



PROJECT SPECIAL PROVISIONS **Utility Construction**

I. GENERAL CONSTRUCTION REQUIREMENTS:

The existing public utilities belong to the City of Hickory. The existing private water lines to be relocated are owned by Sherrill Furniture, Inc. The Contractor shall provide access for the owner's representatives to all phases of construction. Notify the owner two weeks before commencement of any work and one week before service interruption.

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 or sub-Contractor (if sublet) performing the utility work shall be properly licensed as a Public Utilities General Contractor or Specialty Contractor with PU (Water Lines and Sewer Lines) classification.

Utility Locations Shown on the Plans:

The location, size, 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.

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

Testing and Sterilization:

After the installed pipe, fittings, valves, hydrants, corporation stops and end plugs are inserted and secured, the pipe line shall be subjected to hydrostatic pressure test of 1.38 MPA 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. 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 are incidentals to the cost of the pipe being tested.

Contractor shall make arrangements with the utility owner for measuring and paying for water required for flushing and testing water mains.

Copies of bacterial testing reports shall be provided to the utility owner prior to activating new 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.

Measurement and Payment

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

II. Special Pay Item Provisions.

1. Bedding Material for Utilities:

Description:

Bed utility lines to provide well-compacted uniform support as shown on the utility construction plans or as directed by the Engineer.

Materials:

Bedding material shall meet the requirements of Article 1016-3 of the Standard Specifications.

Construction Requirements:

Place bedding material in accordance with Articles 300-6 and 300-7 of the Standard Specifications.

Measurement and Payment:

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 metric ton for "Bedding Material, Utilities Class IV". 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.

Payment will be made under:

Bedding Material, Utilities Class IVMetric Ton

2. Relocate Existing Water Meter with New Vault:

Description:

Relocate the existing water meter with all fittings and valves into a new vault at the location shown on the utility plans or directed by the Engineer.

Materials:

Ductile Iron Pipe and Fittings Article 1036-5
Precast Concrete UnitsSection 1077

Provide a precast concrete vault sized to fit the water meter and appurtenances. Provide engineering drawings and calculations signed by a NC licensed Professional Engineer demonstrating the load rating of the vault as capable of supporting an HS20 AASHTO load with impact.

The vault shall include a 5-foot by 5-foot double door access hatch with an HS20 load rating.

Construction Requirements;

All work shall be in accordance with the applicable plumbing codes, as shown on the plans, and as directed by the Engineer.

The new vault shall be placed with the top flush with finish grade of the project. Set the vault on a smooth, level, firm foundation.

Measurement and Payment

The relocation work shall consist of the removal and installation at the appropriate location of the water meter, meter valve, and various fittings within a new vault furnished and installed as required herein and the removal and disposal of the existing meter vault. Any fittings necessary to reconnect the relocated meter to the water line will be considered incidental. Any pipe necessary to complete the relocation will be paid for as provided elsewhere in the contract.

The quantity of water meters relocated with new meter vaults and accepted will be measured and paid for at the contract unit price each for "Relocate Existing Water Meter with New Vault". Such price and payment will be full compensation for all labor, excavation, removing, installing and reconnecting the meter, backfill, materials, testing, sterilization, and incidentals necessary to complete the work as required.

Payment will be made under:

Relocate Existing Water Meter with New Vault..... Each

3. Gate Valve and Valve Box with Post Indicator

Description:

Furnish and install gate valves and boxes with post indicators in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

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RGW 5/16/07*

Materials:

Gate Valve Article 1036-7(A)
Grey Iron Castings Subarticle 1074-7(B)

Use valve boxes with indicator posts that operate and clearly indicate whether the valve is open or closed. Use UL and FM approved posts. The base shall fit and attach to the valve yoke. Boxes and posts shall be made of cast iron.

Construction Requirements:

Install valve, box and post level and plumb as observed by the unaided eye. Paint the post with 2 coats of red enamel paint.

Measurement and Payment:

The quantity of gate valves and valve boxes with indicator posts, installed and accepted, will be measured and paid for at the contract unit price per each for " _____ mm Gate Valve and Valve Box with Post Indicator". Such prices and payments will be compensation in full for all materials, labor, installation, sterilization, pressure testing, valve box installation with necessary extension pieces, excavation and backfill, and incidentals necessary to complete the work as required.

DMIT R6W 6/16/07

Payment will be made under:

_____ mm Gate Valve and Valve Box with Post Indicator Each

4. Steel Encasement Pipe

Description

Furnish and install steel pipe for use as an encasement by open cut trench method or by an approved trenchless method.

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

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

Construction Requirements

Install the pipeline to the lines and grades shown on the plans. Steel encasement pipe shall be installed with leak proof joints. The joints shall be butt-welded by a certified welder using approved techniques and materials.

Use skids or spiders appropriately spaced to support the carrier pipe from deflection inside the encasement pipe. Skids or spiders shall raise the carrier pipe bells above the encasement pipe and restrict excessive radial movement. Securely attach the skids or spiders to the carrier pipe.

After installing and testing the carrier pipe, plug or cap the ends of the encasement pipe with concrete or other approved materials. The plug or cap shall have a 25mm diameter weep hole at the bottom to facilitate drainage of the encasement pipe.

Trenchless Installation:

The preferred trenchless method is boring and jacking. Use machines of adequate size to drive the cutting head and jack the pipe. Use cutter heads appropriate for the soil conditions.

In non-cohesive, dry, sandy soils, recess the cutter head within the leading end of the pipe. A ½" thick band may be welded around the outside of the pipe to provide a slight overcut. Remove groundwater prior to jacking or excavating.

In cohesive, firm, dry soils and non-soils, the cutter head may extend up to one pipe diameter in front of the leading edge of the pipe. Wing cutters may be used to provide no more than 1" overcut of the diameter of the pipe. Minor amounts of groundwater can flow through the casing pipe. If the flow of groundwater is sufficient to transport soils, then a dewatering system shall be used.

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.

Use of other methods of construction and installation that will not disturb the soils outside of the immediate vicinity of the pipeline requires submittal of detailed plans certified by a Professional Engineer. The submittal shall include certified calculations demonstrating the method of installation as safe and of minimal risk and 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 changes or modifications to the designed method.

The contractor shall conduct in the presence of the Engineer a pre-construction meeting to review the proposed method for installation of the pipe by trenchless construction. The meeting shall consist of but is not limited to reviewing all installation methods to install the pipe true to the line and grade given, methods to insure no settlement of the pipe or the soils above the pipe, and methods for filling any potential voids around the pipe. The pre-construction meeting shall be held at least 48 hours prior to the beginning of this installation.

Maintain continuous and active support to the soils surrounding the excavation. Work continuously (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, shore the excavation using an engineered system.

Fill all voids around the pipeline with structural fill material.

Use workers that are skilled in the method of construction. Construct 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

The quantity of steel encasement pipe will be measured horizontally to the nearest tenth of a linear meter for pipe of the diameter and thickness specified, installed and accepted by the Engineer. The quantity will be separated by method of installation as Open Cut, Trenchless Installation in Soil, and Trenchless Installation not in Soil.

Trenchless Installation in Soil will be measured for installations in soil or installations that have not been observed by the Resident Engineer.

Trenchless Installation not in Soil will be measured for installations observed to be in material other than soil. It is the Contractor's responsibility to request and obtain the Engineer's observation and confirmation of the limits of the installation not in soil prior to and during the installation of the pipe or portion of the pipe not in soil. Failure of the Contractor to request and obtain the Engineer's observation and confirmation of the limits of the pipe not in soil prior to and during the installation will result in the measurement being classified as in Soil.

Basis of Payment

Such prices and payments shall include, but is not limited to, furnishing all labor, tools, materials, equipment, groundwater control, shoring, and incidentals necessary for completing the work. No additional payment will be made for

access pits or shoring except where required by the Engineer for protection of traffic.

The quantity of ___ mm Steel Encasement Pipe by Open Cut to be paid will be the actual number of linear feet of pipe measured which has been installed in soil or installations that have not been observed by the Engineer.

The quantity of ___ mm Steel Encasement Pipe by Trenchless Installation in Soil to be paid will be the actual number of linear feet of pipe measured which has been installed in soil or installations that have not been observed by the Engineer.

The quantity of ___ mm Steel Encasement Pipe by Trenchless Installation Not in Soil to be paid for will be the actual number of linear feet of pipe measured which has been installed in non-soil as observed and confirmed by the Engineer.

Payment will be made under:

___ mm Steel Encasement Pipe, ___ mm Thick, by Open CutLinear Meter

___ mm Steel Encasement Pipe, ___ mm Thick,
by Trenchless Installation in Soil.....Linear Meter

___ mm Steel Encasement Pipe, ___ mm Thick,
by Trenchless Installation Not in SoilLinear Meter



PROJECT: U-2306A
COUNTY: CATAWBA

PROJECT SPECIAL PROVISIONS

UTILITIES BY OTHERS:

General:

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

- A. DUKE POWER
- B. SPRINT
- C. PIEDMONT GAS
- D. CHARTER COMMUNICATIONS

The conflicting facilities of these concerns will be adjusted prior to June 25, 2007, unless otherwise noted and are therefore listed in these special provisions for the benefit of the Contractor. The utility owners will do all utility work listed herein. 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 POWER
See Utilities by Others Plans for details.
Contact: David Osborne (704)664-6844
- B. SPRINT
See Utilities by Others Plans for details.
Contact: Sandra Lawrence (828)328-0136
- C. PIEDMONT GAS
Piedmont Gas will need two weeks notice and four weeks to complete adjustments during construction of the project. Contact Piedmont Gas before investigating areas with natural gas pipe lines. Use extreme caution in these areas. See Utilities by Others Plans for details.
Contact: Richard Lawrence (828)322-1613
- D. CHARTER COMMUNICATIONS
See Utilities by Others Plans for details.