

CITY OF BURBANK
SPECIFICATIONS FOR PIPEBURSTING
SEWER LATERAL REPLACEMENT

1) GENERAL

Pipebursting is a trenchless sewer rehabilitation method system by which a cone shaped tool is pushed or pulled through the inside of the damaged pipe, breaking the original pipe into fragments which are then forced into the surrounding soil. The tool, which has a slightly larger diameter than the old pipe pulls a new plastic pipe behind it. The new plastic pipe shall be made of high density polyethylene (HDPE). The newly installed pipe is then connected and sealed to a structurally sound end of the existing sewer lateral. The process is best suited for replacing pipes made of friable, easily broken materials such as clay, concrete, and asbestos cement. Only properly sized equipment with mechanisms for proper connection to the new pipe will be approved for use.

2) CONTRACTOR'S QUALIFICATIONS

The contractor shall be licensed by the trenchless pipe rehabilitation system manufacturer as an installer of their system and has at least 3 years working with their pipe bursting system.

The contractor shall possess at least one of the following State of California Licenses:

- Class A - Engineering
- C-36 – Pipeline Contractor
- C-42 – Sanitation System Contractor

The contractor shall also possess a City of Burbank Business License and satisfy all City of Burbank safety and insurance requirements.

Field joining of HDPE pipe shall be performed by competent personnel trained in the use of butt-fusion equipment and recommended methods for new pipe connections. Personnel directly involved with installing the new pipe shall receive training in the proper methods for handling and installing the HDPE pipe. All training of shall be performed by a qualified representative of the manufacturer.

The Contractor shall hold sole liability in any legal action resulting from patent infringements. The City and property owner shall be exempt from any legal action.

3) CONTRACTOR'S SUBMITTALS

- a) Valid license and proof of worker training issued by the trenchless pipe rehabilitation system manufacturer.
- b) Shop drawings, catalog data, and manufacturer's technical data showing complete information on material composition, physical properties, and dimensions of new pipe and fittings. Include manufacturer's recommendations for handling, storage, and repair of pipe and fittings damaged.
- c) Method of construction and materials used, including detail drawings and written descriptions of the entire construction procedure, installation of new pipe, connection to existing pipe and bypass pumping (if required).

4) MATERIALS

Polyethylene Plastic Pipe shall be high-density polyethylene pipe and meet the applicable requirements of ASTM F714 Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter, ASTM D1248, ASTM D3550.

All pipe installed shall be the same diameter as the original sewer lateral and offer the same flow capacity. All pipe installed in the public right-of-way shall be 6 inches. All pipe shall be made of virgin material. The pipe shall be homogenous throughout and shall be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.

The minimum wall thickness of the polyethylene pipe shall meet the following:

Depth of Cover (Feet)	Minimum SDR of Pipe
0 - 16.0	19
> 16.1	17

5) DELIVERY, STORAGE, AND HANDLING

The pipe and associated fittings shall be handled, transported, stored as recommended by manufacturer to prevent damage. If the new pipe and fittings become damaged before or during installation, it shall be repaired as recommended by the manufacturer or replaced as required by the Engineer at the Contractor's expense.

6) TESTING

Tests for compliance with this specification shall be made as specific herein and in accordance with the applicable ASTM Specification. A certificate with this specification shall be furnished, upon request, by the manufacturer for all material furnished under this specification. Polyethylene plastic pipe and fittings may be rejected to meet any requirements of this specification.

7) EQUIPMENT

- a) **BURSTING TOOL:** The pipe bursting tool shall be designed and manufactured to force its way through existing pipe materials by fragmenting the pipe and compressing the old pipe sections into the surrounding soil as it progresses. The bursting unit shall generate sufficient force to burst and compact the existing pipe line. The pipe bursting tool shall be properly sized for the diameter of pipe to be rehabilitated.

The pipe bursting tool shall be pulled through the sewer by a winch located at the upstream access pit. The remotely controlled bursting unit shall pull the HDPE pipe with it as it moves forward. The bursting head shall incorporate a shield/expander to prevent collapse of the hole ahead of the PE pipe insertion. The bursting action of the tool shall increase the external dimensions sufficiently, causing breakage of the pipe at the same time expanding the surrounding ground. This action shall allow the HPDE pipe to be installed free of obstructions and damage.

- b) **WINCH UNIT:** A winch shall be attached to the front of the bursting unit. The winch shall provide a constant tension to the burster in order that it may operate in an efficient manner. The winch shall ensure directional stability in keeping the unit on line. The winch shall be properly matched to the bursting unit.

The winch shall be of the constant tension type but shall be fitted with a direct reading load gauge to measure the winching load. The winch must automatically maintain a constant tension at a set tonnage reading. The constant tension winch shall supply sufficient cable in one continuous length so that the pull may be continuous between approved winching points. The winch, cable and cable drum must be provided with safety cage and supports so that it may be operated safely without injury to persons or property.

The contractor shall provide a system of guide pulleys and bracing to minimize cable contact with the existing sewer facilities.

The supports to the trench shoring in the insertion pit shall remain completely separate from the winch boom support system and shall be so designed that neither the pipe nor the winch cable shall be in contact with them.

8) PERMITS

The Contractor must obtain all necessary permits and schedule inspection prior to any construction work. The required permits include, but are not limited to:

- ◆ Plumbing Permit, obtained from the City of Burbank Building Department, for all work conducted on private property.
- ◆ Excavation Permit, obtained from the City of Burbank Public Works Department, for all work conducted in the City right-of-way, or in a public-utility-easement.
- ◆ City of Burbank Business License

The Contractor must notify USA Dig Alert and locate all underground utilities prior to any excavation. The Contractor shall verify that the pipe bursting procedures will not interfere with or damage existing utilities. When existing utilities are determined to be within 1 foot horizontally or vertically from the sewer lateral, the Contractor shall pothole to verify locations and pipe bursting feasibility.

Access pits shall be shored per all OSHA requirements.

9) CONSTRUCTION METHODS

The Contractor shall install all pulleys, rollers, bumpers, alignment control devices and other equipment required to protect existing facilities and to protect the pipe from damage during installation. Lubrication may be used as recommended by the manufacturer. Under no circumstances shall the pipe be stressed beyond its elastic limit. The winch line is to be centered in the pipe to be burst with an adjustable boom.

The polyethylene pipe shall be assembled and joined at the site using the butt-fusion method to provide a leak proof joint. Threaded or solvent-cement joints and connections are not permitted.

All equipment and procedures used shall be used in strict compliance with the manufacturer's recommendations. Fusing shall be accomplished by personnel certified as fusion technicians by a manufacturer of HDPE pipe and/or fusing equipment.

The butt-fused joint shall be true alignment and shall have uniform roll-back beads resulting from the use of proper temperature and pressure. The joint shall be allowed adequate cooling time before removal of pressure. The fused joint shall be watertight and shall have tensile strength equal to that of the pipe.

All defective joints shall be cut out and replaced at no cost to the resident. Any section of the pipe with a gash, blister, abrasion, nick, scar, or other deleterious fault greater in depth than ten percent (10%) of the wall thickness, shall not be used and must be removed from the site. However, a defective area of the pipe may be cut out and the joint fused in accordance with the procedures stated above. In addition, any section of the pipe having other defects such as concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness or any other defect of manufacturing or handling shall be discarded and not used.

The installed pipe shall be allowed the manufacturer's recommended amount of time, but not less than four (4) hours, for cooling and relaxation due to tensile stressing prior to any reconnection of service, sealing of the annulus or backfilling of the insertion pit. Sufficient excess length of new pipe, but not less than four (4) inches, shall be allowed to protrude into the access pits to provide for occurrence.

Following the relaxation period the newly installed pipe shall be tested according to City of Burbank Building and/or Public Works Departments to confirm all field fused joints are sound. Upon passing the required tests, the ends of the HDPE shall be connected to the existing pipes using a coupling device approved by the City of Burbank Public Works and/or Building Departments. The new connection shall not compromise the structural stability or previous rehabilitation efforts in the mainline sewer serving the lateral.

After all connections are made and inspected by the appropriate City of Burbank Inspector, the access pits shall be backfilled using a one-sack slurry and resurfaced as per City standards.

10) INSPECTION

The Contractor must obtain all necessary permits and schedule inspection prior to starting construction. Starting work before a permit is obtained or without a permit may result in fine.

All pipe connections made must be inspected prior to backfilling and resurfacing. Photographs will not be accepted in lieu of inspection.

The Contractor must adhere to the traffic safety requirements as specified in the General Traffic Control Requirements for the City.

11) MEASUREMENT AND PAYMENT

The price quoted for the project shall be considered full compensation for all work required to rehabilitate and restore the operating capacity of the sewer lateral. This work may include, but not be limited to the acquisition of permits, installation of the new pipe, furnishing and placing of all materials, labor, tools, equipment, cleaning, and access pit backfilling and resurfacing. The project shall not be considered complete and no payment shall be made until the sewer lateral has been proven to the resident to be free flowing, free of obstructions and operating at maximum capacity.