

# **APPENDIX D: CCTV INSPECTION REQUIREMENTS**

## **APPENDIX D**

### **SEWER CAMERA INSPECTION REQUIREMENTS**

This document outlines the Town's requirements for all Sewer Camera Inspection submissions. All data recorded must be validated according to the Water Research Centre (WRC) guidelines and the guidelines set out in this document. The Contractor must provide proof of PACP certification for each camera operator recording observations in the database.

#### **1. Digital CCTV File & Reports**

- 1.1 Pipes shall be cleaned and flushed immediately prior to CCTV inspection.
- 1.2 All silt, debris and other foreign substances are to be removed from the sewer prior to commencing video inspection. If any of these items are discovered during an inspection, the inspection will be erased and the lines are to be cleaned and re-videoed.
- 1.3 Storm and sanitary sewers are to be inspected separately and be submitted in separate digital folders with separate reports.
- 1.4 Each CCTV file is to be accompanied by a PDF report containing the observations made during inspection. The video is to be good quality and in focus. All CCTV files shall be provided to the Town in .mp4 format; other file types will not be accepted. Videos that are of poor quality or that cannot be played will be rejected by the Town.
- 1.5 The Engineer shall review the CCTV files and reports prior to submission to ensure completeness and accuracy, and to ensure videos meet Town Standards.
- 1.6 Should repairs be required, the Engineer is to provide repair methodology for Town's approval. Re-video is required after approval is granted and the repair is complete.
- 1.7 USB Flash Drive labels and covering page of the report are to include the name of the project, Town project number, digital folder/report identification number, street names if possible, and the name of the Contractor performing the inspection. The label is not to include the name or job number of the general contractor.
- 1.8 The videos shall have alpha-numeric data recorded on it before the inspection of any sewer section. The data will be recorded for 2030 seconds, during which time the camera is to be stationary and have the distance counter set to 0.0.

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The information shall be in the format of the example shown below.

WEBSTER BOULEVARD	=	street being inspected
BENSON ST TO RANKIN WAY	=	streets bordering the street being inspected
1A TO 4A	=	which maintenance hole to maintenance hole section is being inspected (Town Numbering as per Engineering Drawings)
200 mm SAN	=	diameter of sewer (metric only) and sewer type
JUNE 01 2024	=	date of inspection
+000.0=		camera distance counter

- 1.9 The video shall have alpha-numeric data on it while the camera is travelling through the sewer. The information shall be in the format of the example shown below.

WEBSTER BOULEVARD	=	street being inspected
1A TO 4A	=	which maintenance hole to maintenance hole section is being Inspected
JUNE 01 2024	=	date of inspection
+004.9	=	camera distance counter

The alpha-numeric data will be displayed at all times in the bottom left corner of the screen. The background feature will be used when necessary to ensure the data is easily readable.

When the camera stops to view a pipe defect and/or a lateral, and the alphanumeric data is found to obstruct the defect, the camera will be moved a maximum of 0.1 meters forward or backward so the defect can properly be seen.

- 1.10 The entire length of the sewer, from starting to finishing maintenance hole wall, will be shown on tape whenever possible. The section of pipe between the start maintenance hole and the location where the distance counter is set shall be recorded on tape with the distance counter set at 0.0. If an observation is found before the distance counter is set, an estimated distance will be used.
- 1.11 All Sanitary Sewers within the roadway right-of-way and in any Town easements including all laterals are to be video inspected. Laterals shall be videoed from the main to 3.0m beyond the property line, unless otherwise approved by the Town.

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- 1.12 All Storm Sewers within the roadway right-of-way/SWM blocks and in any Town easements including all catchbasin leads, rear lot catchbasin leads and any laterals are to be video inspected. Laterals shall be videoed from the main to 3.0m beyond the property line, unless otherwise approved by the Town.

**2. INSPECTIONS**

- 2.1 Sewers are normally to be inspected only when flow levels do not cover or splash up on the camera lens. An inspection showing high effluent levels will only be allowed when the camera is travelling through a sump.
- 2.2 Inspections will normally be done with the camera travelling with the flow direction.
- 2.3 Against-the-flow inspections can only be done under one of the following circumstances
- a) Effluent levels are minimal. Effluent does not cover or splash up on the camera lens,
  - b) The inspection can't be done with the flow because the upstream maintenance hole
    - i) Is not found,
    - ii) Is inaccessible,
    - iii) Has a high effluent level,
    - iv) Has a high debris level, or
    - v) Has benching that will not allow camera entry.
- 2.4 If debris piles onto the camera lens and can't be shaken off, the inspection shall be terminated and restarted following sufficient cleaning/flushing of the line to remove debris.
- 2.5 A self-levelling camera is to be located at springline.
- 2.6 The pan and tilt feature is to be used on all connections and / or defects. Defects are to include but not limited to cracks, infiltration, questionable pipe joints, and scarring etc. When reviewing connections, the camera is to focus as far up the lateral as possible. Panning is to be stationary for 5 seconds. If the panning does not show the outer edge of the entire lateral, the camera is to be rotated to provide a complete view. Additional time is to be taken to investigate suspicious flows at laterals that are constant.
- 2.7 Lighting is to be of sufficient strength so that the field of view is clear (no shadows).
- 2.8 No inspection can be recorded when fog is on the camera lens.
- 2.9 No inspection can be recorded when fog in the sewer significantly affects the quality of the video image. The fan shall be used to attempt to clear the fog when necessary. If possible, sewers containing fog will be left until a time when the fog will no longer be present (i.e. warmer weather).
- 2.10 The camera distance counter is to measure distances from the centre of the lid of the start maintenance hole to the centre of the lid of the finish maintenance hole.

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- 2.11 The distance measured by the camera between two maintenance holes (surveyed distance) is to be confirmed by using a measuring wheel between the same maintenance holes (surface distance).
- 2.12 All recorded completed inspections must have a surveyed and surface distance that does not differ by more than 1%. If it is confirmed that the surveyed distance has been recorded with an incorrect value, the inspection will be deleted and redone.
- 2.13 All street catch basin, rear yard catch basin, ditch inlet and leads are to be video inspected.
- 2.14 All storm and sanitary lateral videos are to be reviewed and approved by the Engineer and provided to the Town thirty (30) days prior to occupancy.
- 2.15 Inspections are required prior to the Underground Certificate / Substantial Completion Certificate and after the Aboveground Certificate but prior to the placement of surface course asphalt. For Capital projects, the inspections are required as outlined in the Contract Documents.

