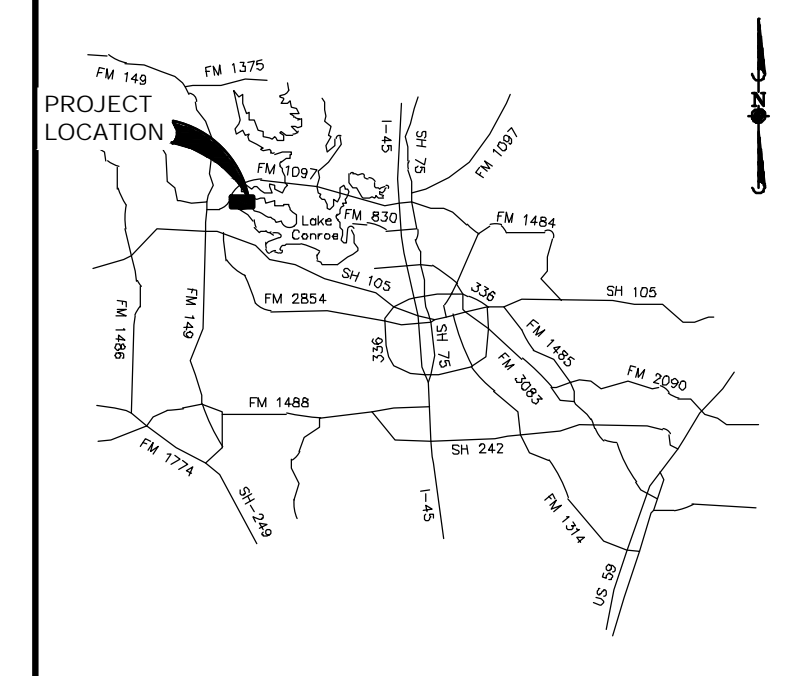


DEVELOPER:
 PULTE HOMES OF TEXAS
 1311 BROADFIELD BLVD, SUITE 100
 HOUSTON, TEXAS 77084
 (281) 749-8000

CONSTRUCTION OF WATER, SANITARY, DRAINAGE AND PAVING FACILITIES FOR MONTGOMERY BEND SEC 4

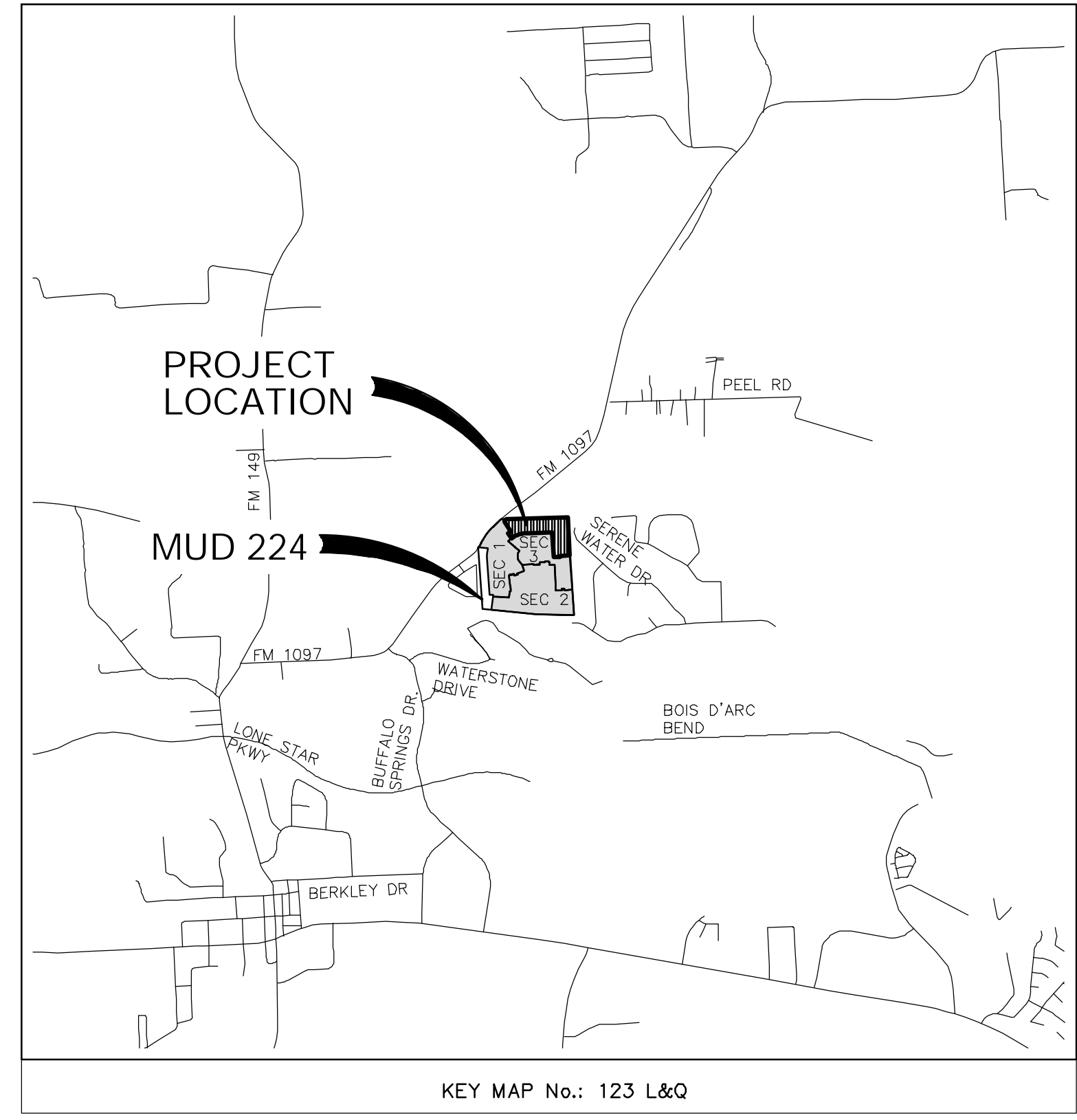
DEVELOPMENT No. 2203
 MONTGOMERY COUNTY MUNICIPAL UTILITY DISTRICT NO. 224
 CITY OF MONTGOMERY
 MONTGOMERY COUNTY, TX
 610.126.008.00



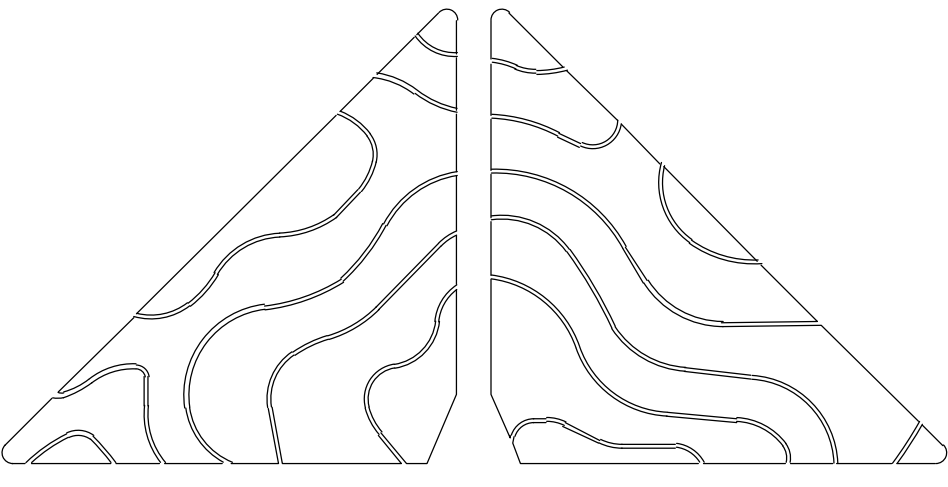
MONTGOMERY COUNTY AREA VICINITY MAP
 N.T.S.

TITLE SHEET

SHEET NO.	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES
3	WATER & SANITARY LAYOUT
4	DRAINAGE LAYOUT
5	DRAINAGE CALCULATIONS
6	LOT GRADING LAYOUT
7	STORM WATER POLLUTION PREVENTION PLAN LAYOUT
8	TRAFFIC SIGNAGE & PAVEMENT MARKINGS LAYOUT
9	RED RIVER DRIVE (STA 13+00 TO 19+00)
10	RED RIVER DRIVE (STA 19+00 TO 24+15)
11	LOST WAGON DRIVE
12	HIGH MESA LANE
13	WATER DETAILS
14	SANITARY SEWER DETAILS
15	STORM SEWER DETAILS
16	STORM WATER POLLUTION PREVENTION PLAN DETAILS
17	PAVING DETAILS
18	RETAINING WALL DETAILS
19	LANDSCAPE PLAN



KEY MAP No.: 123 L&Q
LOCATION MAP
 N.T.S.



ELEVATION
 land solutions
 TBPE REGISTRATION NUMBER F-22671

ONE-CALL NOTIFICATION SYSTEM
CALL BEFORE YOU DIG!!!
 (713) 223-4567 (In Houston)
 (New Statewide Number Outside Houston)
 1-800-344-8317

48 HOUR NOTICE:
 CONTRACTOR SHALL NOTIFY KATHERINE VU
 THE CITY OF MONTGOMERY ENGINEER AND
 OPERATOR AT 713-789-1900 BEFORE
 STARTING WORK ON THIS PROJECT.

ELEVATION LAND SOLUTIONS IS NOT RESPONSIBLE FOR THE SAFETY OF ANY PARTY AT OR ON THE CONSTRUCTION SITE. SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND ANY OTHER PERSON OR ENTITY PERFORMING WORK OR SERVICES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR THE JOB SITE SAFETY OF PERSONS ENGAGED IN THE WORK OR THE MEANS OR METHODS OF CONSTRUCTION.

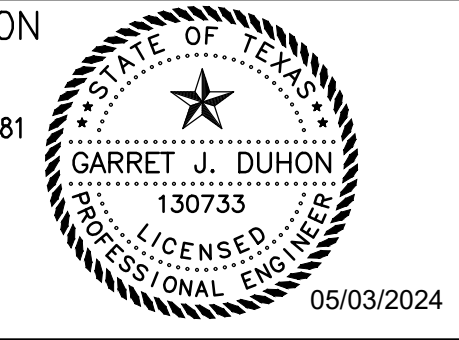
BENCHMARK:
 SOURCE BENCHMARK:
 ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL
 GEODETIC SURVEY MONUMENT DESIGNATION HGCSD 81, PID No.
 A16405
 HAVING PUBLISHED INFORMATION AS FOLLOWS:
 LATITUDE : 30° 21' 12.45392" NORTH
 LONGITUDE : 095° 34' 45.02514" WEST
 ORTHO HEIGHT : 212.4 FT. (64.74 METERS)
 HORIZONTAL DATUM : NAD83 (2011)
 VERTICAL DATUM : NAVD88

FLOODPLAIN INFORMATION:
 ACCORDING TO MAP Nos. 48339022006 OF THE FEDERAL
 EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE
 MAPS FOR MONTGOMERY COUNTY, DATED AUGUST 18, 2014,
 THE SUBJECT TRACT IS SITUATED WITHIN: UNSHADED ZONE
 "X"; DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE
 100-YEAR FLOOD PLAIN.

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE
 PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM
 FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS FLOODS
 CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE
 INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD
 STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF
 THE SURVEYOR.

REV	DATE	REVISION	APP.

GARRET J. DUHON
 9709 LAKESIDE BLVD.
 SUITE 200
 THE WOODLANDS, TX 77381
 (832) 823-2200
 130733
 05/03/2024



CITY OF MONTGOMERY CITY ENGINEER SIGNATURE BLOCK
 CITY OF MONTGOMERY CITY ENGINEER DATE
 SIGNATURE VALID FOR ONE (1) YEAR

PM: GJD DFT: MAQ
 DSN: GMC DATE: MAY 2024

p:\610.126.mabry and faulkner trac\008 sec 4.dwg\plan set.dwg\COVER SHEET & GENERAL NOTES.dwg_5/27/2024 8:03 AM

ELEVATION LAND SOLUTIONS - MONTGOMERY BEND SEC 4 - PROJECT NO. 610.126.008.00

GENERAL CONSTRUCTION NOTES

- 1. MATERIALS, CONSTRUCTION, AND TESTING TO BE IN ACCORDANCE WITH THE SPECIFICATIONS INDICATED IN THE PLANS AND CONTRACTS AND ARE TO BE INCLUDED IN ALL SETS OF CONSTRUCTION DRAWINGS.
2. CONTRACTOR TO OBTAIN ALL DEVELOPMENT AND CONSTRUCTION PERMITS REQUIRED BY CITY OF MONTGOMERY, TEXAS AT HIS EXPENSE PRIOR TO COMMENCEMENT OF WORK, WHERE APPLICABLE.
3. CONTRACTOR SHALL GIVE NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, OR PERSONS IN CHARGE OF PRIVATE AND PUBLIC UTILITIES OR RAILROADS AFFECTED BY HIS OPERATIONS 48 HOURS PRIOR TO COMMENCEMENT OF WORK LOCATED IN STREET RIGHT OF WAYS AND EASEMENTS.
4. ALL EXISTING UNDERGROUND UTILITIES ARE AN APPROXIMATE LOCATION ONLY AND ARE NOT GUARANTEED TO BE COMPLETED OR DEFINITE BUT WERE OBTAINED FROM THE BEST INFORMATION AVAILABLE.
5. THE LOCATION OF ALL UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL REQUEST THE EXACT LOCATION OF THESE FACILITIES BY CALLING THE UTILITY COMPANY, AT LEAST 48 HOURS BEFORE COMMENCING WORK.
6. TEXAS LAW ARTICLE 1436C, PROHIBITS ALL ACTIVITIES IN WHICH PERSONS OR EQUIPMENT MAY COME WITHIN 6 FEET OF ENERGIZED OVERHEAD POWER LINES.
7. CONSTRUCTION SHALL COMPLY WITH THE LATEST REVISIONS OF OSHA REGULATIONS AND STATE OF TEXAS LAW CONCERNING TRENCHING AND SHORING.
8. DETAILS PRESENTED IN THESE PLANS DO NOT EXTEND TO OR INCLUDE DESIGNED OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK.
9. CONTRACTOR SHALL COVER OPEN EXCAVATIONS WITH ANCHORED STEEL PLATES DURING NON-WORKING HOURS, ALONG EXISTING ROADWAYS AND TRAFFIC AREAS.
10. ADEQUATE DRAINAGE MUST BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE PROJECT ENGINEER.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FLAGMEN, SIGNING, STRIPING AND WARNING TRAFFIC CONTROL DEVICES, ETC. DURING CONSTRUCTION IN ACCORDANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
12. EXISTING PAVEMENT, CURBS, SIDEWALKS, AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO CITY OF MONTGOMERY STANDARDS.
13. EXISTING ROADS AND/OR RIGHT OF WAYS DISTURBED DURING CONSTRUCTION SHALL BE AS GOOD OR BETTER THAN THE CONDITION PRIOR TO STARTING WORK, UPON COMPLETION OF THE PROJECT.
14. AFTER DISTURBED AREAS HAVE BEEN COMPLETED TO THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE PLANS, SEEDING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS TO ESTABLISH ADEQUATE VEGETATION COVERAGE TO ELIMINATE EROSION.
15. ALL TRENCHES, INCLUDING TRENCHES FOR LEADS AND STUBS UNDER PAVEMENT AND TO A POINT ONE (1) FOOT BEHIND BACK OF CURB SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND AS PER CITY OF MONTGOMERY SPECIFICATIONS TO A POINT IMMEDIATELY BELOW THE SUBGRADE.
16. CONTRACTOR IS TO INCLUDE PRICE OF ALL BEDDING AND BACKFILL OF PIPES REQUIRED, IN PRICE PER LINEAR FOOT OF PIPE.
17. CONTRACTOR IS TO INCLUDE SPREADING AND COMPACTION OF SPOILS INCIDENTAL TO CONSTRUCTION OF ALL UNDERGROUND UTILITIES IN PRICE PER LINEAR FOOT OF PIPE.
18. CONTRACTOR TO REMOVE EXISTING PLUGS AND CONNECT TO EXISTING UTILITY LINES AS INDICATED ON PLANS.
19. UNLESS OTHERWISE NOTED IN PLANS, WHERE MANHOLES ARE LOCATED WITHIN THE UTILITY EASEMENT, THE CONTRACTOR SHALL SET RIM ELEVATIONS TWO INCHES ABOVE FINISHED GROUND ELEVATIONS.
20. WHEN TRENCH CONDITIONS REQUIRE THE USE OF WELL POINTS, THIS IS TO BE REQUESTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING THE MUD, DIRT, AND DEBRIS DEPOSITED ON EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY DAILY.
22. THE CONTRACTOR SHALL REMOVE ALL NON-PERMANENT SIGNS FROM THE ROW AND/OR EASEMENT LIMITS, AND RETURN THEM TO THE SIGN OWNER FOR THEM TO HAVE PLACED AT THEIR EXPENSE ON PROPERTY OTHER THAN THAT STATED ABOVE UNLESS OTHERWISE SPECIFIED.
23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATING OR REPLACING ALL EXISTING FENCES INSIDE THE WORK ZONE, TO EXISTING OR BETTER CONDITIONS, EXCEPT FOR THOSE THAT FALL WITHIN A ROAD RIGHT OF WAY.
24. THE CONTRACTOR IS RESPONSIBLE FOR RELOCATING ALL EXISTING IRRIGATION OUTSIDE OF THE RIGHT OF WAY AND/OR EASEMENT UNLESS OTHERWISE SPECIFIED ON THE PLANS.
25. ALL EQUIPMENT SHALL BE REMOVED FROM THE PROJECT SITE ONCE THE PROJECT IS COMPLETED, AS WELL AS, ALL REMAINING DEBRIS WITHIN THE PROJECT SHALL BE REMOVED AND PROPERLY DISPOSED OF AT AN APPROVED DISPOSAL SITE.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING ALL UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGE TO UTILITIES, PAVEMENT, OR OTHER INFRASTRUCTURE AS A RESULT OF ANY WORK.

GRADING NOTES

- 1. BEFORE STARTING CONSTRUCTION, CONTRACTOR SHALL VERIFY BENCHMARK ELEVATION AND NOTIFY ENGINEER IF ANY DISCREPANCY AND/OR CONFLICT IS FOUND.
2. GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE STARTING CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
3. AREAS THAT ARE TO RECEIVE FILL SHALL BE PREPARED AS FOLLOWS (NO SEPARATE PAY):
a. AREAS THAT ARE TO RECEIVE FILL WILL BE STRIPPED TO A DEPTH OF 6". STRIPPINGS SHALL BE STOCKPILED AND THEN SPREAD EVENLY ON SURFACE OF FILLED AREAS.
b. PRIOR TO PLACEMENT OF FILL ON STRIPPED AREAS, THE CONTRACTOR SHALL PROOF ROLL USING A PNEUMATIC ROLLER (12 TON OR APPROVED EQUAL) (NO SEPARATE PAY). SHOULD SOFT UNSTABLE AREAS APPEAR IN THE LOTS, THE CONTRACTOR SHALL REMOVE UNSUITABLE MATERIAL AS DIRECTED BY THE ENGINEER.
4. ALL AREAS REQUIRING FILL SHALL BE FILLED IN 8" LIFTS, WITH TESTS TAKEN AT 100 FOOT INTERVALS IN EACH LIFT, AND MECHANICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D-698/AASHTO 199). FINISH SURFACE SHALL BE LEFT LEVEL, SMOOTHED AND FINE GRADED.
5. FINAL PAYMENT SHALL BE CONTINGENT ON THE ENGINEER'S VERIFICATION THAT LOT GRADING IS IN ACCORDANCE WITH THE GRADING PLAN, AND THAT SOIL COMPACTION TESTS WERE PERFORMED AS REQUIRED.
6. CONTRACTOR SHALL ENSURE THERE IS POSITIVE DRAINAGE FROM THE PROPOSED BUILDINGS AND NO PONDING IN PAVED AREAS, AND SHALL NOTIFY ENGINEER IF ANY GRADING DISCREPANCIES ARE FOUND IN THE EXISTING AND PROPOSED GRADES PRIOR TO PLACEMENT OF PAVEMENT OR UTILITIES.
7. CONTRACTOR SHALL PROTECT ALL MANHOLE COVERS, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, POWER POLES, GUY WIRES, AND TELEPHONE BOXES THAT ARE TO REMAIN IN PLACE AND UNDISTURBED DURING CONSTRUCTION.
8. ALL EXISTING CONCRETE PAVING, SIDEWALK, AND CURB DEMOLITION SHALL BE REMOVED AND DISPOSED OF BY CONTRACTOR. DISPOSAL SHALL BE AT AN APPROVED OFF-SITE, LAWFUL LOCATION, UNLESS DIRECTED OTHERWISE BY THE OWNER.
9. EXISTING DRAINAGE SWALES: ALL EXISTING DRAINAGE SWALES SHALL BE FILLED AS SHOWN WITH MATERIAL FROM EXISTING ADJACENT SPOIL BANKS IN MAXIMUM 8" LOOSE LIFTS AND COMPACTED TO 95% PROCTOR DENSITY AS PER AASHTO TEST METHOD T-99.
10. EXISTING DRAINAGE SWALES: ALL EXISTING DRAINAGE SWALES UNDER PROPOSED CONCRETE PAVEMENT SHALL BE CLEANED, MUCKED OUT AND SCARIFIED TO A MINIMUM DEPTH OF 6" AND FILLED AS SPECIFIED ABOVE IN FILL NOTE NO. 9NO SEPARATE PAY.
11. ROADWAY EMBANKMENT: STRIP 6" OF VEGETATION FROM AREA TO BE FILLED AND RE-COMPACT SOIL TO 95% PROCTOR DENSITY, PLACE FILL MATERIAL AS SPECIFIED IN FILL NOTE NO. 9

STORM SEWER NOTES

- 1. STORM SEWER AND LEADS SHALL BE REINFORCED CONCRETE PIPE, ASTM C-76, CLASS III, WITH O-RING RUBBER GASKET JOINT, AND SHALL BE INSTALLED, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE SPECIFICATIONS INDICATED IN THE PLANS AND CONTRACTS.
2. ALL PROPOSED PIPE STUB OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 8 INCH BRICK WALLS UNLESS OTHERWISE NOTED.
3. ALL BOX CULVERTS INSTALLED SHALL BE PLACED ON A MINIMUM OF 6 INCHES OF CEMENT STABILIZED SAND (CEMENT STABILIZED SAND SHALL BE 2 SACK CEMENT PER TON). FOR INSTALLATION OF PRE-CAST CONCRETE BOX CULVERTS IN POOR SOIL CONDITIONS, A 7 INCH REINFORCED CONCRETE SLAB SHALL BE INSTALLED. FOR INSTALLATION OF MONOLITHIC REINFORCED CONCRETE BOX CULVERTS IN POOR SOIL CONDITIONS, A 4 INCH THICK CLASS "C" CONCRETE SEAL SLAB SHALL BE INSTALLED, PRIOR TO CONSTRUCTION OF BOX CULVERTS.
4. STORM SEWER MANHOLES, INLETS, AND JUNCTION BOXES SHALL BE STANDARD PRE-CAST, UNLESS OTHERWISE NOTED.
5. ALL INLETS TO BE TYPE "C" UNLESS OTHERWISE STATED ON PLANS
6. ALL STORM SEWER LEADS SHALL BE 24 INCH MINIMUM UNLESS OTHERWISE INDICATED.
7. GRADE DROP ON LEADS BETWEEN INLETS TO BE A MINIMUM OF 0.20 FOOT. GRADE DROP BETWEEN INLET AND MANHOLES TO BE 0.20 FOOT UNLESS OTHERWISE SHOWN.
8. WHEN MANHOLE FRAME AND COVER IS REQUIRED, USE VULCAN FOUNDRY V-1418-Z FRAME AND COVER (OR EQUAL), UNLESS OTHERWISE INDICATED ON THE PLANS.
9. FOR ADJUSTMENT OF MANHOLE LIDS USE STANDARD CONCRETE RINGS.
10. CONCRETE USED FOR ALL POURED-IN-PLACE MANHOLES, INLETS, WINGWALLS, HEADWALLS AND OTHER APPURTENANCES TO BE CLASS "A" CONCRETE WITH 3,000 P.S.I STRENGTH AT 28 DAYS.
11. ALL EXPOSED CORNERS TO BE CHAMFERED 3/4".
12. ALL STORM SEWER PIPES UNDER OR WITHIN 1' OF PAVEMENT SHALL BE BACKFILLED WITH COMPACTED CEMENT STABILIZED SAND (2.0 SACKS PER TON OF SAND) TO THE BOTTOM OF 6" STABILIZED SUBGRADE.

CITY OF MONTGOMERY GENERAL CONSTRUCTION NOTES:

- 1. CONTRACTOR SHALL CONTACT CITY OF MONTGOMERY CITY ENGINEER, KATHERINE VU AT (713) 789-1900 A MINIMUM OF 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
2. CONTRACTOR SHALL CONTACT CITY OF MONTGOMERY DIRECTOR OF PUBLIC WORKS, MIKE MUCKLERORY AT (936) 597-6434 A MINIMUM OF 48 HOURS PRIOR TO COMMENCING CONSTRUCTION TO SET UP AN INSPECTION TO VERIFY CITY'S FACILITIES.
3. CONTRACTOR TO CONTACT CITY OF MONTGOMERY UTILITY OPERATOR, JACOB WILLIAMS OF H2O INNOVATIONS AT (281) 353-9809 A MINIMUM OF 48 HOURS PRIOR TO COMMENCING CONSTRUCTION TO SET UP AN INSPECTION TO VERIFY CITY'S FACILITIES.
4. THE CITY UTILITY OPERATOR AND PUBLIC WORKS FOREMAN SHALL BE NOTIFIED 24 HOURS IN ADVANCE TO WITNESS AND INSPECT ANY SANITARY SEWER LINE CONNECTION. NO SANITARY SEWER LINES SHALL BE BACKFILLED BEFORE THE CITY'S UTILITY OPERATOR OR PUBLIC WORKS FOREMAN HAS INSPECT THE CONNECTION.
5. CONTRACTOR SHALL CONTACT THE CITY'S OPERATOR OR PUBLIC WORKS FOREMAN TO OPERATE ANY VALVES. AT NO TIME IS THE CONTRACTOR OR CONTRACTOR'S REPRESENTATIVE TO OPERATE ANY PART OF THE CITY OF MONTGOMERY WATER SYSTEM.
6. THE OWNER OR CONTRACTOR SHALL INSTALL AND TEST APPROPRIATE BACKFLOW PREVENTION, PER THE CITY OF MONTGOMERY RULES & REGULATIONS.
7. ALL TAPS TO THE CITY'S SYSTEM SHALL BE MADE BY THE CITY'S OPERATOR AT THE OWNERS EXPENSE
8. IF THE ELECTRICAL UTILITY PROVIDER STANDARDS CONFLICT WITH THE APPROVED LAYOUT BY THE CITY AND/OR CITY STANDARDS, A VARIANCE MUST BE RECEIVED FROM THE CITY COUNCIL.

CITY OF MONTGOMERY ORDINANCE NOTES:

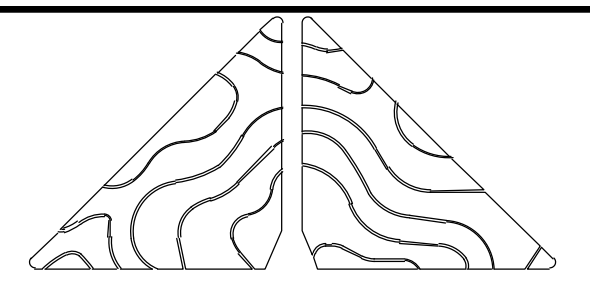
- 1. REMAINING TREE COVERAGE MUST COMPLY WITH ALL APPLICABLE CITY OF MONTGOMERY ORDINANCES. A TREE PRESERVATION PLAN SHOWING COMPLIANCE WITH CANOPY COVERAGE REQUIREMENTS WILL BE SUBMITTED WITH THE CONSTRUCTION PLANS FOR THE DEVELOPMENT.

SANITARY SEWER NOTES:

- 1. ALL SANITARY SEWER MUST BE IN COMPLIANCE OF TCEQ CHAPTER 217.
2. SANITARY SEWERS SHALL BE CONSTRUCTED AND TESTED IN COMPLIANCE OF THE TCEQ REQUIREMENTS, UNLESS OTHERWISE SPECIFIED.
3. BACKFILL AND BEDDING FOR SANITARY SEWER MUST MEET THE MINIMUM REQUIREMENTS OF ASTM D-2321 AND IN ACCORDANCE WITH THE SPECIFICATIONS AND DETAILS FOUND IN THIS PLAN SET AND IN THE CONTRACTS.
4. SANITARY SEWER PIPE SHALL BE PVC SDR 26 OR PVC SDR 35 (WITH APPROVAL), IN ACCORDANCE WITH ASTM SPECIFICATIONS D-3034, FOR 4" THROUGH 15" AND ASTM F-879 FOR 18" THROUGH 27", UNLESS OTHERWISE SPECIFIED. MINIMUM SIZE SANITARY SEWER MAIN IS 6". SDR 35 MAY BE USED WHEN DEPTH IS MORE THAN 3 FEET AND LESS THAN 6 FEET.
5. SEWER LINES SHALL BE LOCATED ON THE OPPOSITE SIDE OF THE STREET FROM WHERE WATER IS LOCATED.
6. CONTRACTOR SHALL PROVIDE A MINIMUM HORIZONTAL CLEARANCE OF 9' (NINE FEET) BETWEEN WATER LINES AND SANITARY SEWER MANHOLES AND LINES PER TCEQ CHAPTER 290.
7. CONTRACTOR SHALL PROVIDE 24-INCHES OF CLEARANCE AT ALL SANITARY SEWERS CROSSING WATER LINES.
8. NO SEWER PIPE SHALL BE LAID ON AN UNSTABLE FOUNDATION. SELECTED MATERIAL SHALL BE USED AND/OR WET SAND CONSTRUCTION DETAILS, WHICHEVER APPLIES IN THE OPINION OF THE ENGINEER. NO PIPE SHALL BE COVERED WITHOUT APPROVAL OF THE ENGINEER OR HIS REPRESENTATIVE. SANITARY SEWERS CONSTRUCTED IN WET SAND SHALL HAVE A SPECIAL PROCEDURE.
9. WHEN THE NATURAL GROUND LEVEL AROUND MANHOLE LIES BELOW THE 100 YEAR FLOODPLAIN ELEVATION, THE MANHOLE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATION AND DETAILS FOUND IN THE PLAN SET AND IN THE CONTRACTS, FOR A SEALED AND VENTED MANHOLE.
10. A DEFLECTION TEST SHALL BE PERFORMED AFTER THE BACKFILL HAS BEEN IN PLACE A MINIMUM OF 30 DAYS. THIS TEST SHALL BE DONE BY PULLING A HAND LINE WITH AN ATTACHED MANDREL FROM MANHOLE TO MANHOLE. THE MANDREL SHALL HAVE AN OUTSIDE DIAMETER THAT IS AT LEAST 95% OF THE ORIGINAL INSIDE DIAMETER OF THE PIPE MANDREL TO BE MANUFACTURED WITH A MINIMUM OF SEVEN (7) RUNNERS, WITH EACH RUNNER BEING A MINIMUM OF 5 INCHES LONG. ANY PIPE NOT MEETING TEST REQUIREMENTS TO BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. THE TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES.
11. WHERE A SEWER LINE HAS LESS THAN (2) FEET OF COVER, PROVIDE CEMENT STABILIZED SAND BACKFILL MATERIAL.
12. WHEN MANHOLE FRAME AND COVER IS REQUIRED, USE VULCAN FOUNDRY V-1418-2 FRAME AND COVER (OR EQUAL), UNLESS OTHERWISE INDICATED ON THE PLANS.
13. CONTRACTOR SHALL KEEP RECORD OF LOCATION OF ALL STACKS, STUBS, SEWER LEADS, ETC. THE AS-BUILT DRAWINGS MUST SHOW THE EXACT LOCATION.
14. IF SANITARY SERVICE LEADS ARE INSTALLED DURING CONSTRUCTION OF MAIN LINE, ALL LEADS TO HAVE A MINIMUM SLOPE OF 0.70% OR GREATER. ALL PVC LEADS TO BE THE SAME MATERIAL AS MAIN LINE. ALL DOUBLE SERVICE LEADS TO HAVE WYE LOCATED ON THE END OF THE LEAD. ALL SINGLE SERVICE LEADS TO BE 6 INCH, AND ALL DOUBLE SERVICE LEADS TO BE 6 INCH. IF AN 8 INCH LEAD IS REQUIRED, LEADS MUST HAVE A MINIMUM SLOPE OF 0.44%.
15. BYPASSING (DISCHARGING) OF RAW SEWAGE ON THE SURFACE OR TO ADJOINING WATERWAYS IS STRICTLY PROHIBITED.
16. CONTRACTOR SHALL PERFORM BYPASS PUMPING AS REQUIRED. THERE SHALL BE NO SEPARATE PAYMENT FOR BYPASS PUMPING PERFORMED ON THIS PROJECT.
17. CONTRACTOR TO VERIFY LOCATIONS OF EXISTING WATERLINES DURING CONSTRUCTION. IF THE REQUIRED SEPARATION DISTANCE BETWEEN PARALLEL WATER AND SEWER LINES, AS DETAILED IN TECHNICAL SPECIFICATION SECTION 33 31 13, CANNOT BE MAINTAINED, CONTRACTOR TO RELOCATE WATERLINE AS DIRECTED BY THE ENGINEER.
18. WHERE A WET CONNECTION TO AN EXISTING 6" OR 8" LINE IS TO BE MADE BY CUTTING THE EXISTING LINE, DR18 C-900 PVC PIPE SHALL BE USED TO REPLACE THE SECTION OF OLD ONE REMOVED AND SHALL BE COUPLED TO THE EXISTING ONE WITH A SOUND D.L. SLEEVE. SEPARATE COMPENSATION WILL BE MADE FOR THE REQUIRED DUCTILE IRON FITTINGS. THE BID PRICE FOR WET CONNECTION TO AN EXISTING ONE SHALL INCLUDE LABOR, TOOLS, PIPE, AND MISCELLANEOUS FITTINGS FOR SMALL DIAMETER PIPE NOT OTHERWISE PROVIDED FOR IN THE BID PROPOSAL.
19. ALL PENETRATIONS INTO A SANITARY SEWER MANHOLE, INCLUDING SERVICE LEADS SHALL BE SERVED BY AN INVERT. ALL INVERTS SHALL EXTEND ALL THE WAY TO THE WALLS OF THE MANHOLE.
20. INSTALLATION OF GRAVITY SANITARY SEWER PIPE AND FORCE MAIN BY TRENCHLESS CONSTRUCTION SHALL MEET ASTM, ANSI, AND AWWA STANDARDS. IF THERE IS A CONFLICT IN STANDARDS THE MOST STRINGENT SHALL GOVERN.
21. ALL SANITARY SEWER PIPES UNDER OR WITHIN 1' OF PAVEMENT SHALL BE BACKFILLED WITH COMPACTED CEMENT STABILIZED SAND (2.0 SACKS PER TON OF SAND) TO THE BOTTOM OF 6" STABILIZED SUBGRADE.
22. THE PROPOSED CONNECTION OF THE SANITARY SEWER LINE TO THE SANITARY SEWER MANHOLE SHALL BE BY MEANS OF CORE AND BOOT AT SPECIFIED FLOWLINE. THE OPENING IN THE SIDE OF THE MANHOLE SHALL NOT BE MORE THAN 3-INCHES NOR LESS THAN 1-INCH IN DIAMETER THAN THE OUTSIDE DIAMETER FOR THE PROPOSED PIPE. THE PROPOSED PIPE SHALL NOT PRODUCE MORE THAN 3-INCHES PAST THE INSIDE FACE OF THE MANHOLE WALL. FILL THE ENTIRE VOID AROUND THE EXISTING MANHOLE WITH CEMENT-SAND. CONNECTION TO EXISTING PUBLIC SANITARY SEWER MANHOLE SHALL BE COMPLETED BY THE CITY OF MONTGOMERY AT THE OWNER'S EXPENSE.

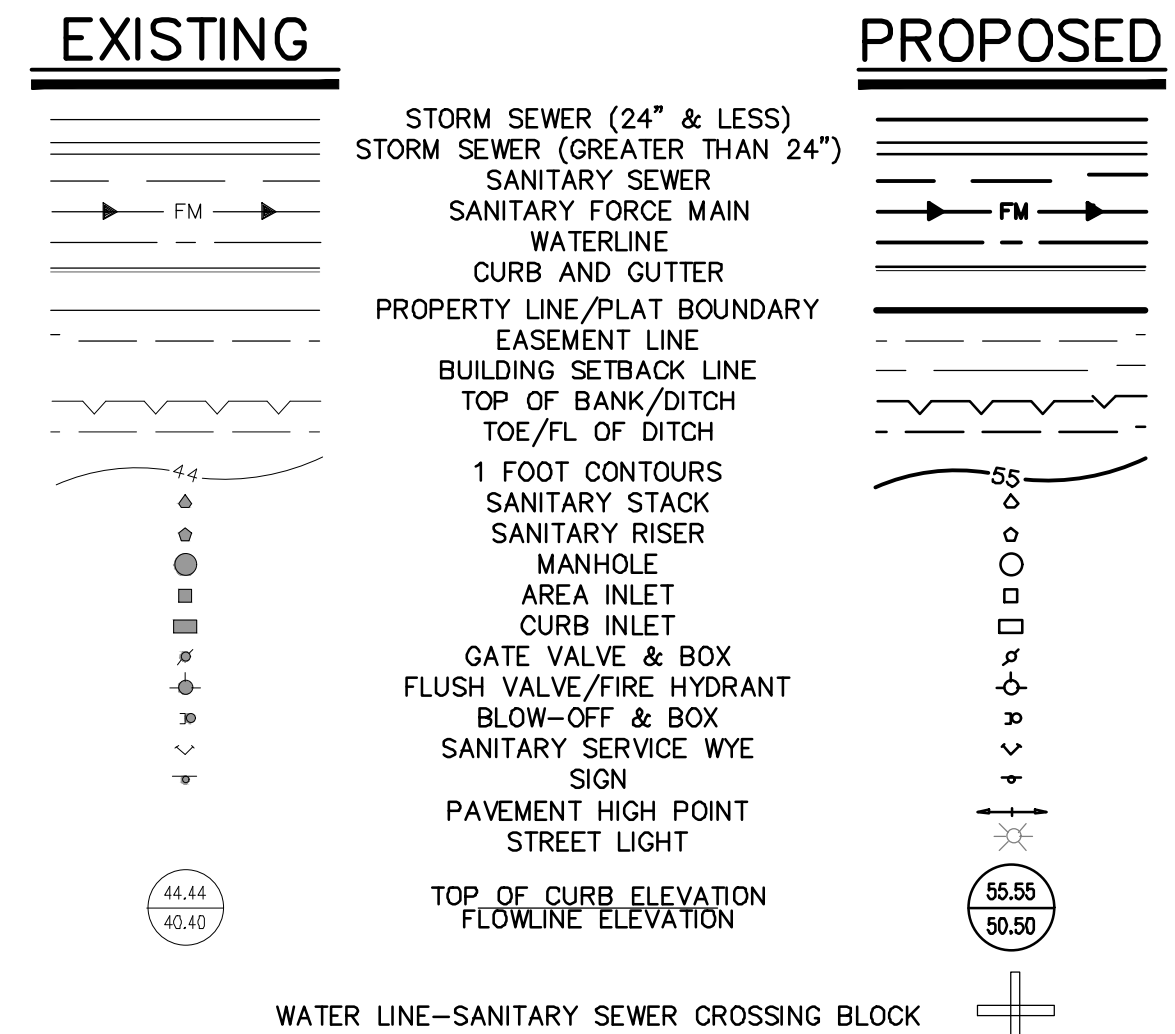
WATER CONSTRUCTION NOTES:

- 1. CONTRACTOR SHALL PROVIDE ADEQUATE THRUST BLOCKING TO WITHSTAND TEST PRESSURE AS SPECIFIED IN THE SPECIFICATIONS INDICATED IN THE PLANS AND CONTRACTS FOR WATER MAIN CONSTRUCTION AND MATERIALS.
2. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE/NSF INTERNATIONAL (ANSI/NSF) STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI.
3. ALL PLASTIC PIPES FOR USE IN PUBLIC WATER SYSTEMS MUST ALSO BEAR THE NSF INTERNATIONAL SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATINGS OF AT LEAST 150 POUNDS PER SQUARE INCH (PSI) OR A STANDARD DIMENSION RATIO OF 26 OR LESS.
4. PRIOR TO INSTALLATION OF WATER METER, WATER METER LEAD OR UNMETERED FIRE SPRINKLER LINE, THE CONTRACTOR SHALL CONTACT THE PROVIDER.
5. PRIOR TO WATER MAIN CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE CITY ENGINEER NO LESS THAN 48 HOURS IN ADVANCE AND COMPLY WITH ALL REQUIREMENTS NECESSARY FOR APPROVAL OF THE WATER MAIN CONSTRUCTION.
6. ALL WATER LINE AND SEWER LINE CROSSINGS SHALL BE CONSTRUCTED PER TCEQ REGULATIONS.
7. TWELVE-INCH (12") AND SMALLER MAINS SHALL HAVE A MINIMUM COVER OF FOUR FEET (4') FROM THE TOP OF CURB OR FIVE FEET (5') FROM THE MEAN ELEVATION OF THE BOTTOM OF THE NEARBY DITCH AND NEARBY RIGHT-OF-WAY ELEVATION FOR OPEN DITCH SECTIONS.
8. MAINS LARGER THAN TWELVE-INCHES (12") SHALL HAVE A MINIMUM COVER OF FIVE FEET (5') FROM THE TOP OF THE CURB OR SIX FEET (6') FROM THE MEAN ELEVATION FOR OPEN DITCH SECTIONS.
9. ALL WATER MAINS SHALL BE HYDROSTATICALLY TESTED BEFORE BACTERIOLOGICAL TESTING IN ACCORDANCE WITH AWWA STANDARD C-600 FOR DI PIPE OR C-605 FOR PVC AS REQUIRED IN 30 TAC 290-44 (A) (5).
10. ALL WATER PIPING SHALL BE DISINFECTED AND BACTERIOLOGICALLY TESTED PRIOR TO USE IN ACCORDANCE WITH AWWA STANDARD C-651.
11. ALL WATER MAINS 4" AND LARGER SHALL BE C-900 (SDR-18), UNLESS OTHERWISE NOTED IN PLANS.
12. THE INSTALLATION OF ALL WATER LINES SHALL EXTEND ALONG THE ENTIRE LENGTH OF THE PROPERTY TO BE SERVED. WATER LINES THAT DEAD END SHALL EXTEND TO THE PROJECT LIMITS FOR FUTURE EXTENSIONS.
13. ALL WATER VALVES SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA C-500 AND SHALL BE OF THE RESILIENT SEAT TYPE.
14. THE USE OF PIPES AND PIPE FITTINGS THAT CONTAIN MORE THAN 0.25% LEAD OR SOLDERS AND FLUX THAT CONTAINS MORE THAN 0.2% LEAD IS PROHIBITED.
15. WATER MAINS CROSSING OR WITHIN 1' OF PAVEMENT SHALL HAVE A BANK SAND ENVELOPE OF 12" AND THE REMAINING TRENCH FILLED WITH COMPACTED CEMENT STABILIZED SAND (2.0 SACK PER TON SAND) TO BOTTOM OF 6" STABILIZED SUBGRADE.



ELEVATION land solutions
TBPE REGISTRATION NUMBER F-22671
9709 LAKESIDE BLVD, SUITE 200
THE WOODLANDS, TX 77381 832-823-2200

STANDARD SYMBOLS



ABBREVIATIONS

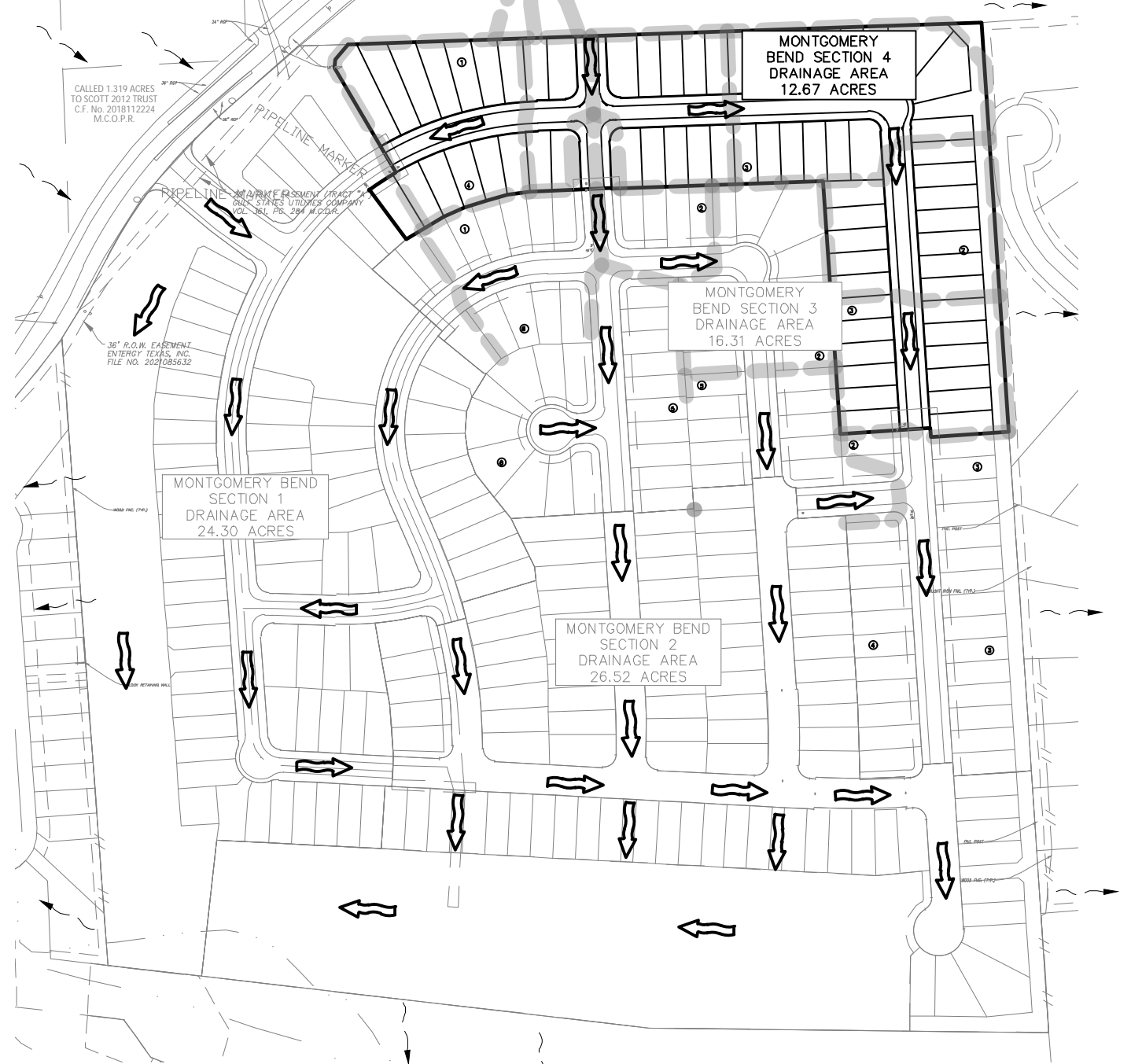
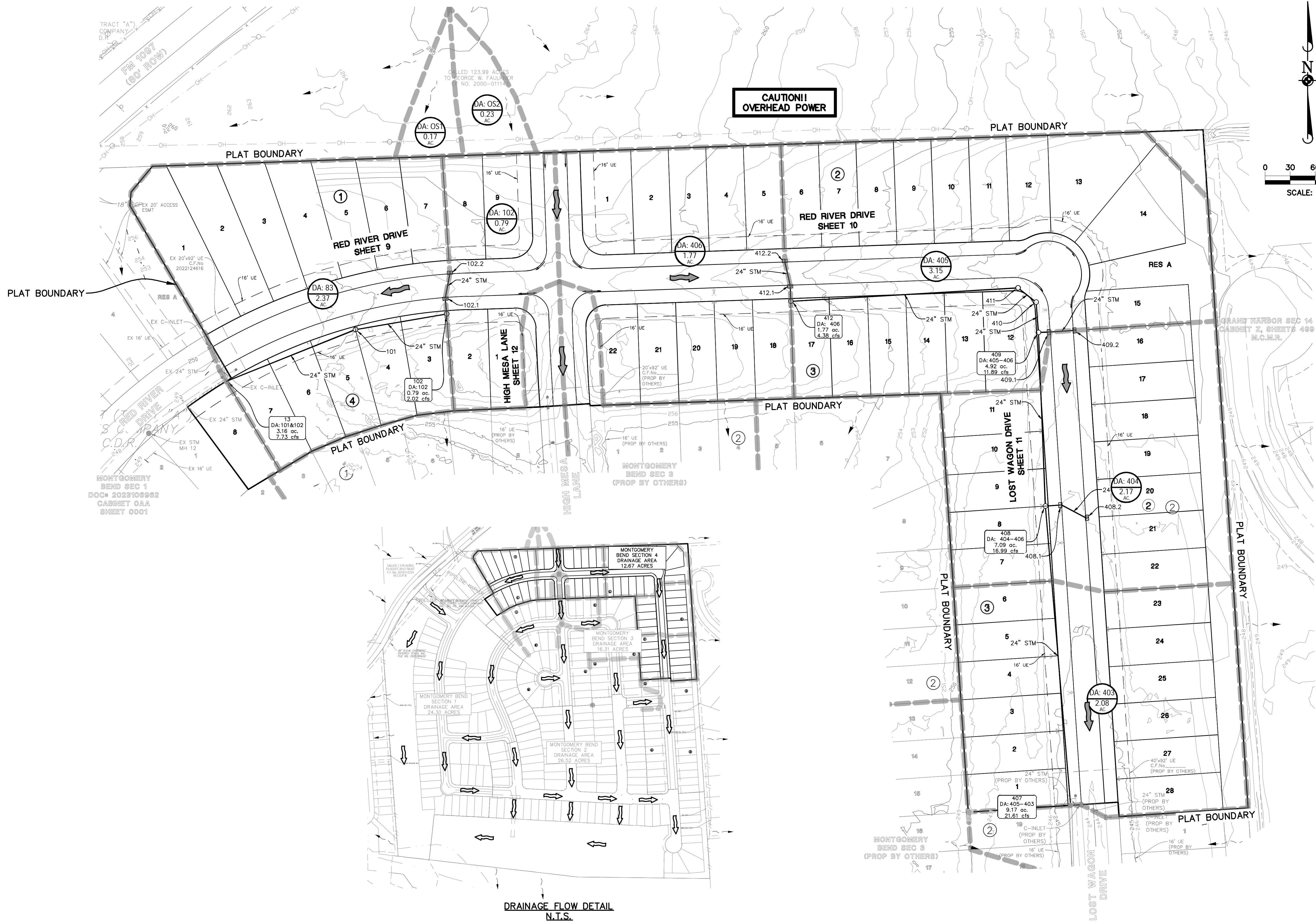
Table with columns for existing and proposed abbreviations and their corresponding descriptions, such as ADJ ADJACENT, PT POINT OF TANGENCY, PVC POINT OF VERTICAL CURVE, etc.

Table with columns for DATE, REVISION, and APP. (Approval) for tracking changes to the drawing.

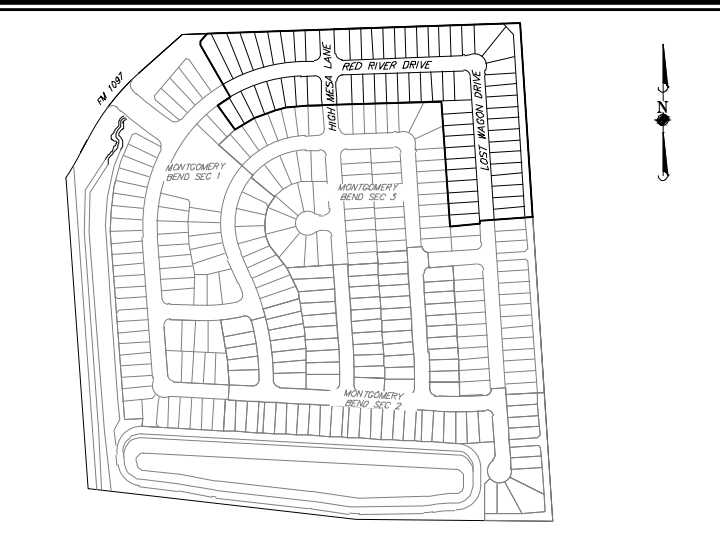
Professional Engineer Signature Block for Garret J. Duhon, City of Montgomery City Engineer, including registration number F-22671 and date 05/03/2024.

CITY OF MONTGOMERY CITY ENGINEER SIGNATURE VALID FOR ONE (1) YEAR
DATE
GENERAL NOTES
SHEET 2 OF 19

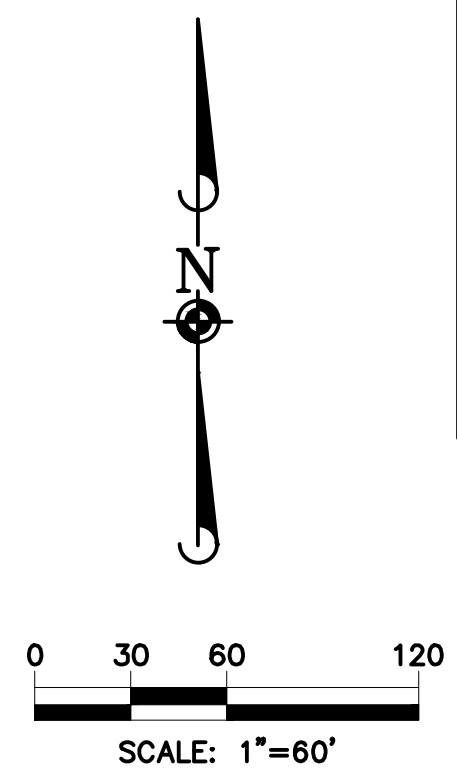
22x34 p:\G\0126 mabr and foulkner trac\008 sec 4.dwg.pln set drawings\COVER SHEET & GENERAL NOTES.dwg_5/2/2024 8:03 AM_GDUHON PROJECT NO. 610.126.008-00 ELEVATION LAND SOLUTIONS - MONTGOMERY BEND SEC. 4 - PROJECT NO. 610.126.008-00



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KEY MAP



LEGEND

- DRAINAGE AREA NUMBER
- DRAINAGE AREA IN ACRES
- 5 YEAR FLOW IN C.F.S.
- DRAINAGE AREA BOUNDARY
- DIRECTION OF 100 YEAR FLOW
- OFFSITE DRAINAGE FLOW

BENCHMARK:
SOURCE BENCHMARK:
ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGCS D 81, PID NO. A16405
HAVING PUBLISHED INFORMATION AS FOLLOWS:
LATITUDE : 30° 21' 12.45392" NORTH
LONGITUDE : 095° 34' 45.02514" WEST
ORTHO HEIGHT : 212.4 FT. (64.74 METERS)
HORIZONTAL DATUM : NAD83 (2011)
VERTICAL DATUM : NAVD88

FLOODPLAIN INFORMATION:
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GARRET J. DUHON
9709 LAKESIDE BLVD.
SUITE 200
THE WOODLANDS, TX 77381
(832) 823-2200

Garret J. Duhon
TBPE NO. F-22671

CITY OF MONTGOMERY CITY ENGINEER SIGNATURE BLOCK

CITY OF MONTGOMERY CITY ENGINEER DATE
SIGNATURE VALID FOR ONE (1) YEAR

DRAINAGE LAYOUT

Project: Montgomery Bend
 Job Number: 610.126.007.00
 Design By: MQ/GC Last Updated: 5/3/2024
 Jurisdiction: Montgomery County Outside Houston ETJ
 Storm Year 1: 5-yr Design Event Ponding Limit: 0.00
 Storm Year 2: 100-yr Extreme Event Ponding Limit: 1.00
 Storm Year 3:

Outfall and Tailwater Conditions			
	Flowline	5-yr HGL	100-yr HGL
Outfall_1	220.47	226	228.05
Outfall_2	220.85	226.00	228.05
Outfall_3	221.14	226	228.05
Outfall_4	221.54	226	228.05

$$Intensity (I) = \frac{b}{(d + T_c)^a} \cdot C_f$$

Upstream Tc = 15 + 10 * (Ac^{0.1741})

Intensity Coefficients for:
Montgomery County Outside Houston ETJ

	5-yr	100-yr
b	54.09	56.68
d	8.34	4.46
e	0.7051	0.5857
Cf	1.00	1.25

Alignment/Road	Pipe and Road Properties												Drainage Areas					Intensity & Flow				TOC			5-yr Hydraulic Grade Line					100-yr Hydraulic Grade Line					TP 101 - Method 1		TP 101 - Method 2																
	Node Upstream	Node Downstream	Pipe Length (ft.)	Pipe Diameter or Rise (in.)	Box Span (in.)	Slope	Mannings "n"	Design Capacity (cfs)	Design Velocity (ft/sec)	Fall (ft.)	Top of Curb Upstream (ft.)	Gutter Elevation Upstream (ft.)	Gutter Elevation at Downstream High Point (ft.)	Node Drop Downstream (ft.)	Flowline Elevation Upstream (ft.)	Flowline Elevation Downstream (ft.)	Drainage Area Inlet Pipes (ac.)	Contributing Area Total Area (ac.)	Runoff Coefficient "C"	Weighted C	Sum of C*A	5-yr Intensity (in/hr)	5-yr Flow (cfs)	100-yr Intensity (in/hr)	100-yr Flow (cfs)	Time of Concentration (mins)	Change in Time of Concentration (mins)	Total TOC (mins)	Actual Velocity (ft./sec.)	Hydraulic Gradient (%)	Change in Head (ft.)	Elevation of Hyd. Grad. Upstream (ft.)	Elevation of Hyd. Grad. Downstream (ft.)	Upstream HGL Below Gutter (Pass/Fail)	Actual Velocity (ft./sec.)	Hydraulic Gradient (%)	Change in Head (ft.)	Elevation of Hyd. Grad. Upstream (ft.)	Elevation of Hyd. Grad. Downstream (ft.)	Max Ponding Elevation Upstream (ft.)	Upstream HGL Below Gutter (Pass/Fail)	Max Ponding Elevation (Pass/Fail)	Max Allowed Overland Flow (Q _{low}) (cfs)	Required Overland Flow (Q _{req}) (cfs)	Depth of Flow at High Point	Upstream Q _{req} 5 Q _{allow} (Pass/Fail)							
	Longhorn Run Drive	22	2	171	24		0.5	0.013	16.00	5.09	0.86	239.26	238.76		4.06	230.91	230.05	14	1.17	0.00	1.17	0.55	0.55	0.64	4.54	2.92	9.71	6.25	25.28	0.56	25.84	0.93	0.02	0.03	232.91	232.05	PASS	1.99	0.08	0.13	232.91	232.05	240.26	PASS									

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GARRET J. DUHON
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 SUITE 200
 THE WOODLANDS, TX 77381
 (832) 823-2200

Garret J. Duhon
 LICENSED PROFESSIONAL ENGINEER
 130733
 05/03/2024

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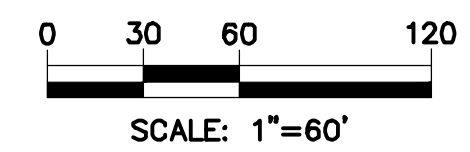
CITY OF MONTGOMERY CITY ENGINEER SIGNATURE VALID FOR ONE (1) YEAR DATE

DRAINAGE CALCULATIONS

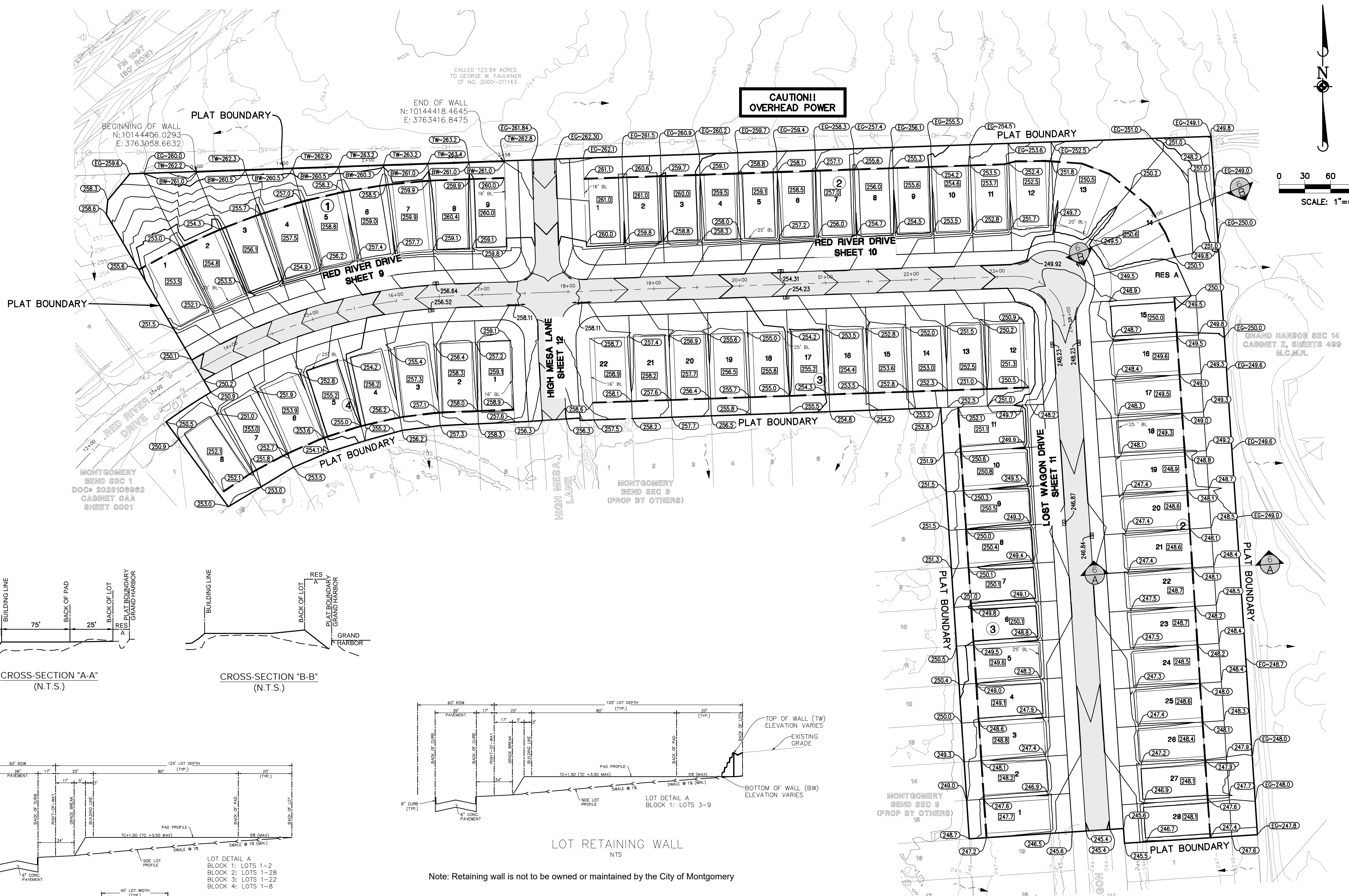
SHEET 5 OF 19

LEGEND

- EG-55.0 MATCH EXISTING GROUND ELEV.
- 55.0 LOT GRADE ELEVATION
- 55.55 TOP OF CURB ELEVATION
- PROPOSED GRADE BREAK
- OFFSITE DRAINAGE FLOW
- 555.5 PAD ELEVATION



**CAUTION!!
OVERHEAD POWER**



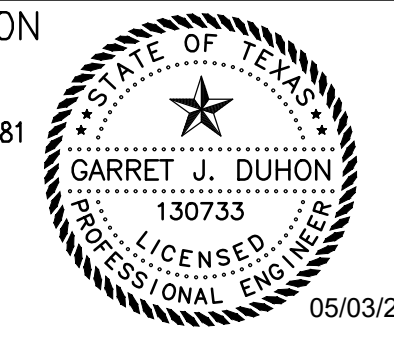
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(832) 823-2200
Garret J. Duhon
TBPE NO. F-22671
05/03/2024



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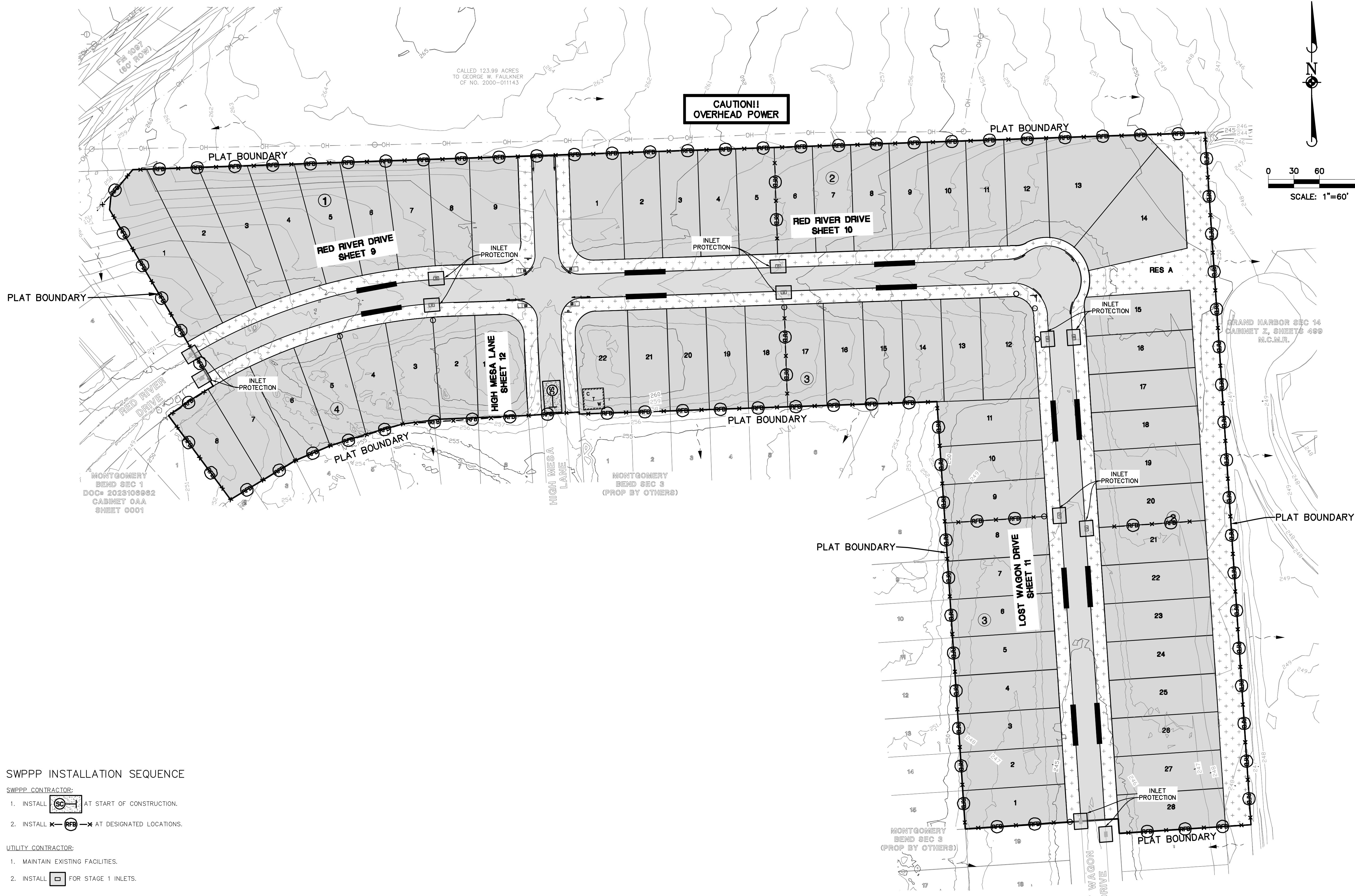
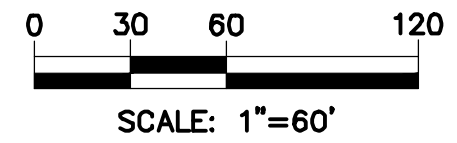
LOT GRADING LAYOUT

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ELEVATION LAND SOLUTIONS - MONTGOMERY BEND SEC. 4 - PROJECT NO. 610.126.008.00



ELEVATION
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9709 LAKESIDE BLVD, SUITE 200
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LEGEND

- TEMPORARY REINFORCED FILTER FABRIC FENCE (PERIMETER EROSION BARRIER)
 - STABILIZED CONSTRUCTION ACCESS (LOCATION TO BE DETERMINED BY CONTRACTOR)
 - CONCRETE TRUCK WASHOUT AREA
 - TEMPORARY STORM STRUCTURE PROTECTION
 - OVERLAND DRAINAGE FLOW
 - HYDROMULCH
 - BROADCAST SEEDING
 - TEMP. CURB REINFORCED FILTER FABRIC FENCE
- NOTE: REINFORCED FILTER FABRIC BARRIER TO BE PLACED BEHIND ALL BACK OF CURB

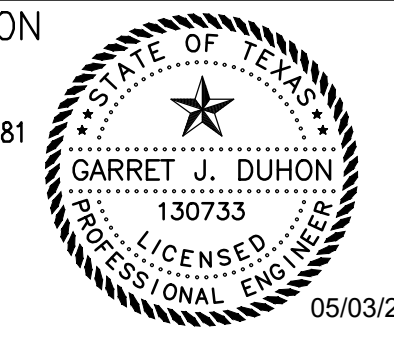
BENCHMARK:
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(832) 823-2200



Garret J. Duhon
TBPE NO. F-22671

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CITY OF MONTGOMERY CITY ENGINEER _____ DATE _____
SIGNATURE VALID FOR ONE (1) YEAR

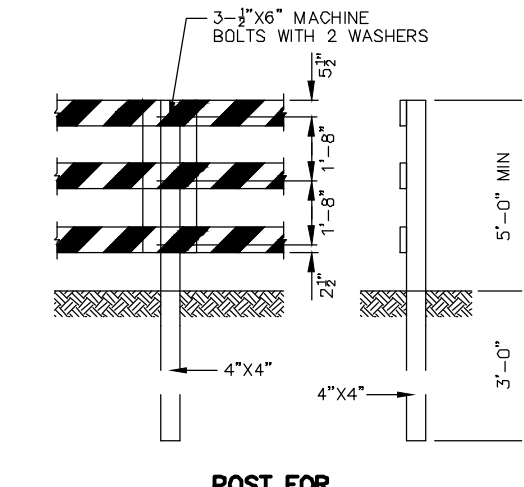
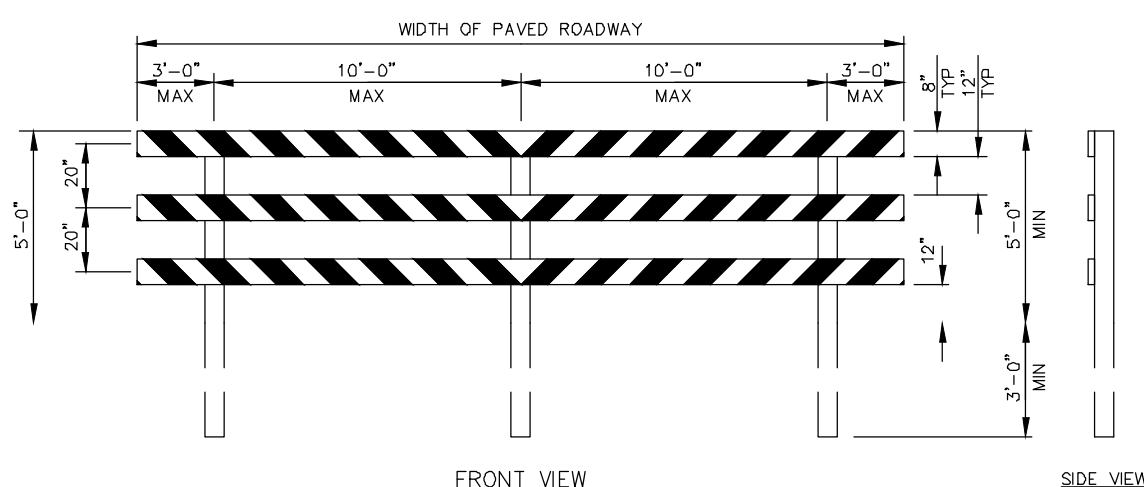
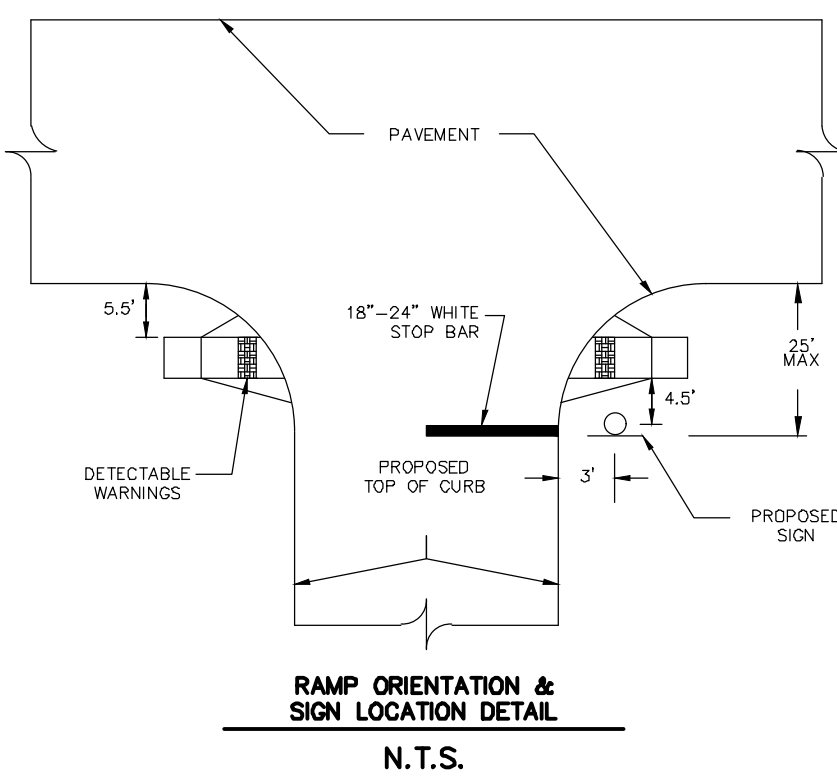
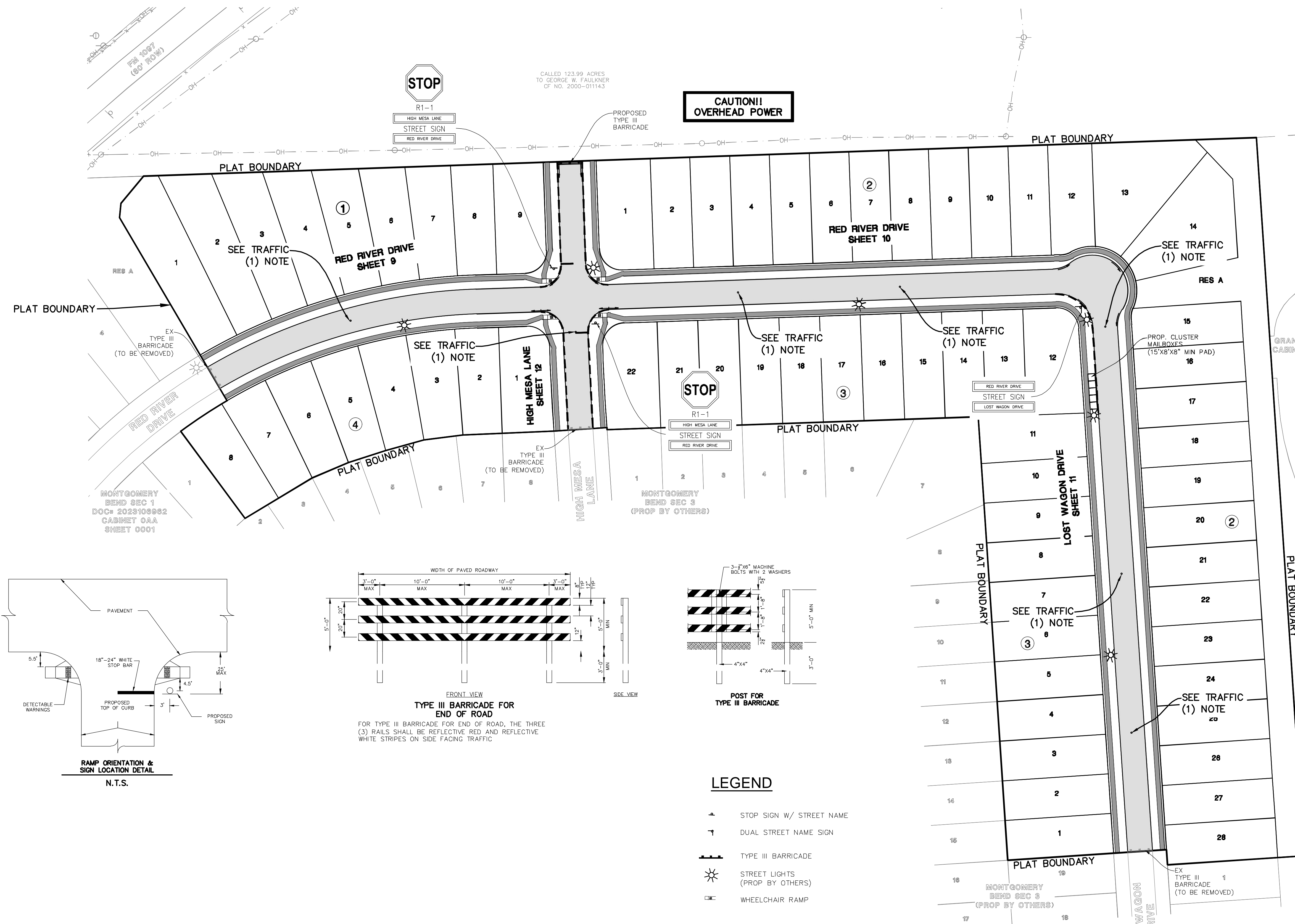
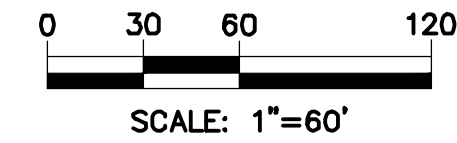
STORM WATER POLLUTION PREVENTION PLAN LAYOUT

SWPPP INSTALLATION SEQUENCE

- SWPPP CONTRACTOR:**
1. INSTALL AT START OF CONSTRUCTION.
 2. INSTALL AT DESIGNATED LOCATIONS.
- UTILITY CONTRACTOR:**
1. MAINTAIN EXISTING FACILITIES.
 2. INSTALL FOR STAGE 1 INLETS.
- PAVING CONTRACTOR:**
1. MAINTAIN EXISTING FACILITIES.
- SWPPP CONTRACTOR:**
1. INSTALL AT DESIGNATED LOCATIONS.
 2. INSTALL FOR STAGE 2 INLETS UPON COMPLETION OF PAVING.
 3. AREA WITHIN ROW AND ADJACENT EASEMENTS DISTURBED DURING CONSTRUCTION OF UTILITIES TO BE HYDRO-MULCH SEEDED UPON COMPLETION OF UTILITIES.
 4. BROADCAST SEEDING OF DISTURBED AREAS AFTER FINAL GRADING.



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FOR TYPE III BARRICADE FOR END OF ROAD, THE THREE (3) RAILS SHALL BE REFLECTIVE RED AND REFLECTIVE WHITE STRIPES ON SIDE FACING TRAFFIC

- LEGEND**
- STOP SIGN W/ STREET NAME
 - DUAL STREET NAME SIGN
 - TYPE III BARRICADE
 - STREET LIGHTS (PROP BY OTHERS)
 - WHEELCHAIR RAMP
 - PROPOSED 6" CURB
 - PROPOSED 4"x12" CURB
 - PROPOSED STOP BAR
 - PROPOSED 5' SIDEWALKS (PROP BY OTHERS)
- SIDEWALK NOTE: SIDEWALKS SHALL BE CONSTRUCTED BY THE DEVELOPER PRIOR TO THE CITY ACCEPTANCE OF THE INFRASTRUCTURE

- STREET LIGHTS:**
- POLES MUST BE A MINIMUM OF 3FT OF BACK OF CURB.
 - IF THE ELECTRICAL UTILITY PROVIDER STANDARDS CONFLICT WITH THE APPROVED LAYOUT BY THE CITY AND/OR CITY STANDARDS, A VARIANCE MUST BE RECEIVED FROM CITY COUNCIL.

- TRAFFIC BUTTONS:**
- PLACE BLUE TRAFFIC BUTTONS 6" OFF THE CENTERLINE OF THE ROADWAY TOWARDS THE RELATED FLUSH VALVE.

- STREET SIGN NOTES:**
- CONTRACTOR TO VERIFY ALL STREET SIGNS WITH THE RECORDED PLAT PRIOR TO ORDERING THE SIGNS.
 - ALL R-1 STOP SIGNS SHALL BE 30" X 30" DIAMOND GRADE SHEETING.
 - ALL STREET NAME SIGNS SHALL BE 9" BLADE.
 - CONTRACTOR TO COORDINATE STREET SIGN COLOR AND TEXT STYLE WITH THE ENGINEER PRIOR TO ORDERING STREET SIGNS.
 - ALL COMBINATION STREET AND REGULATORY SIGNS SHALL BE LOCATED AT CURB RETURNS UNLESS OTHERWISE NOTED.

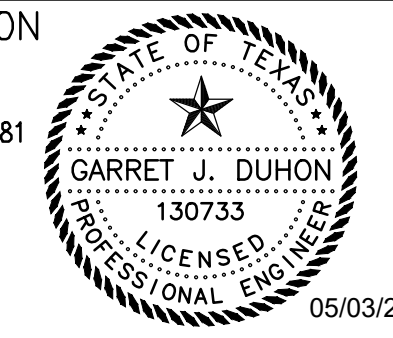
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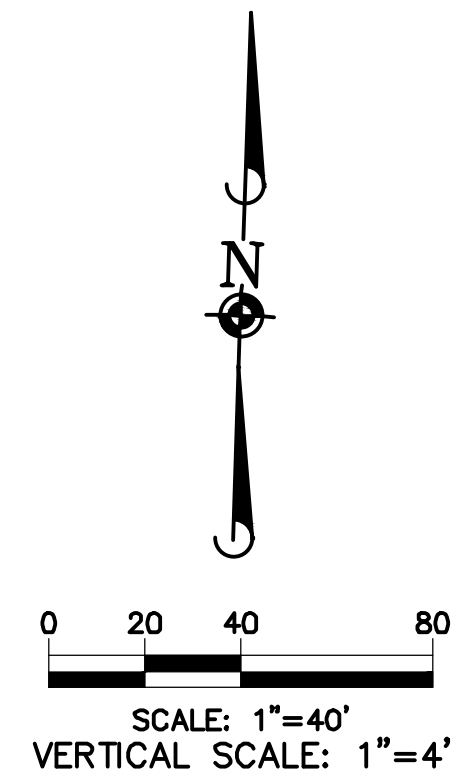
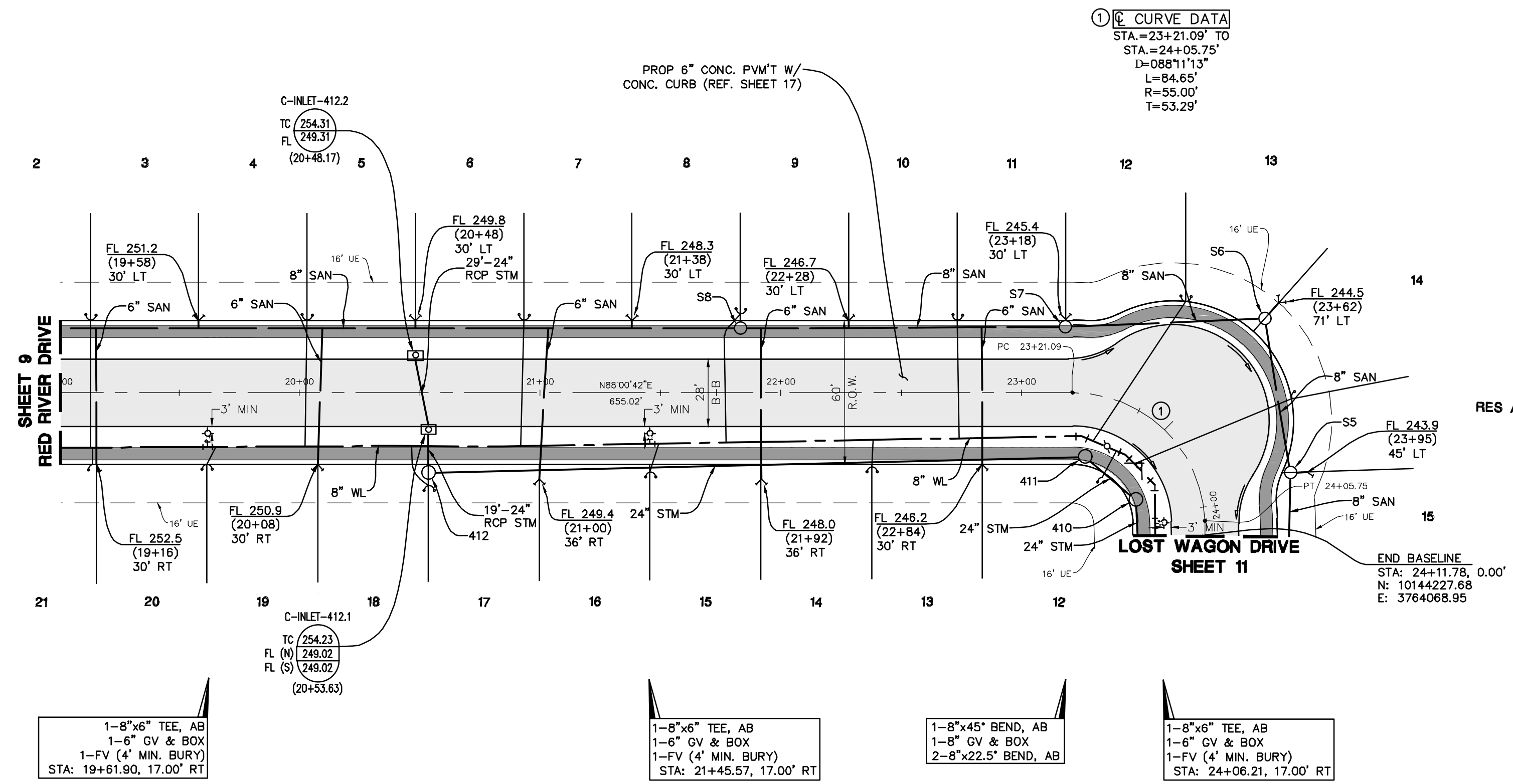
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CITY OF MONTGOMERY CITY ENGINEER SIGNATURE BLOCK

CITY OF MONTGOMERY CITY ENGINEER DATE
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TRAFFIC SIGNAGE & PAVEMENT MARKINGS LAYOUT

SHEET 8 OF 19



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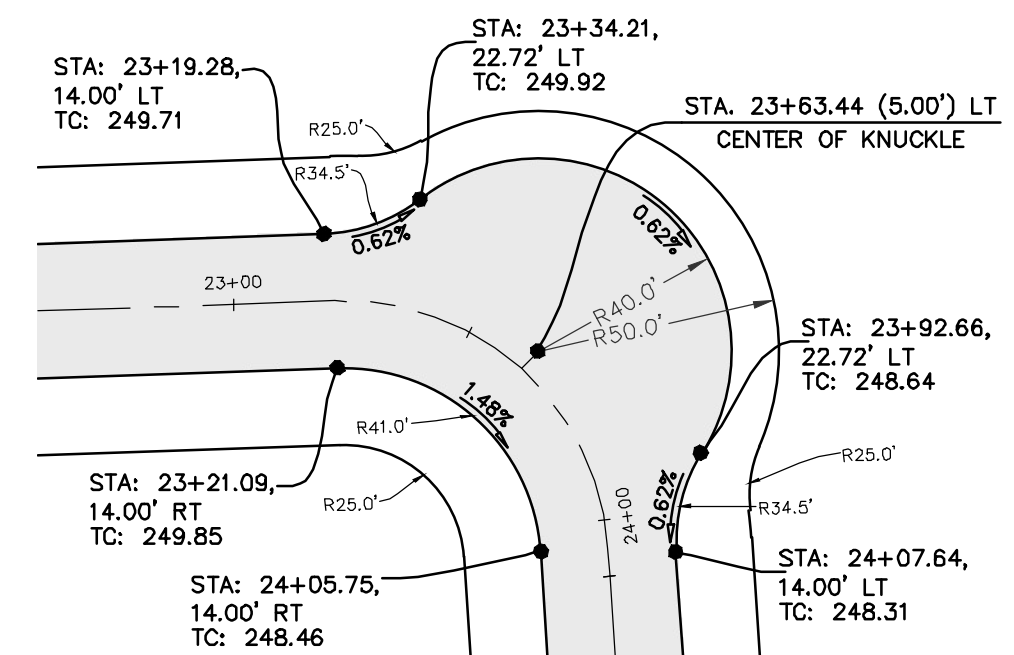
KEY MAP

1-8"x6" TEE, AB
 1-6" GV & BOX
 1-FV (4' MIN. BURY)
 STA: 19+61.90, 17.00' RT

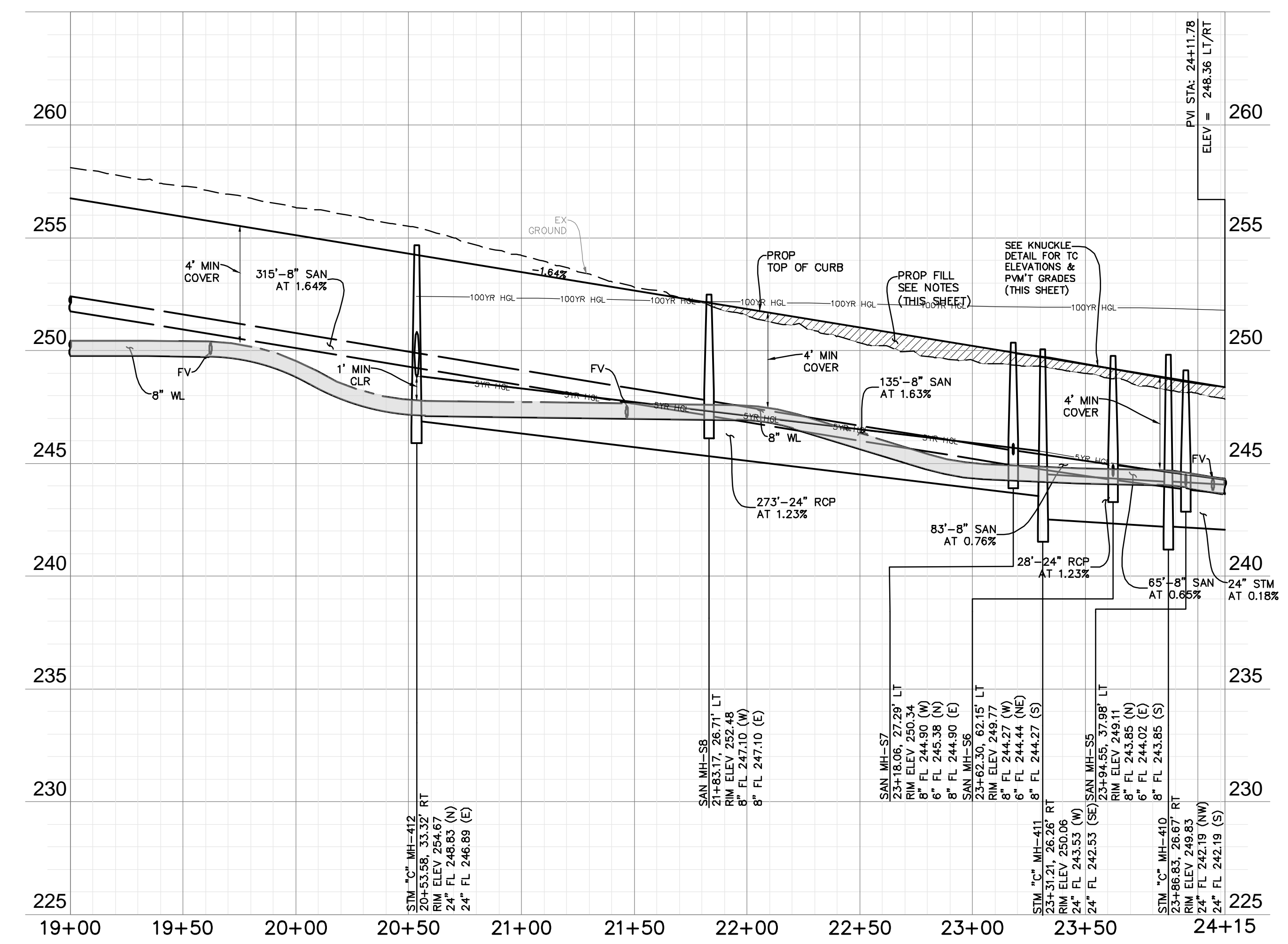
1-8"x6" TEE, AB
 1-6" GV & BOX
 1-FV (4' MIN. BURY)
 STA: 21+45.57, 17.00' RT

1-8"x45" BEND, AB
 1-6" GV & BOX
 2-8"x22.5" BEND, AB
 STA: 24+06.21, 17.00' RT

1-8"x6" TEE, AB
 1-6" GV & BOX
 1-FV (4' MIN. BURY)
 STA: 24+06.21, 17.00' RT



RED RIVER DRIVE



WATER LINE-SANITARY SEWER CROSSING NOTE:

POSITION ONE FULL SECTION OF RESTRAINED JOINT WATERLINE AND SANITARY SEWER PIPE CENTERED AT CROSSING. INSERT SANITARY SEWER PIPE WITH CEMENT STABILIZED SAND FOR THE TOTAL LENGTH OF ONE PIPE SEGMENT PLUS ONE FOOT BEYOND THE JOINTS ON EACH END. FOR CROSSINGS WHERE PROPOSED WATERLINE IS UNDER PROPOSED SANITARY SEWER, PUT RESTRAINED JOINT DUCTILE IRON PIPE WATERLINE (FOR DIAMETERS LESS THAN 24 INCHES) AND RESTRAINED JOINT PRESSURE RATED (MIN 150 PSI) SANITARY 24" MIN CLEARANCE. NO SEPARATE PAY.

- FILL NOTES:**
- EXISTING DRAINAGE SWALES: ALL EXISTING DRAINAGE SWALES SHALL BE FILLED AS SHOWN WITH MATERIAL FROM EXISTING ADJACENT SPOIL BANKS IN MAXIMUM 8" LOOSE LIFTS AND COMPACTED TO 95% PROCTOR DENSITY AS PER AASHTO TEST METHOD T-99.
 - EXISTING DRAINAGE SWALES: ALL EXISTING DRAINAGE SWALES UNDER PROPOSED CONCRETE PAVEMENT SHALL BE CLEANED, MUCKED OUT AND SCARIFIED TO A MINIMUM DEPTH OF 6" AND FILLED AS SPECIFIED ABOVE IN FILL NOTE NO. 1 NO SEPARATE PAY.
 - ROADWAY EMBANKMENT: STRIP 3" OF VEGETATION FROM AREA TO BE FILLED AND RE-COMPACT SOIL TO 95% PROCTOR DENSITY. PLACE FILL MATERIAL AS SPECIFIED IN FILL NOTE NO. 1

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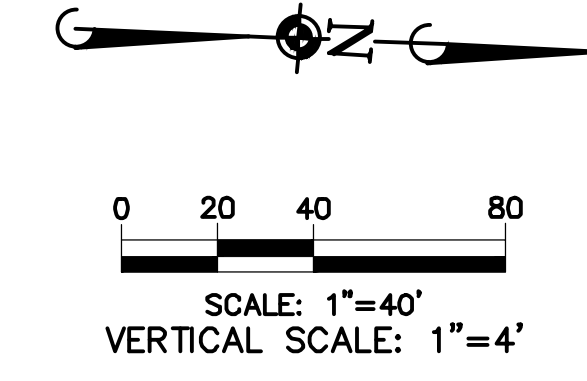
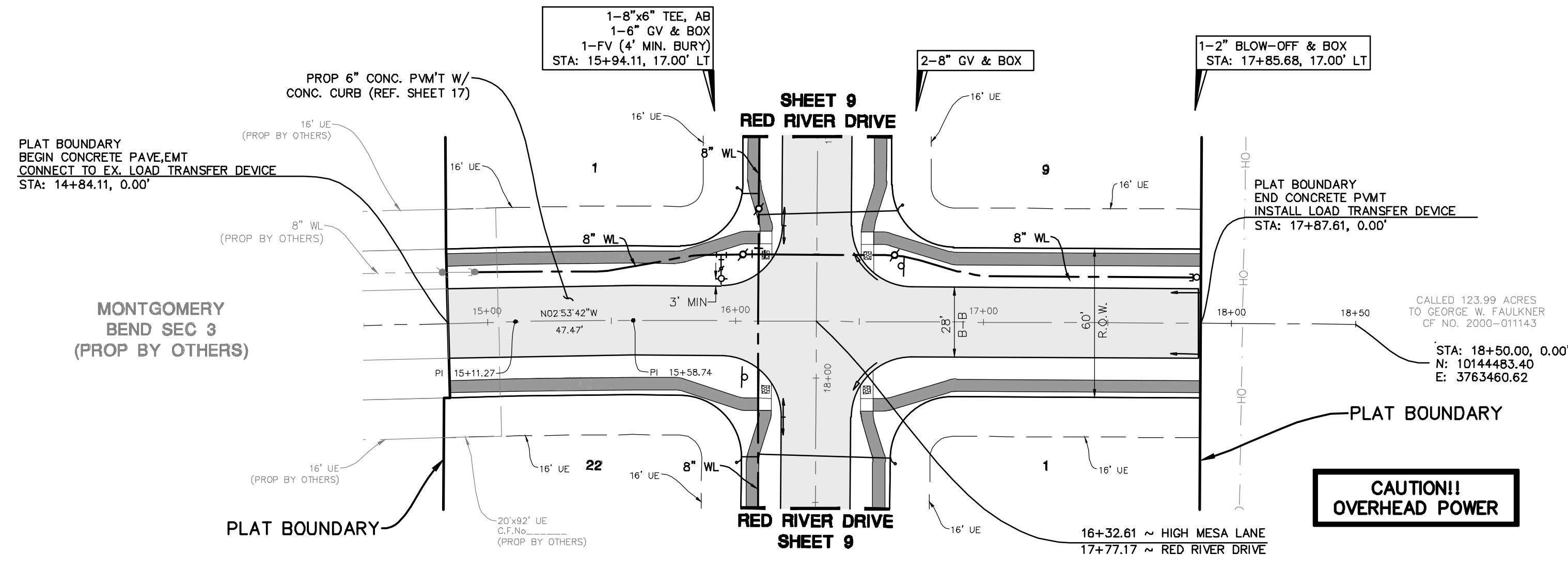
Garret J. Duhon
 TBPE NO. F-22671
 05/03/2024

CITY OF MONTGOMERY CITY ENGINEER SIGNATURE BLOCK

CITY OF MONTGOMERY CITY ENGINEER DATE
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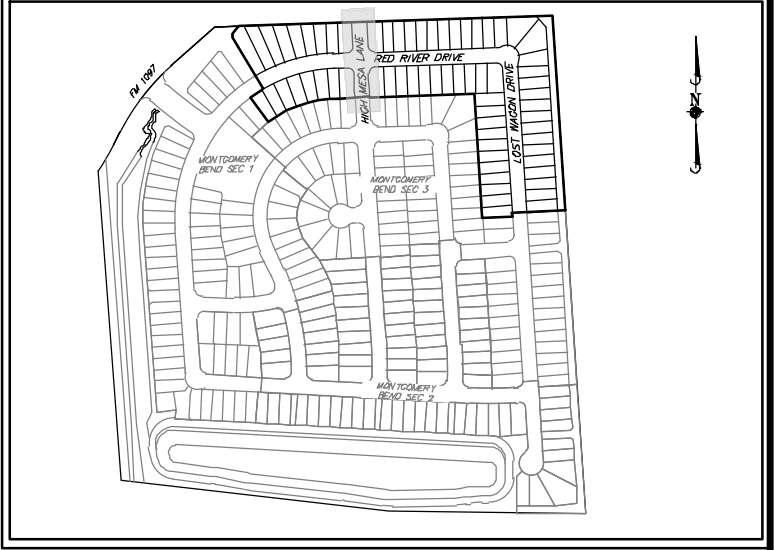
RED RIVER DRIVE
 (STA 19+00 TO 24+15)

SHEET 10 OF 19



ELEVATION
land solutions

TBPE REGISTRATION NUMBER F-22671
9709 LAKESIDE BLVD, SUITE 200
THE WOODLANDS, TX 77381 832-823-2200



WATER LINE-SANITARY SEWER CROSSING NOTE:

POSITION ONE FULL SECTION OF RESTRAINED JOINT WATERLINE AND SANITARY SEWER PIPE CENTERED AT CROSSING. INSERT SANITARY SEWER PIPE WITH CEMENT STABILIZED SAND FOR THE TOTAL LENGTH OF ONE PIPE SEGMENT PLUS ONE FOOT BEYOND THE JOINTS ON EACH END. FOR CROSSINGS WHERE PROPOSED WATERLINE IS UNDER PROPOSED SANITARY SEWER, PUT RESTRAINED JOINT DUCTILE IRON PIPE WATERLINE (FOR DIAMETERS LESS THAN 24 INCHES) AND RESTRAINED JOINT PRESSURE RATED (MIN 150 PSI) SANITARY 24" MIN CLEARANCE. NO SEPARATE PAY.

- FILL NOTES:**
- 1) EXISTING DRAINAGE SWALES: ALL EXISTING DRAINAGE SWALES SHALL BE FILLED AS SHOWN WITH MATERIAL FROM EXISTING ADJACENT SPOIL BANKS IN MAXIMUM 8" LOOSE LIFTS AND COMPACTED TO 95% PROCTOR DENSITY AS PER AASHTO TEST METHOD T-99.
 - 2) EXISTING DRAINAGE SWALES: ALL EXISTING DRAINAGE SWALES UNDER PROPOSED CONCRETE PAVEMENT SHALL BE CLEANED, MUCKED OUT AND SCARIFIED TO A MINIMUM DEPTH OF 6" AND FILLED AS SPECIFIED ABOVE IN FILL NOTE NO. 1 NO SEPARATE PAY.
 - 3) ROADWAY EMBANKMENT: STRIP 3" OF VEGETATION FROM AREA TO BE FILLED AND RE-COMPACT SOIL TO 95% PROCTOR DENSITY. PLACE FILL MATERIAL AS SPECIFIED IN FILL NOTE NO. 1

BENCHMARK:
SOURCE BENCHMARK:
ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGCS0 81, PID No. A16405
HAVING PUBLISHED INFORMATION AS FOLLOWS:
LATITUDE : 30° 21' 12.45392" NORTH
LONGITUDE : 095° 34' 45.02514" WEST
ORTHO HEIGHT : 212.4 FT. (64.74 METERS)
HORIZONTAL DATUM : NAD83 (2011)
VERTICAL DATUM : NAVD88

FLOODPLAIN INFORMATION:
ACCORDING TO MAP Nos. 48339C0200G OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS FOR MONTGOMERY COUNTY, DATED AUGUST 18, 2014, THE SUBJECT TRACT IS SITUATED WITHIN UNSHADED ZONE "X", DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 100-YEAR FLOOD PLAIN.

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

DATE	REVISION	APP.

GARRET J. DUHON
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SUITE 200
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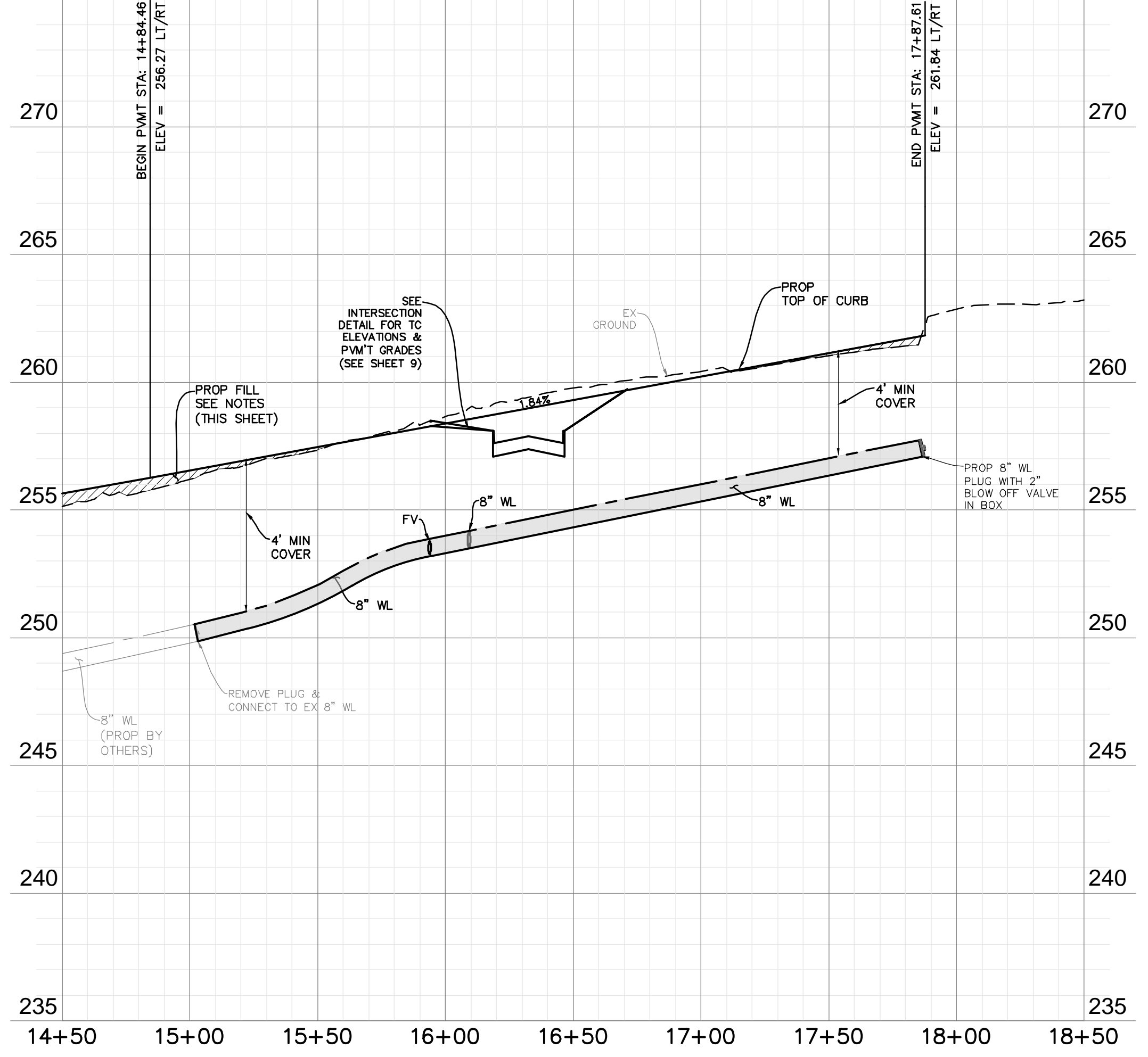
TBPE NO. F-22671 05/03/2024

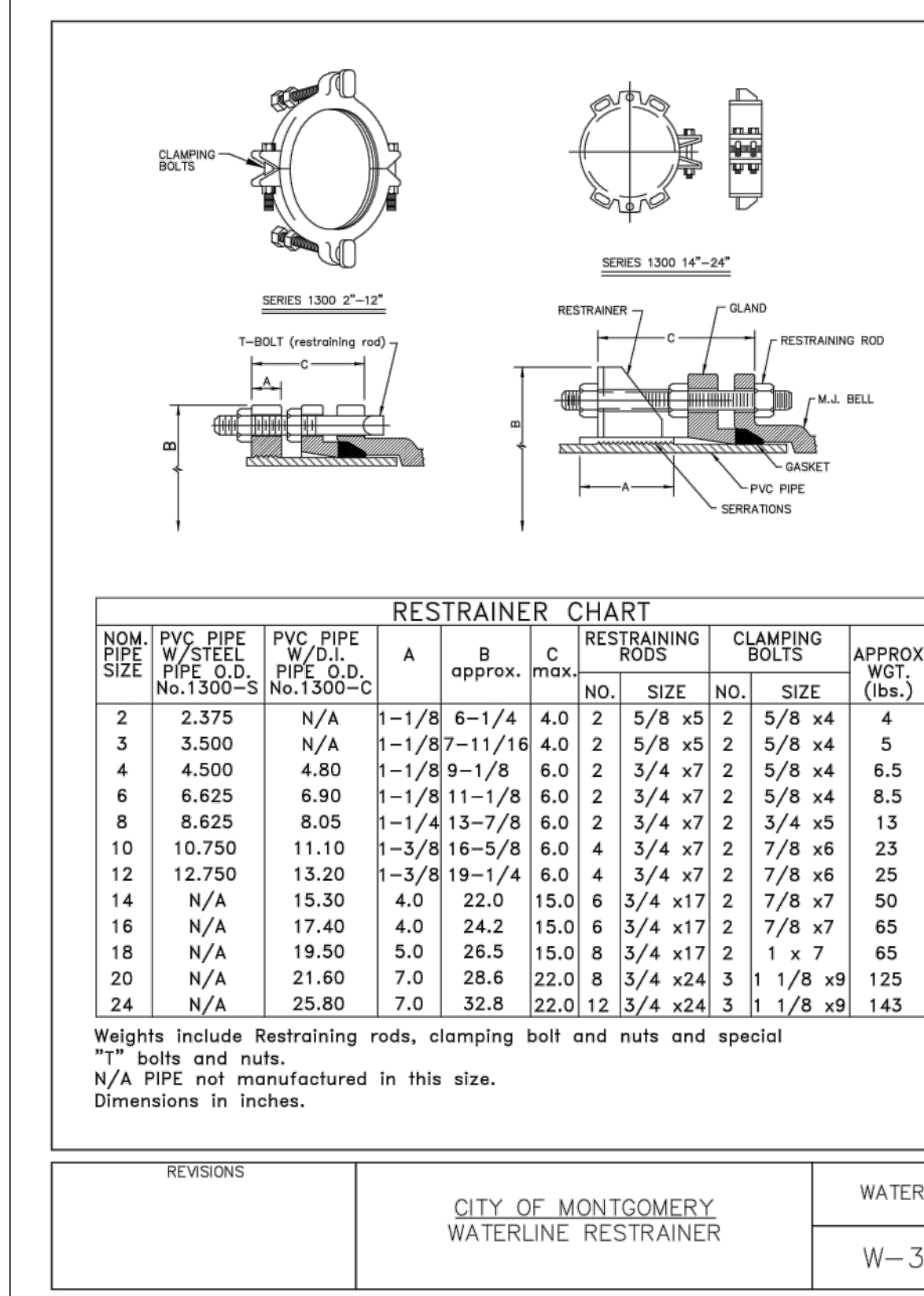
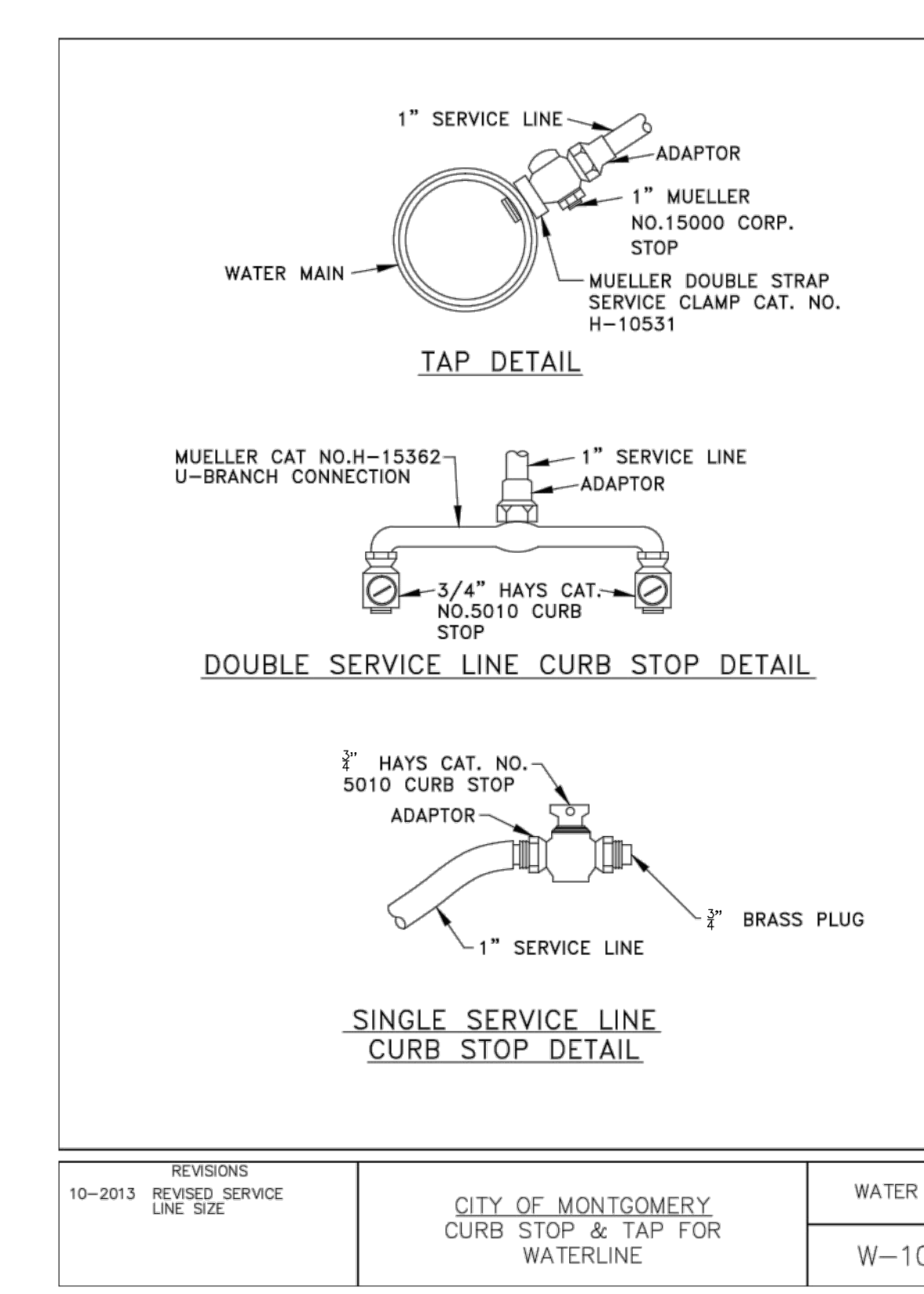
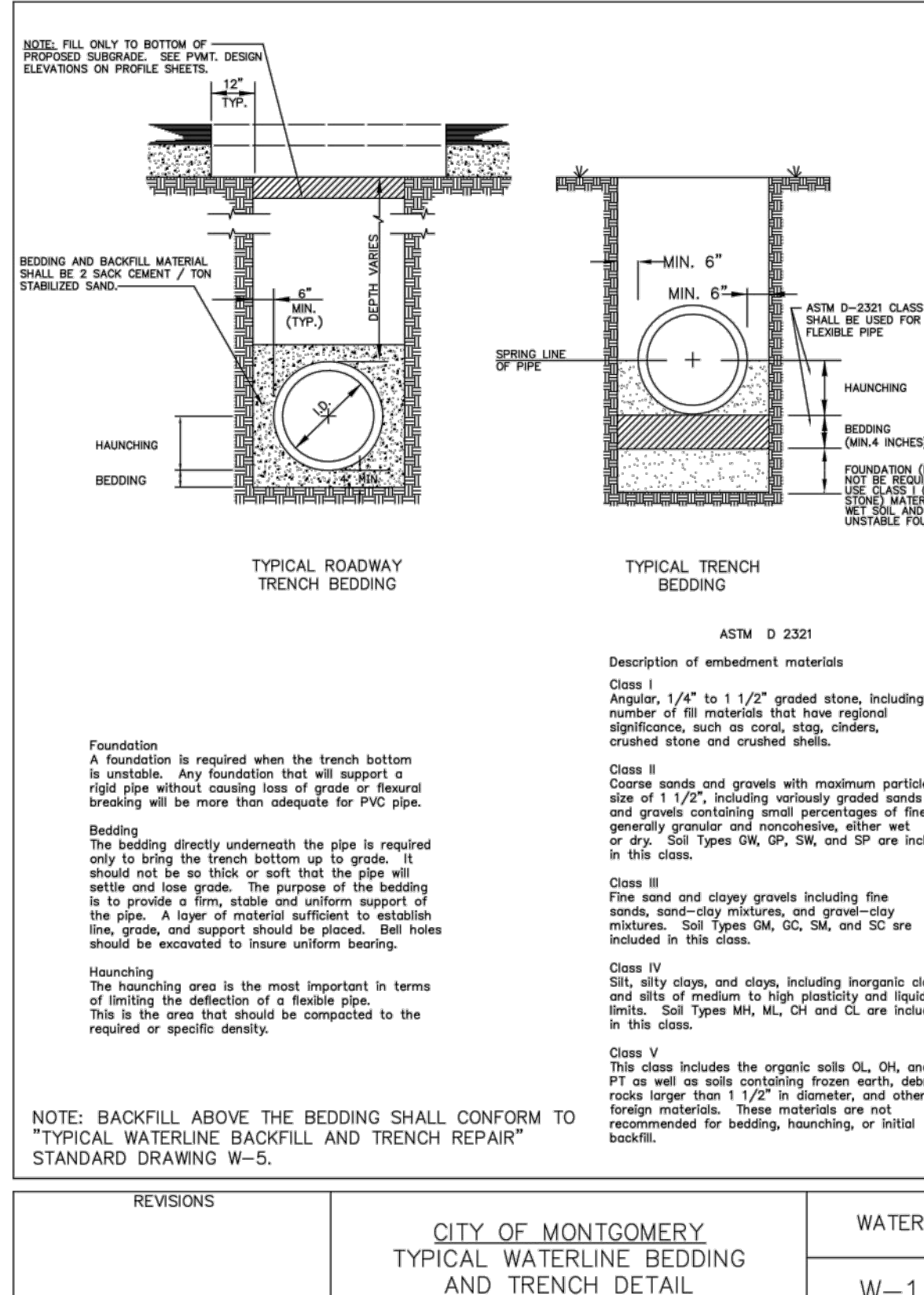
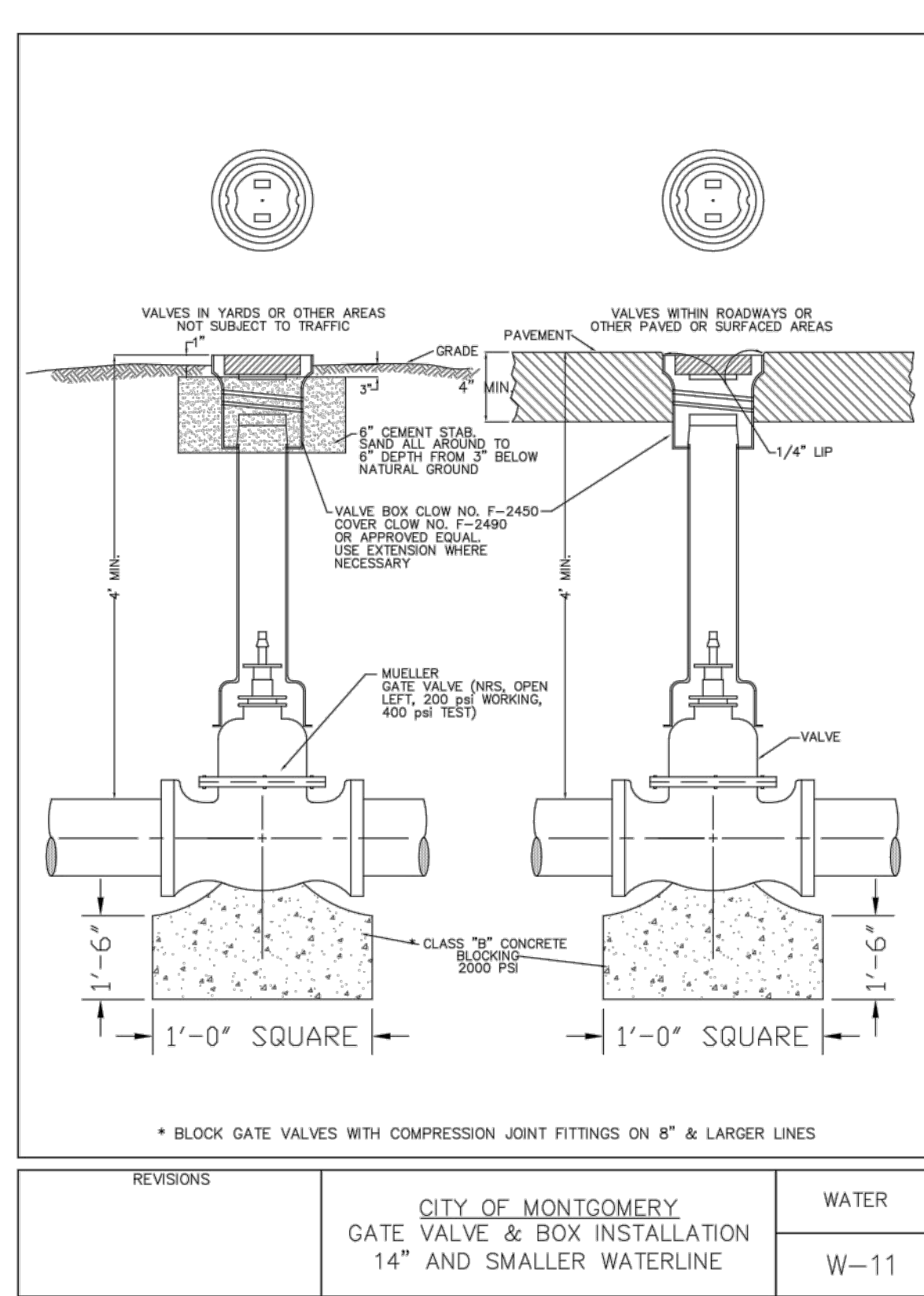
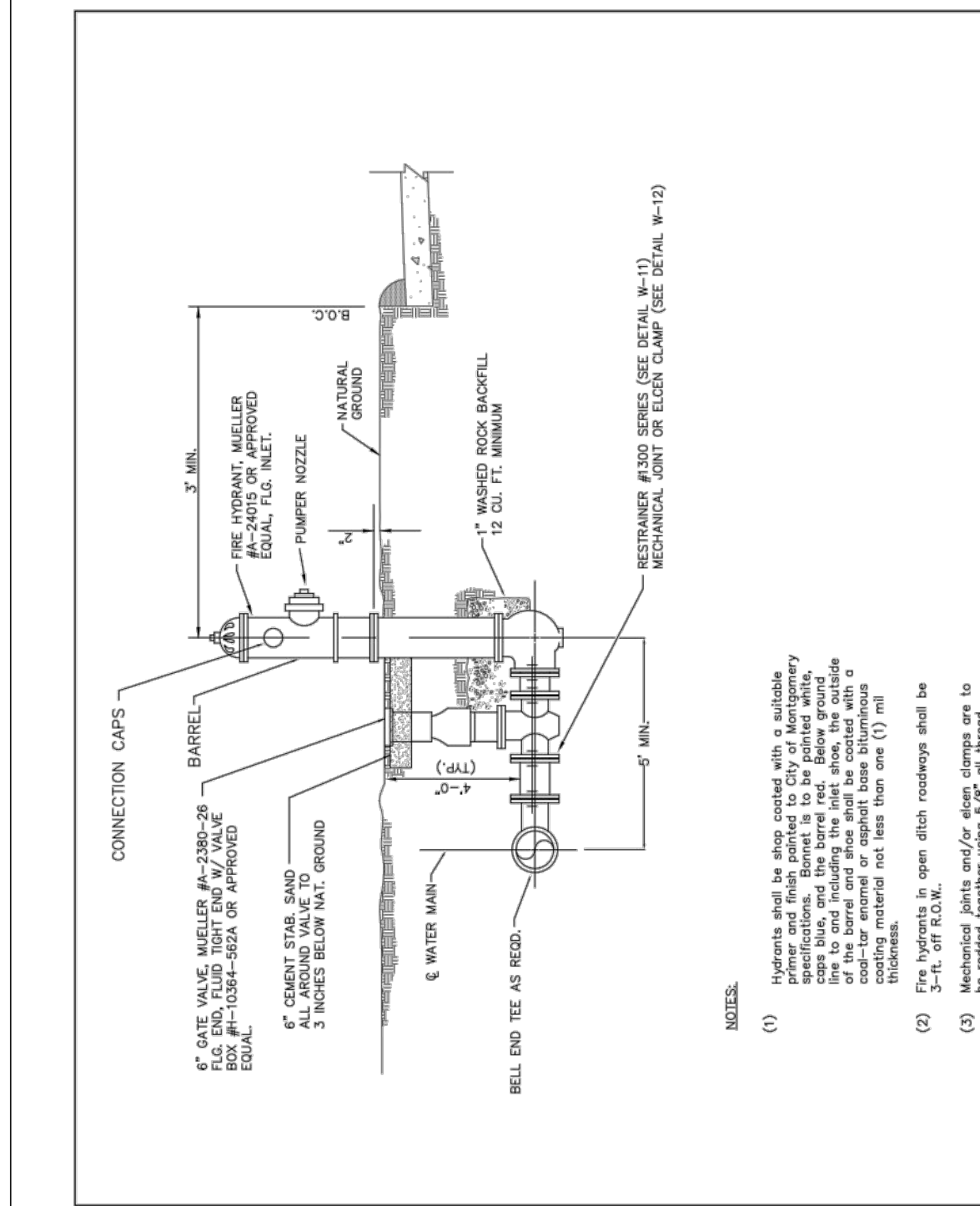
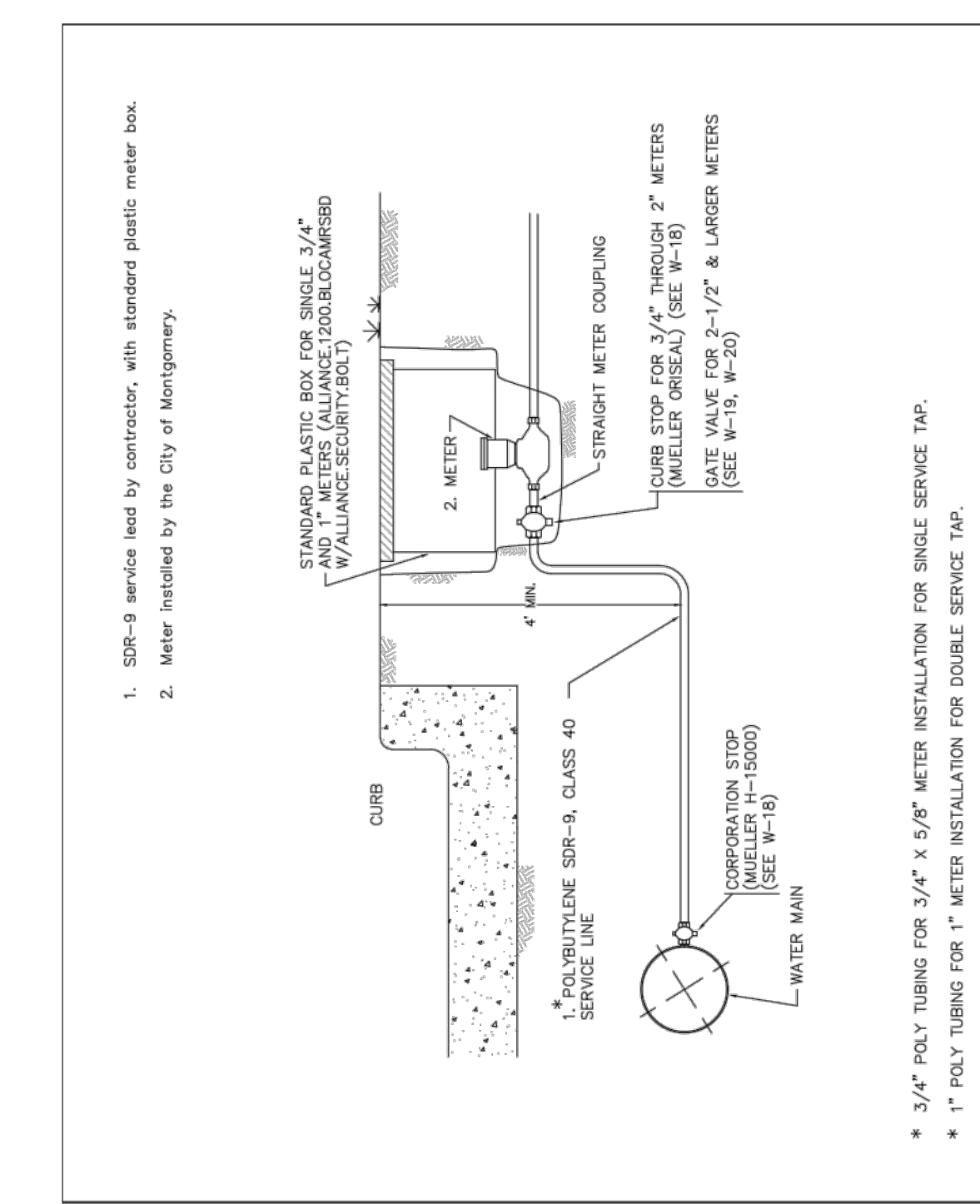
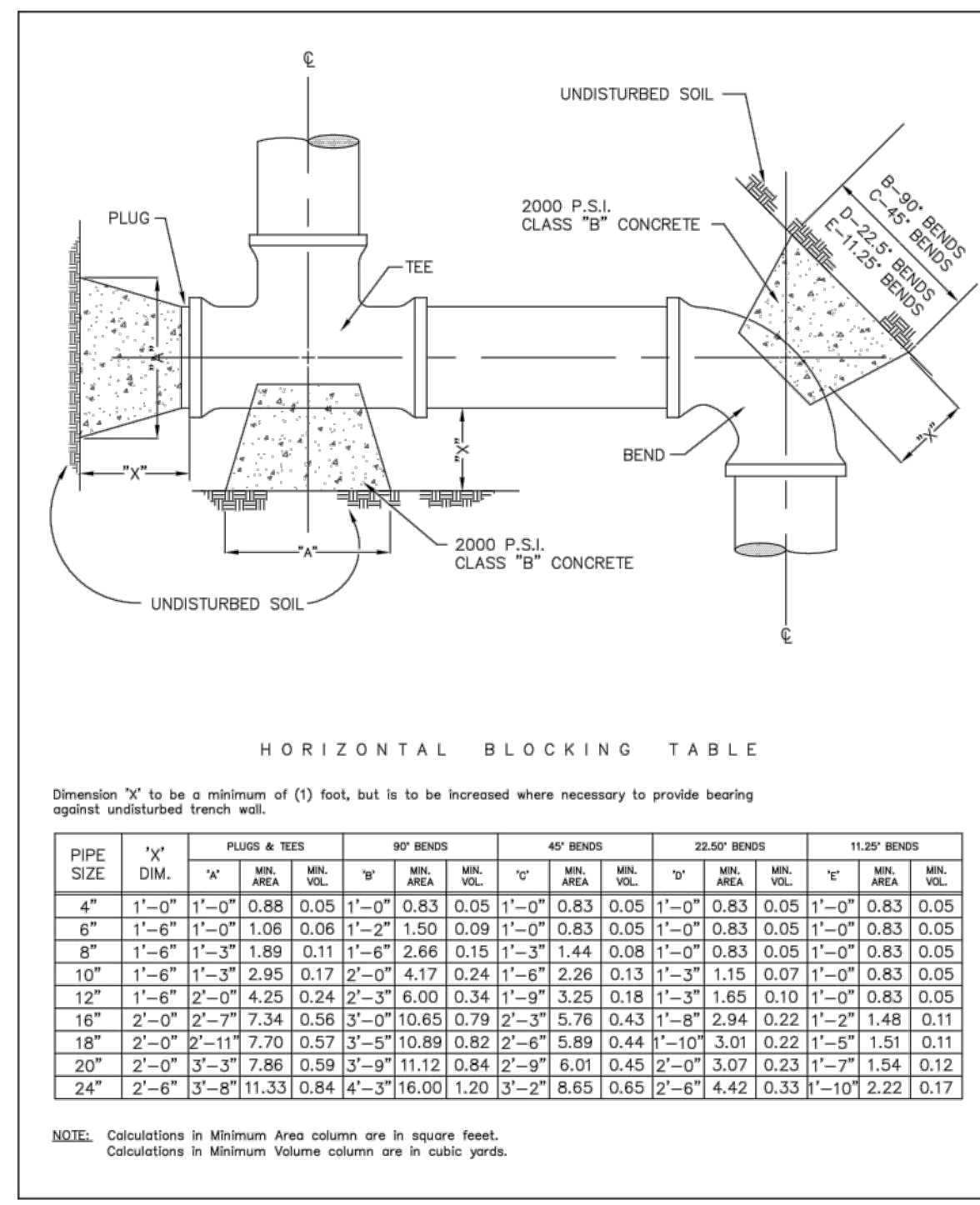
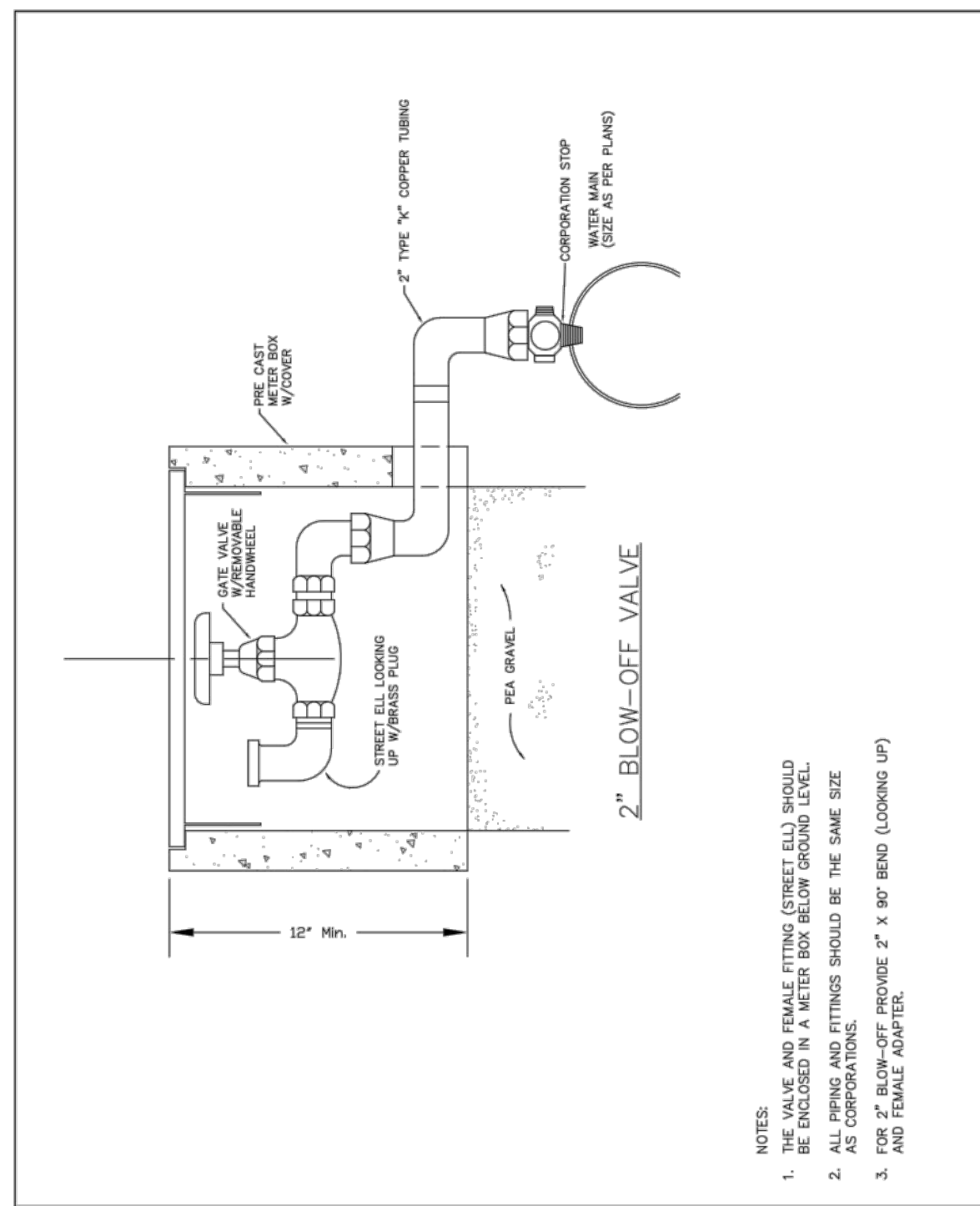
CITY OF MONTGOMERY CITY ENGINEER SIGNATURE BLOCK

CITY OF MONTGOMERY CITY ENGINEER DATE
SIGNATURE VALID FOR ONE (1) YEAR

HIGH MESA LANE

HIGH MESA LANE





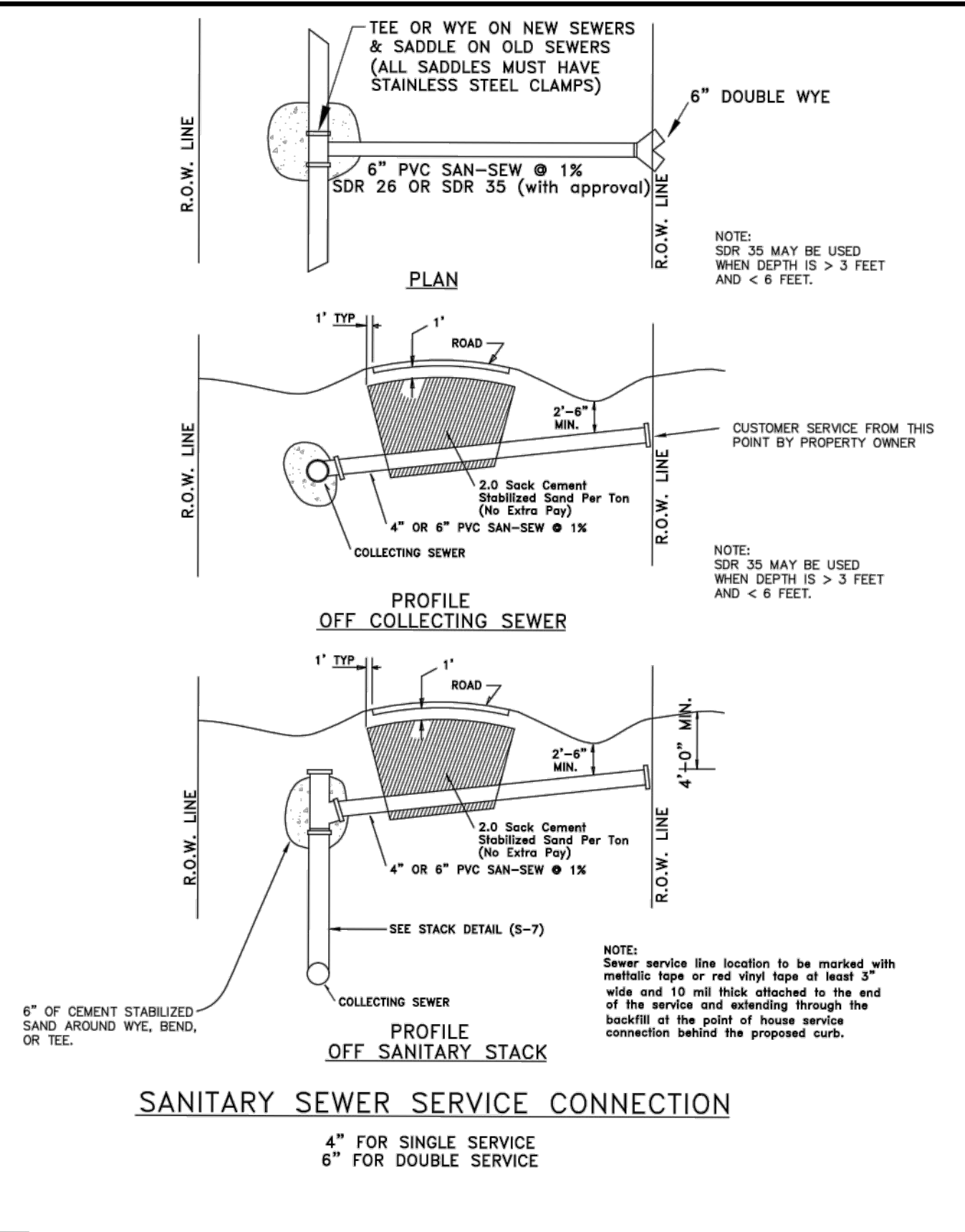
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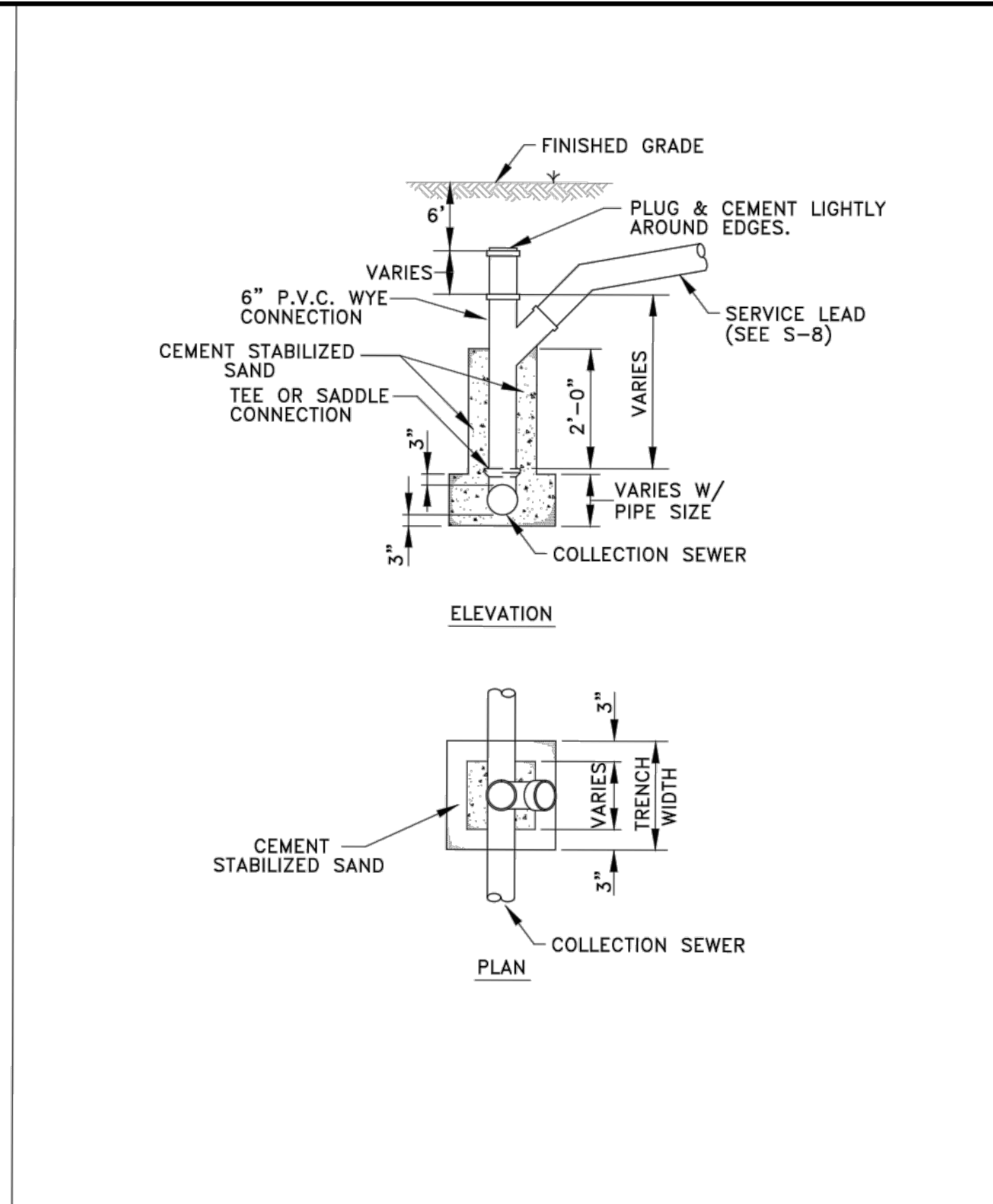
Garret J. Duhon
LICENSED PROFESSIONAL ENGINEER
130733
05/03/2024

TBPE NO. F-22671
CITY OF MONTGOMERY CITY ENGINEER SIGNATURE BLOCK

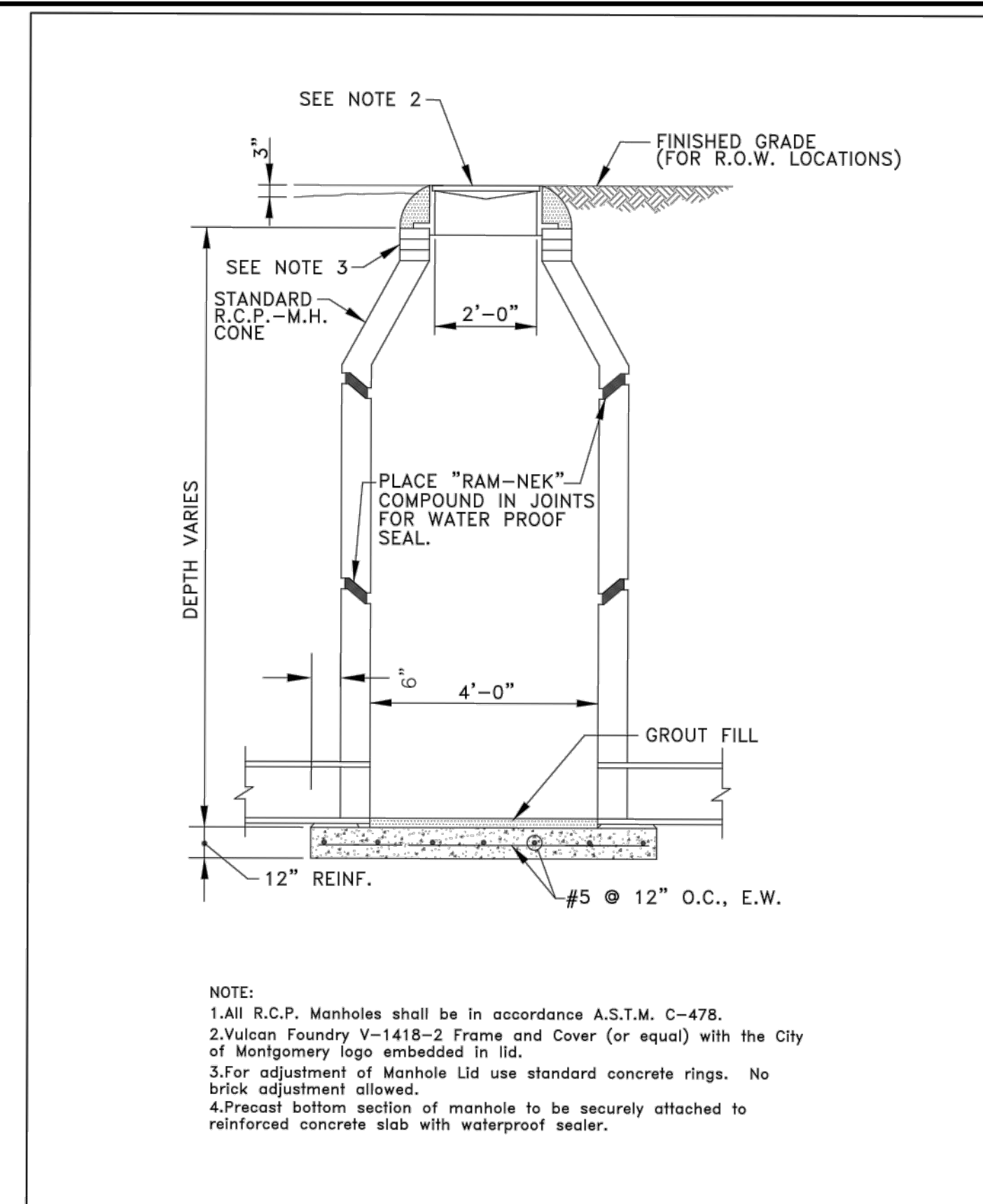
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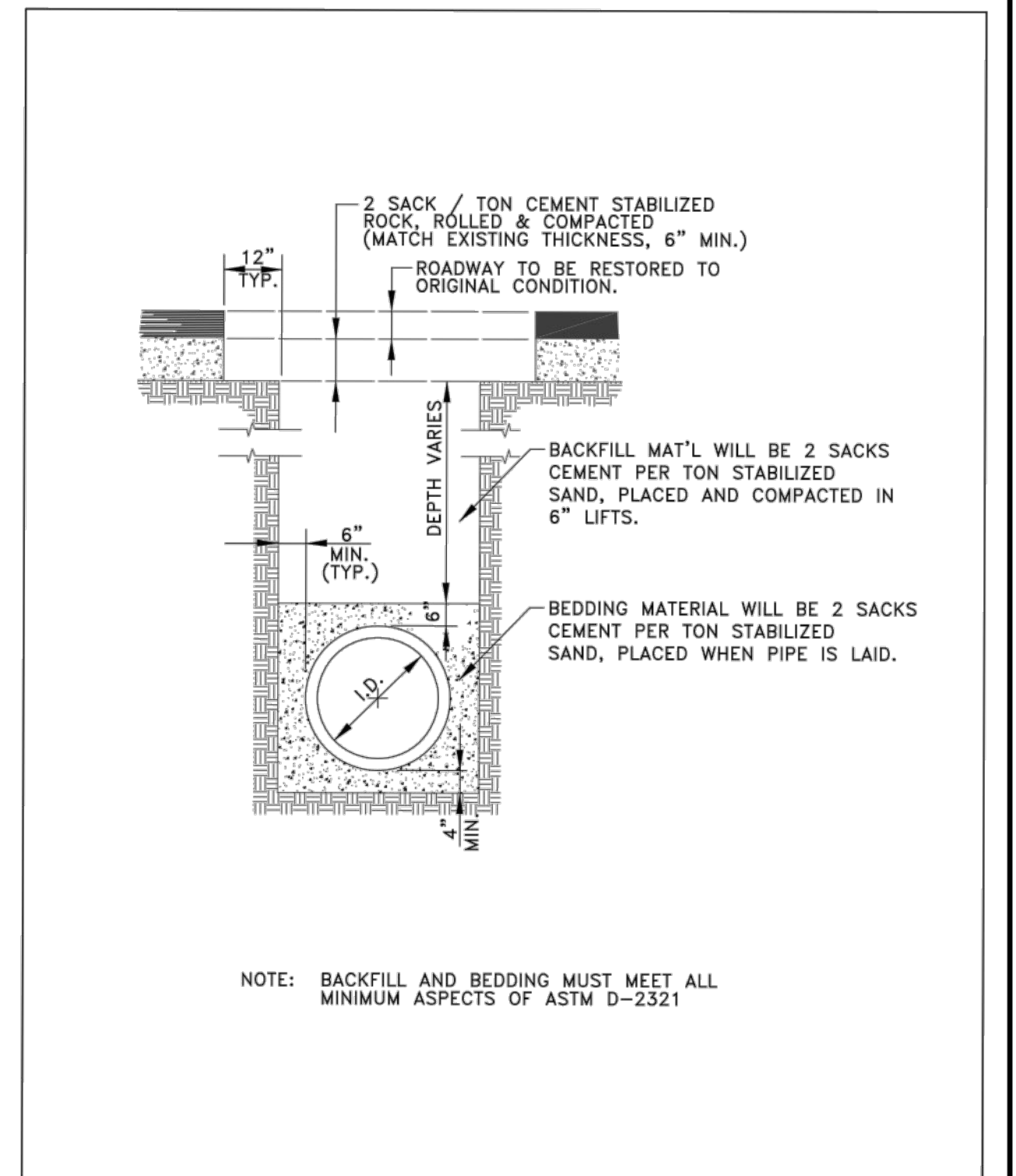
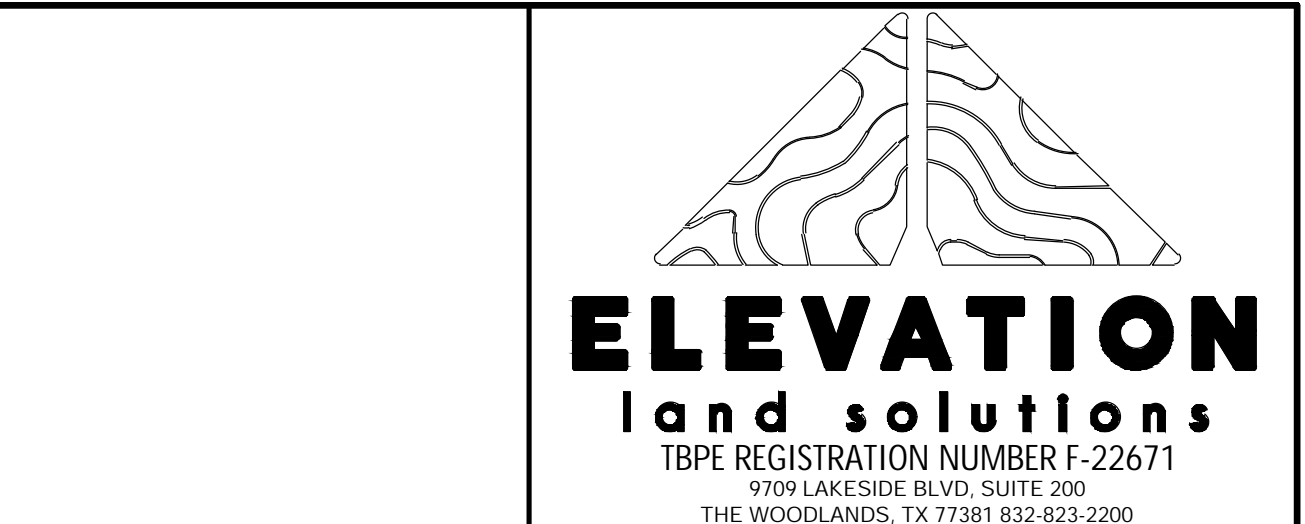
REVISIONS	CITY OF MONTGOMERY RESIDENTIAL SANITARY SEWER SERVICE CONNECTION	SEWER
10-2013 REVISED SERVICE GRADE & NOTES		S-8



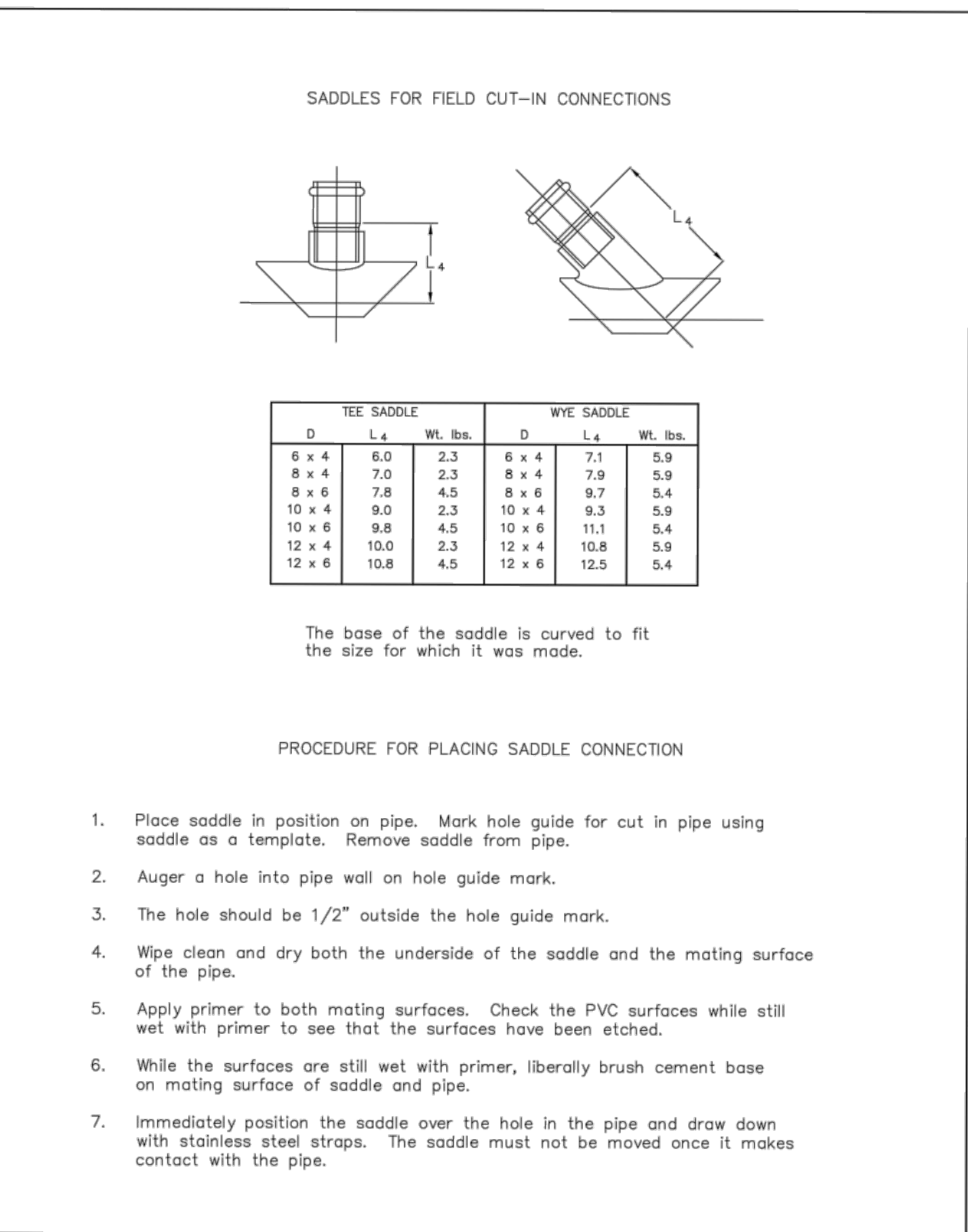
REVISIONS	CITY OF MONTGOMERY SANITARY SEWER STACK DETAIL	SEWER
10-2013 - REVISED NOTES		S-7



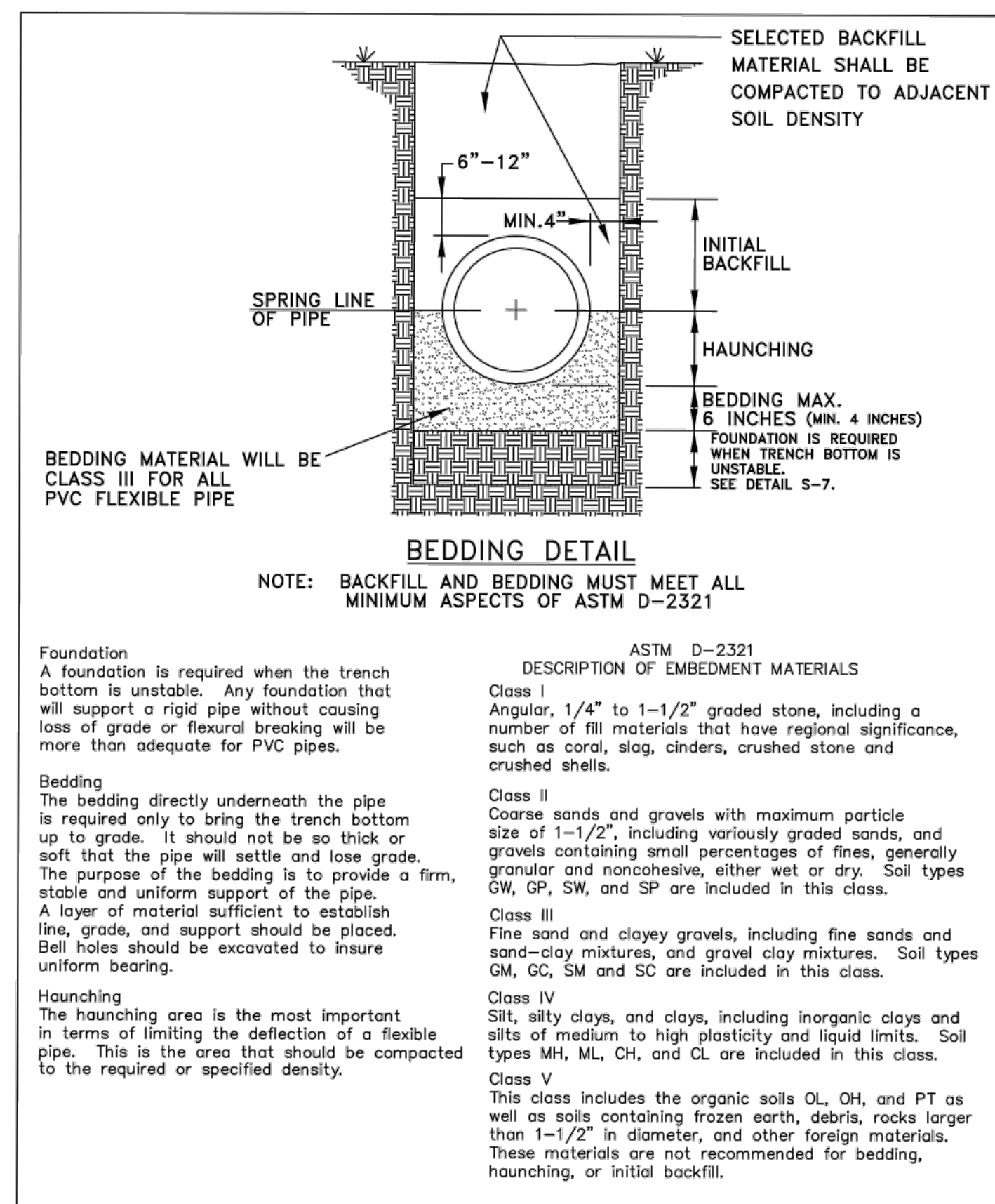
REVISIONS	CITY OF MONTGOMERY STANDARD PRECAST MANHOLE	SEWER
		S-4



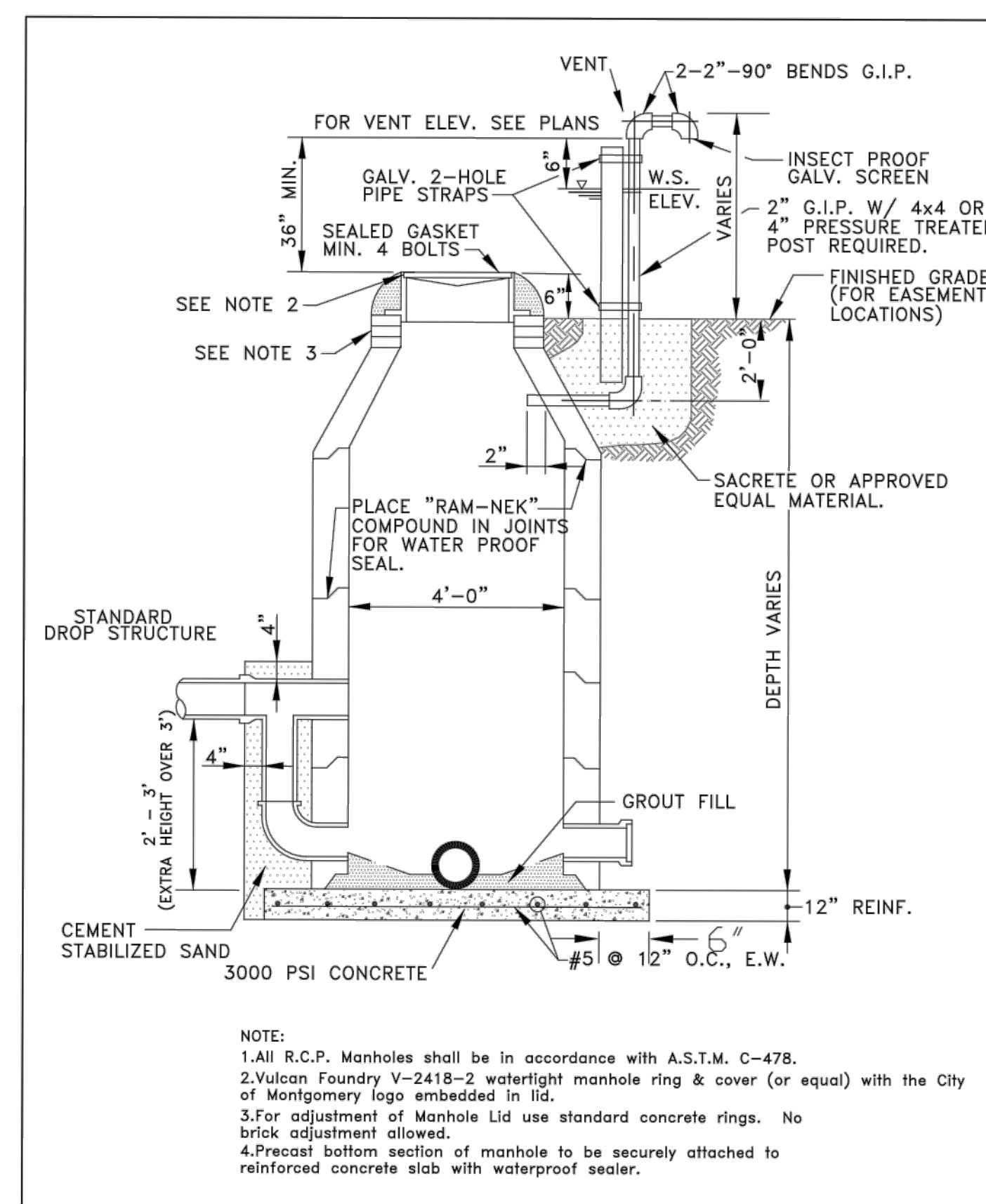
REVISIONS	CITY OF MONTGOMERY TYPICAL ROADWAY TRENCH BEDDING AND BACKFILL DETAIL	SEWER
		S-2



REVISIONS	CITY OF MONTGOMERY TEE & WYE SADDLES FOR PVC PIPE	SEWER
		S-11



REVISIONS	CITY OF MONTGOMERY TYPICAL SANITARY SEWER BEDDING AND TRENCH DETAIL	SEWER
		S-1



REVISIONS	CITY OF MONTGOMERY STANDARD PRECAST MANHOLE W/ DROP CONNECTION & VENT	SEWER
		S-5

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GARRET J. DUHON
 9709 LAKESIDE BLVD.
 SUITE 200
 THE WOODLANDS, TX 77381
 (832) 823-2200

Garret J. Duhon

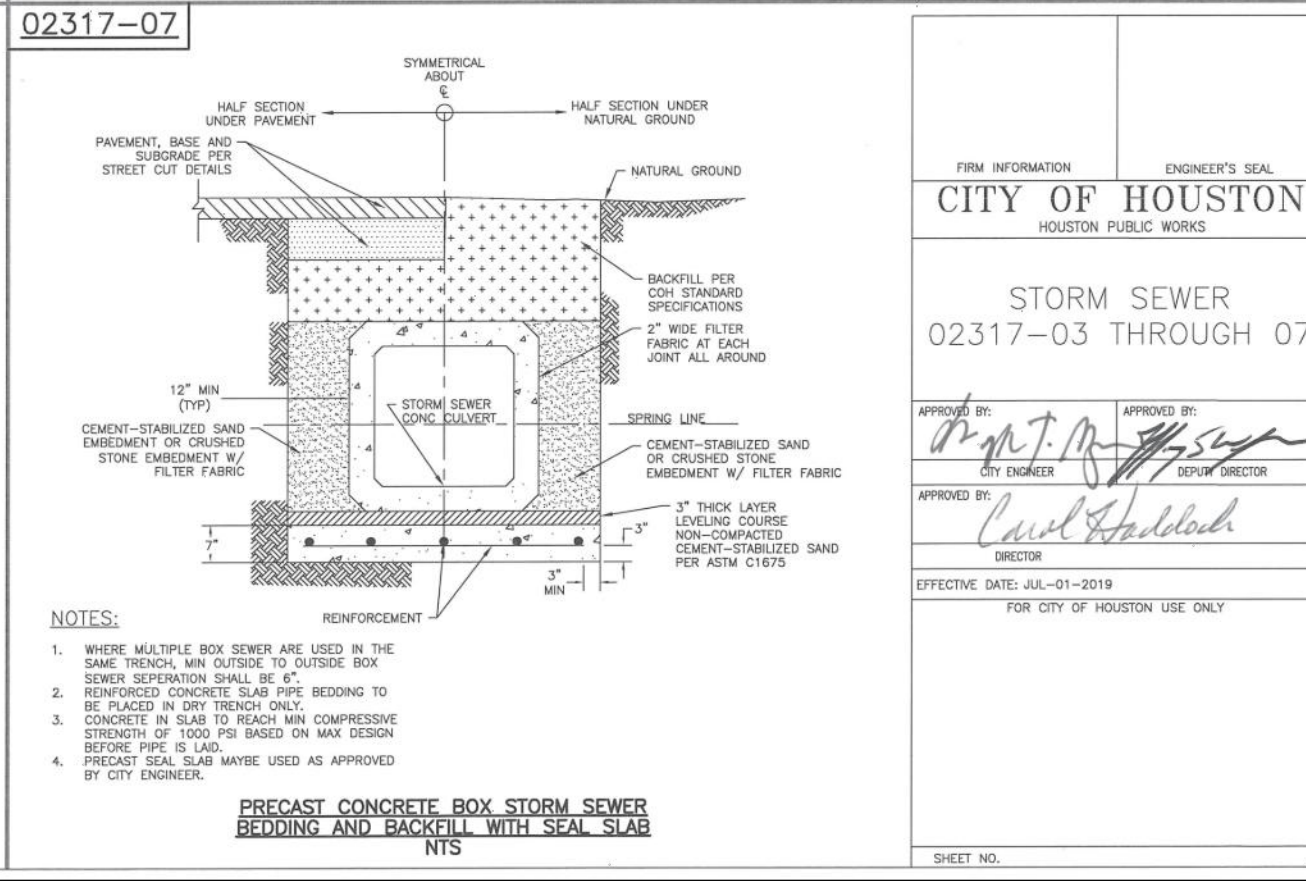
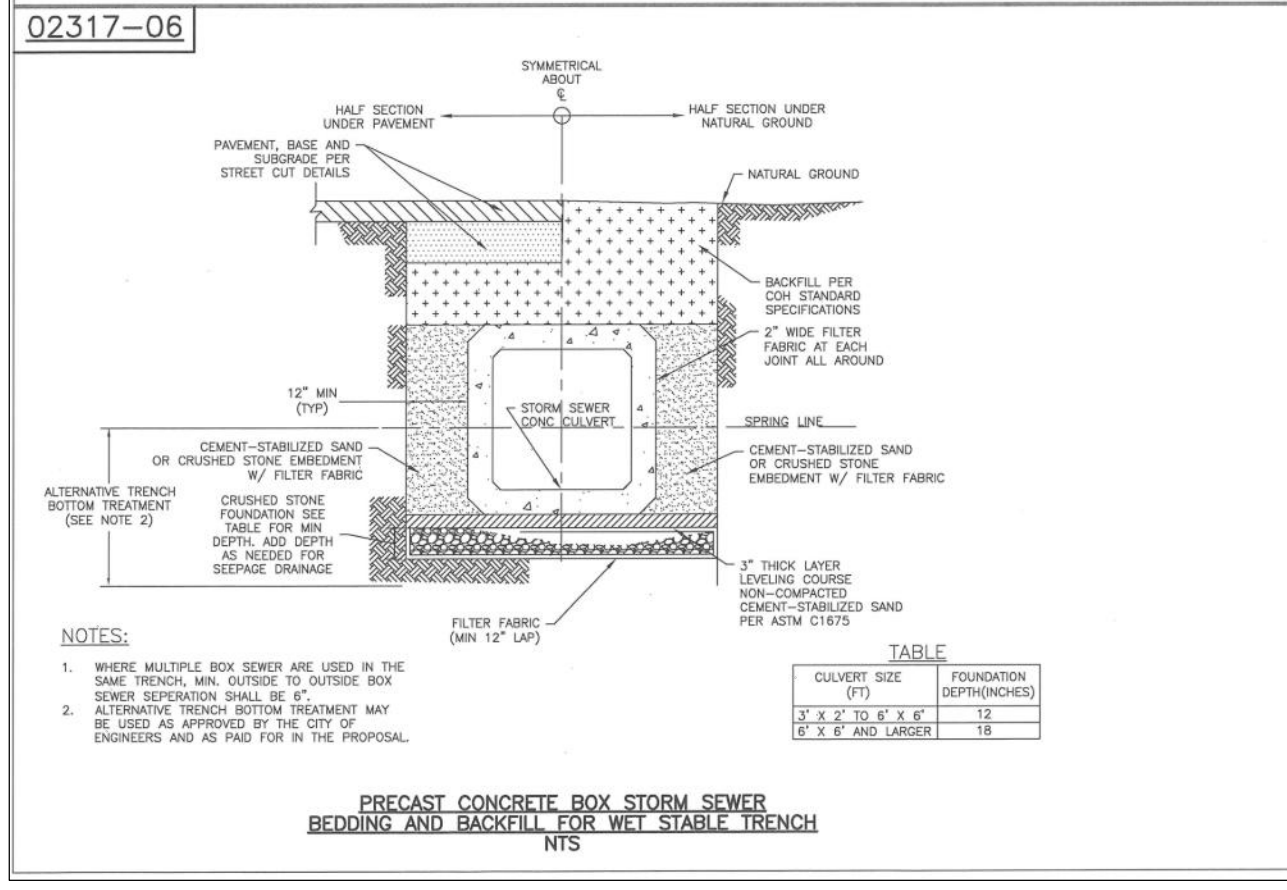
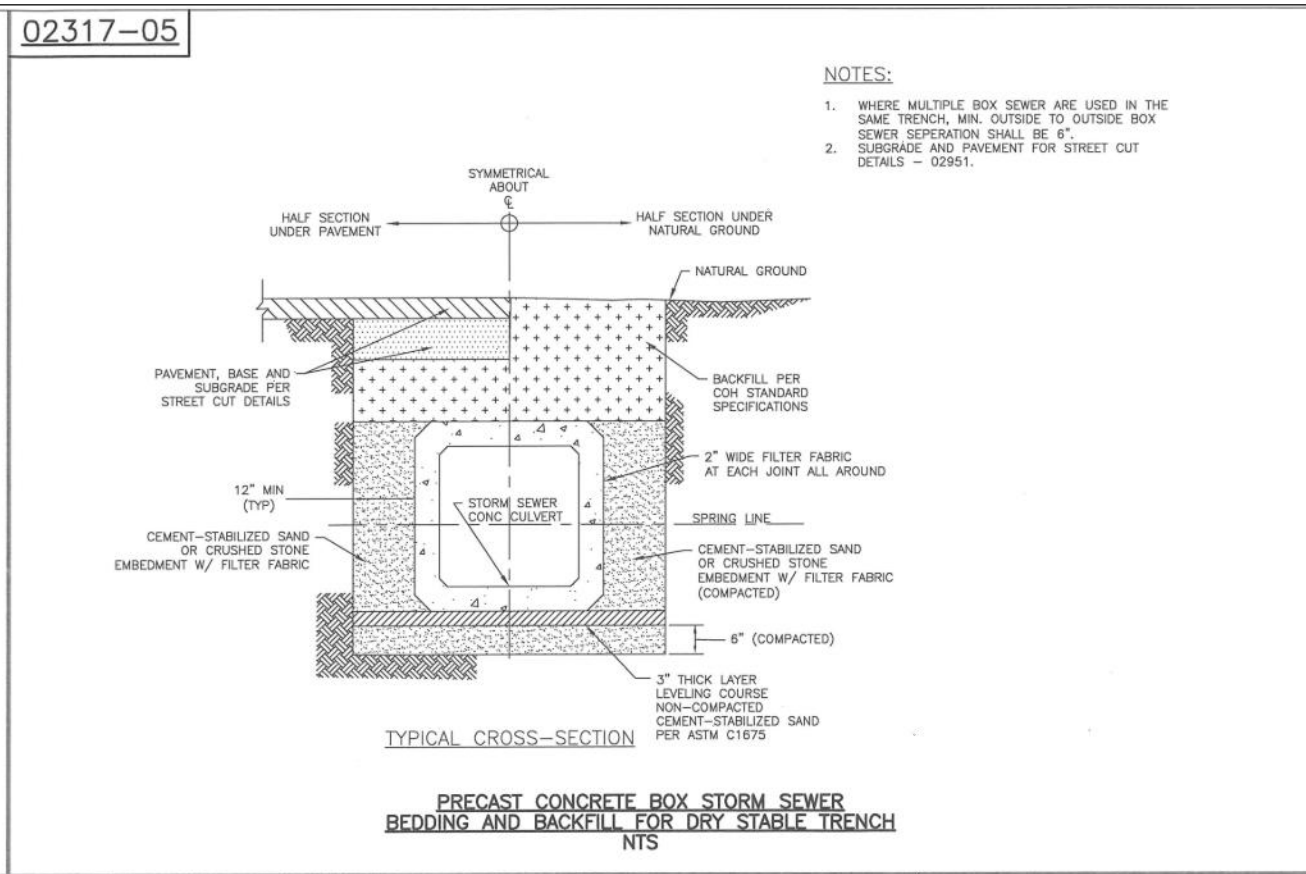
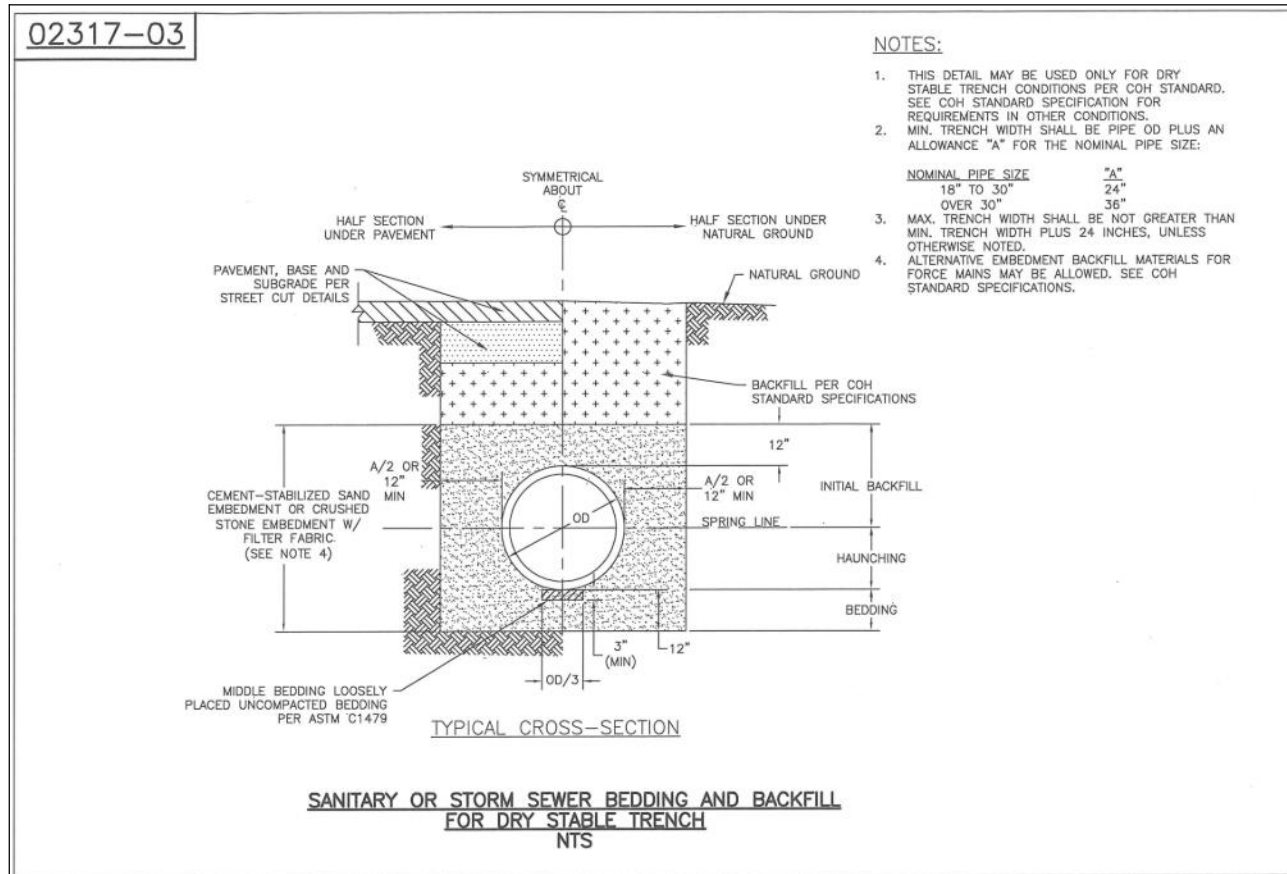
STATE OF TEXAS
 GARRET J. DUHON
 130733
 LICENSED PROFESSIONAL ENGINEER
 05/03/2024

TBPE NO. F-22671

CITY OF MONTGOMERY CITY ENGINEER SIGNATURE BLOCK	
CITY OF MONTGOMERY CITY ENGINEER	DATE
SIGNATURE VALID FOR ONE (1) YEAR	

**SANITARY SEWER
 DETAILS**

SHEET 14 OF 19



FIRM INFORMATION: **CITY OF HOUSTON**
HOUSTON PUBLIC WORKS

ENGINEER'S SEAL: [Signature]

STORM SEWER
02317-03 THROUGH 07

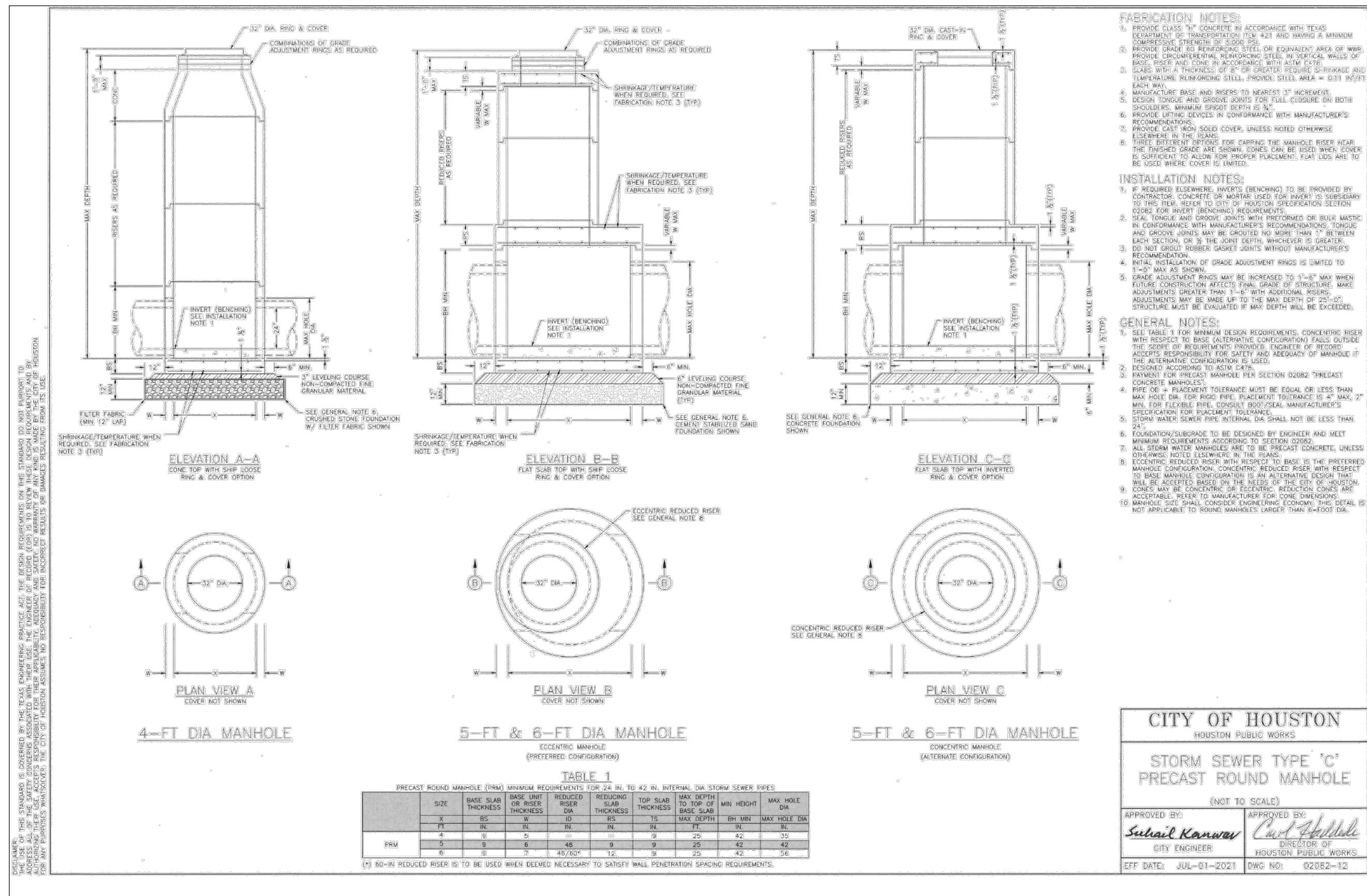
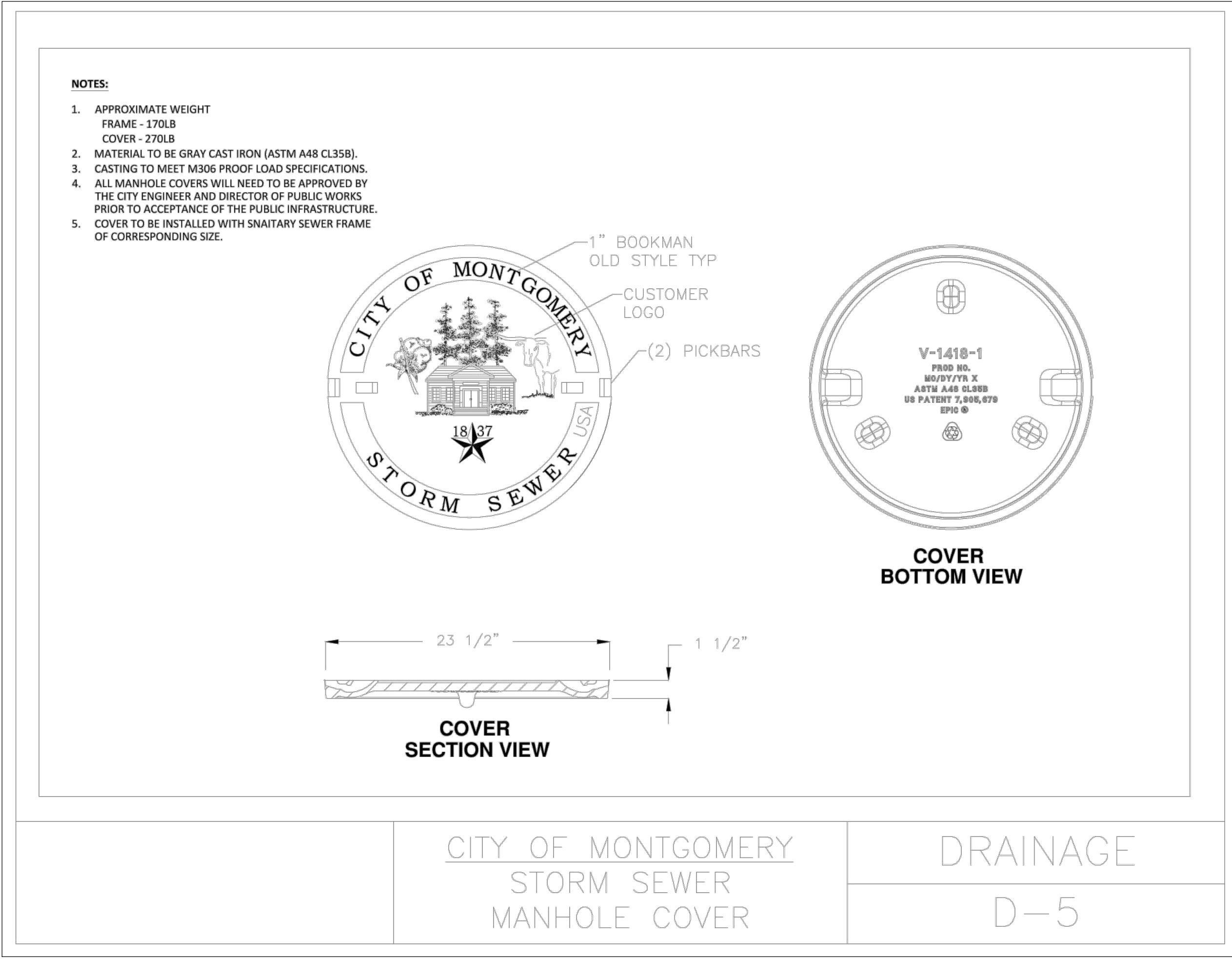
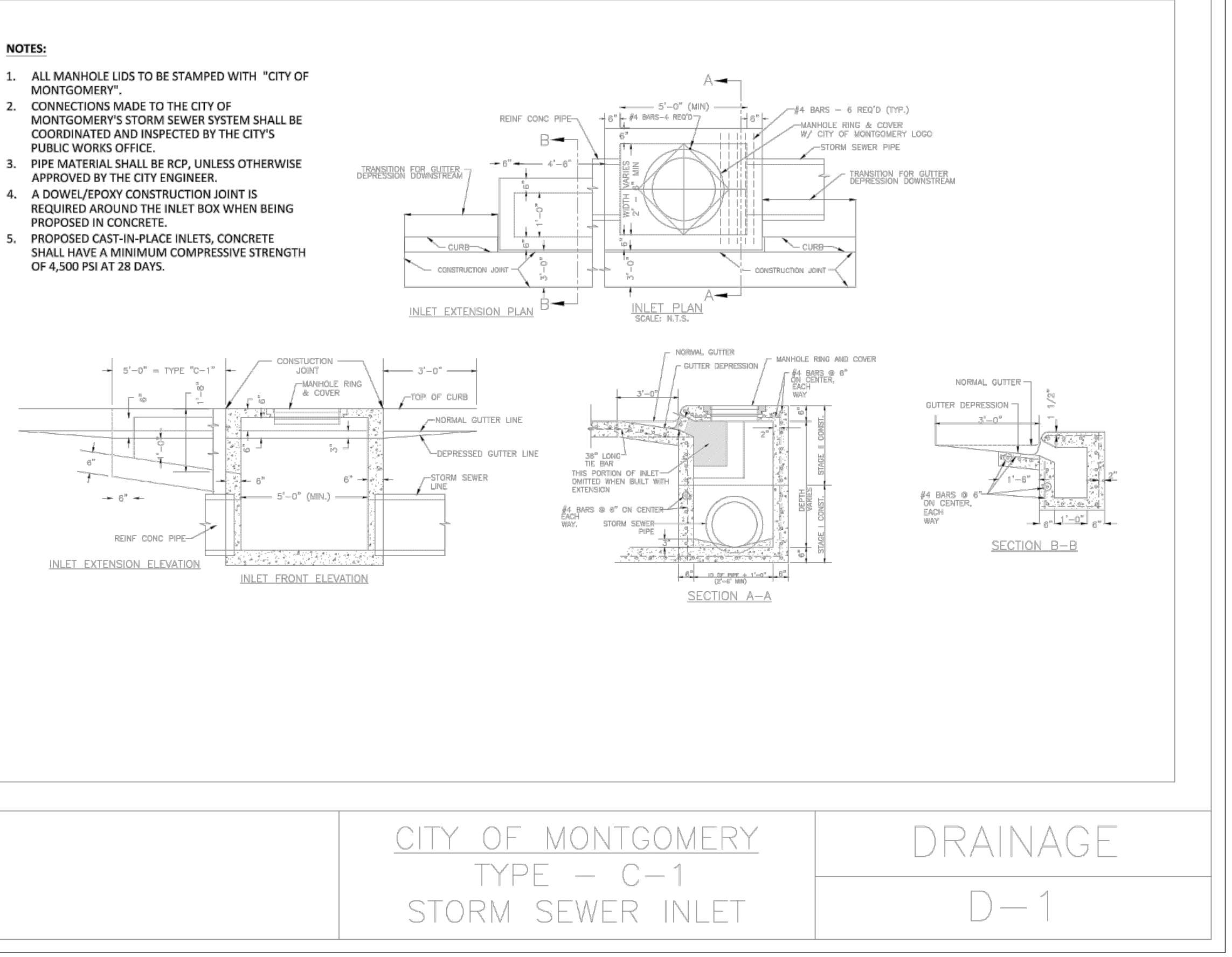
APPROVED BY: [Signature]
CITY ENGINEER

APPROVED BY: [Signature]
DIRECTOR

EFFECTIVE DATE: JUL-01-2019

FOR CITY OF HOUSTON USE ONLY

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GARRET J. DUHON
9709 LAKESIDE BLVD.
SUITE 200
THE WOODLANDS, TX 77381
(832) 823-2200

[Signature]

STATE OF TEXAS
GARRET J. DUHON
130733
LICENSED PROFESSIONAL ENGINEER

05/03/2024

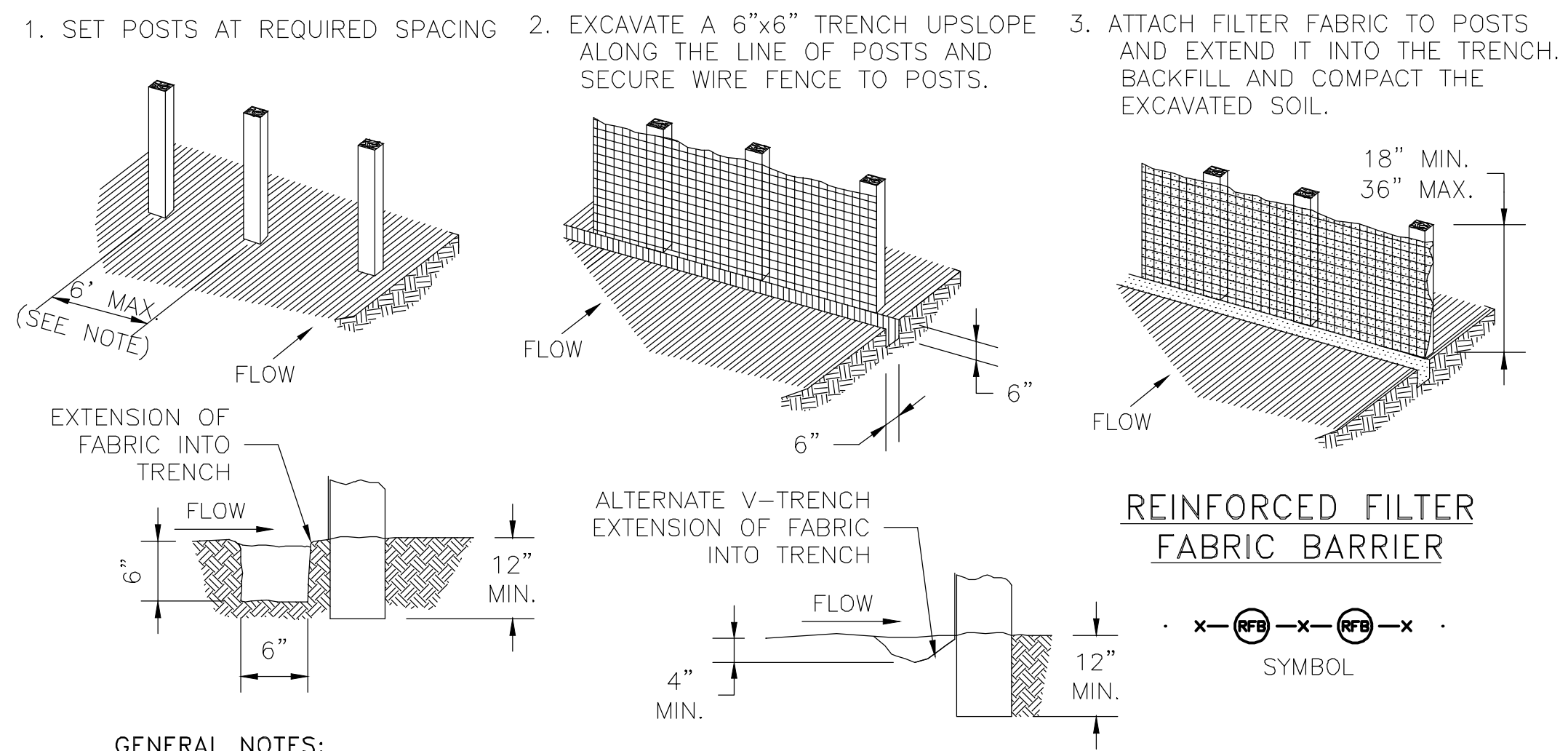
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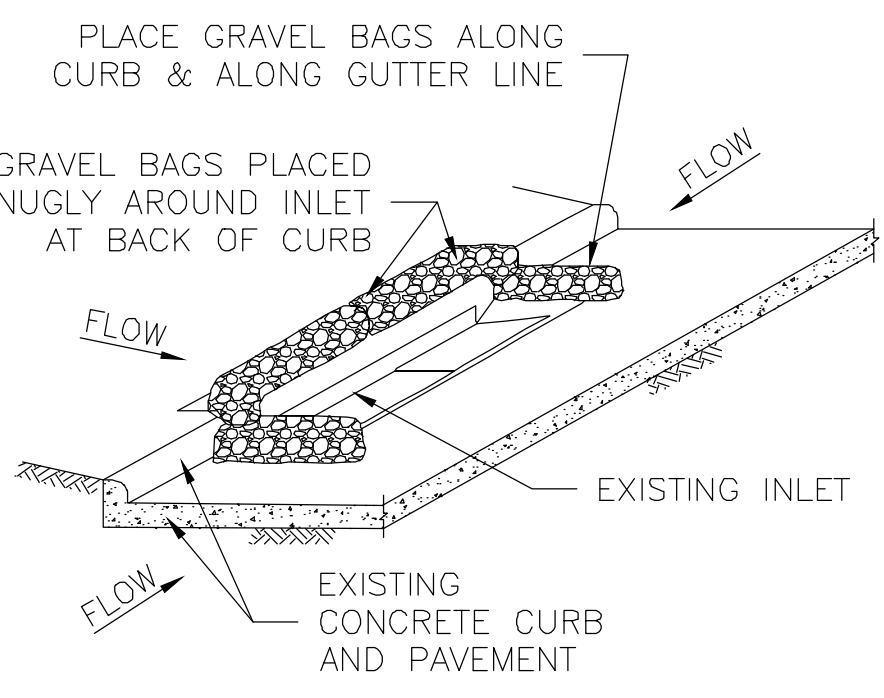
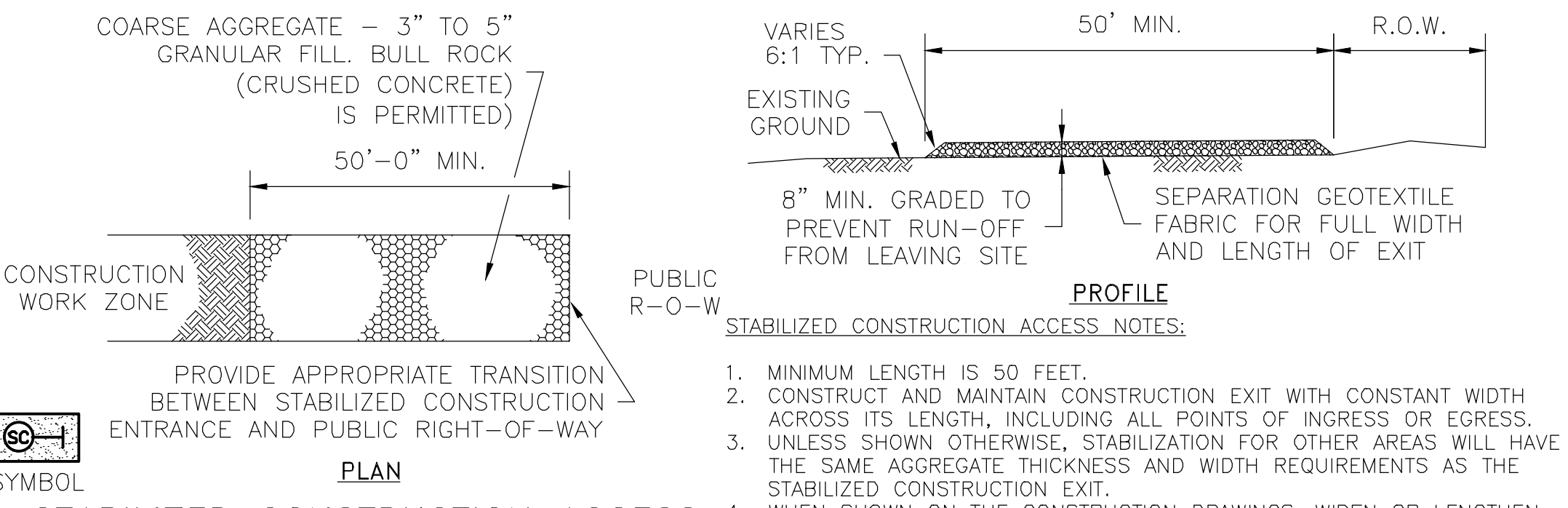
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STORM SEWER DETAILS

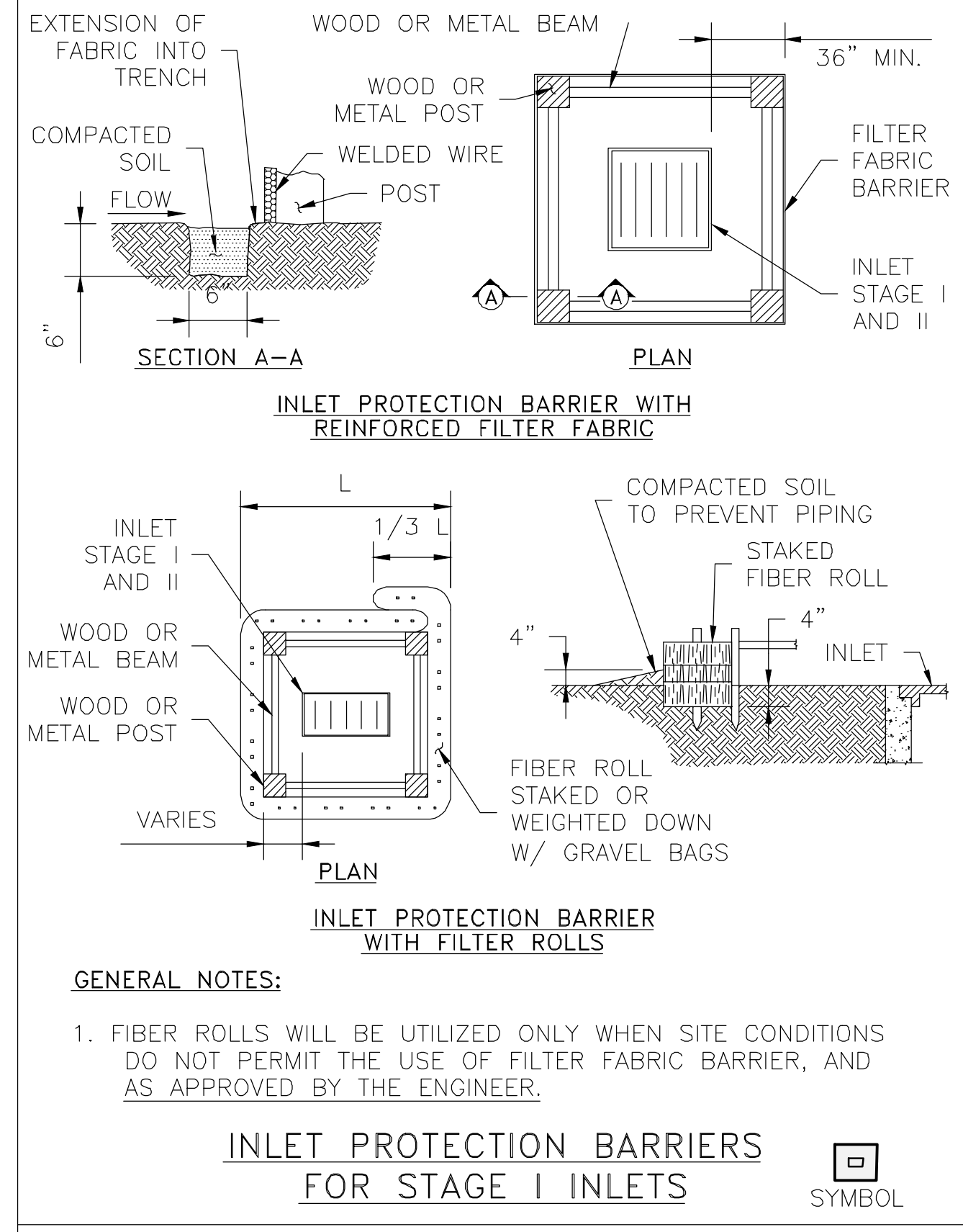
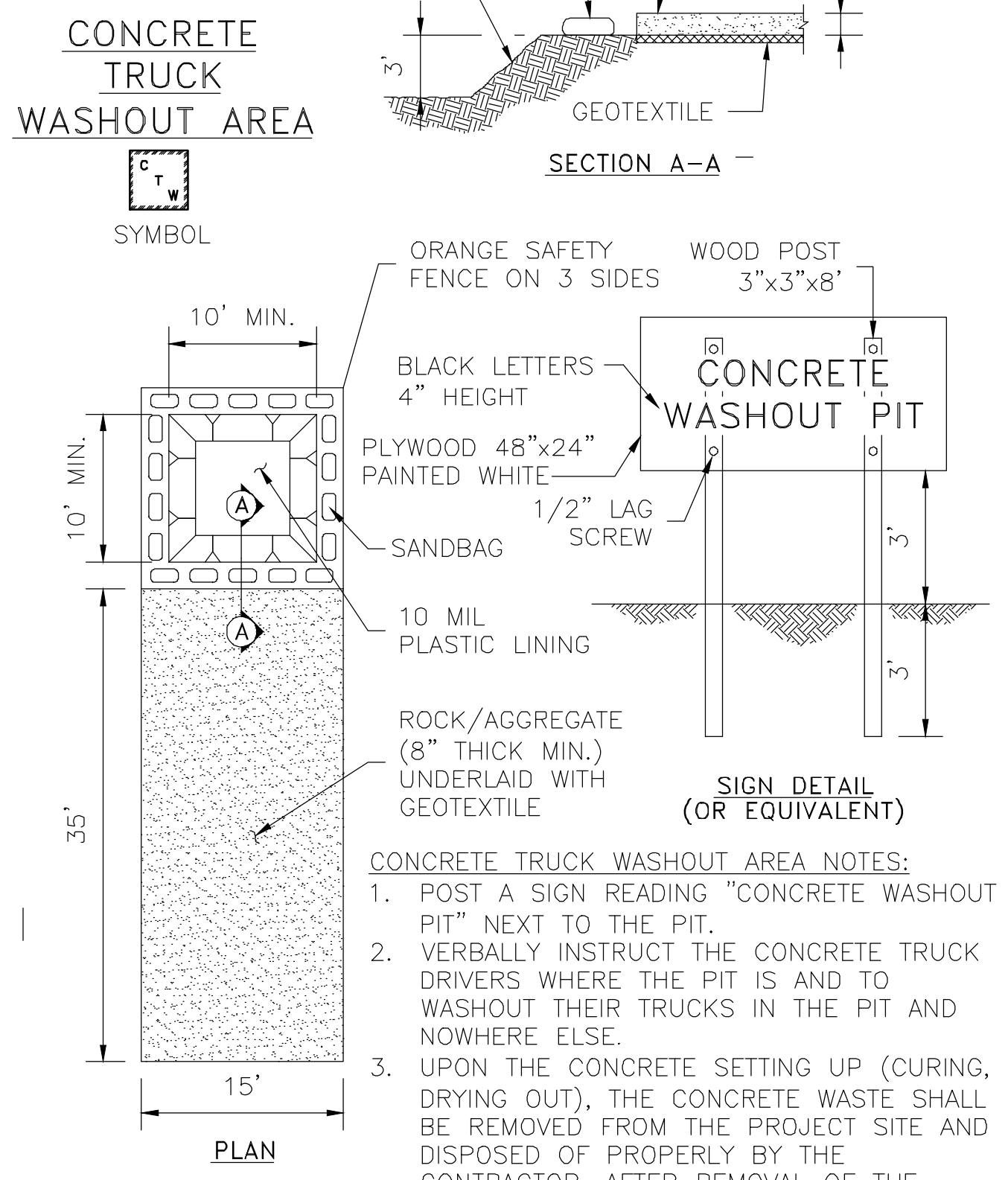
SHEET 15 OF 19



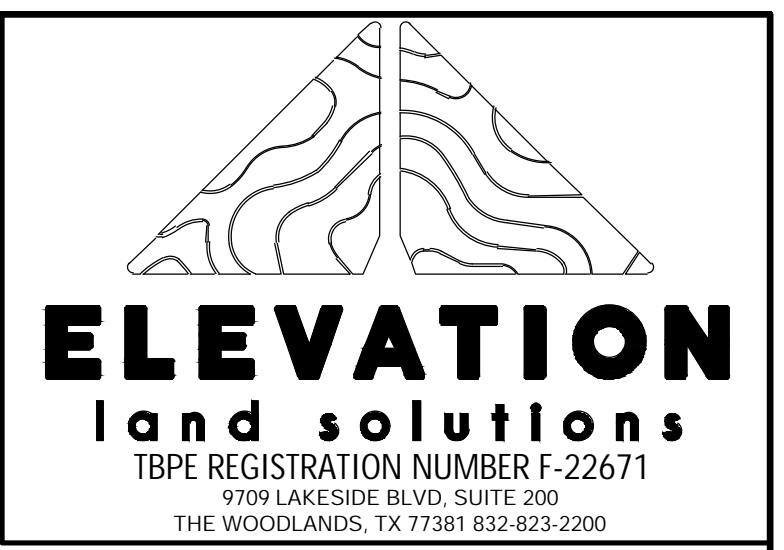
- GENERAL NOTES:**
1. SECURELY FASTEN MESH FENCING TO POSTS WITH STAPLES OR TIE WIRES.
 2. SECURELY FASTEN FILTER FABRIC TO MESH FENCING.
 3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD TOGETHER, AND ATTACH TO A POST.
 4. REMOVE SEDIMENT DEPOSITS WHEN SILT REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE IN DEPTH.



- GENERAL NOTES:**
1. REMOVE SEDIMENT DEPOSIT WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-THIRD THE HEIGHT OF THE BARRIER.
 2. GRAVEL BAGS SHALL NOT BLOCK THROAT OF INLET UNLESS DIRECTED BY ENGINEER.



- GENERAL NOTES:**
1. MINIMUM LENGTH IS AS SHOWN ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE.
 2. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT WITH CONSTANT WIDTH ACROSS ITS LENGTH, INCLUDING ALL POINTS OF INGRESS OR EGRESS.
 3. UNLESS SHOWN ON THE CONSTRUCTION DRAWINGS, STABILIZATION FOR OTHER AREAS WILL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT.
 4. WHEN SHOWN ON THE CONSTRUCTION DRAWINGS, WIDEN OR LENGTHEN STABILIZED AREA TO OUTLET SEDIMENT TRAP FOR THE TRUCK WASHING
 5. PROVIDE PERIODIC TOP DRESSING WITH ADDITIONAL
 6. PERIODICALLY TURN AGGREGATE TO EXPOSE A CLEAN
 7. MINIMUM 14' WIDTH FOR ONE WAY TRAFFIC AND 20'



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Garret J. Duhon

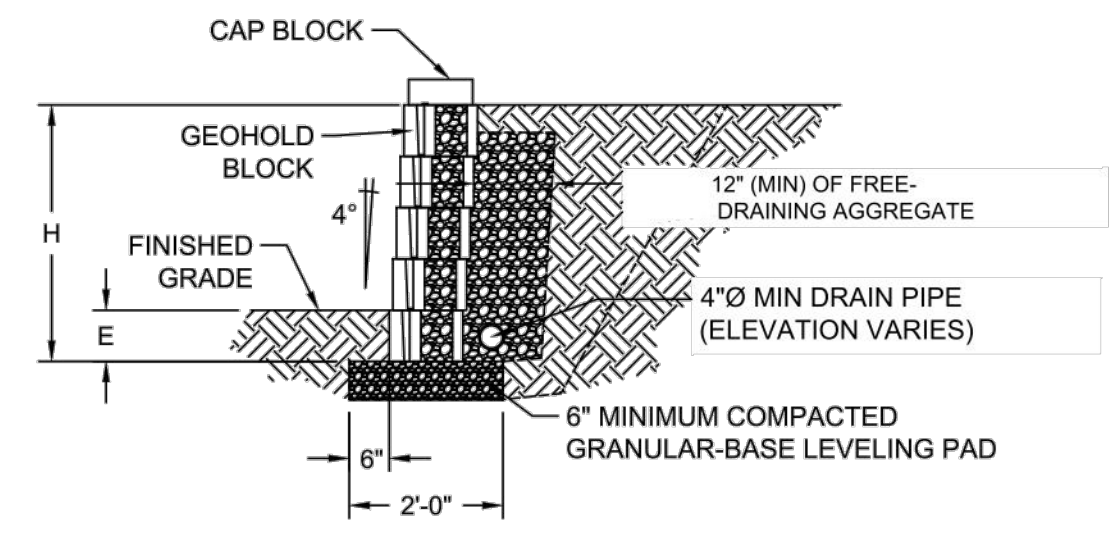
TBPE NO. F-22671

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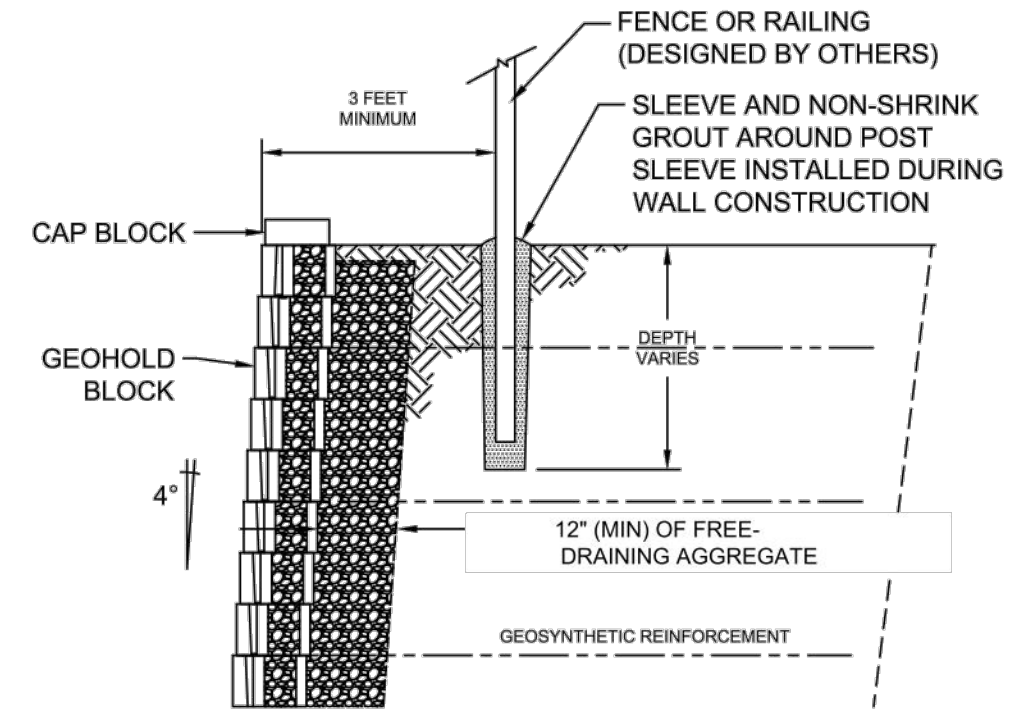
CITY OF MONTGOMERY CITY ENGINEER SIGNATURE VALID FOR ONE (1) YEAR	DATE

STORM WATER POLLUTION PREVENTION PLAN DETAILS



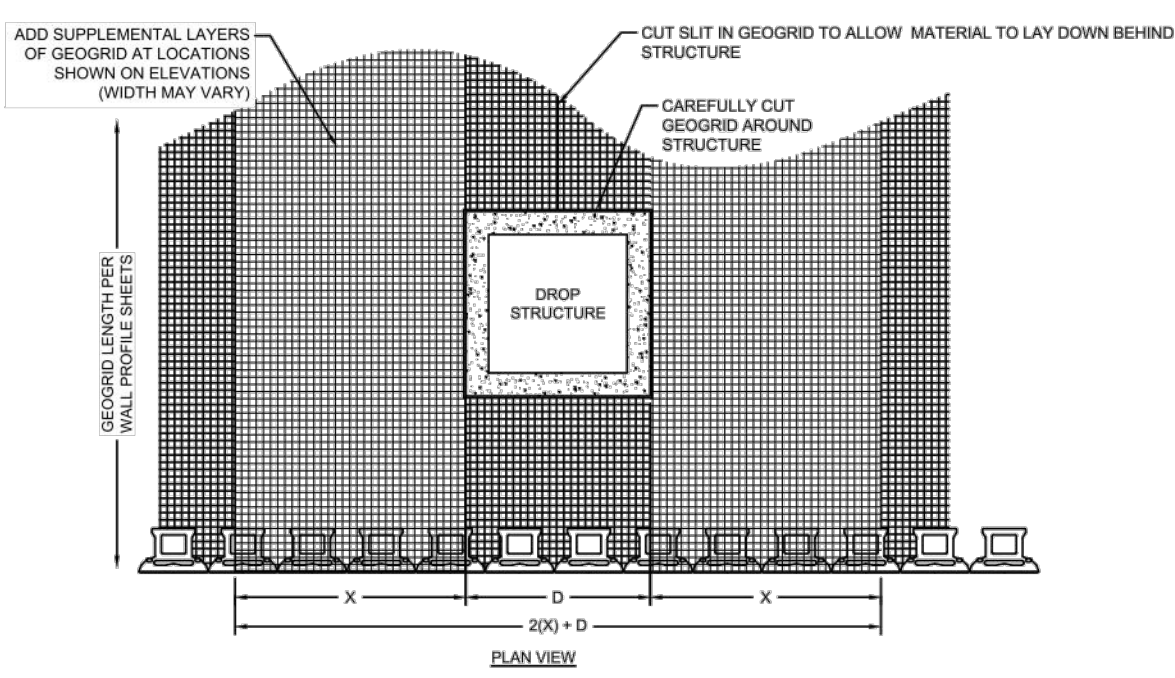
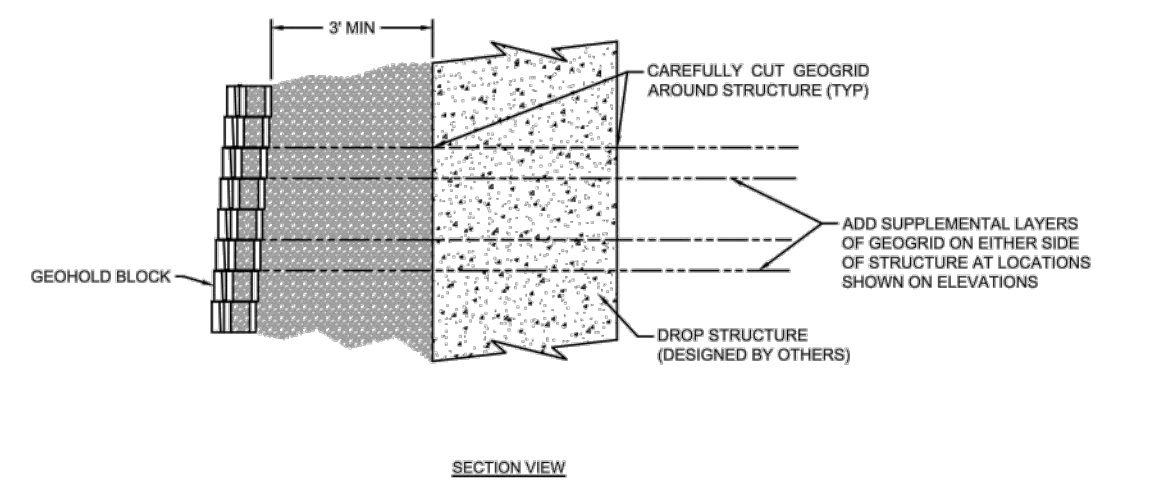
GeoHold® Retaining Wall System
TYPICAL GRAVITY CROSS SECTION

Scale: 3/8" = 1'-0" EL
Date: 3/15/2023 Drawing number: GH05



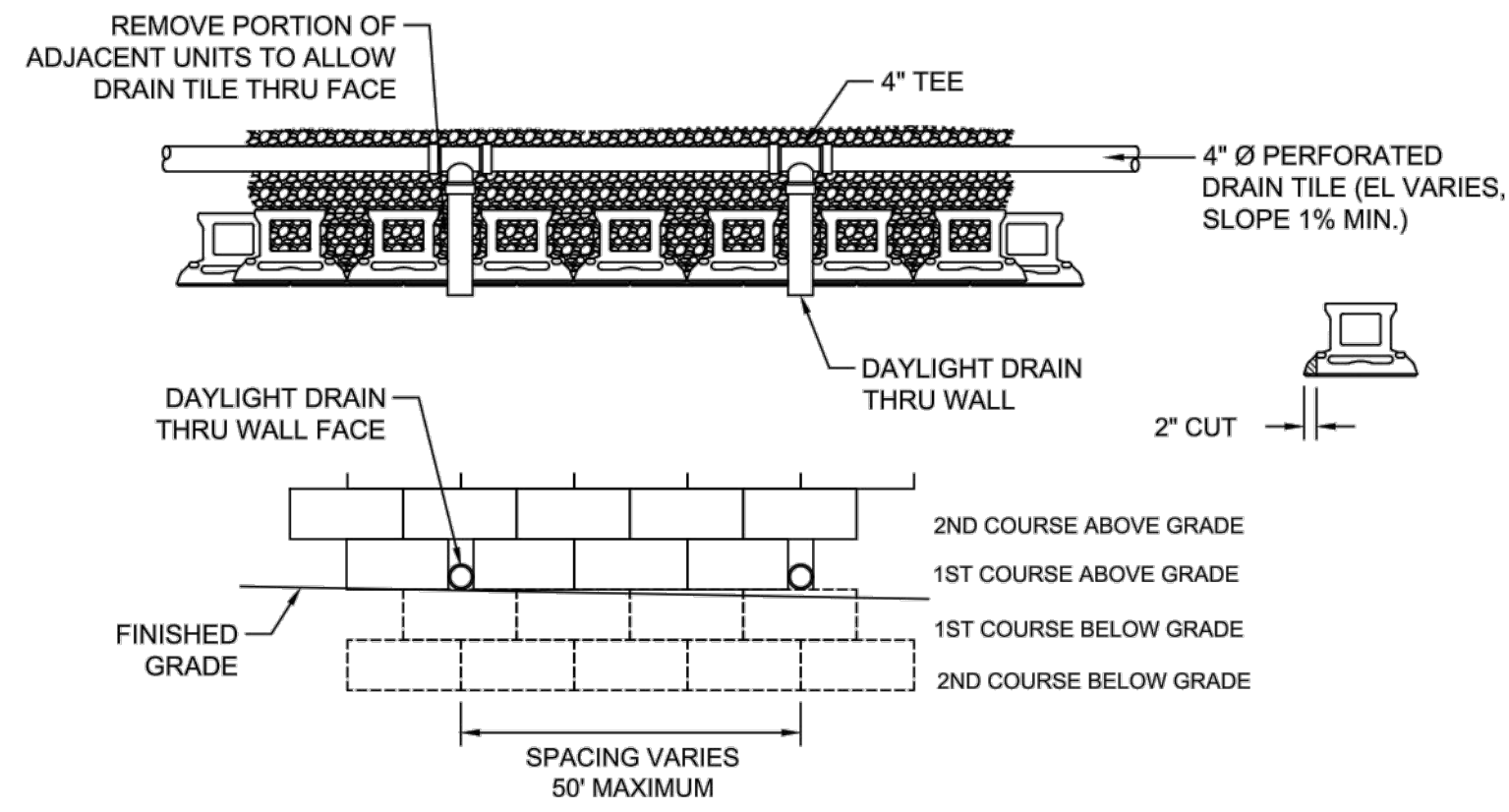
GeoHold® Retaining Wall System
TYPICAL FENCE CROSS SECTION

Scale: 3/8" = 1'-0" EL
Date: 3/15/2023 Drawing number: GH07



GeoHold® Retaining Wall System
TYPICAL DETAILS DROP STRUCTURE BEHIND WALL


Scale: 15/64" = 1'-0" EL
Date: 3/15/2023 Drawing number: GH23



GeoHold® Retaining Wall System
TYPICAL DRAIN PIPE THROUGH WALL FACE

Scale: 3/8" = 1'-0" EL
Date: 3/15/2023 Drawing number: GH17

Montgomery Bend
Section 3 Retaining Wall Design



Segmental Retaining Wall

Project File: Montgomery Bend Sec 4 Retaining Wall Design File.ec6
LIC# : KW-08019834, build:20.23.05.25

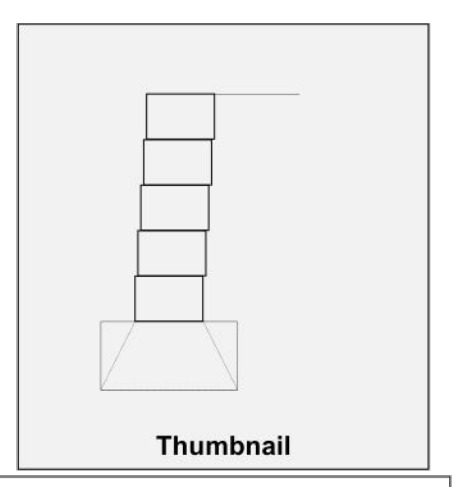
Project Title: Montgomery Bend Sec 3 Retaining Wall
Engineer: Garret J. Duhon, P.E.
Project ID: 610.126.008.01
Project Descr: Retaining wall design to accommodate boundary grading condition

Criteria

Wall height (retained height)	3.33 ft
Backfill slope	Level
Backfill angle	0.0 deg
Embedment	2.0 ft

Soil data

External Soil, Phi_e	24 deg
External soil density (In situ)	95 pcf
Internal Soil, Phi_i	24 deg
Internal soil density	95 pcf
Wall Soil Friction Angle	0 deg
K_a(Horiz)	0.34
K_AE(Horiz)	0.39



Loading

Dead load	0 psf
Live load	0 psf
Seismic Factor, A	0.00
d_seismic	0.00 in

Segmental block data

Vendor selection	Anchor Retaining Wall
Vendor ESR	ICC ESR-19591 Valid through 07/01/18
Block selection type	Vertica Pro Straight Face Block
Block height	8.00 in alpha(L_1) 4650.00 lb
Block depth	12.00 in tan(lambda_u1) 0.37
Offset per block	0.50 in Max_1 7099.00 lb
Batter angle	3.58 deg alpha(L_2) 4650.00 lb
Wall weight	55.00 psf tan(lambda_u2) 0.37
	Max_2 7099.00 lb

Stability

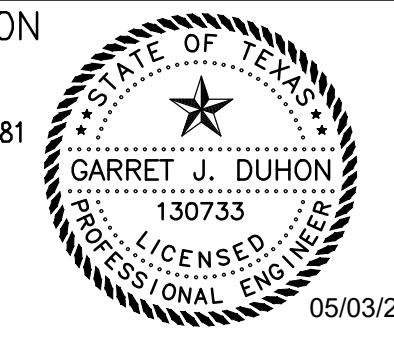
Base length	1.00 ft
Base Sliding Force (w/o Seismic)	180.64 lb
Base Resisting Force (w/o Seismic)	188.70 lb
Base Sliding (w/o Seismic) FS	1.04
Base Sliding Force (w Seismic)	180.64 lb
Base Resisting Force (w Seismic)	188.70 lb
Base Sliding (w Seismic) FS	1.04
Overturning Moment (w/o Seismic)	200.69 ft lb
Resisting Moment (w/o Seismic)	431.40 ft lb
Overturning (w/o Seismic) FS	2.15
Overturning Moment (w Seismic)	200.69 ft lb
Resisting Moment (w Seismic)	431.40 ft lb
Overturning (w Seismic) FS	2.15
Applied Bearing Pressure (w/o Seismic)	451.51 psf
Allowable Bearing Pressure (w/o Seismic)	1,000.00 psf
Bearing (w/o Seismic) FS	2.21
Applied Bearing Pressure (w Seismic)	290.04 psf
Allowable Bearing Pressure (w Seismic)	1,000.00 psf
Bearing (w Seismic) FS	3.45
Eccentricity of Vert. Force (w/o Seismic)	0.05 ft
Effective Base Width (w/o Seismic)	4.91 ft
Eccentricity of Vert. Force (w Seismic)	0.05 ft
Effective Base Width (w Seismic)	4.91 ft

Factors of Safety

Failure Mode	Static Condition		Condition w/Seismic	
	Min	Actual	Min	Actual
Base Sliding	1.00	1.04 OK	1.10	0.00
Overturning	1.50	2.15 OK	1.10	0.00
Bearing	2.00	2.21 OK	1.50	0.00
Internal Sliding	1.50	40.68 OK	1.10	40.68

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DATE

RETAINING WALL DETAILS

Montgomery Bend

Landscape Concept Plan

May 2023

Reserves and Required Tree Canopy
Acreage NQ Acreage Qualifying Acreage Notes for Usage

S1	a	1.04	0.52	0.52 CNP Pole Remove
	b	1.56	0	1.56 Rec Center
	c	0.15	0	0.15 Landscape
	d	0.18	0.04	0.14 Access Removed
	e	0.12	0.12	0 Lift Station
S2	f	5.02	5.02	0 Drng Channel
	g	0.13	0.13	0 Drainage & Utility
	h	1.22	1.01	0.21
	a	0.62	0.62	0 Drainage Swale
	b	9.93	9.93	0 Detention Pond
S3	c	0.07	0.07	0 Drainage Swale
	d	0.07	0.07	0 Drainage Swale
	e	0.05	0.05	0 Drainage Swale
S4	a	0.56		0.56
	b	0.1		0.1

3.9 Gross Reserve Area
0.78 20% (Ac.)
33976.8 20% (sq. ft.)

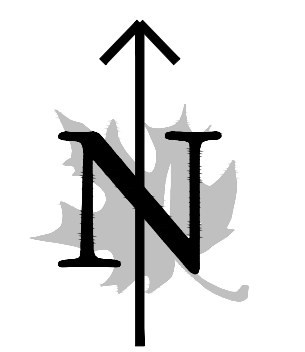
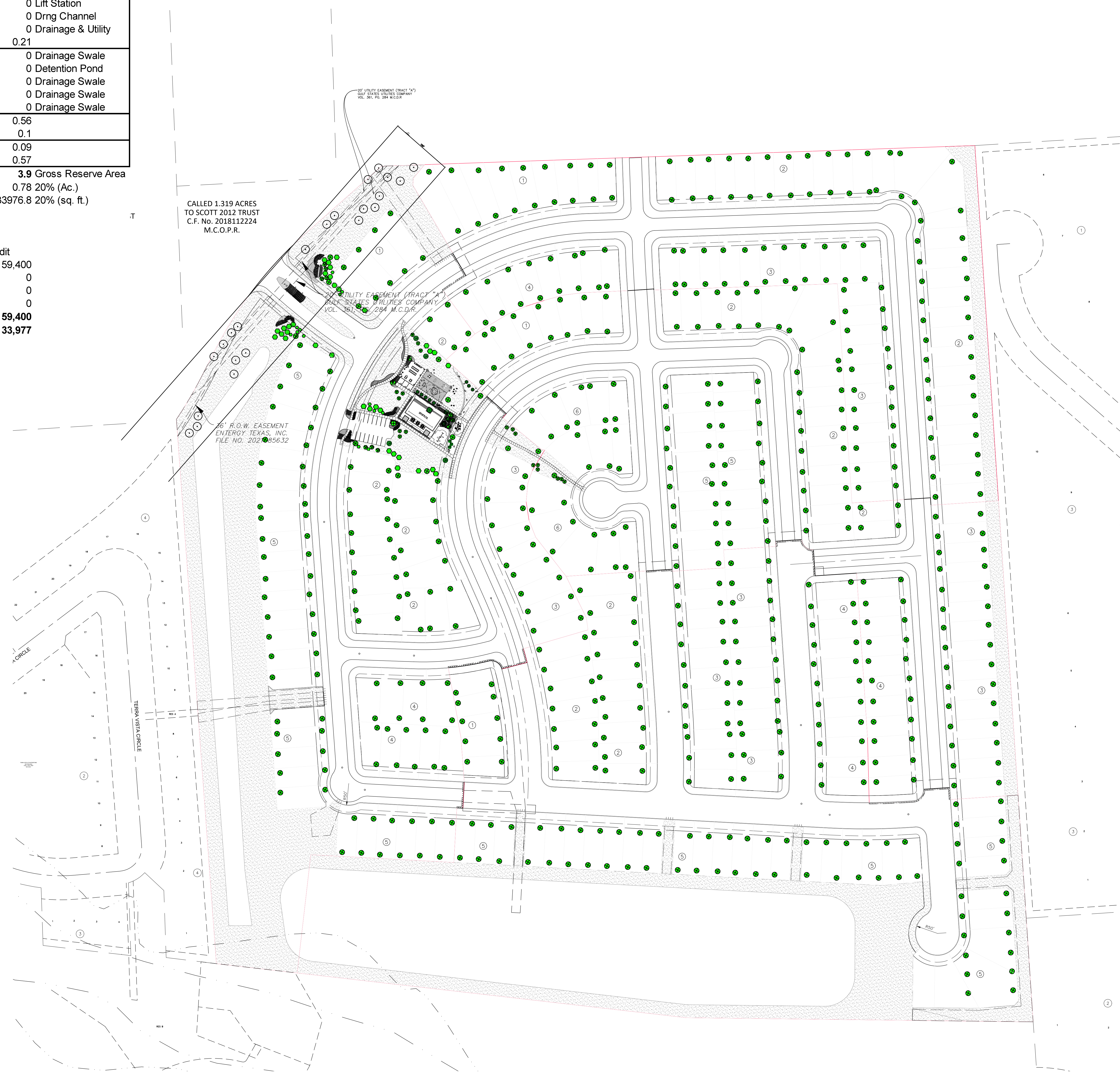
Tree Canopy Area Credit Calculation

DBH	# of Ex. Trees	# of Prop Trees	150' Bonus	Canopy Credit
3" < D < 8"	23	15	150%	59,400
8" < D < 18"	0	0	150%	0
18" < D < 24"	0	0	150%	0
D > 24"	0	0	150%	0

Provided Canopy Credit **59,400**
Required Canopy **33,977**

PLANT SCHEDULE

NEW GOLD LANTANA	●	SOUTHERN HAWKMYRTLE-30 GAL
DRIFT ROSE	●	MONTERREY OAK-45 GAL
RED TURKS CAP	●	CHASTE TREE-30 GAL
ROSEMARY	●	LIVE OAK-45 GAL
MONDO GRASS	●	TEXAS OLIVE-10 GAL
BLACK-EYED SUSAN	●	LIVE OAK-100 GAL
ADIASS HAZEN GRASS	●	LOBLOLLY PINE-30 GAL
RED YUCCA	●	LOBLOLLY PINE-45 GAL
AGAVE	●	
SHARP HAWK MYRTLE	●	
INDIAN GRASS	●	
BUTTERFLY IRIS	●	
SHARP HAWK HOLLY	●	
BLUE FESCUE GRASS	●	
GULF COAST MULLY GRASS	●	
SWITCH GRASS	●	



Scale 1"=100'-0"