

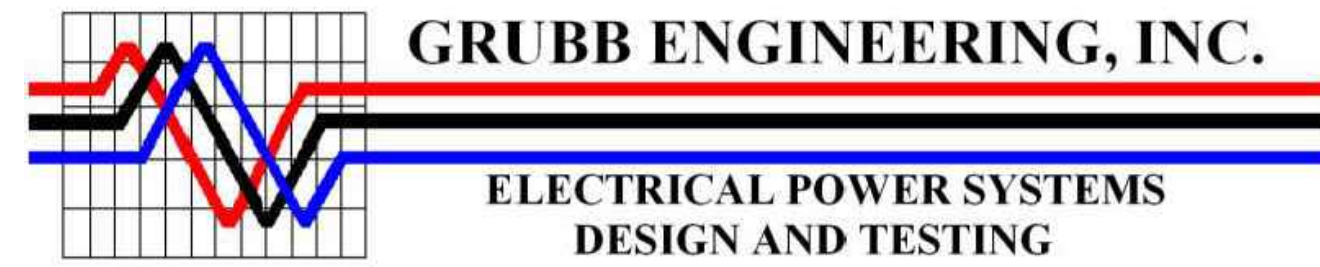
CONTRACT DOCUMENTS FOR
THE CONSTRUCTION OF :

AMMANN ROAD - GBRA WATER MAIN EXTENSION

CIVIL/PROCESS ENGINEER



ELECTRICAL/CONTROL/INSTRUMENTATION
ENGINEER



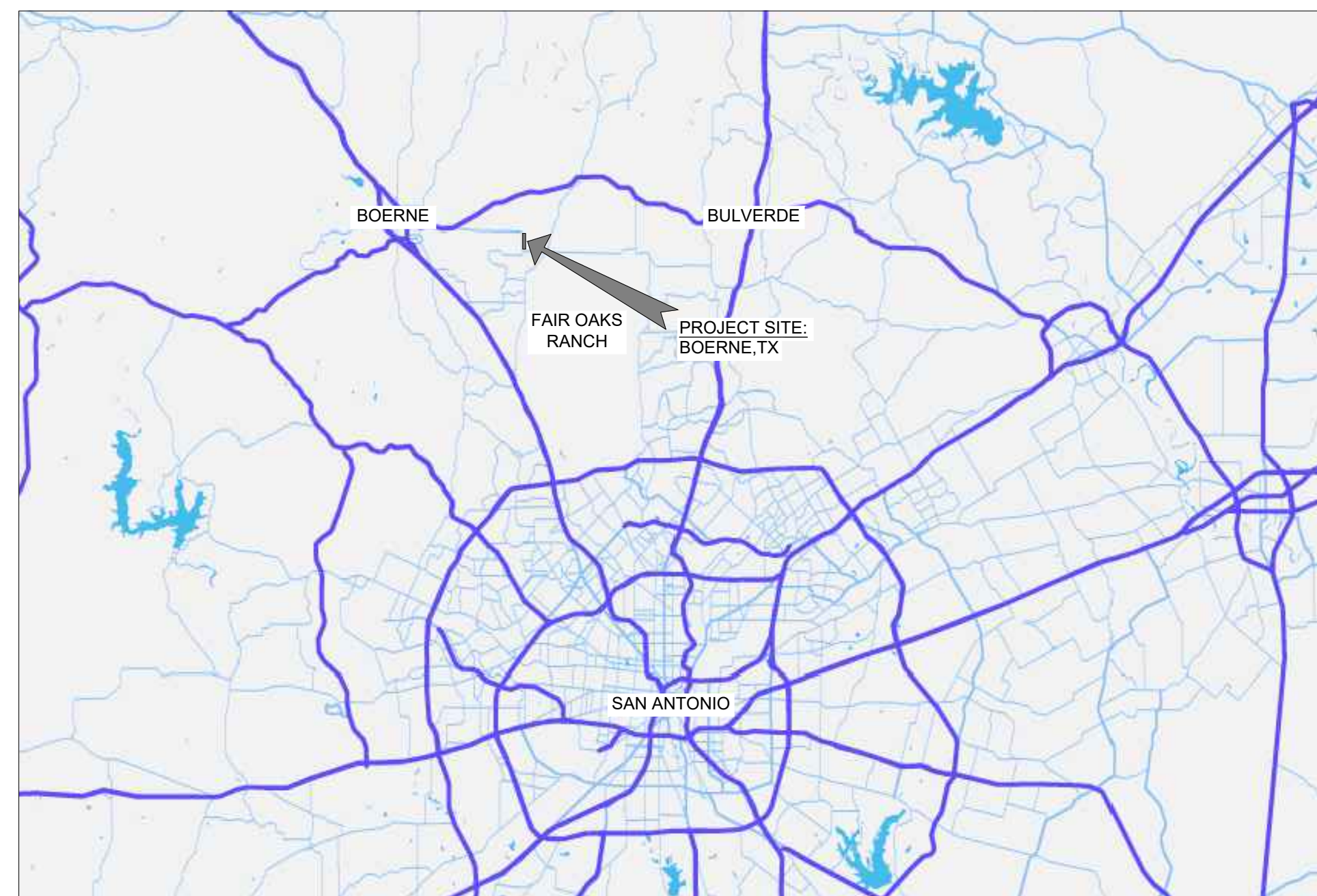
PREPARED FOR:

THE CITY OF BOERNE

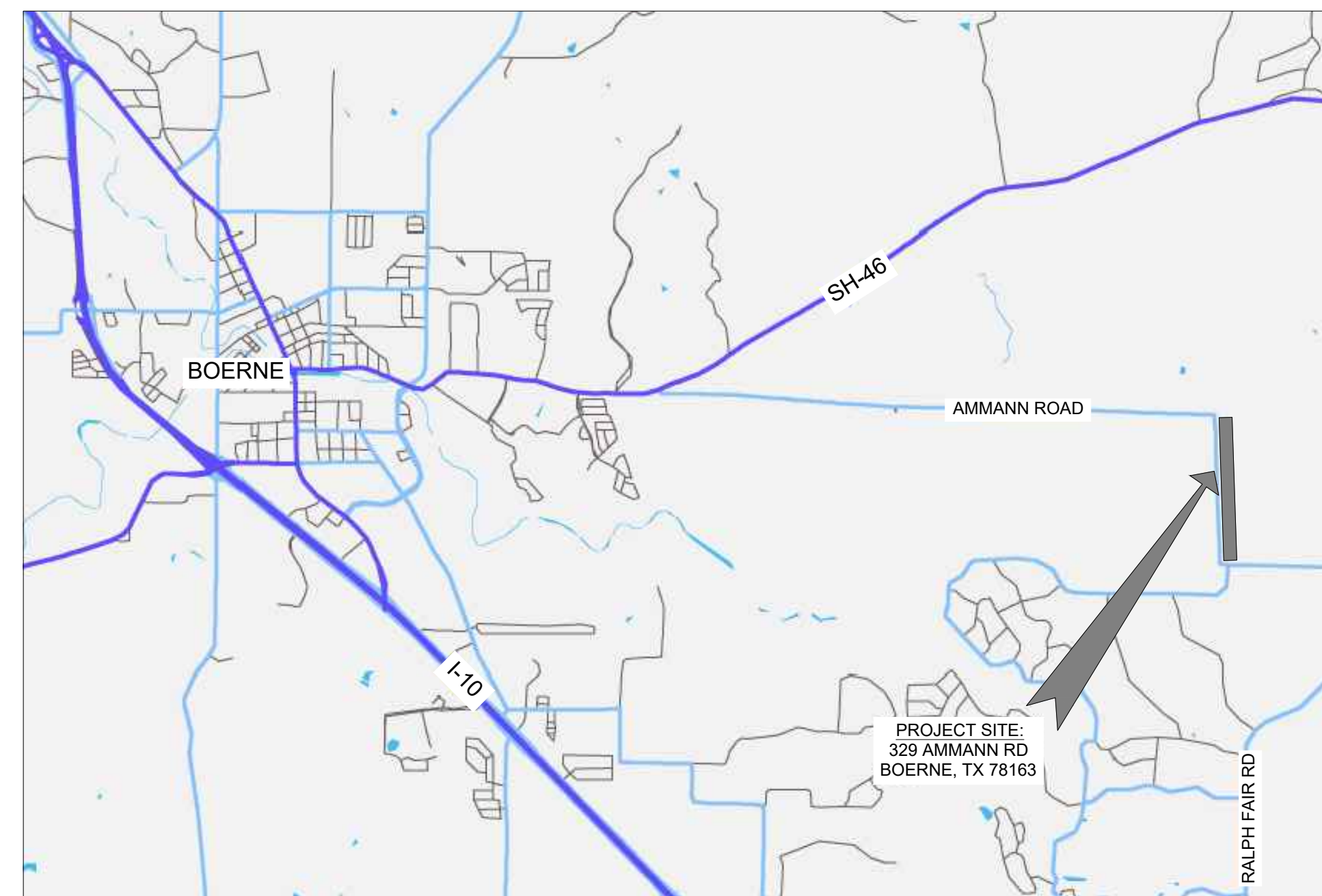
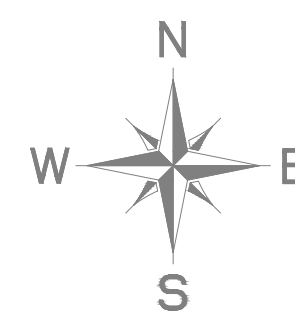
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FOR CONSTRUCTION
APRIL 2026

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LOCATION MAP
NTS



VICINITY MAP
NTS

PREPARED BY

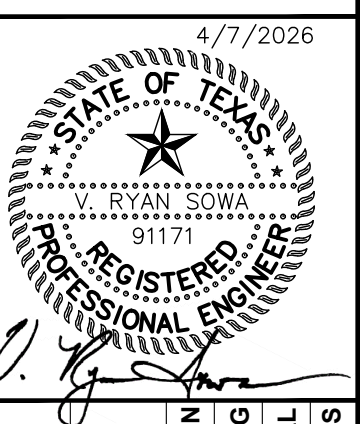


10101 Reunion Place, Suite 400, San Antonio, TX 78216
PHONE: 210-541-9166

WWW.KIMLEY-HORN.COM

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No.	REVISIONS	DATE	BY



KHA PROJECT 068657038	DATE: APRIL 2026	DESIGNED BY: AIG	DRAWN BY: SAL	CHECKED BY: VRS
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AMMANN ROAD - GBRA
WATER MAIN EXTENSION

PREPARED FOR
THE CITY OF BOERNE
BOERNE, TX 78006

COVER SHEET & SHEET INDEX

SHEET NUMBER
G1

Plotted By: horowitz, jeffrey, April 08, 2026 10:32:56am
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Printed By: Gonzalez, Eddy April 20, 2026 08:09:43am. C:\NSA_M\Utilities\068657038 - Ammann Rd GBRA Water Extension\CAD\PLANSHEET\068657038 - General Notes.dwg - General Notes.dwg
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GBRA - GENERAL CIVIL AND MECHANICAL CONSTRUCTION NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPROVED CONFORMED DRAWINGS, SPECIFICATIONS AND CONTRACT DOCUMENTS, TCEO RULES, AWWA STANDARDS, APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS, AND SHALL BE IN ACCORDANCE WITH GBRA STANDARDS AND DESIGN GUIDELINES PUBLISHED ON GBRA'S DEVELOPER RESOURCES WEB PAGE. IN THE EVENT OF CONFLICT AMONG ANY SUCH REQUIREMENTS, THE MOST STRINGENT REQUIREMENT SHALL APPLY.
2. SUBMIT ALL PROPOSED MATERIALS IN ACCORDANCE WITH GBRA STANDARDS AND DESIGN GUIDELINES SECTION 1.3.
3. CONTRACTOR'S SUPERINTENDENT MUST BE ON-SITE TO SUPERVISE ALL WORK, INCLUDING WORK PERFORMED BY SUBCONTRACTORS AND VENDORS.
4. COPIES OF EACH CONSTRUCTION SUBMITTAL (SHOP DRAWINGS, PRODUCT DATA, ETC.) SHALL BE PROVIDED FOR GBRA REVIEW AND APPROVAL PRIOR TO FABRICATION. USE CLOUDS, BOXES, ARROWS, ETC., TO CLEARLY MARK ALL PROPOSED OPTIONS AND PART NUMBERS. LIST ANY PROPOSED DEVIATIONS ON THE SUBMITTAL COVER SHEET. ALLOW 21 CALENDAR DAYS FOR REVIEW.
5. ALL WORK MUST BE INSPECTED AND APPROVED BY GBRA PRIOR TO BACKFILLING, CLOSING WALLS OR FORMS, PLACING CONCRETE, OR OTHERWISE COVERING THE WORK. THIS INCLUDES CROSSINGS BY OTHER UTILITIES. ANY WORK THAT IS COVERED PRIOR TO INSPECTION AND APPROVAL MUST BE UNCOVERED. GBRA WILL PERFORM A MAXIMUM OF ONE (1) INSPECTION DAILY FOR ONE (1) HOUR DURATION BETWEEN 8:00AM AND 5:00PM EXCLUDING WEEKENDS AND HOLIDAYS. ADVANCE NOTICE OF TWO (2) BUSINESS DAYS (48 HOURS) IS REQUIRED FOR ALL INSPECTIONS. CONTRACTOR SHALL UTILIZE SHAREPOINT TO SUBMIT ALL REQUESTS FOR INSPECTIONS. SHAREPOINT INSTRUCTIONS WILL BE PROVIDED BY GBRA. CONTRACTOR SHALL PROVIDE SAFE ACCESS TO THE WORK FOR INSPECTOR. CONTRACTOR SHALL PROVIDE ASSISTANCE FOR INSPECTOR TO VERIFY LINES AND GRADES. PHOTOS WILL NOT BE ACCEPTED AS SUBSTITUTE FOR INSPECTIONS.
6. SURVEY STAKING AND LAYOUT SHALL BE PERFORMED BY THE CONTRACTOR FOR ALL WORK. SURVEY STAKING AND LAYOUT MUST BE INSTALLED PRIOR TO AND MAINTAINED DURING PERFORMANCE AND INSPECTION OF THE WORK. SURVEY STAKING AND LAYOUT SHALL INCLUDE VERTICAL AND HORIZONTAL CONTROL AT MAXIMUM 50-FOOT STATION INTERVALS, GRADE/ALIGNMENT CHANGES, STRUCTURES, SITEWORK, EQUIPMENT, ETC. HORIZONTAL OFFSETS SHALL BE 15 FEET MAXIMUM. INSTALL PROPERTY PINS AND STAKES. MARK FINISHED GRADE LINES WITH CUT/FILL ON OFFSET STAKES AND PROPERTY STAKES. ALL MARKS SHALL FACE THE WORK.
7. THE CONTRACTOR SHALL FURNISH AND INSTALL BACKFLOW PREVENTION IN THE FORM OF A REDUCED PRESSURE BACKFLOW ASSEMBLY FOR ALL TEMPORARY CONNECTIONS TO EXISTING WATER LINES. BACKFLOW DEVICES MUST BE TESTED AND CERTIFIED BY A LICENSED PROFESSIONAL CONTRACTOR SHALL ARRANGE AND PAY FOR TESTING AND PROVIDE A COPY OF CERTIFICATION FOR GBRA REVIEW AND APPROVAL PRIOR TO INSTALLATION.
8. PVC MALE ADAPTERS ARE NOT ALLOWED.
9. TRENCH EXCAVATION AND INSTALLATION OF UTILITIES WILL NOT BE PERMITTED UNTIL SUBGRADE HAS BEEN ESTABLISHED.
10. PIPE BELLS SHALL BE INSTALLED IN UPSTREAM DIRECTION.
11. ALL PIPING SHALL BE INSTALLED IN STRAIGHT ALIGNMENT VERTICALLY AND HORIZONTALLY BETWEEN BEND FITTINGS FOR PRESSURE SYSTEMS AND BETWEEN MANHOLES FOR GRAVITY SYSTEMS. PIPE CURVATURE AND/OR DEFLECTION ARE NOT ALLOWED.
12. INSTALL CONCRETE THRUST BLOCKING AND MECHANICAL RESTRAINTS FOR PRESSURE PIPING SYSTEMS.
13. PIPE LENGTHS SHALL BE CENTERED AT ALL WATER AND WASTEWATER CROSSINGS. BOTH PIPES SHALL BE CENTERED AT EACH CROSSING INCLUDING BUT NOT LIMITED TO MAINS, SERVICE LATERALS, FIRE HYDRANT LEADS, APPURTENANCES, ETC.
14. MAINTAIN A MINIMUM OF 10FT HORIZONTAL AND 12IN VERTICAL CLEARANCE BETWEEN WATER AND WASTEWATER AND OTHER UTILITIES. SHARED TRENCHES ARE NOT ALLOWED.
15. WATER AND WASTEWATER PIPING (INCLUDING MAINS, SERVICES, AND LATERALS) SHALL BE SLEEVED IF LOCATED UNDER CONCRETE CHANNELS, BOX CULVERTS, OR MULTIPLE BARREL STORM SEWER CROSSINGS REGARDLESS OF SIZE AND SINGLE BARRELS NOMINAL 30" OR LARGER, AND OTHER UTILITIES NOMINAL 30" OR LARGER. SLEEVES SHALL EXTEND HORIZONTALLY BEYOND THE LIMITS OF THESE TEMS FOR A DISTANCE EQUAL TO THE MAXIMUM VERTICAL SEPARATION PLUS OUTSIDE DIAMETER OF SLEEVE PLUS 10 LF MINIMUM ON EACH END.
16. BURIED PRESSURE PIPING SYSTEMS SHALL BE MECHANICALLY RESTRAINED. REFER TO DETAIL 480 FOR RESTRAINED LENGTH REQUIREMENTS. ENGINEER SHALL EVALUATE SOILS AND DETERMINE IF ANY ADDITIONAL RESTRAINTS ARE REQUIRED. IF THE ENGINEER REQUIRES CONCRETE THRUST BLOCKING IN ADDITION TO MECHANICAL RESTRAINTS, THE CONCRETE THRUST BLOCKING MUST BE INSTALLED IN ACCORDANCE WITH DETAIL 540.
17. BASE PLATES SHALL BEAR ON NON-SHRINK GROUT UNLESS SPECIFICALLY APPROVED OTHERWISE (E.G. COLUMNS, TOWER EQUIPMENT, STANCHION PIPE SUPPORTS, LIGHT POLES, ETC.). SHIMS MUST BE REMOVED AND LEVELING NUTS MUST BE LOWERED DURING THE GROUTING PROCESS. BEVEL EDGES OF GROUT PADS AT 45-DEGREES.
18. VALVE BOXES, EQUIPMENT, PIPING, VALVES, AND APPURTENANCES SHALL BE PAINTED. FIELD PAINTING IS NOT REQUIRED IF FACTORY COATINGS MEET OR EXCEED THE REQUIREMENTS SPECIFIED IN GBRA STANDARDS AND DESIGN GUIDELINES SECTION 2.2.
19. PROVIDE 6" MINIMUM CLEARANCE BETWEEN CONCRETE PENETRATIONS, AND BETWEEN CONCRETE PENETRATIONS AND CONCRETE JOINTS, AS MEASURED FROM NEAREST EDGE TO NEAREST EDGE.
20. ALL EQUIPMENT, PIPING, AND VALVES SHALL BE LABELED FOR IDENTIFICATION PURPOSES (E.G. PIPE LABELS, COLOR CODING, BANDING, FLOW ARROWS, EQUIPMENT NUMBERS, VALVE TAGS, ETC.).
21. PROVIDE COLOR CODED TRACING WIRE (COPPER CLAD STEEL, 12 GAUGE, 30 MIL HDPE JACKET) FOR ALL BURIED PIPING.
22. ALL EXPOSED VERTICAL AND HORIZONTAL CONCRETE EDGES SHALL BE FORMED WITH 1/4" CHAMFER STRIPS. SIDEWALKS ARE EXEMPT FROM THIS REQUIREMENT.
23. FOR FORMED CONCRETE SURFACES EXPOSED TO WEATHER OR EARTH, REBAR CLEARANCE SHALL BE 2" MINIMUM. FOR CONCRETE SURFACES CAST AGAINST EARTH, REBAR CLEARANCE SHALL BE 3" MINIMUM. ALL OTHER REBAR CLEARANCES SHALL BE 1 1/2" MINIMUM, INCLUDING CLEARANCES FROM EMBEDDED ITEMS.
24. PROVIDE BROOM FINISH AND CLEAR SEALER FOR ALL HORIZONTAL CONCRETE SURFACES EXPOSED TO WEATHER UNLESS NOTED OTHERWISE. BROOM FINISH SHALL BE PARALLEL TO ANY SPECIFIED SLOPE. CLEAN AND REMOVE STAINS FROM CONCRETE PRIOR TO APPLYING SEALER.
25. EXISTING FACILITIES THAT ARE DISTURBED SHALL BE RESTORED AND TESTED TO BE IN FULL COMPLIANCE WITH CURRENT GBRA STANDARDS.

26. EXISTING MANHOLES THAT ARE DISTURBED SHALL BE RESTORED TO BE IN FULL COMPLIANCE WITH CURRENT GBRA STANDARDS INCLUDING TESTING, CHEMICAL RESISTANT LINING, RINGS AND COVERS, ETC.
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28. CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND REMOVE TEMPORARY FENCING AND GATES AS NECESSARY TO SECURE AND ACCESS THE WORK AND TO PREVENT LIVESTOCK FROM ENTERING THE WORK AREA.
29. CONTRACTOR SHALL PERFORM DEWATERING AS NECESSARY TO ACCOMPLISH THE WORK.
30. CONTRACTOR SHALL RESTORE AND REVEGETATE ALL DISTURBED AREAS.
31. UNLESS NOTED OTHERWISE, CONTRACTOR SHALL PROPERLY DISPOSE OF EXCESS SPOILS OFF SITE IN ACCORDANCE WITH LOCAL LAWS, ORDINANCES, AND REGULATIONS.
32. BURIAL OR BURNING OF REFUSE IS NOT ALLOWED. CONTRACTOR SHALL PROPERLY DISPOSE OF SUCH MATERIAL OFF SITE IN ACCORDANCE WITH LOCAL LAWS, ORDINANCES, AND REGULATIONS.
33. SUBMIT ALL ITEMS REQUIRED FOR FINAL COMPLETION IN ACCORDANCE WITH GBRA STANDARDS AND DESIGN GUIDELINES SECTION 1.4.
34. EXISTING FACILITIES THAT ARE DISTURBED SHALL BE RESTORED AND TESTED TO BE IN FULL COMPLIANCE WITH CURRENT GBRA STANDARDS. THE CONTRACTOR SHALL ADJUST EXISTING WATER AND WASTEWATER FACILITIES TO PROPOSED FINISH GRADES INCLUDING BUT NOT LIMITED TO MANHOLES, CLEANOUTS, VALVES, HYDRANTS, APPURTENANCES, ETC.
35. EXISTING WATER AND WASTEWATER SYSTEMS SHALL REMAIN IN SERVICE AT ALL TIMES DURING CONSTRUCTION UNLESS SPECIFICALLY APPROVED OTHERWISE BY GBRA. ANY WORK INVOLVING TIE-INS, SHUTDOWNS, POWER OUTAGES, OR ANY OTHER INTERRUPTIONS, MUST BE PERFORMED BETWEEN 8:00AM AND 5:00PM EXCLUDING WEEKENDS AND HOLIDAYS, UNLESS SPECIFICALLY APPROVED OTHERWISE BY GBRA. ALL TEMPORARY POWER, BYPASS PUMPING, PUMP AND HULL, TEMPORARY PLUGS, ETC., NECESSARY TO MAINTAIN SYSTEM OPERATIONS AND ACCOMPLISH THE WORK, SHALL BE FURNISHED AND PERFORMED BY THE CONTRACTOR. COORDINATE AND SCHEDULE ANY SUCH ACTIVITIES WITH GBRA AT LEAST TEN (10) BUSINESS DAYS IN ADVANCE.
36. IN THE EVENT BYPASS PUMPING OR PUMP AND HULL ARE REQUIRED, THE CONTRACTOR SHALL PROVIDE A PUMPING AND MONITORING PLAN FOR GBRA REVIEW, COMMENT, AND APPROVAL. THE PUMPING SYSTEM FOR EACH DIVERSION MUST BE FULLY REDUNDANT AND RATED FOR PEAK FLOW WITH THE LARGEST PUMP OUT OF SERVICE. THE CONTRACTOR SHALL FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING, PLUGS, AND ASSOCIATED APPURTENANCES INCLUDING AUTOMATIC CONTROLS AND 24-HOUR REMOTE MONITORING OR ON-SITE PUMP WATCH PERSONNEL TO ENSURE THAT OVERFLOWS OR SPILLS OCCUR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CLEANUP AND REPORTING EFFORTS DUE TO FAILURE OF EQUIPMENT OR ACTIVITIES ASSOCIATED WITH THE PUMPING OPERATIONS CONTRIBUTING TO EITHER A SURCHARGE OR SANITARY SEWER OVERFLOW (SSO). THE COST OF ANY RELATED FINES, PENALTIES, OR DAMAGES AND THE COST OF ANY EFFORT BY GBRA OR OTHER THIRD PARTIES TO MITIGATE DAMAGES RESULTING FROM ANY SURCHARGING OR SSOs SHALL BE THE DIRECT AND SOLE RESPONSIBILITY OF THE CONTRACTOR.
37. CONTRACTOR SHALL FIELD VERIFY VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO ORDERING MATERIALS AND PRIOR TO PERFORMING ANY WORK. SCHEDULE GBRA TO WITNESS. NOTIFY ENGINEER OF ANY DISCREPANCIES OR CONFLICTS.
38. CONTRACTOR SHALL FIELD VERIFY CONFIGURATION OF ALL PROPOSED TIE-INS TO EXISTING FACILITIES PRIOR TO ORDERING MATERIALS AND PRIOR TO PERFORMING ANY WORK. SCHEDULE GBRA TO WITNESS. NOTIFY ENGINEER OF ANY DISCREPANCIES OR CONFLICTS.
39. EXPLOSIVES AND BLASTING ARE NOT ALLOWED.
40. BURIED WATER PIPE SHALL BE C909 CL235 MINIMUM FOR PIPE DIAMETERS 6" THROUGH 12". DIAMETERS GREATER THAN 12" SHALL BE C909 CL235 MINIMUM, C900 DR18 MINIMUM, OR DUCTILE IRON. PVC PIPE SHALL BE BLUE COLOR FOR POTABLE WATER AND PURPLE FOR RECLAIMED WATER. DUCTILE IRON PIPE SHALL BE CEMENT LINED AND ASPHALTIC COATED. FITTINGS SHALL BE FUSION BONDED EPOXY LINED AND COATED AWWA C153 COMPACT MECHANICAL JOINT DUCTILE IRON WITH FORD UNIFLANGE SERIES 1400 RESTRAINTS FOR PVC PIPE AND SERIES 1400 FOR DUCTILE IRON PIPE. PIPE BELL JOINT RESTRAINTS SHALL BE FORD UNIFLANGE SERIES 1390 FOR PVC PIPE AND SERIES 1450 FOR DUCTILE IRON PIPE. RESTRAINED JOINT DUCTILE IRON PIPE MAY UTILIZED IN LIEU OF BELL JOINT RESTRAINTS; GRIPPER TYPE GASKETS, IF UTILIZED, SHALL BE ANY COLOR OTHER THAN BLACK. REFER TO DETAIL 480 FOR RESTRAINED LENGTH REQUIREMENTS. IN ALL OTHER LOCATIONS WATER PIPE AND FITTINGS SHALL BE CEMENT LINED FLANGED DUCTILE IRON WITH PAINT COATINGS AS SPECIFIED IN SECTION 2.2 HEREIN.
41. TAPPING SLEEVES 24" AND SMALLER SHALL BE AMERICAN FLOW CONTROL SERIES 2800 OR EQUAL. TAPPING SLEEVES LARGER THAN 24" SHALL BE SMITH BLAIR MODEL 624 OR EQUAL. ALL TAPPING SLEEVES SHALL HAVE SPLIT MJ RESTRAINTS; RESTRAINTS SHALL BE FORD UNIFLANGE SERIES 1300 FOR PVC PIPE AND SERIES 1405 FOR DUCTILE IRON PIPE. TAPPING SLEEVES SHALL BE INSTALLED 24" MINIMUM FROM THE NEAREST PIPE BELL AS MEASURED FROM THE NEAREST EDGE OF THE TAPPING SLEEVE TO THE NEAREST END OR TAPER OF BELL WHICHEVER IS CLOSER. CONCRETE BLOCKING TO UNDISTURBED EARTH IS REQUIRED UNDER AND BEHIND TAPPING SLEEVES AND VALVES. INSTALL MECHANICAL RESTRAINTS ON EXISTING PIPING 60 LF MINIMUM EACH WAY. RESTRAINTS SHALL BE FORD UNIFLANGE SERIES 1390 FOR PVC PIPE AND SERIES 1490 FOR DUCTILE IRON PIPE. SIZE ON SIZE TAPS ARE NOT ALLOWED.
42. ALL EQUIPMENT SHALL BE CONFIGURED TO AUTOMATICALLY RESET AFTER POWER OUTAGES.
43. ALL OUTDOOR EXPOSED PIPING 4" AND SMALLER CONVEYING LIQUIDS SHALL BE HEAT TRACED, INSULATED, AND COVERED WITH ALUMINUM JACKETING. HEAT TRACING SYSTEM SHALL BE CONTROLLED BY A MASTER THERMOSTAT. SELF-REGULATING HEATING CABLE IS NOT ALLOWED. PIPES WITH CONTINUOUS FLOW ARE EXEMPT FROM THIS REQUIREMENT.
44. ALL EQUIPMENT, PIPING, VALVES, AND APPURTENANCES SHALL BE LABELED FOR IDENTIFICATION PURPOSES (E.G. PIPE LABELS, COLOR CODING, BANDING, FLOW ARROWS, EQUIPMENT NUMBERS, INSTRUMENT AND VALVE TAGS, ETC.).

GEOTECHNICAL TESTING

1. ALL COMPACTION, CONCRETE, AND OTHER REQUIRED TEST RESULTS SHALL BE SENT TO THE DESIGN ENGINEER, CITY OF BOERNE, AND GBRA DIRECTLY FROM THE TESTING AGENCY.
2. UPON COMPLETION OF CONSTRUCTION, A COPY OF ALL TESTING REPORTS SHALL BE COMPILED AND FORWARDED TO THE CITY OF BOERNE AND GBRA PRIOR TO FINAL ACCEPTANCE.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IMMEDIATELY NOTIFY GBRA AND DESIGN ENGINEER IF THE PRESENCE OF GROUNDWATER WITHIN THE SITE IS EVIDENT. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEWATERING AT NO ADDITIONAL COST TO THE PROJECT OWNER.

TRAFFIC CONTROL

1. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ALL TEMPORARY AND PERMANENT TRAFFIC CONTROL IN ACCORDANCE WITH THE MINIMUM REQUIREMENTS OF THE LATEST REVISION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) AND TxDOT BARRICADE AND CONSTRUCTION STANDARDS.
2. CONTRACTOR SHALL NOT IMPEDE TRAFFIC ON EXISTING STREETS, DRIVEWAYS, OR FIRE LANES OPEN TO THE PUBLIC.
3. CONTRACTOR TO PROVIDE TRAFFIC CONTROL PLAN TO GBRA AT LEAST 3 BUSINESS DAYS IN ADVANCE OF COMMENCING WORK IN A CITY OF FAIR OAKS RANCH RIGHT-OF-WAY. THE SUBMITTED TRAFFIC CONTROL PLAN SHALL INCLUDE TEMPORARY CONSTRUCTION WARNING SIGNAGE MEETING TMUTCD REQUIREMENTS AT EACH END OF AMMANN RD.
4. ALL TEMPORARY SIGNS, BARRICADES, WARNING LIGHTS AND OTHER MISCELLANEOUS TRAFFIC CONTROL MEASURES SHALL BE REMOVED AND ORIGINAL TRAFFIC CONTROL MEASURES REPLACED AT THE END OF THE CONTRACTOR'S CONSTRUCTION OPERATION.

EROSION CONTROL NOTES

1. ALL EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO SITE DISTURBANCE AND SHALL REMAIN IN PLACE UNTIL FINAL GRADING AND PAVING IS COMPLETE AND VEGETATION IS ESTABLISHED WITH 85% COVERAGE ACHIEVED.
2. CONTRACTOR IS RESPONSIBLE FOR PROPER MAINTENANCE OF THE REQUIRED EROSION CONTROL DEVICES THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS. EROSION CONTROLS SHALL BE REPAIRED OR REPLACED AS INSPECTION DEEMS NECESSARY, OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. ACCUMULATED SILT IN ANY EROSION CONTROL DEVICE SHALL BE REMOVED AND SHALL BE DISTRIBUTED ON-SITE IN A MANNER NOT CONTRIBUTING TO ADDITIONAL SILTATION.
3. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT EROSION CONTROL MEASURES AND STORMWATER CONTROL IS SUFFICIENT TO MITIGATE OFF-SITE IMPACTS ARE IN PLACE AT ALL STAGES OF CONSTRUCTION.
4. THE CITY OF BOERNE AND GBRA INSPECTORS HAVE THE AUTHORITY TO HAVE THE CONTRACTOR MODIFY THE EROSION CONTROLS AT THE CONTRACTOR'S EXPENSE. THE CITY OF BOERNE SHALL BE NOTIFIED OF THESE MODIFICATIONS PRIOR TO COMMENCEMENT OF THE MODIFICATIONS.
5. CONSTRUCTION OPERATIONS SHALL BE MANAGED SO THAT AS MUCH OF THE SITE AS POSSIBLE IS LEFT COVERED WITH TOPSOIL AND VEGETATION.
6. CONTRACTOR TO REMOVE GRASS AND STRIP TOPSOIL TO DEPTHS ENCOUNTERED AND STOCKPILE TOPSOIL TO BE DISTRIBUTED DURING FINAL GRADING OF THE DISTURBED AREAS.
7. CONTRACTOR SHALL CONSTRUCT A STABILIZED CONSTRUCTION ENTRANCE AT ALL PRIMARY POINTS OF ACCESS. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION TRAFFIC UTILIZES THE STABILIZED CONSTRUCTION ENTRANCES AT ALL TIMES FOR INGRESS/EGRESS TO THE SITE.
8. CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS AND DRIVEWAYS ADJACENT TO THE PROJECT FREE FROM MUD AND DEBRIS AT ALL TIMES. CONTRACTOR SHALL CLEAN AND REMOVE ALL LOOSE MATERIAL RESULTING FROM CONSTRUCTION OPERATIONS.
9. THE CONTRACTOR SHALL TAKE ALL AVAILABLE PRECAUTIONS TO CONTROL DUST.
10. AS INLETS ARE COMPLETED, TEMPORARY SEDIMENT BARRIERS SHALL BE INSTALLED. PRIOR TO FINAL ACCEPTANCE BY GBRA, ALL TEMPORARY INLET BARRIERS SHALL BE REMOVED AND REPLACED WITH CONTROLS TO PREVENT SEDIMENT FROM ENTERING THE STREET ROW.
11. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. CITY ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.
12. DISTURBED PORTIONS OF THE SITE MUST BE STABILIZED. STABILIZATION PRACTICES MUST BE INITIATED WITHIN 14 DAYS IN PORTIONS OF THE SITE WHERE CONSTRUCTION HAS BEEN EITHER TEMPORARILY OR PERMANENTLY CEASED, UNLESS EXCEPTED WITHIN THE TPOES PERMIT.
13. CONTRACTOR SHALL INSPECT DISTURBED AREAS, MATERIAL STORAGE AREAS EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND VEHICLE ENTRY AND EXIT AREAS AT LEAST ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT OF 0.5 INCHES OR GREATER.
14. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED BY THE CONTRACTOR AT FINAL ACCEPTANCE OF THE PROJECT BY GBRA.

GRADING NOTES

1. CONTRACTOR TO ENSURE POSITIVE DRAINAGE AT ALL TIMES DURING CONSTRUCTION.
2. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES WHICH ARE TO REMAIN IN PLACE AND UNDISTURBED DURING CONSTRUCTION.
3. CONTRACTOR SHALL NOT PLACE ANY FILL OR WASTE MATERIAL IN THE 100-YEAR FLOODPLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOODPLAIN DEVELOPMENT PERMIT.

PAVING NOTES

1. ALL CONSTRUCTION AND TESTING WITHIN PUBLIC ROW SHALL BE PERFORMED IN ACCORDANCE WITH CITY OF FAIR OAKS RANCH STANDARDS.
2. SUBMITTALS FOR LIME, BASE, PRIME COAT, TACK COAT, AND ASPHALT, AS APPLICABLE, SHALL BE APPROVED PRIOR TO INSTALLATION. INSTALLATION PRIOR TO SUBMITTAL APPROVAL MAY REQUIRE REMOVAL/REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
3. NO EARTHWORK, LIME APPLICATION, OR OTHER PREPARATION OF THE SUBGRADE FOR PAVING OF STREETS SHALL BE INITIATED WITHOUT AUTHORIZATION FROM THE CITY OF FAIR OAKS RANCH. CITY OF FAIR OAKS RANCH WILL AUTHORIZE THE SUBGRADE WORK IN PREPARATION FOR THE PAVING AFTER UTILITY TRENCH BACKFILL TESTING IS COMPLETE AND VERIFIED TO MEET CITY OF FAIR OAKS RANCH REQUIREMENTS.
4. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING ALL STREETS, CROSSWALKS, SIDEWALKS, DRIVEWAYS, AND ANY OTHER SURFACE RELATED TO AN ACCESSIBLE ROUTE PER THE TEXAS ACCESSIBILITY STANDARDS (TAS), LATEST EDITION. THE CONTRACTOR SHALL REMOVE AND REPLACE ANY CONSTRUCTED OR INSTALLED ITEMS NOT MEETING THE CURRENT TAS REQUIREMENTS AT THEIR OWN COST.
5. EMBANKMENT/FILL MATERIAL UNDER PROPOSED STREETS MUST BE FREE OF LARGE STONES (4" WHEN BACKFILL IS 12" OR GREAT IN DEPTH OR 2.5" WHEN FILL IS LESS THAN 12" IN DEPTH), HAVE A PLASTICITY INDEX (PI) LESS THAN 20 PER ASTM D4318, AND BE COMPACTED TO 95%.
6. UTILITIES MUST BE MAINTAINED TO PROPER LINE AND GRADE DURING CONSTRUCTION OF THE PAVING FOR THIS PROJECT.
7. FLEXIBLE BASE UNDER ROADWAYS REQUIRES 100% COMPACTION AND MUST EXTEND AT LEAST 18 INCHES BEHIND THE BACK OF CURB.
8. TESTING OF MATERIALS REQUIRED FOR THE CONSTRUCTION OF PAVING IMPROVEMENTS SHALL BE PERFORMED BY A GEOTECHNICAL TESTING COMPANY AND PROVIDE OPPORTUNITY TO BE WITNESSED BY GBRA INSPECTOR. ALL TESTING MUST BE SCHEDULED WITH GBRA.

TREES

1. A TREE REMOVAL PERMIT IS REQUIRED PRIOR TO REMOVAL OF ANY TREE WITHIN THE CITY LIMITS.
2. ALL TREES NOT AUTHORIZED TO BE REMOVED MUST BE PROTECTED TO PREVENT DAMAGE AROUND THE ROOT PROTECTION ZONE.

REVEGETATION

1. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH. THE CONTRACTOR MUST LOOSEN THE SURFACE OF THE SOIL TO A DEPTH OF 2 INCHES AND REMOVE ALL STONES AND DEBRIS OVER 2 INCHES IN ANY DIMENSION. THE AREA SHALL BE REVEGETATED AND MAINTAINED UNTIL SOIL IS STABILIZED IN ALL AREAS. ANY AREA DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE PROJECT SHALL BE CORRECTED BY THE CONTRACTOR.
2. THE CONTRACTOR MUST CONSTRUCT AND MAINTAIN A PERMANENT STABLE PROTECTIVE COVER (GRASS) FOR EROSION AND SEDIMENT CONTROL ON ALL LAND SURFACES EXPOSED OR DISTURBED BY CONSTRUCTION OF THE PERMITTED PROJECT. THE PROTECTIVE COVER MUST BE INSTALLED WITHIN 14 DAYS AFTER FINAL GRADING OF THE AFFECTED LAND SURFACE. A PERMANENT STABLE COVER MUST BE ESTABLISHED WITHIN 60 DAYS OF ITS INSTALLATION.
3. ALL DISTURBED AREAS SHALL BE REVEGETATED AND SHALL BE CHECKED PERIODICALLY TO SEE THAT GRASS COVERAGE IS PROPERLY MAINTAINED. DISTURBED AREAS SHALL BE WATERED, FERTILIZED, AND RESEEDED OR RE SOEDDED IF NECESSARY.

RECORD DRAWINGS

1. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE THE DESIGN ENGINEER A COPY OF AS-BUILT PLANS IDENTIFYING ALL DEVIATIONS OR VARIATIONS FROM THE ORIGINAL PLANS.
2. THE DESIGN ENGINEER SHALL PROVIDE TO GBRA THE "PLAN OF RECORD", SIGNED AND SEALED BY THE DESIGN ENGINEER. GBRA WILL NEED CAD/GIS FILE FOR AS-BUILTS.

OTHER

1. THE CONTRACTOR SHALL TAKE ALL AVAILABLE PRECAUTIONS TO CONTROL DUST. THE CONTRACTOR SHALL CONTROL DUST BY SPRINKLING WATER, OR AS APPROVED BY THE OWNER AND CONSULTANT. AT THE SOLE EXPENSE OF THE CONTRACTOR, THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
2. THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES TO VERIFY DEPTH, NO SEPARATE PAY ITEM. THE INFORMATION AND DATE SHOWN WITH RESPECT TO EXISTING UNDERGROUND FACILITIES AT OR CONTIGUOUS TO THE SITE IS APPROXIMATE AND BASED ON INFORMATION AND DATA FURNISHED BY THE OWNERS OF SUCH UNDERGROUND FACILITIES OR ON PHYSICAL DATA APPURTENANCES OBSERVED IN THE FIELD. THE OWNER AND CONSULTANT SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ANY SUCH INFORMATION OR DATA. THE CONTRACTOR SHALL HAVE FULL RESPONSIBILITY FOR REVIEWING AND CHECKING ALL SUCH INFORMATION AND DATA, FOR LOCATING ALL UNDERGROUND FACILITIES, FOR COORDINATION OF THE WORK WITH THE OWNERS OF SUCH UNDERGROUND FACILITIES DURING CONSTRUCTION, FOR THE SAFETY AND PROTECTION THEREOF, AND REPAIRING ANY DAMAGE THERETO RESULTING FROM THE WORK. THE COST ALL OF WHICH WILL BE CONSIDERED AS HAVING BEEN INCLUDED IN THE CONTRACT PRICE. THE CONTRACTOR SHALL NOTIFY ANY AFFECTED UTILITY COMPANIES OR AGENCIES IN WRITING AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION.
3. UNTIL THE WORK IS FORMALLY ACCEPTED BY THE OWNER IN WRITING, THE PROJECT SHALL BE UNDER THE CHARGE AND CUSTODY OF THE CONTRACTOR AND THE CONTRACTOR SHALL TAKE EVERY NECESSARY PRECAUTION AGAINST INJURY OR DAMAGE TO WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PUBLIC UTILITIES IN THE CONSTRUCTION OF THIS PROJECT. ALL MANHOLES, CLEANOUTS, VALVE BOXES, FIRE HYDRANTS, ETC., MUST BE ADJUSTED TO PROPER GRADE BY THE CONTRACTOR PRIOR TO AND AFTER PLACING OF PERMANENT PAVING. UTILITIES MUST BE MAINTAINED TO PROPER LINE AND GRADE DURING CONSTRUCTION OF THE PAVING FOR THIS PROJECT.
5. CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL AND OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. OWNER AND ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY PRIOR TO COMMENCING WITH CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING RELOCATION AND INSTALLATION OF FRANCHISE UTILITIES NECESSARY FOR OFF SITE CONSTRUCTION.
7. CONTRACTOR IS TO NOTIFY THE ENGINEER WHERE A CONFLICT EXISTS BETWEEN CITY OF BOERNE AND GBRA STANDARD SPECIFICATIONS OR DETAILS.
8. UNLESS OTHERWISE SPECIFIED, MECHANICAL SLEEVES SHALL BE "SHORT" AS PER AWWA C153 - DUCTILE IRON COMPACT FITTINGS.

TESTING NOTES:

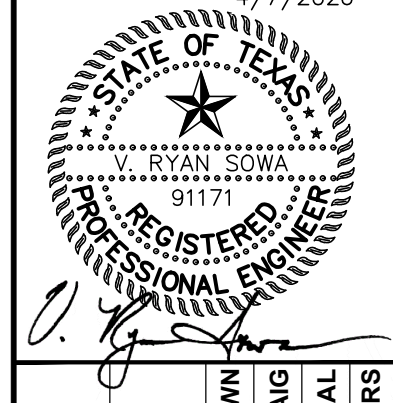
1. ALL TESTING SHALL BE PERFORMED BY THE CONTRACTOR AND WITNESSED BY GBRA.
2. ALL TESTING SHALL BE ARRANGED AND PAID FOR BY THE CONTRACTOR. TEST REPORTS SHALL BE SENT TO GBRA PROJECT MANAGER AND ENGINEER OF RECORD DIRECTLY FROM TESTING LAB.
3. CONTRACTOR SHALL PROVIDE ALL WATER, EQUIPMENT, TEMPORARY PORTS, VALVES, AND FITTINGS NECESSARY FOR TESTING.
4. TESTING EQUIPMENT MUST BE CALIBRATED WITHIN THE PREVIOUS 12 MONTHS.
5. CONTRACTOR SHALL PROVIDE CONNECTION POINT FOR GBRA DIGITAL TEST GAUGE.
6. ALL TESTING MUST BE COMPLETE PRIOR TO PERFORMING TIE-INS TO EXISTING WATER SYSTEM.
7. PERFORM TRENCH BACKFILL DENSITY TESTING. TEST EACH LIFT WITHIN EACH EXCAVATION, 95% TO 102% COMPACTION, +/-2% OPTIMUM MOISTURE, EXACT LOCATIONS TO BE RANDOMLY SELECTED BY GBRA INSPECTOR. JETTING AND/OR POTHOLING ARE NOT ALLOWED. TEST EACH LIFT PRIOR TO INSTALLING SUBSEQUENT LIFTS. SCHEDULE GBRA TO WITNESS TESTING. PROVIDE COPIES OF TEST REPORTS TO GBRA. FAILED LIFTS SHALL BE REMOVED, RECOMPACTED, AND RETESTED.
8. FOLLOW AWWA PIPE TESTING PROCEDURES AND ALLOWED LEAKAGE FROM WATER LINES. TEST ALL NEW PIPING INSTALLED AS PART OF THE PROJECT. TEST PRESSURE SHALL BE THE MAXIMUM RATING OF MATERIAL INSTALLED. TEST DURATION SHALL BE 2 HOURS. ALL WATER, TEMPORARY PORTS, VALVES, AND FITTINGS NECESSARY FOR CONTRACTOR TESTING SHALL BE SUBSIDIARY TO THE COST OF THE PIPE.
9. FOLLOW AWWA PROCEDURES FOR FLUSHING AND DISINFECTION OF WATER PIPING. FLUSHING AND DISINFECTION MUST BE COMPLETE PRIOR TO PERFORMING TIE-INS TO EXISTING SYSTEMS NO SEPARATE PAY. CONTRACTOR IS RESPONSIBLE FOR MEANS AND METHODS FOR FLUSHING AND DISINFECTION OF WATER PIPES.

KENDALL COUNTY STANDARD CONSTRUCTION NOTES

1. ANY DEVIATIONS FROM THE CONSTRUCTION PLANS, DRAWINGS, OR SPECIFICATIONS FOR ROADS, DRAINAGE, OR OTHER IMPROVEMENTS MUST HAVE PRIOR APPROVAL BY THE KENDALL COUNTY ENGINEER. THE ENGINEER OF RECORD MUST REQUEST APPROVAL OF ANY CHANGE IN WRITING ADDRESSED TO THE COUNTY ENGINEER.
2. NEWLY CONSTRUCTED ROADS IN KENDALL COUNTY SHALL SATISFY THE REQUIREMENTS AND SPECIFICATIONS CONTAINED IN THE KENDALL COUNTY DEVELOPMENT RULES AND REGULATIONS ADOPTED NOV. 14, 2022.
3. CONTRACTOR IS RESPONSIBLE FOR FOLLOWING ALL LOCAL, STATE, AND FEDERAL REGULATIONS FOR STORM WATER POLLUTION PREVENTION DURING CONSTRUCTION ACTIVITIES.
4. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL CONFORM TO ALL APPLICABLE KENDALL COUNTY DESIGN CRITERIA (ADOPTED BY COMMISSIONERS COURT), AS WELL AS OTHER SAFETY CODES AND INSPECTION PROVISIONS APPLICABLE TO THE PROJECT AND REQUIREMENTS OF THE KENDALL COUNTY FIRE DEPARTMENT.
5. ANY ROADWAY EXCAVATION NECESSARY TO ATTAIN CONFORMANCE WITH PROPOSED ROAD GRADES AND TYPICAL CROSS SECTIONS SHALL BE DONE IN CONFORMANCE WITH TxDOT SPECIFICATION ITEM 110. COMPLETED CUTS SHALL HAVE SIDE SLOPES NO STEEPER THAN 3:1 UNLESS APPROVED BY THE KENDALL COUNTY ENGINEER.
6. SUBGRADE DENSITY CONTROL SHALL BE IN ACCORDANCE WITH TxDOT SPECIFICATION ITEM 132. ORDINARY COMPACTION IS ALLOWED WITH PRIOR APPROVAL OF KENDALL COUNTY ENGINEER. PROOF ROLLING, IF ALLOWED, SHALL BE IN ACCORDANCE WITH TxDOT SPECIFICATION ITEM 216.
7. BASE DENSITY CONTROL SHALL BE IN ACCORDANCE WITH TxDOT SPECIFICATION ITEM 247. COMPACTION SHALL BE USED TO ATTAIN AT LEAST 100% COMPACTION OF BASE COURSES.
8. ALL ROADWAY COMPACTION TESTS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. EACH LAYER OF MATERIAL SHALL BE COMPACTED AS SPECIFIED AND TESTED FOR DENSITY UNLESS ORDINARY COMPACTION OR PROOF ROLLING IS APPROVED BY THE KENDALL COUNTY ENGINEER. NUCLEAR TESTING METHODS ACCEPTABLE TO TxDOT ARE ACCEPTABLE TO KENDALL COUNTY.
9. STREET SUBGRADE AND BASE COURSES SHALL BE DENSITY TESTED EVERY 250 FEET WITH A MINIMUM OF 3 TESTS PER STREET SECTION INCLUDING RETESTS.
10. CONCRETE STRUCTURES SHALL BE TESTED IN ACCORDANCE WITH CURRENT TxDOT STANDARD SPECIFICATION ITEM 421. TESTING WILL NOT BE REQUIRED FOR CURBS.
11. HMAC IN-PLACE DENSITY TESTING WILL BE IN ACCORDANCE WITH TxDOT STANDARD SPECIFICATION ITEM 341.
12. KENDALL COUNTY ENGINEERS OFFICE REQUIRES 24 HOURS NOTICE PRIOR TO ALL MATERIAL TESTING. LABORATORY TESTING COMPANIES MUST BE APPROVED BY KENDALL COUNTY. UPON COMPLETION OF TESTING, THE GEOTECHNICAL ENGINEER WILL PROVIDE THE KENDALL COUNTY STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FLEXIBLE BASE, AND FILL MATERIAL AND SUBGRADE, HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.
13. EXCESS MATERIALS, EQUIPMENT, FILL, OR SPOILS SHALL NOT BE PLACED WITHIN ANY DESIGNATED FLOOD PLAIN.

No.	REVISIONS	DATE	BY

Kimley Horn
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PHONE: 210-541-9166
WWW.KIMLEY-HORN.COM TFBF FIRM NO. 928



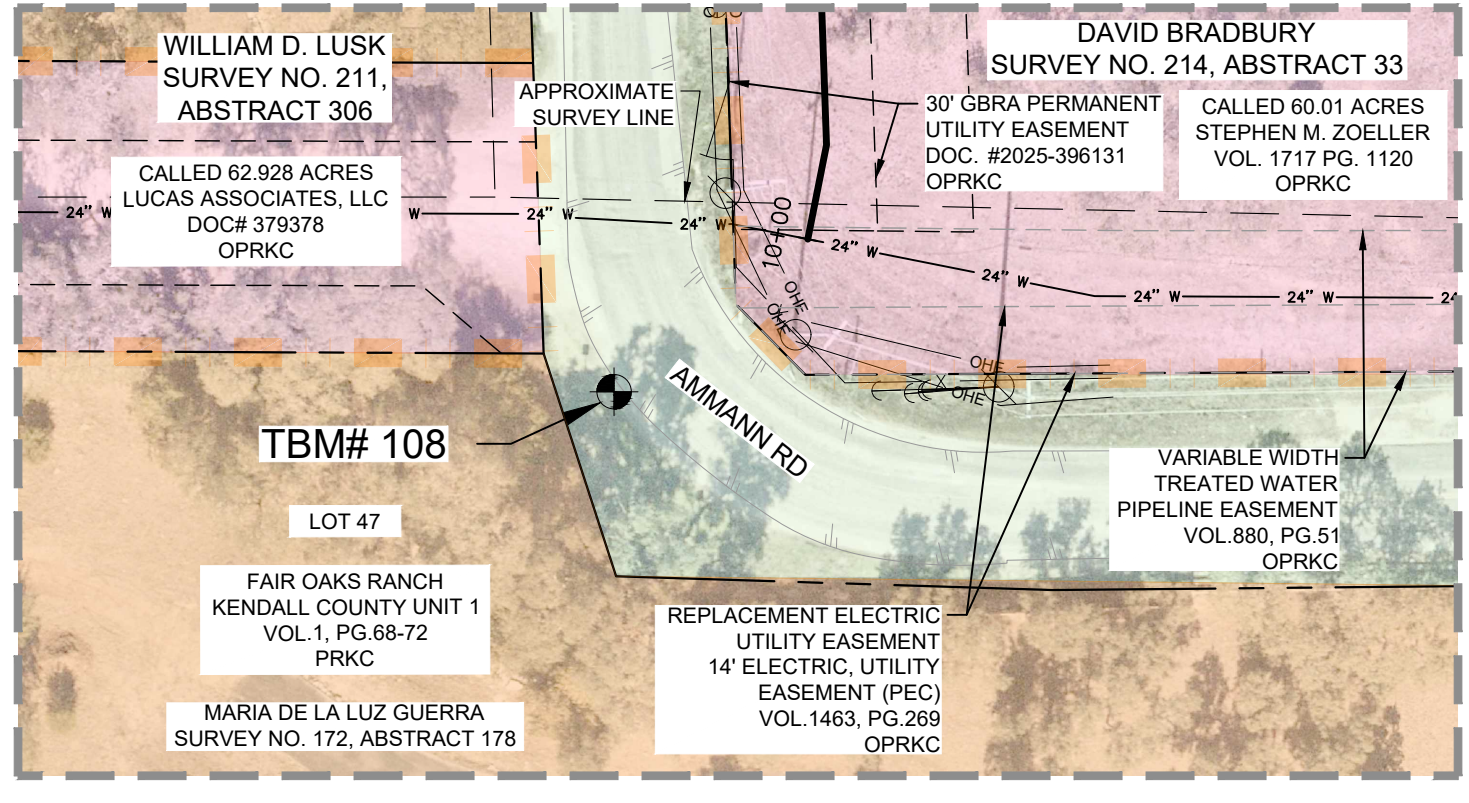
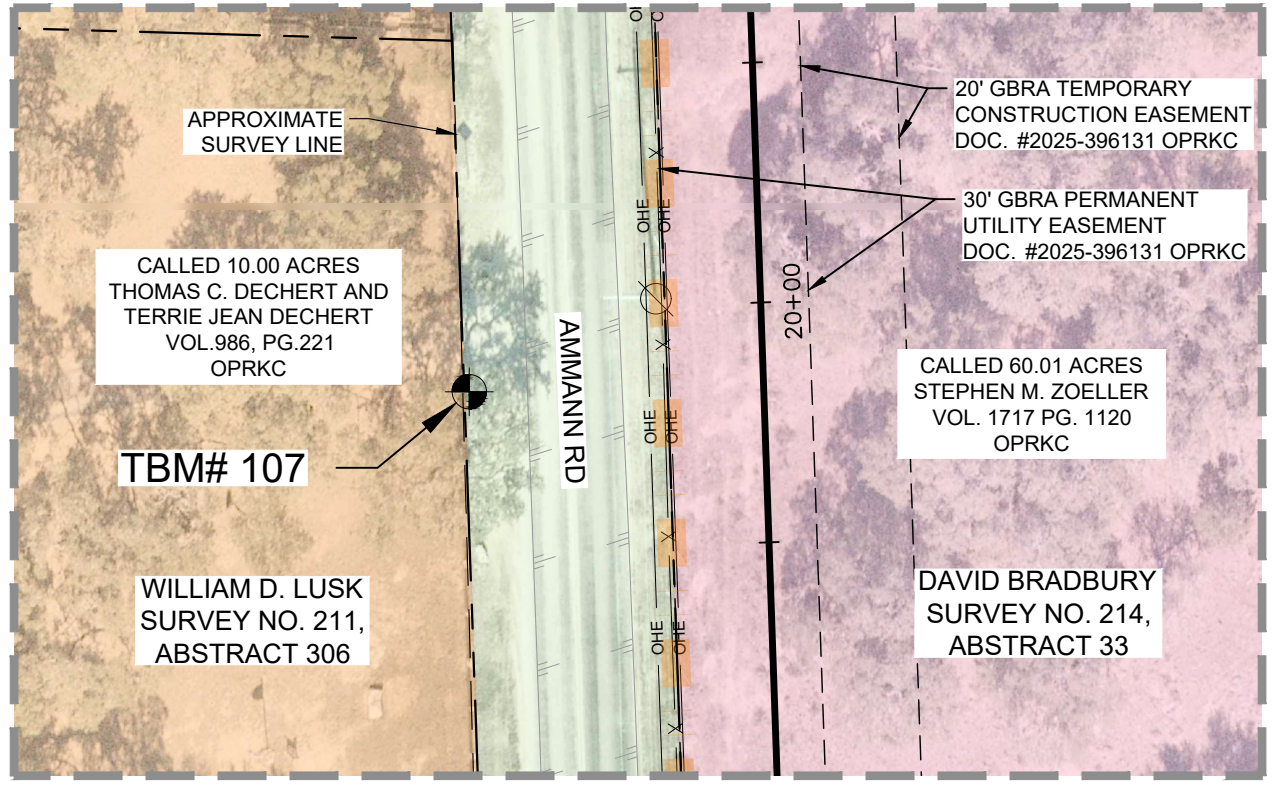
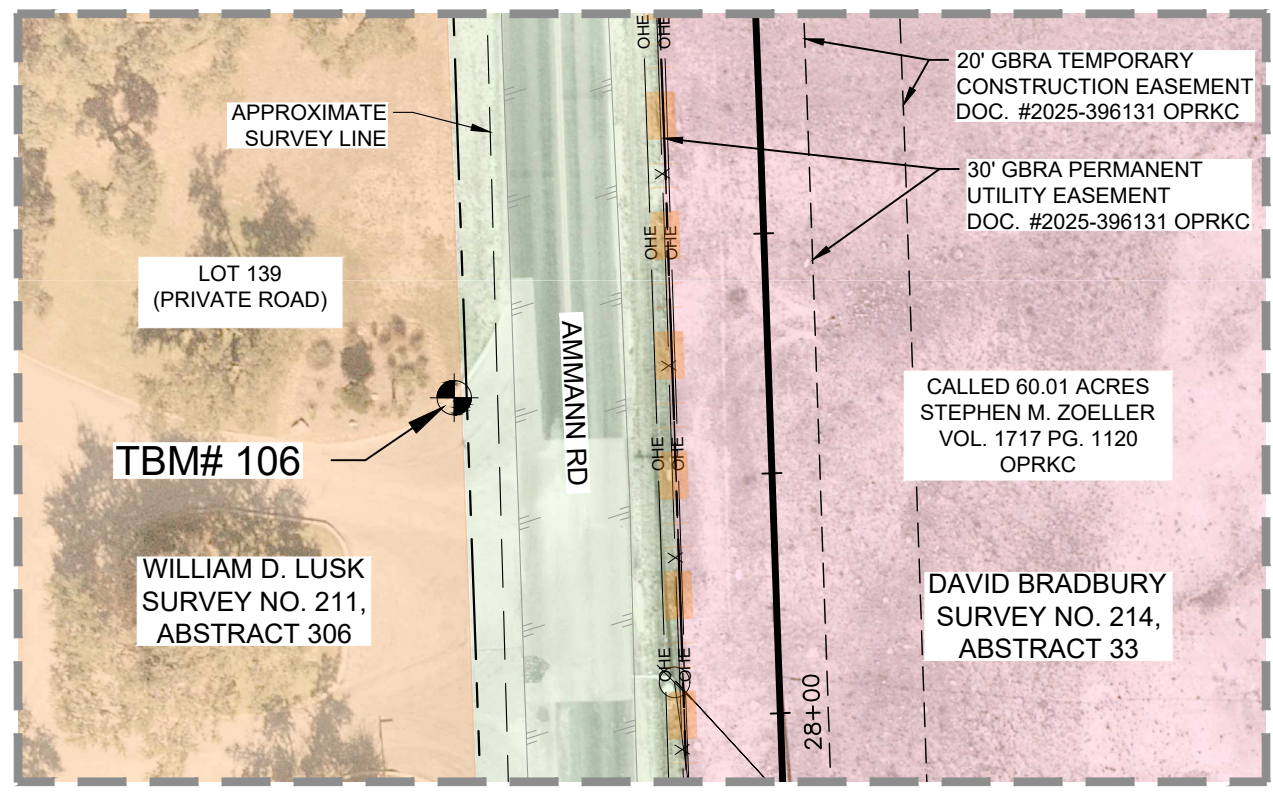
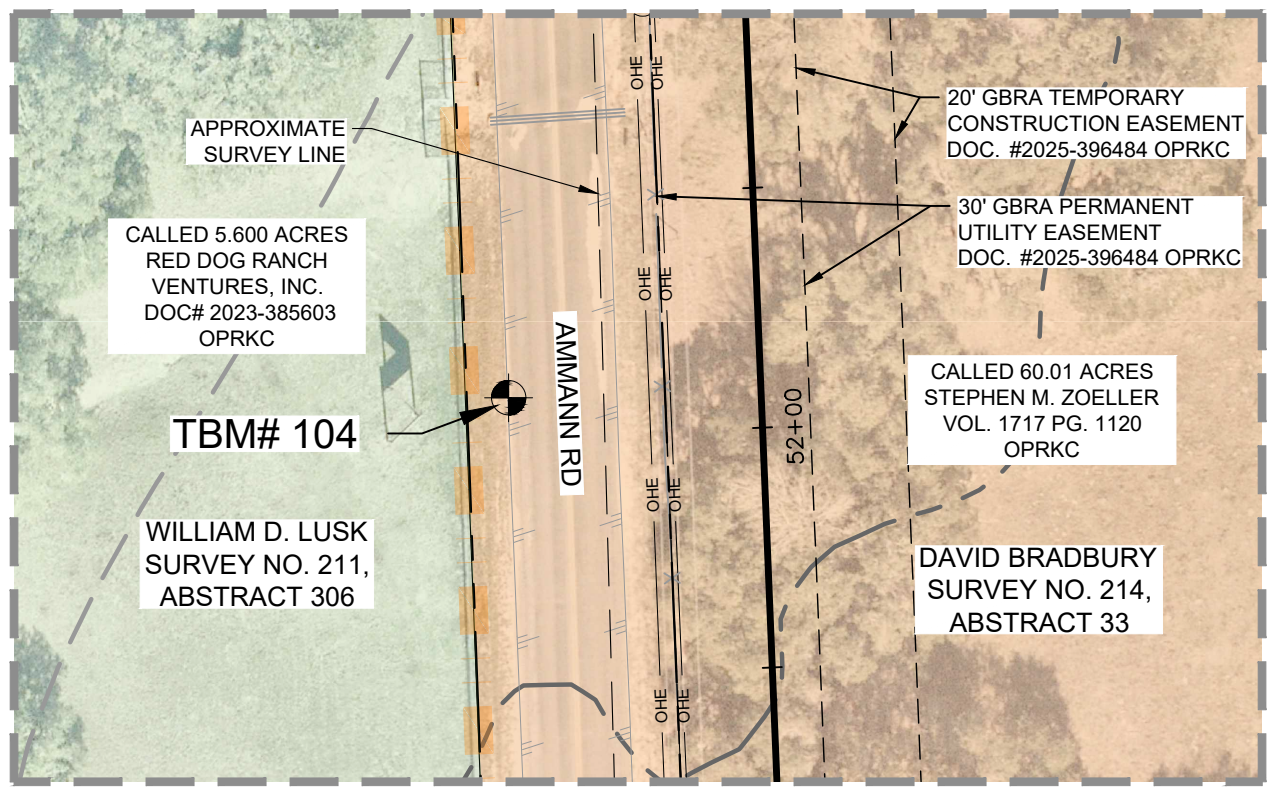
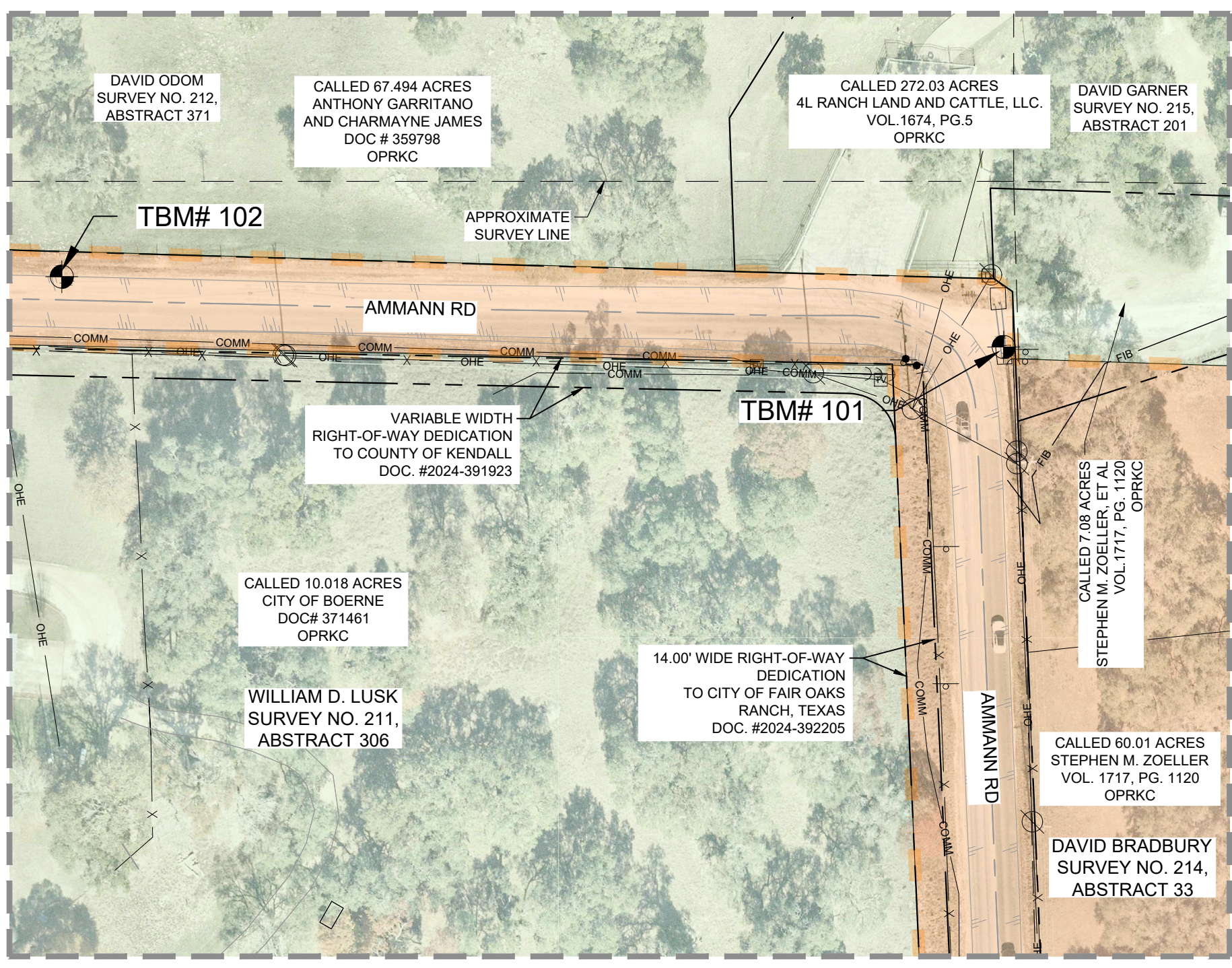
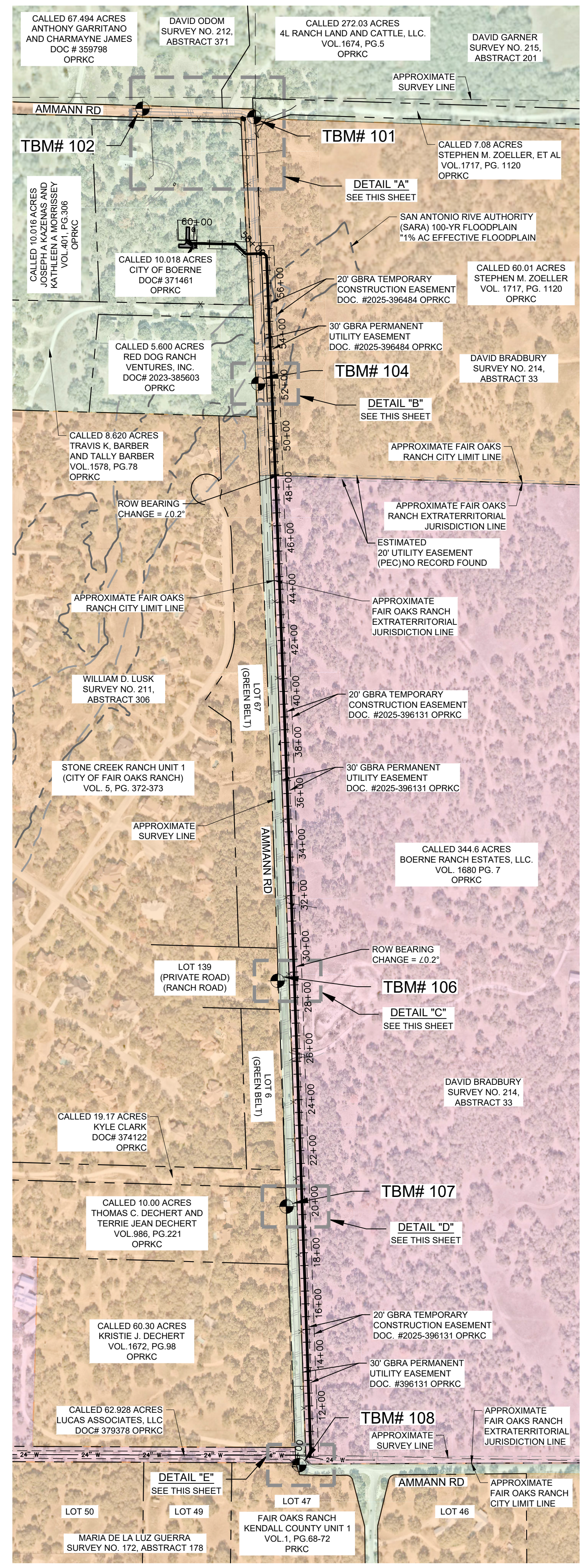
KHA PROJECT: **068657038**
DATE: **APRIL 2026**
SCALE: **AS SHOWN**
DESIGNED BY: **AIG**
DRAWN BY: **SAL**
CHECKED BY: **VRS**

AMMANN ROAD - GBRA WATER MAIN EXTENSION

PREPARED FOR:
THE CITY OF BOERNE
BOERNE, TX 78006

GENERAL NOTES
SHEET NUMBER
G2

Plotted By: Horwitz, Jeffrey, April 07, 2026 08:26:41am
 K:\SNA_Utilities\068657038 - Ammann Rd GBRA Water Extension\CAD\PLANS\SHEETS\068657038 - Project Control.dwg
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BENCH MARK LIST

TBM #101 "MAG NAIL WITH WASHER" SET ON ASPHALT BEING NORTHWEST 7.06' FROM A GUY WIRE AND SOUTH EAST 33.86' FROM A CABLE BOX. ELEVATION = 1386.52 FEET. (AS SHOWN)

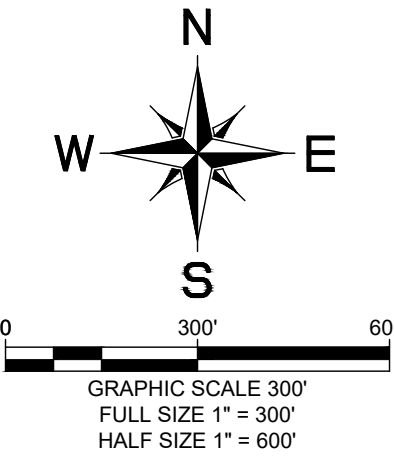
TBM #102 "MAG NAIL WITH WASHER" SET ON ASPHALT BEING NORTH 110.09' FROM A METAL POLE. ELEVATION = 1402.56 FEET. (AS SHOWN)

TBM #104 "MAG NAIL WITH WASHER" SET ON ASPHALT AT THE NORTH DRIVE WAY OF RANCH PASS BEING NORTH 113.0' FROM A 1/2 INCH IRON ROD FOUND WITH CAP STAMPED "ACES" AND NORTHWESTERLY 74.97' FROM A METAL POLE. ELEVATION = 1395.80 FEET. (AS SHOWN)

TBM #106 "MAG NAIL WITH WASHER" SET ON ASPHALT AT A DRIVE WAY BEING NORTH 73.20' FROM THE NORTHEAST CORNER OF THOMAS C. DECHERT AND TERRIE JEAN DECHERT 10.0 ACRE TRACT. ELEVATION = 1389.03 FEET. (AS SHOWN)

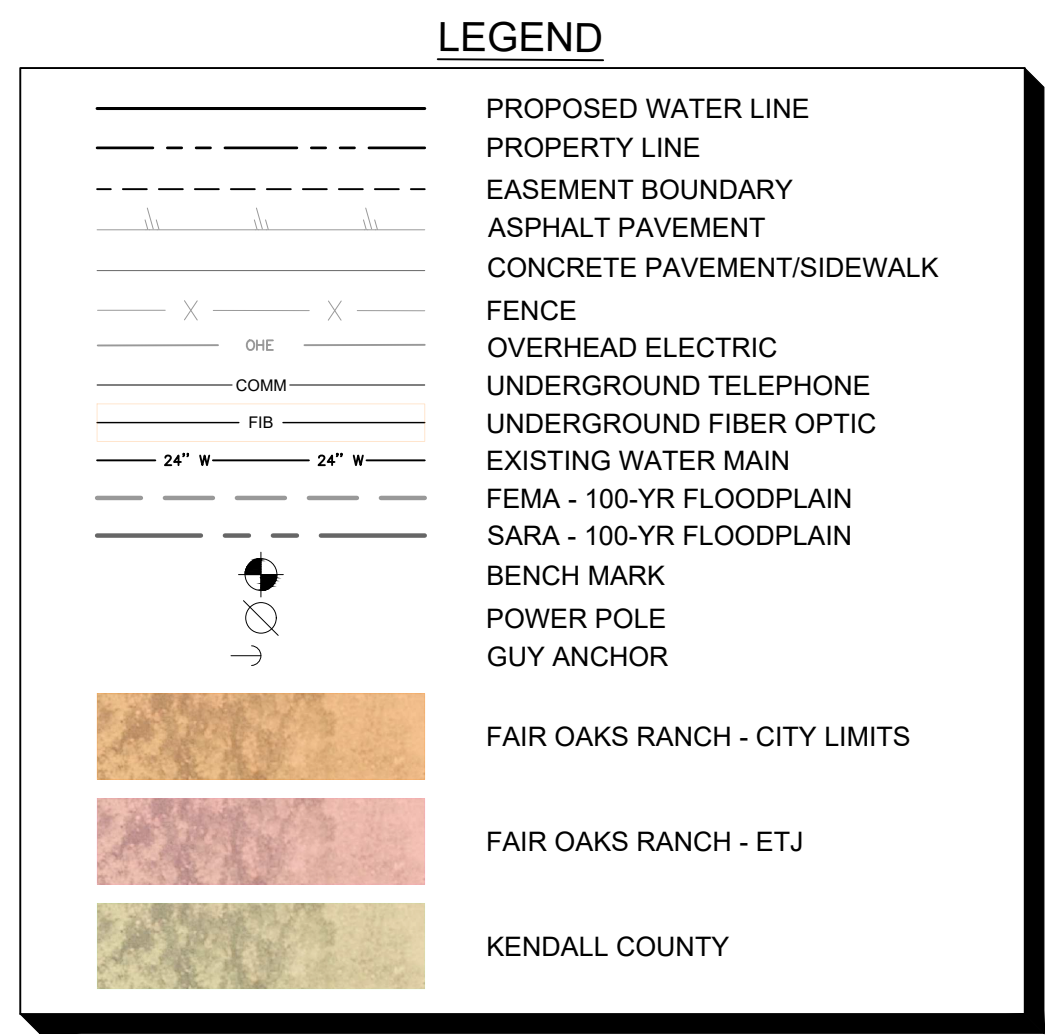
TBM #107 "MAG NAIL WITH WASHER" SET ON ASPHALT AT THE NORTH NORTHEASTERLY CORNER OF LOT 47 AND 39.66' FROM A POWER POLE. ELEVATION = 1385.08 FEET. (AS SHOWN)

TBM #108 "MAG NAIL WITH WASHER" SET ON ASPHALT AT THE SOUTHWEST SIDE EDGE OF ASPHALT OF AMMANN ROAD BEING 16.69' SOUTH FROM THE NORTH NORTHEASTERLY CORNER OF LOT 47 AND 39.66' FROM A POWER POLE. ELEVATION = 1385.08 FEET. (AS SHOWN)



CONTROL POINTS

Point #	Elevation	Northing	Eastng	Description
101	1386.52	13833202.84	2086893.40	CP MAG NAIL W/WASHER
102	1402.56	13833235.46	2086456.24	CP MAG NAIL W/WASHER
104	1362.22	13832158.65	2086909.42	CP MAG NAIL W/WASHER
106	1395.80	13829819.86	2086985.28	CP MAG NAIL W/WASHER
107	1389.03	13828936.03	2087020.26	CP MAG NAIL W/WASHER
108	1385.08	13827923.82	2087070.76	CP MAG NAIL W/WASHER



JURISDICTIONAL BOUNDARIES SHOWN
 AS PER FAIR OAKS RANCH CITY LIMIT &
 ETJ MAP DATED APRIL 2024

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 PHONE: 210-541-9166
 WWW.KIMLEY-HORN.COM TBE FIRM NO. 928

4/7/2026
 V. RYAN SOWA
 91171
 REGISTERED PROFESSIONAL ENGINEER

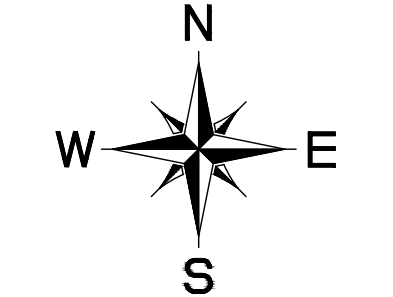
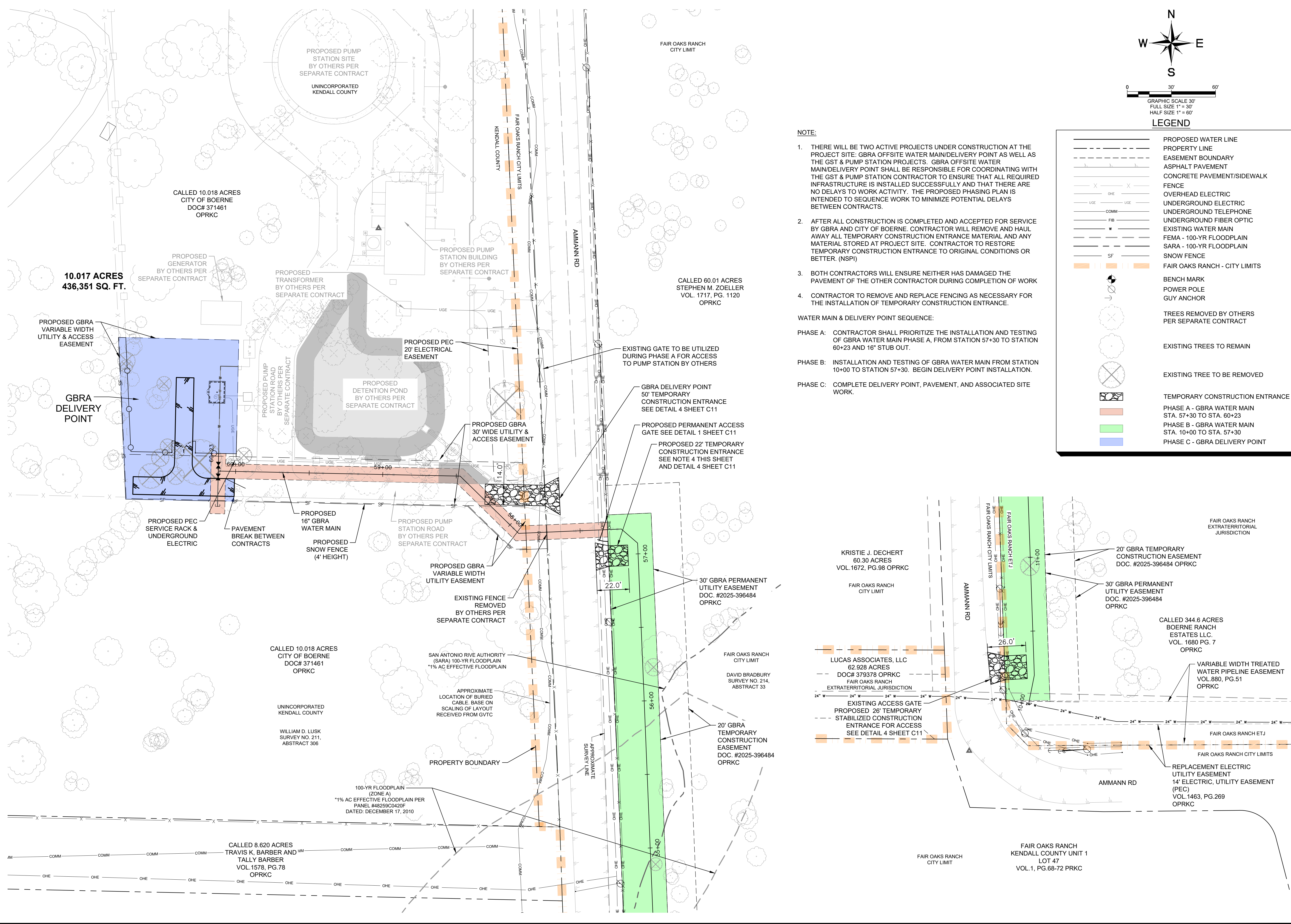
KHA PROJECT: 068657038
 DATE: APRIL 2026
 SCALE: AS SHOWN
 DESIGNED BY: AIG
 DRAWN BY: SAL
 CHECKED BY: VRS

AMMANN ROAD - GBRA WATER MAIN EXTENSION
 PREPARED FOR THE CITY OF BOERNE BOERNE, TX 78006

PROJECT CONTROL
 SHEET NUMBER: G3

NO.	REVISIONS	DATE	BY

Plotted By: Horowitz, Jeffrey April 20, 2026 11:40:35am
 K:\NSA_Utility\068657038 - Ammann Rd GBRA Water Extension\CAAD PLANS\068657038 - Deliver Point Staging - Access.dwg
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LEGEND

	PROPOSED WATER LINE
	PROPERTY LINE
	EASEMENT BOUNDARY
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT/SIDEWALK
	FENCE
	OVERHEAD ELECTRIC
	UNDERGROUND ELECTRIC
	UNDERGROUND TELEPHONE
	UNDERGROUND FIBER OPTIC
	EXISTING WATER MAIN
	FEMA - 100-YR FLOODPLAIN
	SARA - 100-YR FLOODPLAIN
	SNOW FENCE
	FAIR OAKS RANCH - CITY LIMITS
	BENCH MARK
	POWER POLE
	GUY ANCHOR
	TREES REMOVED BY OTHERS PER SEPARATE CONTRACT
	EXISTING TREES TO REMAIN
	EXISTING TREE TO BE REMOVED
	TEMPORARY CONSTRUCTION ENTRANCE
	PHASE A - GBRA WATER MAIN STA. 57+30 TO STA. 60+23
	PHASE B - GBRA WATER MAIN STA. 10+00 TO STA. 57+30
	PHASE C - GBRA DELIVERY POINT

NOTE:

- THERE WILL BE TWO ACTIVE PROJECTS UNDER CONSTRUCTION AT THE PROJECT SITE: GBRA OFFSITE WATER MAIN/DELIVERY POINT AS WELL AS THE GST & PUMP STATION PROJECTS. GBRA OFFSITE WATER MAIN/DELIVERY POINT SHALL BE RESPONSIBLE FOR COORDINATING WITH THE GST & PUMP STATION CONTRACTOR TO ENSURE THAT ALL REQUIRED INFRASTRUCTURE IS INSTALLED SUCCESSFULLY AND THAT THERE ARE NO DELAYS TO WORK ACTIVITY. THE PROPOSED PHASING PLAN IS INTENDED TO SEQUENCE WORK TO MINIMIZE POTENTIAL DELAYS BETWEEN CONTRACTS.
- AFTER ALL CONSTRUCTION IS COMPLETED AND ACCEPTED FOR SERVICE BY GBRA AND CITY OF BOERNE, CONTRACTOR WILL REMOVE AND HAUL AWAY ALL TEMPORARY CONSTRUCTION ENTRANCE MATERIAL AND ANY MATERIAL STORED AT PROJECT SITE. CONTRACTOR TO RESTORE TEMPORARY CONSTRUCTION ENTRANCE TO ORIGINAL CONDITIONS OR BETTER. (NSPI)
- BOTH CONTRACTORS WILL ENSURE NEITHER HAS DAMAGED THE PAVEMENT OF THE OTHER CONTRACTOR DURING COMPLETION OF WORK
- CONTRACTOR TO REMOVE AND REPLACE FENCING AS NECESSARY FOR THE INSTALLATION OF TEMPORARY CONSTRUCTION ENTRANCE.

WATER MAIN & DELIVERY POINT SEQUENCE:

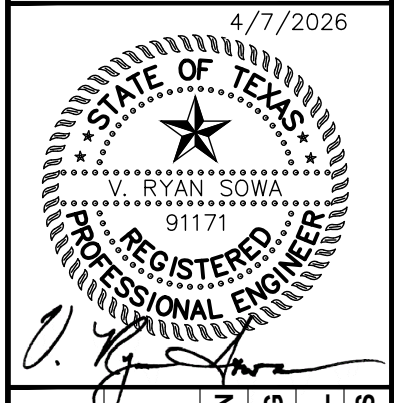
PHASE A: CONTRACTOR SHALL PRIORITIZE THE INSTALLATION AND TESTING OF GBRA WATER MAIN PHASE A, FROM STATION 57+30 TO STATION 60+23 AND 16" STUB OUT.

PHASE B: INSTALLATION AND TESTING OF GBRA WATER MAIN FROM STATION 10+00 TO STATION 57+30. BEGIN DELIVERY POINT INSTALLATION.

PHASE C: COMPLETE DELIVERY POINT, PAVEMENT, AND ASSOCIATED SITE WORK.

NO.	REVISIONS	DATE	BY

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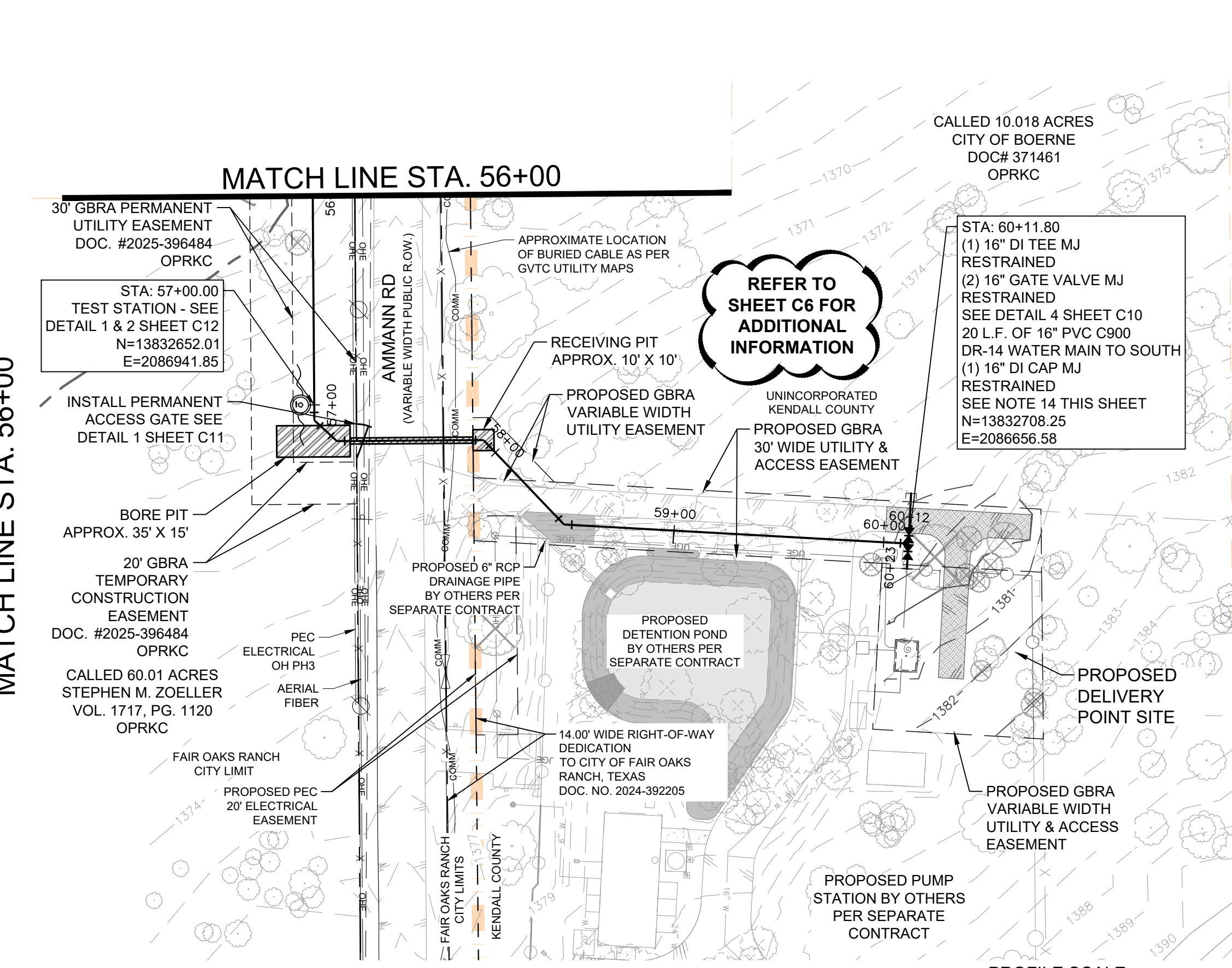
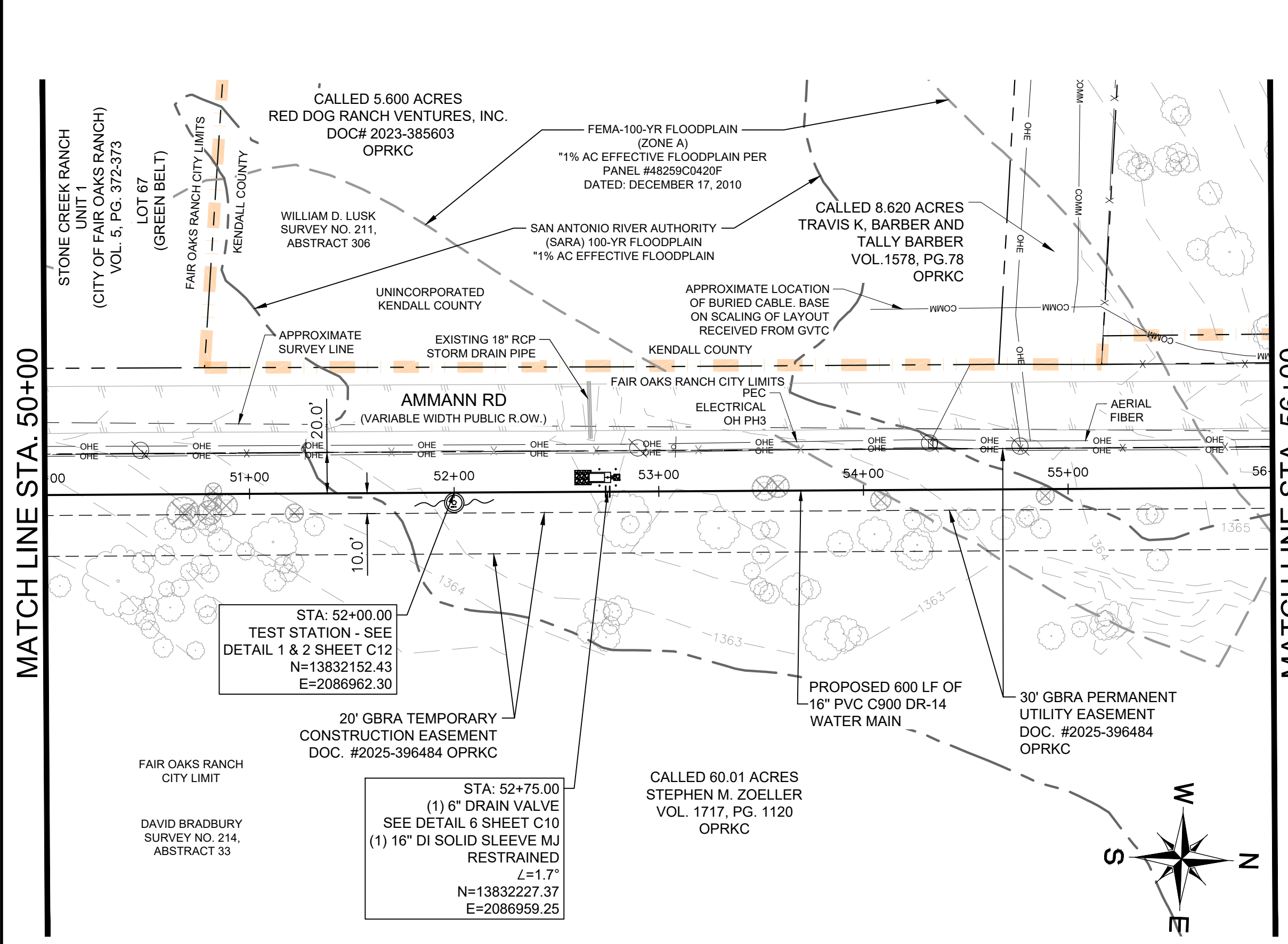


KHA PROJECT	068657038
DATE:	APRIL 2026
SCALE:	AS SHOWN
DESIGNED BY:	AIG
DRAWN BY:	SAL
CHECKED BY:	VRS

AMMANN ROAD - GBRA WATER MAIN EXTENSION
 PREPARED FOR THE CITY OF BOERNE, BOERNE, TX 78006

DELIVERY POINT ACCESS & SEQUENCING
 SHEET NUMBER
G4

Plotted By: Horowitz, Jeffrey April 20, 2026 11:40:55am K:\NSA_Utility\068657038 - Ammann Rd GBRA Water Extension\CAO PLANS\068657038 - Water Main Exp. Sheet-2.dwg
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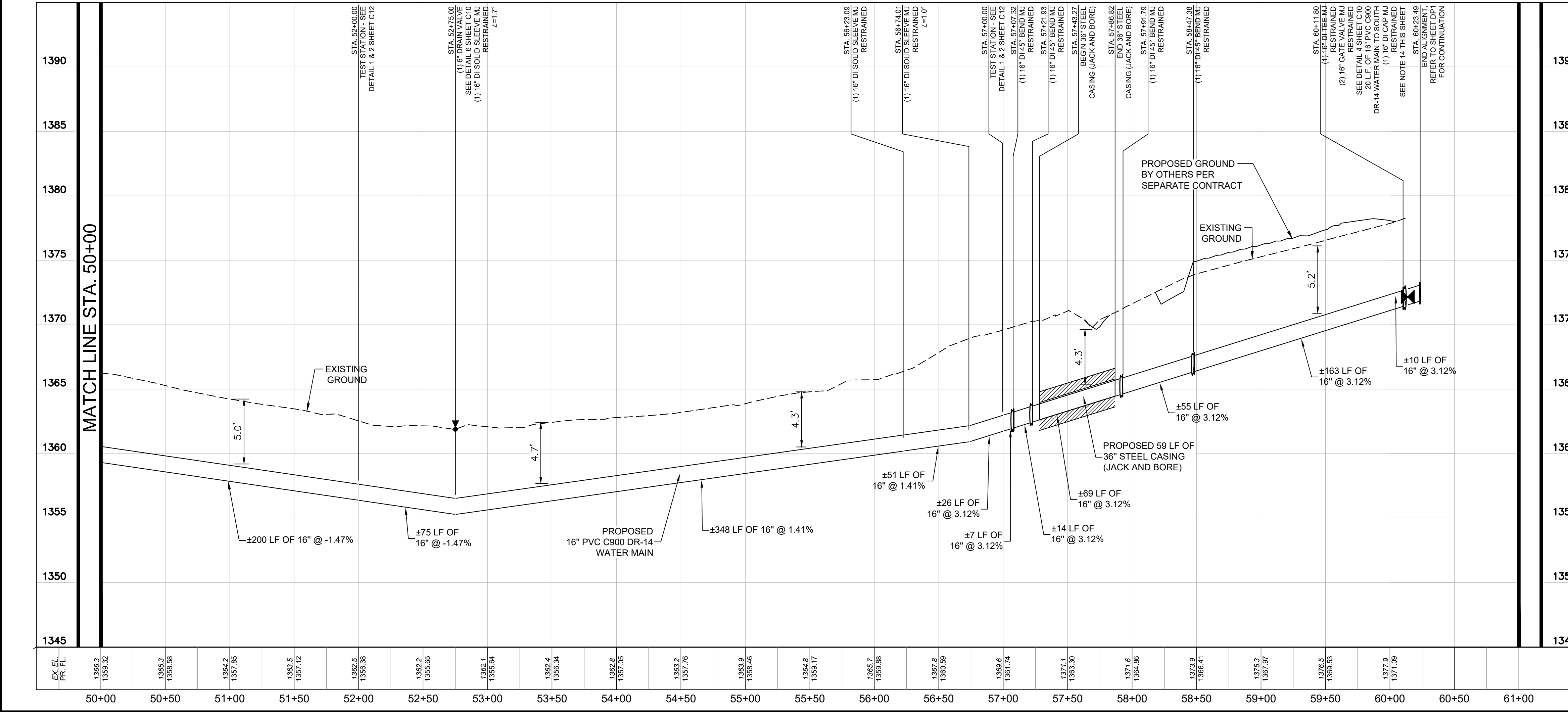


LEGEND

- PROPOSED WATER LINE
- PROPERTY LINE
- EASEMENT BOUNDARY
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT/SIDEWALK
- FENCE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND FIBER OPTIC
- EXISTING WATER MAIN
- FEMA - 100-YR FLOODPLAIN
- FAIR OAKS RANCH - CITY LIMITS
- BENCH MARK
- POWER POLE
- GUY ANCHOR
- TRAFFIC SIGN
- TEST STATION
- TREES REMOVED BY OTHERS PER SEPARATE CONTRACT
- EXISTING TREES TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING DRIVEWAY TO BE REMOVED AND REPLACED

NOTE:

- CONTRACTOR SHALL FIELD VERIFY CONFIGURATION OF ALL PROPOSED TIE-INS TO EXISTING FACILITIES PRIOR TO ORDERING MATERIALS AND PRIOR TO PERFORMING ANY WORK. SCHEDULE GBRA TO WITNESS. NOTIFY ENGINEER OF ANY DISCREPANCIES OR CONFLICTS.
- CONTRACTOR SHALL COORDINATE WITH PIPE AND FITTINGS MANUFACTURER TO ENSURE PROPER INSTALLATION AND OPERATION.
- FOLLOW AWWA PROCEDURES FOR FLUSHING AND DISINFECTION OF WATER PIPING. FLUSHING AND DISINFECTION MUST BE COMPLETE PRIOR TO PERFORMING TIE-INS TO EXISTING SYSTEMS. PROVIDE COPIES OF LABORATORY REPORTS TO GBRA.
- CONTRACTOR SHALL PROVIDE AT LEAST ONE TEMPORARY BLOW-OFF AT POINTS OF CONNECTION FOR DOMESTIC WATER LINES. THIS SHALL BE PROVIDED IN COORDINATION WITH CITY INSPECTOR TO PROVIDE WATER FOR FILLING, TESTING, ETC.
- CONTRACTOR SHALL CLEAR CUT THE ENTIRE LIMITS OF PERMANENT EASEMENTS, EXCEPT WHERE NOTED OTHERWISE.
- TYPE 1 PIPELINE MARKER AT EVERY VALVE, HORIZONTAL BEND FITTING AND TEST STATION. TYPE 2 PIPELINE MARKER AT EVERY GATE AND FENCE CROSSING.
- TEST STATIONS SHALL BE COLOR CODED COPPERHEAD MODEL RB14TP. INSTALL TEST STATIONS AT ISOLATION VALVES, OR OTHERWISE TO ACHIEVE 500 LF MAXIMUM SPACING, WITHIN VALVE BOX CONCRETE COLLARS WITH 6\"/>



- CONTRACTOR SHALL CLEAR CUT THE ENTIRE LIMITS OF PERMANENT EASEMENTS, EXCEPT WHERE NOTED OTHERWISE.
- TYPE 1 PIPELINE MARKER AT EVERY VALVE, HORIZONTAL BEND FITTING AND TEST STATION. TYPE 2 PIPELINE MARKER AT EVERY GATE AND FENCE CROSSING.
- TEST STATIONS SHALL BE COLOR CODED COPPERHEAD MODEL RB14TP. INSTALL TEST STATIONS AT ISOLATION VALVES, OR OTHERWISE TO ACHIEVE 500 LF MAXIMUM SPACING, WITHIN VALVE BOX CONCRETE COLLARS WITH 6\"/>

WARNING: CONTRACTOR TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

NO. _____ DATE _____

REVISIONS _____

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KHA PROJECT
068657038

DATE: APRIL 2026

SCALE: AS SHOWN

DESIGNED BY: AIG

DRAWN BY: SAL

CHECKED BY: VRS

AMMANN ROAD - GBRA WATER MAIN EXTENSION

PREPARED FOR THE CITY OF BOERNE, BOERNE, TX 78006

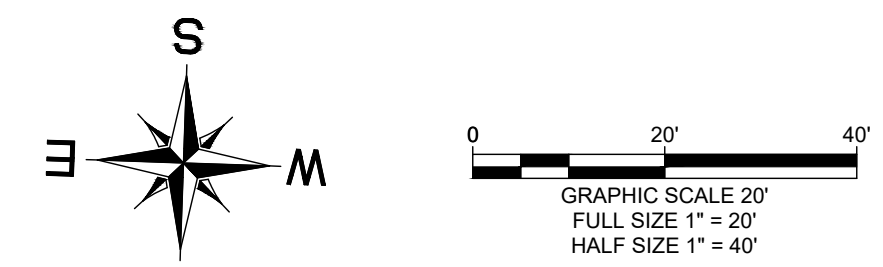
WATER MAIN PLAN AND PROFILE

STA. 50+00 TO END

SHEET NUMBER

C5

Plotted By: Horowitz, Jeffrey April 20, 2026 11:41:02am C:\NSA_Utility\068657038 - Ammann Rd GBRA Water Extension\CAD\PLANSHEETS\068657038 - Water Main P&P Sheet - 2.dwg
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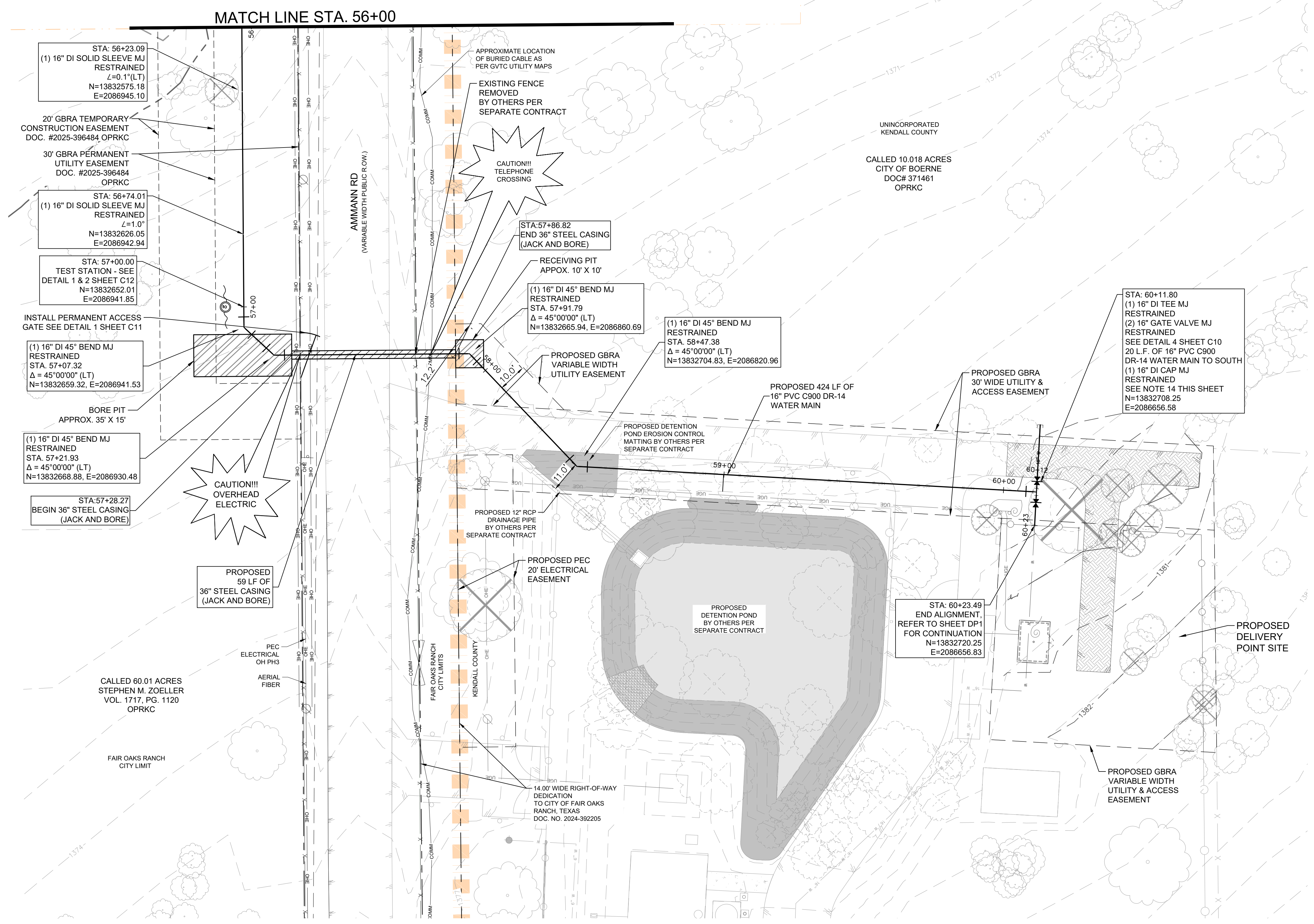


LEGEND

	PROPOSED WATER LINE
	PROPERTY LINE
	EASEMENT BOUNDARY
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT/SIDEWALK
	FENCE
	OVERHEAD ELECTRIC
	UNDERGROUND ELECTRIC
	UNDERGROUND TELEPHONE
	UNDERGROUND FIBER OPTIC
	EXISTING WATER MAIN
	FEMA - 100-YR FLOODPLAIN
	FAIR OAKS RANCH - CITY LIMITS
	BENCH MARK
	POWER POLE
	GUY ANCHOR
	TRAFFIC SIGN
	TEST STATION
	TREES REMOVED BY OTHERS PER SEPARATE CONTRACT
	EXISTING TREES TO REMAIN
	EXISTING TREE TO BE REMOVED
	EXISTING DRIVEWAY TO BE REMOVED AND REPLACED

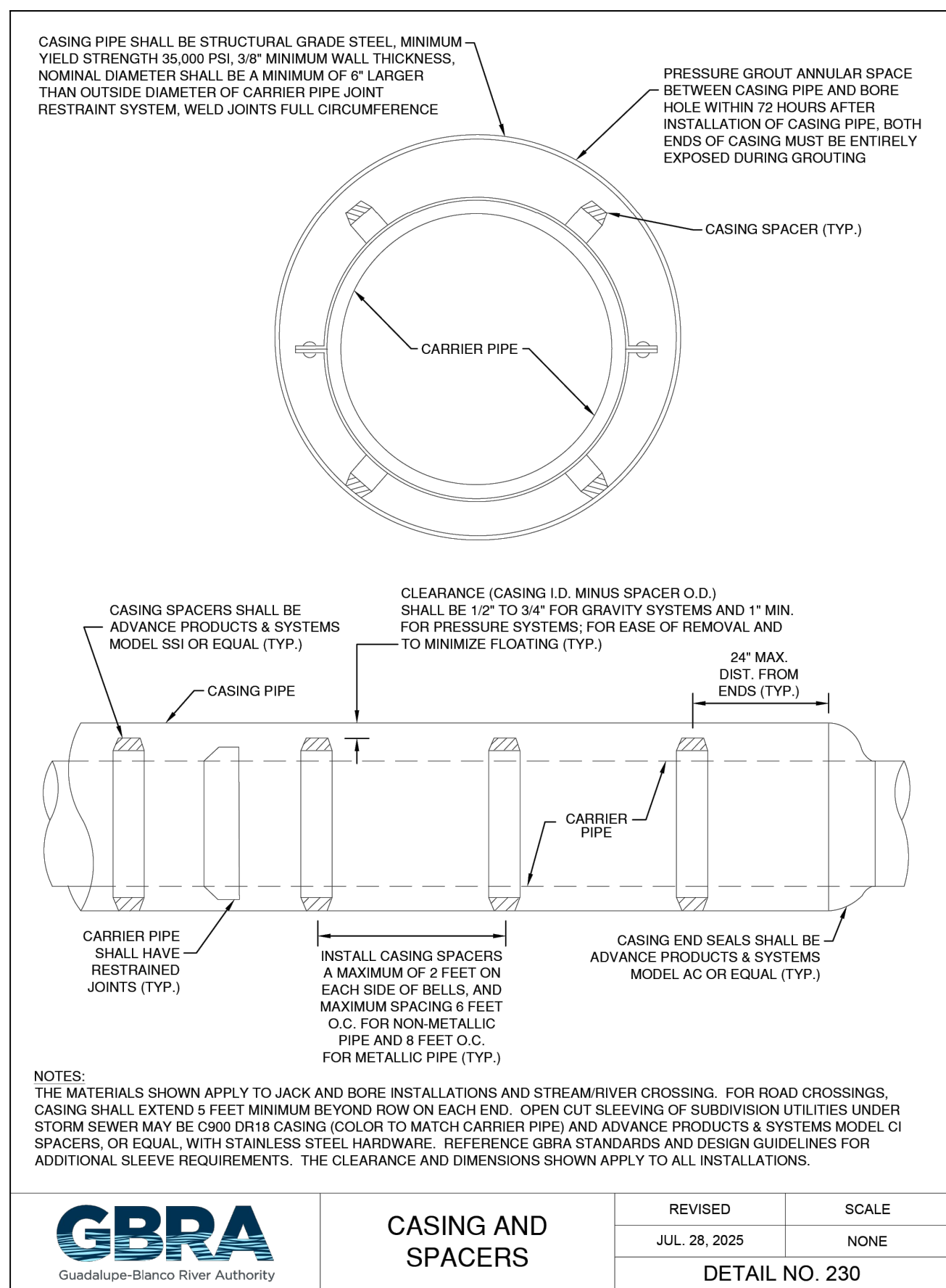
- NOTE:
- CONTRACTOR SHALL FIELD VERIFY CONFIGURATION OF ALL PROPOSED TIE-INS TO EXISTING FACILITIES PRIOR TO ORDERING MATERIALS AND PRIOR TO PERFORMING ANY WORK. SCHEDULE GBRA TO WITNESS. NOTIFY ENGINEER OF ANY DISCREPANCIES OR CONFLICTS.
 - CONTRACTOR SHALL COORDINATE WITH PIPE AND FITTINGS MANUFACTURER TO ENSURE PROPER INSTALLATION AND OPERATION.
 - FOLLOW AWWA PROCEDURES FOR FLUSHING AND DISINFECTION OF WATER PIPING. FLUSHING AND DISINFECTION MUST BE COMPLETE PRIOR TO PERFORMING TIE-INS TO EXISTING SYSTEMS. PROVIDE COPIES OF LABORATORY REPORTS TO GBRA.
 - CONTRACTOR SHALL PROVIDE AT LEAST ONE TEMPORARY BLOW-OFF AT POINTS OF CONNECTION FOR DOMESTIC WATER LINES. THIS SHALL BE PROVIDED IN COORDINATION WITH CITY INSPECTOR TO PROVIDE WATER FOR FILLING, TESTING, ETC.
 - CONTRACTOR SHALL CLEAR CUT THE ENTIRE LIMITS OF PERMANENT EASEMENTS, EXCEPT WHERE NOTED OTHERWISE.
 - TYPE 1 PIPELINE MARKER AT EVERY VALVE, HORIZONTAL BEND FITTING AND TEST STATION. TYPE 2 PIPELINE MARKER AT EVERY GATE AND FENCE CROSSING.
 - TEST STATIONS SHALL BE COLOR CODED COPPERHEAD MODEL RB14TP. INSTALL TEST STATIONS AT ISOLATION VALVES, OR OTHERWISE TO ACHIEVE 500 LF MAXIMUM SPACING, WITHIN VALVE BOX CONCRETE COLLARS WITH 6" MINIMUM CONCRETE ENCASUREMENT HORIZONTALLY ON ALL SIDES. LEAVE 12" SLACK INSIDE TEST STATIONS.
 - CONTRACTOR TO COORDINATE WITH PROPERTY OWNER ON DRIVEWAY & FENCE REPAIR/REPLACEMENT.
 - ALL PIPING SHALL BE INSTALLED IN STRAIGHT ALIGNMENT VERTICALLY AND HORIZONTALLY BETWEEN BEND FITTINGS FOR PRESSURE SYSTEMS AND BETWEEN MANHOLES FOR GRAVITY SYSTEMS. PIPE CURVATURE AND/OR DEFLECTION ARE NOT ALLOWED.
 - A PORTION OF THIS PROJECT IS LOCATED IN THE 100-YEAR FLOODPLAIN. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF WORK, MATERIAL, AND EQUIPMENT PRIOR TO RAIN EVENTS. STORAGE OF MATERIALS AND EQUIPMENT THAT, IN THE TIME OF FLOODING, COULD BE SWEEPED OFF-SITE AND CARRIED DOWNSTREAM IS PROHIBITED IN THE 100-YEAR FLOODPLAIN. CONTRACTOR IS SOLELY RESPONSIBLE FOR PROTECTING TRENCHES, PITS, MATERIALS, AND EQUIPMENT FROM DAMAGE/INUNDATION OF FLOOD WATERS.
 - IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR ANY DAMAGE THAT MAY OCCUR AND REMOVE ANY MATERIALS THAT MAY BE DEPOSITED DOWNSTREAM OF THE SUBJECT SITE AS A RESULT OF THE WORK AFTER ANY STORM EVENTS THAT AFFECT THE WORK SITES.
 - ALL SPOILS, OTHER MATERIALS, AND EQUIPMENT SHALL BE REMOVED AT THE END OF EACH WORK DAY. NO MATERIALS OR EQUIPMENT MAY BE LEFT IN THE FLOODPLAIN OVERNIGHT.
 - CONTRACTOR SHALL POSITION AND INSTALL PROPOSED GATE VALVES OUTSIDE LIMITS OF PAVEMENT.
 - CONTRACTOR SHALL CONFORM TO TRAFFIC CONTROL REQUIREMENTS FOR CONSTRUCTION ACTIVITIES WITHIN PUBLIC ROW. REFER TO SHEET G2 GENERAL NOTES.

WARNING: CONTRACTOR TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.



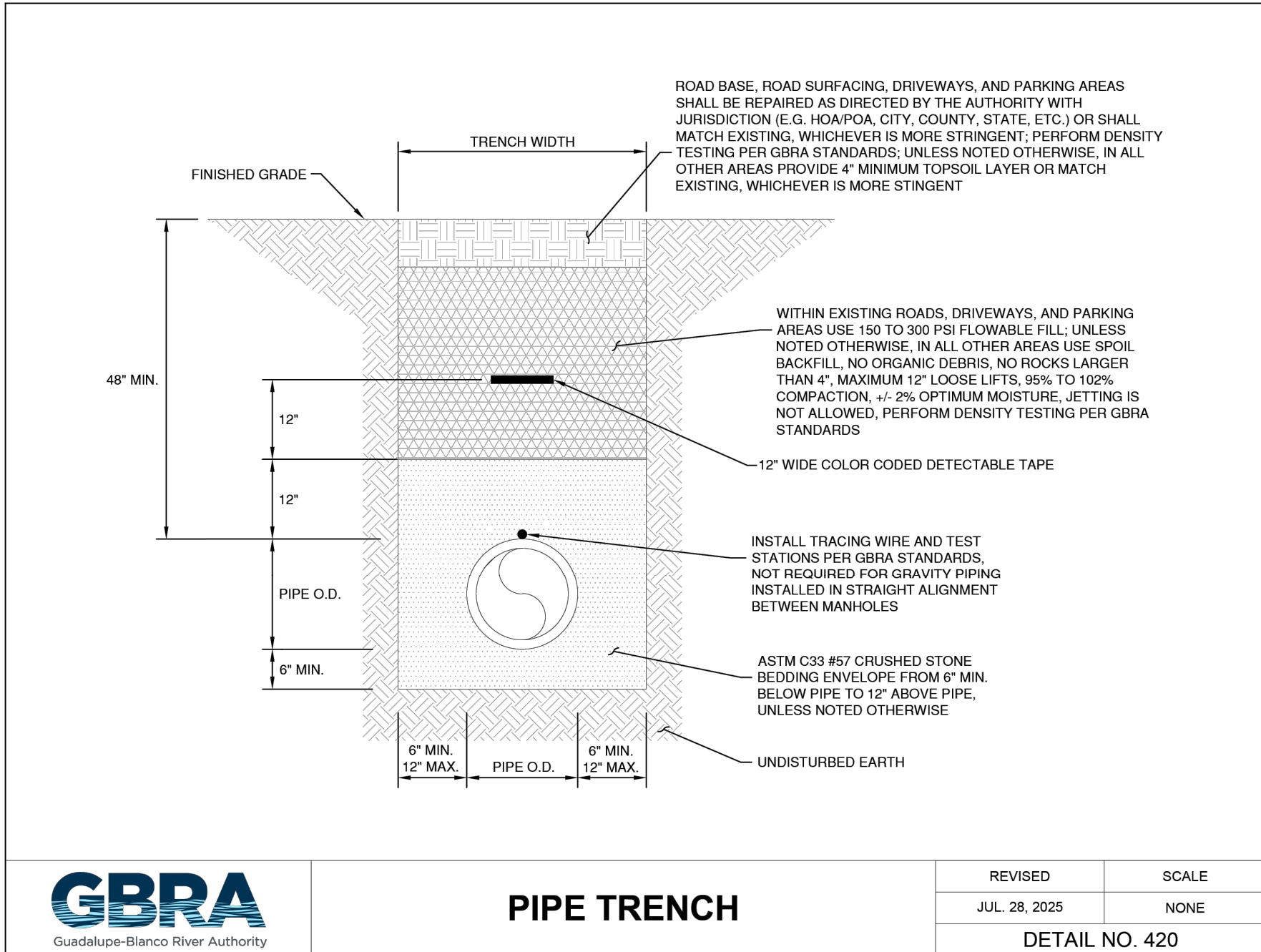
KHA PROJECT 068657038		DATE: APRIL 2026	SCALE: AS SHOWN	DESIGNED BY: AIG	DRAWN BY: SAL	CHECKED BY: VRS
AMMANN ROAD - GBRA WATER MAIN EXTENSION		PREPARED FOR: THE CITY OF BOERNE BOERNE, TX 78006				
WATER MAIN PLAN DETAIL STA. 56+00 - END		SHEET NUMBER C6				
KIMLEY-HORN		©2026 KIMLEY-HORN AND ASSOCIATES, INC. 10101 RELIANCE PL., SUITE 400, SAN ANTONIO, TX 78216 WWW.KIMLEY-HORN.COM TEL: 210-541-9166 TBE FIRM NO. 928				
PROFESSIONAL ENGINEER V. RYAN SOWA 91717		4/7/2026				
REVISIONS		DATE				

K:\SNA_Utilities\068657038 - Ammann Rd. GBRA Water Extension\CAD\PLANS\HEETS\068657038 - General Construction Details.dwg
 Plotted By: Horwitz, Jeffrey, April 07, 2026 08:28:05am
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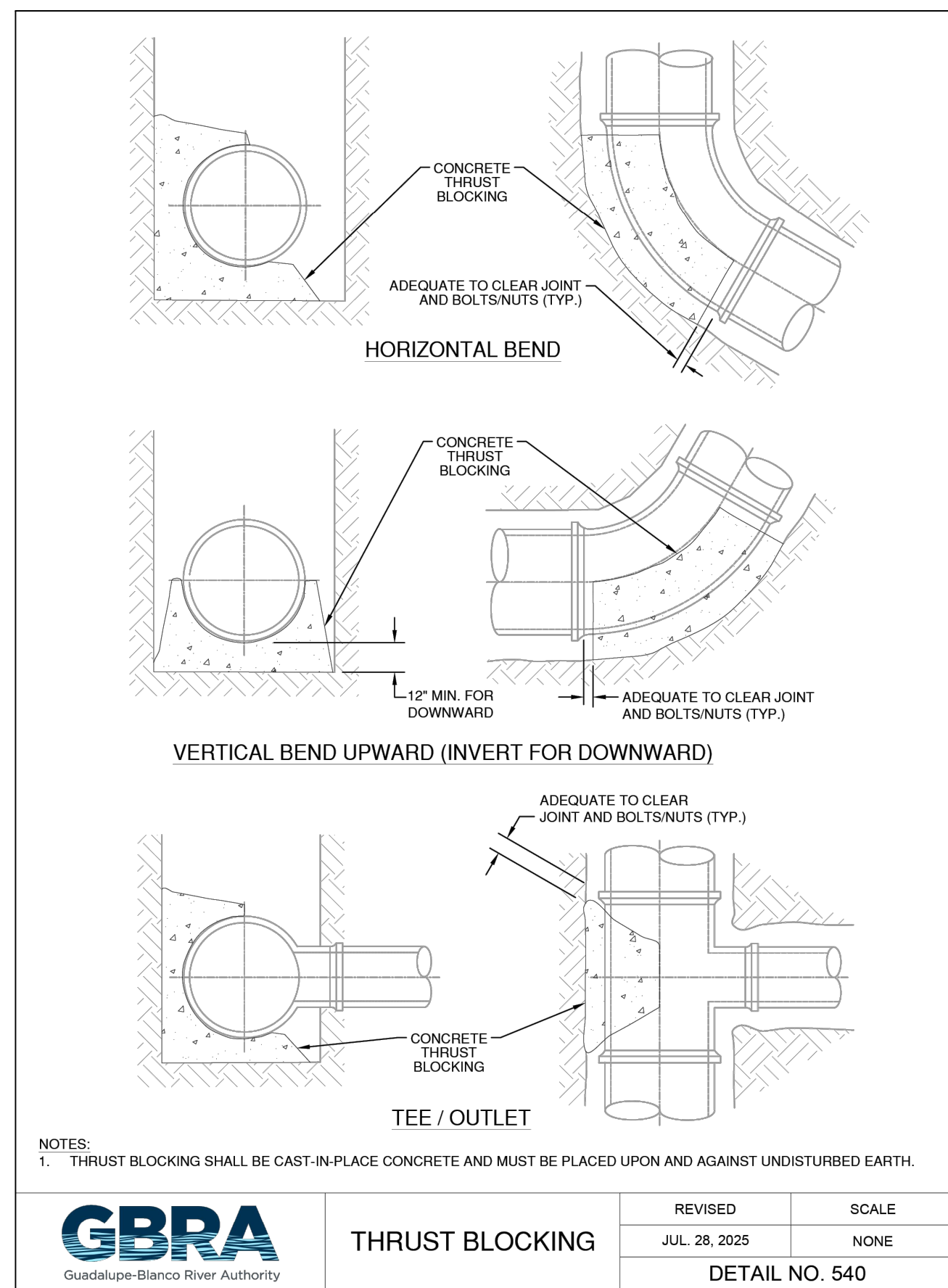
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		DETAIL NO. 230	

1 CASED BORE PIPELINE CROSSING DETAIL
SCALE: NTS



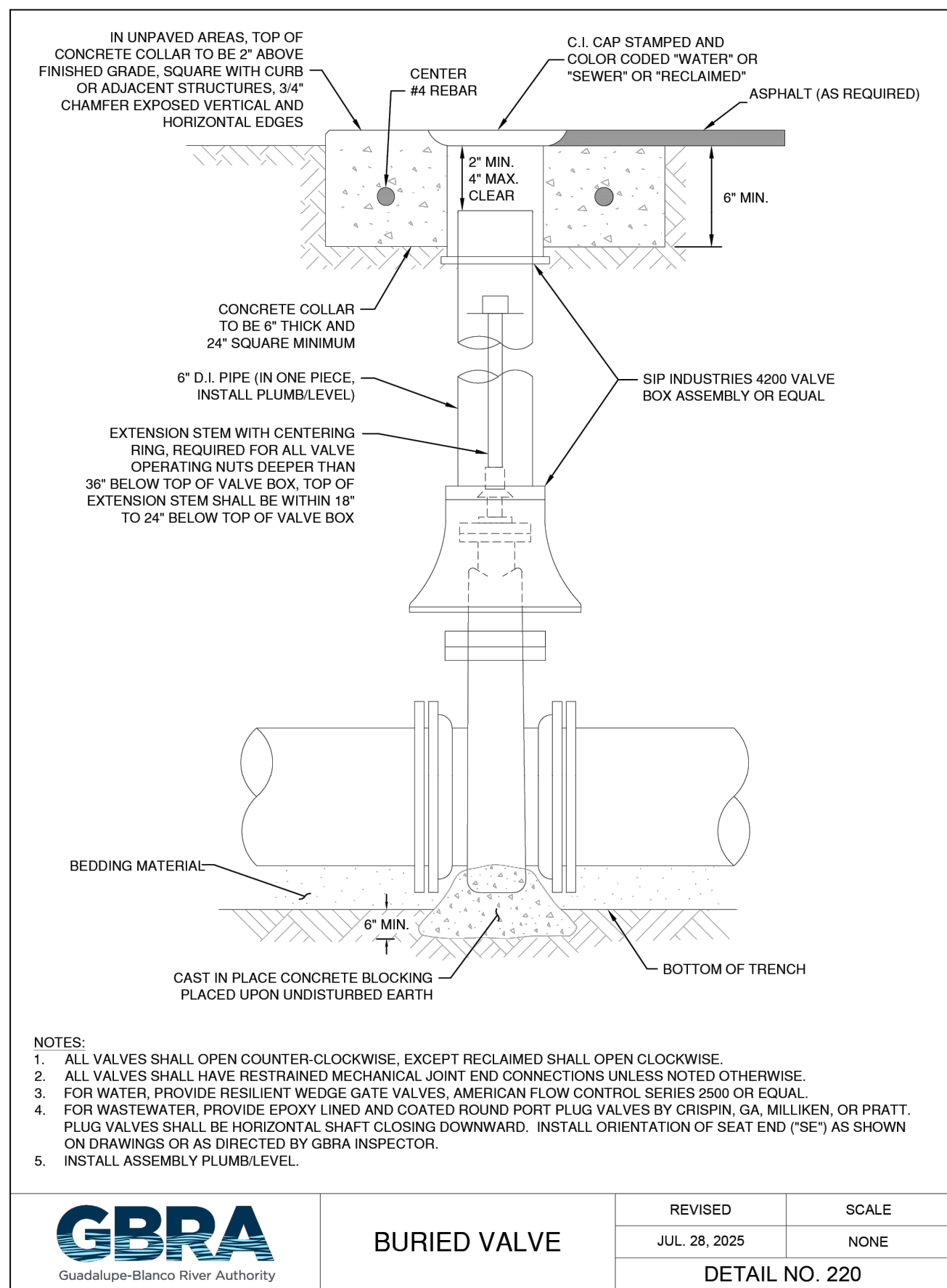
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		DETAIL NO. 420	

2 UTILITY PIPE TRENCH DETAIL
SCALE: NTS



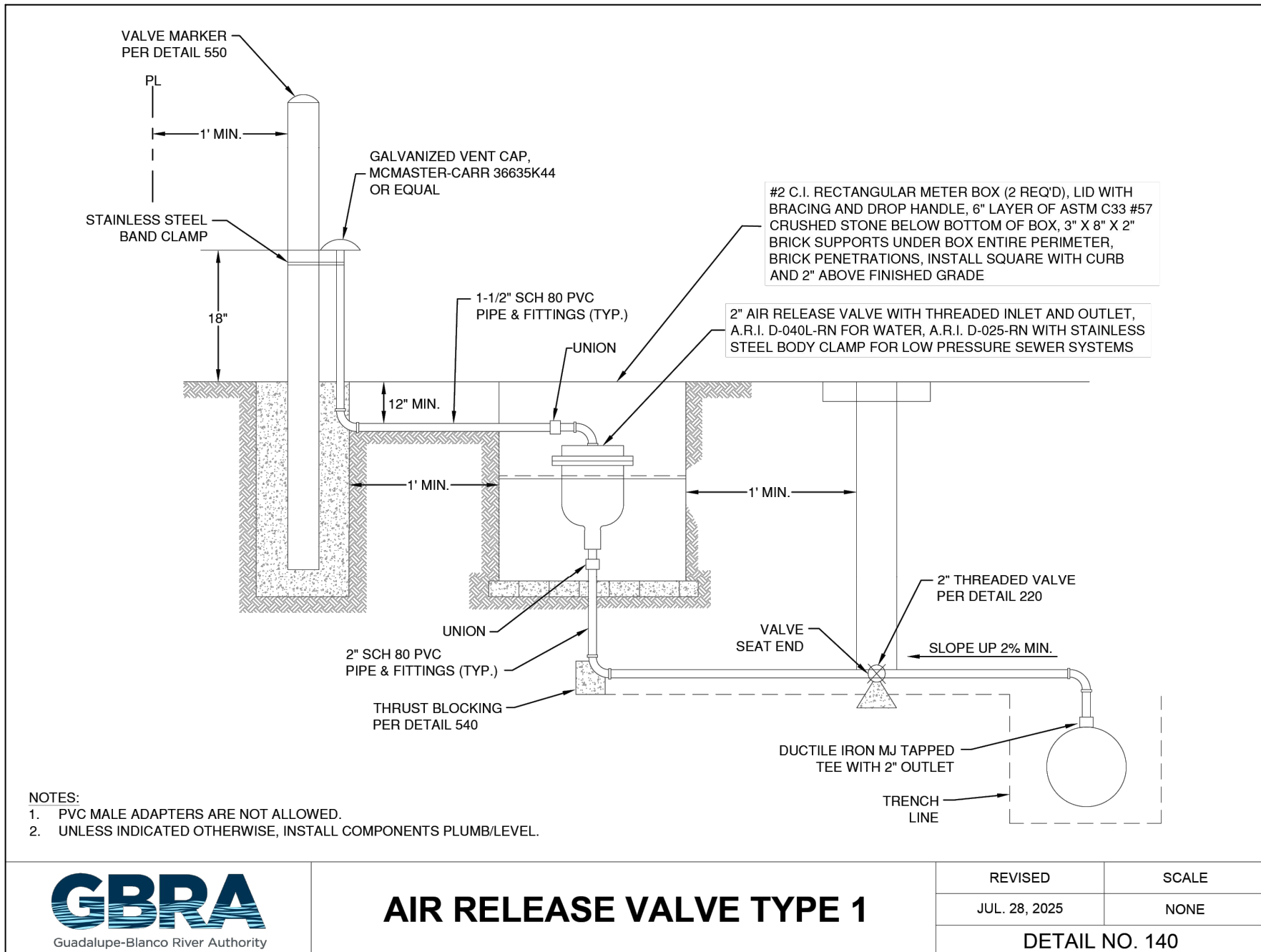
	THRUST BLOCKING	REVISED	SCALE
		JUL. 28, 2025	NONE
		DETAIL NO. 540	

3 MECHANICAL RESTRAINTS & THRUST BLOCKING DETAIL
SCALE: NTS



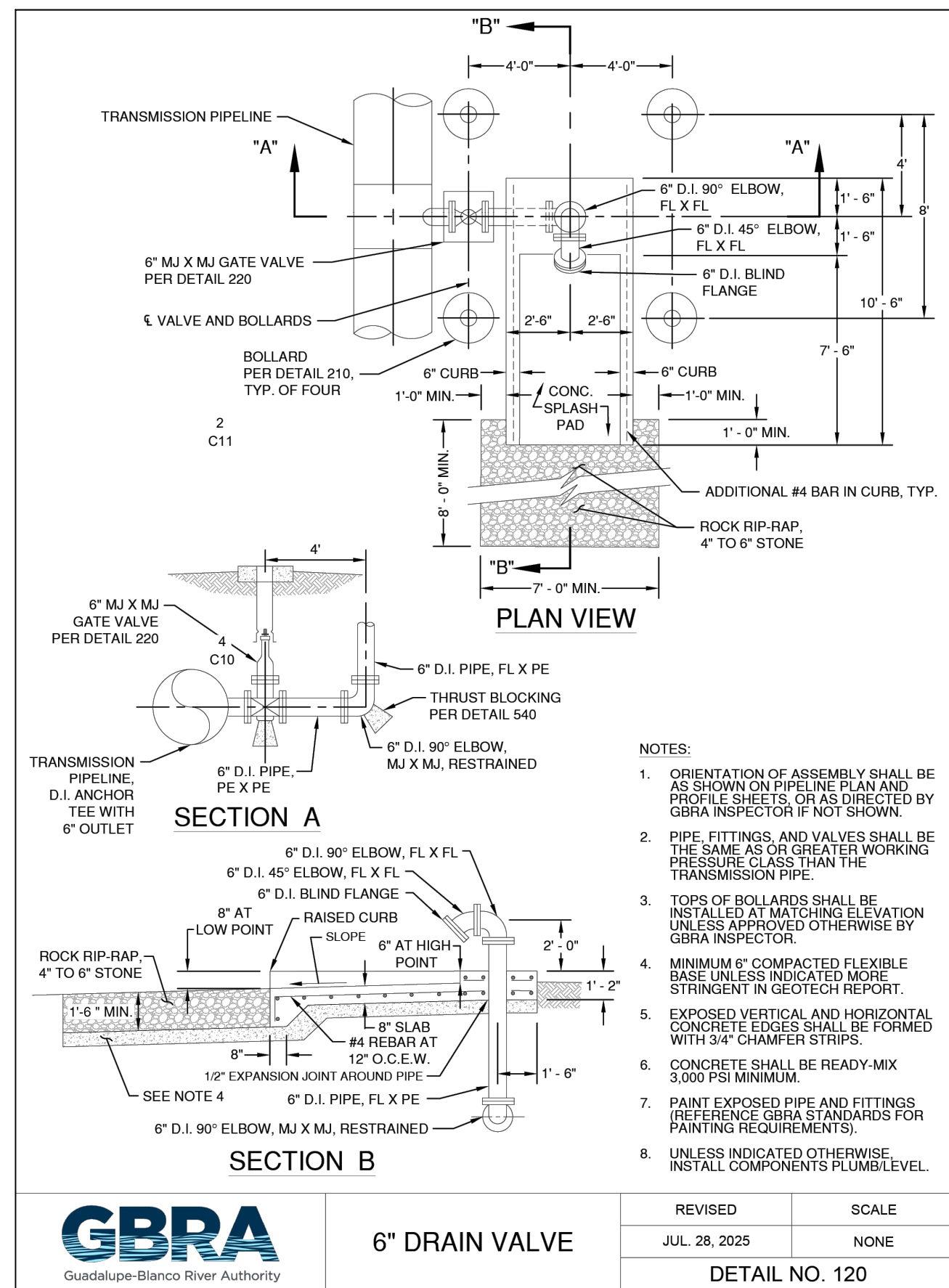
	BURIED VALVE	REVISED	SCALE
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		DETAIL NO. 220	

4 GATE VALVE ASSEMBLY DETAIL
SCALE: NTS



	AIR RELEASE VALVE TYPE 1	REVISED	SCALE
		JUL. 28, 2025	NONE
		DETAIL NO. 140	

5 AIR RELEASE VALVE FOR WATER TRANSMISSION MAIN DETAIL
SCALE: NTS



	6\"/> 	REVISED	SCALE
		JUL. 28, 2025	NONE
		DETAIL NO. 120	

6 6\"/>

No.	REVISIONS	DATE	BY

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 10101 REANION PL., SUITE 400, SAN ANTONIO, TX 78216
 PHONE: 210-541-9166
 WWW.KIMLEY-HORN.COM TUBE FIRM NO. 928

4/7/2026

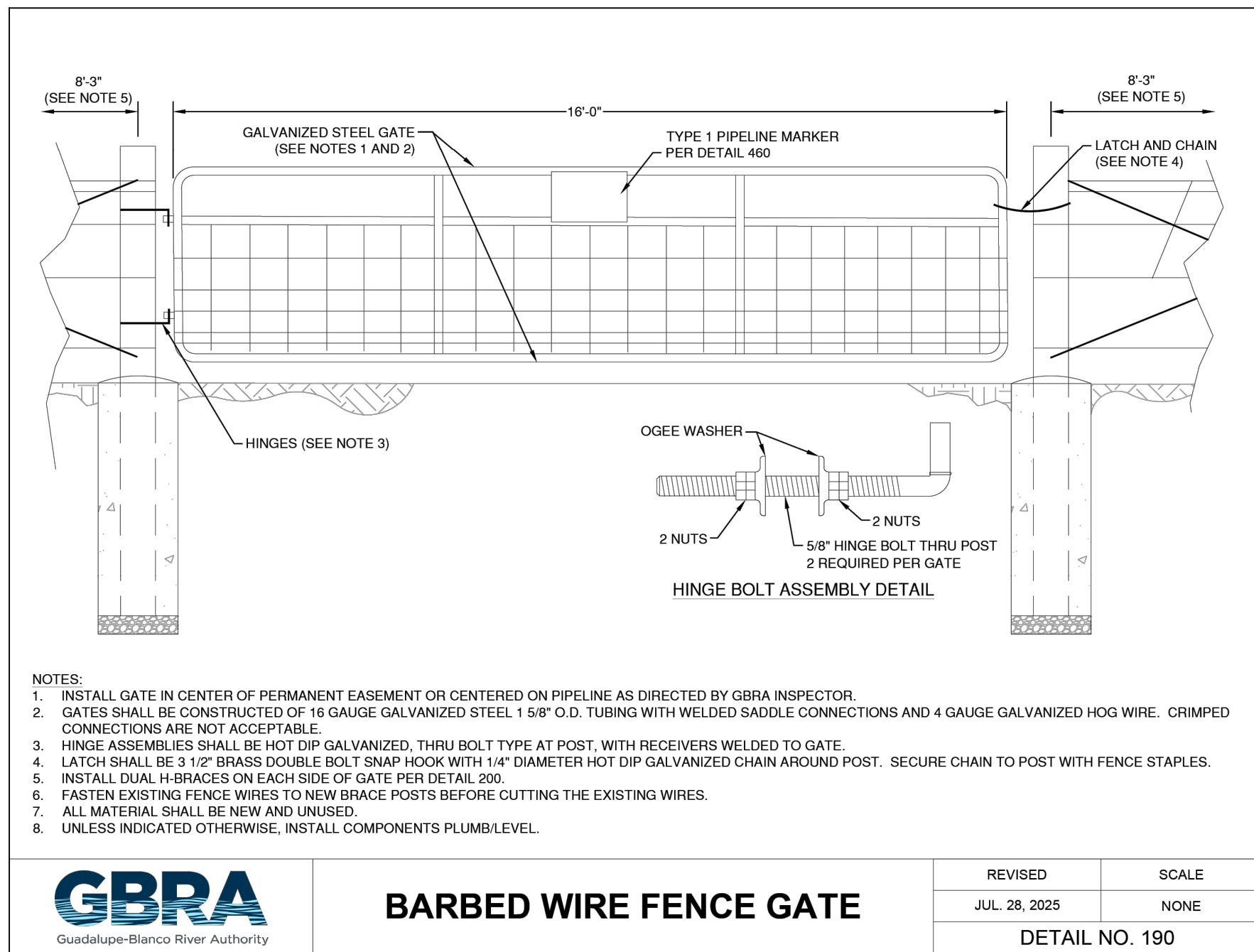
 V. RYAN SOWA
 REGISTERED PROFESSIONAL ENGINEER
 91171

KHA PROJECT	068657038
DATE:	APRIL 2026
SCALE:	AS SHOWN
DESIGNED BY:	AIG
DRAWN BY:	SAL
CHECKED BY:	VRS

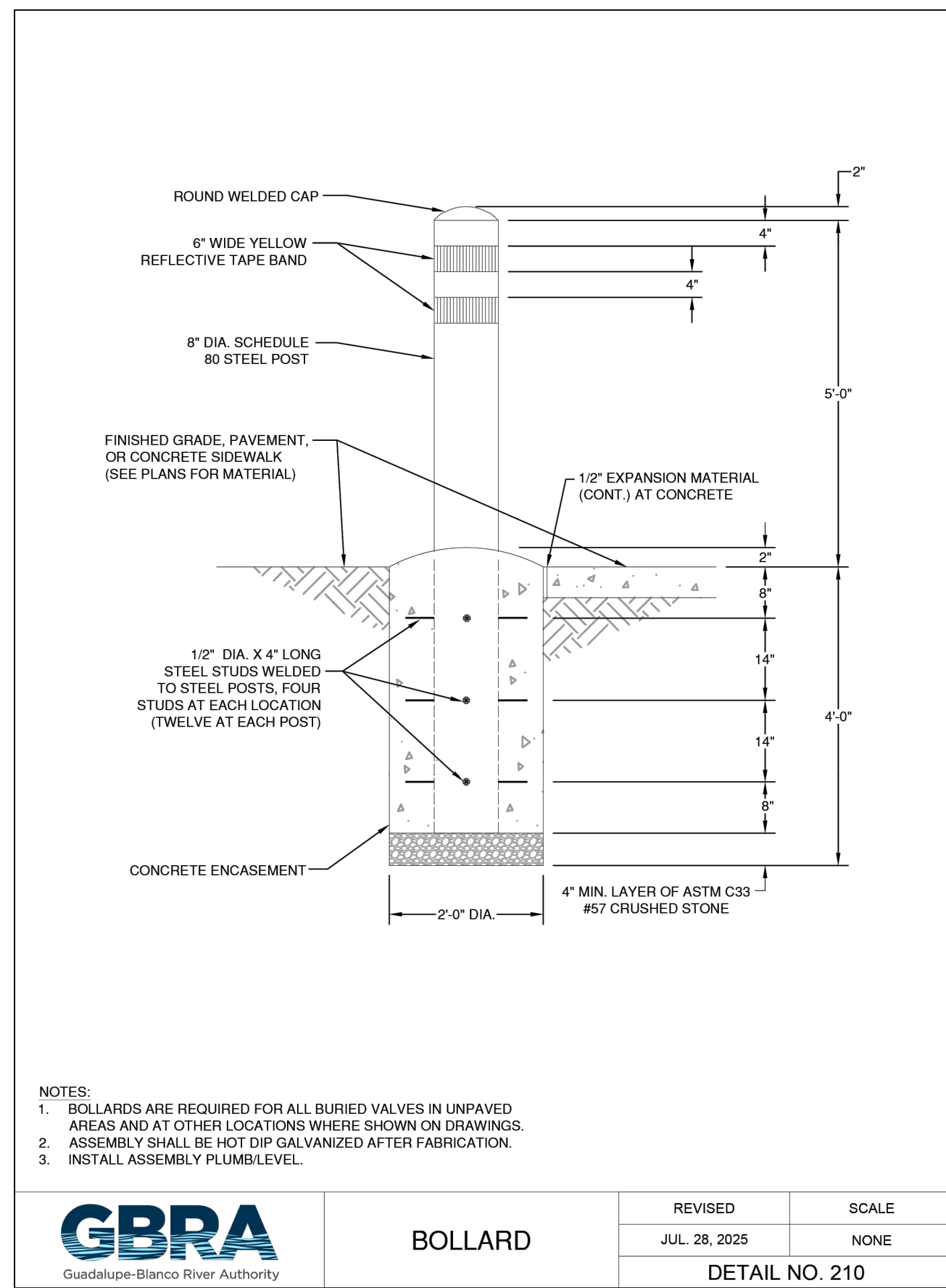
AMMANN ROAD - GBRA
 WATER MAIN EXTENSION
 PREPARED FOR:
 THE CITY OF BOERNE
 BOERNE, TX 78006

WATER DETAILS (1 OF 3)
 SHEET NUMBER
C10

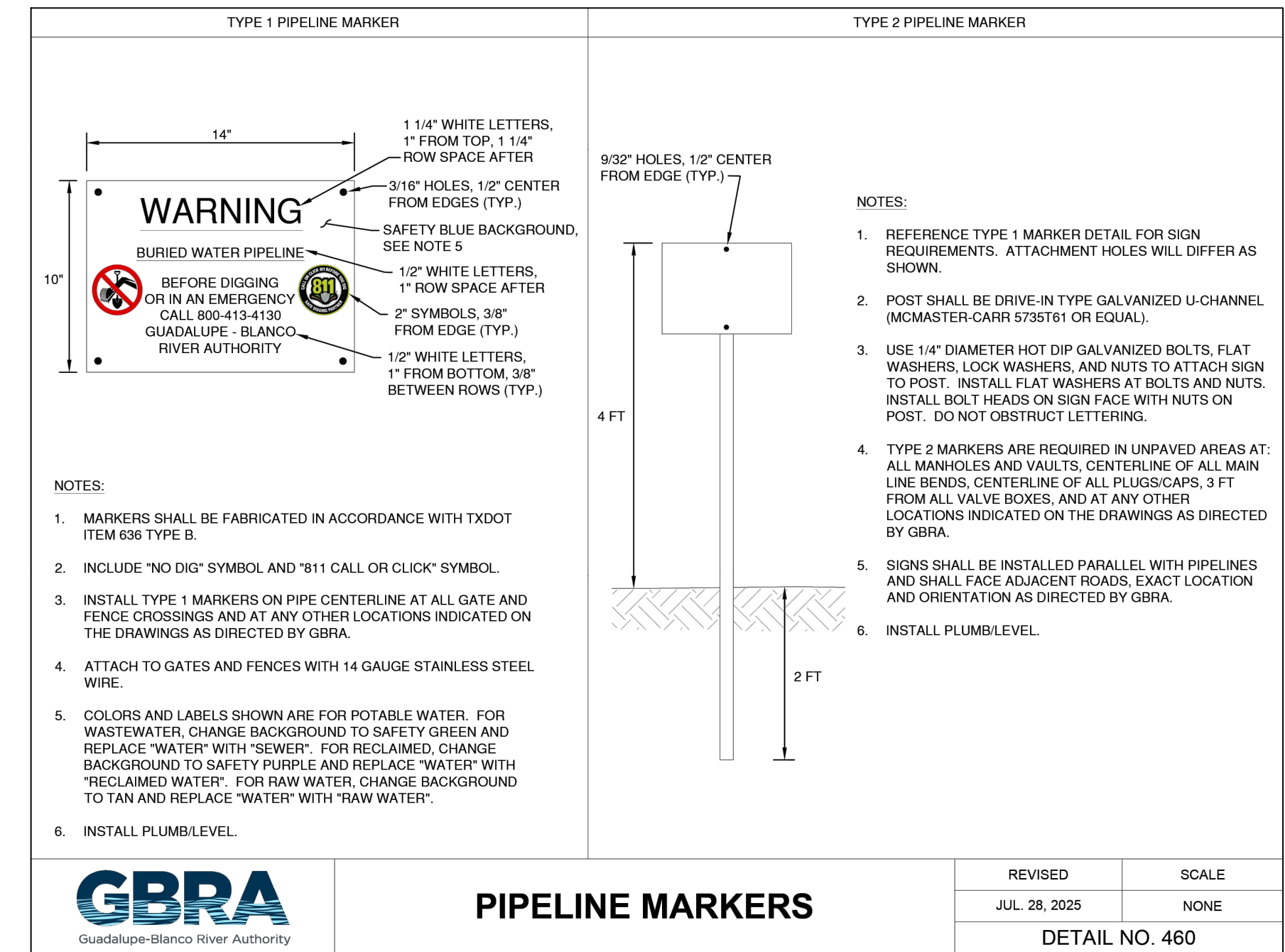
Plotted By: Horowitz, Jeffrey, April 07, 2026 08:29:09am
 K:\SNA UTILITIES\068657038 - Ammann Rd. GBRA Water Extension\CAD\PLANS\HEETS\068657038 - General Construction Details.dwg
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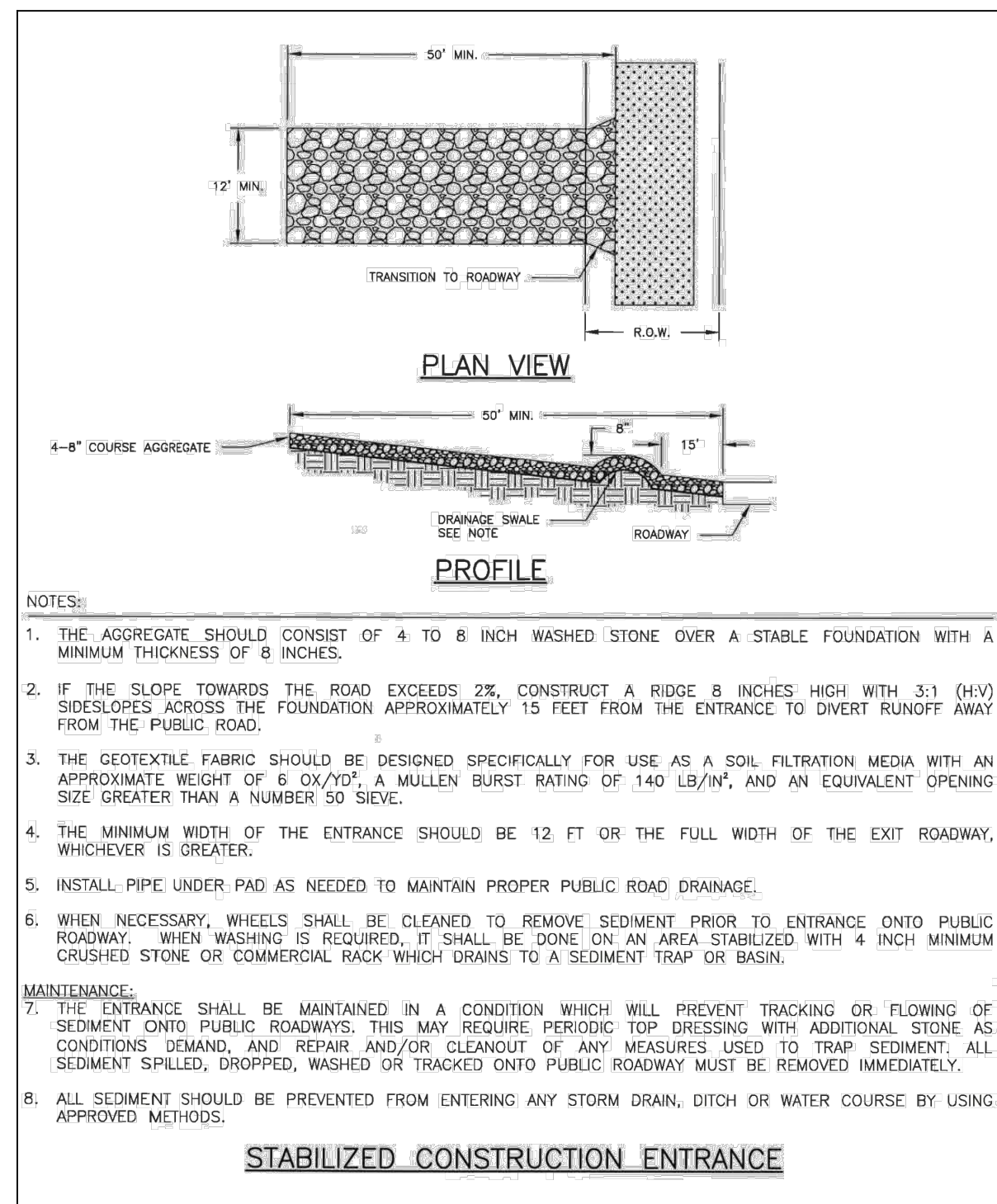
1 BARBED WIRE FENCE GATE DETAILS
DETAIL
SCALE: NTS



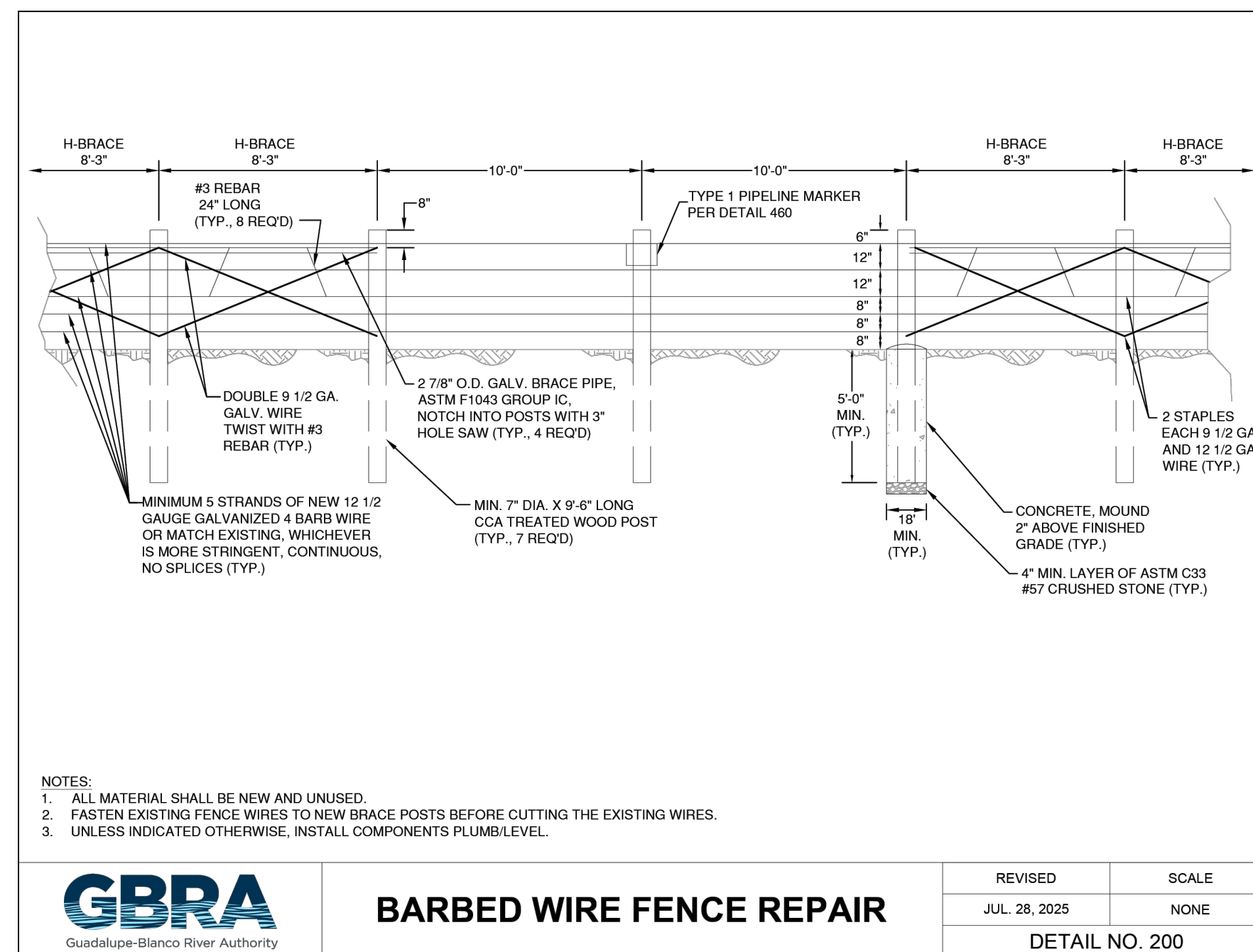
2 BOLLARD
DETAIL
SCALE: NTS



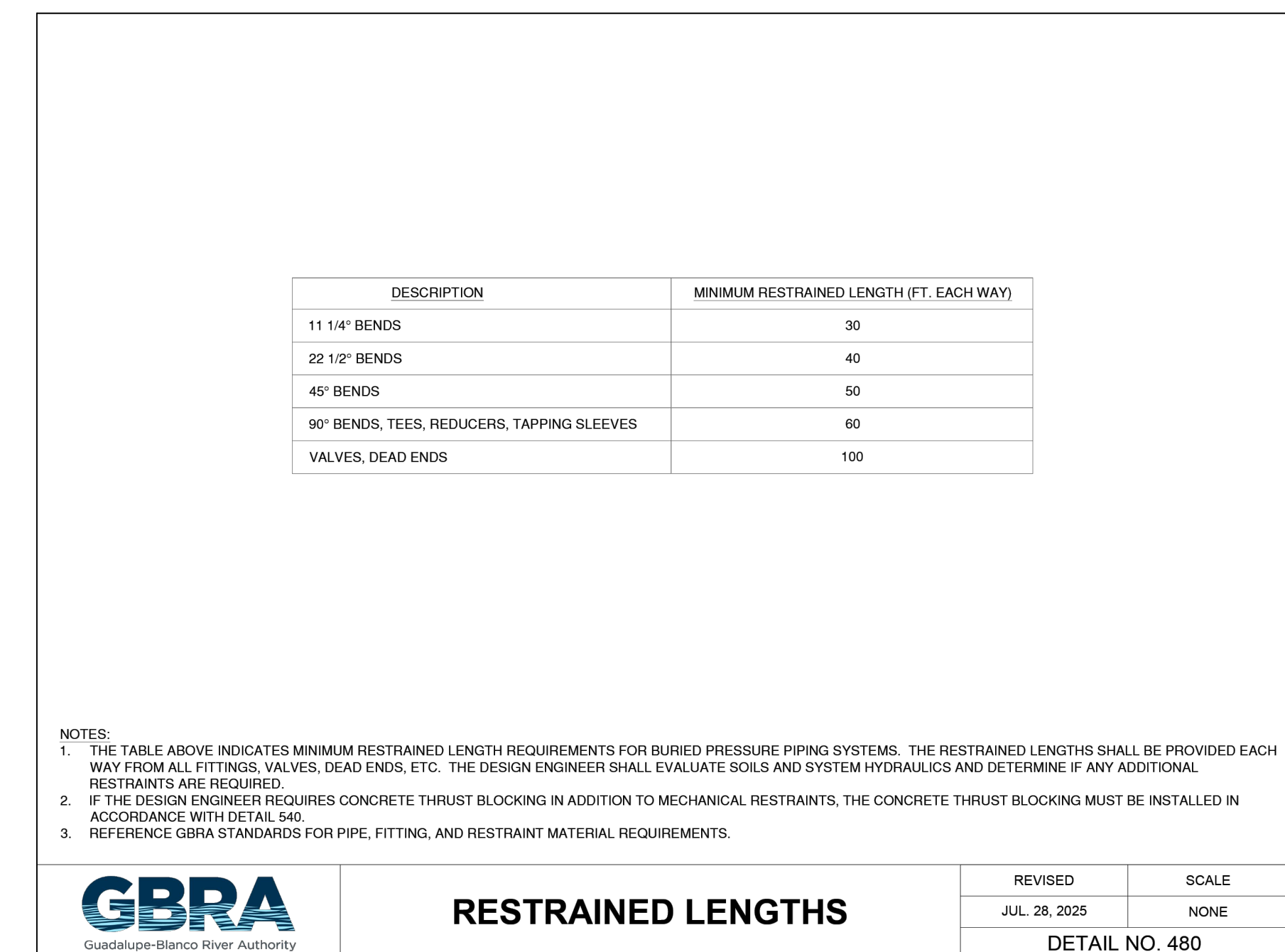
3 PIPELINE MARKERS
DETAIL
SCALE: NTS



4 STABILIZED CONSTRUCTION ENTRANCE
DETAIL
SCALE: NTS

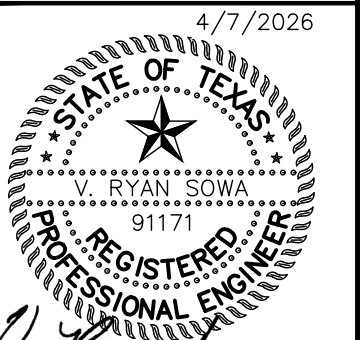


5 BARBED WIRE FENCE REPAIR
DETAIL
SCALE: NTS



6 RESTRAINED LENGTHS
DETAIL
SCALE: NTS

NO.	REVISIONS	DATE	BY



KHA PROJECT	068657038
DATE:	APRIL 2026
SCALE:	AS SHOWN
DESIGNED BY:	AIG
DRAWN BY:	SAL
CHECKED BY:	VRS

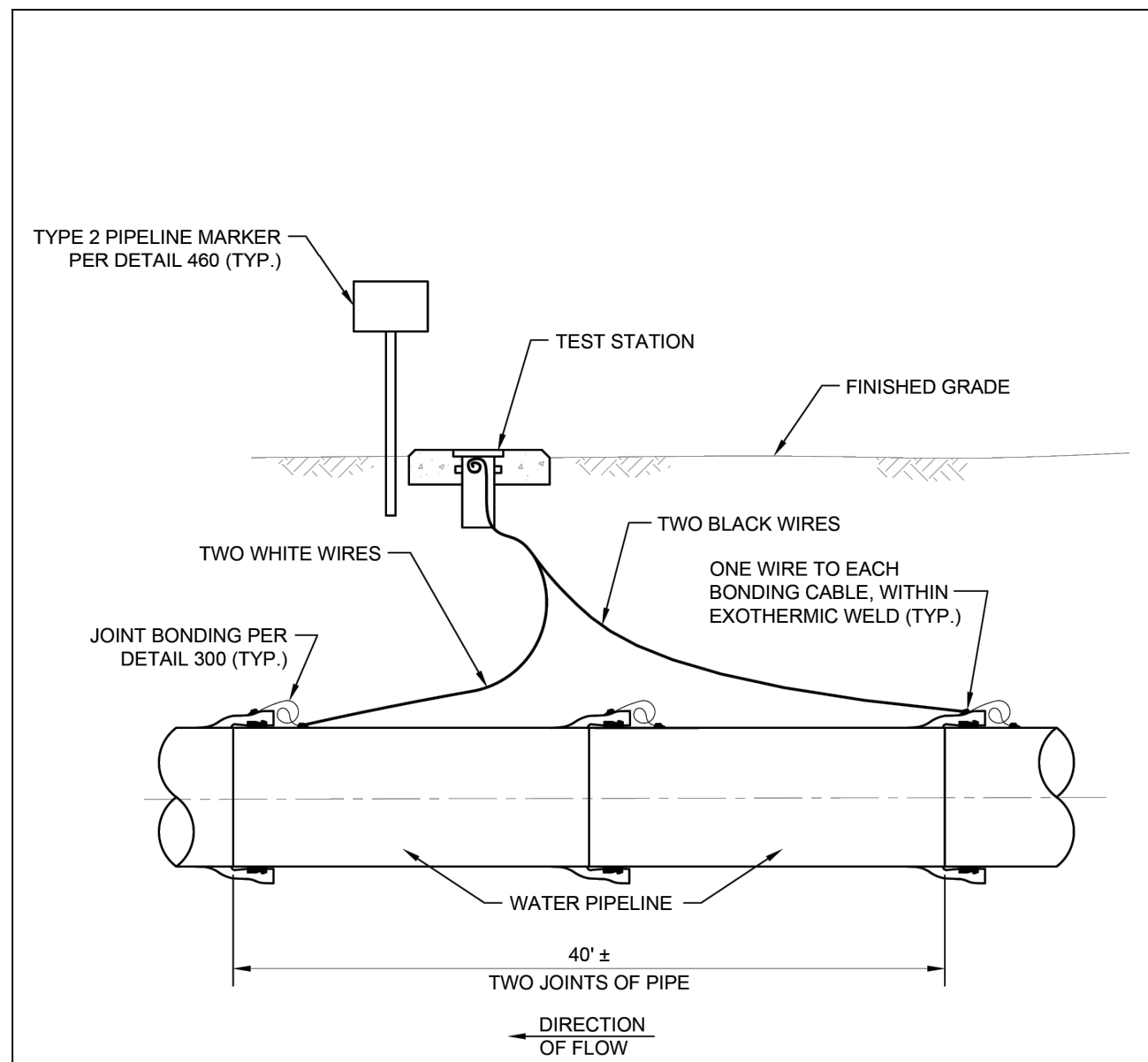
AMMANN ROAD - GBRA
WATER MAIN EXTENSION

PREPARED FOR:
THE CITY OF BOERNE
BOERNE, TX 78006

WATER DETAILS (2 OF 3)

SHEET NUMBER
C11

Plotted By: horowitz, jeffrey April 07, 2026 08:29:11am K:\SNA_Utility\068657038 - Amman Rd GBRA Water Extension\CAD PLANS\DETAILS\068657038 - General Construction - Details.dwg
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NOTES:

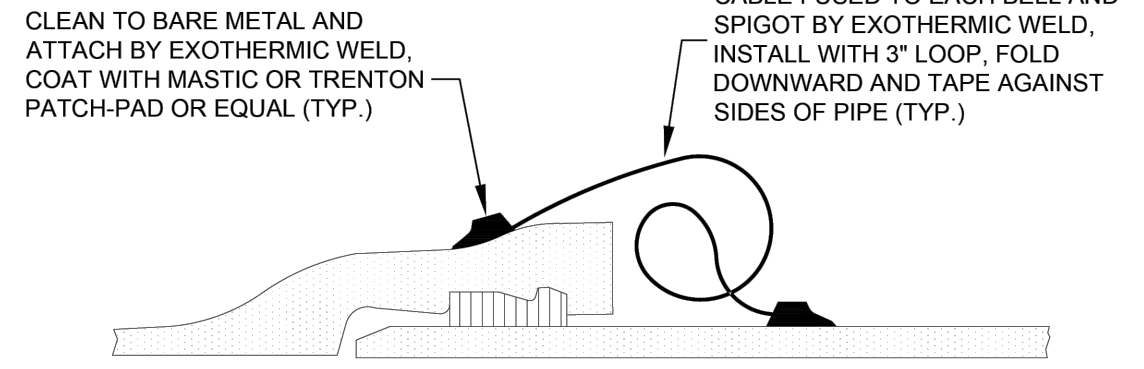
- TEST STATIONS SHALL BE COLOR CODED COPPERHEAD RB14TP. INSTALL TEST STATIONS AT ISOLATION VALVES, OR OTHERWISE TO ACHIEVE 2,000 LF MAXIMUM SPACING, WITHIN VALVE BOX CONCRETE COLLARS WITH 6" MINIMUM CONCRETE ENCASEMENT HORIZONTALLY ON ALL SIDES. LEAVE 12" SLACK IN ALL WIRES INSIDE TEST STATION. BUNDLE WIRES WITH ELECTRICAL TAPE 6" FROM END. SECURE ONLY ONE WIRE OF EACH COLOR TO TERMINAL POST.
- WIRES SHALL BE 12 GA COPPER CLAD STEEL WITH 30 MIL HDPE JACKET. SPLICES ARE NOT ALLOWED. TAPE WIRES TO TOP OF PIPE AT 4 FT MAXIMUM INTERVALS. BUNDLE WIRES WITH ELECTRICAL TAPE AT 2 FT MAXIMUM INTERVALS FROM TOP OF PIPE TO TEST STATION.
- INSTALL TEST STATIONS PLUMB/LEVEL.



CORROSION TEST STATION

REVISED	SCALE
JUL 28, 2025	NONE
DETAIL NO. 270	

1 CORROSION TEST STATION
 SCALE: NTS



NOTES:

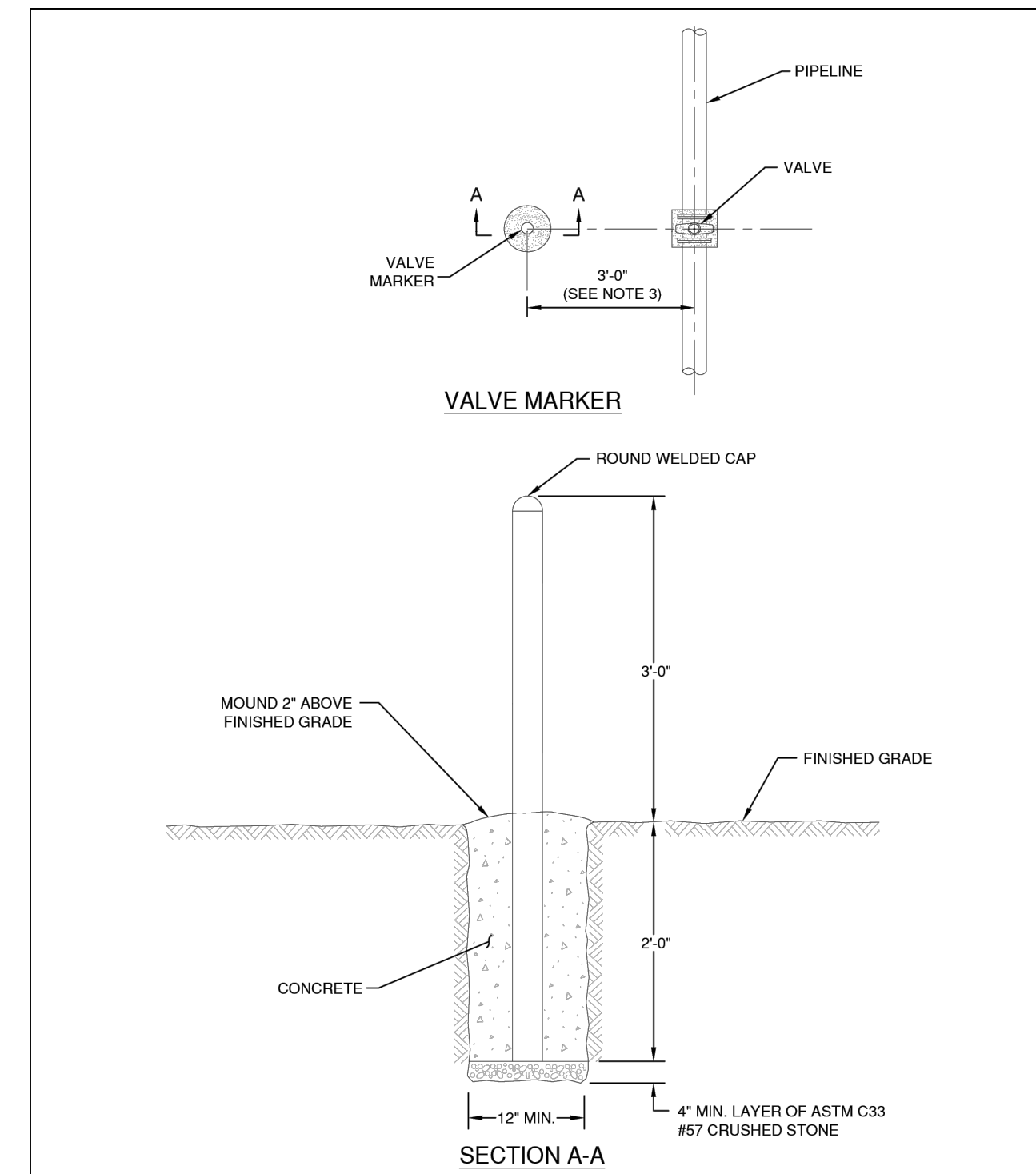
- BOND ALL JOINTS INCLUDING PIPE, FITTINGS, VALVES, ETC. USE CHARGE SIZES AS RECOMMENDED BY PIPE, FITTING, AND VALVE MANUFACTURERS.
- TWO BONDING CABLES REQUIRED AT EACH BELL, ONE ON EACH SIDE OF PIPELINE AT 45 DEGREES ABOVE SPRINGLINE, WITH SEPARATE WELDS FOR EACH CABLE.



DUCTILE IRON PIPELINE JOINT BONDING

REVISED	SCALE
JUL 28, 2025	NONE
DETAIL NO. 300	

2 DUCTILE IRON PIPELINE JOINT BONDING
 SCALE: NTS



NOTES:

- VALVE MARKERS ARE REQUIRED AT ALL BURIED VALVES IN UNPAVED AREAS AND AT OTHER LOCATIONS INDICATED ON THE DRAWINGS.
- VALVE MARKERS SHALL BE PAINTED 3" SCH 40 STEEL PIPE (REFERENCE GBRA STANDARDS FOR PAINTING REQUIREMENTS).
- EXACT LOCATION AS DIRECTED BY GBRA.
- INSTALL PLUMB/LEVEL.



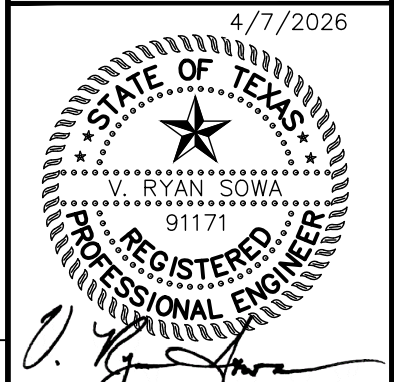
VALVE MARKER

REVISED	SCALE
JUL 28, 2025	NONE
DETAIL NO. 550	

3 VALVE MARKER
 SCALE: NTS

No.	REVISIONS	DATE	BY

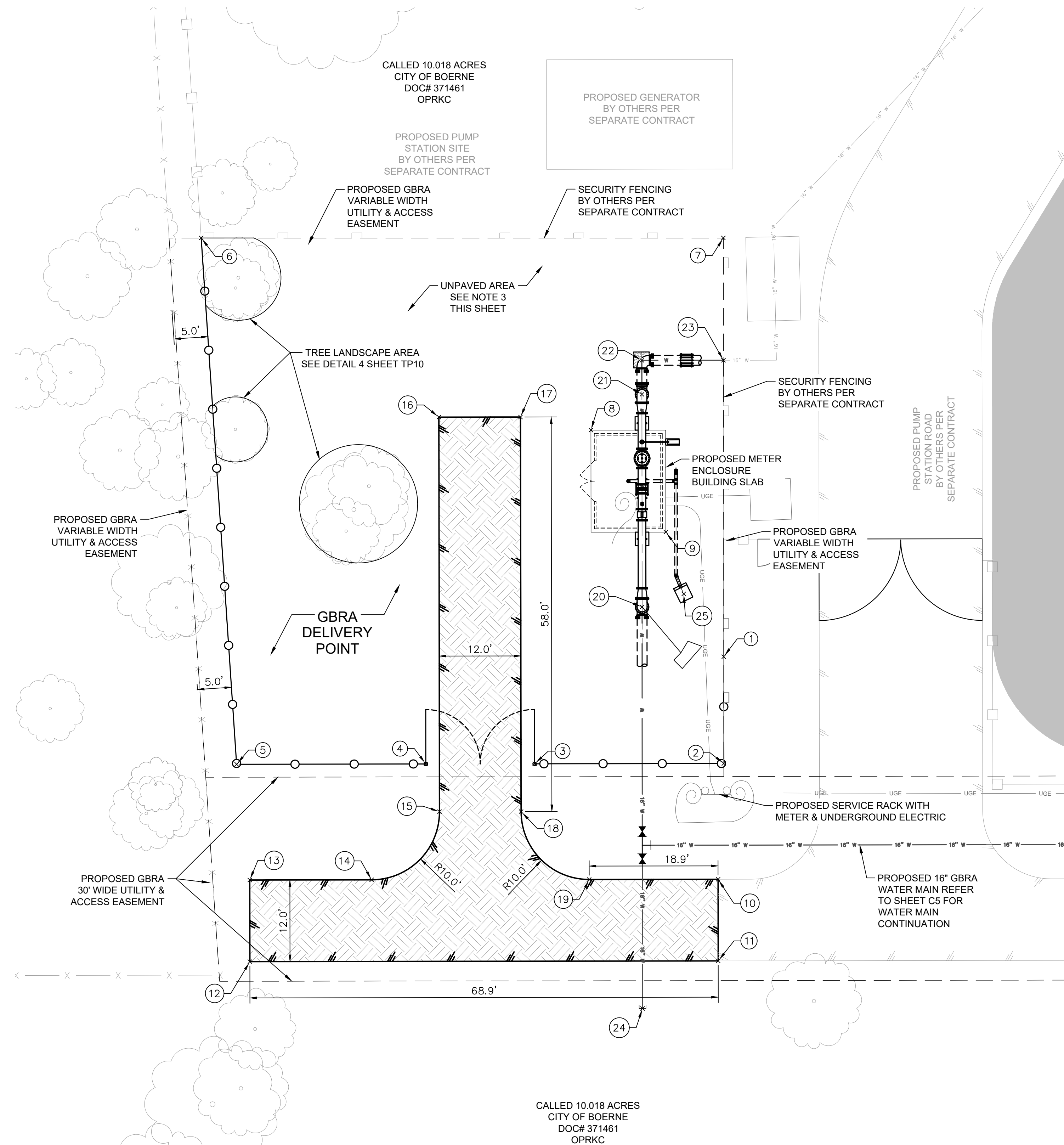
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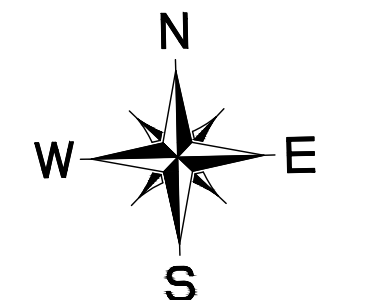
KHA PROJECT 068657038	DATE: APRIL 2026	DESIGNED BY: AIG	DRAWN BY: SAL	CHECKED BY: VRS
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AMMANN ROAD - GBRA WATER MAIN EXTENSION
 PREPARED FOR THE CITY OF BOERNE BOERNE, TX 78006

Plotted By: horwitz, jeffrey April 07, 2026 08:29:36am K:\SNA_utilities\068657038 - Ammann Rd GBRA Water Extension\CAD\PLANS\SHEETS\068657038 - Deliver Point Paving-Fencing-Yard Paving.dwg
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Point #	Northing	Easting	Description
1	13832735.70	2086669.16	FENCE CORNER
2	13832720.00	2086668.83	FENCE CORNER
3	13832720.58	2086641.01	GATE CORNER
4	13832720.91	2086625.01	GATE CORNER
5	13832721.49	2086597.20	FENCE CORNER
6	13832798.97	2086593.73	FENCE CORNER
7	13832797.25	2086670.49	FENCE CORNER
8	13832769.43	2086650.39	EQUIPMENT SLAB
9	13832754.20	2086661.06	EQUIPMENT SLAB
10	13832703.00	2086667.60	EDGE OF PAVEMENT
11	13832691.00	2086667.35	EDGE OF PAVEMENT
12	13832692.44	2086598.50	EDGE OF PAVEMENT
13	13832704.43	2086598.75	EDGE OF PAVEMENT
14	13832704.06	2086616.66	EDGE OF PAVEMENT
15	13832713.85	2086626.87	EDGE OF PAVEMENT
16	13832771.85	2086628.08	EDGE OF PAVEMENT
17	13832771.59	2086640.08	EDGE OF PAVEMENT
18	13832713.60	2086638.86	EDGE OF PAVEMENT
19	13832703.39	2086648.65	EDGE OF PAVEMENT
20	13832743.28	2086657.32	90° VERT BEND, DI, MJ X FL
21	13832774.52	2086658.00	90° VERT BEND, DI, MJ X FL
22	13832779.52	2086658.11	90° HORZ BEND, DI, MJ
23	13832779.26	2086670.11	16" CAP MJ
24	13832684.26	2086656.07	16" CAP MJ
25	13832745.06	2086663.49	CONCRETE HEADWALL



GRAPHIC SCALE 10'
 FULL SIZE 1" = 10'
 HALF SIZE 1" = 5'

LEGEND

	PROPOSED WATER LINE
	PROPERTY LINE
	EASEMENT BOUNDARY
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT/SIDEWALK
	CONCRETE TXDOT SURVEY MONUMENT
	FENCE
	OVERHEAD ELECTRIC
	UNDERGROUND TELEPHONE
	UNDERGROUND FIBER OPTIC
	EXISTING WATER MAIN
	100-YR FLOODPLAIN
	BENCH MARK
	POWER POLE
	GUY ANCHOR
	TREES REMOVED BY OTHERS PER SEPARATE CONTRACT
	EXISTING TREES TO REMAIN
	EXISTING TREE TO BE REMOVED
	FLEX BASE - SEE DETAIL 5 SHEET DP10

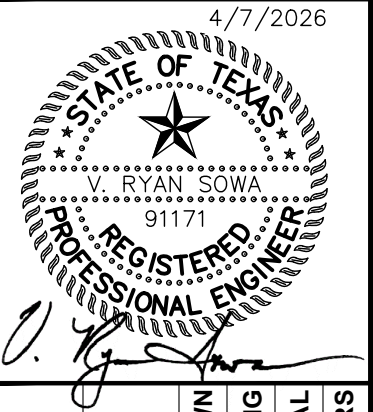
NOTE:

1. THE CONTRACTOR SHALL REESTABLISH ANY PROPERTY MARKERS, BENCHMARKS, ETC. DISTURBED DURING CONSTRUCTION TO ITS ORIGINAL LOCATION.
2. CONTRACTOR SHALL OBTAIN ALL NECESSARY TRADE PERMITS REQUIRED BY THE CITY BOERNE AND GBRA PRIOR TO ALL CONSTRUCTION.
3. ALL UNPAVED AREAS OF SITE WITHIN FENCED BOUNDARIES SHALL BE COVERED WITH DEWITT PRO 5 WEED BARRIER OR EQUAL AND A 6" LAYER OF TXDOT ITEM 421 GRADE 1 CRUSHED STONE COARSE AGGREGATE.

NO.	REVISIONS	DATE	BY

Kimley-Horn

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 PHONE: 210-541-9166
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KHA PROJECT	DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
068657038	APRIL 2026	AS SHOWN	AIG	SAL	VRS

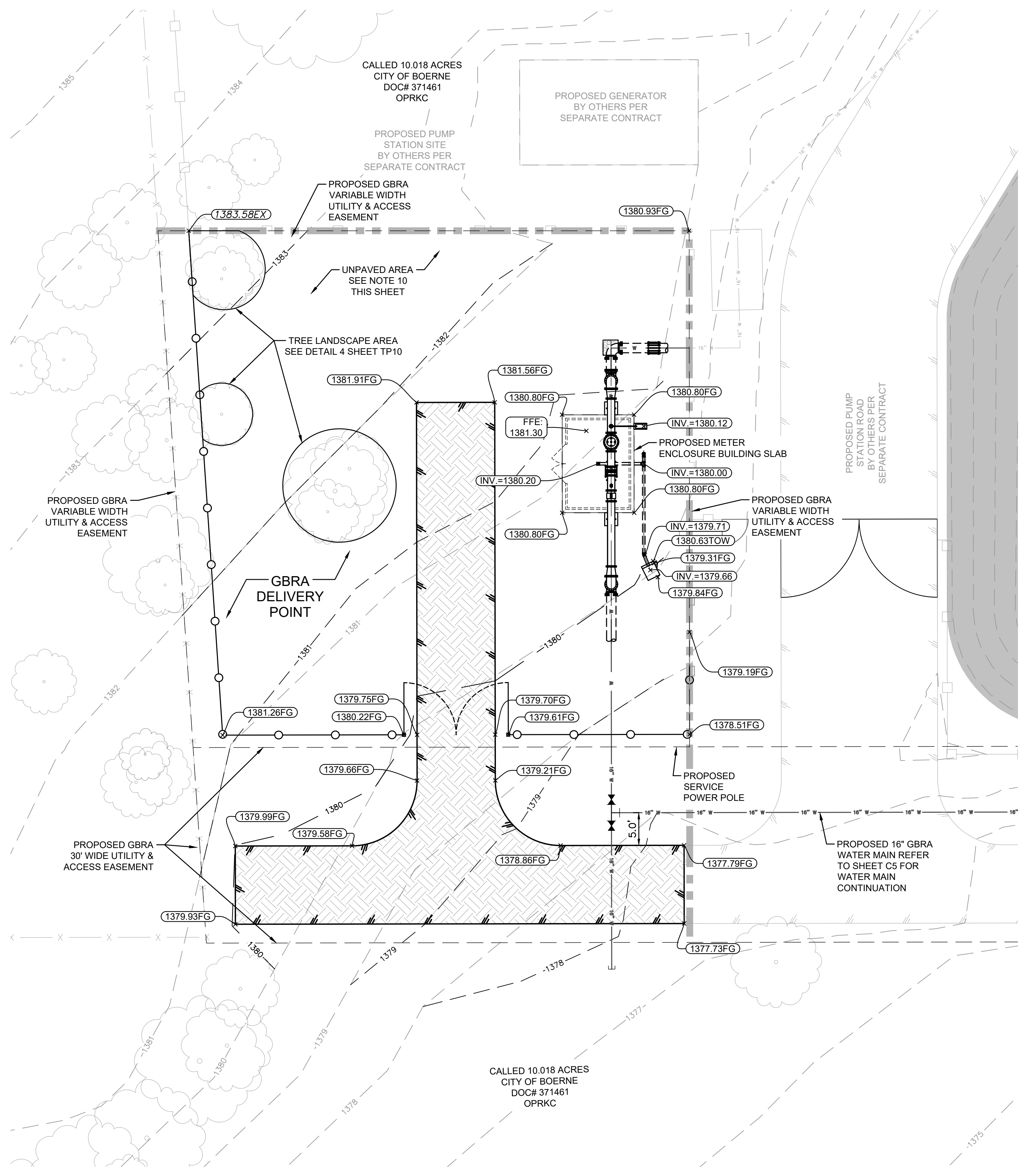
AMMANN ROAD - GBRA WATER MAIN EXTENSION

PREPARED FOR
 THE CITY OF BOERNE
 BOERNE, TX 78006

DELIVERY POINT
 PAVING - FENCING -
 YARD PIPING PLAN

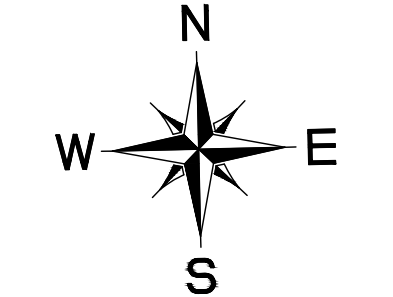
SHEET NUMBER
DP1

Plotted By: horwitz, jeffrey April 07, 2026 08:29:52am K:\SNA_utilities\068657038 - Ammann Rd. GBRA Water Extension\CAD\PLANS\HEETS\068657038 - Grading Plan.dwg
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NOTE:

1. THE CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES AND PROVIDE AND MAINTAIN EROSION PROTECTION IN AND ADJACENT TO THE CONSTRUCTION LIMITS.
2. ALL STRUCTURES SHALL HAVE 6" OF CLEARANCE BETWEEN TOP OF SLAB AND PROPOSED NATURAL GROUND.
3. CONTRACTOR SHALL GRADE THE SITE TO PROVIDE POSITIVE DRAINAGE AROUND ALL STRUCTURES AND SLABS.
4. THE CONTRACTOR SHALL REESTABLISH ANY PROPERTY MARKERS, BENCHMARKS, ETC. DISTURBED DURING CONSTRUCTION TO ITS ORIGINAL LOCATION.
5. THE CONTRACTOR SHALL HAUL AWAY AND PROPERLY DISPOSE OF SURPLUS EXCAVATED MATERIALS AT NO COST TO THE OWNER. ANY REQUIRED PERMITS, OR OTHER ASSOCIATED DISPOSAL REQUIREMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL COORDINATE WITH OWNER IF EXCESS MATERIAL IS TO BE STORED WITHIN CITY OF BOERNE PROPERTY. EXACT LOCATION OF MATERIAL STORAGE SHALL BE DETERMINED BY THE ENGINEER AND/OR OWNER.
6. CONTRACTOR SHALL OBTAIN ALL NECESSARY TRADE PERMITS REQUIRED BY KENDALL COUNTY PRIOR TO ALL CONSTRUCTION.
7. NO EARTHEN SLOPE SHALL BE GREATER THAN 3:1, UNLESS OTHERWISE NOTED.
8. EXISTING MANHOLE TOPS, VALVE BOXES, ETC. ARE TO BE ADJUSTED AS REQUIRED TO MATCH PROPOSED GRADES. IF NECESSARY, READJUSTMENTS SHALL BE PERFORMED UPON COMPLETION OF PAVING AND FINE GRADING TO ENSURE A SMOOTH TRANSITION.
9. GRADING SHALL NOT OCCUR IN CANOPY OF TREES THAT SHALL REMAIN.
10. ALL UNPAVED AREAS OF SITE AND LANDSCAPED AREAS WITHIN FENCED BOUNDARIES SHALL BE COVERED WITH WEED BARRIER AND A 6" LAYER OF TXDOT GRADE I CRUSHED STONE COARSE AGGREGATE.
11. CONTRACTOR TO POSITION PROPOSED FENCING AND MOWSTRIP AS TO NOT DAMAGE EXISTING TREES INCLUDING ROOTS.



GRAPHIC SCALE 10'
 FULL SIZE 1" = 10'
 HALF SIZE 1" = 5'

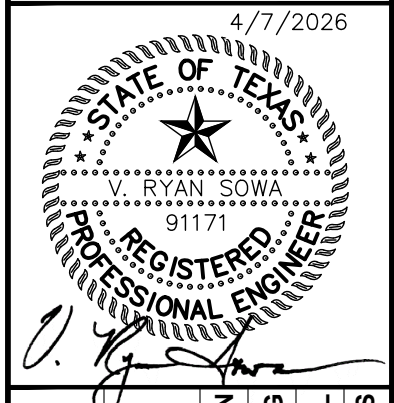
LEGEND

	PROPOSED WATER LINE
	PROPERTY LINE
	EASEMENT BOUNDARY
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT/SIDEWALK
	CONCRETE TXDOT SURVEY MONUMENT
	FENCE
	OVERHEAD ELECTRIC
	UNDERGROUND TELEPHONE
	UNDERGROUND FIBER OPTIC
	EXISTING WATER MAIN
	100-YR FLOODPLAIN
	BENCH MARK
	POWER POLE
	GUY ANCHOR
	TREES REMOVED BY OTHERS PER SEPARATE CONTRACT
	EXISTING TREES TO REMAIN
	EXISTING TREE TO BE REMOVED
	PROPOSED SPOT ELEVATION
	FG FINISH GRADE
	TOW TOP OF WALL
	INV.= DRAIN PIPE INVERT
	F.F.E. FINISHED FLOOR ELEVATION
	LIMITS OF GRADING
	FLEX BASE - SEE DETAIL 5 SHEET DP10

NO.	REVISIONS	DATE	BY

Kimley >> Horn

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 10101 RELIANCE PL., SUITE 400, SAN ANTONIO, TX 78216
 PHONE: 210-541-9166
 WWW.KIMLEY-HORN.COM TBE FIRM NO. 928



KHA PROJECT	068657038
DATE:	APRIL 2026
SCALE:	AS SHOWN
DESIGNED BY:	AIG
DRAWN BY:	SAL
CHECKED BY:	VRS

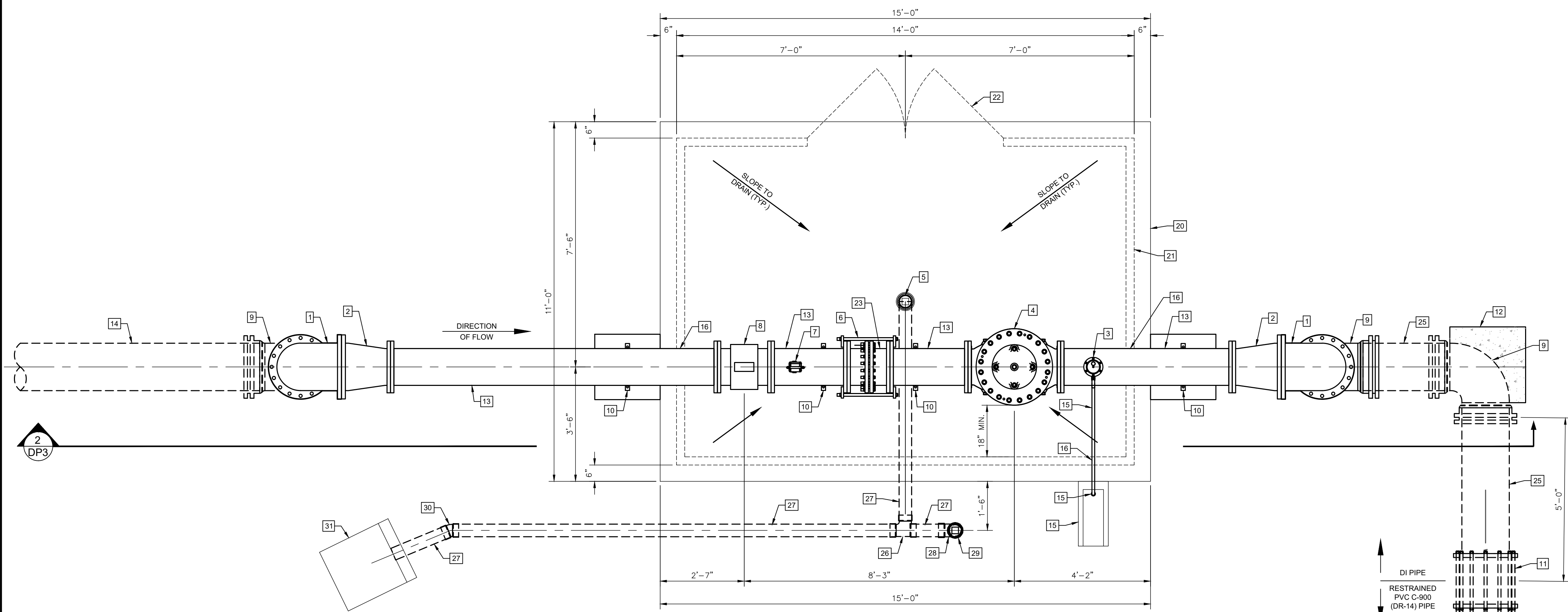
AMMANN ROAD - GBRA WATER MAIN EXTENSION

PREPARED FOR
 THE CITY OF BOERNE
 BOERNE, TX 78006

DELIVERY POINT GRADING - SITE LAYOUT

SHEET NUMBER
DP2

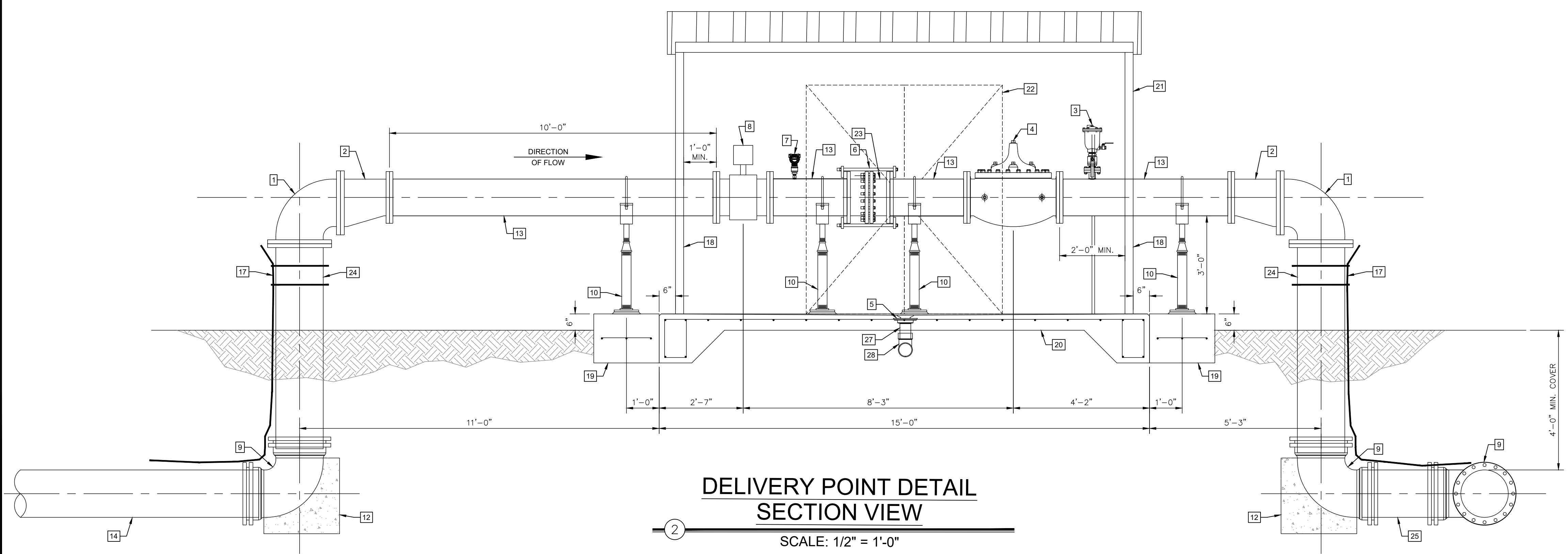
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DELIVERY POINT DETAIL
PLAN VIEW
 SCALE: 1/2" = 1'-0"

- NOTES**
1. ALL DIMENSIONS SHALL BE FIELD VERIFIED AND CONFIRMED BY THE EQUIPMENT SUPPLIER AND CONTRACTOR, PRIOR TO MANUFACTURING AND CONSTRUCTION.
 2. PAINT ALL ABOVE GRADE PIPING AND EQUIPMENT PER SPECIFICATION DIVISION 9 - FINISHES (09905 "PAINTING AND PROTECTIVE COATINGS").
 3. ALL PILOT TUBES AND PIPING ASSOCIATED WITH CONTROL VALVES, COMBINATION AIR RELEASE VALVES, SAMPLE TAPS, DRAIN OUTLETS, AND PRESSURE GAUGES TO BE INSULATED.
 4. ALL PIPING TO BE RATED FOR A MINIMUM 200 PSI WORKING PRESSURE.
 5. ALL BURIED AND OUTDOOR NUTS, BOLTS, AND WASHERS SHALL BE 304 STAINLESS STEEL. USE ANTI-SEIZE COMPOUND.
 6. FLANGE PATTERN AND PRESSURE RATING SHALL MATCH PUMPS AND VALVES WHERE CONNECTED. INSTALLATION CONTRACTOR TO VERIFY.
 7. THE DIMENSIONS OF VALVES AND PIPING ARE BASED ON SUPPLIER INFORMATION AND GENERAL DESIGN STANDARDS. CONTRACTOR SHALL VERIFY ALL LAY LENGTH PRIOR TO THE ADJUSTMENTS REQUIRED TO ACCOMMODATE ANY EQUIPMENT OR PIPING DIMENSIONS WHICH DIFFER FROM THOSE SHOWN. ANY QUESTIONS REGARDING DIMENSION ADJUSTMENTS SHALL BE DIRECTED TO THE ENGINEER.
 8. VERIFY DIMENSIONS WITH VALVE MANUFACTURER PRIOR TO CONSTRUCTION.
 9. INSULATE AND HEAT TRACE ABOVE GRADE PIPING, VALVES, AND APPURTENANCES THAT ARE 2 INCHES IN DIAMETER OR LESS.
 10. ABOVE GRADE PIPING IS TO BE DUCTILE IRON.

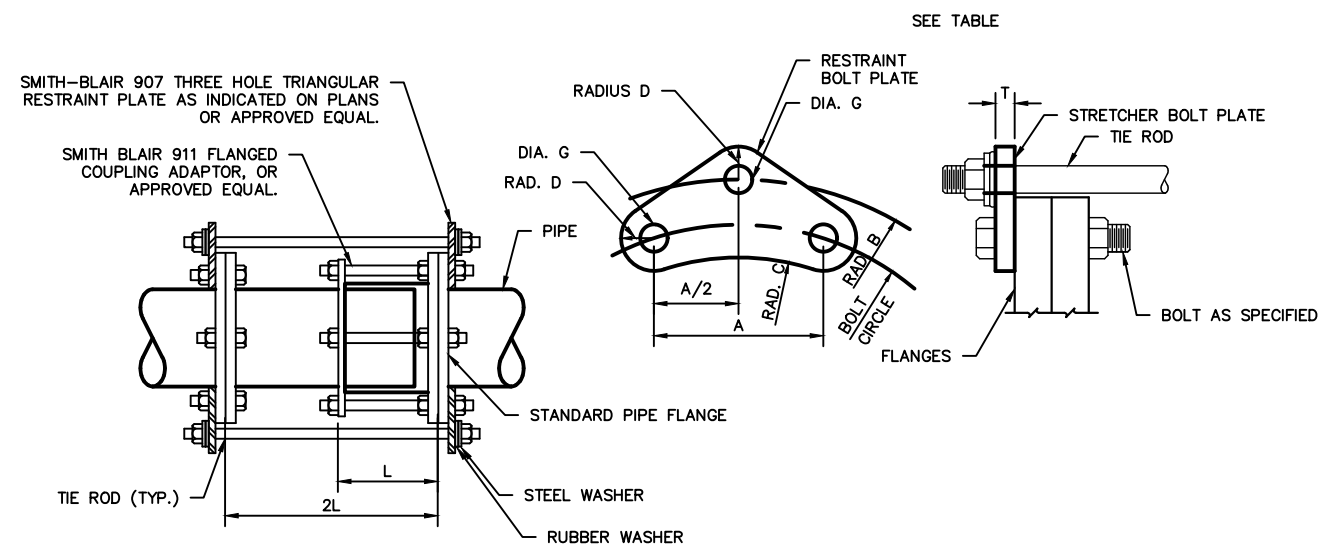
DELIVERY POINT	
SYMBOL	DESCRIPTION
1	16" 90° BEND, DI, FLG
2	16" X 12" ECCENTRIC REDUCER, DI, FLG
3	AIR RELEASE VALVE TYPE 2 SEE DETAIL 5 SHEET DP10
4	12" CLA-VAL CONTROL VALVE MODEL 1316-22
5	FLOOR DRAIN SEE DETAIL 2 SHEET DP11
6	12" COUPLING ADAPTER
7	PRESSURE TRANSMITTER AND GAUGE ASSEMBLY SEE DETAIL 3 SHEET DP10
8	12" FLANGED MAG METER PER GBRA SPEC 13442
9	16" 90° BEND, DI, MJ
10	STANCHION TYPE PIPE SUPPORT WITH U-BOLT, TYP. SEE DETAIL 1 SHEET DP10
11	16" TRANSITION/RESTRAIN COUPLING (DI TO PVC)
12	TRUST BLOCKS (MIN. 25 SF EACH, 3000 PSI CONCRETE)
13	12" DI PIPE RESTRAINED, FL (TYP.)
14	16" PVC C900 (DR14) RESTRAINED (TYP.)
15	AIR VALVE DRAIN LINE WITH UNION, STAINLESS STEEL INSECT SCREEN, AND CONCRETE SPLASH PAD
16	WEATHERPROOF SEAL AT WALL PENETRATION, TYP.
17	ATTACH TRACING WIRE TO PIPE WITH STAINLESS STEEL BAND CLAMPS (TYP.)
18	FLANGED DOG HOUSE WALK PANEL BELOW PIPE (TYP.)
19	2'-0" X 2'-0" X 2'-6" TYP. PIPE SUPPORT BLOCKS
20	EQUIPMENT PAD, SEE DETAIL 2 SHEET DP10
21	FIBERGLASS BUILDING (14'-0" L X 10'-0" W X 8'-0" H) WITH INTERIOR MOUNTED ELECTRICAL AND SCADA ENCLOSURES
22	(2) 3'-0" X 7'-0" DOOR BEST BRAND KEY SYSTEM
23	12" DI PIPE RESTRAINED, FL X PE (TYP.)
24	16" DI PIPE RESTRAINED, FL X PE (TYP.)
25	16" DI PIPE RESTRAINED, PE (TYP.)
26	4" X 4" X 4" SANITARY TEE
27	4" PVC SCH 40
28	4" 90° ELBOW
29	4" CLEANOUT ADAPTER WITH PLUG
30	4" 22.5° ELBOX
31	CONCRETE HEAD WALL SEE DETAIL 3 SHEET DP11



DELIVERY POINT DETAIL
SECTION VIEW
 SCALE: 1/2" = 1'-0"

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	4/7/2026 V. RYAN SOWA REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS						
KHA PROJECT 068657038	DATE: APRIL 2026	SCALE: AS SHOWN	DESIGNED BY: AIG	DRAWN BY: SAL	CHECKED BY: VRS		
AMMANN ROAD - GBRA WATER MAIN EXTENSION							
PREPARED FOR: THE CITY OF BOERNE BOERNE, TX 78006							
DELIVERY POINT PLAN & SECTION VIEW							
SHEET NUMBER DP3							

Plotted By: horwitz, jeffrey April 07, 2026 08:30:44am K:\SNA_utilities\068657038 - Ammann Rd. GBR - Water Extension\CAD\PLANS\PIEETS\068657038 - Delivery Point Details.dwg
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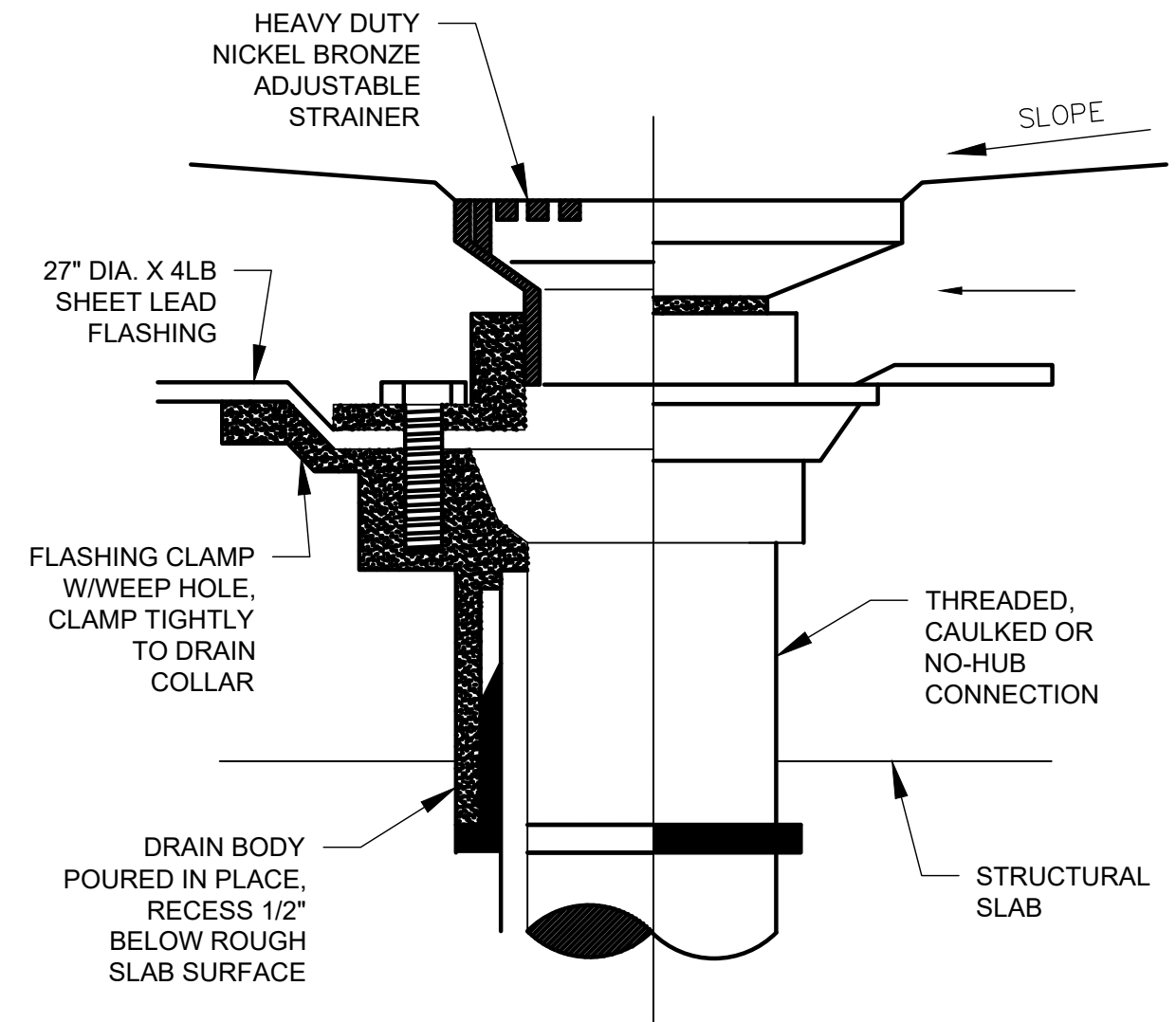
FLANGE LUG TIE ROD SCHEDULE

TIE ROD DIA. OR BOLT SIZE	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2	1 3/4	2	2 1/4	2 3/4
DIA. G	3/4	7/8	1	1 1/8	1 1/4	3/8	5/8	2	2 1/4	2 1/2	3
RAD. D	7/8	1	1 1/8	1 1/4	3/8	1 1/2	3/4	2	2 1/4	3/8	1 1/2

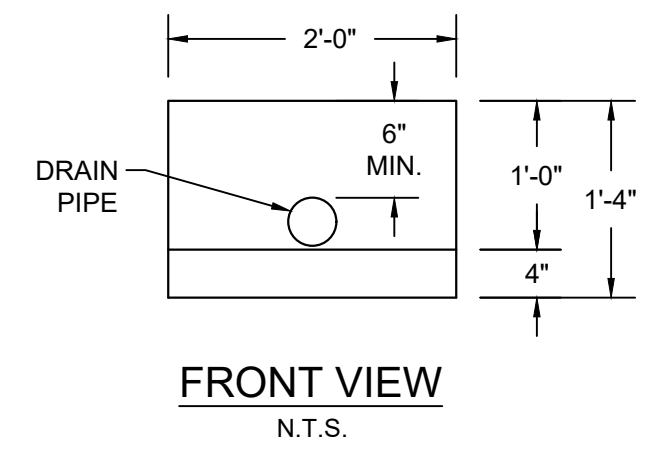
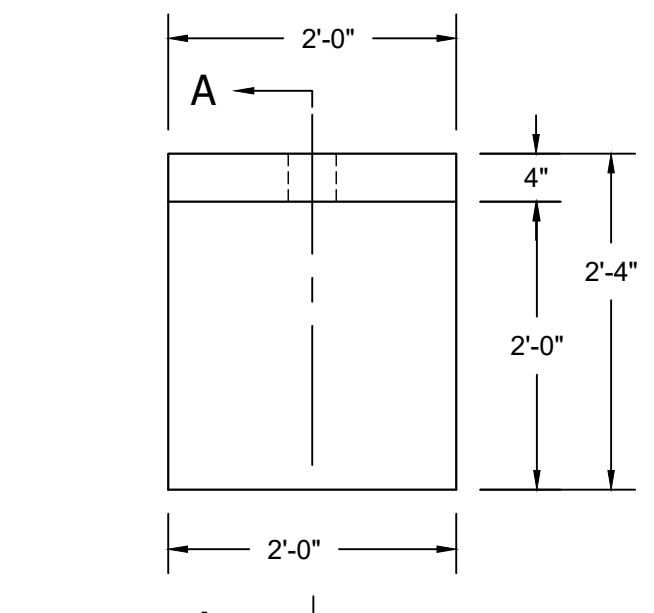
PIPE DIA.	MAX. PRESSURE (PSI) *		TIE ROD DIA.	MIN. NUMBER REQUIRED
	150	225		
4	1/2	5/8	2	2
6	5/8	3/4	2	2
8	5/8	3/4	2	2
10	7/8	7/8	2	2
12	7/8	1	2	2
14	7/8	1 1/8	2	2
16	7/8	1 1/8	2	2
18	7/8	1 1/8	2	2
20	7/8	1 1/8	2	2
24	1 1/8	1 1/4	2	2
30	1 3/8	1 1/2	2	2
36	1 5/8	1 3/4	2	2
42	1 5/8	1 3/4	2	2
48	1 5/8	1 7/8	2	2

- NOTES:
- ALL DIMENSIONS IN INCHES.
 - DIMENSION "A" AS REQUIRED BY FLANGE SPECIFIED.
 - RADIUS "C" EQUALS 1/2 X (BOLT CIRCLE) - D.
 - RADIUS "B" EQUALS 1/2 X (FLANGE CIRCLE) + D + 1/8".
 - INSTALL TIE ROD ASSEMBLIES SUCH THAT ALL RODS ARE EQUALLY SPACED AROUND FLANGE. ON PIPING 20-INCHES AND LARGER, RODS MAY BE GROUPED IN PAIRS BUT GROUPS MUST BE EQUALLY SPACED AROUND FLANGE. THE TOTAL NUMBER OF THE RODS SHALL BE INCREASED ABOVE THAT TABULATED AS NECESSARY TO MEET SPACING REQUIREMENTS.
 - MIN. PRESSURE SHALL BE 150 PSI UNLESS OTHERWISE SPECIFIED.
 - STRETCHER BOLT PLATES SHALL BE MOUNTED ON THE OUTSIDE EDGE OF THE FLANGE IT IS RESTRAINING AS SHOWN IN THE ABOVE DRAWING. BOLT PLATES WILL NOT BE ALLOWED TO BE MOUNTED ON THE INSIDE EDGE OF THE FLANGE.
 - TIE RODS SHALL HAVE A MIN. ALLOWABLE STRESS OF 40,000 PSI.
 - TIE RODS SHALL BE ASTM A193, GRADE B8, CLASS 1. NUTS AND WASHERS SHALL BE ASTM A194, GRADE 8 NUTS WITH AISI 304 STAINLESS STEEL WASHERS.

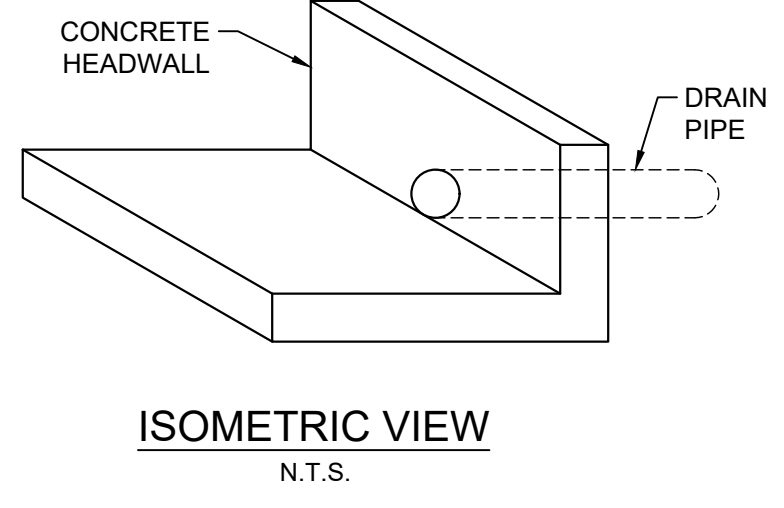
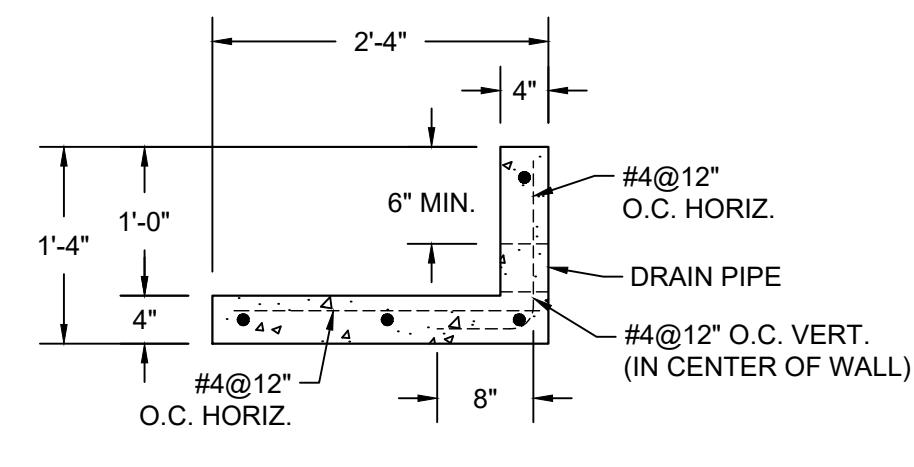
1 FLANGED COUPLING ADAPTER DETAIL
SCALE: NTS



2 FLOOR DRAIN DETAIL
SCALE: NTS



3 CONCRETE HEADWALL DETAIL
SCALE: NTS



NO.	REVISIONS	DATE	BY

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 PHONE: 210-541-9166
 WWW.KIMLEY-HORN.COM TUBE FIRM NO. 928

4/7/2026
 STATE OF TEXAS
 V. RYAN SOWA
 91171
 REGISTERED PROFESSIONAL ENGINEER

KHA PROJECT 068657038	DATE: APRIL 2026	DESIGNED BY: AIG	DRAWN BY: SAL	CHECKED BY: VRS
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AMMANN ROAD - GBR
 WATER MAIN EXTENSION
 PREPARED FOR
 THE CITY OF BOERNE
 BOERNE, TX 78006

Plotted By: horowitz, jeffrey, April 07, 2026 08:31:07am
 K:\SNA_Utility\606857038 - Ammann Rd GBRA Water Extension\CAD PLANS\SHEETS\606857038 - Tree Protection.dwg
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GRAPHIC SCALE 50'
 FULL SIZE 1" = 50'
 HALF SIZE 1" = 25'

LEGEND

	PROPOSED WATER LINE
	PROPERTY LINE
	EASEMENT BOUNDARY
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT/SIDEWALK
	FENCE
	OVERHEAD ELECTRIC
	UNDERGROUND TELEPHONE
	UNDERGROUND FIBER OPTIC
	EXISTING WATER MAIN
	FEMA - 100-YR FLOODPLAIN
	FAIR OAKS RANCH - CITY LIMITS
	BENCH MARK
	POWER POLE
	GUY ANCHOR
	TREES REMOVED BY OTHERS PER SEPARATE CONTRACT
	EXISTING TREES TO REMAIN
	EXISTING TREE TO BE REMOVED
	EXISTING DRIVEWAY TO BE REMOVED AND REPLACED
	ROCK BERM
	SILT FENCE
	TEMPORARY FENCE

- NOTE:
- NO TREE SHALL BE REMOVED UNLESS SHOWN TO BE REMOVED IN THE PLANS.
 - THE CONTRACTOR WILL PROTECT TREES UNLESS OTHERWISE DESIGNATED TO BE REMOVED.
 - ALL DEBRIS FROM THE TREE REMOVAL (TRUNKS, BRANCHES, ROOTS, ETC.) SHALL BE REMOVED AND DISPOSED OF OFF-SITE BY THE CONTRACTOR.
 - CONTRACTOR SHALL CLEAR CUT THE ENTIRE LIMITS OF PERMANENT EASEMENTS, EXCEPT WHERE NOTED OTHERWISE.
 - ALL PROPOSED TREE REMOVAL WILL BE DONE IN ACCORDANCE WITH CITY OF FAIR OAKS RANCH'S OAK-WILT CONTROL ORDINANCE, ARTICLE 1.07.2 OF THE CITY'S CODE OF ORDINANCE.

TREES REMAINING

Point #	Tree Tag	Description
60339	5307	LOK 13" 5307
60340	5308	LOK 14" 5308
60341	5309	LOK 12" 5309
60367	5335	LOK 24" 5335
60370	5338	LOK 12" 5338
60371	5339	LOK 14" 5339
60432	5401	LOK 20.5" MT 14" 13" 5401
60440	5409	LOK 19" 5409
60451	5420	LOK 15" 5420
60479	5448	LOK 11" 5448
60495	5464	LOK 15.5" MT 11" 9" 5464
60524	5493	LOK 23.5" MT 19" 9" 5493
60527	5496	LOK 35" MT 17" 14" 11" 11" 5496
60529	5498	LOK 32" 5498
60541	5510	LOK 28" MT 19" 18" 5510
60552	5521	LOK 18" 5521

TREES TO BE REMOVED

Point #	Tree Tag	Description
60349	5317	LOK 13" 5317
60369	5337	LOK 14" MT 10" 8" 5337
60478	5447	LOK 12" 5447
60511	5480	LOK 19" 5480
60530	5499	LOK 20" 5499
60538	5507	LOK 22" 5507
60553	5522	LOK 12" 5522

KHA PROJECT
068657038

DATE:
APRIL 2026

SCALE:
 AS SHOWN

DESIGNED BY:
 AIG

DRAWN BY:
 SAL

CHECKED BY:
 VRS

V. RYAN SOWA
 91171
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF TEXAS

PREPARED FOR:
 THE CITY OF BOERNE
 BOERNE, TX 78006

**AMMANN ROAD - GBRA
 WATER MAIN EXTENSION**

**TREE PROTECTION &
 EROSION CONTROL
 PLANS (1 OF 4)**

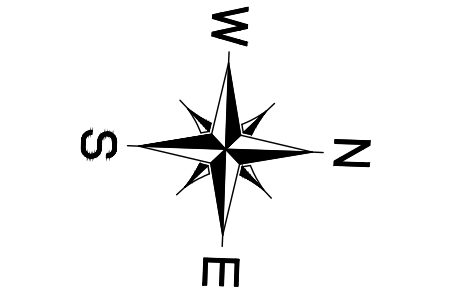
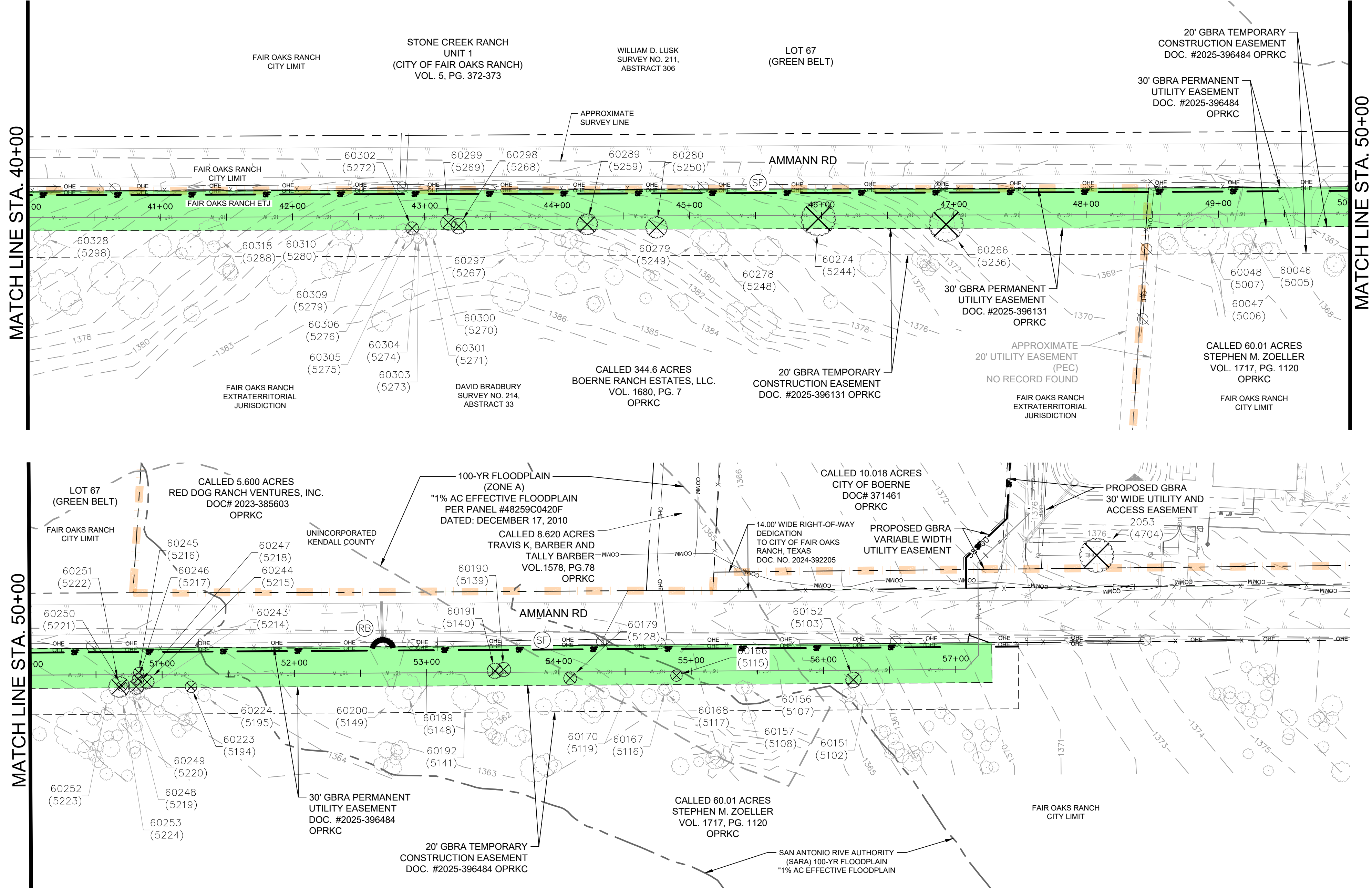
SHEET NUMBER
TP-EC1

REVISIONS

DATE

BY

Plotted By: Horowitz, Jeffrey, April 07, 2026 08:31:13am. K:\SNA_Utility\068657038 - Ammann Rd GBRA Water Extension\CAO PLANS\SHEETS\068657038 - Tree Protection.dwg
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LEGEND

	PROPOSED WATER LINE
	PROPERTY LINE
	EASEMENT BOUNDARY
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT/SIDEWALK
	FENCE
	OVERHEAD ELECTRIC
	UNDERGROUND TELEPHONE
	UNDERGROUND FIBER OPTIC
	EXISTING WATER MAIN
	FEMA - 100-YR FLOODPLAIN
	SARA - 100-YR FLOODPLAIN
	FAIR OAKS RANCH - CITY LIMITS
	BENCH MARK
	POWER POLE
	GUY ANCHOR
	TREES REMOVED BY OTHERS PER SEPARATE CONTRACT
	EXISTING TREES TO REMAIN
	EXISTING TREE TO BE REMOVED
	EXISTING DRIVEWAY TO BE REMOVED AND REPLACED
	ROCK BERM
	SILT FENCE
	TEMPORARY FENCE

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TREES REMAINING

Point #	Tree Tag	Description
60046	5005	LOK 10" MT 7" 6" 5005
60047	5006	LOK 32" 5006
60048	5007	LOK 28" 5007
60151	5102	OA 28" 5102
60156	5107	CELM 9" 5107
60157	5108	LOK 10.5" MT 7" 7" 5108
60167	5116	LOK 10" 5116
60168	5117	LOK 9" 5117
60170	5119	LOK 11" 5119
60192	5141	CELM 21" 5141
60199	5148	LOK 9" 5148
60200	5149	LOK 28" 5149
60224	5195	LOK 10" 5195
60243	5214	LOK 9" 5214
60248	5219	LOK 13" 5219
60249	5220	LOK 9" 5220
60252	5223	LOK 11" 5223
60253	5224	LOK 8" 5224
60278	5248	LOK 24" 5248
60279	5249	LOK 27" 5249

TREES REMAINING

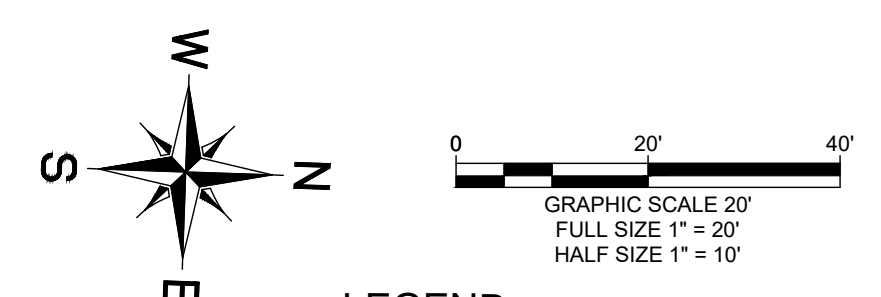
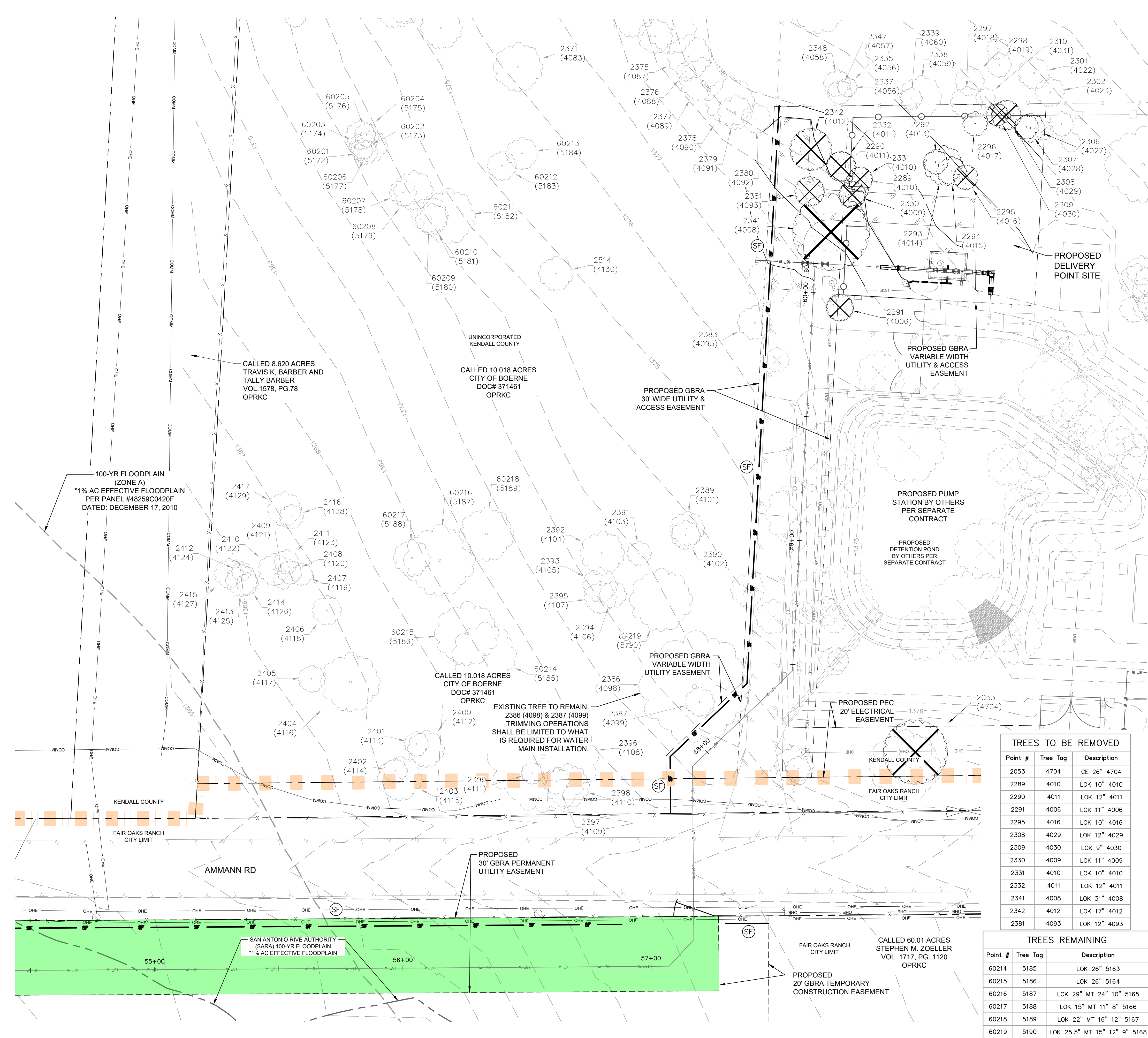
Point #	Tree Tag	Description
60297	5267	LOK 30" 5267
60300	5270	LOK 8" 5270
60301	5271	LOK 9" 5271
60303	5273	LOK 8" 5273
60304	5274	LOK 8" 5274
60305	5275	LOK 9" 5275
60306	5276	LOK 11" 5276
60309	5279	LOK 13" 5279
60310	5280	LOK 15" MT 12" 6" 5280
60318	5288	LOK 20" 5288
60328	5298	LOK 13" 5298

TREES TO BE REMOVED

Point #	Tree Tag	Description
60152	5103	OA 12" 5103
60166	5115	LOK 9" 5115
60179	5128	LOK 10" 5128
60190	5139	LOK 11" 5139
60191	5140	LOK 12" 5140
60223	5194	LOK 9" 5194
60244	5215	LOK 11" 5215
60245	5216	LOK 8" 5216
60246	5217	LOK 9" 5217
60247	5218	LOK 12" 5218
60250	5221	LOK 8" 5221
60251	5222	LOK 16" MT 12" 8" 5222
60266	5236	LOK 26" 5236
60274	5244	LOK 26" 5244
60280	5250	LOK 16.5" MT 10" 9" 4" 5250
60289	5259	LOK 16" MT 11" 10" 5259
60298	5268	LOK 12" 5268
60299	5269	LOK 12" 5269
60302	5272	LOK 10" 5272

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	<p style="font-size: 8px;">DATE: APRIL 2026 SCALE: AS SHOWN DESIGNED BY: AIG DRAWN BY: SAL CHECKED BY: VRS</p>							
<p style="font-size: 8px;">KHA PROJECT 068657038</p>	<p style="font-size: 12px; font-weight: bold;">AMMANN ROAD - GBRA WATER MAIN EXTENSION</p>							
<p style="font-size: 8px;">PREPARED FOR: THE CITY OF BOERNE BOERNE, TX 78006</p>								
<p style="font-size: 10px; font-weight: bold;">TREE PROTECTION & EROSION CONTROL PLANS (2 OF 4)</p>								
<p style="font-size: 8px;">SHEET NUMBER TP-EC2</p>								
No.	REVISIONS	DATE	BY					

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LEGEND

	PROPOSED WATER LINE
	PROPERTY LINE
	EASEMENT BOUNDARY
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT/SIDEWALK
	FENCE
	OVERHEAD ELECTRIC
	UNDERGROUND TELEPHONE
	UNDERGROUND FIBER OPTIC
	EXISTING WATER MAIN
	FEMA - 100-YR FLOODPLAIN
	SARA - 100-YR FLOODPLAIN
	FAIR OAKS RANCH - CITY LIMITS
	BENCH MARK
	POWER POLE
	GUY ANCHOR
	TREES REMOVED BY OTHERS PER SEPARATE CONTRACT
	EXISTING TREES TO REMAIN
	EXISTING TREE TO BE REMOVED
	EXISTING DRIVEWAY TO BE REMOVED AND REPLACED
	ROCK BERM
	SILT FENCE
	TEMPORARY FENCE

- NOTE:**
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TREES REMAINING

Point #	Tree Tag	Description
2292	4013	LOK 10" 4013
2293	4014	LOK 16" 4014
2294	4015	LOK 12" 4015
2296	4017	LOK 10" 4017
2297	4018	LOK 13" 4018
2298	4019	LOK 12" 4019
2301	4022	LOK 13" 4022
2302	4023	LOK 12" 4023
2306	4027	LOK 12" 4027
2307	4028	LOK 10" 4028
2310	4031	LOK 8" 4031
2335	4056	LOK 8" 4056
2337	4056	LOK 8" 4056
2338	4059	LOK 17" 4059
2339	4060	LOK 9" 4060
2347	4057	LOK 10" 4057
2348	4058	LOK 11" 4058
2375	4087	LOK 18" 4087
2376	4088	LOK 8" 4088
2377	4089	LOK 18" 4089
2378	4090	LOK 20" 4090
2379	4091	LOK 14" 4091
2380	4092	LOK 12" 4092
2383	4095	LOK 14" 4095
2386	4098	LOK 45" 4098
2387	4099	LOK 12" 4099
2389	4101	LOK 14" 4101
2390	4102	LOK 12" 4102
2391	4103	LOK 10" 4103
2392	4104	LOK 18" 4104
2393	4105	LOK 14" 4105
2394	4106	LOK 11" 4106
2395	4107	LOK 13" 4107
2396	4108	LOK 45" 4108

TREES REMAINING

Point #	Tree Tag	Description
2397	4109	LOK 11" 4109
2398	4110	LOK 18" 4110
2399	4111	LOK 9" 4111
2400	4112	LOK 15" 4112
2401	4113	LOK 10" 4113
2402	4114	LOK 10" 4114
2403	4115	LOK 18" 4115
2404	4116	LOK 24" 4116
2405	4117	LOK 11" 4117
2406	4118	LOK 12" 4118
2407	4119	LOK 9" 4119
2408	4120	LOK 10" 4120
2409	4121	LOK 8" 4121
2410	4122	LOK 13" 4122
2411	4123	LOK 10" 4123
2412	4124	LOK 8" 4124
2413	4125	LOK 13" 4125
2414	4126	LOK 9" 4126
2415	4127	LOK 12" 4127
2416	4128	LOK 10" 4128
2417	4129	LOK 14" 4129
2514	4130	LOK 14" 4130
60201	5172	LOK 10" 5150
60202	5173	LOK 9" 5151
60203	5174	LOK 11" 5152
60204	5175	LOK 12" 5153
60205	5176	LOK 10" 5154
60206	5177	LOK 13" 5155
60207	5178	LOK 11" 5156
60208	5179	LOK 16" 5157
60209	5180	LOK 15" 5158
60210	5181	LOK 13" - 13" 20" 5159
60211	5182	LOK 22.5" MT 12" 10" 11" 5160
60212	5183	LOK 12" 5161
60213	5184	LOK 13" 5162

TREES TO BE REMOVED

Point #	Tree Tag	Description
2053	4704	CE 26" 4704
2289	4010	LOK 10" 4010
2290	4011	LOK 12" 4011
2291	4006	LOK 11" 4006
2295	4016	LOK 10" 4016
2308	4029	LOK 12" 4029
2309	4030	LOK 9" 4030
2330	4009	LOK 11" 4009
2331	4010	LOK 10" 4010
2332	4011	LOK 12" 4011
2341	4008	LOK 31" 4008
2342	4012	LOK 17" 4012
2381	4093	LOK 12" 4093

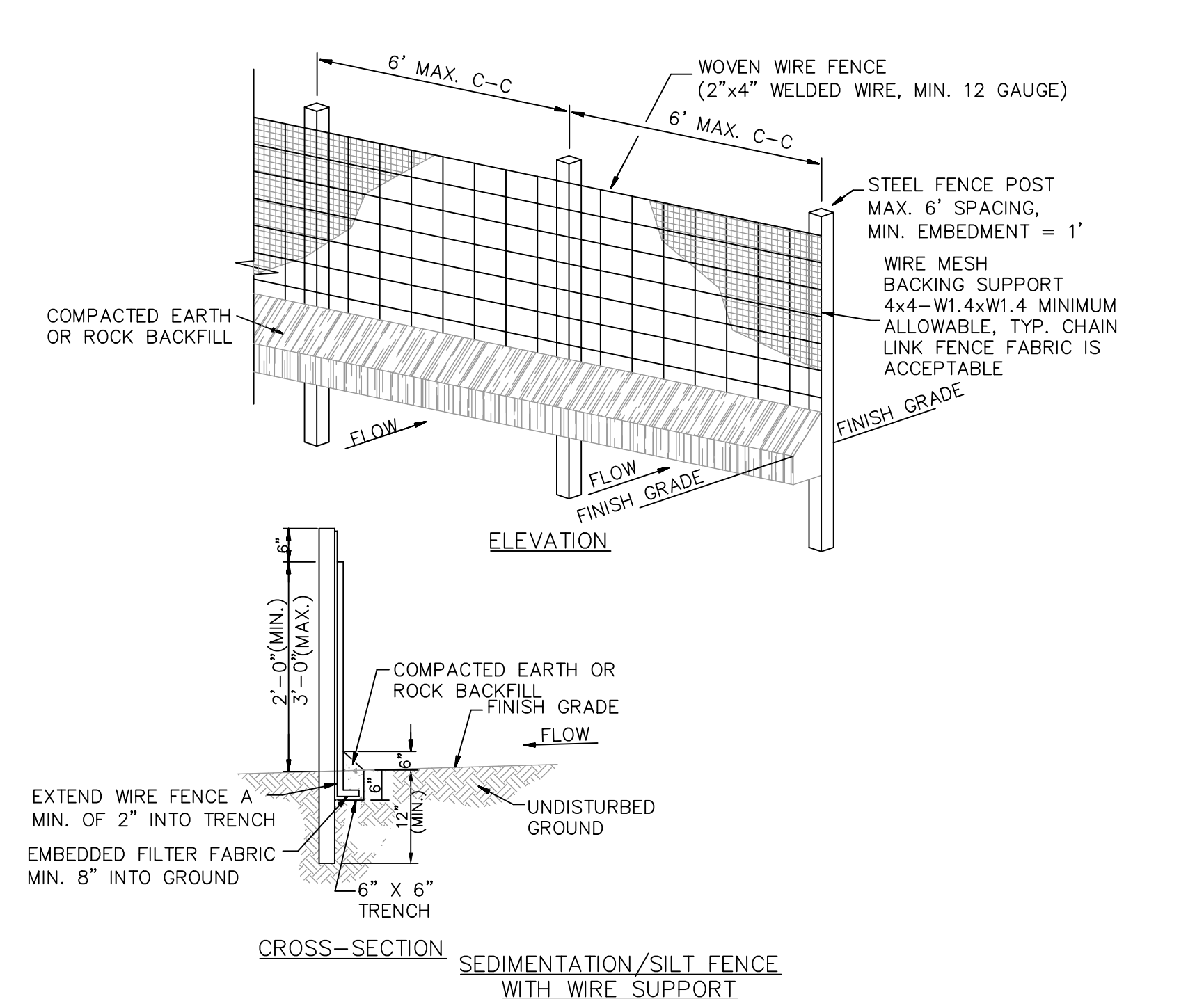
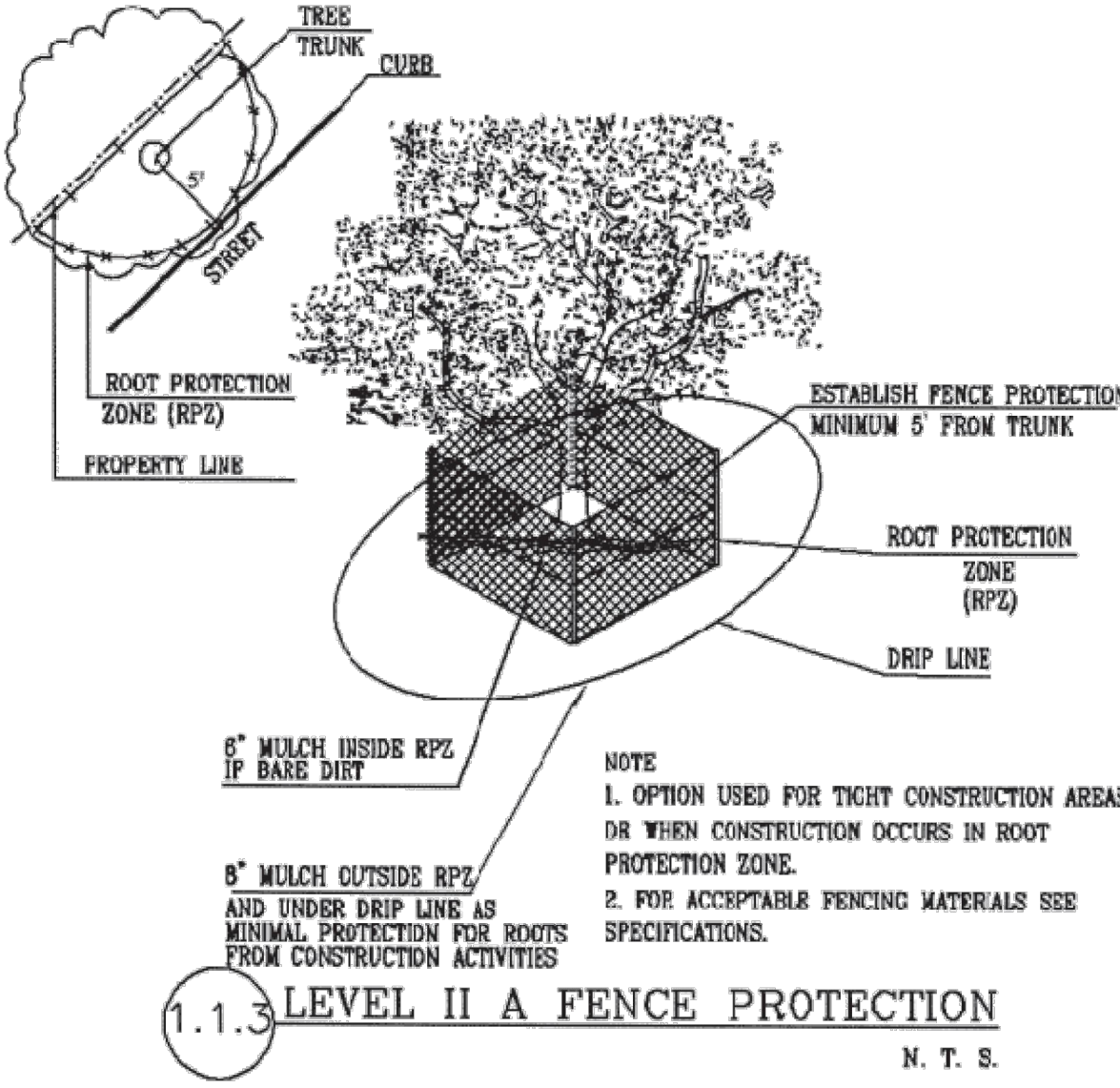
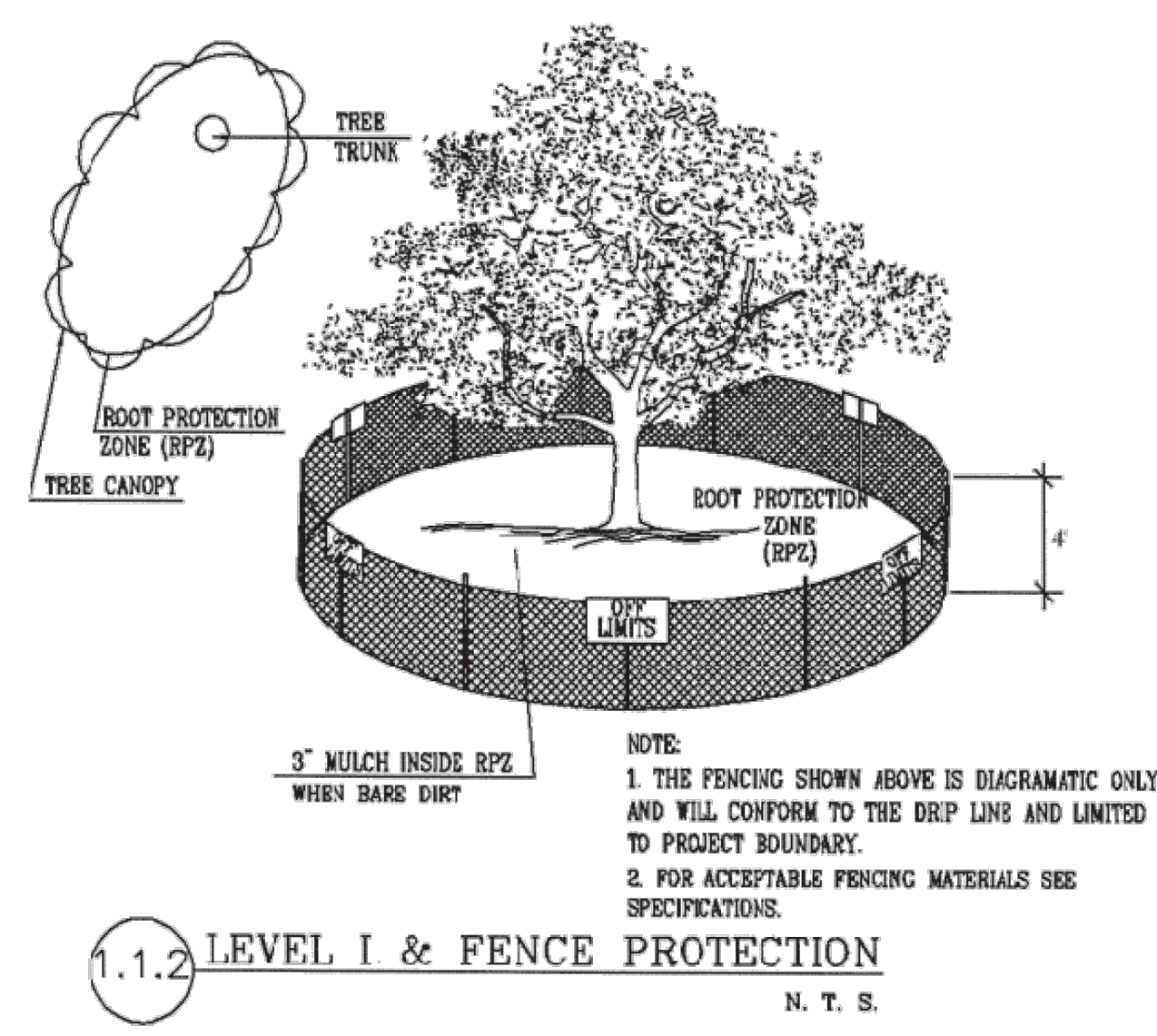
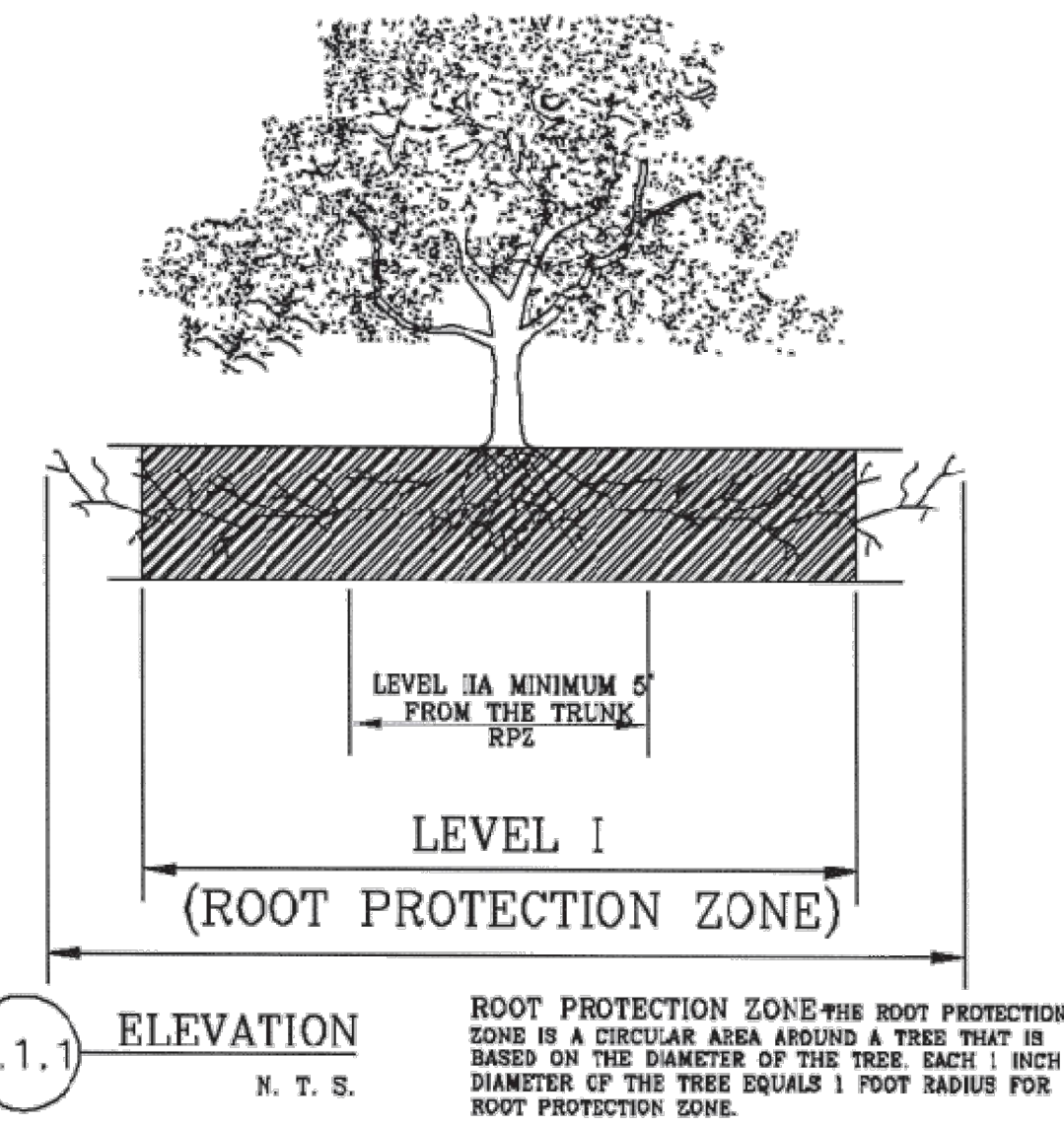
TREES REMAINING

Point #	Tree Tag	Description
60214	5185	LOK 26" 5163
60215	5186	LOK 26" 5164
60216	5187	LOK 29" MT 24" 10" 5165
60217	5188	LOK 15" MT 11" 8" 5166
60218	5189	LOK 22" MT 16" 12" 5167
60219	5190	LOK 25.5" MT 15" 12" 9" 5168

KHA PROJECT 068657038	DATE: APRIL 2026	SCALE: AS SHOWN	DESIGNED BY: AIG	DRAWN BY: SAL	CHECKED BY: VRS
AMMANN ROAD - GBRA WATER MAIN EXTENSION					
PREPARED FOR: THE CITY OF BOERNE BOERNE, TX 78006					
TREE PROTECTION & EROSION CONTROL PLANS (3 OF 4)					
SHEET NUMBER TP-EC3					
No.	REVISIONS	DATE			

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Plotted By: horowitz, Jeffrey, April 07, 2026 08:31:30am, K:\NSA_Utility\068657038 - Ammann Rd GBRA Water Extension\CAD PLANS\DETAILS\068657038 - Tree Protection Detail.dwg
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SILT FENCE GENERAL NOTES

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.

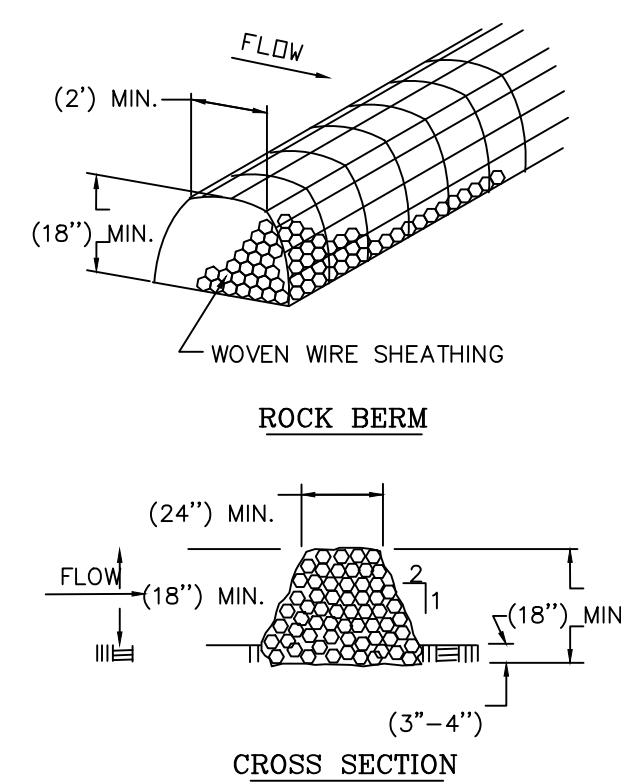
SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 100 GPM/FT SQUARED. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN 2 ACRES.

1. THE GUIDELINES HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.



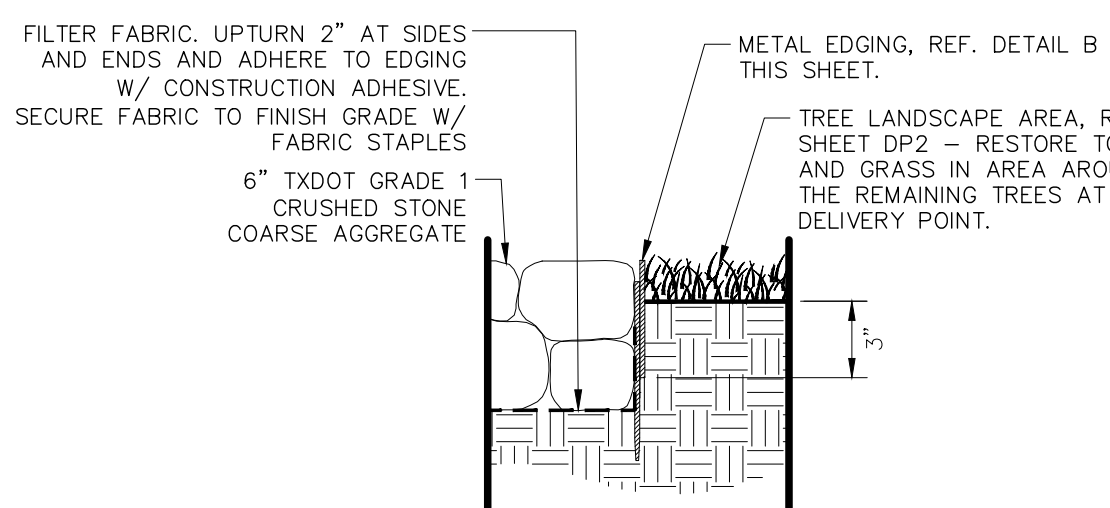
NOTES:

- USE ONLY OPEN GRADED ROCK 100 TO 200 mm (5 TO 8") DIAMETER FOR STREAM FLOW CONDITIONS. USE OPEN GRADED ROCK 75 TO 125 mm (3 TO 5") DIAMETER FOR OTHER CONDITIONS.
- THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 25 mm (1") OPENING AND MINIMUM WIRE DIAMETER OF 12.9 mm (20 GAUGE). ROCK BERMS IN CHANNEL APPLICATIONS SHALL BE ANCHORED FIRMLY INTO THE SUBSTRATE A MINIMUM OF 150 mm (6") WITH T-POSTS OR WITH 15M OR 20M (#5 OR #6) REBAR, WITH MAXIMUM SPACING APART OF 1.2 m (48") ON CENTER.
- THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
- WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR 150 mm (6"), WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SILTATION PROBLEM.
- DAILY INSPECTION SHALL BE MADE ON SEVERE-SERVICE ROCK BERMS; SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES 150 mm (6").
- WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.



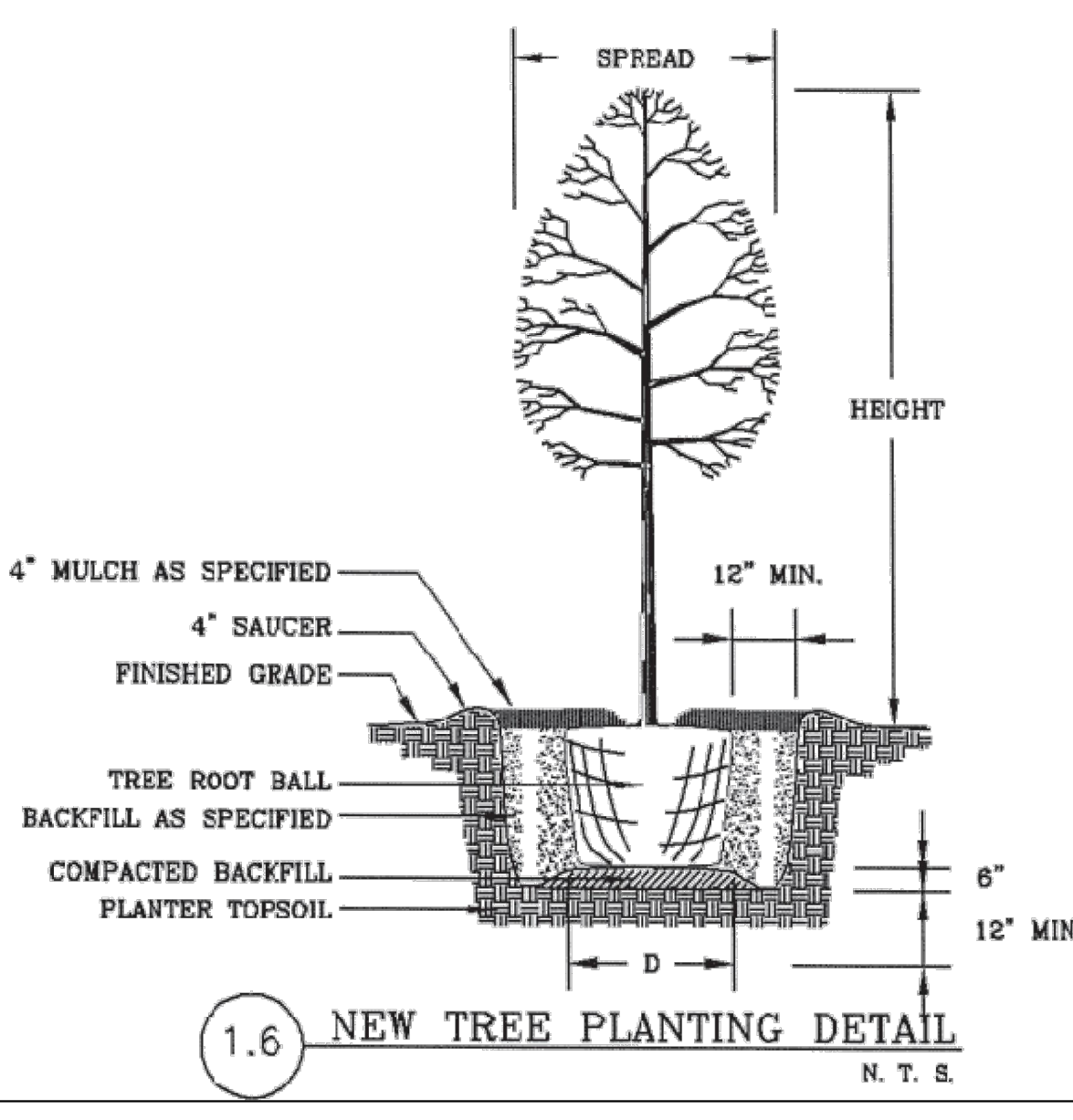
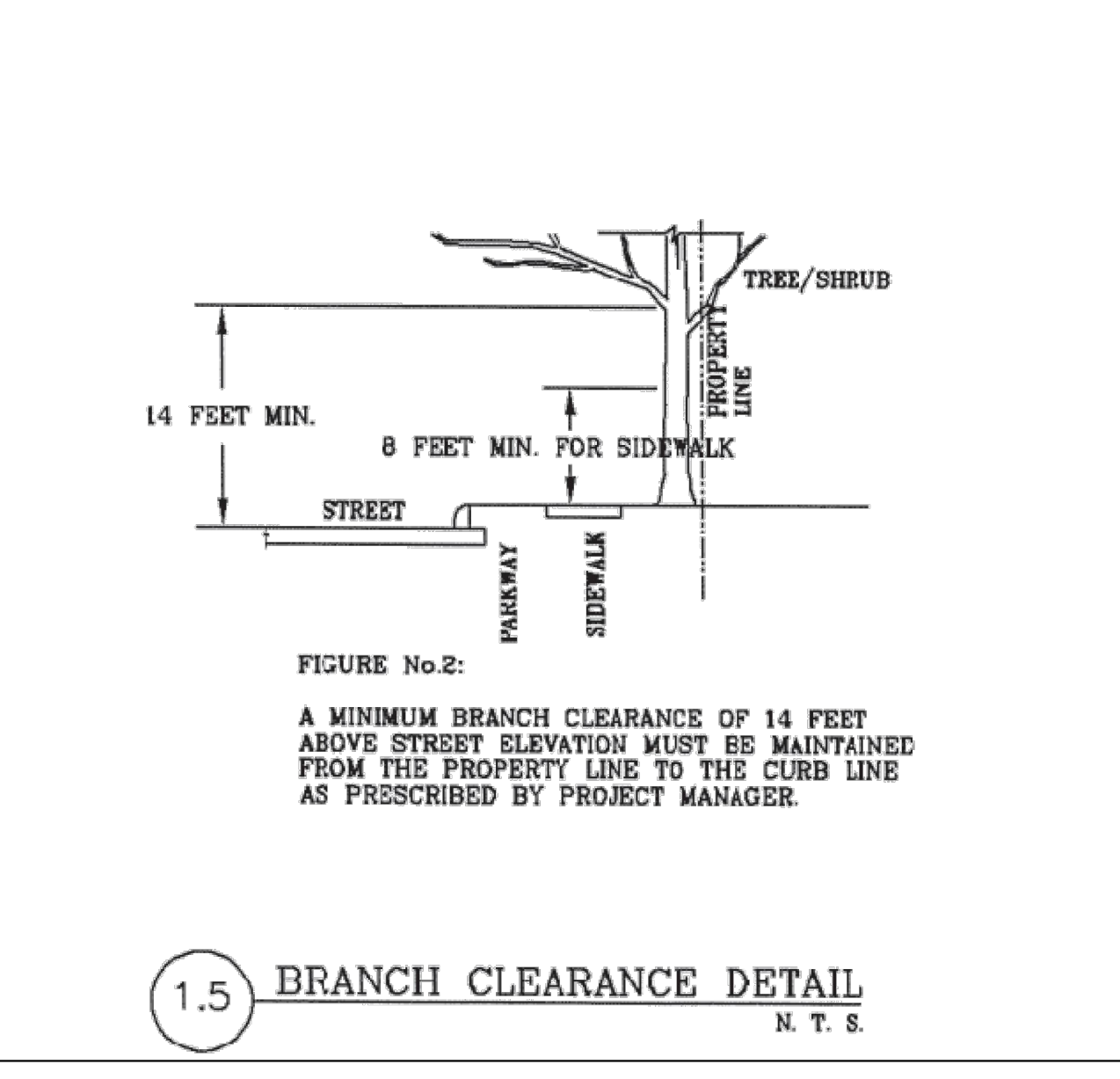
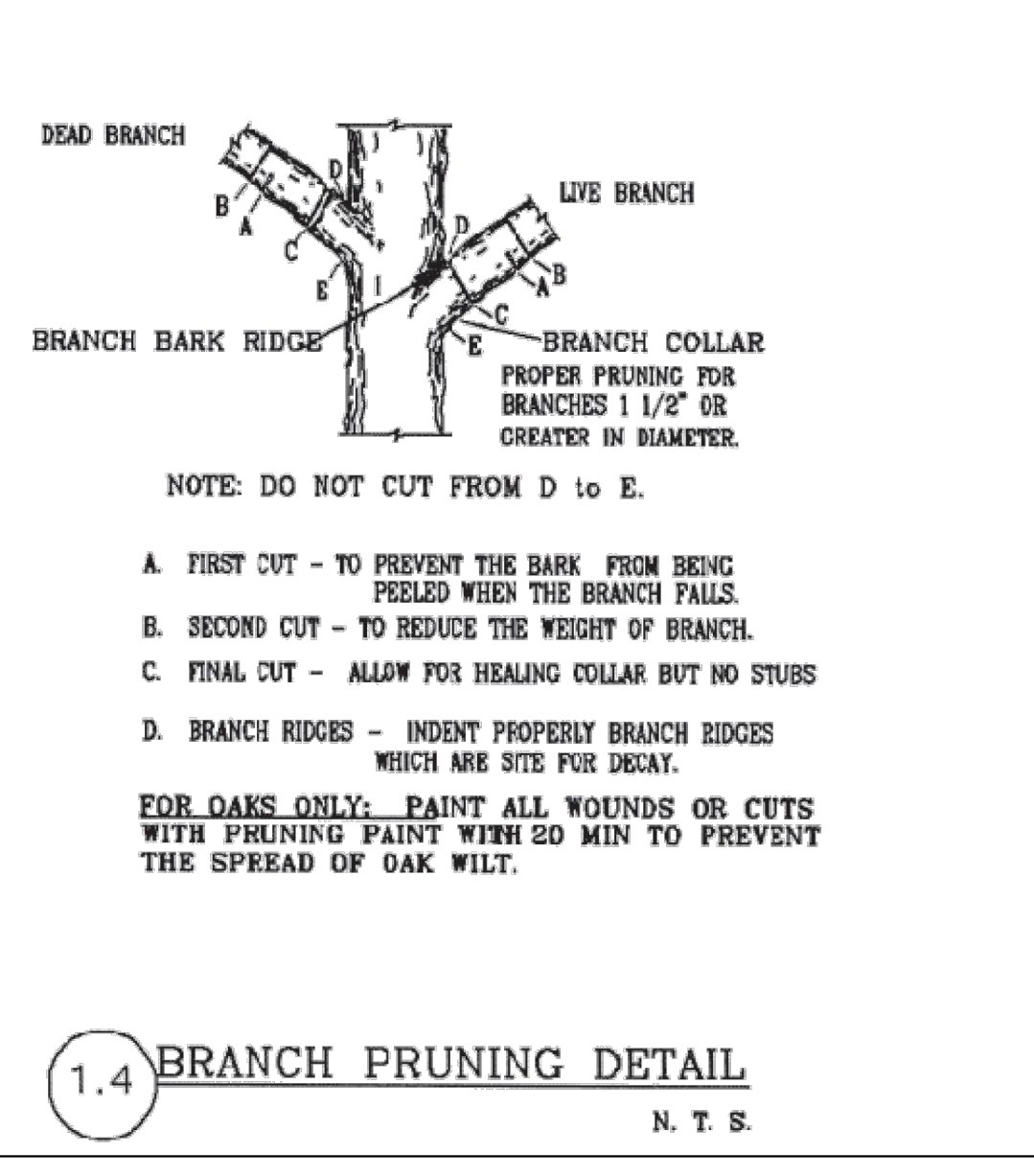
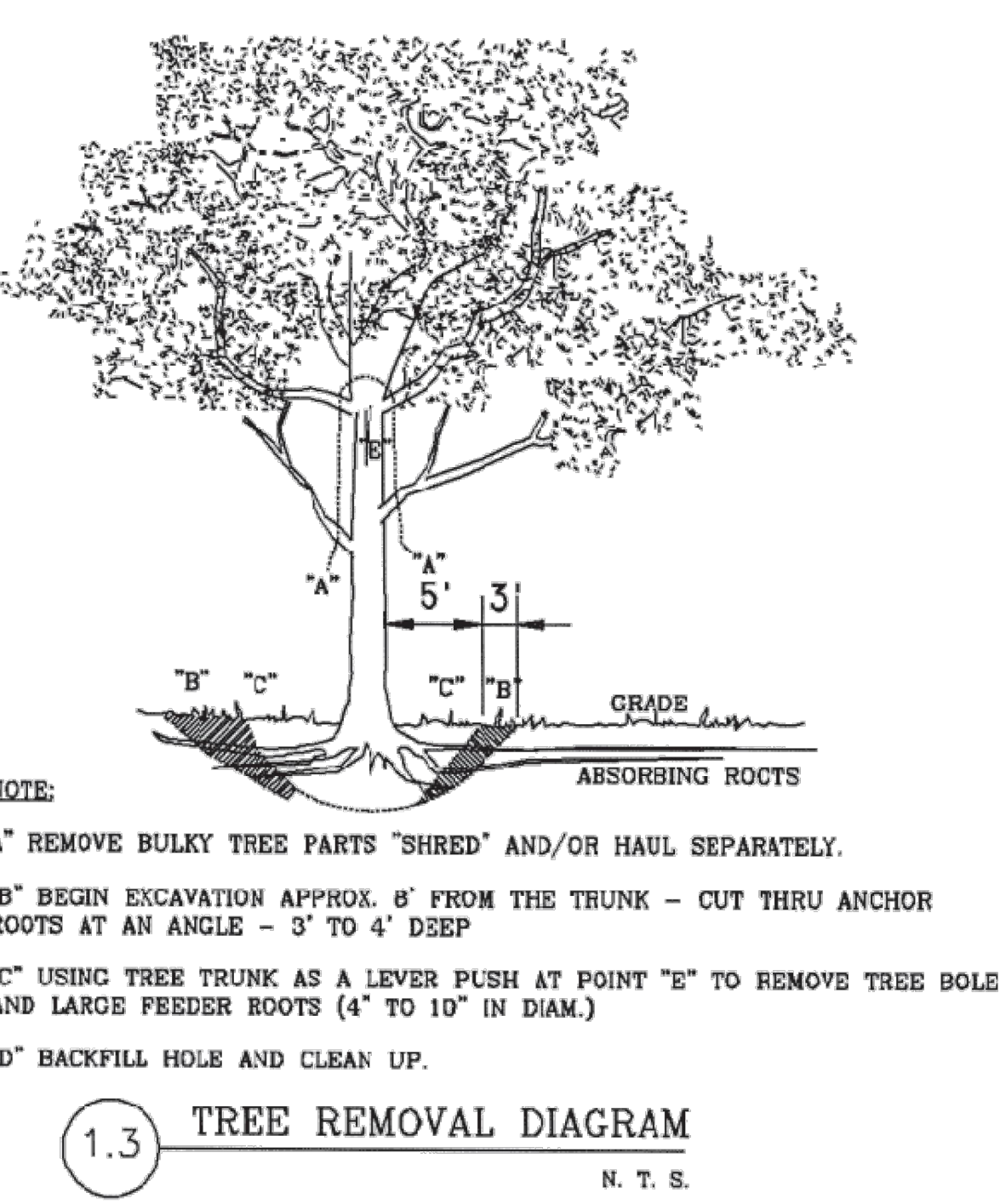
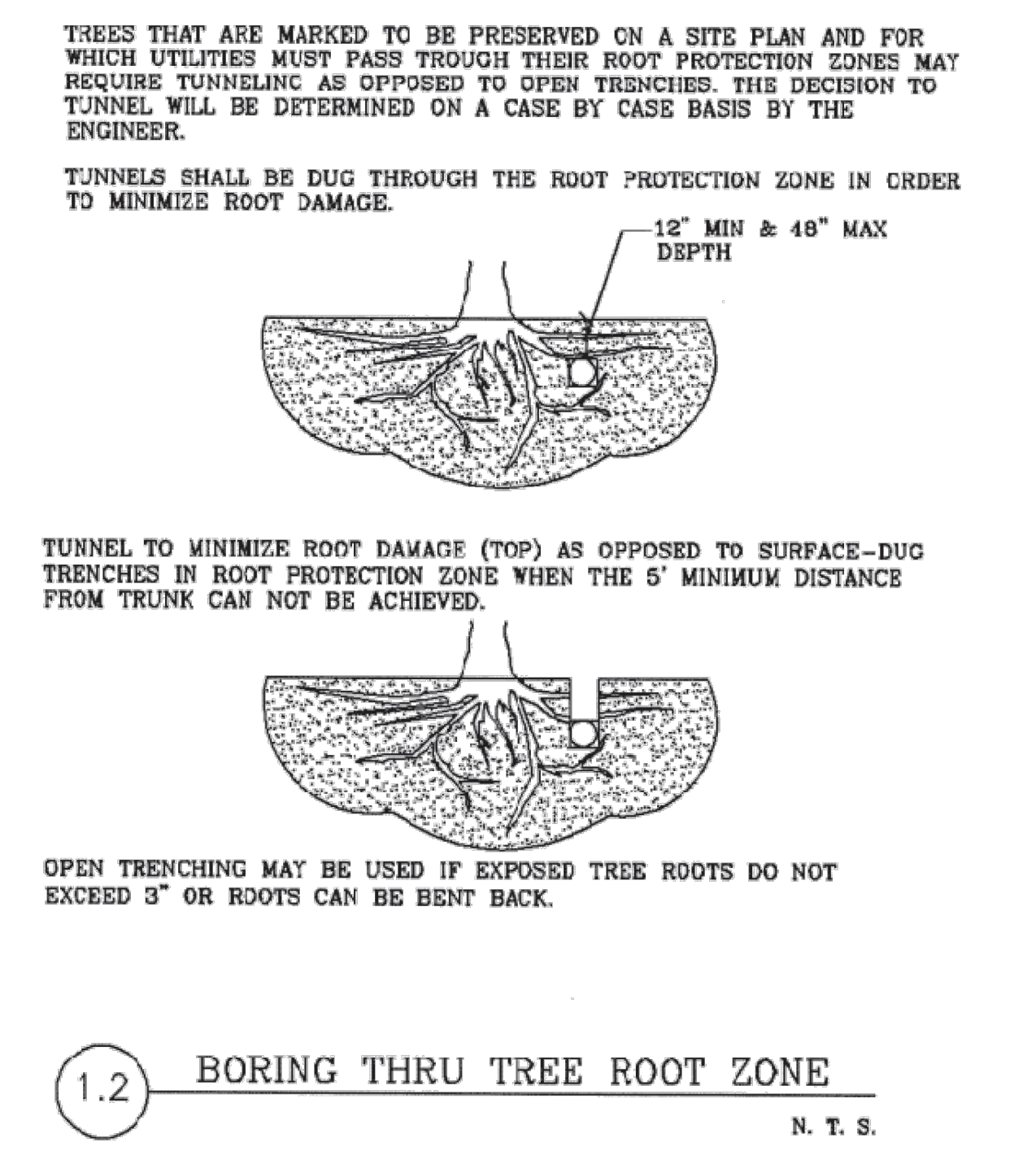
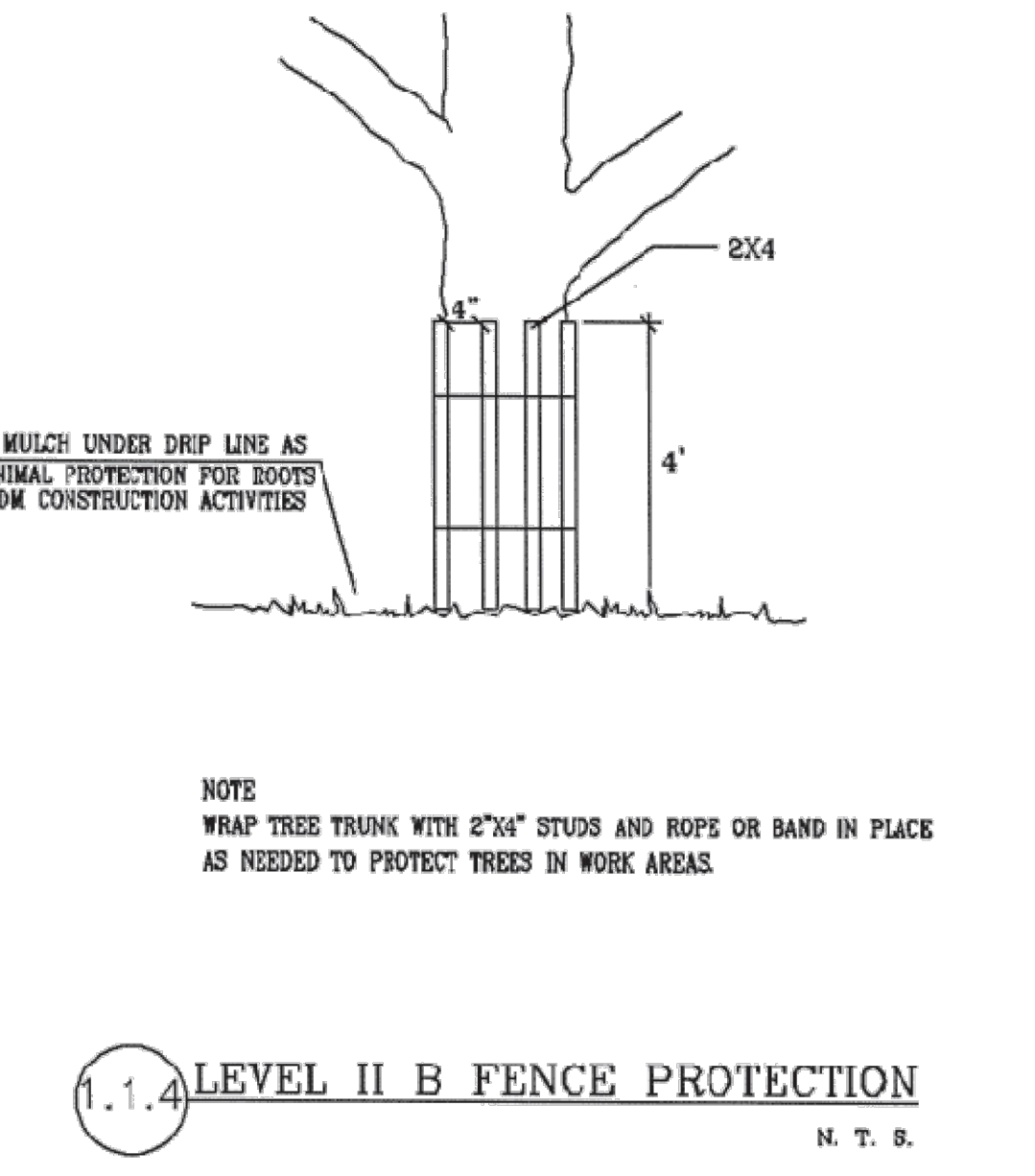
ROCK BERM DETAIL

SCALE: NTS



METAL EDGING (AT TREE LANDSCAPE AREAS) DETAIL

SCALE: NTS



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4/7/2026

V. RYAN SOWA
REGISTERED PROFESSIONAL ENGINEER
91171

KHA PROJECT: 068657038
DATE: APRIL 2026
SCALE: AS SHOWN
DESIGNED BY: AIG
DRAWN BY: SAL
CHECKED BY: VRS

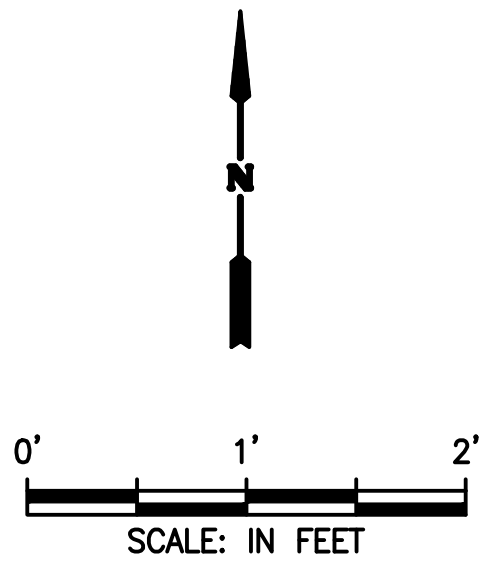
AMMANN ROAD - GBRA WATER MAIN EXTENSION

PREPARED FOR THE CITY OF BOERNE BOERNE, TX 78006

TREE PROTECTION DETAILS & EROSION CONTROL DETAILS

SHEET NUMBER TP10

Plotted By: Steven Graf - April 02, 2026 03:50:53pm R:\Kimley-Horn\2025 Boerne_Ammann Road Pump Station\Design\Delivery Point\E3 Metering Enclosure Layout-Layout1_rev.dwg
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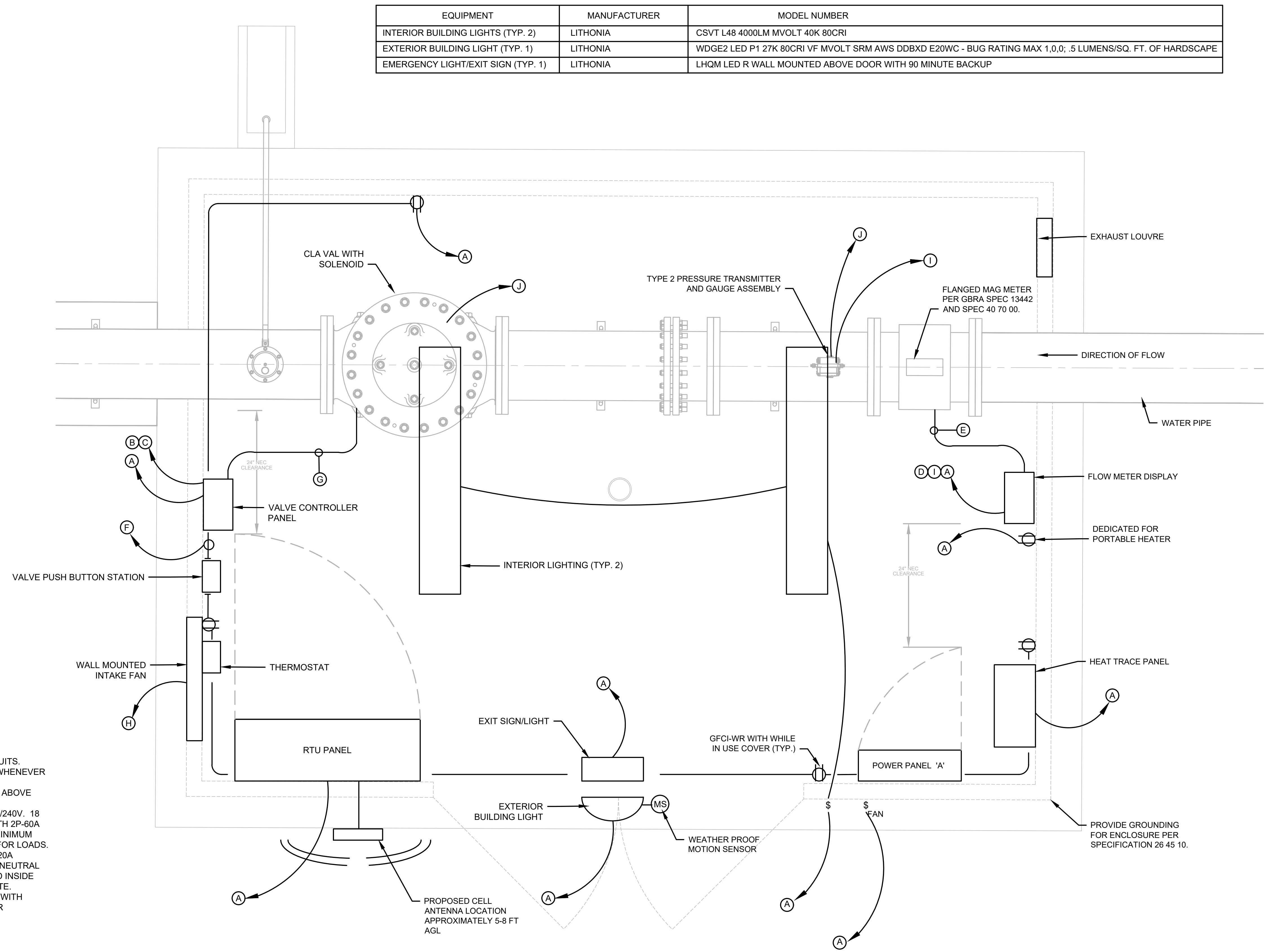


EQUIPMENT	MANUFACTURER	MODEL NUMBER
INTERIOR BUILDING LIGHTS (TYP. 2)	LITHONIA	CSV/T L48 4000LM MVOLT 40K 80CRI
EXTERIOR BUILDING LIGHT (TYP. 1)	LITHONIA	WDGE2 LED P1 27K 80CRI VF MVOLT SRM AWS DDBXD E20WC - BUG RATING MAX 1,0,0; .5 LUMENS/SQ. FT. OF HARDSCAPE
EMERGENCY LIGHT/EXIT SIGN (TYP. 1)	LITHONIA	LHQM LED R WALL MOUNTED ABOVE DOOR WITH 90 MINUTE BACKUP

CABLE AND CONDUIT NOTES:

- (A) TO POWER PANEL 'A'
SEE SHEET E1 FOR DETAILS
- (B) TO RTU PANEL
2x(#20 TW/SH/PR)
1-#12 GND
1- 1" CONDUIT
- (C) TO RTU PANEL
10-#12
1-#12 GND
1-1" CONDUIT
- (D) TO RTU PANEL
RS-485 CABLE
1-#12 GND
1-1" CONDUIT
- (E) CABLE BY FLOWMETER
MANUFACTURER
1-1" CONDUIT
- (F) TO VALVE CONTROLLER
6-#12
1-#12 GND
1-1" CONDUIT
- (G) TO VALVE
4-#12
1-#12 GND
1-1" CONDUIT
- (H) TO WP SWITCH
2-#10
1-#10 GND
1-1" CONDUIT
- (I) TO RTU PANEL
1x(#20 TW/SH/PR)
1-1" CONDUIT
- (J) TO HEAT TRACE PANEL
2-#10
1-#10 GND
1-1" CONDUIT

- NOTES:**
1. AVOID INSTALLING EXPOSED CONDUITS. CONCEAL CONDUITS WITHIN SLAB WHENEVER POSSIBLE.
 2. TOP OF ENCLOSURES SHALL BE 72" ABOVE FLOOR.
 3. LOW VOLTAGE PANEL SHALL BE 120/240V. 18 CIRCUIT MINIMUM PANELBOARD WITH 2P-60A MINIMUM MAIN BREAKER AND 20A MINIMUM BRANCH BREAKERS AS REQUIRED FOR LOADS. FILL ALL UNUSED SPACES WITH 1P-20A CIRCUIT BREAKERS. PANELBOARD NEUTRAL SHALL NOT BE BONDED TO GROUND INSIDE PANEL AND SHALL REMAIN SEPARATE. PROVIDE SPD EXTERNAL TO PANEL WITH 2-POLE BREAKER INSIDE PANEL FOR OVERCURRENT PROTECTION.



1 ELECTRICAL BUILDING
SCALE: AS SHOWN

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ELECTRICAL POWER SYSTEMS
DESIGN AND TESTING
TBPB FIRM REGISTRATION NO. 3904

No.	REVISIONS	DATE	BY

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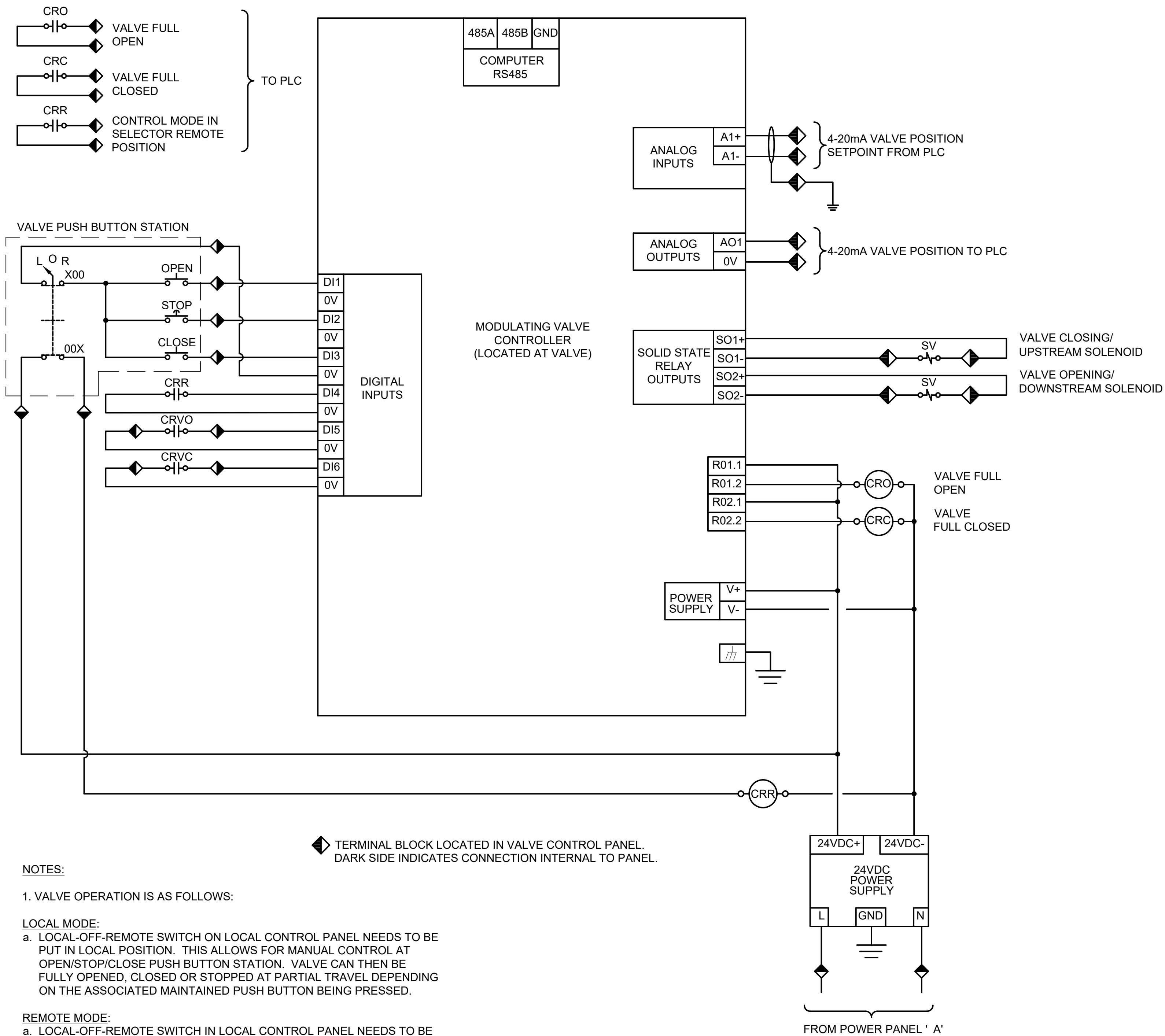
4/2/2026
STATE OF TEXAS
STEVEN MOUSER
103671
LICENSED PROFESSIONAL ENGINEER

KHA PROJECT 068657038	DATE: MARCH 2026	SCALE: AS SHOWN	DESIGNED BY: CKG, BD	DRAWN BY: BD, SG	CHECKED BY: SM
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**AMMANN ROAD - GBRA
WATER MAIN EXTENSION**
PREPARED FOR
THE CITY OF BOERNE
BOERNE, TX 78006

**DELIVERY POINT
ENCLOSURE LAYOUT**

Plotted By: Steven Graf April 02, 2026 05:53:07pm R:\Kinley-Horn\2025 Boerms-Ammann Road Pump Station\Design\Delivery\Print\100% Additional GBRA Requests\Plans\E4-Valve and Heat Trace Controls.dwg
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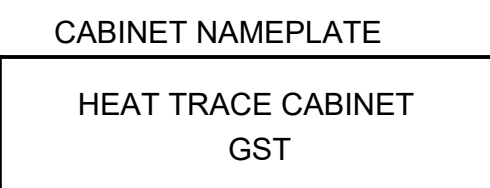


1 MODULATING VALVE CONTROLS
SCALE: N.T.S.

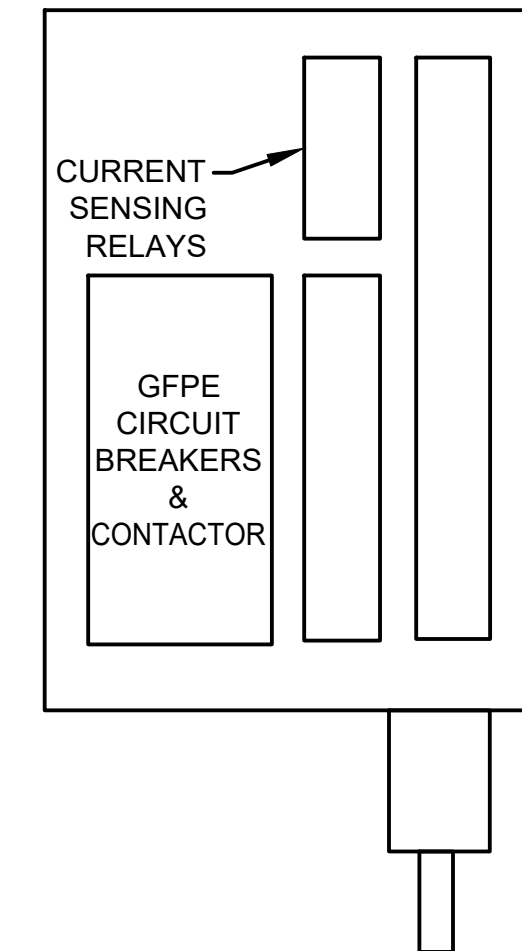
NOTES:
1. VALVE OPERATION IS AS FOLLOWS:

- LOCAL MODE:**
- LOCAL-OFF-REMOTE SWITCH ON LOCAL CONTROL PANEL NEEDS TO BE PUT IN LOCAL POSITION. THIS ALLOWS FOR MANUAL CONTROL AT OPEN/STOP/CLOSE PUSH BUTTON STATION. VALVE CAN THEN BE FULLY OPENED, CLOSED OR STOPPED AT PARTIAL TRAVEL DEPENDING ON THE ASSOCIATED MAINTAINED PUSH BUTTON BEING PRESSED.
- REMOTE MODE:**
- LOCAL-OFF-REMOTE SWITCH IN LOCAL CONTROL PANEL NEEDS TO BE PUT IN REMOTE POSITION.
 - SWITCH IN REMOTE STATUS WILL BE SENT TO PLC AND VALVE CONTROLLER.
 - PLC DIGITAL OUTPUT WILL ENERGIZE CRVO (VALVE OPEN COMMAND) BASED ON PUMP STATION GST LEVEL RECEIVED FROM PUMP STATION.
 - VALVE POSITION (AS 4-20 mA SIGNAL) SHALL BE SENT TO PLC AND ON TO TOP END HMI FOR MONITORING PURPOSES.
 - VALVE POSITION (VIA 4-20mA INPUT) SHALL BE INPUT TO VALVE CONTROLLER. VALVE SHALL MODULATE WHEN CRVO CONTACT IS CLOSED BASED ON VALVE POSITION INPUT AS RECEIVED FROM THE PLC.
 - PLC DIGITAL OUTPUT WILL ENERGIZE CRVC (VALVE CLOSE COMMAND) BASED ON GST LEVEL RECEIVED FROM PUMP STATION OR BASED ON CONTROL CENTER OPERATOR COMMAND.

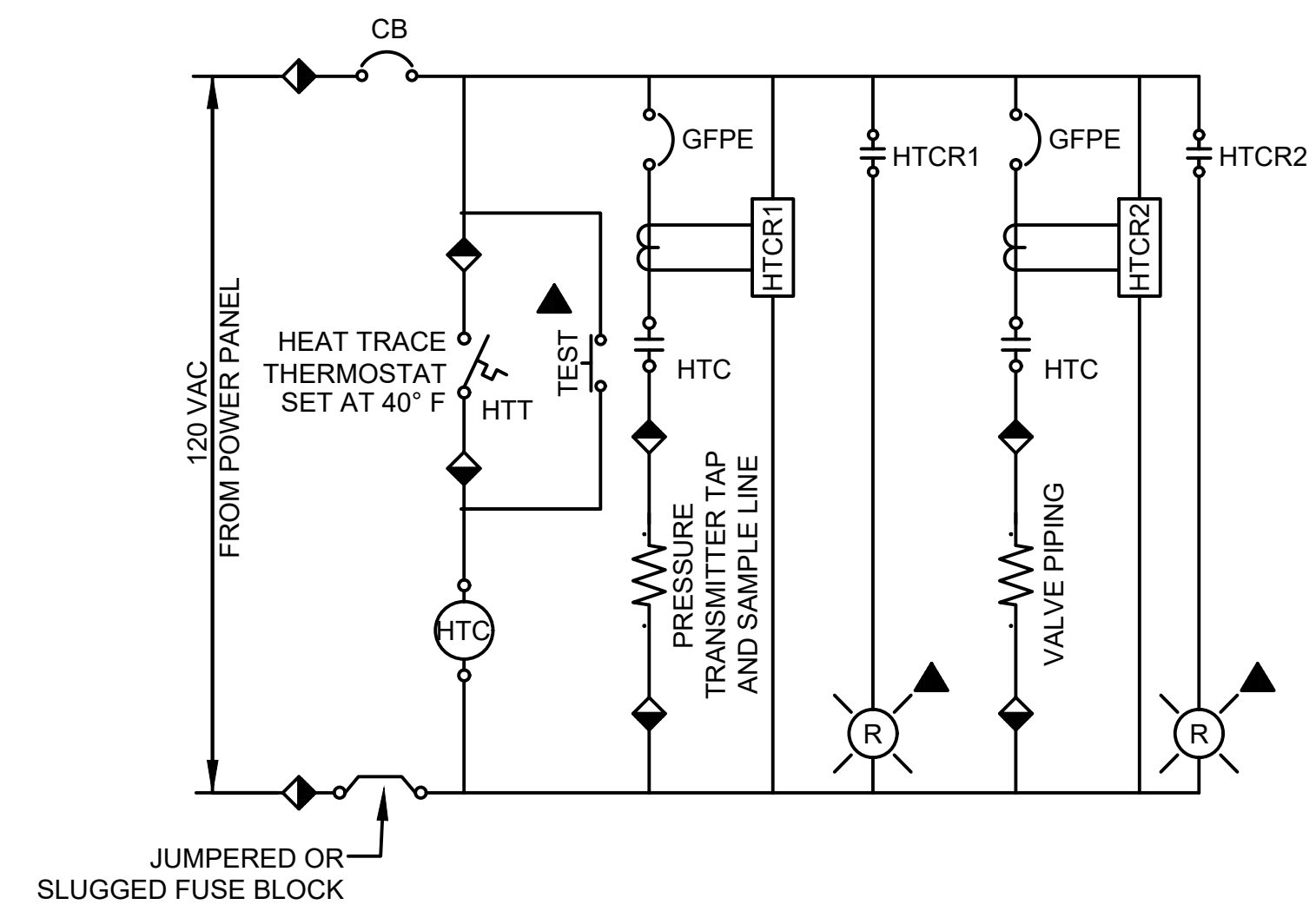
2. UPON POWER FAILURE, THE VALVE WILL CLOSE.



REFERENCE SPECIFICATION 26 94 00 FOR EQUIPMENT DETAILS.



2 HEAT TRACE PANEL (TYP.)
SCALE: N.T.S.



3 HEAT TRACE CONTROL SCHEMATIC
SCALE: N.T.S.

- LEGEND:**
- ◆ TERMINAL POINT IN HEAT TRACE PANEL DARK SIDE INDICATES CONNECTIONS INTERNAL TO PANEL.
 - ▲ DEVICE LOCATED ON HEAT TRACE PANEL SWING PANEL. PROVIDE TAG DESCRIBING EQUIPMENT TO BE HEAT TRACED PER LIGHT.
 - HTCR HEAT TRACE CURRENT SENSING RELAY - PROVIDE LITTELFUSE CURRENT SENSING RELAY ECS40A.

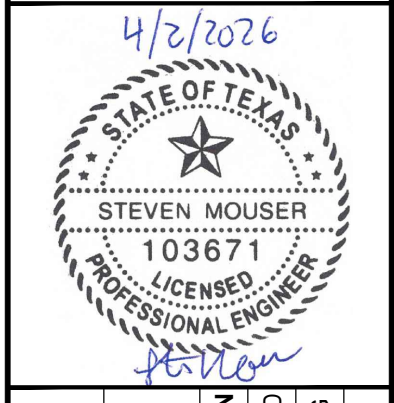
NOTES:

- ALL ENCLOSURES AND DISCONNECTS MUST BE PAD-LOCKABLE.
- REFER TO SPECIFICATION 26 05 00 FOR SWITCH AND NAMEPLATE REQUIREMENTS.
- ALL INDICATING LAMPS SHALL BE PRESS-TO-TEST LED TYPE.

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KHA PROJECT: 068657038
 DATE: MARCH 2026
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 DESIGNED BY: CKG, BD
 DRAWN BY: BD, SG
 CHECKED BY: SM

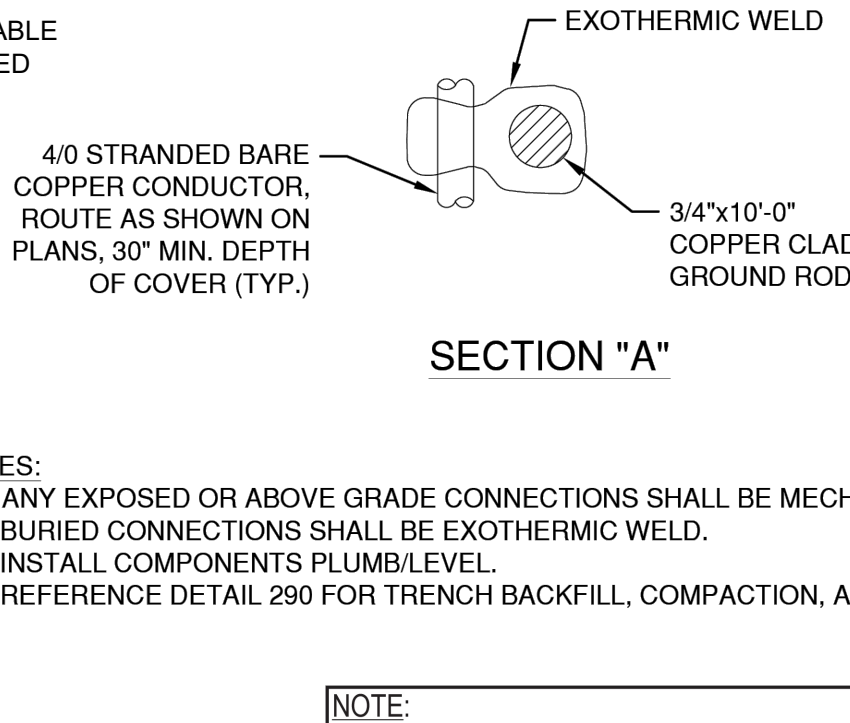
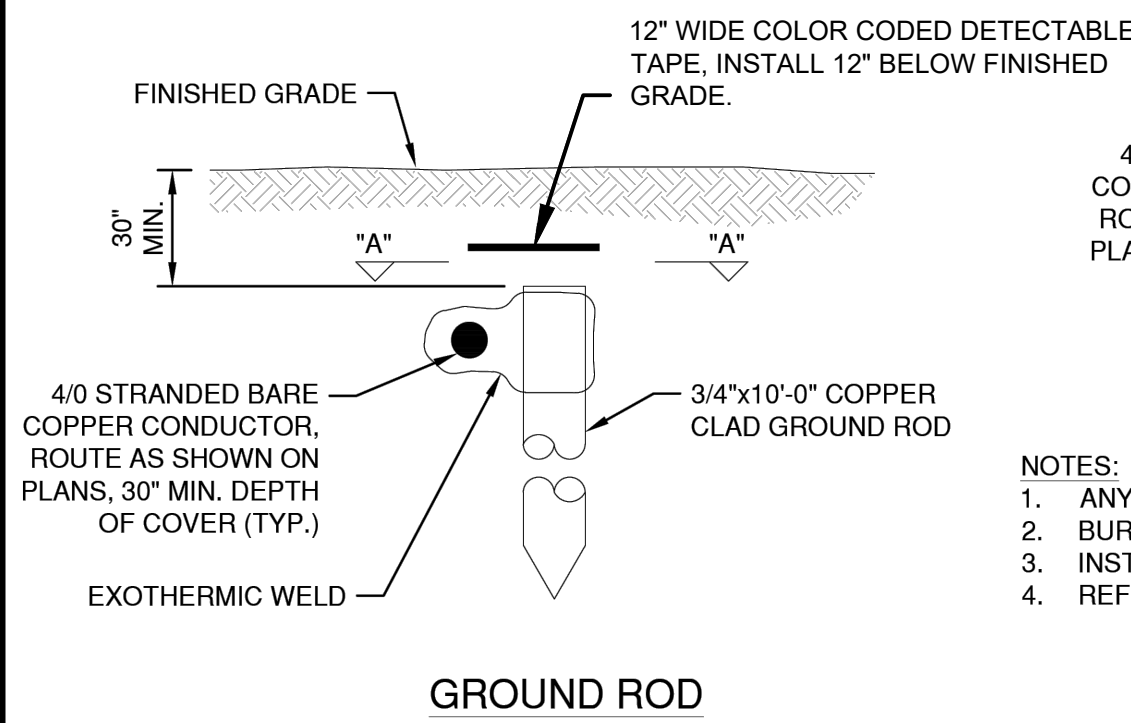
AMMANN ROAD - GBRA
 WATER MAIN EXTENSION

VALVE CONTROLS
 & HEAT TRACE

PREPARED FOR:
 THE CITY OF BOERNE
 BOERNE, TX 78006

SHEET NUMBER
E4

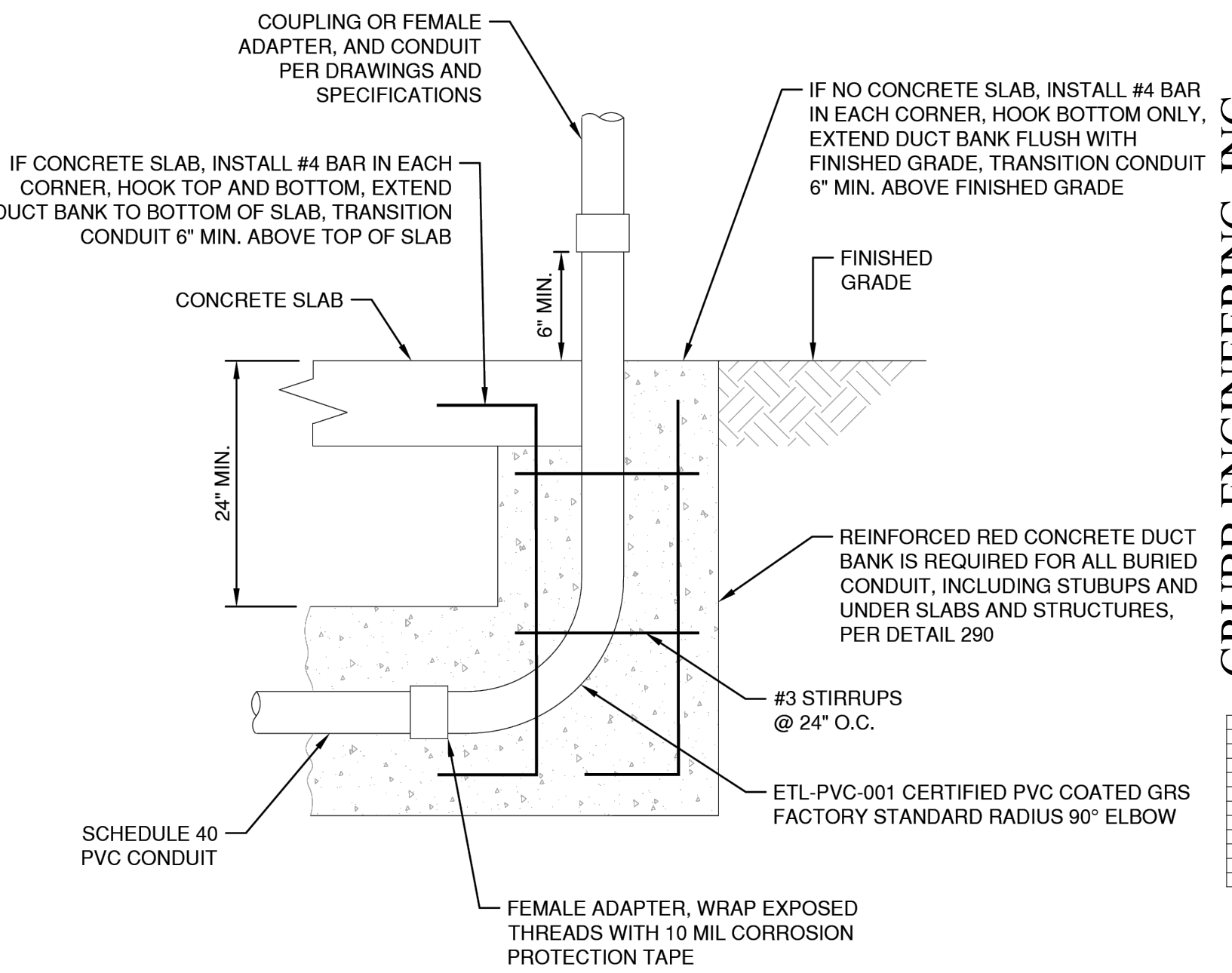
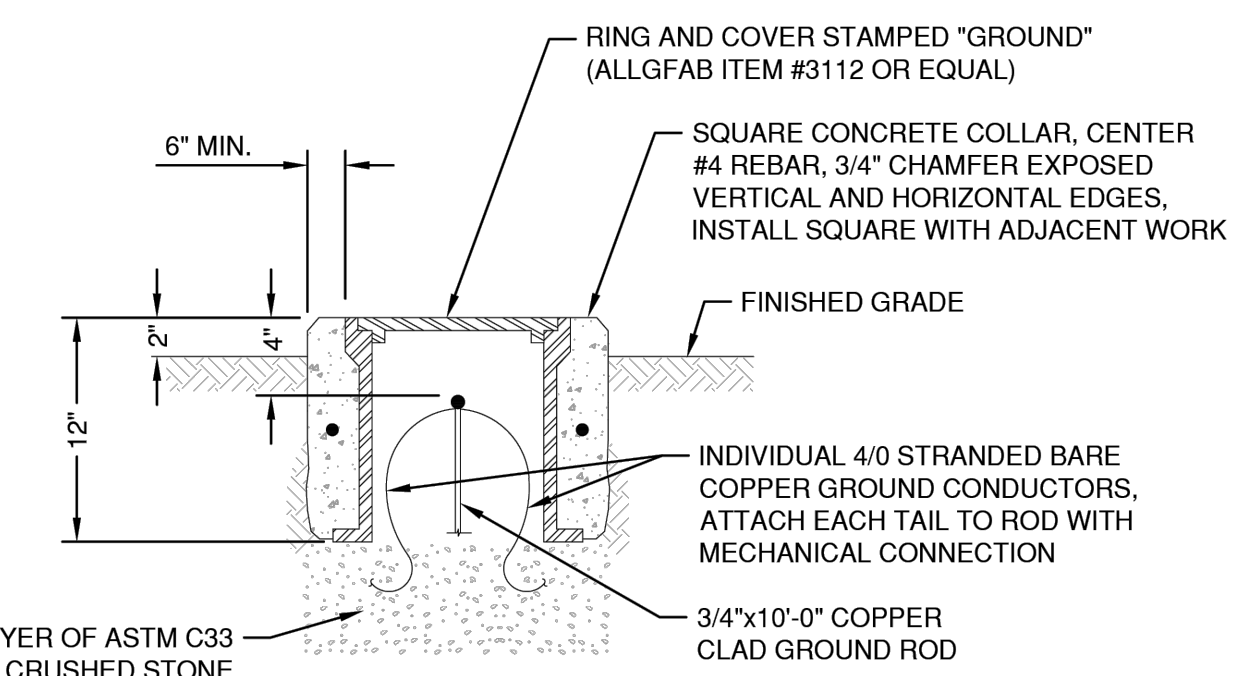
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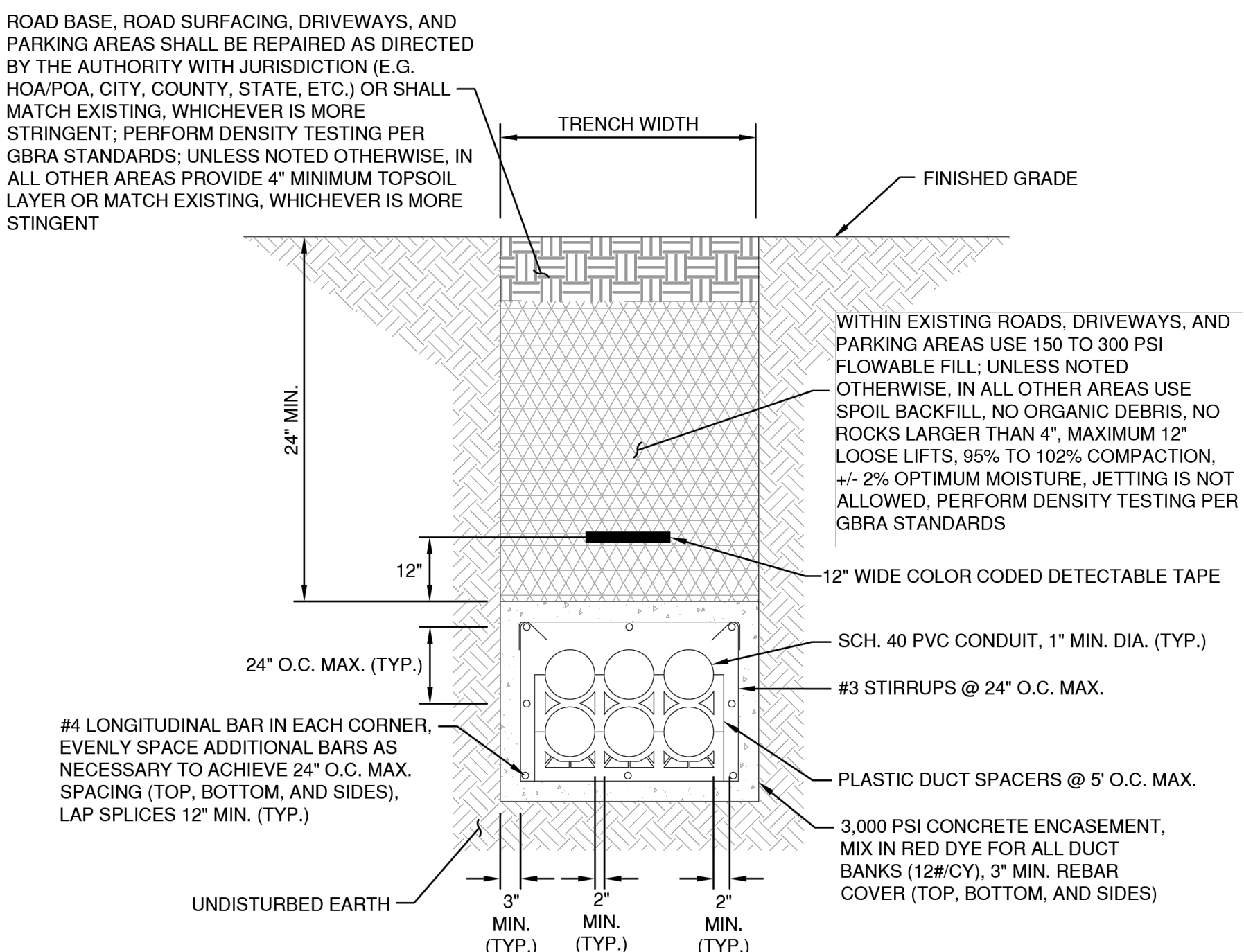
- NOTES:
1. ANY EXPOSED OR ABOVE GRADE CONNECTIONS SHALL BE MECHANICAL TYPE WITH CRIMP LUGS.
 2. BURIED CONNECTIONS SHALL BE EXOTHERMIC WELD.
 3. INSTALL COMPONENTS PLUMB/LEVEL.
 4. REFERENCE DETAIL 290 FOR TRENCH BACKFILL, COMPACTION, AND SURFACING REQUIREMENTS.

NOTE:
 ANY EXPOSED OR ABOVE GRADE CONNECTIONS SHALL BE MECHANICAL TYPE WITH CRIMP LUGS. USE CADWELD FOR BURIED LOCATIONS.

1 GROUND ROD AND TEST WELL DETAIL
 SCALE: N.T.S.

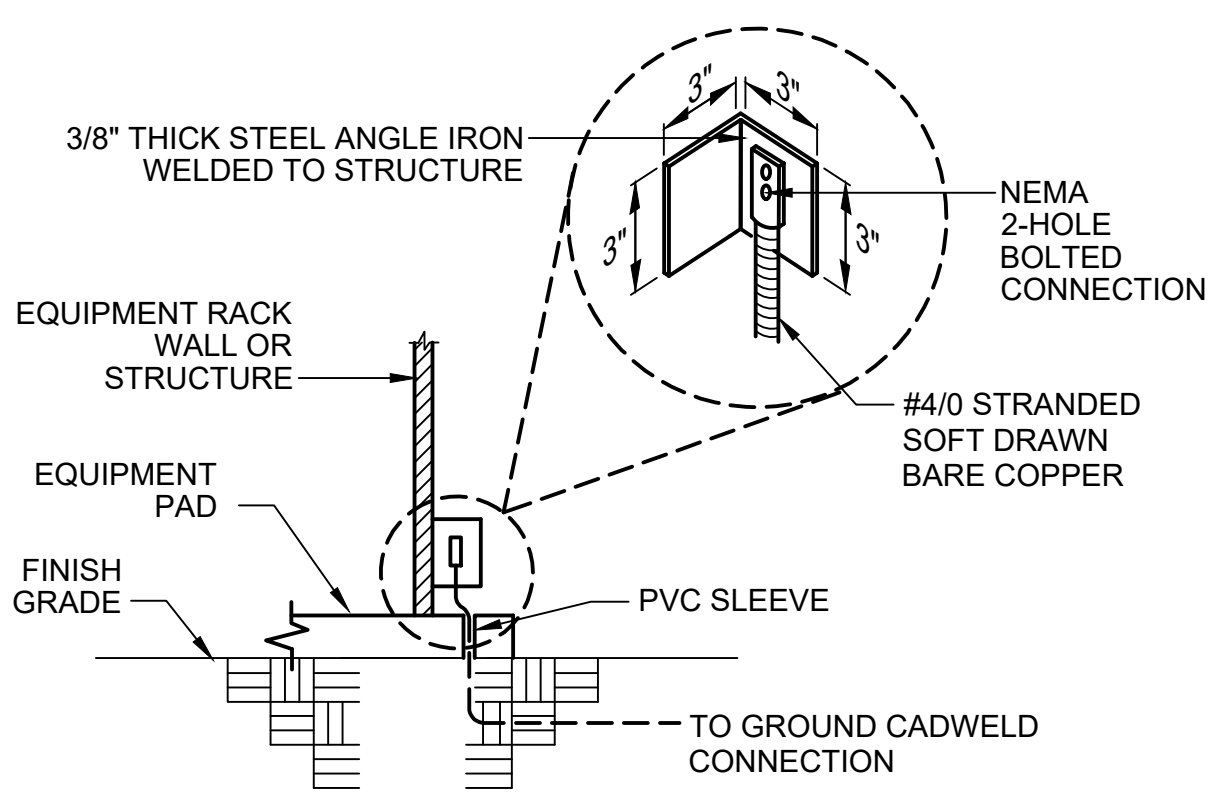


2 CONDUIT STUBUP DETAIL
 SCALE: N.T.S. SEE NOTES 1, 2 & 5.

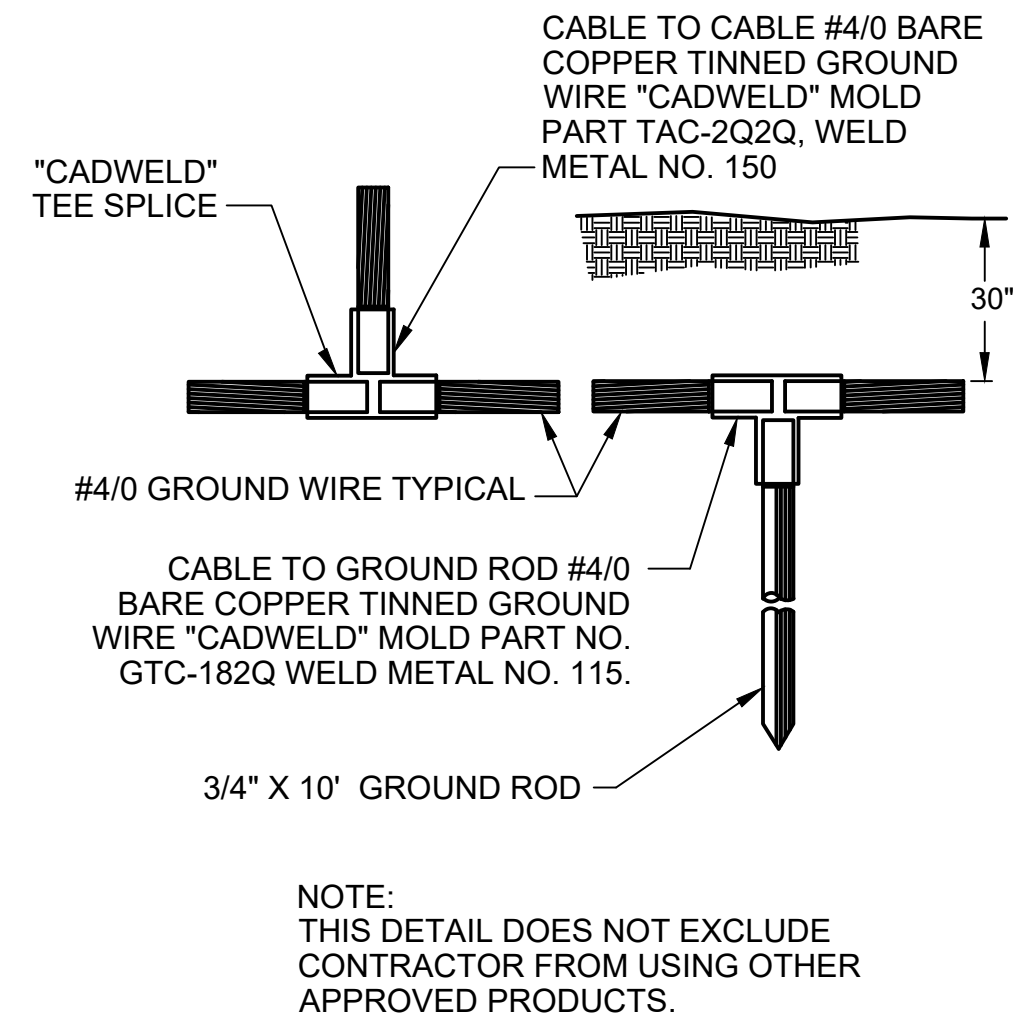


- NOTES:
1. REBAR AND RED-DYED CONCRETE ARE REQUIRED FOR ALL DUCT BANKS, INCLUDING STUBUPS AND UNDER SLABS AND STRUCTURES.
 2. DUCT BANK REBAR SHALL BE DOWELED INTO SLABS AND STRUCTURES WITH CAST-IN-PLACE OR EPOXY BARS (REQUIRED FOR EACH LONGITUDINAL BAR, HOOK EACH CAST-IN-PLACE END).
 3. SIGNALS, COMMUNICATIONS, POWER, AND CONTROLS SHALL BE ROUTED IN SEPARATE DUCTS.
 4. DO NOT MIX VOLTAGES IN THE SAME CONDUIT.
 5. PROVIDE ONE SPARE CONDUIT OF EACH SIZE AND TYPE IN ALL DUCT BANKS.
 6. MINIMUM 12\"/>

3 REINFORCED CONCRETE DUCT BANK



4 TYPICAL STRUCTURE GROUND DETAIL
 SCALE: N.T.S. SEE NOTES 1-3



5 TYPICAL GROUND DETAIL
 SCALE: N.T.S.

DUCTBANK SECTION #1					
#	CONDUIT SIZE	WIRE	FROM	TO	DESCRIPTION
1	PER ONE-LINE DIAGRAM	PER ONE-LINE DIAGRAM	PEC OVERHEAD TRANSFORMERS	MAIN FUSED DISCONNECT SWITCH	POWER TO MAIN FUSED DISCONNECT SWITCH

DUCTBANK SECTION #2					
#	CONDUIT SIZE	WIRE	FROM	TO	DESCRIPTION
1	PER ONE-LINE DIAGRAM	PER ONE-LINE DIAGRAM	MAIN FUSED DISCONNECT SWITCH	POWER PANEL 'A'	POWER TO POWER PANEL 'A'

DUCTBANK SECTION #3					
#	CONDUIT SIZE	WIRE	FROM	TO	DESCRIPTION
1	2\"/>				

6 DUCT BANK SECTIONS
 SCALE: N.T.S.

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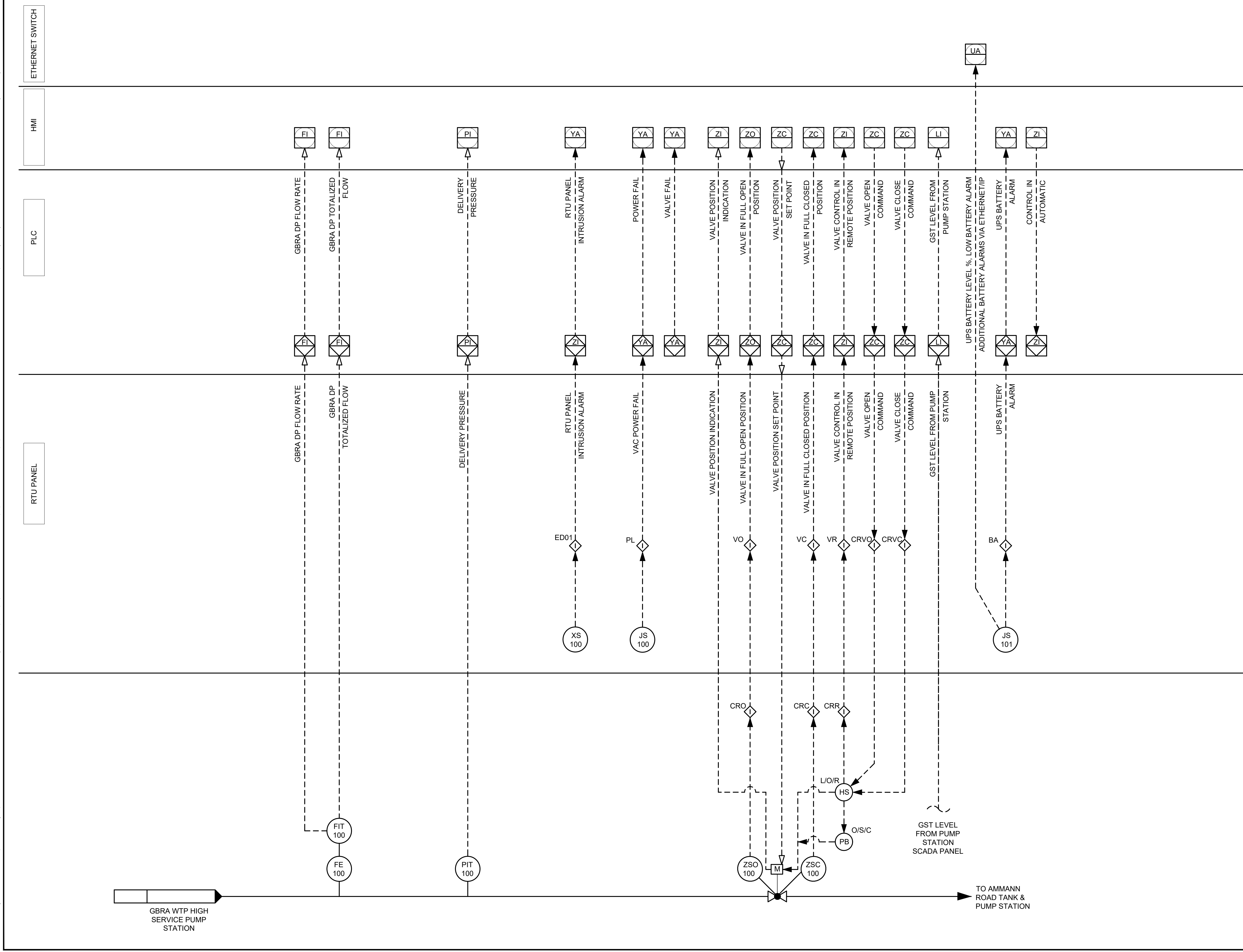
4/2/2026
 STATE OF TEXAS
 STEVEN MOUSER
 103671
 LICENSED PROFESSIONAL ENGINEER

KHA PROJECT: 068657038
 DATE: MARCH 2026
 SCALE: AS SHOWN
 DESIGNED BY: CKG, BD
 DRAWN BY: BD, SG
 CHECKED BY: SM

AMMANN ROAD - GBRA
 WATER MAIN EXTENSION
 PREPARED FOR:
 THE CITY OF BOERNE
 BOERNE, TX 78006

ELECTRICAL DETAILS I
 SHEET NUMBER
E5

Plotted By: Steven Graf April 16, 2026 04:29:42pm R:\Kimley-Horn\2023 Boerne_Ammann Road Pump Station\Design\Delivery_Plan\100% Additional GBRA Requests\Plans\11_PMD.dwg
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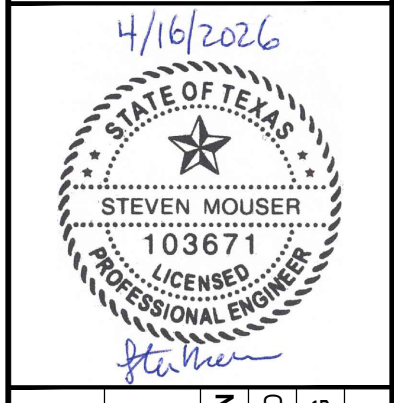


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KHA PROJECT
068657038
 DATE:
APRIL 2026
 SCALE: AS SHOWN
 DESIGNED BY: CKG, BD
 DRAWN BY: BD, SG
 CHECKED BY: SM

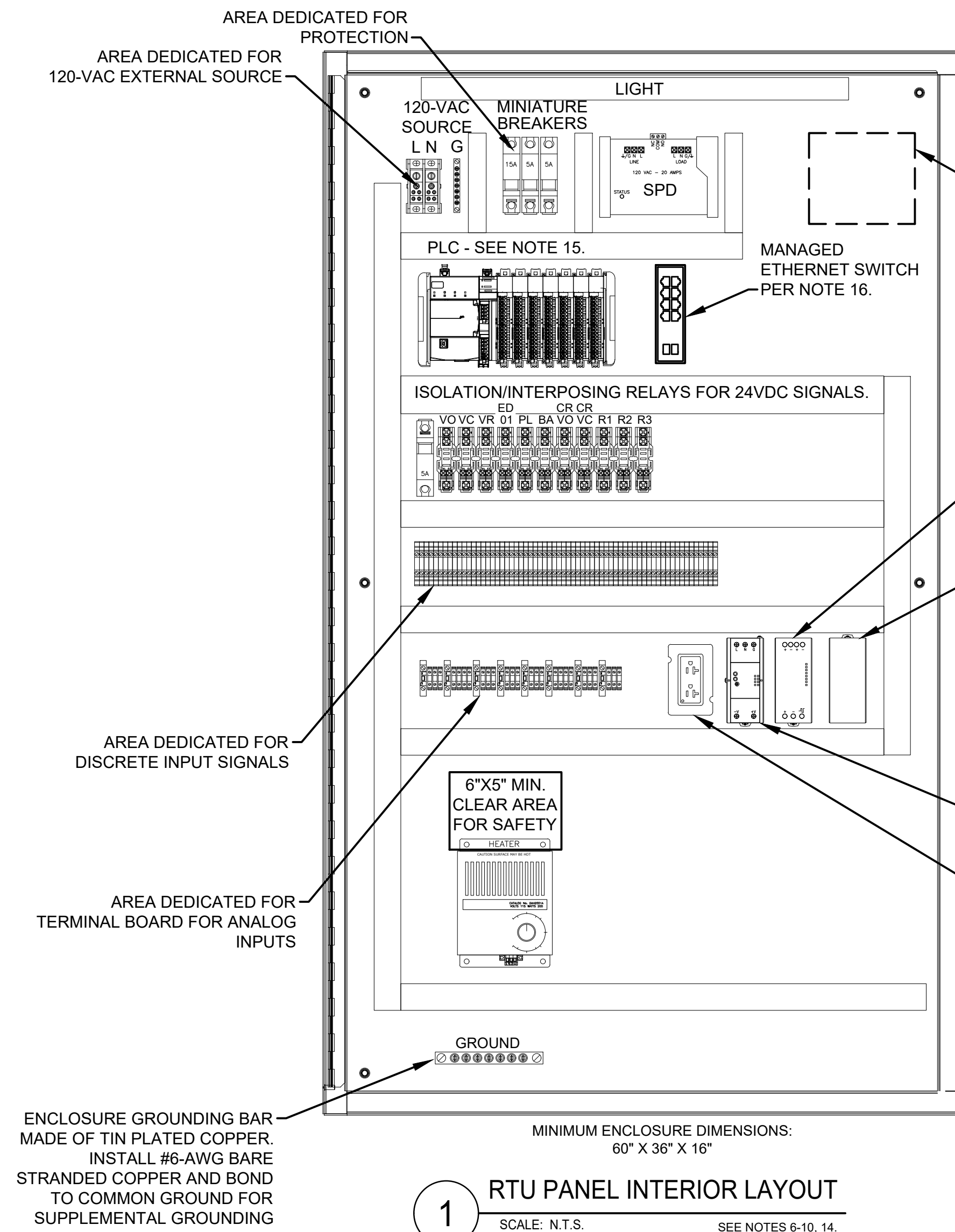
**AMMANN ROAD - GBRA
 WATER MAIN EXTENSION**

PREPARED FOR
 THE CITY OF BOERNE
 BOERNE, TX 78006

**PROCESS MECHANICAL
 AND INSTRUMENTATION
 DIAGRAM**

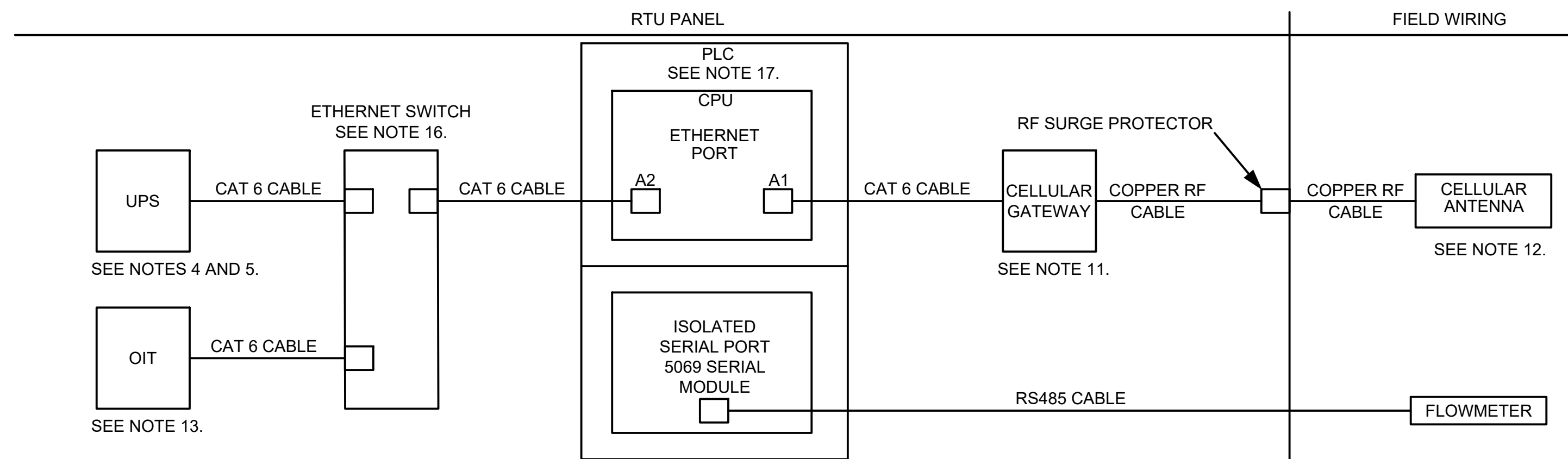
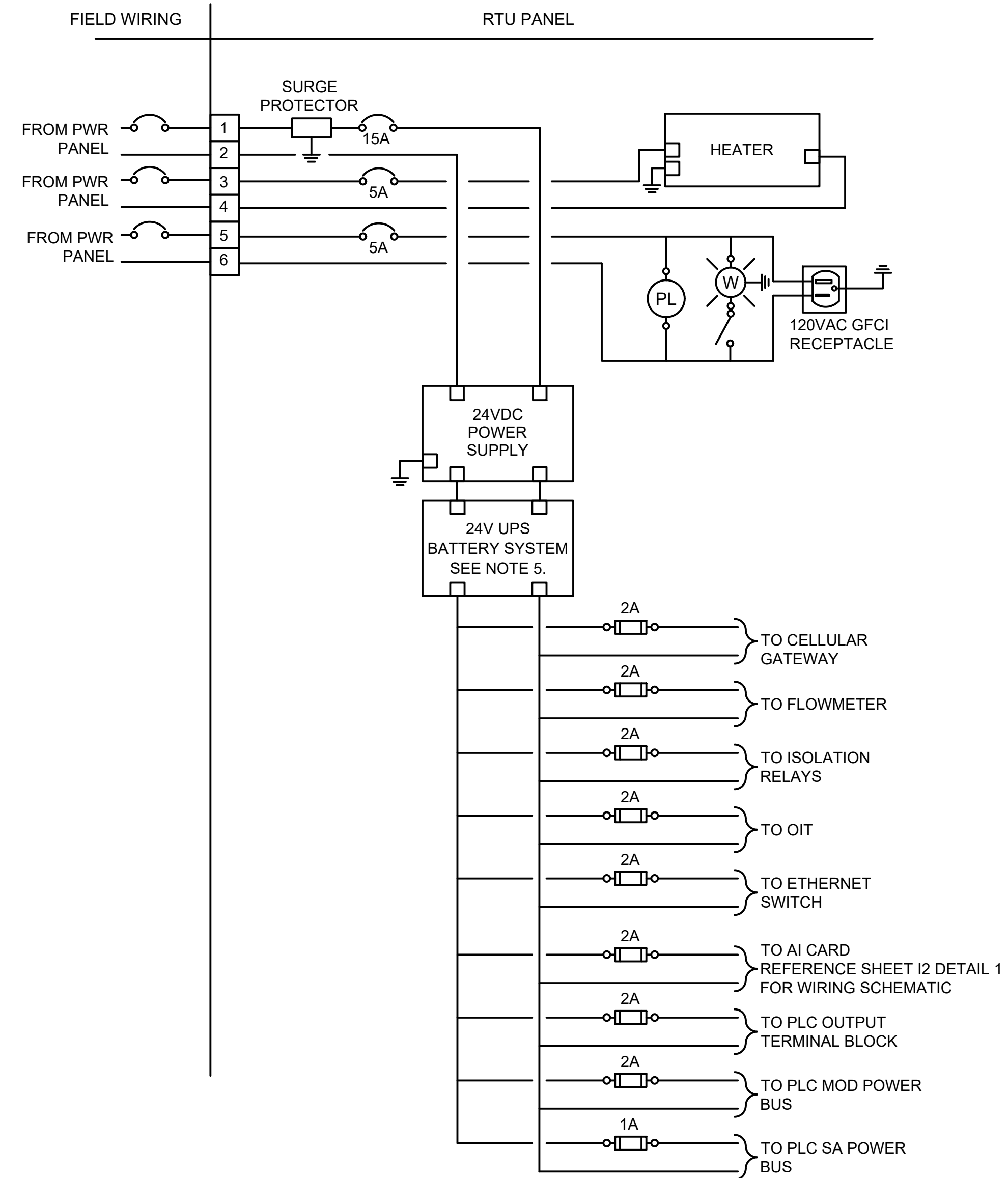
SHEET NUMBER
11

Plotted By: Steven Graf April 16, 2026 04:30:22pm R:\Kinley-Horn\2026 Boerne_Ammann Road Pump Station\Design\Delivery\Panel\RTU Panel Power Distribution & Communications Diagrams_rev.dwg
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- 6" H x 7" W SPACE FOR CELLULAR GATEWAY WHICH WILL CONSIST OF THE FOLLOWING EQUIPMENT PROVIDED BY GBRA:
- CELLULAR GATEWAY: ERICSSON CRADLEPOINT R980
 - DIN RAIL MOUNT: ERICSSON DIN RAIL MOUNTING BRACKET (PART NO. 170904-001)
 - ANTENNA: TAOGLAS TGX.04-4X5G/4G LTE MIMO CROSS-POLARIZED ANTENNA WITH MULTI-MOUNT BRACKET SEE NOTE 11 FOR ADDITIONAL INFORMATION.

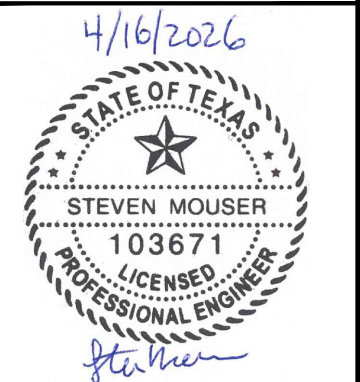
- NOTES:**
- ALL CABLES, CONNECTORS, & PINOUT CONNECTIONS SHALL BE SUBMITTED TO OWNER FOR APPROVAL.
 - CONTRACTOR TO INTEGRATE, CONFIGURE AND PROGRAM EQUIPMENT.
 - RTU BACKUP POWER SYSTEM SHALL HAVE SUFFICIENT CAPACITY TO POWER THE RTU FOR A MINIMUM OF 2-HOUR DURATION THE SYSTEM SHALL CONSIST OF:
 - PHOENIX CONTACT QUINT4-UPS/24DC/24DC/10EIP - UNINTERRUPTIBLE POWER SUPPLY OR OWNER APPROVED EQUAL.
 - PHOENIX CONTACT QUINT4-PS/1AC/24DC/10 - POWER SUPPLY OR OWNER APPROVED EQUAL.
 - PHOENIX CONTACT UPS-BAT/PB/24DC/4AH - BATTERY MODULE OR OWNER APPROVED EQUAL. (BATTERY SIZE MAY VARY TO MEET A 2-HOUR UPTIME WHEN RUNNING ON BACKUP BATTERY POWER)
 - RTU BACKUP POWER SYSTEM UPS SHALL BE INCLUDED IN SITE ETHERNET NETWORK. ANY DATA POINTS MADE AVAILABLE BY THE UPS MODULE SHALL BE OBTAINED VIA ETHERNET/IP WHERE AVAILABLE.
 - UPS SHALL BE INTEGRATED INTO THE A2 NETWORK. UPS SHALL COMMUNICATE WITH THE PLC VIA CLASS 1 IMPLICIT COMMUNICATIONS. CONTRACTOR TO SUPPLY ALL EDS AND AOI FILES AS REQUIRED FOR THE INTEGRATION UPON FINAL COMPLETION.
 - REFER TO DIVISION 40 SPECIFICATION FOR EQUIPMENT DETAILS.
 - CONTRACTOR SHALL PROVIDE ADEQUATE SPACE FOR COMPONENT REMOVAL. RTU PANEL SUBMITTAL SHALL SHOW OFFSET DISTANCES OF COMPONENTS FROM ENCLOSURE EDGES AND BETWEEN COMPONENTS.
 - THE UNINTERRUPTIBLE POWER SUPPLY, BATTERIES AND TRICKLE CHARGER SHALL BE INSTALLED WITHIN THE RTU ENCLOSURE WITHOUT INTERFERING WITH ACCESS TO TERMINAL STRIPS, RELAYS, SPACE HEATER OR ANY OTHER TYPE OF DEVICE.
 - ENCLOSURE SHALL BE NEMA 4X RATED FRP.
 - SPACE HEATER SHALL BE PROVIDED WITH MINIMUM SAFETY CLEARANCES INDICATED BY MANUFACTURER TO PREVENT DAMAGE DUE TO CLOSENESS TO HEATER.
 - CELLULAR GATEWAY SHALL BE PROVIDED AND CONFIGURED BY GBRA. CONTRACTOR SHALL CONNECT TO THE RTU PANEL POWER PER THE POWER DISTRIBUTION DIAGRAM DETAIL 2 AND THE PLC PER THE COMMUNICATIONS DIAGRAM DETAIL 3.
 - CELLULAR ANTENNA SHALL BE PROVIDED BY GBRA AND SHALL BE MOUNTED BY THE CONTRACTOR OUTSIDE OF THE RTU PANEL.
 - ALLEN BRADLEY PANELVIEW 5310 WITH SCREEN SIZE OF 7 INCHES, WIDE SCREEN FORMAT, SHALL BE INSTALLED ON RTU PANEL DOOR. OIT SHALL BE PROGRAMMED TO DISPLAY ALL STATUSES, PROCESS VALUES AND CONTROL VARIABLES. ALL PARAMETERS AND SETPOINTS SHALL BE OPERATOR ADJUSTABLE ON THE OIT. INCLUDE MINIMUM ONE (1) WEEK ALARM HISTORIAN.
 - ENCLOSURE SHALL NOT HAVE INTERIOR DEAD FRONT INNER DOOR.
 - PLC SHALL BE ALLEN BRADLEY 5069-L306R AND 5069 IO.
 - ETHERNET SWITCH SHALL BE CISCO IE 1000.
 - PLC SHALL BE CONFIGURED FOR DUAL IP MODE.



GRUBB ENGINEERING, INC.
 ELECTRICAL POWER SYSTEMS
 DESIGN AND TESTING
 TBPE FIRM REGISTRATION NO. 3904

No.	REVISIONS	DATE	BY

Kimley-Horn
 ©2024 KIMLEY-HORN AND ASSOCIATES, INC.
 STEVEN MOUSER
 10101 RELIANCE PL., SUITE 400, SAN ANTONIO, TX 78216
 PHONE: 210-541-9166
 WWW.KIMLEY-HORN.COM TBPE FIRM NO. 928



KHA PROJECT: 068657038
 DATE: APRIL 2026
 SCALE: AS SHOWN
 DESIGNED BY: CKG, BD
 DRAWN BY: BD, SG
 CHECKED BY: SM

AMMANN ROAD - GBRA
 WATER MAIN EXTENSION
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RTU PANEL DETAILS,
 POWER DISTRIBUTION &
 COMMUNICATIONS
 DIAGRAMS