Section 02534

SANITARY SEWER SERVICE STUBS OR RECONNECTIONS

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Installation of service stubs in sanitary sewers serving areas where sanitary sewer service did not previously exist.

B. Reconnection of existing service connections along parallel, replacement, or rehabilitated sanitary sewers.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. Payment for sanitary sewer service stubs or service reconnections with stacks located within 5 feet of sanitary sewer main centerline is on unit price basis for each stub or reconnection. Payment will be made for each service stub or reconnection installed complete in place, including service connections, couplings, adapters disconnecting existing services, reconnecting new service, fittings, excavation, and backfill.

2. Payment for sanitary sewer service stubs or service reconnections without stacks located within 5 feet of sanitary sewer main is on unit price basis for each stub or reconnection. Payment will be made for each service stub or reconnection installed complete in place, including service connections, couplings, adapters disconnecting existing services, reconnecting new service, fittings, excavation, backfill and testing.

3. Payment for sanitary sewer service lines more than 5 feet laterally from sewer main is on linear foot basis. Measurement will be taken along centerline of pipe from centerline of lateral connection or stack to end of service for service stubs laid in open-cut excavation. Payment will be made for each linear foot of pipe installed, complete in place, including sewer pipe, excavation, shoring, bedding, backfill, and accessories in addition to payment for sewer stubs or service connections with or without stacks. Augered pipe for service stubs will be paid as provided in Section 02448 - Pipe and Casing Augering.

4. Pay estimates for progress payments will be made as measured above according to following schedule:

   a. An estimate for 95 percent payment will be authorized when reconnection is completely installed and backfilled.

b. An estimate for 100 percent payment will be authorized when reconnection has been tested as specified in Section 02732 - Acceptance Testing for Sanitary Sewers.

5. One or more connections discharging into common point are considered one service connection. Contractor shall not add service reconnections without approval of City Engineer. City Engineer may require connections to be relocated to avoid having more than two service connections per reconnection.

6. Protruding service connections which must be removed to allow liner insertion are paid as service reconnection when connected. If abandoned, they will be paid as abandoned connection.

7. Payment for abandonment of service connection is on unit price basis for each abandoned connection. No separate payment will be made for abandonment of service connection unless excavation is required. No separate payment will be made for excavation of sanitary sewer services within new or replacement sewer trench.

8. No separate payment will be made for removal of existing sanitary sewer service stubs. Include payment in unit price for Section 02534 - Sanitary Sewer Service Stubs or Reconnections.

9. No separate payment will be made for abandoned service connection when service to be abandoned is within 4 feet of active connection. Payment for only one abandoned service connection will be allowed when second abandoned connection is within 4 feet of first.

10. If faulty remote cut is later corrected using procedures specified for reconnection by excavation, only one reconnection will be allowed for payment.

11. Refer to Section 01270 - Measurement and Payment for unit price procedures.

B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.03 REFERENCES

A. ASTM D 1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.

B. ASTM D 3034 - Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

C. ASTM D 3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.

1.04 PERFORMANCE REQUIREMENTS

A. Accurately locate in field all proposed service stubs along new sanitary sewer main.

B. Accurately locate in field existing service connections and proposed service stubs along alignment of new parallel or replacement sewer main.

1.05 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

B. Submit product data for each pipe product, fitting, coupling and adapter.

C. Show reconnected services on record drawings. Give exact distance from each service connection to nearest downstream manhole.

PART 2 P R O D U C T S

2.01 PVC SERVICE CONNECTION

A. As stub outs, use PVC sewer pipe of 4-inch through 10-inch diameter, conforming to ASTM D 1784 and ASTM D 3034, with cell classification of 12454-B. SDR (ratio of diameter to wall thickness) shall be 26 for pipe 10 inches in diameter or less.

B. PVC pipe shall be gasket jointed with gasket conforming to ASTM D 3212.

C. Provide service connection pipe in sizes shown on Drawings. For reconnection of existing services, select service connection pipe diameter to match existing service diameter. Reconnections to rehabilitated sanitary sewer mains shall be limited to following maximum service connection diameter:

Sewer Diameter	Maximum Service Connection Diameter
8" or less	4"
10" or greater	6"

D. Subject to above limits, provide 6-inch service connection when more than one service discharges into single pipe.

E. Connect service pipes to parallel or replacement sewer mains with prefabricated, full-bodied tee or wye fittings conforming to specifications for sewer main pipe material as specified in other Sections for sewers up to 18 inches in diameter.

F. Where sewers are installed using pipe augering or tunneling, or where sewer is greater than 18 inches in diameter, use Fowler AInserta-Tee@ to connect service to sewer main.

2.02 PIPE SADDLES

A. Use pipe saddles only on rehabilitated sanitary sewer mains. Comply with Paragraph 2.01E for new parallel and replacement sanitary sewer mains.

B. Supply one-piece prefabricated saddle, either polyethylene or PVC, with neoprene gasket to accomplish complete seal. Use saddle fabricated to fit outside diameter of connecting pipe. Protruding lip of saddle must be at least 5/8-inch long with grooves or ridges to retain stainless steel band clamps.

C. Use 2-inch stainless steel band clamps for securing saddles to liner pipe.

2.03 COUPLINGS AND ADAPTERS

A. For connections between new PVC pipe stubouts and existing service, 4-, 6-, or 8-inch diameter, use flexible adapter coupling consisting of neoprene gasket and stainless steel shear rings with 2-inch stainless steel band clamps:

1. Fernco Pipe Connectors, Inc. Series 1055 with shear ring SR-8

2. Band Seal by Mission Rubber Co., Inc.

3. Approved equal.

B. For connections between new PVC pipe stubout and new service, use rubber-gasket adapter coupling:

1. GPK Products, Inc.

2. IPS & Sewer Adapter

3. Approved equal.

2.04 STACKS

A. Provide stacks for service connections wherever crown of sewer is 8 feet or more below finished grade.

B. Construct stacks of same material as sanitary sewer and as shown on Drawings.

C. Provide stacks of same nominal diameter at sanitary service line.

2.05 PLUGS AND CAPS

A. Seal upstream end of unconnected sewer service stubs with rubber gasket plugs or caps of same pipe type and size. Provide plugs or caps by GPK Products, Inc., or approved equal.

PART 3 E X E C U T I O N

3.01 PERFORMANCE REQUIREMENTS

A. Provide minimum of 72 hours notice to customers whose sanitary sewer service will potentially be interrupted.

B. Accurately field locate service connections, whether in service or not, along rehabilitated sanitary sewer main. For parallel and replacement sewers, service connections may be located as pipe laying progresses from downstream to upstream.

C. Properly disconnect existing connections from sewer and reconnect to rehabilitated liner, as described in this Section.

D. Reconnect service connections, including those that go to unoccupied or abandoned buildings or to vacant lots, unless directed otherwise by City Engineer.

E. Complete reconnection of service lines within 24 hours after cured-in-place liner installation and within 72 hours after disconnection for sliplining, parallel, or replacement sanitary sewer mains.

F. Reconnect services on cured-in-place liner at 12 feet depth or less by excavation method. City Engineer reserves right to require service connections by excavation when remote cut service connection damages lines.

G. Reconnection by excavation method shall include stack and fittings and required pipe length to reconnect service line.

H. Connect services 8 inches in diameter and larger to sewer by construction of manhole. Refer to appropriate Section on manholes for construction and payment.

3.02 PROTECTION

A. Provide barricades, warning lights, and signs for excavations created for service connections. Conform to requirements of Section 01504 - Temporary Facilities and Controls.

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

3.03 PREPARATION

A. Determine existing sewer locations and number of existing service connections from closed-circuit television (CCTV) inspection tapes or from field survey. Accurately field locate existing service connections, whether in service or not. Use existing service locations to connect or reconnect service lines or liner.

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

C. For new parallel and replacement sanitary sewer mains, complete testing and acceptance of downstream sewers as applicable. Provide for compliance with requirements of Paragraph 3.01E.

3.04 EXCAVATION AND BACKFILL

A. Excavate in accordance with Section 02317 - Excavation and Backfill for Utilities.

B. Perform work in accordance with OSHA standards. Employ Trench Safety System as specified in Section 02260 - Trench Safety System for excavations requiring trench safety.

C. Install and operate necessary ground water and surface water control measures in accordance with requirements of Section 01578 - Control of Ground Water and Surface Water.

D. Determine locations where limited access, buildings or structure preclude use of mechanical excavation equipment. Obtain approval from City Engineer for hand excavation.

3.05 RECONNECTION BY EXCAVATION METHOD

A. Remove portion of existing sanitary sewer main or carrier pipe to expose liner pipe. Provide sufficient working space for installing prefabricated pipe saddle.

B. Carefully cut liner pipe making hole to accept stubout protruding from underside of saddle.

C. Strap on saddle using stainless steel band on each side of saddle. Tighten bands to produce watertight seal of saddle gasket to liner pipe.

D. Remove and replace cracked, offset, or leaking service line for up to 5 feet, measured horizontally, from center of new liner.

E. Make up connection between liner and service line using PVC sewer pipe and approved fittings and couplings.

F. Encase entire service connection in cement stabilized sand as shown on Drawings.

G. Test service connections before backfilling.

3.06 RECONNECTION BY REMOTE METHOD

A. Make service reconnections using remote-operated cutting tools on cured-in-place liners at depth greater than 12 feet.

B. Employ method and equipment that restore service connection capacity to not less than 90 percent of original capacity.

C. Immediately open missed connections and repair holes drilled in error using method approved by City Engineer.

3.07 RECONNECTION ON PARALLEL OR REPLACEMENT SEGMENTS

A. Install service connections on sewer main.

B. Remove and replace cracked, offset or leaking service line for up to 5 feet, measured horizontally, from centerline of sanitary sewer main.

C. Make up connection between main and existing service line using PVC sewer pipe and approved couplings, as shown on Drawings.

D. Test service connections before backfilling.

E. Embed service connection and service line as specified for sanitary sewer main as shown on Drawings. Place and compact trench zone backfill in compliance with Section 02317 - Excavation and Backfill for Utilities.

3.08 INSTALLATION OF NEW SERVICE STUBS

A. Install service connections on sanitary sewer main for each service connection. Provide length of stub indicated on Drawings. Install plug or cap on upstream end of service stub as needed.

B. Test service connections before backfilling.

C. Embed service connection and service line as specified for sanitary sewer main, and as shown on Drawings. Place and compact trench zone backfill in compliance with Section 02317 - Excavation and Backfill for Utilities. Install minimum 2-foot length of magnetic locating tape along axis of service stub and 9 inches to 12 inches above crown of pipe, at end of stub.

3.09 TESTING

A. Test service reconnections and service stubs. Follow applicable procedures given in Section 02533 - Acceptance Testing for Sanitary Sewers to perform smoke testing to confirm reconnection.

B. Perform post installation CCTV inspection as specified in Section 02558 - Cleaning and Television Inspection to show locations of service connection.

3.10 CLEANUP

A. Backfill excavation as specified in Section 02317 - Excavation and Backfill for Utilities.

B. Replace pavement or sidewalks removed or damaged by excavation in accordance with Section 02951 - Pavement Repair and Resurfacing. In unpaved areas, bring surface to grade and slope surrounding excavation. Replace minimum of 4 inches of topsoil and seed according to requirements of Section 02921 - Hydro-mulch Seeding.

END OF SECTION