1.0 GENERAL

This section refers to the works that are unique to the requirements for cleaning of new and existing sanitary and storm sewer pipe and pipe culverts.

1.1 Related Sections

.1 Section 33 00 10 Underground Utilities Services
.2 Regulation - Traffic and Highway Bylaw
.3 Section 33 82 01 CCTV Pipeline Inspection

1.2 References

.1 This section must be referenced to and interpreted simultaneously with all other sections of the Technical Guidelines pertinent to the works described herein.

1.3 Material Certification

.1 All materials to conform to this specification, to the latest edition of the appropriate specifications of the American Society for Testing and Materials (ASTM) or other standards expressly specified. All provisions in ASTM and other specified standards pertaining to materials, workmanship, finish, inspection and rejection form part of these specifications as far as they are applicable and providing that they are not inconsistent with this specification. This specification takes precedence over the ASTM specifications in case of a discrepancy or conflict. Materials incorporated into the Work but not specifically covered in the specifications are to be obtained from the Contract Administrator prior to installation.

1.4 Work Regulations

.1 Work to conform to all applicable regulations of Work Safe BC Confirm training compliance in the following:
  .1 Confined space entry procedures
  .2 Atmospheric monitoring and ventilation methods
  .3 Personal protective equipment
  .4 Interpretation of Material Safety Data Sheets (MSDS)

1.5 Terminology

.1 Flushing is defined as a maximum of three (3) passes of high pressure jetting equipment to allow for passage of CCTV or other forms of inspection equipment.

.2 Cleaning is defined as the removal of all debris by means of high pressure jetting equipment including: gravel, sand, rocks (to 300mm in diameter), grease and other deleterious material.

1.6 Submissions

.1 Submit the following information seven (7) days prior to the commencement of work:
  .1 Provide schedule and sequence of flushing or cleaning activities
  .2 Provide dates of training completion for all workers to the Engineer and a list of equipment required for confined space entry.

1.7 Scheduling

.1 Schedule work to minimize interruptions to existing services.

.2 Hours of work to comply with noise restriction bylaw unless granted exemption.

.3 Maintain existing flow during sewer cleaning and debris removal unless directed otherwise in contract document.

1.8 Measurement for Payment

.1 All units of measurement for payment will be as specified herein unless shown in the Form of Tender.

.2 Sewer cleaning and sewer flushing will be measured in lineal metres. Payment will be made at the unit price bid in Form of Tender.

.3 Measurement for sewer flushing and debris removal to be determined from plan distances and periodically confirmed by surface measured distances with a calibrated measuring devise.

.4 Measurement for sewer cleaning and debris removal to be determined from plan distances and periodically confirmed by surface measured distances with a calibrated measuring devise

.5 Manhole cleaning will be made at a per unit rate as described in the Form of Tender.

.6 Root cutting will be measured in hours. Payment will be made at the unit price bid in Form of Tender. Measurement will be determined from the difference in time between when the cutting tool is engaged at the face of the manhole to when it exits on completion of the root removal process.

.7 Grease cutting and removal will be measured in hours. Payment will be made at the unit price bid in Form of Tender. Measurement will be determined from the difference in time between when the cutting tool is engaged at the face of the manhole to when it exits on completion of the grease removal process.

.8 Debris disposal is considered incidental to associated cleaning and flushing work. No separate payment will be made for debris disposal.

2.0 PRODUCTS

2.1 Equipment

.1 High velocity cleaning equipment to be capable of providing a minimum flow of 200 litres per minute (60 GPM) at 140 bar (2000 psi). Cleaning nozzle to be hydraulically or hydro-dynamically propelled and capable of producing a scouring action from 15 to 45 degrees. A variety of ancillary equipment and nozzles to be available including; standard flushing nozzles, high efficiency , spinning jet and plough jet to address all anticipated debris conditions. The equipment to include a water tank, pumps and hydraulically driven hose reel. Equipment to include a wash down gun for cleaning manholes and an approved back flow preventing device for water tank filling.

.2 Debris removal equipment to consist of a vacuum pump complete with positive displacement pumps or fans producing a minimum of 700 l/s air movement. Equipment to be capable of removing debris at a minimum of 4.5 metres vertical head. Suction hose to be a minimum of 150 mm diameter. Debris tank to be water tight and capable of returning the liquid portion of the debris to the sewer.

.3 Debris cutting equipment to be an accessory or attachment to hydraulic cleaning equipment. Equipment to be capable of removing heavy roots and solid debris such as encrustation and grease.

.4 Backflow prevention valves for the purpose of drawing water from hydrants to have air gap and must be pre-approved by the Water Utility Operations Department.

.5 All water used in the flushing or cleaning of storm sewers shall comply with BC Environmental Management Act and corresponding Municipal Sewage Regulation and be subject to de-chlorination with ascorbic acid or similar approved product prior to use.

3.0 EXECUTION

3.1 Clean or Flush

.1 Clean or flush all pipelines as specified in contract documents. Notify Engineer immediately in the event that roots, grease or unusual quantities of debris is observed after three passes.

.2 Notify all affected residences connected to the sanitary sewers in writing of proposed sewer cleaning and CCTV inspection process as specified in the contract documents. Notice to be distributed two (2) working days in advance of flushing. Notice to include Contractor's name and contact information.

.3 Begin cleaning or flushing from the upstream sewer in the system and proceed downstream. Under no circumstances is the sewer cleaning of flushing process to proceed downstream until all contributing upstream sewers have been cleaned. Sewers to be cleaned or flushed in the direction of flow.

.4 A manhole to be washed down with high pressure wand AFTER manhole inspection has been completed.

.5 Remove debris by vacuum pumping at each manhole. Do not pass debris from manhole to manhole.

.6 Dispose of debris at an approved landfill site

.7 Comply with applicable Provincial and Municipal environmental laws in regard to the decanting of accumulated waste water with respect to spills and discharge of contaminants.

.8 Decanting of liquid waste accumulated during debris removal is permitted at a controlled release rate of a maximum of 8 litres per second.

3.2 Water Supply

.1 Water may be obtained from any UBC fire hydrant once permits are issued. Permit applications will be submitted to Permits & Inspection (Phone: 604 822-8228). Application and instructions are available at https://planning.ubc.ca/planning-development/permits-and-business-licenses/building-and-trades-permits/trades-permits

.2 Dechlorinate all water used for cleaning and flushing storm sewers prior to discharge from tanker in accordance with Section 8 (1) of the Municipal Sewage Regulation.

3.3 Root Removal

.1 Inform Contract Administrator prior to undertaking any root cutting or grease removal where cutting equipment is required.

.2 Run root cutter through entire section of pipeline from manhole to manhole or end of pipe to end of pipe.

.3 Select root cutting devise or grease removal nozzle of appropriately size and configuration for the diameter of the pipeline.

*****END OF SECTION*****