

SECTION 22 01 10.51 – PLUMBING PIPING CLEANING

PART 1 - GENERAL

1.1 SUMMARY

- A. The intent of sewer line cleaning is to remove foreign materials from the lines and restore the sewer to a minimum of 95% of the original carrying capacity or as required for proper seating of internal pipe joint sealing packers. Since the success of the other phases of work depends a great deal on the cleanliness of the lines, the importance of this phase of the operation is emphasized. It is recognized that there are some conditions such as broken pipe and major blockages that prevent cleaning from being accomplished or where additional damage would result if cleaning were attempted or continued. Should such conditions be encountered, the Contractor will not be required to clean those specific manhole sections.
- B. Cleaning Equipment:
1. Hydraulically Propelled Equipment: The equipment used shall be of a movable dam type and be constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to protect against flooding of the sewer. The movable dam shall be equal in diameter to the pipe being cleaned and shall provide a flexible scraper around the outer periphery to insure removal of grease. If sewer cleaning balls or other equipment which cannot be collapsed is used, special precautions to prevent flooding of the sewers and public or private property shall be taken.
  2. High-Velocity Jet (Hydrocleaning) Equipment: All high-velocity sewer cleaning equipment shall be constructed for ease and safety of operation. The equipment shall have a selection of two or more high-velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all size lines designated to be cleaned. Equipment shall also include a high-velocity gun for washing and scouring manhole walls and floor. The gun shall be capable of producing flows from a fine spray to a solid stream. The equipment shall carry its own water tank, auxiliary engines, pumps, and hydraulically driven hose reel. The NASSCO Jetter Code of Practice shall be consulted as a guide for the selection of different type nozzles and recommended pressure applications for various cleaning requirements.
  3. Mechanically Powered Equipment: Bucket machines shall be in pairs with sufficient power to perform the work in an efficient manner. Machines shall be belt operated or have an overload device. Machines with direct drive that could cause damage to the pipe will not be allowed. A power rodding machine shall be either a sectional or continuous rod type capable of holding a minimum of 750 feet of rod. The rod shall be specifically heat treated steel. To insure safe operation, the machine shall be fully enclosed and have an automatic safety clutch or relief valve.

- C. **Cleaning Precautions:** During sewer cleaning operations, satisfactory precautions shall be taken in the use of cleaning equipment. When hydraulically propelled cleaning tools (which depend upon water pressure to provide their cleaning force) or tools which retard the flow in the sewer line are used, precautions shall be taken to insure that the water pressure created does not damage or cause flooding of public or private property being served by the sewer. When possible, the flow of sewage in the sewer shall be utilized to provide the necessary pressure for hydraulic cleaning devices. When additional water from fire hydrants is necessary to avoid delay in normal work procedures, the water shall be conserved and not used unnecessarily. Contractor shall provide and use an approved double check backflow assembly to connect to the fire hydrant. No fire hydrant shall be obstructed in case of a fire in the area served by the hydrant.
  
- D. **Sewer Cleaning:** The designated sewer manhole sections shall be cleaned using hydraulically propelled, high-velocity jet, or mechanically powered equipment. Selection of the equipment used shall be based on the conditions of lines at the time the work commences. The equipment shall be capable of removing dirt, grease, rocks, sand, and other materials and obstructions from the sewer lines and manholes. If cleaning of an entire section cannot be successfully performed from one manhole, the equipment shall be set up on the other manhole and cleaning again attempted. If, again, successful cleaning cannot be performed or the equipment fails to traverse the entire manhole section, it will be assumed that a major blockage exists and the cleaning effort shall be abandoned.
  
- E. **Root Removal:** Roots shall be removed in the designated sections where root intrusion is a problem. Special attention should be used during the cleaning operation to assure almost complete removal of roots from the joints. Any roots which could prevent the seating of a packer or could prevent the proper application of chemical sealants shall be removed. Procedures may include the use of mechanical equipment such as rodding machines, bucket machines and winches using root cutters and porcupines, and equipment such as high-velocity jet cleaners. Chemical root treatment may be used at the option of the Contractor.
  
- F. **Chemical Root Treatment:** To aid in the removal of roots and at the option of the Contractor, manhole sections that have root intrusion may be treated with an approved herbicide. The application of the herbicide to the roots shall be done in accordance with the manufacturer's recommendations and specifications in such a manner to preclude damage to surrounding vegetation. Any damaged vegetation so designated by the Engineer shall be replaced by the Contractor at no additional cost to the Owner. All safety precautions as recommended by the manufacturer shall be adhered to concerning handling and application of the herbicide.

END OF SECTION 22 01 10.51