

Project: R-3405 (U.C.) County: Wilkes

PROJECT SPECIAL PROVISIONS
Utility Construction

General Construction Requirements:

The proposed utility construction shall meet the requirements of the NC Department of Transportation's "Standard Specifications for Roads and Structures" dated July 2012 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 services disturbed during construction, even if they are not shown on the plans. The water main shall be installed as to provide a minimum of 4 feet of coverage above the top of pipe from finished grade, unless shown differently on plans.

The Contractor is herein forewarned as to the possibility of having to vary the depth of the water main installation to achieve minimum clearance of existing or proposed utilities or storm drainage while maintaining minimum cover specified (whether on existing or proposed pipelines, conduits, cables, mains, storm drainage are shown on the plans or not).

The Contractor shall submit his proposed method of anchoring to the Engineer for review and approval of restraining all pipe, pipe bends, valves and other related appurtenances. Anchoring will be the responsibility of the Contractor. Connecting to existing water mains may alter such lines to the extent that these pipelines with existing pipe bends, valves and other related appurtenances may also require reaction blocking; this is also the responsibility of the Contractor.

Owner:

The existing water mains and appurtenances are owned and maintained by Mulberry/Fairplains Water Association (1613 Sparta Road, North Wilkesboro, NC 28659 Phone: (336) 670-2410). 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. 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 unless otherwise permitted by the Owner. Water services shall be restored within the same working day.

The Owner has indicated that the existing water main(s) that will be replaced are manufactured of asbestos cement. Once the new water line is declared operational, the Contractor shall be responsible for the abandonment or removal of all existing asbestos cement water mains within the project limits.

The Owner requires that the following be included in these Special Provisions:

- 1) Owner, or his agent, shall witness all pressure and biological testing
- 2) The Contractor shall take all biological samples and send to Owner's preferred laboratory for testing.
- 3) All existing appurtenances (hydrants, valves, glands and fittings) that are removed as a result of the water main relocation will remain the property of the Owner, and the Contractor will remove said appurtenances to 193 Foster Road, North Wilkesboro, NC as directed by the Engineer.
- 4) The Contractor shall have the parts available on hand and capability to repair service mains immediately if service is interrupted due to damage caused by the Contractor.
- 5) Water service to all customers shall be maintained during construction of the new water main. Service disruptions for any reason shall be limited to a maximum time of four hours.
- 6) All water main materials of construction will be PVC per the following specifications except that all hydrant legs will be ductile iron pipe.

Standards:

Where materials and methods are indicated in the following specifications as being in conformance with a standard specification, it shall refer in all cases to the latest edition of the specification and shall include all interim revisions. Listing of a standard specification without further reference indicates that the particular material or method shall conform with such listed specification. All materials (except where specified below), installation, and testing shall be in accordance with the NCDOT Standards and Specifications for Roads and Structures, dated July 2012. If NCDOT material specifications exceed those specified below, the NCDOT specification shall apply.

Construction Materials:

General

All materials and equipment shall be furnished by an established and reputable manufacturer or supplier. All materials and equipment shall be new and shall be of first class ingredients and construction designed and guaranteed to perform the service required and shall conform to the following specifications or shall be the product of the listed manufacturer or similar and equal thereto as approved by the Owner.

Ductile Iron Pipe and Fittings

All ductile iron pipe and fittings shall conform to ANSI/AWWA C151/A21.51, Pressure Class 250 and the following:

(a) Pipe and Fittings

- (1) MECHANICAL JOINT PIPE
ANSI/AWWA C151/A21.51
- (2) SINGLE GASKET JOINT PIPE (PUSH-ON-JOINT) ANSI/AWWA C151/A21.51. Bells shall be modified to accommodate a single gasket type jointing material. Modified bells shall be supplied on pipe only and not on fittings
- (3) FLANGED PIPE
ANSI/AWWA C115/A21.15. Flanges shall be faced and drilled to ANSI Class 150.
- (4) FLANGED FITTINGS
ANSI/AWWAC110/A21.0. Flanges shall be faced and drilled to ANSI Class 150.
- (5) BELL & SPIGOT FITTINGS AND MECHANICAL JOINT FITTINGS
ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53 latest.

(b) Coatings

- (1) OUTSIDE COATING – The coating for the exterior of fittings and pipes required by ANSI/AWWA C110/A21.10 and C151/A21.51 shall conform to Federal Specification WW-P 421C.
- (2) CEMENT MORTAR LINING OF INTERIOR OF PIPE AND FITTINGS - ANSI/AWWA C104/A21.4. All cement lining shall receive a seal coat of bituminous material.
- (3) PROTECTIVE FUSION BONDED EPOXY COATINGS - ANSI/AWWA C116/A21.16.
- (4) SPECIAL COATINGS AND LININGS - ANSI/AWWA C104/A21.4.

Thickwall P.V.C. Pressure Pipe

All P.V.C. pressure pipe shall conform to AWWA C-900 or C-905, DR-18 (235 PSI). All fittings shall be ductile iron, mechanical joint fittings. All non-metallic pipe shall be buried with detector tape.

Service Pipe and Appurtenances

(a) Pipe

(1) Copper Pipe – All water service pipe shall be copper water tube, Type K, soft temper, for underground service, conforming to ASTM B-88 and B251. The pipe shall be marked with the manufacturer's name or trademark and a mark indicative of the type of pipe. The outside diameter of the pipe and minimum weight per foot of the pipe shall not be less than that listed in ASTM B251, Table 11.

(b) Stops and fittings - All corporation stops and curb stops shall be fabricated of brass and shall be provided with outlets suitable for copper connections or wiped lead connections. Curb stops shall be of the roadway type. Fittings for lead services shall be of brass suitable for wiped joints. Fittings for copper pipe shall be copper and of the compression type. Stream line fittings of the soldered joint type may be used, if so designated in the Project Specifications. The type of threads for all corporation stops and curb stops shall be as specified in the Project Specifications.

(c) Service saddles shall be double strap type.

(d) Meter Boxes – Meter boxes shall be heavy-duty, high-density Polyethylene, one-piece molded construction with a minimum wall thickness of 0.550 inches, vertical loading rating minimum of 15,000 pounds, sidewall loading of 200 pounds side load applied with a 4"x4" plate, multi-layer wall construction, black exterior surface to provide UV protection, gray foaming for strength an insulating value, white interior surface for ease of meter reading, and flush, cast iron cover . The meter box shall be of adequate size with the base of ample size to completely house the services stop. Box covers shall be furnished with the cover labeled "WATER METER".

Valves, Hydrants and Appurtenances

Tee intersections will have two valves, one on the -L- Line water main and one on the -Y- Line. Cross intersections shall have at least three valves as directed by the Engineer.

New fire hydrants will be installed as shown on the plans or as directed by the Engineer. All hydrants shall have a hydrant valve on the hydrant leg.

(a) VALVES

- (1) Unless otherwise required by the Project Specification or the Contract Drawings, all buried valves shall be gate valves.
- (2) Gate valves shall be non-rising stem valves with a 2 inch square operating nut, designed to take full pressure on either face furnished in full compliance with AWWA C500 or C509. All valves shall open by turning to the left unless otherwise specified.
- (3) All valves shall be of ample strength to withstand and operate satisfactorily under the working pressures and shall be subject to the test pressures both expressed in pounds per square inch below:

Cold Water Pressure in Pounds Working:	150
Per Square Inch Test:	300
- (4) Bolt holes on flanged end valves shall straddle the vertical centerline unless otherwise indicated on the Contract Drawings.
- (5) Gate valves to be installed in a horizontal position in a horizontal line which are designed for working pressures lower than 150 pounds, in sizes 16 inches and larger, shall be equipped with bronze rollers and bronze tracks secured to the body. Gate valves smaller than 16 inches shall have double cast iron disk, bronze mounted seat rings, parallel seat O-ring seals with bronze stem and stem nuts. All buried valves shall be Mechanical Joint. All valves shall be iron body bronze mounted gate valves with 2" square operating nuts.

(b) VALVE BOXES

- (1) Valve boxes shall be supplied for all buried valves unless they are to be housed in valve basins. Valve boxes shall be made of good quality cast iron and shall be of the sectional type. The lower section shall be a minimum of five and one quarter (5-¼) inches in diameter, enlarged to fit around the bonnet of the valve, if a two section box is used, or to fit a circular or oval base section if three section box is used. The upper section shall be arranged to screw down over the adjoining lower section and shall be full diameter throughout. Two (2) piece valve boxes shall be used on all valves up to those four (4) feet deep. Valves deeper than four (4) feet shall utilize SDR-41 or thicker PVC barrel extensions between the cast iron box sections. Valve boxes shall be provided with cast iron lids or covers. Lids or covers shall be marked "WATER". The overall length of valve boxes shall be sufficient to permit the top to be set flush with the established ground surface grade.
- (2) All valves not in pavement or concrete shall be set in a circular concrete ring.

(c) HYDRANTS

Fire hydrants shall comply with all requirements of ANSI/AWWA C502 (latest revision), plus further design requirements listed herein.

Hydrants shall have a minimum valve opening of 4 ½". They shall be "dry top", "traffic model", furnished with two (2) each 2 ½" hose nozzles and one (1) each 4 ½" steamer nozzle with caps and chains. Nozzle threads shall be National Standard.

Fire Hydrants shall be rodded with two (2) ¾" rods with bitumastic coating and blocked with concrete. Concrete shall be the same as blocking required for a 6 inch diameter 90° bend.

Furnish a pentagonal operating nut measuring 1 ½" from point to flat. Hydrants shall OPEN by turning the operating nut to the left (counter clockwise). Hydrants shall be suitable for setting in a 3'-6" trench unless deeper settings are required and indicated in the Bid Form. Provide a 6" mechanical joint base with MJ accessories. Hydrants shall be painted red.

Hydrants shall incorporate the following design features:

A WEATHER SHIELD shall be provided between the operating nut and the hydrant cover. Additionally, a weather cap shall be affixed which conceals the hold-down nut. It shall be embossed with an arrow indicating the opening direction.

A TRAVEL STOP NUT shall be provided in the "head" of the hydrant to eliminate further compressive loading of the hydrant rod after the hydrant has reached its full open position. Travel stop devices in the "base" or main valve area are not acceptable.

A DRY TOP LUBRICATION CHAMBER with triple "o-ring" seals shall be provided for protection and lubrication of the rod and operating nut threads. Hydrants shall be provided with an anti-friction thrust washer.

A TRAFFIC FLANGE (two piece) shall be provided at the ground line, and installed in accordance with the manufacturer's recommendations and installation instructions.

A BREAKABLE ROD COUPLING (one piece) shall be provided at the groundline connection of the upper and lower rods. Provide pin and cotter key fastening for easy removal of the coupling.

A BRONZE DRAIN RING shall be provided with integral, external drain ports. The drain ring shall be secured between the lower barrel and base flanges. The valve assembly shall be secured to the drain ring by bronze to bronze threading. The drain ring and valve assembly shall provide a totally bronze drain system. The drain system shall have a minimum of two (2) internal and two (2) external ports as a part of the all bronze drain system. Drain ports in the base and partially bronze lined drain systems are not acceptable.

Drain closure shall be by conventional double facings of an approved material other than leather. Hydrant valve top shall be bronze.

All flanges shall be integrally cast or "screwed-on". Snap or retainer ring (loose flange) design is not acceptable.

Hydrants shall be capable of being extended (raised) at the ground line in 6" increments. "Stacking" of extensions will not be permitted.

Hydrant design shall permit seat removal by use of a SHORT BODY "T" wrench which shall engage the upper hydrant rod. Designs requiring disassembly at the groundline are not acceptable.

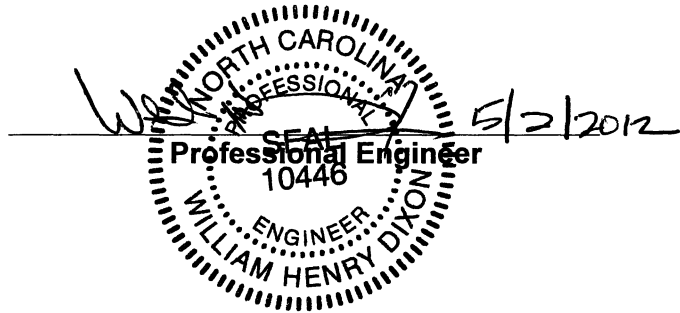
Hydrant manufacturer shall have existing authorized stocking distributors currently serving the area of this project.

Trenchless Installation:

All waterlines 2-inches and smaller, including water services shall be dry bored. Trenchless installation shall be in accordance with the NCDOT Standard Specifications for Roads and Structures, dated July 2012.

Roadway Crossings:

Waterlines greater than 2-inch diameter crossing the line of traffic from the opposite side of the road from the main waterline shall be installed by open cut. Detours shall be implemented so that only one lane of traffic shall be shutdown at any time during the waterline installation. Lane closures and detours shall be in accordance with NCDOT Standard Specifications for Roads and Structures, dated July 2012.



July 31, 2012

PROJECT: R-3405

COUNTY: Wilkes

PROJECT SPECIAL PROVISIONS**Utilities****UTILITIES BY OTHERS****General:**

The following utility companies have facilities that will conflict with the construction of this project:

- A. Duke Energy (Distribution)
- B. CenturyLink
- C. Charter Communications

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 (Distribution)
 - 1. See "Utility by Others Plans" for utility conflicts and new pole locations.
 - 2. Installation of new power facilities will not be completed before roadway construction begins. It will take Duke 6 weeks to clear the needed right of way and nine (9) months to complete the construction and removal of conflicting poles. The completion date for Duke's relocation work will be August 1, 2013.
 - 3. CenturyLink and Charter will attach to the new poles.
 - 4. Contact person for Duke Energy is Mr. Gary VonCannon and he can be reached at 336-632-3848.

B. CenturyLink

1. See "Utility by Others Plans" for existing and proposed utility locations.
2. After Duke Energy has installed its new poles and attached its conductor, CenturyLink will begin its work. CenturyLink will be working in concert with Duke Energy. The existing buried cable cannot be abandoned until the new aerial facilities are in service. CenturyLink will complete its work by August 1, 2013.
3. Contact person is Mr. Ron Maynor, Construction Supervisor for CenturyLink. He can be reached at 828-323-2539 or by cell phone 828-449-7493.

C. Charter Communication

1. See "Utility by Others Plans" for existing and proposed utility locations.
2. Charter Communications will attach to Duke Energy's new poles throughout the project limits. Once the new facilities have been activated, Charter will remove its existing cable. All work will be completed by August 1, 2013.
3. Contact person for Charter is Mr. Chris Cleary and he can be reached at 336-927-7960.