

SECTION 11 11 26
VEHICLE WASHING EQUIPMENT

SPEC WRITER NOTES:

1. Use this section only for NCA projects.
2. Delete between //---// if not applicable to project. Also delete any other item or paragraph not applicable in the section and renumber the paragraphs.
3. The spec writer must review the Physical Security Design Manual for VA Facilities to determine and include any Life Safety requirements called out.

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Vehicle wash unit is automated and manually operated wash-water recycling system.
- B. Vehicle Wash Specification based on providing and installing the following equipment:
 1. Recycle System consisting of Pre-Treatment tank with hydro screen, and Main Bio-Digestion Unit with automated controls.
 2. Fiberglass pit with grated cover and sump pump.
 3. Stationary electric powered cold water pressure washer.
 4. Polyethylene storage tank for finished water storage; 1890 liters (500 gallon) capacity.
- C. Electrical components and wiring must conform to NEMA 4 requirements, except as specifically noted.

1.2 RELATED WORK

- A. Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.
- B. Section 22 13 23, SANITARY WASTE INTERCEPTORS.
- C. Section 22 15 00, GENERAL SERVICE COMPRESSED AIR SYSTEMS.
- D. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.3 SUSTAINABILITY REQUIREMENTS

- A. Materials in this section may contribute towards contract compliance with sustainability requirements. See Section 01 81 11, SUSTAINABLE DESIGN REQUIRMENTS, for project // local/regional materials, // low-emitting materials, // recycled content, // _____// requirements.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

- B. Manufacturer's Literature and Data:
 - 1. Vehicle wash-water recycling system.
 - 2. Fiberglass pit with grated cover and sump pump.
 - 3. Stationary electric powered cold water pressure washer.
 - 4. Water storage tank.
- C. Submit detailed shop drawings showing all components, plumbing and electrical connections.
- D. Submit complete set of operating and maintenance manuals, including installation drawings.

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by the basic designation only. Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.

SPEC WRITER NOTES:

- 1. Remove reference citations that do not remain in Part 2 or Part 3 of edited specification.
- 2. Verify and make dates indicated for remaining citations the most current at date of submittal; determine changes from date indicated on the TIL download of the section and modify requirements impacted by the changes.

- B. American Society for Testing and Materials (ASTM):

B88-22	Seamless Copper Water Tube
D1785-21A	Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120
D2467-20	Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80
D2564-20	Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems

1.6 PROJECT CONDITIONS

- A. Available at the site are the following services:
 - 1. Electrical Power: //208/230 volt, 3 phase//.
 - 2. Compressed Air: 3 SCFM, 550 - 690 kilopascals (80-100 PSI).
 - 3. Domestic Water: 23 - 30 liters/min (6-8 GPM), 310 kilopascals (45 PSI) minimum.

PART 2 - PRODUCTS

2.1 PIPING

- A. Domestic Water Piping: ASTM D1785, Schedule 80 PVC.

- B. Compressed Air Piping: ASTM B88, copper type 'K' with wrought copper fitting; provide drip legs at low points of compressed air lines with bleed valves.

2.2 COLD WATER PRESSURE WASHERS

- A. Stationary, electric-powered cold water pressure washer on wall mount bracket assembly with 1.5 KW (2 horsepower) pump rated for 10.5 liters/min at 6900 kilopascals (2.8 gpm at 1000 psi), stainless steel cabinet, belt-driven pump and stainless steel variable pressure wand.
- B. Electrical Requirements: //120 volts, single phase, 20 amps//.

2.3 WASH WATER RECYCLING SYSTEM

- A. Wash water recycling system consists of Modular components that include a recycle and discharge system and an auxiliary unit.
- B. Wash water recycling system must be automated and feature efficient aerobic microbial digesting, enhanced water circulation, injection of cultured microbes at concentrated levels and the introduction of microbial nutrients blend, naturally converting organic contaminants, such as oil and grease in a waste stream into harmless water and carbon dioxide.
- C. Tank Capacity: 2270 liters (600 gallons) constructed of high density, cross linked, polyethylene; equipped with water resistant electronics control panel and 194 sq. meters (2,087 sq. ft.) of biomedica.
- D. Recycle system to contain a 0.56 kilowatts (3/4 horsepower) in-feed/circulation pump, 1.5 kilowatts (2 horsepower) transfer pump and 0.56 kilowatts (3/4 horsepower) ozone pump that requires 230 volts, 3 phase, 20 amps.

2.4 CATCH BASIN

- A. Provide pre-fabricated, reinforced fiberglass catch basin with sump pump for in ground installation with cover.
- B. Provide catch basin with holding capacity of 600 liters (159 gallons).
- C. Sump Pump: 1/3 kilowatts (1/2 horsepower), 120 volts, single phase.
- D. Install sump pump in catch basin to transfer wash water to wash water recycling or treatment system.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Above ground wash water piping and connections to recycling equipment to be installed by equipment supplier.
- B. Compressed air piping from valved stub-up service to Bio-digestion unit with automated controls to be installed by equipment supplier.

C. System Operation and Set-up Function:

1. Water will flow from the wall mounted pressure washers onto the wash pad.
2. From there the water and solids will flow into the trench drain where solids remain to be cleaned out as they accumulate.
3. The water then flows by gravity through a 7.5 cm (3 inch) PVC drain line that connects to the trench drain to the catch basin with the sump pit.
4. A sump pump installed in the catch basin pumps the water up through a large stainless steel hydro screen.
5. The screen allows the grass clippings to fall into the grass cart that has a stainless steel bottom mesh screen to let the excess water flow out and traps the grass inside.
6. The water that is pumped from the catch basin to the grass screen will flow through the screen into the cone bottomed tank where larger solids will settle out.
7. From there the water will flow into the Main Bio-Digestion Unit where the water will be aerated in the cone bottomed tank using an air stick system and microbes and nutrients will be injected.
8. The tanks are to be aerated to help the growth of microbes that breakdown the hydrocarbons in the waste stream into a harmless substance consisting mainly of carbon dioxide and water.
9. Water is sent from the Main Bio-Digestion Unit to the finished water tank for storage and will be treated with an ultraviolet ozone generator.
10. When the pressure washers call for water the transfer pump will draw water from the storage tank and pump it to the units for re-use.

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