SECTION 616 – SANITARY SEWER CLEANING & INSPECTION

1. GENERAL:

1. SUMMARY

A. This section covers requirements and specifications for sanitary sewer line cleaning and inspection, and other pertinent work required to complete line cleaning and inspection.

B. Background

i. The City currently utilizes a closed circuit television system to inspect public sanitary sewer lines. These lines are located in City right-of-way or public utility easements. The City utilizes ITpipes software for data collection and uploads inspection data to a SQL database on a server. ESRI geodatabase is utilized to export pre-populated data to the mobile TV Truck so that each sewer line has a unique identifier that can integrate between GIS and ITpipes inspection software.

ii. The Contractor will provide, after inspection completion, a deliverable database file of all line inspections that will be directly loaded into the City's existing SQL server database using the City's existing ITpipes merge tool.

iii. Construction water is available from approved hydrant locations near the project work site as agreed upon between Contractor and City. Backflow device, meter, and water to be provided by City at Contractor's expense.

iv. Vactor disposal location is provided by City at designated drying bed located at Wastewater Treatment Plant, 596 N. Marymount Road.

C. Major Items of Work Include:

i. Gain access to manholes
ii. Light cleaning of sanitary sewer mains
iii. Heavy cleaning and removal of debris
iv. Closed circuit CCTV inspection
v. Removal of protruding taps
vi. Removal of roots
vii. Disposal of debris

2. SUBMITTALS

A. Prior to construction the Contractor shall submit:

i. Water jet nozzle model(s), pressure, and flow specifications for both light and heavy cleaning.
ii. Tap cutter and other equipment proposed
iii. Current NASSCO PACP certifications and for each operator.

iv. Traffic control plans where applicable.
v. Sequencing and schedule of activities.
vi. Bypassing plan if applicable.
vii. Inspection software, video resolution, sample of inspection line segment with data, video, and images, to demonstrate ability to merge inspections into City's SQL server utilized by City's ITpipes software.

3. QUALIFICATIONS

A. Submit information prior to Award of Contract demonstrating compliance with the following requirements:

i. Contractor shall have been in business providing line cleaning and inspection services for at least 5 (five) years. Indicate number of years in service.
ii. Contractor's place of business shall be located within 500 miles of project site. Indicate location.
iii. Contractor shall employee at least 2 (two) PACP certified operators that have been certified and have each performed at least 2 (two) years of PACP CCTV inspection work. Provide resumes and previous project experience for operators that will be assigned to project.
iv. Contractor shall have successfully integrated CCTV inspection data and media into Owner's ITPipes SQL server database. Provide three municipal references for successful integration. If data has not been previously integrated into ITPipes SQL server provide sample line data and media in proper format to demonstrate ability to integrate.

2. PRODUCTS:

1. LINE CLEANING

A. Jetting nozzle with water jet minimum of 65 GPM at 2,000 PSI and shall reasonably clean residential sanitary sewer lines within two passes.

B. Vacuum truck, debris basket, and equipment capable of removing all debris and sediment for heavy cleaning without manned entry of confined spaces.

2. TV INSPECTION

A. Remote controlled electrically powered transporter for camera. Transporter shall be low profile type capable of inspecting 6-inch lines and larger up to a distance of 1,000-feet from point of entry. Shall have at least 1-inch of ground clearance in 6-inch lines and shall be capable of lifting the camera head a minimum of 4-inches. Shall be freewheeling and capable of driving around debris or obstacles.

B. CCTV camera with high resolution color and adjustable iris focus, tilt/pan capabilities allowing right angle up close inspection, operable in 100% humidity conditions.

C. Lighting on camera to allow proper illumination and clear video image of the entire periphery of the pipe.

D. Footage distance to be accurate within 1%. The centerline of manholes to be utilized for footage and distance measurements.

E. Digital software for video, image, and data capture.

F. All inspection reporting shall be on software that is NASSCO PACP certified and shall collect WMV video with JPEG images. Data shall be compatible for import into the City's ITpipes SQL server database using the City's merge software tool. Inspection data, video, and images shall be merged in a manner that allows information to be viewed on ITpipes software the same as existing data collected by the City.

G. Video recording shall be capable of recording at approximately 320x240 resolution. Video quality shall be adequate for clear observation of defects; not high definition due to file size.

3. PROTRUDING TAP REMOVAL

A. Hydraulically powered mechanical cutters capable of cutting VCP or PVC protruding tap within ½-inch from main without damage to remaining tap or main. Shall be core bit type cutter. Chain type cutter not allowed.

4. ROOT REMOVAL

A. Hydraulically powered nozzles and cutters capable of removing roots from main without damage to main.

B. Vactor equipment or other equipment capable of physically removing root debris from manholes without manned entry.

3. EXECUTION:

1. PRE-INSPECTION

A. Contractor to inspect site conditions prior to bidding and Work. This would include locating and providing access to manholes.

B. Contractor to review software template file and provide digital inspection sample to ensure compatibility with City inspection software prior to Work.

C. Contractor to provide door hangers and notification to adjacent properties prior to Work in accordance with Section –1, General.

2. LINE CLEANING

A. Light Cleaning

i. Light cleaning shall include a minimum of two (2) complete passes and maximum of (3) through the line with a hose of adequate length to clean entire length between manholes.

ii. Cleaning sequence to start at upper end of basin and work downstream.

iii. A debris basket shall be provided at a downstream manhole and cleaned as needed during line cleaning.

iv. Contractor shall notify City if three (3) passes does not clean the line to within 95% of original flow capacity.

B. Heavy Cleaning

i. Heavy cleaning necessary after light cleaning has been performed shall be identified by Contractor and approved by the Engineer prior to proceeding.

ii. All debris shall be removed from downstream manhole by vacuum without workers entering manhole. Transport and dispose collected material at drying bed located at Wastewater Treatment Plant.

iii. Heavy cleaning shall be performed until inside of pipe is clean and restored to original capacity.

C. Root Removal

i. Root removal necessary after light cleaning has been performed shall be identified by Contractor and approved by the Engineer prior to proceeding.

ii. All debris shall be removed from downstream manhole by vacuum without workers entering manhole. Contractor shall transport and dispose collected material at drying bed located at Wastewater Treatment Plant.

iii. Root removal shall be performed until inside of pipe is clean and restored to original capacity.

3. LINE INSPECTION

A. Prior to line inspection, Contractor shall have completed all line cleaning, protruding tap and root removal activities.

B. Contractor's inspection software to utilize exported ESRI geodatabase file provided by City. Inspection shall be per NASSCO PACP defect coding format for each line segment.

i. All inspection reporting shall be on software that is NASSCO PACP certified.

ii. The contractor shall collect WMV video with JPEG images.

a. The City can provide a setup .mdb file (upon request) that outlines specific settings in relation to overlay text display. The contractor shall be required to use these settings to perform inspections.

iii. All observations shall include video recording and each defect and tap shall be recorded with a pan and tilt into the defect or tap to maximize viewing, along with a JPEG photo for each logged observation.

iv. Data to be provided to City electronically by DVD or flash drive.

v. The Contractor shall attempt inspection reversal on any line that inspection cannot be completed and access the opposite manhole of the inspection to finish inspecting the remaining portion of line. This shall all be done in one "inspection record" not two separate inspection files.

vi. The Contractor will provide after inspection completion a deliverable database file of all line inspections that will be directly able to merge into the City's existing SQL server database, using the City's existing merge tool.

C. Video inspection not to exceed a traverse rate of 30 fpm so that thorough inspection and review can be performed by City. Camera lens shall be clean and pipe condition shall be clearly observed in images and video.

D. The Contractor shall notify the City if any unidentified manholes are encountered. The City will provide a new manhole ID for Contractor to complete inspection.

4. PROTRUDING TAP REMOVALS

A. Protruding taps or defects preventing passage of camera equipment shall be identified by Contractor and shall be approved by the Engineer prior to proceeding.

B. Protruding tap removal shall be performed utilizing hydraulically powered mechanical cutters.

C. The removal must be performed without breaking the protruding service connection or creating a jagged-edge on the remaining tap or removing the tap beyond the exterior of the main pipe. Under no conditions will it be acceptable to remove taps by impacting them with a piece of equipment other than a cutting device. Any damage caused by Contractor activities shall be repaired at Contractor's expense.