

**BIDDER'S PROPOSAL  
FOR FURNISH AND INSTALL OF 5 CUBIC YARD DUMP BODYS, SNOWPLOWS,  
TAILGATE MATERIAL SPREADERS AND LIQUID DISPENSING SYSTEMS ON TWO  
(2) 35,000 GVW DIESEL TRUCK CHASSIS**

DATE AND TIME FOR RECEIVING BIDS: May 28, 2019 at 1:30 P.M. CST

Place: PURCHASING DEPARTMENT  
730 Washington Avenue  
City Hall, Room 103  
Racine, WI 53403

We propose to FURNISH AND INSTALL 5 CUBIC YARD DUMP BODYS, SNOWPLOWS, TAILGATE MATERIAL SPREADERS AND LIQUID DISPENSING SYSTEMS ON TWO (2) 35,000 GVW DIESEL TRUCK CHASSIS (to include all materials, except as specified to be furnished by others, ready for use, all in accordance with advertisement, plans, specifications, and contract, all as attached hereto, and all of which we have examined) for the sum shown below.

Price for furnish and install of specified equipment on two units:

\$ \_\_\_\_\_

Please complete the Bidder's Proposal attached herein in accordance with specifications, and return the entire bidder's package. Bidders are required to complete the bidder's proposal section listing their manufacturer specifications as they relate to the City of Racine's minimum specifications. Failure to comply with this requirement may result in rejection of bidder's proposal. Bids must be submitted in a sealed envelope and marked with the words "Official Notice #8-2019".

We are enclosing our printed specifications for this equipment.

Signed By: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Date: \_\_\_\_\_

We will deliver these vehicles within \_\_\_\_\_ days of receipt of City purchase order.

## **INSTRUCTION TO BIDDERS**

The specifications shall be held to include the Advertisement, Instructions to Bidders, Manufacturer's Qualifications, General Conditions, Proposal, Contract and Specifications.

All bids shall be made out as directed in the specifications and shall be on the Standard Proposal form furnished by the City of Racine. Any bid not on this form will not be accepted. Failure to comply with these requirements may result in rejection of bidder's proposal. **Bids will be placed in a sealed envelope and marked with the words "OFFICIAL NOTICE #8-2019" Please return this entire bid package with your bid.**

Bids are to be State and Federal Tax Exempt. A tax exemption certificate will be furnished to the successful bidder. No bid may be withdrawn after the time for opening bids.

Payment for the work will be in cash upon completion and acceptance of the work unless otherwise specified. If monthly payments are made, they will be made as set forth in the contract.

The City of Racine reserves the right to reject any or all bids or to accept any bid considered most advantageous to the City. It also reserves the right to waive any informality in bids received whenever such waiver is in the best interest of the City of Racine.

The accompanying bid includes the furnishing of all materials, labor and equipment required by the attached specifications, which I have carefully examined, and I hereby certify that the statements made herein are true and correct.

The undersigned represents that the prices in the accompanying bid are neither directly or indirectly the result of an agreement with any other bidder.

COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY, STATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

**CITY OF RACINE**  
**DEPARTMENT OF PUBLIC WORKS**  
**RACINE WISCONSIN**

**SPECIFICATIONS FOR THE INSTALLATION OF**  
**5 CUBIC YARD DUMP BODY, SNOWPLOW, TAILGATE MATERIAL SPREADER**  
**AND LIQUID DISPENSING SYSTEM ON TWO (2) 35,000 GVW**  
**DIESEL TRUCK CHASSIS**

**MAY 2019**

**INTENT:** It is the intent of these specifications to describe the minimum requirements for the up-fitting of two (2) 35,000 GVW diesel dump truck chassis with five (5) cubic yard dump bodies, snow plows, material spreaders and liquid dispensing equipment to be purchased by the City of Racine Department of Public Works. All parts, items, or features not specifically mentioned which are regularly furnished by the successful bidder at the bid price shall conform in strength, quality of material, and workmanship to that usually provided by the engineering practice indicated in these specifications.

**WARRANTY:** The successful bidder shall furnish a warranty stating that the equipment bid on is suitable for the service intended in accordance with the specifications. The vendor shall also furnish the City of Racine with a **minimum FULL ONE (1) YEAR WARRANTY** for all components and shall agree to replace and install without charge, within the warranty, any defective part or parts not suitable for the service intended. **All warranty work shall be picked up and delivered by the vendor within a reasonable time, or repaired by the vendor at the City of Racine facilities. The City of Racine reserves the right to perform warranty work that is not complied with and invoice the responsible vendor.**

**“WARRANTY SHALL START ON THE DATE THE UNIT IS PUT INTO SERVICE BY THE CITY.”**  
**DEALER WILL BE NOTIFIED AS TO THE DATE OF INSERVICE.**

**AWARD AUTHORITY:** The City of Racine will be the sole judge of the quality, construction, and suitability of the equipment or materials offered for the work to be performed in its determination of the successful bidder. The contract will be awarded to the lowest responsible bidder complying with conditions of the invitation for bids, provided the bid is reasonable and it is in the best interest of the City of Racine to accept it. The bidder to whom the award is made will be notified at the earliest possible date. The City of Racine, however, reserves the right to reject any and all bids, and to waive any informality in bids received whenever such waiver is in the best interest of the City of Racine. **It also reserves the right to reject the bid of a bidder who has previously failed to perform properly or complete on time contracts of a similar nature, or the bid of a bidder who is not in a position to perform the contract.**

**DESCRIPTION OF EQUIPMENT:** A bid will not be considered if a bidder has failed to show without doubt that he is bidding on regularly manufactured equipment, tried, proven, and in current use. A users list of equipment of this type now in use in the State of Wisconsin shall accompany bid. Printed literature describing the particular equipment (make, model, etc.) shall be included with an acceptable bid.

**NEW EQUIPMENT:** Equipment shall be new and unused. Bidders shall quote on the latest model of this type of equipment manufactured by the concern which they represent.

**INTERCHANGEABILITY:** All similar equipment purchased under one contract shall have interchangeable component parts such as engine accessories, brake and electrical systems, axles, hydraulic components, etc.

**DEMONSTRATION:** Upon request, bidders shall submit equipment on which they bid, for demonstration before award of contract.

**TRAINING:** Bid shall include a training program, deemed sufficient by the City of Racine, for mechanics, operators, and supervisory personnel. Proposal to be furnished as part of the bid.

**BRAND NAMES:** For the purpose of this clause, references to "brand name" or by a "brand name or equal" description, is intended to be descriptive, but not restrictive, and is for the sole purpose of indicating to prospective bidders a description of articles that will be satisfactory. Other items of equal quality and performance will be considered.

**SUBSTITUTION:** Unless the bidder clearly indicates in his bid that he is offering a different article, his bid shall be considered as offering the name brand article referred to in these specifications.

**DESCRIPTIVE LITERATURE:** Bidders offering a different article shall submit descriptive literature to enable a determination as to the equivalent quality and characteristics of the article being offered.

**SUBCONTRACTING:** The bidder shall be responsible for the work of all his subcontractors and that all work is performed in accordance with these specifications and in compliance with manufacturer's recommendations and procedures. The bidder shall also assume full warranty responsibility which shall include all warranty work performed and parts furnished by his subcontractors.

**SERVICING REQUIREMENTS:** That the City of Racine may be assured of being able to maintain and repair equipment purchased, there shall be a service facility with a reasonable stock of repair parts within 100 miles of the City of Racine. **These specifications also require that common wear parts such as filters and hoses be available within 24 hours and all other parts within 48 hours.**

### **SERVICE REQUIREMENTS**

The units to be purchased under these specifications shall be used by the Department of Public Works Street Maintenance Division. This equipment will travel on streets, unimproved roads, alleys, and at times over extremely rough surfaces including severe snow plowing operations. Therefore, special consideration shall be given to heavy-duty rugged type construction.

### **TECHNICAL SPECIFICATIONS**

The equipment shall be of sturdy construction capable of withstanding the strains of service as described under "Service Requirements." These trucks shall be standard factory rated capacity of not less than 35,000 GVW. They shall be a single rear axle and include a 5 cubic yard dump box and all hydraulic components needed to operate the dump box, snowplow, material spreader and liquid pump. Equipment shall be comparable to an IHC model 7400 severe service.

### **DUMP BODY SECTION**

**DUMP BODY:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

The dump body shall be constructed in **201 stainless steel** as described below. Acceptable bodies shall be Crysteel, Galion, Monroe, Heil, or approved equal. If body other than specified is to be furnished, check with the Department of Public Works Equipment Maintenance Division.

Make: \_\_\_\_\_ Model: \_\_\_\_\_ Hoist: \_\_\_\_\_

**DUMP BODY DIMENSIONS:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

The body shall be ten (10) feet long and seven (7) feet wide. The sides of the body shall be five (5) cubic yards at least twenty-six (26) inches high. The ends of the body shall be seven (7) cubic yards (with the use of side boards) and at least thirty-six (36) inches high.

**SIDES:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

Seven (7) gauge 201 stainless steel 110,000 psi tensile strength / 55,000 psi yield strength sides, ends, and rear corner posts.

**CAB SHIELD:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

Ten (10) gauge 201 stainless steel 110,000 psi tensile strength / 55,000 psi yield strength cab shield, body braces and rub rails.

**TAILGATE:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

Seven (7) gauge 201 stainless steel tailgate with ten (10) gauge bracing.

**FLOOR:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

One fourth (1/4") inch hi-tensile AR 400 carbon steel one (1) piece floor with integral 5" formed radius.

**STEPS:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

Stainless steel grip-strut steps installed the full length on both sides of the body.

**UNDER COATING:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

The underside of the floor and the understructure shall be rust proof protected.

**HOIST:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

Sixteen (16) ton minimum capacity, double acting, heavy-duty, Class 50 as rated by the NTEA Body and Hoist Manufacturers. Cylinder to have nitride of chrome piston rod and removable end caps for easy repair. All bearing points to have lubrication fittings. The hoist shall have a limiting device, either electric solenoid or cable shut off, to control the maximum angle of the dump box in a raised position or an internal bypass protect cylinder.

**PAINTING:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

No painting is necessary on the stainless steel portions. Body to be furnished in natural stainless steel finish. Inside of box floor shall be painted with a primer coat.

**AIR CYLINDER:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

An air trip cylinder shall be used for the tailgate release.

**BODY PROPS:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

Two (2) O.S.H.A approved body props.

**BODY RAISED LIGHT:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

Body raised indicator light shall be located in the cab in view of the operator.

**MUD FLAPS:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

Rubber flaps mounted behind the rear wheels so that the rear wheels will not roll over them when the box is in a raised position. Mud flaps with anti-sail devices, shall also be installed in front of the drive tires.

**REAR LIGHTS:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

All lighting to be "LED" combination tail, directional, stop lights, and amber lights shall be furnished and installed in the rear corner posts. All wiring to be sealed with shrink tubing.

**AMBER LIGHTS:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

There shall be installed on the cab shield of the dump box one Whelen Responder LP LED mini lightbar or approved equal. This light shall be part of a three amber light system along with two (2) oval LED lights, one in each rear pillar post of the dump body. All three lights shall operate from one factory supplied switch in the instrument panel.

**PLOW LIGHTS:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

One (1) pair of lexan plow lights, comparable to a Dietz 9-83102, and shall operate from one factory supplied switch in the instrument panel.

**FRONT BUMPER:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
The front bumper shall be made of three (3") by ten (10") by one-quarter (1/4") inch channel attached to frame. Bumper shall be angled back outside of chassis frame to afford the least possible turning radius without affecting the equipment operation.

**FRONT TOW HOOKS:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
There shall be two (2) front tow hooks furnished and suitably mounted.

**HIGHWAY PINTLE HITCH:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
Pintle shall be swivel type hook with spring cushion with 4,000 Lb. maximum vertical load and 20,000 Lb. maximum gross trailer weight. It shall be attached to the chassis frame and adequately cross braced. A seven (7) prong RV style connector shall be included. Pintle shall be mounted in such a way that it will not hit the tailgate spreader when box is in fully raised position. The inside of the hook height shall be 16" from the ground when the truck is unloaded.

### **HYDRAULIC SYSTEM**

**APPLICATION:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
The hydraulic system to be furnished and installed shall be capable of operating the following equipment:

- 1.) Dump body hoist
- 2.) Hydraulic material spreader
- 3.) Snowplow...raising and lowering
- 4.) Snowplow...power reversing
- 5.) Material spreader auger
- 6.) Material spreader spinner
- 7.) Liquid pump

**HYDRAULIC PUMP:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
The hydraulic pump shall be a U.S. manufactured axial piston pressure and flow compensated load-sensing type. The pump shall be cast iron construction and rated to 6.00 cubic inches per revolution at maximum stroke which will deliver 24.7 GPM @ 1000 engine RPM. The pump shall have a 2" inch suction line and 3/4" case drain line plumbed directly back to the reservoir. The pump shall be rated for 3000 PSI maximum and 2500 PSI continuous. The pump shall have a severe duty, high pressure outboard Teflon shaft seal that protects the pump shaft bearing and seal from external contamination and salt spray. The pump shall have a 1 1/4" keyed drive shaft and SAE type C mounting flange. The pump shall be Force America FASD45.

Make: \_\_\_\_\_ Model: \_\_\_\_\_ GPM \_\_\_\_\_

**HYDRAULIC PUMP DRIVE:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
The hydraulic pump shall be driven directly off the engine crankshaft via a splined driveline to allow for movement. The driveline shall include grease fittings on both u-joints. The hydraulic pump shall be mounted with shaft centerline parallel to the crankshaft centerline and at a level to create not more than a three-degree angle on the driveline. The pump mounting shall be incorporated with a bracket fabricated to mount in the extended frame rails of the truck.

**SHUT DOWN SYSTEM:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
A 1" high pressure 1/4 turn ball valve shall be installed at the discharge port of the pump. The ball valve shall be rated to 5000 PSI and have SAE #16 ports.

**HIGH PRESSURE FILTER:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
A high pressure filter shall be FORCE Model HP17125VG30EP version. 60GPM rated 5000psi.

**RESERVOIR / VALVE ENCLOSURE:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

The valve/tank assembly shall be a Force America model “VT35G2 Valve/Tank Assembly” or prior approved equal and contain the following:

- The hydraulic reservoir will be of 35 gallons nominal capacity.
- The hydraulic reservoir will be constructed of 10-gauge steel and be internally baffled.
- The valve enclosure lid will protect from both road and pressure washer spray.
- For ease of removal by a single person, the valve enclosure lid shall weigh less than 22 lbs.
- The valve enclosure lid shall be black high density polyethylene with stainless steel reinforcements.
- The valve enclosure lid shall have molded integrated handle for ease of removal.
- The valve enclosure lid shall be attached to the reservoir via (4) rubber straps that can be removed without the use of any tools.
- Mounting bracket is to be designed and supplied by the reservoir supplier.
- Mounting system should allow for a 1” frame clearance for frame obstructions.
- Shall be mounted in a manner as to not transmit any truck torsional loads thru the tank.
- The enclosure will use a gasket-less passive technology. (No rubber seals, gaskets, or weather stripping.)
- The enclosure lid will be removable within seconds by one person without the use of tools.
- All valve fittings, hose ends, filter, filler breather, sending units and any electrical connections are to be protected by enclosure cover.
- The reservoir supplier will provide all valve fittings (JIC connections) and plumb the return line from the valve to the filter.
- The use of bulkhead fittings is not permitted.
- The directional control valve must be easily accessible from all 6 sides without the use of tools.
- Hose exit and entrance must allow for components to be mounted adjacent to the enclosure.
- A 2” full flow brass ball valve shall be plumbed at the suction port of the tank.
- A low oil/high temp sending unit shall be mounted in the reservoir.

**FILTER:**

***Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_**

Hydraulic oil filter shall be mounted in the reservoir. Hydraulic filter shall be a 16-micron absolute and rated for no less than 70 GPM. Filter shall be model TS1600251S0/ZSRE40910, or prior approved equal, and include visual and electrical bypass indicators. The filter cartridge shall be constructed of a synthetic media. The return port in the filter shall be SAE #20 or larger. A warning light shall be mounted in the cab and wired to the electrical filter bypass indicator. The system shall be delivered with one spare filter element.

**HYDRAULIC CONTROL VALVE:**

***Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_**

The hydraulic valve shall be of modular manifold design. Each hydraulic function requires an individual manifold stacked together to form the manifold base. The manifold base shall consist of an inlet section with SAE #16 inlet porting, SAE #20 outlet porting, and SAE #4 load sense porting. There shall be a main system relief in the inlet section to protect the system from high pressure in case the pump compensators fail. The dump body manifold shall be stacked next to the inlet section, and capable of 40 GPM with SAE #12 porting. The hydraulic control valves shall be pulse-width modulated, proportionally controlled. Each hydraulic valve segment shall be individually mounted to the manifold base assembly and be serviceable without removing any hydraulic hoses or any other hydraulic valve segments. Each hydraulic valve segment shall have individual pressure compensation to achieve independent simultaneous operations. All segments shall have heavy-duty continuous duty coils and connections shall be with DIN connectors. All coils shall operate at 12 VDC and require a maximum of 1400 mille-amps. Each segment shall be equipped with a manual override except for the auger and spinner sections. The dump body segment shall be rated to 40 GPM, with all other segments rated to 20 GPM. If a double acting hoist is utilized, the dump body segment shall be equipped with a down side relief to protect the body down function. This relief shall be set to the hoist manufacturer’s specifications. Valve segments shall be Force America Add-A-Fold® model. The valve is to be arranged as follows:

Hoist	4-way with 500 PSI down side work port relief valve
Plow lift	4-way

Plow angle	4-way
Auger	4-way - reversing
Spinner	2-way
Liquid	2-way

External Plow pressure release bleed down manifold valve to be supplied with the system C10190.

**HYDRAULIC LINES AND PLUMBING:**

**Comply \_\_\_\_\_ Exception \_\_\_\_\_**

All hydraulic lines and plumbing shall be of sufficient capacity so as not to create heat or turbulence within hydraulic system. Suction line between reservoir and pump shall be a minimum of 2 in. I.D. with a minimum SAE 100-R4 rating and shall be secured on both ends via heavy duty banding straps, radiator hose clamps unacceptable. All pressure hoses, including signal sense to pump shall have swivel fittings on both ends and have a minimum SAE 100-R2 rating. Return lines and case drain shall have minimum SAE 100-R1 rating.

Hydraulic lines shall be routed to minimize interference with equipment and chassis components requiring periodic servicing. Support brackets, grommets, and tie wraps shall be provided where appropriate to protect lines from damage by abrasion, cutting or impact.

Hoses shall not be routed near exhaust manifolds pipes, bolts, sharp edges, and exhaust system to prevent wear, fatigue, or fire. Pipe fittings are not acceptable in any high-pressure line. Maximum distance between support clamps on all hydraulic lines shall be 24 inches.

**CONTROL CENTER:**

**Comply \_\_\_\_\_ Exception \_\_\_\_\_**

The Control Center shall be a FORCE America Patrol Commander MPJC Ultra – 2 stick with a 6100 Gen 5 model spreader control. Base Mount with switch pack (floor mounted version) with the following functionality.

Controls for all valve functions and electronic spreader control will be integrated into a single, self-contained control center. The control center shall be a padded armrest style that is ergonomically designed. Control center shall be modular in design for ease of installation and service, and wiring and connectors shall be keyed and color-coded throughout. All components must be durable for long life and trouble free operation.

The electronic controller shall be a fully proportional multi-stick controller to operate all cylinder functions. Multi-stick PWM driver electronics shall include as standard the capability to control at least 9 proportional outputs simultaneously. Controls for spreader must be located on armrest at the operator's fingertips. There shall also be four auxiliary rocker switches available with an additional fifth switch being the main power switch for the spreader control. The switches shall be located between the joysticks and spreader control interface and each shall be rated for 15 amps continuous current minimum. Console options shall be capable of supplying full rated power to switch outputs when all four auxiliary switches are at full 15 amp load.

For ease of operation the multi-stick control shall include the following features: LED-backlit nomenclature for all joystick functions and a momentary push-button at the top of the hoist stick to provide hoist-interlock. The "Hoist" decal shall be illuminated amber while disabled, and change to green backlighting when the driver engages the hoist interlock button. The green "Hoist" LEDs shall remain illuminated while the hoist is under operation and shall time-out after a period of hoist inactivity that is selectable from 0 to 15 seconds.

The plow or other joysticks shall have the option to include a momentary pushbutton for activation of remote spreader standby, remote spreader blast, or electric joystick interlock. The multi-stick communication hardware/software shall include 4 integral float options. The use of add-on float modules is unacceptable. For flexibility of use the integral float programming shall have the following standard features:

- (4) axis functional float on any or all of the outputs with selectable forward/back, right/left functionality
- 3-way or 4-way functionality



- Selectable (3) second float delay timer
- Optional float enable switch inputs.
- When float output for a given joystick function is active, the LED-backlit nomenclature shall blink ON/OFF to provide visual feedback to the operator that the float function is engaged.

To ensure longevity of performance all lighting to be solid-state LED technology. The use of incandescent lamps or EL backlighting is unacceptable.

All function joysticks shall be of contact-less Hall-effect design and offer up to a 5-Million cycle life. The use of potentiometers is unacceptable. To increase safety of operation, joystick communication hardware/software shall include the following standard features:

- Input power monitor circuitry with power quality diagnostics,
- Redundant dual-reference joystick signals for each joystick axis
- Joystick input off-center checking on all axes and output shutdown on system power-up
- Joystick out-of-range fault condition checking and output shutdown
- True outputs off with joystick centered
- LED-backlit nomenclature shall illuminate and flash RED when any error condition exists and an audible alarm shall sound.
- LED-backlit nomenclature shall blink ON/OFF with increasing frequency as the corresponding function is increased in speed to give the operator visual feedback of each joystick output.

Multi-stick control shall communicate all joystick data over the spreader control CAN bus. For ease of service and diagnostics the multi-stick control shall have the following easily accessible through the spreader control calibration menus:

- Unique MIN/MAX adjustments for each joystick function (forward, back, left and right)
- On-screen output status indicator's for each PWM output
- Audible and visible output error status indicators with flashing error codes for each joystick function

The multi-stick control joystick outputs shall be communicated over the spreader control CAN bus to the Valve Module. Spreader control outputs and joystick control outputs shall be operated on the same Valve Module, or multiple modules as necessary.

**SPREADER CONTROLS:**

***Comply \_\_\_\_\_ Exception \_\_\_\_\_***

The electronic spreader control shall be designed for precise, closed-loop control of granular and pre-wet liquid applications and operate on a CAN Bus protocol. The Central Processing Unit (CPU) shall have keyed and color coded connections to prevent incorrect installation. The CPU shall be mounted in the cab with visual access to diagnostic LED's. Mounting of the CPU unit outside of the cab is unacceptable. The unit shall have USB connectivity for file and data transfer, Ethernet connection, a J1939 communication port for connection to the vehicle bus, a second CAN bus communication port for spreader-only data use, a J1708 connection for a road and air temperature sensor, and a RS-232 connection for AVL communication. The CPU shall have on-board diagnostics, which provide real-time status of CAN bus communication, processor activity, and power status. The CPU shall have a built-in audible alarm for diagnostic purposes. The CPU operating system shall NOT be Windows-based.

The spreader control interface shall have two, color-coded, continuous rotation encoders for granular and spinner control. These encoders shall have integrated push buttons for blast mode and stand-by. The controller shall have a third multifunction 4-way joystick that has an integrated rotary encoder and push button, that can be used for menu navigation, prewet liquid control, or an additional conveyor function. There shall be four, two-way soft keys included in the interface that are generically-labeled and user-configurable for different functions depending on the equipment needs. The controller shall also utilize USB technology that is capable of using a Supervisor key to provide access to the calibration parameters without the access code. The entire operator interface shall be backlit and encased in flexible silicone material with wear-limiting coating applied to the base silicone material. The operator interface shall communicate on the spreader control system CAN bus. The use of an LCD touch screen to change spreader function settings while driving is unacceptable.

The spreader control display shall be a remotely-mounted, 10" diagonal color TFT LCD with capacitive touch and a low-profile 16:9 widescreen format and minimum of 1024X600 pixel resolution. LCD shall have variable LED backlighting. CCFL backlighting is unacceptable. The display shall include a scratch-resistant polycarbonate lens with anti-glare coating. Display unit shall have a built-in audible alarm. To avoid driver distraction, the display shall have no integrated dials or pushbuttons. Display shall communicate on the spreader control system CAN bus.

The operator menus shall be color-coded to match the encoder knobs on the operator interface. The display shall be capable of displaying the following on-screen simultaneously: Granular material name, granular material set point and actual application rate including units of measure, prewet liquid name, prewet liquid set point and actual application rate including units of measure, spread width, road temperature, air temperature, material usage total, liquid usage total, vehicle speed, and current date and time. The operator shall have the option of selecting five data items to be displayed onscreen during operation. The display will also provide four warning light indicators for low oil level, body up, oil temp, and filter bypass. These warning lights are to be functional regardless of spreader operation or status.

The display shall have integrated antennas for GPS and cellular communication. Cab mounted antennas are unacceptable. The display shall be capable of communicating wirelessly with road and air temperature sensors.

A proportional PWM driver and input module (Valve Module) shall be remotely-mounted inside the hydraulic valve enclosure for control of both spreader control and joystick control outputs. The entire Valve Module shall be of rugged design for the mobile environment, and must meet IP68 requirements for dust and water ingress. The Valve Module shall include a minimum of eight proportional PWM outputs with potted valve output connections. All outputs shall be protected against short-circuits. Outputs shall be current-compensated and have adjustable PWM frequency. There shall be a minimum of five switch-to-ground type inputs for monitoring hydraulic system inputs such as oil level, body up, High and Low filter bypass, and oil temperature warnings. A minimum of two switch-to-ground type pulse train inputs shall be included in the Valve Module for connection of feedback sensors such as auger feedback and prewet liquid flowmeter feedback. A keyed and color-coded connection shall be provided for CAN bus connection to the CPU module inside the cab. A second CAN bus connection must be provided for daisy-chaining of multiple Valve Modules within the valve enclosure. Diagnostic LED's shall be included for every input and output on the Valve Module, as well as a power status LED and CAN bus activity LED's. The Valve Module shall be potted.

The integrated spreader control and joystick control system shall be equipped with a qualified ESTOP device that immediately disconnects battery power from all outputs. All spreader control and joystick-operated outputs shall immediately cease to function and the system display shall inform the operator that the ESTOP device has been activated. The ESTOP device must remove power from all output devices, while maintaining power to the display and CPU for diagnostic purposes. Resetting of the ESTOP device shall not result in spreader control and joystick-operated outputs returning to an ON state without operator acknowledgement.

**PRE-WET APPLICATION UNIT:** **Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

A behind the cab style tank and power unit shall be supplied for pre-wet application. Cab shield 120 gallon capacity with stainless steel brackets shall be supplied with hydraulic closed loop power unit for precise measurement of pre-wet to salt ratio in Gallons per Ton of material used. Extra heavy duty high specific gravity liquid capability with U.V. 8 stabilized plastic must be used. 5" Vented fill caps and high volume fill, stand alone vented breather, shall be installed on units. All sensors and wiring must be compatible for use with the 6100 salter control and have M12 connections available. Pre-wet unit shall be Varitech Industries CS120-HCL-6100.

Description: \_\_\_\_\_

**OPERATOR'S MANUAL:** **Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

A complete operator's manual shall be furnished with each unit.

**SHOP MAINTENANCE MANUAL:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
A complete shop maintenance manual, with lubrication chart, shall be supplied with each unit.

**PARTS MANUAL:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
A complete parts manual shall be supplied with each unit.

### **SNOW PLOW**

The equipment shall be of sturdy construction capable of withstanding the strains of service as described under "Service Requirements". The plows shall include the male and female portions of the Husting hitch. The female portion being installed on the plow.

**INSTALLATION:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
Unit to be installed and operational.

**MOLDBOARD:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
The plow shall be eleven (11) feet wide and not less than thirty-six (36) high. Minimum ten (10) gauge steel with a top moldboard stiffener of 2 1/2 x 2 1/2 x 3/8 inch minimum full length. Bottom moldboard of 4 x 4 x 5/8 angle or box section full length. Minimum of six (6) 1/2 x 3 inch vertical ribs. Powder coated orange

Make: \_\_\_\_\_ Model: \_\_\_\_\_

**CUTTING EDGE:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
The moldboard shall be equipped with a top punched hardened cutting edge minimum 5/8 inch.

**TRIP MECHANISM:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
Minimum two (2) adjustable compression type trip springs with separate rebound springs.

**REVERSING FRAME ASSEMBLY:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
The reversing frame assembly shall contain two (2) double-acting hydraulic cylinders with nitride or chrome plated piston rods. The radius ends shall terminate immediately behind the outside hinge points. The semi-circle shall be a minimum of 3 1/2 x 3 1/2 x 1/2 inch angle. The hinges connecting moldboard and semi-circle shall be minimum one (1) inch pins. The outside hinge spread shall be at least seventy- seven (77) inches. The angle of the snowplow shall be equally adjustable to the right and left.

**PUSH FRAME ASSEMBLY:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
Shall be of a design and construction to match the specified moldboard and adaptable for mounting a snap coupling type hitch. The push frame members shall be minimum 3 1/2 x 3 1/2 x 1/2 inch channel frame construction with proper reinforcement. The hinges connecting moldboard and semi-circle shall be a minimum one (1) inch pins.

**PLOW HITCH:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
The snowplow hitch shall be a thirty-four (34) inch Husting type hitch with 3" x 10" hydraulic lift ram. Hitch to be supplied with male and female portions with female portion to be mounted on plow. Male portion mounted to truck with 36" from street level to center of release pin. The bottom of plow hitch shall not be less than 12" to the street.

**MAINTENANCE/PARTS MANUAL:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
One each for plow and hitch.

**PAINTING:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_  
Plow and hitch to be powder coated painted two (2) coats primer. Finish coat to be Omaha Orange.

**HYDRAULIC LINES:**

**Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

Operational hydraulic lines shall be installed from controls to RIGHT front of vehicle. Use Pioneer quick couplers only.

**TAILGATE MATERIAL SPREADER**

**SPREADER:**

**Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

Hydraulically operated, self cleaning, precision material spreader for mounting below the tail gate without interference with the existing tailgate and normal operation of the truck and dump body. The equipment shall be of sturdy construction capable of withstanding the strains of service as described under "Service Requirements." These spreaders shall be standard factory built of **stainless steel construction** and shall be comparable to a Monroe model MS 966.

Make: \_\_\_\_\_ Model: \_\_\_\_\_

**INSTALLATION:**

**Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

Unit to be installed and operational.

**MOUNTING:**

**Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

Side of dump body with quick-disconnect pins.

**HOPPER:**

**Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

Ninety-six (96) inch in width. To be a bottom self-cleaning type with swing down full length trough. Trough shall be opened with two latches only. Minimum seven (7) gauge construction with one quarter (1/4) inch end plates. Continuous welds.

**AUGER:**

**Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

Full width, with six (6) inch diameter 3/8" fighting welded to minimum schedule 40 pipe. Char-Lynn hydraulic motor. Equipped with a speed reducer gearbox type with a material sensor. A stainless steel cover shall be installed, if needed, to protect the material sensor from debris dropped while loading.

**SPINNER:**

**Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

Eighteen (18) inch diameter, poly spinner. Char-Lynn hydraulic motor. Spinner to include shield.

**PLUMBING CONNECTIONS:**

**Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

All fittings, nipples, connectors, unions, ferrules, quick disconnects, fasteners and hardware used for the installation of the material spreader and hydraulic lines shall be stainless steel.

**PARTS AND MAINTENANCE MANUAL:**

**Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

A complete shop parts/maintenance manual, including lubrication chart, shall be supplied.

**LIQUID DISPENSING SYSTEM**

**SYSTEM REQUIREMENTS:**

**Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

A combination pre-wet/anti-icing closed loop system shall be installed on each material spreader, to be fully compatible with the hydraulic system previously detailed. All liquid handling hardware such as the liquid pump, pipes, hoses, connectors, clamps, nozzles, etc., shall be resistant to the effects of liquid calcium chloride, magnesium chloride and sodium chloride.

**STORAGE TANK:**

**Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

A polyethylene tank shall be securely mounted to the chassis frame, with stainless steel mount and fasteners, between the cab and dump box. The tank dimensions shall be approximately 14" deep X 60" wide X 36" high and have a capacity of approximately 120 gallons. Tank shall be equipped with a breather, bulk fill and flush kits.

**LIQUID PUMP, FILTER AND FLOW METER:**

**Comply** \_\_\_\_\_ **Exception** \_\_\_\_\_

A hydraulic pump of adequate capacity to deliver variable flow up to 7 GPM of anti-icing fluid shall be provided. The vendor shall provide a cleanable filter assembly with a stainless steel screen, plumbed within the supply line to the pump. A liquid flow meter shall be furnished and installed at the pressure side of the liquid pump. A quick disconnect, then a pressure valve shall be installed beyond the flow meter to prevent siphoning through the discharge nozzles. The motor, pump and flow meter shall be protected by a stainless steel enclosure.

**PRE-WET DISCHARGE:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

A three (3) nozzle liquid discharge plumbing kit shall be installed at the spinner assembly. Stainless steel quick disconnect fittings shall be provided to connect the nozzle kit to the liquid supply lines on the chassis.

**MATERIAL SENSOR/FLOW METER CONNECTIONS:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

The vendor shall furnish and install weatherproof extension cables as needed for both the material sensor and the flow meter, complete with Weatherpak type sealed connectors, and connect the cables to the sensor control system in the truck cab. Application rates for material and liquids shall be controlled from one panel mounted in the truck cab.

**PARTS AND MAINTENANCE MANUAL:** *Comply* \_\_\_\_\_ *Exception* \_\_\_\_\_

A complete shop parts/maintenance manual, including lubrication chart, shall be supplied.

**LIST ANY AND ALL EXCEPTIONS TO BID:**

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Each bidder must state in his bid the time required for delivery. Extreme late delivery, determined by the City of Racine to be thirty (30) days after promised delivery date, shall be cause for contract cancellation.

The quotations to be made are F.O.B. Racine, Wisconsin, exclusive of the Federal and State tax as a tax exemption certificate will be furnished to the successful bidder.

It is the intention of these specifications to provide for free and unrestricted competitive bidding which at the lowest cost to the City of Racine will perform satisfactorily under the conditions set out under "Service Requirements."

Mechanical details specified under the section "Technical Specifications" have been determined by the City of Racine as being essential to provide equipment that will perform satisfactorily under the operating conditions in which this equipment will be used.

Bidders shall furnish with their bids printed literature and/or drawings giving complete details of the equipment they propose to furnish. Failure to submit this information will render the bid informal.

All equipment must meet the requirements of the Occupational Safety and Health Act and Federal and State noise and pollution control restrictions.

All equipment shall be delivered to the Department of Public Works' Equipment Maintenance Garage at 830 South Marquette Street, Racine, Wisconsin.

**BIDDER'S CERTIFICATION**

I hereby certify that all statements herein are made in behalf of:

\_\_\_\_\_  
Name of Corporation, Partnership or Person submitting bid

a corporation organized and existing under the laws of the State of:

\_\_\_\_\_  
a partnership consisting of:

\_\_\_\_\_  
an individual trading as:

of the City of \_\_\_\_\_ State of \_\_\_\_\_

that I have examined and carefully prepared this proposal from the plans and specifications and have checked the same in detail before submitting this proposal; that I have full authority to make such statements and submit this proposal in its (their) behalf, and that said statements are true and correct

SIGNATURE: \_\_\_\_\_

TITLE: \_\_\_\_\_

Sworn and subscribed to before me

this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_.

\_\_\_\_\_  
(Notary or other officer authorized to administer oaths)

SEAL:

My commission expires \_\_\_\_\_

## **City of Racine Indemnification and Insurance Requirements**

To the fullest extent allowable by law, Contractor hereby indemnifies and shall defend and hold harmless the City of Racine, its elected and appointed officials, officers, employees or authorized representatives or volunteers and each of them from and against any and all suits, actions, legal or administrative proceedings, claims, demands, damages, liabilities, interest, attorneys' fees, costs, and expenses of whatsoever kind or nature whether arising before, during, or after completion of the work hereunder and in any manner directly or indirectly caused, occasioned, or contributed to in whole or in part or claimed to be caused, occasioned, or contributed to in whole or in part, by reason of any act, omission, fault, or negligence, whether active or passive, of Contractor or of anyone acting under its direction or control or on its behalf in connection with or incident to the performance of this Agreement regardless if liability without fault is sought to be imposed on the City of Racine, Contractor's aforesaid indemnity and hold harmless agreement shall not be applicable to any liability caused by the sole fault, sole negligence, or willful misconduct of the City of Racine, or its elected and appointed officials, officers, employees or authorized representatives or volunteers. This indemnity provision shall survive the termination or expiration of this Agreement.

In any and all claims against the City of Racine, its elected and appointed officials, officers, employees or authorized representatives or volunteers by an employee of Contractor, any subcontractor, or anyone for whose acts any of them may be liable, the indemnification obligation under this paragraph shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any subcontractor under Worker's Compensation Acts, Disability Benefit Acts, or other employee benefit acts.

No provision of this Indemnification clause shall give rise to any duties not otherwise provided for by this Agreement or by operation of law. No provision of this Indemnity clause shall be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity that would otherwise exist as to the City of Racine, its elected and appointed officials, officers, employees or authorized representatives or volunteers under this or any other contract. This clause is to be read in conjunction with all other indemnity provisions contained in this Agreement. Any conflict or ambiguity arising between any indemnity provisions in this Agreement shall be construed in favor of indemnified parties except when such interpretation would violate the laws of the state in which the job site is located. Contractor shall reimburse the City of Racine, its elected and appointed officials, officers, employees or authorized representatives or volunteers for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided. Contractor's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by the City of Racine, its elected and appointed officials, officers, employees or authorized representatives or volunteers.

### **Insurance Requirements**

The Contractor shall not commence work under a contract until he has obtained all insurance required under this paragraph and has filed certificates thereof with the Owner, nor shall the Contractor allow a Subcontractor to commence work until all similar insurance required has been so obtained and filed with the Contractor. Unless otherwise specified in this Agreement, the Contractor shall, at its sole expense, maintain in effect at all times during the performance of the Work, insurance coverage with limits not less than those set forth below with insurers and under forms of policies set forth below.

**Worker's Compensation and Employers Liability Insurance** - The Contractor shall cover or insure under the applicable labor laws relating to worker's compensation insurance, all of their employees in accordance with the law in the State of Wisconsin. The Contractor shall provide statutory coverage for work related injuries and employer's liability insurance with limits of \$1,000,000 each accident, \$1,000,000 disease policy limit, and \$1,000,000 disease each employee.

**Commercial General liability and Automobile Liability Insurance** - The Contractor shall provide and maintain the following commercial general liability and automobile liability insurance:

**Coverage** – Coverage for commercial general liability and automobile liability insurance shall be at least as broad as the following:



1. Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG0001)
2. Insurance Services Office (ISO) Business Auto Coverage (Form CA0001), covering Symbol 1 (any vehicle)

**Limits** -The Contractor shall maintain limits no less than the following:

1. General Liability - One million dollars (\$1,000,000) per occurrence (\$2,000,000 general aggregate if applicable) for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to the project/location (with the ISO CG 2503, or ISO CG 2504, or insurer's equivalent endorsement provided to the City of Racine) or the general aggregate including product-completed operations aggregate limit shall be twice the required occurrence limit.
2. Automobile Liability- One million dollars (\$1,000,000)for bodily injury and property damage per occurrence limit covering all vehicles to be used in relationship to the Agreement.
3. Umbrella Liability- One Million dollars (\$1,000,000) for bodily injury, personal injury and property damage per occurrence in excess of coverage carried for Employers' Liability, Commercial General Liability and Automobile Liability as described above.

**Required Provisions** - The general liability and automobile liability policies are to contain, or be endorsed to contain, the following provisions:

1. The City of Racine, its elected and appointed officials, officers, employees or authorized representatives or volunteers are to be given additional insured status as respects liability arising out of activities performed by or on behalf of the Contractor; on products and completed operations of the Contractor; for premises occupied or used by the Contractor; and on any vehicles owned, leased, hired or borrowed by the Contractor.
2. The coverage shall contain no special limitations on the scope of protection afforded to the City of Racine, its elected and appointed officials, officers, employees or authorized representatives or volunteers.
3. For any claims related to this project, the Contractor's insurance shall be primary insurance as respects the City of Racine, its elected and appointed officials, officers, employees or authorized representatives or volunteers. Any insurance, self-insurance, or other coverage maintained by the City of Racine, its elected and appointed officials, officers, employees, or authorized representatives or volunteers shall not contribute to it.
4. Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the City of Racine, its elected and appointed officials, officers, employees or authorized representatives or volunteers.
5. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
6. Each insurance policy required by this agreement shall state, or be endorsed to state, that coverage shall not be canceled by the insurance carrier or the Contractor, except after sixty (60) days (or 10 days for non-payment of premium) prior written notice by U.S. mail has been given to the City of Racine.
7. Such liability insurance shall indemnify the City of Racine, its elected and appointed officials, officers, employees or authorized representatives or volunteers against loss from liability imposed by law upon, or assumed under contract by, the Contractor for damages on account of such bodily injury (including death), property damage, personal injury, completed operations, and products liability.
8. The general liability policy shall cover bodily injury and property damage liability, owned and non-owned equipment, blanket contractual liability, completed operations liability with a minimum of a 24 month policy extension, explosion, collapse, underground excavation, and removal of lateral support, and

shall not contain an exclusion for what is commonly referred to by the insurers as the "XCU" hazards. The automobile liability policy shall cover all owned, non-owned, and hired vehicles. All of the insurance shall be provided on policy forms and through companies satisfactory to the City of Racine, and shall have a minimum A.M. Best's rating of A-VII.

**Deductibles and Self-Insured Retentions** - Any deductible or self-insured retention must be declared to and approved by the City of Racine. At the option of the City of Racine, the insurer shall either reduce or eliminate such deductibles or self-insured retentions.

**Evidences of Insurance** - Prior to execution of the agreement, the Contractor shall file with the City of Racine a certificate of insurance (Acord Form 25-S or equivalent) signed by the insurer's representative evidencing the coverage required by this agreement. Such evidence shall include an additional insured endorsement signed by the insurer's representative. Such evidence shall also include confirmation that coverage includes or has been modified to include all required provisions 1-8.

**Responsibility for Work** - Until the completion and final acceptance by the City of Racine of all the work under and implied by this agreement, the work shall be under the Contractor's responsibility care and control. The Contractor shall rebuild, repair, restore and make good all injuries, damages, re-erectments, and repairs occasioned or rendered necessary by causes of any nature whatsoever.

**Sub-Contractors** - In the event that the Contractor employs other contractors (subcontractors) as part of the work covered by this agreement, it shall be the Contractor's responsibility to require and confirm that each sub-contractor meets the minimum insurance requirements specified above.