

**SECTION 02200
BASIC PIPELINE CONSTRUCTION**

PART 1 GENERAL

1.01 SCOPE

The work to be performed under this Section shall consist of furnishing all labor, equipment, appliances and materials, and performing all operations in connection with the basic pipeline construction methods and procedures.

1.02 RELATED SECTIONS

1. Section 02665 – Water Mains and Accessories
2. Section 02685 – Gas Mains and Accessories
3. Section 02730 – Sewer and Accessories
4. Section 02731 – Force Mains

PART 3 EXECUTION

3.01 EXISTING UTILITIES AND OBSTRUCTIONS

- A. The Drawings indicate utilities or obstructions that are known to exist according to the best information available to the City. The Contractor shall call the Utilities Protection Center (UPC) (325-5000 or 1-800-282-7411) as required by Georgia law (O.C.G.A. §25-9-1 through §25-9-13) and all utilities, agencies or departments that own and/or operate utilities in the vicinity of the construction work site, not less than 48 hours (two business days) prior to construction, to verify the location of the existing utilities.
- B. Existing Utility Location: The following steps shall be exercised to avoid interruption of existing utility service.
 1. Provide the required notice to the utility owners and allow them to locate their facilities according to Georgia law. Field utility locations are valid for only 10 days after original notice. The Contractor shall ensure, at the time of any excavation, that a valid utility location exists at the point of excavation.
 2. Expose the facility, for a distance of at least 200 feet in advance of pipeline construction, to verify its true location and grade. Repair, or have repaired, any damage to utilities resulting from locating or exposing their true location.
 3. Avoid utility damage and interruption by protection with means or methods recommended by the utility owner.
 4. Maintain a log identifying when phone calls were made, who was called, area for which utility relocation was requested and work order number issued, if any. The Contractor shall provide the City an updated copy of the log bi-weekly, or more frequently if required.
- C. Conflict with Existing Utilities

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1. **Horizontal Conflict:** Horizontal conflict shall be defined as when the actual horizontal separation between a utility, main, or service and the proposed pipeline does not permit safe installation of the pipeline by the use of sheeting, shoring, tying-back, supporting, or temporarily suspending service of the parallel or crossing facility. The Contractor may change the proposed alignment of the pipeline to avoid horizontal conflicts if the new alignment remains within the available right-of-way or easement, complies with regulatory agency requirements and after a written request to and subsequent approval by the City. If, in the opinion of the City, the pipeline's proposed location cannot be adjusted, thus requiring the relocation of an existing utility, the City will direct the Contractor to relocate the utility as part of the Contract with the costs of such relocation being paid for as part of a change order.
 2. **Vertical Conflict:** Vertical conflict shall be defined as when the actual vertical separation between a utility, main, or service and the proposed pipeline does not permit the crossing without immediate or potential future damage to the utility, main, service, or the pipeline. The Contractor may change the proposed grade of the pipeline to avoid vertical conflicts if the changed grade maintains adequate cover and complies with regulatory agencies requirements after written request to and subsequent approval by the City. If, in the opinion of the City, the pipeline's proposed location cannot be adjusted, thus requiring the relocation of an existing utility, the City will direct the Contractor to relocate the utility as part of the Contract with the costs of such relocation being paid for as part of a change order.
- D. **Electronic Locator:** Have available at all times an electronic pipe locator and a magnetic locator, in good working order, to aid in locating existing pipe lines or other obstructions.
- E. **Water and Sewer Separation**
1. Water mains should maintain a minimum 10 foot edge-to-edge separation from sewer lines, whether gravity or pressure. If the main cannot be installed in the prescribed easement or right-of-way and provide the 10 foot separation, the separation may be reduced, provided the bottom of the water main is a minimum of 18-inches above the top of the sewer. Should neither of these two separation criteria be possible, the water main shall be installed below the sewer with a minimum vertical separation of 18-inches. Where possible, a full joint of sewer pipe shall be centered over the water main. Any deviation shall be requested in writing to the City.
 2. The water main, when installed below the sewer, shall be encased in concrete with a minimum 6-inch concrete depth to the first joint in each direction. Where water mains cross the sewer, the pipe joint adjacent to the pipe crossing the sewer shall be cut to provide maximum separation of the pipe joints from the sewer.
 3. No water main shall pass through, or come in contact with, any part of a sanitary sewer manhole.
- F. **Miscellaneous Obstructions:** The Contractor shall coordinate its work with the individual property owners during the installation of the proposed pipeline. Property owners may have invisible fences, underground sprinkler systems, storm drainage, and other miscellaneous obstructions which must be worked around. The Contractor shall take all necessary measures

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to minimize disruption or damage to such systems. The Contractor shall restore any damage to personal property as soon as possible.

3.02 CONSTRUCTION ALONG HIGHWAYS, STREETS AND ROADWAYS

- A. Install pipe lines and appurtenances along highways, streets and roadways in accordance with the applicable regulations of, and permits issued by, the Georgia Department of Transportation, Thomas County and the City of Thomasville with reference to construction operations, safety, traffic control, road maintenance and repair.
- B. Traffic Control
1. The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient lights and other traffic control devices; provide qualified flagmen where necessary to direct traffic; take all necessary precautions for the protection of the work and the safety of the public.
 2. Construction traffic control devices and their installation shall be in accordance with the current *Manual On Uniform Traffic Control Devices for Streets and Highways*.
 3. Placement and removal of construction traffic control devices shall be coordinated with the Georgia Department of Transportation, the City of Thomasville and Thomas County a minimum of 48 hours in advance of the activity.
 4. Placement of construction traffic control devices shall be scheduled ahead of associated construction activities. Construction time in street right-of-way shall be conducted to minimize the length of time traffic is disrupted. Construction traffic control devices shall be removed immediately following their useful purpose. Traffic control devices used intermittently, such as "Flagmen Ahead", shall be removed and replaced when needed.
 5. Existing traffic control devices within the construction work zone shall be protected from damage. Traffic control devices requiring temporary relocation shall be located as near as possible to their original vertical and horizontal locations. Original locations shall be measured from reference points and recorded in a log prior to relocation. Temporary locations shall provide the same visibility to affected traffic as the original location. Relocated traffic control devices shall be reinstalled in their original locations as soon as practical following construction.
 6. Construction traffic control devices shall be maintained in good repair and shall be clean and visible to affected traffic for daytime and nighttime operation. Traffic control devices affected by the construction work zone shall be inspected daily.
 7. Construction warning signs shall be black legend on an orange background. Regulatory signs shall be black legend on a white background. Construction sign panels shall meet the minimum reflective requirements of the Georgia Department of Transportation the City of Thomasville and Thomas County. Sign panels shall be of durable materials capable of maintaining their color, reflective character and legibility during the period of construction.

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8. Channelization devices shall be positioned preceding an obstruction at a taper length as required by the current *Manual On Uniform Traffic Control Devices for Streets and Highways*, as appropriate for the speed limit at that location. Channelization devices shall be patrolled to insure that they are maintained in the proper position throughout their period of use.
- C. Construction Operations
1. Perform all work along highways, streets and roadways to minimize interference with traffic.
 2. Stripping: Where the pipe line is laid along road right-of-way, strip and stockpile all sod, topsoil and other material suitable for right-of-way restoration.
 3. Trenching, Laying and Backfilling: Do not open the trench any further ahead of pipe laying operations than is necessary. Backfill and remove excess material immediately behind laying operations. Complete excavation and backfill for any portion of the trench in the same day.
 4. Shaping: Reshape damaged slopes, side ditches, and ditch lines immediately after completing backfilling operations. Replace topsoil, sod and any other materials removed from shoulders.
 5. Construction operations shall be limited to 400 feet along areas, including clean-up and utility exploration unless otherwise approved by the City.
- D. Excavated Materials: Do not place excavated material along highways, streets and roadways in a manner which obstructs traffic. Sweep all scattered excavated material off of the pavement in a timely manner.
- E. Drainage Structures: Keep all side ditches, culverts, cross drains, and other drainage structures clear of excavated material. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.
- F. Landscaping Features: Landscaping features shall include, but are not necessarily limited to: fences; property corners; cultivated trees and shrubbery; manmade improvements; subdivision and other signs within the right-of-way and easement. The Contractor shall take extreme care in moving landscape features and promptly re-establishing these features.
- G. Maintaining Highways, Streets, Roadways and Driveways
1. Maintain streets, highways, roadways and driveways in suitable condition for movement of traffic until completion and final acceptance of the Work.
 2. During the time period between pavement removal and completing permanent pavement replacement, maintain highways, streets and roadways by the use of steel running plates. Running plate edges shall have asphalt placed around their periphery to minimize vehicular impact. The backfill above the pipe shall be compacted as specified elsewhere up to the existing pavement surface to provide support for the steel running plates.

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3. Furnish a road grader or front-end loader for maintaining highways, streets, and roadways. The grader or front-end loader shall be available at all times.
4. Immediately repair all driveways that are cut or damaged. Maintain them in a suitable condition for use until completion and final acceptance of the Work.
5. The pressure mains shall be punched under all paved surfaces. After several unsuccessful attempts to punch the pipe, the City may direct the Contractor to trench across the pavement.

3.03 PIPE DISTRIBUTION

- A. Pipe shall be distributed and placed in such a manner that will not interfere with traffic.
- B. No pipe shall be strung further along the route than 1,000 feet beyond the area in which the Contractor is actually working without written permission from the City. The City reserves the right to reduce this distance to a maximum distance of 200 feet in residential and commercial areas based on the effects of the distribution to the adjacent property owners.
- C. No street or roadway may be closed for unloading of pipe without first obtaining permission from the proper authorities. The Contractor shall furnish and maintain proper warning signs and obstruction lights for the protection of traffic along highways, streets and roadways upon which pipe is distributed.
- D. No distributed pipe shall be placed inside drainage ditches.
- E. Distributed pipe shall be placed as far as possible from the roadway pavement, but no closer than five feet from the roadway pavement, as measured edge-to-edge.

3.04 PROTECTION AND RESTORATION OF WORK AREA

- A. General: Return all items and all areas disturbed, directly or indirectly by work under these Specifications, to their original condition or better, as quickly as possible after work is started.
 1. The Contractor shall plan, coordinate, and prosecute the work such that disruption to personal property and business is held to a practical minimum.
 2. All construction areas abutting lawns and yards of residential or commercial property shall be restored promptly. Backfilling of underground facilities, ditches, and disturbed areas shall be accomplished on a daily basis as work is completed. Finishing, dressing, and grassing shall be accomplished immediately thereafter, as a continuous operation within each area being constructed and with emphasis placed on completing each individual yard or business frontage. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.
 3. Handwork, including raking and smoothing, shall be required to ensure that the removal of roots, sticks, rocks, and other debris is removed in order to provide a neat and pleasing appearance.

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4. The Department of Transportation's engineer shall be authorized to stop all work by the Contractor when restoration and cleanup are unsatisfactory and to require appropriate remedial measures.
- B. Man-Made Improvements: Protect, or remove and replace with the City's approval, all fences, walkways, mail boxes, pipe lines, drain culverts, power and telephone lines and cables, property pins and other improvements that may be encountered in the Work.
 - C. Cultivated Growth: Do not disturb cultivated trees or shrubbery unless approved by the City. Any such trees or shrubbery which must be removed shall be heeled in and replanted under the direction of an experienced nurseryman.
 - D. Cutting of Trees: Do not cut trees for the performance of the work except as absolutely necessary. Protect trees that remain in the vicinity of the work from damage from equipment. Do not store spoil from excavation against the trunks. Remove excavated material stored over the root system of trees within 30 days to allow proper natural watering of the root system. Repair any damaged tree over 3-inches in diameter, not to be removed, under the direction of an experienced nurseryman. All trees and brush that require removal shall be promptly and completely removed from the work area and disposed of by the Contractor. No stumps, wood piles, or trash piles will be permitted on the work site.
 - E. Disposal of Rubbish: Dispose of all materials cleared and grubbed during the construction of the Project in accordance with the applicable codes and rules of the appropriate city, state and federal regulatory agencies.
 - F. Swamps and Other Wetlands
 1. The Contractor shall not construct permanent roadbeds, berms, drainage structures or any other structures which alter the original topographic features within the easement.
 2. All temporary construction or alterations to the original topography will incorporate measures to prevent erosion into the surrounding swamp or wetland. All areas within the easement shall be returned to their original topographic condition as soon as possible after work is completed in the area. All materials of construction and other non-native materials shall be disposed by the Contractor.
 3. The Contractor shall provide temporary culverts or other drainage structures, as necessary, to permit the free migration of water between portions of a swamp, wetland or stream which may be temporarily divided by construction.
 4. The Contractor shall not spread, discharge or dump any fuel oil, gasoline, pesticide, or any other pollutant to adjacent swamps or wetlands.

END OF SECTION