CONSTRUCTION PLANS

CUDEENGINEERS COM

GENERAL CONSTRUCTION NOTES
- C0 - KENDALL COUNTY - GENERAL CONSTRUCTION NOTES

STREET & DRAINAGE
- C1 - OVERALL MASTER DRAINAGE & GRADING PLAN
- C2 - OVERALL MASTER DRAINAGE & GRADING PLAN
- C2A - STREET INDEX SHEET
- C3 - STREET PLAN & PROFILE - SWEET ADELINE
- C4 - STREET PLAN & PROFILE - WESTERN JUSTICE
- C5 - STREET PLAN & PROFILE - WESTERN JUSTICE
- C6 - STREET PLAN & PROFILE - BRAVE COMPANY
- C7 - STREET PLAN & PROFILE - BRAVE COMPANY
- C8 - STREET PLAN & PROFILE - EASY MONEY
- C9 - STREET PLAN & PROFILE - EASY MONEY
- C10 - STREET PLAN & PROFILE - LAUGHING DOG
- C11 - STREET PLAN & PROFILE - LAUGHING DOG
- C12 - STREET PLAN & PROFILE - TELLING WIND
- C13 - STREET PLAN & PROFILE - FORTUNATE SON
- C14 - STREET PLAN & PROFILE - STANDING TALL
- C15 - STREET PLAN & PROFILE - DANG PRETTY & LAUGHING DOG SAC
- C16 - STREET PLAN & PROFILE - QUICK FORT & EMERGENCY WATER ACCESS
- C17 - STANDARD STREET DETAILS
- C18 - TRAFFIC SIGNAGE PLAN
- C19 - TURN LANE STRIPING PLAN
- C20 - TXDOT - TYPICAL STANDARD PAVEMENT MARKINGS
- C21 - TXDOT -RAISED PAVEMENT MARKER DETAIL
- C21A - TXDOT -SIGN MOUNTING DETAILS
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- C24 - DRAINAGE PLAN & PROFILE - DRAIN 'C'
- C25 - DRAINAGE PLAN & PROFILE - DRAIN 'D'
- C26 - DRAINAGE PLAN & PROFILE - DRAIN 'E' & DRAIN 'F'
- C27 - DRAINAGE PLAN & PROFILE - DRAIN 'G'
- C28 - DRAINAGE PLAN & PROFILE - DRAIN 'G'
- C29 - DRAINAGE PLAN & PROFILE - DRAIN 'H' & DRAIN 'I'
- C30 - DRAINAGE PLAN & PROFILE - DRAIN 'J'
- C31 - DRAINAGE PLAN & PROFILE - DRAIN 'L'
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- C33 - DRAINAGE PLAN & PROFILE - DRAIN 'M'
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- C53 - TXDOT - CONCRETE WINGWALLS WITH STRAIGHT WINGS
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WATER DISTRIBUTION
- C56 - WATER DISTRIBUTION PLAN
- C57 - WATER DISTRIBUTION PLAN
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UNDERGROUND ELECTRICAL PLANS
- E0 - PROJECT COVER SHEET AND DRAWING LIST
- E1 - MASTER PLAN
- E2 - DRAWING MAP KEY
- E3 - UNDERGROUND ELECTRICAL LAYOUT (SHEET 1 OF 3)
- E4 - UNDERGROUND ELECTRICAL LAYOUT (SHEET 2 OF 3)
- E5 - UNDERGROUND ELECTRICAL LAYOUT (SHEET 3 OF 3)
- E6 - PEC UNDERGROUND DETAILS (SHEET 1 OF 2)
- E7 - PEC UNDERGROUND DETAILS (SHEET 2 OF 2)

SUBMITTED BY:

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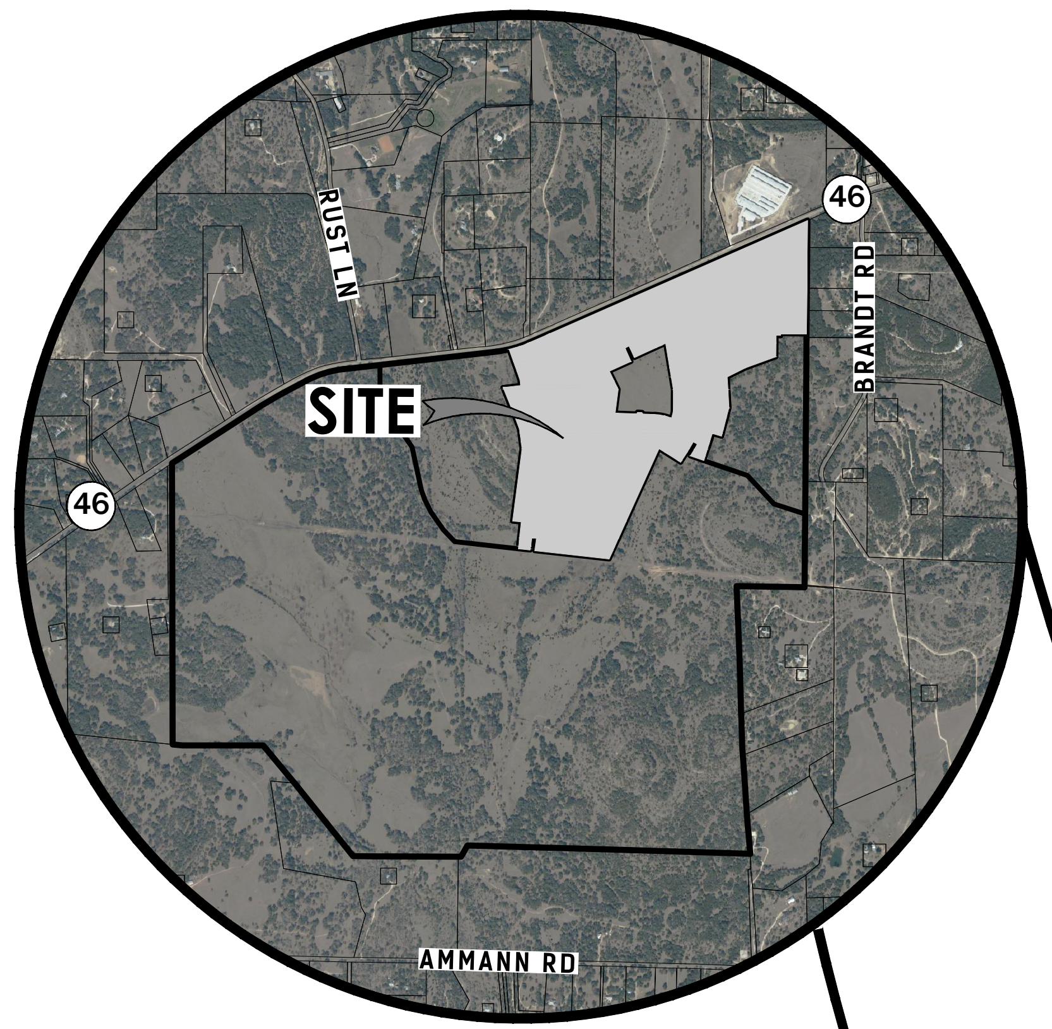

LOCATION MAP

TCEQ WATER DISTRIBUTION SYSTEM GENERAL CONSTRUCTION NOTES:

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

      $$L = \frac{SD\sqrt{P}}{148,000}$$

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

      $$L = \frac{SD\sqrt{P}}{148,000}$$

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

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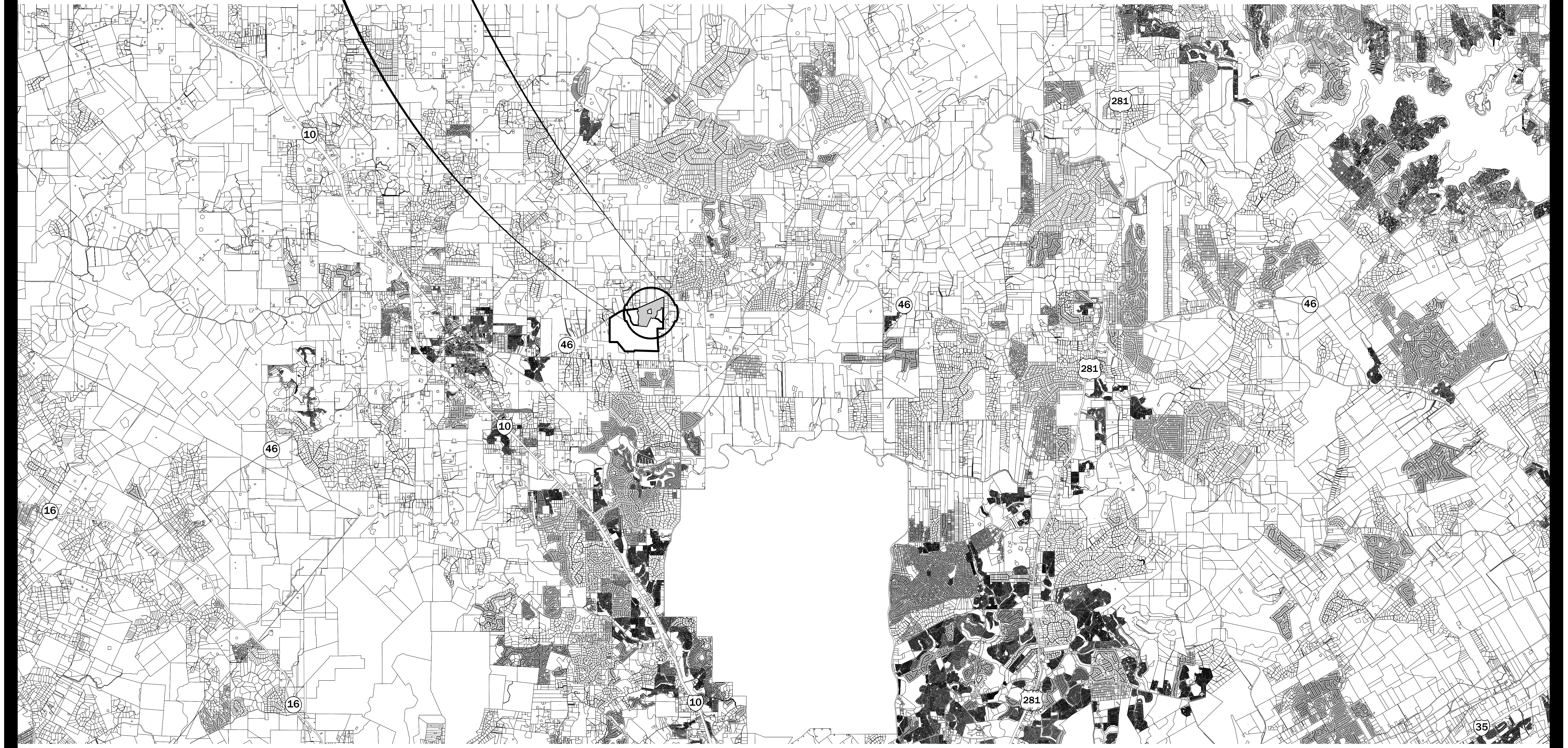

VICINITY MAP

GENERAL CONSTRUCTION NOTES

1. ALL CONSTRUCTION MATERIALS AND METHODS FOR ROADWAY & DRAINAGE IMPROVEMENTS SHALL CONFORM TO THE KENDALL COUNTY, TEXAS "REGULATIONS, RULES AND SPECIFICATIONS FOR PLATS, ROADS, SUBDIVISIONS AND MANUFACTURED HOME PARKS" EFFECTIVE NOVEMBER 8, 2010.
2. ALL ROADWAYS ARE DESIGNED FOR A 30 MPH SPEED LIMIT.

GEORGE'S RANCH

UNIT 1

OVERALL CONSTRUCTION PLANS

	REVISIONS			
NO.	DESCRIPTION	SHEET NO.	DATE	BY:

DEVELOPER:

THE LOOKOUT GROUP

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DRAWN BY	DATE
AB/RR	04-22-2022
CHECKED BY	**PROJECT NO.**
W. PATRICK MURPHY, P.E.	03546.001

CUDE ENGINEERS
TBPE No. 455
TBPELS No. 10048500

KENDALL COUNTY

GENERAL CONSTRUCTION NOTES

KENDALL COUNTY NOTES

1. NO CONSTRUCTION SHALL START ON A SUBDIVISION INFRASTRUCTURE UNTIL AFTER THE DATE OF FINAL PLAT APPROVAL ANY REQUIRED DRAINAGE PLAN AND ROADWAY PLAN AND PROFILE SHALL HAVE BEEN APPROVED PRIOR TO THE START OF ANY CONSTRUCTION CONCERNING THE SAME. CLEARING, GRUBBING, AND MINOR GRADING WILL BE ALLOWED PRIOR TO FINAL PLAT APPROVAL, DRAINAGE PLAN APPROVAL, AND ROADWAY PLAN AND PROFILES. NO CONSTRUCTION SHALL BEGIN UNTIL PRE-CONSTRUCTION CONFERENCE HAS BEEN COMPLETED.
2. RIGHT OF WAY: ALL PUBLIC RIGHT OF WAYS SHALL BE CLEARED OF ALL IMPEDIMENTS INCLUDING BOULDERS, STUMPS, TREES, OR ANY OTHER DEBRIS.
3. REFLECTIVE ROAD NAME SIGNS SHALL BE FURNISHED AND INSTALLED BY THE DEVELOPER AT ALL INTERSECTIONS WITHIN OR ABUTTING THE SUBDIVISION. ROAD NAME SIGNS SHALL BE PLACED IN A UNIFORM MANNER THROUGH OUT THE SUBDIVISION. ROAD NAME SIGNS SHALL BE 7 FEET ABOVE THE FINAL GRADE TO THE BOTTOM OF THE SIGN ON AN APPROVED METAL POST.
4. PRIVATE ROAD NAME SIGNS SHALL BE GREEN WITH A 1 INCH RED TAPE ACROSS THE TOP OF THE SIGN WITH 4 INCHES WHITE REFLECTIVE LETTERS.
5. ALL TRAFFIC SIGNS SHALL BE FURNISHED AND INSTALLED BY THE DEVELOPER IN ACCORDANCE WITH THE LATEST ISSUE OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVISED (TMUTCD) ISSUED BY THE TEXAS DEPARTMENT OF TRANSPORTATION.
6. ALL PRIVATELY MAINTAINED ROADS SHALL BE SIGNED TO INFORM THE PUBLIC OF THEIR STATUS. THE SIGN SHALL READ ''PRIVATELY MAINTAINED ROAD," AND SIGNS MUST BE PLACED AT EACH ENTRANCE TO THE SUBDIVISION. THE SIGN MUST BE A RECTANGULAR SHAPED MINIMUM SIZE OF 24 INCHES, WHITE BACKING WITH BLACK LETTERS AND INSTALLED IN ACCORDANCE WITH THE TMUTCD.
7. ALL SUB-GRADE AND ROAD CONSTRUCTION SHALL BE INSPECTED AND TESTED DURING CONSTRUCTION TO INSURE INSTALLATION AND CONSTRUCTION IS IN ACCORDANCE WITH THE APPROVED PLANS AND DESIGN. INSPECTIONS AND TESTING SHALL INCLUDE VERIFICATION OF MATERIALS USED, COMPACTION TESTS, GRADE CALCULATIONS, AND OTHER TESTING REQUIREMENTS AS MAY BE REQUIRED TO VERIFY CONSTRUCTION.
8. THE KENDALL COUNTY ENGINEER SHALL BE NOTIFIED IN WRITING 48 HOURS PRIOR TO ANY CONSTRUCTION, INSPECTIONS, OR TESTING.
9. THE SUB-GRADE SHALL BE INSPECTED AND APPROVED, IN WRITING, BY THE KENDALL COUNTY ENGINEER, OR HIS DESIGNATED REPRESENTATIVE, PRIOR TO THE PLACEMENT OF ANY BASE ON SUB-GRADE.
10. ROAD CONSTRUCTION TESTING SHALL BE ONE TEST FOR EACH 500 FEET AND ALTERNATE LANE PATTERN WITH A MINIMUM OF THREE TESTS PER ROAD. TEST SHALL BE FROM A CERTIFIED TESTING LABORATORY. SEE COUNTY DEVELOPMENT RULES AND REGULATIONS FOR ADDITIONAL TESTING REQUIREMENTS.
11. CLEARING AND GRUBBING: THE ENTIRE AREA OF THE SUB-GRADE SHALL BE CLEARED AND GRUBBED TO A DEPTH OF NOT LESS THAN 6 INCHES BELOW NATURAL GROUND IN FILL AREAS AND ONE FOOT BELOW SUB-GRADE ELEVATION IN EXCAVATED AREAS. BRUSH AND OTHER DEBRIS SHALL BE REMOVED FROM THE ROW AND DISPOSED OF AS ELECTED BY THE DEVELOPER.
12. DENSITY: SUBGRADE SHALL BE CONSTRUCTED AND FINISHED WITH A MINIMUM DENSITY OF 95% OF STANDARD PROCTOR FOR IN PLACE MATERIALS OR AS SPECIFIED IN THE PAVEMENT REPORT PREPARED BY A SOILS LAB OR PROOF ROLLED BY EQUIPMENT AS APPROVED BY THE KENDALL COUNTY ENGINEER.
13. HIGH PLASTICITY SOILS: HIGH PLASTICITY INDEX SOILS SHALL BE STABILIZED WITH LIME OR CEMENT BY DIRECTION OF THE KENDALL COUNTY ENGINEER.
14. EMBANKMENTS: EMBANKMENTS SHALL BE PLACED IN LIFTS OF NOT MORE THAN EIGHT (8) INCHES LOOSE DEPTH AND EACH LIFT SHALL BE THOROUGHLY COMPACTED BY SPRINKLING AND ROLLING BEFORE PLACEMENT OF SUCCEEDING LIFTS. ROCK EMBANKMENTS SHALL CONFORM TO TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) STANDARD SPECIFICATION (2014), ITEM 132.
15. UNSTABLE MATERIAL: UNSTABLE MATERIAL ENCOUNTERED IN EITHER EXCAVATED SECTIONS OR BENEATH EMBANKMENTS SHALL BE REMOVED TO A DEPTH OF NOT LESS THAN ONE FOOT BELOW NATURAL GROUND OR FINISHED SUB-GRADE AND REPLACED BY SATISFACTORY MATERIAL. MATERIAL SO REMOVED SHALL BE REMOVED FROM THE ROW.
16. CONSTRUCTION METHODS: BASE ON ALL STREETS AND ROADS SHALL HAVE A COMPACTED BASE DEPTH OF NOT LESS THAN EIGHT (8) INCHES AND SHALL BE CONSTRUCTED IN TWO (2), FOUR (4)-INCH LIFTS, UNLESS A DIFFERENT THICKNESS IS SUPPORTED BY A TOTAL ROAD SECTION DESIGN BY A LICENSED GEOTECHNICAL ENGINEER AND APPROVED BY THE KENDALL COUNTY ENGINEER. ANY CHANGES MUST BE APPROVED BY THE COUNTY ENGINEER PRIOR CONSTRUCTION. THE MATERIAL SHALL BE DUMPED, SPREAD, MIXED, WIND ROWED, WATERED, AND OTHER OPERATIONS NECESSARY TO PRODUCE A UNIFORMLY BLENDED MIXTURE OF THE DESIRED COURSE THICKNESS, MOISTURE CONDITION, AND GRADATION. SHAPING OF THE BLENDED MIXTURE TO THE REQUIRED GRADE AND LINE SHALL FOLLOW THE MIXING PROCEDURE AND PRECEDE THE COMPACTION. COMPACTION OF EACH COURSE OF MATERIAL SHALL BE ACCOMPLISHED BY SUITABLE EQUIPMENT TO OBTAIN A MINIMUM DENSITY OF 95% DRY DENSITY AS DETERMINED BY TEX-113-- E PER TXDOT AND MOISTURE CONTENT BY TEX-115-E OR TEX-103-E PER TXDOT SPECIFICATIONS.
17. TESTING MATERIAL: PRIOR TO DELIVERY OF BASE MATERIAL FOR THE ROAD OR STREET, THE RESULTS OF PHYSICAL TESTS OF THE MATERIAL PROPOSED FOR USE SHALL BE SUBMITTED TO THE KENDALL COUNTY ENGINEER FOR APPROVAL. THESE TEST RESULTS SHALL BE CERTIFIED AS CONFORMING TO THE REQUIREMENTS BY AN APPROVED COMMERCIAL LABORATORY. THE CERTIFICATION SHALL DEFINE THE AREA AND COLUMN REPRESENTED BY THE TABULATED RESULTS.
18. PRIME COAT: AFTER FINAL FINISHING, CURING AND CORRECTION OF ANY IRREGULARITIES DEVELOPED DURING THE CURING PERIOD HAVE BEEN CORRECTED, THE AREA OF THE BASE WHICH IS TO RECEIVE SURFACING MAY BE PRIMED WITH AN APPLICATION OF APPROXIMATELY TWO-TENTHS (0.2) GALLONS OF AEP OR SSI ASPHALT, OR EQUIVALENT, PER SQUARE YARD OF SURFACE COVERED. GENERALLY TRAFFIC SHALL BE DIVERTED FROM THE PRIMED AREA UNTIL PLACEMENT OF THE SURFACE. SHOULD DIVERSION OF TRAFFIC NOT BE FEASIBLE, THE PRIME COAT SHALL BE BLANKET ROLLED WITH A PNEUMATIC ROLLER IMMEDIATELY FOLLOWING APPLICATION. PRIME COAT SHALL BE PERMITTED TO CURE FOLLOWING APPLICATION AND BEFORE APPLICATION OF SURFACE COURSE OF PAVEMENT.
19. PAVEMENT: ALL STREETS AND ROADS IN SUBDIVISIONS, AND PROVIDING ACCESS THERETO, WHICH ARE PROVIDED WITH A WEARING SURFACE SHALL MEET THE FOLLOWING STANDARDS:
    - a. (A) COMPACTED HMACP SHALL CONFORM TO TXDOT'S CURRENT SPECIFICATIONS FOR HOT MIX, TYPE D (FINE SURFACE). REFERENCE KENDALL COUNTY'S DEVELOPMENT RULES AND REGULATIONS FOR ADDITIONAL REQUIREMENTS.
    - b. (B) HMACP SHALL NOT BE PLACED AT ANY TIME WHEN:
        1. THE AIR TEMPERATURE IS BELOW 60° F AND FALLING;
        2. THE AIR TEMPERATURE IS BELOW 50° F, AND
        3. THE ROADWAY SURFACE TEMPERATURE IS BELOW 60° F.
20. INSPECTIONS: THE KENDALL COUNTY ENGINEER, AS AUTHORIZED BY THE COMMISSIONERS' COURT, OR HIS DESIGNATED AGENT, MAY INSPECT ALL PROPERTY SITE WORK AT ANY TIME AND ANY STAGE. DEVELOPER WILL PROVIDE A WRITTEN CONSTRUCTION SCHEDULE FOR DRAINAGE, UTILITY AND ROAD CONSTRUCTION. DEVELOPER WILL PROVIDE WRITTEN AMENDED SCHEDULES IF THE ACTUAL CONSTRUCTION VARIES MORE THAN FIVE (5) DAYS FROM THE DATE SET FORTH IN THE ORIGINAL CONSTRUCTION SCHEDULE. SHOULD THE DEVELOPER FAIL TO COMPLY WITH THIS PROVISION OR BEGIN ANY DRAINAGE, UTILITY, OR ROAD CONSTRUCTION PRIOR TO PROVIDING SUCH SCHEDULE THE DEVELOPER MAY BE REQUIRED TO PERFORM TESTING DEEMED NECESSARY BY THE COUNTY ENGINEER AT THE SOLE COST AND EXPENSE OF THE DEVELOPER.
21. ALL MATERIALS USED FOR PRIME OIL, TACK OIL, AND HMACP MUST BE SUBMITTED TO KENDALL COUNTY FOR APPROVAL BEFORE USE.
22. CONTRACTOR SHALL HAVE AN ENGLISH SPEAKING SUPERVISOR PRESENT DURING ALL INSPECTIONS.

GENERAL NOTES

1. ALL MATERIALS, CONSTRUCTION, TESTING AND WORKMANSHIP SHALL COMPLY WITH THE KENDALL COUNTY'S DEVELOPMENT RULES AND REGULATIONS, UNLESS SPECIFIED OTHERWISE IN THESE PLANS OR APPROVED BY THE OWNER IN WRITING.
2. DURING THE CONSTRUCTION OF THIS PROJECT, ANY INTERPRETATION OF THE STANDARD SPECIFICATIONS OR ANY MATTER WHICH REQUIRES THE APPROVAL OF THE OWNER, MUST BE APPROVED BY THE KENDALL COUNTY ENGINEER BEFORE ANY CONSTRUCTION INVOLVING THAT DECISION COMMENCES. ASSUMPTIONS ABOUT WHAT THOSE DECISIONS MIGHT BE, WHICH ARE MADE DURING THE BIDDING PHASE, WILL HAVE NO BEARING ON THE DECISION. CHANGES TO THE CONSTRUCTION DRAWINGS OR ENGINEERING MUST BE APPROVED BY KENDALL COUNTY ENGINEER.
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS BEFORE AND DURING CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND NOTIFYING ALL AUTHORIZED INSPECTORS AND PERSONS IN CHARGE OF PRIVATE OR PUBLIC UTILITIES AFFECTED BY THIS PROJECT PRIOR TO CONSTRUCTION COMMENCEMENT.
5. THE SIZE AND LOCATION OF ALL EXISTING UNDERGROUND UTILITIES IDENTIFIED IN THESE CONSTRUCTION PLANS (INCLUDING SERVICE LATERALS) ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION (BOTH HORIZONTALLY & VERTICALLY) PRIOR TO CONSTRUCTION COMMENCEMENT AND PROTECT THE SAME DURING CONSTRUCTION. IT SHALL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT. THE ENGINEER DOES NOT ASSUME RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN.
6. THE CONTRACTOR SHALL PROVIDE TRENCH SAFETY IN ACCORDANCE WITH OSHA SPECIFICATIONS AND PROVIDE A TRENCH SAFETY PLAN SIGNED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS AND PROVIDE DAILY INSPECTIONS TO ENSURE THAT THOSE REQUIREMENTS ARE BEING MET. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE SAFETY OF THOSE PERSONS WORKING IN AND AROUND THE TRENCH.
7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL UTILITIES DURING THE CONSTRUCTION OF THIS PROJECT. ALL MANHOLES, CLEANOUTS, VALVE BOXES, FIRE HYDRANTS, ETC. MUST BE ADJUSTED TO PROPER LINE AND GRADE BY THE CONTRACTOR PRIOR TO AND AFTER THE PLACEMENT OF FINAL GRADE AND/OR PAVEMENT. ANY REMOVAL OR DAMAGE TO EXISTING IMPROVEMENTS SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR AT HIS EXPENSE AND SHALL BE APPROVED BY THE OWNER OF THE SUBJECT IMPROVEMENT. SAID EXISTING IMPROVEMENTS SHALL ALSO INCLUDE, BUT NOT BE LIMITED TO, BERMS, DITCHES, FENCES, VEGETATION, ETC.
8. CONTRACTOR SHALL IMMEDIATELY REPORT ANY DIFFERENCES BETWEEN THE INFORMATION IDENTIFIED IN THESE PLANS AND THE CONDITIONS IN THE FIELD TO THE ENGINEER.
9. TEXAS LAW ARTICLE 1436C, PROHIBITS ALL ACTIVITIES IN WHICH PERSONS OR EQUIPMENT MAY COME WITHIN SIX FEET OF ENERGIZED OVERHEAD POWER LINES, AND FEDERAL REGULATION, TITLE 29, PART 1910.180(1) AND PART 1 926.550(A)(15) REQUIRE A MINIMUM CLEARANCE OF TEN FEET FROM THESE FACILITIES. THE ABOVE LAWS CARRY BOTH CRIMINAL AND CIVIL LIABILITIES, WITH CONTRACTORS AND OWNERS BEING LEGALLY RESPONSIBLE FOR THE SAFETY OF WORKERS UNDER THESE LAWS. CONTRACTOR SHALL COORDINATE WITH APPROPRIATE ELECTRIC COMPANY WHEN WORKING NEAR OVERHEAD POWER LINES TO BE DE-ENERGIZED AND/OR MOVED AT CONTRACTOR'S EXPENSE. CONTRACTOR SHALL ALSO SHORE EXISTING POWER POLES WHEN PERFORMING EARTHWORK OPERATIONS OR TRENCHING WITHIN CLOSE PROXIMITY OF EXISTING POWER POLES (NO SEPARATE PAY ITEM).
10. WHERE TRENCHING IS UTILIZED DURING CONSTRUCTION, NO MORE THAN 100 FEET OF TRENCH SHALL BE OPEN AT ANY GIVEN TIME. NO EXCAVATIONS SHALL BE LEFT OPEN OVERNIGHT UNLESS PRIOR APPROVAL IS GRANTED BY OWNER. WHERE A TRENCH IS LEFT OPEN DURING NON-WORKING HOURS, ORANGE SAFETY FENCING SHALL BE INSTALLED AT LEAST 5 FEET AROUND THE TRENCH PERIMETER. ALL EXCAVATIONS IN PAVED AREAS WHICH CANNOT BE COMPLETELY BACKFILLED PRIOR TO BEING SUBJECTED TO TRAFFIC SHALL BE COVERED WITH STEEL SHEETING AND ANCHORED TO PAVEMENT.
11. PAVEMENT PRESERVATION TECHNIQUES SHALL BE UTILIZED BY THE CONTRACTOR AT ALL TIMES DURING CONSTRUCTION. NO TRACK EQUIPMENT IS ALLOWED ON ANY COUNTY STREET, CURB, OR PRIVATE PAVING UNLESS PRIOR APPROVAL IS GIVEN BY COUNTY.
12. CONTRACTOR SHALL NOT CLOSE A STREET TO TRAFFIC OR INTERFERE WITH TRAFFIC MOVEMENT ON A STREET WITHOUT NOTIFYING THE COUNTY ENGINEER AND SECURING PERMISSION TO DO SO. WHEN ANY STREET, SECTION OF A STREET, OR STREET SHOULDER IS CLOSED, OR TRAFFIC FLOW IS RESTRICTED, THE CONTRACTOR SHALL FURNISH A TRAFFIC CONTROL PLAN IN ACCORDANCE WITH THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) FOR REVIEW AND APPROVAL BY THE TXDOT AND COUNTY ENGINEER OR HIS DESIGNEE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING BARRICADES, WARNING AND DIRECTING SIGNS, LIGHTS, TRAFFIC CONTROL DEVICES, FLAGS AND PROVIDE FLAGMEN ALONG THE ENTIRE STREET WITHIN THE LIMITS OF THE PROJECT IN ACCORDANCE WITH THE APPROVED TRAFFIC CONTROL PLAN AND TMUTCD STANDARDS. ALL BARRICADES SHALL BE EQUIPPED WITH FLASHERS AND BE KEPT BURNING BETWEEN THE HOURS OF SUNSET AND SUNRISE.
13. THE CONTRACTOR SHALL AT ALL TIMES KEEP THEIR CONSTRUCTION SITE FREE FROM ACCUMULATION OF WASTE MATERIAL, DEBRIS, OR RUBBISH GENERATED DURING CONSTRUCTION. AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO THE COUNTY SCHEDULED WALK-THRU, THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL TOOLS, SURPLUS MATERIALS AND DEBRIS AND SHALL LEAVE THE SITE IN A ''BROOM CLEAN" CONDITION, UNLESS SPECIAL PERMISSION HAS BEEN GRANTED BY THE COUNTY IN WRITING.
14. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SANITARY CONVENIENCE FACILITIES AT THE PROJECT SITE FOR USE BY ALL LABORERS. THEY SHALL BE WELL VENTILATED, BUT PROVIDE CONCEALMENT, AND SHALL BE KEPT CLEAN AT ALL TIMES BY THE CONTRACTOR. THE FACILITIES SHALL BE REMOVED AND THE SITE RESTORED TO ITS ORIGINAL CONDITION OR BETTER UPON COMPLETION OF THE PROJECT. ALL SUCH FACILITIES SHALL CONFORM TO THE REQUIREMENTS OF THE STATE AND LOCAL HEALTH AUTHORITIES.
15. CONTRACTOR SHALL PROTECT ALL EXISTING TREES AT THE PROJECT SITE. NO EXISTING TREE SHALL BE TRIMMED OR REMOVED WITHOUT AUTHORIZATION FROM THE OWNER UNLESS NOTED OTHERWISE IN THE PLANS.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING, TO THE ORIGINAL CONDITION OR BETTER, ANY DAMAGES TO EXISTING VEGETATION, PAVEMENTS, SIDEWALKS, DRIVEWAYS, FENCES, OR OTHER STRUCTURES AT THEIR EXPENSE, EXCEPT AS NOTED IN THE PLANS.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFEGUARDING AND PROTECTING ALL MATERIAL AND EQUIPMENT STORED ON THE JOBSITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STORAGE OF MATERIALS IN A SAFE AND WORKMANLIKE MANNER TO PREVENT INJURIES DURING AND AFTER WORK HOURS.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MATERIALS TESTING FOR THE SCOPE OF THIS PROJECT IN ACCORDANCE WITH THE KENDALL COUNTY SPECIFICATIONS. ALL MATERIALS TESTING SHALL BE PERFORMED BY AN INDEPENDENT MATERIALS TESTING LAB APPROVED BY KENDALL COUNTY. SAID LAB SHALL BE CONTRACTED AND PAID BY THE CONTRACTOR AND HAVE A REGISTER PROFESSIONAL ENGINEER ON STAFF.
19. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES (RESIDENTIAL, INDUSTRIAL, COMMERCIAL, ETC.) ADJACENT TO WORK AREAS AT ALL TIMES.
20. NO SEPARATE PAY FOR ITEMS COVERED IN THE PLANS, SPECIFICATIONS, OR NOTES UNLESS SPECIFICALLY ESTABLISHED IN THE UNIT COST BREAKDOWN OR BID FORM IF PROVIDED. ALL ITEMS NOT SPECIFICALLY CALLED FOR ON THE PLANS, OR IN THE SPECIFICATIONS, BUT NECESSARY TO REASONABLY CONSTRUCT THE FACILITIES OR IMPROVEMENTS, SHALL BE CONSIDERED INCIDENTAL TO THE OVERALL PROJECT AND NO SEPARATE PAYMENTS WILL BE MADE FOR THESE ITEMS. INCLUDE COST OF SAME IN THE CONTRACT UNIT PRICE BID FOR ITEMS FOR WHICH WORK IS A COMPONENT PART OR AS INCIDENTAL TO WORK.
21. 3" DIAMETER WEEP HOLES 10' O.C. ON BOTH SIDES OF CHANNEL TO BE PLACED 1' ABOVE FLOW LINE ON ALL CONC. RIP-RAP.
22. IF ONE OR MORE GRAVES ARE DISCOVERED DURING CONSTRUCTION OF IMPROVEMENTS ON THE PROPERTY, CONTRACTOR SHALL NOTIFY KENDALL COUNTY, ENGINEER OF RECORD, AND OWNER IMMEDIATELY UPON DISCOVERY. CONTRACTOR SHALL PERFORM PROCEDURE AS OUTLINED IN TEXAS ADMINISTRATIVE CODE TITLE 13, PART 2, CHAPTER 22, RULE §22.4.

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SEPARATION DISTANCES BETWEEN WATER AND SEWER

1. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND FOR INFORMATION PURPOSES ONLY.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT SEPARATION DISTANCE PROVISIONS ARE MAINTAINED PER TCEQ REQUIREMENTS

CONFLICT WITH OTHER UTILITIES

1. THE PIPELINE ALIGNMENTS MAY CROSS EXISTING WATER, WASTEWATER, GAS, ELECTRIC, TELEPHONE UTILITIES, FIBER OPTIC CABLES, DR OTHER.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION AND DEPTH OF THESE FACILITIES PRIOR TO CONSTRUCTION.
3. THERE WILL BE NO SEPARATE PAYMENT FOR POTHOLING OR OTHER FIELD RECONNAISSANCE TO VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES.

PAVEMENT NOTES

1. ALL PAVEMENT TO BE REMOVED, INCLUDING CURB & GUTTERS, DRIVEWAYS AND SIDEWALKS SHALL BE SAWCUT, REMOVED AND REPLACED, UNLESS SPECIFIED OTHERWISE IN PLANS.
2. CONTRACTOR SHALL BE REQUIRED TO ADJUST SEWER MANHOLES, SEWER CLEANOUTS, WATER METERS, FIRE HYDRANTS, VALVES, ETC. AS REQUIRED TO MATCH THE FINISHED GRADE.
3. CONTRACTOR SHALL STAGE THE CONSTRUCTION WORK OUT OF STREET. ALL NECESSARY BARRICADES, TEMPORARY BYPASSES AND DIVERSIONS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBSIDIARY TO THE TRAFFIC CONTROL.

TXDOT NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION COMMENCEMENT.

WATER AND SEWER NOTES

1. ALL MATERIALS, CONSTRUCTION, TESTING, AND WORKMANSHIP SHALL CONFORM TO THE WATER PURVEYOR'S STANDARD SPECIFICATIONS, EXCEPT AS NOTED HEREIN OR APPROVED BY THE PROJECT ARCHITECT IN WRITING.
2. ALL TIE-INS TO EXISTING SANITARY SEWER AND WATER MAINS SHALL BE PERFORMED BY THE UTILITY PROVIDER AT CONTRACTOR'S EXPENSE UNLESS OTHERWISE APPROVED BY THE COUNTY OR UTILITY PROVIDER.
3. CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY PROVIDER AT LEAST 48 HOURS PRIOR TO CONNECTING PROPOSED WATER LINE TO EXISTING WATER SYSTEM AND PRIOR TO ANY DISRUPTION OF WATER SERVICE. NEW WATER MAINS TO BE TIED INTO EXISTING WATER SYSTEMS MUST HAVE PASSED ALL TESTING AND BE APPROVED BY THE PURVEYOR PRIOR TO MAKING SUCH CONNECTION.
4. FOR THE PURPOSE OF RECORD DRAWINGS / AS-BUILTS, THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH ALL THE FINAL MEASUREMENTS UPON COMPLETION OF THE PROJECT AND PRIOR TO FINAL ACCEPTANCE.
5. CONTRACTOR MAY DEFLECT WATER LINES SLIGHTLY TO AVOID CONFLICTS WITH OBSTRUCTIONS. THE WATER PURVEYOR MUST BE CONTACTED FOR APPROVAL IN ADVANCE OF ANY DECISION TO DEFLECT WATER LINES. CONTRACTOR SHALL KEEP ACCURATE RECORDS OF LOCATIONS WHERE WATER LINES ARE DEFLECTED FOR REQUIRED AS-BUILT RECORD DRAWINGS. SUCH DEFLECTIONS SHALL BE WITHIN THE LIMITS ALLOWED AND RECOMMENDED BY THE MANUFACTURER OF THE PIPE.
6. WET CONNECTIONS ARE TO BE COORDINATED WITH THE OWNER IN SUCH A MANNER AND AT SUCH HOURS AS TO CAUSE THE LEAST INCONVENIENCE TO THE PUBLIC. WHEN EXISTING MAINS HAVE BEEN CUT OR A PLUG REMOVED FOR A CONNECTION, THEN THE WORK OF MAKING THE CONNECTION SHALL PROGRESS WITHOUT INTERRUPTION UNTIL COMPLETE. NO ADDITIONAL COMPENSATION WILL BE GRANTED FOR MAKING CONNECTIONS AT NIGHT OR FOR HAVING TO COMPLETE CONNECTION UNDER UNFAVORABLE WORKING CONDITIONS. COMPENSATION FOR WET CONNECTION NOT SHOWN ON THE PLANS WILL BE INCIDENTAL TO THE WATER MAIN ONLY WHEN REQUESTED BY THE CONTRACTOR AND ACCEPTED BY THE PURVEYOR.
7. ALL FITTINGS, VALVES, OR OTHER APPURTENANCES NECESSARY FOR TESTING OR DISINFECTION OF UTILITY LINES SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST. TEMPORARY BLOW-OFF VALVES SHALL BE REMOVED BY THE CONTRACTOR PROMPTLY UPON SUCCESSFUL COMPLETION OF ALL TESTING (NO SEPARATE PAY).
8. ALL PIPE USED FOR WATER MAINS SHALL BE C-900 DR-14, OR AS OTHERWISE APPROVED BY THE WATER PURVEYOR.
9. ALL PIPE USED FOR SANITARY SEWER MAINS SHALL BE AS SPECIFIED BY THE OSSF DESIGNER.
10. ALL WATER & SANITARY SEWER SERVICE LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE COUNTY'S PLUMBING CODE.

CONSTRUCTION STAKING AND BENCH MARKS

1. BASELINES, STATIONS, AND ELEVATIONS ON THESE PLANS HAVE BEEN ESTABLISHED BASED ON INFORMATION PROVIDED TO THE ENGINEER. CONTRACTOR SHALL ESTABLISH BASELINES PRIOR TO COMMENCING WITH CONSTRUCTION ACTIVITIES AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES OR PROBLEMS ASSOCIATED WITH DOING SO.
2. CONSTRUCTION STAKING SHALL BE PROVIDED BY CONTRACTOR.
3. STATION VALUES SHOWN ON THE PLANS ARE CENTERLINE OF PROPOSED UTILITY LINE OR STREET WHERE REFERENCED

EROSION CONTROL STANDARD NOTES

1. EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBING ACTIVITIES AT THE PROJECT SITE. THE BMPS SHALL BE INSTALLED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
2. CONTRACTOR SHALL INSPECT ALL EROSION CONTROL DEVICES WEEKLY OR BI-WEEKLEY AND AFTER MAJOR RAIN EVENTS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY.
3. SEDIMENT SHALL BE REMOVED FROM EROSION CONTROL DEVICES WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY ONE-THIRD. EROSION CONTROL DEVICES THAT UTILIZE STONE SHALL HAVE THE STONE REPLACED WHEN THE VOIDS SPACES IN THE ROCK BECOME CLOGGED WITH SEDIMENT.
4. IF AN EROSION CONTROL DEVICE HAS BEEN DAMAGED OR IF IT IS NOT FUNCTIONING PROPERLY TO ELIMINATE EROSION OR OFF-SITE SEDIMENTATION, THEN THE DEVICE MUST BE REPAIRED, REPLACED OR MODIFIED. IN ADDITION, THE STORM WATER POLLUTION PREVENTION PLAN SHALL BE REVISED TO INDICATE THE CHANGE.
5. OFF-SITE MATERIAL STORAGE AREAS USED SOLELY BY THE PERMITTED PROJECT (I.E., OFF-SITE SOIL BORROW OR SPOIL SITES) ARE CONSIDERED A PART OF THE PROJECT AND SHALL BE ADDRESSED IN THE STORM WATER POLLUTION PREVENTION PLAN. THESE AREAS SHALL BE STABILIZED WITH PERMANENT GROUND COVER PRIOR TO FINAL APPROVAL OF THE PROJECT.
6. LITTER, CONSTRUCTION DEBRIS, WASH PIT AREA AND CONSTRUCTION CHEMICALS EXPOSED TO STORM WATER SHALL BE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORM WATER DISCHARGES OR A SAFETY HAZARD.
7. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
8. THE PROJECT SITE SHALL BE PERMANENTLY STABILIZED AND ALL TEMPORARY EROSION CONTROL DEVICES REMOVED PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
9. ALL EROSION CONTROL MEASURES MUST BE PLANNED FOR, INSTALLED, MAINTAINED AND REMOVED IN ACCORDANCE WITH COUNTY, STATE, AND FEDERAL STORM WATER AND POLLUTION PREVENTION REQUIREMENTS.
10. CONSTRUCTION SITE NOTICE AND/OR N.O.I.S MUST BE POSTED AT THE PROJECT SITE.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EROSION CONTROL AND SWPPP PREPARATION AND INCLUDE EROSION CONTROL AND SWPPP PREPARATION IN BID. ALL EROSION CONTROL AND SWPPP SHALL BE PROVIDED BY CONTRACTOR AND SHALL BE IN COMPLIANCE WITH NPDES, TPDES, AND TCEQ REQUIREMENTS.

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GEORGE'S RANCH

KENDALL COUNTY - GENERAL CONSTRUCTION NOTES

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 2023-04-13 ADDED GRAVE NOTE
2.
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
4/18/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C0

1 OF 1

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CONSTRUCTION PLANS

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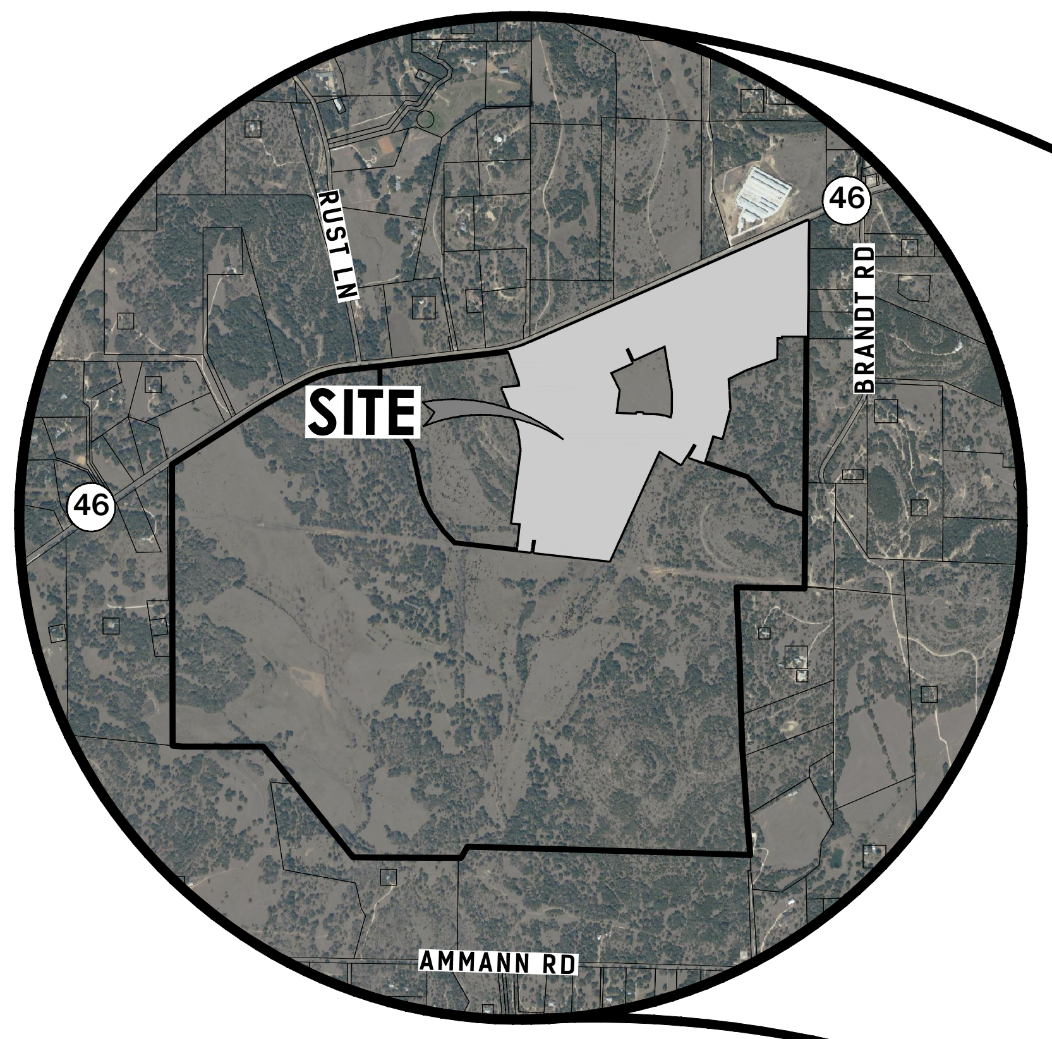
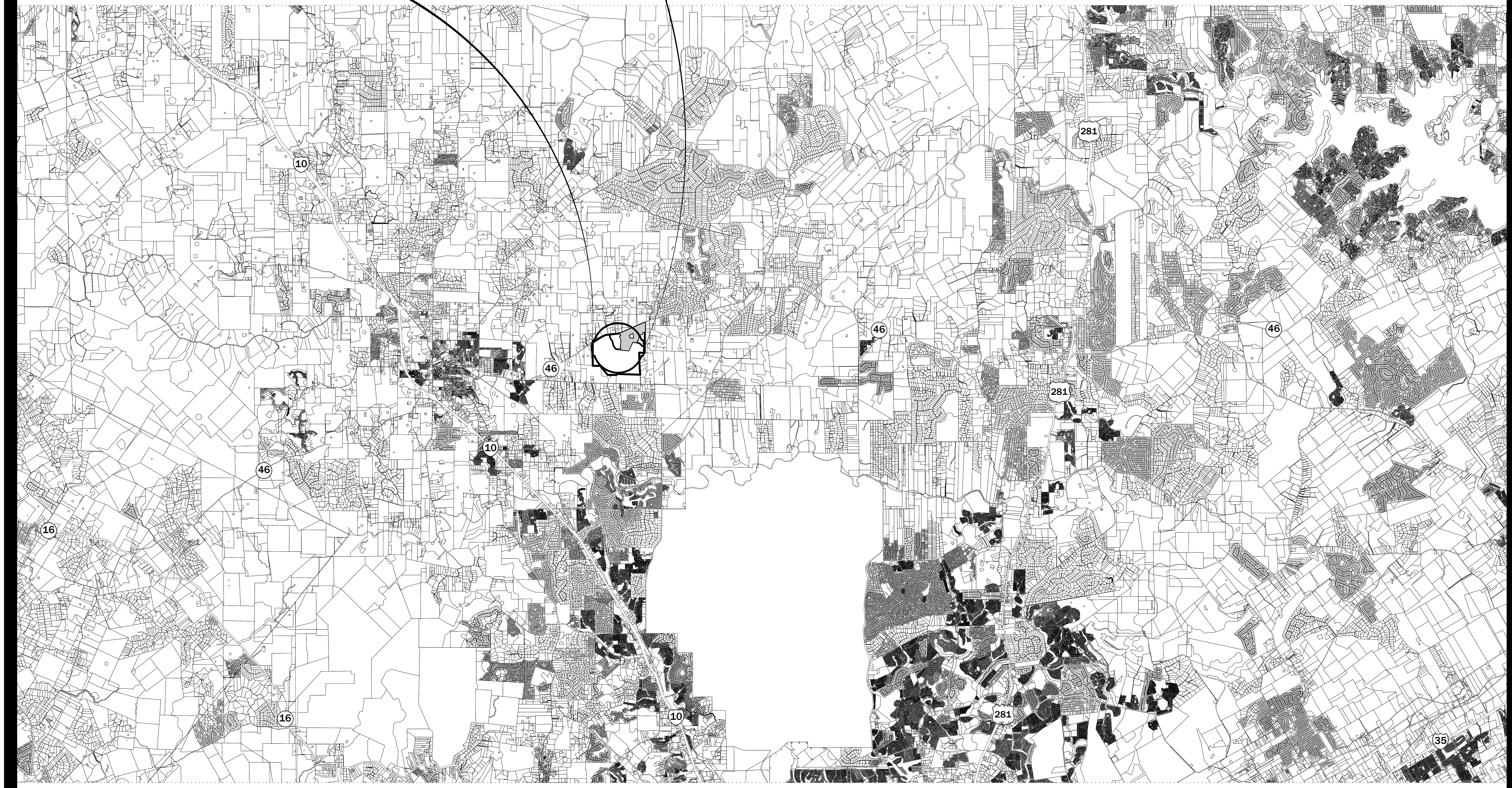
STREET & DRAINAGE
- C1 - OVERALL MASTER DRAINAGE & GRADING PLAN
- C2 - OVERALL MASTER DRAINAGE & GRADING PLAN
- C2A - STREET INDEX SHEET
- C3 - STREET PLAN & PROFILE - SWEET ADELINE
- C4 - STREET PLAN & PROFILE - WESTERN JUSTICE
- C5 - STREET PLAN & PROFILE - WESTERN JUSTICE
- C6 - STREET PLAN & PROFILE - BRAVE COMPANY
- C7 - STREET PLAN & PROFILE - BRAVE COMPANY
- C8 - STREET PLAN & PROFILE - EASY MONEY
- C9 - STREET PLAN & PROFILE - EASY MONEY
- C10 - STREET PLAN & PROFILE - LAUGHING DOG
- C11 - STREET PLAN & PROFILE - LAUGHING DOG
- C12 - STREET PLAN & PROFILE - TELLING WIND
- C13 - STREET PLAN & PROFILE - FORTUNATE SON
- C14 - STREET PLAN & PROFILE - STANDING TALL
- C15 - STREET PLAN & PROFILE - DANG PRETTY & LAUGHING DOG SAC
- C16 - STREET PLAN & PROFILE - QUICK FORT & EMERGENCY WATER ACCESS
- C17 - STANDARD STREET DETAILS
- C18 - TRAFFIC SIGNAGE PLAN
- C19 - TURN LANE STRIPING PLAN
- C20 - TXDOT - TYPICAL STANDARD PAVEMENT MARKINGS
- C21 - TXDOT -RAISED PAVEMENT MARKER DETAIL
- C21A - TXDOT -SIGN MOUNTING DETAILS
- C22 - DRAIN INDEX SHEET
- C23 - DRAINAGE PLAN & PROFILE - DRAIN 'A'
- C24 - DRAINAGE PLAN & PROFILE - DRAIN 'C'
- C25 - DRAINAGE PLAN & PROFILE - DRAIN 'D'
- C26 - DRAINAGE PLAN & PROFILE - DRAIN 'E' & DRAIN 'F'
- C27 - DRAINAGE PLAN & PROFILE - DRAIN 'G'
- C28 - DRAINAGE PLAN & PROFILE - DRAIN 'G'
- C29 - DRAINAGE PLAN & PROFILE - DRAIN 'H' & DRAIN 'I'
- C30 - DRAINAGE PLAN & PROFILE - DRAIN 'J'
- C31 - DRAINAGE PLAN & PROFILE - DRAIN 'L'
- C32 - DRAINAGE PLAN & PROFILE - DRAIN 'M'
- C33 - DRAINAGE PLAN & PROFILE - DRAIN 'M'
- C34 - DRAINAGE PLAN & PROFILE - DRAIN 'M'
- C34A - DRAINAGE PLAN & PROFILE - DRAIN 'N'
- C35 - POND DETENTION PLAN - POND 1
- C36 - POND DETENTION PLAN - POND 2
- C37 - DETENTION POND DETAILS
- C37A - DETENTION POND DETAILS
- C38 - CURB INLET DETAILS - TYPE 'C'
- C39 - CURB INLET DETAILS - TYPE 'C'
- C40 - CURB INLET DETAILS - TYPE 'C'
- C41 - TYPE 'C' INLET (TYPE I & II) & INLET EXTENSION STANDARDS
- C42 - TYPE 'C' INLET (TYPE I & II) & INLET EXTENSION STANDARDS
- C43 - TYPE 'C' INLET (TYPE I & II) & INLET EXTENSION STANDARDS
- C44 - PIPE BEDDING & MISC. DRAINAGE DETAILS
- C44A - 4-WAY INLET STANDARD DETAILS
- C45 - JUNCTION BOX DETAIL
- C46 - JUNCTION BOX DETAIL
- C47 - TXDOT - PRECAST ROUND MANHOLE
- C48 - TXDOT - BOX CULVERTS PRECAST MISCELLANEOUS DETAILS
- C49 - TXDOT - SINGLE BOX CULVERTS PRECAST - 10' SPAN
- C50 - TXDOT - MULTIPLE BOX CULVERTS CAST-IN-PLACE MISC. DETAILS
- C51 - TXDOT-MULTIPLE BOX CULVERTS CAST-IN-PLACE (1 OF 2)-10' SPAN
- C52 - TXDOT - MULTIPLE BOX CULVERTS CAST-IN-PLACE (2 OF 2) - 10' SPAN
- C53 - TXDOT - CONCRETE WINGWALLS WITH STRAIGHT WINGS
- C54 - TXDOT - EXTENDED CURB DETAILS
- C55 - DRAINAGE STANDARD DETAILS



LOCATION MAP

GENERAL CONSTRUCTION NOTES

1. ALL CONSTRUCTION MATERIALS AND METHODS FOR ROADWAY & DRAINAGE IMPROVEMENTS SHALL CONFORM TO THE KENDALL COUNTY, TEXAS "REGULATIONS, RULES AND SPECIFICATIONS FOR PLATS, ROADS, SUBDIVISIONS AND MANUFACTURED HOME PARKS" EFFECTIVE NOVEMBER 8, 2010.
2. ALL ROADWAYS ARE DESIGNED FOR A 30 MPH SPEED LIMIT.



VICINITY MAP

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GEORGE'S RANCH
UNIT 1

STREET & DRAINAGE CONSTRUCTION PLANS

	REVISIONS			
NO.	DESCRIPTION	SHEET NO.	DATE	BY:

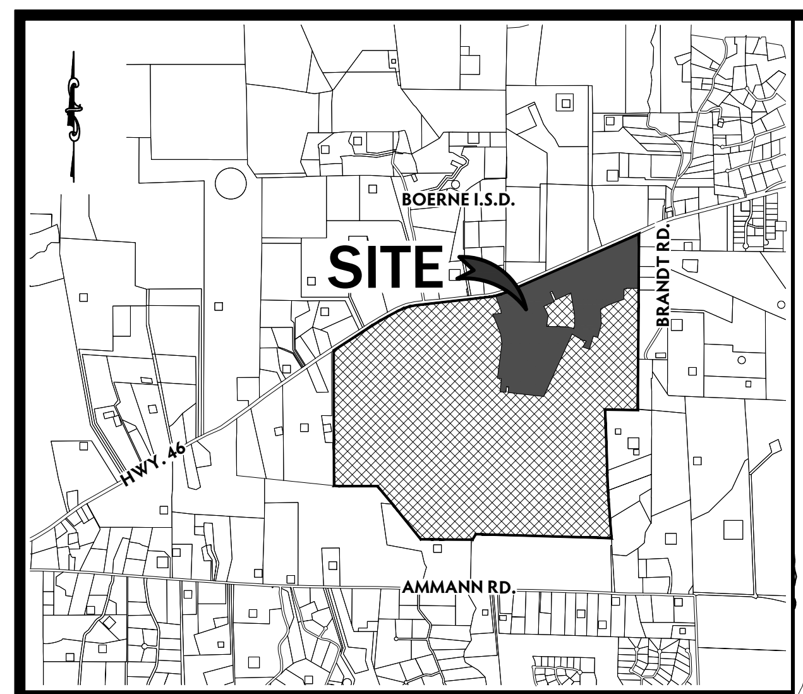
DEVELOPER:

THE LOOKOUT GROUP
MIKE SIEFERT, P.E.
PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

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

DRAWN BY	DATE
AB/RR	04-22-2022
CHECKED BY	**PROJECT NO.**
W. PATRICK MURPHY, P.E.	03546.001

CUDE ENGINEERS
TBPE No. 455
TBPELS No. 10048500



LOCATION MAP

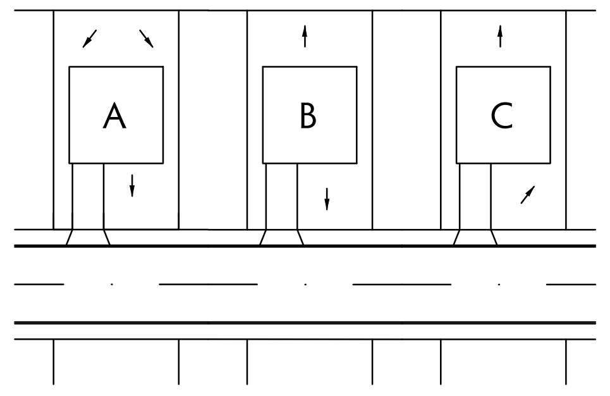
N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

LEGEND

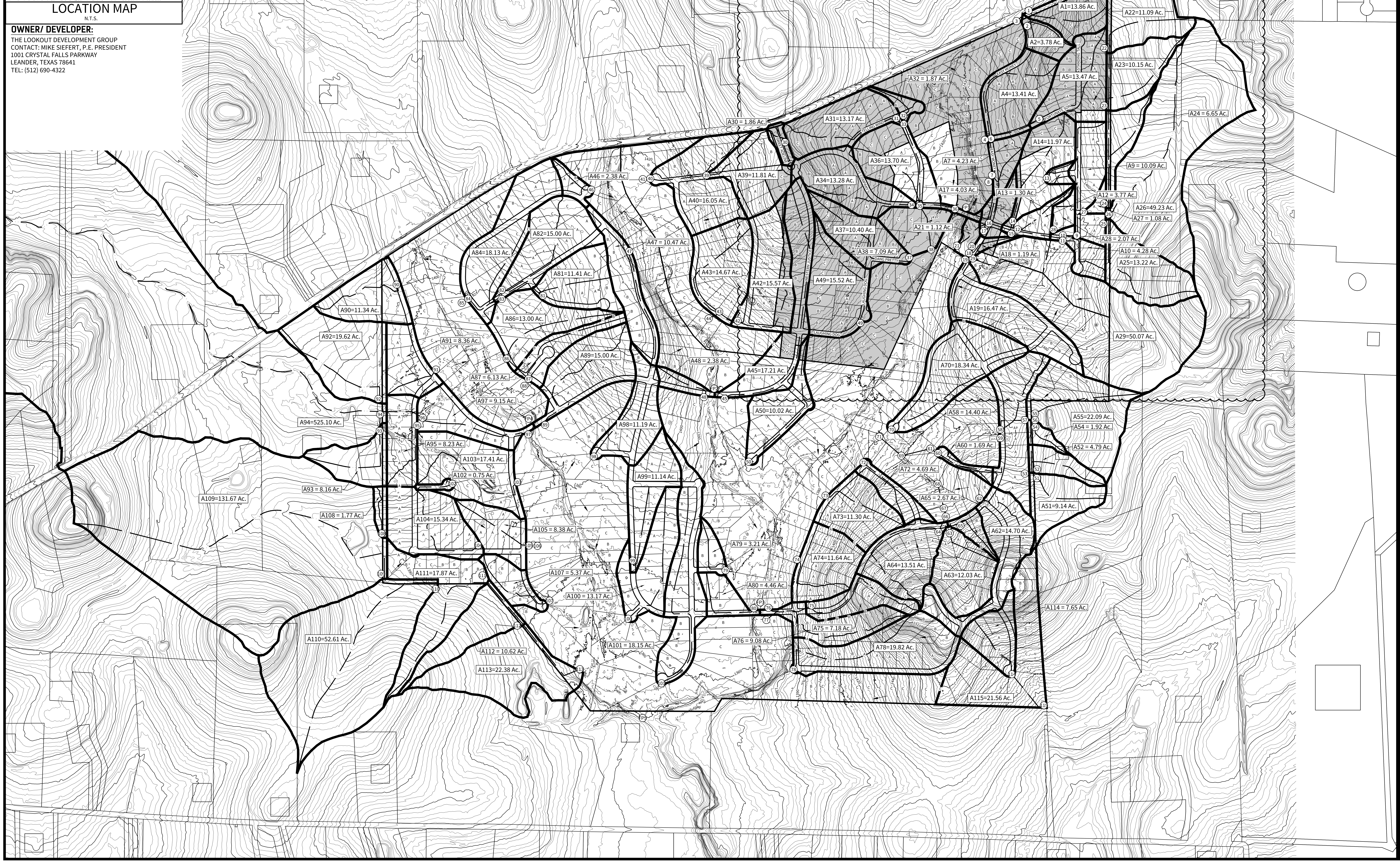
- ▨ = SITE BOUNDARY
- ━ = DRAINAGE AREA
- — · — = TIME OF CONCENTRATION LINE
- — — = ATLAS-14 STUDIED FLOODPLAIN
- ▩ = 1% ANNUAL CHANCE FLOODPLAIN
- → = FLOW PATH ARROW
- Ⓧ = ACCUMULATION POINT



TYPICAL LOT SITE PLAN

N.T.S.

SCALE: 1"=500'
500 250 0 500



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GEORGE'S RANCH
UNIT 1

OVERALL MASTER DRAINAGE & GRADING PLAN

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-09-26 UPDATED LOTS
2. 02/28/2023 - DRAINAGE REVISION
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
7/20/2023

CUDE ENGINEERS
TBPE No. 455

C1

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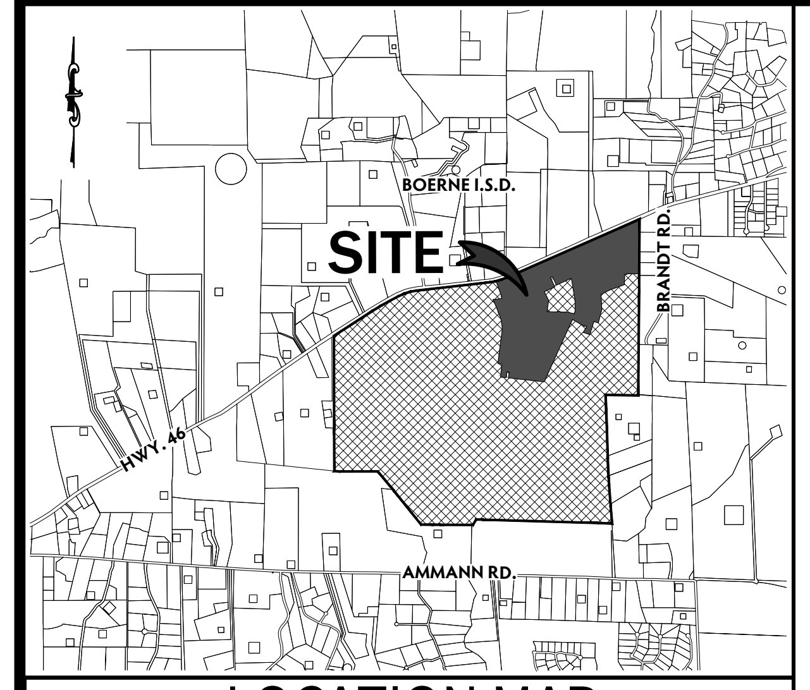

LOCATION MAP

N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

	PT. #	AREA (Ac.)	AREA OF ACCUMULATION (Ac.)	TOTAL ACRES	C	Tc	I5	I10	I25	I100	Q5	Q10	Q25	Q100
	1	13.86	=A1	13.86	0.64	18.71	5.04	5.79	6.77	8.34	44.71	51.36	60.05	73.98
	2	3.78	=A2	3.78	0.64	18.25	5.11	5.87	6.86	8.45	12.36	14.20	16.60	20.44
	3	0	=A1:A3	17.64	0.64	19.22	4.97	5.71	6.68	8.22	56.11	64.46	75.41	92.80
	4	13.41	=A4	13.41	0.64	22.14	4.60	5.28	6.18	7.62	39.48	45.32	53.04	65.40
	5	13.47	=A5	13.47	0.64	23.17	4.48	5.14	6.02	7.43	38.62	44.31	51.90	64.05
	6	0	=A4:A6	26.88	0.64	24.86	4.30	4.94	5.79	7.14	73.97	84.98	99.61	122.83
	7	4.23	=A7	4.23	0.64	20.56	4.79	5.50	6.44	7.93	12.97	14.89	17.43	21.47
	8	0	=A4:A8	31.11	0.64	26.07	4.19	4.81	5.63	6.95	83.42	95.77	112.10	138.38
	9	10.09	=A9	10.09	0.64	21.61	4.66	5.35	6.26	7.72	30.09	34.55	40.42	49.85
	10	4.28	=A10	4.28	0.64	17.40	5.24	6.02	7.03	8.66	14.35	16.49	19.26	23.72
	11	0.00	=A9:A11	14.37	0.64	21.94	4.62	5.31	6.21	7.66	42.49	48.84	57.11	70.45
	12	3.77	=A12	3.77	0.64	22.40	4.57	5.24	6.14	7.57	11.03	12.64	14.81	18.26
	13	1.30	=A13	1.30	0.64	18.39	5.09	5.84	6.83	8.42	4.23	4.86	5.68	7.01
	14	11.97	=A13:A14	13.27	0.64	23.63	4.43	5.09	5.96	7.35	37.62	43.23	50.62	62.42
	15	0	=A9:A15	31.41	0.64	23.94	4.40	5.05	5.91	7.30	88.45	101.52	118.81	146.75
	16	0	=A4:A16	62.52	0.64	27.61	4.05	4.65	5.45	6.73	162.05	186.06	218.07	269.29
	17	4.03	=A17	4.03	0.64	20.87	4.75	5.46	6.38	7.87	12.25	14.08	16.46	20.30
	18	1.19	=A18	1.19	0.64	19.60	4.92	5.65	6.61	8.14	3.75	4.30	5.03	6.20
	19	16.47	=A19	16.47	0.64	22.26	4.58	5.26	6.16	7.60	48.28	55.44	64.93	80.11
	20	0	=A18:A20	17.66	0.64	22.48	4.56	5.24	6.13	7.56	51.54	59.22	69.28	85.45
	21	1.12	=A4:A21	85.33	0.64	28.62	3.96	4.55	5.33	6.59	216.26	248.48	291.08	359.89
	22	11.09	=A22	11.09	0.63	20.63	4.78	5.49	6.43	7.92	33.40	38.36	44.92	55.33
	23	10.15	=A22:A23	21.24	0.64	22.10	4.60	5.28	6.19	7.63	62.53	71.77	84.14	103.72
	24	6.65	=A22:A24	27.89	0.62	23.91	4.40	5.05	5.92	7.30	76.08	87.32	102.37	126.23
	25	13.22	=A25	13.22	0.58	20.47	4.80	5.52	6.45	7.95	36.80	42.33	49.46	60.96
	26	49.23	=A22:A26	90.34	0.58	25.70	4.22	4.85	5.68	7.01	221.12	254.13	297.62	367.30
	27	1.08	=A22:A27	91.42	0.58	26.60	4.14	4.75	5.57	6.87	219.52	251.86	295.34	364.27
	28	2.07	=A22:A28	93.49	0.58	28.23	3.99	4.58	5.38	6.64	216.35	248.35	291.73	360.05
*	29	50.07	=A22:A29	143.56	0.59	~~31.86~~	~~3.71~~	~~4.26~~	~~5.00~~	~~6.18~~	~~314.24~~	~~360.82~~	~~423.50~~	~~523.45~~
	30	1.86	=A30	1.86	0.62	15.33	5.59	6.42	7.50	9.23	6.45	7.40	8.65	10.64
	31	13.17	=A30:A31	15.03	0.62	21.76	4.64	5.33	6.24	7.69	43.24	49.67	58.15	71.66
	32	1.87	=A32	1.87	0.62	21.01	4.73	5.44	6.36	7.84	5.48	6.31	7.37	9.09
	33	0	=A30:A33	16.9	0.62	21.76	4.64	5.33	6.24	7.69	48.62	55.85	65.38	80.58
	34	13.28	=A34	13.28	0.64	21.76	4.64	5.33	6.24	7.69	39.44	45.30	53.04	65.36
	35	0	=A30:A35	30.18	0.64	24.43	4.35	4.99	5.85	7.21	84.02	96.38	112.99	139.26
	36	13.7	=A36	13.7	0.62	23.43	4.45	5.11	5.99	7.38	37.80	43.40	50.88	62.69
	37	10.4	=A37	10.4	0.62	21.30	4.70	5.39	6.31	7.78	30.31	34.75	40.69	50.17
	38	7.09	=A30:A38	61.37	0.62	25.88	4.20	4.83	5.66	6.98	159.81	183.78	215.36	265.58
	39	11.81	=A39	11.81	0.62	20.53	4.79	5.51	6.44	7.94	35.07	40.35	47.15	58.14
	40	16.05	=A40	16.05	0.62	20.19	4.84	5.56	6.50	8.01	48.16	55.33	64.68	79.71
	41	0	=A39:A41	27.86	0.62	22.31	4.58	5.26	6.15	7.59	79.11	90.86	106.23	131.10
	42	15.57	=A42	15.57	0.62	25.05	4.28	4.92	5.76	7.11	41.32	47.49	55.60	68.64
	43	14.67	=A43	14.67	0.62	20.30	4.82	5.54	6.48	7.99	43.84	50.39	58.94	72.67
	44	0	=A42:A44	30.24	0.62	26.04	4.19	4.81	5.64	6.96	78.56	90.18	105.74	130.49
	45	17.21	=A45	17.21	0.62	26.19	4.17	4.79	5.62	6.93	44.49	51.11	59.97	73.94
	46	2.38	=A46	2.38	0.62	22.10	4.60	5.28	6.19	7.63	6.79	7.79	9.13	11.26
	47	10.47	=A47	10.47	0.62	23.84	4.41	5.06	5.93	7.31	28.63	32.85	38.49	47.45
	48	2.38	=A48	2.38	0.62	18.59	5.06	5.81	6.79	8.37	7.47	8.57	10.02	12.35
	49	15.52	=A49	15.52	0.62	20.51	4.80	5.51	6.45	7.94	46.19	53.02	62.06	76.40
	50	10.02	=A50	10.02	0.62	22.34	4.57	5.25	6.15	7.58	28.39	32.62	38.21	47.09
	51	9.14	=A51	9.14	0.55	21.64	4.66	5.35	6.26	7.72	23.43	26.89	31.47	38.81
	52	4.79	=A52	4.79	0.58	21.89	4.63	5.31	6.22	7.67	12.86	14.75	17.28	21.31
	53	0	=A51:A53	13.93	0.56	22.12	4.60	5.28	6.18	7.62	35.88	41.19	48.21	59.44
	54	1.92	=A54	1.92	0.59	18.23	5.11	5.87	6.87	8.46	5.79	6.65	7.78	9.58
	55	22.09	=A55	22.09	0.57	21.37	4.69	5.39	6.30	7.77	59.05	67.87	79.33	97.83
	56	0	=A54:A56	24.01	0.57	21.58	4.66	5.36	6.27	7.73	63.78	73.36	85.81	105.79
	57	0	=A51:A57	37.94	0.57	23.56	4.44	5.10	5.97	7.36	96.02	110.29	129.11	159.17
	58	14.4	=A58	14.4	0.64	19.96	4.87	5.59	6.54	8.06	44.88	51.52	60.27	74.28
	59	0	=A51:A59	52.34	0.59	25.18	4.27	4.90	5.75	7.09	131.86	151.31	177.56	218.94
	60	1.69	=A60	1.69	0.64	16.75	5.34	6.14	7.17	8.83	5.78	6.64	7.76	9.55
	61	0	=A51:A61	54.03	0.59	28.69	3.96	4.54	5.33	6.58	126.24	144.72	169.91	209.76
	62	14.7	=A62	14.7	0.64	18.66	5.05	5.80	6.78	8.35	47.51	54.57	63.79	78.56
	63	12.03	=A63	12.03	0.64	15.13	5.63	6.46	7.55	9.28	43.35	49.74	58.13	71.45
	64	13.51	=A64	13.51	0.64	18.86	5.02	5.77	6.74	8.30	43.40	49.89	58.28	71.77
	65	2.67	=A65	2.67	0.64	15.20	5.61	6.45	7.53	9.26	9.59	11.02	12.87	15.82
	66	0	=A64:A66	16.18	0.64	19.08	4.99	5.73	6.70	8.26	51.67	59.34	69.38	85.53
	67	0	=A63:A67	28.21	0.64	19.18	4.97	5.71	6.68	8.23	89.73	103.09	120.60	148.59
	68	0	=A62:A68	42.91	0.64	19.50	4.93	5.66	6.62	8.16	135.39	155.44	181.80	224.09
	69	0	=A51:A69	96.94	0.61	29.62	3.88	4.45	5.22	6.45	229.44	263.14	308.68	381.41
	70	18.34	=A70	18.34	0.64	19.23	4.97	5.71	6.67	8.22	58.34	67.02	78.29	96.48
*	71	0	=A51:A71	115.28	0.62	~~30.54~~	~~3.81~~	~~4.37~~	~~5.13~~	~~6.34~~	~~272.31~~	~~312.34~~	~~366.66~~	~~453.14~~
	72	4.69	=A72	4.69	0.64	18.06	5.14	5.90	6.90	8.49	15.43	17.71	20.71	25.48
	73	11.3	=A73	11.3	0.64	18.63	5.05	5.80	6.79	8.36	36.52	41.95	49.11	60.46
	74	11.64	=A74	11.64	0.64	16.42	5.40	6.20	7.25	8.92	40.23	46.19	54.01	66.45
	75	7.18	=A75	7.18	0.64	17.11	5.28	6.07	7.09	8.73	24.26	27.89	32.58	40.12
	76	9.08	=A76	9.08	0.64	15.51	5.56	6.38	7.46	9.17	32.31	37.08	43.35	53.29
	77	0	=A75:A77	16.26	0.64	17.47	5.23	6.01	7.02	8.64	54.43	62.54	73.05	89.91
	78	19.82	=A78	19.82	0.64	16.35	5.41	6.22	7.26	8.94	68.62	78.90	92.09	113.40
	79	3.21	=A79	3.21	0.62	23.92	4.40	5.05	5.92	7.30	8.76	10.05	11.78	14.53
	80	4.46	=A80	4.46	0.62	22.02	4.61	5.29	6.20	7.64	12.75	14.63	17.14	21.13
	81	11.41	=A81	11.41	0.62	21.86	4.63	5.32	6.22	7.67	32.75	37.63	44.00	54.26
	82	15	=A82	15	0.62	23.74	4.42	5.07	5.94	7.33	41.11	47.15	55.24	68.17
	83	0	=A81:A83	26.41	0.62	23.79	4.41	5.07	5.94	7.32	72.21	83.02	97.26	119.86
	84	18.13	=A84	18.13	0.62	23.42	4.45	5.11	5.99	7.39	50.02	57.44	67.33	83.07
	85	0	=A81:A85	44.54	0.62	24.02	4.39	5.04	5.90	7.28	121.23	139.18	162.93	201.04
	86	13	=A86	13	0.62	23.23	4.47	5.14	6.02	7.42	36.03	41.43	48.52	59.81
	87	6.13	=A87	6.13	0.62	23.09	4.49	5.16	6.04	7.44	17.06	19.61	22.96	28.28
	88	0	=A86:A88	19.13	0.62	23.38	4.46	5.12	5.99	7.39	52.90	60.73	71.04	87.65
	89	15	=A89	15	0.62	23.13	4.48	5.15	6.03	7.44	41.66	47.90	56.08	69.19
	90	11.34	=A90	11.34	0.57	23.16	4.48	5.15	6.03	7.43	28.96	33.29	38.98	48.03
	91	8.36	=A91	8.36	0.62	22.64	4.54	5.21	6.10	7.53	23.53	27.00	31.62	39.03
	92	19.62	=A92	19.62	0.54	23.68	4.43	5.08	5.95	7.34	46.93	53.82	63.04	77.77
	93	8.16	=A93	8.16	0.58	24.74	4.32	4.96	5.80	7.16	20.45	23.47	27.45	33.89
*	94	525.1	=A92:A94	552.88	0.62	~~50.93~~	~~2.75~~	~~3.16~~	~~3.72~~	~~4.60~~	~~942.66~~	~~1083.20~~	~~1275.16~~	~~1576.81~~
	95	8.23	=A95	8.23	0.62	20.28	4.83	5.54	6.48	7.99	24.65	28.27	33.06	40.77
*	96	0	=A92:A96	561.11	0.62	~~25.01~~	~~4.29~~	~~4.92~~	~~5.77~~	~~7.12~~	~~1492.44~~	~~1711.61~~	~~2007.31~~	~~2476.96~~
	97	9.15	=A97	9.15	0.62	26.13	4.18	4.80	5.62	6.94	23.71	27.23	31.88	39.37
	98	11.19	=A98	11.19	0.62	20.51	4.80	5.51	6.45	7.95	33.30	38.23	44.75	55.16
	99	11.14	=A99	11.14	0.62	25.11	4.28	4.91	5.76	7.10	29.56	33.91	39.78	49.04
	100	13.17	=A100	13.17	0.62	24.71	4.32	4.96	5.81	7.17	35.27	40.50	47.44	58.55
	101	18.15	=A101	18.15	0.62	24.71	4.32	4.96	5.81	7.17	48.61	55.81	65.38	80.68
	102	0.75	=A102	0.75	0.62	17.13	5.28	6.07	7.09	8.73	2.46	2.82	3.30	4.06
	103	17.41	=A102:A103	18.16	0.62	19.37	4.95	5.68	6.65	8.19	55.73	63.95	74.87	92.21
	104	15.34	=A104	15.34	0.62	21.51	4.67	5.37	6.28	7.74	44.42	51.07	59.73	73.61
	105	8.38	=A105	8.38	0.62	22.41	4.57	5.24	6.14	7.57	23.74	27.22	31.90	39.33
	106	0	=A104:A106	23.72	0.62	22.41	4.57	5.24	6.14	7.57	67.21	77.06	90.30	111.33
	107	5.37	=A107	5.37	0.62	24.64	4.33	4.97	5.82	7.18	14.42	16.55	19.38	23.91
	108	1.77	=A108	1.77	0.56	18.84	5.02	5.77	6.75	8.31	4.98	5.72	6.69	8.24
*	109	131.67	=A108:A109	133.44	0.62	~~17.98~~	~~5.15~~	~~5.91~~	~~6.91~~	~~8.51~~	~~426.07~~	~~488.95~~	~~571.68~~	~~704.06~~
*	110	52.61	=A108:A110	186.05	0.59	~~24.56~~	~~4.33~~	~~4.98~~	~~5.83~~	~~7.19~~	~~475.30~~	~~546.65~~	~~639.96~~	~~789.24~~
*	111	17.87	=A108:A111	203.92	0.59	~~23.25~~	~~4.47~~	~~5.13~~	~~6.01~~	~~7.42~~	~~537.80~~	~~617.20~~	~~723.08~~	~~892.72~~
*	112	10.62	=A108:A112	214.54	0.59	~~23.42~~	~~4.45~~	~~5.11~~	~~5.99~~	~~7.39~~	~~563.27~~	~~646.82~~	~~758.21~~	~~935.42~~
*	113	22.38	=A108:A113	236.92	0.58	~~23.67~~	~~4.43~~	~~5.08~~	~~5.95~~	~~7.34~~	~~608.74~~	~~698.06~~	~~817.61~~	~~1008.62~~
	114	7.65	=A114	7.65	0.64	16.43	5.40	6.20	7.24	8.92	26.44	30.36	35.45	43.67
	115	21.56	=A114:A115	29.21	0.64	16.55	5.38	6.18	7.22	8.88	100.58	115.53	134.97	166.01

* - DENOTES DRAINAGE AREA ANALYZED USING THE SCS HYDROLOGY METHOD DUE TO DRAINAGE AREA SIZE AND DETENTION CONSIDERATIONS. ALL HYDRAULIC CALCULATIONS FOR DRAINAGE STRUCTURES ASSOCIATED WITH THESE DRAINAGE AREAS SHOULD BE DERIVED FROM THE SCS METHOD HYDROLOGY CHART FOUND BELOW.

SCS METHOD HYDROLOGY

ANALYSIS POINT	DRAINAGE AREA (AC)	TIME OF CONCENTRATION (MIN)	PEAK DISCHARGE (CFS)					
			2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
29	143.56	27.30	338.10	423.70	494.50	595.90	675.80	755.80
71	146.72	30.54	283.92	404.81	504.13	645.23	756.24	867.55
94	552.70	50.93	599.69	940.62	1237.39	1669.11	2019.13	2371.93
96	560.92	51.92	605.35	948.80	1247.42	1681.69	2033.97	2389.47
109	131.63	31.26	193.05	296.57	387.21	517.37	621.15	725.47
110	184.22	33.02	262.93	405.43	528.05	702.73	843.30	982.91
111	202.09	34.58	284.45	439.13	571.63	760.78	912.71	1063.97
112	212.70	36.33	288.52	448.44	585.03	780.57	937.65	1094.50
113	235.07	38.85	308.78	475.00	621.09	830.90	999.60	1168.75

RATIONAL METHOD HYDROLOGY

Project Name: George's Ranch

Calculation Summary for Time of Concentrations

		Sheet Flow Tc Compuations						Shallow Conc. Tc Compuations						Channel Flow Tc Computations			Overall			
Drainage Point	Drainage Area (Ac.)	Length	Paved (Y or N)	Upstream Elev.	Downstream Elev	Slope	Time of Concentration	Length	Paved (Y or N)	Upstream Elev.	Downstream Elev	Slope	Time of Concentration	Length	Velocity (fps)	Time of Concentration	Time of Concentration (min)	Lag Time (0.6 x Tc) (min)	Time of Concentration (hrs)	Lag Time (0.6 x Tc) (hrs)
1	13.86	300.0	N	1502.5	1484.7	5.93%	16	600.0	N	1484.7	1448.3	6.07%	2.51	73.02	6	0.20	18.71	11.23	0.312	0.187
2	3.78	300.0	N	1482.8	1466.0	5.60%	16	395.2	N	1466.0	1450.0	4.05%	2.03	78.32	6	0.22	18.25	10.95	0.304	0.182
3	0.00	300.0	N	1502.5	1484.7	5.93%	16	600.0	N	1484.7	1448.3	6.07%	2.51	255.62	6	0.71	19.22	11.53	0.320	0.192
4	13.41	300.0	N	1481.5	1471.0	3.50%	18	408.9	N	1471.0	1447.1	5.85%	1.74	862.9	6	2.40	22.14	13.28	0.369	0.221
5	13.47	300.0	N	1494.3	1485.6	2.90%	18	600.0	N	1485.6	1467.8	2.97%	3.61	562.6	6	1.56	23.17	13.90	0.386	0.232
6	0.00	300.0	N	1494.3	1485.6	2.90%	18	600.0	N	1485.6	1467.8	2.97%	3.61	1169.5	6	3.25	24.86	14.92	0.414	0.249
7	4.23	300.0	N	1450.5	1442.8	2.57%	19	194.4	N	1442.8	1438.0	2.47%	1.28	99.5	6	0.28	20.56	12.33	0.343	0.206
8	0.00	300.0	N	1494.3	1485.6	2.90%	18	600.0	N	1485.6	1467.8	2.97%	3.61	1605	6	4.46	26.07	15.64	0.434	0.261
9	10.09	300.0	N	1476.0	1462.9	4.37%	18					#DIV/0!		1298.4	6	3.61	21.61	12.96	0.360	0.216
10	4.28	300.0	N	1471.2	1454.6	5.53%	16	42.8	N	1454.6	1453.1	3.50%	0.24	418.2	6	1.16	17.40	10.44	0.290	0.174
11	0.00	300.0	N	1476.0	1462.9	4.37%	18					#DIV/0!		1418.7	6	3.94	21.94	13.16	0.366	0.219
12	3.77	300.0	N	1454.2	1446.6	2.53%	19	510.1	N	1446.6	1433.5	2.57%	3.29	41.06	6	0.11	22.40	13.44	0.373	0.224
13	1.30	300.0	N	1458.3	1448.7	3.20%	18	30.5	N	1448.7	1448.0	2.30%	0.21	65.5	6	0.18	18.39	11.04	0.307	0.184
14	11.97	300.0	N	1462.9	1453.6	3.10%	18	600.0	N	1453.6	1440.8	2.13%	4.25	497.6	6	1.38	23.63	14.18	0.394	0.236
15	0.00	300.0	N	1462.9	1453.6	3.10%	18	600.0	N	1453.6	1440.8	2.13%	4.25	608.6	6	1.69	23.94	14.36	0.399	0.239
16	0.00	300.0	N	1494.3	1485.6	2.90%	18	600.0	N	1485.6	1467.8	2.97%	3.61	2159.2	6	6.00	27.61	16.56	0.460	0.276
17	4.03	300.0	N	1444.8	1437.0	2.60%	19	125.0	N	1437.0	1432.9	3.28%	0.71	419.1	6	1.16	20.87	12.52	0.348	0.209
18	1.19	300.0	N	1434.1	1425.6	2.83%	18	200.9	N	1425.6	1418.9	3.33%	1.13	167.8	6	0.47	19.60	11.76	0.327	0.196
19	16.47	300.0	N	1480.0	1468.4	3.87%	18	600.0	N	1468.4	1425.5	7.15%	2.31	701.3	6	1.95	22.26	13.35	0.371	0.223
20	0.00	300.0	N	1480.0	1468.4	3.87%	18	600.0	N	1468.4	1425.5	7.15%	2.31	779.5	6	2.17	22.48	13.49	0.375	0.225
21	1.12	300.0	N	1494.3	1485.6	2.90%	18	600.0	N	1485.6	1467.8	2.97%	3.61	2521.9	6	7.01	28.62	17.17	0.477	0.286
22	11.09	300.0	N	1540.0	1526.0	4.67%	17	600.0	N	1526.0	1495.8	5.03%	2.75	316.1	6	0.88	20.63	12.38	0.344	0.206
23	10.15	300.0	N	1537.8	1525.5	4.10%	18	600.0	N	1525.5	1495.8	4.95%	2.77	479.9	6	1.33	22.10	13.26	0.368	0.221
24	6.65	300.0	N	1509.1	1495.8	4.43%	18	600.0	N	1495.8	1480.0	2.63%	3.82	751	6	2.09	23.91	14.34	0.398	0.239
25	13.22	300.0	N	1554.0	1532.7	7.10%	16	600.0	N	1532.7	1488.1	7.43%	2.28	788.6	6	2.19	20.47	12.28	0.341	0.205
26	49.23	300.0	N	1540.0	1526.0	4.67%	17	600.0	N	1526.0	1495.8	5.03%	2.75	2141.6	6	5.95	25.70	15.42	0.428	0.257
27	1.08	300.0	N	1540.0	1526.0	4.67%	17	600.0	N	1526.0	1495.8	5.03%	2.75	2465	6	6.85	26.60	15.96	0.443	0.266
28	2.07	300.0	N	1540.0	1526.0	4.67%	17	600.0	N	1526.0	1495.8	5.03%	2.75	3053.2	6	8.48	28.23	16.94	0.471	0.282
29	50.07	300.0	N	1540.0	1526.0	4.67%	17	600.0	N	1526.0	1495.8	5.03%	2.75	4360.8	6	12.11	31.86	19.12	0.531	0.319
30	1.86	123.6	N	1477.5	1475.4	1.70%	15					#DIV/0!		118.7	6	0.33	15.33	9.20	0.255	0.153
31	13.17	300.0	N	1474.9	1460.9	4.67%	17	539.1	N	1460.9	1442.0	3.51%	2.96	646.7	6	1.80	21.76	13.05	0.363	0.218
32	1.87	300.0	N	1448.7	1441.0	2.57%	19	231.9	N	1441.0	1435.0	2.59%	1.49	186.9	6	0.52	21.01	12.61	0.350	0.210
33	0.00	300.0	N	1474.9	1460.9	4.67%	17	539.1	N	1460.9	1442.0	3.51%	2.96	646.7	6	1.80	21.76	13.05	0.363	0.218
34	13.28	300.0	N	1480.2	1467.0	4.40%	18	600.0	N	1467.0	1430.4	6.10%	2.5	453.1	6	1.26	21.76	13.06	0.363	0.218
35	0.00	300.0	N	1474.9	1460.9	4.67%	17	539.1	N	1460.9	1442.0	3.51%	2.96	1610	6	4.47	24.43	14.66	0.407	0.244
36	13.70	300.0	N	1442.0	1433.1	2.97%	18	600.0	N	1433.1	1417.2	2.65%	3.81	584.4	6	1.62	23.43	14.06	0.391	0.234
37	10.40	300.0	N	1478.4	1461.9	5.50%	17	600.0	N	1461.9	1425.2	6.12%	2.5	648.66	6	1.80	21.30	12.78	0.355	0.213
38	0.00	300.0	N	1474.9	1460.9	4.67%	17	539.1	N	1460.9	1442.0	3.51%	2.96	2130.3	6	5.92	25.88	15.53	0.431	0.259
39	11.81	300.0	N	1476.0	1464.6	3.80%	18	470.7	N	1464.6	1440.2	5.18%	2.13	143.1	6	0.40	20.53	12.32	0.342	0.205
40	16.05	300.0	N	1473.9	1457.0	5.63%	16	516.2	N	1457.0	1433.6	4.53%	2.49	610.6	6	1.70	20.19	12.11	0.336	0.202
41	0.00	300.0	N	1476.0	1464.6	3.80%	18	470.7	N	1464.6	1440.2	5.18%	2.13	785.6	6	2.18	22.31	13.39	0.372	0.223
42	15.57	300.0	N	1481.1	1473.1	2.67%	19	600.0	N	1473.1	1444.0	4.85%	2.79	1173.8	6	3.26	25.05	15.03	0.418	0.251
43	14.67	300.0	N	1450.0	1430.9	6.37%	16	559.1	N	1430.9	1408.0	4.10%	2.86	519	6	1.44	20.30	12.18	0.338	0.203
44	0.00	300.0	N	1481.1	1473.1	2.67%	19	600.0	N	1473.1	1444.0	4.85%	2.79	1530.9	6	4.25	26.04	15.63	0.434	0.260
45	17.21	300.0	N	1482.0	1472.8	3.07%	18	428.3	N	1472.8	1447.8	5.84%	1.83	2289.8	6	6.36	26.19	15.71	0.437	0.262
46	2.38	300.0	N	1444.0	1439.5	1.50%	20	218.7	N	1439.5	1436.2	1.51%	1.84	92.6	6	0.26	22.10	13.26	0.368	0.221
47	10.47	300.0	N	1432.9	1426.7	2.07%	20	44.6	N	1426.7	1425.9	1.79%	0.34	1260.4	6	3.50	23.84	14.30	0.397	0.238
48	2.38	300.0	N	1425.6	1410.4	5.07%	17	344.2	N	1410.4	1389.1	6.19%	1.42	62.4	6	0.17	18.59	11.16	0.310	0.186
49	15.52	300.0	N	1468.4	1447.7	6.90%	16	600.0	N	1447.7	1420.5	4.53%	2.9	579.6	6	1.61	20.51	12.31	0.342	0.205
50	10.02	300.0	N	1421.4	1406.3	5.03%	17	423.7	N	1406.3	1393.2	3.09%	2.49	1027.4	6	2.85	22.34	13.41	0.372	0.223
51	9.14	300.0	N	1488.0	1480.2	2.60%	19	588.0	N	1480.0	1449.0	5.27%	2.64				21.64	12.98	0.361	0.216
52	4.79	300.0	N	1488.0	1479.8	2.73%	19	600.0	N	1479.8	1444.0	5.97%	2.53	128.2	6	0.36	21.89	13.13	0.365	0.219
53	0.00	300.0	N	1488.0	1479.8	2.73%	19	600.0	N	1479.8	1444.0	5.97%	2.53	210.7	6	0.59	22.12	13.27	0.369	0.221
54	1.92	300.0	N	1469.8	1454.2	5.20%	17	225.1	N	1454.2	1443.0	4.98%	1.04	66.6	6	0.19	18.23	10.94	0.304	0.182
55	22.09	300.0	N	1508.0	1498.7	3.10%	18	600.0	N	1498.7	1459.9	6.47%	2.42	342.5	6	0.95	21.37	12.82	0.356	0.214
56	0.00	300.0	N	1508.0	1498.7	3.10%	18	600.0	N	1498.7	1459.9	6.47%	2.42	417.44	6	1.16	21.58	12.95	0.360	0.216
57	0.00	300.0	N	1488.0	1479.8	2.73%	19	600.0	N	1479.8	1444.0	5.97%	2.53	730.89	6	2.03	23.56	14.14	0.393	0.236
58	14.40	300.0	N	1481.2	1464.7	5.50%	17	600.0	N	1464.7	1431.8	5.48%	2.64	173.52	9	0.32	19.96	11.98	0.333	0.200
59	0.00	300.0	N	1488.0	1479.8	2.73%	19	600.0	N	1479.8	1444.0	5.97%	2.53	1313.6	6	3.65	25.18	15.11	0.420	0.252
60	1.69	242.0	N	1449.0	1439.5	3.93%	16					#DIV/0!		498.1	11	0.75	16.75	10.05	0.279	0.168
61	0.00	300.0	N	1488.0	1479.8	2.73%	19	600.0	N	1479.8	1444.0	5.97%	2.53	2576.9	6	7.16	28.69	17.21	0.478	0.287
62	14.70	300.0	N	1522.1	1501.4	6.90%	16	600.0	N	1501.4	1454.6	7.80%	2.21	348	13	0.45	18.66	11.19	0.311	0.187
63	12.03	300.0	N	1509.6	1470.1	13.17%	14	265.9	N	1470.1	1450.0	7.56%	1	109.5	14	0.13	15.13	9.08	0.252	0.151
64	13.51	300.0	N	1529.8	1509.1	6.90%	16	600.0	N	1509.1	1441.1	11.33%	1.84	920.1	15	1.02	18.86	11.32	0.314	0.189
65	2.67	300.0	N	1509.4	1469.7	13.23%	14	307.9	N	1469.7	1444.3	8.25%	1.1	96	16	0.10	15.20	9.12	0.253	0.152
66	0.00	300.0	N	1529.8	1509.1	6.90%	16	600.0	N	1509.1	1441.1	11.33%	1.84	1112.7	15	1.24	19.08	11.45	0.318	0.191
67	0.00	300.0	N	1529.8	1509.1	6.90%	16	600.0	N	1509.1	1441.1	11.33%	1.84	1209.1	15	1.34	19.18	11.51	0.320	0.192
68	0.00	300.0	N	1529.8	1509.1	6.90%	16	600.0	N	1509.1	1441.1	11.33%	1.84	1495.2	15	1.66	19.50	11.70	0.325	0.195
69	0.00	300.0	N	1488.0	1479.8	2.73%	19	600.0	N	1479.8	1444.0	5.97%	2.53	2913.6	6	8.09	29.62	17.77	0.494	0.296
70	18.34	300.0	N	1446.9	1428.3	6.20%	16	600.0	N	1428.3	1401.9	4.40%	2.94	362.3	21	0.29	19.23	11.54	0.320	0.192
71	0.00	300.0	N	1488.0	1479.8	2.73%	19	600.0	N	1479.8	1444.0	5.97%	2.53	3244.2	6	9.01	30.54	18.33	0.509	0.305
72	4.69	300.0	N	1433.2	1418.2	5.00%	17	163.6	N	1418.2	1409.8	5.13%	0.74	447.5	23	0.32	18.06	10.84	0.301	0.181
73	11.30	300.0	N	1433.2	1415.8	5.80%	16	562.5	N	1415.8	1386.0	5.30%	2.52	160.9	24	0.11	18.63	11.18	0.311	0.186
74	11.64	300.0	N	1436.4	1407.3	9.70%	15	334.5	N	1407.3	1381.1	7.83%	1.23	290.5	25	0.19	16.42	9.85	0.274	0.164
75	7.18	300.0	N	1529.8	1503.8	8.67%	15	526.3	N	1503.8	1443.7	11.42%	1.61	775.1	26	0.50	17.11	10.26	0.285	0.171
76	9.08	300.0	N	1520.9	1476.8	14.70%	13	600.0	N	1476.8	1411.1	10.95%	1.87	1034.9	27	0.64	15.51	9.31	0.258	0.155
77	0.00	300.0	N	1529.8	1503.8	8.67%	15	526.3	N	1503.8	1443.7	11.42%	1.61	1336.1	26	0.86	17.47	10.48	0.291	0.175
78	19.82	300.0	N	1529.8	1493.8	12.00%	14	600.0	N	1493.8	1422.7	11.85%	1.8	948.3	29	0.55	16.35	9.81	0.272	0.163
79	3.21	300.0	N	1380.3	1376.0	1.43%	20	287.9	N	1376.0	1374.2	0.63%	3.81	201.5	30	0.11	23.92	14.35	0.399	0.239
80	4.46	300.0	N	1373.4	1369.8	1.20%	20	170.0	N	1369.8	1368.1	1.00%	1.77	467.7	31	0.25	22.02	13.21	0.367	0.220
81	11.41	300.0	N	1432.7	1425.8	2.30%	19	525.8	N	1425.8	1406.7	3.63%	2.83	65.2	32	0.03	21.86	13.12	0.364	0.219
82	15.00	300.0	N	1435.3	1429.0	2.10%	20	528.6	N	1429.0	1415.4	2.57%	3.41	644.5	33	0.33	23.74	14.24	0.396	0.237
83	0.00	300.0	N	1435.3	1429.0	2.10%	20	528.6	N	1429.0	1415.4	2.57%	3.41	745.7	33	0.38	23.79	14.27	0.396	0.238
84	18.13	300.0	N	1431.2	1425.6	1.87%	20	600.0	N	1425.6	1402.6	3.83%	3.15	574.6	35	0.27	23.42	14.05	0.390	0.234
85	0.00	300.0	N	1435.3	1429.0	2.10%	20	528.6	N	1429.0	1415.4	2.57%	3.41	1214.9	33	0.61	24.02	14.41	0.400	0.240
86	13.00	300.0	N	1434.0	1428.1	1.97%	20	600.0	N	1428.1	1401.8	4.38%	2.95	621.8	37	0.28	23.23	13.94	0.387	0.232
87	6.13	300.0	N	1434.0	1427.7	2.10%	20	600.0	N	1427.7	1399.8	4.65%	2.86	522.3	38	0.23	23.09	13.85	0.385	0.231
88	0.00	300.0	N	1434.0	1428.1	1.97%	20	600.0	N	1428.1	1401.8	4.38%	2.95	958	37	0.43	23.38	14.03	0.390	0.234
89	15.00	300.0	N	1434.5	1429.8	1.57%	20	600.0	N	1429.8	1400.5	4.88%	2.78	848.5	40	0.35	23.13	13.88	0.386	0.231
90	11.34	300.0	N	1426.0	1418.0	2.67%	19	600.0	N	1418.0	1404.0	2.33%	4.05	271.2	41	0.11	23.16	13.90	0.386	0.232
91	8.36	300.0	N	1403.5	1400.9	0.87%	20	263.7	N	1400.9	1398.0	1.10%	2.61	84.6	42	0.03	22.64	13.59	0.377	0.226
92	19.62	300.0	N	1427.4	1420.6	2.27%	19	600.0	N	1420.6	1408.8	1.97%	4.45	593.1	43	0.23	23.68	14.21	0.395	0.237
93	8.16	300.0	N	1426.0	1425.2	0.27%	20	595.9	N	1425.2	1414.6	1.78%	4.59	400.2	44	0.15	24.74	14.84	0.412	0.247
94	525.10	300.0	N			0.00%	20					#DIV/0!					50.93	30.56	0.849	0.509
95	8.23	300.0	N	1415.6	1408.1	2.50%	19	181.2	N	1408.1	1403.2	2.70%	1.14	392.8	46	0.14	20.28	12.17	0.338	0.203
96	0.00	300.0	N	1426.0	1425.2	0.27%	20	595.9	N	1425.2	1414.6	1.78%	4.59	1103	44	0.42	25.01	15.00	0.417	0.250
97	9.15	300.0	N	1401.0	1397.6	1.13%	20	600.0	N	1397.6	1391.1	1.08%	5.99	396.9	48	0.14	26.13	15.68	0.435	0.261
98	11.19	300.0	N	1420.8	1405.9	4.97%	17	600.0	N	1405.9	1386.9	3.17%	3.47	103.9	49	0.04	20.51	12.30	0.342	0.205
99	11.14	300.0	N	1386.0	1379.3	2.23%	20	600.0	N	1379.3	1370.3	1.50%	5.08	83.9	51	0.03	25.11	15.06	0.418	0.251
100	13.17	300.0	N	1386.7	1379.6	2.37%	19	600.0	N	1379.6	1371.8	1.30%	5.45	792.2	51	0.26	24.71	14.83	0.412	0.247
101	18.15	300.0	N	1387.9	1381.1	2.27%	19	600.0	N	1381.1	1372.4	1.45%	5.17	1692.1	52	0.54	24.71	14.83	0.412	0.247
102	0.75	32.7	N	1410.1	1409.9	0.61%	17					#DIV/0!		398.5	53	0.13	17.13	10.28	0.285	0.171
103	17.41	300.0	N	1409.4	1398.9	3.50%	18	183.8	N	1398.9	1392.5	3.48%	1.01	1181.8	54	0.36	19.37	11.62	0.323	0.194
104	15.34	300.0	N	1410.1	1400.4	3.23%	18	472.2	N	1400.4	1390.4	2.12%	3.36	490.1	55	0.15	21.51	12.91	0.358	0.215
105	8.38	300.0	N	1399.2	1389.2	3.33%	18	600.0	N	1389.2	1377.0	2.03%	4.38	110.3	56	0.03	22.41	13.45	0.374	0.224
106	0.00	300.0	N	1399.2	1389.2	3.33%	18	600.0	N	1389.2	1377.0	2.03%	4.38	110.3	56	0.03	22.41	13.45	0.374	0.224
107	5.37	300.0	N	1382.2	1377.8	1.47%	20	528.0	N	1377.8	1370.2	1.44%	4.57	231.7	58	0.07	24.64	14.78	0.411	0.246
108	1.77	300.0	N	1417.6	1406.0	3.87%	18	148.8	N	1406.0	1400.7	3.56%	0.81	120.8	59	0.03	18.84	11.31	0.314	0.188
109	131.67	300.0	N	1536.0	1506.0	10.00%	15	600.0	N	1506.0	1452.0	9.00%	2.06	3307.6	60	0.92	17.98	10.79	0.300	0.180
110	52.61	300.0	N	1451.4	1448.2	1.07%	20	600.0	N	1448.2	1433.9	2.38%	4.01	2021.7	61	0.55	24.56	14.74	0.409	0.246
111	17.87	300.0	N	1448.0	1442.9	1.70%	20	600.0	N	1442.9	1416.7	4.37%	2.95	1129.6	62	0.30	23.25	13.95	0.388	0.233
112	10.62	300.0	N	1448.0	1442.9	1.70%	20	600.0	N	1442.9	1416.7	4.37%	2.95	1758.3	62	0.47	23.42	14.05	0.390	0.234
113	22.38	300.0	N	1448.0	1442.9	1.70%	20	600.0	N	1442.9	1416.7	4.37%	2.95	2688.9	62	0.72	23.67	14.20	0.395	0.237
114	7.65	300.0	N	1487.7	1465.0	7.57%	15	345.7	N	1465.0	1442.5	6.51%	1.39	142.6	65	0.04	16.43	9.86	0.274	0.164
115	21.56	300.0	N	1487.7	1465.0	7.57%	15	345.7	N	1465.0	1442.5	6.51%	1.39	630.52	65	0.16	16.55	9.93	0.276	0.166

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

GEORGE'S RANCH
UNIT 1

OVERALL MASTER DRAINAGE & GRADING PLAN

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

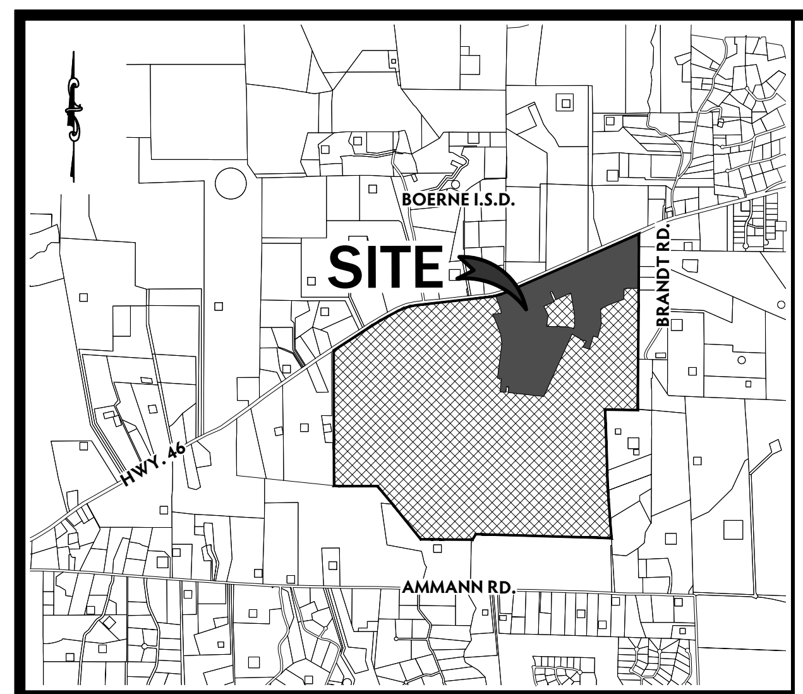
CHECKED BY
WPM

REVISIONS
1. 02/28/2023 - DRAINAGE REVISION
2.
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
3/3/2023

CUDE ENGINEERS
TBPE No. 455

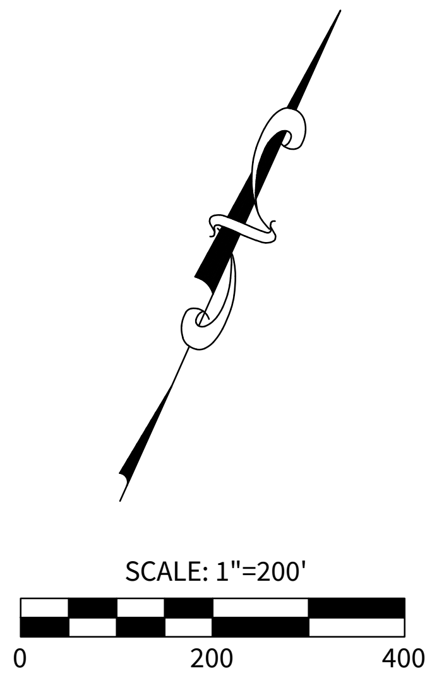
C2

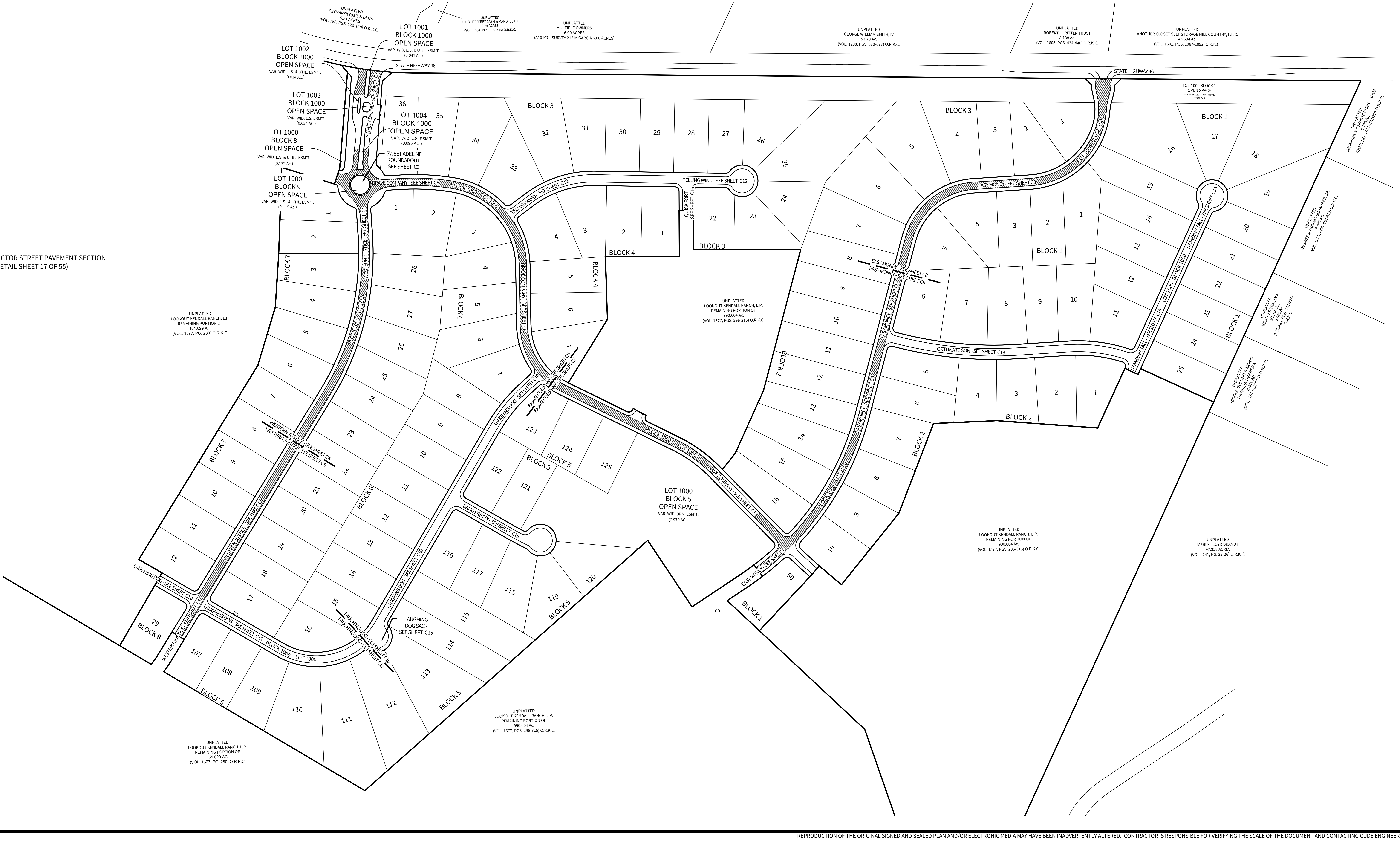


LOCATION MAP
N.T.S.

OWNER/ DEVELOPER:
THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

▨ - COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)




UNPLATTED
SZYMAREK PAUL & DENA
9.21 ACRES
(VOL. 780, PGS. 123-128) O.R.K.C.
UNPLATTED
CARY JEFFEREY CASH & MANDI BETH
0.79 ACRES
(VOL. 1604, PGS. 339-343) O.R.K.C.
UNPLATTED
MULTIPLE OWNERS
6.00 ACRES
(A10197 - SURVEY 213 M GARCIA 6.00 ACRES)
UNPLATTED
GEORGE WILLIAM SMITH, IV
53.70 Ac.
(VOL. 1288, PGS. 670-677) O.R.K.C.
UNPLATTED
ROBERT H. RITTER TRUST
8.138 Ac.
(VOL. 1605, PGS. 434-440) O.R.K.C.
UNPLATTED
ANOTHER CLOSET SELF STORAGE HILL COUNTRY, L.L.C.
45.694 Ac.
(VOL. 1601, PGS. 1087-1092) O.R.K.C.
STATE HIGHWAY 46
LOT 1001 BLOCK 1000 OPEN SPACE
VAR. WID. L.S. & UTIL. ESM'T. (0.041 Ac.)
LOT 1002 BLOCK 1000 OPEN SPACE
VAR. WID. L.S. & UTIL. ESM'T. (0.014 AC.)
LOT 1003 BLOCK 1000 OPEN SPACE
VAR. WID. L.S. ESM'T. (0.024 AC.)
LOT 1004 BLOCK 1000 OPEN SPACE
VAR. WID. L.S. ESM'T. (0.095 AC.)
LOT 1000 BLOCK 8 OPEN SPACE
VAR. WID. L.S. & UTIL. ESM'T. (0.172 Ac.)
LOT 1000 BLOCK 9 OPEN SPACE
VAR. WID. L.S. & UTIL. ESM'T. (0.115 Ac.)
SWEET ADELINE - SEE SHEET C3
SWEET ADELINE ROUNDABOUT SEE SHEET C3
BRAVE COMPANY - SEE SHEET C6
BRAVE COMPANY - SEE SHEET C7
TELLING WIND - SEE SHEET C12
QUICK FORT - SEE SHEET C16
WESTERN JUSTICE - SEE SHEET C4
WESTERN JUSTICE - SEE SHEET C5
LAUGHING DOG - SEE SHEET C10
LAUGHING DOG - SEE SHEET C11
LAUGHING DOG SAC - SEE SHEET C15
DANG PRETTY - SEE SHEET C15
EASY MONEY - SEE SHEET C8
EASY MONEY - SEE SHEET C9
FORTUNATE SON - SEE SHEET C13
STANDING TALL - SEE SHEET C14
LOT 1000 BLOCK 1000
LOT 1000 BLOCK 1 OPEN SPACE
VAR. WID. L.S. & DRN. ESM'T. (2.307 Ac.)
LOT 1000 BLOCK 5 OPEN SPACE
VAR. WID. DRN. ESM'T. (7.970 AC.)
BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
BLOCK 6
BLOCK 7
BLOCK 8
UNPLATTED
JENNIFER & CHRISTOPHER VAROZ
8.103 AC.
(DOC. NO. 2022-373469) O.R.K.C.
UNPLATTED
DESIREE & THOMAS SCHAMBER, JR.
8.997 Ac.
(VOL. 1683, PGS. 868-872) O.R.K.C.
UNPLATTED
MILAN J & TRACEY A MICHALEC
5.000 Ac.
(VOL.488, PGS. 774-776) O.R.K.C.
UNPLATTED
NICOLE EDLUND & MONICA PATRICIA HERRERA
6.001 AC.
(DOC. 2021-357771) O.R.K.C.
UNPLATTED
LOOKOUT KENDALL RANCH, L.P.
REMAINING PORTION OF
990.604 Ac.
(VOL. 1577, PGS. 296-315) O.R.K.C.
UNPLATTED
LOOKOUT KENDALL RANCH, L.P.
REMAINING PORTION OF
151.629 AC.
(VOL. 1577, PG. 280) O.R.K.C.
UNPLATTED
MERLE LLOYD BRANDT
97.358 ACRES
(VOL. 241, PG. 22-26) O.R.K.C.

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GEORGE'S RANCH

STREET INDEX SHEET

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

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

W. PATRICK MURPHY
111597
7/20/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C2A

P:\03546\001\2-Drawings\01_02 STREET INDEX.dwg 2023/07/13 4:25pm rmata

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD LENGTH	CHORD DIRECTION
C1	60.325	245.000	014.1076	60.17'	S12° 02' 41"E
C2	42.735	100.000	024.4853	42.41'	S32° 06' 45"E
C3	75.467	150.000	028.8262	74.67'	N29° 56' 31"W
C4	81.370	250.000	018.6487	81.01'	S10° 30' 16"E
C5	32.921	250.000	007.5450	32.90'	N8° 45' 49"W
C6	84.051	1120.000	004.2998	84.03'	S17° 40' 44"E
C7	4.477	3.000	085.5016	4.07'	S39° 01' 57"W
C8	58.532	1998.000	001.6785	58.53'	S17° 45' 41"E
C9	59.001	2014.000	001.6785	59.00'	S17° 45' 41"E
C10	25.131	8.000	179.9843	16.00'	S73° 04' 42"W
C11	25.133	8.000	180.0000	16.00'	N71° 23' 58"E
C12	15.740	10.000	090.1847	14.16'	N64° 46' 39"W

CURVE TABLE

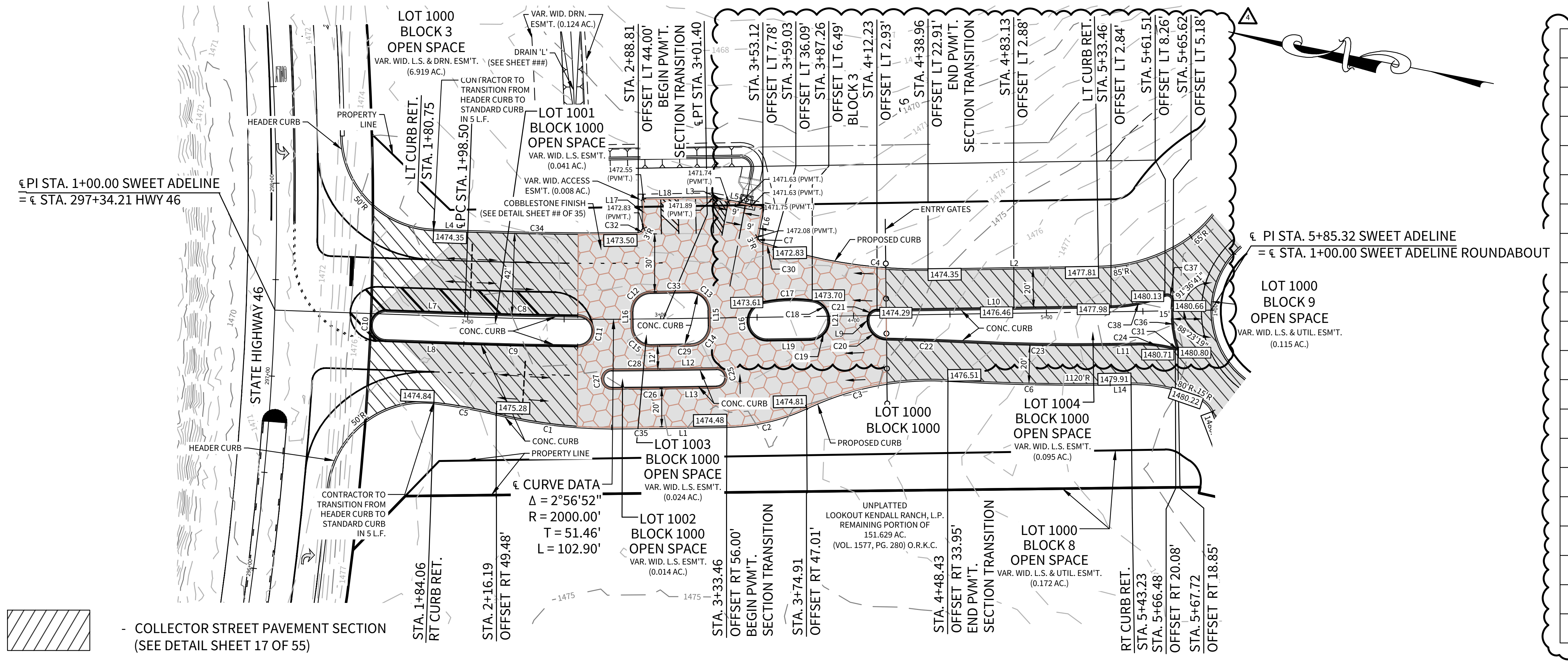
CURVE #	LENGTH	RADIUS	DELTA	CHORD LENGTH	CHORD DIRECTION
C13	15.725	10.000	090.0997	14.15'	N25° 04' 40"E
C14	15.691	10.000	089.9007	14.13'	S64° 55' 20"E
C15	15.676	10.000	089.8160	14.12'	S25° 13' 20"W
C16	29.491	10.000	168.9704	19.91'	N64° 39' 23"E
C17	25.748	75.000	019.6703	25.62'	S21° 01' 24"E
C18	14.227	10.000	081.5163	13.06'	S29° 34' 12"W
C19	15.681	10.000	089.8430	14.12'	N64° 45' 01"W
C20	15.438	10.000	088.4513	13.95'	S26° 06' 09"W
C21	7.840	5.000	089.8430	7.06'	N64° 45' 01"W
C22	41.429	1100.000	002.1579	41.43'	S17° 02' 39"E
C23	74.176	1100.000	003.8636	74.16'	S17° 53' 49"E
C24	20.193	70.000	016.5285	20.12'	S11° 33' 52"E

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD LENGTH	CHORD DIRECTION
C25	15.708	5.000	180.0000	10.00'	N70° 07' 49"E
C26	27.207	2036.000	000.7656	27.21'	S19° 29' 13"E
C27	15.747	5.000	180.4514	10.00'	S70° 53' 47"W
C28	27.112	2026.000	000.7667	27.11'	S19° 29' 11"E
C29	20.474	2014.000	000.5825	20.47'	S19° 58' 37"E
C30	6.645	146.609	002.5968	6.64'	S2° 26' 57"E
C31	2.134	1.000	122.2642	1.75'	S64° 25' 57"E
C32	4.731	3.000	090.3606	4.26'	N64° 41' 22"W
C33	20.374	1997.498	000.5844	20.37'	S19° 58' 40"E
C34	88.322	1956.000	002.5872	88.31'	S18° 12' 56"E
C35	27.677	2056.000	000.7713	27.68'	S19° 29' 03"E
C36	24.262	65.000	021.3865	24.12'	N65° 07' 43"E

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD LENGTH	CHORD DIRECTION
C37	6.158	3.000	117.6144	5.13'	N17° 00' 53"E
C38	28.750	75.000	021.9635	28.57'	N30° 48' 38"W


LOT 1000
BLOCK 3
OPEN SPACE
VAR. WID. L.S. & DRN. ESM'T. (6.919 AC.)
VAR. WID. DRN. ESM'T. (0.124 AC.)
DRAIN 'L' (SEE SHEET ###)
CONTRACTOR TO TRANSITION FROM HEADER CURB TO STANDARD CURB IN 5 L.F.
LOT 1001
BLOCK 1000
OPEN SPACE
VAR. WID. L.S. ESM'T. (0.041 AC.)
VAR. WID. ACCESS ESM'T. (0.008 AC.)
COBBLESTONE FINISH (SEE DETAIL SHEET ## OF 35)
℄ PI STA. 1+00.00 SWEET ADELINE = ℄ STA. 297+34.21 HWY 46
STATE HIGHWAY 46
HEADER CURB
PROPERTY LINE
LT CURB RET. STA. 1+80.75
℄ PC STA. 1+98.50
STA. 2+88.81 OFFSET LT 44.00'
BEGIN PVM'T. SECTION TRANSITION
℄ PT STA. 3+01.40
STA. 3+53.12 OFFSET LT 7.78'
STA. 3+59.03 OFFSET LT 36.09'
STA. 3+87.26 OFFSET LT 6.49'
BLOCK 3
STA. 4+12.23 OFFSET LT 2.93'
STA. 4+38.96 OFFSET LT 22.91'
END PVM'T. SECTION TRANSITION
STA. 4+83.13 OFFSET LT 2.88'
LT CURB RET. STA. 5+33.46 OFFSET LT 2.84'
STA. 5+61.51 OFFSET LT 8.26'
STA. 5+65.62 OFFSET LT 5.18'
ENTRY GATES
PROPOSED CURB
CONC. CURB
℄ PI STA. 5+85.32 SWEET ADELINE = ℄ STA. 1+00.00 SWEET ADELINE ROUNDABOUT
LOT 1000
BLOCK 9
OPEN SPACE
VAR. WID. L.S. & UTIL. ESM'T. (0.115 AC.)
LOT 1003
BLOCK 1000
OPEN SPACE
VAR. WID. L.S. ESM'T. (0.024 AC.)
LOT 1002
BLOCK 1000
OPEN SPACE
VAR. WID. L.S. ESM'T. (0.014 AC.)
℄ CURVE DATA
Δ = 2°56'52"
R = 2000.00'
T = 51.46'
L = 102.90'
LOT 1000
BLOCK 1000
LOT 1004
BLOCK 1000
OPEN SPACE
VAR. WID. L.S. ESM'T. (0.095 AC.)
UNPLATTED
LOOKOUT KENDALL RANCH, L.P.
REMAINING PORTION OF 151.629 AC.
(VOL. 1577, PG. 280) O.R.K.C.
LOT 1000
BLOCK 8
OPEN SPACE
VAR. WID. L.S. & UTIL. ESM'T. (0.172 AC.)
STA. 1+84.06 RT CURB RET.
STA. 2+16.19 OFFSET RT 49.48'
STA. 3+33.46 OFFSET RT 56.00'
BEGIN PVM'T. SECTION TRANSITION
STA. 3+74.91 OFFSET RT 47.01'
STA. 4+48.43 OFFSET RT 33.95'
END PVM'T. SECTION TRANSITION
RT CURB RET. STA. 5+43.23 STA. 5+66.48 OFFSET RT 20.08'
STA. 5+67.72 OFFSET RT 18.85'

▨ - COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)

░ - STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)

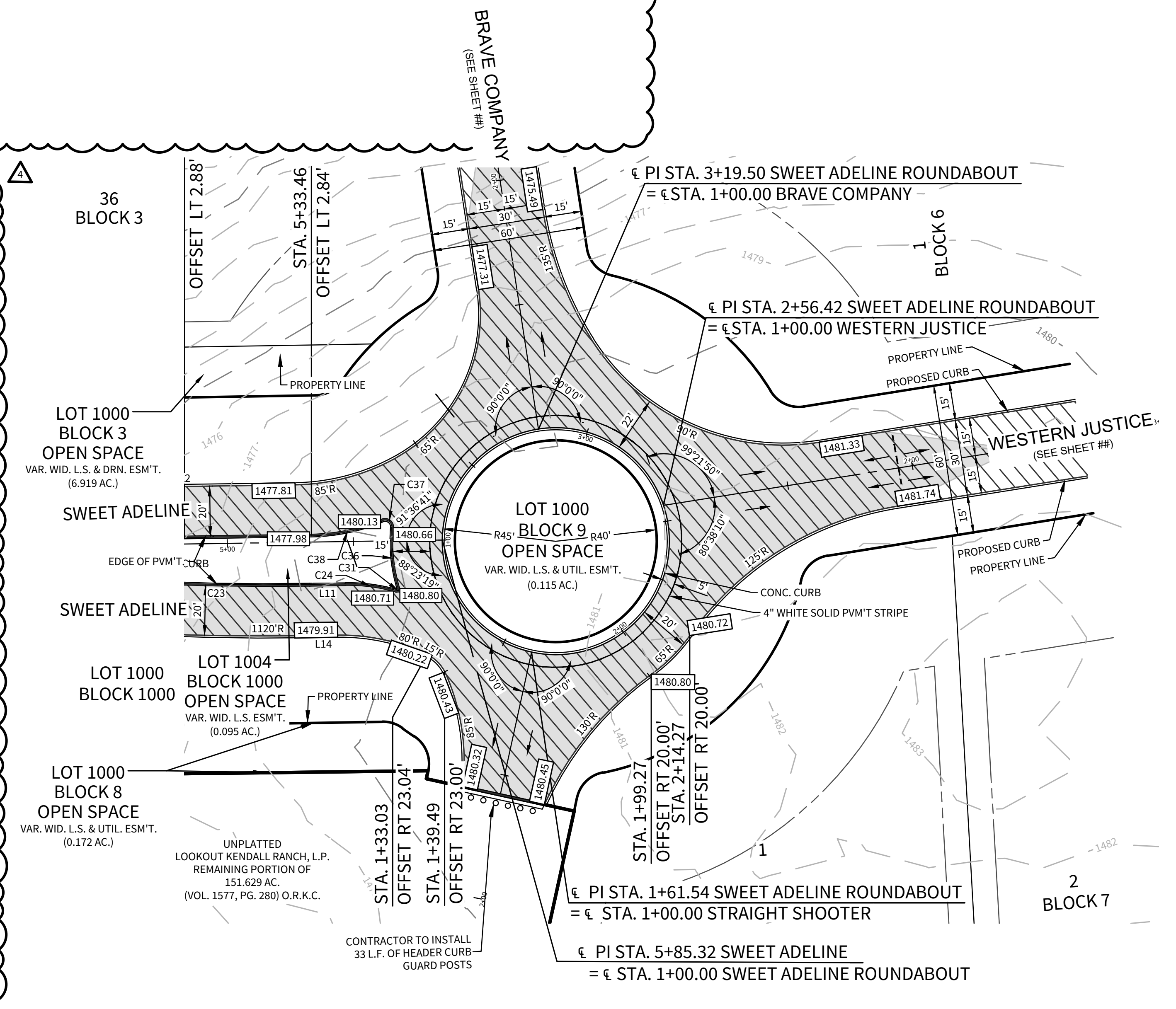
→ - DIRECTION OF FLOW

SWEET ADELINE

STA. 1+00.00 TO STA. 5+85.32

LINE TABLE

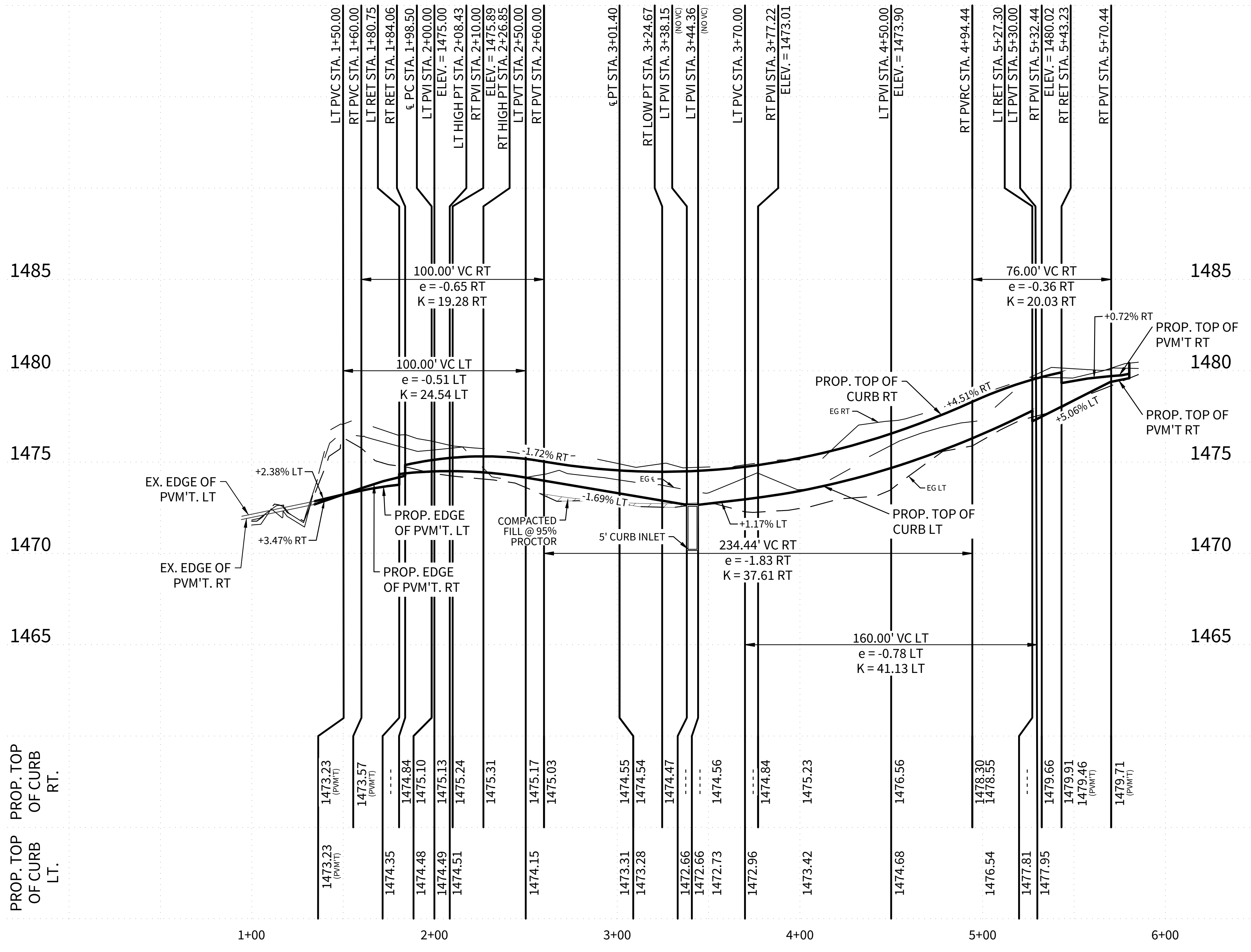
LINE #	LENGTH	DIRECTION
L1	32.065	N19° 52' 11.37"W
L2	88.343	S19° 49' 43.71"E
L3	8.144	N08° 12' 59.83"W
L4	17.750	S16° 55' 19.46"E
L5	18.000	S08° 12' 59.83"E
L6	15.471	S81° 47' 00.17"W
L7	40.576	S16° 55' 19.46"E
L8	40.576	S16° 55' 19.46"E
L9	0.478	S70° 19' 41.48"W
L10	121.226	N19° 49' 43.71"W
L11	14.145	S19° 49' 43.71"E
L12	27.065	S19° 52' 11.37"E
L13	27.064	N19° 52' 11.37"W
L14	10.825	S19° 49' 43.71"E
L15	8.000	S70° 07' 48.63"W
L16	8.000	S70° 07' 48.63"W
L17	14.961	S70° 07' 48.63"W
L18	36.000	N19° 52' 11.37"W
L19	22.200	N19° 49' 43.71"W

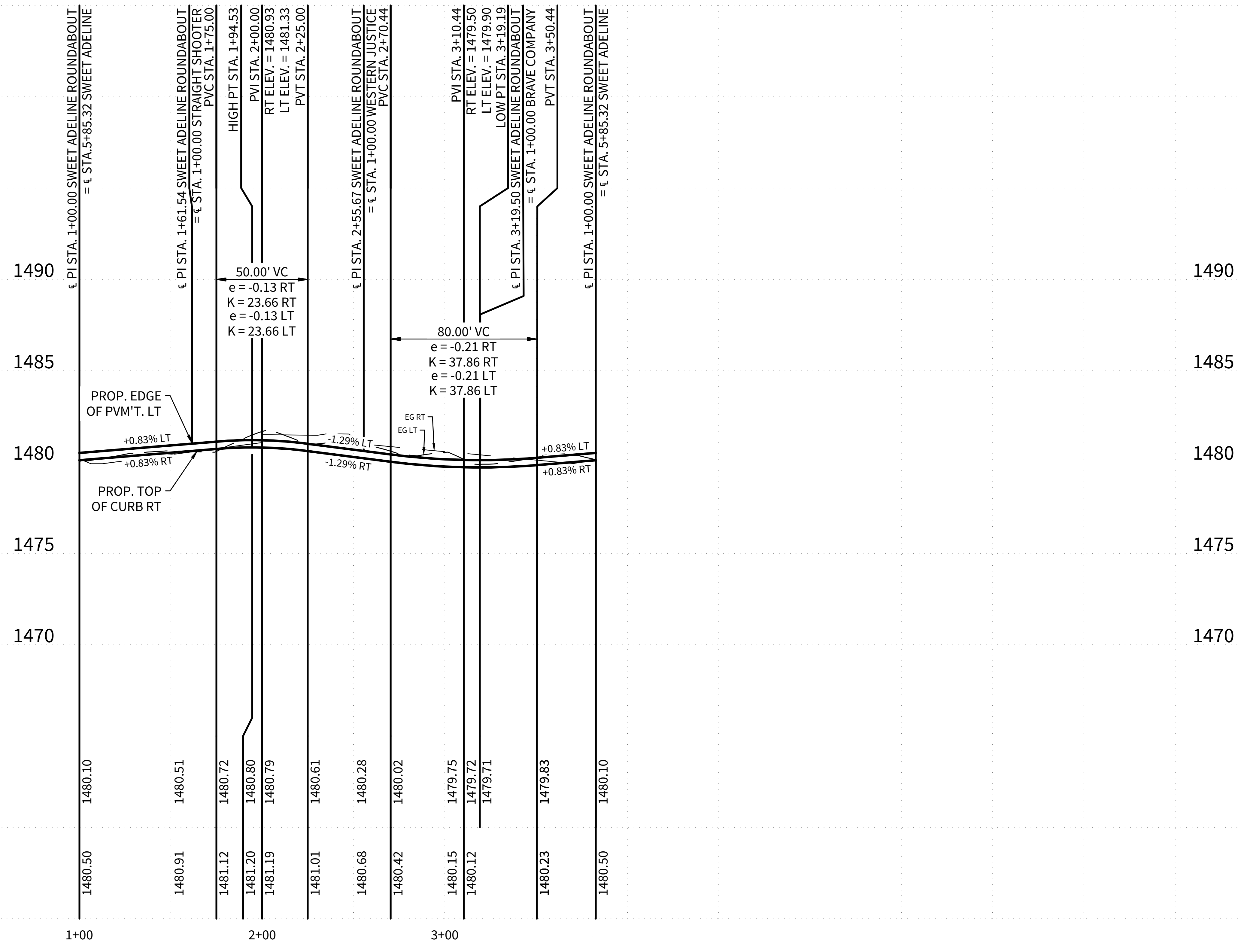

BRAVE COMPANY (SEE SHEET ##)
36
BLOCK 3
OFFSET LT 2.88'
STA. 5+33.46 OFFSET LT 2.84'
℄ PI STA. 3+19.50 SWEET ADELINE ROUNDABOUT = ℄ STA. 1+00.00 BRAVE COMPANY
BLOCK 6
℄ PI STA. 2+56.42 SWEET ADELINE ROUNDABOUT = ℄ STA. 1+00.00 WESTERN JUSTICE
PROPERTY LINE
PROPOSED CURB
WESTERN JUSTICE (SEE SHEET ##)
LOT 1000
BLOCK 3
OPEN SPACE
VAR. WID. L.S. & DRN. ESM'T. (6.919 AC.)
SWEET ADELINE
EDGE OF PVM'T.
LOT 1000
BLOCK 9
OPEN SPACE
VAR. WID. L.S. & UTIL. ESM'T. (0.115 AC.)
CONC. CURB
4" WHITE SOLID PVM'T STRIPE
LOT 1004
BLOCK 1000
OPEN SPACE
VAR. WID. L.S. ESM'T. (0.095 AC.)
LOT 1000
BLOCK 1000
LOT 1000
BLOCK 8
OPEN SPACE
VAR. WID. L.S. & UTIL. ESM'T. (0.172 AC.)
UNPLATTED
LOOKOUT KENDALL RANCH, L.P.
REMAINING PORTION OF 151.629 AC.
(VOL. 1577, PG. 280) O.R.K.C.
CONTRACTOR TO INSTALL 33 L.F. OF HEADER CURB GUARD POSTS
STA. 1+33.03 OFFSET RT 23.04'
STA. 1+39.49 OFFSET RT 23.00'
STA. 1+99.27 OFFSET RT 20.00'
STA. 2+14.27 OFFSET RT 20.00'
℄ PI STA. 1+61.54 SWEET ADELINE ROUNDABOUT = ℄ STA. 1+00.00 STRAIGHT SHOOTER
℄ PI STA. 5+85.32 SWEET ADELINE = ℄ STA. 1+00.00 SWEET ADELINE ROUNDABOUT
1
2
BLOCK 7

SWEET ADELINE ROUNDABOUT

STA. 1+00.00 TO STA. 3+82.74

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





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GEORGE'S RANCH
UNIT 1

STREET PLAN & PROFILE - SWEET ADELINE

DATE
03/20/2024

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-7-12 REVISED CURB RETURNS
2. 2022-9-8 RELOCATED PARKING LOT
3. 2022-11-15 REVISED PARKING LOT
4. 2024-04-15 REVISED MEDIAN ISLANDS
5.
6.
7.
8.
9.

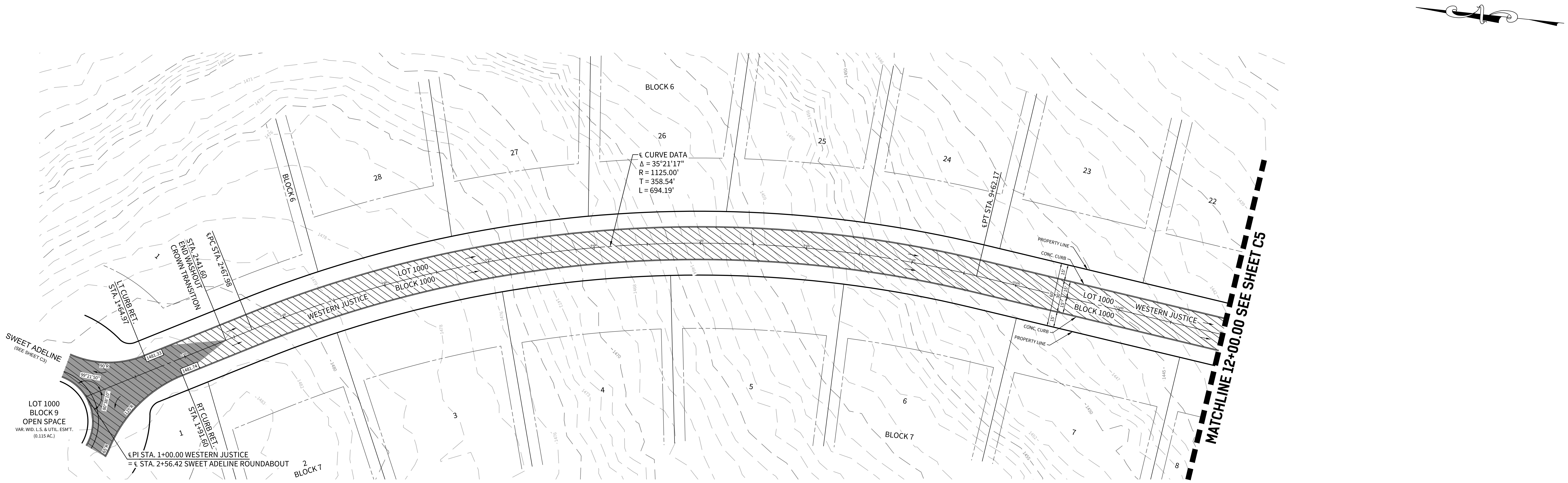
W. PATRICK MURPHY
111597
4/18/2024

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C3

3 OF 35



▨ - COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)

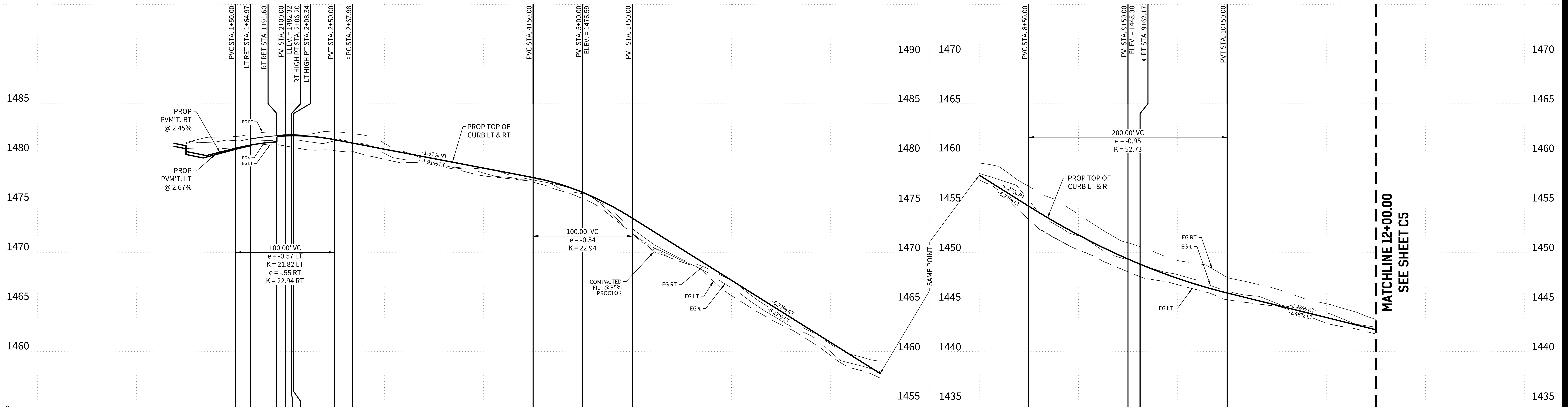
▆ - STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)

→ - DIRECTION OF FLOW

WESTERN JUSTICE

STA. 1+00.00 TO STA. 12+00.00

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



PROP. TOP OF CURB RT.	PROP. TOP OF CURB LT.
1480.51 (PVMT)	1480.40 (PVMT)
- - - -	1481.33
1481.74	
1481.78	1481.75
1481.78	
- - - -	1481.76
1481.37	1481.37
1481.02	1481.02
1480.41	1480.41
1479.46	1479.46
1478.50	1478.50
1477.55	1477.55
1476.05	1476.05
1473.46	1473.46
1470.32	1470.32
1467.19	1467.19
1464.06	1464.06
1460.92	1460.92
1457.79	1457.79
1457.79	1457.79
1454.65	1454.65
1451.75	1451.75
1449.33	1449.33
1448.81	1448.81
1447.38	1447.38
1445.91	1445.91
1444.67	1444.67
1443.43	1443.43
1442.19	1442.19

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GEORGE'S RANCH
UNIT 1

STREET PLAN & PROFILE - WESTERN JUSTICE

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 2022-7-12 REVISED CURB RETURNS
2. 2022-9-26 WIDENED STREET
3.
4.
5.
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9.

W. PATRICK MURPHY
111597
7/20/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C4

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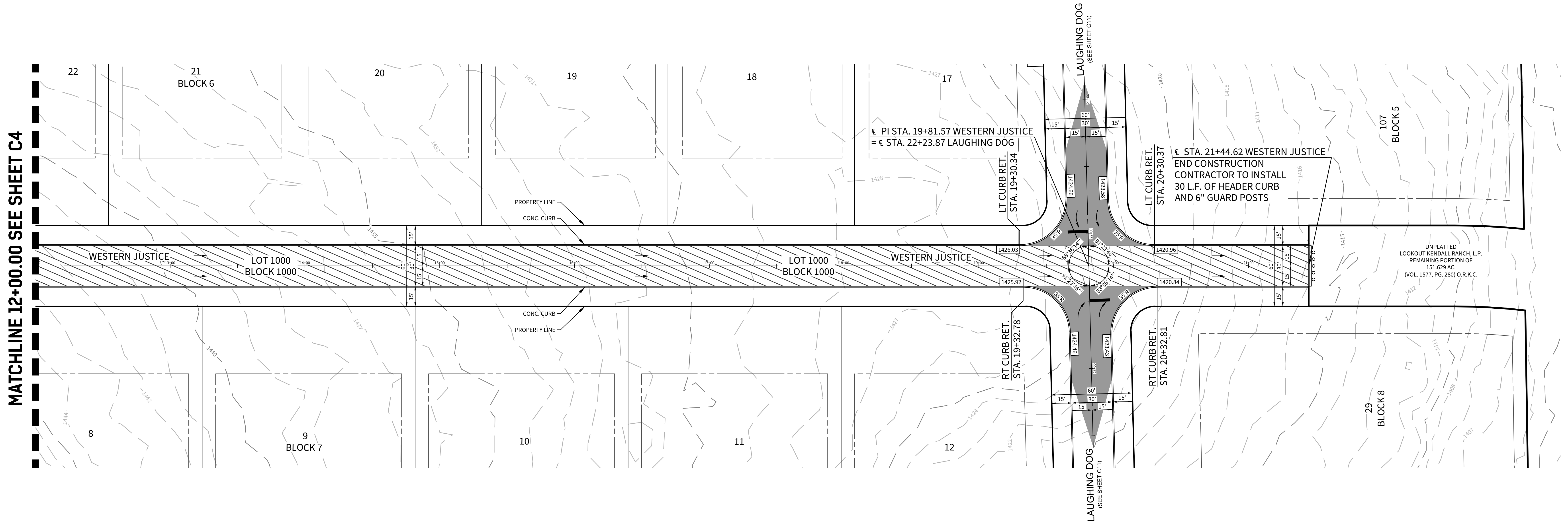
GEORGE'S RANCH UNIT 1

STREET PLAN & PROFILE - WESTERN JUSTICE

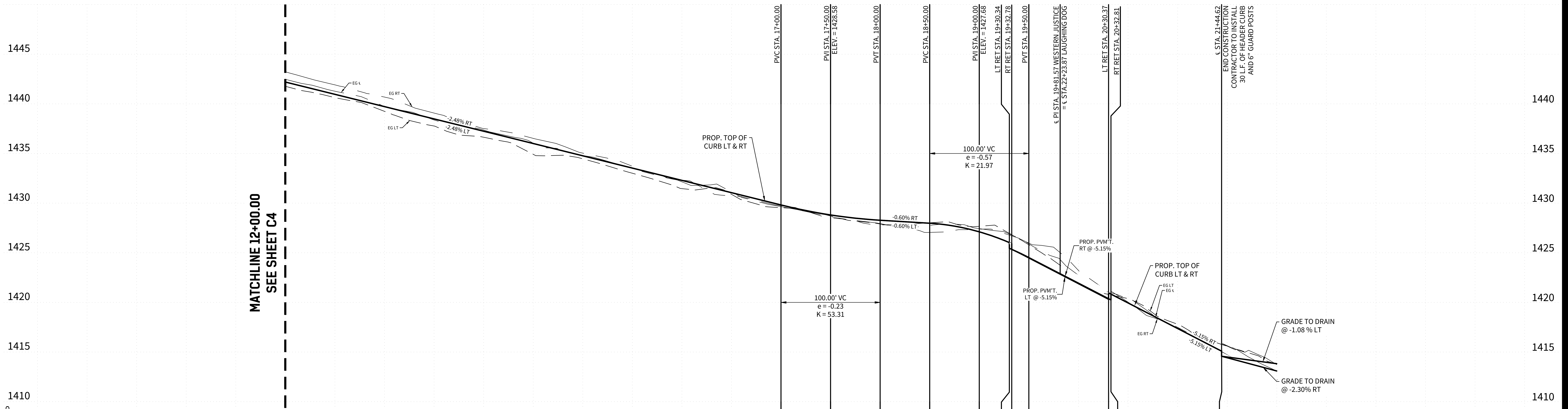

MATCHLINE 12+00.00 SEE SHEET C4
22
21
BLOCK 6
20
19
18
17
LAUGHING DOG (SEE SHEET C11)
107
BLOCK 5
℄ PI STA. 19+81.57 WESTERN JUSTICE
= ℄ STA. 22+23.87 LAUGHING DOG
LT CURB RET. STA. 19+30.34
LT CURB RET. STA. 20+30.37
℄ STA. 21+44.62 WESTERN JUSTICE
END CONSTRUCTION
CONTRACTOR TO INSTALL
30 L.F. OF HEADER CURB
AND 6" GUARD POSTS
PROPERTY LINE
CONC. CURB
WESTERN JUSTICE
LOT 1000
BLOCK 1000
LOT 1000
BLOCK 1000
WESTERN JUSTICE
1426.03
1425.92
1420.96
1420.84
UNPLATTED
LOOKOUT KENDALL RANCH, L.P.
REMAINING PORTION OF
151.629 AC.
(VOL. 1577, PG. 280) O.R.K.C.
CONC. CURB
PROPERTY LINE
RT CURB RET. STA. 19+32.78
RT CURB RET. STA. 20+32.81
60'
30'
15'
8
9
BLOCK 7
10
11
12
29
BLOCK 8
LAUGHING DOG (SEE SHEET C11)

- ▨ - COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)
- ▩ - STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)
- → - DIRECTION OF FLOW

WESTERN JUSTICE

STA. 12+00.00 TO STA. 21+44.62

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



PROP. TOP OF CURB RT.	PROP. TOP OF CURB LT.
1442.19	1442.19
1440.96	1440.96
1439.72	1439.72
1438.48	1438.48
1437.24	1437.24
1436.00	1436.00
1434.77	1434.77
1433.53	1433.53
1432.29	1432.29
1431.05	1431.05
1429.81	1429.81
1428.81	1428.81
1428.28	1428.28
1427.98	1427.98
1427.11	1427.11
----	1426.03
1425.92	
1424.52 (PVM'T)	1424.52 (PVM'T)
1421.94 (PVM'T)	1421.94 (PVM'T)
----	1420.96
1420.84	
1419.95	1419.95
1417.37	1417.37
1415.08	1415.08

12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

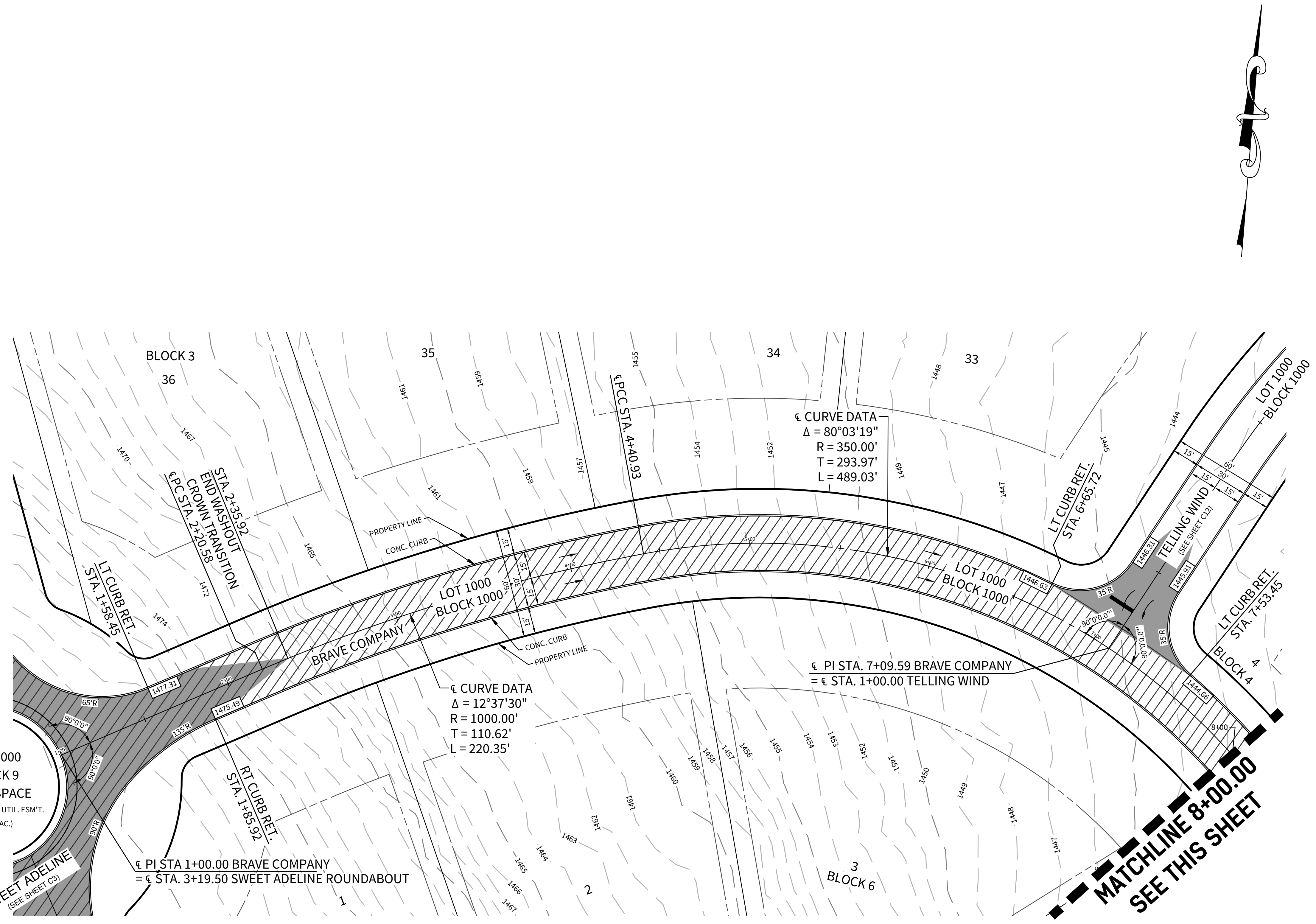
1. 2022-7-12 REVISED CURB RETURNS
2. 2022-9-26 WIDENED STREET
3.
4.
5.
6.
7.
8.
9.

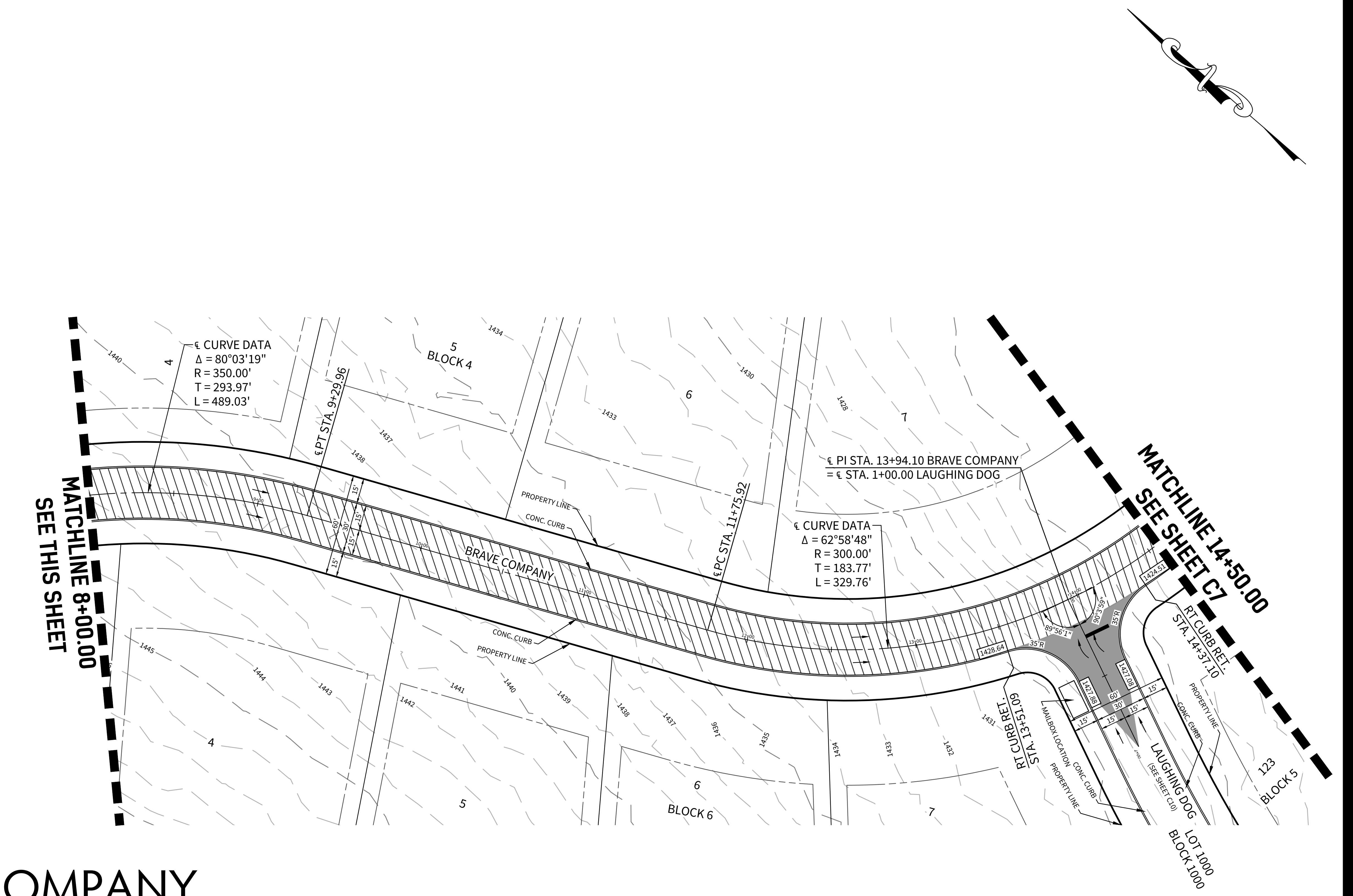
W. PATRICK MURPHY
111597
7/20/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C5





▨ - COLLECTOR STREET PAVEMENT SECTION
(SEE DETAIL SHEET 17 OF 55)

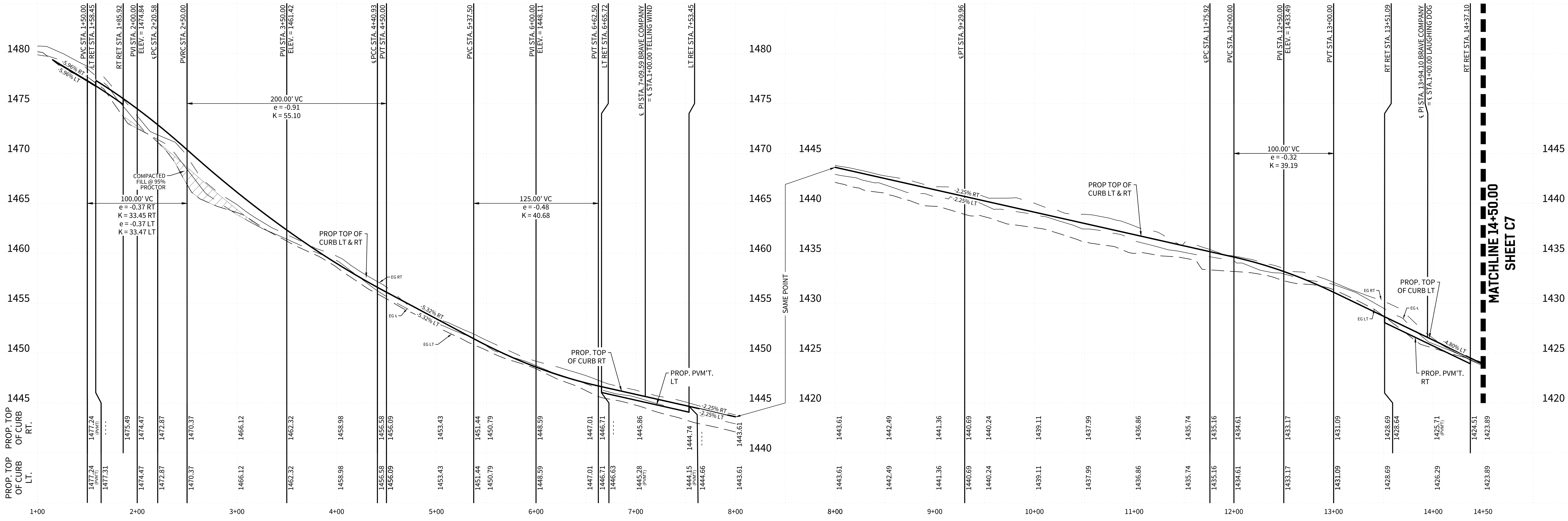
■ - STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)

→ - DIRECTION OF FLOW

BRAVE COMPANY

STA. 1+00.00 TO STA. 14+50.00

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



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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

GEORGE'S RANCH
UNIT 1

STREET PLAN & PROFILE - BRAVE COMPANY

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 2022-7-12 REVISED CURB RETURNS
2. 2022-9-26 WIDENED STREET
3.
4.
5.
6.
7.
8.
9.

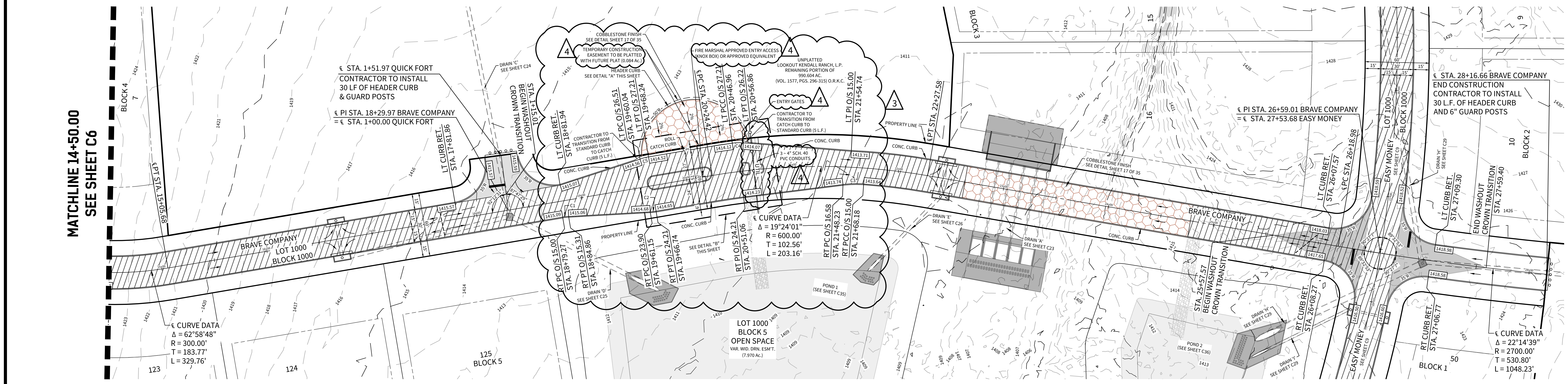
W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C6

P:\03546\001\2-Drawings\01_06 STPP.dwg 2023/01/19 3:28pm rreyes


MATCHLINE 14+50.00
SEE SHEET C6
BLOCK 4
BLOCK 3
BLOCK 2
BLOCK 1
BLOCK 5
LOT 1000
BLOCK 1000
123
124
125
BRAVE COMPANY
EASY MONEY
℄ PT STA. 15+05.68
℄ STA. 1+51.97 QUICK FORT
CONTRACTOR TO INSTALL
30 LF OF HEADER CURB
& GUARD POSTS
℄ PI STA. 18+29.97 BRAVE COMPANY
= ℄ STA. 1+00.00 QUICK FORT
LT CURB RET. STA. 17+81.86
STA. 17+51.07 BEGIN WASHOUT CROWN TRANSITION
LT CURB RET. STA. 18+81.94
COBBLESTONE FINISH SEE DETAIL SHEET 17 OF 35
TEMPORARY CONSTRUCTION EASEMENT TO BE PLATTED WITH FUTURE PLAT (0.084 Ac.)
HEADER CURB SEE DETAIL "A" THIS SHEET
FIRE MARSHAL APPROVED ENTRY ACCESS (KNOX BOX) OR APPROVED EQUIVALENT
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 990.604 AC. (VOL. 1577, PGS. 296-315) O.R.K.C.
ENTRY GATES
CONTRACTOR TO TRANSITION FROM CATCH CURB TO STANDARD CURB (5 L.F.)
3 - 4" SCH. 40 PVC CONDUITS
LT PC O/S 26.51
LT PT STA. 19+60.04
LT PT O/S 27.21
STA. 19+58.24
LT PCC O/S 27.21
STA. 20+46.96
LT PT O/S 26.22
STA. 20+56.86
LT PI O/S 15.00
STA. 21+54.74
℄ PT STA. 22+27.58
℄ CURVE DATA
Δ = 19°24'01"
R = 600.00'
T = 102.56'
L = 203.16'
RT PC O/S 15.00 STA. 18+19.27
RT PT O/S 15.23 STA. 18+84.86
RT PC O/S 23.90 STA. 19+61.15
RT PT O/S 24.21 STA. 19+66.74
RT PI O/S 24.21 STA. 20+51.06
RT PC O/S 16.58 STA. 21+48.23
RT PCC O/S 15.00 STA. 21+68.18
DRAIN 'D' SEE SHEET C25
DRAIN 'E' SEE SHEET C26
DRAIN 'A' SEE SHEET C23
DRAIN 'C' SEE SHEET C24
POND 1 (SEE SHEET C35)
LOT 1000 BLOCK 5 OPEN SPACE VAR. WID. DRN. ESM'T. (7.970 Ac.)
℄ PI STA. 26+59.01 BRAVE COMPANY
= ℄ STA. 27+53.68 EASY MONEY
℄ STA. 28+16.66 BRAVE COMPANY
END CONSTRUCTION
CONTRACTOR TO INSTALL
30 L.F. OF HEADER CURB
AND 6" GUARD POSTS
LT CURB RET. STA. 26+07.57
℄ PC STA. 26+18.98
LT CURB RET. STA. 27+09.30
END WASHOUT CROWN TRANSITION STA. 27+59.40
STA. 25+57.57 BEGIN WASHOUT CROWN TRANSITION
RT CURB RET. STA. 26+08.27
RT CURB RET. STA. 27+06.77
POND 2 (SEE SHEET C36)
DRAIN 'H' SEE SHEET C29
DRAIN 'F' SEE SHEET C9
℄ CURVE DATA
Δ = 62°58'48"
R = 300.00'
T = 183.77'
L = 329.76'
℄ CURVE DATA
Δ = 22°14'39"
R = 2700.00'
T = 530.80'
L = 1048.23'
CONC. CURB
ROLL CURB
CATCH CURB
PROPERTY LINE
4
3

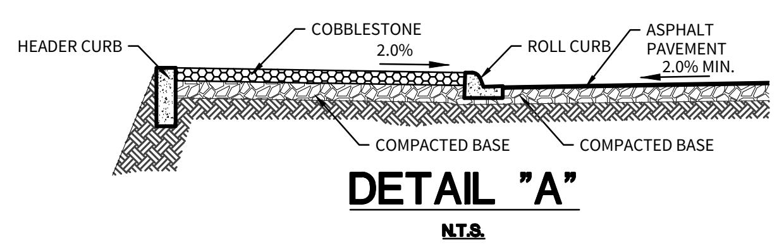
CURVE TABLE					
CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH
C1	5.60'	50.00'	6°25'09"	S84° 49' 54"E	5.60'
C2	5.60'	50.00'	6°25'09"	S84° 49' 54"E	5.60'
C3	19.52'	100.00'	11°11'01"	S79° 54' 18"E	19.49'
C4	10.41'	50.00'	11°55'36"	N79° 55' 30"W	10.39'
C5	8.24'	48.00'	9°49'53"	S87° 02' 35"W	8.23'
C6	21.43'	6.71'	182°56'11"	S1° 57' 32"W	13.42'
C7	21.08'	6.71'	180°00'00"	N1° 57' 32"E	13.42'
C8	5.73'	35.21'	9°19'40"	N4° 04' 08"E	5.73'

CURVE TABLE					
CURVE #	LENGTH	RADIUS	DELTA	CHORD DIRECTION	CHORD LENGTH
C9	5.64'	3.00'	107°46'06"	S53° 17' 21"W	4.85'
C10	2.73'	2.00'	78°12'39"	N33° 43' 16"W	2.52'
C11	3.11'	2.00'	89°07'08"	N49° 56' 37"E	2.81'
C12	4.93'	3.00'	94°13'47"	S38° 22' 56"E	4.40'
C13	3.17'	2.00'	90°52'52"	S40° 03' 23"E	2.85'
C14	4.67'	3.00'	89°07'08"	N49° 56' 37"E	4.21'
C15	4.10'	3.00'	78°12'39"	N33° 43' 16"W	3.78'
C16	3.55'	2.00'	101°47'21"	S56° 16' 44"W	3.10'

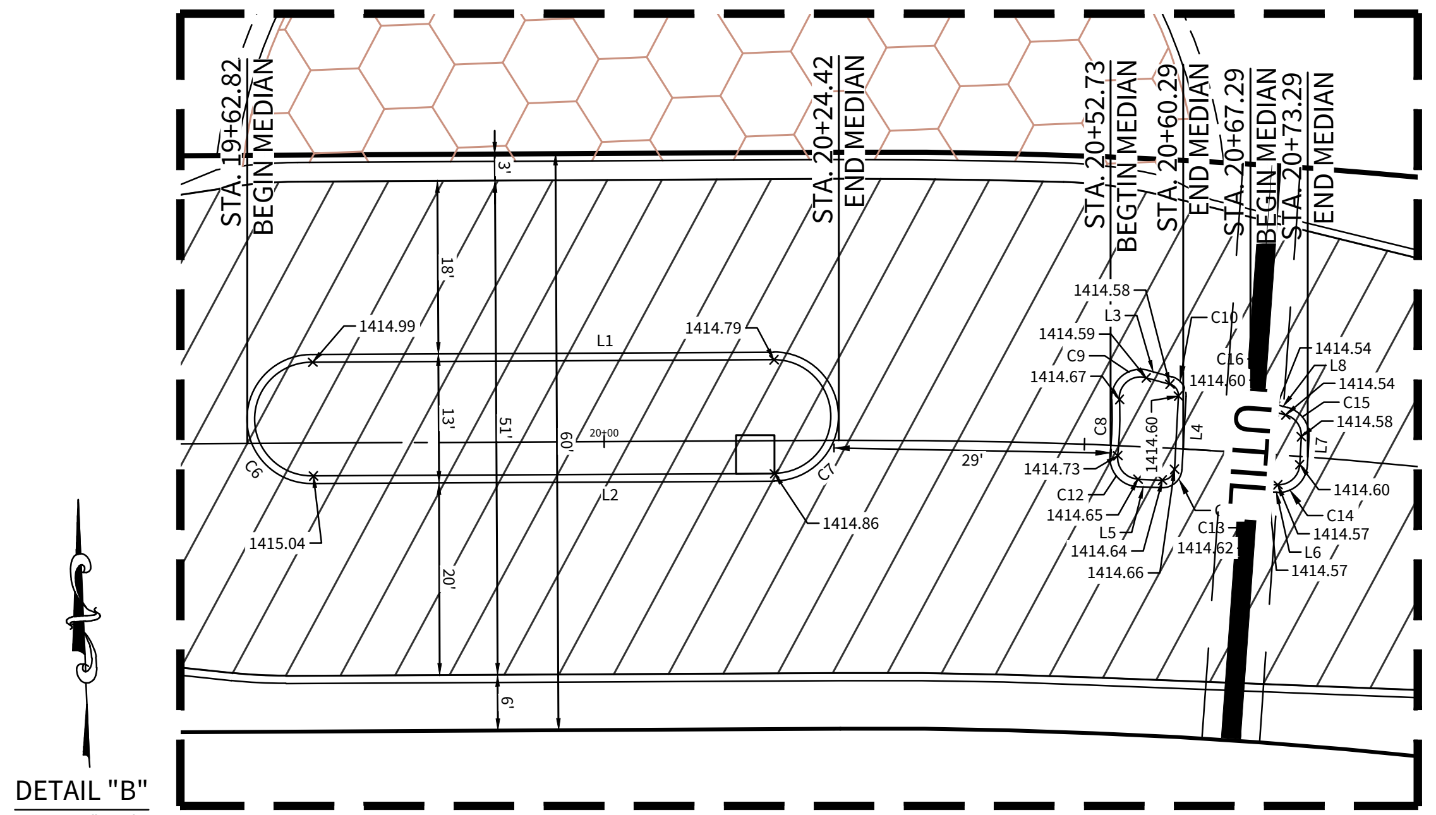
NOTE:
GATES SHALL REMAIN OPEN UNTIL THIRD ACCESS POINT FOR GEORGE'S RANCH HAS BEEN CONSTRUCTED AND ACCEPTED FOR USE BY KENDALL COUNTY FIRE MARSHAL'S OFFICE. 4

CONTRACTOR SHALL NOT BEGIN CONSTRUCTION WITHIN THE SANITARY CONTROL EASEMENT PRIOR TO DOCUMENTED PLUGGING OF WELLS LOCATED WITHIN THIS UNIT.

▨	- COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)
■	- STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)
→	- DIRECTION OF FLOW



DETAIL "A"
N.T.S.



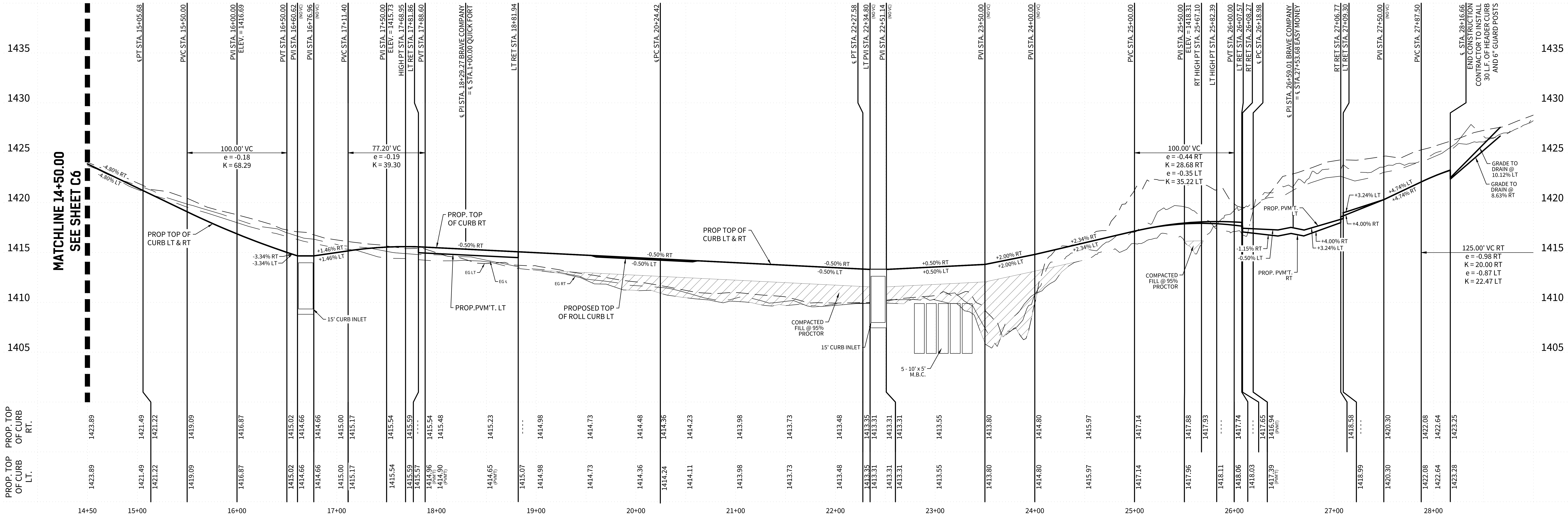
DETAIL "B"
SCALE: 1" = 20'

Line Table		
Line #	Length	Direction
L1	48.000	N88° 02' 28.40"W
L2	48.000	N88° 02' 28.40"W
L3	2.545	S72° 49' 36.00"E
L4	7.632	S05° 23' 03.40"W
L5	2.538	S85° 29' 49.04"E
L6	1.015	S85° 29' 49.04"E
L7	2.921	S05° 23' 03.40"W
L8	1.230	S72° 49' 36.00"E
L9	5.167	S05° 23' 03.40"W

BRAVE COMPANY

STA. 14+50.00 TO STA. 28+16.66

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



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GEORGE'S RANCH
UNIT 1

STREET PLAN & PROFILE - BRAVE COMPANY

DATE
03/20/2024

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-7-12 REVISED CURB RETURNS
2. 2022-9-26 WIDENED STREET
3. 2024-2-27 REVISED CURB LINES
4. 2024-3-20 ADDING EASEMENT, GATES, KNOX BOX, UTILITY CONDUIT & NOTE
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
4/9/2024

CUDE ENGINEERS
TBPE No. 455

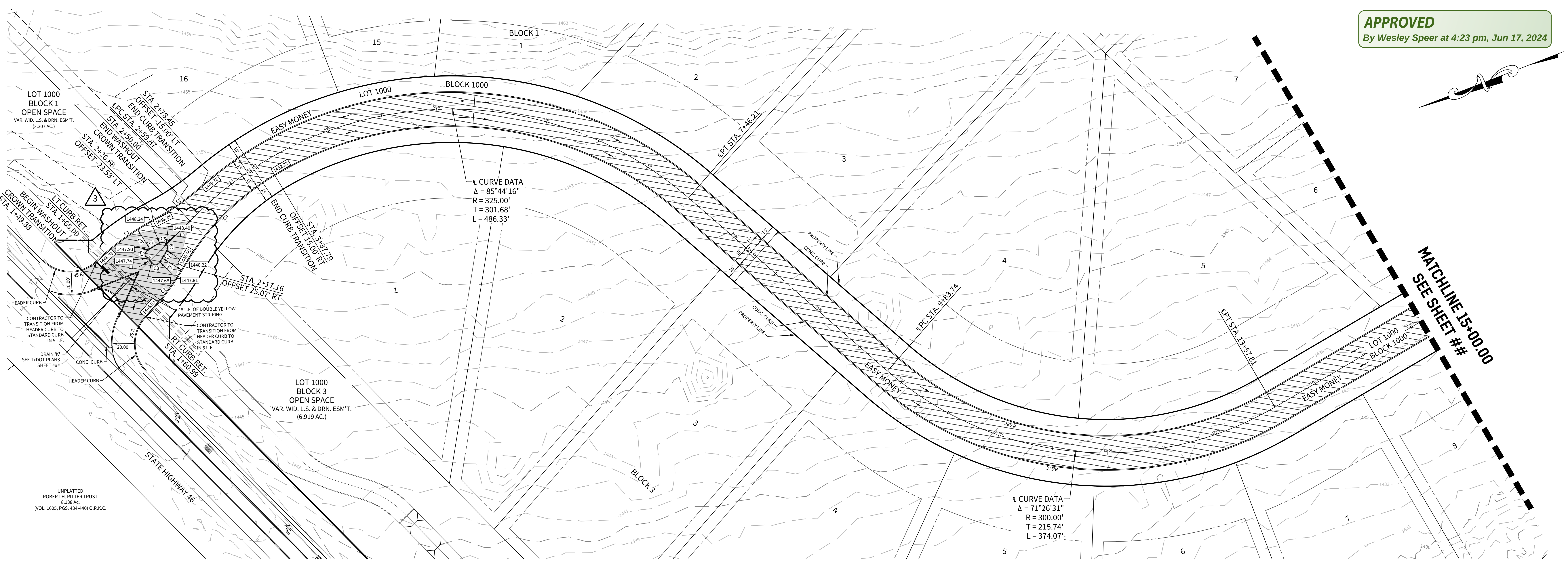
PLAT NO.
N/A

C7

CURVE TABLE						
CURVE	RADIUS	DELTA	TANGENT	LENGTH	CHORD	CHORD BEARING
C1	235.00'	15°15'34"	31.48'	62.59'	62.40'	S15°02'45"E
C2	235.00'	13°51'48"	28.57'	56.86'	56.72'	N31°43'46"W
C3	235.00'	13°02'45"	26.87'	53.51'	53.39'	S13°56'21"E
C4	235.00'	28°39'41"	60.03'	117.56'	116.33'	N24°19'50"W
C5	5.00'	74°49'48"	3.82'	6.53'	6.08'	N28°51'04"E
C6	215.00'	3°18'04"	6.20'	12.39'	12.39'	N10°12'52"W
C7	5.00'	101°33'33"	6.13'	8.86'	7.75'	N62°38'41"W
C8	5.00'	103°17'38"	6.32'	9.01'	7.84'	S14°55'43"W
C9	5.00'	76°03'26"	3.91'	6.64'	6.16'	S75°42'19"E

LINE TABLE		
LINE #	LENGTH	DIRECTION
L1	6.14'	S66°34'33"W
L2	12.24'	S37°40'36"E
L3	0.38'	N66°15'58"E

3



APPROVED
By Wesley Speer at 4:23 pm, Jun 17, 2024

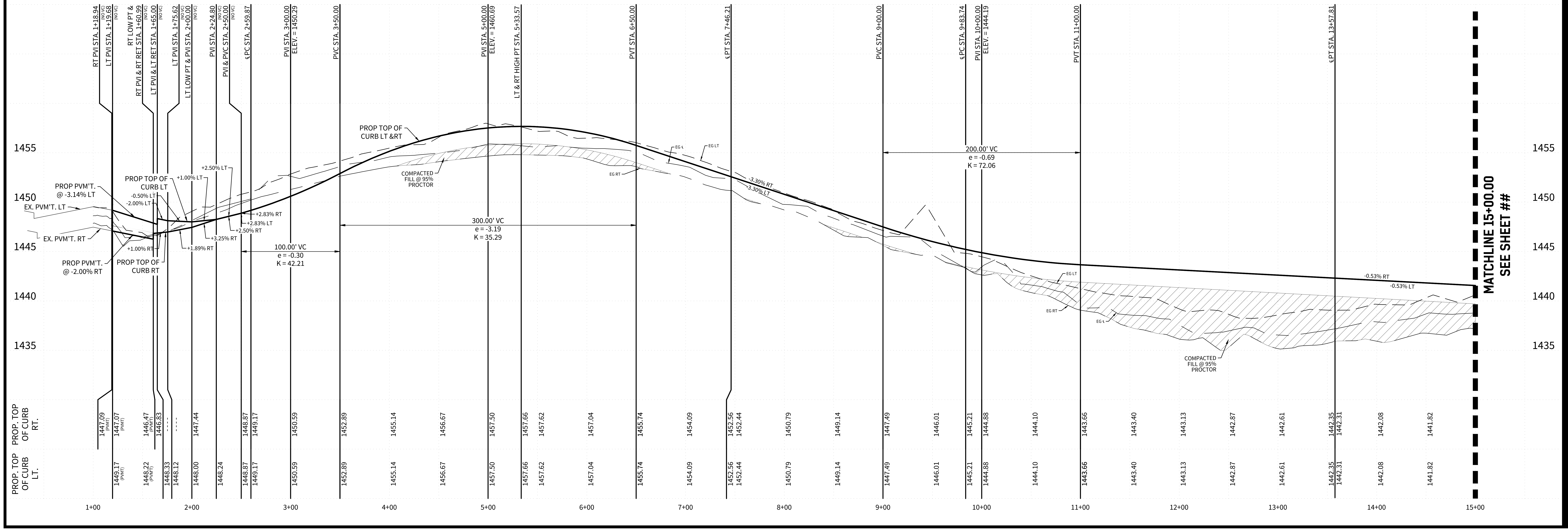
NOTES:
1. CONTRACTOR TO SEE TXDOT PLANS FOR ALL WORK IN TXDOT ROW.

▨	COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)
▒	STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)
→	DIRECTION OF FLOW

EASY MONEY

STA. 1+00.00 TO STA. 15+00.00

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



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

GEORGE'S RANCH
UNIT 1

STREET PLAN & PROFILE - EASY MONEY

DATE
03/20/2024

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 2022-07-12 REVISED STREET DESIGN
2. 2022-09-26 WIDENED STREET PVM'T.
3. 2024-06-10 ADDED MEDIAN ISLAND
4.
5.
6.
7.
8.
9.

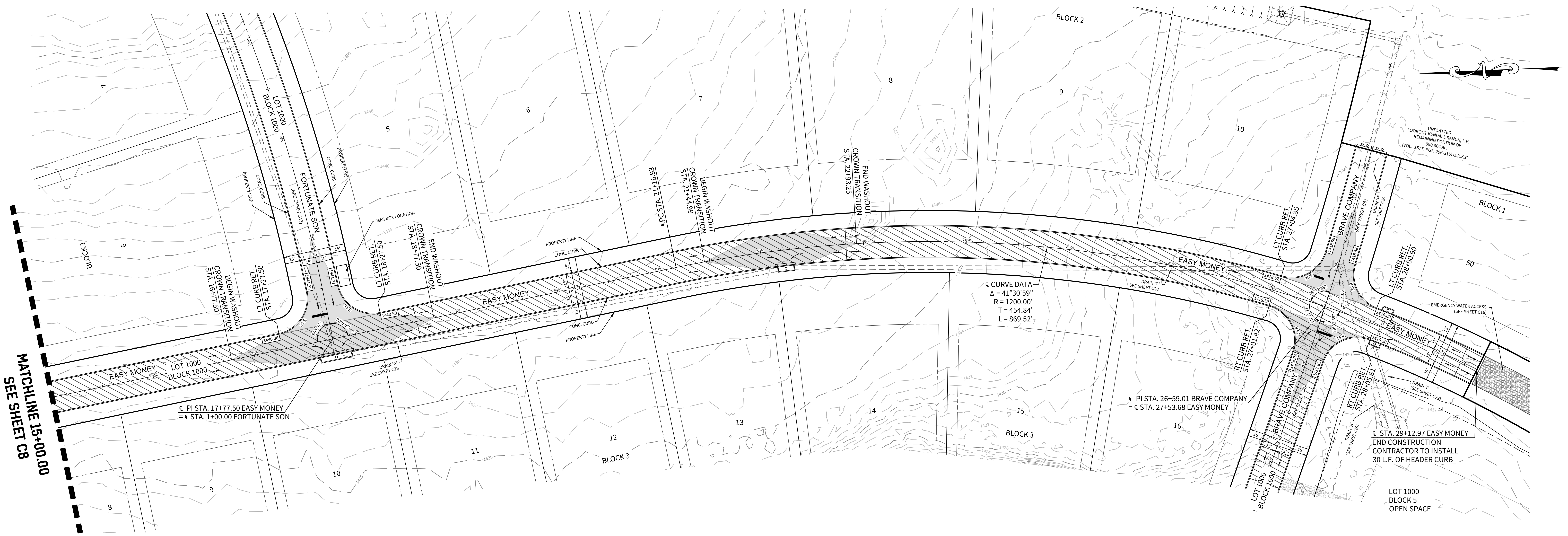
W. PATRICK MURPHY
111597
6/11/2024

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C8

P:\03546\001\2-Drawings\01_08 STPP.dwg 2024/06/11 12:33pm rreyes

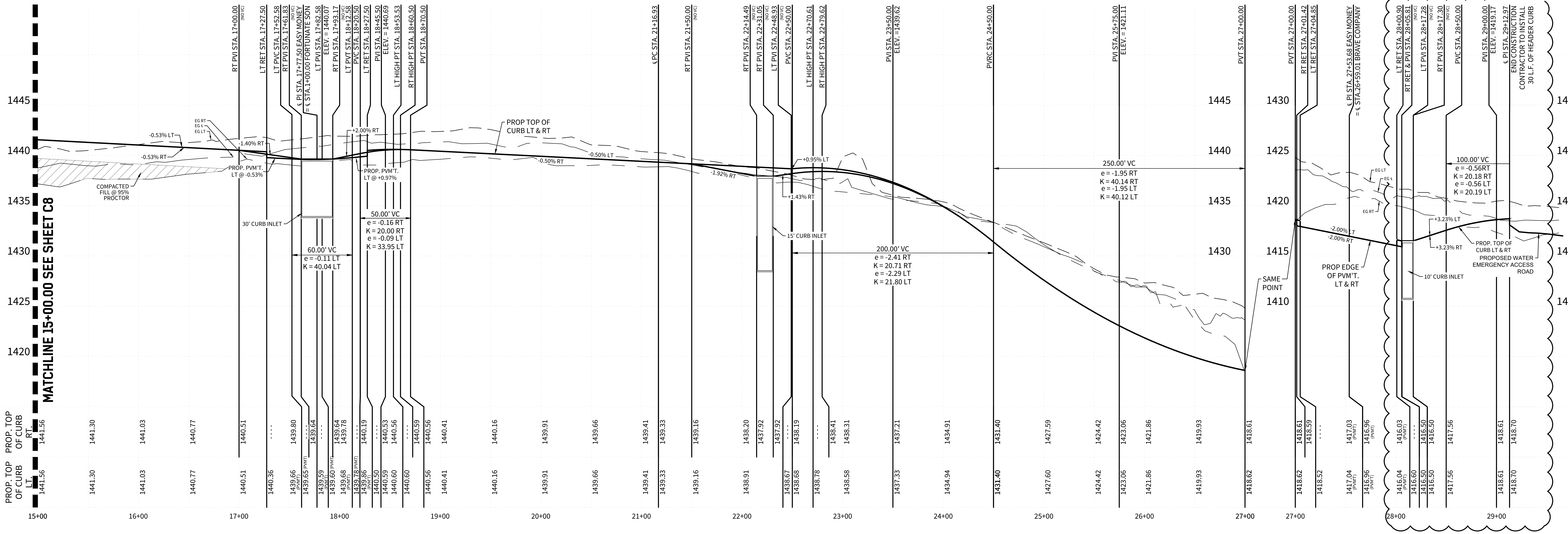

MATCHLINE 15+00.00
SEE SHEET C8
EASY MONEY
LOT 1000
BLOCK 1000
FORTUNATE SON
BRAVE COMPANY
BEGIN WASHOUT CROWN TRANSITION STA. 16+77.50
LT CURB RET. STA. 17+27.50
LT CURB RET. STA. 18+27.50
END WASHOUT CROWN TRANSITION STA. 18+77.50
MAILBOX LOCATION
℄ PC STA. 21+16.93
BEGIN WASHOUT CROWN TRANSITION STA. 21+44.99
END WASHOUT CROWN TRANSITION STA. 22+93.25
℄ PI STA. 17+77.50 EASY MONEY = ℄ STA. 1+00.00 FORTUNATE SON
℄ CURVE DATA
Δ = 41°30'59"
R = 1200.00'
T = 454.84'
L = 869.52'
LT CURB RET. STA. 27+04.85
RT CURB RET. STA. 27+01.42
RT CURB RET. STA. 28+05.81
LT CURB RET. STA. 28+00.90
℄ PI STA. 26+59.01 BRAVE COMPANY = ℄ STA. 27+53.68 EASY MONEY
℄ STA. 29+12.97 EASY MONEY
END CONSTRUCTION
CONTRACTOR TO INSTALL
30 L.F. OF HEADER CURB
EMERGENCY WATER ACCESS (SEE SHEET C16)
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 990.604 Ac. (VOL. 1577, PGS. 296-315) O.R.K.C.
LOT 1000 BLOCK 5 OPEN SPACE
BLOCK 1
BLOCK 2
BLOCK 3
PROPERTY LINE
CONC. CURB
DRAIN 'G' SEE SHEET C28

- ▨ - COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)
- ▒ - STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)
- → - DIRECTION OF FLOW

EASY MONEY

STA. 15+00.00 TO STA. 29+12.97

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


MATCHLINE 15+00.00 SEE SHEET C8
RT PVI STA. 17+00.00
LT RET STA. 17+27.50
LT PVC STA. 17+52.58
℄ PI STA. 17+77.50 EASY MONEY = ℄ STA. 1+00.00 FORTUNATE SON
LT PVI STA. 17+82.58 ELEV. = 1440.07
PVT STA. 18+70.50
PVI STA. 23+50.00 ELEV. = 1439.62
PVRC STA. 24+50.00
PVI STA. 25+75.00 ELEV. = 1421.11
PVT STA. 27+00.00
PVI STA. 29+00.00 ELEV. = 1419.17
PROP TOP OF CURB LT & RT
COMPACTED FILL @ 95% PROCTOR
30' CURB INLET
15' CURB INLET
10' CURB INLET
60.00' VC e = -0.11 LT K = 40.04 LT
50.00' VC e = -0.16 RT K = 20.00 RT e = -0.09 LT K = 33.95 LT
200.00' VC e = -2.41 RT K = 20.71 RT e = -2.29 LT K = 21.80 LT
250.00' VC e = -1.95 RT K = 40.14 RT e = -1.95 LT K = 40.12 LT
100.00' VC e = -0.56RT K = 20.18 RT e = -0.56 LT K = 20.19 LT
SAME POINT
PROP EDGE OF PVM'T. LT & RT
PROPOSED WATER EMERGENCY ACCESS ROAD
PROP. TOP OF CURB RT.
PROP. TOP OF CURB LT.
15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 27+00 28+00 29+00

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GEORGE'S RANCH
UNIT 1

STREET PLAN & PROFILE - EASY MONEY

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

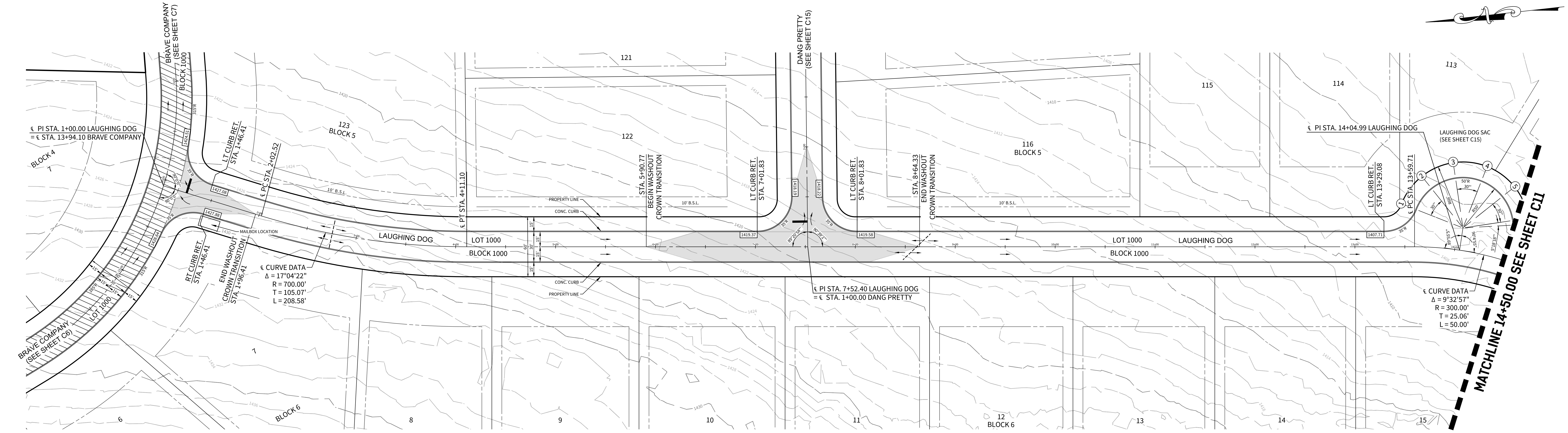
REVISIONS
1. 2022-07-12 REVISED CURB RADII AND STREET DESIGN
2. 2022-09-26 WIDENED STREET PVM'T.
3. 02/28/2023 - DRAINAGE REVISION
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
3/3/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C9



BRAVE COMPANY (SEE SHEET C7)
BLOCK 1000
℄ PI STA. 1+00.00 LAUGHING DOG = ℄ STA. 13+94.10 BRAVE COMPANY
BLOCK 4
123 BLOCK 5
121
122
LT CURB RET. STA. 1+46.41
℄ PC STA. 2+02.52
RT CURB RET. STA. 1+46.41
END WASHOUT CROWN TRANSITION STA. 1+96.41
℄ CURVE DATA
Δ = 17°04'22"
R = 700.00'
T = 105.07'
L = 208.58'
MAILBOX LOCATION
LAUGHING DOG
LOT 1000
BLOCK 1000
℄ PT STA. 4+11.10
PROPERTY LINE
CONC. CURB
STA. 5+90.77 BEGIN WASHOUT CROWN TRANSITION
10' B.S.L.
DANG PRETTY (SEE SHEET C15)
LT CURB RET. STA. 7+01.83
LT CURB RET. STA. 8+01.83
STA. 8+64.33 END WASHOUT CROWN TRANSITION
℄ PI STA. 7+52.40 LAUGHING DOG = ℄ STA. 1+00.00 DANG PRETTY
116 BLOCK 5
115
114
113
℄ PI STA. 14+04.99 LAUGHING DOG
LAUGHING DOG SAC (SEE SHEET C15)
LT CURB RET. STA. 13+29.08
℄ PC STA. 13+59.71
℄ CURVE DATA
Δ = 9°32'57"
R = 300.00'
T = 25.06'
L = 50.00'
MATCHLINE 14+50.00 SEE SHEET C11
BRAVE COMPANY (SEE SHEET C6)
LOT 1000
7
6
BLOCK 6
8
9
10
11
12 BLOCK 6
13
14
15

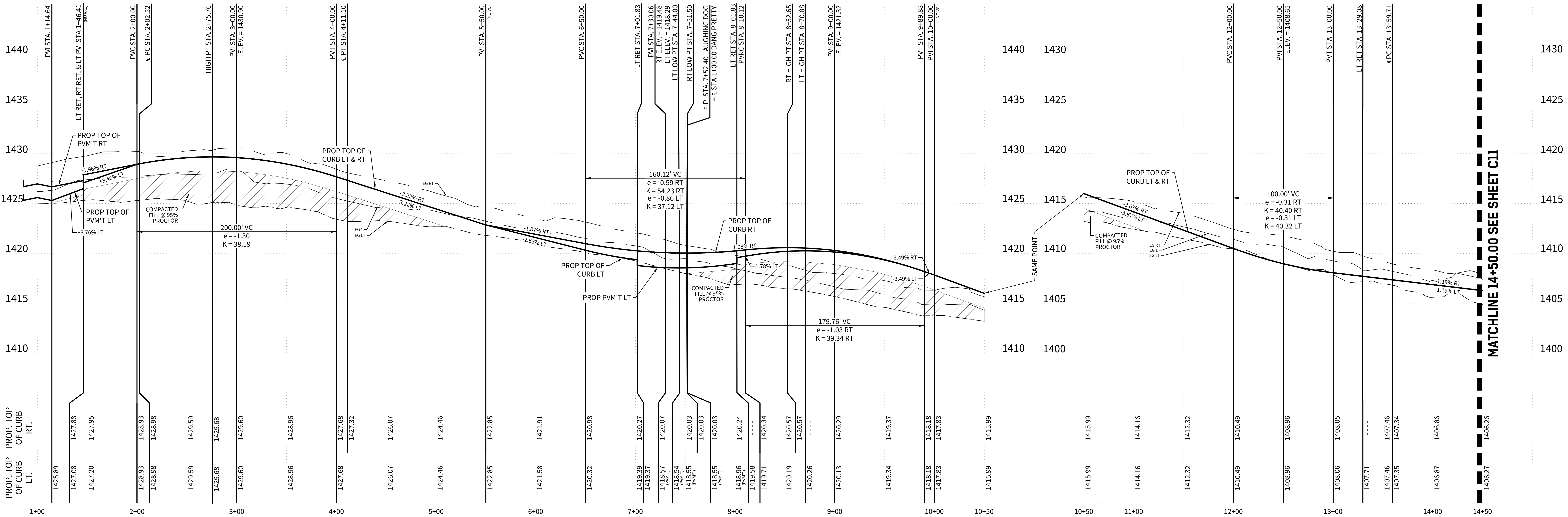
CONTRACTOR SHALL NOT BEGIN CONSTRUCTION WITHIN THE SANITARY CONTROL EASEMENT PRIOR TO DOCUMENTED PLUGGING OF WELLS LOCATED WITHIN THIS UNIT.

▨	COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)
▩	STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)
→	DIRECTION OF FLOW

LAUGHING DOG

STA. 1+00.00 TO STA. 14+50.00

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



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GEORGE'S RANCH
UNIT 1

STREET PLAN & PROFILE - LAUGHING DOG

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 2022-07-12 REVISED CURB RETURNS
2. 2022-09-26 WIDENED STREET
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C10

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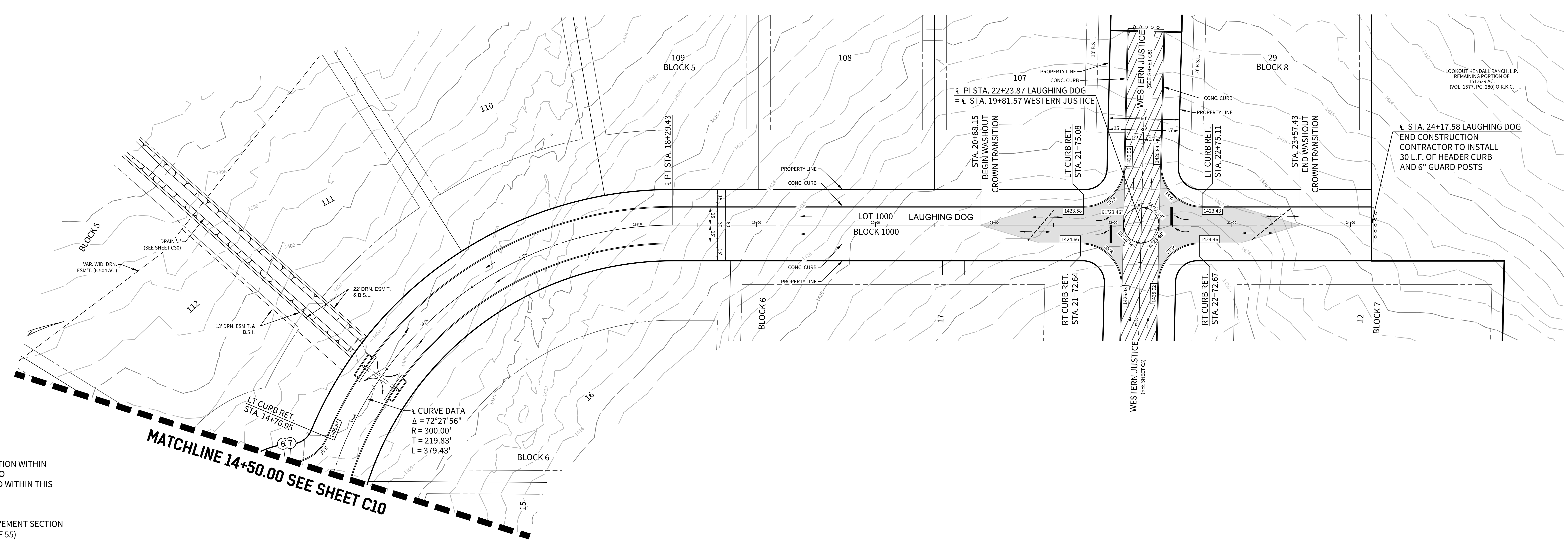


109
BLOCK 5
108
107
29
BLOCK 8
110
111
112
BLOCK 5
DRAIN "J" (SEE SHEET C30)
VAR. WID. DRN. ESM'T. (6.504 AC.)
22' DRN. ESM'T. & B.S.L.
13' DRN. ESM'T. & B.S.L.
℄ PT STA. 18+29.43
PROPERTY LINE
CONC. CURB
LOT 1000
BLOCK 1000
LAUGHING DOG
℄ PI STA. 22+23.87 LAUGHING DOG = ℄ STA. 19+81.57 WESTERN JUSTICE
STA. 20+88.15 BEGIN WASHOUT CROWN TRANSITION
LT CURB RET. STA. 21+75.08
RT CURB RET. STA. 21+72.64
WESTERN JUSTICE (SEE SHEET C5)
LT CURB RET. STA. 22+75.11
RT CURB RET. STA. 22+72.67
STA. 23+57.43 END WASHOUT CROWN TRANSITION
℄ STA. 24+17.58 LAUGHING DOG END CONSTRUCTION CONTRACTOR TO INSTALL 30 L.F. OF HEADER CURB AND 6" GUARD POSTS
LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 151.629 AC. (VOL. 1577, PG. 280) O.R.K.C.
1423.58
1424.66
1423.43
1424.46
91°23'46"
BLOCK 6
17
12
BLOCK 7
16
BLOCK 6
15
LT CURB RET. STA. 14+76.95
℄ CURVE DATA
Δ = 72°27'56"
R = 300.00'
T = 219.83'
L = 379.43'
MATCHLINE 14+50.00 SEE SHEET C10

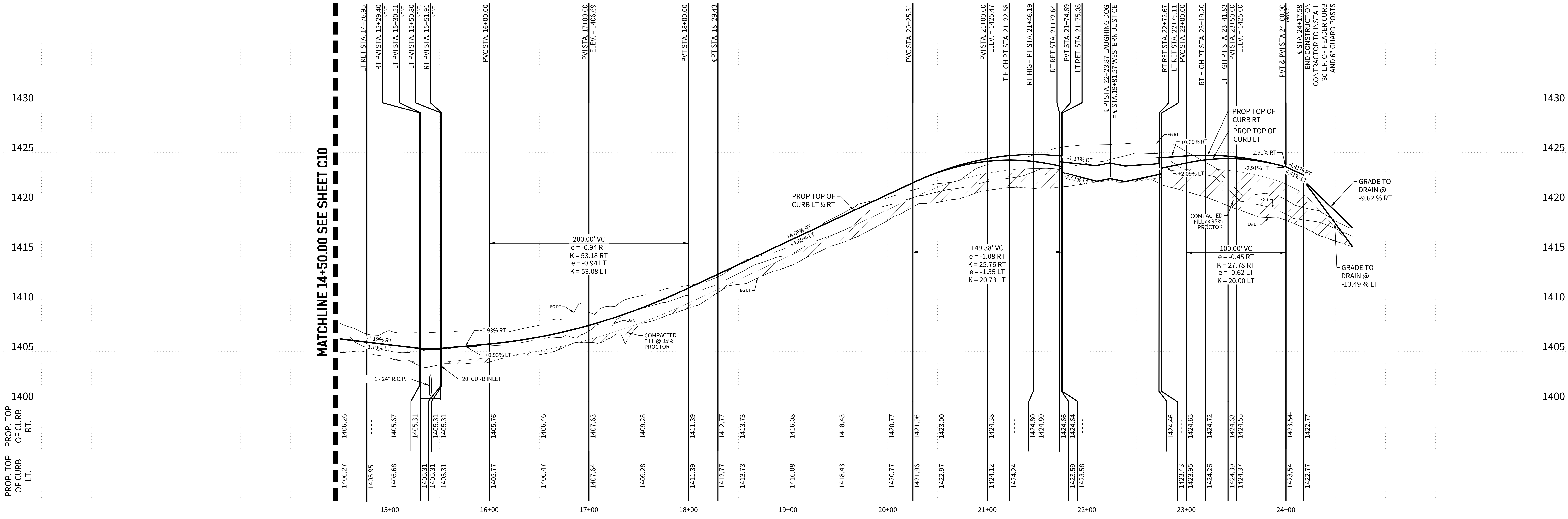
CONTRACTOR SHALL NOT BEGIN CONSTRUCTION WITHIN THE SANITARY CONTROL EASEMENT PRIOR TO DOCUMENTED PLUGGING OF WELLS LOCATED WITHIN THIS UNIT.

- ▨ - COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)
- ■ - STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)
- → - DIRECTION OF FLOW

LAUGHING DOG

STA. 14+50.00 TO STA. 24+17.58

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



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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

GEORGE'S RANCH UNIT 1

STREET PLAN & PROFILE - LAUGHING DOG

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-7-12 REVISED CURB RETURNS
2. 2022-9-26 WIDENED STREET
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
7/20/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C11

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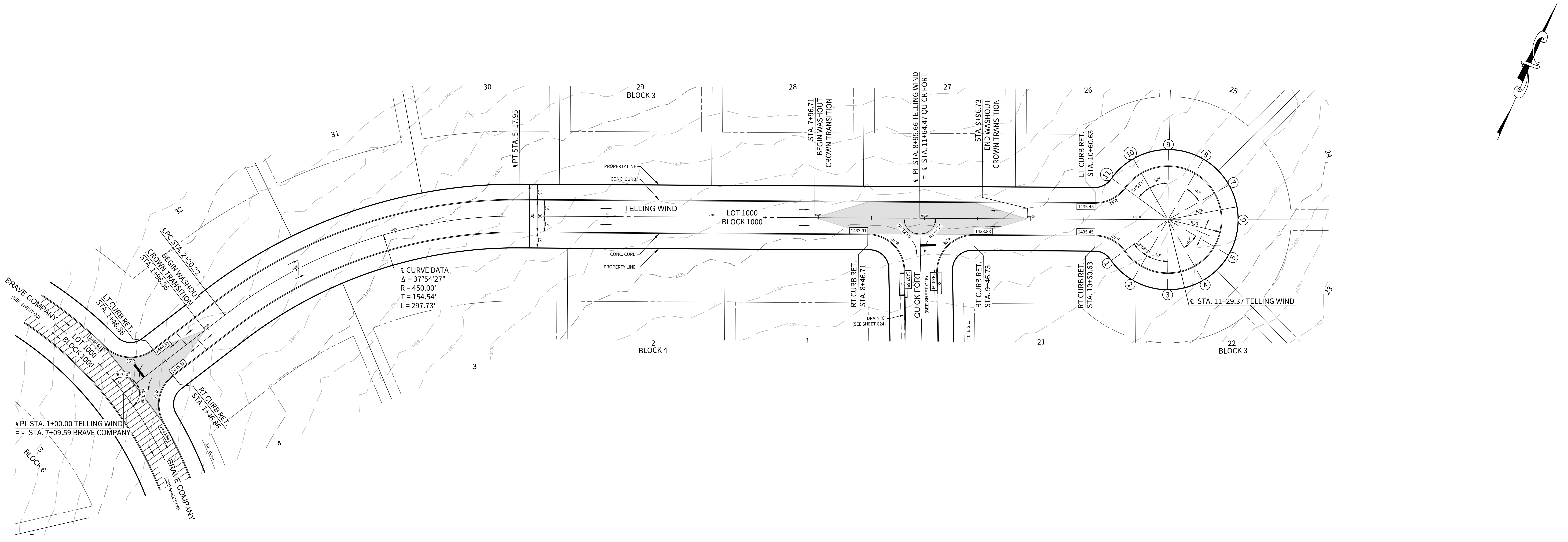


▨ - COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)

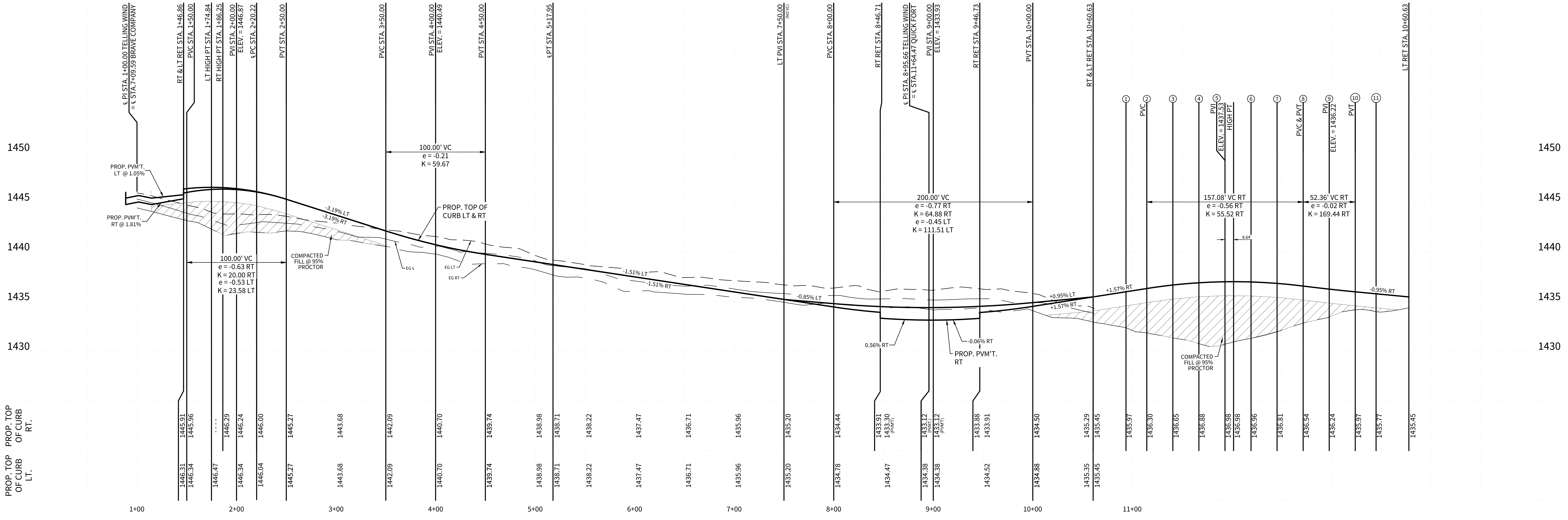
░ - STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)

→ - DIRECTION OF FLOW

TELLING WIND

STA. 1+00.00 TO STA. 11+29.37

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



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GEORGE'S RANCH
UNIT 1

STREET PLAN & PROFILE - TELLING WIND

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

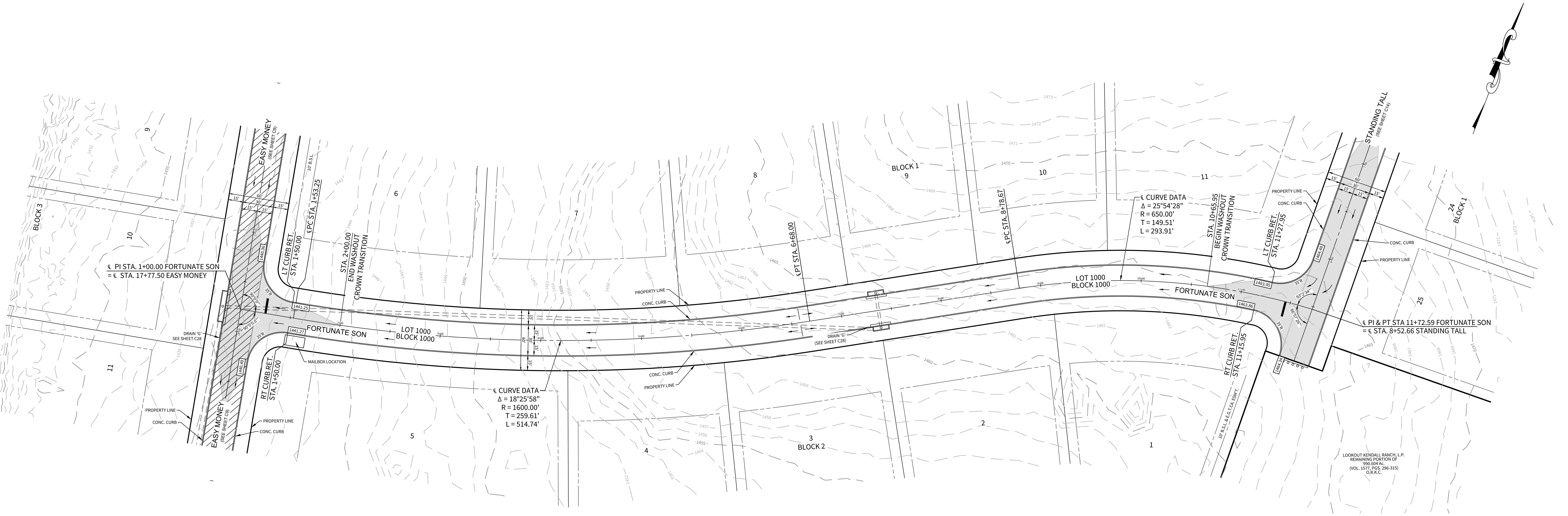
1. 2022-7-12 REVISED CURB RETURNS
2. 2022-9-26 WIDENED STREET
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C12


EASY MONEY (SEE SHEET C9)
€ PI STA. 1+00.00 FORTUNATE SON
= € STA. 17+77.50 EASY MONEY
LT CURB RET. STA. 1+50.00
€ PC STA. 1+53.25
STA. 2+00.00 END WASHOUT CROWN TRANSITION
RT CURB RET. STA. 1+50.00
DRAIN 'G' SEE SHEET C28
MAILBOX LOCATION
PROPERTY LINE
CONC. CURB
FORTUNATE SON
LOT 1000
BLOCK 1000
€ CURVE DATA
Δ = 18°25'58"
R = 1600.00'
T = 259.61'
L = 514.74'
€ PT STA. 6+68.00
DRAIN 'G' (SEE SHEET C28)
€ PC STA. 8+78.67
€ CURVE DATA
Δ = 25°54'28"
R = 650.00'
T = 149.51'
L = 293.91'
STA. 10+65.95 BEGIN WASHOUT CROWN TRANSITION
LT CURB RET. STA. 11+27.95
RT CURB RET. STA. 11+15.95
STANDING TALL (SEE SHEET C14)
€ PI & PT STA 11+72.59 FORTUNATE SON
= € STA. 8+52.66 STANDING TALL
BLOCK 1
BLOCK 2
BLOCK 3
LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 990.604 Ac. (VOL. 1STT, PGS. 296-315) O.R.K.C.
10' B.S.L. & E.G.T.CA. ESMT.
1441.25
1441.27
1463.95
1463.86

▨ - COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)

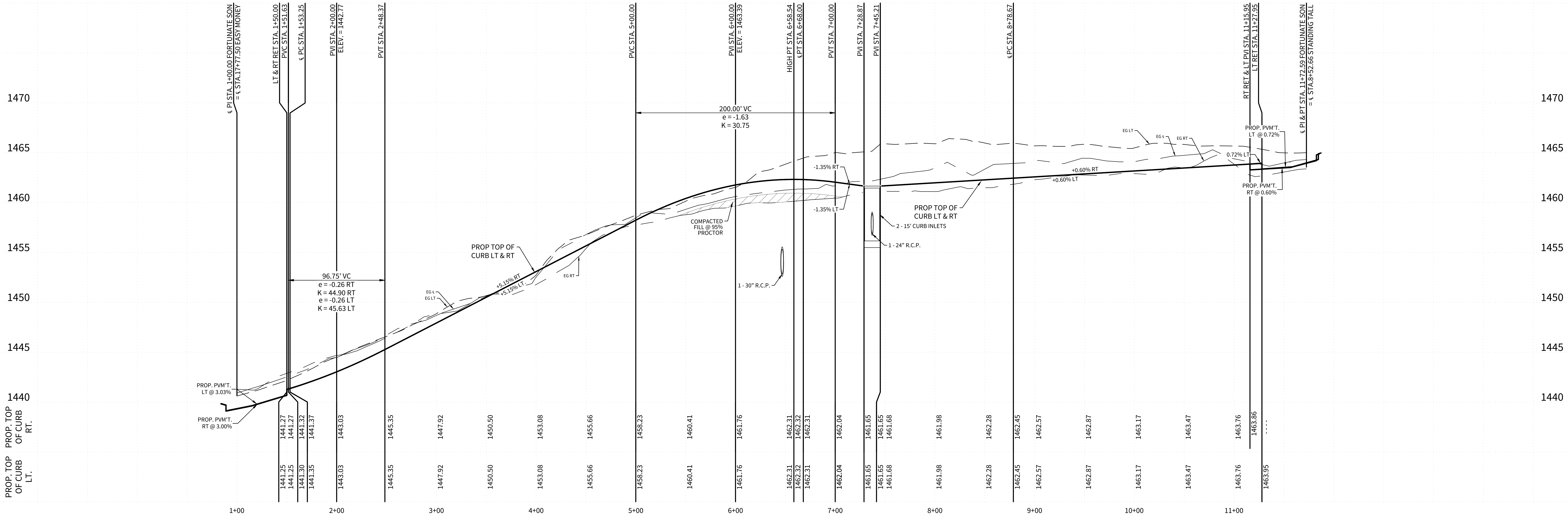
▒ - STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)

→ - DIRECTION OF FLOW

FORTUNATE SON

STA. 1+00.00 TO STA. 11+72.59

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



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GEORGE'S RANCH
UNIT 1

STREET PLAN & PROFILE - FORTUNATE SON

DATE	04/22/2022
PROJECT NO.	03546.001
DRAWN BY	AB/RR
CHECKED BY	WPM

REVISIONS
1. 2022-7-12 REVISED CURB RETURNS
2. 2022-9-26 WIDENED STREET
3.
4.
5.
6.
7.
8.
9.

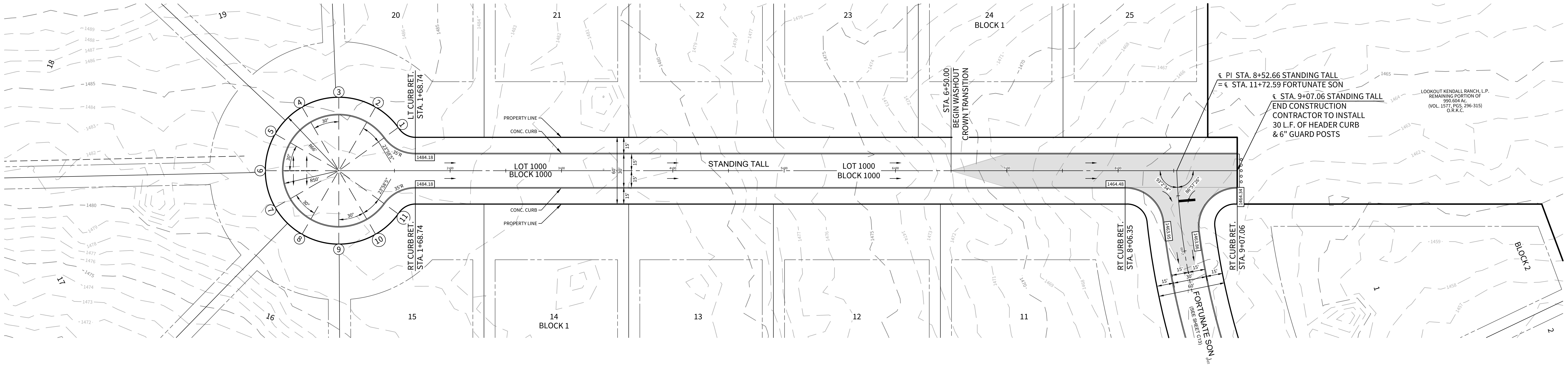
W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C13

P:\03546\001\2-Drawings\01_13 STPP.dwg 2023/02/09 1:31pm rreyes



▨ - COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)

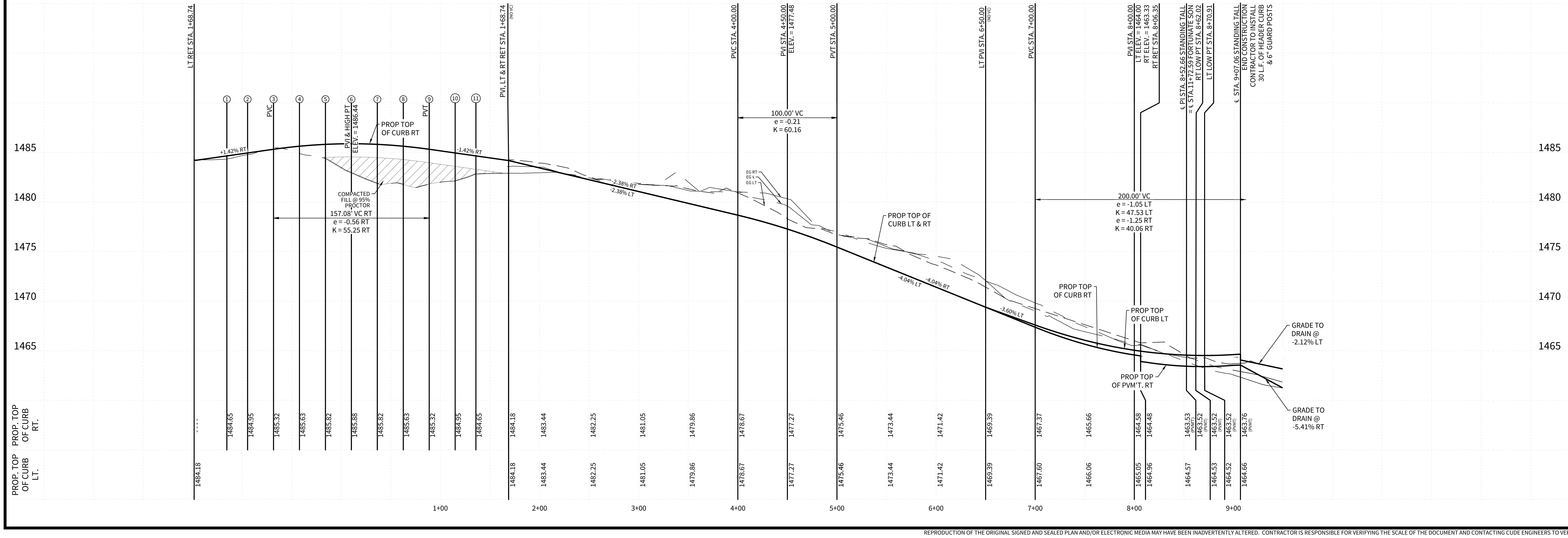
░ - STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)

→ - DIRECTION OF FLOW

STANDING TALL

STA. 1+00.00 TO STA. 9+07.06

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



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GEORGE'S RANCH
UNIT 1

STREET PLAN & PROFILE - STANDING TALL

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-7-12 REVISED CURB RETURNS
2. 2022-9-26 WIDENED STREET
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C14

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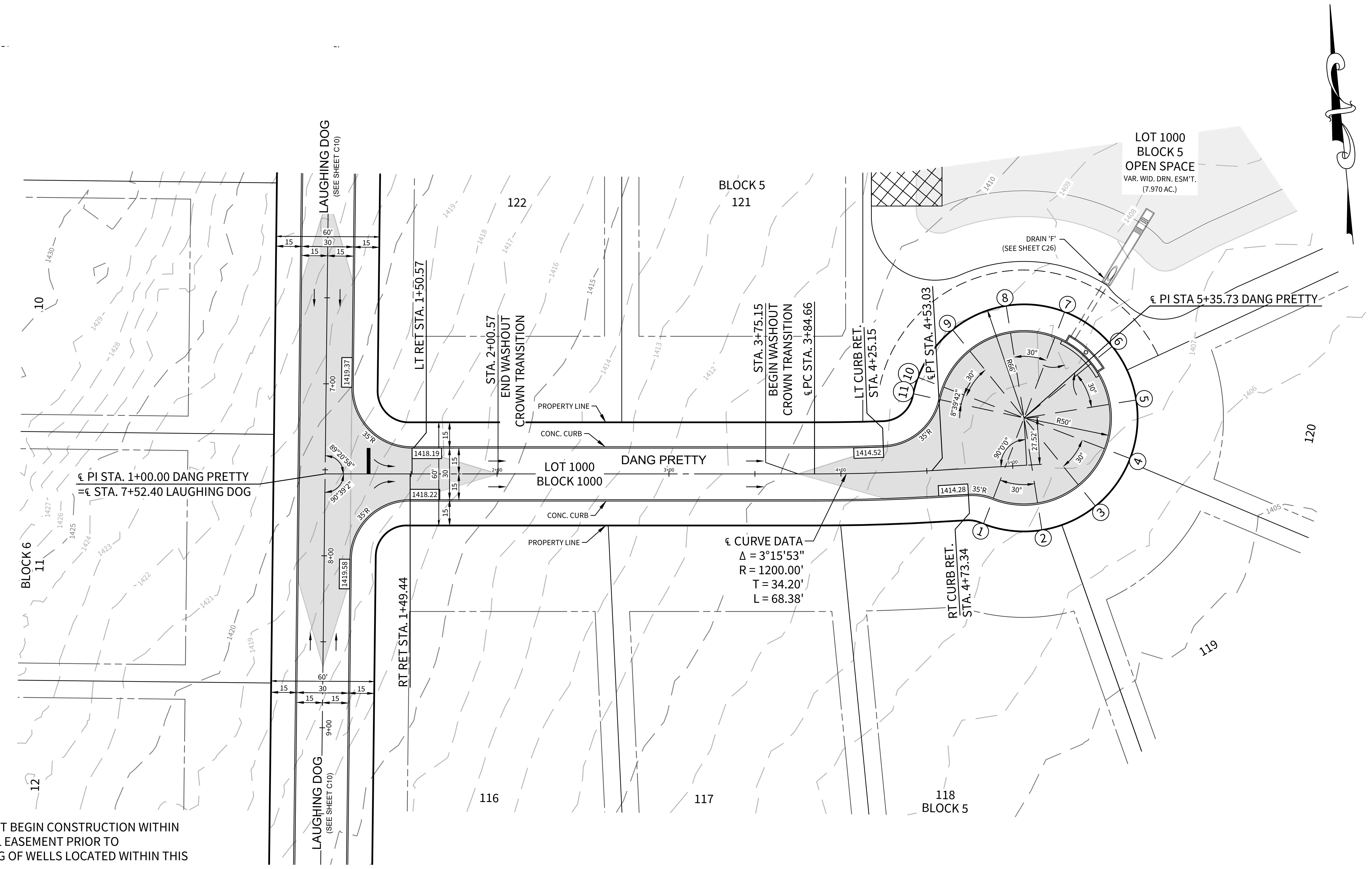
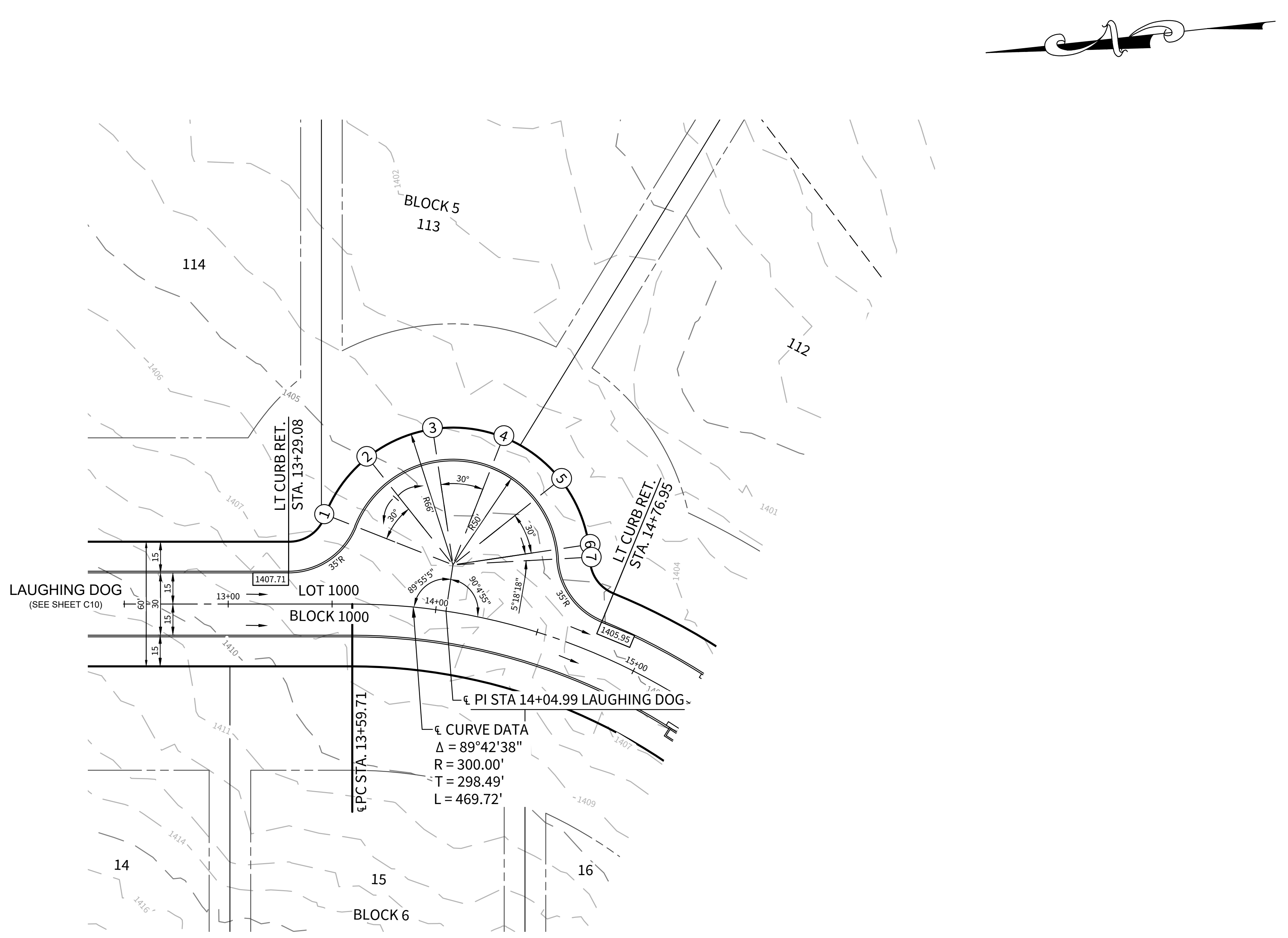


CONTRACTOR SHALL NOT BEGIN CONSTRUCTION WITHIN THE SANITARY CONTROL EASEMENT PRIOR TO DOCUMENTED PLUGGING OF WELLS LOCATED WITHIN THIS UNIT.



▨ - COLLECTOR STREET PAVEMENT SECTION (SEE DETAIL SHEET 17 OF 55)

▒ - STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)

→ - DIRECTION OF FLOW

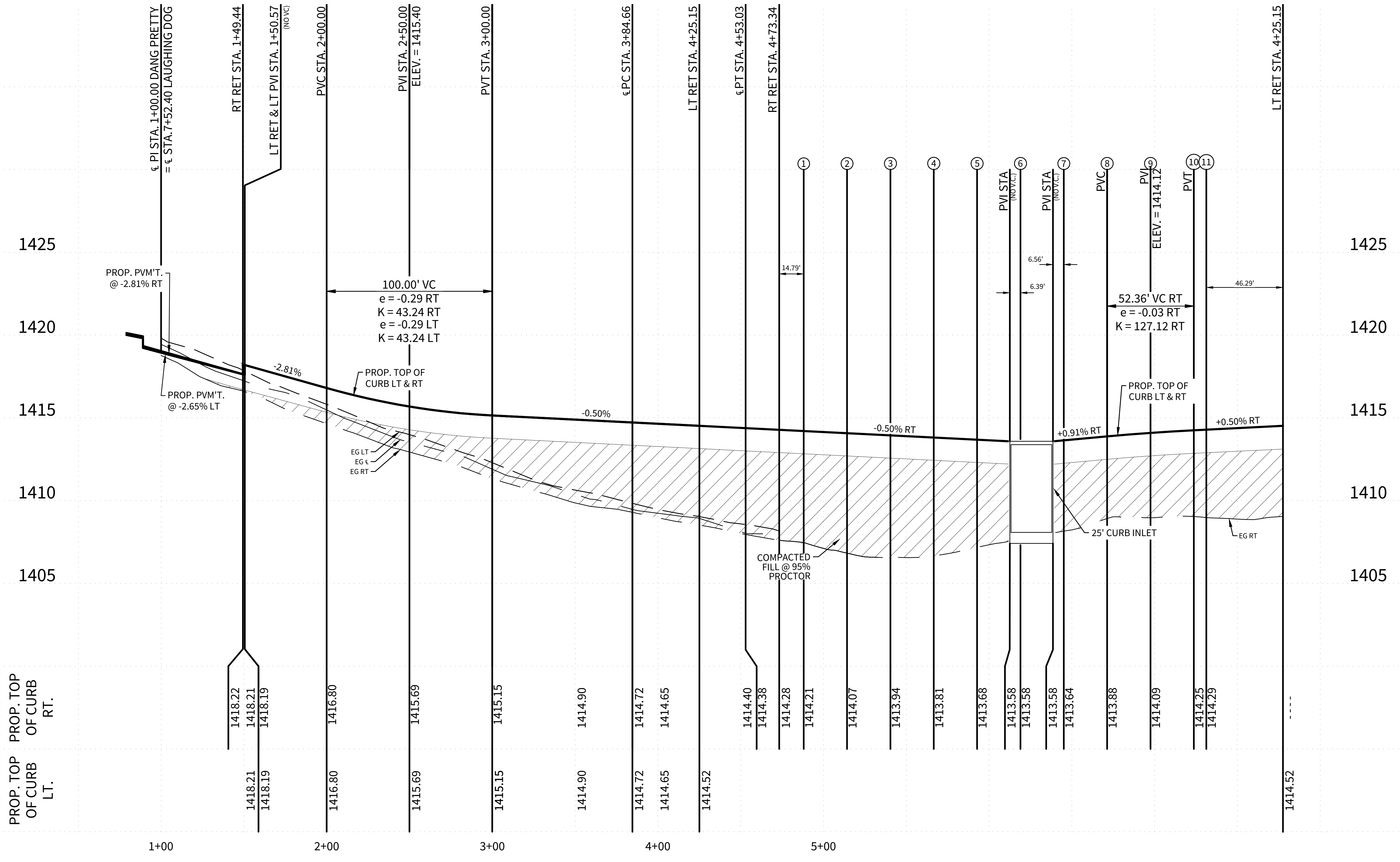
DANG PRETTY

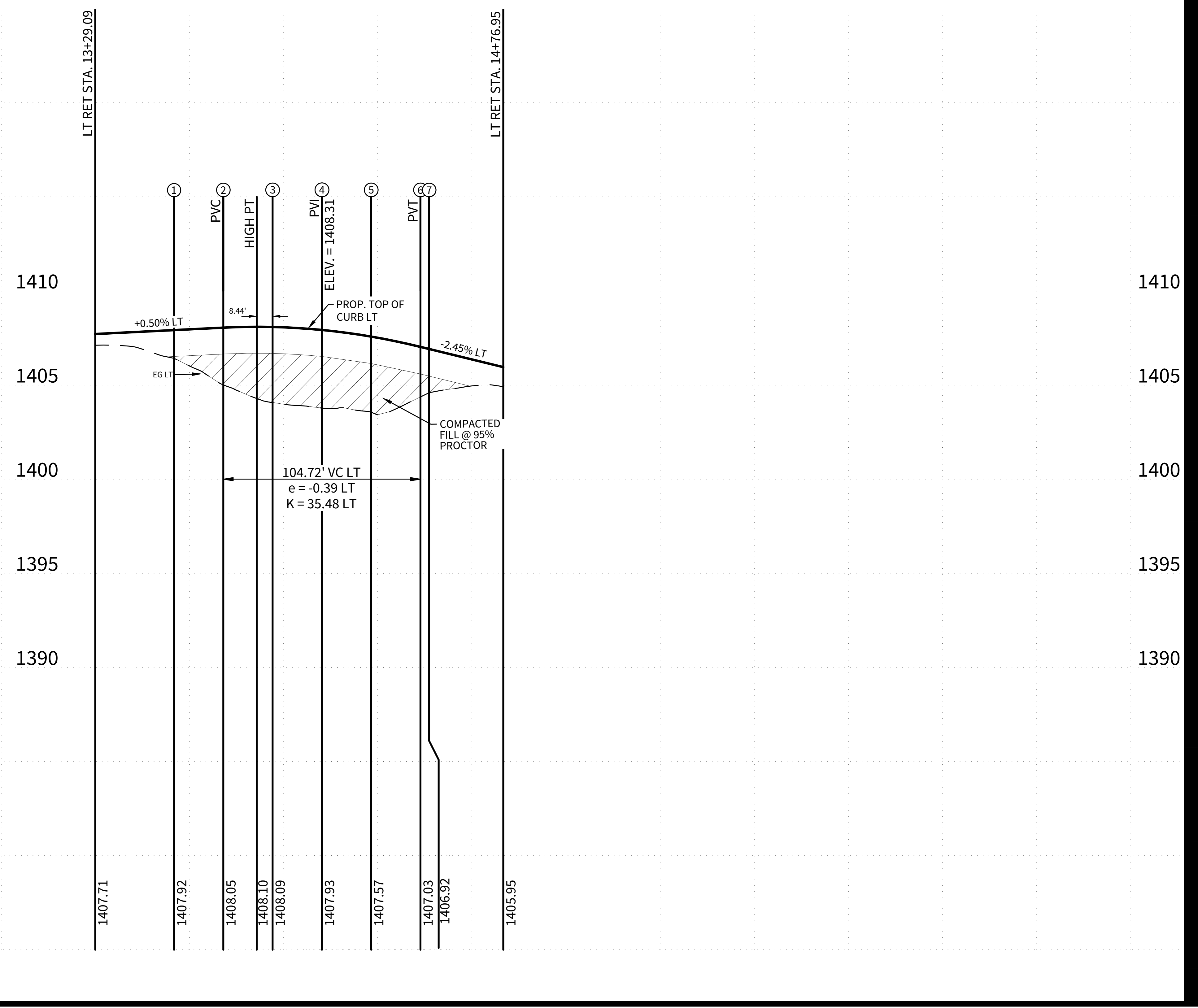
STA. 1+00.00 TO STA. 5+35.73

LAUGHING DOG SAC

STA. 13+29.08 TO STA. 14+76.95

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





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GEORGE'S RANCH
UNIT 1

STREET PLAN & PROFILE - DANG PRETTY & LAUGHING DOG SAC

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

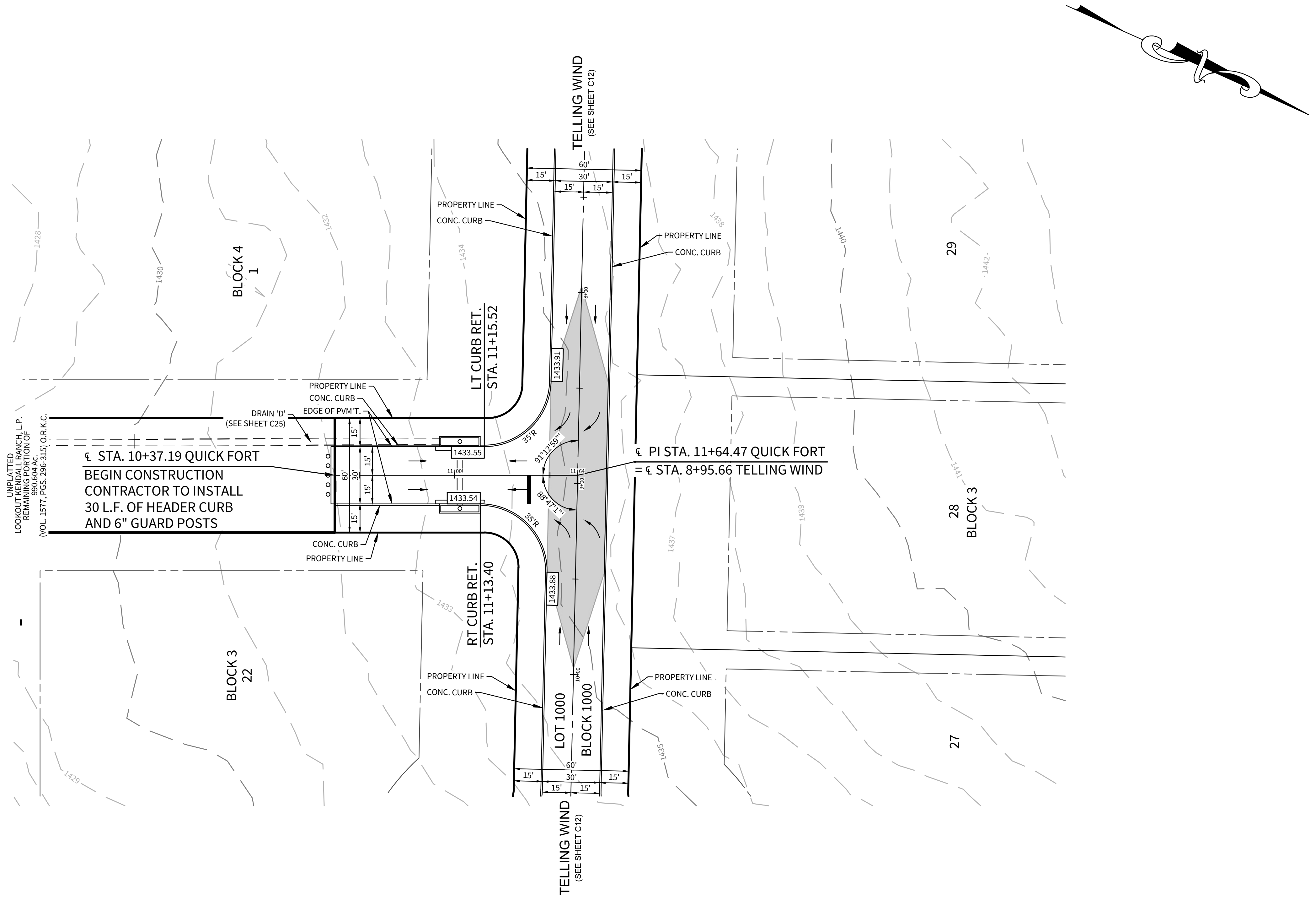
REVISIONS
1. 07/12/2022 - REVISED CURB RETURN RADIUS
2. 09/26/2022 - WIDENED STREETS
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C15



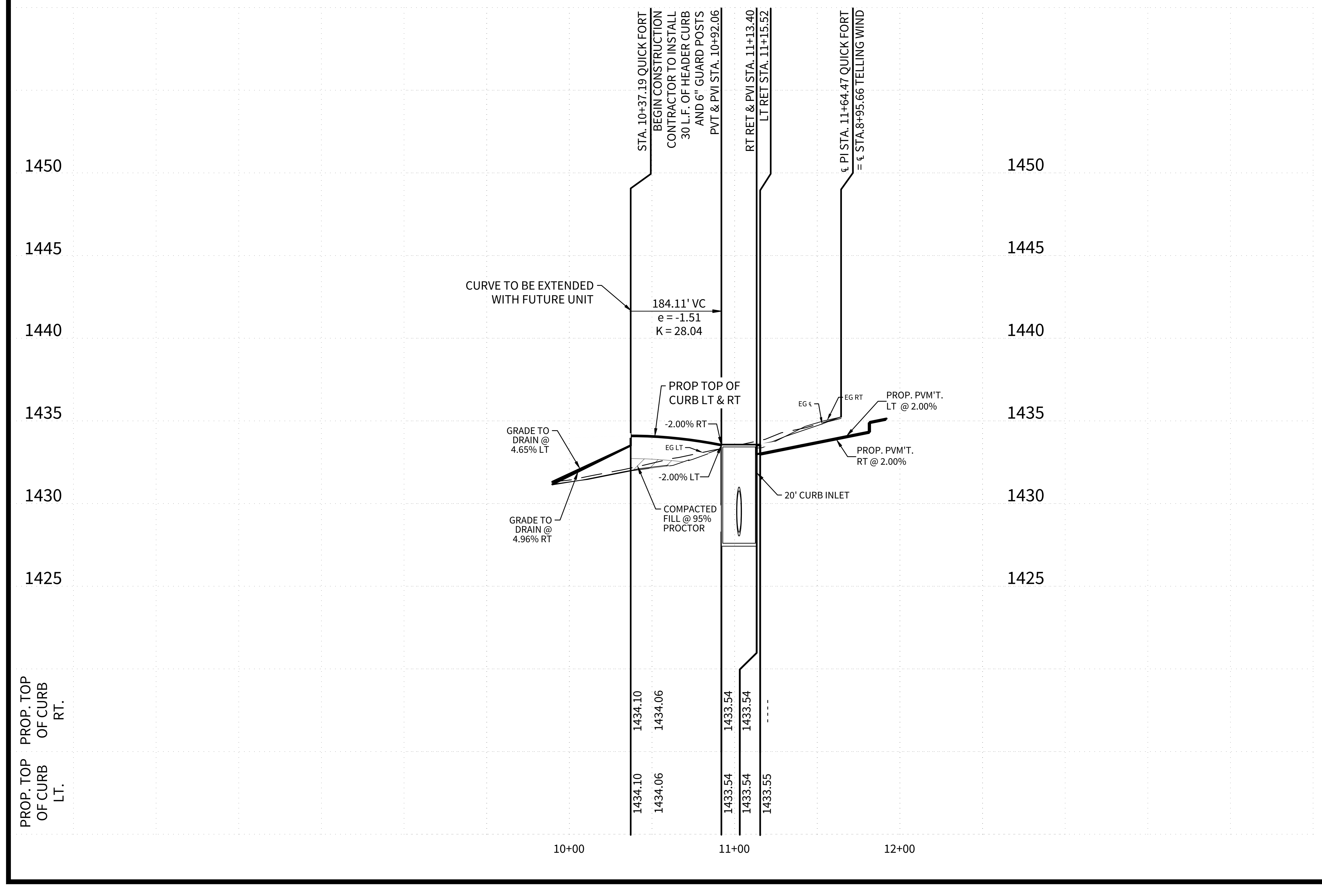
▨ - COLLECTOR STREET PAVEMENT SECTION
(SEE DETAIL SHEET 17 OF 55)

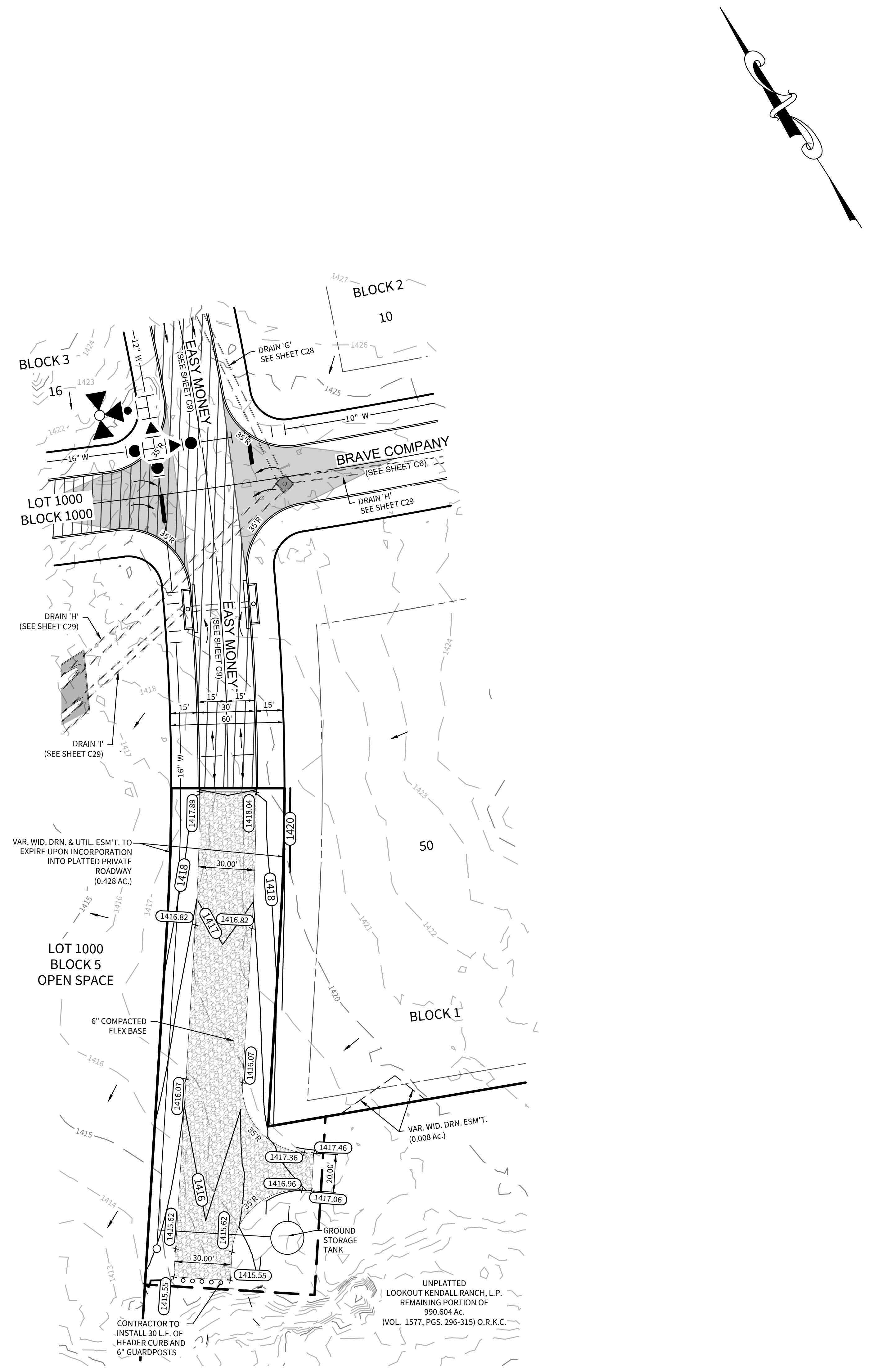
▒ - STREET WASHOUT (SEE DETAIL SHEET 17 OF 55)

→ - DIRECTION OF FLOW

QUICK FORT

STA. 10+37.19 TO STA. 11+64.47





EMERGENCY WATER ACCESS

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

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**GEORGE'S RANCH
UNIT 1**

STREET PLAN & PROFILE - QUICK FORT
& EMERGENCY WATER ACCESS

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 07/12/2022/ REVISED CURB RETURN RADIUS
2. 2022-09-26 WIDENED STREET PVM'T.
3. 2022-11-15 REVISED EMERGENCY WATER ACCESS ROAD
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C16

16 OF 55

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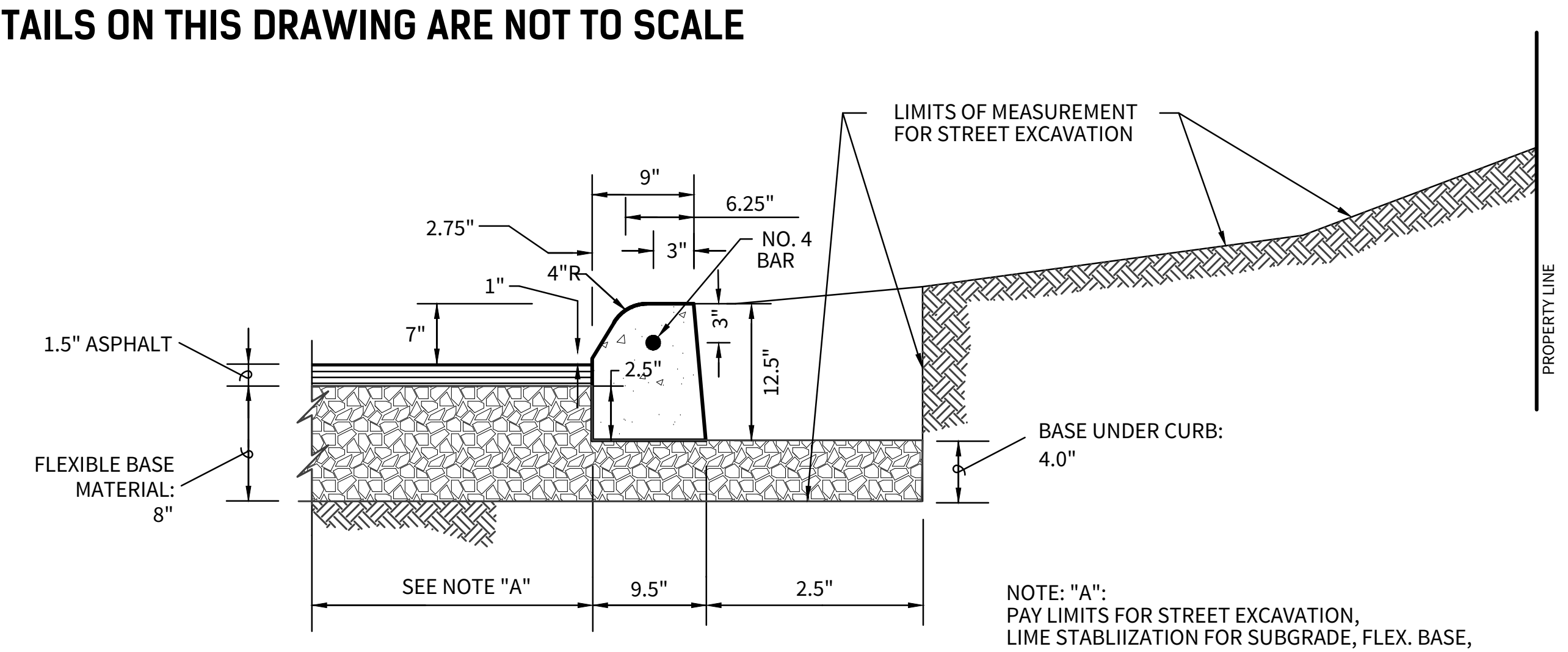
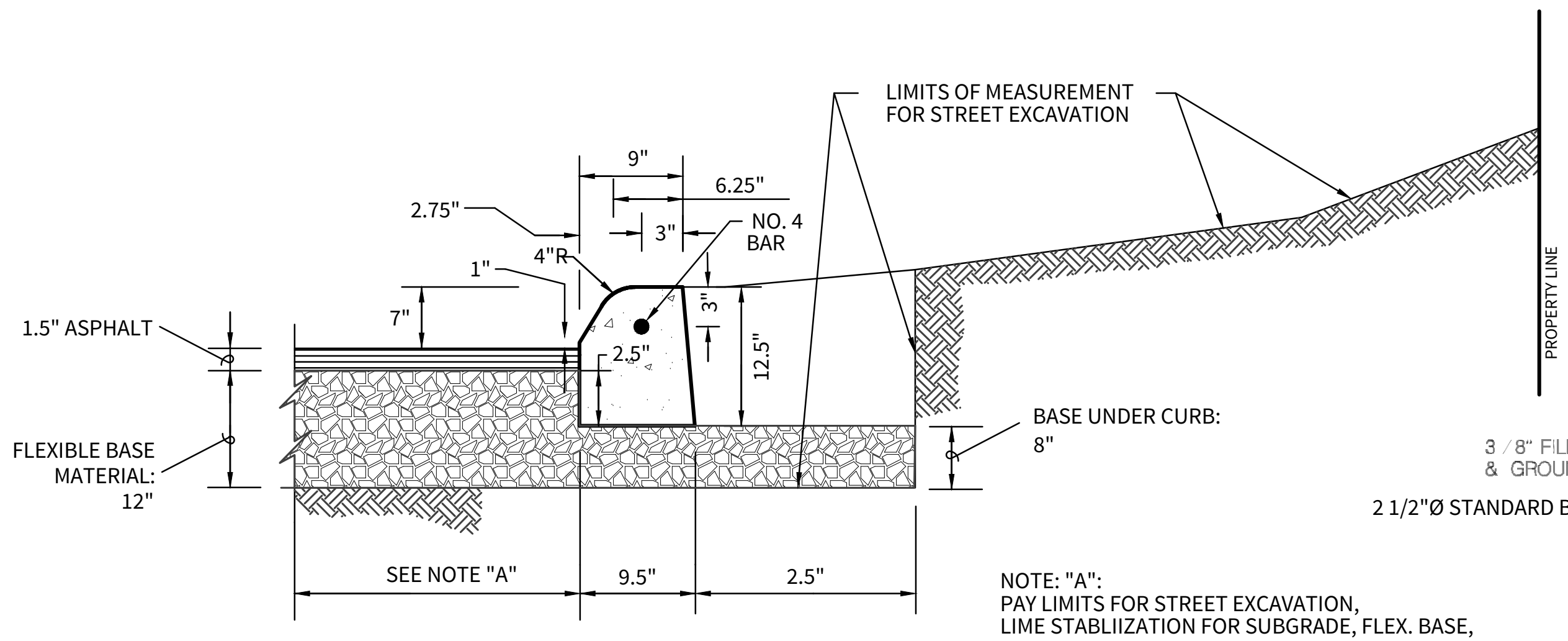
DETAILS ON THIS DRAWING ARE NOT TO SCALE



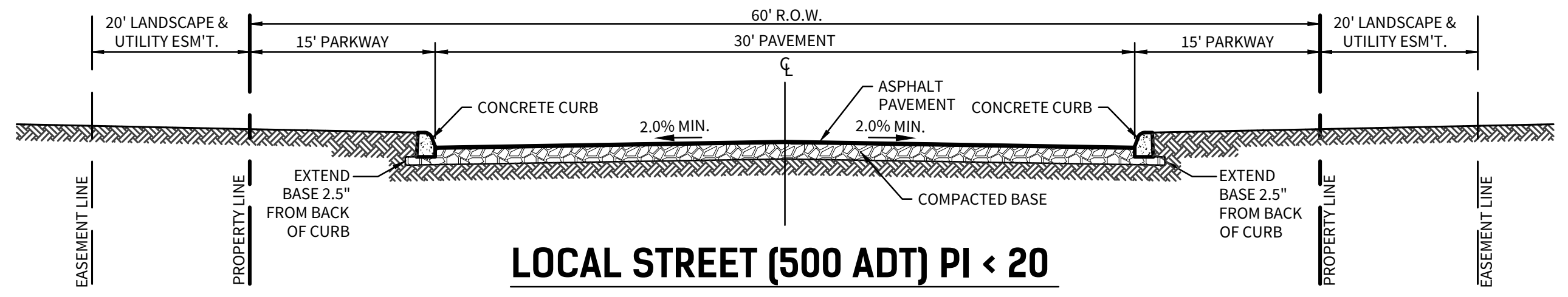
NOTE: "A":
PAY LIMITS FOR STREET EXCAVATION,
LIME STABLIIZATION FOR SUBGRADE, FLEX. BASE,
PRIME COAT, & ASPHALT TREATED BASE.

LOCAL STREET (500 ADT) PI < 20

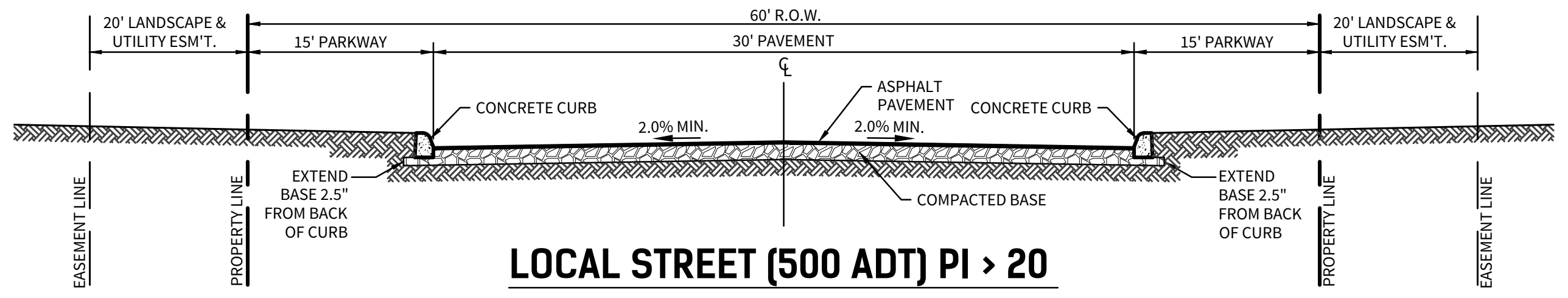


NOTE: "A":
PAY LIMITS FOR STREET EXCAVATION,
LIME STABLIIZATION FOR SUBGRADE, FLEX. BASE,
PRIME COAT, & ASPHALT TREATED BASE.

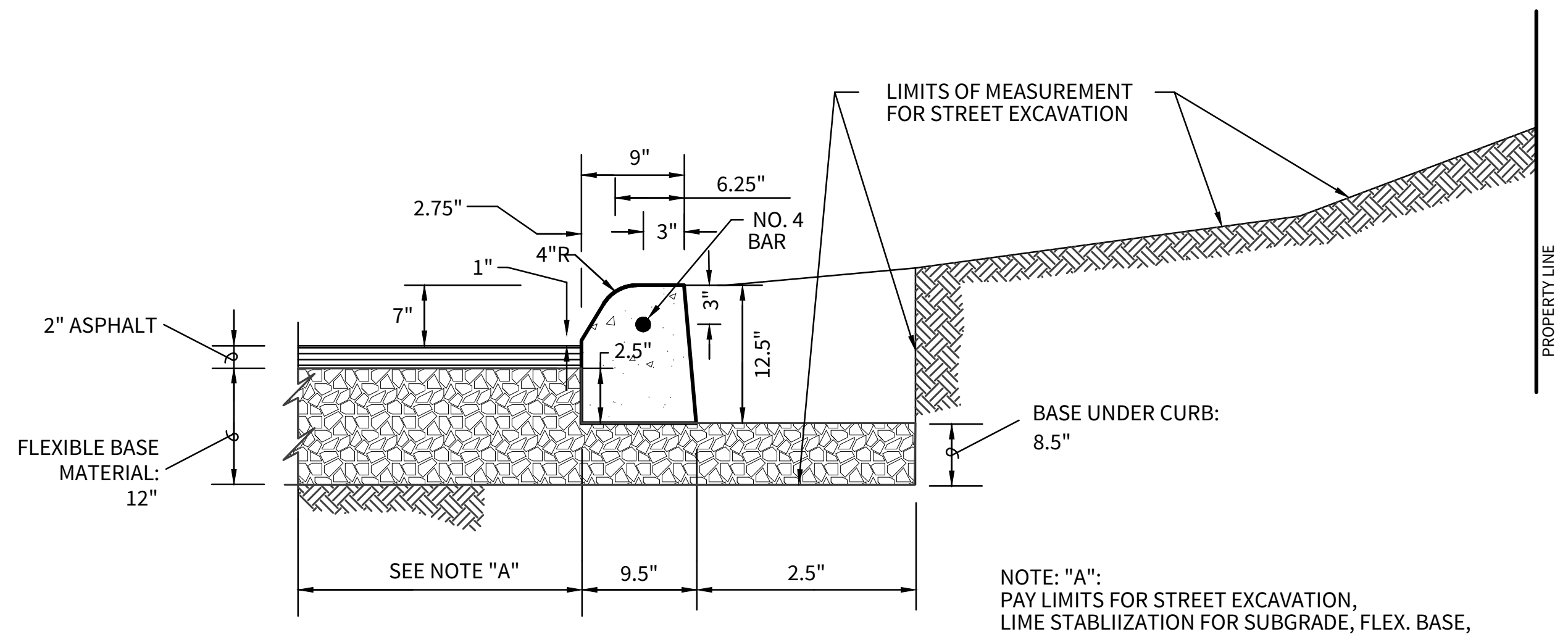
LOCAL STREET (500 ADT) PI > 20



LOCAL STREET (500 ADT) PI < 20

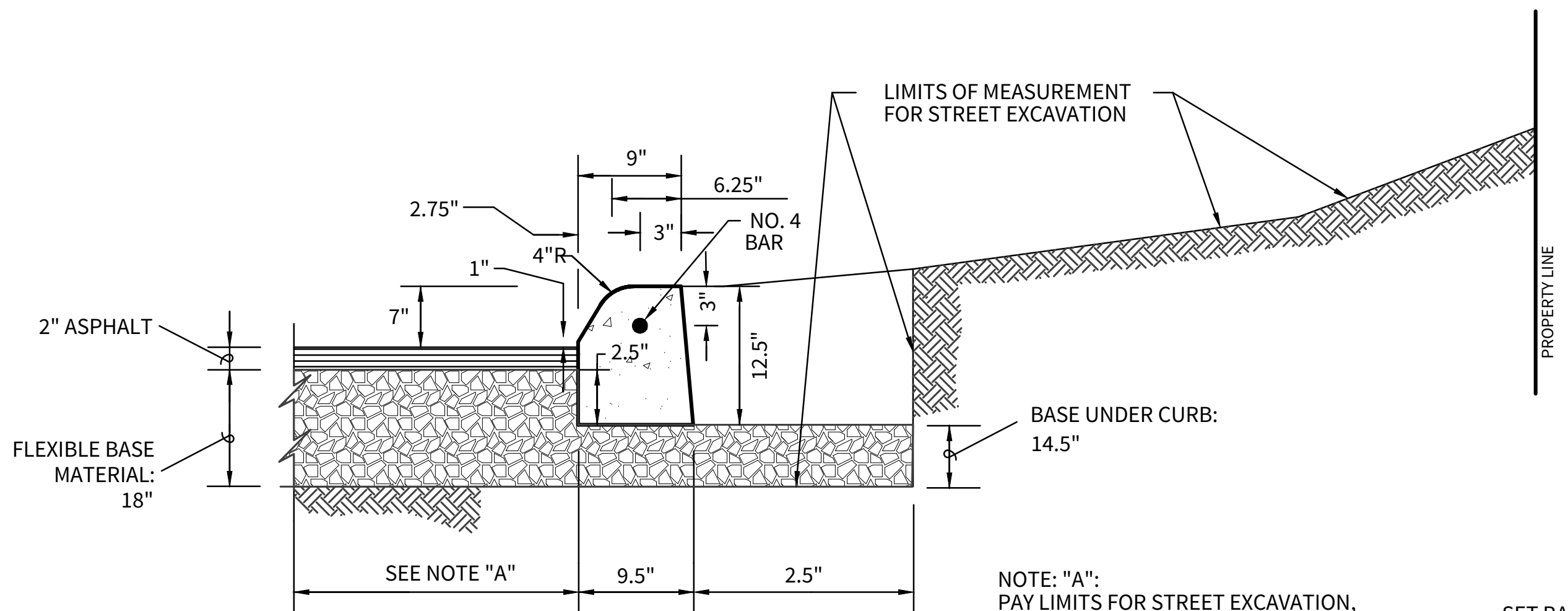


LOCAL STREET (500 ADT) PI > 20



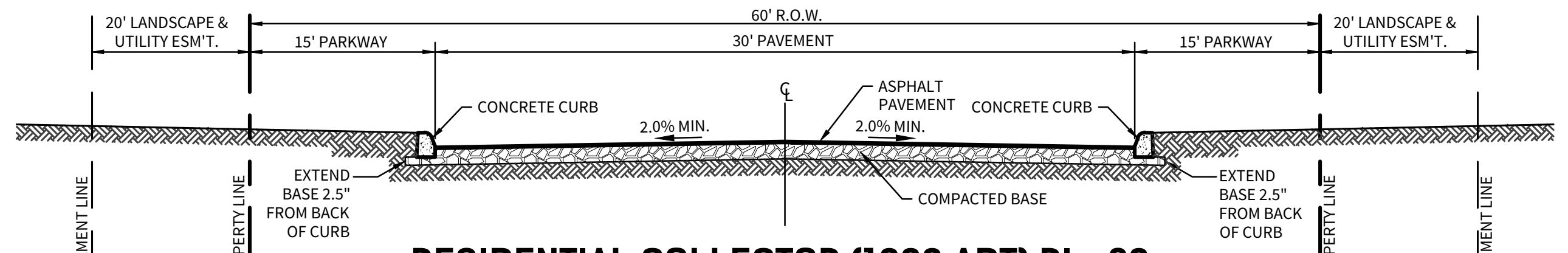
NOTE: "A":
PAY LIMITS FOR STREET EXCAVATION,
LIME STABLIIZATION FOR SUBGRADE, FLEX. BASE,
PRIME COAT, & ASPHALT TREATED BASE.

RESIDENTIAL COLLECTOR (1000 ADT) PI < 20

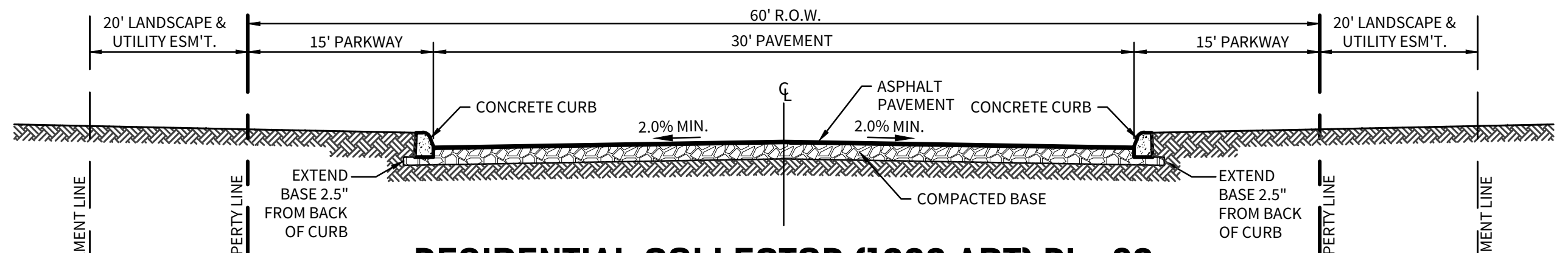


NOTE: "A":
PAY LIMITS FOR STREET EXCAVATION,
LIME STABLIIZATION FOR SUBGRADE, FLEX. BASE,
PRIME COAT, & ASPHALT TREATED BASE.

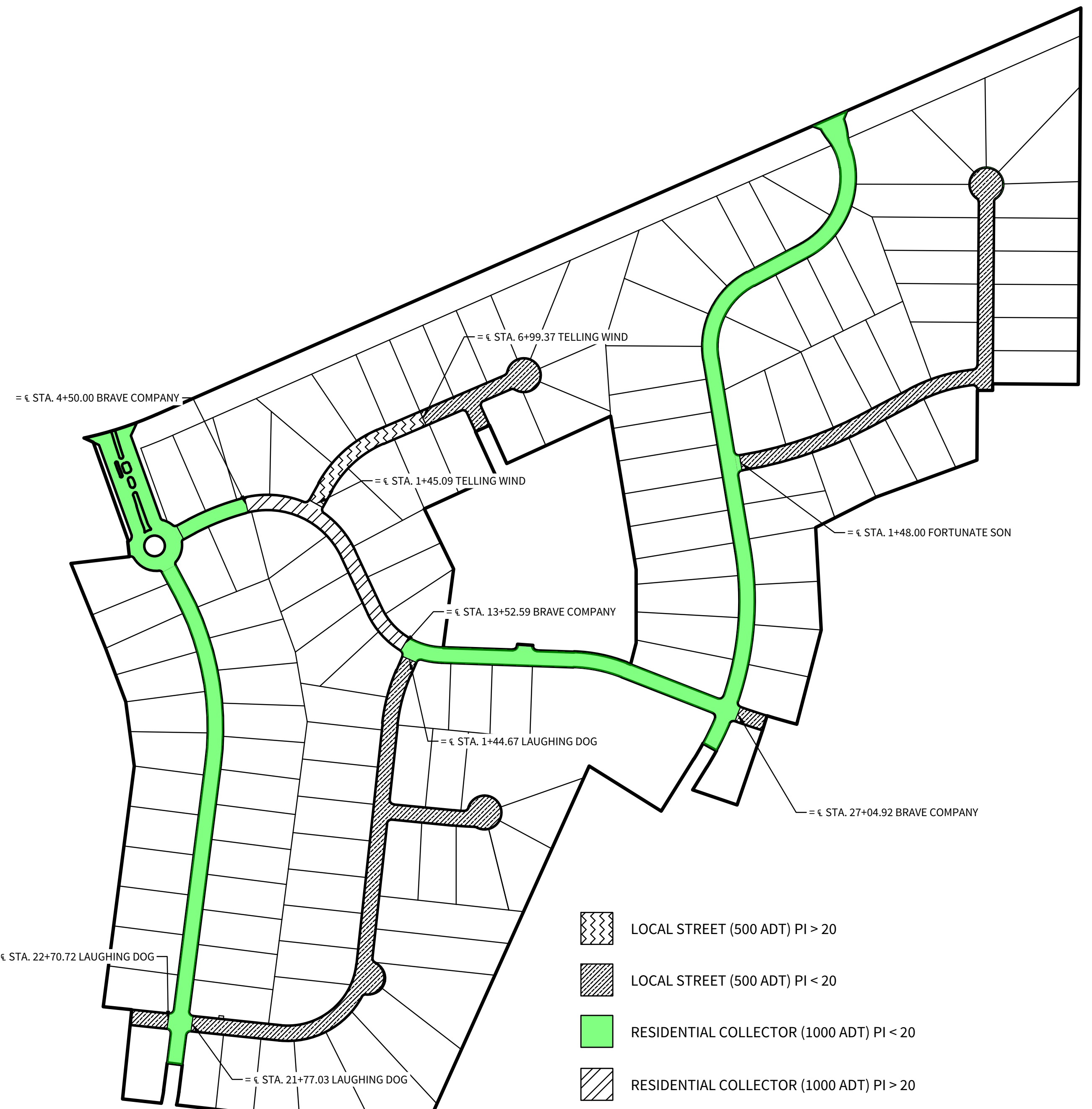
RESIDENTIAL COLLECTOR (1000 ADT) PI > 20



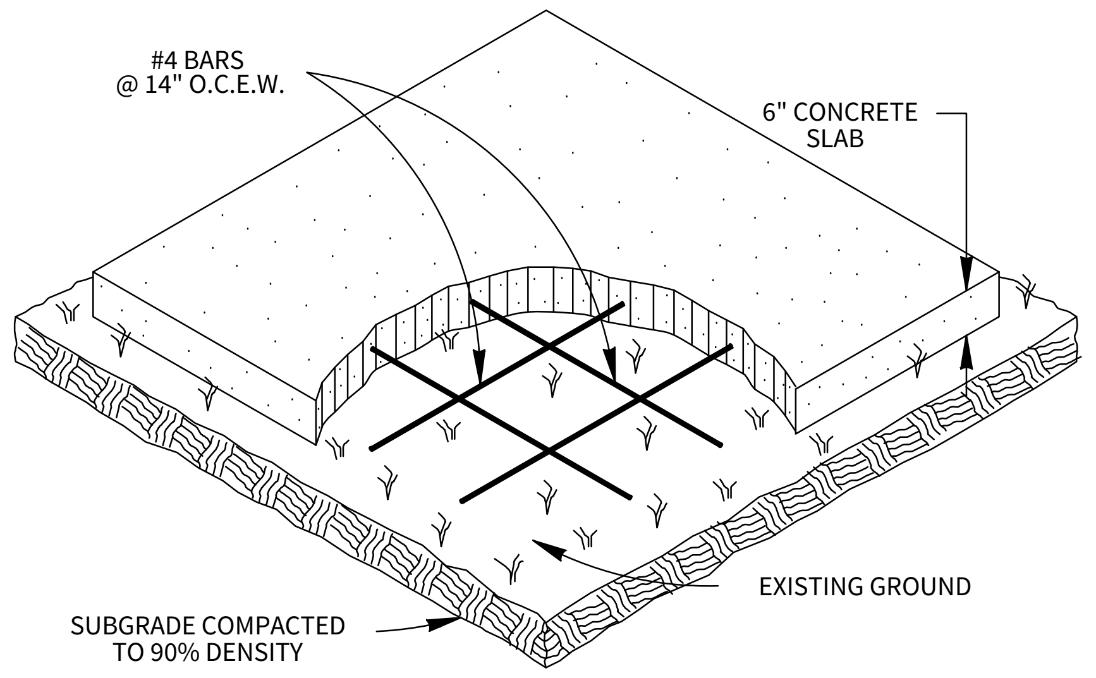
RESIDENTIAL COLLECTOR (1000 ADT) PI < 20



RESIDENTIAL COLLECTOR (1000 ADT) PI > 20


= ℄ STA. 4+50.00 BRAVE COMPANY
= ℄ STA. 6+99.37 TELLING WIND
= ℄ STA. 1+45.09 TELLING WIND
= ℄ STA. 1+48.00 FORTUNATE SON
= ℄ STA. 13+52.59 BRAVE COMPANY
= ℄ STA. 1+44.67 LAUGHING DOG
= ℄ STA. 27+04.92 BRAVE COMPANY
= ℄ STA. 22+70.72 LAUGHING DOG
= ℄ STA. 21+77.03 LAUGHING DOG
LOCAL STREET (500 ADT) PI > 20
LOCAL STREET (500 ADT) PI < 20
RESIDENTIAL COLLECTOR (1000 ADT) PI < 20
RESIDENTIAL COLLECTOR (1000 ADT) PI > 20

STREET PAVEMENT DESIGN DETAIL



MAIL BOX PAD NOTE:

1. THE CONTRACTOR WILL CONSTRUCT SLABS FOR "TEMPORARY MAIL BOX COLLECTION PAD" FOR THE UNITED STATES POSTAL SERVICE WITH LOCATIONS AND SIZES SPECIFIED BY THE CITY ENGINEER DURING CONSTRUCTION.
2. THE CONSTRUCTION OF SLABS SHALL CONFORM TO ITEM 513 "REMOVING AND RELOCATING MAILBOXES".
3. PAYMENT WILL BE MADE UNDER ITEM 513.2 "COMMUNITY MAILBOX SLAB - PER SQUARE YARD".
4. UNIT PRICE WILL INCLUDE REMOVAL OF "TEMPORARY MAIL BOX COLLECTION PAD" SLABS AT THE END OF THE PROJECT. NO SEPARATE PAY ITEM.

COMMUNITY MAIL BOX SLAB

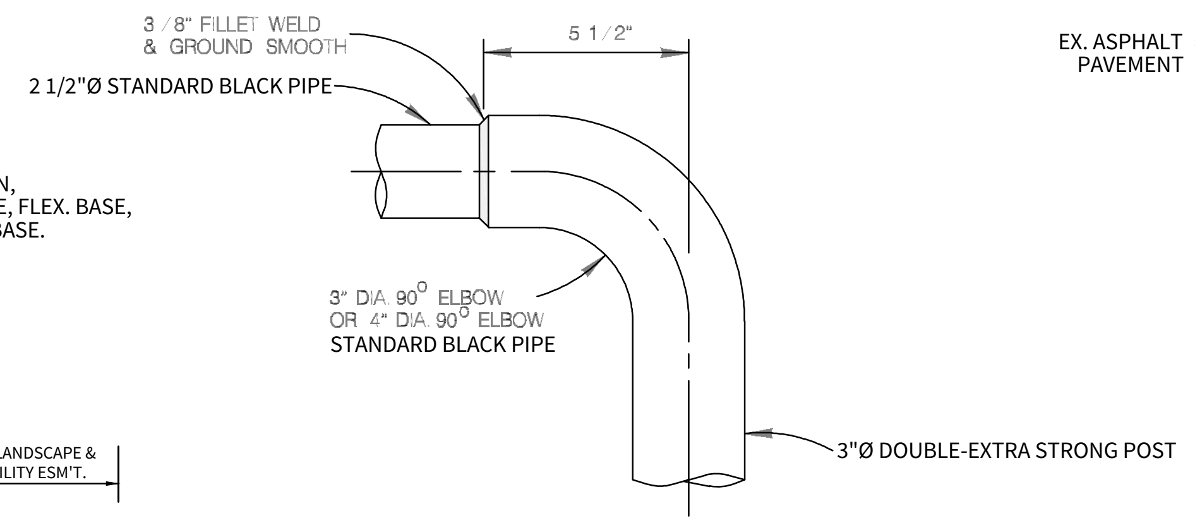
ITEM 513.2

STREET PAVEMENT DESIGN OPTIONS

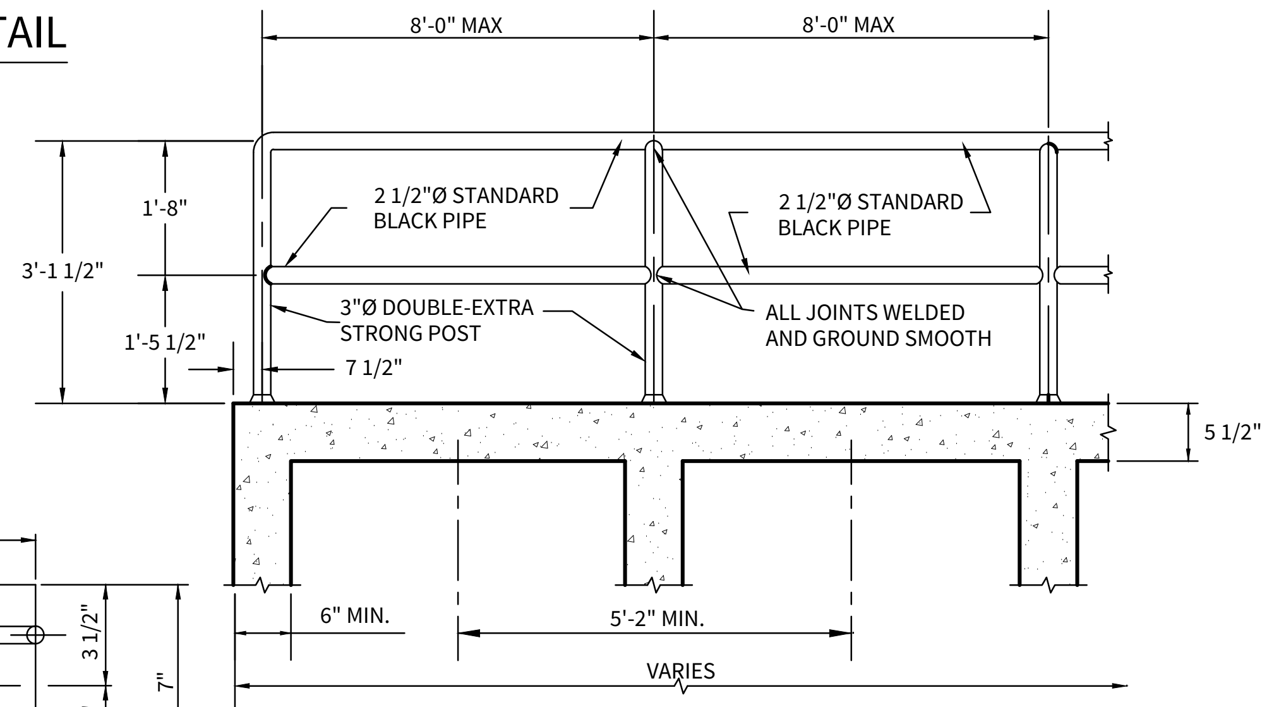
1. SUBGRADE - GEOTECH ENGINEER WILL BE PRESENT TO DETERMINE IF NATIVE LIMESTONE/ROCK SUBGRADE IS SUFFICIENT TO REPLACE LIME TREATMENT. IF LIME TREATMENT IS REPLACED BY NATIVE MARL/ROCK, KENDALL COUNTY PUBLIC WORKS WILL BE INFORMED OF ALL CHANGES. REVISIONS WILL BE SUBMITTED INDICATING WHERE LIME TREATMENT WAS USED, ALONG WITH STATIONING. CONTRACTOR TO REVIEW GEOTECH RECOMMENDATIONS PRIOR TO FINAL SUBGRADE PREPARATION. (REF. MLA GEOTECHNICAL REPORT #21201100.010)

NOTES:
1. ALL CURB SHALL BE CLASS C CONCRETE. 6" STAMPED CONCRETE SHALL BE CLASS P CONCRETE (4,000 PSI).

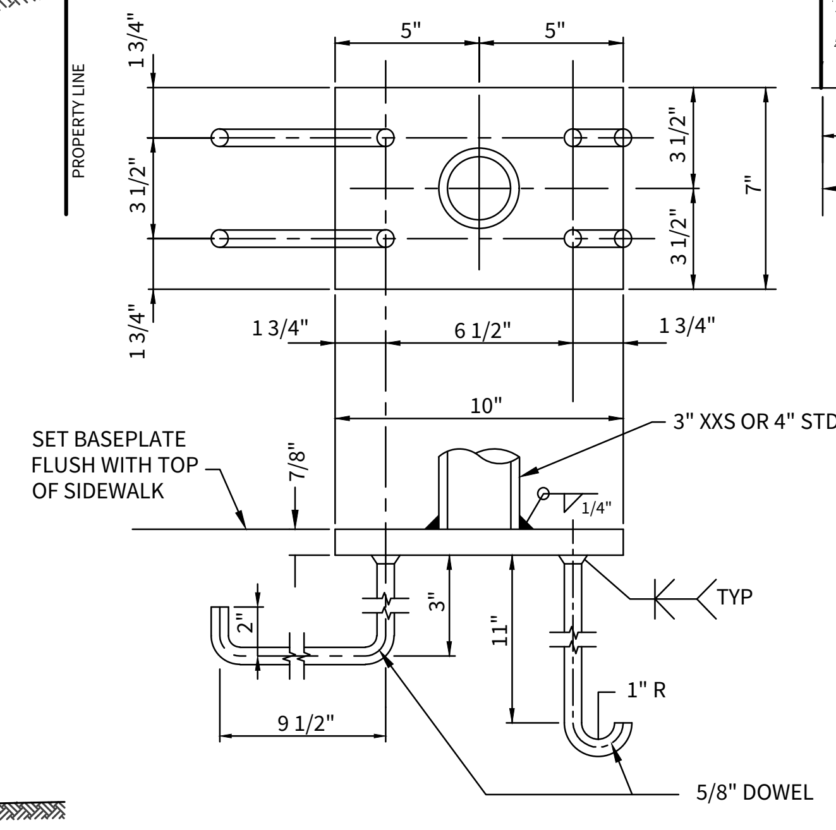
5


3/8" FILLET WELD & GROUND SMOOTH
2 1/2"Ø STANDARD BLACK PIPE
5 1/2"
3" DIA. 90° ELBOW OR 4" DIA. 90° ELBOW STANDARD BLACK PIPE
3"Ø DOUBLE-EXTRA STRONG POST

PIPE-ELBOW DETAIL


8'-0" MAX
8'-0" MAX
1'-8"
3'-1 1/2"
1'-5 1/2"
2 1/2"Ø STANDARD BLACK PIPE
2 1/2"Ø STANDARD BLACK PIPE
3"Ø DOUBLE-EXTRA STRONG POST
7 1/2"
ALL JOINTS WELDED AND GROUND SMOOTH
5 1/2"
6" MIN.
5'-2" MIN.
VARIES

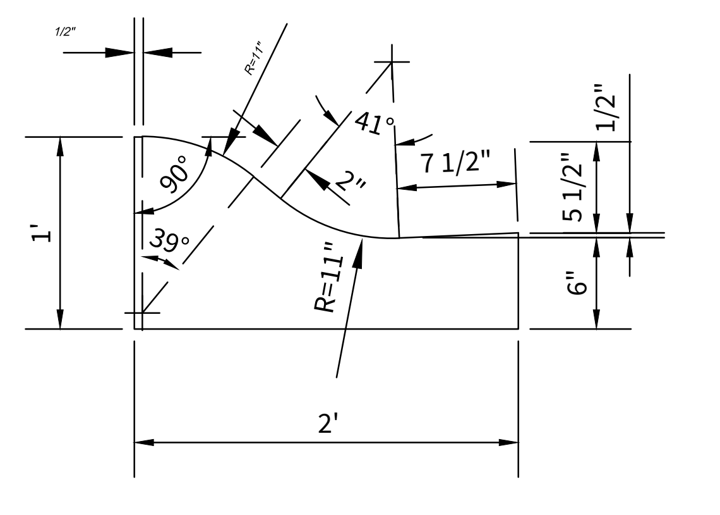
TYPICAL SIDEWALK PIPE RAILING



PIPE ANCHORAGE DETAILS

COBBLESTONE FINISH DETAIL

NOTE: CONTRACTOR SHALL USE 6" STAMPED CONCRETE IN "COBBLESTONE" STREET SECTION.

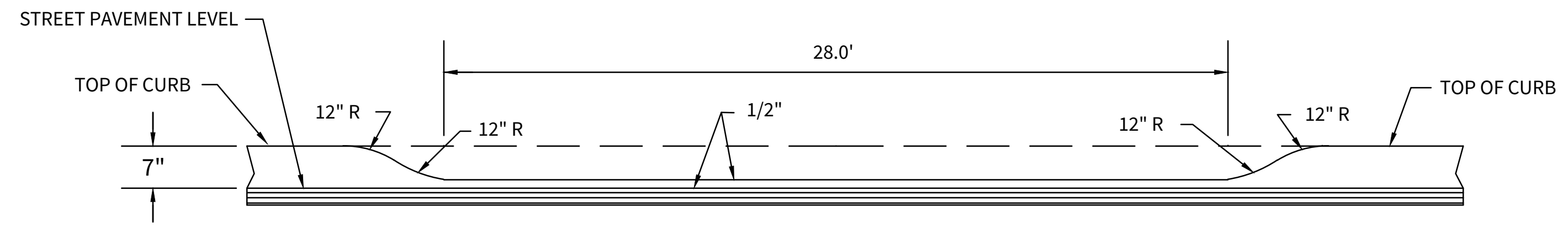


6" ROLL CATCH CURB

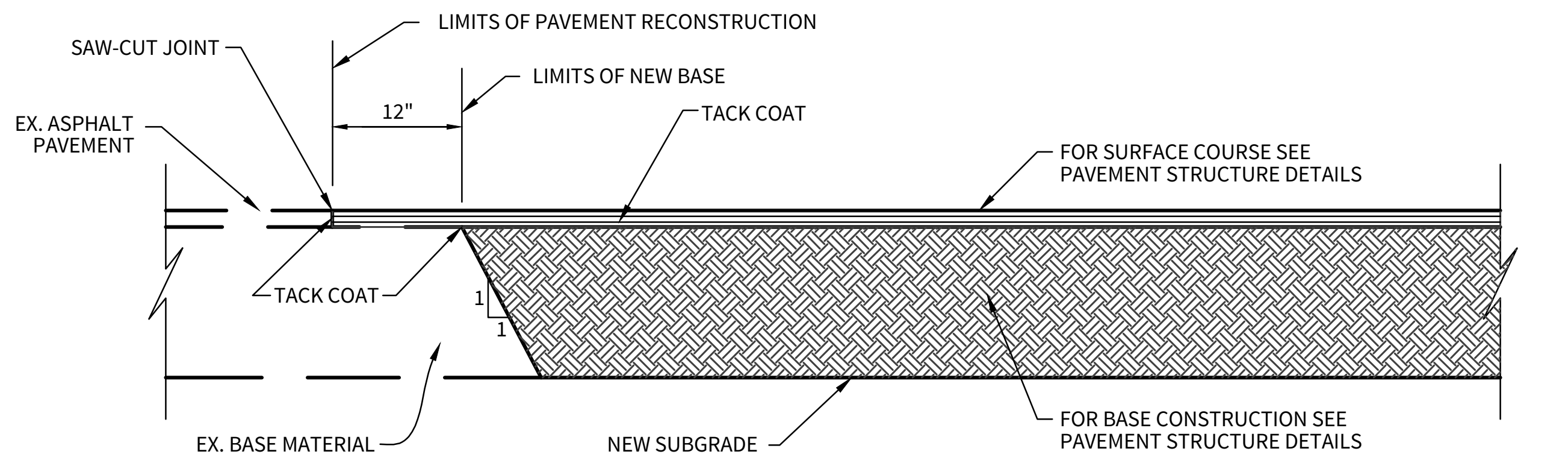
N.T.S

NOTES:
1. ALL WORK AND MATERIAL SHALL CONFORM TO TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS AND BRIDGES, 2014 EDITION, ITEM NO. 529.
2. CONTROL JOINTS TO BE SPACED @ 10' MAX.
3. EXPANSION JOINTS TO BE SPACED @ 40' O.C. MAX.

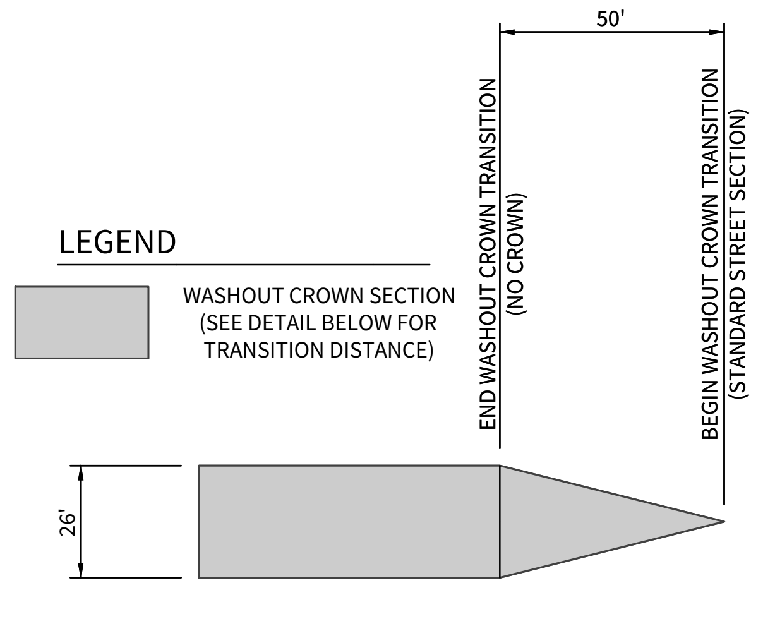
4



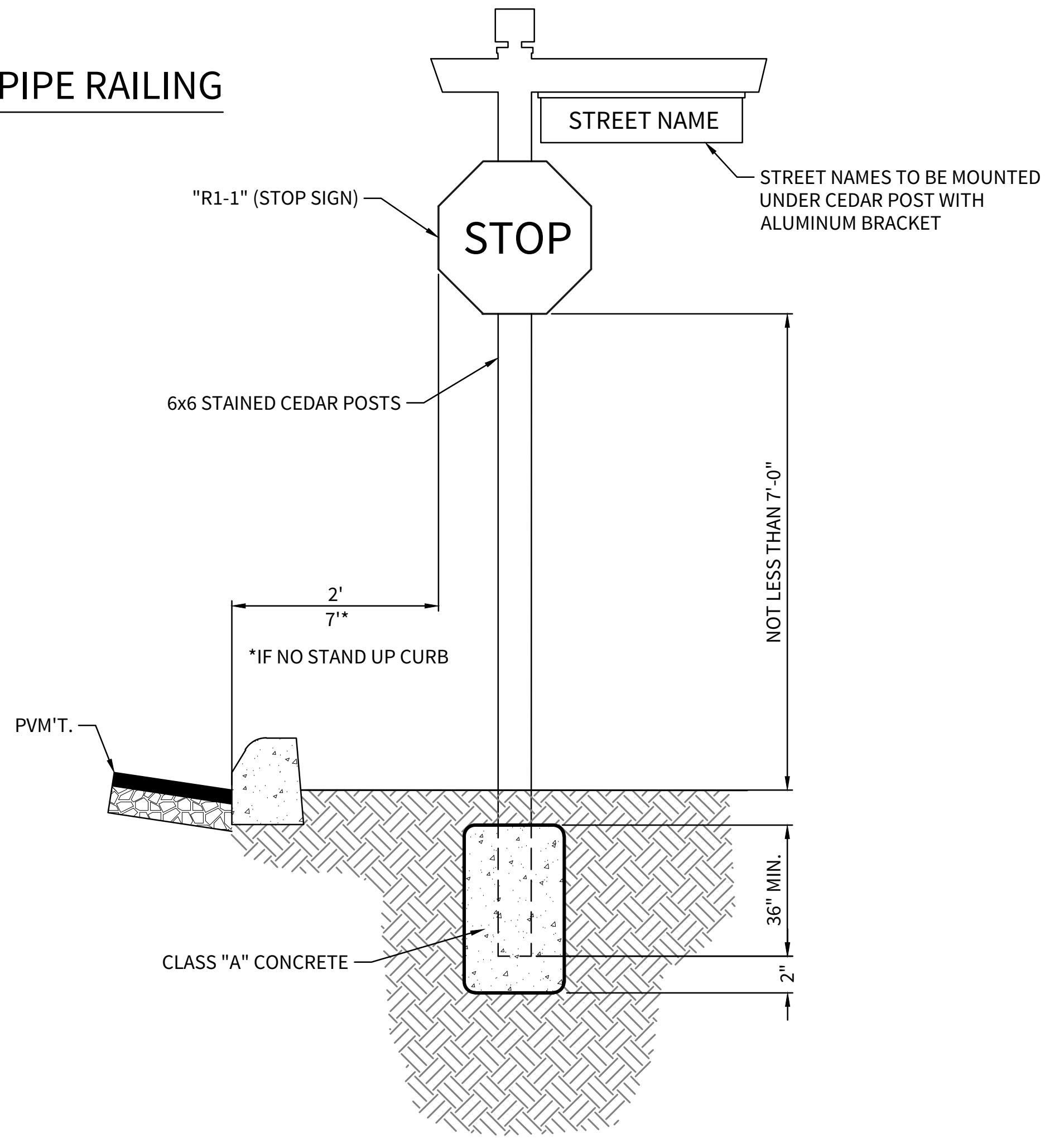
TYPICAL DRIVEWAY CUT SECTION


LIMITS OF PAVEMENT RECONSTRUCTION
SAW-CUT JOINT
LIMITS OF NEW BASE
12"
EX. ASPHALT PAVEMENT
TACK COAT
FOR SURFACE COURSE SEE PAVEMENT STRUCTURE DETAILS
TACK COAT
1
1
EX. BASE MATERIAL
NEW SUBGRADE
FOR BASE CONSTRUCTION SEE PAVEMENT STRUCTURE DETAILS

PAVEMENT JUNCTION DETAIL


50'
END WASHOUT CROWN TRANSITION (NO CROWN)
BEGIN WASHOUT CROWN TRANSITION (STANDARD STREET SECTION)
LEGEND
WASHOUT CROWN SECTION (SEE DETAIL BELOW FOR TRANSITION DISTANCE)
26'

WASHOUT CROWN TRANSITION DETAIL



TYPICAL SIGN PLACEMENT DETAIL

N.T.S.

NOTE:
IF SIGN IS UNABLE TO BE INSTALLED BEHIND
CURB, SIGN WILL NEED TO MEET TXDOT
BREAK AWAY REQUIREMENTS.
(SEE DETAIL SHEET ####)

STREET TYPE	HMAC TYPE "D"	FLEX BASE (TY A GR 2)	LIME TREATED SUBGRADE (27 LB/SY)	BASE UNDER CURB	SUBGRADE PI
LOCAL STREET (500 ADT) PI < 20	1.5"	8"	----	4"	< 20
LOCAL STREET (500 ADT) PI > 20	1.5"	12"	----	8"	> 20
RESIDENTIAL COLLECTOR (1000 ADT) PI < 20	2"	12"	----	8.5"	< 20
RESIDENTIAL COLLECTOR (1000 ADT) PI > 20	2"	18"	----	14.5"	> 20
COBBLESTONE FINISH (1000 ADT) PI < 20	6" STAMPED CONC.	----	----	----	< 20

1. PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT (REF. MLA GEOTECHNICAL REPORT #21201100.010 - DATED JULY 2021). REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND ALTERNATE PAVEMENT SECTIONS.
2. A GEOTECHNICAL ENGINEERING REPRESENTATIVE SHALL BE RETAINED TO: (1) OBSERVE THE SITE PREPARATION AND SUBGRADE OPERATIONS. (2) EVALUATE THE ACTUAL SUBGRADE MATERIAL CLASSIFICATION; AND (3) VERIFY THAT RECOMMENDATIONS ARE FOLLOWED. THE ACTUAL SUBGRADE CONDITION AT A PARTICULAR LOCATION WILL NEED TO BE EVALUATED DURING CONSTRUCTION ONCE THE SUBGRADE IS CUT/FILLED TO THE PROPER GRADE.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. TESTING TO BE PAID BY OWNER.
4. CONTRACTOR MAY LEAVE VERTICAL CUT BANKS AT R.O.W. LINE AND MEDIANS PROVIDED PROJECT GEOTECHNICAL ENGINEER DETERMINES ROCK IS COMPETENT TO STAND ON ITS OWN.
5. IF ALTERNATE PAVEMENT SECTION CHOSEN, KENDALL COUNTY SHALL BE PROVIDED WITH REVISED CONSTRUCTION PLANS INDICATING SELECTED PAVEMENT DESIGN PRIOR TO CONSTRUCTION.
6. PAVEMENT SECTIONS ARE SUBJECT TO CHANGE DUE TO RETESTING OF SOIL AFTER STREET EXCAVATION HAS BEEN DONE TO TOP OF CURB.
7. CONTRACTOR SHALL CONTACT ENGINEER 48 HRS IN ADVANCE FOR FIELD OBSERVATION DURING STREET CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO CONTACT ENGINEER FOR INSPECTION OF THE SUBGRADE, BASE, ASPHALT, AND CURB.
8. GENERAL FILL MATERIALS SHOULD CONSIST OF ONSITE SOILS OR CLEAN IMPORTED FILL SOILS WITH EQUAL OR BETTER CBR CHARACTERISTICS TO THE ONSITE SOILS. GENERAL FILL MATERIAL SHOULD BE CLEAN AND FREE OF ANY VEGETATION ROOTS, ORGANIC MATERIALS, TRASH OR GARBAGE, CONSTRUCTION DEBRIS, OR OTHER DELETERIOUS MATERIALS AND SHOULD CONTAIN NO LARGER THAT THREE (3) INCHES IN MAXIMUM DIMENSION.

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San Antonio, Texas 78231
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GEORGE'S RANCH
UNIT 1

STANDARD STREET DETAILS

DATE
03/20/2024

PROJECT NO.
03546.001

DRAWN BY
AB/RR

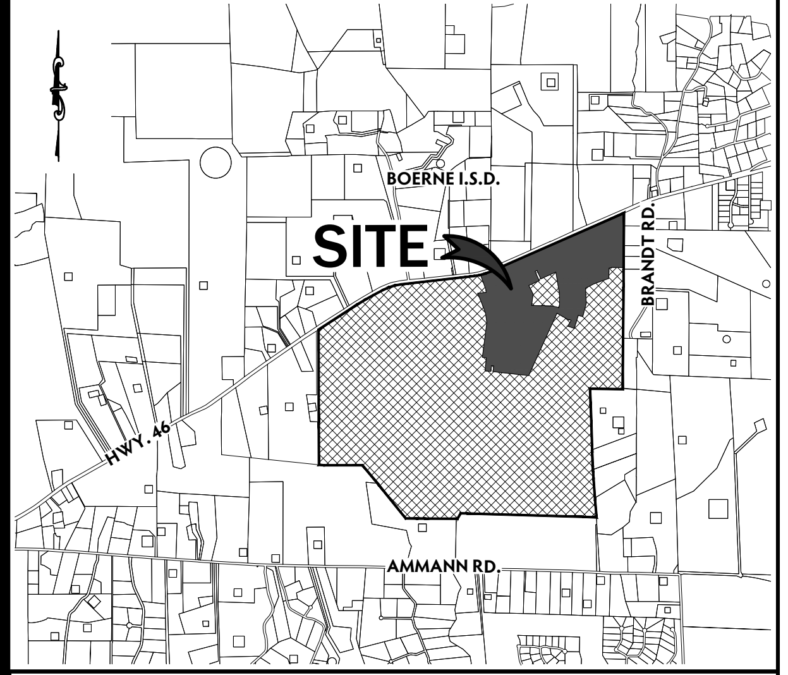
CHECKED BY
WPM

REVISIONS

1.	2022-07-12 ADDED PIPE RAILING DETAIL
2.	2022-09-28 REVISED DETAIL, ADDED COBBLESTONE DETAIL
3.	2022-11-15 REVISED DETAIL, REVISED STAMPED CONC. SECTION
4.	2024-02-27 ADDED CATCH CURB DETAIL
5.	2024-05-06 SPECIFY CONCRETE CLASS
6.	
7.	
8.	
9.	

W. PATRICK MURPHY
111597
5/6/2024

CUDE ENGINEERS
TBPE No. 455



LOCATION MAP

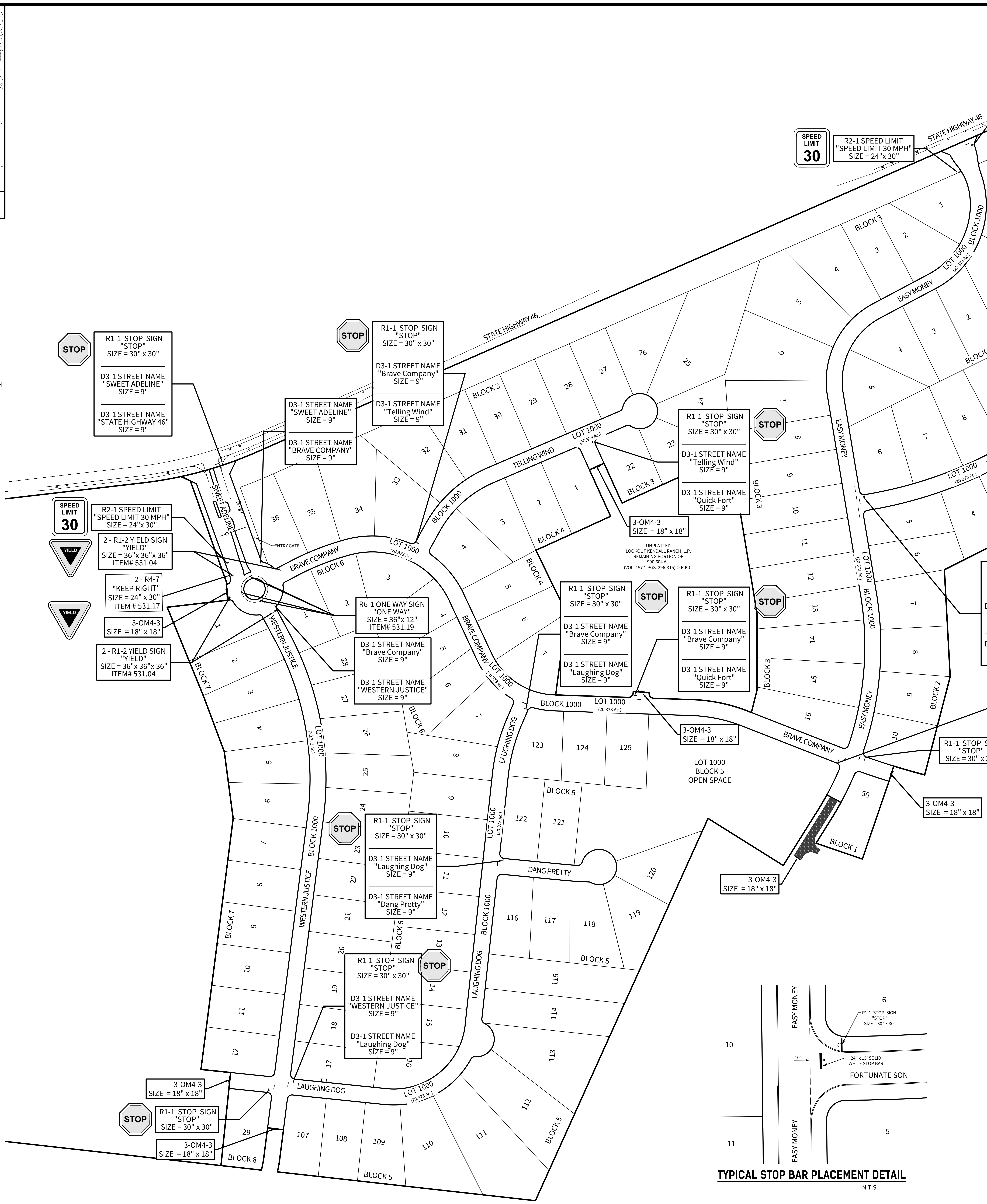
N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

NOTES

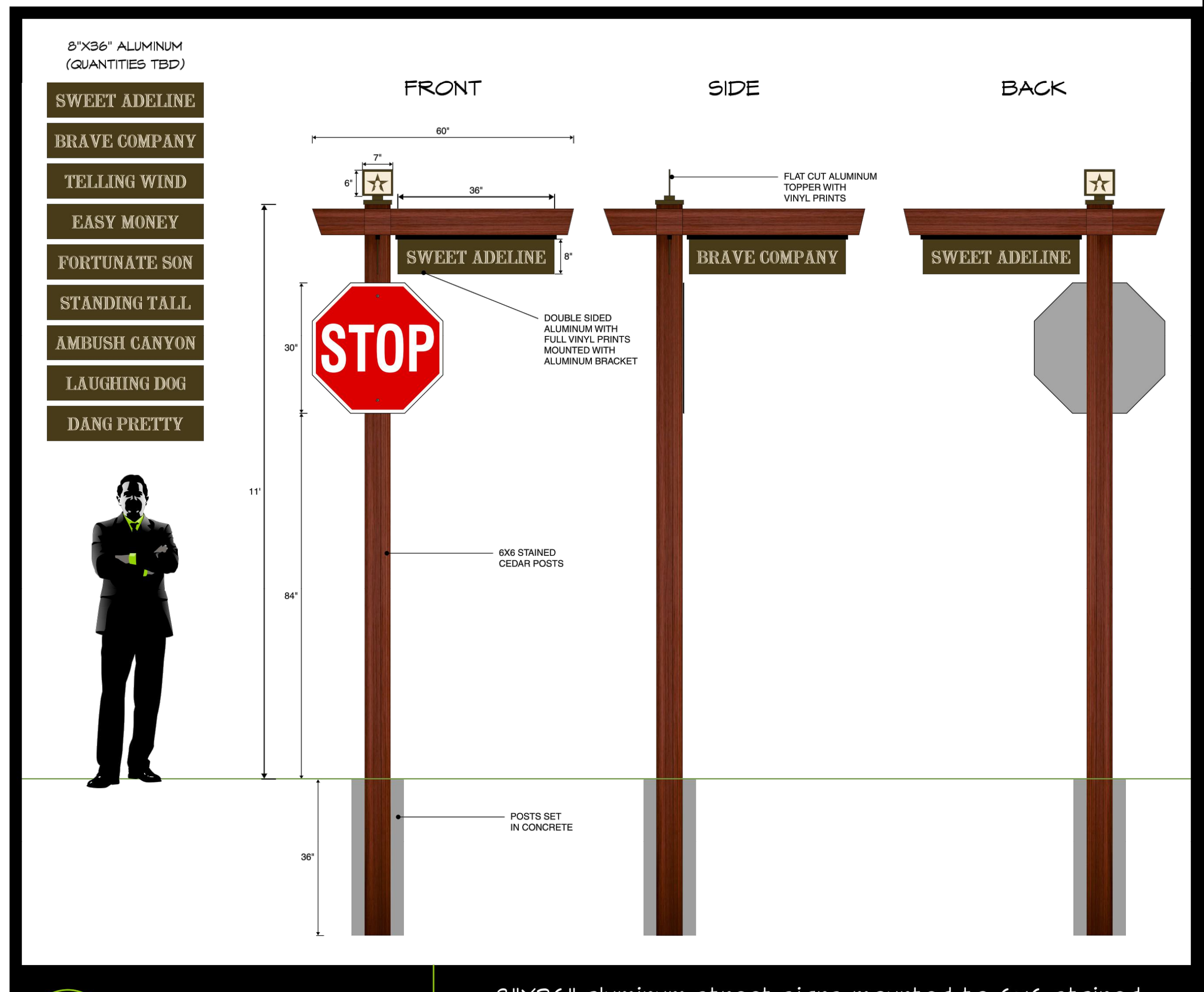
1. CONTRACTOR TO COORDINATE SIGN PLACEMENT WITH STREET CONSTRUCTION TO AVOID ANY POSSIBLE CONFLICTS.
2. ALL PAVEMENT MARKINGS SHALL BE HOT-APPLIED THERMOPLASTIC PAVEMENT MARKINGS PER TxDOT ITEM NO. 666.


STATE HIGHWAY 46
SWEET ADELINE
ENTRY GATE
BRAVE COMPANY
TELLING WIND
WESTERN JUSTICE
LAUGHING DOG
DANG PRETTY
EASY MONEY
FORTUNATE SON
STANDING TALL
LOT 1000 (20.373 Ac.)
BLOCK 1000
BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
BLOCK 6
BLOCK 7
BLOCK 8
LOT 1000
BLOCK 5
OPEN SPACE
UNPLATTED
LOOKOUT KENDALL RANCH, L.P.
REMAINING PORTION OF
990.604 Ac.
(VOL. 1577, PGS. 296-315) O.R.K.C.
STOP
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
D3-1 STREET NAME "SWEET ADELINE" SIZE = 9"
D3-1 STREET NAME "STATE HIGHWAY 46" SIZE = 9"
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
D3-1 STREET NAME "Brave Company" SIZE = 9"
D3-1 STREET NAME "Telling Wind" SIZE = 9"
D3-1 STREET NAME "SWEET ADELINE" SIZE = 9"
D3-1 STREET NAME "BRAVE COMPANY" SIZE = 9"
SPEED LIMIT 30
R2-1 SPEED LIMIT "SPEED LIMIT 30 MPH" SIZE = 24"x 30"
YIELD
2 - R1-2 YIELD SIGN "YIELD" SIZE = 36"x 36"x 36" ITEM# 531.04
2 - R4-7 "KEEP RIGHT" SIZE = 24" x 30" ITEM # 531.17
3-OM4-3 SIZE = 18" x 18"
2 - R1-2 YIELD SIGN "YIELD" SIZE = 36"x 36"x 36" ITEM# 531.04
R6-1 ONE WAY SIGN "ONE WAY" SIZE = 36"x 12" ITEM# 531.19
D3-1 STREET NAME "Brave Company" SIZE = 9"
D3-1 STREET NAME "WESTERN JUSTICE" SIZE = 9"
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
D3-1 STREET NAME "Telling Wind" SIZE = 9"
D3-1 STREET NAME "Quick Fort" SIZE = 9"
3-OM4-3 SIZE = 18" x 18"
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
D3-1 STREET NAME "Brave Company" SIZE = 9"
D3-1 STREET NAME "Laughing Dog" SIZE = 9"
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
D3-1 STREET NAME "Brave Company" SIZE = 9"
D3-1 STREET NAME "Quick Fort" SIZE = 9"
3-OM4-3 SIZE = 18" x 18"
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
D3-1 STREET NAME "Laughing Dog" SIZE = 9"
D3-1 STREET NAME "Dang Pretty" SIZE = 9"
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
D3-1 STREET NAME "WESTERN JUSTICE" SIZE = 9"
D3-1 STREET NAME "Laughing Dog" SIZE = 9"
3-OM4-3 SIZE = 18" x 18"
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
3-OM4-3 SIZE = 18" x 18"
3-OM4-3 SIZE = 18" x 18"
R2-1 SPEED LIMIT "SPEED LIMIT 30 MPH" SIZE = 24"x 30"
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
D3-1 STREET NAME "SH 46" SIZE = 9"
D3-1 STREET NAME "Easy Money" SIZE = 9"
3-OM4-3 SIZE = 18" x 18"
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
W14-2AL "NO OUTLET" SIZE = 36" X 8" ITEM# 531.60
NO OUTLET
D3-1 STREET NAME "Fortunate Son" SIZE = 9"
D3-1 STREET NAME "Standing Tall" SIZE = 9"
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
D3-1 STREET NAME "Easy Money" SIZE = 9"
D3-1 STREET NAME "Fortunate Son" SIZE = 9"
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
D3-1 STREET NAME "Easy Money" SIZE = 9"
D3-1 STREET NAME "Brave Company" SIZE = 9"
R1-1 STOP SIGN "STOP" SIZE = 30" x 30"
3-OM4-3 SIZE = 18" x 18"
EASY MONEY
FORTUNATE SON
R1-1 STOP SIGN "STOP" SIZE = 30" X 30"
10'
24" x 15' SOLID WHITE STOP BAR

TYPICAL STOP BAR PLACEMENT DETAIL

N.T.S.

SCALE: 1"=200'
200 100 0 200



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GEORGE'S RANCH UNIT 1

TRAFFIC SIGNAGE PLAN

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

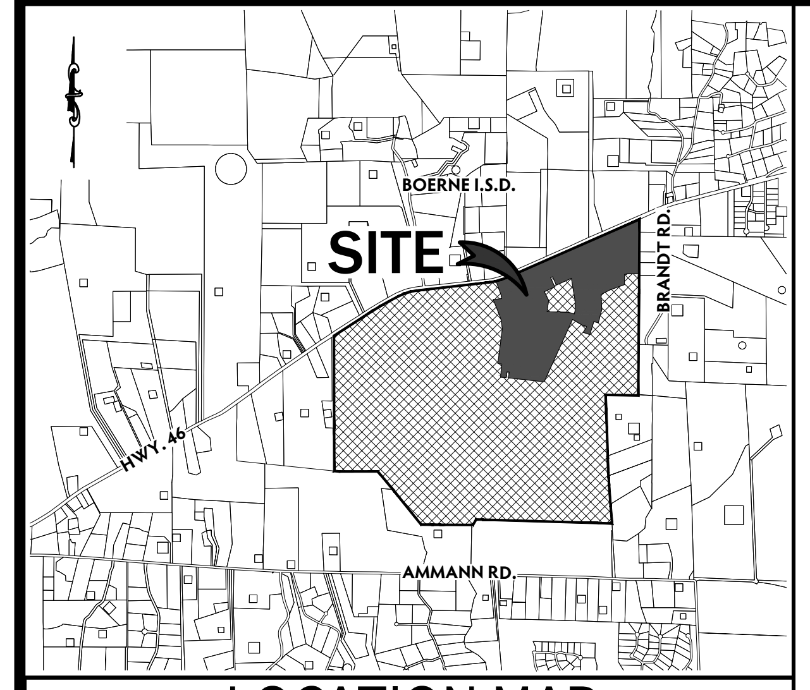
REVISIONS

1. 2022-7-12 REVISED PAVEMENT STRIPING, ADDED "ONE WAY" SIGNS
2. 2022-9-27 REVISED PAVEMENT STRIPING, ADDED DETAIL
3.
4.
5.
6.
7.
8.
9.

STATE OF TEXAS
W. PATRICK MURPHY
111597
LICENSED PROFESSIONAL ENGINEER
7/20/2023

CUDE ENGINEERS
TBPE No. 455

C18



LOCATION MAP

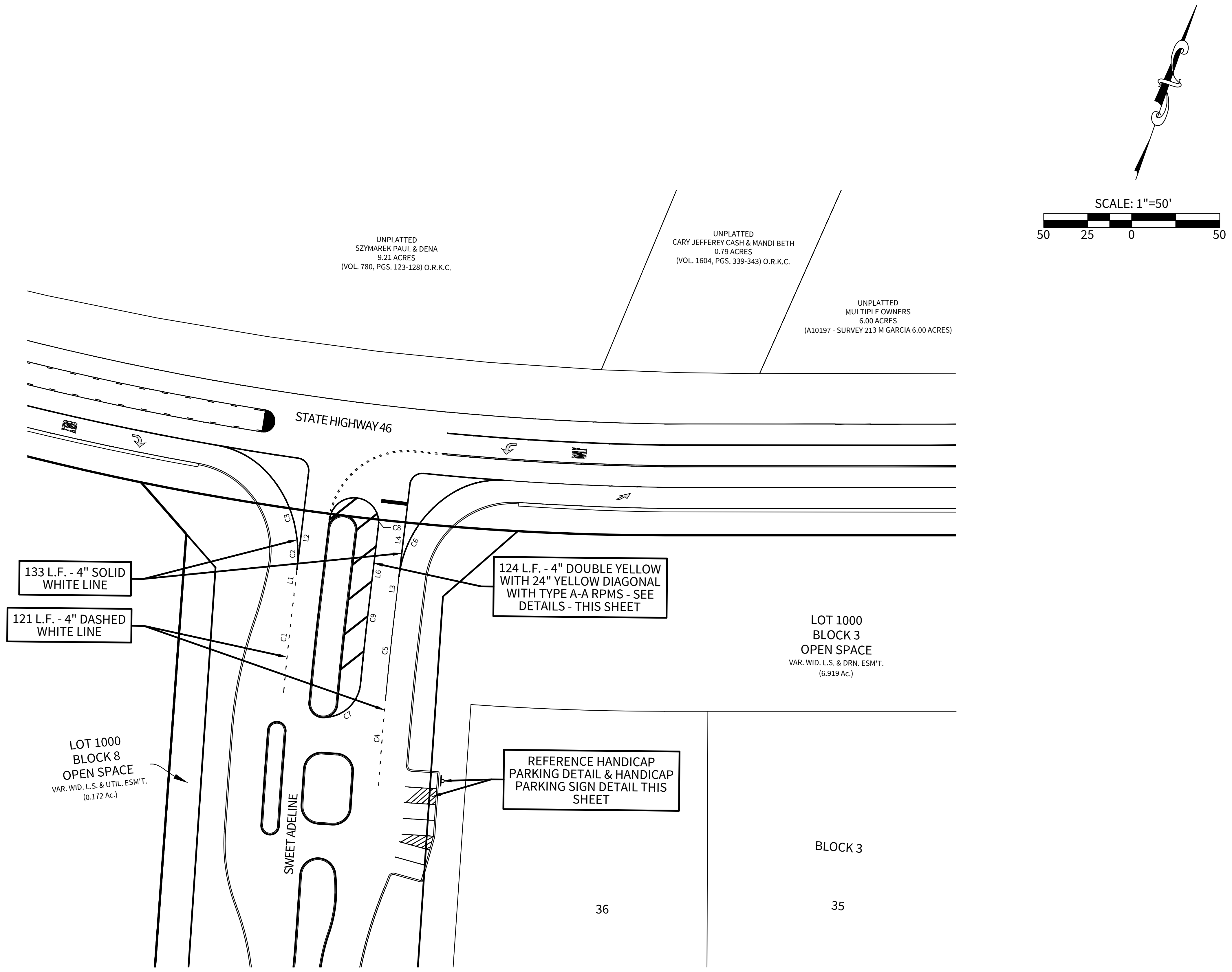
N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

NOTES

1. CONTRACTOR TO COORDINATE SIGN PLACEMENT WITH STREET CONSTRUCTION TO AVOID ANY POSSIBLE CONFLICTS.
2. ALL PAVEMENT MARKINGS SHALL BE HOT-APPLIED THERMOPLASTIC PAVEMENT MARKINGS PER TxDOT ITEM NO. 666.

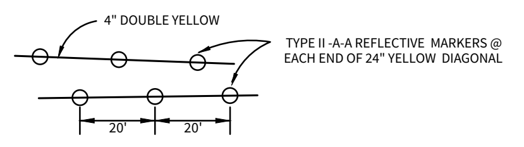


133 L.F. - 4" SOLID WHITE LINE

121 L.F. - 4" DASHED WHITE LINE

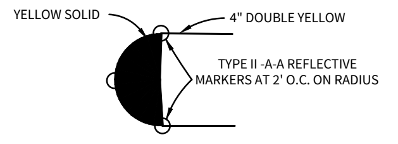
124 L.F. - 4" DOUBLE YELLOW WITH 24" YELLOW DIAGONAL WITH TYPE A-A RPMS - SEE DETAILS - THIS SHEET

REFERENCE HANDICAP PARKING DETAIL & HANDICAP PARKING SIGN DETAIL THIS SHEET


4" DOUBLE YELLOW
TYPE II -A-A REFLECTIVE MARKERS @ EACH END OF 24" YELLOW DIAGONAL
20'
20'

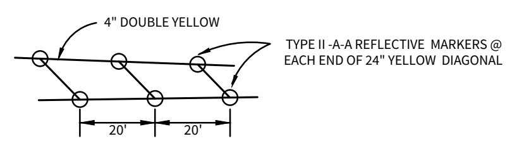
DETAIL "A"

N.T.S.



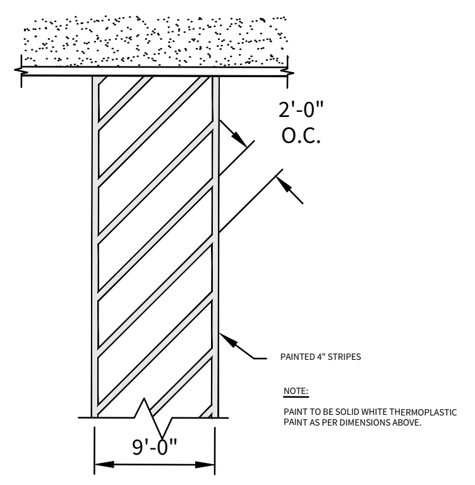
DETAIL "B"

N.T.S.


4" DOUBLE YELLOW
TYPE II -A-A REFLECTIVE MARKERS @ EACH END OF 24" YELLOW DIAGONAL
20'
20'

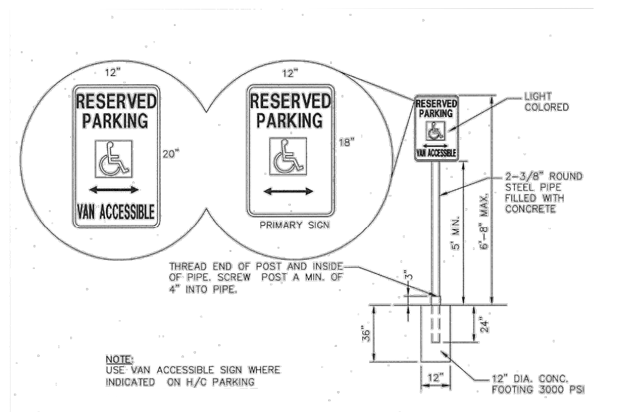
DETAIL "C"

N.T.S.


2'-0"
O.C.
PAINTED 4" STRIPES
NOTE:
PAINT TO BE SOLID WHITE THERMOPLASTIC PAINT AS PER DIMENSIONS ABOVE.
9'-0"

HANDICAP PARKING DETAIL

N.T.S.

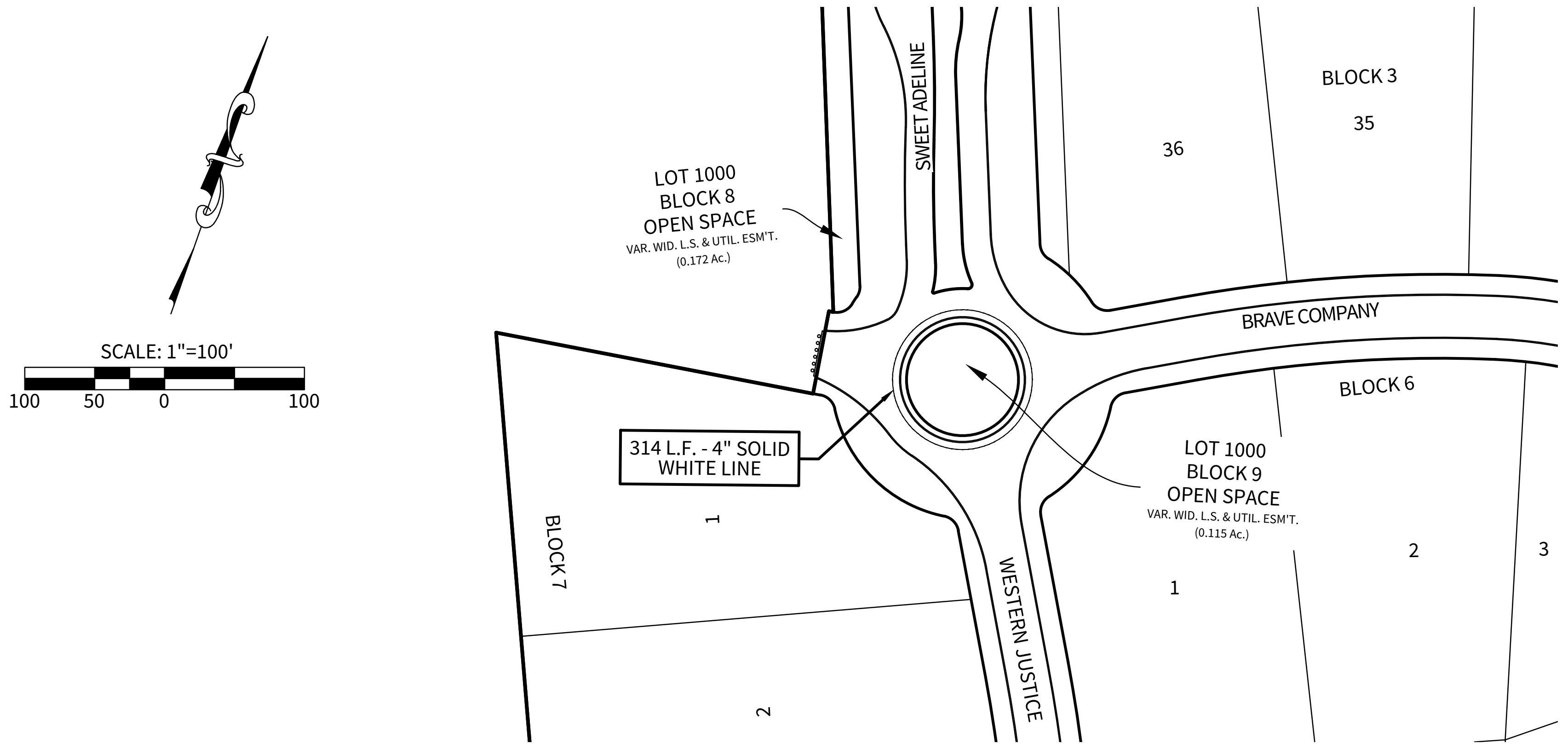

12"
RESERVED
PARKING
VAN ACCESSIBLE
20"
12"
RESERVED
PARKING
PRIMARY SIGN
18"
RESERVED
PARKING
VAN ACCESSIBLE
LIGHT COLORED
2-3/8" ROUND STEEL PIPE FILLED WITH CONCRETE
5' MIN.
6'-8" MAX.
THREAD END OF POST AND INSIDE OF PIPE. SCREW POST A MIN. OF 4" INTO PIPE.
3"
36"
24"
12"
12" DIA. CONC. FOOTING 3000 PSI
NOTE:
USE VAN ACCESSIBLE SIGN WHERE INDICATED ON H/C PARKING

HANDICAP PARKING SIGN DETAIL

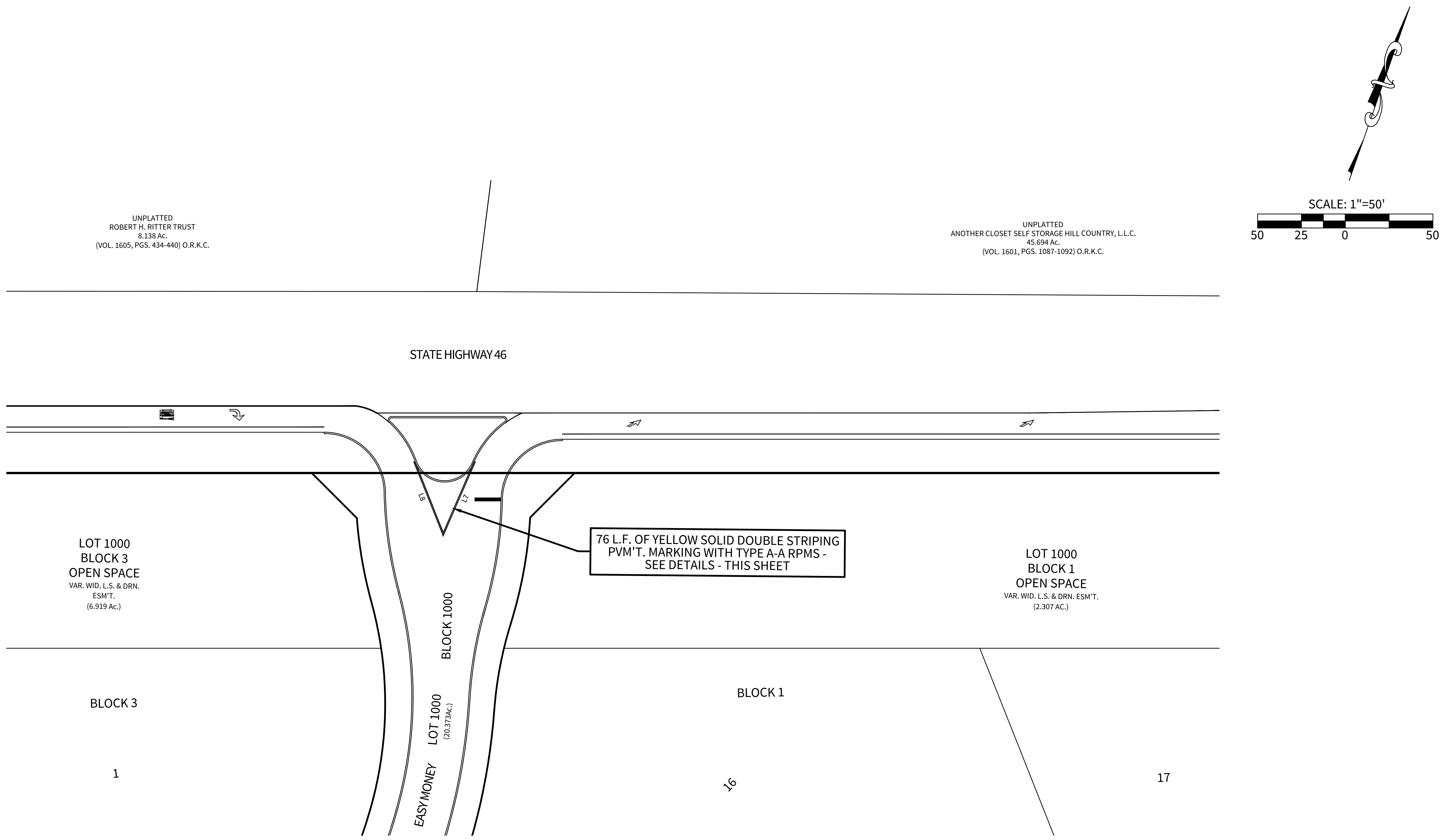
N.T.S.

LINE TABLE		
LINE	LENGTH	BEARING
L1	14.90'	N16°55'19"W
L2	33.94'	N16°55'19"W
L3	17.75'	N16°55'19"W
L4	31.09'	N16°55'19"W
L6	45.40'	N16°55'19"W
L7	39.05'	N00°14'18"W
L8	38.51'	N45°19'02"W

CURVE TABLE						
CURVE	RADIUS	DELTA	TANGENT	LENGTH	CHORD	CHORD BEARING
C1	2029.00'	1°33'41"	27.65'	55.30'	55.29'	N17°42'10"W
C2	74.90'	18°33'46"	12.24'	24.27'	24.16'	N26°12'23"W
C3	65.00'	9°52'58"	5.62'	11.21'	11.20'	S40°14'01"E
C4	1971.00'	1°27'12"	25.00'	50.00'	50.00'	N19°08'35"W
C5	1971.00'	1°29'39"	25.70'	51.40'	51.40'	N17°40'09"W
C6	65.00'	28°45'32"	16.66'	32.63'	32.28'	N02°32'33"W
C7	21.00'	85°33'53"	19.43'	31.36'	28.53'	N28°04'41"E
C8	14.00'	13°19'46"	1.64'	3.26'	3.25'	N23°35'17"W
C9	1986.00'	1°20'40"	23.30'	46.60'	46.60'	S17°35'40"E



314 L.F. - 4" SOLID WHITE LINE



76 L.F. OF YELLOW SOLID DOUBLE STRIPING PVM'T. MARKING WITH TYPE A-A RPMS - SEE DETAILS - THIS SHEET

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

GEORGE'S RANCH
UNIT 1

TURN LANE STRIPING PLAN

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-11-16 REVISED PAVEMENT STRIPING, ADDED DETAIL
2.
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
7/20/2023

CUDE ENGINEERS
TBPE No. 455

C19

19 OF 55

P:\03546\001\2-Drawings\01_23 TRAF.dwg 2023/07/13 4:30pm rmata

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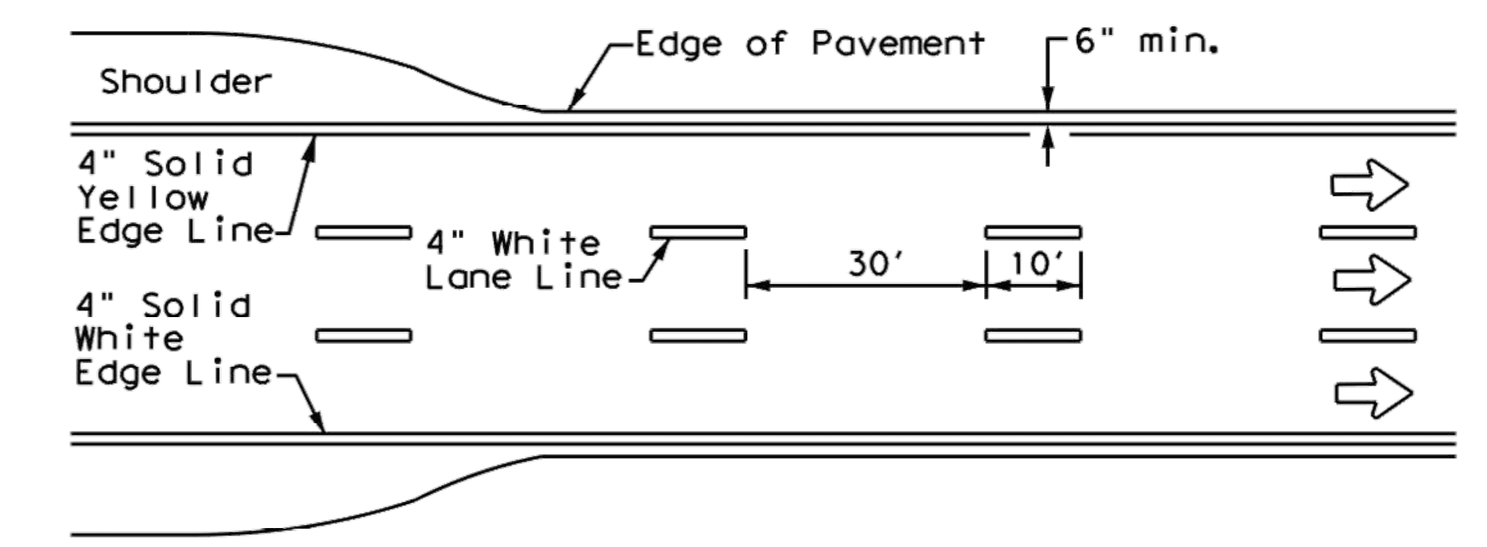
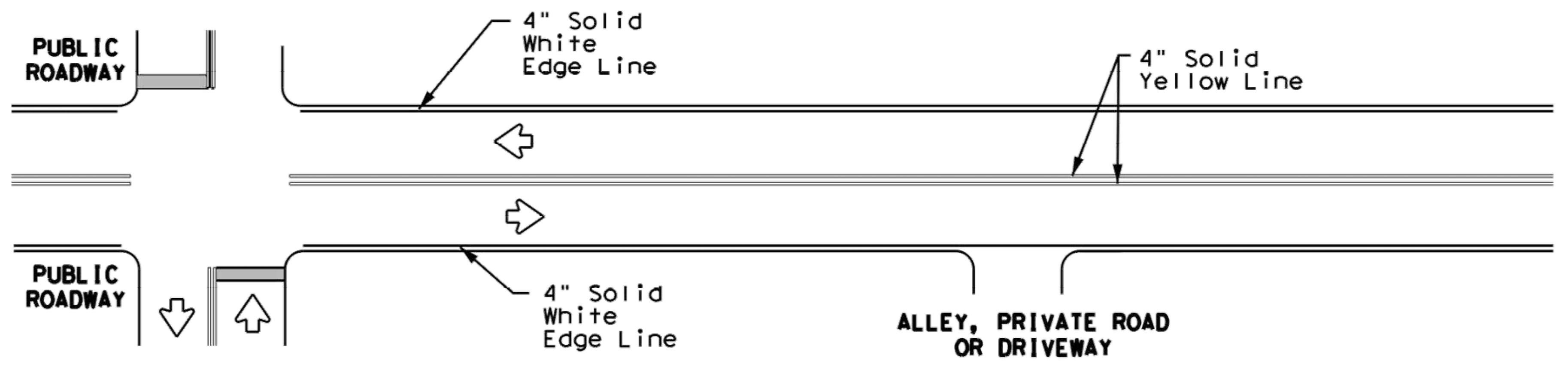
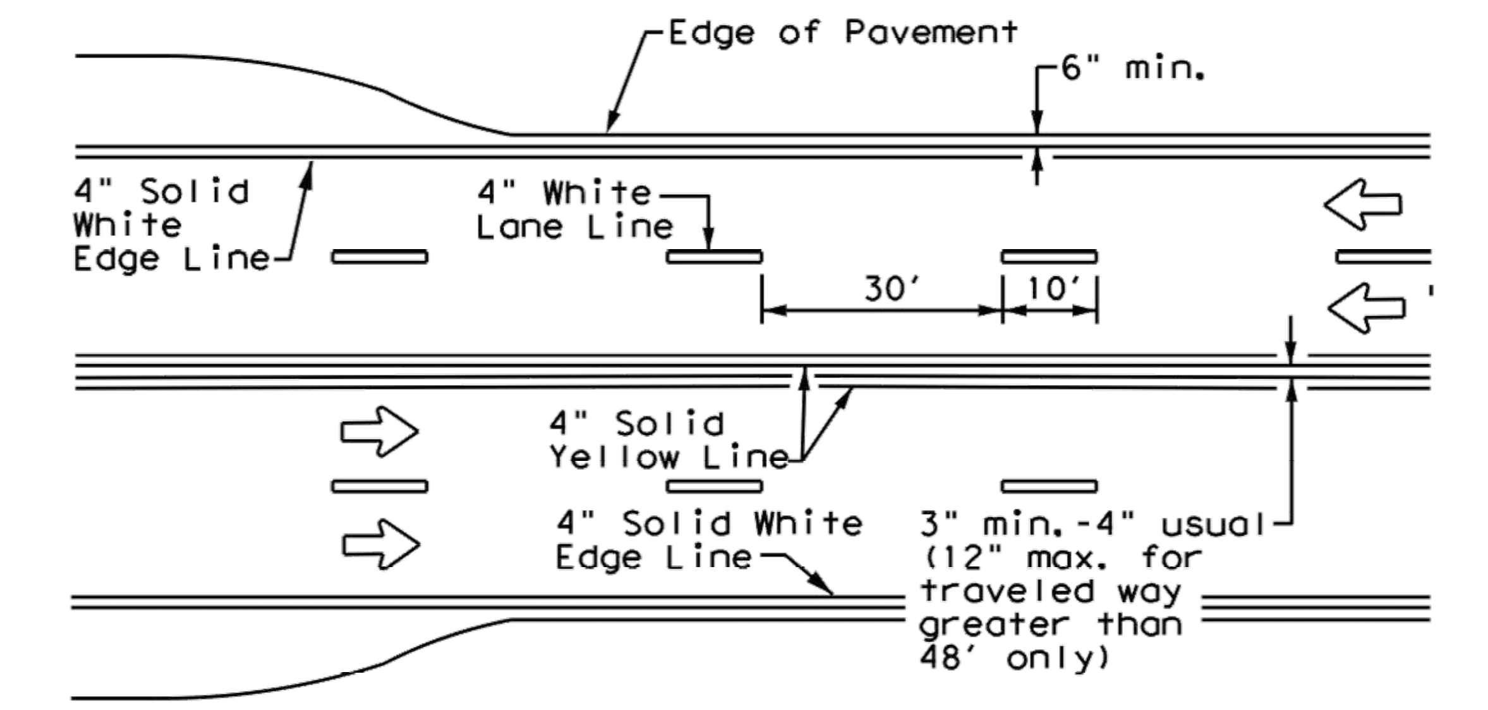


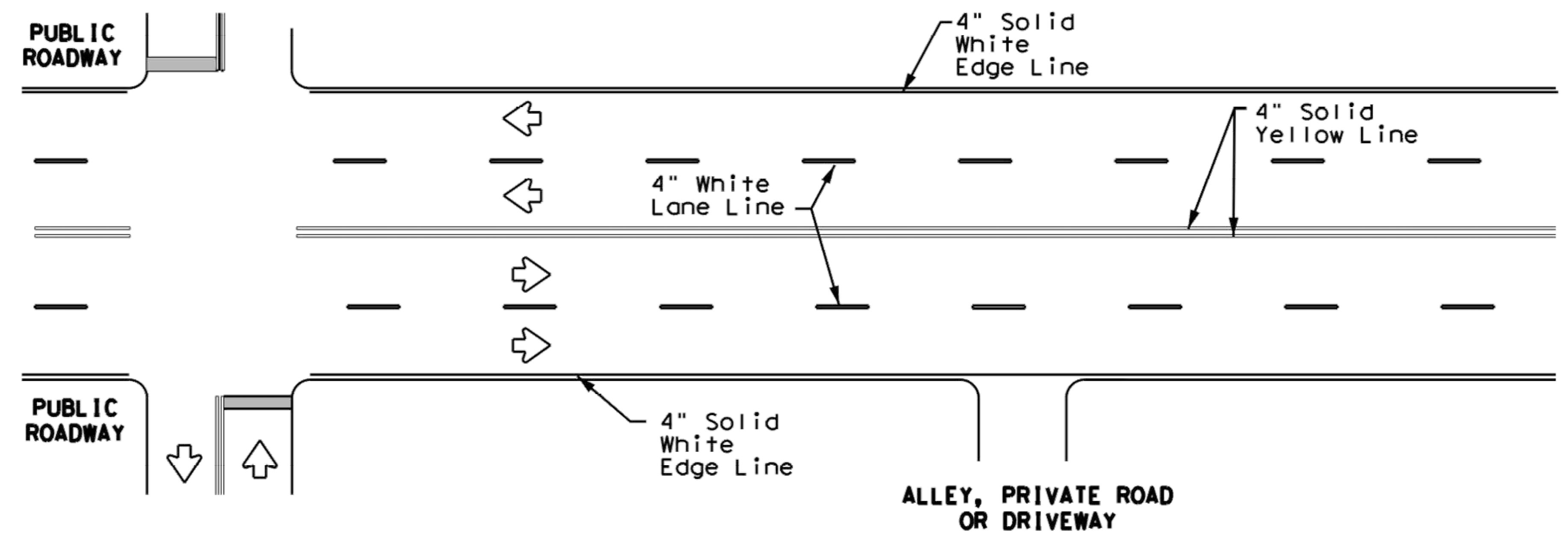
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



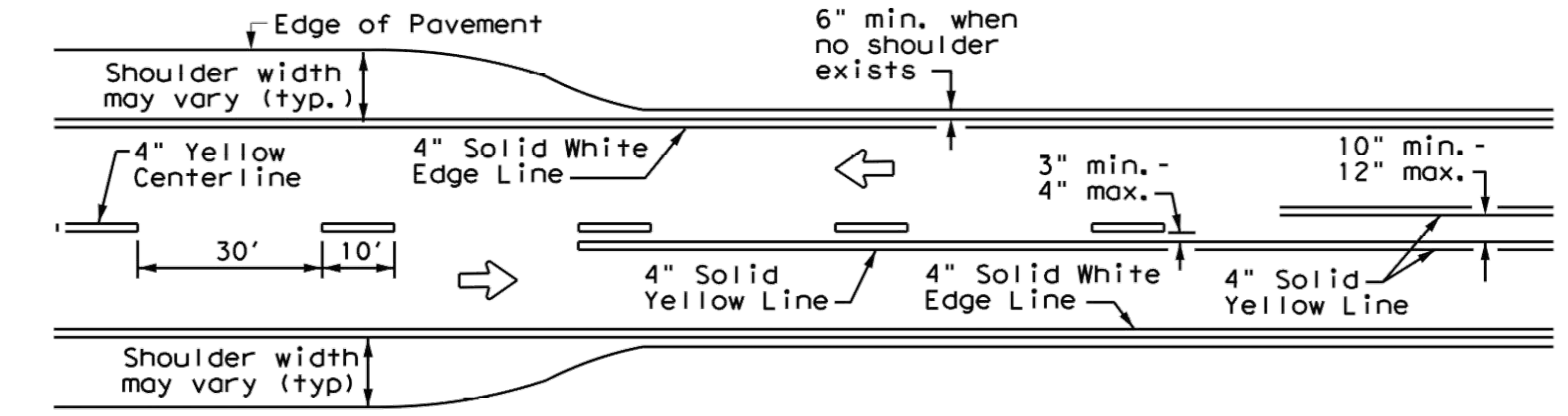
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



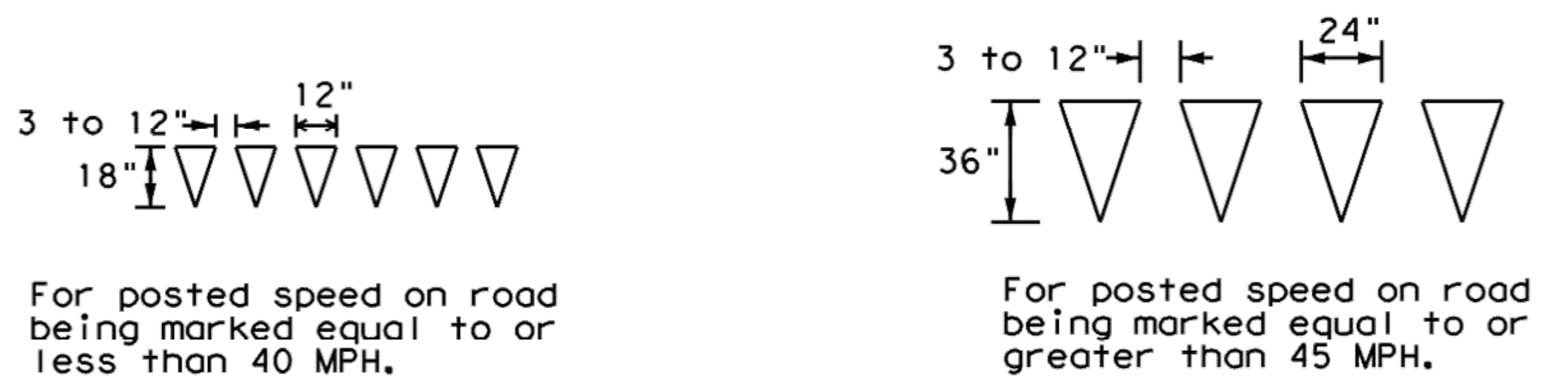
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



For posted speed on road being marked equal to or less than 40 MPH.

For posted speed on road being marked equal to or greater than 45 MPH.

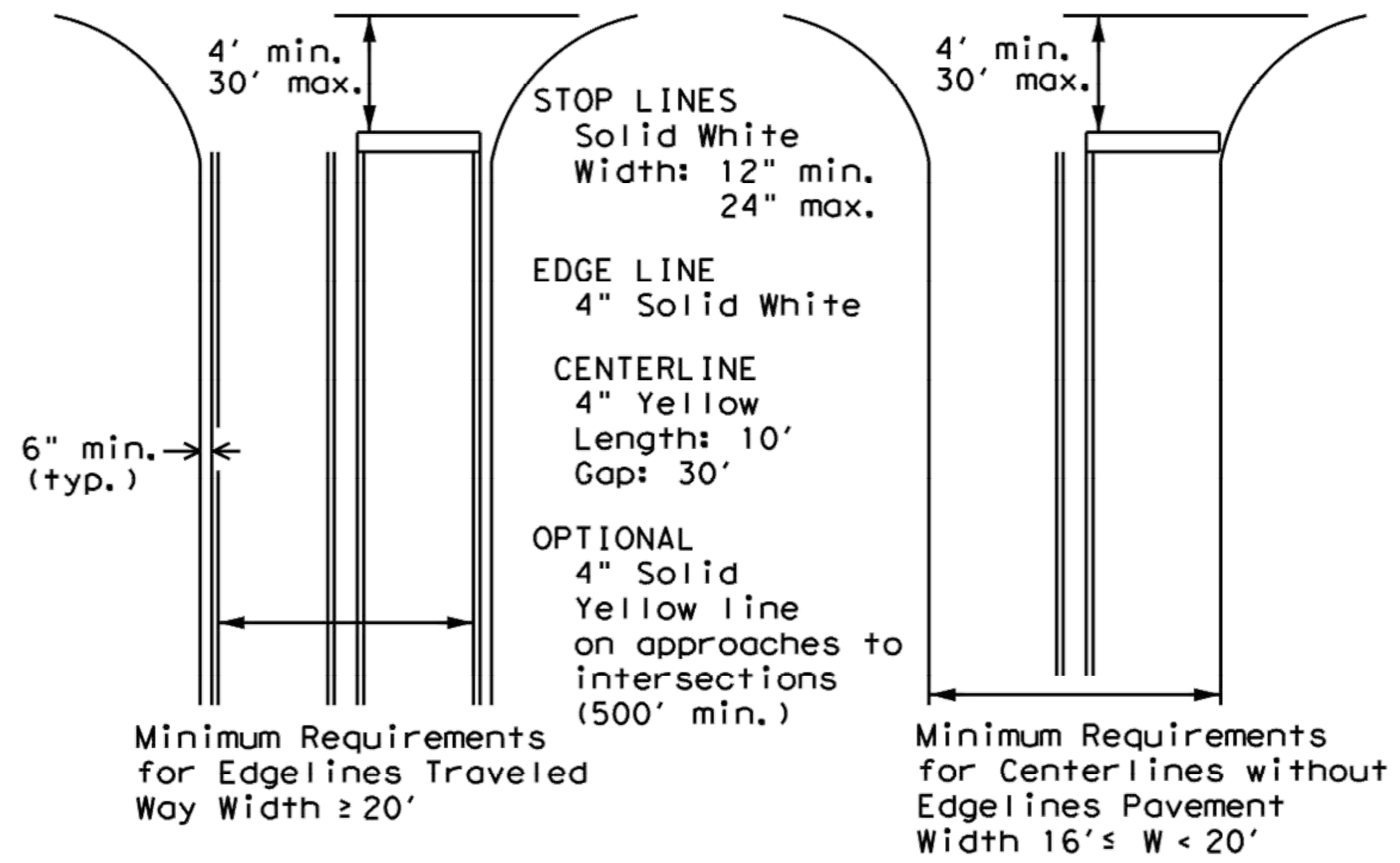
YIELD LINES

GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should not be placed less less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to the inside of edgeline of a two lane roadway.

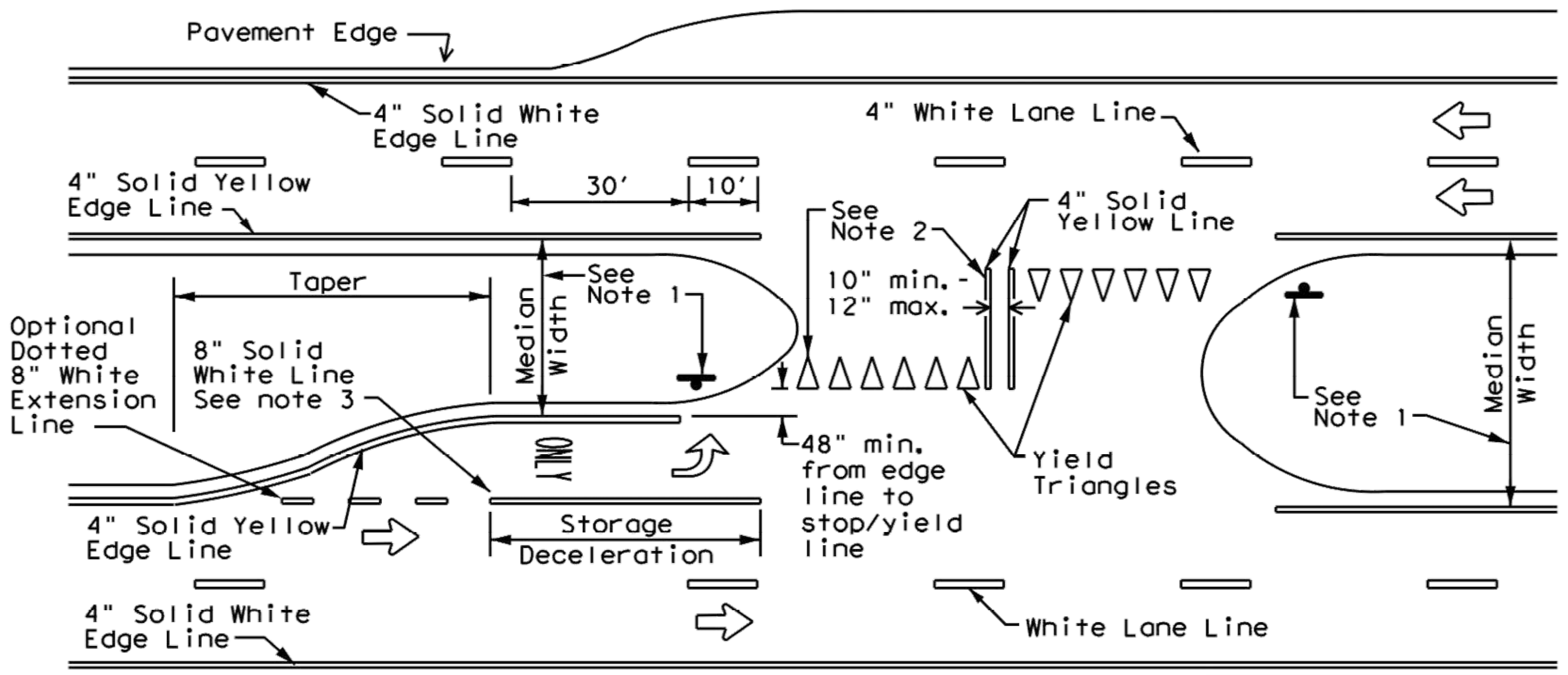
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.


4' min. 30' max.
4' min. 30' max.
6" min. (typ.)
STOP LINES
Solid White
Width: 12" min. 24" max.
EDGE LINE
4" Solid White
CENTERLINE
4" Yellow
Length: 10'
Gap: 30'
OPTIONAL
4" Solid Yellow line on approaches to intersections (500' min.)
Minimum Requirements for Edgelines Traveled Way Width ≥ 20'
Minimum Requirements for Centerlines without Edgelines Pavement Width 16's W < 20'

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop bars/yield triangles) when a 50' or greater median centerline can be placed. Stop bars shall only be used with stop signs. Yield traingles shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-20

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GEORGE'S RANCH UNIT 1
UNIT 1

TXDOT - TYPICAL STANDARD PAVEMENT MARKINGS

DATE
04/22/2022

PROJECT NO.
03546.001

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W. PATRICK MURPHY
111597
7/18/2022

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
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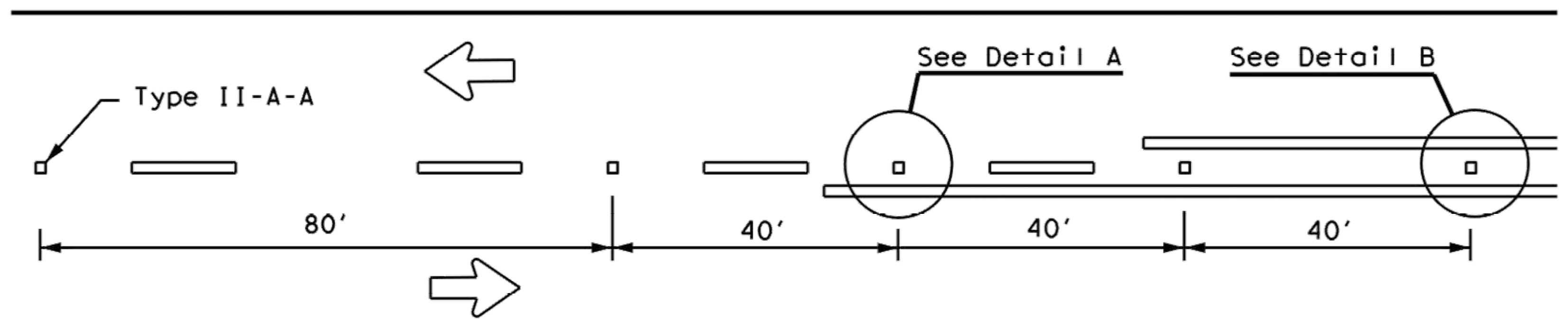
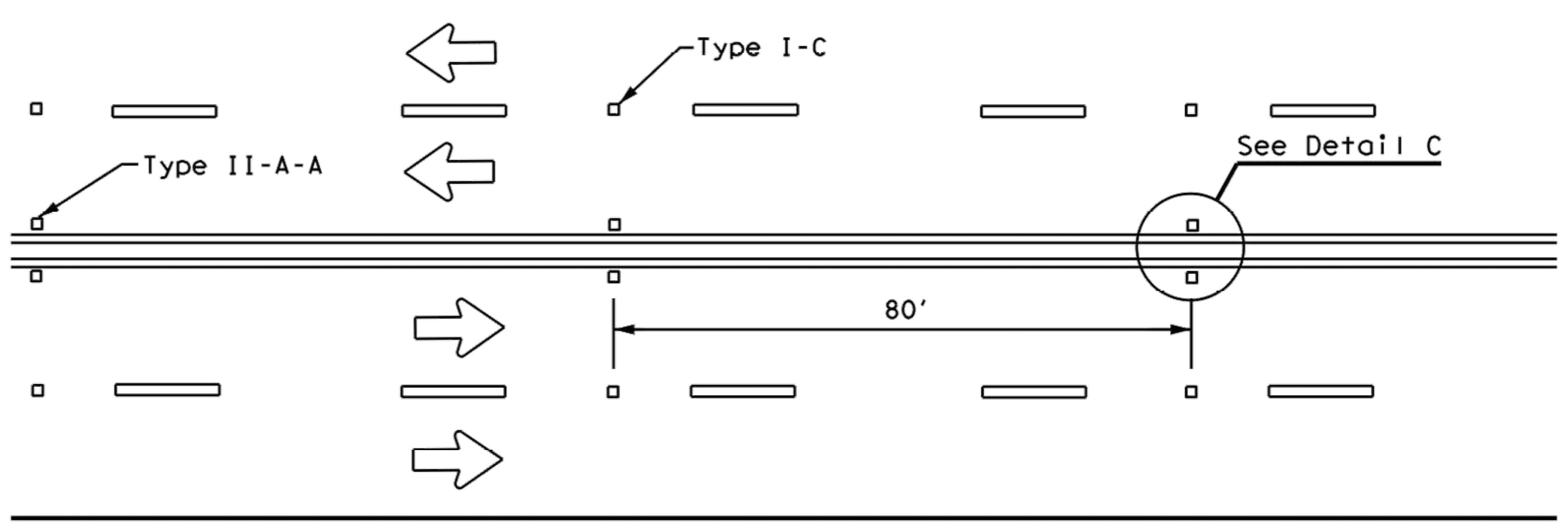
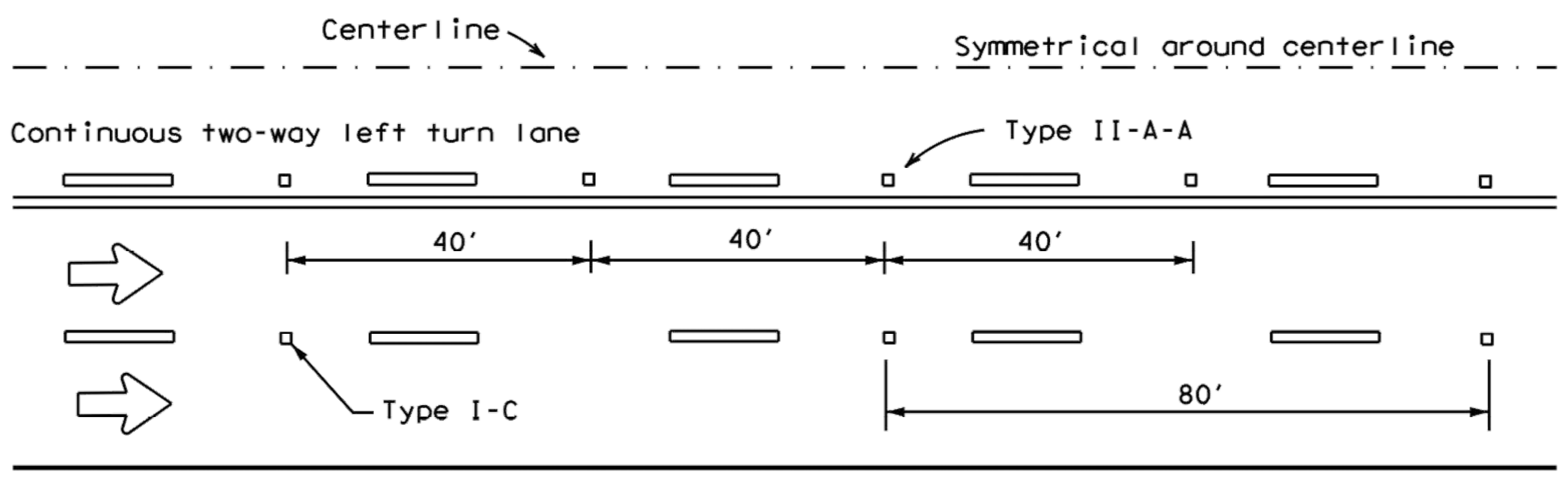
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



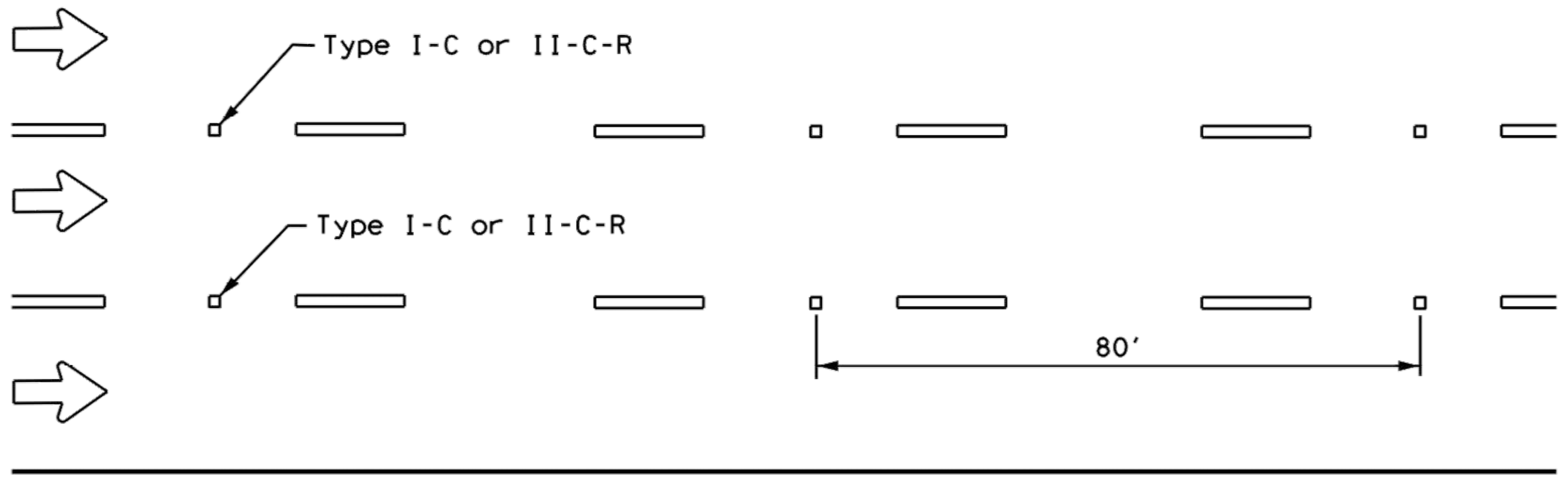
CENTERLINE FOR ALL TWO LANE ROADWAYS



CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS

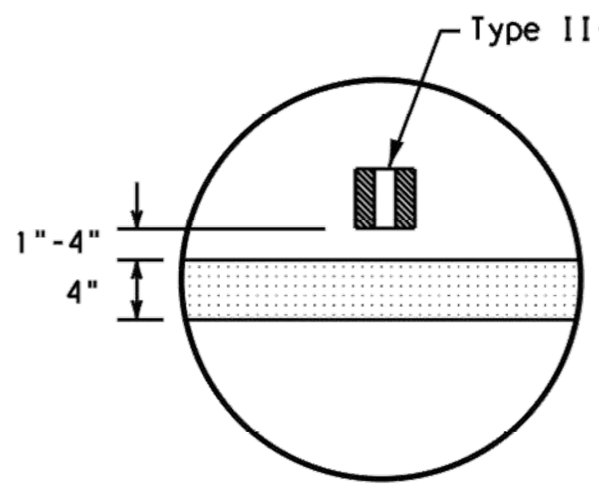

Centerline
Symmetrical around centerline
Continuous two-way left turn lane
Type II-A-A
40′
40′
40′
Type I-C
80′

CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE

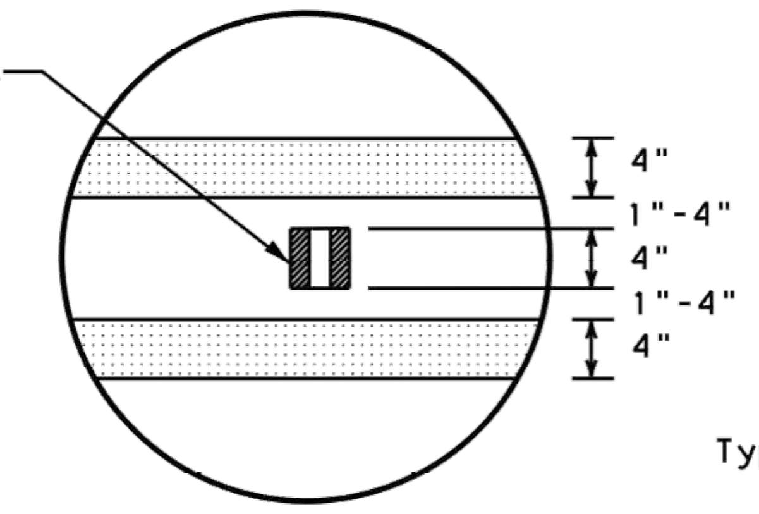


LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

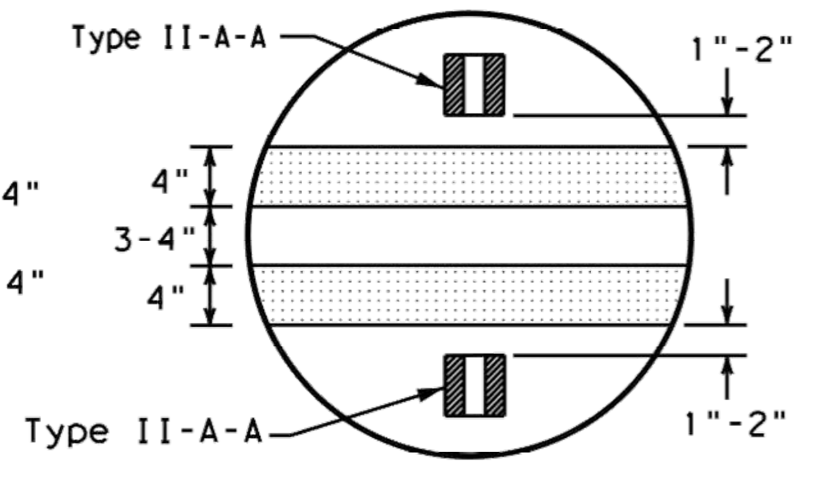
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.



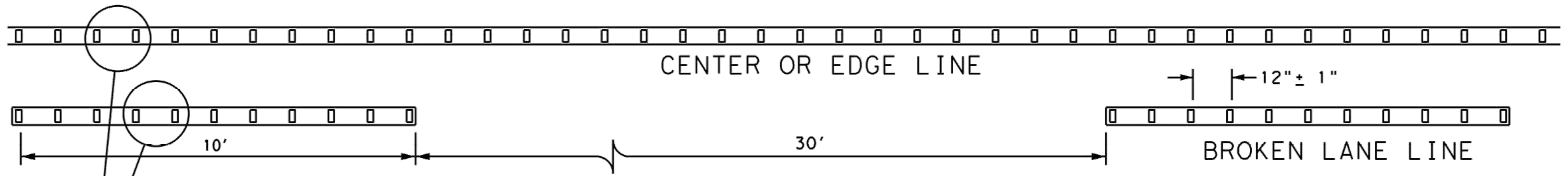
DETAIL "A"



DETAIL "B"

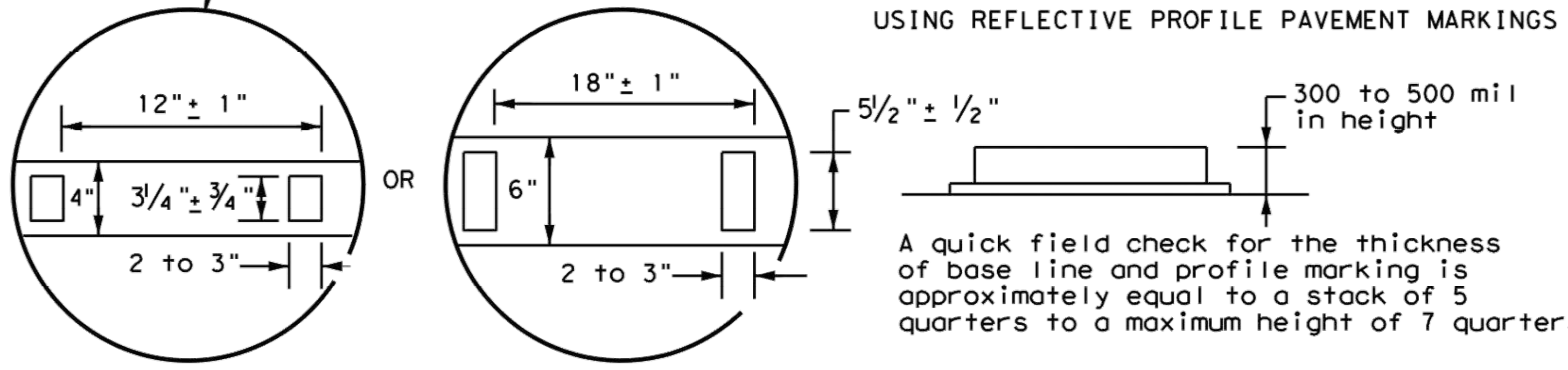


DETAIL "C"



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS



A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

4" EDGE LINE,
CENTER LINE
OR LANE LINE

OPTIONAL 6" EDGE
LINE, CENTER LINE
OR LANE LINE

NOTE

Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

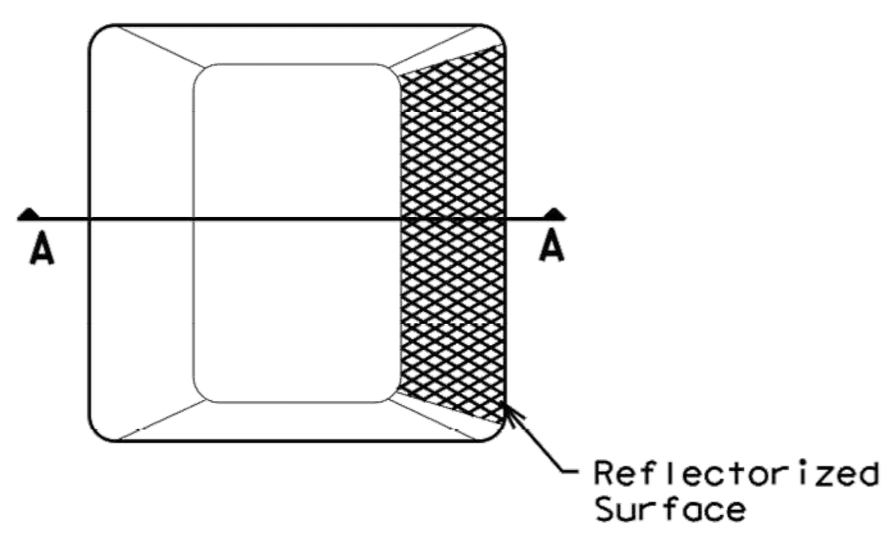
GENERAL NOTES

1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

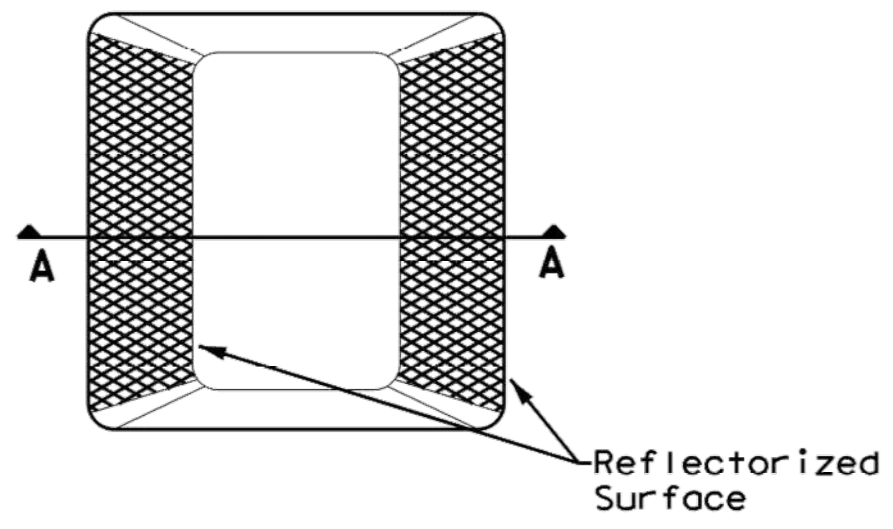
MATERIAL SPECIFICATIONS

PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

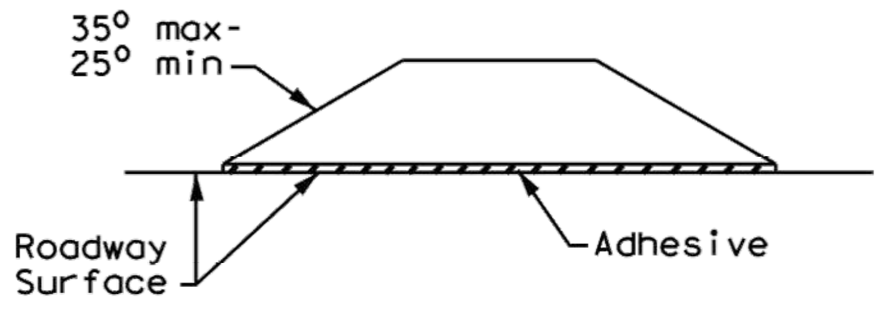
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

Traffic
Safety
Division
Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS

PM(2)-20

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GEORGE'S RANCH UNIT 1
UNIT 1

TXDOT -RAISED PAVEMENT
MARKER DETAIL

DATE
04/22/2022

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03546.001

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W. PATRICK MURPHY
111597
7/18/2022

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TBPE No. 455

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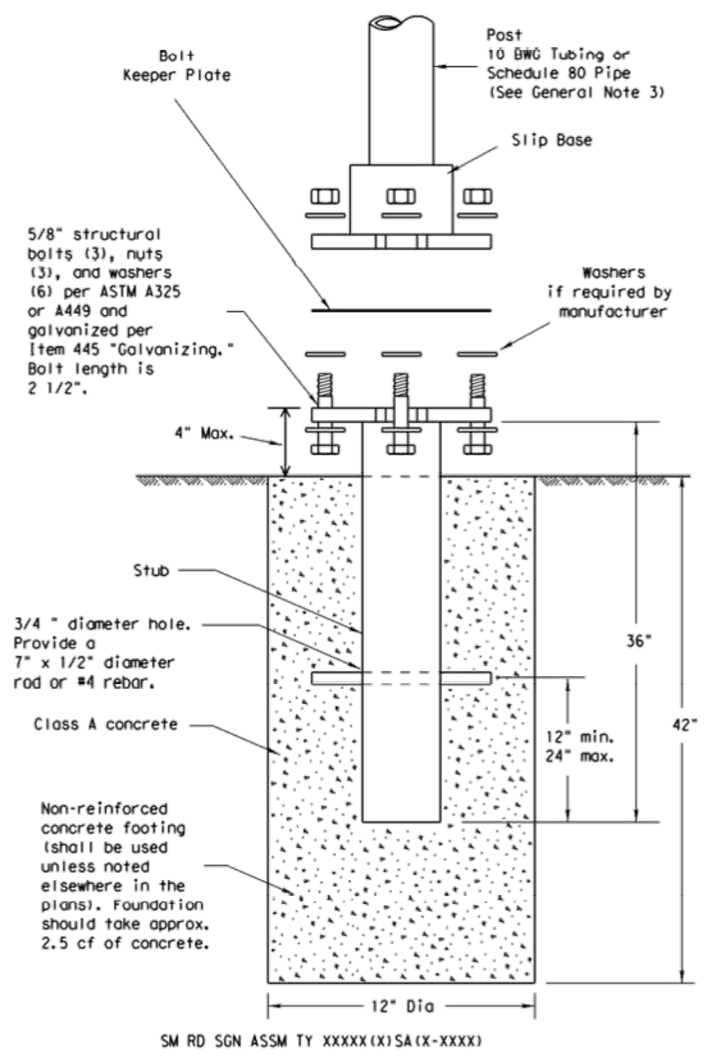
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS


Post
10 BWG Tubing or Schedule 80 Pipe (See General Note 3)
Bolt Keeper Plate
Slip Base
5/8" structural bolts (3), nuts (3), and washers (6) per ASTM A325 or A449 and galvanized per Item 445 "Galvanizing." Bolt length is 2 1/2".
Washers if required by manufacturer
4" Max.
Stub
3/4 " diameter hole. Provide a 7" x 1/2" diameter rod or #4 rebar.
Class A concrete
Non-reinforced concrete footing (shall be used unless noted elsewhere in the plans). Foundation should take approx. 2.5 cf of concrete.
36"
42"
12" min. 24" max.
12" Dia

SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
     0.134" nominal wall thickness
     Seamless or electric-resistance welded steel tubing or pipe
     Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
     Other steels may be used if they meet the following:
       55,000 PSI minimum yield strength
       70,000 PSI minimum tensile strength
       20% minimum elongation in 2"
     Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
     Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
     Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
     0.276" nominal wall thickness
     Steel tubing per ASTM A500 Gr C
     Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
       46,000 PSI minimum yield strength
       62,000 PSI minimum tensile strength
       21% minimum elongation in 2"
     Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
     Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
     Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

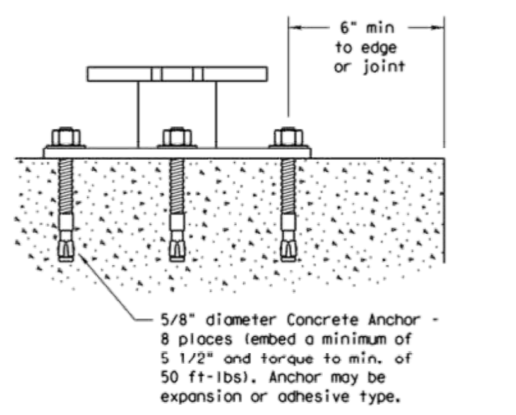
Foundation

1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support

1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR


6" min to edge or joint
5/8" diameter Concrete Anchor - 8 places (embed a minimum of 5 1/2" and torque to min. of 50 ft-lbs). Anchor may be expansion or adhesive type.

SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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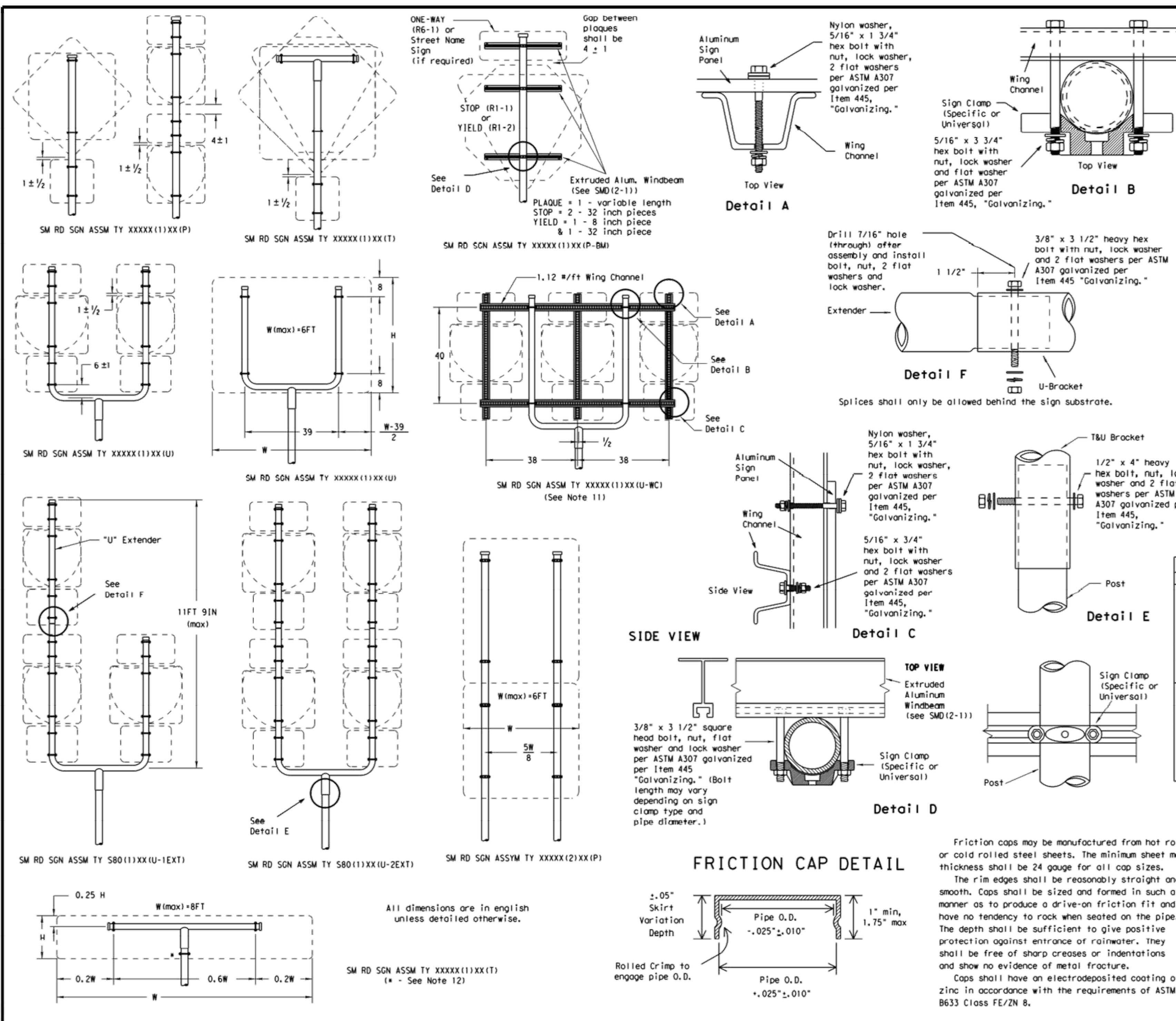
SM RD SGN ASSM TY XXXXX(1)XX(P)
SM RD SGN ASSM TY XXXXX(1)XX(T)
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)
SM RD SGN ASSM TY XXXXX(1)XX(U)
SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
SM RD SGN ASSM TY S80(1)XX(U-1EXT)
SM RD SGN ASSM TY S80(1)XX(U-2EXT)
SM RD SGN ASSM TY XXXXX(2)XX(P)
Detail A
Detail B
Detail C
Detail D
Detail E
Detail F
SIDE VIEW
Top View
Extruded Aluminum Windbeam (see SMD(2-1))
3/8" x 3 1/2" square head bolt, nut, flat washer and lock washer per ASTM A307 galvanized per Item 445 "Galvanizing." (Bolt length may vary depending on sign clamp type and pipe diameter.)
Sign Clamp (Specific or Universal)
Post
T&U Bracket
1/2" x 4" heavy hex bolt, nut, lock washer and 2 flat washers per ASTM A307 galvanized per Item 445, "Galvanizing."
Splices shall only be allowed behind the sign substrate.

All dimensions are in english unless detailed otherwise.

SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

FRICTION CAP DETAIL

±.05" Skirt Variation Depth
Pipe O.D. -.025"±.010"
1" min, 1.75" max
Rolled Crimp to engage pipe O.D.
Pipe O.D. +.025"±.010"

Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

GENERAL NOTES:

1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

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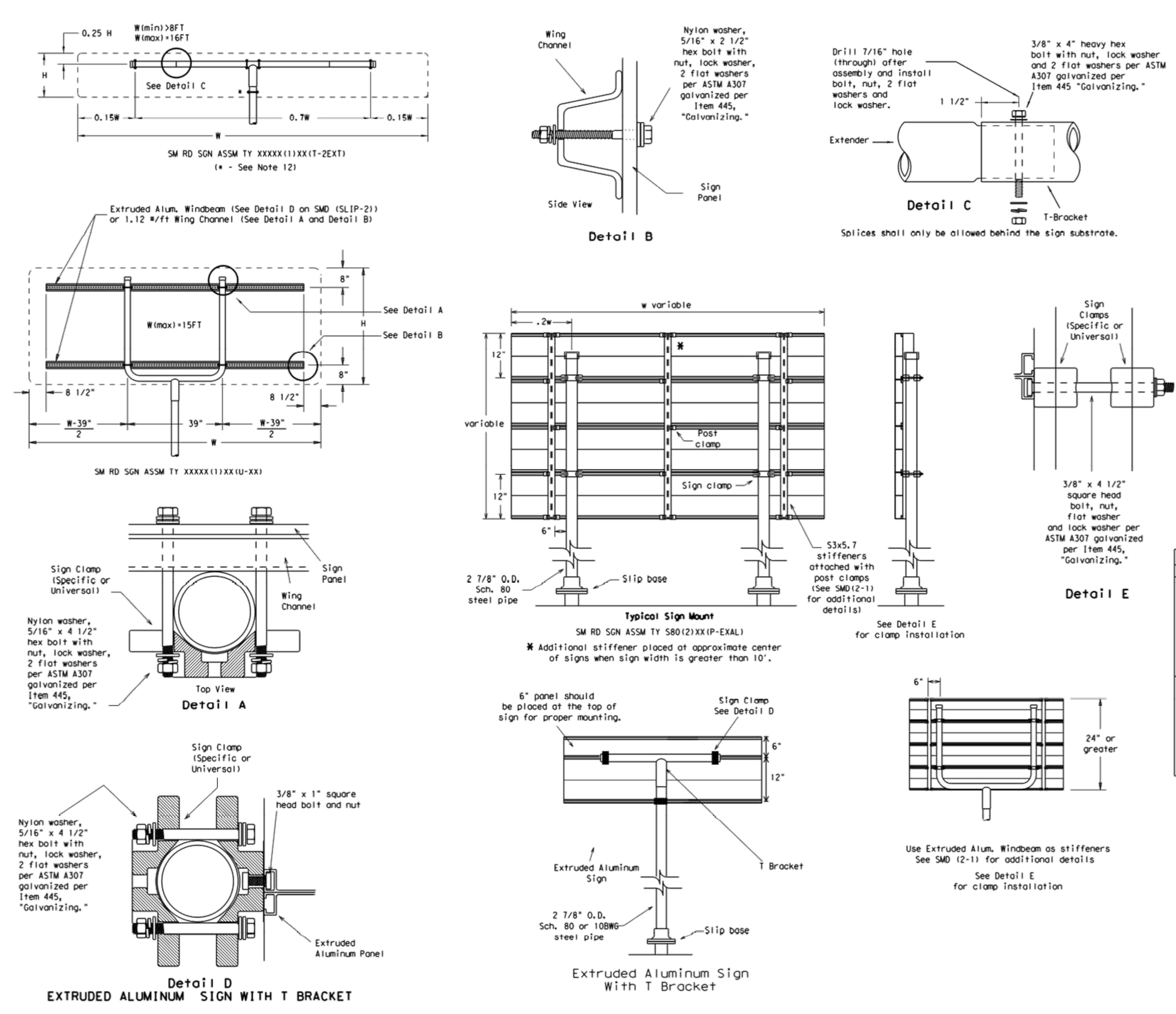
SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)
See Detail C
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)
See Detail A
See Detail B
Detail A
Top View
Detail B
Side View
Detail C
T-Bracket
Splices shall only be allowed behind the sign substrate.
Typical Sign Mount
SM RD SGN ASSM TY S80(2)XX(P-EXAL)
* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.
Detail E
Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET
Extruded Aluminum Sign With T Bracket
Use Extruded Alum. Windbeam as stiffeners. See SMD (2-1) for additional details
See Detail E for clamp installation

GENERAL NOTES:

1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Sign blanks shall be the sizes and shapes shown on the plans.
11. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

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SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

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GEORGE'S RANCH
UNIT 1

TXDOT -SIGN MOUNTING DETAILS

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04/22/2022

PROJECT NO.
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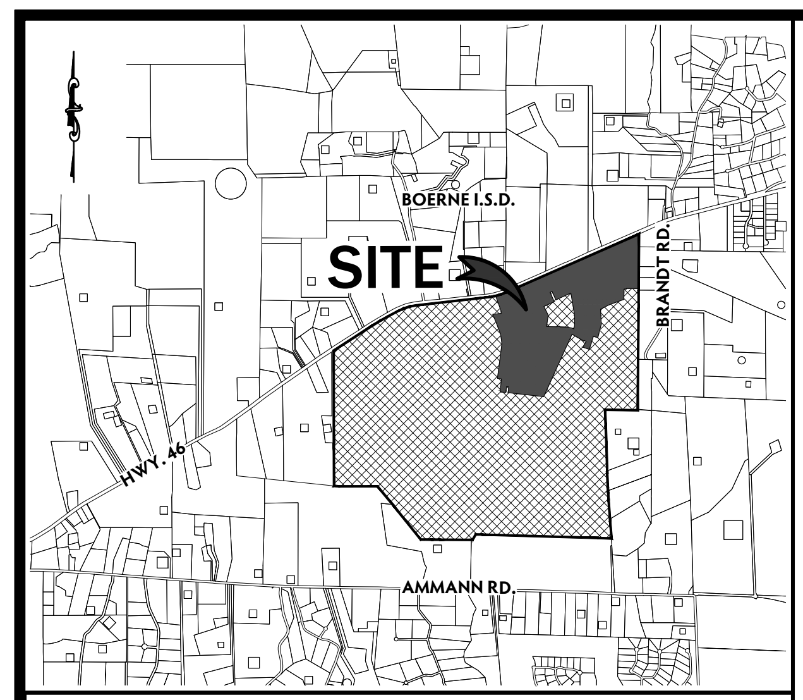
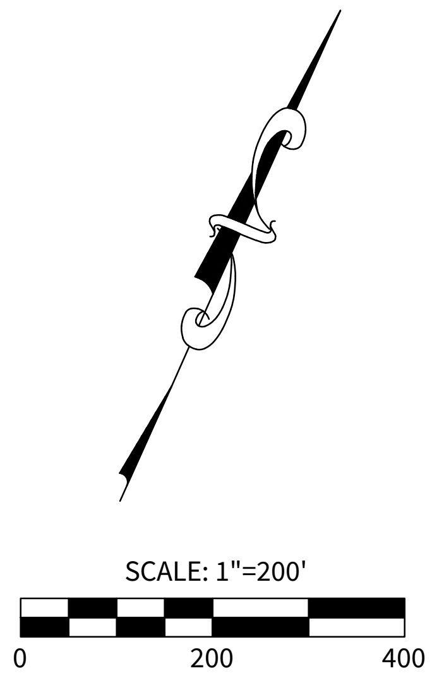


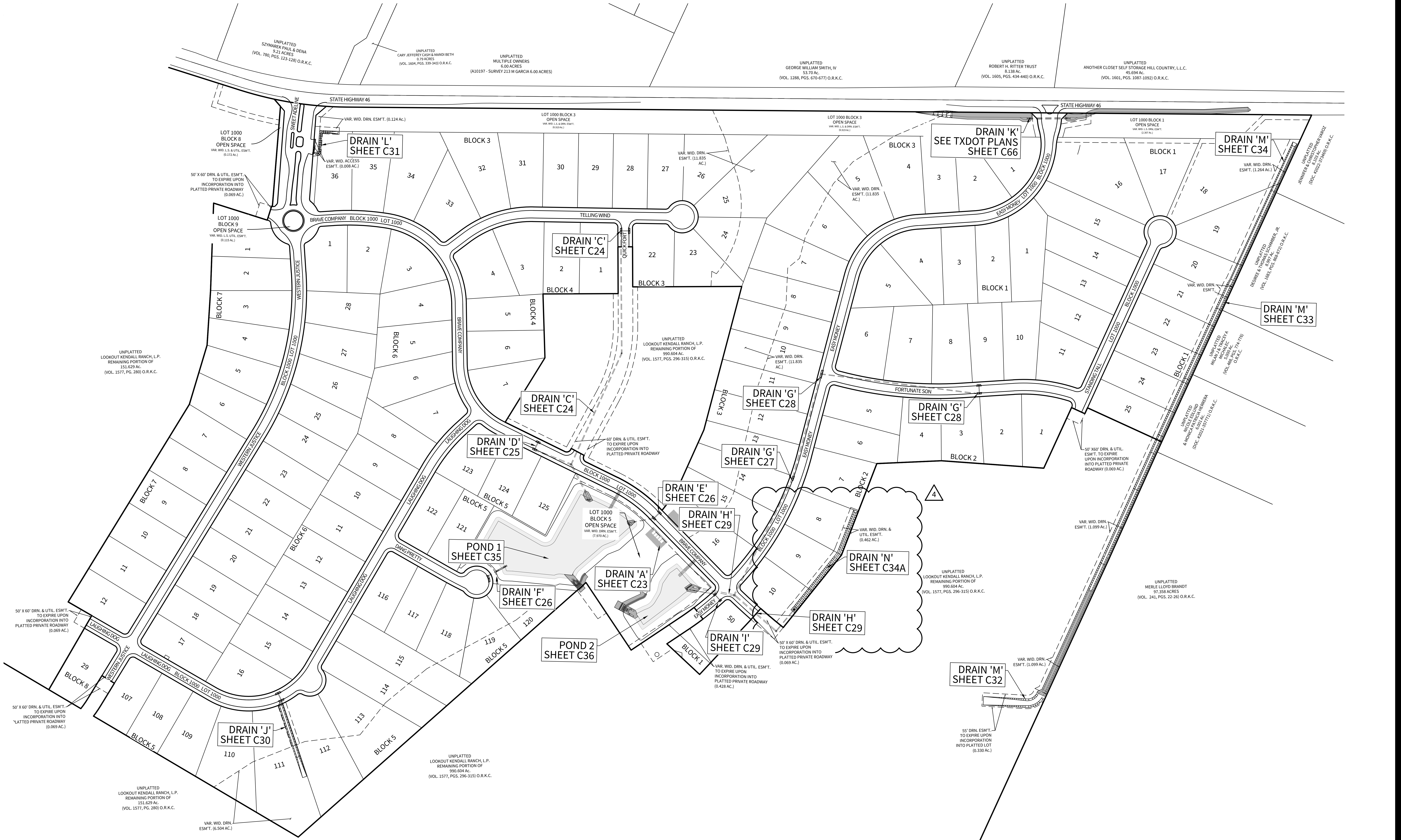
LOCATION MAP

N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322





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ENGINEERS

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

GEORGE'S RANCH
UNIT 1

DRAIN INDEX SHEET

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1.	07-12-2022 REVISED POND LABELS
2.	09-26-2022 REVISED LOTS
3.	11-15-2022 REVISED FRONT ENTRANCE, WATER ACCESS ESM'T.
4.	02/28/2023 - DRAINAGE REVISION
5.	
6.	
7.	
8.	
9.	

W. PATRICK MURPHY
111597

7/20/2023

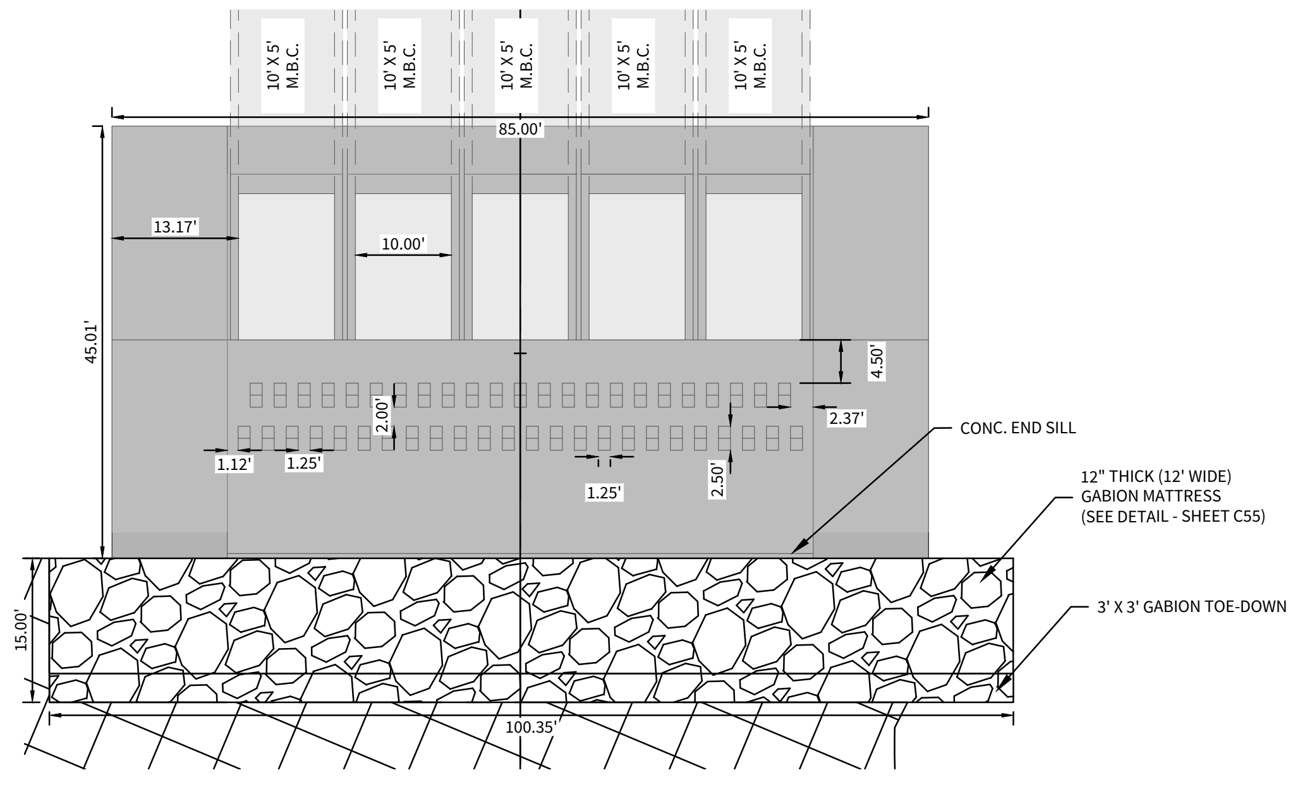
CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

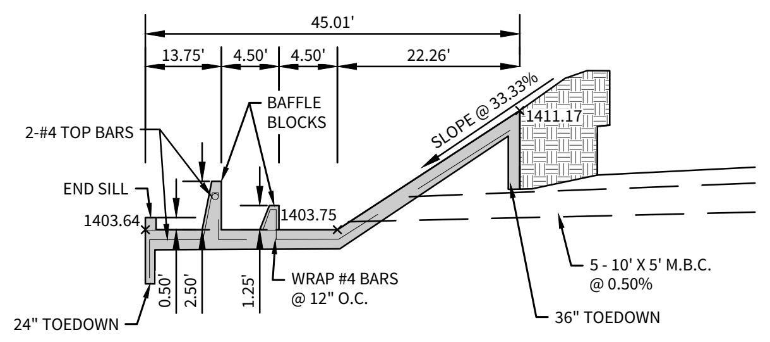
C22

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.

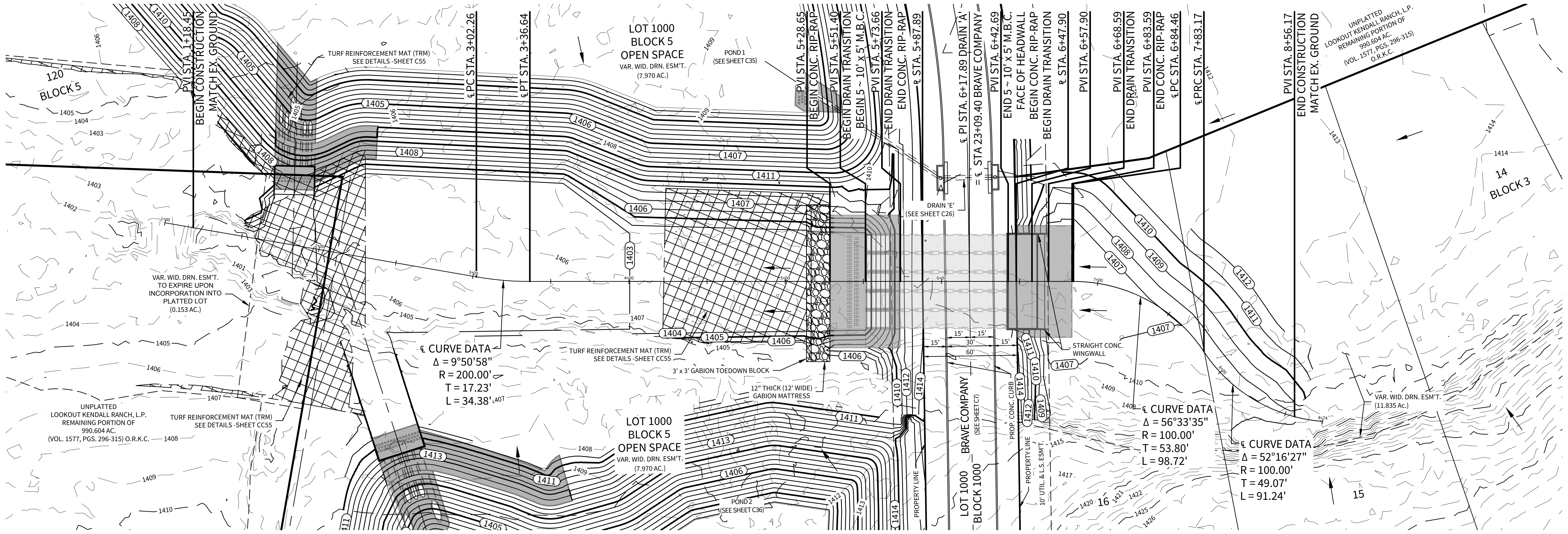
P:\03546\001\2-Drawings\01_107 DRAIN INDEX.dwg 2023/07/13 4:32pm rmata



DETAIL "A"
OUTFALL 'A-1'
N.T.S.



BAFFLE BLOCK DETAIL
(N.T.S.)



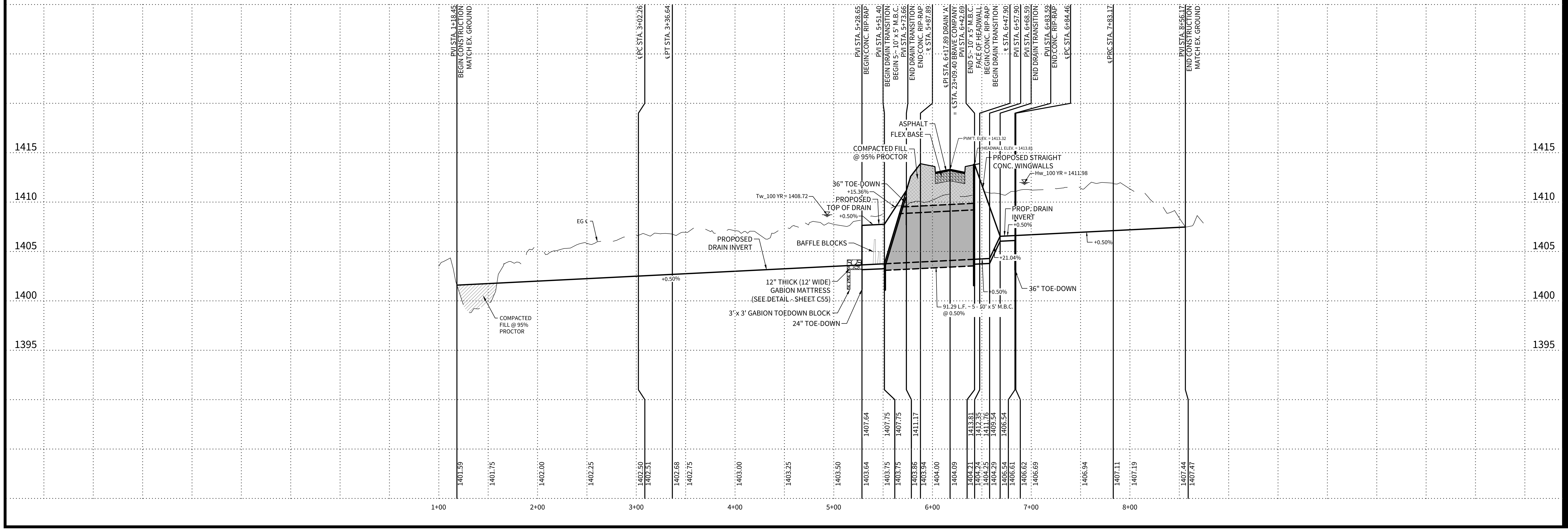
GENERAL NOTES

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.
2. ALL REINFORCING STEEL TO BE GRADE 60.
3. 85% OF ALL EARTHEN AREAS AROUND PROPOSED DRAIN, INCLUDING AREAS OF GRADING WITHIN THE DRAINAGE EASEMENT, MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY KENDALL COUNTY. HYDROMULCH PAY ITEM TO INCLUDE SOIL, SEEDING, OR SODDING & WATERING FOR THE TIME PERIOD NEEDED TO ACHIEVE 85% VEGETATION.

DRAIN 'A'

STA. 1+18.45 TO STA. 8+56.17

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



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GEORGE'S RANCH
UNIT 1

DRAINAGE PLAN & PROFILE -
DRAIN 'A'

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 07-12-2022 REVISED DRAIN DESIGN
2. 09-28-2022 REVISED DRAIN DESIGN
3.
4.
5.
6.
7.
8.
9.

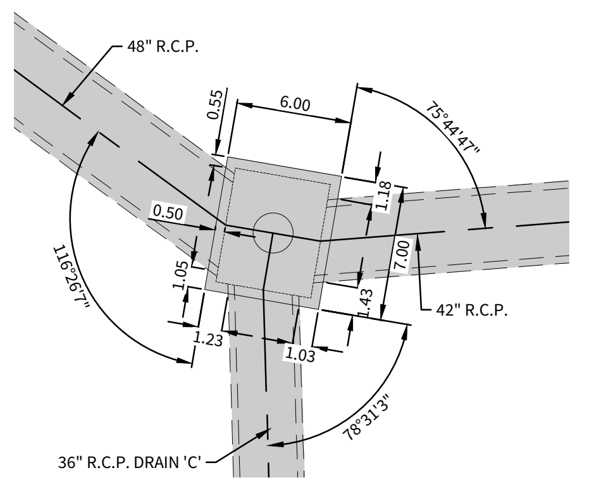
W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

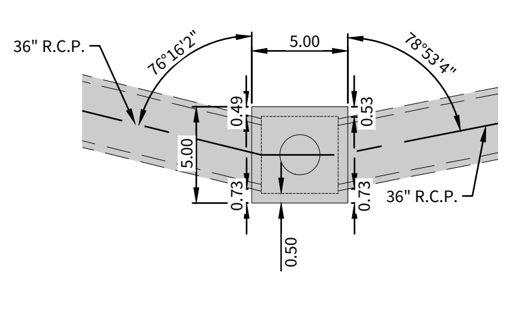
PLAT NO.
N/A

C23

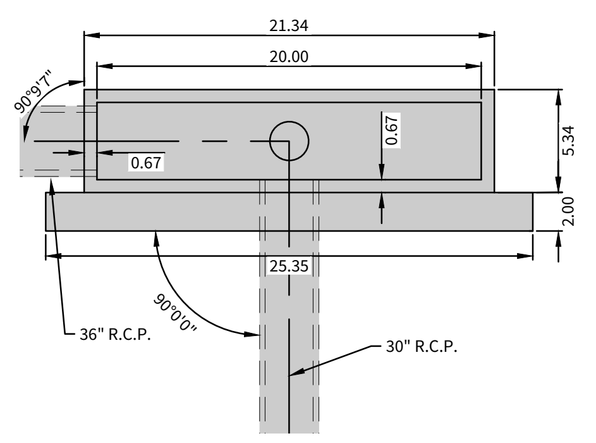
P:\03546\001\2-Drawings\01_108 DRPP.dwg 2023/01/25 4:35pm rreyes



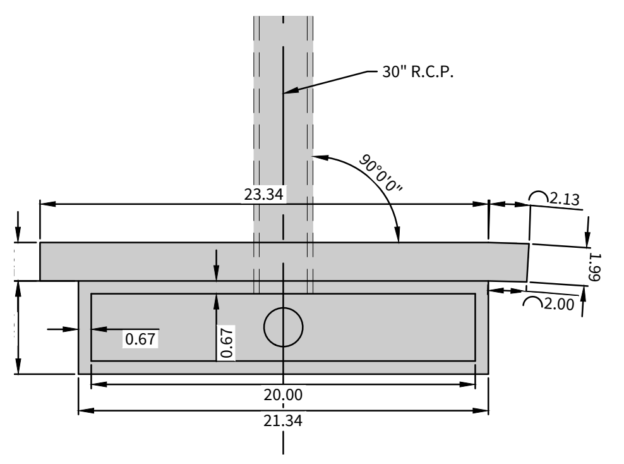
DETAIL "A"
5'X6' JUNCTION BOX 'C-1'
N.T.S.



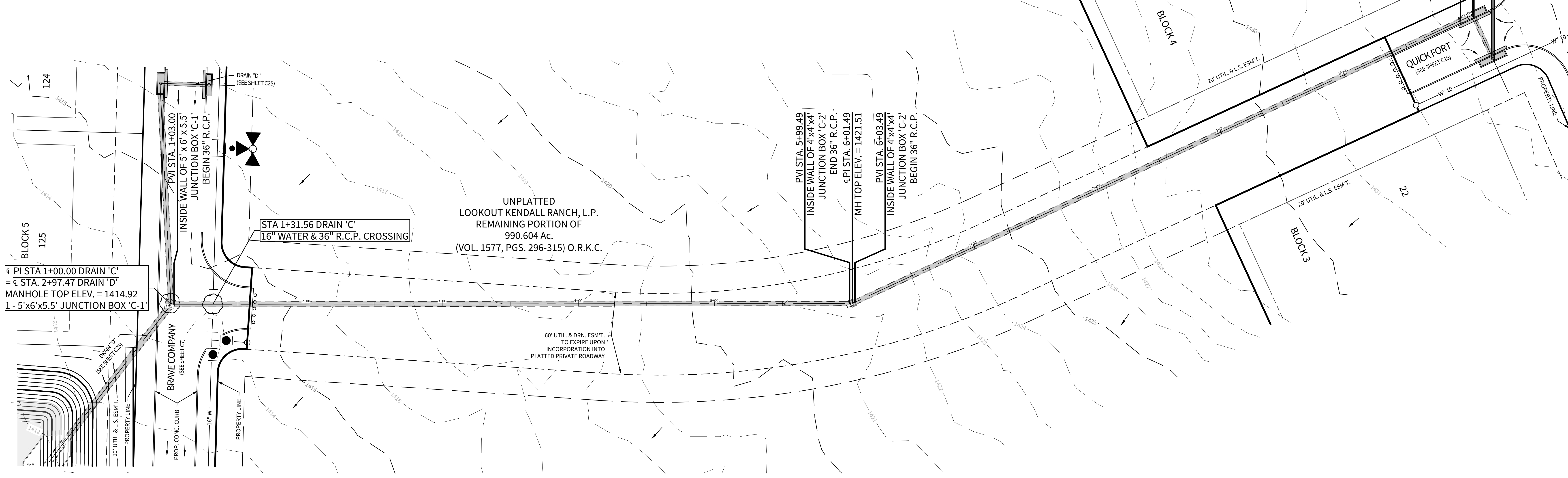
DETAIL "B"
4'x4' JUNCTION BOX 'C-2'
N.T.S.



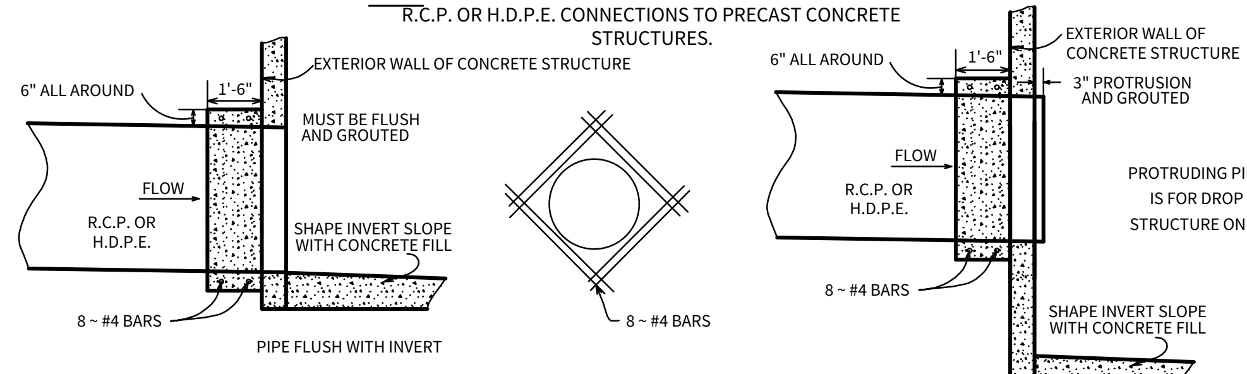
DETAIL "C"
20' CURB INLET 'C-3'
N.T.S.



DETAIL "D"
20' CURB INLET 'C-4'
N.T.S.


PVI STA. 10+94.02 INSIDE WALL OF 20' CURB INLET 'C-3' END 36" R.C.P.
PVI STA. 11+04.02
PVI STA. 11+06.02 INSIDE WALL OF 20' CURB INLET 'C-3' BEGIN 30" R.C.P.
PVI STA. 11+37.36 INSIDE WALL OF 20' CURB INLET 'C-4' END 30" R.C.P.
PVI STA. 11+41.52 OUTSIDE WALL OF 20' CURB INLET 'C-4' END DRAIN 'C'
BLOCK 4
BLOCK 3
BLOCK 5
QUICK FORT
TELLING WIND
20' UTIL. & L.S. ESMT.
PROPERTY LINE
PROP. CONC. CURB
DRAIN "D" (SEE SHEET C25)
PVI STA 1+03.00 INSIDE WALL OF 5' x 6' x 5.5' JUNCTION BOX 'C-1' BEGIN 36" R.C.P.
STA 1+31.56 DRAIN 'C' 16" WATER & 36" R.C.P. CROSSING
℄ PI STA 1+00.00 DRAIN 'C'
= ℄ STA. 2+97.47 DRAIN 'D'
MANHOLE TOP ELEV. = 1414.92
1 - 5'x6'x5.5' JUNCTION BOX 'C-1'
UNPLATTED
LOOKOUT KENDALL RANCH, L.P.
REMAINING PORTION OF
990.604 Ac.
(VOL. 1577, PGS. 296-315) O.R.K.C.
PVI STA. 5+99.49 INSIDE WALL OF 4'x4'x4' JUNCTION BOX 'C-2' END 36" R.C.P.
℄ PI STA. 6+01.49 MH TOP ELEV. = 1421.51
PVI STA. 6+03.49 INSIDE WALL OF 4'x4'x4' JUNCTION BOX 'C-2' BEGIN 36" R.C.P.
60' UTIL. & DRN. ESM'T. TO EXPIRE UPON INCORPORATION INTO PLATTED PRIVATE ROADWAY
BRAVE COMPANY
124
125
1
22
27
28
29

NOTE: CONTRACTOR SHALL INSTALL CONCRETE COLLARS ON ALL R.C.P. OR H.D.P.E. CONNECTIONS TO PRECAST CONCRETE STRUCTURES.


EXTERIOR WALL OF CONCRETE STRUCTURE
6" ALL AROUND
1'-6"
MUST BE FLUSH AND GROUTED
FLOW
R.C.P. OR H.D.P.E.
SHAPE INVERT SLOPE WITH CONCRETE FILL
8 – #4 BARS
PIPE FLUSH WITH INVERT
3" PROTRUSION AND GROUTED
PROTRUDING PIPE IS FOR DROP STRUCTURE ONLY

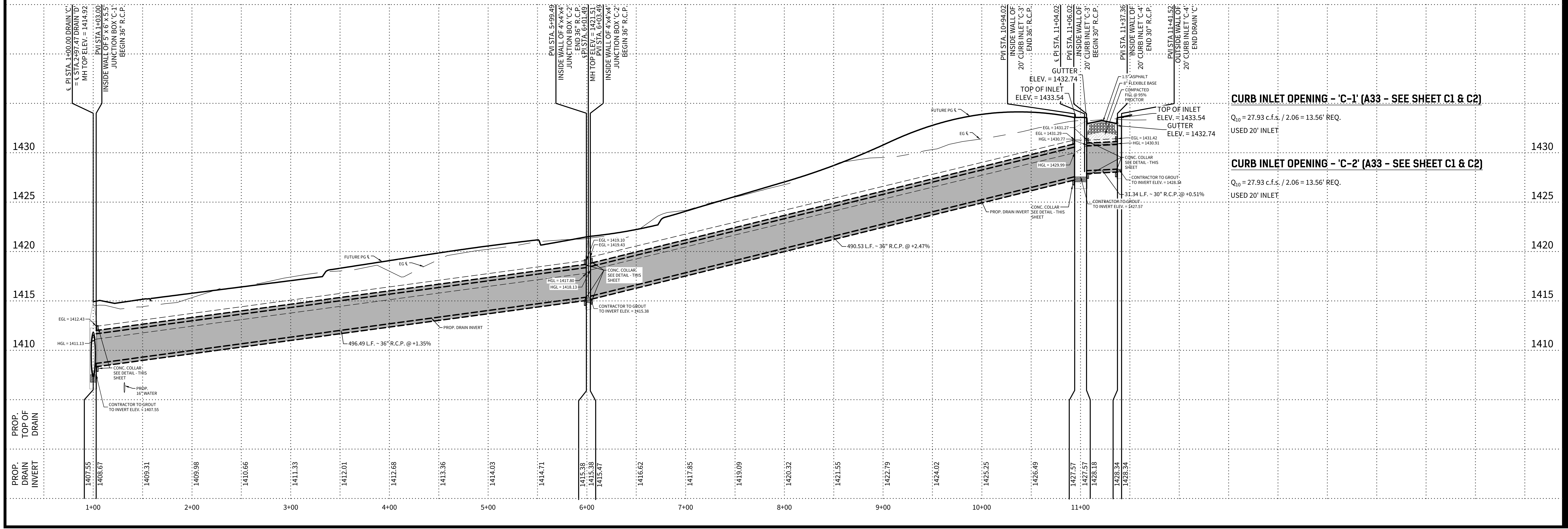
CONCRETE COLLAR DETAIL
(N.T.S.)

NOTES:
1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.
2. ALL REINFORCING TO STEEL TO BE GRADE 60.

DRAIN 'C'

STA. 1+00.00 TO STA. 11+41.52

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


℄ PI STA 1+00.00 DRAIN 'C'
= ℄ STA. 2+97.47 DRAIN 'D'
MH TOP ELEV. = 1414.92
PVI STA 1+03.00 INSIDE WALL OF 5' x 6' x 5.5' JUNCTION BOX 'C-1' BEGIN 36" R.C.P.
PVI STA. 5+99.49 INSIDE WALL OF 4'x4'x4' JUNCTION BOX 'C-2' END 36" R.C.P.
℄ PI STA. 6+01.49 MH TOP ELEV. = 1421.51
PVI STA. 6+03.49 INSIDE WALL OF 4'x4'x4' JUNCTION BOX 'C-2' BEGIN 36" R.C.P.
PVI STA. 10+94.02 INSIDE WALL OF 20' CURB INLET 'C-3' END 36" R.C.P.
℄ PI STA. 11+04.02
PVI STA. 11+06.02 INSIDE WALL OF 20' CURB INLET 'C-3' BEGIN 30" R.C.P.
PVI STA. 11+37.36 INSIDE WALL OF 20' CURB INLET 'C-4' END 30" R.C.P.
PVI STA. 11+41.52 OUTSIDE WALL OF 20' CURB INLET 'C-4' END DRAIN 'C'
GUTTER ELEV. = 1432.74
TOP OF INLET ELEV. = 1433.54
TOP OF INLET ELEV. = 1433.54
GUTTER ELEV. = 1432.74
1.5" ASPHALT
8" FLEXIBLE BASE
COMPACTED FILL @ 95% PROCTOR
FUTURE PG
EG
EGL = 1431.27
EGL = 1431.29
HGL = 1430.77
HGL = 1429.99
EGL = 1431.42
HGL = 1430.91
CONC. COLLAR SEE DETAIL - THIS SHEET
CONTRACTOR TO GROUT TO INVERT ELEV. = 1428.34
31.34 L.F. – 30" R.C.P. @ +0.51%
CONTRACTOR TO GROUT TO INVERT ELEV. = 1427.57
PROP. DRAIN INVERT
490.53 L.F. – 36" R.C.P. @ +2.47%
EGL = 1419.10
EGL = 1419.43
HGL = 1417.80
HGL = 1418.13
CONTRACTOR TO GROUT TO INVERT ELEV. = 1415.38
EGL = 1412.43
HGL = 1411.13
496.49 L.F. – 36" R.C.P. @ +1.35%
PROP. 16" WATER
CONTRACTOR TO GROUT TO INVERT ELEV. = 1407.55
1430
1425
1420
1415
1410
PROP. TOP OF DRAIN
PROP. DRAIN INVERT
1407.55
1408.67
1409.31
1409.98
1410.66
1411.33
1412.01
1412.68
1413.36
1414.03
1414.71
1415.38
1415.38
1415.47
1416.62
1417.85
1419.09
1420.32
1421.55
1422.79
1424.02
1425.25
1426.49
1427.57
1427.57
1428.18
1428.34
1428.34
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00

CURB INLET OPENING – 'C–1' (A33 – SEE SHEET C1 & C2)

Q_{10} = 27.93 c.f.s. / 2.06 = 13.56' REQ.

USED 20' INLET

CURB INLET OPENING – 'C–2' (A33 – SEE SHEET C1 & C2)

Q_{10} = 27.93 c.f.s. / 2.06 = 13.56' REQ.

USED 20' INLET

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GEORGE'S RANCH UNIT 1

DRAINAGE PLAN & PROFILE - DRAIN 'C'

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

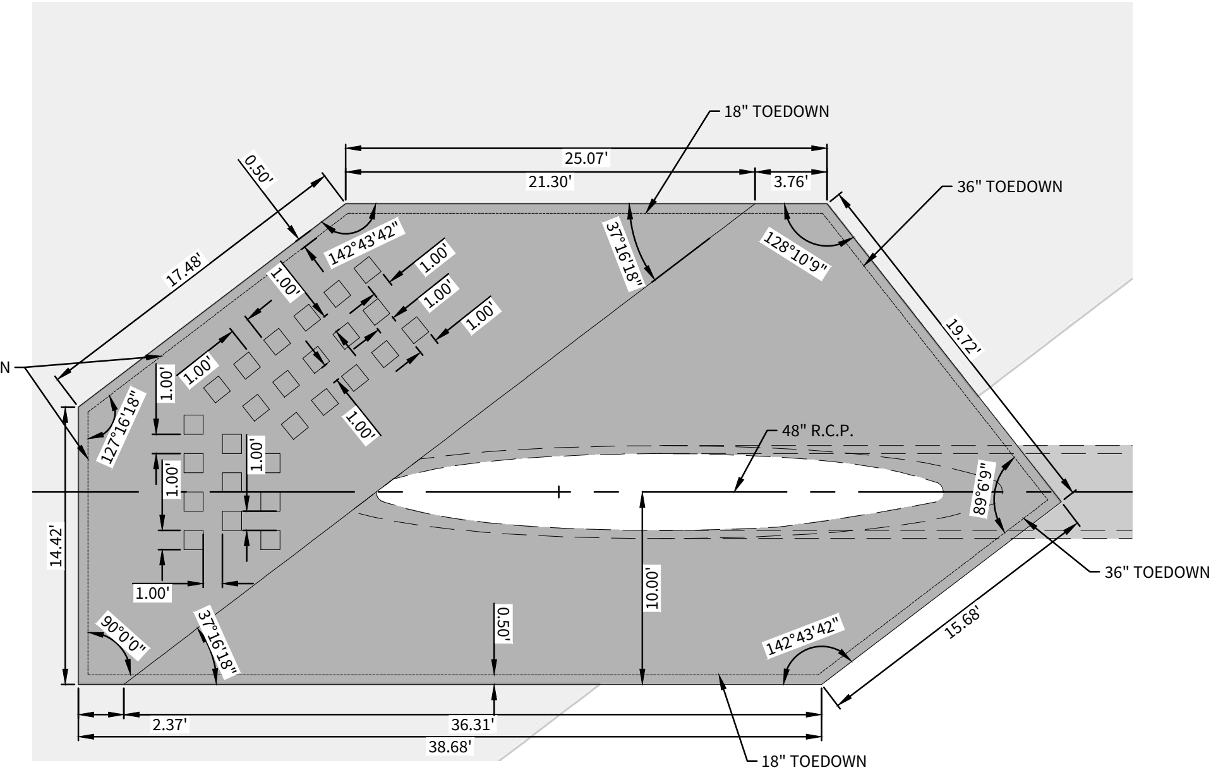
REVISIONS
1. 2022-07-12 REVISED DRAIN DESIGN
2. 2022-09-28 REVISED DRAIN DESIGN
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
2/9/2023

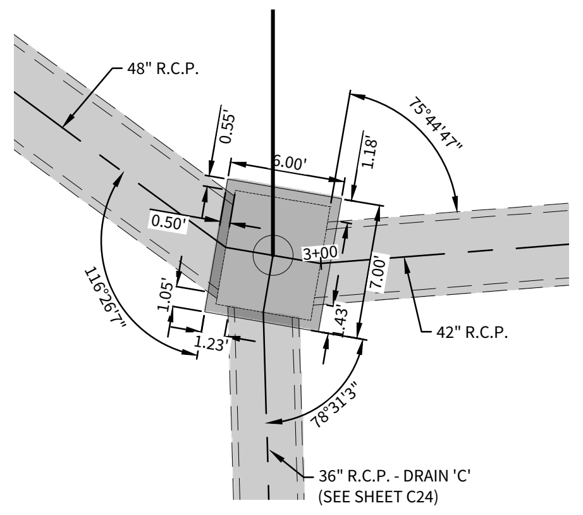
CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

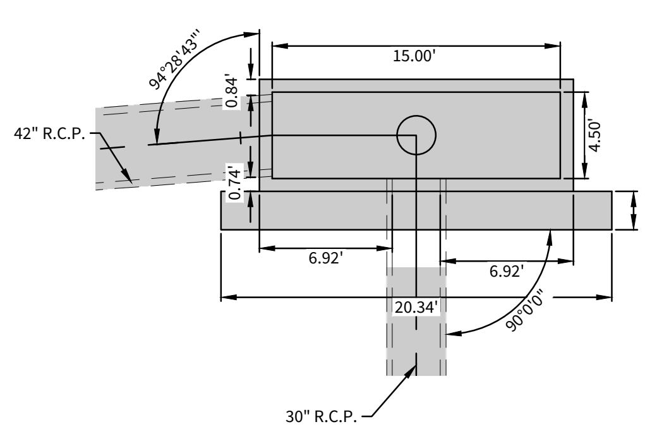
C24



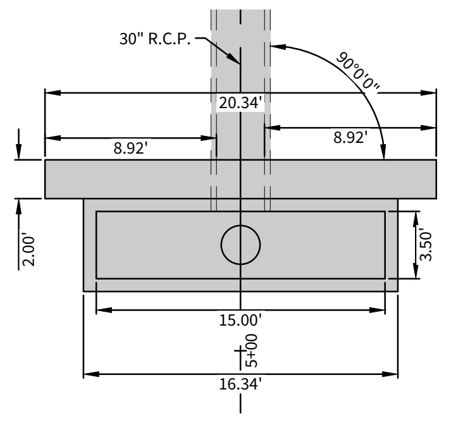
DETAIL 'A'
OUTFALL STRUCTURE
(1" = 10')



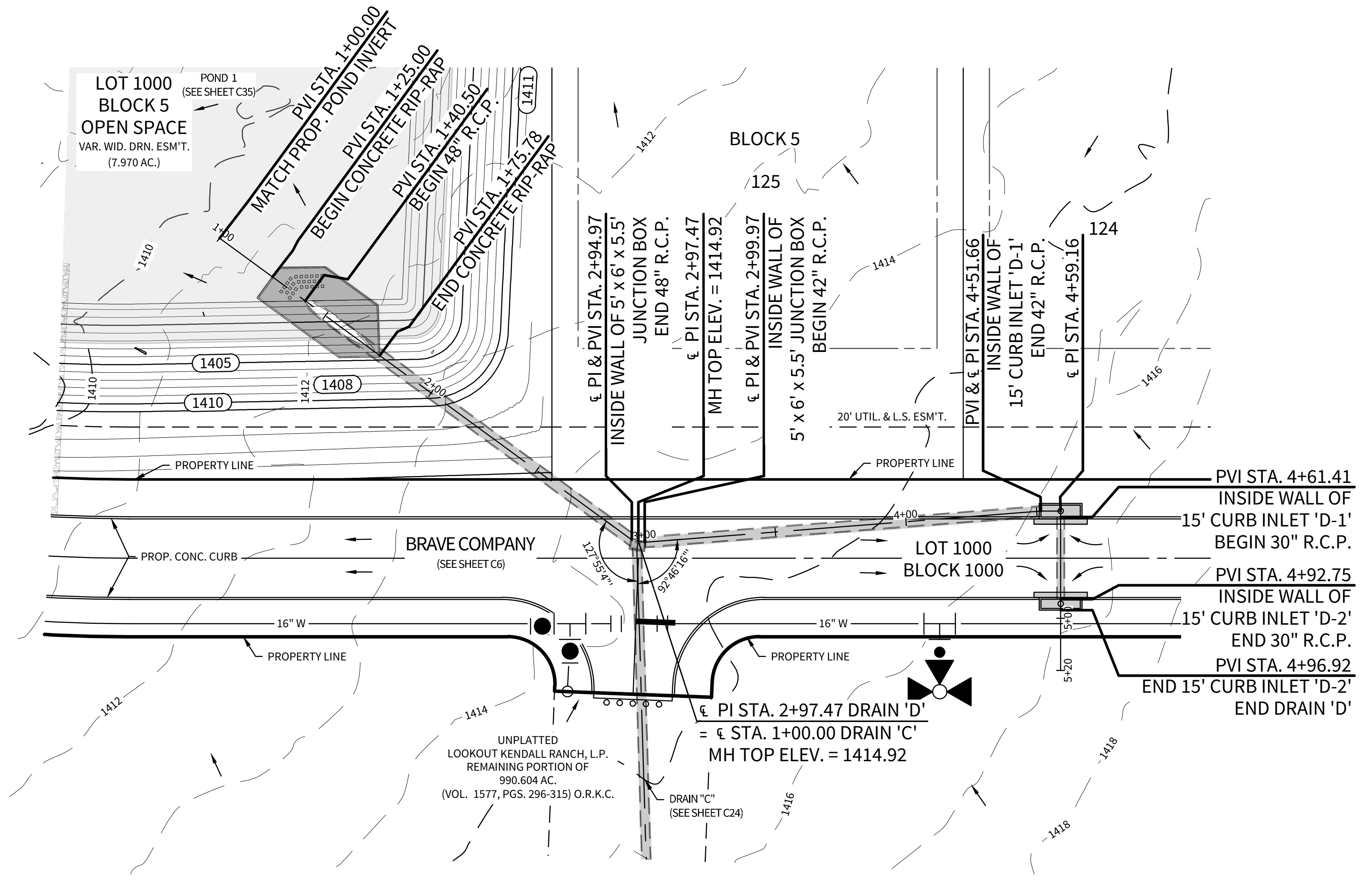
DETAIL 'B'
5'x6' JUNCTION BOX 'D-1'
(1" = 10')

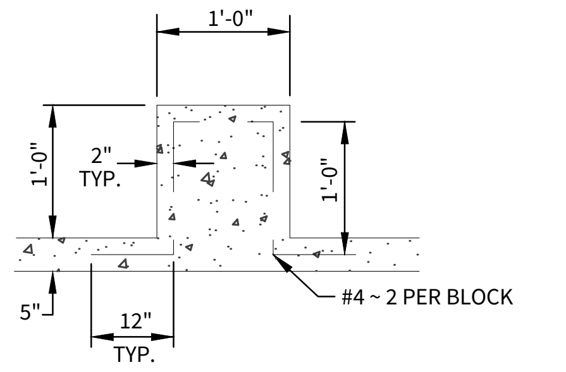


DETAIL 'C'
15' CURB INLET 'D-1'
(1" = 10')

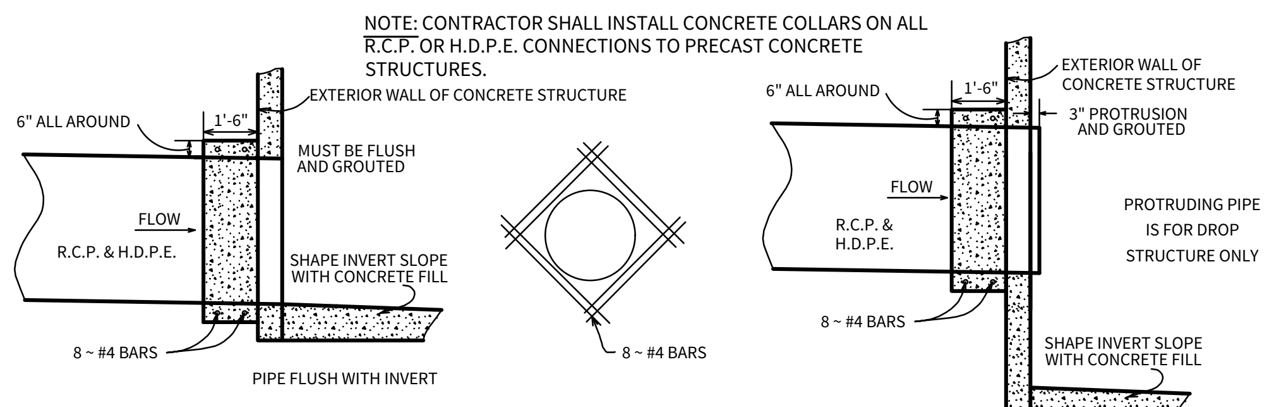


DETAIL 'D'
15' CURB INLET 'D-2'
(1" = 10')





DISSIPATOR BLOCK DETAIL


NOTE: CONTRACTOR SHALL INSTALL CONCRETE COLLARS ON ALL R.C.P. OR H.D.P.E. CONNECTIONS TO PRECAST CONCRETE STRUCTURES.
6" ALL AROUND
1'-6"
EXTERIOR WALL OF CONCRETE STRUCTURE
MUST BE FLUSH AND GROUTED
FLOW
R.C.P. & H.D.P.E.
SHAPE INVERT SLOPE WITH CONCRETE FILL
8 ~ #4 BARS
PIPE FLUSH WITH INVERT
8 ~ #4 BARS
6" ALL AROUND
1'-6"
EXTERIOR WALL OF CONCRETE STRUCTURE
3" PROTRUSION AND GROUTED
FLOW
R.C.P. & H.D.P.E.
PROTRUDING PIPE IS FOR DROP STRUCTURE ONLY
8 ~ #4 BARS
SHAPE INVERT SLOPE WITH CONCRETE FILL

CONCRETE COLLAR DETAIL
(N.T.S.)

CONTRACTOR SHALL NOT BEGIN CONSTRUCTION WITHIN
THE SANITARY CONTROL EASEMENT PRIOR TO
DOCUMENTED PLUGGING OF WELLS LOCATED WITHIN THIS
UNIT.

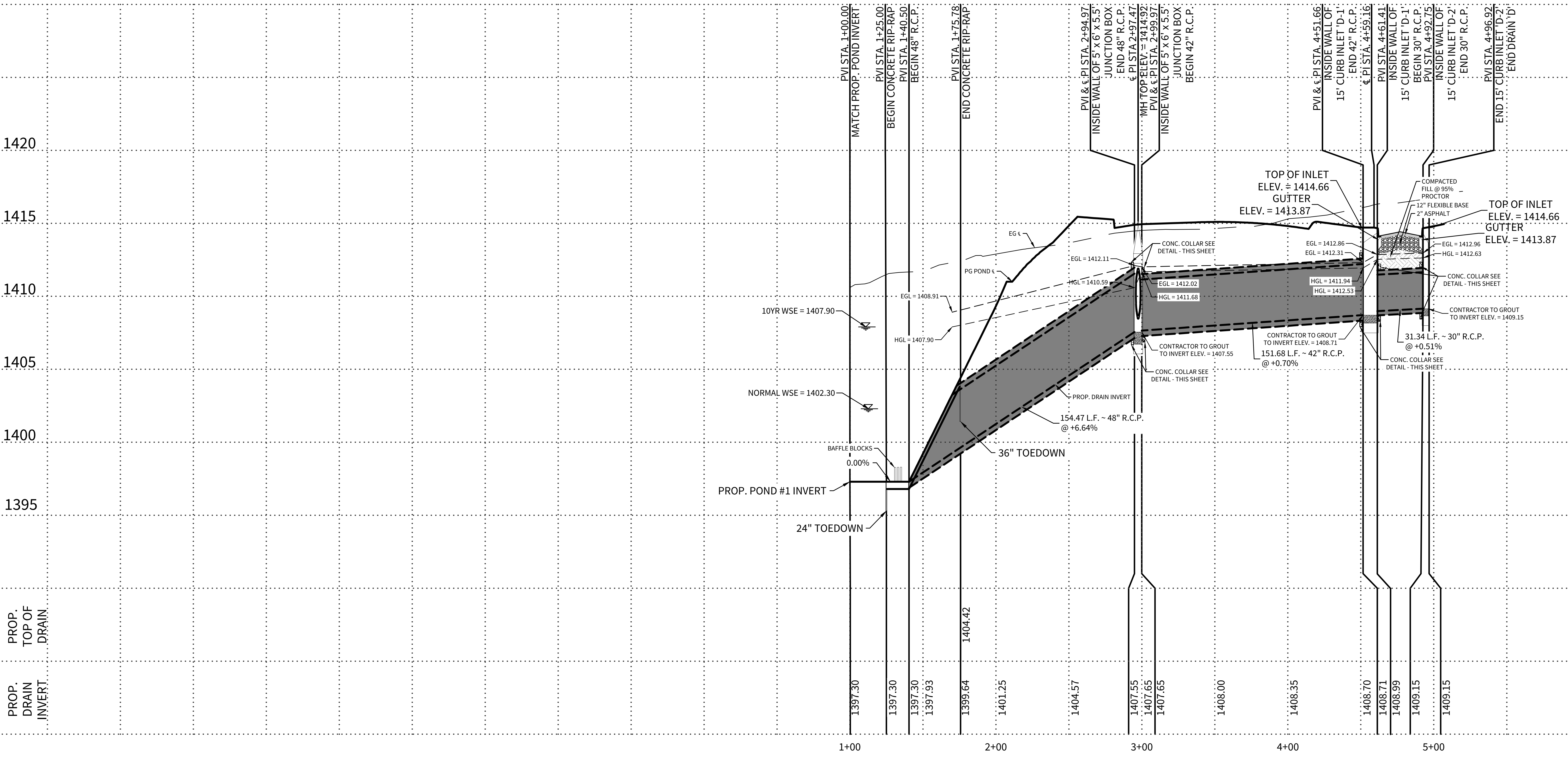
NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.
2. ALL REINFORCING TO STEEL TO BE GRADE 60.

DRAIN 'D'

STA. 1+00.00 TO STA. 4+96.92

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



1420
1415
1410
1405
1400
1395

CURB INLET OPENING - 'D-1' (A34 - SEE SHEET C1 & C2)

Q_{10} = 22.65 c.f.s. / 2.06 = 11.00' REQ.
USED 15' INLET

CURB INLET OPENING - 'D-2' (A34 - SEE SHEET C1 & C2)

Q_{10} = 22.65 c.f.s. / 2.06 = 11.00' REQ.
USED 15' INLET

BAFFLE BLOCK CALCULATIONS - DRAIN "D"

$Y_1 = 1.39'$
$V_1 = 24.64$ fps
$$F_1 = \frac{V_1}{\sqrt{dng}} = \frac{24.64}{\sqrt{1.39x32.2}} = 3.68$$
$$\frac{Y_2}{Y_1} = 1/2\left(\sqrt{1+8(3.68)^2} - 1\right)$$
$$\frac{Y_2}{Y_1} = 4.73$$
$Y_2 = 6.58'$
$$L_B = \frac{4.5\,Y_2}{F_1^{0.76}} = \frac{4.5(6.58)}{(3.68)^{0.76}} = 10.99'$$
USED = 15.00'
$L_B /3 = 5.00'$
SPACING = 0.75 Y_1 = 1.25'
USED = 1.00'

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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

GEORGE'S RANCH
UNIT 1

DRAINAGE PLAN & PROFILE -
DRAIN 'D'

DATE	04/22/2022
PROJECT NO.	03546.001
DRAWN BY	AB/RR
CHECKED BY	WPM

REVISIONS
1. 07/14/2022 - REVISED PIPE MATERIAL, REVISED CONC. RIP-RAP AT OUTFALL STRUCTURE
2. 2022-09-28 REVISED PVMT WIDTH
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C25

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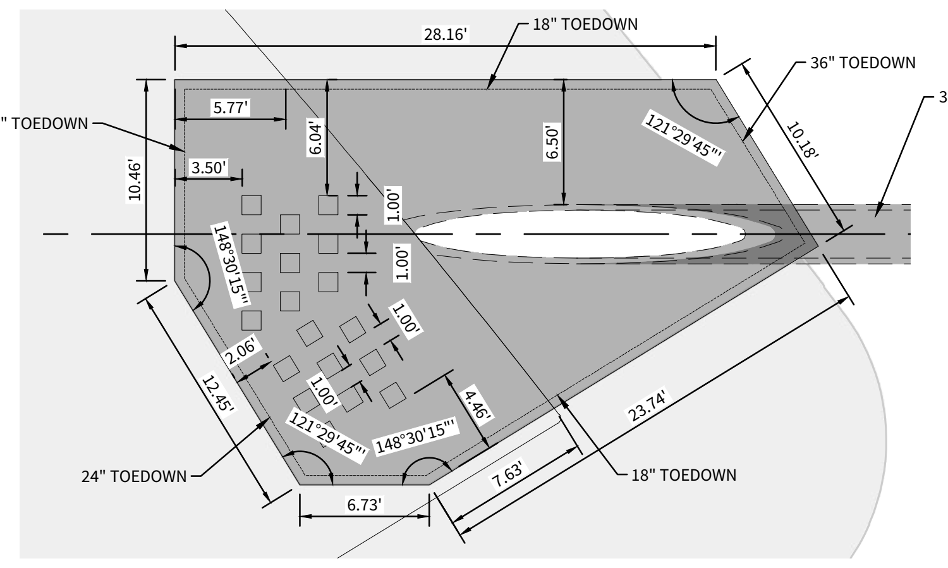
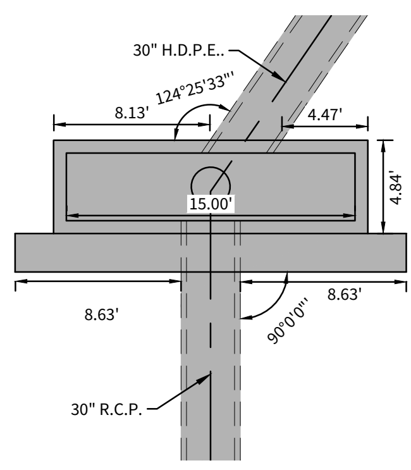
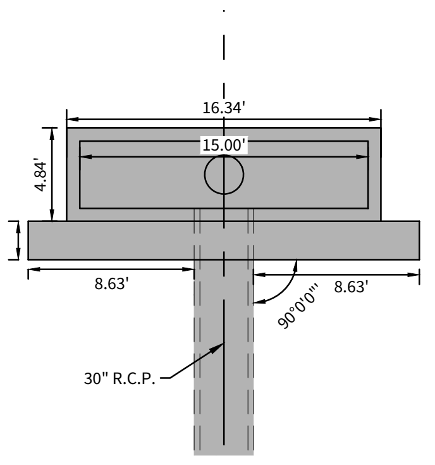


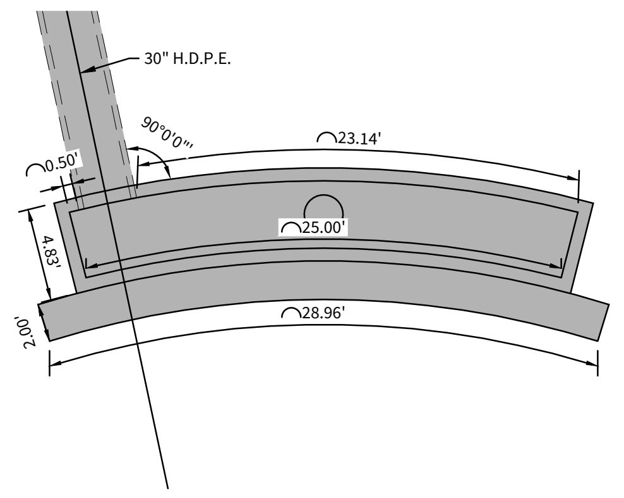
DETAIL "D"
DRAIN 'E' OUTFALL STRUCTURE
1" = 10'



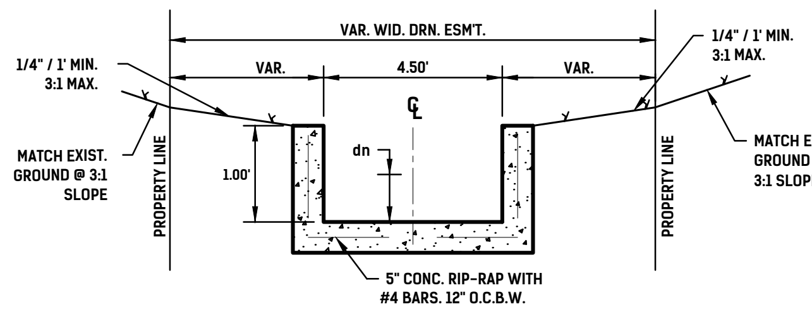
DETAIL "A"
15' CURB INLET 'E-1'
N.T.S.



DETAIL "B"
15' CURB INLET 'E-2'
N.T.S.

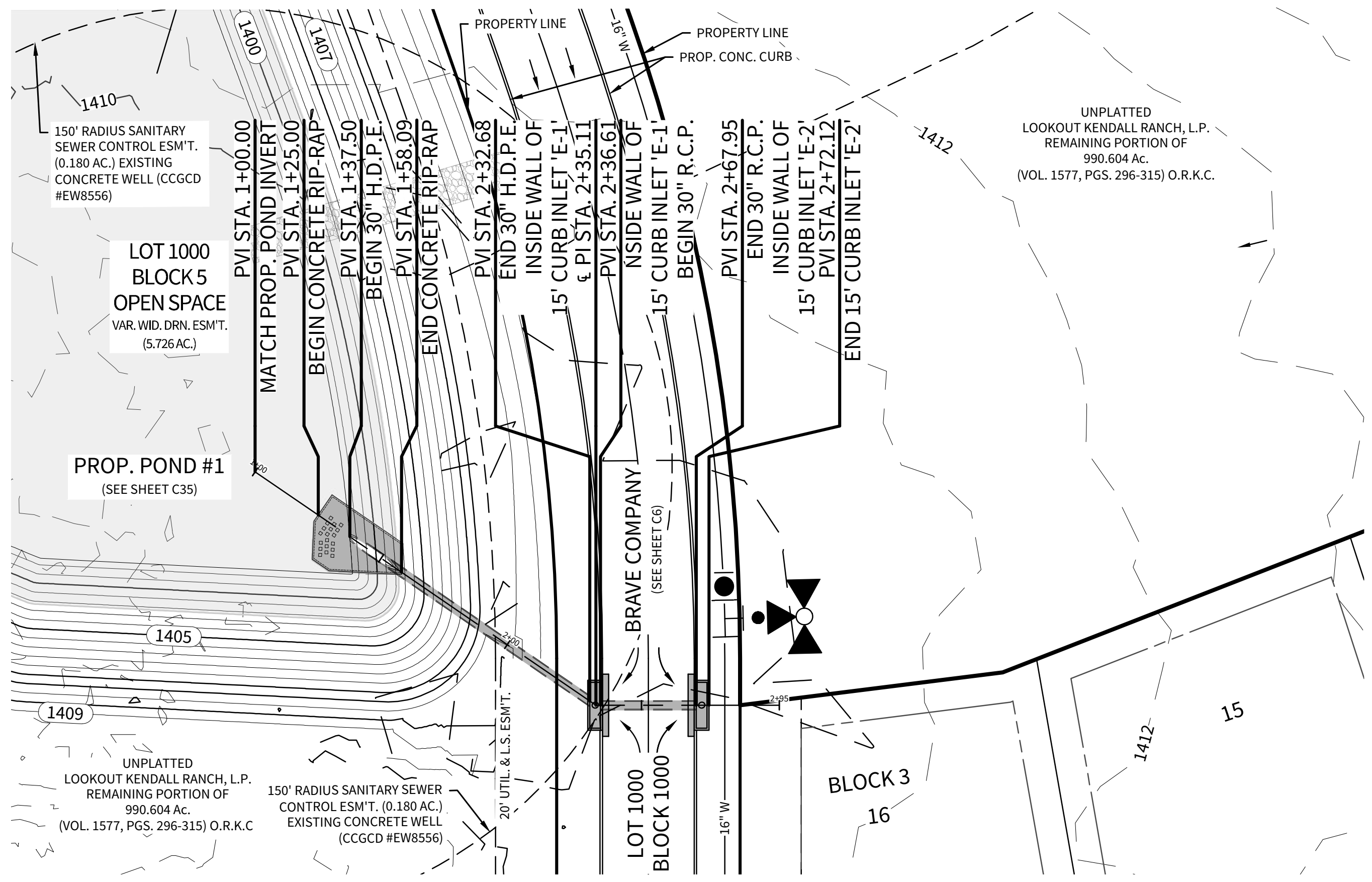


DETAIL "C"
25' CURB INLET 'F-1'
N.T.S.

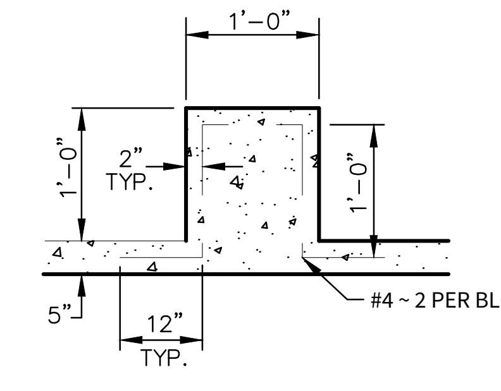


DRAIN 'F' SECTIONS (N.T.S.)
'F-1' STA. 1+42.80 TO STA. 1+80.50

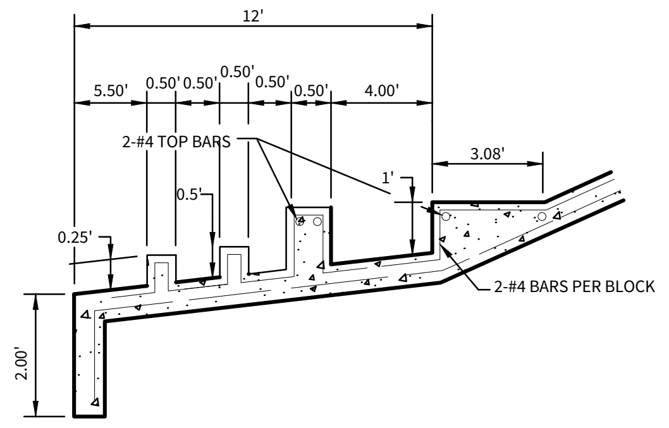
	"F-1"
Q_5 (cfs)	34.75
B_W (ft)	4.50
z	-
n	0.015
S (%)	33.34
d_n (ft)	0.32
V (fps)	24.13
DRN. AREA	A37



CONTRACTOR SHALL NOT BEGIN CONSTRUCTION WITHIN THE SANITARY CONTROL EASEMENT PRIOR TO DOCUMENTED PLUGGING OF WELLS LOCATED WITHIN THIS UNIT.

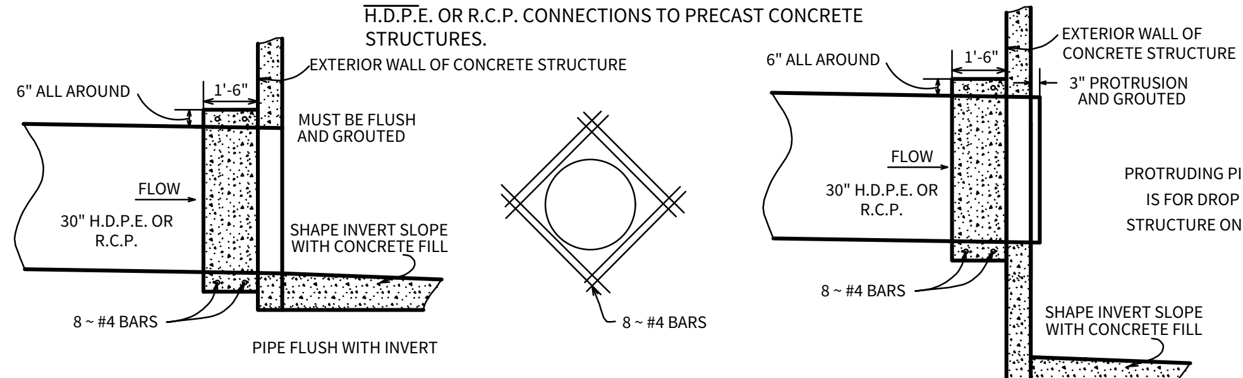


DISSIPATOR BLOCK DETAIL
(N.T.S.)

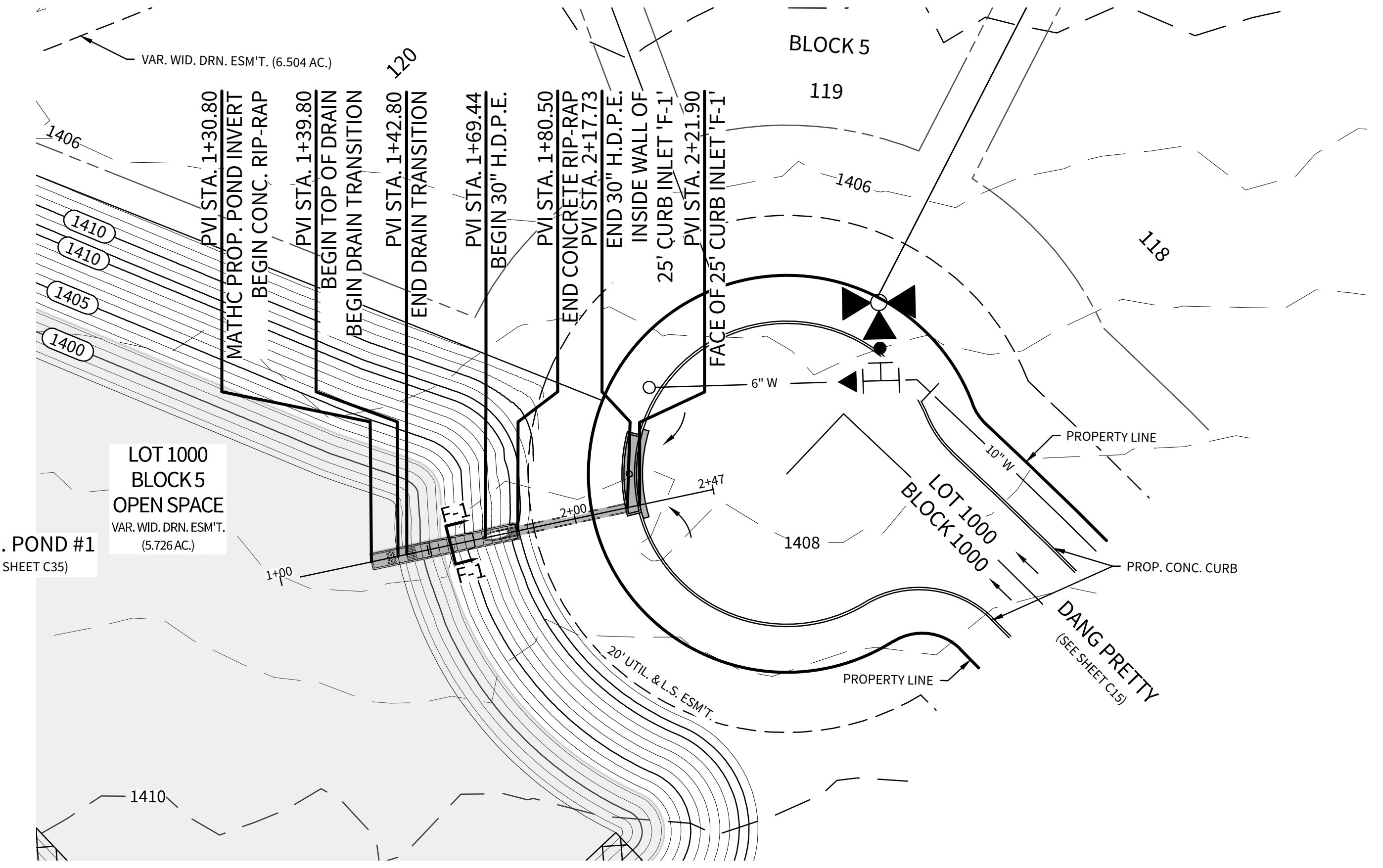


BAFFLE BLOCK DETAIL - DRAIN 'F' (N.T.S.)

NOTE: CONTRACTOR SHALL INSTALL CONCRETE COLLARS ON ALL H.D.P.E. OR R.C.P. CONNECTIONS TO PRECAST CONCRETE STRUCTURES.


6" ALL AROUND
1'-6"
EXTERIOR WALL OF CONCRETE STRUCTURE
MUST BE FLUSH AND GROUTED
FLOW
30" H.D.P.E. OR R.C.P.
SHAPE INVERT SLOPE WITH CONCRETE FILL
8 ~ #4 BARS
PIPE FLUSH WITH INVERT
6" ALL AROUND
1'-6"
EXTERIOR WALL OF CONCRETE STRUCTURE
3" PROTRUSION AND GROUTED
FLOW
30" H.D.P.E. OR R.C.P.
PROTRUDING PIPE IS FOR DROP STRUCTURE ONLY
8 ~ #4 BARS
SHAPE INVERT SLOPE WITH CONCRETE FILL

CONCRETE COLLAR DETAIL
(N.T.S.)

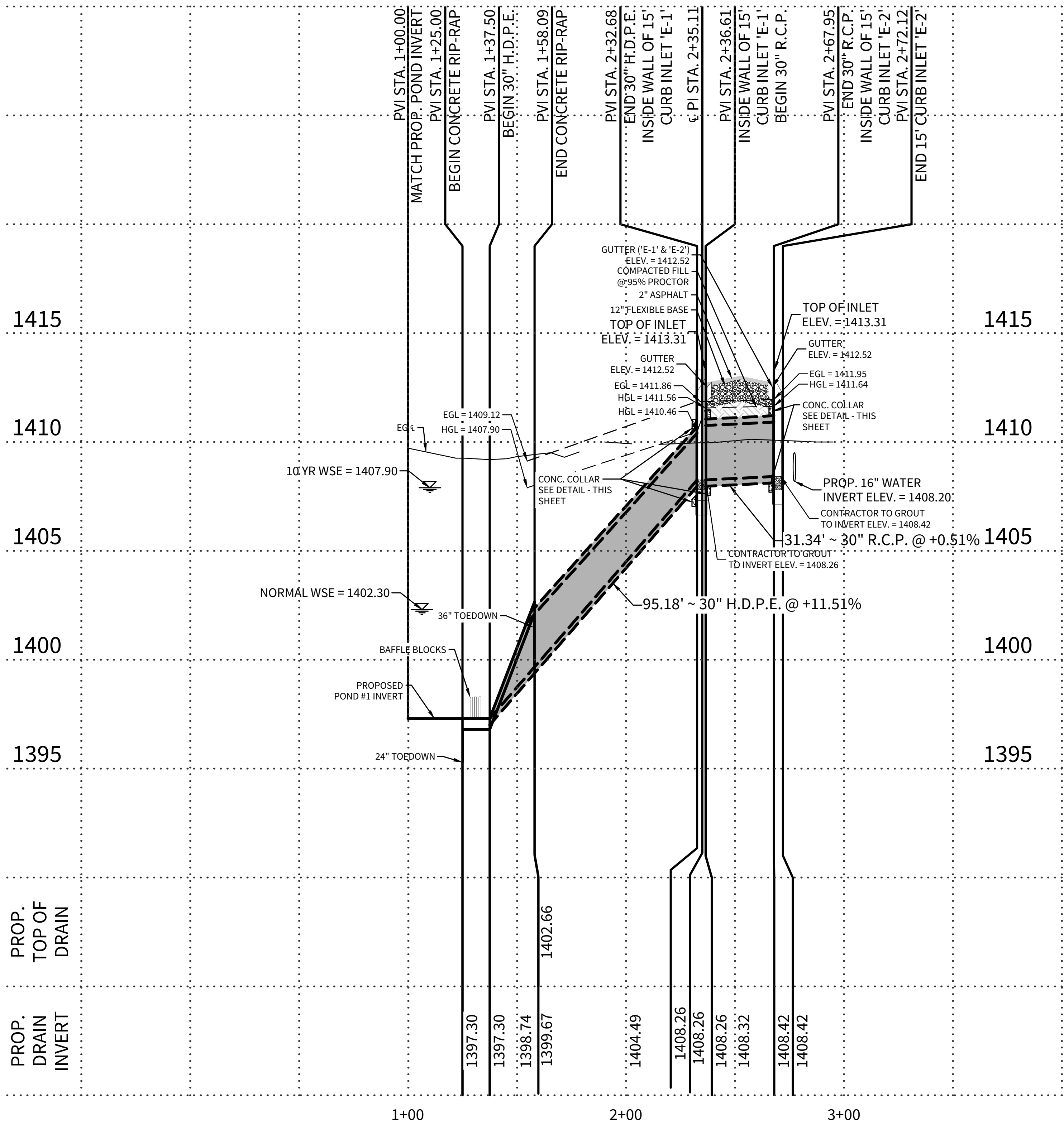


NOTES:
1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.
2. ALL REINFORCING TO STEEL TO BE GRADE 60.

DRAIN 'E'
STA. 1+00.00 TO STA. 2+72.12

DRAIN 'F'
STA. 1+30.80 TO STA. 2+21.90

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



CURB INLET OPENING – 'E–1'
(A36 – SEE SHEET C1 & C2)

Q_{10} = 21.70 c.f.s. / 2.06 = 10.53' REQ.

USED 15' INLET

CURB INLET OPENING – 'E–2'
(A36 – SEE SHEET C1 & C2)

Q_{10} = 21.70 c.f.s. / 2.06 = 10.53' REQ.

USED 15' INLET

BAFFLE BLOCK CALCULATIONS – DRAIN "E"

$Y_1 = 0.97'$

$V_1 = 24.65$ fps

$$F_1 = \frac{V_1}{\sqrt{dng}} = \frac{24.65}{\sqrt{0.97x32.2}} = 4.41$$

$$\frac{Y_2}{Y_1} = 1/2\left(\sqrt{1+8(4.41)^2} - 1\right)$$

$$\frac{Y_2}{Y_1} = 5.76$$

$Y_2 = 5.58'$

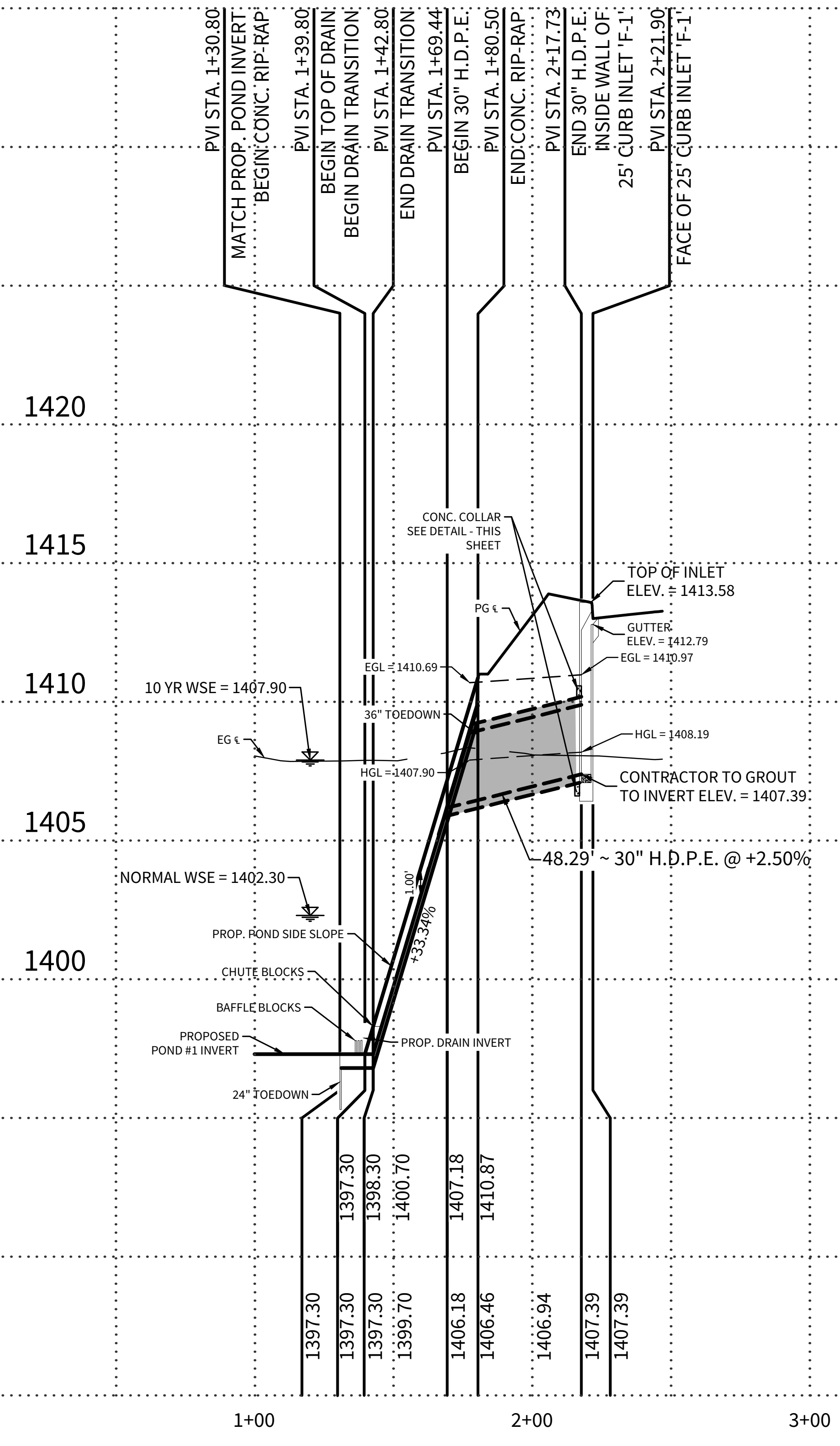
$$L_B = \frac{4.5\,Y_2}{F_1^{0.76}} = \frac{4.5(5.58)}{(4.41)^{0.76}} = 8.14'$$

USED = 12.00'

$L_B/3$ = 4.00'

SPACING = $0.75\,Y_1$ = 0.73'

USED = 1.00'



CURB INLET OPENING – 'F–1'
(A37 – SEE SHEET C1 & C2)

Q_{10} = 34.75 c.f.s. / 2.06 = 16.87' REQ.

USED 25' INLET

BAFFLE BLOCK CALCULATIONS – DRAIN "F"

$Y_1 = 0.32'$

$V_1 = 24.13$ fps

$$F_1 = \frac{V_1}{\sqrt{dng}} = \frac{24.13}{\sqrt{0.32x32.2}} = 7.52$$

$$\frac{Y_2}{Y_1} = 1/2\left(\sqrt{1+8(7.52)^2} - 1\right)$$

$$\frac{Y_2}{Y_1} = 10.14$$

$Y_2 = 3.25'$

$$L_B = \frac{4.5\,Y_2}{F_1^{0.76}} = \frac{4.5(3.25)}{(7.52)^{0.76}} = 3.15'$$

USED = 12.00'

$L_B/3$ = 4.00'

SPACING = $0.75\,Y_1$ = 0.24'

USED = 0.50'

1420
1415
1410
1405
1400

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

GEORGE'S RANCH
UNIT 1

DRAINAGE PLAN & PROFILE - DRAIN 'E' & DRAIN 'F'

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 2022-07-14 - REVISED PIPE MATERIAL, ADDED DETAILS FOR CONC. CHANNEL & RIP-RAP
2. 2022-09-28 - REVISED DRAIN DESIGN
3.
4.
5.
6.
7.
8.
9.

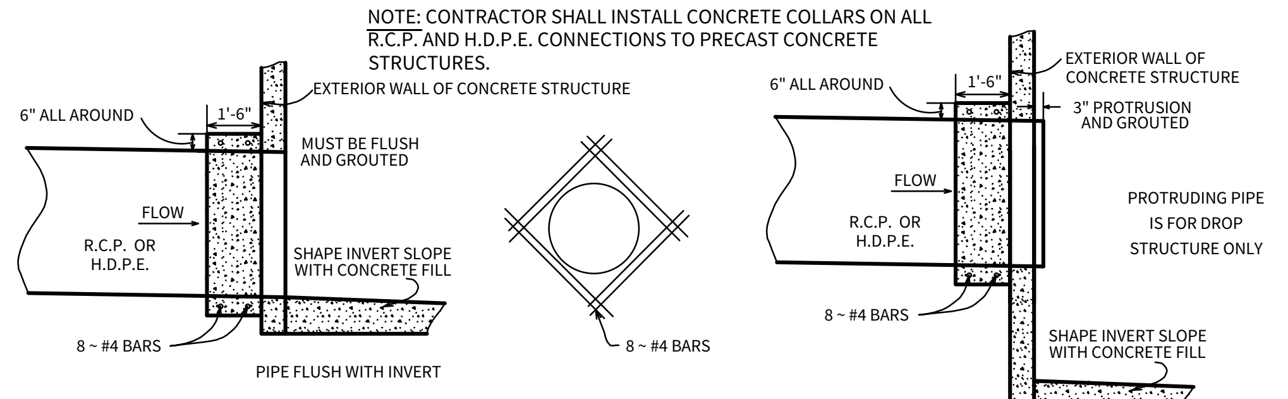
W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

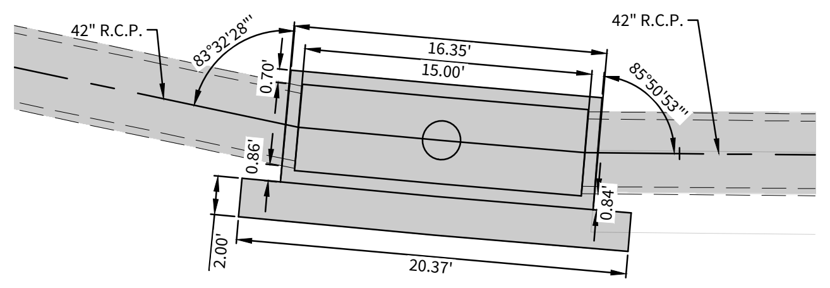
C26

P:\03546\001\2-Drawings\01_114 DRPP.dwg 2023/02/09 10:06am rmata


NOTE: CONTRACTOR SHALL INSTALL CONCRETE COLLARS ON ALL R.C.P. AND H.D.P.E. CONNECTIONS TO PRECAST CONCRETE STRUCTURES.
6" ALL AROUND
1'-6"
EXTERIOR WALL OF CONCRETE STRUCTURE
MUST BE FLUSH AND GROUTED
FLOW
R.C.P. OR H.D.P.E.
SHAPE INVERT SLOPE WITH CONCRETE FILL
8 ~ #4 BARS
PIPE FLUSH WITH INVERT
8 ~ #4 BARS
6" ALL AROUND
1'-6"
EXTERIOR WALL OF CONCRETE STRUCTURE
3" PROTRUSION AND GROUTED
FLOW
R.C.P. OR H.D.P.E.
PROTRUDING PIPE IS FOR DROP STRUCTURE ONLY
8 ~ #4 BARS
SHAPE INVERT SLOPE WITH CONCRETE FILL

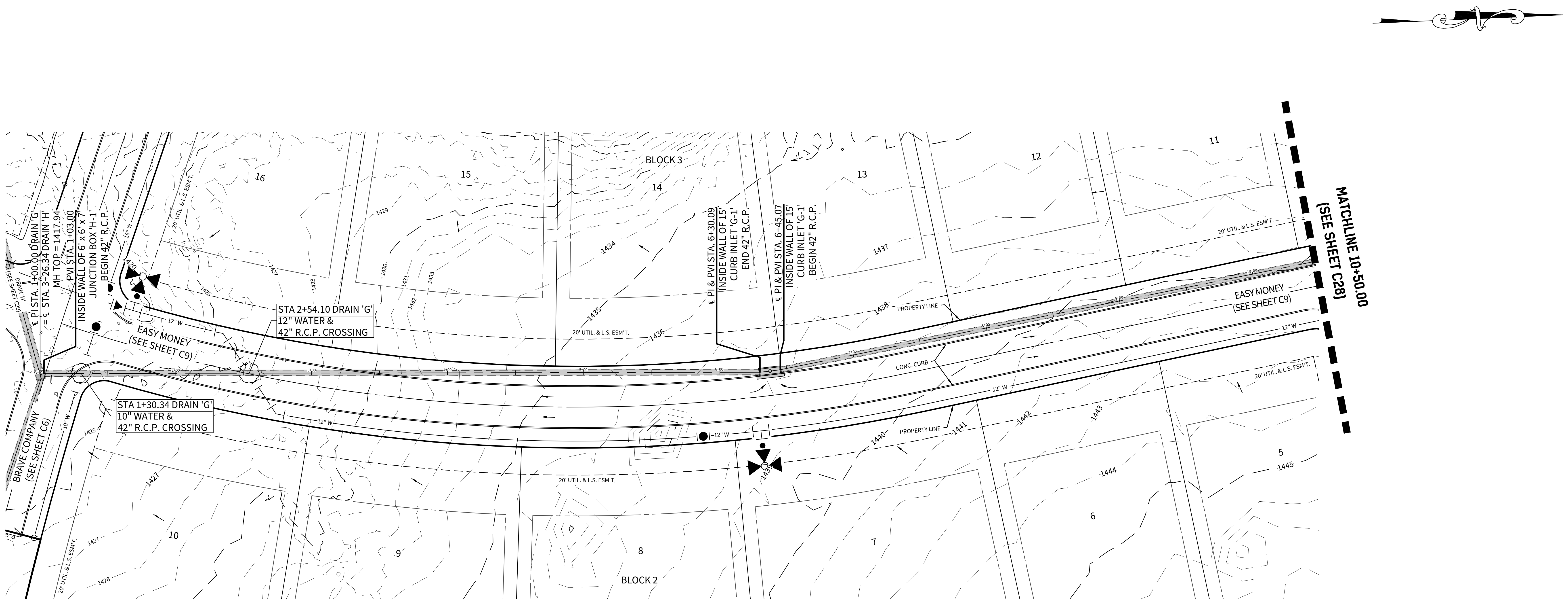
CONCRETE COLLAR DETAIL

(N.T.S.)



DETAIL "A"
15' CURB INLET 'G-1'

1" = 10'

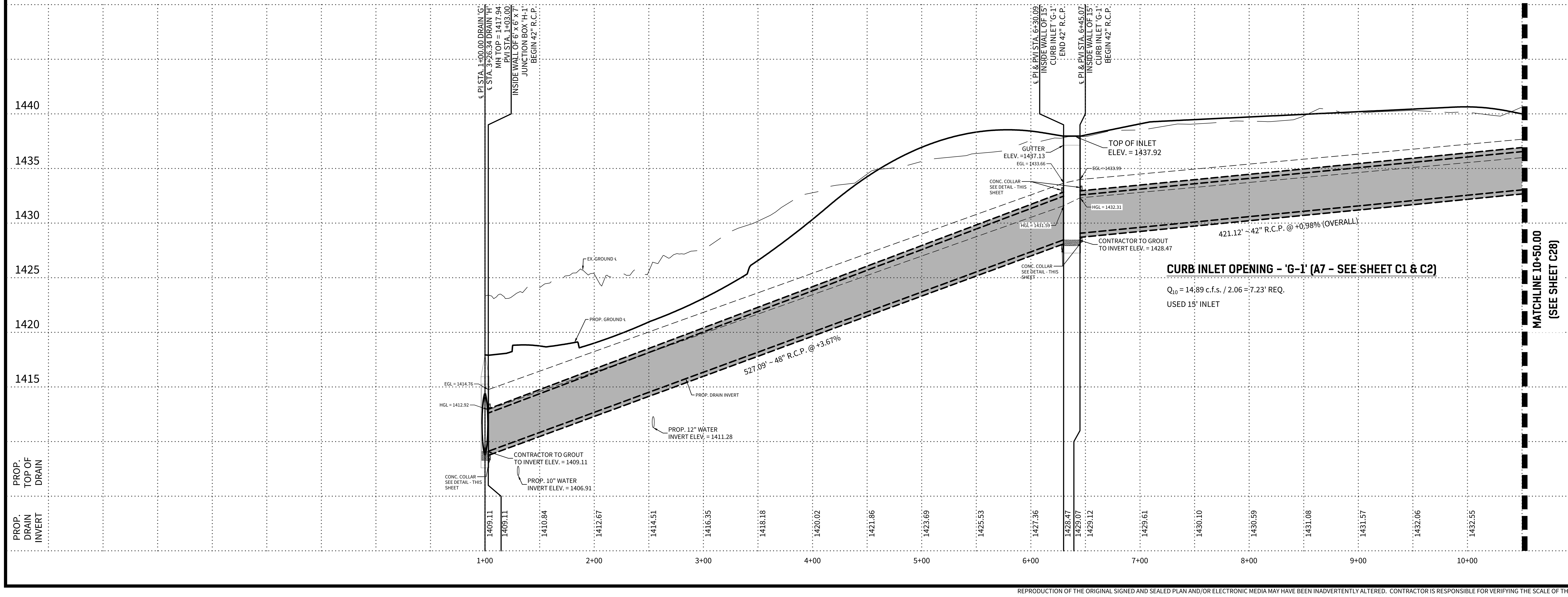


DRAIN 'G'

STA. 1+00.00 TO STA. 10+50.00

NOTES:
1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.
2. ALL REINFORCING TO STEEL TO BE GRADE 60.

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


€ PI STA. 1+00.00 DRAIN 'G'
= € STA. 3+26.34 DRAIN 'H'
MH TOP = 1417.94
PVI STA. 1+03.00
INSIDE WALL OF 6' x 6' x 7' JUNCTION BOX 'H-1'
BEGIN 42" R.C.P.
€ PI & PVI STA. 6+30.09
INSIDE WALL OF 15' CURB INLET 'G-1'
END 42" R.C.P.
€ PI & PVI STA. 6+45.07
INSIDE WALL OF 15' CURB INLET 'G-1'
BEGIN 42" R.C.P.
1440
1435
1430
1425
1420
1415
GUTTER ELEV. =1437.13
TOP OF INLET ELEV. = 1437.92
EGL = 1433.66
EGL = 1433.99
CONC. COLLAR SEE DETAIL - THIS SHEET
HGL = 1432.31
HGL = 1431.59
CONTRACTOR TO GROUT TO INVERT ELEV. = 1428.47
CONC. COLLAR SEE DETAIL - THIS SHEET
421.12' ~ 42" R.C.P. @ +0.98% (OVERALL)
EX. GROUND €
PROP. GROUND €
527.09' ~ 48" R.C.P. @ +3.67%
PROP. DRAIN INVERT
EGL = 1414.76
HGL = 1412.92
CONTRACTOR TO GROUT TO INVERT ELEV. = 1409.11
PROP. 12" WATER INVERT ELEV. = 1411.28
PROP. 10" WATER INVERT ELEV. = 1406.91
CONC. COLLAR SEE DETAIL - THIS SHEET
MATCHLINE 10+50.00 (SEE SHEET C28)
PROP. TOP OF DRAIN
PROP. DRAIN INVERT
1409.11
1409.11
1410.84
1412.67
1414.51
1416.35
1418.18
1420.02
1421.86
1423.69
1425.53
1427.36
1428.47
1429.07
1429.12
1429.61
1430.10
1430.59
1431.08
1431.57
1432.06
1432.55
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00

CURB INLET OPENING – 'G–1' (A7 – SEE SHEET C1 & C2)

Q_{10} = 14.89 c.f.s. / 2.06 = 7.23' REQ.

USED 15' INLET

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GEORGE'S RANCH UNIT 1

DRAINAGE PLAN & PROFILE - DRAIN 'G'

DATE	04/22/2022
PROJECT NO.	03546.001
DRAWN BY	AB/RR
CHECKED BY	WPM

REVISIONS
1. 2022-07-14 - REVISED VERTICAL DESIGN/WIDEN CURB INLET
2. 2022-09-28 REVISED PAVEMENT WIDTH
3.
4.
5.
6.
7.
8.
9.

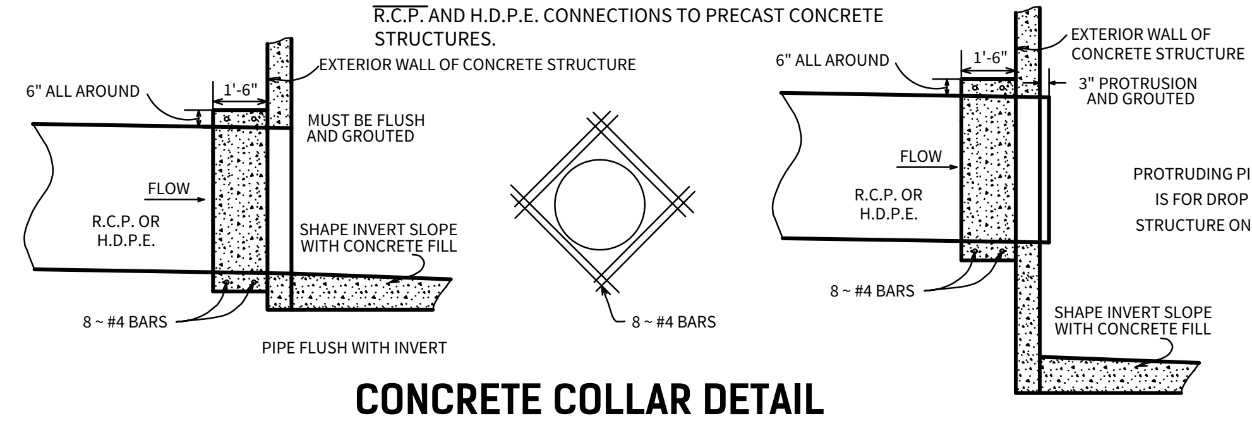
W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

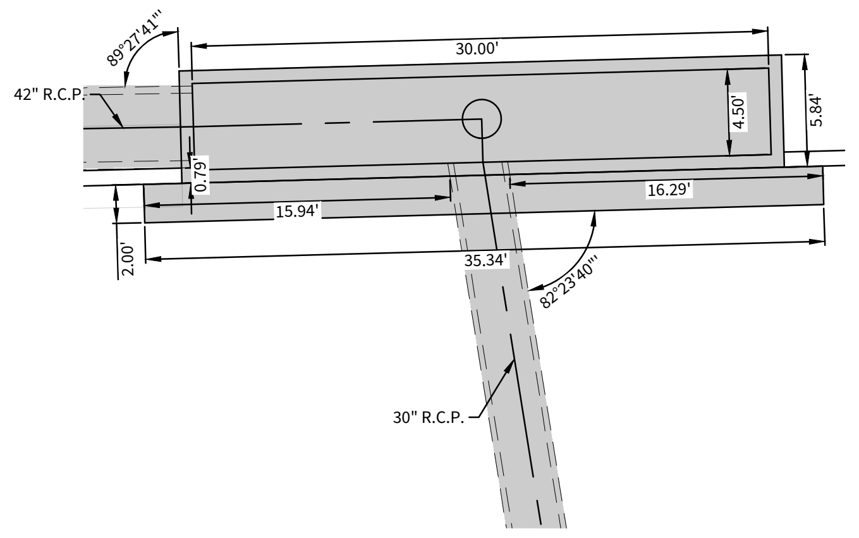
C27

NOTE: CONTRACTOR SHALL INSTALL CONCRETE COLLARS ON ALL R.C.P. AND H.D.P.E. CONNECTIONS TO PRECAST CONCRETE STRUCTURES.


6" ALL AROUND
1'-6"
EXTERIOR WALL OF CONCRETE STRUCTURE
MUST BE FLUSH AND GROUTED
FLOW
R.C.P. OR H.D.P.E.
SHAPE INVERT SLOPE WITH CONCRETE FILL
8 ~ #4 BARS
PIPE FLUSH WITH INVERT
8 ~ #4 BARS
6" ALL AROUND
1'-6"
EXTERIOR WALL OF CONCRETE STRUCTURE
3" PROTRUSION AND GROUTED
FLOW
R.C.P. OR H.D.P.E.
PROTRUDING PIPE IS FOR DROP STRUCTURE ONLY
8 ~ #4 BARS
SHAPE INVERT SLOPE WITH CONCRETE FILL

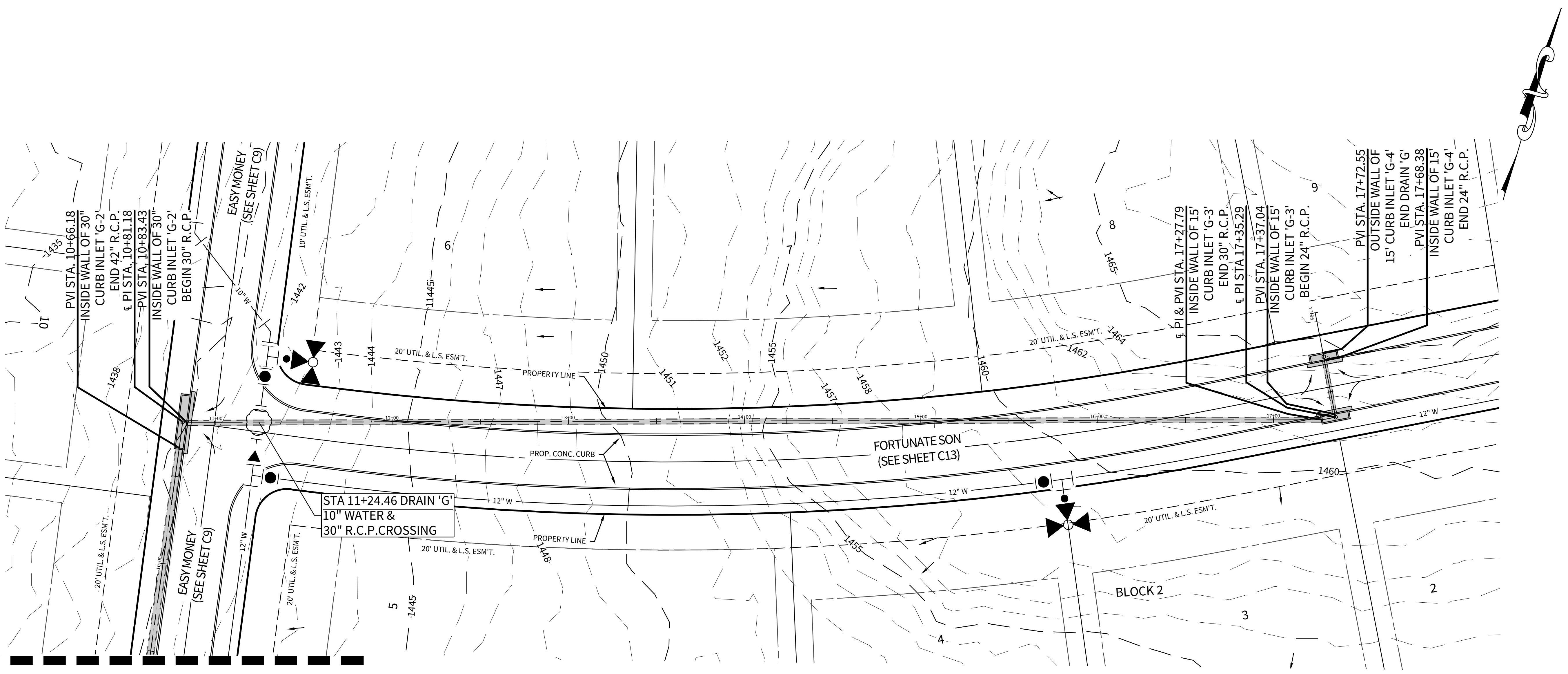
CONCRETE COLLAR DETAIL

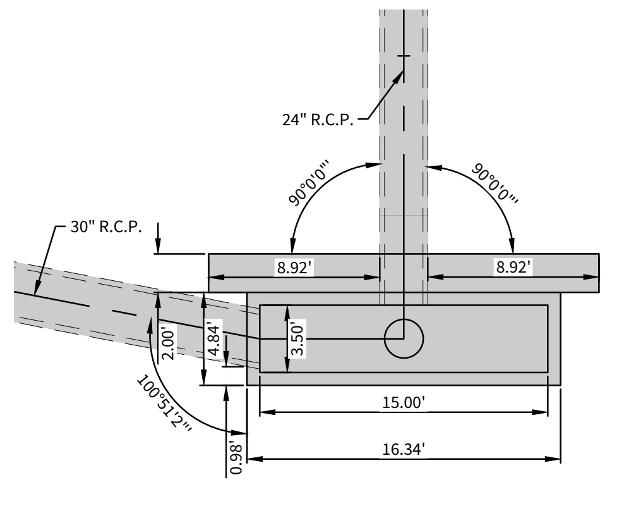
(N.T.S.)



DETAIL "B"
15' CURB INLET 'G-2'

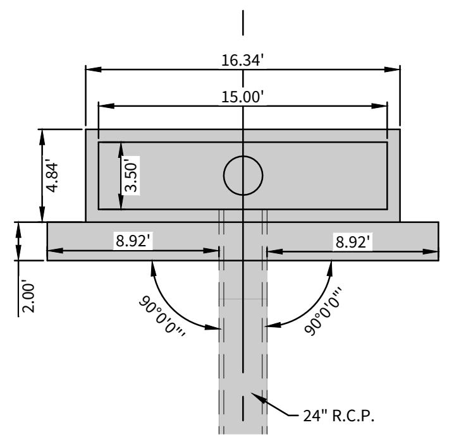
1" = 10'





DETAIL "C"
15' CURB INLET 'G-3'

1" = 10'



DETAIL "D"
15' CURB INLET 'G-4'

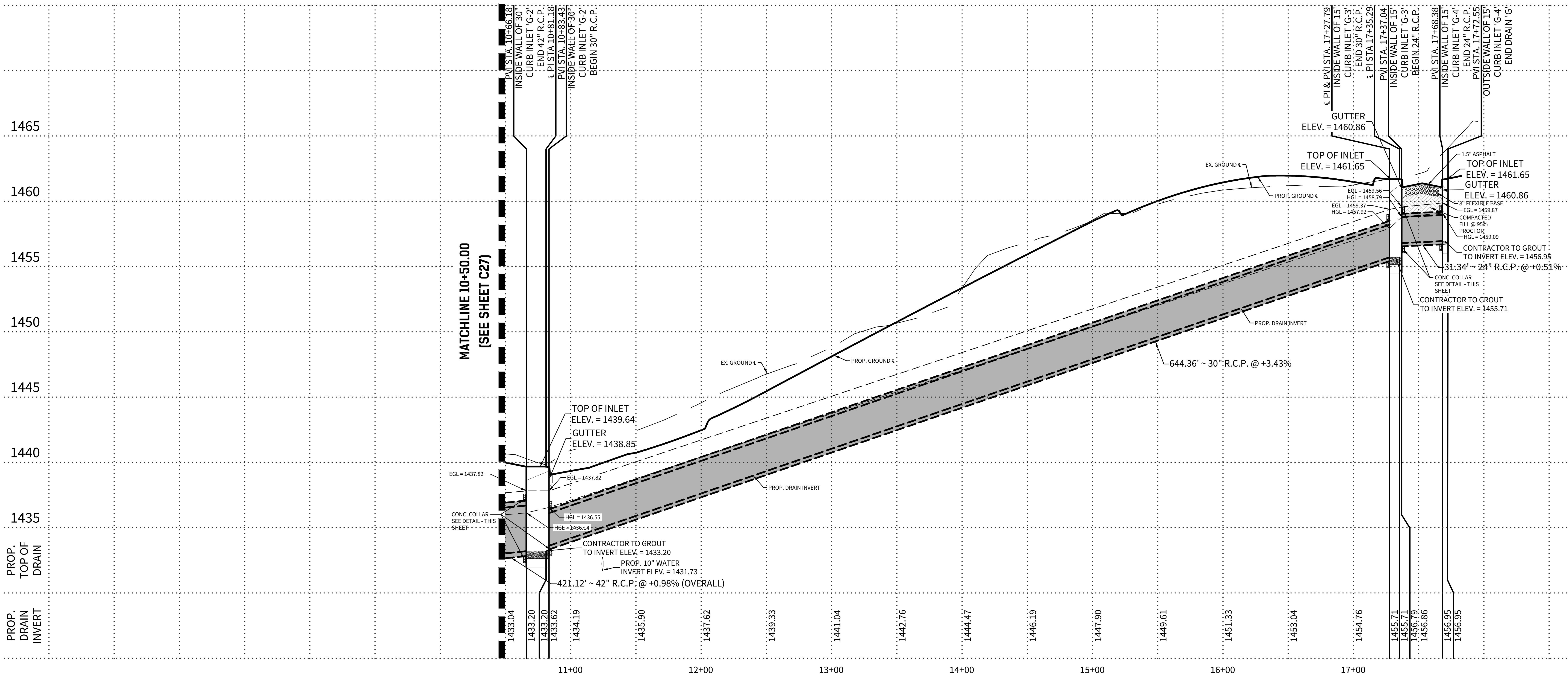
1" = 10'

DRAIN 'G'

STA. 10+50.00 TO STA. 17+72.55

NOTES:
1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.
2. ALL REINFORCING TO STEEL TO BE GRADE 60.

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



CURB INLET OPENING - 'G-2'

(A4 - SEE SHEET C1 & C2)

Q_{10} = 45.32 c.f.s. / 2.06 = 22.00' REQ.

USED 30' INLET

CURB INLET OPENING - 'G-3'

(A5 - SEE SHEET C1 & C2)

Q_{10} = 22.16 c.f.s. / 2.06 = 10.75' REQ.

USED 15' INLET

CURB INLET OPENING - 'G-4'

(A5 - SEE SHEET C1 & C2)

Q_{10} = 22.16 c.f.s. / 2.06 = 10.75' REQ.

USED 15' INLET

1465
1460
1455
1450
1445
1440
1435

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GEORGE'S RANCH
UNIT 1

DRAINAGE PLAN & PROFILE - DRAIN 'G'

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 07/14/2022 - REVISED VERTICAL DESIGN/WIDEN CURB INLET
2. 2022-09-28 REVISED PAVEMENT WIDTH
3.
4.
5.
6.
7.
8.
9.

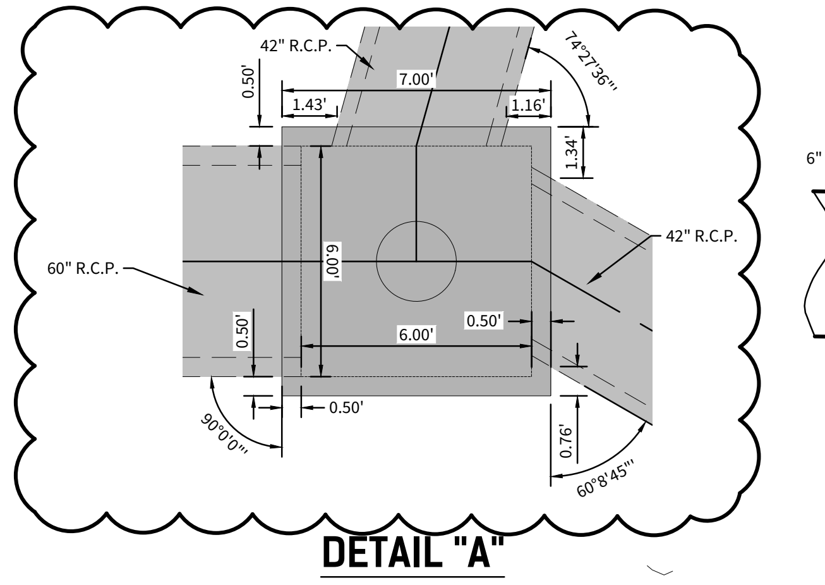
W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C28

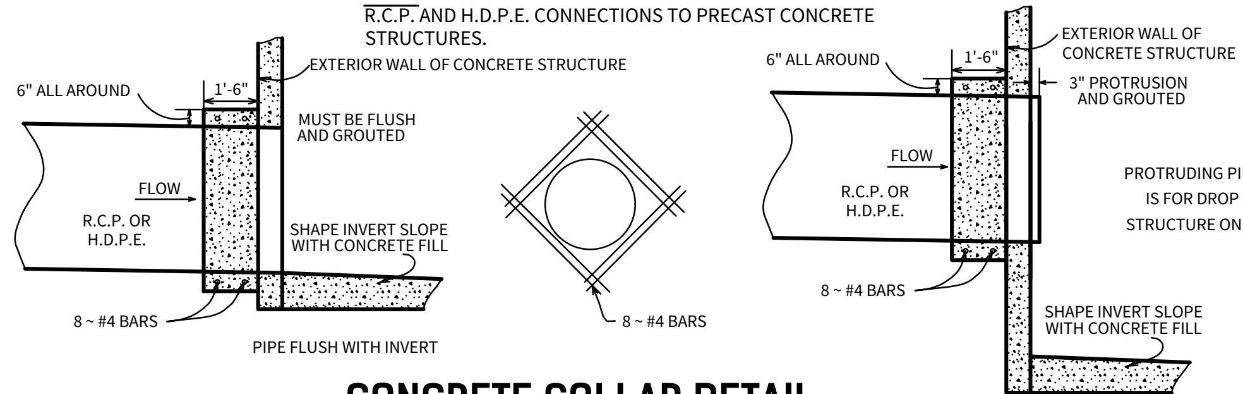
P:\03546\001\2-Drawings\01_115 DRPP.dwg 2023/02/09 10:15am rmata



DETAIL "A"
JUNCTION BOX 'H-1'

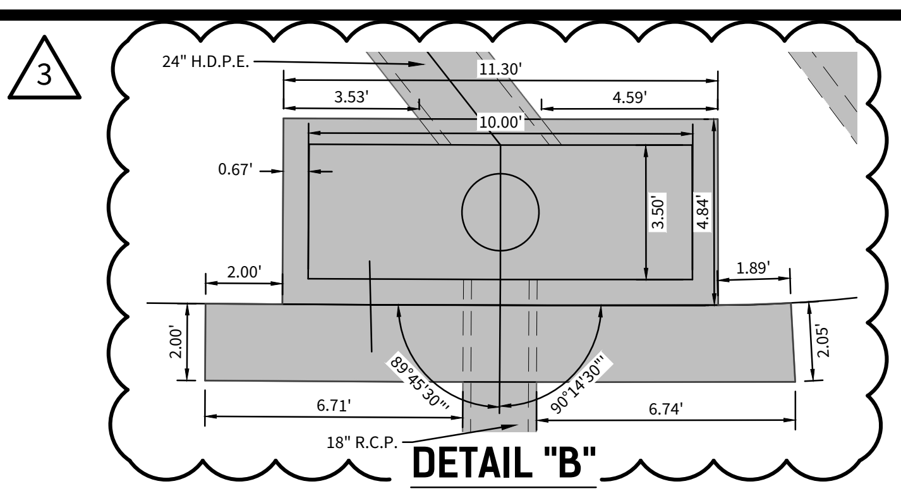
1" = 5'

NOTE: CONTRACTOR SHALL INSTALL CONCRETE COLLARS ON ALL R.C.P. AND H.D.P.E. CONNECTIONS TO PRECAST CONCRETE STRUCTURES.


6" ALL AROUND
1'-6"
EXTERIOR WALL OF CONCRETE STRUCTURE
MUST BE FLUSH AND GROUTED
FLOW
R.C.P. OR H.D.P.E.
SHAPE INVERT SLOPE WITH CONCRETE FILL
8 ~ #4 BARS
PIPE FLUSH WITH INVERT
8 ~ #4 BARS
6" ALL AROUND
1'-6"
EXTERIOR WALL OF CONCRETE STRUCTURE
3" PROTRUSION AND GROUTED
FLOW
R.C.P. OR H.D.P.E.
PROTRUDING PIPE IS FOR DROP STRUCTURE ONLY
8 ~ #4 BARS
SHAPE INVERT SLOPE WITH CONCRETE FILL

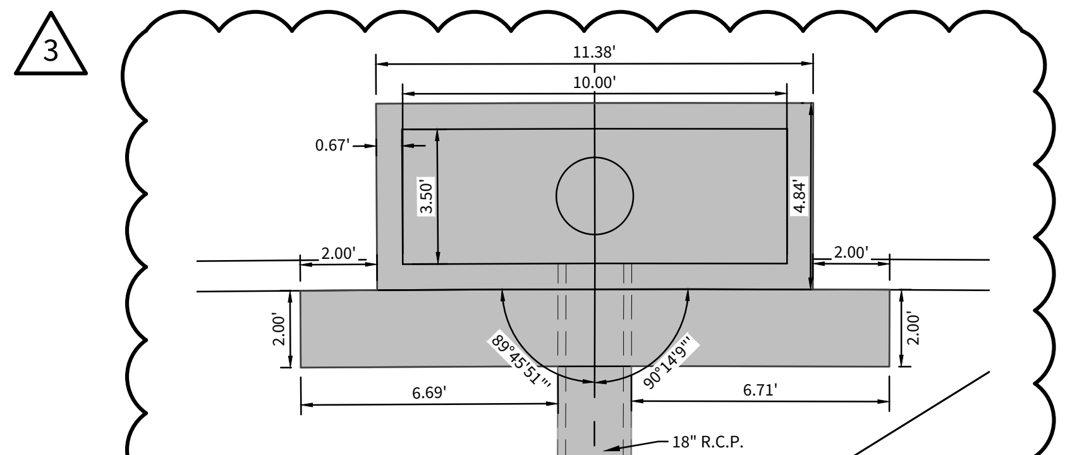
CONCRETE COLLAR DETAIL

(N.T.S.)



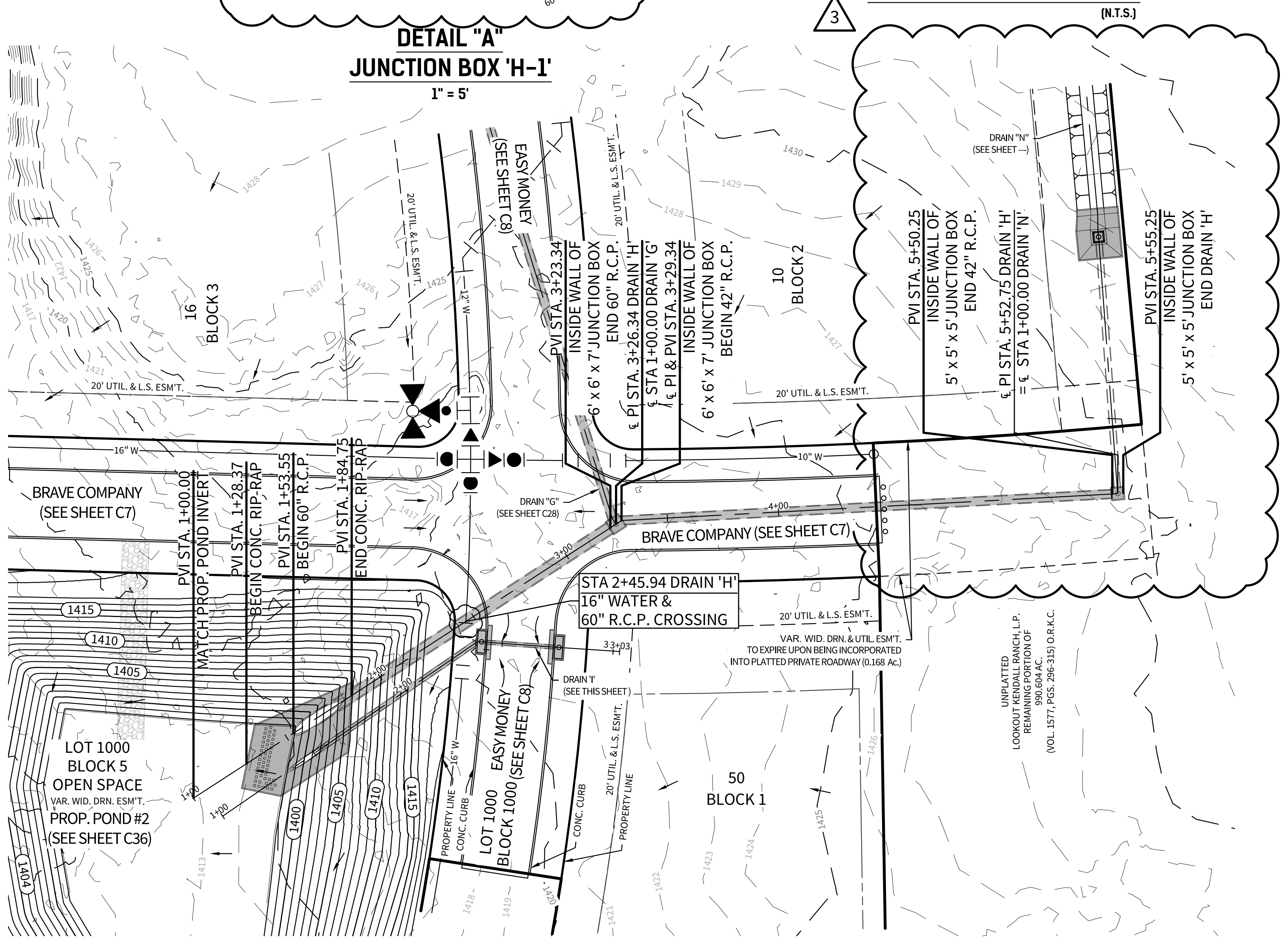
DETAIL "B"
10' CURB INLET 'I-1'

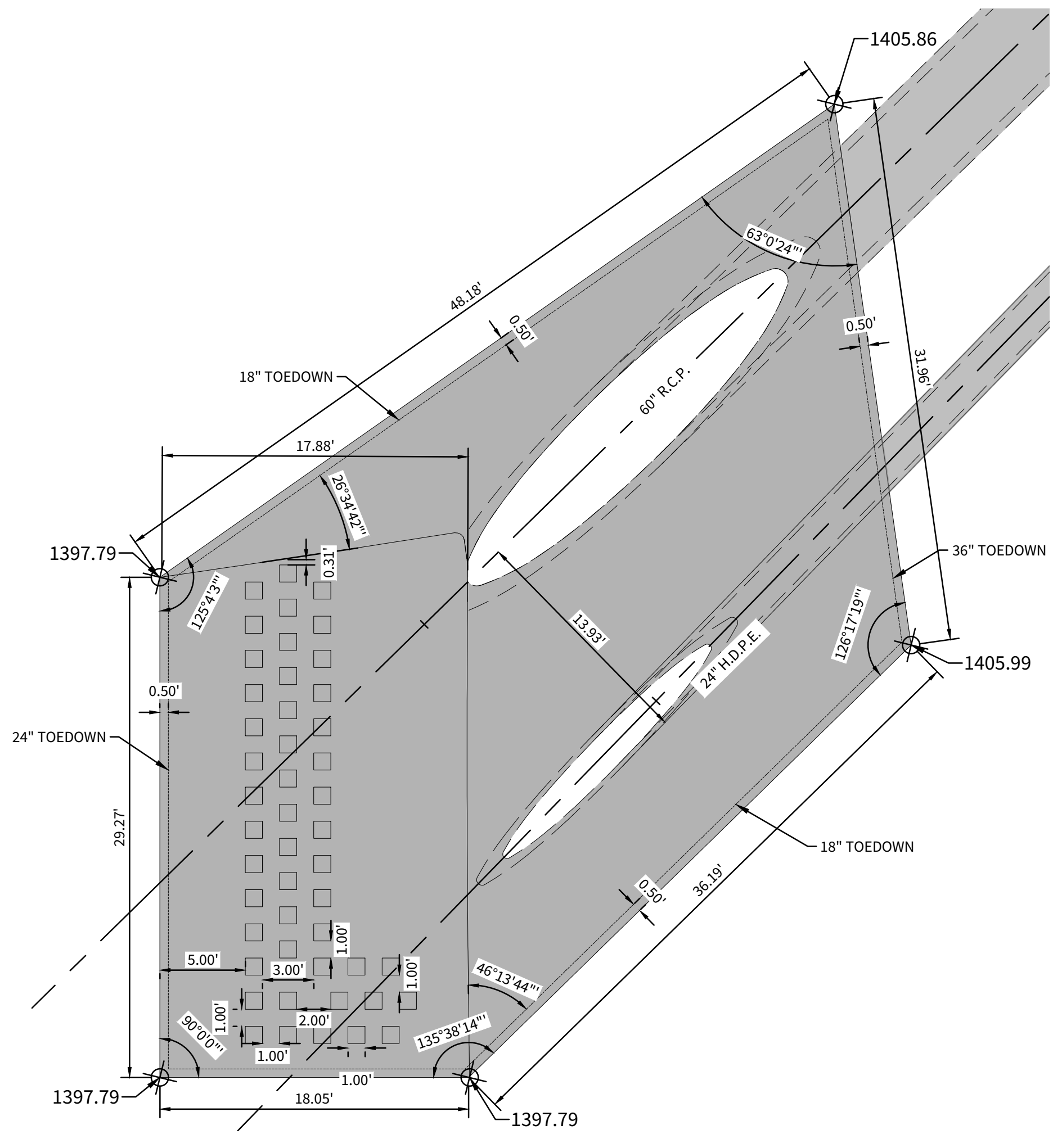
N.T.S.



DETAIL "C"
10' CURB INLET 'I-2'

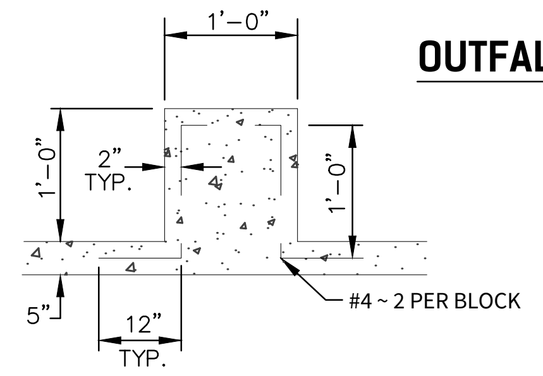
N.T.S.


3
16
BLOCK 3
10
BLOCK 2
EASY MONEY (SEE SHEET C8)
PVI STA. 3+23.34 INSIDE WALL OF 6' x 6' 7' JUNCTION BOX END 60" R.C.P.
€ PI STA. 3+26.34 DRAIN 'H' = € STA 1+00.00 DRAIN 'G' € PI & PVI STA. 3+29.34
INSIDE WALL OF 6' x 6' 7' JUNCTION BOX BEGIN 42" R.C.P.
PVI STA. 5+50.25 INSIDE WALL OF 5' x 5' 5' JUNCTION BOX END 42" R.C.P.
€ PI STA. 5+52.75 DRAIN 'H' = € STA 1+00.00 DRAIN 'N'
PVI STA. 5+55.25 INSIDE WALL OF 5' x 5' 5' JUNCTION BOX END DRAIN 'H'
DRAIN "N" (SEE SHEET ---)
20' UTIL. & L.S. ESM'T.
BRAVE COMPANY (SEE SHEET C7)
MATCH PROP. POND INVERT PVI STA. 1+00.00
PVI STA. 1+28.37 BEGIN CONC. RIP-RAP
PVI STA. 1+53.55 BEGIN 60" R.C.P.
PVI STA. 1+84.75 END CONC. RIP-RAP
DRAIN "G" (SEE SHEET C28)
BRAVE COMPANY (SEE SHEET C7)
STA 2+45.94 DRAIN 'H' 16" WATER & 60" R.C.P. CROSSING
VAR. WID. DRN. & UTIL. ESMT. TO EXPIRE UPON BEING INCORPORATED INTO PLATTED PRIVATE ROADWAY (0.168 Ac.)
LOT 1000 BLOCK 5 OPEN SPACE
VAR. WID. DRN. ESM'T.
PROP. POND #2 (SEE SHEET C36)
LOT 1000 BLOCK 1000
EASY MONEY (SEE SHEET C8)
DRAIN 'I' (SEE THIS SHEET)
UNPLATTED LOOKOUT RANCH, L.P. REMAINING PORTION OF 960.0 AC. (VOL. 1377, PGS. 296-315) O.R.K.C.
50 BLOCK 1
PROPERTY LINE
CONC. CURB



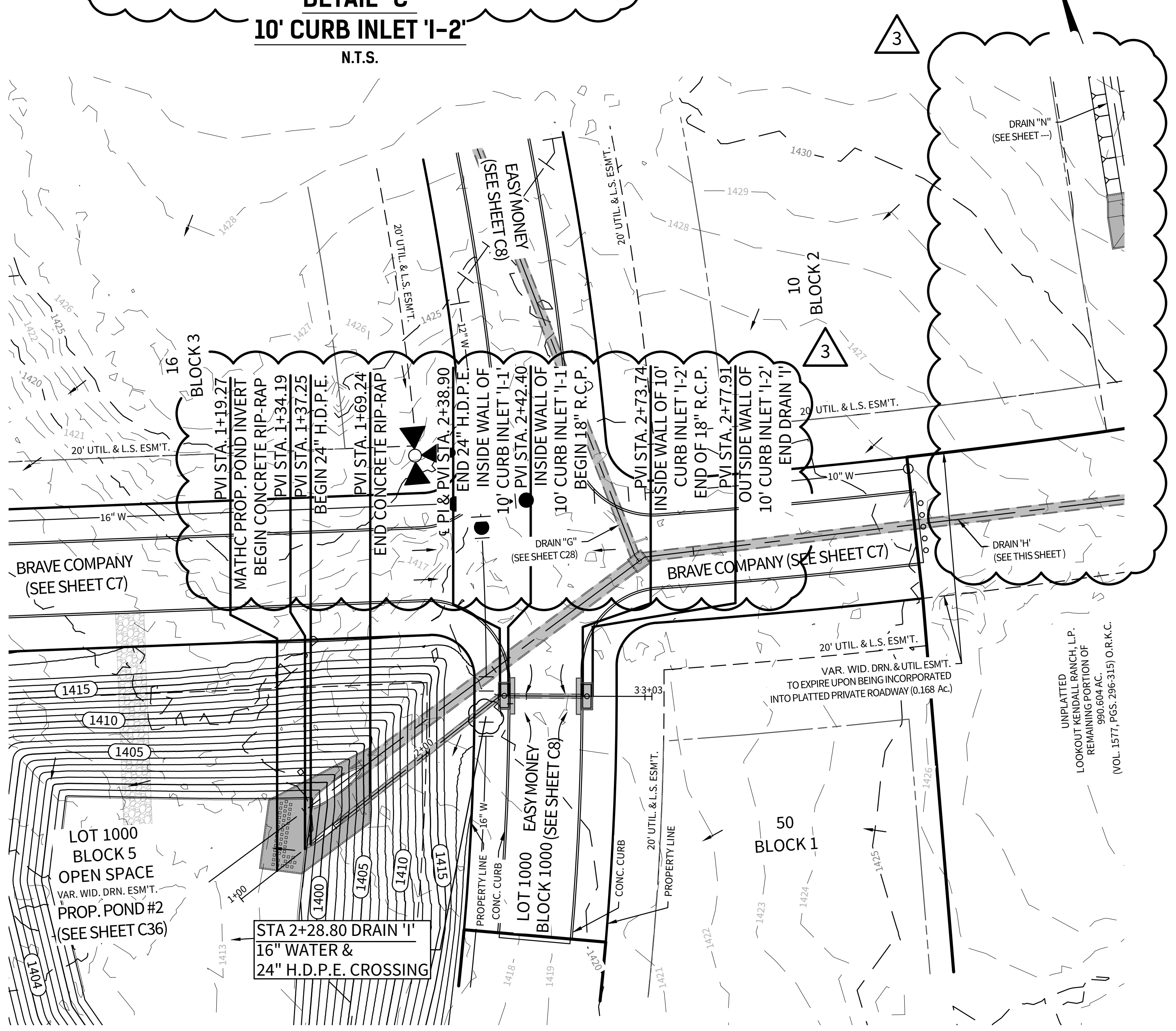
DETAIL "A"
OUTFALL STRUCTURE 'H-1'

1" = 10'.



DISSIPATOR BLOCK DETAIL

(N.T.S.)

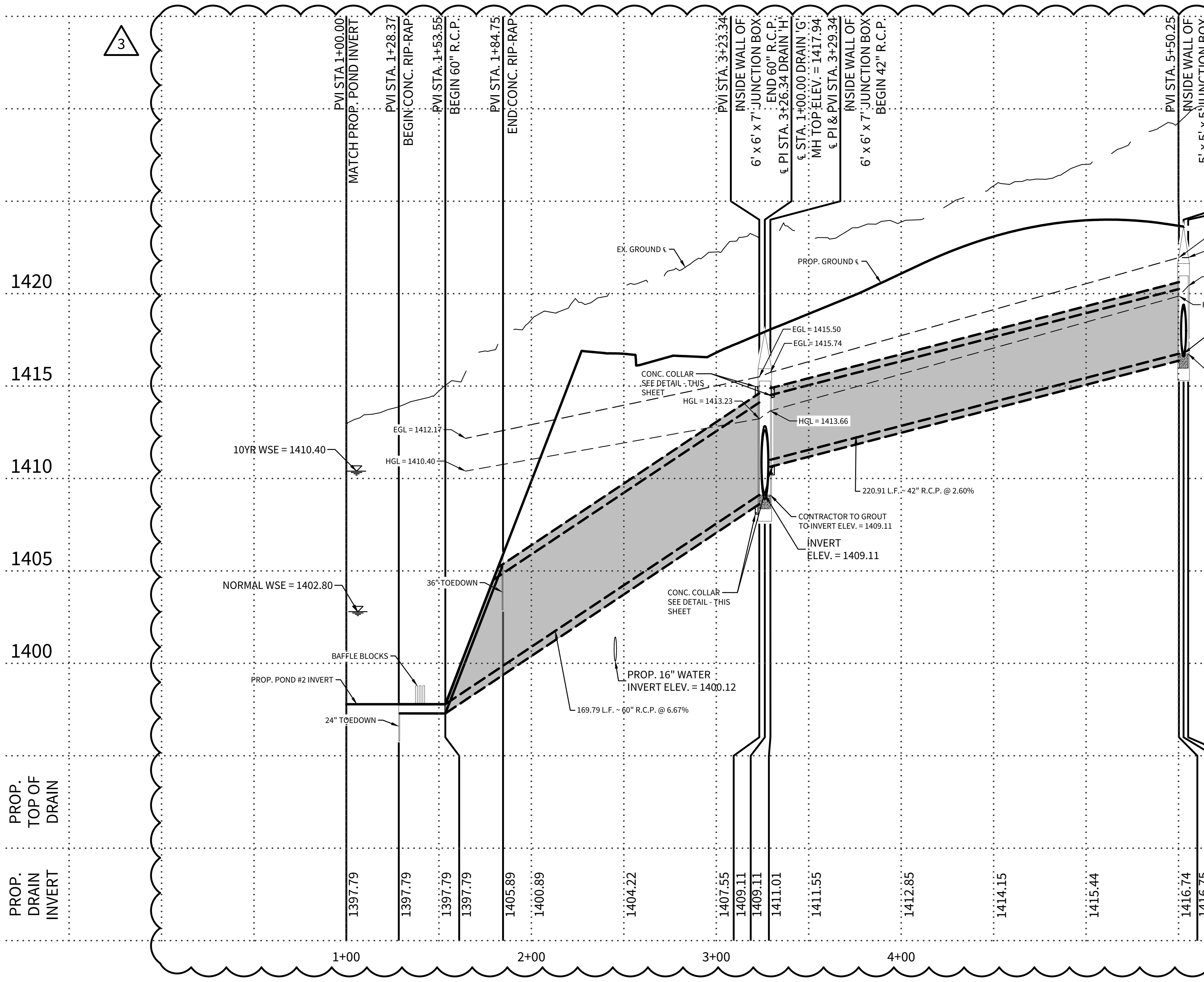

3
3
16
BLOCK 3
10
BLOCK 2
EASY MONEY (SEE SHEET C8)
MATCH PROP. POND INVERT PVI STA. 1+19.27
BEGIN CONCRETE RIP-RAP PVI STA. 1+34.19
BEGIN 24" H.D.P.E. PVI STA. 1+37.25
END CONCRETE RIP-RAP PVI STA. 1+69.24
€ PI & PVI STA. 2+38.90 END 24" H.D.P.E.
INSIDE WALL OF 10' CURB INLET 'I-1' PVI STA. 2+42.40 BEGIN 18" R.C.P.
PVI STA. 2+73.74 INSIDE WALL OF 10' CURB INLET 'I-2' END OF 18" R.C.P.
PVI STA. 2+75.31 OUTSIDE WALL OF 10' CURB INLET 'I-2' END DRAIN 'I'
DRAIN "N" (SEE SHEET ---)
DRAIN "G" (SEE SHEET C28)
DRAIN 'H' (SEE THIS SHEET)
BRAVE COMPANY (SEE SHEET C7)
BRAVE COMPANY (SEE SHEET C7)
20' UTIL. & L.S. ESM'T.
VAR. WID. DRN. & UTIL. ESMT. TO EXPIRE UPON BEING INCORPORATED INTO PLATTED PRIVATE ROADWAY (0.168 Ac.)
LOT 1000 BLOCK 5 OPEN SPACE
VAR. WID. DRN. ESM'T.
PROP. POND #2 (SEE SHEET C36)
STA 2+28.80 DRAIN 'I' 16" WATER & 24" H.D.P.E. CROSSING
LOT 1000 BLOCK 1000
EASY MONEY (SEE SHEET C8)
UNPLATTED LOOKOUT RANCH, L.P. REMAINING PORTION OF 960.0 AC. (VOL. 1377, PGS. 296-315) O.R.K.C.
50 BLOCK 1

NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.
2. ALL REINFORCING TO STEEL TO BE GRADE 60.

DRAIN 'H'

STA. 1+00.00 TO STA. 5+55.25


3
PVI STA 1+00.00 MATCH PROP. POND INVERT
PVI STA. 1+28.37 BEGIN CONC. RIP-RAP
PVI STA. 1+53.55 BEGIN 60" R.C.P.
PVI STA. 1+84.75 END CONC. RIP-RAP
PVI STA. 3+23.34 INSIDE WALL OF 6' x 6' 7' JUNCTION BOX END 60" R.C.P. € PI STA. 3+26.34 DRAIN 'H'
€ STA. 1+00.00 DRAIN 'G' MH TOP ELEV. = 1417.94 € PI & PVI STA. 3+29.34
INSIDE WALL OF 6' x 6' 7' JUNCTION BOX BEGIN 42" R.C.P.
PVI STA. 5+50.25 INSIDE WALL OF 5' x 5' 5' JUNCTION BOX END 42" R.C.P.
€ PI STA. 5+52.75 DRAIN 'H' = € STA. 1+00.00 DRAIN 'N'
PVI STA. 5+55.25 INSIDE WALL OF 5' x 5' 5' JUNCTION BOX END DRAIN 'H'
1420
1415
1410
1405
1400
EX. GROUND
PROP. GROUND
EGL = 1421.95
EGL = 1421.95
HGL = 1420.41
HGL = 1419.87
INVERT ELEV. = 1416.75
CONTRACTOR TO GROUT TO INVERT ELEV. = 1416.75
EGL = 1415.50
EGL = 1415.74
CONC. COLLAR SEE DETAIL - THIS SHEET
HGL = 1413.23
HGL = 1413.66
EGL = 1412.17
HGL = 1410.40
10YR WSE = 1410.40
220.91 L.F. ~ 42" R.C.P. @ 2.60%
CONTRACTOR TO GROUT TO INVERT ELEV. = 1409.11
INVERT ELEV. = 1409.11
NORMAL WSE = 1402.80
36" TOEDOWN
CONC. COLLAR SEE DETAIL - THIS SHEET
PROP. 16" WATER INVERT ELEV. = 1400.12
BAFFLE BLOCKS
PROP. POND #2 INVERT
24" TOEDOWN
169.79 L.F. ~ 60" R.C.P. @ 6.67%
PROP. TOP OF DRAIN
PROP. DRAIN INVERT
1397.79
1397.79
1397.79
1397.79
1405.89
1400.89
1404.22
1407.55
1409.11
1409.11
1411.01
1411.55
1412.85
1414.15
1415.44
1416.74
1416.75
1416.75
1416.75
1+00
2+00
3+00
4+00

BAFFLE BLOCK CALCULATIONS – DRAIN "H"

$Y_1 = 1.67'$

$V_1 = 28.72$ fps

$$F_1 = \frac{V_1}{\sqrt{dng}} = \frac{28.72}{\sqrt{1.67x32.2}} = 3.92$$

$$\frac{Y_2}{Y_1} = 1/2\left(\sqrt{1+8(3.92)^2} - 1\right)$$

$$\frac{Y_2}{Y_1} = 5.07$$

$Y_2 = 8.47'$

$$L_B = \frac{4.5\,Y_2}{F_1^{0.76}} = \frac{4.5(8.47)}{(3.92)^{0.76}} = 13.50'$$

USED = 18.00'

$L_B /3 = 6.00'$

SPACING = $0.75\,Y_1 = 1.25'$

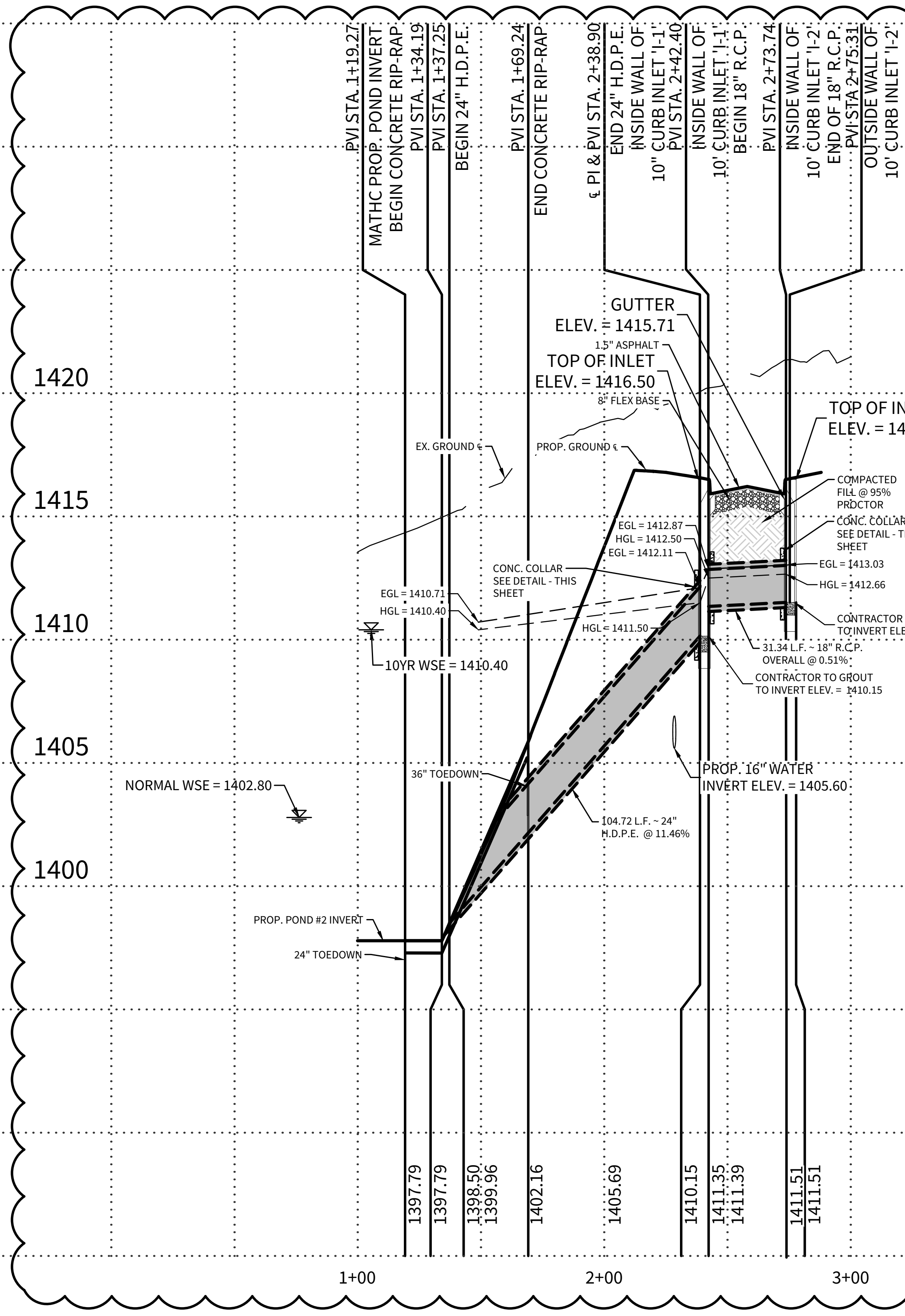
USED = 1.00'

1420
1415
1410
1405
1400

DRAIN 'I'

STA. 1+19.76 TO STA. 2+75.31

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


3
1420
1415
1410
1405
1400
PVI STA. 1+19.27 MATCH PROP. POND INVERT
PVI STA. 1+34.19 BEGIN CONCRETE RIP-RAP
PVI STA. 1+37.25 BEGIN 24" H.D.P.E.
PVI STA. 1+69.24 END CONCRETE RIP-RAP
€ PI & PVI STA. 2+38.90 END 24" H.D.P.E.
INSIDE WALL OF 10' CURB INLET 'I-1' PVI STA. 2+42.40
10' CURB INLET 'I-1' BEGIN 18" R.C.P.
PVI STA. 2+73.74 INSIDE WALL OF 10' CURB INLET 'I-2' END OF 18" R.C.P.
PVI STA 2+75.31 OUTSIDE WALL OF 10' CURB INLET 'I-2' END DRAIN 'I'
GUTTER ELEV. = 1415.71
1.5" ASPHALT
TOP OF INLET ELEV. = 1416.50
8" FLEX BASE
TOP OF INLET ELEV. = 1416.50
EX. GROUND
PROP. GROUND
COMPACTED FILL @ 95% PROCTOR
CONC. COLLAR SEE DETAIL - THIS SHEET
EGL = 1413.03
HGL = 1412.66
CONTRACTOR TO GROUT TO INVERT ELEV. = 1411.51
EGL = 1412.87
HGL = 1412.50
EGL = 1412.11
CONC. COLLAR SEE DETAIL - THIS SHEET
HGL = 1411.50
EGL = 1410.71
HGL = 1410.40
10YR WSE = 1410.40
31.34 L.F. ~ 18" R.C.P. OVERALL @ 0.51%
CONTRACTOR TO GROUT TO INVERT ELEV. = 1410.15
36" TOEDOWN
NORMAL WSE = 1402.80
PROP. 16" WATER INVERT ELEV. = 1405.60
104.72 L.F. ~ 24" H.D.P.E. @ 11.46%
PROP. POND #2 INVERT
24" TOEDOWN
1397.79
1397.79
1398.50
1399.96
1402.16
1405.69
1410.15
1411.35
1411.39
1411.51
1411.51
1+00
2+00
3+00

CURB INLET OPENING – 'I-1'

(A17 - SEE SHEET C1 & C2)

Q_{10} = 7.04 c.f.s. / 2.06 = 3.42' REQ.

USED 10' INLET

CURB INLET OPENING – 'I-2'

(A17 - SEE SHEET C1 & C2)

Q_{10} = 7.04 C.F.S. / 2.06 = 3.42' REQ.

USED 10' INLET

BAFFLE BLOCK CALCULATIONS – DRAIN "I"

$Y_1 = 0.58'$

$V_1 = 18.51$ fps

$$F_1 = \frac{V_1}{\sqrt{dng}} = \frac{18.51}{\sqrt{0.58x32.2}} = 4.28$$

$$\frac{Y_2}{Y_1} = 1/2\left(\sqrt{1+8(4.28)^2} - 1\right)$$

$$\frac{Y_2}{Y_1} = 5.57$$

$Y_2 = 3.23'$

$$L_B = \frac{4.5\,Y_2}{F_1^{0.76}} = \frac{4.5(3.23)}{(4.28)^{0.76}} = 4.81'$$

USED = 18.00'

$L_B /3 = 6.00'$

SPACING = $0.75\,Y_1 = 0.44'$

USED = 1.00'

1420
1415
1410
1405
1400

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GEORGE'S RANCH UNIT 1

DRAINAGE PLAN & PROFILE - DRAIN 'H' & DRAIN 'I'

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 07/14/2022 - REVISED DRAIN ALIGNMENT & VERTICAL DESIGN
2. 09/26/2022 - ADJUSTED INLET STATIONS & PAVEMENT WIDENING REVISIONS
3. 02/28/2023 - DRAINAGE REVISION
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
3/3/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C29

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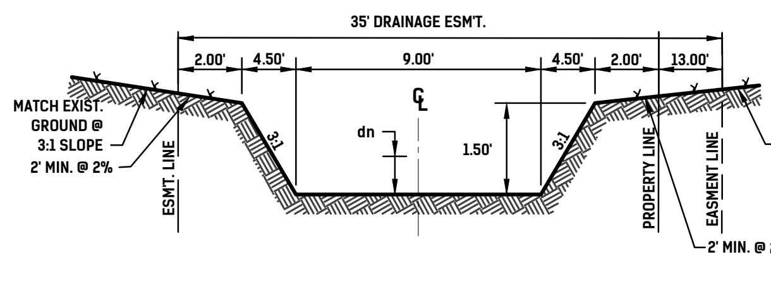
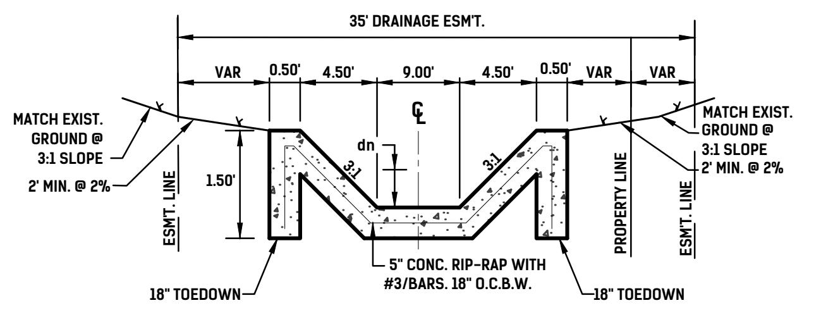


DRAIN "J" SECTIONS (N.T.S.)

"J-1" STA. 2+11.20 TO STA. 4+33.63

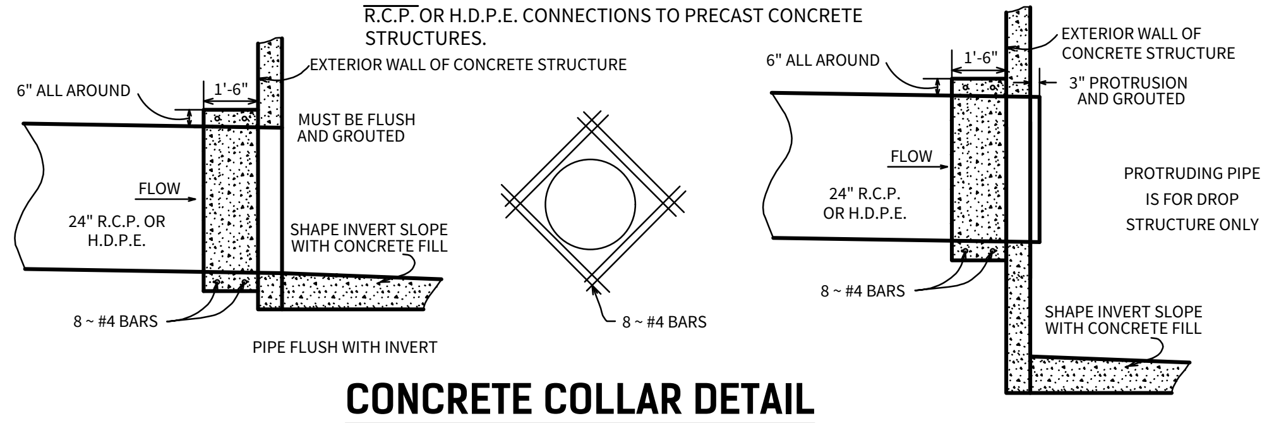


DRAIN "J" SECTIONS (N.T.S.)

"J-2" STA. 4+33.63 TO STA. 4+38.63

	"J-1"	"J-2"
Q_{10} (cfs)	53.02	53.02
B_W (ft)	9.00	9.00
z	3:1	3:1
n	0.035	0.015
S (%)	3.11	0.50
d_n (ft)	0.82	0.85
V (fps)	5.64	5.40
DRN. AREA	A49	A49

NOTE: CONTRACTOR SHALL INSTALL CONCRETE COLLARS ON R.C.P. OR H.D.P.E. CONNECTIONS TO PRECAST CONCRETE STRUCTURES.


EXTERIOR WALL OF CONCRETE STRUCTURE
6" ALL AROUND
1'-6"
MUST BE FLUSH AND GROUTED
FLOW
24" R.C.P. OR H.D.P.E.
SHAPE INVERT SLOPE WITH CONCRETE FILL
8 ~ #4 BARS
PIPE FLUSH WITH INVERT
8 ~ #4 BARS
6" ALL AROUND
EXTERIOR WALL OF CONCRETE STRUCTURE
3" PROTRUSION AND GROUTED
FLOW
24" R.C.P. OR H.D.P.E.
PROTRUDING PIPE IS FOR DROP STRUCTURE ONLY
8 ~ #4 BARS
SHAPE INVERT SLOPE WITH CONCRETE FILL

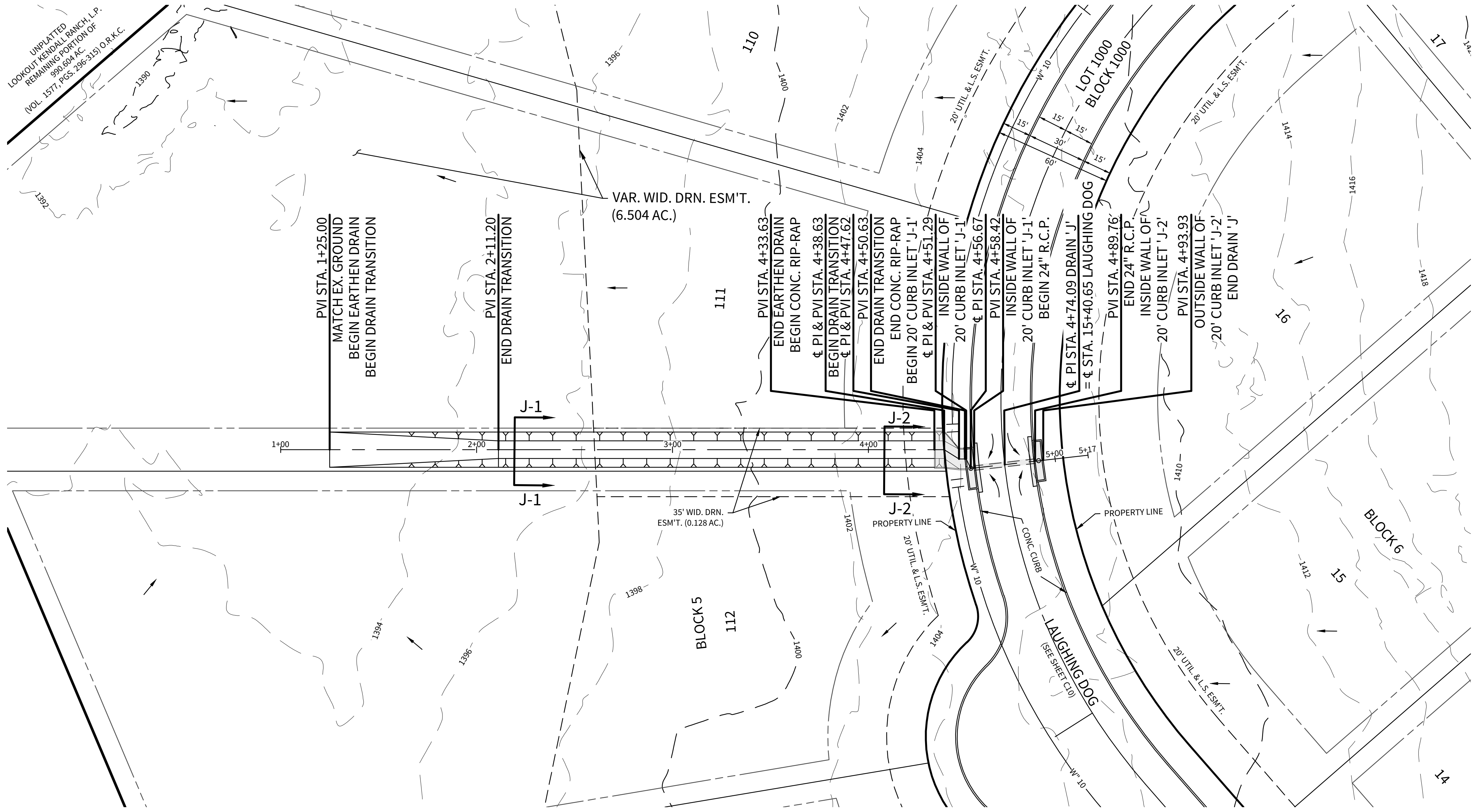
CONCRETE COLLAR DETAIL

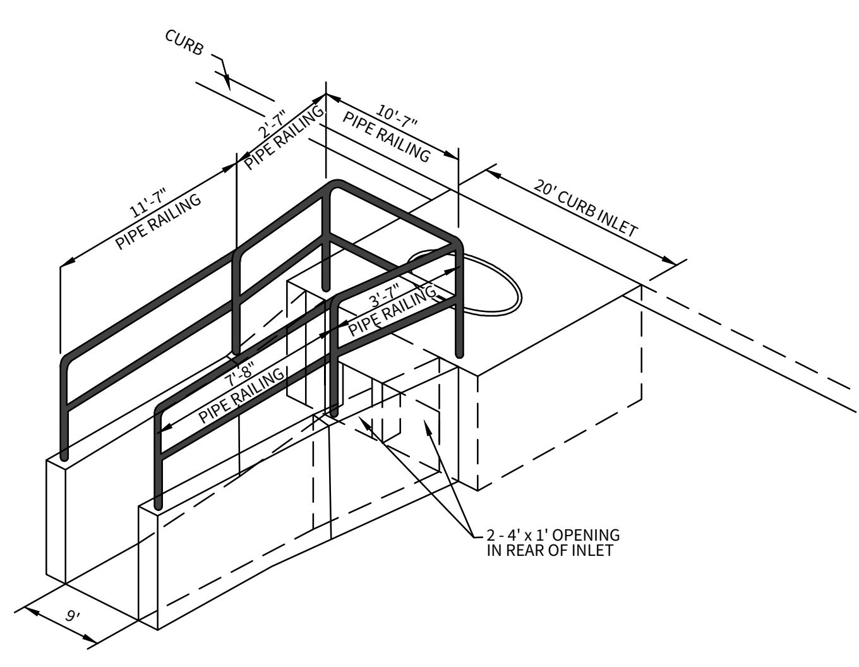
(N.T.S.)

CONTRACTOR SHALL NOT BEGIN CONSTRUCTION WITHIN THE SANITARY CONTROL EASEMENT PRIOR TO DOCUMENTED PLUGGING OF WELLS LOCATED WITHIN THIS UNIT.

NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.
2. ALL REINFORCING TO STEEL TO BE GRADE 60.

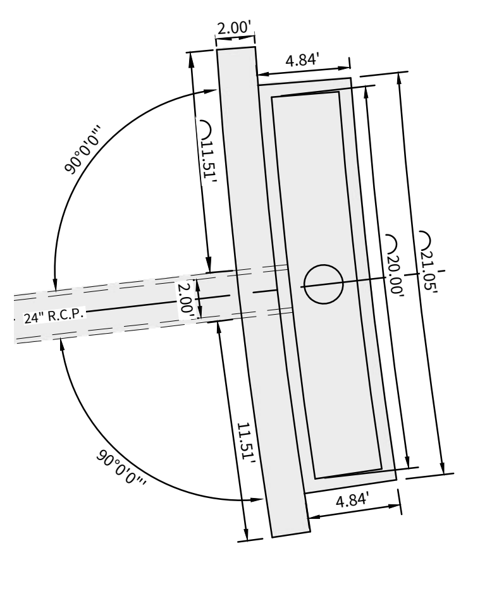




DRAIN 'J'
20' CURB INLET 'J-1' & CONC. DRAIN DETAIL

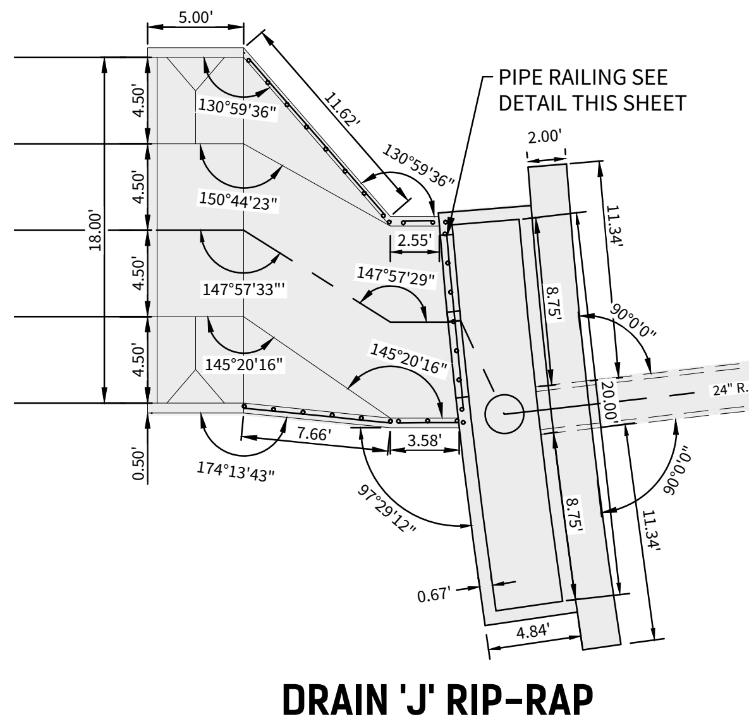
NOTE: CONTRACTOR TO DOWEL CONC. DRAIN TO REAR OF INLET WITH #3 DOWELS @ 12" O.C.

(N.T.S.)



DETAIL "B"
20' CURB INLET 'J-2'

(1" = 10')



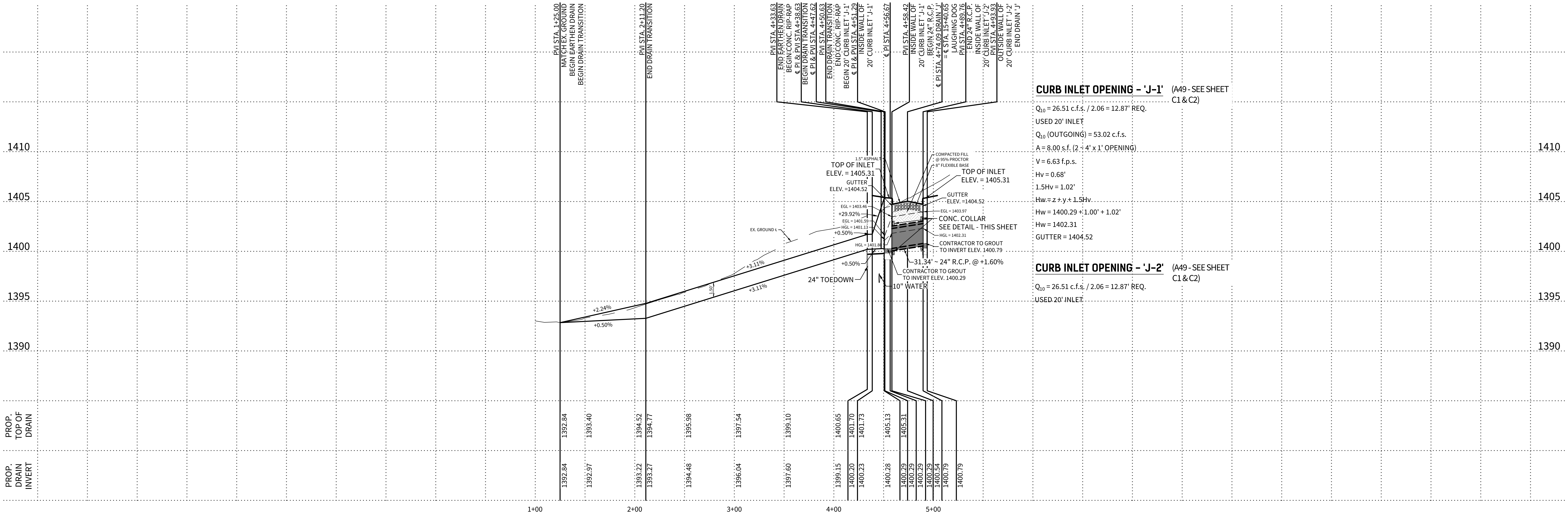
DRAIN 'J' RIP-RAP
& 20' INLET 'J-1' DETAIL

(1" = 10')

DRAIN 'J'

STA. 1+25.00 TO STA. 4+93.93

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



CURB INLET OPENING - 'J-1'

(A49 - SEE SHEET C1 & C2)

Q_{10} = 26.51 c.f.s. / 2.06 = 12.87' REQ.

USED 20' INLET

Q_{10} (OUTGOING) = 53.02 c.f.s.

A = 8.00 s.f. (2 ~ 4' x 1' OPENING)

V = 6.63 f.p.s.

Hv = 0.68'

1.5Hv = 1.02'

Hw = z + y + 1.5Hv

Hw = 1400.29 + 1.00' + 1.02'

Hw = 1402.31

GUTTER = 1404.52

CURB INLET OPENING - 'J-2'

(A49 - SEE SHEET C1 & C2)

Q_{10} = 26.51 c.f.s. / 2.06 = 12.87' REQ.

USED 20' INLET

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GEORGE'S RANCH UNIT 1

DRAINAGE PLAN & PROFILE - DRAIN 'J'

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-07-12 REVISED DRAIN DESIGN
2. 2022-09-08 REVISED DRAIN DESIGN
3.
4.
5.
6.
7.
8.
9.

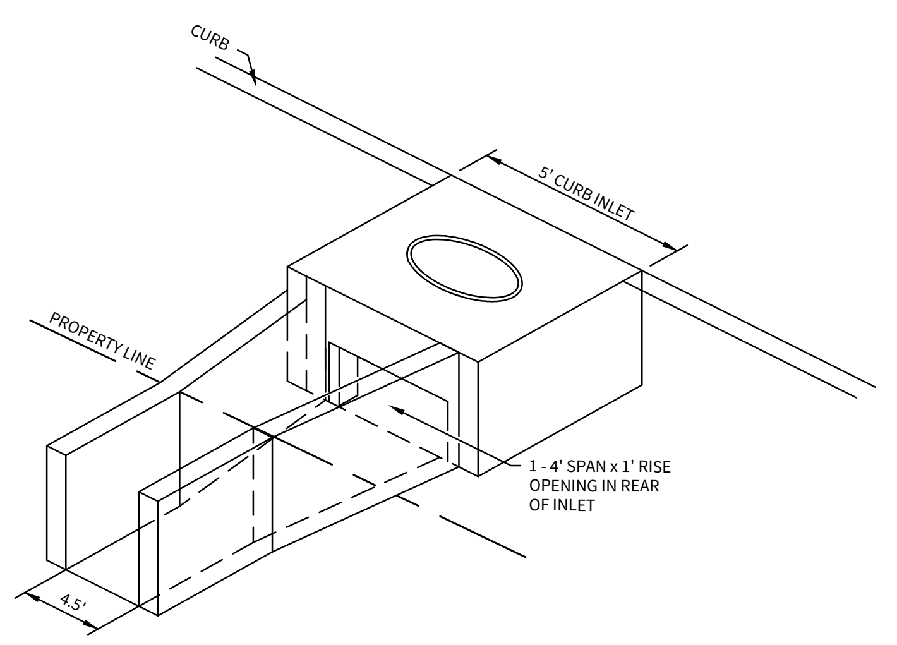
W. PATRICK MURPHY
111597

2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

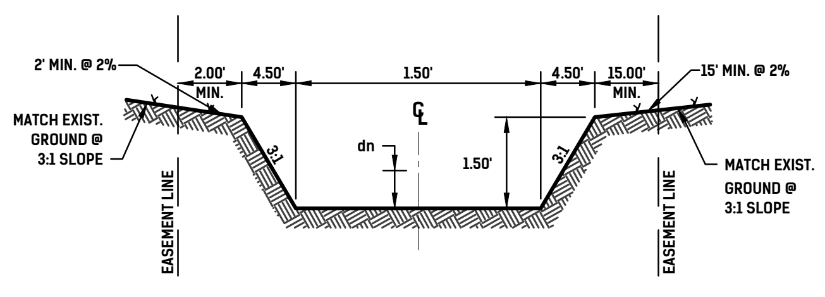
C30



DRAIN 'L'
CURB INLET & CONC. DRAIN DETAIL

(N.T.S.)

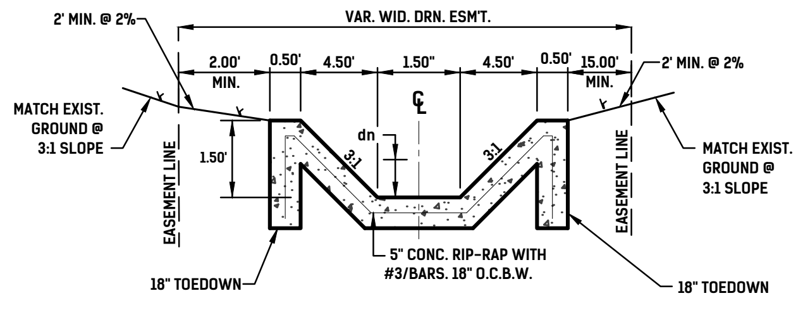
NOTE: CONTRACTOR TO DOWEL CONC. DRAIN TO REAR OF INLET WITH #3 DOWELS @ 12" O.C.



DRAIN 'L' SECTIONS

(N.T.S.)

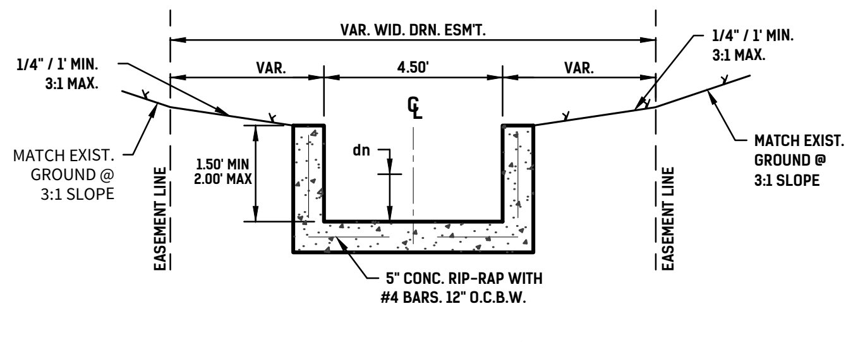
"L-1" STA. 1+54.20 TO STA. 2+79.77



DRAIN 'L' SECTIONS

(N.T.S.)

"L-2" STA. 2+79.77 TO STA. 2+82.77

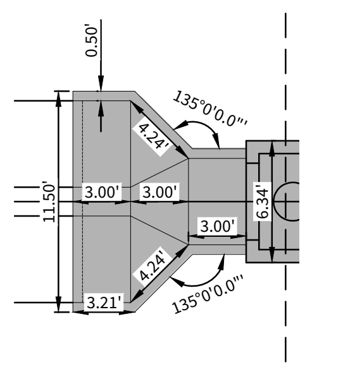


DRAIN 'L' SECTIONS

(N.T.S.)

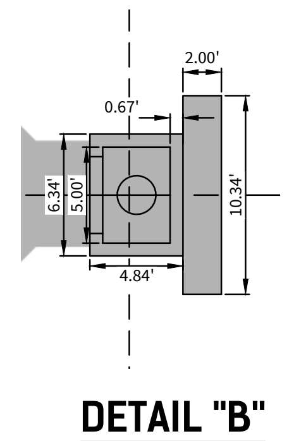
'L-3' STA. 2+85.77 TO STA. 2+88.77

	"L-1"	"L-2"	"L-3"
Q_5 (cfs)	6.45	6.45	6.45
B_W (ft)	1.50	1.50	4.50
z	3:1	3:1	0
n	0.035	0.015	0.015
S (%)	0.50	0.50	0.50
d_n (ft)	0.85	0.57	0.42
V (fps)	1.87	3.53	3.41
DRN. AREA	A30	A30	A30



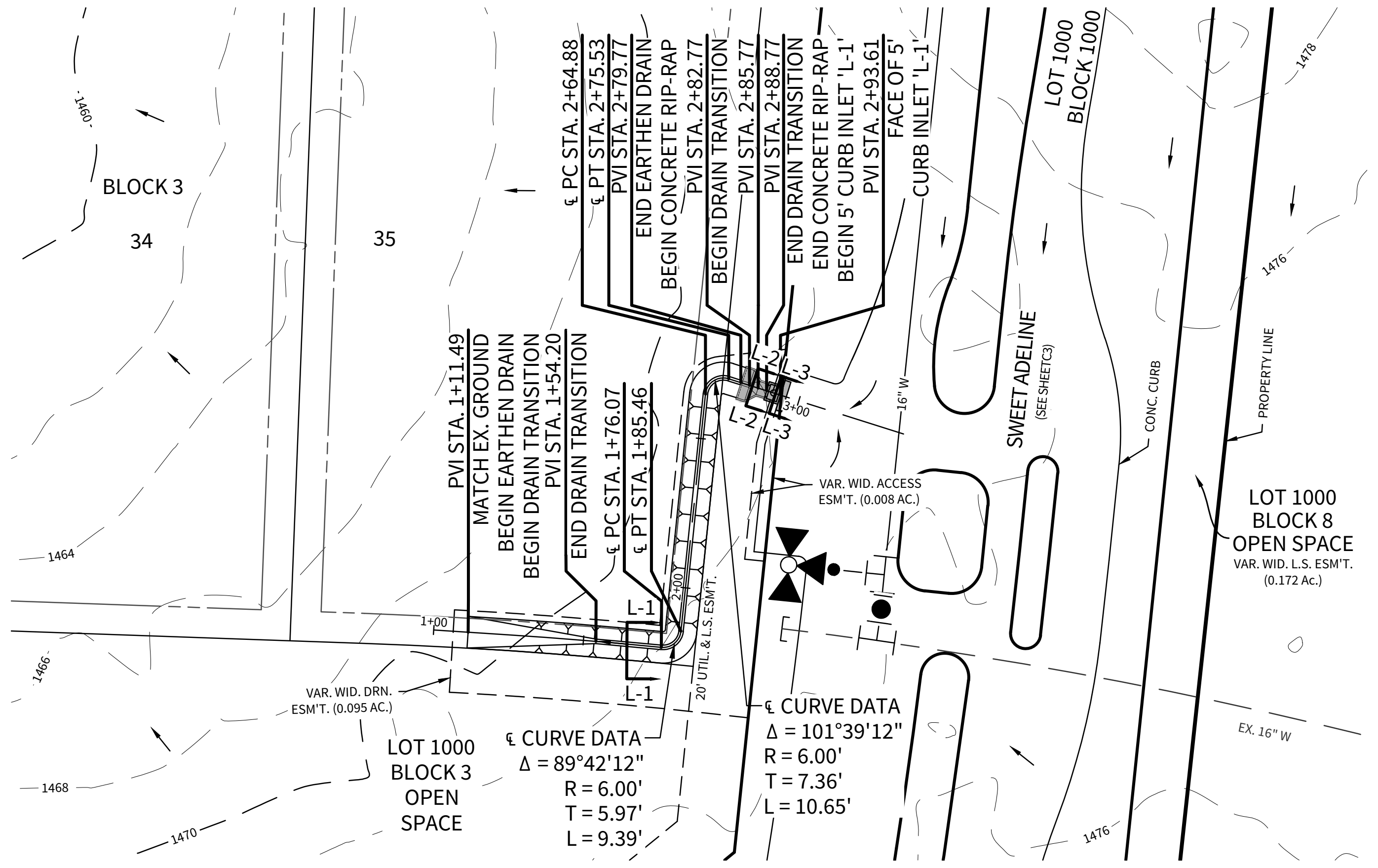
RIP-RAP DETAIL "A"

(1" = 10')



DETAIL "B"
5' CURB INLET 'L-1'

(1" = 10')

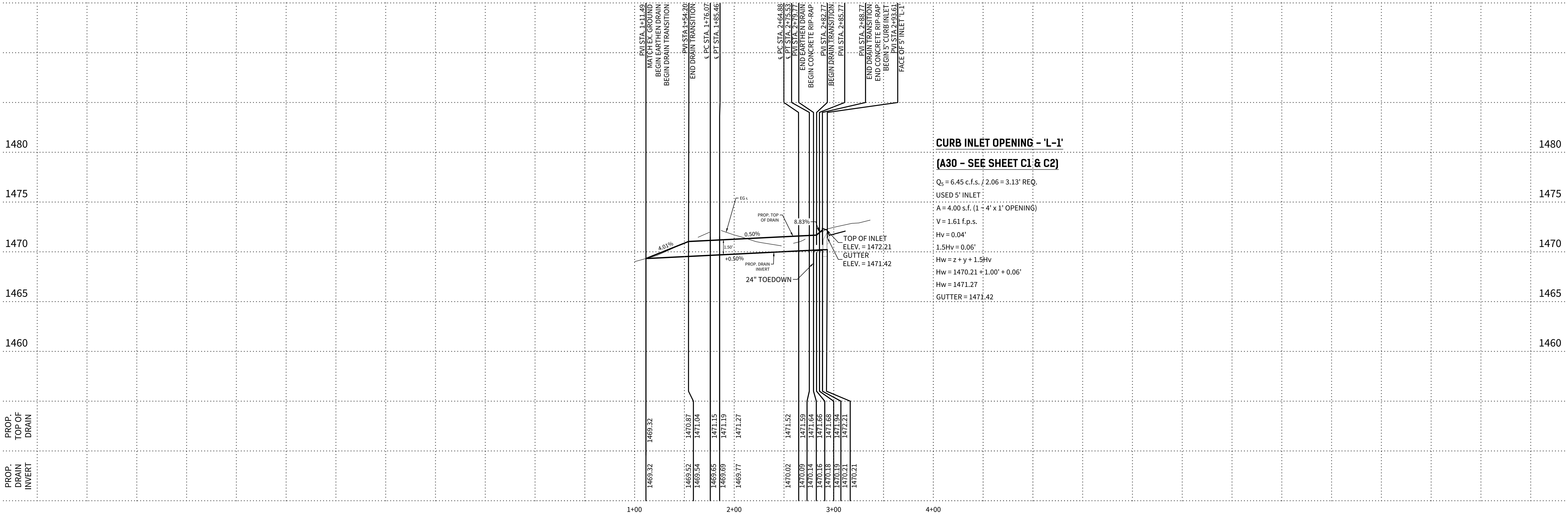


DRAIN 'L'

STA. 1+11.49 TO STA. 2+93.61

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

NOTES:
1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.
2. ALL REINFORCING TO STEEL TO BE GRADE 60.



CURB INLET OPENING – 'L–1'

(A30 – SEE SHEET C1 & C2)

Q_5 = 6.45 c.f.s. / 2.06 = 3.13' REQ.
USED 5' INLET
A = 4.00 s.f. (1 ~ 4' x 1' OPENING)
V = 1.61 f.p.s.
Hv = 0.04'
1.5Hv = 0.06'
Hw = z + y + 1.5Hv
Hw = 1470.21 + 1.00' + 0.06'
Hw = 1471.27
GUTTER = 1471.42

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GEORGE'S RANCH
UNIT 1

DRAINAGE PLAN & PROFILE - DRAIN 'L'

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 2022-7-12 REVISED DRAIN 'L'
2. 2022-09-08 DRAIN DESIGN REVISION
3. 2022-11-16 REVISED PARKING LOT
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C31

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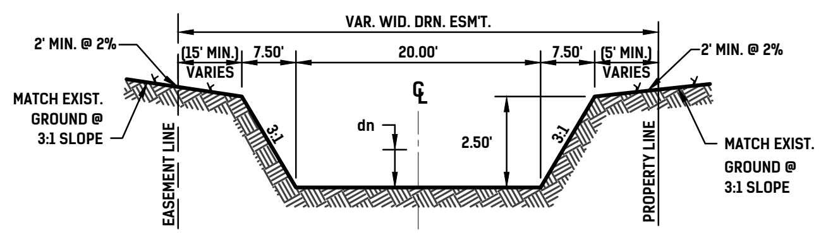
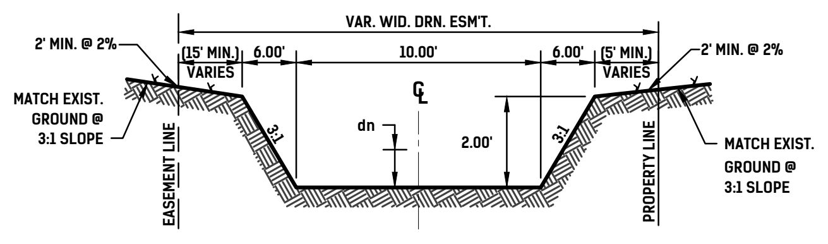


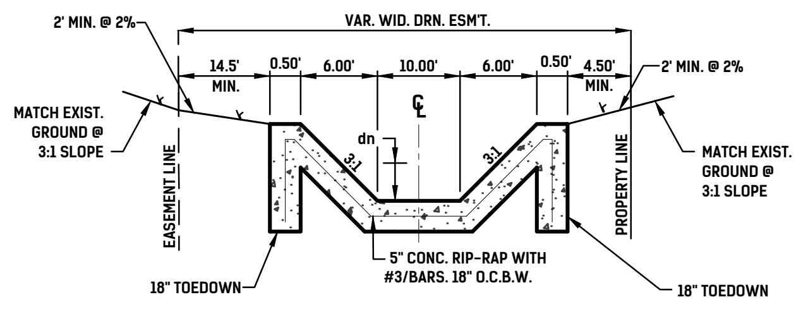
DRAIN "M" SECTIONS (N.T.S.)

"M-1" STA. 3+23.49 TO STA. 3+74.40



DRAIN "M" SECTIONS (N.T.S.)

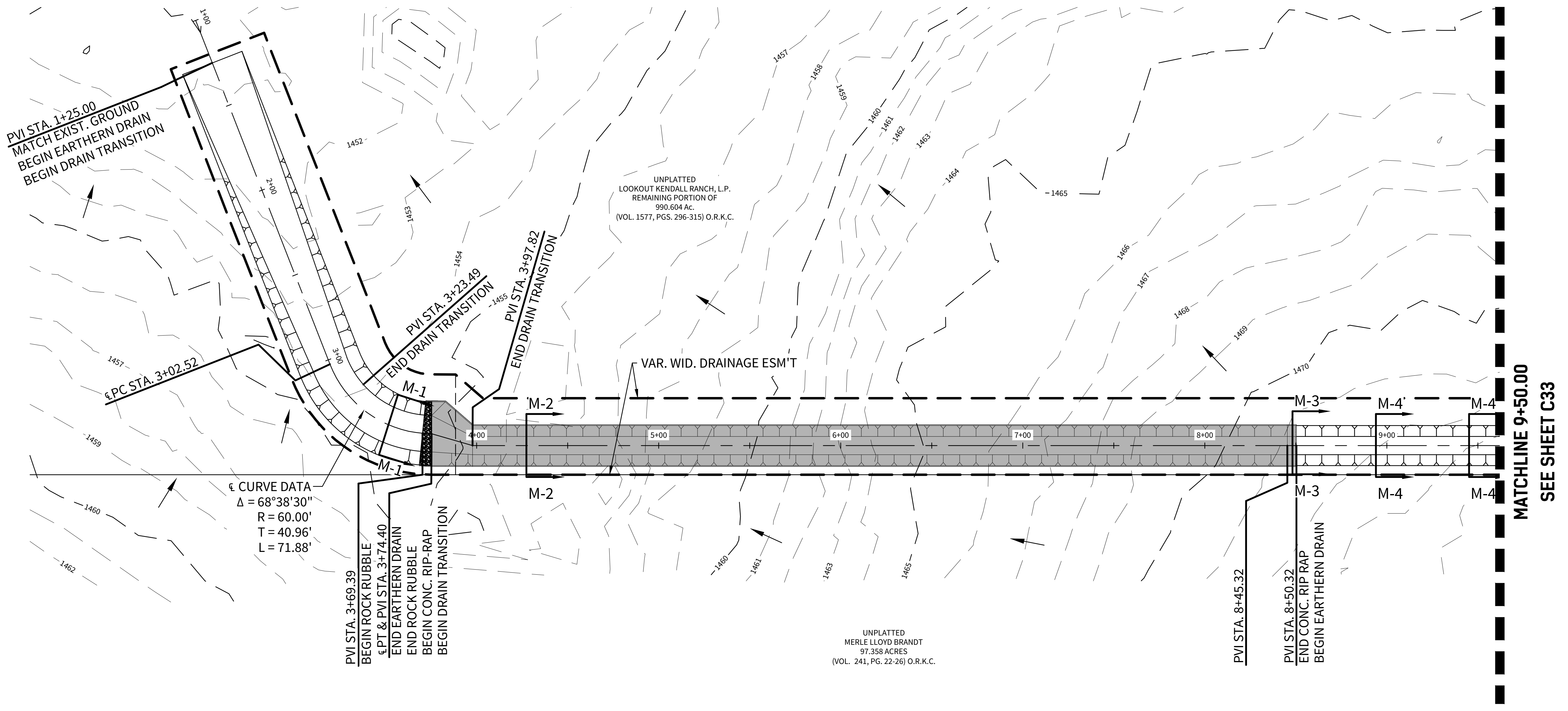
"M-4" STA. 8+50.32 TO STA. 9+69.00



DRAIN "M" SECTIONS (N.T.S.)

"M-2" STA. 3+97.82 TO STA. 8+45.32
"M-3" STA. 8+45.32 TO STA. 8+50.32

	"M-1"	"M-2"	"M-3"	"M-4"
Q 5 (cfs)	188.81	76.18	76.18	76.18
Bw (ft)	20.00	10.00	10.00	10.00
z	3:1	3:1	3:1	3:1
n	0.035	0.015	0.015	0.035
S (%)	0.50	3.65	1.75	1.75
dn (ft)	1.87	0.56	0.70	1.12
V (fps)	3.94	11.65	8.99	5.09
DRN. AREA	A22:A24,A26	A24	A24	A24



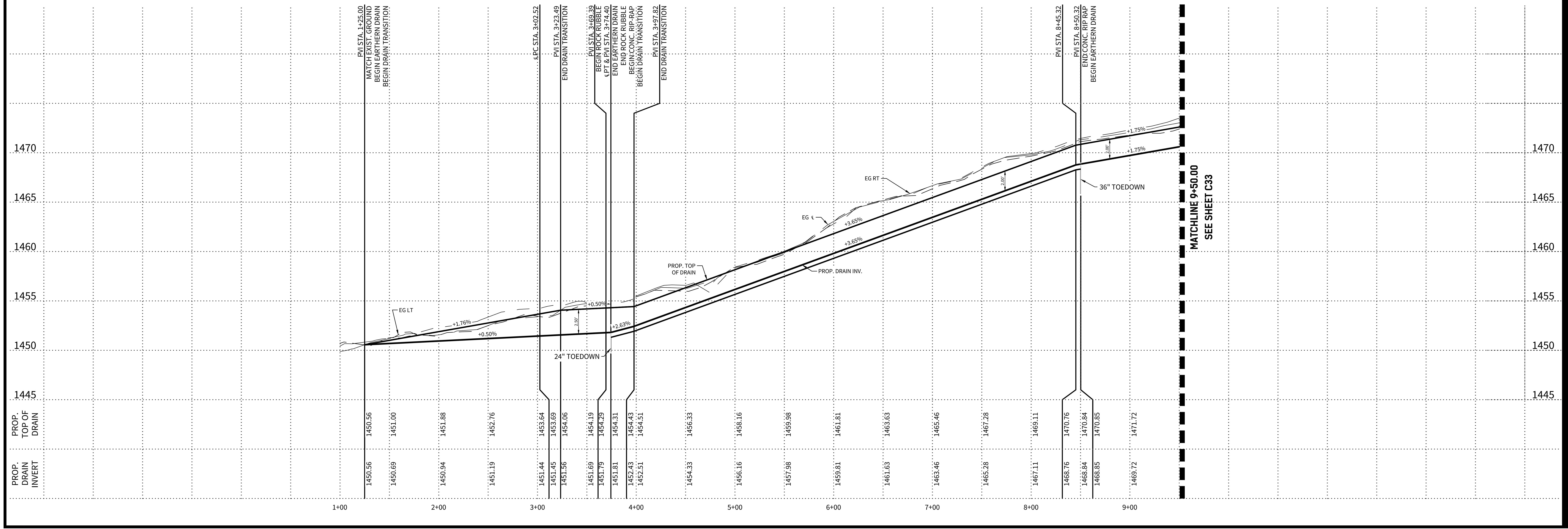
NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.
2. ALL REINFORCING TO STEEL TO BE GRADE 60.

DRAIN 'M'

STA. 1+25.00 TO STA. 9+50.00

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



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GEORGE'S RANCH
UNIT 1

DRAINAGE PLAN & PROFILE -
DRAIN 'M'

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 07-12-2022 REVISED DRAIN DESIGN
2.
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597

2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C32

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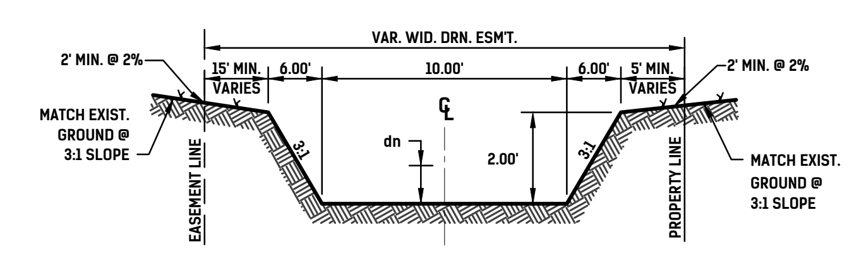
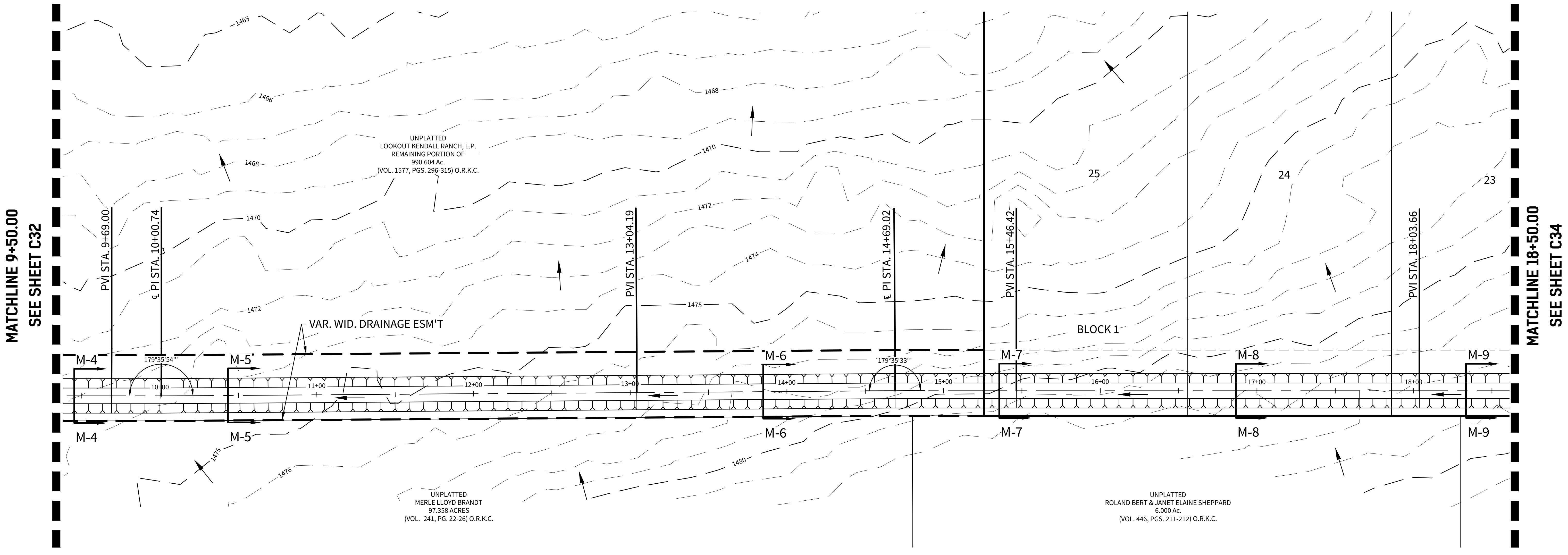


DRAIN "M" SECTIONS (N.T.S.)

"M-4" STA. 8+50.32 TO STA. 9+69.00
"M-5" STA. 9+69.00 TO STA. 13+04.19
"M-6" STA. 13+04.19 TO STA. 15+25.83
"M-7" STA. 15+25.83 TO STA. 15+46.42
"M-8" STA. 15+46.42 TO STA. 18+03.66
"M-9" STA. 18+03.66 TO STA. 21+19.00

	"M-4"	"M-5"	"M-6"	"M-7"	"M-8"	"M-9"
Q 5 (cfs)	76.18	76.18	76.18	62.17	62.17	62.17
Bw (ft)	10.00	10.00	10.00	10.00	10.00	10.00
z	3:1	3:1	3:1	3:1	3:1	3:1
n	0.035	0.035	0.035	0.035	0.035	0.035
S (%)	1.75	1.00	2.00	2.00	0.55	1.75
dn (ft)	1.12	1.30	1.08	0.96	1.37	1.00
V (fps)	5.09	4.22	5.33	5.03	3.22	4.78
DRN. AREA	A24	A24	A24	A23	A23	A23



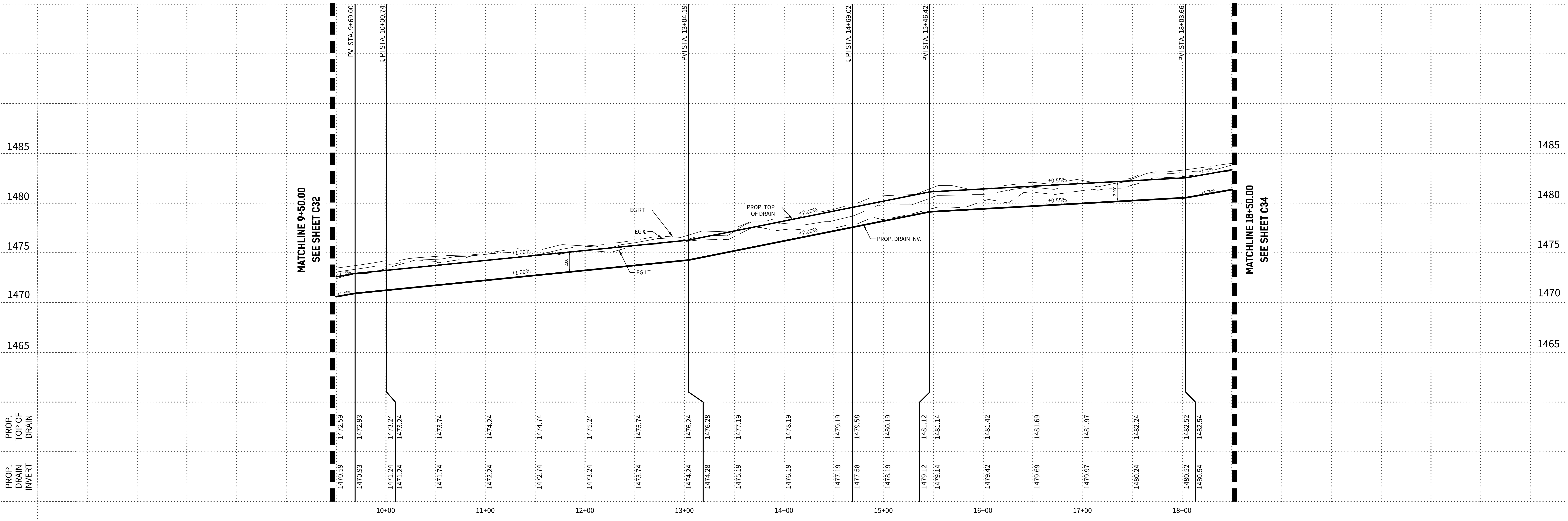
NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.
2. ALL REINFORCING TO STEEL TO BE GRADE 60.

DRAIN 'M'

STA. 9+50.00 TO STA. 18+50.00

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



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

GEORGE'S RANCH UNIT 1

DRAINAGE PLAN & PROFILE - DRAIN 'M'

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 07-12-2022 REVISED DRAIN DESIGN
2.
3.
4.
5.
6.
7.
8.
9.

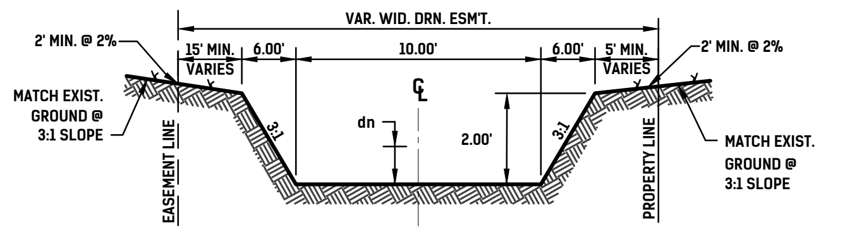
W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

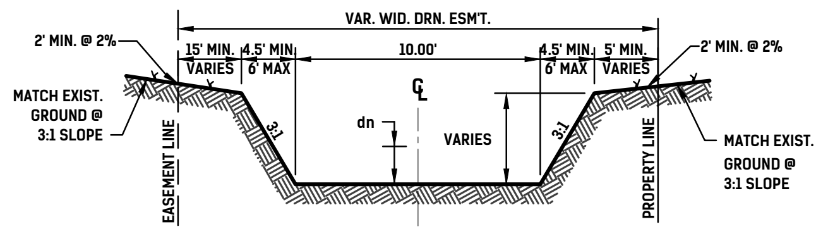
C33

P:\03546\001\2-Drawings\01_113 DRPP.dwg 2023/02/09 10:41am rmata



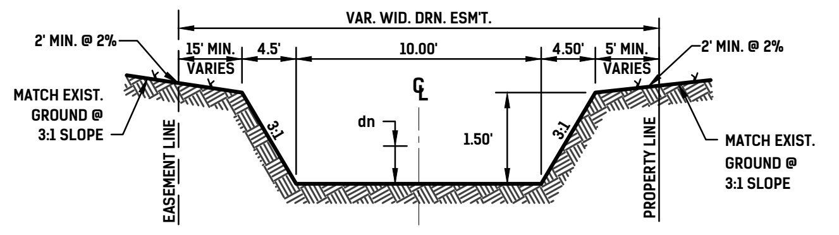
DRAIN "M" SECTIONS (N.T.S.)

"M-9" STA. 18+03.66 TO STA. 21+19.00
"M-10" STA. 21+19.00 TO STA. 21+69.00
"M-11" STA. 21+69.00 TO STA. 22+25.79



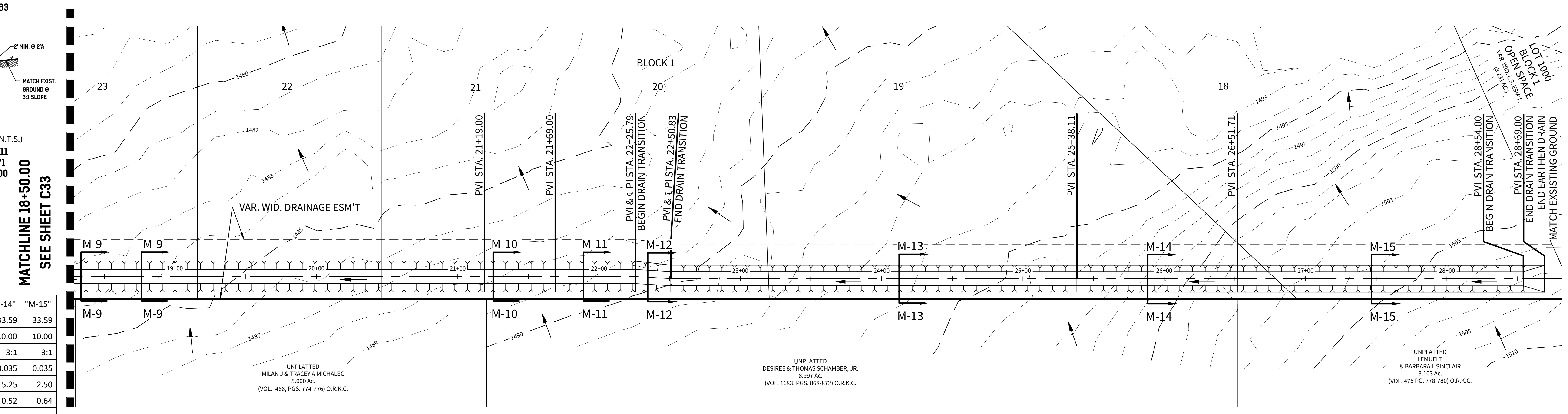
DRAIN "M" SECTIONS (N.T.S.)

"M-12" STA. 22+25.79 TO STA. 22+50.83



DRAIN "M" SECTIONS (N.T.S.)

"M-13" STA. 22+50.83 TO STA. 25+38.11
"M-14" STA. 25+38.11 TO STA. 26+51.71
"M-15" STA. 26+51.71 TO STA. 28+54.00



	"M-9"	"M-10"	"M-11"	"M-12"	"M-13"	"M-14"	"M-15"
Q 5 (cfs)	62.17	62.17	62.17	33.59	33.59	33.59	33.59
Bw (ft)	10.00	10.00	10.00	10.00	10.00	10.00	10.00
z	3:1	3:1	3:1	3:1	3:1	3:1	3:1
n	0.035	0.035	0.035	0.035	0.035	0.035	0.035
S (%)	1.75	0.75	2.00	4.00	2.00	5.25	2.50
dn (ft)	1.00	1.26	0.96	0.56	0.68	0.52	0.64
V (fps)	4.78	3.58	5.03	5.14	4.10	5.59	4.40
DRN. AREA	A23	A23	A23	A22	A22	A22	A22

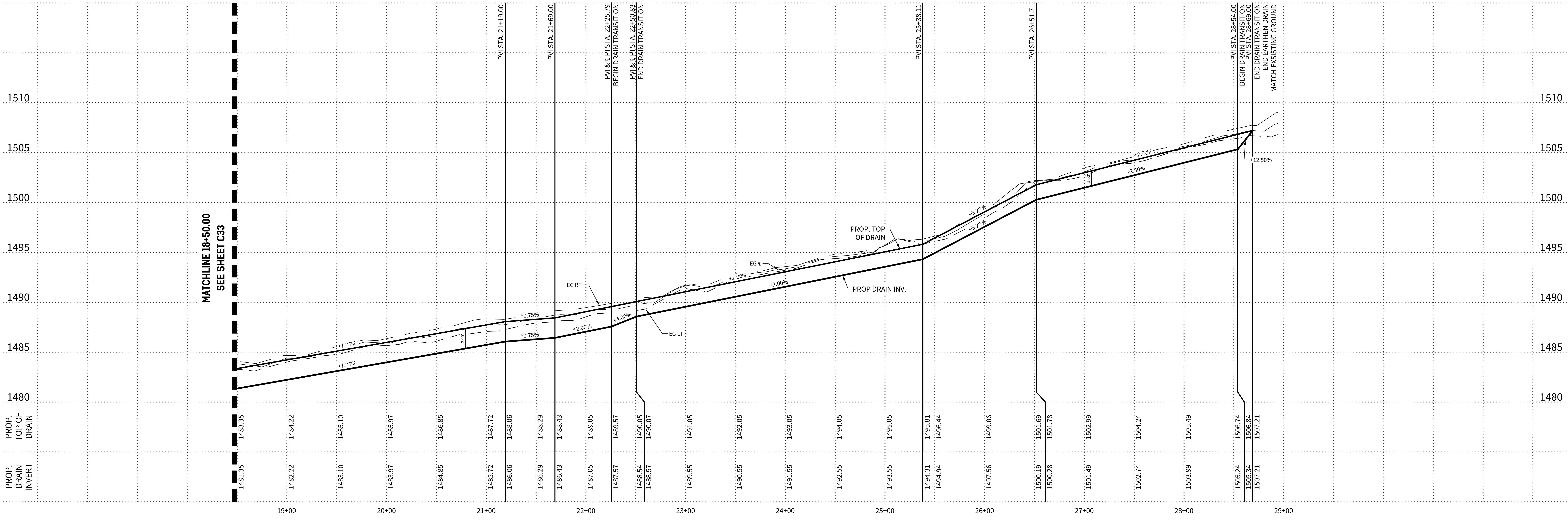
DRAIN 'M'

STA. 18+50.00 TO STA. 28+69.00

NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.
2. ALL REINFORCING TO STEEL TO BE GRADE 60.

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



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GEORGE'S RANCH
UNIT 1

DRAINAGE PLAN & PROFILE -
DRAIN 'M'

DATE	04/22/2022
PROJECT NO.	03546.001
DRAWN BY	AB/RR
CHECKED BY	WPM

REVISIONS

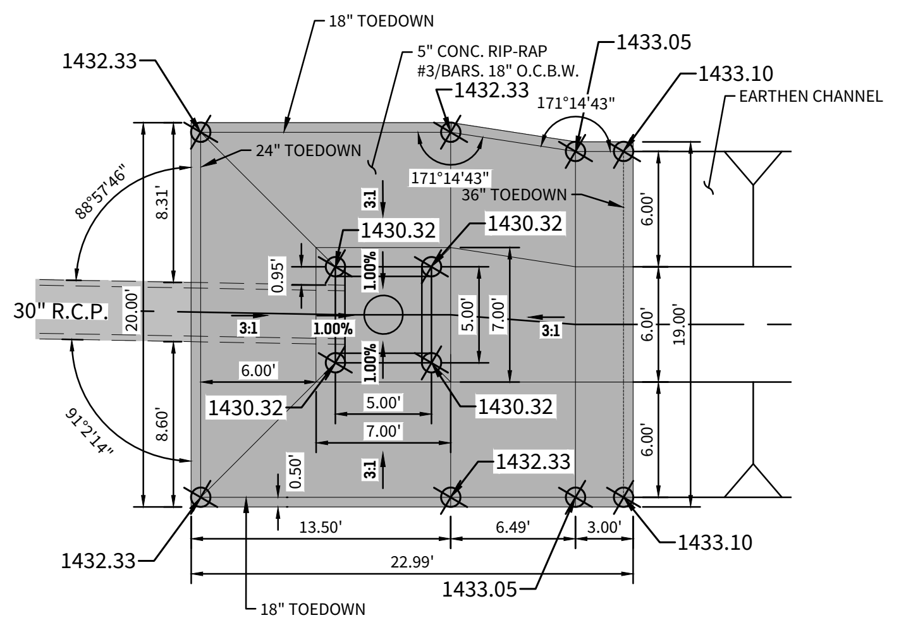
1. 07-12-2022 REVISED DRAIN DESIGN
2.
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

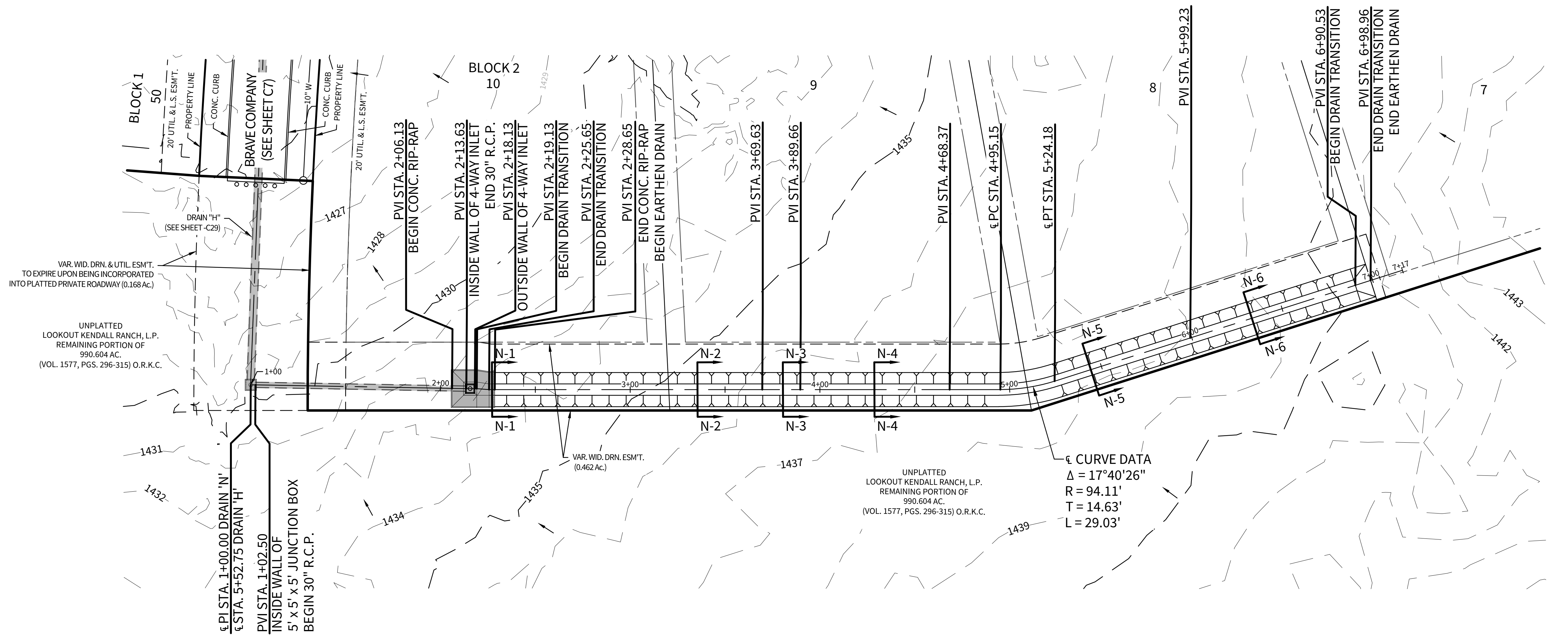
C34

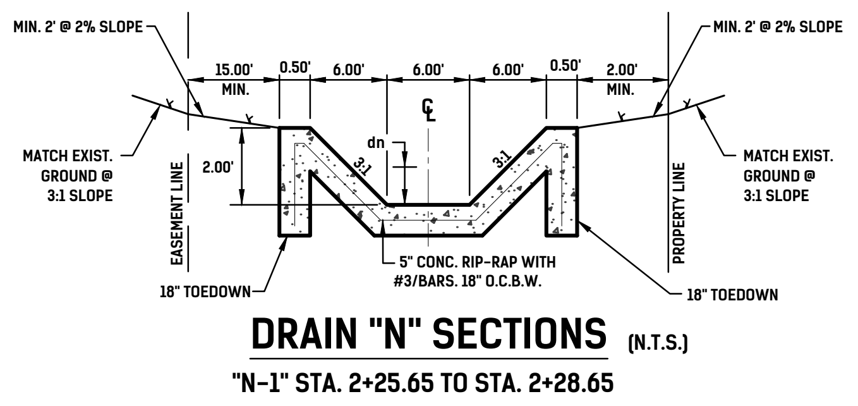


DETAIL "A"

CONCRETE 4-WAY INLET

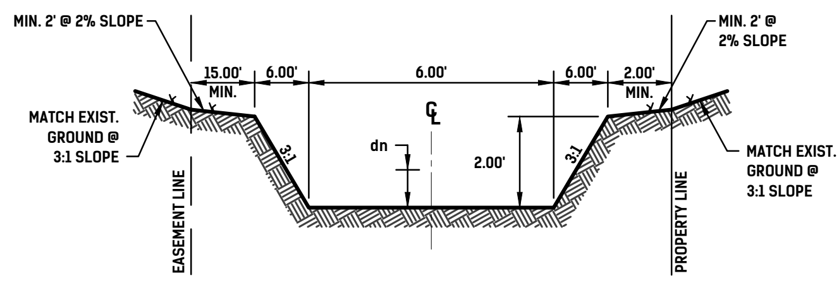
1" = 10'


BLOCK 1
50
BLOCK 2
10
9
8
7
20' UTIL. & L.S. ESMT.
PROPERTY LINE
CONC. CURB
BRAVE COMPANY (SEE SHEET C7)
DRAIN "H" (SEE SHEET-C29)
VAR. WID. DRN. & UTIL. ESMT. TO EXPIRE UPON BEING INCORPORATED INTO PLATTED PRIVATE ROADWAY (0.168 AC.)
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 990.604 AC. (VOL. 1577, PGS. 296-315) O.R.K.C.
PVI STA. 2+06.13 BEGIN CONC. RIP-RAP
PVI STA. 2+13.63 INSIDE WALL OF 4-WAY INLET END 30" R.C.P.
PVI STA. 2+18.13 OUTSIDE WALL OF 4-WAY INLET
PVI STA. 2+19.13 BEGIN DRAIN TRANSITION
PVI STA. 2+25.65 END DRAIN TRANSITION
PVI STA. 2+28.65 END CONC. RIP-RAP BEGIN EARTHEN DRAIN
PVI STA. 3+69.63
PVI STA. 3+89.66
PVI STA. 4+68.37
℄PC STA. 4+95.15
℄PT STA. 5+24.18
PVI STA. 5+99.23
PVI STA. 6+90.53 BEGIN DRAIN TRANSITION
PVI STA. 6+98.96 END DRAIN TRANSITION END EARTHEN DRAIN
℄PI STA. 1+00.00 DRAIN 'N'
℄STA. 5+52.75 DRAIN 'H'
PVI STA. 1+02.50 INSIDE WALL OF 5' x 5' JUNCTION BOX BEGIN 30" R.C.P.
N-1
N-2
N-3
N-4
N-5
N-6
VAR. WID. DRN. ESMT. (0.462 AC.)
℄ CURVE DATA
Δ = 17°40'26"
R = 94.11'
T = 14.63'
L = 29.03'
1427
1428
1430
1431
1432
1434
1435
1437
1439
1442
1443



DRAIN "N" SECTIONS (N.T.S.)

"N-1" STA. 2+25.65 TO STA. 2+28.65



DRAIN "N" SECTIONS (N.T.S.)

"N-2" STA. 2+28.65 TO STA. 3+69.63
"N-3" STA. 3+69.63 TO STA. 3+89.66
"N-4" STA. 3+89.66 TO STA. 4+68.37
"N-5" STA. 4+68.37 TO STA. 5+99.23
"N-6" STA. 5+99.23 TO STA. 6+90.53

	'N-1'	'N-2'	'N-3'	'N-4'	'N-5'	'N-6'
Q_{10} (cfs)	43.23	43.23	43.23	43.23	43.23	43.23
B_w (ft)	6.00	6.00	6.00	6.00	6.00	6.00
z	3:1	3:1	3:1	3:1	3:1	3:1
n	0.013	0.035	0.035	0.035	0.035	0.035
S (%)	1.85	1.85	0.50	1.70	0.50	2.45
d_n (ft)	0.64	1.02	1.43	1.04	1.43	0.95
V (fps)	8.53	4.68	2.94	4.56	2.94	5.14
DRAIN AREA #	A14	A14	A14	A14	A14	A14

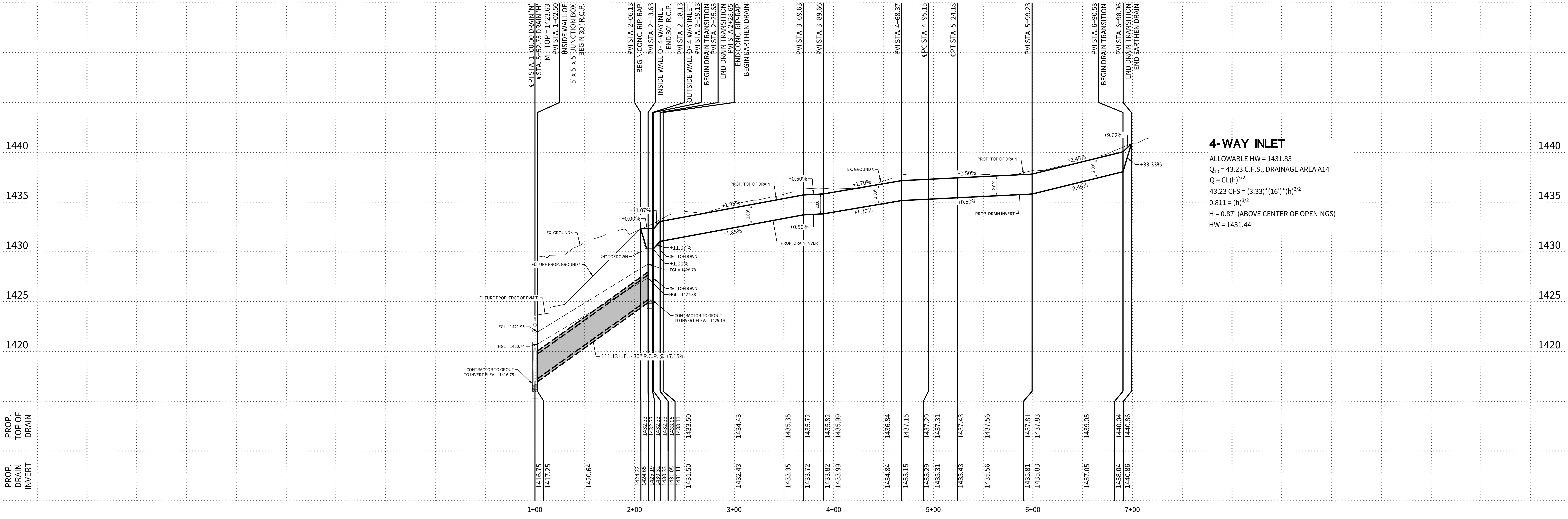
NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3,000 PSI IN 28 DAYS.
2. ALL REINFORCING TO STEEL TO BE GRADE 60.

DRAIN 'N'

STA. 1+00.00 TO STA. 6+98.96

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



4-WAY INLET

ALLOWABLE HW = 1431.83
Q_{10} = 43.23 C.F.S., DRAINAGE AREA A14
$Q = CL(h)^{3/2}$
$43.23\ CFS = (3.33)*(16')*(h)^{3/2}$
$0.811 = (h)^{3/2}$
H = 0.87' (ABOVE CENTER OF OPENINGS)
HW = 1431.44

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GEORGE'S RANCH UNIT 1

DRAINAGE PLAN & PROFILE - DRAIN 'N'

DATE	04/22/2022
PROJECT NO.	03546.001
DRAWN BY	AB/RR
CHECKED BY	WPM

REVISIONS

1.
2.
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
3/3/2023

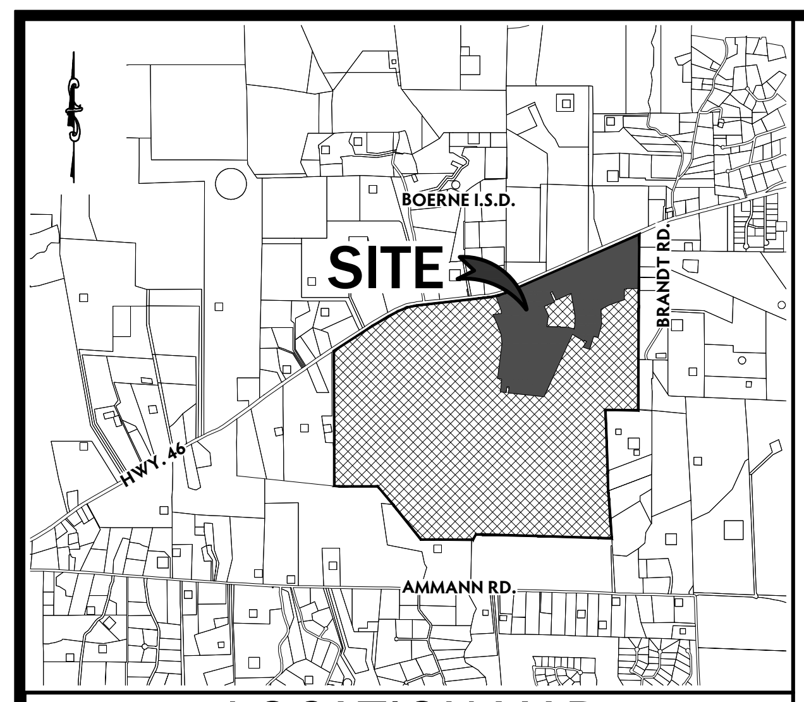
CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C34A

34A OF 55

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.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

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 KENDALL COUNTY.

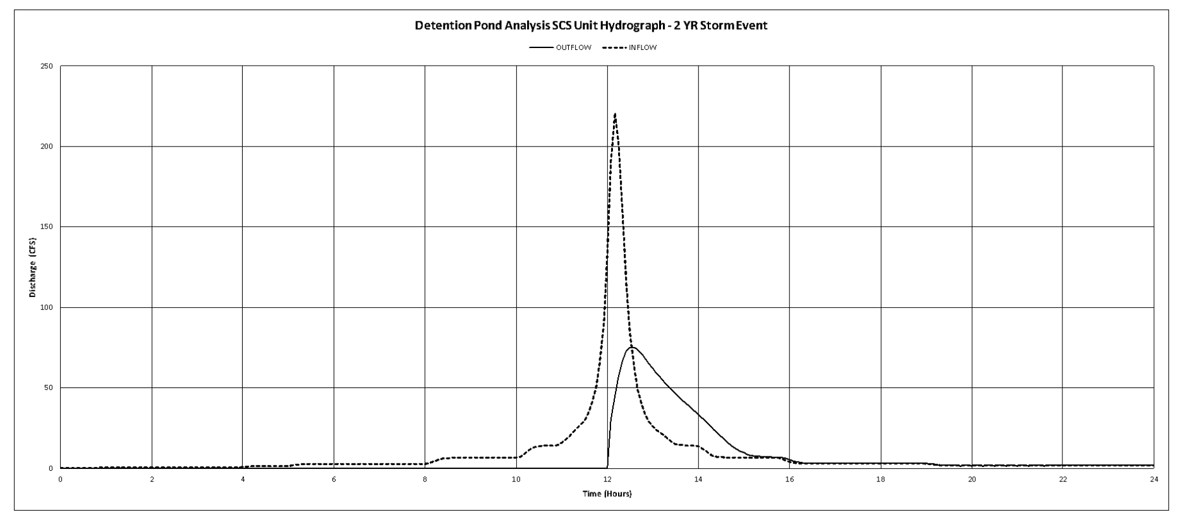
THE CONTRACTOR SHALL NOTIFY A UTILITY LOCATOR AT LEAST 48 HOURS PRIOR TO PERFORMING ANY EXCAVATION ACTIVITY ADJACENT TO THE CONSTRUCTION OF ANY ON-SITE DRAINAGE FACILITIES TO PROTECT ANY UNIDENTIFIED EXISTING UNDERGROUND UTILITY FACILITY FROM DAMAGE OR HARM. THE CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY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

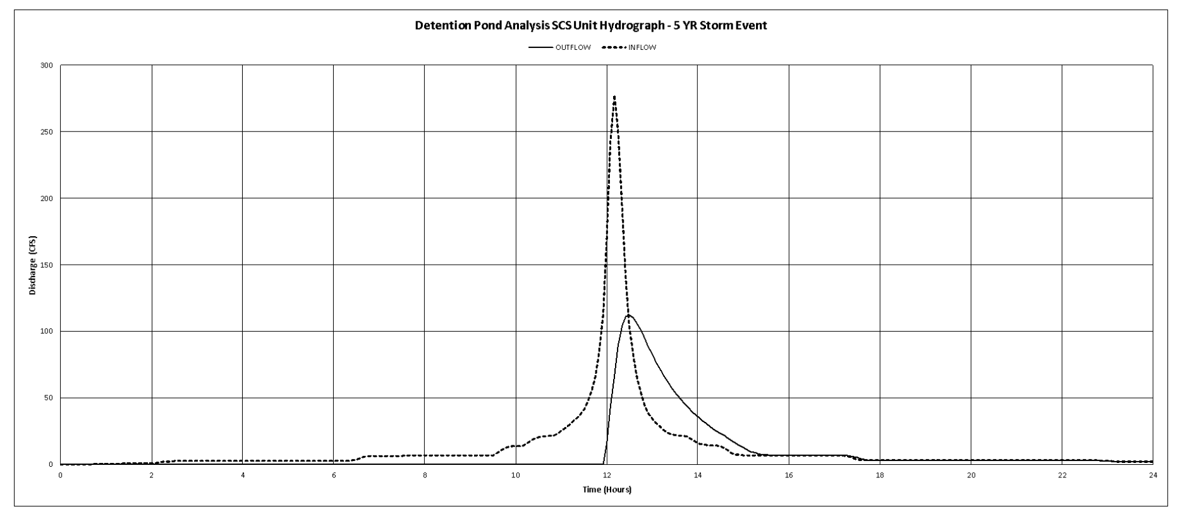
ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE KENDALL COUNTY PUBLIC WORKS DEPARTMENT.
ALL CONCRETE SHALL BE A MINIMUM OF 3500 PSI @ 28 DAYS COMPRESSIVE STRENGTH UNLESS OTHERWISE SPECIFIED HEREIN ON THESE DOCUMENTS.

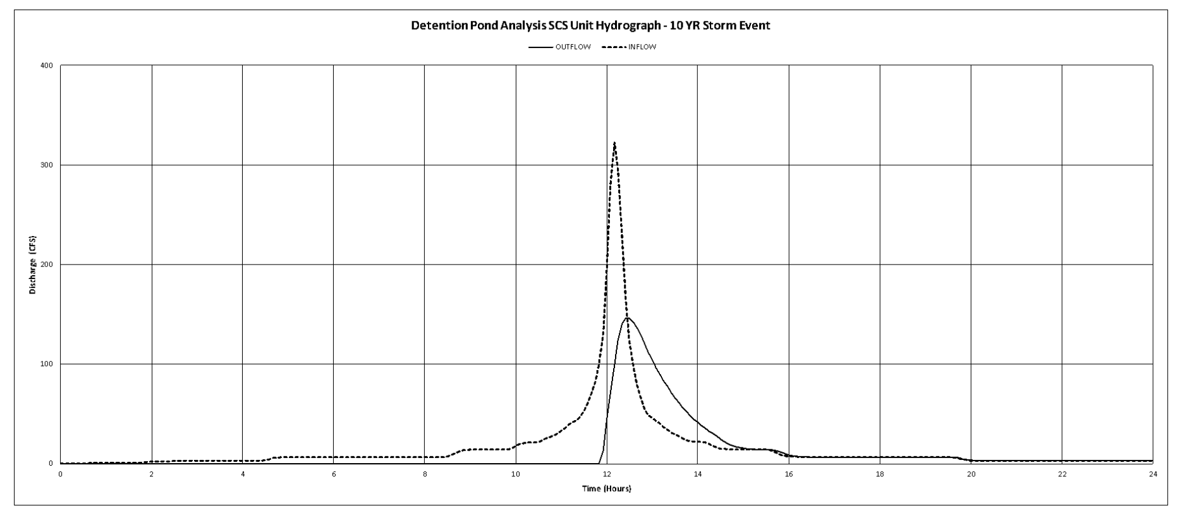
WATER SURFACE ELEVATIONS AND DISCHARGE RATES PRESENTED ON THESE PLANS REPRESENT UNIT 1 DEVELOPMENT CONDITION ONLY. PLEASE REFER TO STORMWATER MANAGEMENT REPORT FOR ANALYSIS OF OTHER DEVELOPED CONDITIONS.

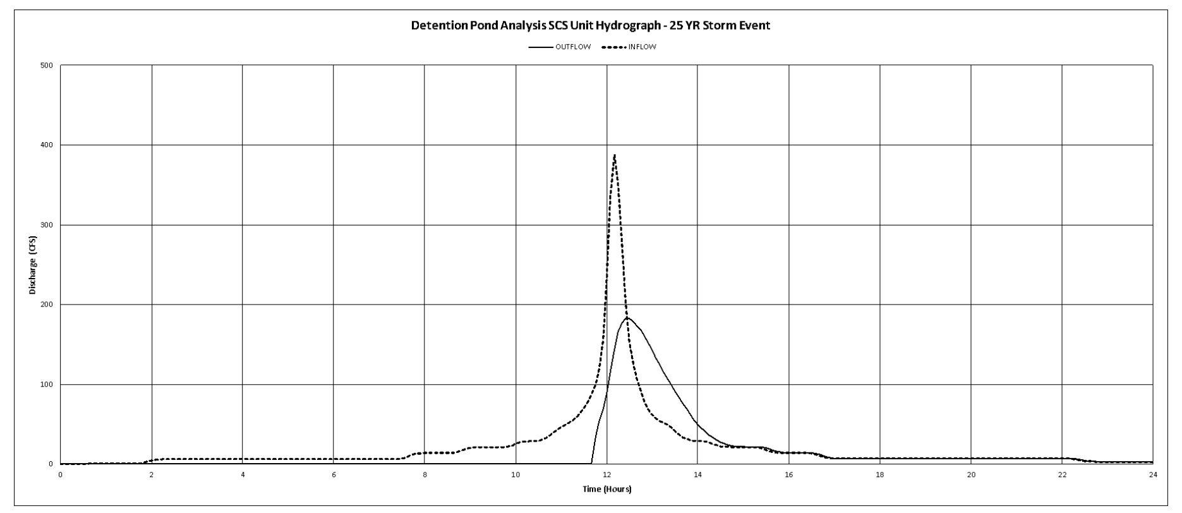
CLAY LINER SPECIFICATIONS:

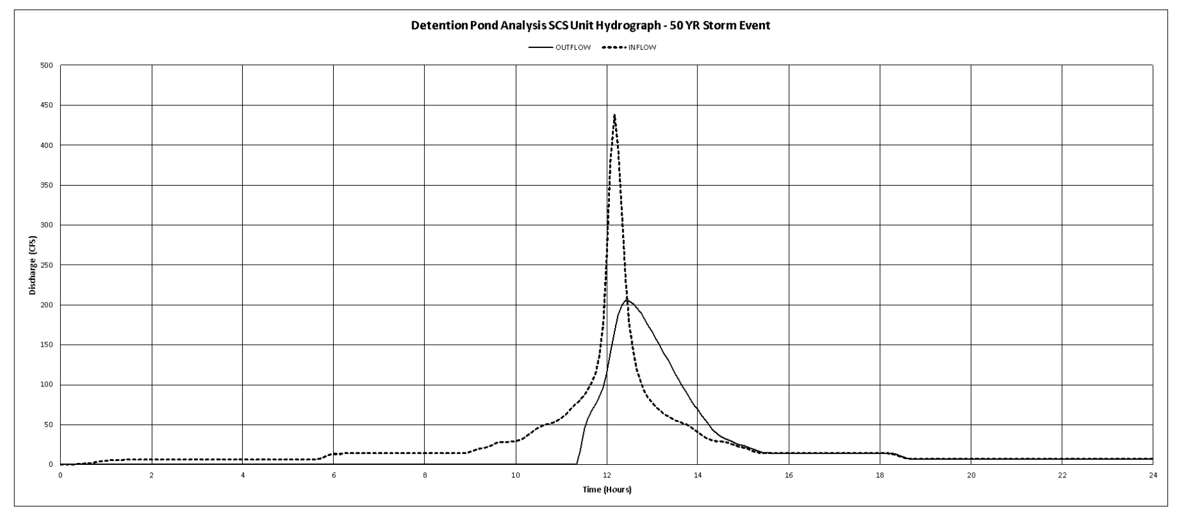
PERMEABILITY - 0.000001 CM/SEC
(PER ASTM D-2434)
PLASTICITY INDEX - NOT LESS THAN 15%
(PER ASTM D-423 AND D-424)
LIQUID LIMIT OF CLAY - NOT LESS THAN 30%
(PER ASTM D-2216)
CLAY PARTICLE PASSING - NOT LESS THAN 30%
(PER ASTM D-422)
CLAY COMPACTION - 95% OF STANDARD PROCTOR DENSITY
(PER ASTM D-2216)

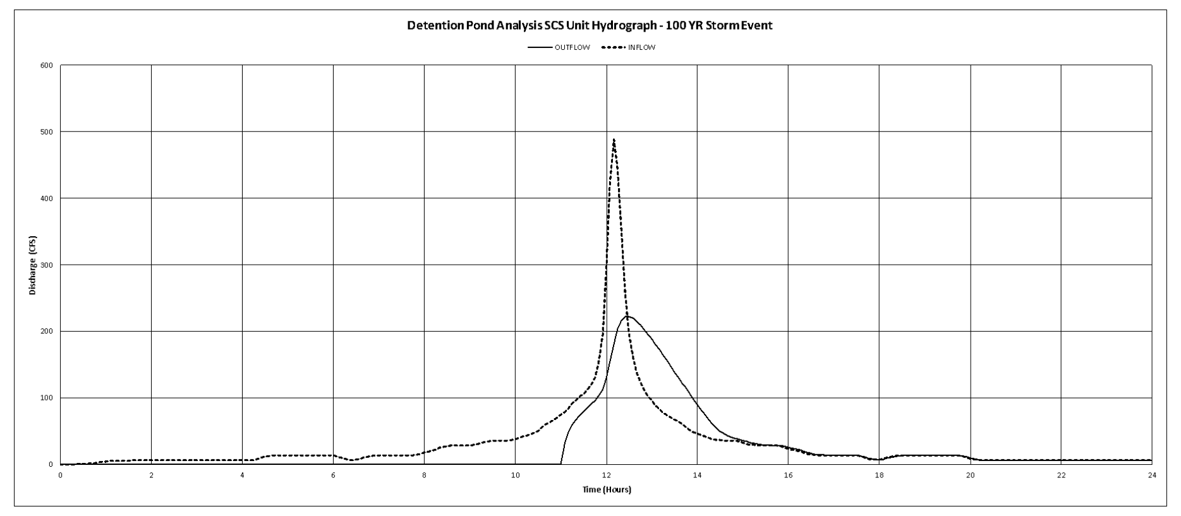


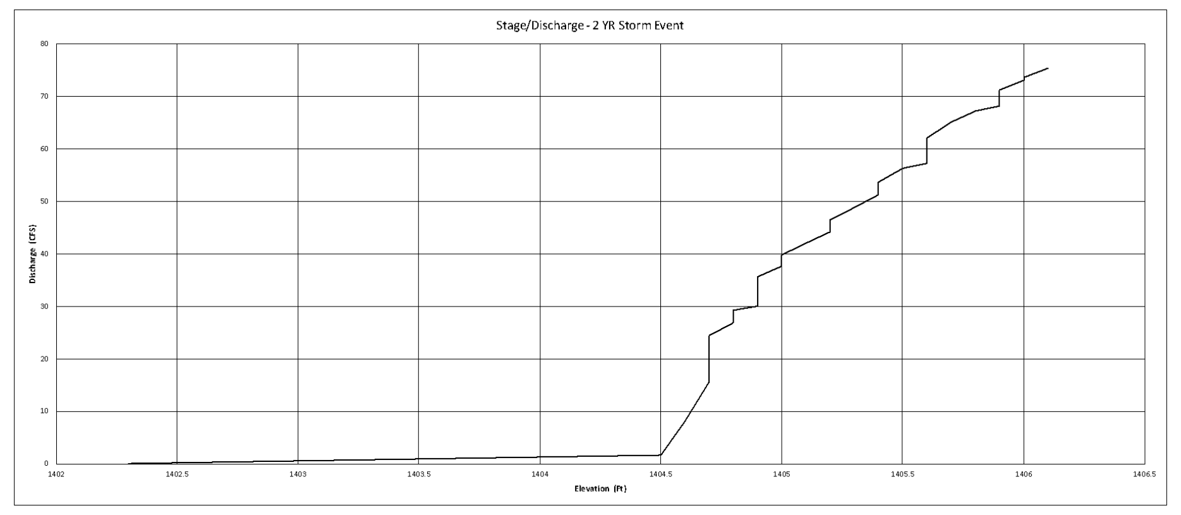


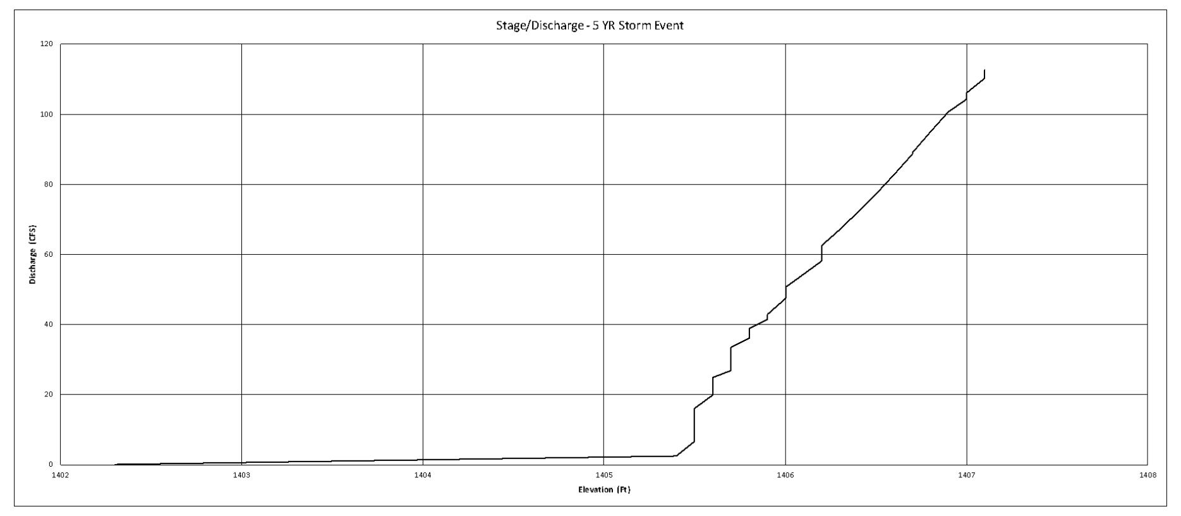


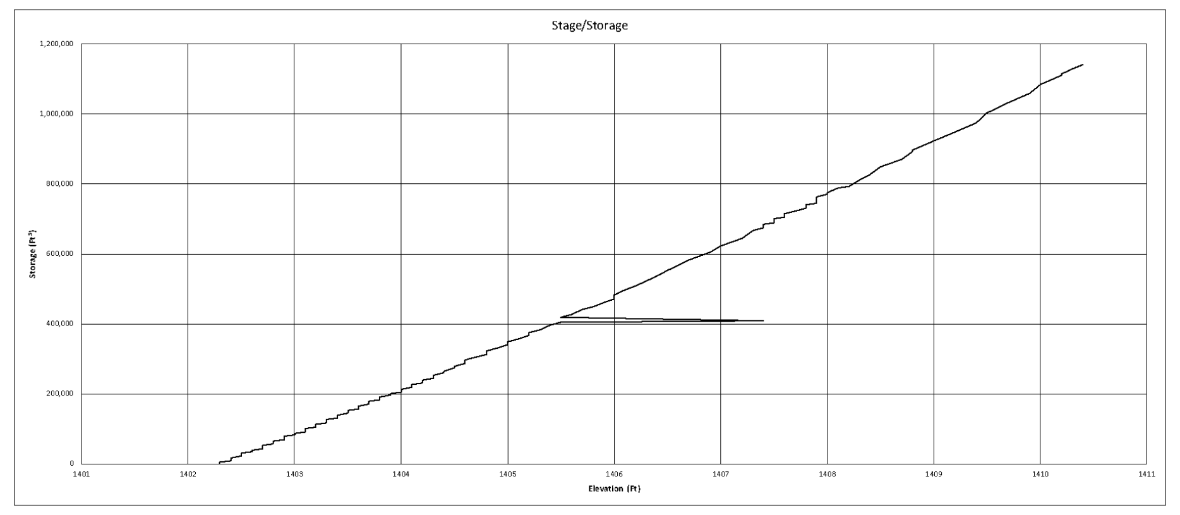


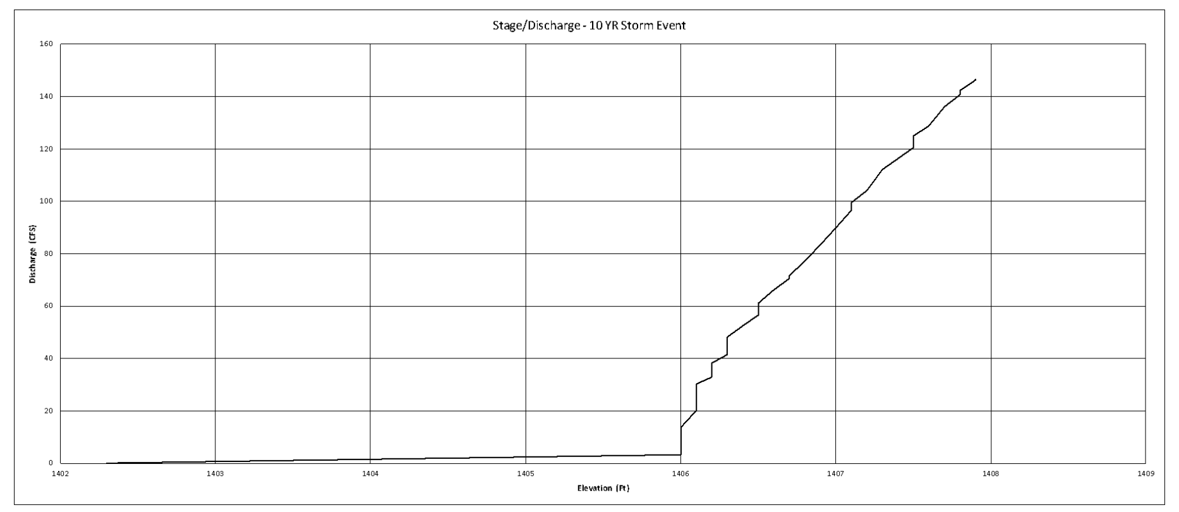


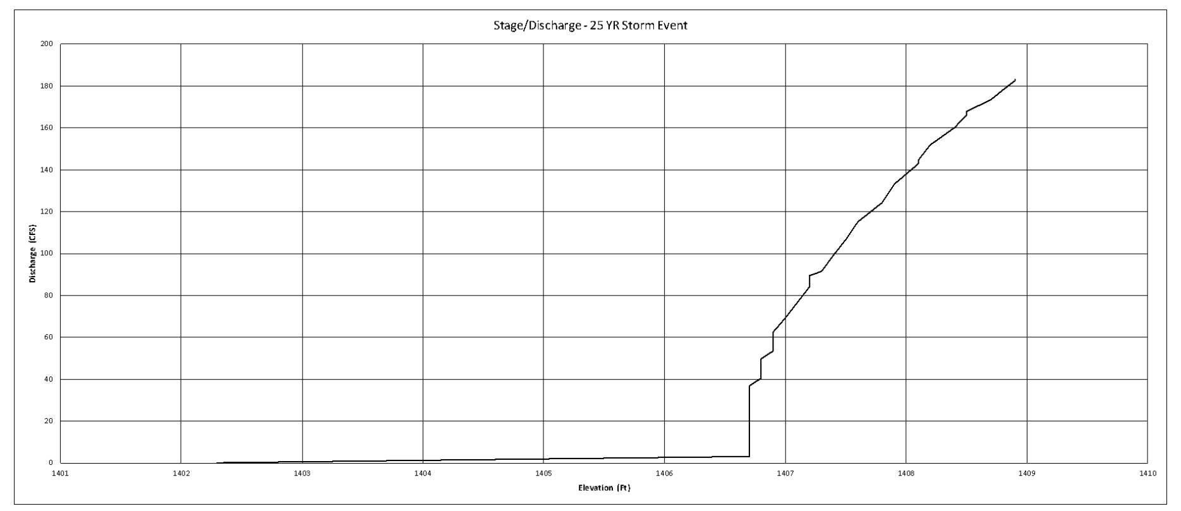


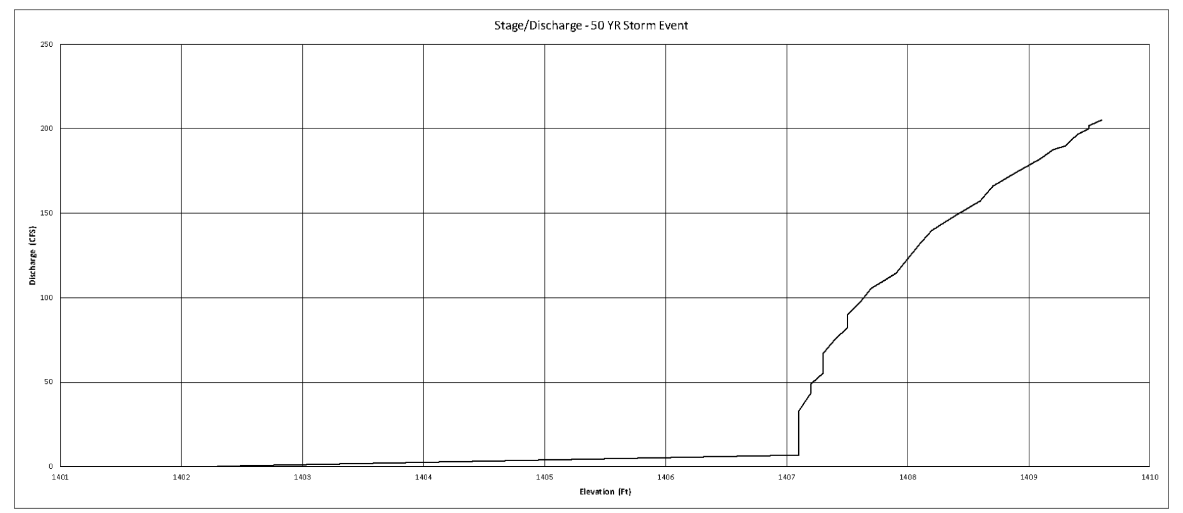


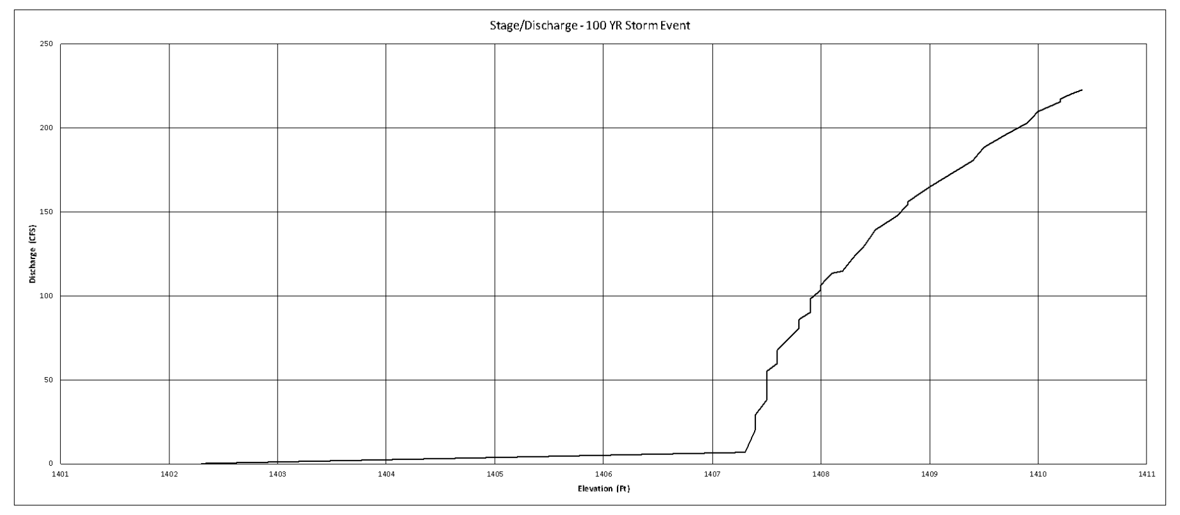


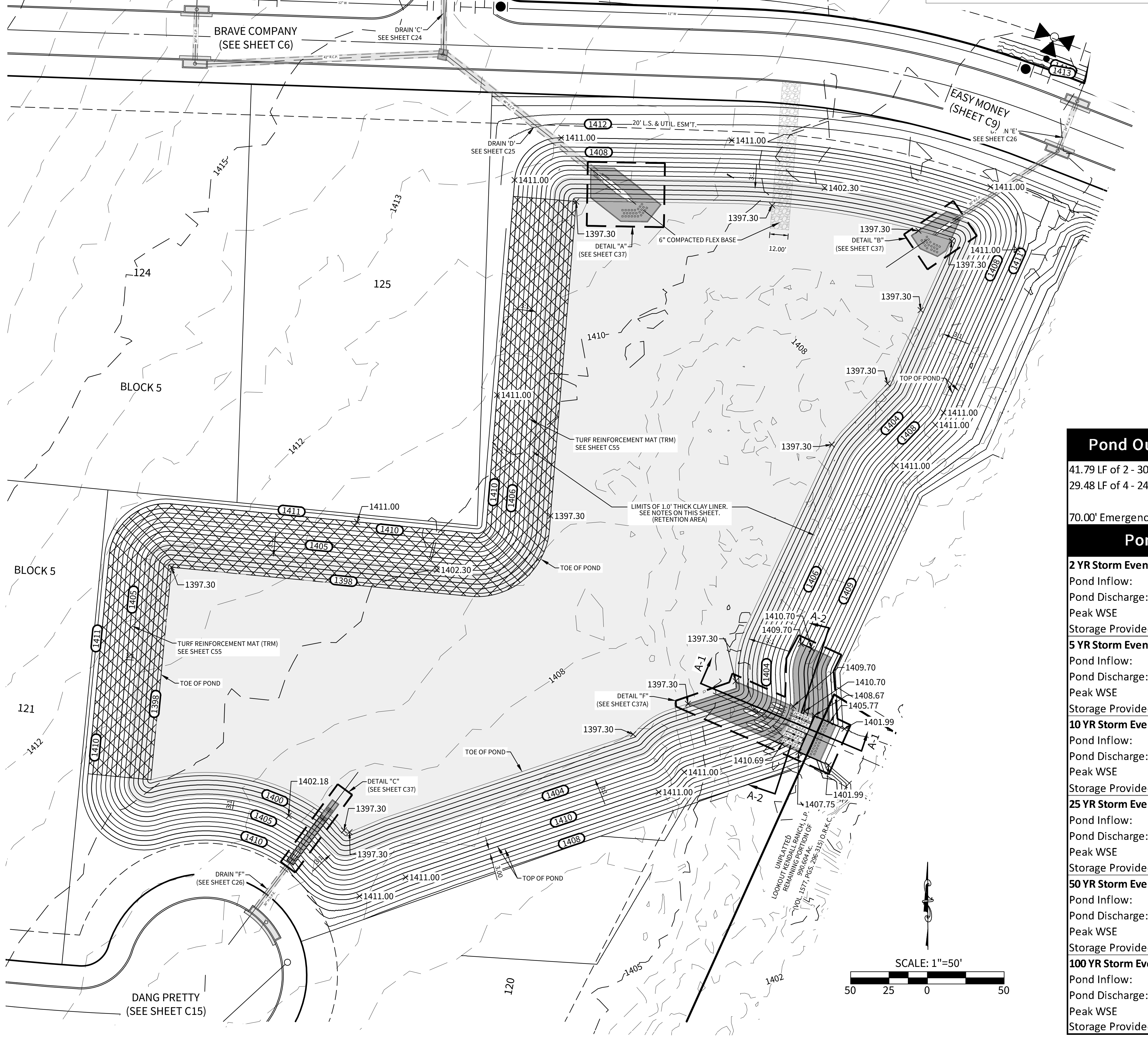


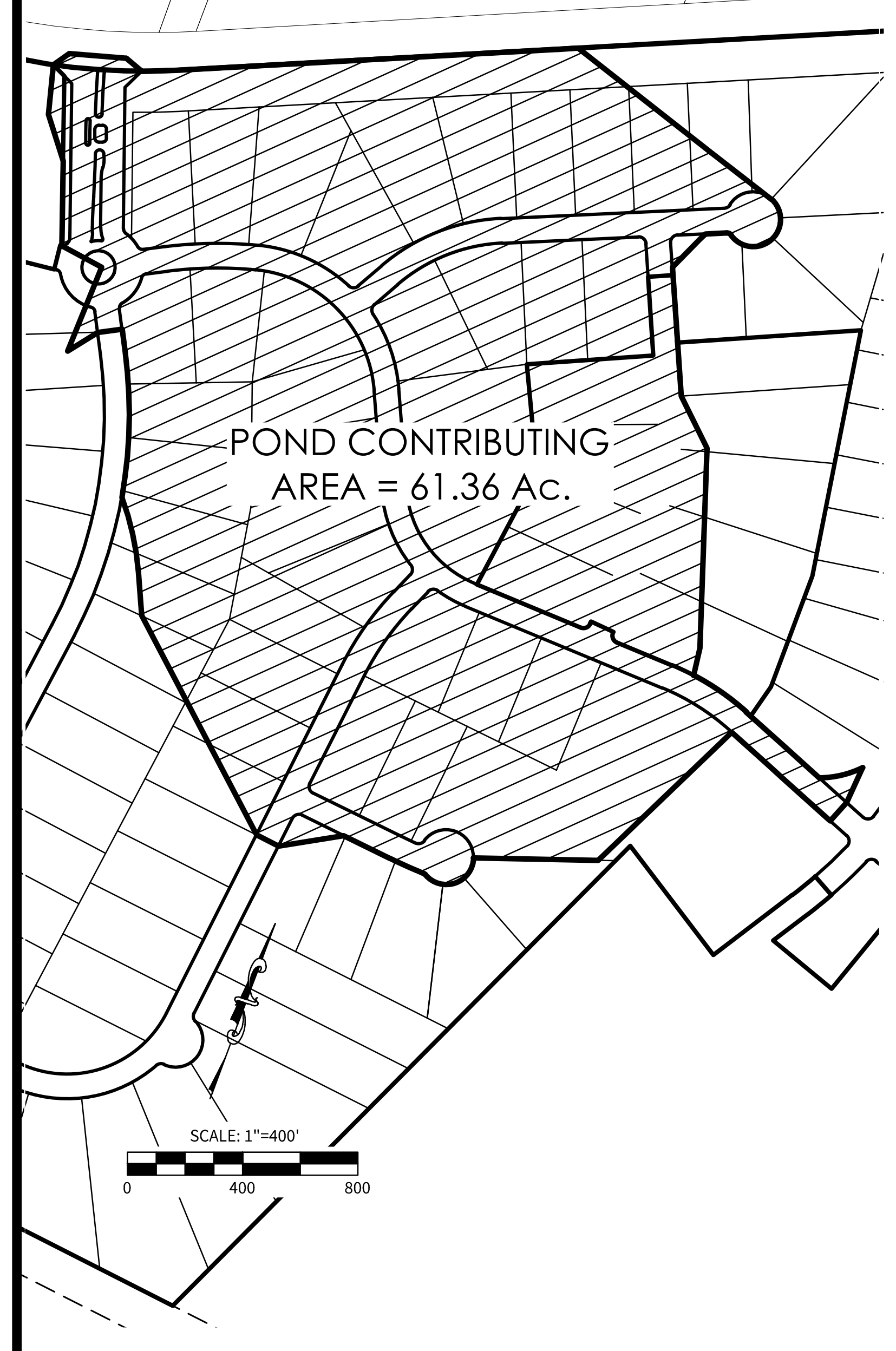









50'X 60' DRN. & UTIL. ESM'T. TO EXPIRE UPON BEING INCORPORATED INTO PLATTED PRIVATE ROADWAY (0.069 AC.)
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 990.604 Ac. (VOL. 1577, PGS. 296-315) O.R.K.C.
20' L.S. & UTIL. ESM'T.
BRAVE COMPANY (SEE SHEET C6)
DRAIN "C" SEE SHEET C24
EASY MONEY (SHEET C9)
N 'E' SEE SHEET C26
DRAIN "D" SEE SHEET C25
DETAIL "A" (SEE SHEET C37)
6" COMPACTED FLEX BASE
DETAIL "B" (SEE SHEET C37)
TOP OF POND
TURF REINFORCEMENT MAT (TRM) SEE SHEET C55
LIMITS OF 1.0' THICK CLAY LINER. SEE NOTES ON THIS SHEET. (RETENTION AREA)
TOE OF POND
BLOCK 5
124
125
121
120
DETAIL "F" (SEE SHEET C37A)
DETAIL "C" (SEE SHEET C37)
DRAIN "F" (SEE SHEET C26)
DANG PRETTY (SEE SHEET C15)
A-1
A-2
1411.00
1402.30
1397.30
1410.70
1409.70
1408.67
1405.77
1401.99
1410.69
1407.75
1402.18
SCALE: 1"=50'
50
25
0
50



POND CONTRIBUTING DRAINAGE AREA

Pond Outfall Structure Details: Pond 1

41.79 LF of 2 - 30" HDPE @ 0.50%	US Invert: 1402.30	DS Invert: 1402.09
29.48 LF of 4 - 24" HDPE @ 0.50%	US Invert: 1405.30	DS Invert: 1405.11

70.00' Emergency Overflow Weir @ 1410.70

Pond1 Characteristics Table:

2 YR Storm Event		
Pond Inflow:	220.8	CFS
Pond Discharge:	75.4	CFS
Peak WSE	1406.1	FT
Storage Provided:	11.2	AC-FT
5 YR Storm Event		
Pond Inflow:	277.6	CFS
Pond Discharge:	112.6	CFS
Peak WSE	1407.1	FT
Storage Provided:	14.7	AC-FT
10 YR Storm Event		
Pond Inflow:	323	CFS
Pond Discharge:	146.6	CFS
Peak WSE	1407.9	FT
Storage Provided:	17.3	AC-FT
25 YR Storm Event		
Pond Inflow:	388.1	CFS
Pond Discharge:	183.1	CFS
Peak WSE	1408.9	FT
Storage Provided:	20.8	AC-FT
50 YR Storm Event		
Pond Inflow:	438.2	CFS
Pond Discharge:	205.4	CFS
Peak WSE	1409.6	FT
Storage Provided:	23.4	AC-FT
100 YR Storm Event		
Pond Inflow:	489.2	CFS
Pond Discharge:	223.1	CFS
Peak WSE	1410.4	FT
Storage Provided:	26.2	AC-FT

Overall Discharge Summary (POST-PROJECT Unit 1)

Discharge at Confluence of Trib A and Trib 1

2 YR Storm Event				
Pre-Development Rate:	1179.60	CFS		
Post-Development Rate:	1081.90	CFS	97.70	CFS less than allowable
5 YR Storm Event				
Pre-Development Rate:	1614.00	CFS		
Post-Development Rate:	1518.90	CFS	95.10	CFS less than allowable
10 YR Storm Event				
Pre-Development Rate:	1987.70	CFS		
Post-Development Rate:	1902.30	CFS	85.40	CFS less than allowable
25 YR Storm Event				
Pre-Development Rate:	2518.10	CFS		
Post-Development Rate:	2441.30	CFS	76.80	CFS less than allowable
50 YR Storm Event				
Pre-Development Rate:	2934.00	CFS		
Post-Development Rate:	2864.50	CFS	69.50	CFS less than allowable
100 YR Storm Event				
Pre-Development Rate:	3351.10	CFS		
Post-Development Rate:	3292.50	CFS	58.60	CFS less than allowable

Note: *Post-development discharge rates above account for detention pond 2.*

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San Antonio, Texas 78231
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GEORGE'S RANCH
UNIT 1

POND DETENTION PLAN - POND 1

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 07-12-2022 REVISED POND DESIGN
2.
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C35

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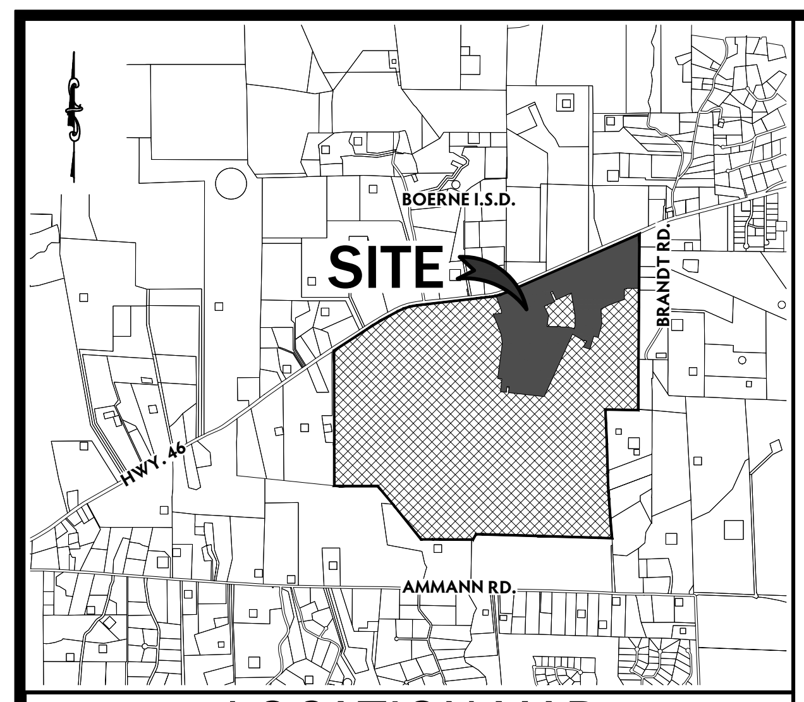


LOCATION MAP

N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

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 KENDALL COUNTY.

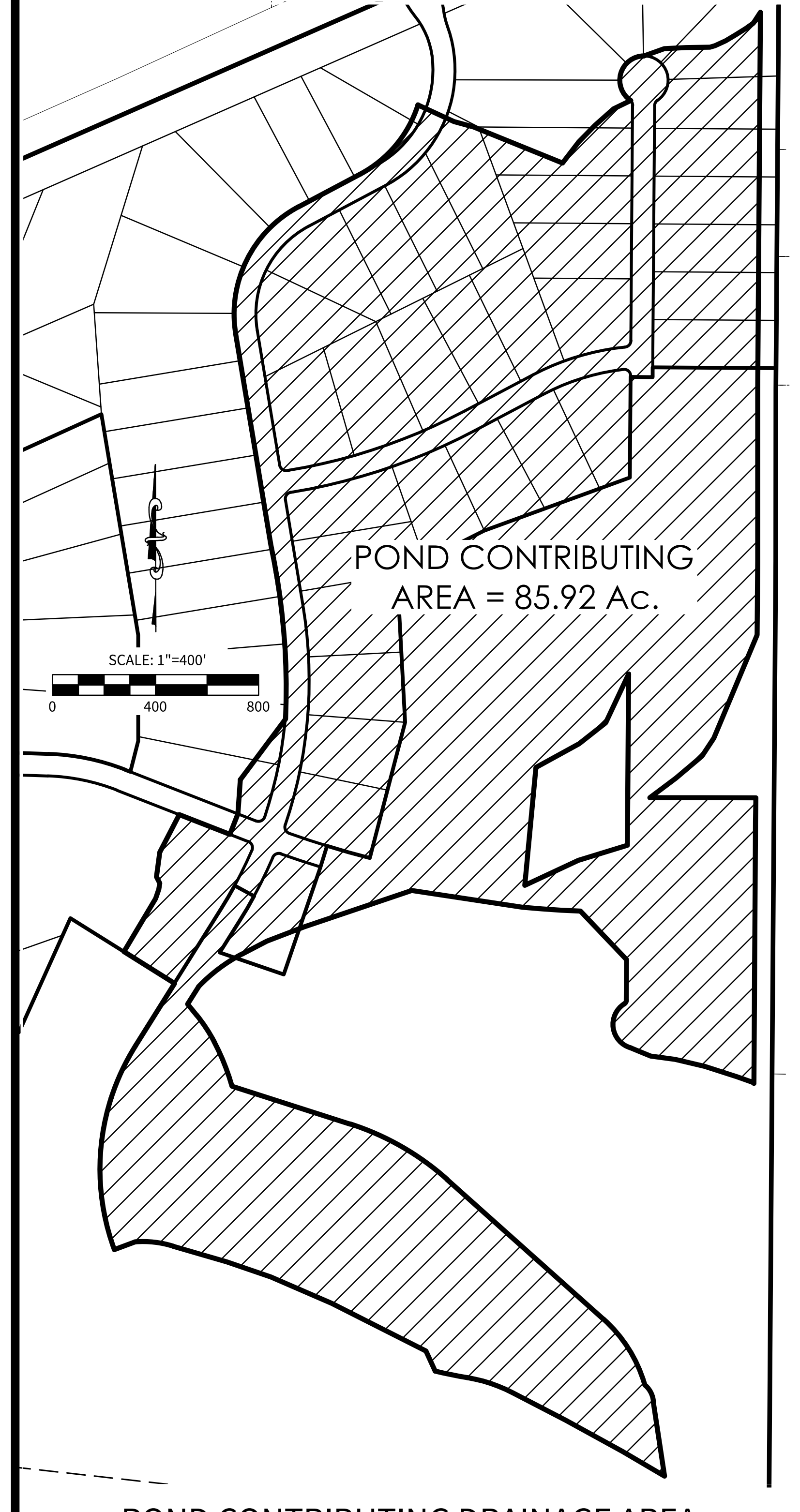
THE CONTRACTOR SHALL NOTIFY A UTILITY LOCATOR AT LEAST 48 HOURS PRIOR TO PERFORMING ANY EXCAVATION ACTIVITY ADJACENT TO THE CONSTRUCTION OF ANY ON-SITE DRAINAGE FACILITIES TO PROTECT ANY UNIDENTIFIED EXISTING UNDERGROUND UTILITY FACILITY FROM DAMAGE OR HARM. THE CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY 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 KENDALL COUNTY PUBLIC WORKS DEPARTMENT.
ALL CONCRETE SHALL BE A MINIMUM OF 3500 PSI @ 28 DAYS COMPRESSIVE STRENGTH UNLESS OTHERWISE SPECIFIED HEREIN ON THESE DOCUMENTS.

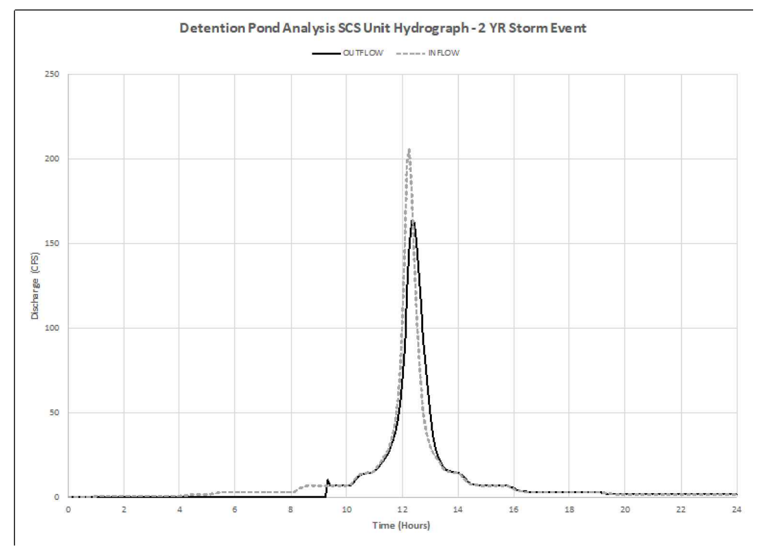
WATER SURFACE ELEVATIONS AND DISCHARGE RATES PRESENTED ON THESE PLANS REPRESENT UNIT 1 DEVELOPMENT CONDITION ONLY. PLEASE REFER TO STORMWATER MANAGEMENT REPORT FOR ANALYSIS OF OTHER DEVELOPED CONDITIONS.

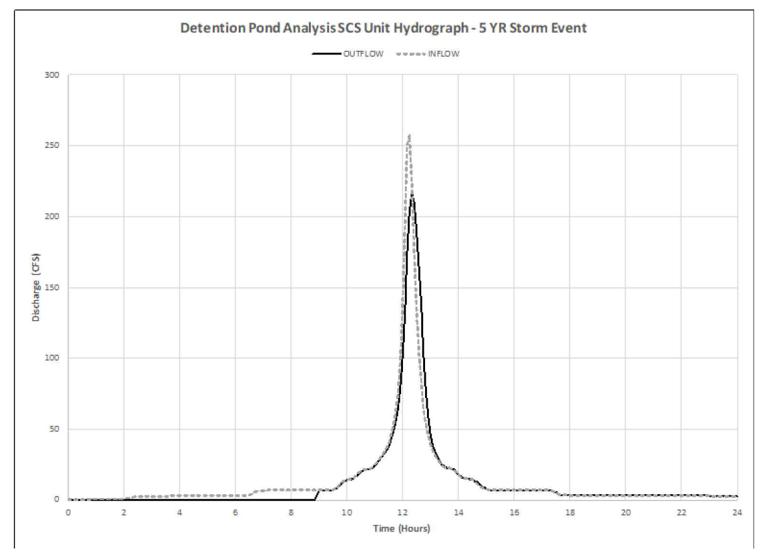
CLAY LINER SPECIFICATIONS:

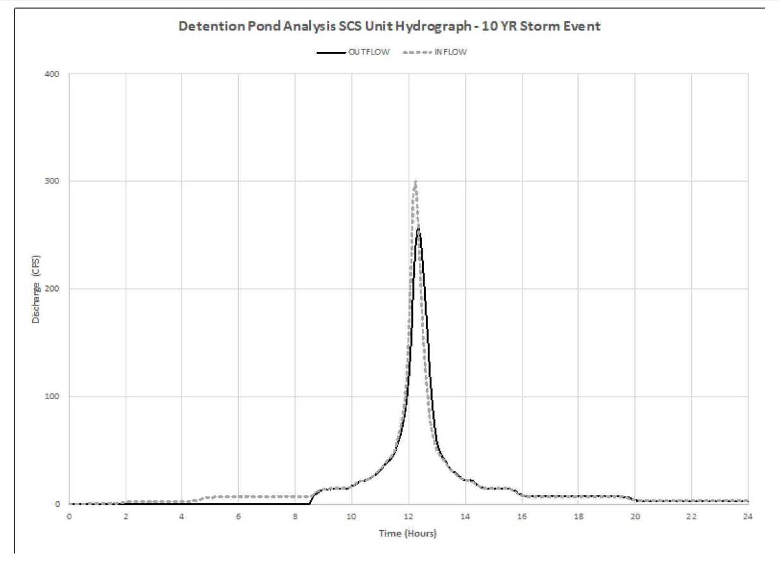
PERMEABILITY - 0.000001 CM/SEC
(PER ASTM D-2434)
PLASTICITY INDEX - NOT LESS THAN 15%
(PER ASTM D-423 AND D-424)
LIQUID LIMIT OF CLAY - NOT LESS THAN 30%
(PER ASTM D-2216)
CLAY PARTICLE PASSING - NOT LESS THAN 30%
(PER ASTM D-422)
CLAY COMPACTION - 95% OF STANDARD PROCTOR DENSITY
(PER ASTM D-2216)

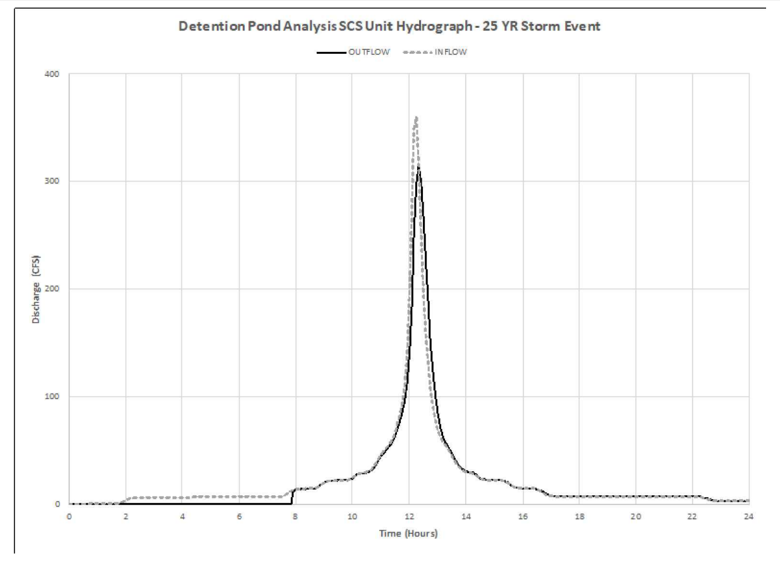


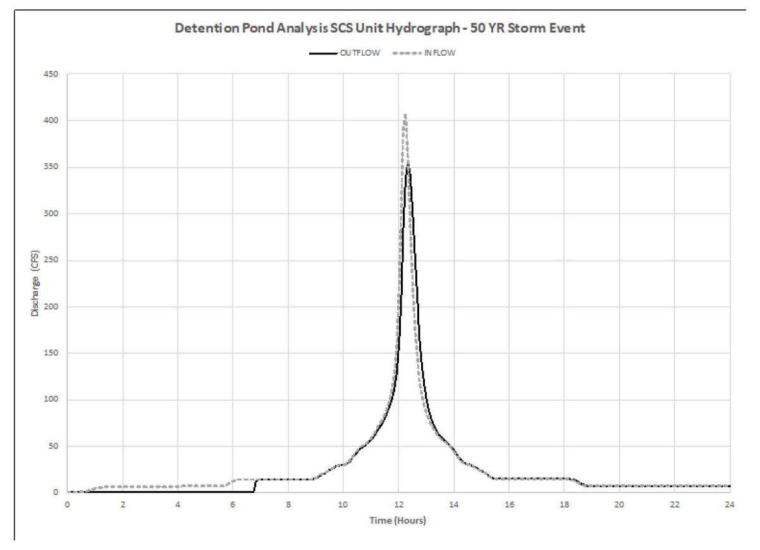
POND CONTRIBUTING DRAINAGE AREA

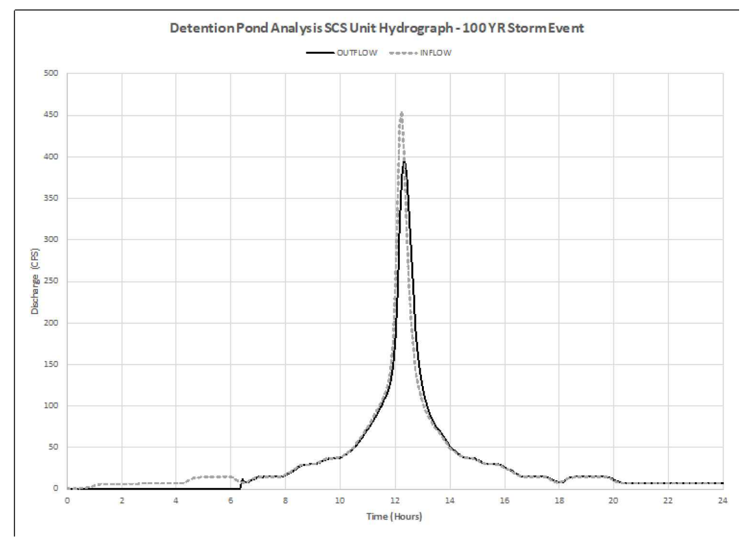

Detention Pond Analysis SCS Unit Hydrograph - 2 YR Storm Event

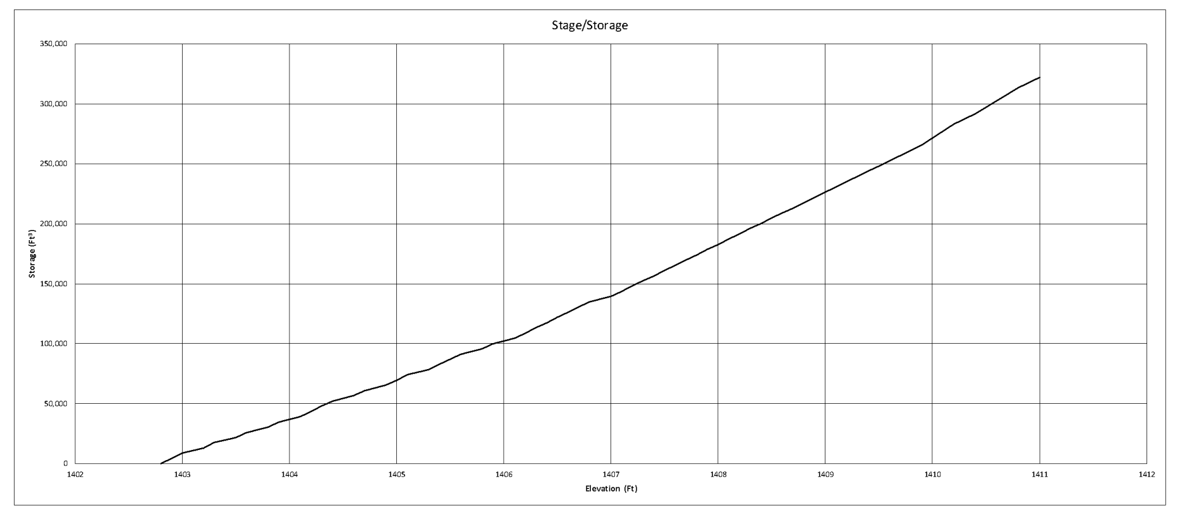

Detention Pond Analysis SCS Unit Hydrograph - 5 YR Storm Event

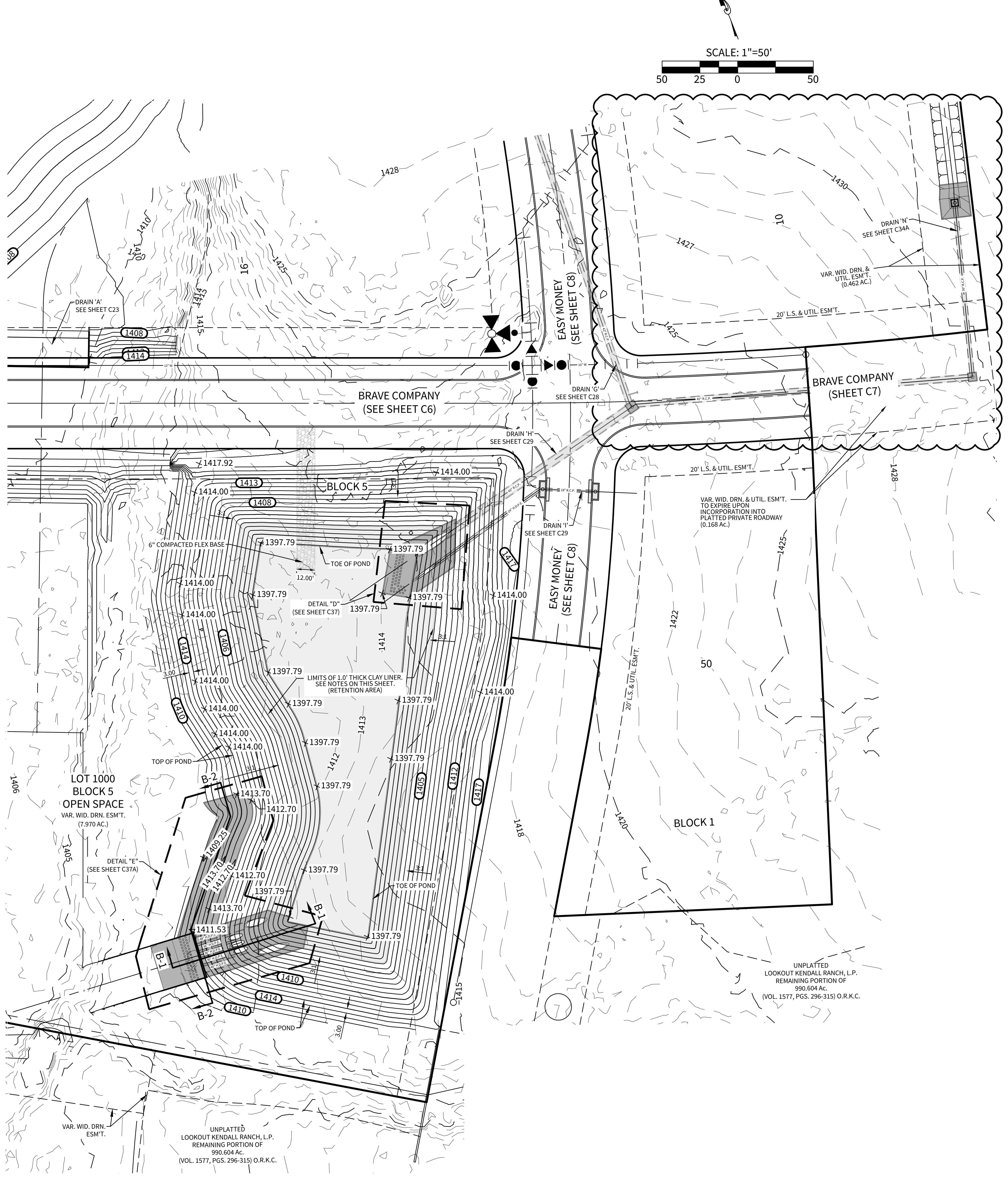

Detention Pond Analysis SCS Unit Hydrograph - 10 YR Storm Event

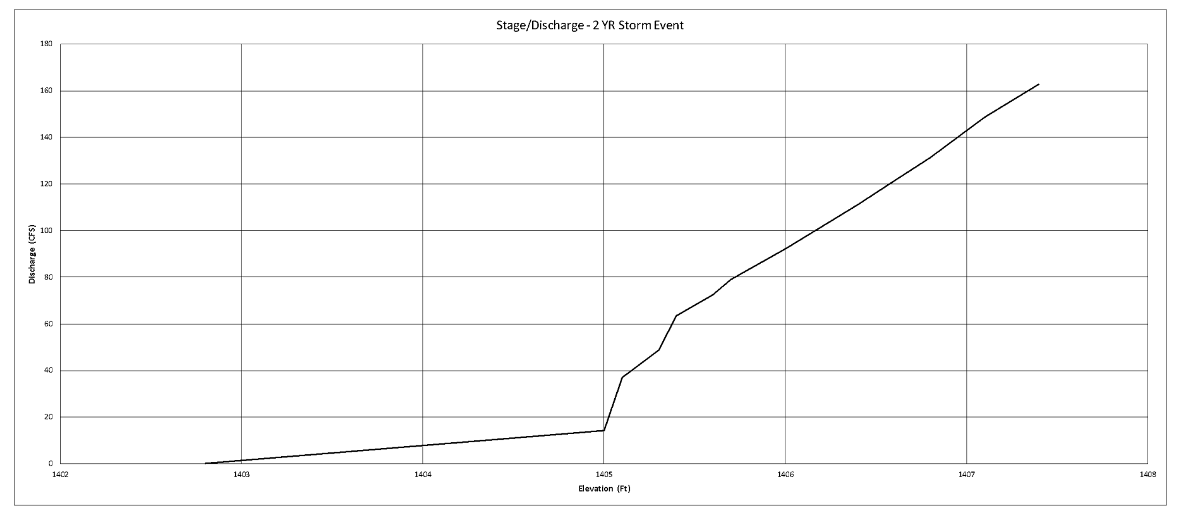

Detention Pond Analysis SCS Unit Hydrograph - 25 YR Storm Event

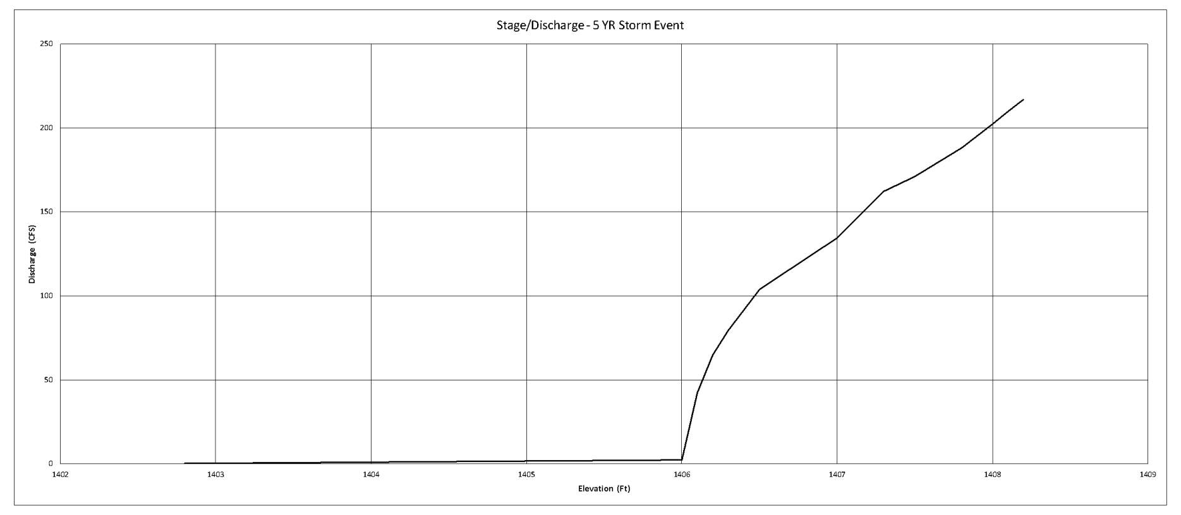

Detention Pond Analysis SCS Unit Hydrograph - 50 YR Storm Event

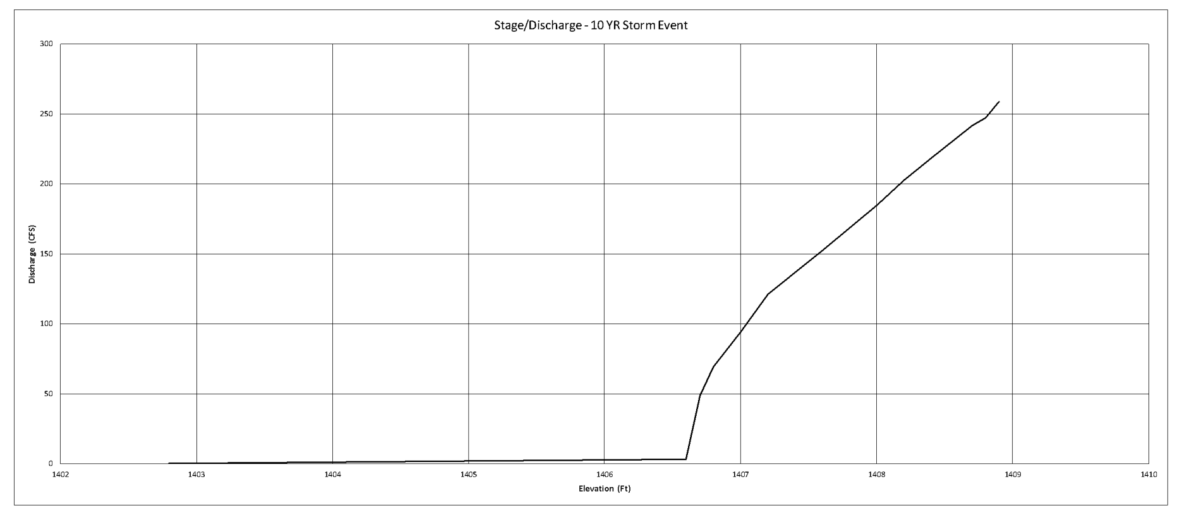

Detention Pond Analysis SCS Unit Hydrograph - 100 YR Storm Event

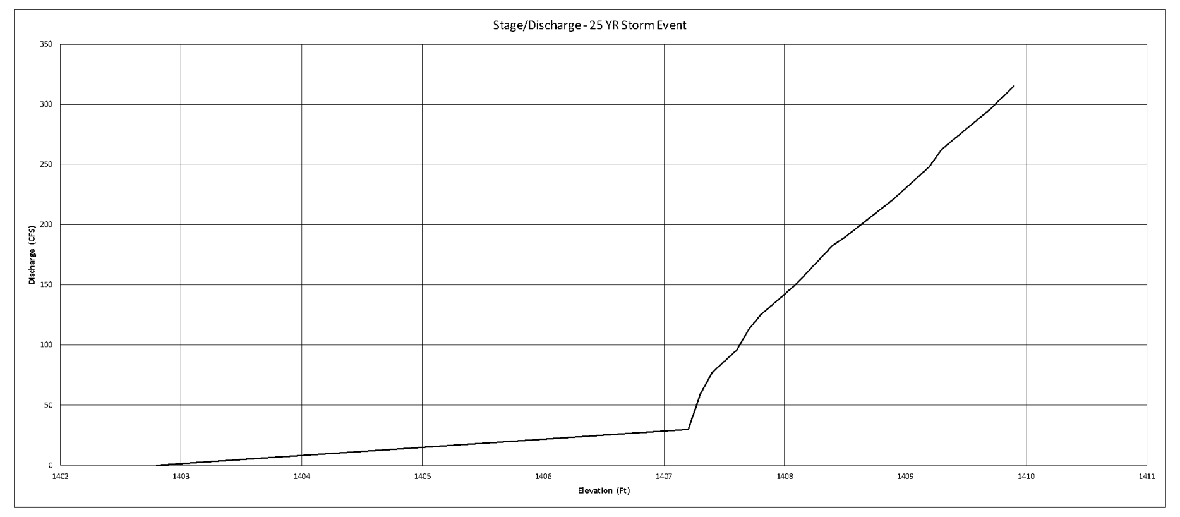

Stage/Storage

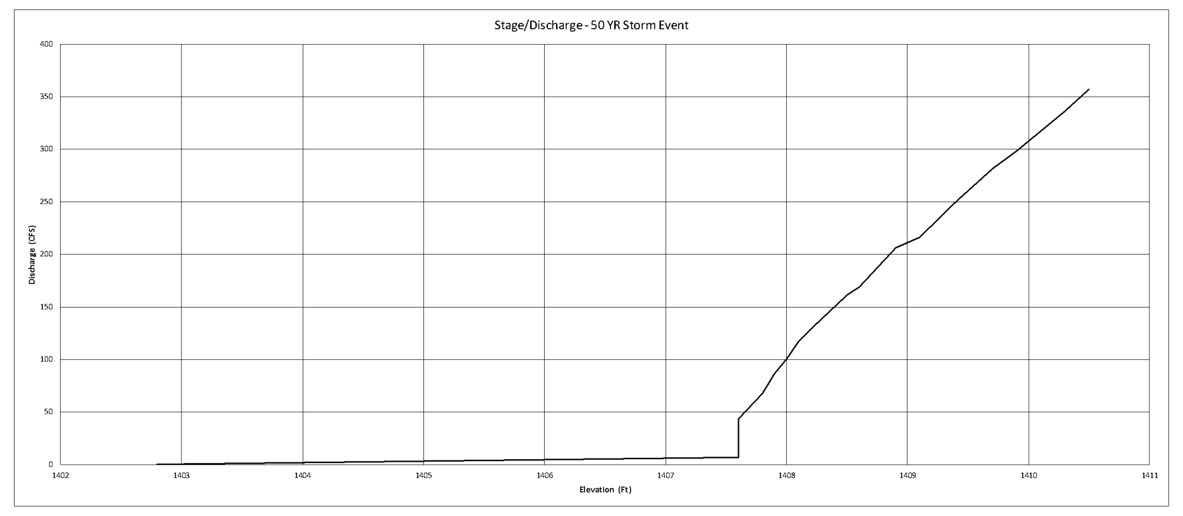


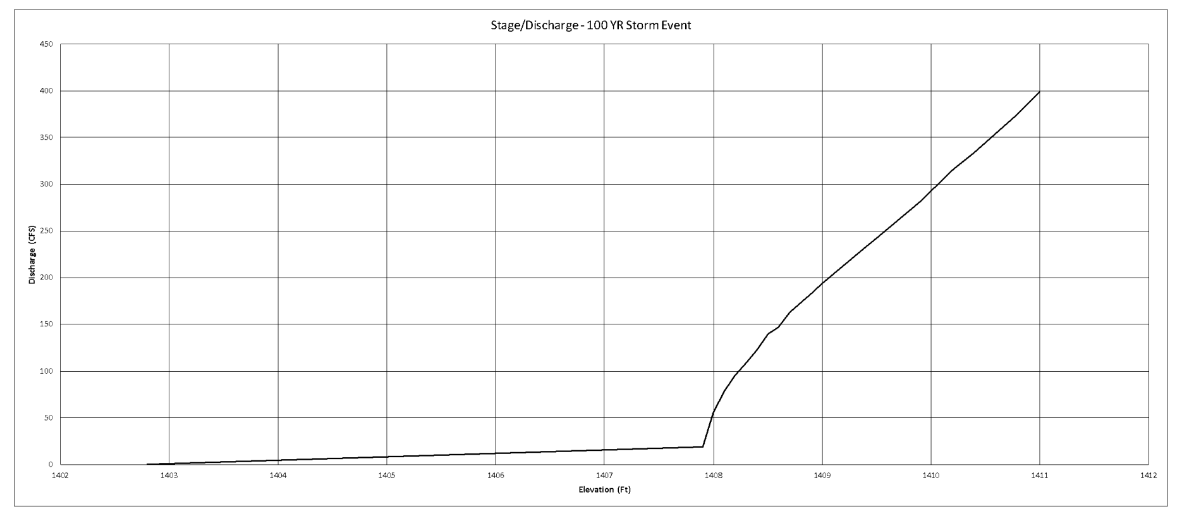

Stage/Discharge - 2 YR Storm Event


Stage/Discharge - 5 YR Storm Event


Stage/Discharge - 10 YR Storm Event


Stage/Discharge - 25 YR Storm Event


Stage/Discharge - 50 YR Storm Event


Stage/Discharge - 100 YR Storm Event

Pond Outfall Structure Details: Pond 2

46.65 LF of 2 - 48" HDPE @ 0.50%	US Invert: 1402.80	DS Invert: 1402.57
30.76 LF of 3 - 36" HDPE @ 0.50%	US Invert: 1407.50	DS Invert: 1407.34

125.00' Emergency Overflow Weir @ 1413.70

Pond 2 Characteristics Table:

2 YR Storm Event		
Pond Inflow:	205.80	CFS
Pond Discharge:	163.50	CFS
Peak WSE	1406.1	FT
Storage Provided:	3.6	AC-FT
5 YR Storm Event		
Pond Inflow:	257.4	CFS
Pond Discharge:	216.70	CFS
Peak WSE	1407.1	FT
Storage Provided:	4.4	AC-FT
10 YR Storm Event		
Pond Inflow:	300.1	CFS
Pond Discharge:	258.8	CFS
Peak WSE	1408.9	FT
Storage Provided:	5.1	AC-FT
25 YR Storm Event		
Pond Inflow:	360.4	CFS
Pond Discharge:	315	CFS
Peak WSE	1409.9	FT
Storage Provided:	6.1	AC-FT
50 YR Storm Event		
Pond Inflow:	407.6	CFS
Pond Discharge:	356.7	CFS
Water Surface Elevation	1410.5	FT
Storage Provided:	6.8	AC-FT
100 YR Storm Event		
Pond Inflow:	455.1	CFS
Pond Discharge:	398.9	CFS
Water Surface Elevation	1411	FT
Storage Provided:	7.4	AC-FT

Overall Discharge Summary (POST PROJECT Unit 1)

Discharge at Confluence of Trib A and Trib 1

2 YR Storm Event				
Pre-Development Rate:	1179.60	CFS		
Post-Development Rate:	1081.90	CFS	97.70	CFS less than allowable
5 YR Storm Event				
Pre-Development Rate:	1614.00	CFS		
Post-Development Rate:	1518.90	CFS	95.10	CFS less than allowable
10 YR Storm Event				
Pre-Development Rate:	1987.70	CFS		
Post-Development Rate:	1902.30	CFS	85.40	CFS less than allowable
25 YR Storm Event				
Pre-Development Rate:	2518.10	CFS		
Post-Development Rate:	2441.30	CFS	76.80	CFS less than allowable
50 YR Storm Event				
Pre-Development Rate:	2934.00	CFS		
Post-Development Rate:	2864.50	CFS	69.50	CFS less than allowable
100 YR Storm Event				
Pre-Development Rate:	3351.10	CFS		
Post-Development Rate:	3292.50	CFS	58.60	CFS less than allowable

Note: ***Post-development discharge rates above account for detention pond 1.***

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**GEORGE'S RANCH
UNIT 1**

POND DETENTION PLAN - POND 2

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 07-12-2022 REVISED POND DESIGN
2. 02/28/2023 - DRAINAGE REVISION
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
3/3/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C36

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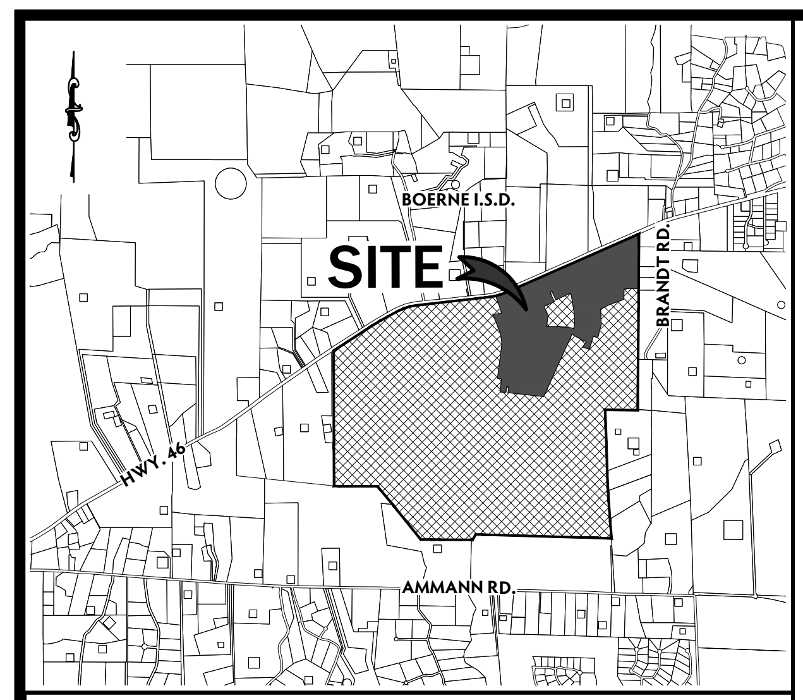
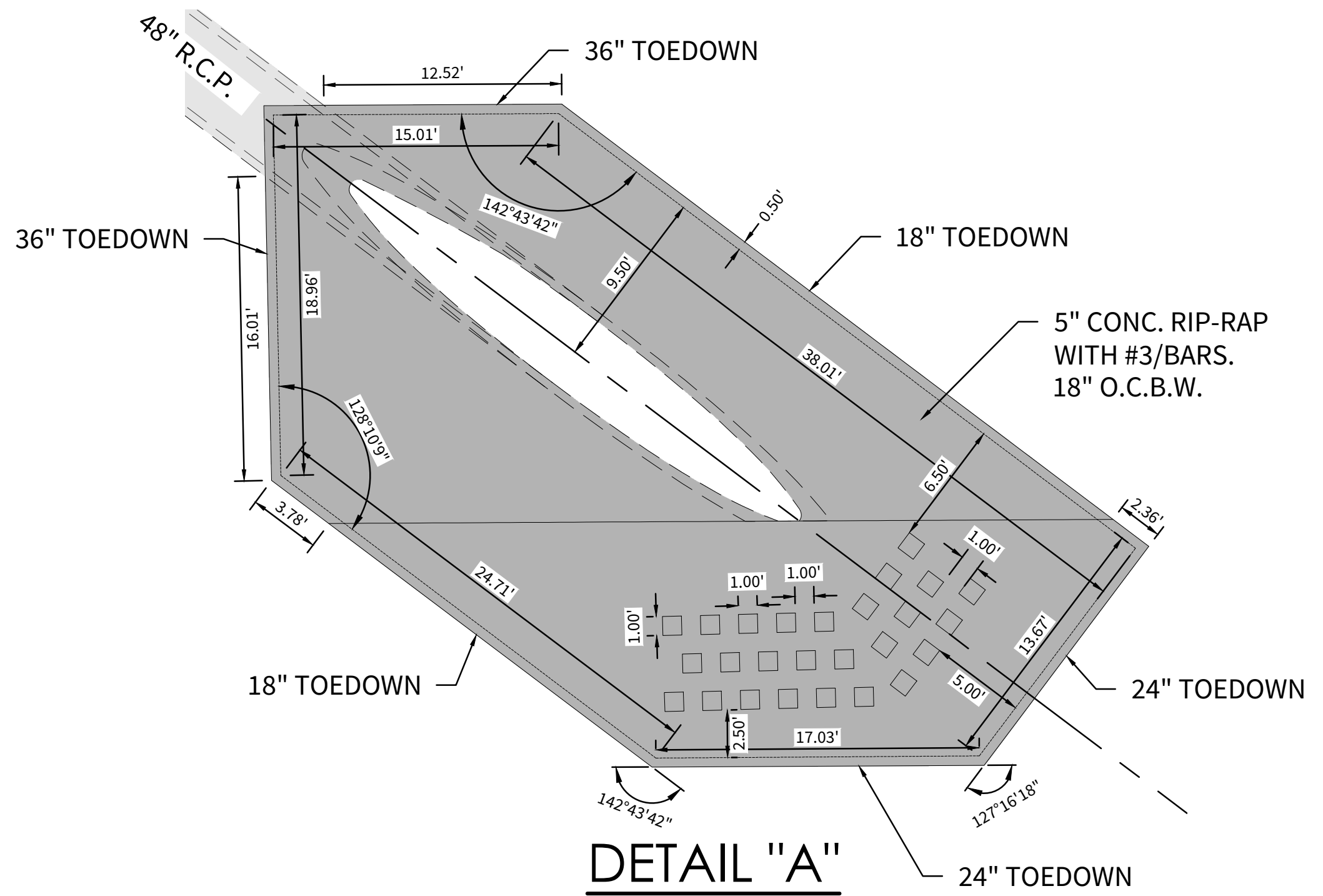


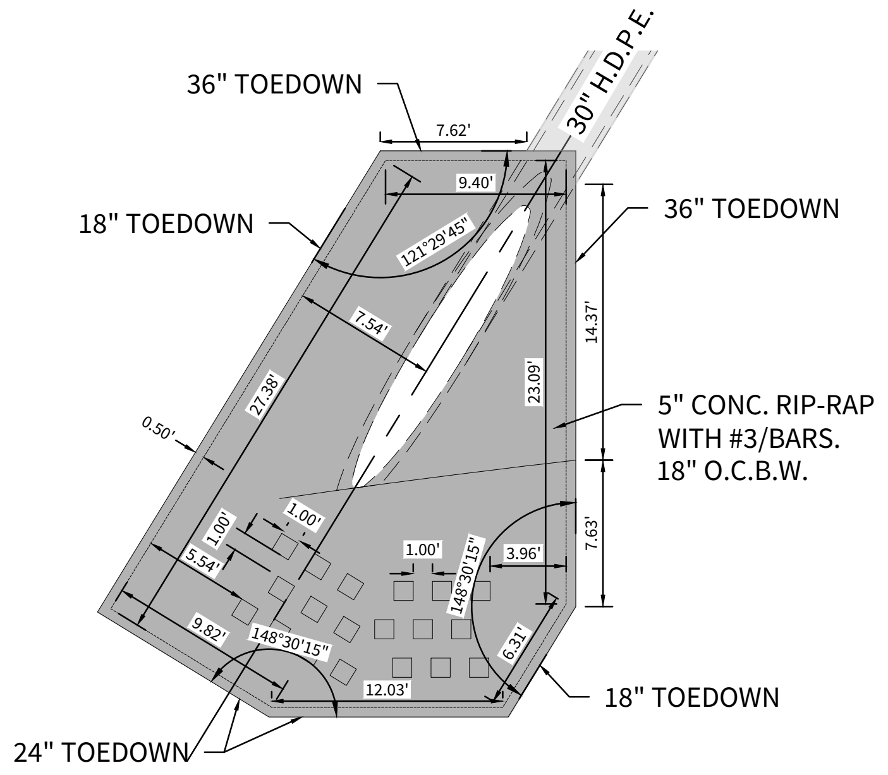
LOCATION MAP
N.T.S.

OWNER/ DEVELOPER:

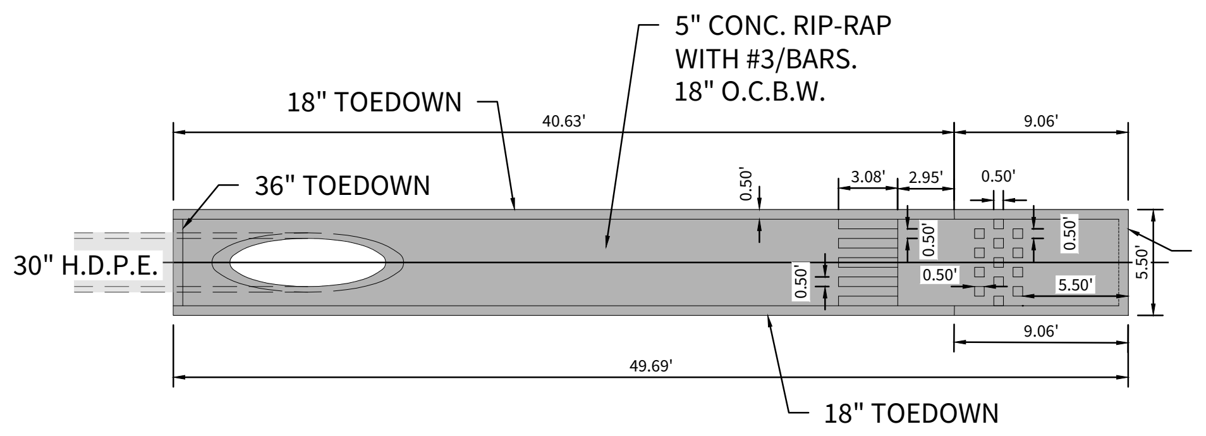
THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322



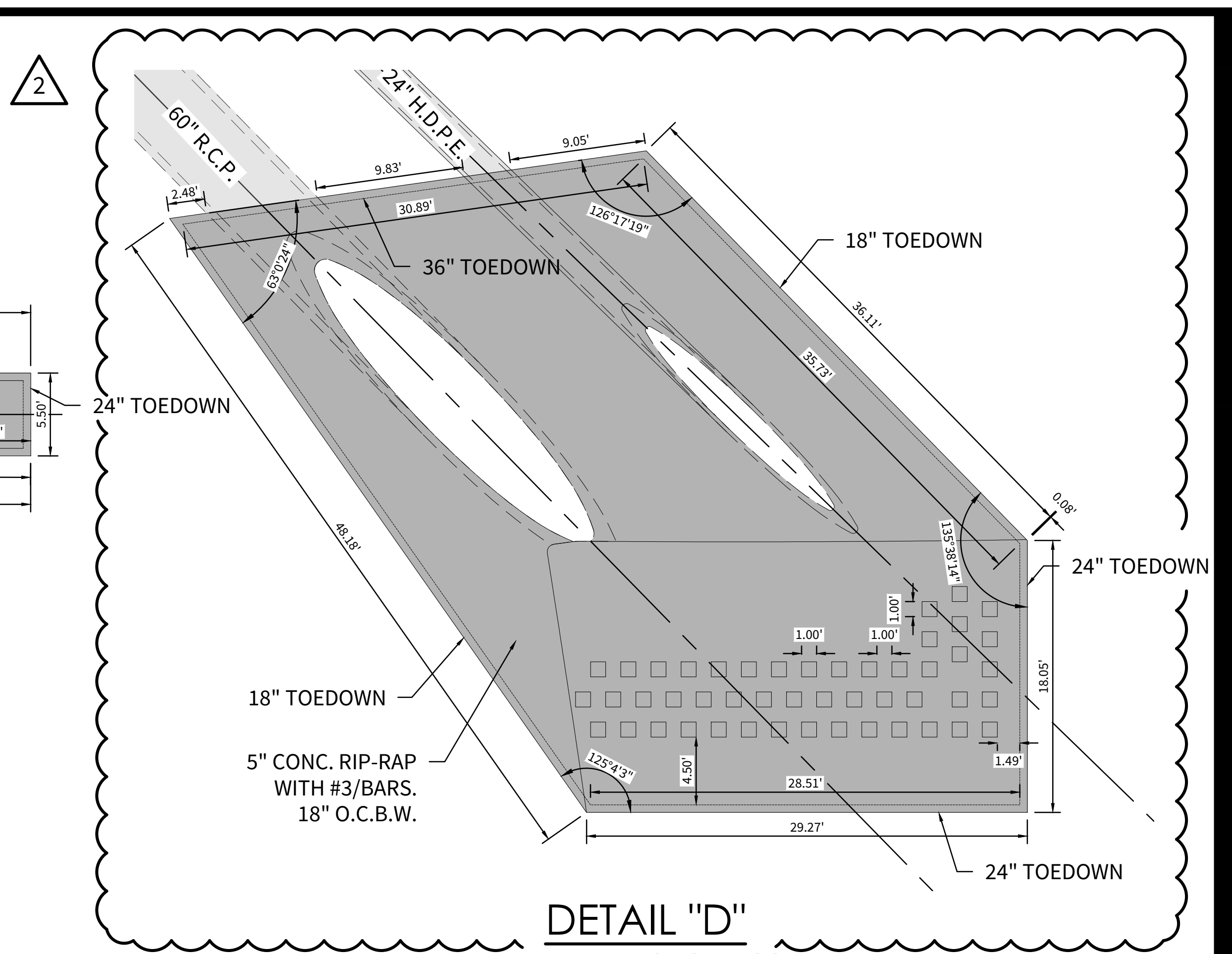
DETAIL "A"
DRAIN 'D'
OUTFALL STRUCTURE
1" = 10'



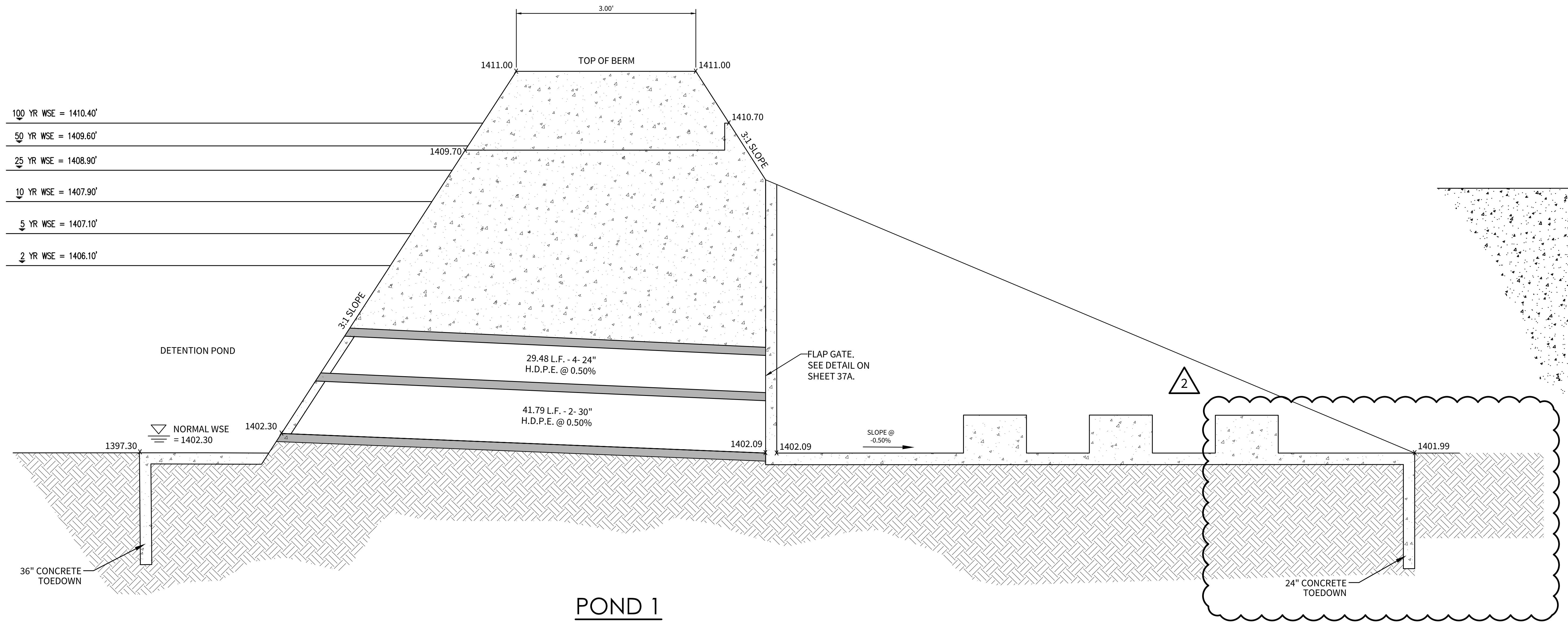
DETAIL "B"
DRAIN 'E'
OUTFALL STRUCTURE
1" = 10'



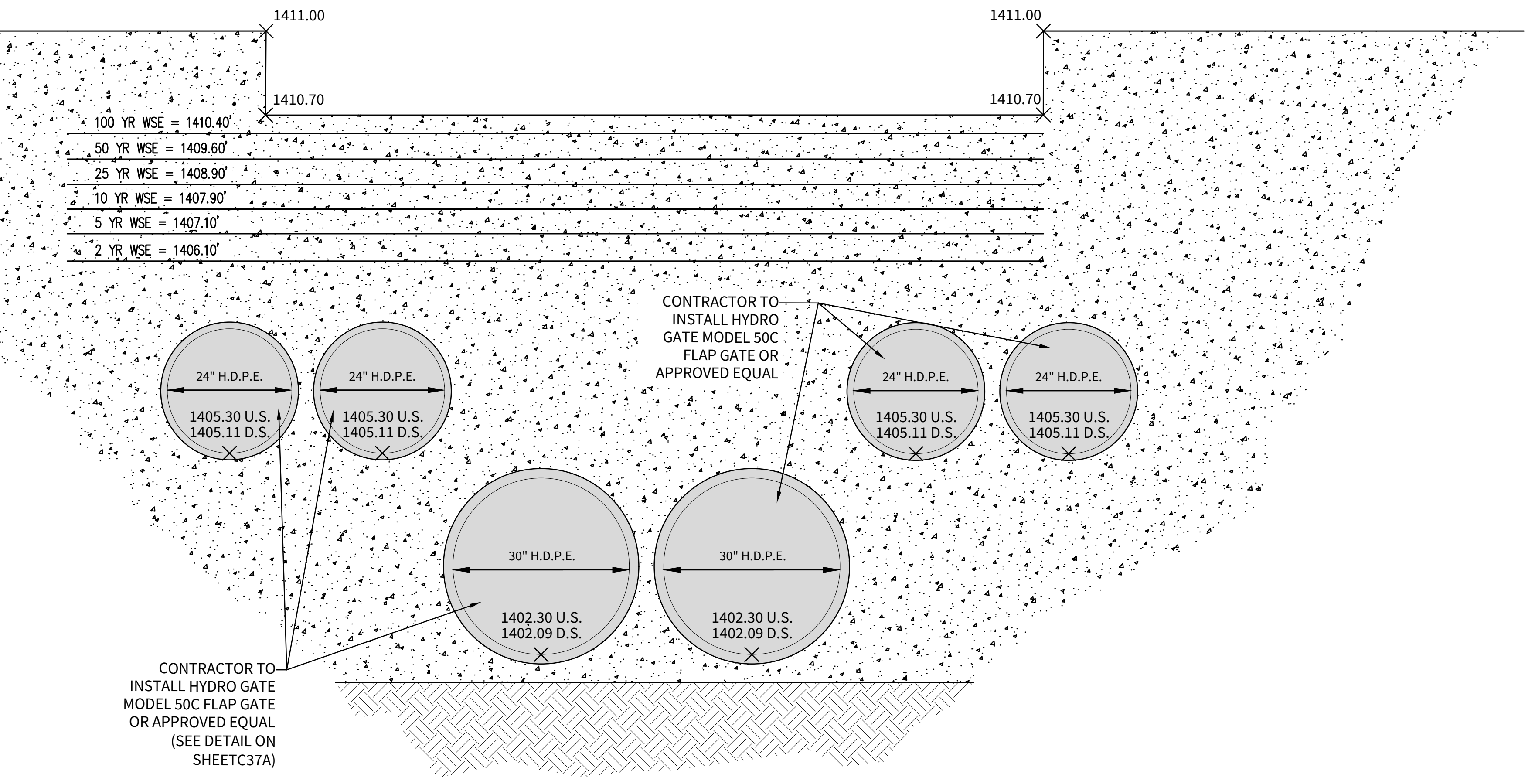
DETAIL "C"
DRAIN 'F'
OUTFALL STRUCTURE
1" = 10'



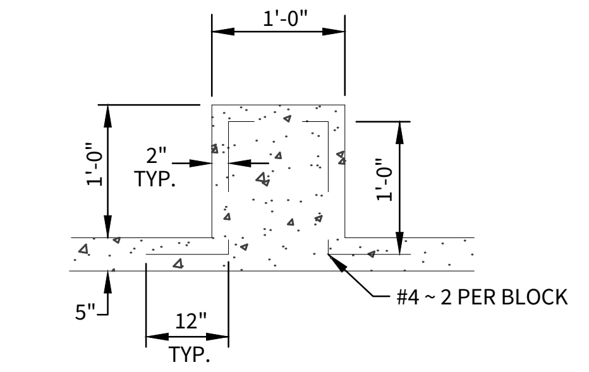
DETAIL "D"
DRAIN 'H' & 'I'
OUTFALL STRUCTURE
1" = 10'



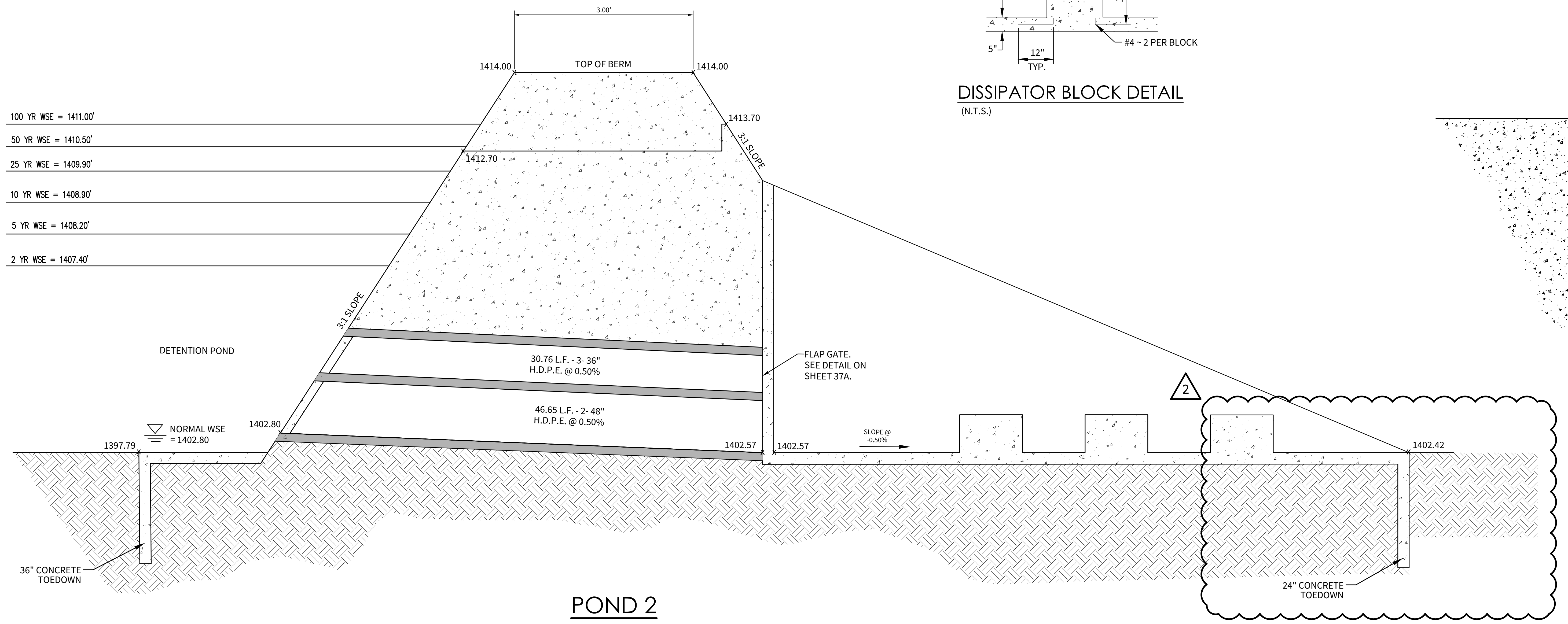
POND 1
SECTION A-1
N.T.S.


1411.00
1411.00
1410.70
1410.70
100 YR WSE = 1410.40'
50 YR WSE = 1409.60'
25 YR WSE = 1408.90'
10 YR WSE = 1407.90'
5 YR WSE = 1407.10'
2 YR WSE = 1406.10'
CONTRACTOR TO INSTALL HYDRO GATE MODEL 50C FLAP GATE OR APPROVED EQUAL
24" H.D.P.E. 1405.30 U.S. 1405.11 D.S.
24" H.D.P.E. 1405.30 U.S. 1405.11 D.S.
24" H.D.P.E. 1405.30 U.S. 1405.11 D.S.
24" H.D.P.E. 1405.30 U.S. 1405.11 D.S.
30" H.D.P.E. 1402.30 U.S. 1402.09 D.S.
30" H.D.P.E. 1402.30 U.S. 1402.09 D.S.
CONTRACTOR TO INSTALL HYDRO GATE MODEL 50C FLAP GATE OR APPROVED EQUAL (SEE DETAIL ON SHEETC37A)

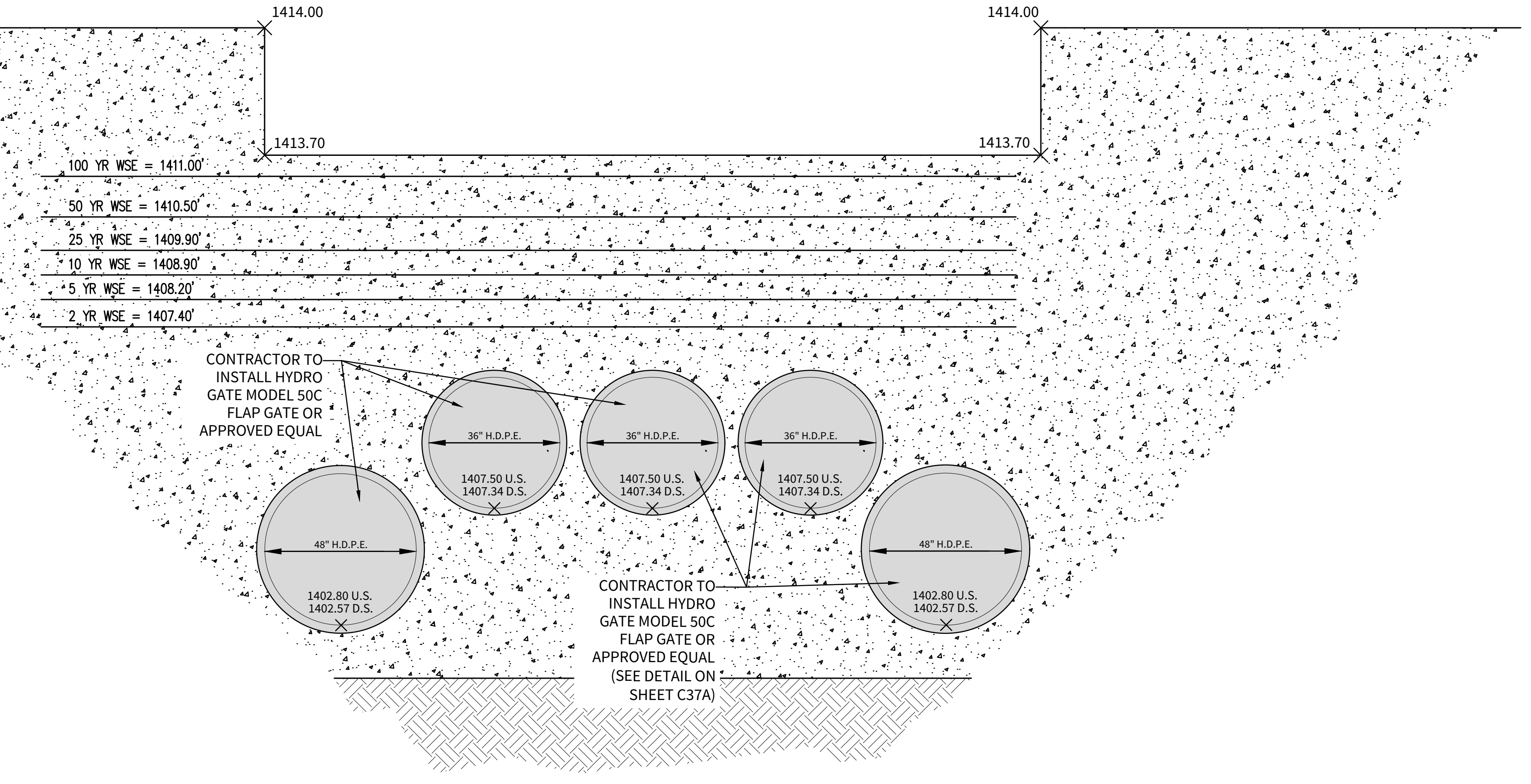
POND 1
SECTION A-2
N.T.S.



DISSIPATOR BLOCK DETAIL
(N.T.S.)



POND 2
SECTION B-1
N.T.S.


1414.00
1414.00
1413.70
1413.70
100 YR WSE = 1411.00'
50 YR WSE = 1410.50'
25 YR WSE = 1409.90'
10 YR WSE = 1408.90'
5 YR WSE = 1408.20'
2 YR WSE = 1407.40'
CONTRACTOR TO INSTALL HYDRO GATE MODEL 50C FLAP GATE OR APPROVED EQUAL
36" H.D.P.E. 1407.50 U.S. 1407.34 D.S.
36" H.D.P.E. 1407.50 U.S. 1407.34 D.S.
36" H.D.P.E. 1407.50 U.S. 1407.34 D.S.
48" H.D.P.E. 1402.80 U.S. 1402.57 D.S.
48" H.D.P.E. 1402.80 U.S. 1402.57 D.S.
CONTRACTOR TO INSTALL HYDRO GATE MODEL 50C FLAP GATE OR APPROVED EQUAL (SEE DETAIL ON SHEET C37A)

POND 2
SECTION B-2
N.T.S.

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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

GEORGE'S RANCH
UNIT 1

DETENTION POND DETAILS

DATE	04/22/2022
PROJECT NO.	03546.001
DRAWN BY	AB/RR
CHECKED BY	WPM

REVISIONS

1. 07-12-2022 REVISED POND DESIGN
2. 02/28/2023 - DRAINAGE REVISION
3.
4.
5.
6.
7.
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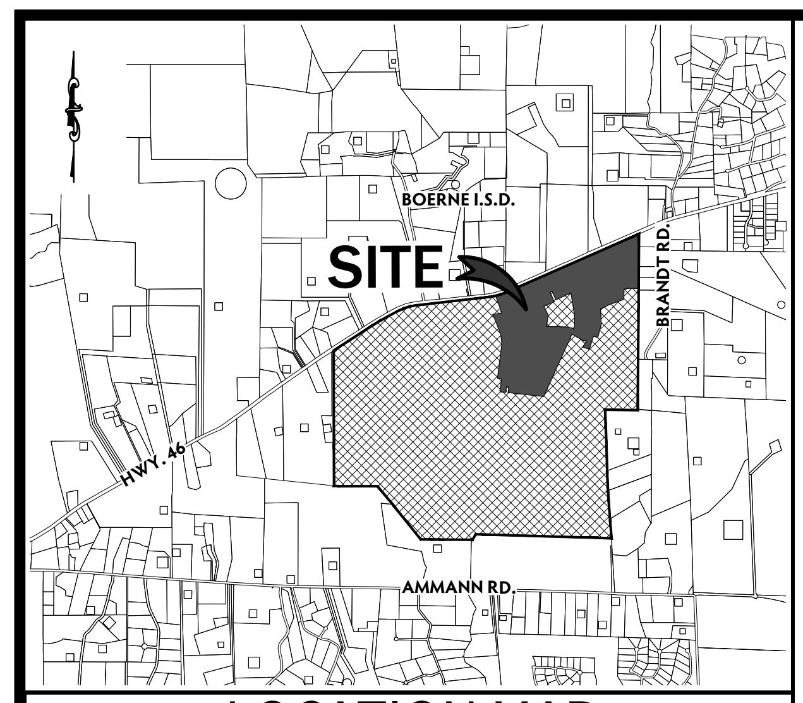
W. PATRICK MURPHY
111597
3/3/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C37

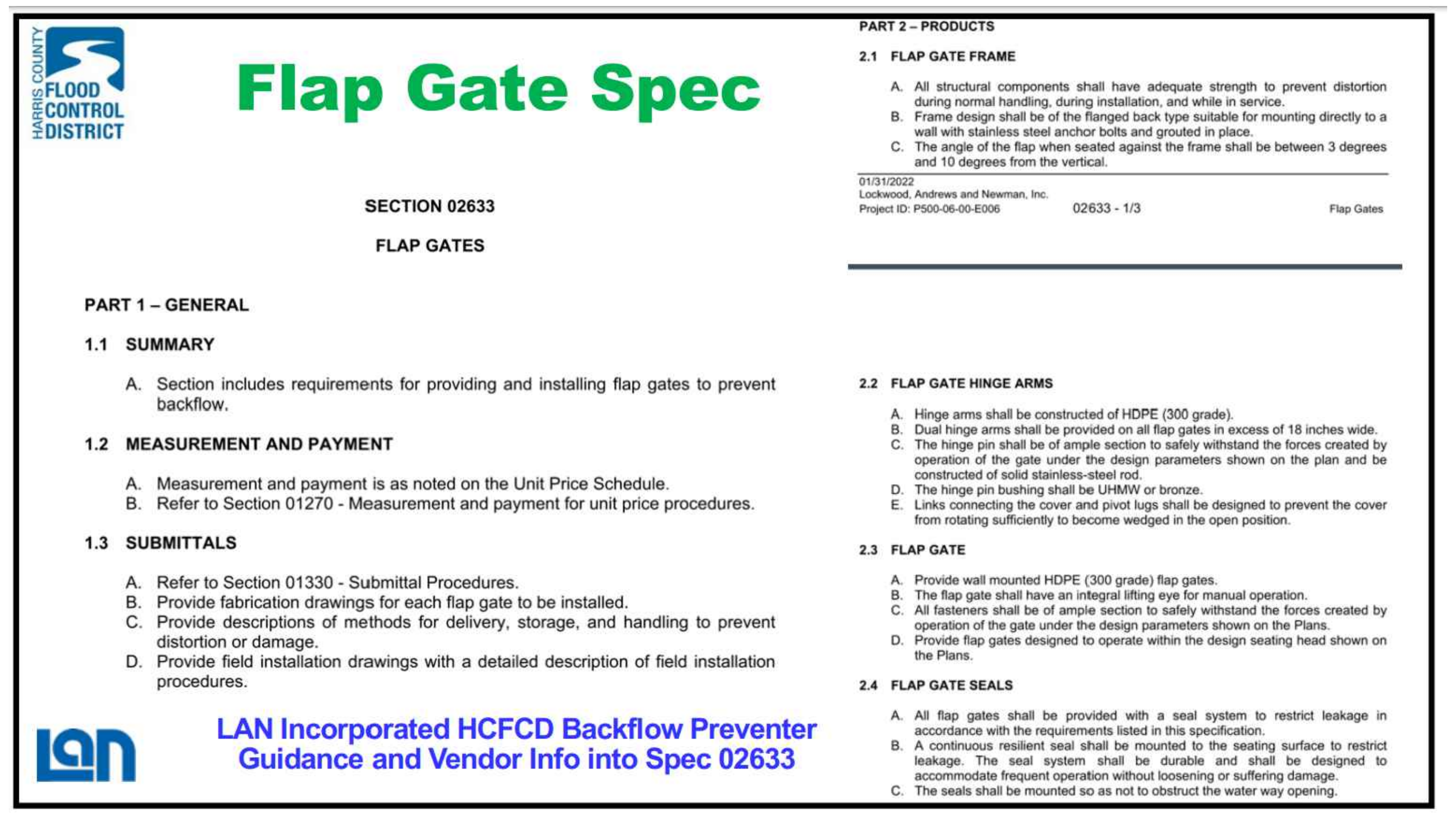


LOCATION MAP

N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322



HARRIS COUNTY FLOOD CONTROL DISTRICT

Flap Gate Spec

SECTION 02633

FLAP GATES

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for providing and installing flap gates to prevent backflow.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 - Measurement and payment for unit price procedures.

1.3 SUBMITTALS

A. Refer to Section 01330 - Submittal Procedures.
B. Provide fabrication drawings for each flap gate to be installed.
C. Provide descriptions of methods for delivery, storage, and handling to prevent distortion or damage.
D. Provide field installation drawings with a detailed description of field installation procedures.

LAN Incorporated HCFCD Backflow Preventer Guidance and Vendor Info into Spec 02633

PART 2 – PRODUCTS

2.1 FLAP GATE FRAME

A. All structural components shall have adequate strength to prevent distortion during normal handling, during installation, and while in service.
B. Frame design shall be of the flanged back type suitable for mounting directly to a wall with stainless steel anchor bolts and grouted in place.
C. The angle of the flap when seated against the frame shall be between 3 degrees and 10 degrees from the vertical.

01/31/2022
Lockwood, Andrews and Newman, Inc.
Project ID: P500-06-00-E006 02633 - 1/3 Flap Gates

2.2 FLAP GATE HINGE ARMS

A. Hinge arms shall be constructed of HDPE (300 grade).
B. Dual hinge arms shall be provided on all flap gates in excess of 18 inches wide.
C. The hinge pin shall be of ample section to safely withstand the forces created by operation of the gate under the design parameters shown on the plan and be constructed of solid stainless-steel rod.
D. The hinge pin bushing shall be UHMW or bronze.
E. Links connecting the cover and pivot lugs shall be designed to prevent the cover from rotating sufficiently to become wedged in the open position.

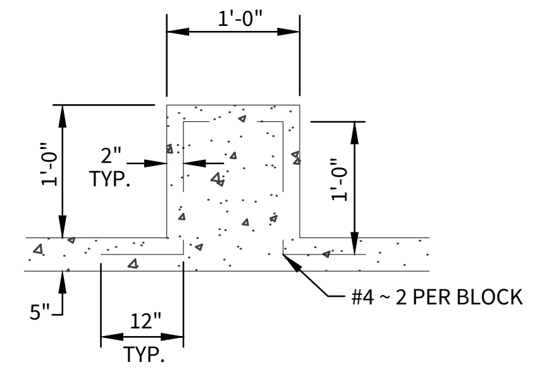
2.3 FLAP GATE

A. Provide wall mounted HDPE (300 grade) flap gates.
B. The flap gate shall have an integral lifting eye for manual operation.
C. All fasteners shall be of ample section to safely withstand the forces created by operation of the gate under the design parameters shown on the Plans.
D. Provide flap gates designed to operate within the design seating head shown on the Plans.

2.4 FLAP GATE SEALS

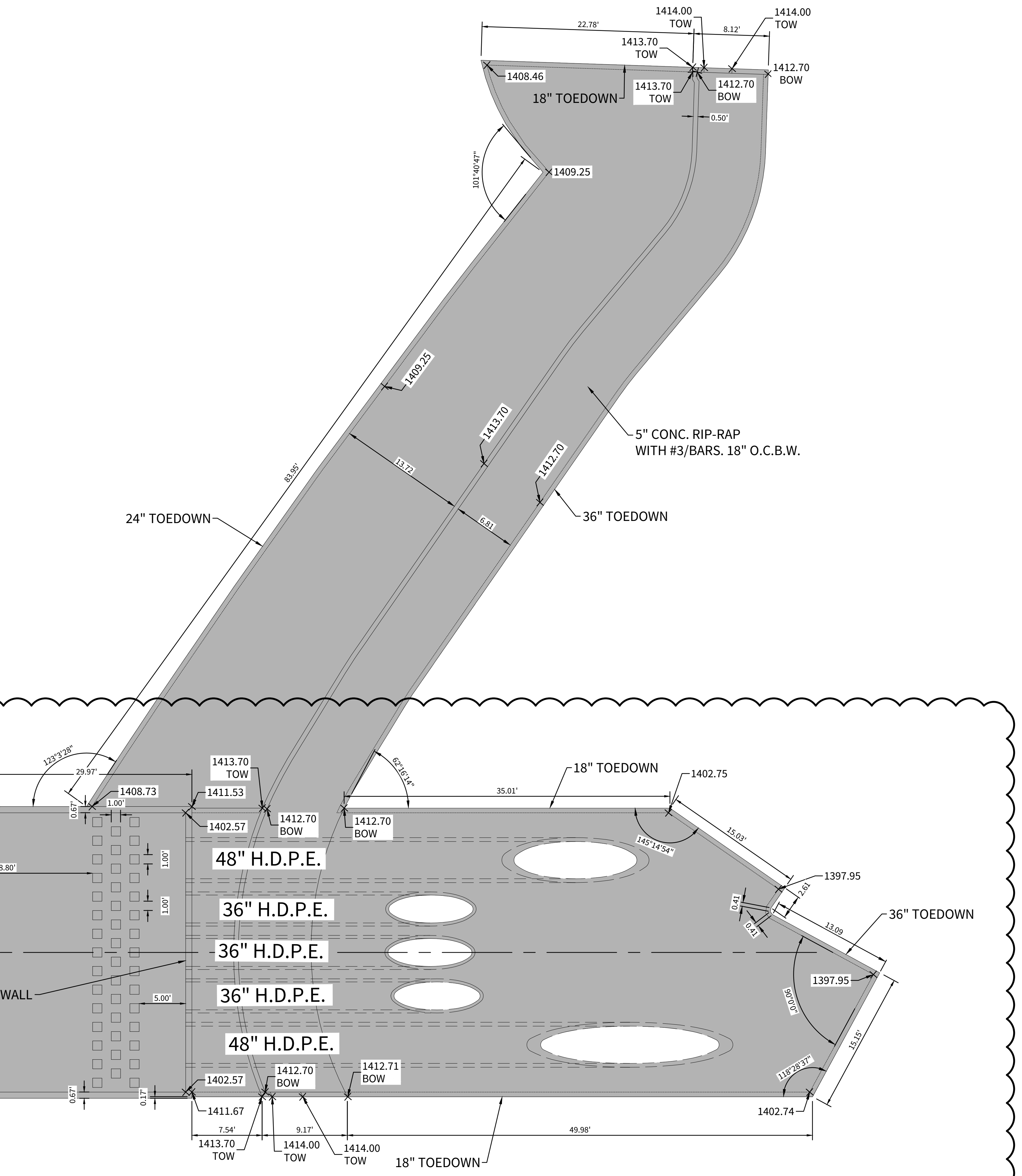
A. All flap gates shall be provided with a seal system to restrict leakage in accordance with the requirements listed in this specification.
B. A continuous resilient seal shall be mounted to the seating surface to restrict leakage. The seal system shall be durable and shall be designed to accommodate frequent operation without loosening or suffering damage.
C. The seals shall be mounted so as not to obstruct the water way opening.

FLAP GATE SPECIFICATION



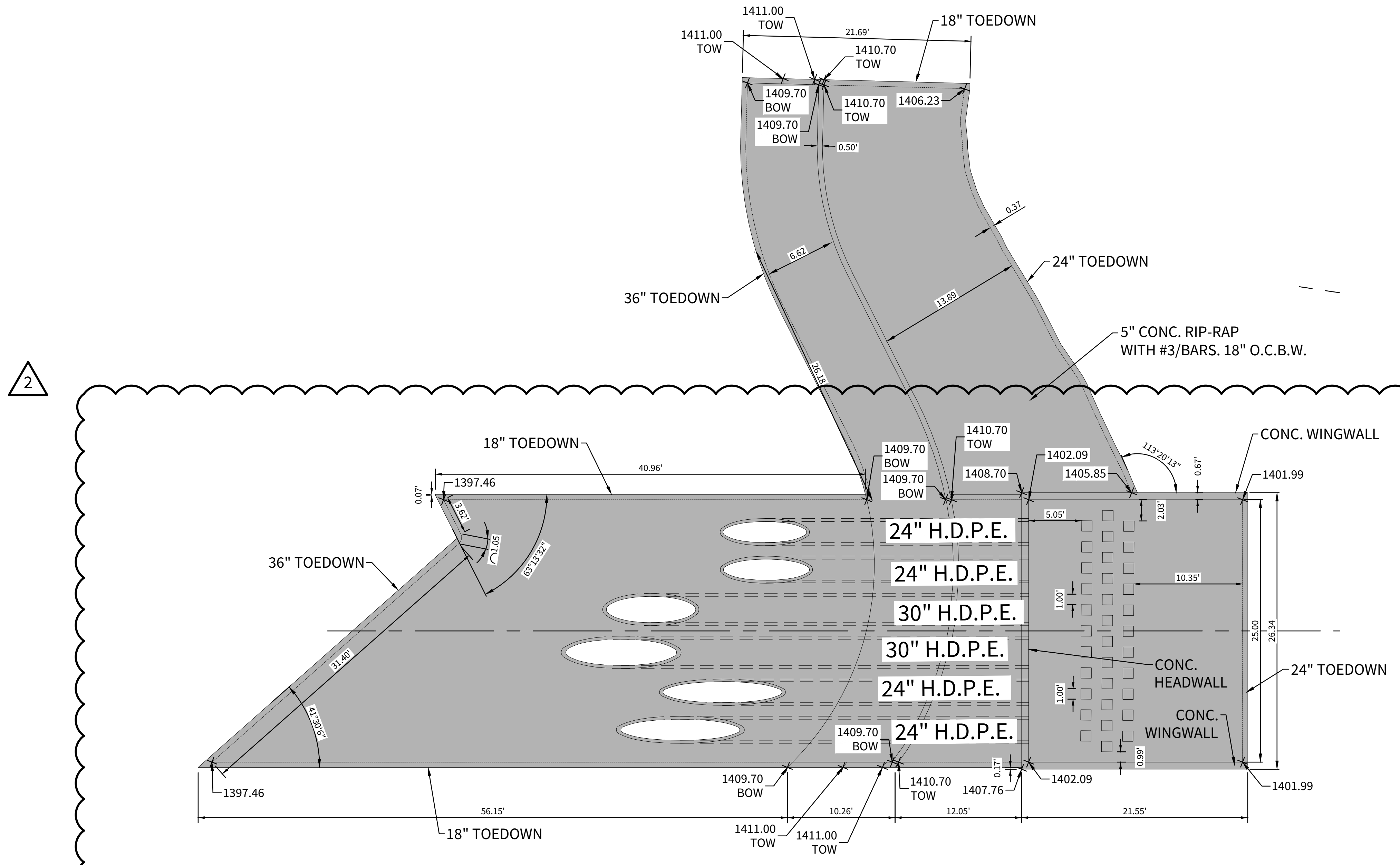
DISSIPATOR BLOCK DETAIL

(N.T.S.)



POND 2
EMERGENCY
OVERFLOW WEIR
DETAIL

1" = 10'



POND 1
EMERGENCY
OVERFLOW WEIR
DETAIL

1" = 10'

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GEORGE'S RANCH
UNIT 1

DETENTION POND DETAILS

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-10-04 - ADDED FLAP GATE SPECIFICATION, REVISED OUTFALL PIPES
2. 02/28/2023 - DRAINAGE REVISION
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
3/3/2023

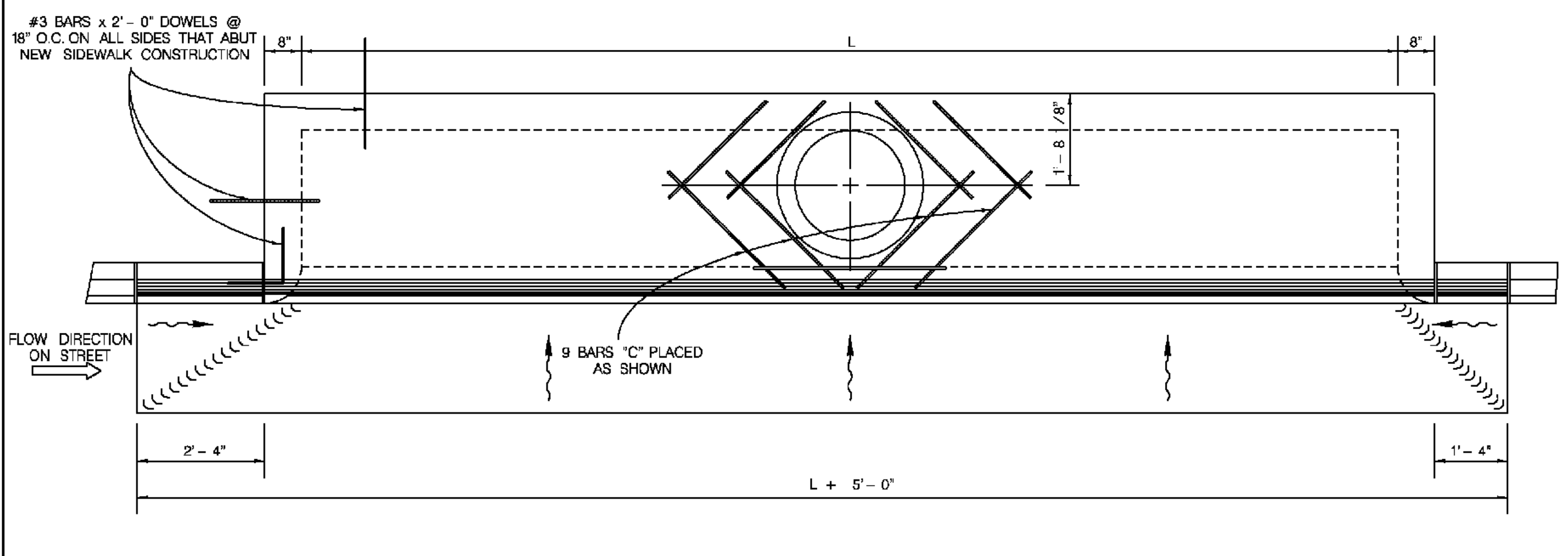
CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C37A

37A OF 55

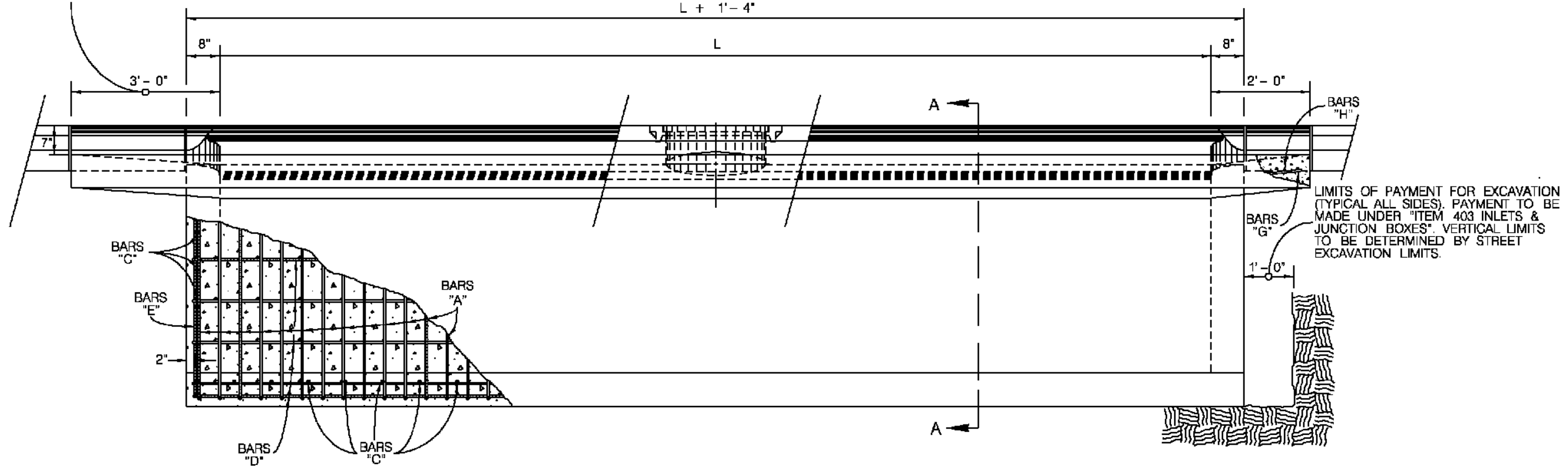
P:\03546\001\2-Drawings\01_123 POND.dwg 2023/03/03 3:39pm rreyes


#3 BARS x 2'- 0" DOWELS @ 18" O.C. ON ALL SIDES THAT ABUT NEW SIDEWALK CONSTRUCTION
8"
L
8"
1'- 8 1/8"
FLOW DIRECTION ON STREET
9 BARS "C" PLACED AS SHOWN
2'- 4"
L + 5'- 0"
1'- 4"

PLAN VIEW

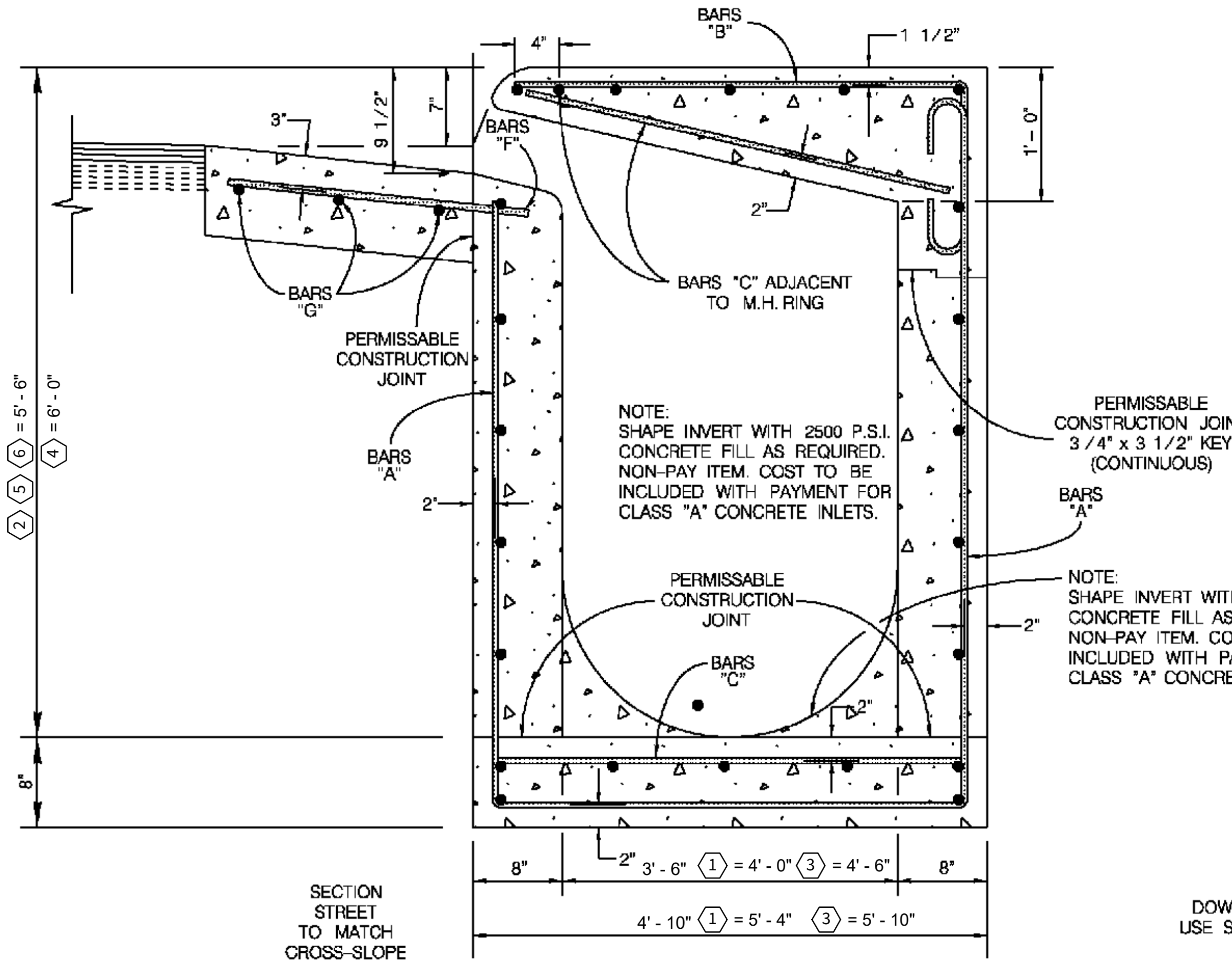
SCALE : 1" = 2'

3'- 0" SHALL BE REQUIRED AT UPSTREAM END OF ON-GRADE INLETS. FOR INLETS IN SUMP CONDITION THIS DIMENSION SHALL BECOME 2 - 0"


L + 1'- 4"
8"
L
8"
3'- 0"
2'- 0"
A
A
BARS "H"
BARS "G"
1'-0"
LIMITS OF PAYMENT FOR EXCAVATION (TYPICAL ALL SIDES). PAYMENT TO BE MADE UNDER "ITEM 403 INLETS & JUNCTION BOXES" VERTICAL LIMITS TO BE DETERMINED BY STREET EXCAVATION LIMITS.
BARS "C"
BARS "E"
BARS "A"
2"
BARS "D"
BARS "C"

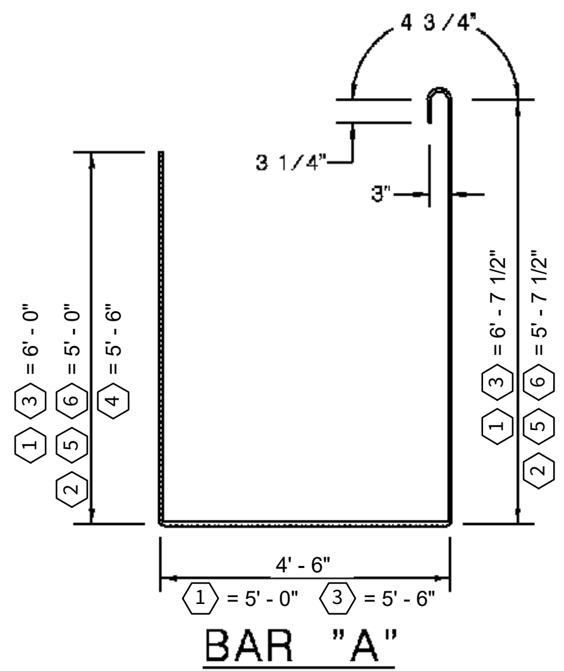
FRONT VIEW

SCALE : 1" = 2'

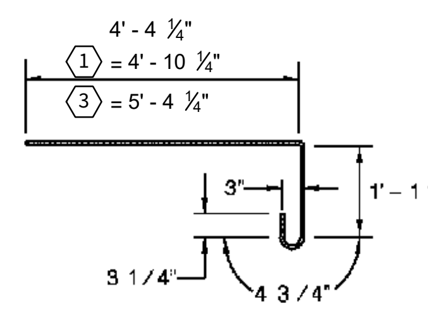

BARS "3"
1 1/2"
4"
3"
9 1/2"
7"
BARS "F"
1'- 0"
2"
BARS "C" ADJACENT TO M.H. RING
BARS "G"
PERMISSABLE CONSTRUCTION JOINT
BARS "A"
2"
NOTE: SHAPE INVERT WITH 2500 P.S.I. CONCRETE FILL AS REQUIRED. NON-PAY ITEM. COST TO BE INCLUDED WITH PAYMENT FOR CLASS "A" CONCRETE INLETS.
PERMISSABLE CONSTRUCTION JOINT 3/4" x 3 1/2" KEY (CONTINUOUS)
BARS "A"
PERMISSABLE CONSTRUCTION JOINT
BARS "C"
NOTE: SHAPE INVERT WITH 2500 P.S.I. CONCRETE FILL AS REQUIRED. NON-PAY ITEM. COST TO BE INCLUDED WITH PAYMENT FOR CLASS "A" CONCRETE INLETS.
2"
①③ = 6'- 6"
②⑤⑥ = 5'- 6"
④ = 6'- 0"
8"
8"
3'- 6" ① = 4'- 0" ③ = 4'- 6"
8"
4'- 10" ① = 5'- 4" ③ = 5'- 10"
SECTION STREET TO MATCH CROSS-SLOPE

SECTION "A-A"

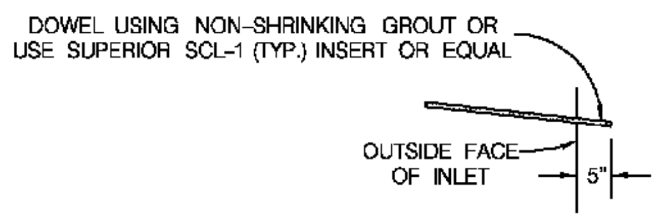
SCALE : 1" = 1'



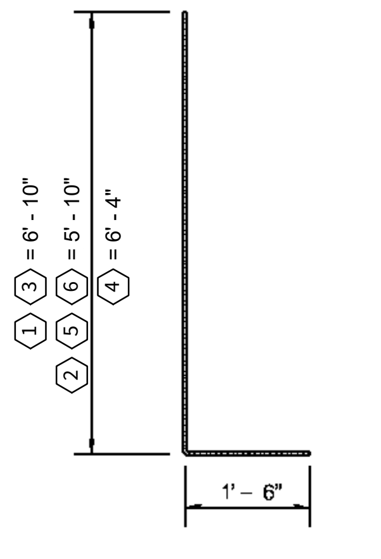
BAR "A"



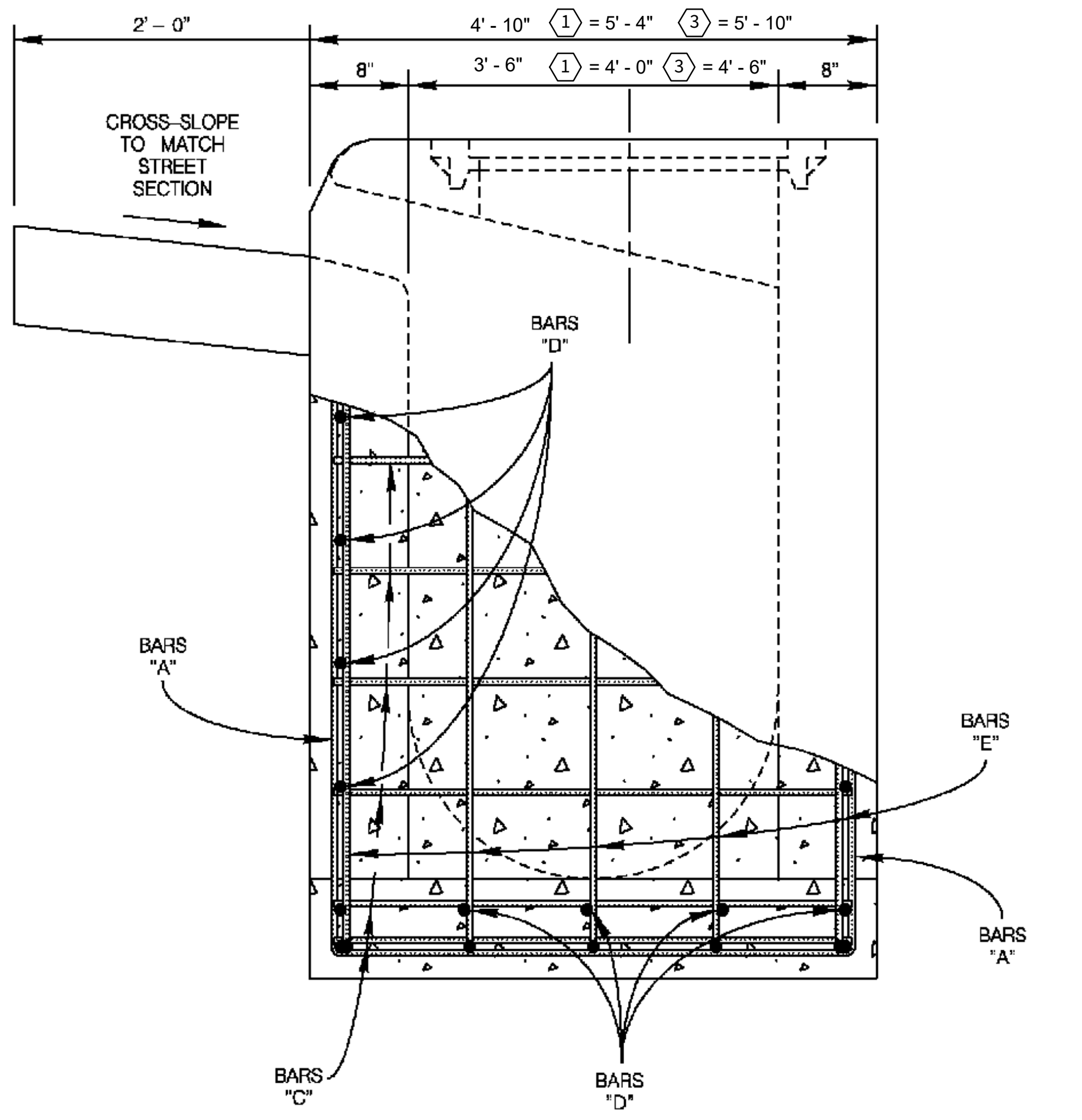
BAR "B"


DOWEL USING NON-SHRINKING GROUT OR USE SUPERIOR SCL-1 (TYP.) INSERT OR EQUAL
OUTSIDE FACE OF INLET
5"

BAR "F"

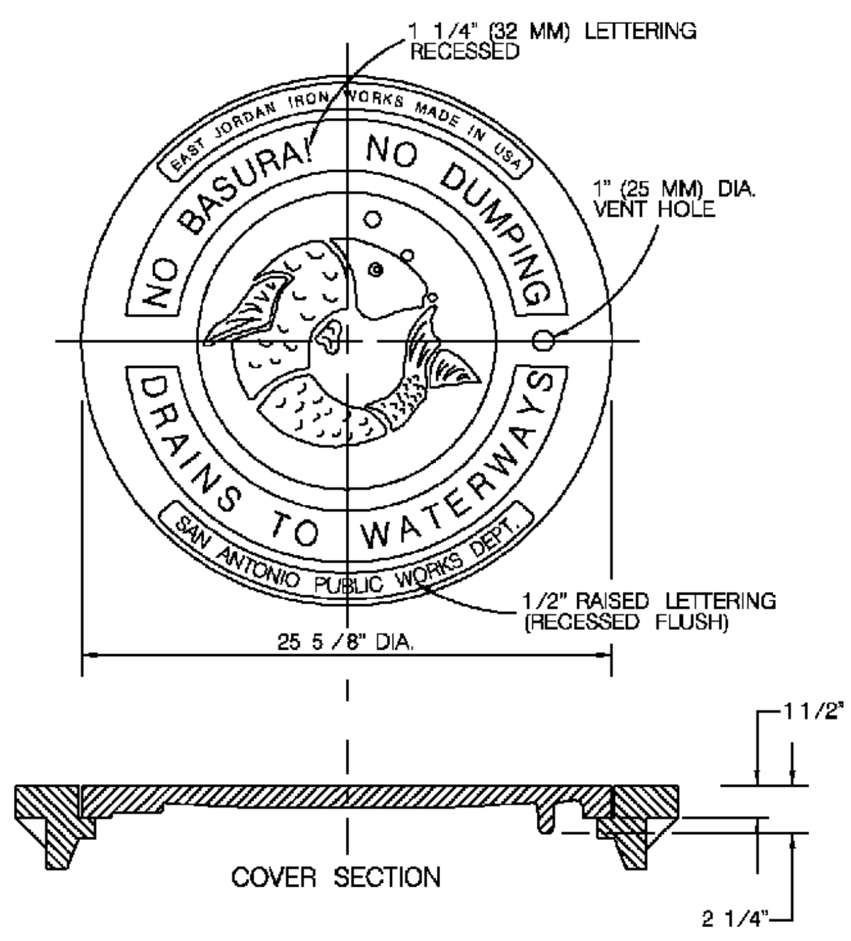


BAR "E"



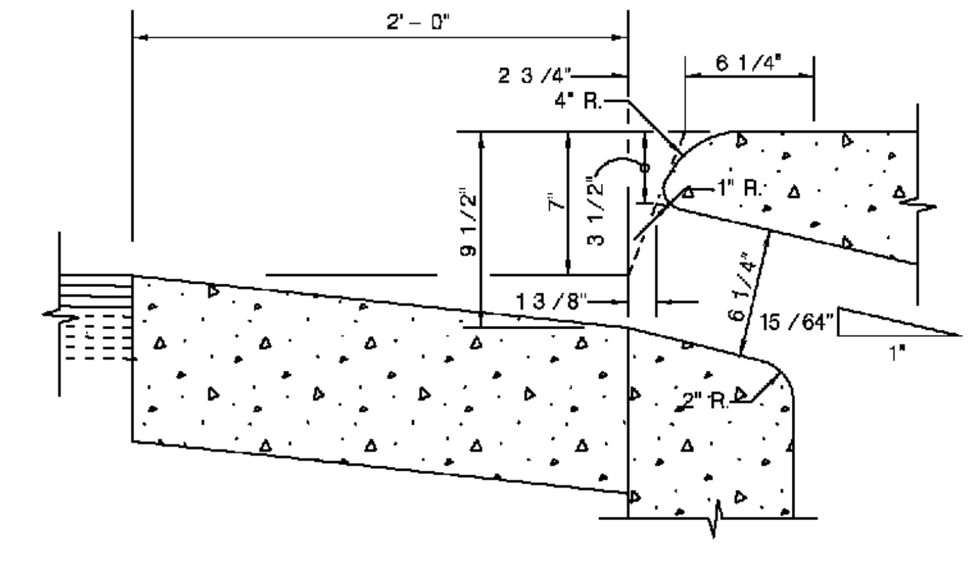
SIDE VIEW

SCALE : 1" = 1'


1 1/4" (32 MM) LETTERING RECESSED
EAST JORDAN IRON WORKS MADE IN USA
NO BASURA
NO DUMPING
DRAINS TO WATERWAYS
SAN ANTONIO PUBLIC WORKS DEPT.
1" (25 MM) DIA. VENT HOLE
1/2" RAISED LETTERING (RECESSED FLUSH)
25 5/8" DIA.
1 1/2"
COVER SECTION
2 1/4"

MANHOLE LID & RING DETAIL (ITEM 409)

SCALE : 1" = 8"

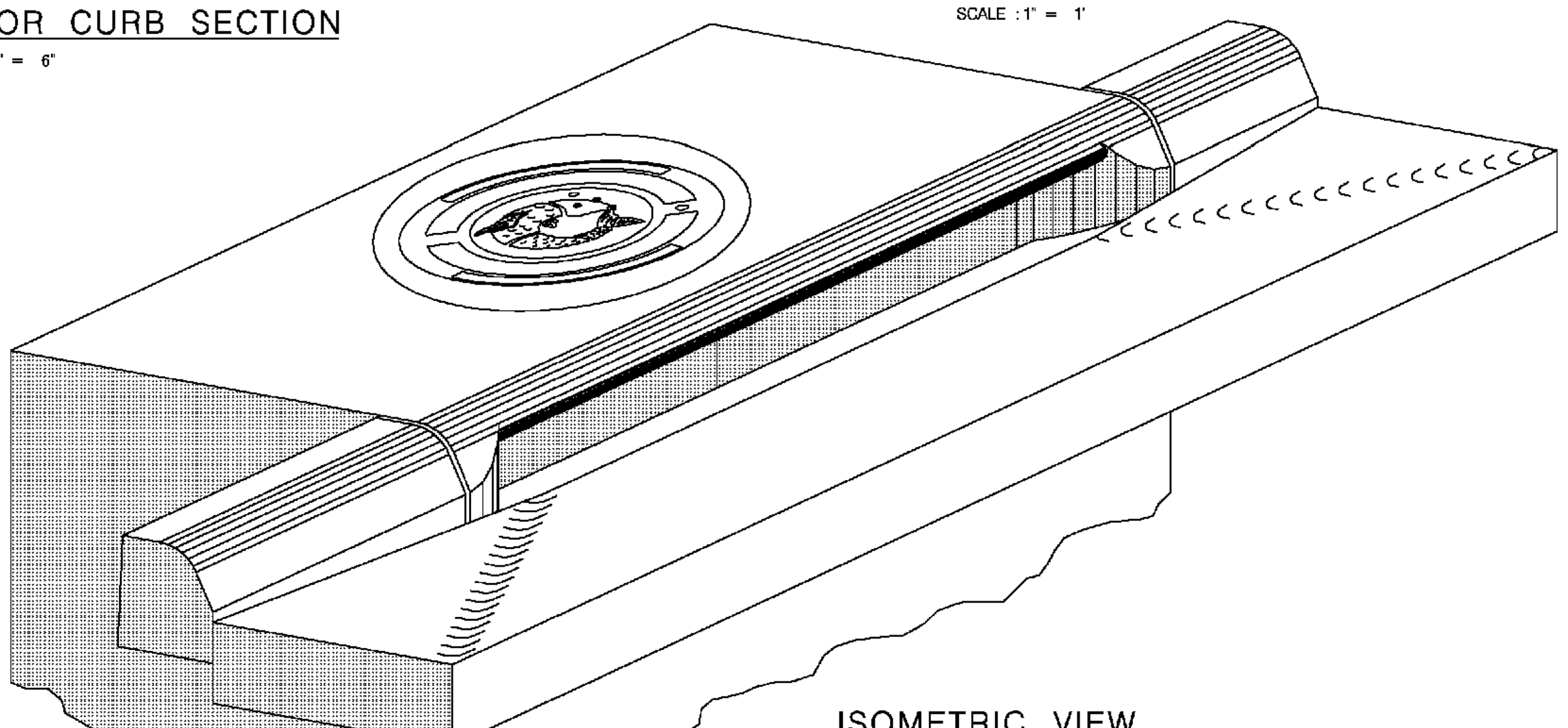


OPENING DETAIL FOR CURB SECTION

SCALE : 1" = 6'

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. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.



ISOMETRIC VIEW

① INLET SIZE	Reinforcing Steel Schedule					
	Bar	No.	Size	Spa.	Length	Weight (lbs.)
L = 20'-0" D = 6'-6" INLET(S): C-1	A	51	4	5" o.c.	18' - 3 1/2"	623.16
	B	51	4	5"	6' - 7 3/4"	226.41
	C	53	4	9"	5' - 0"	177.02
	D	27	4	10"	21' - 1"	380.26
	E	12	4	10 1/2"	8' - 4"	66.80
	F	22	5	12"	2' - 3"	51.63
	G	3	4	12"	25' - 8"	51.44
	H	6	5	12"	1' - 8"	10.43

*Concrete Total = 13.61 c.y. Manhole Casting = 260 lbs. Steel Total = 1587.15 lbs.

② INLET SIZE	Reinforcing Steel Schedule					
	Bar	No.	Size	Spa.	Length	Weight (lbs.)
L = 20'-0" D = 5'-6" INLET(S): C-2	A	51	4	5" o.c.	15' - 9 1/2"	537.99
	B	51	4	5"	6' - 1 3/4"	209.38
	C	51	4	9"	4' - 6"	153.31
	D	25	4	10"	21' - 1"	352.09
	E	12	4	10 1/2"	7' - 4"	58.78
	F	22	5	12"	2' - 3"	51.63
	G	3	4	12"	25' - 8"	51.44
	H	6	5	12"	1' - 8"	10.43

*Concrete Total = 11.77 c.y. Manhole Casting = 260 lbs. Steel Total = 1425.04 lbs.

③ INLET SIZE	Reinforcing Steel Schedule					
	Bar	No.	Size	Spa.	Length	Weight (lbs.)
L = 15'-0" D = 6'-6" INLET(S): D-1	A	39	4	5" o.c.	18' - 9 1/2"	489.56
	B	39	4	5"	7' - 1 3/4"	186.16
	C	46	4	9"	5' - 6"	169.00
	D	28	4	10"	16' - 1"	300.82
	E	13	4	10 1/2"	8' - 4"	72.37
	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 = 10.84 c.y. Manhole Casting = 260 lbs. Steel Total = 1293.35 lbs.

④ INLET SIZE	Reinforcing Steel Schedule					
	Bar	No.	Size	Spa.	Length	Weight (lbs.)
L = 15'-0" D = 6'-0" INLET(S): D-2	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.

⑤ INLET SIZE	Reinforcing Steel Schedule					
	Bar	No.	Size	Spa.	Length	Weight (lbs.)
L = 15'-0" D = 5'-6" INLET(S): E-1	A	39	4	5" o.c.	15' - 9 1/2"	411.40
	B	39	4	5"	6' - 1 3/4"	160.11
	C	44	4	9"	4' - 6"	132.26
	D	25	4	10"	16' - 1"	268.59
	E	12	4	10 1/2"	7' - 4"	58.78
	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 = 9.19 c.y. Manhole Casting = 260 lbs. Steel Total = 1122.90 lbs.

⑥ INLET SIZE	Reinforcing Steel Schedule					
	Bar	No.	Size	Spa.	Length	Weight (lbs.)
L = 15'-0" D = 5'-6" INLET(S): E-2	A	39	4	5" o.c.	15' - 9 1/2"	411.40
	B	39	4	5"	6' - 1 3/4"	160.11
	C	44	4	9"	4' - 6"	132.26
	D	25	4	10"	16' - 1"	268.59
	E	12	4	10 1/2"	7' - 4"	58.78
	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 = 9.19 c.y. Manhole Casting = 260 lbs. Steel Total = 1122.90 lbs.

GENERAL NOTES

1. ALL BARS INTERCEPTING MANHOLE RING & REINFORCING CONCRETE PIPE SHALL BE FIELD CUT.
2. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 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".

JANUARY 2005

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

TYPE "C" INLET
DETAILS

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

CUDEENGINEERS.COM

CUDE
EST. 1980
ENGINEERS

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

GEORGE'S RANCH
UNIT 1

CURB INLET DETAILS - TYPE 'C'

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 07/14/2022 - REVISED DRAIN C INLET CALCS
2.
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
7/18/2022

CUDE ENGINEERS
TBPE No. 455

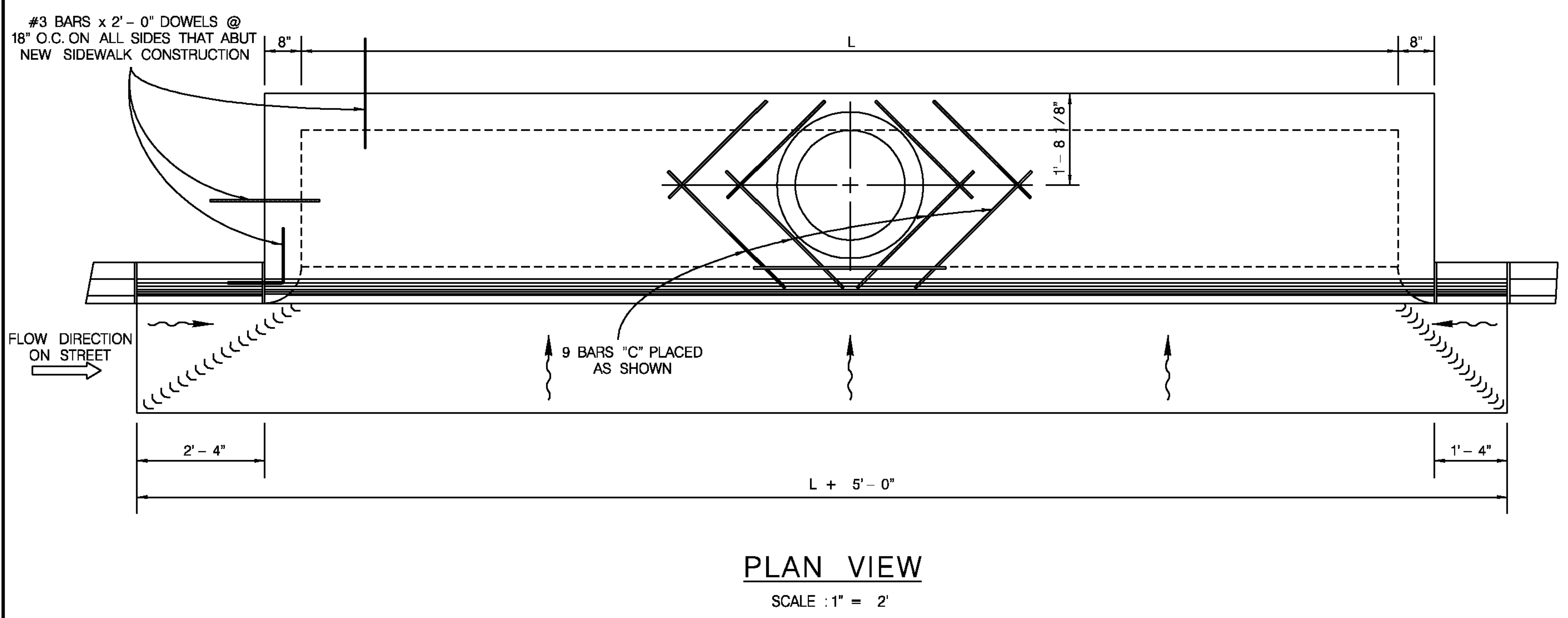
C38

P:\03546\001\2-Drawings\01_120 CITY OF SAN ANTONIO - DRAIN INLET TYPE 'C' DETAILS.dwg 2022/07/18 9:00am wmurphy

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

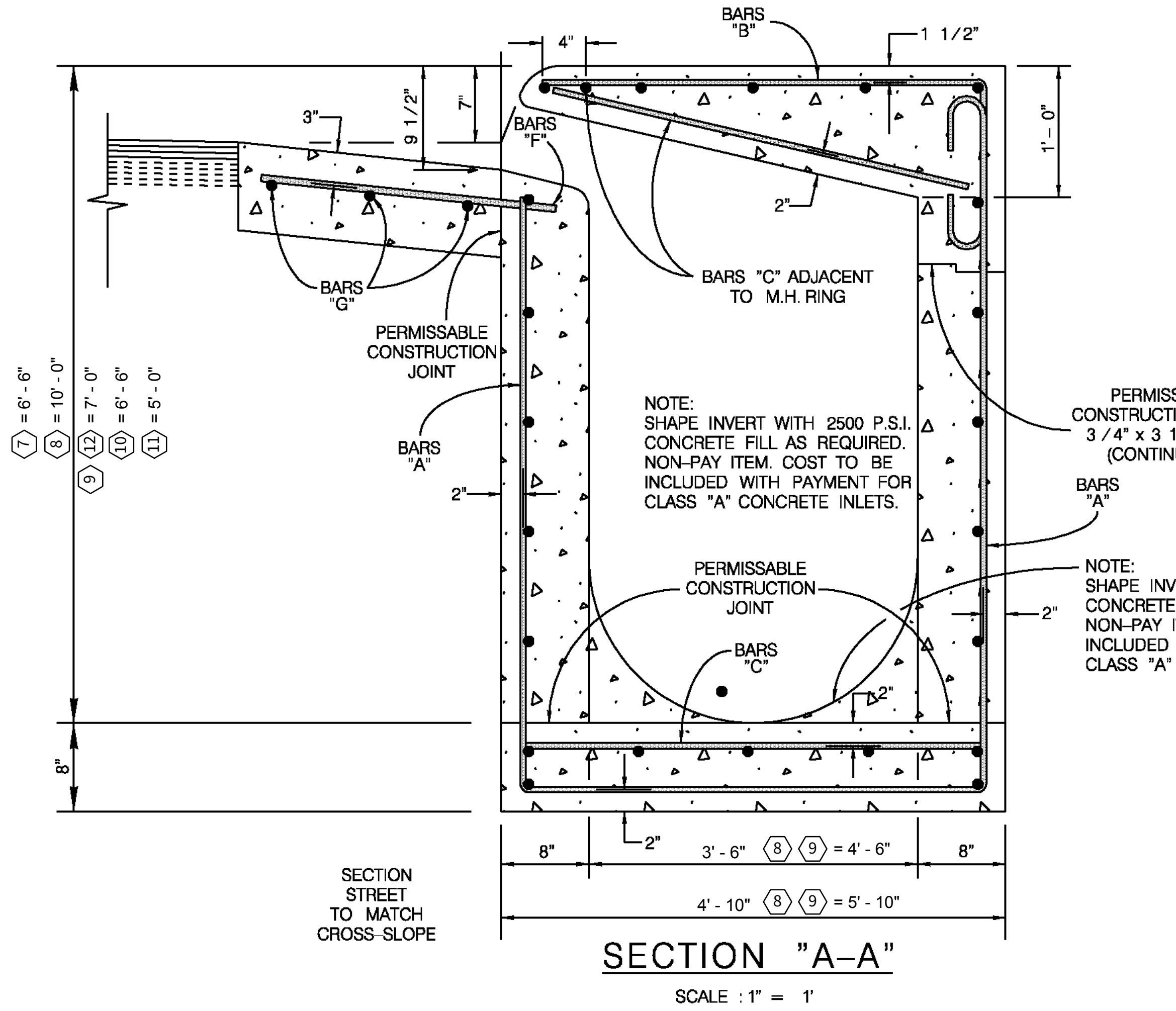
GEORGE'S RANCH UNIT 1

CURB INLET DETAILS - TYPE 'C'


#3 BARS x 2' – 0" DOWELS @ 18" O.C. ON ALL SIDES THAT ABUT NEW SIDEWALK CONSTRUCTION
8"
L
8"
1' – 8 1/8"
FLOW DIRECTION ON STREET
9 BARS "C" PLACED AS SHOWN
2' – 4"
1' – 4"
L + 5' – 0"

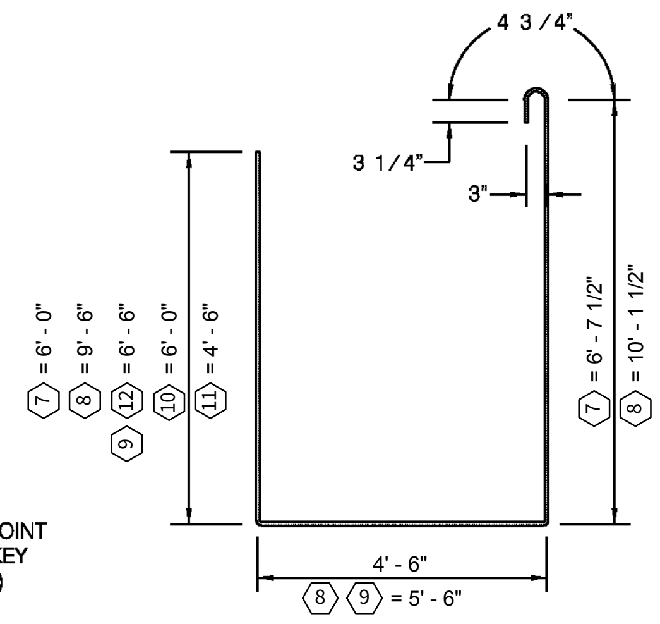
PLAN VIEW

SCALE : 1" = 2'

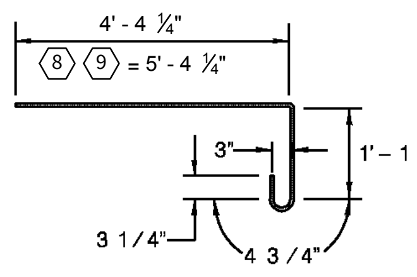

BARS "B"
1 1/2"
4"
3"
9 1/2"
7"
1' – 0"
BARS "F"
2"
BARS "G"
BARS "C" ADJACENT TO M.H. RING
PERMISSABLE CONSTRUCTION JOINT
BARS "A"
NOTE: SHAPE INVERT WITH 2500 P.S.I. CONCRETE FILL AS REQUIRED. NON-PAY ITEM. COST TO BE INCLUDED WITH PAYMENT FOR CLASS "A" CONCRETE INLETS.
PERMISSABLE CONSTRUCTION JOINT 3/4" x 3 1/2" KEY (CONTINUOUS)
BARS "A"
PERMISSABLE CONSTRUCTION JOINT
BARS "C"
NOTE: SHAPE INVERT WITH 2500 P.S.I. CONCRETE FILL AS REQUIRED. NON-PAY ITEM. COST TO BE INCLUDED WITH PAYMENT FOR CLASS "A" CONCRETE INLETS.
2"
⑦ = 6' - 6"
⑧ = 10' - 0"
⑨ ⑫ = 7' - 0"
⑩ = 6' - 6"
⑪ = 5' - 0"
8"
8"
3' - 6" ⑧ ⑨ = 4' - 6"
8"
4' - 10" ⑧ ⑨ = 5' - 10"
SECTION STREET TO MATCH CROSS-SLOPE

SECTION "A–A"

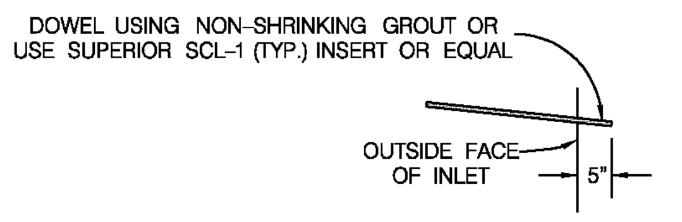
SCALE : 1" = 1'



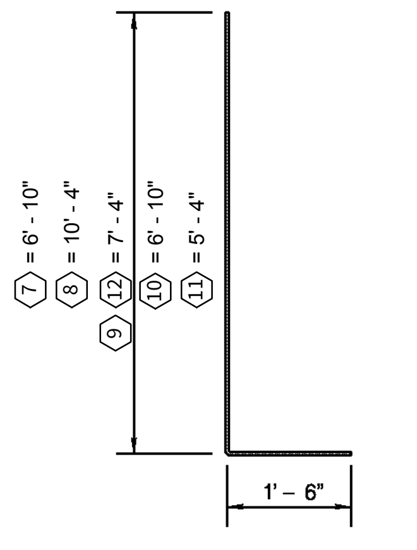
BAR "A"



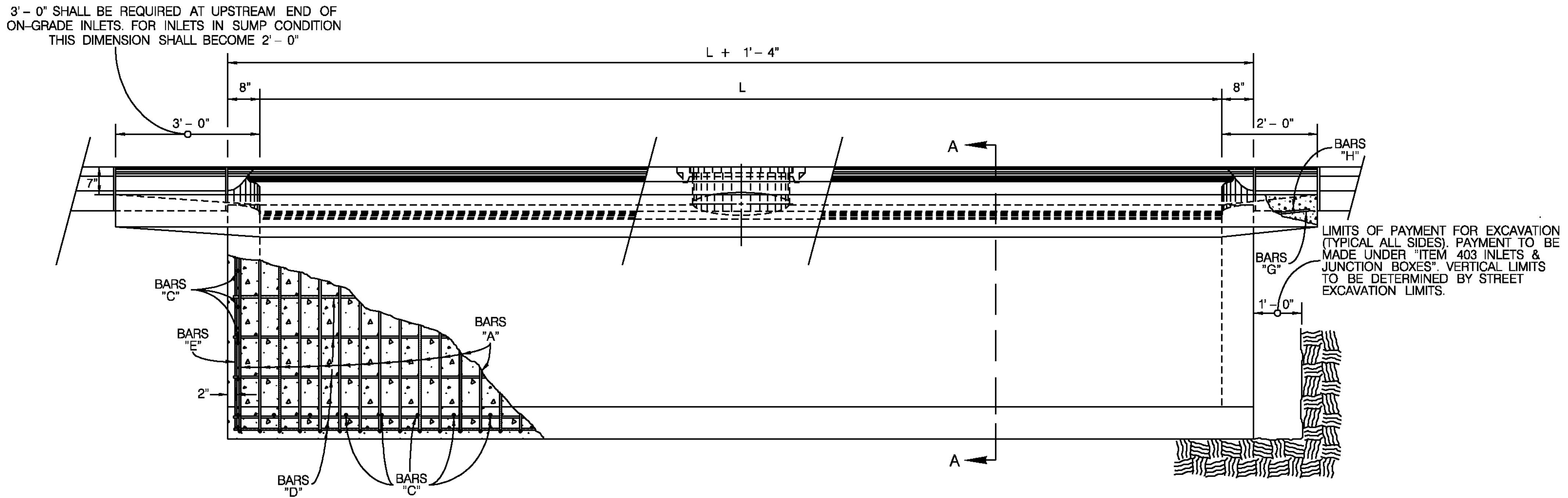
BAR "B"


DOWEL USING NON-SHRINKING GROUT OR USE SUPERIOR SCL-1 (TYP.) INSERT OR EQUAL
OUTSIDE FACE OF INLET
5"

BAR "F"

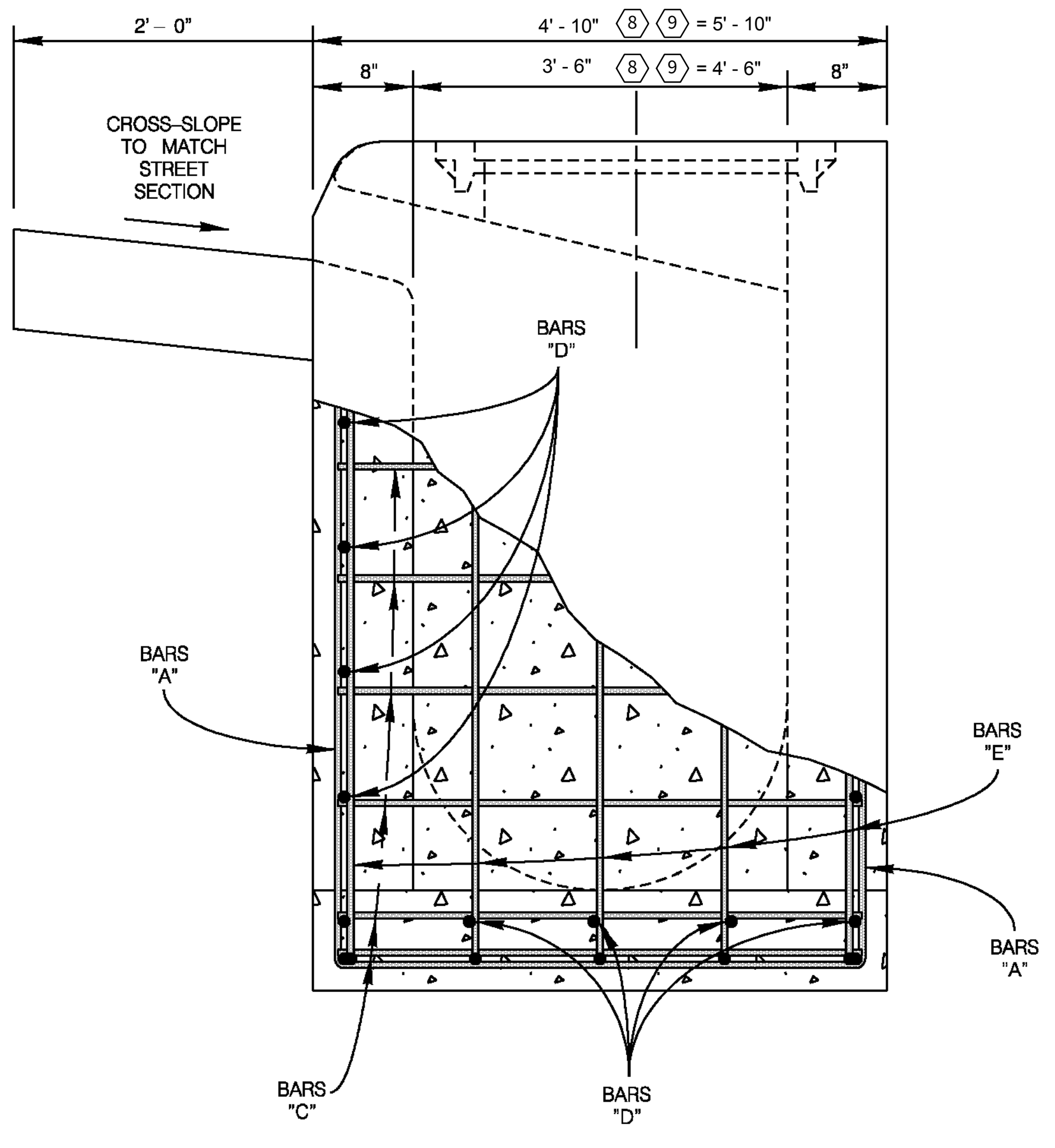


BAR "E"


3' – 0" SHALL BE REQUIRED AT UPSTREAM END OF ON-GRADE INLETS. FOR INLETS IN SUMP CONDITION THIS DIMENSION SHALL BECOME 2' – 0"
L + 1' – 4"
8"
L
8"
3' – 0"
2' – 0"
7"
A
BARS "H"
LIMITS OF PAYMENT FOR EXCAVATION (TYPICAL ALL SIDES). PAYMENT TO BE MADE UNDER "ITEM 403 INLETS & JUNCTION BOXES". VERTICAL LIMITS TO BE DETERMINED BY STREET EXCAVATION LIMITS.
BARS "G"
1' – 0"
BARS "C"
BARS "E"
BARS "A"
2"
BARS "D"
BARS "C"
A

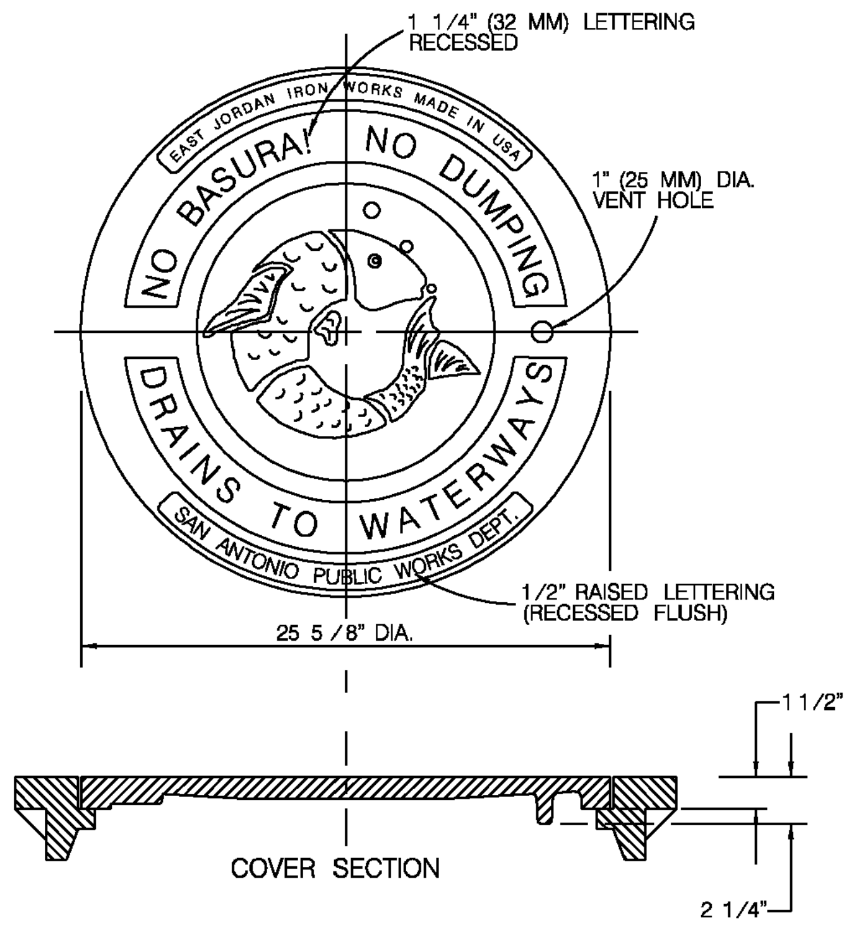
FRONT VIEW

SCALE : 1" = 2'



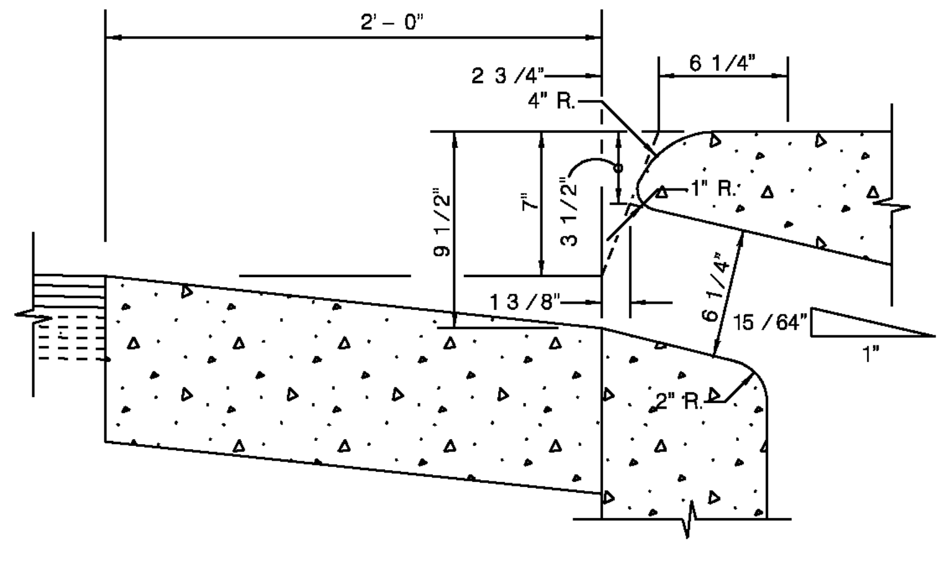
SIDE VIEW

SCALE : 1" = 1'


1 1/4" (32 MM) LETTERING RECESSED
EAST JORDAN IRON WORKS MADE IN USA
NO DUMPING
NO BASURA
DRAINS TO WATERWAYS
SAN ANTONIO PUBLIC WORKS DEPT.
1" (25 MM) DIA. VENT HOLE
1/2" RAISED LETTERING (RECESSED FLUSH)
25 5/8" DIA.
1 1/2"
COVER SECTION
2 1/4"

MANHOLE LID & RING DETAIL (ITEM 409)

SCALE : 1" = 8'

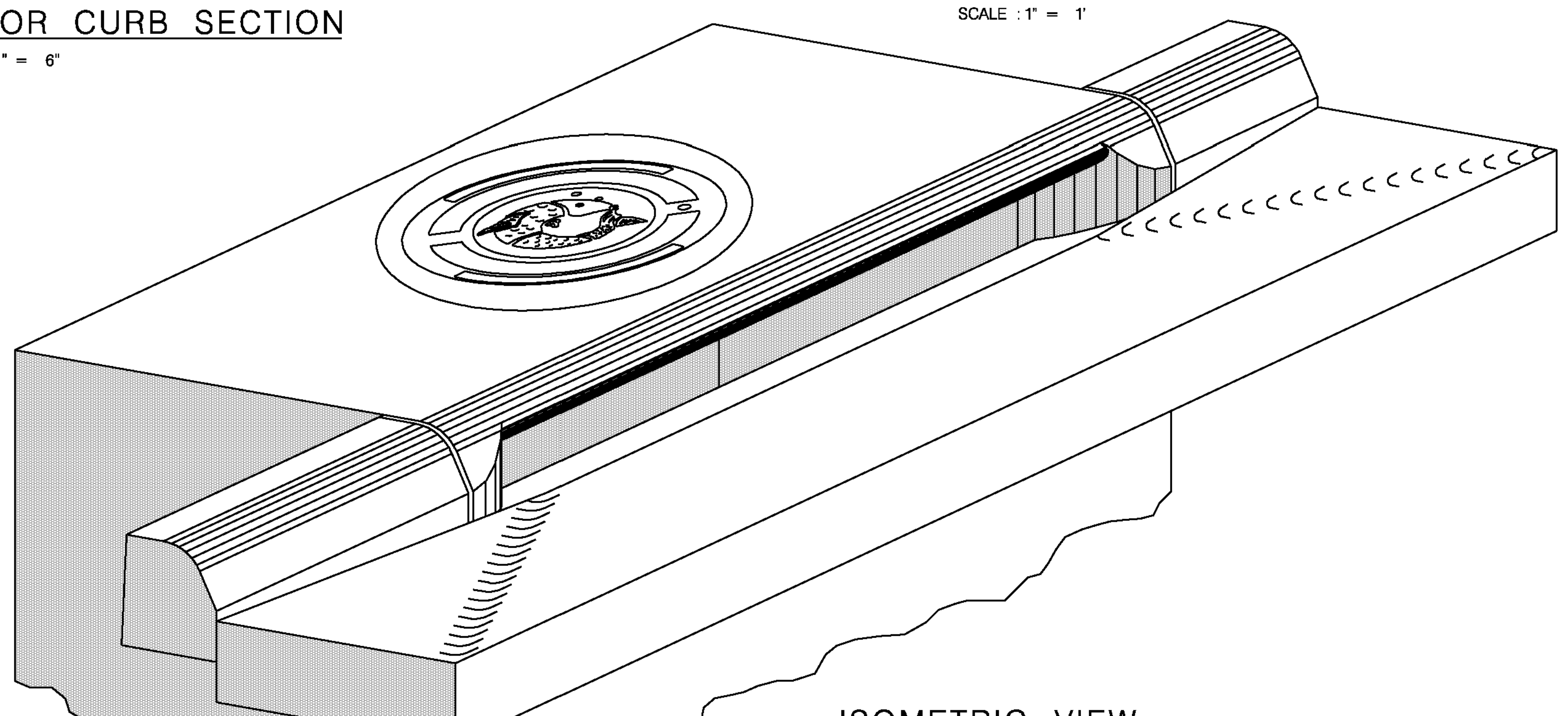


OPENING DETAIL FOR CURB SECTION

SCALE : 1" = 6"

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. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.



ISOMETRIC VIEW

⑦ INLET SIZE — Reinforcing Steel Schedule

L = 25'-0"
D = 6'-6"
INLET(S): F-1

Bar	No.	Size	Spa.	Length	Weight (lbs.)
A	63	4	5" o.c.	17' - 9 1/2"	748.74
B	63	4	5"	6' - 1 3/4"	258.64
C	60	4	9"	4' - 6"	180.36
D	27	4	10"	26' - 1"	470.44
E	12	4	10 1/2"	8' - 4"	66.80
F	27	5	12"	2' - 3"	63.36
G	3	4	12"	30' - 8"	61.46
H	6	5	12"	1' - 8"	10.43

*Concrete Total = 15.82 c.y. Manhole Casting = 260 lbs. Steel Total = 1860.23 lbs.

⑧ INLET SIZE — Reinforcing Steel Schedule

L = 15'-0"
D = 10'-0"
INLET(S): G-1

Bar	No.	Size	Spa.	Length	Weight (lbs.)
A	39	4	5" o.c.	25' - 3 1/2"	671.93
B	39	4	5"	7' - 1 3/4"	186.17
C	55	4	9"	5' - 6"	201.41
D	31	4	10"	16' - 1"	333.05
E	12	4	10 1/2"	11' - 4"	94.86
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 = 14.44 c.y. Manhole Casting = 260 lbs. Steel Total = 1579.16 lbs.

⑨ INLET SIZE — Reinforcing Steel Schedule

L = 30'-0"
D = 7'-0"
INLET(S): G-2

Bar	No.	Size	Spa.	Length	Weight (lbs.)
A	75	4	5" o.c.	19' - 3 1/2"	991.56
B	75	4	5"	7' - 1 3/4"	358.01
C	67	4	9"	5' - 6"	245.48
D	28	4	10"	31' - 1"	560.62
E	12	4	10 1/2"	8' - 4"	66.80
F	32	5	12"	2' - 3"	75.10
G	3	4	12"	35' - 8"	71.48
H	6	5	12"	1' - 8"	10.43

*Concrete Total = 20.52 c.y. Manhole Casting = 260 lbs. Steel Total = 2379.48 lbs.

⑩ INLET SIZE — Reinforcing Steel Schedule

L = 15'-0"
D = 6'-6"
INLET(S): G-3

Bar	No.	Size	Spa.	Length	Weight (lbs.)
A	39	4	5" o.c.	17' - 9 1/2"	463.51
B	39	4	5"	6' - 1 3/4"	160.11
C	46	4	9"	4' - 6"	138.28
D	27	4	10"	16' - 1"	290.08
E	12	4	10 1/2"	8' - 4"	66.80
F	17	5	12"	2' - 3"	39.89
G	3	4	12"	19' - 8"	39.41
H	5	5	12"	1' - 8"	8.69

*Concrete Total = 10.17 c.y. Manhole Casting = 260 lbs. Steel Total = 1206.77 lbs.

⑪ INLET SIZE — Reinforcing Steel Schedule

L = 15'-0"
D = 5'-0"
INLET(S): G-4

Bar	No.	Size	Spa.	Length	Weight (lbs.)
A	39	4	5" o.c.	14' - 9 1/2"	385.35
B	39	4	5"	6' - 1 3/4"	160.11
C	43	4	9"	4' - 6"	129.26
D	24	4	10"	16' - 1"	257.85
E	12	4	10 1/2"	6' - 10"	54.78
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 = 8.70 c.y. Manhole Casting = 260 lbs. Steel Total = 1079.09 lbs.

3

⑫ INLET SIZE — Reinforcing Steel Schedule

L = 10'-0"
D = 7'-0"
INLET(S): I-1

Bar	No.	Size	Spa.	Length	Weight (lbs.)
A	27	4	5" o.c.	18' - 9 1/2"	338.93
B	27	4	5"	6' - 1 3/4"	110.85
C	41	4	9"	4' - 6"	123.25
D	28	4	10"	11' - 1"	207.30
E	12	4	10 1/2"	8' - 10"	70.81
F	12	5	12"	2' - 3"	28.16
G	3	4	12"	15' - 8"	31.40
H	6	5	12"	1' - 8"	10.43

*Concrete Total = 7.72 c.y. Manhole Casting = 260 lbs. Steel Total = 921.12 lbs.

GENERAL NOTES

1. ALL BARS INTERCEPTING MANHOLE RING & REINFORCING CONCRETE PIPE SHALL BE FIELD CUT.
2. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 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".

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
			DATE:
CHECKED BY: NAT HARDY, P.E.			SHEET: OF

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

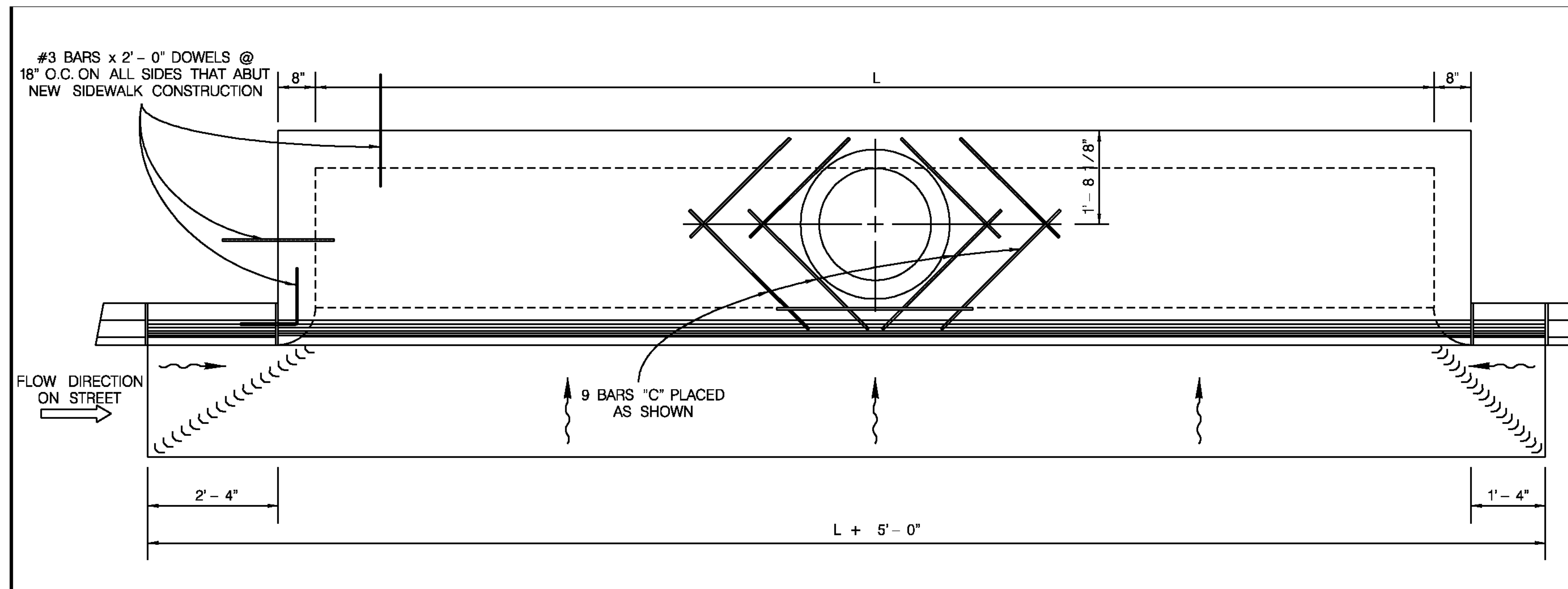
CHECKED BY
WPM

REVISIONS
1. 2022-07-14 - REVISED DRAIN F & G INLET CALCS
2. 2022-09-26 - REVISED INLET 'I-1' DEPTH
3. 02/28/2023 - DRAINAGE REVISION
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
3/3/2023

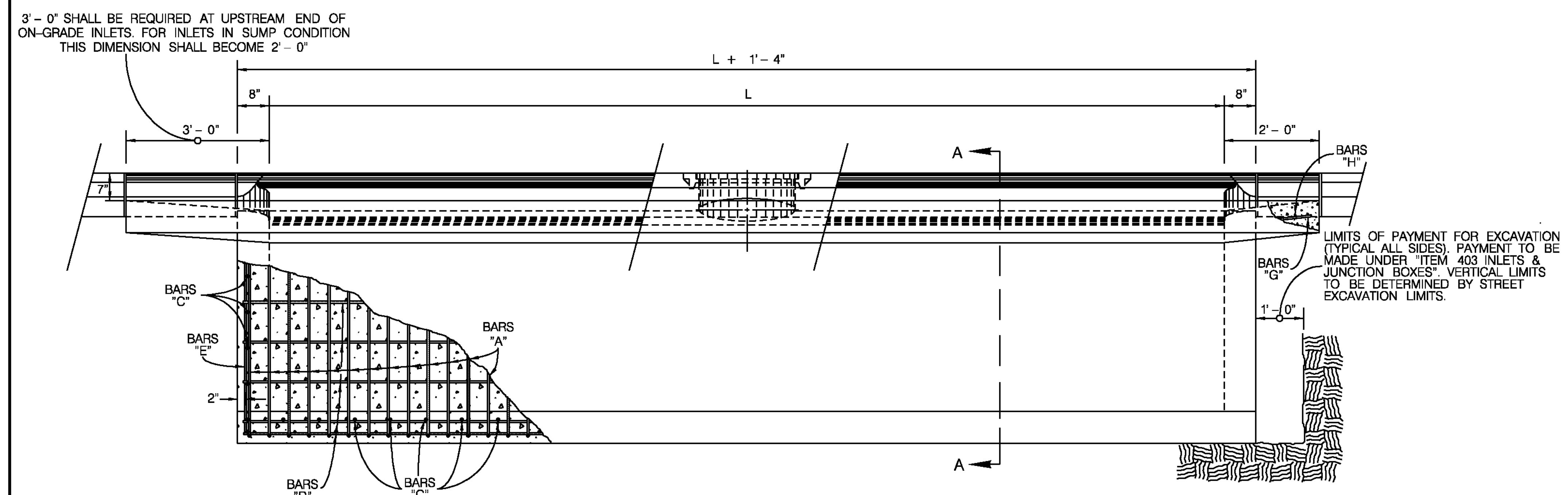
CUDE ENGINEERS
TBPE No. 455

C39


#3 BARS x 2' – 0" DOWELS @ 18" O.C. ON ALL SIDES THAT ABUT NEW SIDEWALK CONSTRUCTION
8"
L
8"
1' – 8 1/8"
FLOW DIRECTION ON STREET
9 BARS "C" PLACED AS SHOWN
2' – 4"
1' – 4"
L + 5' – 0"

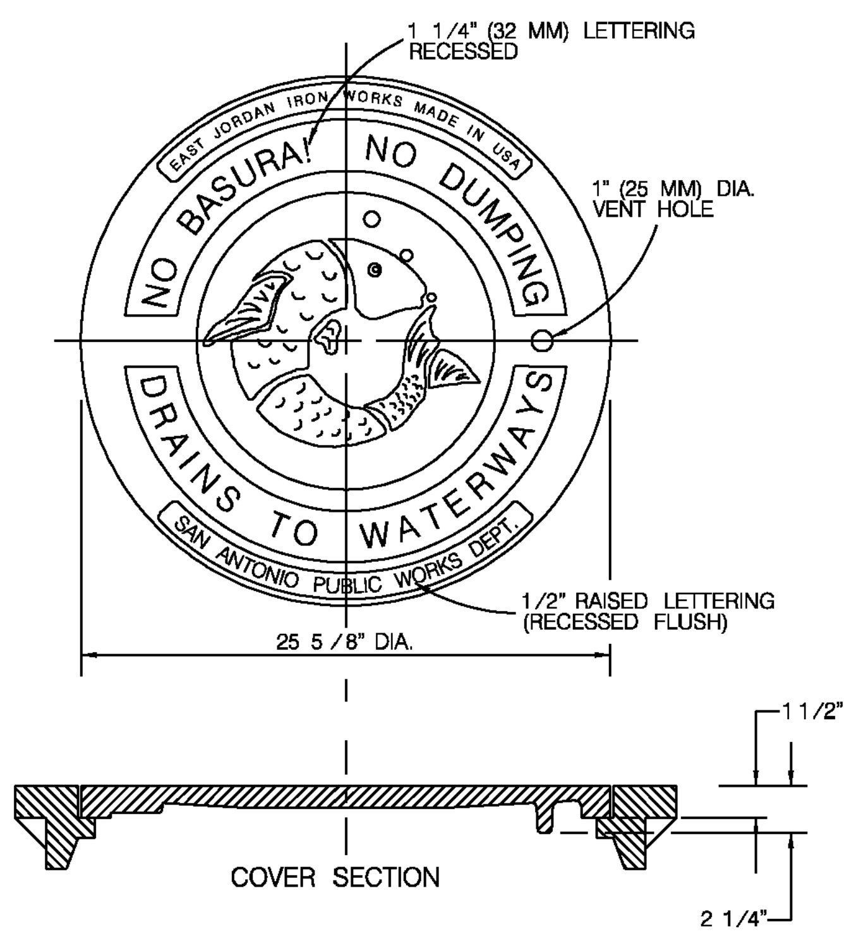
PLAN VIEW

SCALE : 1" = 2'


3' – 0" SHALL BE REQUIRED AT UPSTREAM END OF ON-GRADE INLETS. FOR INLETS IN SUMP CONDITION THIS DIMENSION SHALL BECOME 2' – 0"
L + 1' – 4"
8"
L
8"
3' – 0"
2' – 0"
7"
A
A
BARS "H"
LIMITS OF PAYMENT FOR EXCAVATION (TYPICAL ALL SIDES). PAYMENT TO BE MADE UNDER "ITEM 403 INLETS & JUNCTION BOXES". VERTICAL LIMITS TO BE DETERMINED BY STREET EXCAVATION LIMITS.
BARS "G"
1' – 0"
BARS "C"
BARS "E"
BARS "A"
2"
BARS "D"
BARS "C"

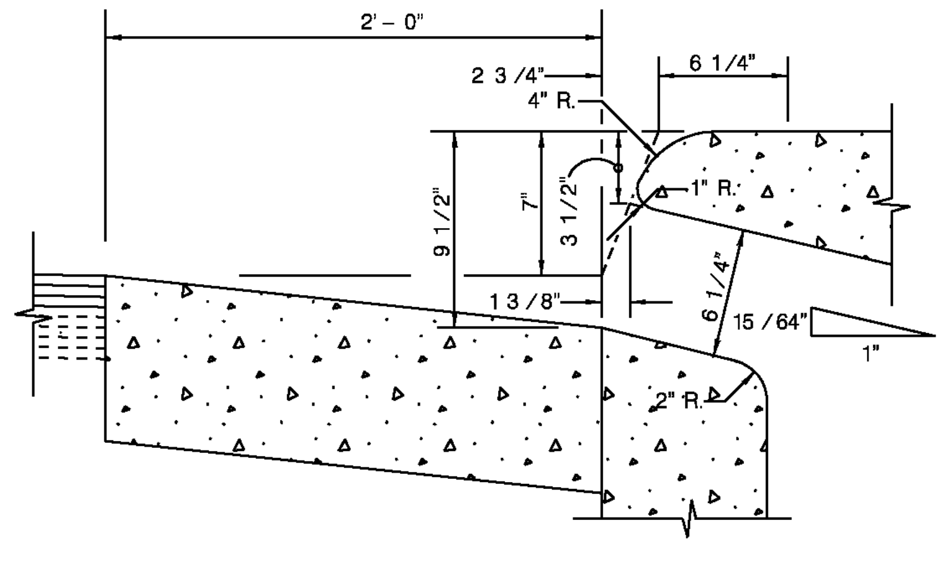
FRONT VIEW

SCALE : 1" = 2'


1 1/4" (32 MM) LETTERING RECESSED
EAST JORDAN IRON WORKS MADE IN USA
NO BASURA! NO DUMPING
DRAINS TO WATERWAYS
SAN ANTONIO PUBLIC WORKS DEPT.
1" (25 MM) DIA. VENT HOLE
1/2" RAISED LETTERING (RECESSED FLUSH)
25 5/8" DIA.
1 1/2"
COVER SECTION
2 1/4"

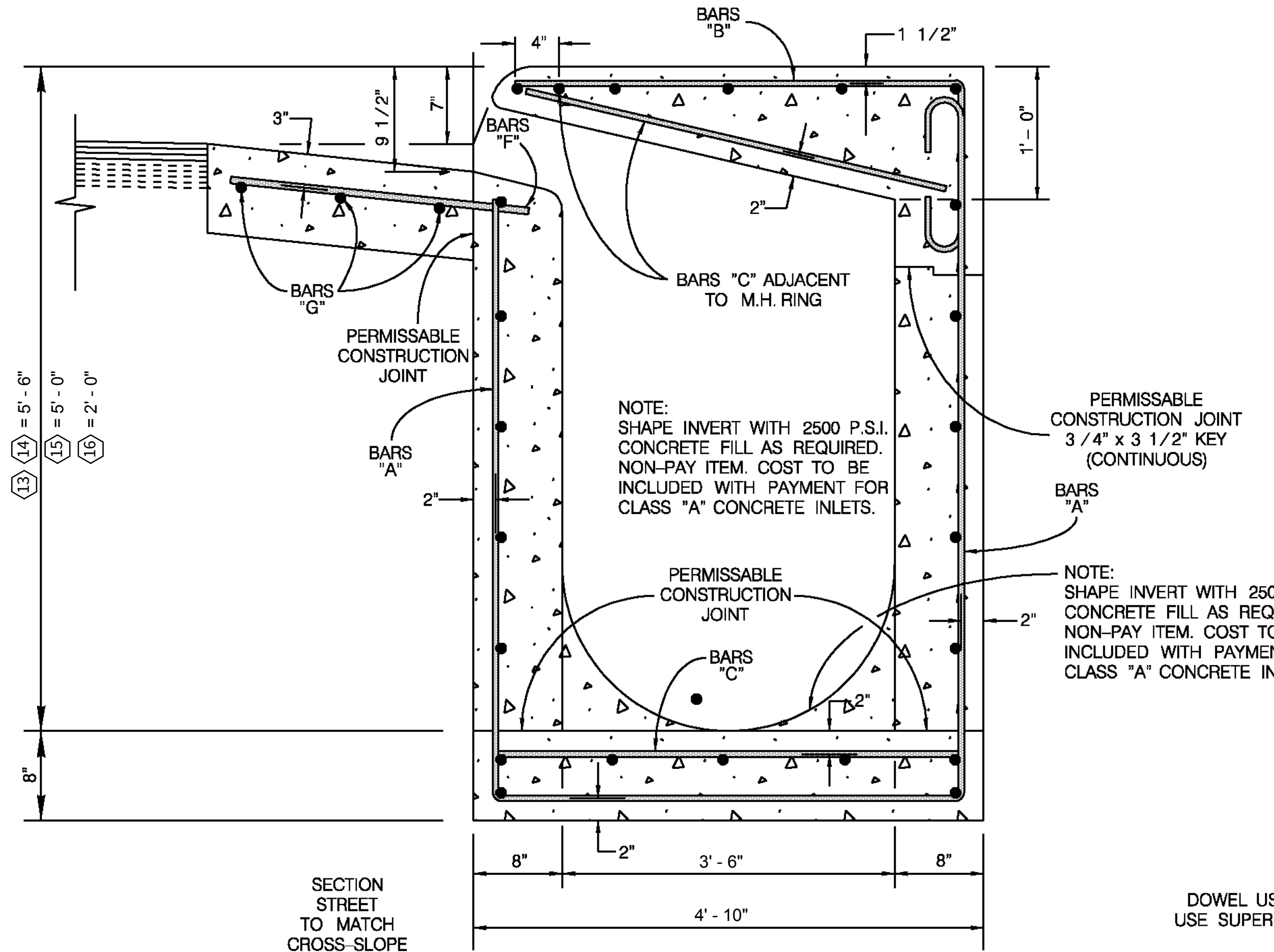
MANHOLE LID & RING DETAIL
(ITEM 409)

SCALE : 1" = 8"



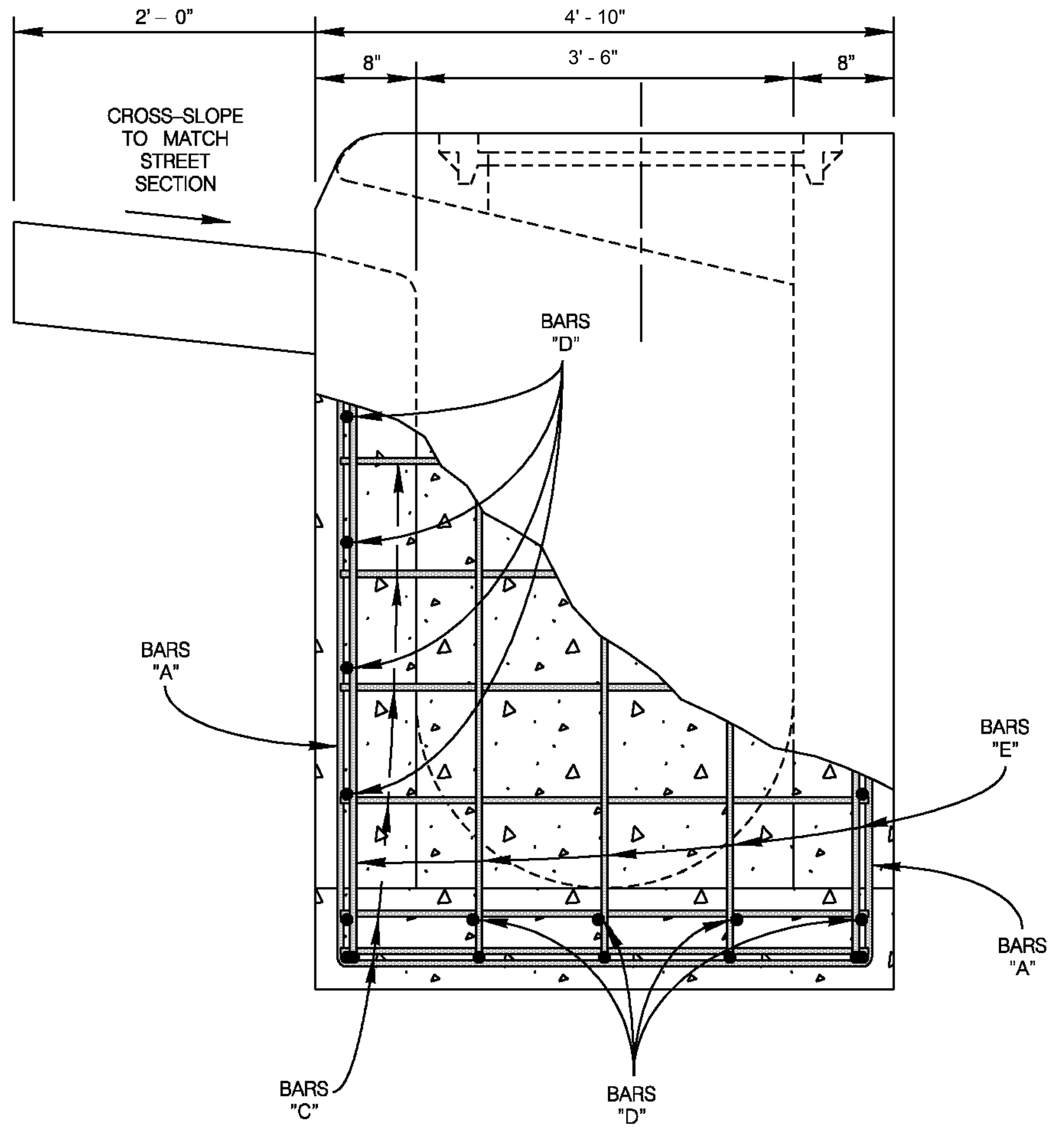
OPENING DETAIL FOR CURB SECTION

SCALE : 1" = 6"


BARS "B"
4"
1 1/2"
3"
9 1/2"
7"
BARS "F"
1' – 0"
2"
BARS "G"
BARS "C" ADJACENT TO M.H. RING
PERMISSABLE CONSTRUCTION JOINT
13 14 = 5' - 6"
15 = 5' - 0"
16 = 2' - 0"
BARS "A"
NOTE: SHAPE INVERT WITH 2500 P.S.I. CONCRETE FILL AS REQUIRED. NON-PAY ITEM. COST TO BE INCLUDED WITH PAYMENT FOR CLASS "A" CONCRETE INLETS.
PERMISSABLE CONSTRUCTION JOINT 3/4" x 3 1/2" KEY (CONTINUOUS)
BARS "A"
2"
PERMISSABLE CONSTRUCTION JOINT
BARS "C"
NOTE: SHAPE INVERT WITH 2500 P.S.I. CONCRETE FILL AS REQUIRED. NON-PAY ITEM. COST TO BE INCLUDED WITH PAYMENT FOR CLASS "A" CONCRETE INLETS.
2"
8"
8"
3' - 6"
8"
2"
4' - 10"
SECTION STREET TO MATCH CROSS-SLOPE

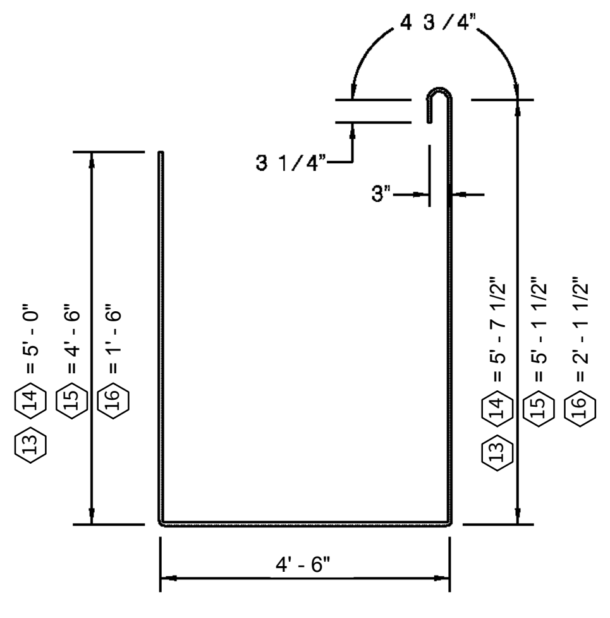
SECTION "A–A"

SCALE : 1" = 1'

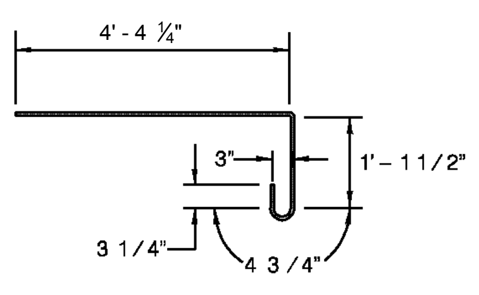


SIDE VIEW

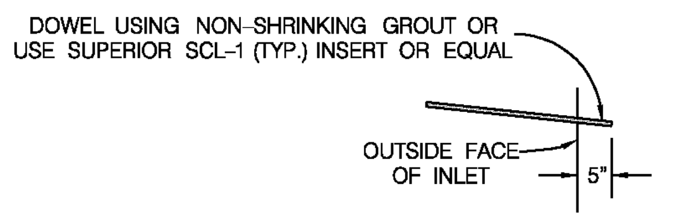
SCALE : 1" = 1'



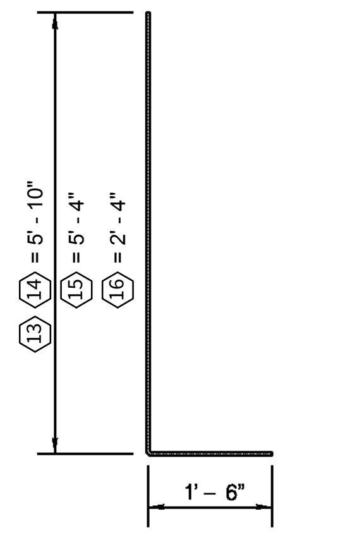
BAR "A"



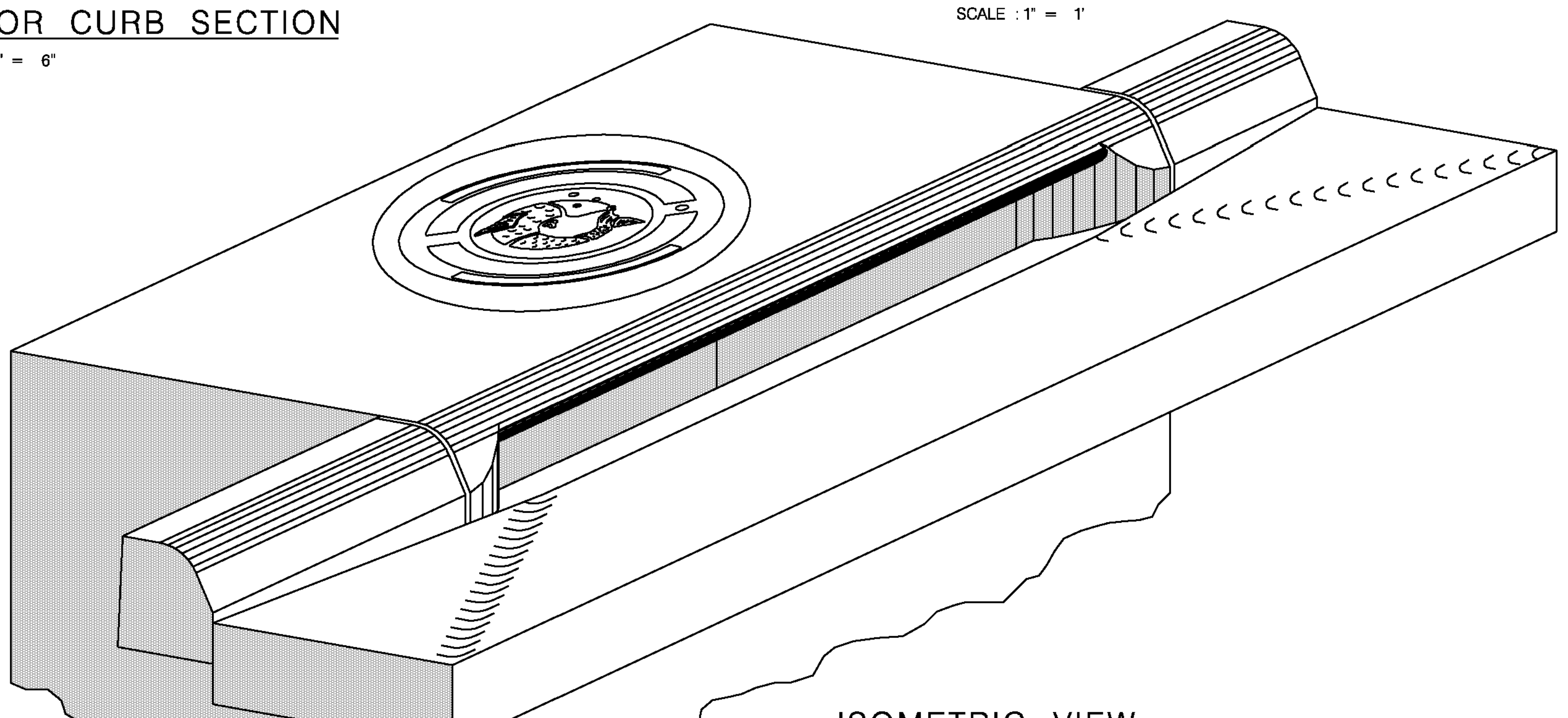
BAR "B"


DOWEL USING NON-SHRINKING GROUT OR USE SUPERIOR SCL-1 (TYP.) INSERT OR EQUAL
OUTSIDE FACE OF INLET
5"

BAR "F"



BAR "E"



ISOMETRIC VIEW

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. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.

3

Reinforcing Steel Schedule

13 INLET SIZE	Bar	No.	Size	Spa.	Length	Weight (lbs.)
L = 10'-0" D = 5'-6" INLET(S): I-2	A	27	4	5" o.c.	15' - 9 1/2"	284.82
	B	27	4	5"	6' - 1 3/4"	110.85
	C	38	4	9"	4' - 6"	114.23
	D	25	4	10"	11' - 1"	185.09
	E	12	4	10 1/2"	7' - 4"	58.78
	F	12	5	12"	2' - 3"	28.16
	G	3	4	12"	15' - 8"	31.40
	H	6	5	12"	1' - 8"	10.43

*Concrete Total = 6.62 c.y. Manhole Casting = 260 lbs. Steel Total = 823.76 lbs.

Reinforcing Steel Schedule

14 INLET SIZE	Bar	No.	Size	Spa.	Length	Weight (lbs.)
L = 20'-0" D = 5'-6" INLET(S): J-1	A	51	4	5" o.c.	15' - 9 1/2"	537.99
	B	51	4	5"	6' - 1 3/4"	209.38
	C	51	4	9"	4' - 6"	153.31
	D	25	4	10"	21' - 1"	352.09
	E	12	4	10 1/2"	7' - 4"	58.78
	F	22	5	12"	2' - 3"	51.63
	G	3	4	12"	25' - 8"	51.44
	H	6	5	12"	1' - 8"	10.43

*Concrete Total = 11.77 c.y. Manhole Casting = 260 lbs. Steel Total = 1425.04 lbs.

Reinforcing Steel Schedule

15 INLET SIZE	Bar	No.	Size	Spa.	Length	Weight (lbs.)
L = 20'-0" D = 5'-0" INLET(S): J-2	A	51	4	5" o.c.	14' - 9 1/2"	503.92
	B	51	4	5"	6' - 1 3/4"	209.38
	C	50	4	9"	4' - 6"	150.30
	D	24	4	10"	21' - 1"	338.01
	E	12	4	10 1/2"	6' - 10"	54.78
	F	22	5	12"	2' - 3"	51.63
	G	3	4	12"	25' - 8"	51.44
	H	6	5	12"	1' - 8"	10.43

*Concrete Total = 11.16 c.y. Manhole Casting = 260 lbs. Steel Total = 1369.88 lbs.

Reinforcing Steel Schedule

16 INLET SIZE	Bar	No.	Size	Spa.	Length	Weight (lbs.)
L = 5'-0" D = 2'-0" INLET(S): L-1	A	15	4	5" o.c.	8' - 9 1/2"	88.09
	B	15	4	5"	6' - 1 3/4"	61.58
	C	22	4	9"	4' - 6"	66.13
	D	18	4	10"	6' - 1"	73.15
	E	12	4	10 1/2"	3' - 10"	30.73
	F	6	5	12"	2' - 3"	14.08
	G	3	4	12"	10' - 8"	21.38
	H	6	5	12"	1' - 8"	10.43

*Concrete Total = 2.34 c.y. Manhole Casting = 260 lbs. Steel Total = 365.57 lbs.

GENERAL NOTES

1. ALL BARS INTERCEPTING MANHOLE RING & REINFORCING CONCRETE PIPE SHALL BE FIELD CUT.
2. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 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".

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
			DATE:
CHECKED BY: NAT HARDY, P.E.			SHEET: OF

CUDEENGINEERS.COM

CUDE
EST. 1980
ENGINEERS

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

GEORGE'S RANCH
UNIT 1

CURB INLET DETAILS - TYPE 'C'

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

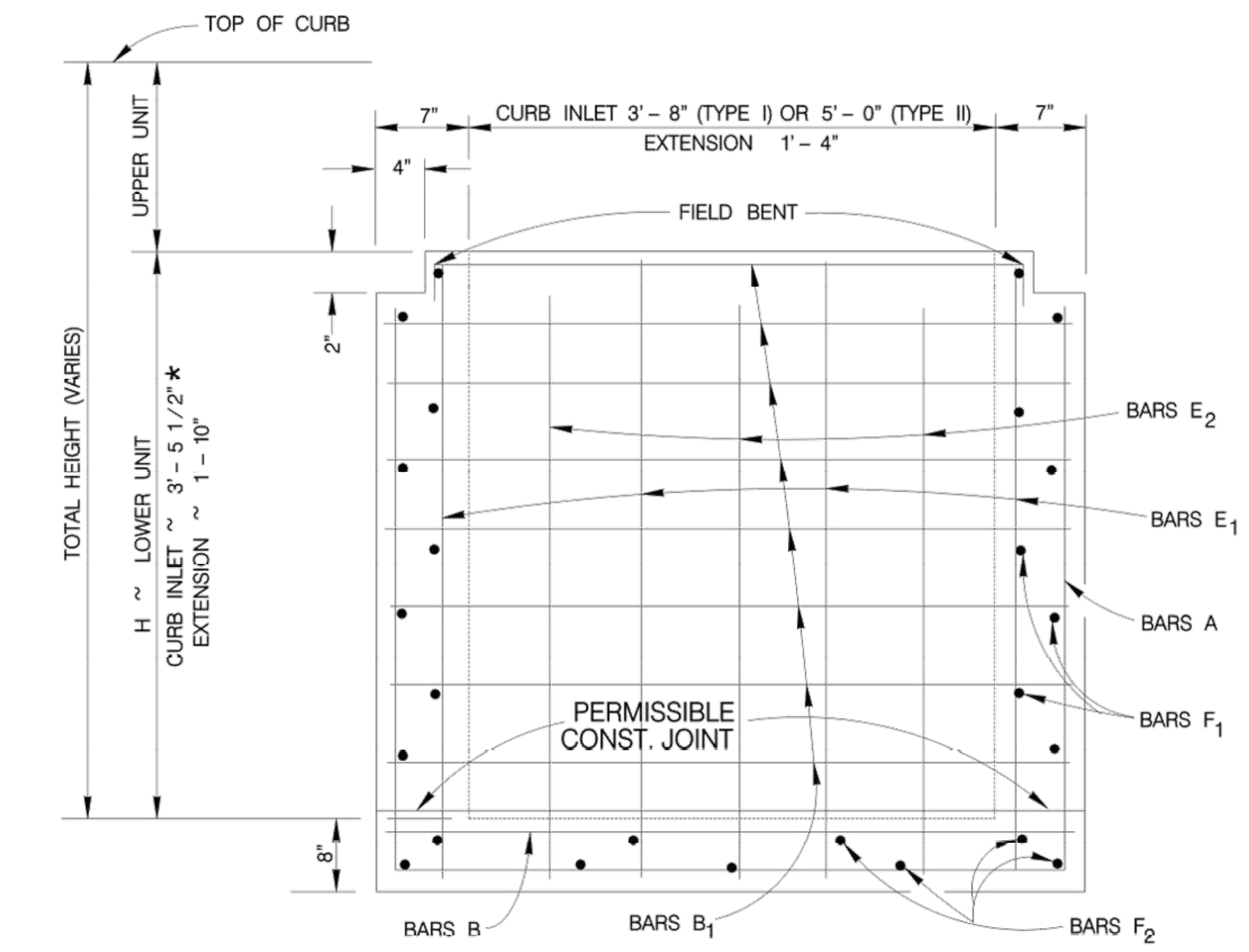
REVISIONS
1. 07/14/2022 - REVISED SHEET NUMBERS
2.
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
3/3/2023

CUDE ENGINEERS
TBPE No. 455

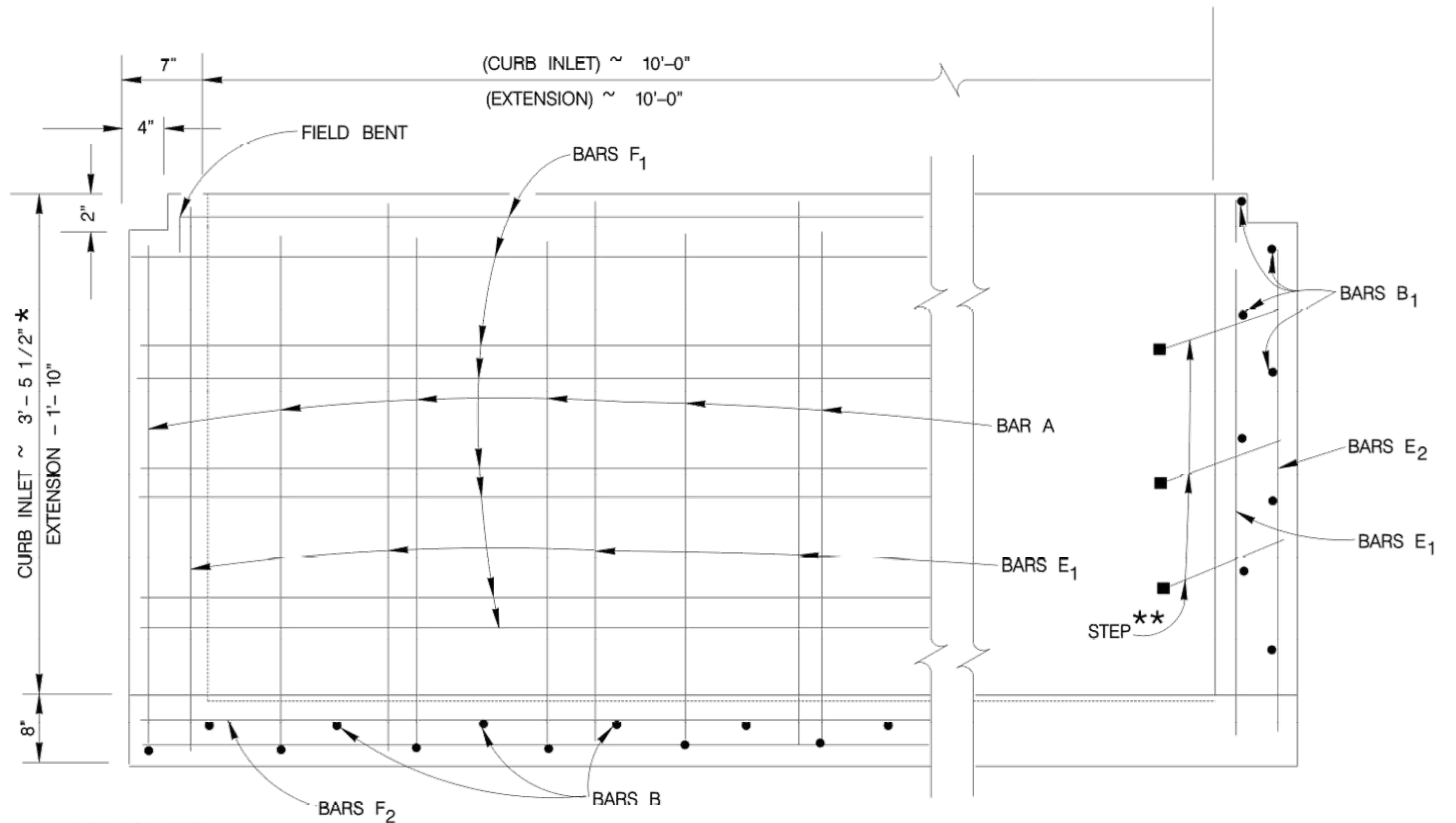
C40

P:\03546\001\2-Drawings\01_120 CITY OF SAN ANTONIO - DRAIN INLET TYPE 'C' DETAILS.dwg 2023/03/01 5:27pm rreyes



* VARIES FOR EXTRA DEPTH INLETS

SECTION A–A



* VARIES FOR EXTRA DEPTH INLETS

** LOCATION OF STEPS IN CURB INLET (LOWER UNIT) ONLY, WILL BE DETERMINED BY THE LOCATION OF RING COVER PLACEMENT. STEPS @ 15" O.C.

SECTION B–B

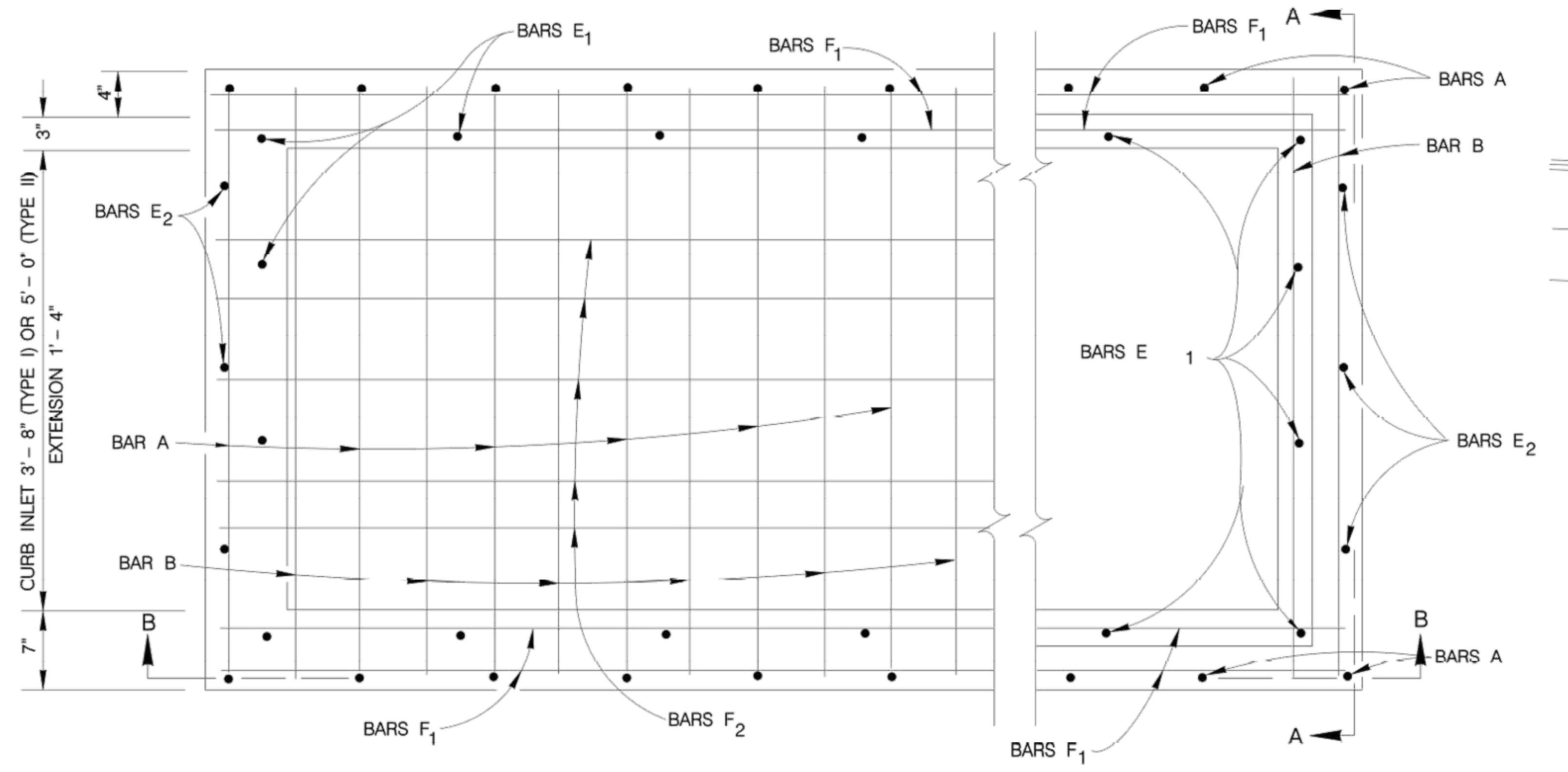
REINFORCING STEEL

LOWER UNIT 10' X 3' – 8" (TYPE I)				
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	4'–6"
B_1	VARIES	#4	12"	4'–6"
E_1	20	#4	18"±	VARIES
E_2	6	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'–10"
F_2	9	#4	—	10'–10"

LOWER UNIT 10' X 5' – 0" (TYPE II)				
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	5'–10"
B_1	VARIES	#4	12"	5'–10"
E_1	22	#4	18"±	VARIES
E_2	8	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'–10"
F_2	11	#4	—	10'–10"

GENERAL NOTES

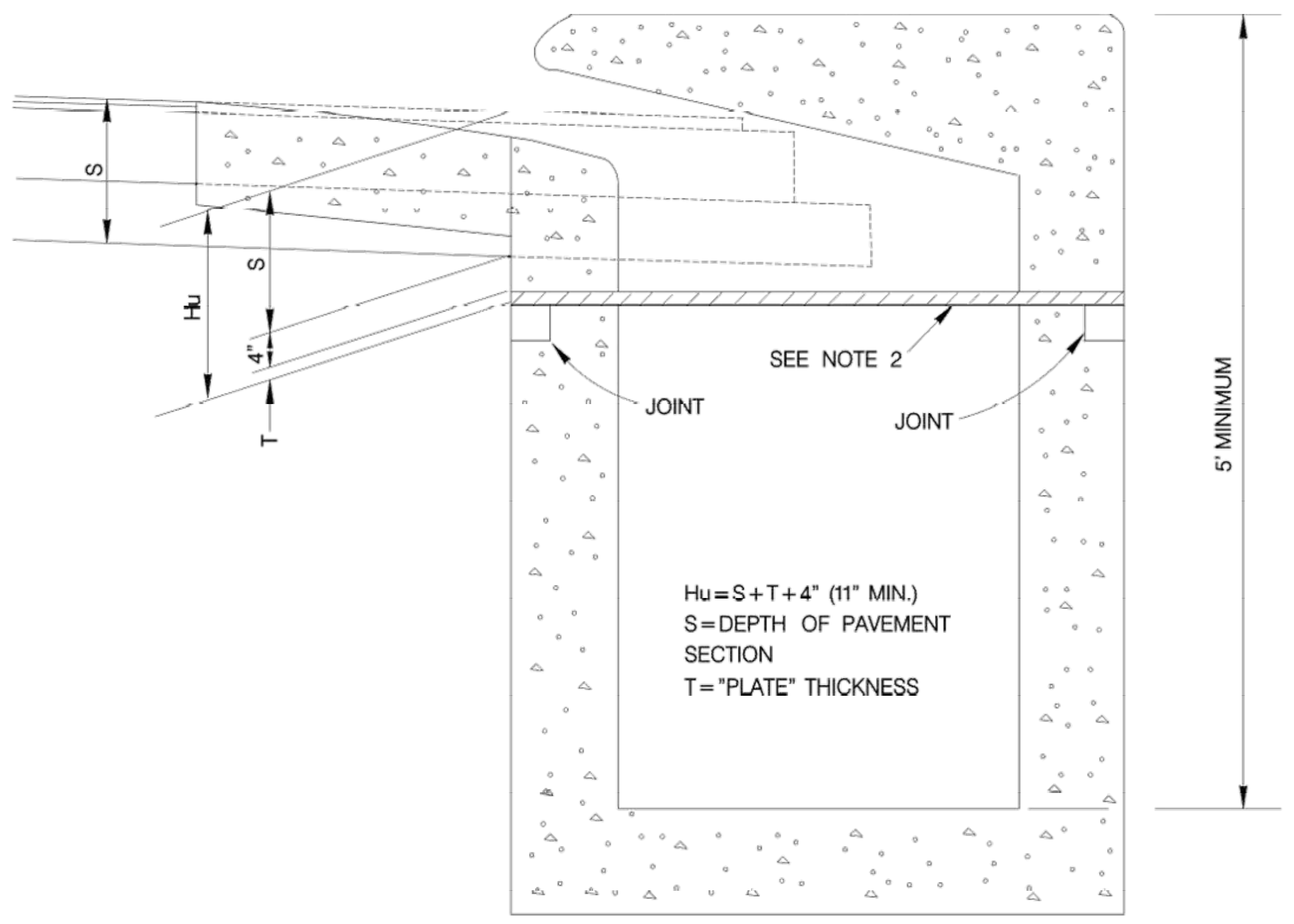
1. 5' INLETS AND 5' EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE E (IL–C).
2. TYPE C–II INLET TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN–LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTORS INFORMATION ONLY.
4. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
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.S.T.M. A–615, GRADE 60 REQUIREMENTS.
8. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
9. DEPRESSION SLAB SHALL RECEIVE A WOOD FLOAT FINISH.
10. FACE OF INLET TO CONFORM TO FACE OF CURB LINE.
11. ALL BARS INTERCEPTING MANHOLE RING & COVER SHALL BE CUT OR BENT.
12. PAYMENT FOR ALL EXCAVATION, BACK–FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER, CURB ARMOR AND STEPS SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".
13. 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.
14. GALVANIZED BOLTS, NUTS, WASHERS, PLATES AND GASKETS ARE SUBSIDIARY TO INLETS.
15. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MEANS TO LIFT AND PLACE THE INLETS, WHEN USING PRECAST UNITS.
16. ALL BARS AT PIPE BLOCKOUT LOCATIONS SHALL BE CUT OR BEND.
17. ALL LOWER UNITS SHALL RECEIVE INVERT MORTAR SHAPING.
18. PIPE BLOCKOUTS IN INLET WALLS SHOULD NOT EXCEED 3" BEYOND THE OUTER SHELL OF THE PIPE, TAKING INTO ACCOUNT THE SKEW OF THE PIPE AS NECESSARY. CONSTRUCTION JOINT MAY BE RAISED A MAXIMUM OF 6".



FLOOR STEEL

WALL STEEL

PLAN

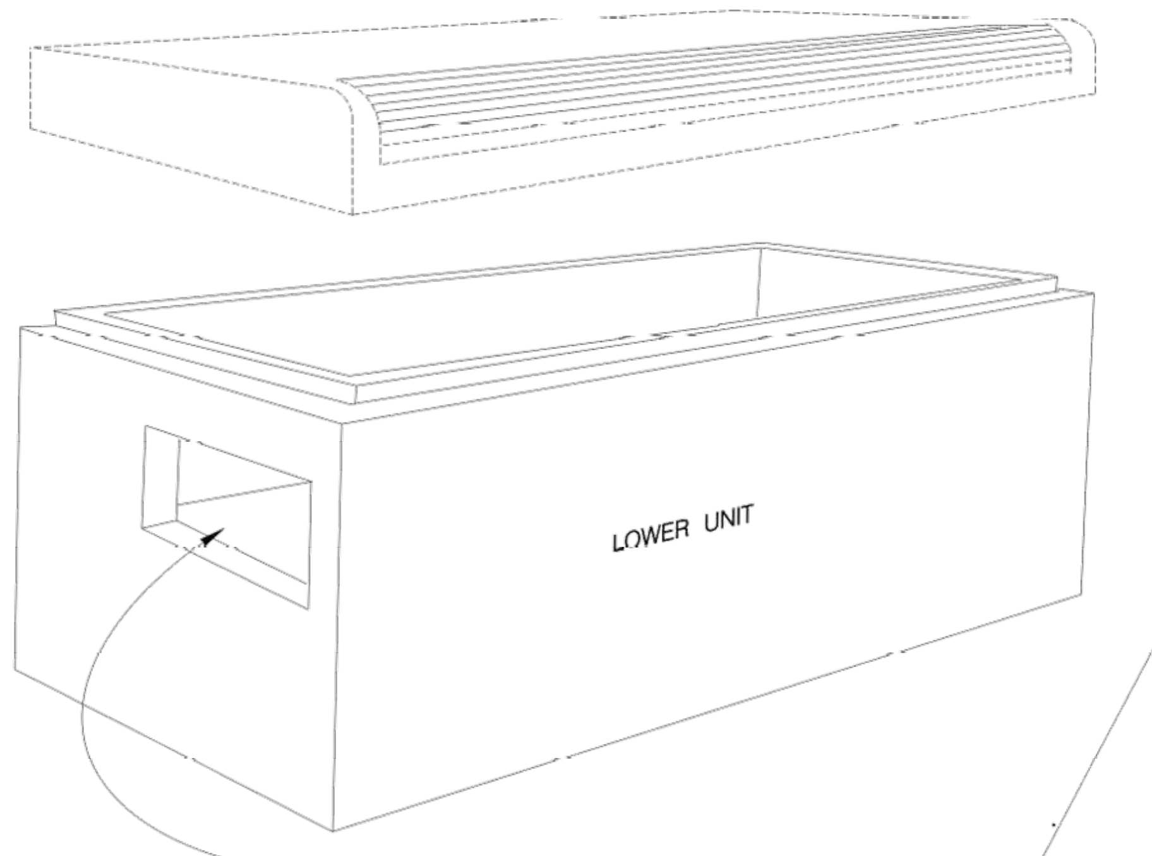


PHASE CONSTRUCTION

NOTES FOR PHASE CONSTRUCTION (WHEN DIRECTED BY THE ENGINEER):

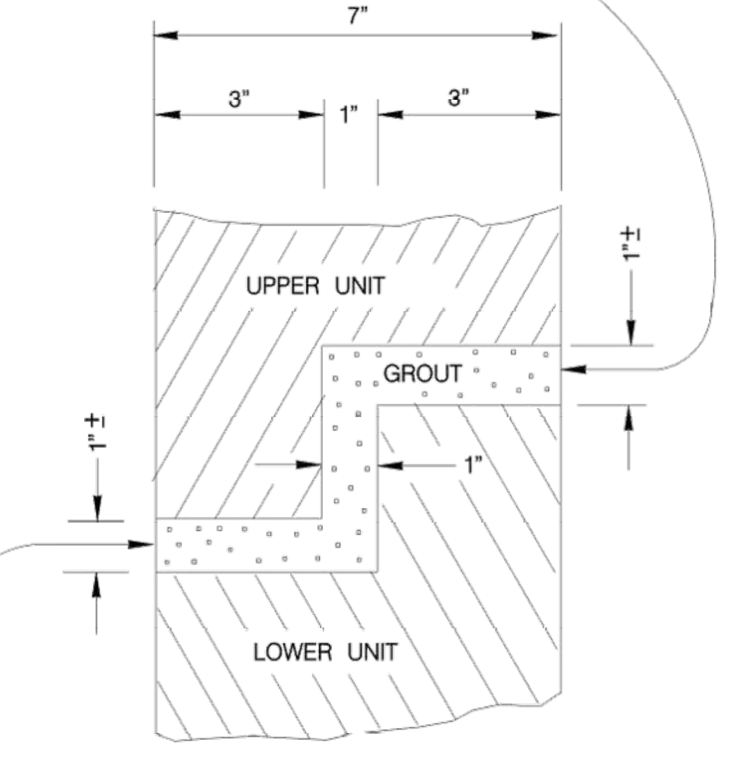
1. THE CURB INLET AND EXTENSION SHALL BE CONSTRUCTED TO A DEPTH "Hu" BELOW THE INLET AND EXTENSION GUTTER LINE ELEVATION.
2. CAP THE CURB INLET AND EXTENSION WITH A STEEL PLATE APPROVED BY THE ENGINEER AND CONSTRUCT THE ROADWAY OVER THE PLATE.
3. AFTER THE ROADWAY IS COMPLETED, BUT PRIOR TO THE FINAL HMAC OVERLAY, SAW CUT THE PAVEMENT, REMOVE THE PLATE AND COMPLETE THE UPPER PORTION OF THE CURB INLET AND /OR EXTENSION.

UPPER UNIT (SEE SHEET 2 OF 3 FOR DETAILS)



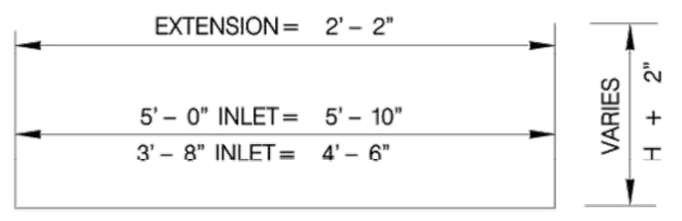
BLOCKOUT WHERE REQUIRED FOR CURB INLET EXTENSION TYPE I/II-E

PRECAST UPPER UNIT & LOWER UNIT TO BE JOINED USING A NON–SHRINKAGE CONCRETE GROUT.



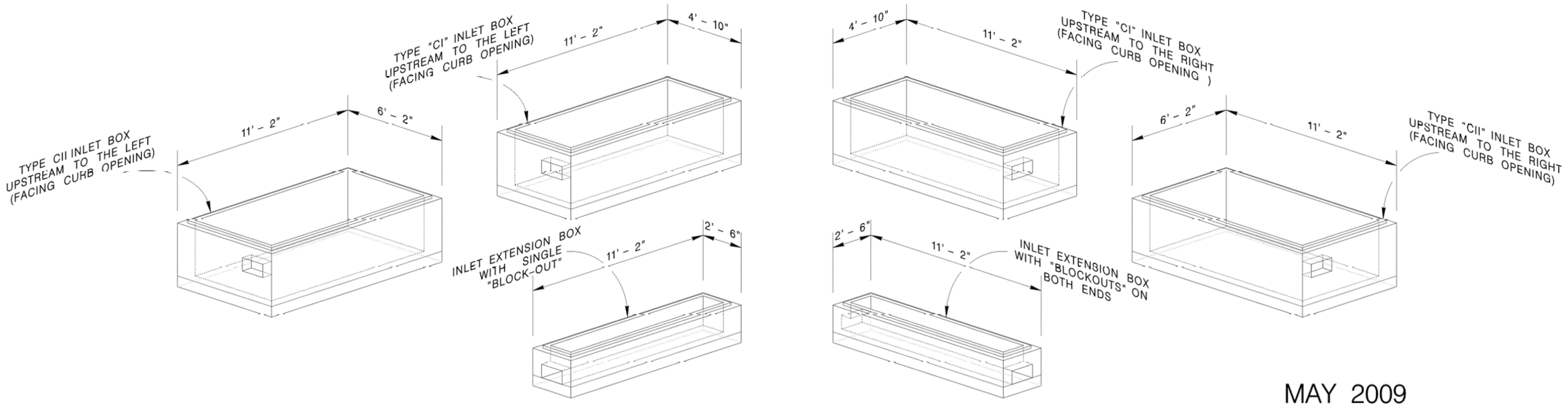
JOINT DETAIL

WHEN USING PRECAST UPPER UNIT, THIS SPACE IS FOR MAKING MINOR HORIZONTAL AND VERTICAL ADJUSTMENTS TO ACCOMODATE A FIT BETWEEN THE UPPER AND LOWER UNIT THAT ALLOWS FOR A MATCH LINE AND GRADE BETWEEN THE ROADWAY CURB AND THE UPPER UNIT OF THE INLET.



BARS A

(LOWER UNIT)


TYPE CII INLET BOX UPSTREAM TO THE LEFT (FACING CURB OPENING)
11' – 2"
6' – 2"
TYPE "CI" INLET BOX UPSTREAM TO THE LEFT (FACING CURB OPENING)
11' – 2"
4' – 10"
INLET EXTENSION BOX WITH SINGLE "BLOCK-OUT"
11' – 2"
2' – 6"
4' – 10"
11' – 2"
TYPE "CI" INLET BOX UPSTREAM TO THE RIGHT (FACING CURB OPENING)
2' – 6"
11' – 2"
INLET EXTENSION BOX WITH "BLOCKOUTS" ON BOTH ENDS
6' – 2"
11' – 2"
TYPE "CII" INLET BOX UPSTREAM TO THE RIGHT (FACING CURB OPENING)

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:______
DRWN. BY: V. VASQUEZ	DSGN. BY: L.E. MALTOS, P.E.	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.:____OF____

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

GEORGE'S RANCH UNIT 1
UNIT 1

TYPE 'C' INLET (TYPE I & II) & INLET EXTENSION STANDARDS

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
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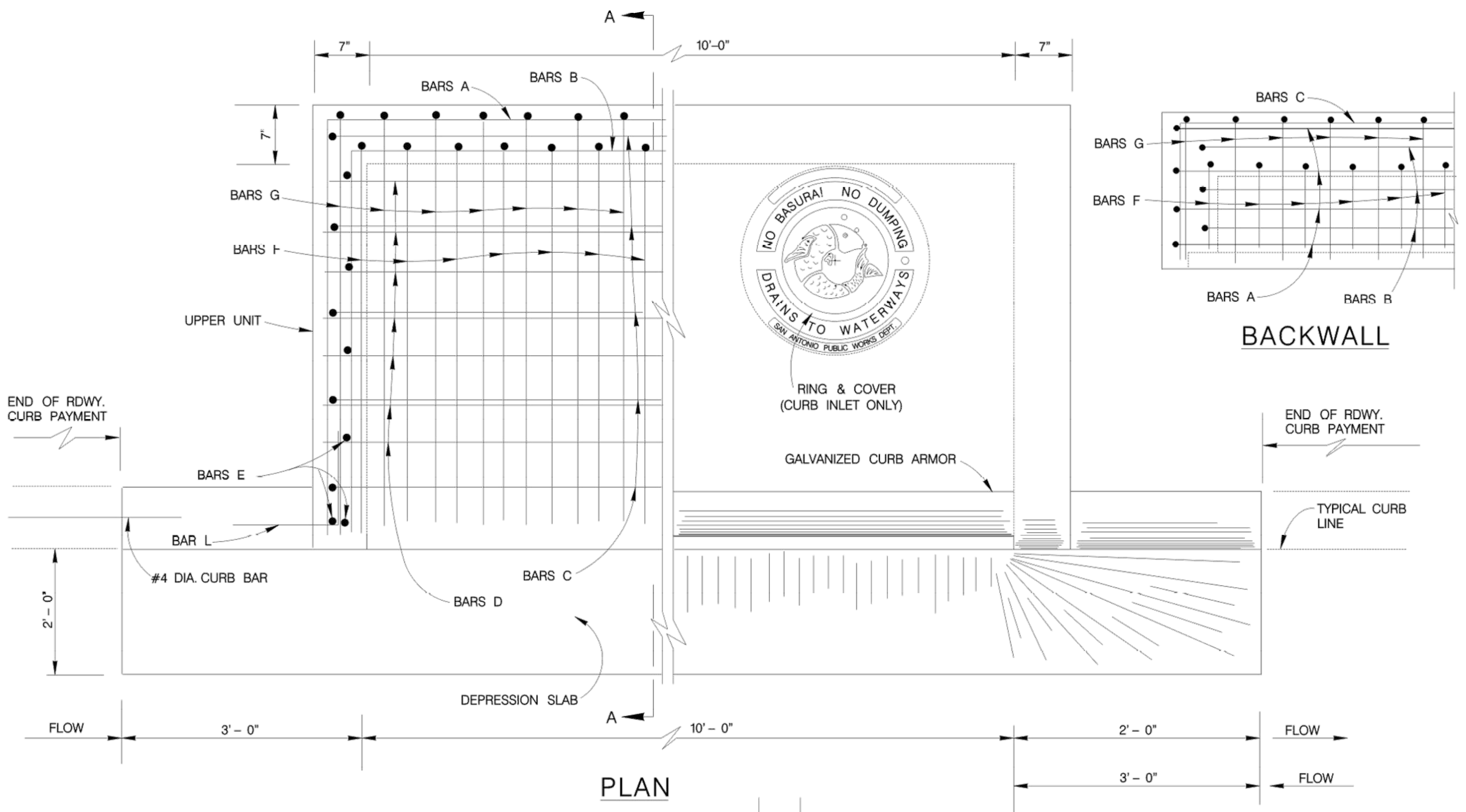
W. PATRICK MURPHY
111597
7/18/2022

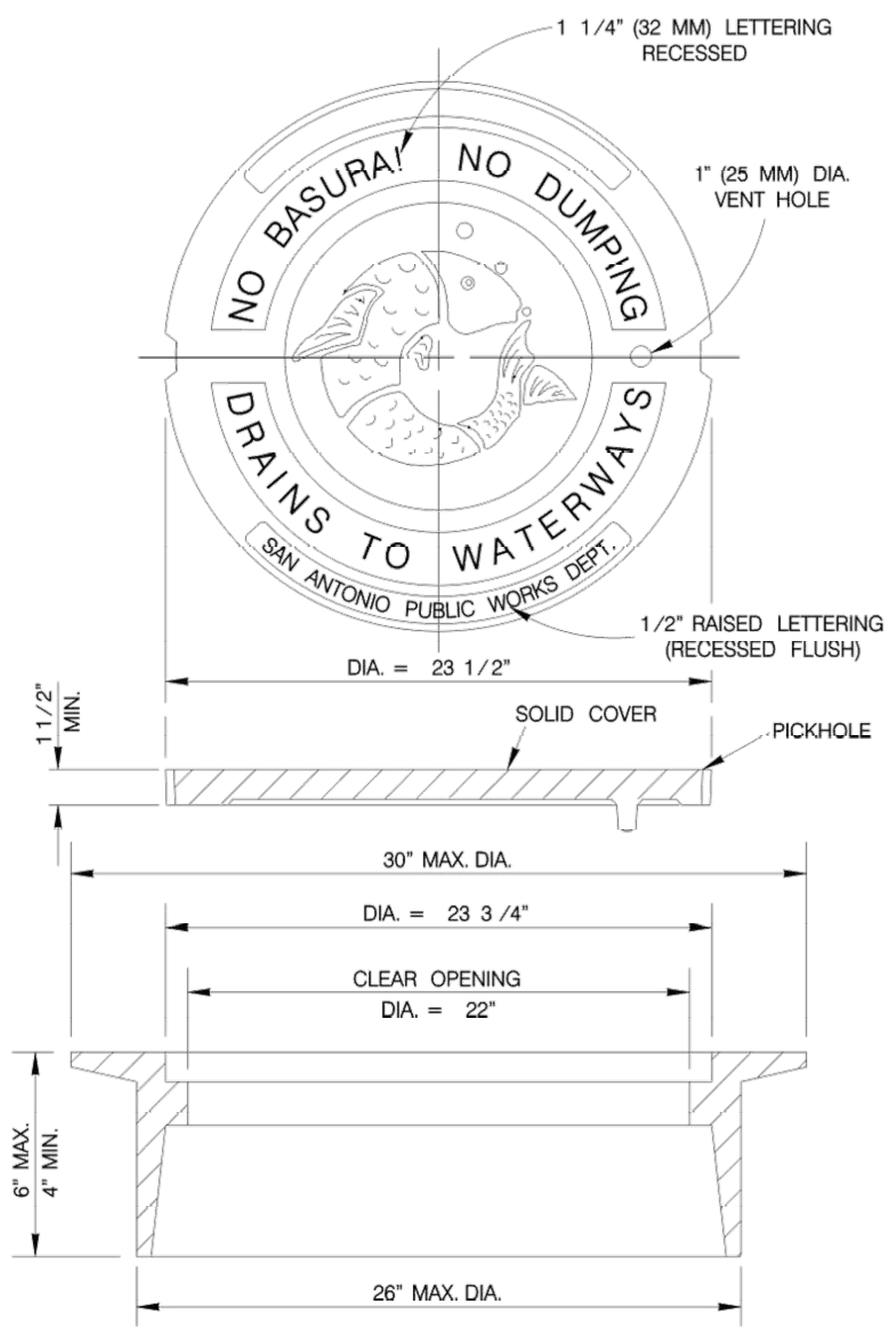
CUDE ENGINEERS
TBPE No. 455

P:\03546\001\2-Drawings\01_120 CITY OF SAN ANTONIO - DRAIN INLET TYPE 'C' DETAILS.dwg 2022/07/12 8:02am rreyes



PLAN

BACKWALL



MANHOLE LID & RING DETAIL (ITEM 409)

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. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.

SEE SHEET 1 OF 3 FOR GENERAL NOTES.

REINFORCING STEEL (FOR Hu=11")

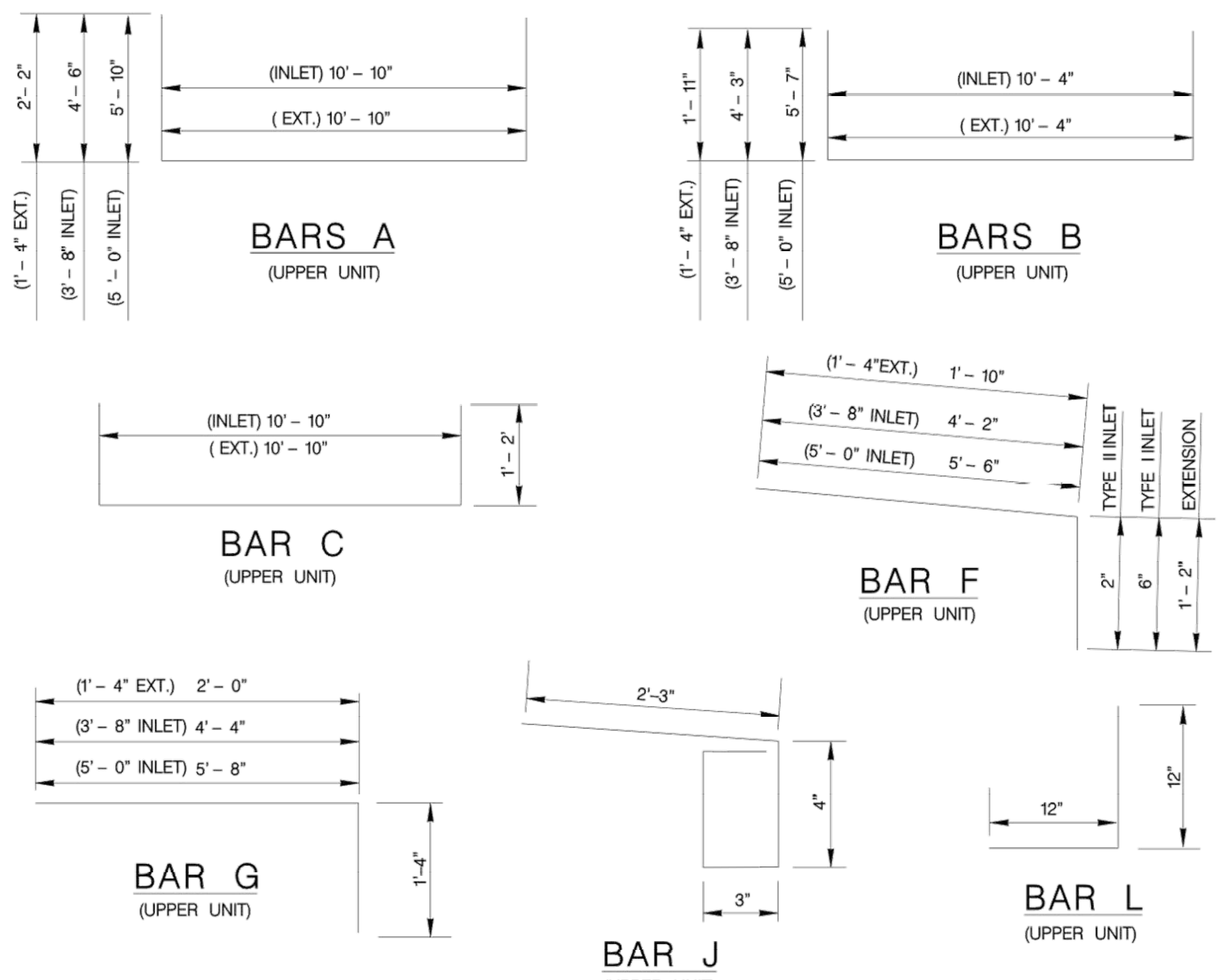
UPPER UNIT 10' X 3'-8" (TYPE I)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	19'-10"	53
B	3	#4	—	18'-10"	38
C	5	#4	11"	13'-2"	44
D	7	#4	6"	10'-10"	51
E	12	#4	11"	1'-2"	9
F	21	#6	6"	4'-8"	147
G	22	#6	6"	5'-8"	187
H	4	#4	—	10'-10"	29
J	12	#4	12"	3'-6"	28
L	4	#4	—	2'-0"	5
M	3	#4	—	14'-8"	29
TOTAL WEIGHT					620 LBS.

UPPER UNIT 10' X 5' (TYPE II)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	22'-6"	60
B	3	#4	—	21'-6"	43
C	7	#4	11"	13'-2"	62
D	11	#4	6"	10'-10"	80
E	16	#4	11"	1'-2"	13
F	21	#6	6"	5'-8"	179
G	22	#6	6"	7'-0"	231
H	4	#4	—	10'-10"	29
J	12	#4	12"	3'-6"	28
L	4	#4	—	2'-0"	5
M	3	#4	—	14'-8"	29
TOTAL WEIGHT					759 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'-8" CURB INLET	1.9
10' X 5'-0" CURB INLET	2.7
10' EXTENSION	1.0



BARS A (UPPER UNIT)

BARS B (UPPER UNIT)

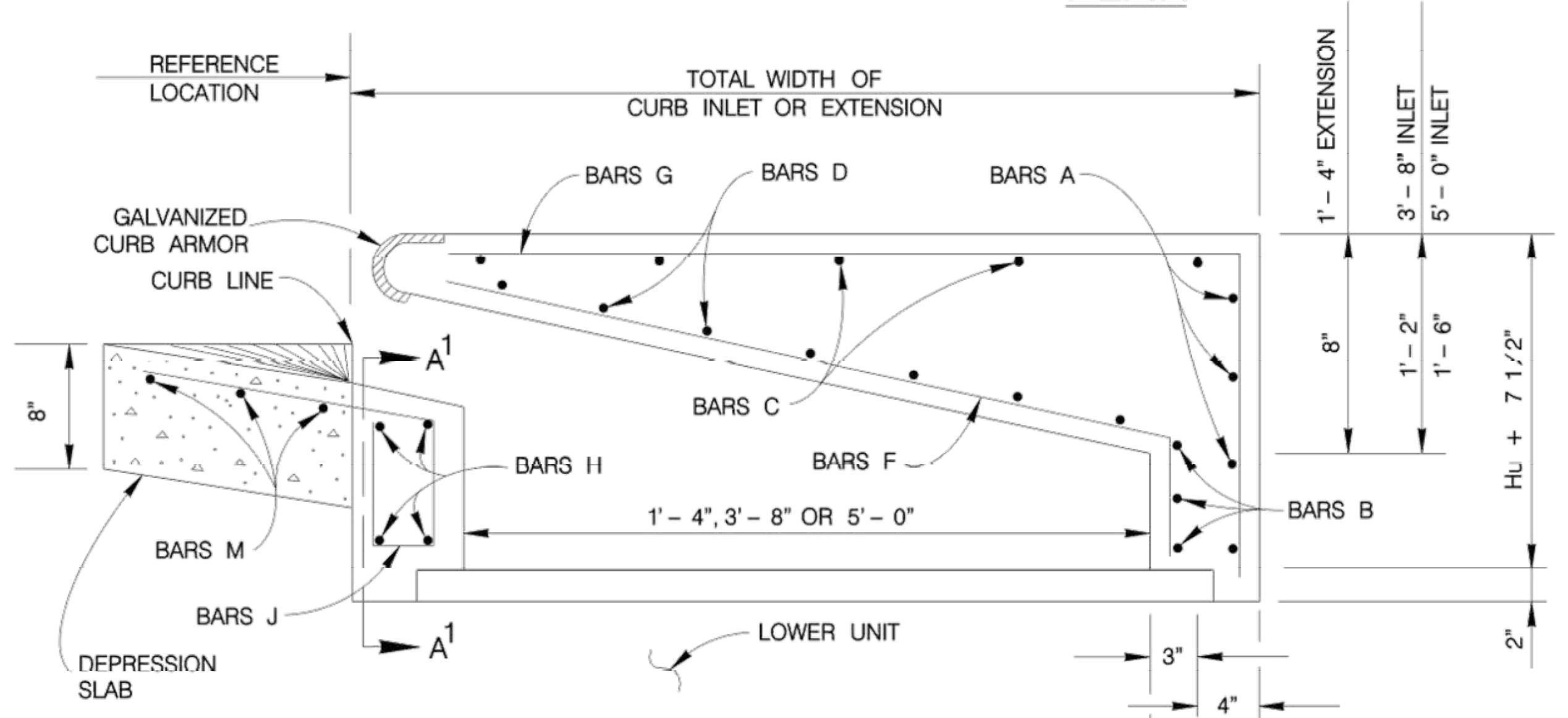
BAR C (UPPER UNIT)

BAR F (UPPER UNIT)

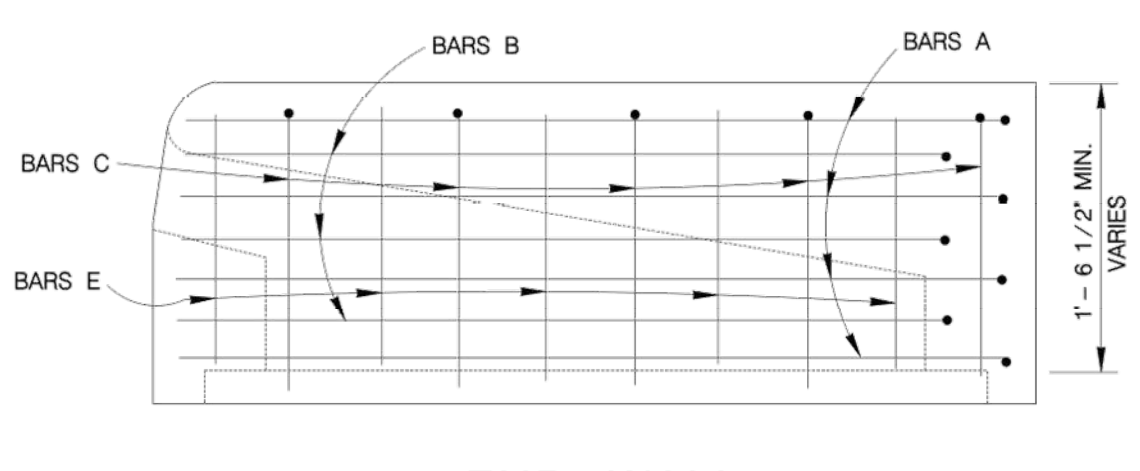
BAR G (UPPER UNIT)

BAR J (UPPER UNIT)

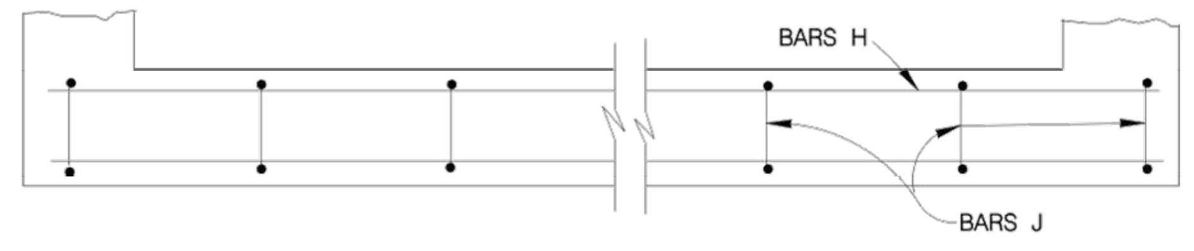
BAR L (UPPER UNIT)



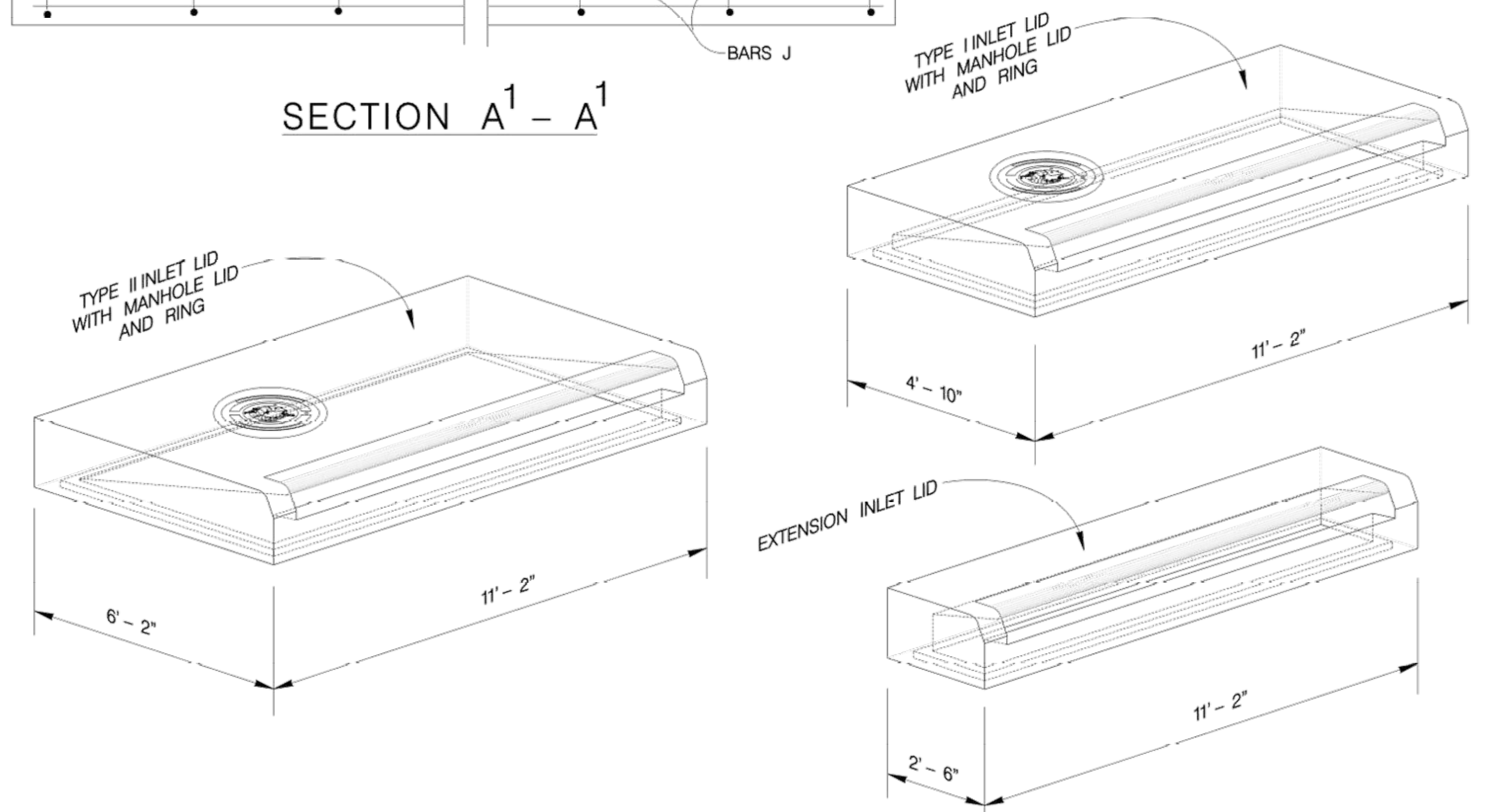
SECTION A-A



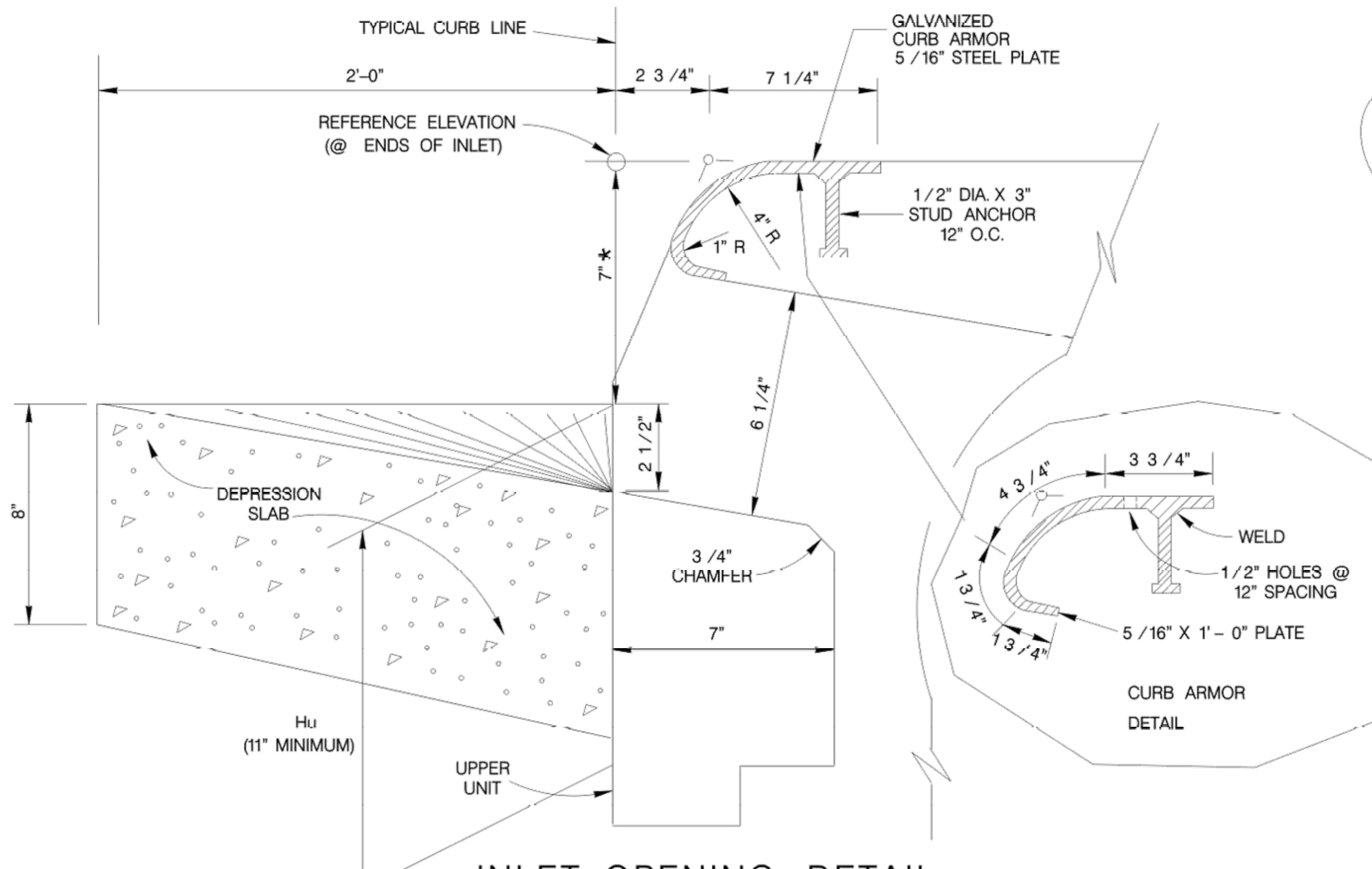
END WALL



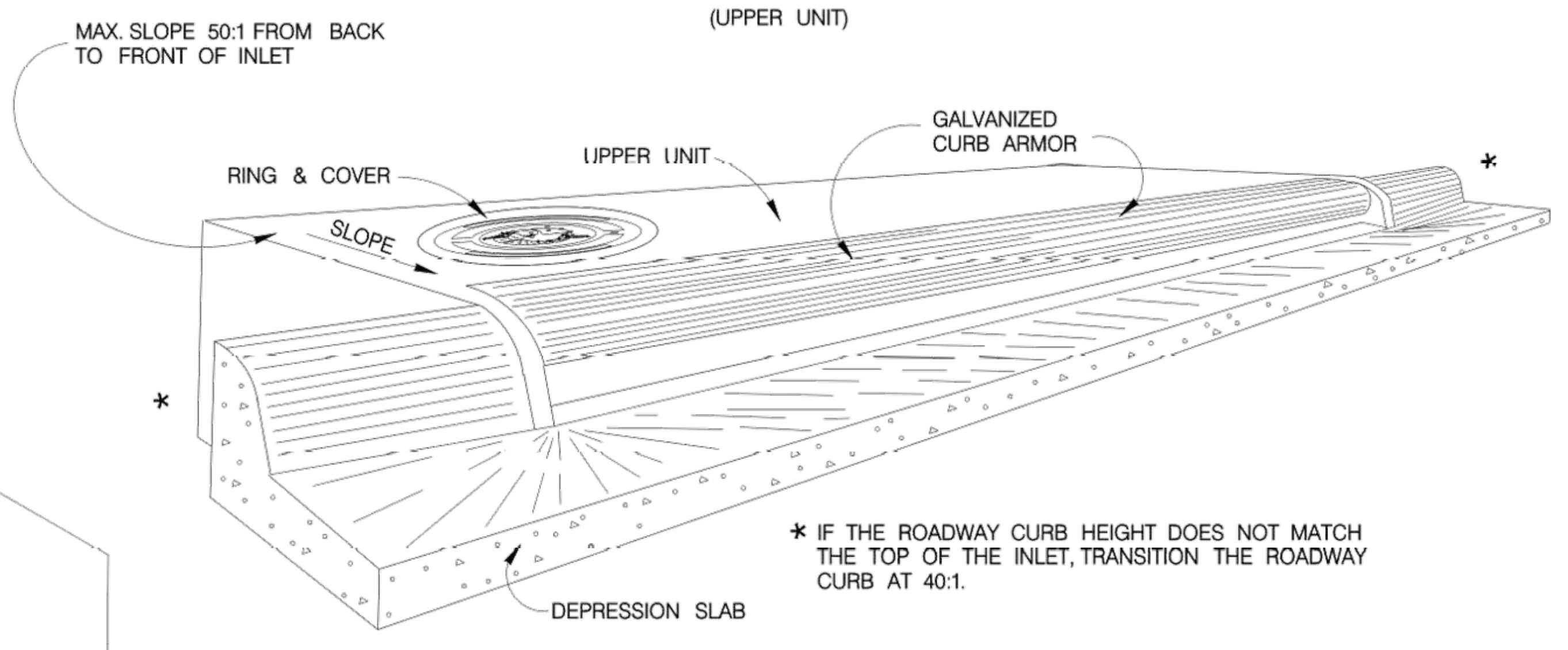
SECTION A1 – A1


TYPE I INLET LID WITH MANHOLE LID AND RING
4'-10"
11'-2"
TYPE II INLET LID WITH MANHOLE LID AND RING
6'-2"
11'-2"
EXTENSION INLET LID
2'-6"
11'-2"

CONCRETE INLET LID CONFIGURATIONS (UPPER UNITS)



INLET OPENING DETAIL



* IF THE ROADWAY CURB HEIGHT DOES NOT MATCH THE TOP OF THE INLET, TRANSITION THE ROADWAY CURB AT 40:1.

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:____
DRWN. BY: V, VASQUEZ	DSGN. BY: L.E. MALTOS, P.E.	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.:____OF____

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GEORGE'S RANCH UNIT 1
UNIT 1

TYPE 'C' INLET (TYPE I & II) & INLET EXTENSION STANDARDS

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
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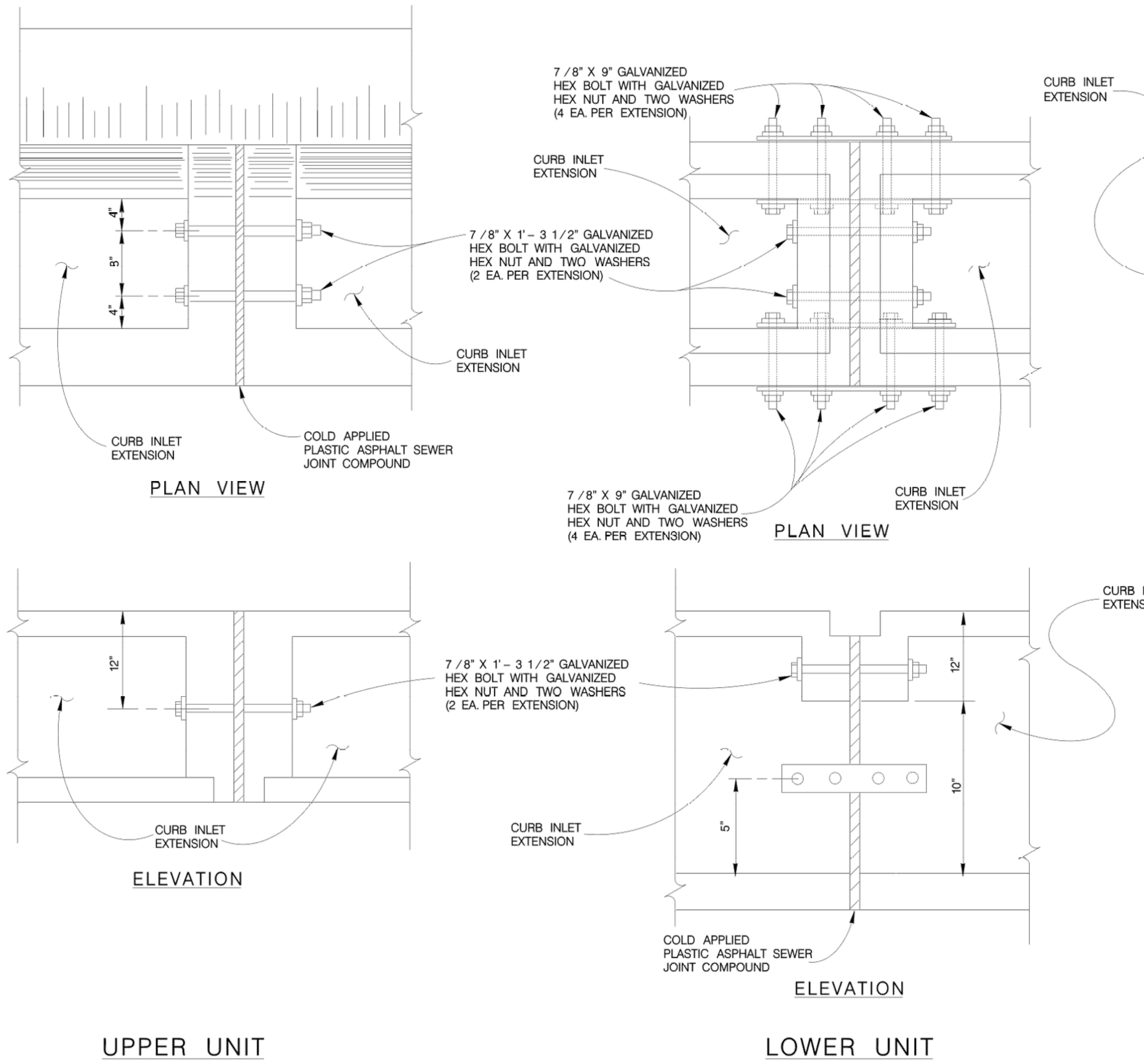
W. PATRICK MURPHY
111597
7/18/2022

CUDE ENGINEERS
TBPE No. 455

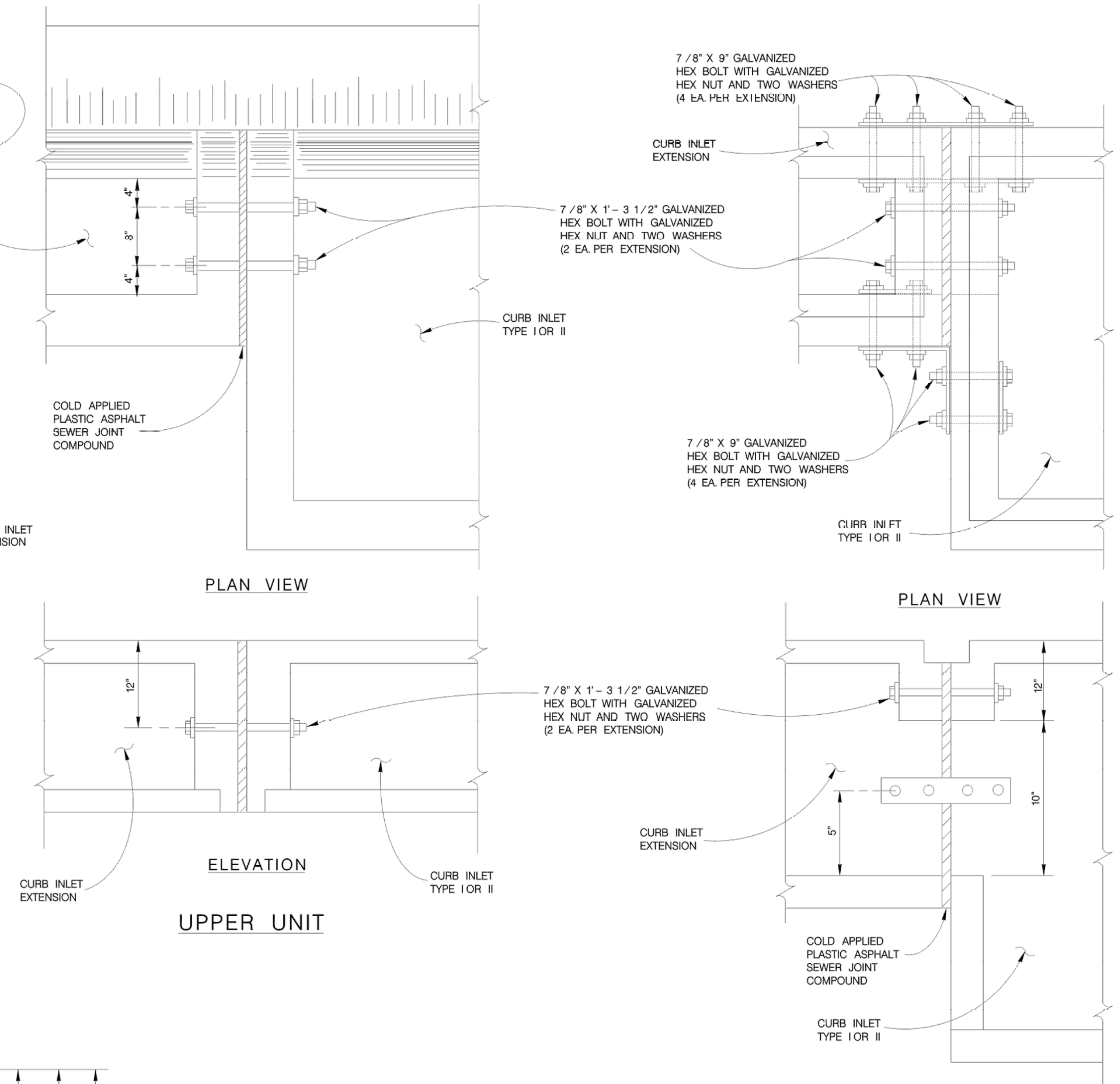
C42

P:\03546\001\2-Drawings\01_120 CITY OF SAN ANTONIO - DRAIN INLET TYPE 'C' DETAILS.dwg 2022/07/12 8:02am rreyes


PLAN VIEW
7 / 8" X 9" GALVANIZED HEX BOLT WITH GALVANIZED HEX NUT AND TWO WASHERS (4 EA. PER EXTENSION)
CURB INLET EXTENSION
7 / 8" X 1' – 3 1 / 2" GALVANIZED HEX BOLT WITH GALVANIZED HEX NUT AND TWO WASHERS (2 EA. PER EXTENSION)
COLD APPLIED PLASTIC ASPHALT SEWER JOINT COMPOUND
4"
8"
4"
12"
10"
5"
ELEVATION
UPPER UNIT
LOWER UNIT

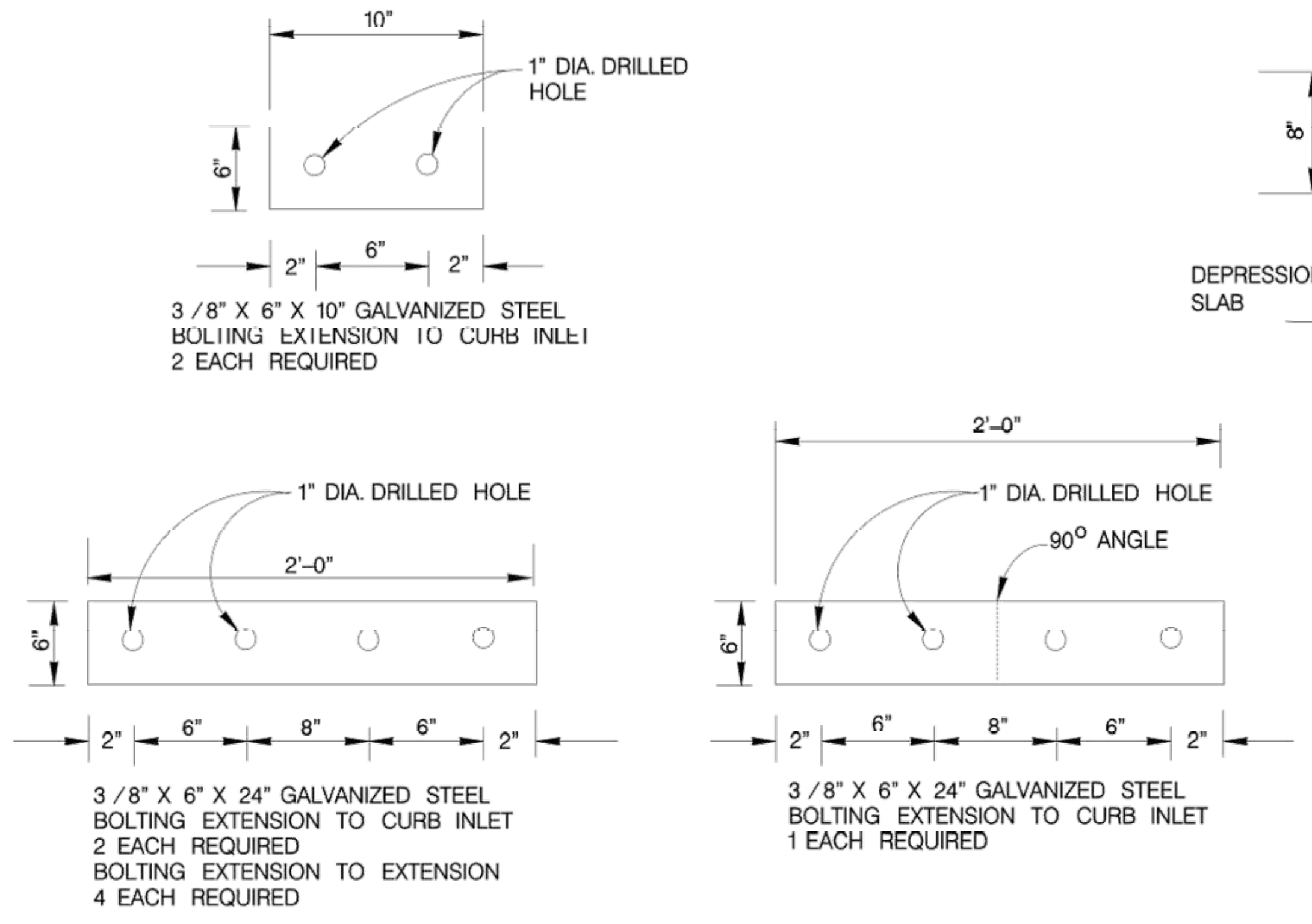
INLET BOLTING DETAILS

SHOWING EXTENSION TO EXTENSION

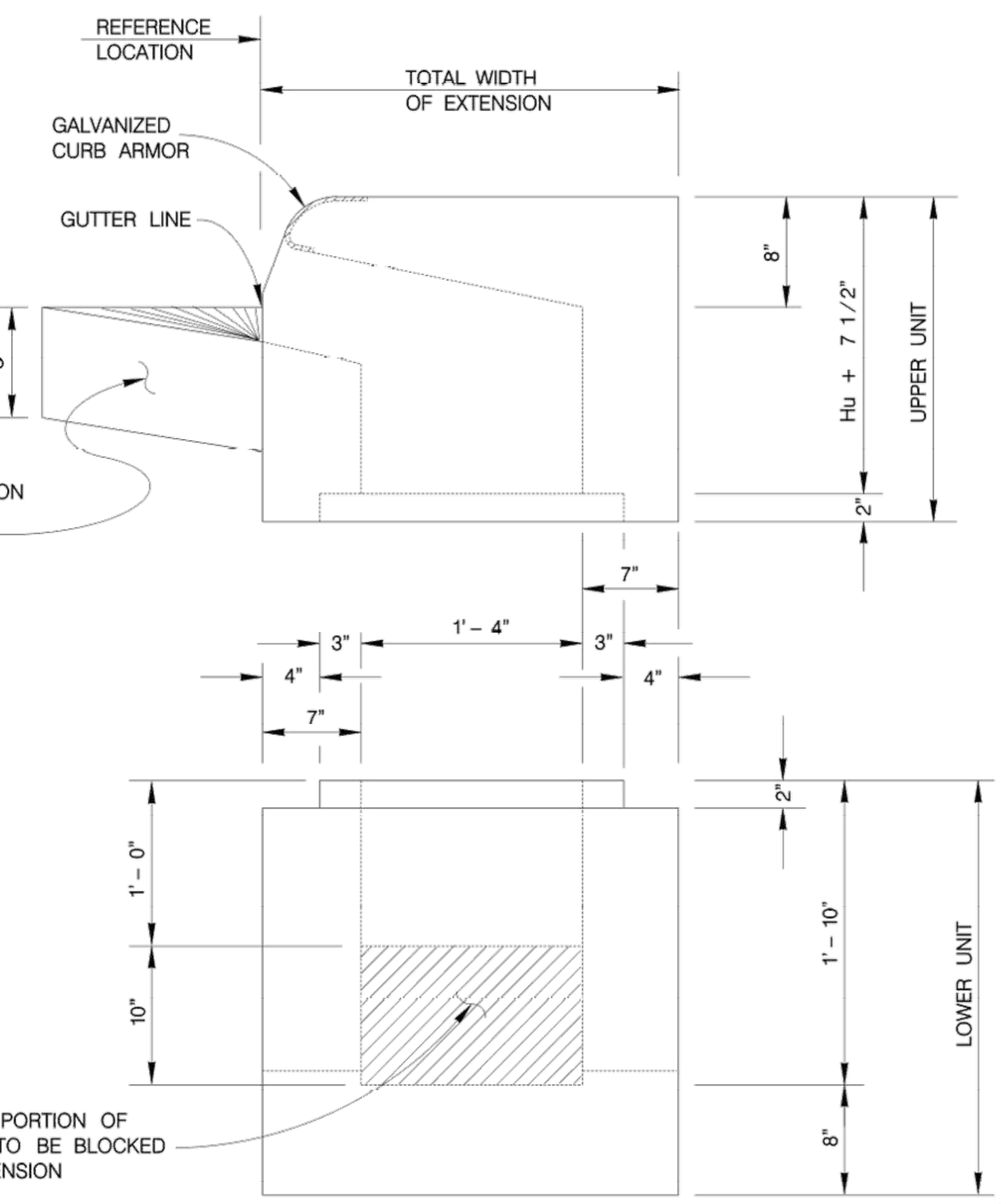

CURB INLET EXTENSION
7 / 8" X 1' – 3 1 / 2" GALVANIZED HEX BOLT WITH GALVANIZED HEX NUT AND TWO WASHERS (2 EA. PER EXTENSION)
7 / 8" X 9" GALVANIZED HEX BOLT WITH GALVANIZED HEX NUT AND TWO WASHERS (4 EA. PER EXTENSION)
CURB INLET TYPE I OR II
COLD APPLIED PLASTIC ASPHALT SEWER JOINT COMPOUND
4"
8"
4"
12"
10"
5"
PLAN VIEW
ELEVATION
UPPER UNIT
LOWER UNIT

INLET BOLTING DETAILS

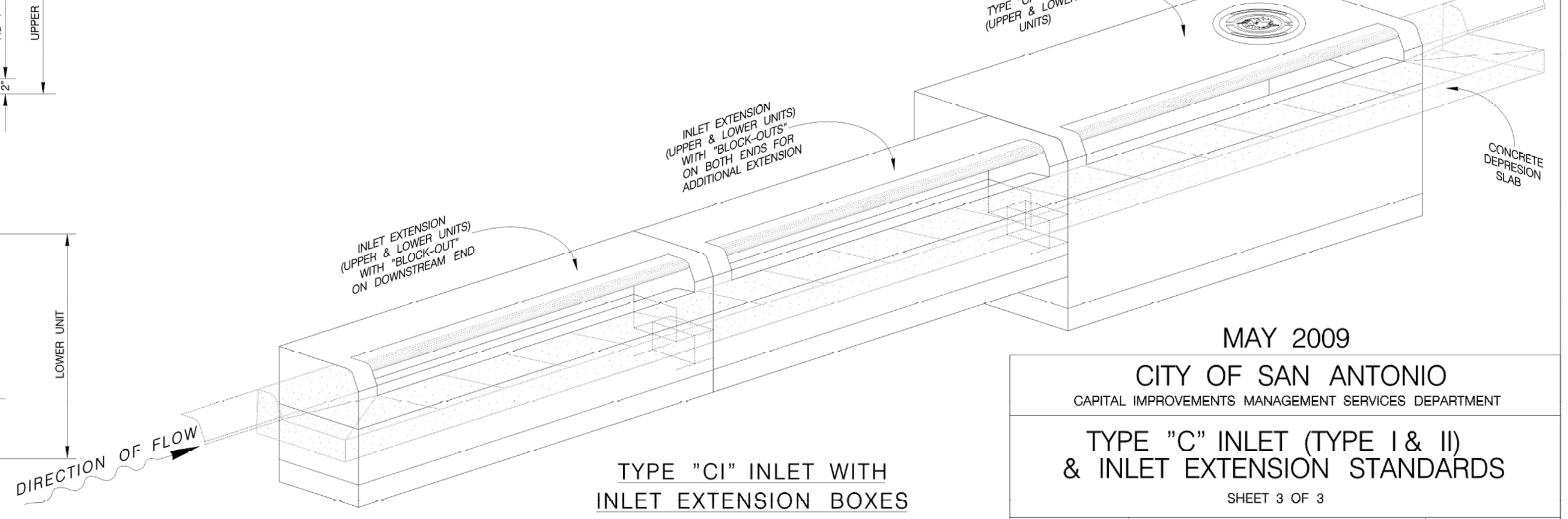
SHOWING CURB INLET TO EXTENSION


10"
1" DIA. DRILLED HOLE
6"
2"
6"
2"
3 / 8" X 6" X 10" GALVANIZED STEEL BOLTING EXTENSION TO CURB INLET 2 EACH REQUIRED
2'–0"
1" DIA. DRILLED HOLE
8"
3 / 8" X 6" X 24" GALVANIZED STEEL BOLTING EXTENSION TO CURB INLET 2 EACH REQUIRED BOLTING EXTENSION TO EXTENSION 4 EACH REQUIRED
90° ANGLE
3 / 8" X 6" X 24" GALVANIZED STEEL BOLTING EXTENSION TO CURB INLET 1 EACH REQUIRED

PLATES



SECTION A–A CURB INLET EXTENSION TYPE E


DIRECTION OF FLOW
INLET EXTENSION (UPPER & LOWER UNITS) WITH "BLOCK-OUT" ON DOWNSTREAM END
INLET EXTENSION (UPPER & LOWER UNITS) WITH "BLOCK-OUTS" ON BOTH ENDS FOR ADDITIONAL EXTENSION
TYPE "CI" INLET (UPPER & LOWER UNITS)
CONCRETE DEPRESION SLAB

TYPE "CI" INLET WITH INLET EXTENSION BOXES

UPPER UNIT EXTENSION (FOR Hu = 11")					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	——	15' – 2"	41
B	3	#4	——	14' – 2"	28
C	3	#4	11"	13' – 2"	26
D	3	#4	6"	10' 10"	22
E	8	#4	11"	1 '– 2"	6
F	21	#6	6"	2' – 0"	63
G	22	#6	6"	3' – 4"	110
H	4	#4	——	10' – 10"	29
J	12	#4	12"	3' – 6"	28
L	4	#4	——	2' – 0"	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	12	#4	12"	6' – 2"	49
B	11	#4	12"	2' – 2"	16
B_1	3	#4	12"	2' – 2"	4
E_1	18	#4	18" ±	2' – 3"	27
E_2	4	#4	18" ±	2' – 1"	6
F_1	16	#4	12" ±	10' – 10"	116
F_2	5	#4	——	10' – 10"	36
REINFORCING STEEL				LBS.	254
CLASS. "A" CONCRETE				C.Y.	1.4

GENERAL NOTES

1. WHEN INLET EXTENSIONS ARE REQUIRED FOR ON GRADE INLETS THE EXTENSION(S) SHALL BE PLACED ON THE UPSTREAM END OF THE INLET.
2. FOR CURB INLET EXTENSION REINFORCING STEEL, NOTES & VARIOUS OTHER APPLICABLE DETAILS NOT FOUND ON THIS SHEET, REFER TO SHEETS 1 & 2.

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II)
& INLET EXTENSION STANDARDS
SHEET 3 OF 3

______% SUBMITTAL	PROJECT NO.:______		DATE:______
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UNIT 1

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W. PATRICK MURPHY
111597
7/18/2022

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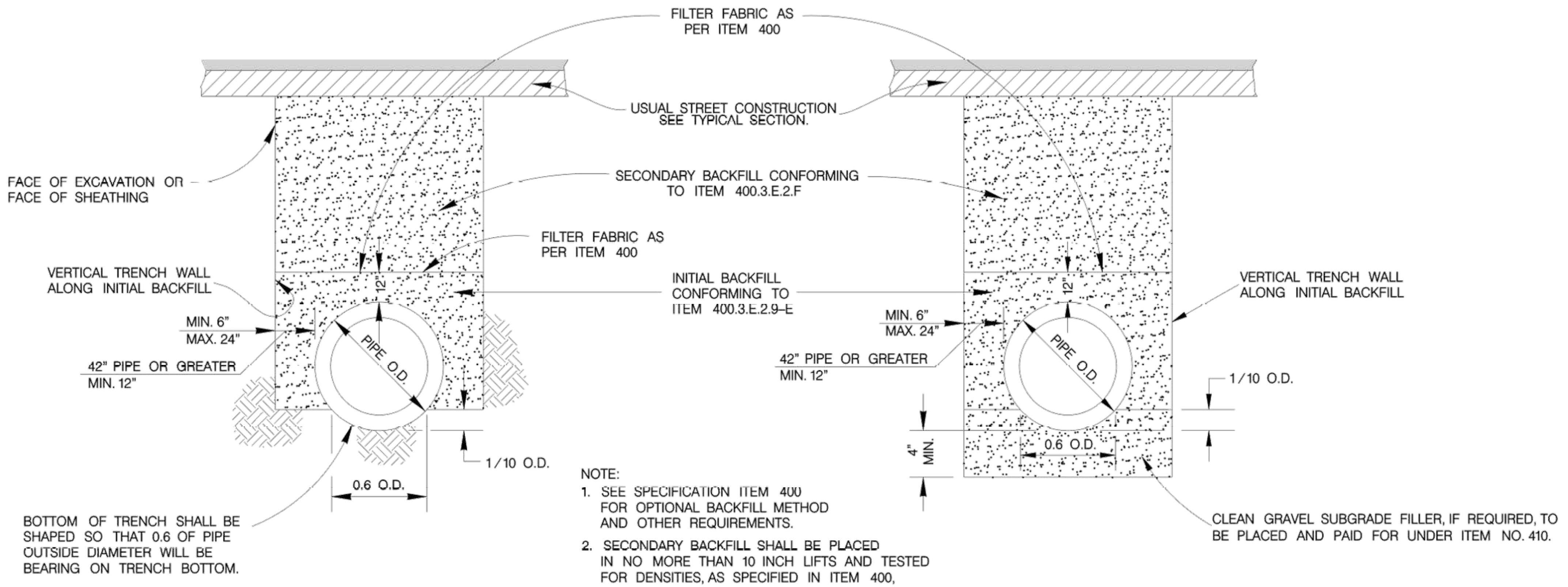
C43

P:\03546\001\2-Drawings\01_120 CITY OF SAN ANTONIO - DRAIN INLET TYPE 'C' DETAILS.dwg 2022/07/12 8:02am rreyes

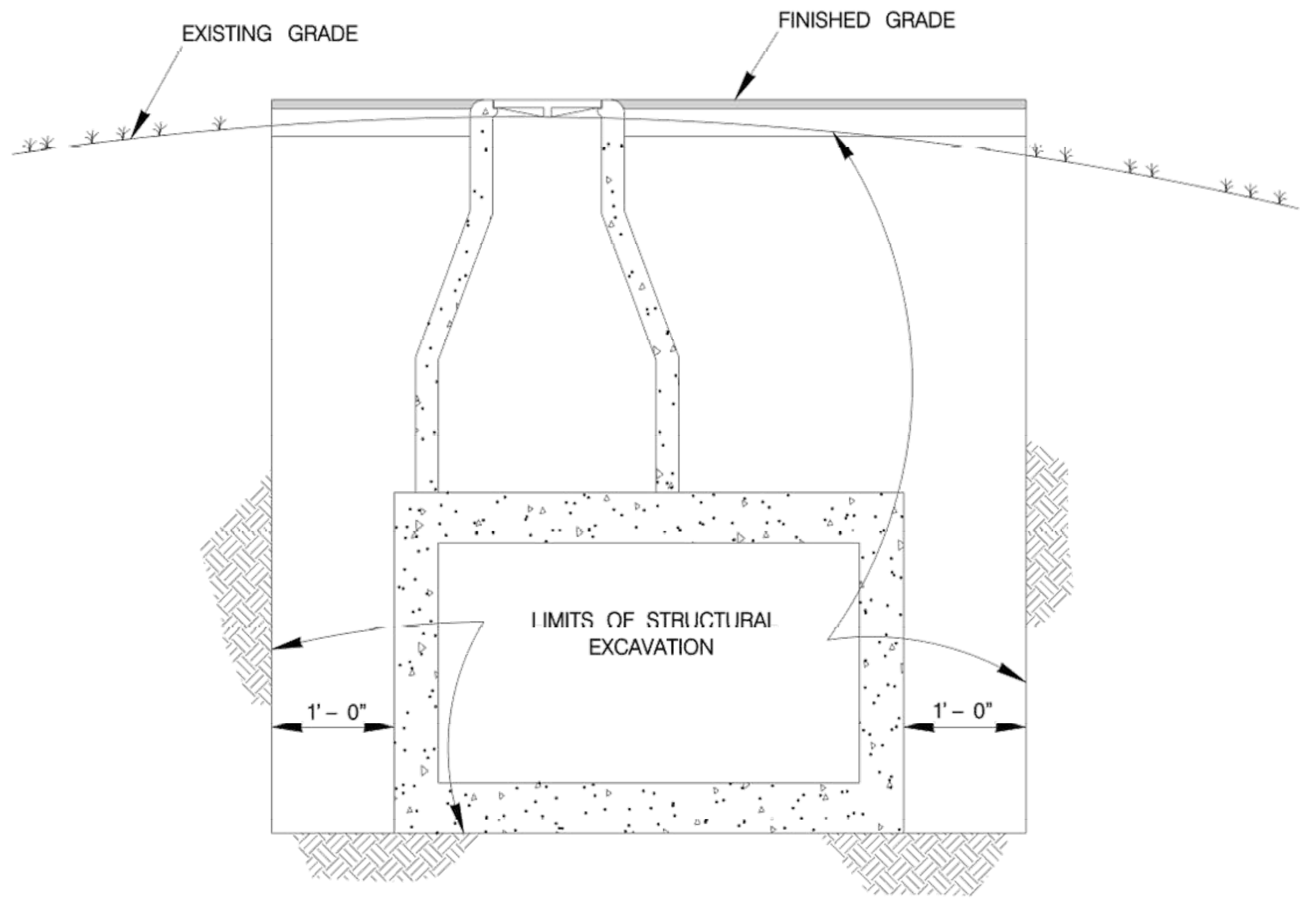

FILTER FABRIC AS PER ITEM 400
USUAL STREET CONSTRUCTION SEE TYPICAL SECTION.
FACE OF EXCAVATION OR FACE OF SHEATHING
SECONDARY BACKFILL CONFORMING TO ITEM 400.3.E.2.F
FILTER FABRIC AS PER ITEM 400
VERTICAL TRENCH WALL ALONG INITIAL BACKFILL
INITIAL BACKFILL CONFORMING TO ITEM 400.3.E.2.9–E
MIN. 6" MAX. 24"
42" PIPE OR GREATER MIN. 12"
12"
PIPE O.D.
1/10 O.D.
0.6 O.D.
BOTTOM OF TRENCH SHALL BE SHAPED SO THAT 0.6 OF PIPE OUTSIDE DIAMETER WILL BE BEARING ON TRENCH BOTTOM.
VERTICAL TRENCH WALL ALONG INITIAL BACKFILL
MIN. 6" MAX. 24"
42" PIPE OR GREATER MIN. 12"
12"
PIPE O.D.
1/10 O.D.
4" MIN.
0.6 O.D.
CLEAN GRAVEL SUBGRADE FILLER, IF REQUIRED, TO BE PLACED AND PAID FOR UNDER ITEM NO. 410.

NOTE:
1. SEE SPECIFICATION ITEM 400 FOR OPTIONAL BACKFILL METHOD AND OTHER REQUIREMENTS.
2. SECONDARY BACKFILL SHALL BE PLACED IN NO MORE THAN 10 INCH LIFTS AND TESTED FOR DENSITIES, AS SPECIFIED IN ITEM 400, IMMEDIATELY AFTER PLACING SECONDARY FILL.

TYPICAL DETAIL

OPTIONAL DETAIL

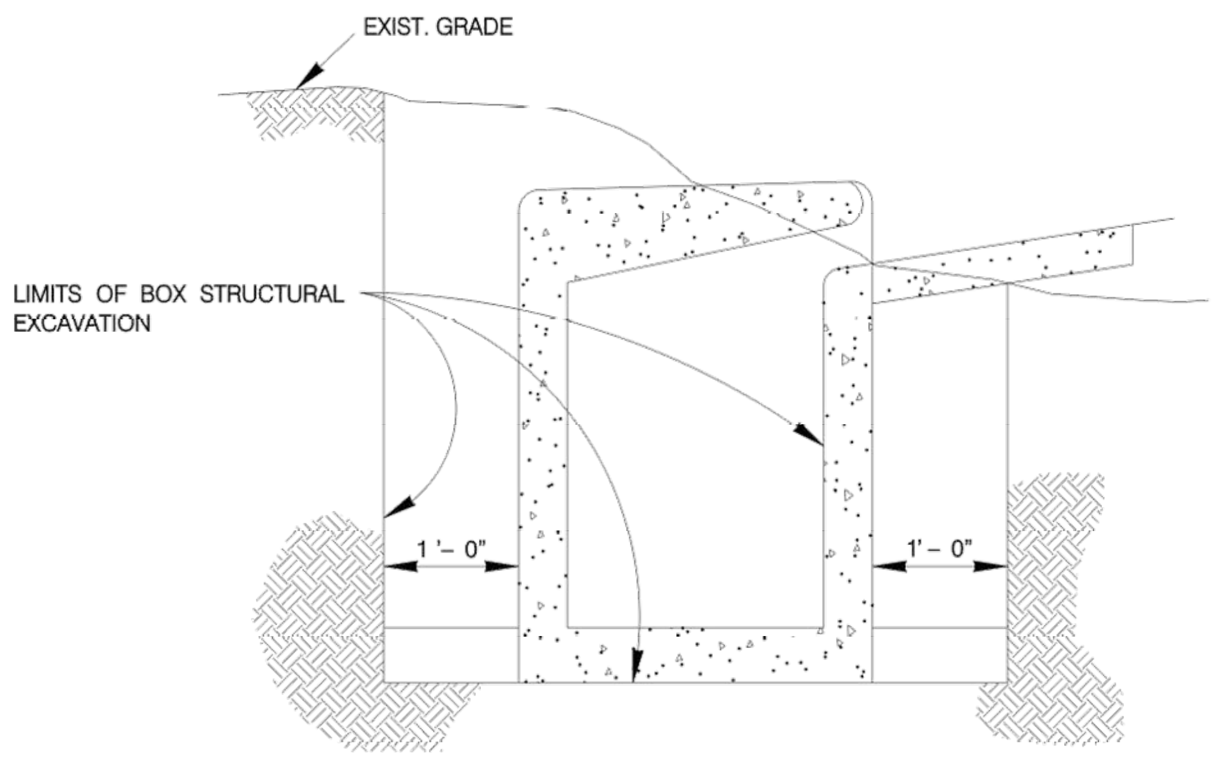
PIPE BEDDING & BACKFILL DETAILS



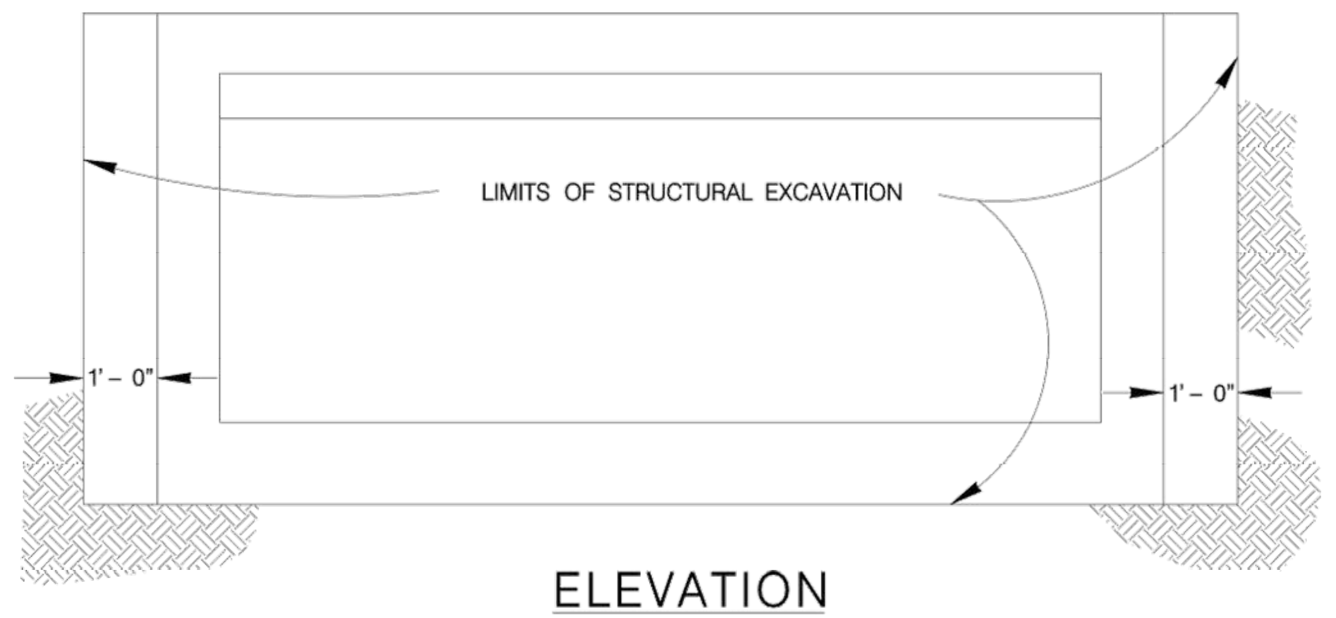
COST OF STRUCTURAL EXCAVATION TO BE INCLUDED WITH UNIT BID PRICE FOR JUNCTION BOX – ITEM 403.

STRUCTURAL EXCAVATION AT JUNCTION BOXES

NO SCALE



SIDE VIEW

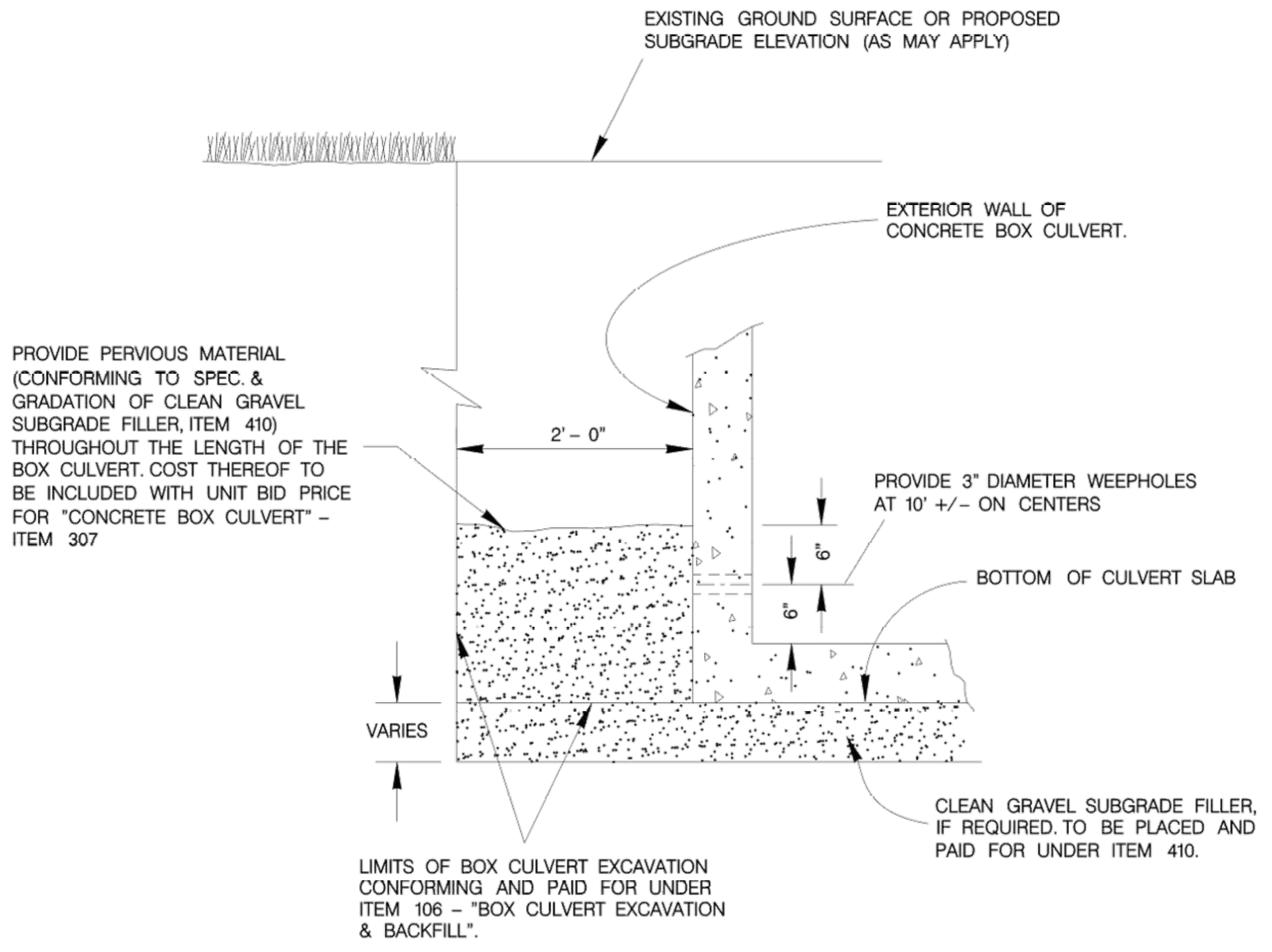


ELEVATION

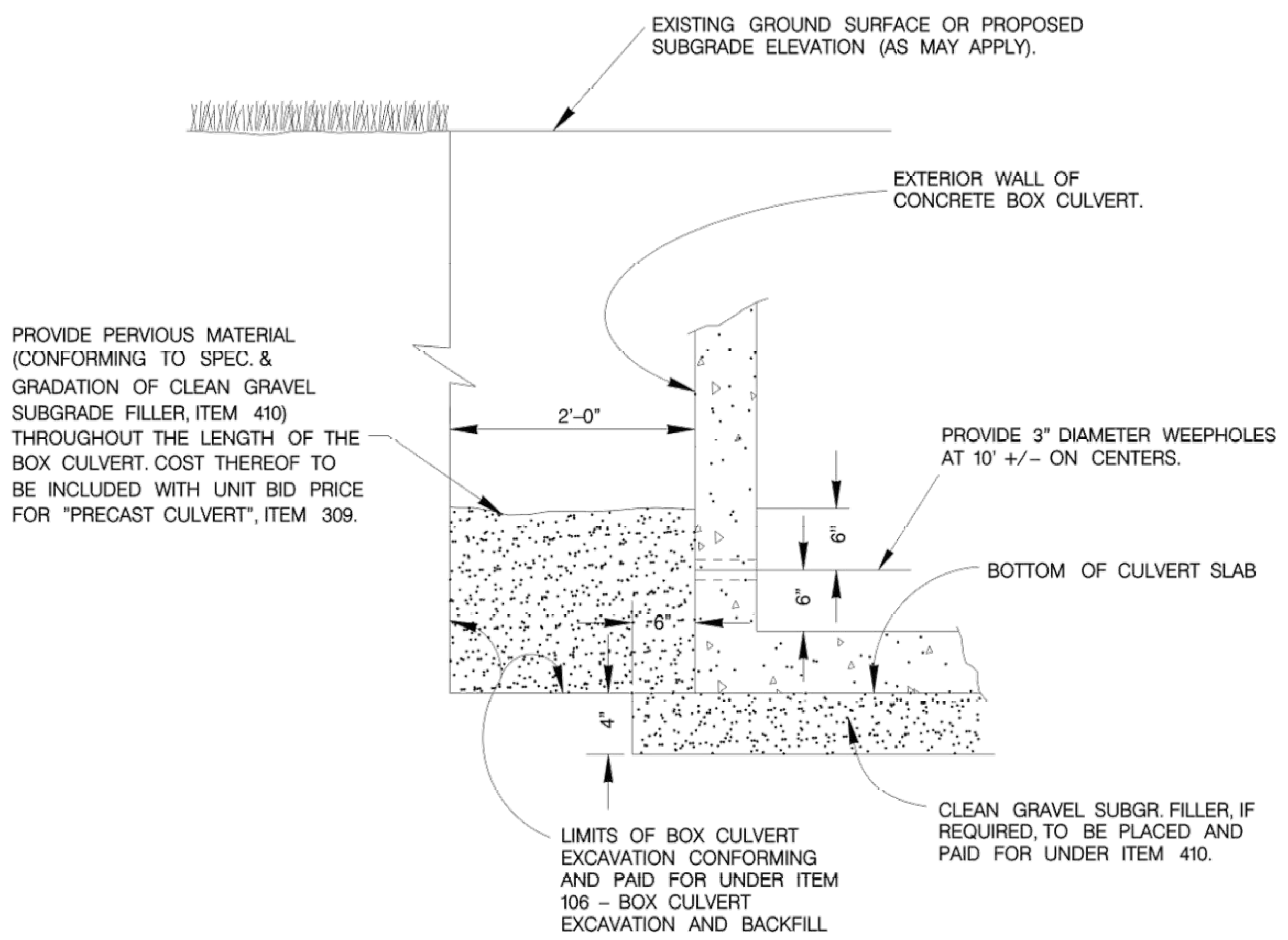
COST OF STRUCTURAL EXCAVATION TO BE INCLUDED WITH UNIT BID PRICE FOR INLETS – ITEM 403.

STRUCTURAL EXCAVATIONS AT DRAINAGE INLETS

NO SCALE


EXISTING GROUND SURFACE OR PROPOSED SUBGRADE ELEVATION (AS MAY APPLY)
EXTERIOR WALL OF CONCRETE BOX CULVERT.
PROVIDE PERVIOUS MATERIAL (CONFORMING TO SPEC. & GRADATION OF CLEAN GRAVEL SUBGRADE FILLER, ITEM 410) THROUGHOUT THE LENGTH OF THE BOX CULVERT. COST THEREOF TO BE INCLUDED WITH UNIT BID PRICE FOR "CONCRETE BOX CULVERT" – ITEM 307
2' – 0"
PROVIDE 3" DIAMETER WEEPHOLES AT 10' +/– ON CENTERS
6"
6"
BOTTOM OF CULVERT SLAB
VARIES
CLEAN GRAVEL SUBGRADE FILLER, IF REQUIRED. TO BE PLACED AND PAID FOR UNDER ITEM 410.
LIMITS OF BOX CULVERT EXCAVATION CONFORMING AND PAID FOR UNDER ITEM 106 – "BOX CULVERT EXCAVATION & BACKFILL".

CAST–IN–PLACE BOX CULVERT


EXISTING GROUND SURFACE OR PROPOSED SUBGRADE ELEVATION (AS MAY APPLY).
EXTERIOR WALL OF CONCRETE BOX CULVERT.
PROVIDE PERVIOUS MATERIAL (CONFORMING TO SPEC. & GRADATION OF CLEAN GRAVEL SUBGRADE FILLER, ITEM 410) THROUGHOUT THE LENGTH OF THE BOX CULVERT. COST THEREOF TO BE INCLUDED WITH UNIT BID PRICE FOR "PRECAST CULVERT", ITEM 309.
2'–0"
PROVIDE 3" DIAMETER WEEPHOLES AT 10' +/– ON CENTERS.
6"
6"
BOTTOM OF CULVERT SLAB
6"
4"
CLEAN GRAVEL SUBGR. FILLER, IF REQUIRED, TO BE PLACED AND PAID FOR UNDER ITEM 410.
LIMITS OF BOX CULVERT EXCAVATION CONFORMING AND PAID FOR UNDER ITEM 106 – BOX CULVERT EXCAVATION AND BACKFILL

PRECAST BOX CULVERT

CONCRETE BOX CULVERT

MAY 2009

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

PIPE BEDDING & MISCELLANEOUS DRAINAGE DETAILS

______% SUBMITTAL PROJECT NO.:____________ DATE:__________
DRWN. BY:________ DSGN. BY:__________ CHKD. BY:__________ SHEET NO.:____OF____

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UNIT 1

PIPE BEDDING & MISC. DRAINAGE DETAILS

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C44

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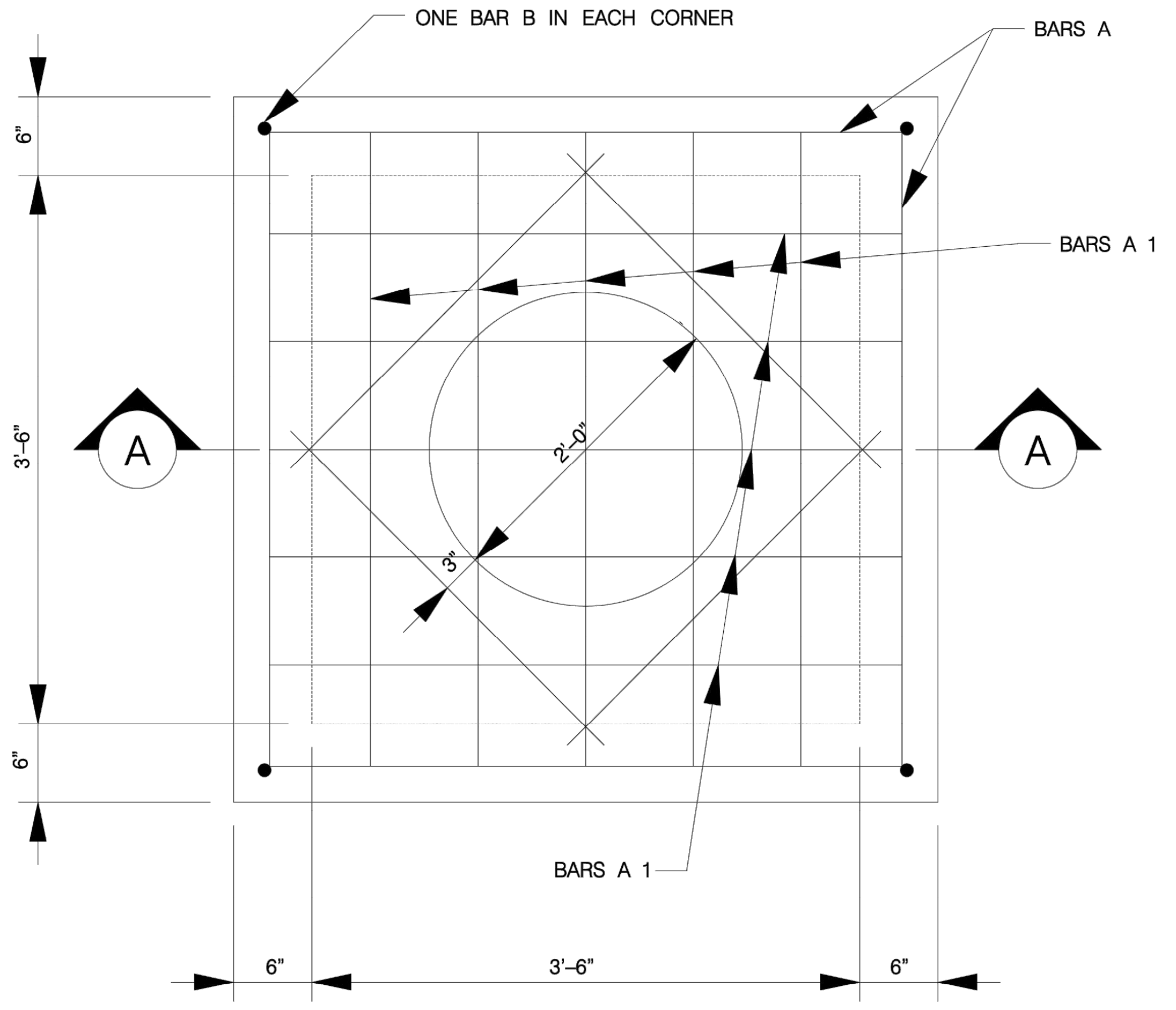
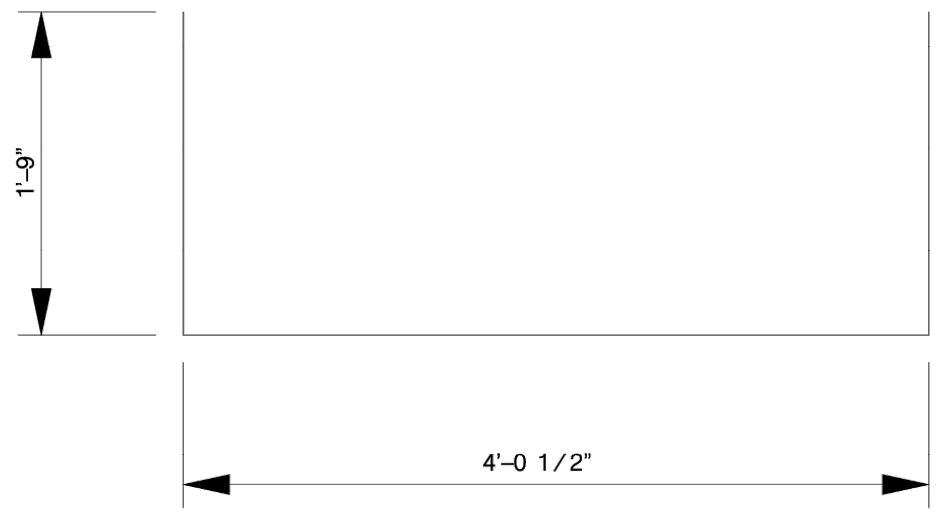
NOTES FOR MANHOLE LID AND RING

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
6. MANHOLE DIAMETER TO BE 30" MIN.



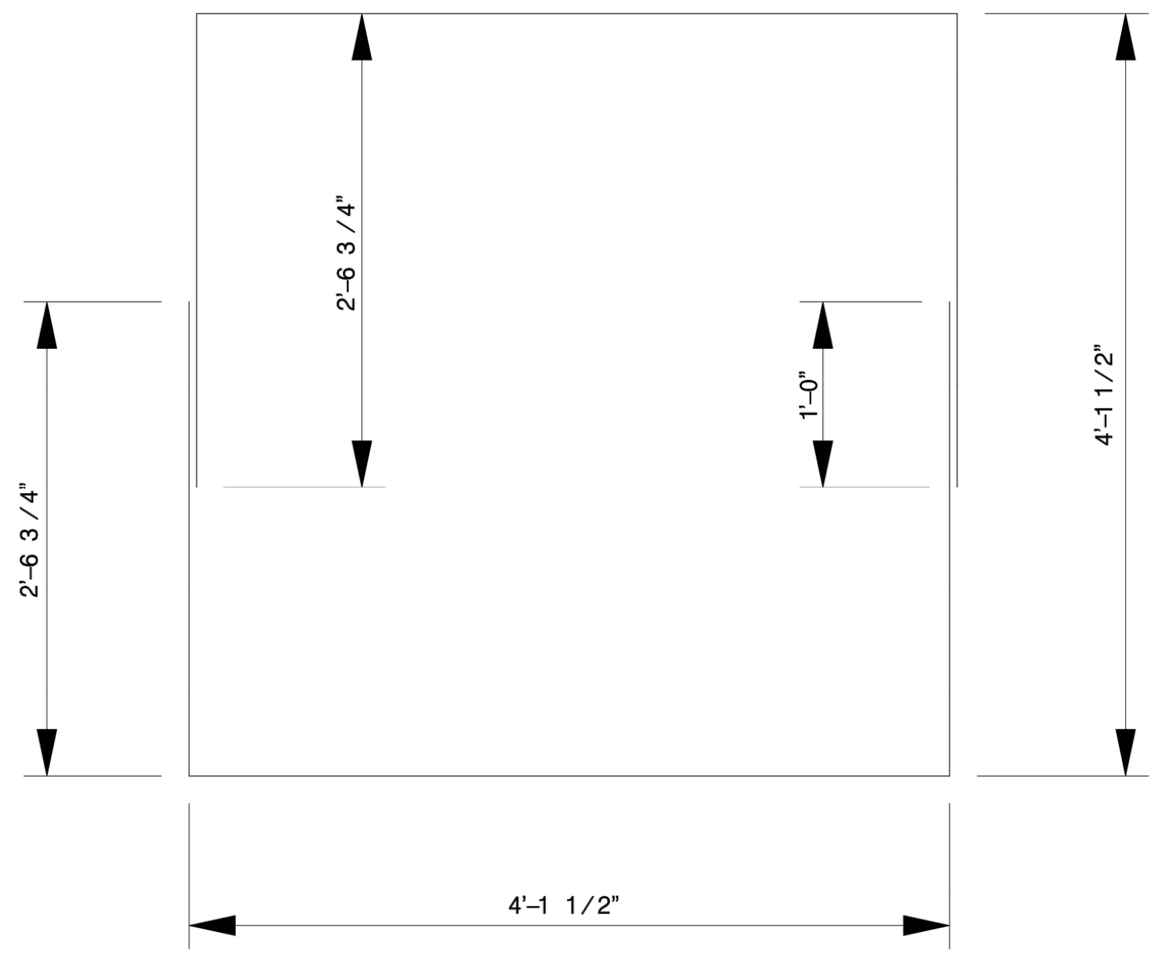
TOP SLAB PLAN VIEW

SCALE: 1" = 2' – 0"



BARS A

SCALE: 1" = 2' – 0"

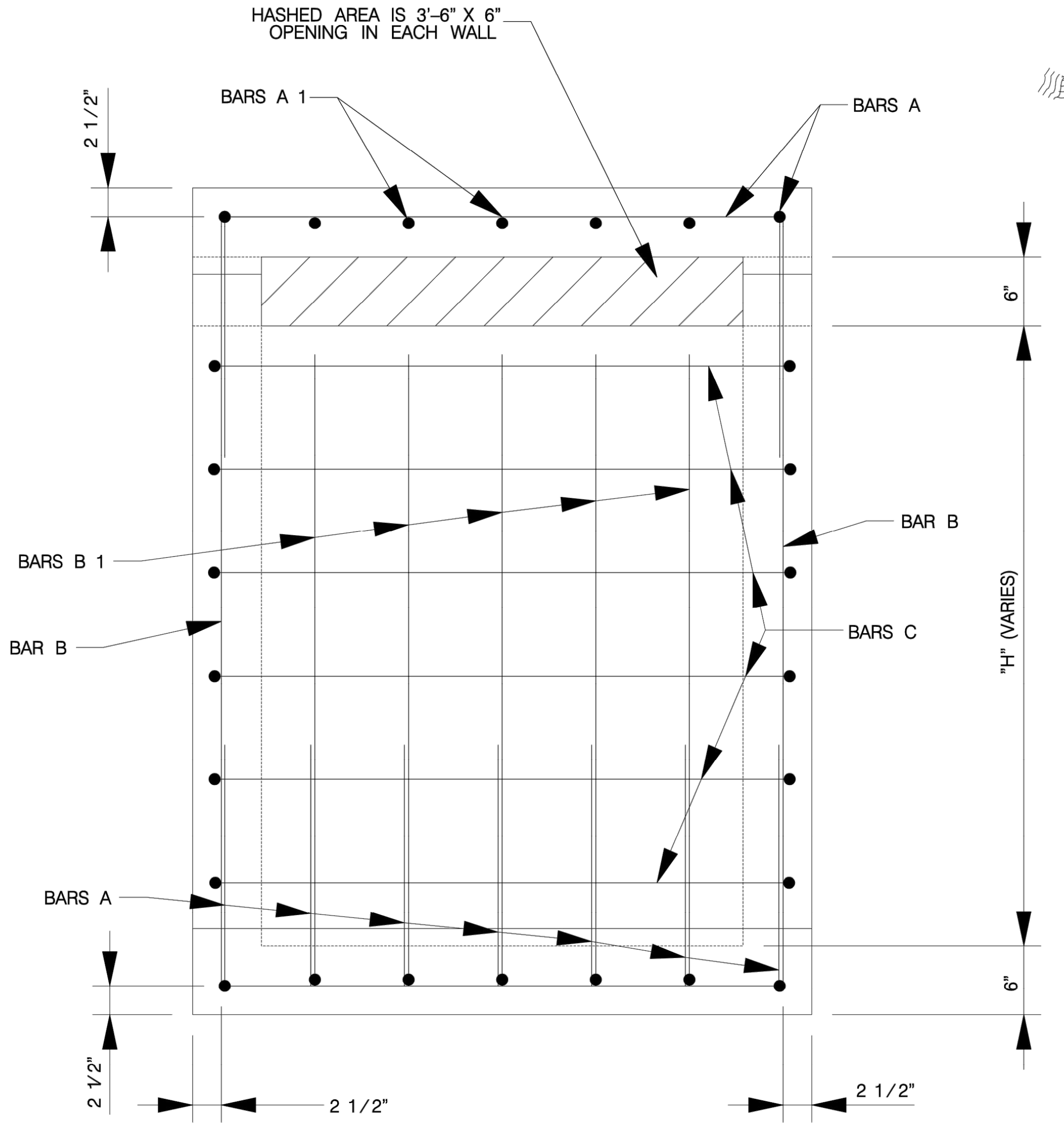


BARS C

SCALE: 1" = 2' – 0"

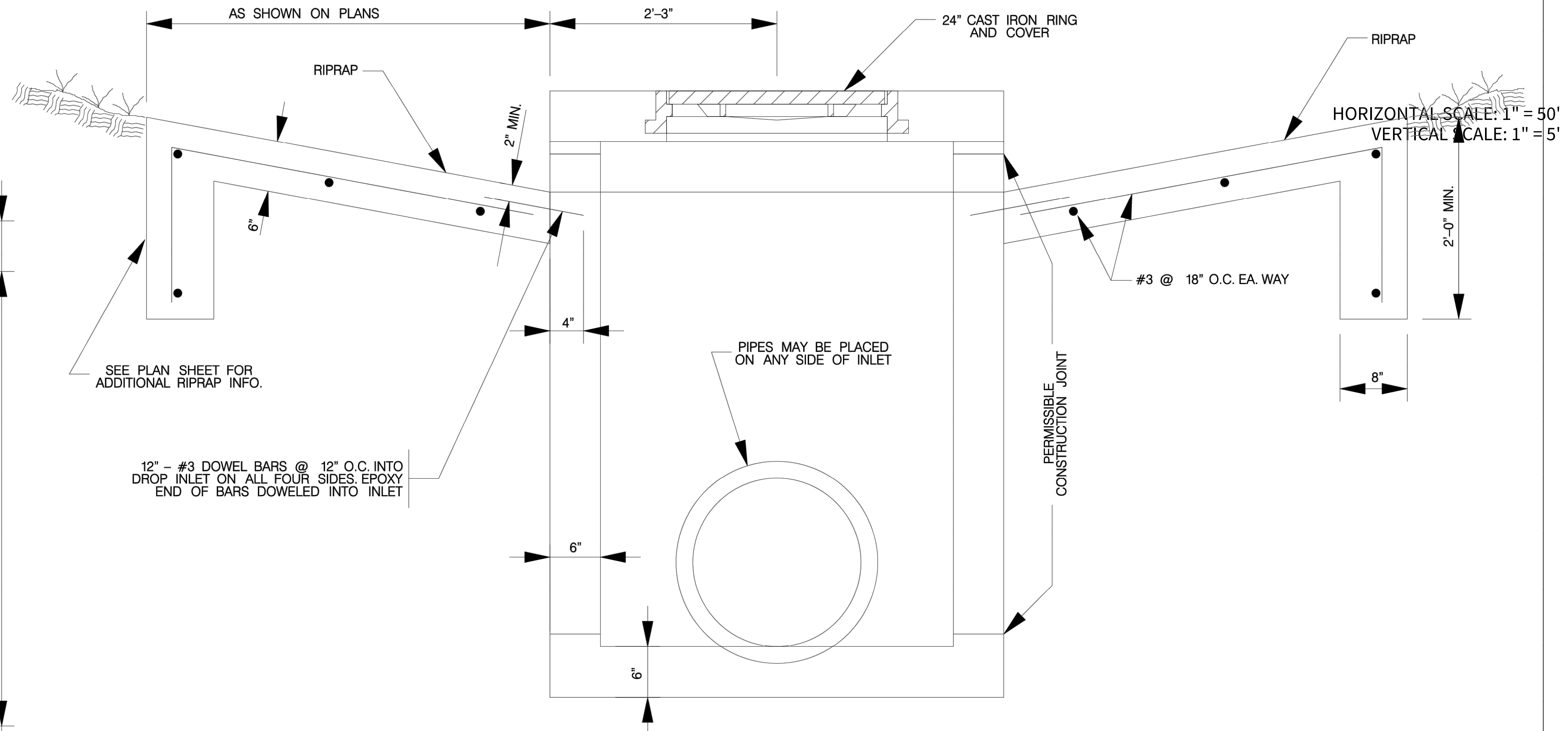
ESTIMATED QUANTITIES FOR "H" = 4'-6"					
REINFORCING STEEL					
BAR	NO.	SIZE	SPACE	LENGTH	WEIGHT
A	18	4	8" +/-	7'-6 1/2"	79
A 1	10	4	8" +/-	4'-0 1/2"	27
B	4	4	AS SHOWN	5'-7"	15
B 1	20	4	8" +/-	4'-7"	61
C	12	4	9" +/-	18'-6"	148
J	4	4	AS SHOWN	2'-8"	6
TOTAL REINFORCING STEEL					336 Lbs. *
CLASS A CONCRETE					2.10 CY *

* FOR CONTRACTOR'S INFORMATION ONLY.
QUANTITIES VARY WITH "H".
SEE INLET & MANHOLE SUMMARY SHEETS FOR "H".



SIDE VIEW WALL

SCALE: 1" = 2' – 0"


AS SHOWN ON PLANS
2'-3"
24" CAST IRON RING AND COVER
RIPRAP
RIPRAP
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'
2" MIN.
6"
2'-0" MIN.
#3 @ 18" O.C. EA. WAY
4"
8"
SEE PLAN SHEET FOR ADDITIONAL RIPRAP INFO.
PIPES MAY BE PLACED ON ANY SIDE OF INLET
PERMISSIBLE CONSTRUCTION JOINT
12" – #3 DOWEL BARS @ 12" O.C. INTO DROP INLET ON ALL FOUR SIDES. EPOXY END OF BARS DOWELED INTO INLET
6"
6"

SECTION A–A

SCALE: 1" = 2' – 0"

GENERAL NOTES:

1. ALL BARS INTERCEPTING THE RING AND COVER OPENING AND PIPE OPENINGS. SHALL BE FIELD CUT
2. CONCRETE SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
3. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
4. ALL EXPOSED CORNERS SHALL HAVE 3/4" CHAMFER
5. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, RING, AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".

JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

4–WAY INLET STANDARDS

____% SUBMITTAL	PROJECT NO.:____		DATE:____
DRWN. BY: M. BARRERA, P.E.	DSGN. BY:____	CHKD. BY:____	SHEET NO.:____OF____

CUDEENGINEERS.COM

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

GEORGE'S RANCH

4-WAY INLET STANDARD DETAILS

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
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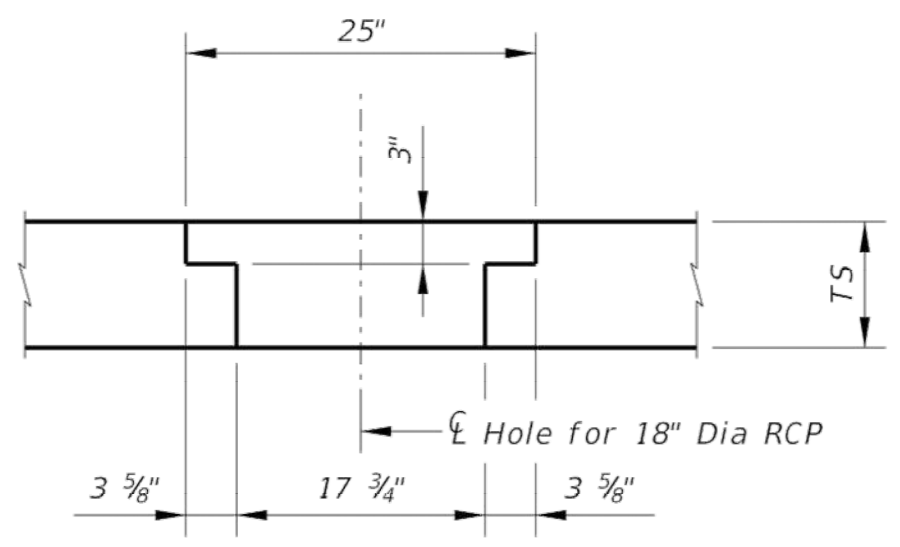
W. PATRICK MURPHY
111597
3/3/2023

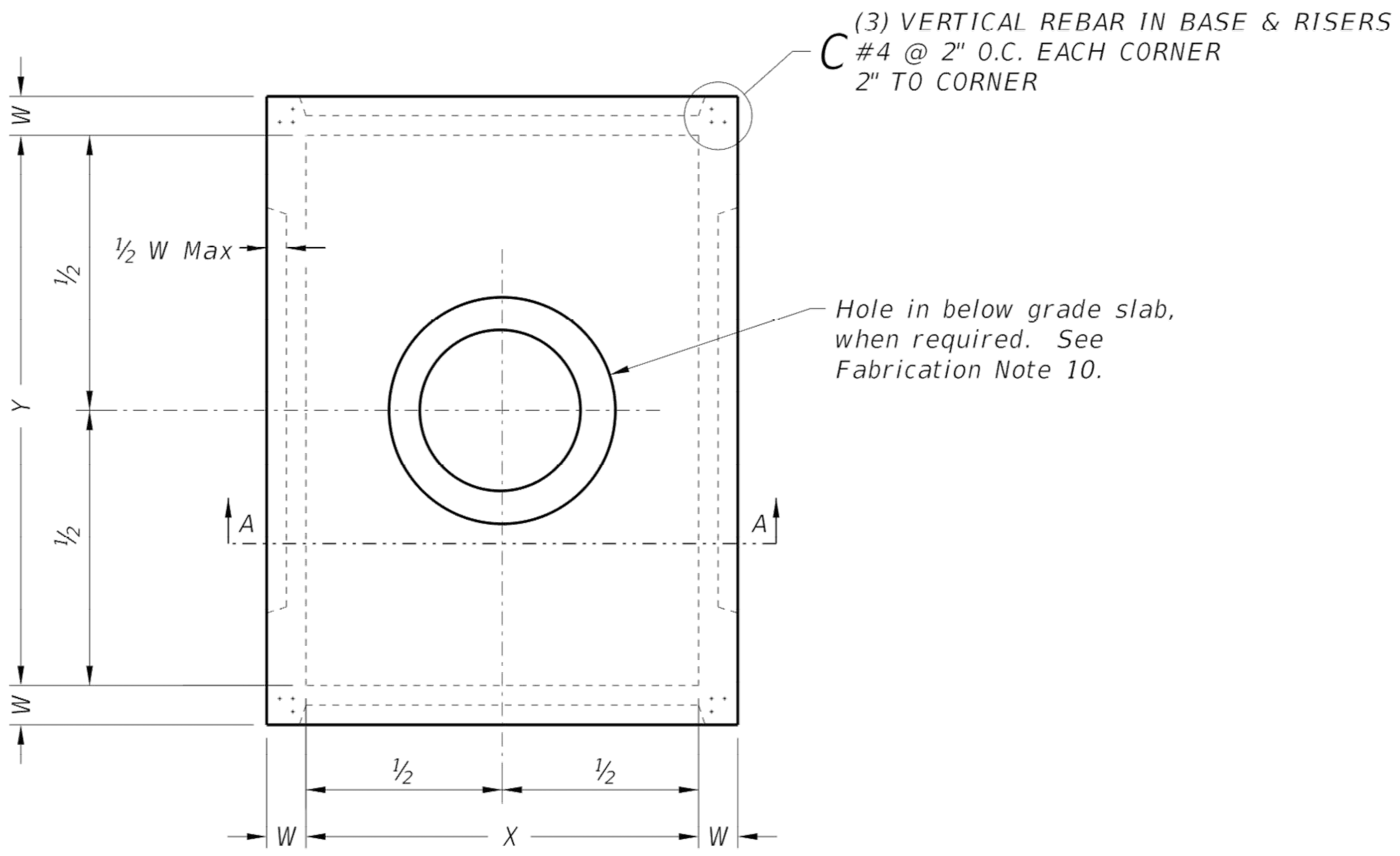
CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

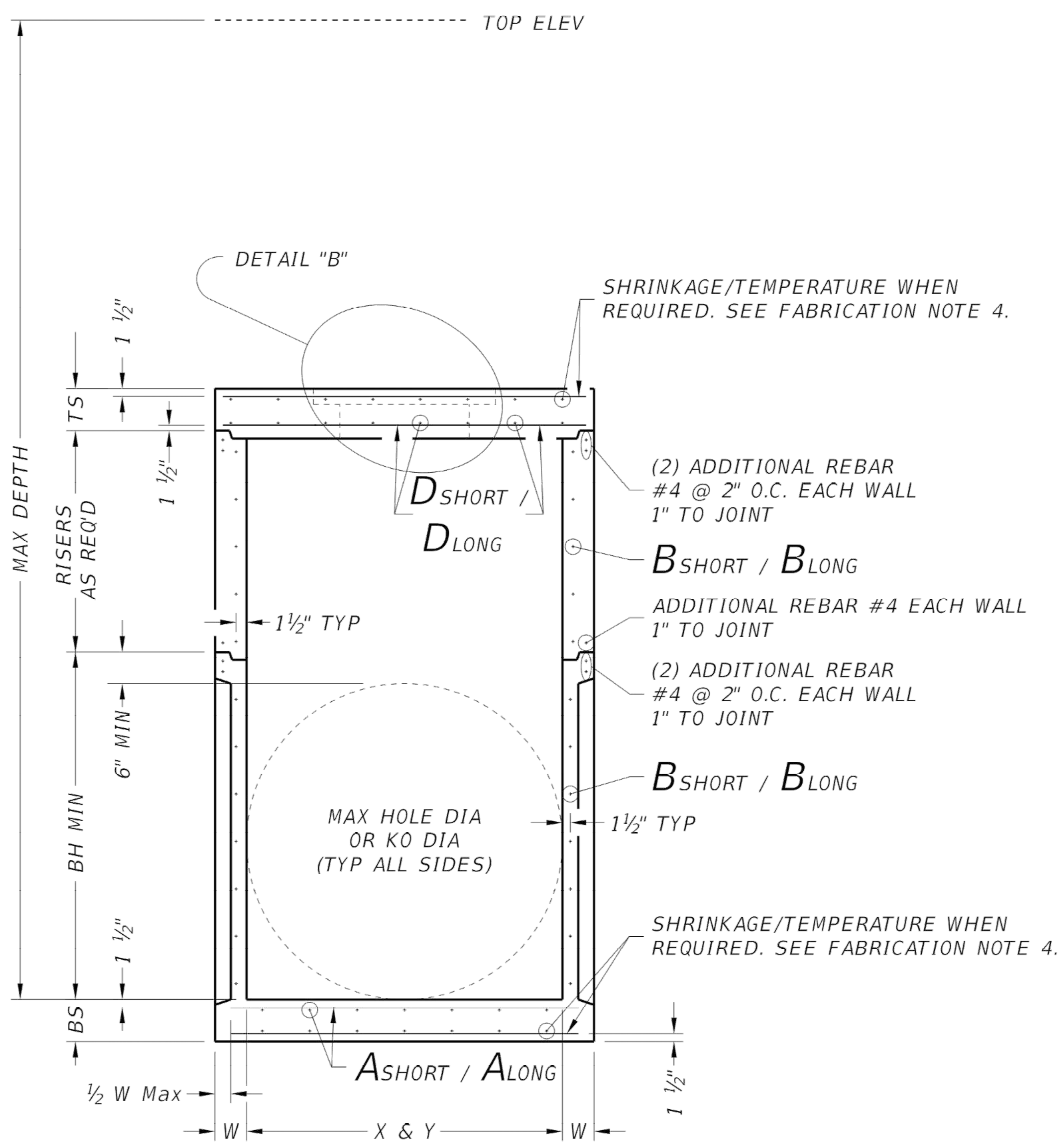
C44A



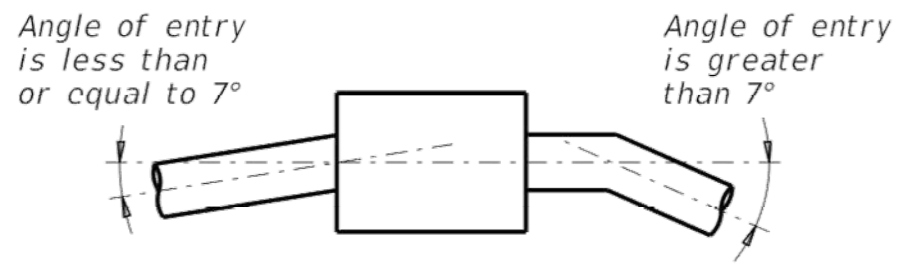
DETAIL "B"


C
(3) VERTICAL REBAR IN BASE & RISERS
#4 @ 2" O.C. EACH CORNER
2" TO CORNER
W
½
½ W Max
Y
½
A
A
Hole in below grade slab, when required. See Fabrication Note 10.
W
½
½
W
X
W

PLAN VIEW


TOP ELEV
DETAIL "B"
SHRINKAGE/TEMPERATURE WHEN REQUIRED. SEE FABRICATION NOTE 4.
1 ½"
TS
1 ½"
MAX DEPTH
RISERS AS REQ'D
DSHORT / DLONG
(2) ADDITIONAL REBAR #4 @ 2" O.C. EACH WALL 1" TO JOINT
BSHORT / BLONG
1½" TYP
ADDITIONAL REBAR #4 EACH WALL 1" TO JOINT
(2) ADDITIONAL REBAR #4 @ 2" O.C. EACH WALL 1" TO JOINT
6" MIN
BH MIN
BSHORT / BLONG
MAX HOLE DIA OR KO DIA (TYP ALL SIDES)
1½" TYP
1 ½"
SHRINKAGE/TEMPERATURE WHEN REQUIRED. SEE FABRICATION NOTE 4.
BS
ASHORT / ALONG
½ W Max
W
X & Y
W
1 ½"

SECTION A-A


Angle of entry is less than or equal to 7°
Angle of entry is greater than 7°

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.

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 ¾".
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. Inverts (benching) 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 boot/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.

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

PRECAST JUNCTION BOX

PJB

FILE: prestd09-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.

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FILE:

GEORGE'S RANCH UNIT 1
UNIT 1

JUNCTION BOX DETAIL

DATE
04/22/2022

PROJECT NO.
03546.001

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AB/RR

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WPM

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W. PATRICK MURPHY
111597
7/18/2022

CUDE ENGINEERS
TBPE No. 455

C45

		MAX DEPTH = 15 ft. to top of BASE SLAB										MAX DEPTH = 25 ft. to top of BASE SLAB												
		Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)				Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)						
	Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Reduced Riser Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Reduced Riser Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Min Height (See Gen Note 3)	Max HOLE DIA (See Fab Note 2)	Max KO DIA (See Fab Note 2)
	X x Y	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Dlong	TS	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Dlong	TS	BH MIN	HOLE DIA	KO DIA
	ft.	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	ft. **	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	ft. **	in^2/ft	in^2/ft	in.	ft.	in.	in.
Precast Junction Box (PJB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	0.37	0.37	9	0.29	0.29	6	0.24	0.24	6	N/A	0.37	0.37	9	3.5	36	36
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	0.41	0.41	9	0.47	0.47	6	0.38	0.38	6	N/A	0.41	0.41	9	4.5	48	48
	3x5	0.29	0.18	6	0.19	0.35	6	N/A	0.48	0.48	9	0.39	0.18	6	0.23	0.59	6	N/A	0.48	0.48	9	3.5	36/60	36/60
	4x5	0.36	0.18	6	0.22	0.34	6	N/A	0.42	0.42	9	0.53	0.26	6	0.39	0.59	6	N/A	0.42	0.42	9	4.5	48/60	48/60
	5x5	0.36	0.36	6	0.34	0.34	6	N/A	0.43	0.43	9	0.62	0.62	6	0.59	0.59	6	N/A	0.43	0.43	9	5.5	60	60
	5x6	0.27	0.27	9	0.34	0.45	6	N/A	0.48	0.48	9	0.47	0.45	9	0.38	0.54	8	N/A	0.48	0.48	9	5.5	60/72	60/72
	6x6	0.27	0.27	9	0.45	0.45	6	N/A	0.56	0.56	9	0.52	0.52	9	0.54	0.54	8	N/A	0.56	0.56	9	6.5	72	72
	8x8	0.46	0.46	9	0.51	0.51	8	N/A	0.45	0.45	12	0.87	0.87	9	0.59	0.59	10	N/A	0.45	0.45	12	8.5	96	72
Precast Base (PB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	N/A	N/A	N/A	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	3.5	36	36
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	0.47	0.47	6	0.38	0.38	6	N/A	N/A	N/A	N/A	4.5	48	48
	3x5	0.29	0.18	6	0.19	0.35	6	3x3	0.30	0.34	9	0.39	0.18	6	0.23	0.59	6	3x3	0.40	0.40	9	3.5	36/60	36/60
	4x5	0.36	0.18	6	0.22	0.34	6	3x3	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	3x3	0.46	0.37	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	4x4	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	4x4	0.39	0.39	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	48"	0.39	0.39	9	0.53	0.26	6	0.39	0.59	6	48"	0.47	0.47	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	3x5	0.33	0.40	9	0.53	0.26	6	0.39	0.59	6	3x5	0.48	0.48	9	4.5	48/60	48/60
	5x5	0.36	0.36	6	0.34	0.34	6	3x3	0.34	0.34	9	0.62	0.62	6	0.59	0.59	6	3x3	0.53	0.53	9	5.5	60	60
	5x5	0.36	0.36	6	0.34	0.34	6	4x4	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	4x4	0.64	0.64	9	5.5	60	60
	5x5	0.38	0.38	6	0.34	0.34	6	48"	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	48"	0.64	0.64	9	5.5	60	60
	5x5	0.36	0.36	6	0.34	0.34	6	3x5	0.34	0.40	9	0.62	0.62	6	0.59	0.59	6	3x5	0.53	0.53	9	5.5	60	60
	5x6	0.31	0.31	9	0.34	0.45	6	3x3	0.34	0.34	9	0.47	0.45	9	0.38	0.54	8	3x3	0.61	0.50	9	5.5	60/72	60/72
	5x6	0.27	0.27	9	0.34	0.45	6	4x4	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	4x4	0.74	0.57	9	5.5	60/72	60/72
	5x6	0.29	0.29	9	0.34	0.45	6	48"	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	48"	0.74	0.57	9	5.5	60/72	60/72
	5x6	0.29	0.29	9	0.34	0.45	6	3x5	0.45	0.45	9	0.47	0.45	9	0.38	0.54	8	3x5	0.61	0.61	9	5.5	60/72	60/72
	6x6	0.29	0.29	9	0.45	0.45	6	3x3	0.41	0.41	9	0.52	0.52	9	0.54	0.54	8	3x3	0.74	0.74	9	6.5	72	72
	6x6	0.27	0.27	9	0.45	0.45	6	4x4	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	4x4	0.87	0.87	9	6.5	72	72
	6x6	0.29	0.29	9	0.45	0.45	6	48"	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	48"	0.87	0.87	9	6.5	72	72
	6x6	0.29	0.29	9	0.45	0.45	6	3x5	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	3x5	0.87	0.87	9	6.5	72	72
	8x8	0.52	0.52	9	0.51	0.51	8	3x3	0.61	0.61	12	0.91	0.91	9	0.70	0.70	10	3x3	0.85	0.85	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	4x4	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	4x4	1.01	1.01	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	48"	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	48"	1.01	1.01	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	3x5	0.70	0.85	12	0.87	0.87	9	0.70	0.70	10	3x5	1.01	1.01	12	8.5	96	72

** Unless otherwise indicated.

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FABRICATION NOTES:
1. Maximum spacing of reinforcement is 8".
2. At manufacturer's option, provide cast or cored holes or thin wall panels (KO) to the maximum diameter shown for each. When no penetration is required, it is acceptable to provide a wall with no sectional reduction.

GENERAL NOTES:
1. Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PJB for details.
2. Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PB for details.
3. Min Height shown is for stock base units. Use stock base units whenever practical. Smaller height base units can be used in special installation circumstances, when noted elsewhere in the plans. Absolute minimum height of base units is 2'-6".

HL93 LOADING

Texas Department of Transportation
Bridge Division Standard

DESIGN DATA FOR PRECAST BASE AND JUNCTION BOX

PDD

FILE: prestd10-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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San Antonio, Texas 78231
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GEORGE'S RANCH UNIT 1
UNIT 1

JUNCTION BOX DETAIL

DATE	04/22/2022
PROJECT NO.	03546.001
DRAWN BY	AB/RR
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111597
7/18/2022
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C46

46 OF 55

P:\03546\001\2-Drawings\01_120 CITY OF SAN ANTONIO - DRAIN INLET TYPE 'C' DETAILS.dwg 2022/07/12 8:03am rreyes

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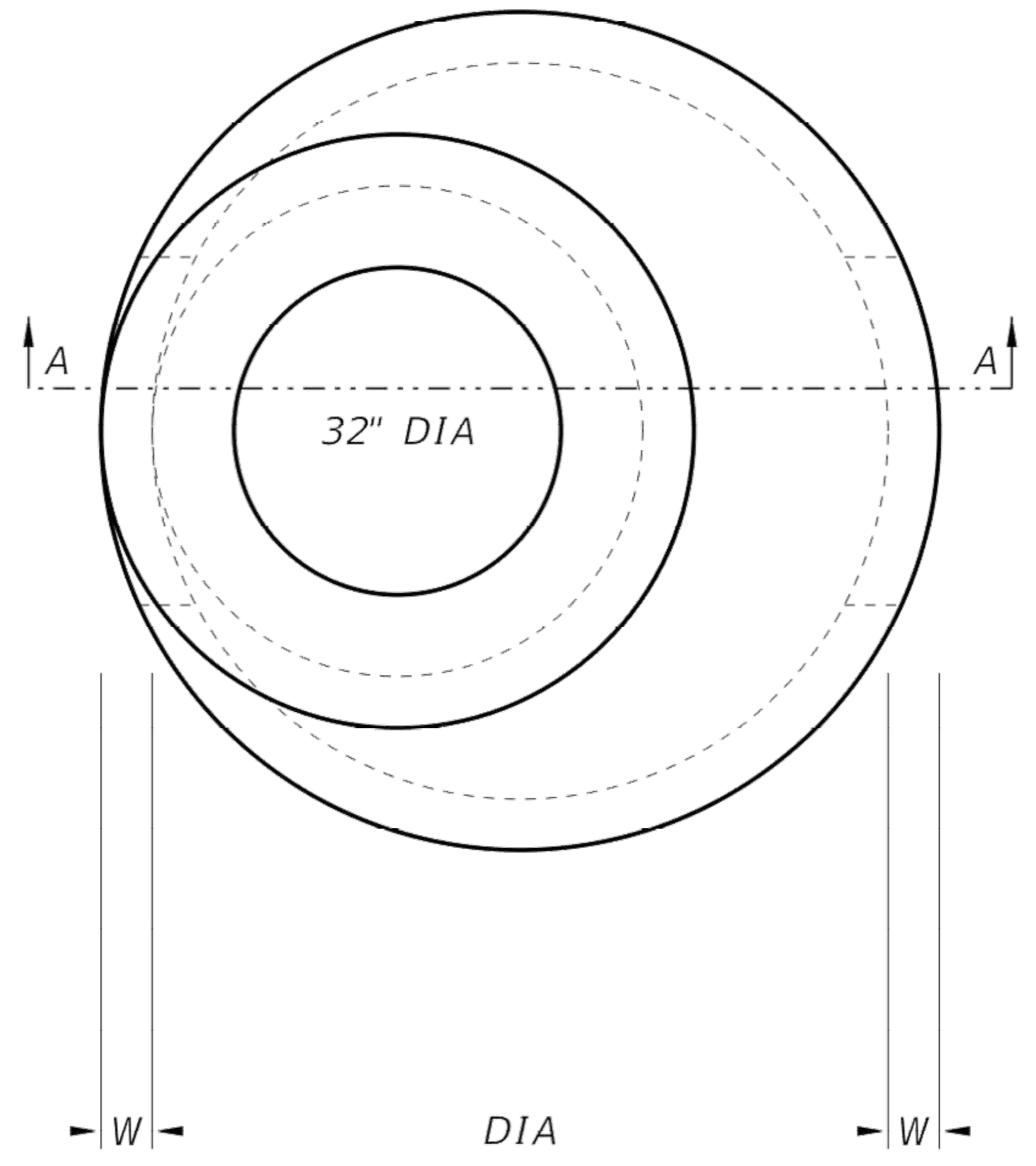
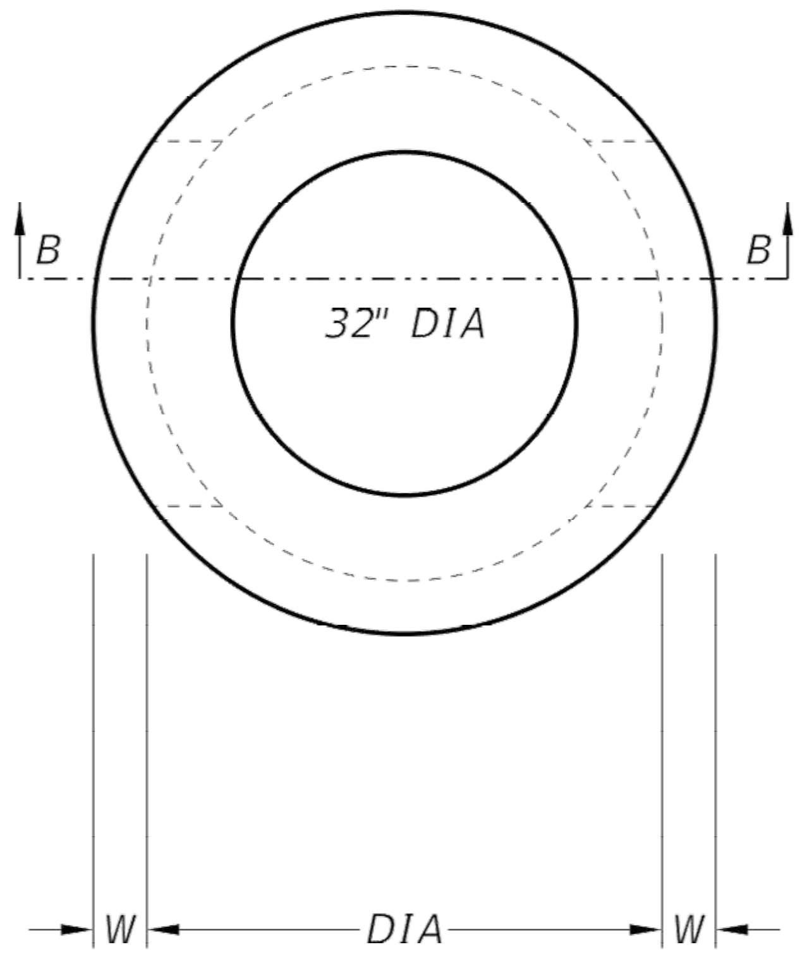
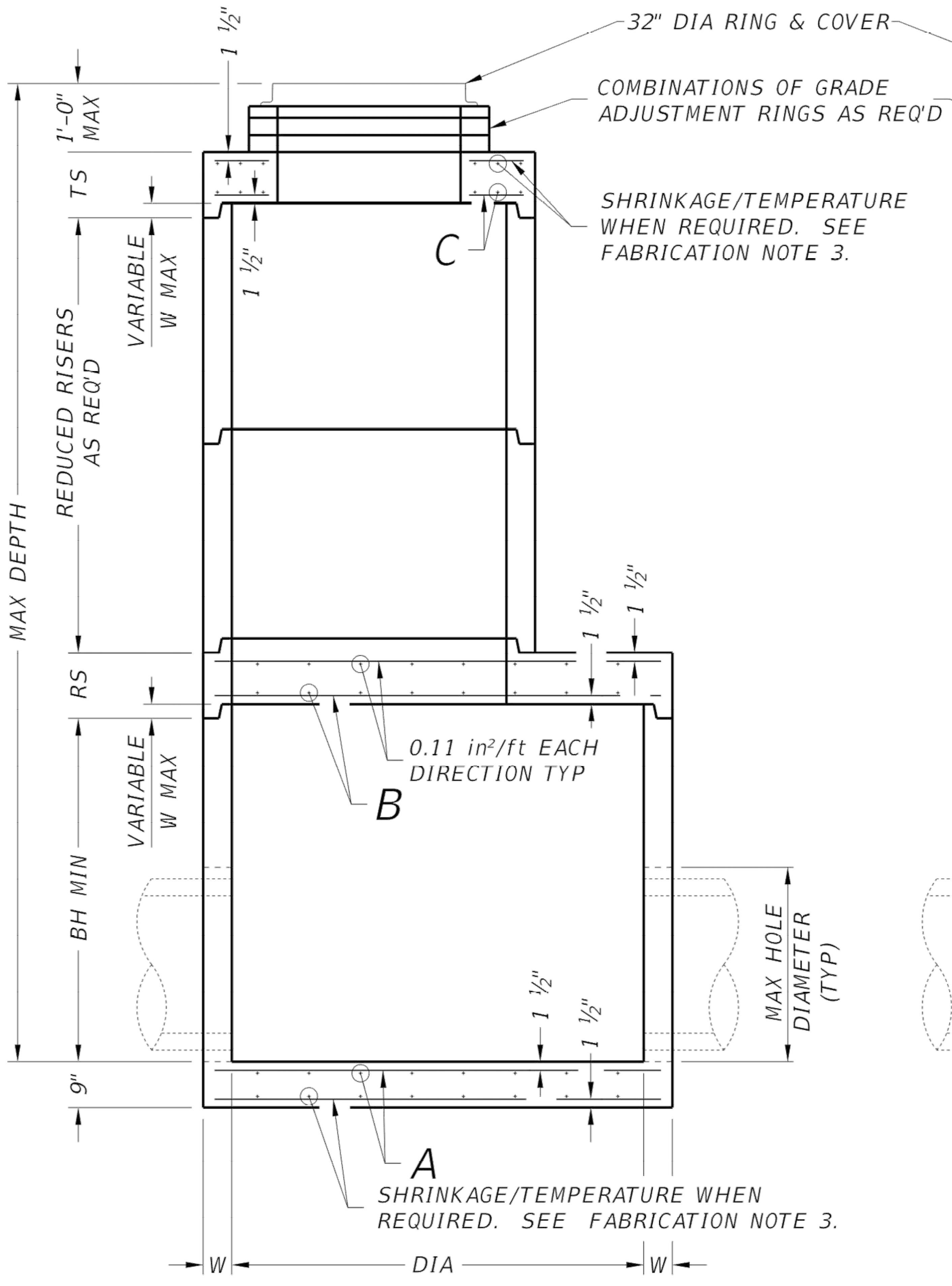


PLAN VIEW "A"

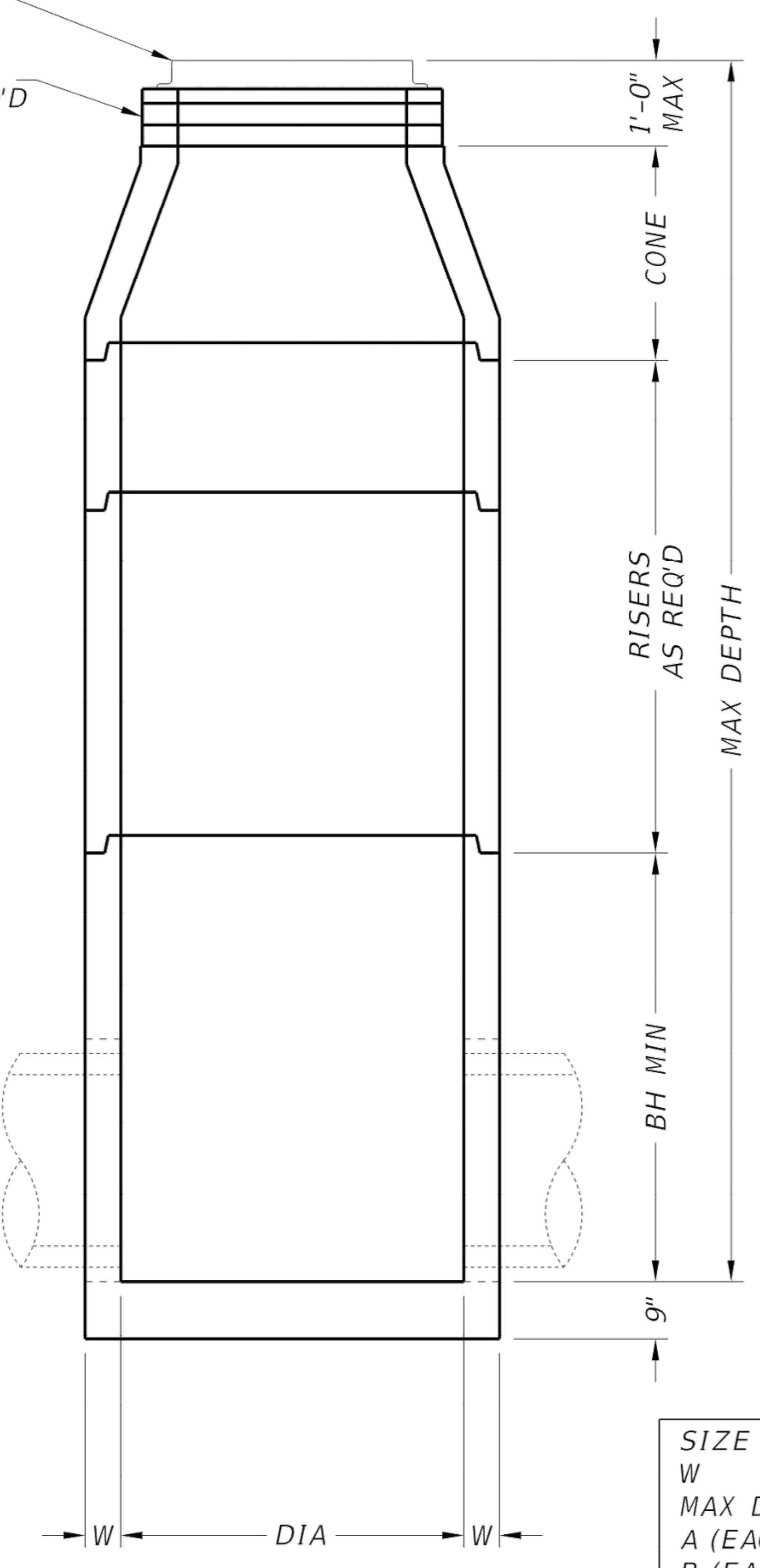


PLAN VIEW "B"


32" DIA RING & COVER
COMBINATIONS OF GRADE ADJUSTMENT RINGS AS REQ'D
SHRINKAGE/TEMPERATURE WHEN REQUIRED. SEE FABRICATION NOTE 3.
1 ½"
1'-0" MAX
TS
C
1 ½"
REDUCED RISERS AS REQ'D
VARIABLE W MAX
MAX DEPTH
RS
1 ½"
1 ½"
0.11 in²/ft EACH DIRECTION TYP
B
VARIABLE W MAX
BH MIN
MAX HOLE DIAMETER (TYP)
1 ½"
1 ½"
9"
A
SHRINKAGE/TEMPERATURE WHEN REQUIRED. SEE FABRICATION NOTE 3.
W
DIA
W

SECTION A-A

ROUND REDUCED RISER OPTION
SHOWING FLAT SLAB TOP



SECTION B-B

ROUND RISER OPTION
SHOWING CONE

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. Provide circumferential reinforcing steel in vertical walls of base, riser and cone in accordance with ASTM C478.
3. Slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in^2/ft each way.
4. Manufacture base and risers to nearest 3" increment.
5. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
6. Provide lifting devices in conformance with Manufacturer's recommendations.
7. Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.

INSTALLATION NOTES:

1. Cones may be concentric or eccentric. Reduction cones are acceptable. See Manufacturer for cone dimensions.
2. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to this item.
3. 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.
4. Do not grout rubber gasket joints without Manufacturer's recommendation.
5. Initial installation of grade adjustment rings is limited to 1'-0" Max as shown.
6. Grade adjustment rings may be increased to 2'-0" Max when future construction affects final grade of structure. Make adjustments greater than 2'-0" with additional risers. Adjustments may be made up to the Max depth shown. Structure must be evaluated if Max depth will be exceeded.

GENERAL NOTES:

1. Designed according to ASTM C478.
2. Payment for manhole is per Item 465, "Junction Boxes, Manholes, and Inlets" by type and size.
3. Pipe OD + placement tolerance must be equal or less than Max hole diameter. For rigid pipe, placement tolerance is 4" Max, 2" Min. For flexible pipe, consult boot/seal manufacturer's specification for placement tolerance.

Cover dimensions are clear dimensions, unless noted otherwise.

SIZE (DIA)	48 in	60 in	72 in
W	5 in	6 in	7 in
MAX DEPTH	25 ft	25 ft	25 ft
A (EACH WAY)	0.22 in^2/ft	0.30 in^2/ft	0.45 in^2/ft
B (EACH WAY)	N/A	0.37 in^2/ft	0.62 in^2/ft
C (EACH WAY)	0.24 in^2/ft	0.46 in^2/ft	0.46 in^2/ft
BH MIN	12 in	36 in	36 in
TS	9 in	9 in	9 in
RS	N/A	9 in	12 in
REDUCED RISER DIA	N/A	48 in	48/60 in
MAX HOLE DIA	32 in	40 in	54 in

HL93 LOADING

Texas Department of Transportation
Bridge Division Standard

PRECAST ROUND MANHOLE

PRM

FILE: prestd02-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
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4122 Pond Hill Road, Suite 101
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GEORGE'S RANCH UNIT 1
UNIT 1

TXDOT - PRECAST ROUND MANHOLE

DATE
04/22/2022

PROJECT NO.
03546.001

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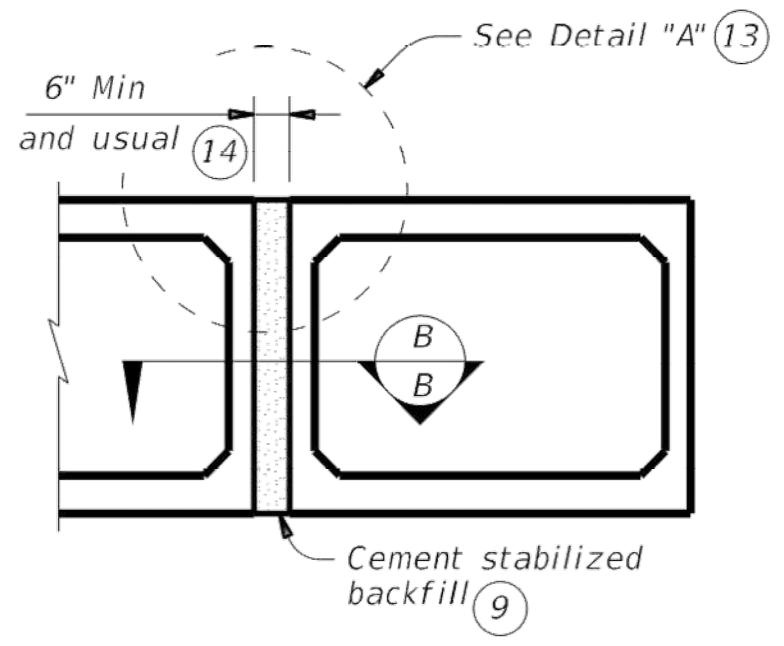
W. PATRICK MURPHY
111597
7/18/2022

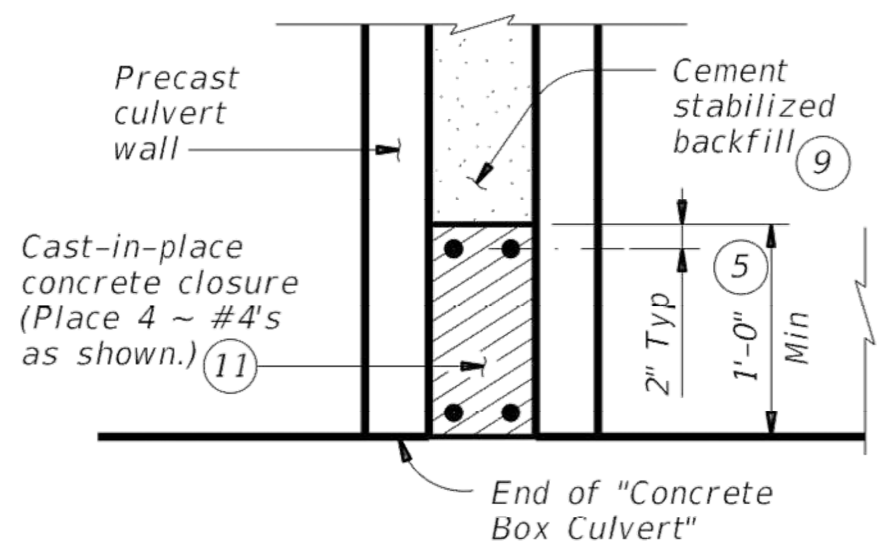
CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

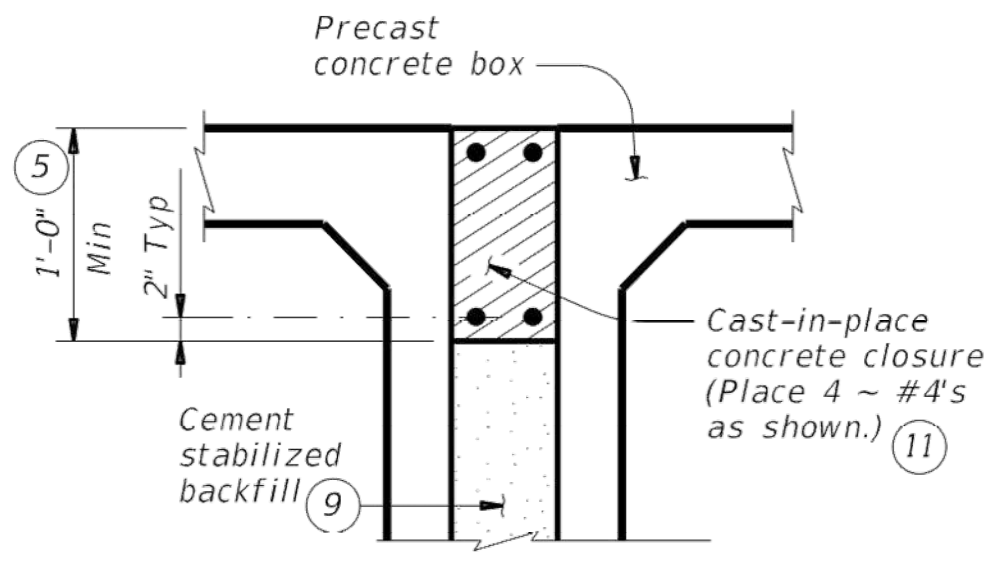
C47



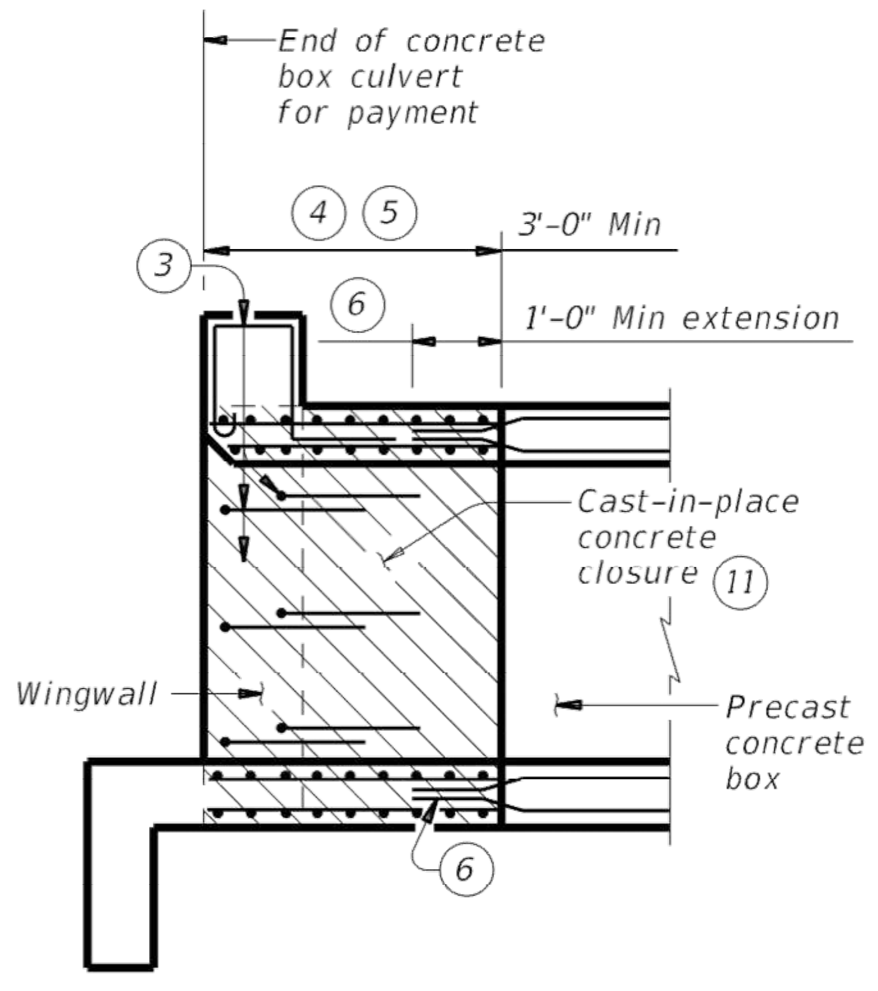
MULTIPLE UNIT PLACEMENT



SECTION B-B

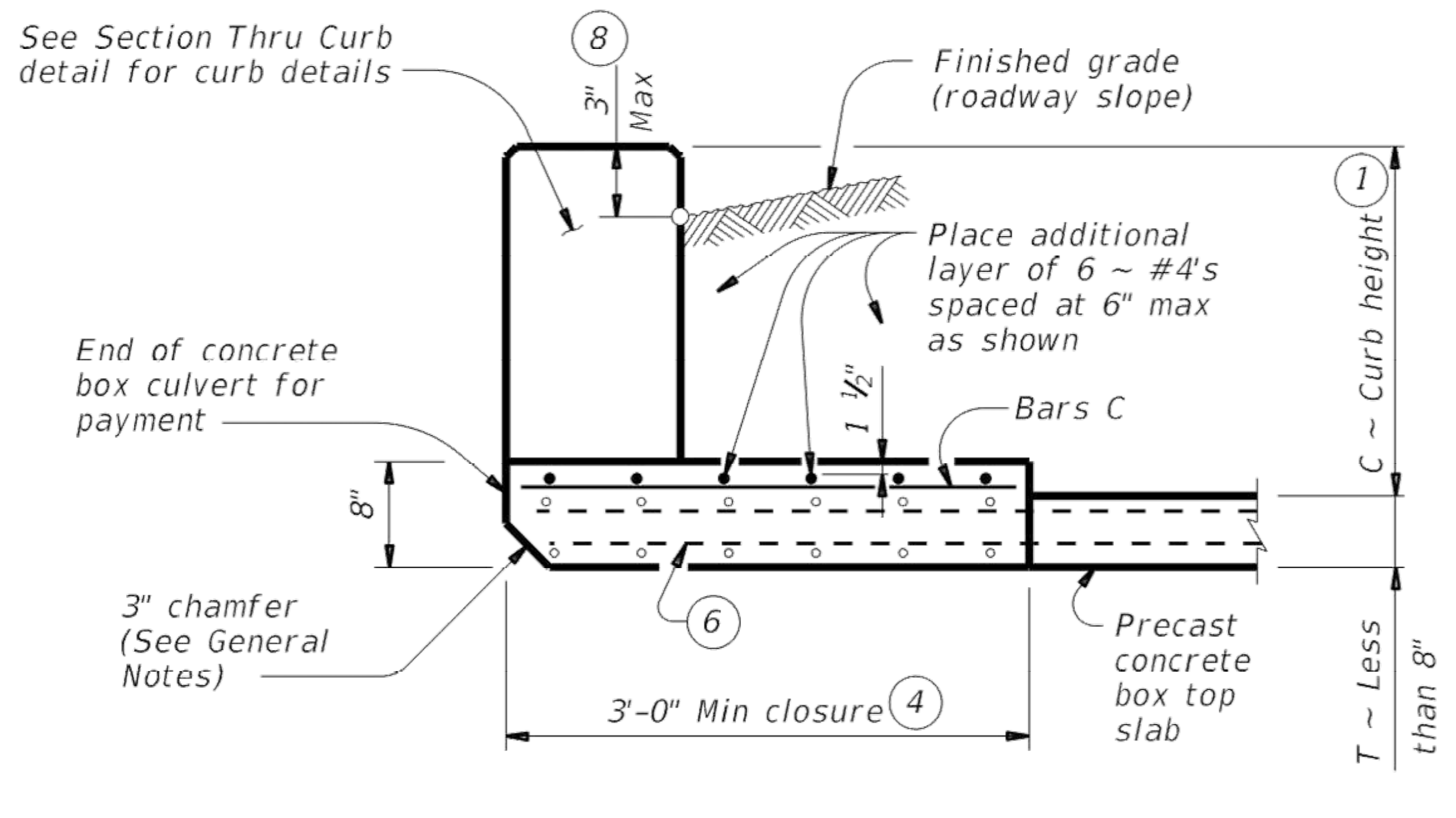


DETAIL "A" ⑬

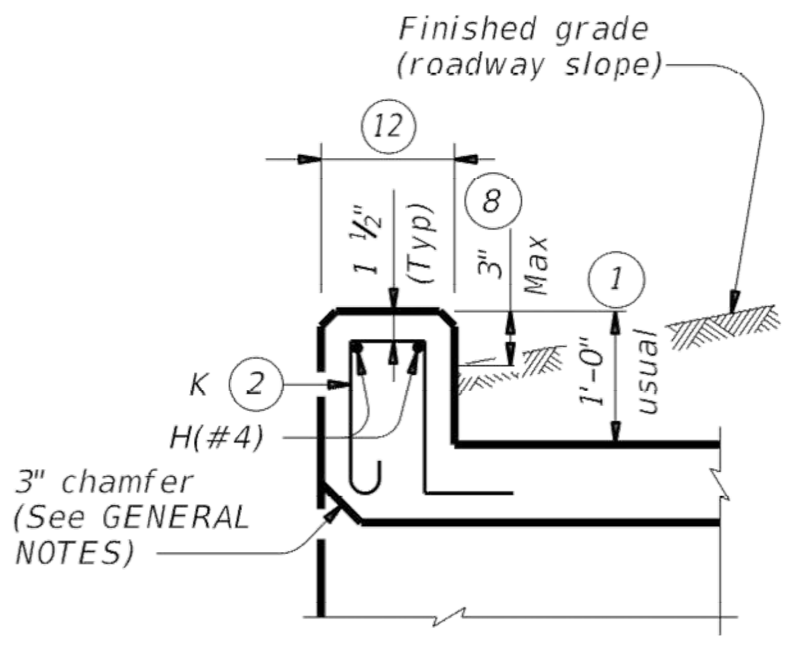


WINGWALL CONNECTION

(Also applies to safety end treatment.)

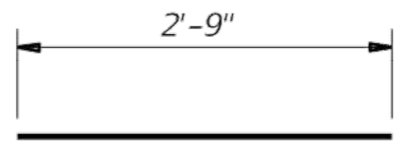


SECTION THRU TOP SLABS LESS THAN 8"

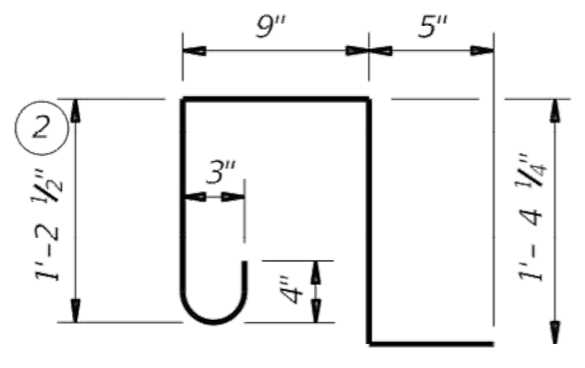


SECTION THRU CURB

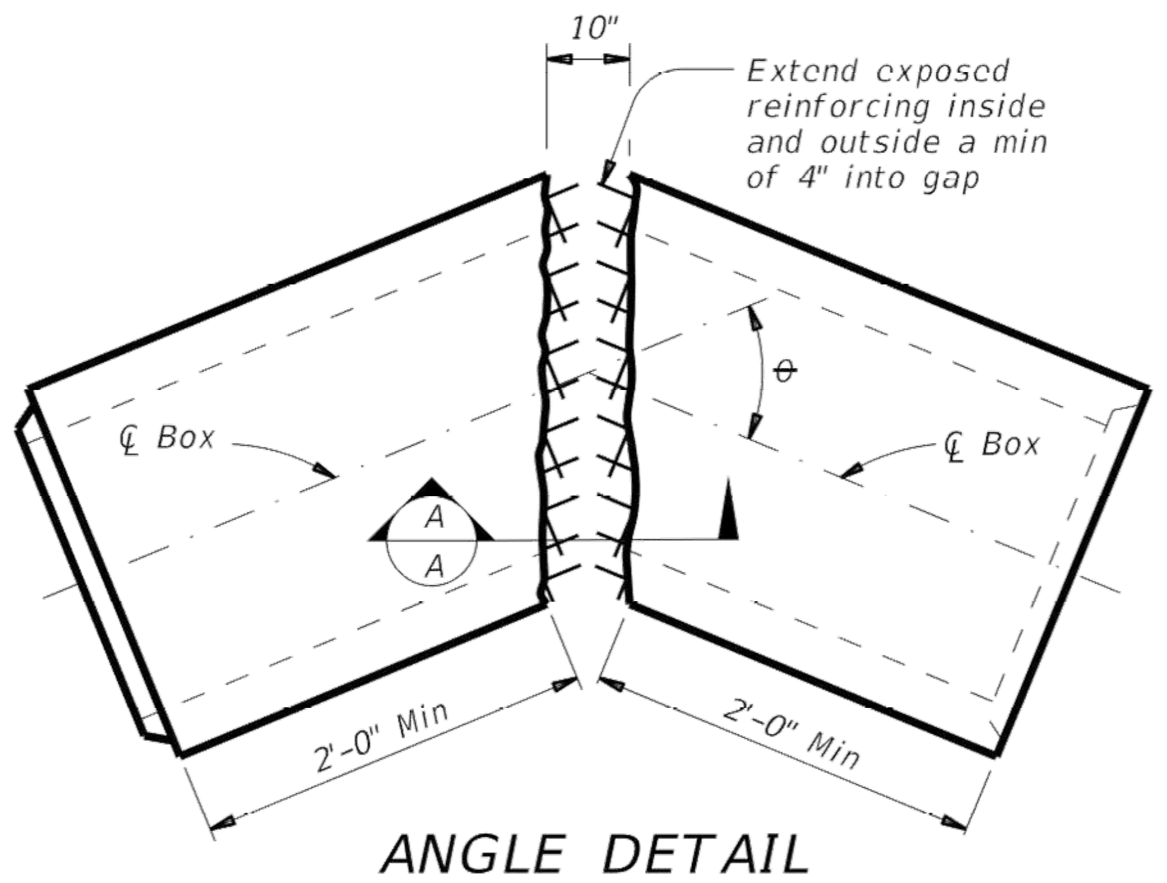
QUANTITIES PER FOOT OF CURB ⑩	
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY



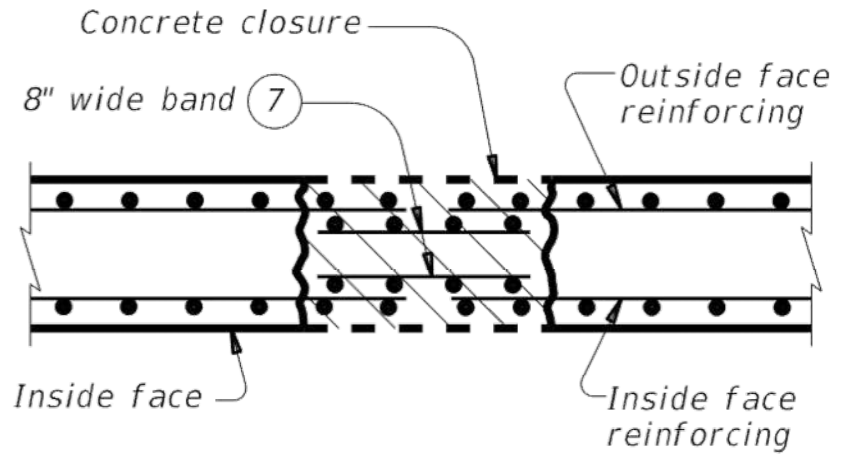
BARS C (#4)
(Spa = 1'-0" Max)



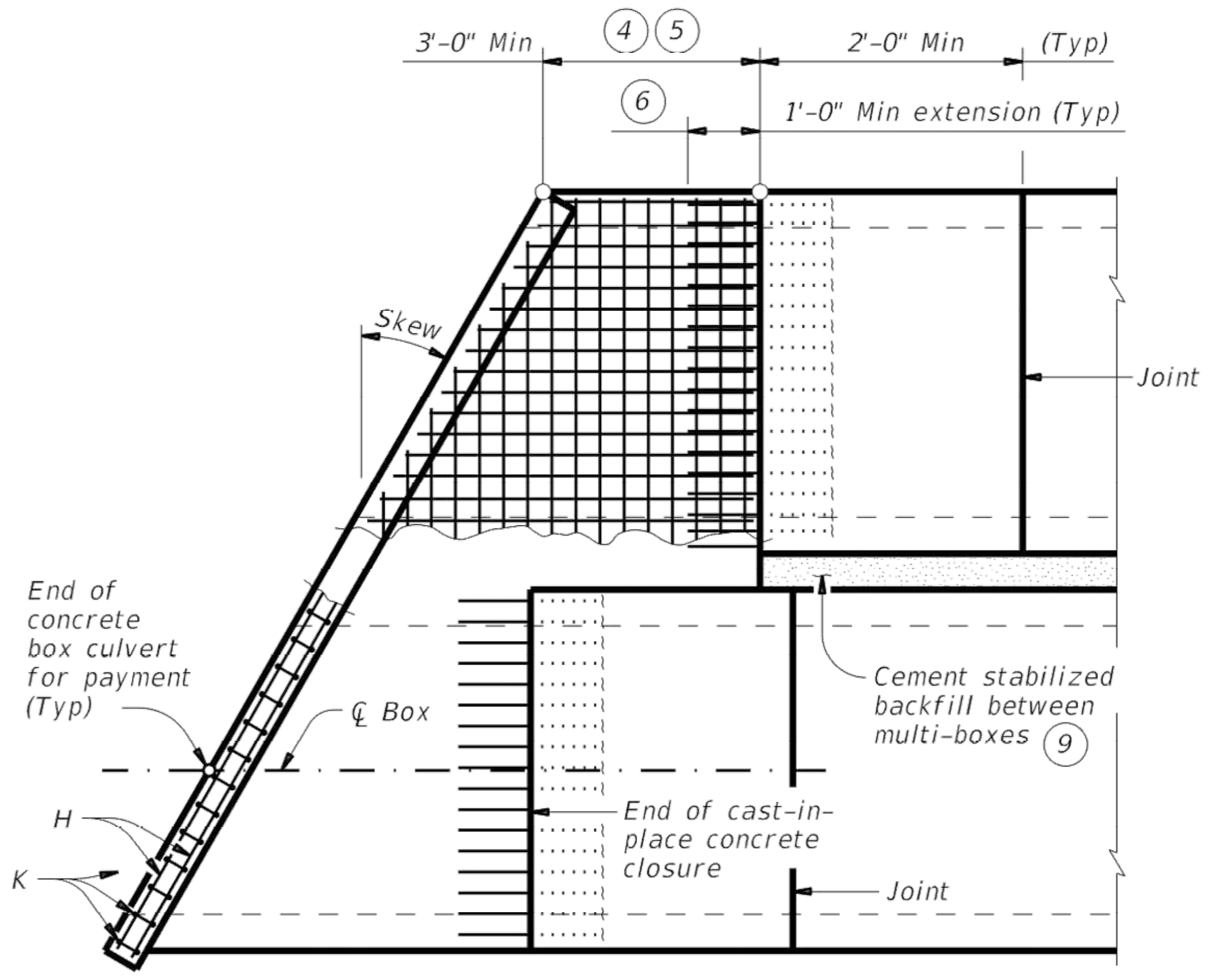
BARS K (#4)
(Spa = 1'-0" Max)
(Length = 4'-2")



ANGLE DETAIL



SECTION A-A



PLAN OF SKEWED ENDS

(Showing multi-box placement.)

① 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle 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 Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

② For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

③ Extend curb, wingwall, or safety end treatment reinforcing into concrete closure. Bend or trim, as necessary, any reinforcing that does not fit into closure area.

④ Provide a 3'-0" Min cast-in-place concrete closure. Break back boxes in the field or cast boxes short. Provide bands of reinforcing in the closure that are the same size and spacing as in the precast box section. Provide #4 longitudinal reinforcement spaced at 12 inches Max within the closure. Except where shown otherwise, construct the cast-in-place closure flush with the inside and outside faces of the precast box section.

⑤ For multiple unit placements, adjust the length of the closure for the interior walls as necessary. Provide a 3'-0" Min cast-in-place closure in the top slab, bottom slab, and exterior wall. See Section B-B detail when interior walls are cast full length.

⑥ Extend precast box reinforcing a minimum of 1'-0" into concrete closure (Typ).

⑦ Place bands of reinforcing matching the inside and outside face reinforcing in the gaps of the top and bottom slabs. Place a band matching the outside face reinforcing of the wall in the gaps of the walls (placed in the outside face only). Tack weld the bands to the exposed reinforcing at each point of contact.

⑧ 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.

⑨ Cement stabilized backfill between boxes is considered part of the box culvert for payment.

⑩ All curb concrete and reinforcing is considered part of the box culvert for payment.

⑪ Any additional concrete and reinforcing required for the closures will be considered subsidiary to the box culvert for payment.

⑫ 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.

⑬ For multiple unit placement with overlay, with 1 to 2 course surface treatment, or with the top slab as the final riding surface, provide wall closure as shown in Detail "A".

⑭ This dimension may be increased with approval of the Engineer to allow the precast boxes to be tunneled or jacked in accordance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box". No payment will be made for any additional material in the gap between adjacent boxes.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide ASTM A1064 welded wire reinforcement.
Provide Class C concrete (f'c = 3,600 psi) for the closures.
Provide cement stabilized backfill meeting the requirements of Item 400, "Excavation and Backfill for Structures."
Any additional concrete required for the closures will be considered subsidiary to the box culvert.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to the Single Box Culverts Precast (SCP) standard sheets for details and notes not shown.
Chamfer the bottom edge of the top slab closure 3 inches at culvert closure ends.

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

HL93 LOADING

Texas Department of Transportation
Bridge Division Standard

BOX CULVERTS
PRECAST
MISCELLANEOUS DETAILS

SCP-MD

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GEORGE'S RANCH UNIT 1
UNIT 1

TXDOT - BOX CULVERTS PRECAST
MISCELLANEOUS DETAILS

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04/22/2022

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03546.001

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W. PATRICK MURPHY
111597
7/18/2022

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PLAT NO.
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BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) ②							① Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
10	4	10	10	10	< 2	-	0.33	0.34	0.27	0.24	0.24	0.24	0.24	16.5
10	4	10	10	10	2 < 3	58	0.38	0.35	0.30	0.24	-	-	-	16.5
10	4	10	10	10	3 - 5	53	0.31	0.28	0.27	0.24	-	-	-	16.5
10	4	10	10	10	10	52	0.36	0.32	0.33	0.24	-	-	-	16.5
10	4	10	10	10	15	52	0.47	0.42	0.43	0.24	-	-	-	16.5
10	4	10	10	10	20	52	0.61	0.54	0.55	0.24	-	-	-	16.5
10	4	10	10	10	25	52	0.75	0.67	0.68	0.24	-	-	-	16.5
10	5	10	10	10	< 2	-	0.30	0.36	0.30	0.24	0.24	0.24	0.24	17.5
10	5	10	10	10	2 < 3	58	0.35	0.39	0.34	0.24	-	-	-	17.5
10	5	10	10	10	3 - 5	52	0.28	0.31	0.30	0.24	-	-	-	17.5
10	5	10	10	10	10	52	0.33	0.35	0.36	0.24	-	-	-	17.5
10	5	10	10	10	15	47	0.42	0.46	0.47	0.24	-	-	-	17.5
10	5	10	10	10	20	47	0.55	0.59	0.61	0.24	-	-	-	17.5
10	5	10	10	10	25	47	0.68	0.73	0.75	0.24	-	-	-	17.5
10	6	10	10	10	< 2	-	0.28	0.38	0.33	0.24	0.24	0.24	0.24	18.5
10	6	10	10	10	2 < 3	58	0.32	0.42	0.37	0.24	-	-	-	18.5
10	6	10	10	10	3 - 5	53	0.26	0.34	0.33	0.24	-	-	-	18.5
10	6	10	10	10	10	52	0.30	0.38	0.39	0.24	-	-	-	18.5
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10	6	10	10	10	20	47	0.50	0.63	0.65	0.24	-	-	-	18.5
10	6	10	10	10	25	47	0.61	0.78	0.80	0.24	-	-	-	18.5
10	7	10	10	10	< 2	-	0.25	0.40	0.36	0.24	0.24	0.24	0.24	19.5
10	7	10	10	10	2 < 3	58	0.30	0.45	0.40	0.24	-	-	-	19.5
10	7	10	10	10	3 - 5	58	0.24	0.36	0.35	0.24	-	-	-	19.5
10	7	10	10	10	10	52	0.28	0.40	0.42	0.24	-	-	-	19.5
10	7	10	10	10	15	47	0.36	0.52	0.54	0.24	-	-	-	19.5
10	7	10	10	10	20	47	0.46	0.67	0.69	0.24	-	-	-	19.5
10	7	10	10	10	25	47	0.56	0.82	0.85	0.24	-	-	-	19.5
10	8	10	10	10	< 2	-	0.24	0.41	0.38	0.24	0.24	0.24	0.24	20.5
10	8	10	10	10	2 < 3	64	0.27	0.47	0.43	0.24	-	-	-	20.5
10	8	10	10	10	3 - 5	58	0.24	0.38	0.38	0.24	-	-	-	20.5
10	8	10	10	10	10	52	0.26	0.42	0.44	0.24	-	-	-	20.5
10	8	10	10	10	15	47	0.34	0.54	0.57	0.24	-	-	-	20.5
10	8	10	10	10	20	47	0.43	0.69	0.72	0.24	-	-	-	20.5
10	9	10	10	10	< 2	-	0.24	0.42	0.41	0.24	0.24	0.24	0.24	21.5
10	9	10	10	10	2 < 3	70	0.26	0.50	0.46	0.24	-	-	-	21.5
10	9	10	10	10	3 - 5	64	0.24	0.40	0.40	0.24	-	-	-	21.5
10	9	10	10	10	10	58	0.25	0.43	0.46	0.24	-	-	-	21.5
10	9	10	10	10	15	52	0.32	0.56	0.59	0.24	-	-	-	21.5
10	9	10	10	10	20	47	0.40	0.71	0.75	0.24	-	-	-	21.5
10	10	10	10	10	< 2	-	0.24	0.44	0.44	0.24	0.24	0.24	0.24	22.5
10	10	10	10	10	2 < 3	79	0.25	0.52	0.48	0.24	-	-	-	22.5
10	10	10	10	10	3 - 5	70	0.24	0.42	0.43	0.24	-	-	-	22.5
10	10	10	10	10	10	64	0.24	0.44	0.48	0.24	-	-	-	22.5
10	10	10	10	10	15	52	0.30	0.57	0.61	0.24	-	-	-	22.5
10	10	10	10	10	20	52	0.38	0.73	0.77	0.24	-	-	-	22.5

① For box length = 8'-0"

② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

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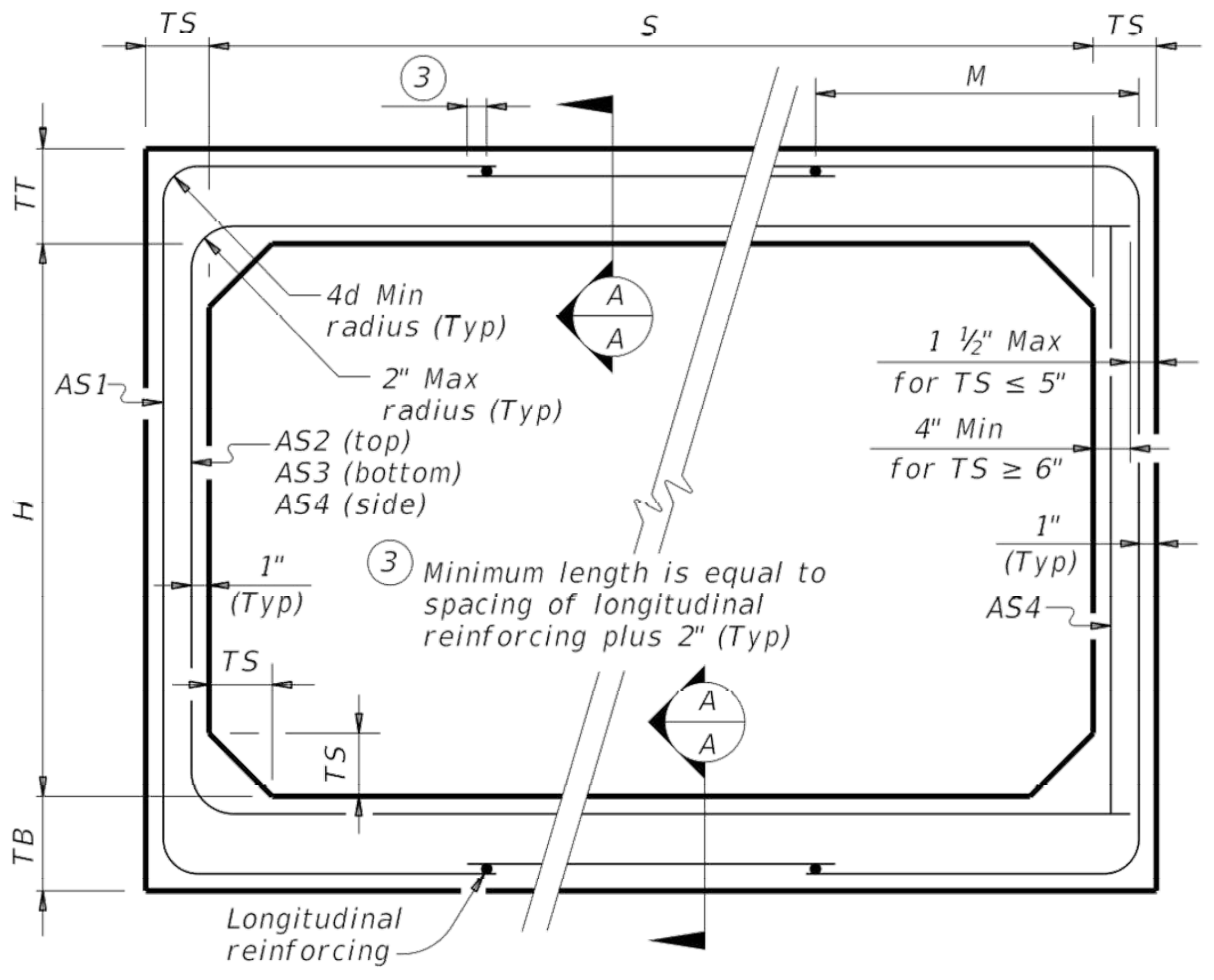
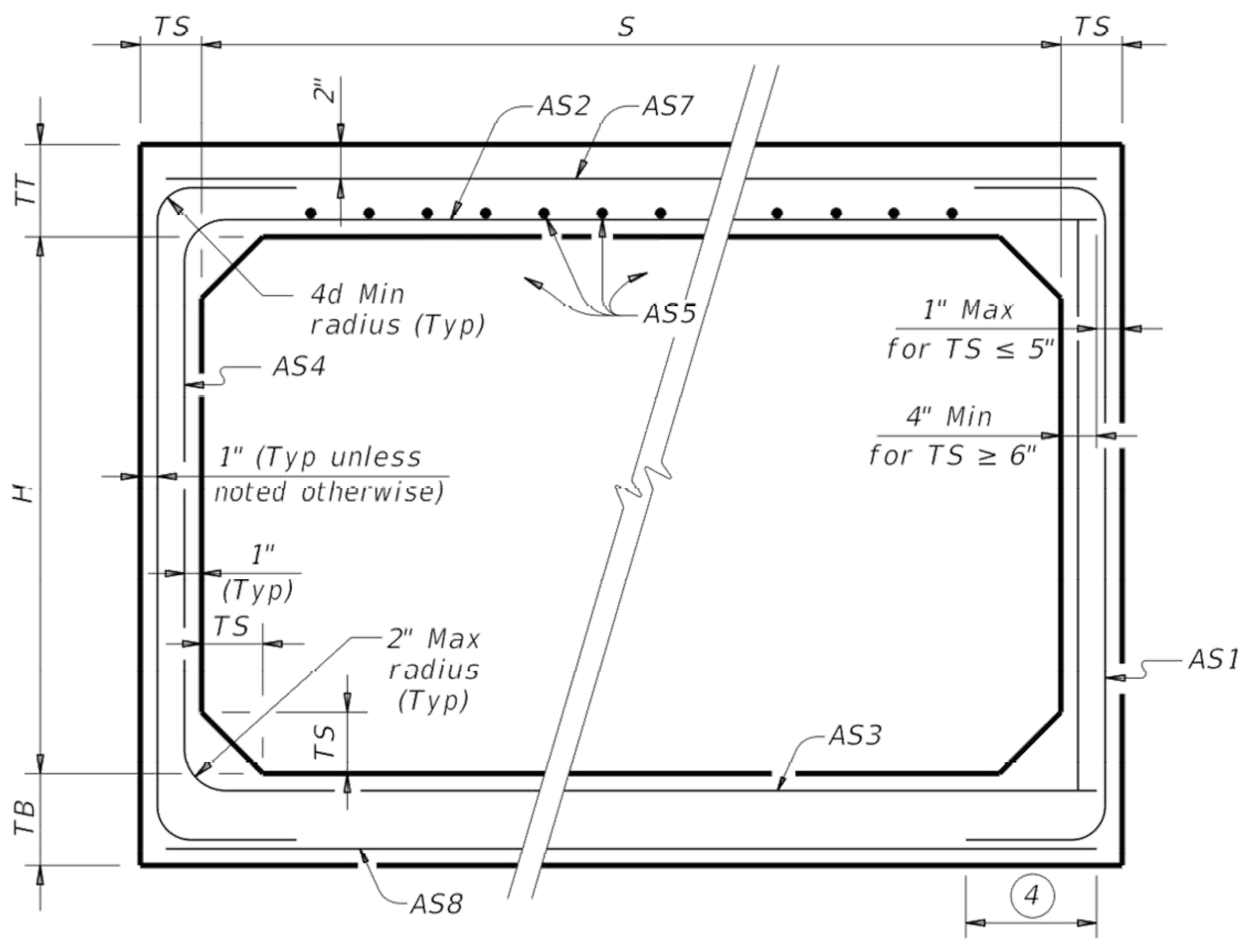


③ Minimum length is equal to spacing of longitudinal reinforcing plus 2" (Typ)

CORNER OPTION "A" CORNER OPTION "B"

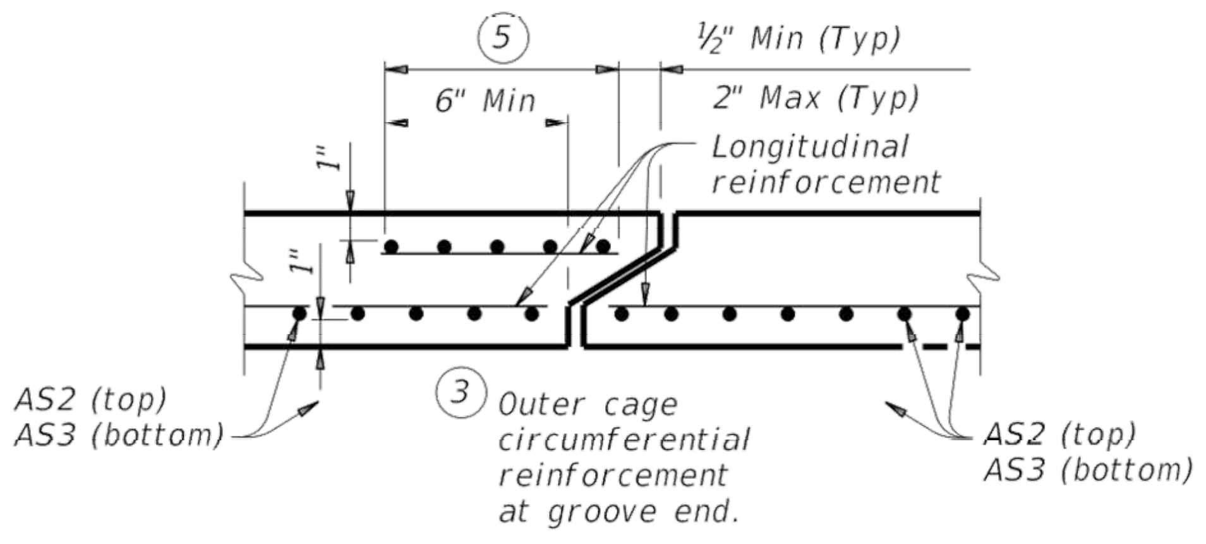
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

④ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



③ Outer cage circumferential reinforcement at groove end.

SECTION A-A

(Showing top and bottom slab joint reinforcement.)

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

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

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Texas Department of Transportation
Bridge Division Standard

SINGLE BOX CULVERTS
PRECAST
10'-0" SPAN

SCP-10

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TXDOT - SINGLE BOX CULVERTS PRECAST - 10' SPAN

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PLAT NO.
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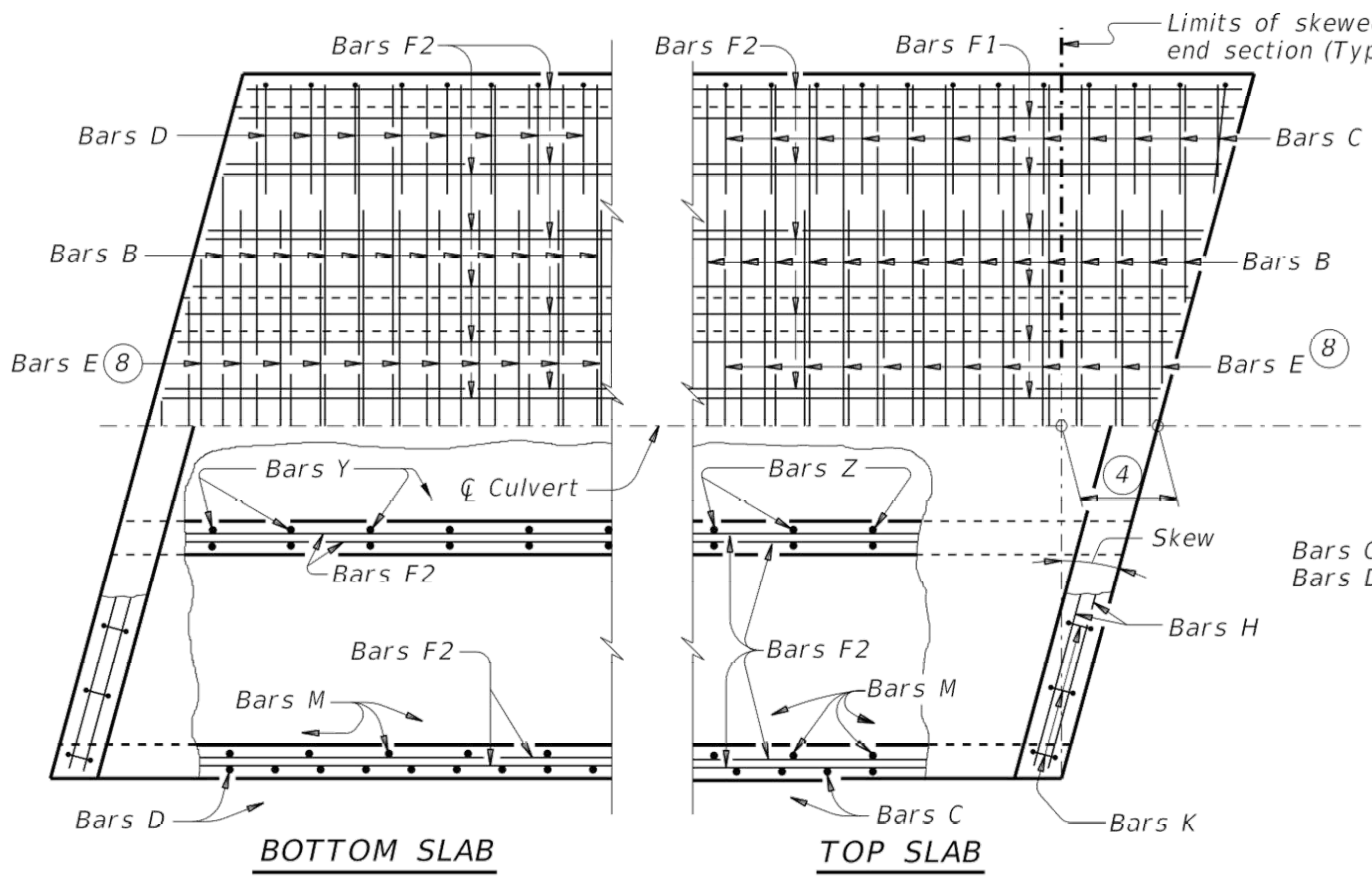
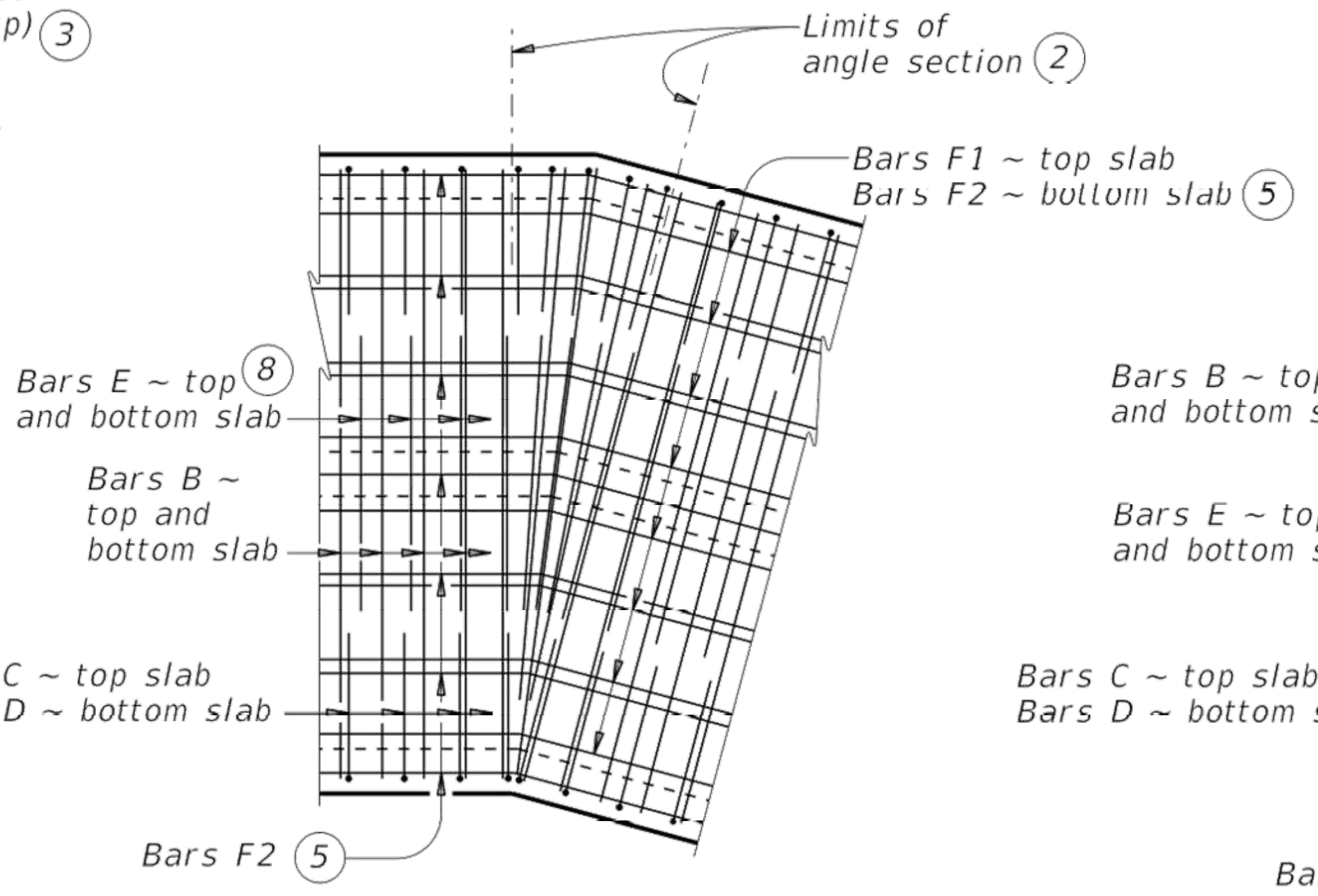
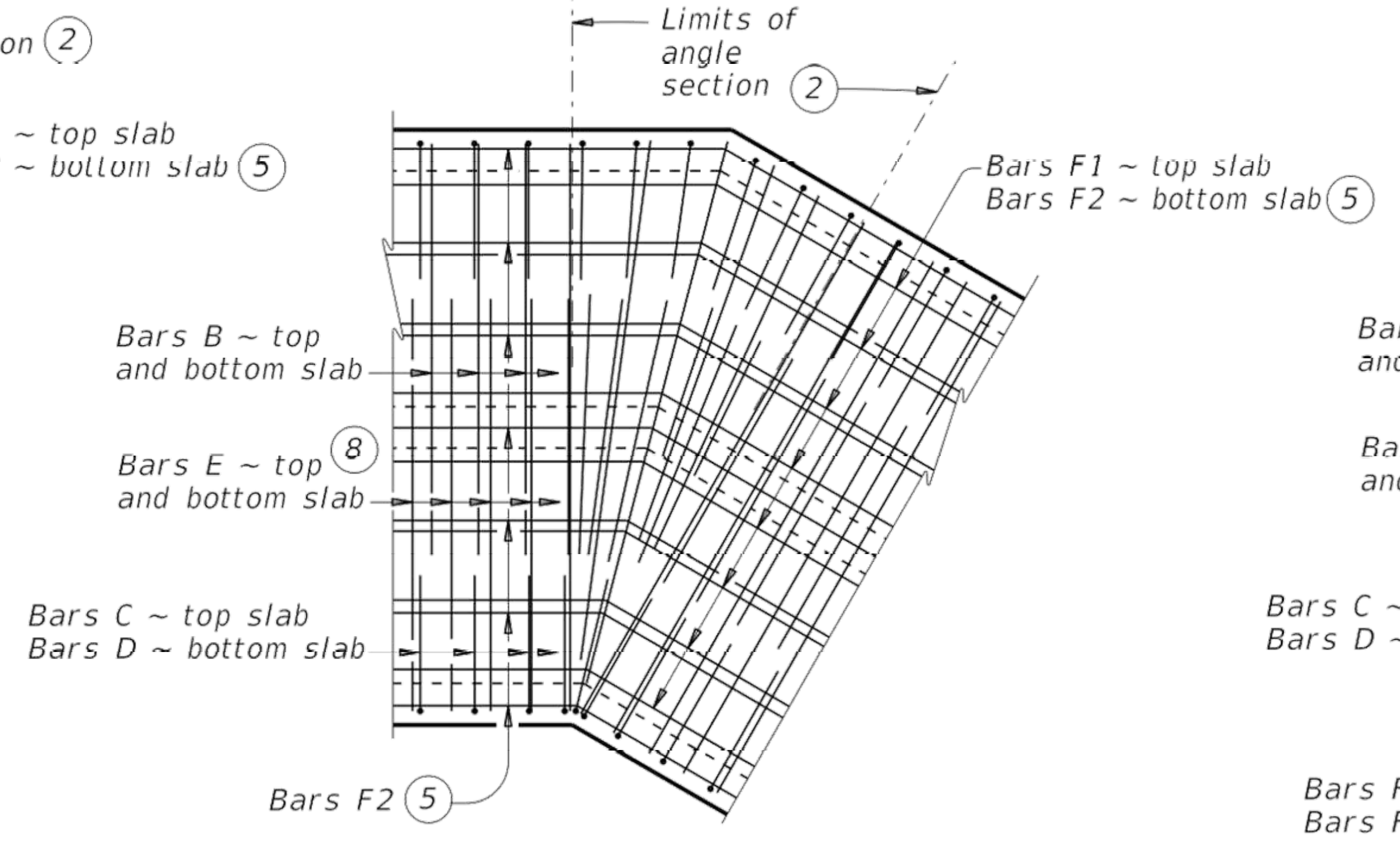


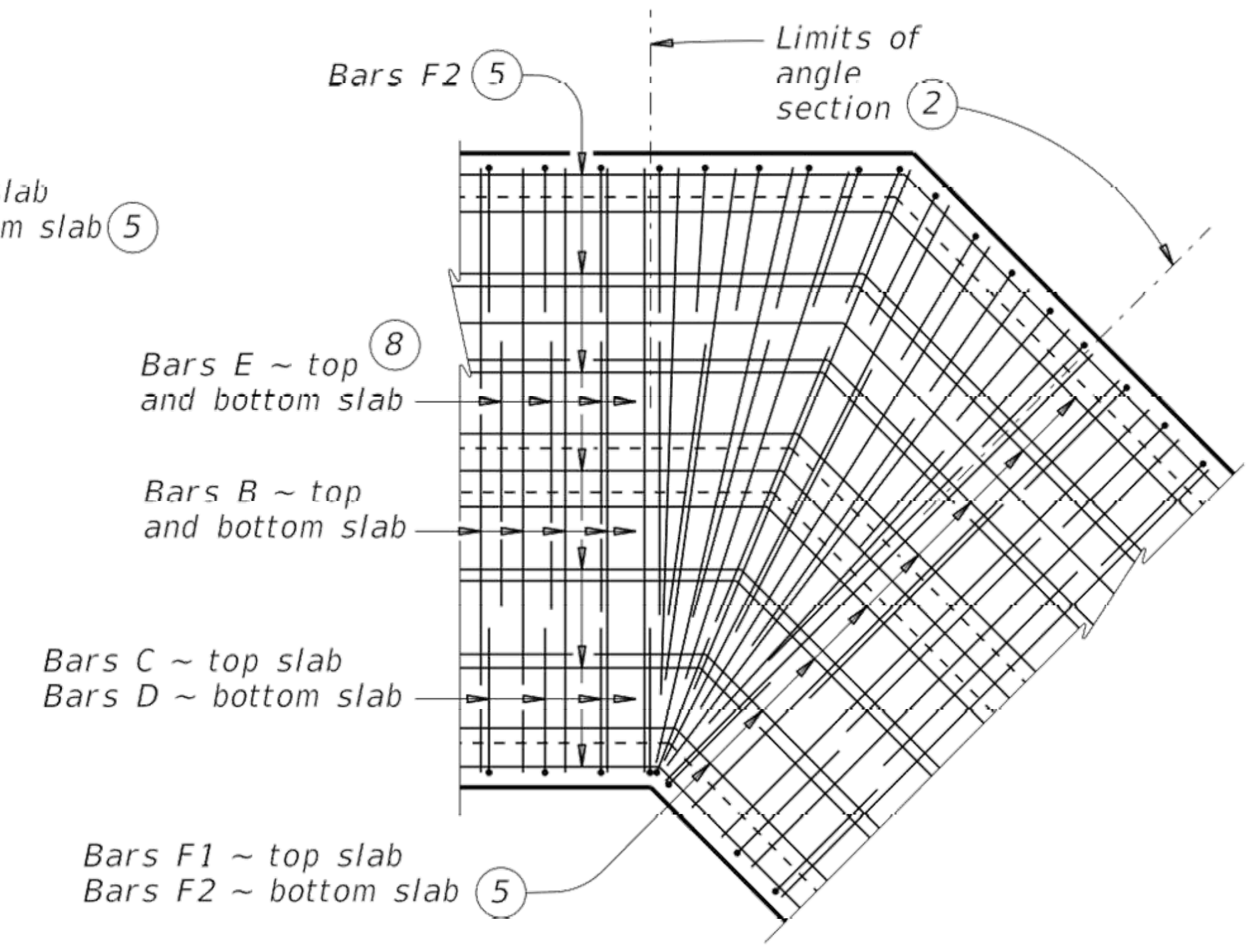
PLAN OF SKEWED ENDS ~ FROM 0° TO 15° ⑦



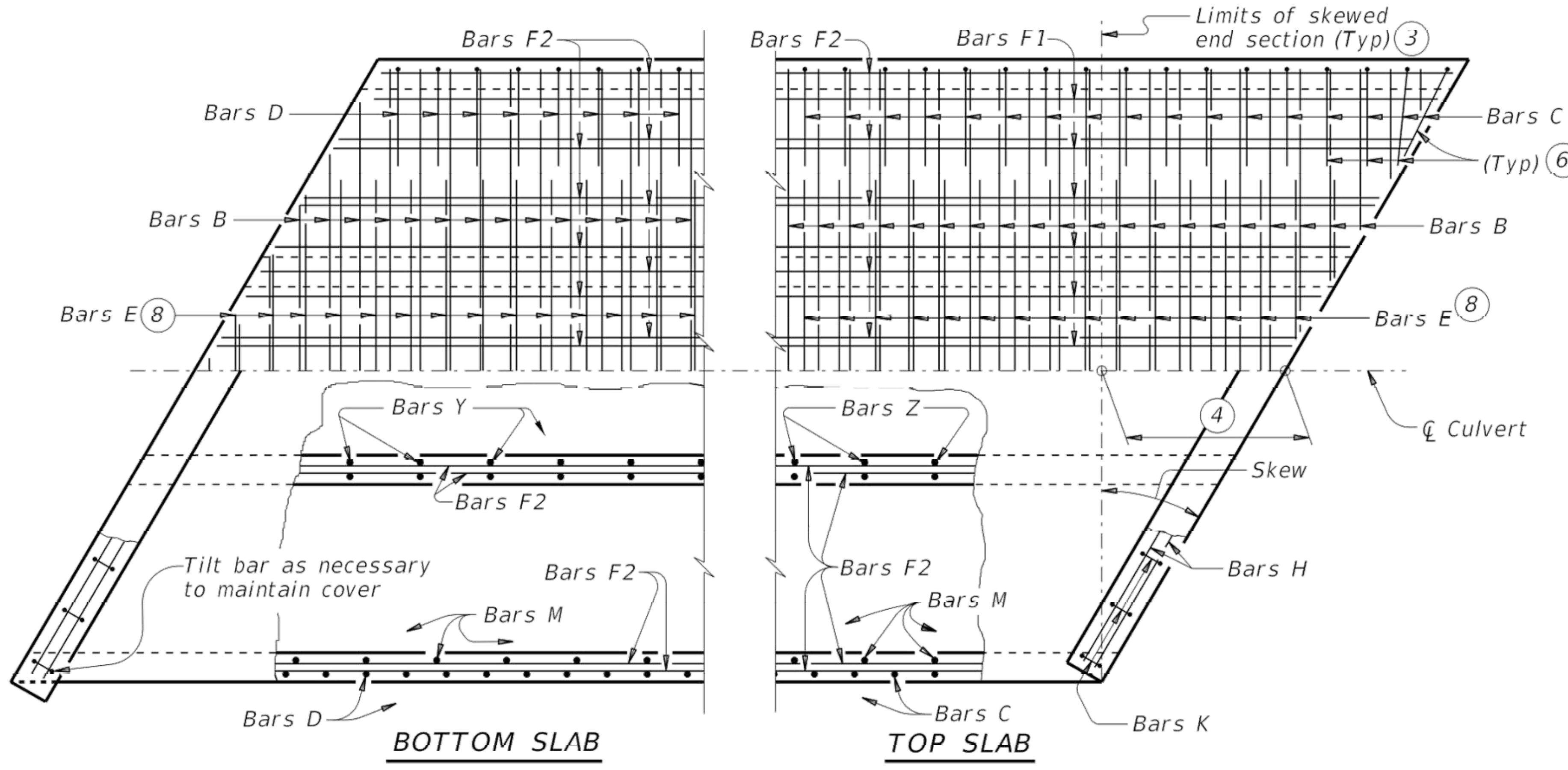
PLAN OF ANGLE SECTION ~ FROM 0° TO 15°



PLAN OF ANGLE SECTION ~ OVER 15° TO 30°



PLAN OF ANGLE SECTION ~ OVER 30° TO 45°



PLAN OF SKEWED ENDS ~ OVER 15° TO 30°

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 with the 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. Alternatively, if the box is non-skewed, embed #6 anchor bars with a Type III, Class 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, Nba, 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.

Break back wings and apron as necessary 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 or Bars E becomes less than half of the normal spacing, cut bars to avoid conflict.

③ The length of Bars B and Bars E will 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, D, and E parallel to the skewed end while maintaining spacing along centerline of box. Increase lengths of Bars B and Bars E shown on the Multiple Box Culverts Cast-In-Place (MC) standard sheets to accommodate the skew.

⑧ Extend Bars E as shown on the MC standard sheet for direct traffic culverts.

CONSTRUCTION NOTES:

Do not use permanent forms.
When required, lap Bars II 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 = 3,600 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:

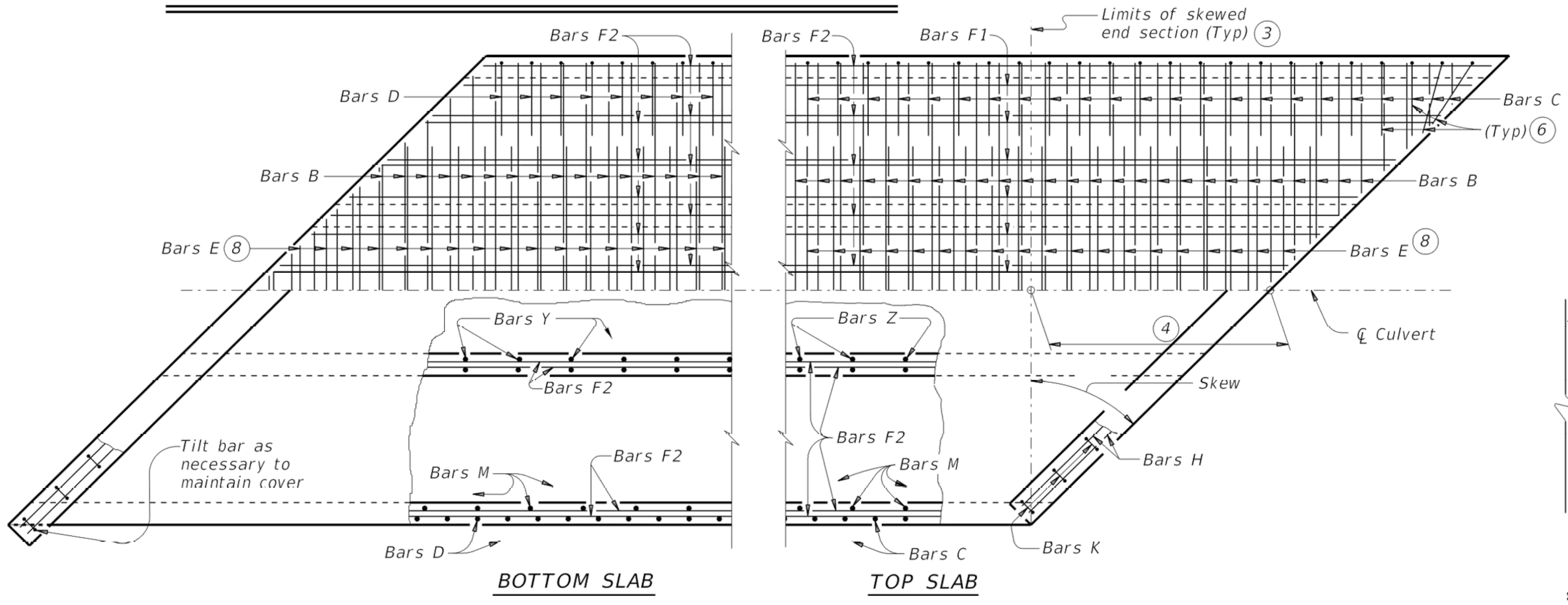
Designed according to AASHTO LRFD Bridge Design Specifications.

Refer to Multiple Box Culverts Cast-in-Place (MC) standard sheets for details of straight sections of culvert.

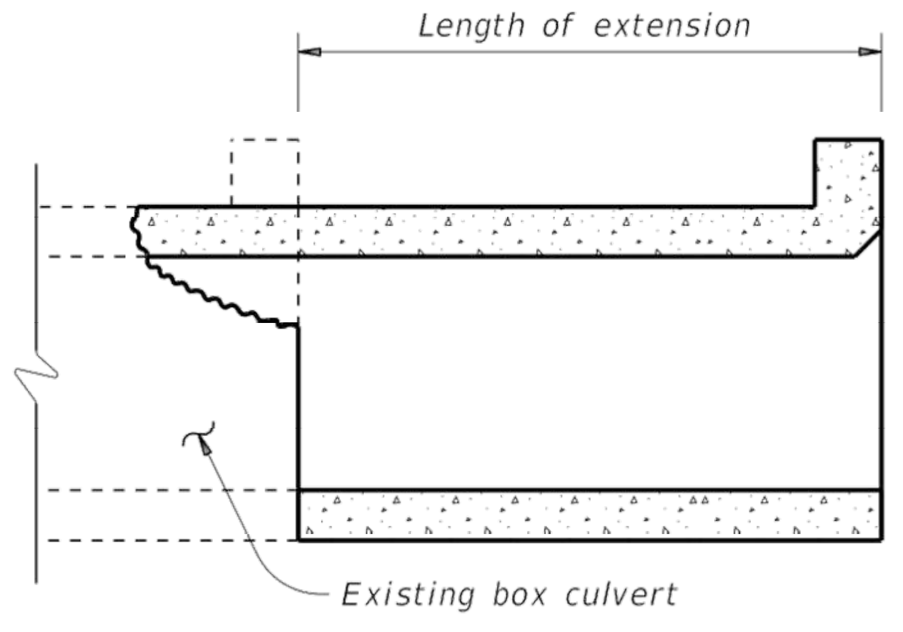
For skewed sections and angle sections, refer to Multiple Box Culverts Cast-in-Place (MC) standard sheets for slab and wall dimensions, bar sizes, maximum bar spacing, and any other details not shown.

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 Multiple Box Culverts Cast-In-Place (MC) standard sheets by the cosine of the skew angle.

Cover dimensions are clear dimensions, unless noted otherwise.



PLAN OF SKEWED ENDS ~ OVER 30° TO 45°



LENGTHENING DETAIL ①

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Texas Department of Transportation

Bridge Division Standard

MULTIPLE BOX CULVERTS CAST-IN-PLACE MISCELLANEOUS DETAILS

MC-MD

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GEORGE'S RANCH UNIT 1
UNIT 1

TXDOT - MULTIPLE BOX CULVERTS
CAST-IN-PLACE MISC. DETAILS

DATE	04/22/2022
PROJECT NO.	03546.001
DRAWN BY	AB/RR
CHECKED BY	WPM

REVISIONS
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W. PATRICK MURPHY
111597
7/18/2022

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C50

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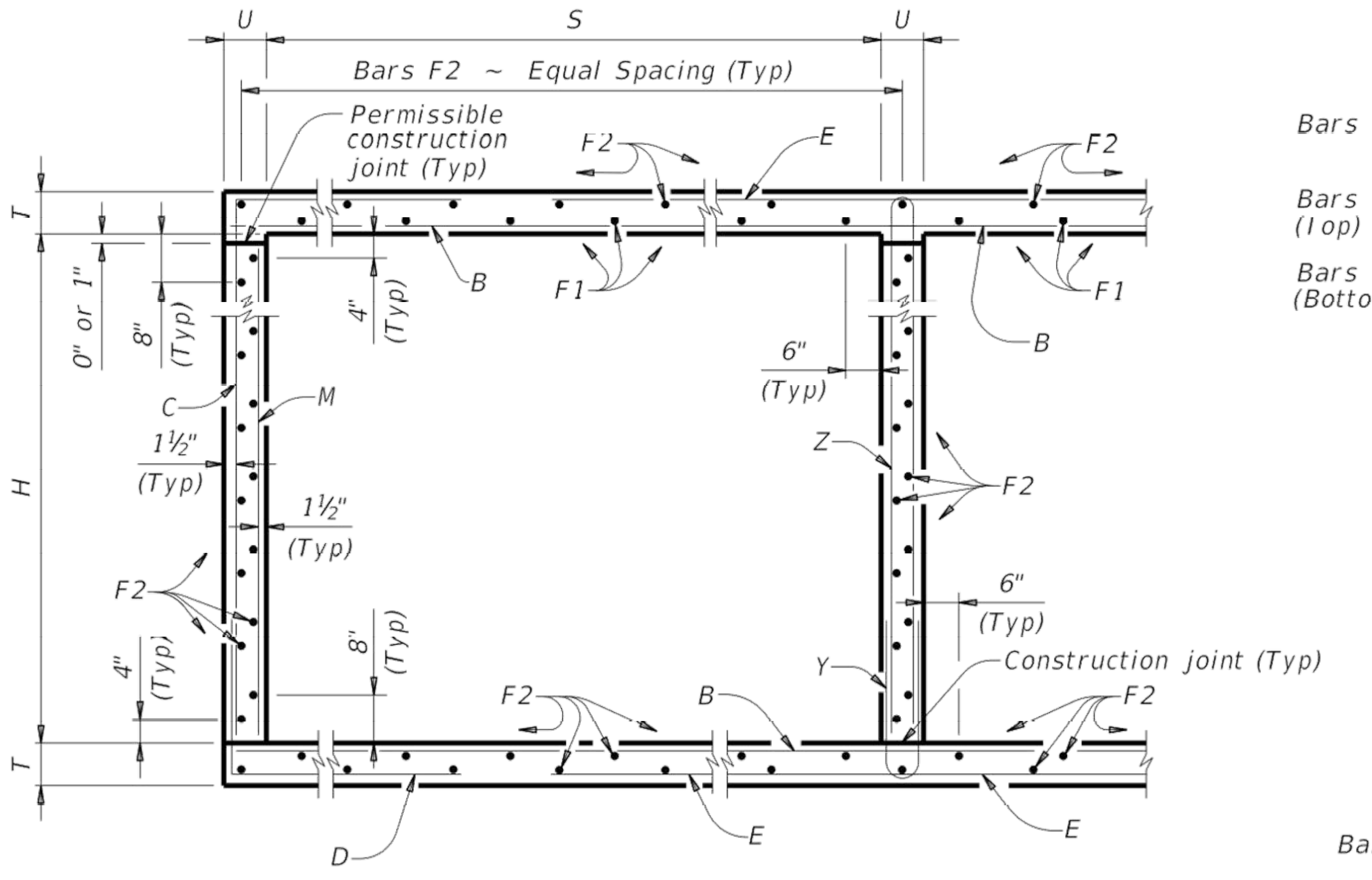
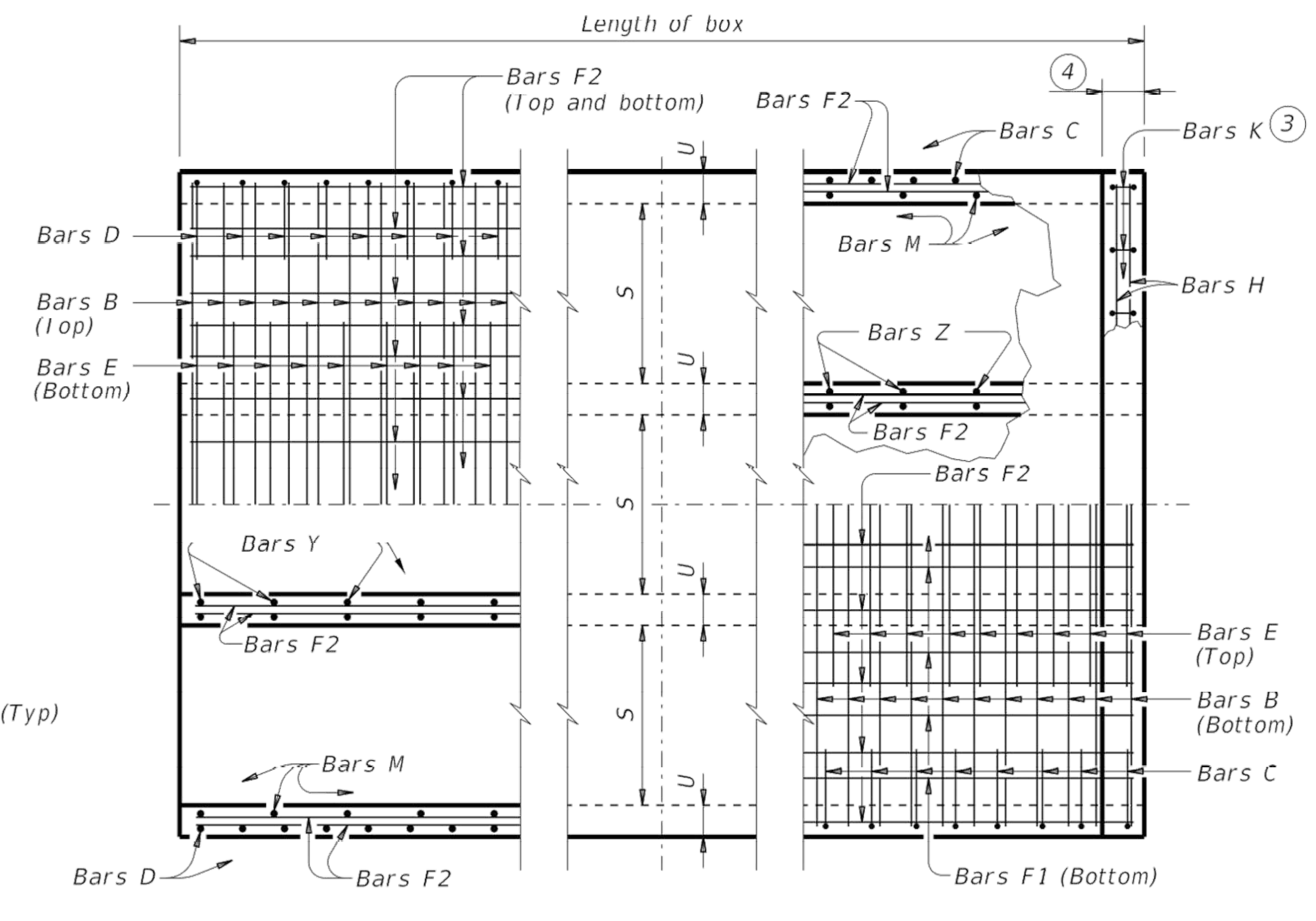
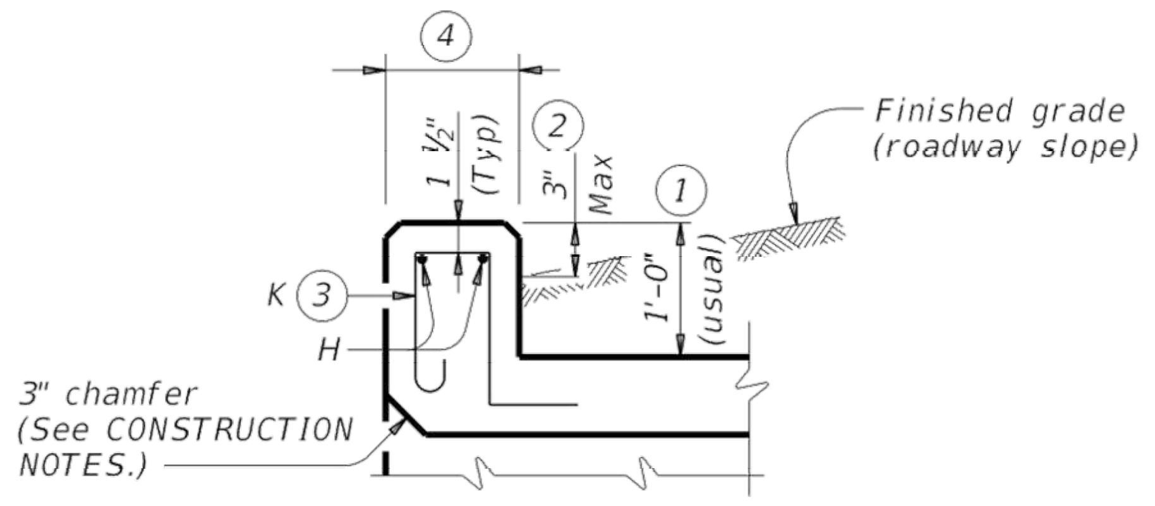


TYPICAL SECTION



PART PLANS


④
1½" (Typ)
②
3" Max
①
1'-0" (usual)
Finished grade (roadway slope)
K ③
H
3" chamfer (See CONSTRUCTION NOTES.)

SECTION THRU CURB

TABLE OF BAR DIMENSIONS

H	"X"	"Y"
4'-0"	4'-9 ½"	5'-11"
5'-0"	5'-9 ½"	5'-11"
6'-0"	6'-9 ½"	5'-11"
7'-0"	7'-9 ½"	5'-11"
8'-0"	8'-9 ½"	5'-11"
9'-0"	9'-9 ½"	5'-11"
10'-0"	10'-9 ½"	5'-11"

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, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

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, M, 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. Spacing of WWR is limited to 4" Min and 18" Max. When 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 NOTES:

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, and Bars Y and Z 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 = 3,600 psi) for culvert barrel and curb.

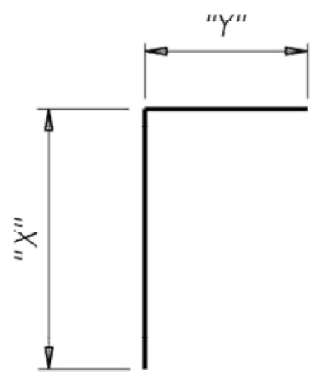
Provide bar laps, where required, as follows:
- Uncoated or galvanized ~ #4 = 1'-8" Min
- Uncoated or galvanized ~ #5 = 2'-1" Min
- Uncoated or galvanized ~ #6 = 2'-6" Min

GENERAL NOTES:

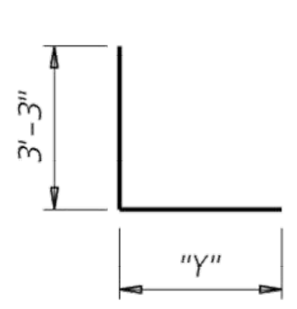
Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.

See the Multiple Box Culverts Cast-In-Place Miscellaneous Detail (MC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

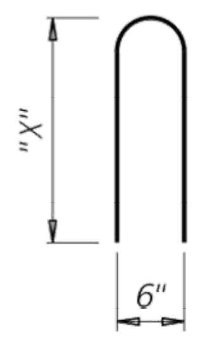
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.



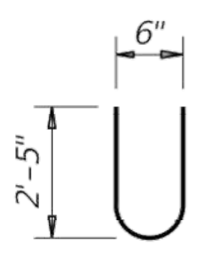
BARS C



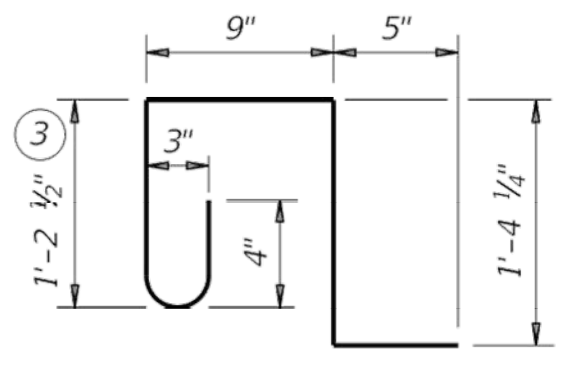
BARS D



BARS Z



BARS Y



BARS K (#4)
(Spa = 1'-0" Max)
(Length = 4'-2")

HL93 LOADING
SHEET 1 OF 2

Texas Department of Transportation
Bridge Division Standard

MULTIPLE BOX CULVERTS
CAST-IN-PLACE
10'-0" SPAN
2' TO 16' FILL

MC-10-16

FILE: mc116ste-20.dgn
DN: TBE
CK: BMP
DW: TxDOT
CK: TxDOT
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REVISIONS
CONT
SECT
JOB
HIGHWAY
DIST
COUNTY
SHEET NO.

DATE:
FILE:

CUDEENGINEERS.COM
EST. 1980
CUDE
ENGINEERS

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

GEORGE'S RANCH UNIT 1
UNIT 1

TXDOT-MULTIPLE BOX CULVERTS
CAST-IN-PLACE (1 OF 2)-10' SPAN

DATE
04/22/2022
PROJECT NO.
03546.001
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CHECKED BY
WPM

REVISIONS
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W. PATRICK MURPHY
111597
7/18/2022

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C51

P:\03546\001\2-Drawings\01_DRDP2.dwg 2022/07/12 8:03am rreyes

NUMBER OF SPANS	SECTION DIMENSIONS				BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																																								QUANTITIES					
					Bars B ⑤					Bars C & D							Bars E					Bars F1 ~ #4				Bars F2 ~ #4				Bars M ~ #4				Bars Y & Z ~ #4						Bars H ⑤ 4 ~ #4		Bars K		Per Foot of Barrel		Curb		Total	
													Bars C		Bars D																					Bars Y		Bars Z											
	S	H	T	U	No.	Size	Spa	Length	Wt	No.	Size	Spa	Length	Wt	Length	Wt	No.	Size	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Spa	Length	Wt	Length	Wt	Length	Wt	No.	Wt	Conc (CY)	Renf (Lb)	Conc (CY)	Renf (Lb)	Conc (CY)	Renf (Lb)
2	10' - 0"	4' - 0"	11"	9"	162	#6	6"	22' - 0"	5,353	108	#6	9"	10' - 9"	1,744	9' - 3"	1,500	162	#6	6"	9' - 8"	2,352	14	18"	39' - 9"	372	66	18"	39' - 9"	1,752	108	9"	4' - 0"	289	54	9"	5' - 2"	186	9' - 10"	355	22' - 0"	59	46	128	1.844	347.6	1.6	187	75.4	14,090
3	10' - 0"	4' - 0"	11"	9"	162	#6	6"	32' - 9"	7,969	108	#6	9"	10' - 9"	1,744	9' - 3"	1,500	162	#6	6"	19' - 8"	4,785	21	18"	39' - 9"	558	95	18"	39' - 9"	2,523	108	9"	4' - 0"	289	108	9"	5' - 2"	373	9' - 10"	709	32' - 9"	88	68	189	2.685	511.3	2.4	277	109.8	20,727
4	10' - 0"	4' - 0"	11"	9"	162	#6	6"	43' - 6"	10,585	108	#6	9"	10' - 9"	1,744	9' - 3"	1,500	162	#6	6"	29' - 8"	7,219	28	18"	39' - 9"	743	124	18"	39' - 9"	3,293	108	9"	4' - 0"	289	162	9"	5' - 2"	559	9' - 10"	1,064	43' - 6"	116	90	251	3.526	674.9	3.2	367	144.3	27,363
5	10' - 0"	4' - 0"	11"	9"	162	#6	6"	54' - 3"	13,200	108	#6	9"	10' - 9"	1,744	9' - 3"	1,500	162	#6	6"	39' - 8"	9,652	35	18"	39' - 9"	929	153	18"	39' - 9"	4,063	108	9"	4' - 0"	289	216	9"	5' - 2"	745	9' - 10"	1,419	54' - 3"	145	112	312	4.367	838.5	4.0	457	178.7	33,998
6	10' - 0"	4' - 0"	11"	9"	162	#6	6"	67' - 6"	16,424	108	#6	9"	10' - 9"	1,744	9' - 3"	1,500	162	#6	6"	49' - 8"	12,085	42	18"	39' - 9"	1,115	182	18"	39' - 9"	4,833	108	9"	4' - 0"	289	270	9"	5' - 2"	932	9' - 10"	1,774	66' - 8"	178	132	367	5.208	1,017.4	4.8	545	213.1	41,241
2	10' - 0"	5' - 0"	11"	9"	162	#6	6"	22' - 0"	5,353	108	#6	9"	11' - 9"	1,906	9' - 3"	1,500	162	#6	6"	9' - 8"	2,352	14	18"	39' - 9"	372	72	18"	39' - 9"	1,912	108	9"	5' - 0"	361	54	9"	5' - 2"	186	11' - 10"	427	22' - 0"	59	46	128	1.927	359.2	1.6	187	78.7	14,556
3	10' - 0"	5' - 0"	11"	9"	162	#6	6"	32' - 9"	7,969	108	#6	9"	11' - 9"	1,906	9' - 3"	1,500	162	#6	6"	19' - 8"	4,785	21	18"	39' - 9"	558	103	18"	39' - 9"	2,735	108	9"	5' - 0"	361	108	9"	5' - 2"	373	11' - 10"	854	32' - 9"	88	68	189	2.796	526.0	2.4	277	114.3	21,318
4	10' - 0"	5' - 0"	11"	9"	162	#6	6"	43' - 6"	10,585	108	#6	9"	11' - 9"	1,906	9' - 3"	1,500	162	#6	6"	29' - 8"	7,219	28	18"	39' - 9"	743	134	18"	39' - 9"	3,558	108	9"	5' - 0"	361	162	9"	5' - 2"	559	11' - 10"	1,281	43' - 6"	116	90	251	3.665	692.8	3.2	367	149.8	28,079
5	10' - 0"	5' - 0"	11"	9"	162	#6	6"	54' - 3"	13,200	108	#6	9"	11' - 9"	1,906	9' - 3"	1,500	162	#6	6"	39' - 8"	9,652	35	18"	39' - 9"	929	165	18"	39' - 9"	4,381	108	9"	5' - 0"	361	216	9"	5' - 2"	745	11' - 10"	1,707	54' - 3"	145	112	312	4.534	859.5	4.0	457	185.4	34,838
6	10' - 0"	5' - 0"	11"	9"	162	#6	6"	67' - 6"	16,424	108	#6	9"	11' - 9"	1,906	9' - 3"	1,500	162	#6	6"	49' - 8"	12,085	42	18"	39' - 9"	1,115	196	18"	39' - 9"	5,204	108	9"	5' - 0"	361	270	9"	5' - 2"	932	11' - 10"	2,134	66' - 8"	178	132	367	5.403	1,041.5	4.8	545	220.9	42,206
2	10' - 0"	6' - 0"	11"	9"	162	#6	6"	22' - 0"	5,353	108	#6	9"	12' - 9"	2,068	9' - 3"	1,500	162	#6	6"	9' - 8"	2,352	14	18"	39' - 9"	372	78	18"	39' - 9"	2,071	108	9"	6' - 0"	433	54	9"	5' - 2"	186	13' - 10"	499	22' - 0"	59	46	128	2.011	370.9	1.6	187	82.1	15,021
3	10' - 0"	6' - 0"	11"	9"	162	#6	6"	32' - 9"	7,969	108	#6	9"	12' - 9"	2,068	9' - 3"	1,500	162	#6	6"	19' - 8"	4,785	21	18"	39' - 9"	558	111	18"	39' - 9"	2,947	108	9"	6' - 0"	433	108	9"	5' - 2"	373	13' - 10"	998	32' - 9"	88	68	189	2.907	540.8	2.4	277	118.7	21,908
4	10' - 0"	6' - 0"	11"	9"	162	#6	6"	43' - 6"	10,585	108	#6	9"	12' - 9"	2,068	9' - 3"	1,500	162	#6	6"	29' - 8"	7,219	28	18"	39' - 9"	743	144	18"	39' - 9"	3,824	108	9"	6' - 0"	433	162	9"	5' - 2"	559	13' - 10"	1,497	43' - 6"	116	90	251	3.804	710.7	3.2	367	155.4	28,795
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6	10' - 0"	6' - 0"	11"	9"	162	#6	6"	67' - 6"	16,424	108	#6	9"	12' - 9"	2,068	9' - 3"	1,500	162	#6	6"	49' - 8"	12,085	42	18"	39' - 9"	1,115	210	18"	39' - 9"	5,576	108	9"	6' - 0"	433	270	9"	5' - 2"	932	13' - 10"	2,495	66' - 8"	178	132	367	5.597	1,065.7	4.8	545	228.7	43,173
2	10' - 0"	7' - 0"	11"	9"	162	#6	6"	22' - 0"	5,353	108	#6	9"	13' - 9"	2,230	9' - 3"	1,500	162	#6	6"	9' - 8"	2,352	14	18"	39' - 9"	372	78	18"	39' - 9"	2,071	108	9"	7' - 0"	505	54	9"	5' - 2"	186	15' - 10"	571	22' - 0"	59	46	128	2.094	378.5	1.6	187	85.4	15,327
3	10' - 0"	7' - 0"	11"	9"	162	#6	6"	32' - 9"	7,969	108	#6	9"	13' - 9"	2,230	9' - 3"	1,500	162	#6	6"	19' - 8"	4,785	21	18"	39' - 9"	558	111	18"	39' - 9"	2,947	108	9"	7' - 0"	505	108	9"	5' - 2"	373	15' - 10"	1,142	32' - 9"	88	68	189	3.019	550.2	2.4	277	123.2	22,286
4	10' - 0"	7' - 0"	11"	9"	162	#6	6"	43' - 6"	10,585	108	#6	9"	13' - 9"	2,230	9' - 3"	1,500	162	#6	6"	29' - 8"	7,219	28	18"	39' - 9"	743	144	18"	39' - 9"	3,824	108	9"	7' - 0"	505	162	9"	5' - 2"	559	15' - 10"	1,713	43' - 6"	116	90	251	3.943	722.0	3.2	367	160.9	29,245
5	10' - 0"	7' - 0"	11"	9"	162	#6	6"	54' - 3"	13,200	108	#6	9"	13' - 9"	2,230	9' - 3"	1,500	162	#6	6"	39' - 8"	9,652	35	18"	39' - 9"	929	177	18"	39' - 9"	4,700	108	9"	7' - 0"	505	216	9"	5' - 2"	745	15' - 10"	2,285	54' - 3"	145	112	312	4.867	893.7	4.0	457	198.7	36,203
6	10' - 0"	7' - 0"	11"	9"	162	#6	6"	67' - 6"	16,424	108	#6	9"	13' - 9"	2,230	9' - 3"	1,500	162	#6	6"	49' - 8"	12,085	42	18"	39' - 9"	1,115	210	18"	39' - 9"	5,576	108	9"	7' - 0"	505	270	9"	5' - 2"	932	15' - 10"	2,856	66' - 8"	178	132	367	5.792	1,080.6	4.8	545	236.5	43,768
2	10' - 0"	8' - 0"	11"	9"	162	#6	6"	22' - 0"	5,353	108	#6	9"	14' - 9"	2,393	9' - 3"	1,500	162	#6	6"	9' - 8"	2,352	14	18"	39' - 9"	372	84	18"	39' - 9"	2,230	108	9"	8' - 0"	577	54	9"	5' - 2"	186	17' - 10"	643	22' - 0"	59	46	128	2.177	390.2	1.6	187	88.7	15,793
3	10' - 0"	8' - 0"	11"	9"	162	#6	6"	32' - 9"	7,969	108	#6	9"	14' - 9"	2,393	9' - 3"	1,500	162	#6	6"	19' - 8"	4,785	21	18"	39' - 9"	558	119	18"	39' - 9"	3,160	108	9"	8' - 0"	577	108	9"	5' - 2"	373	17' - 10"	1,287	32' - 9"	88	68	189	3.130	565.1	2.4	277	127.6	22,879
4	10' - 0"	8' - 0"	11"	9"	162	#6	6"	43' - 6"	10,585	108	#6	9"	14' - 9"	2,393	9' - 3"	1,500	162	#6	6"	29' - 8"	7,219	28	18"	39' - 9"	743	154	18"	39' - 9"	4,089	108	9"	8' - 0"	577	162	9"	5' - 2"	559	17' - 10"	1,930	43' - 6"	116	90	251	4.082	739.9	3.2	367	166.5	29,962
5	10' - 0"	8' - 0"	11"	9"	162	#6	6"	54' - 3"	13,200	108	#6	9"	14' - 9"	2,393	9' - 3"	1,500	162	#6	6"	39' - 8"	9,652	35	18"	39' - 9"	929	189	18"	39' - 9"	5,019	108	9"	8' - 0"	577	216	9"	5' - 2"	745	17' - 10"	2,573	54' - 3"	145	112	312	5.034	914.7	4.0	457	205.4	37,045
6	10' - 0"	8' - 0"	11"	9"	162	#6	6"	67' - 6"	16,424	108	#6	9"	14' - 9"	2,393	9' - 3"	1,500	162	#6	6"	49' - 8"	12,085	42	18"	39' - 9"	1,115	224	18"	39' - 9"	5,948	108	9"	8' - 0"	577	270	9"	5' - 2"	932	17' - 10"	3,216	66' - 8"	178	132	367	5.986	1,104.8	4.8	545	244.3	44,735
2	10' - 0"	9' - 0"	11"	9"	162	#6	6"	22' - 0"	5,353	162	#6	6"	15' - 9"	3,832	9' - 3"	2,251	162	#6	6"	9' - 8"	2,352	14	18"	39' - 9"	372	90	18"	39' - 9"	2,390	108	9"	9' - 0"	649	54	9"	5' - 2"	186	19' - 10"	715	22' - 0"	59	46	128	2.261	452.5	1.6	187	92.1	18,287
3	10' - 0"	9' - 0"	11"	9"	162	#6	6"	32' - 9"	7,969	162	#6	6"	15' - 9"	3,832	9' - 3"	2,251	162	#6	6"	19' - 8"	4,785	21	18"	39' - 9"	558	127	18"	39' - 9"	3,372	108	9"	9' - 0"	649	108	9"	5' - 2"	373	19' - 10"	1,431	32' - 9"	88	68	189	3.241	630.5	2.4	277	132.1	25,497
4	10' - 0"	9' - 0"	11"	9"	162	#6	6"	43' - 6"	10,585	162	#6	6"	15' - 9"	3,832	9' - 3"	2,251	162	#6	6"	29' - 8"	7,219	28	18"	39' - 9"	743	164	18"	39' - 9"	4,355	108	9"	9' - 0"	649	162	9"	5' - 2"	559	19' - 10"	2,146	43' - 6"	116	90	251	4.221	808.5	3.2	367	172.1	32,706
5	10' - 0"	9' - 0"	11"	9"	162	#6	6"	54' - 3"	13,200	162	#6	6"	15' - 9"	3,832	9' - 3"	2,251	162	#6	6"	39' - 8"	9,652	35	18"	39' - 9"	929	201	18"	39' - 9"	5,337	108	9"	9' - 0"	649	216	9"	5' - 2"	745	19' - 10"	2,862	54' - 3"	145	112	312	5.201	986.4	4.0	457	212.1	39,914
6	10' - 0"	9' - 0"	11"	9"	162	#6	6"	67' - 6"	16,424	162	#6	6"	15' - 9"	3,832	9' - 3"	2,251	162	#6	6"	49' - 8"	12,085	42	18"	39' - 9"	1,115	238	18"	39' - 9"	6,320	108	9"	9' - 0"	649	270	9"	5' - 2"	932	19' - 10"	3,577	66' - 8"	178	132	367	6.181	1,179.6	4.8	545	252.1	47,730
2	10' - 0"	10' - 0"	11"	9"	162	#6	6"	22' - 0"	5,353	162	#6	6"	16' - 9"	4,076	9' - 3"	2,251	162	#6	6"	9' - 8"	2,352	14	18"	39' - 9"	372	90	18"	39' - 9"	2,390	162	6"	10' - 0"	1,082	54	9"	5' - 2"	186	21' - 10"	788	22' - 0"	59	46	128	2.344	471.3	1.6	187	95.4	19,037
3	10' - 0"	10' - 0"	11"	9"	162	#6	6"	32' - 9"	7,969	162	#6	6"	16' - 9"	4,076	9' - 3"	2,251	162	#6	6"	19' - 8"	4,785	21	18"	39' - 9"	558	127	18"	39' - 9"	3,372	162	6"	10' - 0"	1,082	108	9"	5' - 2"	373	21' - 10"	1,575	32' - 9"	88	68	189	3.352	651.0	2.4	277	136.5	26,318
4	10' - 0"	10' - 0"	11"	9"	162	#6	6"	43' - 6"	10,585	162	#6	6"	16' - 9"	4,076	9' - 3"	2,251	162	#6	6"	29' - 8"	7,219	28	18"	39' - 9"	743	164	18"	39' - 9"	4,355	162	6"	10' - 0"	1,082	162	9"	5' - 2"	559	21' - 10"	2,363	43' - 6"	116	90	251	4.360	830.8	3.2	367	177.6	33,600
5	10' - 0"	10' - 0"	11"	9"	162	#6	6"	54' - 3"	13,200	162	#6	6"	16' - 9"	4,076	9' - 3"	2,251	162	#6	6"	39' - 8"	9,652	35	18"	39' - 9"	929	201	18"	39' - 9"	5,337	162	6"	10' - 0"	1,082	216	9"	5' - 2"	745	21' - 10"	3,150	54' - 3"	145	112	312	5.367	1,010.6	4.0	457	218.7	40,879
6	10' - 0"	10' - 0"	11"	9"	162	#6	6"	67' - 6"	16,424	162	#6	6"	16' - 9"	4,076	9' - 3"	2,251	162	#6	6"	49' - 8"	12,085	42	18"	39' - 9"	1,115	238	18"	39' - 9"	6,320	162	6"	10' - 0"	1,082	270	9"	5' - 2"	932	21' - 10"	3,938	66' - 8"	178	132	367	6.375	1,205.6	4.8	545	259.8	48,768

⑤ Bar lengths over 60' include one bar lap; refer to MATERIAL NOTES for minimum lap lengths.

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HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

MULTIPLE BOX CULVERTS
CAST-IN-PLACE
10'-0" SPAN
2' TO 16' FILL

MC-10-16

FILE: mc116ste-20.dgn	DN: TBE	CK: BMP	DW: TxDOT	CK: TxDOT
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GEORGE'S RANCH UNIT 1
UNIT 1

TXDOT - MULTIPLE BOX CULVERTS
CAST-IN-PLACE (2 OF 2) - 10' SPAN

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TABLE OF DIMENSIONS AND REINFORCING STEEL
(Wings for one structure end)

Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing length (2~wings) ③	
					Bars J1		Bars J2			
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'-8"	4'-0"	3'-0"	1'-1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'-2"	4'-6"	3'-0"	1'-3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING
(2~wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION FORMULAS:

(All values are in feet.)

Hw = H + T + C - 0.250'
Lw = (Hw - 0.333') (SL)

For cast-in-place culverts:
Ltw = (N) (S) + (N + 1) (U)

For precast culverts:
Ltw = (N) (2U + S) + (N - 1) (0.5')

Total Wingwall Area (two wings ~ SF) = (Hw + 0.333') (Lw)

Hw = Height of wingwall
SL:1 = Side slope ratio (horizontal:1 vertical)
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans

See applicable box culvert standard sheet for H, S, T, and U values.

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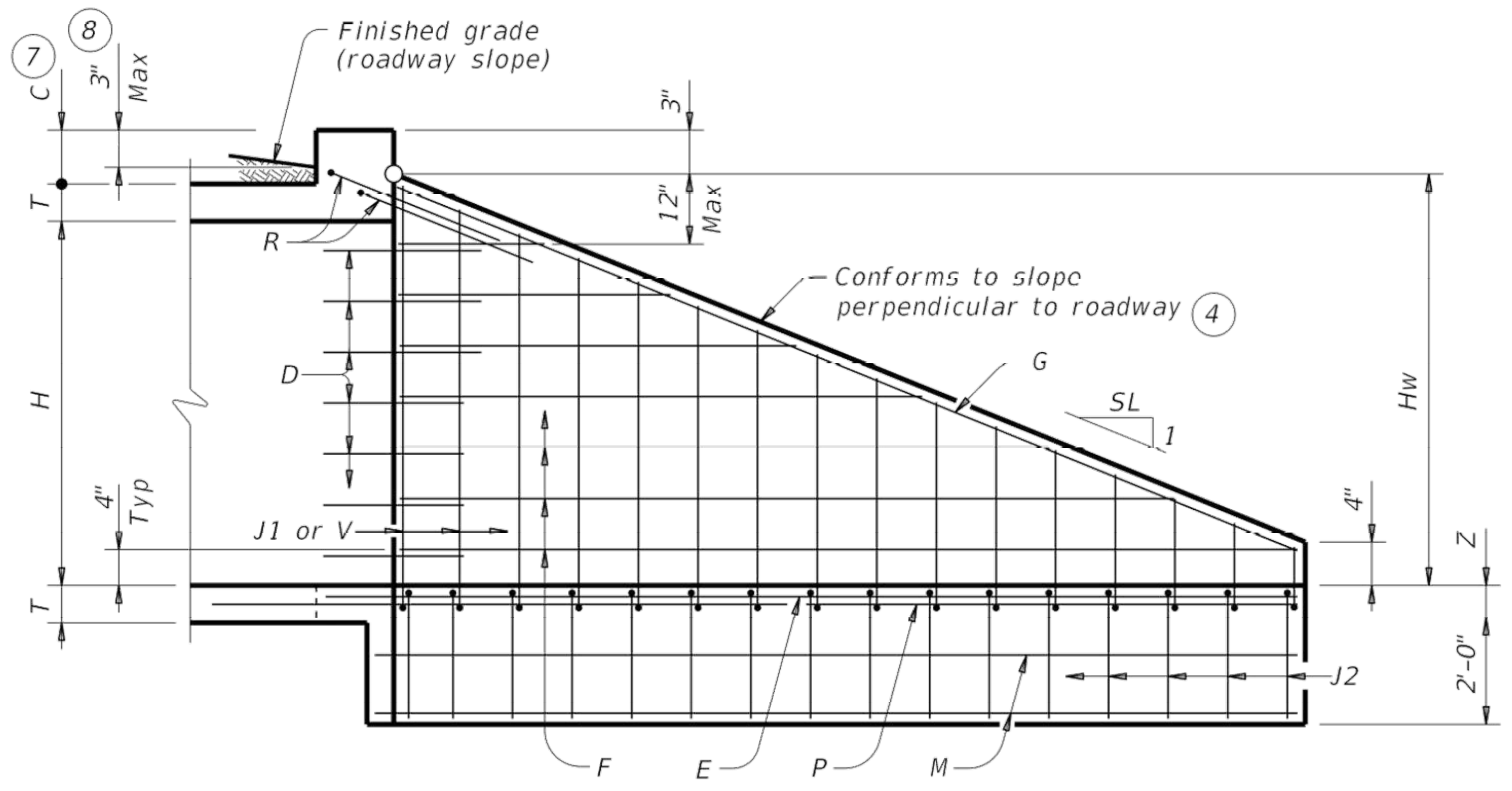
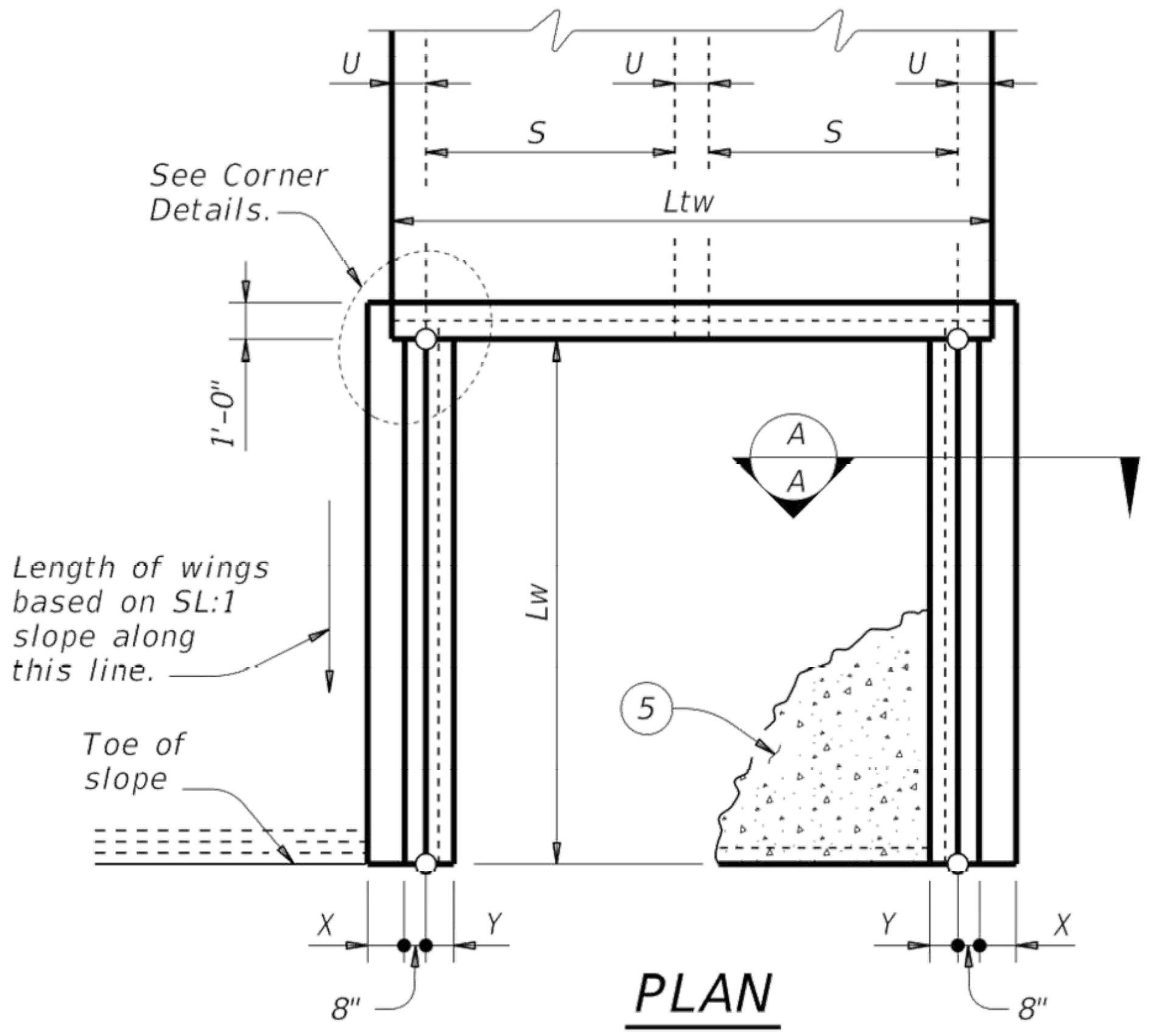

⑦
⑧
C
3" Max
Finished grade (roadway slope)
3"
1½" Max
T
R
H
D
4" Typ
J1 or V
T
Conforms to slope perpendicular to roadway ④
G
SL
1
Hw
4"
Z
2'-0"
J2
F
E
P
M

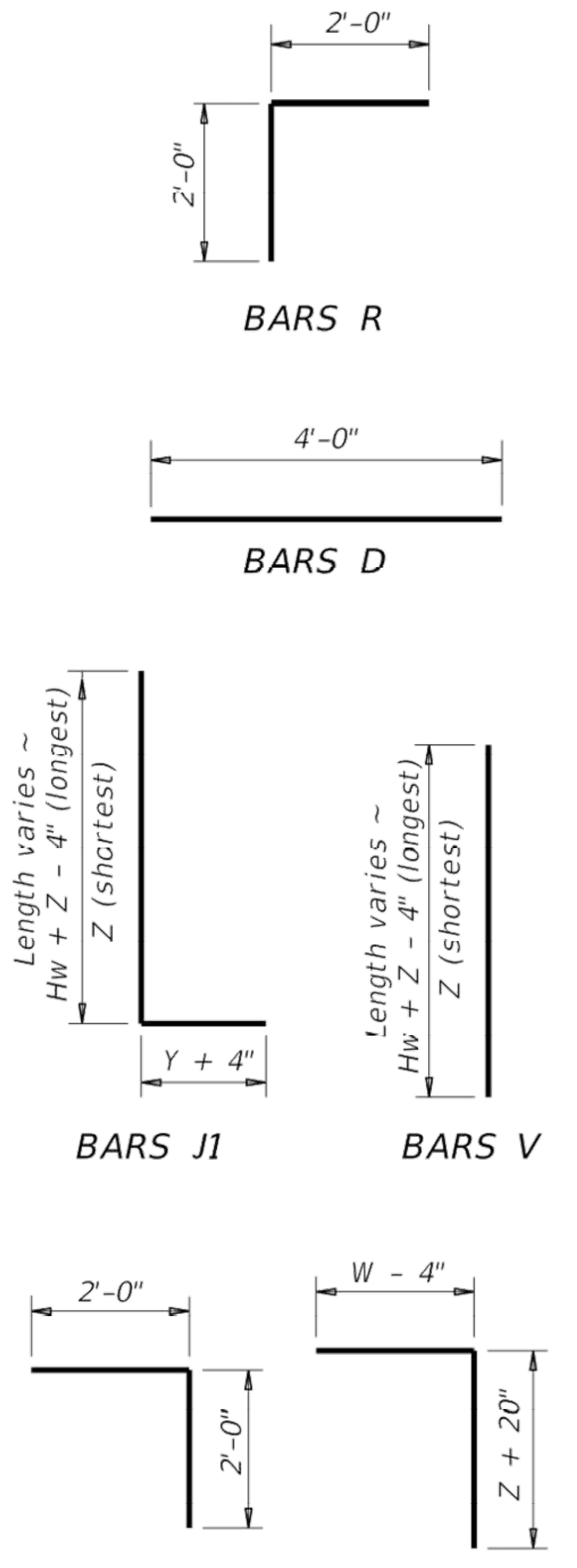
INSIDE ELEVATION

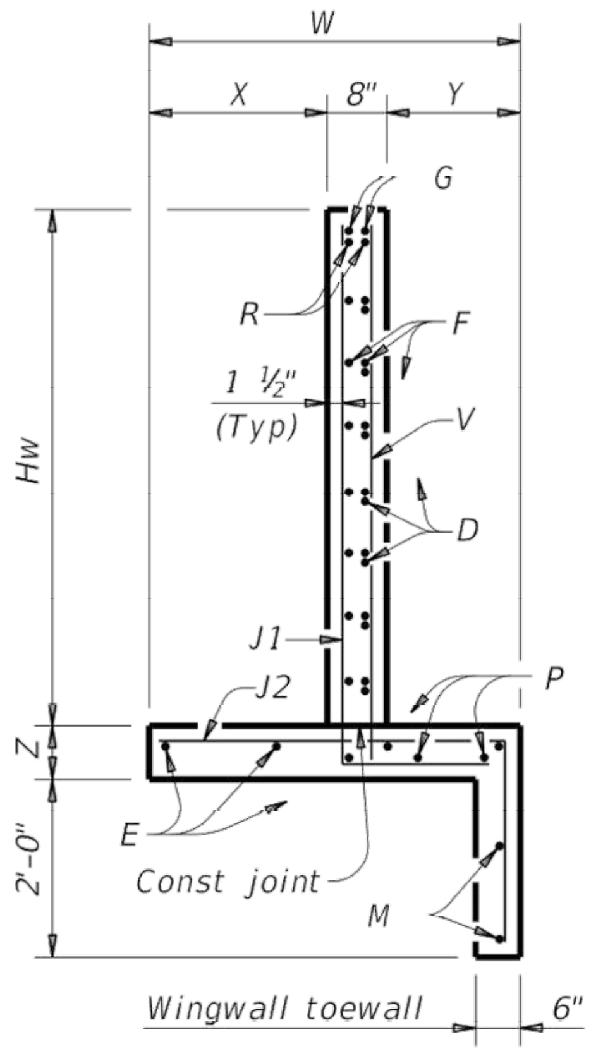
(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)



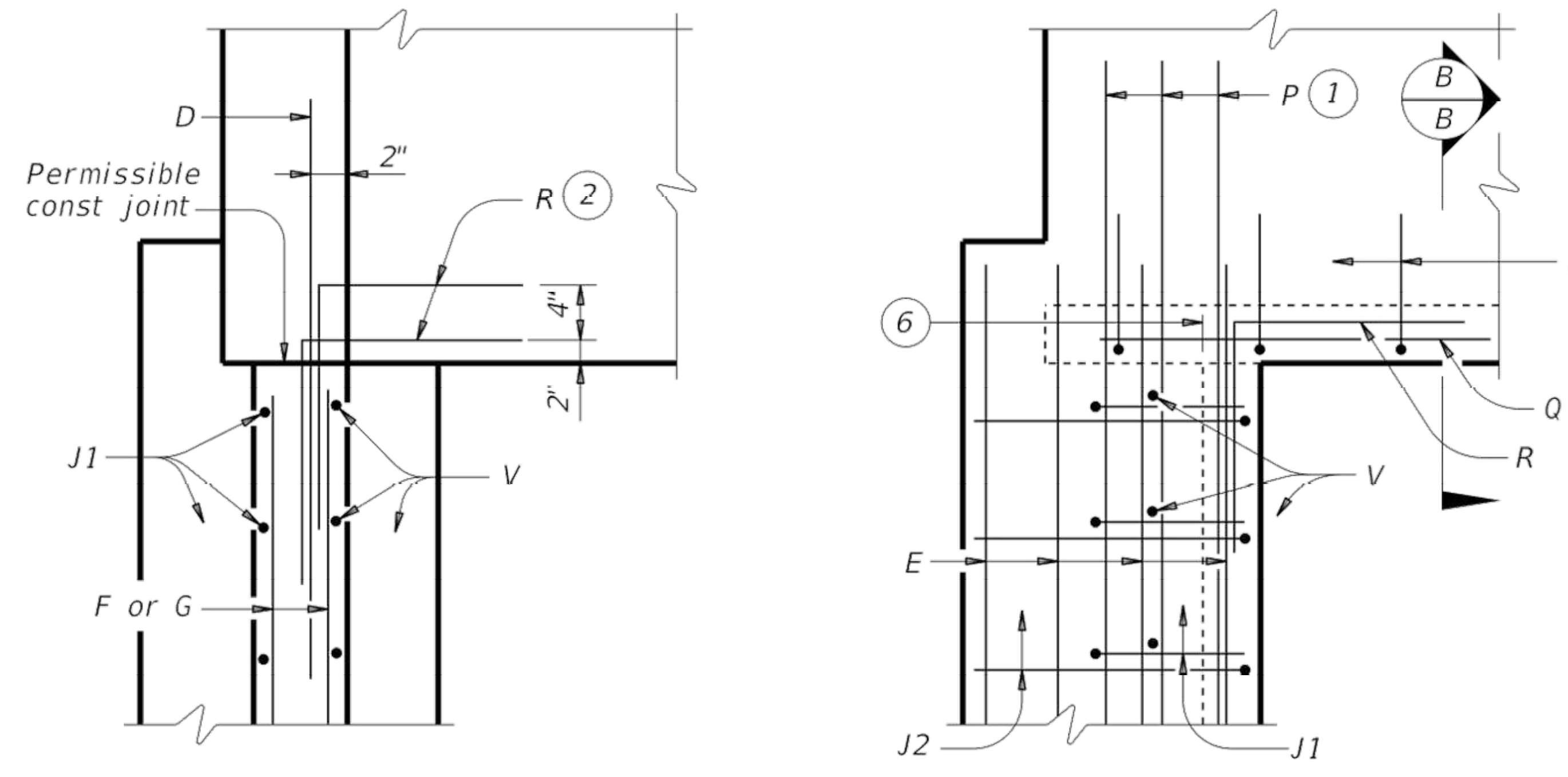
PLAN

(Showing dimensions.)





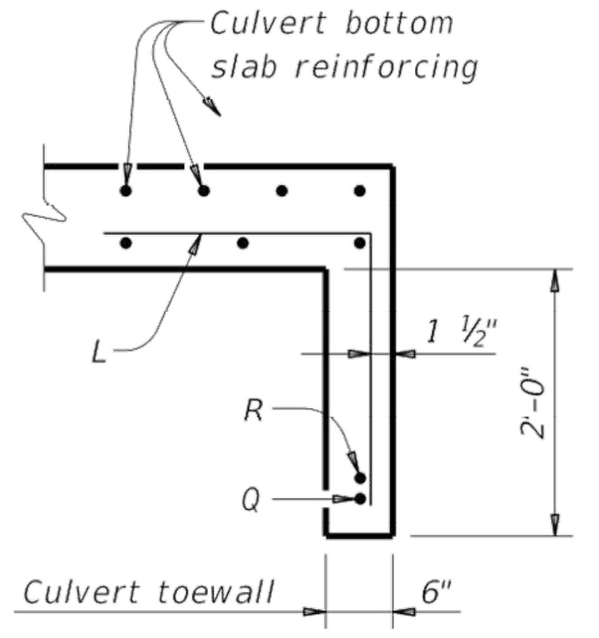
SECTION A-A



WINGWALL

FOOTING AND TOEWALL

CORNER DETAILS



SECTION B-B ⑤

① Extend Bars P 3'-0" minimum into bottom slab of box culvert.

② Adjust as necessary to maintain 1 1#2" clear cover and 4" minimum between bars.

③ Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by Lw.

④ Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.

⑤ When shown elsewhere on the plans, construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap". Unless otherwise shown on the plans or directed by the Engineer, provide a 6" wide by 1'-6" deep reinforced concrete toewall along all edges of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints oriented in the direction of flow across the full distance of the riprap at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.

⑥ At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.

⑦ 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 Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

⑧ 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.

MATERIAL NOTES:

Provide Class C concrete (f'c=3,600 psi).

Provide Grade 60 reinforcing steel.

Provide galvanized reinforcing steel if required elsewhere in the plans.

In riprap concrete, synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing unless noted otherwise.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.

See Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.

The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

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

Texas Department of Transportation
Bridge Division Standard

CONCRETE WINGWALLS WITH STRAIGHT WINGS FOR 0° SKEW BOX CULVERTS

SW-O

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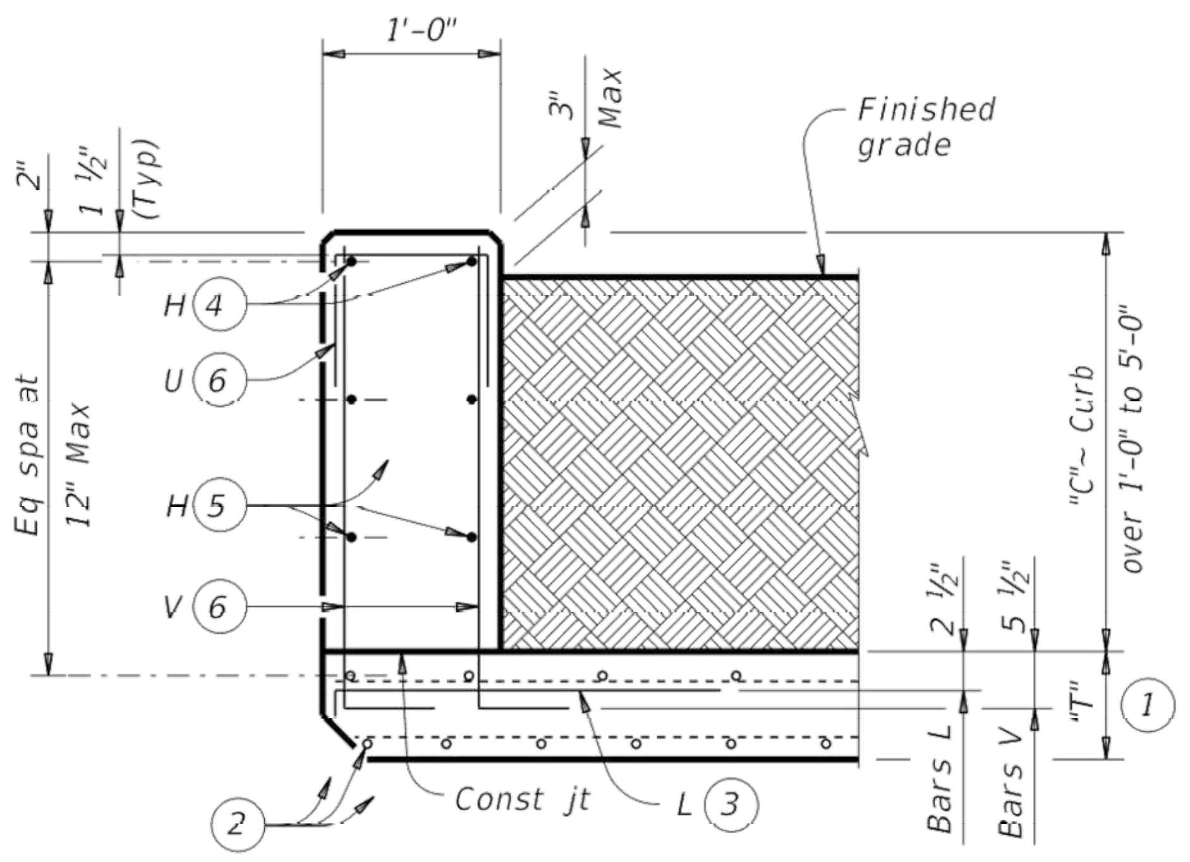
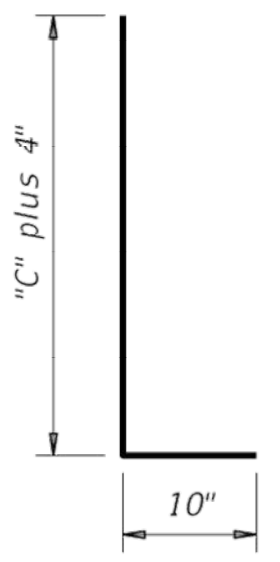
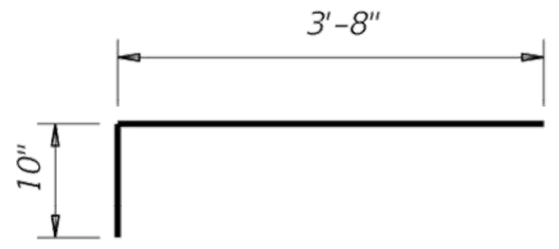


TYPICAL SECTION

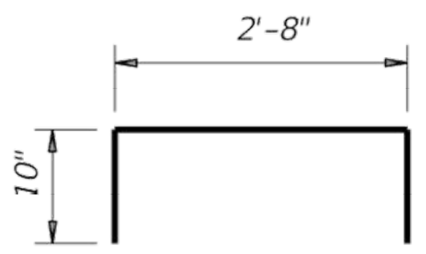
Used for curbs over 1'-0" to 5'-0"



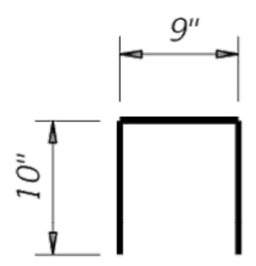
BARS V (#5) ⑥
Spaced at 12" Max



BARS L (#5) ③
Spaced at 12" Max



OPTIONAL
BARS L (#5) ③ ⑦
Spaced at 12" Max



BARS U (#4) ⑥
Spaced at 12" Max

① "T" is equal to the culvert top slab thickness. For precast boxes with slabs less than 8" thick, see SCP-MD standard for additional details.

② Adjust normal culvert slab bars as necessary to clear obstructions.

③ Place bars L as shown. Tilt hook as necessary to maintain cover.

④ Place normal culvert curb bars H(#4) as shown. Adjust as necessary to clear obstructions.

⑤ Additional bars H(#4) as required to maintain 12" Max spacing.

⑥ Replace normal culvert curb bars K with one bar U and two bars V as shown spaced at 12" Max. Adjust length of bars V as necessary to maintain clear cover.

⑦ Optional bars L are to be used only for precast box culverts with 3'-0" closure pour.

⑧ Quantities shown are for Contractor's information only. Quantities are per linear foot of curb length. The value in table can be interpolated for intermediate values of curb height, "C". Quantity includes bars K (when applicable).

TABLE OF ESTIMATED CURB QUANTITIES ⑧

Curb Height "C"	Conc (CY/LF)	Reinf Steel (Lb/LF)
1'-0"	0.037	10.4
1'-6"	0.056	14.5
2'-0"	0.074	15.6
2'-6"	0.093	18.0
3'-0"	0.111	19.0
3'-6"	0.130	21.3
4'-0"	0.148	22.4
4'-6"	0.167	24.8
5'-0"	0.185	25.9

CONSTRUCTION NOTES:

Adjust reinforcing steel as necessary to provide 1 ¼" cover.

For vehicle safety, top of the curb must not project more than 3" above the finished grade.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.

Provide galvanized reinforcing steel if required elsewhere in the plans.

Provide Class "C" concrete (f'c = 3,600 psi) minimum for curbs.

Provide bar laps, where required, as follows:

- Uncoated or galvanized ~ #4 = 1'-8" Min

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

These extended curb details have sufficient strength to allow for future retrofit of Type T631 or T631LS railing. These details are suitable for use with PR11, PR22 and PR3 type rails. These details are not suitable for the mounting of other rail types. For new construction using T631 or T631LS railing, use the T631-CM standard.

This Curb is considered as part of the Box Culvert for payment.

Cover dimensions are clear dimensions, unless noted otherwise.

Reinforcing bar dimensions shown are out-to-out of bar.

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Texas Department of Transportation
Bridge Division Standard

EXTENDED CURB DETAILS

FOR BOX CULVERTS WITH CURBS OVER 1'-0" TO 5'-0" TALL

ECD

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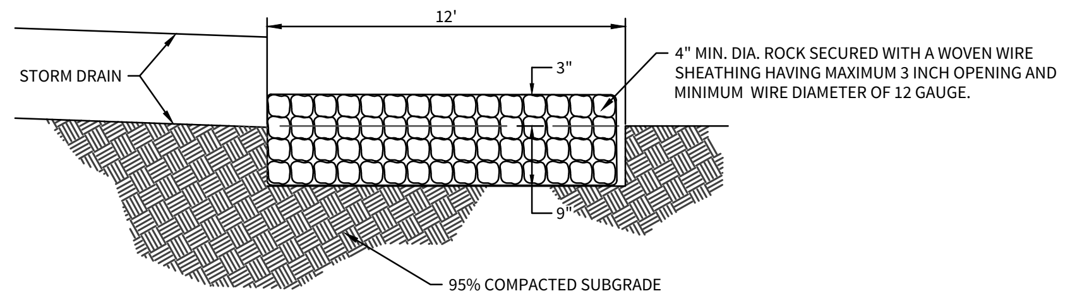
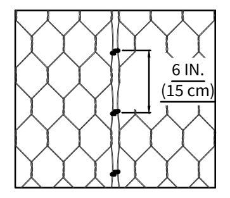
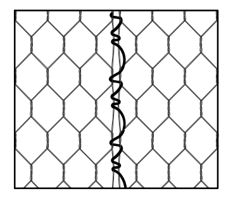

12'
STORM DRAIN
3"
9"
4" MIN. DIA. ROCK SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 3 INCH OPENING AND MINIMUM WIRE DIAMETER OF 12 GAUGE.
95% COMPACTED SUBGRADE

GABION STYLE ROCK EROSION CONTROL MATRESS DETAIL

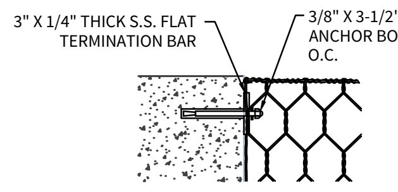
N.T.S.



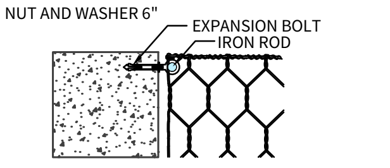
FASTNERS



LACING


3" X 1/4" THICK S.S. FLAT TERMINATION BAR
3/8" X 3-1/2" LG. S.S. WEDGE TYPE ANCHOR BOLT WITH NUT AND WASHER 6" O.C.

GABION TO CONCRETE CONNECTION - A



GABION TO CONCRETE CONNECTION - B

NOTES:

1. EDGES ARE JOINED TOGETHER, USING THE APPROPRIATE LACING TECHNIQUES OR FASTENERS.

   LACING: CONTINUOUS WIRE LOOPED TIGHTLY AROUND EVERY MESH OPENING, ALTERNATING SINGLE AND DOUBLE LOOPS

   FASTENERS: USE A PNEUMATIC OR HAND POWER TOOL, EMPLOYING SPENAX "C" SHAPED FASTENERS (FIG. 6.). FOR CLOSURE AND STRENGTH, THE RECOMMENDED SPACING IS EVERY MESH OPENING, NOT TO EXCEED 6 INCHES (150 MM).

2. GABION MATRESS MESH TO ASTM A975.

3. GABIONS USED SHALL BE ZINC.

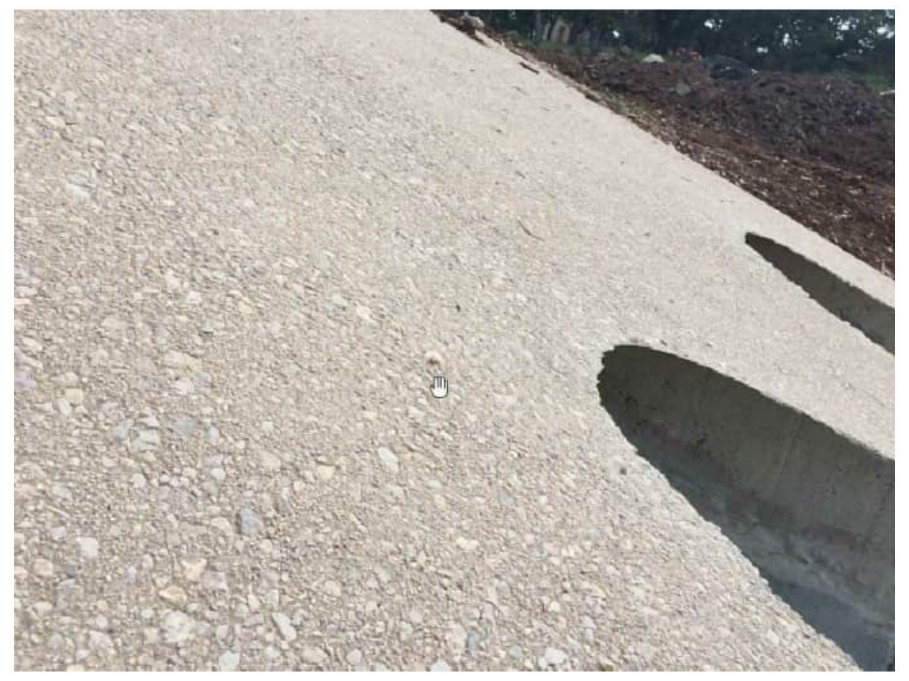
4. BACKFILL COMPACTION 95% TO ASTM D698/D1557

5. GABION FILL TO ASTM D6711:

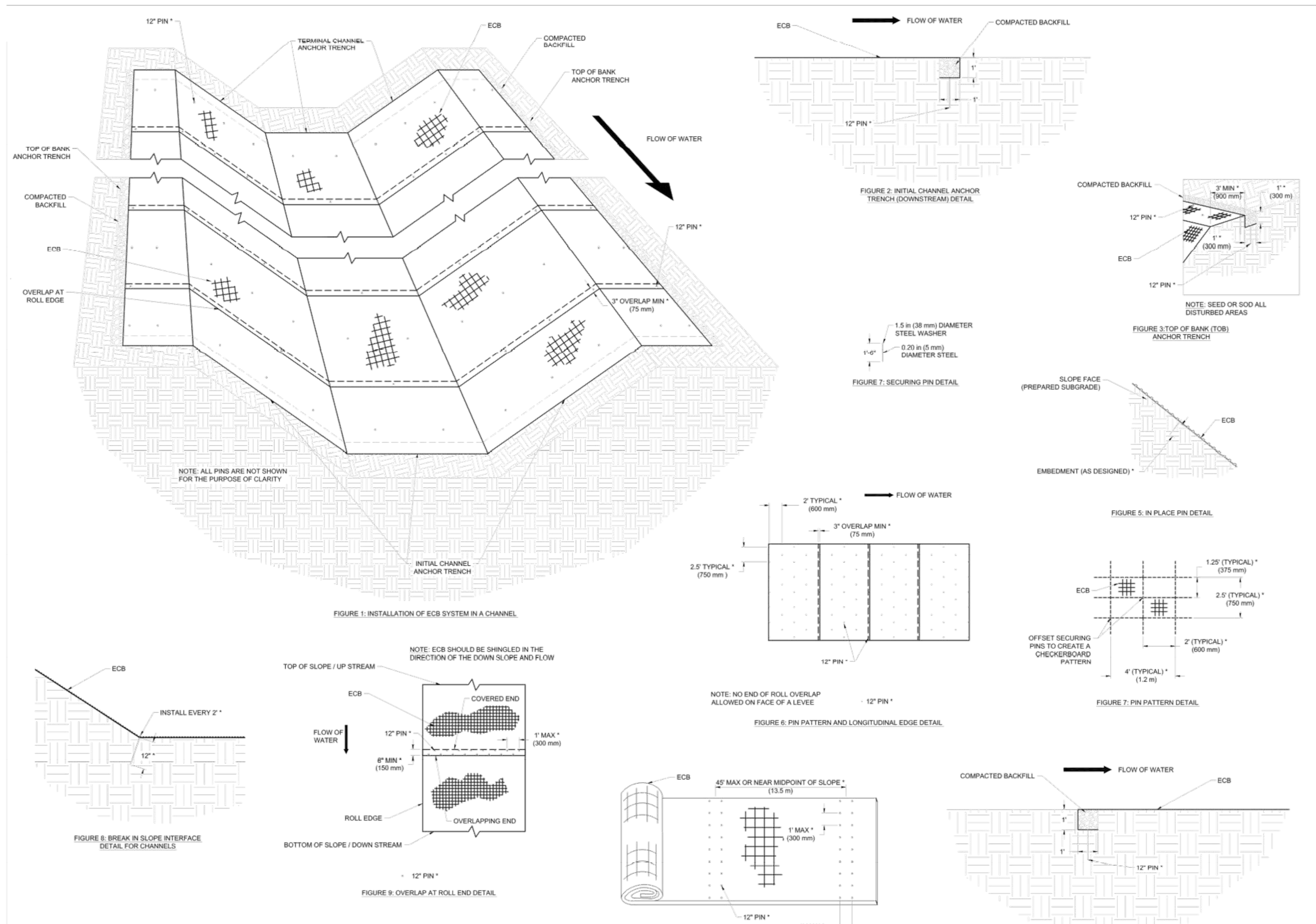
6.1. ROCK SIZE	4" - 12", D50 = 6"
6.2. ROCK UNIT WEIGHT	157 PCF MIN.
6.3. VOIDS	30% MAX.

6. TYPE 2 FILTER FABRIC IN ACCORDANCE WITH DMS-6200, TO BE USED BELOW GABION MATTRESS AT ALL LOCATIONS. SIDES AND TOP OF MATTRESS TO BE FREE OF FILTER FABRIC.

7. GABION WIRE SHALL MEET THE REQUIREMENTS OF 12 WIRE GAUGE FOR GABION MATTRESS.



WEATHERED CONCRETE RIP-RAP FINISH


12" PIN *
TERMINAL CHANNEL ANCHOR TRENCH
ECB
COMPACTED BACKFILL
TOP OF BANK ANCHOR TRENCH
FLOW OF WATER
OVERLAP AT ROLL EDGE
3" OVERLAP MIN * (75 mm)
NOTE: ALL PINS ARE NOT SHOWN FOR THE PURPOSE OF CLARITY
INITIAL CHANNEL ANCHOR TRENCH
FIGURE 1: INSTALLATION OF ECB SYSTEM IN A CHANNEL
1'
FIGURE 2: INITIAL CHANNEL ANCHOR TRENCH (DOWNSTREAM) DETAIL
3' MIN * (900 mm)
1' * (300 m)
1' * (300 mm)
NOTE: SEED OR SOD ALL DISTURBED AREAS
FIGURE 3:TOP OF BANK (TOB) ANCHOR TRENCH
1.5 in (38 mm) DIAMETER STEEL WASHER
0.20 in (5 mm) DIAMETER STEEL
1'-6"
FIGURE 7: SECURING PIN DETAIL
SLOPE FACE (PREPARED SUBGRADE)
EMBEDMENT (AS DESIGNED) *
FIGURE 5: IN PLACE PIN DETAIL
2' TYPICAL * (600 mm)
3" OVERLAP MIN * (75 mm)
2.5' TYPICAL * (750 mm)
NOTE: NO END OF ROLL OVERLAP ALLOWED ON FACE OF A LEVEE
FIGURE 6: PIN PATTERN AND LONGITUDINAL EDGE DETAIL
1.25' (TYPICAL) * (375 mm)
2.5' (TYPICAL) * (750 mm)
2' (TYPICAL) * (600 mm)
4' (TYPICAL) * (1.2 m)
OFFSET SECURING PINS TO CREATE A CHECKERBOARD PATTERN
FIGURE 7: PIN PATTERN DETAIL
INSTALL EVERY 2' *
12" *
FIGURE 8: BREAK IN SLOPE INTERFACE DETAIL FOR CHANNELS
NOTE: ECB SHOULD BE SHINGLED IN THE DIRECTION OF THE DOWN SLOPE AND FLOW
TOP OF SLOPE / UP STREAM
COVERED END
1' MAX * (300 mm)
6" MIN * (150 mm)
ROLL EDGE
OVERLAPPING END
BOTTOM OF SLOPE / DOWN STREAM
FIGURE 9: OVERLAP AT ROLL END DETAIL
45' MAX OR NEAR MIDPOINT OF SLOPE * (13.5 m)
FIGURE 10: SIMULATED CHECK SLOT DETAIL
FIGURE 11: TERMINAL CHANNEL ANCHOR TRENCH (UPSTREAM) DETAIL

EROSION CONTROL BLANKET (ECB) IN A CHANNEL GENERAL INSTALLATION GUIDELINES

PRE-CONSTRUCTION

A pre-construction meeting shall be held with the construction team and a representative from Propex ®. This meeting shall be scheduled by the contractor with at least two weeks notice. Also, Propex suggests that installation monitoring of the ECB be performed by a qualified independent third party.

SITE PREPARATION

- Grade and compact area of ECB installation as directed and approved by Engineer. Subgrade shall be uniform and smooth. Remove all rocks, clods, vegetation or other objects so the installed mat will have direct contact with soil surface.
- Prepare seedbed by loosening the top 2-3 in (50-75 mm) minimum of soil. This may be accomplished with a rotary tiller on slopes 3:1 or flatter.
- Perform a site specific soil test to determine what amendments such as lime and fertilizer to incorporate.
- Do not mulch areas where mat is to be placed.

SEEDING

- Keep seeded areas moist as necessary to establish vegetation. When watering seeded areas, use fine spray to prevent erosion of seeds or soil. If as a result of a rain, prepared seedbed becomes crusted or eroded, or if eroded places, ruts or depressions exist for any reason, rework soil until smooth and reseed such areas.
- Apply an amount equivalent to 50% of the total seed mixture required to be installed on the soil surface before installing the ECB.
- Disturbed areas shall be reseeded.
- Consult project plans and/or specifications for seed types and application rates.

GENERAL INSTALLATION GUIDELINES FOR STORM WATER CHANNELS

- Figure 1 shows general installation layout and details for ECB in storm water channels.
- Excavate an Initial Channel (IC) Anchor Trench 1 ft wide x 1 ft deep (300 mm x 300 mm) minimum wide across the channel at downstream end of project (see Figure 2). Deeper initial trench and/or hard armoring may be required in channels that have the potential for scour.
- Excavate the Top of Bank (TOB) Anchor Trench 1 ft wide x 1 ft deep (300 x 300 mm) minimum wide along both sides of the installation (see Figure 3). Each TOB Anchor Trench shall be located 3 ft (900 mm) minimum over crest of bank.
- Beginning at the downstream end of the channel, place ECB roll end into a TOB Anchor Trench and secure with pins on 2 ft (600 mm) centers (see Figure 3).
- Unroll ECB down the first channel bank and up the opposing channel bank, terminating the ECB roll end into the opposite TOB Anchor Trench and secure with pins on 2 ft (600 mm) centers (see Figure 3).
- Place the ECB roll edge into IC Anchor Trench. Secure ECB roll edge in Initial Channel Anchor Trench with pins on 2 ft (600 mm) centers (see Figure 2).
- Position adjacent rolls and secure in Initial Channel Anchor Trench in same manner.
- Continue installation as described above, overlapping adjacent rolls as follows:
  - A. Roll edge overlap: 3 in (75 mm) minimum overlap with upstream mat on top. Secure with one row of securing pins on 12 in (300 mm) centers on the designed pin pattern detail in Figure 6.
  - B. Roll end overlap for slopes: 6 in (150 mm) minimum overlap with upslope mat on top. Secure with two rows of pins staggered 6 in (150 mm) apart on 12 in (300 mm) centers (see Figure 9).
- Secure mat using pins. For appropriate frequency and pattern, see the typical Anchor/Pin Pattern Detail (see Figure 6) and the Pin Pattern Detail (see Figure 7).See Toe Interface Detail (Figure 8) for special anchoring patterns for breaks in slope.
- For channel bank heights or channel bottom widths greater than 45 ft (13.7 m), install simulated check slots per Figure 10. This method includes placing two rows of pins 12 in (300 mm) apart on 12 in (300 mm) centers at 45 ft (13.7 m) maximum intervals (see Figure 10) or across the midpoint of the slope for slope lengths less than 60 ft (18.2 m).
- Excavate Terminal Channel (TC) Anchor Trench 12 in wide x 12 in deep (300 x 300 mm) minimum across the channel at the upstream end of the project (see Figure 11). Deeper terminal trench and/or hard armoring may be required in channels that have the potential for scour.
- Place the ECB roll edge into TC Anchor Trench. Secure ECB roll edge in TC Anchor Trench with pins on 2 ft (600 mm) centers (see Figure 11).
- Backfill and compact soil into each trench as directed and approved by Engineer.
- When required, the Engineer is to create project details for transition to structures along the longitudinal edge or to address water flowing perpendicular to the seams.

GROUND PINNING AND ANCHORING DEVICES

- Metal pins should be at least 0.20 in (5 mm) diameter steel with a 1 1/2 in (38 mm) steel washer at the head of the pin (see Figure 8). Metal pins should be driven flush to the soil surface. Pins should be between 12-24 in (300-600 mm) long and have sufficient ground penetration to resist pullout. Longer pins may be required for looser soils. Heavier metal stakes may be required in rocky soils. Depending on soil pH and design life of the pin, galvanized or stainless steel pins may be required. Consult project plans and/or specifications for tie down device details.

SPECIAL TRANSITIONS

- For applications that require special transitions (i.e. connections to riprap, concrete, T-Walls, etc.), refer to the project specific drawings or consult with Propex Engineering Service at 423-553-2450.

VEGETATION ESTABLISHMENT

- Irrigate as necessary to establish and maintain vegetation. Frequent, light irrigation will need to be applied to seeded areas if no natural rain events have occurred within two weeks of seeding and shall continue until 75% of vegetation has established and has reached a height of 2 inches. Do not over irrigate.

CONTRACTORS MAINTENANCE AND GUARANTEE PERIOD

It shall be the responsibility of the Owner to maintain all seed and ECB areas after Engineer's acceptance. Maintenance shall consist of watering and weeding, repair of all erosion and any re-seeding as necessary to establish a uniform stand of the specified grasses. A minimum of 70% of the area seed shall be covered with no bare or dead spots greater than 10 ft² (1 m²). Seeded areas shall not be mowed prior to establishment of 70% vegetative density and a minimum grass growth of 4 inches (100 mm). Mower height shall not be set lower than 4 inches (100 mm). Throughout the duration of the project, the contractor shall be responsible for mowing to facilitate growth and shall not let the vegetation in the seeded areas exceed 18 inches (450 mm). In addition, the Contractor shall water all grassed areas as often as necessary to establish satisfactory growth and to maintain its growth throughout the duration of the project.

Replanting is to be performed within 14 calendar days of notification by the Engineer.

Propex™ Geotextile Systems

Please note that the information presented herein is general information only. It is for conceptual use only and not intended to be used for construction. While every effort has been made to ensure its accuracy, this information should not be used for a specific application without independent professional examination and verification of its suitability, applicability, and accuracy.

LANDLOK® BY PROPEX

TURF REINFORCEMENT MAT, TRM

CONCEPTUAL LANDLOK® INSTALLATION DETAILS FOR CHANNELS

Rev		Date:	Drawn By:	Scale:	
△					
△					
△	C300T	04/11/2012	D.LOIZEAUX	NTS	*ALL DIMENSIONS ARE TO BE VERIFIED BY THE ENGINEER

TURF REINFORCEMENT MAT DETAILS

N.T.S.

NOTE:

1. CONTRACTOR SHALL BE REQUIRED TO SCHEDULE PRE-CONSTRUCTION MEETING WITH THE DEVELOPER, DEVELOPER'S ENGINEER AND PRODUCT MANUFACTURER PRIOR TO INSTALLATION OF HYDROTURF.
2. CONTRACTOR TO ENSURE ALL CONCRETE RIP-RAP IS FINISHED WITH WEATHERED CONCRETE RIP-RAP FINISH AS PER DETAIL ON THIS SHEET.

CUDEENGINEERS.COM

CUDE EST. 1980 ENGINEERS

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

GEORGE'S RANCH UNIT 1

DRAINAGE STANDARD DETAILS

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-09-26 REMOVED HYDROTURF DETAIL, ADDED TRM DETAIL
2.
3.
4.
5.
6.
7.
8.
9.

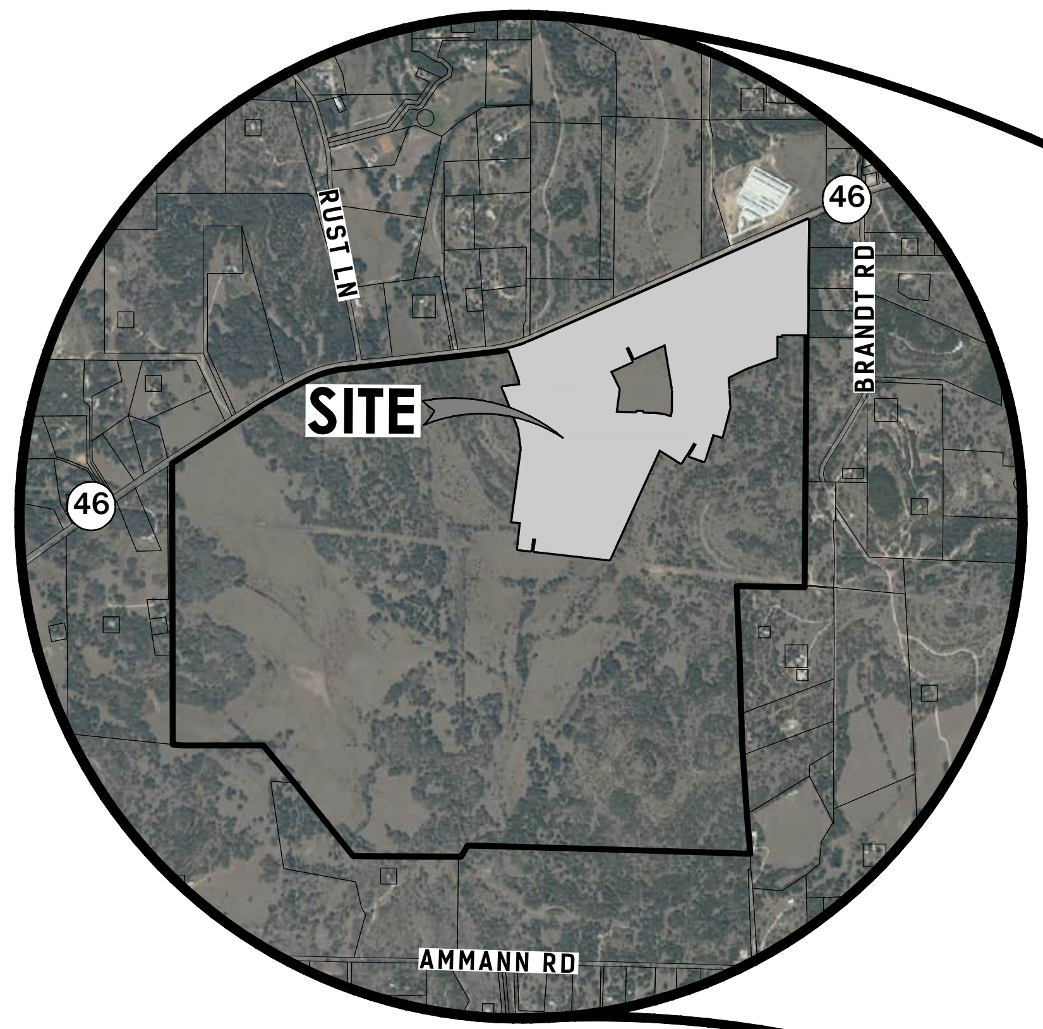
W. PATRICK MURPHY
111597
10/6/2022

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

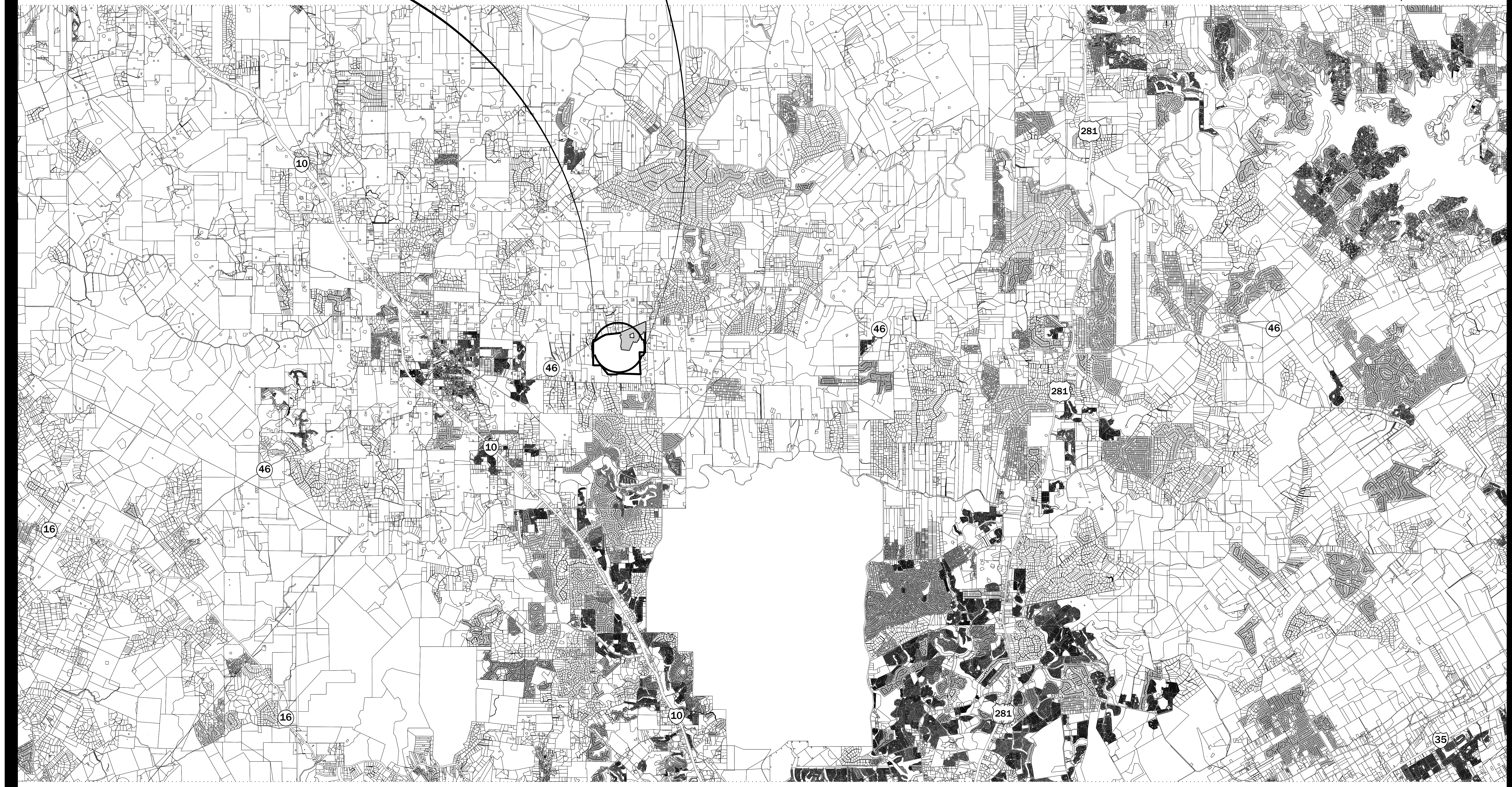
C55

WATER DISTRIBUTION
- C56 – WATER DISTRIBUTION PLAN
- C57 – WATER DISTRIBUTION PLAN
- C58 – WATER DISTRIBUTION PLAN
- C59 – WATER DISTRIBUTION PLAN
- C60 – CITY OF BOERNE – WATER DISTRIBUTION STANDARD DETAILS
- C61 – WATER STORAGE TANK DETAILS



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

GEORGE'S RANCH
UNIT 1

WATER DISTRIBTION CONSTRUCTION PLANS

DEVELOPER:

THE LOOKOUT GROUP

MIKE SIEFERT, P.E.
PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

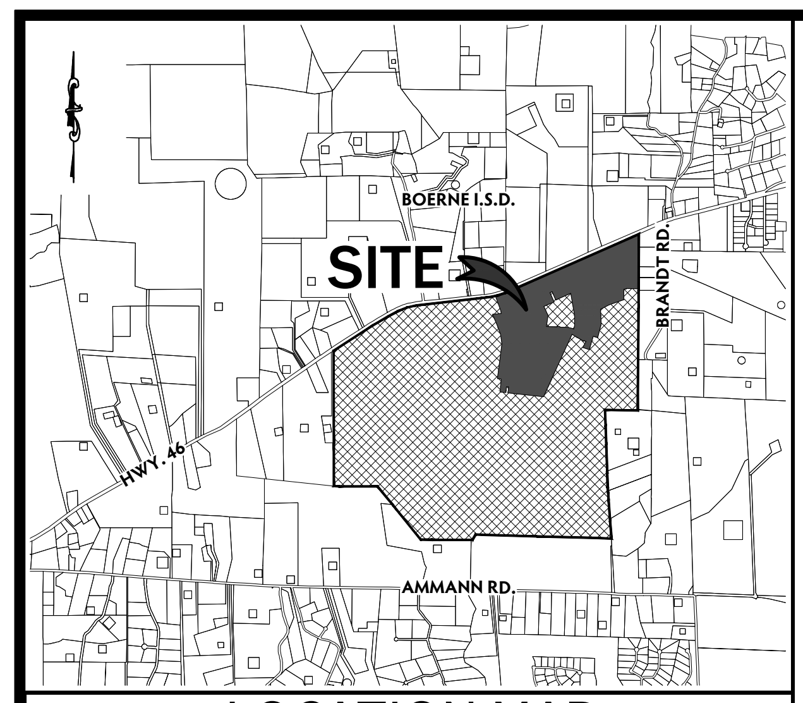
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

DRAWN BY	DATE
AB/RR	04-22-2022
CHECKED BY	**PROJECT NO.**
W. PATRICK MURPHY, P.E.	03546.001

W. PATRICK MURPHY
111597
8/18/2022

CUDE ENGINEERS
TBPE No. 455
TBPELS No. 10048500

Received 4/11/2024 @ 11:06am #5018



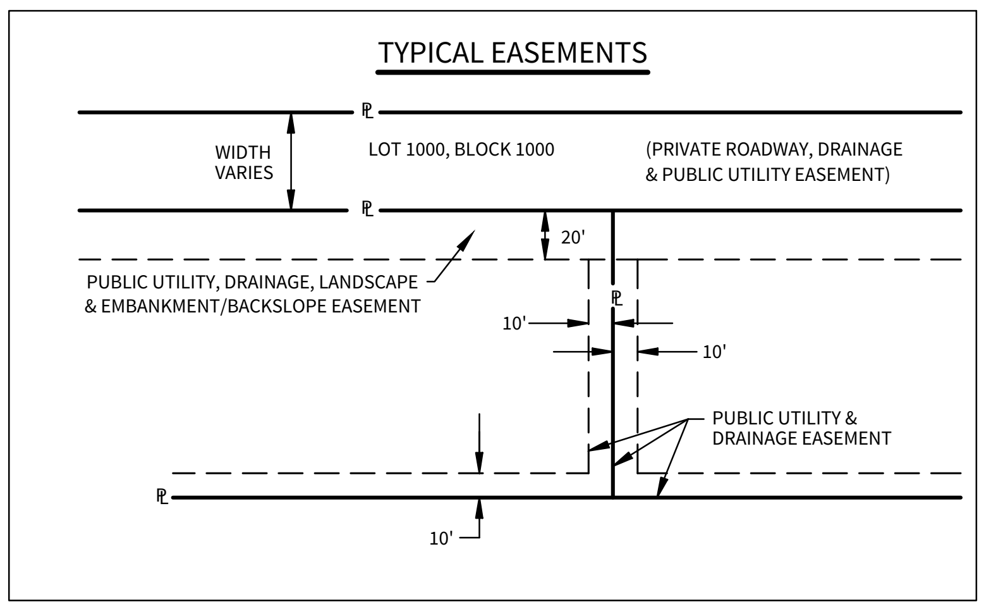
LOCATION MAP

N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

TYPICAL EASEMENTS



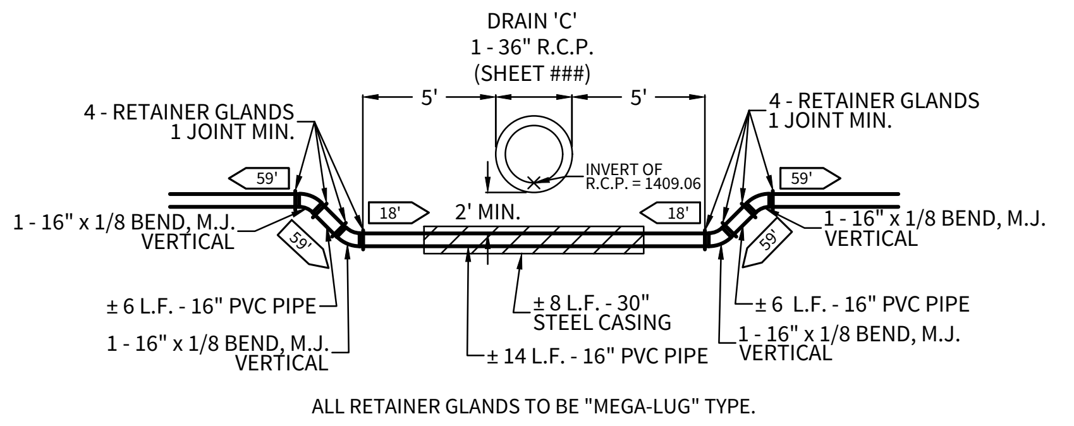
WIDTH VARIES
LOT 1000, BLOCK 1000
(PRIVATE ROADWAY, DRAINAGE & PUBLIC UTILITY EASEMENT)
20'
PUBLIC UTILITY, DRAINAGE, LANDSCAPE & EMBANKMENT/BACKSLOPE EASEMENT
10'
10'
PUBLIC UTILITY & DRAINAGE EASEMENT
10'

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.

FENCE NOTE:

GATES ACROSS EASEMENT: DOUBLE SWING GATES WITH A MINIMUM CLEAR OPENING OF 12 FEET WIDE SHALL BE INSTALLED WHEREVER FENCES CROSS UTILITY EASEMENTS.



DRAIN 'C'
1 - 36" R.C.P.
(SHEET ###)
4 - RETAINER GLANDS 1 JOINT MIN.
4 - RETAINER GLANDS 1 JOINT MIN.
5'
5'
INVERT OF R.C.P. = 1409.06
1 - 16" x 1/8 BEND, M.J. VERTICAL
2' MIN.
1 - 16" x 1/8 BEND, M.J. VERTICAL
± 6 L.F. - 16" PVC PIPE
± 8 L.F. - 30" STEEL CASING
± 6 L.F. - 16" PVC PIPE
1 - 16" x 1/8 BEND, M.J. VERTICAL
± 14 L.F. - 16" PVC PIPE
1 - 16" x 1/8 BEND, M.J. VERTICAL
ALL RETAINER GLANDS TO BE "MEGA-LUG" TYPE.

DETAIL 'A': DRAIN 'C' / WATER CROSSING

SIDE VIEW N.T.S.

BOERNE GENERAL CONSTRUCTION NOTES

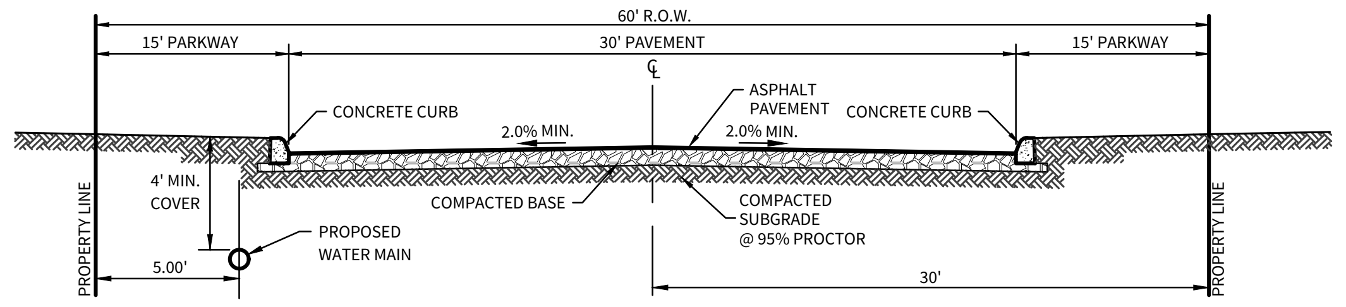
UTILITIES

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 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. PRIOR TO RECEIVING BULK WATER, THE CONTRACTOR MUST APPLY FOR A BULK WATER METER. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING A CITY APPROVED BACKFLOW DEVICE.
5. ALL MANHOLES IN STREETS, VALVES, AND BLOW-OFFS SHALL HAVE CONCRETE ENCASEMENTS.
6. 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. POTHOLING AND STAIR STEPPING IS NOT PERMITTED.
7. ALL VALVE BOXES, METER BOXES, FIRE HYDRANTS, MANHOLES, ETC. ARE REQUIRED TO BE ADJUSTED AS REQUIRED TO MATCH FINAL GRADES.
8. THE CONTRACTOR IS RESPONSIBLE FOR STAKING UTILITIES PRIOR TO THE FINAL INSPECTION TO VERIFY LOCATION, FINISH GRADE, AND DEPTH.

WATER

9. ALL WATER LINES SHALL BE INSTALLED BETWEEN FOUR AND SIX FEET OR AS SHOWN ON THE APPROVED INFRASTRUCTURE DRAWINGS.
10. TRACER WIRE LOCATE BOX SHALL BE INSTALLED PER CITY REQUIREMENTS AT ALL WATER VALVES INCLUDING FIRE HYDRANT VALVES AND BLOWOFFS. FOR GROUPING OF VALVES AT ONE GENERAL LOCATION, ONE LOCATE BOX MAY BE USED.
11. NO VALVES, HYDRANTS, BLOWOFFS, ETC., SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.



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

N.T.S.

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 12" & 16" PIPE SHALL BE P.V.C. C-905, DR14 CLASS 200, ALL OTHER 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. ALL THRUST BLOCKING MUST BLOCK AGAINST NATURAL GROUND NOT TRENCH BACKFILL.
11. MAINTAIN 2' HORIZONTAL SEPARATION BETWEEN EXIST. POWER POLES AND TRENCH.
12. ALL FIRE HYDRANTS TO BE MUELLER A-423 OR APPROVED EQUAL.
13. 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.
14. CONTRACTOR TO CONTACT 1-800-DIG-TESS 48 HOURS PRIOR TO COMMENCING WORK FOR MARKING UNDERGROUND CONDUITS.
15. ALL AREAS WHICH WHERE TRAVERSED BY CONSTRUCTION EQUIPMENT WILL BE DISKED PRIOR TO COMMENCING REVEGETATION.
16. 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.
17. ALL BURIED STAND PIPE SHALL BE C900 OR APPROVED EQUAL.

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 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.

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.

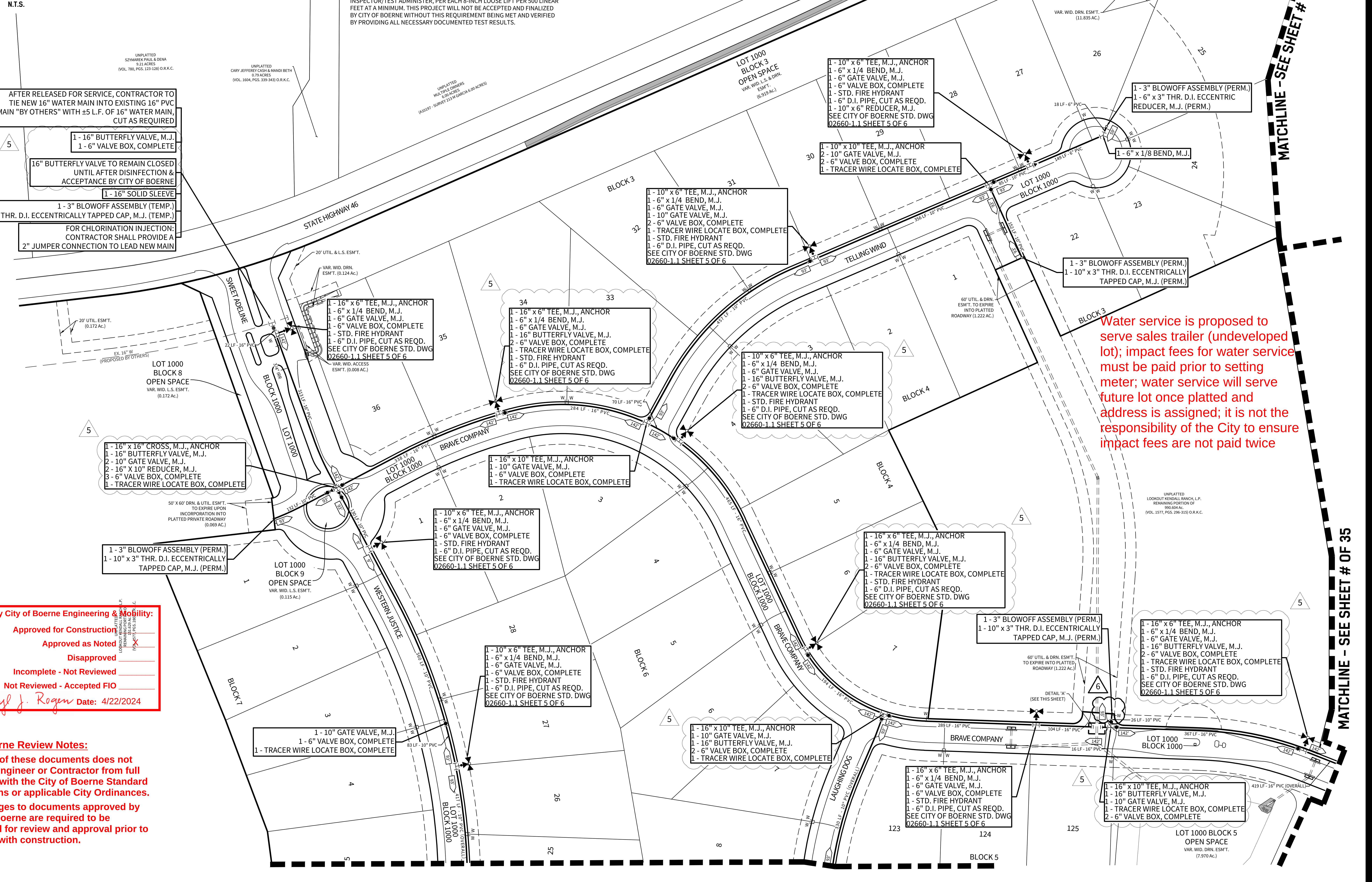
MISCELLANEOUS NOTES

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 JOINT RESTRAINT LENGTH AND DIRECTION
9. HYDRANTS AND WATER LINES MUST BE INSPECTED BY THE FIRE MARSHAL'S OFFICE PRIOR TO COVERING. CONTACT THE FIRE MARSHAL'S OFFICE TO SCHEDULE INSPECTION.
10. CONTRACTOR TO COORDINATE WITH ENGINEER FOR GUARD SHACK DOMESTIC WATER SERVICE.

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.

SCALE: 1"=100'



0
100
200
STATE HIGHWAY 46
UNPLATTED MULTIPLE OWNERS 6.00 ACRES (A10197 - SURVEY 213 M GARCIA 6.00 ACRES)
UNPLATTED SZYMAREK PAUL & DENA 0.21 ACRES (VOL. 780, PGS. 123-128) O.R.K.C.
UNPLATTED GARY JEFFERY CASH & MANDI BETH 0.79 ACRES (VOL. 1604, PGS. 339-343) O.R.K.C.
AFTER RELEASED FOR SERVICE, CONTRACTOR TO TIE NEW 16" WATER MAIN INTO EXISTING 16" PVC WATER MAIN "BY OTHERS" WITH ±5 L.F. OF 16" WATER MAIN, CUT AS REQUIRED
1 - 16" BUTTERFLY VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
16" BUTTERFLY VALVE TO REMAIN CLOSED UNTIL AFTER DISINFECTION & ACCEPTANCE BY CITY OF BOERNE
1 - 16" SOLID SLEEVE
1 - 3" BLOWOFF ASSEMBLY (TEMP.)
1 - 16" x 3" THR. D.I. ECCENTRICALLY TAPPED CAP, M.J. (TEMP.)
FOR CHLORINATION INJECTION: CONTRACTOR SHALL PROVIDE A 2" JUMPER CONNECTION TO LEAD NEW MAIN
LOT 1000 BLOCK 3 OPEN SPACE
BLOCK 3
SWEET ADELINE
20' UTIL. & L.S. ESM'T.
VAR. WID. DRN. ESM'T. (0.124 Ac.)
VAR. WID. ACCESS ESM'T. (0.008 Ac.)
20' UTIL. ESM'T. (0.172 Ac.)
EX. 16" W (PROPOSED BY OTHERS)
LOT 1000 BLOCK 8 OPEN SPACE
VAR. WID. L.S. ESM'T. (0.172 Ac.)
1 - 16" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
1 - 16" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 16" BUTTERFLY VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
1 - 16" x 16" CROSS, M.J., ANCHOR
1 - 16" BUTTERFLY VALVE, M.J.
2 - 10" GATE VALVE, M.J.
2 - 16" x 10" REDUCER, M.J.
3 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
BRAVE COMPANY
LOT 1000 BLOCK 1000
50' X 60' DRN. & UTIL. ESM'T. TO EXPIRE UPON INCORPORATION INTO PLATTED PRIVATE ROADWAY (0.069 Ac.)
1 - 3" BLOWOFF ASSEMBLY (PERM.)
1 - 10" x 3" THR. D.I. ECCENTRICALLY TAPPED CAP, M.J. (PERM.)
1 - 16" x 10" TEE, M.J., ANCHOR
1 - 10" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - 10" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
LOT 1000 BLOCK 9 OPEN SPACE
VAR. WID. L.S. ESM'T. (0.115 Ac.)
WESTERN JUSTICE
BLOCK 7
1 - 10" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - 10" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
BLOCK 6
LOT 1000 BLOCK 1000
1 - 16" x 10" TEE, M.J., ANCHOR
1 - 10" GATE VALVE, M.J.
1 - 16" BUTTERFLY VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
LAUGHING DOG
1 - 16" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
BRAVE COMPANY
1 - 16" x 10" TEE, M.J., ANCHOR
1 - 16" BUTTERFLY VALVE, M.J.
1 - 10" GATE VALVE, M.J.
1 - TRACER WIRE LOCATE BOX, COMPLETE
2 - 6" VALVE BOX, COMPLETE
LOT 1000 BLOCK 5 OPEN SPACE
VAR. WID. DRN. ESM'T. (7.970 Ac.)
BLOCK 5
LOT 1000 BLOCK 1000
1 - 16" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 16" BUTTERFLY VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 151.629 Ac. (VOL. 1577, PGS. 280 O.R.K.C.)
1 - 3" BLOWOFF ASSEMBLY (PERM.)
1 - 10" x 3" THR. D.I. ECCENTRICALLY TAPPED CAP, M.J. (PERM.)
60' UTIL. & DRN. ESM'T. TO EXPIRE INTO PLATTED ROADWAY (1.222 Ac.)
DETAIL 'A' (SEE THIS SHEET)
1 - 16" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 16" BUTTERFLY VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
BLOCK 4
1 - 10" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 16" BUTTERFLY VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
BLOCK 4
TELLING WIND
1 - 10" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 10" GATE VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
1 - 10" x 10" TEE, M.J., ANCHOR
2 - 10" GATE VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - 10" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
1 - 10" x 6" REDUCER, M.J.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
1 - 3" BLOWOFF ASSEMBLY (PERM.)
1 - 6" x 3" THR. D.I. ECCENTRIC REDUCER, M.J. (PERM.)
1 - 6" x 1/8 BEND, M.J.
LOT 1000 BLOCK 1000
VAR. WID. DRN. ESM'T. (11.835 AC.)
1 - 3" BLOWOFF ASSEMBLY (PERM.)
1 - 10" x 3" THR. D.I. ECCENTRICALLY TAPPED CAP, M.J. (PERM.)
BLOCK 3
60' UTIL. & DRN. ESM'T. TO EXPIRE INTO PLATTED ROADWAY (1.222 AC.)
MATCHLINE - SEE SHEET # OF 35
MATCHLINE - SEE SHEET # OF 35

Water service is proposed to serve sales trailer (undeveloped lot); impact fees for water service must be paid prior to setting meter; water service will serve future lot once platted and address is assigned; it is not the responsibility of the City to ensure impact fees are not paid twice

Reviewed by City of Boerne Engineering & Mobility:
Approved for Construction ______
Approved as Noted X
Disapproved ______
Incomplete - Not Reviewed ______
Not Reviewed - Accepted FIO ______
By: Cheryl J. Rogers Date: 4/22/2024

City of Boerne Review Notes:

1) Approval of these documents does not relieve the Engineer or Contractor from full compliance with the City of Boerne Standard Specifications or applicable City Ordinances.

2) Any changes to documents approved by the City of Boerne are required to be re-submitted for review and approval prior to proceeding with construction.

MATCHLINE - SEE SHEET # OF 35

CUDEENGINEERS.COM

CUDE ENGINEERS EST. 1980

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

GEORGE'S RANCH UNIT 1

WATER DISTRIBUTION PLAN

DATE
03/20/2024

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-01-05 - ADDED TRACER WIRE LOCATE BOXES, ADDED WATER BEND DETAILS, MOVED HYDRANT
2. 2022-08-16 - REVISED BENDS, ADDED FENCE NOTE, REVISED WATER MAIN SIZE
3. 2022-10-01 - UPDATED STREET WIDTH & REVISED WATER LINE
4. 2023-01-10 - REVISED EASEMENTS, WATER LINE, OPEN SPACE ACREAGE, REVISED DETAIL 'A'
5. 2023-03-21 - REVISED 16" GATE VALVES
6. 2024-4-10 ADDED WATER SERVICE
7.
8.
9.

W. PATRICK MURPHY
111597
4/11/2024

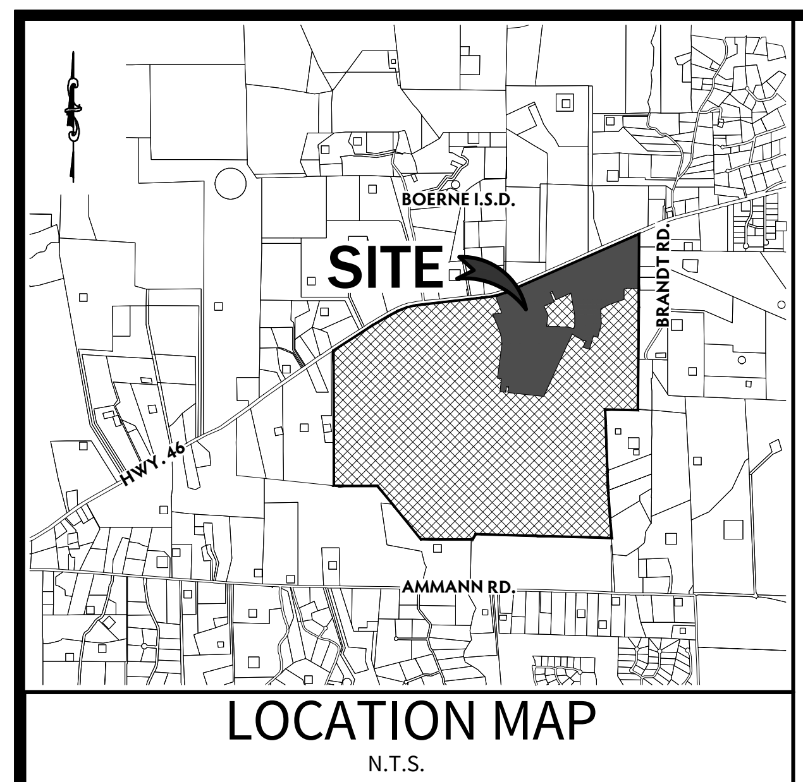
CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C56

1 OF 6

P:\03546\001\2-Drawings\01_29 WDMP.dwg 2024/04/10 3:31pm rreyes



LOCATION MAP
N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

BOERNE GENERAL CONSTRUCTION NOTES

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 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. PRIOR TO RECEIVING BULK WATER, THE CONTRACTOR MUST APPLY FOR A BULK WATER METER. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING A CITY APPROVED BACKFLOW DEVICE.
5. ALL MANHOLES IN STREETS, VALVES, AND BLOW-OFFS SHALL HAVE CONCRETE ENCASEMENTS.
6. 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. POTHOLING AND STAIR STEPPING IS NOT PERMITTED.
7. ALL VALVE BOXES, METER BOXES, FIRE HYDRANTS, MANHOLES, ETC. ARE REQUIRED TO BE ADJUSTED AS REQUIRED TO MATCH FINAL GRADES.
8. THE CONTRACTOR IS RESPONSIBLE FOR STAKING UTILITIES PRIOR TO THE FINAL INSPECTION TO VERIFY LOCATION, FINISH GRADE, AND DEPTH.

WATER

9. ALL WATER LINES SHALL BE INSTALLED BETWEEN FOUR AND SIX FEET OR AS SHOWN ON THE APPROVED INFRASTRUCTURE DRAWINGS.
10. TRACER WIRE LOCATE BOX SHALL BE INSTALLED PER CITY REQUIREMENTS AT ALL WATER VALVES INCLUDING FIRE HYDRANT VALVES AND BLOWOFFS. FOR GROUPING OF VALVES AT ONE GENERAL LOCATION, ONE LOCATE BOX MAY BE USED.
11. NO VALVES, HYDRANTS, BLOWOFFS, ETC., SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.

FENCE NOTE:

GATES ACROSS EASEMENT: DOUBLE SWING GATES WITH A MINIMUM CLEAR OPENING OF 12 FEET WIDE SHALL BE INSTALLED WHEREVER FENCES CROSS UTILITY EASEMENTS.

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. ALL THRUST BLOCKING MUST BLOCK AGAINST NATURAL GROUND NOT TRENCH BACKFILL.
11. MAINTAIN 2' HORIZONTAL SEPARATION BETWEEN EXIST. POWER POLES AND TRENCH.
12. ALL FIRE HYDRANTS TO BE MUELLER A-423 OR APPROVED EQUAL.
13. 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.
14. CONTRACTOR TO CONTACT 1-800-DIG-TESS 48 HOURS PRIOR TO COMMENCING WORK FOR MARKING UNDERGROUND CONDUITS.
15. ALL AREAS WHICH WHERE TRAVERSED BY CONSTRUCTION EQUIPMENT WILL BE DISKED PRIOR TO COMMENCING REVEGETATION.
16. 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.
17. 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. <X'> - DENOTES JOINT RESTRAINT LENGTH AND DIRECTION
9. HYDRANTS AND WATER LINES MUST BE INSPECTED BY THE FIRE MARSHAL'S OFFICE PRIOR TO COVERING. CONTACT THE FIRE MARSHAL'S OFFICE TO SCHEDULE INSPECTION.

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.

TRENCH EXCAVATION SAFETY PROTECTION

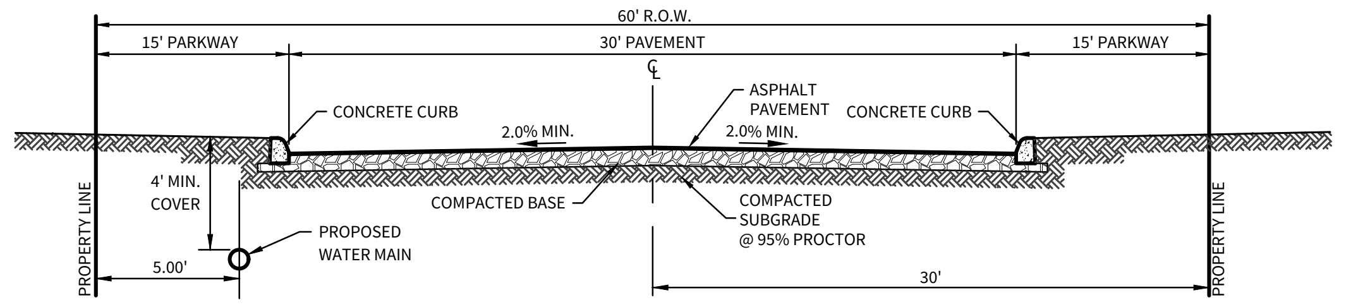
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S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

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

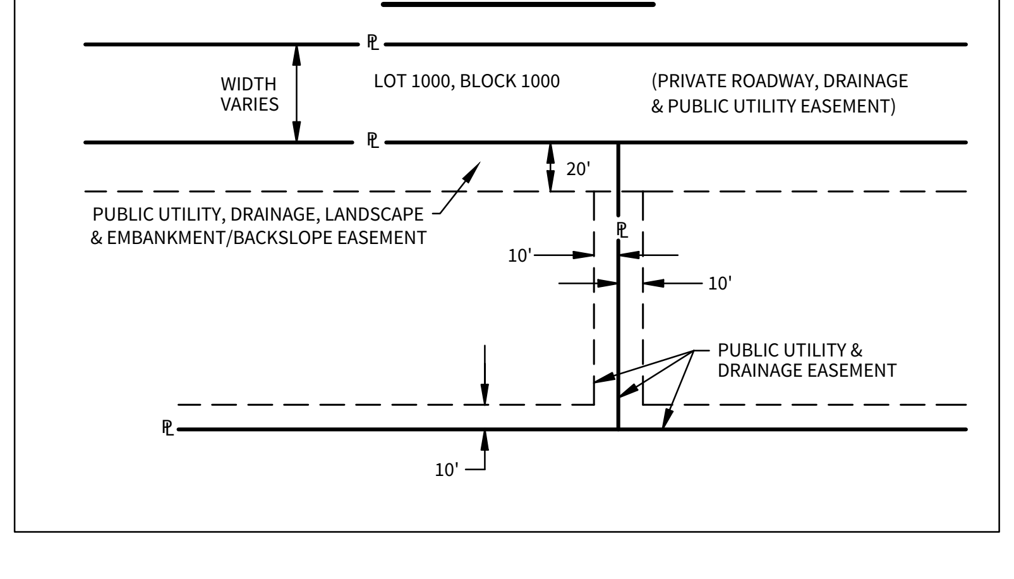
NOTE:

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.



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

TYPICAL EASEMENTS


WIDTH VARIES
LOT 1000, BLOCK 1000
(PRIVATE ROADWAY, DRAINAGE & PUBLIC UTILITY EASEMENT)
20'
PUBLIC UTILITY, DRAINAGE, LANDSCAPE & EMBANKMENT/BACKSLOPE EASEMENT
10'
10'
PUBLIC UTILITY & DRAINAGE EASEMENT
10'
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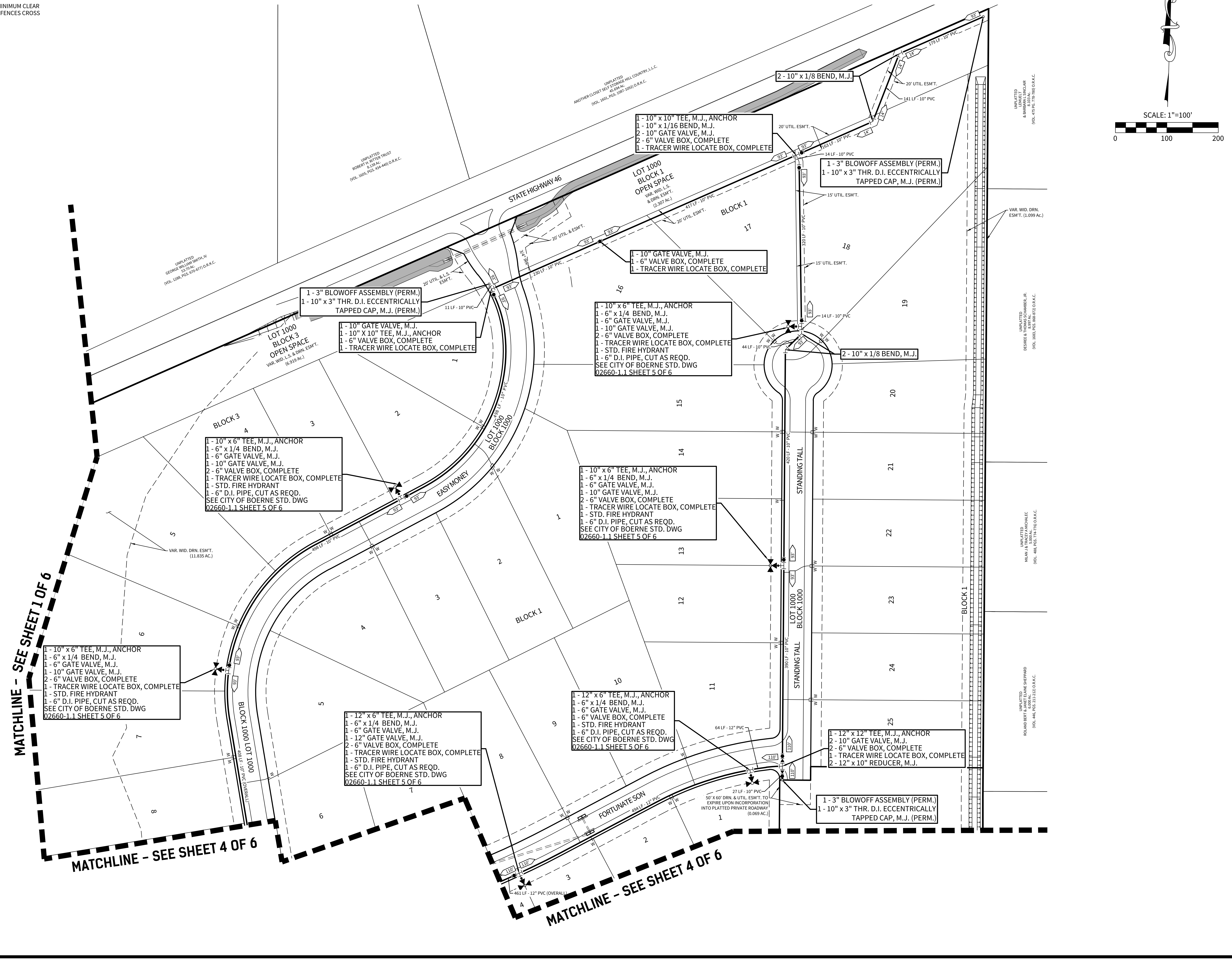
SCALE: 1"=100'
0
100
200
STATE HIGHWAY 46
UNPLATTED ANOTHER CLOSET SELF STORAGE HILL COUNTRY, L.L.C. 45.694 Ac. (VOL. 1601, PGS. 1087-1092) O.R.K.C.
UNPLATTED ROBERT H. RITTER TRUST 8.138 Ac. (VOL. 1605, PGS. 434-440) O.R.K.C.
LOT 1000 BLOCK 1 OPEN SPACE VAR. WID. L.S. & DRN. ESM'T. (2.307 Ac.)
LOT 1000 BLOCK 3 OPEN SPACE VAR. WID. L.S. & DRN. ESM'T. (6.919 Ac.)
LOT 1000 BLOCK 1000
BLOCK 1000 LOT 1000
BLOCK 1
BLOCK 3
EASY MONEY
STANDING TALL
FORTUNATE SON
VAR. WID. DRN. ESM'T. (11.835 AC.)
VAR. WID. DRN. ESM'T. (1.099 Ac.)
50' X 60' DRN. & UTIL. ESM'T. TO EXPIRE UPON INCORPORATION INTO PLATTED PRIVATE ROADWAY (0.069 AC.)
20' UTIL. & L.S. ESM'T.
20' UTIL. & ESM'T.
20' UTIL. ESM'T.
15' UTIL. ESM'T.
3/4" IRR
179 LF - 10" PVC
141 LF - 10" PVC
163 LF - 10" PVC
14 LF - 10" PVC
417 LF - 10" PVC
230 LF - 10" PVC
11 LF - 10" PVC
320 LF - 10" PVC
44 LF - 10" PVC
498 LF - 10" PVC
420 LF - 10" PVC
390 LF - 10" PVC
408 LF - 10" PVC (OVERALL)
64 LF - 12" PVC
27 LF - 10" PVC
494 LF - 12" PVC
461 LF - 12" PVC (OVERALL)
93'
14'
110'
2 - 10" x 1/8 BEND, M.J.
1 - 10" x 10" TEE, M.J., ANCHOR
1 - 10" x 1/16 BEND, M.J.
2 - 10" GATE VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - 3" BLOWOFF ASSEMBLY (PERM.)
1 - 10" x 3" THR. D.I. ECCENTRICALLY TAPPED CAP, M.J. (PERM.)
1 - 10" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - 3" BLOWOFF ASSEMBLY (PERM.)
1 - 10" x 3" THR. D.I. ECCENTRICALLY TAPPED CAP, M.J. (PERM.)
1 - 10" GATE VALVE, M.J.
1 - 10" X 10" TEE, M.J., ANCHOR
1 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - 10" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 10" GATE VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
2 - 10" x 1/8 BEND, M.J.
1 - 10" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
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2 - 6" VALVE BOX, COMPLETE
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SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
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1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
1 - 12" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 12" GATE VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
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1 - 6" VALVE BOX, COMPLETE
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1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG 02660-1.1 SHEET 5 OF 6
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2 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
2 - 12" x 10" REDUCER, M.J.
1 - 3" BLOWOFF ASSEMBLY (PERM.)
1 - 10" x 3" THR. D.I. ECCENTRICALLY TAPPED CAP, M.J. (PERM.)
MATCHLINE - SEE SHEET 1 OF 6
MATCHLINE - SEE SHEET 4 OF 6
MATCHLINE - SEE SHEET 4 OF 6

CUDEENGINEERS.COM

4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
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GEORGE'S RANCH UNIT 1

WATER DISTRIBUTION PLAN

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-01-05 - ADDED TRACER WIRE LOCATE BOXES, ADDED WATER BEND DETAILS, REVISED WATER MAIN
2. 2022-08-16 - ADDED BLOWOFF, REVISED VERTICAL BENDS, ADDED FENCE NOTE
3. 2022-10-01 - UPDATED STREET WIDTH, REVISED WATER LINE
4. 2023-01-11 - REVISED EASEMENTS, LOT NUMBERING
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
2/9/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C57

2 OF 6

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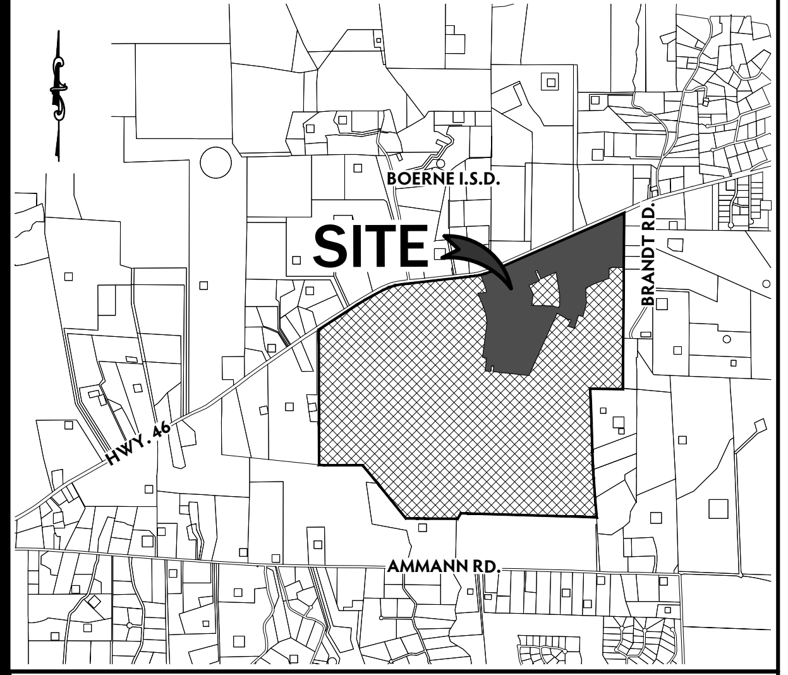

LOCATION MAP
N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

BOERNE GENERAL CONSTRUCTION NOTES

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 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. PRIOR TO RECEIVING BULK WATER, THE CONTRACTOR MUST APPLY FOR A BULK WATER METER. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING A CITY APPROVED BACKFLOW DEVICE.
5. ALL MANHOLES IN STREETS, VALVES, AND BLOW-OFFS SHALL HAVE CONCRETE ENCASEMENTS.
6. 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. POTHOLING AND STAIR STEPPING IS NOT PERMITTED.
7. ALL VALVE BOXES, METER BOXES, FIRE HYDRANTS, MANHOLES, ETC. ARE REQUIRED TO BE ADJUSTED AS REQUIRED TO MATCH FINAL GRADES.
8. THE CONTRACTOR IS RESPONSIBLE FOR STAKING UTILITIES PRIOR TO THE FINAL INSPECTION TO VERIFY LOCATION, FINISH GRADE, AND DEPTH.

WATER

9. ALL WATER LINES SHALL BE INSTALLED BETWEEN FOUR AND SIX FEET OR AS SHOWN ON THE APPROVED INFRASTRUCTURE DRAWINGS.
10. TRACER WIRE LOCATE BOX SHALL BE INSTALLED PER CITY REQUIREMENTS AT ALL WATER VALVES INCLUDING FIRE HYDRANT VALVES AND BLOWOFFS. FOR GROUPING OF VALVES AT ONE GENERAL LOCATION, ONE LOCATE BOX MAY BE USED.
11. NO VALVES, HYDRANTS, BLOWOFFS, ETC., SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.

FENCE NOTE:

GATES ACROSS EASEMENT: DOUBLE SWING GATES WITH A MINIMUM CLEAR OPENING OF 12 FEET WIDE SHALL BE INSTALLED WHEREVER FENCES CROSS UTILITY EASEMENTS.

BOERNE WATER GENERAL NOTES

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2. MACHINE CHLORINATION BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE UNLESS OTHERWISE INDICATED.
3. ALL 12" & 16" PIPE SHALL BE P.V.C. C-905, DR14 CLASS 200, ALL OTHER 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. ALL THRUST BLOCKING MUST BLOCK AGAINST NATURAL GROUND NOT TRENCH BACKFILL.
11. MAINTAIN 2' HORIZONTAL SEPARATION BETWEEN EXIST. POWER POLES AND TRENCH.
12. ALL FIRE HYDRANTS TO BE MUELLER A-423 OR APPROVED EQUAL.
13. 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.
14. CONTRACTOR TO CONTACT 1-800-DIG-TESS 48 HOURS PRIOR TO COMMENCING WORK FOR MARKING UNDERGROUND CONDUITS.
15. ALL AREAS WHICH WHERE TRAVERSED BY CONSTRUCTION EQUIPMENT WILL BE DISKED PRIOR TO COMMENCING REVEGETATION.
16. 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.
17. ALL BURIED STAND PIPE SHALL BE C900 OR APPROVED EQUAL.

MISCELLANEOUS NOTES

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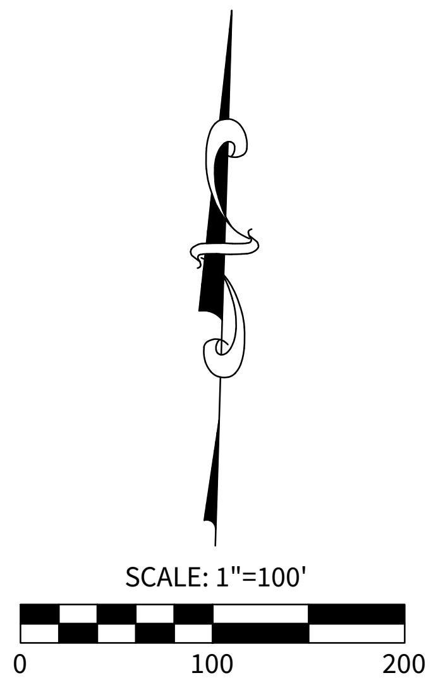
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION FROM DAMAGE DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, LANDSCAPING, AND STRUCTURES.
3. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION 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 JOINT RESTRAINT LENGTH AND DIRECTION
9. HYDRANTS AND WATER LINES MUST BE INSPECTED BY THE FIRE MARSHAL'S OFFICE PRIOR TO COVERING. CONTACT THE FIRE MARSHAL'S OFFICE TO SCHEDULE INSPECTION.
10. CONTRACTOR TO COORDINATE WITH ENGINEER FOR GUARD SHACK DOMESTIC WATER SERVICE.

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.



CUDEENGINEERS.COM

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GEORGE'S RANCH
UNIT 1

WATER DISTRIBUTION PLAN

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-01-05 - ADDED TRACER WIRE LOCATE BOXES, ADDED WATER BEND DETAILS
2. 2022-08-16 - REVISED VERTICAL BEND, ADDED FENCE NOTE
3. 2022-10-01 - UPDATED STREET WIDTH & REVISED WATER LINE
4. 2023-01-11 - ADDED OPEN SPACE LOT, REVISED OPEN SPACE ACREAGE
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
7/20/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C58

3 OF 6

TRENCH EXCAVATION SAFETY PROTECTION

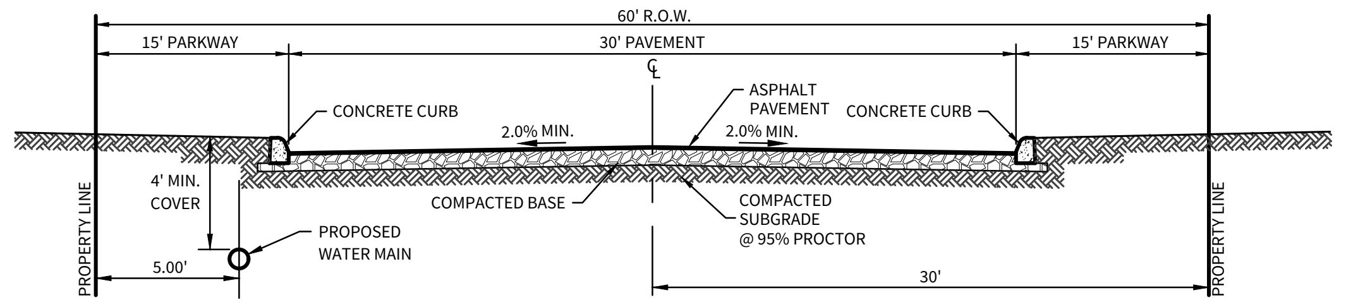
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S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

JOINT RESTRAINT NOTE:

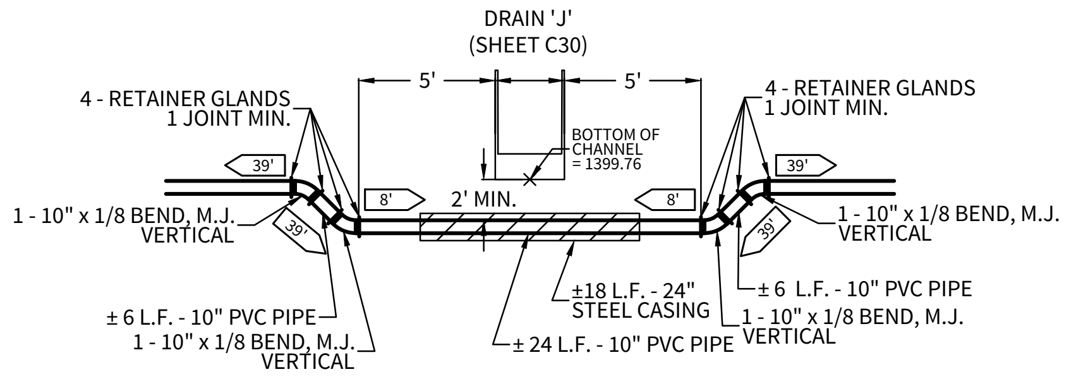
CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSES OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOW. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING, JOINT RESTRAINTS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

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.



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



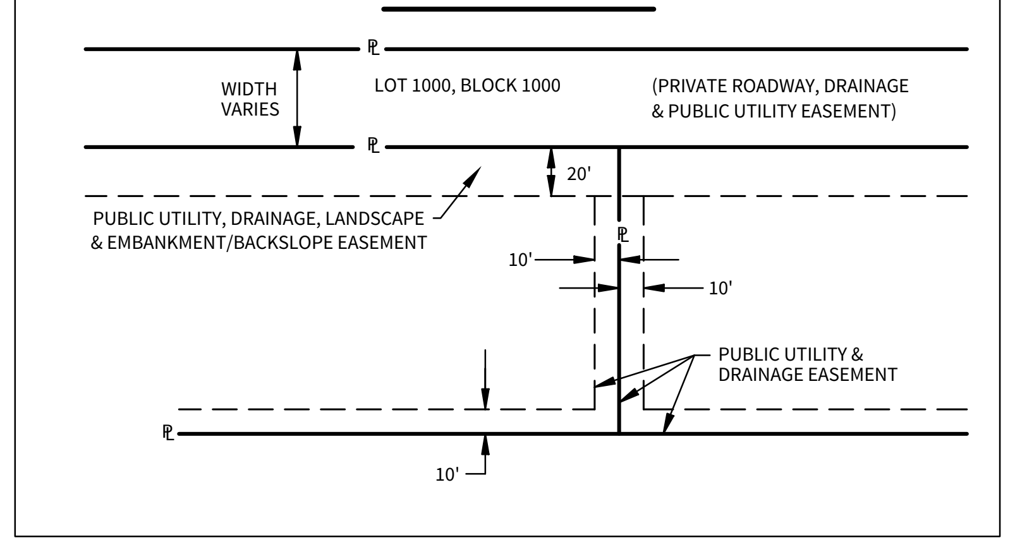
DRAIN 'J'
(SHEET C30)
5'
5'
4 - RETAINER GLANDS
1 JOINT MIN.
4 - RETAINER GLANDS
1 JOINT MIN.
BOTTOM OF CHANNEL = 1399.76
39'
39'
39'
39'
8'
8'
2' MIN.
1 - 10" x 1/8 BEND, M.J. VERTICAL
1 - 10" x 1/8 BEND, M.J. VERTICAL
± 6 L.F. - 10" PVC PIPE
1 - 10" x 1/8 BEND, M.J. VERTICAL
±18 L.F. - 24" STEEL CASING
± 24 L.F. - 10" PVC PIPE
± 6 L.F. - 10" PVC PIPE
1 - 10" x 1/8 BEND, M.J. VERTICAL

ALL RETAINER GLANDS TO BE "MEGA-LUG" TYPE.

DETAIL 'B': DRAIN 'J' / WATER CROSSING

SIDE VIEW N.T.S.

TYPICAL EASEMENTS



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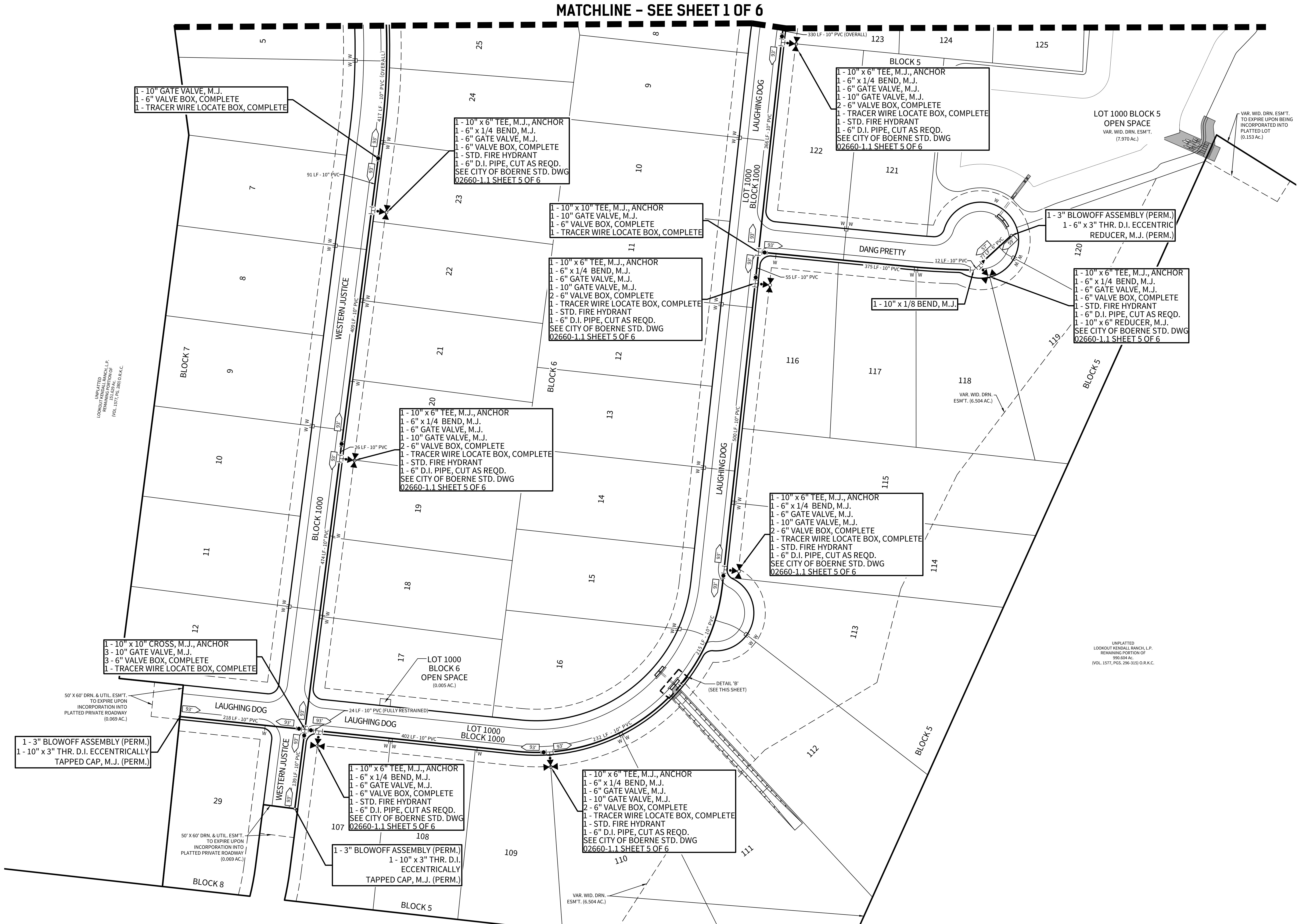
WIDTH VARIES
LOT 1000, BLOCK 1000
(PRIVATE ROADWAY, DRAINAGE & PUBLIC UTILITY EASEMENT)
20'
PUBLIC UTILITY, DRAINAGE, LANDSCAPE & EMBANKMENT/BACKSLOPE EASEMENT
10'
10'
PUBLIC UTILITY & DRAINAGE EASEMENT
10'



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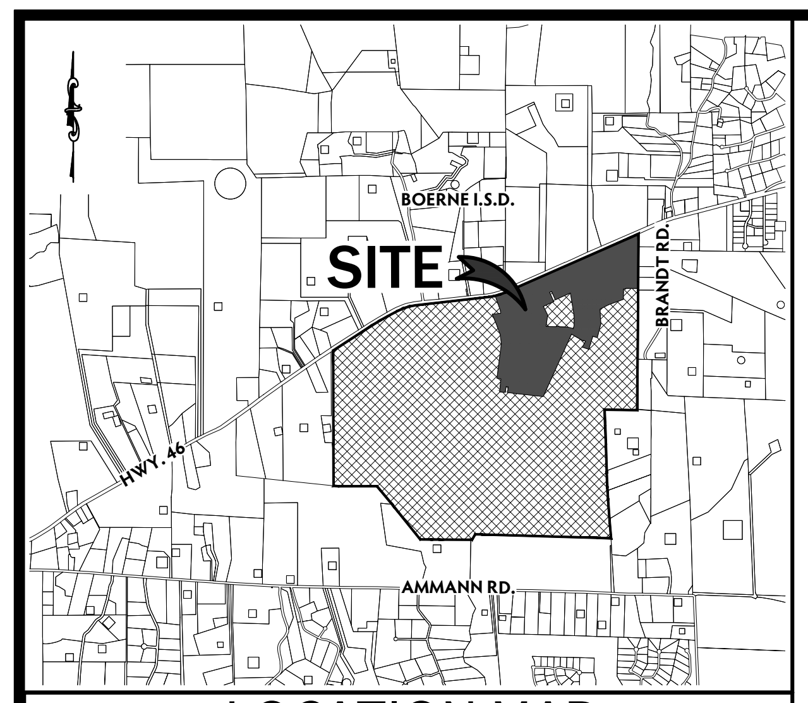

LOCATION MAP

N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

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UTILITIES

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WATER

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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.

TRENCH EXCAVATION SAFETY PROTECTION

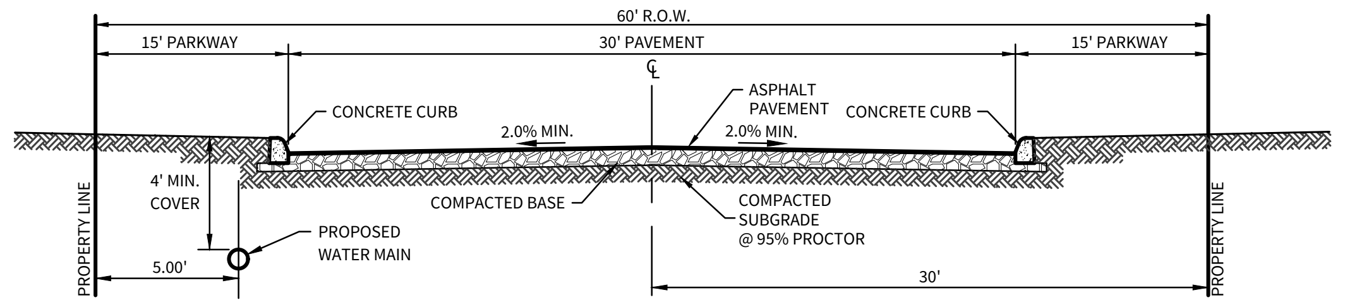
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S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

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

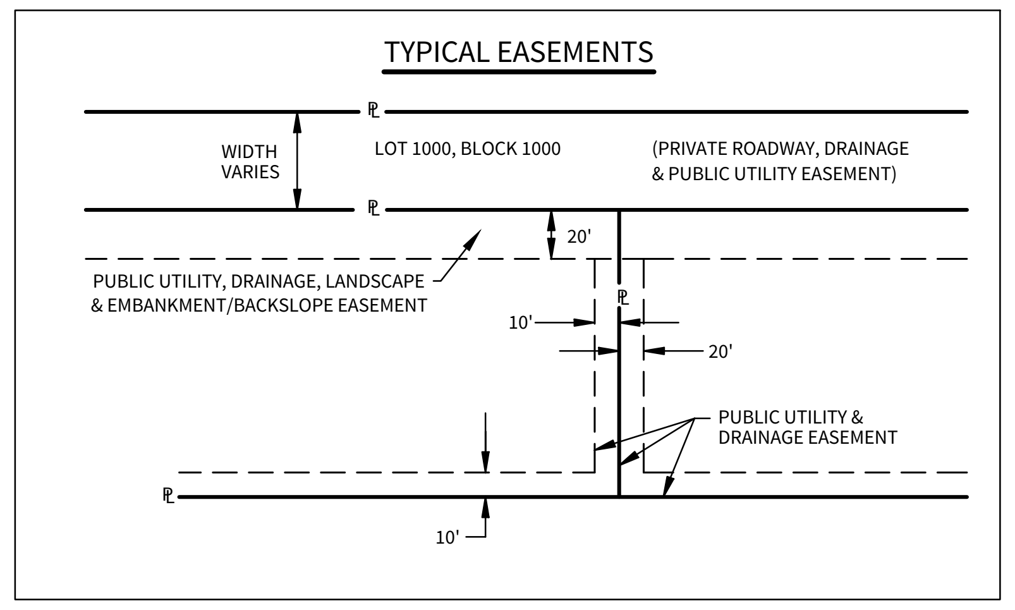
NOTE:

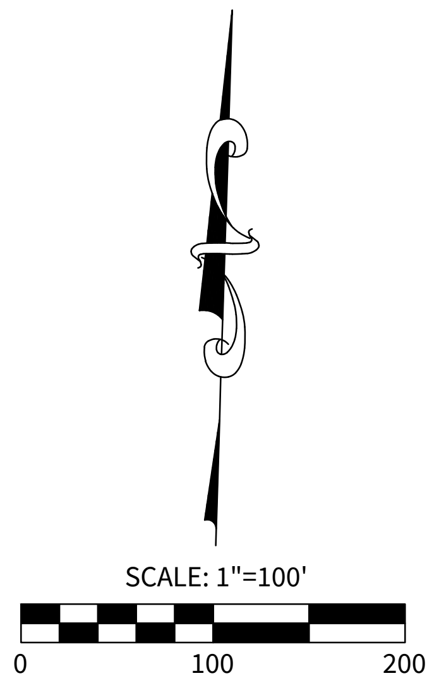
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING 98% COMPACTION ON ALL TRENCH BACKFILL AND PAYING FOR THE TESTS TO BE PERFORMED BY A THIRD PARTY. COMPACTION TEST WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED OR AS INDICATED BY THE CITY OF BOERNE INSPECTOR/TEST ADMINISTER, PER EACH 8-INCH LOOSE 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.

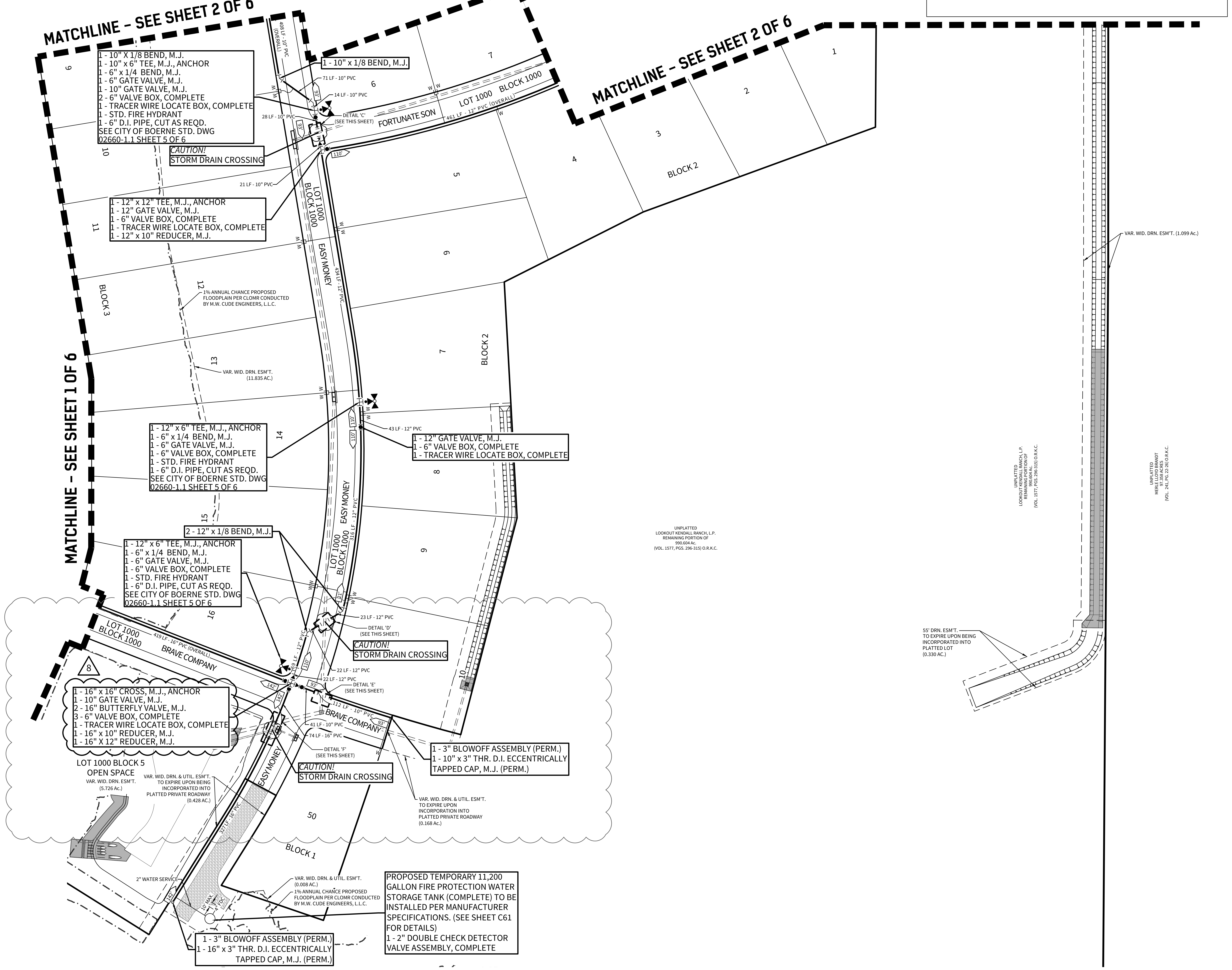


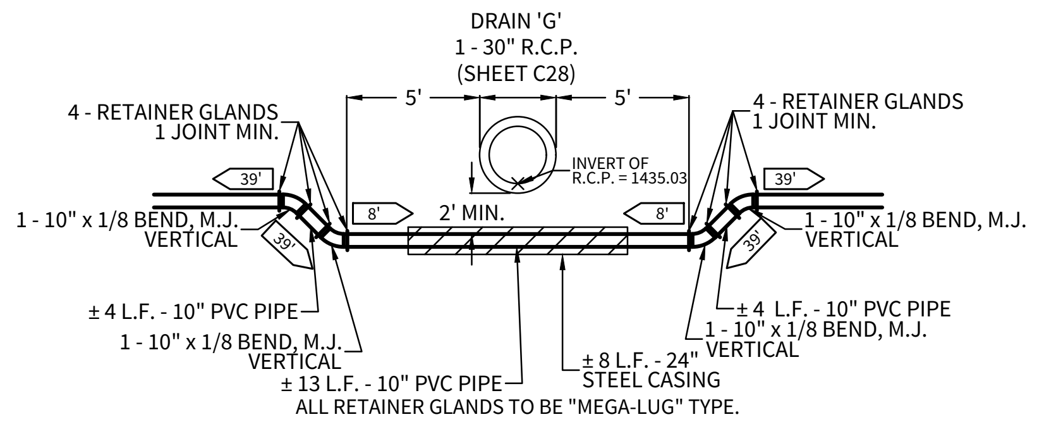
LOCAL RESIDENTIAL STREET CROSS SECTION (60' R.O.W.)

N.T.S.


TYPICAL EASEMENTS
WIDTH VARIES
LOT 1000, BLOCK 1000
(PRIVATE ROADWAY, DRAINAGE & PUBLIC UTILITY EASEMENT)
20'
PUBLIC UTILITY, DRAINAGE, LANDSCAPE & EMBANKMENT/BACKSLOPE EASEMENT
10'
20'
PUBLIC UTILITY & DRAINAGE EASEMENT
10'

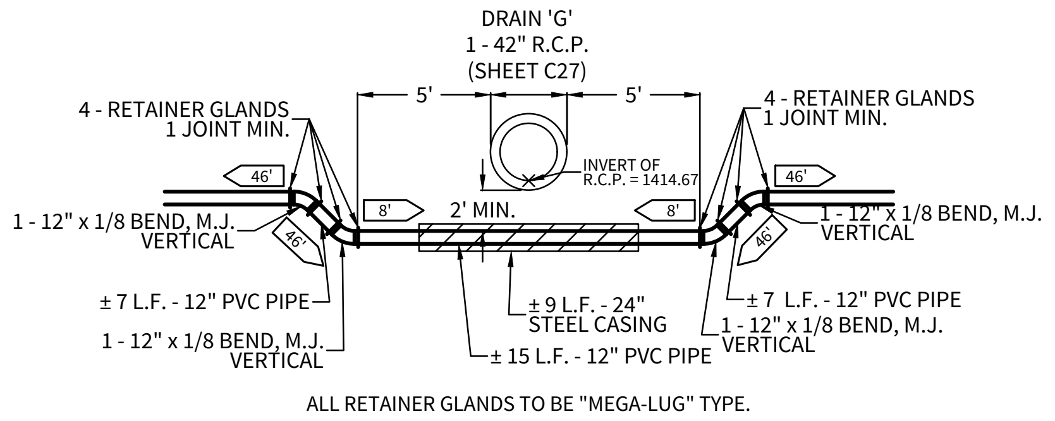



MATCHLINE - SEE SHEET 2 OF 6
MATCHLINE - SEE SHEET 2 OF 6
MATCHLINE - SEE SHEET 1 OF 6
1 - 10" X 1/8 BEND, M.J.
1 - 10" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 10" GATE VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG
02660-1.1 SHEET 5 OF 6
1 - 10" x 1/8 BEND, M.J.
408 LF - 10" PVC (OVERALL)
71 LF - 10" PVC
14 LF - 10" PVC
28 LF - 10" PVC
DETAIL 'C' (SEE THIS SHEET)
93'
93'
110'
CAUTION!
STORM DRAIN CROSSING
21 LF - 10" PVC
1 - 12" x 12" TEE, M.J., ANCHOR
1 - 12" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - 12" x 10" REDUCER, M.J.
FORTUNATE SON
LOT 1000 BLOCK 1000
461 LF - 12" PVC (OVERALL)
LOT 1000 BLOCK 1000
EASY MONEY
434 LF - 12" PVC
1% ANNUAL CHANCE PROPOSED FLOODPLAIN PER CLOMR CONDUCTED BY M.W. CUDE ENGINEERS, L.L.C.
VAR. WID. DRN. ESM'T. (11.835 AC.)
BLOCK 3
BLOCK 2
BLOCK 2
1
2
3
4
5
6
7
9
10
11
12
13
14
15
16
7
6
5
6
7
8
9
10
1 - 12" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG
02660-1.1 SHEET 5 OF 6
43 LF - 12" PVC
110'
110'
1 - 12" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
2 - 12" x 1/8 BEND, M.J.
316 LF - 12" PVC
1 - 12" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQD.
SEE CITY OF BOERNE STD. DWG
02660-1.1 SHEET 5 OF 6
7
8
21'
23 LF - 12" PVC
DETAIL 'D' (SEE THIS SHEET)
CAUTION!
STORM DRAIN CROSSING
LOT 1000 BLOCK 1000
419 LF - 16" PVC (OVERALL)
BRAVE COMPANY
69 LF - 12" PVC
110'
142'
142'
93'
22 LF - 12" PVC
22 LF - 12" PVC
DETAIL 'E' (SEE THIS SHEET)
1 - 16" x 16" CROSS, M.J., ANCHOR
1 - 10" GATE VALVE, M.J.
2 - 16" BUTTERFLY VALVE, M.J.
3 - 6" VALVE BOX, COMPLETE
1 - TRACER WIRE LOCATE BOX, COMPLETE
1 - 16" x 10" REDUCER, M.J.
1 - 16" X 12" REDUCER, M.J.
112 LF - 10" PVC
BRAVE COMPANY
93'
41 LF - 10" PVC
74 LF - 16" PVC
DETAIL 'F' (SEE THIS SHEET)
CAUTION!
STORM DRAIN CROSSING
1 - 3" BLOWOFF ASSEMBLY (PERM.)
1 - 10" x 3" THR. D.I. ECCENTRICALLY TAPPED CAP, M.J. (PERM.)
LOT 1000 BLOCK 5
OPEN SPACE
VAR. WID. DRN. ESM'T. (5.726 Ac.)
VAR. WID. DRN. & UTIL. ESM'T. TO EXPIRE UPON BEING INCORPORATED INTO PLATTED PRIVATE ROADWAY (0.428 AC.)
VAR. WID. DRN. & UTIL. ESM'T. TO EXPIRE UPON INCORPORATION INTO PLATTED PRIVATE ROADWAY (0.168 Ac.)
EASY MONEY
327 LF - 16" PVC
50
BLOCK 1
2" WATER SERVICE
142'
10' MAX.
4" FDC
VAR. WID. DRN. & UTIL. ESM'T. (0.008 AC.)
1% ANNUAL CHANCE PROPOSED FLOODPLAIN PER CLOMR CONDUCTED BY M.W. CUDE ENGINEERS, L.L.C.
PROPOSED TEMPORARY 11,200 GALLON FIRE PROTECTION WATER STORAGE TANK (COMPLETE) TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS. (SEE SHEET C61 FOR DETAILS)
1 - 2" DOUBLE CHECK DETECTOR VALVE ASSEMBLY, COMPLETE
1 - 3" BLOWOFF ASSEMBLY (PERM.)
1 - 16" x 3" THR. D.I. ECCENTRICALLY TAPPED CAP, M.J. (PERM.)
7
8
VAR. WID. DRN. ESM'T. (1.099 Ac.)
UNPLATTED
LOOKOUT KENDALL RANCH, L.P.
REMAINING PORTION OF 990.604 Ac.
(VOL. 1577, PGS. 296-315) O.R.K.C.
55' DRN. ESM'T. TO EXPIRE UPON BEING INCORPORATED INTO PLATTED LOT (0.330 AC.)


DRAIN 'G'
1 - 30" R.C.P.
(SHEET C28)
5'
5'
4 - RETAINER GLANDS 1 JOINT MIN.
4 - RETAINER GLANDS 1 JOINT MIN.
INVERT OF R.C.P. = 1435.03
39'
39'
39'
39'
8'
8'
2' MIN.
1 - 10" x 1/8 BEND, M.J. VERTICAL
1 - 10" x 1/8 BEND, M.J. VERTICAL
± 4 L.F. - 10" PVC PIPE
± 4 L.F. - 10" PVC PIPE
1 - 10" x 1/8 BEND, M.J. VERTICAL
1 - 10" x 1/8 BEND, M.J. VERTICAL
± 13 L.F. - 10" PVC PIPE
± 8 L.F. - 24" STEEL CASING
ALL RETAINER GLANDS TO BE "MEGA-LUG" TYPE.

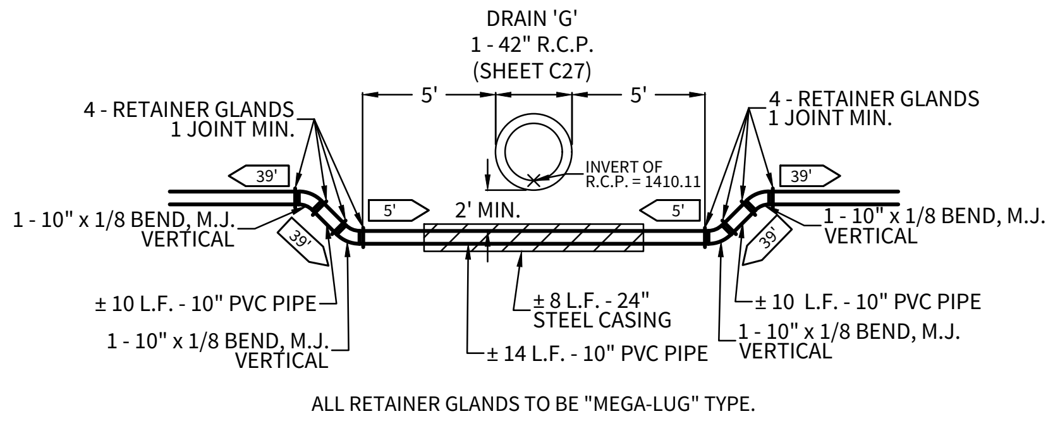
DETAIL 'C': 1 - 30" R.C.P. / WATER CROSSING

SIDE VIEW N.T.S.


DRAIN 'G'
1 - 42" R.C.P.
(SHEET C27)
5'
5'
4 - RETAINER GLANDS 1 JOINT MIN.
4 - RETAINER GLANDS 1 JOINT MIN.
INVERT OF R.C.P. = 1414.67
46'
46'
8'
8'
2' MIN.
1 - 12" x 1/8 BEND, M.J. VERTICAL
1 - 12" x 1/8 BEND, M.J. VERTICAL
± 7 L.F. - 12" PVC PIPE
± 7 L.F. - 12" PVC PIPE
1 - 12" x 1/8 BEND, M.J. VERTICAL
1 - 12" x 1/8 BEND, M.J. VERTICAL
± 9 L.F. - 24" STEEL CASING
± 15 L.F. - 12" PVC PIPE
ALL RETAINER GLANDS TO BE "MEGA-LUG" TYPE.

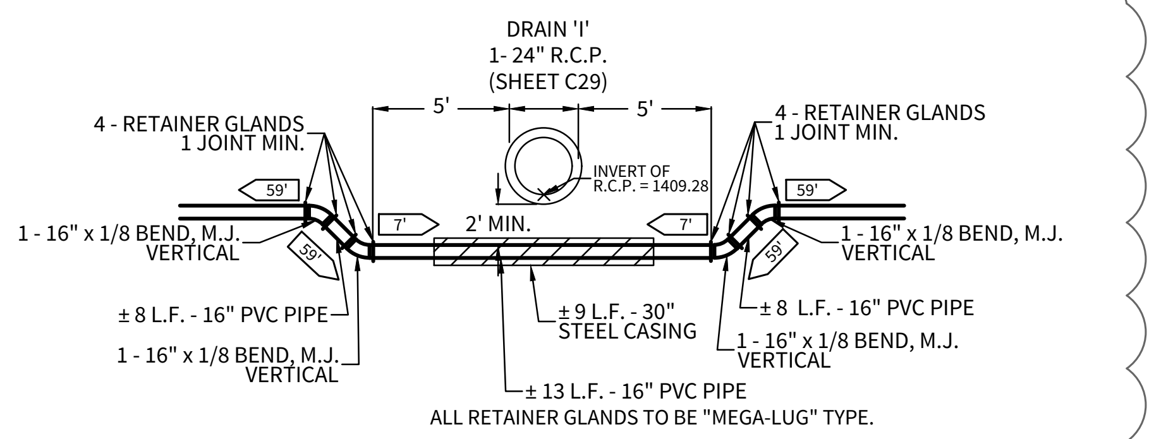
DETAIL 'D': 1 - 42" R.C.P. / WATER CROSSING

SIDE VIEW N.T.S.


DRAIN 'G'
1 - 42" R.C.P.
(SHEET C27)
5'
5'
4 - RETAINER GLANDS 1 JOINT MIN.
4 - RETAINER GLANDS 1 JOINT MIN.
INVERT OF R.C.P. = 1410.11
39'
39'
5'
5'
2' MIN.
1 - 10" x 1/8 BEND, M.J. VERTICAL
1 - 10" x 1/8 BEND, M.J. VERTICAL
± 10 L.F. - 10" PVC PIPE
± 10 L.F. - 10" PVC PIPE
1 - 10" x 1/8 BEND, M.J. VERTICAL
1 - 10" x 1/8 BEND, M.J. VERTICAL
± 8 L.F. - 24" STEEL CASING
± 14 L.F. - 10" PVC PIPE
ALL RETAINER GLANDS TO BE "MEGA-LUG" TYPE.

DETAIL 'E': 1 - 42" R.C.P. / WATER CROSSING

SIDE VIEW N.T.S.


7
DRAIN 'I'
1 - 24" R.C.P.
(SHEET C29)
5'
5'
4 - RETAINER GLANDS 1 JOINT MIN.
4 - RETAINER GLANDS 1 JOINT MIN.
INVERT OF R.C.P. = 1409.28
59'
59'
7'
7'
2' MIN.
1 - 16" x 1/8 BEND, M.J. VERTICAL
1 - 16" x 1/8 BEND, M.J. VERTICAL
± 8 L.F. - 16" PVC PIPE
± 8 L.F. - 16" PVC PIPE
1 - 16" x 1/8 BEND, M.J. VERTICAL
1 - 16" x 1/8 BEND, M.J. VERTICAL
± 9 L.F. - 30" STEEL CASING
± 13 L.F. - 16" PVC PIPE
ALL RETAINER GLANDS TO BE "MEGA-LUG" TYPE.

DETAIL 'F': DRAIN 'I' / WATER CROSSING

SIDE VIEW N.T.S.

CUDEENGINEERS.COM

EST. 1980 CUDE ENGINEERS

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

GEORGE'S RANCH UNIT 1

WATER DISTRIBUTION PLAN

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-01-05 - ADDED TRACER WIRE LOCATE BOXES, ADDED WATER BEND DETAILS, ADDED WATER STORAGE TANK
2. 2022-08-16 - REVISED TANK LOCATION, REVISED VERTICAL BENDS, ADDED FENCE NOTE, REVISED WATER MAIN SIZE
3. 2022-10-01 - UPDATED STREET WIDTH & REVISED WATER LINE
4. 2022-11-15 - EXTENDED WATER MAIN, REVISED WATER TANK LOCATION
5. 2022-12-19 - DIMENSIONED FDC, SHOWING CLOMR LIMITS
6. 2023-01-11 - REVISED CROSSINGS, LOT NUMBERING
7. 02/28/2023 - DRAINAGE REVISION
8. 2023-03-21 - REVISED 16" GATE VALVES
9.

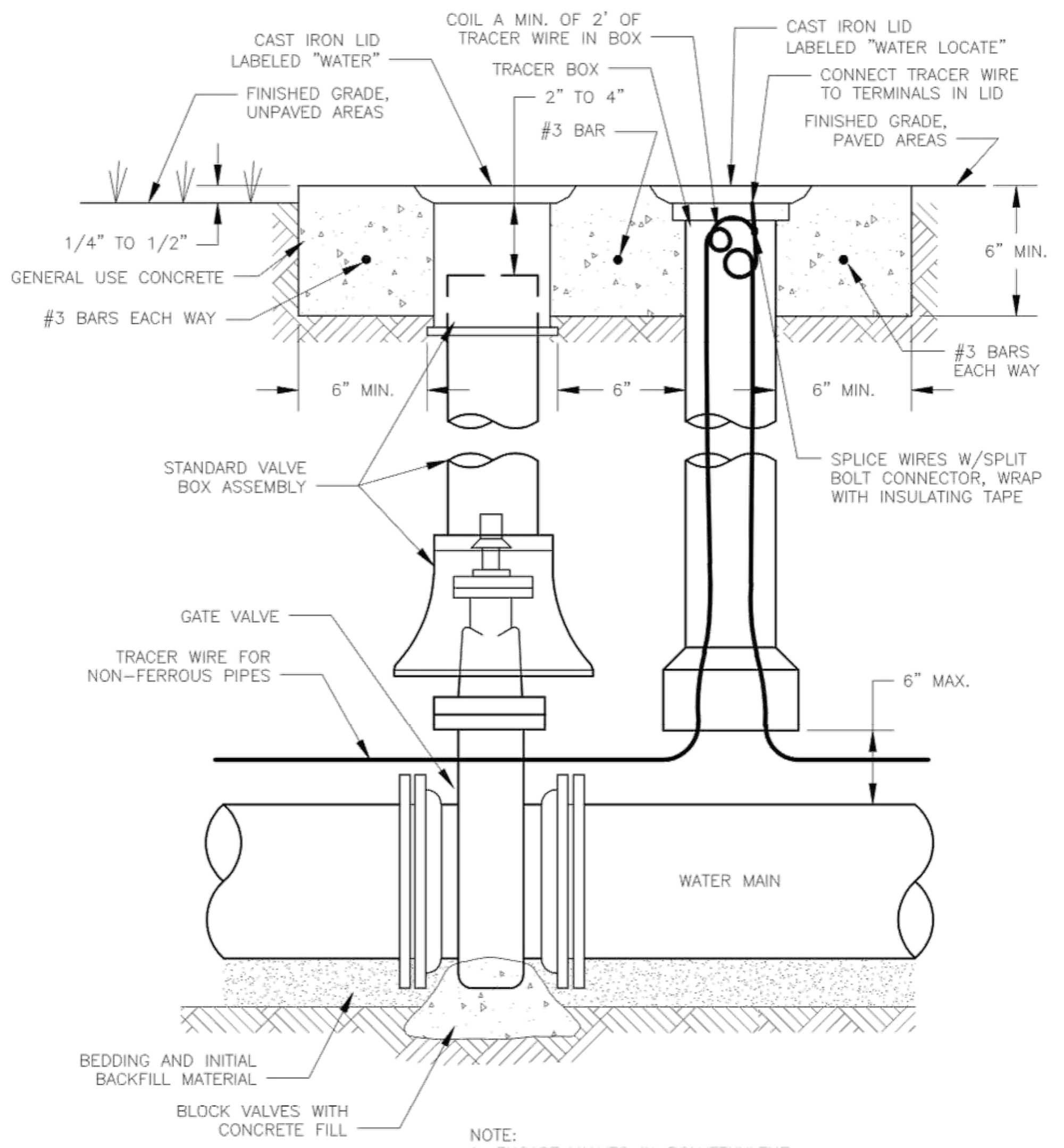
W. PATRICK MURPHY
111597

3/22/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C59

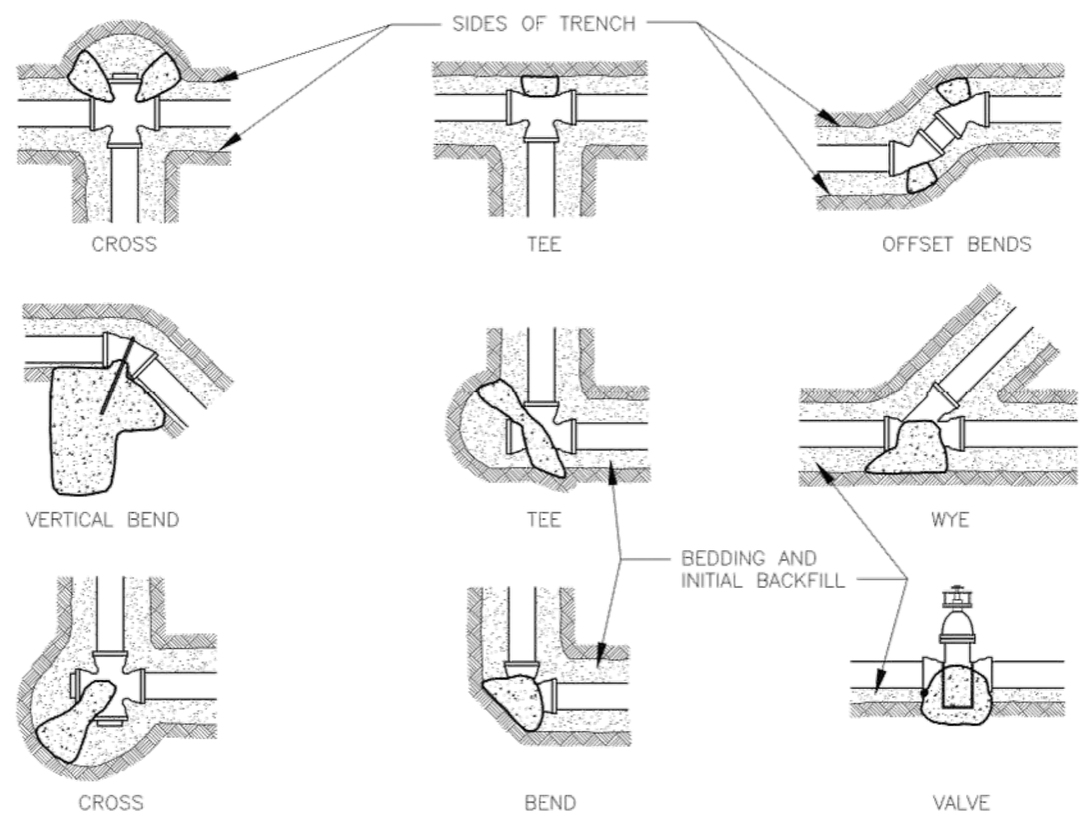

CAST IRON LID LABELED "WATER"
COIL A MIN. OF 2' OF TRACER WIRE IN BOX
CAST IRON LID LABELED "WATER LOCATE"
FINISHED GRADE, UNPAVED AREAS
TRACER BOX
CONNECT TRACER WIRE TO TERMINALS IN LID
2" TO 4"
#3 BAR
FINISHED GRADE, PAVED AREAS
1/4" TO 1/2"
6" MIN.
GENERAL USE CONCRETE
#3 BARS EACH WAY
6" MIN.
6"
6" MIN.
#3 BARS EACH WAY
STANDARD VALVE BOX ASSEMBLY
SPLICE WIRES W/SPLIT BOLT CONNECTOR, WRAP WITH INSULATING TAPE
GATE VALVE
TRACER WIRE FOR NON-FERROUS PIPES
6" MAX.
WATER MAIN
BEDDING AND INITIAL BACKFILL MATERIAL
BLOCK VALVES WITH CONCRETE FILL

NOTE:
1. ENCASE VALVES IN POLYETHYLENE.
2. PROVIDE STEM EXTENSIONS FOR OPERATING NUT WHEN NUT MORE THAN 4' BELOW FINISHED GRADE.

CITY OF BOERNE

WATER GATE VALVE AND VALVE BOX

SCALE: N.T.S. DRAWING No. 02660-1.0 DATE: JULY 2015

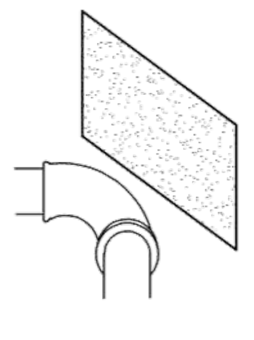


BLOCKING AREA IN SQUARE FEET IN ROCK WALL TRENCH

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



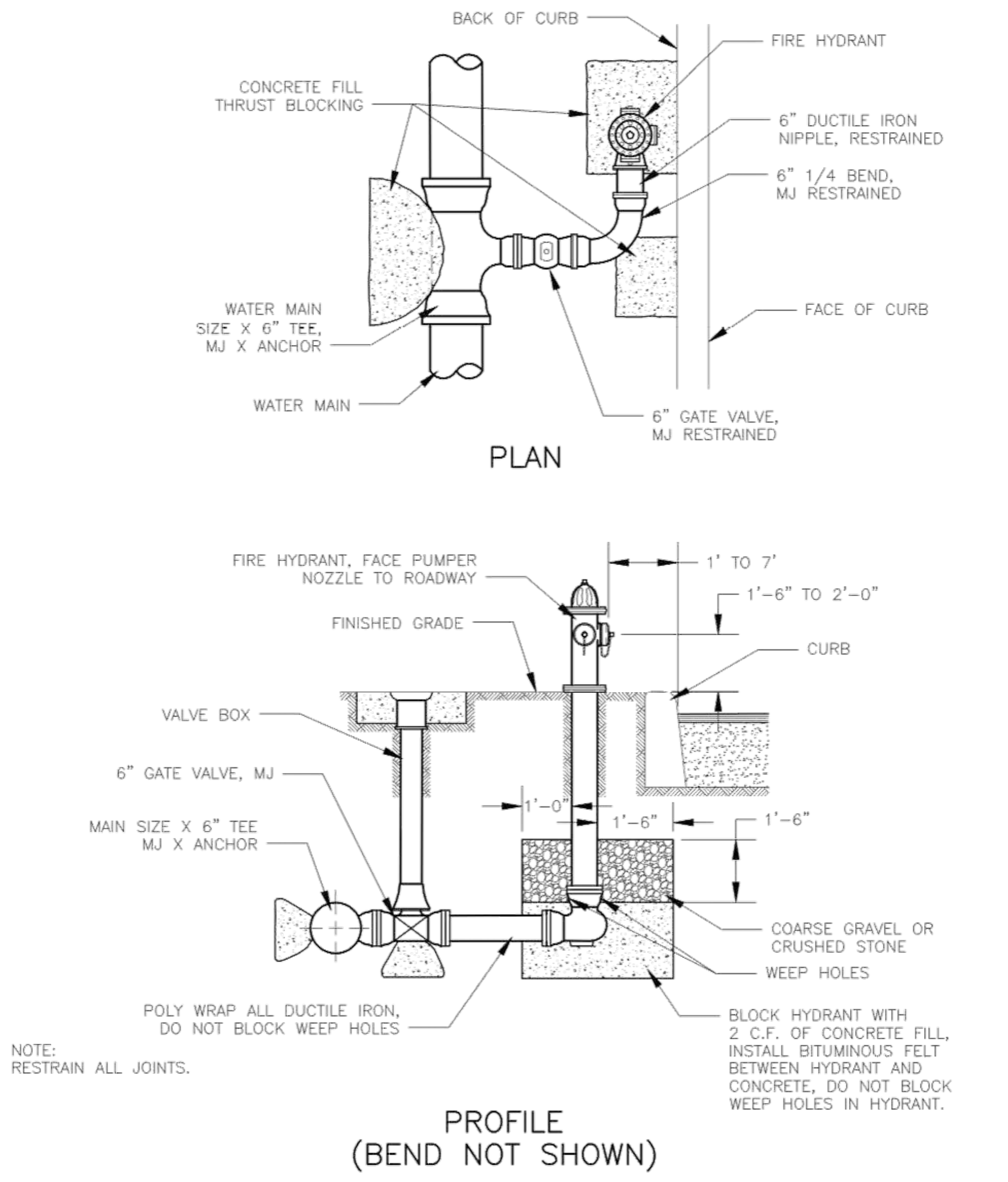
BLOCKING AREA FOR 200 PSI TEST AND 175 PSI WORKING PRESSURES.

THRUST BLOCKING SHALL BE CONCRETE FILL.

CITY OF BOERNE

CONCRETE THRUST BLOCKING

SCALE: N.T.S. DRAWING No. 02660-1.1 DATE: JULY 2015

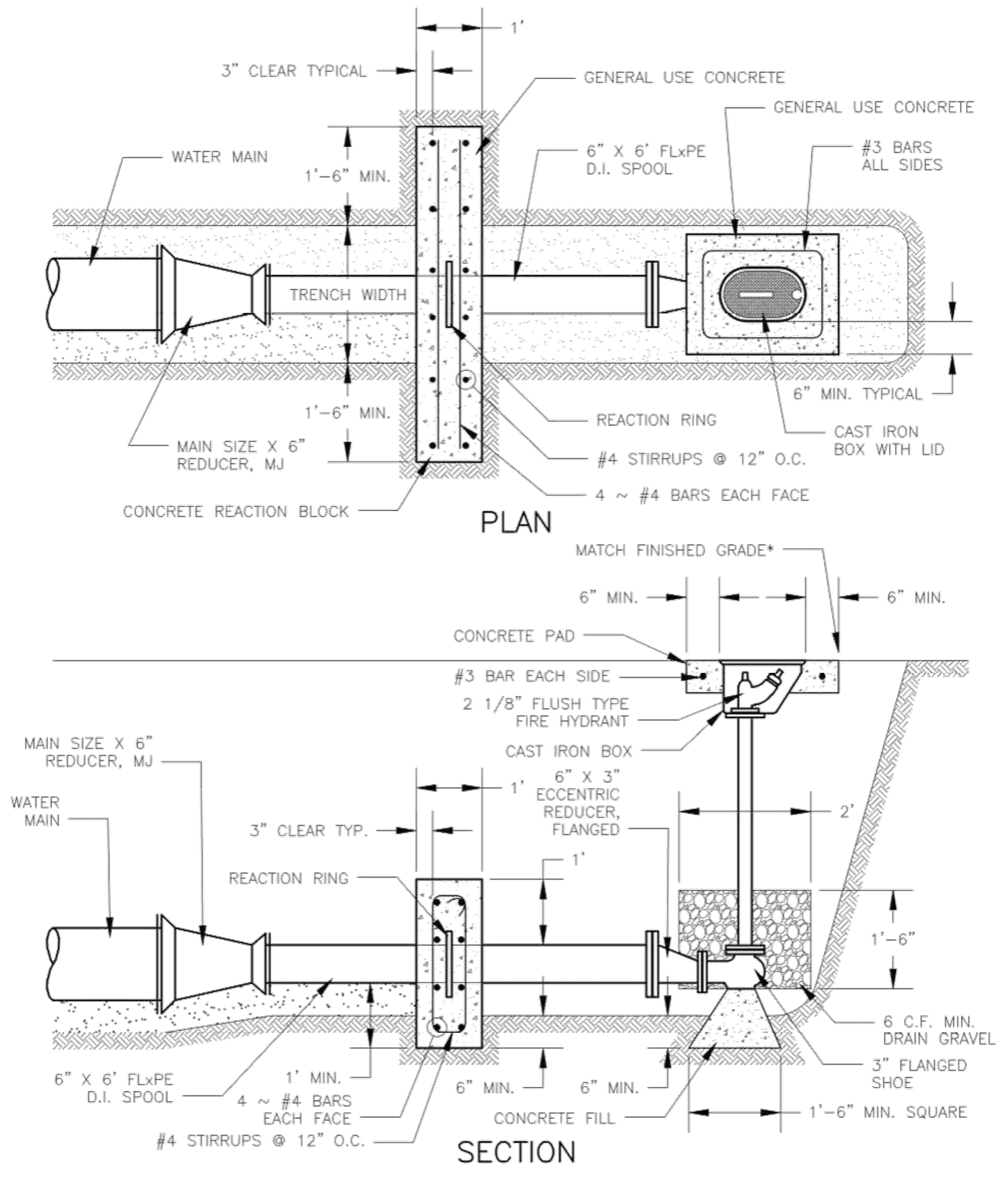

BACK OF CURB
FIRE HYDRANT
CONCRETE FILL THRUST BLOCKING
6" DUCTILE IRON NIPPLE, RESTRAINED
6" 1/4 BEND, MJ RESTRAINED
FACE OF CURB
WATER MAIN SIZE X 6" TEE, MJ X ANCHOR
WATER MAIN
6" GATE VALVE, MJ RESTRAINED
PLAN
FIRE HYDRANT, FACE PUMPER NOZZLE TO ROADWAY
1' TO 7'
1'-6" TO 2'-0"
FINISHED GRADE
CURB
VALVE BOX
6" GATE VALVE, MJ
1'-0"
1'-6"
1'-6"
MAIN SIZE X 6" TEE MJ X ANCHOR
COARSE GRAVEL OR CRUSHED STONE
WEEP HOLES
POLY WRAP ALL DUCTILE IRON, DO NOT BLOCK WEEP HOLES
BLOCK HYDRANT WITH 2 C.F. OF CONCRETE FILL, INSTALL BITUMINOUS FELT BETWEEN HYDRANT AND CONCRETE, DO NOT BLOCK WEEP HOLES IN HYDRANT.
PROFILE (BEND NOT SHOWN)

NOTE:
RESTRAIN ALL JOINTS.

CITY OF BOERNE

FIRE HYDRANT ASSEMBLY

SCALE: N.T.S. DRAWING No. 02660-2.0 DATE: JULY 2015

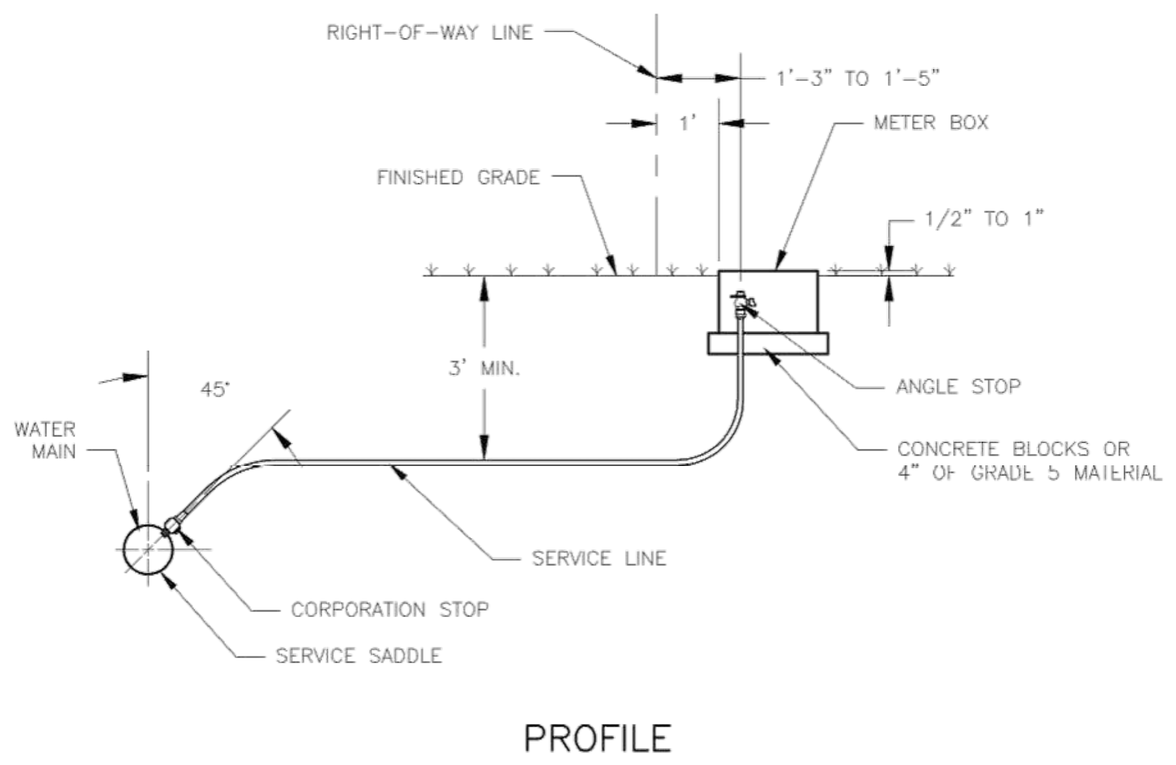


*MATCH FLUSH IN PAVED AREAS. SET BOX AND CONCRETE 1" ±1/2" ABOVE FINISHED GRADE IN UNPAVED AREAS.

CITY OF BOERNE

END OF WATER MAIN BLOWOFF

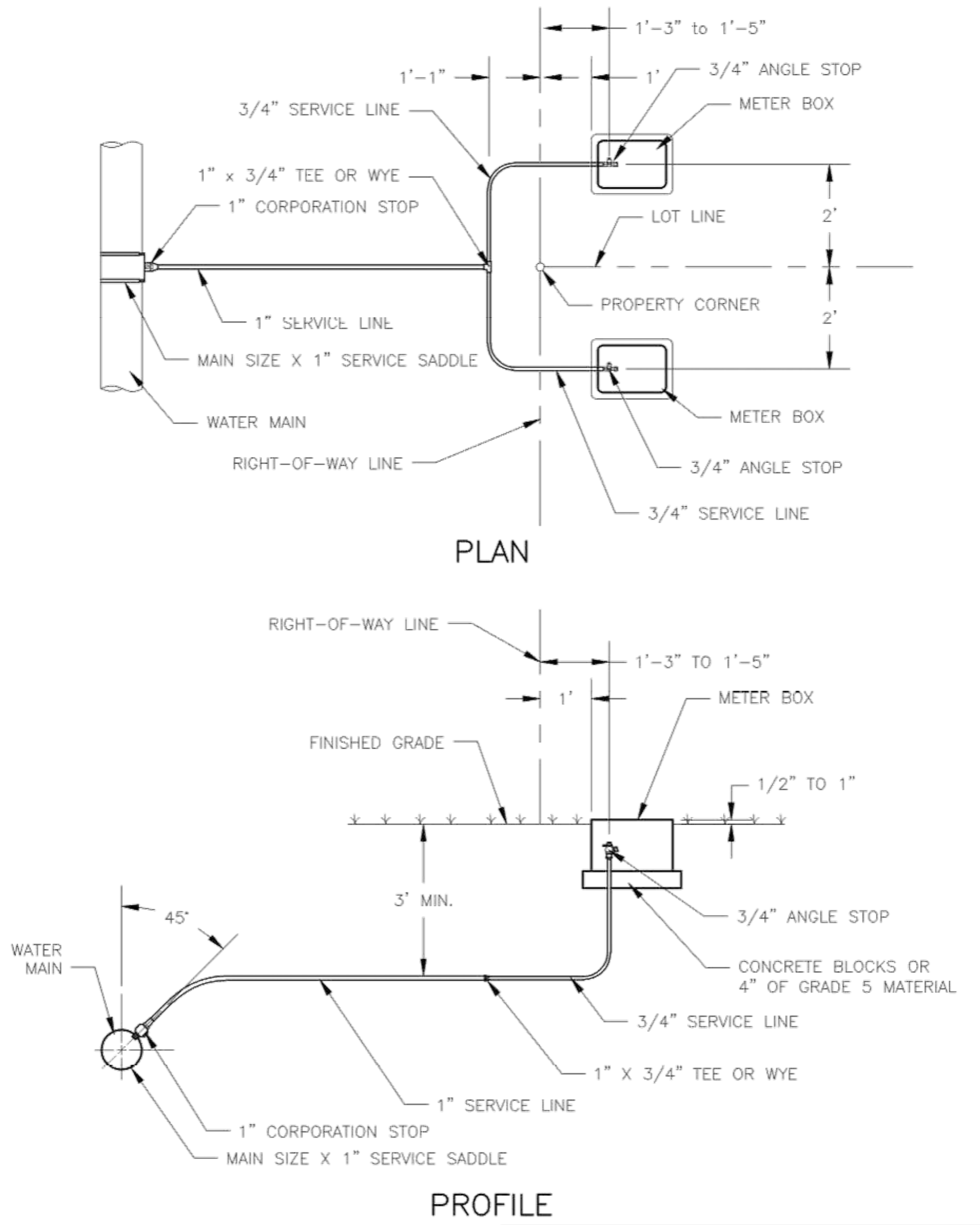
SCALE: N.T.S. DRAWING No. 02660-3.1 DATE: JULY 2015



CITY OF BOERNE

3/4 TO 2 IN SINGLE WATER SERVICE

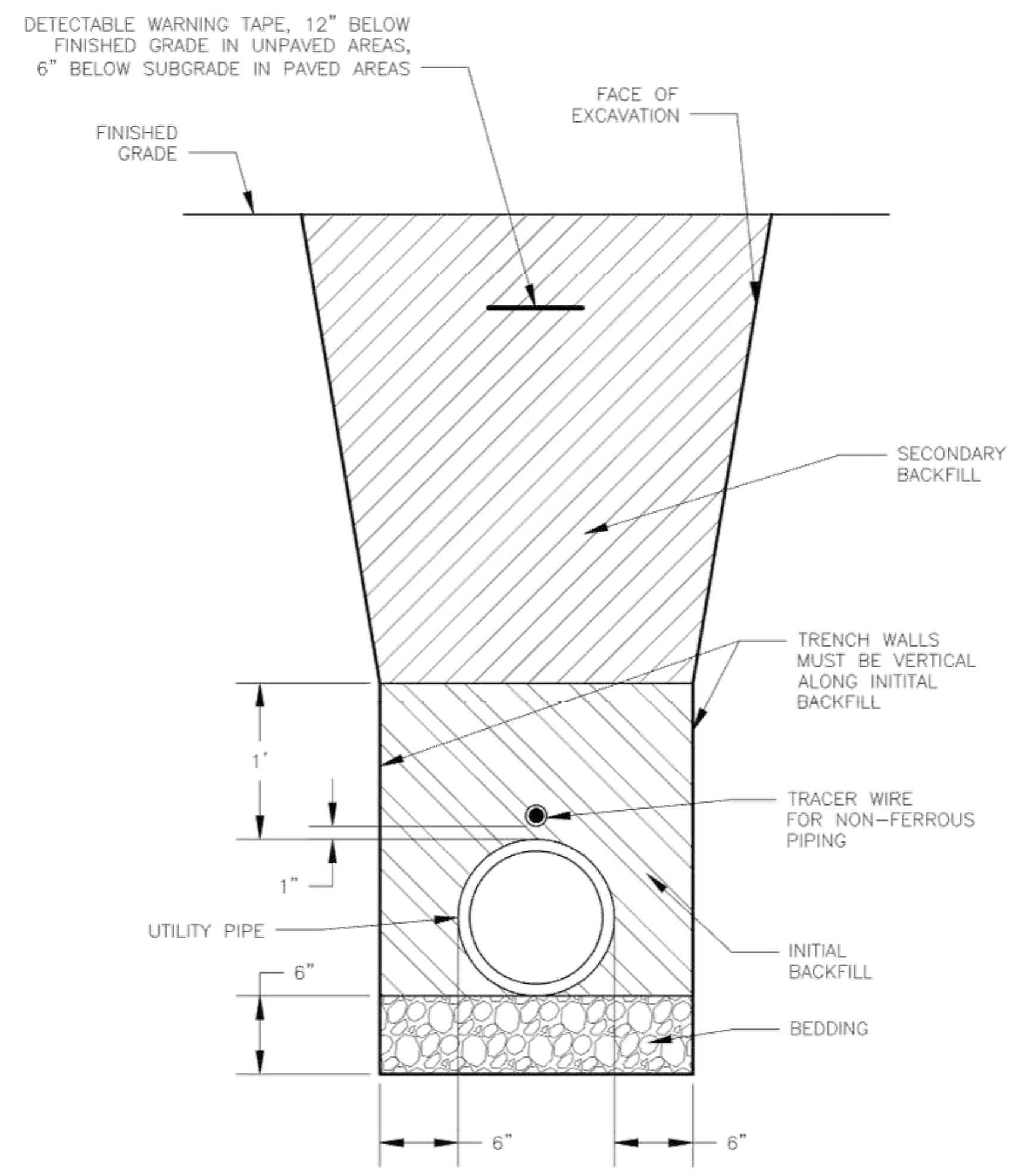
SCALE: N.T.S. DRAWING No. 02660-4.0 DATE: JULY 2015



CITY OF BOERNE

DUAL 3/4 IN WATER SERVICES

SCALE: N.T.S. DRAWING No. 02660-4.1 DATE: JULY 2015


DETECTABLE WARNING TAPE, 12" BELOW FINISHED GRADE IN UNPAVED AREAS, 6" BELOW SUBGRADE IN PAVED AREAS
FACE OF EXCAVATION
FINISHED GRADE
SECONDARY BACKFILL
TRENCH WALLS MUST BE VERTICAL ALONG INITIAL BACKFILL
1'
TRACER WIRE FOR NON-FERROUS PIPING
1'
UTILITY PIPE
6"
INITIAL BACKFILL
BEDDING
6"
6"

CITY OF BOERNE

UTILITY PIPE TRENCH

SCALE: N.T.S. DRAWING No. 02221-1.0 DATE: JULY 2015

FENCE NOTE:
GATES ACROSS EASEMENT: DOUBLE SWING GATES WITH A MINIMUM CLEAR OPENING OF 12 FEET WIDE SHALL BE INSTALLED WHEREVER FENCES CROSS UTILITY EASEMENTS.

BOERNE GENERAL CONSTRUCTION NOTES

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 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. PRIOR TO RECEIVING BULK WATER, THE CONTRACTOR MUST APPLY FOR A BULK WATER METER. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING A CITY APPROVED BACKFLOW DEVICE.
5. ALL MANHOLES IN STREETS, VALVES, AND BLOW-OFFS SHALL HAVE CONCRETE ENCASEMENTS.
6. 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. POTHOLING AND STAIR STEPPING IS NOT PERMITTED.
7. ALL VALVE BOXES, METER BOXES, FIRE HYDRANTS, MANHOLES, ETC. ARE REQUIRED TO BE ADJUSTED AS REQUIRED TO MATCH FINAL GRADES.
8. THE CONTRACTOR IS RESPONSIBLE FOR STAKING UTILITIES PRIOR TO THE FINAL INSPECTION TO VERIFY LOCATION, FINISH GRADE, AND DEPTH.

WATER

9. ALL WATER LINES SHALL BE INSTALLED BETWEEN FOUR AND SIX FEET OR AS SHOWN ON THE APPROVED INFRASTRUCTURE DRAWINGS.
10. TRACER WIRE LOCATE BOX SHALL BE INSTALLED PER CITY REQUIREMENTS AT ALL WATER VALVES INCLUDING FIRE HYDRANT VALVES AND BLOWOFFS. FOR GROUPING OF VALVES AT ONE GENERAL LOCATION, ONE LOCATE BOX MAY BE USED.
11. NO VALVES, HYDRANTS, BLOWOFFS, ETC., SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.

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. ALL THRUST BLOCKING MUST BLOCK AGAINST NATURAL GROUND NOT TRENCH BACKFILL.
11. MAINTAIN 2' HORIZONTAL SEPARATION BETWEEN EXIST. POWER POLES AND TRENCH.
12. ALL FIRE HYDRANTS TO BE MUELLER A-423 OR APPROVED EQUAL.
13. 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.
14. CONTRACTOR TO CONTACT 1-800-DIG-TESS 48 HOURS PRIOR TO COMMENCING WORK FOR MARKING UNDERGROUND CONDUITS.
15. ALL AREAS WHICH WHERE TRAVERSED BY CONSTRUCTION EQUIPMENT WILL BE DISKED PRIOR TO COMMENCING REVEGETATION.
16. 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.
17. 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. ◁X' - DENOTES JOINT RESTRAINT LENGTH AND DIRECTION

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

GEORGE'S RANCH
UNIT 1

CITY OF BOERNE - WATER DISTRIBUTION STANDARD DETAILS

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1. 07/14/2022 - REVISED SHEET NUMBER
2. 08/16/2022 - ADDED FENCE NOTE
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
8/18/2022

CUDE ENGINEERS
TBPE No. 455

C60

5 OF 6

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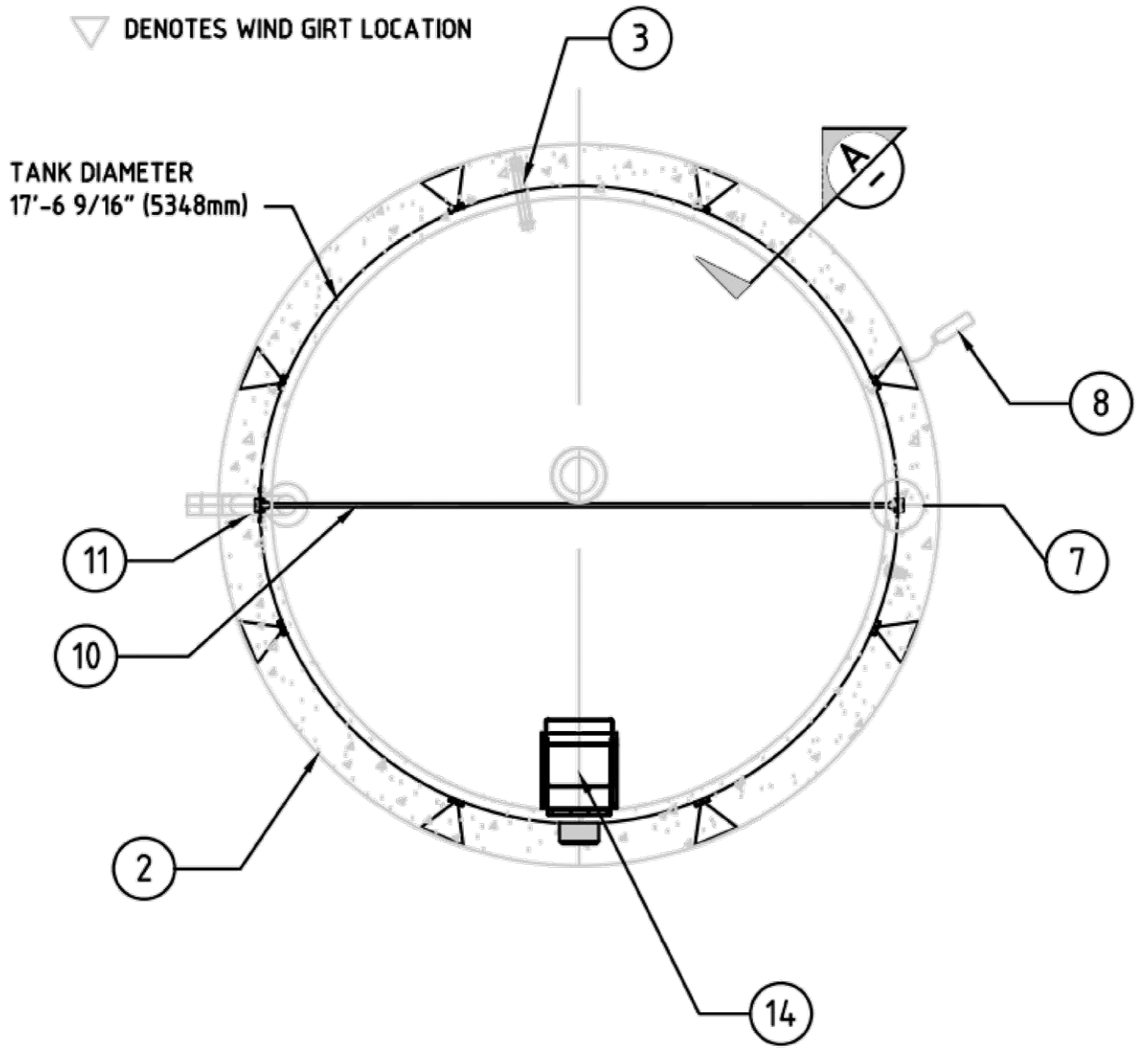
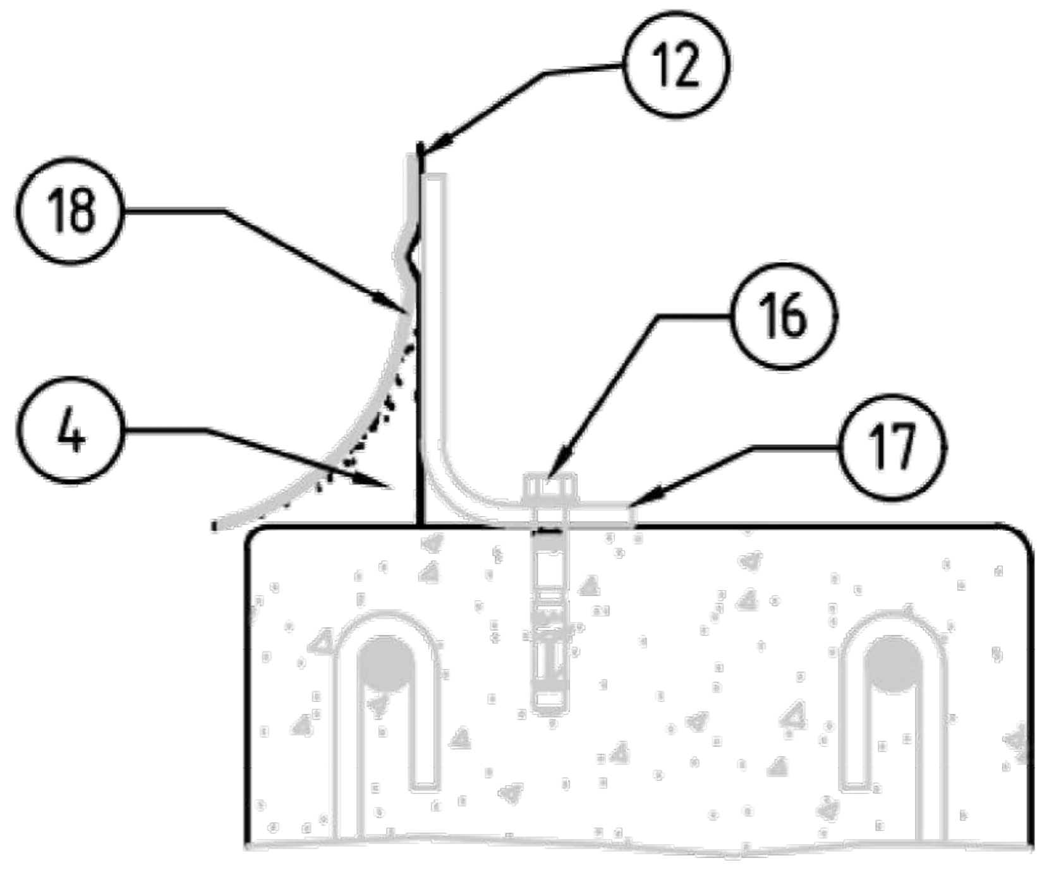
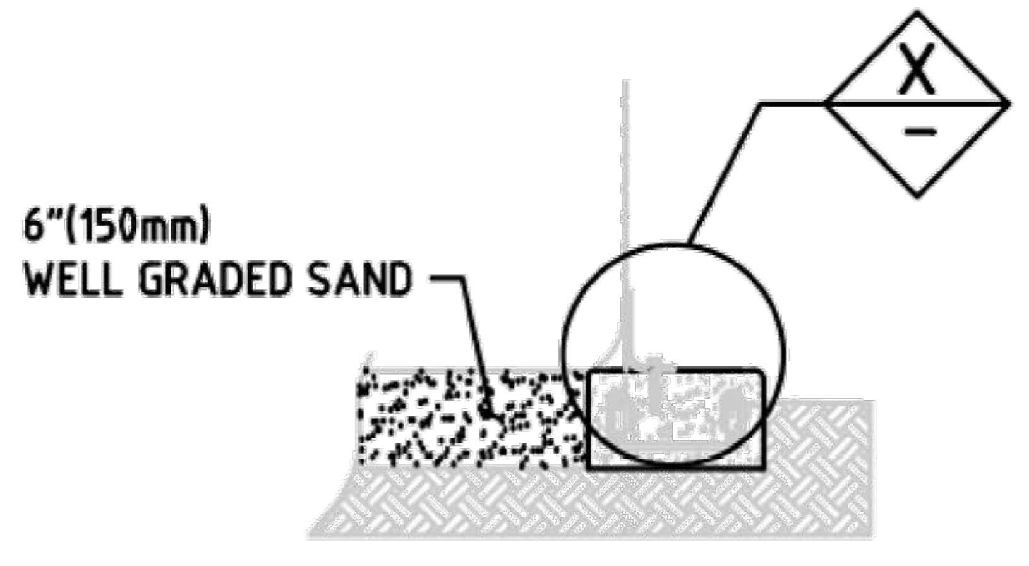
▽ DENOTES WIND GIRT LOCATION



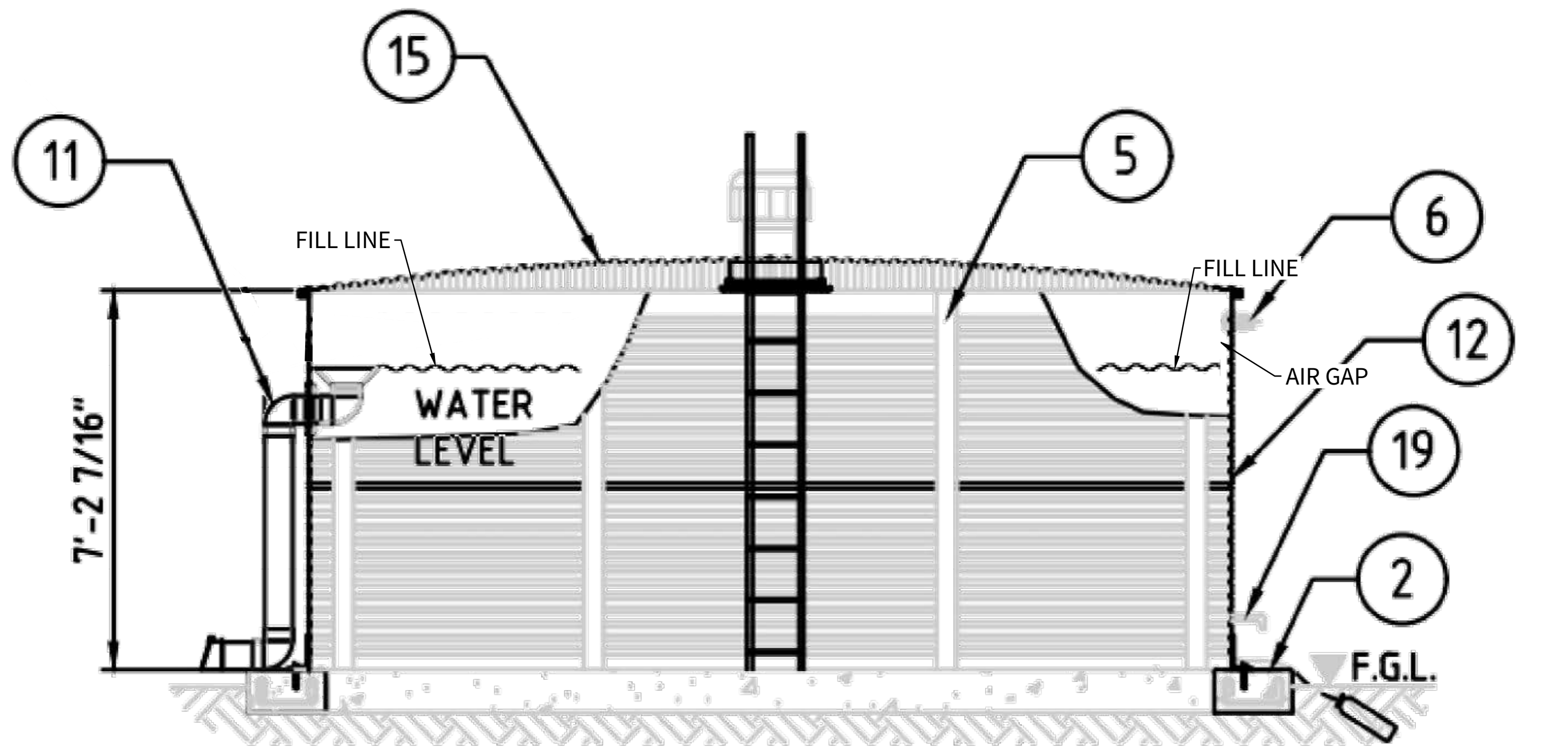
PLAN VIEW



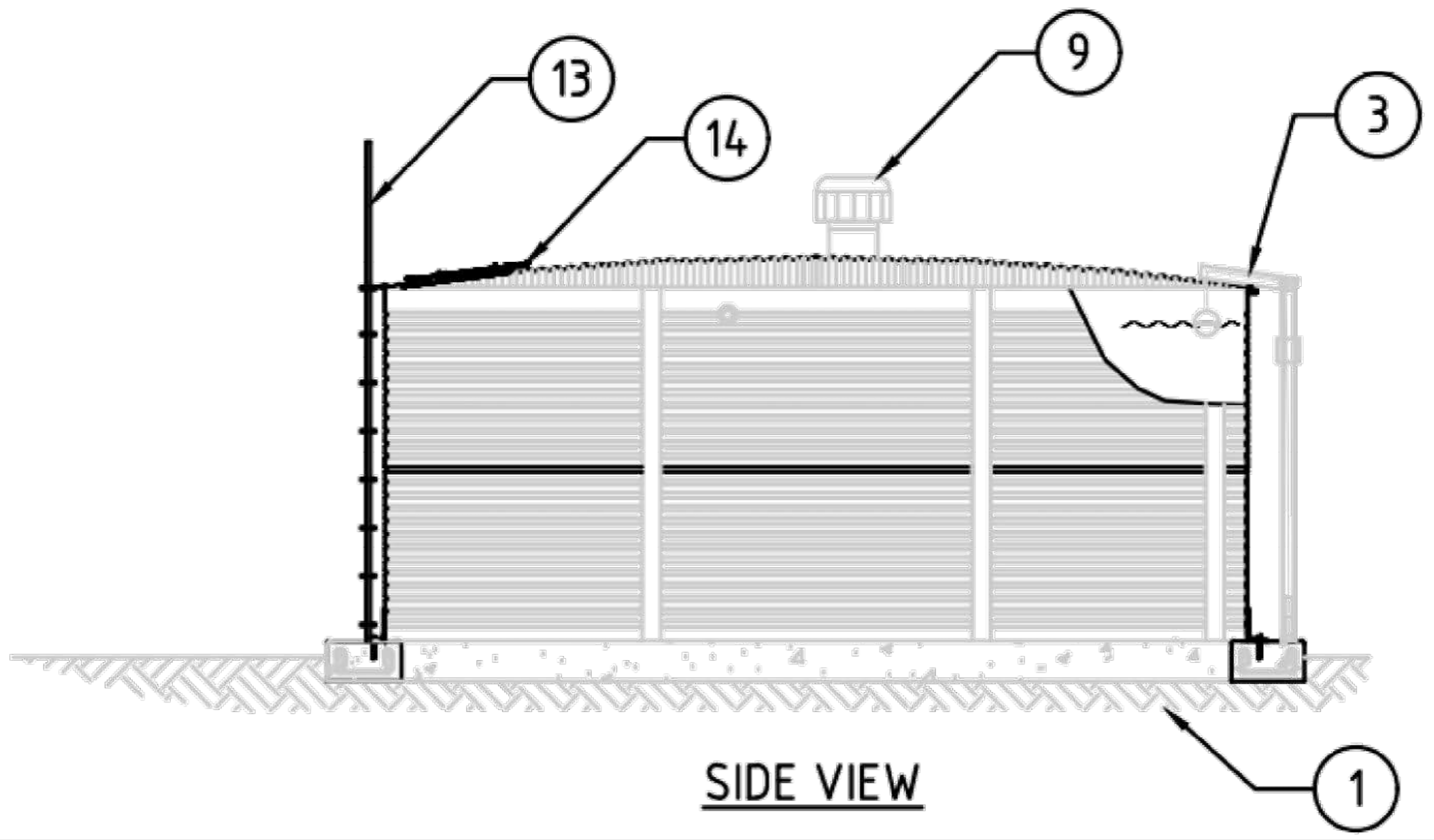
DETAIL X
N.T.S.



SECTION A
N.T.S.



FRONT ELEVATION



SIDE VIEW

PIONEER WATER TANK TECHNICAL DATA	
TANK WALL MATERIAL	ZINCALUME STEEL PANELS, GRADE 300 TO AS1397
TANK WALL THICKNESS	R1 – 0.8mm R2 – 0.8mm
PROTECTIVE COATING TYPE	ZINCALUME (ZINC AND ALUMINIUM ALLOY)
PROTECTIVE COATING CLASS	AZ 150 TO AS1397 (COLORBOND – OPTIONAL)
BOLT SIZING	M10 @ 80mm VERTICAL PITCH
BOLT SPECIFICATIONS	GRADE 8.8 HIGH STRENGTH STEEL BOLTS – AS1110 GALVANISED – AS1214
ROOF SHEETING	ZINCALUME CUSTOM ORB BMT – 0.42mm G550
LINER MATERIAL	AQUALINER FRESH
LINER THICKNESS	0.6mm
LINER COLOUR	WHITE/BLACK
NET USABLE GALLONS	11,200

NOTE: SOME ITEMS SHOWN ARE OPTIONAL, DEPENDING ON CLIENT REQUIREMENTS.

ITEM	COMPONENT DESCRIPTION
19	OS&Y GATE VALVE
18	TANK LINER
17	HOLD DOWN BRACKET
16	MECHANICAL ANCHOR
15	DOME ROOF SHEETS
14	LOCKABLE ACCESS HATCH
13	FIXED LADDER W/ 42 IN HANDRAIL EXT
12	TANK WALL PANELS
11	OVERFLOW
10	INDUSTRY STANDARD TRUSSES
9	ROOF VENTILATOR
8	ANTI-CORROSION ANODE TAGS
7	TRUSS FOOT
6	INLET
5	PANEL CONNECTION WIND GIRTS
4	SAND COVE
3	COMMERCIAL LEVEL INDICATOR
2	RING BEAM
1	EARTHWORKS (BY OTHERS)

REVISIONS								
DATE	REV	DESCRIPTION	GRID	BY	CHK	APP	DATE	

DRAWN	
DATE	
CHECKED	
DATE	
APPROVD	
DATE	

RAINBEAR

SCALE	1:1 PS
SHEET SIZE	
TITLE	GENERAL ARRANGEMENT XLE10/02
DWG NO.	XLE10-R2
REV	–
CAD FILE	
NXT SHEET:	–

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GEORGE'S RANCH
UNIT 1

WATER STORAGE TANK DETAILS

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

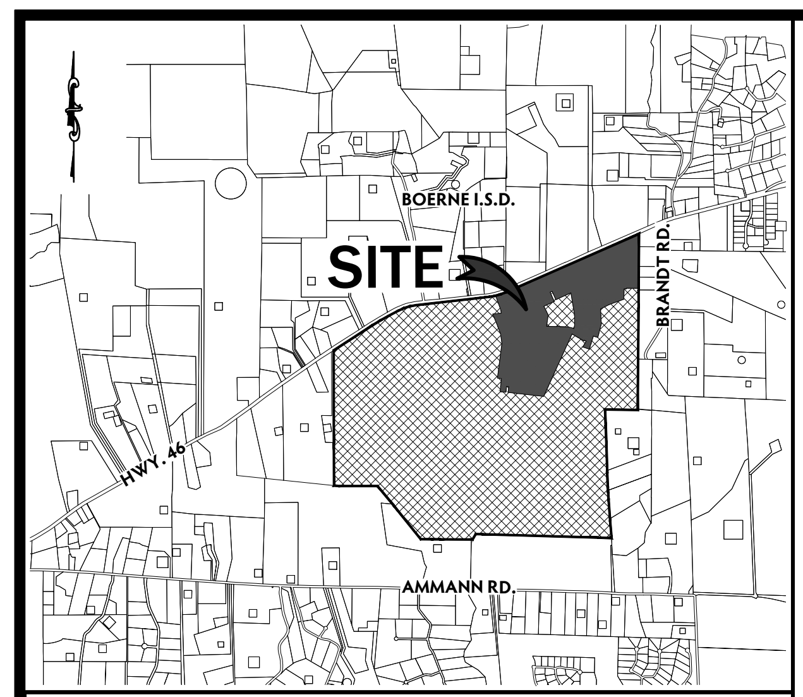
CHECKED BY
WPM

REVISIONS
1. 07/14/2022 - REVISED SHEET NUMBER
2. 08/16/2022 - LABELED FILL LINE AND AIR GAP
3. 10/04/2022 - SHOWED AIR GAP
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
10/6/2022

CUDE ENGINEERS
TBPE No. 455

C61



LOCATION MAP
N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

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	○○○○

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.

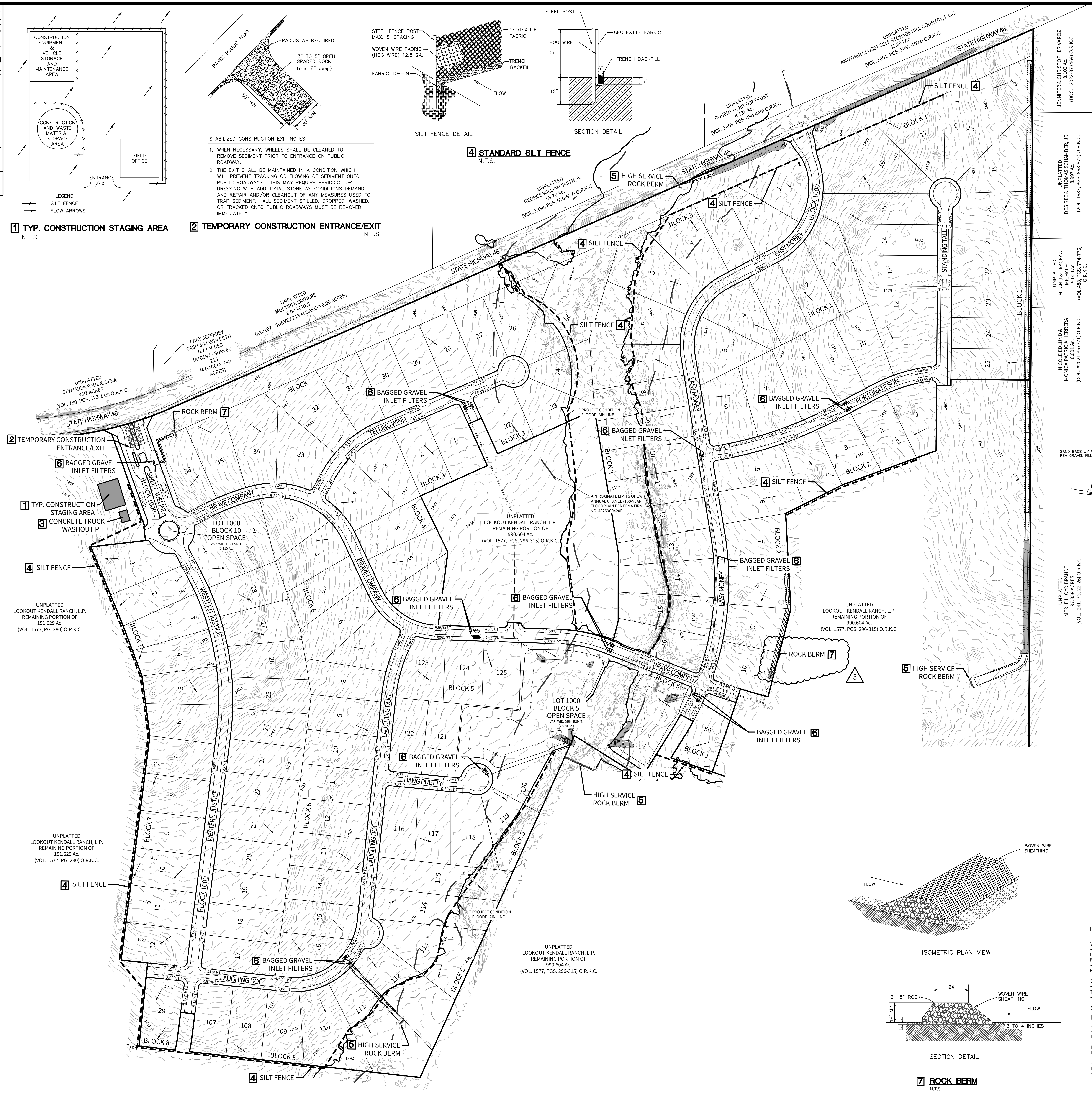
4. THERE WILL BE STORMWATER DISCHARGES INTO THE FEMA FLOOD PLAIN.

5. THE CONTRACTOR IS REQUIRED TO MAINTAIN EROSION CONTROLS THROUGHOUT THE DURATION OF THE PROJECT.

6. THE COUNTY 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.


CONSTRUCTION EQUIPMENT & VEHICLE STORAGE AND MAINTENANCE AREA
CONSTRUCTION AND WASTE MATERIAL STORAGE AREA
FIELD OFFICE
ENTRANCE /EXIT
LEGEND
SILT FENCE
FLOW ARROWS
PAVED PUBLIC ROAD
RADIUS AS REQUIRED
3" TO 5" OPEN GRADED ROCK (min 8" deep)
50' MIN
30' MIN
STEEL FENCE POST MAX. 5' SPACING
WOVEN WIRE FABRIC (HOG WIRE) 12.5 GA.
FABRIC TOE-IN
GEOTEXTILE FABRIC
TRENCH BACKFILL
FLOW
SILT FENCE DETAIL
STEEL POST
HOG WIRE
GEOTEXTILE FABRIC
TRENCH BACKFILL
36"
12"
6"
SECTION DETAIL
STATE HIGHWAY 46
UNPLATTED SZYMAREK PAUL & DENA 9.21 ACRES (VOL. 780, PGS. 123-128) O.R.K.C.
CARY JEFFEREY CASH & MANDI BETH 0.79 ACRES (A10197 - SURVEY 213 M GARCIA .792 ACRES)
UNPLATTED MULTIPLE OWNERS 6.00 ACRES (A10197 - SURVEY 213 M GARCIA 6.00 ACRES)
UNPLATTED GEORGE WILLIAM SMITH, IV 53.70 Ac. (VOL. 1288, PGS. 670-677) O.R.K.C.
UNPLATTED ROBERT H. RITTER TRUST 8.138 Ac. (VOL. 1605, PGS. 434-440) O.R.K.C.
UNPLATTED ANOTHER CLOSET SELF STORAGE HILL COUNTRY, L.L.C. 45.694 Ac. (VOL. 1601, PGS. 1087-1092) O.R.K.C.
JENNIFER & CHRISTOPHER VAROZ 8.103 Ac. (DOC. #2022-373469) O.R.K.C.
UNPLATTED DESIREE & THOMAS SCHAMBER, JR. 8.997 Ac. (VOL. 1683, PGS. 868-872) O.R.K.C.
UNPLATTED MILAN J & TRACEY A MICHALEC 5.000 Ac. (VOL.488, PGS. 774-776) O.R.K.C.
NICOLE EDLUND & MONICA PATRICIA HERRERA 6.001 Ac. (DOC. #2021-357771) O.R.K.C.
UNPLATTED MERLE LLOYD BRANDT 97.358 ACRES (VOL. 241, PG. 22-26) O.R.K.C.
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 990.604 Ac. (VOL. 1577, PGS. 296-315) O.R.K.C.
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 151.629 Ac. (VOL. 1577, PG. 280) O.R.K.C.
2 TEMPORARY CONSTRUCTION ENTRANCE/EXIT
6 BAGGED GRAVEL INLET FILTERS
1 TYP. CONSTRUCTION STAGING AREA
3 CONCRETE TRUCK WASHOUT PIT
4 SILT FENCE
7 ROCK BERM
5 HIGH SERVICE ROCK BERM
SWEET ADELINE
BLOCK 1000
BRAVE COMPANY
TELLING WIND
WESTERN JUSTICE
LAUGHING DOG
DANG PRETTY
EASY MONEY
FORTUNATE SON
STANDING TALL
LOT 1000 BLOCK 10 OPEN SPACE VAR. WID. L.S. ESM'T. (0.115 Ac.)
LOT 1000 BLOCK 5 OPEN SPACE VAR. WID. DRN. ESM'T. (7.970 Ac.)
PROJECT CONDITION FLOODPLAIN LINE
APPROXIMATE LIMITS OF 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN PER FEMA FIRM NO. 48259C0420F
BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
BLOCK 6
BLOCK 7
BLOCK 8
3
WOVEN WIRE SHEATHING
FLOW
ISOMETRIC PLAN VIEW
3"-5" ROCK
24'
18" MIN
3 TO 4 INCHES
SECTION DETAIL

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

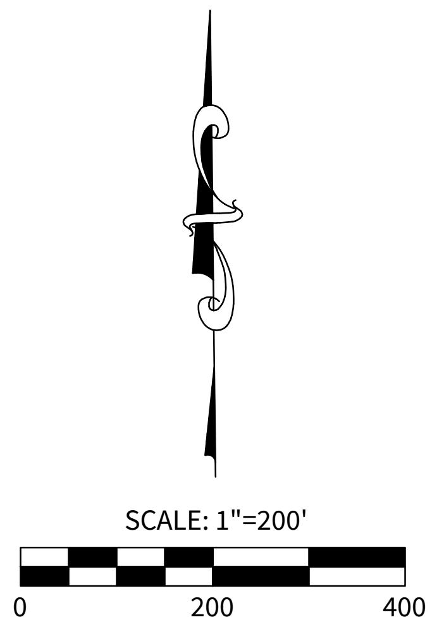
STABILIZED CONSTRUCTION EXIT NOTES:

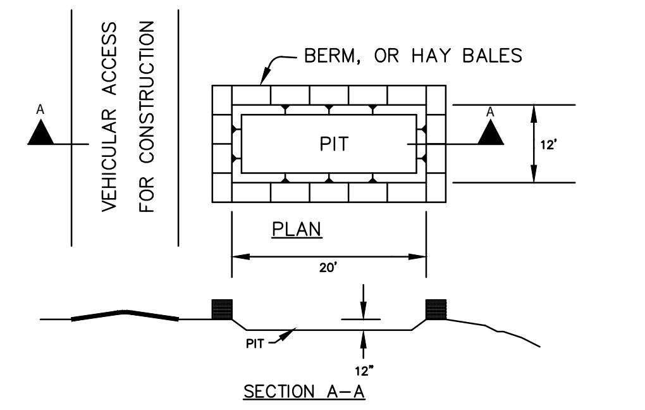
1. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ON PUBLIC ROADWAY.
2. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, 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.

4 STANDARD SILT FENCE
N.T.S.

7 ROCK BERM
N.T.S.

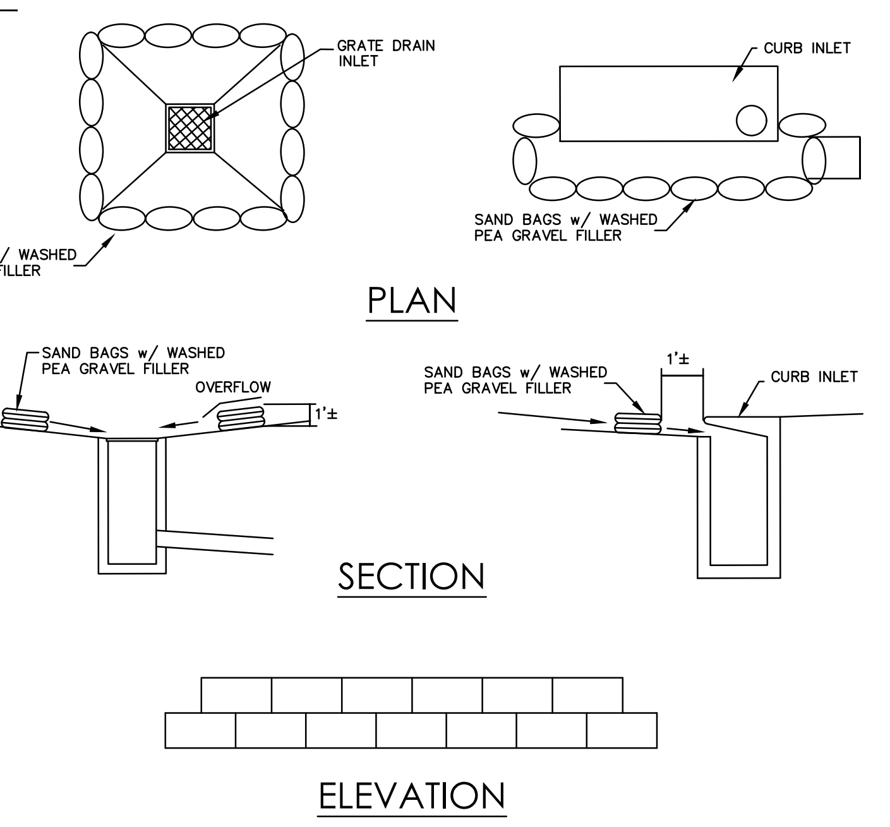




GENERAL NOTES:

- 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.

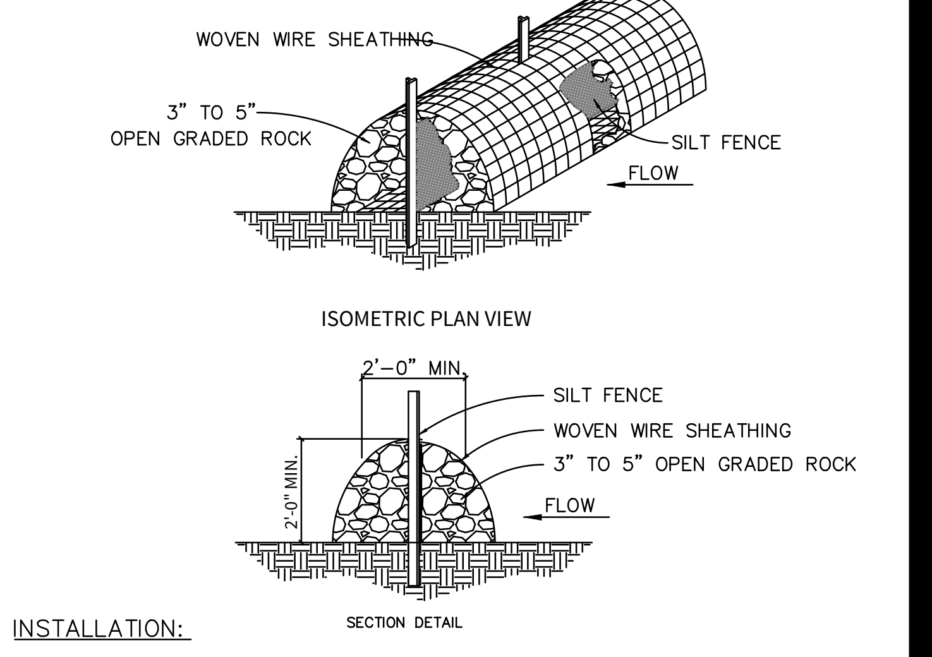
3 CONCRETE TRUCK WASHOUT PIT
N.T.S.



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.

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



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.

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

CUDEENGINEERS.COM

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

GEORGE'S RANCH
UNIT 1

STORM WATER POLLUTION PREVENTION PLAN

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-07-14 - ADDED ROCK BERM, REVISED SILT FENCE LOCATION
2. 2022-09-29 - REVISED LOT NUMBERS
3. 2023-06-01 - ADDED ROCK BERM
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
7/20/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C62

1 OF 1

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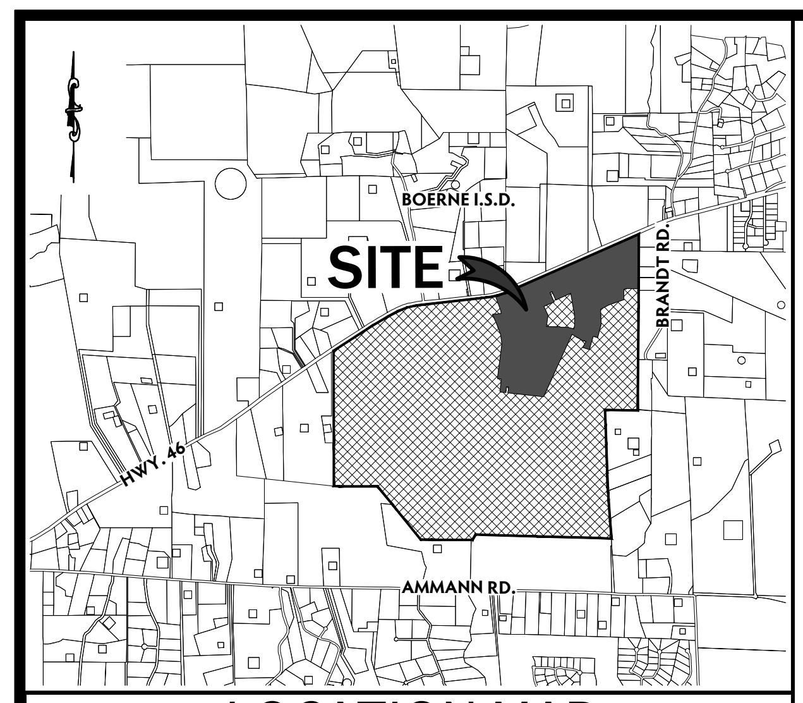
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



LOCATION MAP
N.T.S.

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.

KENDALL COUNTY ENGINEER & DEVELOPMENT OFFICE	(1-830-249-9343)
BOERNE MAINT. OFFICE, TxDOT	(1-830-816-2430)
TEXAS STATE WIDE ONE CALL LOCATOR	(1-800-545-6005)
GVTC	"
SPECTRUM COMMUNICATIONS	"

GVTC AND SPECTRUM COMMUNICATIONS CABLE LINES TO GO IN JOINT TRENCH WITH PEDERNALES 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,

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 PEDERNALES 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.

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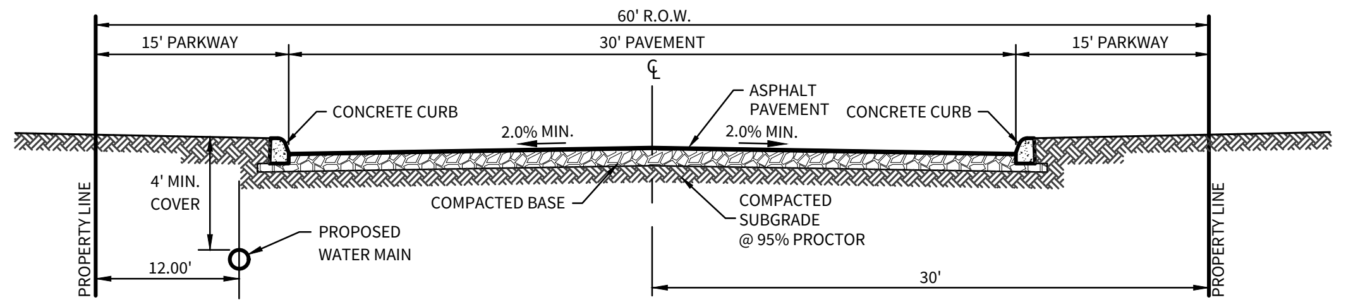
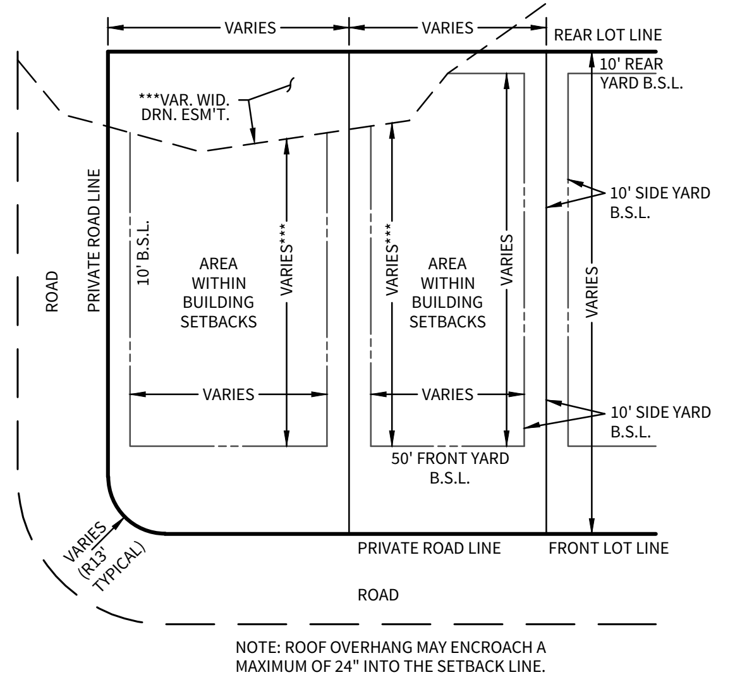
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322



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

LEGEND

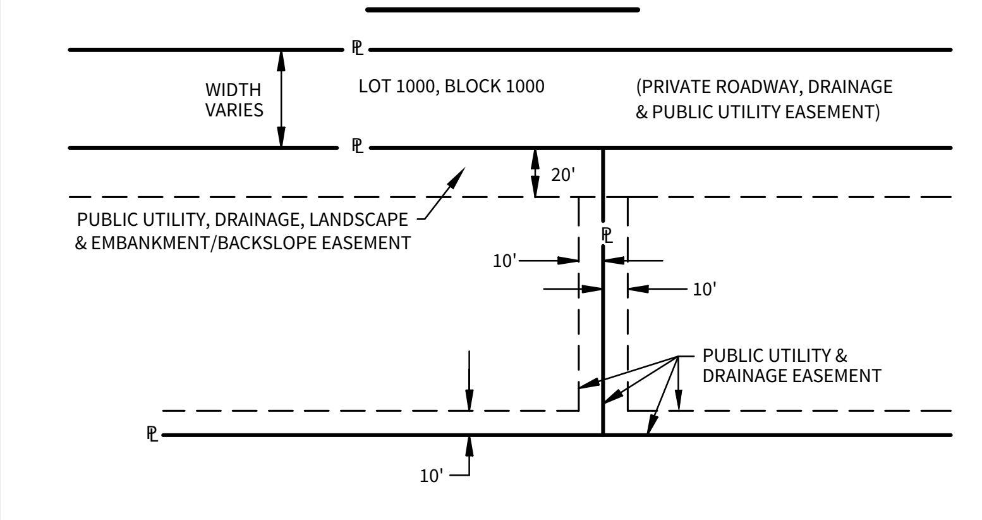
EXISTING SANITARY SEWER	EX.8"SS
PROPOSED SANITARY SEWER	8"SS
EXISTING SANITARY SEWER MANHOLE	◌
PROPOSED SANITARY SEWER MANHOLE	●
EXISTING WATER MAIN	EX.8"W
PROPOSED WATER MAIN	8"W
EXISTING RECYCLED WATER MAIN	EX. 8"RW
PROPOSED RECYCLED WATER MAIN	8"RW
EXISTING STANDARD FIRE HYDRANT	⋈
PROPOSED STANDARD FIRE HYDRANT	⧓
EXISTING STANDARD GATE VALVE	○
PROPOSED STANDARD GATE VALVE	●
EXISTING PERMANENT BLOWOFF	○
PROPOSED PERMANENT BLOWOFF	○
EXISTING OVERHEAD ELECTRIC	EX.OE
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	▣
PROPOSED PULL BOX	PB
U.S. POSTAL COLLECTION BOX	▭
TRACER WIRE LOCATE BOX	■
UTILITY CONDUIT CROSSING	UTIL
IRRIGATION CONDUIT CROSSING	IRR



NOTE: ROOF OVERHANG MAY ENCROACH A MAXIMUM OF 24" INTO THE SETBACK LINE.
***: LOTS THAT CONTAIN A VARIABLE WIDTH DRAINAGE EASEMENT SHALL HAVE THEIR STANDARD BUILDING SETBACK OUTSIDE THE LIMITS OF DRAINAGE EASEMENT

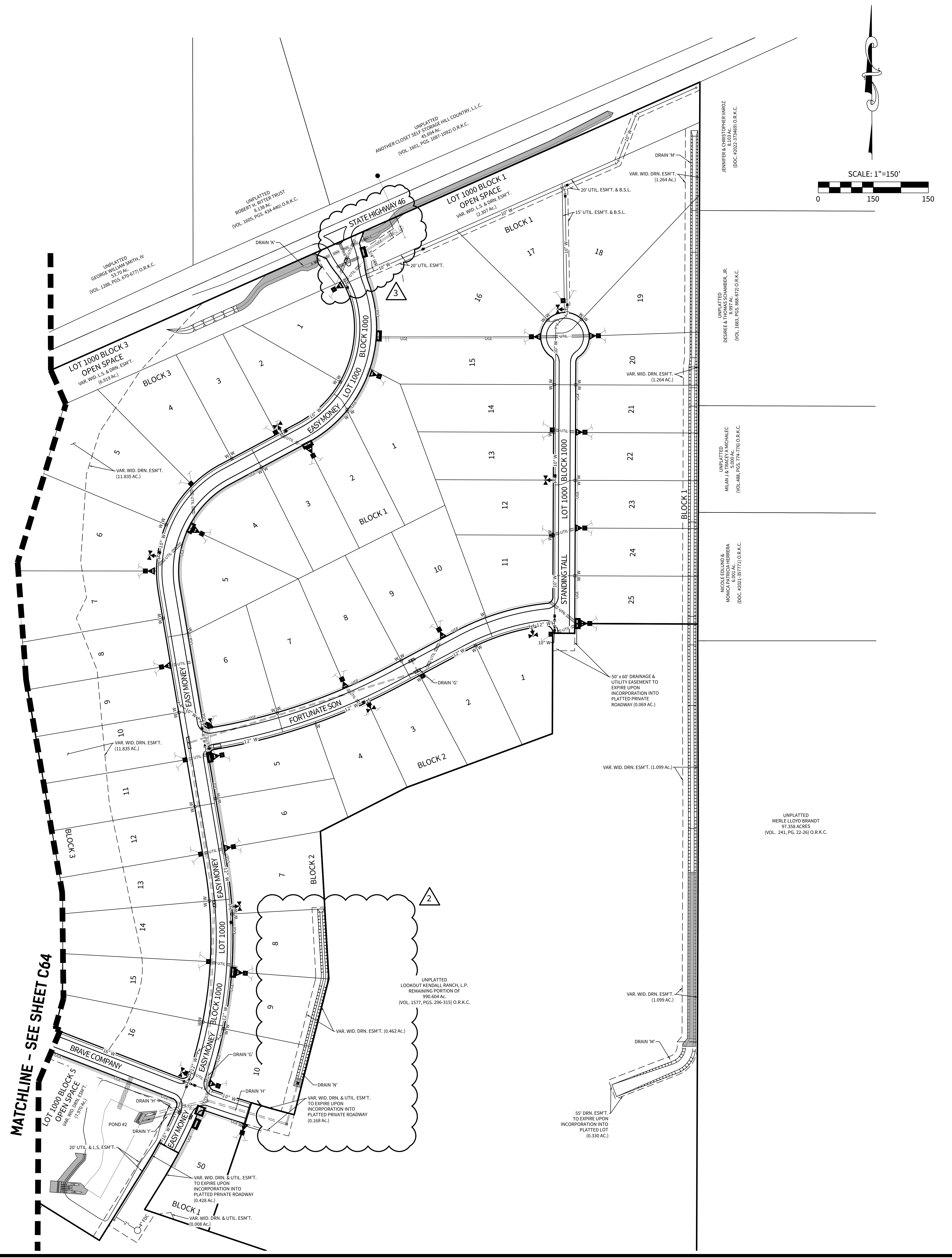
TYPICAL LOT SETBACKS LAYOUT
(ESTABLISHED ON ALL LOTS)
N.T.S.

TYPICAL EASEMENTS



WIDTH VARIES
LOT 1000, BLOCK 1000
(PRIVATE ROADWAY, DRAINAGE & PUBLIC UTILITY EASEMENT)
20'
PUBLIC UTILITY, DRAINAGE, LANDSCAPE & EMBANKMENT/BACKSLOPE EASEMENT
10'
10'
PUBLIC UTILITY & DRAINAGE EASEMENT
10'

N.T.S.



SCALE: 1"=150'
0
150
150
UNPLATTED
ANOTHER CLOSET SELF STORAGE HILL COUNTRY, L.L.C.
45.694 Ac.
(VOL. 1601, PGS. 1087-1092) O.R.K.C.
UNPLATTED
ROBERT H. RITTER TRUST
8.138 Ac.
(VOL. 1605, PGS. 434-440) O.R.K.C.
UNPLATTED
GEORGE WILLIAM SMITH, IV
53.70 Ac.
(VOL. 1288, PGS. 670-677) O.R.K.C.
STATE HIGHWAY 46
DRAIN 'K'
LOT 1000 BLOCK 1
OPEN SPACE
VAR. WID. L.S. & DRN. ESM'T.
(2.307 Ac.)
20' UTIL. ESM'T. & B.S.L.
15' UTIL. ESM'T. & B.S.L.
20' UTIL. ESM'T.
DRAIN 'M'
VAR. WID. DRN. ESM'T.
(1.264 Ac.)
JENNIFER & CHRISTOPHER VAROZ
8.103 Ac.
(DOC. #2022-373469) O.R.K.C.
UNPLATTED
DESIREE & THOMAS SCHAMBER, JR.
8.997 Ac.
(VOL. 1683, PGS. 868-872) O.R.K.C.
UNPLATTED
MILAN J. & TRACEY A MICHALEC
5.000 Ac.
(VOL. 486, PGS. 774-776) O.R.K.C.
UNPLATTED
NICOLE EDLUND & MONICA PATRICIA HERRERA
6.001 Ac.
(DOC. #2021-357771) O.R.K.C.
LOT 1000 BLOCK 3
OPEN SPACE
VAR. WID. L.S. & DRN. ESM'T.
(6.919 Ac.)
BLOCK 3
BLOCK 1
BLOCK 1
BLOCK 2
BLOCK 2
BLOCK 3
EASY MONEY
LOT 1000 BLOCK 1000
STANDING TALL
FORTUNATE SON
BRAVE COMPANY
VAR. WID. DRN. ESM'T.
(11.835 AC.)
DRAIN 'G'
50' x 60' DRAINAGE & UTILITY EASEMENT TO EXPIRE UPON INCORPORATION INTO PLATTED PRIVATE ROADWAY (0.069 AC.)
VAR. WID. DRN. ESM'T. (1.099 Ac.)
UNPLATTED
MERLE LLOYD BRANDT
97.358 ACRES
(VOL. 241, PG. 22-26) O.R.K.C.
UNPLATTED
LOOKOUT KENDALL RANCH, L.P.
REMAINING PORTION OF
990.604 Ac.
(VOL. 1577, PGS. 296-315) O.R.K.C.
VAR. WID. DRN. ESM'T. (0.462 Ac.)
VAR. WID. DRN. & UTIL. ESM'T. TO EXPIRE UPON INCORPORATION INTO PLATTED PRIVATE ROADWAY (0.168 Ac.)
VAR. WID. DRN. ESM'T.
(1.099 AC.)
DRAIN 'M'
55' DRN. ESM'T. TO EXPIRE UPON INCORPORATION INTO PLATTED LOT (0.330 AC.)
DRAIN 'N'
DRAIN 'G'
DRAIN 'H'
DRAIN 'I'
POND #2
20' UTIL. & L.S. ESM'T.
LOT 1000 BLOCK 5
OPEN SPACE
VAR. WID. DRN. & UTIL. ESM'T. TO EXPIRE UPON INCORPORATION INTO PLATTED PRIVATE ROADWAY (0.428 Ac.)
VAR. WID. DRN. & UTIL. ESM'T. (0.008 Ac.)
BLOCK 1
50
MATCHLINE - SEE SHEET C64
2
3
UGE
UTIL
10" W
12" W

CUDEENGINEERS.COM

CUDE ENGINEERS
EST. 1980

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

GEORGE'S RANCH UNIT 1

UTILITY LAYOUT PLAN

DATE
03/20/2024

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-11-15 REVISED ELECTRIC LINEWORK
2. 02/28/2023 - DRAINAGE REVISION
3. 07/01/2024 - ADD IRRIGATION CONDUITS
4.
5.
6.
7.
8.
9.

KYLE M. HUDEK
138753
07/01/2024
CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C63

1 OF 3

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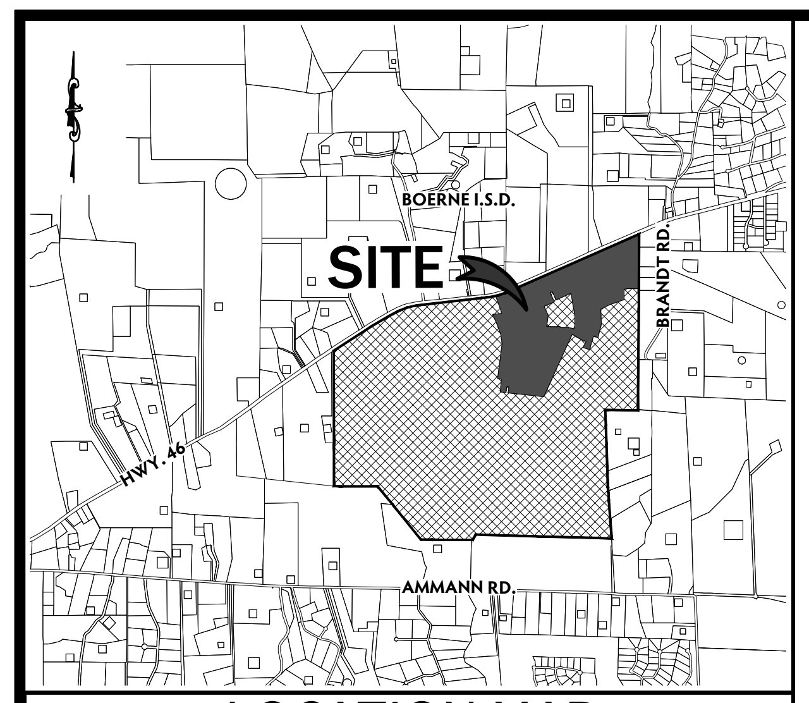

LOCATION MAP
N.T.S.

OWNER/ DEVELOPER:

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CONTACT: MIKE SIEFERT, P.E. PRESIDENT
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LEANDER, TEXAS 78641
TEL: (512) 690-4322

NOTE

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KENDALL COUNTY ENGINEER & DEVELOPMENT OFFICE	(1-830-249-9343)
BOERNE MAINT. OFFICE, TxDOT	(1-830-816-2430)
TEXAS STATE WIDE ONE CALL LOCATOR	(1-800-545-6005)
GVTC	"
SPECTRUM COMMUNICATIONS	"

GVTC AND SPECTRUM COMMUNICATIONS CABLE LINES TO GO IN JOINT TRENCH WITH PEDERNALES 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,

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 PEDERNALES ELECTRIC CO-OP UTILITY LINE INSTALLATION.
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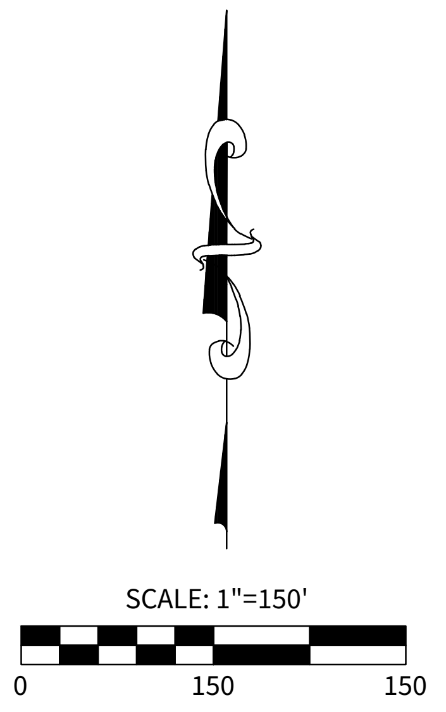
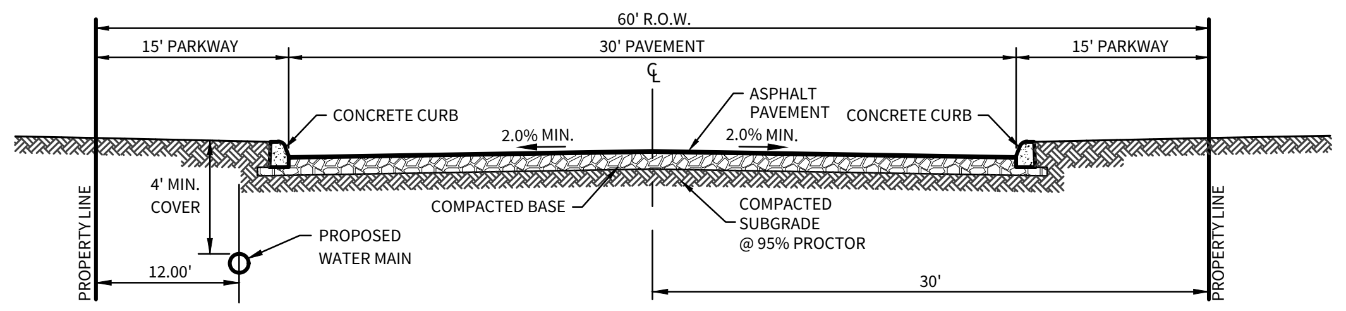
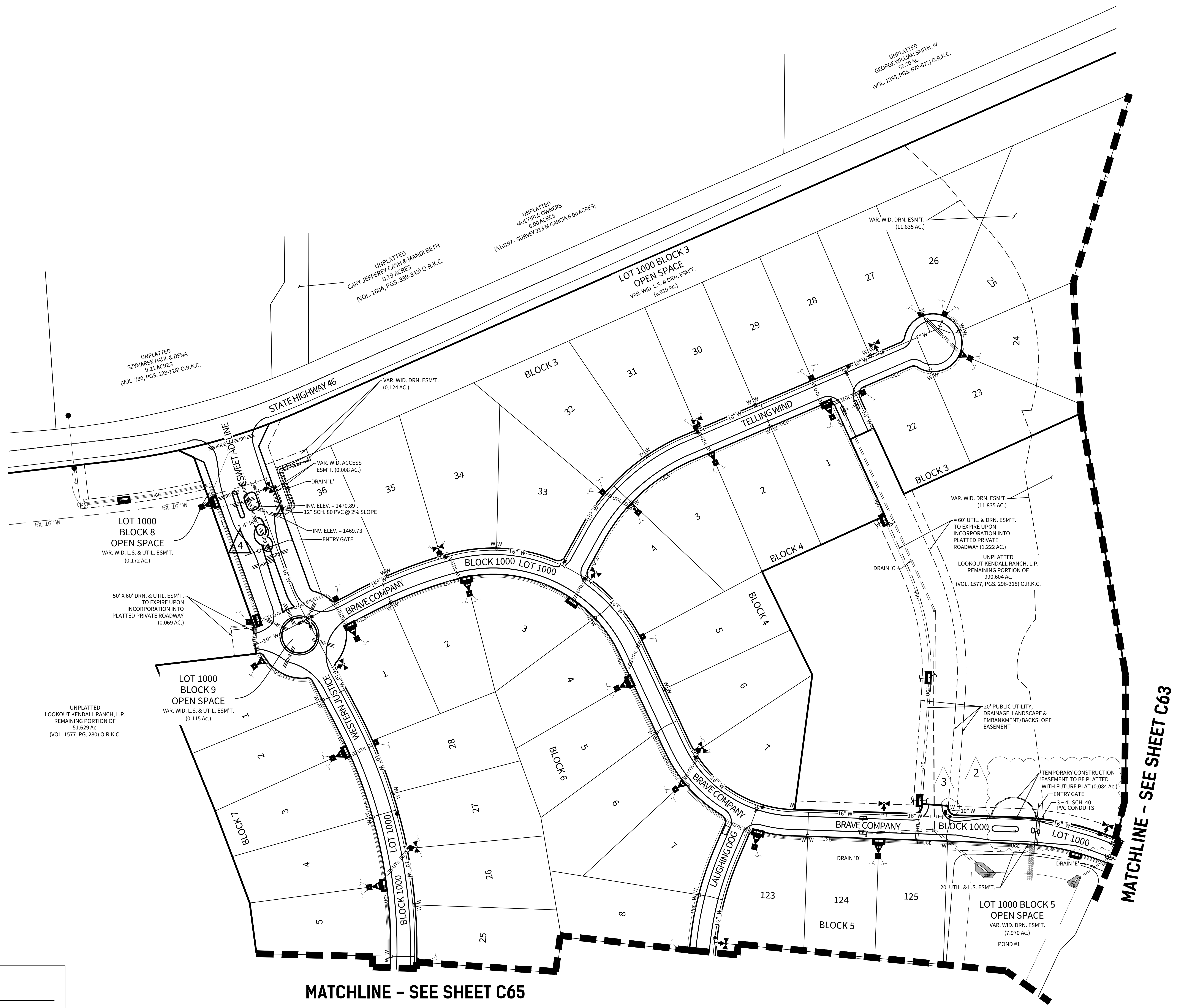




LOCAL RESIDENTIAL STREET CROSS SECTION (60' R.O.W.)

N.T.S.



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
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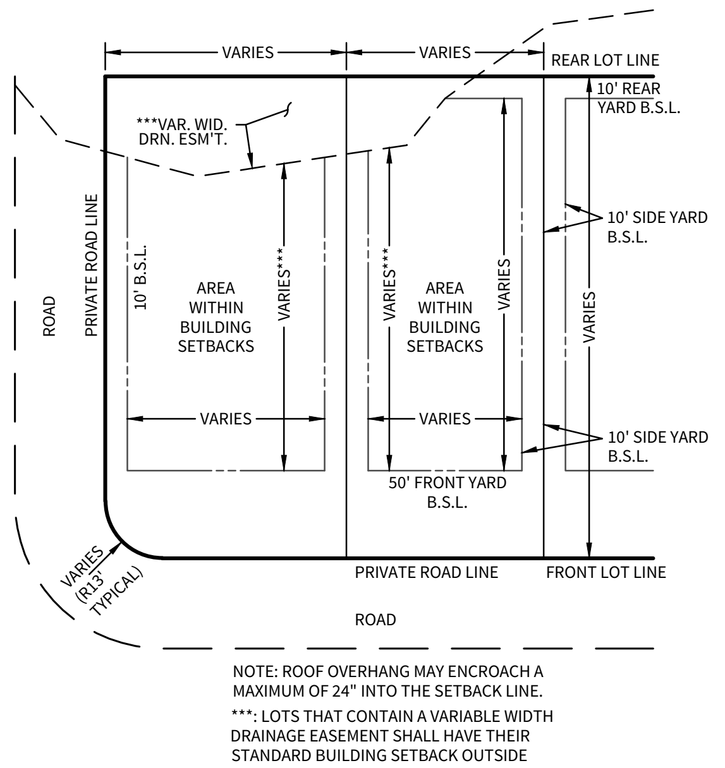
PROPOSED STANDARD FIRE HYDRANT	⧓
EXISTING STANDARD GATE VALVE	○
PROPOSED STANDARD GATE VALVE	●
EXISTING PERMANENT BLOWOFF	○
PROPOSED PERMANENT BLOWOFF	○
EXISTING OVERHEAD ELECTRIC	EX.OE
PROPOSED OVERHEAD ELECTRIC	OE
EXISTING GAS MAIN	EX.2"G
PROPOSED GAS MAIN	2"G
EXISTING UNDERGROUND ELECTRIC	EX. UGE
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	▣
PROPOSED PULL BOX	PB
U.S. POSTAL COLLECTION BOX	▭
TRACER WIRE LOCATE BOX	■
UTILITY CONDUIT CROSSING	UTIL
IRRIGATION CONDUIT CROSSING	IRR



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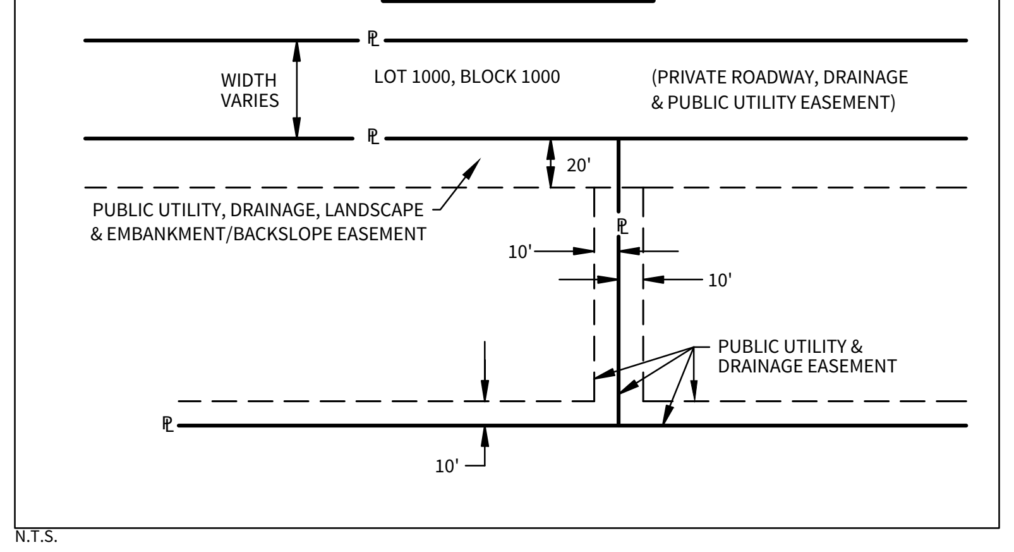
TYPICAL LOT SETBACKS LAYOUT

(ESTABLISHED ON ALL LOTS)
N.T.S.

TYPICAL EASEMENTS


WIDTH VARIES
LOT 1000, BLOCK 1000
(PRIVATE ROADWAY, DRAINAGE & PUBLIC UTILITY EASEMENT)
20'
PUBLIC UTILITY, DRAINAGE, LANDSCAPE & EMBANKMENT/BACKSLOPE EASEMENT
10'
10'
PUBLIC UTILITY & DRAINAGE EASEMENT
10'

N.T.S.

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ENGINEERS

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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

GEORGE'S RANCH
UNIT 1

UTILITY LAYOUT PLAN

DATE
03/20/2024

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS

1. 2022-11-15 REVISED ELECTRIC LINEWORK
2. 2024-3-20 ADDING EASEMENT, GATES, KNOX BOX AND CONDUIT
3. 2024-4-10 ADDED WATER SERVICE
4. 2024-06-10 ADD ADDITIONAL CONDUITS
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
6/10/2024

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C64

2 OF 3

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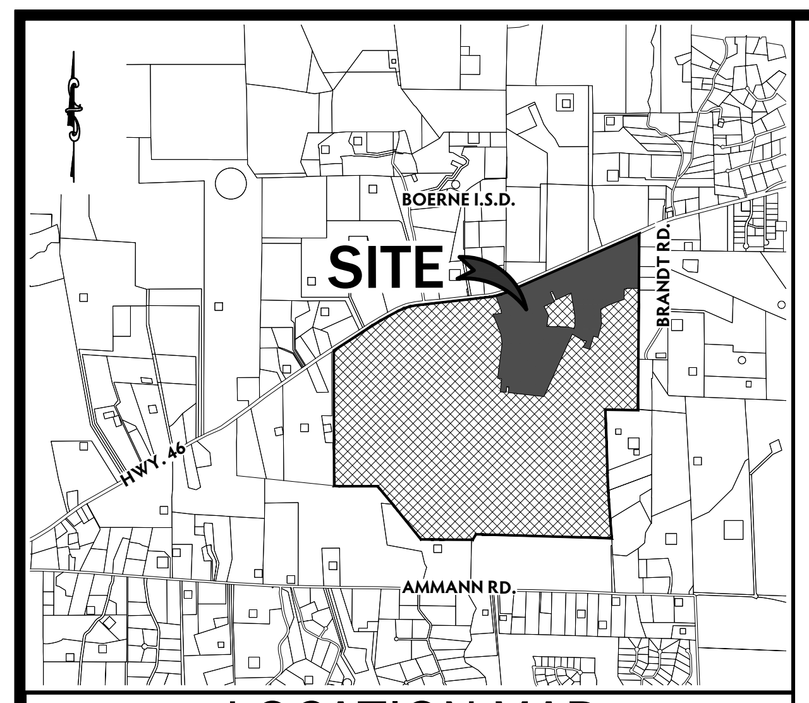
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.



LOCATION MAP
N.T.S.

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SPECTRUM COMMUNICATIONS	"

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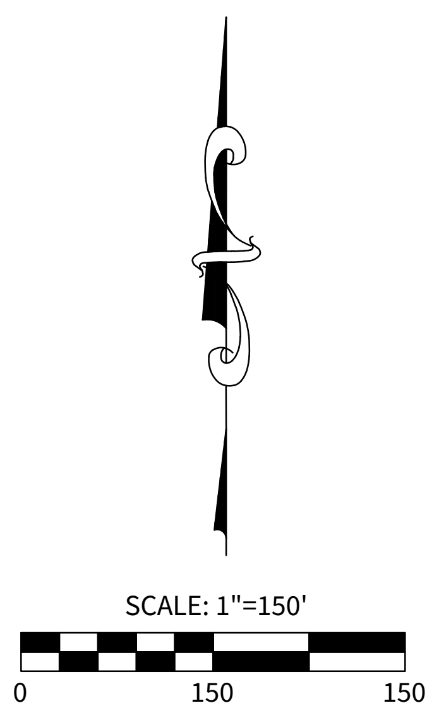

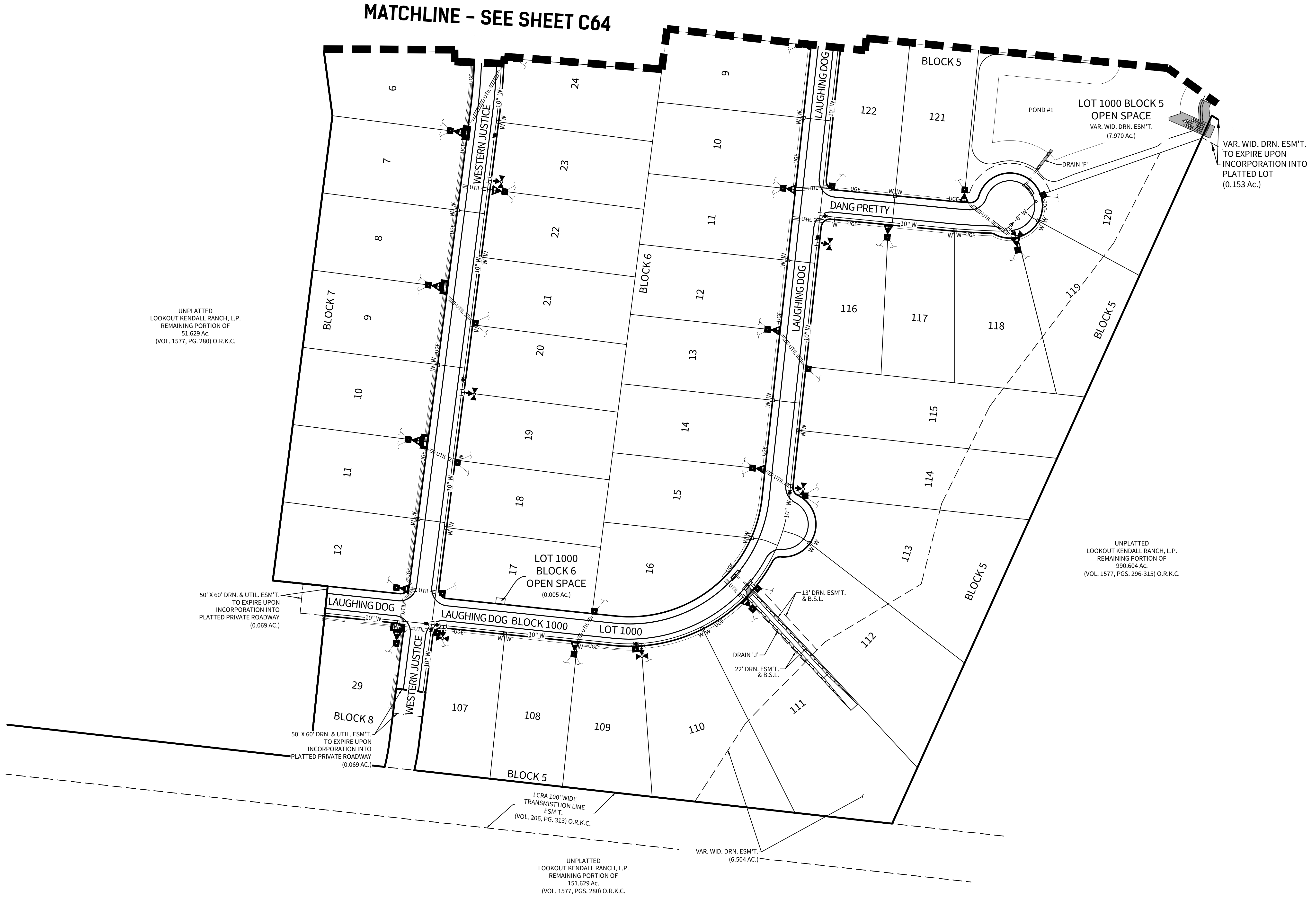
MATCHLINE - SEE SHEET C64
BLOCK 7
BLOCK 6
BLOCK 5
BLOCK 8
LAUGHING DOG
WESTERN JUSTICE
DANG PRETTY
LAUGHING DOG BLOCK 1000 LOT 1000
LOT 1000 BLOCK 6 OPEN SPACE
(0.005 Ac.)
LOT 1000 BLOCK 5 OPEN SPACE
VAR. WID. DRN. ESM'T.
(7.970 Ac.)
POND #1
DRAIN 'F'
DRAIN 'J'
13' DRN. ESM'T. & B.S.L.
22' DRN. ESM'T. & B.S.L.
VAR. WID. DRN. ESM'T. TO EXPIRE UPON INCORPORATION INTO PLATTED LOT (0.153 Ac.)
50' X 60' DRN. & UTIL. ESM'T. TO EXPIRE UPON INCORPORATION INTO PLATTED PRIVATE ROADWAY (0.069 AC.)
50' X 60' DRN. & UTIL. ESM'T. TO EXPIRE UPON INCORPORATION INTO PLATTED PRIVATE ROADWAY (0.069 AC.)
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 51.629 Ac. (VOL. 1577, PG. 280) O.R.K.C.
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 990.604 Ac. (VOL. 1577, PGS. 296-315) O.R.K.C.
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 151.629 Ac. (VOL. 1577, PGS. 280) O.R.K.C.
LCRA 100' WIDE TRANSMISTTION LINE ESM'T. (VOL. 206, PG. 313) O.R.K.C.
VAR. WID. DRN. ESM'T. (6.504 AC.)
10" W
6" W
UTIL
UGE
W W
6
7
8
9
10
11
12
29
24
23
22
21
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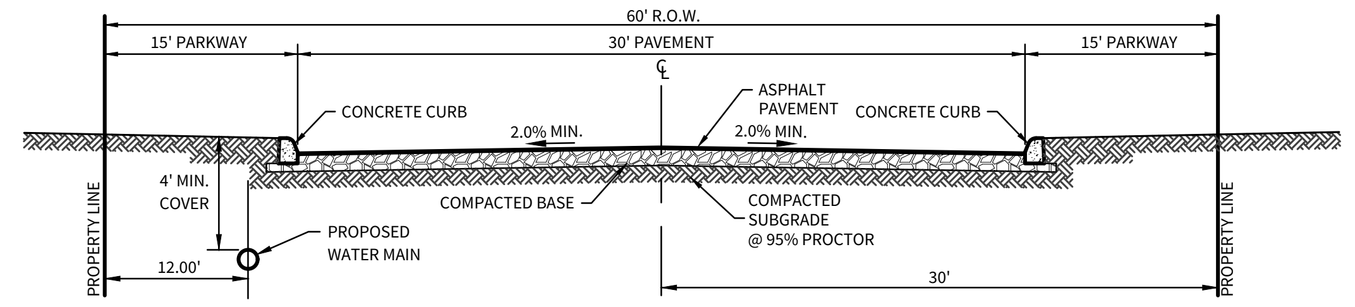

LOCAL RESIDENTIAL STREET CROSS SECTION (60' R.O.W.)
N.T.S.

LEGEND

EXISTING SANITARY SEWER	EX.8"SS
PROPOSED SANITARY SEWER	8"SS
EXISTING SANITARY SEWER MANHOLE	◌
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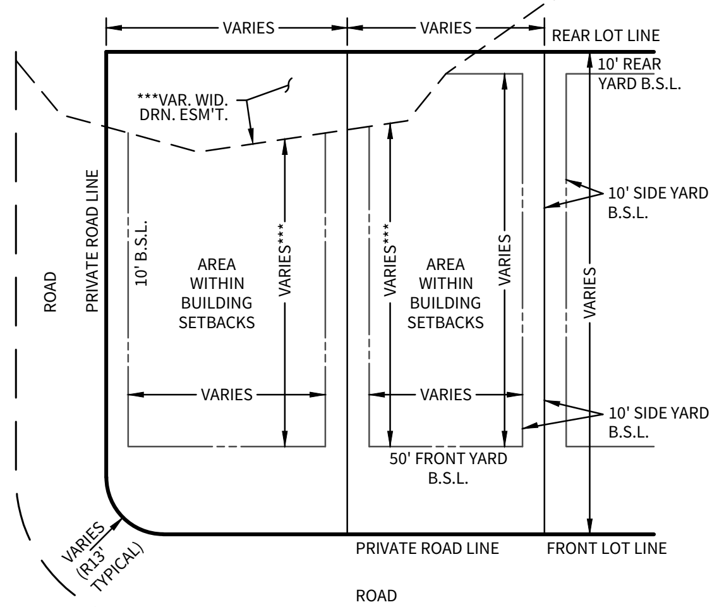
EXISTING STANDARD FIRE HYDRANT	⋈
PROPOSED STANDARD FIRE HYDRANT	⧓
EXISTING STANDARD GATE VALVE	○
PROPOSED STANDARD GATE VALVE	●
EXISTING PERMANENT BLOWOFF	○
PROPOSED PERMANENT BLOWOFF	○
EXISTING OVERHEAD ELECTRIC	EX.OE
PROPOSED OVERHEAD ELECTRIC	OE
EXISTING GAS MAIN	EX.2"G
PROPOSED GAS MAIN	2"G
EXISTING 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	▣
PROPOSED PULL BOX	PB
U.S. POSTAL COLLECTION BOX	▭
TRACER WIRE LOCATE BOX	■
UTILITY CONDUIT CROSSING	UTIL
IRRIGATION CONDUIT CROSSING	IRR

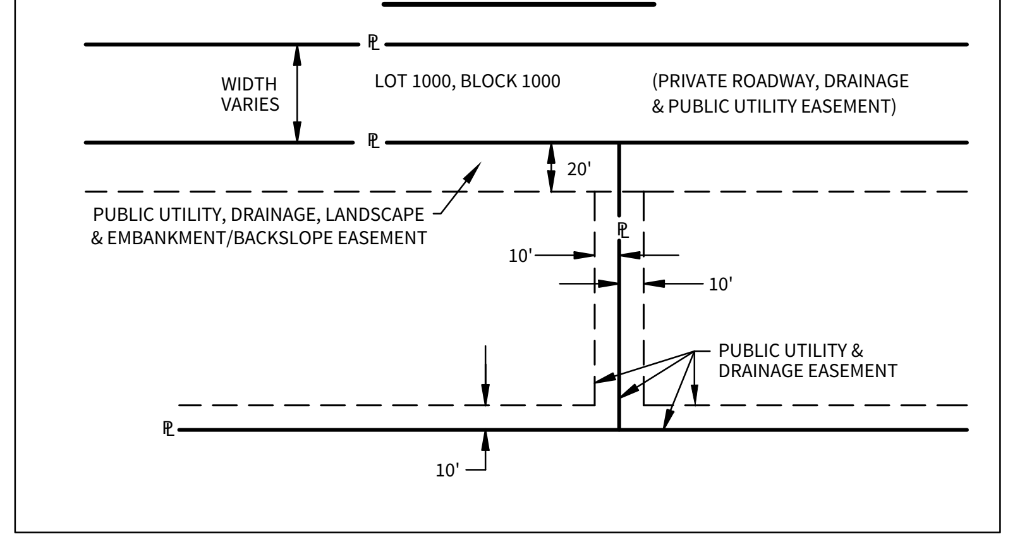


NOTE: ROOF OVERHANG MAY ENCROACH A MAXIMUM OF 24" INTO THE SETBACK LINE.

***: LOTS THAT CONTAIN A VARIABLE WIDTH DRAINAGE EASEMENT SHALL HAVE THEIR STANDARD BUILDING SETBACK OUTSIDE THE LIMITS OF DRAINAGE EASEMENT

TYPICAL LOT SETBACKS LAYOUT
(ESTABLISHED ON ALL LOTS)
N.T.S.

TYPICAL EASEMENTS


℄
WIDTH VARIES
LOT 1000, BLOCK 1000
(PRIVATE ROADWAY, DRAINAGE & PUBLIC UTILITY EASEMENT)
℄
20'
PUBLIC UTILITY, DRAINAGE, LANDSCAPE & EMBANKMENT/BACKSLOPE EASEMENT
℄
10'
10'
PUBLIC UTILITY & DRAINAGE EASEMENT
℄
10'

N.T.S.

CUDEENGINEERS.COM

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

GEORGE'S RANCH
UNIT 1

UTILITY LAYOUT PLAN

DATE	04/22/2022
PROJECT NO.	03546.001
DRAWN BY	AB/RR
CHECKED BY	WPM

REVISIONS
1. 2022-11-15 REVISED ELECTRIC LINEWORK
2.
3.
4.
5.
6.
7.
8.
9.

W. PATRICK MURPHY
111597
7/20/2023

CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C65

3 OF 3

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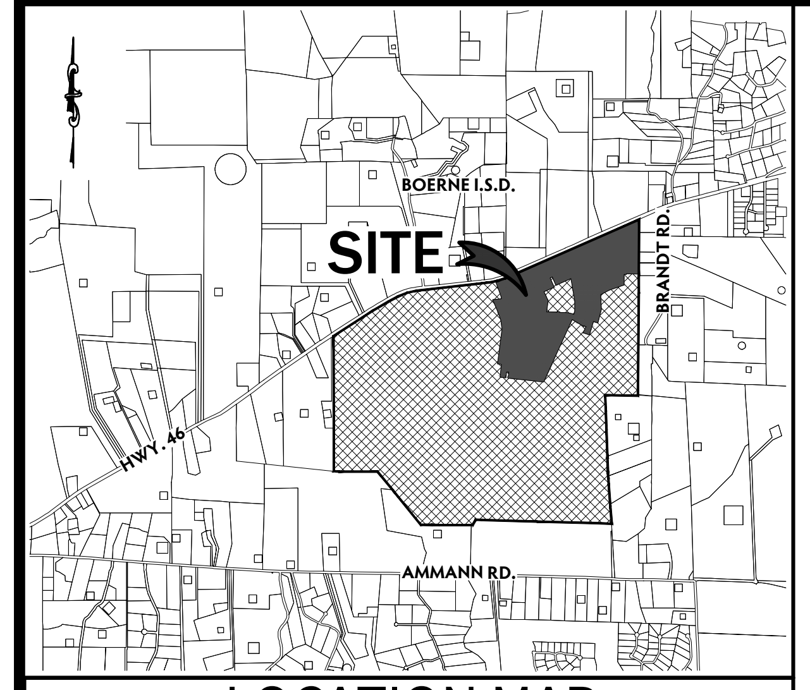

LOCATION MAP

N.T.S.

OWNER/ DEVELOPER:

THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

LEGEND

PROPOSED CONTOUR	1000
EXISTING CONTOUR	— — 1000 — —
GRADE BREAK	▬ ▬ ▬
LIMITS OF GRADING	— · — · —
PROPOSED ELEVATION	× 1000.00
PROPOSED BOTTOM OF WALL ELEVATION	× 1000.00 BW
PROPOSED TOP OF WALL ELEVATION	× 1000.00 TW

NOTES:

CONTOURS SHOWN ON STREET ARE TO TOP OF STREET.

GENERAL SPECIFICATIONS FOR SITE PREPARATION

1. GENERAL DESCRIPTION

THIS ITEM SHALL CONSIST OF ALL CLEARING AND GRUBBING, DEMOLITION, PREPARATION OF LAND TO BE FILLED, FILLING OF THE LAND, SPREADING, COMPACTION TESTING AND INSPECTION OF THE FILL, AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE LINES, GRADES AND SLOPES AS SHOWN ON THE APPROVED PLANS.

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2. CLEARING THE AREA TO BE FILLED

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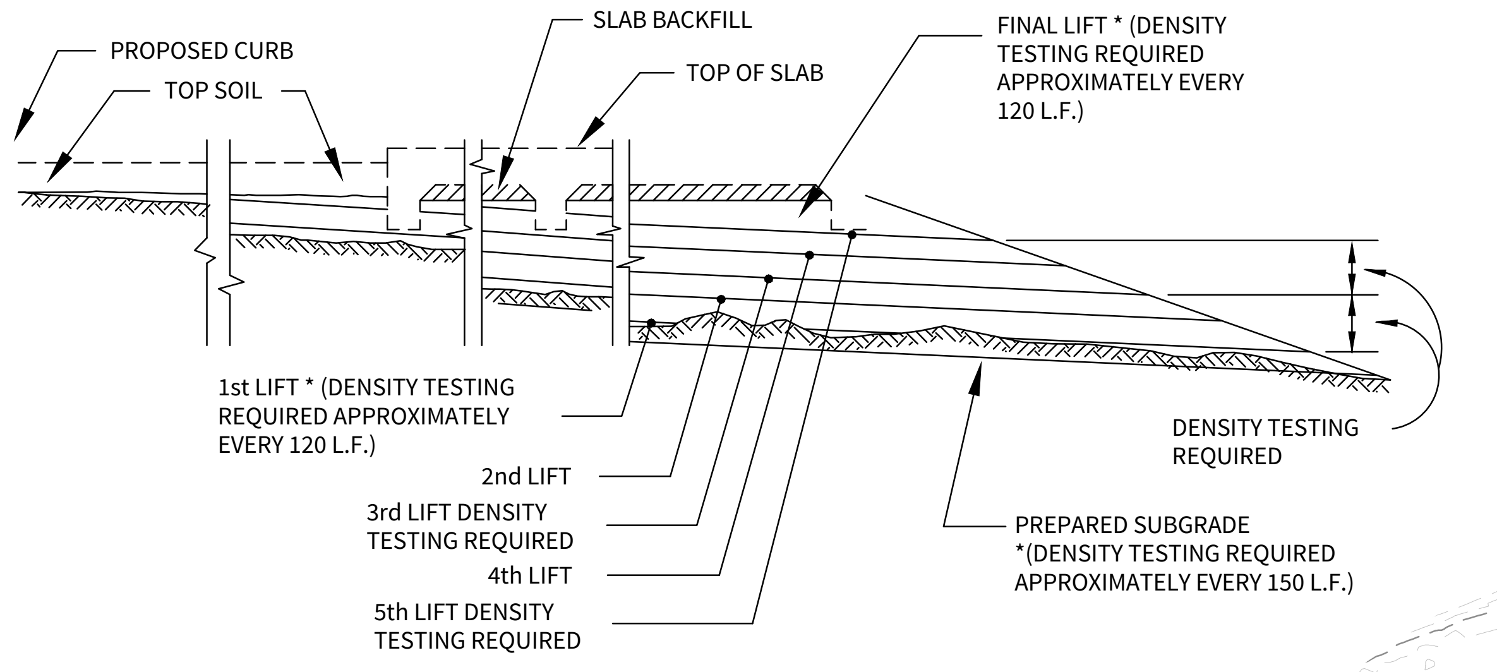
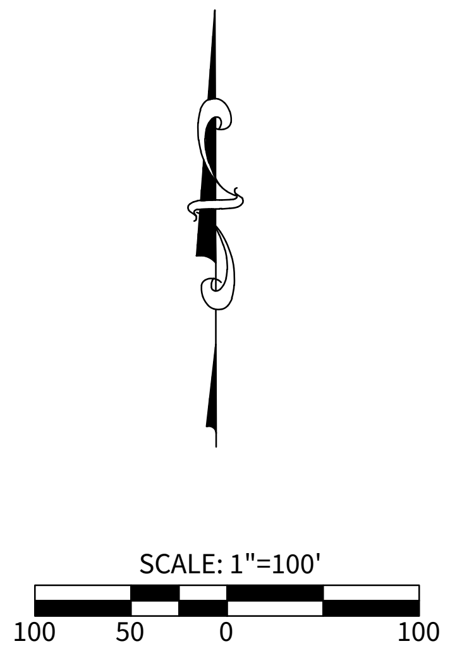
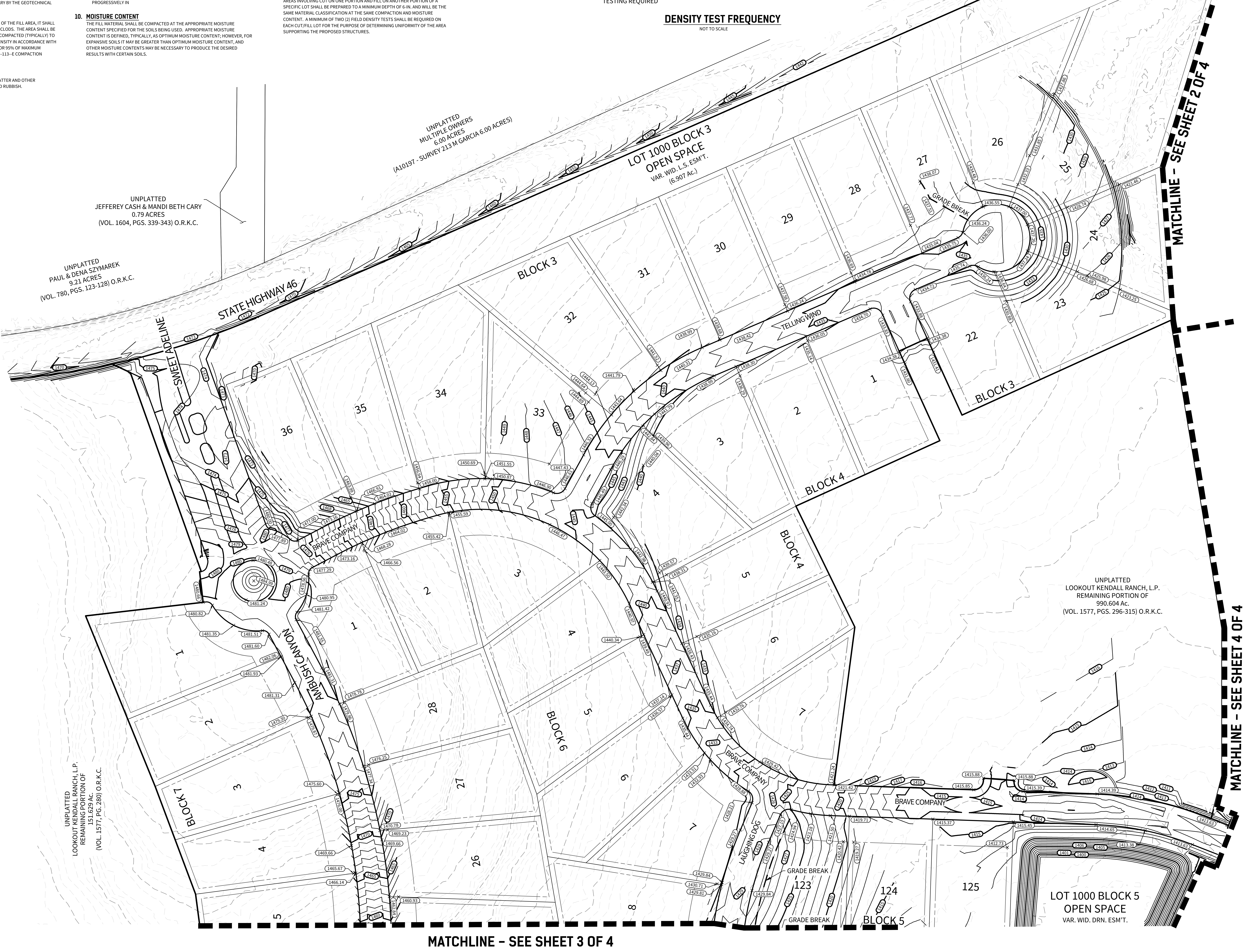

PROPOSED CURB
TOP SOIL
SLAB BACKFILL
TOP OF SLAB
FINAL LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
1st LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
2nd LIFT
3rd LIFT DENSITY TESTING REQUIRED
4th LIFT
5th LIFT DENSITY TESTING REQUIRED
DENSITY TESTING REQUIRED
PREPARED SUBGRADE *(DENSITY TESTING REQUIRED APPROXIMATELY EVERY 150 L.F.)

DENSITY TEST FREQUENCY

NOT TO SCALE





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4122 Pond Hill Road, Suite 101
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P:(210) 681.2951 F: (210) 523.7112

GEORGE'S RANCH
UNIT 1

GRADING PLAN

DATE
03/20/2024

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
1.
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CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

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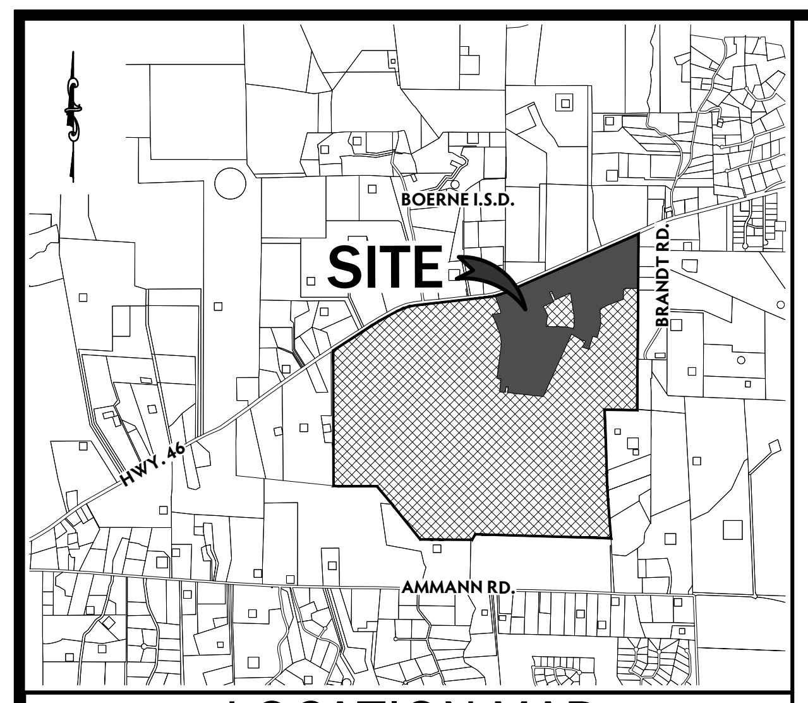

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LEANDER, TEXAS 78641
TEL: (512) 690-4322

LEGEND

PROPOSED CONTOUR	━━(1000)━━
EXISTING CONTOUR	— — — 1000 — — —
GRADE BREAK	━━ ━━━ ━━
LIMITS OF GRADING	— · —— · —— · —
PROPOSED ELEVATION	× (1000.00)
PROPOSED BOTTOM OF WALL ELEVATION	× (1000.00 BW)
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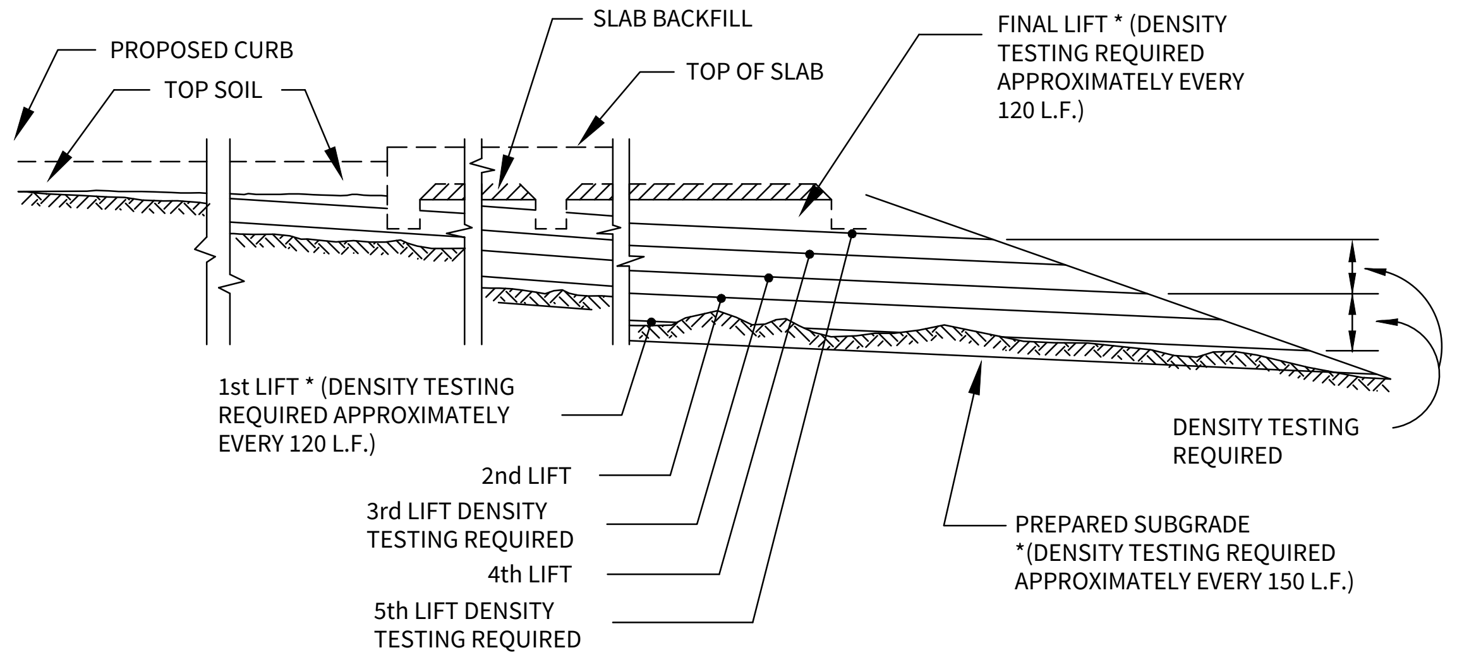
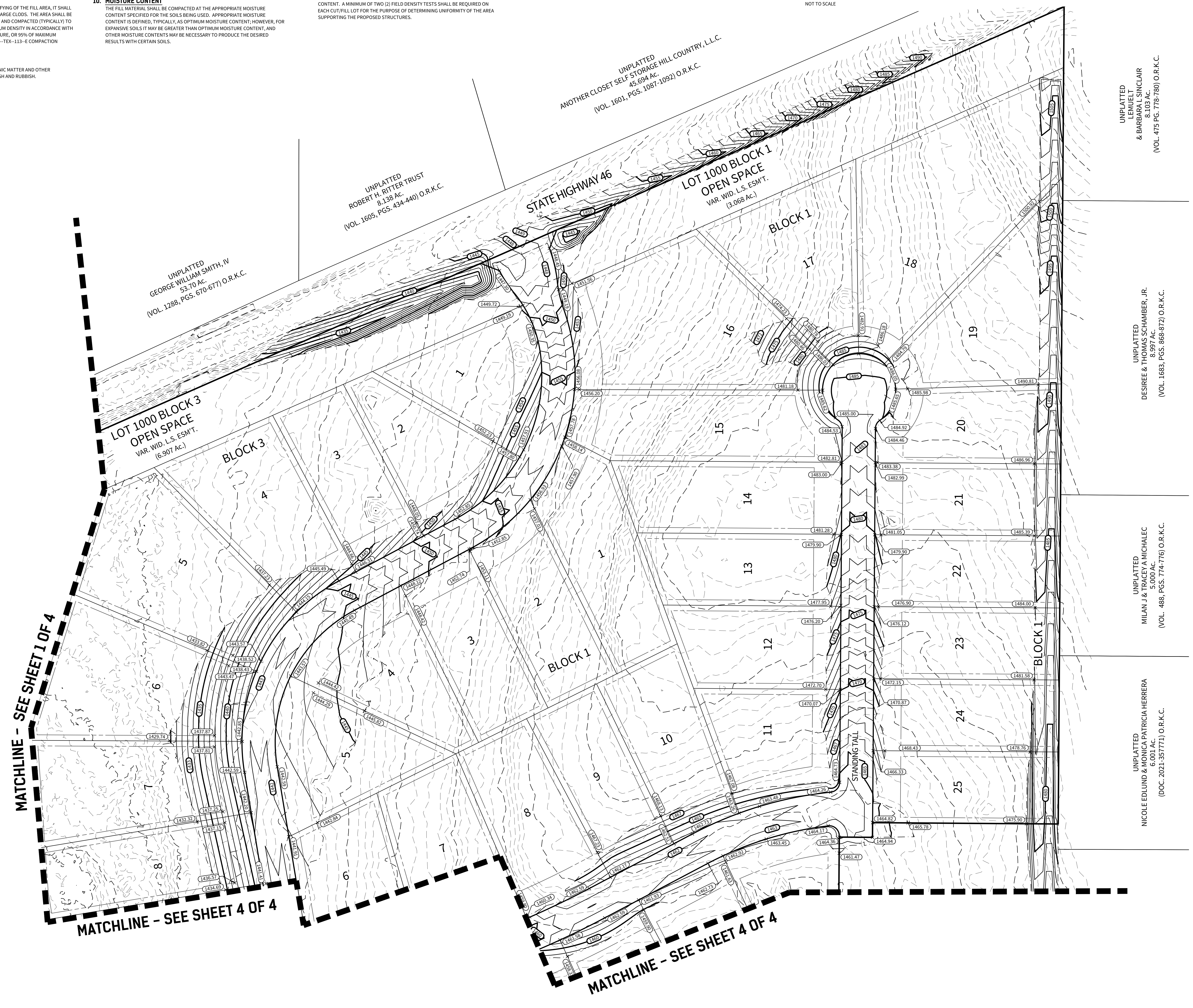

PROPOSED CURB
TOP SOIL
SLAB BACKFILL
TOP OF SLAB
FINAL LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
1st LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
2nd LIFT
3rd LIFT DENSITY TESTING REQUIRED
4th LIFT
5th LIFT DENSITY TESTING REQUIRED
DENSITY TESTING REQUIRED
PREPARED SUBGRADE *(DENSITY TESTING REQUIRED APPROXIMATELY EVERY 150 L.F.)

DENSITY TEST FREQUENCY

NOT TO SCALE

SCALE: 1"=100'
100 50 0 100


UNPLATTED
ANOTHER CLOSET SELF STORAGE HILL COUNTRY, L.L.C.
45.694 Ac.
(VOL. 1601, PGS. 1087-1092) O.R.K.C.
UNPLATTED
ROBERT H. RITTER TRUST
8.138 Ac.
(VOL. 1605, PGS. 434-440) O.R.K.C.
UNPLATTED
GEORGE WILLIAM SMITH, IV
53.70 Ac.
(VOL. 1288, PGS. 670-677) O.R.K.C.
STATE HIGHWAY 46
LOT 1000 BLOCK 1
OPEN SPACE
VAR. WID. L.S. ESM'T.
(3.068 Ac.)
LOT 1000 BLOCK 3
OPEN SPACE
VAR. WID. L.S. ESM'T.
(6.907 Ac.)
BLOCK 1
BLOCK 3
UNPLATTED
LEMUELT
& BARBARA L SINCLAIR
8.103 Ac.
(VOL. 475 PG. 778-780) O.R.K.C.
UNPLATTED
DESIREE & THOMAS SCHAMBER, JR.
8.997 Ac.
(VOL. 1683, PGS. 868-872) O.R.K.C.
UNPLATTED
MILAN J & TRACEY A MICHALEC
5.000 Ac.
(VOL. 488, PGS. 774-776) O.R.K.C.
UNPLATTED
NICOLE EDLUND & MONICA PATRICIA HERRERA
6.001 Ac.
(DOC. 2021-357771) O.R.K.C.
STANDING TALL
MATCHLINE - SEE SHEET 1 OF 4
MATCHLINE - SEE SHEET 4 OF 4
MATCHLINE - SEE SHEET 4 OF 4

CUDEENGINEERS.COM

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CUDE
ENGINEERS

4122 Pond Hill Road, Suite 101
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GEORGE'S RANCH
UNIT 1

GRADING PLAN

DATE	04/22/2022
PROJECT NO.	03546.001
DRAWN BY	AB/RR
CHECKED BY	WPM

REVISIONS
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CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

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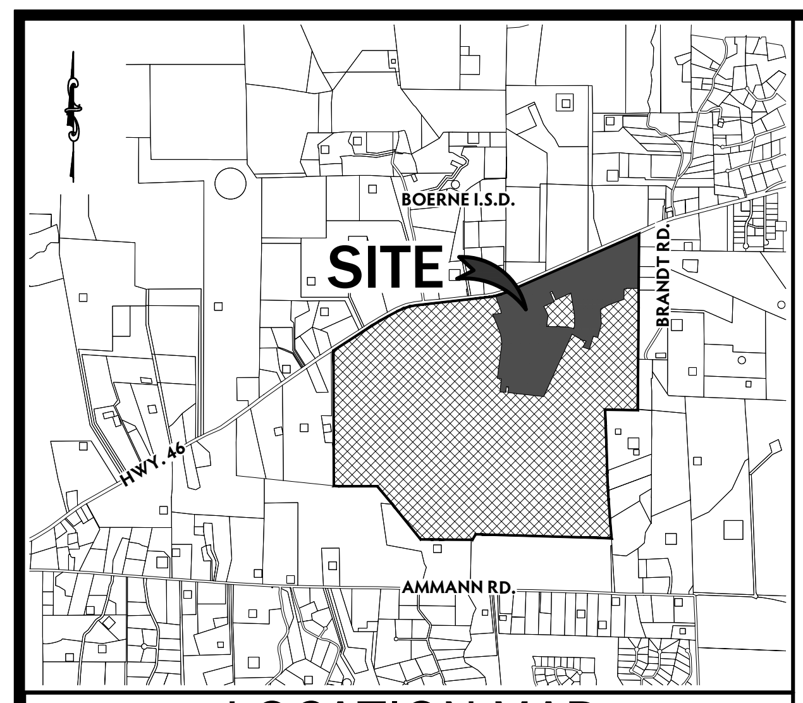

LOCATION MAP

N.T.S.

OWNER/ DEVELOPER:

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CONTACT: MIKE SIEFERT, P.E. PRESIDENT
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LEANDER, TEXAS 78641
TEL: (512) 690-4322

LEGEND

PROPOSED CONTOUR	—(1000)—
EXISTING CONTOUR	— — — 1000 — — —
GRADE BREAK	▬ ▬ ▬
LIMITS OF GRADING	— · — · —
PROPOSED ELEVATION	× (1000.00)
PROPOSED BOTTOM OF WALL ELEVATION	× (1000.00 BW)
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1. GENERAL DESCRIPTION

THIS ITEM SHALL CONSIST OF ALL CLEARING AND GRUBBING, DEMOLITION, PREPARATION OF LAND TO BE FILLED, FILLING OF THE LAND, SPREADING, COMPACTION TESTING AND INSPECTION OF THE FILL, AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE LINES, GRADES AND SLOPES AS SHOWN ON THE APPROVED PLANS.

ALL LOT GRADING MUST MEET REQUIREMENTS OF FHA/HUD HANDBOOK 4140.3, SPECIFICATIONS FOR LAND DEVELOPMENTS ON CONTROLLED EARTHWORK, DATASHEET 79G. HUD 79G REQUIREMENTS FOR FILL MATERIAL OF 6 INCHES AND MORE WILL BE CONDUCTED. ALL CUT AREAS WILL ALSO MEET THE REQUIREMENTS FOR HUD 79G COMPACTION TESTING. IN ADDITION, ENGINEERS MUST PROVIDED VERIFICATION OF ALL AREAS WHICH DO NOT REQUIRE HUD 79G.

2. CLEARING THE AREA TO BE FILLED

ALL TIMBER, LOGS, TREES, BRUSH AND RUBBISH SHALL BE REMOVED FROM THE SITE.

3. SCARIFYING THE AREA TO BE FILLED

ALL ORGANIC MATTER SHALL BE REMOVED FROM THE SURFACE UPON WHICH THE FILL IS TO BE PLACED, AND THE SURFACE SHALL THEN BE DISKED OR SCARIFIED TO A MINIMUM DEPTH OF SIX INCHES (6"), ALL SURFACE RUTS OR OTHER UNEVEN FEATURES WILL BE LEVELED PRIOR TO FIELD DENSITY TESTING. WHERE FILLS ARE MADE ON HILLSIDES OR SLOPES, THE SLOPE OF THE ORIGINAL GROUND UPON WHICH THE FILL IS TO BE PLACED SHALL BE DISKED OR SCARIFIED. WHERE THE SLOPE RATIO OF THE ORIGINAL GROUND IS STEEPER THAN 5 HORIZONTAL TO 1 VERTICAL, THE BANK SHALL BE STEPPED OR BENCHED. GROUND SLOPES WHICH ARE FLATTER THAN 5 TO 1 SHALL BE BENCHED WHEN CONSIDERED NECESSARY BY THE GEOTECHNICAL ENGINEER.

4. COMPACTING THE AREA TO BE FILLED

FOLLOWING THE CLEARING AND DISKING OR SCARIFYING OF THE FILL AREA, IT SHALL BE BLADED UNTIL IT IS UNIFORM AND FREE FROM LARGE CLODS. THE AREA SHALL BE BROUGHT TO THE ADEQUATE MOISTURE CONTENT AND COMPACTED (TYPICALLY) TO NOT LESS THAN NINETY PERCENT (90%) OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CURRENT ASTM D 1557 COMPACTION PROCEDURE, OR 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CURRENT THD--TEX--113--E COMPACTION PROCEDURE.

5. FILL MATERIALS

THE MATERIALS USED SHALL BE FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES, SUCH AS TREES, BRUSH AND RUBBISH.

6. DEPTH AND MIXING OF FILL LAYERS

THE SELECTED FILL MATERIAL SHALL BE PLACED IN LEVEL, UNIFORM LAYERS WHICH, WHEN COMPACTED, SHALL HAVE A DENSITY CONFORMING TO THAT STIPULATED ABOVE. EACH LAYER SHALL BE THOROUGHLY MIXED DURING THE SPREADING TO ENSURE UNIFORMITY OF MATERIAL IN EACH LAYER. COMPACTED LAYER THICKNESS MAY VARY DEPENDING ON THE COMPACTION EQUIPMENT OF DEMONSTRATED CAPABILITY. THE MAXIMUM LOOSE DEPTH FOR ANY MATERIAL SHALL NOT EXCEED TWELVE INCHES (12"). FOR TESTING REQUIREMENTS OF FILL MATERIAL, SEE DENSITY TESTING.

7. ROCK

WHEN FILL MATERIAL INCLUDES ROCK, THE MAXIMUM ROCK SIZE SHALL BE AS APPROVED BY THE GEOTECHNICAL ENGINEER. NO LARGE ROCKS SHALL BE ALLOWED TO NEST AND ALL VOIDS MUST BE FILLED WITH SMALL STONES OR SOIL AND ADEQUATELY COMPACTED. NO LARGE ROCKS WILL BE PERMITTED WITHIN EIGHTEEN INCHES (18") OF THE FINISHED GRADE.

8. COMPACTION OF FILL LAYER

COMPACTION EQUIPMENT SHALL BE CAPABLE OF COMPACTING THE FILL TO THE SPECIFIED DENSITY. COMPACTION SHALL BE ACCOMPLISHED WHILE THE FILL MATERIAL IS AT OR NEAR THE APPROPRIATE MOISTURE CONTENT. COMPACTION OF EACH LAYER SHALL BE CONTINUOUS OVER THE ENTIRE STRUCTURAL AREA (BENEATH PROPOSED STRUCTURES).

9. COMPACTION OF SLOPES

THE FACES OF FILL SLOPES SHALL BE COMPACTED. COMPACTING OPERATIONS SHALL BE CONTINUED UNTIL THE SLOPE FACES ARE STABLE BUT NOT TOO DENSE FOR PLANTING ON THE SLOPES. COMPACTION OF THE SLOPE FACES MAY BE DONE PROGRESSIVELY IN

10. MOISTURE CONTENT

THE FILL MATERIAL SHALL BE COMPACTED AT THE APPROPRIATE MOISTURE CONTENT SPECIFIED FOR THE SOILS BEING USED. APPROPRIATE MOISTURE CONTENT IS DEFINED, TYPICALLY, AS OPTIMUM MOISTURE CONTENT; HOWEVER, FOR EXPANSIVE SOILS IT MAY BE GREATER THAN OPTIMUM MOISTURE CONTENT, AND OTHER MOISTURE CONTENTS MAY BE NECESSARY TO PRODUCE THE DESIRED RESULTS WITH CERTAIN SOILS.

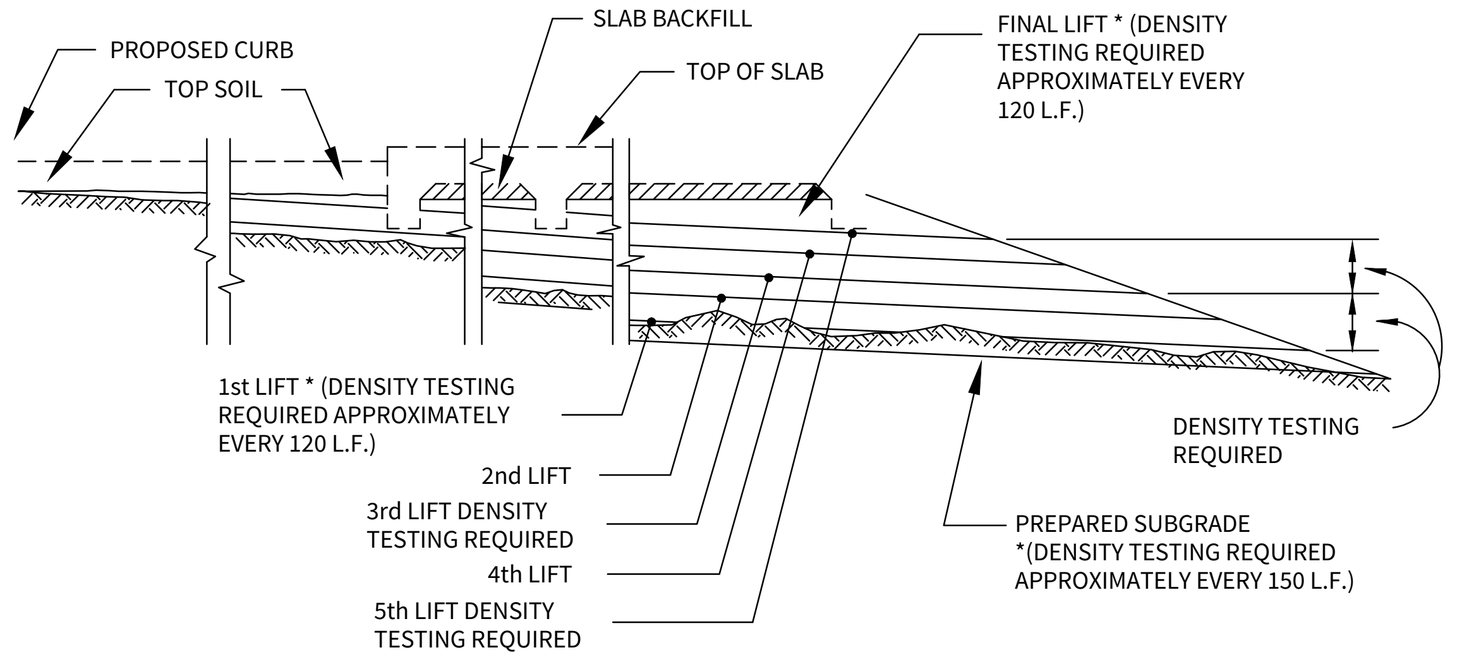
11. DENSITY TESTS

FIELD DENSITY TESTS SHALL BE PERFORMED ON LAYERS OF FILL WHEN THE FILL IS BEING PLACED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE MAXIMUM FILL HEIGHT BETWEEN DENSITY TESTING SHALL BE EIGHTEEN INCHES (18"). ALL TESTING SHALL BE REQUESTED BY THE CONTRACTOR TO MEET THE CONTRACTOR'S CONSTRUCTION SCHEDULE. NOTIFICATION BY THE CONTRACTOR TO CONDUCT TESTS SHALL BE AT LEAST THE DAY BEFORE. THIS NOTIFICATION SHALL INCLUDE THE FILL AREA LOCATION (LOT AND BLOCK), THE LIFT OR HEIGHT OF FILL AND APPROXIMATE DESIRED TIME OF TESTING. WHEN THESE TESTS INDICATE THAT THE DENSITY OF ANY LAYER OF FILL OR PORTION THEREOF IS BELOW THE REQUIRED DENSITY, THE PARTICULAR LAYER OR PORTION SHALL BE REWORKED AND RETESTED AT THE EXPENSE OF THE CONTRACTOR UNLESS THE CONTRACTOR CAN SHOW EVIDENCE THAT CIRCUMSTANCES BEYOND HIS CONTROL REQUIRED THE RETESTING. GENERALLY, THE SPECIFIC TESTING WILL BE AS FOLLOWS AND CONDUCTED BY GEOTECHNICAL ENGINEER.

1.THE LAND TO BE FILLED (PREPARED SUBGRADE) SHALL BE PREPARED AND TESTED AT FREQUENCY AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
2.THE FIRST LIFT OF COMPACTED FILL (GENERALLY 8 TO 12-IN.) SHALL BE TESTED AS DETERMINED BY THE GEOTECHNICAL ENGINEER. ANY AREAS SUPPORTING THE PROPOSED STRUCTURES REQUIRING FILL SHALL BE TESTED FOR DENSITY COMPLIANCE.
3.FILLS SHALL BE TESTED A MAXIMUM OF EACH EIGHTEEN INCHES (18") OF FILL.
4.TEST RESULTS WILL BE PROVIDED BY THE FIELD TECHNICIAN TO THE CONTRACTOR WHEN POSSIBLE; HOWEVER, ALL TEST RESULTS ARE TO BE REVIEWED BY THE GEOTECHNICAL ENGINEER FOR COMPLIANCE. THE ENGINEER WILL NOTIFY THE CONTRACTOR OF ALL TEST RESULTS.

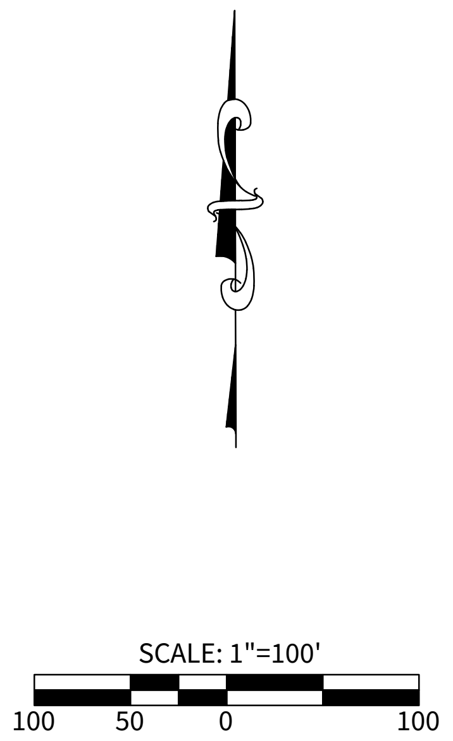
12. CUT/FILL LOTS

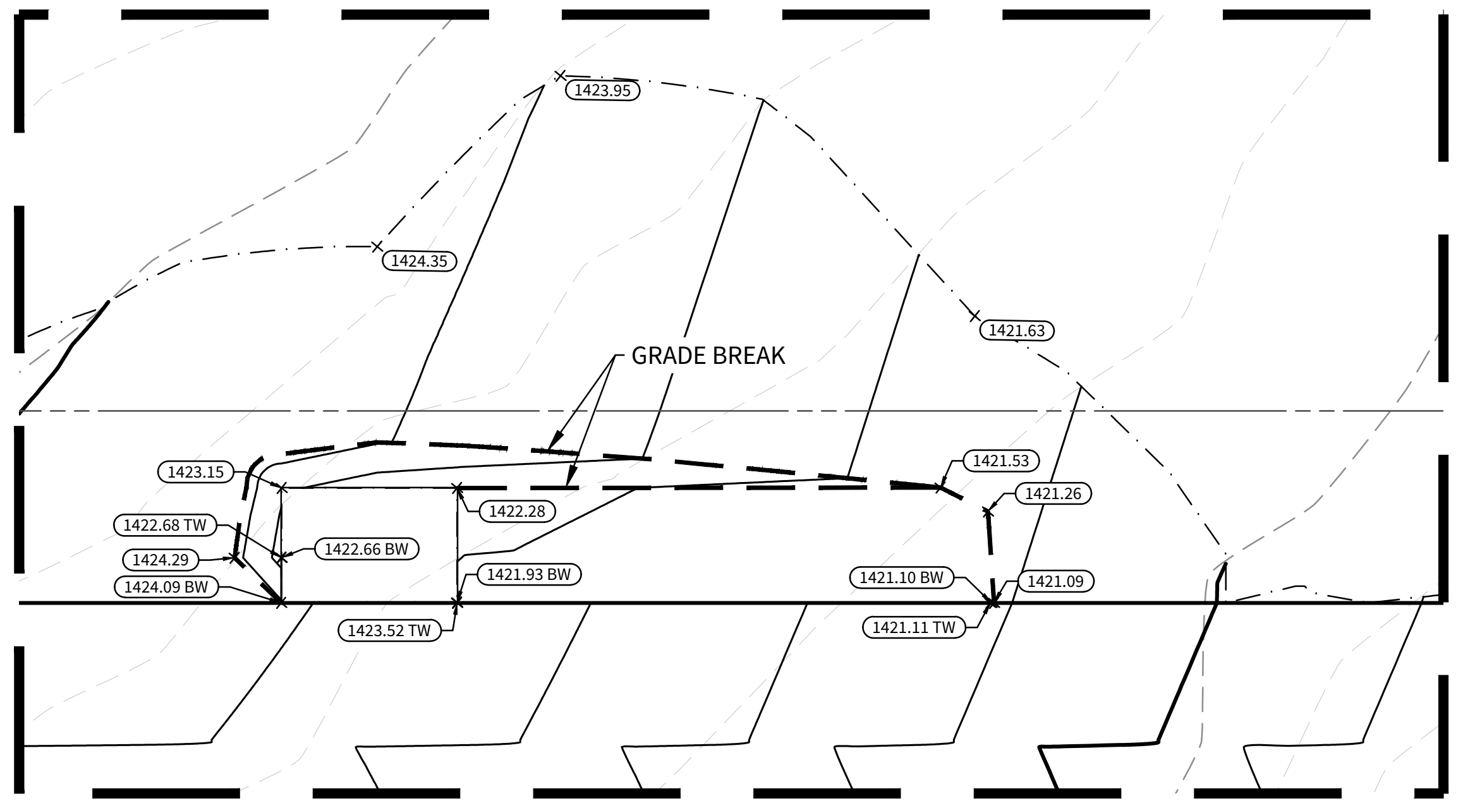
AREAS INVOLVING CUT ON ONE PORTION AND FILL ON ANOTHER PORTION OF A SPECIFIC LOT SHALL BE PREPARED TO A MINIMUM DEPTH OF 6-IN. AND WILL BE THE SAME MATERIAL CLASSIFICATION AT THE SAME COMPACTION AND MOISTURE CONTENT. A MINIMUM OF TWO (2) FIELD DENSITY TESTS SHALL BE REQUIRED ON EACH CUT/FILL LOT FOR THE PURPOSE OF DETERMINING UNIFORMITY OF THE AREA SUPPORTING THE PROPOSED STRUCTURES.


PROPOSED CURB
TOP SOIL
SLAB BACKFILL
TOP OF SLAB
FINAL LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
1st LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
2nd LIFT
3rd LIFT DENSITY TESTING REQUIRED
4th LIFT
5th LIFT DENSITY TESTING REQUIRED
DENSITY TESTING REQUIRED
PREPARED SUBGRADE *(DENSITY TESTING REQUIRED APPROXIMATELY EVERY 150 L.F.)

DENSITY TEST FREQUENCY

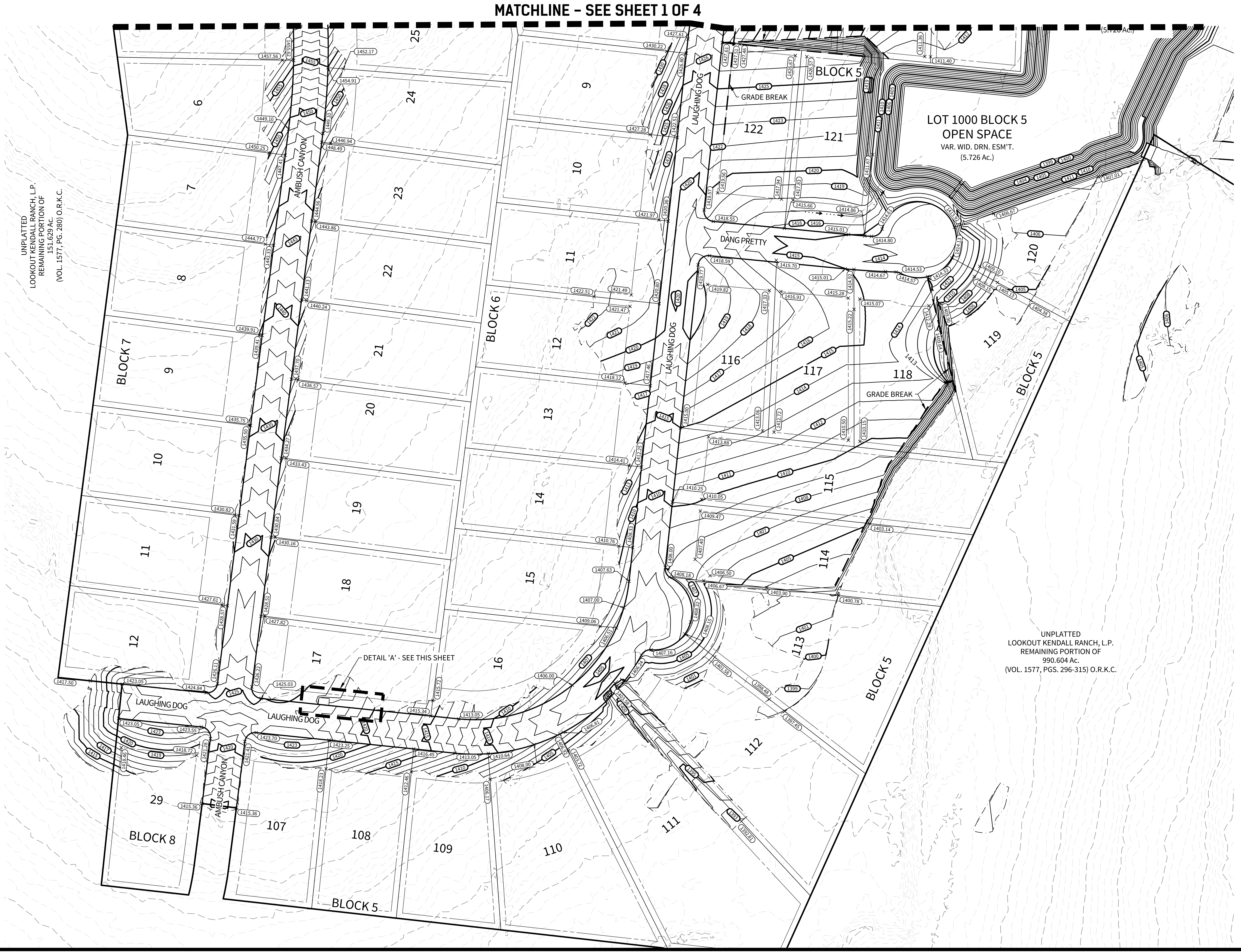
NOT TO SCALE





DETAIL 'A'

1"=20'


MATCHLINE - SEE SHEET 1 OF 4
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 151.629 Ac. (VOL. 1577, PG. 280) O.R.K.C.
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 990.604 Ac. (VOL. 1577, PGS. 296-315) O.R.K.C.
LOT 1000 BLOCK 5 OPEN SPACE VAR. WID. DRN. ESM'T. (5.726 Ac.)
(5.726 Ac.)
AMBUSH CANYON
LAUGHING DOG
DANG PRETTY
GRADE BREAK
DETAIL 'A' - SEE THIS SHEET
BLOCK 5
BLOCK 6
BLOCK 7
BLOCK 8
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ENGINEERS

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

GEORGE'S RANCH UNIT 1

GRADING PLAN

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
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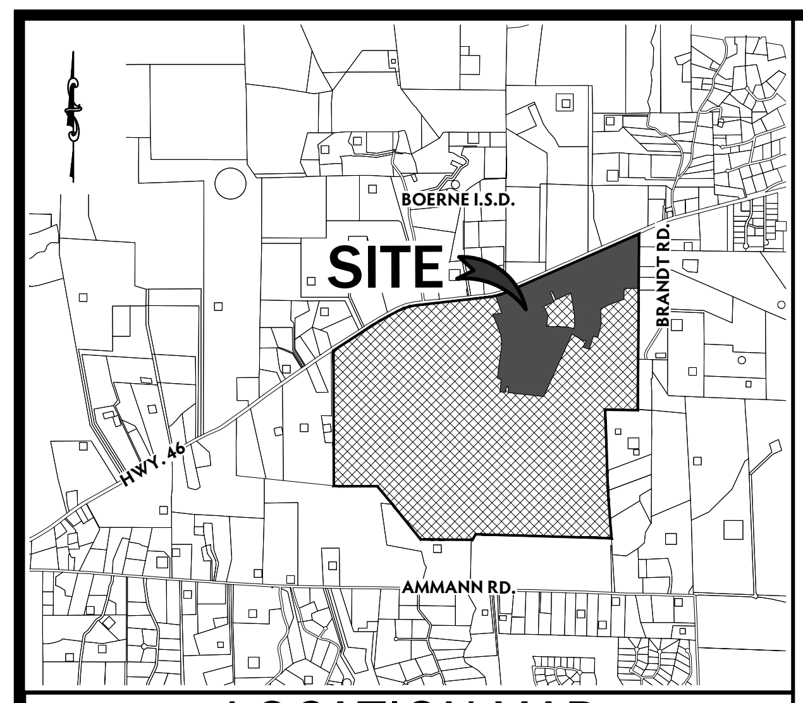
CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

C68

3 OF 4

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.

OWNER/ DEVELOPER:
THE LOOKOUT DEVELOPMENT GROUP
CONTACT: MIKE SIEFERT, P.E. PRESIDENT
1001 CRYSTAL FALLS PARKWAY
LEANDER, TEXAS 78641
TEL: (512) 690-4322

LEGEND

PROPOSED CONTOUR	—— 1000 ——
EXISTING CONTOUR	— — 1000 — —
GRADE BREAK	—— —— ——
LIMITS OF GRADING	— · — · —
PROPOSED ELEVATION	× 1000.00
PROPOSED BOTTOM OF WALL ELEVATION	× 1000.00 BW
PROPOSED TOP OF WALL ELEVATION	× 1000.00 TW

NOTES:
CONTOURS SHOWN ON STREET ARE TO TOP OF STREET.

GENERAL SPECIFICATIONS FOR SITE PREPARATION

1. GENERAL DESCRIPTION
THIS ITEM SHALL CONSIST OF ALL CLEARING AND GRUBBING, DEMOLITION, PREPARATION OF LAND TO BE FILLED, FILLING OF THE LAND, SPREADING, COMPACTION TESTING AND INSPECTION OF THE FILL, AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE LINES, GRADES AND SLOPES AS SHOWN ON THE APPROVED PLANS.

ALL LOT GRADING MUST MEET REQUIREMENTS OF FHA/HUD HANDBOOK 4140.3, SPECIFICATIONS FOR LAND DEVELOPMENTS ON CONTROLLED EARTHWORK, DATASHEET 79G. HUD 79G REQUIREMENTS FOR FILL MATERIAL OF 6 INCHES AND MORE WILL BE CONDUCTED. ALL CUT AREAS WILL ALSO MEET THE REQUIREMENTS FOR HUD 79G COMPACTION TESTING. IN ADDITION, ENGINEERS MUST PROVIDED VERIFICATION OF ALL AREAS WHICH DO NOT REQUIRE HUD 79G.

2. CLEARING THE AREA TO BE FILLED
ALL TIMBER, LOGS, TREES, BRUSH AND RUBBISH SHALL BE REMOVED FROM THE SITE.

3. SCARIFYING THE AREA TO BE FILLED
ALL ORGANIC MATTER SHALL BE REMOVED FROM THE SURFACE UPON WHICH THE FILL IS TO BE PLACED, AND THE SURFACE SHALL THEN BE DISKED OR SCARIFIED TO A MINIMUM DEPTH OF SIX INCHES (6"), ALL SURFACE RUTS OR OTHER UNEVEN FEATURES WILL BE LEVELED PRIOR TO FIELD DENSITY TESTING. WHERE FILLS ARE MADE ON HILLSIDES OR SLOPES, THE SLOPE OF THE ORIGINAL GROUND UPON WHICH THE FILL IS TO BE PLACED SHALL BE DISKED OR SCARIFIED. WHERE THE SLOPE RATIO OF THE ORIGINAL GROUND IS STEEPER THAN 5 HORIZONTAL TO 1 VERTICAL, THE BANK SHALL BE STEPPED OR BENCHED. GROUND SLOPES WHICH ARE FLATTER THAN 5 TO 1 SHALL BE BENCHED WHEN CONSIDERED NECESSARY BY THE GEOTECHNICAL ENGINEER.

4. COMPACTING THE AREA TO BE FILLED
FOLLOWING THE CLEARING AND DISKING OR SCARIFYING OF THE FILL AREA, IT SHALL BE BLADED UNTIL IT IS UNIFORM AND FREE FROM LARGE CLODS. THE AREA SHALL BE BROUGHT TO THE ADEQUATE MOISTURE CONTENT AND COMPACTED (TYPICALLY) TO NOT LESS THAN NINETY PERCENT (90%) OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CURRENT ASTM D 1557 COMPACTION PROCEDURE, OR 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CURRENT THD--TEX--113--E COMPACTION PROCEDURE.

5. FILL MATERIALS
THE MATERIALS USED SHALL BE FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES, SUCH AS TREES, BRUSH AND RUBBISH.

6. DEPTH AND MIXING OF FILL LAYERS
THE SELECTED FILL MATERIAL SHALL BE PLACED IN LEVEL, UNIFORM LAYERS WHICH, WHEN COMPACTED, SHALL HAVE A DENSITY CONFORMING TO THAT STIPULATED ABOVE. EACH LAYER SHALL BE THOROUGHLY MIXED DURING THE SPREADING TO ENSURE UNIFORMITY OF MATERIAL IN EACH LAYER. COMPACTED LAYER THICKNESS MAY VARY DEPENDING ON THE COMPACTION EQUIPMENT OF DEMONSTRATED CAPABILITY. THE MAXIMUM LOOSE DEPTH FOR ANY MATERIAL SHALL NOT EXCEED TWELVE INCHES (12"). FOR TESTING REQUIREMENTS OF FILL MATERIAL, SEE DENSITY TESTING.

7. ROCK
WHEN FILL MATERIAL INCLUDES ROCK, THE MAXIMUM ROCK SIZE SHALL BE AS APPROVED BY THE GEOTECHNICAL ENGINEER. NO LARGE ROCKS SHALL BE ALLOWED TO NEST AND ALL VOIDS MUST BE FILLED WITH SMALL STONES OR SOIL AND ADEQUATELY COMPACTED. NO LARGE ROCKS WILL BE PERMITTED WITHIN EIGHTEEN INCHES (18") OF THE FINISHED GRADE.

8. COMPACTION OF FILL LAYER
COMPACTION EQUIPMENT SHALL BE CAPABLE OF COMPACTING THE FILL TO THE SPECIFIED DENSITY. COMPACTION SHALL BE ACCOMPLISHED WHILE THE FILL MATERIAL IS AT OR NEAR THE APPROPRIATE MOISTURE CONTENT. COMPACTION OF EACH LAYER SHALL BE CONTINUOUS OVER THE ENTIRE STRUCTURAL AREA (BENEATH PROPOSED STRUCTURES).

9. COMPACTION OF SLOPES
THE FACES OF FILL SLOPES SHALL BE COMPACTED. COMPACTING OPERATIONS SHALL BE CONTINUED UNTIL THE SLOPE FACES ARE STABLE BUT NOT TOO DENSE FOR PLANTING ON THE SLOPES. COMPACTION OF THE SLOPE FACES MAY BE DONE PROGRESSIVELY IN

10. MOISTURE CONTENT
THE FILL MATERIAL SHALL BE COMPACTED AT THE APPROPRIATE MOISTURE CONTENT SPECIFIED FOR THE SOILS BEING USED. APPROPRIATE MOISTURE CONTENT IS DEFINED, TYPICALLY, AS OPTIMUM MOISTURE CONTENT; HOWEVER, FOR EXPANSIVE SOILS IT MAY BE GREATER THAN OPTIMUM MOISTURE CONTENT, AND OTHER MOISTURE CONTENTS MAY BE NECESSARY TO PRODUCE THE DESIRED RESULTS WITH CERTAIN SOILS.

11. DENSITY TESTS
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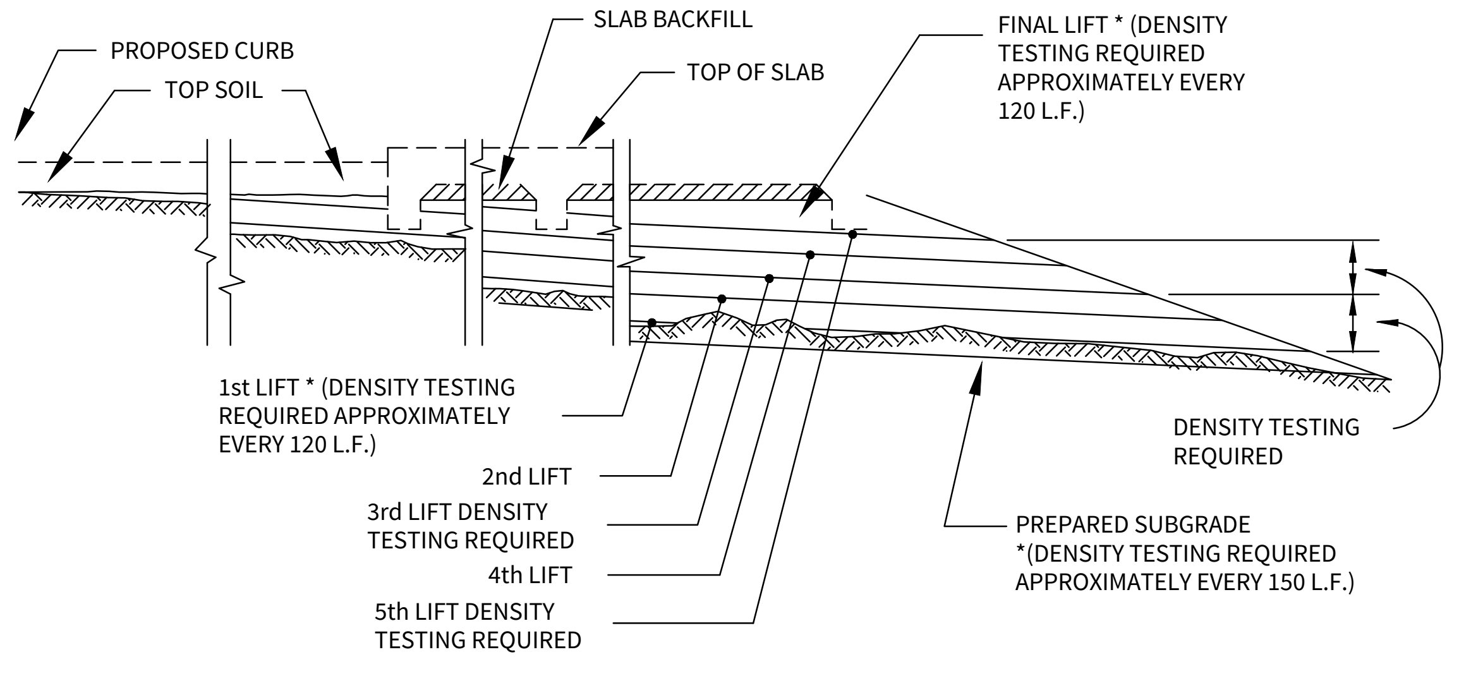
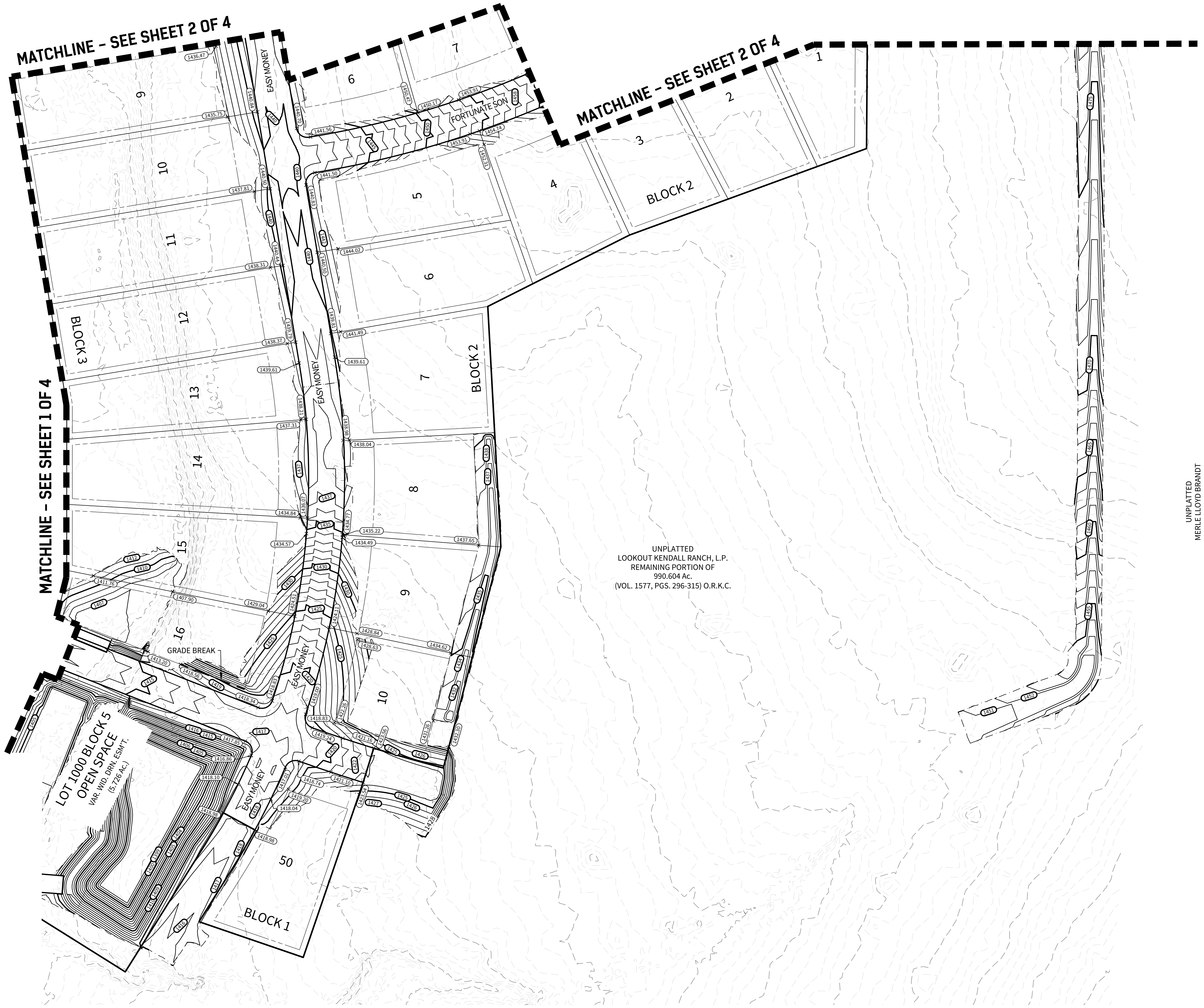
1.THE LAND TO BE FILLED (PREPARED SUBGRADE) SHALL BE PREPARED AND TESTED AT FREQUENCY AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
2.THE FIRST LIFT OF COMPACTED FILL (GENERALLY 8 TO 12-IN.) SHALL BE TESTED AS DETERMINED BY THE GEOTECHNICAL ENGINEER. ANY AREAS SUPPORTING THE PROPOSED STRUCTURES REQUIRING FILL SHALL BE TESTED FOR DENSITY COMPLIANCE.
3.FILLS SHALL BE TESTED A MAXIMUM OF EACH EIGHTEEN INCHES (18") OF FILL.
4.TEST RESULTS WILL BE PROVIDED BY THE FIELD TECHNICIAN TO THE CONTRACTOR WHEN POSSIBLE; HOWEVER, ALL TEST RESULTS ARE TO BE REVIEWED BY THE GEOTECHNICAL ENGINEER FOR COMPLIANCE. THE ENGINEER WILL NOTIFY THE CONTRACTOR OF ALL TEST RESULTS.

12. CUT/FILL LOTS
AREAS INVOLVING CUT ON ONE PORTION AND FILL ON ANOTHER PORTION OF A SPECIFIC LOT SHALL BE PREPARED TO A MINIMUM DEPTH OF 6-IN. AND WILL BE THE SAME MATERIAL CLASSIFICATION AT THE SAME COMPACTION AND MOISTURE CONTENT. A MINIMUM OF TWO (2) FIELD DENSITY TESTS SHALL BE REQUIRED ON EACH CUT/FILL LOT FOR THE PURPOSE OF DETERMINING UNIFORMITY OF THE AREA SUPPORTING THE PROPOSED STRUCTURES.


PROPOSED CURB
TOP SOIL
SLAB BACKFILL
TOP OF SLAB
FINAL LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
1st LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
2nd LIFT
3rd LIFT DENSITY TESTING REQUIRED
4th LIFT
5th LIFT DENSITY TESTING REQUIRED
DENSITY TESTING REQUIRED
PREPARED SUBGRADE *(DENSITY TESTING REQUIRED APPROXIMATELY EVERY 150 L.F.)

DENSITY TEST FREQUENCY
NOT TO SCALE

SCALE: 1"=100'
100 50 0 100


MATCHLINE - SEE SHEET 2 OF 4
MATCHLINE - SEE SHEET 2 OF 4
MATCHLINE - SEE SHEET 1 OF 4
EASY MONEY
FORTUNATE SON
BLOCK 3
BLOCK 2
BLOCK 2
BLOCK 1
GRADE BREAK
LOT 1000 BLOCK 5 OPEN SPACE VAR. WID. DRN. ESMT. (5.226 Ac.)
UNPLATTED LOOKOUT KENDALL RANCH, L.P. REMAINING PORTION OF 990.604 Ac. (VOL. 1577, PGS. 296-315) O.R.K.C.
UNPLATTED MERLE LLOYD BRANDT 97.358 ACRES (VOL. 241, PG. 22-26) O.R.K.C.

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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

GEORGE'S RANCH
UNIT 1
GRADING PLAN

DATE
04/22/2022

PROJECT NO.
03546.001

DRAWN BY
AB/RR

CHECKED BY
WPM

REVISIONS
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CUDE ENGINEERS
TBPE No. 455

PLAT NO.
N/A

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4 OF 4

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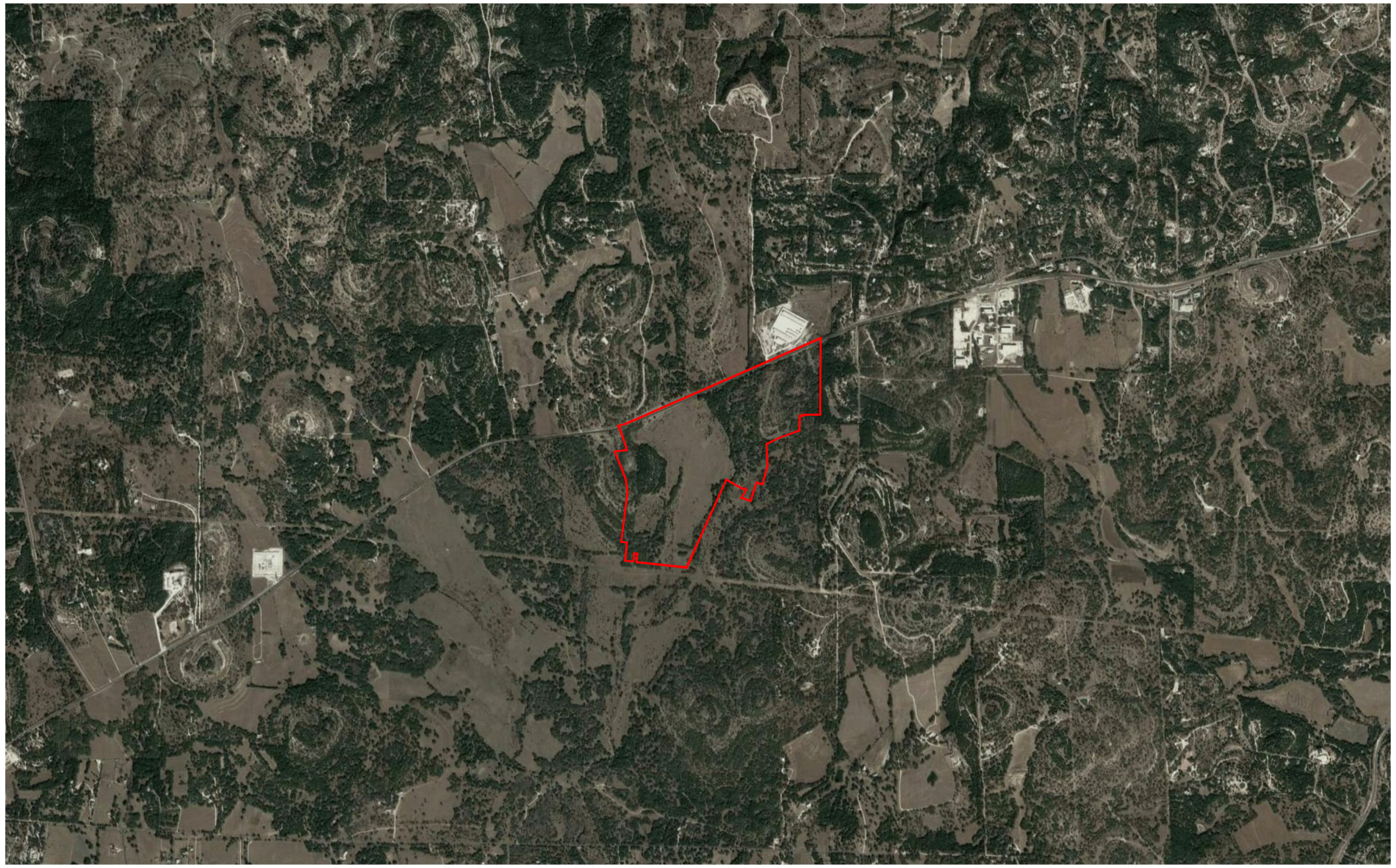
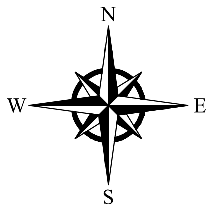
LOOKOUT BOERNE HOLDINGS, L.P.

GEORGE'S RANCH UNIT 1
UNDERGROUND ELECTRICAL PLANS





GENERAL DRAWINGS

E0	PROJECT COVER SHEET AND DRAWING LIST
E1	MASTER PLAN
E2	DRAWING MAP KEY
E3	UNDERGROUND ELECTRICAL LAYOUT (SHEET 1 OF 3)
E4	UNDERGROUND ELECTRICAL LAYOUT (SHEET 2 OF 3)
E5	UNDERGROUND ELECTRICAL LAYOUT (SHEET 3 OF 3)
E6	PEC UNDERGROUND DETAILS (SHEET 1 OF 2)
E7	PEC UNDERGROUND DETAILS (SHEET 2 OF 2)

REV LIST:

△1 REVISION 1: E0, E4, E5

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: 10-03-22
FOR CONSTRUCTION

CHRISTOPHER T. HARPER
106036

Chris Harper
Digitally signed by Chris Harper
DN: cn=Chris Harper, o=Schneider Engineering, LTD., email=charper@se-texas.com, c=US
Date: 2024.05.06 08:56:49 -05'00'

1	04–15–24	REVISION 1	GLS	CTH	CTH						
NO	DATE	REVISION	BY	CHK	APPD	NO	DATE	REVISION	BY	CHK	APPD

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	DATE	BY
DRWN	12–14–21	CJB
CHK	10–03–22	CTH
APPD	10–03–22	CTH

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TEXAS REGISTRATION NUMBER F-1594

SCHNEIDER ENGINEERING

CUDE ENGINEERS

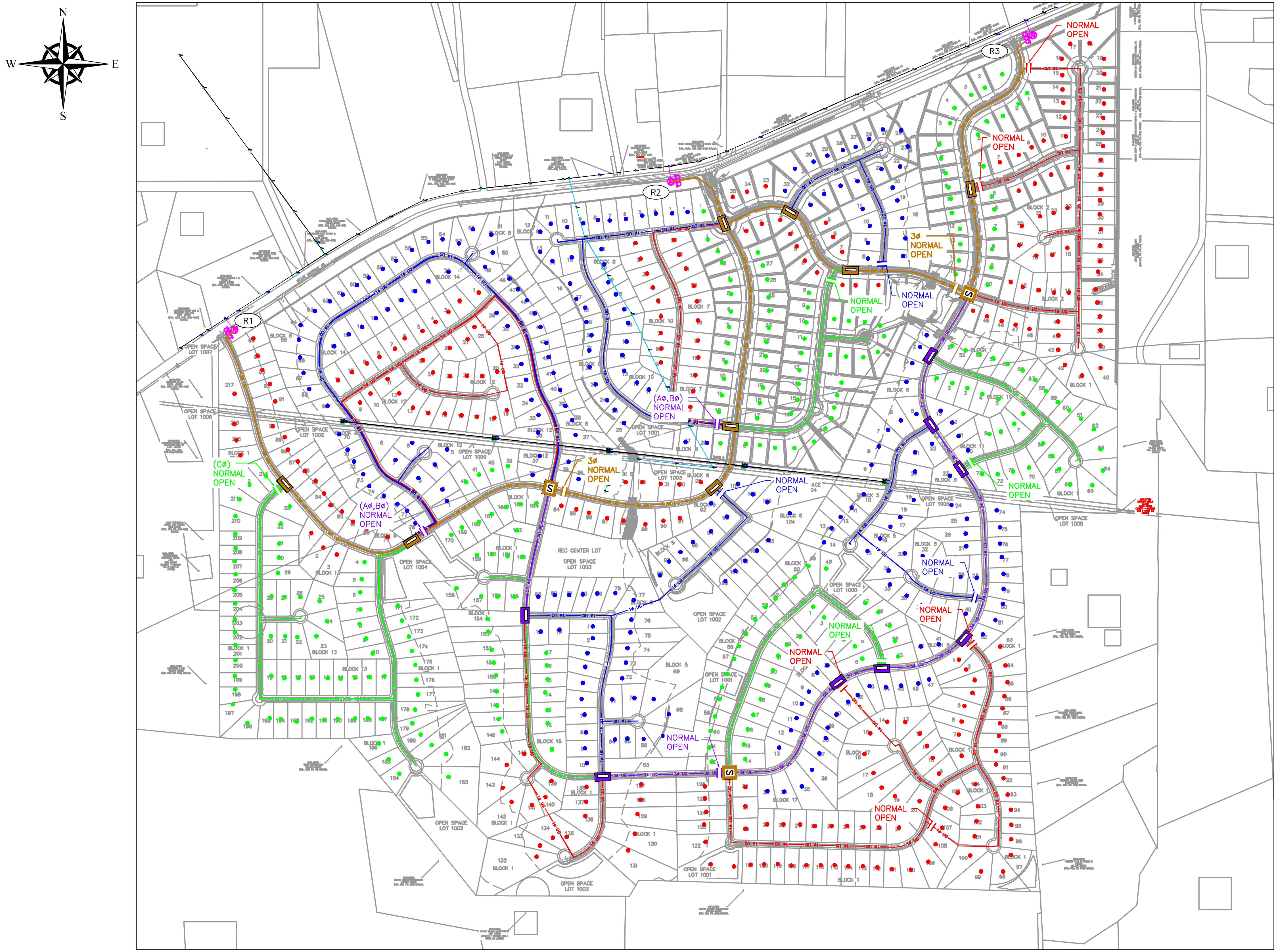
GEORGE'S RANCH UNIT 1

PROJECT COVER SHEET AND DRAWING LIST

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

DRAWING NO. E0

09/30/2022 2:27 PM * gshivener * N:\CUDE\21CUDE3205 George's Ranch Unit 1\Drawings\Plan View\E0 – George's Ranch U1 Cover Sheet.dwg



PHASE DISTRIBUTION

RISER 1:

AØ	BØ	CØ
74	117	108

RISER 2:

AØ	BØ	CØ
50	65	54

RISER 3:

AØ	BØ	CØ
139	77	98

TOTAL:

AØ	BØ	CØ
263	259	260

LEGEND

SERVICE PHASING
🟥 AØ SERVICE
🟦 BØ SERVICE
🟩 CØ SERVICE

UNDERGROUND		OVERHEAD
—3Ø UG—	EXISTING 3Ø	—3Ø OH—
—3Ø UG—	REMOVAL 3Ø	—3Ø OH—
—3Ø UG—	PROPOSED 3Ø	—3Ø OH—
—1Ø UG—	EXISTING 1Ø	—1Ø OH—
—1Ø UG—	REMOVAL 1Ø	—1Ø OH—
—1Ø UG—	PROPOSED AØ	—1Ø OH—
—1Ø UG—	PROPOSED BØ	—1Ø OH—
—1Ø UG—	PROPOSED CØ	—1Ø OH—

09/30/2022 2:27 PM * gshivener * N:\CUDE\21CUDE3205 George's Ranch Unit 1\Drawings\Plan View\E1 – George's Ranch U1 Master Plan.dwg

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: 10-03-22
FOR CONSTRUCTION

CHRISTOPHER T. HARPER
106036

Digitally signed by Chris Harper
DN: cn=Chris Harper, o=Schneider Engineering, LTD., email=charper@se-texas.com, c=US
Date: 2024.05.06 08:57:22 -05'00'

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

21CUDE3205

	DATE	BY
DRWN	12–14–21	CJB
CHK	10–03–22	CTH
APPD	10–03–22	CTH

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TEXAS REGISTRATION NUMBER F-1594

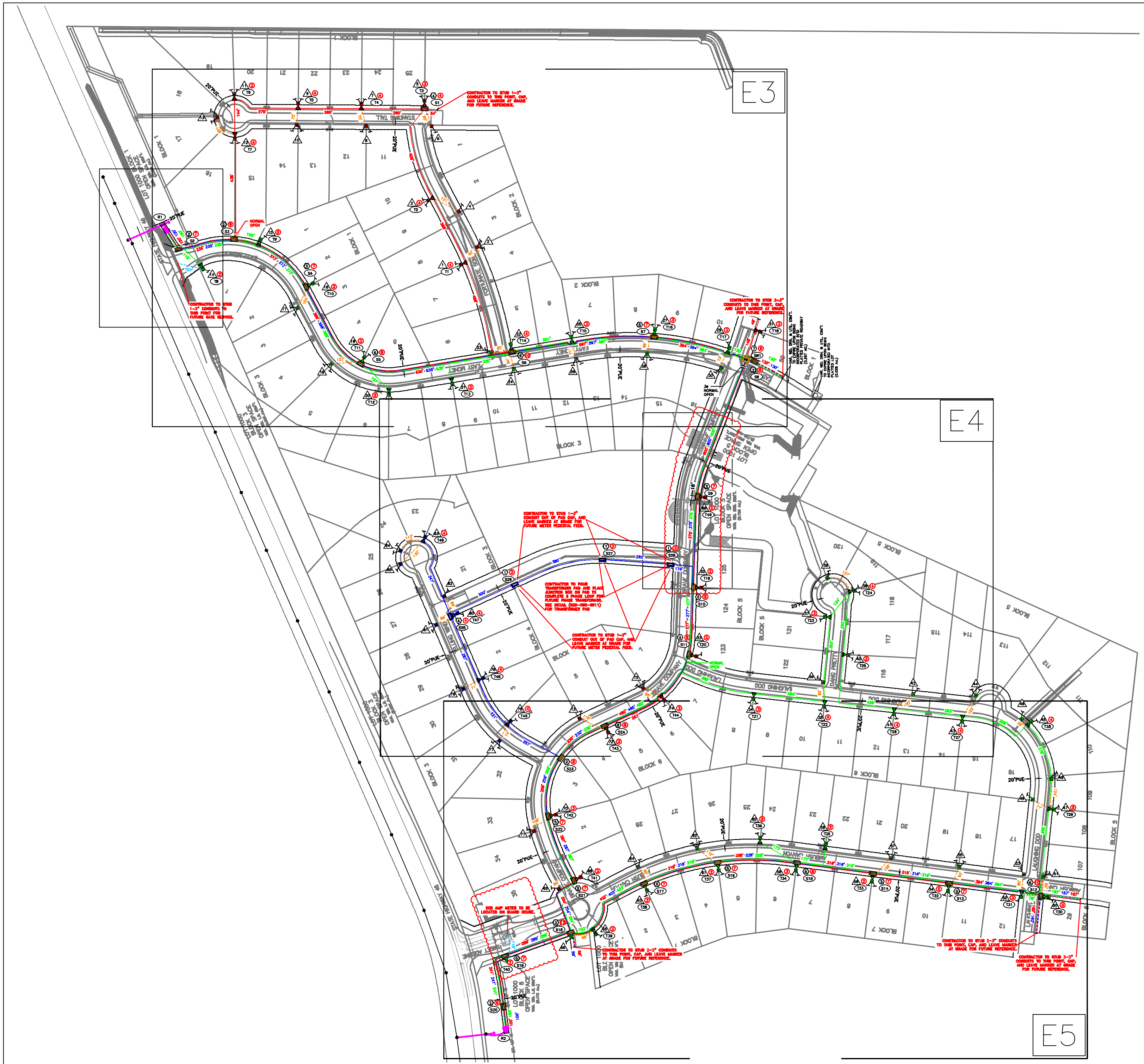
SCHNEIDER ENGINEERING

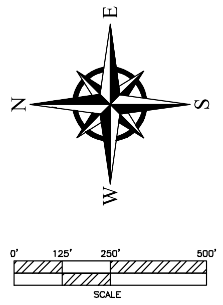
CUDE ENGINEERS
GEORGE'S RANCH UNIT 1

MASTER PLAN

SCALE FOR 34 x 22 DWG
1" = 500'

DRAWING NO.
E1


E3
E4
E5
BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
BLOCK 6
BLOCK 7
BLOCK 8
BLOCK 9
CONTRACTOR TO STUB 1–3" CONDUITS TO THIS POINT, CAP, AND LEAVE MARKER AT GRADE FOR FUTURE REFERENCE.
NORMAL OPEN



SYMBOLS

	POLE	RISER	TRANSFORMER
PROPOSED	●	⊗	◁
EXISTING	●	⊗	◁
REMOVAL	●	⊗	◁

S PROPOSED 3ø SWITCHGEAR

3ø SMALL SECTIONALIZING BOX

3ø LARGE SECTIONALIZING BOX

1ø OR 3ø COMBINATION PADS (COLOR BY PHASE AND SIZE)

NEW 200A 1ø SECTIONALIZING BOX
A PHASE B PHASE C PHASE

NEW 1ø TRANSFORMER (120/240)
A PHASE B PHASE C PHASE

NUMBER OF CONDUITS EXITING

METER PEDESTAL
A PHASE B PHASE C PHASE

LABELS

SW#	SWITCHGEAR NO.
S#	SECTIONALIZING BOX NO.
T#	TRANSFORMER NO.
R#	RISER NO.
X	SECONDARY PEDESTAL NO.

LEGEND

Aø Bø Cø	PRIMARY: 1/0 AL W/ FULL CONCENTRIC JACKETED NEUTRAL, 25 kV, XLPE, 260 MIL INSUL. IN 3" MIN. PVC SCH. 40, ELECT. CONDUIT
100'	POINT TO POINT DISTANCE (COLOR BY PHASE)
- - - -	350 MCM AL, 600V, TRIPLEX IN 3" MIN. PVC SCH 40, ELECT. CONDUIT
- - - -	#10 CU, THHN, 600V IN 3" CONDUITS (3 EA. SERVICE FOR GATE)
- - - →	VACANT Aø(EMPTY) 2" CONDUIT OR AS SPECIFIED VACANT Bø(EMPTY) 2" CONDUIT OR AS SPECIFIED VACANT Cø(EMPTY) 2" CONDUIT OR AS SPECIFIED EXISTING VACANT (EMPTY) 2" CONDUIT OR AS SPECIFIED
——	EXISTING UNDERGROUND ELECTRIC
-------	ELECTRICAL UTILITY EASEMENT

GENERAL NOTES:

1. ALL SECONDARY CONDUIT SHALL BE SCHEDULE 40 3" PVC.
2. ALL PRIMARY CONDUIT SHALL BE SCHEDULE 40 3" PVC PER LEGEND.
3. CONSTRUCTION SHALL TAG AND CODE CABLE IN THE FIELD TO IDENTIFY PHASES.
4. ALL PRIMARY CABLE SHALL BE #1/0 AL 25 kV.
5. 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 CABINETS ARE WITHIN 10 FEET OF EACH OTHER A #2 CU. SOLID BARE WIRE SHALL TIE ALL GROUND RODS TOGETHER.
6. SECTIONALIZING CABINETS, TRANSFORMERS, EASEMENTS, CABLE, AND WIRE ARE NOT SHOWN TO SCALE IN THIS DRAWING.
7. EASEMENTS TO BE DEDICATED BY DEVELOPER TO COVER ALL ELECTRIC FACILITIES.
8. ALL ELECTRIC STREET CROSSINGS AND SERVICE EXTENSION TRENCHES TO INCLUDE TEL. & CATV.
9. IF ANY ELECTRIC FACILITIES ARE SUSCEPTIBLE TO DAMAGE FROM VEHICULAR TRAFFIC, BOLLARDS SHALL BE PLACED AROUND THE EQUIPMENT TO PREVENT DAMAGE.
10. FOR ANY PAD LOCATED IN DRAINAGE EASEMENT OR EROSION PRONE AREAS, CONTRACTOR SHALL BUILD UP PAD SITE AND REINFORCE WITH CONCRETE TO PREVENT EROSION.
11. TRANSFORMER AND SECONDARY SERVICE SIZE EVALUATION SHOULD BE PERFORMED AT THE TIME OF EACH SERVICE REQUEST.
12. ELECTRICAL FACILITIES SHALL BE INSTALLED A MINIMUM OF 4 FEET FROM FIRE HYDRANTS.
13. CONTRACTOR TO INSTALL SECONDARY CONDUIT FROM TRANSFORMER TO METER PEDESTAL.
14. SECONDARY CONDUIT FROM METER PEDESTAL INTO EACH LOT WILL BE INSTALLED IN THE FUTURE AFTER MEMBER APPLIES FOR ELECTRIC SERVICE.

GENERAL NOTE:

1. CONTRACTOR SHALL REFER TO PEC'S UNDERGROUND DEVELOPERS SPECIFICATIONS DOCUMENT FOUND ON THEIR WEBSITE: WWW.PEC.COOP/HOME/BUILDERSCONTRACTORS.ASPX FOR INSTALLATION OF ELECTRICAL FACILITIES.

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: 10-03-22
FOR CONSTRUCTION

CHRISTOPHER T. HARPER
106036

Chris Harper

Digitally signed by Chris Harper
DN: cn=Chris Harper, o=Schneider Engineering, LTD., email=charper@se-texas.com, c=US
Date: 2024.05.06 09:00:37 -05'00'

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

21CUDE3205

	DATE	BY
DRWN	12–14–21	CJB
CHK	10–03–22	CTH
APPD	10–03–22	CTH

WWW.SE-TEXAS.COM
TEXAS REGISTRATION
NUMBER F-1594

SCHNEIDER ENGINEERING

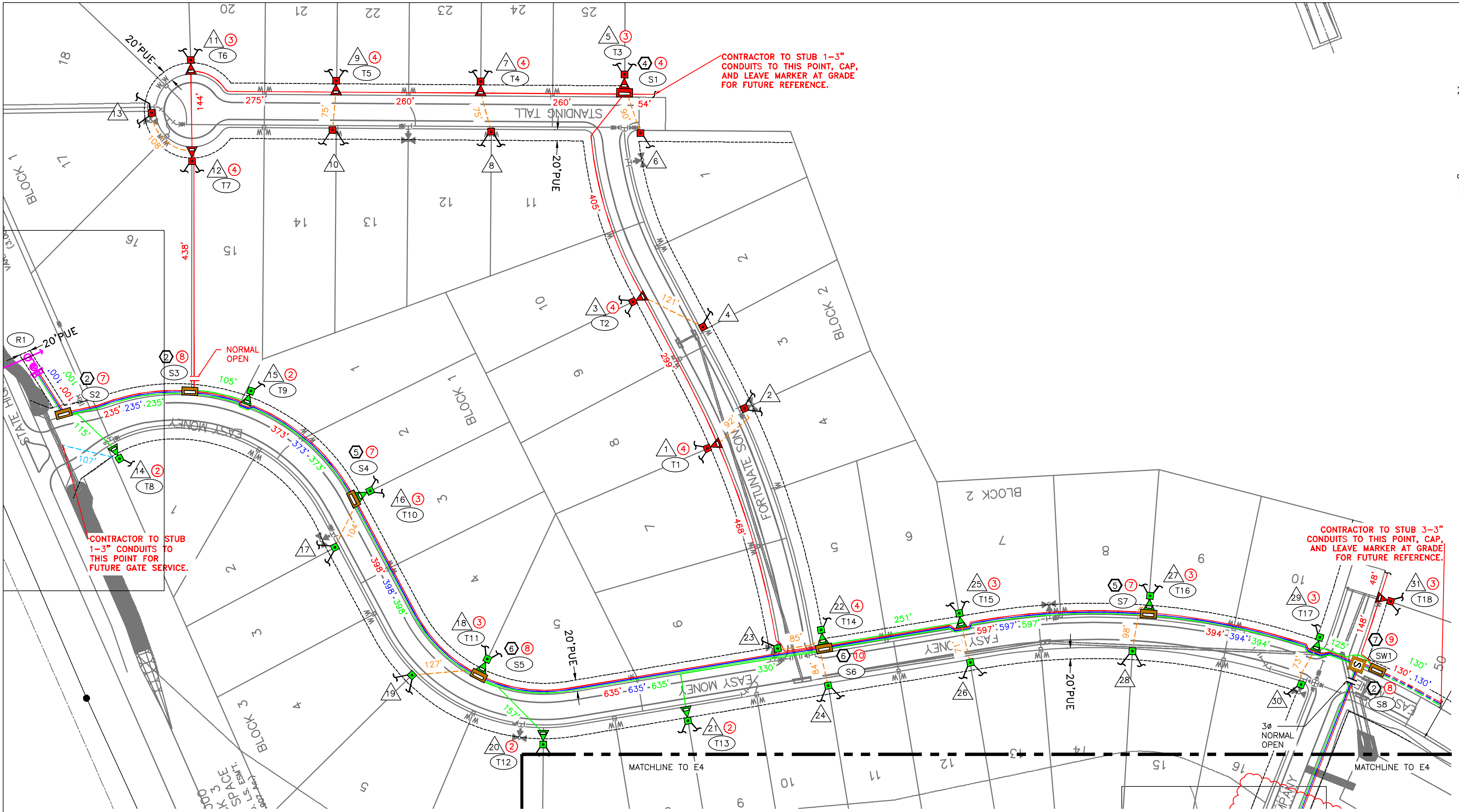
CUDE ENGINEERS
GEORGE'S RANCH UNIT 1

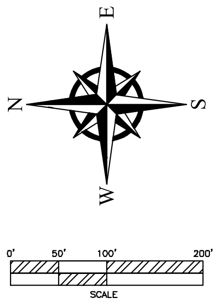
DRAWING MAP
KEY

SCALE FOR 34 x 22 DWG
1" = 250'

DRAWING NO.
E2

09/30/2022 2:27 PM * gshivener * N:\CUDE\21CUDE3205 George's Ranch Unit 1\Drawings\Plan View\E2-E5 – George's Ranch U1 Layout.dwg


20'PUE
T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
T13
T14
T15
T16
T17
T18
S1
S2
S3
S4
S5
S6
S7
S8
SW1
R1
STANDING TALL
FORTUNATE SON
EASY MONEY
STATE HWY
BLOCK 1
BLOCK 2
BLOCK 3
CONTRACTOR TO STUB 1–3" CONDUITS TO THIS POINT, CAP, AND LEAVE MARKER AT GRADE FOR FUTURE REFERENCE.
CONTRACTOR TO STUB 3–3" CONDUITS TO THIS POINT, CAP, AND LEAVE MARKER AT GRADE FOR FUTURE REFERENCE.
CONTRACTOR TO STUB 1–3" CONDUITS TO THIS POINT FOR FUTURE GATE SERVICE.
NORMAL OPEN
3ø NORMAL OPEN
MATCHLINE TO E4
MATCHLINE TO E4



SYMBOLS

	POLE	RISER	TRANSFORMER
PROPOSED	●	®	∝◁
EXISTING	●	®	∝◁
REMOVAL	●	®	∝◁

S	PROPOSED 3ø SWITCHGEAR
▬	3ø SMALL SECTIONALIZING BOX
▭	3ø LARGE SECTIONALIZING BOX
▲	1ø OR 3ø COMBINATION PADS (COLOR BY PHASE AND SIZE)

NEW 200A 1ø SECTIONALIZING BOX

A PHASE B PHASE C PHASE

NEW 1ø TRANSFORMER (120/240)

A PHASE B PHASE C PHASE

(#) NUMBER OF CONDUITS EXITING

METER PEDESTAL

A PHASE B PHASE C PHASE

LABELS

SW#	SWITCHGEAR NO.
S#	SECTIONALIZING BOX NO.
T#	TRANSFORMER NO.
R#	RISER NO.
X	SECONDARY PEDESTAL NO.

LEGEND

Aø Bø Cø	PRIMARY: 1/0 AL W/ FULL CONCENTRIC JACKETED NEUTRAL, 25 kV, XLPE, 260 MIL INSUL. IN 3" MIN. PVC SCH. 40, ELECT. CONDUIT
100'	– POINT TO POINT DISTANCE (COLOR BY PHASE)
– – – –	350 MCM AL, 600V, TRIPLEX IN 3" MIN. PVC SCH 40, ELECT. CONDUIT
– – – –	#10 CU, THHN, 600V IN 3" CONDUITS (3 EA. SERVICE FOR GATE)
– – – →	VACANT Aø(EMPTY) 2" CONDUIT OR AS SPECIFIED
– – – →	VACANT Bø(EMPTY) 2" CONDUIT OR AS SPECIFIED
– – – →	VACANT Cø(EMPTY) 2" CONDUIT OR AS SPECIFIED
	EXISTING VACANT (EMPTY) 2" CONDUIT OR AS SPECIFIED
———	EXISTING UNDERGROUND ELECTRIC
-------	ELECTRICAL UTILITY EASEMENT

GENERAL NOTES:

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14. SECONDARY CONDUIT FROM METER PEDESTAL INTO EACH LOT WILL BE INSTALLED IN THE FUTURE AFTER MEMBER APPLIES FOR ELECTRIC SERVICE.

⟨1⟩	PROPOSED: SMALL PAD FOR 1ø SECTIONALIZING ENCLOSURE (DETAIL 530–010–0911)
⟨2⟩	PROPOSED: SMALL PAD FOR 3ø SECTIONALIZING ENCLOSURE (DETAIL 530–020–0911)
⟨3⟩	PROPOSED: LARGE PAD FOR 3ø SECTIONALIZING ENCLOSURE (DETAIL 530–022–0911)
⟨4⟩	PROPOSED: 1ø COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD (DETAIL 530–023)
⟨5⟩	PROPOSED: 3ø SMALL COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD (DETAIL 530–024)
⟨6⟩	PROPOSED: 3ø LARGE COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD (DETAIL 530–026)
⟨7⟩	PROPOSED: 3ø SWITCHGEAR PAD

GENERAL NOTE:

1. CONTRACTOR SHALL REFER TO PEC'S UNDERGROUND DEVELOPERS SPECIFICATIONS DOCUMENT FOUND ON THEIR WEBSITE: WWW.PEC.COOP/HOME/BUILDERSCONTRACTORS.ASPX FOR INSTALLATION OF ELECTRICAL FACILITIES.

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: 10-03-22
FOR CONSTRUCTION

CHRISTOPHER T. HARPER
106036

Chris Harper

Digitally signed by Chris Harper
DN: cn=Chris Harper,
o=Schneider Engineering, LTD.,
email=charper@se-texas.com,
c=US
Date: 2024.05.06 09:01:14 -05'00'

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

21CUDE3205

	DATE	BY
DRWN	12–14–21	CJB
CHK	10–03–22	CTH
APPD	10–03–22	CTH

WWW.SE-TEXAS.COM
TEXAS REGISTRATION
NUMBER F-1594

SCHNEIDER
ENGINEERING

CUDE ENGINEERS

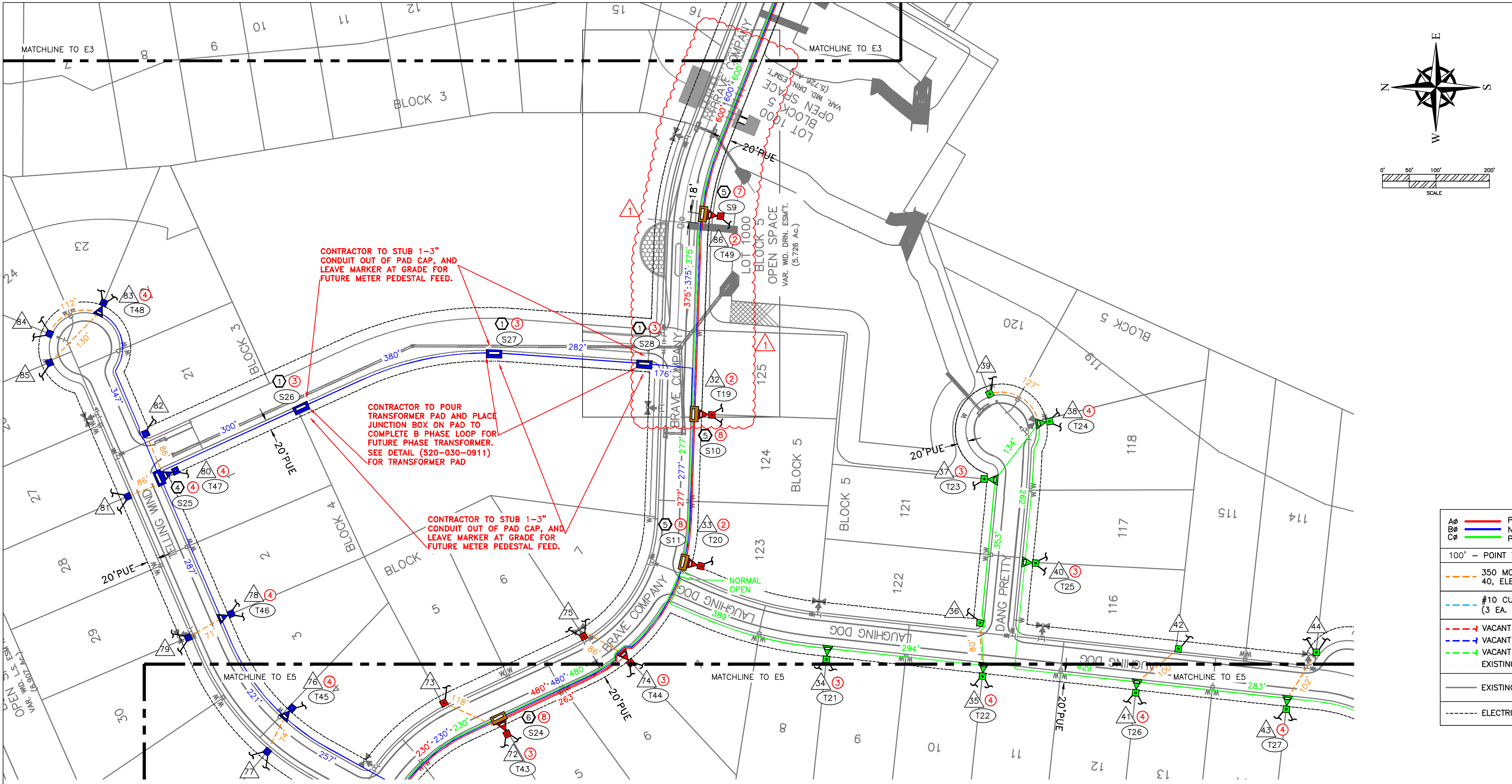
GEORGE'S RANCH UNIT 1

UNDERGROUND ELECTRICAL
LAYOUT
(SHEET 1 OF 3)

SCALE FOR 34 x 22 DWG
1" = 100'

DRAWING NO.
E3

09/30/2022 2:27 PM * gshivener * N:\CUDE\21CUDE3205 George's Ranch Unit 1\Drawings\Plan View\E2–E5 — George's Ranch U1 Layout.dwg



CONTRACTOR TO STUB 1–3" CONDUIT OUT OF PAD CAP, AND LEAVE MARKER AT GRADE FOR FUTURE METER PEDESTAL FEED.

CONTRACTOR TO POUR TRANSFORMER PAD AND PLACE JUNCTION BOX ON PAD TO COMPLETE B PHASE LOOP FOR FUTURE PHASE TRANSFORMER. SEE DETAIL (520–030–0911) FOR TRANSFORMER PAD

CONTRACTOR TO STUB 1–3" CONDUIT OUT OF PAD CAP, AND LEAVE MARKER AT GRADE FOR FUTURE METER PEDESTAL FEED.

SYMBOLS

	POLE	RISER	TRANSFORMER
PROPOSED	●	®	◁
EXISTING	●	®	◁
REMOVAL	●	®	◁

S PROPOSED 3ø SWITCHGEAR

▬ 3ø SMALL SECTIONALIZING BOX

▭ 3ø LARGE SECTIONALIZING BOX

▲ 1ø OR 3ø COMBINATION PADS (COLOR BY PHASE AND SIZE)

NEW 200A 1ø SECTIONALIZING BOX

🟥	🟦	🟩
A PHASE	B PHASE	C PHASE

NEW 1ø TRANSFORMER (120/240)

▲	▲	▲
A PHASE	B PHASE	C PHASE

(#) NUMBER OF CONDUITS EXITING

METER PEDESTAL

🟥	🟦	🟩
A PHASE	B PHASE	C PHASE

LABELS

(SW#)	SWITCHGEAR NO.
(S#)	SECTIONALIZING BOX NO.
(T#)	TRANSFORMER NO.
(R#)	RISER NO.
△X	SECONDARY PEDESTAL NO.

LEGEND

Aø Bø Cø	PRIMARY: 1/0 AL W/ FULL CONCENTRIC JACKETED NEUTRAL, 25 kV, XLPE, 260 MIL INSUL. IN 3" MIN. PVC SCH. 40, ELECT. CONDUIT
100'	– POINT TO POINT DISTANCE (COLOR BY PHASE)
– – – –	350 MCM AL, 600V, TRIPLEX IN 3" MIN. PVC SCH 40, ELECT. CONDUIT
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– – – – – – – – – – – – – – – –	VACANT Aø(EMPTY) 2" CONDUIT OR AS SPECIFIED VACANT Bø(EMPTY) 2" CONDUIT OR AS SPECIFIED VACANT Cø(EMPTY) 2" CONDUIT OR AS SPECIFIED EXISTING VACANT (EMPTY) 2" CONDUIT OR AS SPECIFIED
———	EXISTING UNDERGROUND ELECTRIC
-------	ELECTRICAL UTILITY EASEMENT

GENERAL NOTES:

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⟨1⟩ PROPOSED:
SMALL PAD FOR 1ø
SECTIONALIZING ENCLOSURE
(DETAIL 530–010–0911)

⟨2⟩ PROPOSED:
SMALL PAD FOR 3ø
SECTIONALIZING ENCLOSURE
(DETAIL 530–020–0911)

⟨3⟩ PROPOSED:
LARGE PAD FOR 3ø
SECTIONALIZING ENCLOSURE
(DETAIL 530–022–0911)

⟨4⟩ PROPOSED:
1ø COMBINATION SECTIONALIZING
ENCLOSURE AND TRANSFORMER PAD
(DETAIL 530–023)

⟨5⟩ PROPOSED:
3ø SMALL COMBINATION SECTIONALIZING
ENCLOSURE AND TRANSFORMER PAD
(DETAIL 530–024)

⟨6⟩ PROPOSED:
3ø LARGE COMBINATION SECTIONALIZING
ENCLOSURE AND TRANSFORMER PAD
(DETAIL 530–026)

⟨7⟩ PROPOSED:
3ø SWITCHGEAR PAD

GENERAL NOTE:

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CHRISTOPHER T. HARPER
106036

Chris Harper

Digitally signed by Chris Harper
DN: cn=Chris Harper, o=Schneider Engineering, LTD., email=charper@se-texas.com, c=US
Date: 2024.05.06 09:01:53 -05'00'

NO	DATE	REVISION	BY	CHK	APPD	NO	DATE	REVISION	BY	CHK	APPD
1	04–15–24	UPDATED GATE SERVICES.	GLS	CTH	CTH						

21CUDE3205

	DATE	BY
DRWN	12–14–21	CJB
CHK	10–03–22	CTH
APPD	10–03–22	CTH

WWW.SE-TEXAS.COM
TEXAS REGISTRATION
NUMBER F-1594

SCHNEIDER
ENGINEERING

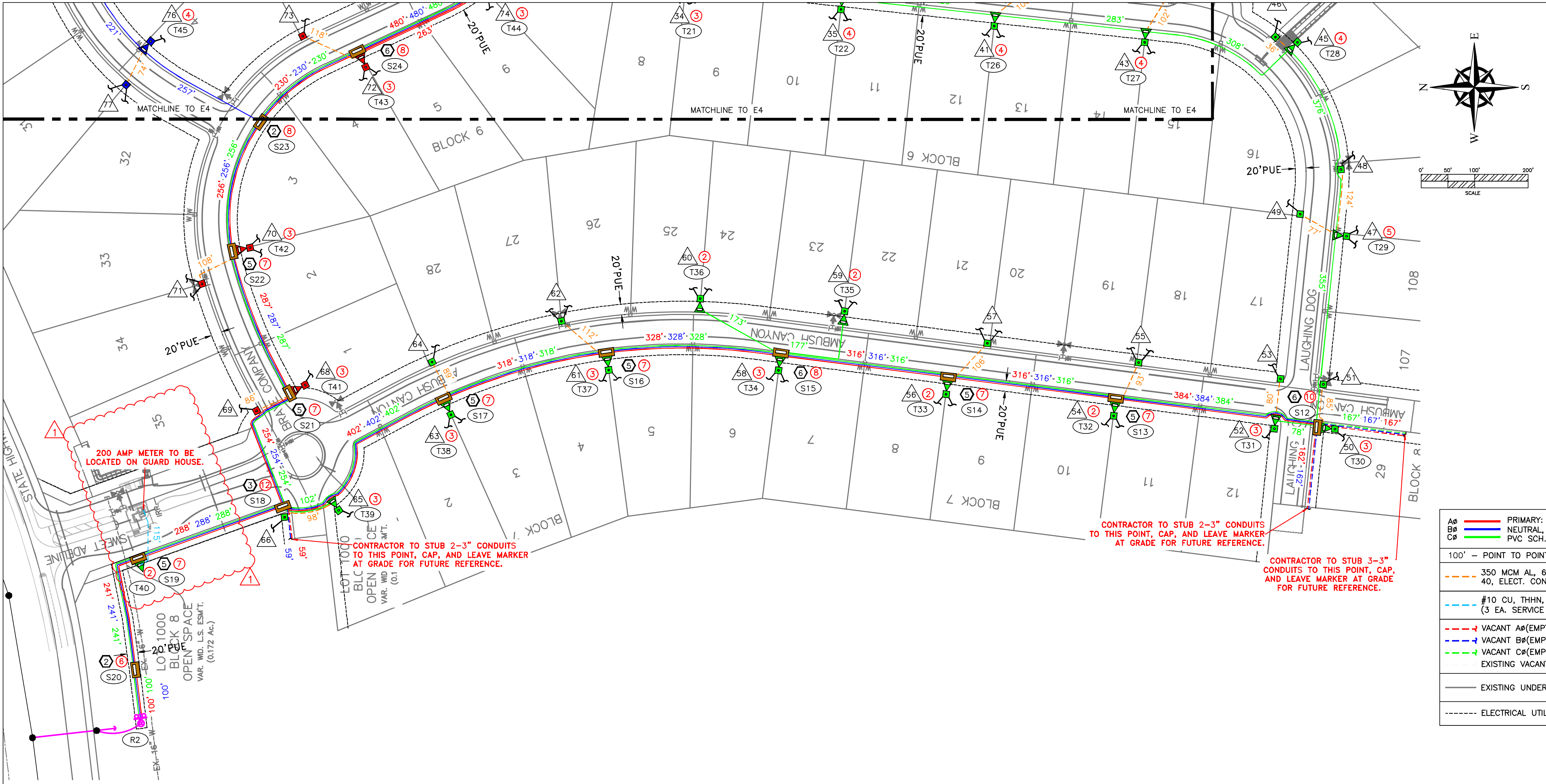
CUDE ENGINEERS
GEORGE'S RANCH UNIT 1

UNDERGROUND ELECTRICAL
LAYOUT
(SHEET 2 OF 3)

SCALE FOR 34 x 22 DWG
1" = 100'

DRAWING NO.
E4

09/30/2022 2:27 PM * gshivener * N:\CUDE\21CUDE3205 George's Ranch Unit 1\Drawings\Plan View\E2–E5 – George's Ranch U1 Layout.dwg


MATCHLINE TO E4
MATCHLINE TO E4
MATCHLINE TO E4
BLOCK 6
BLOCK 9
BLOCK 7
20'PUE
AMBUSH CANYON
LAUGHING DOG
STATE HIGHWAY
SWEET ADELINE
200 AMP METER TO BE LOCATED ON GUARD HOUSE.
CONTRACTOR TO STUB 2–3" CONDUITS TO THIS POINT, CAP, AND LEAVE MARKER AT GRADE FOR FUTURE REFERENCE.
CONTRACTOR TO STUB 2–3" CONDUITS TO THIS POINT, CAP, AND LEAVE MARKER AT GRADE FOR FUTURE REFERENCE.
CONTRACTOR TO STUB 3–3" CONDUITS TO THIS POINT, CAP, AND LEAVE MARKER AT GRADE FOR FUTURE REFERENCE.
LOT 1000 BLOCK 8 OPEN SPACE VAR. WD. L.S. ESM'T. (0.172 Ac.)
N
S
E
W
0' 50' 100' 200'
SCALE

SYMBOLS

	POLE	RISER	TRANSFORMER
PROPOSED	●	®ᛒ	○◁
EXISTING	●	®ᛒ	○◁
REMOVAL	●	®ᛒ	○◁

S PROPOSED 3ø SWITCHGEAR

▬ 3ø SMALL SECTIONALIZING BOX

▭ 3ø LARGE SECTIONALIZING BOX

▲ 1ø OR 3ø COMBINATION PADS (COLOR BY PHASE AND SIZE)

NEW 200A 1ø SECTIONALIZING BOX

🟥	🟦	🟩
A PHASE	B PHASE	C PHASE

NEW 1ø TRANSFORMER (120/240)

▲	▲	▲
A PHASE	B PHASE	C PHASE

(#) NUMBER OF CONDUITS EXITING

METER PEDESTAL

🟥	🟦	🟩
A PHASE	B PHASE	C PHASE

LABELS

(SW#)	SWITCHGEAR NO.
(S#)	SECTIONALIZING BOX NO.
(T#)	TRANSFORMER NO.
(R#)	RISER NO.
△X	SECONDARY PEDESTAL NO.

LEGEND

Aø Bø Cø	PRIMARY: 1/0 AL W/ FULL CONCENTRIC JACKETED NEUTRAL, 25 kV, XLPE, 260 MIL INSUL. IN 3" MIN. PVC SCH. 40, ELECT. CONDUIT
100'	POINT TO POINT DISTANCE (COLOR BY PHASE)
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- - - -→ - - - -→ - - - -→ - - - -→	VACANT Aø(EMPTY) 2" CONDUIT OR AS SPECIFIED VACANT Bø(EMPTY) 2" CONDUIT OR AS SPECIFIED VACANT Cø(EMPTY) 2" CONDUIT OR AS SPECIFIED EXISTING VACANT (EMPTY) 2" CONDUIT OR AS SPECIFIED
———	EXISTING UNDERGROUND ELECTRIC
-------	ELECTRICAL UTILITY EASEMENT

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13. CONTRACTOR TO INSTALL SECONDARY CONDUIT FROM TRANSFORMER TO METER PEDESTAL.
14. SECONDARY CONDUIT FROM METER PEDESTAL INTO EACH LOT WILL BE INSTALLED IN THE FUTURE AFTER MEMBER APPLIES FOR ELECTRIC SERVICE.

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: 10-03-22
FOR CONSTRUCTION

①　PROPOSED:
SMALL PAD FOR 1ø SECTIONALIZING ENCLOSURE
(DETAIL 530–010–0911)

②　PROPOSED:
SMALL PAD FOR 3ø SECTIONALIZING ENCLOSURE
(DETAIL 530–020–0911)

③　PROPOSED:
LARGE PAD FOR 3ø SECTIONALIZING ENCLOSURE
(DETAIL 530–022–0911)

④　PROPOSED:
1ø COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD
(DETAIL 530–023)

⑤　PROPOSED:
3ø SMALL COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD
(DETAIL 530–024)

⑥　PROPOSED:
3ø LARGE COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD
(DETAIL 530–026)

⑦　PROPOSED:
3ø SWITCHGEAR PAD

GENERAL NOTE:

1. CONTRACTOR SHALL REFER TO PEC'S UNDERGROUND DEVELOPERS SPECIFICATIONS DOCUMENT FOUND ON THEIR WEBSITE: WWW.PEC.COOP/HOME/BUILDERSCONTRACTORS.ASPX FOR INSTALLATION OF ELECTRICAL FACILITIES.

CHRISTOPHER T. HARPER
106036

Digitally signed by Chris Harper
DN: cn=Chris Harper, o=Schneider Engineering, LTD., email=charper@se-texas.com, c=US
Date: 2024.05.06 09:03:05 -05'00'

NO	DATE	REVISION	BY	CHK	APPD	NO	DATE	REVISION	BY	CHK	APPD
1	04–15–24	UPDATED GATE SERVICES.	GLS	CTH	CTH						

21CUDE3205

	DATE	BY
DRWN	12–14–21	CJB
CHK	10–03–22	CTH
APPD	10–03–22	CTH

WWW.SE-TEXAS.COM
TEXAS REGISTRATION NUMBER F-1594

SCHNEIDER ENGINEERING

CUDE ENGINEERS

GEORGE'S RANCH UNIT 1

UNDERGROUND ELECTRICAL LAYOUT
(SHEET 3 OF 3)

SCALE FOR 34 x 22 DWG
1" = 100'

DRAWING NO.
E5

09/30/2022 2:27 PM * gshivener * N:\CUDE\21CUDE3205 George's Ranch Unit 1\Drawings\Plan View\E2–E5 – George's Ranch U1 Layout.dwg

Typical All Pads

1. Require 3" conduit (unless otherwise specified by PEC) with bell-end fittings to extend 1 1/2" to 2" above pad.
2. Pads must extend a minimum of 4" above final grade and 1 1/2" below final grade. All pads must be placed on a slope less than or equal to 3:1. If greater than 3:1, contractor must bring slope to required grade.
3. All disturbed soil underneath pad must be replaced by concrete.
4. All ground rods shall be 3/4" X 10' copper-clad with clamp and must extend 3" above top of pad.
5. Wood float finish leaving pad square and level with no dips or crown.
6. **Contact PEC before pouring concrete and comply with the following instructions:**
   - Pre-pour inspection: Check framing and layout of pad and conduit components.
   - Final inspection: Overall review of pad and conduits. Ensure bell ends are on conduit.

Typical For Single-Phase Transformer, Combination, Sectionalizer, and Secondary Pads

7. Concrete to have minimum strength of 3,000 PSI.
8. Steel reinforcing shall be 6" X 6" No. 10 wire mesh or 3/8" re-bar on 12" center to stop 1" from the sides.

Typical For Three-Phase Transformer Pads

9. Concrete testing, 4,000 PSI; 4%-6% entrained air, 3/4" maximum-size aggregate.
10. Steel reinforcement shall be 3/8" re-bar on 12" center to stop 1" from sides.
11. Minimum concrete cover over reinforcing steel 2" unless noted.

Typical Trench Details

12. Schedule 40 electrical grade PVC conduit. Schedule 80 electrical-grade conduit can be used in place of sand in secondary-only trenches.
13. Initial backfill shall be manufactured or commercial sand. Minimum 3/8" pea gravel may be used for initial backfill in flood-prone areas.
14. With PEC approval, minimum cover requirements may be reduced by six inches with every two inches of 3,000 PSI concrete poured directly onto conduit. ***Contact PEC before pouring concrete***
15. If any type of vault or pedestal for the underground electric is planned, then all other utilities should be routed around these facilities.
16. For 2" and **smaller** waterlines, special permission must be granted by PEC. Water lines larger than 2" will not be allowed in PEC trench.
17. Refer to drawings 510-023 and 510-025 for PEC specifications and trench details on gas joint trench installations.

Legend
Typical in all drawings

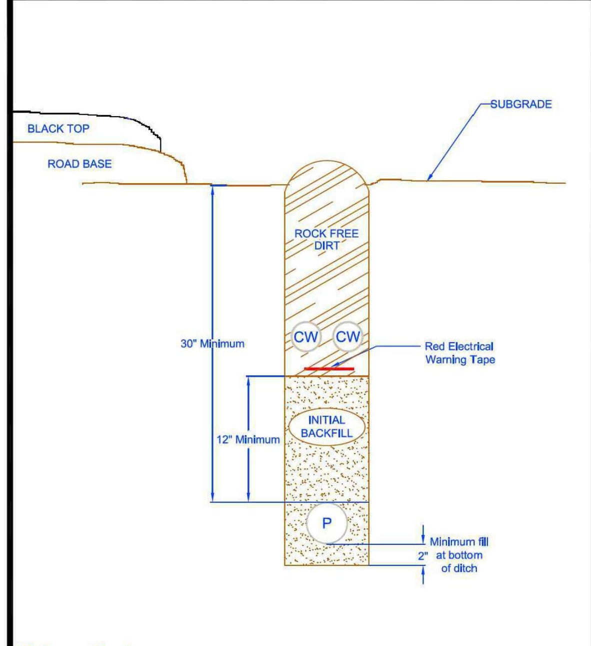
Ⓟ	Primary Conduit
Ⓢ	Secondary Conduit
(CW)	Communications or Water
Ⓖ	Gas line
(AS)	Alternate Secondary Conduit

REV	B	DATE	07/23/2020	REVISION	NOTE 4: 3/4' X 10' GROUND ROD WAS 5/8" X 8'	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND
INSTALLATION
SPECIFICATIONS

TYPICAL NOTES
REFERENCE PAGE

drawn:	approved:	date:	
RWC	MMG	07/23/2020	510-009



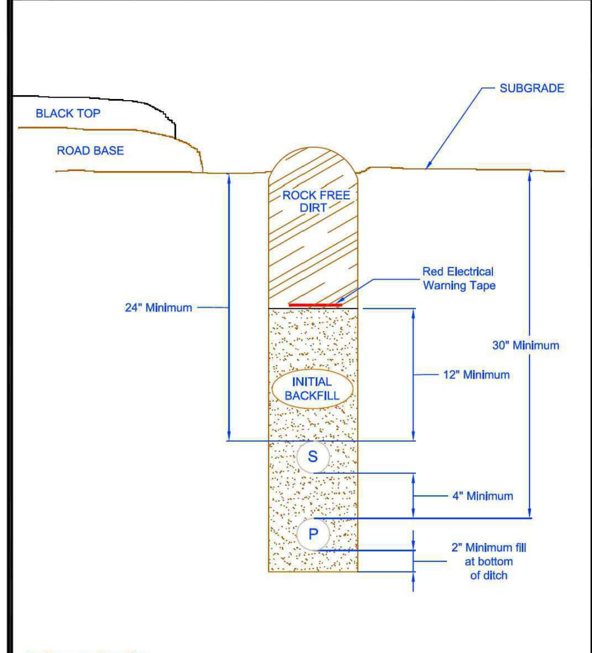
Reference Drawing
510-009-0911 for
Typical Trench Details

PEDERNALES ELECTRIC
COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

1Ø Conduit Arrangement
for Primary
601 to 50,000 Volts

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	510-010-0911

4

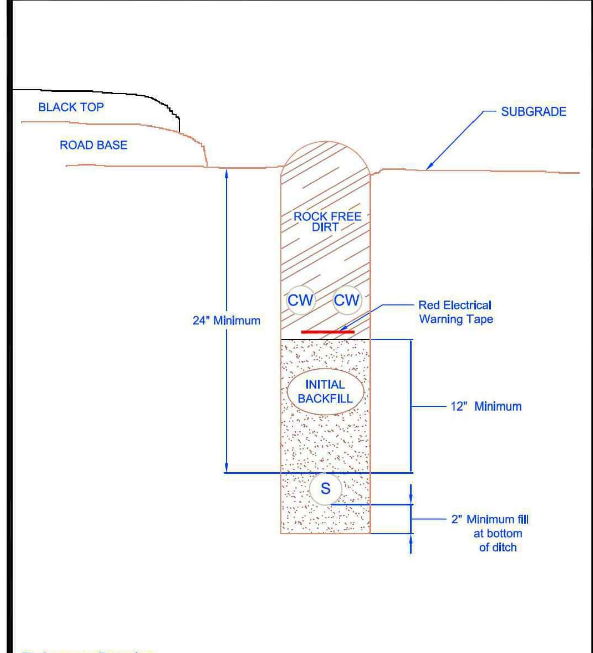


Reference Drawing
510-009-0911 for
Typical Trench Details

PEDERNALES ELECTRIC
COOPERATIVE, INC.
URD DEVELOPERS SPECIFICATIONS

1Ø Conduit Arrangement
for Primary and Secondary

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	510-012-0911



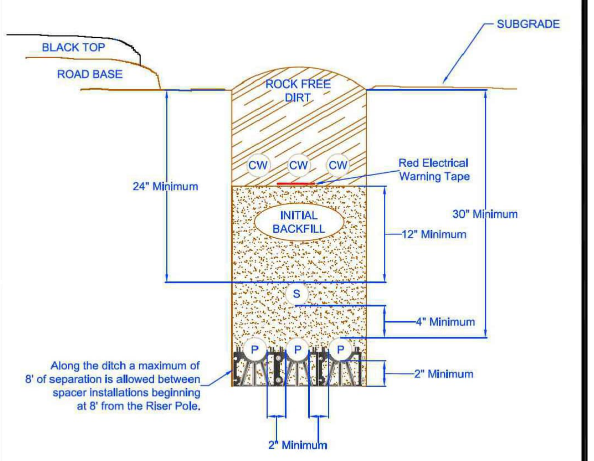
Reference Drawing
510-009-0911 for
Typical Trench Details

PEDERNALES ELECTRIC
COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

1Ø Conduit Arrangement
for Service
0 to 600 Volts

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	510-016-0911

OPTION
1

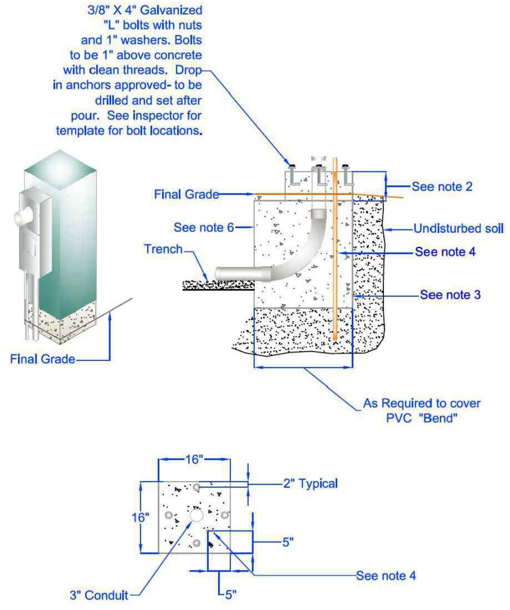

SUBGRADE
BLACK TOP
ROAD BASE
ROCK FREE DIRT
CW
CW
CW
Red Electrical Warning Tape
24" Minimum
30" Minimum
INITIAL BACKFILL
12" Minimum
S
4" Minimum
P
P
P
2" Minimum
Along the ditch a maximum of 8' of separation is allowed between spacer installations beginning at 8' from the Riser Pole.
2" Minimum

Reference Drawing
510-009-0911 for
Typical Trench Details

PEDERNALES ELECTRIC
COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

3Ø Conduit Arrangement
Joint with Other Utilities

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	510-022-0911

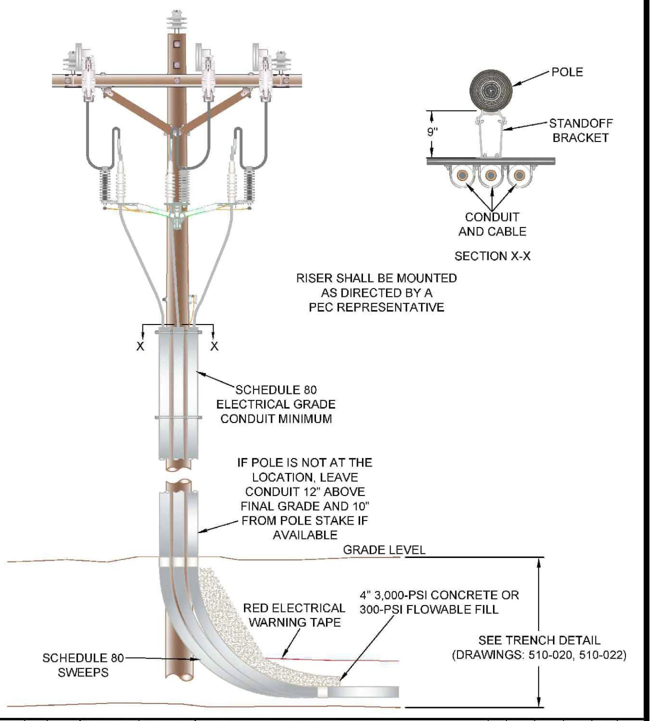

3/8" X 4" Galvanized "L" bolts with nuts and 1" washers. Bolts to be 1" above concrete with clean threads. Drop-in anchors approved- to be drilled and set after pour. See inspector for template for bolt locations.
Final Grade
See note 2
See note 6
Undisturbed soil
Trench
See note 4
See note 3
Final Grade
As Required to cover PVC "Bend"
16"
2" Typical
16"
5"
See note 4
3" Conduit
5"

Reference Drawing
510-009-0911 for
Typical Notes

PEDERNALES ELECTRIC
COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

Pad for Service
Meter Pedestal

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	520-010-0911

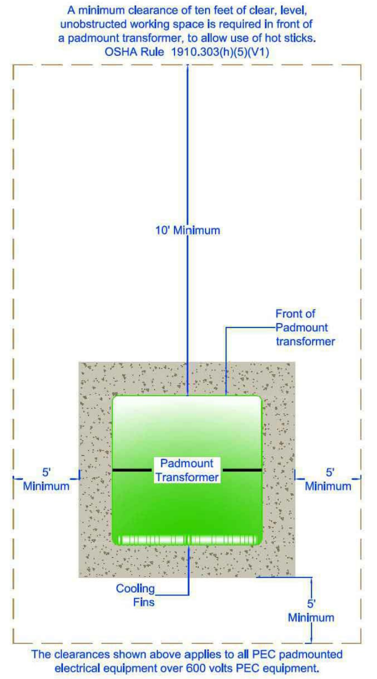

POLE
9"
STANDOFF BRACKET
CONDUIT AND CABLE
SECTION X-X
RISER SHALL BE MOUNTED AS DIRECTED BY A PEC REPRESENTATIVE
X
X
SCHEDULE 80 ELECTRICAL GRADE CONDUIT MINIMUM
IF POLE IS NOT AT THE LOCATION, LEAVE CONDUIT 12" ABOVE FINAL GRADE AND 10" FROM POLE STAKE IF AVAILABLE
GRADE LEVEL
4" 3,000-PSI CONCRETE OR 300-PSI FLOWABLE FILL
RED ELECTRICAL WARNING TAPE
SEE TRENCH DETAIL (DRAWINGS: 510-020, 510-022)
SCHEDULE 80 SWEEPS

REV	A	DATE	07/09/2020	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND
INSTALLATION
SPECIFICATIONS

3Ø RISER POLE
USING STANDOFF BRACKETS

drawn:	approved:	date:	
RWC	MMG	07/09/2020	560-025


A minimum clearance of ten feet of clear, level, unobstructed working space is required in front of a padmount transformer, to allow use of hot sticks. OSHA Rule 1910.303(h)(5)(V1)
10' Minimum
Front of Padmount transformer
5' Minimum
Padmount Transformer
5' Minimum
Cooling Fins
5' Minimum
The clearances shown above applies to all PEC padmounted electrical equipment over 600 volts PEC equipment.

PEDERNALES ELECTRIC
COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

Working Clearances around
Padmount Transformers

drawn:	approved	date:	drawing number:
JBS	MJB	February 28, 2013	570-015-0911

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: 10-03-22
FOR CONSTRUCTION

CHRISTOPHER T. HARPER
106036

Chris Harper

Digitally signed by Chris Harper
DN: cn=Chris Harper,
o=Schneider Engineering, LTD.,
email=charper@se-texas.com,
c=US
Date: 2024.05.06 09:03:40 -05'00'

GENERAL NOTE:

1. CONTRACTOR SHALL REFER TO PEC'S UNDERGROUND DEVELOPERS SPECIFICATIONS DOCUMENT FOUND ON THEIR WEBSITE: WWW.PEC.COOP/HOME/BUILDERSCONTRACTORS.ASPX FOR INSTALLATION OF ELECTRICAL FACILITIES.

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

21CUDE3205

	DATE	BY
DRWN	12–14–21	CJB
CHK	10–03–22	CTH
APPD	10–03–22	CTH

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TEXAS REGISTRATION NUMBER F-1594

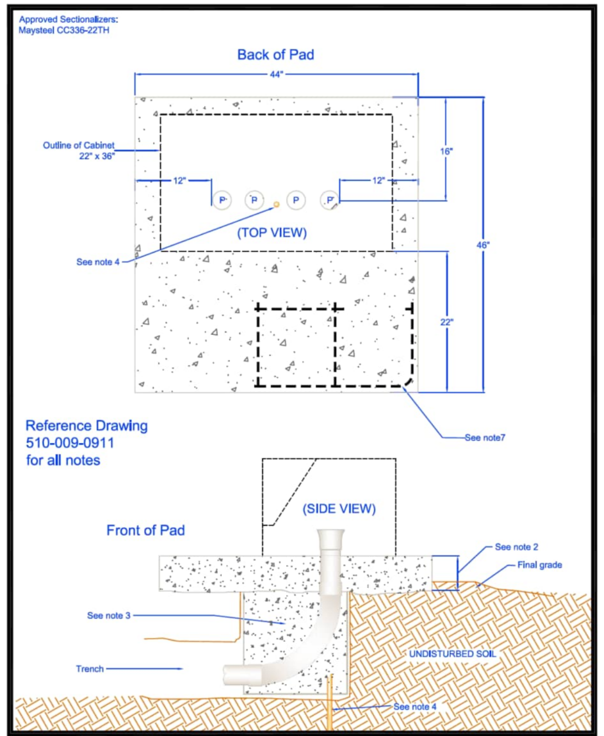
SCHNEIDER ENGINEERING

CUDE ENGINEERS
GEORGE'S RANCH UNIT 1

PEC UNDERGROUND DETAILS
(SHEET 1 OF 2)

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

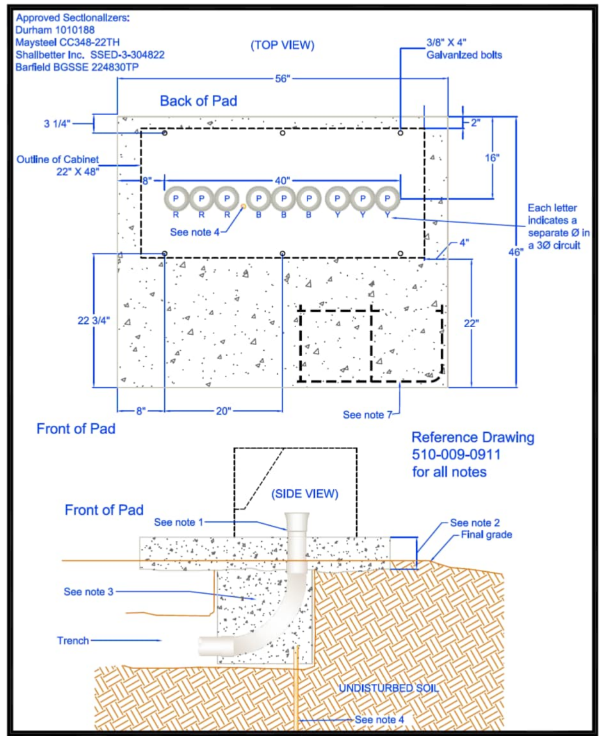
09/30/2022 2:27 PM * gshivener * N:\CUDE\21CUDE3205 George's Ranch Unit 1\Drawings\Plan View\E6-E7-PEC URD DETAILS Amenity.dwg



PEDERNALES ELECTRIC COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

Small Pad for 1Ø Sectionalizing Enclosure

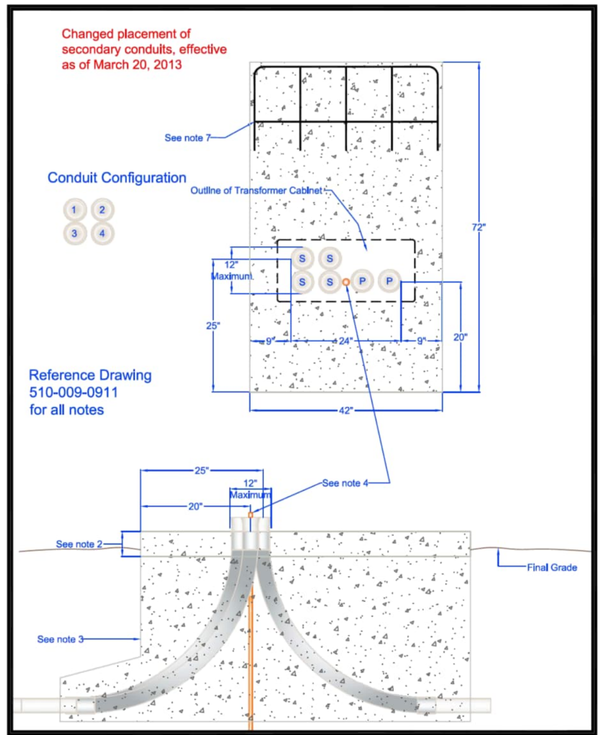
drawn:	approved	date:	drawing number:
JBS	MJB	March 2, 2014	530-010-0911



PEDERNALES ELECTRIC COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

Small Pad for 3Ø Sectionalizing Enclosure

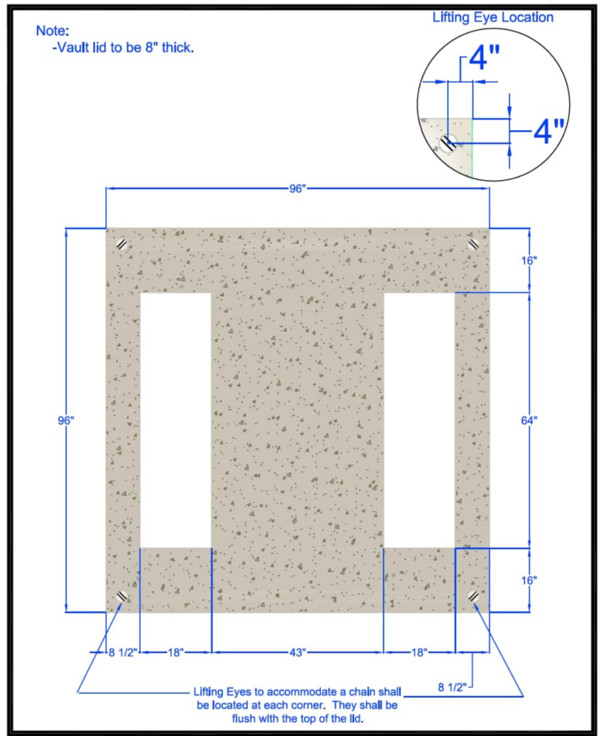
drawn:	approved	date:	drawing number:
JBS	MJB	March 3, 2014	530-020-0911



PEDERNALES ELECTRIC COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

Pad for 1Ø Transformer, 1Ø Transformer with VFI, Small Sectionalizing Enclosure

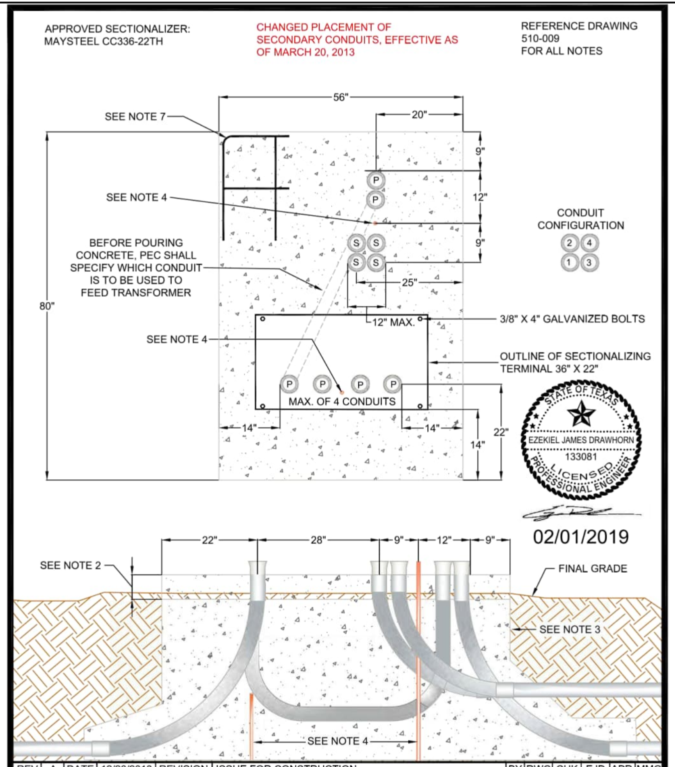
drawn:	approved	date:	drawing number:
JBS	MJB	March 20, 2013	520-030-0911


Note:
-Vault lid to be 8" thick.
Lifting Eye Location
4"
4"
96"
16"
96"
64"
16"
8 1/2"
18"
43"
18"
8 1/2"
Lifting Eyes to accommodate a chain shall be located at each corner. They shall be flush with the top of the lid.

PEDERNALES ELECTRIC COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

Lid for Deadfront and above ground Switchgear (For use on Vault 530-090)

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	530-091-0911

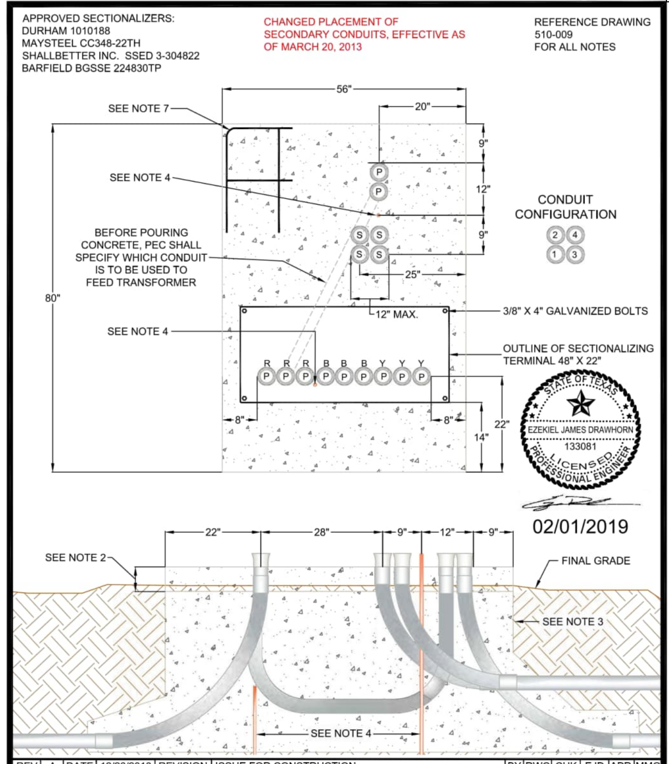


REV	A	DATE	12/26/2018	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	EJD	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

1Ø COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD

drawn:	approved:	date:	
RWC	MMG	12/26/2018	530-023

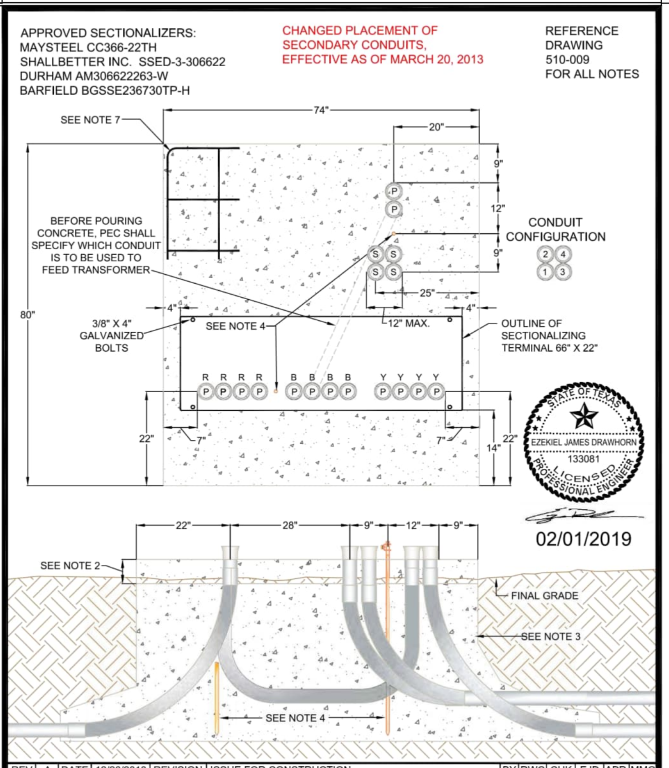

APPROVED SECTIONALIZERS:
DURHAM 1010188
MAYSTEEL CC348-22TH
SHALLBETTER INC. SSED 3-304822
BARFIELD BGGSE 224830TP
CHANGED PLACEMENT OF SECONDARY CONDUITS, EFFECTIVE AS OF MARCH 20, 2013
REFERENCE DRAWING
510-009
FOR ALL NOTES
56"
20"
SEE NOTE 7
SEE NOTE 4
BEFORE POURING CONCRETE, PEC SHALL SPECIFY WHICH CONDUIT IS TO BE USED TO FEED TRANSFORMER
CONDUIT CONFIGURATION
80"
SEE NOTE 4
12" MAX.
3/8" X 4" GALVANIZED BOLTS
OUTLINE OF SECTIONALIZING TERMINAL 48" X 22"
8"
8"
22"
14"
02/01/2019
SEE NOTE 2
22"
28"
9"
12"
9"
FINAL GRADE
SEE NOTE 3
SEE NOTE 4

REV	A	DATE	12/26/2018	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	EJD	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

SMALL COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD

drawn:	approved:	date:	
RWC	MMG	12/26/2018	530-024


APPROVED SECTIONALIZERS:
MAYSTEEL CC366-22TH
SHALLBETTER INC. SSED-3-306622
DURHAM AM306622263-W
BARFIELD BGGSE236730TP-H
CHANGED PLACEMENT OF SECONDARY CONDUITS, EFFECTIVE AS OF MARCH 20, 2013
REFERENCE DRAWING
510-009
FOR ALL NOTES
74"
20"
SEE NOTE 7
BEFORE POURING CONCRETE, PEC SHALL SPECIFY WHICH CONDUIT IS TO BE USED TO FEED TRANSFORMER
CONDUIT CONFIGURATION
80"
3/8" X 4" GALVANIZED BOLTS
SEE NOTE 4
12" MAX.
OUTLINE OF SECTIONALIZING TERMINAL 66" X 22"
22"
7"
7"
22"
14"
02/01/2019
SEE NOTE 2
22"
28"
9"
12"
9"
FINAL GRADE
SEE NOTE 3
SEE NOTE 4

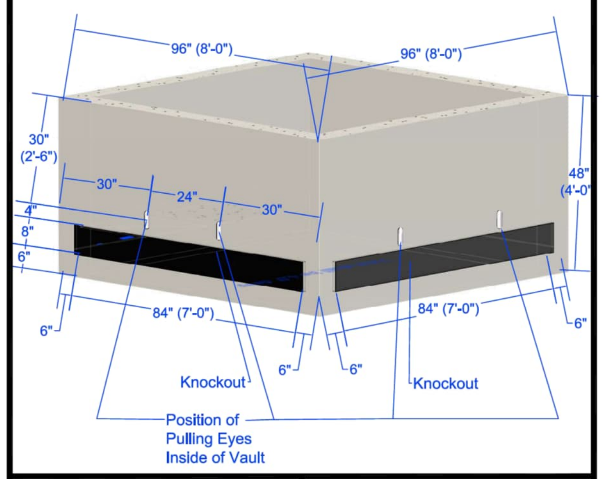
REV	A	DATE	12/26/2018	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	EJD	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

LARGE COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD

drawn:	approved:	date:	
RWC	MMG	12/26/2018	530-026

1) Each side wall shall have two pulling eyes located 24" apart, evenly space between inside walls, and 18" from the bottom of the vault.
2) All pulling eyes to be rated for a minimum of 5,000 pounds each.
3) 6" above the bottom of the vault, an 8" knockout shall extend around the entire perimeter of the vault (except for 6" from each corner) for conduit to be brought in. Knockouts should be1" thick and flush with the inside of the vault. The vault shall be 4' deep.
4) The vault shall be installed on a minimum 6" deep bed of ½" to ¾" diameter gravel.
5) Each vault shall be supplied with either a 10' ground rod driven in the vault floor or a minimum 100 feet of #6 bare copper wire buried no less than 18" deep in the earth and meeting the National Electric Safety Code Rule #094B3.



PEDERNALES ELECTRIC COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

Vault for Deadfront, above ground Switchgear

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	530-090-0911

09/30/2022 2:27 PM * gshivener * N:\CUDE\21CUDE3205 George's Ranch Unit 1\Drawings\Plan View\E6-E7-PEC URD DETAILS Amenity.dwg

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: 10-03-22
FOR CONSTRUCTION

CHRISTOPHER T. HARPER
106036

Chris Harper

Digitally signed by Chris Harper
DN: cn=Chris Harper, o=Schneider Engineering, LTD., email=charper@se-texas.com, c=US
Date: 2024.05.06 09:04:23 -05'00'

GENERAL NOTE:

1. CONTRACTOR SHALL REFER TO PEC'S UNDERGROUND DEVELOPERS SPECIFICATIONS DOCUMENT FOUND ON THEIR WEBSITE: WWW.PEC.COOP/HOME/BUILDERSCONTRACTORS.ASPX FOR INSTALLATION OF ELECTRICAL FACILITIES.

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

21CUDE3205

	DATE	BY
DRWN	12-14-21	CJB
CHK	10-03-22	CTH
APPD	10-03-22	CTH

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TEXAS REGISTRATION NUMBER F-1594

SCHNEIDER ENGINEERING

CUDE ENGINEERS
GEORGE'S RANCH UNIT 1

PEC UNDERGROUND DETAILS
(SHEET 2 OF 2)

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

DRAWING NO.
E7