

SECTION SS-4
SEWER CLEANING

PART 1	GENERAL
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1.01 SUMMARY

- A. The Contractor shall provide all labor, materials, and equipment necessary to clean the sewer and manholes as specified within or as designated by the Engineer. Any sewer waste material disposal costs are to be included in this item as well.
- B. Related Sections:
1. SS-5, Sewer Video Recording and Inspection
 2. SS-12, Cured-In-Place Pipe

1.02 REFERENCES

- A. All work shall meet or exceed the requirements of the National Association of Sewer Service Companies (NASSCO) Recommended Specifications for Sewer Collection System Rehabilitation (latest edition), except as otherwise specified herein.

1.03	DEFINITIONS	(Not Used)
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1.04	SYSTEM DESCRIPTION	(Not Used)
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1.05	SUBMITTALS	(Not Used)
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1.06	QUALITY ASSURANCE	
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- A. Codes. Perform all work in accordance with the most recent federal, state, and local codes.

- B. Contractor's Qualifications. The sewer cleaning Contractor shall be a firm having a minimum of 3 years continuous successful experience in sewer cleaning similar to that required for this Project.

1.07	DELIVERY, STORAGE AND HANDLING	(Not Used)
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1.08	PROJECT/SITE CONDITIONS	(Not Used)
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1.09	SEQUENCING	(Not Used)
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1.10	SCHEDULE	(Not Used)
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1.11	WARRANTY	(Not Used)
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1.12	SYSTEM STARTUP	(Not Used)
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CIP #
Project Name

SS4-1

1.13	INSTRUCTION OF OWNER'S PERSONNEL	(Not Used)
1.14	COMMISSIONING	(Not Used)
1.15	MAINTENANCE	(Not Used)

PART 2 PRODUCTS

2.01	MANUFACTURERS	(Not Used)
2.02	EXISTING PRODUCTS	(Not Used)
2.03	MATERIALS	(Not Used)
2.04	MANUFACTURED UNITS	(Not Used)
2.05	EQUIPMENT	(Not Used)
2.06	COMPONENTS	(Not Used)
2.07	ACCESSORIES	(Not Used)
2.08	MIXES	(Not Used)
2.09	FABRICATION	(Not Used)
2.10	FINISHES	(Not Used)
2.11	SOURCE QUALITY CONTROL	(Not Used)

PART 3 EXECUTION

3.01	ACCEPTABLE INSTALLERS	(Not Used)
3.02	EXAMINATION	(Not Used)
3.03	PREPARATION	(Not Used)
3.04	ERECTION	(Not Used)
3.05	INSTALLATION	(Not Used)
3.06	APPLICATION	(Not Used)
3.07	CONSTRUCTION	(Not Used)
3.08	REPAIR/RESTORATION	(Not Used)
3.09	RE-INSTALLATION	(Not Used)
3.10	FIELD QUALITY CONTROL	(Not Used)
3.11	ADJUSTING	(Not Used)
3.12	CLEANING	

During sewer cleaning operation, precautions shall be taken to protect the sewer from damage that might be inflicted by the improper use of cleaning equipment. Whenever hydraulically propelled cleaning tools or any tools which retard the flow of water in the sewer are used, precautions shall be taken to ensure that the water pressure created does not cause any damage or flooding to any property.

If during the cleaning process the contractor identifies locations where point repairs will be required, these locations must be brought to the attention of the Engineer for consideration of compensation.

- A. **Maintenance Cleaning.** The contractor shall clean the sewers to an acceptable level. An acceptable level is defined as removing all bricks, concrete, sand, dirt, roots, grease, mineral deposits and any other solid or semisolid material to restore a minimum of 95 percent of the internal pipe height throughout for sewer diameters less than or equal to 60-inches and 98 percent for pipes over 60-inches in diameter. If the pipe condition is such that cleaning may cause a potential collapse, then the pipe shall not be cleaned to the 95 or 98 percent condition. Designation of such a condition shall be subject to the Engineers approval. The sewer shall be cleaned using hydraulic, high velocity hydraulic, mechanical sewer cleaning equipment, or physical means without damage to the existing sewer. Selection of the equipment used shall be based on the condition of the sewer at the time the work commences.
- B. **Pre-Rehabilitation Cleaning.** All sewers to be televised and/or rehabilitated shall first be cleaned by the Contractor. All bricks, concrete, sand, dirt, roots, grease, mineral deposits and any other solid or semisolid material shall be removed using hydraulic, high velocity hydraulic, mechanical sewer cleaning equipment, or physical means without damage to the existing sewer so that the sewer invert is completely clear and free of deposits. Deposits not located in the invert shall be removed to the satisfaction of the engineer for all sewer diameters. Selection of the equipment used shall be based on the condition of the sewer at the time the work commences.
 - 1. **Hydraulic.** Hydraulic cleaning equipment shall be of a movable dam type and constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to protect against flooding of the sewer. The movable dam shall be equal in diameter to the sewer being cleaned, and shall provide a flexible scraper around the outer periphery to ensure removal of foreign material.
 - 2. **High Velocity Hydraulic.** High velocity hydraulic sewer cleaning equipment shall be constructed for ease and safety of operation. The equipment shall have a minimum of 600 feet of 3/4 inch inside diameter high pressure hose with a selection of two or more high velocity nozzles. The nozzles shall have a minimum capacity of 30 gallons per minute

(gpm) at a working pressure of 1,000 to 1,500 pounds per square inch (psi). The nozzles shall be capable of producing a scouring action from 15 degrees to 45 degrees in all size sewers. Equipment shall also include a high velocity gun for washing and scouring manhole walls and floor. The gun capacity shall be capable of producing flows from a fine spray to a long distance solid stream. The equipment shall carry its own water tank, auxiliary engines, pumps, and hydraulically & driven hose reel. All controls shall be located so that the equipment can be operated above ground.

Engineer Note: An allowance is included in the contract cost assuming 30% of lines to be video inspected will require heavy cleaning. Unless otherwise approved by the CITY, the cleaning process to be employed shall be performed in a "step" process. Successive steps of lengths of a maximum of 50 feet longer than the preceding steps are made until the total length to be cleaned is completed. Each time this process is used to clean a section of pipe is referred to as a "pass". If after three such "passes", the line still requires additional cleaning, the line will then be deemed as heavy cleaning based on evaluation of pre-cleaning videotape and consensus of the CITY.

3. **Mechanical.** Power rodding machines shall be either a sectional or continuous type capable of holding a minimum of 1,000 feet of rod. The machine shall have a positive rod drive and produce a minimum 2,000 pound rod pull. To ensure safe operation, the machine shall have a fully enclosed body and an automatic safety throw-out clutch or relief valve. Bucket machines will not be permitted. Engineer's approval must be obtained before beginning any Mechanical cleaning processes.
4. **Root Removal.** All roots shall be removed from the interior of the sewer by following processes:
 - a. Mechanical. Root removal may include the use of mechanical devices, such as rodding machines, expanding root cutters and porcupines, and hydraulic cleaning equipment.
 - b. Chemical. Chemical treatment to remove roots may be used. The application of an approved label herbicide to the roots shall be done in accordance with the manufacturer's recommendations in such a manner to prevent any damage to the sewer and

surrounding vegetation. Any damaged sewer or vegetation shall be replaced. Chemical herbicides used shall have no adverse effects on the materials used for sewer rehabilitation, nor shall they interfere with bonding of rehabilitation materials to the sewer wall. All precautions, as recommended by the manufacturer, shall be adhered to concerning handling and application of the herbicide.

3.13 DEMONSTRATION (Not Used)
3.14 PROTECTION

- A. Material Removal and Disposal. All material resulting from the cleaning operation shall be removed at the downstream manhole of the sewer section being cleaned. Passing material from sewer section to sewer section will not be permitted. All materials shall become the property of the Contractor and removed from the site at the end of each workday. The Contractor will not be allowed to accumulate material on the site of work.

Waste material cleaned from the sewer may be disposed of by hauling to the Division of Sewerage and Drainage Facility at 1388 Emig Road, Columbus, Ohio 43223. Waste material refers only to material removed from the sewer during the cleaning process and does not include excavated material removed such as pipe to be removed and replaced. The Emig Road disposal site has limited access and the contractor must arrange for access through the Division of Sewerage and Drainage Sewer Maintenance Operation Center (SMOC) by calling (614) 645-7102. Specifics regarding the scheduling, monitoring, and approved methods and procedures for disposal must be arranged with the Division of Sewerage and Drainage prior to the start of construction.

3.15 SCHEDULES

- A. Payment. This item shall be paid at the unit price bid per linear foot of sewer cleaning as measured from center of manhole to center of manhole along the centerline of the sewer ready to be lined.

ITEM	UNIT	DESCRIPTION
SS-4	LF	Sewer Cleaning
SS-4	LF	Heavy Sewer Cleaning

END OF SECTION