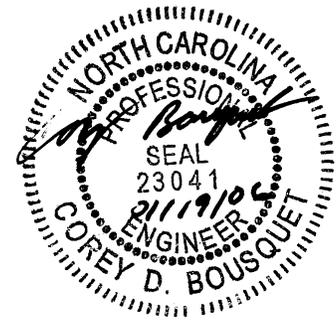


Project: U-4008
County: Orange

January 19, 2006

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, OWASA Standard and Specification dated August 2003 and the following provisions.

Lay water mains at least 10' 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 200# 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 and OWASA specifications. All fittings, valves and backflow prevention devices required for chlorination, De-chlorination (chemically dechlorinated) 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.

Bacteriological testing shall cover the OWASA standard and specification.

Owner and Owner's Requirements:

The existing utilities belong to **ORANGE WATER AND SEWER AUTHORITY**. The Contractor shall provide access for the owner's representatives to all phases of construction and keep all manholes, valves and meters accessible during construction. A preconstruction meeting shall be held with OWASA, the Utility Contractor and D.O.T prior to any work beginning. The Contractor shall notify the owner two weeks before commencement of any work and three weeks before service interruption.

The contractor shall provide a set of as built plans to OWASA after all the work shown on the Utility Construction Plans is completed.

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.

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. DUCTILE IRON RESTRAINED JOINT WATER PIPE FITTINGS:

Ductile iron restrained joint water pipe fittings shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans and/or as directed by the Engineer.

Restrained retainer glands shall be used in place of concrete blocking to restrain all DI fittings on the proposed water lines and tie-ins to existing water lines. The contractor shall calculate the restraint length along the water line to restrain each DI fitting with restrained retainer glands based on a test pressure of 200 PSI. The calculated restraint lengths shall be submitted to the engineer for approval. The contractor shall also submit for the engineer's approval the method of anchoring each fitting necessary to make the tie-ins along the existing AC and DI water lines. Concrete collars, restrained retainer glands and steel rods may be used at the tie-in points to the existing water lines. The restrained retainer glands shall be installed on each end of the DI fittings and within the approved calculated restraint lengths along the proposed water lines. All materials and labor necessary to restrain the fittings at the proposed tie-ins to the existing water lines and the DI fittings along the proposed water line will be considered incidental to the unit cost per pound of the DI restrained joint fittings. The transition couplings used at the proposed tie-ins to the existing AC water lines will be paid for separately.

Ductile iron restrained joint bends and tees shall be in accordance with applicable requirements of ANSI A21.10 (AWWA C110). Joints for such bends and tees shall be in accordance with ANSI A21.11 (AWWA C111) and be cement mortar lined with a seal coat in accordance with ANSI A21.4 (AWWA C104). All restrained joint water pipe fittings shall have a minimum working pressure of 250# WP

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 or push-on joints for a minimum working pressure of 250# WP with a minimum factor of safety of 2:1. The retaining devices used shall have serrated ductile iron wedges or rings.

Restrained retainer glands and mechanical joint fittings will be acceptable.

The quantity of ductile iron restrained joint water pipe fittings, installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the contract unit price per pound for "DI Restrained Joint Water Pipe Fittings, 250# Min. WP". Such price and payment will be full compensation for the DI fittings and all materials necessary to restrain the DI fittings and

proposed tie-ins to the existing water lines, labor, installation, backfilling, and incidentals necessary to complete the work as required.

3. BUTTERFLY VALVE AND MANHOLE:

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

Butterfly valves shall conform to ANSI/AWWA C504 for Class 250 valves with O-ring shaft seals. Such valves shall have flange joint ends, Class 250, a manual actuator with 50mm operating nut and shall be designed for manhole installation. Butterfly valves shall open counterclockwise.

Butterfly valve doghouse type manholes shall be 6ft precast concrete, shall conform to ASTM C478 and shall be as shown on the plans.

Joints between precast manhole sections shall be O-ring rubber gaskets conforming to ASTM C-443 or butyl rubber gaskets conforming to AASHTO M198.

Manhole frames and covers shall conform to OWASA standard and spec latest revision dated August 2003 and ASTM A48 Class 30, shall be traffic bearing, and shall have machined contact surfaces. Manhole frames and covers shall be as shown on plans or an approved equal.

The quantity of butterfly valves and valve manholes, installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the contract unit price per each "16" Butterfly Valve and 6' DIA. Manhole, 250# WP". Such prices and payments will be full compensation for all materials, excavation, labor, installation, sterilization, pressure testing, valve manhole, backfilling, and incidentals necessary to complete the work as required.

4. TRANSITION COUPLING:

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

Transition couplings shall consist of a center sleeve of either ASTM A126 Class B grey cast iron, ASTM A536 ductile iron, or carbon steel with a minimum yield strength of 30,000 psi, two resilient gaskets, two iron follower rings, and high strength steel nuts and bolts as per ANSI A21.11 (AWWA C111). The transition couplings shall be coated with a bituminous or epoxy coating. Transition couplings shall have a minimum working pressure of 150 psi and have been approved by the Engineer.

The Contractor shall verify the size, type material, etc. of the existing and proposed pipes prior to ordering.

The quantity of transition couplings, 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 "_____" Transition Coupling (DI to AC)". Such prices and payments will be full compensation for all materials, labor, installation, approved transition coupling, equipment, coating, and incidentals necessary to complete the work as required.

PROJECT: U-4008
COUNTY: Orange

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. PSNC Energy
- B. Duke Power
- C. BellSouth
- D. Time Warner Cable
- E. Progress Telecom

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. PSNC Energy

- 1. See "Utilities By Others Plans" for utility conflicts.
- 2. PSNC Energy will complete all work prior to the date of availability, except on Line -Y4A-. PSNC will need two weeks notice prior to rough grading being completed on Line -Y4A-, and three weeks to complete the relocation of the gas lines along Line -Y4A-.

B. Duke Power

- 1. See "Utilities By Others Plans" for utility conflicts.
- 2. Duke Power will relocate all aerial power pole lines by September 1, 2006, except for the power pole lines along Line -Y4A-. Duke Power will relocate the power pole line left of Line -Y4A- from Sta. 10+00 to Sta. 21+00 after the contractor has completed the rough grading for the proposed ditch section left of Line -Y4A-. Once the rough grading for the ditch section is completed, the contractor will need two weeks notice and three weeks to complete the work.

C. BellSouth

1. See "Utilities By Others Plans" for utility conflicts.
2. BellSouth will attach to Duke Power poles. BellSouth will need three weeks notice prior to Duke Power completing their work and three weeks to complete the work. The underground telephone lines on Erwin Road will be adjusted as necessary; BellSouth will need one-week notice and two weeks to complete the work at each location of a conflict.

D. Time Warner Cable

1. See "Utilities By Others Plans" for utility conflicts.
2. Time Warner Cable will attach to Duke Power poles. Time Warner Cable will need two weeks notice prior to Duke Power completing their work and two weeks to complete the work.

E. Progress Telecom

1. See "Utilities By Others Plans" for utility conflicts.
2. Progress Telecom will adjust as necessary and will need one-week notice and one week to complete the work at each location of a conflict.