









CONSTRUCTION GENERAL NOTES:

- 1. THE LOCATION AND DEPTHS OF EXISTING UTILITIES 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 THE PLANS OR NOT, AND TO PROTECT THE SAME DURING CONSTRUCTION.
2. THE CONDITION OF THE ROAD AND/OR RIGHT OF WAY, UPON COMPLETION OF JOB SHALL BE AS GOOD AS OR BETTER THAN PRIOR TO STARTING WORK. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL, OR BETTER CONDITION, ANY DAMAGE DONE TO EXISTING FENCES, CULVERT PIPES, OR DRIVEWAYS. ANY DAMAGE INCURRED WILL BE REPAIRED AT THE CONTRACTORS EXPENSE (NO SEPARATE PAYMENT).
3. UNDERGROUND UTILITIES SHALL BE INVESTIGATED AND VERIFIED BY THE CONTRACTOR BEFORE STARTING WORK. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE TO, AND FOR MAINTENANCE AND PROTECTION OF THE EXISTING UTILITIES WHETHER THEY ARE SHOWN ON THE PLANS OR NOT.
4. ALL INTERPRETATIONS OF PLANS AND SPECIFICATIONS BY THE ENGINEER SHALL BE FINAL.
5. CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION STAKES, MARKS, ETC... IF ANY ARE DESTROYED OR REMOVED THEY SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
6. ALL WATER PIPE FITTINGS AND VALVES LESS THAN 6" IN DIAMETER SHALL BE LAID IN A SAND EMBEDMENT. THE SAND SHALL FULLY ENCASE ALL PIPE INCLUDING FITTINGS AND VALVES A MINIMUM OF SIX (6") INCHES.
7. ALL SANITARY SEWER CROSSINGS SHALL CONFORM TO 30 TAC CHAPTER 217.53 (ALSO SEE TYPICAL SANITARY SEWER/WATER CROSSING DETAIL ON WATER DETAIL SHEET.
8. A MINIMUM OF 36 INCHES OF COVER IS TO BE MAINTAINED OVER THE WATER MAINS.
9. NO SEPARATE PAYMENT WILL BE MADE FOR REQUIRED PIPE LINE OR VALVE MARKERS.
10. THE CONTRACTOR MUST COMPLY WITH ALL REQUIREMENTS FOR CROSSING EXISTING OIL AND GAS PIPELINES INCLUDING NOTICE AND HAND DIGGING REQUIREMENTS. THE CONTRACTOR MUST CONTACT THESE UTILITY OWNERS TO DETERMINE THEIR REQUIREMENT FOR DEPTH, CLEARANCES, METHODS, ETC. (IF NECESSARY)
11. WHENEVER POWER POLES ARE ADJACENT TO THE PROPOSED WATER LINES, THE CONTRACTOR SHALL PROVIDE PROPER SHORING OR OTHER SUITABLE SUPPORT DURING CONSTRUCTION OF THE WATER LINES.
12. THE CONTRACTOR SHALL ACCOMPLISH ALL CUTTING, CAPPING, PLUGGING, AND BLOCKING NECESSARY TO ISOLATE THOSE EXISTING WATER MAINS RETAINED IN SERVICE FROM THOSE ABANDONED. THE OPEN ENDS OF ABANDONED WATER MAINS AND ALL OTHER OPENINGS OR HOLES IN SUCH WATER MAINS OCCASIONED BY CUTTING OR REMOVAL OF OUTLETS SHALL BE BLOCKED OFF BY MANUALLY FORCING CEMENT GROUT OR CONCRETE INTO AND AROUND THE OPENINGS IN SUFFICIENT QUANTITY TO PROVIDE A PERMANENT SUBSTANTIALLY WATER TIGHT SEAL. ABANDONMENT OF EXISTING WATER MAINS WILL BE CONSIDERED INCIDENTAL TO THE WORK REQUIRED AND NO DIRECT PAYMENT WILL BE MADE.
13. THE CONTRACTOR SHALL MAKE ALL TIE-INS TO EXISTING WATER MAINS REQUIRED BY THE PLANS AFTER THE NEW WATER MAINS HAVE SUCCESSFULLY PASSED THE HYDRO-STATIC PRESSURE TEST AND BACTERIOLOGICAL TESTS REQUIRED FOR ACCEPTANCE OF THE NEW WATER MAINS. IT IS ANTICIPATED THAT ALL TIE-INS TO EXISTING WATER MAINS WILL BE "DRY CONNECTIONS" (WHILE THE WATER MAIN IS EMPTY). SOME OF THE EXISTING WATER VALVES MAY BE USED TO ISOLATE THE SECTION TO BE TIED INTO.
14. PRESSURE TESTING SHALL BE COMPLETED EVERY 2,000 LF (MAX) OF LINE OR AS APPROVED BY THE ENGINEER. ALL ERRORS OF WORKMANSHIP SHALL BE CORRECTED IMMEDIATELY. ALL PARTS OF THE PIPE LINE SHALL BE BACKFILLED AND BRACED SUFFICIENTLY TO PREVENT MOVEMENT UNDER PRESSURE.
15. TAPPING MACHINES UTILIZED FOR THE PURPOSE OF INSTALLING TAPPING VALVES, CORPORATION STOPS, AND AIR RELEASE VALVES WILL BE OF THE PURGE TYPE WHICH AT THE TIME OF TAPPING SHALL EXPEL ALL CHIPS AND RESIDUE TO ATMOSPHERE THROUGH AN APPROPRIATE OUTLET.
16. AT NO TIME CAN THE CONTRACTOR HAVE MORE THAN 500 LF. OF UN-BACKFILLED TRENCH BEHIND HIM AND NO MORE THAN 1,500 LF. OF UN-ASPHALTED TRENCH BEHIND HIM.
17. NOTIFY THE INSPECTOR FORTY-EIGHT HOURS PRIOR TO BACKFILLING OR TESTING.
18. BASE MATERIAL SHALL BE COMPACTED IN LIFTS AS DETAILED. EACH COURSE SHALL BE COMPACTED TO FULL REQUIRED DENSITY BEFORE SUCCEEDING LAYERS ARE PLACED.
19. UTILITY TRENCH COMPACTION SHALL BE TO 95% MINIMUM DENSITY (TEX 113E) AND PROOF ROLLED PRIOR TO THE APPROVAL OF THE UTILITY.
20. ALL SUITABLE MATERIAL EXCAVATED DURING CONSTRUCTION SHALL BE EMANKED ON-SITE AS DIRECTED BY THE OWNER AND IS REFLECTED IN THE BID SCHEDULES.
21. UNSUITABLE EXCAVATION INCLUDING OLD CURB CONCRETE, ASPHALT, STRIPING, ETC., SHALL BECOME "WASTE" AND THE PROPERTY OF THE CONTRACTOR, CONTRACTOR IS TO DISPOSE OF PROPERLY OFFSITE.
22. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100 YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT. ALL WASTE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND IT SHALL BE HIS RESPONSIBILITY TO DISPOSE OF THIS MATERIALS OFF THE LIMITS OF THE RIGHT-OF-WAY AND ON PRIVATE PROPERTY WHERE THE CONTRACTOR HAS THE CONSENT OF THE PROPERTY OWNERS. NO WASTE MATERIALS SHALL BE PLACED IN LOW AREAS, AREAS IN THE 100 YEAR FLOOD PLAIN, OR IN AREAS THAT BLOCK OR ALTER THE FLOW OF THE NATURAL OR EXISTING DRAINAGE.
23. CONTRACTOR SHALL FURNISH THE ENGINEER WITH AN AS-BUILT PLAN INDICATING LENGTHS AND SIZES OF PIPE INSTALLED, DIMENSIONS FROM RIGHT-OF-WAY OR PAVEMENT TO CENTERLINE OF PIPE, THE LOCATION OF ALL FITTINGS, VALVES, FIRE HYDRANTS, SERVICES, AND ALL TIE-INS TO EXISTING MAINS.
24. CONTRACTOR, WHEN NOTED, IS REQUIRED TO REMOVE, SALVAGE AND REPLACE EXISTING PIPE CULVERTS. (NO SEPARATE PAY ITEM) ANY DAMAGES INCURRED ARE TO BE REPAIRED AT THE CONTRACTORS EXPENSE.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION, ANY DAMAGES DONE TO EXISTING IMPROVEMENTS INCLUDING FENCES, CONCRETE ISLANDS, STREET PAVING, LAWNS, CURBS, DRIVEWAYS, ETC... (NO SEPARATE PAY ITEM.)
26. CONTRACTOR IS TO PROVIDE GRASS GROWTH IN ACCORDANCE WITH ITEM 164 OF DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (1993) FOR PROPOSED EARTHEN CHANNEL(S) CONSTRUCTED IF ANY. ACCEPTANCE BY THE CITY SHALL REQUIRE ADEQUATE COVERAGE OF CHANNEL AREA.
27. UNDER PAVED DRIVEWAYS, THE FINAL COMPACTION SHALL BE BROUGHT TO 12" FROM THE EXISTING GRADES. THIS FINAL 12" SHALL BE REPLACED WITH ASPHALT TREATED BASE THE COST FOR THIS SHALL BE DEEMED INCLUDED IN THE UNIT PRICE BID PER SQUARE YARD FOR "CUTTING & PATCHING ASPHALTIC PAVEMENT" AND TO THE LIMITS AS SHOWN ON THE PLANS.
28. UNDER CONCRETE DRIVEWAYS, THE FINAL COMPACTION SHALL BE BROUGHT TO A POINT 2" BELOW THE BOTTOM OF THE EXISTING CONCRETE SAW CUT. THIS FINAL 2" SHALL BE REPLACED WITH A 2" CLEAN SAND BASE AND THEN FINISH WITH AN EQUIVALENT THICKNESS OF CLASS "A" CONCRETE AND REINFORCING STEEL. THE COST FOR THIS SHALL BE DEEMED INCLUDED IN THE UNIT PRICE BID PER SQUARE YARD FOR "CUTTING & REPLACING CONCRETE PAVEMENT" AND TO THE LIMITS AS SHOWN ON THE PLANS.
29. UNDER ALL GRAVEL STREETS, DRIVEWAYS AND PARKING AREAS, THE FINAL COMPACTION SHALL BE BROUGHT TO 6" BELOW EXISTING GRADE. THE FINAL 6" SHALL BE BROUGHT TO GRADE WITH 6" OF CRUSHED LIMESTONE BASE MATERIAL. THE MATERIAL SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95%. NO EXTRA PAYMENT SHALL BE MADE FOR REMOVING AND REPLACING GRAVEL STREETS, DRIVEWAYS AND PARKING AREAS. THE COST FOR THIS ITEM SHALL BE DEEMED INCLUDE IN THE UNIT PRICE BID FOR VARIOUS SIZE PIPE IN PLACE.
30. THE CONTRACTOR WILL BE REQUIRED TO FURNISH BARRICADES, WARNING SIGNS, LIGHTS, FLARES, FLAGS, FLAGMENS,ETC., WHERE NECESSARY AND AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
31. THE CONTRACTOR SHALL MAINTAIN TWO WAY TRAFFIC AT ALL TIMES ON ALL EXISTING STREETS DURING CONSTRUCTION.
32. THE CONTRACTOR SHALL PROVIDE ACCESS FOR THE DELIVERY OF THE MAIL BY THE U.S. POSTAL SERVICE.
33. THE CONTRACTOR SHALL PROVIDE ACCESS TO RESIDENCES AND BUSINESSES.
34. DUE TO FEDERAL REGULATION TITLE 49, PART 192.181, THE LOCAL GAS COMPANY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
35. THE INTENT OF THE CONSTRUCTION DRAWINGS IS THAT THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND TRANSPORTATION NECESSARY FOR THE PROPER EXECUTION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ALL INCIDENTAL WORK NECESSARY TO COMPLETE THE PROJECT IN AN ACCEPTABLE MANNER READY FOR THE USE BY THE OWNER.
36. THE CONSTRUCTION CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, SEQUENCE, PROCEDURES, TECHNIQUES OR SCHEDULING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONSTRUCTION CONTRACTOR SHALL ALSO BE SOLELY RESPONSIBLE FOR SAFETY IN OR ABOUT THE JOB SITE IN ACCORDANCE WITH ANY HEALTH OR SAFETY PRECAUTIONS, REGULATIONS, STANDARDS OR CODES REQUIRED BY O.S.H.A. OR ANY OTHER REGULATORY AGENCY.
37. THE CONTRACTOR IS TO CONTACT THE TXDOT MAINTENANCE SUPERVISOR 48 HOURS PRIOR TO WORK OCCURRING IN STATE RIGHT-OF-WAY.
38. TXDOT ROW WILL NOT BE USED AS AN AREA FOR CONTRACTOR PARKING OR FOR STAGING THE RECEIPT OF MATERIALS OR EQUIPMENT.
39. TRAFFIC CONTROL AND CONSTRUCTION BARRICADES WILL MEET THE REQUIREMENTS OF THE TEXAS MUTCD.
40. AT NO TIME WILL THE ROADWAY TRAVEL WAY BE BLOCKED.
41. A MINIMUM 3:1 (H:V) TEMPORARY SAFETY SLOPE OF STABLE COMPACTED MATERIAL WILL BE REQUIRED ADJACENT TO THE STATE HIGHWAY EDGE OF PAVEMENT AT ALL TIMES DURING NON WORKING HOURS.
42. ALL MATERIALS AND CONSTRUCTION METHODS USED IN STATE ROW WILL MEET STATE SPECIFICATIONS. THIS SUPERSEDES ALL OTHER SPECIFICATIONS IN THE PLANS.
43. ANY DAMAGE TO TXDOT FACILITIES WILL BE REPAIRED AT NO EXPENSE TO THE STATE, TO TXDOT'S SATISFACTION.
44. THE CONTRACTOR WILL USE BEST MANAGEMENT PRACTICES (BMP'S) TO MINIMIZE EROSION AND SEDIMENTATION IN THE RIGHT OF WAY RESULTING FROM THE PROPOSED CONSTRUCTION. RE-VEGETATION OF DISTURBED AREAS WILL BE COMPLETED IN ACCORDANCE WITH TXDOT STANDARD SPECIFICATIONS.
45. PRIOR TO SEEDING OR RE-VEGETATION THE FRONT SLOPES WILL BE SHOULDERED UP WITH TOPSOIL TO ELIMINATE ANY PAVEMENT EDGE DROP-OFF.
46. MUD TRACKED ONTO THE ROADWAY FROM THE SITE WILL BE IMMEDIATELY REMOVED TO THE SATISFACTION OF TXDOT.
47. THE CONTRACTOR IS RESPONSIBLE FOR PLACING AND MAINTAINING EXISTING SIGNS ON TXDOT APPROVED TEMPORARY MOUNTS UNTIL PERMANENT SIGNS ARE PLACED.
48. THE FINAL PLACEMENT OF PERMANENT SIGNS WILL BE COORDINATED PRIOR TO PLACEMENT WITH THE LOCAL TXDOT MAINTENANCE SUPERVISOR.
49. CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS NECESSARY TO PREVENT DAMAGE TO ADJACENT PROPERTIES AND TO CONFORM TO LOCAL JURISDICTIONAL AUTHORITY REQUIREMENTS.
50. ALL DIRECT OR CONVENTIONAL BORE CONSTRUCTION WITHIN TEXAS DEPARTMENT OF HIGHWAYS R.O.W.'S SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED TXDOT PERMIT.
51. NO EXTRA PAY ITEM WILL BE ALLOWED FOR WORK CALLED FOR ON PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED IN THE PAY ITEM TO WHICH IT RELATES.

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. Construction for public water systems must always, at a minimum, meet TCEQ's "Rules and Regulations for Public Water Systems.
2. An appointed engineer shall notify in writing the local TCEQ's Regional Office when construction will start. Please keep in mind that upon completion of the water works project, the engineer or owner shall notify the commission's Water Supply Division, in writing, as to its completion and attest to the fact that the work has been completed essentially according to the plans and change orders on file with the commission as required in 30 TAC §290.39f(1)(3).
3. All newly installed pipes and related products must conform to the American National Standards Institute (ANSI)/NSF International Standard 61 and must be certified by an organization accredited by ANSI, as required by 30 TAC §290.44(a)(1).
4. 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, as required by 30 TAC §290.44(a)(2).
5. 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, as required by 30 TAC §290.44(a)(3).
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, as required by 30 TAC §290.44(a)(4).

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executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

- 7. Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of 6 inches.
8. Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired and retested.
9. All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole.

The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet \_\_\_ of \_\_\_.

It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of a portable ladder. The inclusion of steps in a manhole is prohibited.

- 10. Where water lines and new sewer line are installed with a separation distance closer than nine feet (i.e., water lines crossing wastewater lines, water lines paralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(d) (Pipe Design) and 30 TAC §290.44(e) (Water Distribution).
11. Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer pipe must be achieved by the following procedure which is recommended by the pipe manufacturer:
If pipe flexure is proposed, the following method of preventing deflection of the joint must be used:

Specific care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.

- 12. New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.

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ITEM NO. 818 PVC (C-900, C-905 and C-909) PIPE INSTALLATION

818.1 DESCRIPTION: This item shall consist of PVC (C-900, C-905 and C-909) pipe installation in accordance with these specifications and as directed by the Engineer. Deflection of PVC (C-900, C-905 and C-909) pipe shall not be allowed.

818.2 SUBMITTALS: Contractor shall submit manufacturer's product data instructions, recommendations, shop drawings, and certifications.

818.3 MATERIALS: The materials for PVC pipe installation shall conform to the specifications contained within the latest revision of SAWS Material Specification Item Nos. 05-12, 819-01, and 05-13, "Polyvinyl Chloride (PVC) Pipe."

818.4 CONSTRUCTION METHOD: PVC (C-900, C-905 and C-909) pipe shall be installed as specified within Item No. 812, "Water Main Installation" of these specifications. PVC (C-900, C-905 and C-909) mains shall be laid to the depth and grades shown in the contract documents. The pipe shall be laid by inserting the spigot end into the bell flush with the insertion line or as recommended by the manufacturer. At no time shall the bell end be allowed to go past the "insertion line." A gap between the end of the spigot, and the adjoining pipe is necessary to allow for expansion and contraction.

Joint Restraints: For all mains consisting of PVC (C-900, C-905 and C-909) joint restraints as specified in SAWS' Material Specification Item No. 95-10, "Pipe Joint Restraint Systems," and shall be installed in accordance with manufacturer's recommendations. Joint restraints shall be bi-directional and installed to fully restrain the system as shown in Standard Drawing Details DD-839-04 through DD-839-8, or indicated in the contract documents.

PVC (C-900, C-905 and C-909) pipe shall be field cut using a power saw with a steel blade or abrasive disc, depending on the size of pipe. If a bevel is needed after field cutting, it should be in accordance with the latest applicable recommendations of: Uni-Bell or ASTM/AWWA standards. Such work will be subject to approval by the Inspector.

Tracer Wire: Tracer wire shall be utilized for location purposes and taped directly to the pipe. Tracer wire shall be of solid core (14 gauge insulated), and shall be taped to the main in minimum of 10 inch increments. Wire shall also come up to

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If no stub-out is present an alternate method of joining laterals is shown in the detail on Plan Sheet \_\_\_ of \_\_\_ (For potential future laterals).

The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet \_\_\_ of \_\_\_ and marked after backfilling as shown in the detail on Plan Sheet \_\_\_ of \_\_\_.

- 13. Trenching, bedding and backfill must conform with 30 TAC §217.54. The bedding and backfill for flexible pipe must comply with the standards of ASTM D-2321, Classes IA, IB, II or III. Rigid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) classes A, B or C.

- 14. Sewer lines must be tested from manhole to manhole. When a new sewer line is connected to an existing stub or clean-out, it must be tested from existing manhole to new manhole. If a stub or clean-out is used at the end of the proposed sewer line, no private service attachments may be connected between the last manhole and the cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E).

- 15. All sewer lines must be tested in accordance with 30 TAC §217.57. The engineer must retain copies of all test results which must be made available to the executive director upon request. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Testing method will be:
(a) For a collection system pipe that will transport wastewater by gravity flow, the design must specify an infiltration and exfiltration test or a low-pressure air test. A test must conform to the following requirements:

- (1) Low Pressure Air Test.
(A) A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure approved by the executive director, except as to testing times as required in Table C.3 in subparagraph (C) of this paragraph or Equation C.3 in subparagraph (B)(i) of this paragraph.

- (B) For sections of collection system pipe less than 36 inch average inside diameter, the following procedure must apply, unless a pipe is to be tested as required by paragraph (2) of this subsection.
(i) A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted by groundwater above the pipe.

- (ii) Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is computed from the following equation:

Equation C.3 T = (0.085 x D x K) / Q

Where:

- T = time for pressure to drop 1.0 pound per square inch gauge in seconds
K = 0.000419 X D X L, but not less than 1.0
D = average inside pipe diameter in inches

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the top of valve extensions and fire hydrant stems, as directed by the Inspector.

818.5 MEASUREMENT: PVC pipe will be measured by the linear foot for each size and type as follows:
Measurements will be from the center line intersection of runs and branches of tees to the end of the valve of a dead end run.

Measurements will also be between the center line intersection of runs and branches of tees. Where the branch is plugged for future connection, the measurement will include the entire laying length of the branch or branches of the fitting.

The measurement of each line of pipe of each size will be continuous and shall include the full laying lengths of all fittings and valves installed between the ends of such line except that the laying length of reducers will be divided equally between the connected pipe sizes. Lines leading to a tapping connection with an existing main will be measured to the center of the main tapped.

818.6 PAYMENT: Payment for PVC Pipe installed will be made at the unit price bid per linear foot of pipe of the various sizes installed by the open cut method. Such payment shall also include excavation, selected embedment material, backfill, compaction, polyethylene sleeve, hauling and disposition of surplus excavated material, including all existing pipe, fittings, appurtenances to be abandoned (where specified or shown in the contract documents).

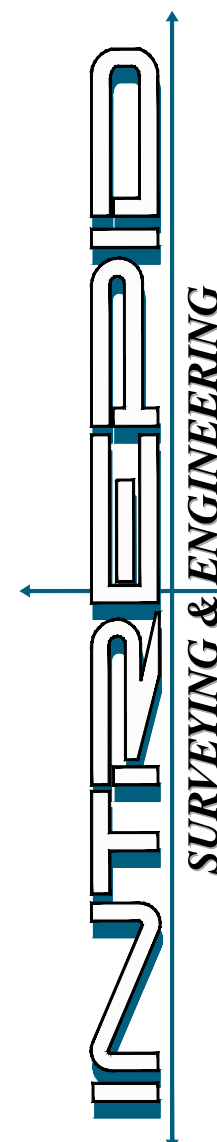
- End of Specification -

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REVISIONS:

Table with 2 columns: Description, Date. Multiple empty rows.



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UTILITY NOTE AND DETAIL SHEET

FOR SOMERSET ESTATES SOMERSET, TEXAS ATASCOSA COUNTY

JOB NO.: 24-0722
DATE: OCTOBER 2024
DRAWN: MK
DESIGNED: MK
CHECKED: RJ
SHEET: C4.4



