



PROJECT SPECIAL PROVISIONS
Utility Construction

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 provisions outlined below.

Owner and Owner's Requirements:

The existing water line belongs to Wayne Water District. The contact person is Mr. Joey Threewitts, Operations Manager. Mr. Threewitts can be reached by telephone at (919) 731-2310. The Contractor shall provide access for the owner's representatives to all phases of construction. The owner shall be notified two weeks prior to commencement of any work and one week prior to service interruption.

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. 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, 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 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 the Contractor in approved containers and submitted to a certified testing laboratory for bacterial and chlorine content. Test results shall be provided to Wayne Water District.

The owner shall be notified in advance of any interruptions of water service with ample time to make arrangements. Interruption of water service shall be limited to a maximum of 4 hours unless approved by the Engineer.

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.

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. 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 or push-on joints for a minimum working pressure of 250 PSI with a minimum factor of safety of 2:1 using ductile iron wedges. Twist-off nuts shall be used to insure proper torquing of retaining devices.

Restrained Retainer glands for push-on joints shall have machined serrations on the inside surface. Wedges that bear against pipe wall shall not be used on bell and spigot type installations. The required restrained length shall be restrained by retainer glands. The Contractor shall be responsible for determining the necessary lengths to be restrained. Design of the restrained portion of the new water piping system shall be approved by a registered professional engineer, and submitted to the Utility Section, Design Services Unit for approval prior to installation.

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.

3. HDPE WATER PIPE BY DIRECTIONAL BORE:

High-density polyethylene (HDPE) water 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.

HDPE water pipe shall be sixteen inches in diameter, DR9, 200 PSI WP manufactured in accordance with ANSI/AWWA C906 (Polyethylene Pressure Pipe and Fittings, 4 inches through 64 inches, for Water Distribution). HDPE pipe materials shall be made from materials conforming to standard PE code designation PE 3408, and shall meet the National Sanitation Foundation Standard Number 61 (Drinking Water System Components – Health Effects).

The Contractor shall furnish fittings necessary to connect the existing water main to the HDPE, and fuse the fittings onto each end of the HDPE section of water line.

Drilling fluid shall consist of a bentonite slurry. Admixtures may be added which are suitable to the site conditions encountered.

HDPE water line shall be fused prior to placement beneath the stream noted on the plans. Join pipe segments by cutting 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 manufacturer's listing of fusion parameters, validated by appropriate testing, and the parameters of the Contractor's fusion systems, shall be submitted to the Resident Engineer prior to fusing segments of HDPE water pipe into the pipe string.

After installation, the HDPE water pipe string shall be tested under the stream to a hydrostatic pressure of 200 PSI in accordance with the testing procedures outlined in Section 1520 of the Standard Specifications.

HDPE water pipe shall be installed beneath the stream by boring or drilling a small pilot hole along a parabolic arc beneath the stream. A minimum cover of four feet shall be maintained over the HDPE water pipe at all times. The profile shown on the plans is from the best available information and is for informational purposes only. 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 sixteen inch HDPE water line, the Contractor shall pull the pipe string through the hole by the drill string. Cap the pipe string during the pulling operation. The pulling operation shall incorporate a swivel connection to minimize torsional stresses 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.

The Contractor may elect to conduct reaming and pulling of the pipe string in one operation at the discretion of the Engineer. The reamer head shall be fitted with a sleeve to prevent possible spalling that may become lodged and prohibit the pull back of the pipe string.

Drilling fluid shall re-circulated through the use of a solid 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, transition couplings and fittings, restrained retainer glands, excavation, installation, testing, backfilling, and incidentals necessary to complete the work as required.

PROJECT SPECIAL PROVISIONS
UtilityUTILITIES BY OTHERS

General:

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

- A) Tri-County EMC – Power (Distribution)
- B) Bell South - Telephone
- C) Time Warner Cable – CATV

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 Standard Specifications.

Utilities Requiring Adjustment:

- A) Tri-County EMC – Power (Distribution)

- 1) See Utilities by Others Plans.

NOTE: The Contractor shall notify Tri-County EMC one week prior to completing the detour and will then allow Tri-County EMC three weeks to relocate their existing power distribution facilities to the new temporary location as shown on the utilities by others plans. Tri-County EMC will relocate to a permanent location after the project has been completed.

- B) Bell South - Telephone

- 1) See Utilities by Others Plans.

NOTE: Bell South will abandon existing buried telephone cables as shown on the utilities by others plans. Buried Fiber Optic telephone cables will remain in place to be adjusted as necessary as shown on the utilities by others plans.

C) Time Warner Cable – CATV

- 1) See Utilities by Others Plans.

NOTE: Time Warner Cable will relocate aerial CATV lines in joint use with proposed power. The contractor shall allow Time Warner Cable two weeks to relocate their aerial telephone lines after Tri-County EMC has completed their relocated power facilities.

NOTE: All other utilities will remain in place and will be adjusted as necessary.