

SECTION 812
SEWER LINE, MANHOLE AND WET WELL CLEANING

812-1 SCOPE OF WORK:

- a. The Contractor shall provide all labor, materials, equipment, and incidentals necessary to perform the cleaning of sewer lines, manholes and wet wells as specified in this specification. Sewer line cleaning shall include post-cleaning television inspection to assure satisfactory results.
- b. The intent of sewer line, manhole and wet well cleaning is to remove all sludge, dirt, sand, rocks, grease, and other solids or semisolid material from the pipe, manhole or wet well so that defects are not obscured and to allow the water level to drop so that defects are visible. The pipe, manhole and/or wet well interior shall be clean enough to allow viewing of the entire pipe, manhole and/or wet well interior during inspection in accordance with Section 815. Since the success of the other phases of work depends a great deal on the cleanliness of the lines, manholes and wet wells, the importance of this phase of the operation is emphasized.
- c. Preparatory cleaning shall be performed prior to closed circuit television inspection, point repair, sewer lining or robotic point repairs, etc. Upon request of the Contractor, the Owner may provide Inspection Reports performed prior to the current contract for reference.
- d. Preparatory cleaning shall be performed prior to sewer manhole inspections. This preparatory cleaning shall include the use of hydraulic cleaning equipment and Vacuum Trucks to remove sludge, dirt, grease, etc. from the interior walls and benches of the manhole so that defects are visible. **Preparatory cleaning of sewer manholes shall be incidental to the manhole inspection.**
- e. Heavy cleaning of sewers shall be conducted on lines at the direction of the Engineer. Heavy cleaning shall be conducted using bucket machines and mechanical cleaning equipment such as scrappers, scooters, heavy duty brushes, metal pigs and other approved debris removing equipment as specified herein. Heavy cleaning shall remove all foreign materials from the lines. The Contractor shall not be responsible for removing mortar or other similar material that is permanently attached to the pipe walls.
- f. Heavy cleaning of sewer manholes shall be conducted on manholes at the direction of the Engineer. Heavy cleaning of manholes shall include entire manhole interior, including manhole benches and walls. It also includes removal of all foreign object or debris from the manholes which shall be removed either manually or mechanically.
- g. Cleaning of sewer wet wells shall be conducted on wet wells at the direction of the Engineer. Cleaning shall include the use of hydraulic cleaning equipment and Vacuum Trucks to remove sludge, dirt, grease, etc. from the interior walls and bottoms of the wet well. Incorporate into line cleaning operation by scouring walls with high velocity nozzle after pipe segment cleaning operation is complete. It also includes removal of all foreign object or debris from the wet wells which shall be removed either manually or mechanically.

812-2 ACCEPTABLE METHODS: Sewer line cleaning shall be performed by electronically or manually operated, directly or remotely controlled, mechanically or hydraulically propelled cleaning equipment as described in this specification. Normal line cleaning shall be performed by high velocity water jetting or movable dam used to loosen and transmit material for extraction. Heavy line cleaning shall be performed by mechanical equipment when water jetting is unsuccessful. In NO case shall

Heavy line cleaning be used on PVC pipe. Root Removal is a special operation to cut and remove roots from specific areas of a pipe segment. Selection of equipment for each type of operation shall be made by the Contractor with the concurrence of the Engineer and shall be based on the type of work to be performed, field conditions, such as wet well access, type of debris to be removed, depth of sewage flow, and pipe material.

812-3 LIMITATIONS:

- a. Satisfactory precautions shall be taken to protect the sewer lines from damage that might be inflicted by improper use of the cleaning equipment. Whenever hydraulically propelled cleaning tools that depend upon water pressure to provide their cleaning force, or any tools that retard the flow of water in the sewer line, are used, precautions shall be taken to ensure that the water does not cause damage or flooding to public or private property.
- b. No fire hydrant shall be obstructed or used when there is a fire in the area.
- c. Contractor shall remove the water meter(s)/piping, etc. from all fire hydrants at the end of each working day.

812-4 SEWER CLEANING:

- a. Sewer line sections shall be cleaned using mechanically powered, hydraulically propelled, or high velocity sewer cleaning equipment. Selection of the equipment used shall be based on the conditions of the lines at the time the work begins. The equipment and methods selected shall be satisfactory to the Engineer. The equipment selected for cleaning shall be capable of removing dirt, grease, rocks, sand, sticks, branches, leaves and other deleterious materials and obstructions from the sewer lines and wet wells. If cleaning of an entire section cannot be successfully performed from one manhole or wet well, the equipment shall be re-setup at the manhole or wet well on the opposite end of the pipe segment being cleaned and cleaning shall be re-attempted.
- b. Water for sewer cleaning shall be purchased by the Contractor and obtained at locations in accordance with the utility owner, as directed. If the water is obtained from a potable supply, appropriate backflow prevention devices as identified in Part XII Water Supplies by the La. Department of Health and Hospitals shall be provided to protect the potable system from cross connections and contamination. Contractor shall be solely responsible for preventing cross contamination of any public or private water systems used for this purpose.
- c. During all sewer-cleaning operations, satisfactory precautions shall be taken to protect the sewer lines from damage that might be inflicted by the improper use of cleaning equipment. Whenever hydraulically propelled cleaning tools or tools which retard the flow in the sewer line are used, precautions shall be taken to ensure that the water pressure created does not cause any damage or flooding to public or private property. The flow of sewage in the sewer lines shall be utilized to provide necessary pressures for hydraulic cleaning devices whenever possible.
- d. When additional water from fire hydrants is necessary to avoid delay in normal working procedures, the water shall be conserved and not used unnecessarily. No fire hydrant shall be obstructed in case of a fire in the area nor shall a hydrant be used for the purpose described unless an appropriate backflow preventer is provided.

- e. Contractor will be solely responsible and held liable for any claims or damages arising from any action or lack of action arising from reckless, negligent, or careless behavior.
- f. The retrieval of equipment lodged in pipes or a wet well is the Contractor's responsibility and will be performed at the Contractor's expense.

812-5 CLEANING EQUIPMENT:

812-5.1 Regular Sewer Line Cleaning:

- a. Hydraulic Cleaning Equipment: The equipment used shall be of a movable dam type and be constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to allow the sewage flow past the cleaning head to protect against flooding of the sewer. The movable dam shall be equal in diameter to the pipe being cleaned and shall provide a flexible scraper around the outer periphery to ensure total removal of grease. If cleaning balls or other such equipment that cannot be collapsed instantly are used, special precautions against flooding of the sewers and causing damage to public or private property shall be taken.
- b. High Velocity Jet (Hydro-Cleaning) Equipment: All high velocity sewer cleaning equipment shall be designed for ease and safety of operation. The equipment shall have a selection of two or more high velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 degrees to 45 degrees in all sizes designated to be cleaned. Cleaning shall be accomplished by using a pump capable of delivering water from 800 to 1500 psi to the self-propelled nozzles. Equipment shall also include a high velocity gun for washing and scouring wet well walls and floor. The gun shall be capable of producing flows from a fine spray to a 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.

812-5.2 Heavy Sewer Line Cleaning:

- a. Mechanical Cleaning (Heavy Cleaning Equipment): Bucket machines shall be in pairs with sufficient power to perform the work in an efficient manner. Machines shall be belt operated or have an overload device. Machines with direct drive that could cause damage to the pipe will not be allowed.
- b. Power rodding machines shall be either sectional or continuous type capable of holding a minimum of 750 feet of rod. The rod shall be heat-treated steel. To ensure safe operation, the machine shall have a fully enclosed body and an automatic safety throw-out clutch or relief valve.
- c. Chain knockers may be used in a back and forth motion to loosen heavy deposits of material. Chain knockers may be used in ductile iron pipe ONLY.
- d. Contractor may recommend other heavy cleaning equipment for use with the approval of the Engineer.

812-5.3 Root Removal:

- a. Roots shall be removed in the designated sections where there is root intrusion. Root removal shall be sufficiently completed to satisfy the following objectives: to restore the hydraulic capacity of the sewer line to at least 95% capacity after cleaning, to allow for complete CCTV inspection of the sewer line in question to the satisfaction of the requirements of Section 815, and to decrease the probability of the damming of debris

at the location of the root removal. Special attention shall be used during the cleaning operation to assure complete removal of roots from the joints.

- b. Procedures may include the use of mechanical equipment such as rodding machines, winches using root cutters and porcupines. Also hydraulically driven root cutting blade or saw assemblies, hydraulic jetting equipment specifically design for root cutting, and hydraulically propelled chain or wire root cutters.
- c. Sanitary sewer service lateral root cutting may be performed from the mainline or from a public sewer clean out if one exists. Sanitary sewer service lateral root cutting shall be approved by Engineer prior to Contractor performing root removal in the service lateral.
- d. The Contractor shall perform an initial setup of his equipment so that sanitary sewer service lateral root cutting can be performed on all designated and/or approved service laterals along a mainline segment. Multiple additional setups on the same mainline segment will not be paid due to the preferred method of root removal in the service lateral chosen by the Contractor.
- e. All lines that require root cutting will be both cleaned and inspected after root cutting is completed. The cost of this additional work will be considered incidental to the unit cost of root cutting. After root removal, re-televising the entire sewer line is not required, but the pipe in the locations where the roots have been removed, and any part of the line not yet videoed, must be re-televised after root removal so that any piping, connections, defects, etc., hidden before root removal may be identified. Televising may be stopped and the root cutting executed while the CCTV recording is paused.

812-5.4 Heavy Sewer Manhole Cleaning:

- a. Cleaning equipment that uses a high velocity water jet for moving debris shall be capable of producing a minimum volume of 50 GPM with a pressure of 3500 PSI for the wet well structure at the pump. Any variations to this pumping rate must be approved, in advance, by the Engineer. A working pressure gauge shall be used on the discharge of all high pressure water pumps. The Contractor shall operate the equipment so that the pressurized nozzle continues to move at all times. The pressurized nozzle shall be turned off or reduced anytime the hose is held or delayed in order to prevent damage to the wet well.
- b. Contractor shall remove foreign objects or debris from wet well by manual or mechanical means approved by the Engineer.

812-5.5 Pump Station Wet Well Cleaning: Cleaning of pump station wet wells shall be in accordance with Subsection 815-5.4.

812-6 MATERIAL REMOVAL:

- a. All sewer lines to be cleaned shall be plugged at the discharge end prior to cleaning.
- b. All sludge, dirt, sand, rocks, grease, and other solid or semi-solid material resulting from the cleaning operation shall be removed at the downstream manhole or wet well of the section being cleaned. Passing material from one sewer line section to another sewer line section, or from manhole section to manhole section shall not be permitted except when using high velocity jet equipment. The maximum limit before material is removed will be approximately 600 feet.

- c. All roots shall be removed prior to sewer line inspection, robotics repair and sewer liner pipe installation. If roots are encountered during line inspection, remove inspection equipment, then perform root removal and re-inspect with no additional cost to the Owner.

812-7 DISPOSAL OF MATERIAL:

- a. All debris, solids or semi-solids resulting from the cleaning operations shall be removed from the site and disposed of at a legally permitted site for that purpose. At a minimum all materials shall be removed from the site at the end of each workday. Under no circumstances will the Contractor be allowed to accumulate debris, etc., on the site of work beyond the stated time, except in totally enclosed containers and as approved by the Engineer.
- b. Contractor shall be responsible for all fees and tipping charges for disposal.
- c. The Contractor must follow all current applicable local, state and federal rules and laws regarding the appropriate disposal of waste materials from cleaning operations.
- d. Under no circumstances shall sewage or solids removed in the cleaning process be dumped into streets, ditches, catch basins, storm drains, sewer manholes, wet wells, cleanouts, or dumps.
- e. Sanitary sewer dewatering of the Vacuum Truck or tank may be discharged into the sanitary sewer system at a manhole downstream of the pipe segments that have been cleaned. Storm water dewatering may be discharged to a downstream location, as approved by the Engineer.

812-8 INSPECTION: Inspection of all cleaning operations will be made on a daily basis by the Engineer.

812-9 ACCEPTANCE: Television inspection shall be performed to ensure the satisfaction of the Engineer that proper cleaning of the line or wet well has been performed. If inspection shows the cleaning to be unsatisfactory to the Engineer, the Contractor will be required to re-clean and re-inspect the sewer line section or wet well until the cleaning is acceptable at no additional cost to the Owner.

812-10 MEASUREMENT:

- a. **Sewer Line Cleaning:** Measurement for this item shall be on a linear foot basis, measured to the nearest whole foot, from center of upstream manhole to center of downstream manhole for the various sizes listed on the Bid Form.
- b. **Wet Well Cleaning:** Measurement for this item shall be per each wet well based on the capacities listed. This shall include the first 40 feet of piping required for cleaning operations.
- c. **Treatment Facility Cleaning:** Measurement for this item shall be per hour of cleaning operation. This may include, but not be limited to, the cleaning of Grit Chamber Drain Pits, Settling Basin's Scum Boxes, Clarifier Scum Boxes, Bar Screen Channels, or Influent Chambers at the three treatment facilities and/or the parish prison.
- d. **Heavy Sewer Manhole Cleaning:** Measurement for this item shall be based on each manhole.

- e. **Root Removal:** Measurement for this item shall be by the linear foot of mainline sewer pipe obstruction. The minimum length for Root Removal payment shall be twenty (20) feet per line segment from manhole to manhole. Measurement shall be for location of roots only. Travel length of root removal equipment to root location will not be measured as root removal.
- f. **Sanitary Sewer Lateral Root Removal:** Measurement for this item shall be based on each sanitary sewer lateral requiring root or pipe obstruction removal up to twenty (20) feet of sewer service lateral.
- g. **Sanitary Sewer Lateral Root Removal Set-up:** Measurement for this item shall be made per each initial equipment set-up per mainline segment requiring sanitary sewer lateral root removal.
- h. **Additional Piping for Wet Well Cleaning:** Measurement for this item shall be based on the actual linear footage of pipe after the initial 40 feet paid under the Wet Well Cleaning item as approved by the Engineer. This item should only be used when the wet well is not accessible from the roadway or driveway.
- i. **Emergency Call Out:** Measurement for this item shall be per each based on the actual number of call outs outside of normal business hours as authorized by the Engineer. Normal business hours are considered to be 6:30 a.m. to 3:00 p.m. Monday thru Friday, excluding City-Parish holidays. Personnel shall be available 24 hours a day, seven (7) days a week for call out and shall respond within three (3) hours of notification. Failure to respond within the specified time limit for three (3) call outs shall result in the Contractor being placed in default and the cancellation of the Contract.

812-11 PAYMENT:

- a. **Sewer Line Cleaning:** Payment for this Item shall be full compensation for all labor, equipment, plugging, debris removal and disposal in accordance with the specifications under the specific pay items provided.
- b. **Wet Well Cleaning:** Payment for this Item shall be full compensation for all labor, initial set-ups, equipment, first 40 feet of piping, plugging, debris removal, confined space entry where required, and disposal in accordance with the specifications under the specific pay items provided.
- c. **Treatment Facility Cleaning:** Payment for this Item shall be full compensation for all labor, equipment, plugging, debris removal and disposal in accordance with the specifications under the specific pay items provided.
- d. **Heavy Sewer Manhole Cleaning:** Payment for this Item shall be full compensation for all labor, equipment, plugging, debris removal and disposal in accordance with the specifications under the specific pay items provided.
- e. **Root Removal:** Payment for this Item shall be full compensation for all labor, equipment, plugging, debris removal and disposal in accordance with the specifications under the specific pay items provided.
- f. **Sanitary Sewer Lateral Root Removal:** Payment for this Item shall be full compensation for all labor, equipment, plugging, debris removal and disposal in accordance with the specifications under the specific pay items provided.
- g. **Sanitary Sewer Lateral Root Removal Set-up:** Payment for this Item shall be full

compensation for the initial equipment set-up cost per mainline segment requiring sanitary sewer lateral root removal. This will be the total payment whether mainline or cleanout introduction of the root removal equipment is used.

- h. **Additional Piping for Wet Well Cleaning:** Payment for this Item shall be full compensation for all additional labor, equipment, pipe after the initial 40 feet paid under the wet well cleaning item, and all other materials needed in accordance with the specifications under the specific pay items provided.
- i. **Emergency Call Out:** Payment for this Item shall be full compensation for all expenses incurred for a crew to respond to call outs outside of normal business hours as authorized by the Engineer.

812-12 PAY ITEMS:

<u>Item No.</u>	<u>Item</u>	<u>Unit</u>
8125101	Regular Sewer Line Cleaning Less Than or equal to 16"	Linear Foot
8125102	Regular Sewer Line Cleaning Greater than 16" up to 36"	Linear Foot
8125103	Regular Sewer Line Cleaning Greater than 36" up to 60"	Linear Foot
8125104	Regular Sewer Line Cleaning Greater than 60"	Linear Foot
8125201	Heavy Sewer Line Cleaning Less Than or equal to 16"	Linear Foot
8125202	Heavy Sewer Line Cleaning Greater than 16" up to 36"	Linear Foot
8125203	Heavy Sewer Line Cleaning Greater than 36" up to 60"	Linear Foot
8125204	Heavy Sewer Line Cleaning Greater than 60"	Linear Foot
8125211	Heavy Sewer Manhole Cleaning	Each
8125301	Root Removal	Linear Foot
8125302	Sanitary Sewer Lateral Root Removal	Each
8125303	Sanitary Sewer Lateral Root Removal Setup	Each
812640_	Wet Well Cleaning (___ - ___ GPM Capacity)	Each
8126501	Additional Piping for Wet Well Cleaning	Linear Foot
8126601	Treatment Facility Cleaning	Hour
8126701	Emergency Call Out	Each