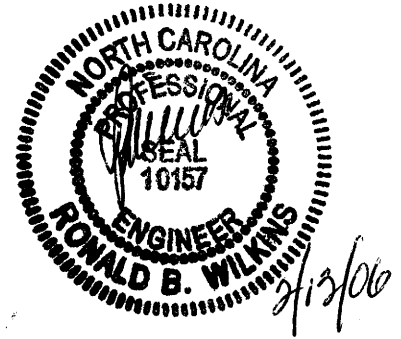


PROJECT SPECIAL PROVISIONS
Utility Construction



GENERAL CONSTRUCTION REQUIREMENTS:

Specifications:

The proposed utility construction shall meet the applicable requirements of the NC Department of Transportation's "Standard Specifications for Roads and Structures" dated January 2002 and the following provisions.

The Contractor is herein forewarned as to the possibility of having to vary the depth of pipeline installation to achieve minimum clearance of existing or proposed utilities or storm drainage while maintaining minimum cover specified (whether existing or proposed pipelines, conduits, cables, mains, and storm drainage are shown on the plans or not).

On new force main sewers or water lines, and tie in sections of existing force main sewers or water lines, the method of anchoring pipe bends, valves, and related appurtenances will be the responsibility of the Contractor. Tying in to existing force main sewers or water lines may alter such lines to the extent that these pipelines with existing pipe bends, valves and related appurtenances may also require reaction backing; this work shall also be the responsibility of the Contractor.

The Contractor shall submit his proposed method of anchoring to the Engineer for review and approval prior to any applicable force main sewer construction. Such approval will not relieve the Contractor of his responsibility of properly anchoring the force main sewers. Concrete thrust blocking and/or thrust collars shall be installed as noted on the utility construction plans and details, and as directed by the Engineer, and shall be incidental to the pipe being anchored.

Owner and Owner's Requirements:

The existing waterline belongs to the City of Winston-Salem. The contact person(s) for the City of Winston-Salem is Mr. Paul Williams, PE at (336) 650-7650, or Mr. David Doss, PE at (336) 727-8063. The Contractor shall provide access for the owner's representatives to all phases of utility construction. The owners shall be notified two weeks prior to commencement of any utility work and one week prior to service interruption.

After the installed pipe, fittings, valves, hydrants, corporation stops and end plugs are inserted and secured, the pipeline shall be subjected to a hydrostatic pressure of 200 PSI for a period of 2 hours, by pumping the section full of clean water using an approved pressure pump. Cross connection for flushing and chlorination shall be made by means

of a temporary connection from the supply pipe with an approved backflow prevention device. Cross connection and blowoff piping shall be 2" in diameter for mains 8" in diameter and smaller, and 4" in diameter for mains greater than 8" but less than 16" in diameter. Taps for the cross connection piping shall be made to the portion of the existing water main that will be removed from service. The proposed water main shall be laid to within one pipe length of the point of final connection prior to flushing and testing. All flushing and chlorination work shall be performed in accordance with AWWA C651-99. All fittings, valves, backflow prevention devices required for chlorination and testing shall be incidental to the cost of the proposed pipe being tested.

Any cracked, damaged, or defective pipe, fittings, valves, hydrants, or other attachments discovered as a result of the pressure test, shall be removed and replaced with sound material. The tests shall be repeated until test results are satisfactory.

After the pressure test is complete, the Contractor shall make a leakage test. Such leakage test shall last at least 2 hours at a pressure of 200 PSI. The pressure test and leakage test may be performed concurrently.

All valves on the lines being sterilized shall be opened and closed several times during the chlorinating period. The pipeline shall then be flushed with clean water until the residual chlorine is reduced to less than 1.0 ppm or at the same level as in the existing water mains. Samples of water shall be taken by the Contractor at points along the pipeline in approved containers and submitted to a certified testing laboratory for bacterial and chlorine content. The Contractor will provide copies of the certified test reports to the Engineer who will in turn provide certified copies to the City of Winston-Salem.

Water meters that require relocation shall be relocated as shown on the utility construction plans. Relocation of the water meters shall be paid for as noted in the Standard Specifications. Should backflow prevention devices be present on the existing water meters, relocation of such devices shall be incidental.

The owners shall be notified in advance of any interruptions of water or sewer service with ample time to make arrangements. Interruption of water service on main lines shall be limited to a maximum of 4 hours unless approved by the Engineer.

Utilities and Utility Locations Shown on the Plans:

The location, size, and type material of the existing utilities shown on the plans is from the best available information. The Contractor will be responsible for determining the exact location, size, and type material of the existing facilities necessary for the construction of the proposed utilities and to avoid damage to existing facilities.

All water lines shall be installed with a minimum of three feet of cover. Installation that requires more than six feet of fill over the proposed line shall be evaluated by the Engineer on a case by case basis.

Gate Valves and Butterfly Valves:

All butterfly valves and gate valves shall conform to the requirements of ANSI/AWWA C504 and/or ANSI/AWWA C509. The direction of rotation of the handwheel or wrench nut to open the valve shall be to the left or counterclockwise.

Fire Hydrants:

The fire hydrants noted on the utility construction plans as being relocated shall be removed from the existing locations and relocated as shown. Prior to installing the fire hydrants at the new locations, the City of Winston Salem will provide a new fire hydrant to the Contractor and take possession of the old fire hydrant that has been removed. The Contractor shall stockpile the old fire hydrants at a location mutually agreeable with the City of Winston Salem and the Engineer, where city maintenance forces can take possession of the hydrants and remove them from the jobsite. The removed fire hydrants shall remain the property of the City of Winston Salem and will not become the property of the Contractor. No additional payment beyond the bid price for "Relocate Existing Fire Hydrant" will be made for this work.

COMPENSATION:

No direct payment will be made for utility construction work required by the preceding provisions, which are general requirements applying to utility construction, and all of the requirements stated will be considered incidental work, paid for at the contract unit prices of the various utility items included in the contract.

1. BEDDING MATERIAL:

Bedding material for utility lines shall be installed in accordance with the applicable utility provisions herein, as shown on the utility construction plans, and/or as directed by the Engineer.

Bedding material shall meet the requirements of Article 1016-3 of the Standard Specifications. Bedding material shall be installed in accordance with Articles 300-6 and 300-7 of the Standard Specifications.

Bedding material installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the contract unit price per ton for "Bedding Material, Utilities Class ____". Such prices and payments shall be full compensation for all materials, labor, equipment, compaction and shaping the bedding material in accordance with the Standard Specifications, and incidentals necessary to complete the work as required.

2. DUCTILE IRON RESTRAINED JOINT WATER PIPE

Ductile Iron Restrained Joint Water Pipe shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans and/or as directed by the Engineer.

Ductile Iron Restrained Joint Water Pipe shall be of the thickness class or pressure rating shown on the utility plans and shall conform to ANSI A21.51 (AWWA C151). All joints for such pipe shall be in accordance with ANSI A21.11 (AWWA C111). Pipe thickness shall be in accordance with ANSI A21.50 (AWWA C150) and based on laying conditions and internal pressures stated on the plans.

Cement mortar lining and seal coating for pipe shall be in accordance with ANSI A21.4 (AWWA C104). Bituminous outside coating shall be in accordance with ANSI A21.51 (AWWA C151).

Ductile Iron Restrained Joint Water Pipe, installed in accordance with the plans and provisions herein and accepted, will be measured along the pipe from end to end, with no deductions for fittings and valves, and paid for at the contract unit price per linear foot for, "___" DI Restrained Joint Water Pipe, PC___". Such prices and payments will be full compensation for all materials, including pipe accessories, excavation, labor, pressure testing, sterilization, backfilling, and incidentals necessary to complete the work as required.

3. SANITARY SEWER CLEANOUT:

Install sanitary sewer clean-outs as shown on the utility construction plans and as directed by the Engineer. Clean-outs shall have screw type covers installed flush with the ground, and located at the proposed or existing right-of-way line unless otherwise noted.

Sanitary sewer clean-outs, installed in accordance with the utility construction plans and provisions herein and accepted, will be measured and paid for at the contract unit price per each for "Sanitary Sewer Clean Outs". Such price and payments will be compensation in full for all labor and materials to include excavation, Class B concrete, pipe, watertight plugs, sewer pipe fittings, backfilling, miscellaneous equipment and incidentals necessary to complete the work.

4. REMOVE AND STOCKPILE EXISTING FIRE HYDRANT:

The existing fire hydrants to be removed and stockpiled will be separated at the hydrant base from the existing pipe and stockpiled in an area accessible by truck or as directed by the Engineer.

After the fire hydrants are stockpiled, the Contractor shall contact the City of Winston Salem and arrange for city maintenance forces to receive and remove the fire hydrants from the jobsite. The removed fire hydrants shall not become the property of the Contractor.

The quantity of fire hydrants removed, stockpiled, and accepted, will be measured and paid for at the contract unit price per each for "Remove and Stockpile Existing Fire Hydrant". Such price and payment will be full compensation for all labor, excavation, removal, stockpiling, and incidentals necessary to complete the work as required.

5. STEEL ENCASEMENT PIPE:

Install the encasement pipe by a trenchless method designed by a Professional Engineer, or by open cut methods. Steel encasement pipe shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer. Steel encasement pipe may be of the following types: spiral welded steel pipe in accordance with ASTM A211; circular black or galvanized steel pipe in accordance with ASTM A53 or A589; high strength smooth wall steel casing in accordance with API-5L, Grade B, or other grades; or other steel pipe of acceptable quality and meeting the approval of the Engineer.

Install the encasement pipe to the lines and grades shown on the plans. Use methods of construction and installation that will not disturb the soils outside of the immediate vicinity of the pipeline. Before construction, provide detailed plans for the method of installation certified by a Professional Engineer. Provide certified calculations demonstrating the method of installation as safe and of minimal risk. Provide certified calculations of the structural adequacy of all materials. The design shall meet the applicable requirements of AASHTO Standard Specifications for Highway Bridges. A Professional Engineer shall certify any changes or modifications to the designed method.

The Contractor shall conduct in the presence of the DOT Engineer a pre-construction meeting to review the proposed method for installation of the pipe. The meeting shall consist of, but is not limited to, reviewing all installation methods to insure no settlement of the pipe or the completed roadway section and for filling any potential voids around the pipe. The pre-construction meeting for each installation shall be held at least 48 hours before the beginning of the installation.

Before excavation, establish control points for measuring settlement of the road at 10-foot intervals along the centerline and 10 feet each side of the pipeline. A licensed Land Surveyor shall monitor these points daily until construction is complete.

Provide groundwater control and removal as appropriate for the method of excavation and installation. Remove the groundwater using an engineered dewatering system. Keep surface waters out of the excavation and pits. During periods of work stoppage, shore excavations associated with this work using an approved system.

Fill all voids around the pipeline with structural fill material. Fill the annular space between the pipeline and any casing pipes, tunnel liners, or other shoring.

The Contractor shall replace damaged or defective installations at no cost to the Department. The method to be used shall be approved by the Resident Engineer.

The quantity of trenchless installation in soil will be measured horizontally to the nearest tenth of a linear foot for installations in soil or installations that have not been observed by the Resident Engineer. The quantity of trenchless installation not in soil will be measured horizontally to the nearest tenth of a linear foot for installations in non-soil as determined and observed by the Resident Engineer. Non-soil is all material other than soil as determined and observed by the Resident Engineer. Any installation or portion thereof not observed by the Resident Engineer will be measured as being in soil. It is the Contractor's responsibility to request and obtain the Resident Engineer's observation for installations in non-soil. Steel encasement pipe installed by open cut will be measured horizontally to the nearest linear foot.

The carrier pipe shall be installed as noted on the plans, inside the encasement pipe by use of skids or spiders appropriately spaced to support the carrier pipe from deflection. Skids or spiders shall be sized to raise the carrier pipe bells above the encasement pipe and to restrict excessive radial movement. Skids or spiders shall be securely attached to the carrier pipe and shall be approved by the Engineer. Carrier pipe is measured and paid for elsewhere.

After the carrier pipe is installed and tested, the ends of the encasement pipe shall be plugged or capped with concrete, brick or other approved materials. The plug or cap shall have a 1" diameter weep hole at the bottom to facilitate drainage of the encasement pipe.

Steel encasement pipe, installed in accordance with the plans and provisions herein and accepted, will be measured as stated above and paid for at the contract unit price per linear foot as " _____ " Steel Encasement Pipe, _____ " Thick, In Soil, By Trenchless Method", or " _____ " Steel Encasement Pipe, _____ " Thick, Not In Soil, By Trenchless Method", or " _____ " Steel Encasement Pipe, _____ " Thick, By Open Cut". No additional payment will be made for access pits or shoring. Such prices and payments will include, but is not limited to, furnishing all labor, tools, materials, equipment, groundwater control, shoring, and incidentals necessary for completing the work.

PROJECT SPECIAL PROVISIONS
UtilityUTILITIES BY OTHERS

General:

The following utility companies have facilities that will be in conflict with the construction of this project.

- A) Duke Energy (Distribution)
- B) Bell South - Telephone
- C) Time Warner – CATV
- D) Piedmont Gas

The conflicting facilities of these concerns will be adjusted prior to the date of availability, unless otherwise noted and are therefore listed in these special provisions for the benefit of the Contractor. All utility work listed herein will be done by the utility owner. All utilities are shown on the plans from the best available information.

The Contractor's attention is directed to Article 105-8 of the Standard Specifications.

Utilities Requiring Adjustment:

- A) Duke Energy (Distribution)
 - 1) See Utilities by Others Plans.
- B) Bell South - Telephone
 - 1) See Utilities by Others Plans.

NOTE: Bell South buried telephone cables and aerial telephone lines in conflict with this project will be replaced with proposed buried telephone cables and fiber optic cables in the same trench throughout the project as shown on the utilities by others plans.

The contractor shall give Bell South one week notice prior to completion of clearing and grubbing along –Y1- and then allow Bell South two months to complete relocations of their existing telephone facilities to the new location along –Y1- as shown on the utilities by others plans.

C) Time Warner – CATV

- 1) See Utilities by Others Plans.

NOTE: Time Warner will relocate aerial CATV lines in joint use with proposed power and throughout the project. Time Warner will install CATV lines following directly behind Duke Power's installation of their aerial facilities.

D) Piedmont Gas

- 1) See Utilities by Others Plans.

NOTE: The existing Gas line will be adjusted as necessary at locations shown on the utilities by others plans.

The Contractor shall notify Piedmont Gas three weeks prior to installing proposed drainage between station 8+90 and 15+00 Line -L-, and then allow an additional two weeks to complete the adjustments of their existing gas line facilities as shown on the utilities by others plans.

NOTE: All other utilities will remain in place and will be adjusted as necessary.