**SECTION 5.3**

**TECHNICAL SPECIFICATION FOR**

**TELEVISION (TV) INSPECTION OF WASTEWATER MAINS**

**PART 1: GENERAL**

**1.1 Scope of Work**

Furnish all the necessary materials, equipment, tools, labor, and associated appurtenances for television inspection of wastewater mains as shown on the drawings and specified herein.

* 1. **Purpose and Schedule of Television Inspection**

1.2.1 Pre-Construction Television Inspection:

A pre-construction television inspection shall be performed for all wastewater mains to be rehabilitated and considered as “No Separate Pay Item”. The purpose of this television inspection is to locate or confirm the breaks, obstacles and service connections. In addition, this also verifies if the wastewater mains are properly cleaned in preparation for rehabilitation and identifies areas in the existing main that may require repair. The inspection will be done one manhole section at a time and the flow in the section being inspected will be suitably controlled as specified in the Wastewater Flow Control and Bypass Pumping section of these specifications.

1.2.2 Post Construction Television Inspection:

A post-construction television inspection shall be performed for all wastewater mains including new installation, replacement or rehabilitation. This television inspection shall be performed upon reconnection of all service laterals along with installation or rehabilitation of wastewater main.

* + 1. Television Inspection Schedule:

 TV inspection schedule for water/wastewater main project is shown below:

|  |  |
| --- | --- |
| **Construction** **Type** | **TV Inspection Schedule** |
| **City** **Contract** | **Joint Contract****(In Advance of Paving)** |
| Open Cut | Post-Construction | Post-ConstructionPre-Permanent Paving (Blue Top) |
| Trenchless Rehabilitation | Pre-ConstructionPost-Rehabilitation | Pre-ConstructionPost-RehabilitationPre-Permanent Paving (Blue Top) |

**1.3 Related Work**

* Technical Specification for Wastewater Main and Manhole Cleaning
* Technical Specification for Wastewater Flow Control and Bypass Pumping
* Technical Specification for Pipe Bursting of Wastewater Mains
* Technical Specifications for Cured-in-Place of Wastewater Mains

**PART 2: EQUIPMENT**

**2.1 Television Camera**

The television camera used for the inspection shall be specifically designed and constructed for such inspection. Lighting for the camera shall allow a clear picture of the entire periphery of the pipe above the existing flow. The camera shall be operative in 100% humidity conditions. The camera, television monitor, and other components of the video system shall produce a picture quality to the satisfaction of the Engineer, and if the picture quality is not satisfactory, TV inspection equipment shall be removed. No payment will be made for an unsatisfactory inspection.

**2.2 Communication Equipment**

When manually operated winches are used to pull the television camera through the main, two-way radio or other suitable means of communication shall be set up between the two manholes of the section being inspected to insure good communications between members of the crew.

**PART 3: EXECUTION**

**3.1 Camera Movement**

The camera shall be moved through the main in either direction at a moderate rate, panning for laterals and stopping when necessary to permit proper documentation of the wastewater main's condition. In no case will the television camera be pulled at a speed greater than 30 feet per minute. Manual winches, power winches, TV cable, and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the wastewater main's conditions shall be used to move the camera through the wastewater main.

**3.2 Distance Measurements**

The importance of accurate distance measurements is emphasized. Measurement for location of defects shall be above ground by means of a meter device. Marking on the cable or the like, which would require interpolation for depth of manhole will not be allowed. Accuracy of the distance meter shall be checked by use of a walking meter, roll-a-tape, or other suitable device, and the accuracy shall be satisfactory to the Engineer.

**3.3 Documentation:**

Documentation of the television results shall be as follows:

* + 1. Television Inspection Logs

 Printed location records shall be kept by the Contractor and will clearly show the location in relation to an adjacent manhole of each infiltration point observed during inspection. In addition, other points of significance such as locations of building wastewater mains, unusual conditions, roots, storm sewer connections, broken pipe, presence of scale and corrosion, and other discernible features will be recorded and a copy of such records will be supplied to the Owner.

* + 1. Photographs

 Photographs of the television inspection, if required, shall be made with instant developing 35 mm or other standard size photographic film. Photographs shall be at the request of the Engineer, as long as such it does not interfere with the Contractors operations.

* + 1. DVD Recordings

 The purpose of DVD recording shall be to supply a visual and audio record of problem areas of the mains that may be replayed. DVD recording playback shall be at the same speed that it was recorded. Slow motion or stop-motion playback features will be supplied. The Contractor shall have all DVD and necessary playback equipment readily accessible for review by the Engineer during the Project, after which time the DVD will be turned over to the Owner at the completion of the project.

**PART 4: METHOD OF MEASUREMENT AND PAYMENT**

Payment for providing pre-construction television inspection as specified in this section shall be incidental and inclusive in the applicable unit price bid item.

Payment for providing post-construction television inspection as specified in this section will be in accordance with the payment schedule in the Bid Proposal.

**\*\*END OF SECTION\*\***