

Revised April, 2015

VIDEO INSPECTION: As a final measure required for acceptance, the Contractor shall clean and televise all sanitary sewer mains prior to requesting final inspection. The Contractor shall televise the entire sewer main and all service connections using standardized NASSCO (PACP, MACP, & LACP) practices, unless otherwise specified below. The process shall begin at the upstream manhole for each segment, and proceed to the downstream manhole for that same segment. Connections shall be televised from the cleanout to the main. Video inspection may occur only after Record Drawings are accepted and approved by the City of Winston-Salem. Prior to beginning the process, a 24 hour notice must be given by the Contractor to the Engineer. Prior to video inspection in paved areas, structures must be raised to final grade and 2" of asphalt must be in place. The City will not accept video that is more than 180 days old unless approved by the Engineer.

The cameras used for inspection shall be ones specifically designed and constructed for sanitary sewer pipeline inspection. Lighting for the cameras shall be suitable to provide a clear color picture of the entire periphery of the pipe. The cameras used for mains must be able to pan, tilt and zoom in order to allow for 360 degree viewing. The television system shall be equipped to indicate the camera travel distance in feet by display on the video viewing screen. All television equipment (camera, monitor, etc.) must be capable of producing picture quality which is satisfactory to the Engineer.

Within 2 hours of the video inspection, the Contractor shall clean the sewer mains and service connections with a high velocity water jet. All debris shall be collected in the downstream manhole and removed by the Contractor. Debris shall not be released into the existing sewer system. During the entire video process, the distance counter must be set at zero at each upstream manhole for each segment (set the counter at zero at the ground for each service connection). The Contractor will be required to pan and tilt at each manhole and at each service connection. The interior of each manhole must be marked with the manhole station (or manhole number) with paint or some other legible identifier (6" - 12" high letters or numbers). Each cleanout stack must be marked with the house number or the lot number. For mains, the Contractor will also be required to pan, tilt and zoom at all couplings, at all dates for Protecto 401 lined ductile iron pipe, and when any potential problems or abnormalities are noticed or suspected. Travel speed for the camera will be 15 - 30 feet per minute. The following video screen data will be required:

- Project name and project number
- Date of inspection
- Travel distance and time
- Station of start and end manholes
- Depth of start and end manholes
- Size of main
- Type of pipe

All above data shall be shown at the start and end manholes of each segment. While the camera is moving through the main and service connections, distance shall be the only data shown on the screen (top left or top right of screen).

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For mains, a stream of water approximately 1” in width must be flowing during the entire video process. For service connections, a minimum of 5 gallons of water must be introduced into each cleanout stack just prior to the video process. In all cases, the flow must be shown on the bottom of the video screen.

Two copies of the entire video inspection shall be submitted to the Engineer on a data disc (DVD or flash drive). The video file shall be formatted to MPEG-4 (MP4) with software compatible and readable by the City of Winston-Salem. The City of Winston-Salem shall not be responsible for purchasing additional software necessary to view the video file. Each inspection (manhole to manhole or cleanout to main) shall be separated into its own chapter or file. In the event of a main inspection, the chapter or file shall be named to indicate the upstream manhole station or number and then the downstream manhole station or number (e.g. MH1-MH2). In the event of a service connection inspection, the chapter or file shall be named to indicate the house number or lot number associated with the inspection. All file naming should match the identification numbers (manhole station or number, house number, or lot number) shown on the Record Drawings.

Any video that does not clearly show the pipe and service connections will be rejected. In the event that repairs are made, the segment receiving the repairs shall be flushed and televised again. The Engineer must oversee the entire cleaning and televising process. Final approval of the video inspection will only be after the Engineer has reviewed the video in the office (videos will not be field approved). The cost of cleaning and televising shall be included in the unit price for pipe.