



Project: B-3256  
County: Wake

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.

Lay water mains at least 3.05 meters laterally from existing or proposed sanitary sewers.

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).

After the installed pipe, fittings, valves, hydrants, corporation stops and end plugs are inserted and secured, the pipe line shall be subjected to a hydrostatic pressure test of 1.03 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 shall be incidental to the cost of the proposed pipe being tested.

Contractor shall make such arrangements, as the utility owner requires, for measuring and paying for water required to flush and test water mains.

Copies of bacteriological testing reports shall be provided to the utility owner prior to activating new water mains.

Owner and Owner's Requirements:

The existing utilities belong to the Town of Fuquay Varina. 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.

#### 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

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.

## 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 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 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

### 2. STEEL ENCASEMENT PIPE:

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.

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.

Steel encasement pipe installed under the railroad shall be by boring and jacking.

Simultaneous boring and jacking of casing under the railroad shall be as follows: The pipe shall be installed by a special rig designed to bore and push or jack the casing on a controlled grade and line under the railroad in a continuous operation. As the dry boring operation progresses, each new section of casing shall be butt-welded to the section previously jacked into place. The boring auger shall not be of a greater diameter than the outside diameter of the casing.

The carrier pipe shall be installed inside the encasement pipe by use of spiders to support the carrier pipe from deflection. Spiders shall be placed 600mm from each end of the casing and subsequent spiders spaced 300mm apart. Spiders shall be sized to raise the carrier pipe bells above the encasement pipe and to restrict excessive radial movement. Spiders shall be securely attached to the carrier pipe and shall be approved by the Engineer.

Spiders shall consist of a two piece shell made from T-304 stainless steel of a minimum 14 gauge thickness. Each shell section shall have one bolt flange formed with ribs for added strength and one hook and eye section for added shear strength. Each connecting flange shall have a minimum of three 8mm (5/16") T-304 stainless steel bolts. The shell shall be lined with a ribbed PVC extrusion with a retaining section that overlaps the edges of the shell and prevents slippage. Bearing surfaces (runners) shall be ultra high molecular weight polymer for abrasion resistance and a low coefficient of friction. The runners shall be attached to support structures (risers) at appropriate positions to properly support the carrier within the casing and to ease installation. The riser section and bolt heads shall be TIG welded for strength. Risers shall be made of T-304 stainless steel of a minimum of 10 gauge. All risers over 150mm (6") in height shall be reinforced and MIG welded to the shell.

After the carrier pipe is installed and tested, the ends of the encasement pipe shall be plugged or capped with mortar and bricks 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.

Steel encasement pipe, installed in accordance with the plans and provisions herein and accepted, will be measured along the pipe from end to end and paid for at the contract unit price per linear meter for "450mm Steel Encasement Pipe, 7.92mm Thick, by Boring and Jacking". Such prices and payments will be full compensation for all materials, excavation, equipment, labor, installation, grouting, backfilling, and incidentals necessary to complete the work as required.

### 3. THRUST COLLAR:

Thrust collars shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

Thrust collars shall consist of restrained retainer gland, 20mm bituminous coated all thread restraining rods and Class A concrete blocking with reinforcing steel.

Restrained Retainer glands shall be high strength ductile iron conforming to ASTM A536. Restrained Retainer glands shall be capable of restraining mechanical joints for a minimum working pressure of 1.72 MPa. The Restrained Retainer glands shall have series of machined serration on the inside diameter of the retainer, which provides a grip on the pipe surface, with 360° contact and support of the barrel. The split design allows use on both new and existing pipe installations.

The concrete shall meet the requirements of Section 1000 of the Standard Specifications for Class A concrete.

The reinforcing steel shall meet the requirements of Section 1070 of the Standard Specifications. The quantity of Thrust Collars, installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the contract unit price each for "Thrust Collar". Such price and payments will be full compensation for all materials, labor, excavation, connections, installations, backfilling and incidentals necessary to complete the work as required.

### 4. RELOCATE EXISTING 50mm WATER METER:

The existing 50mm water meters and meter boxes that are to be relocated shall be installed at the locations shown on the utility plans, or as directed by the Engineer.

The relocation of 50mm water meters shall consist of the removal and installation at the appropriate location of the water meter, meter yoke, meter valve, and meter box. 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 these provisions.

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

Relocated meter boxes shall be placed with the top of the meter box flush with finish grade of the project.

The quantity of 50mm water meters and meter boxes relocated and accepted will be measured and paid for at the contract unit price each for "Relocate Existing 50mm Water Meter". Such price and payment will be full compensation for all labor, excavation, removing, installing and reconnecting the meter and box, backfilling, and incidentals necessary to complete the work as required.

PROJECT: B-3256  
COUNTY: Wake

55

PROJECT SPECIAL PROVISIONS

Utility

UTILITY CONFLICTS:

General:

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

- A. Progress Energy
- B. Sprint
- C. Time Warner
- D. PSNC

The conflicting facilities will be adjusted prior to the date of availability except where 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. Progress Energy

1. See "Utilities By Others Plans" for utility conflicts.  
All work shall be completed by January 1, 2005

B. Sprint

1. See "Utilities By Others Plans" for utility conflicts.  
All work shall be completed by January 1, 2005

C. Time Warner

1. See "Utilities By Others Plans" for utility conflicts.  
All work shall be completed by January 1, 2005

D. PSNC

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All work shall be completed by January 1, 2005