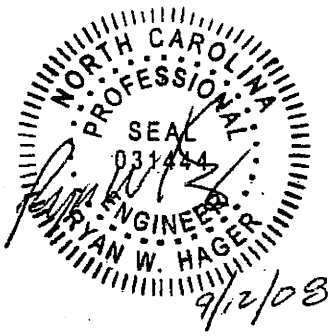

Project: R-3833b
County: Iredell

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 July 2006, and the following provisions.

Lay water mains at least 10ft 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 psi for a period of 3 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 preformed 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.

Contractor shall employ and pay for service of an independent firm acceptable to the Town of Mooresville to perform all bacteriological testing for new water lines. The contractor shall not activate new water mains until the Engineer has notified the Contractor that he may do so.

The final and temporary connections to the existing water and sewer mains may need to be made at night to limit the interruption to the businesses and traffic in this area.

Owner and Owner's Requirements:

The existing utilities belong to The Town of Mooresville. 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 contractor shall provide the Town of Mooresville with as built drawings for the proposed water mains installed.

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

All existing water and sewer lines to be abandoned shall be filled with grout or flowable fill per NCDOT Specification Section 1530.

Ductile iron pipe for all water applications shall be designed in accordance with ANSI/AWWA C150/A21.50 and manufactured in accordance with ANSI/AWWA C151/A21.51. Pipe shall have a cement mortar lining in accordance with ANSI/AWWA C104/A21.4. Ductile iron pipe shall be push-on type or mechanical type joint manufactured in accordance with ANSI/AWWA C111/A21.11, for rubber gasket joints. The exterior of ductile iron pipe shall be coated with a bituminous coating. Ductile iron pipe up to 12 inch diameter must be thickness pressure Class 350. Pipe diameters 16 inch and larger must have a minimum thickness pressure Class 250.

Ductile iron pipe for sewer applications shall be designed in accordance with ANSI/AWWA C150/A21.50 and manufactured in accordance with ANSI/AWWA C151/A21.51. Ductile iron pipe shall be push-on type or mechanical type joint manufactured in accordance with ANSI/AWWA C111/A21.11, for rubber gasket joints. The exterior of ductile iron pipe shall be coated with a bituminous coating. Ductile iron pipe up to 12 inch diameter must be thickness pressure Class 350. Pipe diameters 16 inch and larger must have a minimum thickness pressure Class 250. Ductile iron pipe and fittings for all sewer applications shall be lined with 40 mils of Protecto 401 Ceramic Epoxy.

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.

1. RELOCATE FIRE HYDRANT WITH NEW 6" GATE VALVE:

The relocated fire hydrants with new 6" gate valves shall be installed at the locations shown on the utility plans, and/or as directed by the Engineer.

The relocation of fire hydrants shall consist of the removal and installation of the existing fire hydrant. The existing 6" gate valve on the fire hydrant leg shall remain and a new 6" gate valve shall be installed outside the new pavement areas.

After the existing fire hydrants are relocated, the existing 6" gate valves shall remain in the open position and the valve box and cover shall be removed.

Gate valves associated with the fire hydrant relocations shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

Gate valves shall be resilient seat types conforming to ANSI/AWWA C509 or ANSI/AWWA C515. The valve body, bonnet and seal plate shall be coated on all exterior and interior surfaces with a minimum of 8-10 mils of fusion bonded epoxy in accordance with ANSI/AWWA C550. The valve shall incorporate a guide system with guide lugs on the wedge or on the body. The wedge shall be gray ductile iron, fully encapsulated with rubber. Non-rising stem valves shall have two O-ring seals above the stem thrust collar that can be replaced under pressure. The valve shall have a non-rising stem, mechanical joint end connections conforming to ANSI/AWWA C111/A21.11, and a 2" square operating nut and shall open by turning counterclockwise. Gate valves shall have a design working water pressure of 200 #WP. All valves shall be warranted for 10 years from the date of purchase against defective materials and workmanship.

The fire hydrant assembly with new 6" gate valve, installed in accordance with plans and provisions herein and accepted, will be measured and paid for at the contract unit price per each for "Relocate Fire Hydrant with New 6" Gate Valve". Such prices and payments will be full compensation for all materials, relocation of existing fire hydrant, new 6" gate valve, equipment, excavation, pressure testing, labor, installation, backfilling, and incidentals necessary to complete the work as required.

2. CUT IN 12" GATE VALVE AND VALVE BOX

The cut in gate valves and valve boxes shall be installed at the locations shown on the utility plans, and/or as directed by the Engineer. Cut in gate valves shall be manufactured by Hydra-Stop, QuikValve, InsertValve, or approved equal.

Cut in gate valve bodies shall consist of a two-part stainless steel fitting of the saddle type with a stainless steel hollow cylindrical nozzle, welded to the upper saddle half. Test and working pressure of the valve body shall be 150 psig. The two part body shall be assembled around the water main and pressure-sealed to the main by a single gridded resilient sheet gasket. The gasket shall fully encircle the pipe, providing a 360-degree full area seal. Suitable fasteners and supporting lugs shall be provided.

Saddles and hardware shall be formed from Type 304L stainless steel. The design of the saddles, bolting, lugs and armor plates shall be such that the fitting halves can be mounted, without further modification, pressure tight onto 12" ductile iron pipe.

Sheet gasket shall be molded from a virgin SBR elastomer compound that will resist compression set. A griddled ("waffle") pattern shall be molded on the inner side of the gasket. Each side (which lies parallel to the run of the pipe) of the gasket shall be tapered to allow uniform distribution of clamping (gasket) pressure over the entire circumference of the pipe. A stainless steel armor plate shall be attached to each side of the gasket to bridge the gap between saddle halves.

Valve cartridge shall consist of a stuffing box plate, valve stem with operating nut, valve plugging head that shall consist of a carrier with an internal deformable sealing element and two external resilient sealing sleeves. The valve cartridge shall be inserted into the nozzle under full line pressure by means of a cartridge inserter, which shall be attached to the drilling machine that cuts the access hole into the top of the pipe. The valve plugging head shall consist of a rigid cylindrical carrier and three elastomeric sealing devices.

A cartridge closure flange with a flat flange gasket shall be used to complete the installation of the valve. After the stuffing box plate has been seated on the shoulder in the nozzle and the lock screws have been tightened from the nozzle flange, the valve cartridge will be mechanically secure in the valve body. The installation equipment shall then be removed and the closure flange shall be installed over the thrust washer in the valve stem. The flange shall then be bolted to the nozzle flange, followed by installation of the valve operating nut. The valve box shall then be installed in accordance with the Town of Mooresville's standards.

The cut in 12" gate valve and valve box, installed in accordance with plans and provisions herein and accepted, will be measured and paid for at the contract unit price per each for "Cut In 12" Gate Valve and Valve Box". Such prices and payments will be full compensation for all materials, cut in 12" gate valve, valve box, equipment, excavation, testing, labor, installation, backfilling, and incidentals necessary to complete the work as required.

3. RELOCATE SANITARY SEWER CLEANOUT:

Relocate sanitary sewer cleanouts shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer. Cleanouts shall have protectors constructed of cast iron conforming to ASTM A48, Class 30B, Gray Cast Iron. Clean out protectors and lids shall be load rated for highway traffic loads. Lids shall be cast with the letter "S". Clean out protectors shall be one of the following: Ease Jordan Iron Works, Inc. (Part No. 1566), or U.S. Foundry & Manufacturing Corp. (Part No. 7610). Protectors shall be installed flush with the ground as approved by the Engineer.

PVC sewer pipe and fittings shall be PVC Schedule 40, manufactured in accordance with ASTM D1785, "Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe" solvent cement joints (type SC)

The existing sanitary sewer cleanout shall be cut, plugged, and removed just above the existing wye.

Relocate sanitary sewer cleanouts, installed in accordance with plans and utility provisions herein and accepted, will be measured and paid for at the contract unit price per each for "Relocate Sanitary Sewer Cleanout". Such price and payment will be full compensation for all labor, excavation, class B concrete, pipe, water tight plugs, sewer pipe fittings, backfilling, and incidentals necessary to complete the work as required.

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 Energy (Power)
B. Windstream Communication (Telephone)
C. Time Warner Cable (Cable TV)
D. PSNC Energy (Gas)
E. M I Communications (Cable TV)

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 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. Duke Energy (Power)
    1. All Duke Energy work within the limits of this project will be completed by December 1st 2009. See "Utilities By Others" Plans for details.

B. Windstream Communication (Telephone)
    1. All Windstream Communication work within the limits of this project will be completed by December 1st 2009. See "Utilities By Others" Plans for details.

C. Time Warner Cable (Cable TV)
    1. All Time Warner Cable work within the limits of this project will be completed by December 1st 2009. See "Utilities By Others" Plans for details.

D. PSNC Energy (Gas)

1. All PSNC Energy work will be completed by December 1st 2009, except for the gas line at the Brawley School Road and Rolling Hills Road intersection. Once the new grade has been established, PSNC needs two weeks notification and one month to do the work. See "Utilities By Others" Plans for details.

E. MI Communications

1. All MI Communications work will be completed by December 1st 2009.
   See "Utilities By Others" Plans for details.