

Project: U-4011 County: DURHAM

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 July 2006, and the City of Durham's "Water and Sewer Construction Specifications" dated September 1994, as well as 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).

Prior to construction the contractor is to schedule a pre-construction walkthrough with the City of Durham's Inspection Department. All meter boxes will be examined. If they broken or damaged the City will provide new boxes to replace the broken or damaged boxes.

All proposed water lines for the City of Durham shall be ductile iron pipe. All ductile iron water pipe 4" in size shall be class 51 and from 6" up to 24" in size shall be class 50 and all ductile iron pipes shall comply with the requirements of Subsection 1036-5 of the NCDOT Standard Specifications for Roads and Structures, unless otherwise indicated herein. All ductile iron fittings 12" in size and smaller shall be class 250 and fittings over 12" in size shall be class 150. All fittings shall have concrete thrust blocking in accordance with the City of Durham's "Water and Sewer Construction Specifications". (see details W-8.0, W-8.1 & W-8.2) The contractor is prohibited from using MEGALUG brand of mechanical joint restraint.

All gate valves shall be resilient-seat type valves conforming to ANSI/AWWA C509-87. The valves shall be nut operated and to the left (counterclockwise) and be so marked.

All valve box covers and water meter boxes shall meet the City of Durham specifications. (see details W-6.0 and W-3.3)

Water lines and Valves:

The existing water lines belong to the City of Durham. The existing sewer lines belong to Durham County. 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 four (4) hours. Individual service connection interruptions shall be scheduled between regular working hours. Water services shall be restored within the same working day.

The Contractor shall replace all existing galvanized water service line with similar sized, new Type "K" copper pipe and new corporation stops installed in accordance with City of Durham's "Water and Sewer Construction Specifications"

All valves shall be Resilient Seat Gate Valves unless otherwise indicated herein. All valves shall meet the specification as shown in the NCDOT Standard Specifications for Roads and Structures and/or the City of Durham's "Water and Sewer Construction Specifications."

The Contractor shall provide a new fire hydrant for each of the fire hydrants requiring relocation. Removed fire hydrants are to be placed in an area accessible by truck and contractor shall notify the City of Durham at (919) 560-4344 for their pickup.

Disinfecting and pressure testing shall be done in accordance with the current City of Durham requirements and specifications.

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±5 psi for a period of 3 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 3 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 City of Durham's chemist who will perform the bacteriological and contaminant testing of the City of Durham's water lines.

Gravity Sewer:

Durham County 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 active at this time. The Contractor shall invite Durham County to the preconstruction meeting. The Contractor shall be responsible for any bypass pumping necessary during installation or replacement of sanitary sewer lines and manholes.

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:

Measurement and payment for work will be in accordance with NCDOT's "Standard Specifications for Roads and Structures"

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.

Owners and Owner's Requirements:

The existing water utilities belong to the City of Durham. The primary contact for the City during construction will be Mr Timothy Jackson, who can be reached at (919) 560-4326 ext. 30255 and his email address is tim.jackson@durhamNC.gov The secondary contact will be Mr Eric Halstead, who can be reached at (919) 560-4326 ext. 30259 and email address is eric.halstead@durhamNC.gov The sanitary sewer is owned and operated by Durham County The primary contact for Durham County will be Mr Ted Credle, who can be reached at (919) 546-8280 and his email is wcredle@durhamcountync.gov 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.

On pipelines owned by the City of Durham, the Contractor shall provide the owner with as-built plans, per the City of Durham's Specifications. (City of Durham Public Works "Reference Guide for Development" Section 4.0 As-built Drawings Submittal Requirements)

The Contractor shall also provide Durham County with as-built plans for the sanitary sewer The Contractor shall contact Durham County to assure the sanitary sewer as-built plans meet the County requirements.

RECONNECT FIRE HYDRANT

All existing fire hydrants that are to remain in the existing location and be reconnected to a new water main shall be reconnected as shown on the utility construction plans or as directed by the Engineer

Reconnection of existing fire hydrants shall consist of removing the existing hydrant leg, valve and other associated piping, to include the valve box, and reconnecting the existing fire hydrant to the new/relocated water main as shown on the utility construction plans. The reconnected fire hydrant shall be provided with a new resilient seat gate valve, ductile iron piping and new fittings from the new water main. The new hydrant leg piping shall be restrained as shown on the utility construction plans.

The quantity of fire hydrants reconnected and accepted will be measured and paid for at the contract unit price each for "Reconnect Fire Hydrant" Such price and payment will be full compensation for all labor and materials, new valve box, excavation, removal of the existing piping and valve, removal and disposal of the existing box/vault, backfilling, and incidentals necessary to complete the work as required.

ADJUST MANHOLE.

Utility manholes requiring vertical adjustment shall have the frame and cover removed, existing grade rings removed if necessary and the elevation of the utility manhole adjusted in accordance with Section 858 of the Standard Specifications. Reinstallation of the frame and cover shall also be included in this work. All work shall be approved by the Engineer

Utility manhole construction shall also conform to the applicable requirements of Section 840 and be installed in accordance with Subsection 858-3 of the Standard Specifications.

Utility manholes adjusted in accordance with these provisions and accepted shall be measured and paid for at the contract unit price per each for "Adjust Manhole" The unit price shall include but not be limited to excavation, backfilling, removal of a portion of the existing structure, brick masonry, mortar, grout, concrete, reinforcing steel, fittings, furnishing and hauling asphalt plant mix and other materials, placing, maintaining, removing and disposing of traffic ramps.

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) Duke Energy – Power (Distribution)
- B) Verizon – Telephone
- C) PSNC Energy – Gas
- D) Time Warner Cable – Cable TV
- E) MCI – Telephone (FO)
- F) Level (3) Communications– Telephone (FO)

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) Duke Energy - Power (Distribution)
 - 1) See Utilities by Others Plans.
 - 2) Contact person is Mr. Stephen Whittermore (336-222-5562).
- B) Verizon – Telephone
 - 1) See Utilities by Others Plans.
 - 2) Contact person is Mr. Marcus Dickinson (919-560-2917)
- C) PSNC Energy – Gas
 - 1) See Utilities by Others Plans.
 - 2) Contact person is Ms. Nakima Bogan (919-836-2451)
- D) Time Warner Cable – Cable TV
 - 1) See Utilities by Others Plans.
 - 2) Time Warner Cable will follow Duke Energy's poles in joint use with Power and FO Telephone after MCI has completed the installation of their FO aerial lines on

Duke's poles. Contact person is Mr. George Stotler (919-427-5506).

E) MCI – Telephone (FO)

- 1) See Utilities by Others Plans.
- 2) MCI will follow Duke Energy's poles in joint use with Power and CATV from beginning of project to Ellis Rd. (-Y2-). Contact person is Mr. Keith Poore (931-248-3450).
- 3) Buried Fiber Optic Telephone along Ellis Rd. (-Y2-) and along Miami Blvd. (-L-) North of Ellis Rd. will remain in place to be adjusted as necessary. The contractor shall give MCI two weeks notice and then 2 weeks to make necessary adjustments at locations that may be in conflict.

F) Level (3) Communications– Telephone (FO)

- 1) See Utilities by Others Plans.
- 2) Contact person is Mr. Mike Weaver (919-856-2002)

NOTE: All other utilities will remain in place and will be adjusted as necessary. All utilities shall be complete with their relocations by July 1, 2011.