

ITEM 59

PRE-CONSTRUCTION VIDEO RECORDING

1.0 DESCRIPTION. The Contractor shall provide all labor, materials, and equipment necessary to perform audio-video recording of the pre-construction project site surfaces as specified herein and as necessary to thoroughly document the condition of all surface conditions in the project area. The purpose of the recording of the project is to provide the necessary information for restoration of surface features, facilities, or residential structures, and new or existing equipment, after completion of the project. The contractor shall be responsible for repairing any damage(s) or defect(s) not documented as existing prior to construction.

2.0 SUBMITTALS. The Contractor shall submit the following in accordance with the conditions of this Contract.

- A. Reference Standards.** This section is not applicable.
- B. Shop Drawings.** This section is not applicable.
- C. Calculations.** This section is not applicable.
- D. Certifications.** This section is not applicable.
- E. Deliverable Items.** The following deliverables shall be submitted on one USB flash drive at the completion of inspection.
 - 1. Inspection videos in MPEG or Windows Media video format. Original video segments shall be retained in the format captured in camera (MP4, MOV, MPEG or WMV) without compression/modification that could reduce quality/resolution.
 - 2. Submitted USB flash drive shall be reviewed and approved by the county.
 - 3. Should the recordings not provide adequate coverage to fully illustrate the physical condition of the work area or not be in compliance with the specifications, the project areas shall be resurveyed prior to the initiation of construction at the project sites, with no additional cost.
 - 4. The Contractor shall provide a label/tag securely attached to the USB flash drive legible with key information as follows:

Contract #: _____

Project Title: _____

Contractor: _____

USB Flash Drive Info: _____

Date Televised: _____
(MM/DD/YY)

Date Submitted: _____
(MM/DD/YY)

5. In addition to a summary document (MS Word or Excel, or Adobe pdf) being saved in the root directory of the USB drive, a printed copy summary sheet shall be included inside of an 8 ½" x 11" envelope as follows:

Project Segment No.	Street/ Address, Intersection, MH Location, etc. (starting & ending)	Video File(s) and Time Stamp Range

F. Video Recordings.

1. Acceptable media for the video recordings is a USB flash drive. Contractor shall furnish to the Owner an original copy of the continuous color audio-video USB flash drive recording with each project segment's file.
2. All video recordings shall be identified by location, date of inspection, contained on the drive, project name, and Contractor's name in a manner acceptable to the Engineer. Acceptable file naming convention: Street/Area and Side/Portion, Direction of Travel and Date.
3. Any videos rejected by the Owner shall be redone at no additional cost to the Owner.
4. Prior to commencing, to ensure recording work methodology is acceptable, the Contractor shall submit one USB flash drive to the Owner for format and content approval prior to the start of any construction activities. This shall be accomplished by means of a prior project sample recording.

3.0 MATERIALS. Only materials approved by the Stark County Metropolitan Sewer District may be used for this work.

A. Video Inspections.

1. Contractor shall provide all recordings on a USB flash drive.
2. Said drive shall be sufficiently sized to handle all files and video media content, complete as specified herein.

B. Equipment. All equipment utilized in the recording shall adhere to the following:

1. The camera shall be capable for outdoor inspection work with a capacity to allow proper inspection of all assets, lighting levels, conditions, etc.
 - a. The camera shall be operable in the expected environmental conditions and be able to produce high-definition resolution video and audio as required herein.

2. Digital recording equipment shall capture recordings on USB flash drives and:
 - a. The video and photo file names will be referenced in the metadata and in a summary generated in PDF format.
 - b. The imaging capture system shall store digitized color picture images and be saved in digital format as would typically be expected by professionals routinely engaged in this type of work.
 - c. Time and date shall be maintained in real time and shall be displayed on the video monitor as well as in the video file.
 - d. The digital recording shall include both audio and video information that accurately reproduces the original picture and sound of the video inspection.
 - e. The video portion of the digital recording shall be free of electrical interference and shall produce a clear and stable image. The audio portion shall be sufficiently free of background and electrical noise to produce an accompanying oral report that is clear and discernible.
 - f. The equipment/software shall be capable of producing digitized still images in “jpeg” format when necessary.
 - g. When recording, the camera shall be mounted on a steady base. Horizontal and vertical shots shall be made from the base, to ensure proper perspective. The distance from the camera lens to the ground shall be no more than 12 feet. If not accessible by motorized vehicle, height shall be determined by the distance from ground to shoulder height of the camera operator.
 - h. Contractor shall furnish any necessary auxiliary lighting as required to produce a quality recording. At no time will the Contractor be allowed to use any electrical circuits within a building on private properties.
 - i. All pre-construction site Video’s shall be recorded utilizing an “Action Camera System” in accordance with the following requirements.
 - i. Process shall be GP3 Minimum.
 - ii. Sensor shall be 50MP 1-inch sensor for high resolution imaging & low light performance.
 - iii. Image Quality 4K (Minimum)
 - iv. Video Capability (Minimum)
 - a) 5K @ 60 fps, 4K @ 120fps, & 1080p @ 240fps. (Minimum)
 - iv. Lense Field of View; 170 degrees
 - v. Hyper View Technology
 - vi. Photo Capability, (Minimum)
 - a) 24.7 MP Still Photo
 - b) 27 MP Raw & JPEG
 - vii. Slow Motion Capability, 8X (Minimum)
 - viii. Wi-Fi and Blue Tooth availability
 - ix. Stabilization:
 - a) 360-degree EIS

- b) Still Image stabilization
- x. Approved manufacturers and models shall be:
 - a) Go Pro Hero version 10 or higher, Insta 360 One RS or engineering approved equivalent.

4.0 EXECUTION. All work shall be done in accordance with the following requirements.

A. Contractor's Qualification's.

1. Videographer shall be a firm or an individual of established reputation who has been regularly engaged as professional in this work for not less than three years.
2. The video recordings shall be performed by a qualified audio-video recording firm or individual knowledgeable in construction practices and experienced in the implementation of established inspection procedures.
3. The videographer must have had previous experience video documenting a minimum of ten miles of preconstruction work.
4. Any apprentice videographer must be continuously supervised by an above-described experienced videographer.

B. Job Conditions. The Contractor performing video recording and inspection will be required to coordinate his work with other trades.

C. Recording.

1. General requirements:
 - a. Prior to recording, the Contractor shall delineate the project area limits and details from the contract documents.
 - b. The Contractor shall determine the extent of potentially influenced areas prior to recording, including but not limited to work limits, laydown areas and all haul routes.
2. Recording operations:
 - a. The video portion of the recordings shall produce bright, sharp clear pictures with accurate colors and shall be free from distortion, tearing, rolls, or any other form of picture imperfection. The audio portion of the recordings shall reproduce precise and concise explanatory notes by the camera operator with proper volume, clarity, and freedom from distortion.
 - b. The Contractor shall perform recording work during regular business hours, unless otherwise approved by the Owner, no sooner than two weeks prior to the commencement of any construction, equipment, or material mobilization.
 - c. No video recording shall be performed if the weather is not acceptable, such as rain, haze, fog, or elongated shadows that distort perception and tend to prevent clear resolution.
 - d. The Contractor shall be responsible for the timely execution of the pre-construction audio-video survey, its vantage points, and quality. The contractor shall cooperate with the videographer's work and provide

reasonable auxiliary services as requested, including access and use of temporary facilities including any temporary lighting.

- e. The area of coverage shall extend to 50 feet from the proposed work site but shall also include all areas which will be excavated, or which has the potential to be disturbed, by the Contractor's operations. Specific examples include, but are not limited to:
 - i. All areas to be entered by vehicles or equipment, including construction areas for both internal and excavated improvements.
 - ii. Areas requiring utility work.
 - iii. Paved and unpaved areas which will be entered by vehicles or equipment.
 - iv. Other areas that may be impacted by the work, including work staging areas and field offices, as directed by the Owner.
- f. The recordings shall include the coverage of all surface and other site features located in areas to be affected or influenced by the work, extending to a minimum of 15 feet outside the actual right of way (street, construction, etc.). The operator shall also record audio of the type of defect or feature, location, extent, or other pertinent data. The surface features recorded shall include, but not be limited to:
 - i. Roadways, driveways (indicate the physical site address), sidewalks, curbs.
 - ii. Culverts, headwalls.
 - iii. Retaining walls, fences, buildings, above-ground utilities, and equipment.
 - iv. Parks, lawns, landscaping, trees, tree canopies and shrubbery.
- g. Digital photographs or screen captures shall be taken at all significant defects or areas of concern as directed by the Engineer.
- h. The camera shall be slowed, stopped, or backed-up to perform detailed inspections of significant features including but not limited to all noteworthy defects or recent improvements, changes in materials, standing water, or sediment.
- i. Audio shall be recorded during each inspection by the operating technician, electronic voice text recognition or approved equal on the inspection video and shall include location, identification of beginning and terminating (address or cross streets), inspection direction, length of inspection, reason for termination, and other relevant commentary to the inspections. Voice descriptions should be made:
 - i. At points of debris, sediment/mud and standing water.
 - ii. At points where unusual conditions, defects, noteworthy improvements, etc. are noted.
 - iii. At points where digital still photos are taken.
 - iv. At driveways and all other surface features near or in the contemplated work zone.
- j. The audio portion of the composite video shall be sufficiently free from electrical interference and background noise to provide complete comprehension of the oral report. Audio dubbing after the inspection is prohibited.

- k. Video recordings may be ordered outside of the area of coverage to establish those features deemed necessary by the Owner.
- l. Video recording shall be as follows:
 - i. Road videos. Road travel videos shall require 4 trips per road section as follows:
 - a) Initial travel direction (facing road) from road starting point to road ending point
 - b) Return travel direction (facing road) from road end point to original road beginning point.
 - c) Side facing travel direction (facing periductular to one (1) side of road direction) from road starting point to road ending point.
 - d) Return side facing travel direction (facing periductular to opposite side of road from road ending point to original road starting point.
 - e) The rate of travel for the video recordings shall be determined by the number, size, and value of the surface and other site features within the construction area of coverage to produce a clear, detailed view of each feature accompanied by audio comments. At no time shall the rate of travel exceed 15 miles per hour for road surfaces and 100 feet per minute (1.1 miles per hour) on yard or other structures/features of note above herein .
 - ii. Easement & Facility Videos. All easement and facility videos, plants lift stations, easements etc. shall be videoed via walking.
 - a). The rate of travel for the video recordings shall be determined by the number, size, and value of the surface and other site features within the construction area of coverage to produce a clear, detailed view of each feature accompanied by audio comments. At no time shall the rate of travel exceed 100 feet per minute.
- m. Forward motion of the camera shall be halted when viewing objects or structures outside the limits of the street or easement being documented.
- n. The videographer shall pan and zoom in and out at a reasonable rate to control sufficiently the clarity of object being viewed.

D. Data Displays.

- 1. To preclude the possibility of tampering or editing the USB flash drive shall display continuous digital information including the following:
 - a. Date and time of the recordings; date information will contain the month, day and year; time information will contain hours, minutes and seconds, separated by colons.
 - b. Digital information shall appear at the bottom of the viewing screen and in no way interfere with the video portion of the recordings.
- 2. Accompanying audio required at the beginning of each area/street being inspected, the following information shall be generated:
 - a. Date of survey.
 - b. Street name or location.

- c. Direction of survey and viewing information, e.g., heading north on the east side of Main Street.
- d. Any commentary deemed helpful to characterize the conditions being recorded.

5.0 ELECTRICAL. This section is not applicable.

6.0 QUALITY ASSURANCE. The contractor shall provide the following quality assurance procedures to assure all recording was properly conducted during this project in accordance with the following requirements below.

A. Data Validation.

- 1. Inspection deliverables will be validated to check conformance with the specified requirements for file names, formats, quantity, resolution, etc.
 - a. All recording resolution quality shall be, at a minimum, in 4K high-definition digital format.
 - b. The county reserves the right to reject the audio-video USB flash drive because of poor quality, unintelligible audio, or uncontrolled pan or zoom.
- 2. Any data not passing the data validation checks will be rejected and returned to the Contractor.
- 3. Poor/inferior quality videos which do not clearly show necessary conditions will not be accepted.
- 4. Repeated inferior work may result in suspension from future work until evidence is presented that deficiencies have been corrected.
- 5. If any portion of the video and/or audio recording is of poor quality, the Engineer has the right to require a re-submittal of the affected sections.
- 6. The Engineer will provide comments regarding acceptance of the data within 14 days of receiving the data from the Contractor.

B. Observation. This section is not applicable.

C. Warranty. This section is not applicable.

7.0 MEASUREMENT. This section is not applicable.

8.0 PAYMENT. No separate payment will be made for the recording work specified herein, including all incidental reports and deliverables.

END OF SECTION