# OVERSIZE/OVERWEIGHT
# HEAVY DUTY VEHICLE TIRE WASH
# TECHNICAL SPECIFICATIONS

## 1. GENERAL

**1.1.1.** The general provisions of the Contract, including General and Supplementary Conditions apply to the work specified in this contract.

## 2. RELATED WORK

**2.1.1.** Site work

**2.1.2.** Concrete

**2.1.3.** Mechanical

**2.1.4.** Electrical

## 3. QUALITY ASSURANCE

**3.1.1.** The system shall be produced by a manufacturer of established reputation with a minimum of five (5) years experience supplying specified equipment in similar applications.

**3.1.2.** Installation: Provide a qualified manufacturer's representative to supervise work related to equipment installation, check out and start-up.

**3.1.3.** Training: Provide technical representative to train Owner's maintenance personnel in operation and maintenance of specified equipment.

## 4. SUBMITTALS

### 4.1. Product Data

**4.1.1.** Operation and Maintenance Manual

4.1.1.1. Assemble and provide copies of manual in 8.5 x 11 inch format. Fold out diagrams and illustrations are acceptable. Manuals to be reproducible by dry copy method.

### 4.2. Deviations From These Specifications

**4.2.1. These specifications are not designed to limit the competition or to limit the equipment to any specific bidder. The specifications can be modified and altered from the system specifications as listed herein as follows**:

4.2.1.1. All specified GPM and PSI are listed as minimum and must be met or exceeded

4.2.1.2. All specified materials are minimums and must be met or exceeded (for example if galvanized is specified, stainless steel is accepted and if 304 SS is specified, 316 SS accepted)

4.2.1.3. The number of equipment packages, modules, number of pumps and all other components listed herein must be met or exceeded.

4.2.1.4. All wash equipment and water recycling performance functions are minimum that must be met or exceeded. All deviations from the specified equipment performance must be fully documented with the drawings, engineering calculations and clearly explained why the proposed system meets and exceeds to specifications. The responsibility to meet the specified performance shall be bidder's.

4.2.1.5. All proposal deviations from the specifications shall be supported by contacts names, phone numbers and email addresses where such equipment has been in use in similar applications.

4.2.1.6. Regardless of the owner's approval for any deviations and/or changes, the supplier is solely responsible for the performance of the supplied equipment as per these specifications. Submit Product Data in strict accordance with requirements of these specifications.

4.2.1.7. Provide UL listing card or equivalent document of Nationally Recognized Testing Laboratories from the company building the electrical panel(s) and attach with the electrical drawings indicating that the electrical panels will be built to the required standards.

4.2.1.8. A complete list of touchless heavy duty vehicle wash and water reclamation system installations made by the bidder. This list shall include all such touchless vehicle wash installations made the bidder in the last five (5) years including the duration of the service and application. Should the reference list have more than 25 names, a list of last 25 installations shall suffice.

4.2.1.9. Provide name of contact person at each location who is familiar with the operation and maintenance of the wash system.

4.2.1.10. Based on the information supplied and discussions with contact persons named, the engineer will determine the acceptability of the proposed supplier and the equipment.

**4.2.2.** The above information must be complete in all details and must provide the Owner the basis for the proposed system evaluation.

**4.2.3.** This project is an engineered large vehicle tire wash facility design and must be accompanied by the technical information as specified herein. Bids without specified information shall be considered to be non-responsive and shall be rejected.

**4.2.4.** Restrict submitted material to pertinent data. For instance, do not include manufacturer's complete catalog when pertinent information is contained on a single page.

**4.2.5.** Operation and Maintenance Manual

4.2.5.1. Assemble and provide copies of manual in 8.5 x 11 inch format. Fold out diagrams and illustrations are acceptable. Manuals to be reproducible by dry copy method.

## 4.3. Supplier's Qualifications

**4.3.1.** All bidders shall provide complete set of designs and drawings with their respective bid packages. The information and engineering designs submitted with the bid packages shall provide the sole acceptance or rejection criteria for the Owner/ Architect.

**4.3.2.** The wash system, water reclamation and treatment systems, pumping stations and all electrical controls shall be designed and supplied by one supplier.

**4.3.3.** Supplier of the proposed wash equipment shall have been regularly engaged in the design and supply of the type of equipment specified herein, for a period of not less than five years.

# 5. WARRANTY

**5.1.1.** Warranty work specified herein is for one (1) year from substantial completion against defects in materials and in labor and workmanship.

**5.1.2.** Defects shall include, but not be limited to:

5.1.2.1. Operation; Noisy, rough or substandard operation

5.1.2.2. Parts; Loose, damaged and missing parts

5.1.2.3. Finish; Abnormal deterioration

# 6. SCOPE OF WORK

**6.1.1.** To furnish a completely automatic, heavy-duty mud removal drive through wash system that is capable to de-muck all owner’s vehicles for front, sides, rear and under chassis.

**6.1.2.** The supplier is to be responsible for the supply of necessary equipment, materials and service for the complete assembly and erection of the equipment so that it is ready for operation as per these specifications.

# 7. WASH SYSTEM PERFORMANCE

7.1. Operation: The vehicle washer shall be actuated in cycle sequence by vehicles driven in a fixed path between tire guides at a slow speed (20-40 feet/ minute) through the washing system. All washing operations and related water recycling operations shall by automatically activated by the vehicle (driving through).

7.2. The supplier is responsible to design the equipment to satisfactorily wash up to 20 vehicles per hour. The vehicle wash shall be able to remove most visible, heavy dirt accumulation from the owner's vehicles when they are driven thru the washer without using detergents.

**7.2.1.** The vehicle wash system to be capable of washing all vehicles up to 9' 4” in width.

## 8. WATER RECLAMATION PERFORMANCE

**8.1.1.** The water reclamation system shall be capable of reclaiming water from the vehicle wash bay and process it by means of settling pits and in-line filters. The pressure pump then reuses the water.

**8.1.2.** The system must be able to continuously supply adequate amount of water for high-pressure pump regardless of traffic volume through the washer.

**8.1.3.** Prior to final acceptance of the system by the owner, the supplier shall demonstrate the continuous operating capacity of the reclamation system in relation to the truck wash system by running the complete wash system and the water reclamation system for a period of 60 minutes (without a pause).

**8.1.4.** Regardless of technical specifications, the equipment supplier explicitly assumes the responsibility to design the water reclamation system for the intended purpose and has made himself familiar with all performance requirements prior to bidding.

## 9. MECHANICAL INTERCONNECTING PIPING

**9.1.** **All field plumbing and mechanical work** will be done by others (Mechanical Contractor), including:

**9.1.1.** Water utilities up to and connecting to the equipment.

**9.1.2.** Interconnecting piping between various equipment components located in the equipment room.

**9.1.3.** Interconnecting piping between the equipment located in the equipment room and the equipment located in the wash bay.

**9.1.4.** All under ground piping with flanges as required and/or as shown on the drawings

**9.1.5.** Furnish and Installation of:

**9.1.5.1.** Backflow preventer, if required.

## 10. ELECTRICAL INTERCONNECTING WIRING

10.1. **All field electrical work** will be done by others (Electrical Contractor), including:

**10.1.1.** Electrical service up to and connecting to the equipment panel.

**10.1.2.** Interconnecting wiring between various equipment components located in the equipment room.

**10.1.3.** Interconnecting wiring between the equipment located in the equipment room and the equipment located in the wash bay.

## 11. WASH SYSTEM TECHNICAL SPECIFICATIONS

### 11.1.1. The Wash System Platforms

**11.1.2.** Tire wash platforms should be minimum of 15 feet long and should be made of minimum of 3/8" thick hot dip galvanized steel. In the material of construction no substitution will be allowed.

**11.1.3.** The tire wash main structure must be designed so that the truck tires shall drive over the spray manifold assemblies. The nozzles shall be located so that all spray angles spay at approximate 60-degree angle towards the under chassis. The truck tires must roll on and contact the spray nozzle manifolds with all nozzles being protected. The integrity of the structure must be guaranteed to not deform at single point load weights of 20,000 pounds minimum. Stress Analysis data must be provided to confirm the ability of the platforms to support over weight vehicles.

**11.1.4.** The under chassis system must have a minimum of two pressure pumps (20 HP each) both being able to deliver individually minimum of 380 GPM for the total flow of 760 GPM. Pumps with lower horsepower can be used, provided that the total horsepower of all pumps meets the specified total 80 horsepower and performance is minimum 760 GPM.

### 11.2. Pumping Module

**11.2.1.** The pumps shall be ITT/Goulds Trash Hog pumps, InterClean PL or engineer approved equal.

**11.2.2.** The system shall have minimum two pumps.

## 11.3. Electric Motor

**11.3.1.** The electric motors shall be of the squirrel cage induction type suitable for across the line starting. Motor shall operate on 460 Volt, 3-phase, 60 cycle and be ODP with a 1.15 service factor.

**11.3.2.** The motors shall be sized so as not to exceed the nameplate horsepower during operation. The motors should be a minimum of 20 HP.

**11.3.3.** The manufacturer for 25 activations per hour shall certify the motors.

## 11.4. Electric Control Panel and Components

**11.4.1.** **The Industrial Control Panel shall be manufactured and evaluated in accordance with the Underwriters Laboratories, Inc. (UL) standard 508A (Industrial Control Panels).** In addition, the panel shall be evaluated for high-capacity short circuit withstand and shall bear the appropriate UL marks including the short circuit withstand value mark as part of the official UL label.

**11.4.2.** The industrial Control Panel shall be designed for operation on a 460 Volt, 3 phase, 60 Hertz system, with a short circuit capacity of 25,000 amperes RMS Symm. Available at the incoming line terminals of the control panel.

**11.4.3.** The Industrial Control Panel shall be designed to meet the requirements of the National Electric Code (NEC) Articles 430 and 670, also the National Fire Protections Association (NFPA) Standard 79 (Industrial Machinery).

**11.4.4.** **Electric Panels that are not UL approved are not acceptable.**

**11.4.5.** <u>All motors over 20 HP must have electronic soft start system.</u>

## 11.5. Tire Guides

**11.5.1.** Tire guides must be installed for the full length of the wash bay.

**11.5.2.** Tire guides shall be made of 4” schedule 40 hot dip galvanized pipes and must be designed in such a manner that there will be two 4” galvanized tire guides runs in the de-mucking section of the wash bay: one running at maximum height of 7” and second one parallel the lower but spaced outside at a minimum 5” away from the lower one and installed to the minimum height of 12” from the ground level, 15 foot minimum section. The intent of the two parallel tire guides is to prevent vehicles from climbing the second 12” high tire guide thus reducing the risk of accidents in the wash bay.

**11.5.3.** The system has angled entry at the entrance (consisting also of two parallel tire guides). Ends of rails are capped and all headings are smoothly finished to prevent tire damage. Brackets supporting pipe shall

be made of minimum of 3/8" steel plate that are welded to concrete imbedded cleats or anchor bolted to the concrete.

**11.5.4.** The bidder shall provide calculations and stress analysis of the tire guides with the bid package proving that they will be able to carry the heaviest possible single axel load of the Owner's fleet. Such stress analysis must be prepared for both lower and upper tire guide separately.

## 12. WATER RECLAMATION AND TREATMENT SYSTEM SPECIFICATIONS

### 12.1. Stainless Steel Pump Intake Filter

**12.1.1.** Stainless Steel Intake Filter Screens (2 required) to provide first stage filtration for sump pump intake. The pump intake filter shall be InterScreen or engineer approved equal and shall be sized 0.015" or smaller.

**12.1.2.** The intake filter shall be made of stainless steel and shall have slotted orifices, wire mesh filters are not acceptable. Intake filter shall prevent any dirt from clogging the recycled water spray nozzles under all circumstances.

**12.1.3.** Intake Filter Screen shall be equipped with high-pressure air back wash system that is automatically activated by the reduced flow into the pump intake.

## 13. INSTALLATION, START-UP, TRAINING AND SERVICE

**13.1.1.** Install equipment in accordance with manufacturers' supplied installation drawings.

**13.1.2.** Equipment supplier shall undertake the commissioning of the system and make all required adjustments to ensure proper operation.

**13.1.3.** The equipment manufacturer shall start-up the system. The owner shall have all operating personnel present during the start-up and equipment training.

**13.1.4.** The owner's personnel shall be trained for a minimum of 4 hours in the system operation and maintenance.