

Requirements of PACP/LACP CCTV and Manhole Sewer Inspections

MSD conforms to the National Association of Sewer Service Companies' (NASSCO) Pipeline Assessment Certification Program (PACP), Lateral Assessment Certification Program (LACP), and manhole inspection utilizing MSD Inspection Forms. These inspections will be maintained within MSD's library of sewer inspections, and it is imperative that they meet all appropriate MSD requirements.

All PACP and LACP CCTV Work to be performed via this contract shall therefore conform to all current NASSCO standards except where specifically instructed otherwise by the MSDGC Project Manager (PM). These standards include but are not limited to speed of camera travel, centering of camera in pipe, coding of defects/structural features/observations, panning of defects/structural features, camera lighting, header information, flow control, and reversal inspections. MSD GIS standards and designations shall apply for header information including, but not limited to manhole numbers, asset ID numbers, Cityworks® work order numbers, building sewer names and identification, and previously undocumented manholes. MSD requires that the snapshot feature is turned on within the CCTV software program to document each coded entry.

All PACP and LACP CCTV Work to be performed via this Work Order shall be carried out utilizing a color pan and tilt rotating head camera specifically designed and constructed for sewer inspection. All CCTV work shall be recorded entirely in digital MP4 format encoded with a file compression of High Efficiency Video Coding (HEVC or H.265) (other formats need MSDGC PM approval) with an appropriate PACP/LACP database file (NASSCO PACP/LACP V7.0 Certified Access Database having compatibility with Pipetech® pipeline inspection software), and all videos must be continuously metered.

The person coding the pipeline inspection must be NASSCO PACP and LACP certified with a minimum of three years of full-time experience coding defects using the NASSCO standard. PACP and LACP certification numbers must be provided to MSDGC, and proof of experience must be demonstrated by documentation such as a resume with references.

Robotic PACP/LACP & Manhole Inspection

The Contractor shall be responsible for:

- Conducting a final manhole-to-manhole (MH-MH), televising of the mainline sewer section to evaluate the condition of the sewer after all appropriate cleaning, trimming, grinding, and flushing has been performed. In the event an inspection cannot be completed from one set-up due to a structural or maintenance defect, the inspector shall perform a reverse inspection from an additional set-up the same day. The inspector shall submit two inspection reports as the final inspection. This final televising shall be in PACP and shall follow all PACP V 7.0 standards.
- Employing various flow control methods as appropriate to ensure visibility of the entire circumference of the sewer. These may include, but are not limited to, flushers, jettors and flow-through plugs and any costs incurred shall be incidental to this contract. Additional bypass pumping costs may be approved by the MSDGC PM and would not be incidental. It may also be necessary for the Contractor to delay inspections after major rain events until the sewer level has receded to a more typical dry weather flow.

- Conducting a final televising of each individual building sewer from the main sewer line to the public Right of Way designation or sewer easement limit. Unless otherwise directed by MSD personnel, the easement limit should be assumed to be a minimum of 10'. This final televising shall be in LACP and shall follow all LACP V7.0 standards. If a full mainline to Right of Way or easement inspection is unable to be completed due to an obstruction of any sort, said obstruction must be located and reported to the MSD PM immediately.
- Robotic LACP inspection shall be done from the main sewer or available cleanout or access point. The Contractor shall use robotic technology to push or “launch” the lateral camera into the building sewer from the mainline. Many building sewers are 6 inches in diameter and are made of various materials. If the contractor is unable to perform an inspection of the lateral due to debris, roots, or other obstacles in the building sewer lateral, they shall contact the MSD PM for direction.

Walk through PACP/LACP Inspection (Manned entry)

The Contractor shall be responsible for:

- The operator entering large diameter sewers to conduct a final manhole-to-manhole (MH-MH) televising of the sewer to evaluate the condition of the sewer after all appropriate cleaning, trimming, grinding, and flushing has been completed. The final televising shall be in PACP and shall follow all PACP V7.0 standards. The contractor may utilize robotic equipment to perform a PACP inspection in pipe sizes greater than 60 inches at the direction/approval of the MSD PM.
- All Man entry into the sewer will follow the Contractor’s Health and Safety Plan with regards to Confined Space Entry.
- Conducting a final televising of each individual building sewer from the main sewer line to the public Right of Way designation or sewer easement limit. This final televising shall be in LACP and shall follow all LACP V7.0 standards. If a full mainline to right of way or sewer easement inspection is unable to be completed due to an obstruction of any sort, said obstruction must be reported to the MSD PM immediately.

The Contractor shall submit work in the format required by MSDGC and shall follow guidelines from the MSDGC Project PM. To continue improving the uploading of data and submittals, the MSDGC PM may update the requirements at any time, but will give the Contractor sufficient access to MSD’s programs.

Submittal of Work to MSDGC

Work completed and submitted to MSDGC shall follow the specifications detailed in the subsections below.

Requirements of all PACP and LACP CCTV Submittals and Manhole Inspection Submittals

All submittals of PACP and LACP inspections shall conform to the following specifications:

- Each Submittal – the PACP/LACP database file and its corresponding video files – shall contain Work from only 1 (one) inspector and only 1 (one) CCTV Work Category from the list below:
 - Sanitary and/or Combined Mainline Sewer Inspections (PACP)

- Sanitary and/or Combined Building Sewer Inspections (LACP)
- Storm Mainline Sewer Inspections (PACP)
- Storm Building Sewer Inspections (LACP)
- Each Submittal shall be assigned a unique Tracking Identifier.
 - If a Submittal is rejected/unacceptable, the MSD PM shall direct the Contractor whether to reuse the original or to assign a new Tracking Identifier.
- Each Submittal shall include inspections from only one calendar month.
- Each PACP Video File must be in standard *.mp4 format and named as described below:
 - [month]_[day]_[year]-[hour]_[minute]_[AM/PM]-[Inspector Name]-[Work Order Number].mp4
 - e.g., "1 03 2012-11 23 AM-M LONGMIRE-411032.mp4"
- Each LACP Video File must be in standard *.mp4 format and named as described below:
 - [month]_[day]_[year]-[hour]_[minute]_[AM/PM]-[Inspector Name]-[address]_[street]-[Work Order Number].mp4
 - e.g., "1 02 2012-07 51 PM-E SCHNEIDER-842 SUNDERLAND DR-405623.mp4"
- Each Manhole inspection shall follow the format provided by MSD utilizing their Manhole Inspection Form.
- All PACP, LACP and Manhole inspections must be submitted within fourteen (14) calendar days of the date of Work.
 - MSDGC shall have the right to deduct 10% of the price of any such Submittals for those Submittals that are submitted later than fourteen (14) days of the date of Work.
 - MSDGC shall have the right to deduct up to 10% of the price of any Submittal which is rejected by MSDGC as unacceptable.
- In the case of rejection of a whole or any part of a Submittal, Contractor shall have fourteen (14) calendar days from the date of notification of said rejection to address, correct, and/or re-perform and then re-submit said Work to MSDGC.
 - MSDGC shall have the right to deduct 10% of the price of any such Resubmittals for those Resubmittals that are submitted later than fourteen (14) days after the date of notification of rejection.
 - MSDGC shall have the right to deduct up to 10% of the price of any Resubmittal which is rejected by MSDGC as unacceptable up to a maximum of 50% of the total price of the original Submittal.
- The Contractor shall use the footages for billing purposes provided by MSD listed in the Cityworks® work order under Assets or footage approved by MSDGC PM.