

Project: B-4334
County: Davidson



PROJECT SPECIAL PROVISIONS
Utility Construction

I. 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 depth of pipeline installation may vary 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).

Owner and Owner's Requirements:

The existing utilities belong to Davidson Water, Incorporated. The contact person for Davidson Water, Incorporated is Mr. Robert Walters, and he can be reached by telephone at (336) 731-2341. The Contractor shall provide access for the owner's representatives to all phases of construction. The owner shall be notified two weeks before commencement of any work and one week before service interruption. Interruption of service on main lines shall be limited to a maximum of four hours unless approved by the Engineer.

The method of anchoring new water lines, tie-in sections, pipe bends, plugs, caps, tees, reducing sections, fire hydrants, valves and related appurtenances will be the responsibility of the Contractor. Tying into existing water lines may alter the line to the extent that the pipelines with existing pipe bends, plugs, caps, tees, reducing sections, fire hydrants, valves, and related appurtenances may require restraint. Anchoring these modified lines shall also be the responsibility of the Contractor. Field restraining gaskets and/or restrained joint pipe are approved for use on this project. The Contractor shall submit the proposed method of anchoring for review and approval prior to any water line construction.

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 inches in diameter for mains 8-inches and smaller, and 4 inches in diameter for mains greater than 8-inches but less than 16 inches 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, and 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 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 at representative points along the pipeline by the Contractor in approved containers and submitted to a certified testing laboratory for bacterial and chlorine content. Test results shall be provided to Davidson Water, Incorporated.

Utility Locations Shown on the Plans:

The locations, sizes, and type material of the existing utilities shown on the plans are 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.

Services will be checked for leaks, cracked, broken or missing pipe, deformed pipe and grade.

Upon notification from Davidson Water, Incorporated advising that the lines have passed final inspection, the Engineer shall complete the Engineer's Certification and send to the Division of Environmental Management with a copy to Davidson Water, Incorporated. Davidson Water, Incorporated shall then issue an acceptance letter for the lines.

II. 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 Article 300-4 of the Standard Specifications, and incidentals necessary to complete the work as required.

2. TRENCHLESS INSTALLATION OF UTILITY PIPES:

Description:

The pipeline shall be installed by a trenchless method designed by a Professional Engineer.

Materials:

Grout Article 1040-9

Flowable fill Section 340

Steel casing pipe Article 1036-4

Structural timber Section 1082

Structural steel Section 1072

Concrete Section 1000

Steel tunnel liner plates shall meet the requirements of AASHTO Section 16 and Section 25 Standard Specifications for Highway Bridges

Other materials will be considered with adequate design and quality control.

Construction Requirements:

The pipeline shall be installed to the lines and grades shown on the plans.

Methods of construction and installation shall be used that will not disturb the soils outside of the immediate vicinity of the pipeline. Before construction, the Contractor shall provide detailed plans for the method of installation certified by a Professional Engineer. Certified calculations shall be provided demonstrating the method of installation as safe and of minimal risk 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 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 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.

The Contractor shall provide groundwater control and removal as appropriate for the method of excavation and installation. The groundwater shall be removed using an engineered dewatering system. Surface waters shall be kept out of the excavation and pits.

Continuous and active support to the soils surrounding the excavation shall be maintained. Work shall continue (24 hrs/day and 7 days/week) on the operations from the time the excavation begins through the filling of voids. Alternatively, during periods of work stoppage, excavation shall be shored using an engineered system.

Workers that are skilled in the method of construction shall be used. The tunnel shall be constructed with good workmanship by skilled workers along with proper safety precautions.

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

Method of Measurement:

Trenchless Installation in Soil

The quantity of trenchless installation in soil will be measured horizontally to the nearest linear foot for installations in soil or installations that have not been observed by the Resident Engineer.

Trenchless Installation Not in Soil

The quantity of trenchless installation not in soil will be measured horizontally to the nearest 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.

Basis of Payment:

Payment for trenchless installation will be made as additional compensation for the various sizes and types of completed and accepted pipeline when installed by a trenchless method.

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.

Payment will be made under:

Trenchless Installation of _____ in Soil.....Linear Foot
Trenchless Installation of _____ Not in Soil.....Linear Foot

3. RESTRAINED RETAINER GLANDS:

Restrained Retainer glands shall be installed in accordance with the applicable provisions herein, as shown on the plans and/or as directed by the Engineer.

Restrained Retainer glands shall be heavy duty ductile iron conforming to ASTM A536. Restrained Retainer glands shall meet the specifications for ANSI A21.11 (AWWA C111). Restrained Retainer glands shall be capable of restraining mechanical joints for a minimum working pressure of 250 psi with a minimum factor of safety of 2:1, using high strength steel angled set screws meeting AISI 4140 or ductile iron wedges. Twist-off nuts shall be used to insure proper torquing of retaining devices.



Restrained Retainer glands, installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the contract unit price per each for " _____ " Restrained Retainer Gland ". Such prices and payments will be full compensation for all materials, labor, excavation and backfilling, installation, testing and incidentals necessary to complete the work as required.

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PROJECT SPECIAL PROVISIONS
Utility

UTILITIES BY OTHERS:

General:

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

- A. Duke Energy
- B. Piedmont Communications
- C. MCI Worldcom
- D. Time Warner
- E. Lexcom

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 owners. 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

- 1. See Utilities by Others plans for details.

B) Piedmont Communications

- 1. See Utilities by Others plans for details.

C) MCI Worldcom

- 1. See Utilities by Others plans for details.

D) Time Warner

- 1. See Utilities by Others plans for details.

E) Lexcom

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