CRYSTAL CLEAR SPECIAL UTILITY

CRYSTAL CLEAR
Est. 1964
Special Utility District

KINGSBURY ROAD PIPELINE
PHASE II

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VICINITY MAP
NOT TO SCALE

STATE OF TEXAS
BRADY KOSUB
105051
LICENSED
PROFESSIONAL ENGINEER
December 18, 2025

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SHEET
G0.0

Date: Dec 18, 2025, 11:31am User ID: kvogler
File: S:\Active Projects\14CCSU0001 - General Engineering Services\2018_Kingsbury Road\Phase II\dwg\14CCSU0001-COVER SHEET PH II.dwg

GENERAL NOTES:

1. WHERE SURVEY WORK HAS BEEN INCLUDED, THE HORIZONTAL DATUM USED IS NAD 83 TEXAS STATE PLANE COORDINATES. THE BENCHMARK DATUM USED IS SOUTH CENTRAL ZONE NAVD 88 DATUM.
2. ALL PROPERTY CORNERS, MONUMENTS, AND BENCHMARKS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED BY THE CONTRACTOR. ANY SURVEY MARKERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR, THROUGH USE OF A PROFESSIONAL SURVEYOR REGISTERED IN THE STATE OF TEXAS, AT NO ADDITIONAL COST TO THE OWNER.
3. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE RULES AND REGULATIONS OF OSHA, EPA, AND ANY OTHER FEDERAL, STATE, OR LOCAL REGULATORY AGENCIES THAT MAY APPLY.
4. CALL 811 SHALL BE NOTIFIED A MINIMUM OF TWO BUSINESS DAYS PRIOR TO ANY EXCAVATION.
5. IF ACCESS TO PRIVATE PROPERTY IS AFFECTED, SUCH ACCESS SHALL BE RESTORED AT THE END OF EACH WORK DAY.
6. THE CONTRACTOR SHALL ENSURE THAT ALL REQUIRED PERMITS ARE IN PLACE PRIOR TO CONSTRUCTION AND THAT COPIES OF ALL PERMITS AREA RETAINED ON SITE AT ALL TIMES.
7. THE LOCATIONS OF EXISTING UTILITIES, PAVEMENT, TREES/SHRUBS, AND OTHER FEATURES ARE APPROXIMATE ONLY. EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. NO ADDITIONAL PAYMENT WILL BE MADE UNLESS SPECIFICALLY IDENTIFIED FOR PAYMENT IN THE CONTRACT DOCUMENTS AND PRIOR APPROVAL IS GIVEN BY OWNER AND ENGINEER. THE CONTRACTOR, SHALL AT THEIR EXPENSE AND COST, CONSTRUCT ALL IMPROVEMENTS IN SUCH A MANNER THAT WILL PROTECT ALL EXISTING UNDERGROUND UTILITIES.
8. EXISTING FEATURES IMPACTED DURING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO IMPROVED DRIVES, CURBING, LANDSCAPING, GROUND COVER, MAILBOXES, FENCING, SIGNAGE, AND EXISTING UTILITIES AND SERVICES SHALL BE REPLACED IN KIND. DRIVEWAYS IMPACTED SHALL BE RECONSTRUCTED TO MATCH PRECONSTRUCTION GRADING. CONTRACTOR SHALL COORDINATE ALL IMPACTS WITH PROPERTY OWNERS. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY AND ALL DAMAGES TO EXISTING FACILITIES.
9. IT IS THE CONTRACTORS RESPONSIBILITY TO DOCUMENT EXISTING CONDITIONS PRIOR TO CONSTRUCTION BY MEANS OF PHOTOGRAPHS AND/OR VIDEO.
10. ALL DRAINAGE FEATURES IMPACTED DURING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO SWALES, CULVERTS, AND STRUCTURES, SHALL BE REPLACED IN-KIND AND TO THEIR ORIGINAL GRADE AND LOCATION BY THE CONTRACTOR.
11. IN LOCATIONS WHERE CONSTRUCTION IS IN CLOSE PROXIMITY TO EXISTING UTILITY POLES, CONTRACTOR SHALL COORDINATE THE BRACING OF POLES WITH THE APPROPRIATE UTILITY OWNERS IN ADVANCE OF WORK IN A GIVEN AREA TO AVOID PROJECT DELAYS. BRACING POLES DURING CONSTRUCTION AND RELATION OF ANY EXISTING UTILITIES SHALL BE CONSIDERED INCIDENTAL TO THE OVERALL WORK, AND NO ADDITIONAL COMPENSATION SHALL BE AUTHORIZED.
12. THE OWNER SHALL BEAR ALL COSTS FOR MATERIAL TESTING (CONCRETE/ASPHALT REPLACEMENT) AND COMPACTION TESTING OF SUBGRADES AND BASE AS PART OF THE OVERALL PROJECT COSTS. TESTING RESULTS SHALL BE SUBMITTED TO THE ENGINEER AND CONTRACTOR.
13. THE CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS OF ALL NEWLY INSTALLED MAINS. AS-BUILT INFORMATION SHALL BE SUBMITTED FOR ALL VALVES, FITTINGS, AND OTHER MAJOR APPURTENANCES AS WELL AS AT LOCATIONS FOR INSTALLED PIPELINE A MINIMUM OF EVERY 150 FEET. INFORMATION SHOULD INCLUDE DEPTH OF BURY.
14. IF NECESSARY, TRANSFER OF WATER SERVICE LINES SHALL BE PERFORMED AT NIGHT TO ACCOMMODATE BUSINESSES AND RESIDENCES IN THE AREA. THE COST SHALL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.
15. WHERE REMOVAL OF BASE AND PAVEMENT IS NECESSARY FOR THIS PROJECT, ALL BASE AND PAVEMENT SHALL BE REPLACED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS. ALL PAVEMENT UTILITY CUTS SHALL BE SAW CUT OR REMOVED TO THE NEAREST JOINT.
16. NO UTILITY TRENCHES OR PITS ARE TO BE LEFT OPEN OVERNIGHT. BACKFILLING WILL OCCUR DAILY AND AS SOON AS PRACTICAL FOLLOWING CONSTRUCTION OPERATIONS.
17. CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN SUCH A MANNER AS TO PROTECT ROADWAY FACILITIES AT ALL TIMES.
18. IN THE EVENT THAT THE PLANS AND SPECIFICATIONS DISAGREE, THE INFORMATION ON THE PLANS SHALL GOVERN. THE ENGINEER OF RECORD SHALL BE THE INTERPRETER OF THE DOCUMENTS.
19. CONSTRUCTION OF ALL CCSUD WATER UTILITY INFRASTRUCTURE MUST ADHERE TO CCSUD TECHNICAL SPECIFICATIONS, DETAILS AND APPROVED EQUIPMENT LIST.
20. THE OWNER SHALL SUPPLY ALL WATER NEEDED FOR CONSTRUCTION TESTING AND DISINFECTION. THE CONTRACTOR SHALL NOT BE REQUIRED TO PAY FOR THIS WATER.
21. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS AND SIDEWALKS ADJACENT TO PROJECT FREE OF MUD AND DEBRIS FROM THE CONSTRUCTION.
22. COSTS FOR ROCK EXCAVATION SHALL BE INCLUDED WITHIN THE APPROPRIATE BID LINE ITEMS IN THE CONTRACT. NO ADDITIONAL COMPENSATION SHALL BE PROVIDED FOR THE EXCAVATION OF, OR HANDLING/DISPOSAL OF, ROCK DURING CONSTRUCTION.

UNION PACIFIC RAILROAD NOTES

1. THE UTILITY OWNER (CCSUD) HAS AN EXECUTED UPRR UTILITY CROSSING AGREEMENT TO INSTALL THE WATERLINE. ALL TERMS AND CONDITIONS OF THE AGREEMENT MUST BE MET BY THE CONTRACTOR.
2. FOR REFERENCE, THE UPRR FOLDER NUMBER IS 3148-31.
3. THE CONTRACTOR IS RESPONSIBLE FOR COMPLETING THE UPRR CONSTRUCTION OBSERVATION REQUIREMENTS PRIOR TO CONSTRUCTION TAKING PLACE ON, UNDER OR ABOVE THE UPRR PROPERTY.

CRYSTAL CLEAR SPECIAL UTILITY DISTRICT (CCSUD) WATER MAIN NOTES

1. CONSTRUCTION OF ALL CCSUD WATER UTILITY INFRASTRUCTURE MUST ADHERE TO CCSUD'S TECHNICAL SPECIFICATIONS, DETAILS AND APPROVED EQUIPMENT LIST.
2. REMOVE ONLY VEGETATION, TREES, STUMPS, RUBBISH, AND OTHER MATERIAL NECESSARY FOR CONSTRUCTION AND DISPOSE OF OFF SITE.
3. THE CONNECTION LOCATIONS LISTED IN THE PLANS ARE BASED ON BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL FIELD LOCATE EXISTING WATER MAIN LOCATIONS AT ALL TIE-IN LOCATIONS TO VERIFY SIZE, ELEVATION, AND MATERIAL PRIOR TO ORDERING MATERIALS FOR CONNECTION.
4. THE CONTRACTOR SHALL MAINTAIN MINIMUM SEPARATION BETWEEN UTILITIES PER TCEQ STANDARDS.
5. UNLESS OTHERWISE SPECIFIED, ALL PVC WATER MAINS SHALL BE C900 DR 18, COLORED BLUE IN ACCORDANCE WITH SPECIFICATION SECTION 02650 - PVC PIPE FOR WATER MAINS.
6. ALL DUCTILE IRON WATER MAINS SHALL BE PRESSURE CLASS CONFORMING TO AWWA C151 AND CEMENT LINED.
7. WATER MAINS SHALL BE RESTRAINED WITH RESTRAINT LENGTHS OF FITTINGS SHOWN IN PLANS. THRUST BLOCKING IS REQUIRED AT ALL FITTINGS AND BENDS IN ACCORDANCE WITH THE THRUST BLOCKING DETAIL PROVIDED AND SPECIFICATION SECTION 02680 - JOINT RESTRAINTS AND THRUST BLOCKING.
8. LOCATIONS OF COMBINATION AIR VALVES SHOWN ARE APPROXIMATE. INSTALL AIR RELEASE VALVES AT THE HIGH POINT IN THE WATER MAIN FOR THE LOCATIONS GIVEN.
9. THE CONTRACTOR SHALL COORDINATE PRESSURE TESTING OF NEW WATER MAINS WITH OWNER AND ENGINEER AT LEAST TWO BUSINESS DAYS PRIOR. PRESSURE TESTING REQUIREMENTS ARE INCLUDED IN THE SPECIFICATIONS.
10. ALL WATER MAINS SHALL BE DISINFECTED PER AWWA AND TCEQ STANDARDS.
11. THE OWNER SHALL SUPPLY ALL WATER NEEDED FOR CONSTRUCTION TESTING AND DISINFECTION. THE CONTRACTOR SHALL NOT BE REQUIRED TO PAY FOR THIS WATER.
12. UNLESS NOTED OTHERWISE, ALL WATER MAIN P.I.'S SHALL BE ACHIEVED USING THE WATER MAIN MANUFACTURER'S ALLOWABLE JOINT DEFLECTION.
13. WATER MAINS, FIRE HYDRANTS, APPURTENANCES, AND VALVES THAT ARE ABANDONED SHALL BE CUT AND PLUGGED PER SPECIFICATION SECTION 02500 - ABANDONMENT OF WATER INFRASTRUCTURE.
14. 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 CCSUD INSPECTOR/TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT 400 LINEAR FEET AT A MINIMUM. PERMITS WILL NOT BE ACCEPTED AND FINALIZED BY CCSUD WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

STORMWATER POLLUTION PREVENTION PLAN NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR DEVELOPING A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PER TCEQ.
2. PRIOR TO CONSTRUCTION, MAKE CERTAIN THE NOTICE OF INTENT (NOI) OR CONSTRUCTION SITE NOTICE (CSN) HAS BEEN FILED AND POSTED ONSITE FOR PUBLIC VIEWING AND THE SWPPP IS AVAILABLE AT THE JOBSITE AT ALL TIMES.
3. CONTRACTOR IS RESPONSIBLE FOR ALL POLLUTION PREVENTION SHOWN IN THE SWPPP.
4. INSTALL STORM WATER POLLUTION PREVENTION CONTROLS PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING, EXCAVATION).
5. THE PLACEMENT OF STORM WATER POLLUTION PREVENTION CONTROLS SHALL BE IN ACCORDANCE WITH THE APPROVED STORM WATER POLLUTION PREVENTION CONTROL PLAN.
6. INSTALL AND MAINTAIN POLLUTION CONTROL MEASURES IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND WITH PROJECT SPECIFICATIONS.
7. POLLUTION CONTROL MEASURES SHALL BE REPAIRED, REESTABLISHED, ADJUSTED OR REINSTALLED WITH EACH SUBSEQUENT PHASE OF CONSTRUCTION IN ACCORDANCE WITH THE SWPPP.
8. ANY MAJOR VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE ENGINEER AS APPROPRIATE. MINOR CHANGES TO BE MADE AS FIELD REVISIONS TO THE STORM WATER POLLUTION PREVENTION CONTROL PLAN MAY BE REQUIRED BY THE ENGINEER DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES.
9. CONTRACTOR IS RESPONSIBLE FOR ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE, AND SHALL REMOVE THE ACCUMULATION OF OFF-SITE SEDIMENT PROMPTLY.
10. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT INTERVALS OF AT LEAST ONCE EVERY TWO (2) WEEKS AND IMMEDIATELY AFTER SIGNIFICANT RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES. CONTRACTOR SHALL MAINTAIN SEDIMENT TRAPS AND BASINS.
11. DEFICIENCIES NOTED DURING THE INSPECTION WILL BE CORRECTED AND DOCUMENTED WITHIN SEVEN CALENDAR DAYS OR BEFORE THE NEXT ANTICIPATED STORM EVENT.
12. OFF-SITE MATERIAL STORAGE AREAS USED SOLELY BY THE PROJECT ARE CONSIDERED PART OF THE PROJECT.
13. MAINTAIN RECORDS OF PROJECT MILESTONE DATES AND FIELD CHANGES AS REQUIRED BY THE SWPPP.
14. PRIOR TO FINAL ACCEPTANCE BY CCSUD, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE DITCH OR WATERWAY AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF PROPERLY.
15. SOIL DISTURBANCES SHALL BE MINIMIZED BY EXPOSING ONLY THE SMALLEST PRACTICAL AREA OF LAND REQUIRED FOR THE CLEARING AND GRADING ACTIVITY AND FOR THE CONSTRUCTION ACTIVITY, FOR THE SHORTEST PRACTICAL PERIOD OF TIME.
16. MUD/DIRT INADVERTENTLY TRACKED OFF-SITE AND ONTO PUBLIC STREETS SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
17. ALL DISTURBED AREAS SHALL BE RESTORED PER SPECIFICATION SECTION 01700 "SITE RESTORATION".

TCEQ WATER DISTRIBUTION SYSTEM
GENERAL CONSTRUCTION NOTES

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. AT A MINIMUM, CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS."
2. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)/NSF INTERNATIONAL STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI [§290.44(A)(1)].
3. PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NSF INTERNATIONAL SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS [§290.44(A)(2)].
4. NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY [§290.44(A)(3)].
5. ALL WATER LINE CROSSINGS OF WASTEWATER MAINS SHALL BE PERPENDICULAR [§290.44(E)(4)(B)].
6. WATER TRANSMISSION AND DISTRIBUTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATER LINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE [§290.44(A)(4)].
7. THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES IS 0.25 PERCENT [§290.44(B)].
8. THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES WITH VENT OPENINGS TO THE ATMOSPHERE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT [§290.44(D)(1)].
9. THE CONTRACTOR SHALL NOT PLACE THE PIPE IN WATER OR WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION [§290.44(F)(1)].
10. WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT BODY OF WATER THE WATERLINE SHALL BE INSTALLED IN A SEPARATE WATERTIGHT PIPE ENCASEMENT. VALVES MUST BE PROVIDED ON EACH SIDE OF THE CROSSING WITH FACILITIES TO ALLOW THE UNDERWATER PORTION OF THE SYSTEM TO BE ISOLATED AND TESTED [§290.44(F)(2)].
11. PURSUANT TO 30 TAC §290.44(A)(5), THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY THE MOST CURRENT AWWA FORMULAS FOR PVC PIPE, CAST IRON AND DUCTILE IRON PIPE. INCLUDE THE FORMULAS IN THE NOTES ON THE PLANS.
    - O THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-605 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

    WHERE: $Q = \frac{LD\sqrt{P}}{148{,}000}$

    - Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
    - L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
    - D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
    - P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).
    - O THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

    WHERE: $L = \frac{LD\sqrt{P}}{148{,}000}$

    - L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
    - S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
    - D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
    - P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).
12. THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES. IF THIS DISTANCE CANNOT BE MAINTAINED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES, INSTALLATION METHODS, AND MATERIALS UTILIZED MUST MEET §290.44(E)(1)-(4).
13. THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE POTABLE WATERLINE SHALL BE ENCASED IN A JOINT OF AT LEAST 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT [§290.44(E)(5)].
14. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION [§290.44(E)(6)].
15. SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS, WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE [§290.44(E)(7)].
16. WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS [§290.44(E)(8)].
17. THE CONTRACTOR SHALL DISINFECT THE NEW WATERLINES IN ACCORDANCE WITH AWWA STANDARD C-651-14 OR MOST RECENT, THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE. SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK THE EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS. A MINIMUM OF ONE SAMPLE FOR EACH 1,000 FEET OF COMPLETED WATERLINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER [§290.44(F)(3)].
18. DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.

LEGEND:

W 4"	PROP 4" C900 PVC WATER LINE
W 8"	PROP 8" C900 PVC WATER LINE
W 12"	PROP 12" C900 PVC WATER LINE
	PROP SERVICE LINE
W	PROP WATER METER
	PROP GATE VALVE
	PROP 90° BEND
	PROP 45° BEND
	PROP TEE
	PROP REDUCER
	PROP CUT AND PLUG
	PROP COMBINATION AIR VALVE
	PROP FIRE HYDRANT
	PROP ENCASED PIPE
	PROP OPEN CUT / REPAIR
	PROP TRENCHLESS INSTALLATION
	PROP BORE & RECEIVING PITS
?	LENGTH OF PIPE TO BE RESTRAINED
	ENTIRE LENGTH OF PIPE TO BE RESTRAINED
NSPI	NO SEPARATE PAY ITEM
	EXIST LOT LINE
	APPARENT RIGHT-OF-WAY
	EXIST EDGE OF PAVEMENT
	EXIST EASEMENT
OE	EXIST OVERHEAD POWER
EX W6	EXIST WATER LINE
FO	EXIST FIBER OPTIC LINE
TEL	EXIST TELEPHONE LINE
X	EXIST BARBED WIRE FENCE
00	EXIST CHAIN LINK FENCE
//	EXIST WOOD FENCE
	EXIST PIPE/STEEL FENCE
EF	EXIST ELECTRIC FENCE
1112	EXIST MINOR CONTOUR LINE
1115	EXIST MAJOR CONTOUR LINE
	EXIST GATE VALVE
	EXIST BENCH MARK
	EXIST 1/2" IRON PIN FOUND (UNLESS NOTED)
	EXIST CONCRETE MONUMENT
	EXIST CONTROL POINT
	EXIST POWER POLE
	EXIST GUY WIRE
	EXIST MAILBOX
	EXIST FIRE HYDRANT
W	EXIST WATER METER
T	EXIST MARKER-UNDERGROUND TELEPHONE
	EXIST WATER SPIGOT
E	EXIST ELECTRICAL BOX
T	EXIST TELEPHONE PEDESTAL
E	EXIST ELECTRIC MANHOLE
W	EXIST WATER MANHOLE
1110	EXIST LOT NUMBER
	EXIST TREE

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LICENSED PROFESSIONAL ENGINEER
December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

GENERAL NOTES AND LEGEND

JOB: 14CCSUD001

DATE:

DRAWN: KV	PM: CP
DESIGN: CP	DM: BK
PEER:	OTHER:

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:
G1.0

Texas 811

KINGSBURY PH II WATER MAIN					
Number	Station	Length	Line/Chord Direction	Northing	Easting
L1	100+00.00	345.741	N9° 48' 09.13"W	13784817.59	2339444.86
L2	103+45.74	46.137	N26° 16' 36.55"E	13785158.29	2339386.00
L3	103+91.88	75.775	S63° 44' 03.70"E	13785199.66	2339406.42
L4	104+67.65	7.532	S74° 59' 03.70"E	13785166.12	2339474.37
L5	104+75.19	244.704	N82° 45' 43.09"E	13785164.17	2339481.65
L6	107+19.89	102.070	N80° 10' 26.35"E	13785195.00	2339724.40
L7	108+21.96	3.000	N35° 08' 18.36"E	13785212.42	2339824.98
L8	108+24.96	142.879	N9° 49' 36.04"W	13785214.87	2339826.70
L9	109+67.84	29.959	N9° 49' 42.00"W	13785355.66	2339802.32
L10	109+97.80	481.787	N10° 37' 14.24"W	13785385.18	2339797.20
L11	114+79.58	6.928	N34° 51' 26.45"E	13785858.71	2339708.41
L12	114+86.51	59.174	N80° 08' 50.00"E	13785864.39	2339712.37
L13	115+45.69	12.038	N35° 09' 45.51"E	13785874.52	2339770.67
L14	115+57.73	758.989	N80° 09' 40.84"E	13785884.36	2339777.60
L15	123+16.71	5.122	N35° 16' 35.14"E	13786014.05	2340525.43
L16	123+21.84	338.609	N9° 43' 24.86"W	13786018.23	2340528.39
L17	126+60.44	14.160	N35° 12' 08.67"E	13786351.98	2340471.20
L9	126+74.61	145.735	N9° 43' 16.84"W	13786363.55	2340479.36
L18	128+20.34	16.983	N35° 12' 08.67"E	13786507.19	2340454.75
L19	128+37.32	37.927	N9° 43' 18.30"W	13786521.07	2340464.54
L20	128+75.25	66.282	N37° 31' 04.65"W	13786558.45	2340458.14
L21	129+41.53	16.893	N82° 46' 47.92"W	13786611.02	2340417.77
L22	129+58.43	160.267	N37° 31' 03.78"W	13786613.15	2340401.01
L23	131+18.69	332.006	N38° 12' 08.65"W	13786740.27	2340303.41
L24	134+50.70	4.364	N5° 34' 58.82"E	13787001.17	2340098.08
L25	134+55.06	73.188	N50° 33' 07.24"E	13787005.51	2340098.51

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STATE OF TEXAS
BRADY KOSKA
105051
LICENSED
PROFESSIONAL ENGINEER

December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

KEY MAP AND ALIGNMENT DATA TABLE

JOB: 14CCSUD001	
DATE:	
DRAWN: KV	PM: CP
DESIGN: CP	DM: BK
PEER:	OTHER:

REVISIONS:

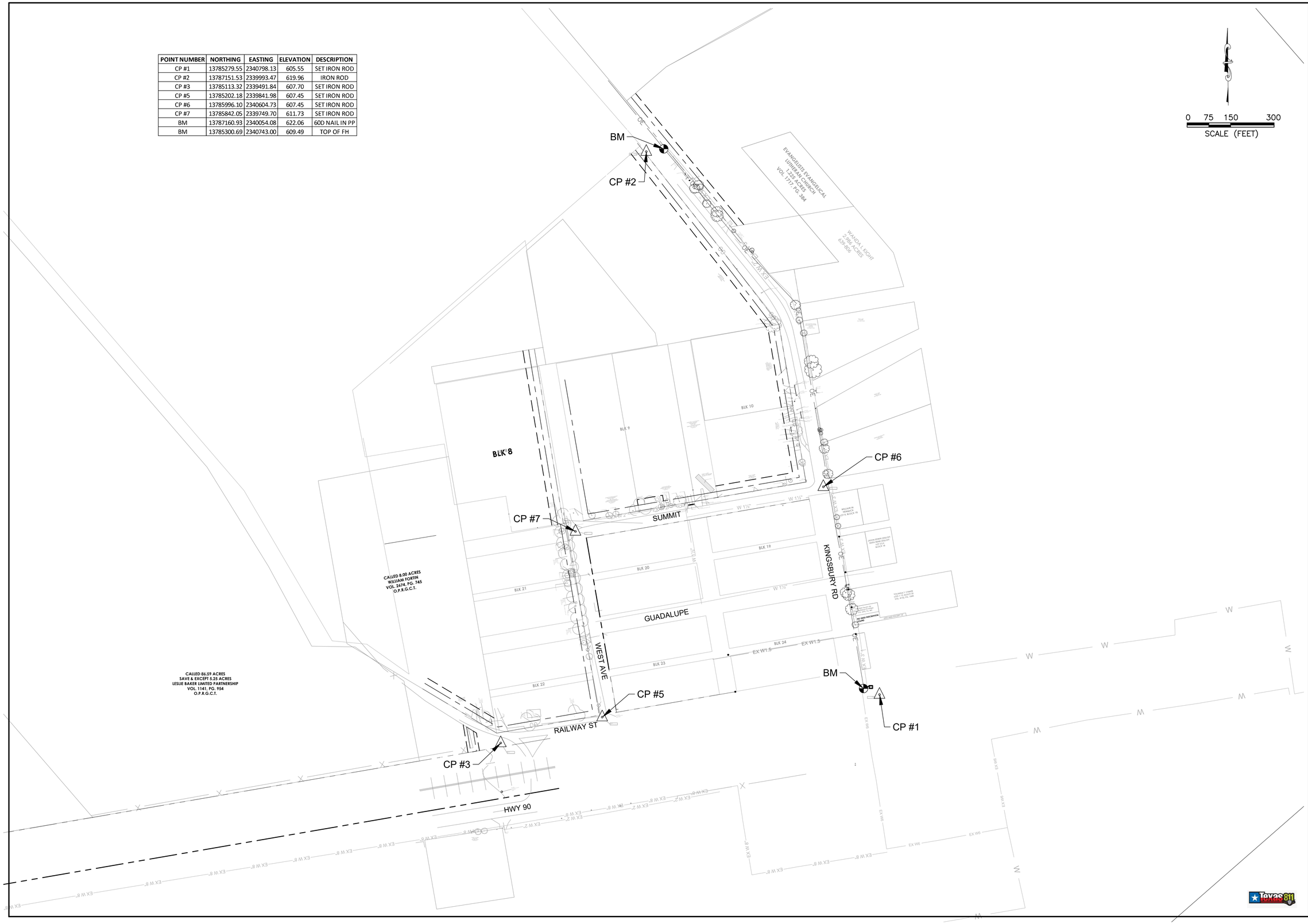
DELTA	DESCRIPTION	DATE

SHEET:
G1.1

Texas 811

Date: Dec 18, 2025, 11:32am User ID: kvogler
File: S:\Active Projects\14CCSUD001 - General Engineering Services\2018_Kingsbury Road\Phase II\dwg\14CCSUD001-KEY MAP PH II.dwg

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP #1	13785279.55	2340798.13	605.55	SET IRON ROD
CP #2	13787151.53	2339993.47	619.96	IRON ROD
CP #3	13785113.32	2339491.84	607.70	SET IRON ROD
CP #5	13785202.18	2339841.98	607.45	SET IRON ROD
CP #6	13785996.10	2340604.73	607.45	SET IRON ROD
CP #7	13785842.05	2339749.70	611.73	SET IRON ROD
BM	13787160.93	2340054.08	622.06	60D NAIL IN PP
BM	13785300.69	2340743.00	609.49	TOP OF FH



Date: Dec 18, 2025, 11:32am User ID: kvogler
File: S:\Active Projects\14CCSUD001 - General Engineering Services\2018_Kingsbury Road\Phase II\dwg\14CCSUD001-CONTROL POINTS PH II.dwg

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PROFESSIONAL ENGINEER

December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

CONTROL POINTS

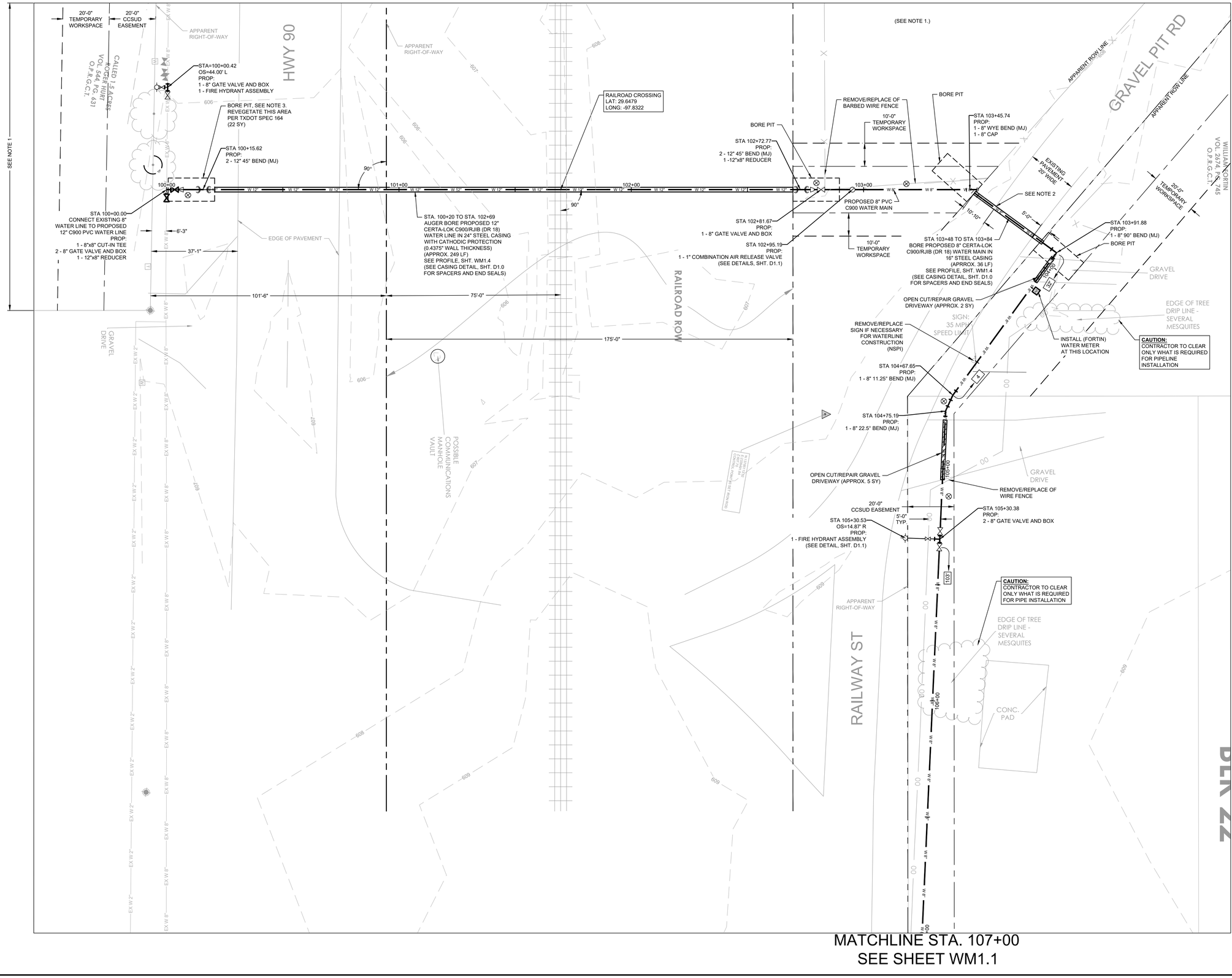
JOB: 14CCSUD001	
DATE:	
DRAWN: KV	PM: CP
DESIGN: CP	DM: BK
PEER:	OTHER:

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

G1.2



MATCHLINE STA. 107+00
SEE SHEET WM1.1

0 10 20 40
SCALE (FEET)

UPRR CONSTRUCTION REQUIREMENTS THE CONTRACTOR SHALL REFER TO AND ADHERE TO THE UPRR CONSTRUCTION REQUIREMENTS AND PIPELINE CROSSING AGREEMENT PROVIDED WITHIN THE CONTRACT DOCUMENTS.

NOTES:

1. CONSTRUCTION WITHIN THIS PROPERTY BOUNDARY MUST BE SUBSTANTIALLY COMPLETE WITHIN 90 DAYS FROM THE START OF CONSTRUCTION ON THAT PROPERTY.
2. CONTRACTOR TO COORDINATE WITH GUADALUPE COUNTY FOR PERMITTING OF CONSTRUCTION ACTIVITIES WITHIN THE COUNTY RIGHT-OF-WAY.
3. BORE PITS LOCATED CLOSER THAN 10-FT FROM THE EDGE OF PAVEMENT IN TxDOT RIGHT-OF-WAY MUST BE REINFORCED WITH WOOD OR STEEL TO INSURE THAT THE EXISTING ROADWAY OR PIT WALLS DON'T COLLAPSE. REINFORCED WALL SHORING AND/OR TRENCH BOX PROTECTION IS REQUIRED FOR ALL HOLES, PITS, AND TRENCHES DEEPER THAN 5-FT.
4. THE RESTRAINT LENGTHS PROVIDED IN THE CONSTRUCTION DRAWINGS, ARE BASED ON CALCULATIONS. IF CALCULATED RESTRAINT LENGTH DOES NOT FALL ON A JOINT, RESTRAINTS SHALL BE INSTALLED TO THE NEXT FURTHEST JOINT.

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.

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STATE OF TEXAS
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105051
LICENSED
PROFESSIONAL ENGINEER
December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

STA. 100+00 TO STA. 107+00

JOB: 14CCSUD001	
DATE:	
DRAWN: KV	PM: CP
DESIGN: CP	DM: BK
PEER:	OTHER:

REVISIONS:

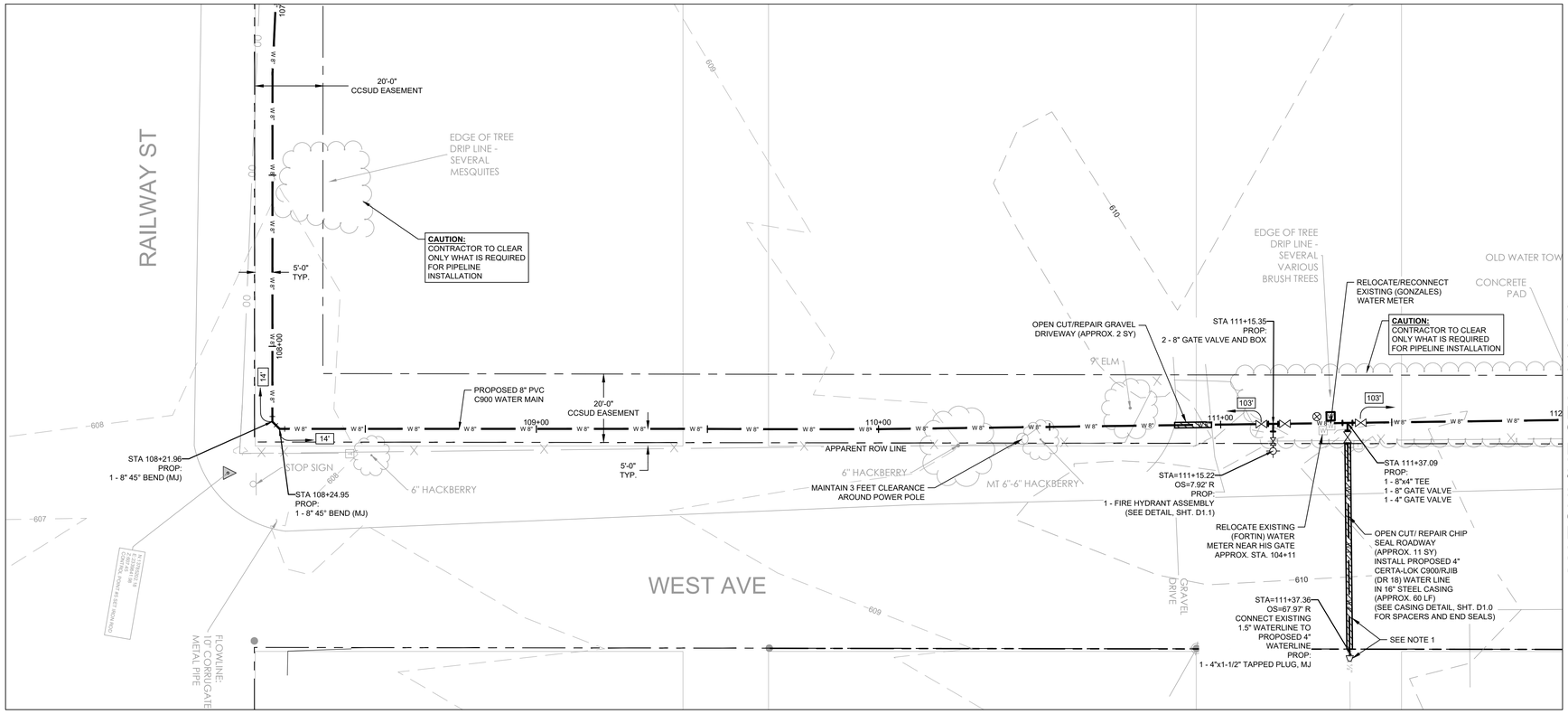
DELTA	DESCRIPTION	DATE

SHEET:
WM1.0

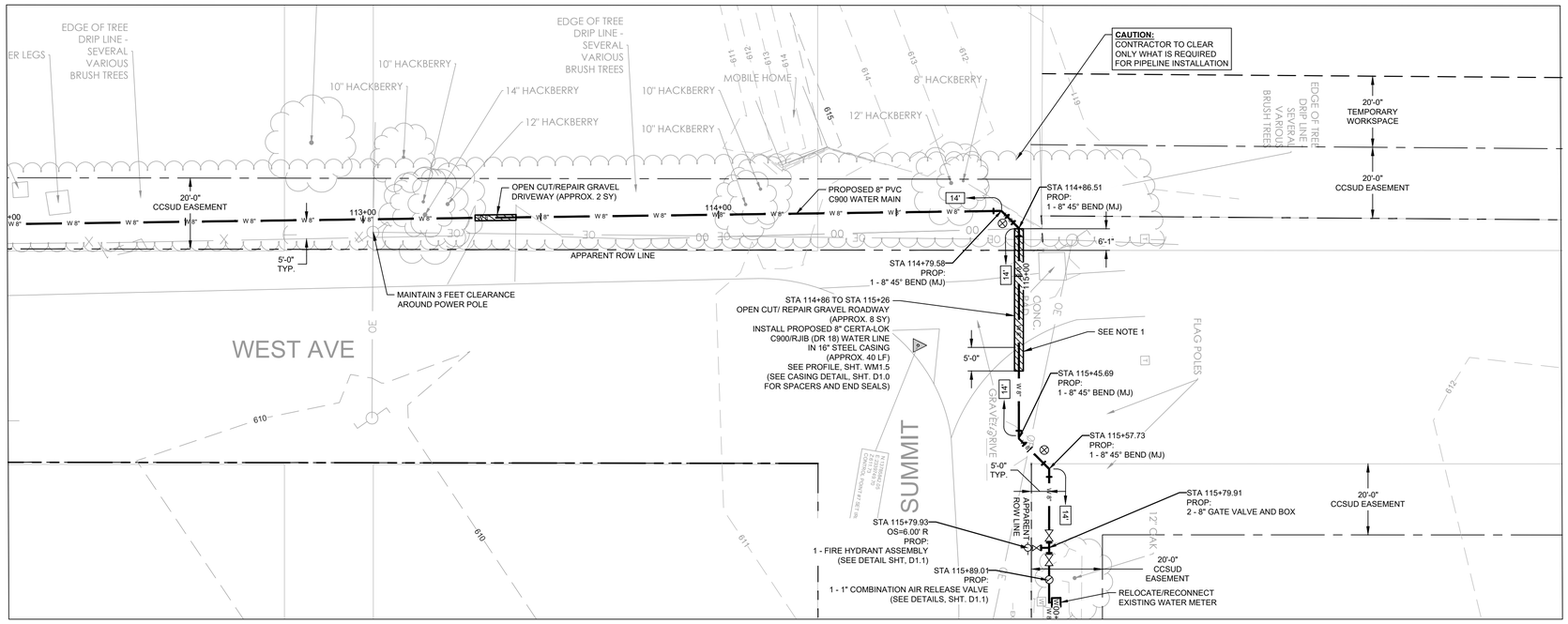
Texas 811

Date: Dec 18, 2025, 11:32am User ID: kvogler
File: S:\Active Projects\14CCSUD001 - General Engineering Services\2018_Kingsbury Road\Phase II\dwg\14CCSUD001-KINGSBURY WTR MAIN PH II-001A.dwg

MATCHLINE STA. 107+00 SEE SHEET WM1.0



MATCHLINE STA. 112+00 THIS SHEET



MATCHLINE STA. 116+00
SEE SHEET WM1.2

NOTES:

1. CONTRACTOR TO COORDINATE WITH GUADALUPE COUNTY FOR PERMITTING OF CONSTRUCTION ACTIVITIES WITHIN THE COUNTY RIGHT-OF-WAY.
2. THE RESTRAINT LENGTHS PROVIDED IN THE CONSTRUCTION DRAWINGS, ARE BASED ON CALCULATIONS. IF CALCULATED RESTRAINT LENGTH DOES NOT FALL ON A JOINT, RESTRAINTS SHALL BE INSTALLED TO THE NEXT FURTHEST JOINT.

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.

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STATE OF TEXAS
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105051
LICENSED
PROFESSIONAL ENGINEER

December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

STA. 107+00 TO STA. 116+00

JOB: 14CCSUD001	
DATE:	
DRAWN: KV	PM: CP
DESIGN: CP	DM: BK
PEER:	OTHER:

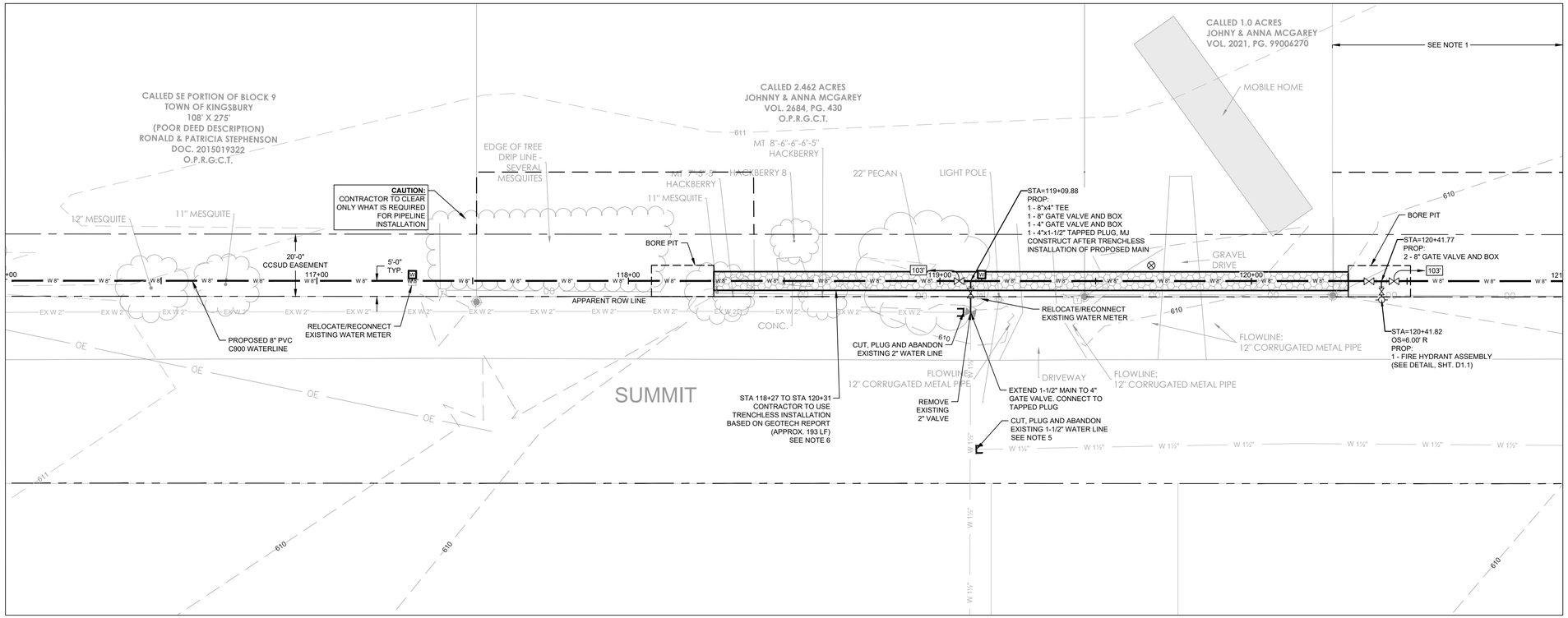
REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

WM1.1

Texas 811



0 10 20 40
SCALE (FEET)

NOTES:

1. CONSTRUCTION WITHIN THIS PROPERTY BOUNDARY MUST BE SUBSTANTIALLY COMPLETE WITHIN 90 DAYS FROM THE START OF CONSTRUCTION ON THAT PROPERTY.
2. EXISTING 2" WATER LINE TO BE ABANDONED.
3. THE LOCATION OF THE EXISTING 2" WATER LINE IS DRAWN AT APPROXIMATE EXISTING LOCATIONS.
4. EXISTING SERVICES ALONG SUMMIT STREET TO BE CONNECTED TO PROPOSED 8" WATER LINE ONLY AFTER PROPOSED LINE IS RELEASED FOR SERVICE.
5. CONTRACTOR TO COORDINATE WITH GUADALUPE COUNTY FOR PERMITTING OF CONSTRUCTION ACTIVITIES WITHIN COUNTY RIGHT-OF-WAY.
6. THE CONTRACTOR MAY USE HDPE, C900 PVC, CERTA-LOK PVC OR DUCTILE IRON FOR THE TRENCHLESS INSTALLATION AREAS. THE CONTRACTOR SHALL SELECT THE BEST PIPE MATERIAL BASED ON THE TYPE OF INSTALLATION METHOD USED. ALL INSTALLED PIPE MUST MEET CCSUD STANDARD SPECIFICATIONS.
7. THE RESTRAINT LENGTHS PROVIDED IN THE CONSTRUCTION DRAWINGS, ARE BASED ON CALCULATIONS. IF CALCULATED RESTRAINT LENGTH DOES NOT FALL ON A JOINT, RESTRAINTS SHALL BE INSTALLED TO THE NEXT FURTHEST JOINT.

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.

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105051
LICENSED
PROFESSIONAL ENGINEER

December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

STA. 116+00 TO STA. 124+00

JOB: 14CCSUD001	
DATE:	
DRAWN: KV	PM: CP
DESIGN: CP	DM: BK
PEER:	OTHER:

REVISIONS:

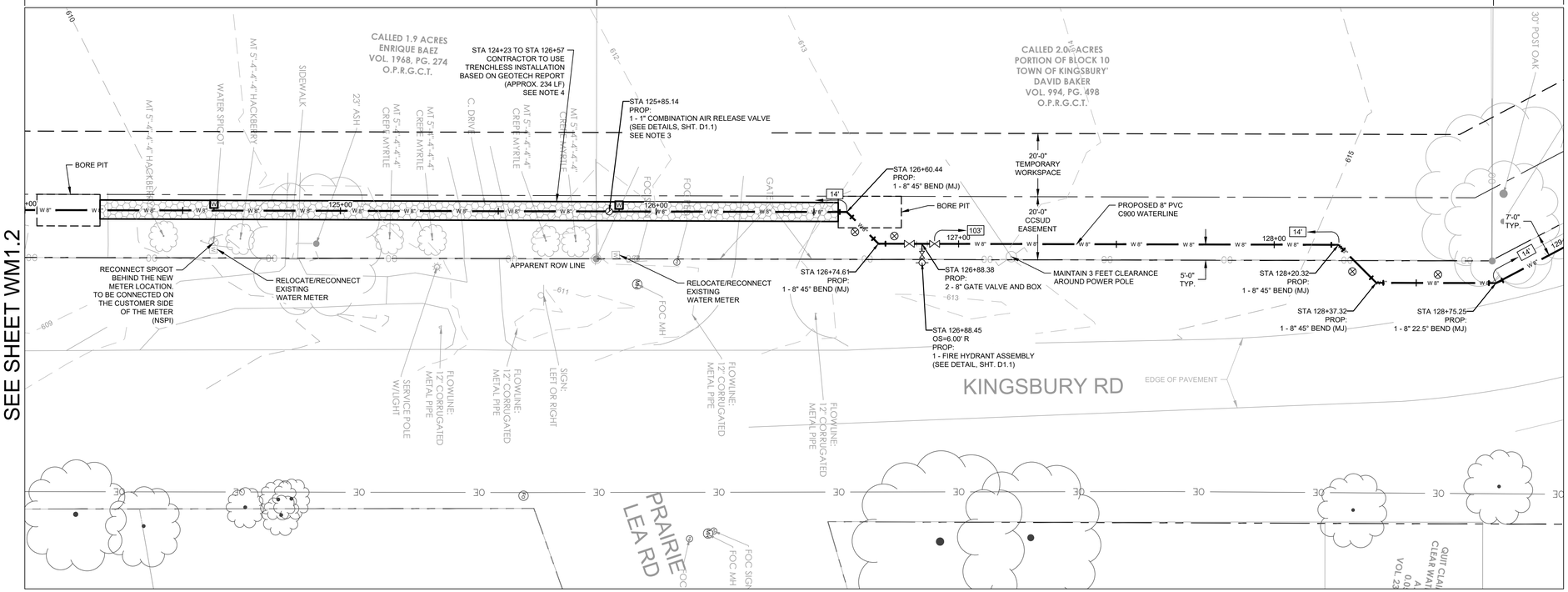
DELTA	DESCRIPTION	DATE

SHEET:
WM1.2

Date: Dec 18, 2025, 11:33am User ID: kvogler
File: S:\Active Projects\14CCSUD001 - General Engineering Services\2018_Kingsbury Road\Phase II\dwg\14CCSUD001-KINGSBURY WTR MAIN PH II-004.dwg

MATCHLINE STA. 124+00
SEE SHEET WM1.2

MATCHLINE STA. 129+00
THIS SHEET



0 10 20 40
SCALE (FEET)

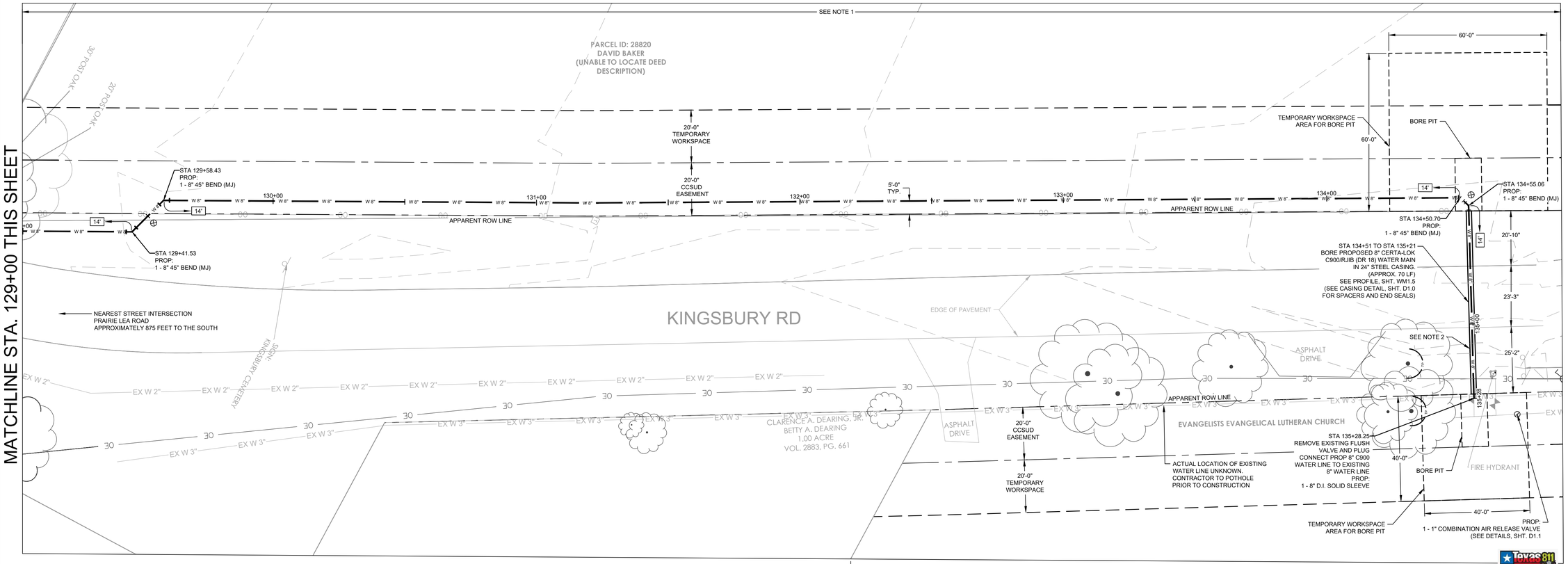
NOTES:

1. CONSTRUCTION WITHIN THIS PROPERTY BOUNDARY MUST BE SUBSTANTIALLY COMPLETE WITHIN 90 DAYS FROM THE START OF CONSTRUCTION ON THAT PROPERTY.
2. CONTRACTOR TO COORDINATE WITH GUADALUPE COUNTY FOR PERMITTING OF CONSTRUCTION ACTIVITIES WITHIN THE COUNTY RIGHT-OF-WAY.
3. THE ABOVE GROUND APPURTENANCES SHALL BE CENTERED IN AN 8'x8' SQUARE. EACH CORNER OF THE SQUARE SHALL HAVE 4" PIPES BETWEEN 4 AND 6 FEET TALL. THE PIPES SHALL BE CONNECTED AT THE TOP AROUND ALL FOUR CORNERS WITH 2" STEEL PIPE. ALL PIPE SHALL BE PAINTED YELLOW FOR SAFETY.
4. THE CONTRACTOR MAY USE HDPE, C900 PVC , CERTA-LOK PVC OR DUCTILE IRON PIPE FOR THE TRENCHLESS INSTALLATION AREAS. CONTRACTOR SHALL SELECT THE BEST PIPE MATERIAL BASED ON THE TYPE OF INSTALLATION METHOD USED. ALL INSTALLED PIPE MUST MEET CCSUD STANDARD SPECIFICATIONS.
5. THE RESTRAINT LENGTHS PROVIDED IN THE CONSTRUCTION DRAWINGS, ARE BASED ON CALCULATIONS. IF CALCULATED RESTRAINT LENGTH DOES NOT FALL ON A JOINT, RESTRAINTS SHALL BE INSTALLED TO THE NEXT FURTHEST JOINT.
6. NO TREES ARE TO BE DAMAGED OR REMOVED FROM THIS PROPERTY. THE CONTRACTOR MUST LEAVE AT LEAST TWO ENTRANCES OPEN TO THE PROPERTY AT ALL TIMES. ALL DEBRIS, ROCKS AND CONSTRUCTION MATERIAL MUST BE REMOVED FROM SITE PROMPTLY AFTER CONSTRUCTION AND THE ENTIRE AREA RESTORED TO PRECONSTRUCTION CONDITION. CONTRACTOR SHALL PROTECT THE CHURCH SIGN NEAR THE BORE PIT AREA FROM DAMAGE DURING CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND 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 IMPLEMENTING IN AND AROUND TRENCH EXCAVATION.

MATCHLINE STA. 129+00 THIS SHEET



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STATE OF TEXAS
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105051
LICENSED
PROFESSIONAL ENGINEER

December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

STA.124+00 TO END

JOB: 14CCSUD001	
DATE:	
DRAWN: KV	PM: CP
DESIGN: CP	DM: BK
PEER:	OTHER:

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

WM1.3

Date: Dec 18, 2025, 11:34am User ID: kvogler
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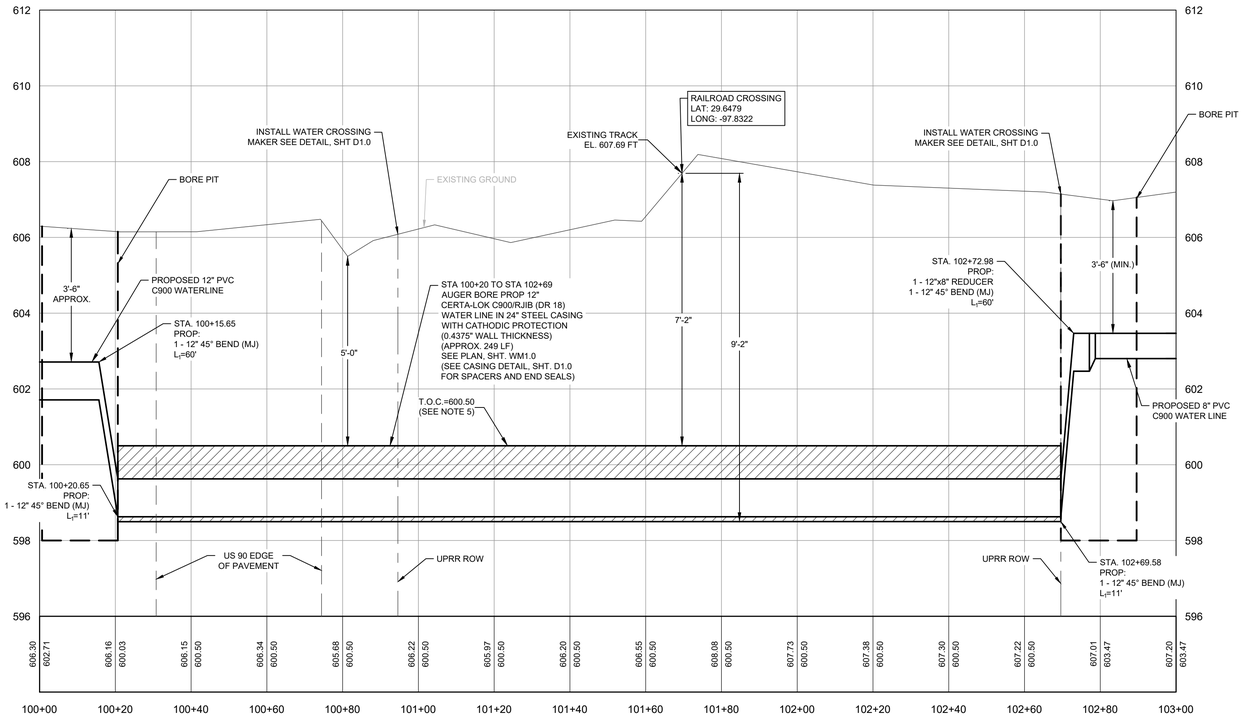
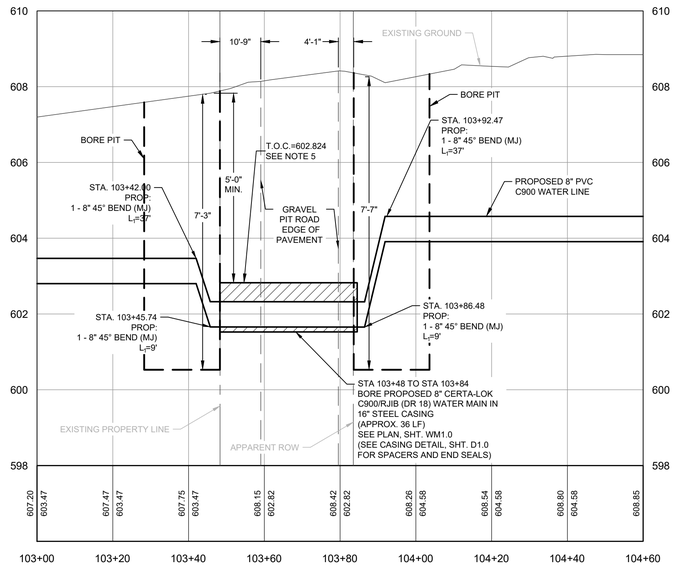


PROFILE STA 100+00 TO STA 103+00
FOR PLAN VIEW SEE SHT. WM1.0

SCALE:
H: 1" = 20', V: 1" = 2'



PROFILE STA 103+00 TO STA 104+60
FOR PLAN VIEW SEE SHT. WM1.0

SCALE:
H: 1" = 20', V: 1" = 2'

UPRR CONSTRUCTION REQUIREMENTS
THE CONTRACTOR SHALL REFER TO AND ADHERE TO THE UPRR CONSTRUCTION REQUIREMENTS AND PIPELINE CROSSING AGREEMENT PROVIDED WITHIN THE CONTRACT DOCUMENTS.

NOTES:

1. L_1= LENGTH OF PIPE TO BE RESTRAINED IN BOTH DIRECTIONS.
2. L_2= UPPER BEND LENGTH OF PIPE TO BE RESTRAINED IN BOTH DIRECTIONS.
3. L_3= LOWER BEND LENGTH OF PIPE TO BE RESTRAINED IN BOTH DIRECTIONS.
4. WHEN RESTRAINED LENGTHS OVERLAP, ALL PIPE BETWEEN FITTINGS SHOULD BE RESTRAINED.
5. TOP OF CASING (T.O.C.).
6. THE RESTRAINT LENGTHS PROVIDED IN THE CONSTRUCTION DRAWINGS, ARE BASED ON CALCULATIONS. IF CALCULATED RESTRAINT LENGTH DOES NOT FALL ON A JOINT, RESTRAINTS SHALL BE INSTALLED TO THE NEXT FURTHEST JOINT.

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.

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December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

RAILROAD AND GRAVEL PIT PROFILES

JOB: 14CCSUD001	
DATE:	
DRAWN: KV	PM: CP
DESIGN: CP	DM: BK
PEER:	OTHER:

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

WM1.4

Texas 811

Date: Dec 18, 2025, 11:34am User ID: kvogler
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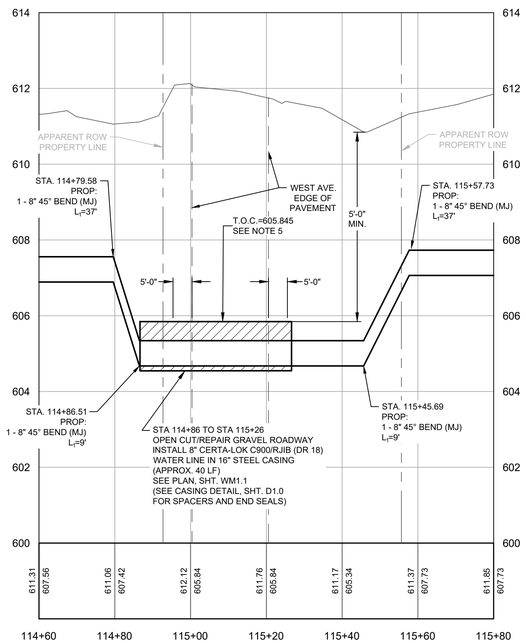
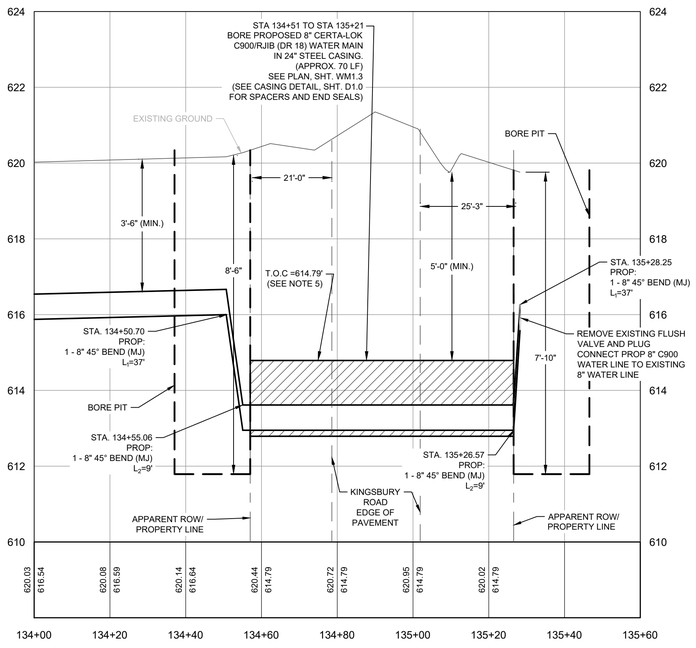


PROFILE STA 114+60 TO STA 115+80
FOR PLAN VIEW SEE SHT. WM1.1



PROFILE STA 134+00 TO STA 135+40
FOR PLAN VIEW SEE SHT. WM1.3

NOTES:

1. L= LENGTH OF PIPE TO BE RESTRAINED IN BOTH DIRECTIONS.
2. L_1= UPPER BEND LENGTH OF PIPE TO BE RESTRAINED IN BOTH DIRECTIONS.
3. L_2= LOWER BEND LENGTH OF PIPE TO BE RESTRAINED IN BOTH DIRECTIONS.
4. WHEN RESTRAINED LENGTHS OVERLAP, ALL PIPE BETWEEN FITTINGS SHOULD BE RESTRAINED.
5. TOP OF CASING (T.O.C.).
6. THE RESTRAINT LENGTHS PROVIDED IN THE CONSTRUCTION DRAWINGS, ARE BASED ON CALCULATIONS. IF CALCULATED RESTRAINT LENGTH DOES NOT FALL ON A JOINT, RESTRAINTS SHALL BE INSTALLED TO THE NEXT FURTHEST JOINT.

TRENCH EXCAVATION SAFETY PROTECTION

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STATE OF TEXAS
BRADY KOSUB
105051
LICENSED
PROFESSIONAL ENGINEER

December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

WEST AND KINGSBURY RD
PROFILES

JOB: 14CCSUD001	
DATE:	
DRAWN: KV	PM: CP
DESIGN: CP	DM: BK
PEER:	OTHER:

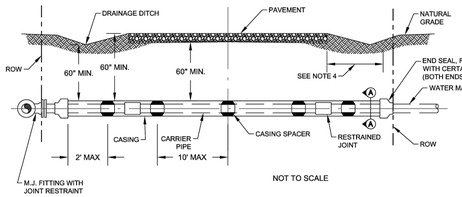
REVISIONS:

DELTA	DESCRIPTION	DATE

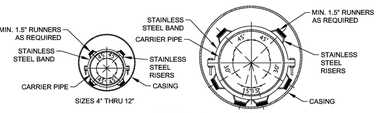
SHEET:

WM1.5

Texas 811



NOT TO SCALE



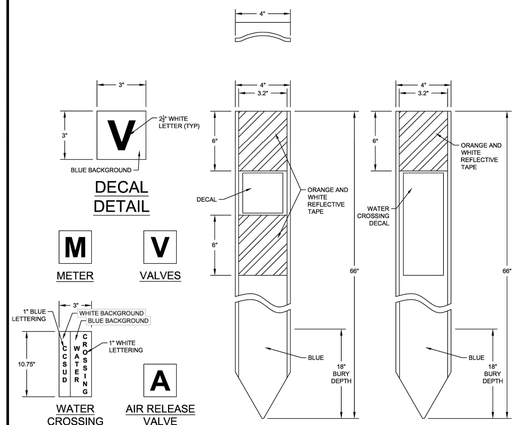
SECTION A–A

Carrier Pipe (DR 18)	Casing Size	Steel Casing (0.375 IN Wall)	PVC Casing (DR 25)	HDPE Casing (DR 21)	Casing Spacers	
Nominal Size (IN)		Inside Diameter (IN)			Min. Band Width (IN)	No. of Runners Per Tie
4	16	15.25	15.92	13.755	7	2 TOP, 2 BOTTOM
6	16	15.25	15.92	15.643	7	2 TOP, 2 BOTTOM
8	24	23.25	23.61	19.419	7	2 TOP, 2 BOTTOM
12	24	23.25	23.61	23.195	7	2 TOP, 2 BOTTOM
16	30	29.25	29.29	28.769	7	2 TOP, 4 BOTTOM

NOTES:

1. POLYVINYL CHLORIDE (PVC) CARRIER PIPE THAT IS 4-INCH IN DIAMETER SHALL BE C900 DR 18, FULLY RESTRAINED THROUGH THE CASING. POLYVINYL CHLORIDE (PVC) CARRIER PIPE SHALL BE CERTA-LOK C900/RJIB (DR 18) FOR 6-INCH TO 12-INCH AND CERTA-LOK C905/RJ (OR APPROVED EQUAL) FOR 16-INCH TO 24-INCH PIPE DIAMETERS.
2. STEEL CASING SHALL BE STANDARD WEIGHT OR HEAVIER PIPE CONFORMING TO ASTM A-36, ASTM A-568, ASTM A-135, ASTM A-139 OR OTHER ACCEPTABLE STANDARD SPECIFICATION. PIPE JOINTS SHALL BE WELDED IN ACCORDANCE WITH AWWA C-206. HDPE CASING MAY BE USED IN LIEU OF STEEL CASING PER FIGURE 43 TAC §21.40(a)(2)(A).
3. SUBSEQUENT CASING SPACERS ARE REQUIRED FOR 4" TO 14" PIPE SIZES TO BE AT 10 FEET APART AND FOR 16" TO 30" PIPE SIZES TO BE AT 8 FEET APART WITHIN THE CASING WITH AT LEAST 3 SPACERS PER JOINT ON PIPE. ONE CASING SPACER SHALL BE REPLACED WITHIN 2 FEET OF ENDS OF CASING FOR ALL PIPE SIZES.
4. THE ENCASEMENT SHALL EXTEND TO THE PROPERTY LINE, TO WITHIN TWO FEET OF A CONNECTING WATER MAIN OR FIVE FEET BEYOND THE FACE OF THE CURB, AS APPLICABLE. ENCASEMENT SHALL NOT END UNDER CONCRETE, SIDEWALKS OR ROADWAY PAVEMENT.
5. CASING SPACERS SHALL BE MADE FROM T-304 STAINLESS STEEL OF A MINIMUM 14 GAUGE THICKNESS.
6. CASING SPACERS SHALL HAVE A SYNTHETIC RUBBER OR PVC LINER TO INSULATE THE PIPELINE FROM THE SPACER.
7. CASING SPACERS SHALL HAVE A MIN. 1.5" WIDE GLASS REINFORCED PLASTIC OR UHMW POLYMER RUNNERS TO INSULATE THE SPACER FROM THE CASING.
8. CASING END SEALS SHALL BE MADE OF 1/8" THICK NEOPRENE RUBBER AND INCLUDE 1/2" WIDE T-304 STAINLESS STEEL BANDINGS.

PROPERTY OF CRYSTAL CLEAR Special Utility District	ROADWAY CASING DETAIL	M&S ENGINEERING POWER & UTILITY ENGINEERS	APPROVED	REVISION
			JUN 2015	OCT 2025
			SHEET 1 OF 1	

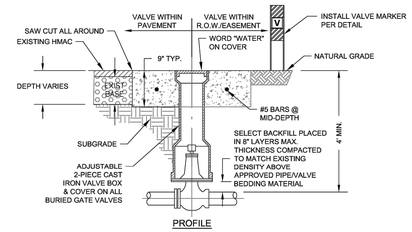


NOTES:

1. MARKERS SHALL BE 66" COMPOSITE POSTS SIMILAR TO RHINO FIBERCURVE COMPOSITE MARKER POST.
2. MARKERS SHALL BE PLACED AT ALL GATE VALVES, FLUSHING VALVES, & AIR RELEASE VALVES PER ITEM DETAIL.
3. MARKERS SHALL BE PLACED AT WATER METERS AS SPECIFIED ON PLANS
4. PIPELINE MARKERS SHALL BE PLACED ON R.O.W./FENCE LINE AT ALL ROAD CROSSINGS.

NOT TO SCALE

PROPERTY OF CRYSTAL CLEAR Special Utility District	MARKER DETAILS	M&S ENGINEERING POWER & UTILITY ENGINEERS	APPROVED	REVISION
			JUN 2015	NOV 2019
			SHEET 1 OF 1	

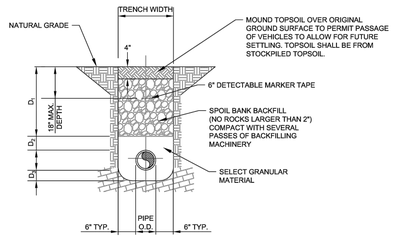


NOTES:

1. VALVE BOXES SHALL BE FITTED WITH PLASTIC VALVE ID TAGS (BLUE EMEDCO 3-1/2" X 2-3/4") INDICATING OWNER (CCSUD) VALVE SIZE, YEAR OF INSTALLATION AND # OF TURNS TO OPEN.
2. SUBGRADE SHALL BE COMPACTED AS PER SPECIFICATIONS
3. VALVE CASTINGS SHALL BE ADJUSTED TO GRADE AFTER FINAL LIFT OF OVERLAY IS IN PLACE.
4. CLEAN VALVE BOX OF ALL DEBRIS DOWN TO THE BASE OF THE VALVE.
5. REMOVE EXISTING RISER PIPE DOWN 18" AND REPLACE TO THE NEW ELEVATION USING NEW PIPE AND A COLLAR CASTING.
6. WHEN CAST IRON CASTINGS TO BE REMOVED REQUIRE EXCAVATION GREATER THAN 20" DEEP, CONTRACTOR MAY ELECT TO FILL EXCAVATION WITH CONTROLLED LOW STRENGTH MATERIAL TO THE UNDERSIDE OF THE CONCRETE. PAVEMENT PATCH IN LIEU OF COMPACTED BACKFILL.
7. REINFORCING STEEL SHALL MEET SPECIFICATIONS.
8. VALVE BOXES MUST BE INSTALLED IN A STRAIGHT, VERTICAL POSITION.
9. VALVE MARKERS SHALL BE INSTALLED BEHIND EACH VALVE BOX WHEN VALVE IS LOCATED WITHIN EASEMENT OR R.O.W.

NOT TO SCALE

PROPERTY OF CRYSTAL CLEAR Special Utility District	TYPICAL IRON VALVE BOX DETAILS	M&S ENGINEERING POWER & UTILITY ENGINEERS	APPROVED	REVISION
			JUN 2015	OCT 2025
			SHEET 1 OF 1	



	D_1	D_2	D_3
4" OR SMALLER	36"	6"	4"
6"-8"	30"	12"	6"
12" OR LARGER	42"	12"	6"

TRENCHING NOTES

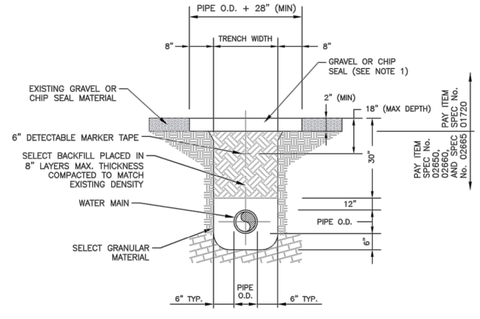
1. ADEQUATE BARRICADES & WARNING SIGNS SHALL BE ERECTED BEFORE ANY WORK IS STARTED IN PUBLIC RIGHT-OF-WAY.
2. REFER TO SPECIFICATIONS FOR ANY SPECIAL REQUIREMENTS OR CONDITIONS.
3. BACKFILL SHALL BE COMPLETED IMMEDIATELY AFTER PIPELINE LAYING WITHIN PUBLIC RIGHT-OF-WAYS OR CROSSING PUBLIC RIGHT-OF-WAYS & PRIVATE DRIVEWAYS.

TRENCH SAFETY NOTES

1. TRENCH SAFETY SYSTEM, SHORING OR SIDE SLOPE TO BE IN ACCORDANCE WITH OSHA STANDARDS.
2. TRENCH SAFETY SYSTEM PLAN TO BE PROVIDED BY CONTRACTOR PRIOR TO CONSTRUCTION.

NOT TO SCALE

PROPERTY OF CRYSTAL CLEAR Special Utility District	TYPICAL TRENCH BACKFILL DETAIL	M&S ENGINEERING POWER & UTILITY ENGINEERS	APPROVED	REVISION
			JUN 2015	OCT 2025
			SHEET 1 OF 1	



NOTES

1. GRAVEL OR CHIP SEAL (MATCH EXISTING PAVEMENT TYPE) SHALL BE A MINIMUM OF 2" THICK.
2. ROAD BASE AND SURFACE MATERIALS IN THE TRENCH CUT SHALL BE REPLACED IN KIND, OF EQUAL THICKNESS

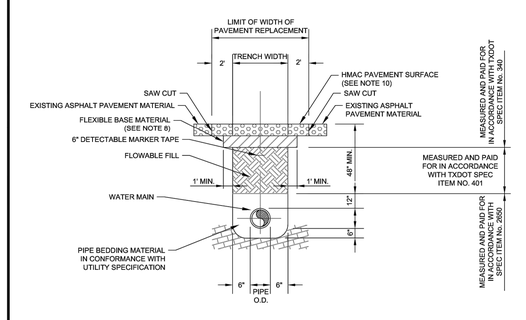
TRENCHING NOTES

1. ADEQUATE BARRICADES & WARNING SIGNS SHALL BE ERECTED BEFORE ANY WORK IS STARTED IN PUBLIC RIGHT-OF-WAY.
2. THE DRIVEWAY SHALL BE CUT ONLY WHERE REQUIRED BY THE ENGINEER.
3. DRIVEWAY SHALL REMAIN ACCESSIBLE AT ALL TIMES.
4. REFER TO SPECIFICATIONS FOR ANY SPECIAL REQUIREMENTS OR CONDITIONS
5. BACKFILL SHALL BE COMPLETED IMMEDIATELY AFTER PIPELINE LAYING WITHIN PRIVATE DRIVEWAYS.

TRENCH SAFETY NOTES

1. TRENCH SAFETY SYSTEM, SHORING OR SIDE SLOPE TO BE IN ACCORDANCE WITH OSHA STANDARDS.
2. TRENCH SAFETY SYSTEM PLAN TO BE PROVIDED BY CONTRACTOR PRIOR TO CONSTRUCTION.
3. ALL EXCAVATION GREATER THAN 5' DEEP SHALL MEET TRENCH SAFETY NOTE.

PROPERTY OF CRYSTAL CLEAR Special Utility District	TYPICAL GRAVEL/CHIP SEAL DRIVEWAY REPAIR DETAIL	M&S ENGINEERING POWER & UTILITY ENGINEERS	APPROVED	REVISION
			JUL 2019	OCT 2025
			SHEET 1 OF 1	



TRENCH AND BACKFILL NOTES:

1. ADEQUATE BARRICADES & WARNING SIGNS SHALL BE ERECTED BEFORE ANY WORK IS STARTED IN PUBLIC RIGHT-OF-WAY.
2. THE ROADWAY SHALL BE CUT ONLY WHERE REQUIRED.
3. NO MORE THAN HALF OF THE WIDTH OF THE ROAD SHALL BE CUT & OPENED AT ONE TIME.
4. REFER TO SPECIFICATIONS FOR ANY SPECIAL REQUIREMENTS OR CONDITIONS
5. BACKFILL SHALL BE COMPLETED IMMEDIATELY AFTER PIPELINE LAYING WITHIN PUBLIC RIGHT-OF-WAYS OR CROSSING PUBLIC RIGHT-OF-WAYS & PRIVATE DRIVEWAYS.
6. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE A MINIMUM OF 12" WIDER THAN UNDISTURBED SIDE OF THE TRENCH ASYMMETRICAL ABOVE THE CENTER LINE OF THE EXCAVATION.
7. ANY CONCRETE PAVING SHALL BE SAW CUT 6" WIDER THAN UNDISTURBED SIDES OF THE EXCAVATION.
8. LOCAL STREETS SHALL BE 10" AND MAJOR/MINOR STREETS SHALL BE 12" THICK. BASE MATERIAL SHALL BE PLACED 2' WIDER THAN TRENCH WIDTH ON BOTH SIDES. FLEXIBLE BASE SHALL BE TXDOT ITEM 247 TYPE A, GRADE 1.
9. DAMAGED PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED WITH A BASE. THICKNESS OF 10" OR A THICKNESS MATCHING EXISTING, WHICHEVER IS GREATER, AT NO ADDITIONAL COST TO THE OWNER.
10. REPLACEMENT AC SURFACE LAYER SHALL BE OF THE TYPE AND THICKNESS BASED ON FUNCTIONAL CLASSIFICATION.
    A. MIN. 2" HMAC SHALL BE TXDOT ITEM 340, TYPE D FOR TRENCH REPAIR IN LOCAL/RESIDENTIAL STREETS AND DRIVEWAYS.
    B. MIN. 3" HMAC SHALL BE TXDOT ITEM 340, TYPE D FOR TRENCH REPAIR IN COLLECTION/ARTERIAL STREETS.

TRENCH SAFETY NOTES

1. TRENCH SAFETY SYSTEM, SHORING OR SIDE SLOPE TO BE IN ACCORDANCE WITH OSHA STANDARDS.
2. TRENCH SAFETY SYSTEM PLAN TO BE PROVIDED BY CONTRACTOR PRIOR TO CONSTRUCTION.

NOT TO SCALE

PROPERTY OF CRYSTAL CLEAR Special Utility District	ASPHALT PAVEMENT AND DRIVEWAY (TRENCH REPAIR)	M&S ENGINEERING POWER & UTILITY ENGINEERS	APPROVED	REVISION
			OCT 2018	OCT 2025
			SHEET 1 OF 1	

M&S ENGINEERING
POWER & UTILITY ENGINEERS
TXENG FIRM # F-1394 | TBPELS FIRM #10169800
WWW.MSENGR.COM | (830) 228-5446

STATE OF TEXAS
BRADY KOSUB
105051
LICENSED
PROFESSIONAL ENGINEER

December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

MISCELLANEOUS DETAILS

JOB: 14CCSUD001
DATE:
DRAWN: KV | PM: CP
DESIGN: CP | DM: BK
PEER: | OTHER:
REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

D1.0

Texas 811

Date: Sep 19, 2025, 10:00am User ID: kvogler
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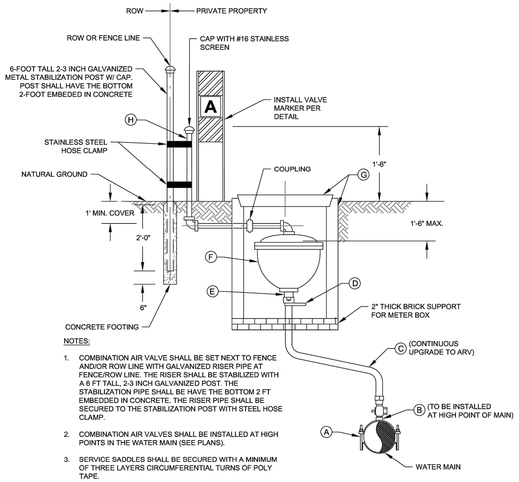

NOTES:

1. COMBINATION AIR VALVE SHALL BE SET NEXT TO FENCE AND/OR ROW LINE WITH GALVANIZED RISER PIPE AT FENCE/ROW LINE. THE RISER SHALL BE STABILIZED WITH A 6 FT TALL, 2-3 INCH GALVANIZED POST. THE STABILIZATION PIPE SHALL BE HAVE THE BOTTOM 2 FT EMBEDDED IN CONCRETE. THE RISER PIPE SHALL BE SECURED TO THE STABILIZATION POST WITH STEEL HOSE CLAMP.
2. COMBINATION AIR VALVES SHALL BE INSTALLED AT HIGH POINTS IN THE WATER MAIN (SEE PLANS).
3. SERVICE SADDLES SHALL BE SECURED WITH A MINIMUM OF THREE LAYERS CIRCUMFERENTIAL TURNS OF POLY TAPE.

TAP MATERIAL LIST		MATERIAL LIST SIZES	
LABEL	ITEM	1-INCH TAP	2-INCH TAP
A	APPROVED TAPPING SADDLE	1"	2"
B	CORPORATION STOP	1"	2"
C	CTS SDR9 HDPE TUBING	1"	2"
D	BRASS BALL VALVE WITH LEVER	1"	2"
E	BRASS NIPPLE THREADED	1"	2"
F	COMBINATION AIR VALVE	PER AEL*	
G	METER BOX AND LID	DFW2830FD OR DFW2836FD**	
H	GALVANIZED IRON PIPE AND FITTINGS	1"	2"

* AEL = APPROVED EQUIPMENT LIST
** METER BOX TO BE INSTALLED AS NECESSARY TO COVER FULL DEPTH OF COMBINATION AIR RELEASE VALVE.

NOT TO SCALE

PROPERTY OF CRYSTAL CLEAR Special Utility District	COMBINATION AIR VALVE DETAIL	M&S ENGINEERING POWER & UTILITY ENGINEERS TXENG FIRM #F-1394 | TBPELS FIRM #10169800 www.MSENGR.com | 830-228-5446	APPROVED	REVISION
			JUN 2015	OCT 2020
			SHEET 1 OF 1	

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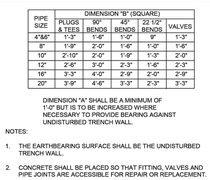
PIPE SIZE:	DIMENSION "B" (SQUARE)				
	PLUGS & TEES	90° BENDS	45° BENDS	22 1/2° BENDS	VALVES
4"&6"	1'-3"	1'-6"	1'-0"	9"	1'-3"
8"	1'-9"	2'-0"	1'-6"	1'-0"	1'-6"
10"	2'-10"	2'-0"	1'-9"	1'-3"	2'-0"
12"	2'-6"	3'-0"	2'-3"	1'-6"	2'-3"
16"	3'-3"	4'-0"	2'-9"	2'-0"	2'-9"
20"	3'-9"	4'-6"	3'-3"	2'-3"	3'-3"

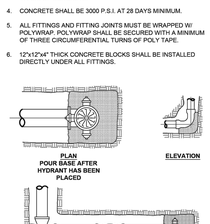
DIMENSION "A" SHALL BE A MINIMUM OF 1'-0" BUT IS TO BE INCREASED WHERE NECESSARY TO PROVIDE BEARING AGAINST UNDISTURBED TRENCH WALL.

NOTES:

1. THE EARTHBEARING SURFACE SHALL BE THE UNDISTURBED TRENCH WALL.
2. CONCRETE SHALL BE PLACED SO THAT FITTING, VALVES AND PIPE JOINTS ARE ACCESSIBLE FOR REPAIR OR REPLACEMENT.
3. ALL THRUST BLOCKS SHALL CONTAIN A MINIMUM OF 1 1/2 CUBIC YARDS OF CONCRETE.
4. CONCRETE SHALL BE 3000 P.S.I. AT 28 DAYS MINIMUM.
5. ALL FITTINGS AND FITTING JOINTS MUST BE WRAPPED W/ POLYWRAP. POLYWRAP SHALL BE SECURED WITH A MINIMUM OF THREE CIRCUMFERENTIAL TURNS OF POLY TAPE.
6. 12"x12"x4" THICK CONCRETE BLOCKS SHALL BE INSTALLED DIRECTLY UNDER ALL FITTINGS.

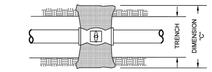


THRUST BLOCK DIMENSIONING



THRUST BLOCK FOR FITTINGS DETAIL

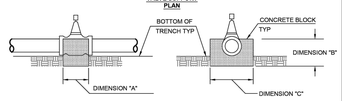
THRUST BLOCK FOR HYDRANTS DETAIL



VALVE SUPPORT PLAN

VALVE THRUST BLOCK DIMENSIONS AND NOTES:

1. DIMENSION "A" = WIDTH OF THE VALVE BODY.
2. DIMENSION "B" = PIPE DIAMETER PLUS D3 DEPTH FROM TRENCH BACKFILL DETAIL.
3. DIMENSION "C" = TRENCH WIDTH PLUS TWO TIMES THE PIPE DIAMETER.
4. CONCRETE THRUST BLOCKS SHALL NOT COVER VALVE ENDS, BONNET, STEM, NUTS OR BOLTS. THEY SHALL COVER THE VALVE BODY ONLY PER THE GIVEN DIMENSIONS.



VALVE SUPPORT ELEVATION

THRUST BLOCK FOR VALVES DETAIL

NOT TO SCALE

PROPERTY OF CRYSTAL CLEAR Special Utility District	THRUST BLOCKING DETAILS	M&S ENGINEERING POWER & UTILITY ENGINEERS TXENG FIRM #F-1394 | TBPELS FIRM #10169800 www.MSENGR.com | 830-228-5446	APPROVED	REVISION
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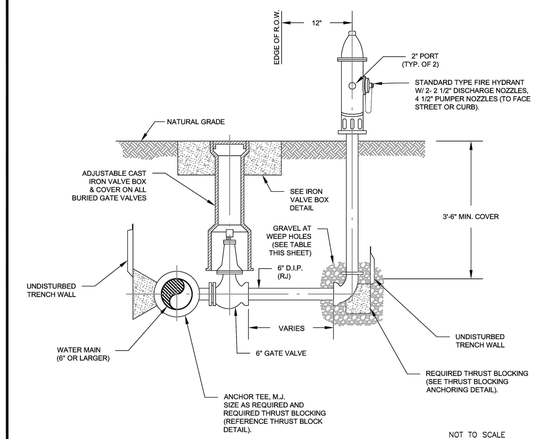

NOT TO SCALE

GRAVEL AT WEEPHOLE	
LENGTH OF HYDRANT RISER	CU. FT. OF GRAVEL REQUIRED
3'	2.5
4'	3
5'	3.5
6'	4
>6'	TBD BY CCSUD

NOTE:

1. THE EARTHBEARING SURFACE SHALL BE THE UNDISTURBED TRENCH WALL.
2. ALL PIPE JOINTS SHALL BE KEPT FREE FROM CONCRETE.
3. ALL FITTINGS AND FITTING JOINTS MUST BE WRAPPED W/ THREE LAYERS OF 8-MIL POLYETHYLENE IN ACCORDANCE WITH AWWA C105-10, OR LATEST REVISION THERE OF.
4. 12"x12"x4" THICK CONCRETE BLOCKS SHALL BE INSTALLED DIRECTLY UNDER ALL VALVES, FITTINGS, ETC.

PROPERTY OF CRYSTAL CLEAR Special Utility District	FIRE HYDRANT DETAIL	M&S ENGINEERING POWER & UTILITY ENGINEERS TXENG FIRM #F-1394 | TBPELS FIRM #10169800 www.MSENGR.com | 830-228-5446	APPROVED	REVISION
			JUN 2015	JUL 2021
			SHEET 1 OF 1	

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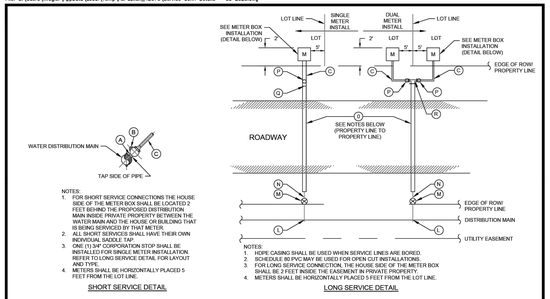
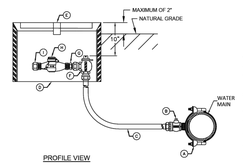


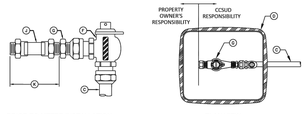
NOTES:
1. FOR SHORT SERVICE CONNECTIONS THE HOUSE SIDE OF THE METER BOX SHALL BE LOCATED 2 FEET BEHIND THE PROPOSED DISTRIBUTION MAIN INSIDE PRIVATE PROPERTY BETWEEN THE WATER MAIN AND THE HOUSE OR BUILDING THAT IS BEING SERVICED BY THAT METER.
2. ALL SHORT SERVICES SHALL HAVE THEIR OWN SERVICE SADDLE TAP.
3. ONLY ONE CONNECTION STOP SHALL BE INSTALLED FOR SINGLE METER INSTALLATION. REFER TO LONG SERVICE DETAIL FOR LAYOUT AND TYPE.
4. METERS SHALL BE HORIZONTALLY PLACED 5 FEET FROM THE LOT LINE.

SHORT SERVICE DETAIL

NOTES:
1. HDPE CASING SHALL BE USED WHEN SERVICE LINES ARE BORED.
2. SCHEDULE 80 PVC MAY BE USED FOR OPEN CUT INSTALLATIONS.
3. FOR LONG SERVICE CONNECTION, THE HOUSE SIDE OF THE METER BOX SHALL BE 2 FEET INSIDE THE EASEMENT IN PRIVATE PROPERTY.
4. METERS SHALL BE HORIZONTALLY PLACED 5 FEET FROM THE LOT LINE.

LONG SERVICE DETAIL





	MATERIAL LIST*	
	SHORT SERVICE	LONG SERVICE
A	3/4" SERVICE SADDLE FORD #101 OR SMITH-BLAIR MODEL 317	-
B	3/4" CORP. STOP (1" IF 1" COMP.) FORD FB1000-4-NL	
C	3/4" POLYETHYLENE 4XWA, CSD1-SDR 9	
D	PLASTIC METER BOX, MODEL NO. DFW1300.12.10 OR DFW1600X.12.10	
E	METER BOX LID, MODEL NO. DFW1200.1CLID OR DFW1300.1CLID	
F	3/4" BALL VALVE (METER CONV. x COMP.) FORD #B44-333W-G-NL	
G	BRASS METER BUSHING	
H	5/8" x 3/4" WATER METER (BY CCSUD)	
I	BRASS METER COUPLING MALE IPT x SWIVEL COUPLING NUT	
J	1" THREADED NIPPLE	
K	TEMPORARY METER SPACER (1 1/2" IN LENGTH)	
L	-	2" SERVICE SADDLE FORD #101
M	-	2" GATE VALVE
N	-	2" HARCO ADAPTOR OR BRASS/GALVANIZED NIPPLE WITH SIDE BOLT DRESSER
O	-	2" PVC SCH 80 INSIDE 4" BORED CASING
P	-	MALE END 3/4" CORP. STOP
Q	-	2" x 3/4" PVC ADAPTER (SINGLE SERVICE)
R	-	2" x 3/4" x 3/4" TEE (DUAL SERVICE)

*MATERIALS SHALL BE PER THE APPROVED EQUIPMENT LIST (AEL) OR APPROVED EQUIVALENT.

NOTES:
1. METER BOX SHALL BE SET INTO GROUND TO SIT SLIGHTLY ABOVE NATURAL GRADE (NO MORE THAN 2").
2. USE NATIVE TOP SOIL TO BACKFILL TO EDGE OF METER BOX LID. BACKFILL TO NATURAL GRADE.

NOT TO SCALE

PROPERTY OF CRYSTAL CLEAR Special Utility District	STANDARD SERVICE CONNECTION DETAILS	M&S ENGINEERING POWER & UTILITY ENGINEERS TXENG FIRM #F-1394 | TBPELS FIRM #10169800 www.MSENGR.com | 830-228-5446	APPROVED	REVISION
			JUN 2015	DEC 2025
			SHEET 1 OF 2	

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STATE OF TEXAS
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105051
LICENSED
PROFESSIONAL ENGINEER

December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

MISCELLANEOUS DETAILS 2

JOB: 14CCSUD001
DATE:
DRAWN: KV | PM: CP
DESIGN: CP | DM: BK
PEER: | OTHER:

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

D1.1

Texas 811

Date: Dec 18, 2025, 11:35am User ID: kvogler
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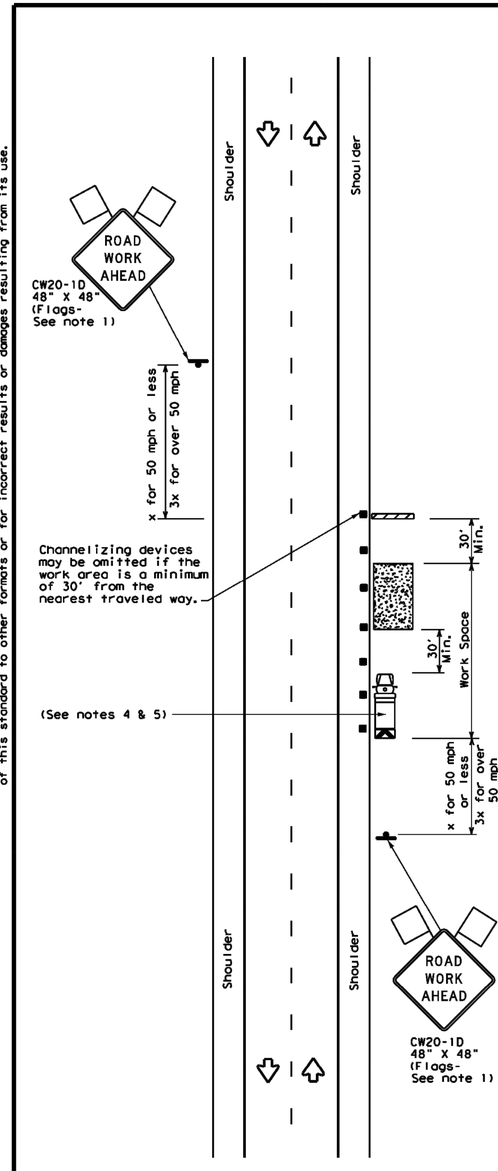

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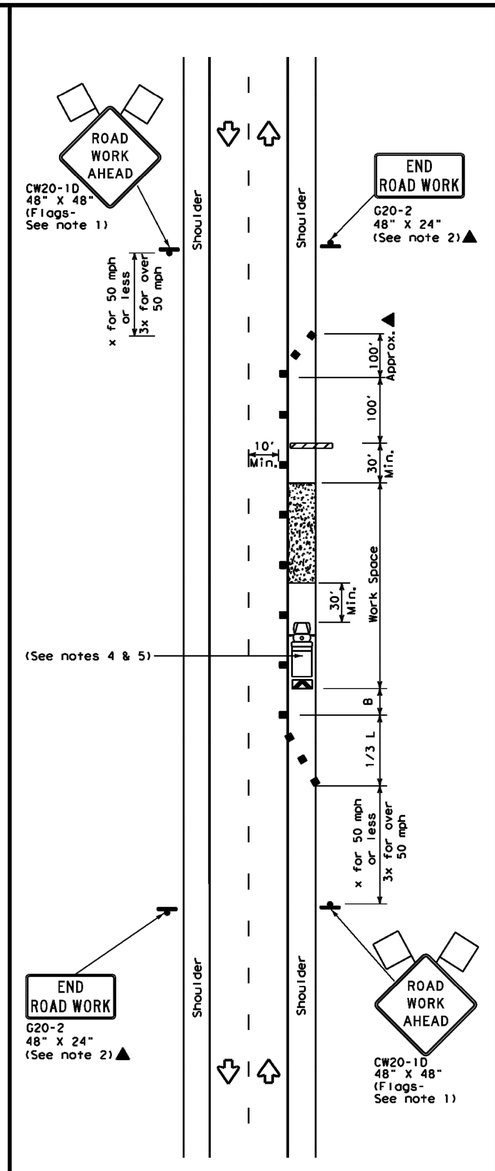
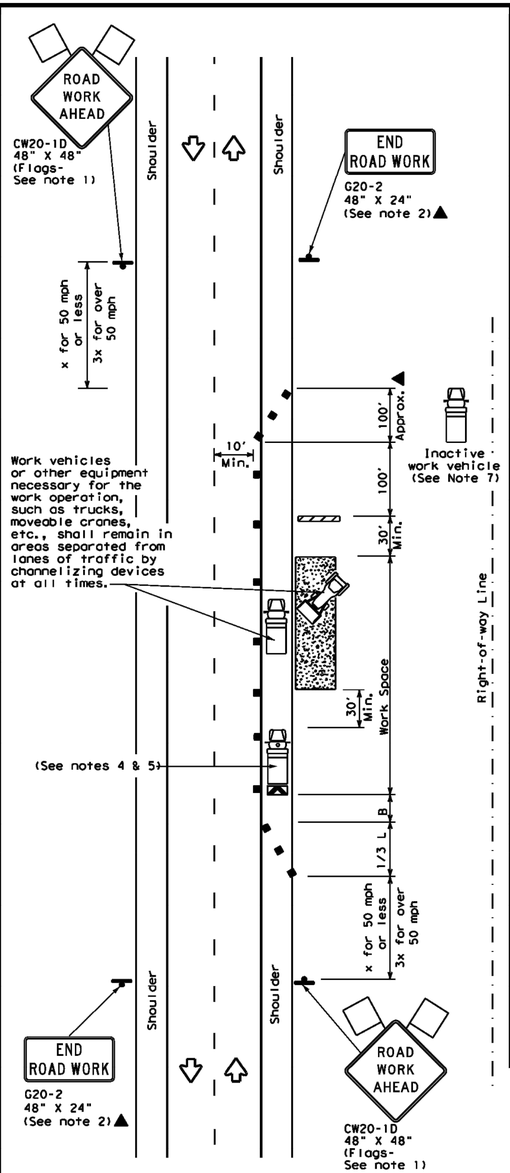
TCP (2-1a)

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	M	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	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		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 stated in the plans, or for routine maintenance work, when approved by the Engineer.
3. Stockpiled material 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 a wider work space.
6. See TCP(5-1) for shoulder work on divided highways, 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 CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS				
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12				
1-97 2-18				

161

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December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

TXDOT TRAFFIC CONTROL DETAILS

JOB: 14CCSUD001	
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DRAWN: KV	PM: CP
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PEER:	OTHER:

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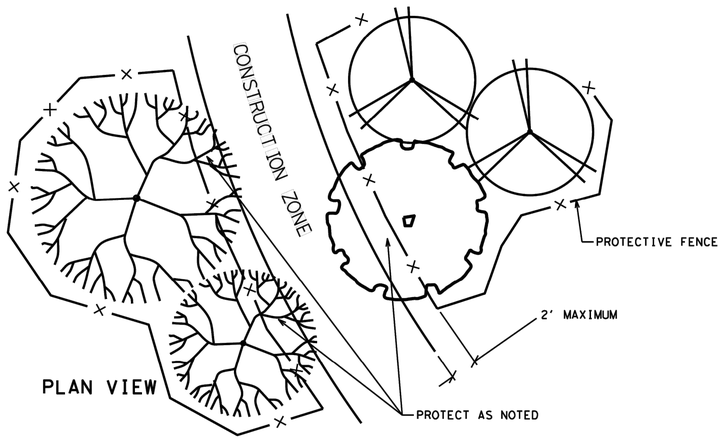
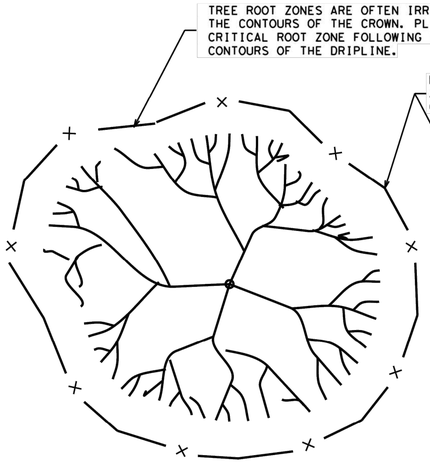
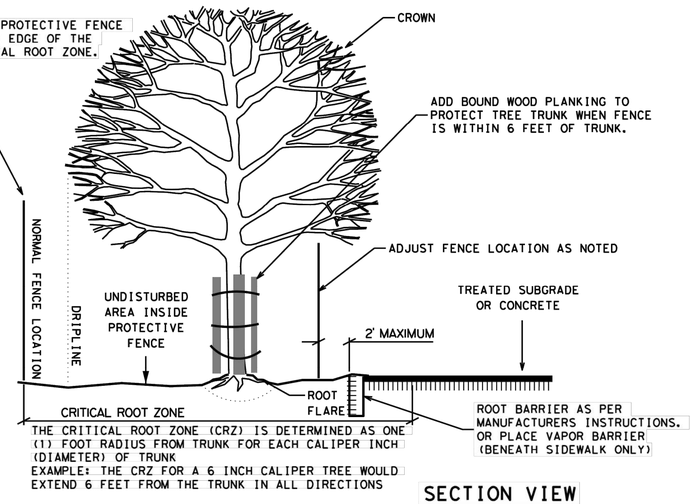
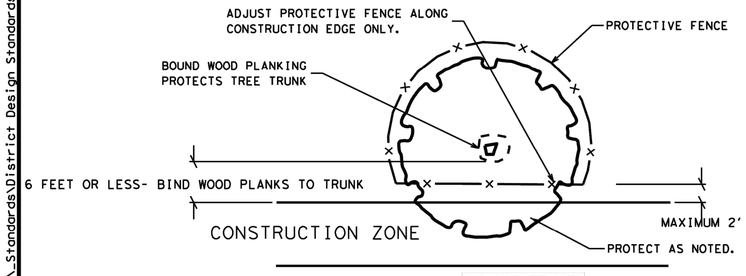


LINEAR CONSTRUCTION THROUGH STAND OF TREES

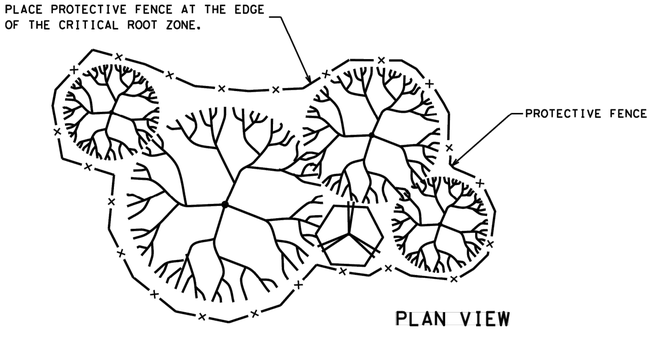




TYPICAL TREE PROTECTION



PAVING UNDER TREES



TYPICAL TREE GROUPING PROTECTION

NOTES:

CRITICAL ROOT ZONE IS 1 FT. AWAY FROM TREE TRUNK FOR EVERY 1 IN. OF TREE DIAMETER MEASURED AT 4 FT. HEIGHT.

WATER TREES EVERY 2 WEEKS WITH A MINIMUM OF 100 GALLONS PER TREE.

SPRAY TREE WITH WATER TO REMOVE CONSTRUCTION DUST WHEN DIRECTED.

CONSTRUCTION FENCE SHALL BE 4 FT. TALL.

DO NOT PERFORM WORK OR STORE EQUIPMENT WITHIN PROTECTED AREA.

COVER THE CRITICAL ROOT ZONE BETWEEN THE PROTECTED AREA AND THE CONSTRUCTION ZONE WITH 4 IN. OF MULCH

PERFORM TREE TRIMMING AND WOUND REPAIR PER STANDARD SPECIFICATIONS.

DAMAGED AND EXPOSED ROOTS SHALL BE TRIMMED AND TREATED PER STANDARD SPECIFICATIONS. BACKFILL EXPOSED ROOTS WITH TOPSOIL WITHIN 24 HOURS OF EXPOSURE.

PLACE PLASTIC UNDER CONCRETE PLACED IN THE CRITICAL ROOT ZONE.

PLACE A ROOT BARRIER IN THE CRITICAL ROOT ZONE AT THE EDGE OF TREATED SUBGRADE TO THE DEPTH OF THE SUBGRADE.

ALL WORK IS SUBSIDIARY TO BID ITEM.

Texas Department of Transportation | Austin District Standard

TREE PROTECTION DETAILS

TPD-19(AUS)

REVISIONS
06/16: SHEET CREATED
04/19: APPROVED

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.

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December 18, 2025

CRYSTAL CLEAR SUD
KINGSBURY ROAD PIPELINE PHASE II

TREE PROTECTION DETAILS

JOB: 14CCSUD001	
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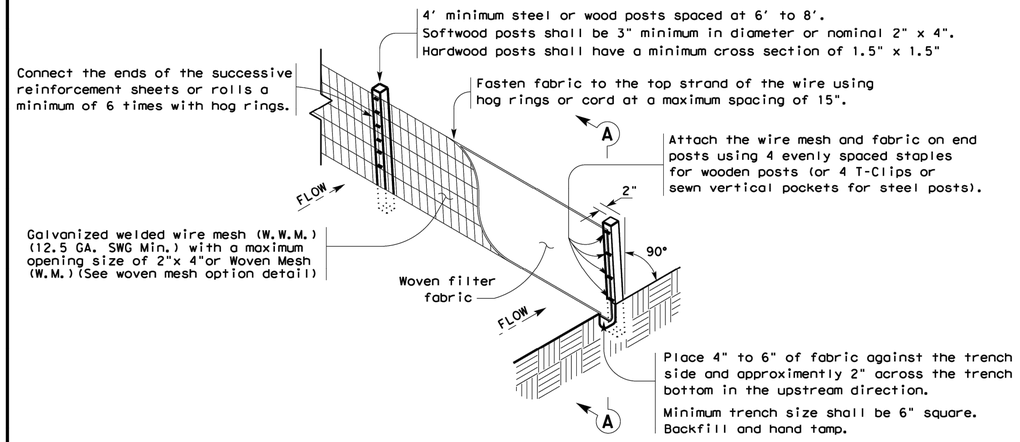
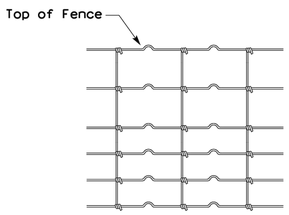
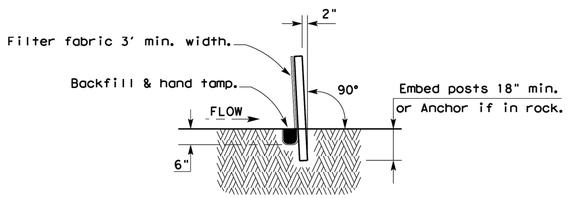


TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

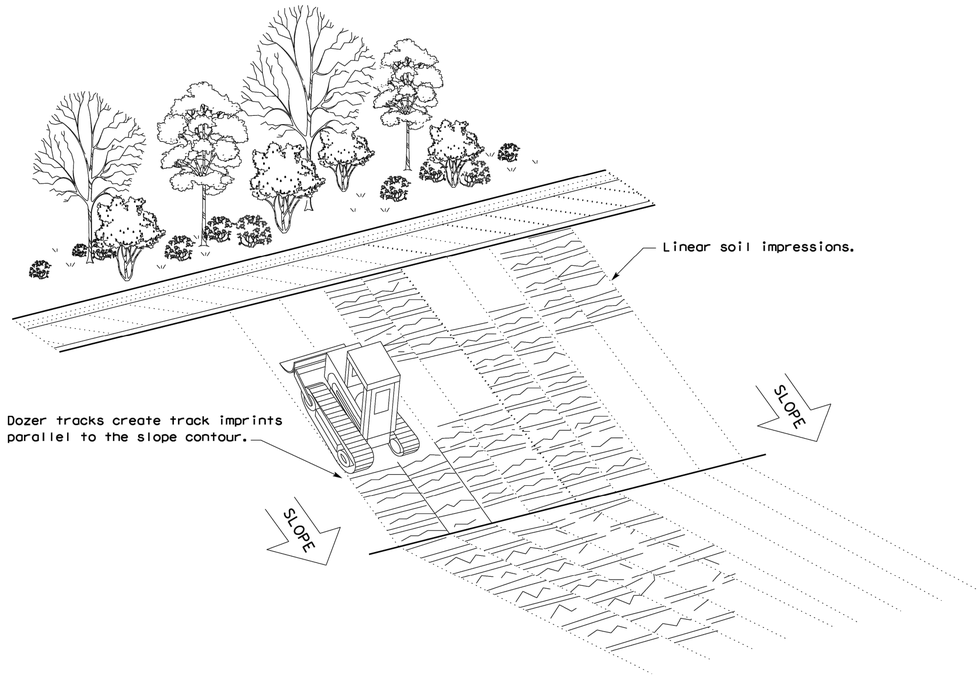
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS				
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EROSION CONTROL DETAILS

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Texas 811