



## CITY OF SAN LEANDRO

### IMPROVEMENT DESIGN STANDARDS

#### **Rehabilitation of Existing Sewer Laterals using Pipe Bursting Method**

##### **a. General**

Sewer laterals in poor condition due to cracked pipe or joints, leaking joints (infiltration), or root intrusion may be rehabilitated using the pipe-bursting method, if approved in advance by the City. Certain conditions, such as sewer laterals with insufficient grade, sags, or in close proximity to other utilities may not be suitable for rehabilitation using the pipe-bursting method. This specification is intended for rehabilitation of **4-inch or 6-inch diameter sewer laterals only**. The pipe-bursting system shall be used to replace the existing sewer lateral with the same nominal size pipe. The system shall **not be** used to increase the size of the sewer lateral.

Approval of the pipe-bursting method by the City can only be made after reviewing the pre-rehabilitation inspection video, which is a **required** submittal item. Approval of the submittal by the City does not imply that the proposed pipe-bursting installation is appropriate for specific location. The Contractor is completely responsible for all elements of the pipe-bursting installation, including safety of installation, conflicts or damage to: utilities, property improvements, sidewalks, driveways, curbs, gutters, pavement, and equipment, or installation problems caused by existing sewer lateral pipe materials, subsurface conditions, access restrictions, or any other conditions as deemed necessary by the City Engineering Inspector.

##### **b. Description**

Pipe-bursting rehabilitation consists of splitting and expanding the existing pipe and simultaneously pulling, or pushing, a new high-density polyethylene (HDPE) pipe into the resulting void. The method requires the excavation of two pits. The insertion pit shall be used to insert the pipe splitting device followed by the new pipe. The exit pit shall be used to receive the splitting device and new pipe through the existing sewer lateral. After insertion, a cleanout to grade shall be installed behind the property line and the new pipe shall be connected to the existing pipe.

##### **c. Submittals**

1. A letter **signed by the property owner** (a copy attached) authorizing the installation of the sewer lateral using the pipe-bursting method is **required**. The letter must also acknowledge that the pipe-bursting procedure and limitations have been explained by the Contractor.
2. Pre-rehabilitation television inspection video: The Contractor shall inspect the sewer lateral using a CCTV camera and provide a video of the line via USB drive or CD. The video shall show the footage of the camera and shall include the complete length of the sewer lateral to be replaced. The video must also show proof of address of

residence, date, and time of inspection. Prior to television inspection, the existing pipe must be clean of all debris and must be wet so that sags can be easily detected.

3. Post-rehabilitation television inspection video: Contractor must submit a video of the replaced lateral and submit it to the City for final approval. The video must show proof of address of residence, date, and time of inspection.

**d. Equipment**

The pipe-bursting equipment shall be mechanical cone cracking type or other methods approved by the City Engineer. The bursting head shall be specially designed to force its way through the existing pipe materials by fragmenting the pipe and compressing the old pipe section into the surrounding soil as it progresses. The head shall be designed to produce a maximum opening dimension of 1 inch (diameter) larger than the outside diameter of the new HDPE pipe.

**e. Pipe**

The HDPE pipe shall have a standard dimension ratio (SDR) of 17. The HDPE pipe material shall be listed by the Plastic Pipe Institute (PPI) with a designation of PE 3408 and have a minimum cell classification of 345434E (the inside wall shall be white in color) as described in ASTM D3350. The pipe material shall meet the requirements for Type III, Class B or C, Category 5, Grade P34 material as described in ASTM D1248 and ASTM D3350. The pipe shall be marked at 5-foot intervals or less with a coded number that identifies the manufacturer, SDR, size, material, machine, date and shift on which the pipe was extruded.

Any pipe, which has cuts or abrasions in the pipe wall exceeding 10 percent of the wall thickness, **shall be removed** from the site by the Contractor.

If the pipe-burst length is less than 40 feet, the installed HDPE pipe shall be one continuous length of pipe without joints. If the length is 20 feet, the pipe shall be joined using the butt fusion method in strict accordance with the pipe manufacturer's recommendations and ASTM D2657. The fusion equipment shall be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, fusion temperature, alignment and fusion pressure.

**f. Utilities**

At least 48 hours prior to excavation, the Contractor shall contact Underground Services Alert (USA) at 8-1-1 or at [www.811express.com](http://www.811express.com) . The Contractor shall request utility markings for the entire reach of the proposed pipe burst. The Contractor shall pothole all utilities crossing the proposed pipe burst to determine the clear distance between each utility and the existing sewer lateral. Utilities with less than 12 inches of clearance or water mains and services with less than 24 inches of clearance shall be left exposed during the pipe-bursting installation.

**g. Installation**

1. After coordinating with the property owner/residents, plug existing sewer lateral or provide by-pass pumping system to prevent sewage spills. Dumping or free flow of sewage within the excavation or on public or private property, gutters, streets, and storm drain facilities is **prohibited**.

2. The insertion pit shall be large enough so that HDPE pipe can be installed with bending radius not less than 20 times the outside diameter or as recommended by the pipe manufacturer, whichever value is larger.
3. After installation, the Contractor shall allow a **minimum of 12 hours** for relaxation due to tensile stressing prior to installing final connections to main sewer or sewer lateral. Temporary connections can be installed sooner to reinstate sewage flows.
4. Any installed pipe, which has cuts or abrasions in the pipe wall exceeding 10 percent of the wall thickness, shall be cut out and removed from the site. The pipe shall be pulled extra 2 feet to inspect the condition of the pipe.
5. After final cleaning of the sewer lateral, water shall be introduced into the new pipe section and the post-rehabilitation television inspection shall be completed and the video submitted to the City to final permit.

Permit Number _____
Date _____

**PIPE BURSTING  
SPECIAL APPROVAL AUTHORIZATION**

**OWNER:** \_\_\_\_\_

**CONTRACTOR:** \_\_\_\_\_

**LOCATION:** \_\_\_\_\_

**REQUESTED WORK:** To repair the existing sewer lateral using a pipe bursting method and inserting high-density polyethylene (HDPE) pipe.

**CONDITIONS:**

1. Pay applicable fees and secure an encroachment permit prior to beginning work.
2. The Contractor shall furnish, install, and test, complete and in place, HDPE pipe and fittings, in accordance with ANSI/ASTM F 585, Practice for Insertion of Flexible Polyethylene Pipe into Existing Sewers. The Contractor is responsible for selecting an appropriate method for pipe bursting and maintaining line and grade. The pipe shall be SDR 17. Joints shall be made by using the thermal fusion technique per the manufacture recommendation. The Contractor shall allow for thermal contraction or expansion of HDPE pipe prior to connecting each end with fitting.
3. Side sewers that have sags and are flatter than the minimum slope specified by City shall not be pipe burst. The Contractor shall have a camera on site for the inspector to confirm that the side sewer is a candidate for pipe bursting. The inspector's determination is **final**. The Contractor shall perform an internal closed circuit television inspection on the side sewer after completing pipe insertion and connecting pipe, and the Contractor shall make application for witnessing of the television inspection at least twenty-four (24) hours in advance. All work shall conform to City of San Leandro's Standard Plans and Specifications.
4. Owner(s) and Contractor(s) have a mutual understanding that the Contractor(s) must allow a **minimum** of 12 hours of relaxation before final connection to the sewer lateral or sewer main can occur. If necessary, temporary connections can be installed sooner to reinstate sewage flows.
5. The undersigned Contractor(s) and Owner(s) hereby accept and assume **all** liability which may arise from this Special Approval, including, but not limited to: liability for damage to the sewer work on job, damage to City facilities, personal injury, bodily injury and damage to property arising from the construction, ownership, and maintenance of the sewer facilities being constructed, and the property wherein such facilities are to be constructed. Nothing in this Agreement is intended to constitute an admission of liability of the undersigned Contractor or Owner with regard to any third parties or otherwise alter law with regard to liability to third parties.

**CONDITIONS ACCEPTED:**

**Owner:** \_\_\_\_\_  
Print Name Signature Date

**Contractor:** \_\_\_\_\_  
Company Name Signature Date