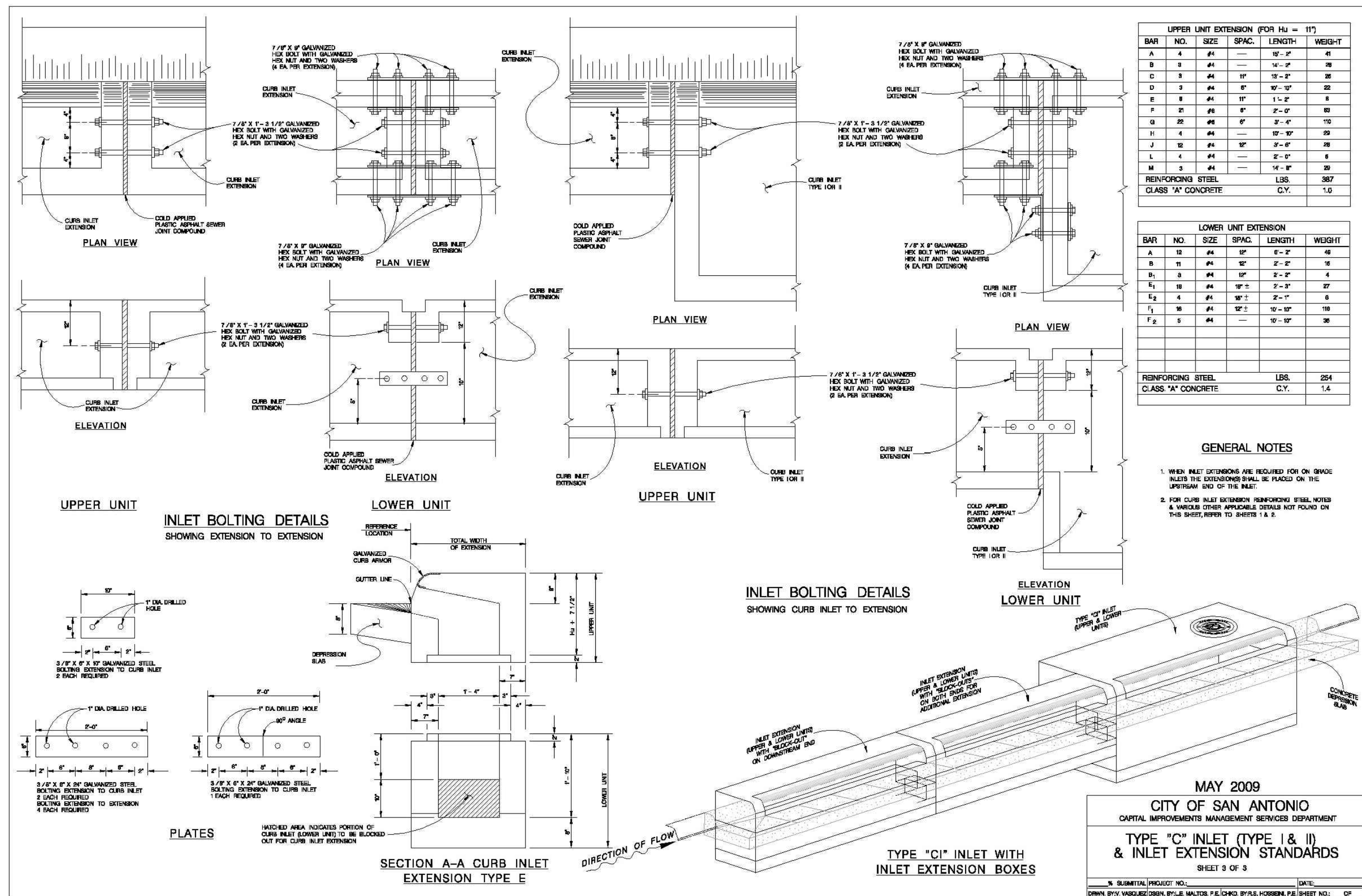
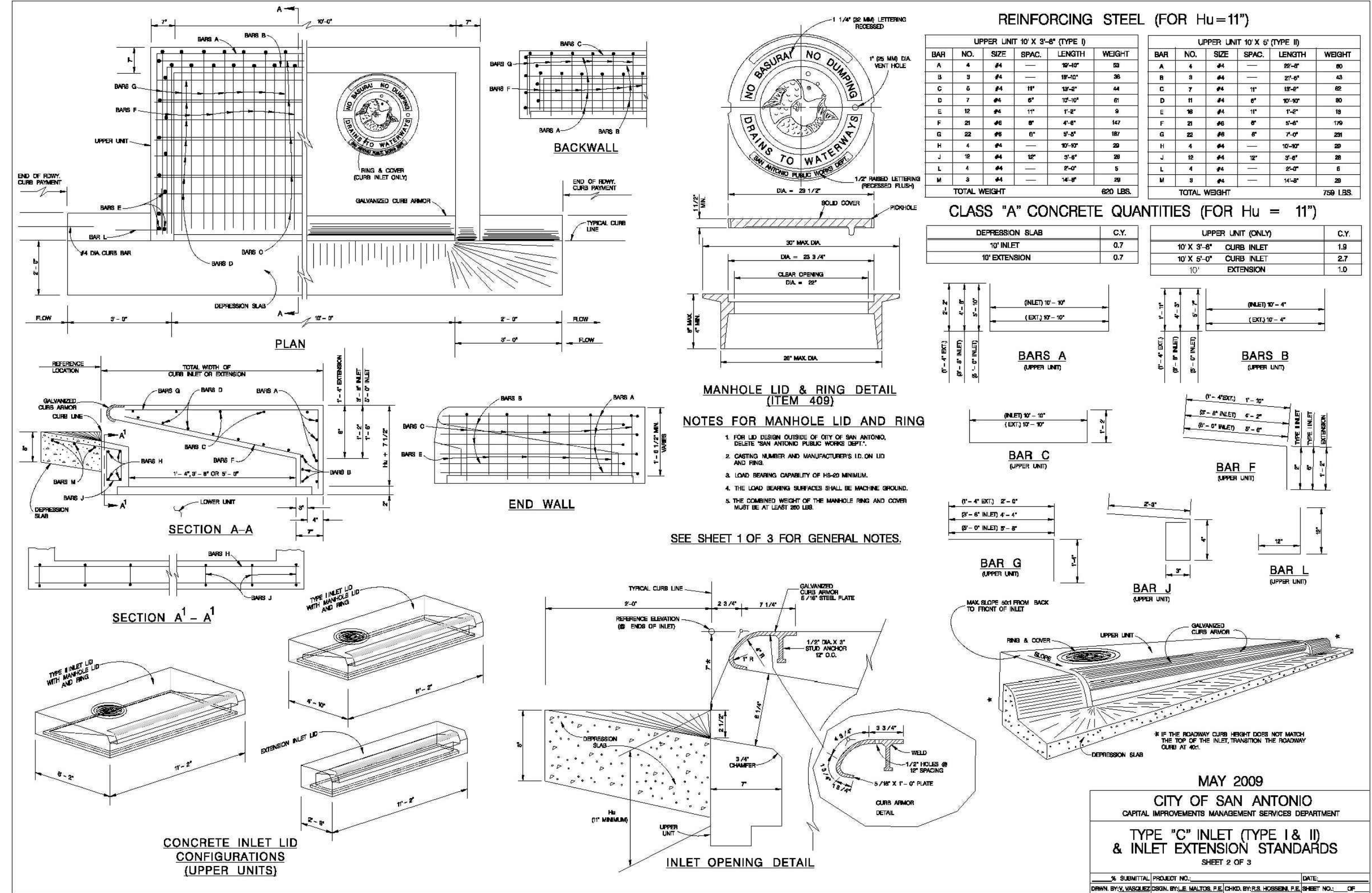
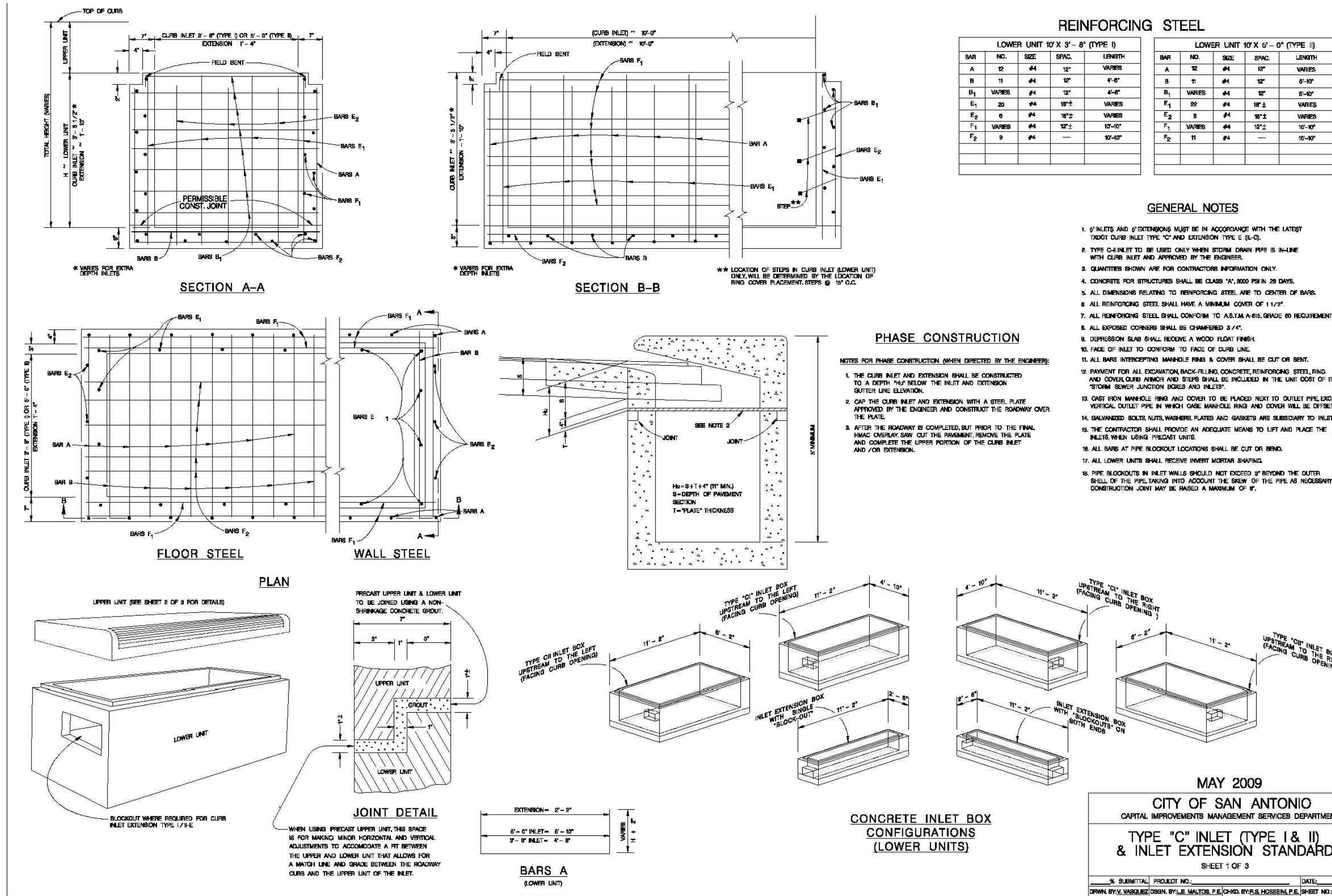
DATE		REVISIONS								
2024-06-04		REVISED DRAINAGE CROSS-SECTION TITLE AND STATIONING								
1										
2										
3										
4										
5										
6										
7										
8										
9										



CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
23-11800329

C20



DRAINAGE DETAILS

02/07/2024

03473.010

CG/TCD/XV

XV/AL

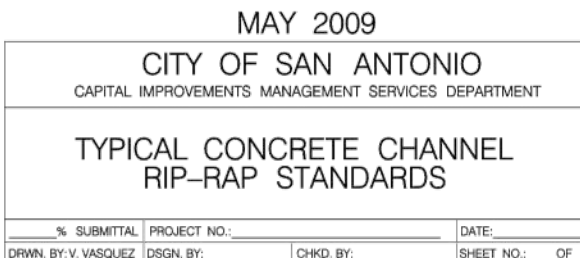
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TBPE No. 455

23-1180032

724



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
ORGANIZED SEWAGE COLLECTION SYSTEM
GENERAL CONSTRUCTION NOTES

Edwards Aquifer Protection Program Construction Notes - Legal Disclaimer

The following listed "construction notes" are intended to be advisory in nature only, and do not constitute an approval or conditional approval by the Executive Director, nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with applicable laws and regulations. The Texas Commission on Environmental Quality, Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following listed "construction notes" vests the power of the Executive Director, the commission or any other governmental entity by permit, contract, or verbal action that results or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, Texas Administrative Code, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the Executive Director's approval, whether or not a contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, Texas Administrative Code § 213.10 (relating to enforcement). Such violations may also be subject to civil penalties and injunction. The following listed "construction notes" in no way represent an approved exception by the Executive Director to any part of the 30 Texas Administrative Code, Chapters 213 or 217, or any other TCEQ regulation or regulation.

- This Organized Sewage Collection System (SCS) must be constructed in accordance with 30 Texas Administrative Code (TAC) §213.5(c), the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules and any local government standard specifications.
- All contractors conducting regulated activities associated with this proposed regulated project must be provided with copies of the SCS plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors must be required to keep on-site copies of the plan and the approval letter.
- A written notice of construction must be submitted to the presiding TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
 - the name of the approved project;
 - the activity start date and
 - the contact information of the prime contractor.
- Any modification to the activities described in the referenced SCS application following the date of approval may require the submittal of an SCS application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval.
- Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. These controls must remain in place until the disturbed areas have been permanently stabilized.
- If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovered. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing and the applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

- Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of 6 inches.
- Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired and retested.

- All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole.

The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 36 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet _12_ of _12_.

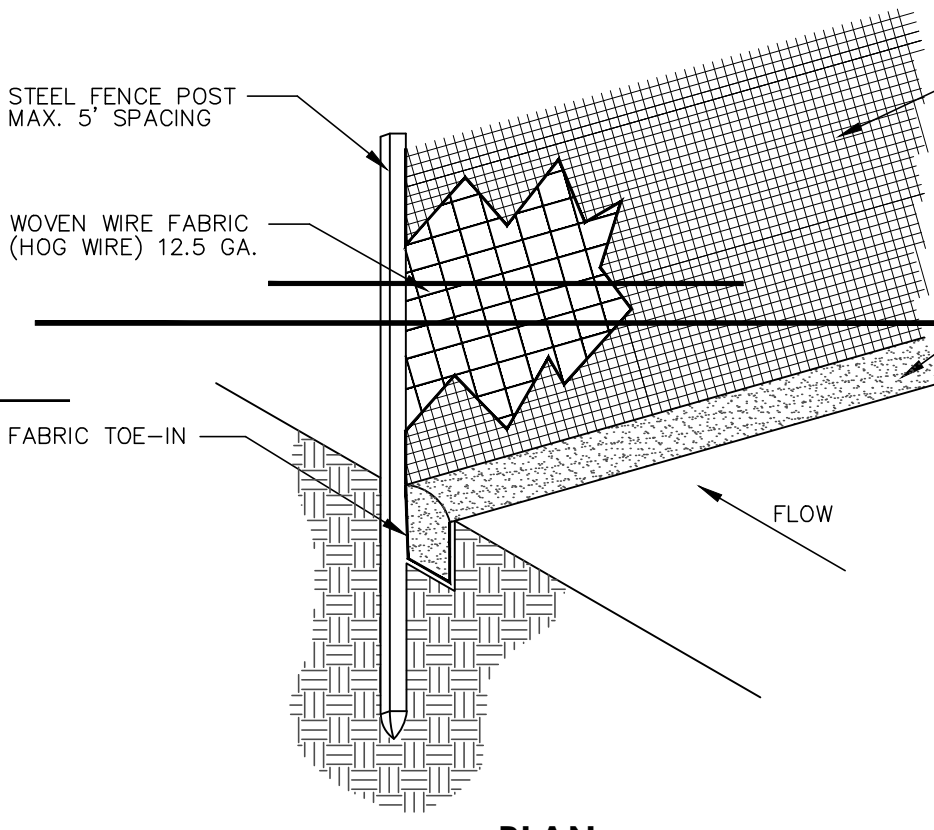
It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of a portable ladder. The inclusion of steps in a manhole is prohibited.

- Where water lines and new sewer line are installed with a separation distance closer than nine feet (i.e., water lines crossing wastewater lines, water lines paralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(d) (Pipe Design) and 30 TAC §290.44(e) (Water Distribution).

- Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer pipe must be achieved by the following procedure which is recommended by the pipe manufacturer: _____ N/A

If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: _____ N/A

Specific care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.



SILT FENCE NOTES

- SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC WIDTH SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN², ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NO. 30.
- FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR Y-BAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM NOMINAL WEIGHT 1.25 LB/FT², AND BRINELL HARDNESS EXCEEDING 140.
- WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.
- STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 1 FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.
- LAY OUT FENCING DOWN-SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS ¼ ACRE/100 FEET OF FENCE.
- THE TOE OF THE SILT FENCE SHOULD BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN-SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT OR ROCK OUTCROP), WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
- THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
- SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHOULD BE A 3-FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
- SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
- INSPECT ALL FENCING WEEKLY, AND AFTER ANY RAINFALL.
- REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.
- REPLACE ANY TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.
- REPLACE OR REPAIR ANY SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY. IF A SECTION OF FENCE IS OBSTRUCTING VEHICULAR ACCESS, CONSIDER RELOCATING IT TO A SPOT WHERE IT WILL PROVIDE EQUAL PROTECTION, BUT WILL NOT OBSTRUCT VEHICLES. A TRIANGULAR FILL DIKE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.
- WHEN CONSTRUCTION IS COMPLETE, THE SEDIMENT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ADDITIONAL SILTATION AND THE PRIOR LOCATION OF THE SILT FENCE SHOULD BE REVEGETATED. THE FENCE ITSELF SHOULD BE DISPOSED OF IN AN APPROVED LANDFILL.

SILT FENCE DETAIL N.T.S.

- New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.
- If no stub-out is present is present an alternate method of joining laterals is shown in the detail on Plan Sheet _12_ of _12_. (For potential future laterals).

The private sewer lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet _4,11_ of _12_, and marked after backfilling as shown in the detail on Plan Sheet _12_ of _12_.

- Trenching, bedding and backfill must comply with 30 TAC §217.54. The bedding and backfill for bedding pipe must comply with the standards of ASTM D-2321, Classes IA, IB, II or III. Rigid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) Class A, B or C.
- Sewer lines must be tested from manhole to manhole. When a new sewer line is connected to an existing stub or clean-out, it must be tested from manhole to new manhole. If a stub or clean-out is used at the end of the proposed sewer line, no private service attachments may be connected between the main manhole and the cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E).

- All sewer lines must be tested in accordance with 30 TAC §217.57. The engineer must retain copies of all test results which must be made available to the executive director upon request. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Testing method will be:
 - For a collection system pipe that will transport wastewater by gravity flow, the design must specify an infiltration and exfiltration test or a low-pressure air test. A test must conform to the following requirements:
 - Low Pressure Air Test.
 - A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924 or ASTM F-1417 or other procedure approved by the executive director, except as to testing times as required in Table C.3 in subparagraph (C) of this paragraph or Equation C.3 in subparagraph (B)(ii) of this paragraph.
 - For sections of collection system pipe less than 36 inch average inside diameter, the following procedure must apply, unless a pipe is to be tested as required by paragraph (2) of this subsection.
 - A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted by groundwater above the pipe.
 - Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is computed from the following equation:
$$T = \frac{0.85 \times D \times K}{Q}$$
Where:
 - T= time for pressure to drop 1.0 pound per square inch gauge in seconds
 - K= 0.0004 X D X L, but not less than 1.0
 - D= average inside pipe diameter in inches
 - L= length of line of same size being tested, in feet
 - Q= rate of loss, 0.0015 cubic feet per minute per square foot internal surface
 - Since a K value of less than 1.0 may not be used, the minimum testing time for each pipe diameter is shown in the following Table C.3:

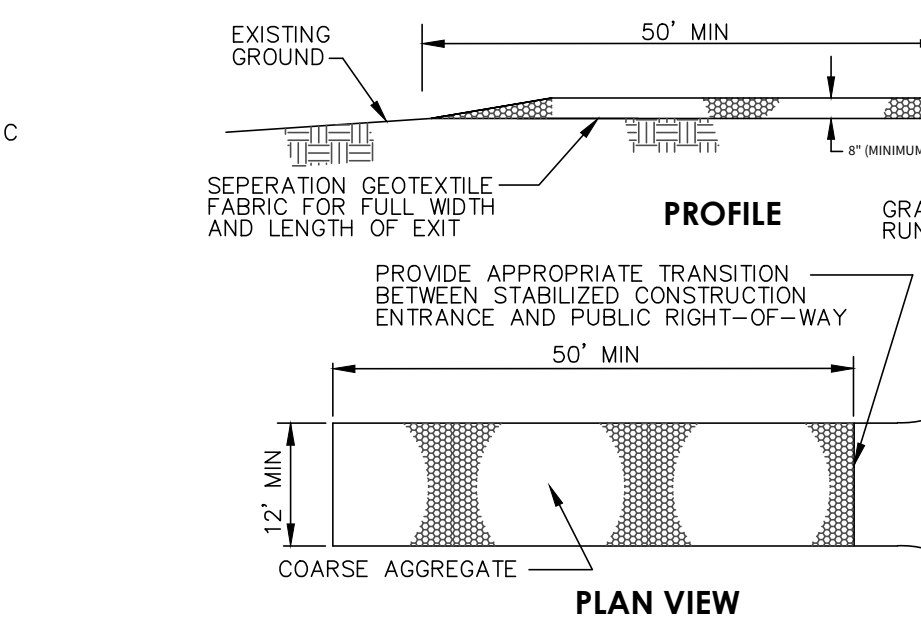
Pipe Diameter (inches)	Minimum Time (seconds)	Maximum Length for Minimum Time (feet)	Time for Longer Length (seconds/foot)
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.593
21	1190	114	10.471
24	1360	100	13.675
27	1530	86	17.309
30	1700	80	21.369
33	1870	72	25.855

- An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time.
- If any pressure loss or leakage has occurred during the first 25% of a testing period, then the test must continue for the entire test duration as outlined above or until failure.
- Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section.
- A testing procedure for pipe with an inside diameter greater than 33 inches must be approved by the executive director.

- Infiltration/Exfiltration Test.
 - The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an upstream manhole.
 - An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.
 - The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater.
- For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subparagraph (C) of this paragraph.
- If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce the infiltration or exfiltration to an amount within the limits specified. An owner shall erect a pipe following a remediation action.
 - If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed:
 - For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.
 - Mandrel Sizing.
 - A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix.
 - If a mandrel must have nine or more odd number of runners or legs, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal the average outside diameter minus two minimum wall thicknesses for OD controlled pipe and the average inside diameter for ID controlled pipe.
 - All dimensions must meet the appropriate standard.
 - Mandrel Design.
 - A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.
 - A mandrel must have nine or more odd number of runners or legs.
 - A barrel section length must equal at least 75% of the inside diameter of a pipe.
 - Each size mandrel must use a separate proving ring.
 - Method Options.
 - An adjustable or flexible mandrel is prohibited.
 - A test may not use television inspection as a substitute for a deflection test.
 - If requested, the executive director may approve the use of a deflecometer or a mandrel with removable legs or runners on a case-by-case basis.
 - For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection.
 - A deflection test method must be accurate to within plus or minus 0.2% deflection.
 - An owner shall not conduct a deflection test until at least 30 days after the final backfill.
 - Gravity collection system pipe deflection must not exceed five percent (5%).
 - If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.

- All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.
 - All manholes must pass a leakage test.
 - An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic infiltration testing, vacuum testing, or other method approved by the executive director.
- Hydrostatic Testing.
 - The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour.
- To perform a hydrostatic infiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour.
- At test for concrete manholes may use a 24-hour wetting period before testing to allow saturation of the concrete.
- Vacuum Testing.
 - To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole.
 - No grout must be placed in horizontal joints before testing.
- Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn.
- An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
- A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations.
- There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test.
- A test does not begin until after the vacuum pump is off.
- A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury.

- All private service laterals must be inspected and certified in accordance with 30 TAC 213.5(c)(3)(I). After installation of, and prior to covering and connecting a private service lateral to an existing sewerage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewerage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved sewerage collection system.



TEMPORARY CONSTRUCTION ENTRANCE/EXIT NOTES

- THE AGGREGATE SHOULD CONSIST OF 4 TO 8 INCH WASHED STONE OVER A STABLE FOUNDATION.
- THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8 INCHES.
- THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD², A MULLEN BURST RATING OF 140 LB/IN², AND AN EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.
- AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.
- THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.
- THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.
- PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.
- PLACE STONE TO DIMENSIONS AND GRADE SHOWN. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.
- THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANSUP OF ANY MEASURES USED TO TRAP SEDIMENT.
- ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON TO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
- WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
- WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
- ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE.

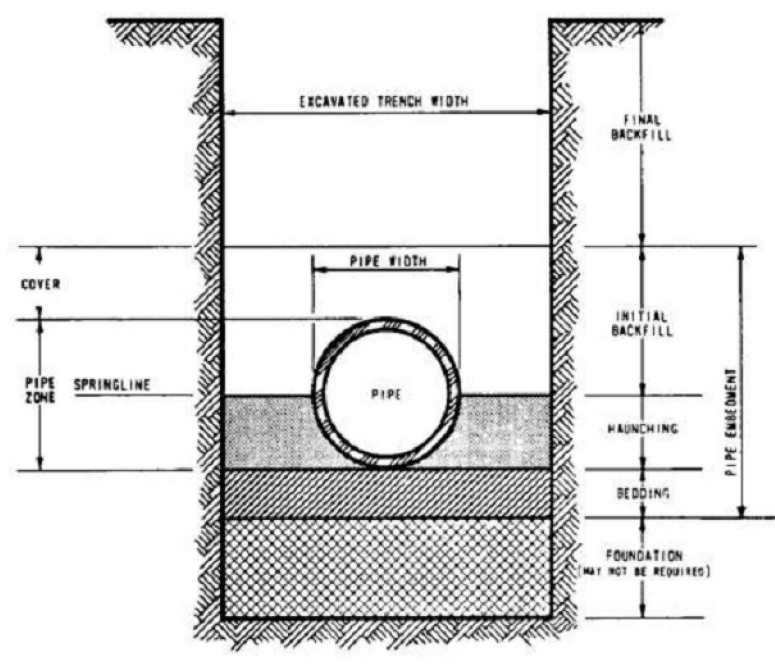
TEMPORARY CONSTRUCTION ENTRANCE/EXIT DETAIL N.T.S.

Austin Regional Office
12100 Park 38 Circle, Building A
Austin, Texas 78753-1808
Phone (512) 339-2929
Fax (512) 339-7955

San Antonio Regional Office
14250 Judson Road
San Antonio, Texas 78233-4480
Phone (210) 490-3096
Fax (210) 545-4329

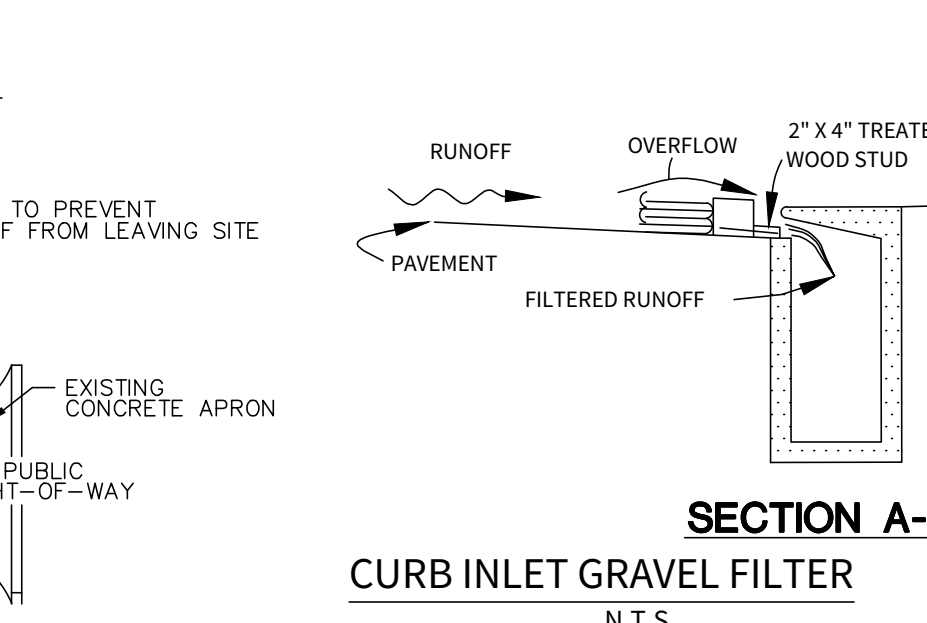
TCEQ PIPE BEDDING AND TRENCHING REQUIREMENTS (30 TAC 217.54)

- Pipe Embedment
 - A rigid pipe must be laid with the adequate bedding, haunching, and initial backfill to support the anticipated load. The bedding classes that are allowed are A, B, or C, as described in American Society for Testing and Materials (ASTM) C 12, American National Standards Institute (ANSI) A 106.2, Water Environment Federation Manual of Practice No. 9 or American Society of Civil Engineers (ASCE) MOP 37.
 - A flexible pipe must be laid with the adequate bedding, haunching, and initial backfill to support the anticipated load. The bedding classes that are allowed are IA, IB, II, or III, as described in ASTM D-2321 or ANSI K65.171.
 - Debris, large clods, or stones that are greater than six inches in diameter, organic matter, or other unstable materials are prohibited as bedding, haunching, or initial backfill.
 - Backfill must not disturb the alignment of a collection system pipe.
 - If trenching encounters significant fracture, fault zones, caves, or solutional modification to the rock strata, an owner must halt construction until an engineer prepares a written report detailing how construction will accommodate these site conditions.
- Compaction
 - Compaction of an embedment envelope must meet the manufacturer's recommendations for the collection system pipe used in a project.
 - Compaction of an embedment envelope must provide the modulus of soil reaction for the bedding material necessary to ensure a wastewater collection system pipe's structural integrity as required by §217.53 of this title relating to Pipe Design.
 - The placement of the backfill above a pipe must not affect the structural integrity of a pipe.
- Envelope Size
 - A minimum clearance of 6.0 inches below and on each side of the bell of all pipes to the trench walls and floor is required.
 - The embedment material used for haunching and initial backfill must be installed to a minimum depth of 12 inches above the crown of a pipe.
- Trench Width
 - The width of a trench must allow a pipe to be laid and jointed properly and must allow the backfill to be placed and compacted as needed.
 - The maximum and minimum trench width needed for safety and a pipe's structural integrity must be included in the report.
 - The width of a trench must be sufficient to properly and safely place and compact haunching materials.
 - The space between a pipe and a trench wall must be wider than the compaction equipment used in the pipe zone.



SAN ANTONIO WATER SYSTEM CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS

- For separation distance requirements between sewer mains & water mains, see the 30 TAC §217.53 Pipe Design notes included on this sheet.
- Corrosion protected mechanical coupling devices of a cast iron or ductile iron material shall be used.
- Plan & Profile must show type of crossing and material to use.



SECTION A-A CURB INLET GRAVEL FILTER N.T.S.

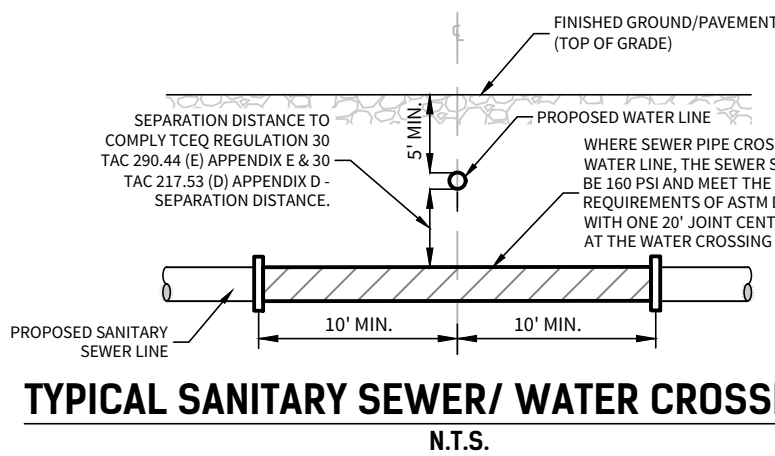
SAWS CONSTRUCTION NOTES COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT JANUARY 2022

GENERAL SECTION

- All materials and construction procedures within the scope of this contract shall be approved by the San Antonio Water System (SAWS) and comply with the Plans, Specifications, General Conditions and with the following as applicable:
 - Current Texas Commission on Environmental Quality (TCEQ) "Design Criteria for Domestic Wastewater System", Texas Administrative Code (TAC) Title 30 Part 1 Chapter 217 and "Public Drinking Water", TAC Title 30 Part 1 Chapter 290.
 - Current TCEQ "Standard Specifications for Construction of Highways, Streets and Drainage".
 - Current "San Antonio Water System Standard Specifications for Water and Sanitary Sewer Construction".
 - Current City of San Antonio "Standard Specifications for Public Works Construction".
 - Current City of San Antonio "Utility Excavation Criteria Manual" (UECM).
 - The contractor shall not proceed with any pipe installation work until they obtain a copy of the approved Counter Permit or General Construction Permit (GCP) from the consultant and has been notified by SAWS Construction Inspection Division to proceed with the work and has arranged a meeting with the inspector and consultant for the work requirements. Work completed by the contractor without an approved Counter Permit and/or a GCP will be subject to removal and replacement at the expense of the contractors and/or the developer.
 - The Contractor shall obtain the SAWS Standard Details from the SAWS website, http://www.saws.org/business_center/specs. Unless otherwise noted within the design plans.
 - The Contractor is to make arrangements with the SAWS Construction Inspection Division at (210) 233-2973, on notification procedures that will be used to notify affected home residents and/or property owners 48 hours prior to beginning any work.
 - Location and depth of existing utilities and service laterals shown on the plans are understood to be approximate. Actual locations and depths must be field verified by the Contractor at least 1 week prior to construction. It shall be the Contractor's responsibility to locate utility service lines as required for construction and to protect them during construction at no cost to SAWS.
 - The Contractor shall verify the exact location of underground utilities and drainage structures at least 1-2 weeks prior to construction whether shown on plans or not. Please allow up to 7 business days for locates requesting pipe location markers on SAWS facilities. The following contact information are supplied for verification purposes:
 - SAWS Utility Locates: <http://www.saws.org/Service/Locates>
 - COSA Drainage (210) 207-0724 or (210) 207-4026
 - COSA Traffic Signal Operators (210) 206-4460
 - COSA Traffic Signal Damages (210) 207-3951
 - Texas State Wide One Call Locator 1-800-545-6005 or 811
 - The Contractor shall be responsible for restoring existing fences, curbs, streets, driveways, sidewalks, landscaping and structures to its original or better condition if damages are made as a result of the project's construction.
 - All work in Texas Department of Transportation (TxDOT) and/or Bexar County right-of-way shall be done in accordance with respective construction specifications and permit requirements.
 - The Contractor shall comply with City of San Antonio or other governing municipality's tree ordinances when excavating near trees.
 - The Contractor shall not place any waste materials in the 100-year Flood Plain without first obtaining an approved Flood Plain Permit.
 - Holiday Work: Contractors will not be allowed to perform SAWS work on SAWS recognized holidays. Request should be sent to costworkreq@saws.org.
Weekend Work: Contractors are required to notify the SAWS Inspection Construction Department 48 hours in advance to request weekend work. Request should be sent to costworkreq@saws.org.
- Any and all SAWS utility work installed without holiday/weekend approval will be subject to be uncovered for proper inspection.
- Compaction note (Item 804): The contractor shall be responsible for meeting the compaction requirements on all trench backfill and for paying for the tests performed by a third party. Compaction tests will be done at one location point randomly selected, or as indicated by the SAWS Inspector and/or the test administrator, per each 12-inch loose lift per 400 linear feet at a minimum. This project will not be accepted and finalized by SAWS without this requirement being met and verified by providing all necessary documented test results.
 - A copy of all testing reports shall be forwarded to SAWS Construction Inspection Division.

SEWER NOTES

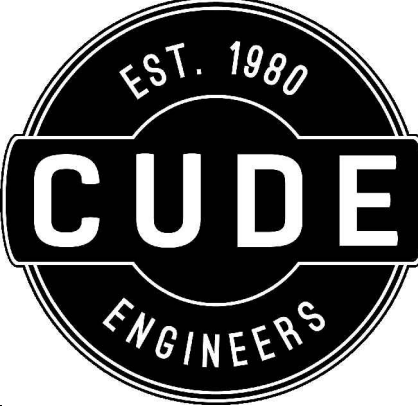
- The Contractor is responsible for ensuring that no Sanitary Sewer Overflow (SSO) occurs as a result of their work. All contractor personnel responsible for SSO prevention and control shall be trained on proper response. Should an SSO occur, the contractor shall:
 - Identify the source of the SSO and notify SAWS Emergency Operations Center (EOC) immediately at (210) 233-2014. Provide the address of the spill and an estimated volume or flow.
 - Attempt to eliminate the source of the SSO.
 - Contain sewage from the SSO to the extent of preventing a possible contamination of waterways.
 - Clean up spill site (return contained sewage to the collection system if possible) and properly dispose of contaminated soil/materials.
 - Clean the affected sewer mains and remove any debris.
 - Meet all post-SSO requirements as per the EPA Consent Decree, including line cleaning and televising the affected sewer mains (at SAWS direction) within 24 hours.Should the Contractor fail to address an SSO immediately and to SAWS satisfaction, they will be responsible for all costs incurred by SAWS, including any fines from EPA, TCEQ and/or any other Federal, State or Local Agencies. -
No separate measurement or payment shall be made for this work. All work shall be done according to guidelines set by the TCEQ and SAWS.
- If bypass pumping is required, the Contractor shall perform such work in accordance with SAWS Standard Specification for Water and Sanitary Sewer Construction, Item No. 864, "Bypass Pumping".
- Prior to tie-ins, any shutdowns of existing force mains of any size must be coordinated with the SAWS Construction Inspection Division at (210) 233-2973 at least one week in advance of the shutdown. The Contractor must also provide a sequence of work as related to the tie-ins; this is at no additional cost to SAWS or the project and it is the responsibility of the Contractor to sequence the work accordingly.
- Sewer pipe where water line crosses shall be 160 psi and meet the requirements of ASTM D2241, TAC 217.53 and TCEQ 290.44(e)(4)(B). Contractor shall center a 20' joint of 160 psi pressure rated PVC at the proposed water crossing.
- ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: It shall be the responsibility of the Contractor to make allowances and adjustments for top of manholes to match the finished grade of the project's improvements. (NSPI)
- Spills, Overflows, or Discharges of Wastewater: All spills, overflows, or discharges of wastewater, recycled water, petroleum products, or chemicals must be reported immediately to the SAWS Inspector assigned to the Counter Permit or General Construction Permit (GCP). This requirement applies to every spill, overflow, or discharge regardless of size.
- Manhole and all pipe testing (including the TV inspection) must be performed and passed prior to Final Field Acceptance by SAWS Construction Inspection Division, as per the SAWS Specifications For Water and Sanitary Sewer Construction.
- All PVC pipe over 14 feet of cover shall be extra strength with minimum pipe stiffness of 115 psi



TRENCH EXCAVATION PROTECTION

CONTRACTOR AND/OR CONTRACTORS' 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 CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTORS 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 CONTRACTORS 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.

UPPER - EAST SEWERHEAD - DOS RIOS LEON CREEK			
Developer's Name MERITAGE HOMES OF TEXAS, L.L.C.			
Developer's Address 2722 WEST BITTERS ROAD, SUITE 200			
City SAN ANTONIO		State TEXAS	Zip 78231
Phone # (210) 298-4294	Fax #		
SAWS Block Map # 156660	Total EDU's 152	Total Acreage 65.64	
Total Linear Footage of Pipe 3,899.55 L.F. OF P" SS - SDR 26		Plat No. 23-11800329	
Number of Lots 152	SAWS Job No. 23-1641		

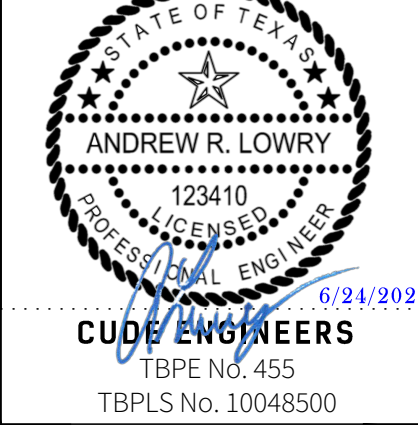


4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

ESTANCIA RANCH SUBDIVISION UNIT 3 SANITARY SEWER GENERAL NOTES

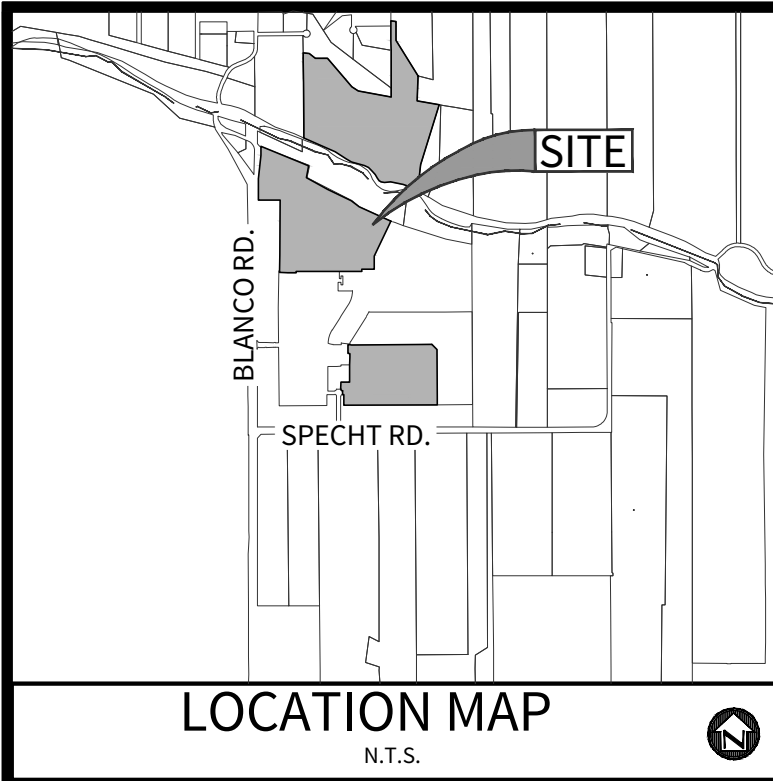
DATE 06/25/2024
PROJECT NO. 03473.010
DRAWN BY CG/TC/XV
CHECKED BY XV/AL

DATE	REVISIONS
2024-04-16	REVISED SANITARY SEWER PLAN
2024-05-24	REVISED SANITARY SEWER PLAN
2024-06-24	REVISED SANITARY SEWER PLAN



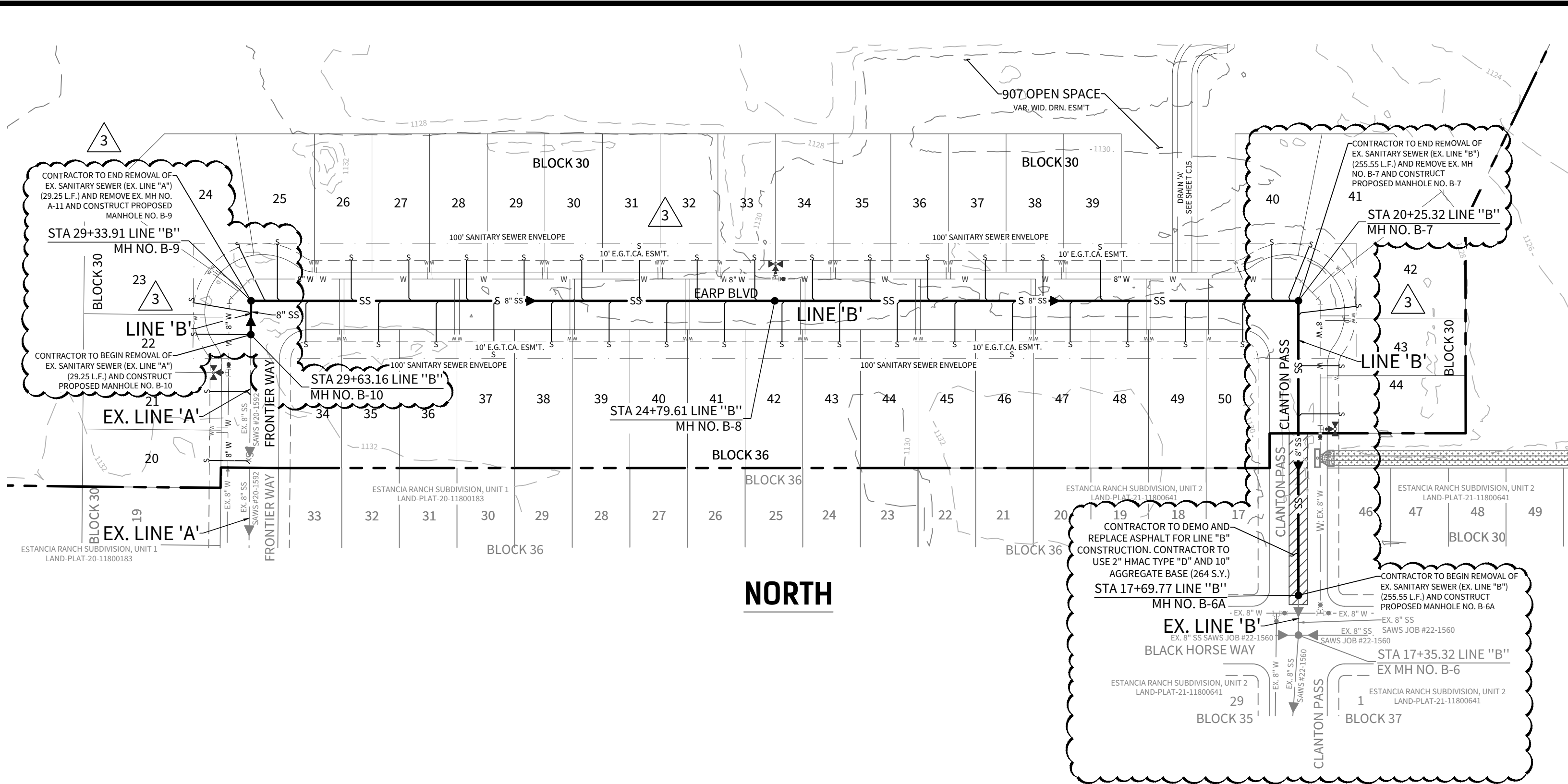
PLAT NO. 23-11800329
SAWS JOB NO. 23-1641

C25



BENCHMARK

CONTROL						
POINT NUMBER	NORTHING	EASTING	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
12	13815929.52	2128312.18	13813674.90	2127964.86	1114.23	CP/IRSC
13	13818256.61	2126292.03	13816001.60	2127944.71	1118.30	CP/IRSC
17	13816612.91	2124732.22	13814558.14	2124385.49	1129.84	CP/PK
18	13815592.94	2124253.96	13813338.37	2123907.31	1130.32	CPL/SPIN
19	13815729.39	2123700.66	13813474.80	2123354.10	1132.74	CPL/SPIN
20	13813674.89	2127964.86	13811420.64	2127617.60	1114.23	CP/IRSC
50	13814679.65	2123839.96	13812425.23	2123493.27	1128.46	BM



NOTES:

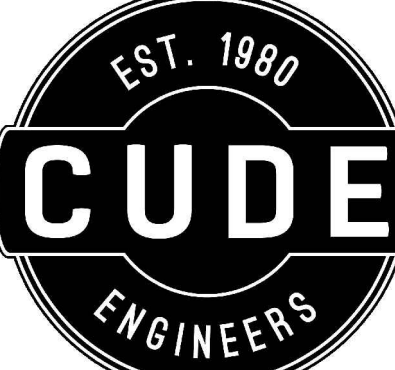
- THE LOCATION AND DEPTH OF EXISTING UTILITIES SHOWN ON THE PLANS OR MARKED IN THE FIELD ARE UNDERSTOOD TO BE APPROXIMATE ONLY AND ALL UTILITIES MAY NOT BE SHOWN. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND DEPTHS OF ALL UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL UTILITIES DURING CONSTRUCTION AND SHALL REPAIR ANY DAMAGE TO ANY UTILITY AT THEIR OWN EXPENSE. THE TEXAS UTILITY CODE REQUIRES THE CONTRACTOR TO CONTACT A NOTIFICATION CENTER AT LEAST 48 BUSINESS HOURS PRIOR TO DIGGING DEEPER THAN 16 INCHES, WITH LIMITED EXCEPTIONS.
- 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 TESTING 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. THE PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.
- CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION STAKES, MARKS, ETC. IF ANY STAKE, MARK, ETC. IS DESTROYED OR REMOVED BY THE CONTRACTOR OR THEIR EMPLOYEES, THEY WILL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ANY AND ALL PERMITS NECESSARY FOR THE CONSTRUCTION OF THE PROJECT. SUCH PERMITS MAY INCLUDE RIGHT OF WAY PERMITS, UTILITY PERMITS, FLOODPLAIN PERMITS, TRAFFIC CONTROL PLAN PERMITS, ETC.
- WHENEVER POWER POLES ARE ADJACENT TO THE PROPOSED TRENCH, THE CONTRACTOR SHALL PROVIDE PROPER SHORING OR BRACING DURING CONSTRUCTION OF THE TRENCH ACCORDING TO THE METHODS APPROVED BY THE APPROPRIATE UTILITY COMPANY. ANY DAMAGES INCURRED SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND RESTORED TO ITS ORIGINAL OR IMPROVED CONDITION TO THE SATISFACTION OF THE UTILITY OWNER.
- A WATERTIGHT AND VENTED MANHOLE WILL BE REQUIRED AT A MINIMUM OF EVERY 1,500 LINEAR FEET AND AT THE END OF EVERY LINE FOR PROJECTS WITHIN THE EDWARDS AQUIFER RECHARGE ZONE.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE PROPER CLEARANCE REQUIRED BY THE NATIONAL ELECTRICAL CODE, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), TEXAS STATE LAW VERNON'S ANNOTATED TEXAS STATUTES ARTICLE 1436 (C) PERTAINING TO CLEARANCES, WHEN WORKING IN CLOSE PROXIMITY TO OVERHEAD ELECTRICAL LINES AND EQUIPMENT, AND TEXAS STATE LAW HEALTH AND SAFETY CODE CHAPTER 752 - HIGH VOLTAGE OVERHEAD LINES.
- THE CONTRACTOR'S STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SHALL INCLUDE EROSION AND SEDIMENTATION CONTROL MEASURES FOR ALL SOIL STAGING AND STORAGE AREAS.
- THE CONTRACTOR SHALL HAVE ALL EROSION AND SEDIMENTATION CONTROL IN PLACE PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL SWPPP MEASURES AFTER EVERY RAINFALL EVENT OR EVERY 2 WEEKS.
- FOR ALL WATER MAIN CROSSINGS, THE CONTRACTOR SHALL INSTALL THE SEWER MAIN AND LATERALS IN ACCORDANCE WITH 30 TAC TITLE 30 CHAPTER 27 SUBCHAPTER C.
- DROP MANHOLES MUST BE INSTALLED PER 30 TAC 217.55 (K)(2)(G)-(H).
- ALL MANHOLES DEEPER THAN 20 FEET SHALL BE INSTALLED WITH A 6 FOOT WIDE MANHOLE IN ACCORDANCE WITH SAWS UTILITY SERVICE REGULATIONS.
- SEWER LATERALS MUST BE A MINIMUM OF SIX INCHES WITH FULL BODY FITTINGS, EXTRUDED OR FACTORY-FABRICATED, WITH A MINIMUM 2.0% SLOPE.
- CONTRACTOR TO INSTALL CONCRETE SADDLE ON EXISTING SANITARY SEWER LINE AT EVERY PROPOSED LATERAL PER SAWS SPECIFICATIONS.
- WITHIN PAVED (OR FUTURE PAVED) AREAS, MANHOLES MUST BE EITHER FIBERGLASS OR PRE-CAST CONCRETE, PER SAWS STANDARD DETAILS. PRE-CAST MANHOLES MUST CONFORM TO THE LATEST ASTM REQUIREMENTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT NO OVERFLOWS OR SPILLAGE OF SEWAGE OCCURS. THE PERSON IDENTIFIED WITH THIS RESPONSIBILITY SHALL BE ON-SITE WHEN ACTIVITIES THAT COULD RESULT IN A SPILL OR OVERFLOW ARE BEING PERFORMED. THE CONTRACTOR SHALL NOTIFY THE UTILITY PROVIDER. SHOULD AN OVERFLOW OR SPILL OCCUR CLEAN UP SHALL BE IN CONFORMANCE WITH TCEQ REGULATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN CONTINUOUS SEWER SERVICE FOR ALL ACTIVE SERVICE CONNECTIONS DURING CONSTRUCTION. WHEN BYPASS PUMPING IS NECESSARY, THE CONTRACTOR SHALL PROVIDE IN ACCORDANCE WITH SAWS ITEM NO. 864.
- FOR MANHOLES WITHIN THE 5 YEAR FLOODPLAIN, MANHOLES MUST BE SHALLOW PROFILE, MONOLITHIC STRUCTURED AND ANCHORED TO SUBGRADE.
- ALL MATERIALS AND APPURTENANCES MUST CONFORM TO SAWS' SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION AND SAWS' MATERIAL SPECIFICATIONS. PVC WASTEWATER MAINS MUST BE A MINIMUM SDR 26 (ASTM D3034).
- WHERE A MINIMUM COVER FROM THE TOP OF THE SEWER PIPE TO THE SURFACE OF THE GROUND IS LESS THAN THREE FEET, THE WASTEWATER MAIN MUST BE ENCASED WITH 2000 PSI CONCRETE WITH A MINIMUM THICKNESS OF SIX INCHES.
- CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF 72 HOURS PRIOR TO ANY CONSTRUCTION STAKING, MANHOLE OR SEWER MAIN TESTING.
- ANY CAVES OR SENSITIVE GEOLOGICAL FEATURES FOUND DURING CONSTRUCTION MUST BE REPORTED TO THE ENGINEER WITHIN 24 HOURS AND TEMPORARY BMPs MUST BE INSTALLED IMMEDIATELY AROUND THE FEATURE.
- THE CONTRACTOR SHALL REFERENCE THE APPROVED TREE PLAN FOR INFORMATION ABOUT THE PRESERVATION AND REMOVAL OF TREES IN THE VICINITY OF THE PROJECT WORKS AREAS. THE CONTRACTOR IS REQUIRED TO CONDUCT ANY AND ALL PRECONSTRUCTION MEETINGS AND INSTALL ALL APPROPRIATE PROTECTION FENCING PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR IS REQUIRED TO PROVIDE ACCESS TO ALL ADJACENT HOMEOWNERS AND DRIVEWAYS AT ALL TIMES.
- THE CONTRACTOR IS REQUIRED TO NOTIFY INDIVIDUAL PROPERTY OWNERS A MINIMUM OF 48 HOURS PRIOR TO ACCESSING THEIR PROPERTY WITHIN THE PROJECT EASEMENTS.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING 85% REVEGETATION OF ALL LIMITS OF THE PROJECT EASEMENT AND/OR RIGHT OF WAY DISTURBED LIMITS. PLEASE REFERENCE ITEM 520 HYDROMULCHING FROM THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING POSITIVE DRAINAGE AT ALL TIMES DURING CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION, ANY DAMAGES DONE TO EXISTING FENCES, CONCRETE ISLANDS, STREET PAVING, CURBS, LANDSCAPING OR DRIVEWAYS, FIRE HYDRANTS, VALVES, RIGHT WAY MONUMENTS, GATES, ETC.
- THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING THE TRAFFIC CONTROL PLAN IN ACCORDANCE WITH MUTCD STANDARDS. THE CONTRACTOR SHALL COORDINATE WITH THE JURISDICTIONAL INSPECTOR TO DETERMINE PROJECT WORK HOURS PRIOR TO THE START OF CONSTRUCTION WITHIN THE RIGHT OF WAY.
- EDWARDS AQUIFER RECHARGE ZONE AND CONTRIBUTING ZONE BOUNDARIES SHOWN ARE BASED ON GIS DATA PROVIDED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

TRENCH EXCAVATION PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGNER/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND 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.

SOUTH



4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F:(210) 523.7112

ESTANCIA RANCH SUBDIVISION

UNIT 3

OVERALL SANITARY SEWER PLAN

DATE
07/16/2024
PROJECT NO.
03473.010

DRAWN BY
CG/TC/DXV

CHECKED BY
XV/JAL

DATE	REVISIONS
1. 2024-04-16	1. AGED NOT FOR CONSTRUCTION
2. 2024-04-30	2. REVISIONS
3. 2024-05-19	3. REVISIONS
4. 2024-07-16	4. REVISIONS



CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
23-11800329

SAWS JOB NO.
23-1641

C26

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TRENCH EXCAVATION PROTECTION

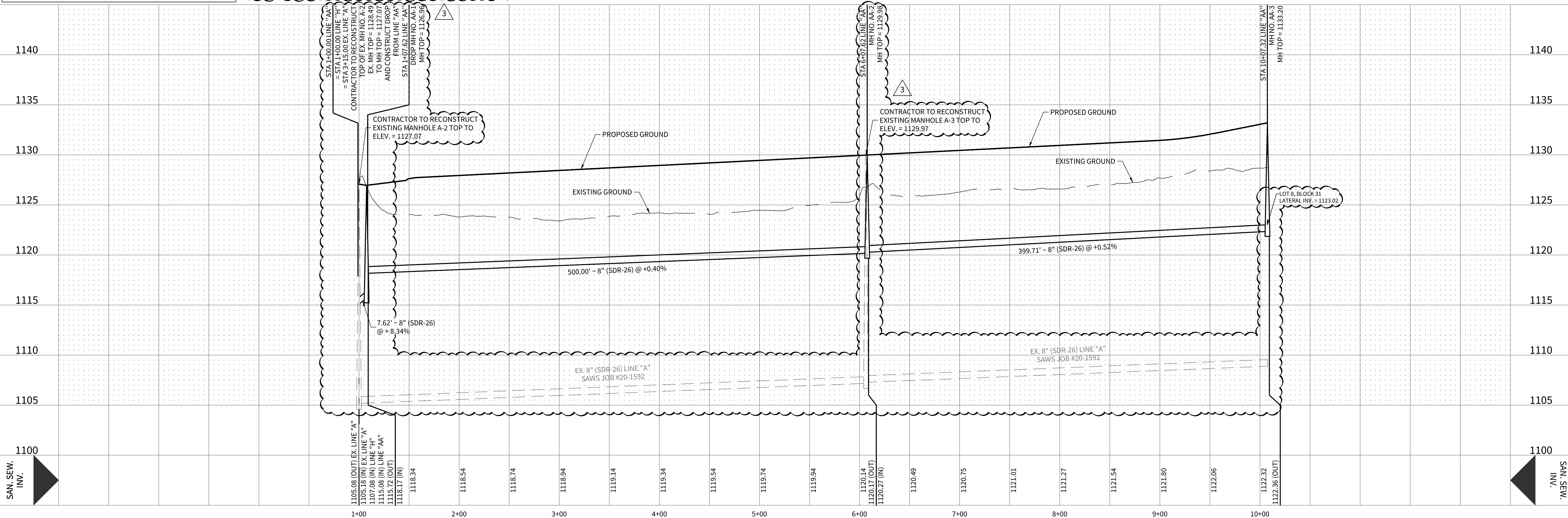
CONTRACTOR AND/OR CONTRACTORS INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S 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 CONTRACTORS 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.

UPPER - EAST SEWERSHED - DOS RIOS \ LEON CREEK

Developer's Name: HERITAGE HOMES OF TEXAS, L.L.C.
Developer's Address: 2722 WEST BITTERS ROAD, SUITE 200
City: SAN ANTONIO State: TEXAS Zip: 78231
Phone #: (210) 298-4294 Fax #:
SAWS Block Map #: 156690 Total EDU's: 152 Total Acreage: 65.64
Total Linear Footage of Pipe: 3,899.55 L.F. OF 8" SDR-26 Plat No.: 23-11800329
Number of Lots: 152 SAWS Job No.: 23-1641

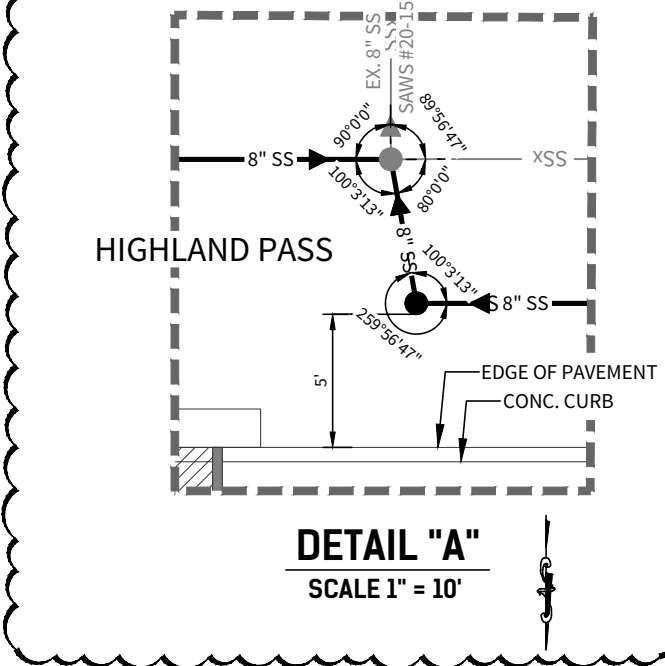
LINE "AA"

STA. 1+00.00 TO STA. 10+07.32



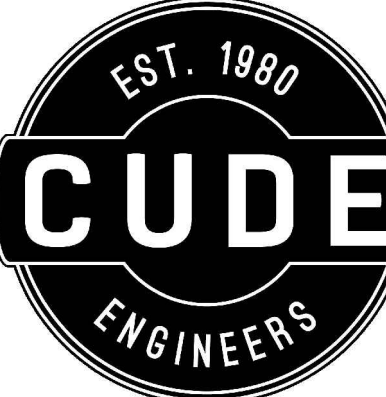
LEGEND

OVERALL UNIT BOUNDARY
PROPOSED LOT LINE
PROPOSED RIGHT OF WAY
E.G.T.C.A. EASEMENT
SANITARY SEWER ENVELOPE
EXISTING 2' CONTOUR
EXISTING 10' CONTOUR
EXISTING WATER LINE
EXISTING SEWER LINE
EXISTING MANHOLE
PROPOSED WATER LINE
PROPOSED SEWER MAIN
PROPOSED MANHOLE
CLEANOUT PER SAWS
DETAIL DD-854-02 SHT 1 OF 3
& DD-854-EARZ



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

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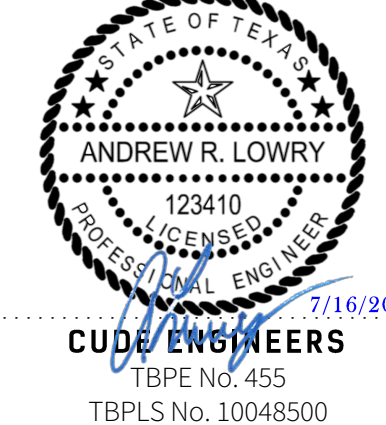
ESTANCIA RANCH SUBDIVISION

UNIT 3

SANITARY SEWER PLAN & PROFILE LINE AA

DATE
07/16/2024
PROJECT NO.
03473.010
DRAWN BY
CG/TCD/XV
CHECKED BY
XV/AL

DATE	REVISIONS
1. 2024-04-16	1. ADDED UNIT 3 SANITARY SEWER PLAN & PROFILE LINE AA
2. 2024-04-30	2. REV. LOT NUMBERS
3. 2024-06-24	3. REVISED UNIT 3 SANITARY SEWER PLAN & PROFILE LINE AA
4. 2024-07-16	4. ADDED CURRENT FINAL REF.



CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
23-11800329
SAWS JOB NO.
23-1641

C27

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TRENCH EXCAVATION PROTECTION

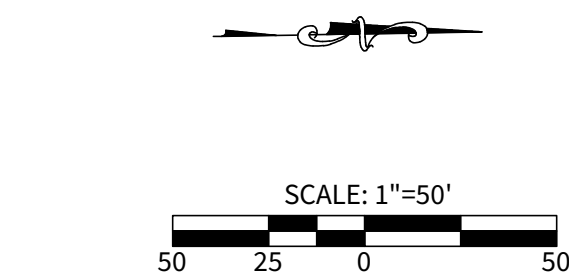
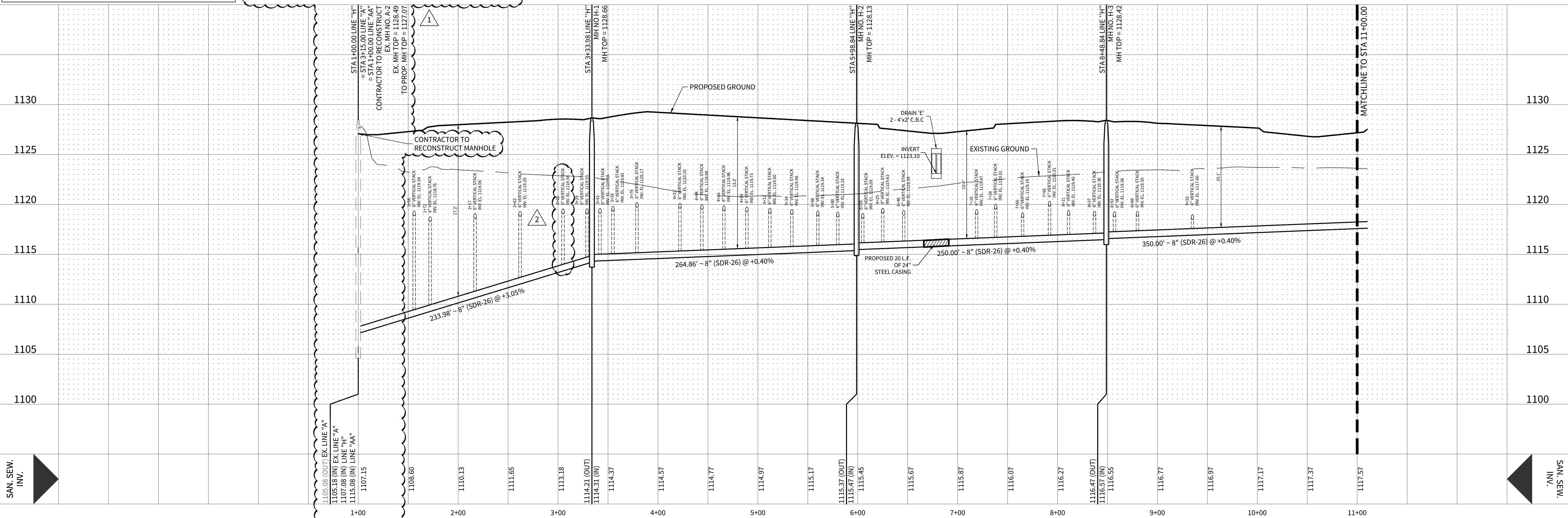
CONTRACTOR AND/OR CONTRACTORS' INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S 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 CONTRACTORS' 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.

UPPER - EAST SEWERSHED - DOS RIOS \ LEON CREEK

Developer's Name	MERITAGE HOMES OF TEXAS, L.L.C.		
Developer's Address	2722 WEST BITTERS ROAD, SUITE 200		
City	SAN ANTONIO	State	TEXAS
Phone #	(210) 298-4294	Fax #	
SAWS Block Map #	156690	Total EDU's	152
Total Linear Footage of Pipe	3,899.55 L.F. OF 8" SDR-26	Plat No.	23-11800329
Number of Lots	152	SAWS Job No.	23-1641

LINE "H"

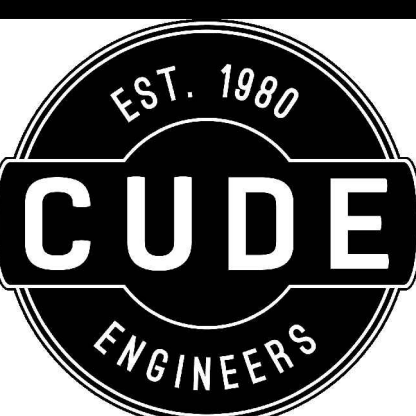
STA. 1+00.00 TO STA. 11+00.00



LEGEND

OVERALL UNIT BOUNDARY	---
PROPOSED LOT LINE	---
PROPOSED RIGHT OF WAY	---
E.G.T.CA. EASEMENT	---
SANITARY SEWER ENVELOPE	---
EXISTING 2' CONTOUR	---
EXISTING 10' CONTOUR	---
EXISTING WATER LINE	---
EXISTING SEWER LINE	---
EXISTING MANHOLE	●
PROPOSED WATER LINE	W
PROPOSED SEWER MAIN	SS
PROPOSED MANHOLE	●
CLEANOUT PER SAWS DETAIL DD-854-02 SHT 1 OF 3 & DD-854-EARZ	●

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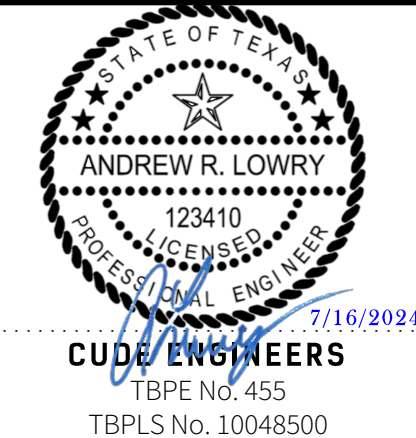
ESTANCIA RANCH SUBDIVISION

UNIT 3

SANITARY SEWER PLAN & PROFILE LINE H

DATE
07/16/2024
PROJECT NO.
03473.010
DRAWN BY
CG/TCD/XV
CHECKED BY
XV/AL

DATE	REVISIONS
1. 2024-04-16	ISSUED FOR PERMITS
2. 2024-05-24	REVISED SANITARY SEWER PLAN & PROFILE LINE H
3. 2024-07-16	FINAL DESIGN



CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
23-11800329
SAWS JOB NO.
23-1641

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TRENCH EXCAVATION PROTECTION

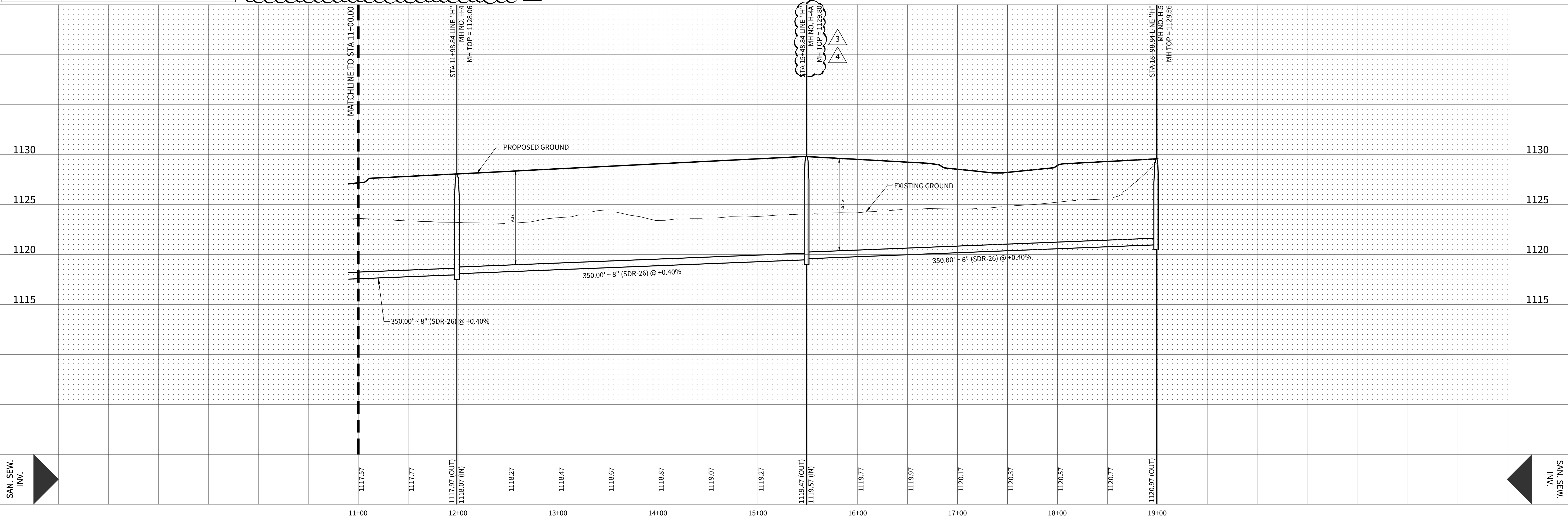
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Developer's Name	MERITAGE HOMES OF TEXAS, L.L.C.		
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Number of Lots	152	SAWS Job No.	23-1641

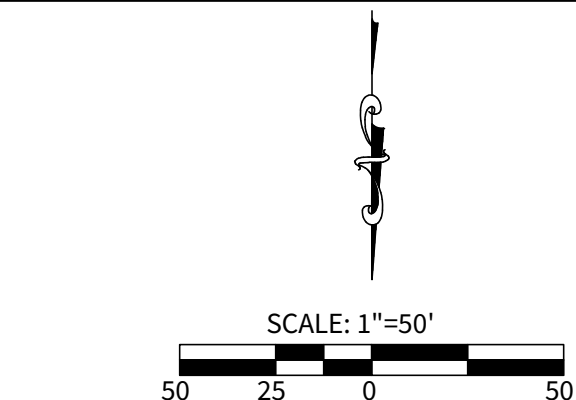
LINE "H"

STA. 11+00.00 TO STA. 18+98.84



SAN. SEW.
INV.

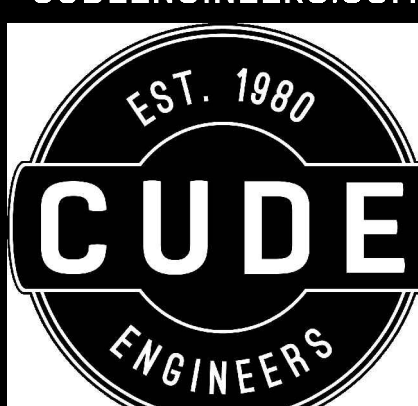
SAN. SEW.
INV.



LEGEND

OVERALL UNIT BOUNDARY	---
PROPOSED LOT LINE	---
PROPOSED RIGHT OF WAY	---
E.G.T.C.A. EASEMENT	---
SANITARY SEWER ENVELOPE	---
EXISTING 2' CONTOUR	---
EXISTING 10' CONTOUR	---
EXISTING WATER LINE	---
EXISTING SEWER LINE	---
EXISTING MANHOLE	●
PROPOSED WATER LINE	---
PROPOSED SEWER MAIN	---
PROPOSED MANHOLE	●
CLEANOUT PER SAWS DETAIL DD-854-02 SHT 1 OF 3 & DD-854-EARZ	---

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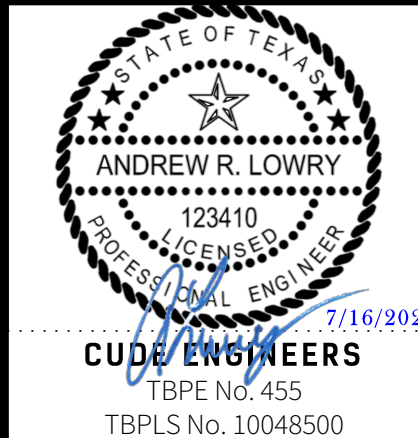
ESTANCIA RANCH SUBDIVISION

UNIT 3

SANITARY SEWER PLAN & PROFILE LINE H

DATE
07/16/2024
PROJECT NO.
03473.010
DRAWN BY
CG/TC/DXV
CHECKED BY
XV/AL

DATE	REVISIONS
1. 2024-04-16	REVISED SAWS BLOCK
2. 2024-04-30	REVISED BLOCK NUMBERS
3. 2024-06-24	REVISED BLOCK NUMBERS
4. 2024-07-16	REVISED BLOCK NUMBERS
5. 2024-07-16	REVISED BLOCK NUMBERS
6. 2024-07-16	REVISED BLOCK NUMBERS
7. 2024-07-16	REVISED BLOCK NUMBERS
8. 2024-07-16	REVISED BLOCK NUMBERS
9. 2024-07-16	REVISED BLOCK NUMBERS

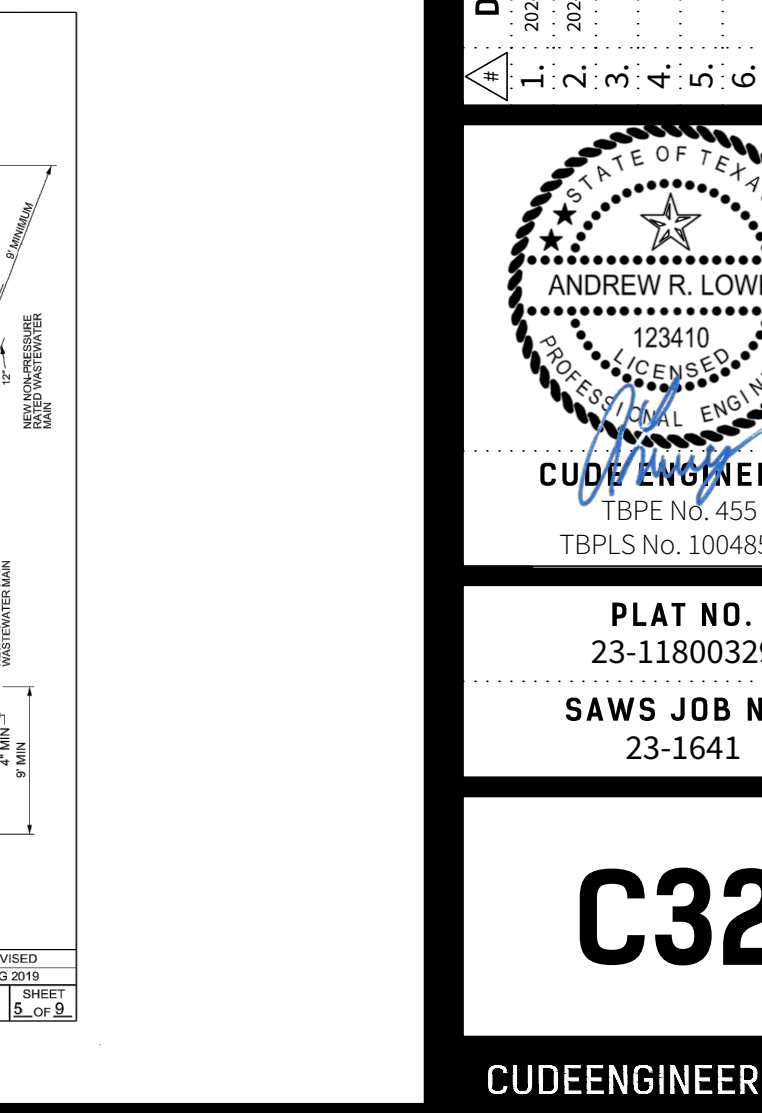
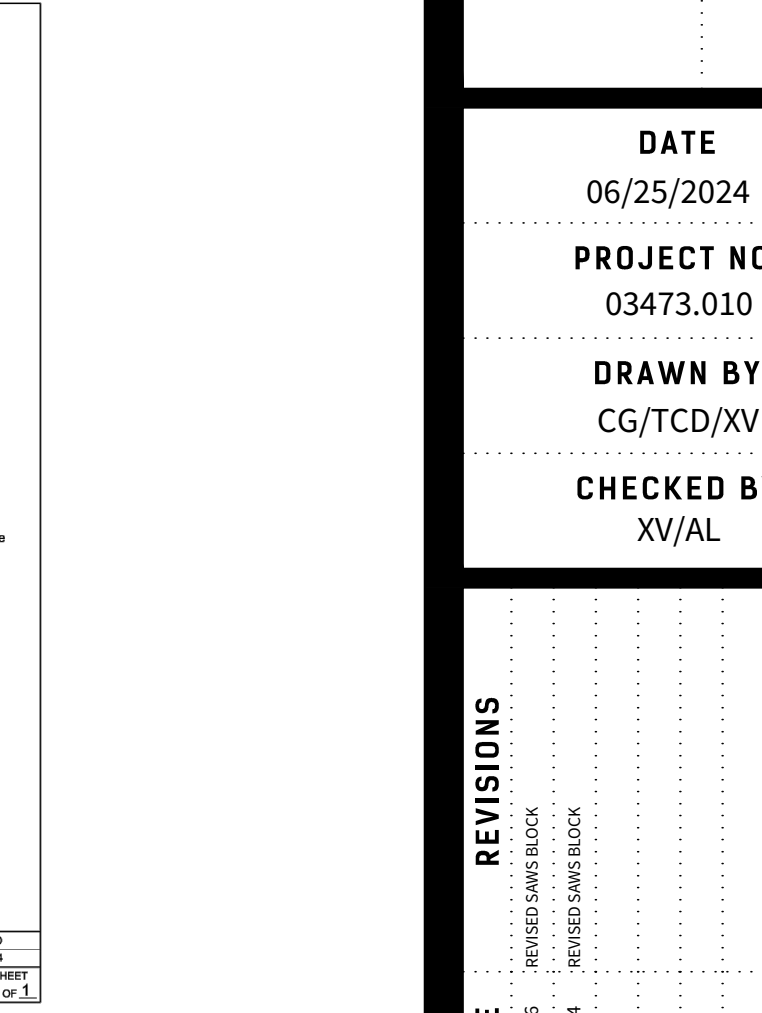
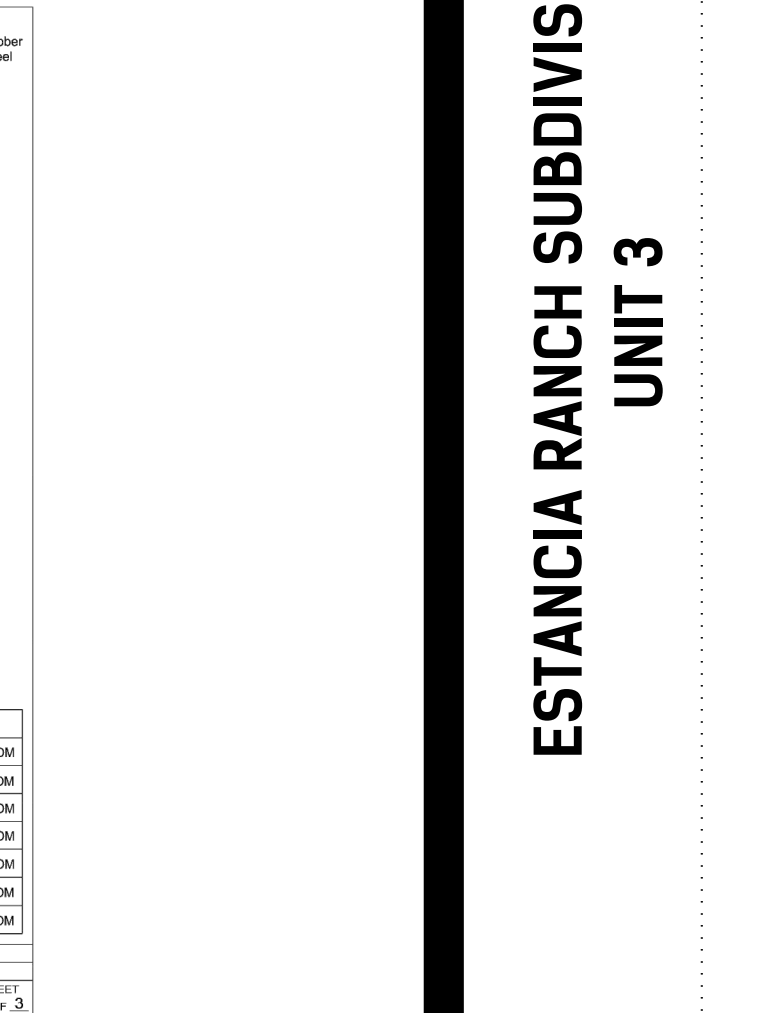
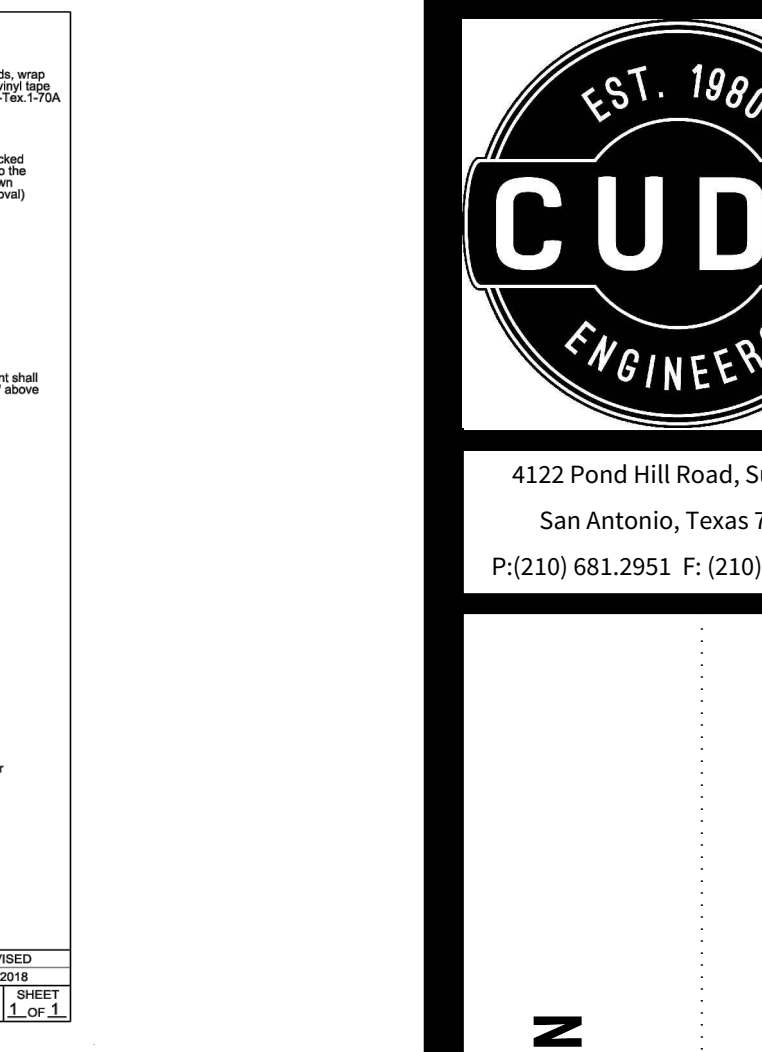
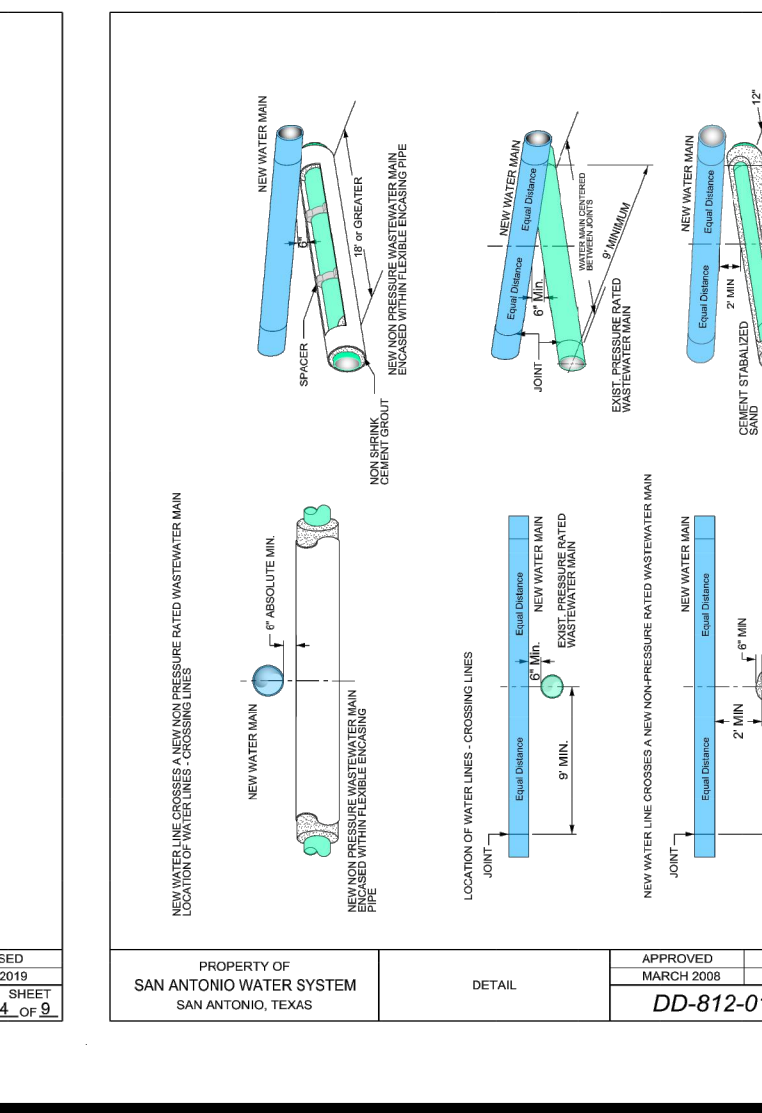
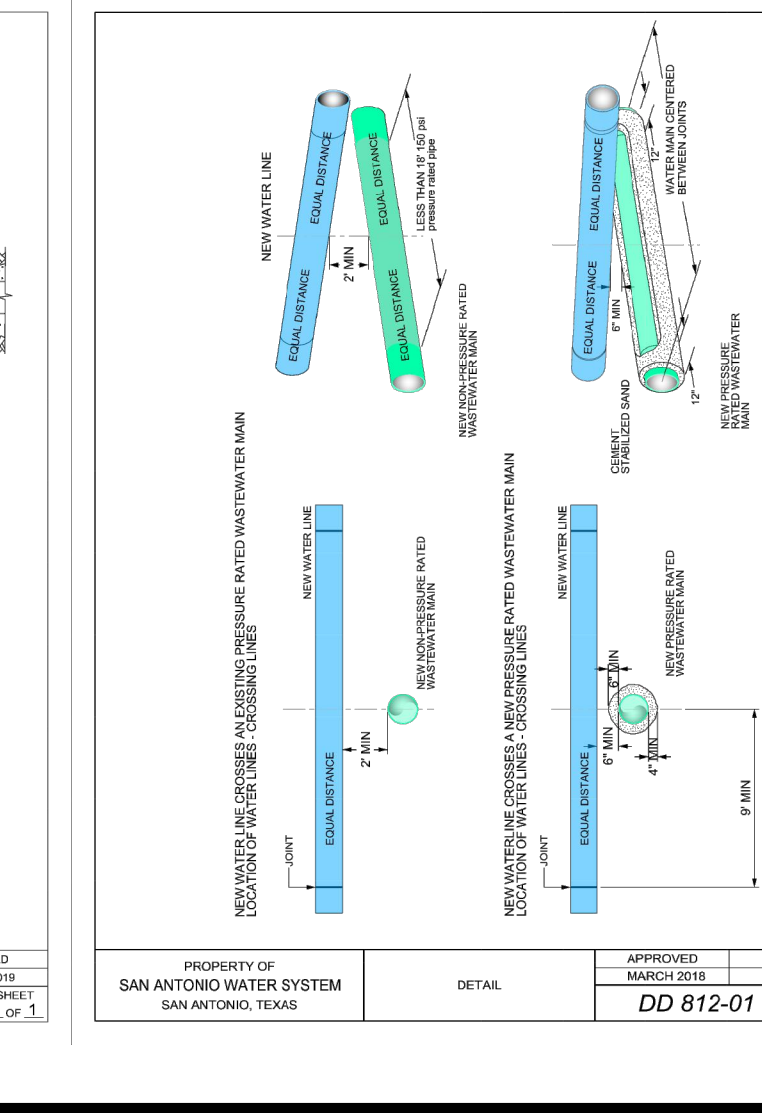
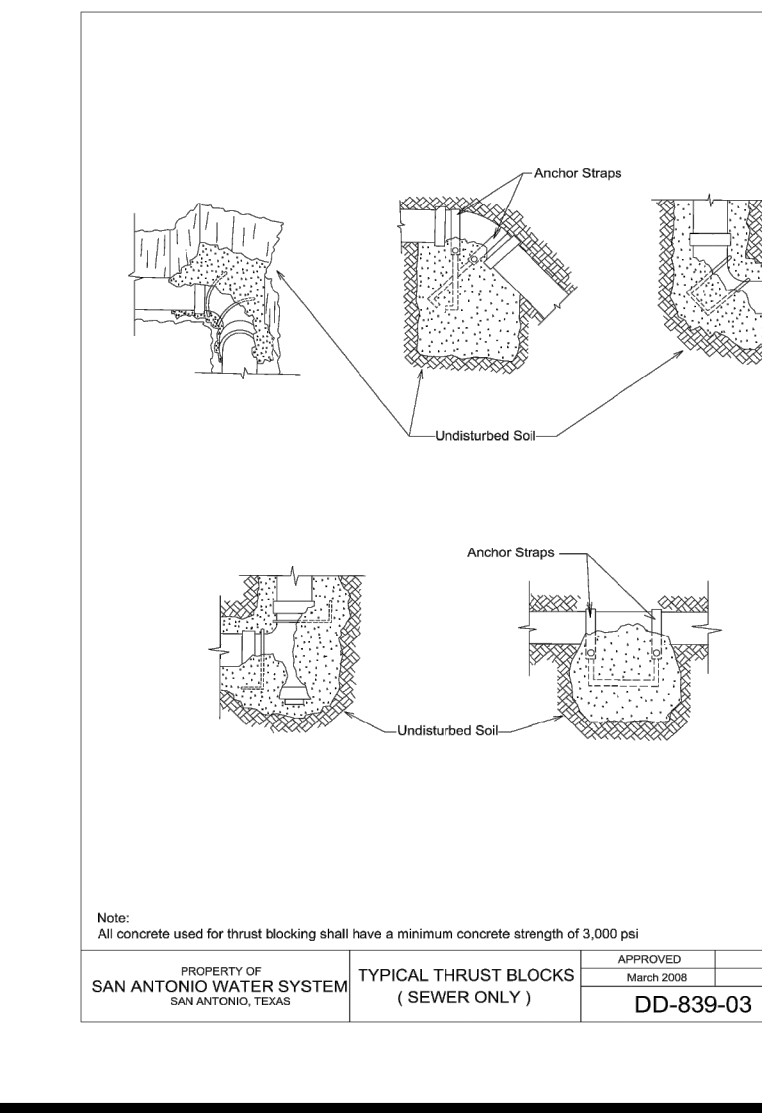
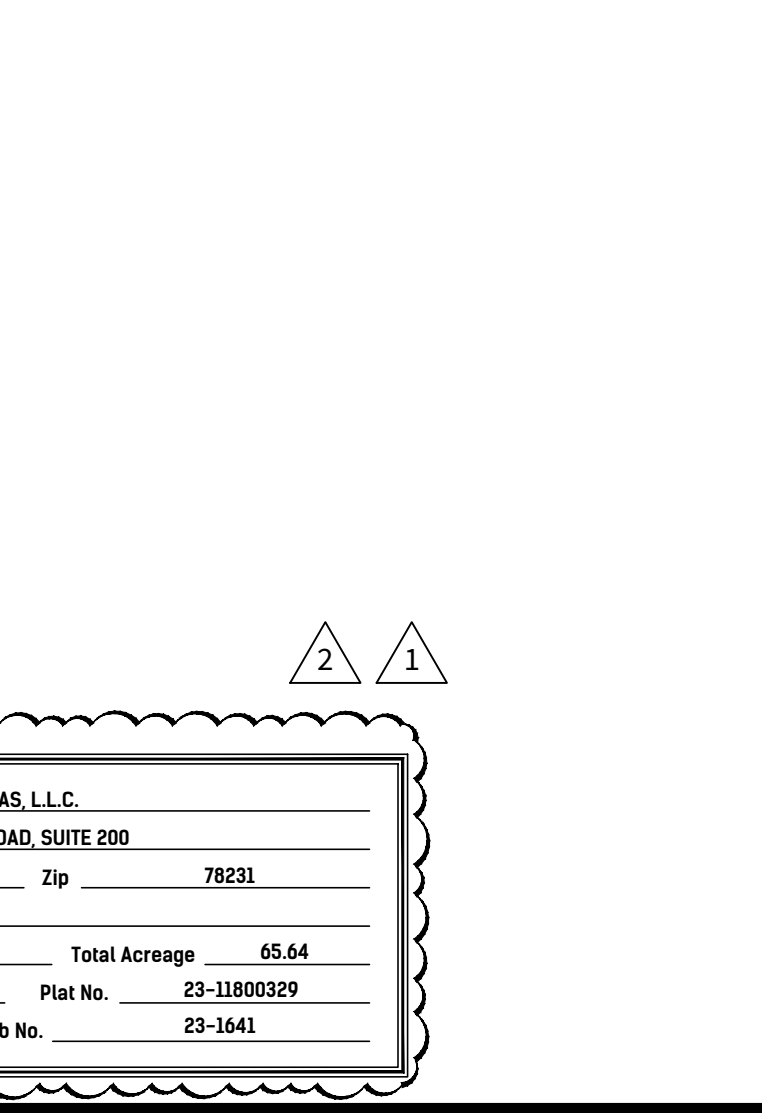
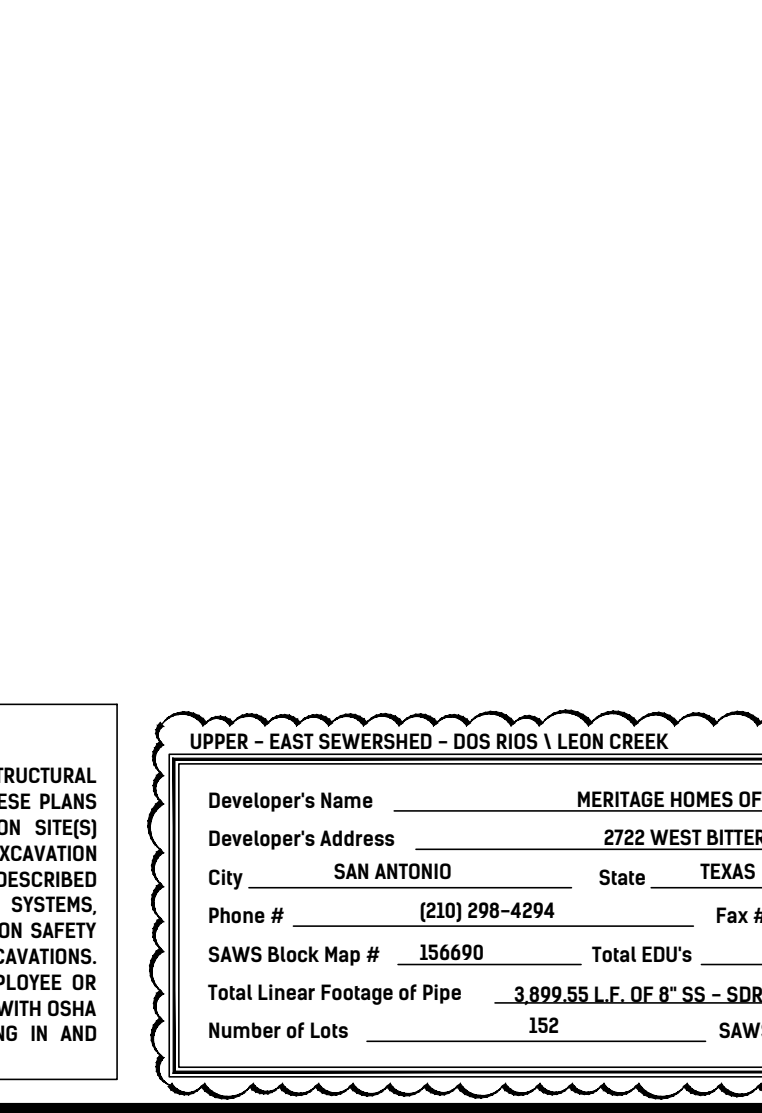
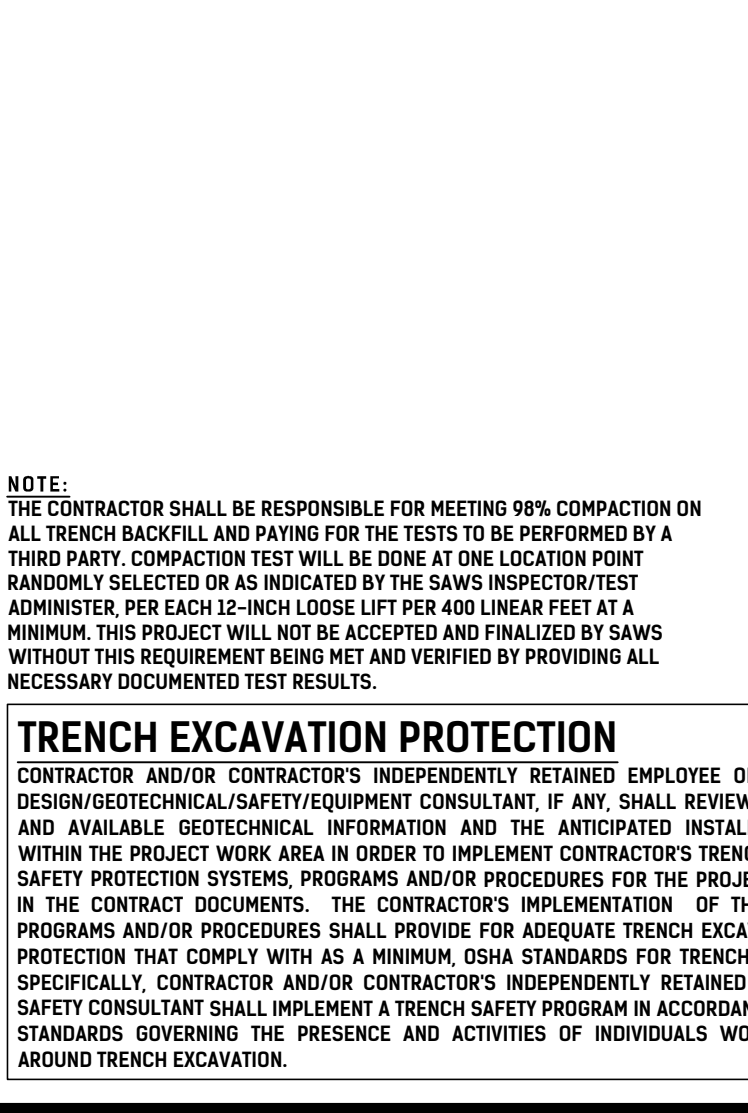
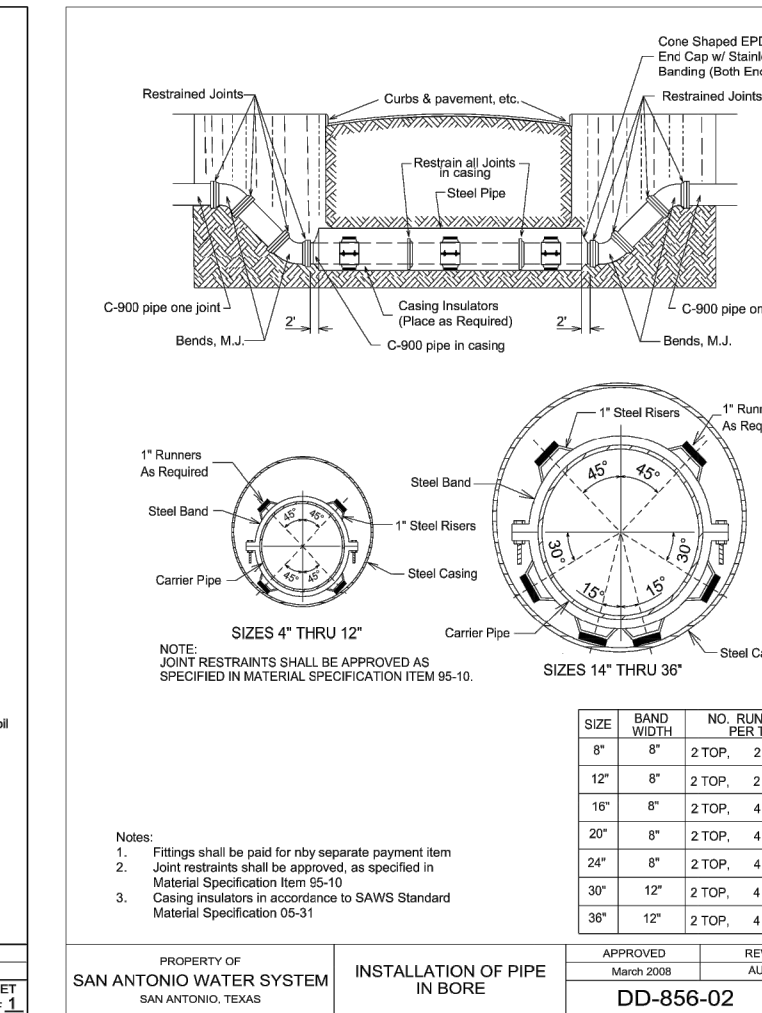
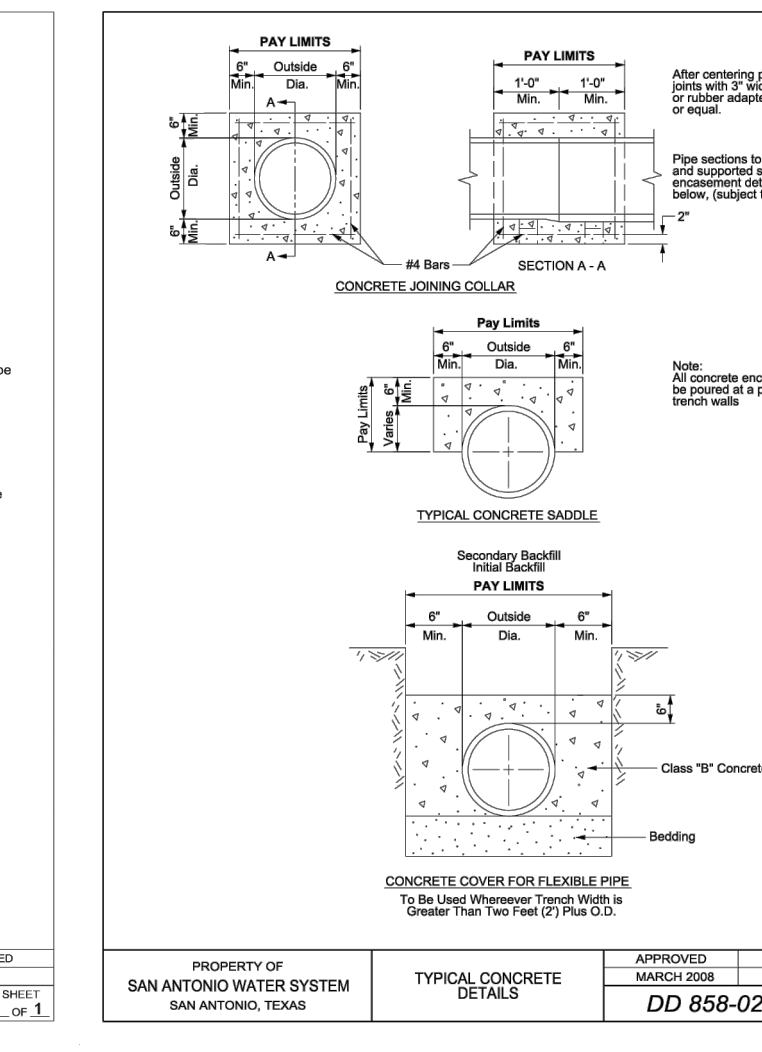
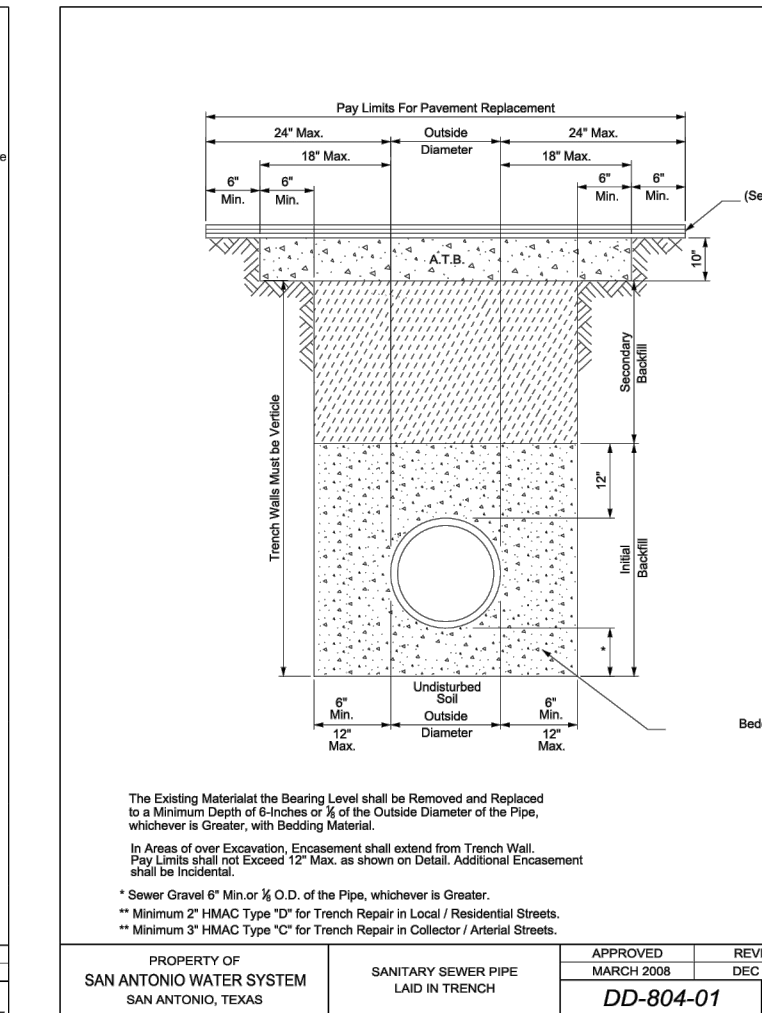
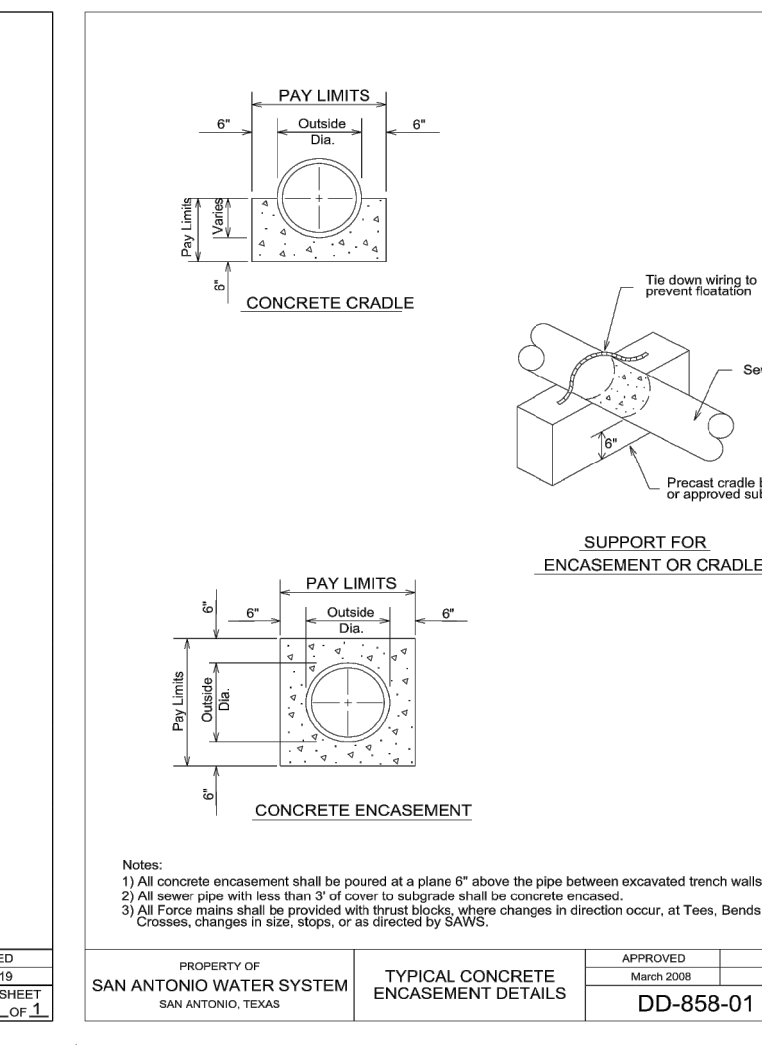
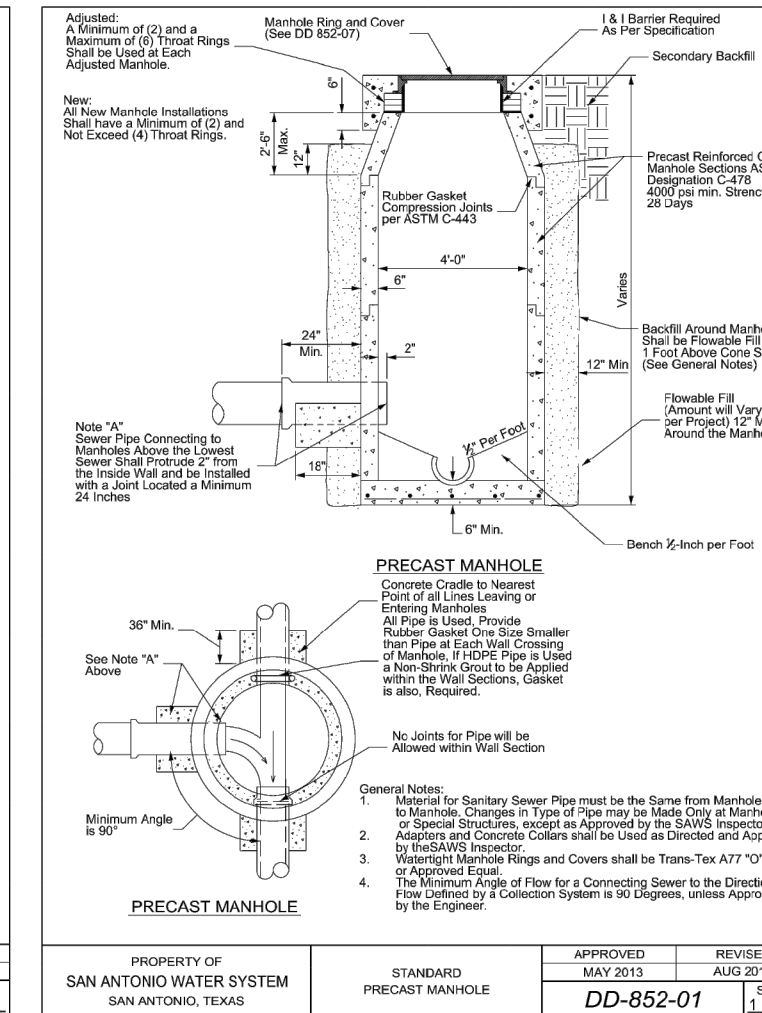
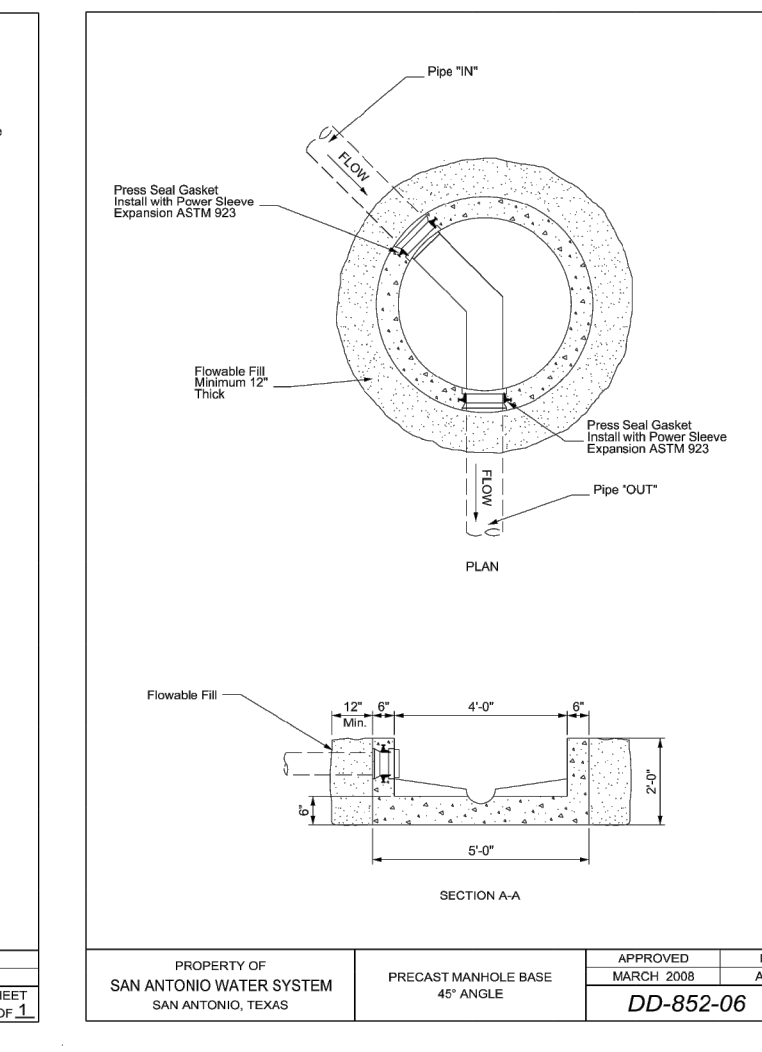
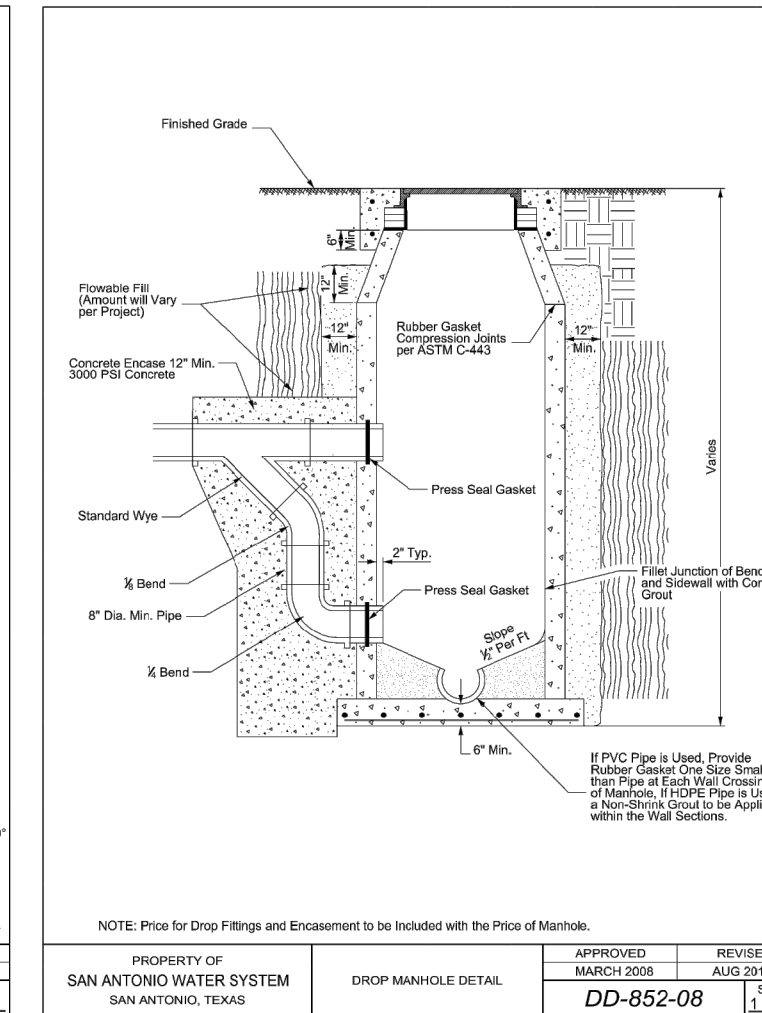
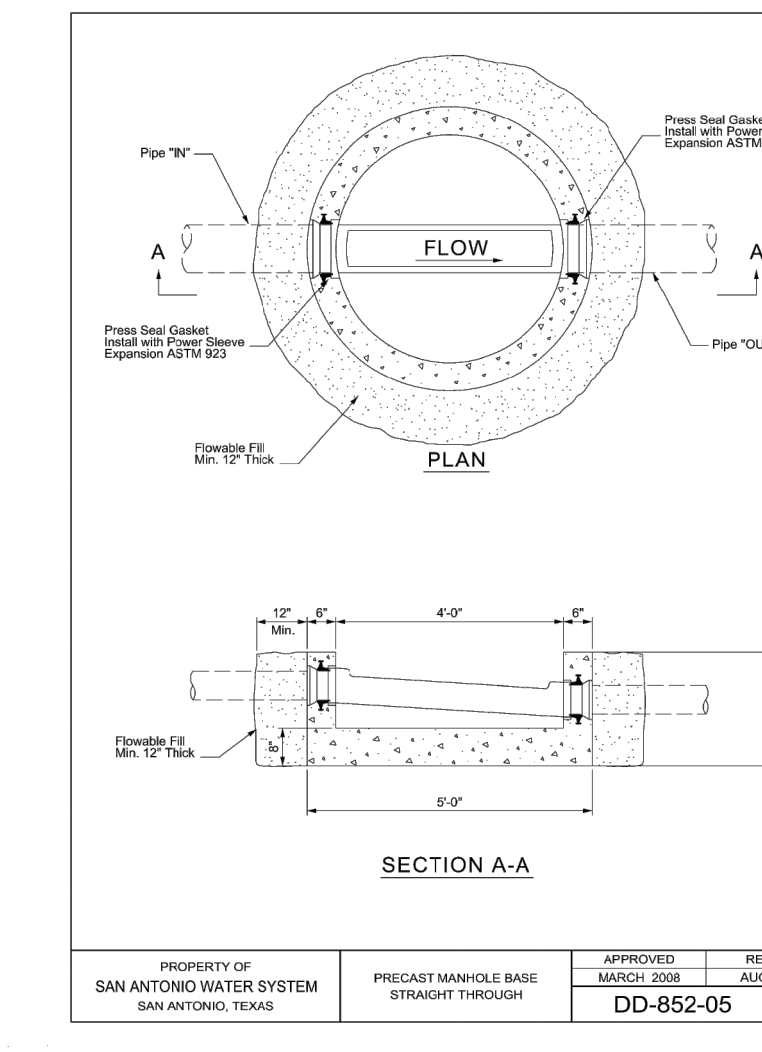
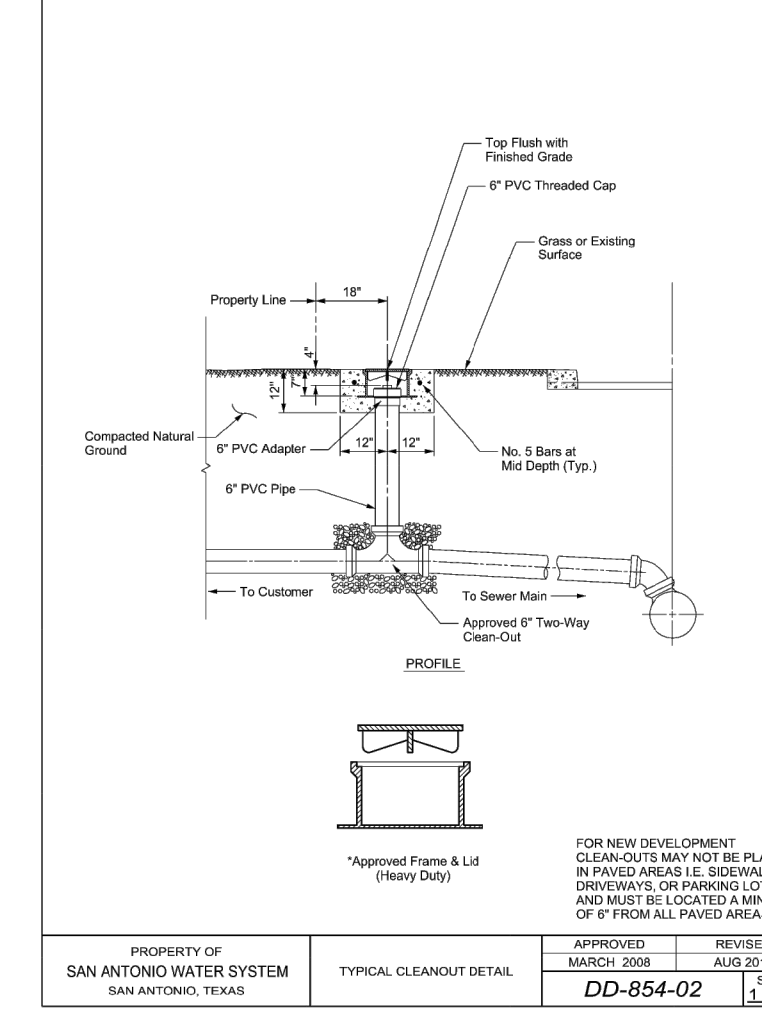
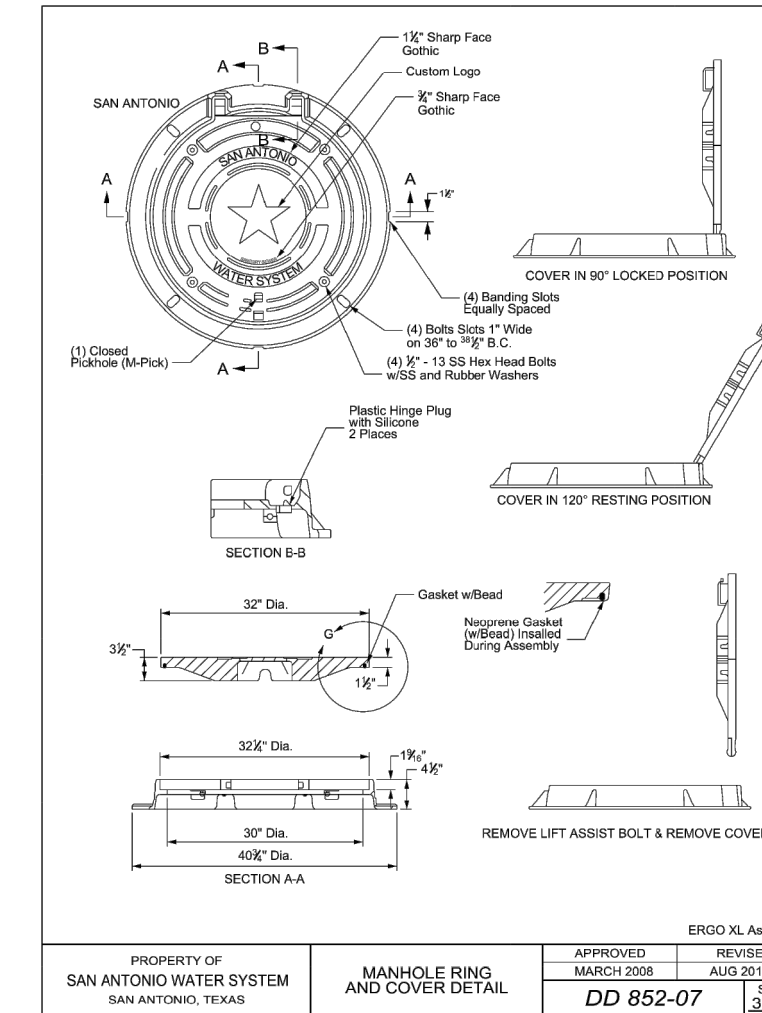
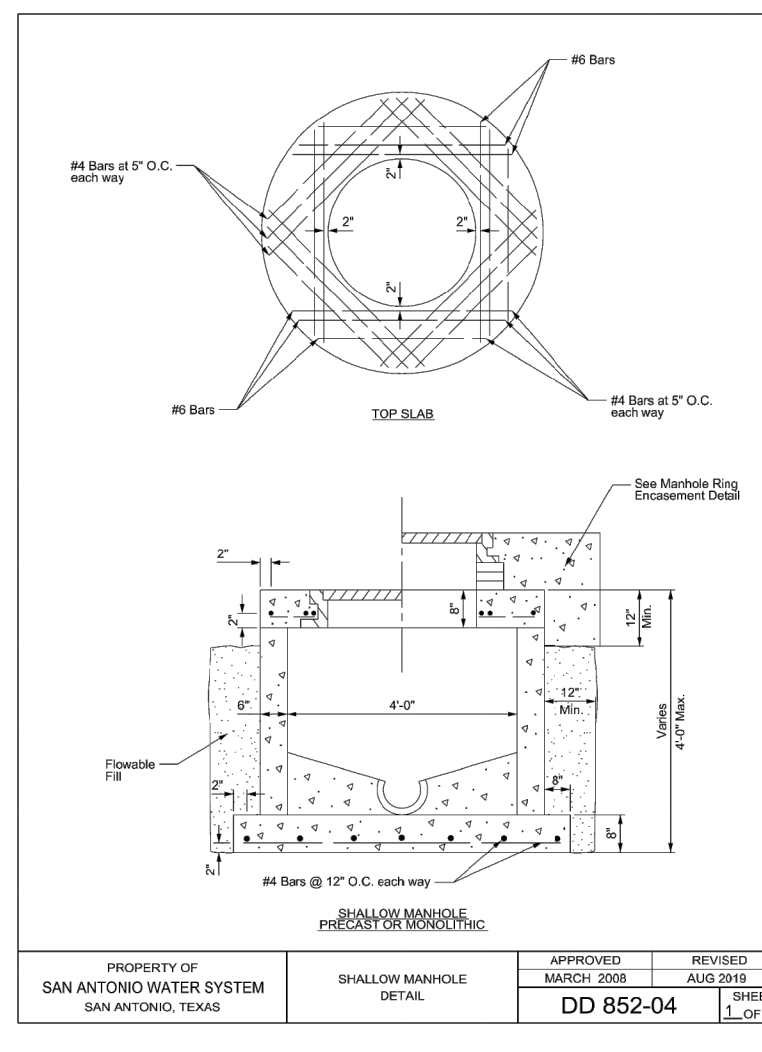
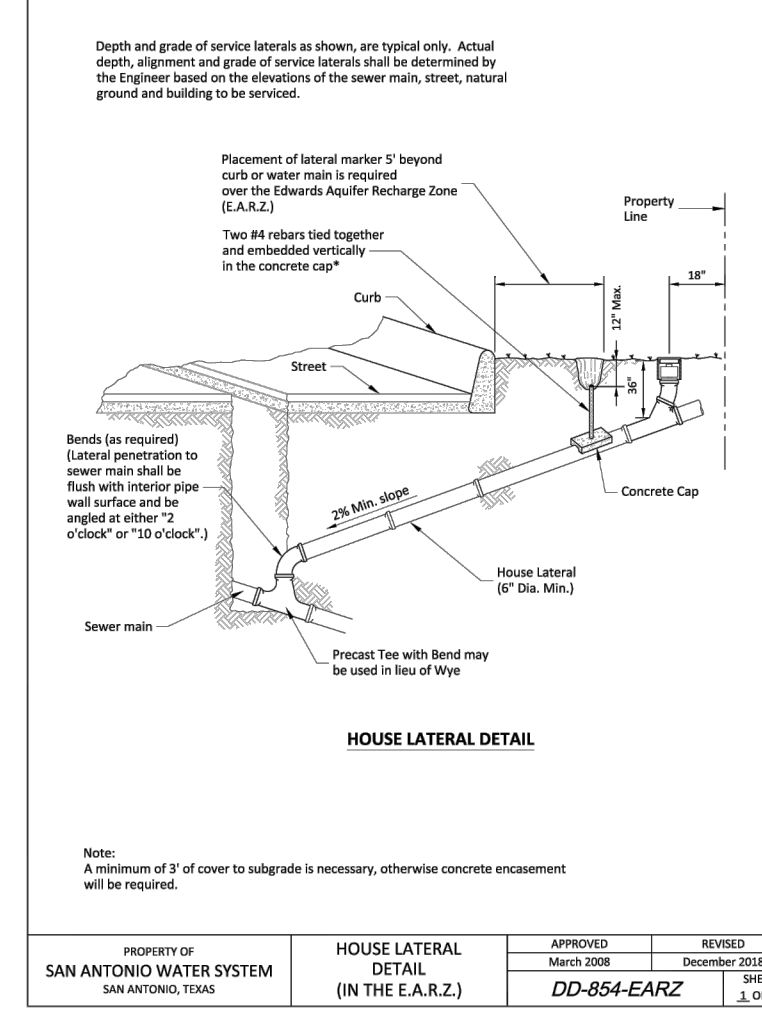
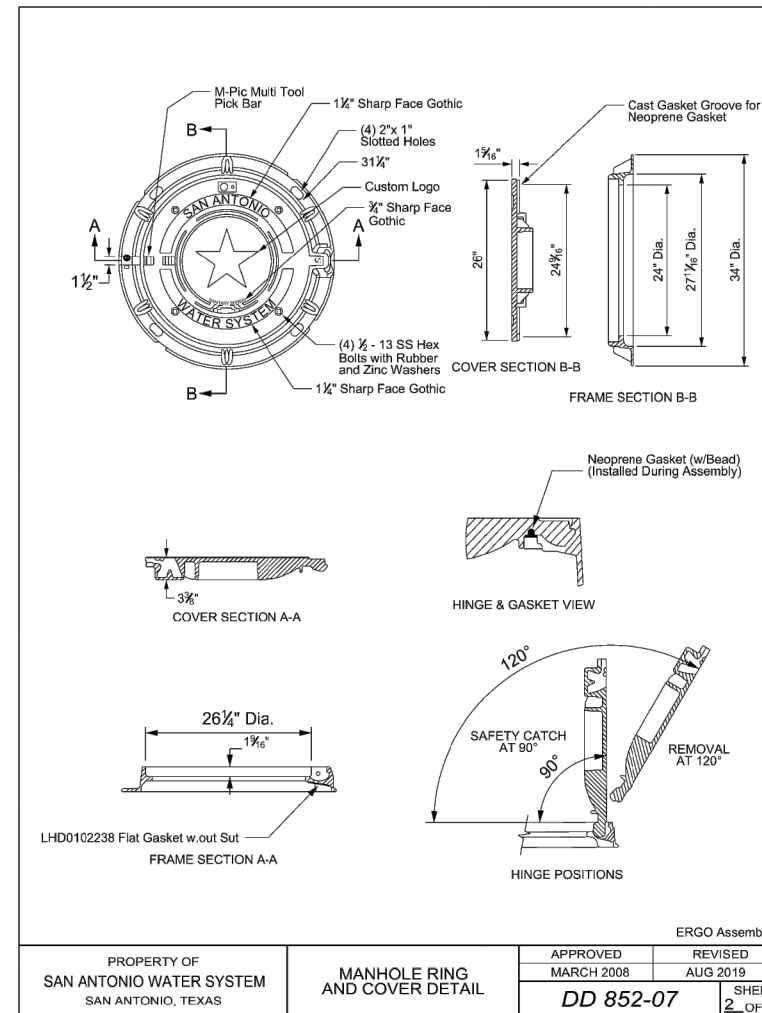
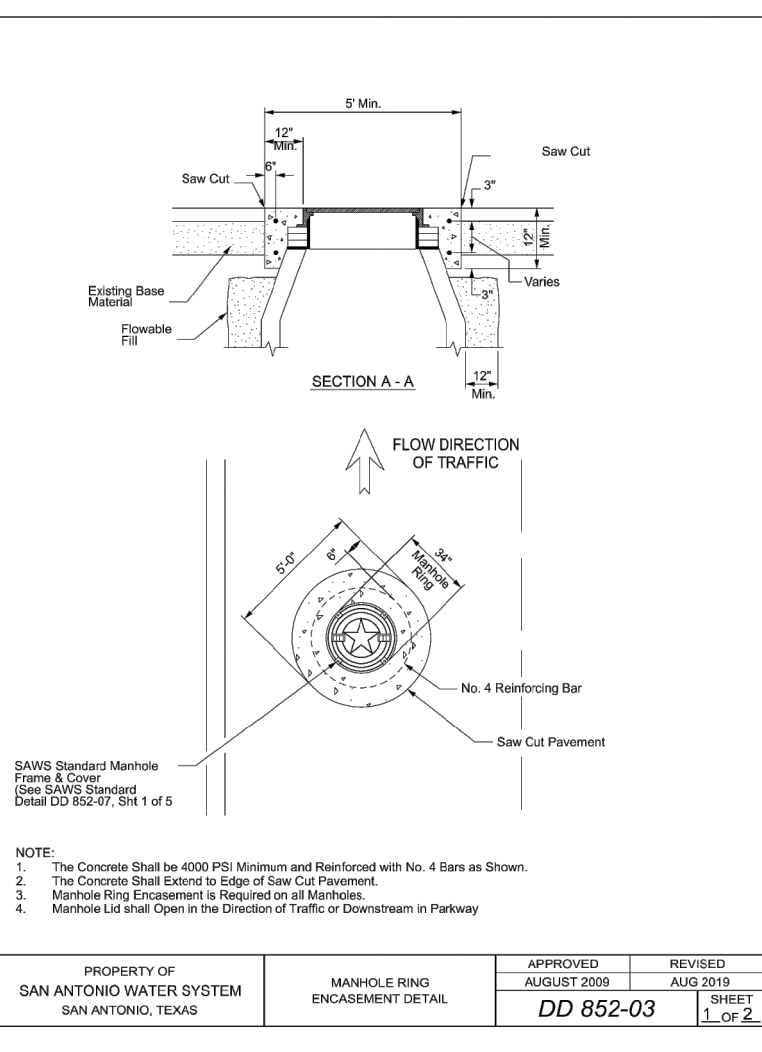
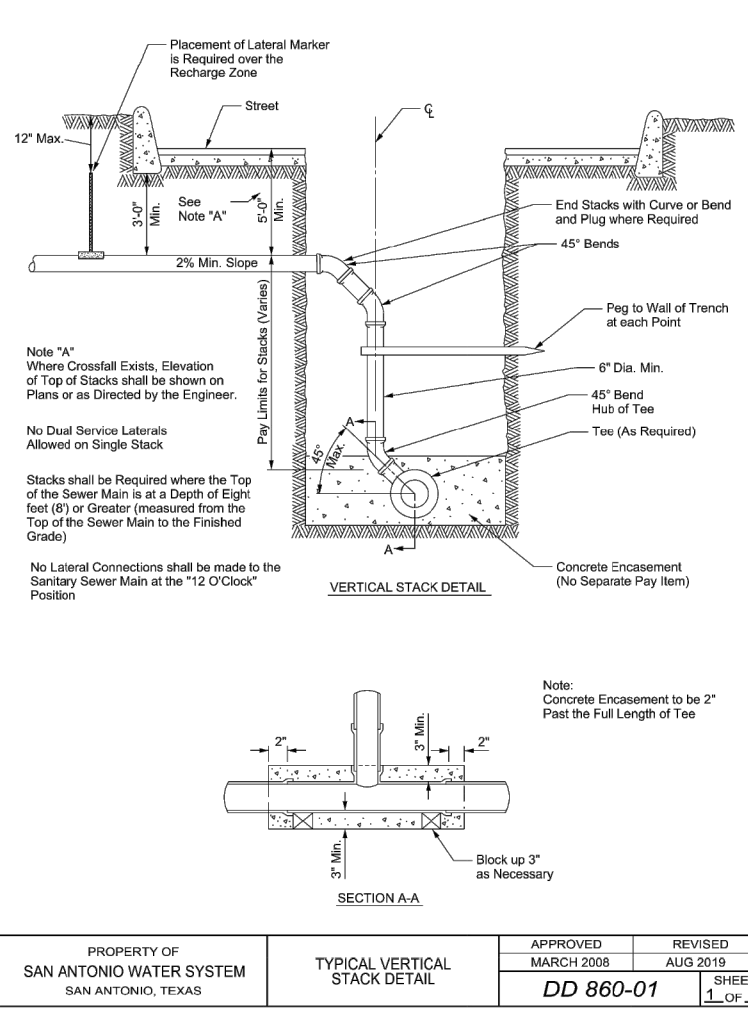
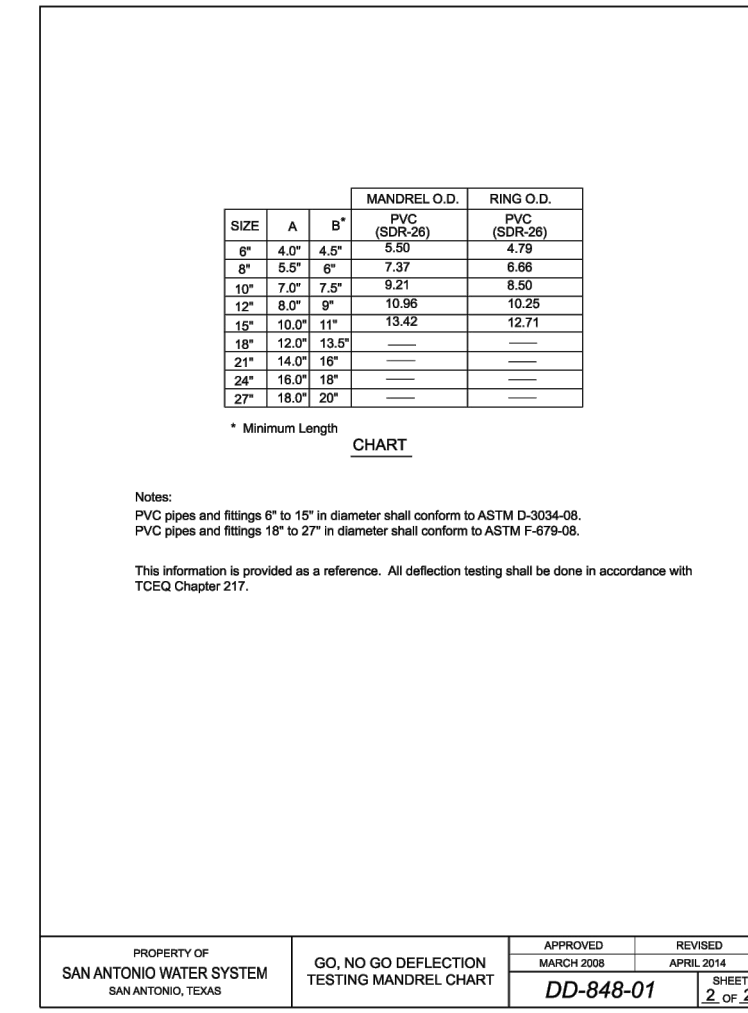
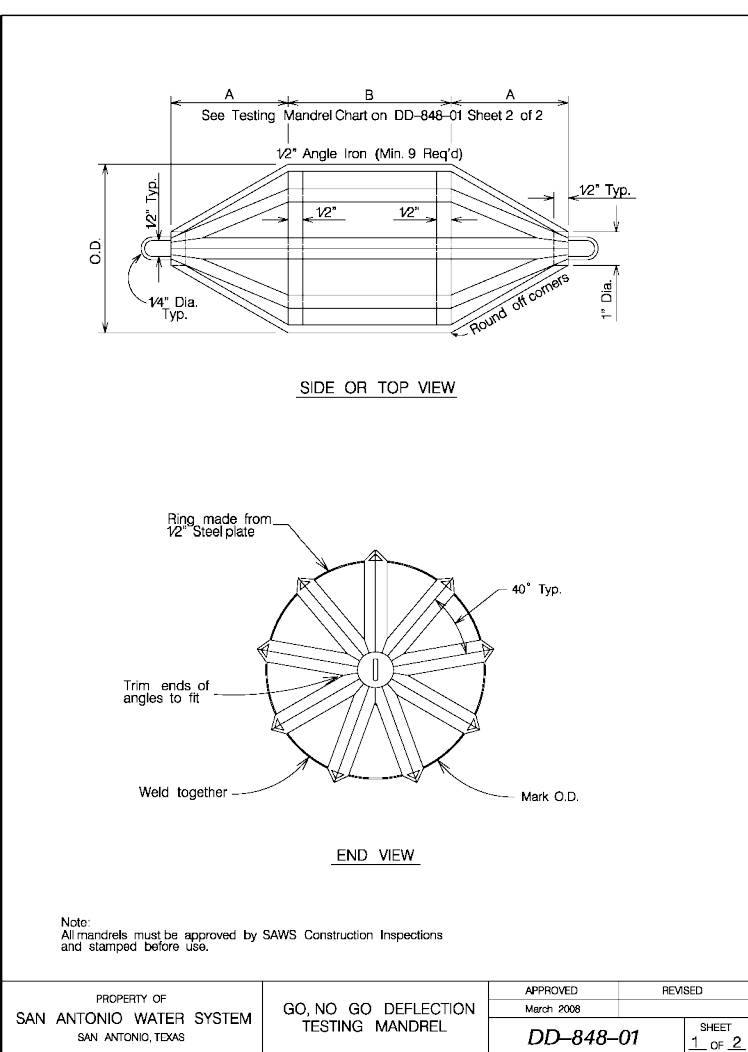


CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500
PLAT NO.
23-11800329
SAWS JOB NO.
23-1641

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ESTANCIA RANCH SUBDIVISION

UNIT 3

SANITARY SEWER STANDARD DETAILS

DATE

06/25/2024

PROJECT NO.

03473.010

DRAWN BY

CG/TC/XV

CHECKED BY

XV/AL

REVISIONS

DATE

1

2024-04-16

2

2024-05-24

3

2024-06-24

4

2024-07-24

5

2024-08-24

6

2024-09-24

7

2024-10-24

8

2024-11-24

9

2024-12-24

STATE OF TEXAS

ANDREW R. LOWRY

123410

6/24/2024

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TBPE No. 455

TBPLS No. 10048500

PLAT NO.

23-11800329

SAWS JOB NO.

23-1641

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TRENCH EXCAVATION PROTECTION
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UPPER - EAST SEWERSHD - DOS RIOS I LEON CREEK

Developer's Name: MERITAGE HOMES OF TEXAS, L.L.C.
Developer's Address: 2722 WEST BITTERS ROAD, SUITE 200
City: SAN ANTONIO State: TEXAS Zip: 78231
Phone #: (210) 298-4294 Fax #:
SAWS Block Map #: 156690 Total EDU's: 152 Total Acreage: 65.64
Total Linear Footage of Pipe: 3,899.55 L.F. OF 8" SS - SDR 26 Plat No.: 23-11800329
Number of Lots: 132 SAWS Job No.: 23-1641

SAWS CONSTRUCTION NOTES

COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT

REVISED JANUARY 2022

GENERAL SECTION

1. All materials and construction procedures within the scope of this contract shall be approved by the San Antonio Water System (SAWS) and comply with the Plans, Specifications, General Conditions and with the following as applicable:

- A. Current Texas Commission on Environmental Quality (TCEQ) "Design Criteria for Domestic Wastewater System", Texas Administrative Code (TAC) Title 30 Part 1 Chapter 217 and "Public Drinking Water", TAC Title 30 Part 1 Chapter 290.
- B. Current TxDOT "Standard Specifications for Construction of Highways, Streets and Drainage".
- C. Current "San Antonio Water System Standard Specifications for Water and Sanitary Sewer Construction".
- D. Current City of San Antonio "Standard Specifications for Public Works Construction".
- E. Current City of San Antonio "Utility Excavation Criteria Manual" (UECM).

2. The contractor shall not proceed with any pipe installation work until they obtain a copy of the approved Counter Permit or General Construction Permit (GCP) from the consultant and has been notified by SAWS Construction Inspection Division to proceed with the work and has arranged a meeting with the inspector and consultant for the work requirements. Work completed by the contractor without an approved Counter Permit and/or a GCP will be subject to removal and replacement at the expense of the contractors and/or the developer.

3. The Contractor shall obtain the SAWS Standard Details from the SAWS website, http://www.saws.org/business_center/specs. Unless otherwise noted within the design plans.

4. The Contractor is to make arrangements with the SAWS Construction Inspection Division at 233-2973, on notification procedures that will be used to notify affected home residents and/or property owners 48 hours prior to beginning any work.

5. Location and depth of existing utilities and service laterals shown on the plans are understood to be approximate. Actual locations and depths must be field verified by the Contractor at least 1 week prior to construction. It shall be the Contractor's responsibility to locate utility service lines as required for construction and to protect them during construction at no cost to SAWS.

6. The Contractor shall verify the exact location of underground utilities and drainage structures at least 1-2 weeks prior to construction whether shown on plans or not. Please allow up to 7 business days for locating requesting pipe location markers on SAWS facilities. The following contact information are supplied for verification purposes:

- SAWS Utility Locates: <http://www.saws.org/Service/Locates>
- CDSA Drainage (210) 207-0724 or (210) 207-4026
- CDSA Traffic Signal Operations (210) 206-8400

- CDSA Traffic Signal Damages (210) 207-3951
- CDSA Texas State Wide One Call Locator 1-800-545-6005 or 811

7. The contractor shall be responsible for restoring existing fences, curbs, streets, driveways, sidewalks, landscaping and structures to its original or better condition if damages are made as a result of the project's construction.

8. All work in Texas department of transportation (TxDOT) and/or Bexar county right-of-way shall be done in accordance with respective construction specifications and permit requirements.

9. The contractor shall comply with city of San Antonio or other governing municipality's tree ordinances when excavating near trees.

10. The contractor shall not place any waste materials in the 100-year flood plain without first obtaining an approved flood plain permit.

11. Holiday Work: Contractors will not be allowed to perform SAWS work on SAWS recognized holidays. Request should be sent to constworkreq@saws.org.

Weekend Work: Contractors are required to notify the SAWS Inspection Construction Department 48 hours in advance to request weekend work. Request should be sent to constworkreq@saws.org.

Any and all SAWS utility work installed without holiday/weekend approval will be subject to be uncovered for proper inspection.

12. Compaction note (Item 804): The contractor shall be responsible for meeting the compaction requirements on all trench backfill and for paying for the tests performed by a third party. Compaction tests will be done at one location point randomly selected, or as indicated by the SAWS Inspector and/or the test administrator, per each 12-inch loose lift per 400 linear feet at a minimum. This project will not be accepted and finalized by SAWS without this requirement being met and verified by providing all necessary documented test results.

13. A copy of all testing reports shall be forwarded to SAWS Construction Inspection Division. Water Section.

WATER SECTION

1. Prior to tie-ins, any shutdowns of existing mains of any size must be coordinated with the SAWS Construction Inspection Division at least one week in advance of the shutdown. The Contractor must also provide a sequence of work as related to the tie-ins; this is at no additional cost to SAWS or the project and it is the responsibility of the Contractor to sequence the work accordingly.

-For water mains 12" or higher: SAWS Emergency Operations Center (210) 233-2014

2. Asbestos Cement (AC) pipe, also known as transit pipe which is known to contain asbestos-containing material (ACM), may be located within the project limits. Special waste management procedures and health and safety requirements will be applicable when removal and/or disturbance of this pipe occurs. Such work is to be made under Special Specification Item No. 3000, "Special Specification for Handling Asbestos Cement Pipe".

3. Valve removal: Where the contractor is to abandon a water main, the control valve located on the abandoning branch will be removed and replaced with a cap/plug. (NSP)

4. Suitable anchorage/thrust blocking or joint restraint shall be provided at all of the following main locations: dead ends, plugs, caps, tees, crosses, valves, and bends in accordance with the Standard Drawings DD-839 Series and Item No. 839, in the SAWS Standard Specifications for Construction.

5. All valves shall read "open right".

6. PRVs Required: Contractor to verify that no portion of the tract is below ground elevation of 1215 feet where the static pressure will normally exceed 80 PSI. At all such locations where the ground level is below 1215 feet, the Developer or Builder shall install at each lot, on the customer's side of the meter, an approved type pressure regulator in conformance with the Plumbing Code of the City of San Antonio. No dual services allowed for any lot(s) if

"PRV" is/are required for such lot(s), only single service connections shall be allowed.

"Note: A pressure regulator is also known as a pressure reducing valve (PRV).

7. Pipe Disinfection with Dry HTH for Projects less than 800 linear feet. (Item No. 847.3): Mains shall be disinfected with dry HTH where shown in the contract documents or as directed by the Inspector, and shall not exceed a total length of 800 feet. This method of disinfection will also be followed for main repairs. The Contractor shall utilize all appropriate safety measure to protect his personnel during disinfection operations.

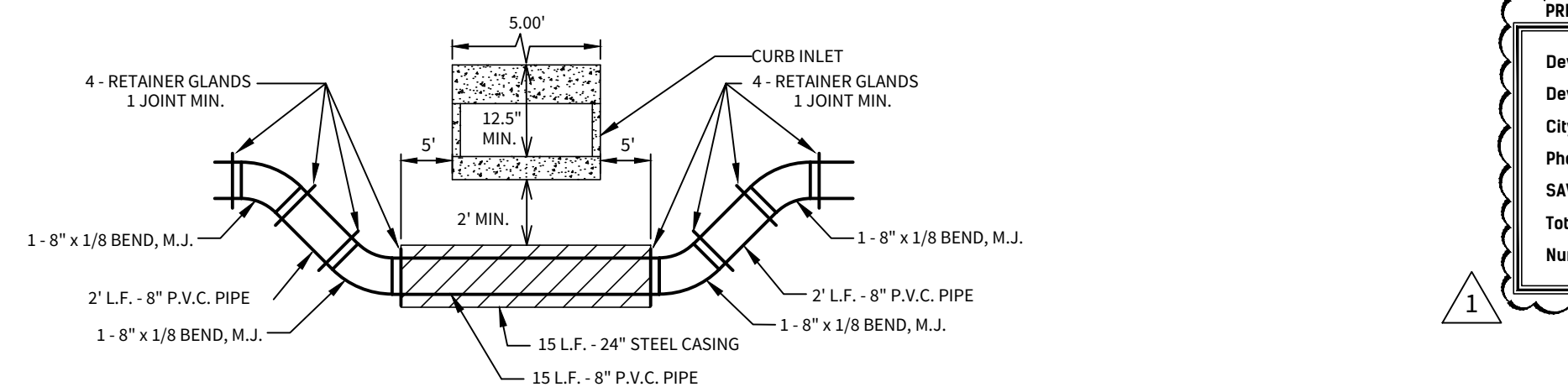
8. Backflow Prevention Devices:

-All irrigation services within prevention devices.

-All commercial backflow prior to installation.

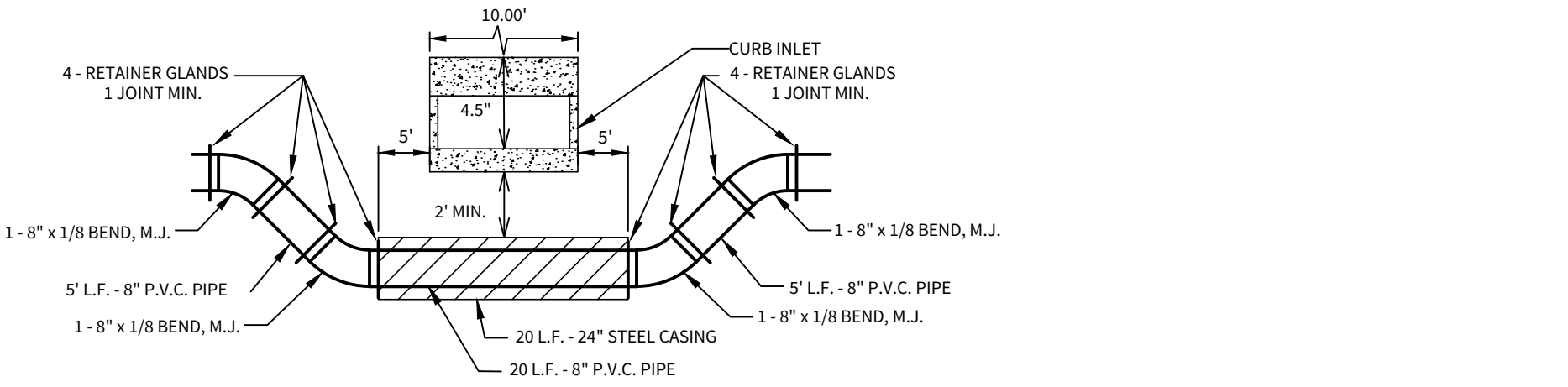
9. Final connection to the existing water main shall not be made until the water main has been pressure tested, chlorinated, and SAWS has released the main for tie-in and use.

10. Division Valves: Division Valves shown on plans or not shown on plans but found in the field shall only be operated by SAWS Distribution and Collection staff and only with prior written approval of the SAWS Director of Production and Operations and proper coordination with all SAWS departments. Contractor shall provide written notification to the Inspector a minimum of two weeks in advance to start the coordination process and will be informed by the Inspector when the division valve will be operated by the SAWS Distribution and Collection staff. The Division Valve can only be operated by SAWS Distribution and Collection staff member not the inspector or the contractor. Operation of a Division Valve without the express prior written approval of the SAWS Distribution and Collection staff will constitute a material breach of any written SAWS contract or permit in addition to subjecting the Contractor to liability for any and all fines, fees, or other damages, direct or consequential, that may arise from or be caused by the operation of the valve without prior written permission. Please be informed that the approval of the operation or opening or closing of a division valve can take several weeks for approval. Division Valves will also have a valve lid labeled Division Valve and a locking mechanism installed with a key. The lock and key mechanism will be paid for by the contractor but will be installed by SAWS Distribution and Collection staff.



WATER / DRAIN B CROSSING DETAIL

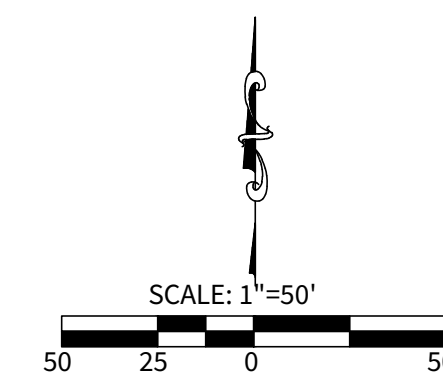
SIDE VIEW [THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL] (N.T.S.)



WATER / DRAIN E CROSSING DETAIL

SIDE VIEW [THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL] (N.T.S.)

PRESSURE ZONE 1400 HGL			
Developer's Name	HERITAGE HOMES OF TEXAS, L.L.C.		
Developer's Address	2722 WEST BITTERS ROAD, SUITE 200		
City	SAN ANTONIO	State	TEXAS
Phone #	(210) 298-4294	Fax #	78231
SAWS Block Map #	084-622	Total EDU's	156
Total Linear Footage of Pipe	6\" W - 3135 L.F.	Plat No.	23-11800329
Number of Lots	152	SAWS Job No.	23-1172

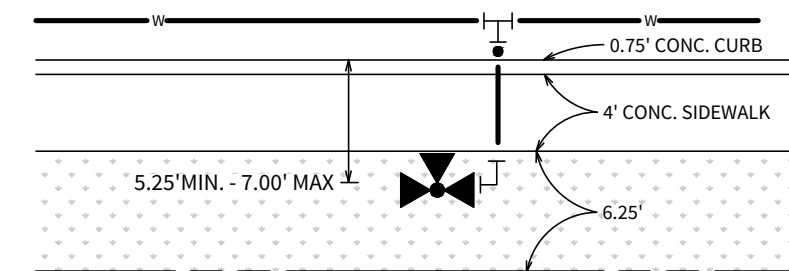


LEGEND

OVERALL UNIT BOUNDARY	---
PROPOSED LOT LINE	---
PROPOSED RIGHT OF WAY	---
E.G.T.C.A. EASEMENT	---
EXISTING 2' CONTOUR	--- 459 ---
EXISTING 10' CONTOUR	--- 500 ---
EXISTING WATER LINE	--- W ---
EXISTING SEWER LINE	--- SS ---
EXISTING MANHOLE	●
EXISTING FIRE HYDRANT	⊕
PROPOSED WATER LINE	--- W ---
PROPOSED IRRIGATION SERVICE	--- IRR ---
PROPOSED FIRE HYDRANT	⊕
PROPOSED SEWER MAIN	--- SS ---
PROPOSED MANHOLE	●
PROPOSED SEWER SERVICE	--- S ---
PROPOSED JOINT RESTRAINT	--- R ---
LENGTH TO BE JOINT RESTRAINT	--- R.L.F. ---

SHEET NOTES:

- ALL 8" 8" 12" PVC SHALL BE C-900 CLASS 235 OR 18.
- SAWS SHALL MACHINE CHLORINATE ALL NEW WATER MAINS.
- CONTRACTOR SHALL NOTIFY ENGINEER AND CITY OF SAN ANTONIO TREE INSPECTIONS DEPARTMENT PRIOR TO THE REMOVAL OF ANY TREES. DAMAGE TO ANY PROTECTED TREES WILL BE MITIGATED AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL MAINTAIN A MINIMUM DEPTH OF 5 FEET ON ALL 8" MAIN.
- CONTRACTOR SHALL REFERENCE GRADING PLAN FOR FUTURE GRADES OF STREETS FOR CORRECT DEPTH INSTALLATION OF THE OFFSITE WATER MAINS.
- ALL WATER SERVICES SHALL BE 3/4" COPPER SERVICE WITH 3/8" METER UNLESS OTHERWISE NOTED.



TYPICAL FIRE HYDRANT DETAIL

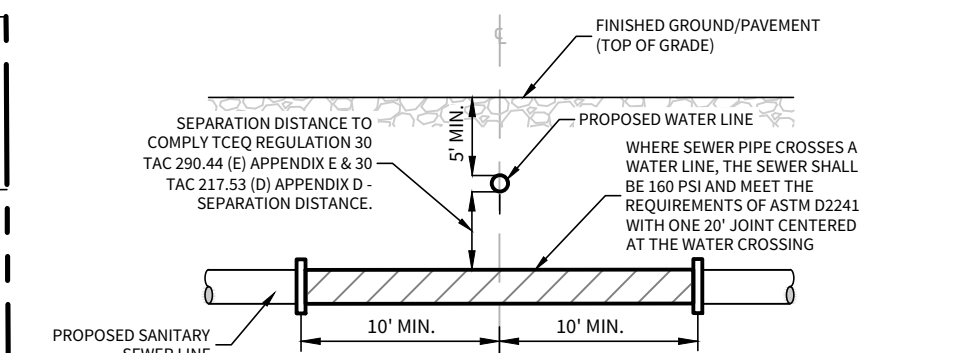
[4' SIDEWALK / 50' R.O.W.]

N.T.S.

- NOTE:
- EXCLUSIVE OF THE TEE, PAYMENT FOR THE FIRE HYDRANT SHALL INCLUDE ALL FITTINGS, 6\" D.I. PIPE AND 6\" GATE VALVE & BOX.
 - FIRE HYDRANT TO BE INSTALLED OUTSIDE OF THE LIMITS OF ALL PROPOSED SIDEWALKS.

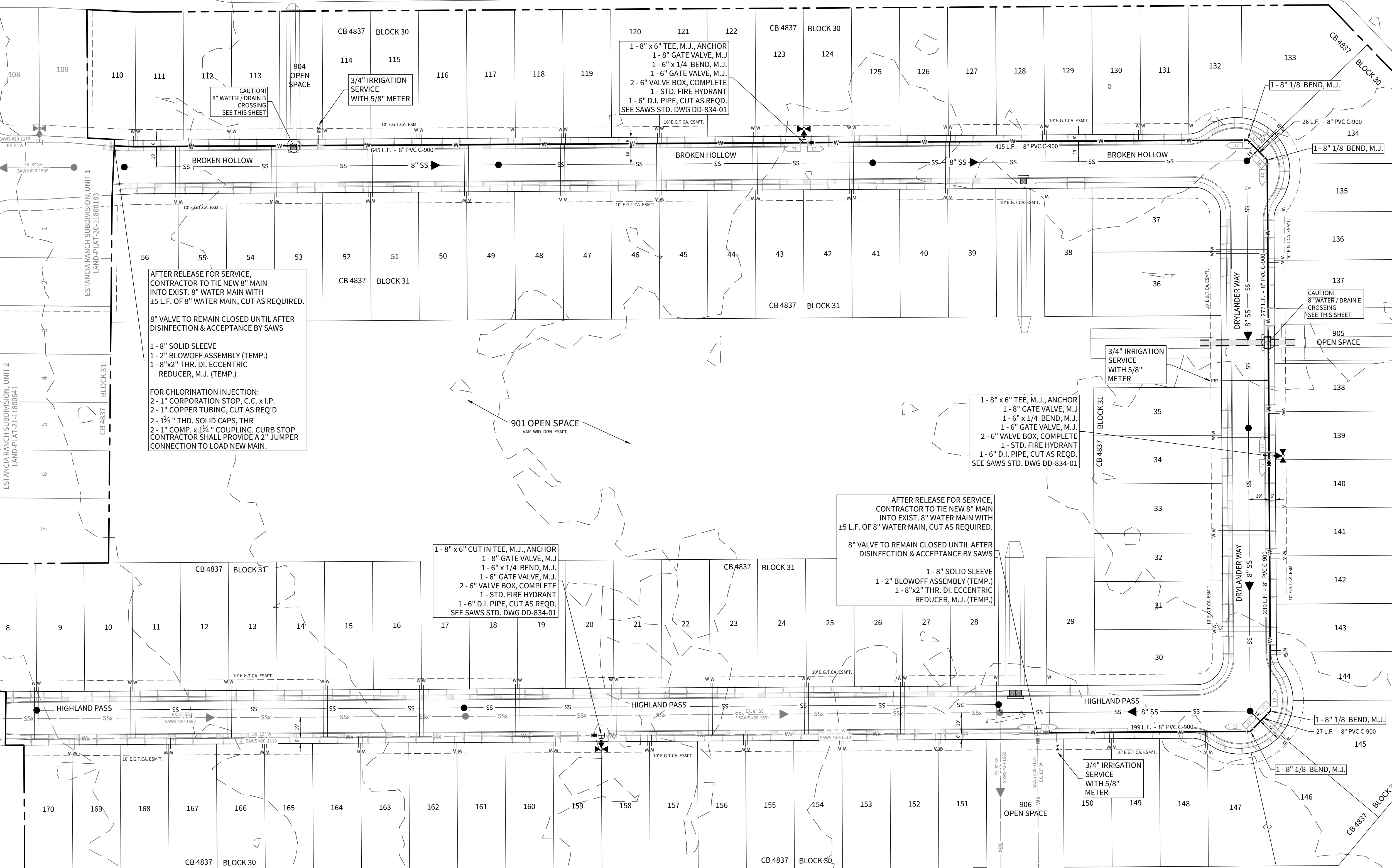
TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

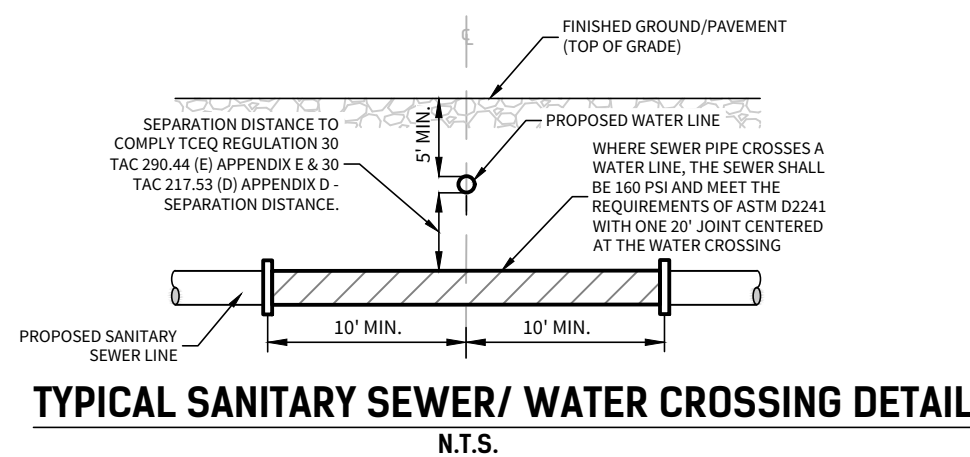
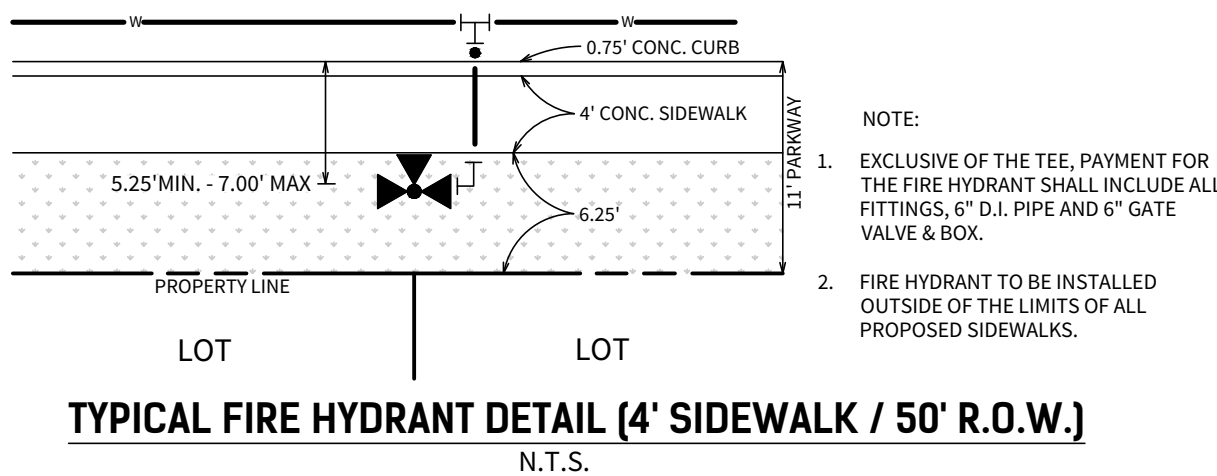
N.T.S.



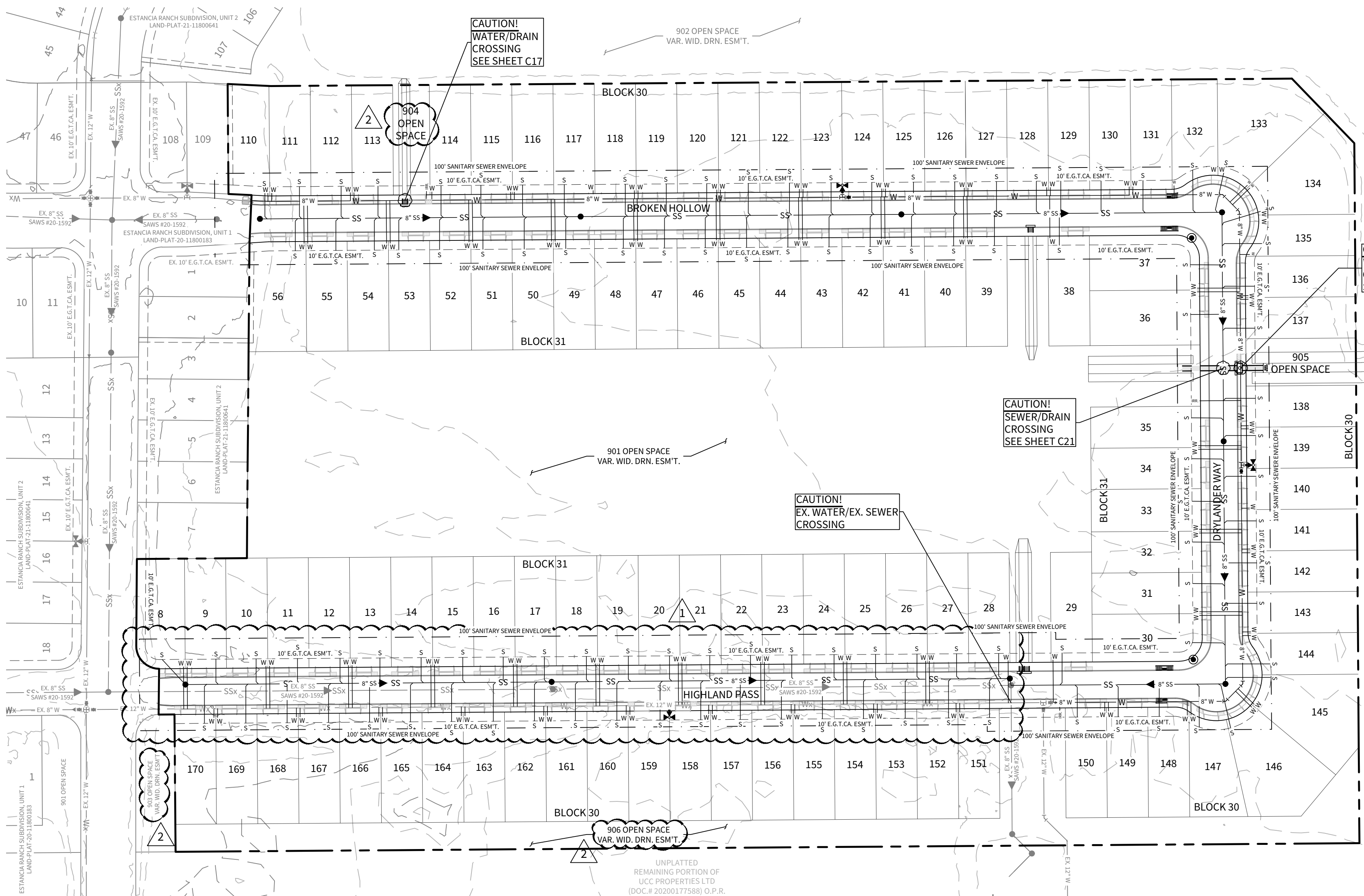
TRENCH EXCAVATION PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGNER/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 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.

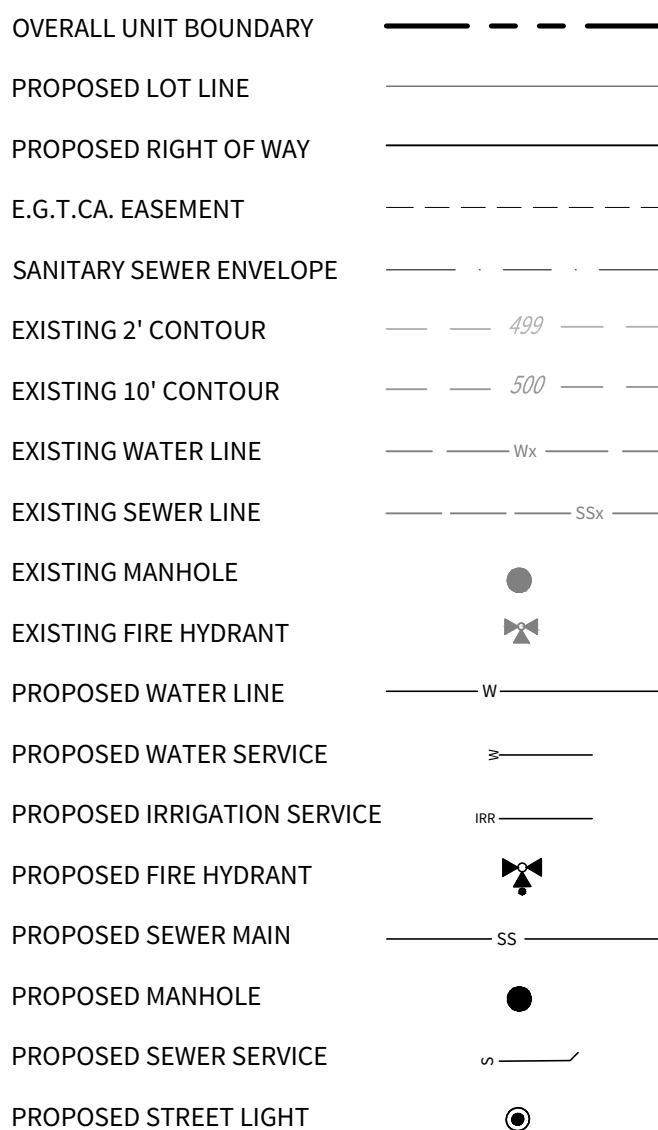




- 1.) STREET BASE AND DRAINAGE COMPLETION PRECEDES CPS UTILITY LINE INSTALLATION
- 2.) INSTALLATION IS AUTHORIZED BY THE DEVELOPER.

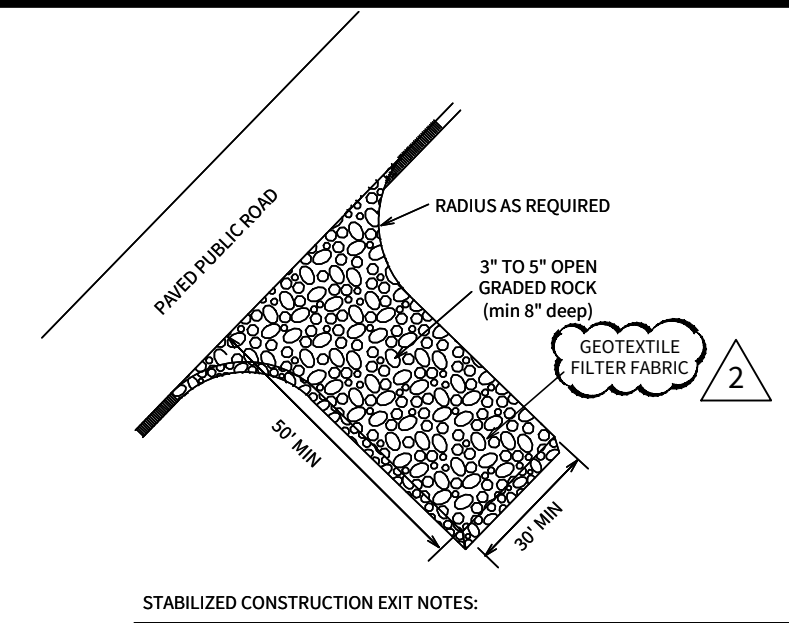


NOTE: ALL LATERALS TO BE INSTALLED @ MIN. 2.0% SLOPE. UNLESS OTHERWISE NOTED, ALL SANITARY SEWER PIPE SHALL BE P.V.C. THAT MEETS ASTM SPECIFICATION D-3034, SDR-26.
CONTRACTOR TO INSTALL CONCRETE SADDLE ON EXISTING SEWER LINE AT EVERY PROPOSED LATERAL PER SAWS SPECIFICATIONS.

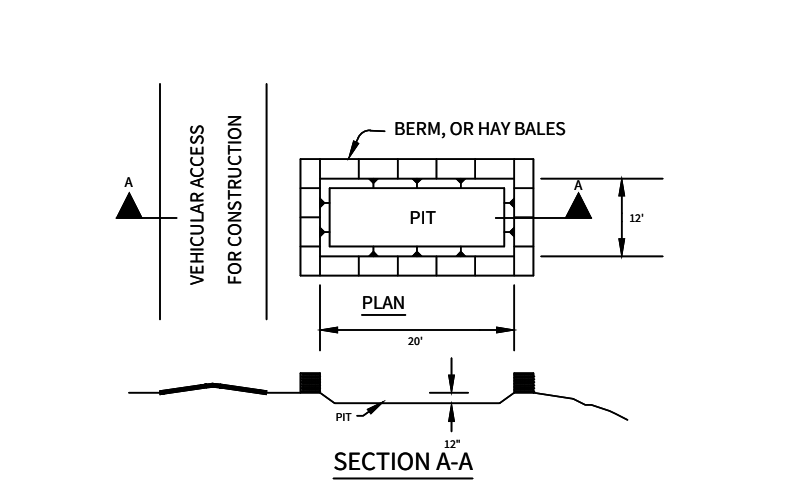


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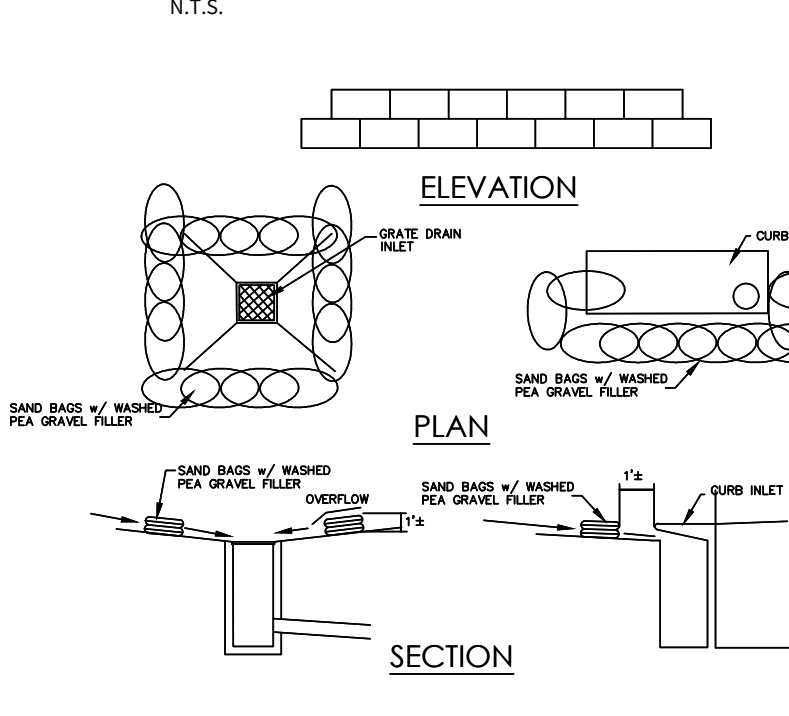
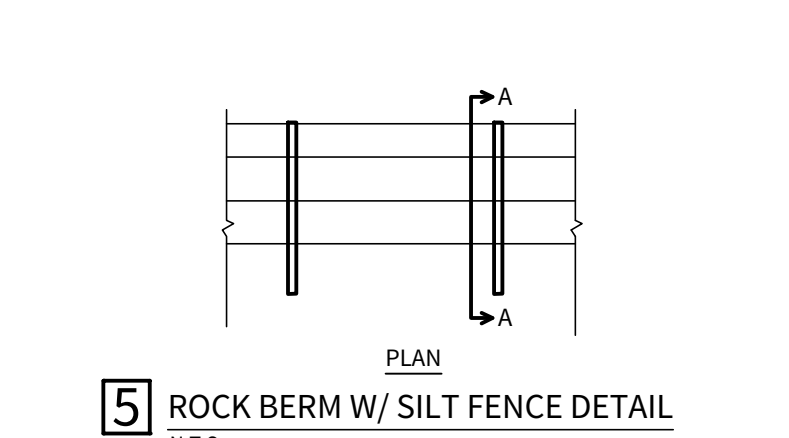
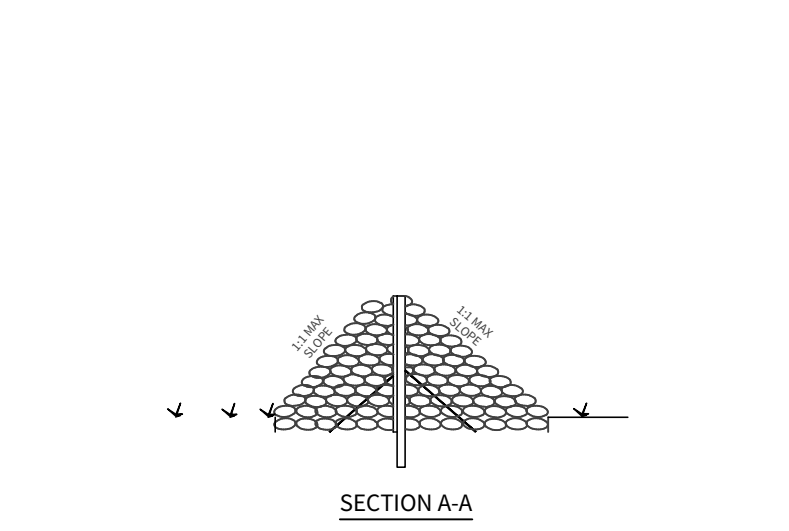
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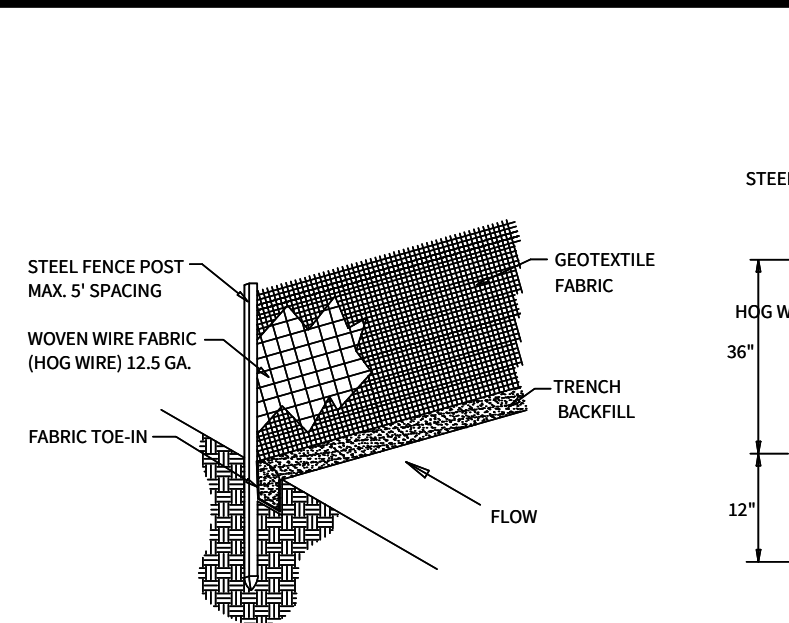
- 1 TEMPORARY CONSTRUCTION ENTRANCE/EXIT**
N.T.S.
- STABILIZED CONSTRUCTION EXIT NOTES:
1. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ON PUBLIC ROADWAY.
 2. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS MUST BE REMOVED IMMEDIATELY.



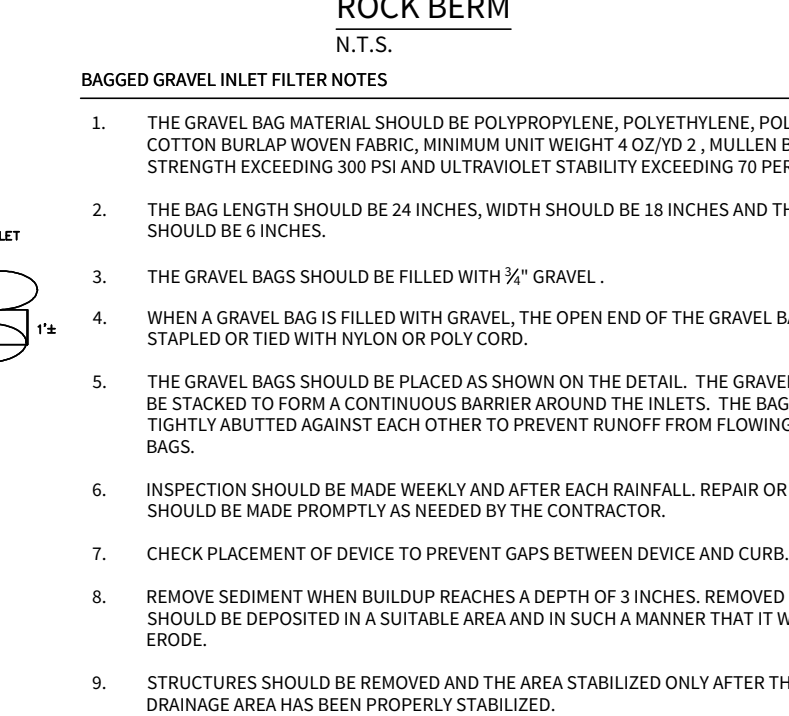
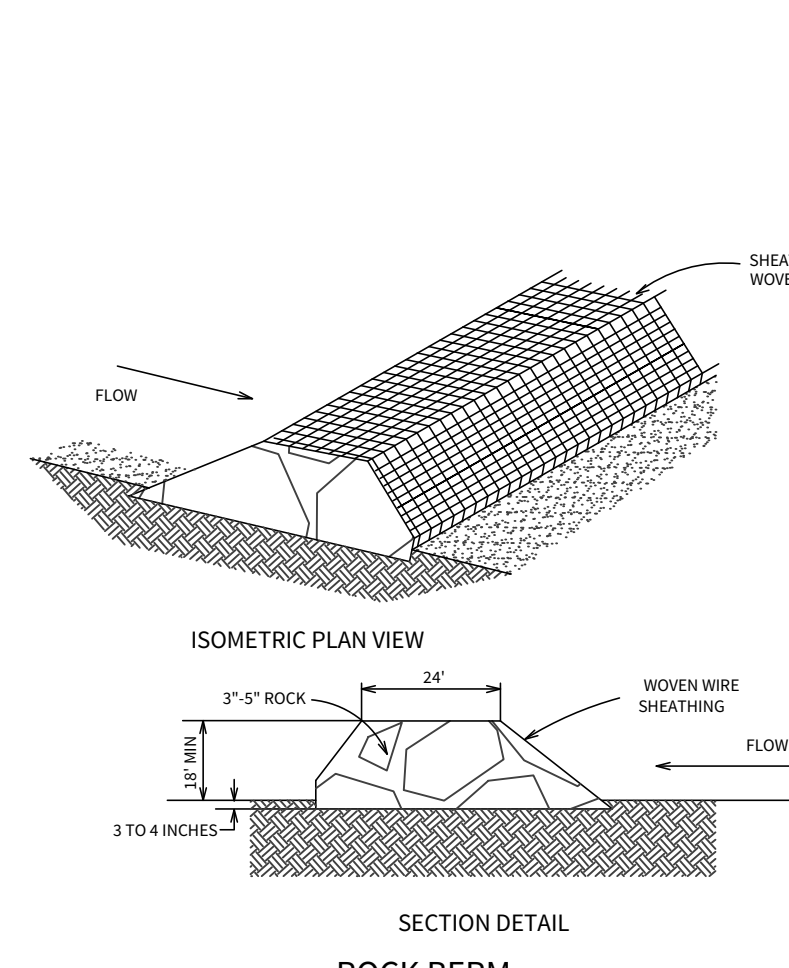
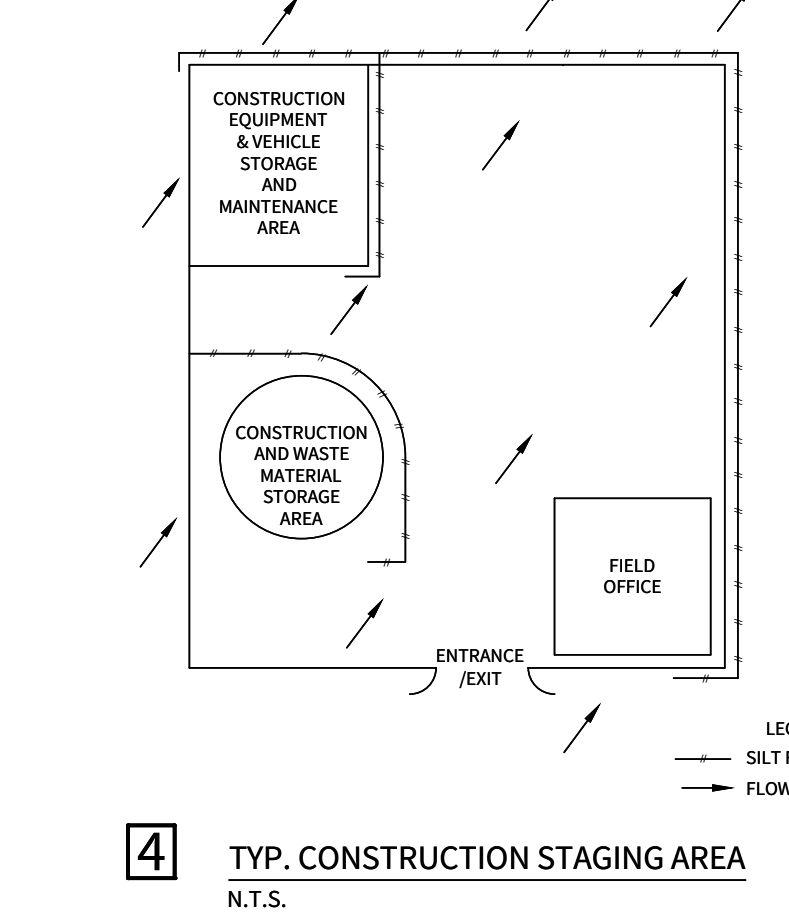
- 3 CONCRETE TRUCK WASHOUT PIT**
N.T.S.
- GENERAL NOTES:
- Detail above illustrates minimum dimensions. Pit can be increased in size depending on expected frequency of use.
 - If hay bales are used, they shall be placed in accordance with details shown on Exhibit for hay bales.
- Washout pit shall be located in an area easily accessible to
- Washout pit shall not be located in areas subject to inundation from storm water runoff.
- Washout pit shall be lined with a 10-mil thick polyethylene sheeting free of holes, tears and other defects.



- 6 BAGGED GRAVEL INLET FILTER NOTES**
N.T.S.
- BAGGED GRAVEL INLET FILTER NOTES
1. THE GRAVEL BAG MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, POLYAMIDE OR COTTON BURLAP WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OZ/YD 2, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70 PERCENT.
 2. THE BAG LENGTH SHOULD BE 24 INCHES, WIDTH SHOULD BE 18 INCHES AND THICKNESS SHOULD BE 6 INCHES.
 3. THE GRAVEL BAGS SHOULD BE FILLED WITH 70" GRAVEL.
 4. WHEN A GRAVEL BAG IS FILLED WITH GRAVEL, THE OPEN END OF THE GRAVEL BAG SHOULD BE STAPLED OR TIED WITH NYLON OR POLY CORD.
 5. THE GRAVEL BAGS SHOULD BE PLACED AS SHOWN ON THE DETAIL. THE GRAVEL BAGS SHALL BE STACKED TO FORM A CONTINUOUS BARRIER AROUND THE INLETS. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.
 6. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
 7. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
 8. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
 9. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



- 2 STANDARD SILT FENCE**
N.T.S.



- 4 TYP. CONSTRUCTION STAGING AREA**
N.T.S.

