

## **EXHIBIT A**

### **SCOPE OF SERVICES AND PERFORMANCE STANDARDS**

Contractor shall perform internal wastewater line filming for those sewer lines identified in **Exhibit "B"** using a color television camera to verify that the lines are free of structural damage such as offsets, open joints, or cracked or crushed lines that would allow exfiltration to occur.

The Services shall be performed in accordance with the performance standards set forth below, and in accordance with all applicable rules and regulations of TCEQ, including 30 TAC § 213.5(c)(3)(E).

### **SHOP DRAWINGS AND STANDARDS**

- A. The following shall be submitted to District prior to beginning work.
  - 1. Sample Pipeline Inspection Log / Report Sheet
  - 2. Standardized Coding Used for Completing Log / Report Sheets. Codes must conform to National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP). The Contractor shall add Owner specific defect codes to the database as required to insure uniform defect identification and naming.
- B. The following shall be submitted to the District at least once every two weeks as work is completed:
  - 1. Pipeline Inspection Log / Report Sheets
  - 2. Manhole Inspection Logs

### **SAFETY**

- A. Contractor shall be solely responsible for safety during the performance of all Services. Contractor shall not enter into any sewer segment where hazardous conditions may exist until such time as the source of those conditions is identified and eliminated by Contractor and/or District. Contractor shall perform all work in accordance with the latest OSHA confined space entry regulations. Contractor shall coordinate his work with local fire, police and emergency rescue units.
- B. Contractor shall be responsible for any damage to public or private property resulting from its activities and shall repair or otherwise make whole such damage at no cost to District.

### **EQUIPMENT**

- A. Television inspection equipment shall have an accurate footage counter that displays on a remote monitor the travel distance of the camera along the sewer centerline from the starting manhole. The camera shall be of the remotely operated pan and tilt type when inspecting manholes and sewer lines six (6) inches and greater in diameter. The rotating camera and light head configuration shall provide 240 degrees of pan and tilt angle measuring centerline to centerline and 70 degree lens viewing angle.
- B. The camera shall be color and shall provide a minimum of 470 lines of horizontal resolution and 400 lines of vertical resolution. The image pick-up device shall contain in excess of

379,000 picture elements (pixels). Geometrical distortion of the image shall not exceed one percent.

- C. The color camera shall be equipped with the necessary circuitry to allow for the remote adjustment of the optical focus and iris from the power control unit at the viewing station.
- D. Lighting system shall be adequate for quality color picture at least 5 feet in front of the camera's lens.
- E. The camera shall be equipped to capture still images of pipeline defects.

## **EXECUTION**

### **A. Inspection of Pipelines**

1. Contractor shall internally inspect, via closed circuit television inspection, the sewer segments as required. Generally, inspection shall be completed one sewer line section at a time. Access for televising purposes shall only be via existing manholes and cleanouts.
2. Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections by closed-circuit television inspection techniques. The interior of the pipeline shall be carefully inspected to determine the location and extent of all pipeline defects. The location of any conditions which may result in a limitation of rehabilitation techniques that could be used and/or prevent proper installation of designated rehabilitation materials in the pipelines shall be noted so that these conditions can be considered and, if necessary, corrected prior to actual rehabilitation.
3. Should access to particular sewer section be difficult and adjacent sections require television inspection, Contractor may complete inspection in multiple sewer line sections. When multiple sewer line sections are inspected using one setup, Contractor shall zero the camera's footage metering device at each subsequent sewer manhole to establish uniform starting location of Station 0+00 for each line section televised.
4. The Contractor shall move the camera downstream at a uniform rate not greater than 30 feet per minute. The Contractor shall stop and thoroughly inspect each of the following:
  - a) Collapsed pipe, obstructions;
  - b) Structural cracking, with and without deflection;
  - c) Missing portion of wall;
  - d) Sag, excessively deflected joint;
  - e) Cracked and open joints;
  - f) Root intrusion;
  - g) Protruding joint sealing material;
  - h) Corrosion conditions including exposed aggregate, exposed reinforcement, and disintegrated wall which exposes the soil surrounding the pipe;
  - i) Protruding lateral joint; and
  - j) Inflow point.
5. At all defects and service connections, the camera shall be stopped and the pan and tilt features shall be used to obtain a clear picture. Where possible, the camera shall be panned to view up each lateral or point of connection. Locations and details of

all defects, laterals and connection points shall be noted in the inspection logs / reports and NASSCO defect logging software.

**B. Pipeline Inspection Records and Logs / Reports**

1. Contractor shall record these inspections in a video file in a standard format such as MP4 and on a suitable log / report. Lighting and camera quality shall provide a clear, in-focus picture of the entire inside periphery of the sewers and laterals for all conditions except submergence. The video file shall include a visual and audio narrative noting:
  - a) Project name
  - b) Date, time of day, and depth of flow;
  - c) Sewer segment number. Segment numbers shall be designated by District;
  - d) Upstream manhole number;
  - e) Downstream manhole number;
  - f) Diameter of sewer line;
  - g) Sewer materials of construction;
  - h) Closest street addresses at points of entry and exit and street name or interceptor on which sewer is located;
  - i) Beginning and ending tape counter numbers for each run (manhole to next manhole) of sewer inspected;
  - j) Direction of movement of camera, heading, and direction of flow;
  - k) Locations of service connections into sewer by clock position and with counter distance in feet from beginning manhole's centerline; and
  - l) Location (start and end counter distances in feet travelled along the sewer centerline from the beginning manhole) and description of obstructions, structural defects, missing pieces of pipe, longitudinal and/or circumferential cracking, joint deterioration including open and/or offset joints, ovality, leakage or evidence thereof, corrosion, erosion, break-in connections, protruding connections, mineral deposits, roots, previous repairs, grease/fats/oil deposits on pipe walls, sags, and other abnormalities with respect to the sewer's condition with counter distance in feet from the beginning manhole's centerline.
  - m) Still photographs or screen captures shall be taken at all defects.
2. Contractor shall immediately bring to the attention of the District any manholes or cleanouts identified or located by CCTV that are not shown on the collection system maps. The District will flag/mark previously unidentified manholes for later surveying. Contractor shall provide GPS coordinates for newly located manholes accurate within three (3) feet of manhole center.
3. Contractor's log / report shall contain the same information as visual and audio recording. Contractor may use any log / report sheet approved by District.
4. The video file shall visually display at a minimum the date, pipe segment number (manhole number) and travel distance along the sewer centerline from the upstream manhole.
5. The entire length of any one sewer segment shall be on one video file. No segment shall be split between two video files. Electronic deliverables shall be provided to the District as described in Section D. Video files of all sections will be provided

- to District along with the respective television inspection field logs / reports.
6. The importance of accurate distance measurements is emphasized. Measurement for location of defects shall be above ground by means of a meter device. Marking on the cable, or the like, which would require interpolation will not be allowed. Accuracy of the distance meter shall be checked by use of a walking meter, roll-a-tape, or other suitable device. If the counter distance and the taping distance differ by more than 2 feet per 100 feet, the run shall be re-televised by Contractor at no additional cost to District.
  7. If the video recording fails for any reason, the run shall be re-televised by Contractor at no additional cost to District.
  8. The Contractor shall use CCTV defect logging software that is PACP- certified, which assures that the software can be used to export a database of all inspection and defect details that conform to the NASSCO PACP database standard. The following tables shall be included in the report file: Conditions, Inspections, media conditions and media inspections

C. Obstructions and Reverse Set-ups

1. If during television operation, television camera will not pass safely through the entire sewer line section being investigated, Contractor shall, at no additional cost to District, set up equipment so that inspection can be performed from opposite (downstream) manhole. Where an obstruction is encountered and a reverse set up is required, the distance shall be entered into the log / report and verbally noted on the video from which manhole the measurements are being made. If under the reverse set-up the camera again fails to pass through the entire sewer line section, inspection shall be considered complete.
2. All obstructions in the sewer segment that prohibit passage of the television camera shall be immediately reported to the District by Contractor referencing location and nature of the obstruction. No rehabilitation work shall proceed until Contractor receives direction from District regarding removal of the obstruction.
3. Should Contractor's televising equipment become lodged in any sewer line, it shall be removed by Contractor at its expense. This shall include, if necessary, excavation and repair of the sewer, underground utility repairs, backfilling and surface restoration. Contractor shall re-televis any line segment in which his equipment became lodged after said equipment has been removed to demonstrate to the District that no damage exists as a result of his televising operations.

D. Deliverables

1. The Contractor shall provide two complete sets of all video recordings, manhole inspection forms, pipeline inspection logs / reports, and an electronic file containing pipeline defects logged in an export format conforming to the NASSCO PACP standards to District.
2. All video and electronic files shall be maintained and delivered in a portable digital media device (external hard drive or USB drive) that will become property of the District. Two devices with all files on each shall be provided. The device shall be labeled with the following information at a minimum:

- a. Contractor Name and Contact Information
  - b. Project name
  - c. Segments included (Manhole from and to numbers)
  - d. Date of inspection
  - e. Date submitted
3. The following information at a minimum shall be provided for each video file in a separate electronic file (Excel spreadsheet) listing the following:
  - a. Media Location/electronic path/filename
  - b. Name of Street
  - c. From Manhole Number and counter number
  - d. To Manhole Number and counter number
  - e. Pipe length and diameter
  - f. Project name
  - g. Date Inspected
  - h. Date Submitted
4. For each video file, the Contractor shall prepare an inspection report which shall be a complete written log / report of pipe conditions and connections, indexed to the footage counter. Contractor may use any inspection log / report form approved by District. Electronic PDF (.pdf) files of each inspection log and digital still photographs (.jpg) files shall accompany the video inspections for each pipeline segment inspected and defect noted. Filenames for inspection logs shall be the from and to manhole ID numbers separated by a dash. File names for digital still photographs shall be the from and to manhole ID numbers separated by a dash, followed by the date and time the photograph was taken.
5. Inspection reports shall be compiled/arranged in numerical sequence by the upstream manhole ID of the sewer line cleaned and inspected. Manholes and sewer lines not cleaned and/or not televised shall also be identified with rationale as to why work was not accomplished.