

CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION

STANDARDS FOR ACCEPTANCE OF NEW SEWERS

January 2026

JURUPA COMMUNITY SERVICES DISTRICT

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Sewer CCTV Technical Specifications

1. GENERAL DESCRIPTION OF THE WORK

- 1.1. The Sewer CCTV inspection work must be completed by a certified National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) operator(s) using established PACP coding and observations. Current certification is to be provided at the time work is performed.

2. WORK AND MATERIALS PROVIDED BY THE CONTRACTOR

GENERAL:

- 2.1. The Contractor shall provide and setup all required traffic control devices, including warning signs, lights, arrow boards and traffic cones, as required in accordance with the latest edition of the Work Area Traffic Control Handbook Manual (W.A.T.C.H. Manual), as well as following any City required encroachment permits or traffic control plans.
- 2.2. The Contractor shall obtain and comply with all permits required by local jurisdiction.

SEWER CLEANING:

- 2.3. Sewers will be clean, remove grit, loosen solids, grease, and any construction debris that are present.
- 2.4. Cleaning shall be completed by the Contractor within 24 hours and no less than one hour prior to inspection to reduce the impact of the natural flow within the pipeline during inspection. **Operation of cleaning equipment downstream of the CCTV inspection is not permitted and will result in rejection of the CCTV inspection of the sewer main segment(s).**
- 2.5. The Contractor shall trap and remove all debris at the downstream manhole and legally dispose and haul away debris when cleaning pipe segments. **No disposal or decanting of waste recovered from the sewer is permitted to be discharged back into Jurupa Community Services District's (JCSD) Sewer System.**

SAG MEASUREMENT:

- 2.6. The Sag Gauge must be pre-approved by JCSD. The Gauge must be clearly marked with the first minimum mark at 0.5" increments from 0.5", 1", 1.5", 2.0", etc. Gauge must be independent of tractor's frame (operating under its own weight) traversing the

invert of the pipe. Still pictures of the Gauge used with a steel tape measure as a comparison must be recorded before televising of the sewer begins. Gauge must be free of debris at all times. If Depth Gauge is not clear the video will be rejected. A picture of an acceptable depth gauge is presented at the end of this Appendix).

- 2.7. This section regarding sag measurement does not apply to laterals being video'ed by push camera.
- 2.8. Introduce an adequate amount of clean water at the upstream manhole to produce flow at the downstream manhole immediately prior to inspection; witness by a JCSD representative is required. If a sewer main segment is cleaned between CCTV inspections water will be re-introduced to the upstream manhole to produce flow in the downstream manhole.
- 2.9. The maximum amount of Sag permitted by JCSD is 0.5". All sags are required to be measured and video recorded on observation logs during the inspection. Tractor speed should be slow, with pauses at regular intervals, to properly measure sag depth through the sag's duration.

SEWER INSPECTION:

OPERATOR CERTIFICATION:

2.10. CCTV inspection shall be performed by a certified NASSCO PACP certified operator; certification to be presented at the time work is performed and shall be submitted with the report.

EQUIPMENT:

- 2.11. The Contractor's CCTV equipment shall include video cameras, a video monitor cable, power sources, water source (must be on hand) and all equipment necessary to perform a CCTV inspection as outlined in this Technical Specification.
- 2.12. The cameras shall meet NASSCO requirements for operating in the sanitary sewer environment. All equipment must be in good repair and properly attached to the cable.
- 2.13. The cameras shall have Pan-and-Tilt capabilities, and shall have a minimum of 360 x 270 degree rotation and illumination sensitivity shall be three lux or less and provide a minimum of 460 lines of resolution. The focal distance shall be adjustable through a range from 25 mm (1 inch) to infinity.

- 2.14. During CCTV inspection, lighting intensity shall be adjusted to minimize glare. Lighting and picture quality shall be adjusted to provide a clear, in-focus picture of the entire periphery of the pipeline for all conditions encountered.
- 2.15. All camera systems shall be able to navigate around minor objects and debris. The system used to move the camera through the pipe shall not obstruct the camera's view or interfere with proper documentation of the sewer conditions.
- 2.16. The camera cable shall be retracted to remove slack and to ensure an accurate footage reading.
- 2.17. All inspections of manholes start at the upstream manhole and televise to the downstream manhole, any deviation must have written JCSD approval.
- 2.18. The distance shall be measured between the exit of the start manhole and the entrance of the finish manhole for a true measurement of the length of the pipe segment, as required by PACP. It shall be recorded in standard units and the video display readout shall display units to one-tenth of a foot.
- 2.19. The cable footage-counter shall be accurate to plus or minus 2 feet per 1,000 feet, plus or minus 1% per 100ft.
- 2.20. Video inspection and reporting shall be submitted in a NASSCO-compatible format; videos shall be viewable on any standard computer system (PC).
- 2.21. The camera lens shall be kept clear of condensation and debris during the CCTV inspection. RainX or equal to ensure lens is clear.
- 2.22. Must be able to pan entire joint with a 360-degree rotation. If the lens becomes dirty, the inspection shall halt, clean the lens and re-start the inspection. An inspection performed with a dirty lens will result in rejection of the CCTV inspection for that sewer main segment(s).
- 2.23. Begin all inspections from center of manhole, video to start from inside manhole and inspect outlet, sheer ring, joints, laterals and end in center of downstream manhole and pan upward to inspect inside of structure.

OBSERVATIONS:

- 2.24. All observations and defects shall be documented in a database and shall include digital video recording and digital photographs as defined in Sections 2.24 and 2.25.
- 2.25. Each video clip and photograph provided shall correspond to inspection data in the database, and each set of inspection data listed in the database shall be properly linked to the appropriate video clip and photos.
- 2.26. All observations shall be selected from a standard table of descriptions incorporated in the inspection reporting software, as required by PACP. Any additional comments regarding the observation shall be indicated in the remarks box. The video shall show all joints, shear rings, laterals, etc.
- 2.27. The severity of each defect or observation shall be recorded and rated per the PACP method. Examples of potential defects include sags, cracks, rolled gaskets, debris, offset joints, missing shear ring joints, etc.
- 2.28. All observations shall be recorded using PACP codes as outlined in NASSCO's PACP Reference Manual, and in this document.
 - 2.28.1. Cured-In Place Pipe (CIPP) inspection process is different from the traditional pipe inspections: the video shall show all delamination of any layers or tube coating, tight fit in the existing pipe, foreign inclusions, abrasion, blistering, pinholes, bulging, major wrinkles, folds, dry spots, lifts, and Lateral connections reinstated.
 - 2.28.2. High Density Polyethylene (HDPE) and fusible PVC inspection process follows the traditional pipe material inspections however there are differences: they are normally a continuous jointless pipe except for the sheer rings, the inspection is to include the inner beads of the fused joint (the beads are required to be removed after the installation has been completed) Saddle Fusion Joints, defects such as grooves, pits, hollows, etc.

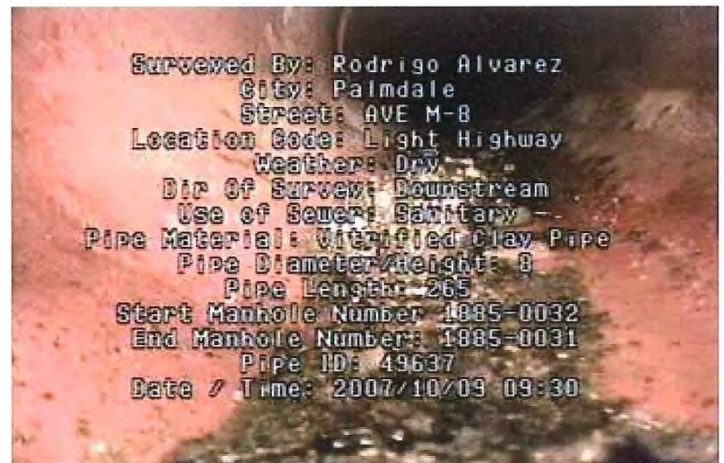
VIDEO:

- 2.29. The Contractor shall make a continuous color digital recording in MPEG 4 format for each pipe segment inspected, unless otherwise specified by JCSD.

- 2.30. Video files shall have a minimum resolution of 352 x 240 pixels and an interlaced frame rate at a minimum of 24 frames per second.
- 2.31. Audio reporting will be avoided to prevent inconsistent operator subjectivity.
- 2.32. Video inspection will not exceed a traverse rate of 30 feet per minute.
- 2.33. The Contractor shall pause the digital recording at any time there is a delay in the inspection and restart the digital video recording in the same digital file. The pause shall in no way affect, freeze, or interrupt the replay of the video and shall not close the video file during the inspection.
- 2.34. Each pipe segment (manhole to manhole) shall be identified with an initial text screen and completed in accordance with PACP's CCTV inspection form header Instructions and shall be as follows:

Line Number & Description

- Line 1: Surveyed By
- Line 2: JCSD
- Line 3: Street
- Line 4: Location
- Line 5: Code*
- Line 6: Weather*
- Line 7: Direction of Survey
- Line 8: Use of sewer*
- Line 9: Pipe Material
- Line 10: Pipe Diameter/Height
- Line 11: Pipe Length (on plans)*
- Line 12: Start Manhole Number GIS #
- Line 13: End Manhole Number GIS #
- Line 14: Pipe ID (GIS, PSR or MMS #)
- Line 15: Inspection Time/Date
- Line 16: Depth of invert



Line items noted with an asterisk (*) are optional depending on the editing capacity of the text overlay equipment.

- 2.35. This data must completely match the data entered in the database header information.
- 2.36. The initial text screen shall appear no more than 30 seconds at the beginning of the video footage, and shall appear before the 360-degree pan of the starting manhole.
- 2.37. During the CCTV inspection, the video shall show the following text at all times:

Line Number & Description

Line 1: JCSD

Line 2: Street, Start Manhole Number/Direction of Inspection/End Manhole Number

Line 3: Pipe Material/Pipe Size

Line 4: Inspection Time/Date/Running Total

- 2.38. During the CCTV inspection, the camera shall stop at all defects and significant observations to ensure a clear and focused view of the pipe condition and shall rotate the camera head at the defect to allow for adequate evaluation at a later time.

- 2.39. All defects and significant observations shall include a text overlay of the recorded observation.

- 2.40. The video recording shall include on-screen observation text for every observation recorded in the database, including AMH, in addition to the text in Section 2.36.

- 2.41. The naming of the video file shall consist of the "FROM MANHOLE STATION or GIS NUMBER", "TO MANHOLE STATION or GIS NUMBER", and the eight-digit inspection date, as shown in the following example, or as pre-approved by JCSD:

0+00_3+45_20050101.mp4
(From MH Station_ to MH Station_ YYYYMMDD)

Note: "Manhole Station Number" may consist of survey station numbers as indicated on the design plans.

SEWER LATERAL INSPECTION

OPERATOR CERTIFICATION:

- 2.42. CCTV inspection shall be performed by a CCTV inspection shall be performed by a certified NASSCO PACP certified operator; certification to be presented at the time work is performed and shall be submitted with the report.

- 2.43. The Contractor's CCTV equipment shall include video cameras, a video monitor cable, power sources, water source (must be on hand) and all equipment necessary to perform a CCTV inspection as outlined in this Technical Specification.

- 2.44. The cameras shall meet NASSCO requirements for operating in the sanitary sewer environment. All equipment must be in good repair and properly attached to the cable.

- 2.45. During CCTV inspection, lighting intensity shall be adjusted to minimize glare. Lighting and picture quality shall be adjusted to provide a clear, in-focus picture of the entire periphery of the pipeline for all conditions encountered.
- 2.46. The camera cable shall be retracted to remove slack and to ensure an accurate footage reading.
- 2.47. Video inspection and reporting shall be submitted in a NASSCO-compatible format; videos shall be viewable on any standard computer system (PC).
- 2.48. The camera lens shall be kept clear of condensation and debris during the CCTV inspection. RainX or equal to ensure lens is clear.

OBSERVATIONS:

- 2.49. All observations and defects shall be documented in a database and shall include digital video recording and digital photographs as defined in Sections 2.24 and 2.25.
- 2.50. Each video clip and photograph provided shall correspond to inspection data in the database, and each set of inspection data listed in the database shall be properly linked to the appropriate video clip and photos.

LATERAL CAMERA:

- 2.51. CCTV of the lateral from the C/O at the point of transition/property line to the Main Line sewer connection.
- 2.52. Self-leveling (upright) small diameter pipe color television camera designed to operate in 2" to 8" pipe and negotiate multiple bends, design maintains proper camera orientation at all times with on screen footage (Prefer 360-degree rotation).
- 2.53. Camera is able to pass through a short 90-degree turn or a single tee connection in 4" pipe.
- 2.54. The lighthouse at minimum contains 12 light emitting diodes equaling 78 foot candella to illuminate pipeline interiors from 2" to 8".
- 2.55. Minimum 460 lines horizontal, 400 lines vertical resolution (NTSC) 450 h x 450 v (PAL); higher resolution means sharper pictures with greater details.

- 2.56. Minimum 379,392 picture element solid state sensor 768 h x 494 v (NTSC); the greater number of picture elements, the more detail is displayed in the picture.
- 2.57. Minimum 437,664 picture element solid state sensor 752 h x 582 v (PAL); lox lux sensitivity provides better pictures with less light.
- 2.58. 3 lux minimum sensor illumination sensitivity; no sensor distortion.
- 2.59. Camera is equipped with centering skid(s) for use in 4" to 8" pipe, skid mounts directly to the camera housing.
- 2.60. Recording devices: A potable hard drive or high capacity USB Thumb Drive containing the digital database, video and photo files.
- 2.61. Push cable (rod) reel 200' minimum with footage counter.

PHOTOGRAPHS:

- 2.62. Digital photographs in JPEG format shall be made of all recorded defect observations. These photographs will be computer generated with the use of the inspection reporting system software.
- 2.63. JPEG images shall be captured at a minimum resolution of 640x480 pixels.
- 2.64. At a minimum, all photographs shall be named consisting of the following descriptions: "FROM MANHOLE STATION or GIS NUMBER", "TO MANHOLE STATION or GIS NUMBER", eight-digit inspection dates, and the defect distance location along the pipe. It is in the Contractor's discretion as to additional data information that may be needed in the naming of the files to make each file unique within the file naming constraints of their inspection software.

0+00_3+45_20050101_125_A.jpg
(From MH Station or GIS Number_ To MH Station_ or GIS Number
YYYYMMDD_Defect Position_UniqueData)
- 2.65. Any additional information shall be included after the mandatory info specified above. The naming convention shall be consistent throughout the project.
- 2.66. A minimum of TWO photographs of each defect shall be taken, one with a perspective view and one with a close-up view.

- 2.67. ONE photograph is required for each lateral connection looking directly at the connection and each AMH observation from the bottom of the manhole looking up.

ADDITIONAL INSPECTION PROCEDURES:

- 2.68. Bulkheads/mechanical plugs shall temporarily be removed as necessary along the entire segment of the sewer line from manhole to manhole. Otherwise, the segment will be considered incomplete. The Contractor shall reinstall the temporarily removed bulkhead/mechanical plugs until the sewer line is accepted.
- 2.69. A full 360-degree pan of all manholes is required. This video footage shall occur at the beginning of each pipe segment survey inspection from the bottom of the manhole panning up the manhole shaft. The Contractor shall cover the manhole opening to prevent too much light from entering the structure and to ensure a clear and focused view of the manhole interior. In instances when the manhole is the terminating manhole, then the pan shall occur at the end of the pipe segment survey inspection.
- 2.70. Video footage shall be taken from the center of the pipe. The camera shall run along the invert of the pipe and not at its side, unless it is passing a point obstacle. If extended driving on the side of the pipe is required, then either the pipe needs a more thorough cleaning or an observation should be noted from the PACP codes describing the nature of the obstacle.
- 2.71. Obstructions may be encountered during the course of the CCTV inspection that prevents the travel of the camera. In instances when obstructions are not passable, the Contractor shall withdraw the equipment and clean the sewer line and reschedule the televising.
- 2.72. If a particular line is inspected more than once, then the Contractor shall include all versions of the inspections in the database. The MGO observation shall be used on all inspections except at the first occurrence. The Contractor shall provide an explanation for the additional inspections in the Remarks section.

3. RECEIVED VIDEOS

Two sewer CCTV inspections shall be performed in the course of construction:

- first upon completion of construction of the new sewer main line;
- second serviceability review shall occur prior to occupancy and introducing flow to the sewer system.

Initial sewer main videos shall be approved by the JCSD's Sewer Operations Department prior to base paving operations. Sewer Videos shall be prepared by a JCSD approved sewer CCTV inspection vendor. A Representative from Sewer Operations may be present during the CCTV inspection. Within seven (7) working days of completion of the sewer video work for the Tract or portion thereof. The Developer's Superintendent shall prepare a transmittal letter along with the complete digital sewer video file for JCSD review and approval. JCSD Staff will review and comment on or approve the digital file within seven (7) working days from the receipt of the transmittal from the Developer.

The Procedure for the Sewer Construction Video Inspection is as follows:

1. Within five (5) working days after the completion of the sewer system including the laterals, the Tract Superintendent shall notify the JCSD's Inspector that they request JCSD approval on the completed sewer system.
2. The JCSD's Inspector notifies the JCSD's Development Representative to schedule the CCTV inspection. The JCSD's Development Representative coordinates the inspection with Sewer Operations Supervisor to notify Operations of a pending CCTV Request.
3. JCSD's Sewer Operation's Staff may observe the post-construction video using the post-construction video inspection check sheet. If there are no items listed for correction, the JCSD's Sewer Operations Staff will sign the video inspection sheet verifying the main lines and laterals are acceptable. The inspector will provide the completed and signed check sheet to the JCSD's Development Representative for the project file. If there are any items listed for correction, the JCSD's Inspector will ensure that the listed items are corrected and a new full video inspection of the sewer main section (performed under the observation of the Sewer Operations Staff) is completed to document the acceptable conditions prior to signing the video inspection sheet certifying that the sewer system is in compliance with JCSD Standards.
4. The Developer will submit the complete package of video reports along with the complete digital video files to Development Engineering.
5. Development Engineering will submit the complete report to the Sewer Systems Supervisor for review and written final approval prior to filing in the Project folder; the Development Representative shall provide compaction reports for sewer trenches at that time.
6. The JCSD's Sewer Operations Staff will review and comment or approve the complete digital video file within seven (7) working days. If approved, the Developer may proceed with paving operations. If rejected, Sewer Operations Staff will provide a list of deficiencies for correction prior to re-videoing and re-inspection. Deficient work shall begin within five (5) working days of the notice of deficiencies and shall be completed within sixty (60) working days. Steps 1 – 6 shall be repeated until acceptance has been achieved.

A secondary CCTV inspection of the sewer mains and laterals (serviceability review) will be required prior to the first occupancy request for each phase of development; this shall occur when front yard landscaping is installed at the first home in the phase. The Serviceability Review CCTV Inspection will be required to ensure that sewer facilities that serve the homes are complete, operational, and ready for service – sewer main and lateral plugs shall not be removed until authorized in writing by the JCSD. The serviceability review shall check that the lines are free of debris and construction materials, that mainline pipe and laterals have not been compromised, and that sags have not developed due to settlement or construction related activities; this review will not require the panning of joints or shear rings. The area covered under this review will consist of that section of sewer main and lateral(s) for the home(s) for which landscaping has been installed, from the upper sewer manhole to the discharge point of connection to the JCSD's active sewer line.

It is the Developer's responsibility to properly show evidence that the sewer main and sewer laterals are clean and free from debris prior to removing the sewer plug to either the manhole or sewer lateral. The Grant of Occupancy will not be issued until the sewer plugs in the manhole and lateral have been removed.

Once the homes are approved for occupancy, it is JCSD's responsibility to operate the facilities servicing those homes. The "Serviceability Review Video Inspection Check Sheet" (Appendix X) details the items to be inspected. The Serviceability Review Video Inspection is one of the discussion points listed on the pre-construction meeting agenda for tract projects. The JCSD's Inspector will provide a copy of this check sheet to the Tract Superintendent (upon request) as a guide to prepare for move-ins. Serviceability Review Video Inspections are typically not performed on Parcel Map or Plot Plan Projects.

As part of the serviceability review process, the Developer will provide a Sewer Map for each lot to be released for occupancy. The Sewer Map will show the location of the sewer lateral to the home and will include all distances, bends and depths. The Developer is strongly encouraged to keep track of the installation and prepare each Sewer Map as the sewer later is connected from the house to the street connection.

The Procedure for the Serviceability Review Inspection is as follows:

1. When the first home in the Tract Phase receives its front yard landscaping, the Tract Superintendent notifies the JCSD's Inspector that they request JCSD Sewer Operations Staff to observe the serviceability review video inspection of the designated homes.
2. The JCSD's Inspector notifies the JCSD's Development Representative to schedule the CCTV inspection. The JCSD's Development Representative coordinates the inspection with Sewer Operations Supervisor to notify Operations of a pending CCTV Request.
3. JCSD's Sewer Operations Staff may perform the serviceability review video inspection using the serviceability review video inspection check sheet. If there are no items listed for correction, the JCSD's Sewer Operations Staff will sign the video inspection sheet verifying the sewer main and lateral(s) are ready to be put into active service; and provide the completed and signed check sheet to the JCSD's Development Representative for the project file. If there are any items listed for correction, the JCSD's Inspector, in conjunction with Sewer Operations Staff, will ensure that the listed

items are corrected and re-inspected to document correction prior to signing the video inspection sheet, verifying the sewer main and lateral(s) are ready for active service.

4. The JCSD's Inspector provides the completed and signed check sheet to the JCSD's Development Representative for the project file and notifies them that the homes are ready for occupancy.
5. After being notified that the homes are ready for occupancy, the JCSD's Development Representative will send a letter to the County/City in which the JCSD is approving the occupancy of the designated homes.
6. Within five (5) working days of the completion of video inspection for the Tract Phase, the Developer will submit the complete package of video reports along with the complete digital video files to Development Engineering.
7. Development Engineering will submit the complete report to the Sewer Systems Supervisor for review and written final approval prior to filing in the Project folder.
8. The JCSD's Sewer Operations Staff will review and comment or approve the complete digital video file within seven (7) working days. If approved, the Developer may proceed with Occupancy. If rejected, Sewer Operations Staff will provide a list of deficiencies for correction prior to re-videoing and re-inspection. Deficient work shall begin within five (5) working days of the notice of deficiencies and shall be completed within sixty (60) working days. Steps 1 – 8 shall be repeated until acceptance has been achieved.
9. Submission of all required CCTV Reports will be a condition of final tract acceptance.

RECEIVED SUBMITTALS

- 3.1. Submittals will consist of:
 - 3.2. A portable hard drive or high capacity USB Thumb Drive containing the digital database, video, and photo files.
 - 3.3. A printed report in a hardcover white clear view 3-ring binder labeled as described in Section 4.4, containing the following information:
 - 3.4. Footage calibration report for each camera used.
 - 3.5. PACP Certificate copies of all operators.

- 3.6. Summary table of all pipeline segments inspected with the following fields in the order listed:

Column Number & Description

- Column 1: Date of Inspection
- Column 2: Start Manhole GIS
- Column 3: Stop Manhole GIS
- Column 4: Total Pipe Length (per as-built plan)
- Column 5: Televised Length
- Column 6: Quick Maintenance Rating (per PACP)
- Column 7: Quick Structure Rating (per PACP)
- Column 8: Section Number

(*NOTE: The table shall be sorted by Start Manhole GIS)

- 3.7. An observation table of all pipeline segments inspected with the following fields in the order listed:

Column Number & Description

- Column 1: Section Number
- Column 2: Position of Defect
- Column 3: Observation Code (per PACP)
- Column 4: Observation Description (per PACP)
- Column 5: Structural Grade (per PACP) Column 6: O&M Grade (per PACP)

(*NOTE: The table shall be sorted by Section Number)

DELIVERABLES:

- 3.8. As part of the Submittal, the Contractor shall submit all video recordings, image files, and databases on a high capacity USB thumb drive or a rectangular shaped external hard drive with USB 2.0/3.0 connection, or similar, as pre- approved by the JCSD. If a hard drive is submitted, the submittal shall include the power cord and USB connection cable. The external hard drive and cables will become property of the JCSD unless otherwise indicated.

- 3.9. High capacity USB thumb drive(s) or External hard drive(s), binder cover and binder spine label shall include the following information on computer-generated labels:

- 3.9.1. Jurupa Community Services JCSD - Sewer Operations Division
- 3.9.2. General Contractor Name and Sub-Contractor Name
- 3.9.3. Project Name (e.g. PC 123456 Tract 15423-02)
- 3.9.4. Start Date of CCTV Inspections (e.g. MM/DD/YYYY)
- 3.9.5. Finish Date of CCTV Inspections (e.g. MM/DD/YYYY)
- 3.9.6. All files included as part of the deliverables shall be contained within one single folder on the High capacity USB thumb drive or hard drive and labeled with the project name, and the date as:

PC45123_52369-02_AcceptanceReview_20071220_1

(Private Contract Number_ Tract Number Acceptance Review_ YYYYMMDD_ Submittal#)

VIDEO QUALITY – ACCEPTANCE/REJECTION:

- 3.10. The video recordings, photographs, and data shall be reviewed by the JCSD for focus, lighting, clarity of view, and technical quality.
- 3.11. Video recording without the use of a JCSD approved Sag Gauge and/or a pipeline that was not preloaded with adequate clean water prior to the start of the televising will not be reviewed or approved.
- 3.12. Videos or photographs recorded while a camera has flipped over in the process of traveling or the viewing of laterals, obstructions, or defects are blocked by cables, skids or other equipment will not be accepted.
- 3.13. Shape, focus, proper lighting, and clear, distortion-free viewing during the camera operations shall be maintained. Failure to maintain these conditions will result in the rejection of the video and/or photographs by the JCSD.
- 3.14. Videos or photographs recorded showing steam, inadequate lighting, or other poor image quality will be cause for rejection by the JCSD.
- 3.15. Any reach of sewer where recording quality, inspection, and/or report is not acceptable, according to this Technical Specifications to the JCSD shall be re-televised, or data modified.

4. ADDITIONAL RESPONSIBILITIES OF THE CONTRACTOR

- 4.1. In the event of any Contractor-related overflow or interruption/backup of customer service, the Contractor shall immediately notify the JCSD through the assigned Inspector, and shall contain and eliminate the overflow.
- 4.2. The Contractor shall be responsible for any fines levied by others, reimbursement of any agency incurred costs, damage, cleanup, restoration of flow, and any disruption of service costs to customers as, a result of the Contractor's work. This is in addition to any, and all costs incurred by the customer.
- 4.3. The Contractor shall respect the rights of property owners, and not enter upon private property without obtaining written permission from the owner of the property.

EMERGENCY RESPONSE

The Contractor shall observe and comply with JCSD'S policy of "ZERO SPILLS" and shall be in full charge and be responsible for the Jobsite, the construction work and subject to the directions of the JCSD/Project Inspector, Sewer Service & Maintenance Foreman, Sewer Systems Supervisor.

In the event of any contractor related sewer overflow, interruption and/or back up of customer service the contractor shall immediately contact JCSD personnel on the project and assist in first response on any emergency situation.

In case of a sewage spill, the Contractor shall, without instructions from JCSD, act immediately to contain and control the spill and take all appropriate steps to mitigate the overflow. Again, the Contractor shall immediately notify JCSD personnel assigned to the project.

In the event of a sewage spill or the potential of a spill to occur, adequate protection (containment) of all Storm Drains, Catch Basins and open channels are essential.

The Contractor shall provide for an emergency response unit that will be immediately dispatched to the job site in case of sewage spill(s). The emergency response unit shall consist of emergency response equipment and personnel trained in its use.

The Contractor shall provide digital photographs of all areas impacted and documentation on all corrective actions taken.

TYPICAL INSPECTION PROCEDURE:

1. Display Overlay with Segment details.
2. Start manhole inspection from center of manhole, pan manhole 360 degrees, from bottom looking up.
3. Start pipe inspection from edge of pipe, resetting the footage to zero at the start of pipe inspection.
4. Indicate AMH (Manhole) and MH Number in Remarks to start survey.
5. Indicate MWL (Water Level).
6. Indicate MWM (Water Mark) if visible.
7. Conduct survey.
 - a. Record all defects & taps

i. Close-up



ii. Perspective View (looking down the pipe at the defect).



- iii. Take 1 Photo of each tap



8. End Inspection

- a. If the camera reaches the end Manhole:
 - i. Indicate AMH and MH number in Remarks
 - ii. Display Ending Screen Text
 - iii. 360-degree Pan of Manhole, if the manhole is the terminal manhole.

FILE NAMING:

Database File Name: PrivateContractNumber TractNumber_YYYYMMDD_Acceptance Review Submittal# .mdb

Ex. PC45123_52369-02_20071220_AcceptanceReview_1.mdb

Photo Name(s): From MH Station –To MH Station -YYYYMMDD –Defect Position_ Unique Data .jpg
Ex. 0+00_3+45_20050101_125_A.jpg

*NOTE: Photographs shall be taken as follows: 2 photographs of each defect & 1 photograph of each lateral connection

Video Name(s): MH Station_ To MH Station_ YYYYMMDD .mp4
Ex. 0+00_3+45_20050101 .mp4 From

SECTION HEADER DATA:

Dates: YYYYMMDD (4-digit year, 2-digit month, 2-digit day)

Manhole Names: ##-+##- (Station Number) GIS
Ex. 12+00

Feet Televised: This distance shall be measured from the exit of the start manhole and the entrance of the finish manhole. (i.e. only the distance of the pipe)

EXAMPLE LABEL:

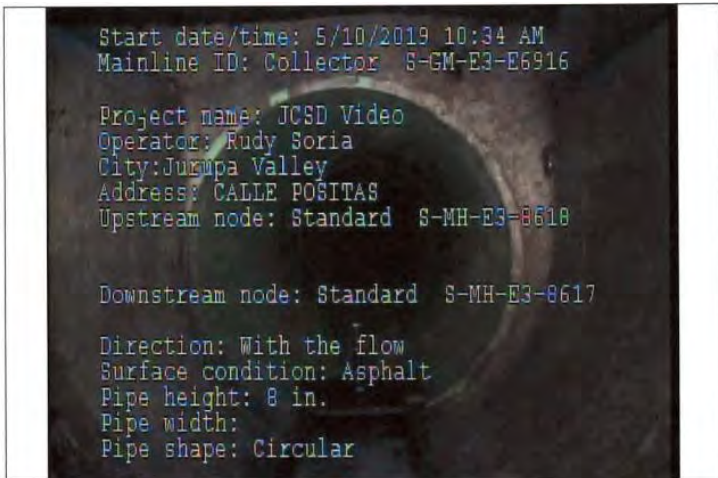
JCSD- Sewer Operations Division
General Contractor and CCTV
Co PC 123456 Tract 15423-02
Start: 01/05/2016
Finish: 02/07/2016

SCREEN OVERLAYS:

INITIAL TEXT SCREEN:

Include all of the following lines of text in the order listed; if your software/hardware does not allow for 13 lines of text, the lines marked OPTIONAL can be omitted as needed.

- Line 1: Surveyed By
- Line 2: JCSD
- Line 3: Street
- Line 4: Location Code (OPTIONAL)
- Line 5: Weather (OPTIONAL)
- Line 6: Direction of Survey
- Line 7: Use of Sewer (OPTIONAL)
- Line 8: Pipe Material
- Line 9: Pipe Diameter/Height
- Line 10: Start Manhole Number GIS*
- Line 11: End Manhole Number GIS*
- Line 12: Inspection Time/Date/Feet CCTV'd



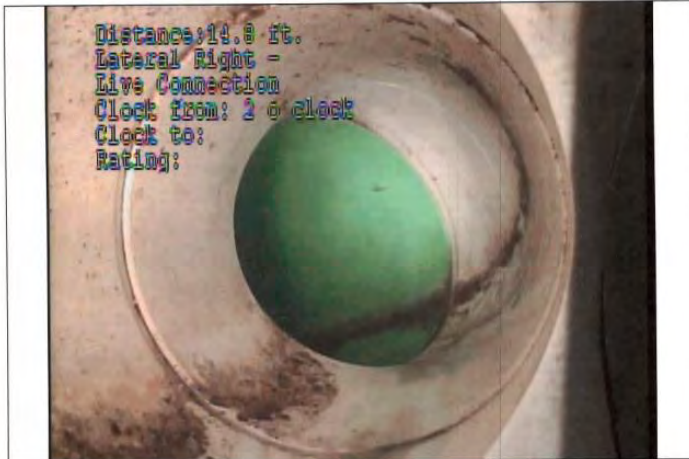
RUNNING SCREEN TEXT:

During the CCTV inspection, the video shall show the following text at all times:

Line 1: Date/Time

Line 2: Start Manhole Number/End Manhole Number

Line 3: Current Footage



OBSERVATION SCREEN TEXT:

The video shall the display the following screen when an observation is recorded.

Line 1: Date/Time

Line 2: Start Manhole Number/End Manhole Number

Line 3: Observation Code – Observation Text Description

Line 4: Current Footage



PACP CODES:

AMH - All inspections shall start with AMH, or other appropriate code for access point. (Refer to PACP Reference manual page 7-13)

MSA - All inspections where a segment is abandoned due to a blockage, obstruction, or collapsed sewer shall end with this code, and a reverse inspection shall be attempted. (Refer to PACP Reference manual page 1-4, 8-2, and 8-7)

MGO - This code shall be used when additional remarks are necessary . . . such as, reverse inspection, re-inspected during low flow, segment excused by DPW. Also, any defects in Manholes, such as a hole in the trough shall be recorded as an MGO.

MWL - This code shall be used at the beginning of each survey to indicate the water level, and shall be used throughout the survey if the water level changes by 5% or more. (Refer to PACP Reference manual page 8-2)

MWM - This code shall be used when there is an obvious mark on the side of the sewer line, where the water regularly reaches. (Refer to PACP Reference manual page 8-2)

RBL - This code shall be used when roots have formed a mass and, in doing so, are restricting the flow. This code should be used when the cross-sectional area lost is greater than 50% INSIDE the service pipe connection ONLY (i.e. lateral or tap connections) (Refer to PACP Reference manual page 6-7)

RBC - This code shall be used when roots have formed a mass and, in doing so, are restricting the flow. This code should be used when the cross-sectional area lost is greater than 50% and the roots extend OUTSIDE the service pipe connection and into the main sewer pipe. (Refer to PACP Reference manual page 6-7)

RBB - This code shall be used when roots have formed a mass and, in doing so, are restricting the flow. This code should be used when the cross-sectional area lost is greater than 50% and the roots are ENTIRELY WITHIN the main sewer pipe. (Refer to PACP Reference manual page 6-7)

EXAMPLE SUMMARY TABLE:

	Date	Start MH	Stop MH	Total Pipe Length	Tot. Length	Quick main! rate	Quick struct rate	Section No
1	01/05/2020	0+00	3+15	315	314.01	0000	1100	1
2	01/05/2020	3+15	6+40	325	322.02	2211	3100	2
3	01/05/2020	6+40	9+40	300	301.01	0000	0000	3
4	01/05/2020	9+40	12+00	320	320.99	1300	1300	4

EXAMPLE OBSERVATION TABLE:

	Section No	Position	oc	Observation	Struct Gr	O+M Grade
1	4	0	AMH	Upstream Manhole, Survey Begins		
2	4	0	MWL	Water Level, 15 % of cross sectional area, from 05 to 07 o'clock		
3	4	22.24	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inch: NO		
4	4	38.47	CM	Crack Multiple, from 10 to 04 o'clock, within 8 inch: YES	3	
5	4	71.32	TFA	Tap Factory Made Active, at 03 o'clock, 6", within 8 inch: NO		
6	4	114.58	TFA	Tap Factory Made Active, at 03 o'clock, 6", within 8 inch: NO		
7	4	137.54	TFA	Tap Factory Made Active, at 03 o'clock, 6", within 8 inch: NO		
8	4	245.94	AMH	Downstream Manhole, Survey Ends		
9	5	0	AMH	Upstream Manhole, Survey Begins		
10	5	0	MWL	Water Level, 15 % of cross sectional area, from 05 to 07 o'clock		
11	5	10.01	TFA	Tap Factory Made Active, at 03 o'clock, 6", within 8 inch: NO		
12	5	51.02	MWM	Water Mark 10 % of cross sectional area		2
13	5	100.7	TFA	Tap Factory Made Active, at 03 o'clock, 6", within 8 inch: NO		
14	5	115.94	AMH	Downstream Manhole, Survey Ends		

SUBMITTAL CHECK LIST:

The following items shall be included in your submittal to JCSD before it will be processed for the Acceptance of Sewer into the JCSD.

_____ High capacity USB thumb drive(s) or a rectangular shaped hard drive or containing:

- _____ WinCan database file (mdb),
- _____ Video files (mp4), and
- _____ Photo files (jpg).

(NOTE: VHS video tapes, CDs and DVDs will not be accepted)

_____ A hardcover white clear view 3-ring binder labeled as described in Section 4 .3 including the following items:

- _____ Footage calibration report for each CCTV camera used.
- _____ PACP Certificate copies of all operators.
- _____ Summary table of all pipeline segments inspected with the following fields in the order listed:

- Column 1: Date of Inspection
- Column 2: Start Manhole GIS
- Column 3: Stop Manhole GIS
- Column 4: Total Pipe Length (per as-built plan)
- Column 5: Feet CCTV'd Televised Length
- Column 6: Quick Maintenance Rating (per PACP)
- Column 7: Quick Structure Rating (per PACP)
- Column 8: Section Number

(*NOTE: The table shall be sorted by Start Manhole)

_____ An observation table of all pipeline segments inspected with the following fields in the order listed:

- Column 1: Section Number
- Column 2: Position of Defect
- Column 3: Observation Code (per PACP)
- Column 4: Observation Description (per PACP)
- Column 5: Structural Grade (per PACP)
- Column 6: O&M Grade (per PACP)

(*NOTE: The table shall be sorted by Section Number)