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## Standards Update Transmittal

Reference Number: 2024v-12  
Standards: SCS Section 38-9

### Update:

1. Modification to Standard Construction Specifications:
  - a. Section 38-9.04 is revised to include TV inspection of every joint.
  - b. Section 38-9.04.B.(1) is revised to require a transparent measuring tool for measuring joint gaps and a cylinder for measuring sag and water level.
  - c. Section 38-9.06 is revised to increase the allowable sags depending on the pipe size.

### Effect of Update:

1. This modification may increase the acceptance of storm drain pipe with sags or high points and makes it consistent with Sacramento County specifications.
2. This modification will also ensure detailed information is presented on the screen during TV inspections of the storm drain pipes.

Request for Update Initiated By: Development Services & SRC 9/13/2024  
Date

Update Reviewed for Conformity and Consistency to Standards: Shoab Ahrary 5/1/2025 | 3:09 PM PDT  
Shoab Ahrary, PE, ESD Manager Date

Update to Standards Approved: Kristin Parsons 5/1/2025 | 3:49 PM PDT  
Kristin Parsons, PE, City Engineer Date

**38-9.04 Television Video Inspection (TVI) – Storm Drains**

A Television Video Inspection (TVI) shall be conducted prior to new storm drain pipeline acceptance and prior to and after completion of pipeline rehabilitation projects. The TVI inspection shall document and verify the following:

1. the overall condition of the host pipeline,
2. line and grade,
3. a full pan view, including an attached transparent measuring tool, showing every joint,
4. cleanliness, and
5. that post-installation per the Contract has taken place.

The TVI inspection shall be documented in an electronic report (Inspection Report) and digital video recording as specified herein. It is the Contractor's responsibility to verify that the indexing, report and video documentation format is in the latest, most up-to-date format required by the City. Contractors shall comply with the Contract regarding specific information, indexing, and documentation requirements.

TVI inspection of new construction shall be performed after all required testing specified in this Section is satisfactorily completed. Cleaning storm drains shall be performed prior to the television inspection in a separate operation. Unless otherwise shown or specified in the Contract, the Contractor shall perform a television inspection on all storm drains between manholes and all storm drain inlet laterals. Unless the lateral run is less than 30 LF, these laterals may be lamped.

**38-9.04.B.(1) Camera**

The camera shall be a pan and tilt camera system with pipe grade verification system (inclinometer), and shall be specifically designed and constructed for the storm drain environment. The camera shall include: a solid state color TV camera with a panning and rotational camera head, remote adjustable optical focus and automatic light compensation iris with remote override, camera controller with remote focus, iris and auto centering control and camera lighting system.

There shall be no geometrical distortion of the image. The camera and monitor shall be able to produce a minimum 460 lines of horizontal resolution and 400 lines of vertical resolution. Focal distance shall be adjustable through a range of 1 inch to infinity. The camera shall be mounted on skids or a tractor suitably sized for each pipe diameter to be investigated. The camera shall move through the pipeline in a downstream direction whenever possible at a maximum uniform rate of thirty feet per minute (30 ft/min). Maximum allowable error for all the TV footage counters shall not exceed 0.05% (1/2 foot per 100 feet).

A transparent measuring tool (scale) of one to two inches shall be mounted on the camera's side view to measure joint gaps.

For measuring sag and water level, use a cylinder, placed in the upstream view of the camera. The cylinder shall be two inches (2") in diameter, with clear visible markings, every one quarter inch (0.25") from outside center, much like a target.

**38-9.06 Pipeline Acceptance Criteria**

All new storm drain pipeline shall be inspected in accordance with the requirements of Sections 38-9.4, "Television Video Inspection (TVI) – Storm Drains", unless otherwise specified in the Contract. The digital file shall be delivered to the appropriate City no later than 2 (two) working days after completion of the inspection. The digital file shall become the property of the City. The City will review the TVI inspection records within ten (10) working days and will notify the Contractor if:

1. The review revealed a satisfactory installation, or
2. The review revealed deficiencies.

The following deficiencies in storm drain installation that are identified by the Inspector or by television inspection shall be corrected by the Contractor at no cost to the City:

1. Joint separation greater than one-half inch (1/2").
2. Offset joints greater than one-half the pipe wall thickness.
3. Joint deflection of more than seventy-five percent (75%) of manufacturer's recommended maximum.
4. Cracked or damaged pipe, including liner pipe.
5. Debris in the line.
6. Sags or high points greater than the following:
  - a. 1 inch in 25 feet for pipe diameters of 21-inch or smaller
  - b. 1.5 inches in 25 feet for pipe diameters of 24 to 36 inches
  - c. 2 inches in 25 feet for pipe diameters of 42 inches or larger

All other criteria as set by the City Standard Specification and/or special conditions shall apply for storm drain pipes.

The Contractor will be notified in writing of any deficiencies revealed by the television inspection that will require repair. The Contractor may request a review of the video with the City. A video report form will be needed.

Upon completion of the required corrective actions, the storm drain will be re-televised in accordance with this Section 38-9.04. This process shall be repeated until the review of the recorded television inspection reveals a satisfactory installation.

The storm drain will be ball and flushed at the end of the warranty period.