CONSTRUCTION PLANS

CUDEENGINEERS COM

GENERAL CONSTRUCTION NOTES

- C1 – CITY OF BOERNE – GENERAL CONSTRUCTION NOTES

STREET & DRAINAGE CONSTRUCTION PLANS

- C2 – OVERALL MASTER DRAINAGE & GRADING PLAN
- C3 – OVERALL MASTER DRAINAGE & GRADING PLAN
- C4 – STREET PLAN & PROFILE – MAGNA VISTA CT.
- C5 – STREET PLAN & PROFILE – MAGNA VISTA CT.
- C6 – STREET PLAN & PROFILE – ARION KING
- C7 – STREET PLAN & PROFILE – PROSPECT HILL DR.
- C8 – STREET PLAN & PROFILE – PROSPECT HILL DR.
- C9 – STREET PLAN & PROFILE – TANGLER BEND
- C10 – STREET PLAN & PROFILE – GRASSNOOK
- C11 – STREET PLAN & PROFILE – GLENDON CT. & BALSHAM CT.
- C11A – STREET PLAN & PROFILE – TILBURY EMERGENCY ACCESS
- C12 – CITY OF BOERNE – STREET STANDARD DETAILS
- C13 – TRAFFIC SIGNAGE PLAN
- C14 – DRAINAGE PLAN & PROFILE – DRAINS 'A9' '& D9'
- C15 – DRAINAGE PLAN & PROFILE – DRAIN 'B9'
- C16 – DRAINAGE PLAN & PROFILE – DRAINS 'C9' & 'E9'
- C17 – DRAINAGE PLAN & PROFILE – DRAINS 'F9' & 'J9'
- C18 – DRAINAGE PLAN & PROFILE – DRAINS 'G9' & 'I9'
- C18A – DRAINAGE PLAN & PROFILE – DRAIN 'H9'
- C19 – DETENTION POND PLAN
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SANITARY SEWER CONSTRUCTION PLANS

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- C25 – SANITARY SEWER PLAN & PROFILE – LINE 'II' & LINE 'YY'
- C26 – SANITARY SEWER PLAN & PROFILE – LINE 'II'
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- C28 – SANITARY SEWER PLAN & PROFILE – LINE 'KK' & LINE 'ZZ'
- C29 – SANITARY SEWER PLAN & PROFILE – LINE 'OO' & LINE 'PP'
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- C30 – CITY OF BOERNE – SANITARY SEWER GENERAL NOTES
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WATER DISTRIBUTION CONSTRUCTION PLANS

- C32 – WATER DISTRIBUTION PLAN
- C33 – WATER DISTRIBUTION PLAN
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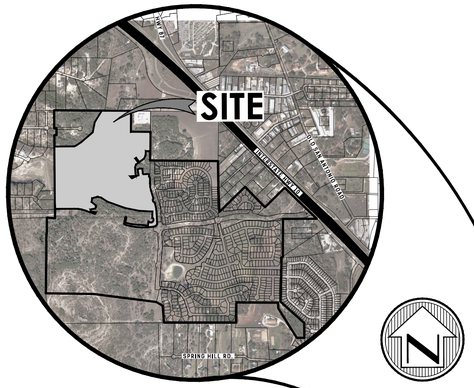
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* DENOTES STANDARD DETAILS ADOPTED FOR USE ON THIS PROJECT.

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- E11 – SECONDARY PEDESTAL AND TYPICAL EQUIPMENT ORIENTATION DETAILS
- E12 – SINGLE PHASE AND THREE PHASE RISER DETAILS

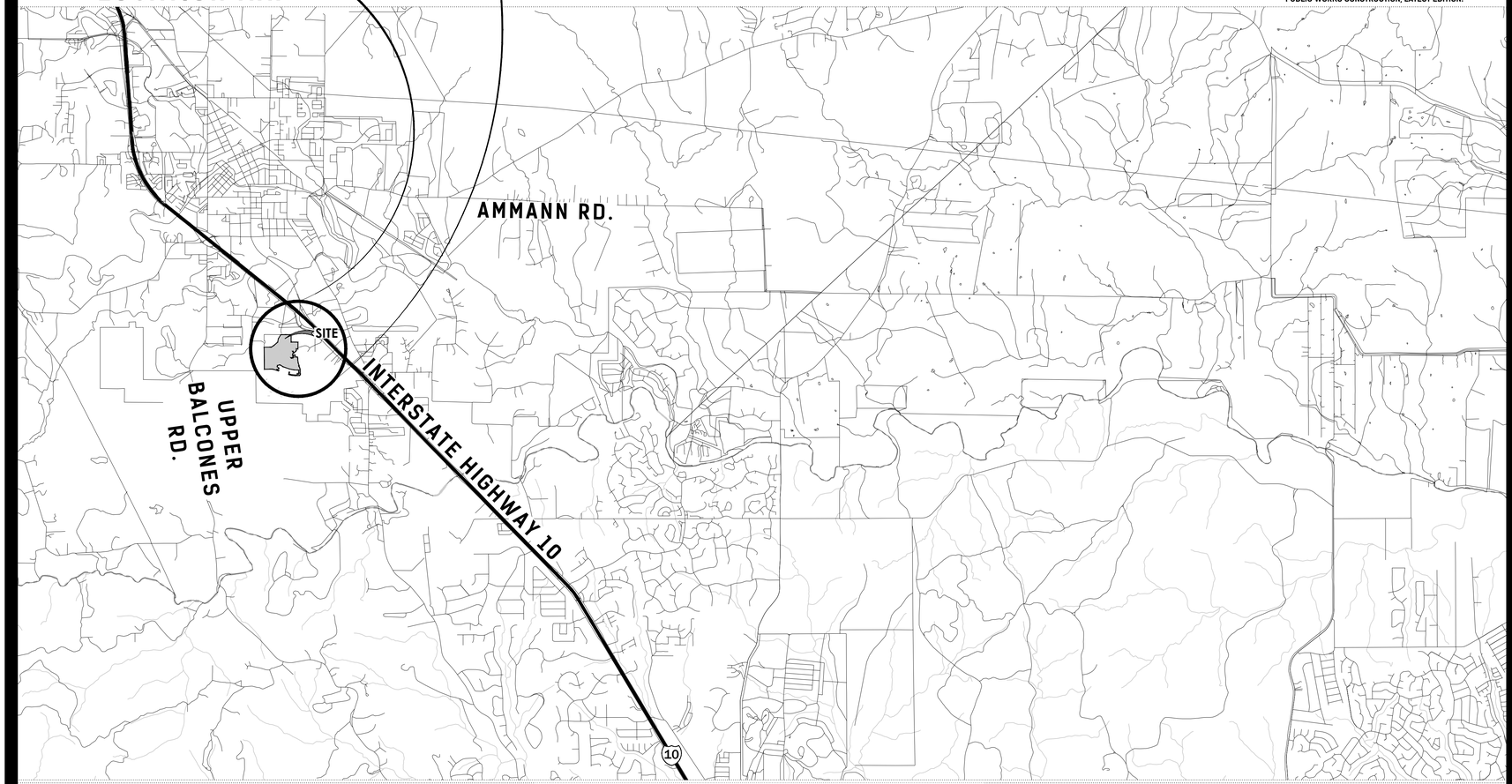


LOCATION MAP

SEQUENCE OF CONSTRUCTION

A) INSTALLATION OF EROSION AND SEDIMENTATION CONTROLS
B) SITE CLEARING
C) ROUGH CUTTING/FILLING OF DETENTION POND
D) SITE ROUGH GRADING
E) SANITARY SEWER INSTALLATION
F) WATER MAIN INSTALLATION
G) DRY UTILITY CROSSINGS INSTALLATION
H) STREET AND DRAINAGE INFRASTRUCTURE INSTALLATION
I) SITE FINAL GRADING
J) DRY UTILITY INSTALLATION
K) SITE CLEAN UP & INFRASTRUCTURE SOIL STABILIZATION
L) SINGLE-FAMILY RESIDENTIAL HOME CONSTRUCTION
M) HOMEBUILDING SOIL STABILIZATION
N) REMOVAL OF TEMPORARY EROSION AND SEDIMENTATION CONTROLS

CONSTRUCTION OF ALL FACILITIES TO BE DEDICATED TO THE PUBLIC SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.



VICINITY MAP (SCALE 1"=4000')

EST. 1980 CUDE ENGINEERS

REGENT PARK UNIT 9

OVERALL CONSTRUCTION PLANS

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DRAWN BY	DATE
AD/RM/MW/MS	1/10/2025
CHECKED BY	**PROJECT NO.**
PATRICK MURPHY, P.E.	02133.160

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

CITY OF BOERNE

GENERAL CONSTRUCTION NOTES

REV. 06/21/2024

GENERAL NOTES

1. CONSTRUCTION OF ALL FACILITIES TO BE DEDICATED TO THE PUBLIC SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION, AND ANY OTHER GOVERNING AGENCY SUCH AS THE TCEQ, TxDOT, ETC., AS APPLICABLE.
2. IF ANY CONFLICT ARISES BETWEEN THESE GENERAL NOTES AND ANY OTHER NOTES FOUND IN THE PLANS, THE CITY OF BOERNE'S GENERAL NOTES SHALL TAKE PRECEDENCE. HOWEVER, THE CITY ENGINEER HAS THE AUTHORITY TO REVIEW AND APPROVE LEGITIMATE CONFLICTING PROJECT SPECIFIC NOTES, IF NEEDED.
3. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE INFRASTRUCTURE DRAWINGS REMAINS WITH THE ENGINEER OF RECORDS. IN APPROVING THESE INFRASTRUCTURE DRAWINGS, THE CITY OF BOERNE MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.
4. PRIOR TO A CONSTRUCTION RELEASE PERMIT AND BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE CITY OF BOERNE ENGINEERING AND MOBILITY DEPARTMENT TO SCHEDULE A PRE-CONSTRUCTION MEETING. A SEPARATE ON-SITE PRE-CONSTRUCTION MEETING MAY BE REQUIRED WITH THE CONTRACTOR AND ANY SUBCONTRACTORS PRIOR TO STARTING WORK.
5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR SHALL NOTIFY CITY OF BOERNE ENGINEERING & MOBILITY DEPARTMENT AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION AT (830) 248-1538.
7. THE CONTRACTOR IS REQUIRED TO SCHEDULE ALL NECESSARY INSPECTIONS AT LEAST 24 HOURS IN ADVANCE. FEES MAY BE ASSESSED FOR WORK THAT IS NOT READY AT THE TIME OF THE INSPECTION OR NO-SHOWS FOR SCHEDULED INSPECTIONS.
8. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES; THE APPROVED INFRASTRUCTURE DRAWINGS, INCLUDING ALL APPROVED REVISIONS; THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION; ALL NECESSARY PERMITS; NOTICE OF INTENT; EROSION CONTROL PLANS; AND SWPPP. IT IS ENCOURAGED TO KEEP AN EXTRA COPY OF APPROVED SUBMITTALS ON-SITE.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PUBLIC UTILITIES DURING CONSTRUCTION OF THE PROJECT.
10. THE CONTRACTOR SHALL DETERMINE THE DEPTH AND LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO EXCAVATING, TRENCHING, OR DRILLING AND SHALL BE REQUIRED TO TAKE ANY PRECAUTIONARY MEASURES TO PROTECT ALL LINES SHOWN AND/OR ANY OTHER UNDERGROUND UTILITIES NOT OF RECORD OR NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL PUBLIC AGENCIES AND FRANCHISE UTILITIES 48 HOURS PRIOR TO CONSTRUCTION (TEXAS811 1-800-344-8377). THE CONTRACTOR MAY BE REQUIRED TO EXPOSE THESE FACILITIES AT THEIR OWN COST.
11. THE CONTRACTOR MUST CONTACT CITY OF BOERNE ENGINEERING & MOBILITY DEPARTMENT IMMEDIATELY IF ANY DAMAGE TO EXISTING UTILITIES OCCURS. ANY DAMAGE TO UTILITIES RESULTING FROM CONTRACTOR'S OPERATIONS SHALL BE RESTORED AT THEIR EXPENSE. IF DAMAGE TO A LIVE GAS MAIN OCCURS, CALL 911 IMMEDIATELY PRIOR TO CALLING CITY OF BOERNE UTILITIES DEPARTMENT.
12. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO PUBLIC AND PRIVATE PROPERTY, INCLUDING, BUT NOT LIMITED TO FENCES, WALLS, PAVEMENT, GRASS, TREES, AND LAWN SPRINKLER AND IRRIGATION SYSTEM AT THEIR OWN COST. ANY PERMITTED WORK LOCATED WITHIN EASEMENTS ON PRIVATE PROPERTY WILL REQUIRE A LETTER OF APPROVAL FROM EACH AFFECTED LANDOWNER PRIOR TO FINAL ACCEPTANCE OF CONSTRUCTION.
13. ANY DISCREPANCIES ON THE INFRASTRUCTURE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER AND CITY OF BOERNE ENGINEERING & MOBILITY DEPARTMENT BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM THE INFRASTRUCTURE DRAWINGS ARE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE CITY.
14. STORMWATER MANAGEMENT FACILITIES SHALL BE PROVIDED PRIOR TO SITE CONSTRUCTION OR CLEARING AND BE MAINTAINED DURING THE PROGRESS OF CONSTRUCTION.
15. THE CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY. ALL WORK REQUIRED SHALL BE CONDUCTED IN CONFORMANCE WITH CURRENT SAFETY CODES AND STANDARDS WITH JURISDICTION OVER THIS PROJECT.
16. THE CONTRACTOR SHALL PROVIDE THE CITY ACCESS TO CITY PROPERTY, EASEMENTS, UTILITIES, AND FACILITIES AT ALL TIMES DURING CONSTRUCTION.
17. THE CONTRACTOR SHALL FOLLOW THE CITY'S CURRENT NOISE ORDINANCE, ANY EXCEPTIONS OF WHICH MAY BE REQUESTED IN WRITING TO THE CITY OF BOERNE PERMITTING AND CODE COMPLIANCE DEPARTMENT.
18. THE CONTRACTOR IS RESPONSIBLE FOR REQUIRED CONSTRUCTION SURVEYING AND STAKING AND SHALL NOTIFY THE CITY OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH ANY WORK.
19. THE CONTRACTOR SHALL VERIFY BENCHMARKS AND DATUMS PRIOR TO COMMENCING CONSTRUCTION OR STAKING OF IMPROVEMENTS.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL SURVEY MARKERS INCLUDING IRON RODS, PROPERTY CORNERS, OR SURVEY MONUMENTS WITHIN THE LIMITS OF THE CONSTRUCTION SITE AND OUTSIDE THE RIGHT-OF-WAY DURING CONSTRUCTION. ANY SURVEY MARKERS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR AT THEIR OWN COST.
21. ALL CONCRETE SHALL BE PLANT MIXED MEETING CITY SPECIFICATIONS WITH A MINIMUM OF 4,000 PSI AT 28 DAYS COMPRESSIVE STRENGTH UNLESS OTHERWISE SPECIFIED. ANY CONCRETE INSTALLED WITHOUT AN APPROVED MIX DESIGN SUBMITTAL WILL BE REMOVED AT CONTRACTOR'S EXPENSE.
22. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS, AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THESE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS, AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS, SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
23. CONTRACTOR SHALL FURNISH A SET OF "AS-BUILT" DRAWINGS TO THE CITY OF BOERNE ENGINEERING & MOBILITY DEPARTMENT AT THE TIME OF FINAL INSPECTION. CONTRACTOR SHALL GIVE CITY AT LEAST TWO WORKING DAYS NOTICE PRIOR TO FINAL INSPECTION.

GEOTECHNICAL TESTING

1. ALL COMPACTION, CONCRETE, AND OTHER REQUIRED TEST RESULTS SHALL BE SENT TO THE DESIGN ENGINEER AND CITY DIRECTLY FROM THE TESTING AGENCY. CITY OF BOERNE INSPECTORS SHALL BE PROVIDED A MINIMUM OF 24-HOUR NOTICE AND PROVIDED THE OPPORTUNITY TO OBSERVE ALL REQUIRED TESTING.
2. ALL PROCTOR TESTING SHALL BE COMPLETED PER ASTM D1557 (MODIFIED PROCTOR) AND PROCTOR SHALL BE SUBMITTED TO THE CITY OF BOERNE ENGINEERING & MOBILITY DEPARTMENT PRIOR TO COMPACTION.
3. UPON COMPLETION OF CONSTRUCTION, A COPY OF ALL TESTING REPORTS SHALL BE COMPILED AND FORWARDED TO THE CITY OF BOERNE ENGINEERING & MOBILITY DEPARTMENT PRIOR TO FINAL ACCEPTANCE.
4. IT IS THE RESPONSIBILITY OF THE DEVELOPER, CONTRACTOR, SUBCONTRACTORS, BUILDERS, GEOTECHNICAL ENGINEER, AND DESIGN ENGINEER TO IMMEDIATELY NOTIFY THE CITY AND DESIGN ENGINEER IF THE PRESENCE OF GROUNDWATER WITHIN THE SITE IS EVIDENT. UPON NOTIFICATION, THE DESIGN ENGINEER SHALL RESPOND WITH PLAN REVISIONS FOR THE MITIGATION OF THE GROUNDWATER ISSUE. ALL CONSTRUCTION ACTIVITY IMPACTED BY THE DISCOVERY OF GROUNDWATER SHALL BE SUSPENDED UNTIL THE CITY APPROVES THE GROUNDWATER MITIGATION PLAN IN WRITING.

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 CITY AT LEAST 3 BUSINESS DAYS IN ADVANCE OF COMPLETING WORK IN A CITY RIGHT-OF-WAY.
4. TEMPORARY LANE CLOSURES DURING THE HOURS OF 9AM TO 3PM MAY BE PERMITTED WHERE SHOWN AS NECESSARY WITHIN THE TRAFFIC CONTROL PLAN WITH PRIOR APPROVAL BY THE CITY OF BOERNE ENGINEERING & MOBILITY DEPARTMENT. NO LANE CLOSURES ARE PERMITTED ON WEEKENDS OR HOLIDAYS WITH PRIOR WRITTEN APPROVAL.
5. TEMPORARY STEEL PLATES MAY BE UTILIZED AS PERMITTED BY THE CITY OF BOERNE ENGINEERING & MOBILITY DEPARTMENT FOR A MAXIMUM OF TWO (2) WEEKS UNLESS PRIOR WRITTEN APPROVAL OF AN EXTENDED TIME IS PROVIDED.
6. ALL TEMPORARY SIGNS, BARRICADES, WARNING LIGHTS AND OTHER MISCELLANEOUS TRAFFIC CONTROL MEASURES SHALL NOT BE INSTALLED EARLIER THAN 24 HOURS BEFORE THE CONTRACTOR IS READY TO PROCEED WITH CONSTRUCTION FOR THAT SITE.
7. 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 INSPECTOR HAS THE AUTHORITY TO HAVE THE CONTRACTOR MODIFY THE EROSION CONTROLS AT THE DEVELOPER'S EXPENSE. THE DEVELOPER 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 ROCK, MUD, TRASH 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 THE CITY OF BOERNE, ALL TEMPORARY INLET BARRIERS SHALL BE REMOVED. REPLACED WITH CONTROLS TO PREVENT SEDIMENT FROM ENTERING THE STREET ROW. CITY STREETS SHALL NOT BE USED AS SEDIMENT TRAPS WITHOUT WRITTEN APPROVAL FROM THE CITY OF BOERNE ENGINEERING & MOBILITY DEPARTMENT.
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. SILT 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 TPDES 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 THE CITY OF BOERNE.

GRADING NOTES

1. CONTRACTOR IS REQUIRED TO OBTAIN AN APPROVED GRADING PERMIT FROM THE CITY, IF APPLICABLE.
2. CONTRACTOR TO ENSURE POSITIVE DRAINAGE AT ALL TIMES DURING CONSTRUCTION.
3. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES WHICH ARE TO REMAIN IN PLACE AND UNDISTURBED DURING CONSTRUCTION.
4. GRADING WORK SHALL BE COMPLETED TO WITHIN 0.10 FEET OF THE FINAL GRADE PRIOR TO INSTALLATION OF UTILITIES INCLUDING ANY UTILITY TYPE INSTALLATION OUTSIDE OF THE ROW TO ENSURE DEPTHS ARE APPROPRIATE FROM FINAL GRADE.
5. CONTRACTOR SHALL NOT PLACE ANY FILL OR WASTE MATERIAL IN THE LOCAL OR 100-YEAR FLOODPLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOODPLAIN DEVELOPMENT PERMIT.

PAVING NOTES

1. ALL CONSTRUCTION AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.
2. SUBMITTALS FOR LIME, BASE, PRIME COAT, TACK COAT, AND ASPHALT, AS APPLICABLE, SHALL BE APPROVED PRIOR TO INSTALLATION. INSTALLATION PRIOR TO SUBMITTAL APPROVAL MY 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 BOERNE ENGINEERING & MOBILITY DEPARTMENT. THE CITY WILL AUTHORIZE THE SUBGRADE WORK IN PREPARATION FOR THE PAVING AFTER UTILITY TRENCH BACKFILL TESTING IS COMPLETE AND VERIFIED TO MEET CITY REQUIREMENTS.
4. 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% PER ASTM D1557 (MODIFIED PROCTOR).
5. UTILITIES MUST BE MAINTAINED TO PROPER LINE AND GRADE DURING CONSTRUCTION OF THE PAVING FOR THIS PROJECT.
6. FLEXIBLE BASE UNDER ROADWAYS REQUIRES 100% COMPACTION MEETING ASTM D1557 (MODIFIED PROCTOR) AND MUST EXTEND AT LEAST 18 INCHES BEHIND THE BACK OF CURB.
7. 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 A CITY INSPECTOR. ALL TESTING MUST BE SCHEDULED WITH THE CITY OF BOERNE ENGINEERING & MOBILITY DEPARTMENT.

PEDESTRIAN NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING ALL STREETS, CROSSWALKS, SIDEWALKS AND CURB RAMPS, DRIVEWAYS, AND ANY OTHER SURFACE RELATED TO AN "ACCESSIBLE ROUTE" PER THE TEXAS ACCESSIBILITY STANDARDS (TAS), LATEST EDITION AND PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG), LATEST EDITION. THE CONTRACTOR SHALL REMOVE AND REPLACE ANY CONSTRUCTED OR INSTALLED ITEMS NOT MEETING THE CURRENT TAS REQUIREMENTS AT THEIR OWN COST.
2. CONTRACTOR SHALL MAINTAIN ALL EXISTING PEDESTRIAN ROUTES AND ACCESS WITHIN AND ADJACENT TO THE SITE DURING THE DURATION OF CONSTRUCTION. A TEMPORARY PEDESTRIAN ROUTE SHALL BE PROVIDED WHEN ANY EXISTING SIDEWALK IS CLOSED DUE TO ANY CONSTRUCTION ACTIVITY. ANY SIGNAGE REQUIRED FOR THE DESIGNATION OF A TEMPORARY PEDESTRIAN ROUTE SHALL BE INCLUDED ON THE APPROVED TRAFFIC CONTROL PLAN. ANY TEMPORARY CLOSURES OF EXISTING SIDEWALKS MUST BE APPROVED BY THE CITY OF BOERNE ENGINEERING & MOBILITY DEPARTMENT IN ADVANCE OF CONSTRUCTION AND AN ALTERNATE ADA COMPLIANT PATH MUST BE PROVIDED IN THE INTERIM IN ACCORDANCE OF PROWAG.

UTILITIES

GENERAL

1. ALL CONSTRUCTION, TESTING, CLEANING, AND DISINFECTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.
2. CONTRACTOR SHALL NOT OPERATE AN EXISTING VALVES. THE CITY MUST BE PRESENT DURING ANY WORK COMPLETED ON EXISTING CITY UTILITIES. THE CONTRACTOR IS NOT PERMITTED TO COMPLETE GAS WORK ON EXISTING CITY GAS MAINS AT ANY TIME.
3. THE CONTRACTOR MUST COORDINATE AND SCHEDULE ALL UTILITY TIE-INS WITH THE CITY. NO TIE-INS SHALL BE MADE TO THE EXISTING UTILITY SYSTEM UNTIL ALL TEST RESULTS HAVE BEEN PROVIDED TO THE CITY AND ARE VERIFIED.
4. UNLESS THE DEVELOPER HAS RECEIVED PRIOR WRITTEN PERMISSION BY THE CITY OF BOERNE, ALL UTILITIES, INCLUDING BUT NOT LIMITED TO WATER, RECLAIMED WATER, SEWER, GAS, AND ELECTRIC UTILITIES MUST BE INSTALLED AND TESTED PRIOR TO THE PAVING OF A STREET OR ALLEY OR PORTION THEREOF.
5. PRIOR TO RECEIVING BULK WATER, THE CONTRACTOR MUST SUBMIT APPLICATION TO THE UTILITIES DEPARTMENT FOR A BULK WATER METER. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING A CITY APPROVED BACKFLOW DEVICE OR AIR GAP ON ALL JUMPERS PRIOR TO LOADING WATER IN UNAPPROVED MAINS.
6. ALL MANHOLES, END OF MAIN CLEANOUTS, VALVES, AND BLOW-OFFS SHALL HAVE CONCRETE ENCASEMENTS INSTALLED. ANY ENCASEMENTS IN PAVEMENT WILL BE DIAGONAL FROM THE DIRECTION OF TRAFFIC.
7. ONE DENSITY TEST PER 8-INCH LIFT IS REQUIRED EVERY 500 FEET FOR TRENCHES UP TO 12 FEET IN DEPTH AND EVERY 300 FEET FOR TRENCHES 12 FEET AND DEEPER. DENSITY TESTING MUST BE COMPLETED FOR EACH LIFT PRIOR TO COMMENCING INSTALLATION OF THE NEXT LIFT. POTHOLING AND STAIR STEPPING IS NOT PERMITTED.
8. ALL VALVE BOXES, METER BOXES, FIRE HYDRANTS, MANHOLES, ETC. ARE REQUIRED TO BE ADJUSTED AS REQUIRED TO MATCH FINAL GRADES.
9. THE CONTRACTOR IS RESPONSIBLE FOR STAKING UTILITIES AND INSTALLING PROPERTY PINS PRIOR TO THE FINAL INSPECTION TO VERIFY LOCATION, FINISH GRADE, AND DEPTH.
10. TRACER WIRE LOCATE BOX SHALL BE INSTALLED PER CITY REQUIREMENTS AT ALL VALVES INCLUDING GAS, RECLAIMED WATER, FIRE HYDRANT VALVES AND BLOWOFFS. FOR GROUPING OF VALVES AT ONE GENERAL LOCATION, ONE LOCATE BOX MAY BE USED.

WATER

11. WHERE THE MINIMUM NINE (9) FEET SEPARATION BETWEEN WATER AND SANITARY SEWER LINES CANNOT BE MAINTAINED, THE CONTRACTOR MUST MEET THE REQUIREMENTS OF 30 TAC 217.53(d) AND 30 TAC 290.44(e).
12. ALL WATER LINES SHALL BE INSTALLED BETWEEN FOUR (4) AND SIX (6) FEET OR AS SHOWN ON THE APPROVED INFRASTRUCTURE DRAWINGS. DEVIATIONS FROM THESE DEPTHS REQUIRES PRIOR APPROVAL.
13. ALL WATER MAINS SHALL BE HYDROSTATICALLY TESTED BY THE CONTRACTOR PER CITY REQUIREMENTS.
14. THE USE OF TEMPORARY JUMPERS IS REQUIRED FOR NEW WATER MAIN INSTALLATION.
15. SAMPLE TEST PORTS FOR BACTERIOLOGICAL TESTING SHALL BE PROVIDED ALONG THE WATER MAIN AT THE FREQUENCY AND LOCATION REQUIRED BY THE CITY OF BOERNE OR AT A MINIMUM PER THE TCEQ REQUIREMENTS.
16. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, PASSD BACTERIOLOGICAL TESTING AND THE CITY OF BOERNE RELEASED THE MAIN FOR TIE-IN AND USE.
17. BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED WITHIN 40 FEET F THE WATER MAIN.
18. NO VALVES OR APPURTENANCES SHALL BE CONSTRUCTED WITHIN CURBS, CURB RAMPS OR LANDINGS. ADDITIONALLY, HYDRANTS AND BLOWOFFS SHALL NOT BE INSTALLED WITHIN SIDEWALKS OR DRIVEWAYS WITHOUR PRIOR AUTHORIZATION.
19. ALL FIRE HYDRANTS SHALL BE INSTALLED WITH THE MAIN PUMPER NOZZLE A MINIMUM OF 18", AND A MAXIMUM OF 24" FROM FINISH GRADE, HYDRANTS IN THE RIGHT OF WAY SHALL BE INSTALLED FROM 1' MINIMUM TO 7' MAXIMUM FROM THE FACE OF THE CURB.

SEWER

20. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING NO SANITARY SEWER OVERFLOWS (SSOS) OCCUR AS A RESULT OF WORK. CONTRACTOR SHALL CONTACT THE CITY IMMEDIATELY UPON FINDING A SSO.
21. ALL PVC SEWER PIPE WITH OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH, SDR 26 MINIMUM PIPE STIFFNESS OF 115 PSI FROM MANHOLE TO MANHOLE.
22. ALL SANITARY SEWER MANHOLES REQUIRE CHIMNEY SEALS AND INTERIOR/EXTERIOR COATINGS PER CITY REQUIREMENTS.
23. ALL SANITARY SEWER MANHOLES MUST INCLUDE AT LEAST TWO (2) GRADE ADJUSTMENT RINGS FOR A MINIMUM OF FOUR (4) INCHES BUT NO MORE THAN FOUR (4) ADJUSTMENT RINGS FOR A MAXIMUM OF TWELVE (12) INCHES. IF MORE THAN 12 INCHES IS REQUIRED FOR ADJUSTMENT, A SECTION OF THE EXISTING MANHOLE MUST BE REPLACED TO ADJUST THE MANHOLE TO GRADE WITH THE MINIMUM OF 2 ADJUSTMENT RINGS FOR A MINIMUM OF 4 INCHES BEING PROVIDED.
24. AFTER COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL THOROUGHLY CLEAN THE SEWER MAINS AND SERVICE LINES AND TESTING WILL BE DONE BY TV CAMERA AND OBSERVED BY THE , WASTEWATER ENGINEERING PERSONNEL, AND CONTRACTOR AS THE CAMERA IS RUN. ANY ABNORMALITIES, SUCH AS BROKEN PIPE OR MISALIGNED JOINTS, MUST BE REPLACED BY THE CONTRACTOR AT THEIR OWN EXPENSE. THE CITY WILL REVIEW THE VIDEOS AND PROVIDE REVIEW COMMENTS FOR ACCEPTANCE.
25. WHEN SEWER LATERALS ARE TO BE CONNECTED TO EXISTING SEWER MAINS AND NO STUB-OUT HAS BEEN EARLIER PROVIDED, THE CONNECTION MUST BE MADE WITH AN APPROVED SERVICE SADDLE PER CITY REQUIREMENTS.
26. NO TESTING WILL BE PERFORMED PRIOR TO 30 DAYS FROM COMPLETE INSTALLATION OF THE SANITARY SEWER LINES. THE FOLLOWING SEQUENCE WILL BE STRICTLY ADHERED TO: (1) MANDREL TEST; (2) AIR TEST; (3) TELEVISING.

GAS

27. ONLY THE CITY OF BOERNE SHALL OPERATE VALVES ON ANY ACTIVE GAS MAIN. IF A VALVE MUST BE OPERATED DURING THE CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL SCHEDULE THE OPERATION IN ADVANCE THROUGH ENGINEERING & MOBILITY DEPARTMENT.
28. ONLY THE CITY OF BOERNE MAY PERFORM WORK ON ANY ACTIVE GAS MAIN.
29. GAS VALVE BOXES ON ACTIVE GAS MAINS MUST BE PROTECTED AND REMAIN ACCESSIBLE AT ALL TIMES DURING AND AFTER CONSTRUCTION.
30. BEFORE SCHEDULING THE CITY TO PERFORM ANY GAS SYSTEM TIE-IN, THE DESIGN ENGINEER MUST TURN IN PRELIMINARY GAS AS-BUILT RECORD DRAWINGS WITH ALL REQUIRED POLYETHYLENE PRINTLINE DATA INCLUDED FOR ENGINEERING AND MOBILITY DEPARTMENT TO REVIEW. APPROVAL OF AS-BUILT RECORD DOCUMENTS IS REQUIRED PRIOR TO ANY TIE-IN BEING PERFORMED.
31. PRINTLINE DATA MUST INCLUDE SERIAL NUMBERS, LOCATION AND FOOTAGE OF ALL MAIN LINE PIPE INSTALLED, SERIAL NUMBER, LOCATION AND FOOTAGE FOR EACH LOT ON ALL SERVICE PIPE, SERIAL NUMBER AND LOCATION OF ALL VALVES, AND LOCATION OF ALL TRACER WIRE LOCATE BOXES.

RECLAIMED WATER

32. ALL PORTIONS OF THE RECLAIMED SYSTEM WILL BE MANUFACTURED, PAINTED OR COVERED IN PURPLE MATERIAL TO BE EASILY IDENTIFIABLE.
33. ALL FITTINGS, VALVES AND OTHER UNDERGROUND APPURTENANCES NOT EASILY PAINTED MUST BE THOROUGHLY AND SECURELY COVERED IN AN APPROVED PURPLE POLYWRAP MATERIAL. ALL SERVICE FITTINGS, AIR RELEASE VALVES, ETC. MUST BE PAINTED WITH AN APPROVED PAINT, COLOR TO BE PANTONE 522C.
34. ALL PLASTIC METER BOX LIDS TO BE MANUFACTURED OF AN APPROVED PURPLE MATERIAL, NO PAINTING OF PLASTIC LIDS ALLOWED.
35. ALL DESIGN AND CONSTRUCTION SHALL COMPLY WITH THE PROVISIONS OF 30 TAC 217.69
36. A MINIMUM OF 4 FT HORIZONTAL SEPARATION IS TO BE MAINTAINED BETWEEN POTABLE AND RECLAIMED WATER LINES AND SERVICES. WHERE THE MINIMUM 4 FT HORIZONTAL DISTANCE CANNOT BE MAINTAINED, EMBED THE RECLAIMED MAIN IN AN APPROVED CEMENT STABILIZED SAND WITHIN 4 FT OF THE POTABLE WATER LINE OR SERVICE.
37. WHERE RECLAIMED WATER MAINS CROSS POTABLE WATER MAINS AND SERVICES AND THE 4 FT MINIMUM DISTANCE CANNOT BE MAINTAINED, CENTER A JOINT OF THE RECLAIMED WATER ON THE POTABLE WATER PIPE, INSTALL THE RECLAIMED WATER MAIN BELOW THE POTABLE WATER WITH A MINIMUM OF 6 IN CLEARANCE, EMBED THE RECLAIMED MAIN IN AN APPROVED CEMENT STABILIZED SAND WITHIN 4 FT OF THE POTABLE WATER LINE OR SERVICE.
38. FINAL CONNECTION TO THE EXISTING RECLAIMED SYSTEM MAY NOT OCCUR UNTIL THE RECLAIMED MAINS AND SERVICES HAVE PASSED PRESSURE TESTING, CROSS CONNECTION TESTING AND ARE APPROVED FOR FINAL CONNECTION AND OPERATION BY THE CITY OF BOERNE.

ELECTRIC

39. ALL RIGID NON-METALLIC PIPE, FITTING AND SOLVENT CEMENT FOR UNDERGROUND PRIMARY INSTALLATION SHALL BE SUPPLIED BY THE SAME MANUFACTURER.
40. LONG SWEEP ELBOWS SHALL HAVE A MINIMUM 24 IN RADIUS.
41. THE CITY OF BOERNE MUST BE PRESENT TO INSPECT AT EAC

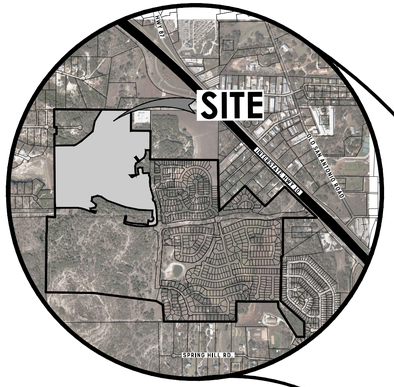
CONSTRUCTION PLANS

CUDEENGINEERS COM

STREET & DRAINAGE CONSTRUCTION PLANS

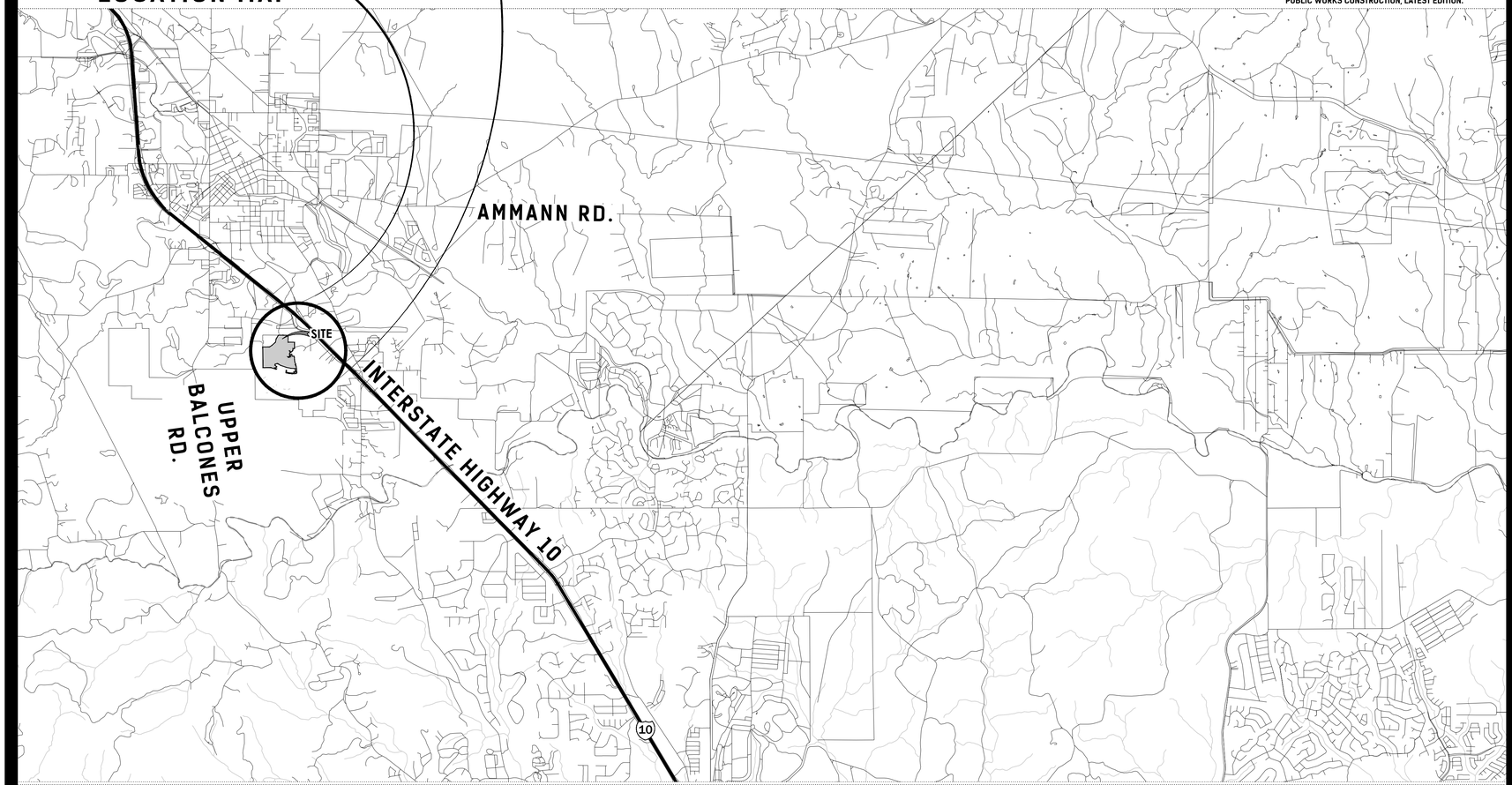
- C2 – OVERALL MASTER DRAINAGE & GRADING PLAN
- C3 – OVERALL MASTER DRAINAGE & GRADING PLAN
- C4 – STREET PLAN & PROFILE – MAGNA VISTA CT.
- C5 – STREET PLAN & PROFILE – MAGNA VISTA CT.
- C6 – STREET PLAN & PROFILE – ARION KING
- C7 – STREET PLAN & PROFILE – PROSPECT HILL DR.
- C8 – STREET PLAN & PROFILE – PROSPECT HILL DR.
- C9 – STREET PLAN & PROFILE – TANGLER BEND
- C10 – STREET PLAN & PROFILE – GRASSNOOK
- C11 – STREET PLAN & PROFILE – GLENDON CT. & BALSHAM CT.
- C11A – STREET PLAN & PROFILE – TILBURY EMERGENCY ACCESS
- C12 – CITY OF BOERNE – STREET STANDARD DETAILS
- C13 – TRAFFIC SIGNAGE PLAN
- C14 – DRAINAGE PLAN & PROFILE – DRAINS 'A9' '& D9'
- C15 – DRAINAGE PLAN & PROFILE – DRAIN 'B9'
- C16 – DRAINAGE PLAN & PROFILE – DRAINS 'C9' & 'E9'
- C17 – DRAINAGE PLAN & PROFILE – DRAINS 'F9' & 'J9'
- C18 – DRAINAGE PLAN & PROFILE – DRAINS 'G9' & 'I9'
- C18A – DRAINAGE PLAN & PROFILE – DRAIN 'H9'
- C19 – DETENTION POND PLAN
- C20 – DETENTION POND DETAILS
- C21 – CURB INLET DETAILS – TYPE 'C'
- C22 – CITY OF BOERNE – DRAINAGE STANDARD DETAILS
- C22A – SINGLE BOX CULVERTS CAST-IN-PLACE DRAINAGE DETAILS
- C22B – SINGLE BOX CULVERTS PRE-CAST DRAINAGE DETAILS
- C22C – CONCRETE HEADWALL DRAINAGE DETAILS

* DENOTES STANDARD DETAILS ADOPTED FOR USE ON THIS PROJECT.



LOCATION MAP

CONSTRUCTION OF ALL FACILITIES TO BE DEDICATED TO THE PUBLIC SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.



VICINITY MAP

REGENT PARK UNIT 9

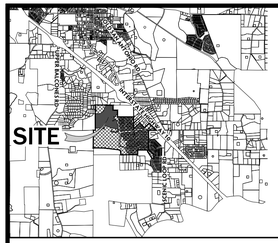
STREET & DRAINAGE CONSTRUCTION PLANS

DEVELOPER:
TENOTEX DEVELOPMENT CO., INC.
CONTACT PERSON: ISRAEL FOGIEL
10003 N.W. MILITARY, SUITE 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
FAX: (210) 344-3137

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

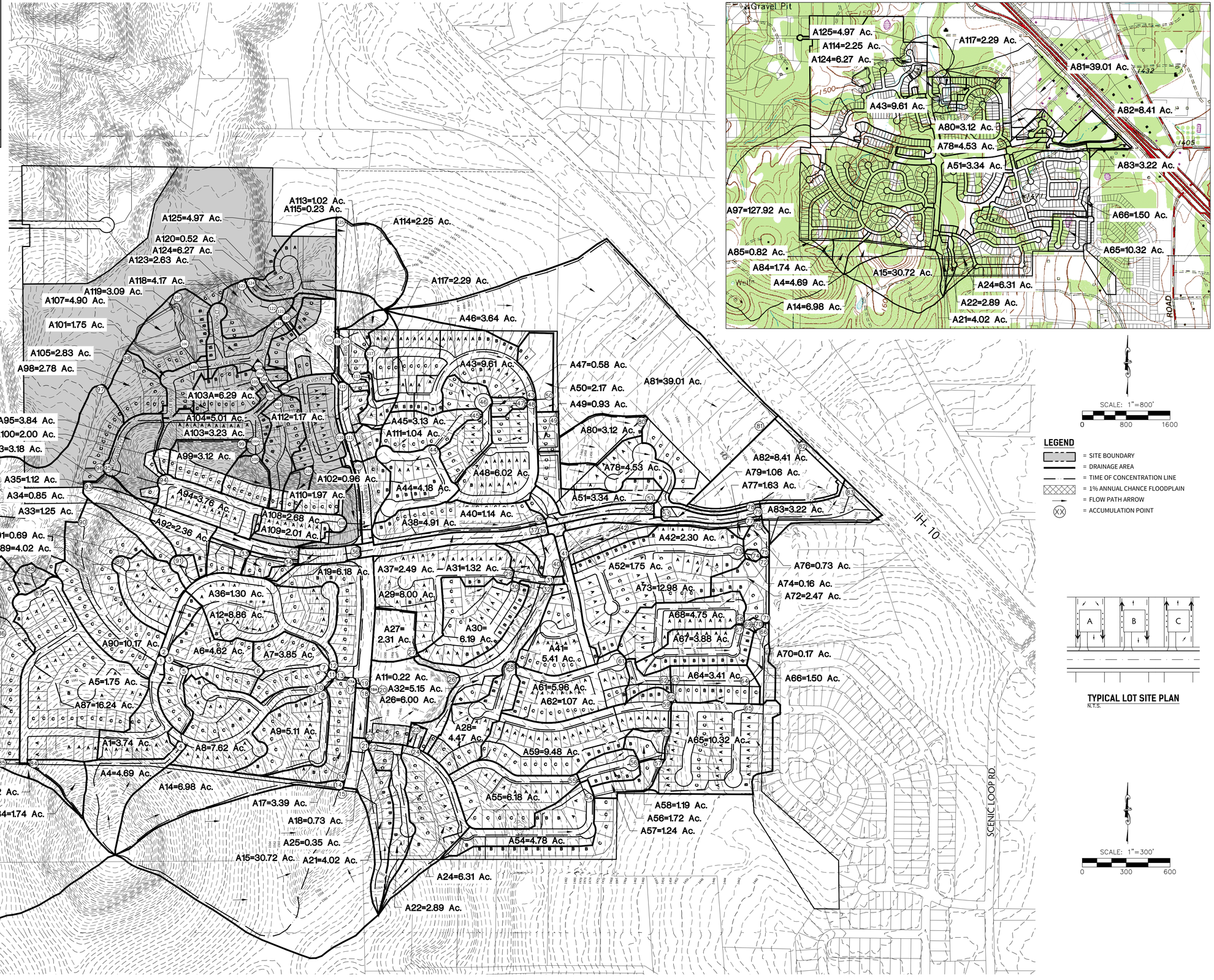
DRAWN BY	DATE
AD/RM/MW/MS	1/10/2025
CHECKED BY	**PROJECT NO.**
Patrick Murphy, P.E.	02133.160

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500



LOCATION MAP N.T.S.

DEVELOPER:
TENOTEX DEVELOPMENT CO., INC.
CONTACT PERSON: ISRAEL FOGIEL
10003 NW MILITARY, STE. 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
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San Antonio, Texas 78231
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REGENT PARK UNIT 9

OVERALL MASTER DRAINAGE & GRADING PLAN

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

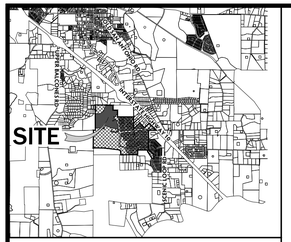
REVISIONS
1. 11/05/2024 - UPDATE DRAINAGE LAYOUT/HYDROLOGY
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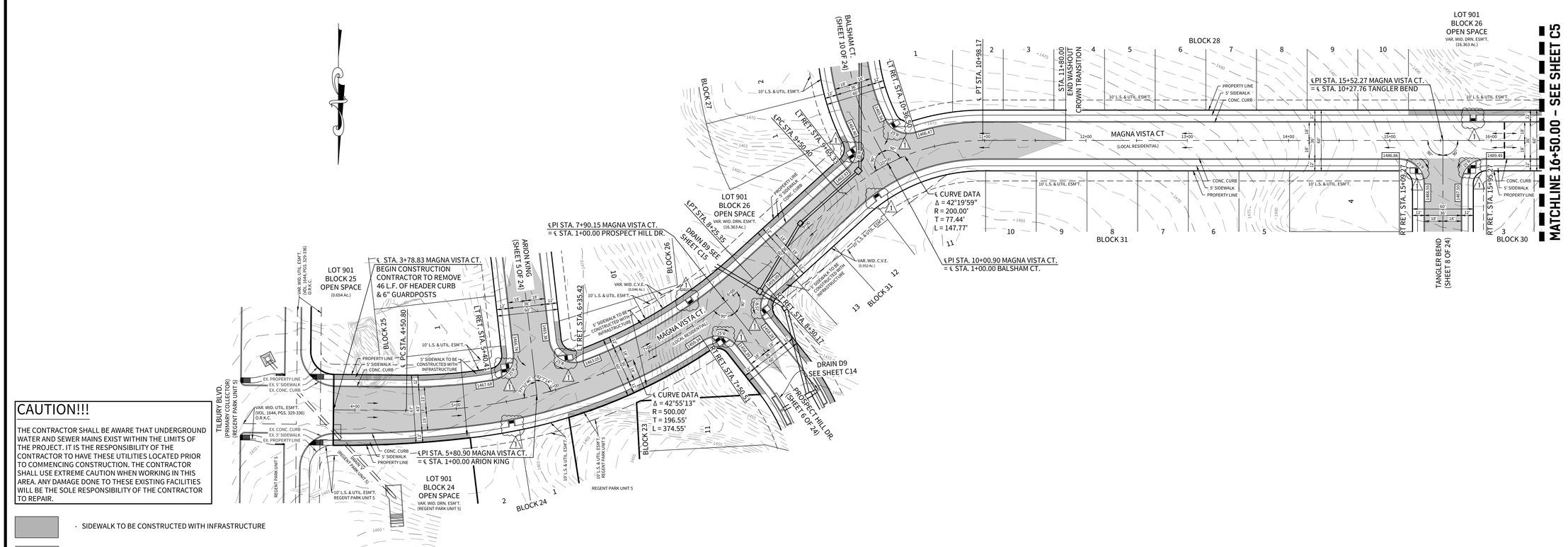
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
N/A

C2

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.


SITE
BOSSY CIRCLE
BOSSY DRIVE
BOSSY PASS
BOSSY TRAIL
BOSSY WAY
BOSSY CROSSING
BOSSY RUN
BOSSY CREEK
BOSSY BEND
BOSSY LANE
BOSSY COVE
BOSSY PATH
BOSSY POINT
BOSSY VIEW
BOSSY GLEN
BOSSY HILL
BOSSY KNOLL
BOSSY MEADOW
BOSSY RIDGE
BOSSY SPRING
BOSSY TERRACE
BOSSY VALLEY
BOSSY WOOD
BOSSY ACRES
BOSSY ESTATES
BOSSY FARMS
BOSSY GARDENS
BOSSY GROVE
BOSSY HEIGHTS
BOSSY HOLLOW
BOSSY MANOR
BOSSY PARK
BOSSY PLACE
BOSSY RANCH
BOSSY SHORES
BOSSY SQUARE
BOSSY VILLAGE
BOSSY WOODS
BOSSY ZEN
BOSSY ZEST
BOSSY ZIP
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BOSSY ZOOM



CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND WATER AND SEWER MAINS EXIST WITHIN THE LIMITS OF THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE
- STREET WASHOUT (SEE DETAIL SHEET 11 OF 24)

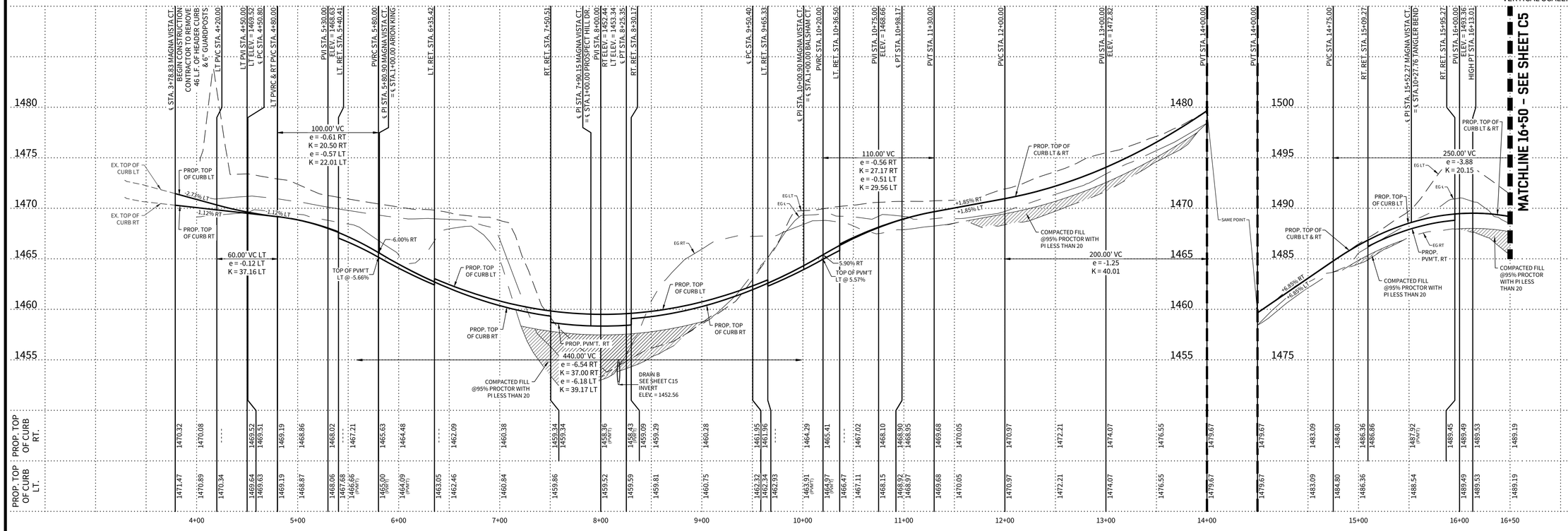
WHEEL CHAIR RAMPS ARE INDICATED THUS "⊏■⊐" UNLESS OTHERWISE NOTED. (SEE DRAWING 2502-4.1A SHEET 11 OF 24)

MAGNA VISTA CT.

STA. 3+78.83 TO STA. 16+50.00

NOTE:
CONTRACTOR TO MEANDER SIDEWALK WITHIN LIMITS TO AVOID HARDWOOD TREES WITH A TRUNK CIRCUMFERENCE OF 8" OR GREATER WHERE PARKWAY WIDTH PERMITS.

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



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REGENT PARK UNIT 9

STREET PLAN & PROFILE - MAGNA VISTA CT.

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 2024-12-05 - UPDATE ADA RAMPS
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

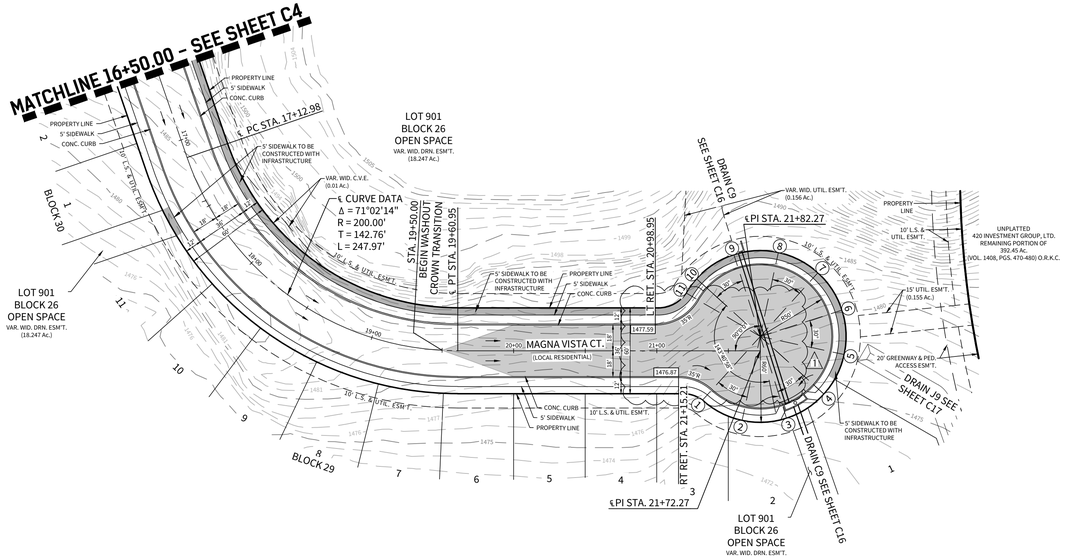
PLAT NO.
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C4

3 OF 24

P:\02133.160\3 Drawing\05_04 STP\Regent Park Unit 9 Plat.dwg 12/5/2024 10:15:25 AM Mathis

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



CAUTION!!!

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- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE
- STREET WASHOUT (SEE DETAIL SHEET 11 OF 24)

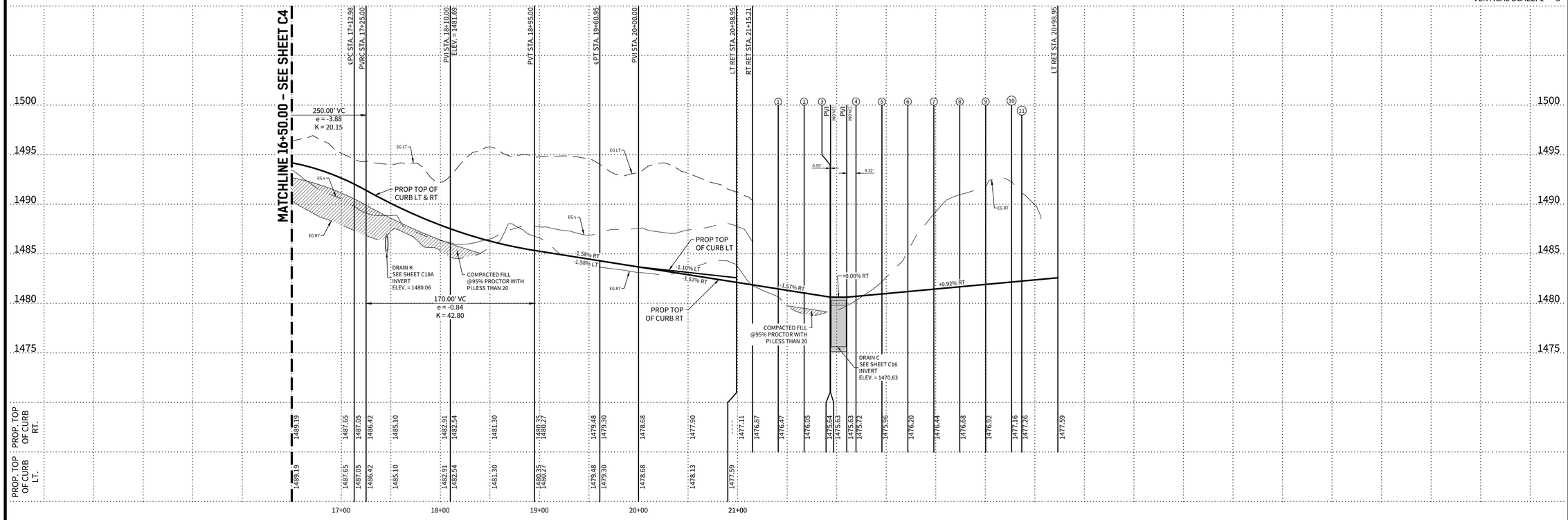
WHEEL CHAIR RAMPS ARE INDICATED THUS "◘◘" UNLESS OTHERWISE NOTED.
(SEE DRAWING 2502-4.1A SHEET 11 OF 24)

MAGNA VISTA CT.

STA. 16+50.00 TO STA. 21+82.27

NOTE:
CONTRACTOR TO MEANDER SIDEWALK WITHIN LIMITS TO AVOID HARDWOOD TREES WITH A TRUNK CIRCUMFERENCE OF 8" OR GREATER WHERE PARKWAY WIDTH PERMITS.

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



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P:(210) 681.2951 F: (210) 523.7112

REGENT PARK
UNIT 9

STREET PLAN & PROFILE -
MAGNA VISTA CT.

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 2024-12-17 - ADJUST CUL-DE-SAC RADIUS
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

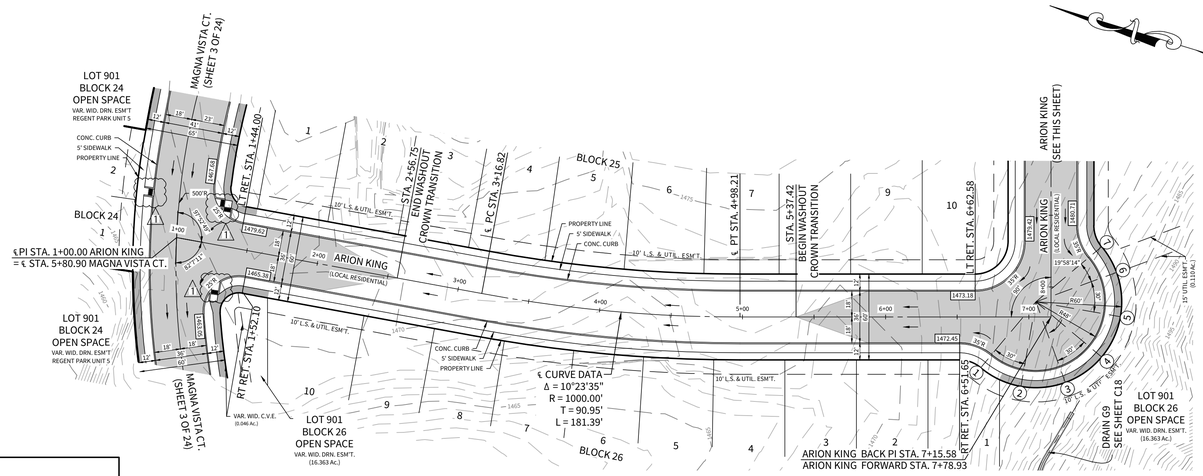
PLAT NO.
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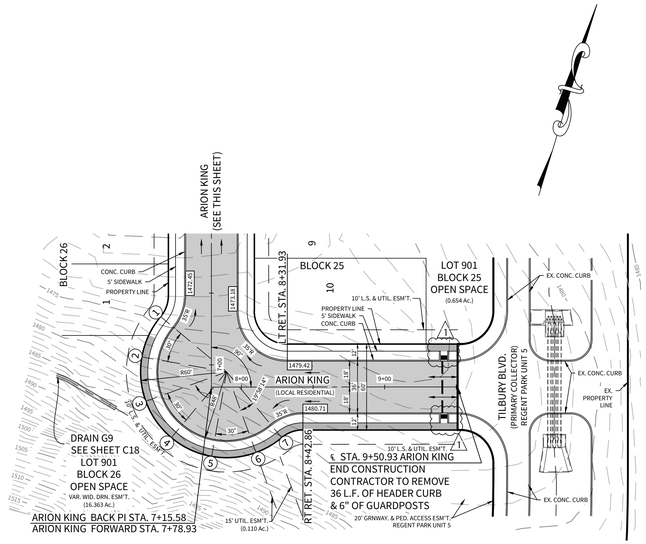
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4 OF 24

P:\02133.160\2 Drawings\09_05 STP.dwg, 2024/10/15 2:54pm, mwiles

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.





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- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE
- STREET WASHOUT (SEE DETAIL SHEET 11 OF 24)

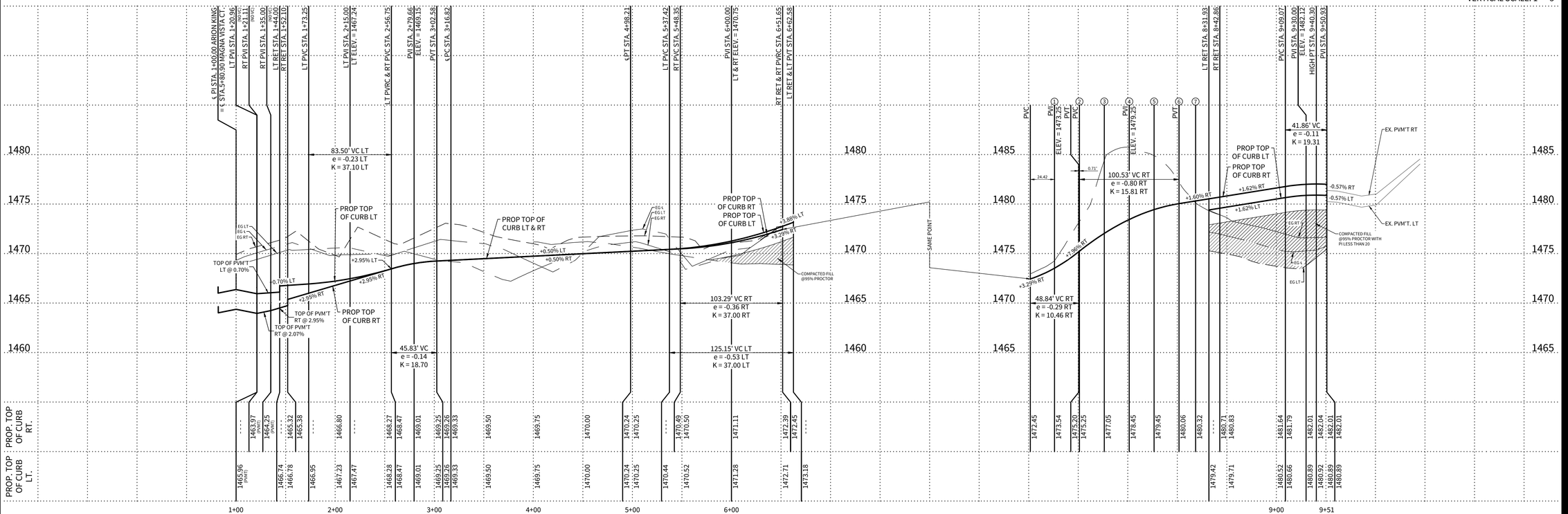
WHEEL CHAIR RAMPS ARE INDICATED THUS "◘◘" UNLESS OTHERWISE NOTED.
(SEE DRAWING 2502-4.1A SHEET 11 OF 24)

ARION KING

STA. 1+00.00 TO STA. 9+50.93

NOTE:
CONTRACTOR TO MEANDER SIDEWALK WITHIN LIMITS TO AVOID HARDWOOD TREES WITH A TRUNK CIRCUMFERENCE OF 8" OR GREATER WHERE PARKWAY WIDTH PERMITS.

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



CUDEENGINEERS.COM

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

REGENT PARK UNIT 9

STREET PLAN & PROFILE - ARION KING

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 2024-12-05 - UPDATE ADA RAMPS
2.
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
N/A

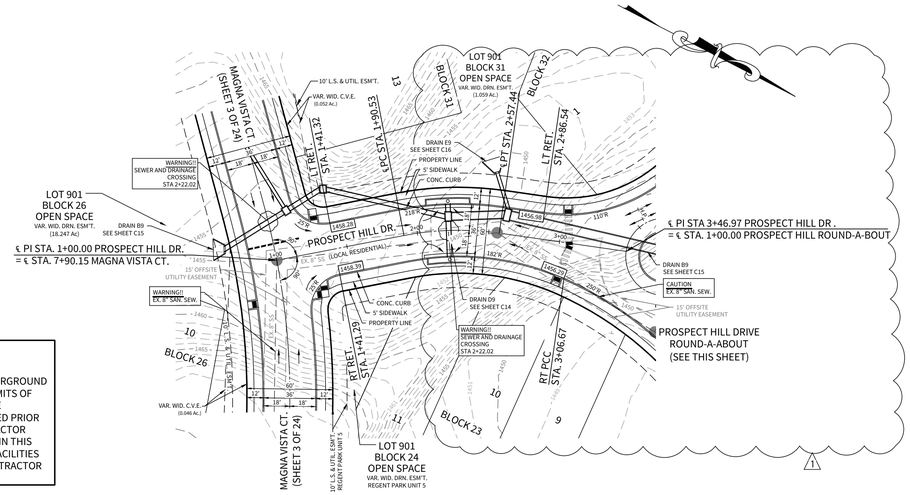
C6

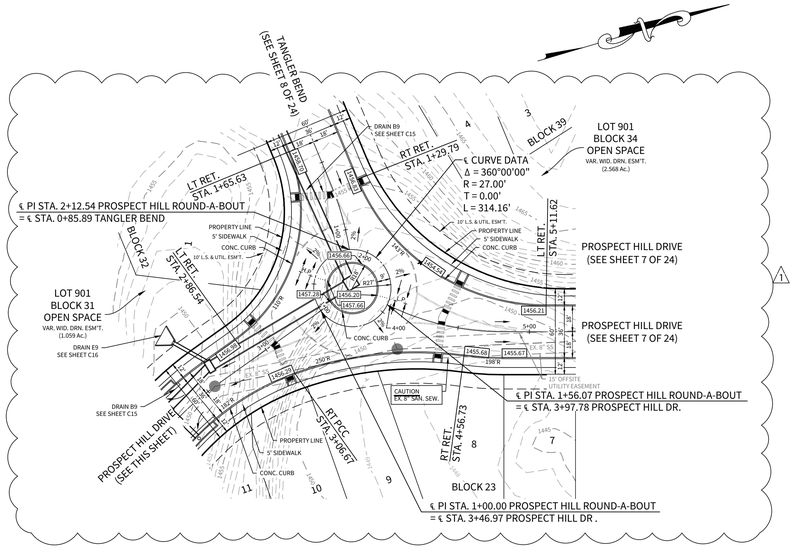
5 OF 24

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

UPDATE ADA RAMPS

P:\02133.160\2 Drawings\05_GL STEP.dwg, 12/5/2024 11:55:05 AM, mwhite





CAUTION!!!

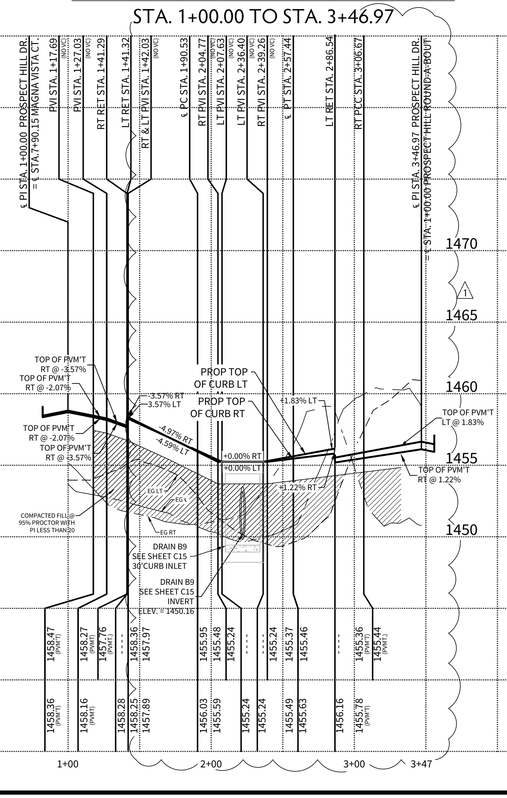
THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND WATER AND SEWER MAINS EXIST WITHIN THE LIMITS OF THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE
- STREET WASHOUT (SEE DETAIL SHEET 11 OF 24)

WHEEL CHAIR RAMPS ARE INDICATED THUS "◻◻" UNLESS OTHERWISE NOTED.
(SEE DRAWING 2502-4.1A SHEET 11 OF 24)

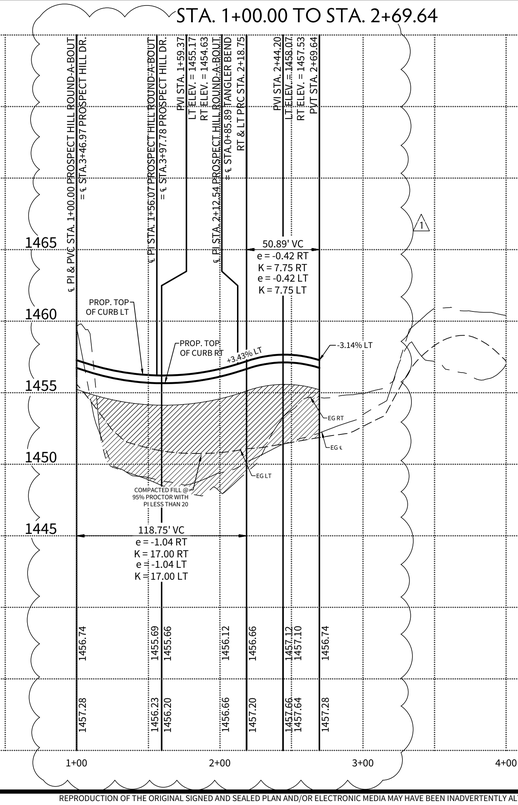
PROSPECT HILL DRIVE

STA. 1+00.00 TO STA. 3+46.97



PROSPECT HILL DRIVE ROUND-A-BOUT

STA. 1+00.00 TO STA. 2+69.64



NOTE:
CONTRACTOR TO MEANDER SIDEWALK WITHIN LIMITS TO AVOID HARDWOOD TREES WITH A TRUNK CIRCUMFERENCE OF 8" OR GREATER WHERE PARKWAY WIDTH PERMITS.

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

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REGENT PARK UNIT 9

STREET PLAN & PROFILE - PROSPECT HILL DR.

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 2024-12-17 - ADJUST ROUND-A-BOUT LAYOUT
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

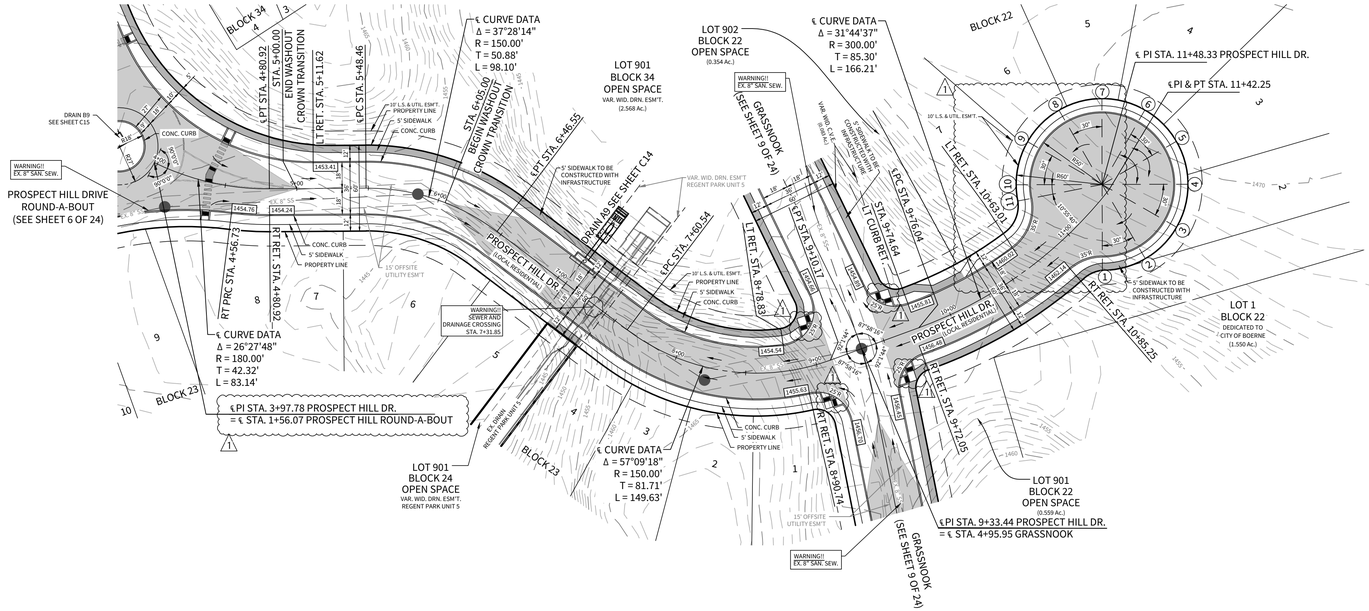
PLAT NO.
N/A

C7

6 OF 24

P:\02133.160\3 Drawings\05_07 STP\Regent Park Unit 9 STP.dwg 2025-02-13 3:56pm vmelara

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



CAUTION!!!

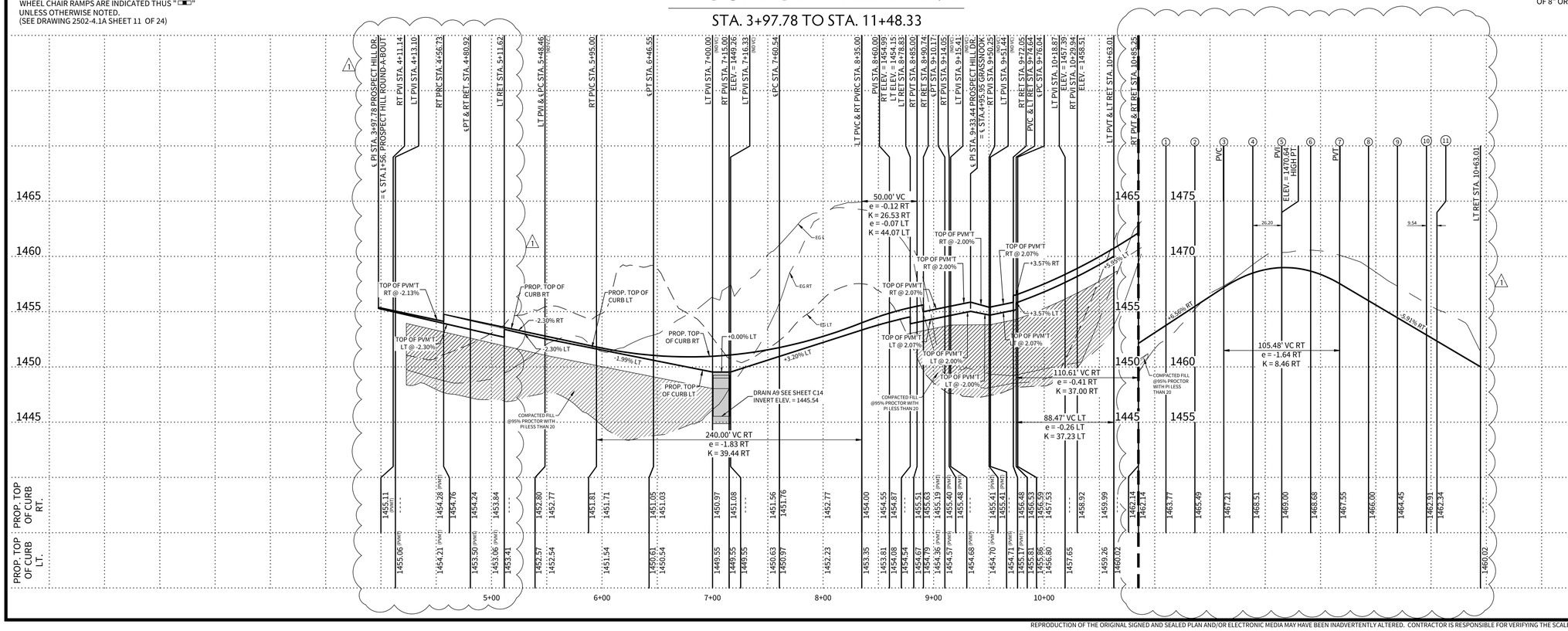
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- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE
- STREET WASHOUT (SEE DETAIL SHEET 11 OF 24)

WHEEL CHAIR RAMPS ARE INDICATED THUS "◘◘" UNLESS OTHERWISE NOTED.
(SEE DRAWING 2502-4.1A SHEET 11 OF 24)

PROSPECT HILL DRIVE

STA. 3+97.78 TO STA. 11+48.33



NOTE:
CONTRACTOR TO MEANDER SIDEWALK WITHIN LIMITS TO AVOID HARDWOOD TREES WITH A TRUNK CIRCUMFERENCE OF 8" OR GREATER WHERE PARKWAY WIDTH PERMITS.

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

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REGENT PARK UNIT 9

STREET PLAN & PROFILE - PROSPECT HILL DR.

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS

1. 2024-12-17 - ADJUST CUL-DE-SAC RADIUS, UPDATE ADA RAMPS AND BEGINNING STATION
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

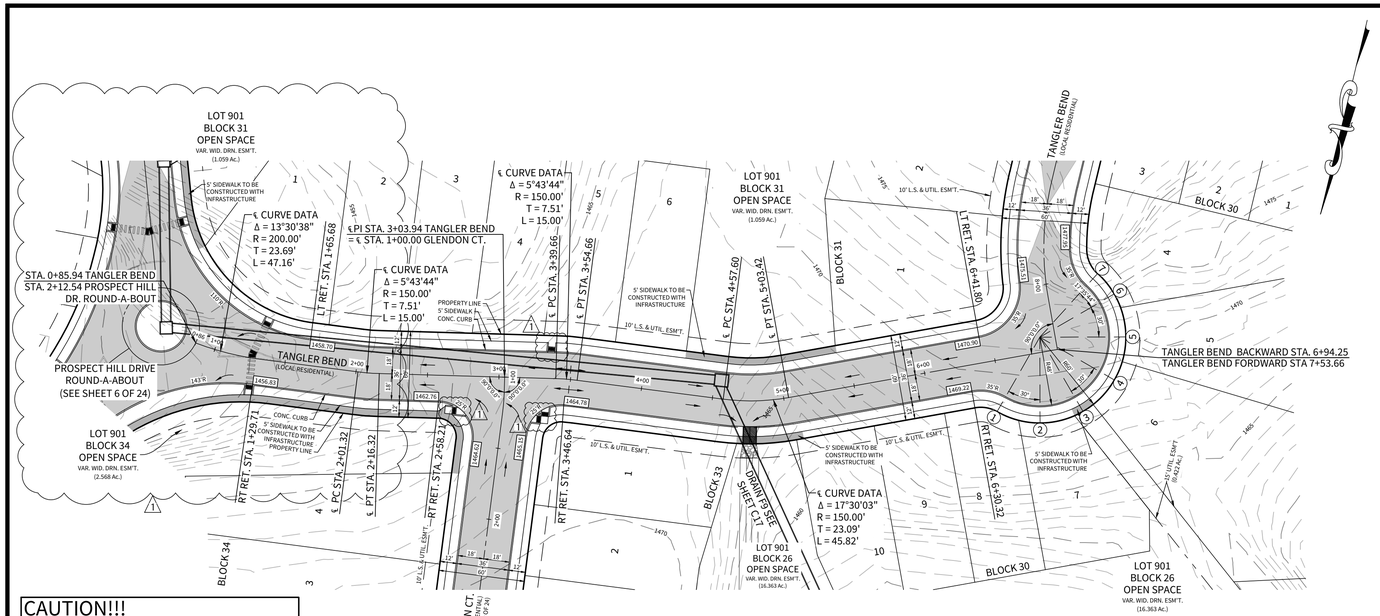
PLAT NO.
N/A

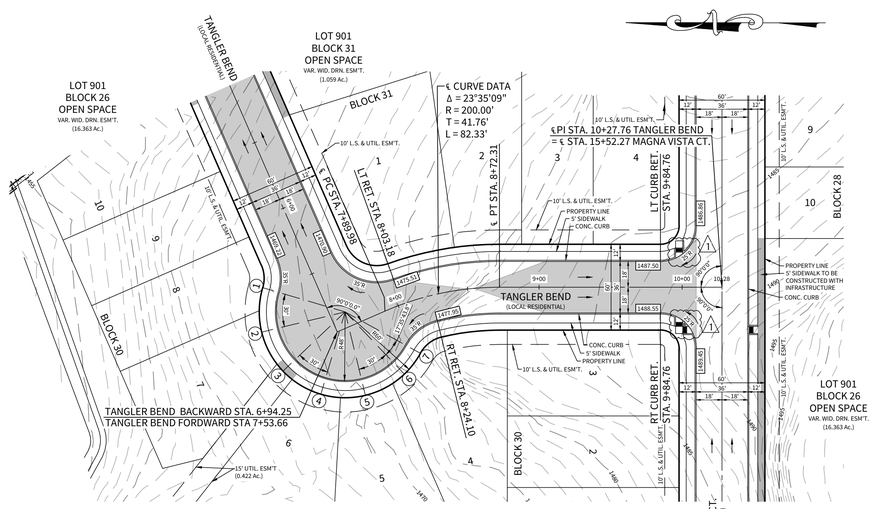
C8

7 OF 24

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

P:\02133.160\2 Drawings\05_08 STPP.dwg 12/16/2025 8:13:13 pm mwiles





CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND WATER AND SEWER MAINS EXIST WITHIN THE LIMITS OF THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE
- STREET WASHOUT (SEE DETAIL SHEET 11 OF 24)

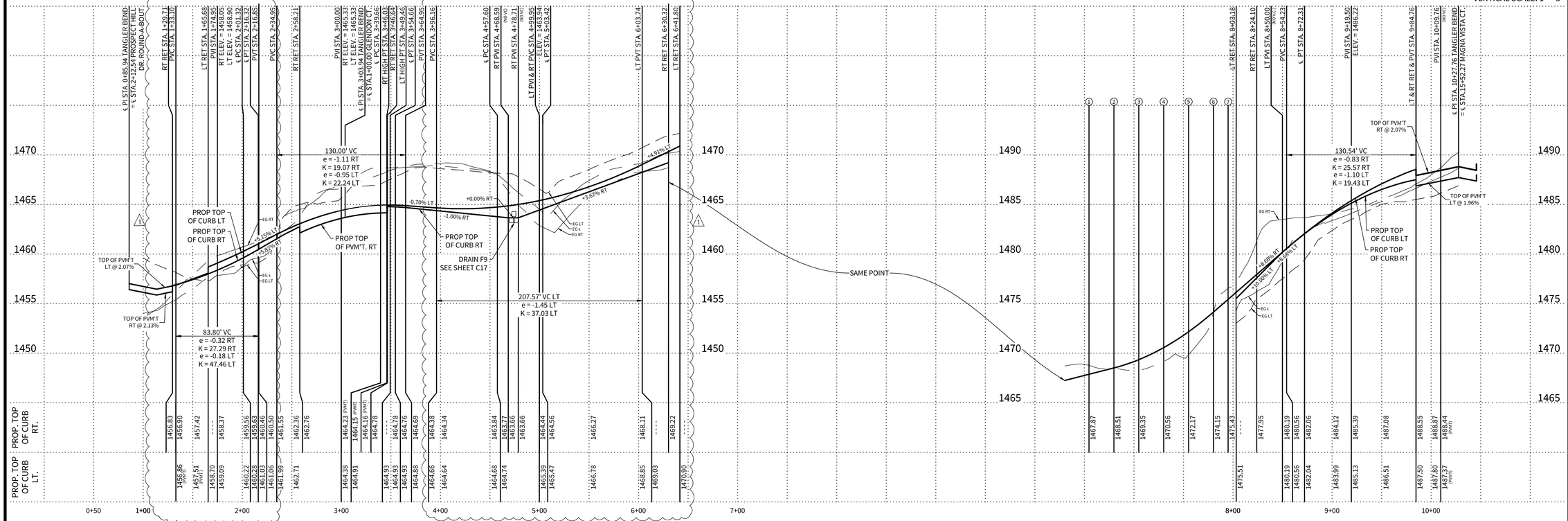
WHEEL CHAIR RAMPS ARE INDICATED THUS "⧈"
UNLESS OTHERWISE NOTED.
(SEE DRAWING 2502-4.1A SHEET 11 OF 24)

TANGLER BEND

STA. 1+00.00 TO STA. 10+27.76

NOTE:
CONTRACTOR TO MEANDER SIDEWALK WITHIN LIMITS TO AVOID HARDWOOD TREES WITH A TRUNK CIRCUMFERENCE OF 8" OR GREATER WHERE PARKWAY WIDTH PERMITS.

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



REGENT PARK
UNIT 9

STREET PLAN & PROFILE - TANGLER BEND

CUDEENGINEERS.COM

CUDE ENGINEERS

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DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS

1. 2024-12-05 - UPDATE ADA RAMPS AND ROUND-A-BOUT DESIGN
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

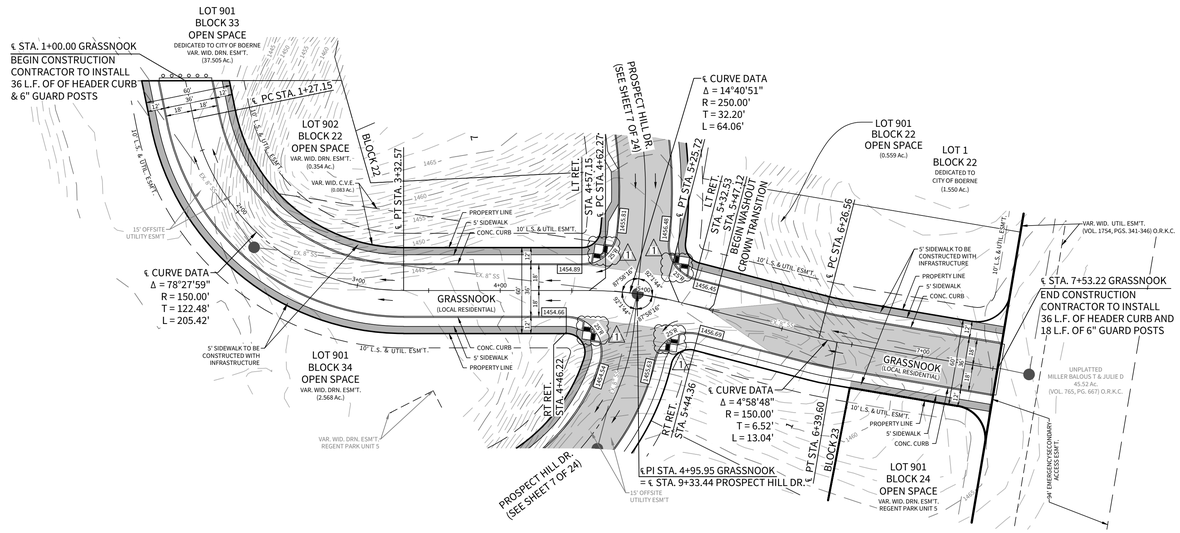
PLAT NO.
N/A

C9

8 OF 24

P:\02133.160\2 Drawings\09_05 STP.dwg, 12/5/2024 11:15:11 am, mwiles

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



CAUTION!!!

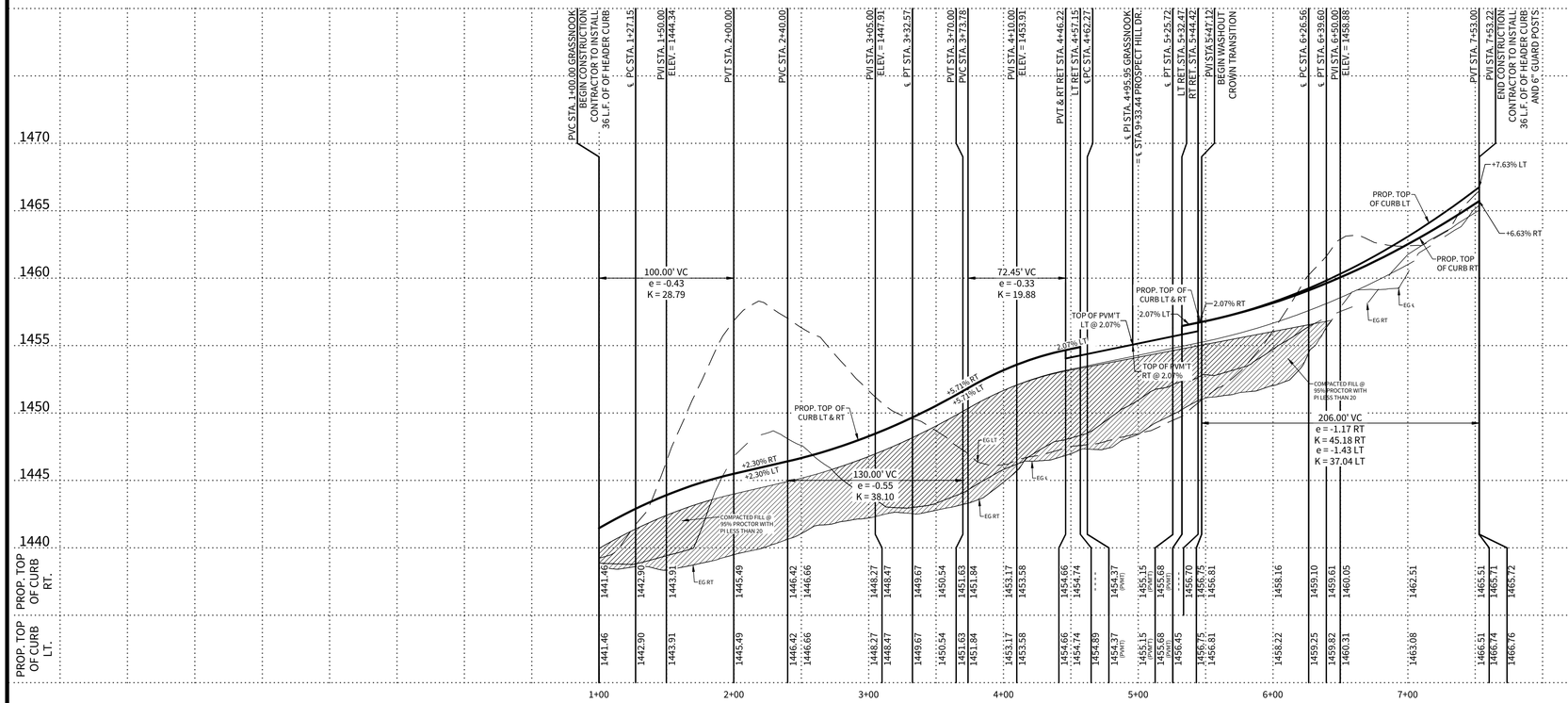
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- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE
- STREET WASHOUT (SEE DETAIL SHEET 11 OF 24)

WHEEL CHAIR RAMPS ARE INDICATED THUS "◻◼◻"
UNLESS OTHERWISE NOTED.
(SEE DRAWING 2502-4.1A SHEET 11 OF 24)

GRASSNOOK

STA. 1+00.00 TO STA. 7+53.22



NOTE:
CONTRACTOR TO MEANDER SIDEWALK WITHIN LIMITS TO AVOID HARDWOOD TREES WITH A TRUNK CIRCUMFERENCE OF 8" OR GREATER WHERE PARKWAY WIDTH PERMITS.

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

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REGENT PARK UNIT 9

STREET PLAN & PROFILE - GRASSNOOK

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 2024-12-05 - UPDATE ADA RAMPS
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

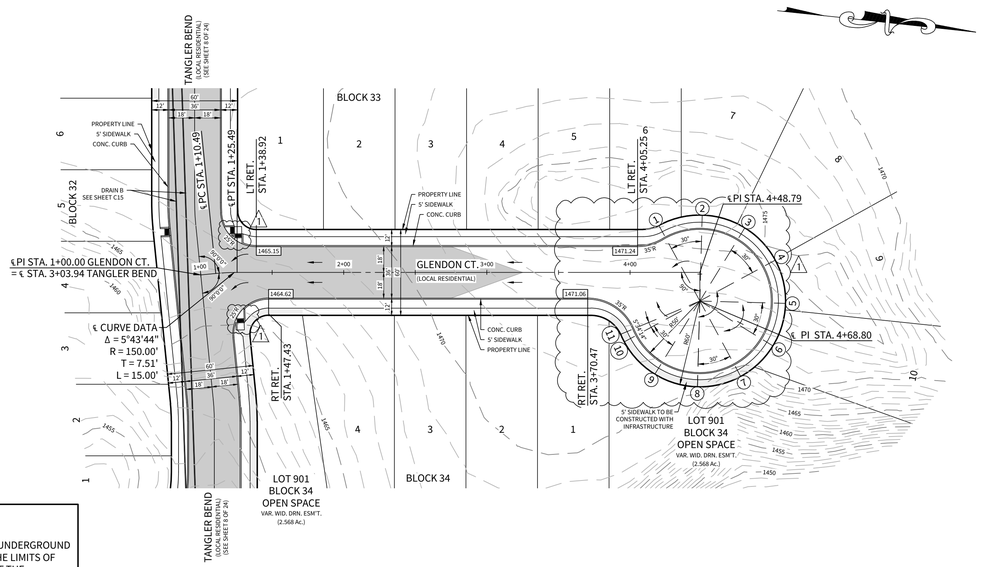
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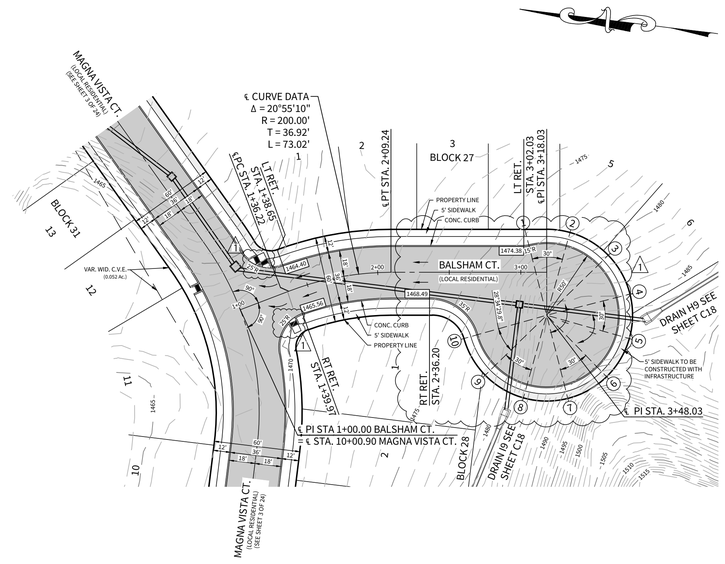
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9 OF 24

P:\02133.160\2 Drawings\05_12 STP.dwg, 12/5/2024 11:13:16 am, mwilkie

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.





CAUTION!!!

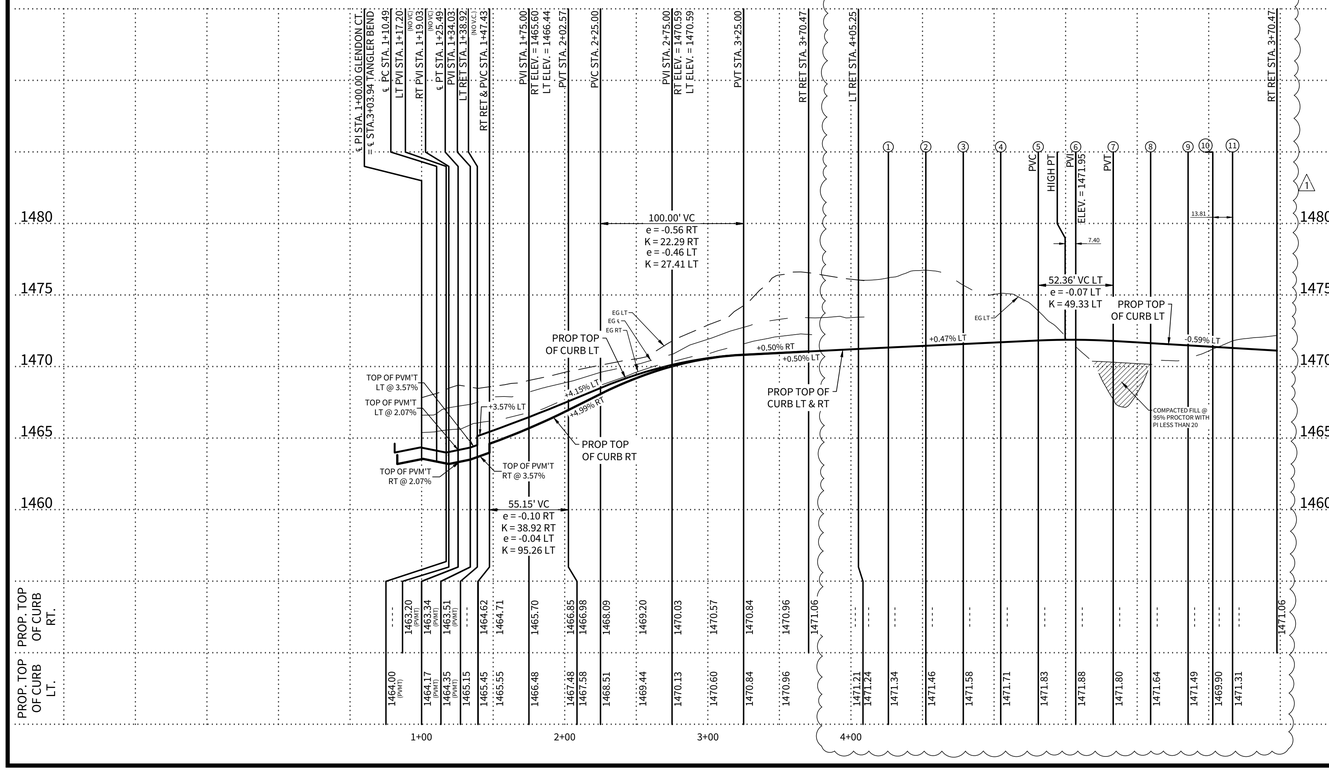
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- SIDEWALK TO BE CONSTRUCTED WITH INFRASTRUCTURE
- STREET WASHOUT (SEE DETAIL SHEET 11 OF 24)

WHEEL CHAIR RAMPS ARE INDICATED THUS "◻■◻"
UNLESS OTHERWISE NOTED.
(SEE DRAWING 2502-4.1A SHEET 11 OF 24)

GLENDON CT.

STA. 1+00.00 TO STA. 4+68.80

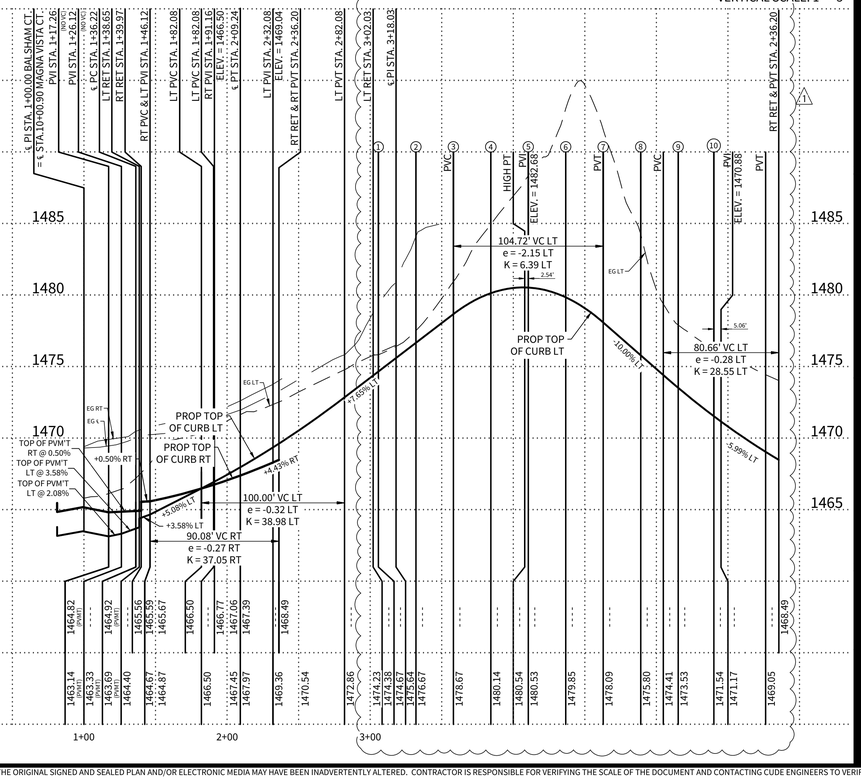


BALSHAM CT.

STA. 1+00.00 TO STA. 3+48.03

NOTE:
CONTRACTOR TO MEANDER SIDEWALK WITHIN LIMITS TO AVOID HARDWOOD TREES WITH A TRUNK CIRCUMFERENCE OF 8" OR GREATER WHERE PARKWAY WIDTH PERMITS.

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



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REGENT PARK
UNIT 9

STREET PLAN & PROFILE -
GLENDON CT. & BALSHAM CT.

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 2024-12-05 - ADJUST CUL-DE-SAC RADIUS AND UPDATE ADA RAMPS
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

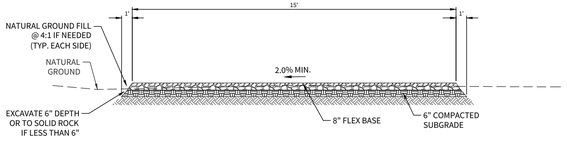
PLAT NO.
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10 OF 24

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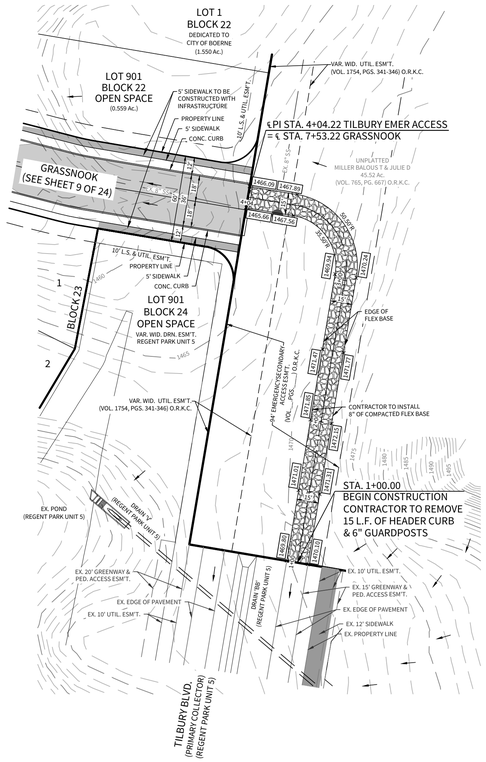
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TEMPORARY EMERGENCY ACCESS ROADWAY

N.T.S.

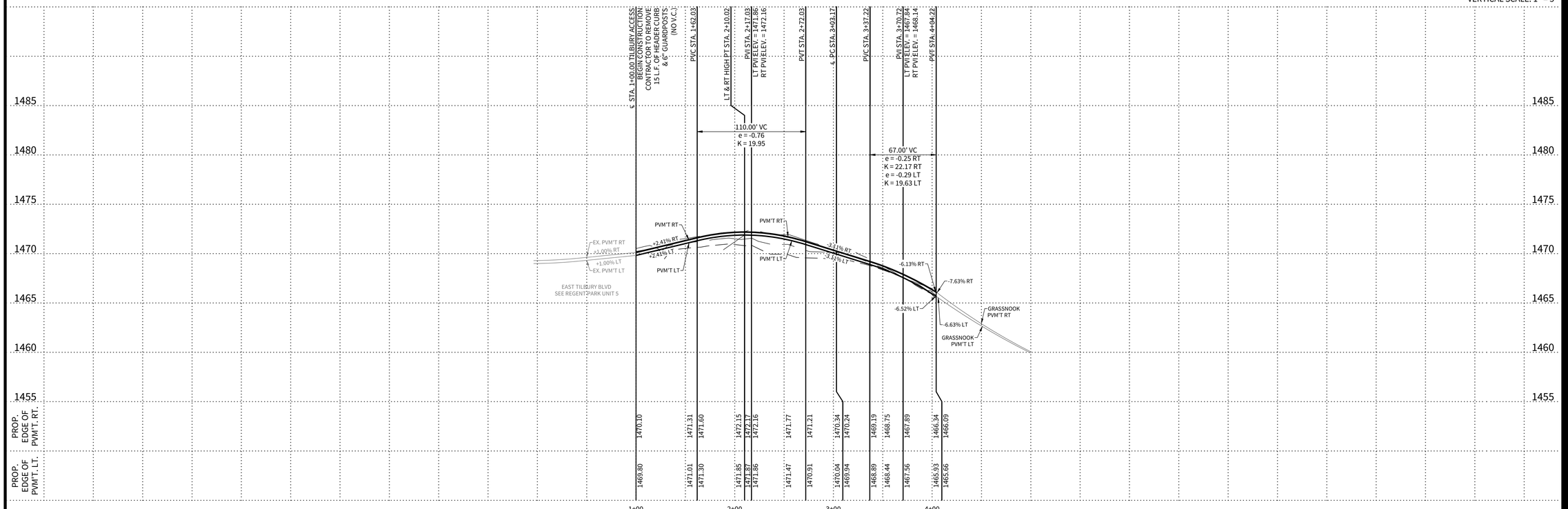
NOTE: CONTRACTOR TO GRADE OUTSIDE OF THE LIMITS OF TEMPORARY EMERGENCY ACCESS ROADWAY TO ENSURE POSITIVE DRAINAGE UPHILL AND DOWNHILL OF TEMPORARY EMERGENCY ACCESS ROADWAY (I.E. NO PONDING).



TILBURY EMERGENCY ACCESS

STA. 1+00.00 TO STA. 4+04.22

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



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REGENT PARK UNIT 9

STREET PLAN & PROFILE - TILBURY EMERGENCY ACCESS

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

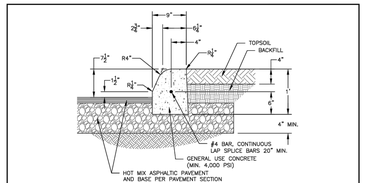
PLAT NO.
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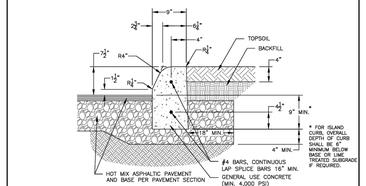
C11A OF 24

P:\02133\001\Docs\Drawings\05_SIA STP\Final\02133.001 Regent Park Unit 9 Emergency Access Roadway.dwg

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



STANDARD CONCRETE CURB



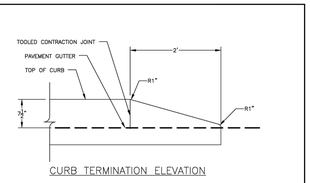
ALTERNATE DEEP CONCRETE CURB

NOTES:
1. STANDARD CURB MUST BE REMOVED AND REPLACED WITH A HEADER CURB TO ACCOMMODATE DRIVEWAYS.
2. THE ALTERNATIVE DEEP CURB MAY BE SAW CUT HORIZONTALLY TO ACHIEVE A HEADER CURB SECTION FOR DRIVEWAYS.
3. FOR ALL CURB PROVIDE MINIMUM EVERY 10' CONTRACTION JOINTS AND EVERY 50' EXPANSION JOINTS AND AT CURB RETURNS. IF CONCRETE PAVEMENT, MATCH JOINTS IN PAVEMENT. SEE SPECIFICATION 02502 FOR ADDITIONAL INFORMATION.
4. CURB EXPOSURE SHALL BE WITHIN 7-8".
5. FLEX BASE AND SUBGRADE SHALL EXTEND AT LEAST 18" BEHIND THE BACK OF CURB IN ALL CASES.
6. SUBGRADE SHALL BE MOISTURE CONDITIONED AND COMPACTED TO 95% COMPACTION PER ASTM D1557 (MODIFIED PROCTOR).

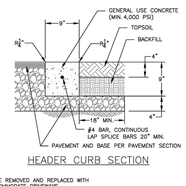
CITY OF BOERNE

CONCRETE CURB

SCALE:	DRAWING No.	DATE:
N.T.S.	02502-2.0	MAY 2024



CURB TERMINATION ELEVATION



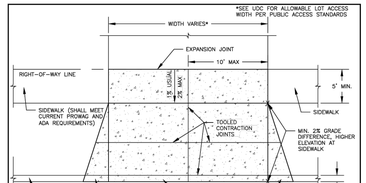
HEADER CURB SECTION

NOTES:
1. STANDARD CURB MUST BE REMOVED AND REPLACED WITH A HEADER CURB TO ACCOMMODATE DRIVEWAYS.
2. THE ALTERNATIVE DEEP CURB MAY BE SAW CUT HORIZONTALLY TO ACHIEVE A HEADER CURB SECTION FOR DRIVEWAYS.
3. FOR ALL CURB PROVIDE MINIMUM EVERY 10' CONTRACTION JOINTS AND EVERY 50' EXPANSION JOINTS AND AT CURB RETURNS. IF CONCRETE PAVEMENT, MATCH JOINTS IN PAVEMENT. SEE SPECIFICATION 02502 FOR ADDITIONAL INFORMATION.
4. CURB EXPOSURE SHALL BE WITHIN 7-8".
5. FLEX BASE AND SUBGRADE SHALL EXTEND AT LEAST 18" BEHIND THE BACK OF CURB IN ALL CASES.
6. SUBGRADE SHALL BE MOISTURE CONDITIONED AND COMPACTED TO 95% COMPACTION PER ASTM D1557 (MODIFIED PROCTOR).

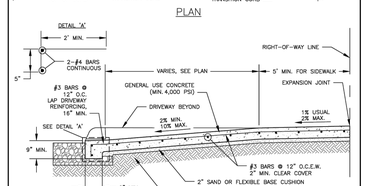
CITY OF BOERNE

CONCRETE CURB TERMINATION AND HEADER CURB

SCALE:	DRAWING No.	DATE:
N.T.S.	02502-2.1	MAY 2024



PLAN



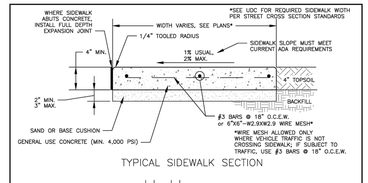
SECTION

NOTE: THE HEADER CURB CONSTRUCTION MAY BE DELETED WHEN CONSTRUCTING DRIVEWAY ADJACENT TO AN EXISTING HEADER CURB THAT IS AT A MINIMUM OF 6" DEEP WITH AT LEAST ONE HORIZONTAL BAR. INSTALL AN EXPANSION JOINT BETWEEN THE EXISTING HEADER CURB AND DRIVEWAY.

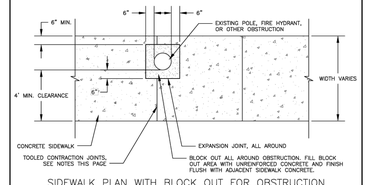
CITY OF BOERNE

CONCRETE DRIVEWAY APPROACH SIDEWALK AT ROW LINE

SCALE:	DRAWING No.	DATE:
N.T.S.	02502-3.1	MAY 2024



TYPICAL SIDEWALK SECTION



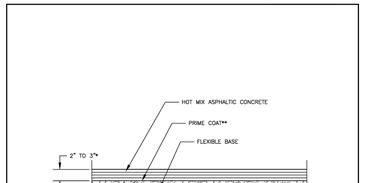
SIDEWALK PLAN WITH BLOCK OUT FOR OBSTRUCTION

NOTES:
1. WIDEN SIDEWALK AS NECESSARY TO MAINTAIN A CLEAR PATH 48-INCHES WIDE PAST OBSTRUCTIONS INCLUDING UTILITY POLES, STREET SIGNS, MAIL BOXES, ETC.
2. PROVIDE CONTRACTION AND EXPANSION JOINTS AS FOLLOWS:
   5 FT WIDE SIDEWALK: TOOLED CONTRACTION JOINTS AT 4 FT INTERVALS, EXPANSION JOINTS AT 48 FT INTERVALS.
   6 FT WIDE SIDEWALK: TOOLED CONTRACTION JOINTS AT 5 FT INTERVALS, EXPANSION JOINTS AT 50 FT INTERVALS.
   6 FT AND WIDER SIDEWALKS: TOOLED CONTRACTION JOINTS AT 6 FT INTERVALS AND EXPANSION JOINTS AT 48 FT INTERVALS.
3. SUBGRADE BELOW SAND OR BASE CUSHION SHALL BE MOISTURE CONDITIONED AND COMPACTED TO 95% COMPACTION PER ASTM D1557 (MODIFIED PROCTOR).

CITY OF BOERNE

CONCRETE SIDEWALK

SCALE:	DRAWING No.	DATE:
N.T.S.	02502-4.0	MAY 2024



*THICKNESS VARIES DEPENDING UPON PAVEMENT DESIGN AND GEOTECHNICAL REPORT. REFER TO PLAN X-SECTIONS AND DETAILS FOR SPECIFIED PAVEMENT DESIGN.

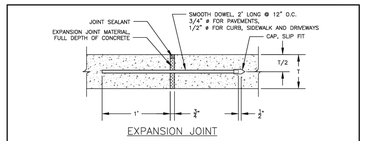
**PROVIDE TACK COAT IN ADDITION TO PRIME COAT IMMEDIATELY PRIOR TO PLACING ASPHALTIC CONCRETE AS NEEDED TO SEAL AND ENSURE ADHERENCE.

NOTES:
1. PROVIDE 1 SET OF CORES FOR EACH DAY OF PAVING OR PER 500 TONS.

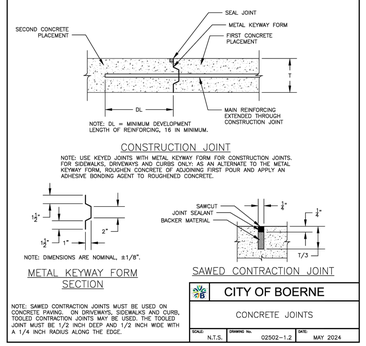
CITY OF BOERNE

ASPHALTIC CONCRETE PAVEMENT SECTION

SCALE:	DRAWING No.	DATE:
N.T.S.	02513-1.0	MAY 2024



EXPANSION JOINT



CONSTRUCTION JOINT

NOTE: USE KEYED JOINTS WITH METAL KEYWAY FORM FOR CONSTRUCTION JOINTS. FOR SIDEWALKS, DRIVEWAYS AND CURBS ONLY: AS AN ALTERNATE TO THE METAL KEYWAY FORM, ROUGHEN CONCRETE OF ADJOINING FIRST POUR AND APPLY AN ADHESIVE BONDING AGENT TO ROUGHENED CONCRETE.

METAL KEYWAY FORM SECTION

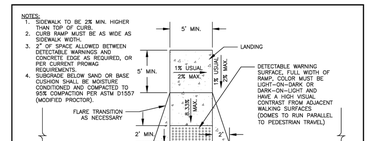
SAWED CONTRACTION JOINT

NOTE: SAWED CONTRACTION JOINTS MUST BE USED ON CONCRETE PAVING. ON DRIVEWAYS, SIDEWALKS AND CURBS, TOOLED CONTRACTION JOINTS MAY BE USED. THE TOOLED JOINT MUST BE 1/2 INCH DEEP AND 1/3 INCH WIDE WITH A 1/4 INCH RADIUS ALONG THE EDGE.

CITY OF BOERNE

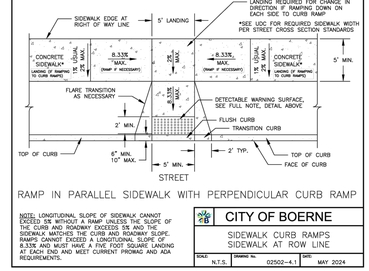
CONCRETE JOINTS

SCALE:	DRAWING No.	DATE:
N.T.S.	02502-1.2	MAY 2024



STREET

CURB RAMP IN PERPENDICULAR SIDEWALK



STREET

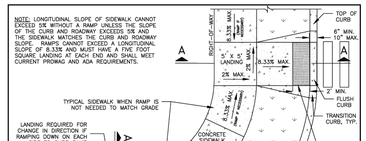
RAMP IN PARALLEL SIDEWALK WITH PERPENDICULAR CURB RAMP

NOTE: LONGITUDINAL SLOPE OF SIDEWALK CANNOT EXCEED 5% WITHOUT A RAMP. UNLESS THE SLOPE OF THE CURB AND ROADWAY EXCEEDS 5% AND THE SIDEWALK MATCHES THE CURB AND ROADWAY SLOPE. RAMPS CANNOT EXCEED A LONGITUDINAL SLOPE OF 8.33% AND MUST HAVE A FIVE FOOT SQUARE LANDING AT EACH END AND MEET CURRENT PROWAG AND ADA REQUIREMENTS.

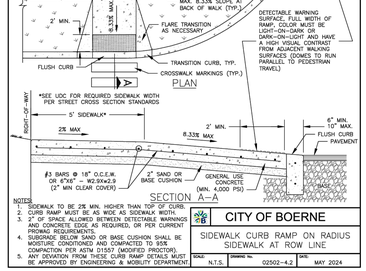
CITY OF BOERNE

SIDEWALK CURB RAMPS SIDEWALK AT ROW LINE

SCALE:	DRAWING No.	DATE:
N.T.S.	02502-4.1	MAY 2024



PLAN



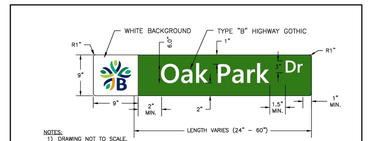
SECTION A-A

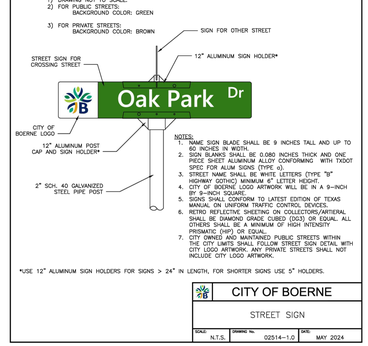
NOTES:
1. SIDEWALK TO BE 2% MIN. HIGHER THAN TOP OF CURB.
2. CURB RAMP MUST BE AS WIDE AS SIDEWALK WIDTH.
3. 2" OF SPACE ALLOWED BETWEEN DETECTABLE WARNINGS AND CONCRETE EDGE AS REQUIRED, OR PER CURRENT PROWAG REQUIREMENTS.
4. SUBGRADE BELOW SAND OR BASE CUSHION SHALL BE MOISTURE CONDITIONED AND COMPACTED TO 95% COMPACTION PER ASTM D1557 (MODIFIED PROCTOR).
5. ANY DEVIATION FROM THESE CURB RAMP DETAILS MUST BE APPROVED BY ENGINEERING & MOBILITY DEPARTMENT.

CITY OF BOERNE

SIDEWALK CURB RAMP ON RADIUS SIDEWALK AT ROW LINE

SCALE:	DRAWING No.	DATE:
N.T.S.	02502-4.2	MAY 2024



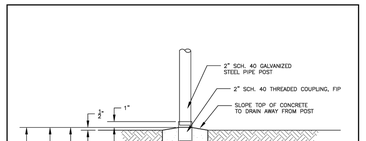


*USE 12" ALUMINUM SIGN HOLDERS FOR SIGNS > 24" IN LENGTH, FOR SHORTER SIGNS USE 5" HOLDERS.

CITY OF BOERNE

STREET SIGN

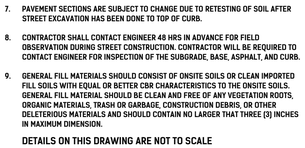
SCALE:	DRAWING No.	DATE:
N.T.S.	02514-1.0	MAY 2024



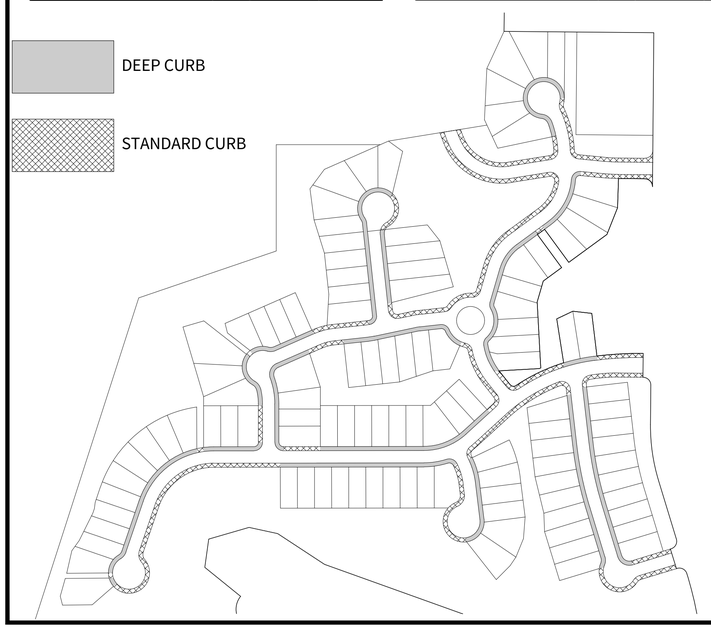
CITY OF BOERNE

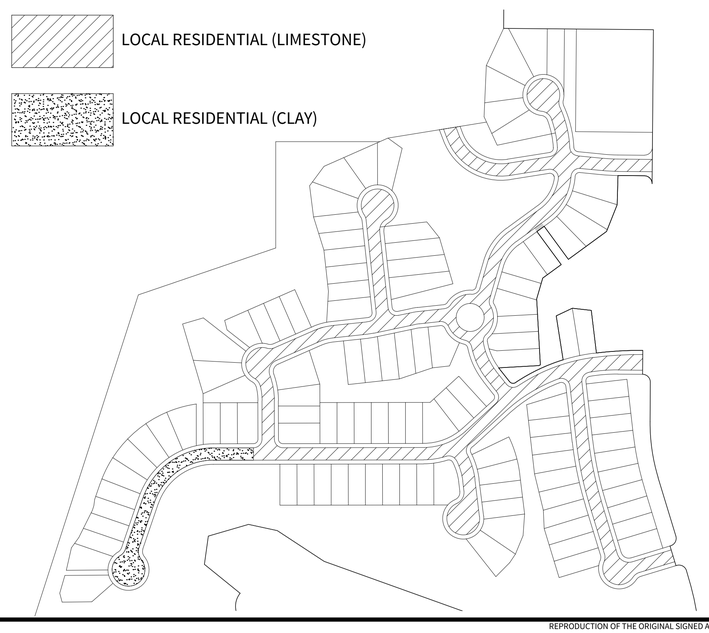
SIGN POST AND FOUNDATION

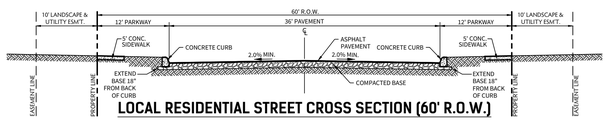
SCALE:	DRAWING No.	DATE:
N.T.S.	02514-1.1	MAY 2024



WASHOUT CROWN TRANSITION DETAIL







LOCAL RESIDENTIAL STREET CROSS SECTION (60' R.O.W.)

STREET TYPE	HMAC TYPE "D"	FLEX BASE (TY A GR 2)	LIME TREATED SUBGRADE (27 LB/SY)	BASE UNDER CURB	STRUCTURAL NUMBER
LOCAL RESIDENTIAL (LIMESTONE)	2"	8.5"	----	6"	2.07
LOCAL RESIDENTIAL (CLAY)	2"	9"	6"	----	2.62

STREET PAVEMENT DESIGN OPTIONS

1. SUBGRADE - GEOTECH ENGINEER WILL BE PRESENT TO DETERMINE IF NATIVE LIMESTONE/ROCK SUBGRADE IS SUFFICIENT TO REPLACE LIME TREATMENT. IF LIME TREATMENT IS REPLACED BY NATIVE MARL/ROCK, CITY OF BOERNE PUBLIC WORKS WILL BE INFORMED OF ALL CHANGES. REVISIONS WILL BE SUBMITTED INDICATING WHERE LIME TREATMENT WAS USED, ALONG WITH STATIONING. CONTRACTOR TO REVIEW GEOTECH RECOMMENDATIONS PRIOR TO FINAL SUBGRADE PREPARATION. (REF. InTEC TESTING REPORT #S1314134)

2. FILL MATERIAL - CONTRACTOR SHALL OVER-EXCAVATE STREET SUBGRADE AREAS CONTAINING SOILS HAVING A PLASTICITY INDEX GREATER THAN 20 AND REPLACE SUBGRADE WITH ON-SITE LIMESTONE MILLINGS THAT HAVE A PLASTICITY INDEX OF LESS THAN 20 OR USE FILL MATERIAL FROM AREAS OF SIMILAR SUBGRADE MATERIAL FOR ROADWAY EMBANKMENTS. GEOTECHNICAL ENGINEER WILL BE PRESENT AT THE TIME OF SUBGRADE PREPARATION TO DETERMINE THE EXTENTS OF APPLICABLE PAVEMENT SECTIONS BASED ON FINAL SUBGRADE.

CUDEENGINEERS.COM

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

REGENT PARK UNIT 9

CITY OF BOERNE - STREET STANDARD DETAILS

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 09/27/2024 - UPDATE TO CURRENT CoB DETAILS, REVISED DEEP CURB DETAIL
2.
3.
4.
5.
6.
7.
8.

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

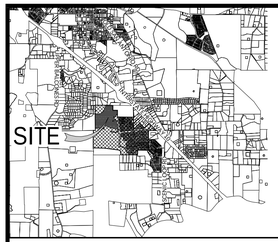
PLAT NO.
N/A

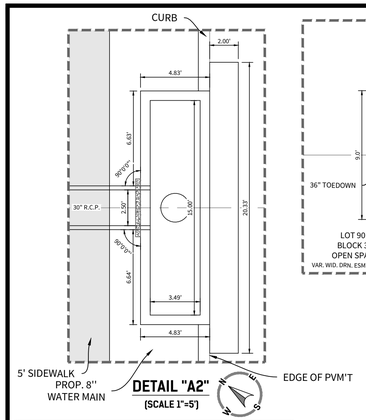
C12

11 OF 24

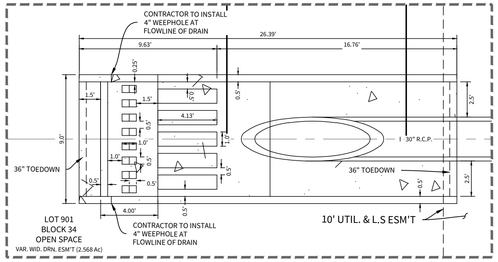
P:\02133160\2-Drawings\05-12 STDS\Reg Park\STDS.dwg, 12/3/2024 8:43:29 AM, mwhitehead

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

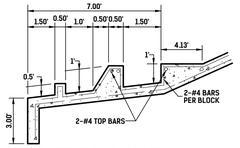

SITE
BOERNE STAGE RD
BOERNE STAGE RD
BOERNE STAGE RD



DETAIL "A2"
(SCALE 1"=5')



DETAIL "A1"
(SCALE 1"=5')



BAFFLE BLOCK DETAIL
(N.T.S.)



SCALE 1"=20'

BAFFLE BLOCK CALCULATIONS
DRAIN "A9"

$Y_1 = 0.33'$

$V_1 = 9.27$ fps

$F_1 = \frac{V_1}{\sqrt{dng}} = \frac{9.27}{\sqrt{0.33x32.2}} = 2.84$

$\frac{Y_2}{Y_1} = 1/2\,(\sqrt{1+8(2.94)^2} - 1)$

$\frac{Y_2}{Y_1} = 3.55$

$Y_2 = 1.17'$

$L_B = \frac{4.5\,Y_2}{F_1^{0.76}} = \frac{4.5(1.17)}{(2.84)^{0.76}} = 2.38'$

USED = 4.0'

$L_B/3 = 1.33'$

SPACING = $0.75\,Y_1 = 0.247'$

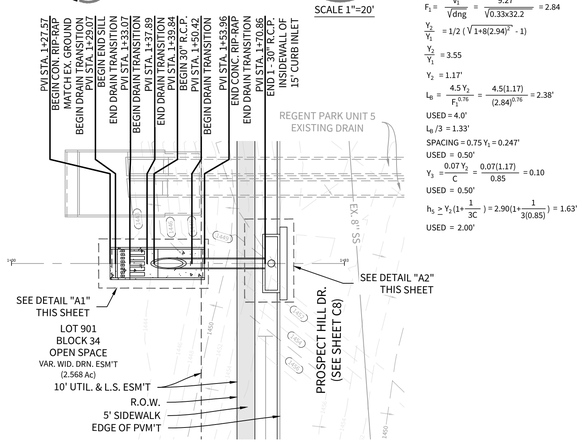
USED = 0.50'

$Y_3 = \frac{0.07\,Y_2}{C} = \frac{0.07(1.17)}{0.85} = 0.10$

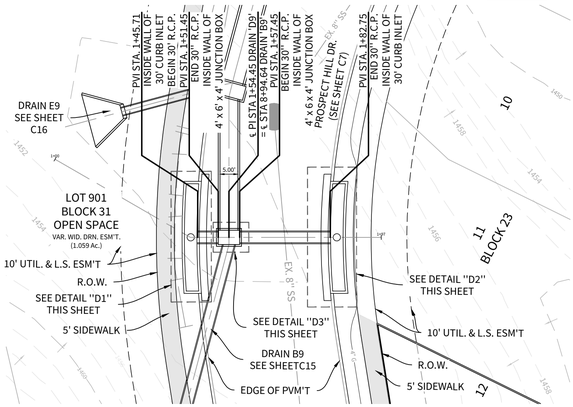
USED = 0.50'

$h_3 \geq Y_2(1+\frac{1}{3C}) = 2.90(1+\frac{1}{3(0.85)}) = 1.63'$

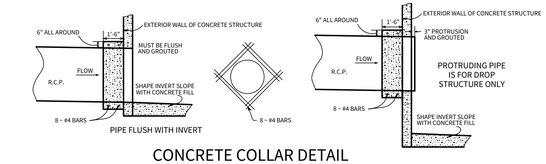
USED = 2.00'



DRAIN 'A9'
STA. 1+27.57 TO STA. 1+70.86



DRAIN 'D9'
STA. 1+45.71 TO STA. 1+82.75

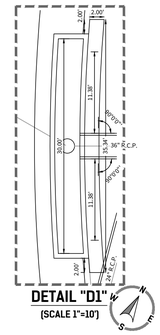


CONCRETE COLLAR DETAIL
N.T.S.

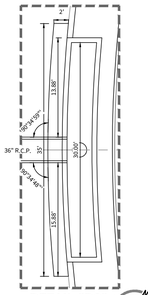
NOTE:
CONTRACTOR SHALL INSTALL CONCRETE COLLARS ON ALL R.C.P. CONNECTIONS TO PRECAST & CAST-IN-PLACE CONCRETE STRUCTURES.



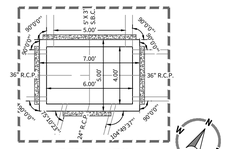
SCALE 1"=20'



DETAIL "D1"
(SCALE 1"=10')

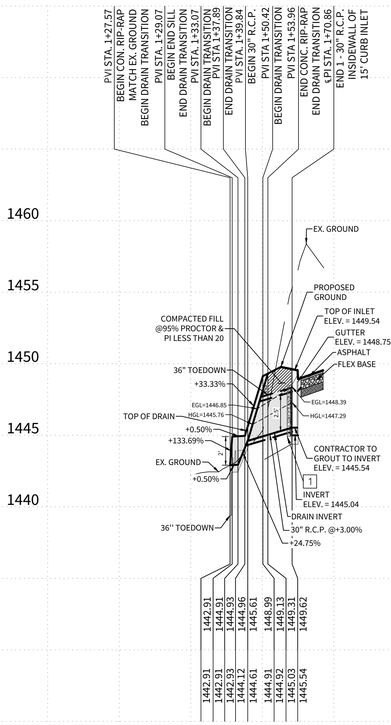


DETAIL "D2"
(SCALE 1"=10')



DETAIL "D3"
5' X 7' JUNCTION BOX – DRAIN 'B9'
(SCALE 1"=5')

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



15' CURB INLET OPENING
DRAIN "A9" STA. 1+70.86

$Q_{100\,PROJECT} = 24.47$ c.f.s.

$Q_{100\,ULTIMATE} = 24.47$ c.f.s.

$L = Q/(C*w*(2*g*h)^{1/2}) = \frac{24.47}{0.7*0.50*(2*32.2*0.54)^{1/2}}$

L = 11.86' INLET REQ'D.

USED - 15' INLET (TYPE C-1)

A = 4.91 s.f. (1 - 2.5' DIAMETER OPENING(S))

V = 4.99 f.p.s.

Hv = 0.39'

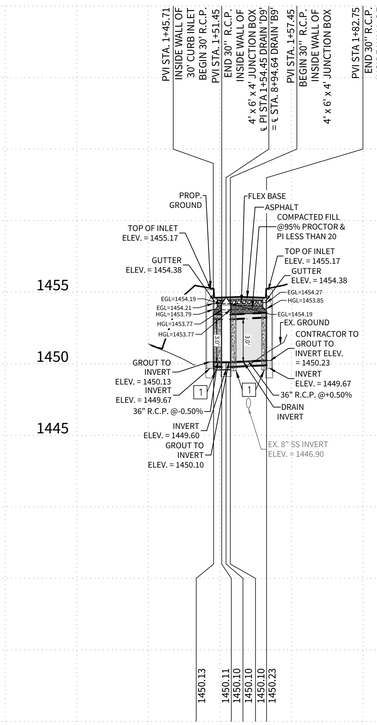
1.5Hv = 0.58'

Hw = z + y + 1.5Hv

Hw = 1445.54+2.5+0.58

Hw = 1,448.62

GUTTER = 1,449.25



30' CURB INLET OPENING
DRAIN "D9" STA. 1+45.71

$Q_{100\,PROJECT} = 36.79$ c.f.s.

$Q_{100\,ULTIMATE} = 36.79$ c.f.s.

$L = Q/(C*w*(2*g*h)^{1/2}) = \frac{36.79}{0.7*0.50*(2*32.2*0.54)^{1/2}}$

L = 17.82' INLET REQ'D.

USED - 30' INLET (TYPE C-1)

A = 7.07 s.f. (1 - 3.0' DIAMETER OPENING(S))

V = 5.21 f.p.s.

Hv = 0.42'

1.5Hv = 0.63'

Hw = z + y + 1.5Hv

Hw = 1450.13+3.0+0.63

Hw = 1,453.76

GUTTER = 1,454.84

30' CURB INLET OPENING
DRAIN "D9" STA. 1+82.75

$Q_{100\,PROJECT} = 36.79$ c.f.s.

$Q_{100\,ULTIMATE} = 36.79$ c.f.s.

$L = Q/(C*w*(2*g*h)^{1/2}) = \frac{36.79}{0.7*0.50*(2*32.2*0.54)^{1/2}}$

L = 17.82' INLET REQ'D.

USED - 30' INLET (TYPE C-1)

A = 7.07 s.f. (1 - 3'x1' OPENING(S))

V = 5.21 f.p.s.

Hv = 0.42'

1.5Hv = 0.63'

Hw = z + y + 1.5Hv

Hw = 1450.23+3.0+0.63

Hw = 1,453.86

GUTTER = 1,454.94

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND WATER AND SEWER MAINS EXIST WITHIN THE LIMITS OF THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

TRENCH EXCAVATION SAFETY PROTECTION

Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

KEYNOTES:

1 CONCRETE COLLARS SHALL BE INSTALLED FOR CAST-IN-PLACE & PRECAST CURB INLETS FOR EVERY PIPE CONNECTION

GENERAL NOTES

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI IN 28 DAYS.
2. 85% OF CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF BOERNE. HYDROMULCH PAY ITEM TO INCLUDE SOIL, SEEDING, OR SODDING & WATERING FOR THE PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
3. SOD LINING IS REQUIRED PER CITY OF BOERNE IN AREAS WITHIN EARTHEN CHANNEL WITH VELOCITIES GREATER THAN 3.00 FT/SEC BUT NO MORE THAN 5.0 FT/SEC.

CUDEENGINEERS.COM

CUDE ENGINEERS

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

REGENT PARK UNIT 9

DRAINAGE PLAN & PROFILE - DRAINS 'A9' & D9'

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 12/18/2024 - UPDATED COMPACTED FILL LABEL. -PROVIDED BAFFLES FOR DRAIN 'A9' & ADDED DETAILS.
2.
3.
4.
5.
6.
7.
8.

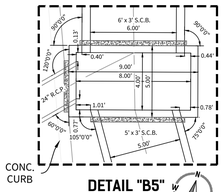
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

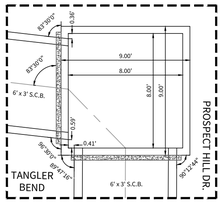
C14

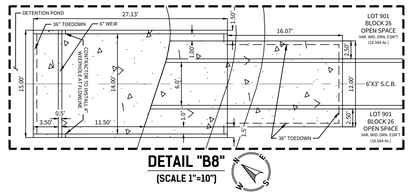
13 OF 24

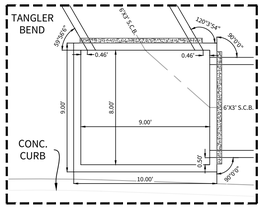
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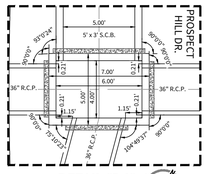
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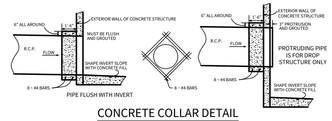


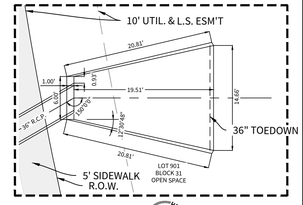


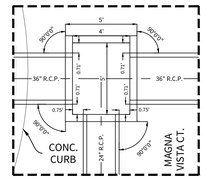


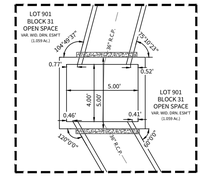


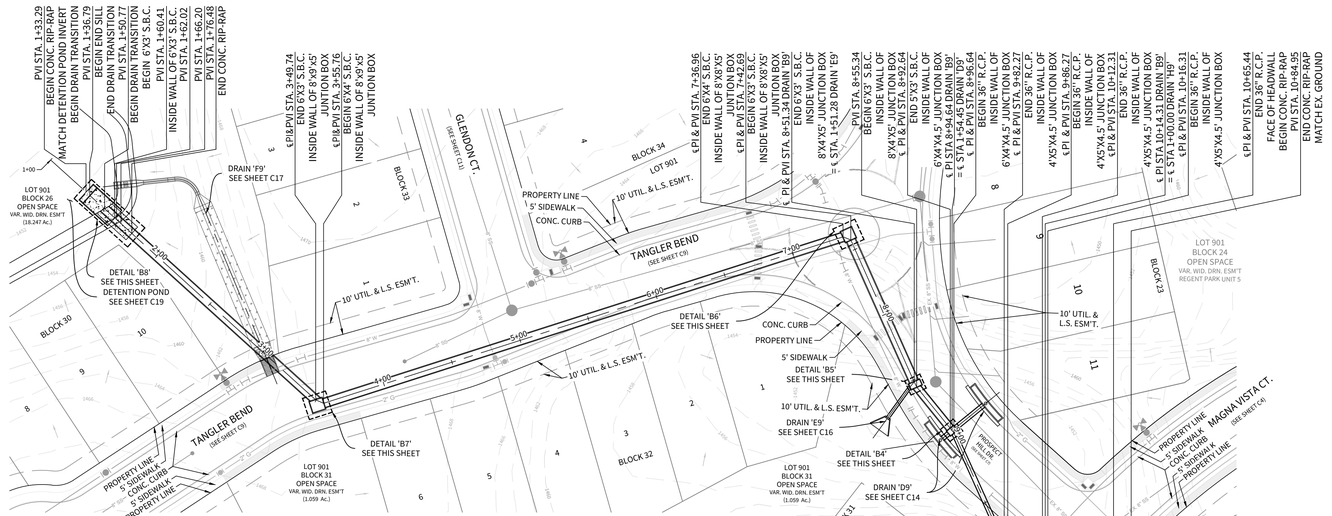












TRENCH EXCAVATION SAFETY PROTECTION

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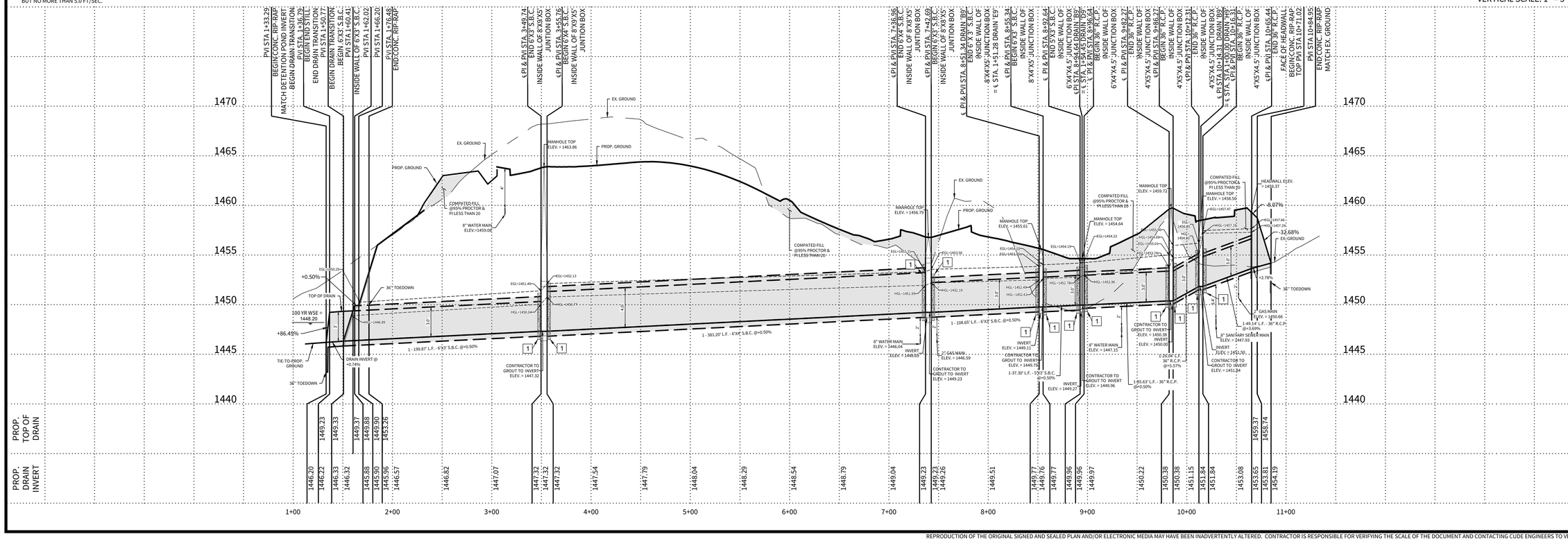
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DRAIN 'B9'

STA. 1+33.29 TO STA. 10+84.95

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



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REGENT PARK UNIT 9

DRAINAGE PLAN & PROFILE - DRAIN 'B9'

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS

1. 12/18/2024 - UPDATED COMPACTED FILL LABEL, ADDED ENERGY DISSIPATION BASIN TO DRAIN 'B9' & ADDED DETAILS. ADDED AND LABELED TOE DOWNS.
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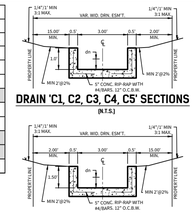
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TBPE No. 455
TBPLS No. 10048500

C15

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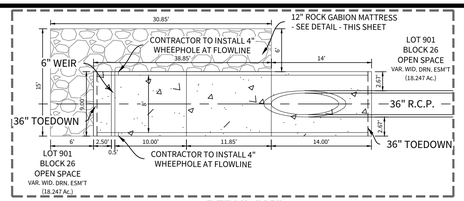
P:\02133\160\2-Drawings\05-SUBDIVISION\01-Reg\20241203 2-Drain I.mmvia

Name	"C-1"	"C-2"	"C-3"	"C-4"	"C-5"	"C-6"
BEGIN STA	4+02.36	4+46.65	4+86.32	5+50.76	6+00.29	6+47.63
END STA	4+46.65	4+86.32	5+50.76	6+00.29	6+31.46	6+62.66
Q_{100} (cfs)	26.79	26.79	26.79	26.79	26.79	26.79
h (ft)	1.00'	1.00'	1.00'	1.00'	1.00'	1.50'
b_W (ft)	3.00'	3.00'	3.00'	3.00'	3.00'	3.00'
t_W (ft)	3	3	3	3	3	3
n	0.015	0.015	0.015	0.015	0.015	0.015
Slope (%)	33.00%	16.80%	24.82%	23.05%	13.11%	2.00%
d_h (ft)	0.36'	0.45'	0.39'	0.39'	0.39'	0.39'
V (fps)	24.95	20.00	22.72	22.19	18.42	9.67
Channel Type	Channel	Channel	Channel	Channel	Channel	Channel



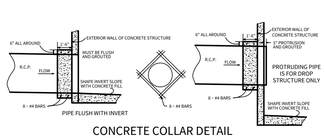
DRAIN 'C1, C2, C3, C4, C5' SECTIONS
(N.T.S.)

DRAIN 'C6' SECTION (N.T.S.)



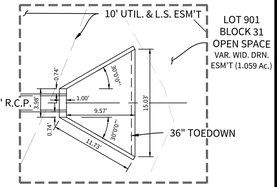
DETAIL "C1"
1"=10'



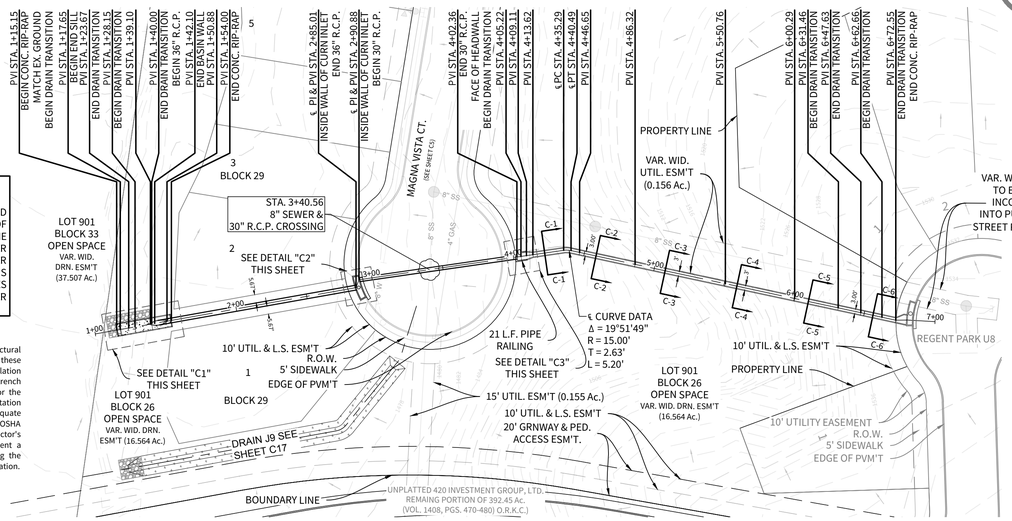


CONCRETE COLLAR DETAIL
N.T.S.

NOTE:
CONTRACTOR SHALL INSTALL CONCRETE COLLARS ON ALL R.C.P. CONNECTIONS TO PRECAST & CAST-IN-PLACE CONCRETE STRUCTURES.

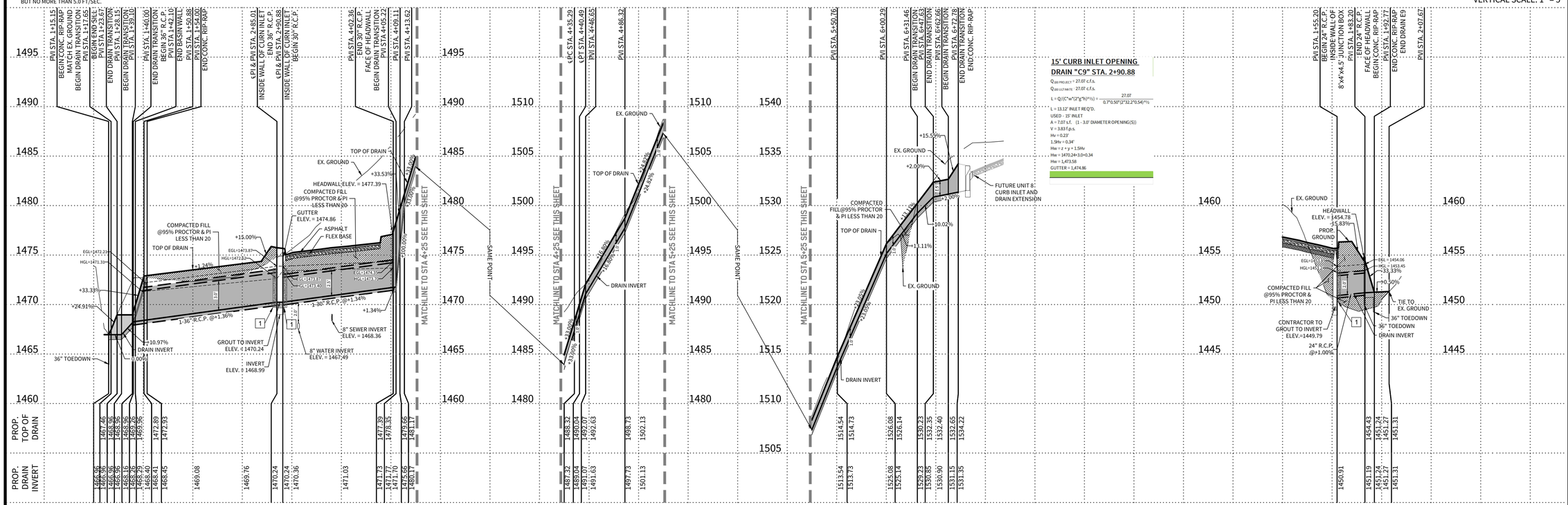


DETAIL "E1"
1"=10'



DRAIN 'C9'

STA. 1+15.15 TO STA. 6+72.55

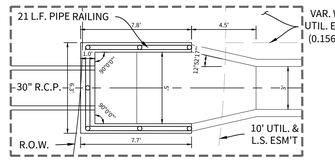


15' CURB INLET OPENING
DRAIN "C9" STA. 2+90.88

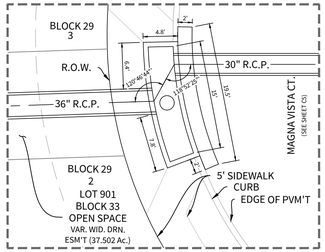
$Q_{100\ PROJECT}$ = 27.07 c.f.s.
$Q_{100\ ULTIMATE}$ = 27.07 c.f.s.

$$L = Q/((C*w*(2*g*h)^{(1/2)}) = \frac{27.07}{0.7*0.50*(2*32.2*0.54)^{(1/2)}}$$

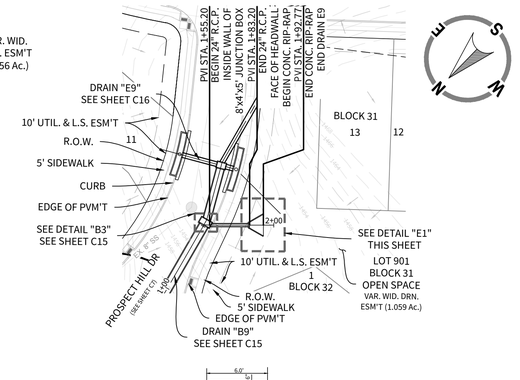
L = 13.12' INLET REQ'D.
USED - 15' INLET
A = 7.07 s.f. (1 - 3.0' DIAMETER OPENING(S))
V = 3.83 f.p.s.
Hv = 0.23'
1.5Hv = 0.34'
Hw = z + y + 1.5Hv
Hw = 1470.24+3.0+0.34
Hw = 1,473.58
GUTTER = 1,474.86



DETAIL "C3"
1"=20'



DETAIL "C2"
1"=10'





GABION STYLE ROCK EROSION CONTROL MATRESS DETAIL
NOTE: GABION MATTRESS TO BE FREE OF GEO-TEXTILE FABRIC LINING.
SPECIFICATION FOR GABION MATTRESS SHALL BE IN ACCORDANCE WITH TxDOT ITEM NO. 459 - GABION AND GABION MATTRESS.

DRAIN 'E9'

STA. 1+55.20 TO STA. 2+07.67

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

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REGENT PARK UNIT 9

DRAINAGE PLAN & PROFILE - DRAINS 'C9' & 'E9'

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

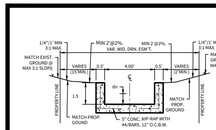
REVISIONS
1. 12/18/2024 - LABELED BOX, UPDATED COMPACTED FILL LABEL, ADDED ENERGY DISSIPATION BASIN TO DRAIN 'C9' & ADDED DETAILS, ADDED AND LABELED TOE DOWNS.
2.
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TBPE No. 455
TBPLS No. 10048500

C16

15 OF 24

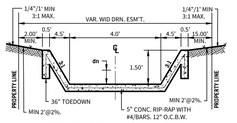
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DRAIN "F-1, F-2, F-3" SECTION

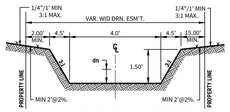
(N.T.S.)

Name	"F-1"	"F-2"	"F-3"	"F-4"	"F-5"	"F-6"
BEGIN STA	1+28.50	1+45.50	1+50.50	1+69.72	1+79.72	1+82.72
END STA	1+45.50	1+50.50	1+69.72	1+71.72	1+82.72	2+85.45
Q_{100} (cfs)	13.77	13.77	13.77	13.77	13.77	13.77
h (ft)	1.50'	1.50'	1.50'	1.50'	1.50'	1.50'
b_w (ft)	2.00'	2.00'	2.00'	4.00'	4.00'	4.00'
t_w (ft)	2	2	2	13	13	13
n	0.015	0.015	0.015	0.015	0.035	0.035
Slope (%)	33.29%	26.90%	4.90%	4.90%	4.90%	0.50%
d_n (ft)	0.31'	0.34'	0.60'	0.31'	0.50'	0.92'
V (fps)	22.00	20.52	11.45	8.92	4.99	2.22
Channel Type	Channel	Channel	Channel	Channel	Channel	Channel



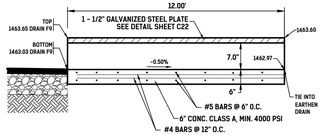
DRAIN "F-4" SECTION

(N.T.S.)



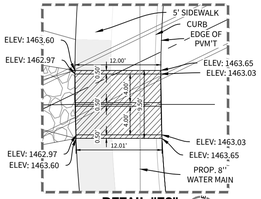
DRAIN "F-5', F-6" SECTION

(N.T.S.)



DRAIN "F-9" INLET SECTION

(N.T.S)



DETAIL "F2"

(SCALE 1"=10')

STA. 2+95.32 TO STA. 3+07.46
2 – 4' X 0.58'–"F–9" CURB INLET

ALLOWABLE HW = 1463.61

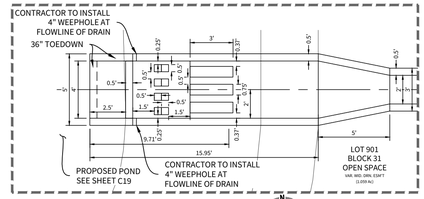
COMPUTED HW = 1463.51

SLOPE = 0.5%

n = 0.015

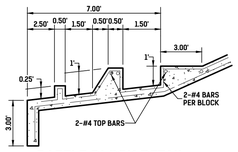
Q_{100} = 13.77 c.f.s.

$VELOCITY_{100}$ = 2.85 ft/s



DETAIL "F1"

(SCALE 1"=10')



BAFFLE BLOCK DETAIL

(N.T.S.)

BAFFLE BLOCK CALCULATIONS – DRAIN "F9" POND OUTFALL

$Y_1 = 0.31'$

$V_1 = 22.02$ fps

$$F_1 = \frac{V_1}{\sqrt{dng}} = \frac{22.02}{\sqrt{0.31x32.2}} = 6.97$$

$$\frac{Y_2}{Y_1} = 1/2\,(\sqrt{1+8(6.97)^2}\,-1)$$

$$\frac{Y_2}{Y_1} = 9.37$$

$Y_2 = 2.90'$

$$L_B = \frac{4.5\,Y_2}{F_1^{0.76}} = \frac{4.5(2.90)}{(6.97)^{0.76}} = 2.99'$$

USED = 11.50'

$L_B/3 = 0.99'$

SPACING = $0.75\,Y_1 = 0.24'$

USED = 0.50'

$$Y_3 = \frac{0.07\,Y_2}{C} = \frac{0.07(2.90)}{0.85} = 0.24$$

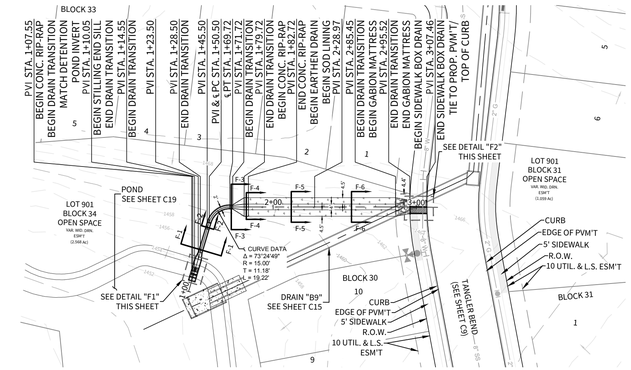
USED = 0.25'

$$h_s \geq Y_2\left(1+\frac{1}{3C}\right) = 2.90\left(1+\frac{1}{3(0.85)}\right) = 4.04'$$

USED = 4.48'

LEGEND:

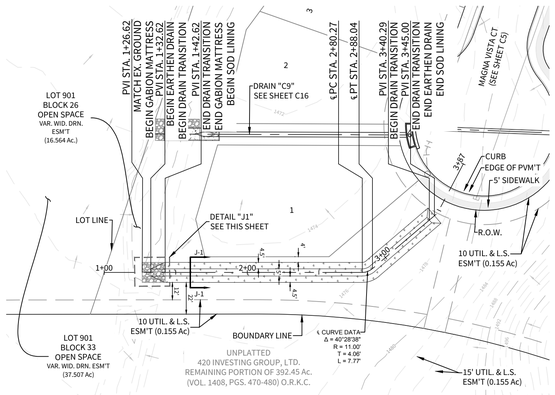
SOD LINED EARTHEN CHANNEL



DRAIN 'F9'

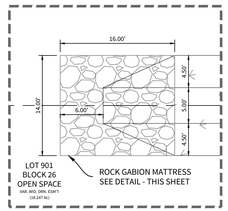
STA. 1+07.55 TO STA. 3+07.46





DRAIN 'J9'

STA. 1+26.62 TO STA. 3+45.00



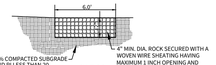
DETAIL "J1"

(SCALE 1"=10')



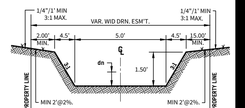
GABION STYLE ROCK EROSION CONTROL MATRESS DETAIL

NOTE: GABION MATTRESS TO BE FREE OF GEO-TEXTILE FABRIC LINING.
SPECIFICATION FOR GABION MATTRESS SHALL BE IN ACCORDANCE WITH TxDOT ITEM NO. 459 - GABION AND GABION MATTRESS.



(N.T.S.)

Name	"J-1"
BEGIN STA	1+42.62
END STA	3+45.00
Q_{100} (cfs)	36.49
h (ft)	1.50'
b_w (ft)	5.00'
t_w (ft)	14
n	0.035
Slope (%)	2.00%
d_n (ft)	0.98'
V (fps)	4.69
Channel Type	Channel



DRAIN "J-1" SECTION

(N.T.S.)

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND WATER AND SEWER MAINS EXIST WITHIN THE LIMITS OF THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

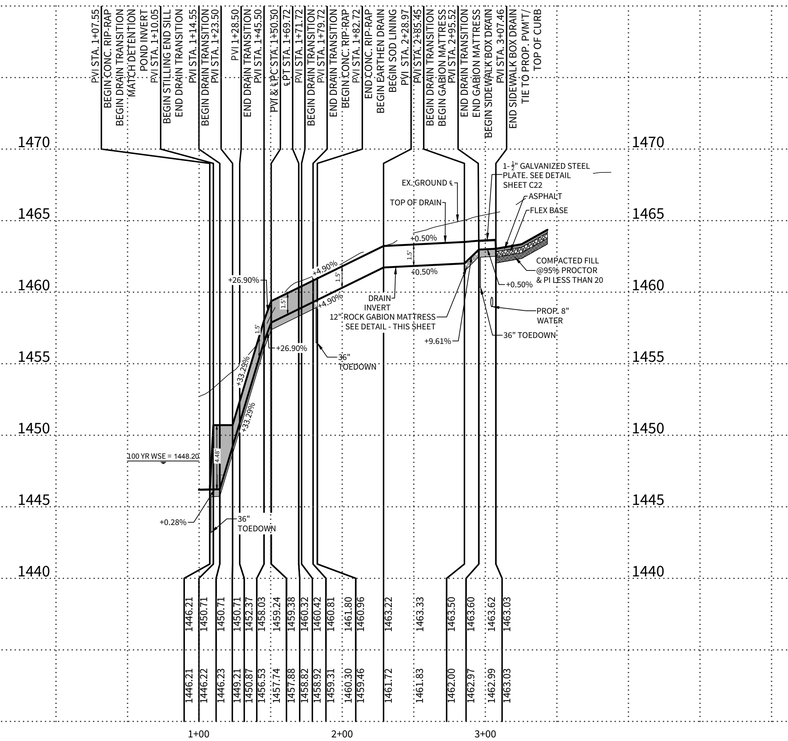
TRENCH EXCAVATION SAFETY PROTECTION

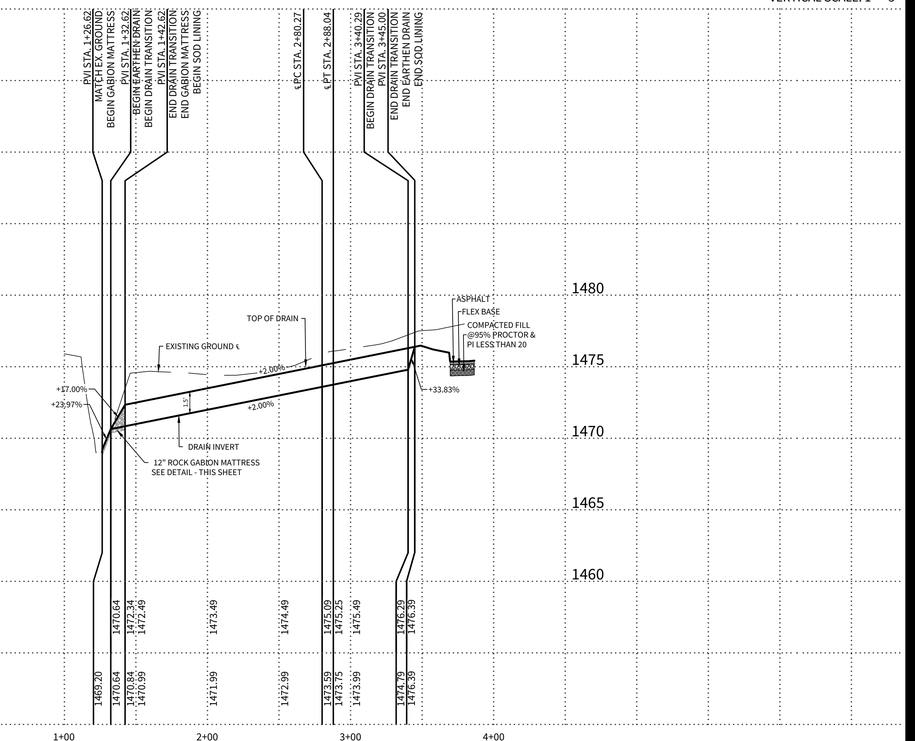
Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

GENERAL NOTES

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI IN 28 DAYS.
2. 85% OF CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF BOERNE. HYDROMULCH PAY ITEM TO INCLUDE SOIL, SEEDING, OR SODDING & WATERING FOR THE PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
3. SOD LINING IS REQUIRED PER CITY OF BOERNE IN AREAS WITHIN EARTHEN CHANNEL WITH VELOCITIES GREATER THAN 3.00 FT/SEC BUT NO MORE THAN 5.0 FT/SEC.

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





CUDEENGINEERS.COM

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

REGENT PARK UNIT 9

DRAINAGE PLAN & PROFILE - DRAINS 'F9' & 'J9'

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS

1. 12/10/2024 - UPDATED COMPACTED FILL LABEL, ADDED BAFFLES TO DRAIN 'F9' & ADDED DETAILS, UPDATED STEEL PLATE DETAIL, SHOW AND LABELED SOD LINED CHANNEL.
2.
3.
4.
5.
6.
7.
8.

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

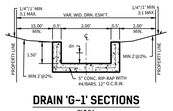
C17

16 OF 24

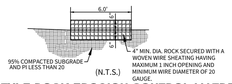
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C:\02133\02133-D Drawings\C17 DRAINAGE PLAN & PROFILE - DRAINS F9 & J9.dwg 12/03/2024 8:22:52pm mmurphy

Name	"G-1"
BEGIN STA	1+34.41
END STA	2+60.49
Q_{100} (cfs)	7.16
h (ft)	1.50'
b_w (ft)	2.00'
t_w (ft)	2
n	0.013
Slope (%)	0.50%
d_n (ft)	0.77'
V (fps)	4.65
Channel Type	Channel



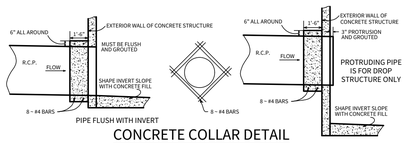
DRAIN 'G-1' SECTIONS
(N.T.S.)



(N.T.S.)

GABION STYLE ROCK EROSION CONTROL MATRESS DETAIL

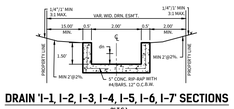
NOTE: GABION MATTRESS TO BE FREE OF GEO-TEXTILE FABRIC LINING. SPECIFICATION FOR GABION MATTRESS SHALL BE IN ACCORDANCE WITH TxDOT ITEM NO. 459 - GABION AND GABION MATTRESS.



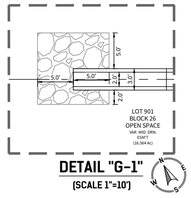
CONCRETE COLLAR DETAIL

N.T.S.
NOTE:
CONTRACTOR SHALL INSTALL CONCRETE COLLARS ON ALL R.C.P. CONNECTIONS TO PRECAST & CAST-IN-PLACE CONCRETE STRUCTURES.

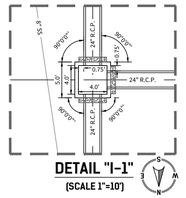
Name	"I-1"	"I-2"	"I-3"	"I-4"	"I-5"	"I-6"	"I-7"
BEGIN STA	1+91.96	2+48.69	3+26.20	5+24.00	5+78.79	6+30.62	6+48.80
END STA	2+48.69	3+26.20	5+24.00	5+78.79	6+30.62	6+48.80	6+78.71
Q_{100} (cfs)	22.25	22.25	22.25	22.25	22.25	22.25	22.25
h (ft)	1.50'	1.50'	1.50'	1.50'	1.50'	1.50'	1.50'
b_w (ft)	2.00'	2.00'	2.00'	2.00'	2.00'	2.00'	2.00'
t_w (ft)	2	2	2	2	2	2	11
n	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Slope (%)	4.40%	3.75%	2.50%	12.00%	3.65%	10.00%	2.50%
d_n (ft)	0.80'	0.84'	0.98'	0.98'	0.98'	0.59'	0.60'
V (fps)	13.98	13.18	11.34	20.00	13.05	18.76	9.74
Channel Type	Channel	Channel	Channel	Channel	Channel	Channel	Channel



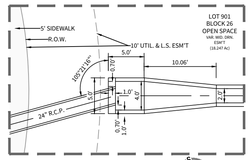
DRAIN 'I-1, I-2, I-3, I-4, I-5, I-6, I-7' SECTIONS
(N.T.S.)



DETAIL "G-1"
(SCALE 1"=10')



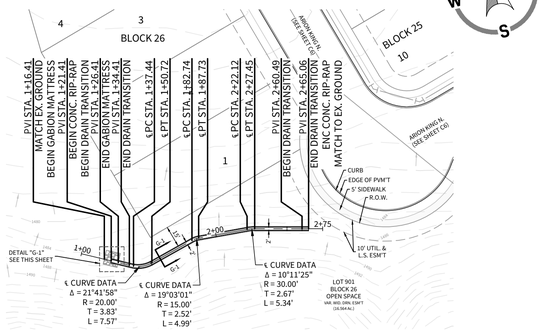
DETAIL "I-1"
(SCALE 1"=10')



DETAIL "I-2"
(SCALE 1"=10')

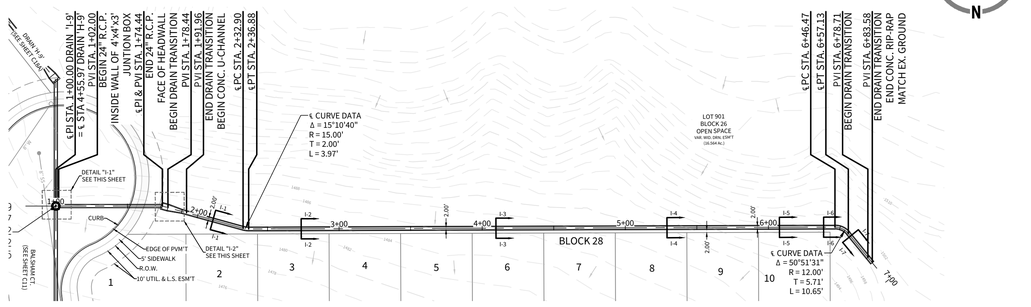






DRAIN 'G9'

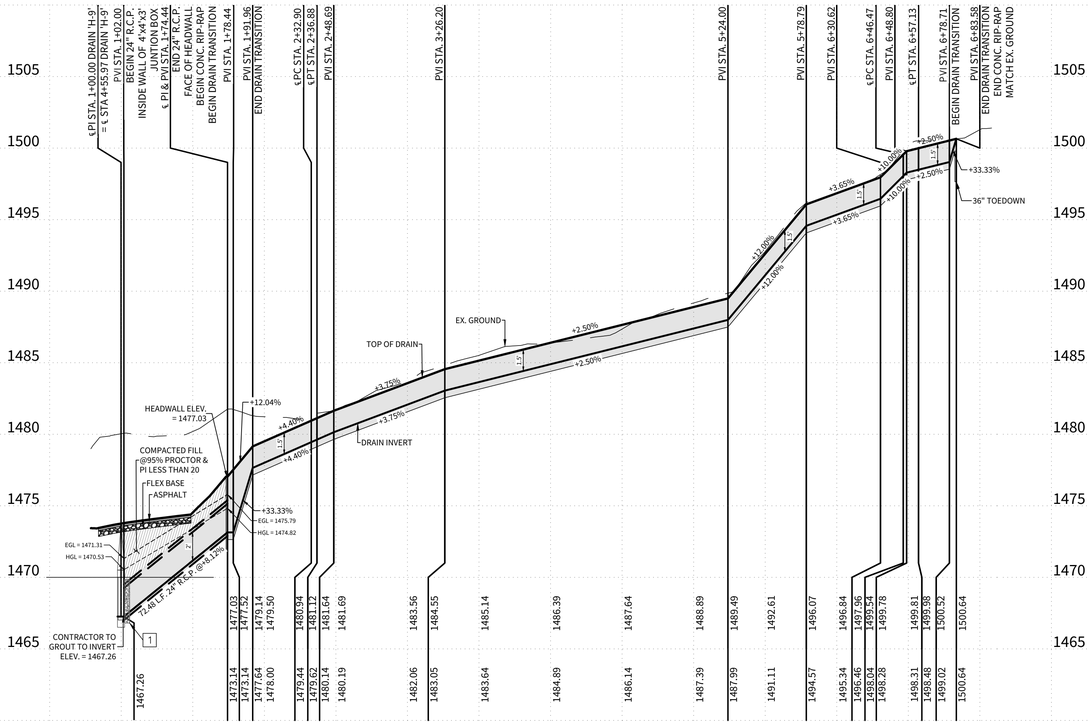
STA. 1+16.41 TO STA. 2+65.06



DRAIN 'I9'

STA. 1+00.00 TO STA. 6+83.58

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



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TRENCH EXCAVATION SAFETY PROTECTION

Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

GENERAL NOTES

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI IN 28 DAYS.
2. 85% OF CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF BOERNE. HYDROMULCH PAY ITEM TO INCLUDE SOIL, SEEDING, OR SODDING & WATERING FOR THE PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
3. SOD LINING IS REQUIRED PER CITY OF BOERNE IN AREAS WITHIN EARTHEN CHANNEL WITH VELOCITIES GREATER THAN 3.00 FT/SEC BUT NO MORE THAN 5.0 FT/SEC.

CUDEENGINEERS.COM

CUDE ENGINEERS

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

REGENT PARK UNIT 9

DRAINAGE PLAN & PROFILE - DRAINS 'G9' & 'I9'

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 12/18/2024 - UPDATED COMPACTED FILL LABEL. RE-DESIGN DRAINS TO NOT DISCHARGE ONTO CITY STREET. UPDATED LABELS AND CALCULATIONS.
2.
3.
4.
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6.
7.
8.

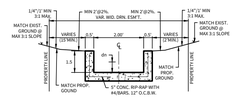
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C18

17 OF 24

P:\02133.160\2 Drawings\C18 DRAINAGE PLAN & PROFILE - DRAINS 'G9' & 'I9'.dwg 2025/01/28 8:51pm ramos@pv

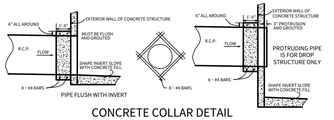
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DRAIN "H-1, H-2, H-3" SECTION

(N.T.S.)

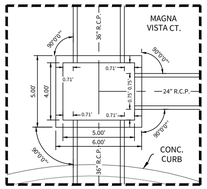
Name	"H-1"	"H-2"	"H-3"
BEGIN STA	5+57.97	6+18.61	6+81.78
END STA	6+18.61	6+58.61	6+81.78
Q_{DES} (cfs)	15.40	15.70	15.40
h (ft)	1.50'	1.50'	1.50'
b_W (ft)	2.00'	2.00'	2.00'
t_W (ft)	2	2	2
n	0.015	0.015	0.015
Slope (%)	8.00%	2.00%	6.00%
d_n (ft)	0.55'	0.90'	0.61'
V (fps)	14.05	8.54	12.70
Channel Type	Channel	Channel	Channel



CONCRETE COLLAR DETAIL

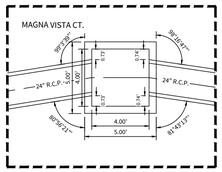
N.T.S.

NOTE:
CONTRACTOR SHALL INSTALL CONCRETE COLLARS ON ALL R.C.P. CONNECTIONS TO PRECAST & CAST-IN-PLACE CONCRETE STRUCTURES.



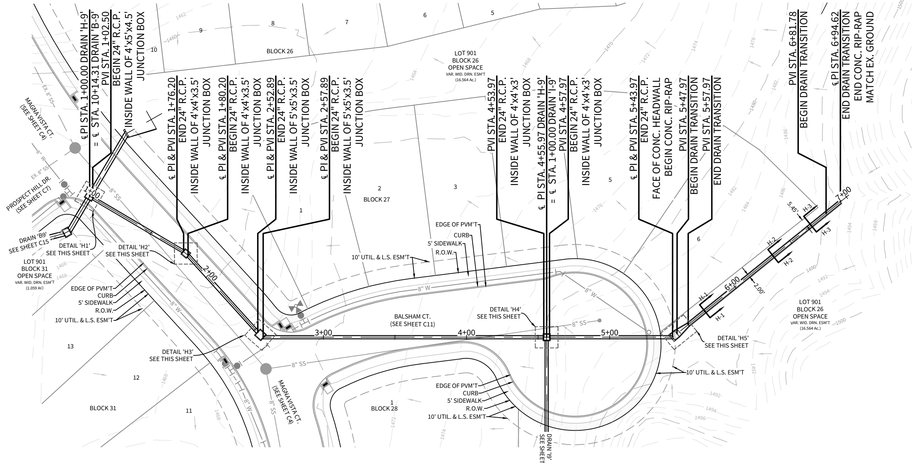
DETAIL "H1"

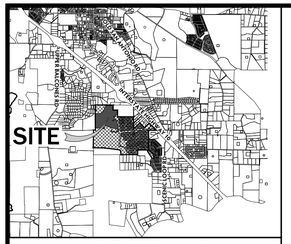
(SCALE 1"=5')



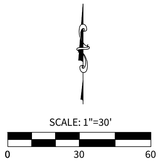
DETAIL "H2"

(SCALE 1"=5')


℄ PI STA. 1+00.00 DRAIN 'H-9'
= ℄ STA. 10+14.31 DRAIN 'B-9'
PVI STA. 1+02.50
BEGIN 24" R.C.P.
INSIDE WALL OF 4'x5'x4.5' JUNCTION BOX
MAGNA VISTA CT. (SEE SHEET C4)
PROPERTY LINE (SEE SHEET C5)
DRAIN 'B9' SEE SHEET C15
DETAIL 'H1' SEE THIS SHEET
DETAIL 'H2' SEE THIS SHEET
LOT 901 BLOCK 31 OPEN SPACE VAR. WID. DRN. ESM'T (1.059 AC)
EDGE OF PVMT CURB 5' SIDEWALK R.O.W.
10' UTIL. & L.S. ESM'T
BLOCK 31
BLOCK 26
BLOCK 27
BLOCK 28
LOT 901 BLOCK 26 OPEN SPACE VAR. WID. DRN. ESM'T (16.564 AC.)
℄ PI & PVI STA. 1+76.20 END 24" R.C.P. INSIDE WALL OF 4'x4'x3.5' JUNCTION BOX
℄ PI & PVI STA. 1+80.20 BEGIN 24" R.C.P. INSIDE WALL OF 5'x5'x3.5' JUNCTION BOX
℄ PI & PVI STA. 2+52.89 END 24" R.C.P. INSIDE WALL OF 5'x5'x3.5' JUNCTION BOX
℄ PI & PVI STA. 2+57.89 BEGIN 24" R.C.P. INSIDE WALL OF 5'x5'x3.5' JUNCTION BOX
PVI STA. 4+53.97 END 24" R.C.P. INSIDE WALL OF 4'x4'x3.5' JUNCTION BOX
℄ PI STA. 4+55.97 DRAIN 'H-9' = ℄ STA. 1+00.00 DRAIN 'I-9'
PVI STA. 4+57.97 BEGIN 24" R.C.P. INSIDE WALL OF 4'x4'x3' JUNCTION BOX
℄ PI & PVI STA. 5+43.97 END 24" R.C.P. FACE OF CONC. HEADWALL BEGIN CONC. RIP-RAP
PVI STA. 5+47.97 BEGIN DRAIN TRANSITION
PVI STA. 5+57.97 END DRAIN TRANSITION
PVI STA. 6+18.61
PVI STA. 6+81.78 BEGIN DRAIN TRANSITION
℄ PI STA. 6+94.62 END DRAIN TRANSITION END CONC. RIP-RAP MATCH EX. GROUND
3+00
4+00
5+00
6+00
BALSHAM CT. (SEE SHEET C11)
DETAIL 'H3' SEE THIS SHEET
DETAIL 'H4' SEE THIS SHEET
DETAIL 'H5' SEE THIS SHEET
MAGNA VISTA CT. (SEE SHEET C4)
8" SS
8" WATER
24" R.C.P.
36" R.C.P.
5.40'
2.00'
4.00'
4.00'
2.00'
5.40'
2.00'
4.00'
4.00'
2.00'
5.40'
2.00'
4.00'
4.00'
2.00'



LOCATION MAP N.T.S.



DEVELOPER:
TENOTEX DEVELOPMENT CO., INC.
CONTACT PERSON: ISRAEL FOGIEL
10003 NW MILITARY, STE. 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
FAX: (210) 344-3137

GENERAL NOTES

THE DETENTION POND FACILITY SHALL ALSO BE USED AS A TEMPORARY SEDIMENT TRAP FOR THE PURPOSES OF THE TEXAS POLLUTION DISCHARGE ELIMINATION SYSTEM CONSTRUCTION PERMIT FOR THIS SITE. THE CONTRACTOR SHALL CLEAN ALL SEDIMENT OUT OF THE DETENTION FACILITY UPON FINAL STABILIZATION OF THE SITE.

CONTRACTOR TO HYDROMULCH ENTIRE DRAINAGE EASEMENT. 85% OF POND SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF BOERNE.

THE CONTRACTOR SHALL NOTIFY A UTILITY LOCATOR AT LEAST 48 HOURS PRIOR TO PERFORMING ANY EXCAVATION ACTIVITY ADJACENT TO THE CONSTRUCTION OF ANY ON-SITE DRAINAGE FACILITIES TO PROTECT ANY UNIDENTIFIED EXISTING UNDERGROUND UTILITY FACILITY FROM DAMAGE OR HARM. THE CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY FOR ANY DAMAGES TO UTILITIES AS A RESULT OF NOT LOCATING UNDERGROUND UTILITY RESOURCES.

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF BOERNE PUBLIC WORKS DEPARTMENT.

ALL CONCRETE SHALL BE A MINIMUM OF 4000 PSI @ 28 DAYS COMPRESSIVE STRENGTH UNLESS OTHERWISE SPECIFIED HEREIN ON THESE DOCUMENTS.

THE OWNER SHALL SPECIFY THE USE OF EITHER A CHAINLINK FENCE OR A WOODEN PRIVACY FENCE. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO INSTALLATION AND CONSTRUCTION.

GENERAL NOTES

POND CONTRIBUTING DRAINAGE AREA

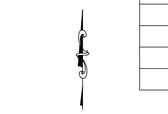
PROPOSED CONCRETE

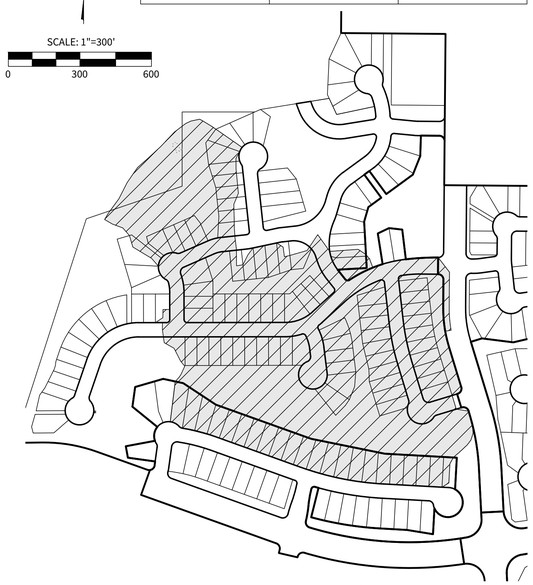
GABION MATTRESS

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT AN 8" WATER EXIST WITHIN THE SITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

POND RESULTS TABLE		
EVENTS	PEAK WSEL (FT)	PEAK DETENTION STORAGE (Ac-FT)
2 YR	1446.6	1.3
5 YR	1447.1	1.9
10 YR	1447.4	2.4
25 YR	1447.7	2.9
50 YR	1448.0	3.3
100 YR	1448.2	3.7





POND CONTRIBUTING DRAINAGE AREA (N.T.S.)



CUDEENGINEERS.COM

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

REGENT PARK UNIT 9

DETENTION POND PLAN

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
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3.
4.
5.
6.
7.
8.

STATE OF TEXAS
W. PATRICK MURPHY
111597
LICENSED
PROFESSIONAL ENGINEER
12/5/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

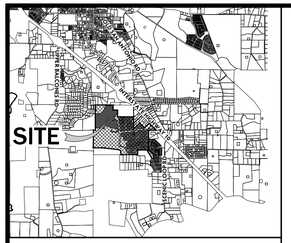
PLAT NO.
N/A

C19

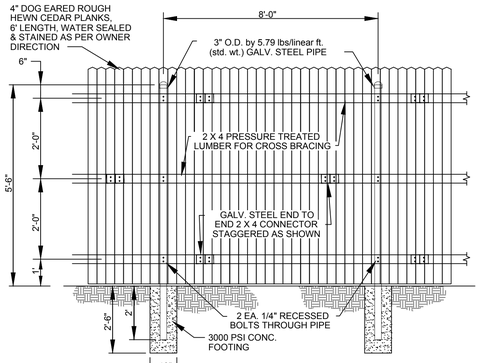
19 OF 24

P:\02133.160\2 Drawings\C20 DETENTION POND DETAILS.dwg, 2/24/2025 4:29:04 PM, Patrick Murphy

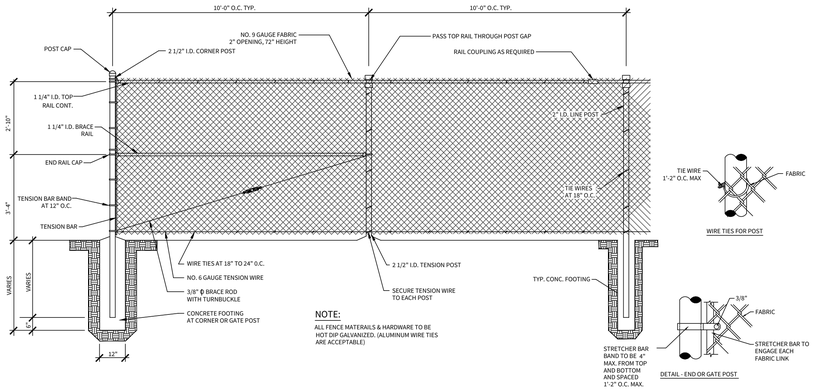
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



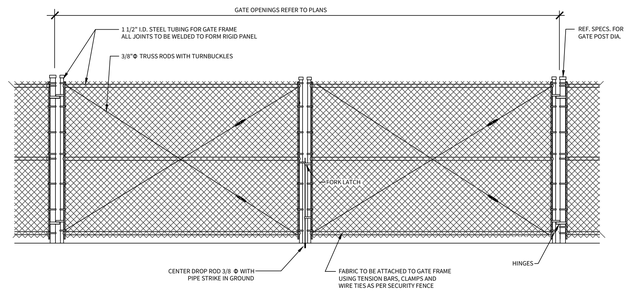
DEVELOPER:
TENOTEX DEVELOPMENT CO., INC.
CONTACT PERSON: ISRAEL FOGIEL
10003 NW MILITARY, STE. 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
FAX: (210) 344-3137



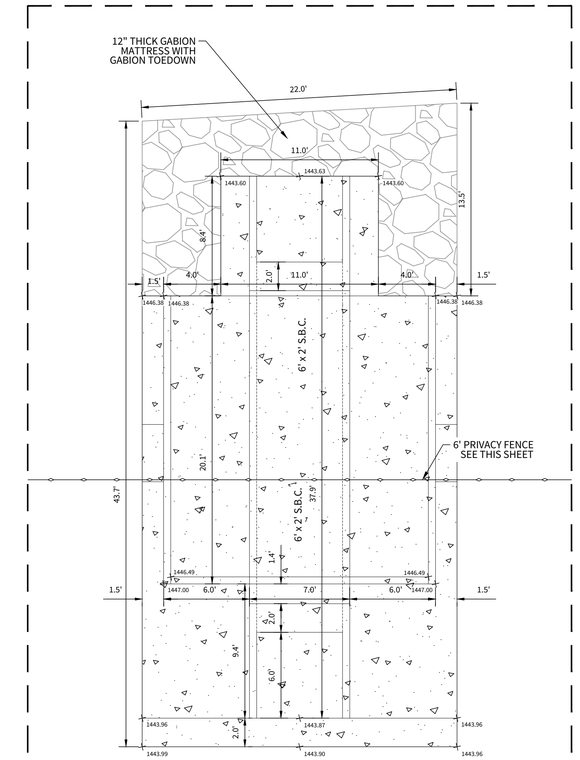
WOOD PRIVACY FENCE
N.T.S.



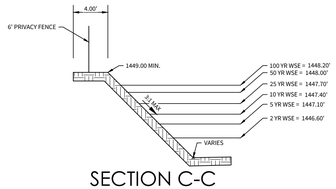
NOTE:
ALL FENCE MATERAILS & HARDWARE TO BE HOT DIP GALVANIZED. (ALUMINUM WIRE TIES ARE ACCEPTABLE)



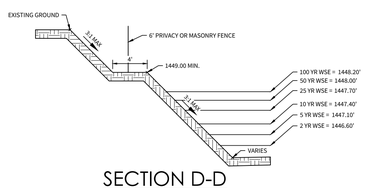
CHAINLINK FENCE DETAIL
N.T.S.



POND OUTFALL STRUCTURE
DETAIL 'A'
N.T.S



SECTION C-C
N.T.S.

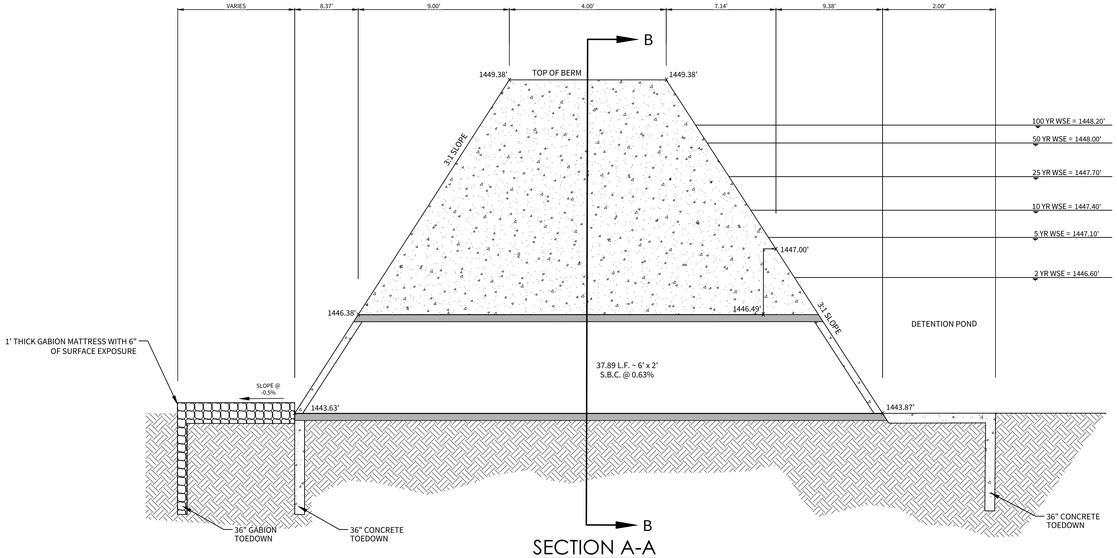


SECTION D-D
N.T.S.

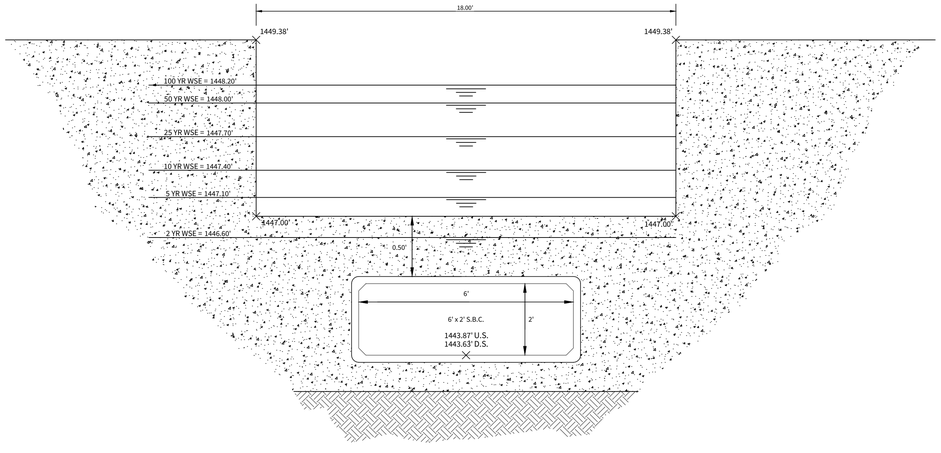


(N.T.S.)

GABION STYLE ROCK EROSION CONTROL MATRESS DETAIL
NOTE: GABION MATTRESS TO BE FREE OF GEO-TEXTILE FABRIC LINING.
SPECIFICATION FOR GABION MATTRESS SHALL BE IN ACCORDANCE WITH TxDOT ITEM NO. 459 - GABION AND GABION MATTRESS.



SECTION A-A
N.T.S.



SECTION B-B
N.T.S.

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

REGENT PARK UNIT 9
DETENTION POND DETAILS

DATE
12/03/2024
PROJECT NO.
02133.160
DRAWN BY
AD/RM/MW/MS/JG
CHECKED BY
WPM

REVISIONS
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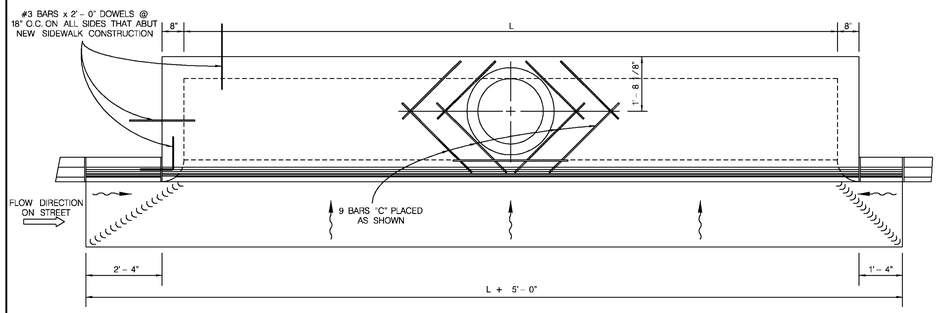
STATE OF TEXAS
W. PATRICK MURPHY
111597
LICENSED
PROFESSIONAL ENGINEER
12/5/2024
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
N/A

C20
20 OF 24

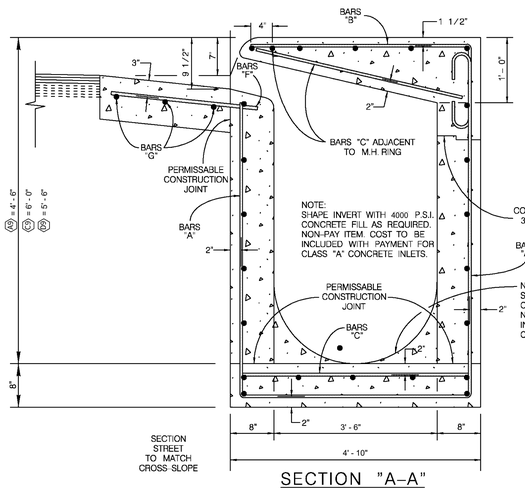
P:\02133\003 Drawings\Civil\DETENTION POND DETAILS.dwg, 2024.12.05 4:43:24 pm, mmista

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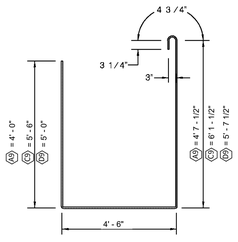
PLAN VIEW

SCALE : 1" = 2'

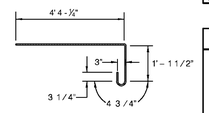


SECTION "A-A"

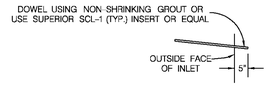
SCALE : 1" = 1'



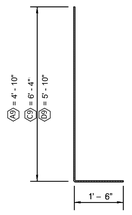
BAR "A"



BAR "B"



BAR "F"



BAR "E"

INLET LENGTH	REINFORCING STEEL SCHEDULE					
	BAR	No.	Size	Spa.	Length	Weight lbs.
DRAIN "A9" L= 15' DEPTH= 4.5'	A	39	4	5' o.c.	13' 9 1/2"	359.38
	B	39	4	5"	6' 1 3/4"	160.11
	C	42	4	9"	4' 6"	126.25
	D	23	4	10"	16' 1"	247.10
	E	12	4	10 1/2"	6' 4"	50.77
	F	17	5	12"	2' 3"	39.89
	G	3	4	12"	20' 8"	41.42
	H	6	5	12"	1' 8"	10.43

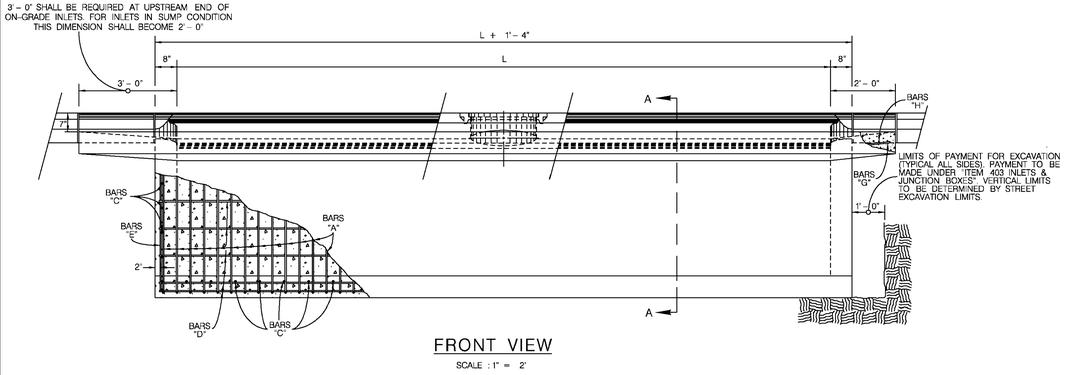
*Concrete Total = 8.21 C.Y. Manhole Casting = 260 lbs. Steel Total = 1035.28 lbs

INLET LENGTH	REINFORCING STEEL SCHEDULE					
	BAR	No.	Size	Spa.	Length	Weight lbs.
DRAIN "C9" L= 15' DEPTH= 6.0'	A	39	4	5' o.c.	16' 9 1/2"	437.46
	B	39	4	5"	6' 1 3/4"	160.11
	C	45	4	9"	4' 6"	135.27
	D	26	4	10"	16' 1"	279.34
	E	12	4	10 1/2"	7' 10"	62.79
	F	17	5	12"	2' 3"	39.89
	G	3	4	12"	20' 8"	41.42
	H	6	5	12"	1' 8"	10.43

*Concrete Total = 9.68 C.Y. Manhole Casting = 260 lbs. Steel Total = 1166.71 lbs

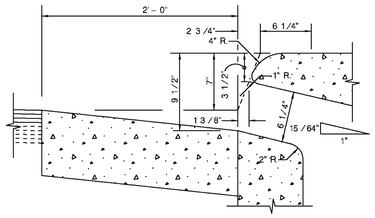
INLET LENGTH	REINFORCING STEEL SCHEDULE					
	BAR	No.	Size	Spa.	Length	Weight lbs.
DRAIN "D9" L= 30' DEPTH= 5.5'	A	75	4	5' o.c.	15' 9 1/2"	791.16
	B	75	4	5"	6' 1 3/4"	307.91
	C	64	4	9"	4' 6"	192.38
	D	25	4	10"	31' 1"	519.09
	E	12	4	10 1/2"	7' 4"	58.78
	F	32	5	12"	2' 3"	75.10
	G	3	4	12"	35' 8"	71.48
	H	5	5	12"	1' 8"	10.43

*Concrete Total = 16.92 C.Y. Manhole Casting = 260 lbs. Steel Total = 2026.33 lbs



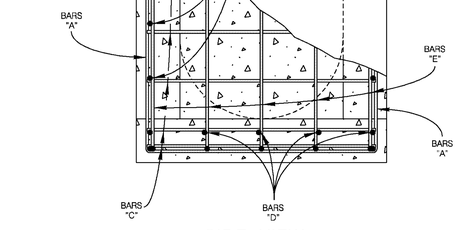
FRONT VIEW

SCALE : 1" = 2'



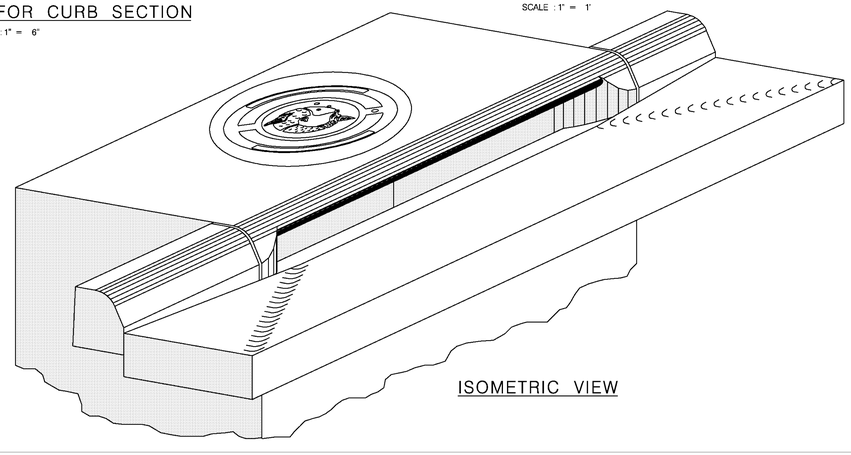
OPENING DETAIL FOR CURB SECTION

SCALE : 1" = 6"



SIDE VIEW

SCALE : 1" = 1'



ISOMETRIC VIEW

GENERAL NOTES

1. ALL BARS INTERCEPTING MANHOLE RING & REINFORCING CONCRETE PIPE SHALL BE FIELD CUT.
2. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 4000 PSI IN 28 DAYS.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER BARS.
4. ALL EXPOSED CORNERS SHALL BE CHAMFERED TO 3/4".
5. CONSTRUCTION JOINT SHOWN AT FLOWLINE MAY BE RAISED A MAXIMUM OF 6" AT THE CONTRACTOR'S DISCRETION. ADJUST LENGTH OF VERTICAL STEEL AS REQUIRED.
6. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A-615, GRADE 60 REQUIREMENTS.
7. INVERT OF DROP INLET TO BE SHAPED WITH CONCRETE FILL TO AFFECT DRAINAGE TO OUTLET PIPE.
8. DELETE 4 "C" BARS FROM SCHEDULE QUANTITIES IF MANHOLE RING AND COVER ARE PLACED AT END OF INLET.
9. CAST IRON MANHOLE RING AND COVER TO BE PLACED NEXT TO OUTLET PIPE, EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
10. PAYMENT FOR ALL EXCAVATION, BACK FILLING, CONCRETE, REINFORCING STEEL RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. MANHOLE TO BE INSTALLED TO CITY OF BOERNE SPECIFICATIONS

JANUARY 2005

STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEPARTMENT OF PUBLIC WORKS

TYPE "C" INLET DETAILS

DRAWN BY: V. VASQUEZ	DATE	REVISIONS	SCALE: SEE ABOVE
CHECKED BY: NAT HARDY, P.E.			DATE:
			SHEET: OF

CUDEENGINEERS.COM
CUDE ENGINEERS
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

REGENT PARK
UNIT 9

CURB INLET DETAILS - TYPE 'C'

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

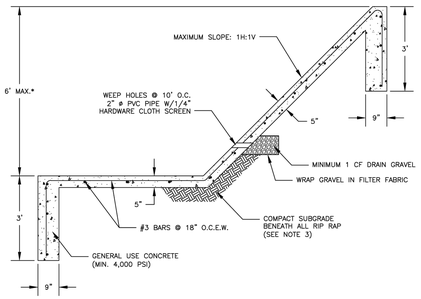
REVISIONS
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
N/A

C21

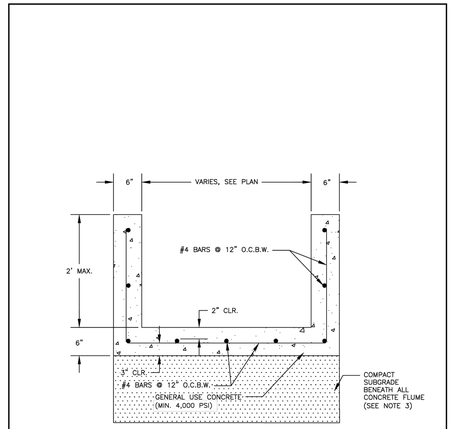
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*MAXIMUM HEIGHT MAY BE EXCEEDED IF DESIGN MODIFIED BASED UPON GEOTECHNICAL SLOPE STABILITY ANALYSIS AND APPROPRIATE STRUCTURAL DESIGN.

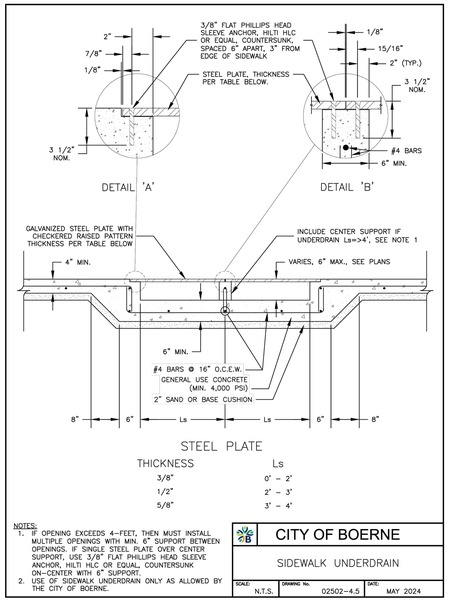
NOTES:
1. PROVIDE EXPANSION JOINTS AT A MINIMUM 40' SPACING AND CONTRACTION JOINTS MINIMUM 10' SPACING.
2. JOINT PLAN TO BE PROVIDED BY ENGINEER FOR REVIEW AND APPROVAL BY THE CITY PRIOR TO INSTALLATION.
3. COMPACT SUBGRADE TO 95% OF THE OPTIMUM DENSITY PER ASTM D1557 (MODIFIED PROCTOR) AND SPECIFICATION 02221.

CITY OF BOERNE		
CONCRETE RIP–RAP TYPICAL SECTION		
SCALE: N.T.S.	DRAWING No. 02423–1.1	DATE: MAY 2024



NOTES:
1. PROVIDE EXPANSION JOINTS AT A MINIMUM 40' SPACING AND CONTRACTION JOINTS MINIMUM 10' SPACING.
2. JOINT PLAN TO BE PROVIDED BY ENGINEER FOR REVIEW AND APPROVAL BY THE CITY PRIOR TO INSTALLATION.
3. COMPACT SUBGRADE TO 95% OF THE OPTIMUM DENSITY PER ASTM D1557 (MODIFIED PROCTOR) AND SPECIFICATION 02221.

CITY OF BOERNE		
CONCRETE FLUME		
SCALE: N.T.S.	DRAWING No. 02423–1.0	DATE: MAY 2024

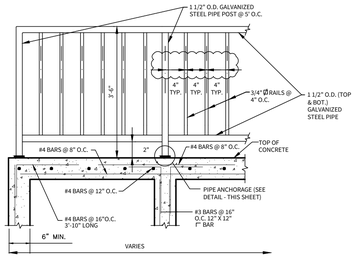


STEEL PLATE

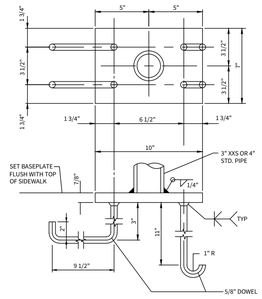
THICKNESS	Ls
3/8"	0' – 2'
1/2"	2' – 3'
5/8"	3' – 4'

NOTES:
1. IF OPENING EXCEEDS 4–FEET, THEN MUST INSTALL MULTIPLE OPENINGS WITH MIN. 6" SUPPORT BETWEEN OPENINGS. IF SINGLE STEEL PLATE OVER CENTER SUPPORT, USE 3/8" FLAT PHILLIPS HEAD SLEEVE ANCHOR, HILTI HLC OR EQUAL, COUNTERSUNK ON–CENTER WITH 6" SUPPORT.
2. USE OF SIDEWALK UNDERDRAIN ONLY AS ALLOWED BY THE CITY OF BOERNE.

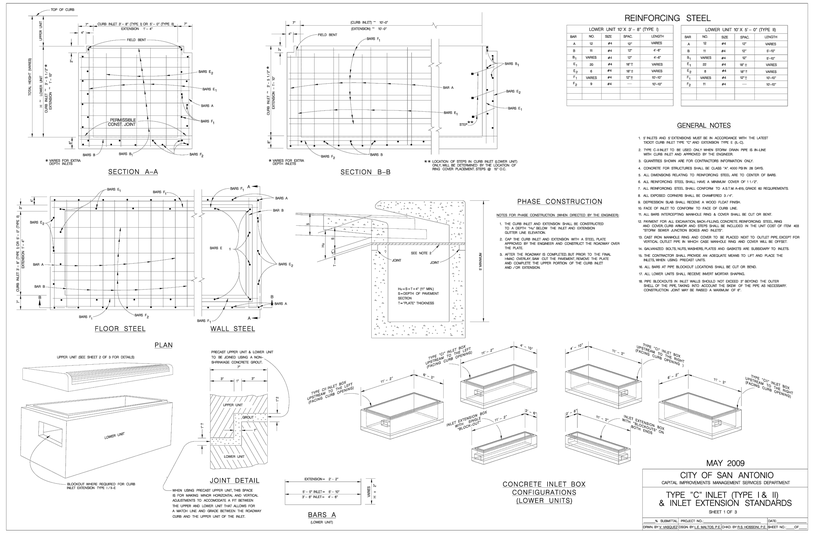
CITY OF BOERNE		
SIDEWALK UNDERDRAIN		
SCALE: N.T.S.	DRAWING No. 02502–4.5	DATE: MAY 2024

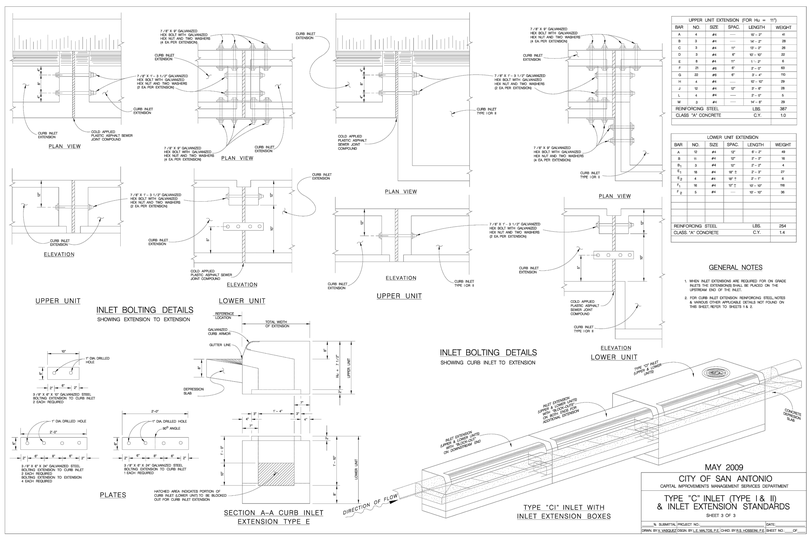


TYPICAL SIDEWALK BRIDGE SECTION AND SIDEWALK PIPE RAILING
(N.T.S.)



PIPE ANCHORAGE DETAILS
(N.T.S.)


TOP OF CURB
CURB INLET 3'-0" (TYPE I) OR 5'-0" (TYPE II)
EXTENSION 1'-0"
FIELD BENT
TOTAL INLET LENGTH
CURB INLET 3'-0" (TYPE I) OR 5'-0" (TYPE II)
EXTENSION 1'-0"
PERPENDICULAR
CONST. JOINT
BARS B
BARS B2
BARS F2
BARS A
BARS F1
BARS B1
* WIDTH VARIES WITH EXTENSION
SECTION A–A
CURB INLET 3'-0" (TYPE I) OR 5'-0" (TYPE II)
EXTENSION 1'-0"
FIELD BENT
BARS T1
BARS B1
BARS T2
BARS A
BARS B2
BARS F2
BARS B
* WIDTH VARIES WITH EXTENSION
* LOCATION OF STEPS IN CURB INLET SLOPED LANE TO BE PLACED OUTSIDE OF THE TRAVEL LANE AND SHALL COVER PLACEMENT STEPS @ 12" O.C.
SECTION B–B
REINFORCING STEEL
LOWER UNIT 10' X 3'-0" (TYPE I)
BAR NO. SIZE SPAC. LENGTH
A 10 #4 VARIES
B 5 #4 12" 4'-6"
T1 VARIES #4 12" 4'-0"
F1 20 #4 18"± VARIES
F2 9 #4 18"± VARIES
T2 VARIES #4 12"± 10'-10"
T3 5 #4 — 10'-10"
LOWER UNIT 10' X 5'-0" (TYPE II)
BAR NO. SIZE SPAC. LENGTH
A 14 #4 12" 6'-6"
B 5 #4 12" 6'-6"
T1 VARIES #4 12" 6'-0"
F1 20 #4 18"± VARIES
F2 9 #4 18"± VARIES
T2 VARIES #4 12"± 10'-10"
T3 5 #4 — 10'-10"
GENERAL NOTES
1. 5 INLETS AND 5 EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE II (L-5).
2. TYPE C-1A/L/T TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN-LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTORS INFORMATION ONLY.
4. CONCRETE FOR STRUCTURES SHALL BE CLASS "A" HIGH PRE'N. OR SIMS.
5. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
6. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 1 1/2".
7. ALL REINFORCING STEEL SHALL CONFORM TO A 615 M A-615, GRADE 60 REQUIREMENTS
8. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
9. ALL CURB INLET TOPS SHALL BE SLOPED TO SLOT FROM THE BACK OF INLET TO CONFORM TO PACE OF CURB LINE.
10. ALL BARS INTERCEPTING MANHOLE RING & COVER SHALL BE CUT OR BENT.
11. PAYMENT FOR ALL EXCAVATION, BACK-FILLING CONCRETE, REINFORCING STEEL, RING AND COVER, CURB ARMOR AND STEPS SHALL BE INCLUDED IN THE UNIT COST OF TYPE 410 CURB INLET AND EXTENSION.
12. SLOPE IRON MANHOLE RING AND COVER TO BE PLACED MEET TO OUTLET PIPE EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
13. GALVANIZED BOLTS, NUTS, WASHERS, PLATES, AND GASKETS ARE SUBSEQUENT TO INLETS.
14. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MEANS TO LIFT AND PLACE THE INLETS, WHEN USING PRECAST UNITS.
15. ALL BARS AT PIPE BLOCKOUT LOCATIONS SHALL BE CUT OR BENT.
16. ALL LOWER UNITS SHALL RECEIVE ROUGH BROOM SHAPING.
17. TYPE BLOCKOUTS IN INLET WALLS SHOULD NOT EXCEED 12" BEYOND THE OUTER SURFACE OF THE PIPE. IF THE BLOCKOUT EXCEEDS 12" FROM THE PIPE, AT NECESSARY CONSTRUCTION JOINT MAY BE TAKEN A MINIMUM OF 3".
PHASE CONSTRUCTION
NOTES FOR PHASE CONSTRUCTION (WORK DIRECTED BY THE ENGINEER):
1. THE CURB INLET AND EXTENSION SHALL BE CONSTRUCTED TO A DEPTH TWO BELOW THE INLET AND EXTENSION OUTLET LINE ELEVATION.
2. CAP THE CURB INLET AND EXTENSION WITH A STEEL PLATE.
3. REMOVE THE STEEL PLATE AND CONSTRUCT THE ROADWAY OVER THE PLATE.
4. WITHIN THE ROADWAY IS COMPLETED BUT PRIOR TO THE FINAL HMAC OVERLAY SAW CUT THE PAVEMENT REMOVE THE PLATE AND CONSTRUCT THE UPPER PORTION OF THE CURB INLET AND CUR EXTENSION.
FLOOR STEEL
WALL STEEL
PLAN
SECTION A–A
SECTION A1–A1
SECTION B–B
UPPER UNIT (SEE SHEET 2 OF 3 FOR DETAILS)
LOWER UNIT
BLOCKOUT WHERE REQUIRED FOR CURB INLET EXTENSION, TYPE I/ II
PRECAST UPPER UNIT & LOWER UNIT TO BE JOINED USING A NON-SHRINKAGE CONCRETE GROUT.
UPPER UNIT
GROUT
LOWER UNIT
JOINT DETAIL
WHEN USING PRECAST UPPER UNIT, TWO SPACE SLOTS FOR MAKING MINOR HORIZONTAL AND VERTICAL ADJUSTMENTS TO ACCOMMODATE ANY DIFFERENCE BETWEEN THE BACK OF CURB AND THE FACE OF A MATCH LINE AND GRADE BETWEEN THE ROADWAY CURB AND THE UPPER UNIT OF THE INLET.
BARS A
LOWER UNIT
CONCRETE INLET BOX CONFIGURATIONS (LOWER UNITS)
MAY 2009
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT
TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 1 OF 3
% SUBMITTAL PROJECT NO.: DATE:
DRAWN BY:S. VASQUEZ DRAWN BY:J.E. MALTOS, P.E. CHKD BY:S. HOBSON, P.E. SHEET NO.: OF:



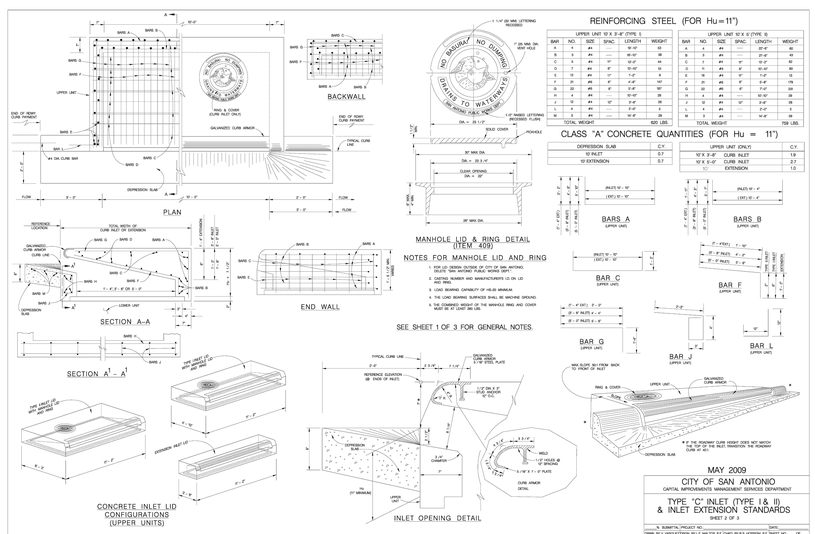
UPPER UNIT EXTENSION (FOR Hu = 11')

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	10'-3"	14
B	3	#4	—	14'-2"	28
C	3	#4	12"	10'-3"	26
D	3	#4	12"	10'-10"	22
E	6	#4	12"	11'-2"	5
F	20	#5	6"	3'-1"	93
G	22	#5	6"	3'-1"	70
H	4	#4	12"	10'-10"	29
J	10	#4	12"	3'-6"	39
L	5	#4	—	3'-1"	5
M	3	#4	—	14'-8"	29
REINFORCING STEEL				LBS.	387
CLASS "A" CONCRETE				C.Y.	1.0

LOWER UNIT EXTENSION

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	15	#4	12"	5'-1"	76
B	5	#4	12"	5'-1"	18
B_1	5	#4	12"	5'-1"	18
F_1	18	#4	18"±	5'-1"	77
F_2	6	#4	18"±	5'-1"	6
T_1	18	#4	18"±	10'-10"	116
T_2	5	#4	—	10'-10"	35
REINFORCING STEEL				LBS.	354
CLASS "A" CONCRETE				C.Y.	1.4

GENERAL NOTES
1. WHEN INLET EXTENSIONS ARE REQUIRED FOR ON GRADE INLETS THE EXTENSIONS SHALL BE PLACED ON THE UPSTREAM END OF THE INLET.
2. FOR CURB INLET EXTENSION REINFORCING STEEL NOTES SEE SHEET 1 OF 3 FOR GENERAL NOTES NOT FOUND ON THIS SHEET. REFER TO SHEETS 1 & 3.



REINFORCING STEEL (FOR Hu = 11')

UPPER UNIT 10' X 3'-0" (TYPE I)

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	18"±5"	10'-10"	53
B	3	#4	—	10'-10"	36
C	3	#4	12"	10'-10"	44
D	3	#4	12"	10'-10"	33
E	10	#4	12"	11'-2"	9
F	20	#5	6"	3'-1"	93
G	22	#5	6"	3'-1"	70
H	4	#4	12"	10'-10"	29
J	10	#4	12"	3'-6"	39
L	5	#4	—	3'-1"	5
M	3	#4	—	14'-8"	29
TOTAL WEIGHT					420 LBS.

UPPER UNIT 10' X 5'-0" (TYPE II)

BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	18"±5"	12'-6"	60
B	3	#4	—	12'-6"	42
C	3	#4	12"	12'-6"	51
D	3	#4	12"	12'-6"	38
E	16	#4	12"	11'-2"	15
F	20	#5	6"	3'-1"	93
G	22	#5	6"	3'-1"	70
H	4	#4	12"	12'-6"	33
J	10	#4	12"	3'-6"	39
L	6	#4	—	3'-1"	6
M	3	#4	—	14'-8"	29
TOTAL WEIGHT					756 LBS.

CLASS "A" CONCRETE QUANTITIES (FOR Hu = 11')

DEPRESSION SLAB	C.Y.
10' INLET	0.7
10' EXTENSION	0.7

UPPER UNIT (ONLY)	C.Y.
10' X 3'-0" CURB INLET	1.9
10' X 5'-0" CURB INLET EXTENSION	2.7
	1.0

NOTES FOR MANHOLE LID AND RING
1. FOR LID DESIGN SECTION BY CITY OF SAN ANTONIO, SEE STD. MH DETAIL PLATE, MOUNT DEPT.
2. CASTING NUMBER AND MANUFACTURER'S ID ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE STANDARD WEIGHT OF THE MANHOLE RING AND COVER MUST BE 97 LBMT 280 LBS.

SEE SHEET 1 OF 3 FOR GENERAL NOTES.

GENERAL NOTES
1. E INLETS AND 5 EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE II (L-5).
2. TYPE C-1A/L/T TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN-LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTORS INFORMATION ONLY.
4. CONCRETE FOR STRUCTURES SHALL BE CLASS "A" HIGH PRE'N. OR SIMS.
5. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
6. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 1 1/2".
7. ALL REINFORCING STEEL SHALL CONFORM TO A 615 M A-615, GRADE 60 REQUIREMENTS
8. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
9. ALL CURB INLET TOPS SHALL BE SLOPED TO SLOT FROM THE BACK OF INLET TO CONFORM TO PACE OF CURB LINE.
10. ALL BARS INTERCEPTING MANHOLE RING & COVER SHALL BE CUT OR BENT.
11. PAYMENT FOR ALL EXCAVATION, BACK-FILLING CONCRETE, REINFORCING STEEL, RING AND COVER, CURB ARMOR AND STEPS SHALL BE INCLUDED IN THE UNIT COST OF TYPE 410 CURB INLET AND EXTENSION.
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15. ALL BARS AT PIPE BLOCKOUT LOCATIONS SHALL BE CUT OR BENT.
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MAY 2009
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT
TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 2 OF 3
% SUBMITTAL PROJECT NO.: DATE:
DRAWN BY:S. VASQUEZ DRAWN BY:J.E. MALTOS, P.E. CHKD BY:S. HOBSON, P.E. SHEET NO.: OF:

CUDEENGINEERS.COM
CUDE ENGINEERS
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

REGENT PARK UNIT 9

CITY OF BOERNE - - DRAINAGE STANDARD DETAILS

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 12/18/2024 - UPDATE TO CURRENT CoB DETAILS
2.
3.
4.
5.
6.
7.
8.

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
N/A

C22

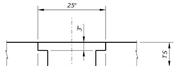
22 OF 24

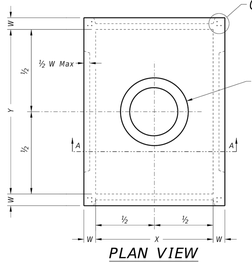
P:\02133.160\3-Drawings\C22 CITY OF BOERNE - DRAINAGE STANDARD DETAILS.dwg 2025-03-06 5:50pm mswanson

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

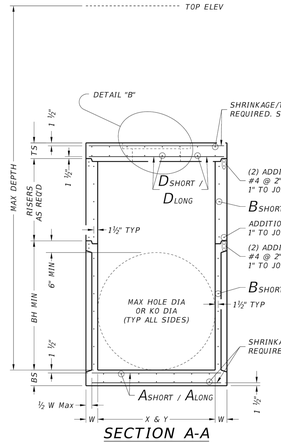
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DETAIL "B"





PLAN VIEW



SECTION A-A

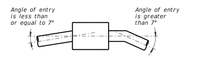
FABRICATION NOTES:
1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1 ½" to reinforcing steel at interior or exterior walls.
4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
5. No substitution is allowed for vertical and horizontal #4 bars in corners.
6. Manufacture base and risers to nearest 3" increment.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ½".
8. Provide lifting devices in conformance with Manufacturer's recommendations.
9. See sheet PDD for sizes, dimensions, and reinforcing steel not shown.
10. Provide hole in below grade slab only when PJB is installed with inlet type POD.

INSTALLATION NOTES:
1. Joints (field joining) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to junction box.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
5. For flexible pipe, consult bedding/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:
1. Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PDD for sizes.
2. Designed according to ASTM C913.
3. Payment for junction box is per Item 465 "Junction Boxes, Manholes, and Inlets" by type and size.

Cover dimensions are clear dimensions, unless noted otherwise.

PIPE CONNECTION DETAIL



Connect pipes within 7° of normal to PJB wall.
If necessary, use pipe elbow or curved approach alignment to stay within this limit.

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Texas Department of Transportation | Bridge Division Standard

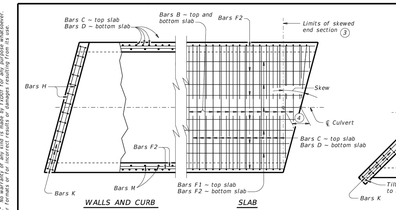
PRECAST JUNCTION BOX

PJB

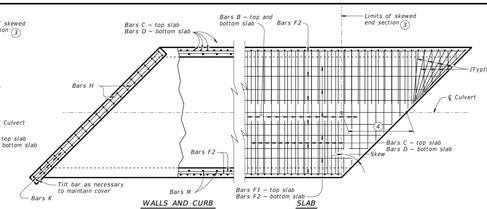
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REVISIONS	DIST	COUNTY		SHEET NO.

DATE:
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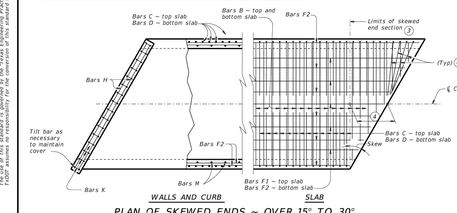
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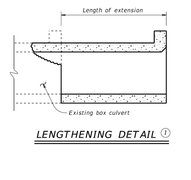
PLAN OF SKEWED ENDS ~ FROM 0° TO 15° 7



PLAN OF SKEWED ENDS ~ OVER 30° TO 45°



PLAN OF SKEWED ENDS ~ OVER 15° TO 30°



LENGTHENING DETAIL 7

1. For skewed box culverts with less than 2'-0" of fill, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars in the extension.
   For non-skewed box culverts with less than 2'-0" of fill and for skewed or non-skewed culverts with a fill depth of 2'-0" or greater, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension. Where the top slab of the box is non-reinforced, embed #6 anchor bars with a Type (II, C, D , E, or F anchor adhesive into the existing walls, top and bottom slab at 1'-6" center-to-center spacing. Minimum embedment depth is 8". Anchor adhesive chosen must be able to achieve a basic bond strength in tension, N_{sa}, of 26.4 kips. Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing." Test adhesive anchors in accordance with Item 450.3.3, "Tests." Test 3 anchors per 100 anchors installed.
   Clean and extend the exposed top slab to install the extension. Clean and extend the exposed wingwall and apron reinforcing into the extension. When lengthening existing box culverts with dimensions different than current standard dimensions, form horizontal and vertical transitions as directed by the Engineer. Match bottom slabs to maintain an uninterrupted flow line. Field bend existing and new reinforcing into transitions and maintain specified cover requirements. For top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface, adjust the "H" dimension to provide a smooth riding surface.
2. When the spacing between Bars B becomes less than half of the normal spacing, cut bars to avoid conflict.
3. The length of Bars B vary in the skewed end sections.
4. (One half of overall width) x (tangent of the skew angle)
5. Place Bars F1 and F2 continuously through the angle section. Bend Bars F1 and F2 to remain parallel to the walls of the box culvert.
6. When necessary to avoid conflict in acute corners, shorten the slab extension leg of Bars C and Bars D to a minimum of 1'-6" for skews of 30° thru 45°.
7. At the Contractor's option, for skews of 15° or less, place Bars B, C, and D parallel to the skewed end while maintaining spacing along centerline of box. Increase lengths of Bars B shown on the Single Box Culverts Cast-In-Place (SCC) standards sheets to accommodate the skew.

CONSTRUCTION NOTES:
Do not use permanent forms.
When required, lap Bars H 1'-8" for uncoated or galvanized bars.
Provide a minimum of 1 ½" clear cover.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel, if required elsewhere in the plans.
Provide Class C concrete (f'_c = 4,000 psi) with these exceptions:
provide Class S concrete (f'_c = 4,000 psi) for top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to Single Box Culverts Cast-in-Place (SCC) standard sheets for details of straight wingwalls.
For skewed sections and angle sections, refer to Single Box Culverts Cast-in-Place (SCC) standard sheets for slab and wall dimensions, bar sizes, maximum bar spacing, and any other details not shown.
For skewed ends with curbs, adjust length of Bars H, number of Bars K, curb concrete volume, and reinforcing steel weight by dividing the values shown on the culvert Single Box Culverts Cast-In-Place (SCC) standard sheets by the cosine of the skew angle.

Cover dimensions are clear dimensions, unless noted otherwise.

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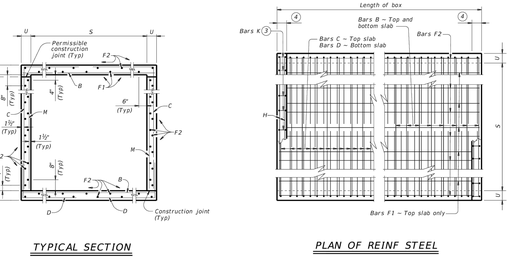
SINGLE BOX CULVERTS
CAST-IN-PLACE
MISCELLANEOUS DETAILS

SCC-MD

File: CD-SCC-MD-20.dgn	dn: TxDOT	ck: TxDOT	dw: TxDOT	ck: TxDOT
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TYPICAL SECTION

PLAN OF REINF STEEL

1. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details For T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
2. For vehicle safety, the following requirements must be met:
   - For structures without bridge rail, construct curbs no more than 3" above finished grade.
   - For structures with bridge rail, construct curbs flush with finished grade.
   Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
3. For curbs less than 1'-0" high, till Bars K or reduce bar height as necessary to maintain cover. For curbs less than 1'-0" high, see Fabrication Note 5.
4. 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, H, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Splices in the WWR shall be staggered. Where a splice is required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.
Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

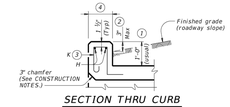
CONSTRUCTION NOTE:
Do not use permanent forms.
Chamfer the bottom edge of the top slab 3" at the entrance.
Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Provide Class C concrete (f'_c = 4,000 psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete (f'_c = 4,000 psi) for top slabs of:
- culverts with overlay,
- culverts with 1-to-2 course surface treatment, or
- culverts with the top slab as the final riding surface.

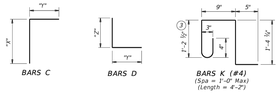
Provide bar laps, where required, as follows:
- Uncoated or galvanized – #4 = 1'-8" Min
- Uncoated or galvanized – #5 = 2'-1" Min
- Uncoated or galvanized – #6 = 2'-6" Min

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
See the Single Box Culverts Cast-In-Place Miscellaneous Detail (SCC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

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



SECTION THRU CURB



HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS
CAST-IN-PLACE
0' TO 30' FILL

SCC-5 & 6

File: CD-SCC56-21.dgn	dn: TxDOT	ck: BWP	dw: TxDOT	ck: TxDOT
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REVISIONS	DIST	COUNTY		SHEET NO.
04/2021 Updated X values.				

DATE:
FILE:

DISCLAIMER:
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BILLS OF REINFORCING STEEL (For Box Length = 40 feet)

SECTION DIMENSIONS			FILL HEIGHT 5	Bars B				Bars C						Bars D						Bars M – #4				Bars F1 – #4 at 18" Spa				Bars F2 – #4 at 18" Spa				Bars H 4 – #4		Bars K		QUANTITIES Per Foot of Barrel		Curb		Total	
				No.	Size	Spa	Length	Weight	No.	Size	Spa	Length	" X "	" Y "	No.	Size	Spa	Length	Weight	" Y "	" Z "	No.	Spa	Length	Weight	No.	Length	Wt	No.	Length	Wt	No.	Length	Wt	No.	Wt	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
S	H	T	U																																						
5'-0"	2'-0"	8"	7"	26	108	#6	9"	5'-11"	960	108	#5	9"	6'-3"	704	2'-6"	3'-9"	108	#5	9"	6'-5"	723	3'-9"	2'-8"	108	9"	2'-0"	144	4	39'-9"	106	22	39'-9"	584	5'-11"	16	14	39	0.391	80.5	0.5	55	16.1	3,276
5'-0"	2'-0"	9"	7"	30	108	#6	9"	5'-11"	960	108	#5	9"	6'-4"	713	2'-7"	3'-9"	108	#5	9"	6'-6"	732	3'-9"	2'-9"	108	9"	2'-0"	144	4	39'-9"	106	22	39'-9"	584	5'-11"	16	14	39	0.429	81.0	0.5	55	17.6	3,294
5'-0"	3'-0"	8"	7"	26	108	#6	9"	5'-11"	960	108	#5	9"	7'-3"	817	3'-6"	3'-9"	108	#5	9"	6'-5"	723	3'-9"	2'-8"	108	9"	3'-0"	216	4	39'-9"	106	26	39'-9"	690	5'-11"	16	14	39	0.434	87.8	0.5	55	17.8	3,567
5'-0"	3'-0"	9"	7"	30	108	#6	9"	5'-11"	960	108	#5	9"	7'-4"	826	3'-7"	3'-9"	108	#5	9"	6'-6"	732	3'-9"	2'-9"	108	9"	3'-0"	216	4	39'-9"	106	26	39'-9"	690	5'-11"	16	14	39	0.472	88.3	0.5	55	19.3	3,585
5'-0"	4'-0"	8"	7"	26	108	#6	9"	5'-11"	960	108	#5	9"	8'-3"	929	4'-6"	3'-9"	108	#5	9"	6'-5"	723	3'-9"	2'-8"	108	9"	4'-0"	289	4	39'-9"	106	26	39'-9"	690	5'-11"	16	14	39	0.477	92.4	0.5	55	19.5	3,752
5'-0"	4'-0"	9"	7"	30	108	#6	9"	5'-11"	960	108	#5	9"	8'-4"	939	4'-7"	3'-9"	108	#5	9"	6'-6"	732	3'-9"	2'-9"	108	9"	4'-0"	289	4	39'-9"	106	26	39'-9"	690	5'-11"	16	14	39	0.515	92.9	0.5	55	21.1	3,771
5'-0"	5'-0"	8"	7"	26	108	#6	9"	5'-11"	960	108	#5	9"	9'-3"	1,042	5'-6"	3'-9"	108	#5	9"	6'-5"	723	3'-9"	2'-8"	108	9"	5'-0"	361	4	39'-9"	106	30	39'-9"	797	5'-11"	16	14	39	0.521	99.7	0.5	55	21.3	4,044
5'-0"	5'-0"	9"	7"	30	108	#6	9"	5'-11"	960	108	#5	9"	9'-4"	1,051	5'-7"	3'-9"	108	#5	9"	6'-6"	732	3'-9"	2'-9"	108	9"	5'-0"	361	4	39'-9"	106	30	39'-9"	797	5'-11"	16	14	39	0.559	100.2	0.5	55	22.8	4,062
6'-0"	2'-0"	8"	7"	20	108	#6	9"	6'-11"	1,122	108	#5	9"	6'-7"	742	2'-6"	4'-1"	108	#5	9"	6'-9"	760	4'-1"	2'-8"	108	9"	2'-0"	144	5	39'-9"	133	25	39'-9"	664	6'-11"	18	16	45	0.440	89.1	0.5	63	18.1	3,628
6'-0"	2'-0"	9"	7"	26	108	#6	9"	6'-11"	1,122	162	#5	6"	6'-8"	1,126	2'-7"	4'-1"	162	#5	6"	6'-10"	1,155	4'-1"	2'-9"	108	9"	2'-0"	144	5	39'-9"	133	25	39'-9"	664	6'-11"	18	16	45	0.485	108.6	0.5	63	19.9	4,407
6'-0"	2'-0"	10"	8"	30	108	#6	9"	7'-1"	1,149	162	#5	6"	6'-10"	1,155	2'-8"	4'-2"	162	#5	6"	7'-0"	1,183	4'-2"	2'-10"	82	12"	2'-0"	110	5	39'-9"	133	25	39'-9"	664	7'-1"	19	18	50	0.551	109.9	0.5	69	22.6	4,463
6'-0"	3'-0"	8"	7"	20	108	#6	9"	6'-11"	1,122	108	#5	9"	7'-7"	854	3'-6"	4'-1"	108	#5	9"	6'-9"	760	4'-1"	2'-8"	108	9"	3'-0"	216	5	39'-9"	133	29	39'-9"	770	6'-11"	18	16	45	0.484	96.4	0.5	63	19.9	3,918
6'-0"	3'-0"	9"	7"	26	108	#6	9"	6'-11"	1,122	162	#5	6"	7'-8"	1,295	3'-7"	4'-1"	162	#5	6"	6'-10"	1,155	4'-1"	2'-9"	108	9"	3'-0"	216	5	39'-9"	133	29	39'-9"	770	6'-11"	18	16	45	0.528	117.3	0.5	63	21.6	4,754
6'-0"	3'-0"	10"	8"	30	108	#6	9"	7'-1"	1,149	162	#5	6"	7'-10"	1,324	3'-8"	4'-2"	162	#5	6"	7'-0"	1,183	4'-2"	2'-10"	82	12"	3'-0"	164	5	39'-9"	133	29	39'-9"	770	7'-1"	19	18	50	0.601	118.1	0.5	69	24.6	4,792
6'-0"	4'-0"	8"	7"	20	108	#6	9"	6'-11"	1,122	108	#5	9"	8'-7"	967	4'-6"	4'-1"	108	#5	9"	6'-9"	760	4'-1"	2'-8"	108	9"	4'-0"	289	5	39'-9"	133	29	39'-9"	770	6'-11"	18	16	45	0.527	101.0	0.5	63	21.6	4,704
6'-0"	4'-0"	9"	7"	26	108	#6	9"	6'-11"	1,122	162	#5	6"	8'-8"	1,464	4'-7"	4'-1"	162	#5	6"	6'-10"	1,155	4'-1"	2'-9"	108	9"	4'-0"	289	5	39'-9"	133	29	39'-9"	770	6'-11"	18	16	45	0.571	123.3	0.5	63	23.4	4,996
6'-0"	4'-0"	10"	8"	30	108	#6	9"	7'-1"	1,149	162	#5	6"	8'-10"	1,493	4'-8"	4'-2"	162	#5	6"	7'-0"	1,183	4'-2"	2'-10"	82	12"	4'-0"	219	5	39'-9"	133	29	39'-9"	770	7'-1"	19	18	50	0.650	123.7	0.5	69	26.5	5,016
6'-0"	5'-0"	8"	7"	20	108	#6	9"	6'-11"	1,122	108	#5	9"	9'-7"	1,080	5'-6"	4'-1"	108	#5	9"	6'-9"	760	4'-1"	2'-8"	108	9"	5'-0"	361	5	39'-9"	133	33	39'-9"	876	6'-11"	18	16	45	0.570	108.3	0.5	63	23.3	4,395
6'-0"	5'-0"	9"	7"	26	108	#6	9"	6'-11"	1,122	162	#5	6"	9'-8"	1,633	5'-7"	4'-1"	162	#5	6"	6'-10"	1,155	4'-1"	2'-9"	108	9"	5'-0"	361	5	39'-9"	133	33	39'-9"	876	6'-11"	18	16	45	0.614	132.0	0.5	63	25.1	5,343
6'-0"	5'-0"	10"	8"	30	108	#6	9"	7'-1"	1,149	162	#5	6"	9'-10"	1,661	5'-8"	4'-2"	162	#5	6"	7'-0"	1,183	4'-2"	2'-10"	82	12"	5'-0"	274	5	39'-9"	133	33	39'-9"	876	7'-1"	19	18	50	0.700	131.9	0.5	69	28.5	5,345
6'-0"	6'-0"	8"	7"	20	108	#6	9"	6'-11"	1,122	108	#5	9"	10'-7"	1,192	6'-6"	4'-1"	108	#5	9"	6'-9"	760	4'-1"	2'-8"	108	9"	6'-0"	433	5	39'-9"	133	37	39'-9"	982	6'-11"	18	16	45	0.613	115.6	0.5	63	25.0	4,685
6'-0"	6'-0"	9"	7"	26	108	#6	9"	6'-11"	1,122	162	#5	6"	10'-8"	1,802	6'-7"	4'-1"	162	#5	6"	6'-10"	1,155	4'-1"	2'-9"	108	9"	6'-0"	433	5	39'-9"	133	37	39'-9"	982	6'-11"	18	16	45	0.657	140.7	0.5	63	26.8	5,690
6'-0"	6'-0"	10"	8"	30	108	#6	9"	7'-1"	1,149	162	#5	6"	10'-10"	1,830	6'-8"	4'-2"	162	#5	6"	7'-0"	1,183	4'-2"	2'-10"	82	12"	6'-0"	329	5	39'-9"	133	37	39'-9"	982	7'-1"	19	18	50	0.749	140.2	0.5	69	30.5	5,675

5 For direct tra c culverts (II height ≤ 2 ft.), identify the required box size and select the option with the minimum II height.

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS
CAST-IN-PLACE
0' TO 30' FILL

SCC-5 & 6

File: CD-SCC56-21.dgn	dn: TxDOT	ck: BWP	dw: TxDOT	ck: TxDOT
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REVISIONS	DIST	COUNTY		SHEET NO.
04/2021 Updated X values.				

CUDEENGINEERS.COM
EST. 1980 CUDE ENGINEERS
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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

REGENT PARK
UNIT 9

SINGLE BOX CULVERTS CAST-IN-PLACE
DRAINAGE DETAILS

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1.
2.
3.
4.
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7.
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

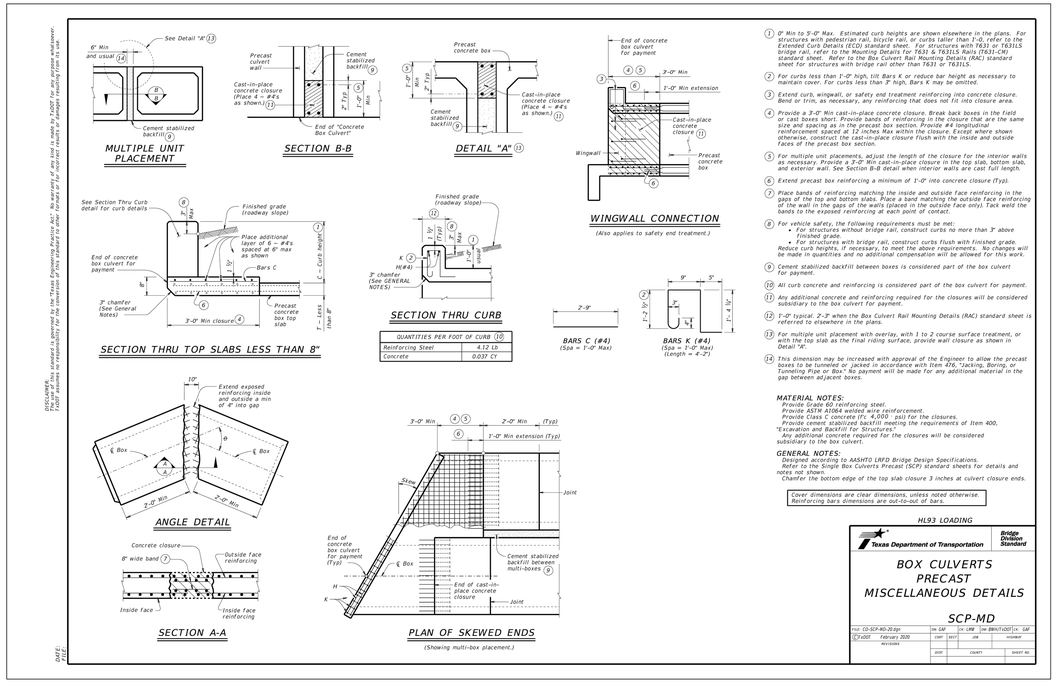
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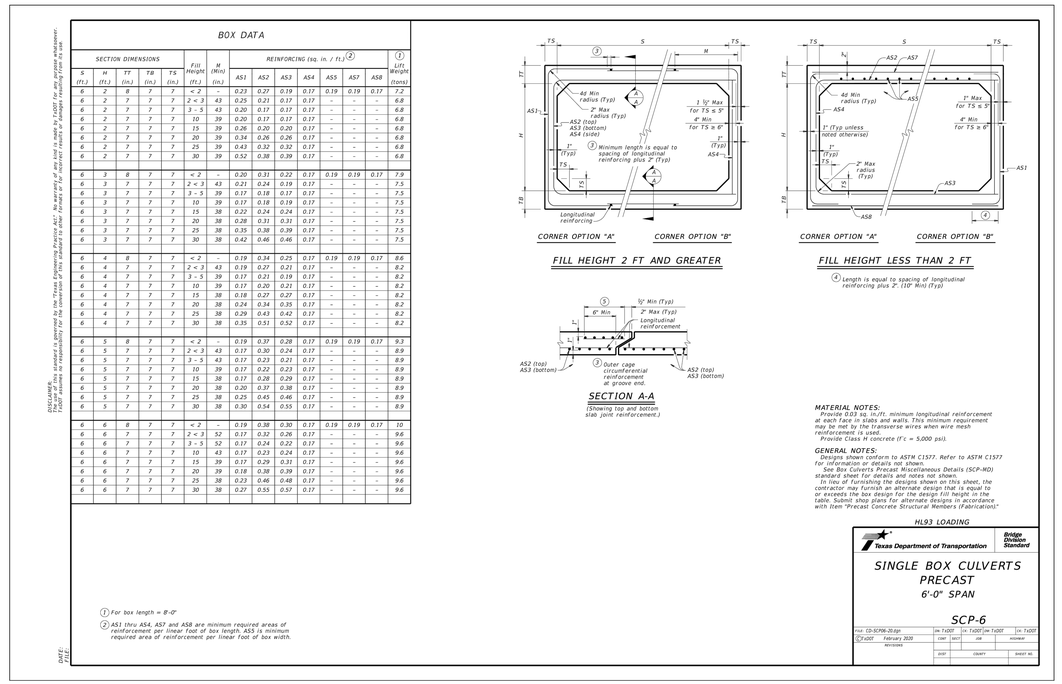
C22A

22A OF 24

P:\02133\001 Drawings\C22A SINGLE BOX CULVERTS CAST-IN-PLACE DRAINAGE DETAILS.dwg 2/25/2021,04:41:01 pm mswikhoff

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CUDEENGINEERS.COM
CUDE ENGINEERS
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
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REGENT PARK
UNIT 9

SINGLE BOX CULVERTS PRE-CAST DRAINAGE DETAILS

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1.
2.
3.
4.
5.
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7.
8.

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
N/A

C22B

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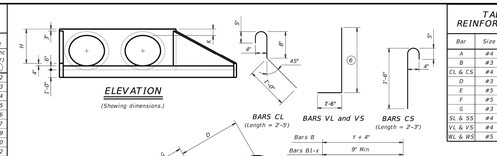
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

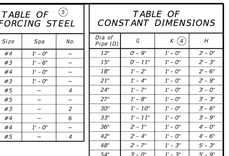
TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (3)

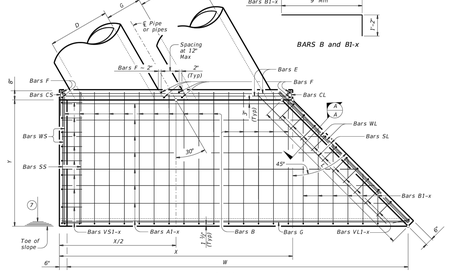
Slope	Dia of Pipe (D)	Values for One Pipe W	X	Y	L	Reinf (Lbs) (1)	Conc (CY) (2)	Values to be Added for Each Addt'l Pipe X and W	Reinf (Lbs) (1)	Conc (CY) (2)
2:1	12"	4'-9"	3'-1 1/2"	2'-10"	4'-0"	94	0.6	2'-0 1/2"	22	0.2
	15"	5'-6 5/8"	3'-5 1/2"	3'-4"	4'-8 1/2"	106	0.8	2'-0"	28	0.3
	18"	6'-4 3/8"	3'-9 1/2"	3'-10"	5'-5"	133	0.9	2'-1"	41	0.4
	21"	7'-2 1/8"	4'-1 1/2"	4'-4"	6'-1 1/2"	150	1.1	2'-6 1/2"	47	0.5
	24"	8'-2 1/2"	4'-7"	4'-10"	6'-10"	170	1.4	4'-1 1/2"	57	0.6
	27"	9'-0 1/2"	4'-11"	5'-4"	7'-6 1/2"	184	1.6	4'-6 1/2"	62	0.7
	30"	9'-10 1/2"	5'-3"	5'-10"	8'-3"	218	1.8	5'-0"	72	0.9
	33"	10'-8 3/8"	5'-7"	6'-4"	8'-11 1/2"	233	2.1	5'-4 5/8"	79	1.0
	36"	11'-6 3/4"	5'-11 1/2"	6'-10"	9'-8"	258	2.4	5'-10 1/2"	90	1.2
	42"	13'-2 5/8"	6'-3 1/2"	7'-10"	11'-1"	312	3.0	6'-8 5/8"	109	1.5
	48"	15'-4 3/8"	7'-3 1/2"	9'-4"	13'-2 1/2"	379	4.0	7'-7 1/2"	142	2.0
	54"	17'-1"	7'-11 1/2"	10'-4"	14'-7 1/2"	441	4.7	8'-0 8"	170	2.5
	60"	18'-9"	8'-3 1/2"	11'-4"	16'-0 1/2"	496	5.6	9'-6 1/2"	194	2.9
	66"	20'-5"	9'-3 1/2"	12'-4"	17'-5 1/2"	564	6.5	10'-1 1/2"	217	3.3
	72"	22'-1 1/2"	9'-11 1/2"	13'-4"	18'-10 1/2"	628	7.5	10'-9 1/2"	239	3.7
3:1	12"	6'-2"	3'-1 1/2"	4'-3"	6'-0"	122	0.9	2'-0 1/2"	24	0.3
	15"	7'-2 3/8"	3'-5 1/2"	5'-0"	7'-0 5/8"	146	1.1	2'-6"	31	0.4
	18"	8'-3 3/8"	3'-9 1/2"	5'-9"	8'-1 1/2"	183	1.4	3'-1"	46	0.5
	21"	9'-4 5/8"	4'-1 1/2"	6'-6"	9'-2 1/2"	203	1.7	3'-6 1/2"	53	0.7
	24"	10'-7 1/2"	4'-7"	7'-3"	10'-3"	233	2.1	4'-1 1/2"	65	0.8
	27"	11'-8 1/2"	4'-11"	8'-0"	11'-3 1/2"	261	2.4	4'-6 1/2"	75	1.0
	30"	12'-9 1/2"	5'-3"	8'-9"	12'-4 1/2"	304	2.8	5'-0"	86	1.2
	33"	13'-10 3/8"	5'-7"	9'-6"	13'-5 1/2"	330	3.2	5'-4 5/8"	94	1.3
	36"	14'-11 3/4"	5'-11 1/2"	10'-3"	14'-6"	363	3.7	5'-10 1/2"	108	1.5
	42"	17'-1 5/8"	6'-7 1/2"	11'-9"	16'-7 1/2"	449	4.6	6'-8 1/2"	133	2.0
	48"	20'-0 3/8"	7'-3 1/2"	14'-0"	19'-9 1/2"	552	6.2	7'-7 1/2"	176	2.7
	54"	22'-3"	7'-11 1/2"	15'-6"	21'-11"	638	7.5	8'-0 8"	211	3.3
	60"	24'-5"	8'-7 1/2"	17'-0"	24'-0 1/2"	737	8.9	9'-6 1/2"	246	3.9
	66"	26'-7"	9'-3 1/2"	18'-6"	26'-2"	835	10.4	10'-1 1/2"	274	4.5
	72"	28'-9 5/8"	9'-11 1/2"	20'-0"	28'-3 1/2"	944	12.0	10'-9 1/2"	309	5.1
4:1	12"	7'-7"	3'-1 1/2"	5'-3"	8'-0 1/2"	160	1.2	2'-0 1/2"	32	0.4
	15"	8'-10 3/8"	3'-5 1/2"	6'-8"	9'-5 1/2"	187	1.5	2'-6"	36	0.5
	18"	10'-2 3/8"	3'-9 1/2"	7'-8"	10'-10"	232	1.9	3'-1"	52	0.6
	21"	11'-6 5/8"	4'-1 1/2"	8'-8"	12'-3"	270	2.3	3'-6 1/2"	63	0.8
	24"	13'-0 1/2"	4'-7"	9'-8"	13'-8"	307	2.8	4'-1 1/2"	75	1.0
	27"	14'-4 1/2"	4'-11"	10'-8"	15'-1"	345	3.4	4'-6 1/2"	87	1.2
	30"	15'-8 1/2"	5'-3"	11'-6"	16'-6"	400	3.9	5'-0"	99	1.4
	33"	17'-0 3/8"	5'-7"	12'-8"	17'-11"	440	4.5	5'-4 5/8"	112	1.7
	36"	18'-4 3/4"	5'-11 1/2"	13'-8"	19'-4"	487	5.2	5'-10 1/2"	128	1.9
	42"	21'-0 5/8"	6'-7 1/2"	15'-8"	22'-1 1/2"	595	6.6	6'-8 1/2"	158	2.5
	48"	24'-0 3/8"	7'-3 1/2"	18'-8"	26'-4 1/2"	748	8.9	7'-7 1/2"	211	3.3
	54"	27'-5"	7'-11 1/2"	20'-8"	29'-2 1/2"	883	10.8	8'-0 8"	257	4.1
	60"	30'-1"	8'-7 1/2"	22'-8"	32'-0 1/2"	1,011	12.8	9'-6 1/2"	297	4.8
	66"	32'-9"	9'-3 1/2"	24'-8"	34'-10 1/2"	1,153	14.8	10'-1 1/2"	340	5.6
	72"	35'-5 3/4"	9'-11 1/2"	26'-8"	37'-8 1/2"	1,304	17.3	10'-9 1/2"	378	6.4
6:1	12"	10'-5"	3'-1 1/2"	8'-6"	12'-0 1/2"	208	1.7	2'-2"	35	0.5
	15"	12'-2 3/8"	3'-5 1/2"	10'-0"	14'-1 1/2"	277	2.5	2'-6"	43	0.6
	18"	14'-0 3/8"	3'-9 1/2"	11'-6"	16'-3 1/2"	340	3.2	3'-1"	61	0.8
	21"	15'-10 1/2"	4'-1 1/2"	13'-0"	18'-4 1/2"	402	3.9	3'-6 1/2"	76	1.1
	24"	17'-10 1/2"	4'-7"	14'-6"	20'-6"	456	4.8	4'-1 1/2"	91	1.4
	27"	19'-8 1/2"	4'-11"	16'-0"	22'-7 1/2"	525	5.7	4'-6 1/2"	108	1.6
	30"	21'-6 1/2"	5'-3"	17'-6"	24'-9"	601	6.6	5'-0"	124	2.0
	33"	23'-4 3/8"	5'-7"	19'-0"	26'-10 1/2"	682	7.7	5'-4 5/8"	143	2.3
	36"	25'-2 3/4"	5'-11 1/2"	20'-6"	29'-0"	745	8.8	5'-10 1/2"	162	2.7
	42"	28'-10 5/8"	6'-7 1/2"	23'-6"	33'-2 1/2"	908	11.3	6'-8 1/2"	202	3.5
	48"	34'-0 3/8"	7'-3 1/2"	28'-0"	39'-7 1/2"	1,199	15.5	7'-7 1/2"	274	4.6

DISCLAIMER:
The use of this standard is governed by the Texas Engineering Practice Act. No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
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PLAN

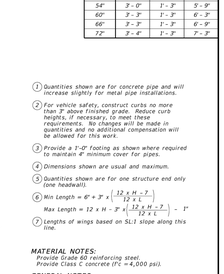


TABLE OF REINFORCING STEEL (5)

Bar	Size	Spa	No.
A	#4	1'-0"	–
B	#3	1'-6"	–
CL & CS	#4	1'-0"	–
D	#3	1'-0"	–
E	#3	–	2
F	#5	–	4
G	#3	–	2
SL & SS	#4	–	6
VL & VS	#4	1'-0"	–
WL & WS	#5	–	4

TABLE OF CONSTANT DIMENSIONS

Dia of Pipe (D)	G	K (4)	H
12"	0'-9"	1'-0"	2'-0"
15"	0'-11"	1'-0"	2'-3"
18"	1'-2"	1'-0"	2'-6"
21"	1'-4"	1'-0"	2'-9"
24"	1'-7"	1'-0"	3'-0"
27"	1'-8"	1'-0"	3'-3"
30"	1'-10"	1'-0"	3'-6"
33"	1'-11"	1'-0"	3'-9"
36"	2'-1"	1'-0"	4'-0"
42"	2'-4"	1'-0"	4'-6"
48"	2'-7"	1'-3"	5'-3"
54"	3'-0"	1'-3"	5'-9"
60"	3'-3"	1'-3"	6'-3"
66"	3'-3"	1'-3"	6'-9"
72"	3'-4"	1'-3"	7'-3"

(1) Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

(2) For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(3) Provide a 1'-0" footing as shown where required to maintain 4" minimum cover for pipes.

(4) Dimensions shown are usual and maximum.

(5) Quantities shown are for one structure end only (one headwall).

(6) Min Length = $6' + 3' \times \left(\frac{12 \times H - 7}{12 \times L}\right)$

Max Length = $12 \times H - 3' \times \left(\frac{12 \times H - 7}{12 \times L}\right) - 1'$

(7) Lengths of wings based on SL:1 slope along this line.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'c = 4,000 psi).

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

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

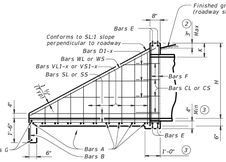
Texas Department of Transportation | Bridge Division Standard

CONCRETE HEADWALLS WITH FLARED WINGS FOR 30° SKEW PIPE CULVERTS

CH-FW-30

File: CD-CH-FW30-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

TYPICAL WING ELEVATION



SECTION A-A

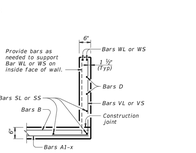
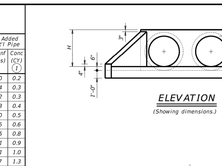


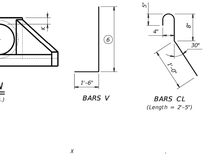
TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (3)

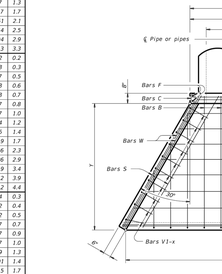
Slope	Dia of Pipe (D)	Values for One Pipe W	X	Y	L	Reinf (Lbs) (1)	Conc (CY) (2)	Values to be Added for Each Addt'l Pipe X and W	Reinf (Lbs) (1)	Conc (CY) (2)
2:1	12"	4'-7 5/8"	2'-6"	2'-10"	3'-3 1/2"	88	0.6	1'-9"	20	0.2
	15"	5'-5 3/8"	2'-9 1/2"	3'-4"	3'-10 1/2"	103	0.7	2'-2"	24	0.3
	18"	6'-4 3/8"	3'-1"	3'-10"	4'-5"	120	0.9	2'-7"	33	0.3
	21"	7'-2 1/8"	3'-4 1/2"	4'-4"	5'-0"	143	1.1	3'-1"	43	0.4
	24"	8'-2 1/2"	3'-9 1/2"	4'-10"	5'-7"	164	1.3	3'-7"	50	0.5
	27"	9'-1"	4'-1"	5'-4"	6'-2"	179	1.5	3'-11"	56	0.6
	30"	9'-11 1/2"	4'-4 1/2"	5'-10"	6'-8 1/2"	203	1.7	4'-4"	65	0.8
	33"	10'-10"	4'-8"	6'-4"	7'-3 1/2"	224	2.0	4'-8"	71	0.9
	36"	11'-8 1/2"	4'-11 1/2"	6'-10"	7'-10 1/2"	249	2.2	5'-1"	81	1.0
	42"	13'-5 1/2"	5'-6 1/2"	7'-10"	9'-0 1/2"	298	2.8	5'-10"	97	1.3
	48"	15'-3"	6'-1 1/2"	9'-4"	10'-9 1/2"	360	3.8	6'-7"	117	1.7
	54"	17'-1 5/8"	6'-8 1/2"	10'-4"	11'-11 1/2"	427	4.5	7'-6"	131	2.1
	60"	19'-2 1/2"	7'-3 1/2"	11'-4"	13'-1"	481	5.3	8'-3"	174	2.5
	66"	20'-11 1/2"	7'-10 1/2"	12'-4"	14'-2"	544	6.2	8'-9"	194	2.9
	72"	22'-8 1/2"	8'-5 1/2"	13'-4"	15'-4 1/2"	601	7.1	9'-4"	213	3.3
3:1	12"	6'-3"	2'-6"	4'-3"	4'-11"	118	0.8	1'-9"	22	0.2
	15"	7'-3"	2'-9 1/2"	5'-0"	5'-9 1/2"	137	1.1	2'-2"	28	0.3
	18"	8'-3 1/2"	3'-1"	5'-9"	6'-7 1/2"	170	1.3	2'-8"	37	0.5
	21"	9'-4 1/2"	3'-4 1/2"	6'-6"	7'-6"	195	1.6	3'-1"	48	0.6
	24"	11'-0"	3'-9 1/2"	7'-3"	8'-4 1/2"	227	2.0	3'-7"	58	0.7
	27"	12'-2"	4'-1"	8'-0"	9'-2 1/2"	251	2.3	3'-11"	67	0.8
	30"	13'-4"	4'-4 1/2"	8'-9"	10'-1 1/2"	293	2.7	4'-4"	77	1.0
	33"	14'-5 3/8"	4'-8"	9'-4"	10'-9 1/2"	318	3.1	4'-8"	84	1.2
	36"	15'-7 1/8"	4'-11 1/2"	10'-3"	11'-10"	351	3.5	5'-1"	96	1.4
	42"	17'-11 1/2"	5'-6 1/2"	11'-9"	13'-6 1/2"	432	4.5	5'-10"	119	1.7
	48"	20'-3"	6'-1 1/2"	14'-0"	16'-2"	537	6.1	6'-7"	146	2.3
	54"	23'-5 1/2"	6'-8 1/2"	15'-6"	17'-10 1/2"	630	7.3	7'-6"	186	2.9
	60"	25'-9 1/2"	7'-3 1/2"	17'-0"	19'-7 1/2"	719	8.7	8'-3"	219	3.4
	66"	28'-1"	7'-10 1/2"	18'-2"	21'-4 1/2"	811	10.1	8'-9"	242	3.9
	72"	30'-4 1/2"	8'-5 1/2"	20'-0"	23'-1 1/2"	924	11.7	9'-4"	272	4.5
4:1	12"	7'-10 3/4"	2'-6"	5'-8"	6'-6 1/2"	148	1.1	1'-9"	24	0.3
	15"	9'-4"	2'-9 1/2"	6'-8"	7'-8 1/2"	183	1.5	2'-2"	32	0.4
	18"	10'-9 1/2"	3'-1"	7'-8"	8'-10 1/2"	221	1.9	2'-8"	42	0.5
	21"	12'-2 3/8"	3'-4 1/2"	8'-8"	10'-0"	260	2.3	3'-1"	57	0.7
	24"	13'-9 1/2"	3'-9 1/2"	9'-8"	11'-2"	301	2.8	3'-7"	67	0.9
	27"	15'-3"	4'-1"	10'-8"	12'-3 1/2"	334	3.3	3'-11"	77	1.0
	30"	16'-8 1/2"	4'-4 1/2"	11'-8"	13'-5 1/2"	385	3.8	4'-4"	89	1.3
	33"	18'-1 3/8"	4'-8"	12'-8"	14'-7 1/2"	425	4.5	4'-8"	101	1.4
	36"	19'-7"	4'-11 1/2"	13'-8"	15'-9 1/2"	472	5.1	5'-1"	115	1.7
	42"	22'-5 1/2"	5'-6 1/2"	15'-8"	18'-1"	583	6.5	5'-10"	141	2.1
	48"	26'-6 1/2"	6'-1 1/2"	18'-8"	21'-6 1/2"	730	8.9	6'-7"	175	2.8
	54"	29'-5"	6'-8 1/2"	20'-8"	23'-10 1/2"	875	10.7	7'-6"	226	3.6
	60"	32'-3 1/2"	7'-3 1/2"	22'-8"	26'-2"	996	12.7	8'-3"	264	4.3
	66"	35'-2 1/2"	7'-10 1/2"	24'-8"	28'-5 1/2"	1,140	14.9	8'-9"	300	4.9
	72"	38'-1 1/2"	8'-5 1/2"	26'-8"	30'-9 1/2"	1,297	17.3	9'-4"	334	5.6
6:1	12"	11'-7"	2'-6"	8'-6"	9'-9 1/2"	224	1.9	1'-9"	28	0.4
	15"	13'-2 3/8"	2'-9 1/2"	10'-0"	11'-4 1/2"	268	2.5	2'-2"	36	0.5
	18"	15'-2 1/2"	3'-1"	11'-6"	13'-3 1/2"	330	3.2	2'-8"	50	0.7
	21"	17'-2 3/8"	3'-4 1/2"	13'-0"	15'-0 1/2"	387	3.9	3'-1"	69	0.9
	24"	19'-4 1/2"	3'-9 1/2"	14'-6"	16'-9"	453	4.8	3'-7"	80	1.2
	27"	21'-4 1/2"	4'-1"	16'-0"	18'-5 1/2"	512	5.7	3'-11"	96	1.4
	30"	23'-3 1/2"	4'-4 1/2"	17'-6"	20'-2 1/2"	593	6.7	4'-4"	110	1.7
	33"	25'-3 1/2"	4'-8"	19'-0"	21'-11 1/2"	675	7.8	4'-8"	127	2.0
	36"	27'-2 1/2"	4'-11 1/2"	20'-6"	23'-8"	735	9.0	5'-1"	144	2.3
	42"	31'-0 1/2"	5'-6 1/2"	23'-6"	27'-1 1/2"	922	11.5	5'-10"	179	3.0
	48"	37'-3 1/2"	6'-1 1/2"	28'-0"	32'-4"	1,191	15.9	6'-7"	231	4.0
	54"	41'-4 1/2"	6'-8 1/2"	31'-0"	35'-9 1/2"	1,424	19.2	7'-6"	300	5.0
	60"	45'-4 1/2"	7'-3 1/2"	34'-0"	39'-3"	1,631	22.9	8'-3"	353	6.0

DISCLAIMER:
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PLAN

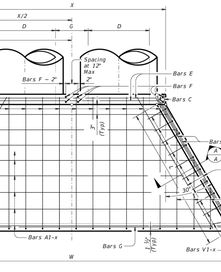


TABLE OF REINFORCING STEEL (5)

Bar	Size	Spa	No.
A	#4	1'-0"	–
B	#3	1'-6"	–
C	#4	1'-0"	–
D	#3	1'-0"	–
E	#5	–	4
F	#5	–	2
G	#3	–	2
S	#4	–	6
V	#4	1'-0"	–
W	#5	–	4

TABLE OF CONSTANT DIMENSIONS

Dia of Pipe (D)	G	K (4)	H
12"	0'-9"	1'-0"	2'-0"
15"	0'-11"	1'-0"	2'-3"
18"	1'-2"	1'-0"	2'-6"
21"	1'-4"	1'-0"	2'-9"
24"	1'-7"	1'-0"	3'-0"
27"	1'-8"	1'-0"	3'-3"
30"	1'-10"	1'-0"	3'-6"
33"	1'-11"	1'-0"	3'-9"
36"	2'-1"	1'-0"	4'-0"
42"	2'-4"	1'-0"	4'-6"
48"	2'-7"	1'-3"	5'-3"
54"	3'-0"	1'-3"	5'-9"
60"	3'-3"	1'-3"	6'-3"
66"	3'-3"	1'-3"	6'-9"
72"	3'-4"	1'-3"	7'-3"

(1) Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

(2) For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(3) Provide a 1'-0" footing as shown where required to maintain 4" minimum cover for pipes.

(4) Dimensions shown are usual and maximum.

(5) Quantities shown are for one structure end only (one headwall).

(6) Min Length = $6' + 3' \times \left(\frac{12 \times H - 7}{12 \times L}\right)$

Max Length = $12 \times H - 3' \times \left(\frac{12 \times H - 7}{12 \times L}\right) - 1'$

(7) Lengths of wings based on SL:1 slope along this line.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'c = 4,000 psi).

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

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

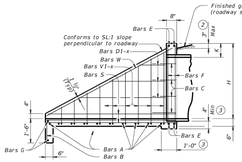
Texas Department of Transportation | Bridge Division Standard

CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW PIPE CULVERTS

CH-FW-0

File: CD-CH-FW0-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	DIST	COUNTY		SHEET NO.

TYPICAL WING ELEVATION



SECTION A-A

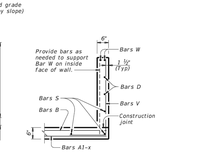
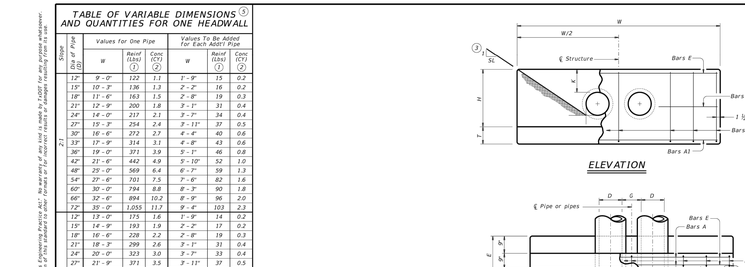


TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (3)

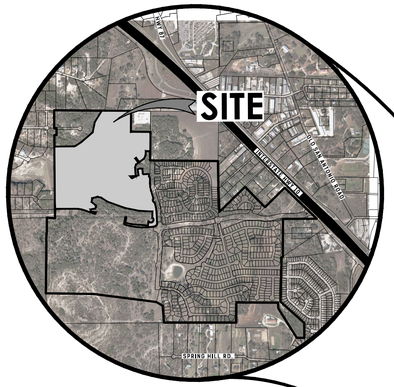
Slope	Dia of Pipe (D)	Values for One Pipe W	Reinf (Lbs) (1)	Conc (CY) (2)	Values To Be Added For Each Addt'l Pipe W	Reinf (Lbs) (1)	Conc (CY) (2)
2:1	12"	9'-0"	122	1.1	1'-9"	15	0.2
	15"	10'-3"	136	1.3	2'-2"	16	0.2
	18"	11'-6"	163	1.5	2'-8"	19	0.3
	21"	12'-9"	200	1.8	3'-1"	31	0.4
	24"	14'-0"	217	2.1	3'-7"	34	0.4
	27"	15'-3"	254	2.4	3'-11"	37	0.5
	30"	16'-6"	272	2.7	4'-4"	40	0.6
	33"	17'-9"	314	3.1	4'-8"	43	0.6
	36"	19'-0"	371	3.9	5'-1"	46	0.8
	42"	21'-6"	442	4.9	5'-10"	52	1.0
	48"	25'-0"	569	6.4	6'-7"	59	1.3
	54"	27'-6"	701	7.5	7'-6"	82	1.6
	60"	30'-0"	794	8.8	8'-3"	90	1.8
	66"	32'-6"	894	10.2	8'-9"	96	2.0
	72"	35'-0"	1,055	11.7	9'-4"	103	2.3
3:1	12"	13'-0"	175	1.6	1'-9"	14	0.2
	15"	14'-9"	193	1.9	2'-2"	17	0.2
	18"	16'-6"	228	2.2	2'-8"	19	0.3
	21"	18'-3"	299	2.6	3'-1"	31	0.4
	24"	20'-0"	323	3.0	3'-7"	33	0.4
	27"	21'-9"	371	3.5	3'-11"	37	0.5
	30"	23'-6"	415	4.0	4'-4"	40	0.5
	33"	25'-3"	469	4.6	4'-8"	43	0.6
	36"	27'-0"	556	5.7	5'-1"	46	0.8
	42"	30'-6"	675	7.1	5'-10"	52	1.0
	48"	35'-6"	831	9.2	6'-7"	59	1.3
	54"	39'-0"	1,015	11.0	7'-6"	84	1.6
	60"	42'-6"	1,171	12.9	8'-3"	91	1.8
	66"	46'-0"	1,298	14.9	8'-9"	98	2.0
	72"	49'-6"	1,561	17.1	9'-4"	103	2.3
4:1	12"	17'-0"	229	2.0	1'-9"	15	0.2
	15"	19'-3"	266	2.4	2'-2"	17	0.2
	18"	21'-6"	308	2.9	2'-8"	19	0.3
	21"	23'-9"	382	3.5	3'-1"	31	0.3
	24"	26'-0"	430	3.9	3'-7"	34	0.4
	27"	28'-3"	486	4.7	3'-11"	37	0.5
	30"	30'-6"	539	5.2	4'-4"	40	0.6
	33"	32'-9"	603	6.0	4'-8"	42	0.6
	36"	35'-0"	738	7.5	5'-1"	47	0.8
	42"	39'-6"	881	9.3	5'-10"	52	1.0
	48"	46'-0"	1,102	12.1	6'-7"	61	1.3
	54"	50'-6"	1,364	14.4	7'-6"	84	1.6
	60"	55'-0"	1,547	16.9	8'-3"	91	1.8
	66"	59'-6"	1,741	19.5	8'-9"	98	2.0
	72"	64'-0"	2,077	22.4	9'-4"	102	2.3
6:1	12"	25'-0"	336	3.0	1'-9"	14	0.2
	15"	28'-3"	384	3.6	2'-2"	17	0.2
	18"	31'-6"	452	4.2	2'-8"	19	0.3
	21"	34'-9"	581	5.1	3'-1"	31	0.4
	24"	38'-0"	644	5.8	3'-7"	34	0.4
	27"	41'-3"	737	6.9	3'-11"	37	0.5
	30"	44'-6"	807	7.7	4'-4"	39	0.6
	33"	47'-9"	912	8.9	4'-8"	44	0.6
	36"	51'-0"	1,108	11.0	5'-1"	48	0.8
	42"	57'-6"	1,318	13.7	5'-10"	54	1.0
	48"	67'-0"	1,682	17.9	6'-7"	59	1.3
	54"	73'-6"	2,072	21.3	7'-6"	83	1.6
	60"	80'-0"	2,351	24.9	8'-3"	89	1.8
	66"	86'-6"	2,643	28.9	8'-9"	96	2.0
	72"	93'-0"	3,121	33.1	9'-4"	101	2.3


W
W/2
3
1½" SL
℄ Structure
Bars E
H
Bars A2

SANITARY SEWER CONSTRUCTION PLANS

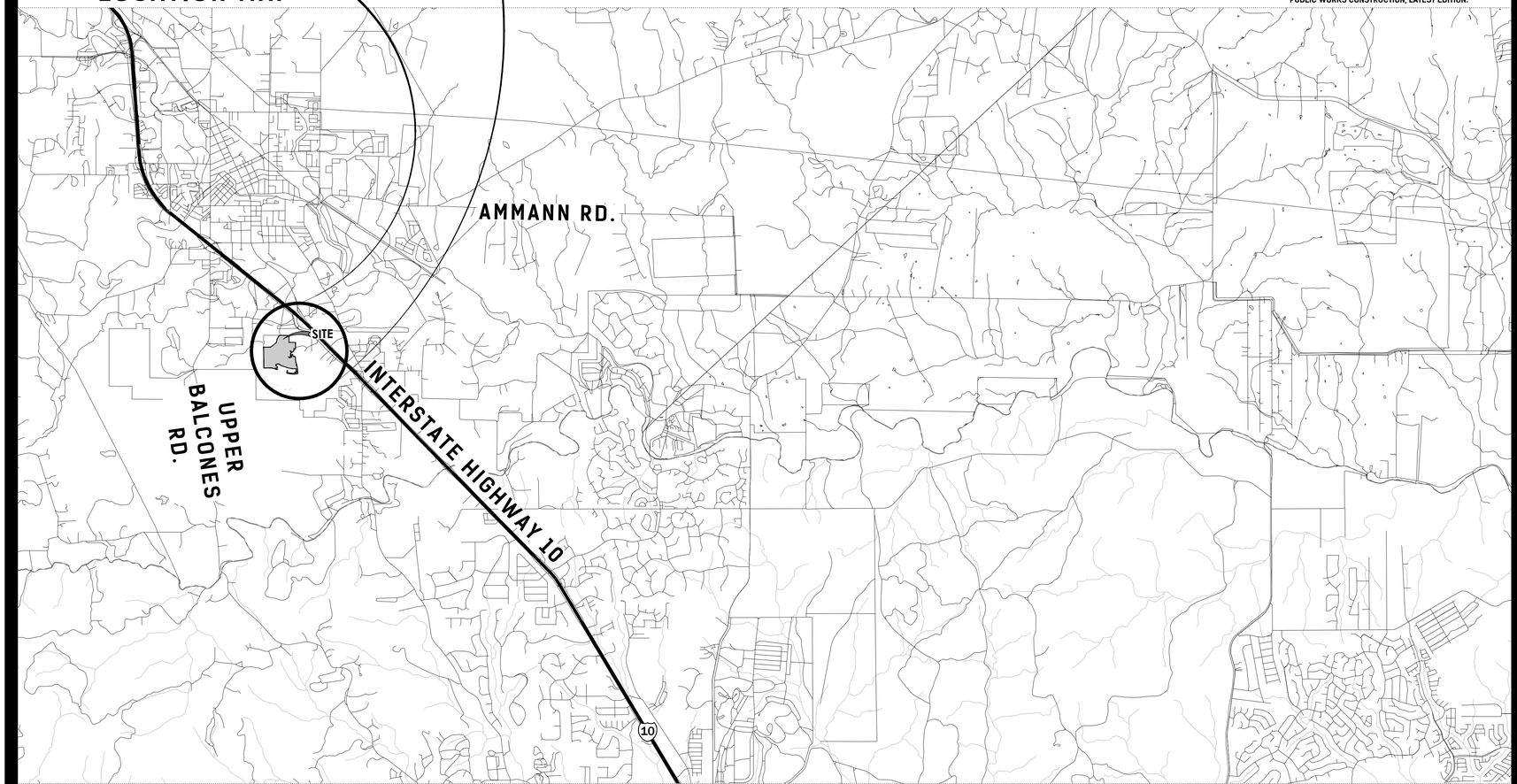
- C23 – OVERALL SANITARY SEWER PLAN
- C24 – SANITARY SEWER PLAN & PROFILE – LINE 'II'
- C25 – SANITARY SEWER PLAN & PROFILE – LINE 'II' & LINE 'YY'
- C26 – SANITARY SEWER PLAN & PROFILE – LINE 'II'
- C27 – SANITARY SEWER PLAN & PROFILE – LINE 'JJ' & LINE 'LL'
- C28 – SANITARY SEWER PLAN & PROFILE – LINE 'KK' & LINE 'ZZ'
- C29 – SANITARY SEWER PLAN & PROFILE – LINE 'OO' & LINE 'PP'
- C29A – SANITARY SEWER PLAN & PROFILE – LINE 'MM'
- C30 – CITY OF BOERNE – SANITARY SEWER GENERAL NOTES
- C31 – CITY OF BOERNE – SANITARY SEWER STANDARD DETAILS

* DENOTES STANDARD DETAILS ADOPTED FOR USE ON THIS PROJECT.



LOCATION MAP

CONSTRUCTION OF ALL FACILITIES TO BE DEDICATED TO THE PUBLIC SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.



VICINITY MAP

EST. 1980
CUDE
ENGINEERS

REGENT PARK
UNIT 9

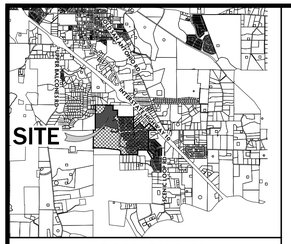
SANITARY SEWER
CONSTRUCTION PLANS

DEVELOPER:
TENOTEX DEVELOPMENT CO., INC.
CONTACT PERSON: ISRAEL FOGIEL
10003 N.W. MILITARY, SUITE 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
FAX: (210) 344-3137

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

DRAWN BY	DATE
AD/RM/MW/MS	1/10/2025
CHECKED BY	**PROJECT NO.**
Patrick Murphy, P.E.	02133.160

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

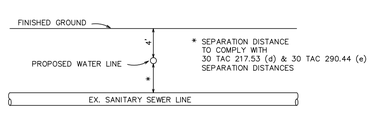


LOCATION MAP N.T.S.

DEVELOPER:
TENOTEX DEVELOPMENT CO., INC.
CONTACT PERSON: ISRAEL FOGIEL
10003 NW MILITARY, STE. 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
FAX: (210) 344-3137

LEGEND

EXISTING SANITARY SEWER	EX.8"SS
PROPOSED SANITARY SEWER	8"SS
DIRECTION OF FLOW	
SANITARY SEWER MANHOLE	



DETAIL "A"

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

BENCHMARK BM-1

BENCHMARK TO BE SET BY ENGINEER PRIOR TO CONSTRUCTION.

TOTAL PIPE FOOTAGE

8" SAN SEWER PIPE ~ 5,858.54 L.F.

SEWER/WATER LINE CROSSINGS	
LINE	STATION
EX. LINE 'GG'	16+20.63
EX. LINE 'GG'	16+67.07
EX. LINE 'GG'	24+33.47
EX. LINE 'GG'	26+85.37
LINE 'II'	12+85.35
LINE 'II'	16+19.63
LINE 'KK'	1+64.52
LINE 'KK'	4+08.35
LINE 'LL'	2+90.90

NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TEST WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE CITY OF BOERNE INSPECTOR/TEST ADMINISTER, PER EACH 8-INCH LOOSE LIFT PER 500 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY CITY OF BOERNE WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

TRENCH EXCAVATION SAFETY PROTECTION

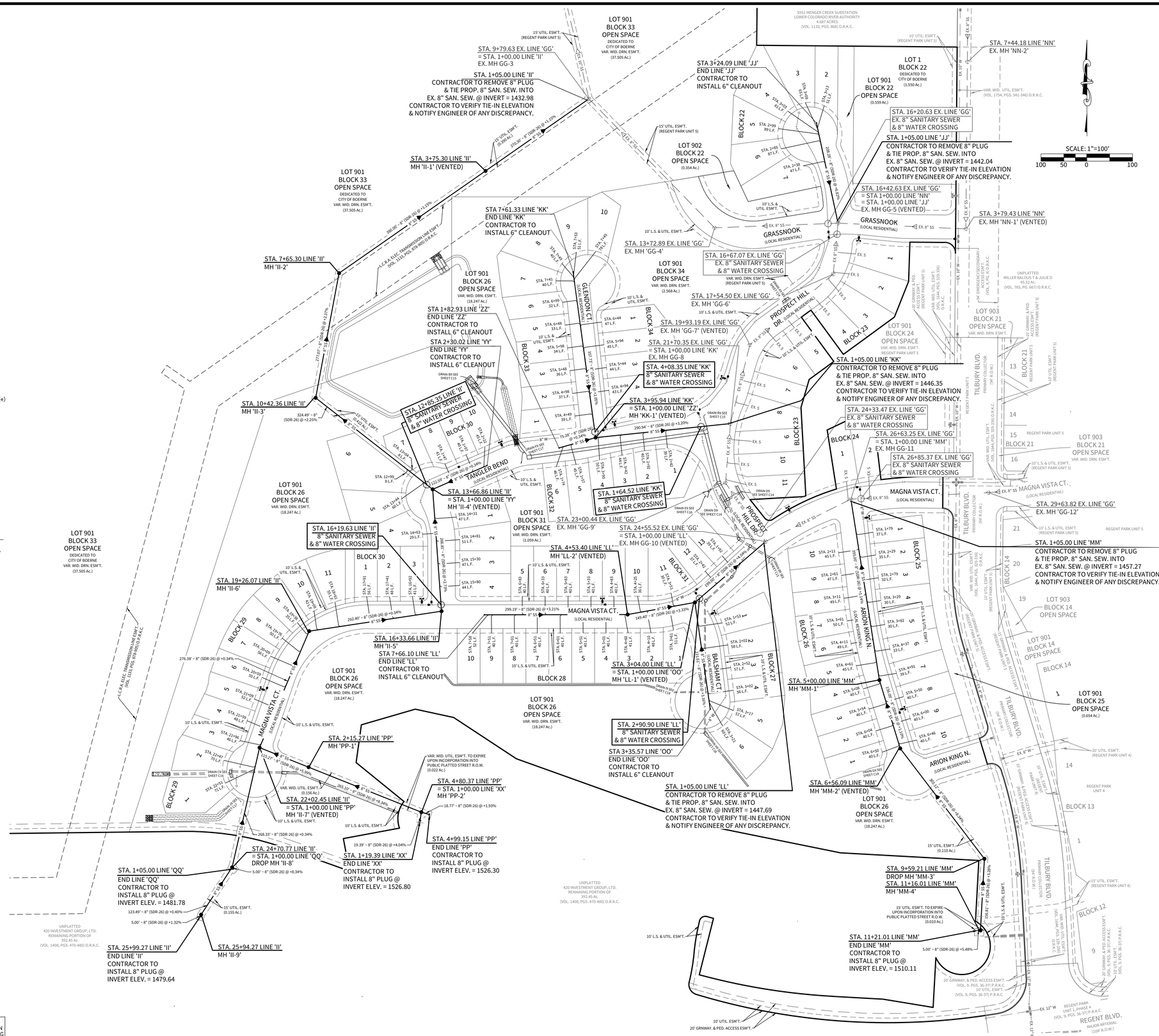
Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

CAUTION!!
EXISTING UTILITIES ARE WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTORS SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, VERIFY THE EXACT LOCATION & IDENTIFY AREA OF CONFLICTS WITH EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER IF CONFLICT IS FOUND.

MANHOLE OPENING INCREASED TO 30" AS PER TAC CHAPTER 217.55

ALL SEWER PIPE LATERALS SHALL BE SDR26 (CLASS 160) PVC PIPE

NOTE:
FOR PAVEMENT DESIGN SECTION SEE GEOTECHNICAL ENGINEERING REPORT



CUDEENGINEERS.COM

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

REGENT PARK UNIT 9

OVERALL SANITARY SEWER PLAN

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 10/24/2024 - REVISED LINE 'KK' & 'PP' STUB-OUTS TO ACCOUNT FOR DROP STRUCTURES
2.
3.
4.
5.
6.
7.
8.

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

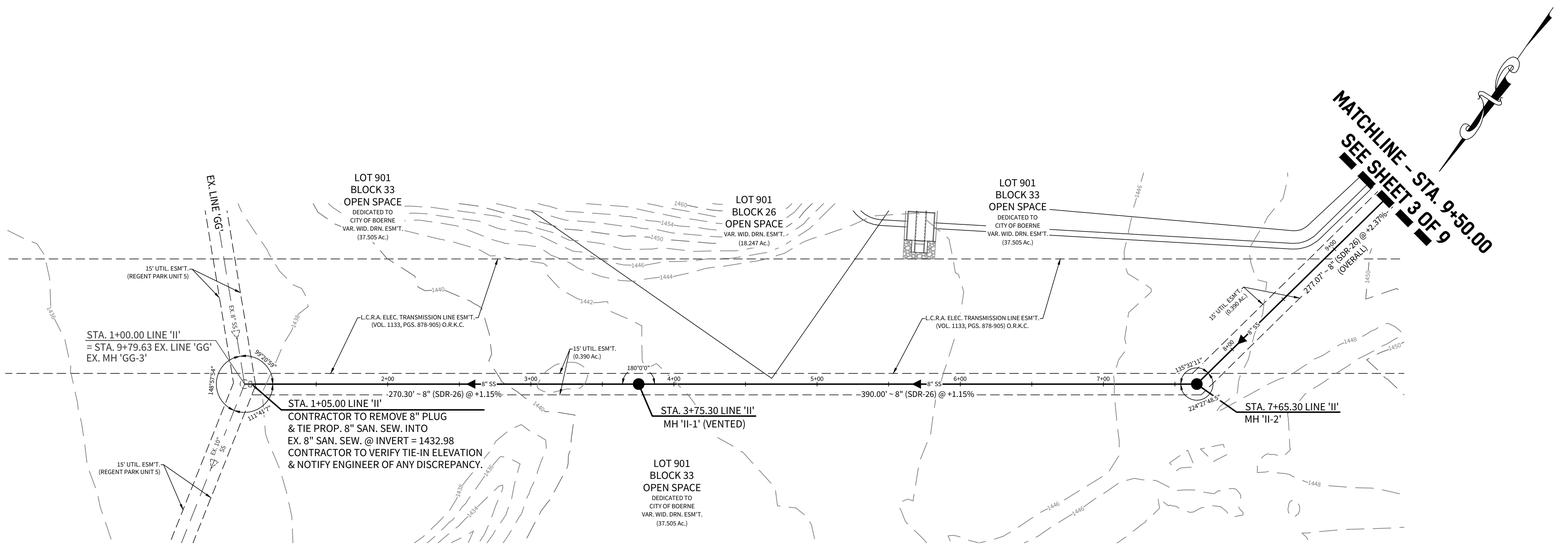
PLAT NO.
N/A

C23

1 OF 9

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

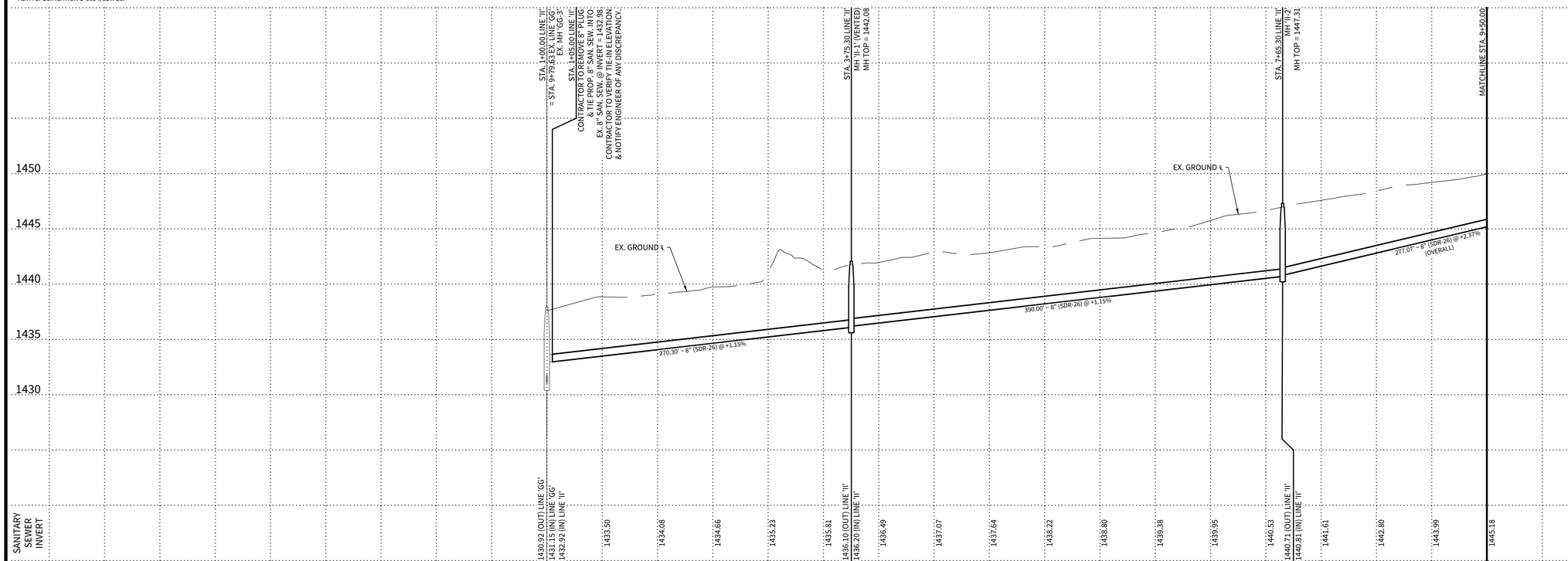
P:\02133\160\3-Drawings\00_SUSMY.dwg 12/3/2024 12:32pm mswinkel



LINE 'II'

STA. 1+00.00 TO STA. 9+50.00

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



CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND WATER AND SEWER MAINS EXIST WITHIN THE LIMITS OF THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

NOTE:

CONTRACTOR TO INSTALL 2" X 4" WOODEN LATERAL MARKERS FOR ALL SANITARY SEWER LATERALS. LATERAL MARKERS SHALL EXTEND FROM THE LATERAL STUB OUT TO ONE (1) FOOT ABOVE PROPOSED GRADE.

TRENCH EXCAVATION SAFETY PROTECTION

Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

NOTE: ALL LATERALS TO BE INSTALLED @ MIN. 2.0% SLOPE. UNLESS OTHERWISE NOTED, ALL SANITARY SEWER PIPE SHALL BE P.V.C. THAT MEETS ASTM SPECIFICATION D-3034, SDR-26.

CUDEENGINEERS.COM

CUDE ENGINEERS

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REGENT PARK UNIT 9

SANITARY SEWER PLAN & PROFILE - LINE 'II'

DATE
10/16/2023

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS

1. 10/24/2024 - UPDATE 'GG-3' OUT BASED ON UNIT 5 CONTRACTOR CORRESPONDENCE
2.
3.
4.
5.
6.
7.
8.

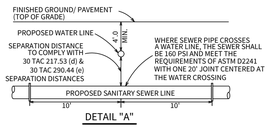
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
N/A

C24

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

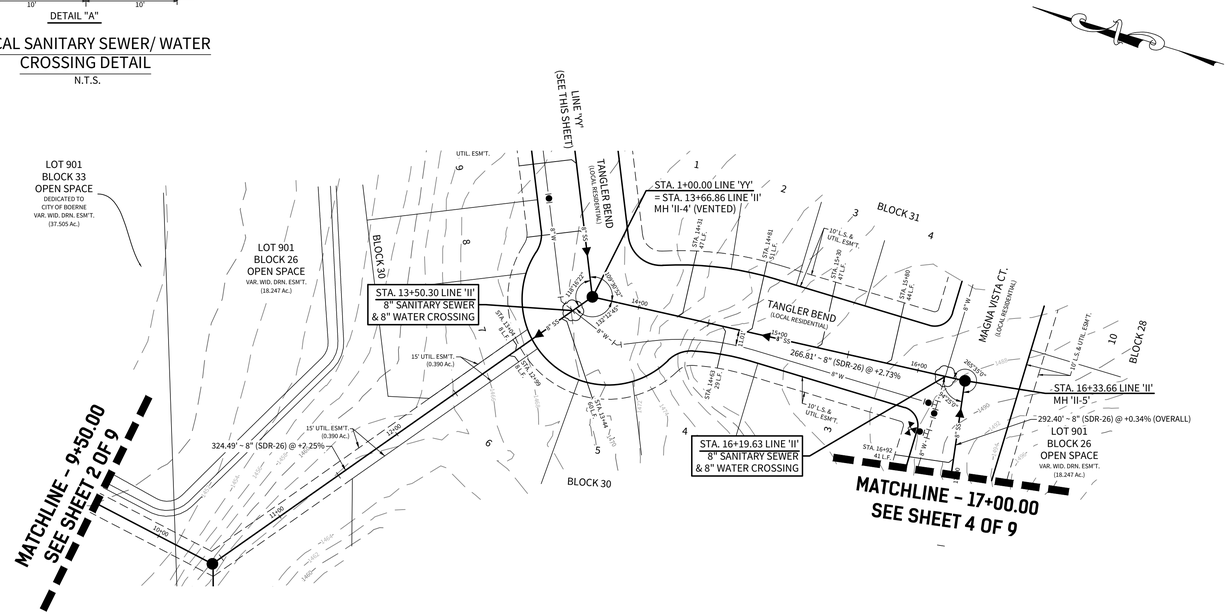
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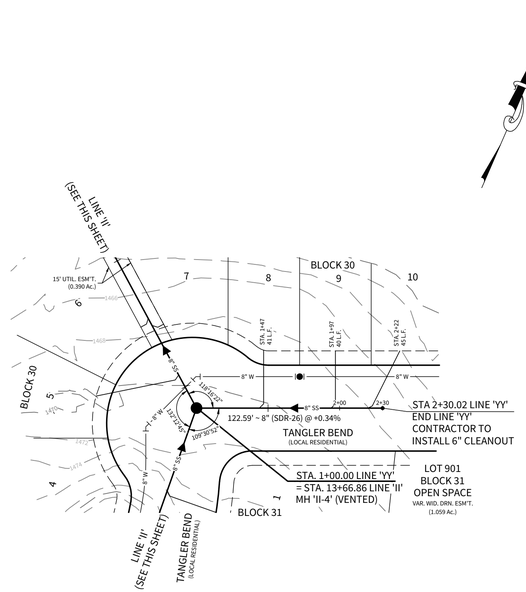


DETAIL "A"

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

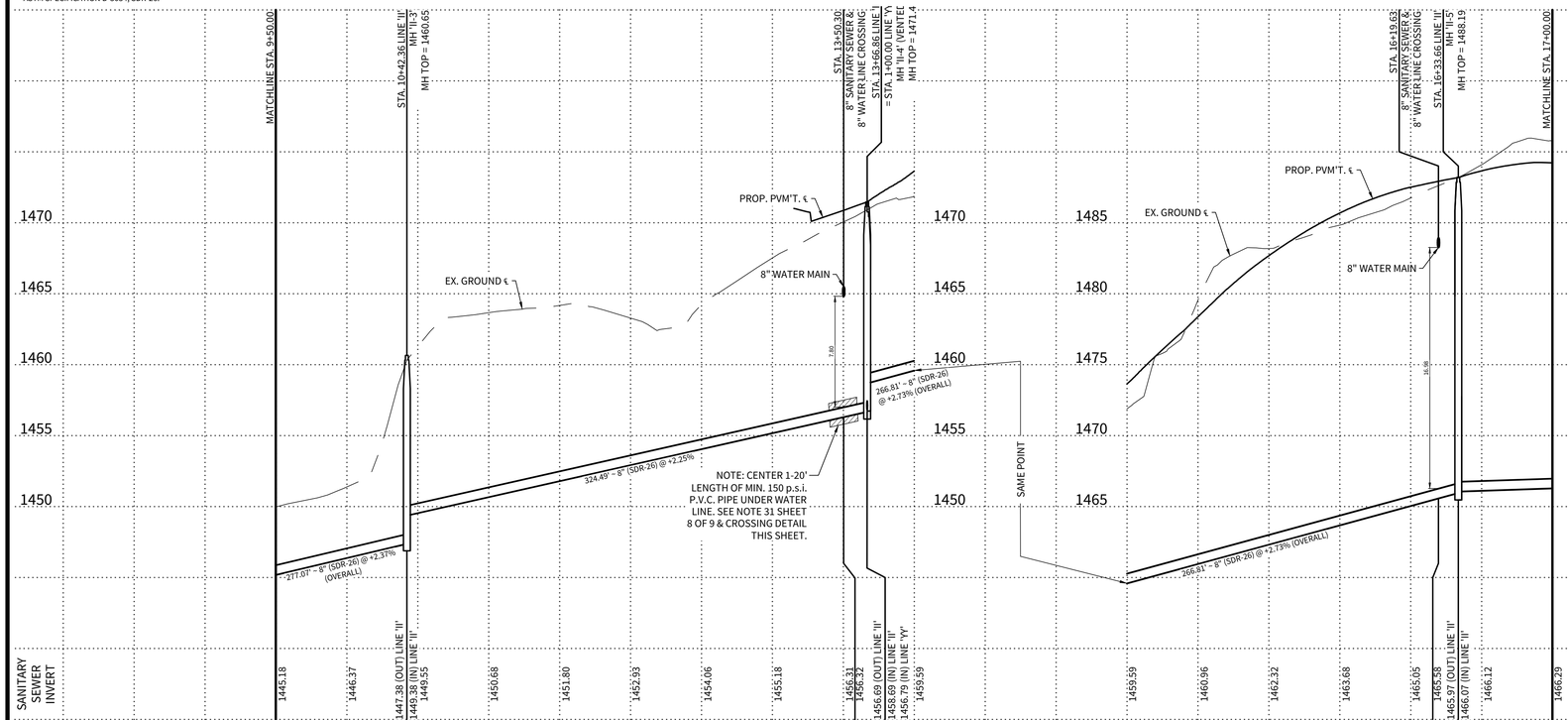
N.T.S.





LINE 'II'

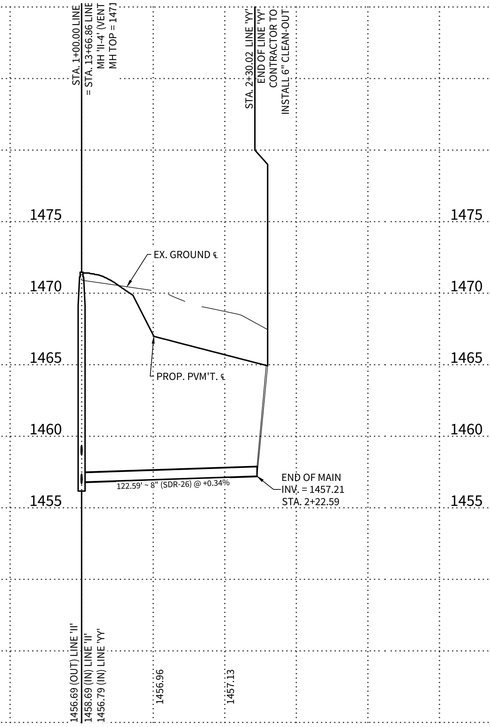
STA. 9+50.00 TO STA. 17+00.00



LINE 'YY'

STA. 1+00.00 TO STA. 2+30.02

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



NOTE:

CONTRACTOR TO INSTALL 2' X 4' WOODEN LATERAL MARKERS FOR ALL SANITARY SEWER LATERALS. LATERAL MARKERS SHALL EXTEND FROM THE LATERAL STUB OUT TO ONE (1) FOOT ABOVE PROPOSED GRADE.

TRENCH EXCAVATION SAFETY PROTECTION

Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

NOTE: ALL LATERALS TO BE INSTALLED @ MIN. 2.0% SLOPE. UNLESS OTHERWISE NOTED, ALL SANITARY SEWER PIPE SHALL BE P.V.C. THAT MEETS ASTM SPECIFICATION D-3034, SDR-26.

CUDEENGINEERS.COM

CUDE ENGINEERS

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

REGENT PARK UNIT 9

SANITARY SEWER PLAN & PROFILE - LINE 'II' & LINE 'YY'

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS

1. 10/24/2024 - UPDATE 'YY' SLOPE, FIX MANHOLE 'II-4' RENDERING
2.
3.
4.
5.
6.
7.
8.

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

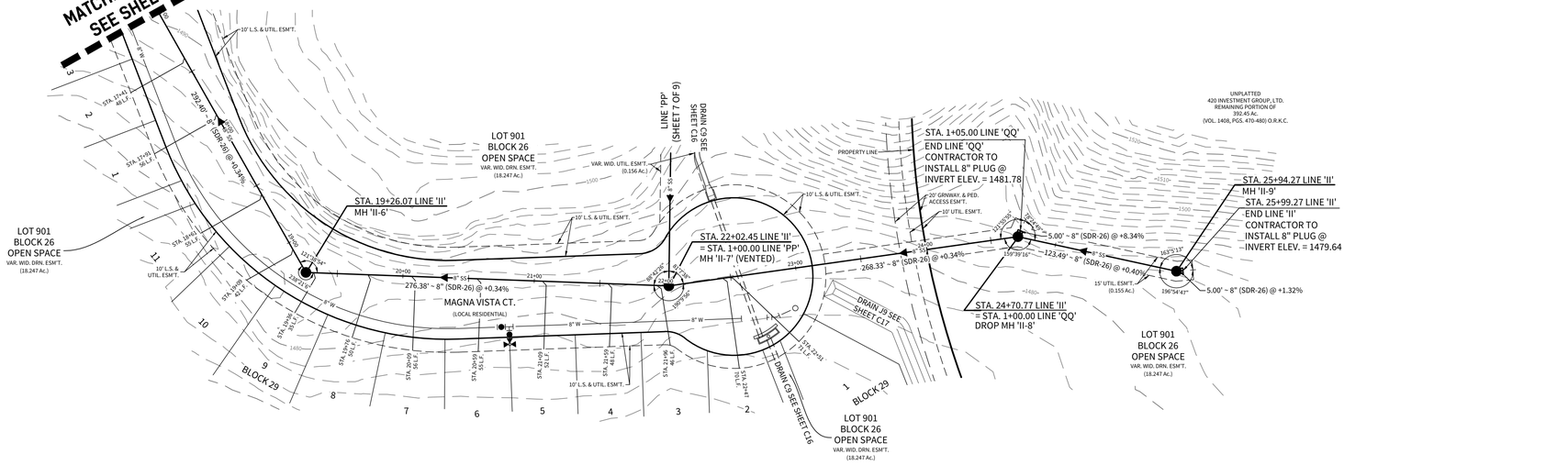
PLAT NO.
N/A

C25

3 OF 9

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

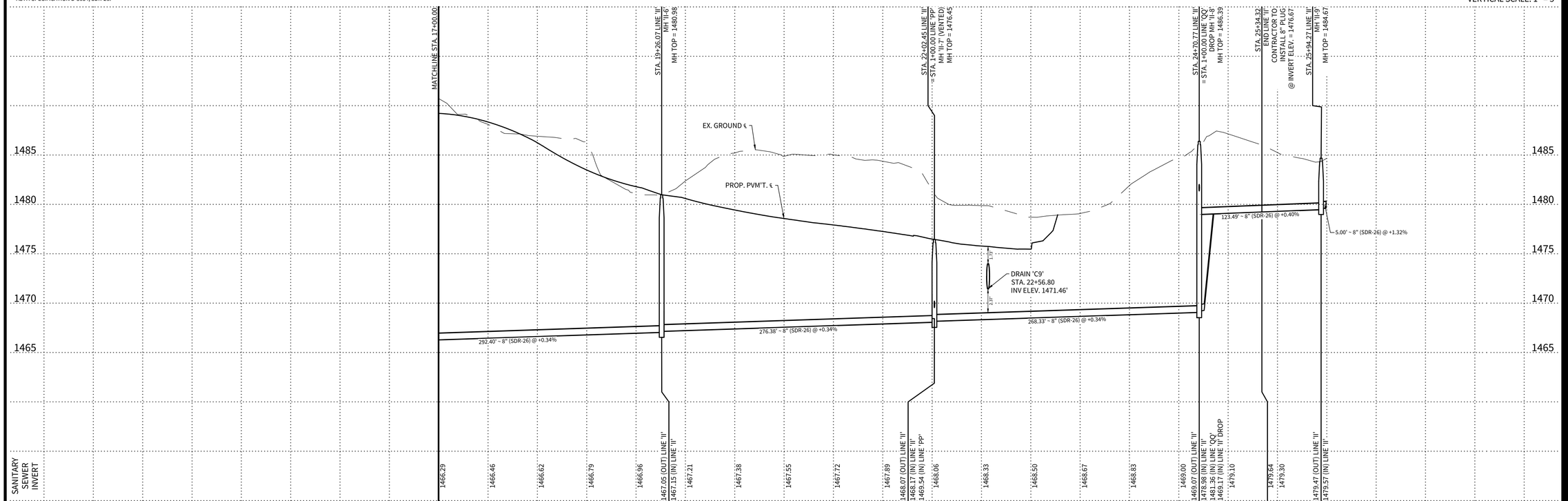
P:\02133\160-Subdiv\plot\02-27 SSPP.dwg 2024/10/08 Adolph Hinshaw



LINE 'II'

STA. 17+00.00 TO STA. 25+99.27

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



NOTE:

CONTRACTOR TO INSTALL 2" X 4" WOODEN LATERAL MARKERS FOR ALL SANITARY SEWER LATERALS. LATERAL MARKERS SHALL EXTEND FROM THE LATERAL STUB OUT TO ONE (1) FOOT ABOVE PROPOSED GRADE.

TRENCH EXCAVATION SAFETY PROTECTION

Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

NOTE: ALL LATERALS TO BE INSTALLED @ MIN. 2.0% SLOPE. UNLESS OTHERWISE NOTED, ALL SANITARY SEWER PIPE SHALL BE P.V.C. THAT MEETS ASTM SPECIFICATION D-3034, SDR-26.

CUDEENGINEERS.COM

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

REGENT PARK
UNIT 9

SANITARY SEWER PLAN & PROFILE - LINE 'II'

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 11/05/2024 - SHOW DROP STRUCTURE, UPDATE SLOPE PER TCEQ MINIMUM
2.
3.
4.
5.
6.
7.
8.

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

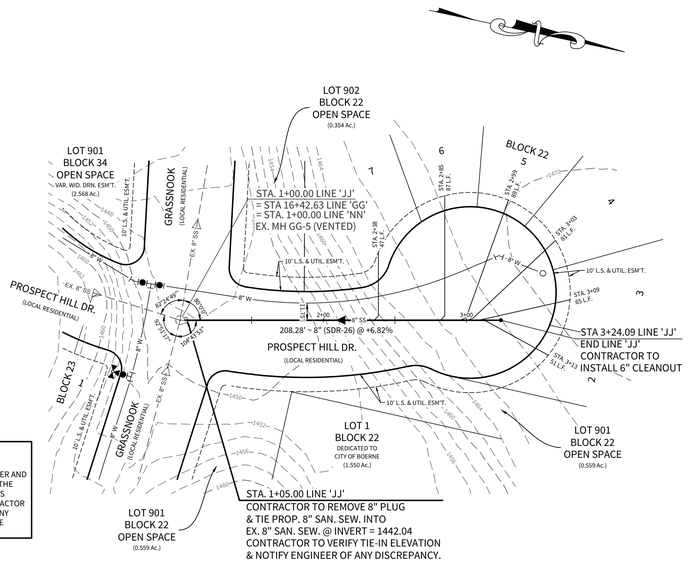
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N/A

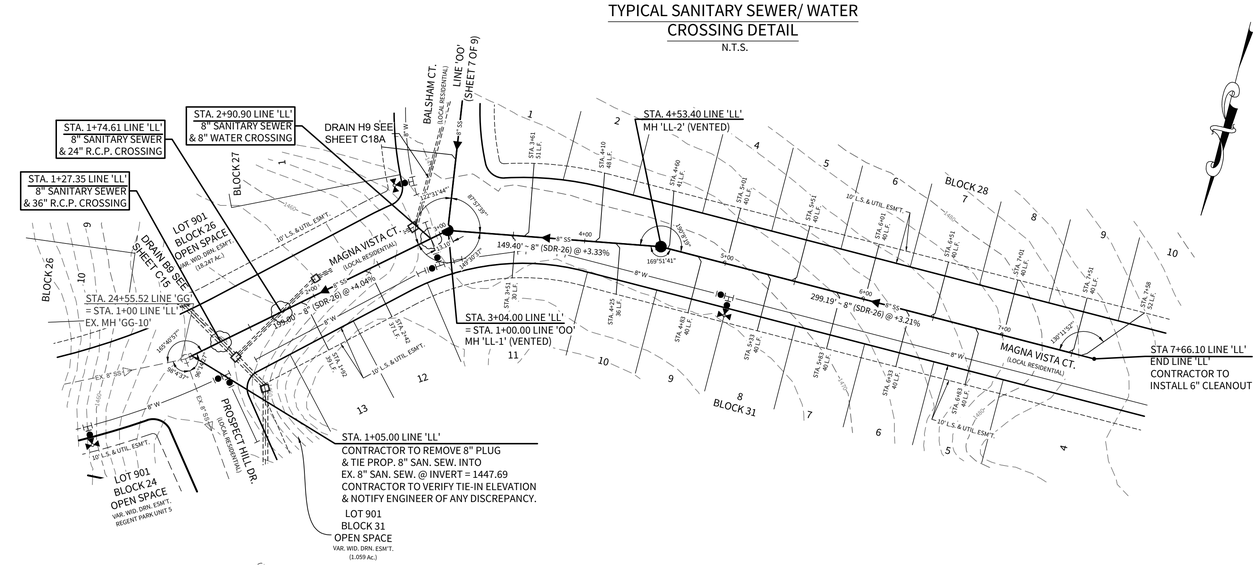
C26

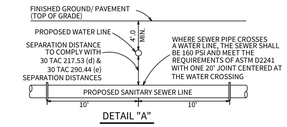
4 OF 9

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

P:\02133\160\3-Drawings\05_PLSSP\Reg2133-05(06.61).dgn mmatthews







DETAIL "A"

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND WATER AND SEWER MAINS EXIST WITHIN THE LIMITS OF THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

NOTE:

CONTRACTOR TO INSTALL 2" X 4" WOODEN LATERAL MARKERS FOR ALL SANITARY SEWER LATERALS. LATERAL MARKERS SHALL EXTEND FROM THE LATERAL STUB OUT TO ONE (1) FOOT ABOVE PROPOSED GRADE.

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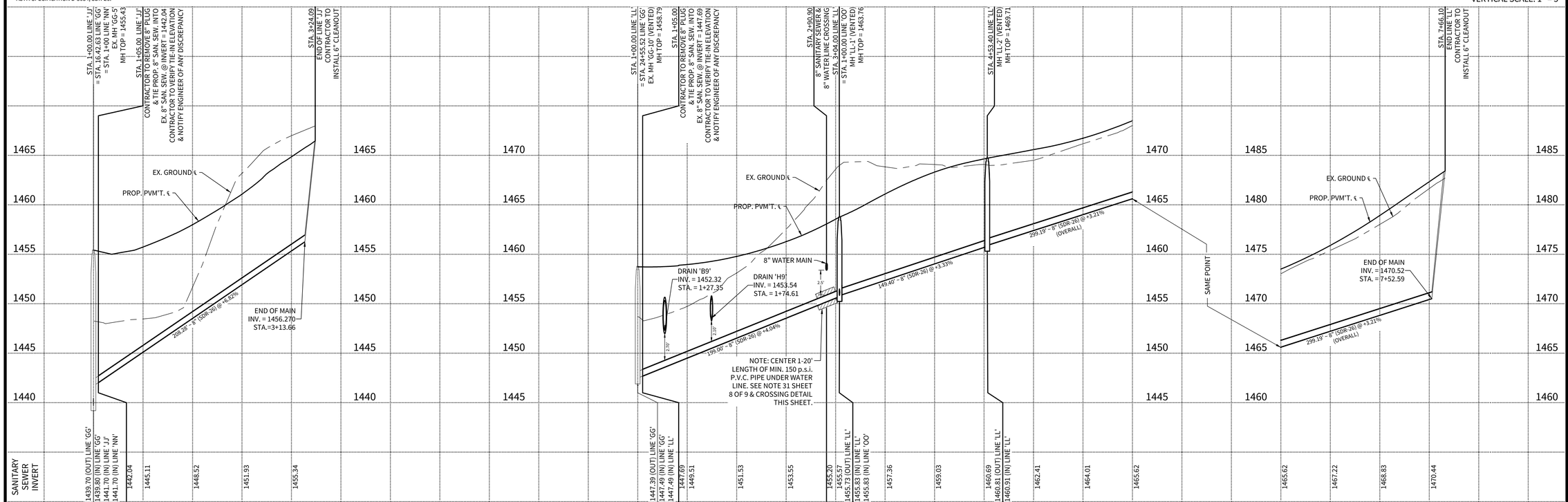
LINE 'JJ'

STA. 1+05.00 TO STA. 3+24.09

LINE 'LL'

STA. 1+05.00 TO STA. 7+66.10

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



CUDEENGINEERS.COM

CUDE ENGINEERS EST. 1980

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

REGENT PARK UNIT 9

SANITARY SEWER PLAN & PROFILE - LINE 'JJ' & LINE 'LL'

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS

1. 11/05/2024 - PROVIDE DIMENSION FROM MANHOLE TO WATER LINE CROSSING
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

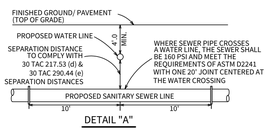
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5 OF 9

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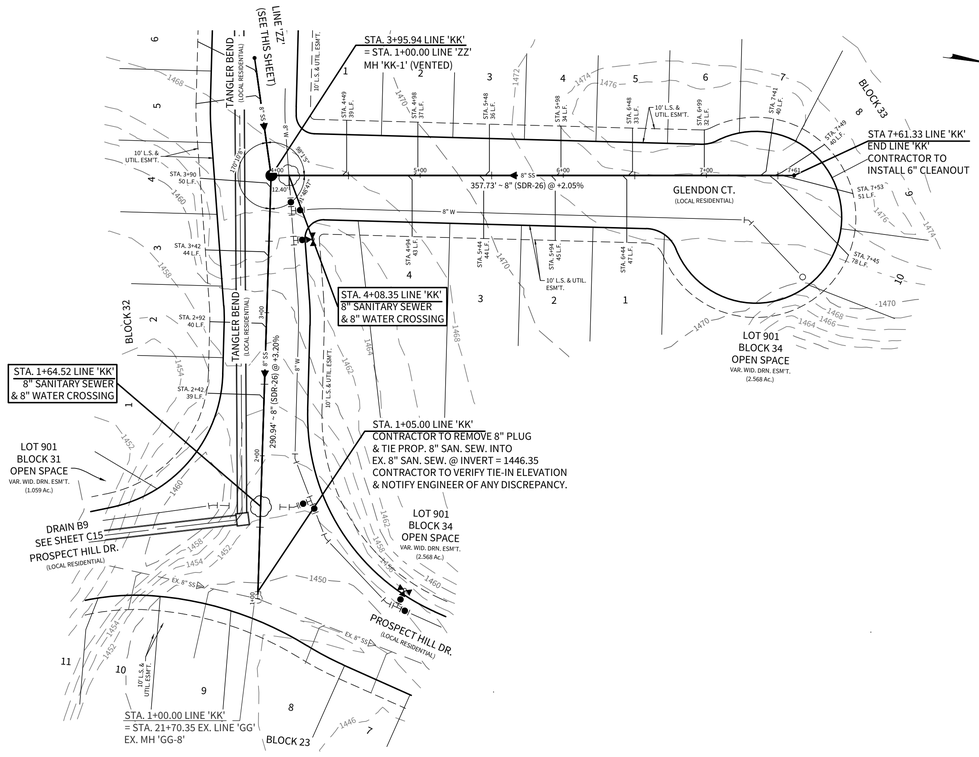
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

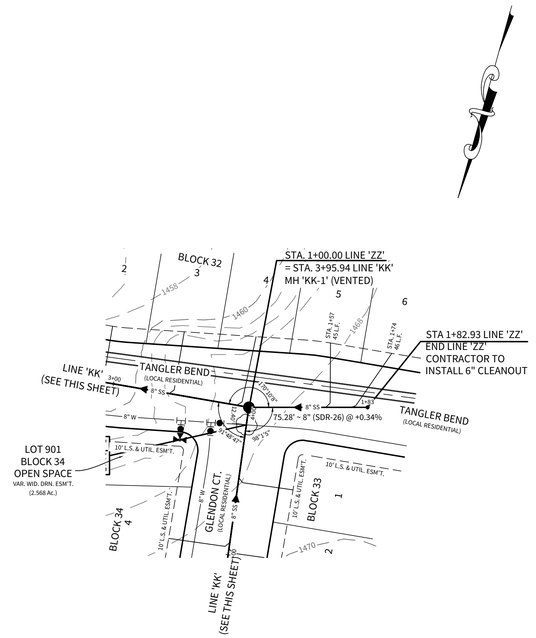


DETAIL "A"

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

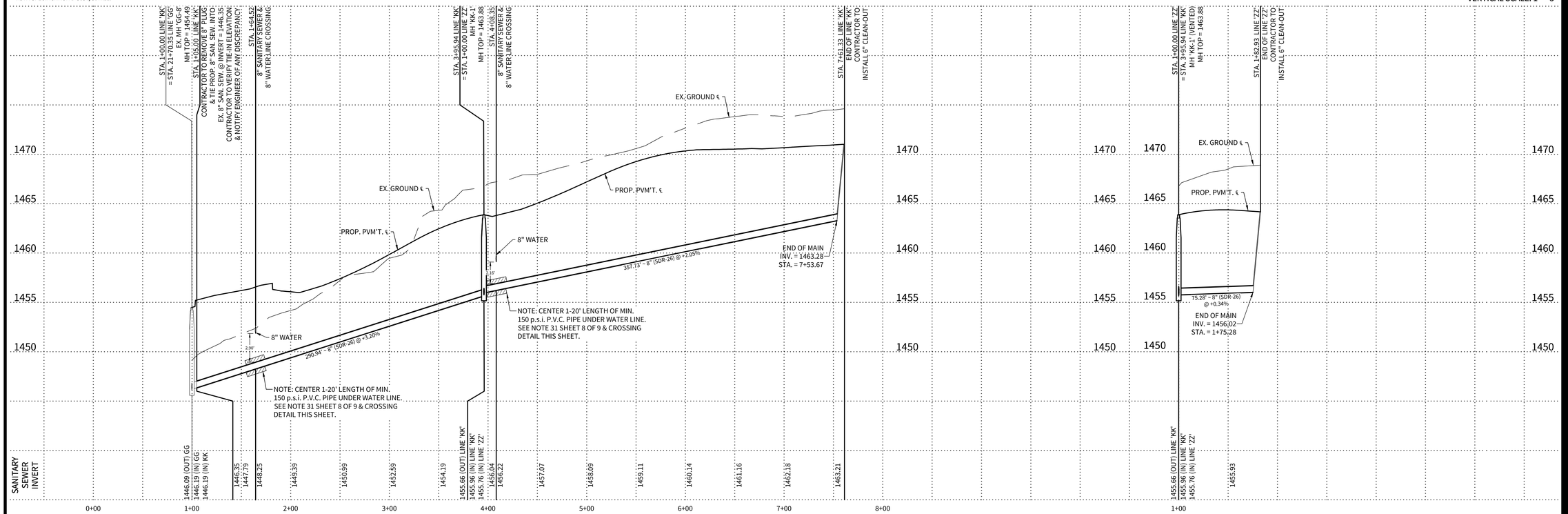
N.T.S.





LINE 'KK'

STA. 1+05.00 TO STA. 7+61.33



LINE 'ZZ'

STA. 1+00.00 TO STA. 1+82.93

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

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND WATER AND SEWER MAINS EXIST WITHIN THE LIMITS OF THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

NOTE:

CONTRACTOR TO INSTALL 2" X 4' WOODEN LATERAL MARKERS FOR ALL SANITARY SEWER LATERALS. LATERAL MARKERS SHALL EXTEND FROM THE LATERAL STUB OUT TO ONE (1) FOOT ABOVE PROPOSED GRADE.

TRENCH EXCAVATION SAFETY PROTECTION

Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

NOTE: ALL LATERALS TO BE INSTALLED @ MIN. 2.0% SLOPE. UNLESS OTHERWISE NOTED, ALL SANITARY SEWER PIPE SHALL BE P.V.C. THAT MEETS ASTM SPECIFICATION D-3034, SDR-26.

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CUDE ENGINEERS

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

REGENT PARK UNIT 9

SANITARY SEWER PLAN & PROFILE - LINE 'KK' & LINE 'ZZ'

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS

1. 11/05/2024 - UPDATE 'ZZ' SLOPE - SHOW 'KK' WATER CROSSING IN PROFILE
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

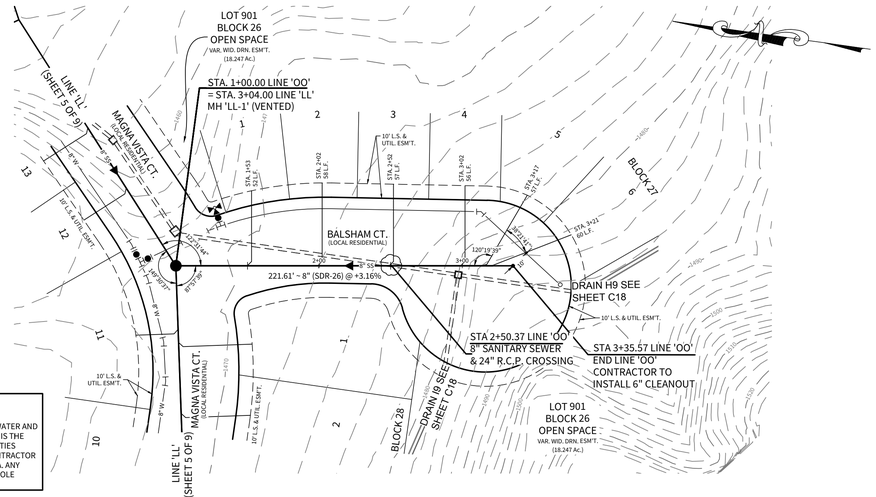
PLAT NO.
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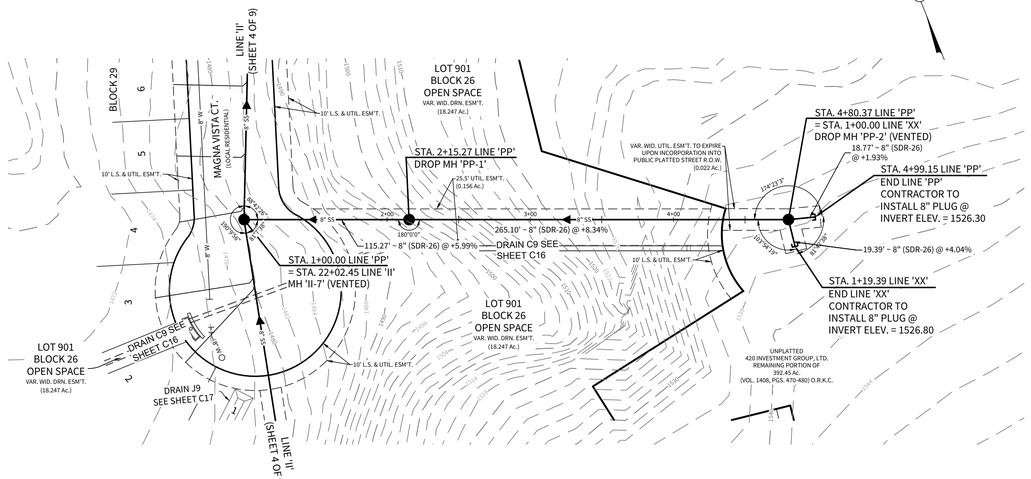
C28

6 OF 9

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

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NOTE:

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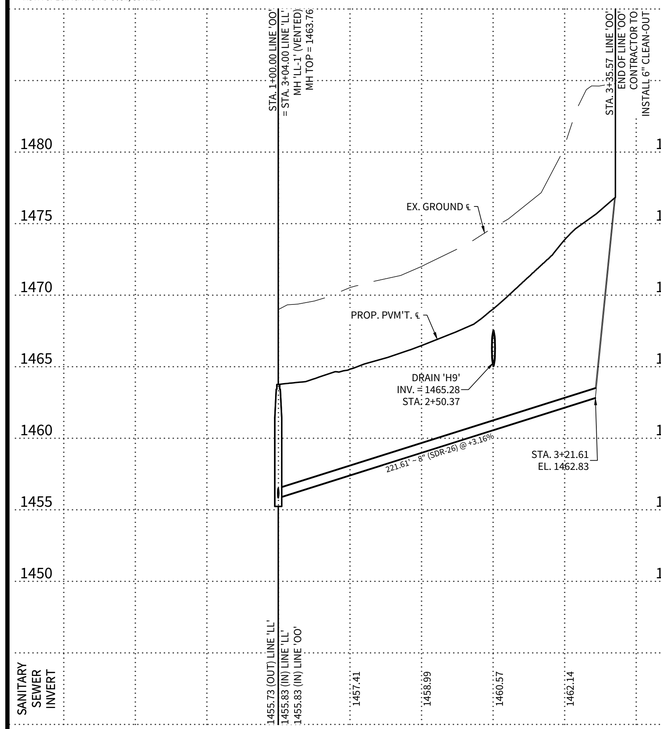
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LINE 'OO'

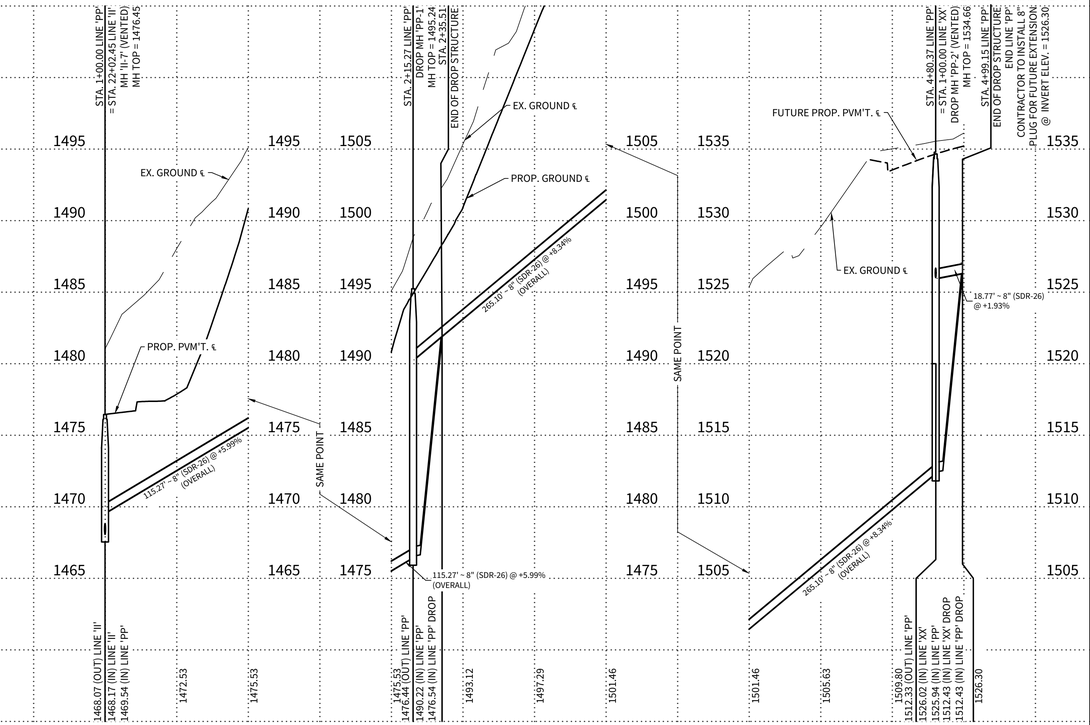
STA. 1+00.00 TO STA. 3+35.57



LINE 'PP'

STA. 1+00.00 TO STA. 4+85.37

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



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CUDE ENGINEERS

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REGENT PARK
UNIT 9

SANITARY SEWER PLAN & PROFILE -
LINE 'OO' & LINE 'PP'

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS

1. 11/05/2024 - SHOW PROPOSED LOT GRADING - LOWER LINE PP FOR 4' OF COVERED BELOW PG
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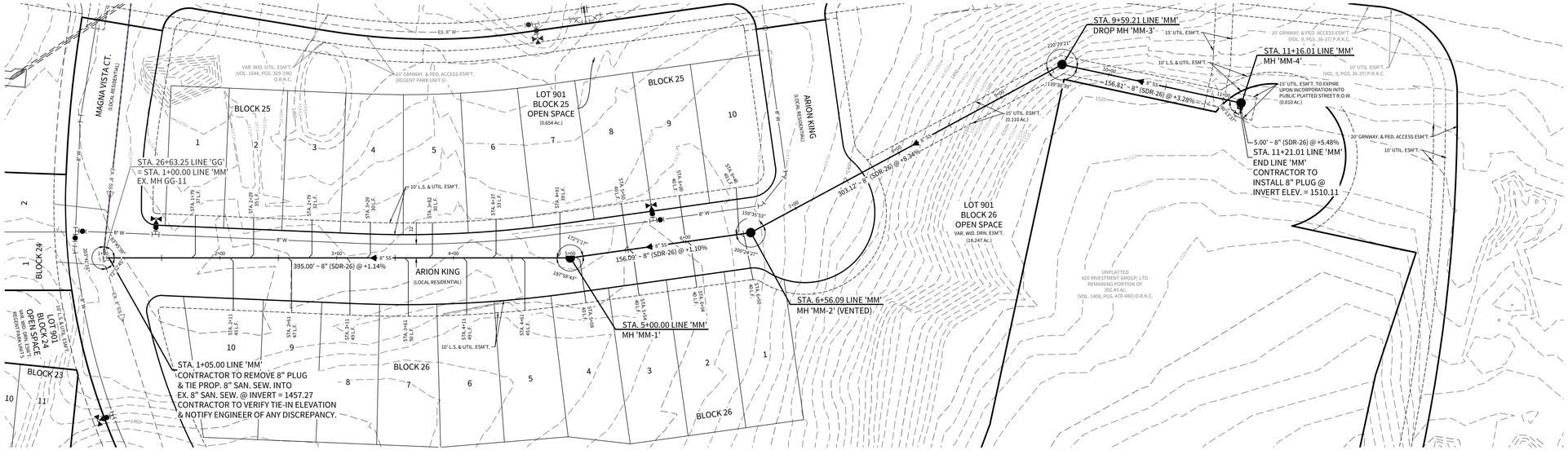
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
N/A

C29

7 OF 9

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



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TRENCH EXCAVATION SAFETY PROTECTION

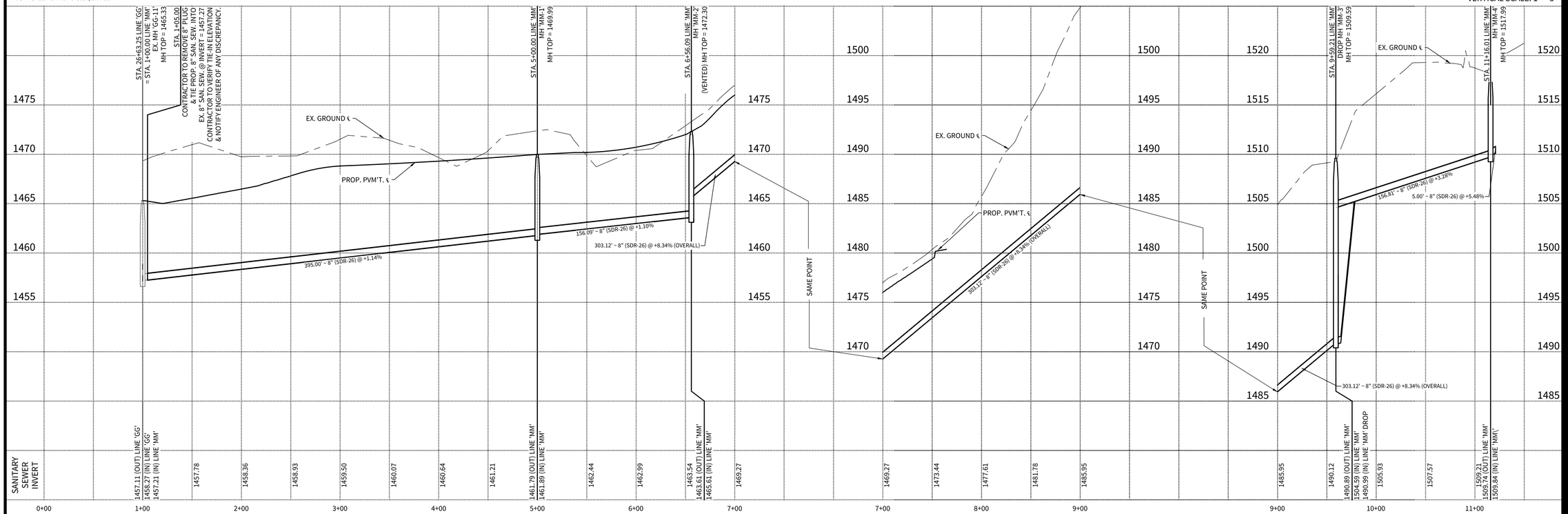
Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

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LINE 'MM'

STA. 1+00.00 TO STA. 11+21.01

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



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REGENT PARK UNIT 9

SANITARY SEWER PLAN & PROFILE - LINE 'MM'

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
N/A

C29A

7A OF 9

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REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

CRITERIA FOR SEWER MAIN CONSTRUCTION IN THE VICINITY OF WATER MAINS

I. WHERE A SEWER MAIN CROSSES OVER A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN NINE (9) FEET, ALL PORTIONS OF THE SEWER MAIN WITHIN NINE (9) FEET OF THE WATER LINE SHALL BE CONSTRUCTED USING 150 PSI PRESSURE RATED PIPE AT LEAST EIGHTEEN (18) FEET IN LENGTH MAY BE CENTERED ON THE WATER MAIN IN LIEU OF PIPE CONNECTION REQUIREMENTS (NO SEPARATE PAY ITEM).

II. WHERE SEMI-RIGID OR RIGID SEWER MAIN CROSSES UNDER A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN NINE FEET BUT GREATER THAN TWO FEET, THE INITIAL BACKFILL SHALL BE CEMENT STABILIZED SAND (TWO OR MORE BAGS OF CEMENT PER CUBIC YARD OF SAND) FOR ALL SECTIONS OF THE SEWER WITHIN NINE FEET OF THE WATER MAIN.

III. WHERE A SEWER MAIN CROSSES UNDER A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN TWO FEET, THE SEWER MAIN SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC WITH A MINIMUM PRESSURE RATING OF 150 PSI WITHIN NINE FEET OF THE WATER MAIN, SHALL BE PLACED NO CLOSER THAN SIX (6") INCHES BETWEEN OUTER DIAMETERS, AND SHALL BE JOINED WITH PRESSURE RING GASKET CONNECTIONS OR CORROSION PROTECTED MECHANICAL COUPLING DEVISES OR A CAST IRON OR DUCTILE IRON MATERIAL. A SECTION OF PSI PRESSURE RATE PIPE OF A LENGTH GREATER THAN EIGHTEEN (18) FEET MAY BE CENTERED ON THE WATER MAIN IN LIEU OF PIPE CONNECTION REQUIREMENTS (NO SEPARATE PAY ITEM).

IV. WHERE A SEWER MAIN PARALLELS A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN NINE FEET, THE SEWER MAIN SHALL BE BELOW THE WATER MAIN, SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON OR PVC WITH A MINIMUM PRESSURE RATING OF 150 PSI FOR BOTH PIPE AND JOINTS FOR A DISTANCE OF NINE FEET BEYOND THE POINT OF CONFLICT, SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE BETWEEN OUTER DIAMETERS OF TWO FEET VERTICALLY AND FOUR FEET HORIZONTALLY, AND SHALL BE JOINED WITH PRESSURE RING GASKET CONNECTIONS OR CORROSION PROTECTED MECHANICAL COUPLING DEVICES OF A CAST IRON OF DUCTILE IRON MATERIALS.

V. SANITARY SEWER MANHOLES SHALL NOT BE INSTALLED ANY CLOSER THAN NINE FEET TO WATER MAINS.

VI. PLAN AND PROFILE MUST SHOW TYPE OF CROSSING AND MATERIAL TO USE.

NON-EDWARDS AQUIFER RECHARGE ZONE SANITARY SEWER SYSTEM GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL BE APPROVED BY THE CITY OF BOERNE AND COMPLY WITH:
   A. CURRENT "CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (AUGUST, 2015)
   B. TEXAS NATURAL RESOURCE CONSERVATION COMMISSION'S DESIGN CRITERIA FOR SEWERAGE SYSTEMS [30 TAC 217]
2. THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE CITY OF BOERNE PUBLIC WORKS DEPARTMENT AT 1-830-248-8511, 48 HOURS PRIOR TO EXCAVATION.
3. CONTRACTOR TO CONTACT 1-800-344-8377, 48 HOURS PRIOR TO COMMENCING WORK FOR MARKING UNDERGROUND UTILITIES.
4. THE CONTRACTOR SHALL MAINTAIN SERVICE TO EXISTING SANITARY SEWERS AT ALL TIMES DURING CONSTRUCTION.
5. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION AND KENDALL COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT.
6. ALL WORK IN PUBLIC STREETS SHALL BE COORDINATED WITH AND APPROVED BY CITY OF BOERNE PUBLIC WORKS DEPARTMENT AND SHALL BE DONE IN ACCORDANCE WITH CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
7. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, THE CITY OF BOERNE MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND GAS VALVES THAT ARE IN THE PROJECT AREAS.
8. NO TESTING WILL BE PERFORMED PRIOR TO 30 DAYS FROM COMPLETE INSTALLATION OF THE SANITARY SEWER LINES.

   THE FOLLOWING SEQUENCE WILL BE STRICTLY ADHERED TO:
   1. PULL MANDREL.
   2. PERFORM AIR TEST.
   3. PULL WIPER (AFTER STREET HAS BEEN ASPHALTED IN NEW SUBDIVISIONS).

MANHOLES:

9. ALL MANHOLES SHALL BE CONSTRUCTED SO THAT TOP OF THE RING IS AT LEAST FOUR (4) INCHES ABOVE THE FINISHED GRADE OF THE SURROUNDING GROUND EXCEPT WHEN LOCATED IN TXDOT R.O.W. IN TXDOT ROW AREAS, THE MANHOLE RING SHALL BE FLUSH WITH NATURAL GROUND.
10. ALL MANHOLES IN THE STREET AND 100 YEAR FLOODPLAIN AREAS SHALL HAVE WATERTIGHT RINGS AND COVERS IN ACCORDANCE WITH THE MOST CURRENT CITY OF BOERNE STANDARD SPECIFICATIONS FOR CONSTRUCTION.
11. ON ANY MANHOLES TO BE ABANDONED, THE RINGS AND COVER SHALL BE SALVAGED IN ACCORDANCE WITH THE MOST CURRENT CITY OF BOERNE STANDARD SPECIFICATIONS FOR CONSTRUCTION: PREPARATION OF RIGHT-OF-WAY. THE HOLE SHOULD BE BACKFILL TO THE SATISFACTION OF THE INSPECTOR. ALL PUBLIC MANHOLES WILL BE VACUUM TESTED AS PER 02515 3.2.

PIPING:

12. THE KIND AND DESCRIPTION OF THE PIPE CONDUIT IS SHOWN ON THE PLANS, (IF PVC, "SOR" AND ASTW/ANSI DESIGNATIONS. CLASS).
13. THE USE OF ASBESTOS CEMENT PIPE WILL BE PROHIBITED UNDER THIS CONTRACT. ALL DUCTILE IRON PIPE USED IN THIS SYSTEM SHALL BE CORROSION PROTECTED ON BOTH THE INTERIOR AND EXTERIOR SURFACES. ALL CORROSION PROTECTION SHALL BE APPLIED AND INSTALLED IN SUCH A MANNER AS TO MAINTAIN A CONTINUOUSLY PROTECTED SURFACE AFTER FINAL PIPE INSTALLATION.
14. ALL PVC SEWER PIPE WITH OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH, SDR 26 MINIMUM PIPE STIFFNESS OF 115 PSI.
15. ALL SEWER PIPES SHALL BE GOVERNED BY THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR CONSTRUCTION (AUGUST, 2015).
16. SEWER PIPE CONNECTIONS TO PRE-CAST MANHOLES WILL BE COMPRESSION JOINTS AS APPROVED BY CITY OF BOERNE, MECHANICAL JOINT "BOOT TYPE" CONNECTIONS ALONE WILL NOT BE ALLOWED. "BOOT TYPE" JOINTS MAY BE USED IN CONJUNCTION WITH COMPRESSION JOINTS AS APPROVED BY CITY OF BOERNE. SEWER PIPE CONNECTIONS TO MONOLITHIC MANHOLES SHALL BE REVIEWED AND APPROVED BY CITY OF BOERNE. CITY OF BOERNE MUST APPROVE ANY CHANGES FROM THESE METHODS.
17. ALL PIPE TRENCHING, BEDDING AND BACKFILL SHALL BE DONE IN ACCORDANCE WITH APPROPRIATE ASTM/ANSI SPECIFICATIONS (REFERENCE 30 TAC 217.54; ASTM C12, (ANSI A106.2) OR ASTM D-2321 (ANSI K65.171).
18. WHEN SEWER LATERALS ARE TO BE CONNECTED TO EXISTING SEWER MAINS AND NO STUB-OUT HAS BEEN EARLIER PROVIDED, THE CONNECTION MUST BE MADE WITH AN APPROVED SERVICE SADDLE AS PER CITY OF BOERNE STANDARD SPECIFICATIONS FOR CONSTRUCTION.
19. ALL RESIDENTIAL SEWER SERVICE LATERALS SHALL BE EXTENDED TO AT LEAST THE PROPERTY LINE, CAPPED AND SEALED.
20. WHERE REQUIRED, CONCRETE ENCASEMENT SHALL BE PLACED FOR FULL WIDTH OF THE TRENCH TO A PLANE 8" ABOVE THE TOP OF THE PIPE, WITH PAY LIMITS AS SHOWN ON THE STANDARD DETAIL SHEET.
21. A MINIMUM OF 3 FEET OF COVER IS TO BE MAINTAINED OVER THE SANITARY SEWER MAIN AND LATERALS AT SUBGRADE, OTHERWISE CONCRETE ENCASEMENT WILL BE REQUIRED.

BLASTING:

22. NO BLASTING WILL BE ALLOWED.

TESTING:

23. ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH THE FOLLOWING:

A. 30 TAC 217.54 (b)(1) OR THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR CONSTRUCTION 3.09 & 3.10 OF SECTION 025.30: DEFLECTION TEST FOR FLEXIBLE AND SEMI-RIGID PIPE CONDUCTED AFTER FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.
B. 30 TAC 217.57 (a)(1) & 217.57 (a)(2) OR THE CITY OF BOERNE STANDARD SPECIFICATIONS INFILTRATION AND/OR EXFILTRATION AND/OR LOW-PRESSURE AIR TEST.
C. 30 TAC 217.58 OR THE CITY OF BOERNE STANDARD SPECIFICATIONS. ALL MANHOLES AND WET WELLS MUST BE TESTED SEPARATELY AND INDEPENDENTLY OF THE COLLECTION LINES.

24. SEWER LINES SHALL BE TESTED FROM MANHOLE TO MANHOLE.
25. SANITARY SEWER MAIN CONNECTIONS MADE DIRECTLY TO EXISTING MANHOLES WILL REQUIRE SUCCESSFUL TESTING OF THE MANHOLE IN ACCORDANCE WITH THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
26. AFTER CONSTRUCTION, TESTING WILL BE DONE BY TV CAMERA BY THE CITY OF BOERNE AND OBSERVED BY INSPECTOR, WASTEWATER ENGINEERING PERSONNEL, AND CONTRACTOR AS CAMERA IS RUN THROUGH THE LINES. ANY ABNORMALITIES, SUCH AS BROKEN PIPE OR MISALIGNED JOINTS, MUST BE REPLACED BY THE CONTRACTOR AT HIS EXPENSE.
27. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO THE CITY OF BOERNE PUBLIC WORKS DEPARTMENT.
28. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS, AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THESE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS, AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
29. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NOT PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100-YER FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT. WASTE MATERIALS SHALL BE REMOVED FROM TXDOT ROW DAILY.
30. WATER JETTING THE BACKFILL WILL NOT BE PERMITTED. SANITARY SEWER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR CONSTRUCTION.
31. WHERE THE MINIMUM 9-FOOT SEPARATION DISTANCE BETWEEN SEWER LINE AND WATER LINE/MAINS CANNOT BE MAINTAINED, THE INSTALLATION OF SEWER LINES SHALL BE IN STRICT ACCORDANCE WITH TEXAS NATURAL RESOURCE CONSERVATION COMMISSION'S RULES (30 TAC 217.53 (d) & 30 TAC 290.44 (e)).
32. THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AND ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIRE EROSION AND SEDIMENTATION CONTROL FOR CONSTRUCTION OF SEWER COLLECTION SYSTEMS. DEVELOPER OR AUTHORIZED REPRESENTATIVE SHALL PROVIDE EROSION AND SEDIMENTATION CONTROL AS NOTES ON THE PROJECTS PLAN AND PROFILE SHEETS.
33. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED BY THE CONTRACTOR AFTER FINAL ACCEPTANCE OF THE PROJECT BY THE CITY OF BOERNE PUBLIC WORKS AND TXDOT.
34. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.
35. THE DEVELOPER DEDICATES THE SANITARY SEWER MAINS UPON COMPLETION BY THE DEVELOPER AND ACCEPTANCE BY THE CITY OF BOERNE. THE CITY OF BOERNE WILL OWN AND MAINTAIN SAID WORK COMPLETED BY THE CONTRACTOR, WHICH HAS NOT RECEIVED A WORK ORDER OR THE CONSENT OF THE CITY OF BOERNE CONSTRUCTION INSPECTION DIVISION WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.
36. OWNER PAYS DIRECTLY FOR ALL INITIAL (PASSING) DENSITY TESTS.

SEWER GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN STRICT CONFORMANCE WITH CITY OF BOERNE REQUIREMENTS.
2. ALL PIPE TRENCHING, BEDDING AND BACKFILL SHALL BE DONE IN ACCORDANCE WITH SPECIFICATIONS SECTION 30 TAC 217.54.
3. MANHOLE RINGS AND COVERS SHALL BE NEENAH FOUNDRY, DEETER FOUNDRY, ALAMO IRON WORKS, EAST JORDAN IRON WORKS, OR EQUAL. WHEN WATER TIGHT MANHOLE RINGS AND COVERS ARE SPECIFIED, THEY SHALL PROVIDE A-77 O.R. WATER TIGHT OR EQUAL AND MEET THE REQUIREMENTS OF SECTION 02515 1.2 OR THE CITY OF BOERNE STANDARD SPECIFICATIONS.
4. ALL MANHOLES SHALL BE PRECAST, INCLUDING BASES, "CHARLOTTES CONCRETE" OR APPROVED EQUAL WITH GASKETS ACCORDING TO ASTM C891.
5. MATERIAL FOR SANITARY SEWER PIPE MUST BE THE SAME FROM MANHOLE TO MANHOLE. CHANGES IN TYPE OF PIPE MAY BE MADE ONLY AT MANHOLES OR SPECIAL STRUCTURES, EXCEPT AS DIRECTED BY THE ENGINEER AND WHERE APPLICABLE APPROVED BY THE DIRECTOR OF PUBLIC WORKS.
6. ALL SEWER PIPE WITH LESS THAN THREE FEET (3) OF COVER SHALL BE CONCRETE ENCASED.
7. CONES, RISERS AND BASE MUST CONFORM TO ASTM C-478.
8. JOINTS BETWEEN MANHOLE SECTIONS MUST HAVE RUBBER GASKETS PER ASTM C-443.
9. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 150 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT WATER MAIN.
10. SEE SHEET 1 OF 9 FOR BENCHMARK INFORMATION.
11. PIPE TYPE DESIGNATIONS ARE SDR 26 AND SHALL BE FROM THE FOLLOWING MANUFACTURERS OR APPROVED EQUALS: J-M MANUFACTURING, CERTAINTEED CORPORATION, NORTH AMERICAN PIPE CORPORATION, I PEX INC., DIAMOND PLASTIC CORPORATION, FREEDOM PLASTICS, NATURAL PIPE AND PLASTICS, OR NORTHERN PIPE PRODUCTS. GASKET JOINTS AND ELECTROMETRIC SEALS SHALL CONFORM TO ASTM D3034 AND ASTM F477, RESPECTIVELY.
12. CONTRACTOR TO NOTIFY TXDOT INSPECTOR FOR THIS AREA 48 HOURS PRIOR TO STARTING CONSTRUCTION. (TXDOT BOERNE MAINTENANCE OFFICE 830-816-2430).
13. USE BEDDING AND INITIAL BACKFILL MATERIALS AS APPROVED BY THE CITY OF BOERNE AND CONFORM TO ASTM C33 GRADING AS SHOWN IN SECTION 02221 2.1C OF THE CITY OF BOERNE STANDARD SPECIFICATIONS.
14. COMPACT SECONDARY BACKFILL TO 98% MAX DRY DENSITY. CONTRACTOR TO PERFORM DENSITY TESTING AT INTERVALS OF 500' PER 6" LIFT OF SECONDARY BACKFILL FOR UTILITIES IN TXDOT ROW (TXDOT REQUIREMENT) AND PER 8" LIFT OF SECONDARY BACKFILL FOR UTILITIES IN ALL OTHER AREAS (CITY OF BOERNE REQUIREMENT). REPORTS TO BE PROVIDED TO CITY OF BOERNE PUBLIC WORKS DEPARTMENT. REPORTS OF TEST RESULTS TO BE PROVIDED TO TXDOT FOR WORK WITHIN TXDOT ROW.
15. CONTRACTOR TO CONTACT 1-800-344-8377 48 HOURS PRIOR TO COMMENCING WORK FOR MARKING UNDERGROUND CONDUITS.

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San Antonio, Texas 78231
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REGENT PARK UNIT 9

CITY OF BOERNE - SANITARY SEWER GENERAL NOTES

DATE
10/16/2023

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 11/05/2024 - UPDATE BENCHMARK NOTE
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6.
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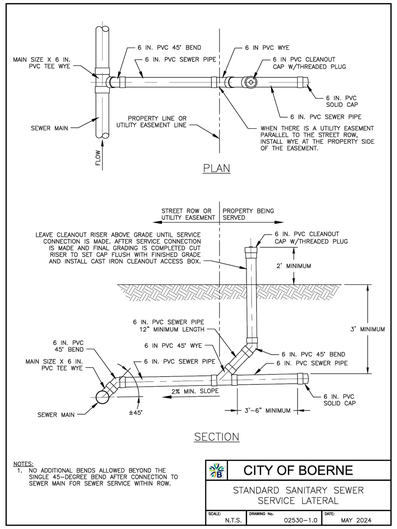
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
N/A

C30

P:\02133.160\3 Drawings\05_12 SSDP.dwg, 10/24/2024 10:41am, wmurphy

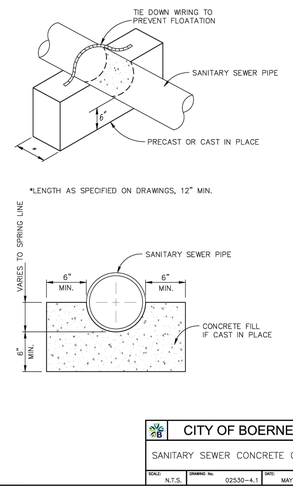
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



CITY OF BOERNE

STANDARD SANITARY SEWER SERVICE LATERAL

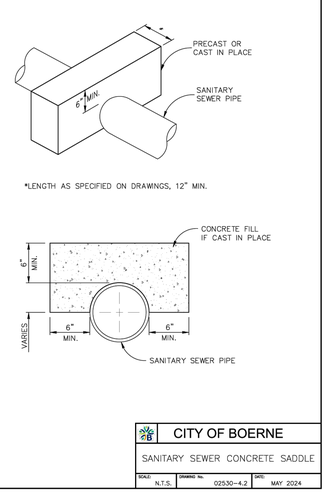
SCALE: N.T.S. | DRAWING No.: 02530-1.0 | DATE: MAY 2024



CITY OF BOERNE

SANITARY SEWER CONCRETE CRADLE

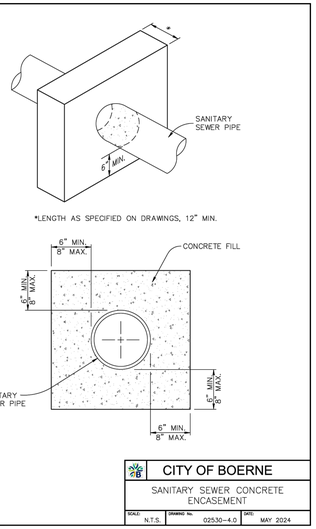
SCALE: N.T.S. | DRAWING No.: 02530-4.1 | DATE: MAY 2024



CITY OF BOERNE

SANITARY SEWER CONCRETE SADDLE

SCALE: N.T.S. | DRAWING No.: 02530-4.2 | DATE: MAY 2024

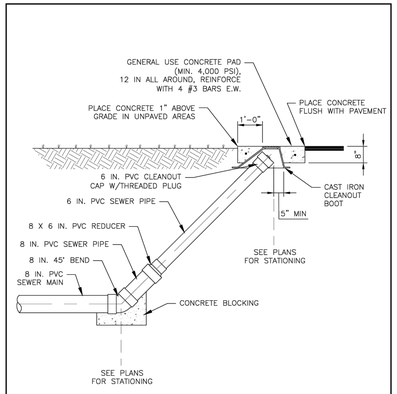


CITY OF BOERNE

SANITARY SEWER CONCRETE ENCASEMENT

SCALE: N.T.S. | DRAWING No.: 02530-4.0 | DATE: MAY 2024

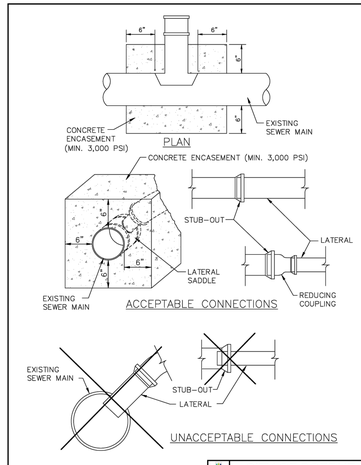
NOTE:
FOR VENTED MANHOLE RING AND COVER REQUIREMENTS SEE SPECIFICATION 02530 2.7J.



CITY OF BOERNE

END OF SEWER CLEANOUT

SCALE: N.T.S. | DRAWING No.: 02530-3.0 | DATE: MAY 2024

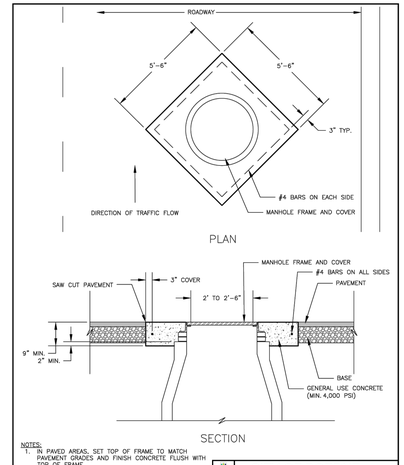


NOTE:
CONNECT THE SADDLE TO THE EXISTING MAIN PERMANENTLY USING CLAMPS AS RECOMMENDED BY THE MANUFACTURER.

CITY OF BOERNE

SANITARY SEWER SERVICE SADDLE CONNECTION

SCALE: N.T.S. | DRAWING No.: 02530-1.2 | DATE: MAY 2024

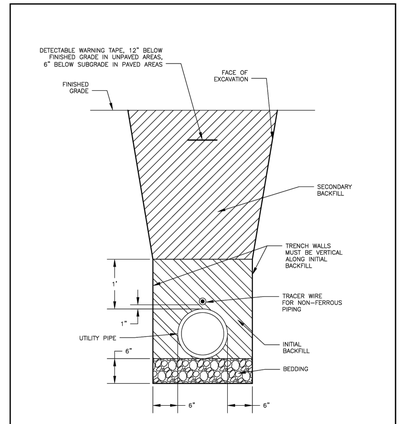


NOTES:
1. IN PAVED AREAS, SET TOP OF FRAME TO MATCH PAVEMENT GRADES AND FINISH CONCRETE FLUSH WITH TOP OF FRAME.
2. IN UNPAVED AREAS, SET TOP OF FRAME 1" TO 2" ABOVE FINISHED GRADE AND FINISH CONCRETE FLUSH WITH FINISHED GRADE.
3. CONSTRUCT CONCRETE RING ENCASEMENT ON ALL MANHOLES.
4. IF MANHOLE IS LOCATED OFF-SITE, ENSURE MANHOLE IS AT LEAST 6" EXPOSED ABOVE GRADE.

CITY OF BOERNE

MANHOLE RING ENCASEMENT

SCALE: N.T.S. | DRAWING No.: 02530-2.2 | DATE: MAY 2024

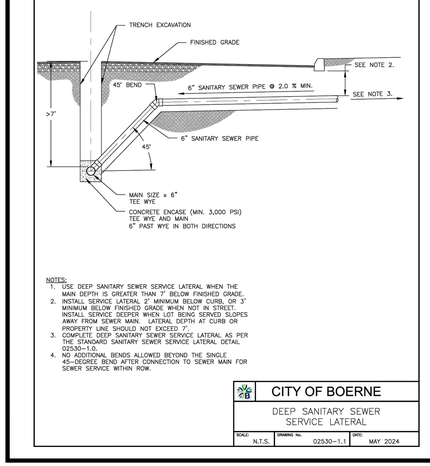


NOTES:
1. TYPICAL BEDDING PER APPLICABLE UTILITY BACKFILL STANDARD SPECIFICATIONS.
2. SECONDARY BACKFILL TO BE COMPACTED IN LIFTS PER ASTM D1557 (MODIFIED PROCTOR) AND SPECIFICATION 02221.

CITY OF BOERNE

UTILITY PIPE TRENCH

SCALE: N.T.S. | DRAWING No.: 02221-1.0 | DATE: MAY 2024

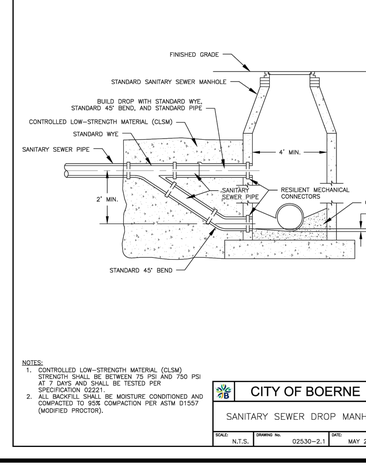


NOTES:
1. USE DEEP SANITARY SEWER SERVICE LATERAL WHEN THE MAIN DEPTH IS GREATER THAN 7' BELOW FINISHED GRADE.
2. INSTALL SERVICE LATERAL 2' MINIMUM BELOW CURB, OR 3' MINIMUM BELOW FINISHED GRADE WHEN NOT IN STREET. INSTALL SERVICE DEEPER WHEN LOT BEING SERVED SLOPES AWAY FROM SEWER MAIN. LATERAL DEPTH AT CURB OR PROPERTY LINE SHOULD NOT EXCEED 7'.
3. CONSULT STD. DEEP SANITARY SEWER SERVICE LATERAL AS PER CCB STANDARD SANITARY SEWER SERVICE LATERAL DETAIL 02530-1.0.
4. NO ADDITIONAL BENDS ALLOWED BEYOND THE SINGLE 45-DEGREE BEND AFTER CONNECTION TO SEWER MAIN FOR SEWER SERVICE WITHIN ROW.

CITY OF BOERNE

DEEP SANITARY SEWER SERVICE LATERAL

SCALE: N.T.S. | DRAWING No.: 02530-1.1 | DATE: MAY 2024

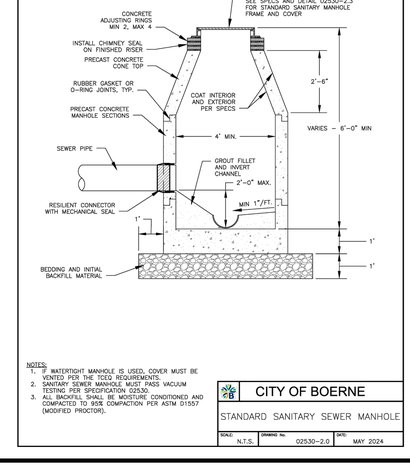


NOTES:
1. CONTROLLED LOW-STRENGTH MATERIAL (CLSM) STRENGTH SHALL BE BETWEEN 75 PSI AND 750 PSI AT 7 DAYS AND SHALL BE TESTED PER SPECIFICATION 02221.
2. ALL BACKFILL SHALL BE MOISTURE CONDITIONED AND COMPACTED TO 95% COMPACTION PER ASTM D1557 (MODIFIED PROCTOR).

CITY OF BOERNE

SANITARY SEWER DROP MANHOLE

SCALE: N.T.S. | DRAWING No.: 02530-2.1 | DATE: MAY 2024

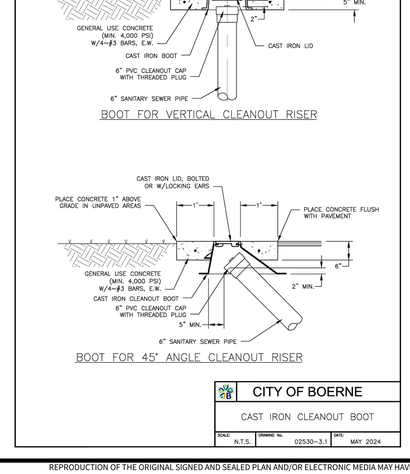


NOTES:
1. IF WATERTIGHT MANHOLE IS USED, COVER MUST BE VENTED PER THE TCEQ REQUIREMENTS.
2. SANITARY SEWER MANHOLE MUST PASS VACUUM TESTING PER SPECIFICATION 02530.
3. ALL BACKFILL SHALL BE MOISTURE CONDITIONED AND COMPACTED TO 95% COMPACTION PER ASTM D1557 (MODIFIED PROCTOR).

CITY OF BOERNE

STANDARD SANITARY SEWER MANHOLE

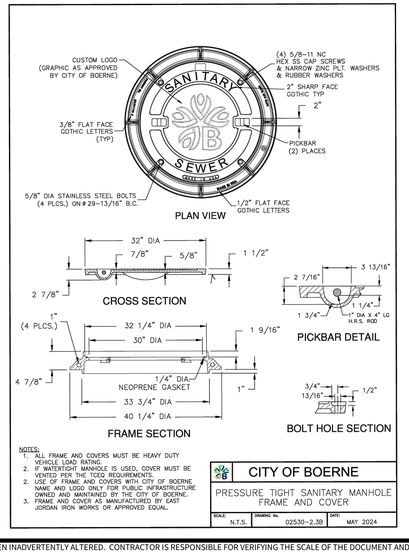
SCALE: N.T.S. | DRAWING No.: 02530-2.0 | DATE: MAY 2024



CITY OF BOERNE

CAST IRON CLEANOUT BOOT

SCALE: N.T.S. | DRAWING No.: 02530-3.1 | DATE: MAY 2024



NOTES:
1. ALL FRAME AND COVERS MUST BE HEAVY DUTY VEHICLE LOAD RATING.
2. IF WATERTIGHT MANHOLE IS USED, COVER MUST BE VENTED PER THE TCEQ REQUIREMENTS.
3. USE OF FRAME AND COVERS WITH CITY OF BOERNE NAME AND LOGO ONLY FOR PUBLIC INFRASTRUCTURE OWNED AND MAINTAINED BY THE CITY OF BOERNE.
4. FRAME AND COVER AS MANUFACTURED BY EAST JORDAN IRON WORKS OR APPROVED EQUAL.

CITY OF BOERNE

PRESSURE TIGHT SANITARY MANHOLE FRAME AND COVER

SCALE: N.T.S. | DRAWING No.: 02530-2.3B | DATE: MAY 2024

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CUDE ENGINEERS EST. 1980

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San Antonio, Texas 78231
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REGENT PARK UNIT 9

CITY OF BOERNE - SANITARY SEWER STANDARD DETAILS

DATE
10/16/2023

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 09/27/2024 - UPDATE TO CURRENT CoB DETAILS
2.
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
N/A

C31

9 OF 9

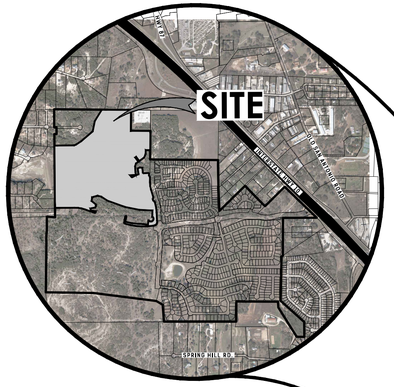
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

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WATER DISTRIBUTION CONSTRUCTION PLANS

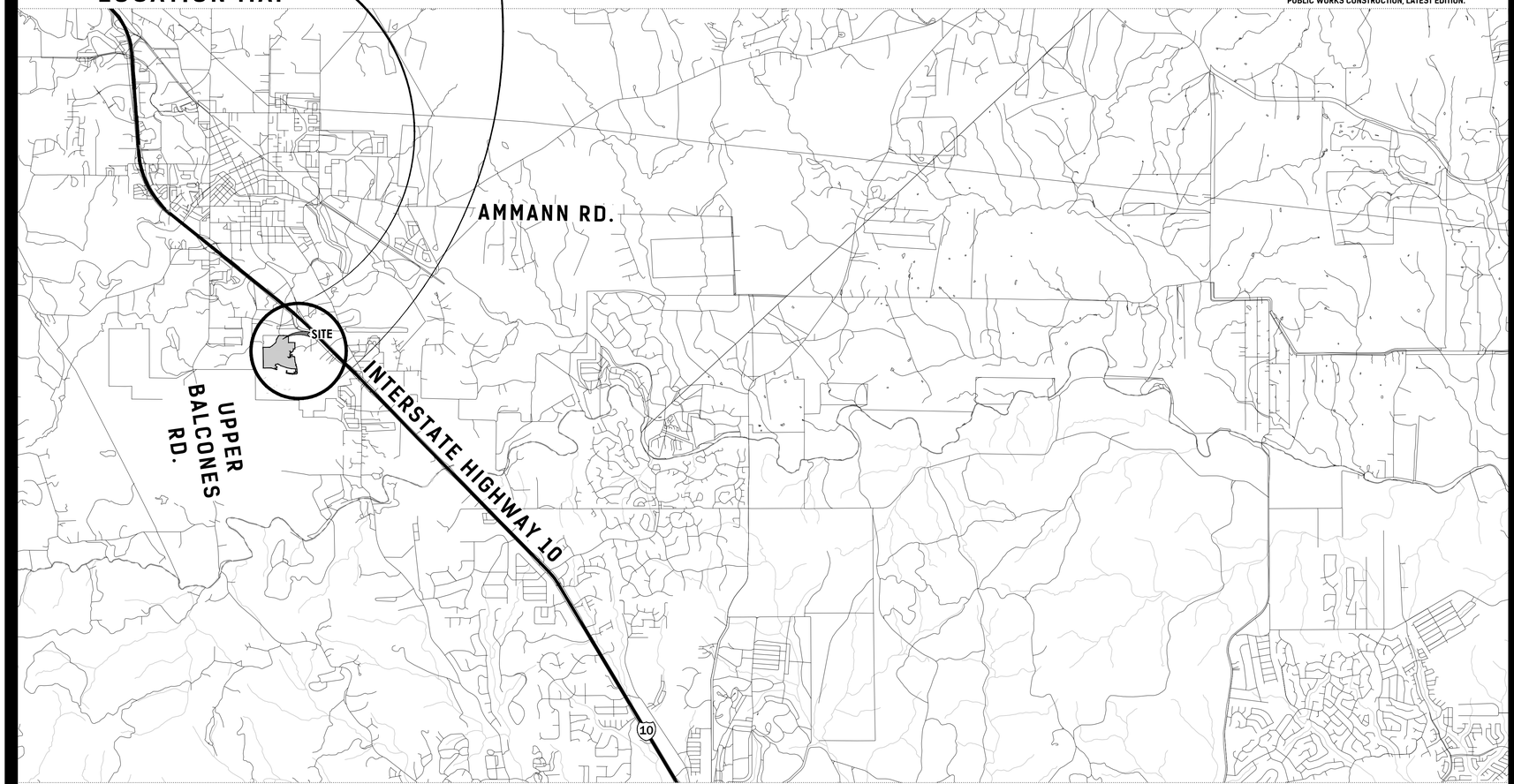
- C32 – WATER DISTRIBUTION PLAN
- C33 – WATER DISTRIBUTION PLAN
- C34 – CITY OF BOERNE – WATER DISTRIBUTION STANDARD DETAILS

* DENOTES STANDARD DETAILS ADOPTED FOR USE ON THIS PROJECT.



LOCATION MAP

CONSTRUCTION OF ALL FACILITIES TO BE DEDICATED TO THE PUBLIC SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.



VICINITY MAP

REGENT PARK UNIT 9

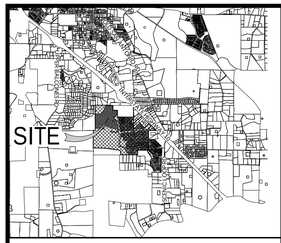
WATER DISTRIBUTION CONSTRUCTION PLANS

DEVELOPER:
TENOTEX DEVELOPMENT CO., INC.
CONTACT PERSON: ISRAEL FOGIEL
10003 N.W. MILITARY, SUITE 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
FAX: (210) 344-3137

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

DRAWN BY	DATE
AD/RM/MW/MS	12/30/2024
CHECKED BY	**PROJECT NO.**
Patrick Murphy, P.E.	02133.160

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500



LOCATION MAP N.T.S.

TRENCH EXCAVATION SAFETY PROTECTION

Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAVING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TEST WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE CITY OF BOERNE INSPECTOR/TEST ADMINISTER, PER EACH 8-INCH LOOSE LIFT PER 500 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY CITY OF BOERNE WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

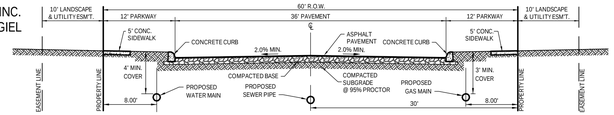
BOERNE WATER GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL CONFORM TO APPLICABLE CITY OF BOERNE CONSTRUCTION SPECIFICATIONS.
2. MACHINE CHLORINATION BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE UNLESS OTHERWISE INDICATED.
3. ALL PIPE SHALL BE P.V.C. C-900, DR14 CLASS 200. UNLESS OTHERWISE NOTED.
4. ALL MAINS SHALL BE HYDROSTATICALLY TESTED BY THE CONTRACTOR, AS PROVIDED FOR IN THE C.O.B. SPECS. FOR P/W CONSTRUCTION.
5. THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH ALL THE FINAL MEASUREMENTS.
6. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. CALL 1-800-DIG-TESS FOR LOCATES.
7. CONTRACTOR SHALL NOTIFY AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION:
   A) CITY OF BOERNE PUBLIC WORKS (1-830-249-9511)
8. ALL GARBAGE OR SPOIL MATERIAL FROM THIS WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR, AT HIS EXPENSE.
9. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED AND THE CITY OF BOERNE RELEASES THE MAIN FOR TIE-IN AND USE.
10. WHEN SEWER LINES ARE INSTALLED IN THE VICINITY OF PROPOSED & FUTURE WATER MAINS, SUCH INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS" (1988 OR ANY REVISIONS THERETO).
11. ALL THRUST BLOCKING MUST BLOCK AGAINST NATURAL GROUND NOT TRENCH BACKFILL.
12. MAINTAIN 2' HORIZONTAL SEPARATION BETWEEN EXIST. POWER POLE AND TRENCH.
13. ALL FIRE HYDRANTS TO BE MUELLER A-423 OR APPROVED EQUAL.
14. COMPACT SECONDARY BACKFILL TO 98% MAX DRY DENSITY. CONTRACTOR TO PERFORM DENSITY TESTING AT INTERVALS OF 500' PER 6" LIFT OF SECONDARY BACKFILL FOR UTILITIES IN TxDOT ROW (TxDOT REQUIREMENT), AND PER 8" LIFT OF SECONDARY BACKFILL FOR UTILITIES IN ALL OTHER AREAS (CITY OF BOERNE REQUIREMENT). REPORTS TO BE PROVIDED TO TxDOT FOR WORK WITHIN TxDOT ROW.
15. CONTRACTOR TO CONTACT 1-800-DIG-TESS 48 HOURS PRIOR TO COMMENCING WORK FOR MARKING UNDERGROUND CONDUITS.
16. ALL AREAS WHICH WHERE TRAVERSED BY CONSTRUCTION EQUIPMENT WILL BE DISKED PRIOR TO COMMENCING REVEGETATION.
17. CONTRACTOR TO INSTALL UNDERGROUND HAZARD WARNING TAPE TWELVE (12) INCHES BELOW FINISHED GRADE IN UNPAVED AREAS AND SIX (6) INCHES BELOW SUBGRADE IN PAVED AREAS. REFERENCE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND DETAILS.
18. ALL BURIED STAND PIPE SHALL BE C900 OR APPROVED EQUAL.

MISCELLANEOUS NOTES

1. NO METER BOXES TO BE SET IN DRIVEWAYS. ANY METER BOXES SET IN DRIVEWAYS WILL BE RELOCATED AT THE CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION FROM DAMAGE DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, LANDSCAPING, AND STRUCTURES.
3. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY OF BOERNE PUBLIC WORKS AT 1-830-249-9511 FOR GUIDANCE.
4. NO EXTRA- PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.
5. THE DEVELOPER DEDICATES THE WATER MAIN UPON COMPLETION BY THE DEVELOPER AND ACCEPTANCE BY THE CITY OF BOERNE. THE CITY OF BOERNE WILL OWN AND MAINTAIN SAID WATER MAINS WHICH ARE LOCATED WITHIN THIS PARTICULAR SUBDIVISION (AS APPLICABLE).
6. THE CONTRACTOR WILL KEEP THE AREA ON TOP OF AND AROUND THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.
7. CONTRACTOR SHALL FURNISH A SET OF "AS-BUILT" DRAWINGS TO THE ENGINEER AT TIME OF FINAL INSPECTION. CONTRACTOR SHALL GIVE ENGINEER AT LEAST TWO WORKING DAYS NOTICE OF FINAL INSPECTION.
8. [8"] - DENOTES JOIN RESTRAINT LENGTH AND DIRECTION

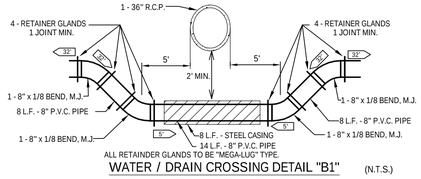
DEVELOPER:
TENOTEX DEVELOPMENT CO., INC.
CONTACT PERSON: ISRAEL FOGIEL
10003 NW MILITARY, STE. 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
FAX: (210) 344-3137



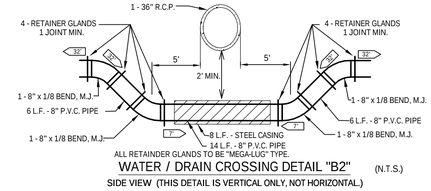
LOCAL RESIDENTIAL STREET CROSS SECTION (60' R.O.W.)
N.T.S.

NOTE:
FOR PAVEMENT DESIGN SECTION SEE GEOTECHNICAL ENGINEERING REPORT

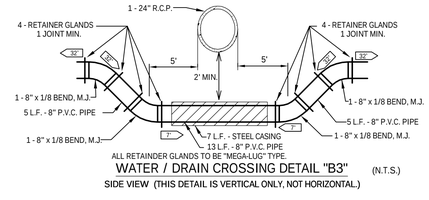
CAUTION!!
EXISTING UTILITIES ARE LOCATED WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTORS SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, VERIFY THE EXACT LOCATION & IDENTIFY AREA OF CONFLICTS WITH EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER IF CONFLICT IS FOUND.



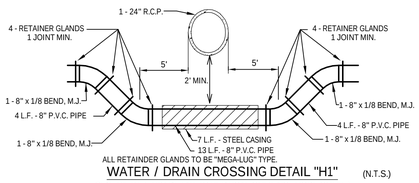
WATER / DRAIN CROSSING DETAIL "B1" (N.T.S.)
SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)



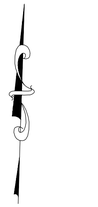
WATER / DRAIN CROSSING DETAIL "B2" (N.T.S.)
SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)



WATER / DRAIN CROSSING DETAIL "B3" (N.T.S.)
SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)



WATER / DRAIN CROSSING DETAIL "H1" (N.T.S.)
SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)



DETAIL "A"

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

JOINT RESTRAINT NOTE:

CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSES OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOW. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING, JOINT RESTRAINTS AND FIELD LOCK GASKETS

SCALE: 1"=50'
0 50 100

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REGENT PARK UNIT 9

WATER DISTRIBUTION PLAN

DATE 12/03/2024
PROJECT NO. 02133.160
DRAWN BY AD/RM/MW/MS/JG
CHECKED BY WPM

REVISIONS
1. 11/05/2024 - UPDATED VERTICAL BENDS, REVISED WATER LAYOUT IN ROUNDABOUT AREA
2.
3.
4.
5.
6.
7.
8.

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

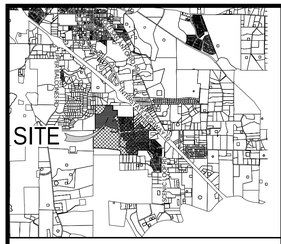
PLAT NO. N/A

C32

1 OF 3

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

P:\02133\160\CSt\wing\dgn_33.DGN 2024-05-05 02:21:13 jsvenson



LOCATION MAP N.T.S.

TRENCH EXCAVATION SAFETY PROTECTION

Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

NOTE:

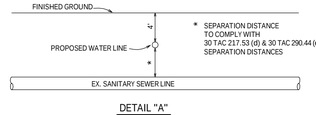
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAVING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TEST WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE CITY OF BOERNE INSPECTOR/TEST ADMINISTER, PER EACH 8-INCH LOOSE LIFT PER 500 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY CITY OF BOERNE WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.

BOERNE WATER GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL CONFORM TO APPLICABLE CITY OF BOERNE CONSTRUCTION SPECIFICATIONS.
2. MACHINE CHLORINATION BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE UNLESS OTHERWISE INDICATED.
3. ALL PIPE SHALL BE P.V.C. C-900, DR14 CLASS 200. UNLESS OTHERWISE NOTED.
4. ALL MAINS SHALL BE HYDROSTATICALLY TESTED BY THE CONTRACTOR, AS PROVIDED FOR IN THE C.O.B. SPECS. FOR P/W CONSTRUCTION.
5. THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH ALL THE FINAL MEASUREMENTS.
6. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. CALL 1-800-DIG-TESS FOR LOCATES.
7. CONTRACTOR SHALL NOTIFY AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION:
   A) CITY OF BOERNE PUBLIC WORKS (1-830-249-9511)
8. ALL GARBAGE OR SPOIL MATERIAL FROM THIS WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR, AT HIS EXPENSE.
9. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED AND THE CITY OF BOERNE RELEASES THE MAIN FOR TIE-IN AND USE.
10. WHEN SEWER LINES ARE INSTALLED IN THE VICINITY OF PROPOSED & FUTURE WATER MAINS. SUCH INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS" (1988 OR ANY REVISIONS THERETO).
11. ALL THRUST BLOCKING MUST BLOCK AGAINST NATURAL GROUND NOT TRENCH BACKFILL.
12. MAINTAIN 2' HORIZONTAL SEPARATION BETWEEN EXIST. POWER POLE AND TRENCH.
13. ALL FIRE HYDRANTS TO BE MUELLER A-423 OR APPROVED EQUAL.
14. COMPACT SECONDARY BACKFILL TO 98% MAX DRY DENSITY. CONTRACTOR TO PERFORM DENSITY TESTING AT INTERVALS OF 500' PER 8" LIFT OF SECONDARY BACKFILL FOR UTILITIES IN TxDOT ROW (TxDOT REQUIREMENT), AND PER 8" LIFT OF SECONDARY BACKFILL FOR UTILITIES IN ALL OTHER AREAS (CITY OF BOERNE REQUIREMENT). REPORTS TO BE PROVIDED TO TxDOT FOR WORK WITHIN TxDOT ROW.
15. CONTRACTOR TO CONTACT 1-800-DIG-TESS 48 HOURS PRIOR TO COMMENCING WORK FOR MARKING UNDERGROUND CONDUITS.
16. ALL AREAS WHICH WHERE TRAVERSED BY CONSTRUCTION EQUIPMENT WILL BE DISKED PRIOR TO COMMENCING REVEGETATION.
17. CONTRACTOR TO INSTALL UNDERGROUND HAZARD WARNING TAPE TWELVE (12) INCHES BELOW FINISHED GRADE IN UNPAVED AREAS AND SIX (6) INCHES BELOW SUBGRADE IN PAVED AREAS. REFERENCE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND DETAILS.
18. ALL BURIED STAND PIPE SHALL BE C900 OR APPROVED EQUAL.

MISCELLANEOUS NOTES

1. NO METER BOXES TO BE SET IN DRIVEWAYS. ANY METER BOXES SET IN DRIVEWAYS WILL BE RELOCATED AT THE CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION FROM DAMAGE DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, LANDSCAPING, AND STRUCTURES.
3. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY OF BOERNE PUBLIC WORKS AT 1-830-249-9511 FOR GUIDANCE.
4. NO EXTRA- PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.
5. THE DEVELOPER DEDICATES THE WATER MAIN UPON COMPLETION BY THE DEVELOPER AND ACCEPTANCE BY THE CITY OF BOERNE. THE CITY OF BOERNE WILL OWN AND MAINTAIN SAID WATER MAINS WHICH ARE LOCATED WITHIN THIS PARTICULAR SUBDIVISION (AS APPLICABLE).
6. THE CONTRACTOR WILL KEEP THE AREA ON TOP OF AND AROUND THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.
7. CONTRACTOR SHALL FURNISH A SET OF "AS-BUILT" DRAWINGS TO THE ENGINEER AT TIME OF FINAL INSPECTION. CONTRACTOR SHALL GIVE ENGINEER AT LEAST TWO WORKING DAYS NOTICE OF FINAL INSPECTION.
8. 8" - DENOTES JOIN RESTRAINT LENGTH AND DIRECTION



DETAIL "A"

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

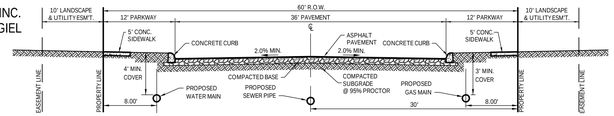
JOINT RESTRAINT NOTE: N.T.S.

CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSES OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOW. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING, JOINT RESTRAINTS AND FIELD LOCK GASKETS

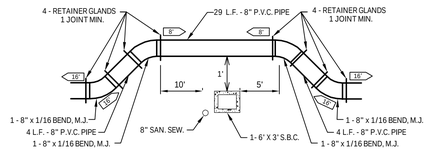


SCALE: 1"=50'
0 50 100

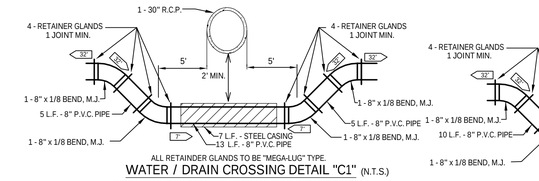
DEVELOPER:
TENOTEX DEVELOPMENT CO., INC.
CONTACT PERSON: ISRAEL FOGIEL
10003 NW MILITARY, STE. 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
FAX: (210) 344-3137



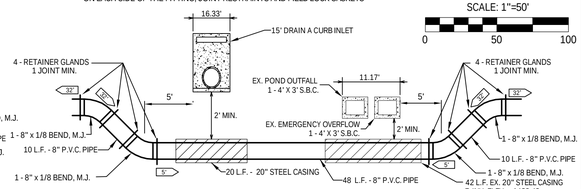
LOCAL RESIDENTIAL STREET CROSS SECTION (60' R.O.W.)
N.T.S.



ALL RETAINDER GLANDS TO BE "MEGA-LUG" TYPE.
WATER / DRAIN CROSSING DETAIL "B4" (N.T.S.)
SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)



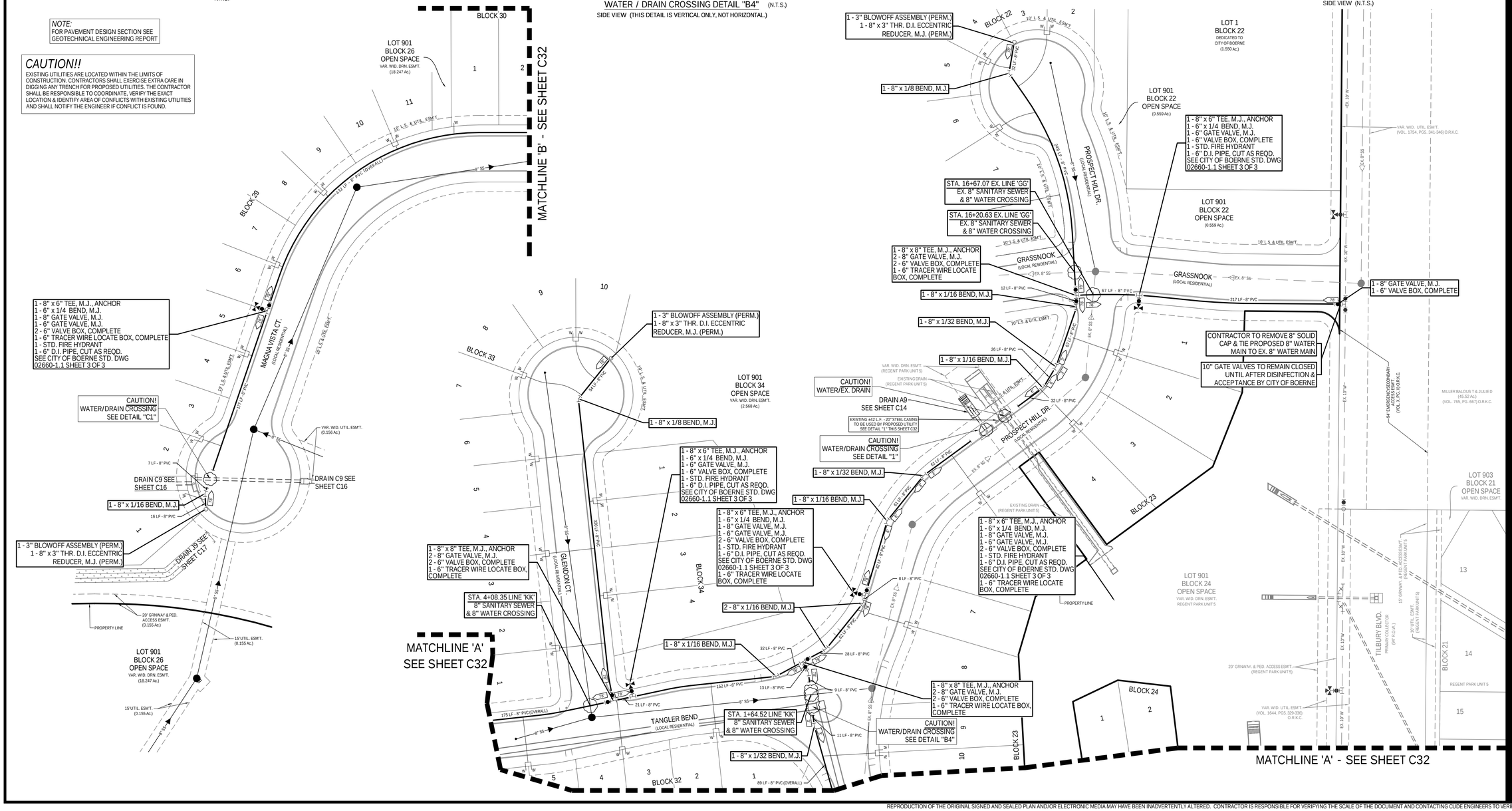
ALL RETAINDER GLANDS TO BE "MEGA-LUG" TYPE.
WATER / DRAIN CROSSING DETAIL "C1" (N.T.S.)
SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)



DETAIL "1": STEEL CASING DETAIL
SIDE VIEW (N.T.S.)

NOTE:
FOR PAVEMENT DESIGN SECTION SEE GEOTECHNICAL ENGINEERING REPORT

CAUTION!!
EXISTING UTILITIES ARE LOCATED WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTORS SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, VERIFY THE EXACT LOCATION & IDENTIFY AREA OF CONFLICTS WITH EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER IF CONFLICT IS FOUND.



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REGENT PARK UNIT 9

WATER DISTRIBUTION PLAN

DATE 12/03/2024

PROJECT NO. 02133.160

DRAWN BY AD/RM/MW/MS/JG

CHECKED BY WPM

REVISIONS
1. 11/05/2024 - UPDATED VERTICAL BENDS, REVISED WATER LAYOUT IN ROUNDABOUT AREA
2.
3.
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6.
7.
8.

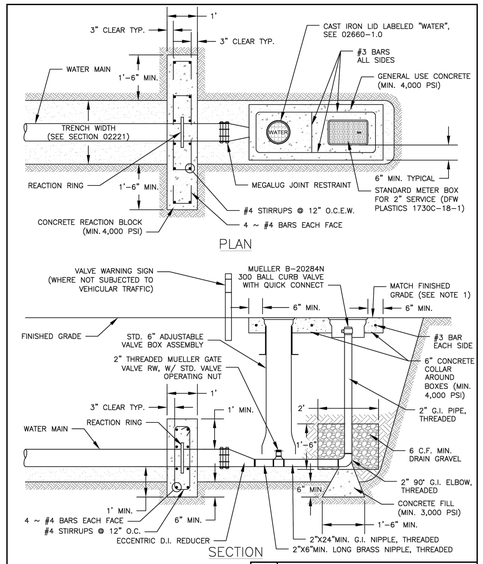
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO. N/A

C33

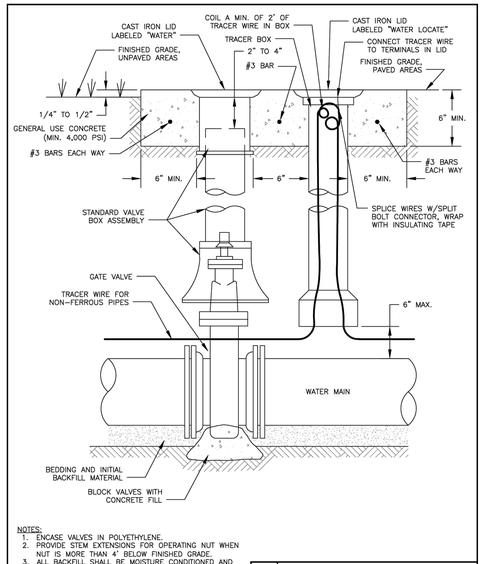
2 OF 3

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



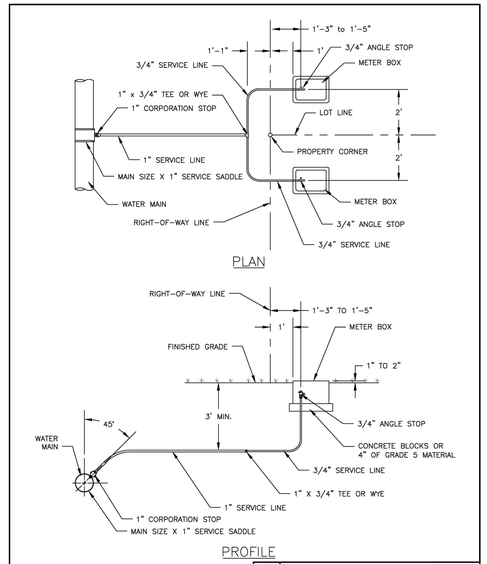
NOTES:
1. MATCH FLUSH IN PAVED AREAS. SET BOX AND CONCRETE 1" ±1/2" ABOVE FINISHED GRADE IN UNPAVED AREAS.
2. PROVIDE RESTRAINED LENGTHS AS SHOWN BY DESIGN ENGINEER IN THE APPROVED DRAWINGS.
3. ALL BACKFILL SHALL BE MOISTURE CONDITIONED AND COMPACTED TO 95% COMPACTION PER ASTM D1557 (MODIFIED PROCTOR).

CITY OF BOERNE			
PERMANENT END OF WATER MAIN BLOW-OFF ASSEMBLY			
SCALE: N.T.S.	DRAWING No. 02660-3.1	DATE: MAY 2024	



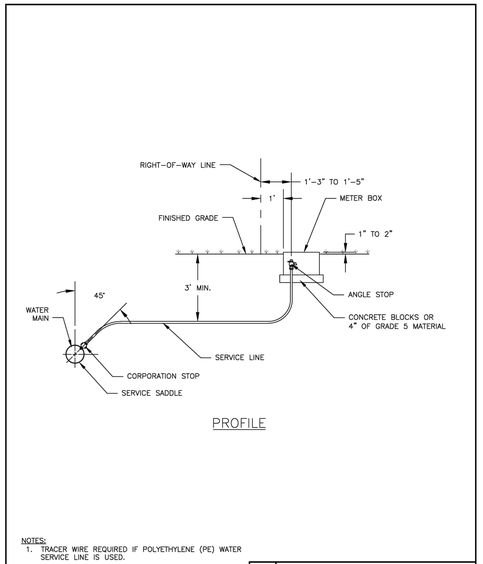
NOTES:
1. ENCASE VALVES IN POLYETHYLENE.
2. PROVIDE STEM EXTENSIONS FOR OPERATING NUT WHEN NUT IS MORE THAN 4' BELOW FINISHED GRADE.
3. ALL BACKFILL SHALL BE MOISTURE CONDITIONED AND COMPACTED TO 95% COMPACTION PER ASTM D1557 (MODIFIED PROCTOR).
4. WHERE MULTIPLE VALVES ARE PROPOSED WITHIN 10-FEET OF EACH OTHER, MAY ROUTE TO A SINGLE TRACER WIRE LOCATE BOX; OTHERWISE A LOCATE BOX IS REQUIRED FOR EACH INDIVIDUAL VALVE.
5. ALL POTABLE WATER GATE VALVES SHALL BE OPEN LEFT (COUNTER CLOCKWISE).

CITY OF BOERNE			
WATER GATE VALVE AND VALVE BOX			
SCALE: N.T.S.	DRAWING No. 02660-1.0	DATE: MAY 2024	



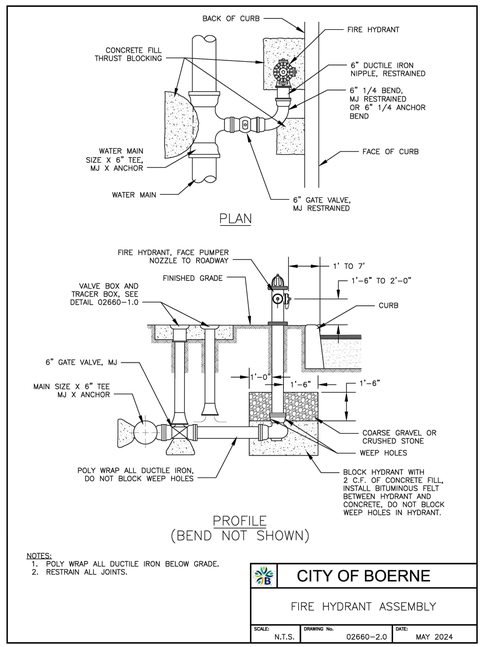
NOTES:
1. TRACER WIRE REQUIRED IF POLYETHYLENE (PE) WATER SERVICE LINE IS USED.

CITY OF BOERNE			
DUAL 3/4 IN WATER SERVICES			
SCALE: N.T.S.	DRAWING No. 02660-4.1	DATE: MAY 2024	



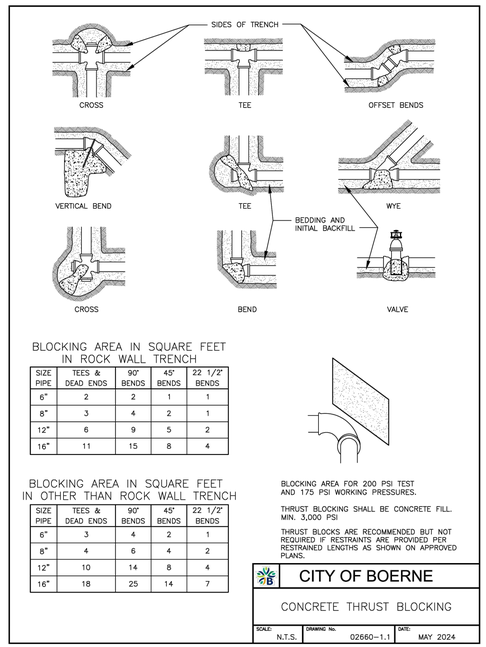
NOTES:
1. TRACER WIRE REQUIRED IF POLYETHYLENE (PE) WATER SERVICE LINE IS USED.

CITY OF BOERNE			
3/4 TO 2 IN SINGLE WATER SERVICE			
SCALE: N.T.S.	DRAWING No. 02660-4.0	DATE: MAY 2024	



NOTES:
1. POLY WRAP ALL DUCTILE IRON BELOW GRADE.
2. RESTRAIN ALL JOINTS.

CITY OF BOERNE			
FIRE HYDRANT ASSEMBLY			
SCALE: N.T.S.	DRAWING No. 02660-2.0	DATE: MAY 2024	



BLOCKING AREA IN SQUARE FEET IN ROCK WALL TRENCH

SIZE PIPE	TEES & DEAD ENDS	90° BENDS	45° BENDS	22 1/2° BENDS
6"	2	2	1	1
8"	3	4	2	1
12"	6	9	5	2
16"	11	15	8	4

BLOCKING AREA IN SQUARE FEET IN OTHER THAN ROCK WALL TRENCH

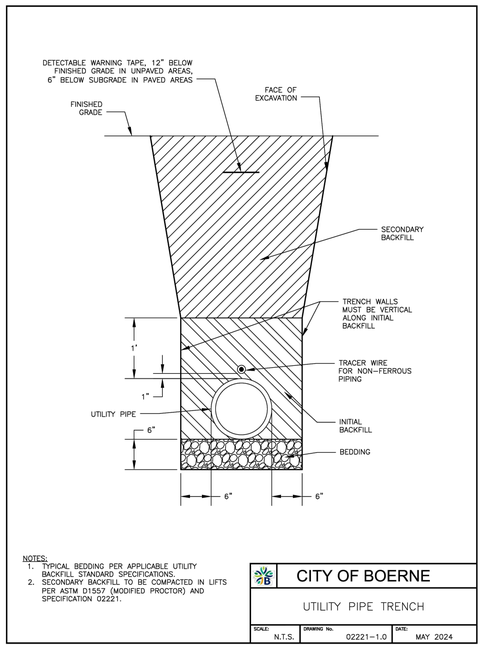
SIZE PIPE	TEES & DEAD ENDS	90° BENDS	45° BENDS	22 1/2° BENDS
6"	3	4	2	1
8"	4	6	4	2
12"	10	14	8	4
16"	18	25	14	7

BLOCKING AREA FOR 200 PSI TEST AND 175 PSI WORKING PRESSURES.

THRUST BLOCKING SHALL BE CONCRETE FILL. MIN. 3,000 PSI

THRUST BLOCKS ARE RECOMMENDED BUT NOT REQUIRED IF RESTRAINTS ARE PROVIDED PER RESTRAINED LENGTHS AS SHOWN ON APPROVED PLANS.

CITY OF BOERNE			
CONCRETE THRUST BLOCKING			
SCALE: N.T.S.	DRAWING No. 02660-1.1	DATE: MAY 2024	



NOTES:
1. TYPICAL BEDDING PER APPLICABLE UTILITY BACKFILL STANDARD SPECIFICATIONS.
2. SECONDARY BACKFILL TO BE COMPACTED IN LIFTS PER ASTM D1557 (MODIFIED PROCTOR) AND SPECIFICATION 02221.

CITY OF BOERNE			
UTILITY PIPE TRENCH			
SCALE: N.T.S.	DRAWING No. 02221-1.0	DATE: MAY 2024	

MISCELLANEOUS NOTES

1. NO METER BOXES TO BE SET IN DRIVEWAYS. ANY METER BOXES SET IN DRIVEWAYS WILL BE RELOCATED AT THE CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION FROM DAMAGE DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, LANDSCAPING, AND STRUCTURES.
3. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY OF BOERNE PUBLIC WORKS AT 1-830-249-9511 FOR GUIDANCE.
4. NO EXTRA-PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.
5. THE DEVELOPER DEDICATES THE WATER MAIN UPON COMPLETION BY THE DEVELOPER AND ACCEPTANCE BY THE CITY OF BOERNE. THE CITY OF BOERNE WILL OWN AND MAINTAIN SAID WATER MAINS WHICH ARE LOCATED WITHIN THIS PARTICULAR SUBDIVISION (AS APPLICABLE).
6. THE CONTRACTOR WILL KEEP THE AREA ON TOP OF AND AROUND THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.
7. CONTRACTOR SHALL FURNISH A SET OF "AS-BUILT" DRAWINGS TO THE ENGINEER AT TIME OF FINAL INSPECTION. CONTRACTOR SHALL GIVE ENGINEER AT LEAST TWO WORKING DAYS NOTICE OF FINAL INSPECTION.
8. <X> - DENOTES JOIN RESTRAINT LENGTH AND DIRECTION.
9. CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSES OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING, JOINT RESTRAINTS AND FIELD LOCK GASKETS.
10. REFERENCE STREET DETAIL SHEET AND GEOTECHNICAL ENGINEERING REPORT FOR PAVEMENT DESIGN INFORMATION.

BOERNE WATER GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL CONFORM TO APPLICABLE CITY OF BOERNE CONSTRUCTION SPECIFICATIONS.
2. MACHINE CHLORINATION BY THE CITY OF BOERNE AT CONTRACTOR'S EXPENSE UNLESS OTHERWISE INDICATED.
3. ALL PIPE SHALL BE P.V.C. C-900, DR14 CLASS 200, UNLESS OTHERWISE NOTED.
4. ALL MAINS SHALL BE HYDROSTATICALLY TESTED BY THE CONTRACTOR, AS PROVIDED FOR IN THE C.O.B. SPECS. FOR P/W CONSTRUCTION.
5. THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH ALL THE FINAL MEASUREMENTS.
6. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. CALL 1-800-DIG-TESS FOR LOCATES.
7. CONTRACTOR SHALL NOTIFY AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION:
   A) CITY OF BOERNE PUBLIC WORKS (1-830-249-9511)
8. ALL GARBAGE OR SPOIL MATERIAL FROM THIS WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR, AT HIS EXPENSE.
9. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED AND THE CITY OF BOERNE RELEASES THE MAIN FOR TIE-IN AND USE.
10. WHEN SEWER LINES ARE INSTALLED IN THE VICINITY OF PROPOSED & FUTURE WATER MAINS, SUCH INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS" (1988 OR ANY REVISIONS THERETO).
11. ALL THRUST BLOCKING MUST BLOCK AGAINST NATURAL GROUND NOT TRENCH BACKFILL.
12. MAINTAIN 2' HORIZONTAL SEPARATION BETWEEN EXISTING POWER POLES AND TRENCH.
13. ALL FIRE HYDRANTS TO BE MUELLER A-423 OR APPROVED EQUAL.
14. COMPACT SECONDARY BACKFILL TO 98% MAX DRY DENSITY. CONTRACTOR TO PERFORM DENSITY TESTING AT INTERVALS OF 500' PER 6" LIFT OF SECONDARY BACKFILL FOR UTILITIES IN TxDOT ROW (TxDOT REQUIREMENT), AND PER 8' LIFT OF SECONDARY BACKFILL FOR UTILITIES IN ALL OTHER AREAS (CITY OF BOERNE REQUIREMENT). REPORTS TO BE PROVIDED TO TxDOT FOR WORK WITHIN TxDOT ROW.
15. CONTRACTOR TO CONTACT 1-800-DIG-TESS 48 HOURS PRIOR TO COMMENCING WORK FOR MARKING UNDERGROUND CONDUITS.
16. ALL AREAS WHICH WHERE TRAVERSED BY CONSTRUCTION EQUIPMENT WILL BE DISKED PRIOR TO COMMENCING REVEGETATION.
17. CONTRACTOR TO INSTALL UNDERGROUND HAZARD WARNING TAPE TWELVE (12) INCHES BELOW FINISHED GRADE IN UNPAVED AREAS AND SIX (6) INCHES BELOW SUBGRADE IN PAVED AREAS. REFERENCE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND DETAILS.
18. ALL BURIED STAND PIPE SHALL BE C900 OR APPROVED EQUAL.
19. IRRIGATION METER AND PIPE SIZE TO BE ISSUED AT LATER DATE.

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

REGENT PARK UNIT 9

CITY OF BOERNE - WATER DISTRIBUTION STANDARD DETAILS

DATE
10/16/2023

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS

1. 11/05/2024 - UPDATE TO CURRENT CoB DETAILS
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

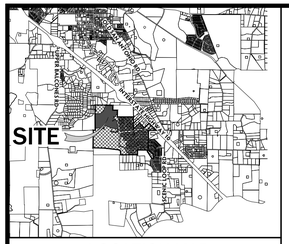
PLAT NO.
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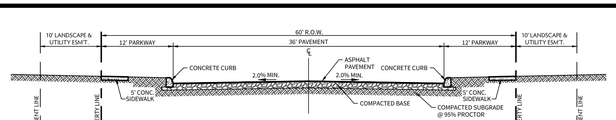
3 OF 3

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

02133\DWG\Boerne Standard Details.dwg, 10/16/2024 11:06:35 AM, mwynn



LOCATION MAP N.T.S.



LOCAL RESIDENTIAL STREET CROSS SECTION (60' R.O.W.)

SCALE: 1"=100'

0 100 200

DEVELOPER:

TENOTEX DEVELOPMENT CO., INC.
CONTACT PERSON: ISRAEL FOGIEL
10003 NW MILITARY, STE. 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
FAX: (210) 344-3137

NOTE

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

CITY OF BOERNE PUBLIC WORKS	(1-830-249-9511)
BOERNE MAINT. OFFICE, TxDOT	(1-830-816-2430)
TEXAS STATE WIDE ONE CALL LOCATOR	(1-800-545-6005)
GVTC	-
CHARTER COMMUNICATIONS	-

GVTC AND CHARTER COMMUNICATIONS CABLE LINES TO GO IN JOINT TRENCH WITH BANDERA ELECTRIC CO-OP. LOTS WITH CONFLICTING TRANSFORMER / SECONDARY ENCLOSURE ELECTRIC SERVICE AND WATER METER LOCATION SHALL HAVE WATER METER PLACED 5' FROM PROPERTY LINE WHERE THE CONFLICT OCCURS.

TYPICAL UTILITY CROSSINGS WILL HAVE 2-6" SCH 80 PVC CONDUIT WITH SWEEPS, 2-4" SCH 40 PVC CONDUIT WITH SWEEPS, THE TOTAL AMOUNT OF CONDUIT TO BE USED WILL BE DETERMINED DURING CONSTRUCTION.

TYPICAL IRRIGATION CROSSING WILL HAVE 3-4" SCH 40 PVC CONDUIT WITH SWEEPS,

CASING FOR FUTURE WATER MAIN PER COB STANDARD SPECIFICATION 02224.

CONDUIT CROSSING MUST MAINTAIN MINIMUM 1' VERTICAL AND 2' HORIZONTAL CLEARANCE FROM OTHER UTILITIES.

* CONDUIT ONLY TO BE INSTALLED IF:

1.) STREET BASE AND DRAINAGE COMPLETION PRECEDES BANDERA ELECTRIC CO-OP UTILITY LINE INSTALLATION.

2.) INSTALLATION IS AUTHORIZED BY THE DEVELOPER.

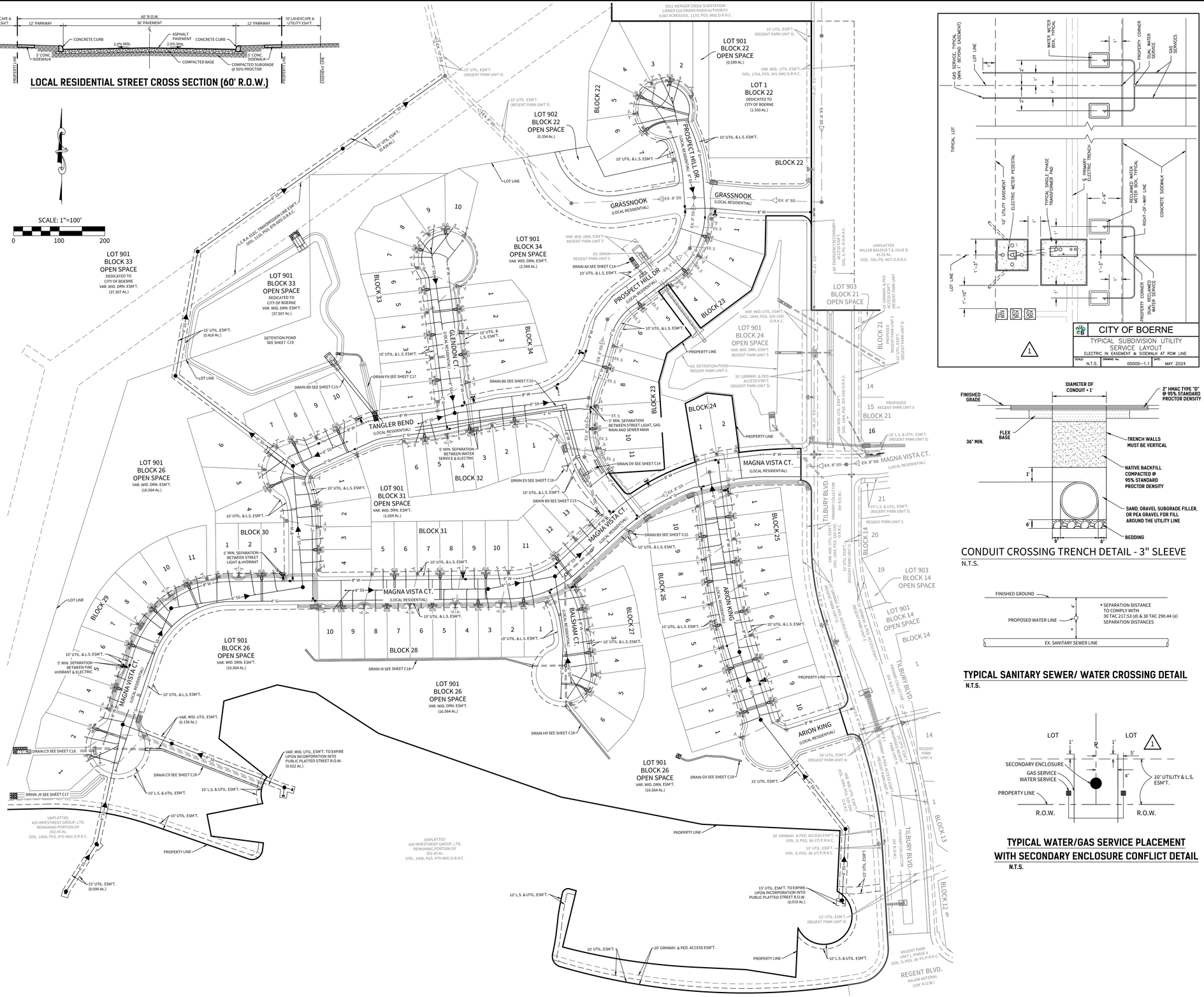
TRENCH EXCAVATION SAFETY PROTECTION
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA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

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND WATER AND SEWER MAINS EXIST WITHIN THE LIMITS OF THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

LEGEND

- EXISTING SANITARY SEWER — EX.8"SS
- PROPOSED SANITARY SEWER — 8"SS
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- EXISTING WATER MAIN — EX.8"W
- PROPOSED WATER MAIN — 8"W
- EXISTING STANDARD FIRE HYDRANT
- PROPOSED STANDARD FIRE HYDRANT
- EXISTING STANDARD GATE VALVE
- PROPOSED STANDARD GATE VALVE
- EXISTING PERMANENT BLOWOFF
- PROPOSED PERMANENT BLOWOFF
- EXISTING OVERHEAD ELECTRIC — EXOE
- PROPOSED OVERHEAD ELECTRIC — OE
- EXISTING GAS MAIN — EX.2"G
- PROPOSED GAS MAIN — 2"G
- EXISTING UNDERGROUND ELECTRIC — EX. UGE
- PROPOSED UNDERGROUND ELECTRIC — UGE
- EXISTING POWER POLE
- PROPOSED POWER POLE
- EXISTING POWER POLE & RISER POLE
- PROPOSED POWER POLE & RISER POLE
- PROPOSED LIGHT POLE
- EXISTING TRANSFORMER
- PROPOSED TRANSFORMER
- PROPOSED SECONDARY ENCLOSURE — E
- PROPOSED PULL BOX — PB
- U.S. POSTAL COLLECTION BOX
- GAS VALVE
- UTILITY CONDUIT CROSSING — UTIL
- IRRIGATION CONDUIT CROSSING — IRR



CONDUIT CROSSING TRENCH DETAIL - 3" SLEEVE

N.T.S.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

TYPICAL WATER/GAS SERVICE PLACEMENT WITH SECONDARY ENCLOSURE CONFLICT DETAIL

N.T.S.

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REGENT PARK UNIT 9

UTILITY LAYOUT PLAN

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS

1. 12/07/2024 - UPDATE TO CURRENT CoB DETAILS/REVISED ROUNDABOUT
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

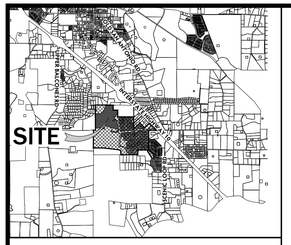
PLAT NO.
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1 OF 5

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

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LOCATION MAP N.T.S.

LEGEND

- UNIT BOUNDARY
- PROPOSED GAS MAIN
- EXISTING GAS MAIN — EX. 2"G
- PROPOSED GAS SERVICE — G
- EXISTING GAS SERVICE — G
- EXISTING SANITARY SEWER — EX. 8"SS
- PROPOSED SANITARY SEWER — 8"SS
- PROPOSED SANITARY SEWER MANHOLE
- EXISTING WATER MAIN — EX. 8"W
- PROPOSED WATER MAIN — 8"W
- EXISTING STANDARD FIRE HYDRANT
- PROPOSED STANDARD FIRE HYDRANT
- EXISTING UTILITY & LANDSCAPING EASEMENT — EX. 10' UTILITY & L.S.
- PROPOSED UTILITY & LANDSCAPING EASEMENT — 10' UTILITY & L.S.

TRENCH EXCAVATION SAFETY PROTECTION

Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the contract documents. The Contractor's implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with as a minimum, OSHA standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

UTILITY GENERAL NOTES

1.) ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL CONFORM TO ALL APPLICABLE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION, AS WELL AS OTHER SAFETY CODES AND INSPECTION PROVISIONS APPLICABLE TO THE PROJECT.

2.) ALL GAS DISTRIBUTION LINES SHALL BE YELLOW DR-11 POLYETHYLENE PIPE MEETING ASTM D3350, BY PERFORMANCE PIPE, DRISCOPLEX 6500 WITH NO SUBSTITUTIONS.

3.) ALL MAINS SHALL BE CLEAR OF ALL FOREIGN MATERIAL BLOWN WITH DRY COMPRESSED AIR AND PRESSURED TESTED AS PER THE CITY OF BOERNE'S STANDARD SPECIFICATIONS.

4.) FOR PURPOSES OF RECORD DRAWINGS FOR THE CITY OF BOERNE, THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH ALL THE FINAL MEASUREMENTS, TAPS, AND LENGTH OF SERVICE CONNECTIONS.

5.) THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS OF UTILITIES MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.

6.) ALL GARBAGE OR SPOIL MATERIAL FROM THIS WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR, AT THEIR EXPENSE.

7.) FINAL CONNECTION TO THE EXISTING GAS MAIN SHALL NOT BE MADE UNTIL THE MAIN HAS BEEN PRESSURE TESTED AND APPROVED FOR CONNECTION BY THE CITY OF BOERNE.

8.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.

9.) ALL ITEMS NOT SPECIFICALLY CALLED FOR ON THE PLANS, OR IN THE SPECIFICATIONS, BUT NECESSARY TO REASONABLY CONSTRUCT THE FACILITY OR IMPROVEMENT, SHALL BE CONSIDERED INCIDENTAL TO THE OVERALL PROJECT AND NO SEPARATE PAYMENTS WILL BE MADE FOR THESE ITEMS.

10.) DEPTH OF BURY FOR ALL GAS PIPING SHALL BE A MINIMUM OF 3' UNLESS OTHERWISE NOTED OR APPROVED BY THE CITY OF BOERNE.

11.) CONTRACTOR TO GRADE SITE TO WITHIN +/- 0.10' BEFORE THE INSTALLATION OF UTILITIES TO ENSURE PROPER COVER IS ACHIEVED.

12.) CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT.

13.) THE CONTRACTOR SHALL NOTIFY THE GOVERNMENTAL, AND/OR UTILITY COMPANIES REGARDING THE LOCATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION.

14.) THE CONTRACTOR SHALL EXCAVATE AROUND EXISTING UTILITIES WHICH INTERSECT THE PROPOSED ALIGNMENT OF THE SERVICES AND NOTIFY THE ENGINEER OF POTENTIAL CONFLICTS PRIOR TO ANY CONSTRUCTION IN THE AREA.

15.) ALL DISTURBED AREAS WITHIN EASEMENTS AND TxDOT RIGHT-OF-WAY SHALL BE HYDRO-MULCHED IN ACCORDANCE WITH THE CITY OF BOERNE'S SUBDIVISION ORDINANCE AND TxDOT SPECIFICATIONS.

16.) UTILITY TRENCH COMPACTION: ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET RIGHT-OF-WAY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED EIGHT INCHES (8") LOOSE. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO 95% MODIFIED PROCTOR ASTM 1557 AS SPECIFIED AND DESCRIBED IN ACCORDANCE WITH THE CITY OF BOERNE'S PROJECT SPECIFICATION - SECTION 02221.

17.) ALL TRAFFIC CONTROL REQUIRED FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH TxDOT REQUIREMENTS AND MEET THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. (M.U.T.C.D.)

18.) CONTRACTOR SHALL COORDINATE WITH TxDOT FOR ANY STREET CLOSURES OR TRAFFIC CONTROL MEASURES FOR INTERSTATE HIGHWAY 10, IF NECESSARY.

REGENT PARK UNIT 9 – GAS DISTRIBUTION ESTIMATED QUANTITY TAKE-OFF

(CONTRACTOR RESPONSIBLE FOR DETERMINING ACTUAL QUANTITIES REQUIRED)

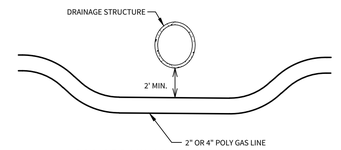
Item No.	Description	Quantity	Units	Installation Responsibility
1	2" Poly Gas Main – Open Cut	3251	LF	Contractor
2	4" Poly Gas Main – Open Cut	1816	LF	Contractor
3	1" Gas Service, see Gas Service Detail (Long)	56	EA	Contractor
4	1" Gas Service, see Gas Service Detail (Short)	53	EA	Contractor
5	2" Gas Valve & Valve Box	11	EA	Contractor
6	4" Gas Valve & Valve Box	4	EA	Contractor
7	2" x 2" Poly Tee	2	EA	Contractor
8	4" x 2" Poly Tee	4	EA	Contractor
9	2" Poly Cap	4	EA	Contractor
10	4" Poly Cap	1	EA	Contractor
11	4" Connection to Existing Main To Be Completed by City of Boerne	1	LS	City of Boerne
12	Testing as required by City of Boerne	1	LS	Contractor

Notes

1. Estimated conduit quantities shown are linear footage with no adder.
2. It is the responsibility of the Contractor to verify all quantities shown hereon and to notify the Engineer of any discrepancies prior to bid submission.

SCALE: 1"=50'

0 50 100



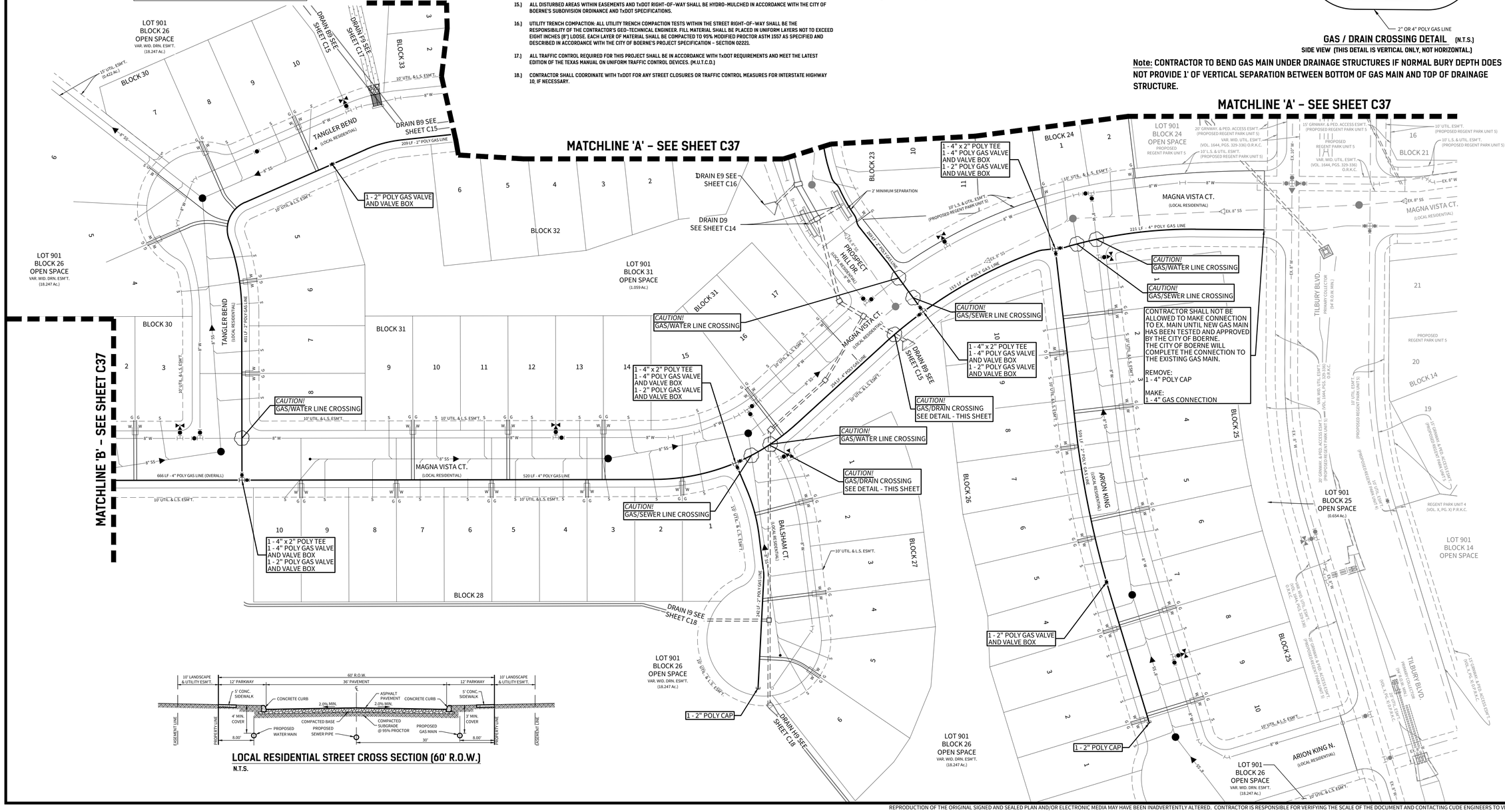
GAS / DRAIN CROSSING DETAIL (N.T.S.)
SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)

Note: CONTRACTOR TO BEND GAS MAIN UNDER DRAINAGE STRUCTURES IF NORMAL BURY DEPTH DOES NOT PROVIDE 1' OF VERTICAL SEPARATION BETWEEN BOTTOM OF GAS MAIN AND TOP OF DRAINAGE STRUCTURE.

DEVELOPER:
TENOTEX DEVELOPMENT CO., INC.
CONTACT PERSON: ISRAEL FOGIEL
10003 NW MILITARY, STE. 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
FAX: (210) 344-3137

NOTE:
FOR PAVEMENT DESIGN SECTION SEE GEOTECHNICAL ENGINEERING REPORT

CAUTION!!
EXISTING UTILITIES ARE WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTORS SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, VERIFY THE EXACT LOCATION & IDENTIFY AREA OF CONFLICTS WITH EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER IF CONFLICT IS FOUND.



LOCAL RESIDENTIAL STREET CROSS SECTION (60' R.O.W.)
N.T.S.

CUDEENGINEERS.COM

CUDE ENGINEERS

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
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REGENT PARK UNIT 9
NATURAL GAS DISTRIBUTION PLAN

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 11/05/2024 - REVISED GAS LAYOUT - UPDATE CROSSING DETAIL
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

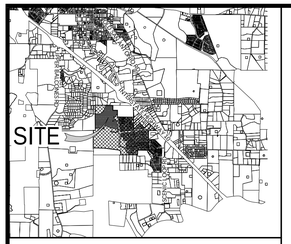
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2 OF 5

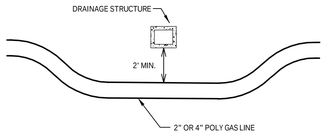
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LOCATION MAP N.T.S.

DEVELOPER:
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10003 NW MILITARY, STE. 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
FAX: (210) 344-3137



GAS / DRAIN CROSSING DETAIL (N.T.S.)
SIDE VIEW (THIS DETAIL IS VERTICAL ONLY, NOT HORIZONTAL.)

Note: CONTRACTOR TO BEND GAS MAIN UNDER DRAINAGE STRUCTURES IF NORMAL BURY DEPTH DOES NOT PROVIDE 1' OF VERTICAL SEPARATION BETWEEN BOTTOM OF GAS MAIN AND TOP OF DRAINAGE STRUCTURE.

TRENCH EXCAVATION SAFETY PROTECTION

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NOTE:
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CAUTION!!
EXISTING UTILITIES ARE WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTORS SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, VERIFY THE EXACT LOCATION & IDENTIFY AREA OF CONFLICTS WITH EXISTING UTILITIES AND SHALL NOTIFY THE ENGINEER IF CONFLICT IS FOUND.

UTILITY GENERAL NOTES

1.) ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL CONFORM TO ALL APPLICABLE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION, AS WELL AS OTHER SAFETY CODES AND INSPECTION PROVISIONS APPLICABLE TO THE PROJECT.

2.) ALL GAS DISTRIBUTION LINES SHALL BE YELLOW DR-11 POLYETHYLENE PIPE MEETING ASTM D3350, BY PERFORMANCE PIPE, DRISCOPLEX 6500 WITH NO SUBSTITUTIONS.

3.) ALL MAINS SHALL BE CLEAR OF ALL FOREIGN MATERIAL BLOWN WITH DRY COMPRESSED AIR AND PRESSURED TESTED AS PER THE CITY OF BOERNE'S STANDARD SPECIFICATIONS.

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10.) DEPTH OF BURY FOR ALL GAS PIPING SHALL BE A MINIMUM OF 3' UNLESS OTHERWISE NOTED OR APPROVED BY THE CITY OF BOERNE.

11.) CONTRACTOR TO GRADE SITE TO WITHIN +/- 0.10' BEFORE THE INSTALLATION OF UTILITIES TO ENSURE PROPER COVER IS ACHIEVED.

12.) CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT.

13.) THE CONTRACTOR SHALL NOTIFY THE GOVERNMENTAL, AND/OR UTILITY COMPANIES REGARDING THE LOCATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION.

14.) THE CONTRACTOR SHALL EXCAVATE AROUND EXISTING UTILITIES WHICH INTERSECT THE PROPOSED ALIGNMENT OF THE SERVICES AND NOTIFY THE ENGINEER OF POTENTIAL CONFLICTS PRIOR TO ANY CONSTRUCTION IN THE AREA.

15.) ALL DISTURBED AREAS WITHIN EASEMENTS AND TxDOT RIGHT-OF-WAY SHALL BE HYDRO-MULCHED IN ACCORDANCE WITH THE CITY OF BOERNE'S SUBDIVISION ORDINANCE AND TxDOT SPECIFICATIONS.

16.) UTILITY TRENCH COMPACTION: ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET RIGHT-OF-WAY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED EIGHT INCHES (8") LOOSE. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO 95% MODIFIED PROCTOR ASTM 1557 AS SPECIFIED AND DESCRIBED IN ACCORDANCE WITH THE CITY OF BOERNE'S PROJECT SPECIFICATION - SECTION 02221.

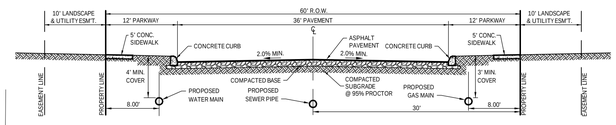
17.) ALL TRAFFIC CONTROL REQUIRED FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH TxDOT REQUIREMENTS AND MEET THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. (M.U.T.C.D.)

18.) CONTRACTOR SHALL COORDINATE WITH TxDOT FOR ANY STREET CLOSURES OR TRAFFIC CONTROL MEASURES FOR INTERSTATE HIGHWAY 10, IF NECESSARY.

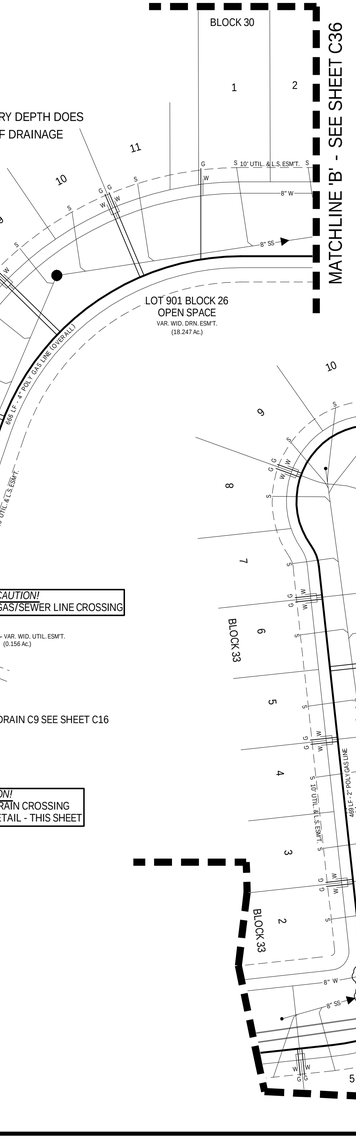
LEGEND

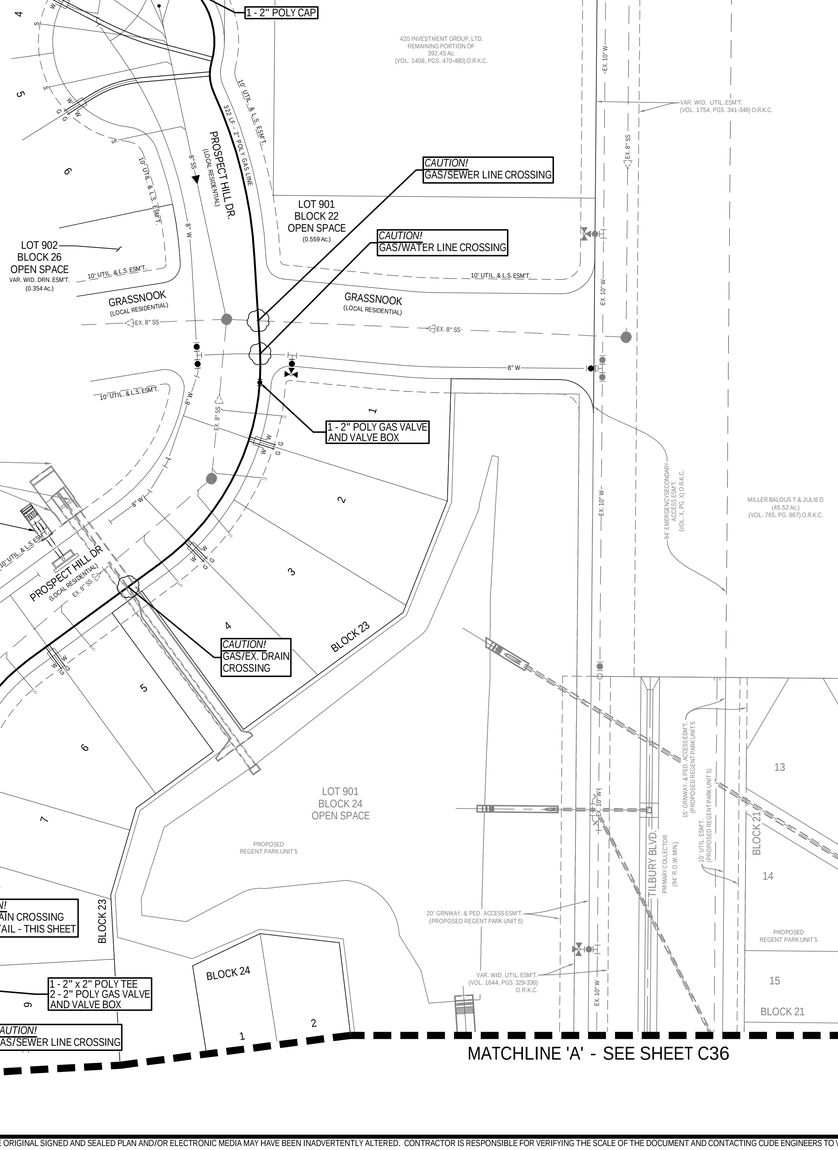
- UNIT BOUNDARY
- PROPOSED GAS MAIN
- EXISTING GAS MAIN (EX. 2"G)
- PROPOSED GAS SERVICE
- EXISTING GAS SERVICE
- EXISTING SANITARY SEWER (EX. 8"SS)
- PROPOSED SANITARY SEWER (8"SS)
- PROPOSED SANITARY SEWER MANHOLE
- EXISTING WATER MAIN (EX. 8"W)
- PROPOSED WATER MAIN (8"W)
- EXISTING STANDARD FIRE HYDRANT
- PROPOSED STANDARD FIRE HYDRANT
- EXISTING UTILITY & LANDSCAPING EASEMENT (EX. 10' UTILITY & L.S.)
- PROPOSED UTILITY & LANDSCAPING EASEMENT (10' UTILITY & L.S.)

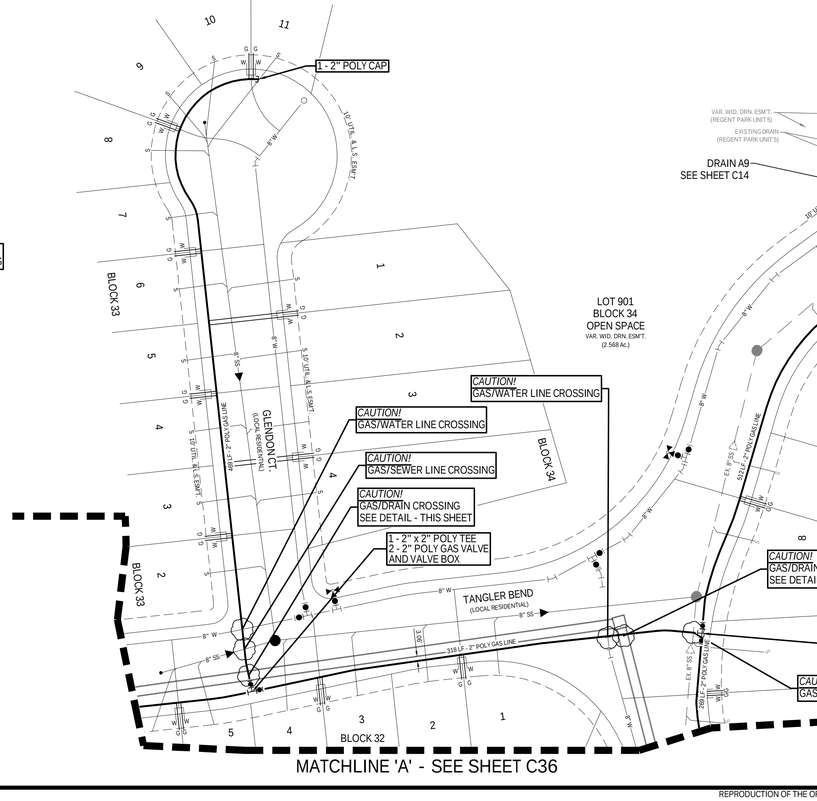
SCALE: 1"=50'
0 50 100



LOCAL RESIDENTIAL STREET CROSS SECTION (60' R.O.W.)
N.T.S.







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CUDE ENGINEERS EST. 1980

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

REGENT PARK UNIT 9

NATURAL GAS DISTRIBUTION PLAN

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 11/05/2024 - REVISED GAS LAYOUT IN ROUNDABOUT, UPDATE CROSSING DETAIL
2.
3.
4.
5.
6.
7.
8.

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

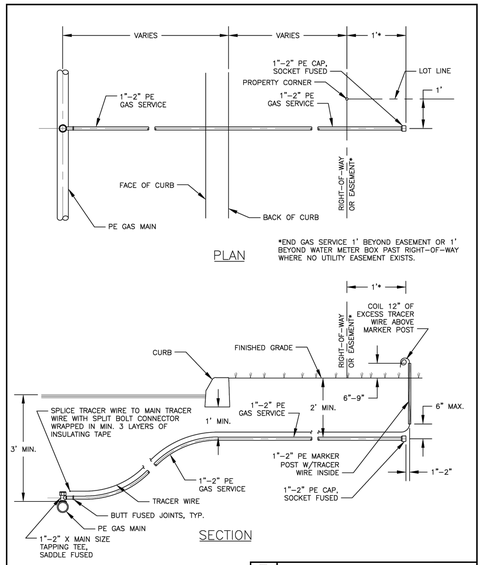
PLAT NO.
N/A

C37

3 OF 5

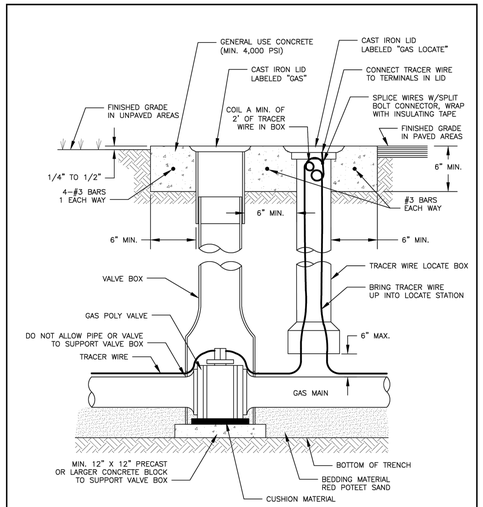
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

P:\02133\160\CAD\working\05_SS CONP_Wtr\MS\SS\02133.160gas.wmsxprj



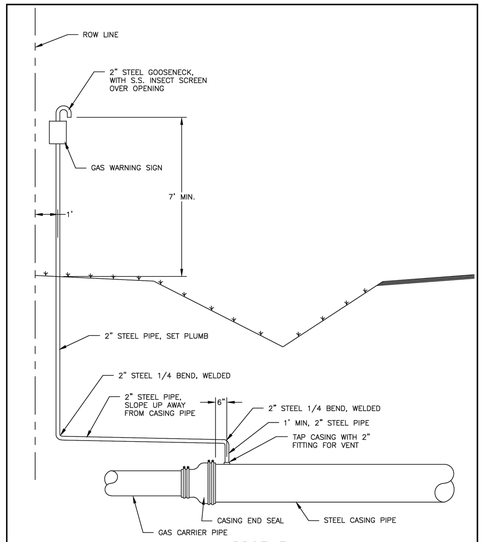
NOTES:
1. EXCESS FLOW VALVE (EFV) TO BE INSTALLED BY THE CITY OF BOERNE UTILITIES DEPARTMENT.
2. GAS SERVICE SIZE TO BE DETERMINED BY CITY OF BOERNE UTILITIES DEPARTMENT.

CITY OF BOERNE		
1"–2" SINGLE GAS SERVICE		
SCALE: N.T.S.	DRAWING No. 02560–1.3	DATE: MAY 2024

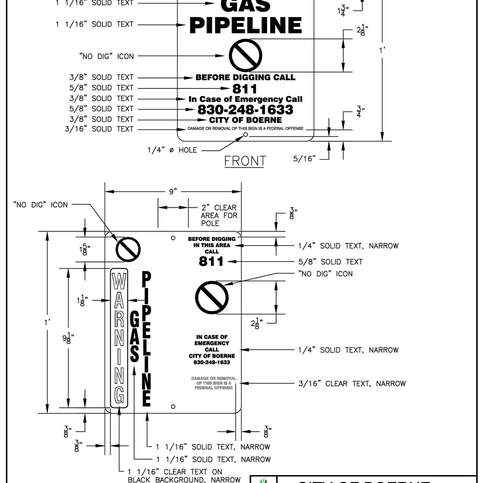


NOTES:
1. WHERE MULTIPLE VALVES ARE PROPOSED WITHIN 10–FEET OF EACH OTHER, MAY ROUTE TO A SINGLE TRACER WIRE LOCATE BOX; OTHERWISE A LOCATE BOX IS REQUIRED FOR EACH INDIVIDUAL VALVE OR EVERY 500–FEET.
2. ALL BACKFILL SHALL BE MOISTURE CONDITIONED AND COMPACTED TO 95% COMPACTION PER ASTM D1557 (MODIFIED PROCTOR).

CITY OF BOERNE		
GAS VALVE AND VALVE BOX		
SCALE: N.T.S.	DRAWING No. 02560–1.0	DATE: MAY 2024

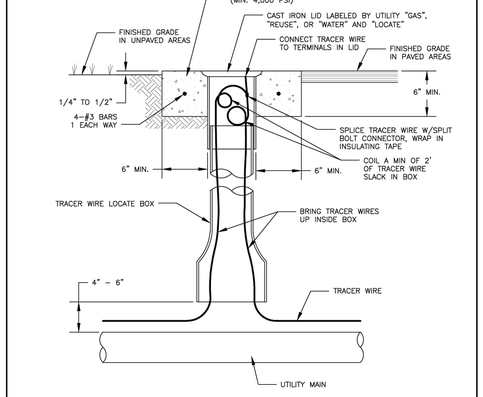


CITY OF BOERNE		
CASING VENT FOR GAS MAIN UNDERCROSSING		
SCALE: N.T.S.	DRAWING No. 02224–1.1	DATE: MAY 2024



NOTE: MOUNT SIGN ON STEEL POST, 5'–6" ABOVE FINISHED GRADE.

CITY OF BOERNE		
GAS WARNING SIGN		
SCALE: N.T.S.	DRAWING No. 02560–1.1	DATE: MAY 2024



NOTES:
1. INSTALL LOCATE BOX WITH EVERY VALVE OR GROUP OF VALVES WITHIN 10–FEET OR EACH OTHER.
2. FOR GAS MAINS, LOCATE BOX REQUIRED EVERY 500–FEET.
3. BOX TO BE LOCATED WITHIN 5' OF PROPERTY PIN SO NOT IN STREET OR DRIVEWAY

CITY OF BOERNE		
TRACER WIRE LOCATE BOX		
SCALE: N.T.S.	DRAWING No. 02560–1.2	DATE: MAY 2024

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REGENT PARK UNIT 9

CITY OF BOERNE - NATURAL GAS DISTRIBUTION DETAILS

DATE
10/16/2023

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 11/05/2024 - UPDATE TO CURRENT CoB DETAILS
2.
3.
4.
5.
6.
7.
8.

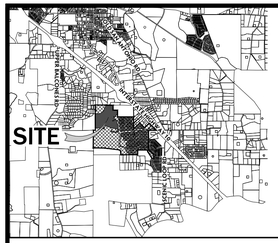
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

PLAT NO.
N/A

C38

P:\02133.160\2-Engineering\05_AC-GAS\AC-Regent Park 9\2133.160_11x17.dwg, 10/16/2024 10:43:56 AM, mmurphy

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



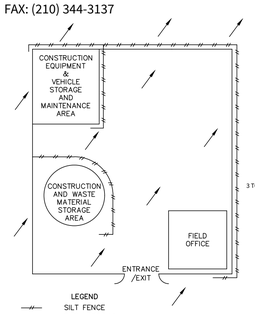
LOCATION MAP N.T.S.

LEGEND

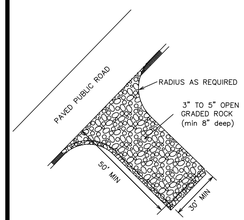
- PROPERTY LINE
- EXISTING CONTOURS — 930 —
- BMP ITEM NUMBER 1
- TEMPORARY CONSTRUCTION ENTRANCE/EXIT
- ROCK BERM
- SILT FENCE
- FLOW ARROW
- STAGING AREA
- CONCRETE WASHOUT PIT
- BAGGED GRAVEL INLET FILTER

SCALE: 1"=100'
0 100 200

DEVELOPER:
TENOTEX DEVELOPMENT CO., INC.
CONTACT PERSON: ISRAEL FOGIEL
10003 NW MILITARY, STE. 2201
SAN ANTONIO, TX 78231
TEL: (210) 344-9200
FAX: (210) 344-3137



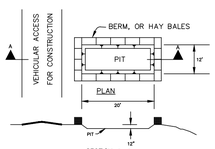
1 TYP. CONSTRUCTION STAGING AREA
N.T.S.



STABILIZED CONSTRUCTION EXIT NOTES:

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

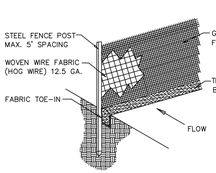
2 TEMPORARY CONSTRUCTION ENTRANCE/EXIT
N.T.S.



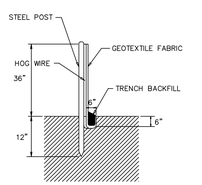
GENERAL NOTES:

- Detail above illustrates minimum dimensions. Pit can be increased in size depending on expected frequency of use.
- If hay bales are used, they shall be placed in accordance with details shown on Exhibit for hay bales.
- Washout pit shall be located in an area easily accessible to construction traffic.
- Washout pit shall not be located in areas subject to inundation from storm water runoff.

3 CONCRETE TRUCK WASHOUT PIT
N.T.S.

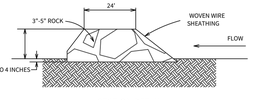


SILT FENCE DETAIL



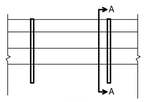
SECTION DETAIL

4 STANDARD SILT FENCE
N.T.S.

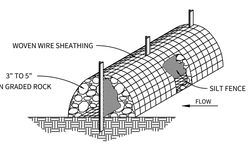


SECTION DETAIL

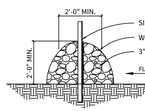
ROCK BERM
N.T.S.



7 ROCK BERM W/ SILT FENCE DETAIL
N.T.S.



ISOMETRIC PLAN VIEW



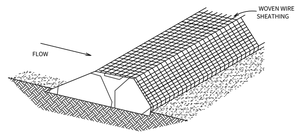
SECTION DETAIL

INSTALLATION:

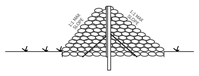
- CLEAR THE GROUND OF DEBRIS, ROCKS OR VEGETATION THAT WILL INTERFERE WITH INSTALLATION.
- PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION LOCATION WITH ENOUGH OVERLAP TO COMPLETELY ENCIRCLE THE FINISHED SIZE OF THE BERM.
- INSTALL THE SILT FENCE ALONG THE CENTER OF THE PROPOSED BERM PLACEMENT.
- PLACE THE ROCK ALONG THE CENTER OF THE WIRE AND BOTH SIDES OF THE SILT FENCE TO THE DESIGNATED HEIGHT.
- WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURELY SO THE STRUCTURE RETAINS IT'S SHAPE.
- SECURE WITH TIE WIRE.
- THE ROCK BERM SHALL BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

INSPECTION AND MAINTENANCE GUIDELINES:

- INSPECTION SHALL BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT BY THE CONTRACTOR. FOR THE INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHALL BE MADE ON ROCK BERM.
- REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER. REPAIR ANY LOOSE WIRE SHEATHING.
- THE BERM SHALL BE RESHAPED AS NEEDED DURING INSPECTION.
- THE BERM SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.



ISOMETRIC PLAN VIEW



General Notes

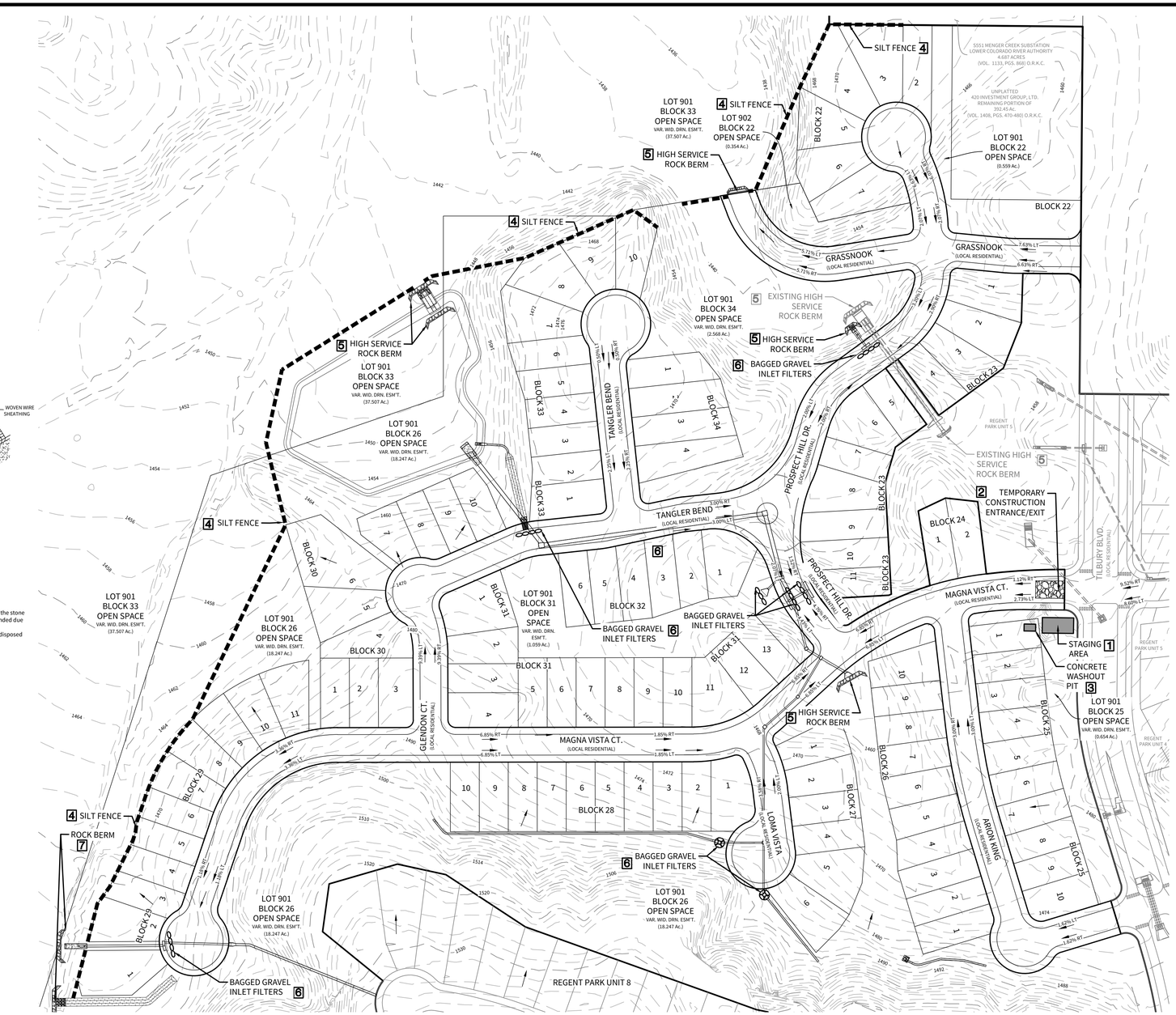
1. The rock berm shall be inspected weekly or after each rain and the stone shall be replaced when the structure ceases to function as intended due to silt accumulation, washout, etc.
2. When silt reaches a depth of 12", the silt shall be removed and disposed of at an approved site.

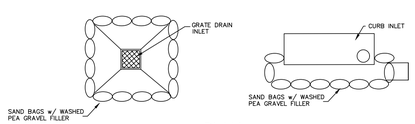
5 HIGH-SERVICE ROCK BERM
N.T.S.

GENERAL NOTES:

1. THE GRAVEL BAG MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, POLYAMIDE OR COTTON BURLAP WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OZ/YD 2 , MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70 PERCENT.
2. THE BAG LENGTH SHOULD BE 24 INCHES, WIDTH SHOULD BE 18 INCHES AND THICKNESS SHOULD BE 6 INCHES.
3. THE GRAVEL BAGS SHOULD BE FILLED WITH ¾" GRAVEL .
4. WHEN A GRAVEL BAG IS FILLED WITH GRAVEL, THE OPEN END OF THE GRAVEL BAG SHOULD BE STAPLED OR TIED WITH NYLON OR POLY CORD.
5. THE GRAVEL BAGS SHOULD BE PLACED AS SHOWN ON THE DETAIL. THE GRAVEL BAGS SHALL BE STACKED TO FORM A CONTINUOUS BARRIER AROUND THE INLETS. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.
6. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
7. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
8. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
9. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

BAGGED GRAVEL INLET FILTER DETAIL 6
N.T.S.





TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

SEQUENCE OF INSTALLATION DURING CONSTRUCTION PROCESS:

1. THE TEMPORARY CONSTRUCTION ENTRANCE/EXIT (ITEM 2) SHALL BE INSTALLED PRIOR TO DISTURBING ANY SOIL EXCEPT AT THE LOCATION OF THE TEMPORARY CONSTRUCTION ENTRANCE/EXIT. IT SHALL STAY IN PLACE AND BE MAINTAINED UNTIL THE END OF THE INFRASTRUCTURE CONSTRUCTION.
2. SILT FENCE (ITEM 4) SHALL BE INSTALLED ALONG THE DOWN-GRADIENT BOUNDARY OF THE SITE PRIOR TO ANY DISTURBANCE OF THE SITE AS SHOWN ON THE SITE PLAN.
3. BAGGED GRAVEL INLET FILTERS (ITEM 6) SHALL BE PLACED AROUND ALL INLETS FOLLOWING INSTALLATION.
4. ROCK BERMS (ITEM 5) SHALL BE INSTALLED AROUND THE PERIMETER OF THE PROJECT AT NATURAL LOW POINTS FOLLOWING ROUGH GRADING OF THE SITE AND SHALL BE REMOVED ONCE GRADING TO THE ON-SITE STORMWATER DRAINAGE SYSTEM WITH BAGGED GRAVEL INLET FILTERS IN SUMP IS COMPLETE. ROCK BERMS WILL ALSO BE UTILIZED AT THE OUTLET OF THE POND WHILE IT IS BEING CONSTRUCTED.

INSPECTIONS:

DESIGNATED AND QUALIFIED PERSON(S) SHALL INSPECT POLLUTION CONTROL MEASURES EVERY SEVEN DAYS AND WITHIN 24 HOURS AFTER A STORM EVENT GREATER THAN 0.5 INCHES OF RAINFALL. AN INSPECTION REPORT THAT SUMMARIZES THE SCOPE OF THE INSPECTION, NAMES AND QUALIFICATIONS OF PERSONNEL CONDUCTING THE INSPECTION, DATE OF THE INSPECTION, MAJOR OBSERVATIONS, AND ACTIONS TAKEN AS A RESULT OF THE INSPECTION SHALL BE RECORDED AND MAINTAINED AS PART OF STORM WATER TPDES DATA FOR A PERIOD OF THREE YEARS AFTER THE DATE O THE INSPECTION. A COPY OF THE INSPECTION REPORT FORM IS PROVIDED IN THIS STORM WATER POLLUTION PREVENTION PLAN.

AS A MINIMUM, THE INSPECTOR SHALL OBSERVE: (1) SIGNIFICANT DISTURBED AREAS FOR EVIDENCE OF EROSION, (2) STORAGE AREAS FOR EVIDENCE OF LEAKAGE FROM THE EXPOSED STORED MATERIALS, (3) STRUCTURAL CONTROLS (ROCK BERM OUTLETS, SILT FENCES, DRAINAGE SWALES, ETC.) FOR EVIDENCE OF FAILURE OR EXCESS SILTATION (OVER 6 INCHES DEEP), (4) VEHICLE EXIT POINT FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING, (5) VEHICLE STORAGE AREAS FOR SIGNS OF LEAKING EQUIPMENT OR SPILLS, AND (6) CONCRETE TRUCK RINSE-OUT PIT FOR SIGNS OF POTENTIAL FAILURE. DEFICIENCIES NOTED DURING THE INSPECTION WILL BE CORRECTED AND DOCUMENTED WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE INSPECTION OR BEFORE THE NEXT ANTICIPATED STORM EVENT IF PRACTICABLE.

NOTE:

1. ALL SILT FENCES AND/OR ROCK BERMS AND TEMPORARY CONSTRUCTION ENTRANCES/EXITS SHALL BE PLACED AT THE MOST DOWN-GRADIENT POINT OF CONSTRUCTION AS SHOWN ON THIS SITE PLAN. CONTRACTOR SHALL TAKE INTO CONSIDERATION ANY PROPOSED CONSTRUCTION THAT MAY TAKE PLACE AT THESE LOCATIONS. ANY RELOCATION OF THE SILT FENCE, ROCK BERMS AND/OR TEMPORARY CONSTRUCTION ENTRANCES/EXITS SHALL BE AT THE CONTRACTOR'S EXPENSE.
2. THE PROPOSED CONTOURS WILL BE APPROXIMATELY EQUAL TO THE EXISTING CONTOURS.
3. AREA OF SOIL DISTURBANCES INCLUDE STREET RIGHT-OF-WAYS, UTILITY EASEMENTS & LOTS.
4. THERE WILL BE NO STORMWATER DISCHARGES INTO THE FEMA FLOOD PLAIN.
5. THE CONTRACTOR IS REQUIRED TO MAINTAIN EROSION CONTROLS THROUGHOUT THE DURATION OF THE PROJECT.
6. THE CITY INSPECTOR HAS THE AUTHORITY TO HAVE THE CONTRACTOR MODIFY THE EROSION CONTROLS AT THE DEVELOPER'S EXPENSE. THE DEVELOPER SHALL BE NOTIFIED OF THESE MODIFICATIONS PRIOR TO COMMENCEMENT OF MODIFICATIONS.
7. SITE DETENTION POND SHALL SERVE AS A TEMPORARY SEDIMENTATION BASIN UNTIL ENTIRE DRAINAGE BASIN'S SOIL HAS BEEN STABILIZED.
8. STORMWATER MANAGEMENT & DETENTION FACILITIES SHALL BE PROVIDED PRIOR TO SITE CONSTRUCTION OR CLEARING

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

CUDEENGINEERS.COM
CUDE ENGINEERS EST. 1980
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

REGENT PARK UNIT 9

STORM WATER POLLUTION PREVENTION PLAN

DATE
12/03/2024

PROJECT NO.
02133.160

DRAWN BY
AD/RM/MW/MS/JG

CHECKED BY
WPM

REVISIONS
1. 10/24/2024 - ADD ARION KING STREET NAME, UPDATE DRAINAGE LAYOUT, UPDATE BMPs
2.
3.
4.
5.
6.
7.
8.

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

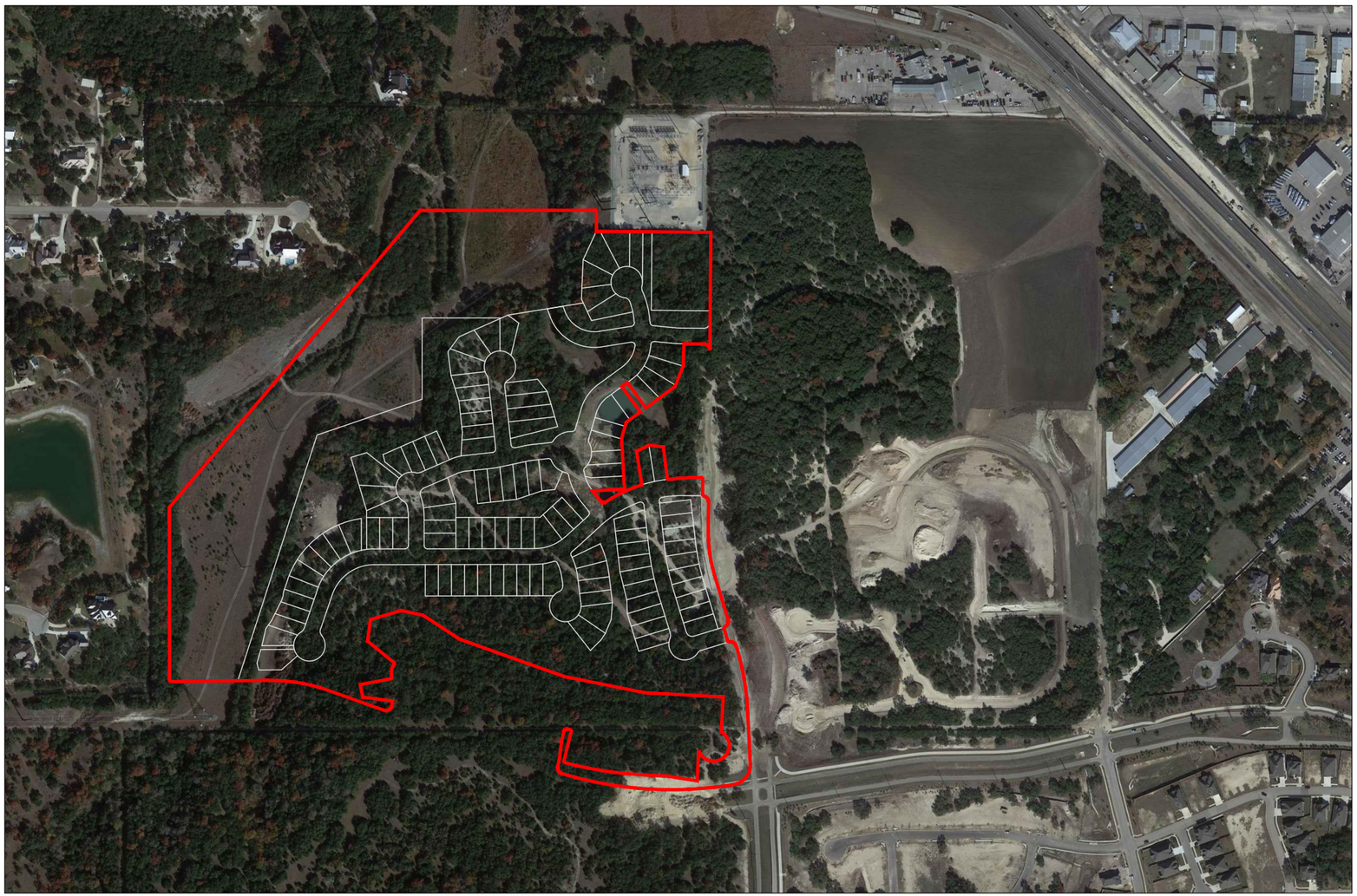
PLAT NO.
N/A

C39

P:\02133.160\2-Drawings\05_SWPPP\Regent UNIT 9 SWPPP.dwg, 12/3/2024 11:23:27 AM, mwoodhead

BANDERA ELECTRIC COOPERATIVE, INC.

REGENT PARK UNIT 9



BEC

GENERAL DRAWINGS

E0	PROJECT COVER SHEET & DRAWING LIST
E1	UNDERGROUND ELECTRICAL LAYOUT (PAGE 1 OF 3)
E2	UNDERGROUND ELECTRICAL LAYOUT (PAGE 2 OF 3)
E3	UNDERGROUND ELECTRICAL LAYOUT (PAGE 3 OF 3)
E4	TRENCH DETAILS
E5	CONDUIT CONFIGURATION DETAILS
E6	THREE PHASE SECTIONALIZING CABINET DETAILS (TYPE 2)
E7	THREE PHASE VFI DETAILS
E8	THREE PHASE VFI VENDOR DRAWING
E9	SINGLE PHASE SECTIONALIZING CABINET DETAILS
E10	SINGLE PHASE TRANSFORMER DETAILS
E11	SECONDARY PEDESTAL AND TYPICAL EQUIPMENT ORIENTATION DETAILS
E12	SINGLE PHASE AND THREE PHASE RISER DETAILS

REV LIST:

1 REVISION 1: E0, E1, E3

2 REVISION 2: E0, E1, E2

THIS DRAWING IS CERTIFIED TO BE CORRECT FOR THE NEW FACILITIES SHOWN ONLY. INFORMATION CONCERNING EXISTING FACILITIES PROVIDED BY OTHERS HAS NOT BEEN VERIFIED.

ISSUED: 08-30-23
FOR CONSTRUCTION

STATE OF TEXAS
CHRISTOPHER T. HARPER
106036
LICENSED
PROFESSIONAL ENGINEER

NO	DATE	REVISION	BY	CHK	APPD
2	12-12-24	REVISION 2	PS	CTH	CTH
1	08-31-23	REVISION 1	CJB	CTH	CTH

	DATE	BY
DRWN	04-27-21	RHL
CHK	08-30-23	CTH
APPD	08-30-23	CTH

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TEXAS REGISTRATION NUMBER F-1594

SCHNEIDER ENGINEERING

BANDERA ELECTRIC COOPERATIVE, INC.

REGENT PARK UNIT 9

PROJECT COVER SHEET AND DRAWING LIST

SCALE FOR 34 x 22 DWG: N.T.S.

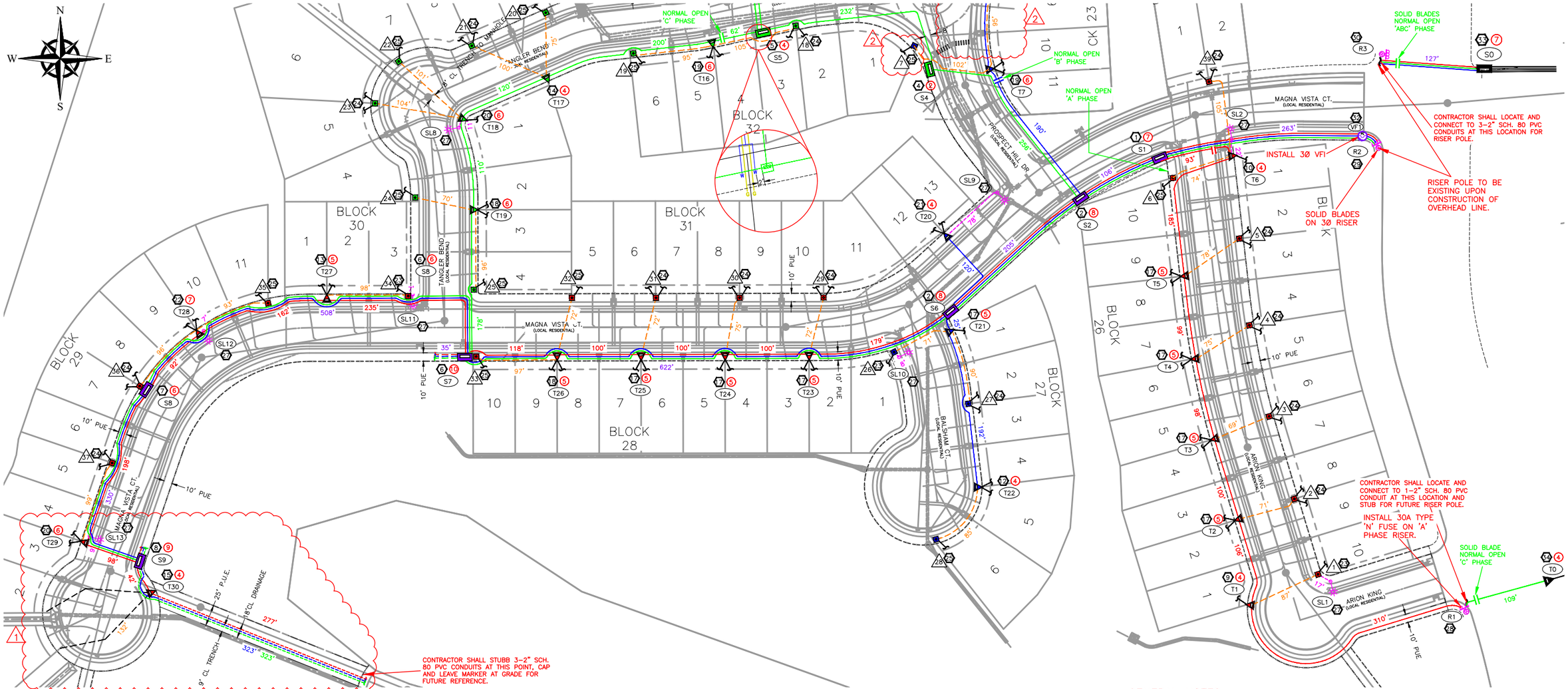
DRAWING NO. E0

20BEC3209

SYSTEM VOLTAGE: 7.2 / 12..47 kV

08/30/2023 4:33 PM * psalinas * N:\BEC\20BEC3209 Regent Park Unit 9, WO 458627\Drawings\E0-Cover.dwg

REFERENCED INFORMATION IN DRAWING WAS RECEIVED ON NOVEMBER 14, 2024 FROM PATRICK MURPHY
FILE NAME: 00_BASE-U9-11-14-2024.dwg



LEGEND

A PHASE / B PHASE / C PHASE	PRIMARY: 1/0 AL W/ FULL CONCENTRIC JACKETED NEUTRAL, 25 kV, XLPE, 260 MIL INSUL. IN 2" MIN. PVC SCH. 80, ELECT. CONDUIT
100' – 3ø CONDUIT POINT TO POINT DISTANCE 100' – 1ø, PHASE A CONDUIT POINT TO POINT DISTANCE 100' – 1ø, PHASE B CONDUIT POINT TO POINT DISTANCE 100' – 1ø, PHASE C CONDUIT POINT TO POINT DISTANCE	
EXISTING 3ø OVERHEAD LINE	
EXISTING 1ø OVERHEAD LINE	
350 MCM AL, 600V, TRIPLEX IN 3" MIN. PVC SCH 80, ELECT. CONDUIT	
STREET LIGHT CABLE, 600V, #10 COPPER (2EA.), INSTALLED IN 2" PVC SCH 80 ELECT. CONDUIT OR AS SPECIFIED	
VACANT (EMPTY) 3" CONDUIT OR AS SPECIFIED	
ELECTRICAL UTILITY EASEMENT	

SYMBOLS

(R)	EXISTING POLE & RISER
(R)	EXISTING POLE, NEW RISER
(R)	NEW POLE & RISER
●	EXISTING POLE
○	NEW POLE
(	EXISTING ANCHOR
	NEW SECTIONALIZING BOX
	1ø TRANSFORMER (120/240V) (KVA SIZE PER DRAWING)
	SECONDARY PEDESTAL
	STREET LIGHT
	VACUUM FAULT INTERRUPTER

LABELS

(R#)	RISER POLE NO.
(P#)	POLE NO.
(S#)	SECTIONALIZING BOX NO.
(T#)	TRANSFORMER NO.
(A)	SECONDARY PEDESTAL NO.
(SL#)	STREETLIGHT NO.
(X)	NUMBER OF CONDUITS

GENERAL NOTES:

1. ALL SECONDARY CONDUIT SHALL BE SCHEDULE 80 3" PVC.
2. ALL PRIMARY CONDUIT SHALL BE SCHEDULE 80 2" PVC.
3. CONSTRUCTION SHALL TAG AND CODE CABLE IN THE FIELD TO IDENTIFY PHASES.
4. CONTRACTOR TO STUB UP SPARE TEL. AND CATV NEXT TO METER PEDS AS REQUIRED BY RESPECTIVE UTILITIES.
5. ALL PRIMARY CABLE SHALL BE #1/0 AL, 25 kV OR EQUAL.
6. ALL PAD-MOUNTED ENCLOSURES INCLUDING TRANSFORMERS, SHALL BE GROUNDED IN SUCH A MANNER THAT TWO SEPARATE CONNECTIONS EXIST BETWEEN THE ENCLOSURE AND THE GROUND ROD(S). IF METER PEDESTALS, TRANSFORMERS, AND SECTIONALIZING BOXES ARE WITHIN 10 FEET OF EACH OTHER A #2 CU. SOLID BARE WIRE SHALL TIE ALL GROUND RODS TOGETHER.
7. SECTIONALIZING BOXES, TRANSFORMERS, EASEMENTS, CABLE, AND WIRE ARE NOT SHOWN TO SCALE IN THIS DRAWING.
8. EASEMENTS TO BE DEDICATED BY DEVELOPER TO COVER ALL ELECTRIC FACILITIES.
9. ALL ELECTRIC STREET CROSSINGS AND SERVICE EXTENSION TRENCHES TO INCLUDE TEL. & CATV.
10. IF ANY ELECTRIC FACILITIES ARE SUSCEPTIBLE TO DAMAGE FROM VEHICULAR TRAFFIC, BOLLARDS SHALL BE PLACED AROUND THE EQUIPMENT TO PREVENT DAMAGE.
11. FOR ANY PAD LOCATED IN DRAINAGE EASEMENT OR EROSION PRONE AREAS, CONTRACTOR SHALL BUILD UP PAD SITE AND REINFORCE WITH CONCRETE TO PREVENT EROSION.
12. TRANSFORMER AND SECONDARY SERVICE SIZE EVALUATION SHOULD BE PERFORMED AT THE TIME OF EACH SERVICE REQUEST.
13. 3" SECONDARY CONDUIT STUBBED OUT OF SECONDARY EQUIPMENT, TOWARDS THE LOTS, SHALL BE 5' INTO EACH INDIVIDUAL LOT, CAPPED, AND MARKED AT GRADE LEVEL FOR FUTURE SERVICE.
14. CONTRACTOR NOT TO EXCEED 360 DEGREES IN BENDS PER CONDUIT SEGMENT.
15. ELECTRICAL FACILITIES SHALL BE INSTALLED A MINIMUM OF 4 FEET FROM FIRE HYDRANTS.

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ISSUED: 08-30-23
FOR CONSTRUCTION

STATE OF TEXAS
CHRISTOPHER T. HARPER
106036
LICENSED
PROFESSIONAL ENGINEER

NO	DATE	REVISION	BY	CHK	APPD
2	12-12-24	UPDATED REFERENCE DRAWING AND DESIGN	PS	CTH	CTH
1	08-31-23	UPDATED ROUTE PER DRAINAGE EASEMENT	CJB	CTH	CTH

	DATE	BY
DRWN	04-27-21	RHL
CHK	08-30-23	CTH
APPD	08-30-23	CTH

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TEXAS REGISTRATION NUMBER F-1594

SCHNEIDER ENGINEERING

BANDERA ELECTRIC COOPERATIVE, INC.

REGENT PARK UNIT 9

UNDERGROUND ELECTRICAL LAYOUT
(PAGE 1 OF 3)

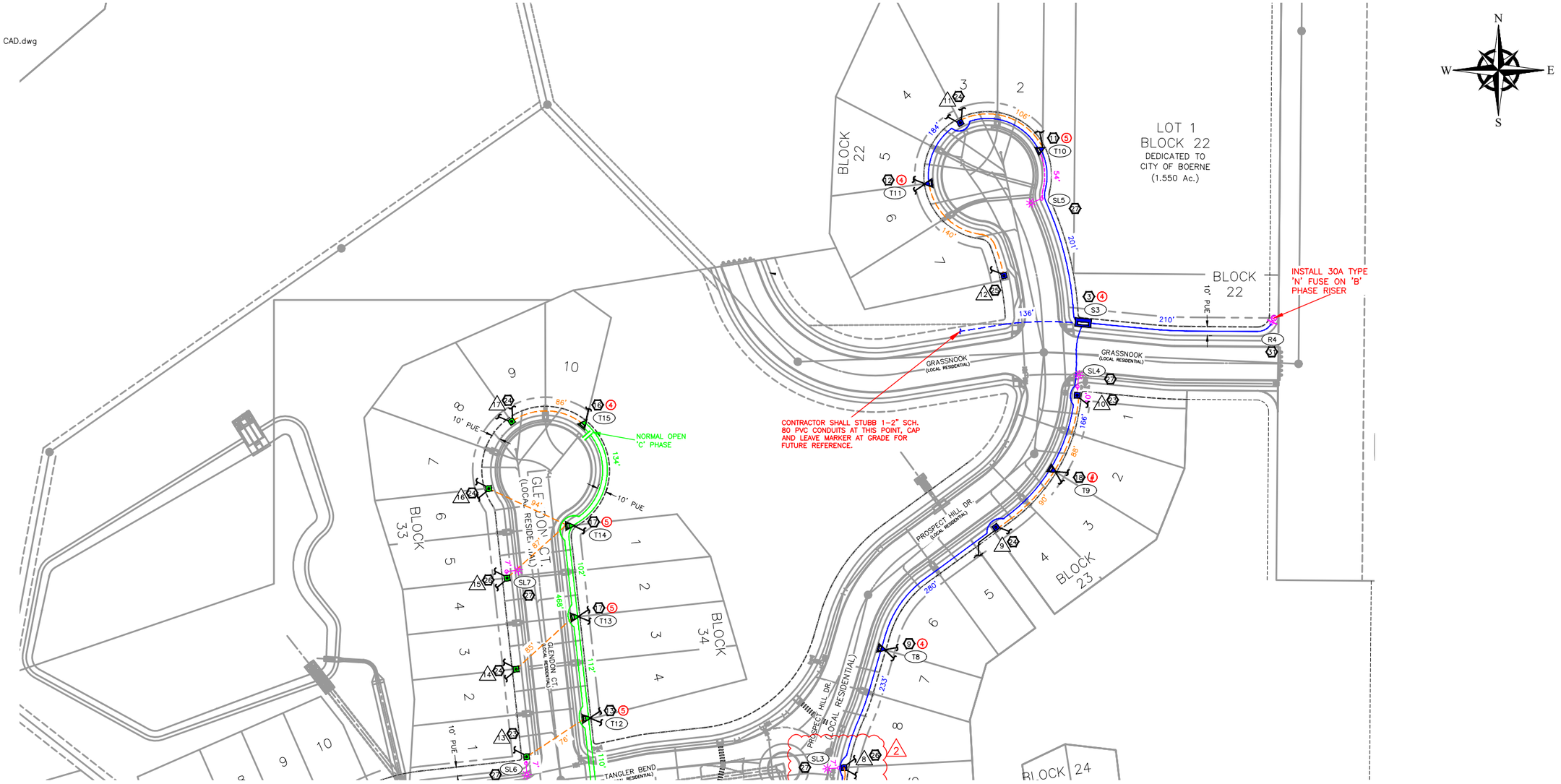
SCALE FOR 34 x 22 DWG: 1"=60'
DRAWING NO. E1

SYSTEM VOLTAGE: 7.2 / 12..47 kV

20BEC3209

08/30/2023 4:33 PM * psalinas * N:\BEC\20BEC3209 Regent Park Unit 9, WO 458627\Drawings\E1-E3 URD Unit 9.dwg

REFERENCED INFORMATION IN
DRAWING WAS RECEIVED ON
APRIL 27, 2021
FROM PATRICK MURPHY
FILE NAME:
XREF 2021-04-21 Regent Park U9 - UTIL CAD.dwg



LEGEND

A PHASE B PHASE C PHASE	PRIMARY: 1/0 AL W/ FULL CONCENTRIC JACKETED NEUTRAL, 25 kV, XLPE, 260 MIL INSUL. IN 2" MIN. PVC SCH. 80, ELECT. CONDUIT
100' – 3ø CONDUIT POINT TO POINT DISTANCE 100' – 1ø, PHASE A CONDUIT POINT TO POINT DISTANCE 100' – 1ø, PHASE B CONDUIT POINT TO POINT DISTANCE 100' – 1ø, PHASE C CONDUIT POINT TO POINT DISTANCE	
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EXISTING 1ø OVERHEAD LINE	
350 MCM AL, 600V, TRIPLEX IN 3" MIN. PVC SCH 80, ELECT. CONDUIT	
STREET LIGHT CABLE, 600V, #10 COPPER (2EA.), INSTALLED IN 2" PVC SCH 80 ELECT. CONDUIT OR AS SPECIFIED	
VACANT (EMPTY) 3" CONDUIT OR AS SPECIFIED	
ELECTRICAL UTILITY EASEMENT	

SYMBOLS

(R)	EXISTING POLE & RISER
(R)	EXISTING POLE, NEW RISER
(R)	NEW POLE & RISER
●	EXISTING POLE
○	NEW POLE
(	EXISTING ANCHOR
	NEW SECTIONALIZING BOX
	1ø TRANSFORMER (120/240V) (KVA SIZE PER DRAWING)
	SECONDARY PEDESTAL
	STREET LIGHT
	VACUUM FAULT INTERRUPTER

LABELS

R#	RISER POLE NO.
P#	POLE NO.
S#	SECTIONALIZING BOX NO.
T#	TRANSFORMER NO.
#	SECONDARY PEDESTAL NO.
SL#	STREETLIGHT NO.
X	NUMBER OF CONDUITS

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ISSUED: 08-30-23
FOR CONSTRUCTION

STATE OF TEXAS
CHRISTOPHER T. HARPER
106036
LICENSED
PROFESSIONAL ENGINEER

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NO	DATE	REVISION	BY	CHK	APPD
2	12-12-24	UPDATED REFERENCE DRAWING AND DESIGN	PS	CTH	CTH

	DATE	BY
DRWN	04-27-21	RHL
CHK	08-30-23	CTH
APPD	08-30-23	CTH

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TEXAS REGISTRATION NUMBER F-1594

SCHNEIDER ENGINEERING

BANDERA ELECTRIC COOPERATIVE, INC.

REGENT PARK UNIT 9

UNDERGROUND ELECTRICAL LAYOUT
(PAGE 2 OF 3)

SCALE FOR 34 x 22 DWG: 1"=60'

DRAWING NO. E2

20BEC3209

SYSTEM VOLTAGE: 7.2 / 12..47 kV

08/30/2023 4:33 PM * psalinas * N:\BEC\20BEC3209 Regent Park Unit 9, WO 458627\Drawings\E1-E3 URD Unit 9.dwg

(1) ADD: S1
1–3ø SECTIONALIZING CABINET W/ PAD (UM4–600, UM1–6J)
3–4 POINT JUNCTIONS (UM6–22)
7–L.B. ELBOWS (1/0) (UM6–1/0)
5–INSULATED CAPS (UM6–10)
4–FAULT INDICATORS (UM6–4)
7–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
1–3ø GROUNDING ASSEMBLY (UM48–2)

(2) ADD: S2, S6
1–3ø SECTIONALIZING CABINET W/ PAD (UM4–600, UM1–6J)
3–4 POINT JUNCTIONS (UM6–22)
8–L.B. ELBOWS (1/0) (UM6–1/0)
4–INSULATED CAPS (UM6–10)
5–FAULT INDICATORS (UM6–4)
8–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
1–3ø GROUNDING ASSEMBLY (UM48–2)

(3) ADD: S3
1–1ø SECTIONALIZING CABINET W/ PAD (UM3–14, UM1–5J)
1–4 POINT JUNCTION (UM6–22)
3–L.B. ELBOWS (1/0) (UM6–1/0)
1–INSULATED CAP (UM6–10)
2–FAULT INDICATORS (UM6–4)
4–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(4) ADD: S4
1–1ø SECTIONALIZING CABINET W/ PAD (UM3–14, UM1–5J)
1–3 POINT JUNCTION (UM6–21)
2–L.B. ELBOWS (1/0) (UM6–1/0)
1–INSULATED CAP (UM6–10)
1–FAULT INDICATOR (UM6–4)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(5) ADD: S5
1–1ø SECTIONALIZING CABINET W/ PAD (UM3–14, UM1–5J)
1–4 POINT JUNCTION (UM6–22)
4–L.B. ELBOWS (1/0) (UM6–1/0)
3–FAULT INDICATORS (UM6–4)
4–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(6) ADD: S7
1–3ø SECTIONALIZING CABINET W/ PAD (UM4–600, UM1–6J)
3–4 POINT JUNCTIONS (UM6–22)
7–L.B. ELBOWS (1/0) (UM6–1/0)
5–INSULATED CAPS (UM6–10)
4–FAULT INDICATORS (UM6–4)
10–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
1–3ø GROUNDING ASSEMBLY (UM48–2)

(7) ADD: S8
1–3ø SECTIONALIZING CABINET W/ PAD (UM4–600, UM1–6J)
3–4 POINT JUNCTIONS (UM6–22)
6–L.B. ELBOWS (1/0) (UM6–1/0)
6–INSULATED CAPS (UM6–10)
3–FAULT INDICATOR (UM6–4)
6–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
1–3ø GROUNDING ASSEMBLY (UM48–2)

(8) ADD: S9
1–3ø SECTIONALIZING CABINET W/ PAD (UM4–600, UM1–6J)
3–4 POINT JUNCTIONS (UM6–22)
3–L.B. ELBOWS (1/0) (UM6–1/0)
3–L.A. ELBOWS (UM6–34)
6–INSULATED CAPS (UM6–10)
3–FAULT INDICATOR (UM6–4)
9–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
1–3ø GROUNDING ASSEMBLY (UM48–2)

(9) ADD: T1, T8
1–1ø TRANSFORMER 37.5 KVA W/ PAD (UG7–37.5, UM1–5C)
2–L.B. ELBOWS (1/0) (UM6–1/0)
1–FAULT INDICATOR (UM6–4)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
2–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(10) ADD: T6 (NORMAL OPEN)
1–1ø TRANSFORMER 75 KVA W/ PAD (UG7–75, UM1–5C)
2–L.B. ELBOWS (1/0) (UM6–1/0)
1–L.A. ELBOW (UM6–34)
1–PARKING STAND ARRESTER (UM6–37)
1–FAULT INDICATOR (UM6–4)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
3–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(11) ADD: T10
1–1ø TRANSFORMER 50 KVA W/ PAD (UG7–50, UM1–5C)
2–L.B. ELBOWS (1/0) (UM6–1/0)
1–FAULT INDICATOR (UM6–4)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
2–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–2" 90° SWEEP SCH 80 PVC (UM50–SW–2–24")
1–1ø GROUNDING ASSEMBLY (UM48–1)

(12) ADD: T11, T22
1–1ø TRANSFORMER 50 KVA W/ PAD (UG7–50, UM1–5C)
1–L.B. ELBOW (1/0) (UM6–1/0)
1–L.A. ELBOW (UM6–34)
1–2" 90° SWEEP SCH 80 PVC (UM50–SW–2)
3–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(13) ADD: T12, T27
1–1ø TRANSFORMER 50 KVA W/ PAD (UG7–50, UM1–5C)
2–L.B. ELBOWS (1/0) (UM6–1/0)
1–FAULT INDICATOR (UM6–4)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
3–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(14) ADD: T17
1–1ø TRANSFORMER 50 KVA W/ PAD (UG7–50, UM1–5C)
2–L.B. ELBOWS (1/0) (UM6–1/0)
1–FAULT INDICATOR (UM6–4)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
2–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(15) ADD: T30
1–1ø TRANSFORMER 37.5 KVA W/ PAD (UG7–37.5, UM1–5C)
1–L.B. ELBOW (1/0) (UM6–1/0)
1–L.A. ELBOW (UM6–34)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
2–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(16) ADD: T15 (NORMAL OPEN)
1–1ø TRANSFORMER 50 KVA W/ PAD (UG7–50, UM1–5C)
2–L.B. ELBOWS (1/0) (UM6–1/0)
1–L.A. ELBOW (UM6–34)
1–PARKING STAND ARRESTER (UM6–37)
1–FAULT INDICATOR (UM6–4)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
2–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(17) ADD: T2, T3, T4, T5, T13, T14, T21, T23, T24, T25
1–1ø TRANSFORMER 75 KVA W/ PAD (UG7–75, UM1–5C)
2–L.B. ELBOWS (1/0) (UM6–1/0)
1–FAULT INDICATOR (UM6–4)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
3–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(18) ADD: T9, T19, T26
1–1ø TRANSFORMER 75 KVA W/ PAD (UG7–75, UM1–5C)
2–L.B. ELBOWS (1/0) (UM6–1/0)
1–FAULT INDICATOR (UM6–4)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
4–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(19) ADD: T7, T16 (NORMAL OPEN)
1–1ø TRANSFORMER 75 KVA W/ PAD (UG7–75, UM1–5C)
2–L.B. ELBOWS (1/0) (UM6–1/0)
1–L.A. ELBOW (UM6–34)
1–PARKING STAND ARRESTER (UM6–37)
1–FAULT INDICATOR (UM6–4)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
4–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–1ø GROUNDING ASSEMBLY (UM48–1)

(20) ADD: T18, T29
1–1ø TRANSFORMER 75 KVA W/ PAD (UG7–75, UM1–5C)
2–L.B. ELBOWS (1/0) (UM6–1/0)
1–FAULT INDICATOR (UM6–4)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
3–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–2" 90° SWEEP SCH 80 PVC (UM50–SW–2–24")
1–1ø GROUNDING ASSEMBLY (UM48–1)

(21) ADD: T20
1–1ø TRANSFORMER 37.5 KVA W/ PAD (UG7–37.5, UM1–5C)
1–L.B. ELBOW (1/0) (UM6–1/0)
1–L.A. ELBOW (UM6–34)
1–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
2–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–2" 90° SWEEP SCH 80 PVC (UM50–SW–2–24")
1–1ø GROUNDING ASSEMBLY (UM48–1)

(22) ADD: T28
1–1ø TRANSFORMER 75 KVA W/ PAD (UG7–75, UM1–5C)
2–L.B. ELBOWS (1/0) (UM6–1/0)
1–FAULT INDICATOR (UM6–4)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
4–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–2" 90° SWEEP SCH 80 PVC (UM50–SW–2–24")
1–1ø GROUNDING ASSEMBLY (UM48–1)

(23) ADD: 1, 10, 13, 26, 34
1–SECONDARY PEDESTAL (UK5)
3–SECONDARY CONNECTOR BLOCKS (UJ1)
2–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–2" 90° SWEEP SCH 80 PVC (UM50–SW–2–24")

(24) ADD: 2, 3, 4, 5, 9, 11, 14, 16, 17, 18, 21, 23, 27, 29, 30, 31, 36, 37, 39
1–SECONDARY PEDESTAL (UK5)
3–SECONDARY CONNECTOR BLOCKS (UJ1)
3–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)

(25) ADD: 6, 7, 12, 19, 20, 22, 24, 25, 28, 32, 33, 35, (X) (T1)
1–SECONDARY PEDESTAL (UK5)
3–SECONDARY CONNECTOR BLOCKS (UJ1)
2–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)

(26) ADD: 8, 15
1–SECONDARY PEDESTAL (UK5)
3–SECONDARY CONNECTOR BLOCKS (UJ1)
3–3" 90° SWEEPS SCH 80 PVC (UM50–SW–3)
1–2" 90° SWEEP SCH 80 PVC (UM50–SW–2–24")

(27) ADD: SL1, SL2, SL3, SL4, SL5, SL6, SL7, SL8, SL9, SL10, SL11, SL12, SL13
1–2" 90° SWEEP SCH 80 PVC (UM50–SW–2–24")
1–ST. LT. STANDARD
1–ST. LT. LAMP
1–ST. LT. BALLAST

(28) ADD: R1
2–UA1
1–30A TYPE 'N'(200) FUSE ('A' PHASE)
1–200A SOLID BLADE DISCONNECT SWITCH
('C' PHASE NORMAL OPEN)

(29) ADD: R2
1–UC1
3–200A SOLID BLADE DISCONNECT SWITCHES

(30) ADD: R3
1–UC1
3–200A SOLID BLADE DISCONNECT SWITCHES
(NORMAL OPEN)

(31) ADD: R4
1–UA1
1–30A TYPE 'N'(200) FUSE ('B' PHASE)

(32) ADD: VF1
1–3ø VACUUM FAULT INTERRUPTER W/PAD (G&W PVI20–386–12–4F)
6–L.B. ELBOWS (UM6–1/0)
6–2" 90° SWEEPS SCH 80 PVC (3' MIN RADIUS)(UM50–SW–2)
1–3ø GROUNDING ASSEMBLY (UM48–2)

VF1 HAS 200 AMP BUSHINGS AND IS NON–GANG OPERATED. THE RECOMMENDED SETTINGS FOR THE G&W VF1, ASSUMING A 500:1 CT WILL BE USED, ARE AS FOLLOWS: MINIMUM TRIP – 175 AMP USING THE CO–11 RELAY #1 CURVE WHICH IS ILLUSTRATED BELOW



MATERIAL LIST (EST.) *

QTY.	DESCRIPTION	BEC UNIT
103	LOTS SERVED	
8,642'	PRIMARY AND SECONDARY TRENCHING	
AS REQ'D	CONCRETE	
AS REQ'D	ROADBASE/AGGREGATE	
AS REQ'D	GRASS SEED	
8,642'	6" WIDE CAUTION TAPE	
AS REQ'D	MULE TAPE (1,000 LB TEST MIN.)	
270'	2" SCH 80 PVC CONDUIT (STREET LIGHT)	UM50–P–2
26	2" 90° SWEEPS SCH 80 PVC (2' MIN RADIUS) (STREET LIGHT)	UM50–SW–2–24"
13,950'	2" SCH 80 PVC CONDUIT (PRIMARY)	UM50–P–2
144	2" 90° SWEEPS SCH 80 PVC (2' MIN RADIUS)	UM50–SW–2
3,895'	3" SCH 80 PVC CONDUIT (SECONDARY)	UM50–P–3
80+103	3" 90° SWEEPS SCH 80 PVC (2' MIN RADIUS)	UM50–SW–3
13,260'	1/0 AL, 25KV, 260 MIL (PRIMARY CABLE)	
4,215'	350 MCM, AL TRIPLEX (SECONDARY CABLE)	
765'	#10 (CU PAIR) 600V (STREET LIGHT CABLE)	
1	3 POINT JUNCTIONS	UM6–21
20	4 POINT JUNCTIONS	UM6–22

QTY.	DESCRIPTION	BEC UNIT
30	1ø TRANSFORMER PAD	UM1–5C
4	1ø TRANSFORMERS 37.5 KVA 240/120V	UG7–37.5
7	1ø TRANSFORMERS 50 KVA 240/120V	UG7–50
19	1ø TRANSFORMERS 75 KVA 240/120V	UG7–75
3	1ø SECTIONALIZING CABINET PAD	UM1–5J
3	1ø SECTIONALIZING CABINET	UM3–14
6	3ø SECTIONALIZING CABINET PAD	UM1–6J
6	3ø SECTIONALIZING CABINET	UM4–600
38	SECONDARY PEDESTAL	UK5
114	SECONDARY CONNECTOR BLOCKS	UJ1
114	L.B. ELBOWS (1/0)	UM6–1/0
11	L.A. ELBOWS (1/0)	UM6–34
32	INSULATED CAPS	UM6–10
31	FAULT INDICATOR	UM6–4
33	1ø GROUNDING ASSEMBLY	UM48–1
7	3ø GROUNDING ASSEMBLY	UM48–2
13	ST. LT. STANDARD	
13	ST. LT. LAMP	
13	ST. LT. BALLAST	
3	1ø RISER	UA1
1	3ø VACUUM FAULT INTERRUPTER W/PAD	USG–VFI
2	3ø RISER W/HOOK SWITCHES	UC6

ALL CONDUIT FOOTAGES INCLUDE A 10% ADDER
ALL CABLE FOOTAGES HAVE 10' ADDED TO EACH CABLE TERMINATION IN SECTIONALIZING BOX, TRANSFORMER, AND SECONDARY PEDESTAL, 40' ADDED AT EACH RISER, AND 30' ADDED TO EACH LIGHT POLE
* CONTRACTOR RESPONSIBLE FOR VERIFING ACTUAL QUANTITIES REQUIRED IN FIELD

(33) EX: S0
1–3ø SECTIONALIZING CABINET W/ PAD (UM4–600, UM1–6J)
3–4 POINT JUNCTIONS (UM6–22)
4–L.B. ELBOWS (1/0) (UM6–1/0)
3–L.A. ELBOWS (UM6–34)
5–INSULATED CAPS (UM6–10)
4–FAULT INDICATORS (UM6–4)
7–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
1–3ø GROUNDING ASSEMBLY (UM48–2)

ADD:
3–L.B. ELBOWS (1/0) (UM6 1/0)

REM:
3–L.A. ELBOWS (UM6–34)

(34) EX: T0
1–1ø TRANSFORMER 25 KVA W/ PAD (UG7–25, UM1–5C)
1–L.B. ELBOW (1/0) (UM6–1/0)
1–L.A. ELBOW (UM6–34)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2)
2–2" 90° SWEEPS SCH 80 PVC (UM50–SW–2–24")
1–1ø GROUNDING ASSEMBLY (UM48–1)

ADD:
1–L.B. ELBOW (1/0) (UM6–1/0)
1–FAULT INDICATOR (UM6–4)

REM:
1–L.A. ELBOW (UM6–34)

GENERAL NOTES:

1. ALL SECONDARY CONDUIT SHALL BE SCHEDULE 80 3" PVC.
2. ALL PRIMARY CONDUIT SHALL BE SCHEDULE 80 2" PVC.
3. CONSTRUCTION SHALL TAG AND CODE CABLE IN THE FIELD TO IDENTIFY PHASES.
4. CONTRACTOR TO STUB UP SPARE TEL. AND CATV NEXT TO METER PEDS AS REQUIRED BY RESPECTIVE UTILITIES.
5. ALL PRIMARY CABLE SHALL BE #1/0 AL, 25 kV OR EQUAL.
6. ALL PAD–MOUNTED ENCLOSURES INCLUDING TRANSFORMERS, SHALL BE GROUNDED IN SUCH A MANNER THAT TWO SEPARATE CONNECTIONS EXIST BETWEEN THE ENCLOSURE AND THE GROUND ROD(S). IF METER PEDESTALS, TRANSFORMERS, AND SECTIONALIZING BOXES ARE WITHIN 10 FEET OF EACH OTHER A #2 CU. SOLID BARE WIRE SHALL TIE ALL GROUND RODS TOGETHER.
7. SECTIONALIZING BOXES, TRANSFORMERS, EASEMENTS, CABLE, AND WIRE ARE NOT SHOWN TO SCALE IN THIS DRAWING.
8. EASEMENTS TO BE DEDICATED BY DEVELOPER TO COVER ALL ELECTRIC FACILITIES.
9. ALL ELECTRIC STREET CROSSINGS AND SERVICE EXTENSION TRENCHES TO INCLUDE TEL. & CATV.
10. IF ANY ELECTRIC FACILITIES ARE SUSCEPTIBLE TO DAMAGE FROM VEHICULAR TRAFFIC, BOLLARDS SHALL BE PLACED AROUND THE EQUIPMENT TO PREVENT DAMAGE.
11. FOR ANY PAD LOCATED IN DRAINAGE EASEMENT OR EROSION PRONE AREAS, CONTRACTOR SHALL BUILD UP PAD SITE AND REINFORCE WITH CONCRETE TO PREVENT EROSION.
12. TRANSFORMER AND SECONDARY SERVICE SIZE EVALUATION SHOULD BE PERFORMED AT THE TIME OF EACH SERVICE REQUEST.
13. 3" SECONDARY CONDUIT STUBBED OUT OF SECONDARY EQUIPMENT, TOWARDS THE LOTS, SHALL BE 5' INTO ACH INDIVIDUAL LOT, CAPPED, AND MARKED AT GRADE LEVEL FOR FUTURE SERVICE.
14. CONTRACTOR NOT TO EXCEED 360 DEGREES IN BENDS PER CONDUIT SEGMENT.
15. ELECTRICAL FACILITIES SHALL BE INSTALLED A MINIMUM OF 4 FEET FROM FIRE HYDRANTS.

SYMBOLS

LABELS	
(R#) RISER POLE NO.	(R) EXISTING POLE & RISER
(P#) POLE NO.	(R) EXISTING POLE, NEW RISER
(S#) SECTIONALIZING BOX NO.	(R) NEW POLE & RISER
(T#) TRANSFORMER NO.	EXISTING POLE
SECONDARY PEDESTAL NO.	NEW POLE
(SL#) STREETLIGHT NO.	EXISTING ANCHOR
(X) NUMBER OF CONDUITS	NEW SECTIONALIZING BOX
	1ø TRANSFORMER (120/240V) (KVA SIZE PER DRAWING)
	SECONDARY PEDESTAL
	STREET LIGHT
	VACUUM FAULT INTERRUPTER

LEGEND

A PHASE / B PHASE / C PHASE	PRIMARY: 1/0 AL W/ FULL CONCENTRIC JACKETED NEUTRAL, 25 kV, XLPE, 260 MIL INSUL. IN 2" MIN. PVC SCH. 80, ELECT. CONDUIT
100'	3ø CONDUIT POINT TO POINT DISTANCE
100'	1ø, PHASE A CONDUIT POINT TO POINT DISTANCE
100'	1ø, PHASE B CONDUIT POINT TO POINT DISTANCE
100'	1ø, PHASE C CONDUIT POINT TO POINT DISTANCE
	EXISTING 3ø OVERHEAD LINE
	EXISTING 1ø OVERHEAD LINE
	350 MCM AL, 600V, TRIPLEX IN 3" MIN. PVC SCH 80, ELECT. CONDUIT
	STREET LIGHT CABLE, 600V, #10 COPPER (2EA.), INSTALLED IN 2" PVC SCH 80 ELECT. CONDUIT OR AS SPECIFIED
	VACANT (EMPTY) 3" CONDUIT OR AS SPECIFIED
	ELECTRICAL UTILITY EASEMENT

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ISSUED: 08-30-23
FOR CONSTRUCTION

STATE OF TEXAS
CHRISTOPHER T. HARPER
106036
LICENSED
PROFESSIONAL ENGINEER

NO	DATE	REVISION	BY	CHK	APPD
1	08–31–23	REMOVED SEC PED 38	CJB	CTH	CTH

	DATE	BY
DRWN	04–27–21	RHL
CHK	08–30–23	CTH
APPD	08–30–23	CTH

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SCHNEIDER ENGINEERING

BANDERA ELECTRIC COOPERATIVE, INC.

REGENT PARK UNIT 9

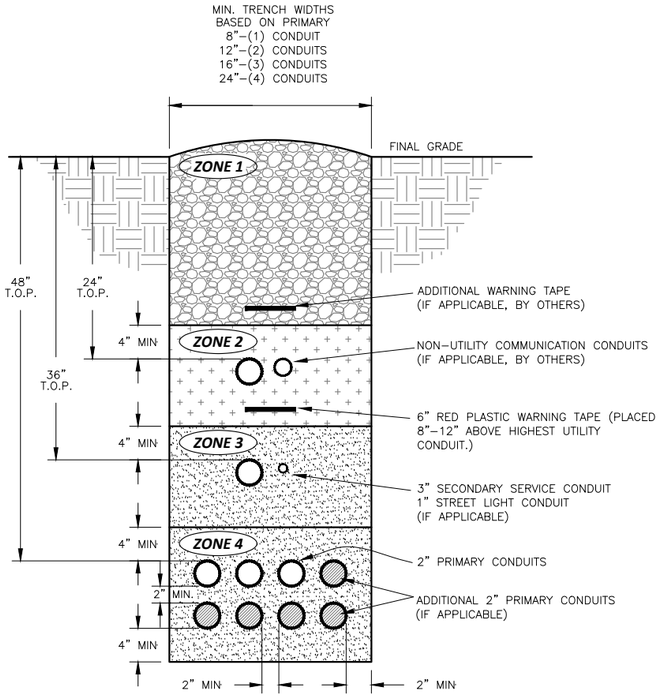
UNDERGROUND ELECTRICAL LAYOUT
(PAGE 3 OF 3)

SCALE FOR 34 x 22 DWG: NTS
DRAWING NO. E3

20BEC3209

SYSTEM VOLTAGE: 7.2 / 12..47 kV

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ZONE 1

FINAL BACKFILL ZONE
UNLESS OTHERWISE SPECIFIED, CLEAN NATIVE MATERIAL MAYBE UTILIZED FOR BACKFILL IN THIS ZONE.

ZONE 2

COMMUNICATION CONDUIT ZONE
(IF APPLICABLE/BY OTHERS)
THIS TRENCH ZONE IS RESERVED FOR COMMUNICATION CONDUITS AND LOW VOLTAGE APPLICATIONS THAT WILL NOT OWNED BY THE UTILITY. UNLESS OTHERWISE SPECIFIED BY THE OTHERS, CLEAN NATIVE MATERIAL MAYBE UTILIZED FOR BACKFILL IN THIS ZONE.

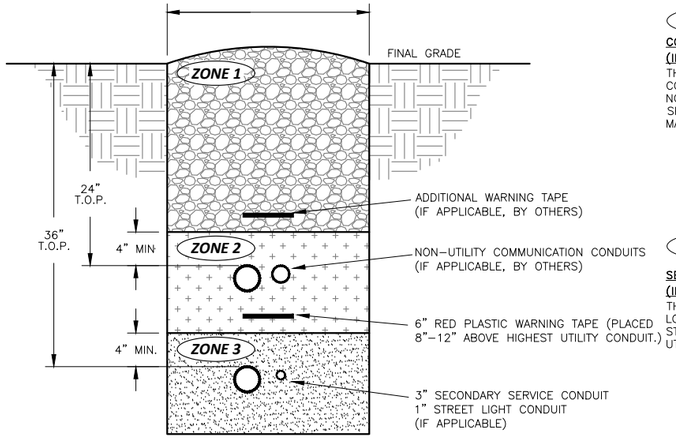
ZONE 3

SECONDARY CONDUIT ZONE
(IF APPLICABLE)
THIS TRENCH ZONE IS RESERVED FOR UTILITY OWNED LOW VOLTAGE CABLE INCLUDING SECONDARY AND STREET LIGHTING CONDUIT. BEDDING SAND SHALL BE UTILIZED FOR BACKFILL MATERIAL IN THIS ZONE.

ZONE 4

PRIMARY CONDUIT ZONE
THIS TRENCH ZONE IS RESERVED FOR UTILITY OWNED HIGH VOLTAGE CABLE INCLUDING ALL PRIMARY CONDUITS. BEDDING SAND SHALL BE UTILIZED FOR BACKFILL MATERIAL IN THIS ZONE.

PRIMARY TRENCH DETAIL (48" T.O.P.)



ZONE 1

FINAL BACKFILL ZONE
UNLESS OTHERWISE SPECIFIED, CLEAN NATIVE MATERIAL MAYBE UTILIZED FOR BACKFILL IN THIS ZONE.

ZONE 2

COMMUNICATION CONDUIT ZONE
(IF APPLICABLE/BY OTHERS)
THIS TRENCH ZONE IS RESERVED FOR COMMUNICATION CONDUITS AND LOW VOLTAGE APPLICATIONS THAT WILL NOT OWNED BY THE UTILITY. UNLESS OTHERWISE SPECIFIED BY THE OTHERS, CLEAN NATIVE MATERIAL MAYBE UTILIZED FOR BACKFILL IN THIS ZONE.

ZONE 3

SECONDARY CONDUIT ZONE
(IF APPLICABLE)
THIS TRENCH ZONE IS RESERVED FOR UTILITY OWNED LOW VOLTAGE CABLE INCLUDING SECONDARY AND STREET LIGHTING CONDUIT. BEDDING SAND SHALL BE UTILIZED FOR BACKFILL MATERIAL IN THIS ZONE.

SECONDARY JOINT-TRENCH DETAIL (36" T.O.P.)

EMBEDMENT/BACKFILL MATERIAL

CLEAN NATIVE MATERIAL – SHALL CONSIST OF ON–SITE TRENCH EXCAVATIONS SO LONG AS IT IS FREE FROM ROCKS OR CLAY CLODS OVER 3" AVG. DIAMETER, TRASH AND ANY ORGANIC MATERIAL. NATIVE MATERIAL SHALL BE COMPACTED TO 92% STANDARD PROCTOR, WHEN TESTED IN ACCORDANCE WITH ASTM 698. NOTE THAT THE UTILITY STILL RESERVES THE RIGHT TO REQUIRE SAND BEDDING AT THEIR DISCRETION.

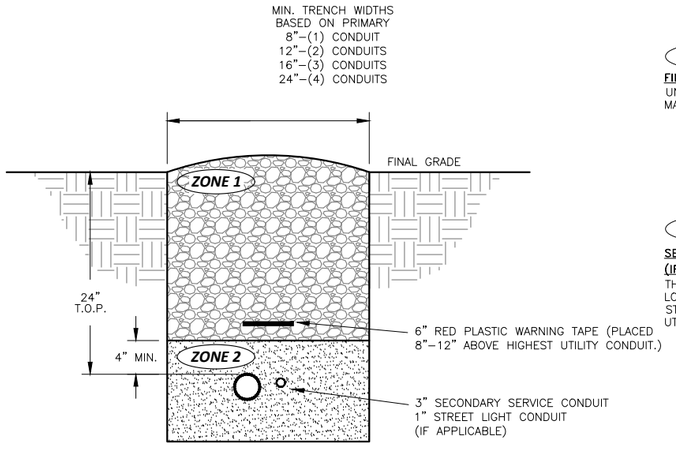
SAND BEDDING – WHEN REQUIRED BY UTILITY, BACKFILL SHALL CONSIST OF CLEAN PIT RUN SAND OR ROCK FINES GRADED AS SPECIFIED BELOW.(SUBMITTAL REQUIRED) COMPACTION TESTING WILL NOT BE REQUIRED FOR THIS MATERIAL, ALTHOUGH COMPACTION EFFORT MUST BE APPLIED. THIS CAN BE BY HAND OR MECHANICAL COMPACTION METHODS.

SIEVE NO.	% BY WEIGHT PASSING
4	100
40	60–100
100	30–70
200	0–8

LIMESTONE BASE – SHALL BE TX DOT TYPE A GRADE 1 OR 2 LIMESTONE BASE MATERIAL AND SHALL BE COMPACTED TO 95% MODIFIED PROCTOR WHEN TESTED IN ACCORDANCE WITH ASTM 1557.

GENERAL NOTES

1. ALL UTILITY CONDUITS SHALL BE SCHEDULE 40 PVC.
2. TO DETERMINE THE NUMBER AND AMOUNT OF CONDUITS FOR ZONES 3 AND 4 REFER TO THE APPROVED "FOR CONSTRUCTION" DRAWINGS.
3. THIS DRAWING IS A JOINT UTILITY TRENCH SECTION. ANY UNUSED UTILITY ZONES SHALL BE BACKFILLED AND COMPACTED WITH NATIVE MATERIAL, UNLESS OTHERWISE SPECIFIED.
4. WHERE TRENCH IS LOCATED BELOW A ROADWAY, ALL ZONES SPECIFYING NATIVE MATERIAL SHALL BE SUBSTITUTED WITH LIMESTONE BASE.
5. WHERE TRENCH CROSSES EITHER ABOVE ANOTHER UTILITY OR DRAINAGE LINE, CONTRACTOR SHALL INSTALL A MIN. 4" THICK 3,000 PSI CONCRETE CAP WITH RED DYE POWDER COATING ABOVE THE HIGHEST ELECTRIC UTILITY CONDUIT EXTENDING 5' IN EITHER DIRECTION OF THE CROSSING.
6. IT IS THE RESPONSIBILITY OF THE PROPERTY OWNER AND/OR CONTRACTOR TO COORDINATE WITH THE APPROPRIATE UTILITY FOR SIZE AND NUMBER OF COMMUNICATIONS CONDUITS.
7. A MIN. OF 12" AND 24" VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN NON–UTILITY LINES AND UTILITY OWNED SECONDARY AND PRIMARY CONDUITS, RESPECTIVELY.
8. AS DETERMINED BY UTILITY, THERE ARE INSTANCES WHERE CONCRETE ENCASEMENT (4" MIN. SURROUNDING ALL PIPES) OR CONCRETE CAPPING (6" MIN. COVER) OF ELECTRICAL CONDUIT WILL BE REQUIRED. CONCRETE SHALL HAVE A MIN. STRENGTH OF 3,000 PSI WITH RED DYE POWDER. THE RED DYE CAN EITHER BE MIXED INTEGRAL OR APPLIED TO TOP OF WET CONCRETE AT THE TIME OF PLACEMENT.



ZONE 1

FINAL BACKFILL ZONE
UNLESS OTHERWISE SPECIFIED, CLEAN NATIVE MATERIAL MAYBE UTILIZED FOR BACKFILL IN THIS ZONE.

ZONE 2

SECONDARY CONDUIT ZONE
(IF APPLICABLE)
THIS TRENCH ZONE IS RESERVED FOR UTILITY OWNED LOW VOLTAGE CABLE INCLUDING SECONDARY AND STREET LIGHTING CONDUIT. BEDDING SAND SHALL BE UTILIZED FOR BACKFILL MATERIAL IN THIS ZONE.

SECONDARY NON-JOINT TRENCH DETAIL (24" T.O.P.)

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ISSUED: 08-30-23
FOR CONSTRUCTION

STATE OF TEXAS
CHRISTOPHER T. HARPER
106036
LICENSED
PROFESSIONAL ENGINEER

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NO	DATE	REVISION	BY	CHK	APPD

	DATE	BY
DRWN	04–27–21	RHL
CHK	08–30–23	CTH
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BANDERA ELECTRIC COOPERATIVE, INC.

REGENT PARK UNIT 9

TRENCH DETAILS

SCALE FOR 34 x 22 DWG: N.T.S.

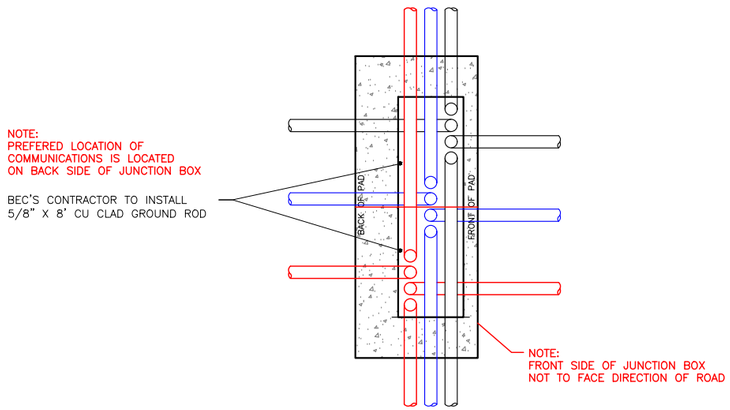
DRAWING NO. E4

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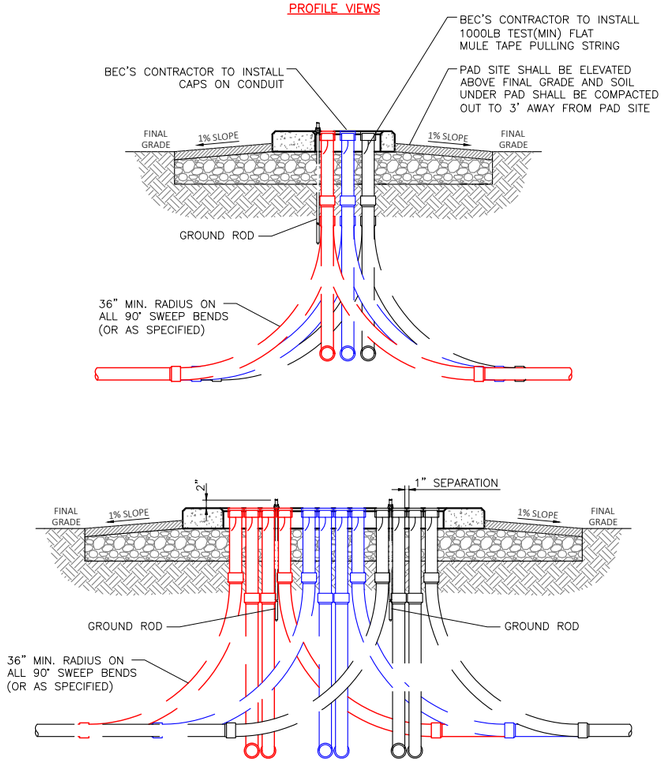
SYSTEM VOLTAGE: 7.2 / 12..47 kV

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PLAN VIEW
3ø JUNCTION BOX PAD

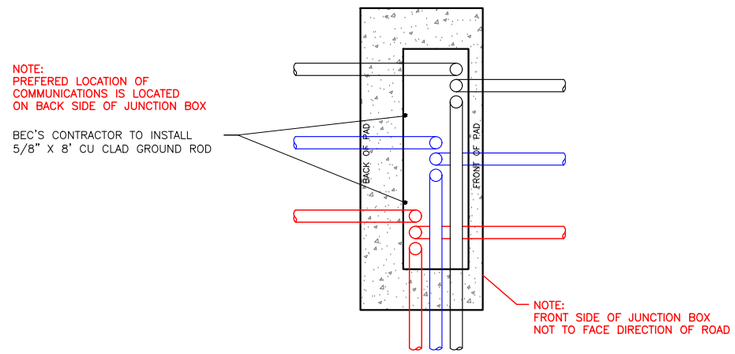


PROFILE VIEWS

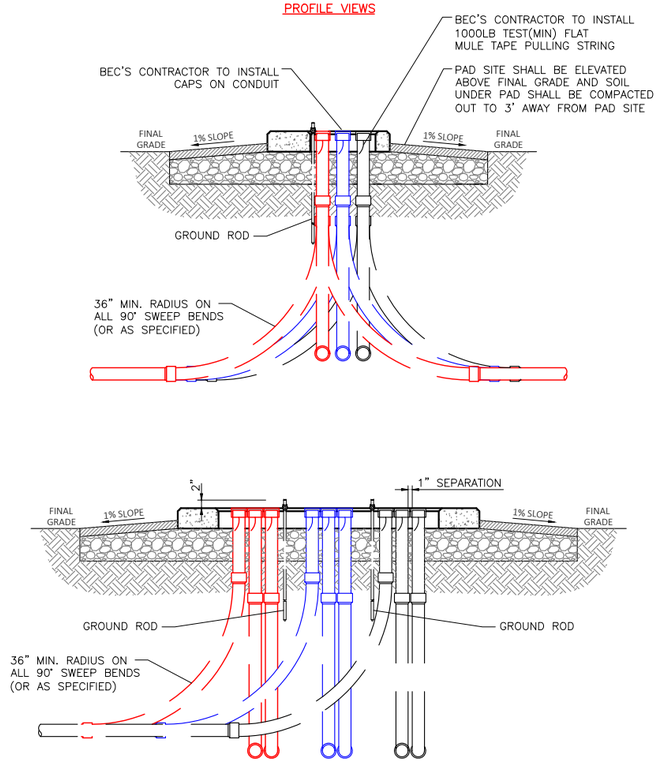


TYPICAL THREE PHASE J-BOX
CONDUIT CONFIGURATION(TWELVE PRIMARY STUB-UPS)

PLAN VIEW
3ø JUNCTION BOX PAD



PROFILE VIEWS



TYPICAL THREE PHASE J-BOX
CONDUIT CONFIGURATION(NINE PRIMARY STUB-UPS)

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BANDERA ELECTRIC COOPERATIVE, INC.

REGENT PARK UNIT 9

CONDUIT
CONFIGURATION DETAILS

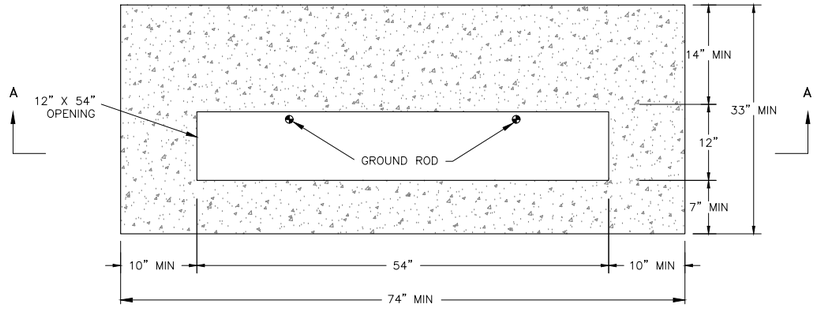
SCALE FOR 34 x 22 DWG
N.T.S.

DRAWING NO.
E5

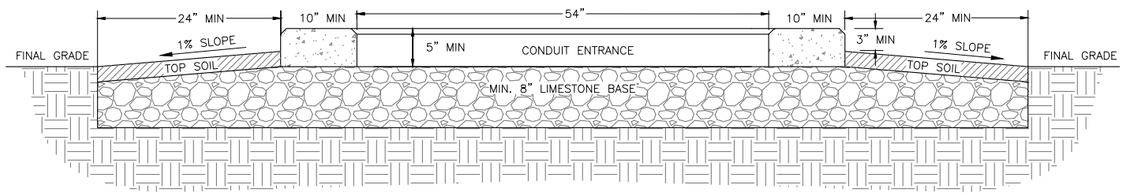
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SYSTEM VOLTAGE: 7.2 / 12..47 kV

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PLAN VIEW



SECTION A-A

CONCRETE NOTES:

1. FOUNDATIONS MAY BE PRECAST OR CAST–IN–PLACE. ALL FOUNDATIONS SHALL MEET THE MINIMUM CONSTRUCTION REQUIREMENTS LISTED BELOW. PRECAST FOUNDATIONS SHALL BE "BLOCK CONCRETE COMPANY NO.BCC74305JBS" OR PREAPPROVED EQUAL.
2. FOUNDATION SHALL NOT BE LESS THAN 5" IN THICKNESS.
3. CONCRETE SHALL HAVE A MIN. 28–DAY COMPRESSIVE STRENGTH OF 3,000 PSI WHEN TESTED IN ACCORDANCE WITH ASTM C39.
4. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
5. STEEL REINFORCING SHALL BE A #4 REBAR AT 6" O.C.E.W. ENDING 2" FROM OUTSIDE EDGE AND CONDUIT OPENING.

GENERAL NOTES:

1. DIMENSIONS SHOWN HERE ARE FOR A 3–PHASE TYPE 2 SECTIONALIZING CABINET.
2. FOUNDATION ASSEMBLIES INCLUDE PAD PREPARATION, BACKFILL, LIMESTONE BASE, COMPACTION, FOUNDATION, DRAINAGE AND TOP SOIL WHEN REQUIRED.
3. BACKFILL OF TRENCHING BELOW PROPOSED PAD SHALL BE IN ACCORDANCE WITH TRENCH DETAILS, UNLESS OTHERWISE SPECIFIED.
4. TOP OF PAD SHALL BE A MIN. OF 3" ABOVE FINAL GRADE AND BEC'S CONTRACTOR SHALL ENSURE A MIN. OF 1% SLOPE AWAY FROM PAD IN ALL DIRECTIONS.
5. LIMESTONE BASE – SHALL BE TX–DOT TYPE A GRADE 1 OR 2 LIMESTONE BASE MATERIAL AND SHALL BE COMPACTED TO INDUSTRY STANDARDS.
6. INSTALL GROUND ROD AT CONDUIT ENTRANCE.
7. EQUIPMENT SHALL BE SECURED TO PAD IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

3Ø SECTIONALIZING CABINET FOUNDATION (TYPE 2/UM1-6J)

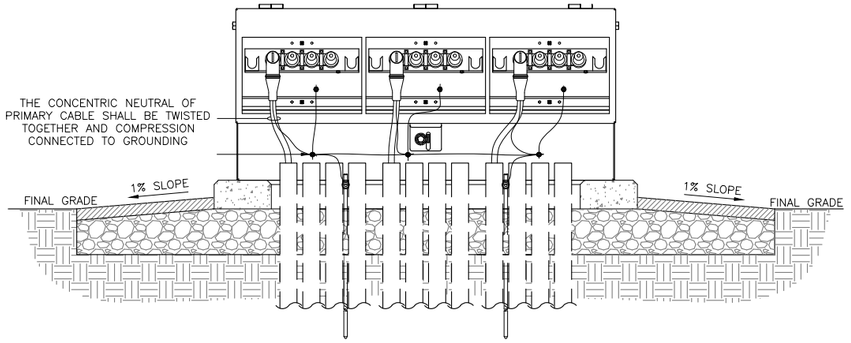
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20BEC3209



SECTIONALIZING CABINETS					
Description	Unit	Dimensions			Trinetics Catalog No.
		W	D	H	
3Ø Sectionalizing Cabinet (Type 1)	UM33-T1	48	22	30	CC348-22TH
3Ø Sectionalizing Cabinet (Type 2)	UM33-T2	66	22	30	CC366-22TH

GENERAL NOTES:

1. NOMENCLATURE FOR 3–PHASE SECTIONALIZING CABINETS IS UM33–T1 FOR "TYPE 1" AND UM33–T2 FOR "TYPE 2".
2. SECTIONALIZING CABINETS SHALL BE 12–GAUGE METAL, TOP HINGED, POWDER COATED AND BE LOCKABLE WITH PENTA–HEAD LATCH.
3. CABINETS SHALL ALSO BE RATED FOR A MIN. OF 25 KV AND 600 A EQUIPMENT.
4. THIS UNIT SHALL INCLUDE THE DELIVERY, INSTALLATION, MOUNTING, COMPLETE AND IN–PLACE.
5. FOUNDATION, BACKFILL AND DRAINAGE SHALL BE IN ACCORDANCE WITH 3ø SECTIONALIZING CABINET FOUNDATION DETAIL.
6. INSTALL GROUND ROD WITH THIS PIECE OF EQUIPMENT AS PER THE FOUNDATION DRAWINGS.
7. EQUIPMENT SHALL BE SECURED TO PAD IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

3Ø SECTIONALIZING CABINET (TYPE 2/UM4-600)

	DATE	BY
DRWN	04–27–21	RHL
CHK	08–30–23	CTH
APPD	08–30–23	CTH

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SCHNEIDER ENGINEERING

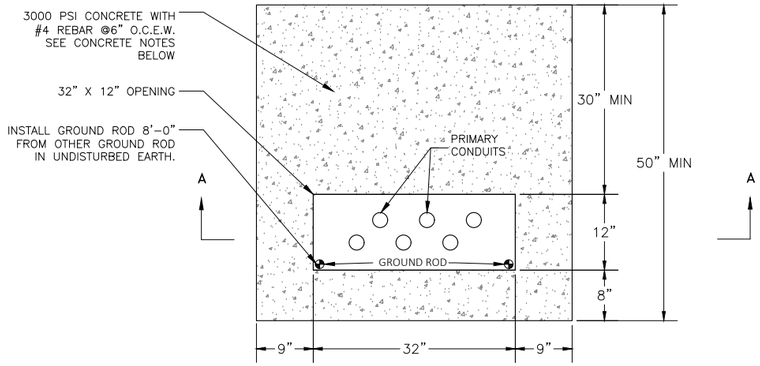
BANDERA ELECTRIC COOPERATIVE, INC.
REGENT PARK UNIT 9

THREE PHASE SECTIONALIZING CABINET DETAILS

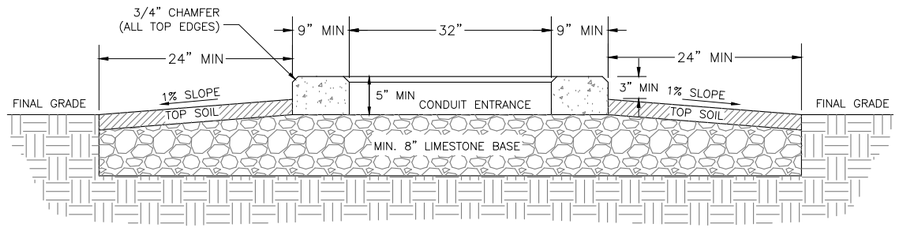
SCALE FOR 34 x 22 DWG: N.T.S.
DRAWING NO. E6

SYSTEM VOLTAGE: 7.2 / 12..47 kV

08/30/2023 4:33 PM * psalinas * N:\BEC\20BEC3209 Regent Park Unit 9, WO 458627\Drawings\E6–30 Junction Box–Type 2 Detail.dwg



PLAN VIEW



SECTION A-A

3Ø VACUUM FAULT INTERRUPTER FOUNDATION

CONCRETE NOTES

1. FOUNDATIONS MAY BE PRECAST OR CAST-IN-PLACE. ALL FOUNDATIONS SHALL MEET THE MINIMUM CONSTRUCTION REQUIREMENTS LISTED BELOW. PRECAST FOUNDATIONS SHALL BE "BLOCK CONCRETE COMPANY OR PREAPPROVED EQUAL.
2. FOUNDATION SHALL NOT BE LESS THAN 5" IN THICKNESS.
3. CONCRETE SHALL HAVE A MIN. 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI WHEN TESTED IN ACCORDANCE WITH ASTM C39.
4. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
5. STEEL REINFORCING SHALL BE A #4 REBAR AT 6" O.C.E.W. ENDING 2" FROM OUTSIDE EDGE AND CONDUIT OPENING.

GENERAL NOTES

1. DIMENSIONS SHOWN HERE ARE FOR A 3-PHASE G&W VACUUM FAULT INTERRUPTER.
2. FOUNDATION ASSEMBLIES INCLUDE PAD PREPARATION, BACKFILL, LIMESTONE BASE, COMPACTION, FOUNDATION, DRAINAGE AND TOP SOIL WHEN REQUIRED.
3. BACKFILL OF TRENCHING BELOW PROPOSED PAD SHALL BE IN ACCORDANCE WITH TRENCH DETAILS, UNLESS OTHERWISE SPECIFIED.
4. TOP OF PAD SHALL BE A MIN. OF 3" ABOVE FINAL GRADE AND BEC'S CONTRACTOR SHALL ENSURE A MIN. OF 1% SLOPE AWAY FROM PAD IN ALL DIRECTIONS.
5. LIMESTONE BASE - SHALL BE TX-DOT TYPE A GRADE 1 OR 2 LIMESTONE BASE MATERIAL AND SHALL BE COMPACTED TO INDUSTRY STANDARDS.
6. EQUIPMENT SHALL BE SECURED TO PAD IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

THIS DRAWING IS CERTIFIED TO BE CORRECT FOR THE NEW FACILITIES SHOWN ONLY. INFORMATION CONCERNING EXISTING FACILITIES PROVIDED BY OTHERS HAS NOT BEEN VERIFIED.

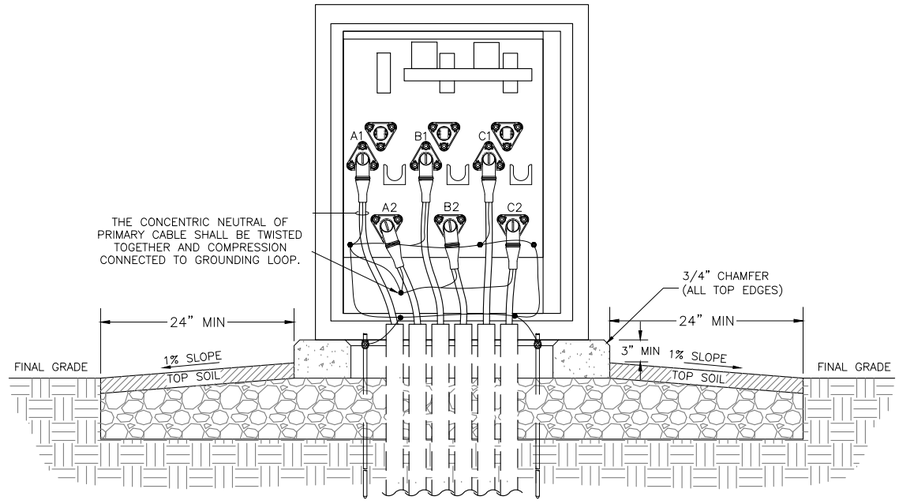
ISSUED: 08-30-23
FOR CONSTRUCTION

STATE OF TEXAS
CHRISTOPHER T. HARPER
106036
LICENSED
PROFESSIONAL ENGINEER

NO	DATE	REVISION	BY	CHK	APPD

NO	DATE	REVISION	BY	CHK	APPD

20BEC3209



GENERAL NOTES

1. THIS UNIT SHALL INCLUDE THE DELIVERY, INSTALLATION, MOUNTING, COMPLETE AND IN-PLACE.
2. FOUNDATION, BACKFILL AND DRAINAGE SHALL BE IN ACCORDANCE WITH 3Ø VACUUM FAULT INTERRUPTER DETAIL.
3. INSTALL GROUND ROD WITH THIS PIECE OF EQUIPMENT AS PER THE FOUNDATION DRAWINGS.
4. EQUIPMENT SHALL BE SECURED TO PAD IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

3Ø VACUUM FAULT INTERRUPTER

	DATE	BY
DRWN	04-27-21	RHL
CHK	08-30-23	CTH
APPD	08-30-23	CTH

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BANDERA ELECTRIC COOPERATIVE, INC.

REGENT PARK UNIT 9

THREE PHASE VACUUM FAULT INTERRUPTER DETAILS

SCALE FOR 34 x 22 DWG: N.T.S.

DRAWING NO. E7

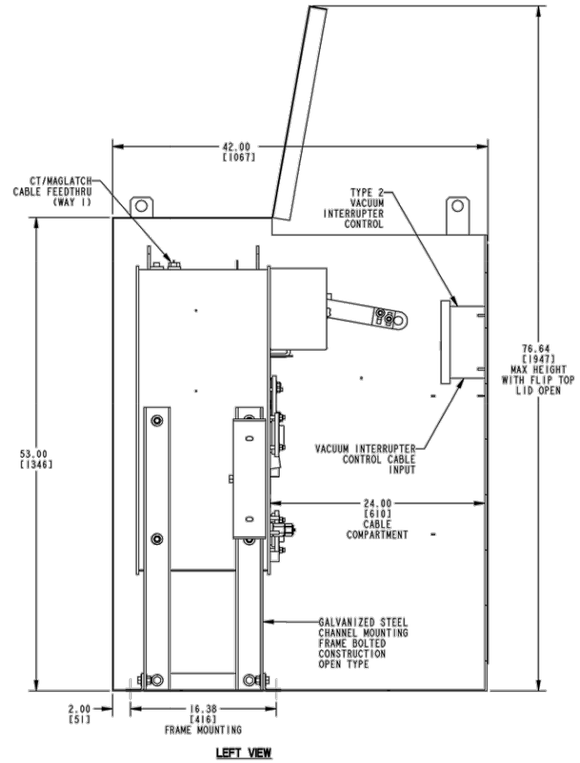
SYSTEM VOLTAGE: 7.2 / 12..47 kV

08/30/2023 4:33 PM * psalinas * N:\BEC\20BEC3209 Regent Park Unit 9, WO 458627\Drawings\E7 Three Phase VFI Details.dwg

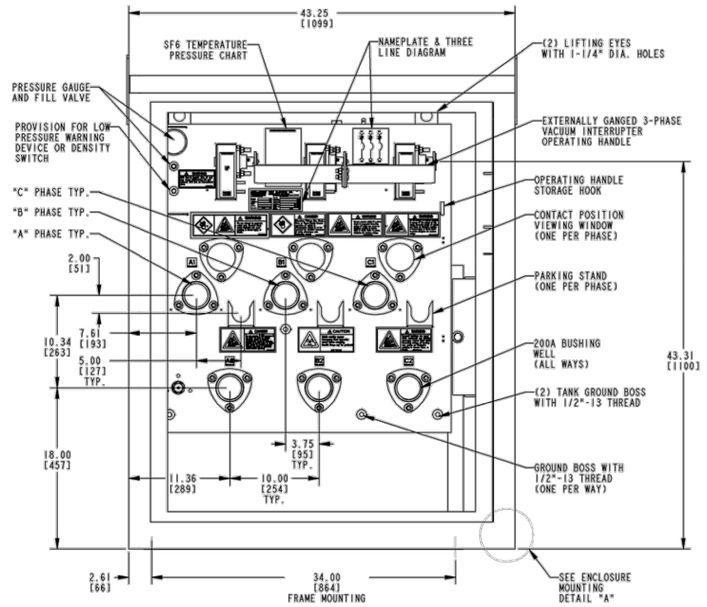
DWG. NO.: D9511 3366 CC0

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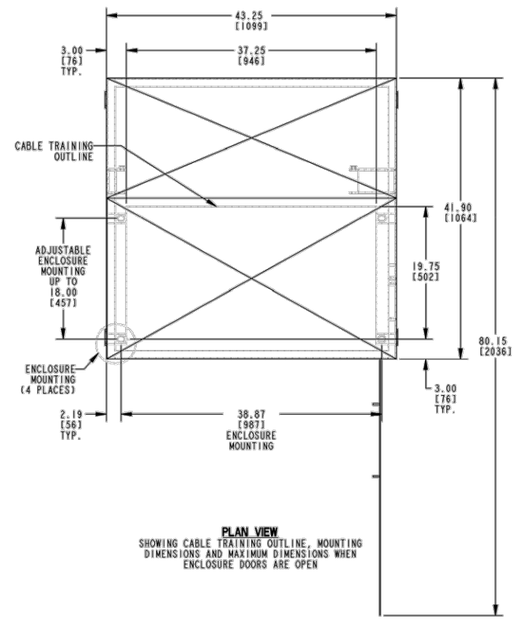
SHEET 1 of 1



LEFT VIEW



FRONT VIEW

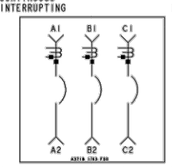


PLAN VIEW
SHOWING CABLE TRAINING OUTLINE, MOUNTING DIMENSIONS AND MAXIMUM DIMENSIONS WHEN ENCLOSURE DOORS ARE OPEN

WAY	ENTRANCES
1	27KV 125KV BIL 200A BUSHING WELL PER IEEE 386 FIGURE 3
2	27KV 125KV BIL 200A BUSHING WELL PER IEEE 386 FIGURE 3

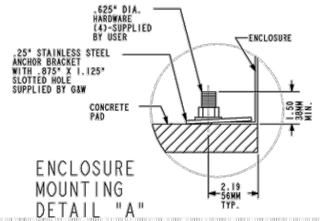
SWITCH ELECTRICAL INFORMATION
SEE NOTES FOR LIMITATIONS

MAXIMUM DESIGN VOLTAGE	27	KV
IMPULSE LEVEL (BIL)	125	KV
AC 1 MIN. WITHSTAND	40	KV
DC 15 MIN. WITHSTAND	78	KV
CURRENT CONTINUOUS	630	AMP
CURRENT INTERRUPTING	12.5	KA SYM.



THREE LINE DIAGRAM

WEIGHT WITH GAS APPROX	900	LBS/	408	KG
GAS REQUIRED APPROX	6	LBS/	2.7	KG



ENCLOSURE MOUNTING DETAIL "A"

NOTES:

1. ALL WAYS ARE EQUIPPED WITH INTERNAL SPRING OPERATORS AND WITH EXTERNAL PROVISIONS FOR PADLOCKING IN ALL POSITIONS.
2. 11 GA. MILD STEEL WELDED TANK WITH 1/4" BUSHING SURFACE, PAINTED ASA 70 LIGHT GRAY. 12 GA. GALVANIZED STEEL ENCLOSURE FINISHED PADMOUNT GREEN MUNSELL 7GY-3.29/1.5.
3. ENCLOSURE IS DESIGNED PER APPLICABLE SECTIONS OF ANSI/IEEE C37.74 AND C57.12.28. DRAWING IS TYPICAL AND SHOWS OVERALL DIMENSIONS ONLY. CONSTRUCTION DETAILS MAY VARY FROM THOSE DEPICTED. ENCLOSURE DOORS ARE EQUIPPED WITH PENTA HEAD BOLT AND THREE POINT LOCKING MECHANISM WITH PADLOCK PROVISION.
4. SWITCH IS EQUIPPED WITH INTERNAL 500:1 CURRENT TRANSFORMERS ON WAY 1. WAY 1 INCLUDES A TYPE 2 VACUUM INTERRUPTER CONTROL FOR OVERCURRENT PROTECTION. CUSTOMER IS RESPONSIBLE FOR ENTERING PROTECTION SETTINGS INTO THE CONTROL BEFORE ENERGIZING.
5. WHEN ELBOWS, INSERTS, AND ANY OTHER ACCESSORIES ARE CONNECTED TO THE SWITCH, THE RATINGS OF EACH CONNECTED ASSEMBLY WILL BE THAT OF THE LOWEST RATED COMPONENT OF THE ASSEMBLY.
6. 200 AMP RATED BUSHING WELLS WILL REDUCE THE ELECTRICAL RATINGS OF THE SWITCH TO 200 AMP CONTINUOUS CURRENT AND 10KA SYM. FOR 10 CYCLES.
7. MOUNTING INFORMATION: THE FRAME OF THE SWITCH MUST BE ANCHORED TO THE PAD. THE FRAME IS EQUIPPED WITH (4) SLOTTED ANCHORING HOLES. EACH MEASURING 9/16"X 1". THE LOCATIONS OF THESE HOLES, REFERRED TO AS "FRAME MOUNTING" ARE SHOWN IN THE FRONT VIEW AND LEFT VIEW. THE PAD MOUNT ENCLOSURE SHOULD BE SECURED TO THE PAD TO PROVIDE IT WITH ADDITIONAL STABILITY. EACH PAD MOUNT ENCLOSURE IS SHIPPED WITH 4 SECURING BRACKETS THAT ARE TO BE USED FOR THIS PURPOSE. THE SECURING BRACKETS CAN BE INSTALLED ANYWHERE ALONG THE INNER EDGE OF THE ENCLOSURE. SEE ENCLOSURE MOUNTING DETAIL "A" AND THE PLAN VIEW FOR MORE DETAILS ABOUT SECURING THE PAD MOUNT ENCLOSURE TO THE PAD.

PRINT IDENTIFICATION

DATE _____ G&W NO. _____

CUSTOMER _____

ORDER NO. _____

☐ FOR RECORD ITEM NO. ____

☐ FOR APPROVAL-NO MORE WORK TO BE DONE UNTIL APPROVAL IS RECEIVED

* ALL PRIMARY DIMENSIONS ARE IN INCHES.
ALL SECONDARY DIMENSIONS ARE IN MILLIMETERS.

ALL DRAWING CHANGES MUST BE MADE ON CAD. ANY MANUAL CHANGES WILL VOID DRAWING.

PV120-386-12-4F

27KV 630 AMP VACUUM INTERRUPTER
SWITCH WITH 200A BUSHING WELL ALL WAYS

G&W ELECTRIC Co.

CAT. NO.: PV120-386-12-4F		DRAWING NO.	D9511 3366 CC0
DRAWN BY: CL	DATE: Dec-15-14	SCALE:	SHEET: 1 of 1
APPD BY:	DATE:		

DRAWING REVIEW TEAM		REVISIONS		
		REV.	CHANGE	DATE

NAME:CLEACH OBJECT:D9511336ECC0 1 DATE:15-DEC-14 15:19:43

08/30/2023 4:33 PM * psalinas * N:\BEC\20BEC3209 Regent Park Unit 9, WO 458627\Drawings\E8 Three Phase VFI Vendor Drawing.dwg

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RELEASED FOR INFORMATION ONLY BY
CHRISTOPHER T. HARPER, P.E. #106036
ON 08-30-23
AND SHALL NOT BE USED FOR PERMIT, PROCUREMENT OR CONSTRUCTION PURPOSES

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BANDERA ELECTRIC COOPERATIVE, INC.

REGENT PARK UNIT 9

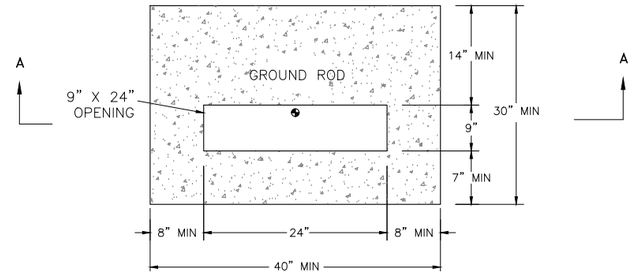
THREE PHASE VACUUM
FAULT INTERRUPTER VENDOR DRAWING

SCALE FOR 34 x 22 DWG: N.T.S.

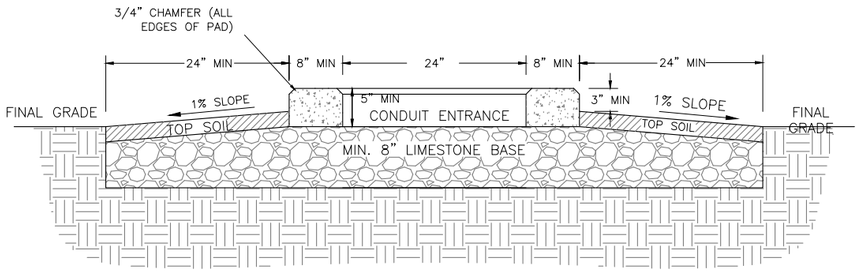
DRAWING NO. E8

20BEC3209

SYSTEM VOLTAGE: 7.2 / 12..47 kV



PLAN VIEW



SECTION A-A

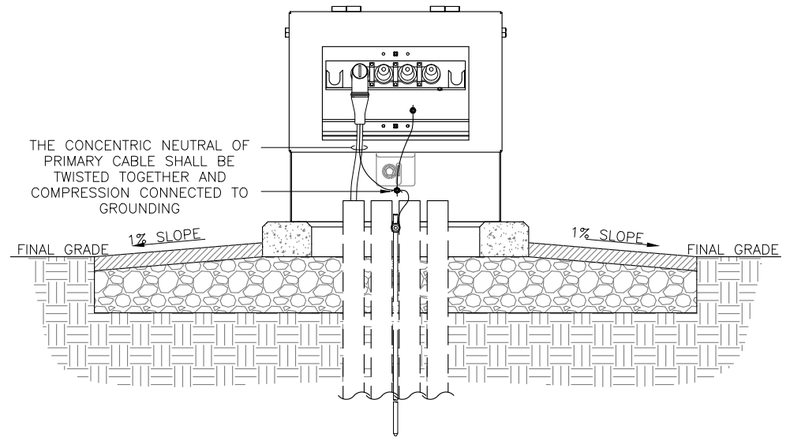
CONCRETE NOTES

1. FOUNDATIONS MAY BE PRECAST OR CAST–IN–PLACE. ALL FOUNDATIONS SHALL MEET THE MINIMUM CONSTRUCTION REQUIREMENTS LISTED BELOW. PRECAST FOUNDATIONS SHALL BE "BLOCK CONCRETE COMPANY NO.BCC38265PSP" OR PREAPPROVED EQUAL.
2. FOUNDATION SHALL NOT BE LESS THAN 5" IN THICKNESS.
3. CONCRETE SHALL HAVE A MIN. 28–DAY COMPRESSIVE STRENGTH OF 3,000 PSI WHEN TESTED IN ACCORDANCE WITH ASTM C39.
4. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
5. STEEL REINFORCING SHALL BE A #4 REBAR AT 6" O.C.E.W. ENDING 2" FROM OUTSIDE EDGE AND CONDUIT OPENING.

GENERAL NOTES

1. DIMENSIONS SHOWN HERE ARE FOR A 1–PHASE SECTIONALIZING CABINET.
2. FOUNDATION ASSEMBLIES INCLUDE PAD PREPARATION, BACKFILL, LIMESTONE BASE, COMPACTION, FOUNDATION, DRAINAGE AND TOP SOIL WHEN REQUIRED.
3. BACKFILL OF TRENCHING BELOW PROPOSED PAD SHALL BE IN ACCORDANCE WITH TRENCH DETAILS, UNLESS OTHERWISE SPECIFIED.
4. TOP OF PAD SHALL BE A MIN. OF 3" ABOVE FINAL GRADE AND BEC'S CONTRACTOR SHALL ENSURE A MIN. OF 1% SLOPE AWAY FROM PAD IN ALL DIRECTIONS.
5. LIMESTONE BASE – SHALL BE TX–DOT TYPE A GRADE 1 OR 2 LIMESTONE BASE MATERIAL AND SHALL BE COMPACTED TO INDUSTRY STANDARDS.
6. INSTALL GROUND ROD AT CONDUIT ENTRANCE.
7. EQUIPMENT SHALL BE SECURED TO PAD IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

1Ø SECTIONALIZING CABINET FOUNDATION (UM1-5J)



SECTIONALIZING CABINETS					
Description	Unit	Dimensions			Trinetics Catalog No.
		W	D	H	
1Ø Sectionalizing Cabinet	UM33	30	18	30	CW330-18TH

GENERAL NOTES

1. SECTIONALIZING CABINETS SHALL BE 12–GAUGE METAL, TOP HINGED, POWDER–COATED, AND BE LOCKABLE WITH PENTA–HEAD LATCH.
2. CABINETS SHALL ALSO BE RATED FOR A MIN. OF 25 kV AND 600 AMP EQUIPMENT.
3. THIS UNIT SHALL INCLUDE THE DELIVERY, INSTALLATION, MOUNTING, COMPLETE AND IN–PLACE.
4. FOUNDATION, BACKFILL AND DRAINAGE SHALL BE IN ACCORDANCE WITH 1ø SECTIONALIZING CABINET FOUNDATION DETAIL.
5. INSTALL GROUND ROD WITH THIS PIECE OF EQUIPMENT AS PER THE FOUNDATION DRAWINGS.
6. EQUIPMENT SHALL BE SECURED TO PAD IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

1Ø SECTIONALIZING CABINET (UM3-14)

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ISSUED: 08-30-23
FOR CONSTRUCTION

STATE OF TEXAS
CHRISTOPHER T. HARPER
106036
LICENSED
PROFESSIONAL ENGINEER

NO	DATE	REVISION	BY	CHK	APPD	NO	DATE	REVISION	BY	CHK	APPD

	DATE	BY
DRWN	04–27–21	RHL
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BANDERA ELECTRIC COOPERATIVE, INC.

REGENT PARK UNIT 9

SINGLE PHASE SECTIONALIZING CABINET DETAILS

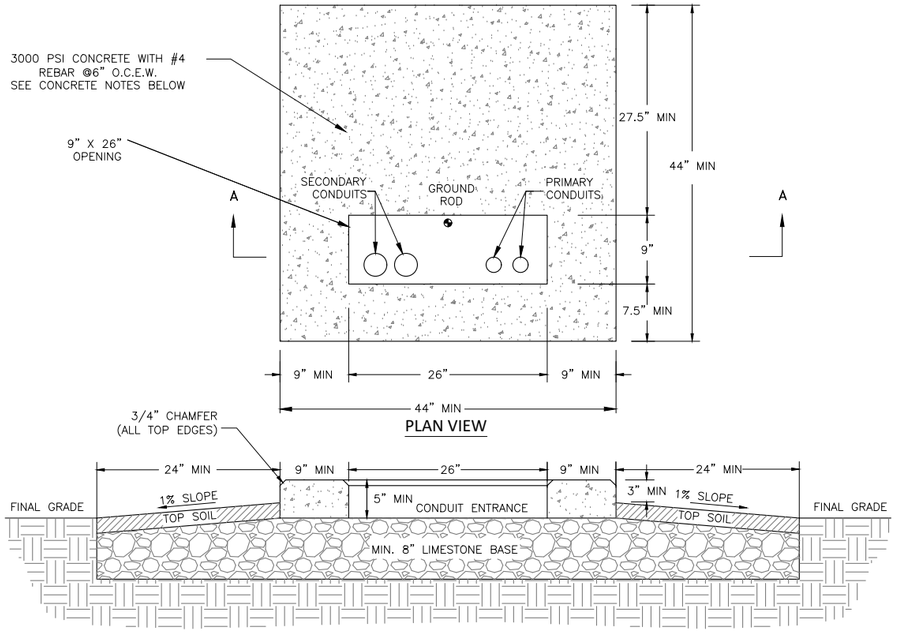
SCALE FOR 34 x 22 DWG: N.T.S.

DRAWING NO. E9

20BEC3209

SYSTEM VOLTAGE: 7.2 / 12..47 kV

08/30/2023 4:33 PM * psalinas * N:\BEC\20BEC3209 Regent Park Unit 9, WO 458627\Drawings\E9-Single Phase Sectionalizing Cabinet Details.dwg



SECTION A-A

1Ø TRANSFORMER PAD FOUNDATION (25-100 kVA)

CONCRETE NOTES

1. FOUNDATIONS MAY BE PRECAST OR CAST–IN–PLACE. ALL FOUNDATIONS SHALL MEET THE MINIMUM CONSTRUCTION REQUIREMENTS LISTED BELOW. PRECAST FOUNDATIONS SHALL BE "BLOCK CONCRETE COMPANY NO.BCC44445TP" OR PREAPPROVED EQUAL.
2. FOUNDATION SHALL NOT BE LESS THAN 5" IN THICKNESS.
3. CONCRETE SHALL HAVE A MIN. 28–DAY COMPRESSIVE STRENGTH OF 3,000 PSI WHEN TESTED IN ACCORDANCE WITH ASTM C39.
4. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
5. STEEL REINFORCING SHALL BE A #4 REBAR AT 6" O.C.E.W. ENDING 2" FROM OUTSIDE EDGE AND CONDUIT OPENING.

GENERAL NOTES

1. DIMENSIONS SHOWN HERE ARE FOR A 1–PHASE PAD MOUNT TRANSFORMER, 100 kVA OR SMALLER.
2. FOUNDATION ASSEMBLIES INCLUDE PAD PREPARATION, BACKFILL, LIMESTONE BASE, COMPACTION, FOUNDATION, DRAINAGE AND TOP SOIL WHEN REQUIRED.
3. BACKFILL OF TRENCHING BELOW PROPOSED PAD SHALL BE IN ACCORDANCE WITH TRENCH DETAILS, UNLESS OTHERWISE SPECIFIED.
4. TOP OF PAD SHALL BE A MIN. OF 3" ABOVE FINAL GRADE AND BEC'S CONTRACTOR SHALL ENSURE A MIN. OF 1% SLOPE AWAY FROM PAD IN ALL DIRECTIONS.
5. LIMESTONE BASE – SHALL BE TX–DOT TYPE A GRADE 1 OR 2 LIMESTONE BASE MATERIAL AND SHALL BE COMPACTED TO INDUSTRY STANDARDS.
6. INSTALL GROUND ROD AT CONDUIT ENTRANCE.
7. EQUIPMENT SHALL BE SECURED TO PAD IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

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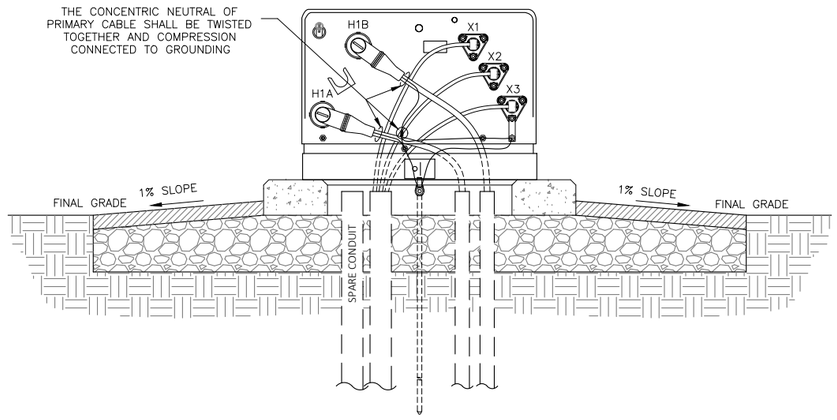
ISSUED: 08-30-23
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CHRISTOPHER T. HARPER
106036
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NO	DATE	REVISION	BY	CHK	APPD

NO	DATE	REVISION	BY	CHK	APPD

20BEC3209



1 Ø PAD MOUNT TRANSFORMERS	
Description	Unit
25kVA-1Ø Pad Mount XFMR (120/240V)	UG7-25
37.5kVA-1Ø Pad Mount XFMR (120/240V)	UG7-37.5
50kVA-1Ø Pad Mount XFMR (120/240V)	UG7-50
75kVA-1Ø Pad Mount XFMR (120/240V)	UG7-75
100kVA-1Ø Pad Mount XFMR (120/240V)	UG7-100
167kVA-1Ø Pad Mount XFMR (120/240V)	UG7-167
200kVA-1Ø Pad Mount XFMR (120/240V)	UG7-200

GENERAL NOTES

1. NOMENCLATURE FOR 1–PHASE TRANSFORMERS IS AS FOLLOWS:

   EXAMPLE – "UG7–100"
   - "U" OR "V" DESIGNATES 7.2/12.5KV OR 14.4/24.9KV, RESPECTIVELY.
   - "G7" DESIGNATES 1–PHASE PAD MOUNT TRANSFORMER.
   - "–100–" REPRESENTS THE THE KVA RATING OF THE TRANSFORMER.

2. TRANSFORMER ASSEMBLIES INCLUDE SECONDARY BUSHINGS, SEC. SPADES, LOAD BREAK ELBOWS, INSULATING CAPS, INSULATED STANDOFF BRACKETS, DELIVERY, SET, COMPLETE AND IN–PLACE
3. FOUNDATION, BACKFILL AND DRAINAGE SHALL BE IN ACCORDANCE WITH 1ø TRANSFORMER FOUNDATION DETAIL.
4. INSTALL GROUND ROD AT CONDUIT ENTRANCE.
5. EQUIPMENT SHALL BE SECURED TO PAD IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

1Ø PADMOUNT TRANSFORMERS (25-250kVA)

	DATE	BY
DRWN	04–27–21	RHL
CHK	08–30–23	CTH
APPD	08–30–23	CTH

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REGENT PARK UNIT 9

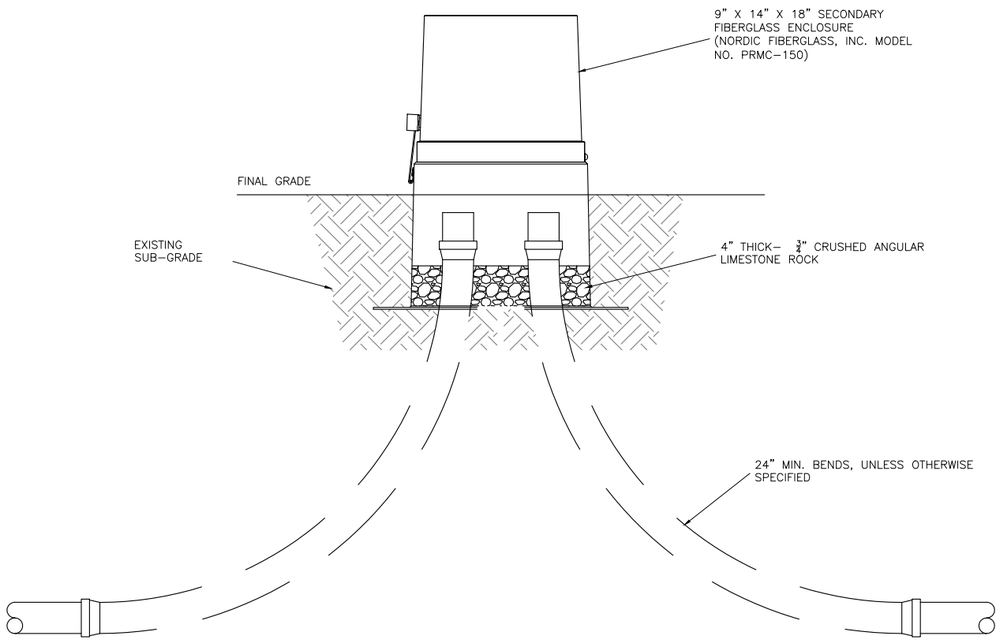
SINGLE PHASE TRANSFORMER DETAILS

SCALE FOR 34 x 22 DWG: N.T.S.

DRAWING NO. E10

SYSTEM VOLTAGE: 7.2 / 12..47 kV

08/30/2023 4:33 PM * psalinas * N:\BEC\20BEC3209 Regent Park Unit 9, WO 458627\Drawings\E10–Single Phase Xfmr Details.dwg



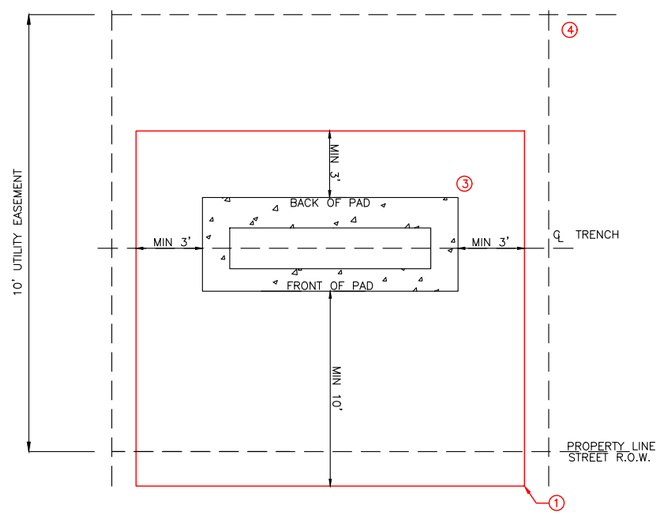
GENERAL NOTES

1. BEC'S CONTRACTOR SHALL ENSURE POSITIVE 1% MIN. DRAINAGE AWAY FROM THIS PEDESTAL IN ALL DIRECTIONS.
2. EQUIPMENT SHALL BE ANCHORED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

SECONDARY PEDESTAL (ABOVE GROUND)

ITEM	EST QTY	UNIT	
1	1	EA	SECONDARY PEDESTAL (ABOVE GROUND)
2	3	EA	CONNECTOR FLOOD SEAL #12-350 MCM (4-POSITION)

PLAN VIEW



TYPICAL UTILITY ASSIGNMENT EQUIPMENT ORIENTATION/ SAFE ZONE DETAIL

GENERAL NOTES:

1. BEC'S CONTRACTOR SHALL MAINTAIN A 3 FOOT MINIMUM SAFE ZONE AROUND THE EQUIPMENT PAD AND A 10 FOOT MINIMUM SAFE ZONE ACROSS FRONT OF THE EQUIPMENT PAD, CLEAR OF ANY PEDESTALS OR EQUIPMENT BY OTHERS (NO COMMUNICATION PEDESTALS).
2. ANY PIECE OF EQUIPMENT WITHIN 10' OF A JUNCTION BOX / TRANSFORMER SHALL HAVE A #2 BARE COPPER WIRE TYING THAT PIECE OF EQUIPMENT'S GROUND ROD TO THE JUNCTION BOX / TRANSFORMER'S GROUND ROD AND EFFECTIVELY BONDING THE TWO CABINETS.
3. PREFERRED LOCATION OF COMMUNICATIONS IS ON BACK SIDE OF EQUIPMENT PAD.
4. DETAIL IS TO BE USED FOR FUSES, VACUUM FAULT INTERRUPTERS, AND JUNCTION BOXES

THIS DRAWING IS CERTIFIED TO BE CORRECT FOR THE NEW FACILITIES SHOWN ONLY. INFORMATION CONCERNING EXISTING FACILITIES PROVIDED BY OTHERS HAS NOT BEEN VERIFIED.

ISSUED: 08-30-23
FOR CONSTRUCTION

STATE OF TEXAS
CHRISTOPHER T. HARPER
106036
LICENSED
PROFESSIONAL ENGINEER

NO	DATE	REVISION	BY	CHK	APPD

NO	DATE	REVISION	BY	CHK	APPD

	DATE	BY
DRWN	04-27-21	RHL
CHK	08-30-23	CTH
APPD	08-30-23	CTH

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SCHNEIDER ENGINEERING

BANDERA ELECTRIC COOPERATIVE, INC.

REGENT PARK UNIT 9

SECONDARY PEDESTAL AND TYPICAL EQUIPMENT ORIENTATION DETAILS

SCALE FOR 34 x 22 DWG: N.T.S.

DRAWING NO. E11

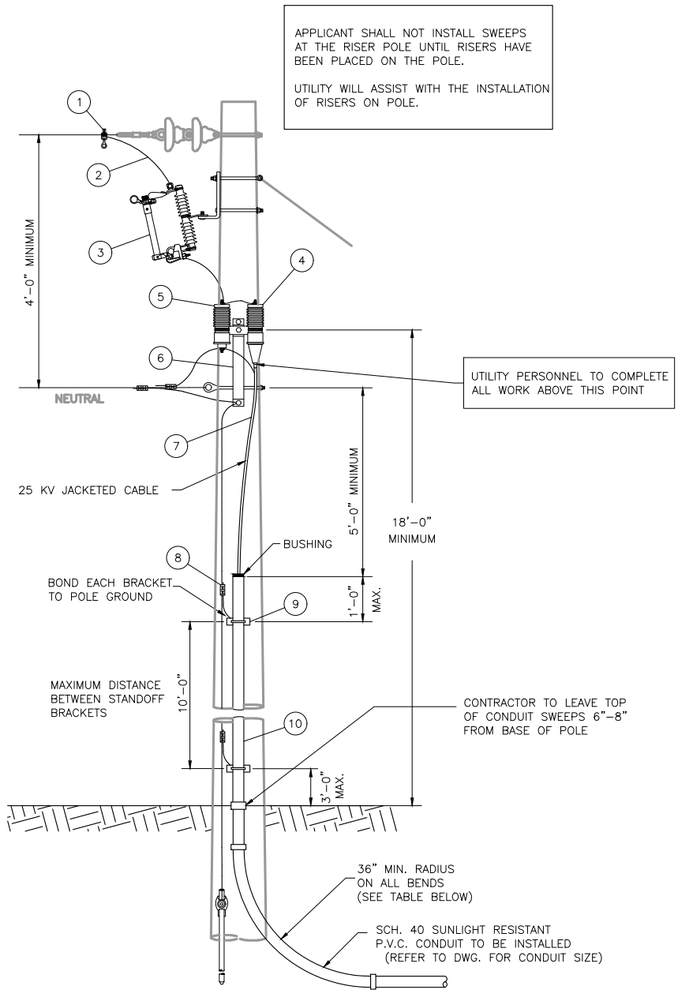
20BEC3209

SYSTEM VOLTAGE: 7.2 / 12..47 kV

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ITEM	EST QTY	UNIT	DESCRIPTION OF ITEMS TO BE INSTALLED PER RISER POLE
1	1	EA	OVERHEAD PRIMARY HOT LINE TAP CLAMP (ALUMINUM)
2	–	FT	BARE WIRE FOR JUMPERS (MATCH OVERHEAD CONDUCTOR)
3	1	EA	FUSED CUTOUT (TO BE SIZED BY UTILITY)
4	1	EA	25 kV CABLE TERMINATORS *
5	1	EA	DISTRIBUTION CLASS ARRESTER FOR RISER POLE
6	1	EA	SINGLE PHASE BRACKET COMBINATION FOR MOUNTING ARRESTER & TERMINATOR
7	–	FT	PRIMARY CABLE URD 25 kV JACKETED CABLE *
8	2	EA	CABLE TO CABLE TEE, BRONZE, CONNECTORS
9	VARIES	EA	CONDUIT STANDOFF BRACKETS
10	–	FT	CONDUIT, 2" SCH. 80 SUNLIGHT RESISTANT P.V.C. **

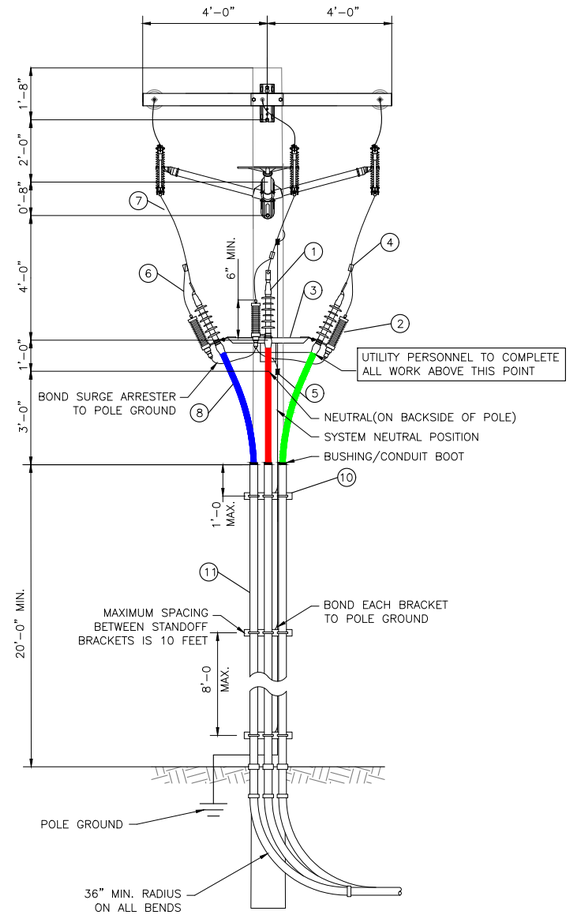
* REFER TO DWG. FOR CABLE SIZE
** REFER TO DWG. FOR CONDUIT SIZE



TYPICAL 1 PHASE RISER

ITEM	EST QTY	UNIT	DESCRIPTION OF ITEMS TO BE INSTALLED PER RISER POLE
1	3	EA	25 kV CABLE TERMINATORS FOR 1/0 AL CABLE
2	3	EA	DISTRIBUTION CLASS ARRESTER FOR RISER POLE
3	1	EA	HEAVY DUTY 3 PHASE BRACKET FOR MTG. ARRESTERS & TERMINATORS
4	3	EA	CABLE TO CABLE TEE, BRONZE, CONNECTORS
5	1	EA	COPPER COMPRESSION GROUND CONNECTOR FOR CONCENTRIC
6	–	FT	#2 CU STRAND BARE WIRE FOR JUMPERS AND GROUNDING
7	–	FT	BARE WIRE FOR JUMPERS (MATCH OVERHEAD CONDUCTOR)
8	–	FT	PRIMARY CABLE 1/0 AL URD 25 kV JACKETED CABLE
9	3	EA	OVER CURRENT PROTECTION (TO BE DETERMINED BY BEC)
10	3	EA	CONDUIT STANDOFF BRACKET
11	–	FT	CONDUIT, 3" SCH. 80 SUNLIGHT RESISTANT P.V.C.

URD THREE PHASE RISER
UC1



TYPICAL 3 PHASE RISER

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DRWN	04–27–21	RHL
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SCHNEIDER ENGINEERING

BANDERA ELECTRIC COOPERATIVE, INC.

REGENT PARK UNIT 9

SINGLE PHASE AND THREE PHASE RISER DETAILS

SCALE FOR 34 x 22 DWG: N.T.S.

DRAWING NO. E12

20BEC3209

SYSTEM VOLTAGE: 7.2 / 12..47 kV

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