SECTION 821

SANITARY SEWER SERVICE RECONNECTIONS

I. GENERAL

1.1 DESCRIPTION OF WORK

A. The Work covered by this Section consists of reconnection of replaced service laterals or connection of new service laterals along a replacement ("remove and replace") or rehabilitated sanitary sewer main. Service connections shall be watertight, constructed in accordance with the Owner's standards and as specified herein.

B. All applicable requirements of other portions of the Contract Documents apply to the Work of this Section.

C. The Contractor shall perform all required permanent landscape restoration of disturbed areas on private property and within County, State, City or Municipal rights-of-way upon completion of the service reconnections, to the satisfaction of the Owner.

D. Reference Specifications are referred to by abbreviation as follows:

1. American National Standards Institute.....ANSI

2. American Society for Testing and Materials.....ASTM

1.2 SUBMITTALS

Submittals shall be made by the Contractor in accordance with the procedures set forth in Section 105 - Control of Work, and as described below.

After notification of a specific project, the Contractor shall provide the following information for review and approval.

A. Shop drawings and product data for the reconnection method.

B. Specialty connectors specified in this section are meant to supplement existing service connection presented in Section 802 - Sanitary Gravity Sewer Systems.

II. EXECUTION

2.1 GENERAL

A. Performance Requirements

1. Contractor shall accurately locate active service connections along the rehabilitated sewer main by dye test method or other methods approved by the Owner.

2. Contractor shall replace all active sanitary sewer laterals from the rehabilitated sewer

main to the public right-of-way-line and/or edge of easement, unless otherwise noted on the Contract Drawings or specified by the Owner. Contractor shall also locate and replace or install new cleanouts at the property/easement line for all active laterals, unless otherwise directed by the Owner.

3. Properly disconnect existing connections from the existing sewer and reconnect to the rehabilitated liner and/or replaced sewer section, as described in this Section.

4. Reconnection of the service lateral at the property line shall be the responsibility of the Contractor. Work shall include but not be limited to service line connections, installation of private laterals, private cleanouts, property line cleanouts and restoration.

5. Reconnect service connections, including those that go to unoccupied or abandoned buildings or to vacant lots, unless directed by the Owner. Do not reconnect to locations where structures have been demolished, unless directed otherwise by the Owner.

6. The Contractor shall submit a schedule of anticipated duration of service interruptions, for approval by the Owner.

7. All connections shall be flush with the liner or replacement pipe. No gaps or areas of infiltration shall exist upon completion of the service connection installation.

8. Contractor shall be responsible for supplying sewer service to affected parcels during reconnection activities.

9. All services which are reconnected to the rehabilitated or replaced sewer main shall be shown on the "As Built Drawings" with the exact distance from the nearest upstream/downstream manhole or coordinates, as specified by the Owner, along with the distance of the lateral from the main to the cleanout.

B. Protection

1. Provide all necessary traffic control and work area protection measures for excavation activities.

2. Do not allow sand, debris or runoff to enter sewer system.

C. Preparation

1. Determine the exact location and number of service connections by the dye test method or other methods approved by the Owner. Accurately field locate existing service connections, whether in service or not. Also, locate and replace or install new cleanouts at the property line for all active laterals, unless otherwise directed by the Owner. For rehabilitated lines, use existing service locations to reconnect service lines to new liner, unless otherwise indicated on the Contract Documents or directed by the Owner. Installation shall be completed as shown on the Contract Documents.

2. For rehabilitated sanitary sewer mains, allow liner to normalize to ambient temperature and recover from imposed stretch. For cured-in-place and fold and form liners, verify that liner is completely cured.

3. For replacement sanitary sewer mains, complete testing and acceptance of downstream sewers as applicable.

2.2 INSTALLATION

A. Trenching and Backfilling

1. Excavate in accordance with Section 303 - Earthwork.

2. Perform Work in accordance with OSHA standards.

3. When the excavation shows that a service line is not connected, abandon the service reconnection and backfill the excavation unless otherwise directed by the Owner.

4. Determine locations where excavation cannot be performed by excavation machinery. Reasons excluding excavation equipment are limited access and buildings or structure adjacent to or over easements. In such cases obtain approval from Owner for extra hand excavation.

B. Reconnection on Rehabilitated Segments.

1. After the liner pipe has cured, reactivate existing sewer house connections.

2. The approximate locations of identified live service taps are shown on the Contract Documents. However, it is the Contractor's responsibility to confirm and identify all locations of all line taps within a line section.

3. During the terms of the Contract, the Contractor shall maintain an emergency crew fully equipped and capable of reactivating sewer house connections and responding to customer problems after normal work hours. Any costs incurred because of an emergency response to a misidentified house connection, and reinstatement thereof, will be the responsibility of the Contractor, performed at no extra cost to the Owner and will be considered as incidental to the Contract. The Contractor will be responsible for all damages to homeowner property that results from deficient house connection reactivations, misidentification of house connections or sewage back-ups resulting from bypass operations.

4. Direct Cutting Method

a. Activation of the connections shall be from the interior of the lined sewer by means of a television camera directed cutting device that locates the covered sewer service connections and cuts away liner pipe in such a way that a smooth edge is established between the connection and the liner pipe. Liner pipe shall be tight to existing sewer so there is no annular space between sewer service connection pipe and the liner pipe. Any gaps between the connection pipe and liner pipe shall be sealed with a chemical grout verified

to be compatible with the liner pipe to provide a smooth transition. Sealing shall be performed in accordance with Section 817 - Chemical Grouting. The Contractor shall immediately open any missed connections and repair any holes drilled in error, by a method approved by the Owner.

b. During the line preparation and work operation, inactive sewer house connections shall not be cut but will be left lined over, unless otherwise directed by the Owner.

c. The house connection cuts shall be uniform, free of burrs and sharp edges. Any remedial Work directed by the Owner to correct deficient cuts shall be at the Contractor's expense.

5. PVC Saddle Tee and Gasket with Mechanical Strap Method

a. Remove a portion of the existing sanitary sewer main or carrier pipe to expose the liner pipe. Provide sufficient working space for installing a pre-fabricated pipe saddle.

b. Carefully cut a circular hole, per the manufacture's recommendations, in the liner pipe that will form a tight fit between the liner pipe and PVC hub and saddle. The use of a template for cutting the hole is recommended to ensure hole dimensions conform to saddle opening. Length of protrusion shall be equal to the wall thickness of the liner pipe.

c. Install the PVC hub and saddle over the cored hole, making sure the fittings are properly oriented to the mainline. Make sure the gasket of the saddle is correctly seated against the outside diameter of the liner pipe.

d. Place the stainless steel bands around the PVC saddle and tighten to produce a watertight seal between the saddle and the liner pipe.

e. Reinstatements by the saddle method that do not produce a watertight seal between the saddle and the liner pipe shall be replaced at the Contractor's expense. Sealing such reconnections will not be considered as an option for correcting deficient Work.

6. Inserta Tee Method

a. Remove a portion of the existing sanitary sewer main or carrier pipe to expose the liner pipe. Provide sufficient working space to install an inserta tee.

b. Precisely cut a circular hole, per the manufacture's recommendations, in the liner pipe that will form a tight fit between the liner pipe, PVC hub and rubber boot.

c. Install the rubber boot into the cored hole, making sure the boot is properly oriented to the mainline. Lubricate the rubber boot with a special solution provided by the inserta tee manufacturer. Make sure the upper and lower ribs

of the rubber boot are correctly seated against the inside and outside diameter of the liner pipe.

d. Insert the PVC hub into the rubber boot, per manufacturers recommended instructions. Place stainless steel band around the top of the rubber boot and tighten to form a watertight seal. All hardware shall be stainless steel in accordance with ASTM F-593 and F-594.

e. Reinstatements by the Inserta Tee method that do not produce a watertight seal between the tee and the liner pipe shall be replaced at the Contractor's expense. Sealing such reconnections will not be considered as an option for correcting deficient Work.

C. Reconnection on Replacement Segments

1. Sewer laterals for residential and non-residential connections shall be sized in accordance with the Owner's Standards. Connections shall be made at an angle of 90 degrees to the main.

2. Place a wye fitting of the required size in accordance with Paragraph 2.2.C.1 above in the sewer where service connection is to be constructed. Lay pipe from the tee/wye to the property line on a grade of not less than 1/8 inch per foot. Reconnect new service lateral to existing service lateral with fittings of compatible materials or approved coupling.

3. Service connections from manholes shall be ductile iron or PVC pipe.

4. All connections to reinforced concrete pipe shall be by use of Kor-N-Tee or approved equal..

5. Test service connections, as specified in Section 802 - Sanitary Gravity Sewer System.

6. Embed the service connection and service line as specified for the new sanitary sewer main at this location, and as shown on the Drawings. Place and compact trench zone backfill in compliance with Section 303 - Earthwork.

D. Testing

Perform a Post-installation TV inspection of the service connection to the sewer main as specified in Section 811 - Television Inspection.

E. Cleanup

1. Upon completion of installation Work and testing, clean and restore project area affected by the Work.

2. Replace pavement and sidewalks removed or damaged by excavation. In unpaved areas, bring surface to grade and restore to pre-construction conditions.

III. MEASUREMENT FOR PAYMENT

A. Measurement for payment will be in the horizontal plane along the centerline of the pipe, per each size and type of sewer lateral installed based upon the linear footage or, per each installed and accepted, as indicated in the Bid form.

B. Pipe will be measured from the service cleanout to the centerline of the gravity sewer pipe, manhole or mainline cleanout.

C. Measurement will be made for reinstatement of service laterals and sealing of service connections upon reinstatement in conjunction with rehabilitation Work performed.

1. Sealing of service connections will be paid for each connection that is sealed and satisfactorily tested.

2. Reinstatement of service connections, by the means described in 2.2.B of this Section and indicated on the Bid form will be paid for each connection that is reinstated.

D. Cleanouts are to be measured and paid for in accordance with Section 802.

E. Payment will be made based on the unit price bid per linear foot for each size regardless of the type of lateral or the depth, to sewer main fitting (specialty connector, such as Inserta Tee, etc.) installed complete in place, or for each, in accordance with the Bid form.

Payment shall include the following.

1. Backfilling, compacting and compaction testing,
2. Bedding,
3. Connection to the main line fitting,
4. Connections to existing and new manholes,
5. Dewatering,
6. Disposal of surplus and unsuitable material,
7. Erosion and sediment control,
8. Excavation,
9. Flushing,
10. Landscaping restoration,
11. Lateral pipe and fittings, including sewer lateral cleanout assemblies,
12. Maintenance, restoration and replacement of utility lines disturbed or otherwise displaced during construction,
13. Restoration in the right-of-way and easements of shoulders, pavement, driveways and ground surface including drainage ditches, culverts, and curb and gutter,
14. Saw cutting pavement and pavement removal for trench excavation,
15. Stripping and stockpiling topsoil,
16. Temporary and permanent seeding and stabilization,
17. Temporary sewer service to affected properties,
18. Temporary sheeting and bracing,
19. Testing, and
20. Traffic control and safety devices.

End of Section