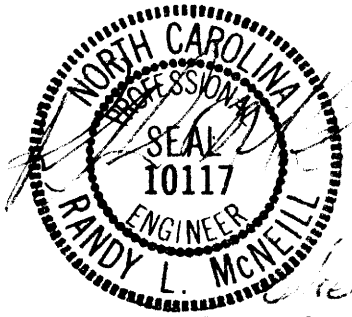
Project: U-0620
County: Cumberland



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" and the provisions outlined below.

Owner and Owner's Requirements:

Most of the existing water lines, sewer force mains, and gravity sewer lines indicated on the plans belong to the Public Works Commission of Fayetteville (PWC). The contact person is Mr. Joseph E. Glass, PE at (910) 223-4740.

The existing water lines shown on utility construction plan sheet UC-14 are owned and operated by Brookwood Water Corporation/LaGrange Waterworks, a subsidiary of Heater Utilities, Incorporated. The contact person for Brookwood Water Corporation/LaGrange Waterworks is Ms. Lynne Johnson. Ms. Johnson can be reached by telephone at (910) 867-4486.

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. Interruption of water service, sewer service, or sewer force main service on main lines shall be limited to a maximum of 4 hours unless approved by the Engineer. Contractor to notify customers a minimum of 48 hours in advance of service interruption.

After the installed water line 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 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 free chlorine is reduced to less than 1.0 ppm or at the same combined chlorine level (chloramines) 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 the Public Works Commission of Fayetteville (PWC) for bacterial and chlorine content testing.

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.

Remove Abandoned 24 Inch Pipe:

On Sheet UC-3 of the utility plans, a 180 LF section of existing 24 Inch DI Pipe is shown as "Fill or Remove Abandoned 24 Inch DI Pipe". This section of pipe shall be removed, with no option for filling. Compensation for this item shall be made according to the applicable section of these Special Provisions.

Ductile Iron Sewer Pipe and Fittings:

All ductile iron sewer pipe and fittings shall be internally coated with a ceramic epoxy lining. The finish coat shall be applied to yield a minimum dry film thickness of 40 mils.

Sewer Manholes:

All sewer manholes shall be internally coated with a two-component coal tar epoxy lining compound. The prime coat shall consist of 4 to 6 mils dry film thickness and the finish coat shall be applied to yield a minimum dry film thickness of 24 mils.

The main lines will be checked for leaking joints or wyes, deformed pipe, cracked pipe, grade problems, excessive infiltration, and overall appearance of the line.

Services will be checked for leaks, cracked, broken, or missing pipe, deformed pipe and grade.

Any appreciable infiltration will not be allowed with a maximum of 100 gallons per inch diameter per mile of pipe per 24 hours allowed. If it appears this maximum is being exceeded, the Contractor shall:

a) Correct the problem causing the excessive infiltration.

b) Provide all the necessary labor, materials, and equipment including weirs and assist the engineer in the testing of the line if the feels it is within the maximum allowed.

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. DUCTILE IRON RESTRAINED JOINT WATER PIPE

Ductile Iron Restrained Joint 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.

Ductile Iron Restrained Joint Water Pipe shall be of the thickness class or pressure rating shown on the utility plans and shall conform to ANSI A21.51 (AWWA C151) Push-on joints for such pipe shall be in accordance with ANSI A21.11 (AWWA C111). Pipe thickness shall be designed in accordance with ANSI A21.50 (AWWA C150) and based on laying conditions and internal pressures as stated on the plans.

Cement mortar lining and seal coating for pipe shall be in accordance with ANSI A21.4 (AWWA C104). Bituminous outside coating shall be in accordance with ANSI A21.51 (AWWA C151).

Ductile Iron Restrained Joint 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 and valves, and paid for at the contract unit price per foot for, "____ inch D. I. Restrained Joint Water Pipe, PC ___". Such prices and payments will be full compensation for all materials, including pipe

accessories, excavation, labor, pressure testing, sterilization, backfilling, and incidentals necessary to complete the work as required.

2. DUCTILE IRON FLANGED JOINT WATER PIPE

Ductile Iron Flanged Joint 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.

Ductile Iron Flanged Joint Water Pipe shall be of the thickness class or pressure rating shown on the utility plans and shall conform to ANSI A21.51 (AWWA C151) Flanged joints for such pipe shall be in accordance with AWWA C110 and C115. Flanges shall be faced and drilled per ANSI B16.1, Class 125. Pipe thickness shall be designed in accordance with ANSI A21.50 (AWWA C150) and based on laying conditions and internal pressures as stated on the plans.

Cement mortar lining and seal coating for pipe shall be in accordance with ANSI A21.4 (AWWA C104). Bituminous outside coating shall be in accordance with ANSI A21.51 (AWWA C151).

Ductile Iron Flanged Joint 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 and valves, and paid for at the contract unit price per foot for, "___ inch Ductile Iron Flanged Joint Water Pipe, Class __". Such prices and payments will be full compensation for all materials, including pipe accessories, excavation, labor, pressure testing, sterilization, backfilling, and incidentals necessary to complete the work as required.

3. DUCTILE IRON RESTRAINED JOINT FORCE MAIN SEWER PIPE

Ductile Iron Restrained Joint Force Main Sewer 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.

Ductile Iron Restrained Joint Force Main Sewer Pipe shall be of the thickness class and pressure rating shown on the utility plans and shall conform to ANSI A21.51 (AWWA C151). Push-on joints for such pipe shall be in accordance with ANSI A21.11 (AWWA C111). Pipe thickness shall be designed in accordance with ANSI A21.50 (AWWA C150) and based on laying conditions and internal pressures as stated on the plans.

Cement mortar lining and seal coating for pipe shall be in accordance with ANSI A21.4 (AWWA C104). Bituminous outside coating shall be in accordance with ANSI A21.51 (AWWA C151).

All Ductile Iron Restrained Joint Force Main Sewer Pipe shall be installed in accordance with laying condition Type 2 as stated in ANSI A21.51 (AWWA C151) unless otherwise shown on the plans.

Ductile Iron Restrained Joint Force Main Sewer 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 and valves, and paid for at the contract unit price per linear foot for, "___ Inch DI Restrained Joint Force Main Sewer Pipe, PC 350". Such prices and payments will be full compensation for all materials, including pipe accessories, excavation, labor, pressure testing, backfilling, and incidentals necessary to complete the work as required.

4. 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 WP 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. Retainer glands shall restrain the required restrained length. The Contractor shall be responsible for determining the necessary lengths to be restrained in accordance with Section 1510-4 of the Standard Specifications and the details included on the plans. 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 "___inch Restrained Retainer Glands". 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.

5. BALL VALVE

Ball valves, 2 inch and less, shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

Ball valves shall be all bronze construction, with tee head operator and having a removable ball assembly. The valve shall be equipped with packing nut, gland, and packing material.

Ball valves shall be of an approved type made from approved materials conforming to ASTM Specifications and shall also meet the approval of the Engineer. The turn required to travel from fully closed to fully open on the ball valves shall be 90 degrees.

The quantity of ball valves installed in accordance with the plans and utility provisions herein and accepted, will be measured and paid for at the contract unit price each for "___inch BallValve 200# WP." Such prices and payments will be full compensation for all materials, labor, installation, valve box installation, backfilling, and incidentals necessary to complete the work as required.

6. BLOW OFF ASSEMBLY:

Blow off assemblies with dead end blocking shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

Blow off assemblies shall consist of valve boxes, concrete blocking, concrete pads, and the necessary pipe fittings and adapters required to provide a complete and functional installation.

Ball valves shall be of all bronze construction with iron pipe thread and screw ends. The working pressure of all valves shall be 200 psi.

Valve boxes shall be of the slip type, with a base to fit the valve yoke and a removable plug cap with the word "WATER" cast therein. Valve boxes shall be of cast iron conforming to ASTM A48, Class 30, unless otherwise shown on the utility plans and/or as directed by the Engineer.

Install concrete blocking and concrete pads as shown on the utility plans and/or as directed by the Engineer.

Blow off assemblies 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 "___ inch Blow Off Assembly ". Such prices and payments shall be full compensation for all materials, labor, equipment, excavation, installation, sterilization, pressure testing, valve box installation with the necessary extension pieces, backfilling, and incidentals necessary to complete the work as required.

7. BEDDING MATERIAL

Bedding Material shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

The quantity of bedding material to be paid for will be the actual number of tons of material, other than local material, weighed in trucks on certified platform scales or other certified weighing devices, which has been used for shaping the pipe foundation in areas were unstable soils are encountered. Sewer pipe bedding for PVC pipe shall be included in the cost per foot for the installation of the PVC pipe.

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 Utility Class ___". Such prices and payments will be full compensation for all materials, labor, excavation, backfilling, installation, and incidentals necessary to complete the work as required.

8. COMBINATION AIR RELEASE – VACUUM VALVE AND MANHOLE

Combination Air Release – Vacuum Valve and Manhole shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

Combination air/vacuum valves shall meet the approval of the Engineer. All connecting pipe shall be ductile iron pipe conforming to ANSI A21.51 (AWWA C151). Specifications of the size and pressure class shall be as shown on the plans. The air/vacuum valve shall be connected to the ductile iron pipe by installing a double strap stainless steel service saddle and a 2-inch isolation valve as shown on the plan details.

The air/vacuum valve shall be a single housing style that combines the operating features of both an air vacuum and air release valve. The valve shall have a 2-inch inlet and outlet connections and a 3/32-inch diameter orifice for a maximum Working pressure of 300 PSI.

The manhole to house the combination valve shall be precast concrete conforming to ASTM C478. The manhole frame and cover shall be on an approved type and traffic bearing.

The quantity of combination valves and manholes, 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 "___inch Combination Air Release – Vacuum Valve and Manhole". Such prices and payments shall be full compensation for all labor, materials, excavation, backfilling, equipment, approved combination air/vacuum valve, tapping saddle, isolation valve, pipe, manhole construction, frame, cover, and all incidentals necessary to complete the work as required.

9. PE WATER TUBING

Polyethylene Water Tubing for water service lines shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

The PE Water Tubing shall be PE 3408 200 PSI ASTM D1248-Type 3. The Water Tubing shall be utilized to connect water services line from existing or proposed water mains to the existing or proposed private plumbing lines at the roadway right-of-way.

PE Water Tubing, fittings, meter boxes, etc. shall be installed in accordance with the standard details and the details shown on the Utility Construction Plans depending on if the service is for a single meter or for a split service with two meters.

The size and length of PE Water Tubing shall be installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the per LF for "___inch PE Water Tubing, SDR 9, 200# WP". Such prices and payments shall be full for compensation for all labor, materials, excavation, backfilling, equipment, and incidentals necessary to complete the work as required.

10. 2 INCH PIPE FITTINGS

2-Inch Pipe Fittings shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

The 2-inch pipe fittings shall be SDR 21 rated PVC and be installed as indicated on the plans.

The size and quantity of 2 Inch Pipe Fittings installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the per each for "2 Inch PVC Pipe Fitting". Such prices and payments shall be full for compensation for all labor, materials, excavation, backfilling, equipment, and incidentals necessary to complete the work as required.

11. WATER METERS

Proposed water meters and meter boxes shall be installed at the locations shown on the utility plans, or as directed by the Engineer.

Water meter installation shall consist of installation at the appropriate location of the water meter, meter yoke, meter valve, and meter box. Any fittings necessary to connect the meter to the water line will be considered incidental. Any pipe necessary to connect to the water line will be paid for as provided elsewhere in these provisions.

All work shall be in accordance with the applicable plumbing codes, as shown on the plans, and as directed by the Engineer.

Water meter boxes shall be placed with the top of the meter box flush with finish grade of the project.

The quantity of water meters and meter boxes installed and accepted will be measured and paid for at the contract unit price each for "__ Inch Water Meter". Such price and payment will be full compensation for all labor, excavation, and installing the meter and box, backfilling, and incidentals necessary to complete the work as required.

12. STEEL PILE PIERS:

Steel Pile Piers shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

The Steel Pile Piers shall be constructed of steel H-pile materials in accordance with ASTM A-36 and the details shown on the Plans. The steel pile shall be shop blasted to a min. of SSPC-SP6-63 and 1 coat of epoxy primer shall be applied at a 1.5 mils thickness. After installation, the piles shall be cleaned and 2 coats of Bitumastic 8-10 mils thickness each shall be applied in the field, total of 16 mils minimum.

Each pile shall be driven a minimum of 10 feet or to a depth that provides a load capacity of 6 tons in excess of the supported pile and filled pipe weight.

The size and quantity of Steel Pile Piers installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the per Each for "Steel Pile Piers". Such prices and payments shall be full for compensation for all labor, materials, excavation, backfilling, equipment, pile driving, shop and field fabrications, painting, and incidentals necessary to complete the work as required.

13. REMOVE EXISTING STEEL PILE PIERS:

Existing Steel Pile Piers shall be removed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

The Existing Steel Pile Piers that are constructed of welded steel members shall be removed as described herein. Each pile shall be either completely removed or cut off at least four feet below existing or proposed finish grade of the area.

The quantity of Existing Steel Pile Piers removed in accordance with the plans and provisions herein and accepted, will be paid for at the per Each for "Remove Existing Steel Pile Piers". Such prices and payments shall be full for compensation for all labor, materials, excavation, backfilling, and incidentals necessary to complete the work as required.

14. GROUT FILL EXISTING MANHOLE INVERT:

Existing Manhole Inverts shall be filled with 2500 psi concrete grout in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

The quantity of Grout Fill Existing Manhole Inverts indicated on the plans and provisions herein and accepted, will be paid for at the per Each for "Grout Fill Existing Manhole Invert". Such prices and payments shall be full for compensation for all labor, materials, excavation, backfilling, and incidentals necessary to complete the work as required.

15. REMOVE ABANDONED PIPE:

Abandoned pipe shall be completely removed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

The quantity of abandoned pipe removed in accordance with the plans and provisions herein and accepted, will be paid for per linear foot for "Remove Abandoned __inch Pipe". Such prices and payments shall be full for compensation for all labor, materials, excavation, backfilling, and incidentals necessary to complete the work as required.

16. DUCTILE IRON TRANSITION PIPE:

Ductile iron transition 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.

Ductile iron transition pipe shall be constructed of the material noted on the utility construction plans and as noted in these provisions. The transition piping shall be installed to provide a uniform transition from/to the DI Flanged Joint Water Pipe to/from the DI Restrained Joint Water Pipe shown on sheet UC-3 of the Utility Construction Plans.

The quantity of ductile iron transition pipe installed in accordance with the plans and provisions herein and accepted, will be paid for per linear foot for "_____" DI Flanged to Restrained Joint Transition Pipe, Class____". Such prices and payments shall be full for compensation for all labor, materials, excavation, backfilling, and incidentals necessary to complete the work as required.

Revised 9-7-04

Project: U-0620
County: Cumberland

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) Progress Energy - Power (Distribution)
B) Lumbee River EMC - Power (Distribution)
C) PWC - Power (Distribution)
D) Sprint- Telephone
E) AT&T - Telephone
F) North Carolina Natural Gas (NCNG) - Gas
G) 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) Progress Energy - Power (Distribution)

1) See Utilities by Others Plans.
2) Progress Energy will complete their work by June 1, 2005.

B) Lumbee River EMC - Power (Distribution)

1) See Utilities by Others Plans.

C) PWC - Power (Distribution)

1) See Utilities by Others Plans.
2) PWC will complete their work by June 1, 2005.

D) Sprint- Telephone

1) See Utilities by Others Plans.

2) Upon completion of clearing and grubbing operations, the Contractor shall give the utility owner two (2) weeks notice and allow sixteen (16) weeks for work to be completed by Sprint Telephone at approximate Stations 20+00, 31+20, 39+00 -L-, and 13+00 -Y12-.

3) All other Sprint relocation work will completed by June 1, 2005.

E) AT&T - Telephone

4) See Utilities by Others Plans.

F) North Carolina Natural Gas (NCNG) - Gas

NOTE: Gas lines shall be adjusted as necessary during construction at proposed drainage crossings. Contractor shall give the utility owner two (2) weeks notice and then allow two (2) weeks for completion of the work at George Owen Road.

G) Time Warner Cable - CATV

NOTE: Time Warner cable will attach to various power poles on this project.

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