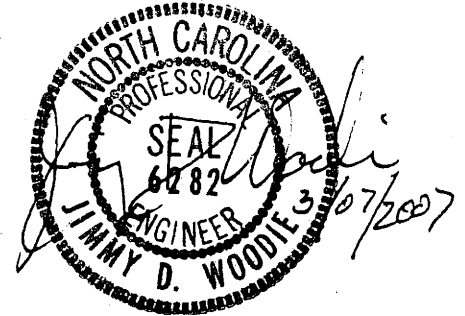




Project: U-3823A County: WILSON

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 2006, and the following provisions.

The Contractor shall be responsible for field verifying location, size, type and elevation of all underground utilities, as well as reconnecting any water and/or sanitary sewer services disturbed during construction, even if they are not shown on the plans. The water line shall be installed as to provide a minimum of 3 feet of coverage above the top of pipe from finished grade, unless shown differently on plans. The Contractor shall verify that all new water and sanitary sewer lines have ten (10') feet horizontal clearance between each other.

The Contractor is herein forewarned as to the possibility of having to vary the depth of the 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, storm drainage are shown on the plans or not).

All ductile iron pipes shall be class 50 complying with the requirements of the City of Wilson Standard Specifications dated April 2005, unless otherwise indicated herein.

All valve box covers and sanitary sewer manhole covers shall be cast to indicate "WATER" or "SEWER", as the case may be with the appropriate utility owner's special cover verbiage cast into the cover.

**Water lines and Valves:**

The existing utilities belong to the City of Wilson. The Contractor shall provide access for the Owner's representatives to all phases of construction. Notify the Owners two weeks before commencement of any work and one week before service interruption. Interruption of water service on main lines shall be limited to a maximum of six (6) hours. Individual service connection interruptions shall be scheduled between regular working hours. Water services shall be restored within the same working day.

All valves shall be Ductile Iron Resilient Seat Gate Valves. All valves shall meet the specification as shown in the NCDOT Standard Specifications for Roads and Structures.

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.

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 and be approved by Owners. 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 at representative points along the pipeline by a certified testing laboratory and tested for chlorine residual and coliform bacteria.

#### **Gravity Sewer:**

The City of Wilson shall be notified two weeks in advance before the Contractor begins work and one week in advance of any interruptions of sewer service with ample time to make arrangements. Contractor shall be aware that the sewer lines being relocated are inactive at this time.

All lines and manholes shall be installed at proper grade, alignment and location. All gravity sewer lines regardless of material will be tested by low pressure air test and/or vacuum test. Services will be installed prior to the test and they will be tested along with the line. The line shall be pressurized to 4psi and stabilized. After stabilization the pressure will be lowered to 3.5psi and the inspector will determine the time it takes for the pressure to drop to 2.5psi. The allowable time of drop for a 12" diameter line is 1.8min/100ft of pipe. If the pressure remains between 3.5psi and 2.5psi for the test time, the lines are acceptable. If the line does not pass, check the installation of the lines and run the test again.

All manholes shall be tested after assembly and prior to backfilling using a vacuum tester. All lift holes shall be plugged with non-shrink grout. All pipes entering the manhole shall be plugged. All plugs shall be braced to keep plug

from being drawn into manhole. The inside of the manhole shall be wet down with a soap and water solution which will visibly indicate areas of leakage after the test is performed. Test head shall be placed on or in the cone section and the seal inflated as per the manufacturer's specifications. A vacuum of 10 inches of mercury shall be drawn and the vacuum pump shut off. With the valve closed, the time it takes for the vacuum to drop to 9 inches shall be measured. The manhole shall pass if the time is greater than the values below:

Manhole Depth	Manhole Diameter		
	48"	60"	72"
10' or less	60sec	75sec	90sec
10' – 15'	75sec	90sec	105sec
Over 15'	90sec	105sec	120sec

If the manhole fails, necessary repairs shall be made using non-shrink grout. Then re-test until manhole is acceptable.

All lines shall be inspected for pipe deflection by pulling a mandrel through the lines. Deflection shall not exceed 5%. Mandrel must be 95% of the diameter of the pipe.

**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.

**Owner and Owner's Requirements:**

The existing water utilities belong to the City of Wilson. The Contractor shall provide access for the owner's representatives to all phases of construction. The owners shall be notified two weeks prior to commencement of any work and one week prior to service interruption.

**Contacts:**

- City of Wilson – Water Resources: Barry Parks – 252-399-2374
- City of Wilson – City Engineering: Bryant Bunn – 252-399-2465

**1. \_\_\_" HDPE WATER PIPE BY DIRECTIONAL BORE:**

High Density Polyethylene (HDPE) Water Pipe to be installed by directional boring or drilling beneath Bloomery Swamp. Install water pipe in accordance with

the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

HDPE Water Pipe is to be, SDR 9, 200 # WP and manufactured in accordance with ANSI /AWWA C906-90. HDPE Pipe materials shall be either PE 2406, PE 3406 or PE 3408 depending upon the required pressure class and dimension ratio (SDR) specified on the plans. Polyethylene plastic water pipe shall meet the requirements of the National Sanitation Foundation Seal of Approval for potable water.

Furnish fittings to connect to Ductile Iron water pipe and fuse onto each end of the HDPE water pipe.

Drilling fluid to be bentonite slurry. Use admixtures suitable to the site conditions.

HDPE water pipe to be fused and tested prior to placement beneath the river. Join pipe segments by cutting the ends square, heating and fusing under sufficient pressure to create a single length of pipe sufficient to complete installation in one continuous pulling operation. The pipe manufacturers listing of fusion parameters validated by appropriate testing and the parameters of the contractor's fusion system shall be submitted to the Resident Engineer prior to fusing of segments of HDPE water pipe into the pipe string. HDPE water pipe string to be tested to a hydrostatic pressure of 200 # WP in accordance with testing procedure outlined in section 1510 of the standard specifications prior to being placed beneath Bloomery Swamp.

HDPE water pipe to be installed beneath Bloomery Swamp by boring or drilling a small pilot hole along a parabolic arc beneath the river. A minimum cover of 3 feet shall be maintained over the HDPE water pipe at all times. Enlarge the pilot hole by use of a reamer or reamers to the desired diameter. When the bored hole is of the diameter recommended by the pipe manufacturer for the HDPE water pipe, the contractor will pull the pipe string through the hole by the drill string. Cap the pipe string during the pulling operation. Pulling operation to incorporate a swivel connection to minimize torsional stress imposed upon the pipe string. Fully support the pipe string before and during pull back so that the pipe string will move freely without damage. HDPE Water Pipe installed by directional boring shall not be connected to existing pipe or fittings for one week from the time of installation to allow tensional stresses to relax. Contractor may elect to conduct reaming and pulling of the pipe string as one operation at the discretion of the engineer.

Drilling fluid to be re-circulated through use of a solids control system to remove spoil from drilling fluid surface returns. After cleaning, return the drilling fluid surface returns to the active system.

HDPE 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 or couplings, and paid for at the contract unit price per linear foot for " \_\_\_ " HDPE Water Pipe by Directional Bore ". Such prices and payments will be full compensation for furnishing all labor, equipment, material, couplings and fittings, reducers, excavation, installation, testing, backfilling, and incidentals necessary to complete the work as required.

## **2. CONCRETE PIERS:**

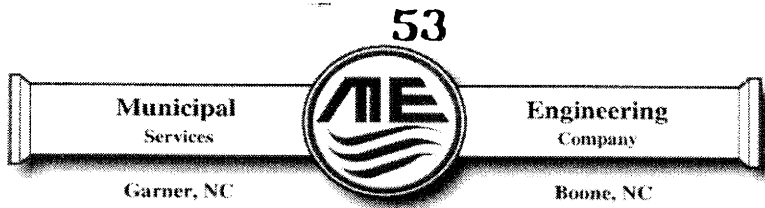
Concrete piers shall be used to support pipes at all stream crossings, where, in the opinion of the Engineer, such piers are necessary. Such piers shall be constructed as shown on the utility plans.

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.

Steel for straps and bolts shall be AISI type 316 stainless steel.

Concrete Piers, 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 "Concrete Piers". Such price and payment will be full compensation for furnishing all materials, steel, straps, bolts, forms, labor, excavation and backfilling, and incidentals necessary to complete the work as required.



Revised 6-6-07  
U-3823/documents

Project: U-3823A County: WILSON

**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) City of Wilson – Natural Gas:  
Joe Caster: 252-399-2431
- B) City of Wilson – Distribution Power:  
John Maclaga, PE: 252-399-2419
- C) Embarq – Telephone:  
Wayne Cook: 252-246-1504
- D) Time Warner – CATV:  
Bob Liles: 919-632-7859

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 NCDOT "Standard Specifications For Roads and Structures" dated January 2006.

**Utilities Requiring Adjustments:**

- A) City of Wilson – Natural Gas
  - 1. Station 80+00 to Station 86+00 Line –L-  
The existing 8" gas main located left of Line –L- between Station 80+00 and Station 86+00 will be abandoned after a new 8" gas main has been directionally bored further left of Line –L- between Station 80+00 and Station 86+00. This work will be completed by March 1, 2008.
  - 2. All other existing buried gas lines located within the limits of this project will remain in place and be adjusted if necessary. See Utilities By Others Plans for details.
- B) City of Wilson – Power (Distribution)
  - 1. The City of Wilson will relocate their facilities with Embarq and Time Warner CATV attached joint use to the proposed power poles of the City of Wilson. All power work within the limits of this project will be completed by August 15, 2007. See Utilities By Others Plans for details.
- C) Embarq – Telephone
  - 1. All buried telephone lines located within the limits of this project , that are to remain, are to be adjusted if necessary. Embarq will relocate their facilities joint use with Time Warner CATV and to the City of Wilson proposed power poles. All telephone work within the limits of this project will be completed by September 3, 2007. See Utilities By Others Plans for details.

D) Time Warner - CATV

1. Time Warner CATV will relocate their facilities attached joint use to Embarq and to the City of Wilson proposed power poles. All CATV work within the limits of this project will be completed by August 30, 2007. See Utilities by Others Plan for details.