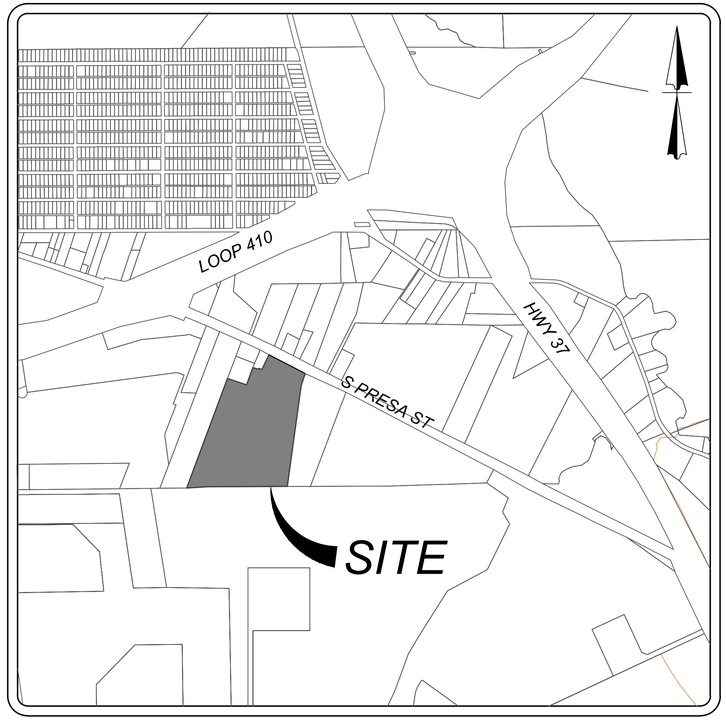
PRESA GROVE

BEXAR COUNTY, TEXAS

STREET, DRAINAGE, WATER, SANITARY SEWER, AND UTILITY IMPROVEMENTS



LOCATION MAP

N.T.S.

OWNER/DEVELOPER:
PRESA GROVE, LLC
13580 LUDLAM ROAD, STUDIO 1
PINECREST, FLORIDA 33156
PHONE: (866) 758 - 7899

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER

10/12/23

DECEMBER 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

CITY OF SAN ANTONIO
GENERAL NOTES

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

GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR CONSTRUCTION JUNE 2008, OR LATEST.
2. 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.
3. THE CONTRACTOR SHALL PROVIDE ACCESS FOR THE DELIVERY OF MAIL BY THE U.S. POSTAL SERVICE. 4. 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).
4. 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.
5. IF THE NEED ARISES, ADDITIONAL BARRICADES AND DIRECTIONAL DEVICES MAY BE ORDERED BY THE TRAFFIC ENGINEERING REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
6. 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.
7. CONTRACTOR SHALL NOTIFY THE CITY INSPECTOR TWENTY FOUR (24) HOURS PRIOR TO BACKFILL OF ANY UTILITY TRENCHES TO SCHEDULE FOR DENSITY TEST AS REQUIRED.
8. 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.
9. 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
COSA DRAINAGE	207-8048
COSA SIGNAL OPERATIONS	207-7720 / 207-7765
TEXAS STATE WIDE ONE CALL LOCATOR	1-800-344-8377
CITY PUBLIC SERVICE ENERGY - TIME WARNER - AT&T - MCI	

10. 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.
11. 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 MATE- RIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF EXISTING ARTIFICIAL OR NATURAL DRAINAGE.
12. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIAL IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.
13. THE CONTRACTOR SHALL MAINTAIN ALL ADJOINING STREETS AND TRAVELED ROUTES FREE FROM SPILLED AND / OR TRACKED CONSTRUCTION MATERIALS AND / OR DEBRIS.
14. 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.
15. 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.
16. 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.
17. 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 CONTRACT- OR WILL BE LIABLE FOR ANY DAMAGES TO VIA FACILITIES NOT REMOVED BY VIA. THE CON- TRACTOR 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

1. NO UTILITY OR STREET EXCAVATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
2. 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).
3. 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.
4. ROOTS WILL BE CUT WITH A ROCK SAW OR BY HAND, NOT BY AN EXCAVATOR OR OTHER ROAD CONSTRUCTION EQUIPMENT.
5. ALL CURB AND SIDEWALK WORK SHALL USE ALTERNATIVE CONSTRUCTION METHODS TO MINIMIZE EXTENSIVE ROOT DAMAGE TO TREES (REFER TO DETAILS).
6. EXPOSED ROOTS SHALL BE COVERED AT THE END OF THE DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH, OR WET BURLAP.
7. 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.
8. 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.
9. NO WIRES, NAILS OR OTHER MATERIAL MAY BE ATTACHED TO PROTECTED TREES.
10. 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. ALL TREE PRUNING SHALL BE COMPLETED BY A CITY OF SAN ANTONIO TREE MAINTENANCE LICENSED CONTRACTOR (ARTICLE 21-171, CITY CODE) ONLY AFTER APPROVAL FROM THE CAPITAL PROJECTS MANAGEMENT THROUGH THE INSPECTOR.
11. NO EXCESSIVE TREE TRIMMING WILL BE PERMITTED.
12. 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).
13. 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.
14. ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST. (207-0278).
15. TREES WHICH ARE DAMAGED OR LOST DUE TO THE CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE CITY'S SATISFACTION.
16. 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

1. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN VEHICULAR AND PEDESTRIAN ACCESS AT ALL TIMES TO LOCAL RESIDENCES AND BUSINESSES.
2. 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.
3. 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.
4. 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.

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

Formerly Known as
KFW ENGINEERS + SURVEYING

JOB NO. - 1027-01-02

PLAT NO. : 22-11800573

SHEET 0.0

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TRENCH EXCAVATION SAFETY PROTECTION

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

COMPACTION NOTE:

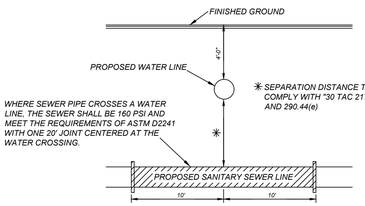
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTRATOR, PER EACH 12 INCH LOOSE LIFT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

DRY UTILITY CONDUIT NOTE:

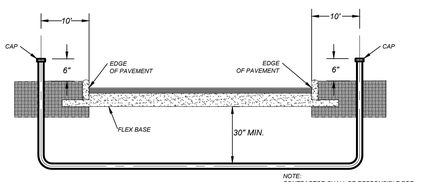
CONDUIT LOCATIONS SHOWN ON PLAN ARE FOR GEOGRAPHICAL PURPOSES ONLY AND ARE APPROXIMATE. CONTRACTOR TO INSTALL PROPOSED CONDUITS IN ACCORDANCE WITH DRY UTILITY PURVEYOR'S SPECIFICATIONS. CONTRACTOR TO VERIFY THE CONDUIT LOCATIONS AND SIZES BASED ON THE DRY UTILITY PURVEYOR'S PLAN.

BEXAR COUNTY R.O.W. NOTE:

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

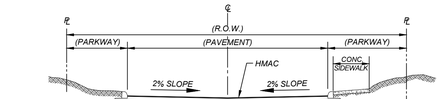


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



TYPICAL CONDUIT DETAIL
N.T.S.

NOTE: CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING CONDUIT SLEEVES FOR EACH CPS FACILITY AT ALL STREETS AND DRAIN CROSSING IF BUILT AHEAD OF CPS CONSTRUCTION. SLEEVES MUST ALSO BE LOCATED FOR CPS CREWS DURING CONSTRUCTION. (SEPERATE ITEM. SEE THIS SHEET FOR CONDUIT CROSSING DETAIL AND SCHEDULE.



TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
32' R.O.W.	28'	2'	5'
49' R.O.W.	40'	7'	5'
57' R.O.W.	48'	7'	5'

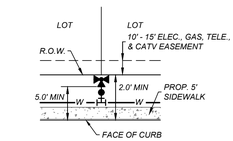
TYPICAL STREET SECTION
N.T.S.

LOCATION MAP
N.T.S.

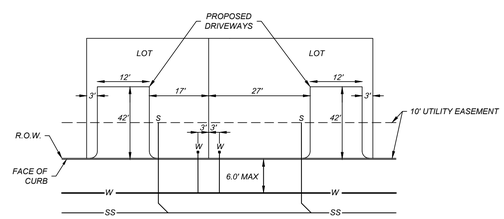
SCALE : 1"=50'
0' 50' 150'
100'

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100 WATT STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL	=	
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
EXISTING WATER MAIN	=	E.W
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E.SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING STREET LIGHT	=	



TYPICAL FIRE HYDRANT DETAIL
N.T.S



NOTE 1: CONTRACTOR TO CONSTRUCT 30' X 20' CONCRETE DRIVEWAY AT EACH LOT/SITE.

TYPICAL DRIVEWAY / UTILITY DETAIL
NOT-TO-SCALE

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERSENGINEERING.COM
TBPE Firm# F-14909
TBPELS Firm# 10194300

Formerly Known as KFW ENGINEERS

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
11/21/23

PRESA GROVE

BEXAR COUNTY, TEXAS

OVERALL UTILITY PLAN (1 OF 3)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:

1.0

Date: Nov 08, 2023, 2:48pm, User ID: cstinnett
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COMPACTION NOTE:

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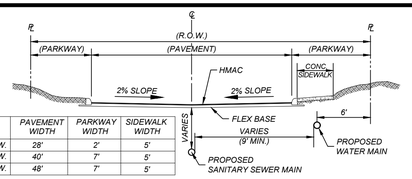
DRY UTILITY CONDUIT NOTE:

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

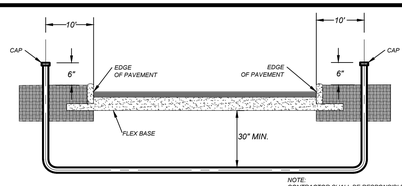
BEXAR COUNTY R.O.W. NOTE:

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



TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
32' R.O.W.	28'	2'	5'
49' R.O.W.	40'	7'	5'
57' R.O.W.	48'	7'	5'

TYPICAL STREET SECTION
N.T.S.



TYPICAL CONDUIT DETAIL
N.T.S.

NOTE:
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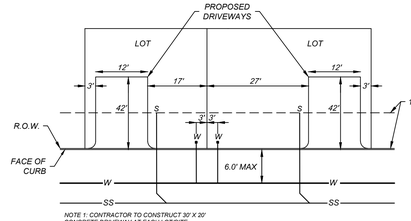
LOCATION MAP
N.T.S.

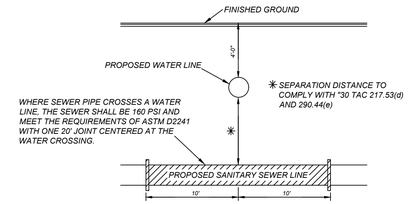
SCALE : 1"=50'
0' 50' 150'
100'

LEGEND

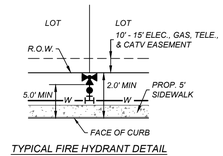
PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100 WATT STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL	=	
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E.G.T.TV.E
EXISTING WATER MAIN	=	E.W
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E.SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING STREET LIGHT	=	



TYPICAL DRIVEWAY / UTILITY DETAIL
NOT-TO-SCALE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



TYPICAL FIRE HYDRANT DETAIL
N.T.S

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-1409
TBPLS Firm# 10194503
Formerly Known as KFW ENGINEERS

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE

BEXAR COUNTY, TEXAS

OVERALL UTILITY PLAN (2 OF 3)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
1.1

Date: Oct 04, 2023, 9:19pm User ID: sdrewett
File: K:\1027-01\02-Design\Civil\UL_1027-01-02.dwg

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TRENCH EXCAVATION SAFETY PROTECTION

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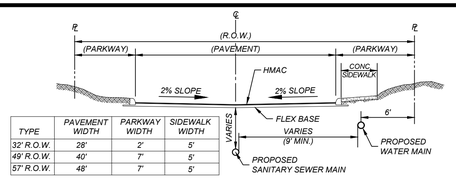

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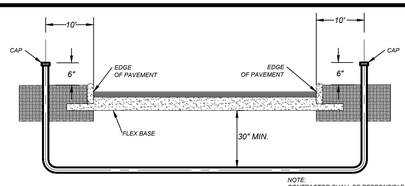
N.T.S.



TYPICAL CONDUIT DETAIL
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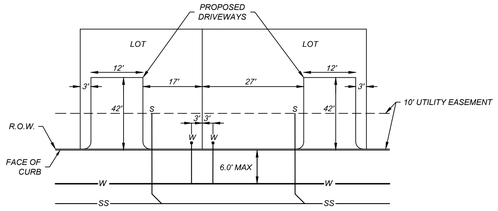

NOTE 1: CONTRACTOR TO CONSTRUCT 30' X 20' CONCRETE DRIVEWAY AT EACH LOT/SITE.

TYPICAL DRIVEWAY / UTILITY DETAIL
NOT-TO-SCALE

LOCATION MAP
N.T.S.

SCALE : 1"=50'

0' 50' 150'

100'

LEGEND

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PROPOSED WATER SERVICE & METER BOX	=	W
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PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED 100 WATT STREETLIGHT	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
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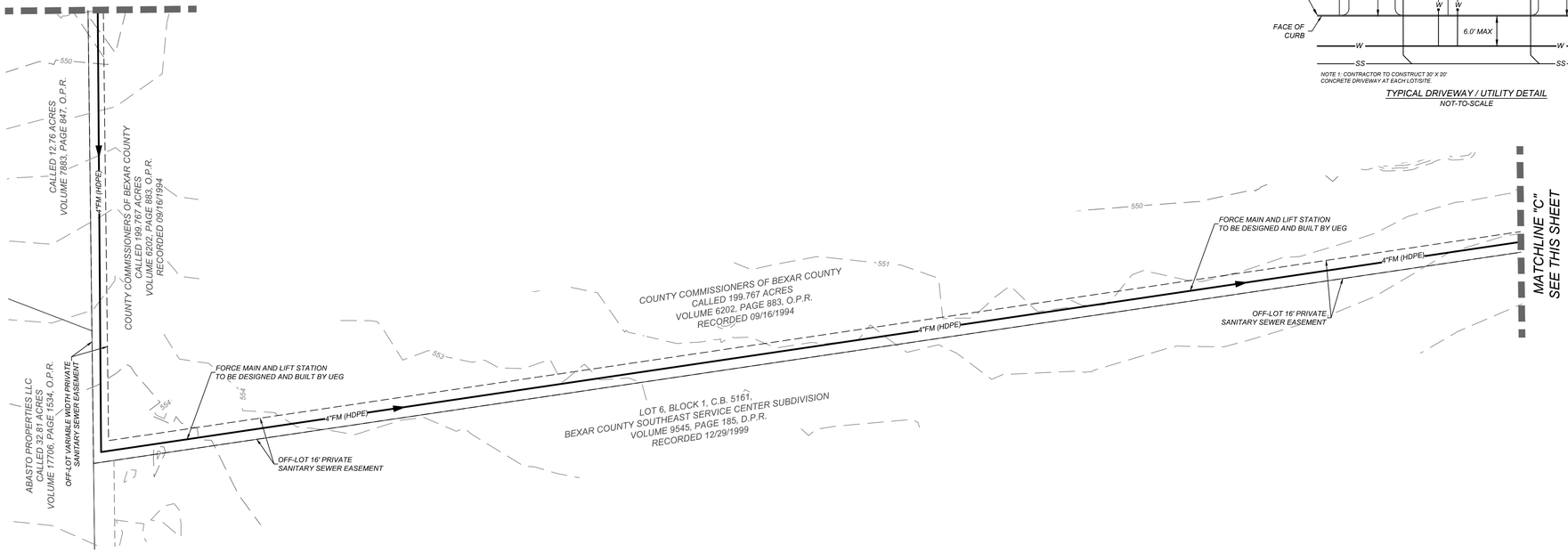
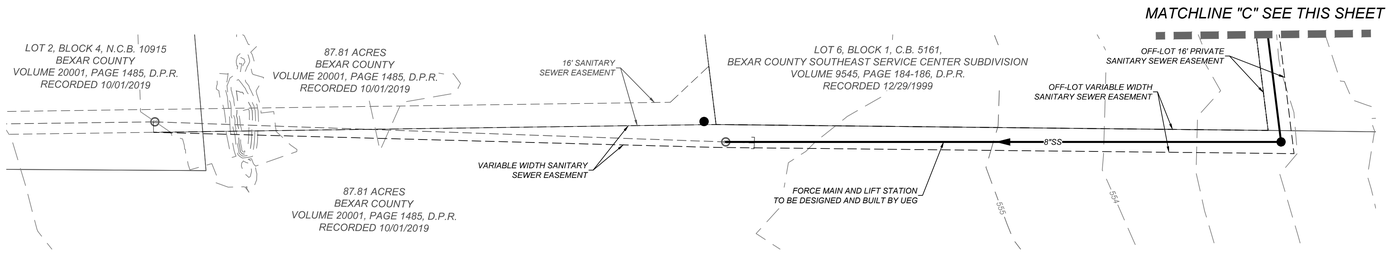
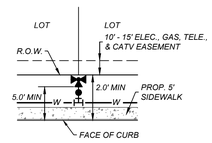
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
EXISTING STREET LIGHT	=	

MATCHLINE "B" SEE SHEET 1.1

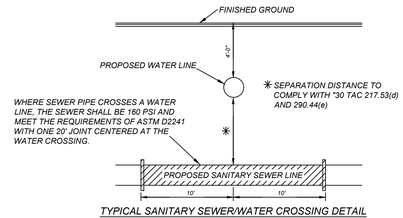


MATCHLINE "C" SEE THIS SHEET





TYPICAL FIRE HYDRANT DETAIL
N.T.S



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

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Phone: 210.979.8444
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TBPE Firm# F-14969
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ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE

BEXAR COUNTY, TEXAS

OVERALL UTILITY PLAN (3 OF 3)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:

1.2

Date: Oct 04, 2023, 2:11pm User ID: sdrewell
File: C:\1027-01\02-Design\Civil\02_1027-0102.dwg

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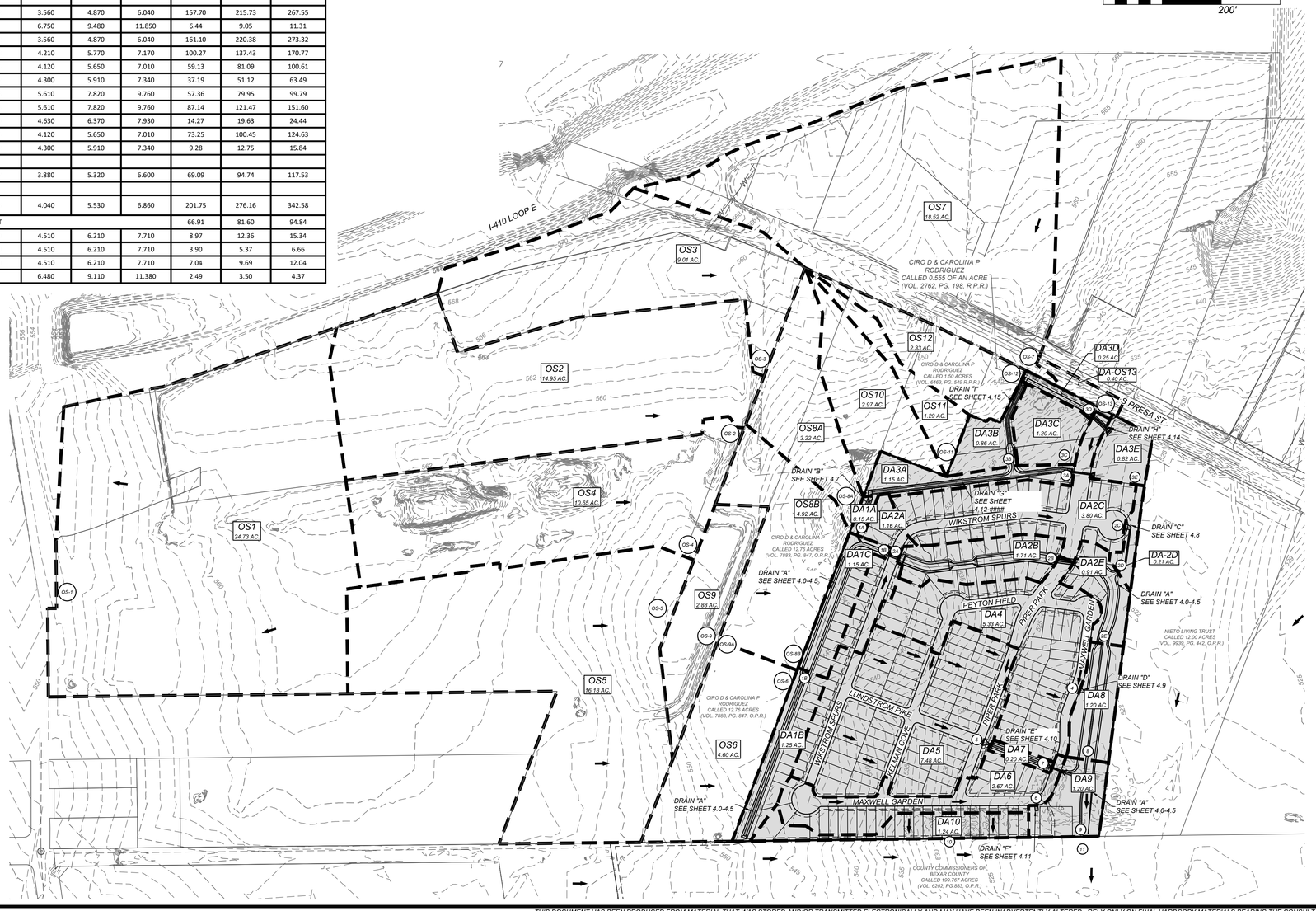
Study Point	AREA	(Acres)	C	Tovrl (min)		Tsc (min)	Tch (min)	Ttot (min)	I5 (in/hr)	I25 (in/hr)	I100 (in/hr)	Q5 (ft3/s)	Q25 (ft3/s)	Q100 (ft3/s)
	DA-1A	0.15	0.77											
1A	PT.OS8A + DA-1A	3.37	0.67	22.00	CARRYOVER FROM PT. OS8A	0.00	0.00	22	4.300	5.910	7.340	9.77	13.43	16.68
	DA-1B	1.25	0.59											
1B	PT.OS6 + DA-1B	5.85	0.65	19.00	CARRYOVER FROM PT. OS6	0.00	2.00	21	4.400	6.050	7.520	16.78	23.08	28.68
	DA-1C	1.15	0.58											
1C	PT.OS8B + PT.1B + PT.1A + DA-1C	31.78	0.77	27.00	CARRYOVER FROM PT. OS8B	0.00	0.00	27	3.880	5.320	6.600	95.31	130.68	162.12
2A	DA-2A	1.16	0.77	14.00		1.00	0.00	15	5.240	7.240	9.030	4.68	6.47	8.07
	DA-2B	1.71	0.66											
2B	PT.1C + PT.2A + DA-2B	34.65	0.77	27.00	CARRYOVER FROM PT. 1C	0.00	2.00	29	3.740	5.130	6.360	99.45	136.41	169.11
2C	DA-2C	3.80	0.83	10.00	CARRYOVER FROM PT. 2B	4.00	1.00	15	5.240	7.240	9.030	16.59	22.93	28.60
	DA-2D	0.36	0.41											
2D	PT.2C + DA-2D	4.16	0.80	15	CARRYOVER FROM PT. 2C	0.00	0.00	15	5.240	7.240	9.030	17.37	24.00	29.93
	DA-2E	0.91	0.52											
2E	PT.2B + PT.2D + DA-2E	39.72	0.76	29.00	CARRYOVER FROM PT. 2B	0.00	1.00	30	3.680	5.040	6.250	111.78	153.09	189.85
	DA-3A	1.15	0.88											
3A	PT.OS10 + PT.3B + DA-3A	8.60	0.72	20.00	CARRYOVER FROM PT. OS10	0.00	2.00	22	4.300	5.910	7.340	26.59	36.55	45.39
	DA-3B	0.86	0.88											
3B	PT.OS11 + PT.OS12 + DA-3B	4.48	0.71	20.00	CARRYOVER FROM PT. OS12	0.00	1.00	21	4.400	6.050	7.520	14.00	19.25	23.93
3C	DA-3C	1.20	0.88	9.00		3.00	0.00	12	5.810	8.120	10.140	6.14	8.57	10.71
	DA-3D	0.25	0.88											
3D	PT.OS7+DA-3D	18.77	0.96	24.00	CARRYOVER FROM PT. OS7	0.00	1.00	25	4.040	5.530	6.860	72.72	99.54	123.47
	DA-3E	0.82	0.88											
3E	PT.3A + PT3D + DA-33	28.19	0.88	25.00	CARRYOVER FROM PT. 3D	0.00	1.00	26	3.960	5.420	6.730	98.62	134.98	167.61
4	DA-4	5.33	0.77	25.00		4.00	1.00	30	3.680	5.040	6.250	15.10	20.68	25.65
5	DA-5	7.48	0.77	14.00		3.00	0.00	17	4.910	6.760	8.420	28.28	38.93	48.50
6	DA-6	2.67	0.77	15.00		0.00	3.00	18	4.760	6.560	8.160	9.79	13.49	16.78
	DA-7	0.20	0.77											
7	PT.5 + DA-7	7.68	0.77	17.00	CARRYOVER FROM PT. 5	0.00	1.00	18	4.760	6.560	8.160	28.15	38.79	48.25
	DA-8	1.20	0.77											
8	PT.2E + PT.4 + DA-8	46.25	0.77	30.00	CARRYOVER FROM PT. 2C	0.00	1.00	31	3.620	4.960	6.140	128.16	175.60	217.38
	DA-9	1.20	0.77											
9	PT.6 + PT.7 + PT.8 + DA-9	57.80	0.77	31.00	CARRYOVER FROM PT. 8	0.00	1.00	32	3.560	4.870	6.040	157.70	215.73	267.55
10	DA-10	1.24	0.77	8.00		0.00	0.00	8	6.750	9.480	11.850	6.44	9.05	11.31
11	PT.9 + PT.10	59.04	0.77	32.00	CARRYOVER FROM PT. 9	0.00	0.00	32	3.560	4.870	6.040	161.10	220.38	273.32
OS1	DA-OS1	24.81	0.96	9.00		12.00	2.00	23	4.210	5.770	7.170	100.27	137.43	170.77
OS2	DA-OS2	14.95	0.96	22.00		0.00	2.00	24	4.120	5.650	7.010	59.13	81.09	100.61
OS3	DA-OS3	9.01	0.96	16.00		1.00	5.00	22	4.300	5.910	7.340	37.19	51.12	63.49
OS4	DA-OS4	10.65	0.96	10.00		0.00	3.00	13	5.610	7.820	9.760	57.36	79.95	99.79
OS5	DA-OS5	16.18	0.96	10.00		0.00	3.00	13	5.610	7.820	9.760	87.14	121.47	151.60
OS6	DA-OS6	4.60	0.67	17.00		2.00	0.00	19	4.630	6.370	7.930	14.27	19.63	24.44
OS7	DA-OS7	18.52	0.96	17.00		5.00	2.00	24	4.120	5.650	7.010	73.25	100.45	124.63
OS8A	DA-OS8A	3.22	0.67	17.00		5.00	0.00	22	4.300	5.910	7.340	9.28	12.75	15.84
	DA-OS8B	4.92	0.67											
OS8B	PT.OS9A + DA-OS8B	21.41	0.83	25.00	CARRYOVER FROM PT. OS9A	0.00	2.00	27	3.880	5.320	6.600	69.09	94.74	117.53
	DA-OS9	2.88	0.41											
OS9	PT.OS2 + PT.OS3 + PT.OS4 + PT.OS5 + DA-OS9	53.67	0.93	24.00	CARRYOVER FROM PT. OS2	0.00	1.00	25	4.040	5.530	6.860	201.75	276.16	342.58
OS9A	PT.OS9	16.49	0.88	SEE STORMWATER MANAGEMENT REPORT								66.91	81.60	94.84
OS10	DA-OS10	2.97	0.67	14.00		6.00	0.00	20	4.510	6.210	7.710	8.97	12.36	15.34
OS11	DA-OS11	1.29	0.67	14.00		6.00	0.00	20	4.510	6.210	7.710	3.90	5.37	6.66
OS12	DA-OS12	2.33	0.67	14.00		6.00	0.00	20	4.510	6.210	7.710	7.04	9.69	12.04
OS13	DA-OS13	0.40	0.96	7.00		2.00	0.00	9	6.480	9.110	11.380	2.49	3.50	4.37

LEGEND

- STUDY POINT
- DRAINAGE AREA BOUNDARY
- EXISTING CONTOURS
- FLOW ARROW
- PROPOSED UNIT

LOCATION MAP
N.T.S.

SCALE : 1"=100'
0' 100' 300'
200'



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SERVANDO CRUZ
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10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
MASTER DRAINAGE PLAN

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER: 2.0

Date: Oct 04, 2023, 5:24pm User ID: cbrunell
File: K:\1027\01\02\Design\Civil\MDP\1027010202.dwg

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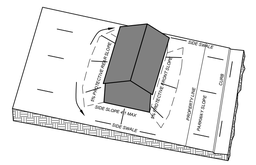
GENERAL NOTES:

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

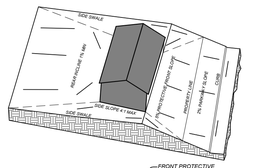
LOCATION MAP
N.T.S.

LEGEND

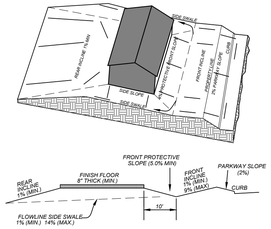
ELEC.,GAS, TELE. & CATV EASEMENT	=	ELECTRIC, GAS, TELEPHONE, CABLE T.V. EASEMENT
	=	FLOW ARROW
(A)	=	LOT GRADE TYPE
H.P.	=	HIGH POINT
F.F. MIN= 598.0'	=	FINISHED FLOOR MINIMUM ELEVATION AS REQUIRED PER FLOODPLAIN (SEE NOTE THIS SHEET)
735	=	EXISTING CONTOUR
735	=	PROPOSED CONTOUR
735	=	EXISTING CONTOUR
+ 731.69	=	SPOT ELEVATION



TYPE 'A' LOT GRADING



TYPE 'B' LOT GRADING



TYPE 'C' LOT GRADING

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14959
TBPELS Firm# 10046500
Formerly Known as KFW ENGINEERS
Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
11/21/23

PRESA GROVE
BEXAR COUNTY, TEXAS
OVERALL GRADING PLAN

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
3.0

Date: Nov 08, 2023, 2:27pm User ID: sdowell
File: K:\1027\01\02\Design\Civil\SR_D_02701102.dwg

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MATCHLINE "A" SEE SHEET 3.0

MATCHLINE "A" SEE SHEET 3.0

SCALE : 1"=50'

0' 50' 150'

100'

LOCATION MAP
N.T.S.

DRAIN "A" SEE SHEET 4.0-4.5

RETAINING WALL TO BE DESIGN BY OTHERS

546.30
546.28 TW
543.27 BW
545.67
546.20 TW
543.76 BW
545.75
545.62
545.00 TW
545.00 BW

CALLED 12.76 ACRES
VOLUME 7883, PAGE 847, O.P.R.

LOT 904

WIKSTROM SPURS

KELMAN COVE

PIPER PARK

LUNDSTROM PIKE

LOT 901

LOT 903

MAXWELL GARDEN

20' UTILITY EASEMENT

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

15' E.G.T.TV.E.

DRAIN "E" SEE SHEET 4.10

DRAIN "F" SEE SHEET 4.11

LIFT STATION 0.25 AC

NIETO LIVING TRUST
CALLED 12.00 ACRES
VOLUME 9838, PAGE 1812, O.P.R.
RECORDED 06/29/2002

COUNTY COMMISSIONERS OF BEXAR COUNTY
CALLED 199.767 ACRES
VOLUME 6202, PAGE 883, O.P.R.
RECORDED 09/16/1994

LEGEND

ELEC., GAS, TELE. & CATV EASEMENT	=	ELECTRIC, GAS, TELEPHONE, CABLE T.V. EASEMENT
	=	FLOW ARROW
(A)	=	LOT GRADE TYPE
H.P.	=	HIGH POINT
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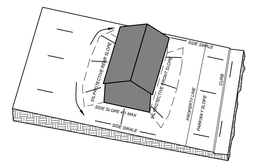
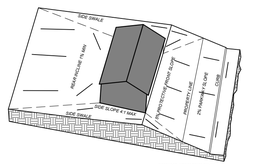
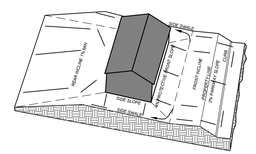


TYPE 'A' LOT GRADING



TYPE 'B' LOT GRADING



TYPE 'C' LOT GRADING

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-1409
TBPLS Firm# 10106503

Formerly Known as KFW

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
OVERALL GRADING PLAN

PLAT NO. 22-11800573

JOB NO.:1027-01-02

DATE: ----

DRAWN:SD CHECKED:JM

SHEET NUMBER:

3.1

Date: Oct 04, 2023, 8:39am User ID: sdonnell
File: K:\1027-01\03-Design\Civil\R_1027-01-02.dwg

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TRENCH EXCAVATION SAFETY PROTECTION

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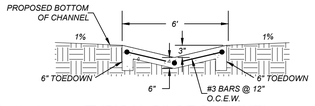


TYPICAL PILOT CHANNEL
NOT-TO-SCALE

CHANNEL LINING:

AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

Drain A - Shear Stress						
Cross-Section	Slope (ft/ft)	Wetted Permiter (ft)	Area (sqft)	Unit Weight (lb./ft3)	Hydraulic Radius (ft)	Average Shear Stress (lb/sq.ft)
1	0.003	56.98	65.54	62.4	1.15	0.22
2	0.005	36.85	45.08	62.4	1.22	0.38
3	0.006	30.92	36.98	62.4	1.20	0.45
4	0.02	28.32	25	62.4	0.88	1.10
5	0.0433	27.06	19.52	62.4	0.72	1.95
6	0.006	30.92	36.98	62.4	1.20	0.45
7	0.005	31.17	38.21	62.4	1.23	0.38
8	0.005	13.76	9.76	62.4	0.71	0.22
9	0.018	12.05	6.35	62.4	0.53	0.59

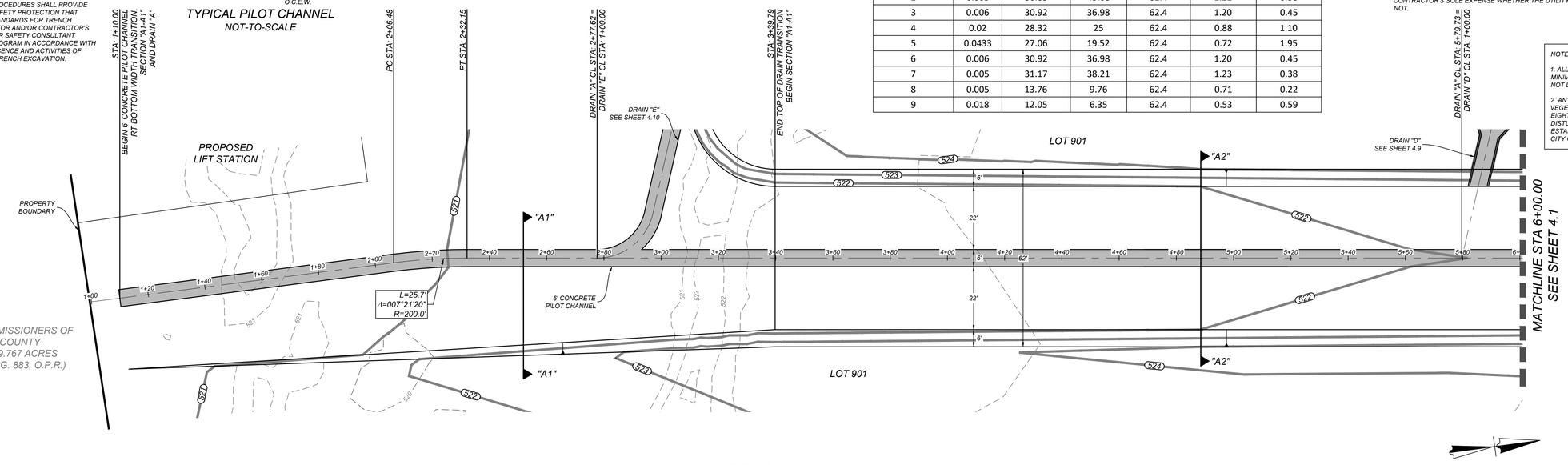
CAUTION!!:

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

NOTE:

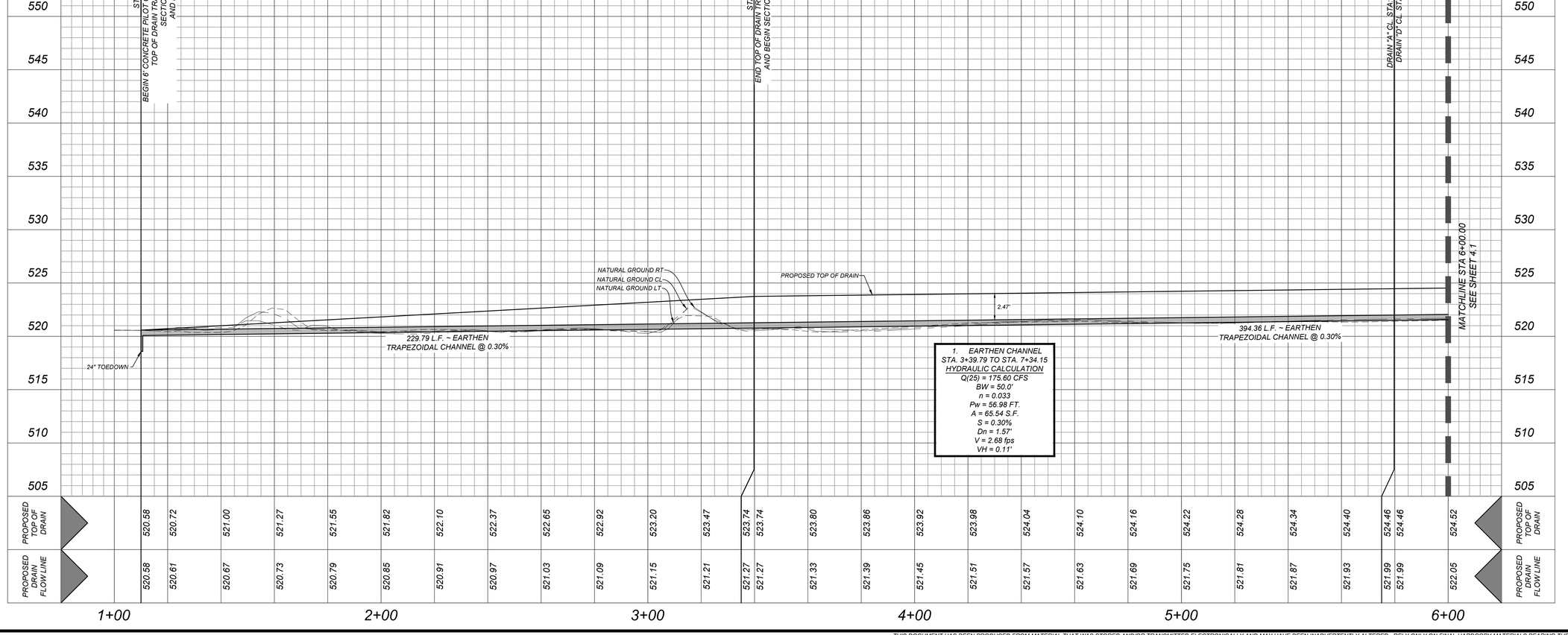
1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.

2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.



DRAIN "A"
STA. 1+00.00 TO 6+00.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14969
TBPLS Firm# 10194503
Formerly Known as KFW Engineers
Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS

DRAIN "A" PLAN & PROFILE (SHEEET 1 OF 6)

PLAT NO. 22-11800573
JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM
SHEET NUMBER: 4.0

Date: Oct 04, 2023, 8:28pm User ID: sdorsett
File: K:\1027\01\02\Design\Civil\Plan-sheets\1027102 - A.dwg

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CHANNEL LINING:

AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

CAUTION!!:

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TRENCH EXCAVATION SAFETY PROTECTION

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NOTE:

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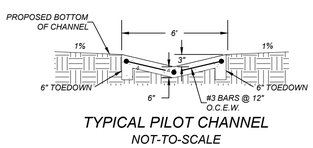
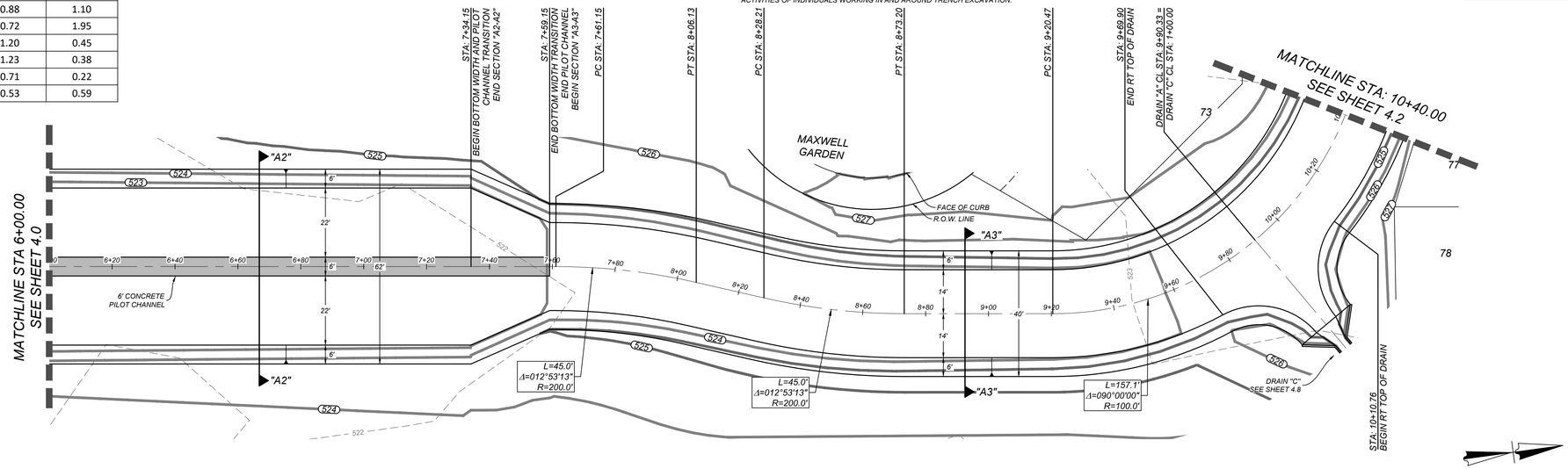
2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.

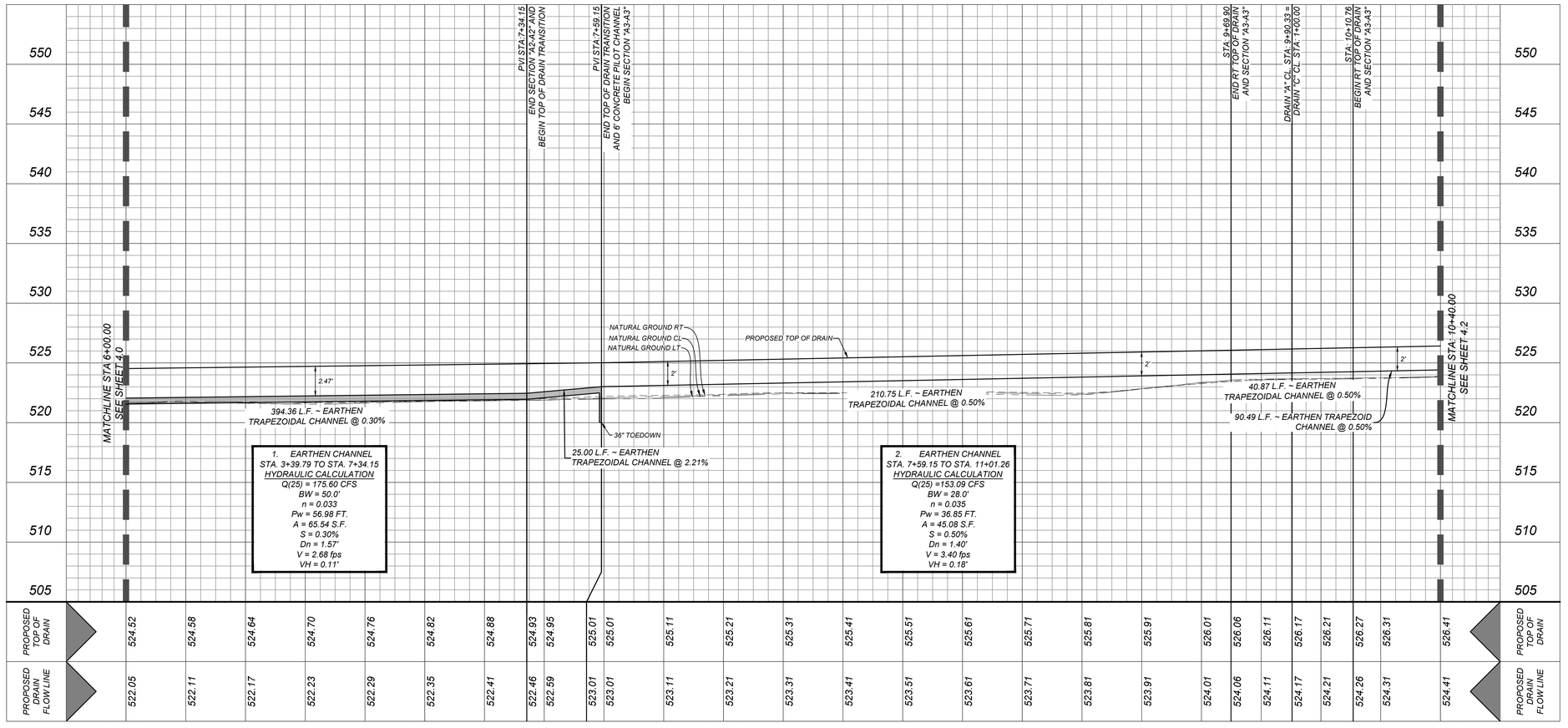


TYPICAL PILOT CHANNEL
NOT-TO-SCALE



DRAIN "A"
STA: 6+00.00 TO STA: 10+40.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS

DRAIN "A" PLAN & PROFILE (SHEEET 2 OF 6)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER: 4.1

Date: Oct 04, 2023, 8:28am User ID: sdorneff
File: K:\1027\01\023_Design_Model\Drain\Dgn\81027D102 - A.dwg

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Cross-Section	**Slope (ft/ft)**	**Wetted Permiter (ft)**	**Area (sqft)**	**Unit Weight (lb./ft3)**	**Hydraulic Radius (ft)**	**Average Shear Stress (lb/sq.ft)**
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CHANNEL LINING:

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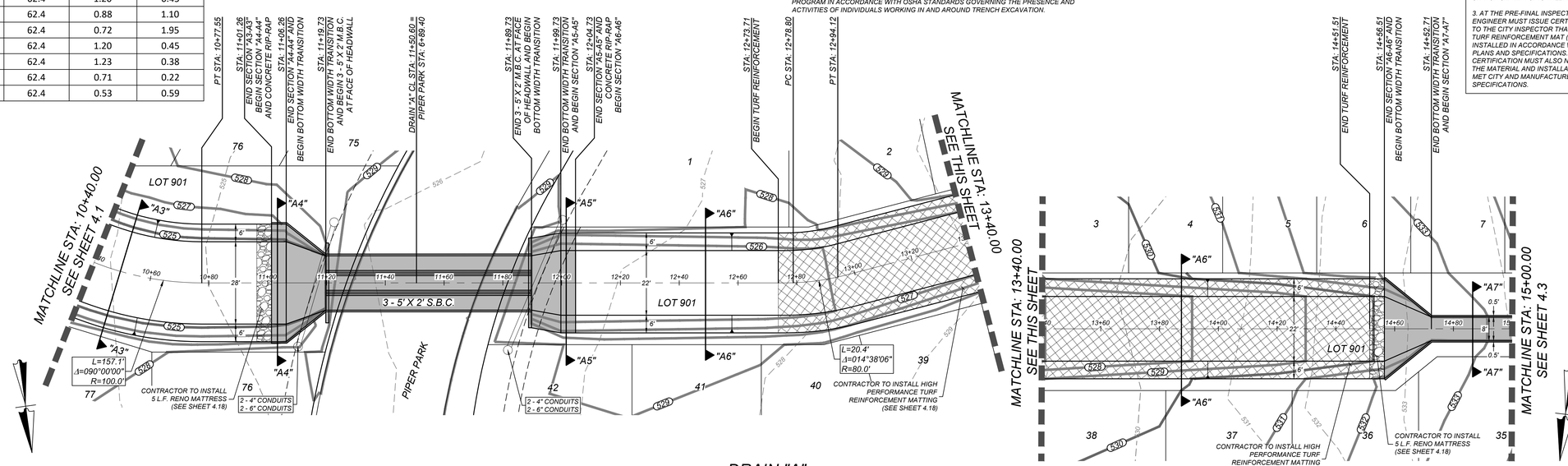
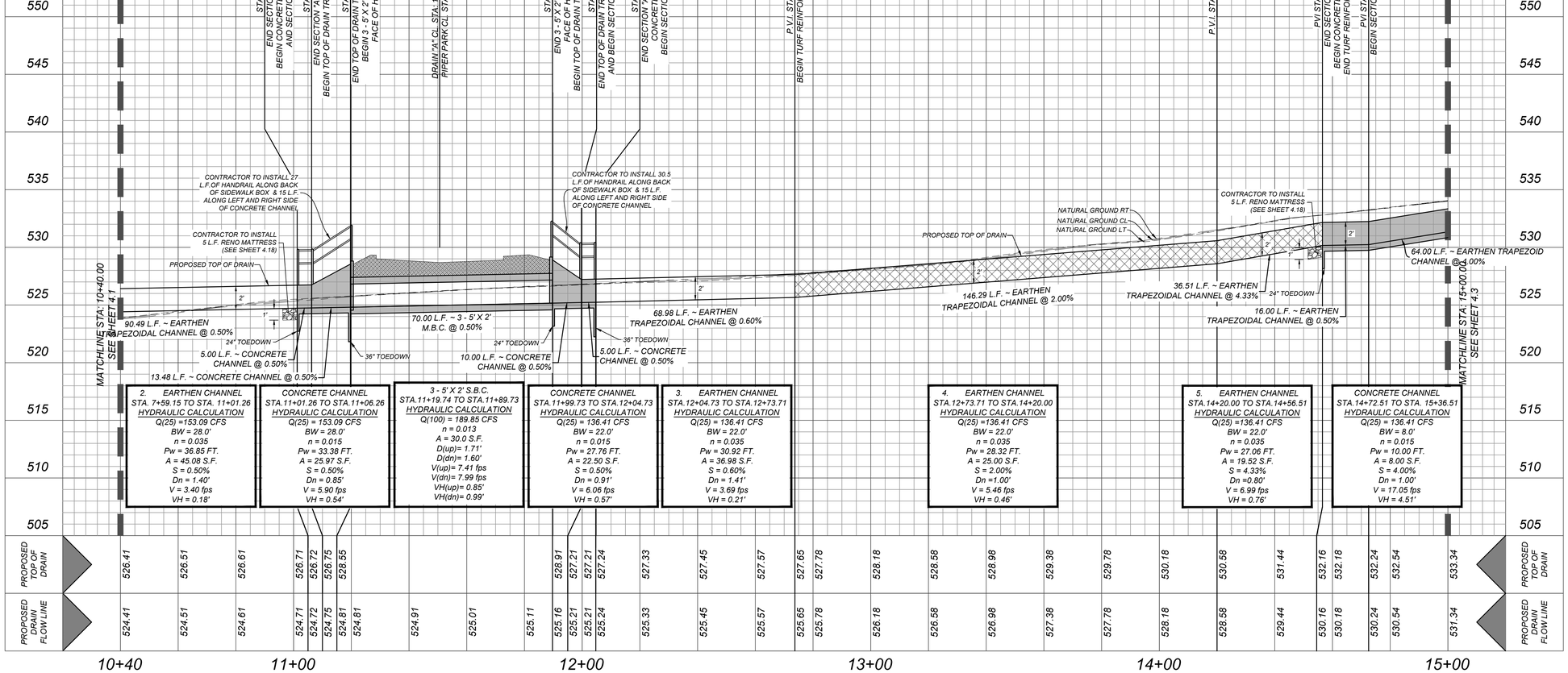
3. AT THE PRE-FINAL INSPECTION: THE ENGINEER MUST ISSUE CERTIFICATION TO THE CITY INSPECTOR THAT THE TURF REINFORCEMENT MAT (TRM) WAS INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CERTIFICATION MUST ALSO NOTE THAT THE MATERIAL AND INSTALLATION HAS MET CITY AND MANUFACTURER SPECIFICATIONS.



DRAIN "A"
STA: 10+40.00 TO STA: 15+00.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



SAN ANTONIO (KFW)
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-1409
TBPELS Firm# 10194503
Formerly Known as KFW ENGINEERS

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS

DRAIN "A" PLAN & PROFILE (SHEET 3 OF 6)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER: 4.2

Date: Oct 04, 2023, 8:30am User ID: sdowell
File: K:\1020-01\02-Design\Civil\Plan Sheets\11800573102 - A.dwg

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Drain A - Shear Stress						
Cross-Section	Slope (ft/ft)	Wetted Permiter (ft)	Area (sqft)	Unit Weight (lb./ft3)	Hydraulic Radius (ft)	Average Shear Stress (lb/sq.ft)
1	0.003	56.98	65.54	62.4	1.15	0.22
2	0.005	36.85	45.08	62.4	1.22	0.38
3	0.006	30.92	36.98	62.4	1.20	0.45
4	0.02	28.32	25	62.4	0.88	1.10
5	0.0433	27.06	19.52	62.4	0.72	1.95
6	0.006	30.92	36.98	62.4	1.20	0.45
7	0.005	31.17	38.21	62.4	1.23	0.38
8	0.005	13.76	9.76	62.4	0.71	0.22
9	0.018	12.05	6.35	62.4	0.53	0.59

CHANNEL LINING:

AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND 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. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!:

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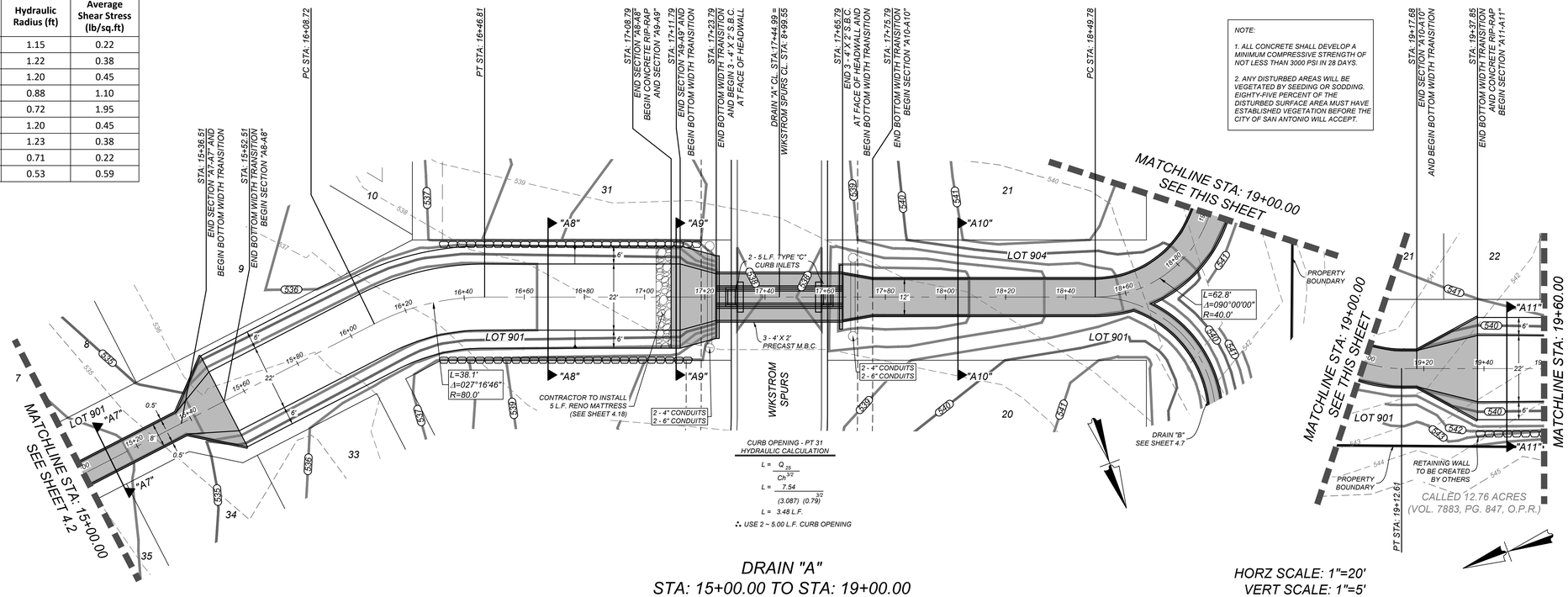

CURB OPENING - PT 31 HYDRAULIC CALCULATION

$$L = \frac{Q_{25}}{Ch^{3/2}}$$

$$L = \frac{7.54}{(3.087)\ (0.79)^{3/2}}$$

$$L = 3.48 \text{ L.F.}$$

∴ USE 2 ~ 5.00 L.F. CURB OPENING

NOTE:

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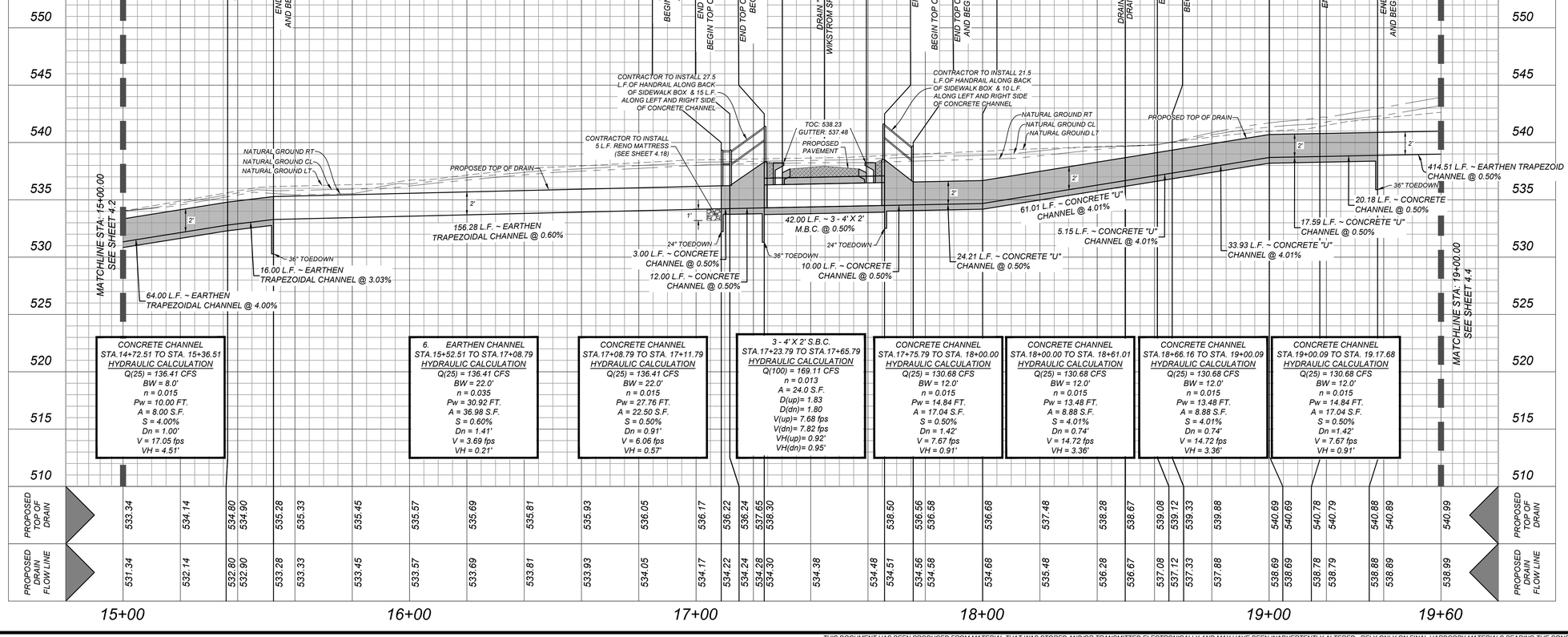
DRAIN "A"
STA: 15+00.00 TO STA: 19+00.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS

DRAIN "A" PLAN & PROFILE (SHEEET 4 OF 6)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER: 4.3

Date: Oct 04, 2023, 9:26am User ID: sdorneff
File: K:\1027\01\02\Design\Drainage\Plan\DR4\1027102 - A.dwg

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Drain A - Shear Stress						
Cross-Section	Slope (ft/ft)	Wetted Permiter (ft)	Area (sqft)	Unit Weight (lb./ft3)	Hydraulic Radius (ft)	Average Shear Stress (lb/sq.ft)
1	0.003	56.98	65.54	62.4	1.15	0.22
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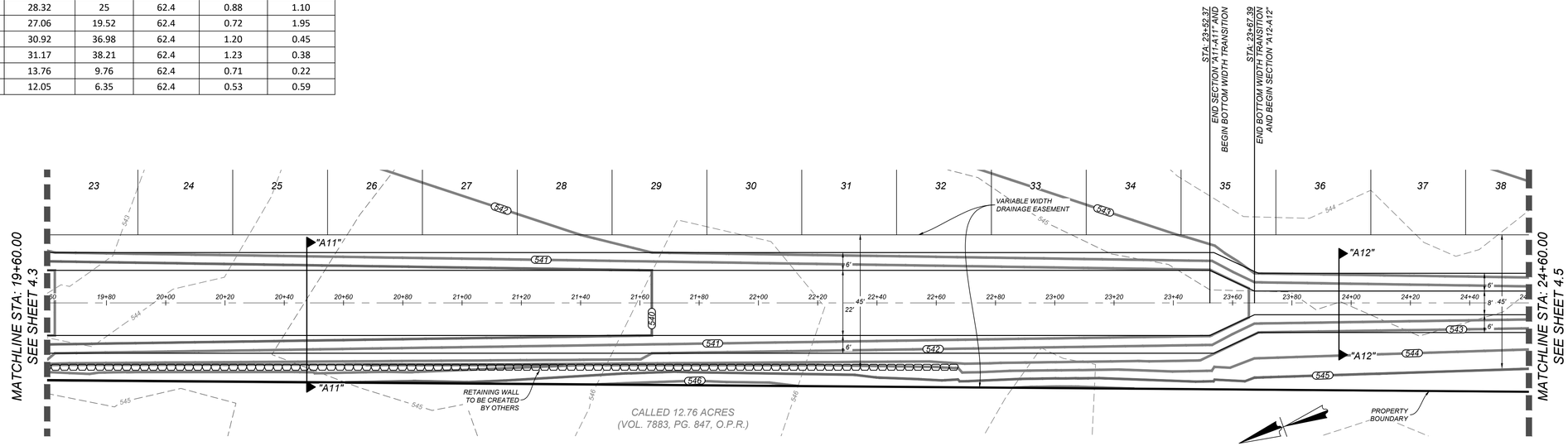
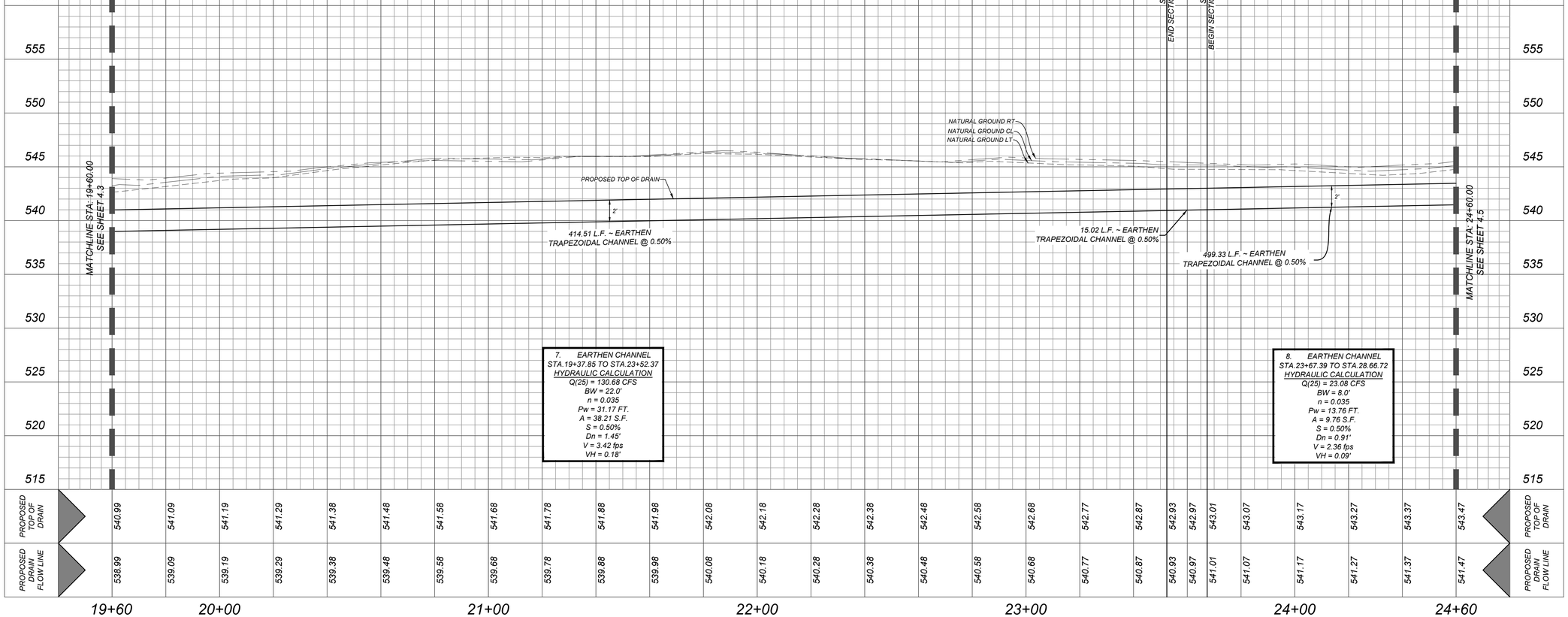


DRAIN "A"
STA: 20+00.00 TO STA: 25+00.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS

DRAIN "A" PLAN & PROFILE (SHEEET 5 OF 6)

PLAT NO.
22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
4.4

Date: Oct 04, 2023, 8:26am User ID: sdorneff
File: K:\1027\01\02\Design\Drainage\Plan\1027010202 - A.dwg

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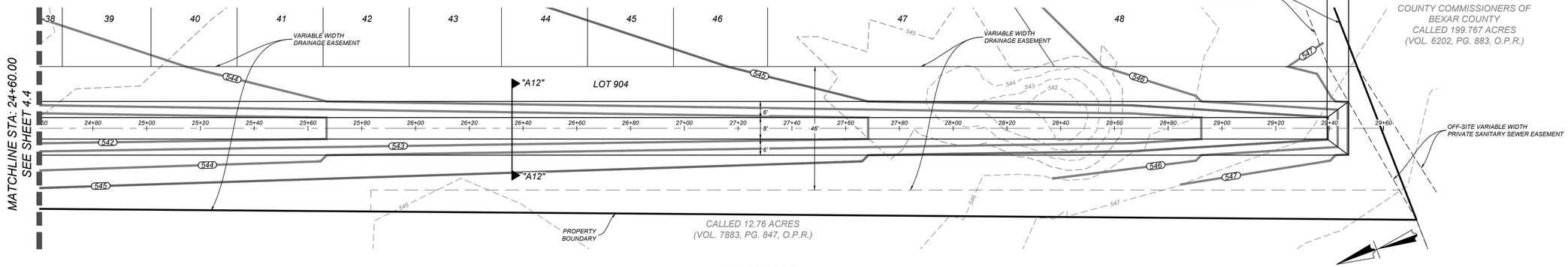
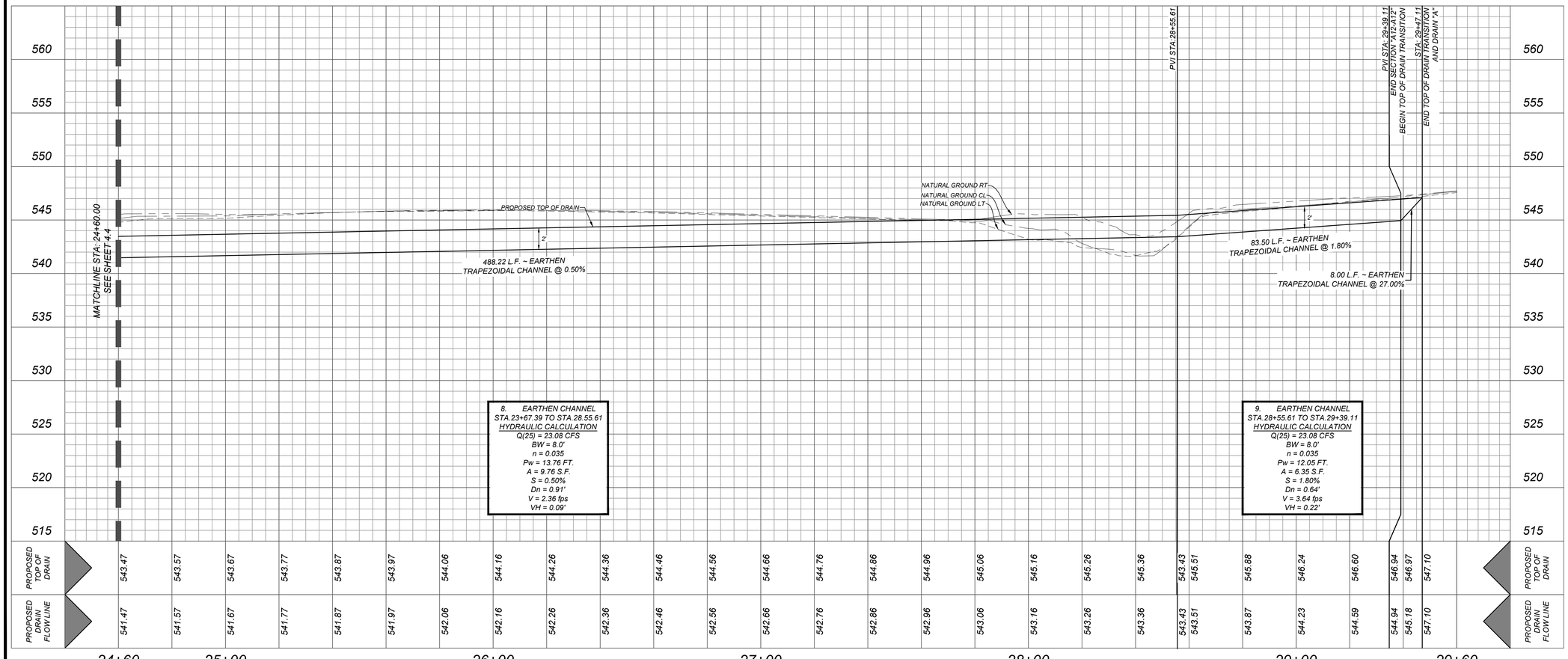


DRAIN "A"
STA: 24+60.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



8. EARTHEN CHANNEL
STA.23+67.39 TO STA.28.55.61
HYDRAULIC CALCULATION
Q(25) = 23.08 CFS
BW = 8.0'
n = 0.035
Pw = 13.76 FT.
A = 9.76 S.F.
S = 0.50%
Dn = 0.91'
V = 2.36 fps
VH = 0.09'

9. EARTHEN CHANNEL
STA.28+55.61 TO STA.29+39.11
HYDRAULIC CALCULATION
Q(25) = 23.08 CFS
BW = 8.0'
n = 0.035
Pw = 12.05 FT.
A = 6.35 S.F.
S = 1.80%
Dn = 0.64'
V = 3.64 fps
VH = 0.22'

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ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
DRAIN "A" PLAN & PROFILE (SHEEET 6 OF 6)

PLAT NO. 22-11800573
JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM
SHEET NUMBER: 4.5

Date: Oct 04, 2023, 8:36pm User ID: sdorsett
File: K:\1027\01\02\Design\Construction\Sheets\1027010202 - A.dwg

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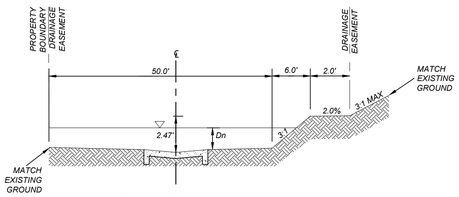
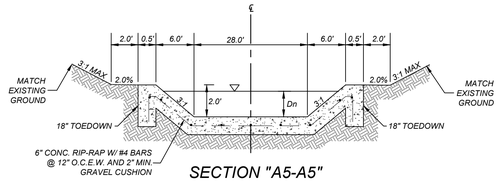
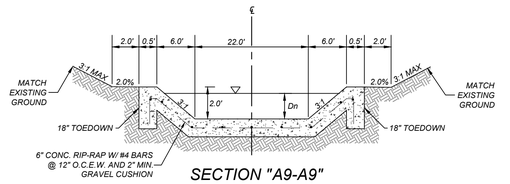


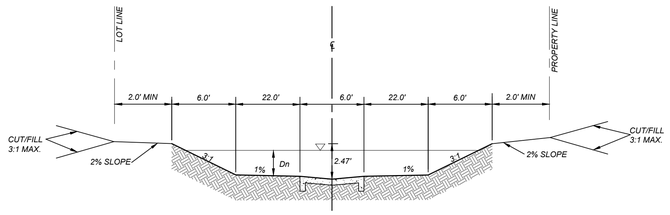
SECTION "A1-A1"
STA. 1+10.00 - STA. 3+39.79
N.T.S.



SECTION "A5-A5"
STA. 11+99.73 - STA. 12+04.73
N.T.S.



SECTION "A9-A9"
STA. 17+08.79 - STA. 17+11.79
N.T.S.



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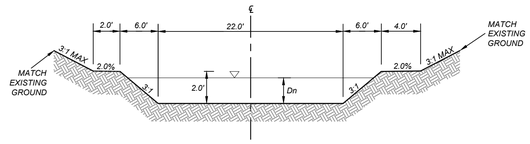

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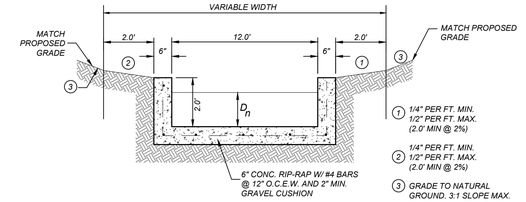
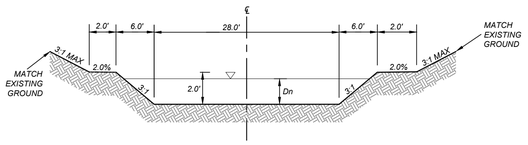
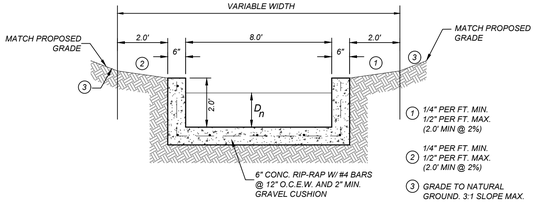


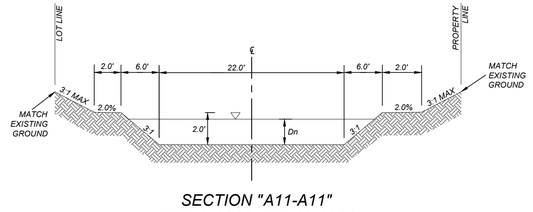
SECTION "A10-A10"
STA.17+75.79 - STA. 18+61.01
STA: 18+66.16 - STA:19+17.68
N.T.S.



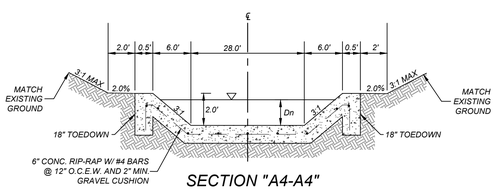
SECTION "A3-A3"
STA: 7+59.15 - STA: 9+69.90
STA: 10+10.76 - STA: 11+01.26
N.T.S.



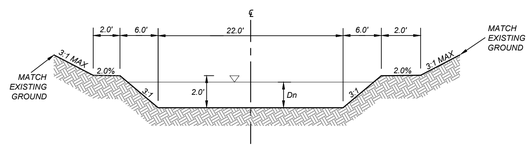
SECTION "A7-A7"
STA. 14+72.51 - STA. 15+36.51
N.T.S.



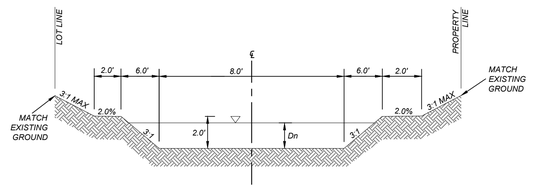
SECTION "A11-A11"
STA.19+37.85 - STA.23+52.37
N.T.S.



SECTION "A4-A4"
STA. 11+01.26 - STA. 11+06.26
N.T.S.



SECTION "A8-A8"
STA: 15+52.51 - STA: 17+08.79
N.T.S.



SECTION "A12-12"
STA.23+67.39 - STA. 29+39.11
N.T.S.

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14909
TBPELS Firm# 10106503

Formerly Known as KFW ENGINEERS

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
DRAIN "A" CROSS-SECTIONAL DETAILS

PLAT NO.
22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
4.6

Date: Oct 04, 2023, 8:58am User ID: sdorsett
File: K:\1027\01\02\Design\Grading\Plan\SHEET\1027102 - A.dwg

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Drain B - Shear Stress						
Cross-Section	Slope (ft/ft)	Wetted Permiter (ft)	Area (sqft)	Unit Weight (lb./ft3)	Hydraulic Radius (ft)	Average Shear Stress (lb/sq.ft)
1	0.005	10.87	6.4	62.4	0.59	0.18
2	0.02	9.35	4.02	62.4	0.43	0.54

CHANNEL LINING:

AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND 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. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CAUTION!!:

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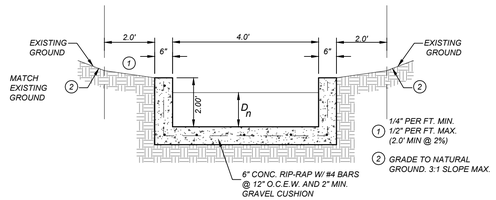
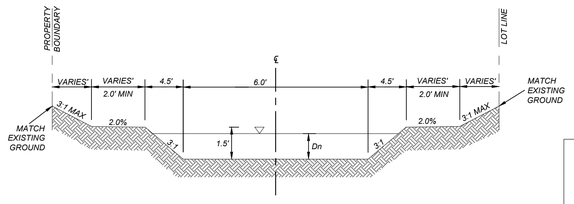


SECTION "B1-B1"
STA. 1+18.04 - STA. 1+62.83
N.T.S.

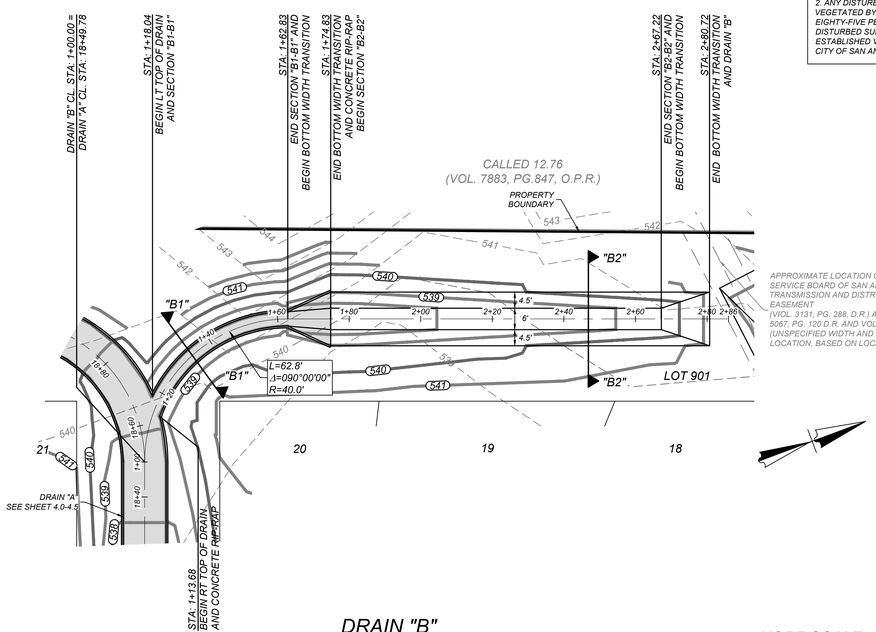


SECTION "B2-B2"
STA. 1+74.83 - STA. 2+67.22
N.T.S.

NOTE:

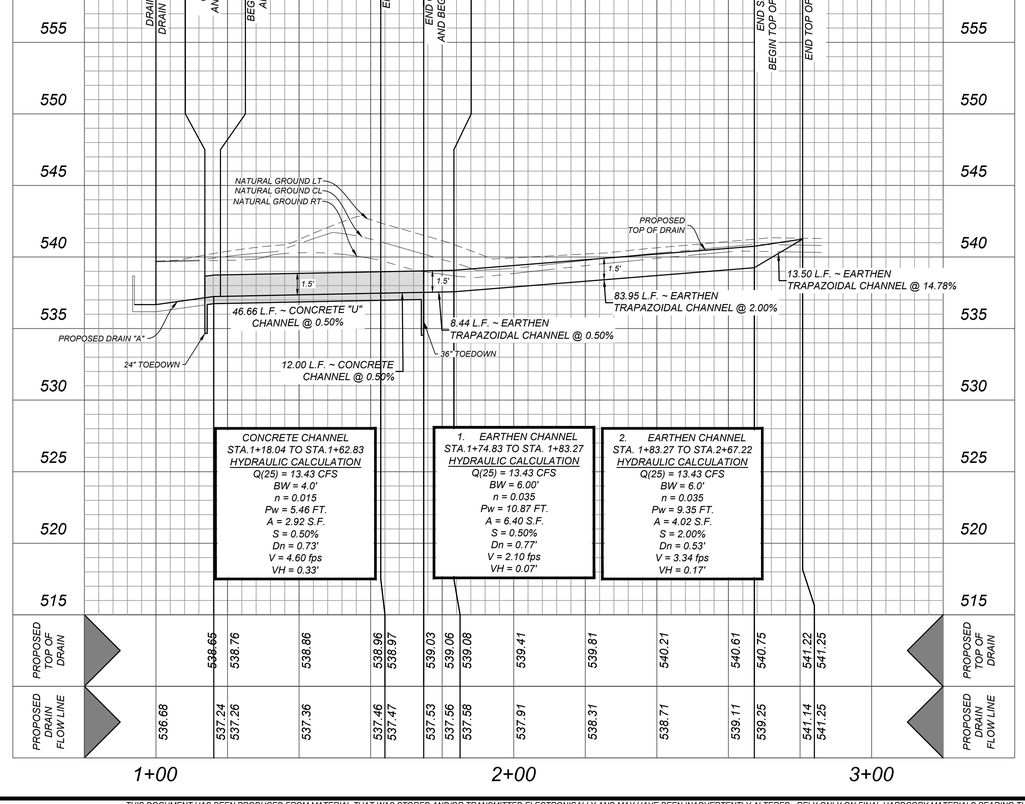
1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.

2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.



DRAIN "B"
STA. 1+00.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



5AN ANTONIO (KFW)
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TBPE Firm# F-14969
TBPLS Firm# 10194503
Formerly Known as KFW Engineers

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
DRAIN "B" PLAN & PROFILE

PLAT NO. 22-11800573

JOB NO.1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER: 4.7

Date: Oct 04, 2023, 9:27pm User ID: sdrewell
File: K:\1027\01\02\Design\Civil\Drainage\DR1027010202 - BCD.dwg

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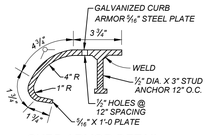
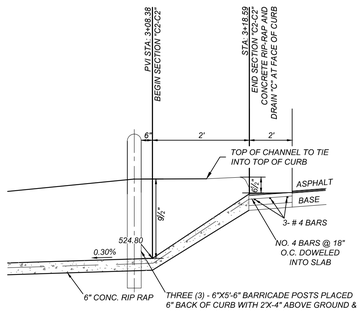
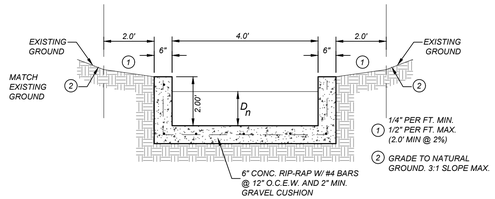


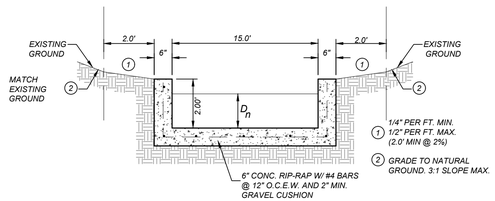
CURB ARMOR DETAIL
N.T.S.



DRAIN "C"
DROP CURB DETAIL
N.T.S.



SECTION "C1-C1"
STA. 1+42.25 - STA. 2+91.59
N.T.S.



SECTION "C2-C2"
STA. 3+08.38 - STA. 3+18.59
N.T.S.

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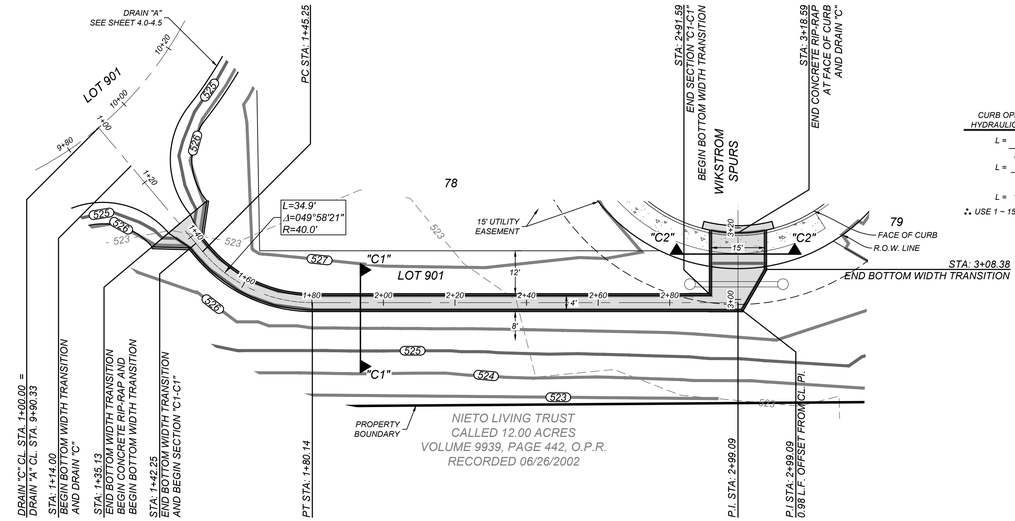


CURB OPENING - PT 3A
HYDRAULIC CALCULATION

$L = \frac{Q_{25}}{Ch^{3/2}}$

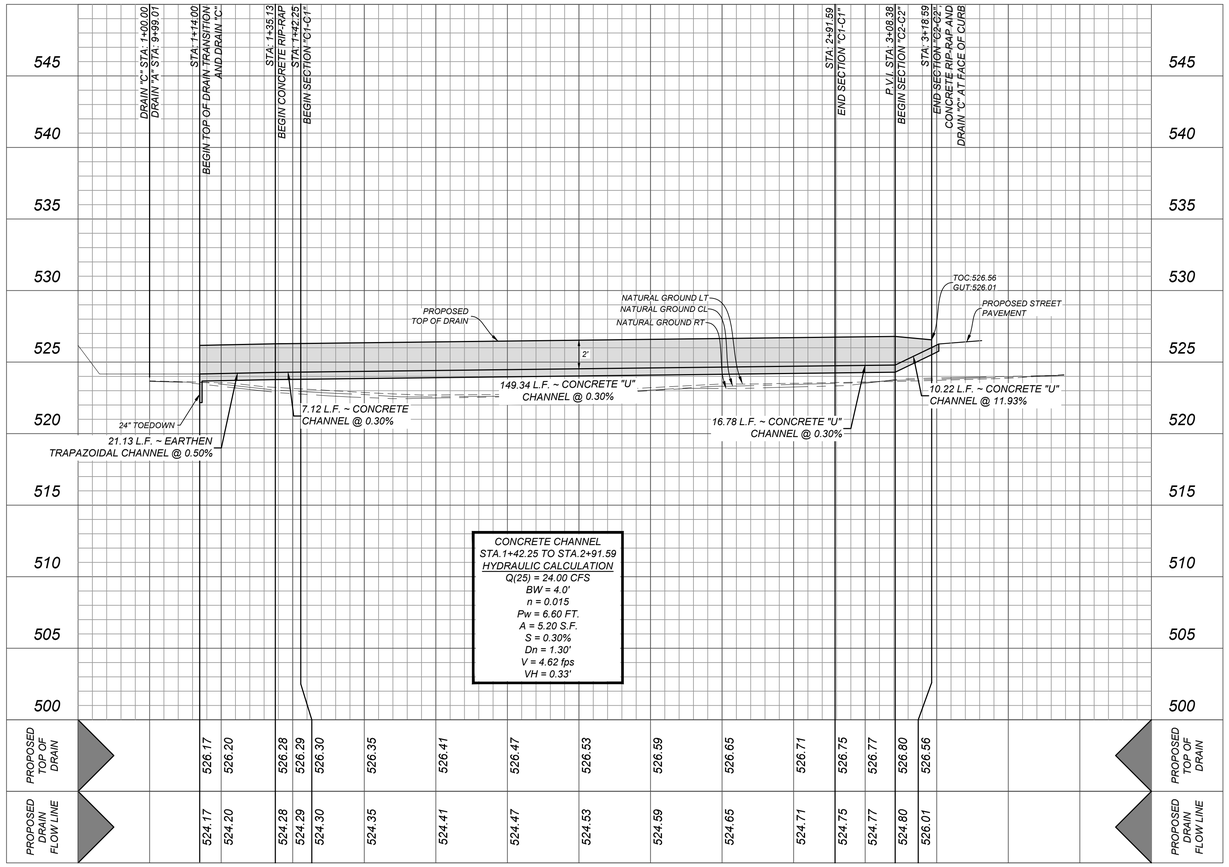
$L = \frac{23.85}{(3.087)\ (0.79)^{3/2}}$

$L = 11.00$ L.F.

∴ USE 1 ~ 15.00 L.F. CURB OPENING

DRAIN "C"
STA. 1+00.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



CONCRETE CHANNEL
STA.1+42.25 TO STA.2+91.59
HYDRAULIC CALCULATION
Q(25) = 24.00 CFS
BW = 4.0'
n = 0.015
Pw = 6.60 FT.
A = 5.20 S.F.
S = 0.30%
Dn = 1.30'
V = 4.62 fps
VH = 0.33'

SAN ANTONIO (KFW)
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Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
DRAIN "C" PLAN & PROFILE

PLAT NO.
22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
4.8

Date: Oct 04, 2023, 3:27pm User ID: sdowell
File K:\1027-01\02-Design Civil\Drain\4.8-1027010102 - BCD.dwg

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TRENCH EXCAVATION SAFETY PROTECTION

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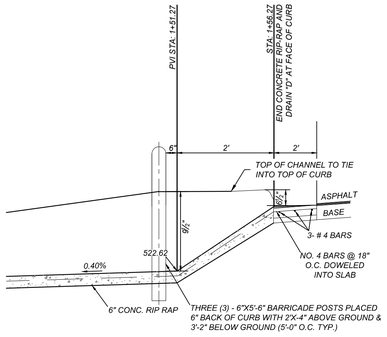
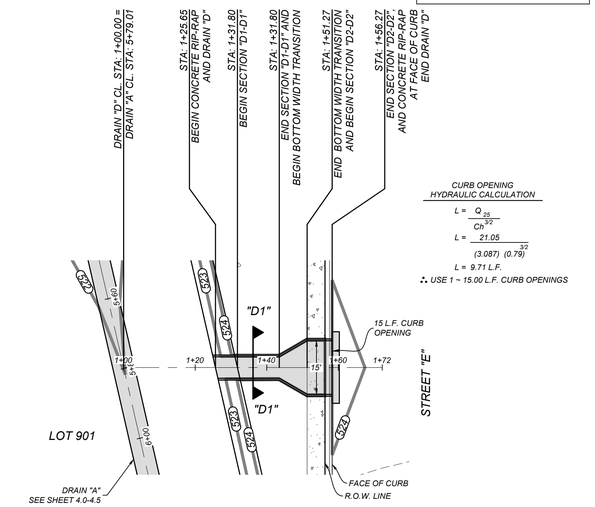
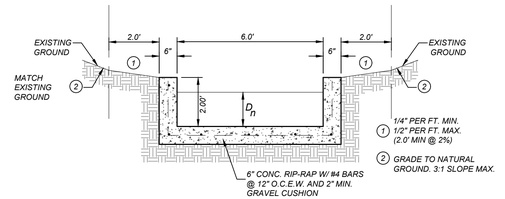
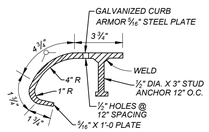


DRAIN "D"
DROP CURB DETAIL
N.T.S.





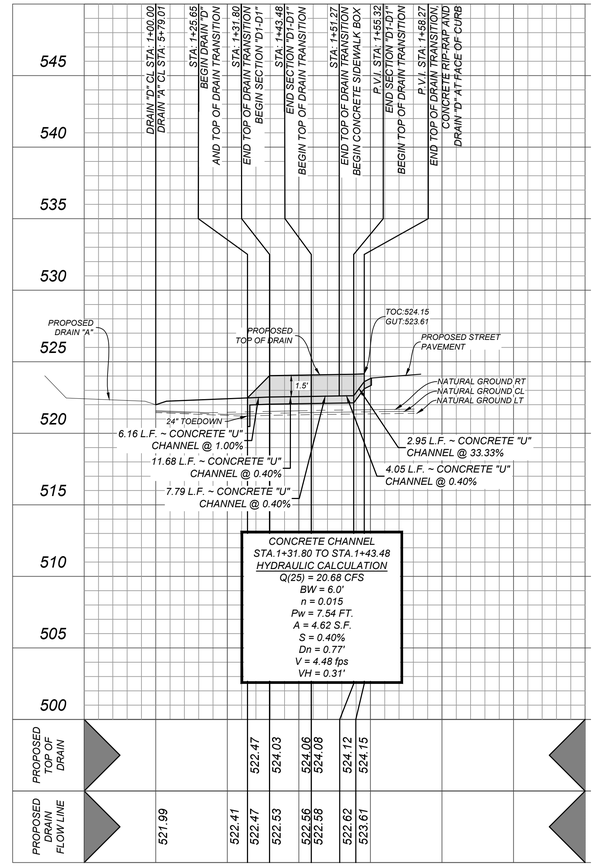
SECTION "D1-D1"
STA. 1+31.80 - STA. 1+43.48
N.T.S.



CURB ARMOR DETAIL
N.T.S.

DRAIN "D"
STA. 1+00.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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TBPE Firm# F-1409
TBPELS Firm# 10194503

Formerly Known as KFW Engineers

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
DRAIN "D" PLAN & PROFILE

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
4.9

Date: Oct 04, 2023, 9:27pm - User ID: sdrexel
File: K:\1027\01\02\Design\Civil\Drain\SHEETS\231027102 - BCD.dwg

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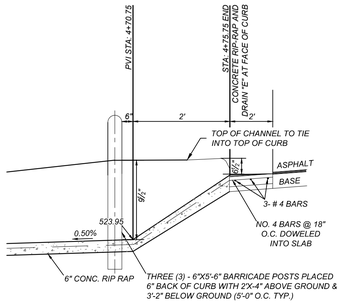
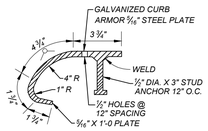


DRAIN "E" DROP CURB DETAIL N.T.S.



CURB ARMOR DETAIL N.T.S.

Drain E - Shear Stress						
Cross-Section	Slope (ft/ft)	Wetted Permiter (ft)	Area (sqft)	Unit Weight (lb./ft3)	Hydraulic Radius (ft)	Average Shear Stress (lb/sq.ft)
1	0.005	14.6	13.71	62.4	0.94	0.29
2	0.02	11.95	8.29	62.4	0.69	0.87

TRENCH EXCAVATION SAFETY PROTECTION

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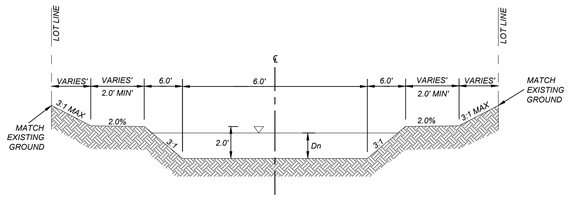
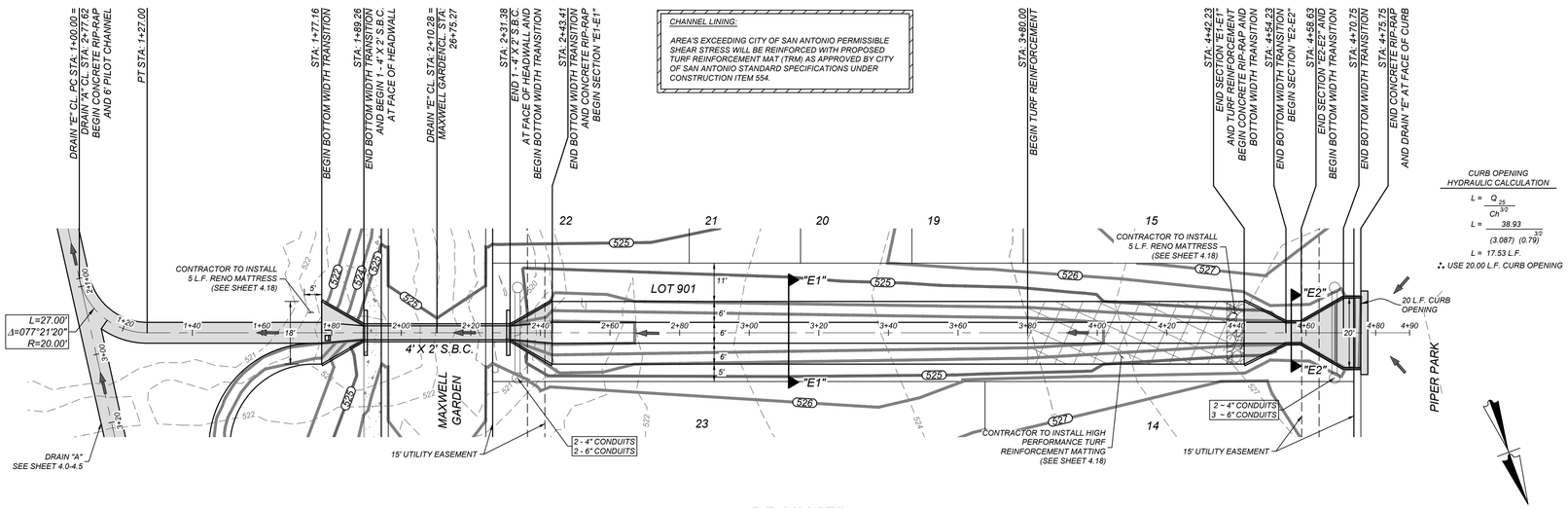


SECTION "E1-E1" STA.2+43.41 - STA. 4+42.23 N.T.S.



CURB OPENING HYDRAULIC CALCULATION

$$L = \frac{Q_{25}}{Ch^{3/2}}$$

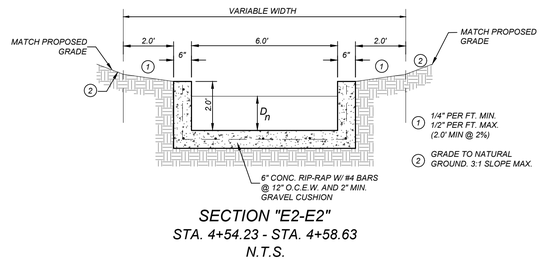
$$L = \frac{38.93}{(3.087)\ (0.79)^{3/2}}$$

$L = 17.53$ L.F.

∴ USE 20.00 L.F. CURB OPENING

DRAIN "E" STA. 1+00.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



SECTION "E2-E2" STA. 4+54.23 - STA. 4+58.63 N.T.S.

BAFFLE BLOCK CALCULATIONS (ST. ANTHONY FALLS METHOD

Q100 = 47.70 CFS
BOTTOM WIDTH UPSTREAM = 4.00 FT.
BOTTOM WIDTH DOWNSTREAM = 6.00 FT
Y1 = 1.60' (DEPTH BEFORE JUMP)
Y2 = 1.39' (DEPTH AFTER JUMP)

WIDTH OF BLOCKS = 0.75(Y1) = 1.20 FT. (USE 1.5 FT.)
SPACE BETWEEN BLOCKS = 0.75(Y1) = 1.20 FT. (USE 1.5 FT.)
HEIGHT OF BLOCKS = Y1 = 1.60 FT. (USE 2 FT.)
 # OF BLOCKS ACROSS BOTTOM = 2

*% OF FLOOR COVERED WITH BLOCKS = [2 (1.5 FT) / 6.00] * 100 = 50%*
(% MUST BE BETWEEN 40% AND 55%)

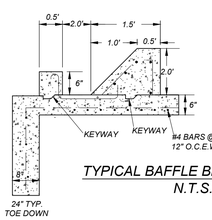
DEPTH OF TAILWATER (Y2)
FROUDE NUMBER BEFORE JUMP = F1 = 1.04
FROUDE NUMBER AFTER JUMP = F2 = 0.60

LENGTH OF BASIN = LB = 4.5(Y2)/F1^0.76 = 7.69 FT. (USE 12.12 FT.)

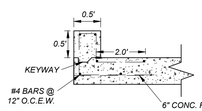
DISTANCE TO FLOOR BLOCKS = LB/3 = 2.56 FT (USE 9.62 FT.)

HEIGHT OF MAX TAILWATER DEPTH:
Z = Y2/3 = 0.59 FT.
*Y2' = 0.85 * Y2 = 1.50'*
H = Z + Y2' = 2.09 FT.

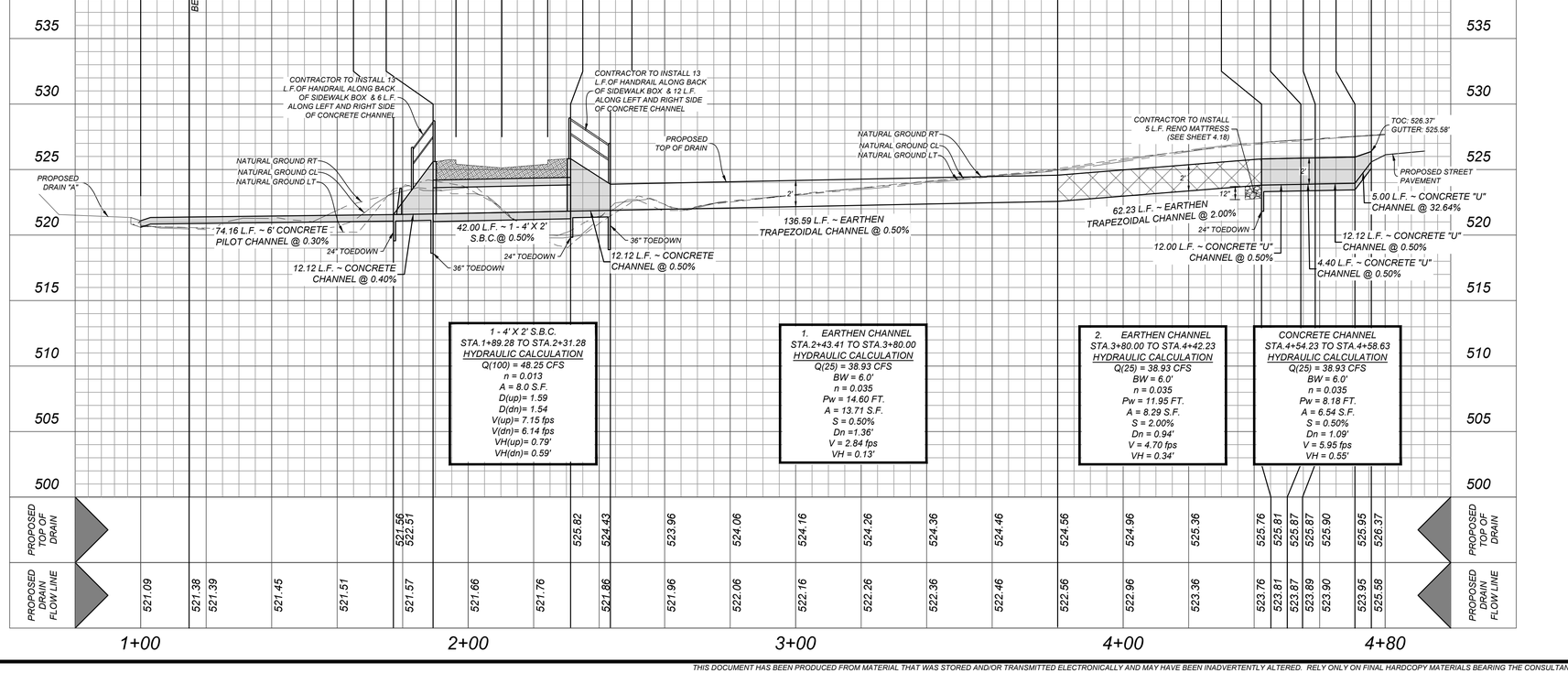
VELOCITY AFTER JUMP:
V = Q/A
*A = Y2 * BOTTOM WIDTH*
*A = 1.76 * 6 = 10.56 SQ. FT.*
V = 47.70 / 10.56 = 4.52 F.P.S.



TYPICAL BAFFLE BLOCK DETAIL N.T.S.



TYPICAL END SILL DETAIL N.T.S.



SAN ANTONIO (KFW)
3421 Paesanos Parkway
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Phone: 210.979.8444
COLLEGE STATION (KFW) TEXAS, INC.
TBPE Firm# F-14909
TBPELS Firm# 10194503
Formerly Known as KFW ENGINEERS
Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
DRAIN "E" PLAN & PROFILE

PLAT NO. 22-11800573
JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM
SHEET NUMBER: 4.10

Date: Oct 04, 2023, 9:27pm User ID: sdorsett
File: K:\1027\01\02\Design\Drainage\1027010102 - EFG.dwg

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TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND 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. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES 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.

NOTE:

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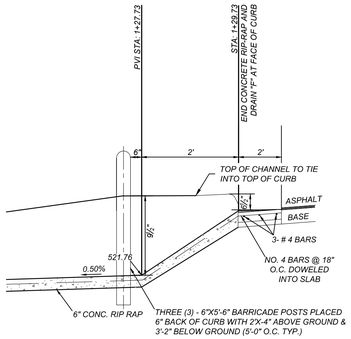
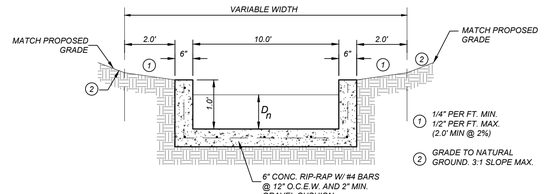
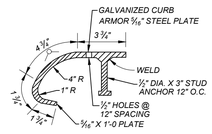
2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.



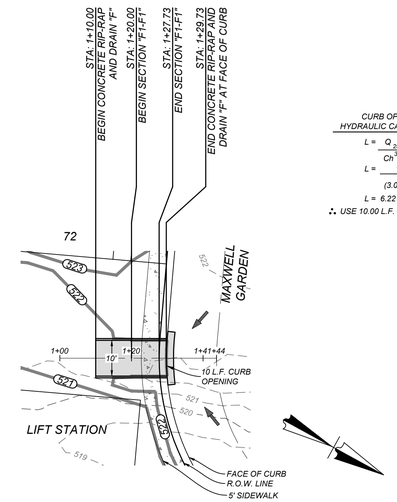
DRAIN "F"
DROP CURB DETAIL
N.T.S.



SECTION "F1-F1"
STA. 1+20.00 - STA. 1+27.73
N.T.S.



CURB ARMOR DETAIL
N.T.S.



CURB OPENING
HYDRAULIC CALCULATION

$$L = \frac{Q_{25}}{Cn^{5/2}}$$

$$L = \frac{13.49}{(3.087)\ (0.79)^{3/2}}$$

L = 6.22 L.F.

∴ USE 10.00 L.F. CURB OPENING

DRAIN "F"
STA. 1+00.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'

CONCRETE CHANNEL
STA.1+20.00 TO STA.1+27.73
HYDRAULIC CALCULATION
Q(25) = 13.49 CFS
BW = 10.0'
n = 0.035
Pw = 10.78 FT.
A = 3.90 S.F.
S = 0.50%
Dn = 0.39'
V = 3.46 fps
VH = 0.19'

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TBPLS Firm# 10194503

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Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
DRAIN "F" PLAN & PROFILE

PLAT NO. 22-11800573

JOB NO.1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
4.11

Date: Oct 04, 2023, 9:27pm - User ID: sdrewell
File: K:\1027\01\02\Design\Civil\Drainage\SAP\1027010 2 - EFG.dwg

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CHANNEL LINING:

AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

CAUTION!!

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NOTE:

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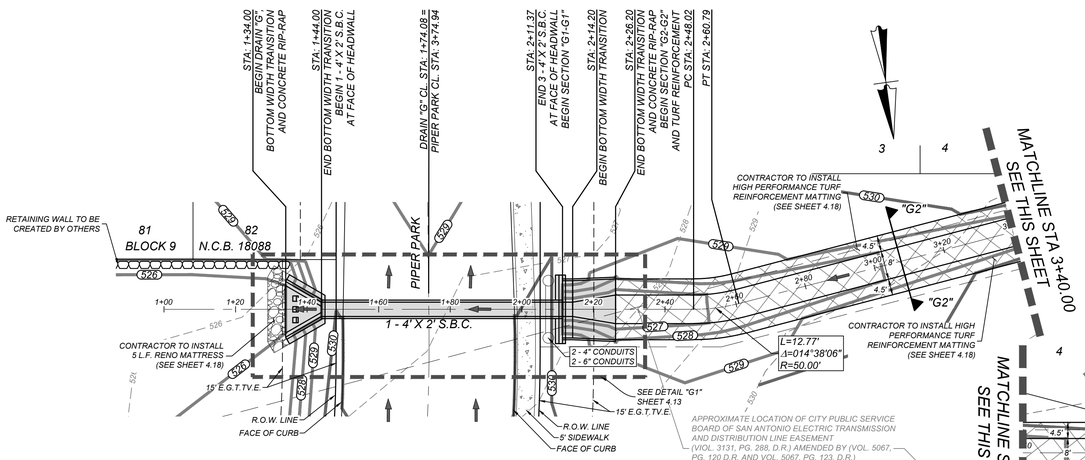
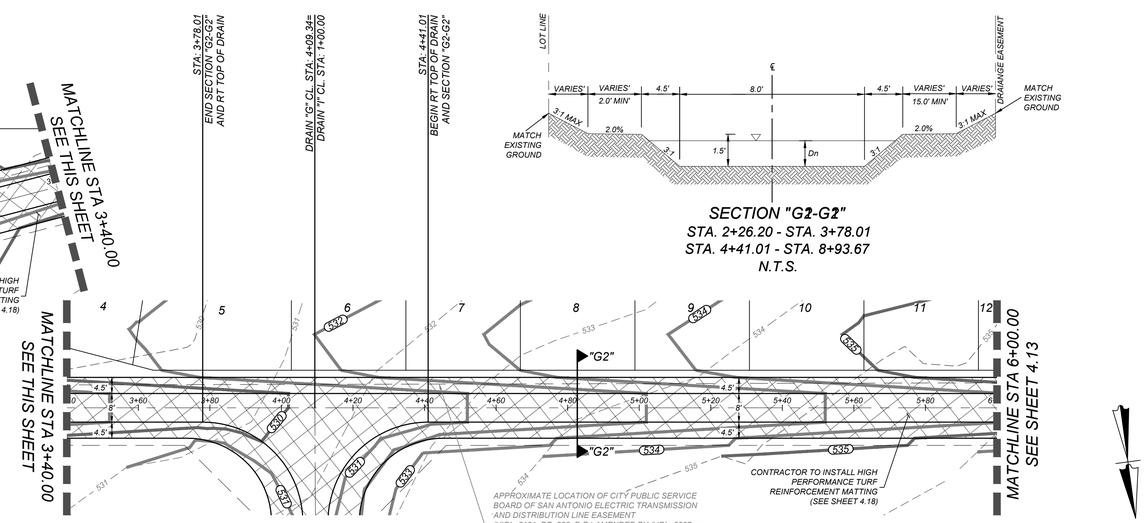


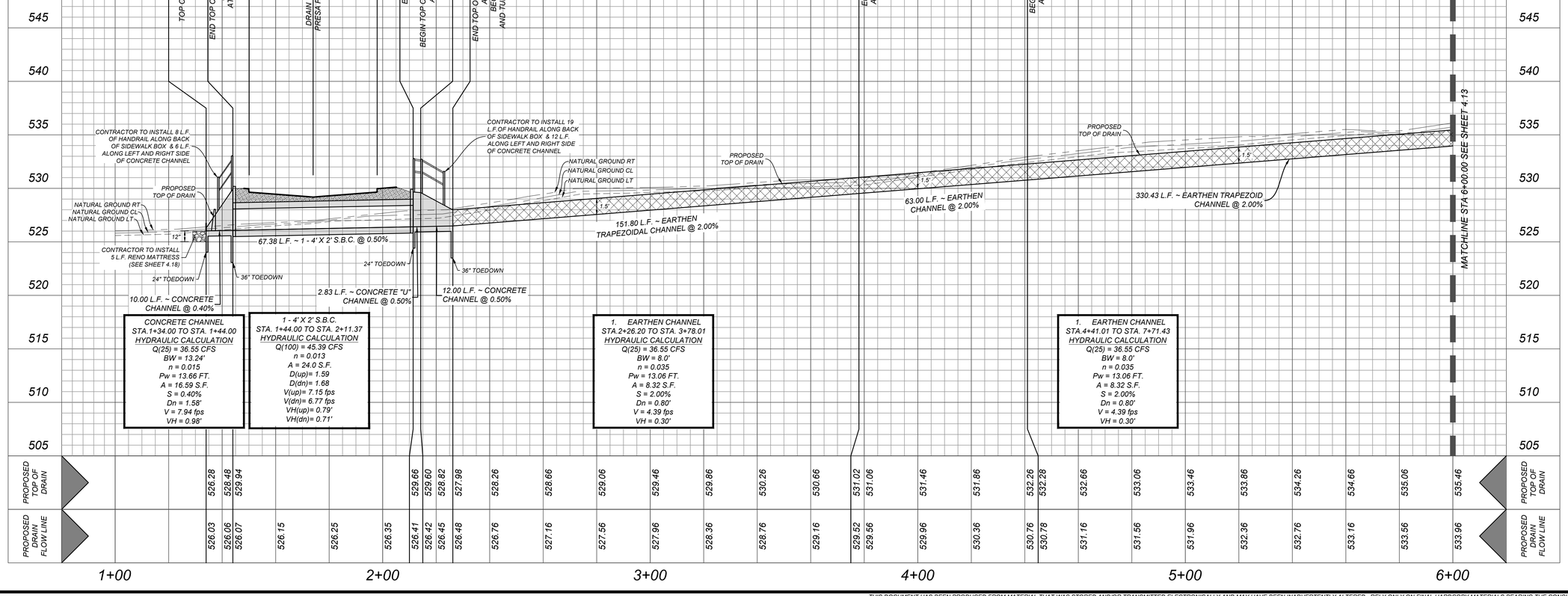


SECTION "G2-G2"
STA. 2+26.20 - STA. 3+78.01
STA. 4+41.01 - STA. 8+93.67
N.T.S.

Drain G - Shear Stress						
Cross-Section	Slope (ft/ft)	Wetted Permiter (ft)	Area (sqft)	Unit Weight (lb./ft3)	Hydraulic Radius (ft)	Average Shear Stress (lb/sq.ft)
1	0.02	13.06	8.32	62.4	0.64	0.80
2	0.038	12.24	6.71	62.4	0.55	1.30
3	0.009	14.32	11	62.4	0.77	0.43

DRAIN "G"
STA. 1+00.00 TO 6+00.00

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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TBPLS Firm# 10194503
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Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS

DRAIN "G" PLAN & PROFILE (SHEET 1 OF 2)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER: 4.12

Date: Oct 04, 2023, 8:27pm User ID: sdowell
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BAFFLE BLOCK CALCULATIONS
(ST. ANTHONY FALLS METHOD

Q100 = 45.39 CFS
BOTTOM WIDTH UPSTREAM = 4 FT
BOTTOM WIDTH DOWNSTREAM = 10.35 FT
Y1 = 1.54' (DEPTH BEFORE JUMP)
Y2 = 1.39' (DEPTH AFTER JUMP)

WIDTH OF BLOCKS = 0.75(Y1) = 1.16 FT. (USE 1.5 FT.)
SPACE BETWEEN BLOCKS = 0.75(Y1) = 1.16 FT. (USE 1.5 FT.)
HEIGHT OF BLOCKS = Y1 = 1.54 FT. (USE 2 FT.)
OF BLOCKS ACROSS BOTTOM = 3

% OF FLOOR COVERED WITH BLOCKS = [3 (1.5 FT) / 10.35] * 100 = 43%
(% MUST BE BETWEEN 40% AND 55%)

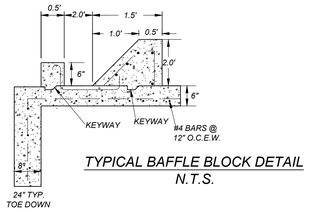
DEPTH OF TAILWATER (Y2)
FROUDE NUMBER BEFORE JUMP = F1 = 1.05 FROUDE NUMBER AFTER JUMP = F2 = 0.49

LENGTH OF BASIN = LB = 4.5(Y2)/F1^0.76 = 5.31 FT. (USE 10.00 FT.)

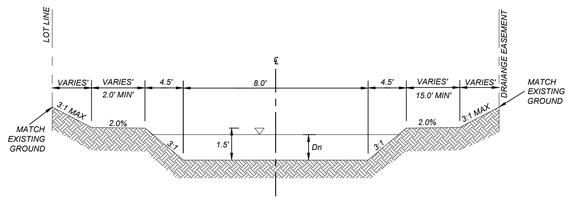
DISTANCE TO FLOOR BLOCKS = LB/3 = 1.77 FT (USE 2.0 FT.)

HEIGHT OF MAX TAILWATER DEPTH:
Z = Y2/3 = 0.46 FT.
Y2' = 0.85 * Y2 = 1.33'
H = Z + Y2' = 1.79 FT.

VELOCITY AFTER JUMP:
V = Q/A
A = Y2 * BOTTOM WIDTH
A = 1.39 * 10.35 = 14.39 SQ. FT.
V = 45.39 / 14.39 = 3.15 F.P.S.



TYPICAL BAFFLE BLOCK DETAIL
N.T.S.



SECTION "G2-G2"
STA. 2+26.20 - STA. 3+78.01
STA. 4+41.01 - STA. 8+93.67
N.T.S.

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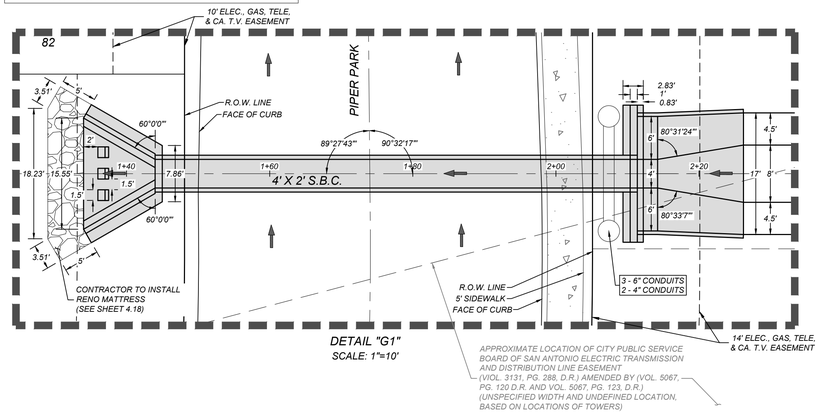
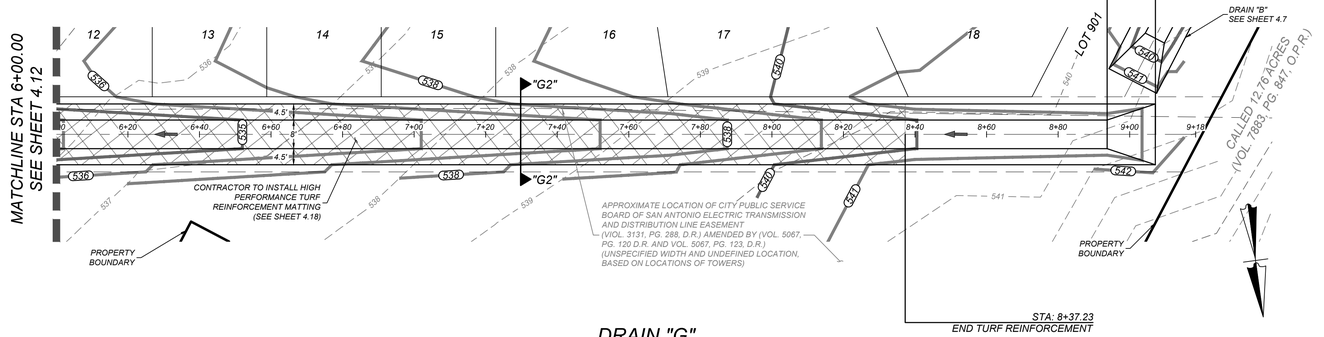
Drain G - Shear Stress

Cross-Section	Slope (ft/ft)	Wetted Permiter (ft)	Area (sqft)	Unit Weight (lb./ft3)	Hydraulic Radius (ft)	Average Shear Stress (lb/sq.ft)
1	0.02	13.06	8.32	62.4	0.64	0.80
2	0.038	12.24	6.71	62.4	0.55	1.30
3	0.009	14.32	11	62.4	0.77	0.43



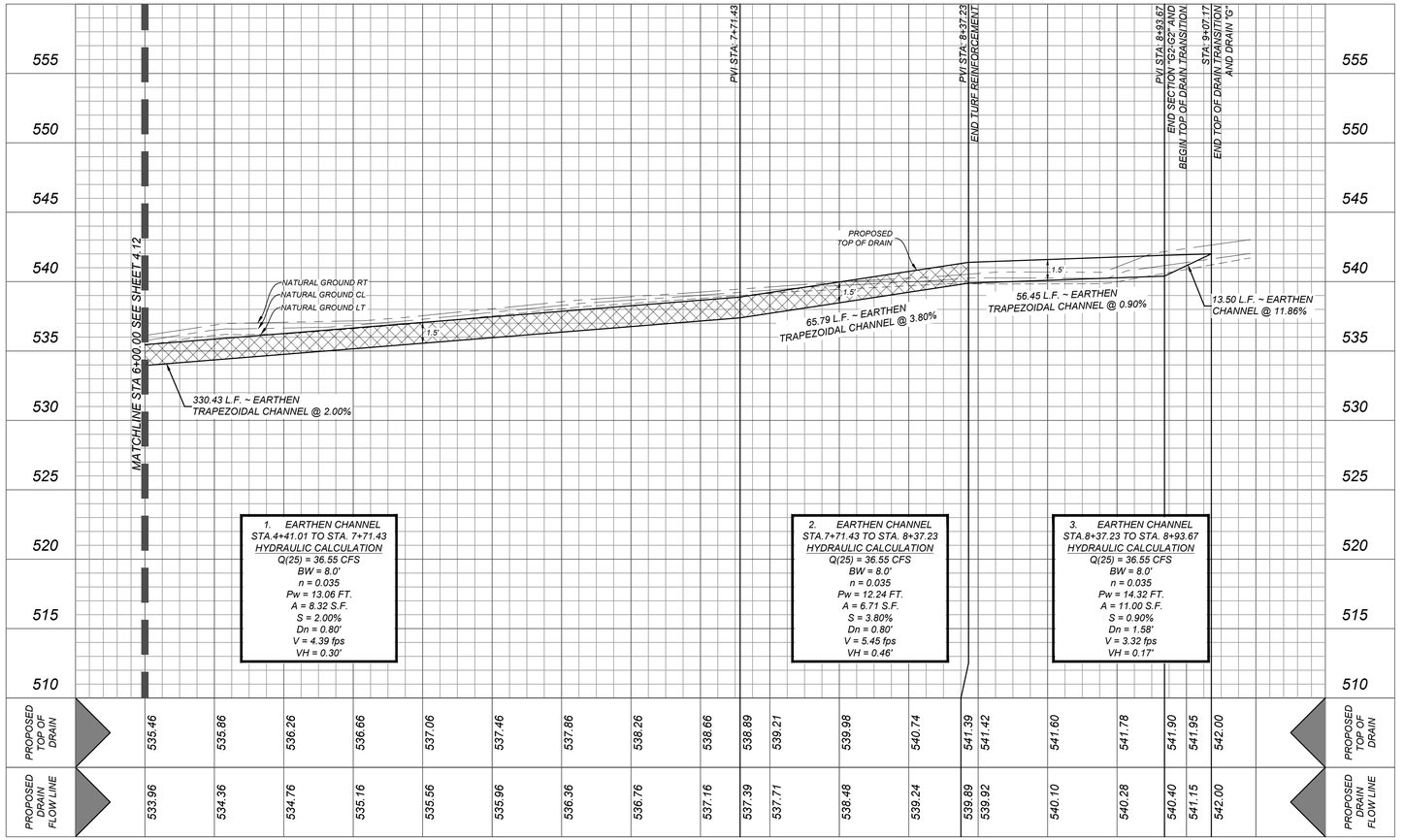
DETAIL "G1"
SCALE: 1"=10'

APPROXIMATE LOCATION OF CITY PUBLIC SERVICE BOARD OF SAN ANTONIO ELECTRIC TRANSMISSION AND DISTRIBUTION LINE EASEMENT (VOL. 3131, PG. 288, D.R.) AMENDED BY (VOL. 5067, PG. 120 D.R. AND VOL. 5067, PG. 123, D.R.) (UNSPECIFIED WIDTH AND UNDEFINED LOCATION, BASED ON LOCATIONS OF TOWERS)



DRAIN "G"
STA. 6+00.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



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ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS

DRAIN "G" PLAN & PROFILE (SHEET 2 OF 2)

PLAT NO. 22-11800573
JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM
SHEET NUMBER: 4.13

Date: Oct 04, 2023, 2:26pm User:ID: sdowell
File: K:\1027-01\03-Design\Civil\Drainage\SHEET\270102 - EFG.dwg

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BAFFLE BLOCK CALCULATIONS
(ST. ANTHONY FALLS METHOD

Q100 = 123.47 CFS
BOTTOM WIDTH UPSTREAM = 13.16 FT
BOTTOM WIDTH DOWNSTREAM = 28.95 FT
Y1 = 1.66' (DEPTH BEFORE JUMP)
Y2 = 1.39' (DEPTH AFTER JUMP)

WIDTH OF BLOCKS = 0.75(Y1) = 1.20 FT. (USE 1.5 FT.)
SPACE BETWEEN BLOCKS = 0.75(Y1) = 1.20 FT. (USE 1.5 FT.)
HEIGHT OF BLOCKS = Y1 = 1.66 FT. (USE 2 FT.)
OF BLOCKS ACROSS BOTTOM = 2

% OF FLOOR COVERED WITH BLOCKS = [2 (1.5 FT) / 6.00] * 100 = 50%
(% MUST BE BETWEEN 40% AND 55%)

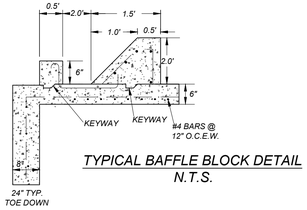
DEPTH OF TAILWATER (Y2)
FROUDE NUMBER BEFORE JUMP = F1 = 0.77FROUDE NUMBER AFTER JUMP = F2 = 0.46

LENGTH OF BASIN = LB = 4.5(Y2)/F1^0.76 = 7.59 FT. (USE 8.06 FT.)

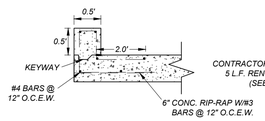
DISTANCE TO FLOOR BLOCKS = LB/3 = 2.53 FT (USE 4.17 FT.)

HEIGHT OF MAX TAILWATER DEPTH:
Z = Y2/3 = 0.46 FT.
Y2' = 0.85 * Y2 = 1.18'
H = Z + Y2' = 1.64 FT.

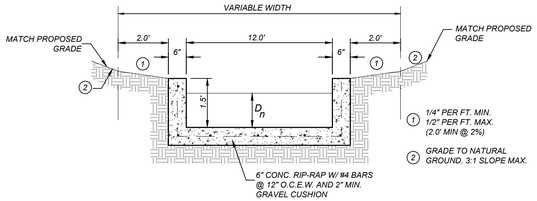
VELOCITY AFTER JUMP:
V = Q/A
A = Y2 * BOTTOM WIDTH
A = 1.39 * 28.95 = 10.56 SQ. FT.
V = 123.47 / 40.24 = 3.07 F.P.S.



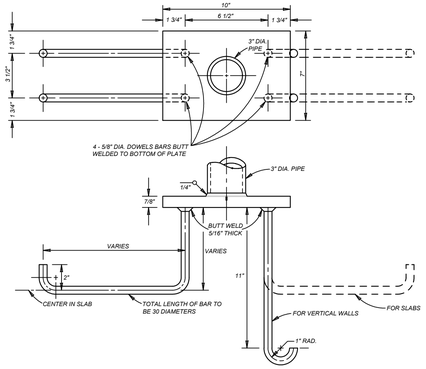
TYPICAL BAFFLE BLOCK DETAIL
N.T.S.



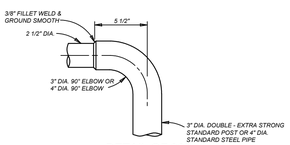
TYPICAL END SILL DETAIL
N.T.S.



SECTION "H1-H1"
STA. 2+04.16 - STA. 4+42.48
N.T.S.

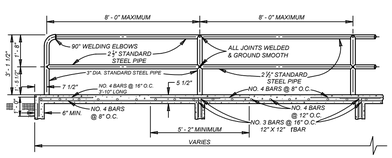


PIPE ANCHORAGE DETAILS
N.T.S.



DETAIL OF 90° WELDING ELBOWS
N.T.S.

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



TYPICAL SIDEWALK BRIDGE & SIDEWALK PIPE RAILING SECTION
N.T.S.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND 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. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

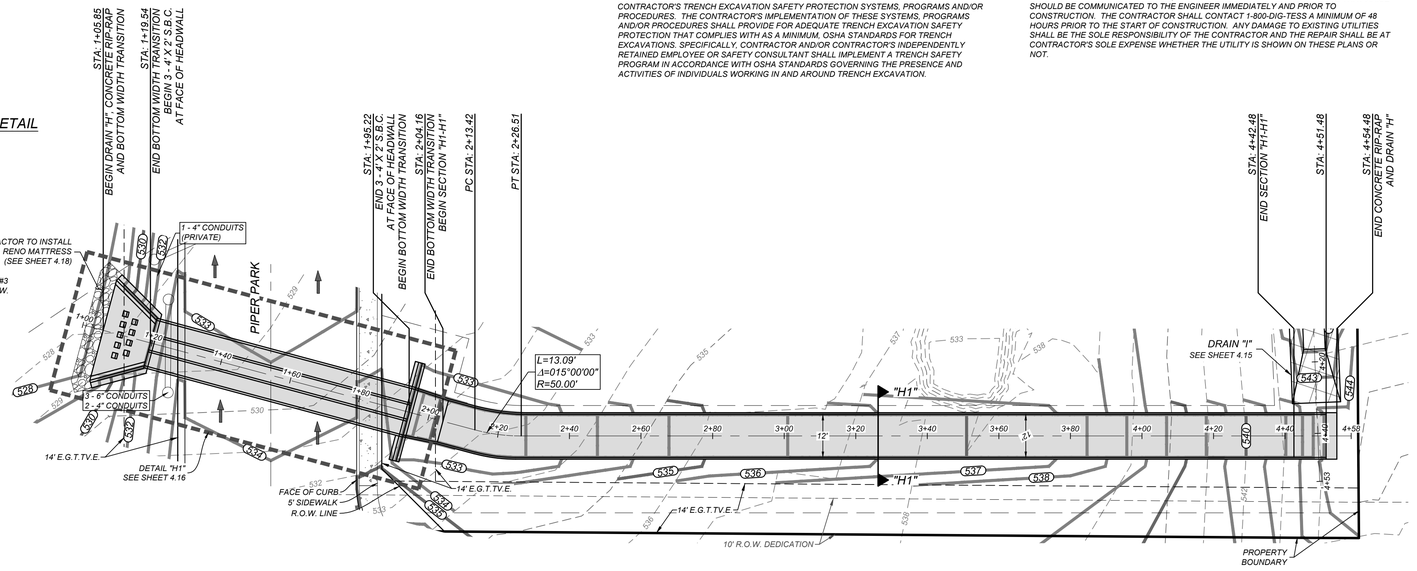
CAUTION!!:

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

NOTE:

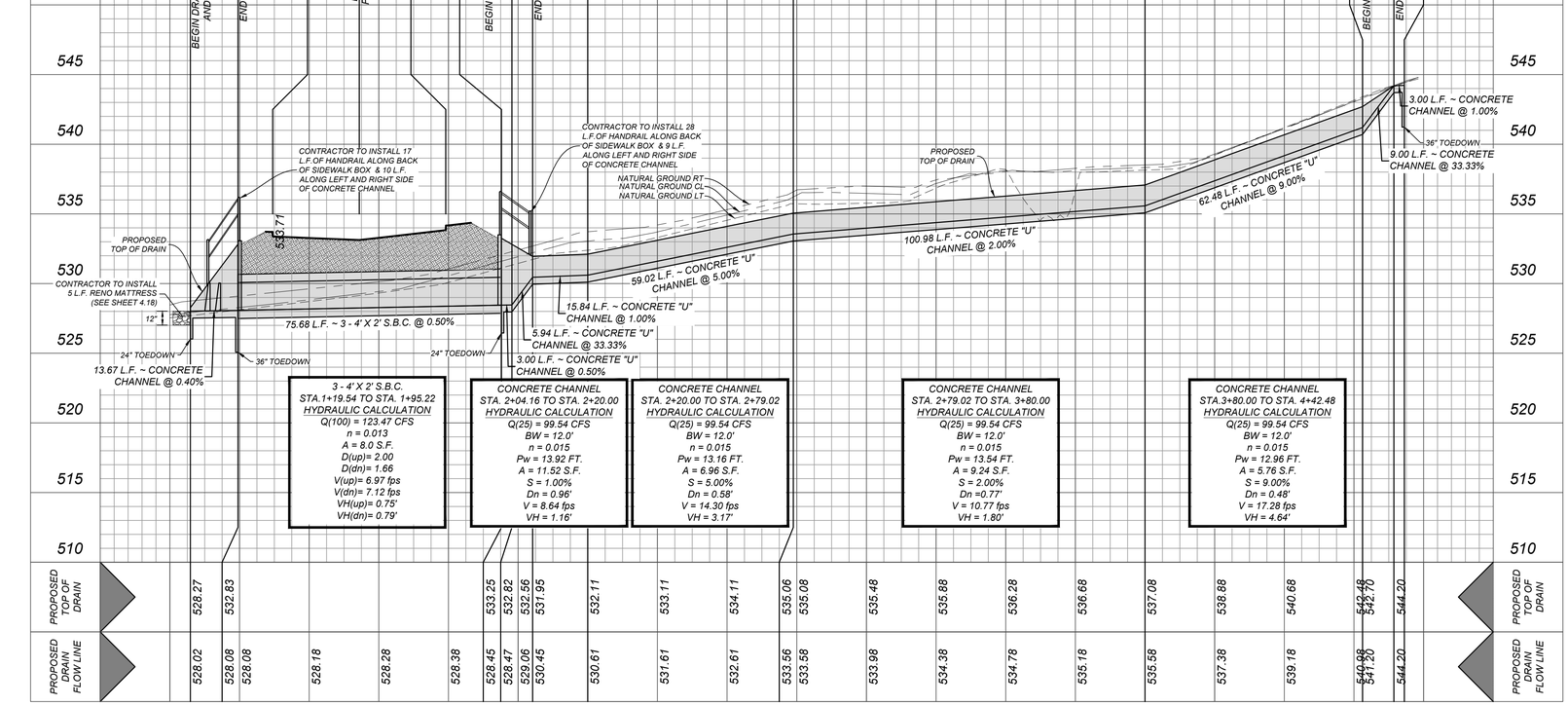
1. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.

2. ANY DISTURBED AREAS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE DISTURBED SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT.



DRAIN "H"
STA. 1+00.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



SAN ANTONIO (KFW)
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14969
TBPLS Firm# 10194503
Formerly Known as KFW Engineers

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
DRAIN "H" PLAN & PROFILE

PLAT NO. 22-11800573
JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM
SHEET NUMBER: 4.14

Date: Oct 04, 2023, 9:28am User ID: sdorneff
File: K:\1027\01\02\Design\Drain\dr1027102 - H1.dwg

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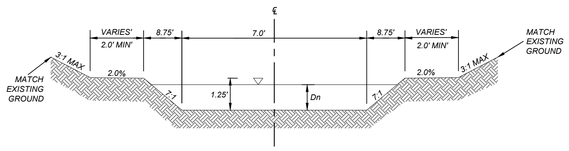
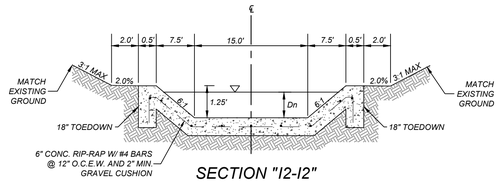
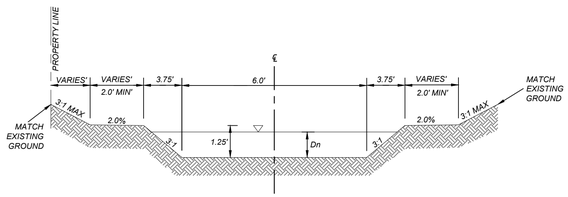


SECTION "I1-I1"
STA. 1+31.84 - STA. 1+62.66
N.T.S.



SECTION "I2-I2"
STA. 1+79.16 - STA. 1+94.16
N.T.S.



SECTION "I3-I3"
STA. 2+10.66 - STA. 4+16.42
N.T.S.

Drain I - Shear Stress						
Cross-Section	Slope (ft/ft)	Wetted Permiter (ft)	Area (sqft)	Unit Weight (lb./ft3)	Hydraulic Radius (ft)	Average Shear Stress (lb/sq.ft)
1	0.036	13.65	4.84	62.4	0.35	0.80
2	0.036	17.43	3.24	62.4	0.19	0.42
3	0.036	9.48	4.21	62.4	0.44	1.00
4	0.055	9.1	3.66	62.4	0.40	1.38
5	0.02	10.05	5.07	62.4	0.50	0.63
6	0.055	9.1	3.66	62.4	0.40	1.38

CHANNEL LINING:

AREA'S EXCEEDING CITY OF SAN ANTONIO PERMISSIBLE SHEAR STRESS WILL BE REINFORCED WITH PROPOSED TURF REINFORCEMENT MAT (TRM) AS APPROVED BY CITY OF SAN ANTONIO STANDARD SPECIFICATIONS UNDER CONSTRUCTION ITEM 554.

NOTE:

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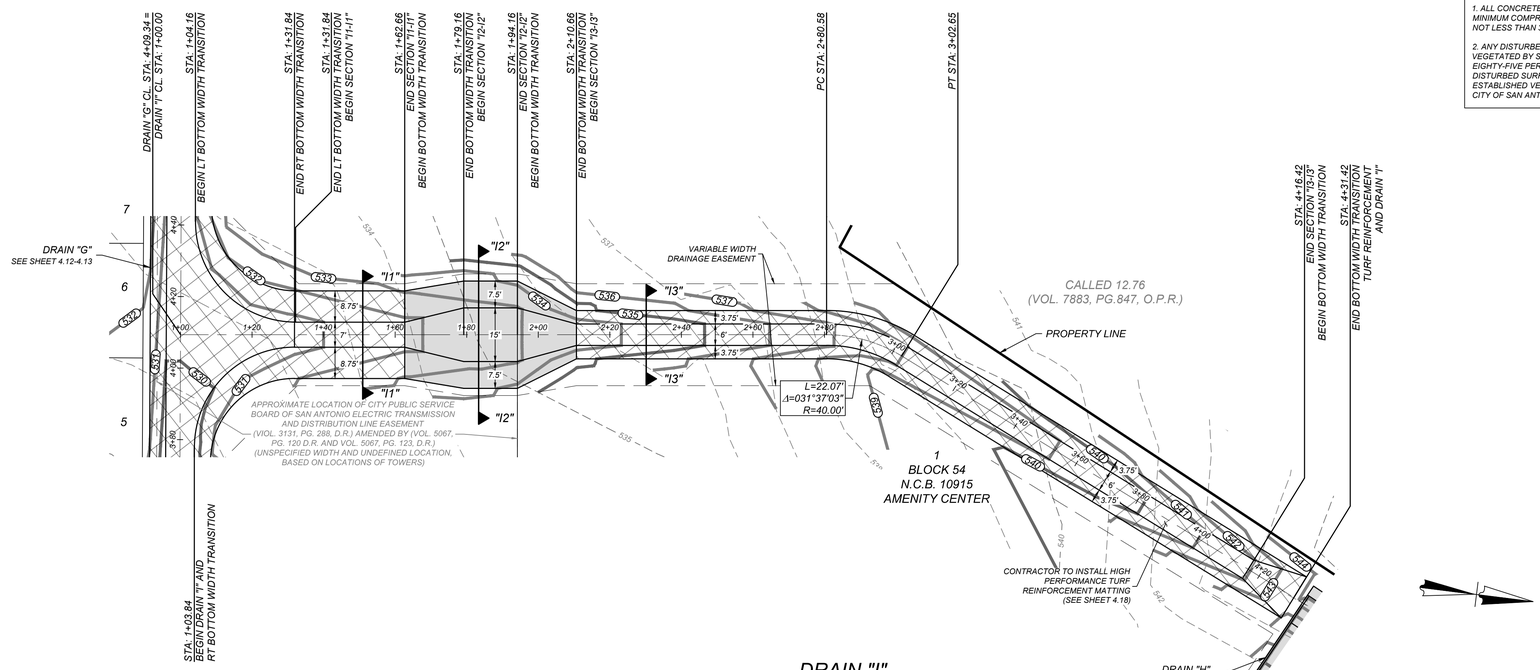
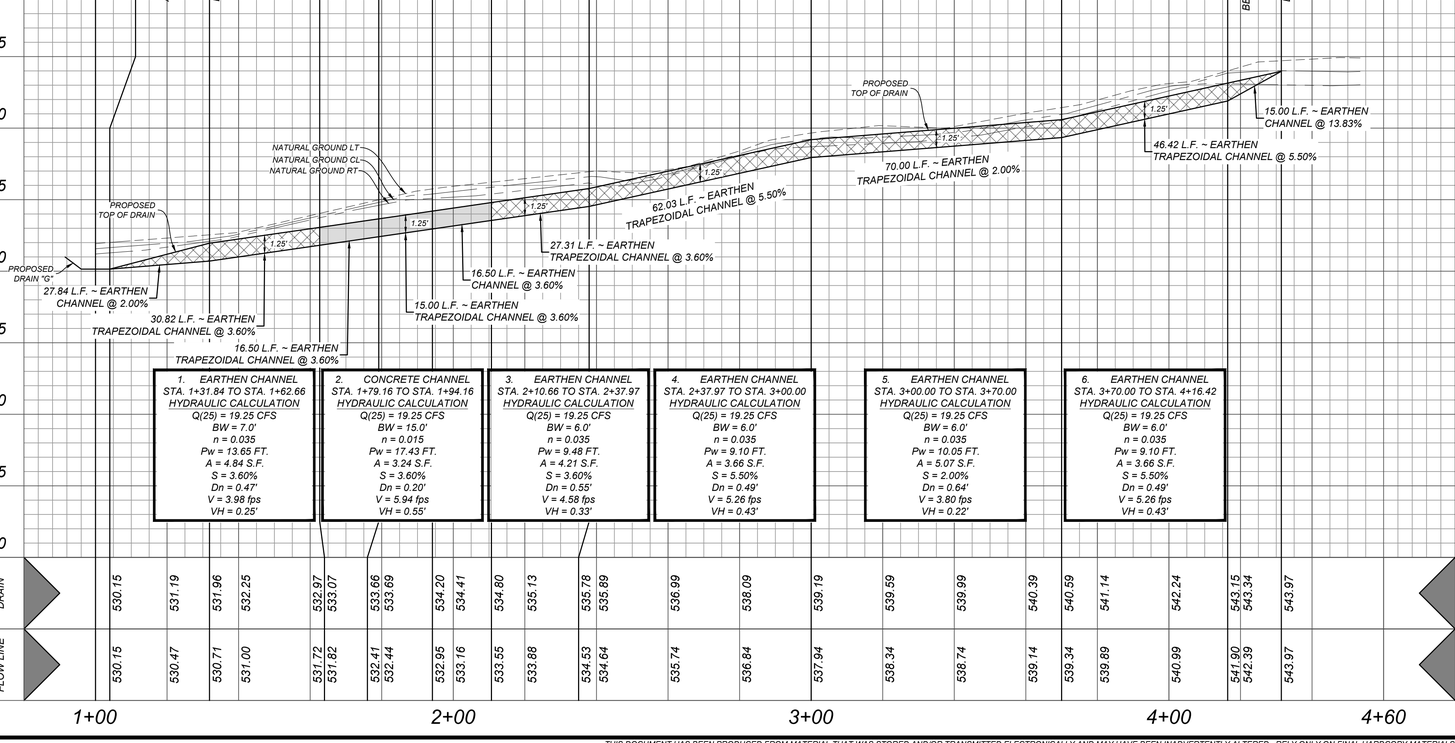


DRAIN "I"
STA. 1+00.00 TO END

HORZ SCALE: 1"=20'
VERT SCALE: 1"=5'



SAN ANTONIO (KFW)
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14993
TBPELS Firm# 10194503
Formerly Known as KFW ENGINEERS
Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
DRAIN "I" PLAN & PROFILE

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER: 4.15

Date: Oct 04, 2023, 9:28am User ID: sdorsett
File: K:\1027\01\02\Design\Drainage\Drain I\20241027102 - HI.dwg

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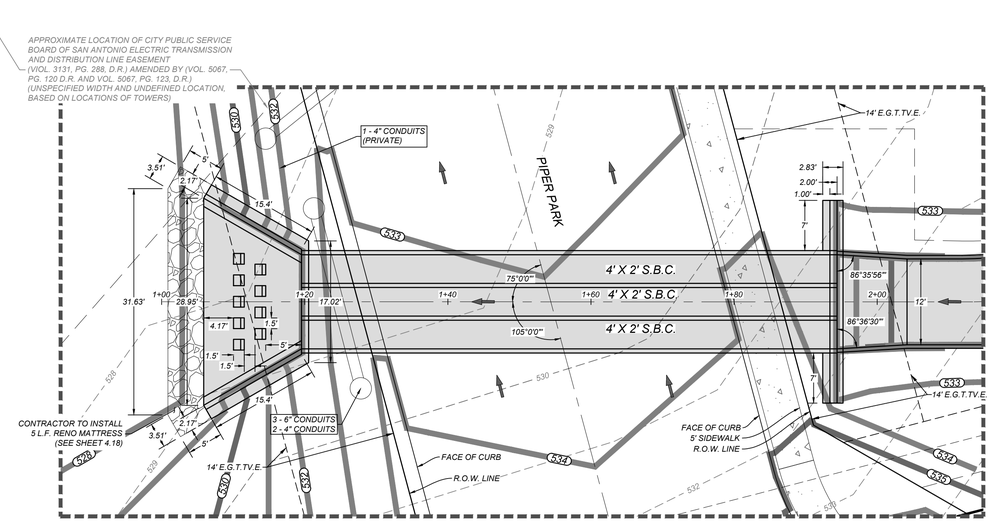

DETAIL "H1"
SCALE: 1" = 10'

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TBPE Firm# F-14969
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ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER

10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
DRAINAGE DETAIL SHEET (1 OF 3)

PLAT NO.
22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
4.16

Date: Oct 12, 2023, 8:28pm User ID: sdorsett
File: K:\1027\01\023 Design\Civil\Drainage\SHEETS\1027010102 - HI.dwg

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TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (5)

Slope	Dia of Pipe (D)	Values for One Pipe: W	Reinf (Lbs) (1)	Conc (CY) (2)	Values To Be Added for Each Addtl Pipe: W	Reinf (Lbs) (1)	Conc (CY) (2)
2:1	12"	9'-0"	122	1.1	1'-9"	15	0.2
	15"	10'-3"	136	1.3	2'-2"	16	0.2
	18"	11'-6"	163	1.5	2'-8"	19	0.3
	21"	12'-9"	200	1.8	3'-1"	31	0.4
	24"	14'-0"	217	2.1	3'-7"	34	0.4
	27"	15'-3"	254	2.4	3'-11"	37	0.5
	30"	16'-6"	272	2.7	4'-4"	40	0.6
	33"	17'-9"	314	3.1	4'-8"	43	0.6
	36"	19'-0"	371	3.9	5'-1"	46	0.8
	42"	21'-6"	442	4.9	5'-10"	52	1.0
	48"	25'-0"	569	6.4	6'-7"	59	1.3
	54"	27'-6"	701	7.5	7'-6"	82	1.6
	60"	30'-0"	794	8.8	8'-3"	90	1.8
	66"	32'-6"	894	10.2	8'-9"	96	2.0
	72"	35'-0"	1,055	11.7	9'-4"	103	2.3
3:1	12"	13'-0"	175	1.6	1'-9"	14	0.2
	15"	14'-9"	193	1.9	2'-2"	17	0.2
	18"	16'-6"	228	2.2	2'-8"	19	0.3
	21"	18'-3"	299	2.6	3'-1"	31	0.4
	24"	20'-0"	323	3.0	3'-7"	33	0.4
	27"	21'-9"	371	3.5	3'-11"	37	0.5
	30"	23'-6"	415	4.0	4'-4"	40	0.5
	33"	25'-3"	469	4.6	4'-8"	43	0.6
	36"	27'-0"	556	5.7	5'-1"	46	0.8
	42"	30'-6"	675	7.1	5'-10"	52	1.0
	48"	35'-6"	837	9.2	6'-7"	59	1.3
	54"	39'-0"	1,015	11.0	7'-6"	84	1.6
	60"	42'-6"	1,171	12.9	8'-3"	91	1.8
	66"	46'-0"	1,298	14.9	8'-9"	98	2.0
	72"	49'-6"	1,561	17.1	9'-4"	103	2.3
4:1	12"	17'-0"	229	2.0	1'-9"	15	0.2
	15"	19'-3"	266	2.4	2'-2"	17	0.2
	18"	21'-6"	308	2.9	2'-8"	19	0.3
	21"	23'-9"	382	3.5	3'-1"	31	0.3
	24"	26'-0"	430	3.9	3'-7"	34	0.4
	27"	28'-3"	486	4.7	3'-11"	37	0.5
	30"	30'-6"	539	5.2	4'-4"	40	0.6
	33"	32'-9"	603	6.0	4'-8"	42	0.6
	36"	35'-0"	738	7.5	5'-1"	47	0.8
	42"	39'-6"	881	9.3	5'-10"	52	1.0
	48"	46'-0"	1,102	12.1	6'-7"	61	1.3
	54"	50'-6"	1,364	14.4	7'-6"	84	1.6
	60"	55'-0"	1,547	16.9	8'-3"	91	1.8
	66"	59'-6"	1,741	19.5	8'-9"	98	2.0
	72"	64'-0"	2,077	22.4	9'-4"	102	2.3
6:1	12"	25'-0"	336	3.0	1'-9"	14	0.2
	15"	28'-3"	384	3.6	2'-2"	17	0.2
	18"	31'-6"	452	4.2	2'-8"	19	0.3
	21"	34'-9"	581	5.1	3'-1"	31	0.4
	24"	38'-0"	644	5.8	3'-7"	34	0.4
	27"	41'-3"	737	6.9	3'-11"	37	0.5
	30"	44'-6"	807	7.7	4'-4"	39	0.6
	33"	47'-9"	912	8.9	4'-8"	44	0.6
	36"	51'-0"	1,108	11.0	5'-1"	48	0.8
	42"	57'-6"	1,318	13.7	5'-10"	54	1.0
	48"	67'-0"	1,682	17.9	6'-7"	59	1.3
	54"	73'-6"	2,072	21.3	7'-6"	83	1.6
	60"	80'-0"	2,351	24.9	8'-3"	89	1.8
	66"	86'-6"	2,643	28.9	8'-9"	96	2.0
	72"	93'-0"	3,121	33.1	9'-4"	101	2.3

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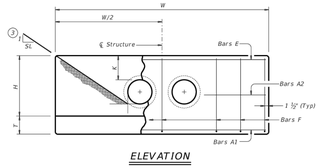
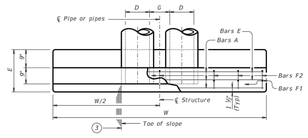
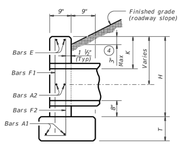
DATE:
FILE:



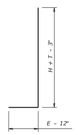
ELEVATION



PLAN OF NON-SKEWED PIPES



SECTION AT CENTER OF PIPE



BARS F2

TABLE OF CONSTANT DIMENSIONS

Dia of Pipe (D)	G	K (5)	H	T	E
12"	0'-9"	1'-0"	2'-8"	0'-9"	1'-9"
15"	0'-11"	1'-0"	2'-11"	0'-9"	1'-9"
18"	1'-2"	1'-0"	3'-2"	0'-9"	1'-9"
21"	1'-4"	1'-0"	3'-5"	0'-9"	2'-0"
24"	1'-7"	1'-0"	3'-8"	0'-9"	2'-0"
27"	1'-8"	1'-0"	3'-11"	0'-9"	2'-3"
30"	1'-10"	1'-0"	4'-2"	0'-9"	2'-3"
33"	1'-11"	1'-0"	4'-5"	0'-9"	2'-6"
36"	2'-1"	1'-0"	4'-8"	1'-0"	2'-6"
42"	2'-4"	1'-0"	5'-2"	1'-0"	2'-9"
48"	2'-7"	1'-3"	5'-11"	1'-0"	3'-0"
54"	3'-0"	1'-3"	6'-5"	1'-0"	3'-3"
60"	3'-3"	1'-3"	6'-11"	1'-0"	3'-6"
66"	3'-3"	1'-3"	7'-5"	1'-0"	3'-9"
72"	3'-4"	1'-3"	7'-11"	1'-0"	4'-0"

TABLE OF REINFORCING STEEL (6)

Bar	Size	Spa	No.
A1	#5	~	2
A2	#5	1'-6"	~
E	#5	~	2
F	#5	1'-0"	~

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'c = 3,600 psi).

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Do not mount bridge rails of any type directly to these culvert headwalls.
This standard may not be used for wall heights, H, exceeding the values shown.

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

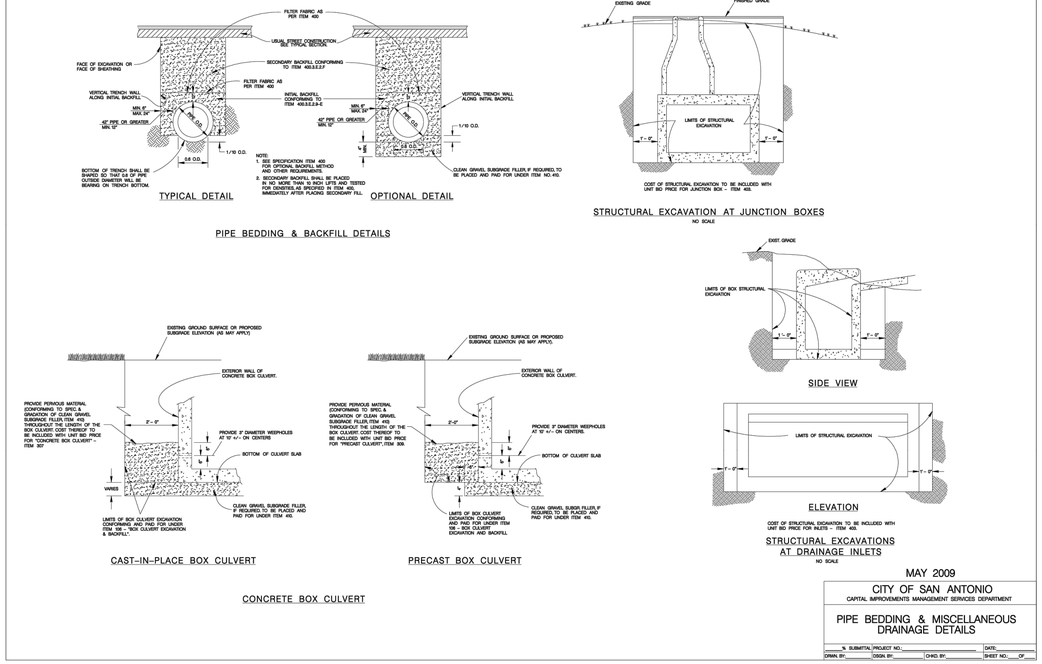
(1) Total quantities include one 3'-1" lap for bars over 60' in length.
(2) Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
(3) Indicated slope is perpendicular to centerline pipe or pipes.
(4) For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
(5) Dimensions shown are usual and maximum.
(6) Quantities shown are for one structure end only (one headwall).

Texas Department of Transportation — Bridge Division Standard

CONCRETE HEADWALLS WITH PARALLEL WINGS FOR NON-SKEWED PIPE CULVERTS

CH-PW-0

FILE:	ch-pw-0-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS		DIST	COUNTY		SHEET NO.



PIPE BEDDING & BACKFILL DETAILS

CONCRETE BOX CULVERT

COST OF STRUCTURAL EXCAVATION TO BE INCLUDED WITH UNIT BID PRICE FOR INLETS — ITEM 400.

STRUCTURAL EXCAVATIONS AT DRAINAGE INLETS
NO SCALE

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

PIPE BEDDING & MISCELLANEOUS DRAINAGE DETAILS

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

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLEGE STATION (KFW) ENGINEERING, INC.
TBPE Firm# F-14909
TBPLS Firm# 10194503
Formerly Known as KFW ENGINEERING
Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
DRAINAGE DETAIL SHEET (2 OF 3)

PLAT NO. 22-11800573
JOB NO. 1027-01-02
DATE: ----
DRAWN: SD CHECKED: JM
SHEET NUMBER: 4.17

BOX DATA

SECTION DIMENSIONS: S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	Fill Height (ft.)	M (Min) (in.)	REINFORCING (sq. in. / ft.) (2): AS1	AS2	AS3	AS4	AS5	AS7	AS8	(1) Lift Weight (tons)
	4	2	7.5	6	5	< 2	-	0.18	0.27	0.15	0.12	0.18	0.18	0.14	4.5
	4	2	5	5	5	2 < 3	38	0.18	0.19	0.17	0.12	-	-	-	3.6
	4	2	5	5	5	3 - 5	38	0.13	0.13	0.13	0.12	-	-	-	3.6
	4	2	5	5	5	10	38	0.12	0.12	0.12	0.12	-	-	-	3.6
	4	2	5	5	5	15	38	0.14	0.16	0.16	0.12	-	-	-	3.6
	4	2	5	5	5	20	38	0.18	0.20	0.21	0.12	-	-	-	3.6
	4	2	5	5	5	25	38	0.23	0.25	0.25	0.12	-	-	-	3.6
	4	2	5	5	5	30	38	0.28	0.30	0.30	0.12	-	-	-	3.6
	4	3	7.5	6	5	< 2	-	0.18	0.31	0.18	0.12	0.18	0.18	0.14	5.0
	4	3	5	5	5	2 < 3	38	0.15	0.23	0.20	0.12	-	-	-	4.1
	4	3	5	5	5	3 - 5	38	0.12	0.16	0.16	0.12	-	-	-	4.1
	4	3	5	5	5	10	38	0.12	0.14	0.14	0.12	-	-	-	4.1
	4	3	5	5	5	15	38	0.12	0.18	0.18	0.12	-	-	-	4.1
	4	3	5	5	5	20	38	0.14	0.23	0.24	0.12	-	-	-	4.1
	4	3	5	5	5	25	38	0.17	0.29	0.29	0.12	-	-	-	4.1
	4	3	5	5	5	30	38	0.21	0.35	0.35	0.12	-	-	-	4.1
	4	4	7.5	6	5	< 2	-	0.18	0.33	0.20	0.12	0.18	0.18	0.14	5.5
	4	4	5	5	5	2 < 3	38	0.12	0.26	0.23	0.12	-	-	-	4.6
	4	4	5	5	5	3 - 5	38	0.12	0.18	0.18	0.12	-	-	-	4.6
	4	4	5	5	5	10	38	0.12	0.15	0.15	0.12	-	-	-	4.6
	4	4	5	5	5	15	38	0.12	0.19	0.20	0.12	-	-	-	4.6
	4	4	5	5	5	20	38	0.12	0.25	0.25	0.12	-	-	-	4.6
	4	4	5	5	5	25	38	0.14	0.31	0.31	0.12	-	-	-	4.6
	4	4	5	5	5	30	38	0.17	0.37	0.37	0.12	-	-	-	4.6

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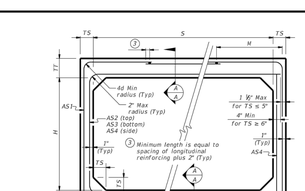
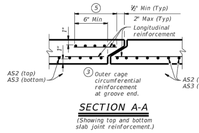


FILL HEIGHT 2 FT AND GREATER

FILL HEIGHT LESS THAN 2 FT



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

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

GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See SCP-MD standard sheet for miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

SINGLE BOX CULVERTS PRECAST
4'-0" SPAN

SCP-4

FILE:	scp04ts-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS		DIST	COUNTY		SHEET NO.

BOX DATA

SECTION DIMENSIONS: S (ft)	H (ft)	T_1 (in)	T_B (in)	T_S (in)	Fill Height (ft)	M (Min) (in)	REINFORCING (in²/ft) (2): A_{S1}	A_{S2}	A_{S3}	A_{S4}	A_{S5}	A_{S6}	A_{S7}	A_{S8}	(1) Lift Weight (Tons)
5	3	8	7	6	<2	-	0.19	0.31	0.21	0.14	0.19	0.19	0.19	0.17	6.6
5	3	6	6	6	2<3	45	0.18	0.24	0.19	0.14	-	-	-	-	5.7
5	3	6	6	6	3-5	36	0.14	0.17	0.16	0.14	-	-	-	-	5.7
5	3	6	6	6	10	36	0.14	0.16	0.17	0.14	-	-	-	-	5.7
5	3	6	6	6	15	35	0.16	0.21	0.22	0.14	-	-	-	-	5.7
5	3	6	6	6	20	35	0.21	0.27	0.28	0.14	-	-	-	-	5.7
5	3	6	6	6	25	35	0.26	0.34	0.34	0.14	-	-	-	-	5.7
5	3	6	6	6	30	35	0.31	0.41	0.41	0.14	-	-	-	-	5.7
5	4	8	7	6	<2	-	0.19	0.33	0.24	0.14	0.19	0.19	0.19	0.17	7.2
5	4	6	6	6	2<3	45	0.16	0.27	0.22	0.14	-	-	-	-	6.3
5	4	6	6	6	3-5	45	0.14	0.19	0.18	0.14	-	-	-	-	6.3
5	4	6	6	6	10	36	0.14	0.18	0.18	0.14	-	-	-	-	6.3
5	4	6	6	6	15	35	0.14	0.23	0.24	0.14	-	-	-	-	6.3
5	4	6	6	6	20	35	0.17	0.30	0.31	0.14	-	-	-	-	6.3
5	4	6	6	6	25	35	0.21	0.37	0.38	0.14	-	-	-	-	6.3
5	4	6	6	6	30	35	0.25	0.44	0.45	0.14	-	-	-	-	6.3
5	5	8	7	6	<2	-	0.19	0.35	0.26	0.14	0.19	0.19	0.19	0.17	7.8
5	5	6	6	6	2<3	45	0.14	0.29	0.24	0.14	-	-	-	-	6.9
5	5	6	6	6	3-5	45	0.14	0.21	0.20	0.14	-	-	-	-	6.9
5	5	6	6	6	10	45	0.14	0.19	0.20	0.14	-	-	-	-	6.9
5	5	6	6	6	15	36	0.14	0.24	0.25	0.14	-	-	-	-	6.9
5	5	6	6	6	20	35	0.15	0.31	0.32	0.14	-	-	-	-	6.9
5	5	6	6	6	25	35	0.18	0.38	0.39	0.14	-	-	-	-	6.9
5	5	6	6	6	30	35	0.21	0.46	0.47	0.14	-	-	-	-	6.9
5	2	8	7	6	<2	-	0.20	0.31	0.20	0.14	0.22	0.19	0.19	0.17	6.0
5	2	6	6	6	30	44	0.39	0.33	0.34	0.14	-	-	-	-	5.1

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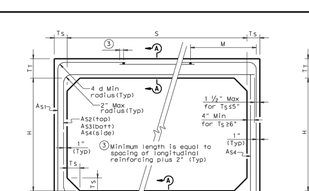
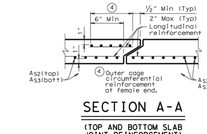


FILL HEIGHT 2 FT AND GREATER

FILL HEIGHT LESS THAN 2 FT



SECTION A-A
(TOP AND BOTTOM SLAB JOINT REINFORCEMENT)

GENERAL NOTES:
Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
All concrete shall be Class "H" concrete with a minimum compressive strength of 5,000 psi.
See SCP-MD standard sheet for miscellaneous details and notes not shown.
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Shop plans for alternate designs shall be submitted in accordance with Item "Precast Concrete Structural Members (Fabrication)".

(1) For Box Length = 8'-0"
(2) AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.
(5) These designs were created by TxDOT and are not shown in the ASTM Specifications.

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

SINGLE BOX CULVERTS PRECAST
5'-0" SPAN

SCP-5

FILE:	scp05ts.dgn	DN: GAF	CK: LRW	DW: BWH/TxDOT	CK: GAF
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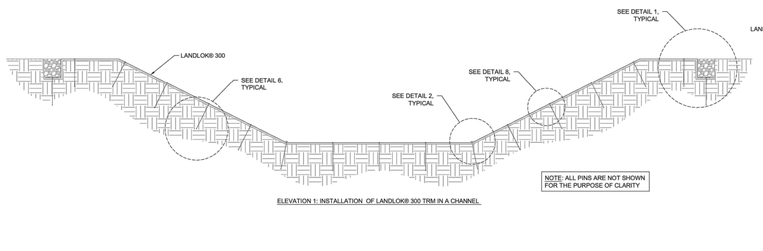
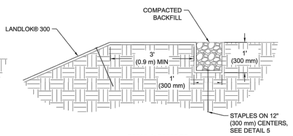
Date: Oct 04, 2023, 8:28pm User ID: sdarnell
File: K:\1027-01-02\Design\Roadway\Bridge\Standard\1027010102.dwg

THIS DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL

PROPERTY	TEST METHOD	ENGLISH	METRIC
ORIGIN OF MATERIALS			
% U.S. Manufactured Inputs		100%	100%
% U.S. Manufactured		100%	100%
PHYSICAL			
Mass/Unit Area	ASTM D-6566	7.5 oz/yd²	254.3 g/m²
Thickness	ASTM D-6525	0.25 in	6.35 mm
Light Penetration (% Passing)	ASTM D-6567	50% (Max)	50%
Color	Visual	Green or Tan	
MECHANICAL			
Tensile Strength (Grab)	ASTM D-6818	2000 x 1800 lb/ft	29.2 x 26.3 kN/m
Elongation	ASTM D-6818	50% (max)	50% (max)
Resiliency	ASTM D-6524	70%	70%
Flexibility	ASTM D-6575	0.195 in-lb (avg)	10.8 mg-cm (avg)
ENDURANCE			
UV Resistance % Retained 3000 hrs	ASTM D-4355	90%	90%
PERFORMANCE			
Velocity[3] (Vegetated)	Large Scale	20 ft/sec	6.10 m/sec
Shear Stress[3] (Vegetated)	Large Scale	12 lb/ft²	575 Pa
Manning's "n"[4] (Unvegetated)	Calculated	0.030	0.030
Seedling Emergence[4]	ECTC Draft Method #4	-	-
ROLL SIZES		8.5 ft x 106 ft	2.6 m x 32.3 m

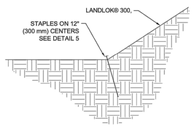


ELEVATION 1: INSTALLATION OF LANDLOK® 300 TRM IN A CHANNEL



DETAIL 1: CREST OF SLOPE (COS) TRENCH

DETAIL 5: "U" SHAPE STAPLE



DETAIL 2: BREAK IN SLOPE INTERFACE

4.1 SITE PREPARATION - High Performance Turf Reinforcement Mat (HPTRM)

A. Grade an compact areas to be treated with HPTRM and compact. The top 8" of subgrade must be free of rock, debris and consist of a cohesive olive soil. If the existing subgrade does not meet these standards the contractor is responsible for the import of acceptable material.
B. Remove large rocks, soil, clods, vegetation, and other sharp objects (larger than 2" in diameter) that could keep the HPTRM from intimate contact with subgrade.
C. Prepare the 8" compacted seedbed by loosening the top 1/2" of soil above final subgrade.
D. Construct, as a minimum, 12"x12" anchor trenches at upstream and downstream ends of the installation to inhibit undermining from stray surface water. (anchored trenches should be excavated to a depth that matches design scour depth.) excavate 6"x6" check slots at 25 to 30 feet intervals along length of channel. Cut longitudinal anchor slots 6"x6" in at top of each slope. The aforementioned dimensions are minimums and the dimensions details on the drawings will control.

4.2 INSTALLATION - HPTRM

A mandatory pre-construction conference with an Engineer representing the HPTRM manufacturer, contractor, and inspector must be completed. The conference is to be scheduled by the contractor with at least one week's notice to all parties involved. representatives may be required to be on site for installation assistance.

The Contractor is to schedule the Engineer representing the HPTRM to inspect the site preparation prior to installation and the completed installation and provide a certified letter stating the site meets the manufacture's recommendations.

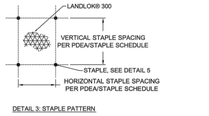
A. Install the HPTRM at elevation and alignment indicated.
B. The HPTRM, is to be soiled filled with 1/2" of top soil, and vegetated by applying the right mixture of seed and soil amendments with Flexterra, a Flexible Growth Medium, protected by a light weight erosion control blanket, or by applying the right mixture of seed and soil amendments with a wood fiber mulch, protected by a light weight erosion control blanket, or by placing sod directly on top and secure sod with 8" staples.
C. Beginning at downstream end in center of channel, place initial end of first roll of HPTRM in anchor trench and secure with ground anchor devices at 12" intervals.
D. Position adjacent rolls in anchor trench in same manner, overlapping proceeding roll minimum 3".
E. Secure the HPTRM at 12" intervals along the trench, backfill and compact with specified soil or as directed by the Engineer.
F. Unroll center strip of HPTRM upstream over compacted trench. Stop at next check slot or terminal anchor trench. Unroll adjacent rolls of HPTRM upstream in similar fashion, maintaining 3" overlap.
G. Fold and secure the HPTRM snugly into transverse check slots. Lay material in bottom of slot and then fold back against itself as indicated. anchor through both layers of HPTRM at 12" intervals. Backfill with soil and compact. Continue unrolling the HPTRM widths upstream over compacted slot to next check slot or terminal anchor trench.
H. Secure HPTRM to channel bottom with ground anchoring devices at a frequency of 2-1/2" anchors per square yard. Anchors should be minimum of 8 gauge and 8" in length or so that they have sufficient ground penetration to resist pullout in a saturated condition. Increased anchoring frequency may be required if site conditions are such that the Engineer determines it necessary.
I. At the Engineer's discretion a manufacturer's designated representative shall be on site for installation assistance.
J. Any installation of angular placement, overlapping around curves, or modified placement methods must be detailed on the construction drawings.
K. The Engineer must approved alternate installation methods prior to execution.

4.3 Irrigation, Mowing, and Project Acceptance

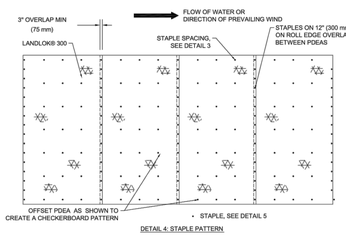
A. Prior to project acceptance by the owner, it shall be the responsibility of the contractor to establish a minimum of 70% of the area seeded shall be covered with the specified vegetation with no bare or dead spots greater than 10 square feet. The contractor shall be responsible to set up and maintain temporary irrigation, as required, to assist in establishment of vegetation.

All areas that erode prior to project acceptance shall be repaired at the expense of the contractor including necessary reseeding, watering, and repair of the HPTRM.

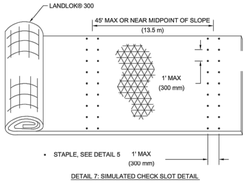
Vegetated areas shall not be mowed prior to establishment of 70% vegetative density and a minimum grass growth of 3". Mower height shall not be set lower than 3". Throughout the duration of the project, the contractor shall be responsible for mowing to facilitate growth and shall not let the vegetation in the seeded areas exceed 18". In addition, the contractor shall water all grassed areas as often as necessary to establish satisfactory growth and to maintain its growth throughout the duration of the project.



DETAIL 3: STAPLE PATTERN

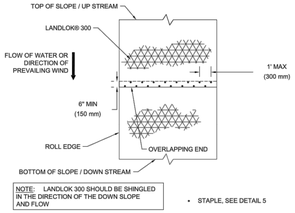


DETAIL 4: STAPLE PATTERN

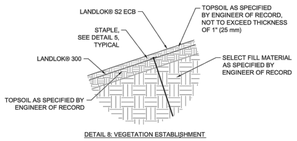


DETAIL 7: SIMULATED CHECK SLOT DETAIL

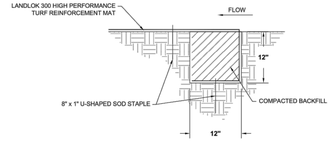
STAPLE SCHEDULE	
SECURING DEVICE	STAPLE
HORIZONTAL PDEA SPACING	2' (0.60 m)
VERTICAL PDEA SPACING	2.5' (0.75 m)
EMBEDMENT DEPTH	PER MANUFACTURES DESIGN



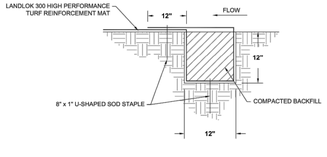
DETAIL 6: OVERLAP AT ROLL END DETAIL



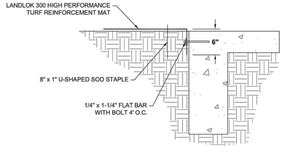
DETAIL 8: VEGETATION ESTABLISHMENT



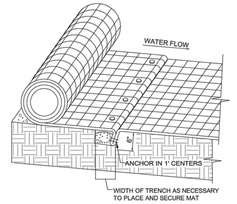
DETAIL 9: INITIAL CHANNEL (IC) TRENCH (DOWNSTREAM)



DETAIL 10: TERMINAL CHANNEL (TC) TRENCH (UPSTREAM)



DETAIL 11: CONCRETE/HPTRM CONNECTION DETAIL



NOTES:
1. SECURE AT 30 cm (1 ft) INTERVALS, BACKFILL AND COMPACT SOIL
2. SLOT @ EVERY 30 FEET

DETAIL 12: INTERMITTENT CHECK SLOT DETAIL

NOTE:
MATERIALS AVAILABLE FROM GEOSOLUTIONS, INC. 210-651-3816

REVISIONS

LANDLOK 300 INSTALLATION DETAILS

CHANNEL DETAILS

8165 BRACKEN CREEK DRIVE
SAN ANTONIO, TEXAS 78266
Phone: 210-651-3816
www.geosolutionsinc.com
GEO SOLUTIONS Reg. Eng. Firm #F-4189

Scale: NOT TO SCALE
Date: 02/02/15
Drawn by: JY
Project No.: LANDLOK 300
SHEET 1 OF 1

MACCAFERRI

PRODUCT INSTALLATION GUIDE

Rev: 01, Issue Date 04.01.2005

RENO MATTRESS

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

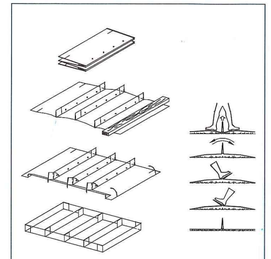


Figure 1

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

Fastening Procedure
Connect the edges of the mattress by using either lacing wire or ring fasteners. When steel ring fasteners are used, the use of either a mechanical or a pneumatic fastening tool is required. Spacing of the rings shall be in accordance with ASTM A975-97 Table 2, Panel to Panel connection, Pull-Apart Resistance. In any case, ring fasteners spacing shall not exceed 6 in (150 mm). Rings shall be installed at the top and the bottom connections of the end and center diaphragms and along all edges. Care should be taken to ensure the steel ring fastener is completely closed after installation (Fig. 3). When this is not possible, fixing rings must be complemented or replaced with lacing wire.
The procedure for using lacing wire consists of cutting a sufficient length of wire, and first looping and/or twisting the lacing wire to the wire mesh. Proceed to lace with alternating double and single loops through every mesh opening approximately every 6 in (150 mm) pulling each loop tight and finally securing the end of the lacing wire to the wire mesh by looping and/or twisting. The use of pliers to aid assembly and wiring of the units using the binding wire supplied with the mattresses is normally recommended.

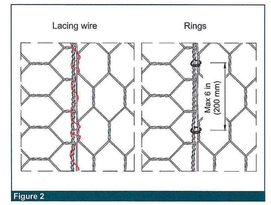


Figure 2

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

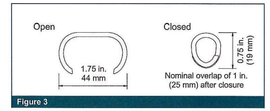


Figure 3

MACCAFERRI

Maccaferri reserves the right to amend product specifications without notice and specifiers are requested to check as to the validity of the specifications they are using.

Installation and Filling
After assembly, the mattresses are placed in their proper location and securely attached to adjacent units. For structural integrity, all adjoining empty units should be connected by means of lacing wire or ring fasteners along all the edges of their contact surfaces, in order to form a monolithic structure. On slopes, the mattress should be laid with the width perpendicular to the slope, except for very small ditches. Mattresses should be placed and securely attached while empty. Where mattresses are to be placed on steep slopes, the unit should be secured by hardwood or steel pegs driven into the ground just below the upper end panel, at 6 ft (2 m) centers or as specified in the project requirements.
Mattresses can conform to bends up to a radius of 60-70 ft. (18 - 21 m) without alteration, and placed to the required curvature for filling. Mattresses may be cut to form curves or bevels.
Rocks for mattresses may be produced by any suitable quarrying method, and by the use of any device that yields the required sizes within the gradation limits chosen.
Rocks shall be hard, angular to round, durable and of such quality that they shall not disintegrate on exposure to water or weathering during the life of the structure.
Reno mattress rocks shall range between 3-6 in (75-150 mm). The range in sizes may allow for a variation of 5% oversize and/ or 5% undersize rock, provided it is not placed on the mattress exposed surface. In all cases, any oversize rock for mattresses shall allow for a placement of a minimum two layers of mixed rock sizes, dependent upon the height/thickness of the mattress. When using PVC coated Reno mattresses, care should be taken when placing the stone to ensure that the PVC coating on the mattress will not be damaged. Some hand placing is necessary to ensure the void ratio is kept to a minimum. If installing on a slope, start at the bottom of the slope. Filling should be done unit by unit, but several units should be ready for filling at any one time. Ensure that the diaphragm tops are accessible for lacing to the mattress lids when required.

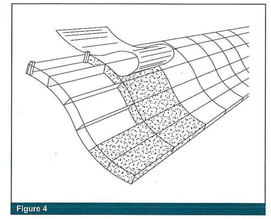


Figure 4

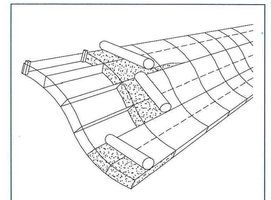


Figure 5

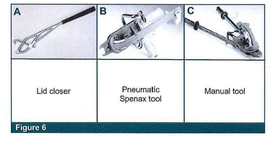


Figure 6

Closing
To allow for settlement, level off the fill 1 in (25 mm) above the top of the mesh. In aprons downstream of weirs and similar places where water will fall directly onto the Reno mattresses, install bracing wires vertically between the top and bottom mesh. Make sure the top edges of the diaphragms are exposed. Lay the lid down, pull the edges of the panels to be connected together where necessary using an appropriate tool as a lid closer. The lids shall be tightly laced along all edges, ends and diaphragms in the same manner as described for assembling. Adjacent lids may be securely attached simultaneously. Securely attach the lids to the ends of the mattresses and then securely attach them to the sides, and diaphragms, using alternate double and single loops, or steel wire ring fasteners. Adjacent lids can securely be attached in one operation. In cases where a number of adjacent bases are to be covered at one time, rolls of mesh can be used in place of individual unit size lids.

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MACCAFERRI INC.
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PRESA GROVE

BEXAR COUNTY, TEXAS

DRAINAGE DETAIL SHEET (3 OF 3)

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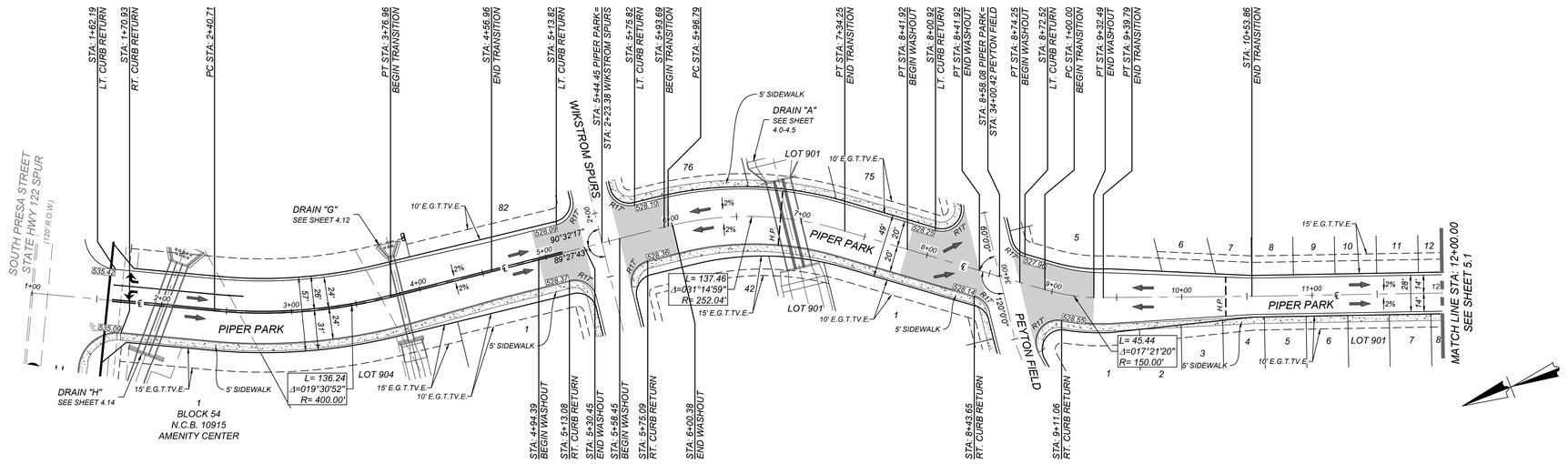
- = SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
- = PROPOSED DRIVEWAY LOCATION
- H.P. = HIGH POINT
- L.P. = LOW POINT
- 0000.00 = PROPOSED TOP OF CURB ELEVATION



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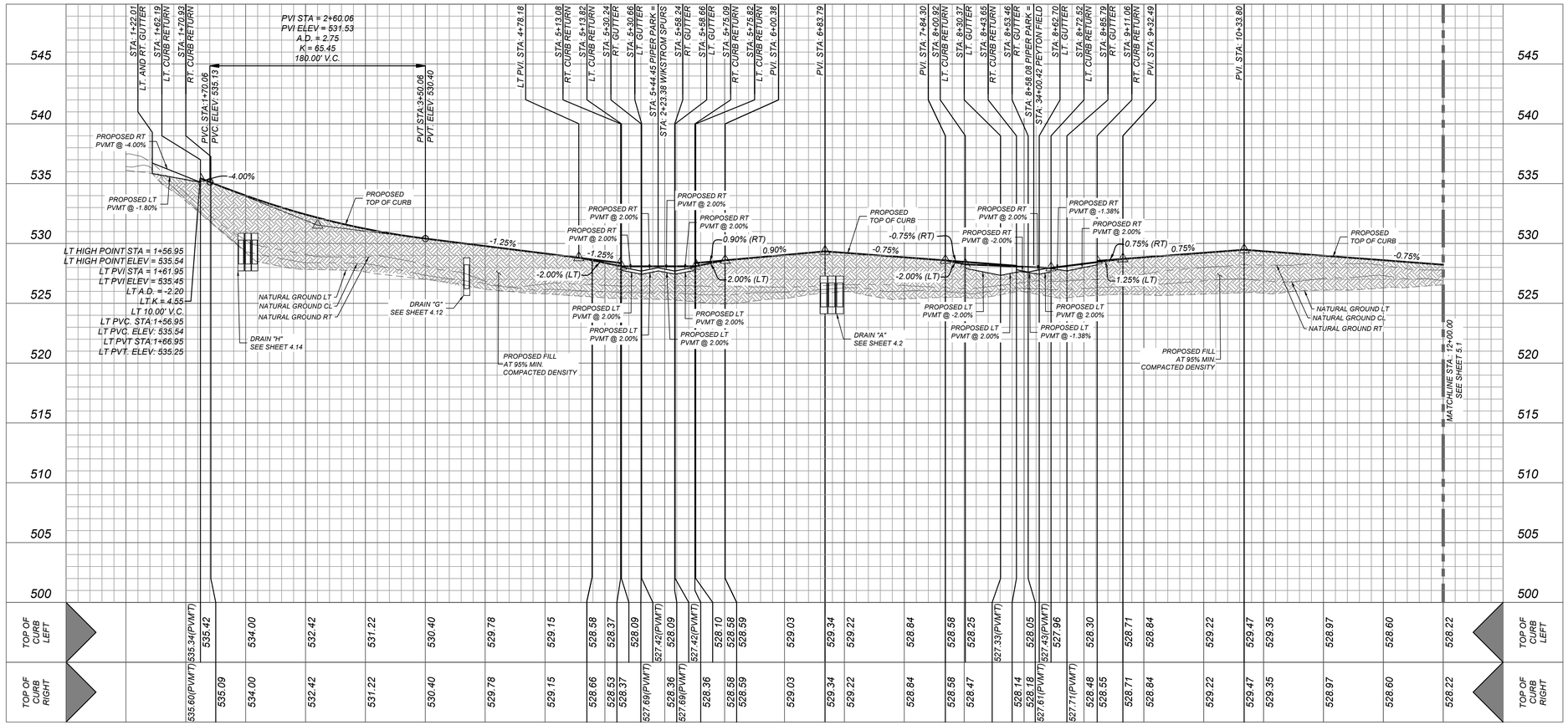

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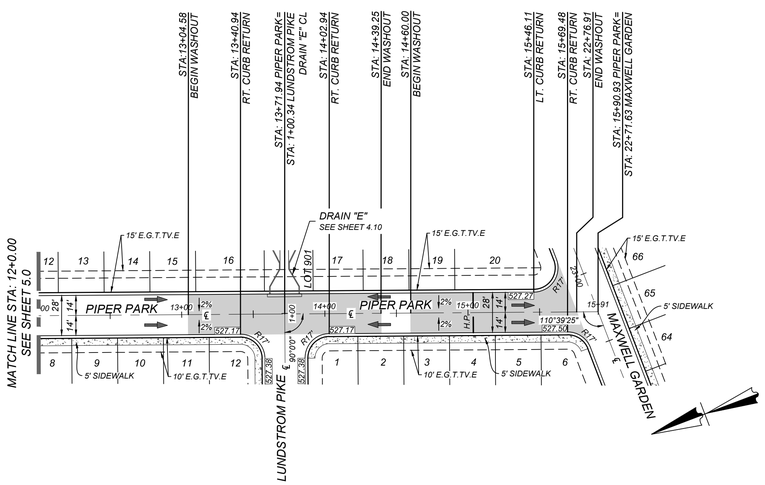

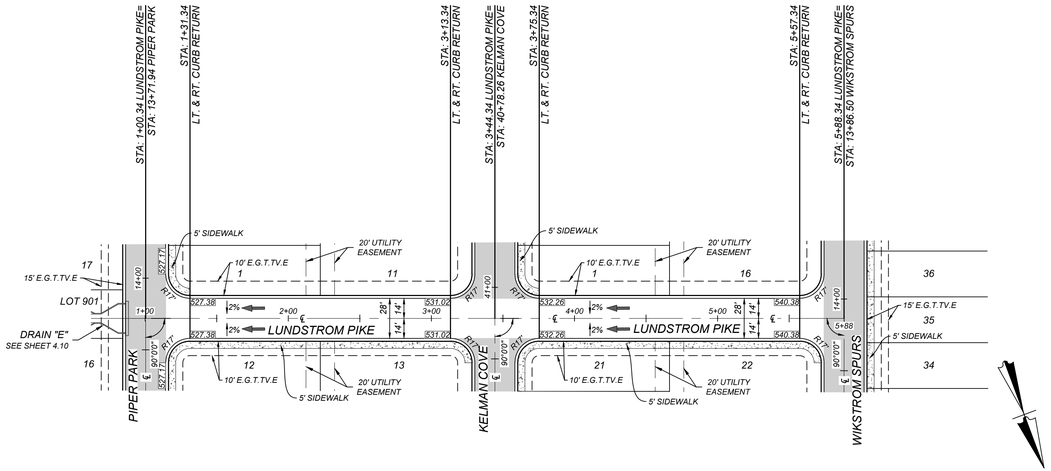

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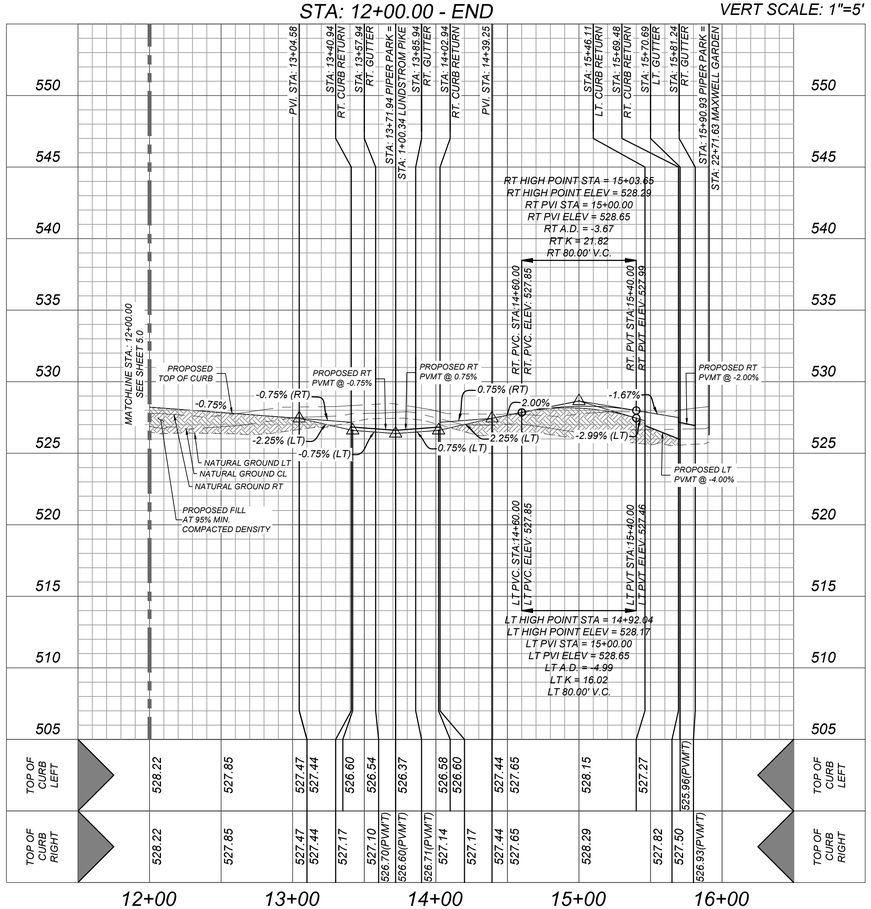

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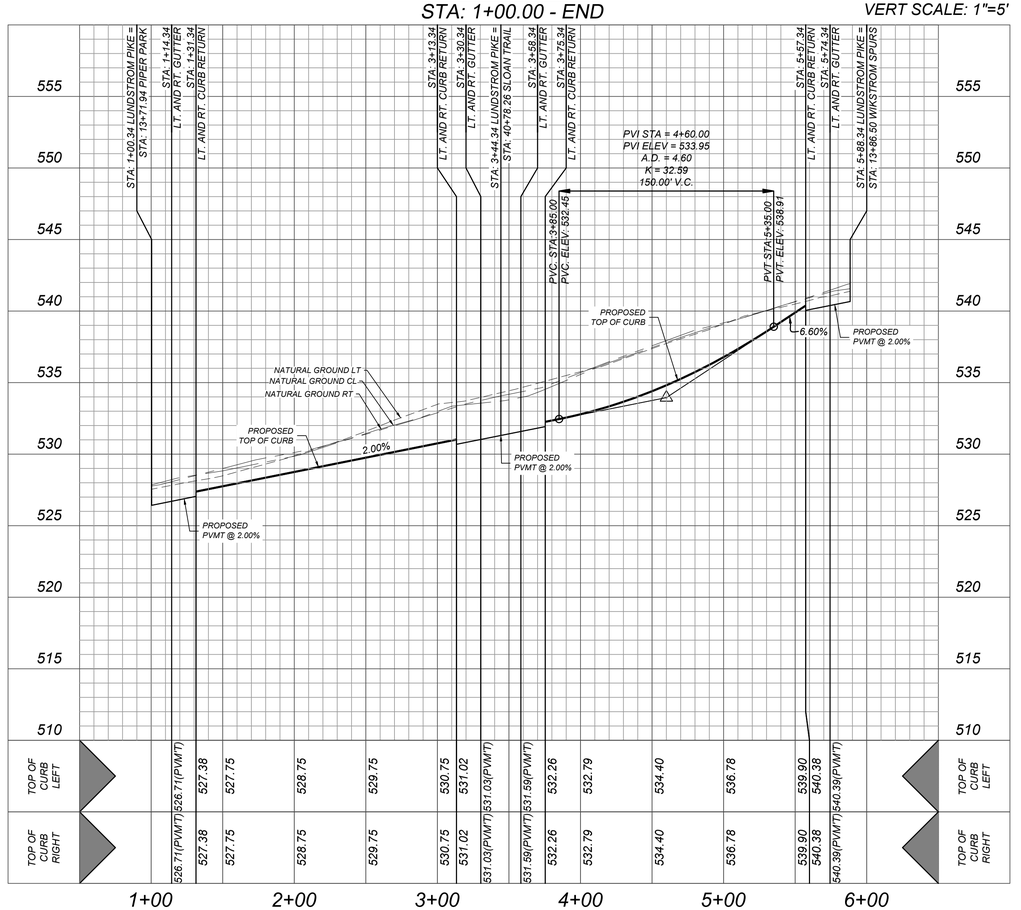

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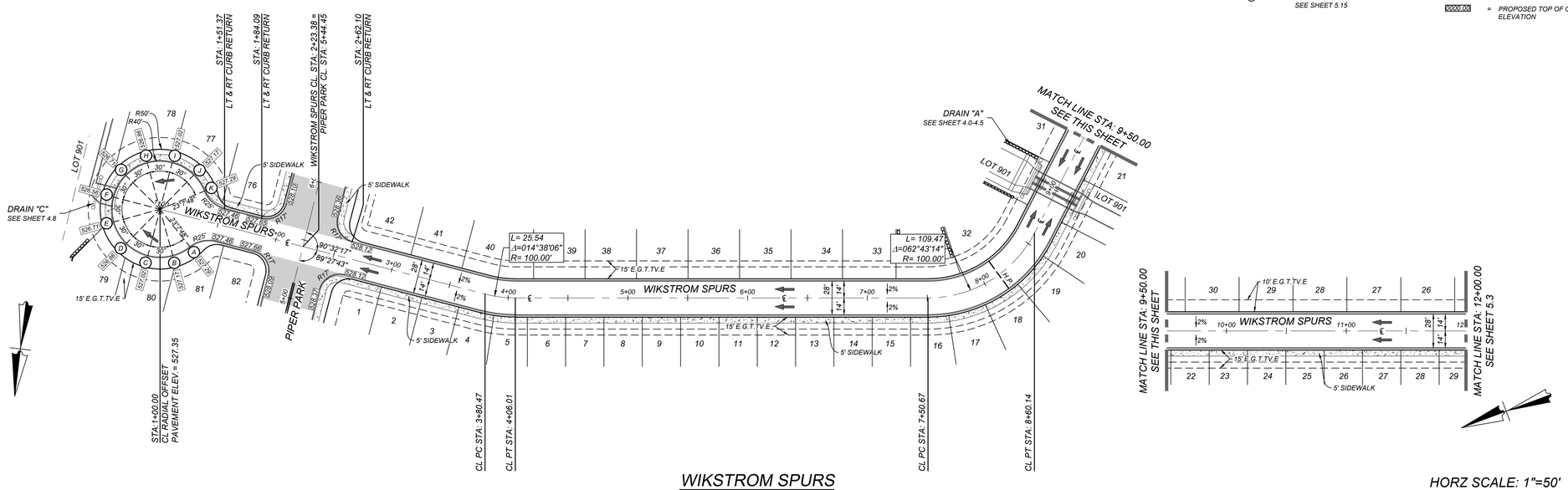

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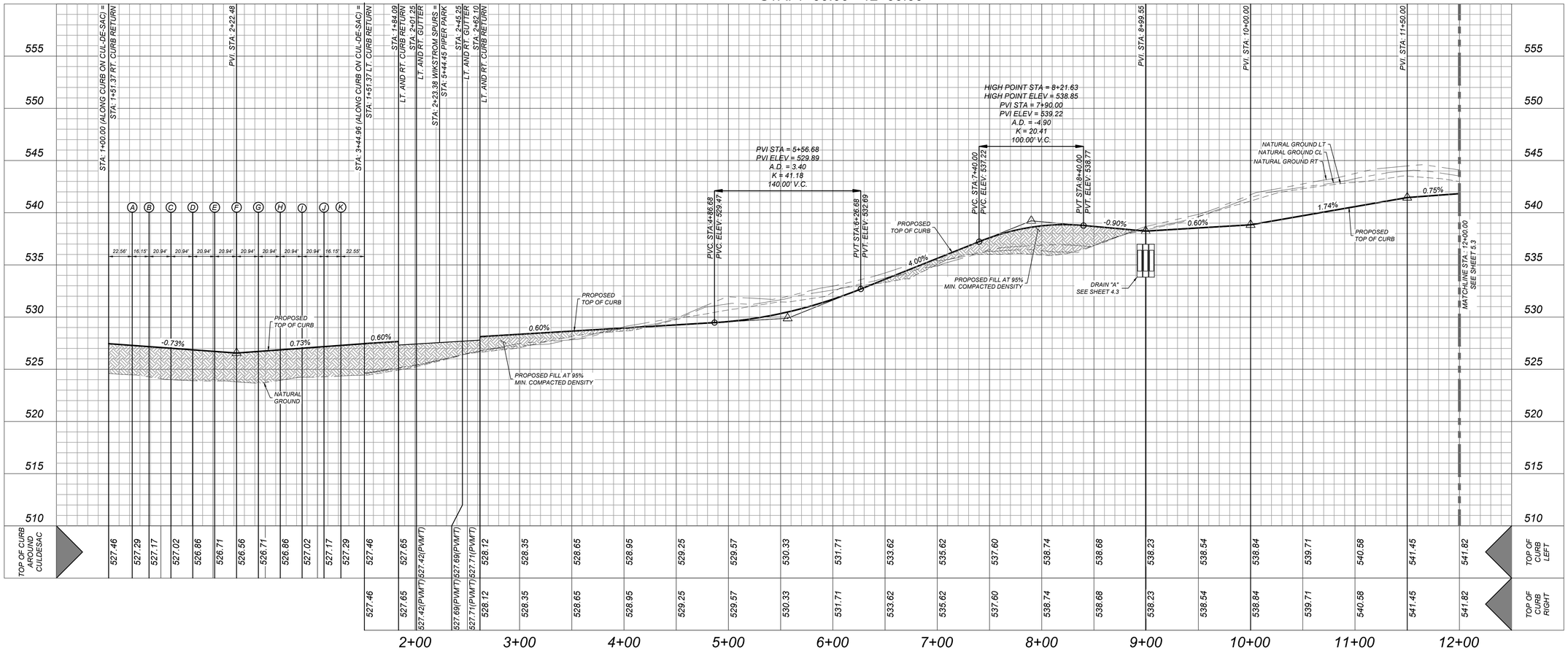

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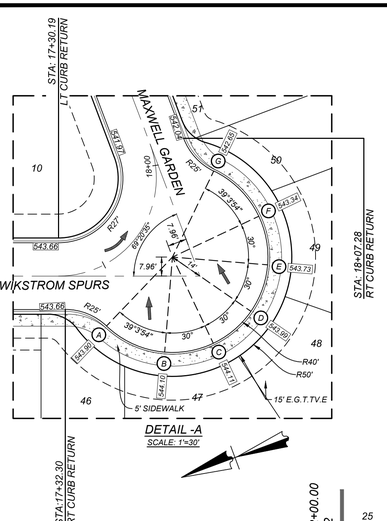

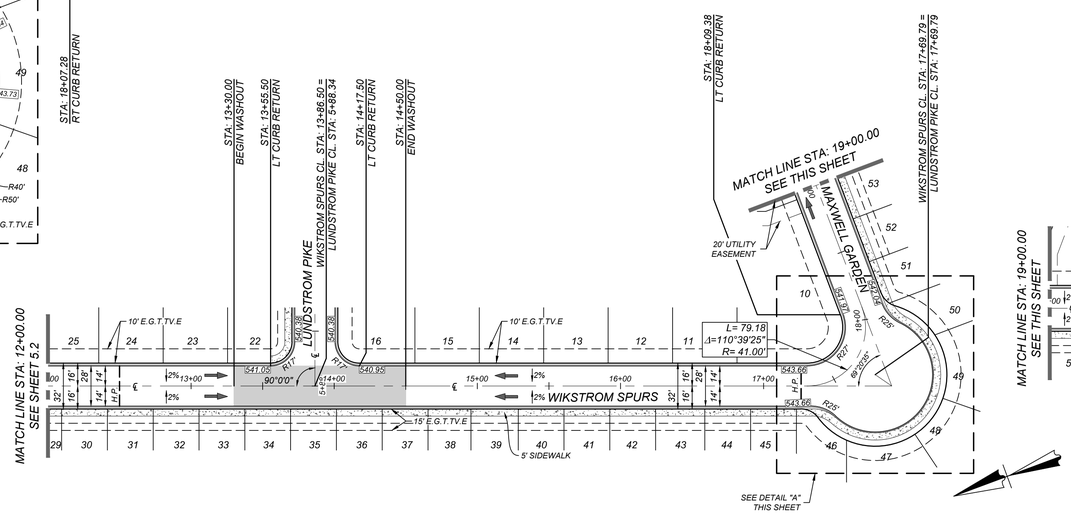

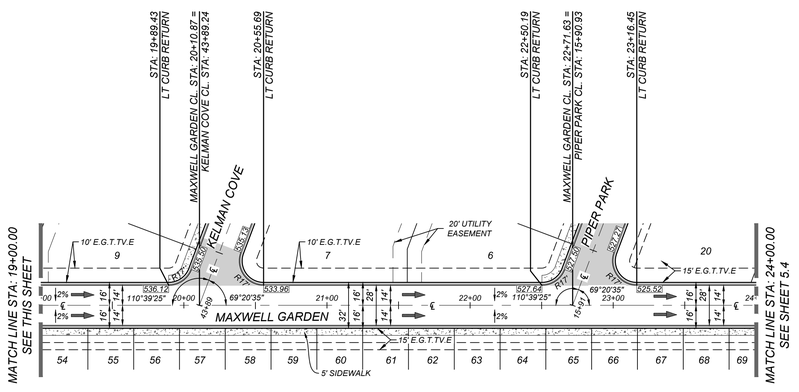

TRENCH EXCAVATION SAFETY PROTECTION

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

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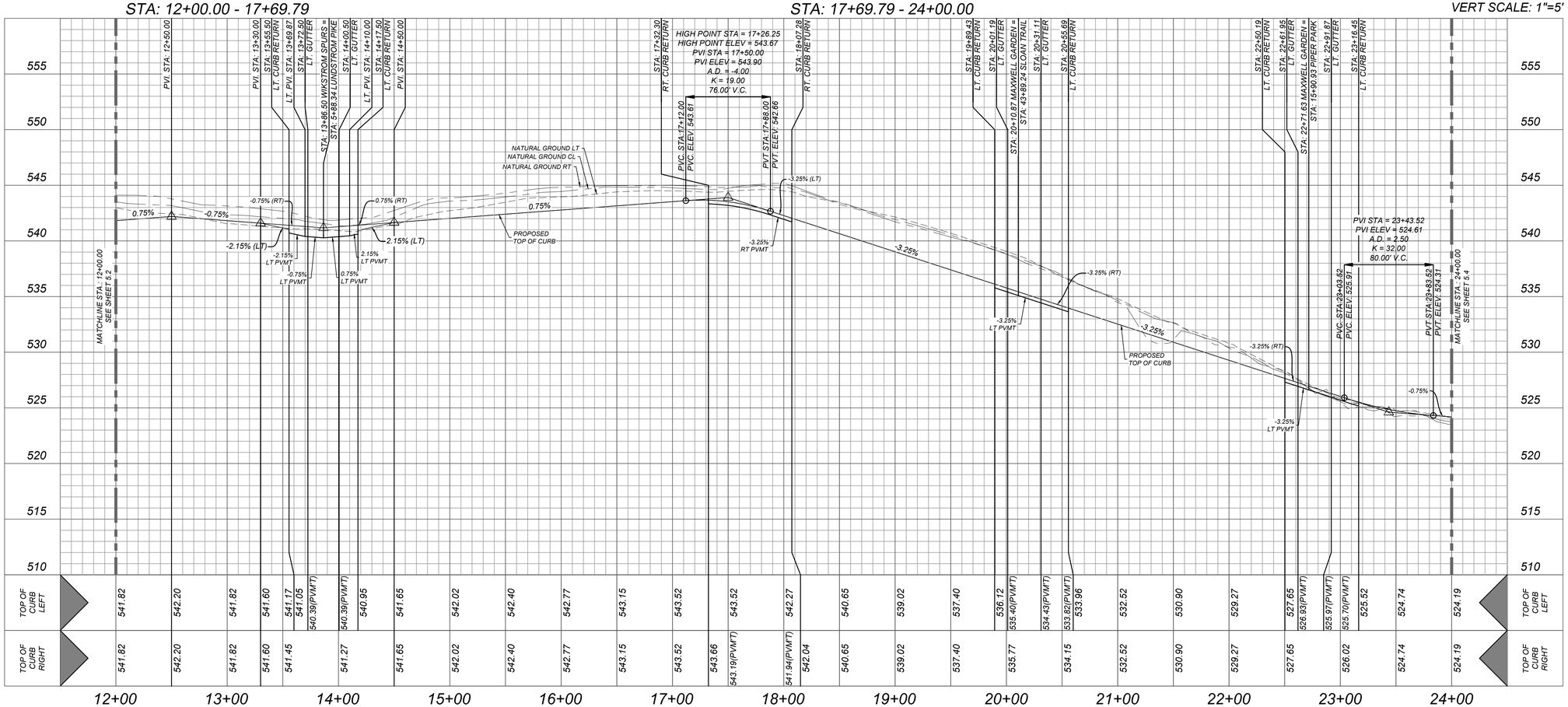
LEGEND

- R.O.W. = RIGHT OF WAY
- G.E.T.TV.E. = GAS, ELECTRIC, TELEPHONE & CABLE EASEMENT
- = FLOW ARROW
- = WASHOUT CROWN
- (P) = WHEELCHAIR RAMP TYPE II SEE SHEET 5.15
- (I) = WHEELCHAIR RAMP TYPE I SEE SHEET 5.15
- = SIDEWALK TO BE CONSTRUCTED BY DEVELOPER
- = SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION
- = PROPOSED DRIVEWAY LOCATION
- H.P. = HIGH POINT
- L.P. = LOW POINT
- 0000.00 = PROPOSED TOP OF CURB ELEVATION

WIKSTROM SPURS
STA: 12+00.00 - 17+69.79

MAXWELL GARDEN
STA: 17+69.79 - 24+00.00

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



SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14969
TBPLS Firm# 10194503

Formerly Known as KFW Engineers

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
WIKSTROM SPURS & MAXWELL GARDEN PLAN & PROFILE

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER: 5.3

Date: Oct 04, 2023, 2:29pm User ID: sdevall
File: K:\1027\01\02\Design\Civil\TREE\SHEET\1027010 2 - B.dwg

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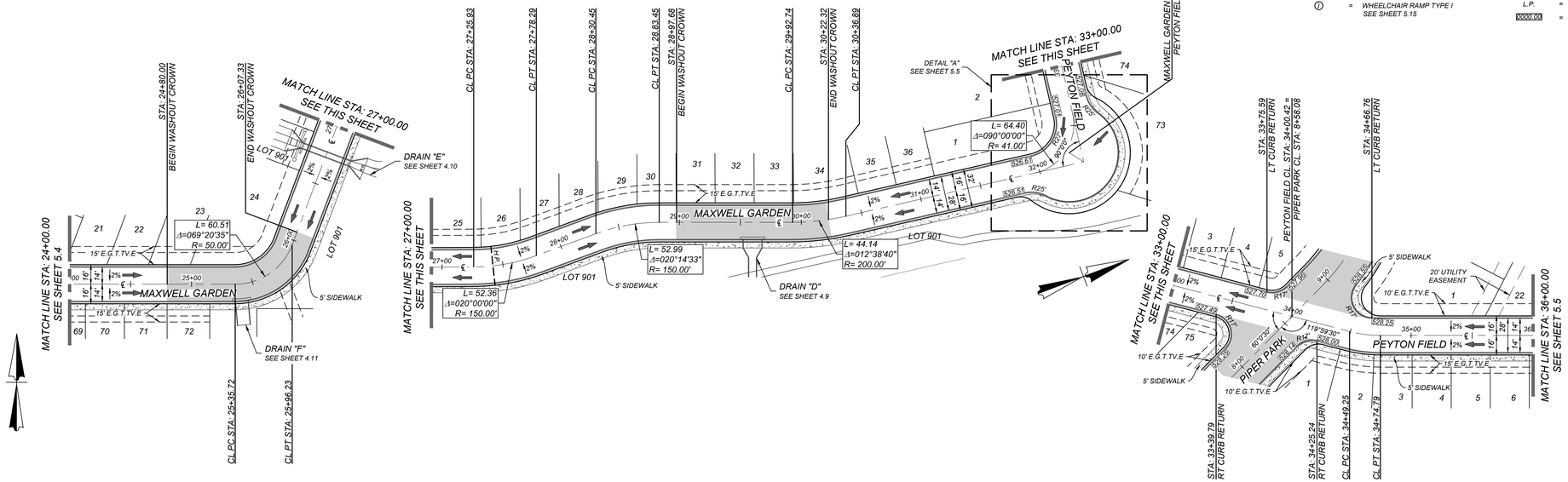
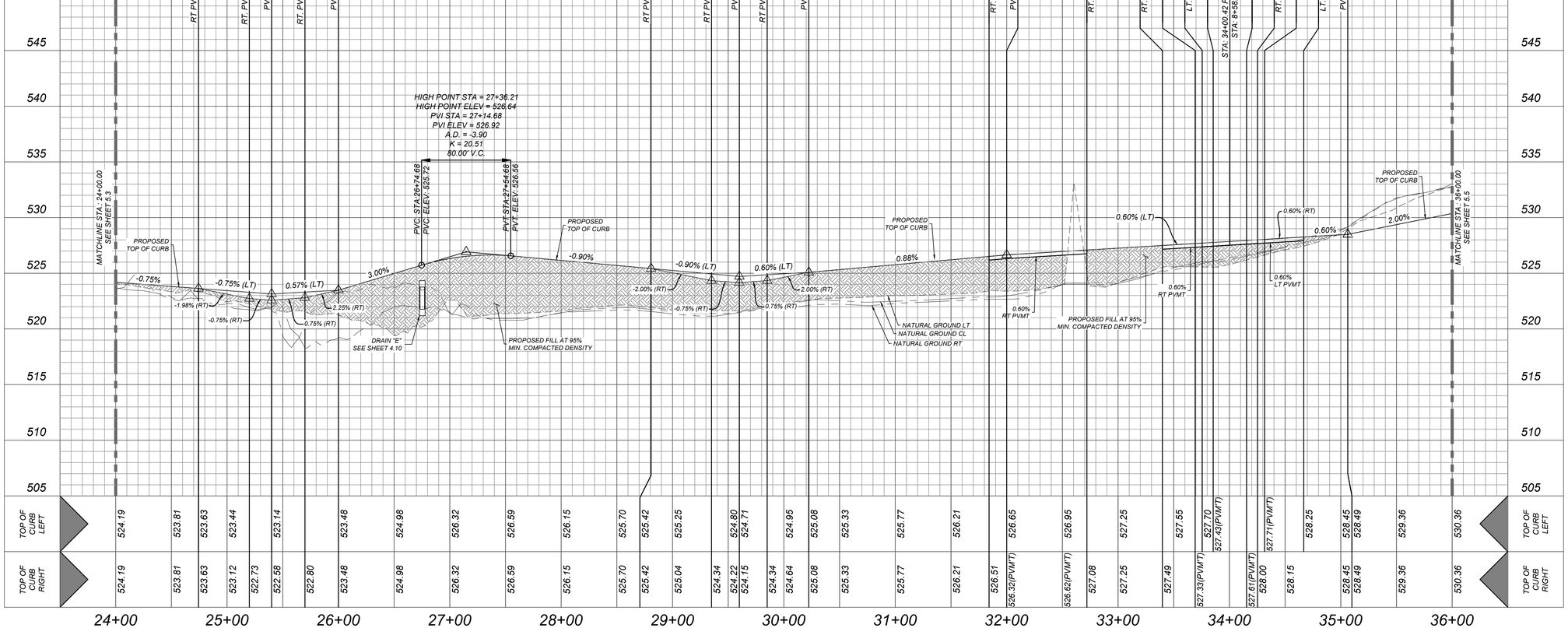


MAXWELL GARDEN
STA: 24+00.00 - 32+28.10

PEYTON FIELD
STA: 32+28.10 - 36+00.00

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



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TBPE Firm# F-1409
TBPLS Firm# 10106503

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ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
MAXWELL GARDEN & PEYTON FIELD PLAN & PROFILE

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER: 5.4

Date: Oct 04, 2023, 2:29pm User ID: mfarwell
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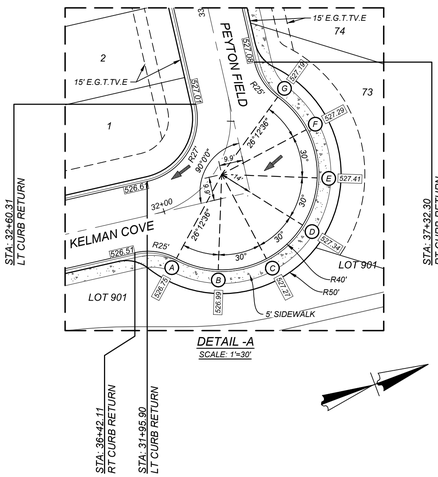
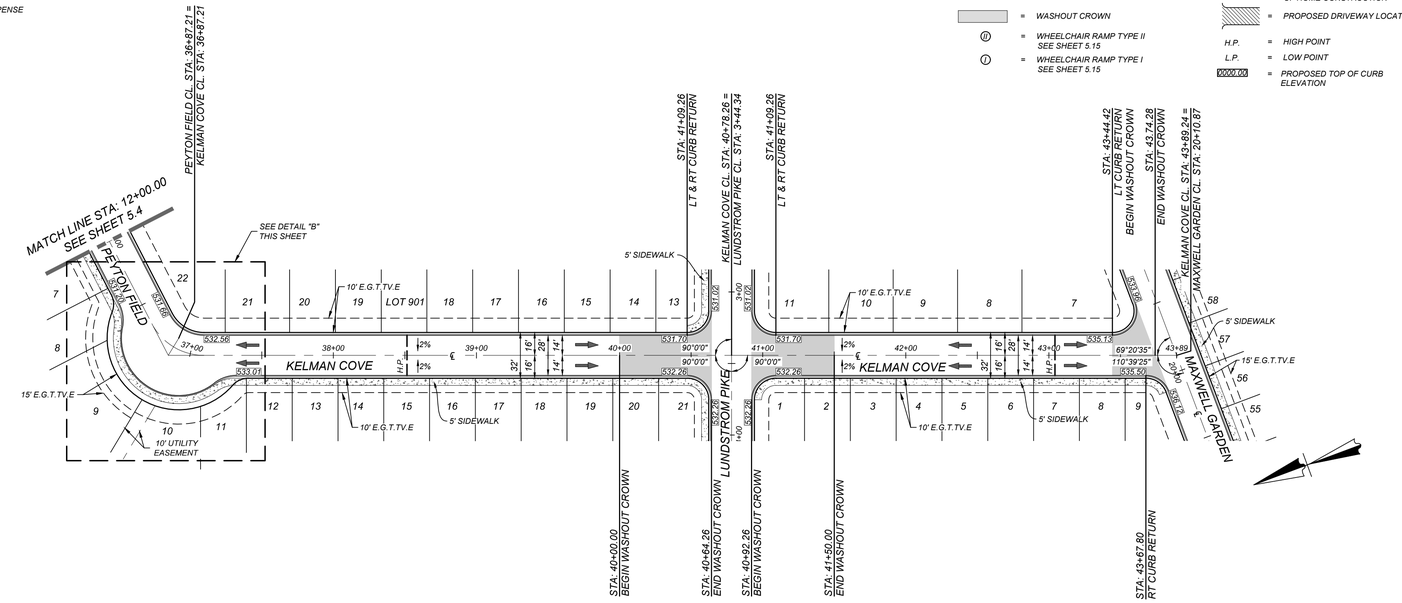
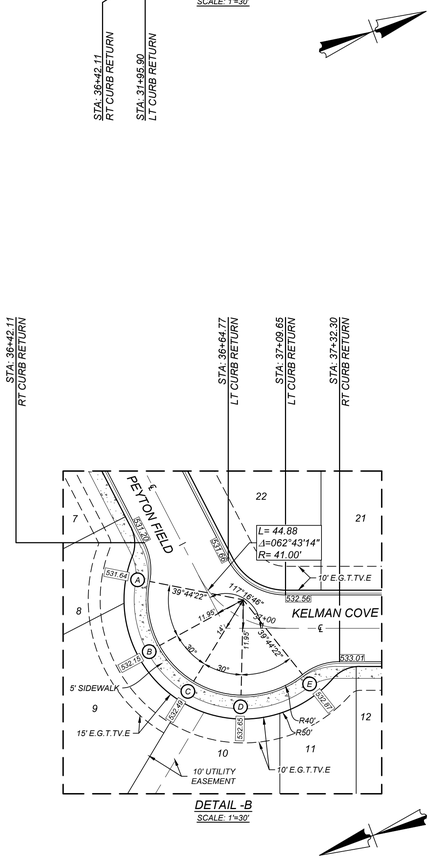


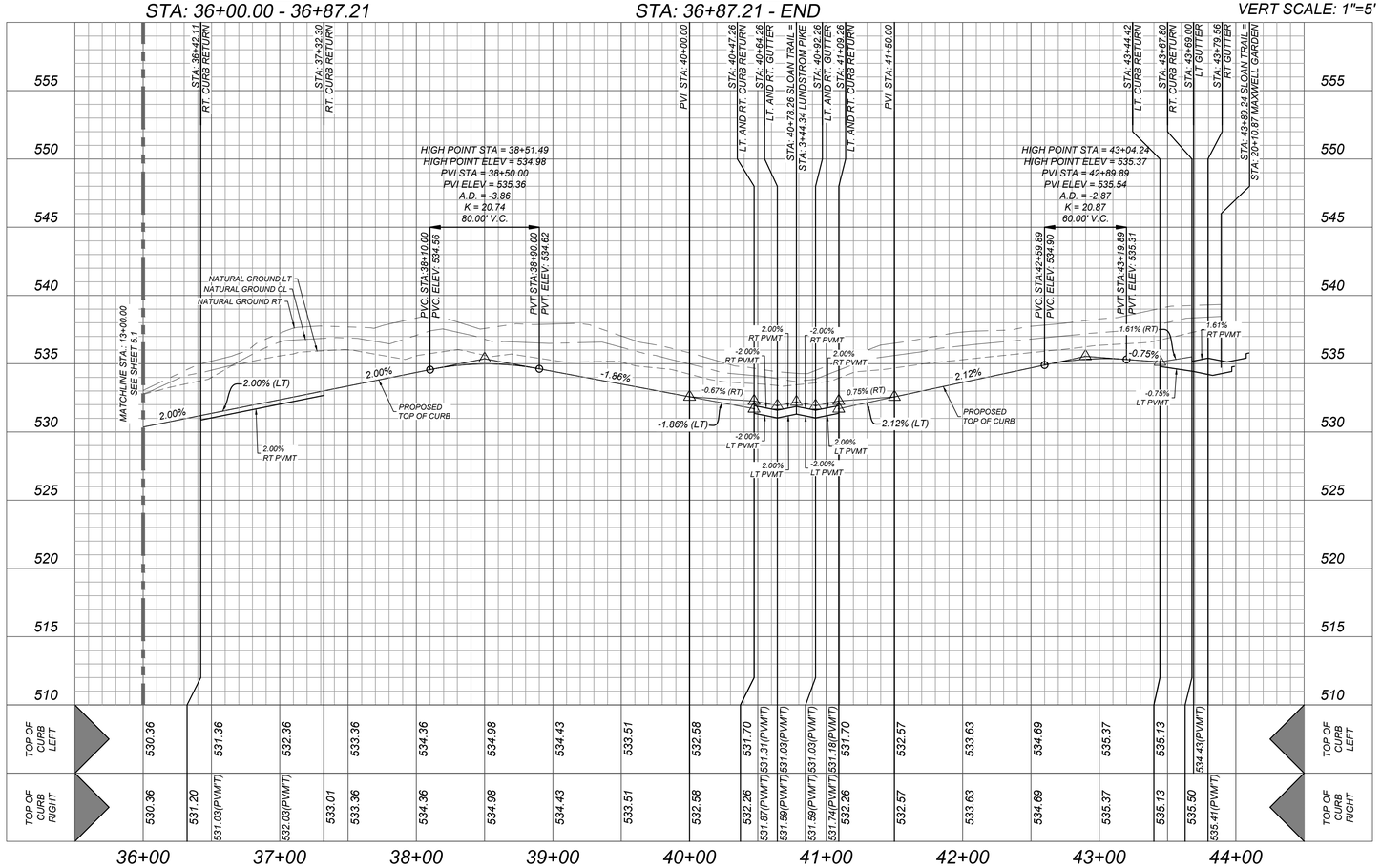




PEYTON FIELD
STA: 36+00.00 - 36+87.21

KELMAN COVE
STA: 36+87.21 - END

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



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Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS

PEYTON FIELD & SLOAN TRAIL PLAN & PROFILE

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER: 5.5

Date: Oct 04, 2023, 3:39pm User ID: mtrevino
File: K:\1027\41002\Design_Civil\TREES\SHEET\1027010 2 - B.dwg

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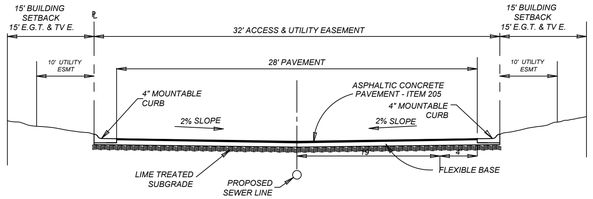
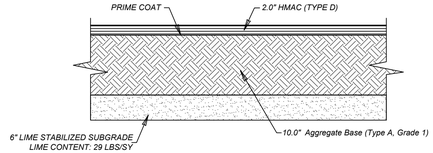


TYPICAL STREET SECTION (LOCAL A, INVERTED)

PIPER PARK STA 10+53.86 - END
WIKSTROM SPURS STA 1+00.00 - 17+69.79
PEYTON FIELD STA 32+28.10 - 36+87.21
LUNDSTROM PIKE STA 1+00.34 - END
MAXWELL GARDEN STA 36+87.21 - END
KELMAN COVE STA 17+69.79 - 32+28.10

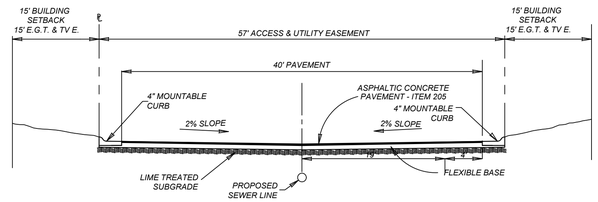
NOT TO SCALE
(REFERENCE GEOTECHNICAL REPORT FOR DETAILS)

Pavement Section
2.0" HMAC Type "D"
10.0" Aggregate Base (Type A, Grade 1)
6" Lime Stablized Subgrade(29 LBS/SY)
Total: 18.0"
Structural No: 2.76
CBR: 2.5
REQUIRED IF SUBGRADE PI > 20



ASPHALT PAVEMENT DETAIL

NOT-TO-SCALE
DETAIL FOR ALL LOCAL TYPE A

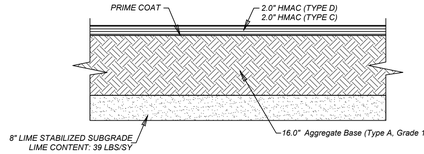


TYPICAL STREET SECTION (LOCAL B, INVERTED)

PIPER PARK STA 7+34.25 - 10+53.86

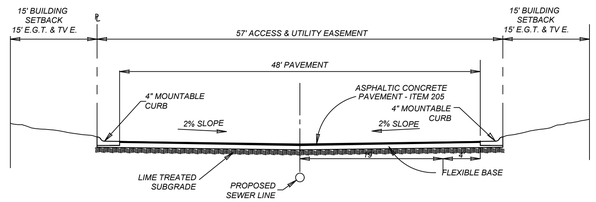
NOT TO SCALE
(REFERENCE GEOTECHNICAL REPORT FOR DETAILS)

Pavement Section
2.0" HMAC Type "D"
2.0" HMAC Type "C"
16.0" Aggregate Base (Type A, Grade 1)
8" Lime Stablized Subgrade(39 LBS/SY)
Total: 28.0"
Structural No: 4.64
CBR: 2.5
REQUIRED IF SUBGRADE PI > 20



ASPHALT PAVEMENT DETAIL

NOT-TO-SCALE
DETAIL FOR ALL LOCAL TYPE B

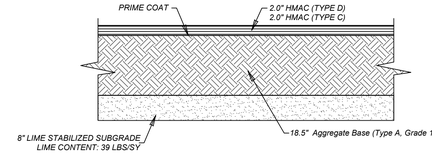


TYPICAL STREET SECTION (COLLECTOR, INVERTED)

PIPER PARK STA 1+22.01 - 7+34.25

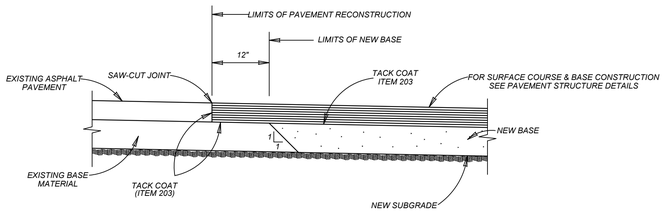
NOT TO SCALE
(REFERENCE GEOTECHNICAL REPORT FOR DETAILS)

Pavement Section
2.0" HMAC Type "D"
2.0" HMAC Type "C"
18.5" Aggregate Base (Type A, Grade 1)
8" Lime Stablized Subgrade(39 LBS/SY)
Total: 30.5"
Structural No: 4.99
CBR: 2.5
REQUIRED IF SUBGRADE PI > 20



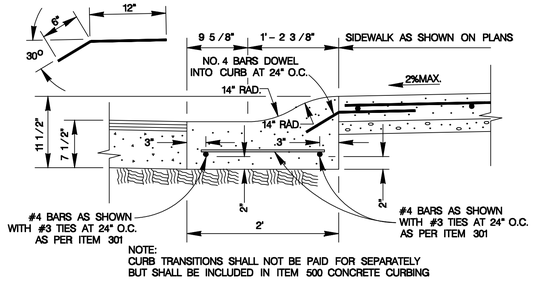
ASPHALT PAVEMENT DETAIL

NOT-TO-SCALE
DETAIL FOR ALL LOCAL TYPE B



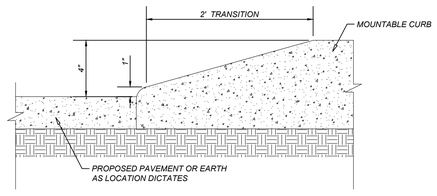
PAVEMENT JUNCTION DETAILS

NOT TO SCALE

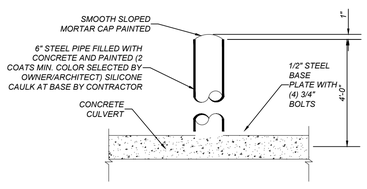


ROLLOVER CURB DETAILS - ALL STREETS WITHIN PROPERTY

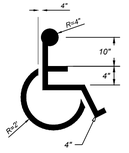
NOT TO SCALE



2' CURB TRANSITION DETAIL (STA: 0+20.10)
NOT-TO-SCALE

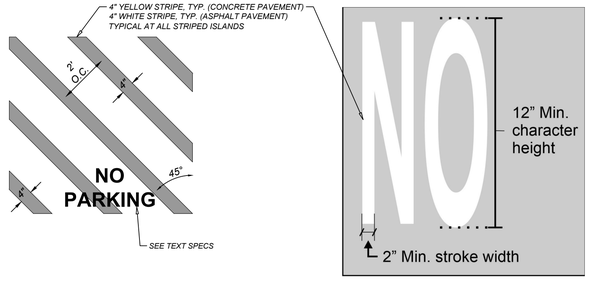


MOUNTABLE BOLLARD DETAIL
NOT-TO-SCALE



NOTE:
SYMBOL SHALL BE PAINTED IN CENTER OF PARKING STALL WITH 4" YELLOW STRIPE, TYP. (CONCRETE PAVEMENT) OR 4" WHITE STRIPE, TYP. (ASPHALT PAVEMENT)

HANDICAP PARKING SYMBOL DETAIL
NOT-TO-SCALE



HANDICAP CROSS HATCH STRIPING & TEXT DETAIL
NOT-TO-SCALE

5AN ANTONIO (KFW)
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SERVANDO CRUZ
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10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
STREET DETAILS

PLAT NO.
22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
5.6

Date: Oct 04, 2023, 8:39pm User ID: sdarnell
File: K:\1027\01\023 Design\Civil\STREETS\STD T10270102.dwg

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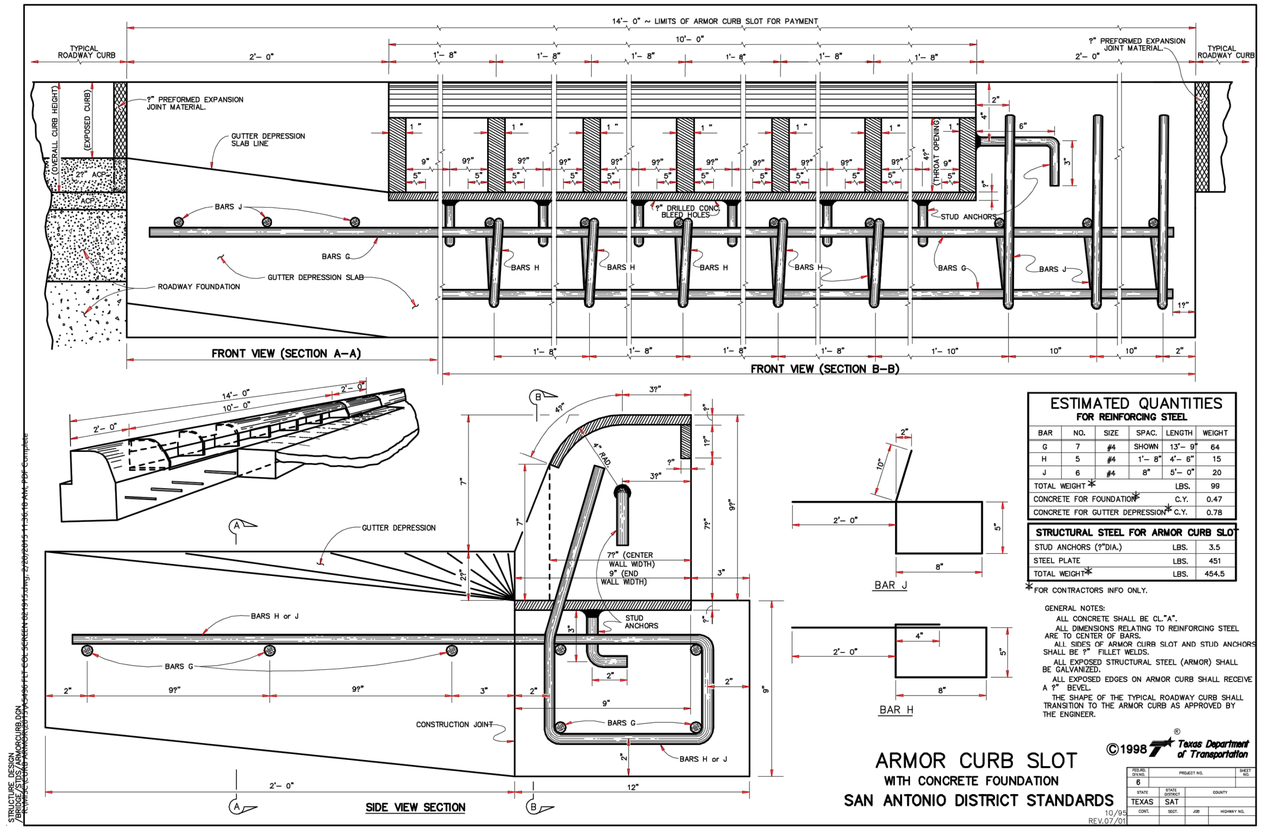

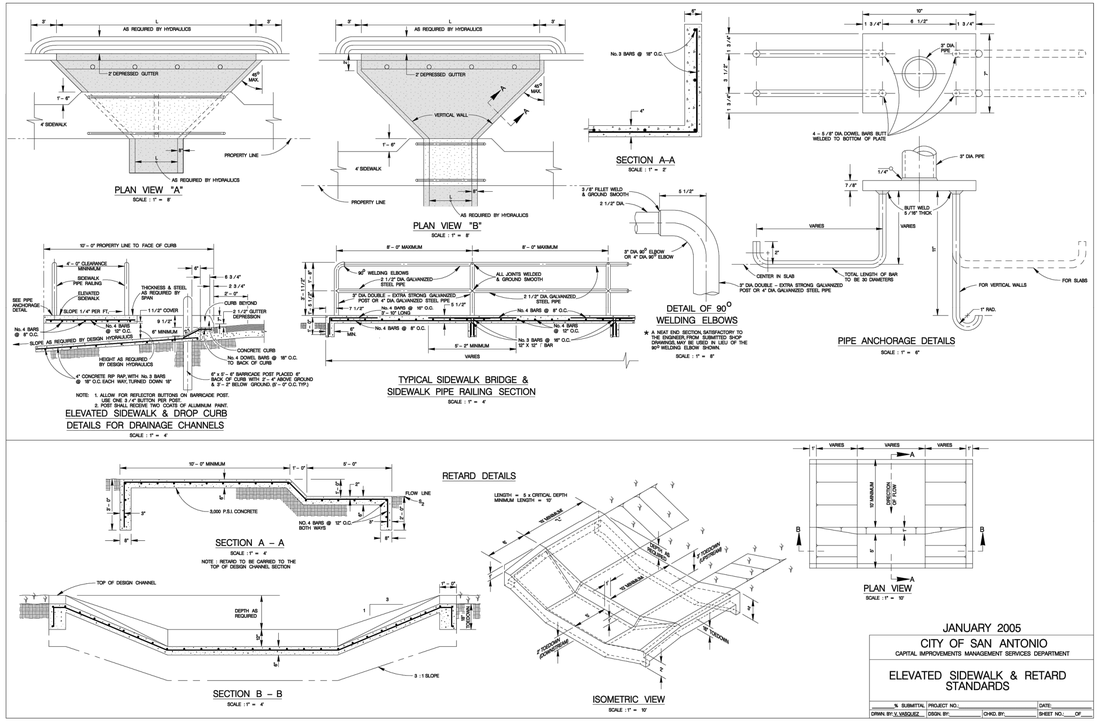

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Formerly Known as KFW ENGINEERS

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS

ARMORED CURB & ELEVATED SIDEWALK DETAILS

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
5.7

Date: Oct 04, 2023, 9:30pm User ID: cdrewell
File: K:\1027-01\02-Design\Civil\S TREETS\STD710270102.dwg

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

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

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

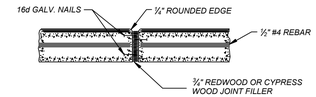
LEGEND

EXISTING PAVEMENT	=	
PROPOSED PAVEMENT	=	
PROPOSED 6' SIDEWALK	=	
PROPOSED TOP OF CURB ELEVATION	=	586.60
PAVEMENT ELEVATION	=	586.60

NOTE: ALL PAVEMENT MARKINGS MUST BE THERMO-PLASTIC.

LOCATION MAP
N.T.S.

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



EXPANSION JOINTS TO BE PLACED AT BEGINNINGS AND END OF CURVES, DRIVEWAYS, WHEELCHAIR RAMPS, INLETS, ILLUMINATION/SIGNAL FOUNDATIONS AND OTHER FIXED OBJECTS.

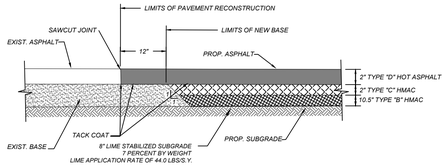
TYPICAL CURB EXPANSION JOINT DETAIL

FOR CONSTRUCTION VERIFICATION THE FOLLOWING SHALL BE CONDUCTED IN THE FIELD:

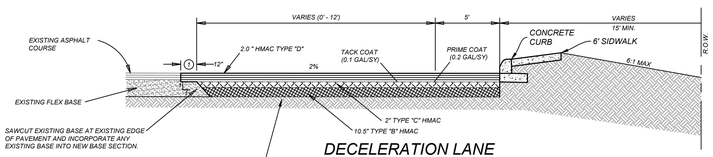
1. *AFTER INITIAL MIXING THE SOIL-LIME MIXTURE SHALL MELLOW FOR A PERIOD OF TWO TO THREE (2 - 3) DAYS. MAINTAIN MOISTURE DURING MELLOWING;*
2. *AFTER MELLOWING AND FINAL MIXING, THE PULVERIZATION SHALL BE CHECKED USING THE FOLLOWING CRITERIA (REMOVE NON-SLAKING AGGREGATES RETAINED ON THE ½ INCH SIEVE FROM THE SAMPLE):*
   - *MINIMUM PASSING 1 ½" SIEVE 100*
   - *MINIMUM PASSING ¾" SIEVE 85*
   - *MINIMUM PASSING NO. 4 SIEVE 60*
3. *SAMPLE SOIL-LIME MIXTURE FOR DETERMINATION OF MAXIMUM DRY DENSITY (MDD). IN THE LABORATORY, MOLD SPECIMENS TO 95% OF MDD AT OPTIMUM MOISTURE CONTENT AND VERIFY UCS TO BE AT LEAST 160 PSI IN ACCORDANCE WITH PROCEDURE OUTLINED ABOVE FOR MIXTURE DESIGN.*
4. *COMPACT AND CHECK FIELD DENSITY (MINIMUM OF 95% OF MDD REQUIRED)*
5. *CURE FOR AN ADDITIONAL 2 TO 5 DAYS (TOTAL MELLOWING AND CURING TIME SHOULD TOTAL AT LEAST 5 DAYS).*
6. *VERIFY DEPTH OF LIME STABILIZED LAYER TO DEPTH AS NOTED ON PLAN TO WITHIN ± 1.0 INCH.*

NOTES:

ANY FILL USED TO RAISE THE SUBGRADE:
- *SHOUD NOT CONTAIN ANY DELETERIOUS MATERIAL.*
- *SHOULD HAVE A CBR VALUE OF 2.0 OR GREATER*
- *SHOULD NOT HAVE GRAVELS LARGER THAN 3 INCH IN SIZE*
- *SHOULD HAVE THE "LIME PERCENTAGE/APPLICATION RATE" RE-RUN PRIOR TO INSTALLATION*
- *PI SHOULD BE LESS THAN 20*

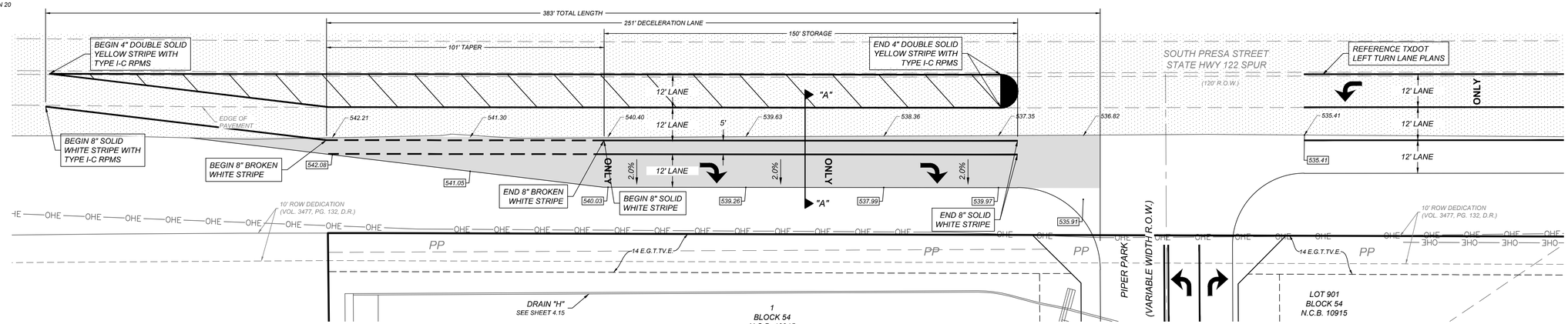


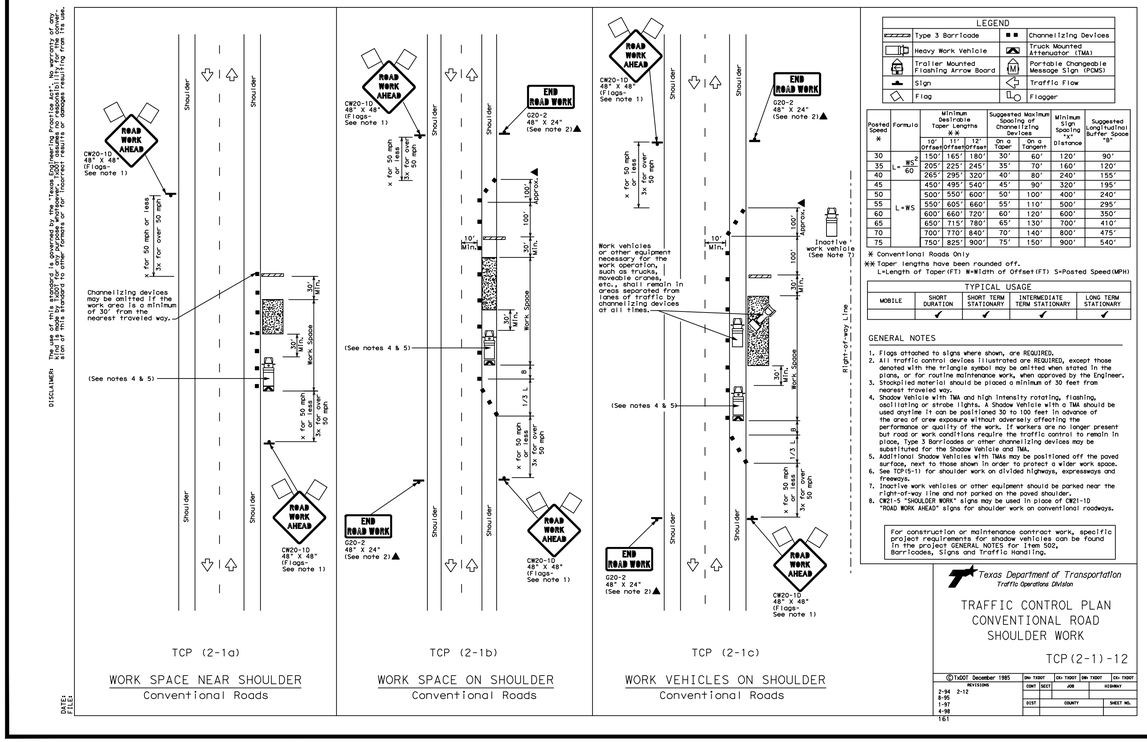
PAVEMENT JUNCTION AND RIGHT TURN LANE PAVEMENT STRUCTURE
(NOT TO SCALE)



DECELERATION LANE SECTION "A - A"
(NOT TO SCALE)

① SEE PAVEMENT JUNCTION DETAIL THIS SHEET.





TCP (2-1a)
WORK SPACE NEAR SHOULDER
Conventional Roads

TCP (2-1b)
WORK SPACE ON SHOULDER
Conventional Roads

TCP (2-1c)
WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND			
Type 3 Barricade	■■	Channelizing Devices	
Heavy Work Vehicle		Truck Mounted Attenuator (TMA)	
Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)	
Sign		Traffic Flow	
Flag		Flagger	

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
30	L = WS²/60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45		450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55	L=WS	550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	✓

GENERAL NOTES
1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when erected in the plans, or for routine maintenance work, when approved by the Engineer.
3. Shadow vehicles should be placed a minimum of 30 feet from nearest traveled way.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
6. See TCP(5-1) for shoulder work on divided higtways, expressways and freeways.
7. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
8. CW21-5 "SHOULDER WORK" signs may be used in place of CW21-10 "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

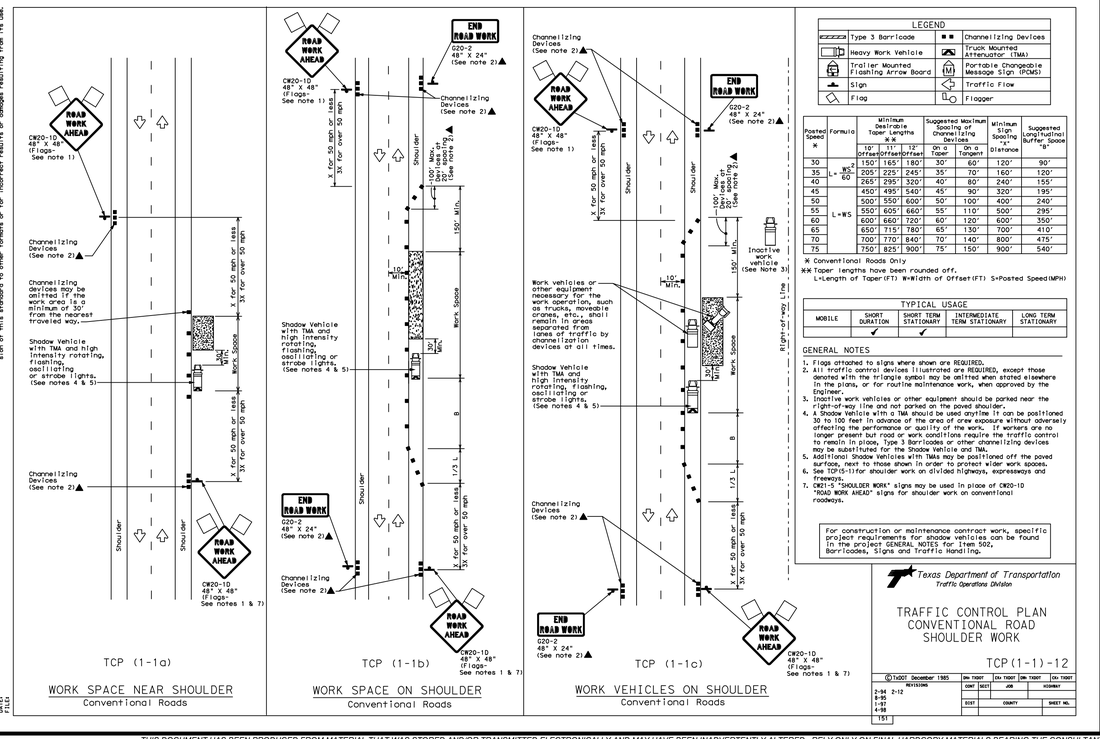
For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP(2-1)-12

©TxDOT December 1985	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
2-98 2-12				
8-95				
1-97	DIST	COUNTY		SHEET NO.
4-98				
161				



TCP (1-1a)
WORK SPACE NEAR SHOULDER
Conventional Roads

TCP (1-1b)
WORK SPACE ON SHOULDER
Conventional Roads

TCP (1-1c)
WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND			
Type 3 Barricade	■■	Channelizing Devices	
Heavy Work Vehicle		Truck Mounted Attenuator (TMA)	
Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)	
Sign		Traffic Flow	
Flag		Flagger	

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
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TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES
1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when erected elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
4. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
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Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP(1-1)-12

©TxDOT December 1985	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
2-98 2-12				
8-95				
1-97	DIST	COUNTY		SHEET NO.
4-98				
151				

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-1409
TBPLS Firm# 10106503
Formerly Known as KFW ENGINEERS
Colliers Engineering & Design

ISSUE DATE
REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
RIGHT TURN DECELERATION LANE PLAN

PLAT NO. 22-11800573
JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM
SHEET NUMBER: 5.8

Date: Sep 15, 2023, 9:18am User ID: sdonnell
File: K:\1027\01\02\Design\Civil\ES\TRES\ST1\0270102 - Deceleration Lane.dwg

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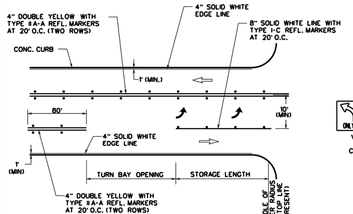
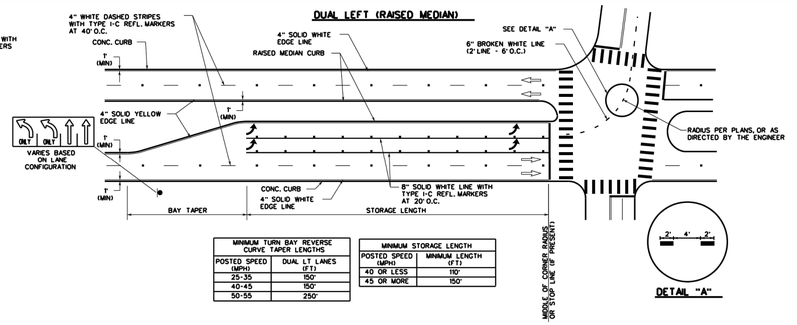
LEFT-TURN LANE



MINIMUM TURN BAY OPENINGS	
POSTED SPEED (MPH)	MINIMUM OPENING (FT)
25-35	60'
≥ 40	100'

MINIMUM STORAGE LENGTH	
POSTED SPEED (MPH)	MINIMUM OPENING (FT)
40 OR LESS	110'
45 OR MORE	150'

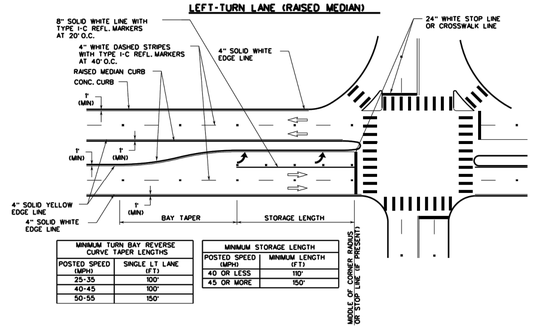
DUAL LEFT (RAISED MEDIAN)



MINIMUM TURN BAY REVERSE CURVE TAPER LENGTHS	
POSTED SPEED (MPH)	DUAL LT LANES (FT)
25-35	150'
40-45	150'
50-55	250'

MINIMUM STORAGE LENGTH	
POSTED SPEED (MPH)	MINIMUM LENGTH (FT)
40 OR LESS	110'
45 OR MORE	150'

LEFT-TURN LANE (RAISED MEDIAN)



MINIMUM TURN BAY REVERSE CURVE TAPER LENGTHS	
POSTED SPEED (MPH)	SINGLE LT LANE (FT)
25-35	100'
40-45	100'
50-55	150'

MINIMUM STORAGE LENGTH	
POSTED SPEED (MPH)	MINIMUM LENGTH (FT)
40 OR LESS	110'
45 OR MORE	150'

NOTES:

1. THE POSTED SPEED LIMIT IS TYPICALLY EQUAL TO THE DESIGN SPEED MINUS 5 MPH.
2. THE DIMENSIONS GIVEN FOR DUAL LEFT (RAISED MEDIAN) IN THE MINIMUM LENGTH TABLES ON THIS SHEET ARE ALSO APPLICABLE FOR DUAL RIGHT-TURN LANES.
3. STORAGE LENGTHS LONGER THAN THE MINIMUMS LISTED ON THIS DRAWING MAY BE DETERMINED USING TRAFFIC ENGINEERING ANALYSIS OR APPROXIMATE CALCULATIONS.
4. FOR THE PLACEMENT OF PAVEMENT ARROWS AND WORDS SEE LEFT-TURN "ONLY" AND ARROW SPACING WORKSHEET.
5. REFER TO APPLICABLE STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKERS FOR POSITION GUIDANCE AND LEFT-TURN & RIGHT-TURN LANE STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKINGS.
6. REFER TO BICYCLE LANE PAVEMENT MARKINGS STANDARD FOR TYPE AND PLACEMENT.
7. 4" SOLID WHITE AND YELLOW EDGE LINES ARE OPTIONAL AS DIRECTED BY THE CITY TRAFFIC ENGINEER.

SEPTEMBER 2009

CITY OF SAN ANTONIO
DEPARTMENT OF PUBLIC WORKS

TRAFFIC ENGINEERING STANDARDS

LEFT-TURN LANE & RIGHT-TURN LANE DESIGN WORKSHEET 1

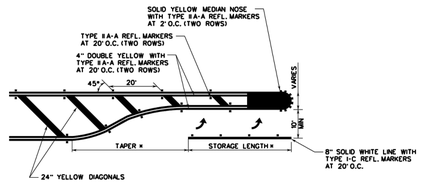
SHEET 10 OF 16

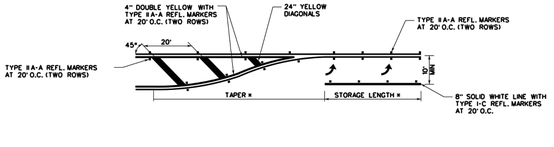
% SUBMITTAL	PROJECT NO.	DATE
DRWN. BY:	DESN. BY:	CHKD. BY:

SHEET NO. 2P

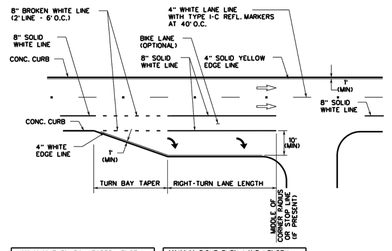
PAINTED MEDIAN LEFT TURN BAY DETAILS

* = USE MINIMUM TURN BAY REVERSE CURVE TAPER LENGTH AND MINIMUM STORAGE LENGTH TABLES FOR "LEFT-TURN LANE (RAISED MEDIAN)" ON SHEET 10 OF 16.





UNSIGNALIZED RIGHT-TURN LANE



MINIMUM TURN BAY TAPER LENGTH	
POSTED SPEED (MPH)	LENGTH (FT)
30 OR LESS	90'
35 OR MORE	120'

MINIMUM RIGHT-TURN LANE LENGTH	
POSTED SPEED (MPH)	LENGTH (FT)
40 OR LESS	110'
45 OR MORE	150'

NOTES:

1. THE POSTED SPEED LIMIT IS TYPICALLY EQUAL TO THE DESIGN SPEED MINUS 5 MPH.
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SEPTEMBER 2009

CITY OF SAN ANTONIO
DEPARTMENT OF PUBLIC WORKS

TRAFFIC ENGINEERING STANDARDS

LEFT-TURN LANE & RIGHT-TURN LANE DESIGN WORKSHEET 2

SHEET 11 OF 16

% SUBMITTAL	PROJECT NO.	DATE
DRWN. BY:	DESN. BY:	CHKD. BY:

SHEET NO. 2P

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
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TBPE Firm# F-14909
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Formerly Known as KFW ENGINEERS

Colliers Engineering & Design

ISSUE DATE

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PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE

BEXAR COUNTY, TEXAS

PAVEMENT MARKING DETAILS

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Date: Oct 04, 2023, 8:39am User ID: ddonelli
File: K:\1027\01\023 Design\CAD\STREETS\ST1027102 - Deceleration Lane.dwg

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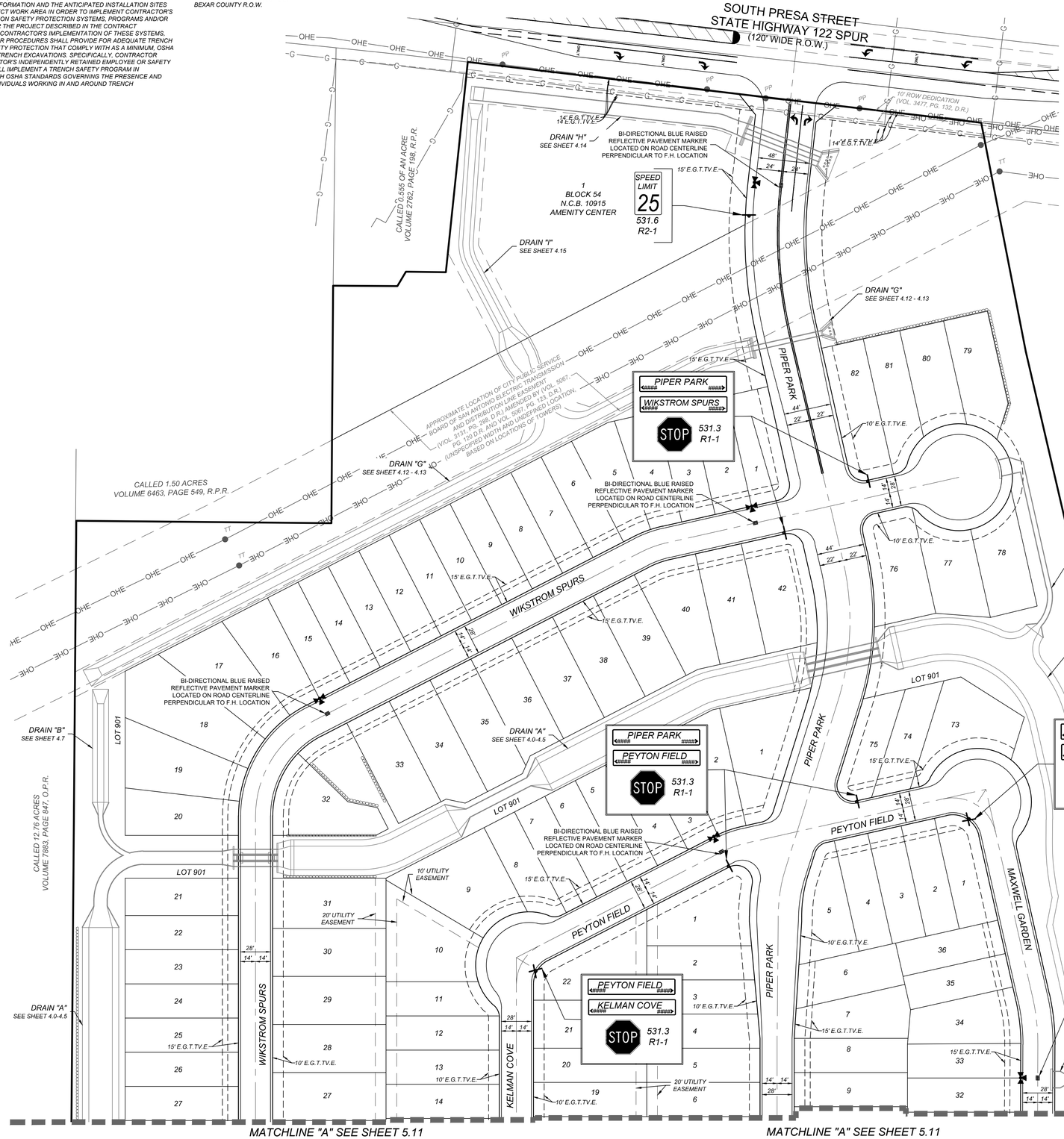
TRENCH EXCAVATION SAFETY PROTECTION

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

BEXAR COUNTY R.O.W. NOTE:

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



NOTES:
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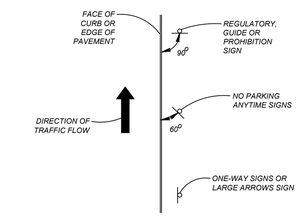


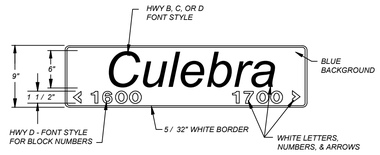
TYPICAL GROUND MOUNTED SIGN PLACEMENT

LOCATION MAP
N.T.S.

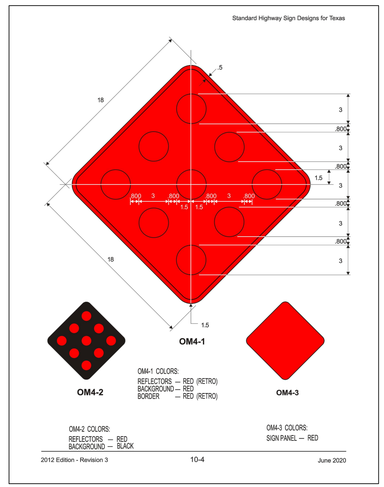
SCALE : 1"=50'
0' 50' 150'
100'

LEGEND

	=	*FLOW ARROW*
	=	*WASHOUT CROWN*
E.G.T.TV.E.	=	*ELECTRIC, GAS, TELEPHONE & CABLE EASEMENT*
V.N.A.E.	=	*VEHICULAR NON-ACCESS EASEMENT*
W.C.R.	=	*WHEELCHAIR RAMPS SEE SHEET 5.9*
Ⓘ	=	*WHEELCHAIR RAMP TYPE I SEE SHEET 5.9*
Ⓘⓘ	=	*WHEELCHAIR RAMP TYPE II SEE SHEET 5.9*
S.D.W.C.R.	=	*SINGLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.9*
D.D.W.C.R.	=	*DOUBLE DIRECTIONAL WHEEL CHAIR RAMP SEE SHEET 5.9*
	=	*SIDEWALK TO BE CONSTRUCTED BY DEVELOPER.*
	=	*SIDEWALK TO BE BUILT AT THE TIME OF HOME CONSTRUCTION*
732.87	=	*TOP OF CURB ELEVATIONS*
	=	*PROPOSED DRIVEWAY LOCATIONS*



9" STREET NAME SIGN



SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-1459
TBPLS Firm# 10106503

Formerly Known as KFW Engineers

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN (1 OF 2)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER: 5.10

Date: Sep 14, 2023, 4:48pm User ID: cdowell
File: K:\1027\01\02\Design\Civil\SHEETS\1027010202.dwg

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TRENCH EXCAVATION SAFETY PROTECTION

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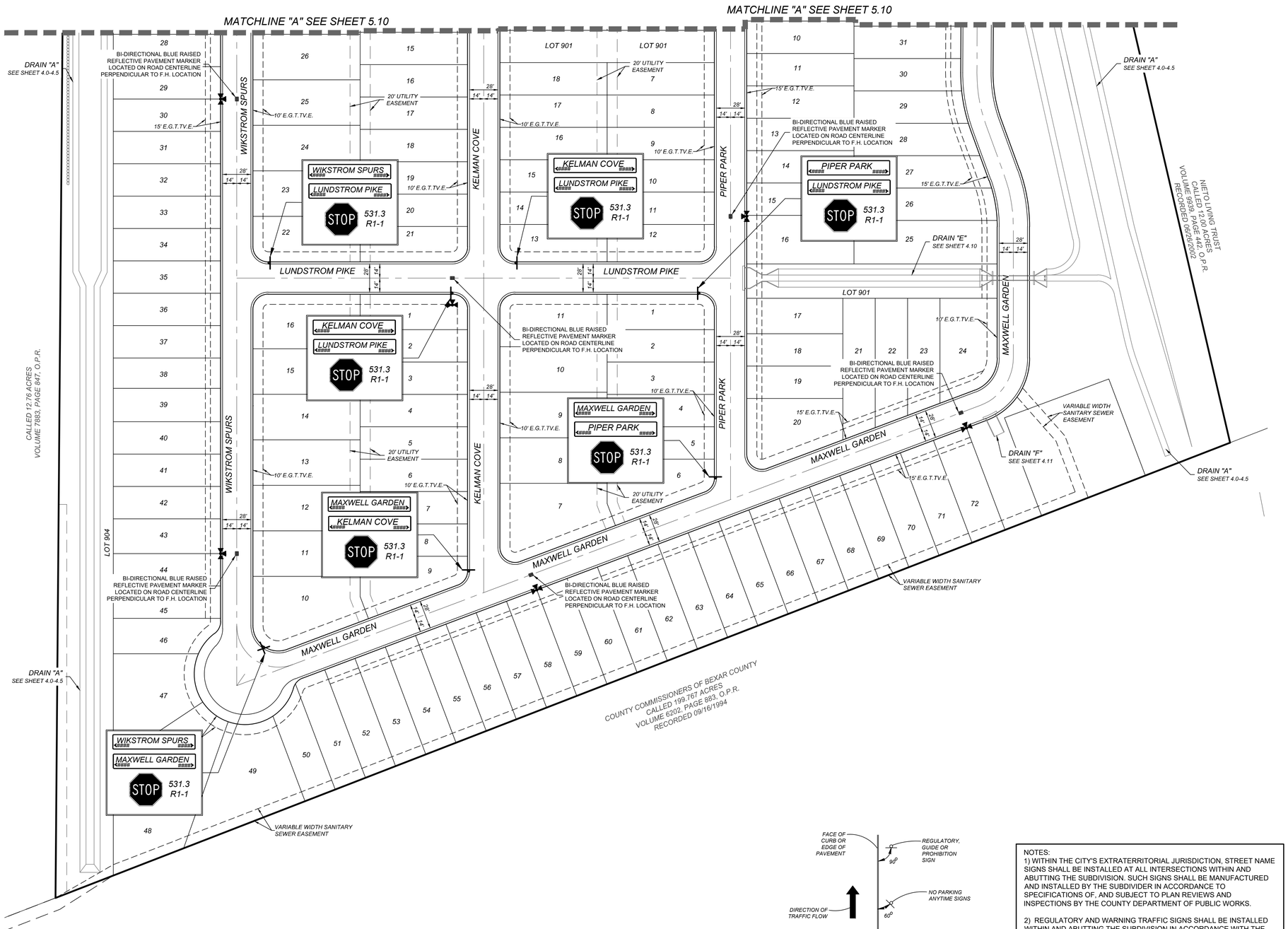
BEXAR COUNTY R.O.W. NOTE:

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



LOCATION MAP

N.T.S.

SCALE : 1"=50'

0' 50' 150'

100'

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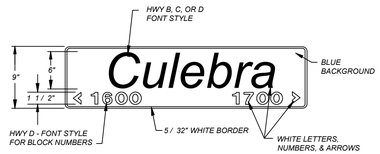

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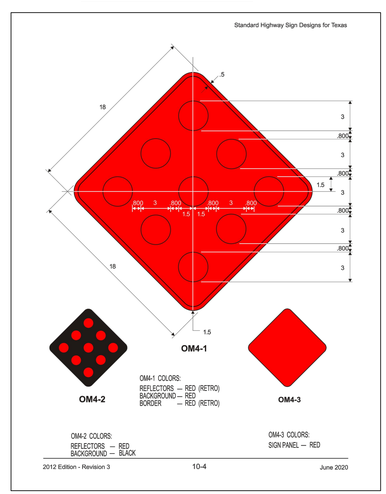

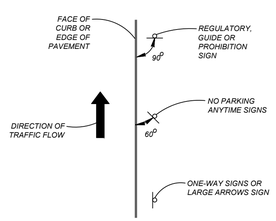

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TBPE Firm# F-14169
TBPLS Firm# 10106503

Formerly Known as KFW Engineers

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE

BEXAR COUNTY, TEXAS

TRAFFIC SIGNAGE & PEDESTRIAN ACCESSIBILITY PLAN (2 OF 2)

PLAT NO. 20-11800423

JOB NO.:1027-01-02

DATE: ----

DRAWN:SD CHECKED:JM

SHEET NUMBER:

5.11

Date: Sep 14, 2023, 4:58pm User ID: sdruwell
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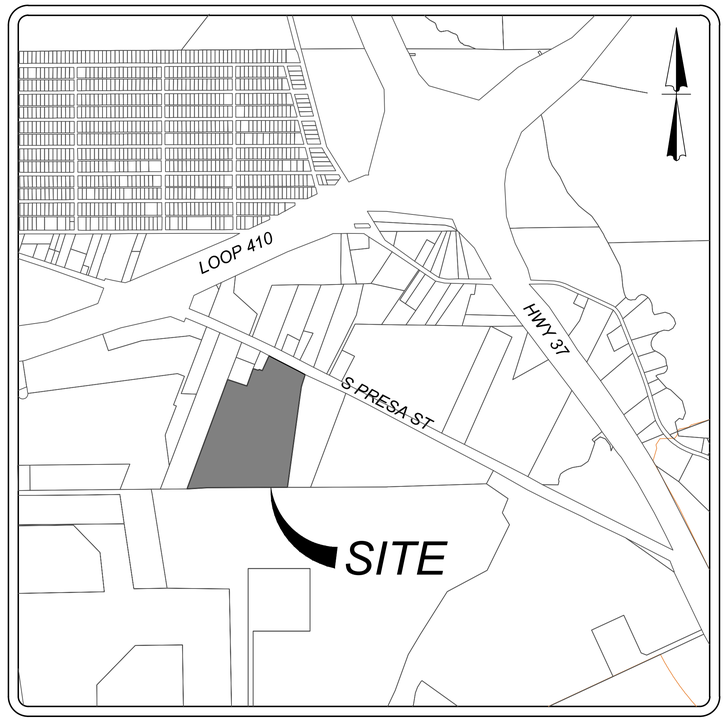
PRESA GROVE

BEXAR COUNTY, TEXAS

PRIVATE SANITARY SEWER IMPROVEMENTS



LOCATION MAP

N.T.S.

INDEX

DESCRIPTION	SHEET NO.
SANITARY SEWER COVER SHEET	6.0
OVERALL SANITARY SEWER PLAN (1 OF 3)	6.1
OVERALL SANITARY SEWER PLAN (2 OF 3)	6.2
OVERALL SANITARY SEWER PLAN (3 OF 3)	6.3
PRIVATE SEWER LINE A PLAN & PROFILE	6.4
PRIVATE SEWER LINE B PLAN & PROFILE	6.5
PRIVATE SEWER LINE C PLAN & PROFILE	6.6
PRIVATE SEWER LINE D PLAN & PROFILE	6.7
PRIVATE SEWER LINE E PLAN & PROFILE	6.8
PRIVATE SEWER LINE F PLAN & PROFILE	6.9
PRIVATE SEWER LINE G & H PLAN & PROFILE	6.10

OWNER/DEVELOPER:
PRESA GROVE, LLC
13580 LUDLAM ROAD, STUDIO 1
PINECREST, FLORIDA 33156
PHONE: (866) 758 - 7899

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER

10/12/23

Colliers Engineering & Design
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3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm#: F-14909
TBPLS Firm#: 10194550

Formerly Known as
KFW

LOWER - EAST SEWERSHED - DOS RIOS\LEON CREEK W.R.C.

DEVELOPER'S NAME: PRESA GROVE, LLC		
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1		
CITY: PINECREST	STATE: FLORIDA	ZIP: 33156
PHONE#:	FAX#:	TOTAL ACREAGE: 34.50 ACRES
SAWS BLOCK MAP#: 182538		TOTAL EDU'S: 209
TOTAL LINEAR FOOTAGE OF PIPE: 6,297 LF – 8" SDR 26		PLAT NO.: 22-11800573
NUMBER OF LOTS: 209	SAWS JOB#: 23-1530	

PLAT NO. : 22-11800573

SHEET 6.0

JOB NO. - 1027-01-02

Date: Sep 14, 2023, 3:34pm User ID: cdurwell
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NOTE:

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2. *SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.1 & ####, SANITARY SEWER GENERAL NOTES, S.A.W.S. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.*
3. *SEE THIS SHEET FOR BENCHMARK INFORMATION.*
4. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
5. *SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
6. *ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER.*

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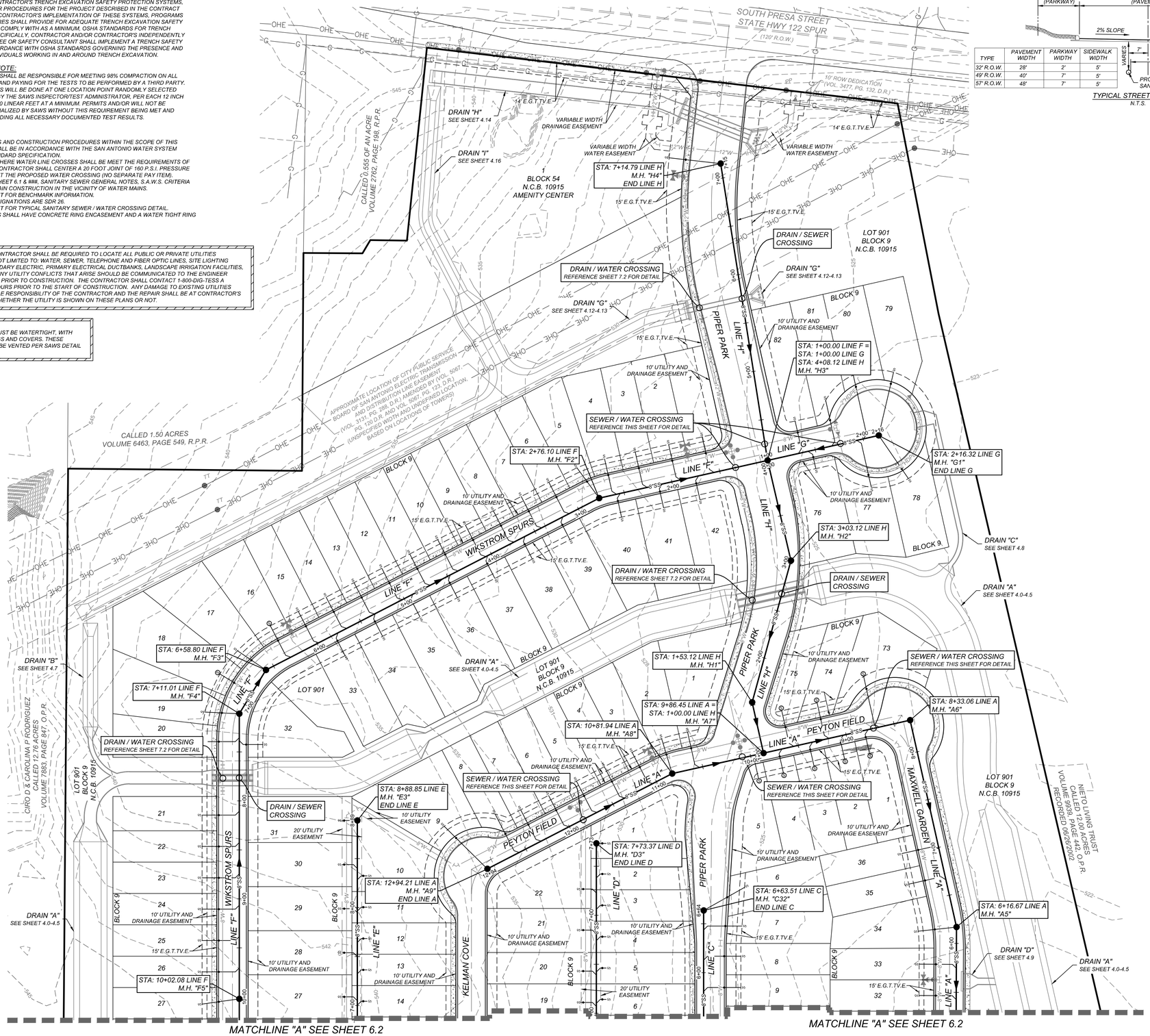
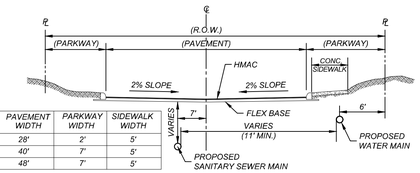




TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
32' R.O.W.	28'	2'	5'
49' R.O.W.	40'	7'	5'
57' R.O.W.	48'	7'	5'

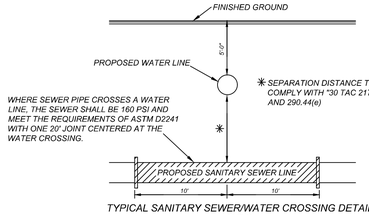
TYPICAL STREET SECTION
N.T.S.

LOCATION MAP
N.T.S.

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

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	W
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL	=	SS
PROPOSED SANITARY SEWER LATERAL WITH VERTICAL STACK	=	SS
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
EXISTING WATER MAIN	=	E.W
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E.SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

LOWER - EAST SEWERSHED - DOS RIOS\LEON CREEK W.R.C.

DEVELOPER'S NAME: PRESA GROVE, LLC			
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1			
CITY: PINECREST	*STATE:* FLORIDA	*ZIP:* 33156	
PHONE#:	*FAX#:*	*TOTAL ACREAGE:* 34.50 ACRES	
SAWS BLOCK MAP#: 182538		*TOTAL EDU'S:* 209	
TOTAL LINEAR FOOTAGE OF PIPE: 6,297 LF ~ 8" SDR 26		*PLAT NO.:* 22-11800573	
NUMBER OF LOTS: 209	*SAWS JOB#:* 23-1530		

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Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
8/20/24

PRESA GROVE
BEXAR COUNTY, TEXAS
OVERALL SANITARY SEWER PLAN (1 OF 3)

PLAT NO. 22-11800573

*JOB NO.:*1027-01-02
DATE: ----
*DRAWN:*SD *CHECKED:*JM

SHEET NUMBER:
6.1

Date: Aug 20, 2024, 9:32am User ID: angelo.barrenos
File: K:\1027\01\Design\Civil\SEWER\1027101C.dwg

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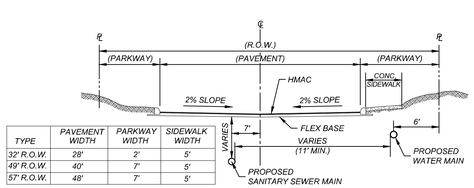
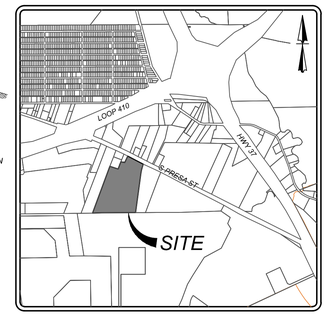


TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
32' R.O.W.	28'	2'	5'
49' R.O.W.	40'	7'	5'
57' R.O.W.	48'	7'	5'

TYPICAL STREET SECTION
N.T.S.



LOCATION MAP
N.T.S.

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

MATCHLINE "A" SEE SHEET 6.1

MATCHLINE "A" SEE SHEET 6.1

DRAIN "A" SEE SHEET 4.0-4.5

WIKSTROM SPURS

KELMAN COVE

PIPER PARK

MAXWELL GARDEN

LUNDSTROM PIKE

LUNDSTROM PIKE

LINE "A"

LINE "B"

LINE "C"

LINE "D"

LINE "E"

LINE "F"

BLOCK 9

LOT 901 BLOCK 9 N.C.B. 10915

LOT 903 BLOCK 9 N.C.B. 10915 (0.25 ACRES)

CIRO D & CAROLINA P RODRIGUEZ CALLED 12.76 ACRES VOLUME 7883, PAGE 847, O.P.R.

NIETO LIVING TRUST CALLED 12.00 ACRES VOLUME 9939, PAGE 442, O.P.R. RECORDED 06/20/2002

COUNTY COMMISSIONERS OF BEXAR COUNTY CALLED 199.767 ACRES VOLUME 6202, PAGE 883, O.P.R. RECORDED 09/16/1994

STA: 4+59.31 LINE A M.H. "A4"

STA: 4+52.35 LINE E M.H. "E2"

STA: 3+60.27 LINE D M.H. "D2"

STA: 3+39.31 LINE A M.H. "A3"

STA: 3+18.88 LINE C M.H. "C2"

STA: 12+56.48 LINE F M.H. "F6" END LINE F

STA: 12+41.53 LINE B M.H. "B6" END LINE B

STA: 1+70.20 LINE A = STA: 1+00.00 LINE B M.H. "A2"

STA: 1+32.88 LINE C M.H. "C1"

STA: 1+31.33 LINE D M.H. "D1"

STA: 1+30.13 LINE E M.H. "E1"

STA: 1+00.00 LINE A M.H. "A1"

STA: 3+93.95 LINE B = STA: 1+00.00 LINE C M.H. "B1"

STA: 5+11.56 LINE B = STA: 1+00.00 LINE D M.H. "B2"

STA: 7+72.82 LINE B = STA: 1+00.00 LINE E M.H. "B3"

STA: 8+78.35 LINE B M.H. "B4"

STA: 9+17.67 LINE B M.H. "B5"

SEWER / WATER CROSSING REFERENCE THIS SHEET FOR DETAIL

DRAIN / SEWER CROSSING

DRAIN / WATER CROSSING REFERENCE SHEET 7.2 FOR DETAIL

DRAIN "E" SEE SHEET 4.10

DRAIN "F" SEE SHEET 4.11

20' UTILITY EASEMENT

10' UTILITY AND DRAINAGE EASEMENT

15' E.G.T.TV.E.

VARIABLE WIDTH SANITARY SEWER EASEMENT

FORCE MAIN AND LIFT STATION TO BE DESIGNED AND BUILT BY UEG

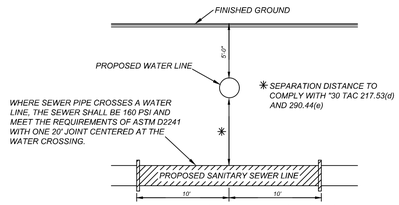
PRIVATE 4"FM (HDPE)

VARIABLE WIDTH PERMANENT SEWER EASEMENT (DOC.NO. 20240146968 P.R.)

MATCHLINE "B" SEE SHEET 6.4

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	M.W.
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	IRRIG
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL	=	SS
PROPOSED SANITARY SEWER LATERAL WITH VERTICAL STACK	=	SS
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E. G. T. TV. E
EXISTING WATER MAIN	=	E.W
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E.SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

LOWER - EAST SEWERSHED - DOS RIOS\LEON CREEK W.R.C.

DEVELOPER'S NAME: PRESA GROVE, LLC			
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1			
CITY: PINECREST	STATE: FLORIDA	ZIP: 33156	
PHONE#:	FAX#:	TOTAL ACREAGE: 34.50 ACRES	
SAWS BLOCK MAP#: 182538		TOTAL EDU'S: 209	
TOTAL LINEAR FOOTAGE OF PIPE: 6,297 LF ~ 8" SDR 26		PLAT NO.: 22-11800573	
NUMBER OF LOTS: 209	SAWS JOB#: 23-1530		

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# 1-1069
TBPLS Firm# 10194503
Formerly Known as KFW ENGINEERS

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
8/20/24

PRESA GROVE

BEXAR COUNTY, TEXAS

OVERALL SANITARY SEWER PLAN (2 OF 3)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:

6.2

Date: Aug 20, 2024, 9:26am User ID: rogelio.barrera
File: K:\1027\Work\Design\Civil\SEWER\DS 001\Plat.dwg

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TRENCH EXCAVATION SAFETY PROTECTION

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

COMPACTION NOTE:

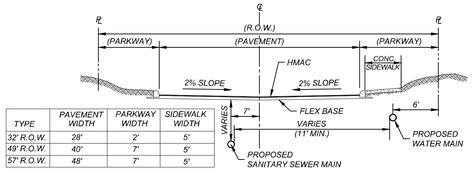
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE SAWS INSPECTOR/TEST ADMINISTRATOR, PER EACH 12 INCH LOOSE LIFT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

NOTE:

1. *ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (S.A.W.S.) STANDARD SPECIFICATION.*
2. *SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM), REFERENCE SHEET 6.1 & ###, SANITARY SEWER GENERAL NOTES, S.A.W.S. CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS.*
3. *SEE THIS SHEET FOR BENCHMARK INFORMATION.*
4. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
5. *SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
6. *ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER.*

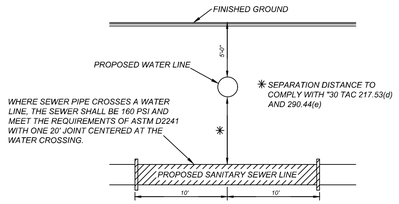
CAUTION!!: *THE CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS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

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



TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
32' R.O.W.	28'	2'	5'
49' R.O.W.	40'	7'	5'
57' R.O.W.	48'	7'	5'

TYPICAL STREET SECTION
N.T.S.



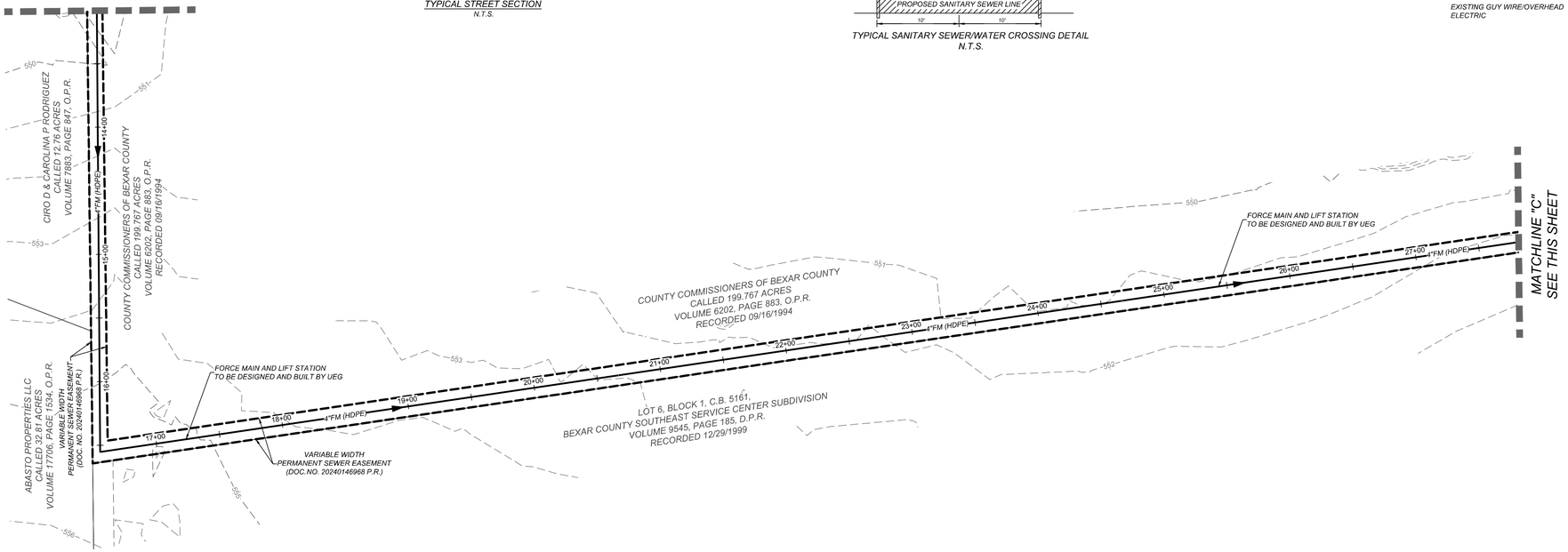
TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

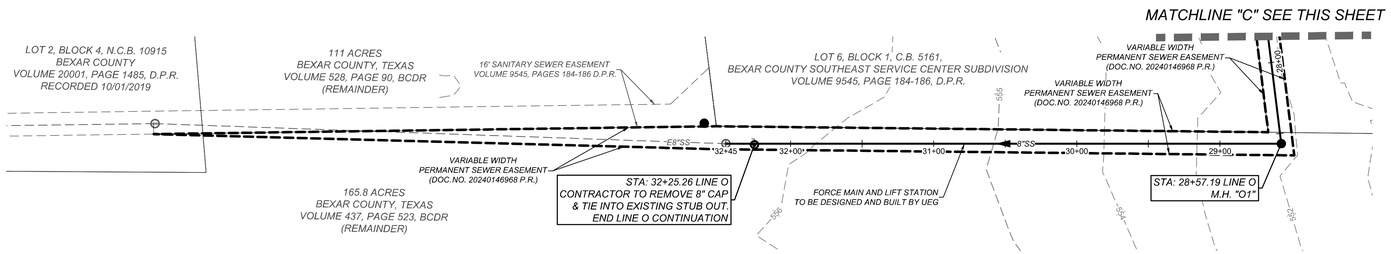
LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED WATER SERVICE & METER BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE & METER BOX	=	W
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED SANITARY SEWER LATERAL	=	S
PROPOSED SANITARY SEWER LATERAL WITH VERTICAL STACK	=	S
PROPOSED ELECTRIC, GAS, TELEPHONE, & CABLE TV EASEMENT	=	E, G, T, TV, E
EXISTING WATER MAIN	=	E.W
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	E.SS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE

LOCATION MAP
N.T.S.

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





LOWER - EAST SEWERSHED - DOS RIOS\LEON CREEK W.R.C.

DEVELOPER'S NAME: PRESA GROVE, LLC			
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1			
CITY: PINECREST	STATE: FLORIDA	ZIP: 33156	
PHONE#:	FAX#:	TOTAL ACREAGE: 34.50 ACRES	
SAWS BLOCK MAP#: 182538		TOTAL EDU'S: 209	
TOTAL LINEAR FOOTAGE OF PIPE: 6,297 LF ~ 8" SDR 26		PLAT NO.: 22-11800573	
NUMBER OF LOTS: 209	SAWS JOB#: 23-1530		

SAN ANTONIO (KFW)
3421 Paesanos Parkway
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14169
TBPLS Firm# 10194503
Formerly Known as KFW ENGINEERS
Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
8/20/24

PRESA GROVE
BEXAR COUNTY, TEXAS
OVERALL SANITARY SEWER PLAN (3 OF 3)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER: 6.3

Date: Aug 20, 2024, 8:37am User ID: angela.tommos
File: K:\1027\01\02\engr\civil\SHEETS\1027102.dwg

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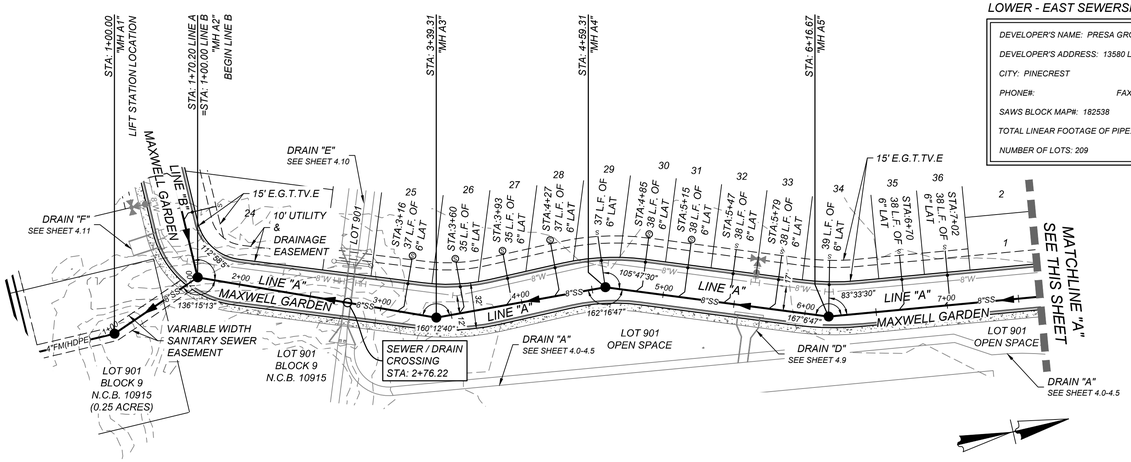

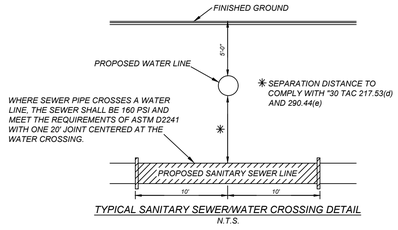

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

LOWER - EAST SEWERSHED - DOS RIOS\LEON CREEK W.R.C.

DEVELOPER'S NAME: PRESA GROVE, LLC

DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1

CITY: PINECREST STATE: FLORIDA ZIP: 33156

PHONE#: FAX#: TOTAL ACREAGE: 34.50 ACRES

SAWS BLOCK MAP#: 182538 TOTAL EDU'S: 209

TOTAL LINEAR FOOTAGE OF PIPE: 6,297 LF – 8" SDR 26 PLAT NO.: 22-11800573

NUMBER OF LOTS: 209 SAWS JOB#: 23-1530

NOTE:
ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.

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

NOTE:

1. *SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.1-6.2, SANITARY SEWER GENERAL NOTES.*
2. *PIPE TYPE DESIGNATIONS ARE SDR 26.*
3. *SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.*
4. *ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER. SEE SHEET 6.11 FOR DETAILS.*
5. *MANHOLES WILL NEED TO BE RESEALED WITH THE SARA APPROVED SEALING. IF SEAL COATING IS BROKEN, CONTRACTOR WILL HAVE MANHOLE RECOATED. RESEAL ALL LEAKS AT CONTRACTOR EXPENSE.*

WATER/SEWER CROSSING NOTE:
ALL WATER/SEWER CROSSINGS SHALL COMPLY WITH SAWS SPECIFICATION ITEM 812 SANITARY SEWER/WATER DETAIL.

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

TRENCH EXCAVATION SAFETY PROTECTION
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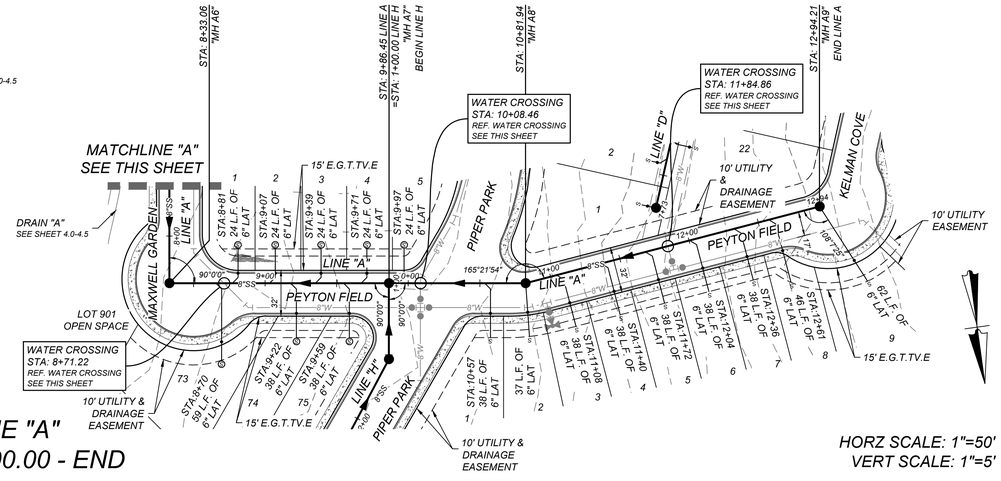
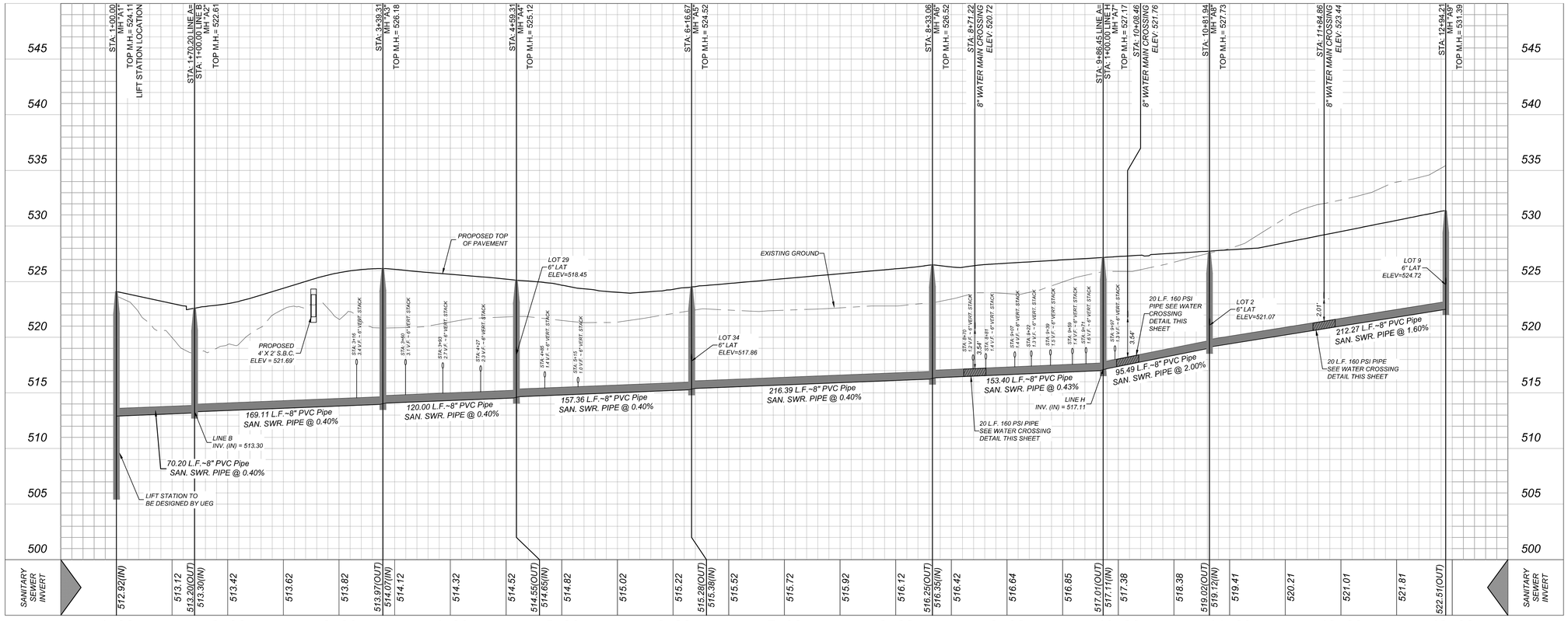


LINE "A"
STA: 1+00.00 - END

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



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COLLIERSENGINEERING.COM
TBPE Firm# F-1969
TBPELS Firm# 10194503

Colliers Engineering & Design

Formerly Known as KFW ENGINEERS

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
PRIVATE SEWER LINE A PLAN & PROFILE

PLAT NO.
22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
6.4

Date: Sep 14, 2023, 3:32pm User ID: cdowell
File: K:\1027\01\02\Design\Civil\SEWER\SSPP\1027010202-AB.dwg

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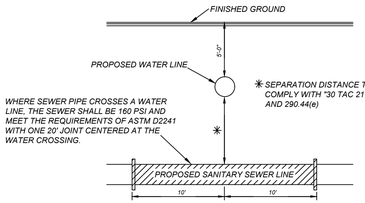

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

LOWER - EAST SEWERSHED - DOS RIOS\LEON CREEK W.R.C.

DEVELOPER'S NAME: PRESA GROVE, LLC

DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1

CITY: PINECREST STATE: FLORIDA ZIP: 33156

PHONE#: FAX#: TOTAL ACREAGE: 34.50 ACRES

SAWS BLOCK MAP#: 182538 TOTAL EDU'S: 209

TOTAL LINEAR FOOTAGE OF PIPE: 6,297 LF ~ 8" SDR 26 PLAT NO.: 22-11800573

NUMBER OF LOTS: 209 SAWS JOB#: 23-1530

NOTE:
ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.

MANHOLE NOTE:
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NOTE:

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2. PIPE TYPE DESIGNATIONS ARE SDR 26.
3. SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.
4. ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER. SEE SHEET 6.11 FOR DETAILS.
5. MANHOLES WILL NEED TO BE RESEALED WITH THE SARA APPROVED SEALING. IF SEAL COATING IS BROKEN, CONTRACTOR WILL HAVE MANHOLE RECOATED. RESEAL ALL LEAKS AT CONTRACTOR EXPENSE.

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CAUTION!!:
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WATER/SEWER CROSSING NOTE:
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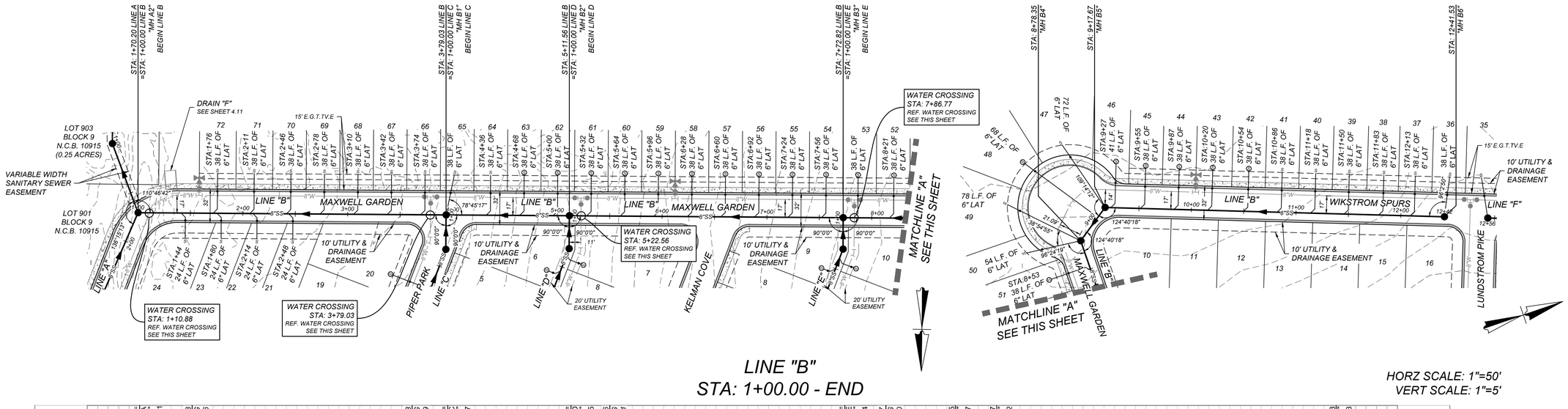

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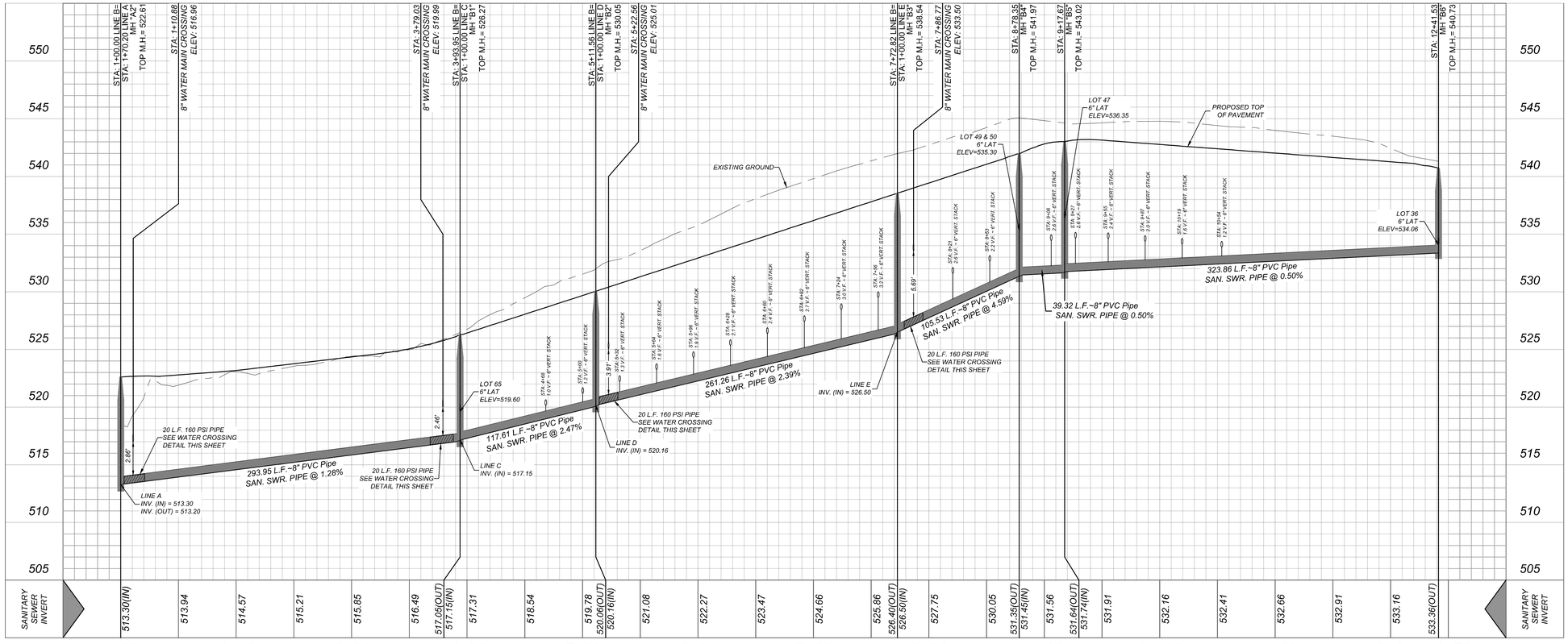
VERT SCALE: 1"=5'



SAN ANTONIO (KFW)
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COLLIERSENGINEERING.COM
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Formerly Known as KFW ENGINEERS & SURVEYING

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
PRIVATE SEWER LINE B PLAN & PROFILE

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
6.5

Date: Sep 14, 2023, 3:11pm User ID: cdowell
File: S:\1027\01023\dwg\pln\SEWER\SSPP1027010 2-AB.dwg

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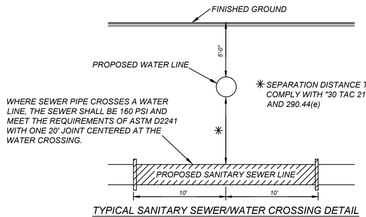
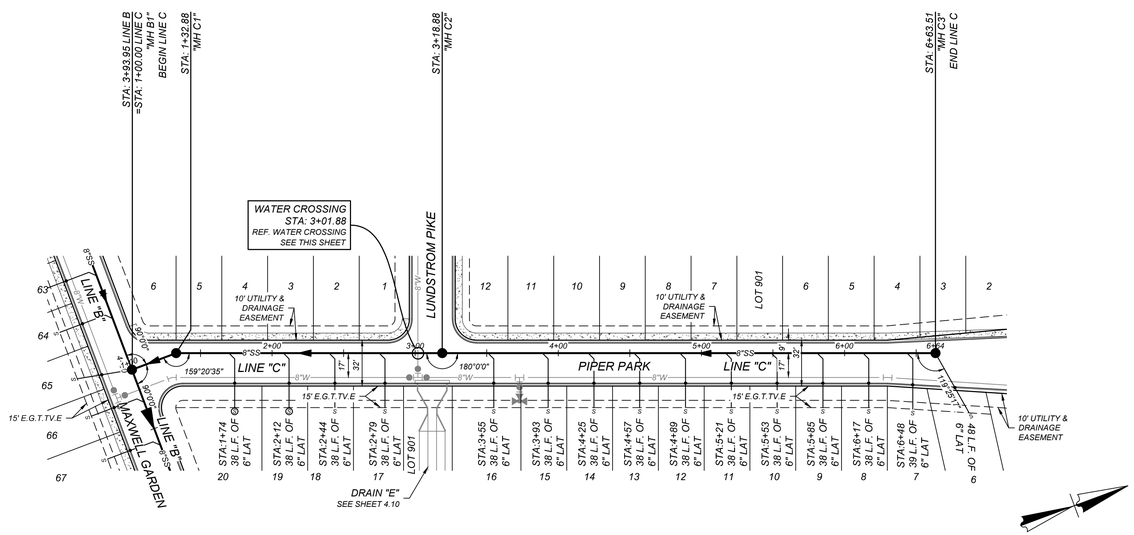


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



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MANHOLE NOTE:
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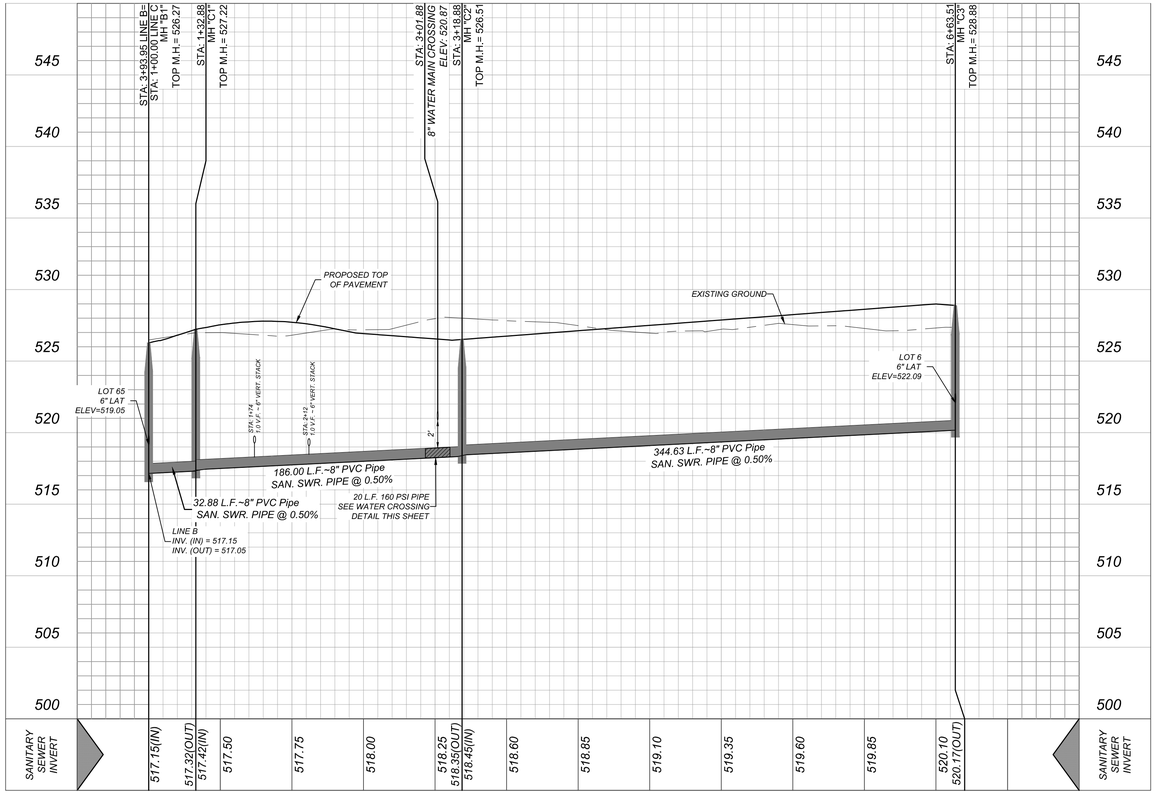
LINE "C"
STA: 1+00.00 - END

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



LOWER - EAST SEWERSHED - DOS RIOS\LEON CREEK W.R.C.

DEVELOPER'S NAME: PRESA GROVE, LLC			
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1			
CITY: PINECREST	STATE: FLORIDA	ZIP: 33156	
PHONE#:	FAX#:	TOTAL ACREAGE: 34.50 ACRES	
SAWS BLOCK MAP#: 182538		TOTAL EDU'S: 209	
TOTAL LINEAR FOOTAGE OF PIPE: 6,297 LF ~ 8" SDR 26		PLAT NO.: 22-11800573	
NUMBER OF LOTS: 209	SAWS JOB#: 23-1530		

SAN ANTONIO (KFW)
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COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14969
TBPLS Firm# 10194503
Formerly Known as KFW ENGINEERS
Colliers Engineering & Design

ISSUE DATE
REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
PRIVATE SEWER LINE C PLAN & PROFILE

PLAT NO. 22-11800573
JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM
SHEET NUMBER: 6.6

Date: Oct 04, 2023, 5:31pm User ID: sdowell
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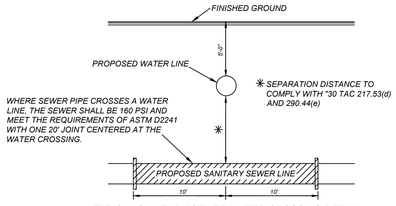
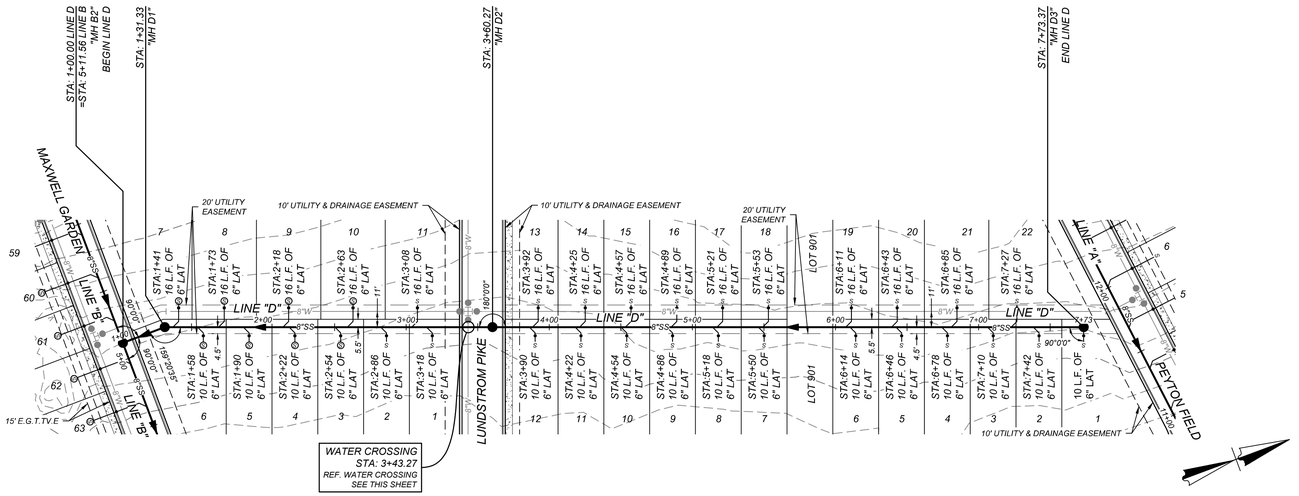


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



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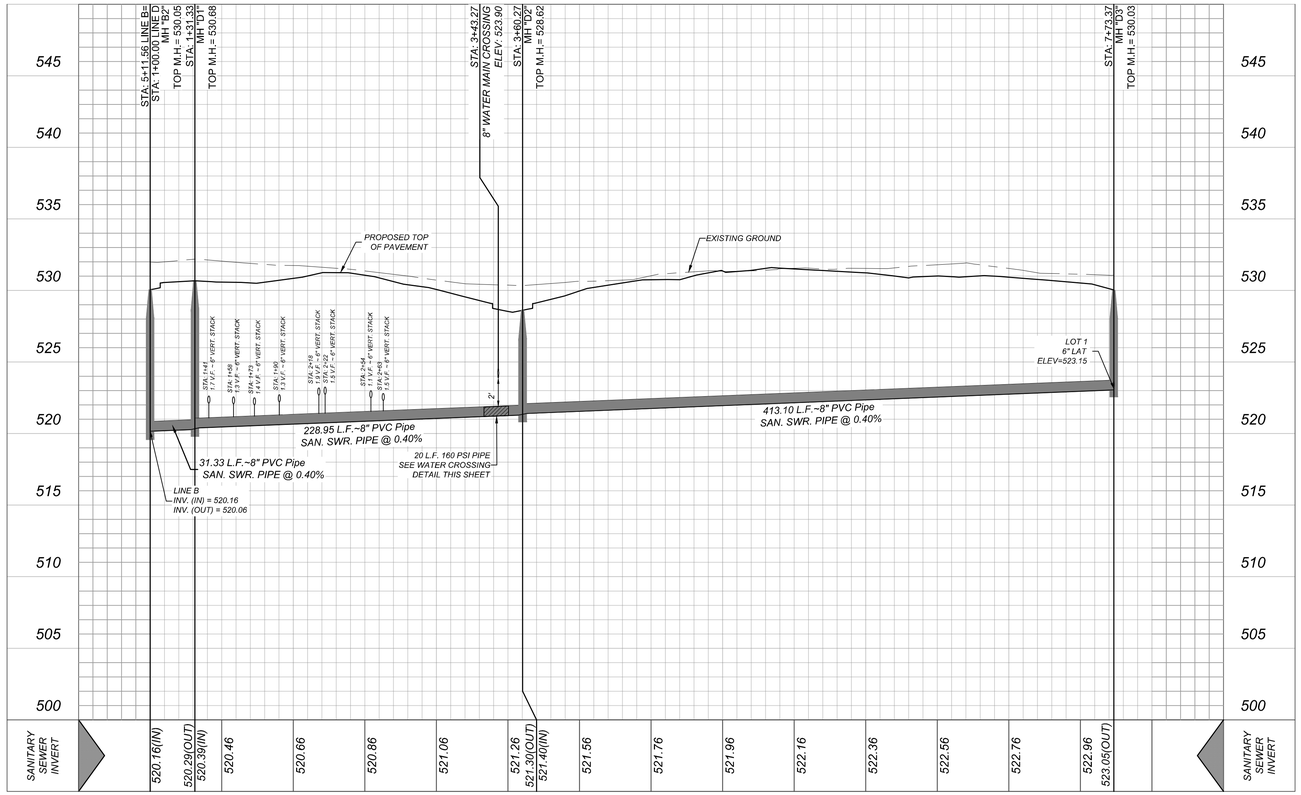
LINE "D"
STA: 1+00.00 - END

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



LOWER - EAST SEWERSHED - DOS RIOS\LEON CREEK W.R.C.

DEVELOPER'S NAME: PRESA GROVE, LLC			
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1			
CITY: PINECREST	STATE: FLORIDA	ZIP: 33156	
PHONE#:	FAX#:	TOTAL ACREAGE: 34.50 ACRES	
SAWS BLOCK MAP#: 182538		TOTAL EDU'S: 209	
TOTAL LINEAR FOOTAGE OF PIPE: 6,297 LF ~ 8" SDR 26		PLAT NO.: 22-11800573	
NUMBER OF LOTS: 209	SAWS JOB#: 23-1530		

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-1069
TBPLS Firm# 10106503
Formerly Known as KFW Engineers

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
PRIVATE SEWER LINE D PLAN & PROFILE

PLAT NO.
22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
6.7

Date: Sep 14, 2023, 4:48pm User ID: cdonell
File: K:\1027\01\023\Design\SAWS\EXISSPP\1027010_CDE.dwg

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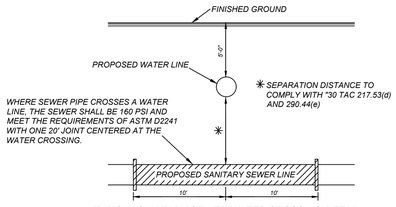

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

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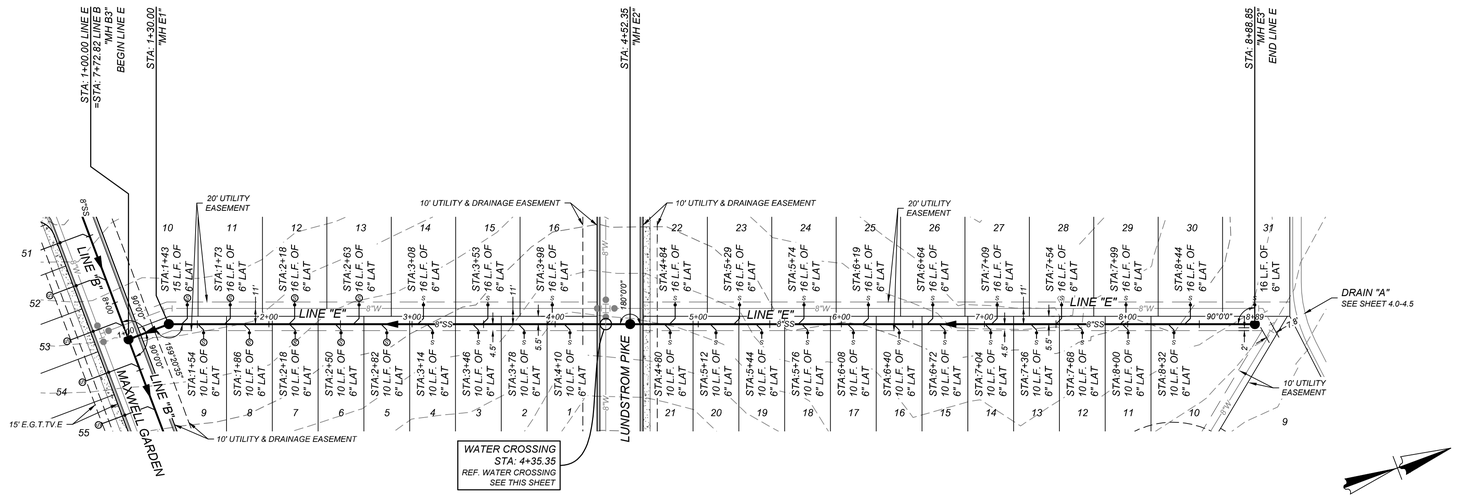
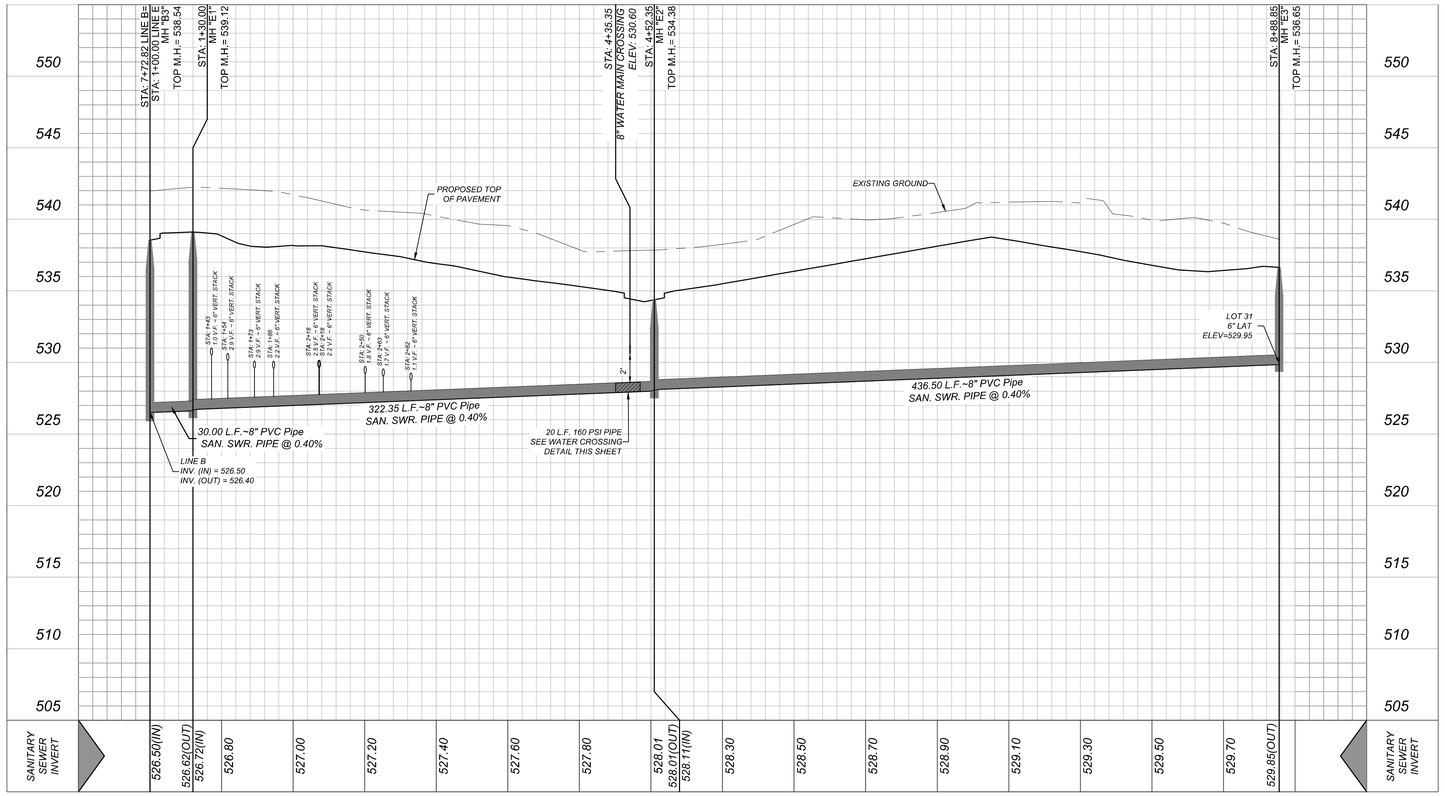


LINE "E"
STA: 1+00.00 - END

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



LOWER - EAST SEWERSHED - DOS RIOS\LEON CREEK W.R.C.

DEVELOPER'S NAME: PRESA GROVE, LLC		
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1		
CITY: PINECREST	STATE: FLORIDA	ZIP: 33156
PHONE#:	FAX#:	TOTAL ACREAGE: 34.50 ACRES
SAWS BLOCK MAP#: 182538		TOTAL EDU'S: 209
TOTAL LINEAR FOOTAGE OF PIPE: 6,297 LF ~ 8" SDR 26		PLAT NO.: 22-11800573
NUMBER OF LOTS: 209	SAWS JOB#: 23-1530	

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ISSUE DATE
REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
PRIVATE SEWER LINE E PLAN & PROFILE

PLAT NO.
22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
6.8

Date: Sep 14, 2023, 4:58pm User ID: cdowell
File: K:\1027\01\02\Design\CAD\SEWER\SSPP\1027010 2-CDE.dwg

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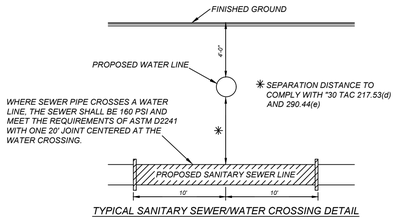

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

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NOTE:

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

TRENCH EXCAVATION SAFETY PROTECTION
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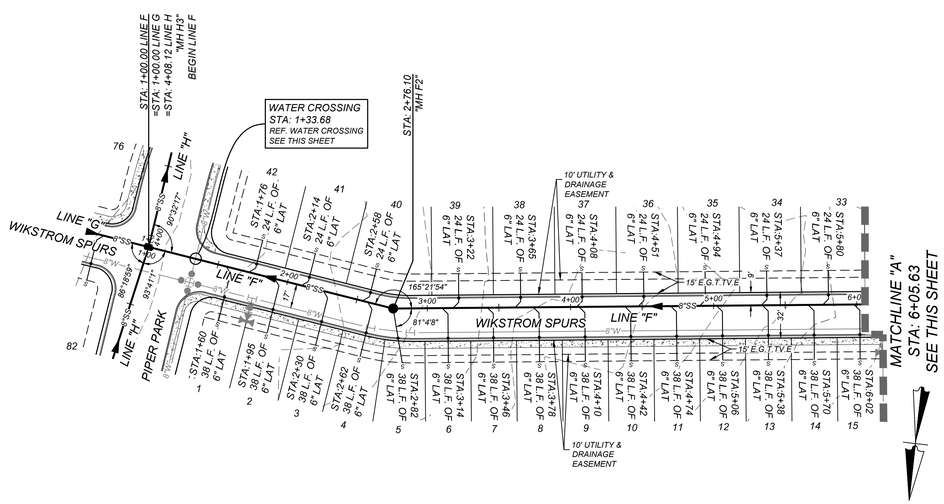

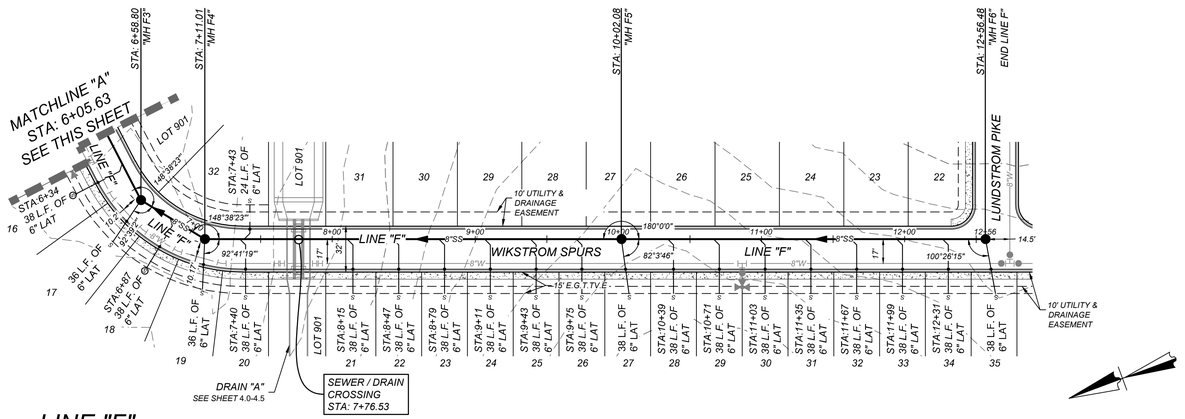

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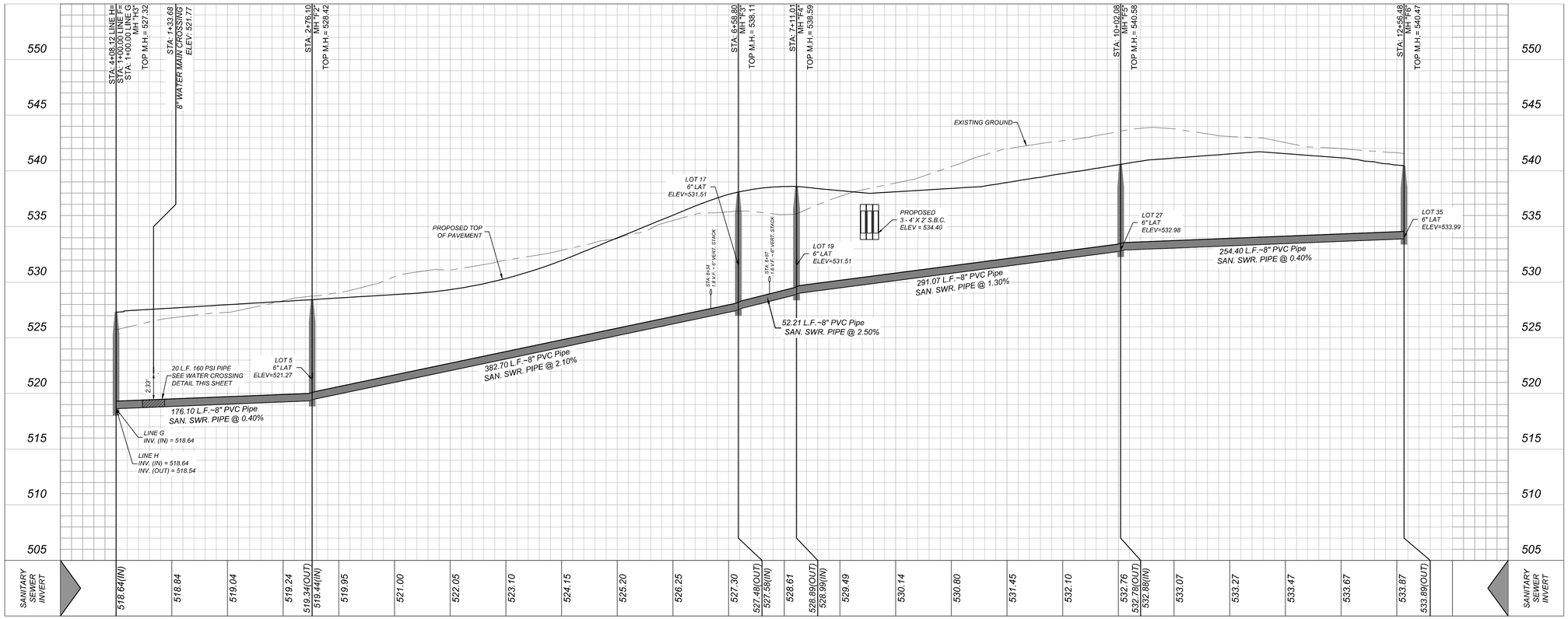
VERT SCALE: 1"=5'



SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERSENGINEERING.COM
TBPE Firm# F-1459
TBPLS Firm# 10194503

Formerly Known as KFW ENGINEERS

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
PRIVATE SEWER LINE F PLAN & PROFILE

PLAT NO.
22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
6.9

Date: Sep 14, 2023, 8:22pm User ID: ofarrell
File: K:\1027\01\02\dwg\civil\SEWER\SSPP\1027010202-FGH.dwg

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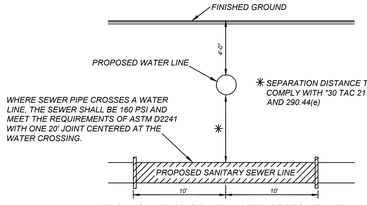
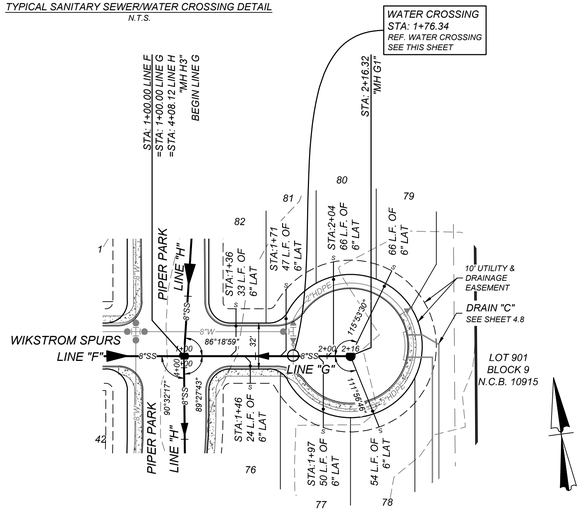


TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.



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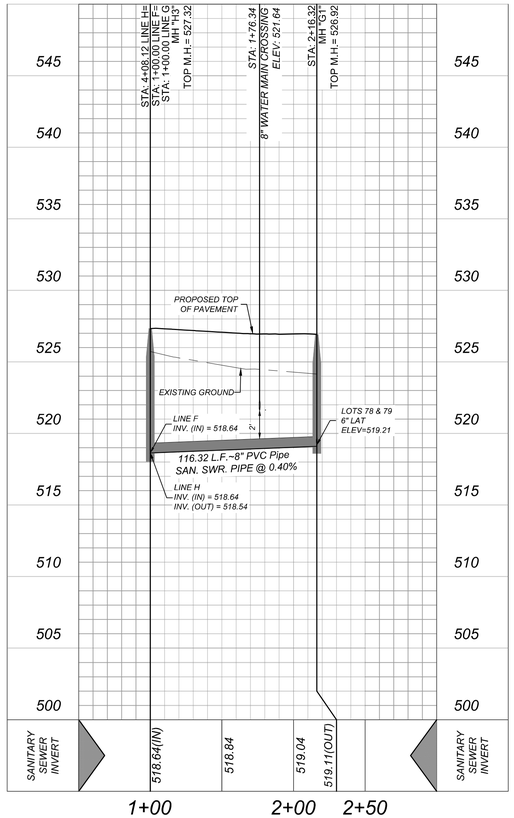
VERT SCALE: 1"=5'



LOWER - EAST SEWERSHED - DOS RIOS\LEON CREEK W.R.C.

DEVELOPER'S NAME: PRESA GROVE, LLC
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1
CITY: PINECREST STATE: FLORIDA ZIP: 33156
PHONE#: FAX#: TOTAL ACREAGE: 34.50 ACRES
SAWS BLOCK MAP#: 182538 TOTAL EDU'S: 209
TOTAL LINEAR FOOTAGE OF PIPE: 6,297 LF ~ 8" SDR 26 PLAT NO.: 22-11800573
NUMBER OF LOTS: 209 SAWS JOB#: 23-1530

NOTE:
ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE SAN ANTONIO WATER SYSTEM (SAWS) STANDARD SPECIFICATIONS.

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

NOTE:
1. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE MEET THE REQUIREMENTS OF ASTM D2241. CONTRACTOR SHALL CENTER A 20 FOOT JOINT OF 160 P.S.I. PRESSURE RATED P.V.C. AT THE PROPOSED WATER CROSSING (NO SEPARATE PAY ITEM). REFERENCE SHEET 6.1-6.2, SANITARY SEWER GENERAL NOTES.
2. PIPE TYPE DESIGNATIONS ARE SDR 26.
3. SEE THIS SHEET FOR TYPICAL SANITARY SEWER / WATER CROSSING DETAIL.
4. ALL MANHOLES SHALL HAVE CONCRETE RING ENCASEMENT AND A WATER TIGHT RING AND COVER. SEE SHEET 6.11 FOR DETAILS.
5. MANHOLES WILL NEED TO BE RESEALED WITH THE SARA APPROVED SEALING. IF SEAL COATING IS BROKEN, CONTRACTOR WILL HAVE MANHOLE RECOATED. RESEAL ALL LEAKS AT CONTRACTOR EXPENSE.

WATER/SEWER CROSSING NOTE:
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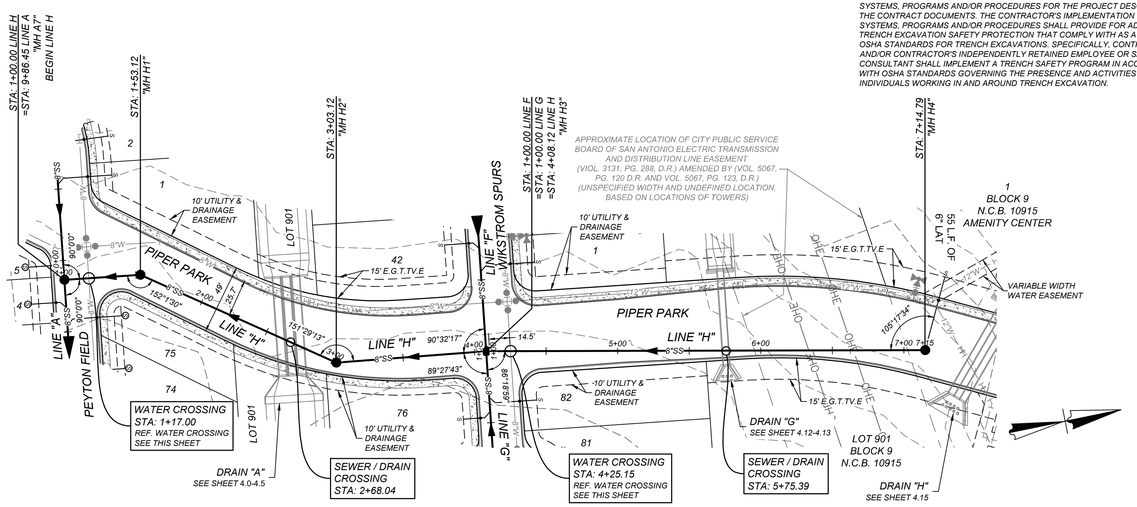

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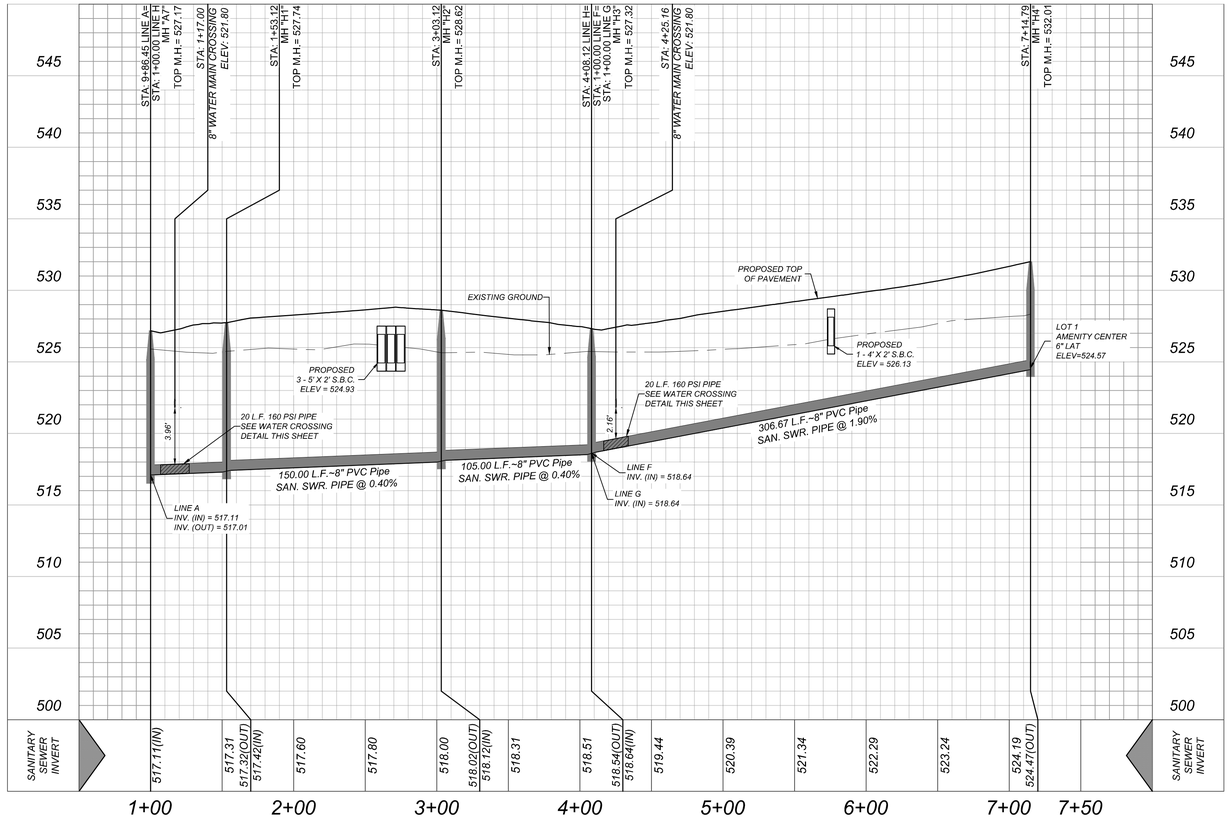
HORZ SCALE: 1"=50'
VERT SCALE: 1"=5'



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Formerly Known as KFW ENGINEERS

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
11/21/23

PRESA GROVE
BEXAR COUNTY, TEXAS
PRIVATE SEWER LINE G & H PLAN & PROFILE

PLAT NO.
22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
6.10

Date: Nov 08, 2023, 3:40pm User ID: cdrexell
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PRESA GROVE

BEXAR COUNTY, TEXAS

PRIVATE WATER IMPROVEMENTS

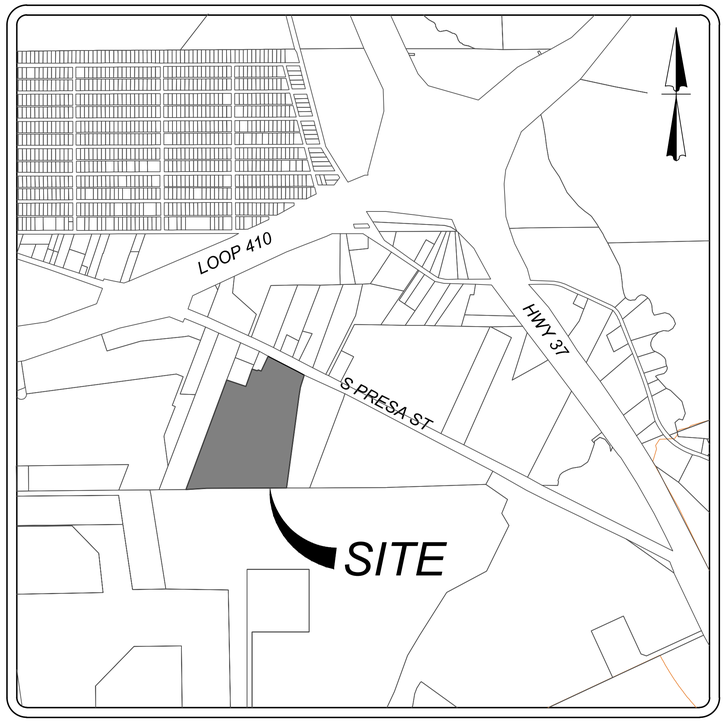
SAWS CONSTRUCTION NOTES
COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT
January 2022

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 (210) 233-2973, on notification procedures that will be used to notify affected home residents and/or property owners 48 hours prior to beginning any work.***
5. ***Location and depth of existing utilities and service laterals shown on the plans are understood to be approximate. Actual locations and depths must be field verified by the Contractor at least 1 week prior to construction. It shall be the Contractor's responsibility to locate utility service lines as required for construction and to protect them during construction at no cost to SAWS.***
6. ***The Contractor shall verify the exact location of underground utilities and drainage structures at least 1-2 weeks prior to construction whether shown on plans or not. Please allow up to 7 business days for locates requesting pipe location markers on SAWS facilities. The following contact information are supplied for verification purposes:***
   - ***SAWS Utility Locates: http://www.saws.org/Service/Locates***
   - ***COSA Drainage (210) 207-0724 or (210) 207-6026***
   - ***COSA Traffic Signal Operations (210) 206-8480***
   - ***COSA Traffic Signal Damages (210) 207-3951***
   - ***Texas State Wide One Call Locator 1-800-545-6005 or 811***
7. ***The Contractor shall be responsible for restoring existing fences, curbs, streets, driveways, sidewalks, landscaping and structures to its original or better condition if damages are made as a result of the project's construction.***
8. ***All work in Texas Department of Transportation (TxDOT) and/or Bexar County right-of-way shall be done in accordance with respective construction specifications and permit requirements.***
9. ***The Contractor shall comply with City of San Antonio or other governing municipality's tree ordinances when excavating near trees.***
10. ***The Contractor shall not place any waste materials in the 100-year Flood Plain without first obtaining an approved Flood Plain Permit.***
11. ***Holiday Work: Contractors will not be allowed to perform SAWS work on SAWS recognized holidays. Request should be sent to constworkreq@saws.org. Weekend Work: Contractors are required to notify the SAWS Inspection Construction Department 48 hours in advance to request weekend work. Request should be sent to constworkreq@saws.org. Any and all SAWS utility work installed without holiday/weekend approval will be subject to be uncovered for proper inspection.***
12. ***Compaction note (Item 804): The contractor shall be responsible for meeting the compaction requirements on all trench backfill and for paying for the tests performed by a third party. Compaction tests will be done at one location point randomly selected, or as indicated by the SAWS Inspector and/or the test administrator, per each 12-inch loose lift per 400 linear feet at a minimum. This project will not be accepted and finalized by SAWS without this requirement being met and verified by providing all necessary documented test results.***
13. ***A copy of all testing reports shall be forwarded to SAWS Construction Inspection Division.***

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 transite pipe which is known to contain asbestos containing material (ACM), may be located within the project limits. Special waste management procedures and health and safety requirements will be applicable when removal and/or disturbance of this pipe occurs. Such work is to be made under Special Specification Item No. 3000, "Special Specification for Handling Asbestos Cement Pipe".***
3. ***Valve removal: Where the contractor is to abandon a water main, the control valve located on the abandoning branch will be removed and replaced with a cap/plug. (NSPI)***
4. ***Suitable anchorage/thrust blocking or joint restraint shall be provided at all of the following main locations: dead ends, plugs, caps, tees, crosses, valves, and bends, in accordance with the Standard Drawings DD-839 Series and Item No. 839, in the SAWS Standard Specifications for Construction.***
5. ***All valves shall read "open right".***
6. ***PRVs Required: Contractor to verify that no portion of the tract is below ground elevation of 605 feet where the static pressure will normally exceed 80 PSI. At all such locations where the ground level is below 605 feet, the Developer or Builder shall install at each lot, on the customer's side of the meter, an approved type pressure regulator in conformance with the Plumbing Code of the City of San Antonio. No dual services allowed for any lot(s) if *PRV is/are required for such lot(s), only single service connections shall be allowed. *Note: A pressure regulator is also known as a pressure reducing valve (PRV).***
7. ***Pipe Disinfection with Dry HTH for Projects less than 800 linear feet. (Item No. 847.3): Mains shall be disinfected with dry HTH where shown in the contract documents or as directed by the Inspector, and shall not exceed a total length of 800 feet. This method of disinfection will also be followed for main repairs. The Contractor shall utilize all appropriate safety measure to protect his personnel during disinfection operations.***
8. ***Backflow Prevention Devices:***
   - ***All irrigation services within residential areas are required to have backflow prevention devices.***
   - ***All commercial backflow prevention devices must be approved by SAWS prior to installation.***
9. ***Final connection to the existing water main shall not be made until the water main has been pressure tested, chlorinated, and SAWS has released the main for tie-in and use.***
10. ***Division Valves: Division Valves shown on plans or not shown on plans but found in the field shall only be operated by SAWS Distribution and Collection staff and only with prior written approval of the SAWS Director of Production and Operations and proper coordination with all SAWS departments. Contractor shall provide written notification to the inspector a minimum of two weeks in advance to start the coordination process and will be informed by the Inspector when the division valve will be operated by the SAWS Distribution and Collection staff. The Division Valve can only be operated by SAWS Distribution and Collection staff member not the inspector or the contractor. Operation of a Division Valve without the express prior written approval of the SAWS Distribution and Collection staff will constitute a material breach of any written SAWS contract or permit in addition to subjecting the Contractor to liability for any and all fines, fees, or other damages, direct or consequential, that may arise from or be caused by the operation of the valve without prior written permission. Please be informed that the approval of the operation or opening or closing of a division valve can take several weeks for approval. Division Valves will also have a valve lid labeled Division Valve and a locking mechanism installed with a key. The lock and key mechanism will be paid for by the contractor but will be installed by SAWS Distribution and Collection staff.***



LOCATION MAP

N.T.S.

INDEX

DESCRIPTION	SHEET NO.
WATER COVER SHEET	7.0
PRIVATE WATER DISTRIBUTION PLAN (1 OF 2)	7.1
PRIVATE WATER DISTRIBUTION PLAN (2 OF 2)	7.2

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER

11/21/23

OWNER/DEVELOPER:
PRESA GROVE, LLC
13580 LUDLAM ROAD, STUDIO 1
PINECREST, FLORIDA 33156
PHONE: (866) 758 - 7899

Colliers Engineering & Design
Formerly Known as KFW

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

SAWS PRESSURE ZONE 750

DEVELOPER'S NAME: PRESA GROVE, LLC		
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1		
CITY: PINECREST	STATE: FLORIDA	ZIP: 33156
PHONE#:	FAX#:	TOTAL ACREAGE: 34.50 ACRES
SAWS BLOCK MAP#: 1184540	280 LF ~ 2" HDPE 6,855 LF ~ 8" C-900	TOTAL EDU'S: 214
TOTAL LINEAR FOOTAGE OF PIPE: 543 LF ~ 12" C-900		PLAT NO.: 22-11800573
NUMBER OF LOTS: 209	SAWS JOB#: 23-1036	

JOB NO. - 1027-01-02

PLAT NO. : 22-11800573

SHEET 7.0

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Date: Nov 08, 2023, 2:14pm User ID: stanwolf
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TRENCH EXCAVATION SAFETY PROTECTION

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JOINT RESTRAINT NOTE:

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

FIRE FLOW NOTE:

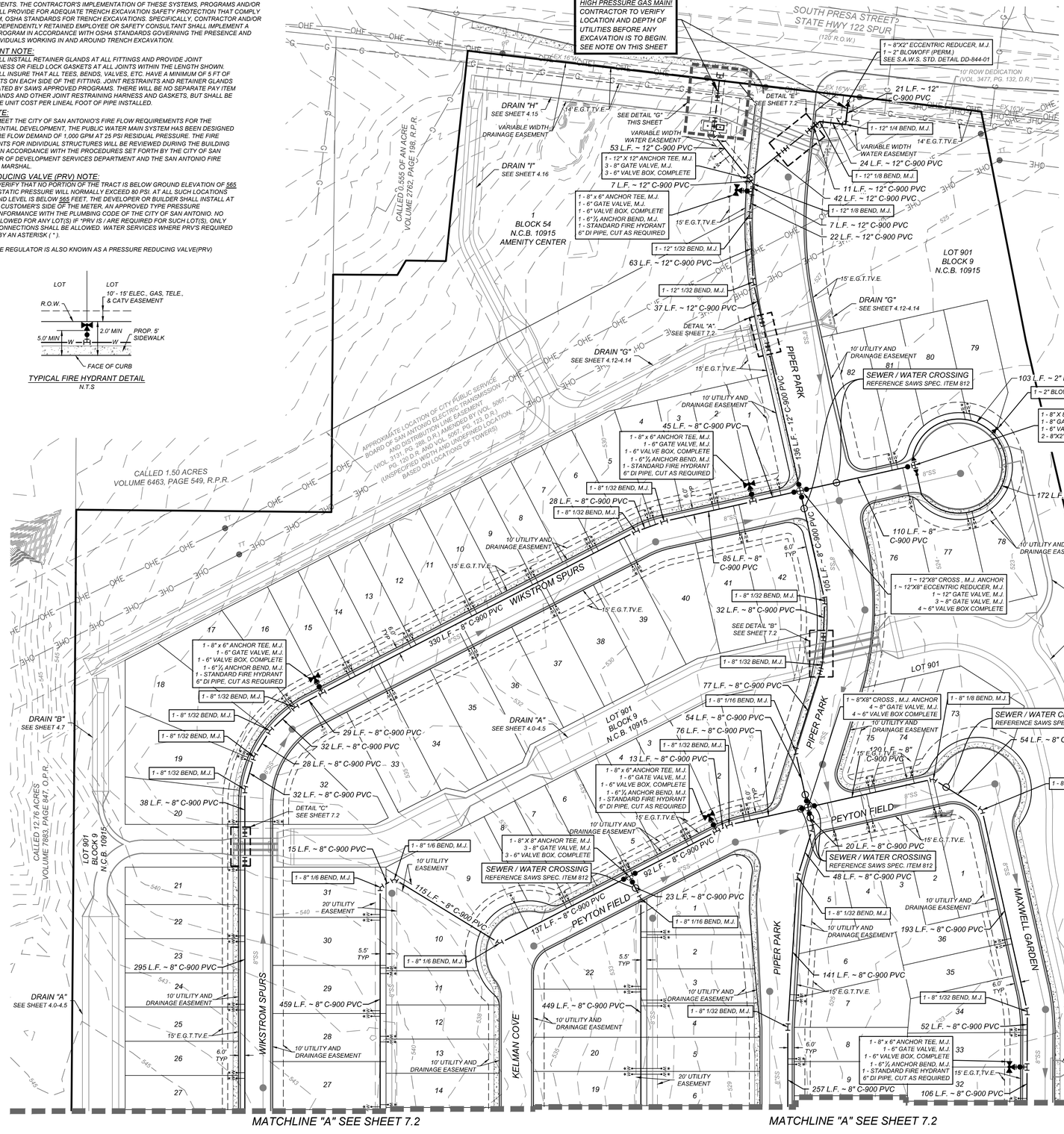
IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1,000 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

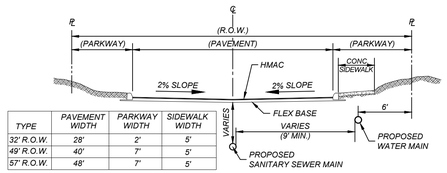
PRESSURE REDUCING VALVE (PRV) NOTE:

CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 565 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 565 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF *PRV IS / ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED. WATER SERVICES WHERE PRV'S REQUIRED ARE DESIGNATED BY AN ASTERISK (*).

*NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE(PRV)

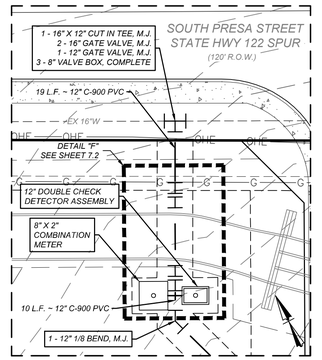
TYPICAL FIRE HYDRANT DETAIL
N.T.S





TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
32' R.O.W.	28'	2'	5'
49' R.O.W.	40'	7'	5'
57' R.O.W.	48'	7'	5'

TYPICAL STREET SECTION
N.T.S.

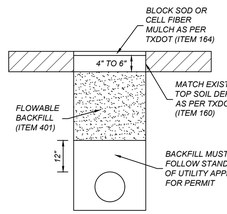


LOCATION MAP
N.T.S.

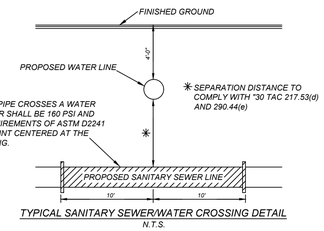
SCALE : 1"=50'
0' 50' 150'
100'

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED 3/4" WATER SERVICE WITH 5/8" METER & BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE WITH 3/4" METER & BOX	=	IRR
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
PROPOSED VEHICULAR NON-ACCESS EASEMENT	=	V.N.A.E
PROPOSED CLEAR VISION EASEMENT	=	C.V.E
EXISTING WATER MAIN	=	SW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE



TRENCH DETAIL (NON PAVEMENT)
< 10' FROM CURB/OR EDGE OF PAVEMENT



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

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

SAWS PRESSURE ZONE 750

DEVELOPER'S NAME: PRESA GROVE, LLC		
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1		
CITY: PINECREST	STATE: FLORIDA	ZIP: 33156
PHONE#:	FAX#:	TOTAL ACREAGE: 34.50 ACRES
SAWS BLOCK MAP#: 1184540	280 LF ~ 2" HDPE 6,855 LF ~ 8" C-900	TOTAL EDU'S: 214
TOTAL LINEAR FOOTAGE OF PIPE: 543 LF ~ 12" C-900		PLAT NO.: 22-11800573
NUMBER OF LOTS: 209	SAWS JOB#: 23-1036	

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-1409
TBPLS Firm# 10194000
Formerly Known as KFW ENGINEERS

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
11/21/23

PRESA GROVE
BEXAR COUNTY, TEXAS

PRIVATE WATER DISTRIBUTION PLAN (1 OF 2)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
7.1

Date: Nov 06, 2023, 8:14am User ID: cdowell
File: K:\1027\01\03\Design\Civil\WATER\DW102701102.dwg

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TRENCH EXCAVATION SAFETY PROTECTION

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

JOINT RESTRAINT NOTE:

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

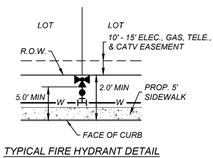
FIRE FLOW NOTE:

IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1,000 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

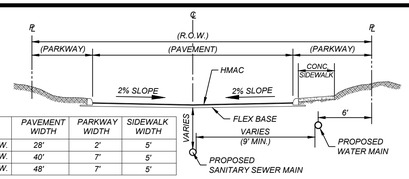
PRESSURE REDUCING VALVE (PRV) NOTE:

CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 565 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 565 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF "PRV IS / ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED. WATER SERVICES WHERE PRV'S REQUIRED ARE DESIGNATED BY AN ASTERISK (*).

*NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE(PRV)



TYPICAL FIRE HYDRANT DETAIL
N.T.S



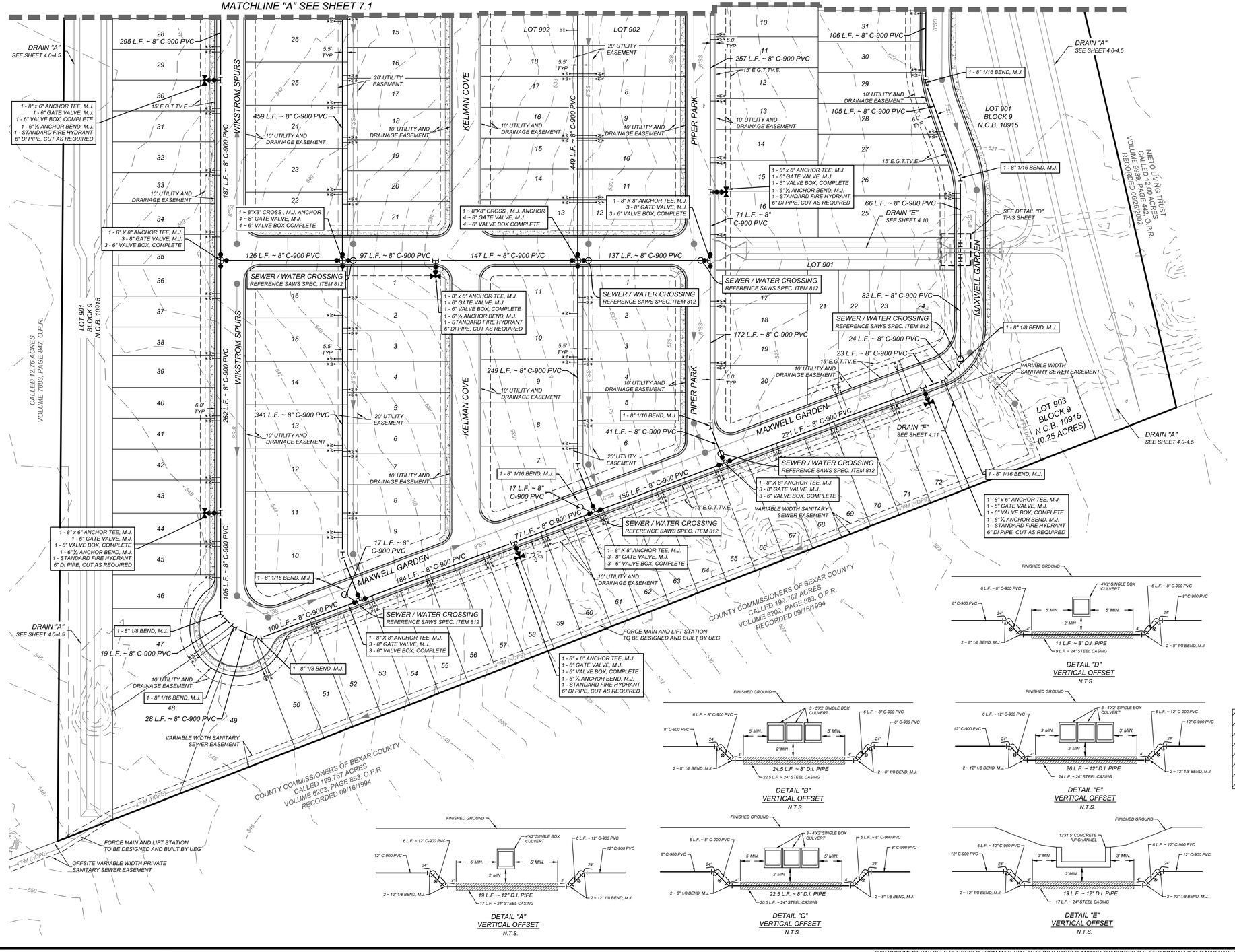
TYPE	PAVEMENT WIDTH	PARKWAY WIDTH	SIDEWALK WIDTH
32' R.O.W.	28'	2'	5'
49' R.O.W.	40'	7'	5'
57' R.O.W.	48'	7'	5'

TYPICAL STREET SECTION
N.T.S.

LOCATION MAP
N.T.S.

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

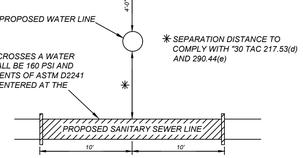
MATCHLINE "A" SEE SHEET 7.1



LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED 3/4" WATER SERVICE WITH 5/8" METER & BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE WITH 3/4" METER & BOX	=	WIRR
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
PROPOSED VEHICULAR NON-ACCESS EASEMENT	=	V.N.A.E
PROPOSED CLEAR VISION EASEMENT	=	C.V.E
EXISTING WATER MAIN	=	SW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE

DETAIL "D"
VERTICAL OFFSET
N.T.S.



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
N.T.S.

DETAIL "B"
VERTICAL OFFSET
N.T.S.

DETAIL "E"
VERTICAL OFFSET
N.T.S.

DETAIL "A"
VERTICAL OFFSET
N.T.S.

DETAIL "C"
VERTICAL OFFSET
N.T.S.

DETAIL "E"
VERTICAL OFFSET
N.T.S.

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SAWS PRESSURE ZONE 750

DEVELOPER'S NAME: PRESA GROVE, LLC			
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1			
CITY: PINECREST	STATE: FLORIDA	ZIP: 33156	
PHONE#:	FAX#:	TOTAL ACREAGE: 34.50 ACRES	
SAWS BLOCK MAP#: 1184540	280 LF ~ 2" HDPE 6,855 LF ~ 8" C-900	TOTAL EDU'S: 214	
TOTAL LINEAR FOOTAGE OF PIPE:	543 LF ~ 12" C-900	PLAT NO.: 22-11800573	
NUMBER OF LOTS: 209	SAWS JOB#: 23-1036		

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14969
TBPLS Firm# 10194000
Formerly Known as KFW

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
11/21/23

PRESA GROVE
BEXAR COUNTY, TEXAS

PRIVATE WATER DISTRIBUTION PLAN (2 OF 2)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
7.2

Date: Nov 08, 2023, 9:14am User ID: sdorsett
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PROJECT COMPLETION:

1. ALL DISTURBED AREAS ARE NOT COVERED BY IMPERVIOUS COVER ARE TO BE STABILIZED PER THE SWPPP AND PROJECT SPECIFICATIONS PRIOR TO REMOVAL OF ANY BMP'S AND/OR PRIOR TO FILING A NOTICE OF TERMINATION (NOT).
2. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN PHASES IF ALL UPGRADIENT AREAS HAVE BEEN STABILIZED PER SWPPP AND PROJECT SPECIFICATIONS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
3. CONTRACTOR TO ENSURE THEY HAVE MET ALL REQUIREMENTS OF THE SWPPP BEFORE FILING A NOTICE OF TERMINATION (NOT).

GENERAL:

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3. ALL OWNERS/OPERATORS ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE STORMWATER POLLUTION PREVENTION PLAN AND COMPLYING WITH THE REGULATIONS CONTAINED WITHIN IT.

INSTALLATION:

1. ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.
2. CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.
3. CONTRACTOR MAY INSTALL THE BEST MANAGEMENT PRACTICES IN PHASES THAT COINCIDE WITH THE DISTURBANCE OF UP GRADIENT AREAS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
4. CONTRACTOR TO VERIFY SUFFICIENT VEGETATION IN AREAS DENOTED AS VEGETATED FILTER STRIP. IF INSUFFICIENT VEGETATION EXISTS, CONTRACTOR SHALL IMPLEMENT A DIFFERENT BEST MANAGEMENT PRACTICE AND WILL SHOW IT ON THIS PLAN WITH NOTATION IN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

MAINTENANCE AND INSPECTION:

1. CONTRACTOR SHOULD LIMIT CONSTRUCTION ACTIVITIES TO ONLY THOSE AREAS SHOWN TO BE DISTURBED ON THIS PLAN. IF ADDITIONAL VEGETATED AREAS ARE DISTURBED, THEY SHOULD BE PROTECTED WITH APPROPRIATE BEST MANAGEMENT PRACTICES UNTIL THE AREAS HAVE BEEN STABILIZED AS PER THE SPECIFICATIONS OF THE SWPPP. THE AREAS OF THIS ADDITIONAL SOIL DISTURBANCE AND THE MEASURES USED SHOULD BE SHOWN ON THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
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3. LOCATION OF CONSTRUCTION ENTRANCE/EXIT, CONCRETE WASHOUT PIT, AND EQUIPMENT AND STORAGE ARE TO BE FIELD DETERMINED. LOCATIONS SHALL BE UPDATED ON THIS PLAN.

BEXAR COUNTY R.O.W. NOTE:

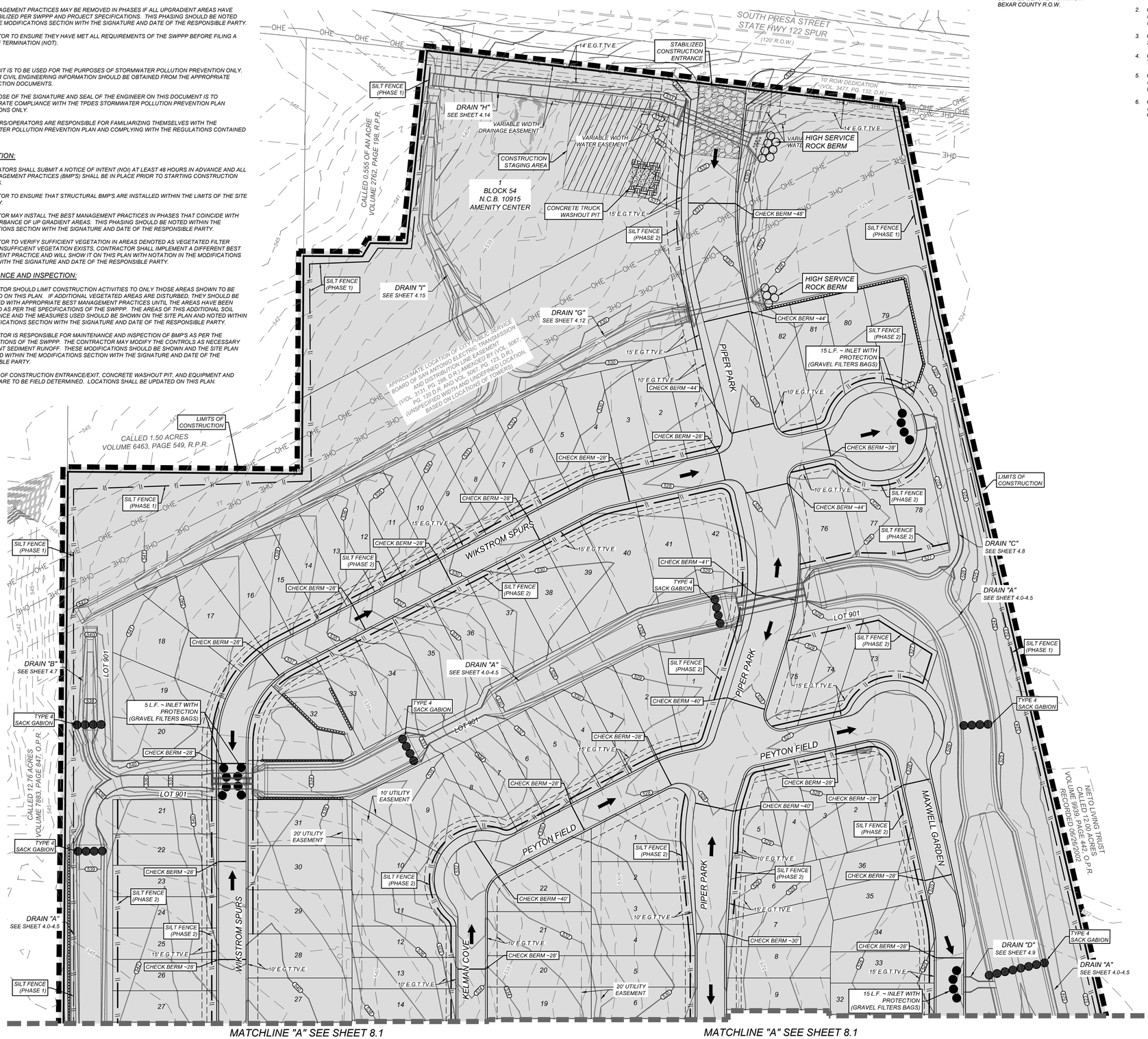
A BEXAR COUNY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.

COORDINATION NOTE:

1. CONTACT TIME WARNER TO COORDINATE CABLE TV SERVICE. (210) 244-0500
2. CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH CPS FOR INSPECTION. (210) 353-2246.
3. CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7928.
4. CONTRACTOR TO COORDINATE WITH CPS PRIOR TO CONSTRUCTION TO PLAN ELECTRIC SERVICE.
5. CONTRACTOR TO COORDINATE WITH SAWS TO PLAN WATER AND SANITARY SEWER SERVICES (210) 704-7297
6. CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

LOCATION MAP
N.T.S.

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



LEGEND

- 680 — EXISTING CONTOURS
- 680 — PROPOSED CONTOURS
- LIMITS OF CONSTRUCTION
- FLOW ARROW
- STABILIZED CONSTRUCTION ENTRANCE/EXIT
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA.
- CONCRETE TRUCK WASHOUT PIT
- DISTURBED AREA
- ROCK BERM
- SILT FENCE (PHASE 1 TO BE INSTALLED PRIOR TO CONSTRUCTION) (PHASE 2 TO BE INSTALLED AFTER PAVING)
- NATURAL VEGETATIVE BUFFER
- INLET WITH PROTECTION (GRAVEL FILTERS BAGS)
- EARTHEN CHECK BERM
- WALL TO BE DESIGNED BY OTHERS

SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-1409
TBPLS Firm# 10106503
Formerly Known as KFW ENGINEERS
Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
11/21/23

PRESA GROVE
BEXAR COUNTY, TEXAS

STORM WATER POLLUTION PREVENTION PLAN (1 OF 3)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
8.0

Date: Nov 08, 2023, 12:07pm User ID: cdrewitt
File: K:\1027\01\02\Design\Civil\SW3P\8270100.dwg

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COORDINATION NOTE:

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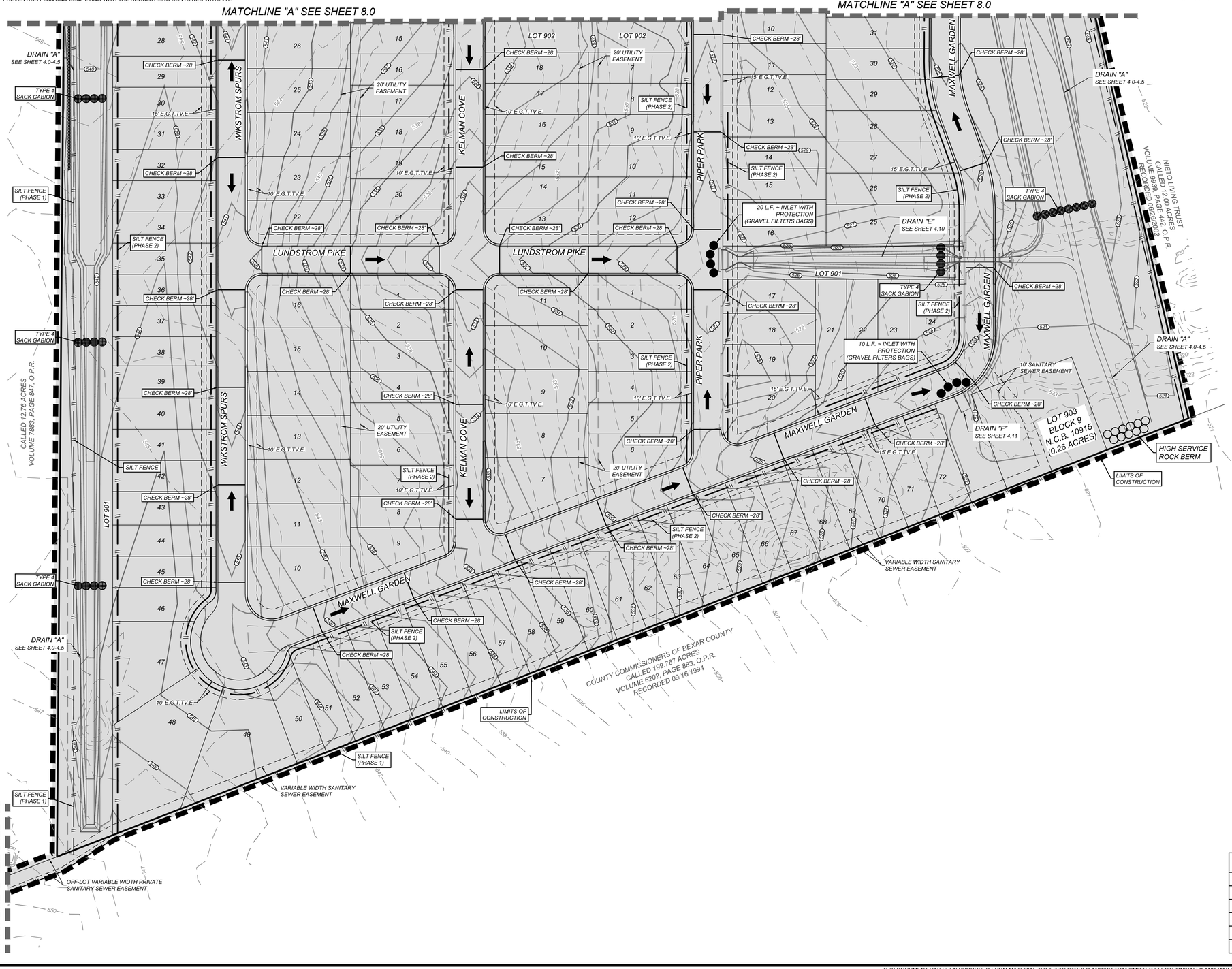
LOCATION MAP
N.T.S.

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



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- LIMITS OF CONSTRUCTION
- FLOW ARROW
- STABILIZED CONSTRUCTION ENTRANCE/EXIT
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- WALL TO BE DESIGNED BY OTHERS

SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-1409
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Formerly Known as KFW ENGINEERS

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS

STORM WATER POLLUTION PREVENTION PLAN (2 OF 3)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
8.1

Date: Oct 02, 2023, 9:10pm User ID: rdrivell
File: K:\1027-01\02-Design\civil\SW3P\1027-01-02.dwg

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PROJECT COMPLETION:

1. ALL DISTURBED AREAS ARES NOT COVERED BY IMPERVIOUS COVER ARE TO BE STABILIZED PER THE SWPPP AND PROJECT SPECIFICATIONS PRIOR TO REMOVAL OF ANY BMP'S AND/OR PRIOR TO FILING A NOTICE OF TERMINATION (NOT).
2. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN PHASES IF ALL UPGRADIENT AREAS HAVE BEEN STABILIZED PER SWPPP AND PROJECT SPECIFICATIONS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
3. CONTRACTOR TO ENSURE THEY HAVE MET ALL REQUIREMENTS OF THE SWPPP BEFORE FILING A NOTICE OF TERMINATION (NOT).

GENERAL:

1. THIS EXHIBIT IS TO BE USED FOR THE PURPOSES OF STORMWATER POLLUTION PREVENTION ONLY. ALL OTHER CIVIL ENGINEERING INFORMATION SHOULD BE OBTAINED FROM THE APPROPRIATE CONSTRUCTION DOCUMENTS.
2. THE PURPOSE OF THE SIGNATURE AND SEAL OF THE ENGINEER ON THIS DOCUMENT IS TO DEMONSTRATE COMPLIANCE WITH THE TPDES STORMWATER POLLUTION PREVENTION PLAN REGULATIONS ONLY.
3. ALL OWNERS/OPERATORS ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE STORMWATER POLLUTION PREVENTION PLAN AND COMPLYING WITH THE REGULATIONS CONTAINED WITHIN IT.

INSTALLATION:

1. ALL OPERATORS SHALL SUBMIT A NOTICE OF INTENT (NOI) AT LEAST 48 HOURS IN ADVANCE AND ALL BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE IN PLACE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.
2. CONTRACTOR TO ENSURE THAT STRUCTURAL BMP'S ARE INSTALLED WITHIN THE LIMITS OF THE SITE BOUNDARY.
3. CONTRACTOR MAY INSTALL THE BEST MANAGEMENT PRACTICES IN PHASES THAT COINCIDE WITH THE DISTURBANCE OF UP GRADIENT AREAS. THIS PHASING SHOULD BE NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
4. CONTRACTOR TO VERIFY SUFFICIENT VEGETATION IN AREAS DENOTED AS VEGETATED FILTER STRIP. IF INSUFFICIENT VEGETATION EXISTS, CONTRACTOR SHALL IMPLEMENT A DIFFERENT BEST MANAGEMENT PRACTICE AND WILL SHOW IT ON THIS PLAN WITH NOTATION IN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.

MAINTENANCE AND INSPECTION:

1. CONTRACTOR SHOULD LIMIT CONSTRUCTION ACTIVITIES TO ONLY THOSE AREAS SHOWN TO BE DISTURBED ON THIS PLAN. IF ADDITIONAL VEGETATED AREAS ARE DISTURBED, THEY SHOULD BE PROTECTED WITH APPROPRIATE BEST MANAGEMENT PRACTICES UNTIL THE AREAS HAVE BEEN STABILIZED AS PER THE SPECIFICATIONS OF THE SWPPP. THE AREAS OF THIS ADDITIONAL SOIL DISTURBANCE AND THE MEASURES USED SHOULD BE SHOWN ON THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF BMP'S AS PER THE SPECIFICATIONS OF THE SWPPP. THE CONTRACTOR MAY MODIFY THE CONTROLS AS NECESSARY TO PREVENT SEDIMENT RUNOFF. THESE MODIFICATIONS SHOULD BE SHOWN AND THE SITE PLAN AND NOTED WITHIN THE MODIFICATIONS SECTION WITH THE SIGNATURE AND DATE OF THE RESPONSIBLE PARTY.
3. LOCATION OF CONSTRUCTION ENTRANCE/EXIT, CONCRETE WASHOUT PIT, AND EQUIPMENT AND STORAGE ARE TO BE FIELD DETERMINED. LOCATIONS SHALL BE UPDATED ON THIS PLAN.

BEXAR COUNTY R.O.W. NOTE:

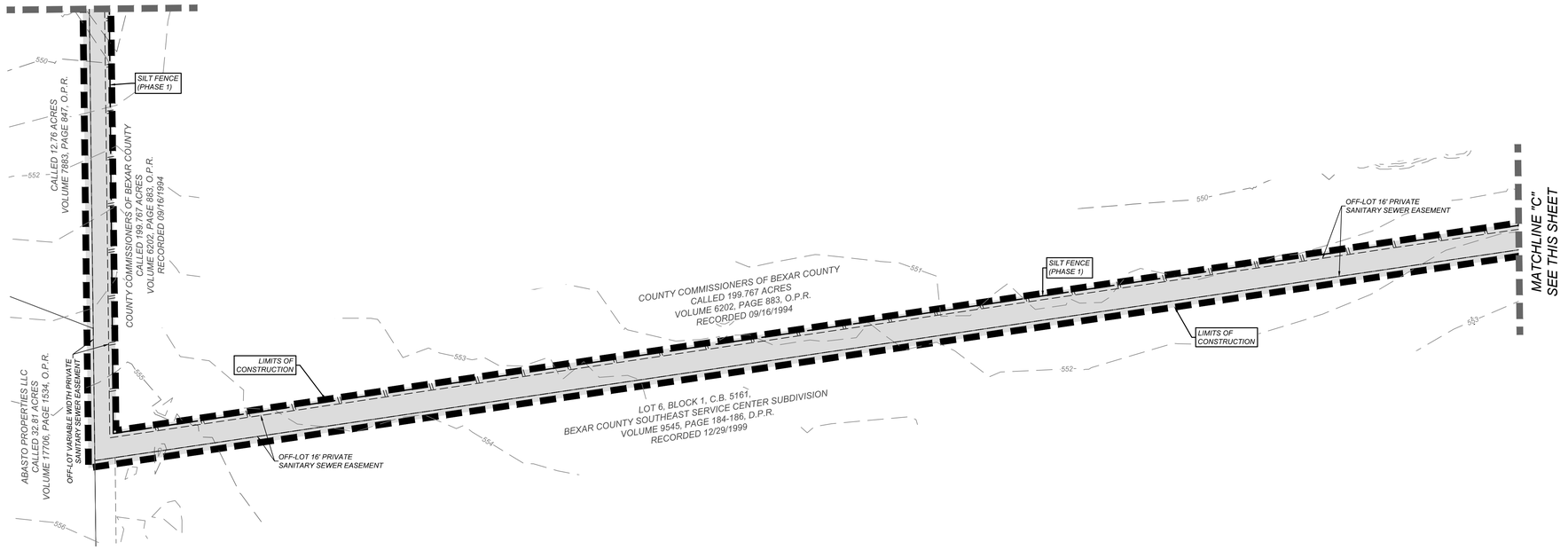
A BEXAR COUNY PERMIT MUST BE OBTAINED BEFORE WORKING IN BEXAR COUNTY R.O.W.

COORDINATION NOTE:

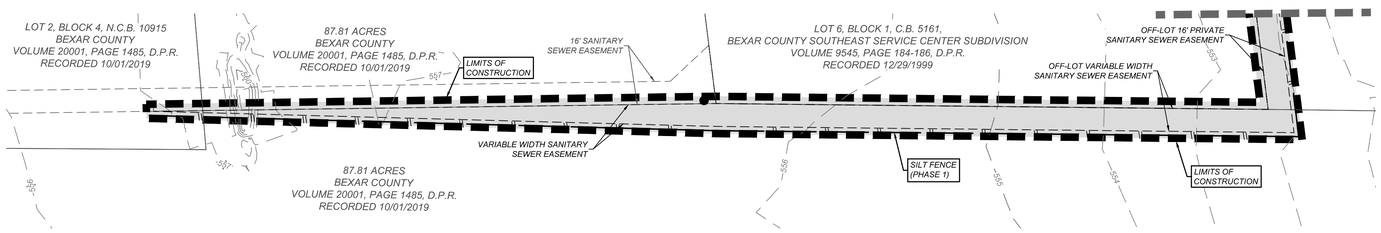
1. CONTACT TIME WARNER TO COORDINATE CABLE TV SERVICE. (210) 244-0500
2. CONDUIT FOR ELECTRICAL SERVICE. CONFIRM REQUIREMENTS AND COORDINATE WITH CPS FOR INSPECTION. (210) 353-2246.
3. CONTACT AT&T TO COORDINATE TELEPHONE SERVICE. 1-800-449-7928.
4. CONTRACTOR TO COORDINATE WITH CPS PRIOR TO CONSTRUCTION TO PLAN ELECTRIC SERVICE.
5. CONTRACTOR TO COORDINATE WITH SAWS TO PLAN WATER AND SANITARY SEWER SERVICES (210) 704-7297
6. CONTRACTOR SHALL CONTACT 1-800-DIG-TESS A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

LOCATION MAP
N.T.S.

MATCHLINE "B" SEE SHEET 8.1



MATCHLINE "C" SEE THIS SHEET



SCALE : 1"=50'

0' 50' 150'

100'

LEGEND

- 680 — EXISTING CONTOURS
- 680 — PROPOSED CONTOURS
- LIMITS OF CONSTRUCTION
- FLOW ARROW
- STABILIZED CONSTRUCTION ENTRANCE/EXIT
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA.
- CONCRETE TRUCK WASHOUT PIT
- DISTURBED AREA
- ROCK BERM
- SILT FENCE (PHASE 1 TO BE INSTALLED PRIOR TO CONSTRUCTION) (PHASE 2 TO BE INSTALLED AFTER PAVING)
- NATURAL VEGETATIVE BUFFER
- INLET WITH PROTECTION (GRAVEL FILTERS BAGS)
- EARTHEN CHECK BERM
- WALL TO BE DESIGNED BY OTHERS

SW3P MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14909
TBPLS Firm# 10194503
Formerly Known as KFW ENGINEERS
Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS

STORM WATER POLLUTION PREVENTION PLAN (3 OF 3)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
8.2

Date: Oct 04, 2023, 3:12pm User ID: ntrowell
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TRENCH EXCAVATION SAFETY PROTECTION

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

FIRE FLOW NOTE:

IN AN EFFORT TO MEET THE CITY OF SAN ANTONIO'S FIRE FLOW REQUIREMENTS FOR THE PROPOSED RESIDENTIAL DEVELOPMENT, THE PUBLIC WATER MAIN SYSTEM HAS BEEN DESIGNED FOR A MINIMUM FIRE FLOW DEMAND OF 1,500 GPM AT 25 PSI RESIDUAL PRESSURE. THE FIRE FLOW REQUIREMENTS FOR INDIVIDUAL STRUCTURES WILL BE REVIEWED DURING THE BUILDING PERMIT PROCESS IN ACCORDANCE WITH THE PROCEDURES SET FORTH BY THE CITY OF SAN ANTONIO DIRECTOR OF DEVELOPMENT SERVICES DEPARTMENT AND THE SAN ANTONIO FIRE DEPARTMENT FIRE MARSHAL.

PRESSURE REDUCING VALVE (PRV) NOTE:

*CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 605 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 605 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. WATER SERVICES WHERE PRV'S REQUIRED ARE DESIGNATED BY AN ASTERISK (*).*

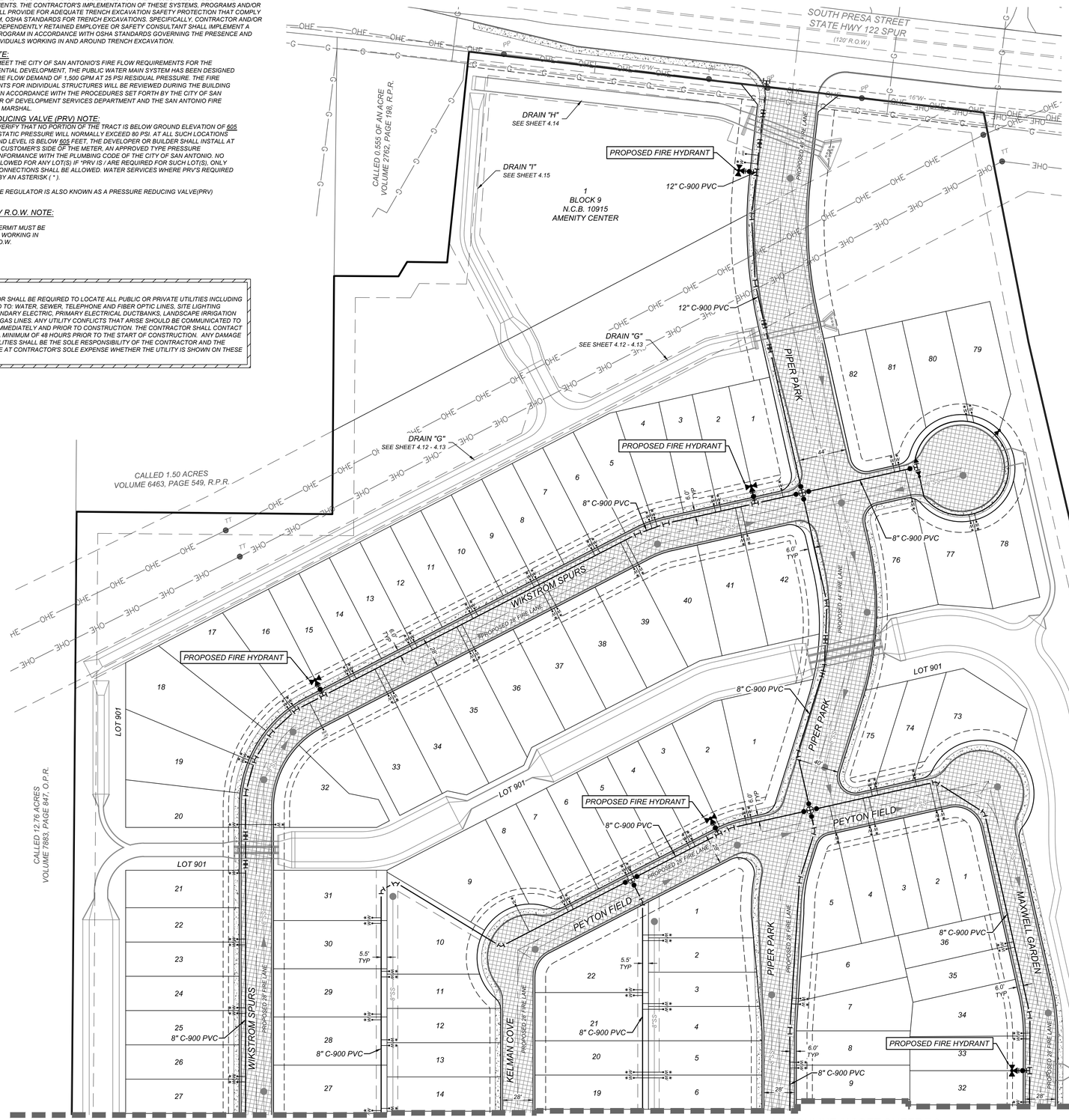
**NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE(PRV)*

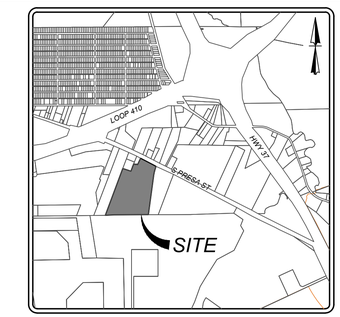
BEXAR COUNTY R.O.W. NOTE:

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

CAUTION!!:

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





LOCATION MAP
N.T.S.

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

NOTE: RED LETTERS & BORDER ON WHITE BACKGROUND

LESS THAN 40' : ONE SIGN WITH DOUBLE ARROW
40' TO 90' : TWO SIGNS WITH RIGHT AND LEFT ARROWS
100' OR MORE : THREE SIGNS WITH RIGHT/LEFT AND DOUBLE ARROWS IN THE MIDDLE

ALL SIGNS SHOULD BE VISIBLE TO THE DRIVER

FIRE LANE SIGN TYPE "A"
N.T.S.

NOTE: RED LETTERS & BORDER ON WHITE BACKGROUND

LESS THAN 40' : ONE SIGN WITH DOUBLE ARROW
40' TO 90' : TWO SIGNS WITH RIGHT AND LEFT ARROWS
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ALL SIGNS SHOULD BE VISIBLE TO THE DRIVER

FIRE LANE SIGN TYPE "B"
N.T.S.

NOTE: RED LETTERS & BORDER ON WHITE BACKGROUND

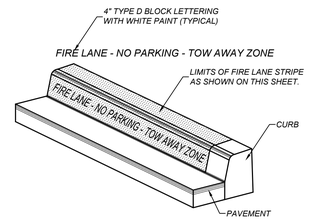
LESS THAN 40' : ONE SIGN WITH DOUBLE ARROW
40' TO 90' : TWO SIGNS WITH RIGHT AND LEFT ARROWS
100' OR MORE : THREE SIGNS WITH RIGHT/LEFT AND DOUBLE ARROWS IN THE MIDDLE

ALL SIGNS SHOULD BE VISIBLE TO THE DRIVER

FIRE LANE SIGN TYPE "C"
N.T.S.

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED 3/4" WATER SERVICE WITH 5/8" METER & BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE WITH 3/4" METER & BOX	=	IRRIG
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.TV.E
PROPOSED VEHICULAR NON-ACCESS EASEMENT	=	V.N.A.E
PROPOSED CLEAR VISION EASEMENT	=	C.V.E
EXISTING WATER MAIN	=	SW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
PROPOSED FIRE LANE	=	
FIRE TRUCK HOSE PULL	=	



TYPICAL FIRE LANE MARKING DETAIL
N.T.S.

FIRE SIGN LOCATION NOTE:
FIRE SIGN LOCATION SHALL BE DETERMINED BY FIRE MARSHAL / INSPECTOR PRIOR TO CONSTRUCTION

SAWS PRESSURE ZONE 750

DEVELOPER'S NAME: PRESA GROVE, LLC			
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1			
CITY: PINECREST	STATE: FLORIDA	ZIP: 33156	
PHONE#:	FAX#:	TOTAL ACREAGE: 34.50 ACRES	
SAWS BLOCK MAP#: 1184540	276 LF – 2" HDPE 6,793 LF – 8" C-900	TOTAL EDU'S: 214	
TOTAL LINEAR FOOTAGE OF PIPE: 363 LF – 12" C-900		PLAT NO.: 22-11800573	
NUMBER OF LOTS: 209	SAWS JOB#: 23-1036		

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14969
TBPLS Firm# 10194503

Colliers Engineering & Design

Formerly Known as KFW

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED
PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE
BEXAR COUNTY, TEXAS
FIRE PROTECTION PLAN (1 OF 2)

PLAT NO.
22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:
9.0

Date: Oct 02, 2023, 8:32am User ID: sdorsett
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BEXAR COUNTY R.O.W. NOTE:

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CAUTION!!:

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LOCATION MAP

N.T.S.

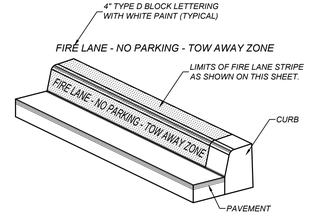
SCALE : 1"=50'

0' 50' 150'

100'

LEGEND

PROPOSED WATER MAIN	=	W
PROPOSED 3/4" WATER SERVICE WITH 5/8" METER & BOX	=	W
PROPOSED WATER 3/4" IRRIGATION SERVICE WITH 3/4" METER & BOX	=	IRR
PROPOSED FIRE HYDRANT	=	
PROPOSED WATER VALVE	=	
PROPOSED SANITARY SEWER MAIN	=	SS
PROPOSED SANITARY SEWER MANHOLE	=	
PROPOSED ELECTRIC, GAS, TELEPHONE & CABLE TV EASEMENT	=	E.G.T.V.E
PROPOSED VEHICULAR NON-ACCESS EASEMENT	=	V.N.A.E
PROPOSED CLEAR VISION EASEMENT	=	C.V.E
EXISTING WATER MAIN	=	SW
EXISTING FIRE HYDRANT	=	
EXISTING WATER VALVE	=	
EXISTING SANITARY SEWER MAIN	=	ESS
EXISTING SANITARY SEWER MANHOLE	=	
EXISTING OVERHEAD ELECTRIC W/POWER POLE	=	OHE
EXISTING GUY WIRE/OVERHEAD ELECTRIC	=	OHE
PROPOSED FIRE LANE	=	
FIRE TRUCK HOSE PULL	=	



TYPICAL FIRE LANE MARKING DETAIL

N.T.S.

FIRE SIGN LOCATION NOTE:
FIRE SIGN LOCATION SHALL BE DETERMINED BY FIRE MARSHAL / INSPECTOR PRIOR TO CONSTRUCTION

NOTE: RED LETTERS & BORDER ON WHITE BACKGROUND

LESS THAN 40' : ONE SIGN WITH DOUBLE ARROW
40' TO 90' : TWO SIGNS WITH RIGHT AND LEFT ARROWS
100' OR MORE : THREE SIGNS WITH RIGHT/LEFT AND DOUBLE ARROWS IN THE MIDDLE

ALL SIGNS SHOULD BE VISIBLE TO THE DRIVER

FIRE LANE SIGN TYPE "A"

N.T.S.

NOTE: RED LETTERS & BORDER ON WHITE BACKGROUND

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FIRE LANE SIGN TYPE "B"

N.T.S.

NOTE: RED LETTERS & BORDER ON WHITE BACKGROUND

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ALL SIGNS SHOULD BE VISIBLE TO THE DRIVER

FIRE LANE SIGN TYPE "C"

N.T.S.

SAWS PRESSURE ZONE 750

DEVELOPER'S NAME: PRESA GROVE, LLC			
DEVELOPER'S ADDRESS: 13580 LUDLAM ROAD, STUDIO 1			
CITY: PINECREST	STATE: FLORIDA	ZIP: 33156	
PHONE#:	FAX#:	TOTAL ACREAGE: 34.50 ACRES	
SAWS BLOCK MAP#: 1184540	276 LF – 2" HDPE 6,793 LF – 8" C-900	TOTAL EDU'S: 214	
TOTAL LINEAR FOOTAGE OF PIPE: 363 LF – 12" C-900		PLAT NO.: 22-11800573	
NUMBER OF LOTS: 209	SAWS JOB#: 23-1036		

SAN ANTONIO (KFW)
3421 Paesanos Parkway
San Antonio, TX 78231
Phone: 210.979.8444
COLLIERS ENGINEERING & DESIGN, INC.
TBPE Firm# F-14969
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Formerly Known as KFW ENGINEERS

Colliers Engineering & Design

ISSUE DATE

REVISIONS

STATE OF TEXAS
SERVANDO CRUZ
142566
LICENSED PROFESSIONAL ENGINEER
10/12/23

PRESA GROVE

BEXAR COUNTY, TEXAS

FIRE PROTECTION PLAN (2 OF 2)

PLAT NO. 22-11800573

JOB NO.:1027-01-02
DATE: ----
DRAWN:SD CHECKED:JM

SHEET NUMBER:

9.1

Date: Oct 04, 2023, 3:42pm User ID: ofarrell
File: K:\1027-01\02-Design\Civil\MASTER\FP1027010102.dwg

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