

MISSOURI DEPARTMENT OF TRANSPORTATION

GENERAL SERVICES
830 MoDOT Drive
Jefferson City, MO 65109

Table with 2 columns: Field Name, Value. Includes REQUEST NO. (3-140214RJ), DATE (January 4, 2014), PAGE NO. (1), NO. OF PAGES (54).

SEALED BIDS, SUBJECT TO THE ATTACHED CONDITIONS WILL BE RECEIVED AT THIS OFFICE UNTIL

2:00 pm, Local Time, February 14, 2014

AND THEN PUBLICLY OPENED AND READ FOR FURNISHING THE FOLLOWING SUPPLIES OR SERVICES.

BIDS TO BE BASED F.O.B. MISSOURI DEPARTMENT OF TRANSPORTATION

Submit net bid as cash discount stipulations will not be considered Various MoDOT Locations

DEFINITE DELIVERY DATE SHOULD BE SHOWN. THE BIDDER MUST SIGN AND RETURN BEFORE DATE AND TIME SET FOR OPENING.

BUYER: Rebecca L. Jackson, CPPO, CPPB
BUYER EMAIL: Rebecca.Jackson@modot.mo.gov

BUYER TELEPHONE: 573-526-7930

SUPPLIES OR SERVICES

DUMP TRUCKS

To establish a contract to furnish "DUMP TRUCKS" with an effective date of Notice to Proceed and ending in one year with the option to renew for five additional one year periods in accordance with the attached pages.

Schedule of Events:

Pre-Bid Conference - January 13, 2014 - 8:30 a.m to 11:30 a.m. at 830 MoDOT Dr, Blue Conference Room, Jefferson City, MO 65109

Pre-Approved Product Request Deadline - January 17, 2014 before 2:00 p.m. local time.

Issuance of Addendum - Anticipated no later than January 24, 2014

Last Day for Vendor Questions - January 28, 2014 no later than 2:00 p.m. local time.

Bids Due - February 14, 2014 no later than 2:00 p.m. local time.

Return sealed bid to the address shown at the top of this page.

(SEE ATTACHED FOR TERMS, CONDITIONS, AND INSTRUCTIONS)

In compliance with the above Request For Bid, and subject to all conditions thereof, the undersigned bidder agrees to furnish and deliver any or all the items on which prices were bid within the timeframe specified herein, after receipt of formal purchase order.

Date:
Telephone No.:
Fax No.:
Federal I.D. No.
Email Address:

Firm Name:
Address:
By (Signature):
Type/Print Name

Is your firm MBE certified? [ ] Yes [ ] No

Title:
Is your firm WBE certified? [ ] Yes [ ] No

## 1. INTRODUCTION AND GENERAL INFORMATION

### 1.1 Introduction:

- 1.1.1 This Request for Bid (RFB) seeks bids from qualified organizations to provide **DUMP TRUCKS** to the Missouri Highways and Transportation Commission (MHTC) and Missouri Department of Transportation (MoDOT). The contract period shall be from the Notice to Proceed for one year with the option to renew for five additional one year periods. Each bid must be in a sealed envelope, be mailed or delivered by courier to the RFB Coordinator at the below listed address, on or before the date and time listed herein for receipt of bids/proposals. All questions regarding the RFB shall be submitted to the RFB Coordinator. **Bids must be returned to the office of the RFB Coordinator no later than 2:00 p.m., Central Time, February 14, 2014.**

#### **RFB COORDINATOR:**

**Rebecca L. Jackson, CPPO, CPPB**

**Procurement Manager**

**Missouri Department of Transportation, General Services**

**830 MoDOT Drive**

**(physical address, zip 65109)**

**P.O. Box 270**

**(mailing address, zip 65102)**

**Jefferson City, MO 65109**

**PHONE: 573-526-7930**

**FAX: 573-526-1218**

**EMAIL: Rebecca.Jackson@modot.mo.gov**

### 1.2 General Information:

- 1.2.1 This document constitutes an invitation for competitive, sealed bids for the procurement of **DUMP TRUCKS** as set forth herein.
- 1.2.2 Organization: This RFB is divided into the following parts:
- 1) Introduction and General Information
  - 2) Scope of Work
  - 3) Bid Submission and Evaluation
  - 4) Pricing Page(s)
  - 5) Vendor Information and Preference Certification Form
  - 6) Notice of Cooperative Purchasing
  - 7) Anti-Collusion Statement
  - 8) Terms and Conditions

## 2. SCOPE OF WORK

### 2.1 General Requirements:

- 2.1.1 The bidder shall provide **DUMP TRUCKS** on an as needed, if needed basis for the MHTC and MoDOT, in accordance with the provisions and requirements stated herein and at the sole satisfaction of MoDOT.
- 2.1.2 MoDOT reserves the right to obtain “like or similar” products as specified herein from other manufacturers, exclusive of the contract, when use of such products is deemed in the best interest of MoDOT.
- 2.1.3 Unless otherwise specified herein, the Bidder shall furnish all material, labor, facilities, equipment, and supplies necessary to provide the deliverables/services required herein.
- 2.1.4 MoDOT reserves the right to reject any or all bids, and to accept or reject any items thereon, and to waive technicalities. In case of error in the extension of prices in the bid, unit prices will govern.
- 2.1.5 A MoDOT Purchase Order will be issued identifying the truck configuration for all units purchased.
- 2.1.6 The outfitter or installer of all non-chassis manufacturer installed components shall hereafter be referred to as the “Body Builder.”
- 2.1.7 Units shall be designed for material hauling, trailer towing, and operation of hydraulically controlled snow plows and a material spreader.
- 2.1.8 Units shall comply with all vehicle weight, dimension, and safety requirements of the State of Missouri.
- 2.1.9 Units shall be complete with all standard equipment, plus any optional or special equipment to meet the minimum specifications.
- 2.1.10 Bidder must provide all applicable Material Safety Data Sheets (MSDS) and American Society for Testing and Materials (ASTM) documentation.
- 2.1.11 All items not specifically described in the specification, but necessary for the proper and efficient operation of each unit, must be supplied and included in the bid price and described in the bidders response.
- 2.1.12 Each unit must be equipped with all safety components required by the current Federal Motor Vehicle Safety Standards.
- 2.1.13 All units must be electronically governed at a gross speed of 65 miles per hour.
- 2.1.14 Engine idle shutdown timer shall be programmed to shut down engine after 10 minutes of idle time with park brake set. MoDOT shall have the ability to adjust the governed speed intervals.

### 2.2 Common Requirements:

- 2.2.1 Pre-Approved and/or Approved Equal Acceptance Process:
  - a. Any notation throughout the following specifications that states “**Pre-Approved Equal and/or Equivalent**” requires the bidder to submit a request for acceptance of the item for approval no later than **2:00 p.m., Central Time, January 17, 2014**. All P-Approved requests must be submitted to Rebecca Jackson at the above address. These requests may be in the form of a hard copy, email or facsimile. Bidder is responsible to ensure receipt of any request. Acceptance of the Pre-Approved Equal and/or Equivalent product will be issued in an addendum allowing all bidders the opportunity to bid the same item.
  - b. Any notation of “**Equal or Equivalent**” allows the bidder to submit the substituted item in their bid without pre-approval. MoDOT at its sole discretion will determine if the item submitted is an equivalent resulting in a responsive bid. Items determined not to be an equivalent could render a bidder’s response as non-responsive.

Bidders must identify any time an item included in the bid is an equivalent as required on the pricing page. MoDOT reserves the right to request additional information if required for equivalent determination any time before or after contract award. The following actions may be necessary to evaluate equal and/or equivalent submittals:

- Demonstration of a typical and/or similar same model machine and/or component shall be provided to MoDOT for up two working days of unimpeded evaluation. A physical use demonstration may be conducted if applicable at a MoDOT Maintenance Facility. Equipment will be operated by MoDOT personnel.
  - Submittal of a contact list including the name, address, and telephone number of other customers using the same equipment within the State of Missouri that can be contacted and a visit arranged upon request.
  - Bidder may be required to facilitate manufacturing facility inspection tours during normal working hours.
  - All costs associated with providing any or all of these items are the sole responsibility of the bidder.
- c. References throughout the bid document requiring MoDOT Representative approval shall mean a request must be submitted in writing to the Central Office General Services Fleet Manager for review, acceptance and approval prior to implementation.

#### 2.2.2 Manuals and Service publications:

- a. A complete hard copy set of Operator Manuals shall be provided with each delivered unit.
- b. On-Line service system access shall be provided to address all major components identified in sections 2.3 through 2.6 below. Technical information provided shall be comparable to those available to dealerships.
- c. At a minimum, engine, emissions, transmission, chassis, electrical system and Anti-Lock Braking System (ABS) diagnostic software must be provided.
- Diagnostic software must be provided at fleet pricing to allow MoDOT to acquire the needed software.
  - Software shall be compatible with the following equipment configurations:
    - Standard Laptop (minimum requirements): Windows 7, Windows Internet Explorer 8 (IE8), 32 bit machine, 4 gig RAM.
    - Standard Windows Tablet (minimum requirements): Windows 8, Windows Internet Explorer 10 (IE10), 2 gig RAM.
- d. Bidder must provide access to on-line parts catalog system, comparable to those available to dealerships, with accessibility for 150 concurrent users. Parts system shall be complete for all OEM-installed components. Catalogs shall be fully illustrated. MoDOT must pre-approve on-line systems.
- e. Bidder must provide one hard copy parts manual per delivered unit for all Body Builder installed components including but not limited to, the hydraulic system, spreader control system, warning light system, material spreaders, and all plows. An on-line version may be substituted in lieu of hard copy. The manual shall meet the following minimum requirements:
- Shall be vehicle identification number (VIN) specific.
  - Shall include make and model of all Body Builder-installed components.
  - Shall include complete, fully illustrated parts listing for all Body Builder-installed components.
  - Each add-on electrical accessory circuit shall have its own circuit diagram, showing the complete power and ground sides, routing, wire color and gauge, pin numbers, switches, breaker or fuse location and/or number, and specific ground point locations.
  - Each add-on air powered accessory circuit shall have its own circuit diagram, showing valve location, air-line color, air-line size, and routing.
  - A complete hydraulic schematic of all accessory circuits, including flow specifications and pressure settings for relief valves on each circuit.
  - For each hydraulic hose installed, the diameter and overall length of the hose, including both fittings, and the type and size of each fitting.
- f. Each delivered unit shall include a factory line sheet listing all chassis component codes as installed by the bidder. An electronic or hard copy line sheet is acceptable. An electronic version must be submitted in a platform or version viewable and readable by MoDOT.
- g. Each delivered unit shall include a comprehensive list of all fluids, lubricants, coolants, etcetera required for the maintenance of the dump truck. This list should be provided in the form of a sticker located in the interior rear of the cab.

- 2.2.3 Finish: Trucks purchased from the resulting contract are for use in roadway maintenance activities including but not limited to snow removal, asphalt maintenance, aggregate material transport, etcetera . Unless otherwise specified, all equipment and all components, with the exception of stainless steel products, shall be thoroughly cleaned and completely finished with a high quality corrosion resistant product. Color shall be DuPont N2065-Yellow. Finish shall be smooth, shiny, and free of runs, overspray, and/or other defects. No bare ferrous metal components, with the exception of stainless steel products, shall be visible on any OEM and/or Body Builder-installed components.
- 2.2.4 Pilot Truck Build and Acceptance: After issuance of the first purchase order, bidder is required to build a pilot truck for use in specification compliance throughout the life of the contract.
- a. Bidder shall complete the cab and chassis within 120 days of PO issuance. Bidder shall notify MoDOT upon completion of the pilot chassis. Bidder may be required, at MoDOT's discretion, to make arrangements for an inspection of the chassis at the point of manufacture. Discrepancies and/or findings of non-compliance will be listed and must be corrected and/or addressed to the satisfaction of the MoDOT Representative before the rest of the chassis are built.
  - b. Within 60 days after receipt of cab and chassis, the Body Builder shall notify MoDOT of the pilot truck completion, including all Body Builder installed components in the proposed locations. Within two weeks of notification, MoDOT shall complete unit inspection. Discrepancies and/or findings of non-compliance will be listed and must be corrected and/or addressed to the satisfaction of the MoDOT Representative before the rest of the trucks are built or outfitted.
  - c. All costs associated with all pilot inspections, including travel, lodging, and food, for six (6) MoDOT employees must be included in the bid price. In the event that multiple reviews are required prior to final approval of the pilot truck, the costs to MoDOT for those trips are the responsibility of the Bidder as well.
  - d. Any manufacturing specification changes during the pilot inspections will be documented and approved by MoDOT and vendor. Changes must be implemented in the manufacture of this vehicle prior to the pre-delivery inspection and any that are not are subject to the pre-delivery inspection liquidated damages.
- 2.2.5 Pre-Delivery Inspections:
- a. The Bidder and/or Body Builder shall do a thorough pre-delivery inspection of each completed truck to include the chassis and all installed components and snow equipment. Inspection shall be customized to reflect snow removal truck requirements, including but not limited to: hydraulic system individual pressure settings, hydraulic controls operation, spreader control system operation, wing plow and underbody scraper operation, dump bed and tailgate operation, tarp system, warning lights, hydraulic hose and electrical wire routing and protection. Inspection results shall be recorded on a pre-printed form, which shall include the last 8 digits of the truck VIN. A copy of the completed inspection form signed and dated by the inspector shall be placed in the left door pocket of each delivered unit.
  - b. MoDOT reserves the right to complete a thorough pre and/or post-delivery inspection of each unit at the final assembly point and/or MoDOT delivery point. This inspection will include the chassis and all installed components and snow equipment. Bidder shall provide a production and planned delivery schedule to accommodate plant inspections and deliveries to districts.
- 2.2.6 Standard Warranty: If any standard retail warranty exceeds the specifications in this section, the standard warranty shall apply. Additionally, MoDOT is interested in value added solutions in relation to administration of a vehicle warranty to ensure units purchased under this contract will be repaired and returned to the roadway as quickly as possible. Such innovative solutions could include more than an in-house warranty program and all bidders are encouraged to submit options for review and evaluation.
- a. Truck Chassis: The chassis manufacturer shall guarantee to furnish all warranty services gratis at franchised dealers within the State of Missouri or other adjoining states.
  - b. Snow Removal Equipment: From the date that MoDOT assigns this equipment to its requesting location, the manufacturer and/or its representative shall provide a no-deductible, all-inclusive warranty (less normal maintenance) for a minimum of two years.
  - c. Body Builder Manufactured and Installed Components: From the date that MoDOT assigns the completed truck to its requesting location, the Body Builder shall provide a no-deductible, all-inclusive warranty (less normal maintenance) guaranteeing the design, material, installation, and workmanship of the completed unit and all installed components for a minimum of two years. The Body Builder shall provide a list of authorized

repair stations that will perform warranty repairs on all Body Builder-installed components on the truck. These stations, shall handle all associated billing directly with the Body Builder.

- d. In-House Warranty: Bidder shall establish and honor an in-house warranty program. This program shall cover the entire truck as delivered, including the chassis and all Body Builder-installed components and snow equipment. The in-house warranty shall remain in effect for the warranty periods stated above. There shall be no minimum price restriction for in-house warranty repairs. Bidder shall reimburse all warranty parts supplied by MoDOT. Warranty repair labor provided by MoDOT shall be reimbursed by bidder. Credit is unacceptable. Bidder shall submit an hourly labor rate based on fair market value with the bid. Bidder is responsible for all shipping costs of any warranty parts whether shipped to or from MoDOT.

2.2.6.1 Extended Warranty Option #1: Bumper to Bumper (all inclusive) - 1 Year including Towing.

2.2.6.2 Extended Warranty Option #2: Bumper to Bumper (all inclusive) - 3 Years including Towing

2.2.6.3 Extended Warranty Option #3: Bumper to Bumper (all inclusive) - 5 Years including Towing.

2.2.7 Training - Operator Training: Bidder shall provide eight (8) hours of Operator training for each location receiving delivered units as shown in Attachment 1. Training shall include but not be limited to identification of all cab, chassis, body and optional unit features as well as standard preventative maintenance procedures for all unit components. Training shall meet the following requirements:

- a. Content shall be tailored to the components of the delivered unit(s). Course shall include hands-on training to reinforce course content.
- b. Trainer must have experience in the area of servicing proposed truck components.
- c. Cab and Chassis system training shall include but not be limited to operational training of the engine, electronic controls, fuel system, emissions, electrical system controllers and automatic transmission.
- d. Body Builder installed component trainings shall include but not be limited to operational training of the hydraulic, electrical accessories, spreader control and warning light systems.
- e. Training shall be complete within 30 calendar days following unit delivery and must be coordinated with the MoDOT Representative. Bidder is responsible for all costs associated with training and materials for a maximum number of 20 trainees per unit.

2.2.7.1 Training - Technical Training: Annually, bidder shall provide 24 hours of Technical training in each assigned unit location within each district delivery location as shown in section 2.7.2. Training shall include but not be limited to, major unit components such as engine, transmission, electrical, drive line, emissions, hydraulics and other areas of emphasis as defined by the MoDOT Representative. Bidder is responsible for all costs associated with training and materials for a maximum number of 30 trainees per location and/or 15 per twelve hour session.

**2.3 Tandem Axle Technical Specifications:** The following technical specifications are for the manufacture of a 58,000 pound (lb.) Gross Vehicle Weight Rating (GVWR) Set Forward Tandem Axle Dump Truck with two dump bed configurations to accommodate a sixteen foot spreader.

2.3.1 Cab and Chassis: All specified equipment is to be Original Equipment Manufacturer (OEM) installed, either as standard equipment, a line installed option or factory authorized dealer standard option (DSO) or special equipment (SE) installation unless otherwise specifically stated.

- a. Cab
  - The design shall be the manufacturers' largest standard design, to accommodate two employees, shall be suitable to provide adequate headroom with the specified air-ride seats and other cab installed equipment.
  - Interior trim and insulation package shall include a full headliner and back-of-cab trim panel(s) offering maximum sound reduction.
  - Pedals suspended from the cowl are preferred. Floor mounted pedals are not preferred.
  - Front grille shall be stationary and mounted in a manner to clear front snow plow hitch.
  - Horns shall be air, mounted top-of-cab with snow covers, or frame mounted under hood.
  - Driver window may be manual and passenger window shall be power. Unit must have power locks on both doors.
  - Unit shall have interior sun visors on left and right side of windshield.

- Grab handles and arm rests must provide the ability to maintain three-points of contact when entering and exiting the cab.
  - Mirrors shall be west coast breakaway type, left and right, powered and heated, set for 102-inch trailer, 7-inch by 16-inch. Integral heated convex, left and right, below primary west coast mirrors, 8-inch round or 6-inch by 6-inch rectangular.
  - Heater, air conditioner, and defroster shall be factory-installed, highest British Thermal Unit (BTU) capacity available. Prefer side window defrosters to operate with the windshield defroster system and heater air selection for outside air source or in-cab air re-circulation. Prefer air conditioning system to have self-diagnostic capabilities.
  - Floor covering shall be heavy-duty rubber and/or vinyl with sound deadening backing covering entire floor, dark in color.
  - Driver and passenger seats shall be vinyl covered high-back air suspension with 3-point seat belts, tethered to allow free suspension movement. Each shall have an adjustable inboard armrest. National Cush-N-Aire Hi-Bac 195 or pre-approved equal.
  - Seat belts shall be a highly visible color such as red or orange.
  - Steering shall be factory installed tilt column with the smallest diameter steering wheel available for the specified front axle.
  - Unit must include map pockets in both doors or other large storage area suitable for manuals and other incidentals. Must not be mounted to or part of back-of-cab interior liner.
  - Overhead console is required and must be suitable for installation of a two-way radio.
  - Unit must include factory installed air ride rear cab suspension.
  - Unit must include a factory installed bug and stone screen behind the grille.
  - Unit must include a cab fresh air filter to reduce exposure to particulates.
- b. Chassis:
- There shall be a minimum of 13-inches ground clearance under any frame mounted components, such as the fuel tank and/or its mounting brackets, steps, air tanks, battery box, etcetera.
  - Battery Box must not interfere with body builder installed equipment. Spliced cables are not acceptable.
  - First cab step height shall not exceed 18-inches from the ground. All steps shall be a minimum of 5.5-inches wide. Steps are required on both sides of unit. MoDOT Representative must pre-approve step configuration.
  - Power steering must be integral hydraulic, gear. Ram system is not acceptable.
  - Wheelbase shall be determined between the bidder and Body Builder collaboration using the guidelines in section 2.3.3 and 2.3.4 of this request.
- c. Brakes:
- Must be a full dual air system with four-channel anti-lock system, rated at or above axle GVWR requirements.
  - Compressor shall be 13.2-Cubic Feet per Minute (CFM) or greater.
  - Shall be heated air dryer.
  - Air dryer must be easy to access and service. Prefer ADIP style or spin on cartridge.
  - Front and rear brakes shall be self-adjusting and rated at or above axle GVWR requirements.
  - All drive wheel positions shall be equipped with a parking brake.
  - Brake systems on the rear drive axle must be located inside the rear tire envelope to prevent any interference with pull-type asphalt spreader rollers.
  - Truck shall be equipped to pull a four-wheel trailer with air brakes. Truck shall have a hand control valve, tractor protection valve, and trailer anti-lock provisions. Air-lines must be run to the rear of the frame rails for glad-hand installation by Body Builder.
  - Installation of the air tanks and/or dryer shall not inhibit the installation of snow removal equipment anywhere underneath the truck behind the cab for a clear frame configuration.
- d. Electrical:
- Alternator shall be 160-ampere (amp) minimum and capacity shall be rated to handle all chassis and body building requirements.
  - Unit shall include three 12-Volt combined 1,950-cold cranking amp (CCA) maintenance free batteries.
  - Unit shall include one 12-Volt accessory power outlet in the cab.

- Gauges shall be three-way type; visual, light, and buzzer, dash mounted, easy operator viewing: Oil Pressure, Coolant Temperature, Air Pressure, Speedometer, Transmission Temperature, Ammeter or Voltmeter, Fuel, Tachometer, and Hour meter. The Hour meter must be OEM electronic and provide true engine running hours of operation.
  - Low Coolant Level Warning shall be an audible alarm.
  - Ignition Switch shall be an automotive key with accessory position. Two sets of keys shall be provided with each unit. Each key set shall have a key tag identifying the MoDOT number, which will be supplied at the time of order.
  - Windshield wiper system shall be electric with intermittent operation and electric washer pump. Wipers should be forced to the slowest intermittent speed if left on for a predetermined length of time with the parking brake set. Headlights shall turn on automatically when the wipers are on.
  - Prefer flush mounted cab marker lights. Light Emitting Diode (LED) is required.
  - Each unit shall include an AM/FM stereo with speakers.
  - Courtesy lamps shall be OEM interior lights to fully illuminate interior of cab and cab step areas.
  - Electrical protection shall be re-settable circuit breakers. Fuses are unacceptable.
  - Turn signal switch shall be self-canceling.
  - Snow plow light connections shall be a factory installed harness with connector for installation of snow plow lights. Harness must provide circuits for high and low beam headlights, marker lights, and turn signals. A factory installed, dash mounted switch shall switch operation from the OEM headlights to the snow plow light headlights. Marker lights and turn signals must function on plow lights regardless of the dash switch position.
  - Trailer light Connection shall be a factory installed 7-way connection socket (J560), anti-lock brake compatible, with sufficient cable to reach the rear of the frame. Socket must be wired for turn signal operation independent of brake lamps.
  - The two-way radio wiring shall be factory installed ten-gauge wire with a single 30-amp circuit protection. Factory installed wiring to support 50- and 100-amp state owned radio. Wires to terminate in both the overhead console and power distribution box between the seats. Coax cable shall be RG58. Coax cable end connections shall be a PL259. No wires or coax shall have splices.
  - Wire ends shall be heat-shrunk to prevent accidental grounding and shall include the proper protection from circuit overload. Wiring configuration must allow continued operation of radio even when ignition is off.
  - The ground speed harness shall be factory installed to provide Body Builder connection point for ground speed signal. Body Builder connection point shall be located inside the cab.
  - A power distribution box shall be mounted to the inside rear wall of the cab. This box shall provide an interface point for the following chassis supplied circuits: circuit breaker protected, switched battery power and ground speed signal. Battery power circuits shall be protected by a resettable circuit breaker located inside same box. It is acceptable to have resettable circuit breakers at the origin of the battery circuits, but the resettable circuit breaker at the point of origin must be of higher amperage than the ones inside the power distribution box.
- e. Engine: Shall be a standard production; turbo charged; governed; diesel fueled; a minimum gross torque of 1,150 pound-feet, and a minimum Society of Automotive Engineers (SAE) gross horsepower of 345 when operated within a governed speed as recommended by the engine manufacturer.
- Drain plug must be magnetic.
  - Shall utilize two dry air filters meeting engine manufacturer optimum filtration requirements.
  - Antifreeze shall be extended life, testing to a minimum of minus 35 degrees Fahrenheit. Meeting the manufacturers' recommendations.
  - Radiator shall be the largest capacity available for provided engine and chassis combination. Radiator shall have an accessible drain petcock. If OEM offers a corrosive resistant radiator coating or treatment, it must be provided.
  - Fan shall be air operated positive on-off temperature controlled clutch type with automatic mechanical failure lockup (on) provision. Viscous drives and electric clutches not acceptable.
  - Engine warning and shut down system shall include an audible buzzer and lamp warning for high engine temperature, low coolant and low engine oil pressure with automatic engine shut down feature.

- All trucks shall be ordered with an engine crankshaft front drive adapter plate suitable for installation of a Spicer No. 1310 accessory drive connector with clearance provisions for a crankshaft driven, front PTO driveshaft. Driveshaft may run through frame cross members, prefer it does not pass through the radiator, charge air cooler, or air conditioning condenser.
  - Engine block heater shall be a 120-Volt and 1,250-Watt mounted in an easily accessible location, near the driver door and in a protected from outside elements. Receptacle shall be easily accessible near the driver's door.
  - Unit must include a dash mounted filter minder lockup type air restriction indicator.
- f. Exhaust:
- Exhaust stack shall be right-hand vertical, with sweep elbow to direct exhaust away and above cab. If the diesel particulate filter (DPF) is part of the vertical stack, the clearance to the dump body must be pre-approved by the MoDOT Representative.
  - Exhaust stack must be shielded the full height of the cab.
  - If flex tubing is used the tubing and clamps shall be stainless steel.
  - Exhaust system design must incorporate a clear frame configuration whereby components shall not hinder the installation of under-frame snow removal equipment anywhere behind the cab.
- g. Frame:
- Single rail system is preferred. Double rail systems must feature anti-corrosive protection.
  - Strength must be 120,000 pounds per square inch (psi) minimum.
  - Resisting bending movement (RBM) shall be a minimum of 2,500,000 inch pounds minimum.
  - Integral extension must have a minimum of 20-inch integral frame extension in front of grille.
  - Unit cost must not include a factory front bumper.
  - Spliced after-frame (AF) extensions are not acceptable. Frame configuration to be determined by body builder and bidder.
  - Unit shall include factory installed two front and two rear tow hooks located on the outside end of the frame rails. Each tow hook shall meet or exceed unit GVWR.
- h. Front Axle and Suspension:
- Axle shall be standard manufacture 18,000-lb. rated capacity.
  - Axle setting shall be set forward only. Axle set-back not to exceed 32-inches measured from the grille.
  - Seals shall be Wet, Stemco or approved equivalent.
  - Suspension shall be parabolic or variable-rate springs, rated to axle capacity with highest deflection rate available.
- i. Rear Axle and Suspension:
- MoDOT prefers the most comfortable operator ride whether loaded or unloaded. Air ride suspensions are not preferred. Identified acceptable suspensions include but are not limited to TufTrac, Camel Back, Hendrickson HMX.
  - Axle shall be standard manufacture 40,000-lb. minimum rated capacity with power divider and lockout.
  - Drain plug shall be magnetic.
  - Gear ratio to provide adequate grade ability and rear wheel torque, and provide sustained 65 miles per hour (MPH) highway cruise speed at GVWR.
- j. Fuel System:
- Fuel Tank shall be a single left side mounted 70-gallon minimum capacity non-polished aluminum tank. Fuel and diesel exhaust fluid (DEF) tank placement shall not interfere with any underbody or wing plow option. If any portion of tank is used as a step, it shall have a non-skid grating. Tank shall include a drain port with plug.
  - Fuel maintenance system shall include a fuel-water separator, with thermostatic fuel temperature controlled electric heater, and fuel filter with restriction and change indicator. Components shall be factory installed ahead of fuel primer and other fuel filter(s).
- k. Transmission:
- Shall be an Allison six-speed automatic transmission.
  - Shifter shall be a dash mounted lever style with 'Mode' select button.
  - Electronic Control Unit (ECU) shall be mounted inside the cab.
  - Fluids shall be manufacturer approved synthetic transmission fluid.

- Shall utilize extended heavy-duty type oil cooler.
- Unit shall include a magnetic drain plug or magnet in oil pan.

1. Wheels and Tires:

- Front wheels shall be heavy service 9-inch steel hub piloted Budd style 10-bolt. White powder coat finish.
- Rear wheels shall be heavy service 8.25-inch steel hub piloted Budd style 10-bolt. White powder coat finish.
- Wheel guards shall be for metric hub-piloted wheels with flanged mounting nuts and installed between hub and wheel, and between dual wheels.
- Front and rear tires shall not be speed restricted below 65 mph. Front tire size shall be 315/80R22.5, load rating “L”, and 20 ply rating. Rear tire size shall be 11R22.5, load rating “G”, and 14 ply rating. Rear tires shall be on and off road tubeless mud and snow tread.

2.3.2 Body Builder:

a. Threaded Fasteners:

- All threaded fastener components (bolts, washers, nuts) with a diameter designation greater than or equal to SAE ½-inch shall be minimum grade eight composition. Nuts shall be all metal self-locking, lock washers are not acceptable. All bolts 5/8-inch and larger shall be flange head. A minimum of two bolt threads must extend through all nuts. All components shall have grade identifier marks and a registered manufacturer's logo.
- All threaded fastener components (bolts, washers, nuts) with a diameter designation greater than or equal to SAE ¼-inch up to less than SAE ½-inch shall be minimum grade five composition. Nuts shall be self-locking, either poly-lock or all metal. Lock washers are not acceptable. A minimum of two bolt threads must extend through all nuts. All components shall have grade identifier marks and a registered manufacturer's logo.
- All threaded fastener components (screws/bolts, washers/lock washers, nuts) with a diameter designation less than SAE ¼-inch shall be minimum grade two composition.

b. Electrical and Illumination Installation:

- All installed wiring must be of adequate size to handle the anticipated loads of all electrical components. All wiring must be uninterrupted and complete with no splices.
- All wiring must be color-coded.
- All wire terminal ends (spade, ring, etc.) shall be: crimped, soldered to the wires and heat shrunk, or weatherproofed connectors. Scotch-Loc fasteners and/or crimp butt connectors are not acceptable for any connection.
- All electrical connections shall be protected with dielectric silicone grease.
- All wiring shall be enclosed in a protective wiring loom, conduit, or wrapped harness.
- The edges of all holes through which wiring must pass shall be protected with a grommet.
- High current circuits, such as the tarp motor circuit, shall be powered directly from the battery, and protected by a master re-settable breaker, or a fusible link.
- Body Builder installed wiring going to the rear of the frame and dump body shall be grouped together and bound. This bound harness shall then be secured to a painted metal strap, approximately 1-1/4-inch x 1/4-inch in size. This strap shall be secured to the top of the frame cross members away from the side rails.
- All wiring to lamps shall be stress relieved within 6-inches of the component.
- Wiring routed through the hydraulic enclosure sides shall be routed through a sealed compression type strain relief, or a molded bulkhead fitting.

c. Auxiliary Snow Plow Headlights: Pre-approval is required for any factory installed snow plow lights or snow plow light bracket.

- Front auxiliary halogen headlights shall be Truck-Lite model 645 or equivalent. MoDOT prefers the safest visibility with a reduced risk of snow and/or ice accumulation.
- Auxiliary headlights shall not obstruct the driver's vision. Mounting shall be approximately 64-inches from ground level, and at approximately the same width apart as truck's headlamps.
- Light shall be secured to a fender mounted, 3-point assembly bracket. Bracket shall be made from stainless steel.
- All fasteners attaching the bracket to the fender shall be stainless, and be secured using locknuts.

- Reinforced rubber washers or grommets shall insulate the bracket from the hood. Fasteners attaching the bracket to the hood shall be insulated from the hood by a 2-inch minimum diameter rubber washer or grommet and 2-inch minimum diameter plated washer.
  - Auxiliary headlights shall be grounded back to chassis ground; minimum 14-gauge wire shall be used. Drill holes to accommodate wire size.
- d. Hydraulic Installation:
- All hoses shall be routed in a manner to minimize rub points and bends. Critical rub points shall be wrapped for protection.
  - All hoses shall be routed or shielded to protect them from heat sources.
  - Teflon tape shall not be used in the hydraulic system.
  - Hydraulic hoses shall not be secured to any factory-installed chassis wiring, cables, hoses, or lines.
  - Hydraulic hoses shall not be secured in the same bundle with any electrical wiring.
  - Hydraulic hoses shall be bundled together and routed by themselves.
  - Hoses shall be adequately supported and securely fastened to withstand snow and icing conditions.
  - All pressure and return hoses shall be rated for at least 3,000 PSI working pressure.
  - Hydraulic hoses running to the rear of the truck shall be secured to a painted metal strap, approximately 1-1/4-inch x 1/4-inch in size. This strap shall be secured to the top of the frame cross members away from the side rails.
  - Each hose going to the dump body shall have 90-degree bulkhead mounted Joint Industry Council (JIC) elbows installed at the rear of the truck frame near the dump body hinge. These elbows shall split each hose going to the dump body into two hoses, allowing for easier routing and replacement.
- e. Air Powered Accessory Installation:
- All lines shall be routed in a manner to minimize rub points and bends. Critical rub points shall be wrapped for protection.
  - All lines shall be routed or shielded to protect them from heat sources.
  - Air lines shall be colored, identifying individual circuits, with each circuit being a different color. Color-coding shall remain consistent for the duration of the contract.
  - Body Builder installed accessory air lines going to the rear of the frame, and dump body, shall be grouped together and bound with the Body Builder installed wiring going to the rear of the frame and dump body. This bound harness shall then be secured to the same painted metal strap as the body-builder installed electrical wire harness.
- f. Bumper, Front Snow Plow Hitch and Lift Assembly: Shall be a heavy-duty channel, swept back front bumper. The bumper must be designed to attach a currently used MoDOT snow plow and to evenly transmit the snow plow load to the truck frame under continuous severe service use.
- Bumper shall be secured to the truck frame using fine thread, grade eight, frame-style hardware. Nuts shall be all metal, top-lock style locknuts. Serrated hardware is not acceptable. Hydraulic quick couplers as required elsewhere in the specifications shall be installed on the bumper.
  - Lift assembly shall include a Monarch CS250 hydraulic cylinder or equivalent for lifting the snow plow. It shall be securely welded to the front bumper and fold down when not in use.
  - Front snow plow hitch must be securely welded to the front bumper.
- g. Rear Hitch Plate and Pintle Hitch: A 3/4-inch thick steel rear hitch plate shall be securely welded and gusseted to rear of frame rails. Rear hitch plate shall include the following items:
- Bulkheads for service and emergency trailer glad-hands, positioned away from the center of the rear hitch plate to prevent interference with a trailer tongue when making tight turns, and have 1/2-inch brass plugs installed. Glad-hands with 1/2-inch brass close nipples and tethered, removable covers shall be placed in the frame mounted tool box.
  - The J560 trailer connection furnished with the chassis shall be mounted through the rear hitch plate to the left of the pintle hitch.
  - Two (2) Buyers Products B50 or equivalent Department of Transportation (DOT) “D” rings, with 20-ton capacity each, shall be securely welded to the rear hitch plate.
  - A Premier model Saf-Tite 100 rigid pintle hitch shall be installed on the rear hitch plate using grade eight hardware torqued to specifications. Hitch shall be 24-inch centerline height above the ground, plus or minus 1-inch.

- Back-up alarm shall exceed 105 decibels or 15 decibels above idle engine ambient and shall be installed at the rear of the frame in a protected area.
- h. Tool box shall be approximately 18 by 18 by 24 inches, weather proof stainless steel tool box. It shall be mounted on the right hand outside frame rail while not interfering with any body-builder installed options.
  - i. All grease zerks will be threaded. Drive-in zerks are not acceptable. All threaded holes for grease zerks shall be of sufficient depth to prevent the zerk from bottoming out when tightened.
  - j. Air and Electric Powered Body Builder Installed Accessories:
    - All controls for body builder installed accessories shall be located within an operator console installed between the driver and passenger seat.
    - All body builder harnesses going to the operator console shall pass through weather-proof strain relief(s) mounted in the rear wall of the cab. Wiring shall be configured such that the height of the harnesses outside of the cab decreases as it travels away from the strain relief. Any water following the harnesses shall run away from the strain relief. Harnesses shall have sufficient slack to allow movement of the cab air suspension.
    - Harnesses and airlines for body builder installed accessories shall not pass through the floor of the cab.
    - From the rear wall of the cab towards the rear of the truck, no body builder installed wiring, air lines, or hydraulic hoses shall be located beneath the top flange of the frame.
    - All body builder air lines going to the operator console shall be routed through bulkhead unions located in the rear wall of the cab near the strain relief/s for the electrical wiring. Bulkhead mounting shall be facilitated by matching backup plates located on the inside and outside of the cab wall. Outside plate shall be coated with a polyurethane or silicone sealer before being secured to the rear wall of the cab. All bulkhead locations shall have the function for that bulkhead stamped or etched into the plate for identification of each airline installed.
    - A power distribution box shall be mounted to the inside rear wall of the cab. This box shall provide an interface point for the following chassis supplied circuits: circuit breaker protected, switched battery power and ground speed signal. Battery power circuits shall be protected by a resettable circuit breaker located inside same box. It is acceptable to have resettable circuit breakers at the origin of the battery circuits, but the resettable circuit breaker at the point of origin must be of higher amperage than the ones inside the power distribution box. Air lines shall have sufficient slack to allow movement of the cab air suspension.
  - k. Spreader light shall be controlled by a rocker-style switch located in the operator console. Circuit shall operate key-on, and be protected by a resettable circuit breaker located in the power distribution box.
  - l. Tarp shall be controlled by a rocker-style switch located in the operator console. Circuit shall operate key-on, and be protected by a resettable circuit breaker located in the power distribution box. The high-current tarp relay shall be supplied from the battery box and protected by a resettable circuit breaker located in the battery box. Tarp relay shall be located on the rear wall inside of the cab, or on the rear wall outside of the cab inside a weather-proof enclosure.
  - m. Raised body indicator light shall be a red and console mounted. Light shall flash to indicate a raised body condition. Lamp shall be driven by a sealed proximity switch located in a protected position on the frame near the front of the dump body. Circuit shall be protected by a resettable circuit breaker located in the power distribution box and operate key-on.
  - n. LED warning lights shall be controlled by a rocker-style switch located in the operator console. Circuit shall operate key-on and key-off, and be protected by a resettable circuit breaker located in the power distribution box.
  - o. Tailgate latch shall be air operated and controlled by rocker-style switch located in the operator's console.

2.3.3 Corten V-Style Long Sill Dump Body with Attached Cab Shield - Configuration #1: The following specifications and dimensions shall apply to the 12-cubic yard maximum capacity truck-mounted dump body and hoist. The complete dump body shall be capable of accommodating a 16-foot, slip-in material spreader with attached liquid storage tanks. Any ferrous metal materials used in the manufacture of the bed must be welded prior to priming. Bids will not be considered on any dump body and hoist that deviate from these specifications.

- a. The dump body provided shall be a Western style. No underbody cross-members for support will be allowed. The floor, sides, and main long sill are to be full length with no cross-splices. All boxed areas of the dump body shall be sealed except for long sills. Long sills shall have a 1-1/4" drain hole at the rear to allow

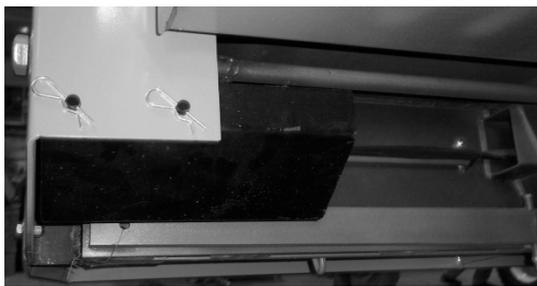
- draining when the body is in a lowered position. No wiring or hoses shall be run through any boxed area. All welds shall be continuous. All hinge pins shall be removable.
- Dump body capacity shall be twelve cubic yards water level.
  - 15-foot maximum inside length.
  - 100-inch minimum outside width.
  - 86-inch minimum inside width.
  - 36 1/2-inch minimum side height with level ends.
- b. The dump body main long sills, floor, tailgate, sides, and front shall be constructed using a minimum of Corten, rated 55,000-psi yield.
- Main Long Sills 1/4-inch Corten
  - Floor, Tailgate 3/16-inch AR 450
  - Sides, Front 10- gauge Corten
  - Formed Top Rail 3/16-inch Corten
  - Rear Corner post 3/16-inch Corten
- c. Dump Body Mounting:
- The rear edge of the dump body pivot pin shall be 0- to 1-inch forward from the rear face of the rear hitch plate.
  - The dump body pivot, measured from the centerline of the pivot pin to the rear face of the dump body not including the tailgate, shall be 12 inches.
  - The chassis wheel base shall be such that the rear drive axle is located 21-22 inches forward from the rear face of the rear hitch plate, measured from the rear face of the rear hitch plate to the center line of the rear drive axle. Rear drive axle tires shall not extend past the rear face of the rear hitch plate.
  - Hydraulic oil reservoir shall be mounted to provide 3- to 4-inch clearance between the cab and reservoir on passenger side of hoist above the frame.
  - The dump body shall be mounted as close as possible to the hydraulic oil reservoir, with a minimum of 3-inch clearance, excluding the sub frame of the reservoir and hoist.
  - A 4-gauge battery cable ground strap shall be installed from the dump body to the truck frame by means of a 5/16-inch cadmium plated bolt. Star washers shall be installed on both sides of the strap eye to insure a good ground.
- d. Hoist:
- Hoist shall be a trunnion mount, head lift, double-acting cylinder.
  - The hoist housing should be designed to accept a Model CS140-5.5-3DA MAILHOT cylinder or pre-approved equal. The cylinder sleeves shall be nitride coated. Sub-frame hoists are not acceptable.
  - A flared body bracket will be attached to either the hoist frame or body understructure to align body in position and keep from moving side to side.
  - The hoist shall be attached to the chassis by means of an above frame cradle. The cradle shall be designed as such to allow the hydraulic reservoir to be mounted on the passenger side of the hoist and the hydraulic valve unit to be mounted on the driver side of the hoist. The cradle shall also be able to accept grease line extensions that run from the outside of the driver side to the pivot point of the hoist on the cradle.
- e. Dump body pivots shall facilitate thorough greasing. Bushings shall have an internal radial groove in line with the grease fitting. Pivot pins shall be drilled and cross-drilled
- f. A storable body prop shall be provided on each side of the dump body. Pivots for the body props shall be greasable. Body props shall be constructed to withstand the down-pressure of the hoist without damaging the dump body, chassis or any related components.
- g. The cab protector shall be made of 10-gauge Corten material, be a minimum of 18-inches deep and not interfere with the cab-mounted vertical exhaust pipe. The cab protector shall be mounted, welded and gusseted to prevent flexing or vibration.
- h. Sides:
- Sides shall have a formed, debris-shedding top rail.
  - External supports for sides shall be horizontal.
  - Sides shall have no provisions for extension boards.
  - Side heights shall be the same height as rear tailgate.
  - Sides shall have a fully welded step on the lowest bottom rubrail in line with pull out ladder.
  - Side corner posts shall have a Whelen box recessed and welded in place for Whelen warning strobe light.
- i. Tailgate:
- The tailgate shall be double-acting, and vertically straight with off-set hinges for positive closure.

- The tailgate shall have boxed upper, lower, side, and intermediate horizontal rib supports made of 10 gauge Corten material. The tailgate sheet shall be made of 3/16-inch AR 450 material. Lift handles shall be welded on each side just above the bottom support rib.
  - A hinged “D” ring shall be mounted top and center of the tailgate to provide a lifting hook for removing the tailgate.
  - Two 3/8-inch grade 70 spreader/holder chains shall be provided and stowed in boxes that are externally welded on tailgate when not in use.
  - Anchor points for the tailgate chains shall be made from 3/8-inch thick steel. These anchor points shall be lapped on the outside of the dump body with a minimum of 1 1/2-inch overlap. Keyhole slot in anchor points shall be configured so that when installed, the link of the tailgate chain nested in the anchor is no more than 1 inch away from the rear face of the dump body at the farthest point.
  - The top hinge pin shall be minimum 1 1/4 - inch diameter and pivot through (2) two 1/2-inch thick plates welded to the top of the rear body corner posts. The upper hinge plates must be flush with the top of the rear corner posts, body sides, and tailgate. These pins shall have one end tapered approximately 30 degrees for ease of alignment. 30 degree taper shall be 1/4 - to 3/8-inch in length. Both upper pins are to be fabricated from 1 1/4 - inch cold rolled steel, and have a 1/4-inch thick outer flange stop. The 2-inch flange is to have one side machined to rest against a 3/8-inch x 1 3/4” flat bar welded to the outer hinge plate in order to capture the pin in place and prevent rotation, and pre-mature pin and hinge wear. Each pin is to be drilled and tapped for grease fittings to be installed into outer pin flange. Grease channels are to be included in order to lubricate the tailgate hinge lug.
  - The tailgate lower pins shall be a minimum 1 1/4” diameter. Tailgate shall, without assistance from the locking device, seal against the floor/side sheets of the dump body, with no more than a 1/16-inch gap at any point. With the tailgate closed and the locking device open, tailgate lower pins shall have a 1/8-inch minimum, 1/4-inch maximum gap between the forward edge of the pin and the forward edge of the cradle.
  - A license plate bracket shall be welded on the left-hand side of the tailgate near the top of the tailgate.
  - When tailgate is lowered parallel to body floor, the inside surface of the tailgate shall provide a smooth level joint between the tailgate and the body floor.
  - Tailgate height shall be 36 1/2 – inches tall measured from the top of the floor to the top of the tailgate sheet.
- j. Tailgate Latch
- An over-center locking device on each side of the dump body shall hold the tailgate securely closed. Latching arms shall be forged steel.
  - The tailgate latch cross shaft assembly shall be supported on each end by bushings.
  - This locking device shall be operated by an air cylinder, which shall be mounted between the long sills. Air cylinder shall be controlled by a rocker-style switch located in the operator’s console.
  - Locking device shall be adjustable at each side of the dump body.
  - A manual over-ride shall be provided on the outside of the dump body, allowing the operator to lock or unlock the tailgate using a simple adjustable wrench and without removing components.
  - Lubrication points on the tailgate latch cross-shaft shall facilitate easier greasing by means of grooved bushings or cross drilled shaft.
  - Grease zerks at each end of the tailgate cross-shaft shall be visible and accessible from the outside face of the dump body.
- k. Ladder:
- A pull out style two-rung ladder shall be installed on each side of the dump body. Ladders shall be centered between the truck tandem rear axles so that the operator does not have to climb over the tarp bow when the tarp is retracted.
  - Grab handles shall be installed on the outside of the dump body and provide for three points of contact while using the ladder.
  - If ladder is open to ground on the underside, a bolt on debris cover shall be installed to prevent buildup of asphalt and other debris on ladder.
- l. Wiring and Hose Routing:
- Wiring and hoses going to the front of the dump body shall be secured to a 1/2-inch diameter painted steel rod which shall be attached to the inside of the long sill by means of 1/2-inch X 1-inch tall stand-offs. Stand-offs shall be placed no farther than 24 inches apart, and be securely welded to the long sill.

- Wiring inside the rear corner posts shall be secured to 3/16" single chain link attached inside the rear corner posts, securely welded. Height of stand-off to be sufficient to support all of the wiring inside the corner post. Stand-offs shall be positioned to allow wires to be secured away from the tailgate latch mechanism, and within 6 inches of all lamps. A sufficient amount of wire shall be left between the last point of securement and the lamp to allow for the removal of the lamp for replacement.
- m. Brake, turn and tail lights shall meet all Federal and State DOT specifications, which recently includes and requires an independent running light on the rear corners.
- All lights shall be mounted in shockproof rubber grommets.
  - All lights shall be LED.
  - All lights shall be connected to a one piece wiring harness with molded connectors.
  - Each rear corner post shall be able to accept a recessed 3-inch x 5-inch rectangular stop/turn taillight. Suitable make and model is Maxxima M42213R or equivalent.
  - Each rear corner post shall be to accept a recessed 3-inch X 5-inch rectangular back up light. Suitable make and model is Maxxima M42213 or equivalent.
  - Each rear corner post shall have one marker/clearance light on the rear face of the corner post and one marker/clearance light on the outside face of the cornerpost.
  - A 3 x 4 inch rectangular tube shall extend through long sills at the rear for routing of electric wiring. Tubes are to be fully welded, sealing the joint at the long sill.
- n. Raised Body Indicator: A sealed proximity switch shall be mounted near the hoist assembly to control a raised body indicator light. A dash mounted indicator light shall be provided, be plainly visible to the seated operator, be red in color, and flash when the dump body is raised.
- o. One Grote rubber utility halogen spreader spotlight shall be mounted below the left rear dump body corner. The light shall be controlled by a rocker-style switch located in the operator console. Light will not hinder the operations of the material spreader
- p. Mud flaps shall be removable by incorporating 201 or 304 stainless steel removable hinge pin approximately 26 inches long by 1/2" diameter solid rod. The rod will have a 2 1/2" - 90 degree bend for a handle with a 3/16" hole at the opposite end for a lynch pin. There shall be three bushings on the truck side and three bushings on the mud flap side constructed of 1/2" inside diameter pipe by 1 1/2" long. Spaced accordingly on flap and truck bracket that is constructed of 24" long by 2" deep by 3/16" thick steel. Mud Flap removal shall not require any tools. See drawing on Attachment 2.
- q. Hydraulic Couplers: See Coupler description specifications in the Hydraulic Section 2.3.5.j.
- The passenger side of the dump body shall have three, 3/8" male couplers. Couplers shall be attached to male pipe X male JIC bulkhead fittings mounted on the lowest rub rail near the rear of the bed.
  - The driver side of the dump body shall have three male couplers for the slip in spreader. One, 1-inch, one, 3/4 -inch, one 1/2 -inch. Couplers shall be attached to male pipe X male JIC bulkhead fittings mounted on the lowest rub rail near the rear of bed.
  - The hydraulic lines shall extend from the lowest rub rails to the body's main long sills through a fabricated enclosure on the underside of the body. The main long sills shall have passageways at the rear for the hydraulic lines. Passages through the long sills shall be sealed around the passage to prevent moisture entry into the long sill.
  - All hydraulic lines running from the valve unit shall be secured to a bulkhead plate with accommodating fittings, mounted on the cab side of the rear hinge between chassis frame rails. Hydraulic lines running into body shall start at this bulkhead plate creating a 2 piece hose for ease of service and routing.
- r. Conspicuity: The dump body shall be outfitted with DOT-C2 11 inch red by 7 inch white prismatic retroreflective conspicuity tape meeting or exceeding Federal Motor Vehicle Safety Standards (FMVSS) 108, DOT-C2 standards. The conspicuity tape shall be applied continuously to the sides of the dump body along the bottom horizontal bed rails. Where there are other fixtures, such as lights, brackets or steps, along the area where the conspicuity tape is to be applied, the tape shall be terminated 1/2 inch from the object and resume 1/2 inch from the far side of the object. The conspicuity tape shall be applied to rear facing surface of the tail gate along all horizontal tail gate bracing including the top and bottom tail gate rails and vertically along both edges of the tail gate. Where Conspicuity tape from a horizontal and vertical application intersects the vertical tape shall be butt spliced to the edge of the horizontal tape application with no overlap or gap. Where these intersections occur at a corner, the horizontal tape shall be trimmed to match the edge of the vertical tape forming a clean box corner. On stainless steel tailgates, the flat recessed areas between the tailgate bracing shall receive yellow 3M Scotchlite® reflective graphic film series 5,000 or equivalent.

This sheeting shall not overlap onto the surrounding bed bracing and shall not be any farther away from the joint of the tailgate bracing than ½ inch.

- s. Spreader Body Hold Downs: Four storable winches to be welded prior to priming on the bottom side of upper body rail in a fashion not to exceed the overall width of the body, 4-inch x 10-foot of nylon webbing with flat hook to be included. Body Builder must coordinate placement of winches to line up vertically with the spreader hold down brackets.
- t. Tarp:
  - Shall be a fully automatic, electric type installed system and controlled by a rocker-style switch located in the operator's console.
  - Arms and tarp-protecting windshield shall be aluminum.
  - Shall be designed for hot asphalt.
  - Tarp shall be designed as shown in Attachment 4.
  - Arm springs shall be adjustable and designed to mount on the underside of the dump body. Elbows of the tarp arms shall be bolted to the arms.
  - The body shall also be equipped with an air tension bow for the purpose of keeping the tarp at the front of the body down next to the body sides and load during use and transport. The air tension bow shall be operated by an air cylinder, which shall be mounted on the front sheet. Air cylinder shall be controlled by a rocker-style switch located in the operator's console. The air cylinder shall be attached to a cross shaft that extends thru the cab shield side plates and is able to rotate and actuate the tension bow.
  - Shall have side flaps that fold out over the sides of the dump body.
    - 1) The length and positioning of the flaps shall be such that when deployed and secured, the side flaps fit between the rear edge of the cab shield support gusset and the front edge of the rear corner post.
    - 2) Side flaps shall not be the full length of the tarp.
  - The side flap shall be secured in the covered position by a self-storing bungee rope routed through grommets or "D" rings in the outermost edge of the tarp, and "J" hooks on the bottom side of the middle body rail.
- u. A paver or asphalt lip shall be mounted on the rear dump body apron. Paver lip shall be mounted ½-inch hardware. Holes in kip and dump body shall be dimensional to allow any lip to be installed on any dump body. Welded paver lips are not acceptable. Paver lip shall be mounted at a 24-28 degree angle. Length of paver lip shall be such as to provide 20-inches of overhang, measured from the rear face of the rear hitch plate to the rear edge of the paver lip.
- v. Rear post lower covers are used to keep rear tires from throwing debris up into the inside of the rear posts. The bottoms of the corner posts are to include removable 10-gauge Corten covers. The covers are to allow for drainage and must be designed to remove easily for servicing components inside the body corner posts. The covers shall not interfere with the tailgate latching mechanism. See picture below.



2.3.4 Stainless Steel I-Beam Long Sill Dump Body with Detached Cab Shield - Configuration #2: The dump body provided shall be a 15-foot cross-memberless Western style body.

- No underbody cross-members for support will be allowed.
- The floor, sides, and main long sill are to be full length with no cross-splices.
- All boxed areas of the dump body shall be adequately ventilated and drained.
- No wiring or hoses shall be run through any bed-sides upper and lower rails.
- All welds shall be continuous.
- All hinge pins shall be removable.

- The head sheet shall be flat with no doghouse for the hoist cylinder and shall accommodate tarp mounting. Head sheet shall not extend above the height of the cab with tarp installed
  - Hoist cylinder must be forward of the head sheet.
  - Grease hoses shall be installed to allow remote greasing of all points that are not readily accessible from the ground.
- a. Capacity: Shall be a maximum of 12-cubic yards water level.
    - Shall have a 15-foot maximum inside length.
    - Shall have a 100-inch minimum outside width.
    - Shall have an 86-inch minimum inside width.
    - Shall have a 36-inch minimum side height with level ends.
  - b. Construction:
    - The tailgate, sides, ladder, hand holds and front shall be constructed using stainless steel.
    - Floor shall be ¼-inch Abrasion Resistant (AR) 450-plate rated at 145,000 psi yield and 180,000 tensile materials with fully formed radius on each side.
    - Internal bed sides and tailgate surfaces shall be a minimum of seven gauge stainless sheet material.
    - Remaining sheet steel, including bracing on the tailgate, sides, and front head, shall be a minimum 10-gauge Stainless Steel.
    - Stainless steel wire shall be used for all welds when welding stainless panels together.
    - Structural I-beams shall be one piece 10-inch by 12-lb. per foot minimum structural I-beam longitudinal. Each longitudinal shall be a continuous welded to the floor. The longitudinal must be notched to accept hoist cradle without the need for additional spacers between the longitudinal and the truck frame. If spacer is used, it shall be attached to bed and not truck frame.
  - c. Mounting:
    - The rear edge of the dump body pivot pin shall be up to 1-inch forward from the rear face of the rear hitch plate.
    - The dump body pivot, measured from the centerline of the pivot pin to the rear face of the dump body, not including the tailgate, shall be 12-inches.
    - The chassis wheel base shall be such that the rear drive axle is located 21- to 22-inches forward from the rear face of the rear hitch plate, measured from the rear face of the rear hitch plate to the center line of the rear drive axle. Rear drive axle tires shall not extend past the rear face of the rear hitch plate.
    - Hydraulic oil reservoir shall be mounted to provide 3- to 4-inch clearance between the cab and reservoir.
    - The dump body shall be mounted as close as possible to the hydraulic oil reservoir, with a minimum of 3-inch clearance, excluding the sub frame of the reservoir and hoist.
    - A 4-gauge battery cable ground strap shall be installed from the dump body to the truck frame by means of a 5/16-inch cadmium plated bolt. Star washers shall be installed on both sides of the strap eye to insure a good ground.
  - d. Hoist:
    - Shall be a trunnion mount, head lift, double-acting cylinder.
    - Should be designed to accept CD140-5.5-3DA Mailhot cylinder or pre-approved equal.
    - The cylinder sleeves shall be nitride coated. Sub-frame hoists are not acceptable.
    - A flared body bracket will be attached to either the hoist frame or body understructure to align body in position and keep from moving side to side.
    - Shall be attached to the chassis by means of an above frame cradle. The cradle shall be designed to allow the hydraulic reservoir to be mounted to the drivers' side of the hoist and the hydraulic valve enclosure mounted to the passenger side of the hoist.
  - e. Pivots shall facilitate thorough greasing. Bushings shall have an internal radial groove in line with the grease fitting. Pivot pins shall be drilled, cross-drilled, and spiral grooved and made from stainless steel.
  - f. Body Props:
    - A storable body prop shall be provided on each side of the dump body.
    - Pivots for the body props shall be greaseable.
    - Body props shall be constructed to withstand the down-pressure of the hoist without damaging the dump body, chassis, or any related components.
  - g. Cab Protector:
    - Cab shield shall cover the rear of the cab and top rear half of roof. Shield shall not be mounted to dump body or cab, but mounted to the frame.
      - 1) Be reasonably close to top of cab but avoid rubbing or bumping of the cab with full cab suspension travel and clear the vertical exhaust pipe.

- 2) Allow clear visibility from rear cab window.
  - 3) Shall be the same width as widest part of cab above the doors.
  - 4) Standard 8-inch channel will be used as uprights to top part of cab shield and for top cross member. Channel shall be 8-inch and a minimum of 11.5-lbs. per foot. Formed channels may also be used providing they are as strong or stronger than the standard 8-inch channels. Formed channels shall be approved by MoDOT Representative prior to installation.
  - 5) Each upright shall be bolted with minimum of five (5) each of 5/8-inch, grade eight bolts to chassis rail.
  - 6) Upright flanges shall face away from center of chassis.
  - 7) Uprights shall be further stiffened to rail with 8-inch length of 3/8-inch by 3-inch by 3-inch angle irons placed on top of rails and properly welded to uprights. This angle iron may also act as the bottom support for the hydraulic reservoir. This angle iron shall not be welded to frame rails but must rest squarely on chassis rail.
  - 8) All seams shall be continuous. Skip weld is not acceptable.
- Top cross member shall be adequately welded to uprights and gusseted with two 1/4-inch steel plates of 6-inch by 6-inch by approximately 8-1/2-inch dimensions at rear part of assembly.
  - Cab shield shall be welded to uprights and top cross member. Cab shield material shall be a minimum of 10-gauge thickness Stainless Steel material.
    - 1) Reinforced and weld to cross member with two (2) 3-inch by 1-3/8-inch (4.1) channel irons, which extend the full length of cab shield and align with eight inch channel uprights.
    - 2) Shall be gusseted from 3-inch by 4.1-channel iron to 8-inch channel iron in a manner offering highest degree of stability.
    - 3) Shall be welded to 4.1-channel iron with flanges downward.
    - 4) Must meet all OSHA standards
    - 5) Must include provisions that do not allow ponding of water and slopes toward bed. (No Drain Holes)
  - Heavy duty, expanded steel with approximately 1-inch by 2-inch openings welded to cab shield to protect rear cab window area.
    - 1) Outer skirts of cab shield shall extend a minimum of 6-inches below rear cab window.
    - 2) A 2-inch angle iron will be welded to uprights to support the bottom of the expanded steel.
  - Adequately-sized openings with rounded corners which may be necessary may be allowed. Openings will be done in a professional manner with straight sides with minimum one-half inch radius corners..
  - Welding to be continuous on both sides of gussets, channels and cross members.
  - Unit shall include two strobe light mounting brackets mounted to allow for 360 degree visibility of cab shield lights.
    - 1) Brackets shall be welded prior to painting cab shield.
    - 2) Brackets shall be mounted on top of cab shield, one on each side.
- h. Sides:
- Sides shall have a formed, debris-shedding top rail. This shall mean sloped or rounded.
  - External supports for sides shall be horizontal.
  - Sides shall have no provisions for extension boards.
- i. Tailgate:
- Shall be double-acting, and vertically straight with off-set hinges for positive closure.
  - Shall have boxed upper, lower, side, and intermediate horizontal rib supports. Lift handles shall be welded on each side just above the bottom support rib.
  - A hinged "D" ring shall be mounted top and center of the tailgate to provide a lifting hook for removing the tailgate.
  - Two 3/8-inch grade 70 spreader and/or holder chains shall be provided and stowed in boxes that are externally welded on tailgate when not in use.
  - Anchor points for the tailgate chains shall be made from 3/8-inch thick steel. These anchor points shall be lapped on the outside of the dump body with a minimum of 1-inch overlap. Keyhole slot in anchor points shall be configured so that when installed, the link of the tailgate chain nested in the anchor is no more than 1-inch away from the rear face of the dump body at the farthest point.
  - The top hinge pin shall be 1-inch diameter minimum and pivot through a greasable bushing. These pins shall have one end tapered approximately 30-degrees for ease of alignment. A 30-degree taper shall be 1/4- to 3/8-inch in length.

- Lower pins shall be a minimum 1-1/8-inch diameter. Tailgate shall, without assistance from the locking device, seal against the floor and side sheets of the dump body, with no more than a 1/16-inch gap at any point. With the tailgate closed and the locking device open, tailgate lower pins shall have a 1/8-inch minimum, 1/4-inch maximum gap between the forward edge of the pin and the forward edge of the cradle.
  - A license plate bracket shall be welded on the left-hand side of the tailgate, at approximately half the height of the tailgate.
  - When tailgate is lowered parallel to body floor, the inside surface of the tailgate shall provide a smooth level joint between the tailgate and the body floor.
- j. Tailgate Latch:
- An over-center locking device on each side of the dump body shall hold the tailgate securely closed. Latching arms shall be stainless steel.
  - The tailgate latch cross shaft assembly shall be supported on each end by bushings.
  - This locking device shall be operated by an air cylinder, which shall be mounted between the long sills.
  - Locking device shall be adjustable at each side of the dump body
  - A manual over-ride shall be provided on the outside of the dump body, allowing the operator to lock or unlock the tailgate using a simple adjustable wrench and without removing components.
  - Lubrication points on the tailgate latch cross-shaft shall facilitate easier greasing by means of grooved bushings and/or shaft.
  - Grease zerks at each end of the tailgate cross-shaft shall be visible and accessible from the outside face of the dump body.
- k. Ladder:
- A pull-out or fold down style ladder shall be installed on each side of the dump body. The lowest rung shall not be more than 18-inches from the ground. Additional rungs shall have no more than 12-inches spacing between rungs. The top rung shall be no more than 18-inches from the top of the bed. Location of the ladder shall be such that operator does not have to climb over the tarp bow when the tarp is retracted.
  - Grab handles shall be installed on the outside of the dump body in one continuous piece running from the top to the bottom of the bed and provide for three points of contact while using the ladder.
  - Ladder shall be shielded to prevent build-up of debris on ladder if exposed to drive wheels.
- l. Wiring and Hose Routing:
- Wiring and hoses going to the front of the dump body shall be secured to a 1/2-inch diameter painted steel rod which shall be attached to the inside of the long sill by means of 1/2-inch by 1-inch tall stand-offs. Stand-offs shall be placed no farther than 24-inches apart, and be securely welded to the long sill.
  - Wiring inside the rear corner posts shall be secured to 1/4-inch vertical painted steel rods attached inside the rear corner posts by means of 1/4-inch by 1-inch stand-offs, securely welded. Height of stand-off to be sufficient to support all of the wiring inside the corner post. Stand-offs shall be positioned to allow wires to be secured away from the tailgate latch mechanism, and within 6-inches of all lamps. A sufficient amount of wire shall be left between the last point of securement and lamp to allow for the removal of the lamp for replacement.
- m. Brake, Turn and Tail Lights:
- Shall meet all Federal and State DOT specifications, which recently includes and requires an independent running light on the rear corners.
  - Lights and parts must be readily available and non-proprietary.
  - Shall be mounted in shockproof rubber grommets.
  - Shall be LED.
  - Shall be connected to a one piece wiring harness with molded connectors.
  - Each rear corner post shall have a built in, recessed 2-inch by 6-inch oval or 3-inch by 5-inch rectangle stop/turn taillight. Suitable makes and models are Truck Lite Model 60050R, Peterson Model M420R2 or Maxxima M42213R.
  - Each rear corner post shall have a built in, recessed 2-inch by 6-inch oval or 3-inch by 5-inch rectangle back up light. Suitable make and model is Maxxima M42213.
- n. Raised body indicator shall be a sealed proximity switch mounted near the hoist assembly to control a raised body indicator light. A mounted indicator light shall be provided in the operator console, be plainly visible to the seated operator, be red in color, and flash when the dump body is raised.
- o. Spreader light shall be a Truck Lite model 80360 work light mounted below the left rear dump body corner. It must not hinder the operations of the material spreader.

- p. Mud flaps shall be removable by incorporating 201 or 304 stainless steel removable hinge pin approximately 26 inches long by 1/2" diameter solid rod. The rod will have a 2 1/2" - 90 degree bend for a handle with a 3/16" hole at the opposite end for a lynch pin. There shall be three bushings on the truck side and three bushings on the mud flap side constructed of 1/2" inside diameter pipe by 1 1/2" long constructed of 201 or 304 stainless steel. Spaced accordingly on flap and truck bracket that is constructed of 24" long by 2" deep by 3/16" thick 201 or 304 stainless steel. Mud Flap removal shall not require any tools. See drawing on Attachment 2.
- q. Hydraulic Couplers: Must meet the requirements of Section 2.3.5.j.
- The curbside of the dump body shall have three, 3/8-inch male couplers. Couplers shall be attached to male pipe to male JIC bulkhead fittings mounted on the lowest rub rail near the rear of the bed.
  - The drivers' side of the dump body shall have three male couplers for the slip in spreader. Couplers shall be attached to male pipe to male JIC bulkhead fittings mounted on the lowest rub rail near the rear of bed.
  - The hydraulic lines shall extend from the lowest rub rails to the body's main long sills through a fabricated enclosure on the under-side of the body. The main long sills shall have passageways at the rear for the hydraulic lines. Passages through the long sills shall be sealed around the passage to prevent moisture entry into the long sill.
- r. Conspicuity: The dump body shall be outfitted with DOT-C2 11 inch red by 7 inch white prismatic retroreflective conspicuity tape meeting or exceeding Federal Motor Vehicle Safety Standards (FMVSS) 108, DOT-C2 standards. The conspicuity tape shall be applied continuously to the sides of the dump body along the bottom horizontal bed rails. Where there are other fixtures, such as lights, brackets or steps, along the area where the conspicuity tape is to be applied, the tape shall be terminated 1/2 inch from the object and resume 1/2 inch from the far side of the object. The conspicuity tape shall be applied to rear facing surface of the tail gate along all horizontal tail gate bracing including the top and bottom tail gate rails and vertically along both edges of the tail gate. Where Conspicuity tape from a horizontal and vertical application intersects the vertical tape shall be butt spliced to the edge of the horizontal tape application with no overlap or gap. Where these intersections occur at a corner, the horizontal tape shall be trimmed to match the edge of the vertical tape forming a clean box corner. On stainless steel tailgates, the flat recessed areas between the tailgate bracing shall receive yellow 3M Scotchlite® reflective graphic film series 5,000 or equivalent. This sheeting shall not overlap onto the surrounding bed bracing and shall not be any farther away from the joint of the tailgate bracing than 1/2 inch.
- s. Spreader body hold downs shall consist of four storable winches welded to the upper side of lower body rail in a fashion not to exceed the overall width of the body, 4-inch x 10-foot of nylon webbing with flat hook to be included. Material shall be compatible with the bed's material. Body Builder must coordinate placement of winches to line up vertically with the spreader hold down brackets.
- t. Tarp:
- Shall be a fully automatic, electric type installed system operated from the cab.
  - Arms and tarp-protecting windshield shall be aluminum.
  - Shall be designed for hot asphalt.
  - Tarp shall be designed as shown in Attachment 4.
  - Arm springs shall be adjustable and designed to mount on the underside of the dump body. Elbows of the tarp arms shall be bolted to the arms.
  - Shall have side flaps that fold out over the sides of the dump body.
    - 3) The length and positioning of the flaps shall be such that when deployed and secured, the side flaps fit between the rear edge of the cab shield support gusset and the front edge of the rear corner post.
    - 4) Side flaps shall not be the full length of the tarp.
    - 5) The side flap shall be secured in the covered position by a self-storing bungee rope routed through grommets or "D" rings in the outermost edge of the tarp, and "J" hooks on the bottom side of the middle body rail.
- u. Paver or Asphalt Lip:
- Shall be mounted on the rear dump body apron.
  - Shall be mounted with 1/2-inch hardware. Holes in lip and dump body shall be dimensional to allow any lip to be installed on any dump body. Welded lips are not acceptable.
  - Shall be mounted at an angle of 24 to 28-degrees.
  - Length shall be such as to provide 20-inches of overhang, measured from the rear face of the rear hitch plate to the rear edge of the lip.
- v. Rear post lower covers shall keep the rear tires from throwing debris up into the rear body posts. Should allow for drainage and be easily removed for servicing components inside the body post.

- 2.3.5 Hydraulic System: All components of the hydraulic system, including optional equipment, shall be designed to operate efficiently at a system maximum pressure of 2,300 psi. Hydraulic specifications listed in this section are for the **standard hydraulic configuration**. All components installed on the standard hydraulic configuration shall be capable of easily accepting the necessary additional hydraulic components for the underbody and wing snow plows as listed in the optional equipment section.
- a. Hydraulic Reservoir:
    - Shall come complete with all mounting hardware; frame mounting angles, bolts with poly locknuts, and springs.
    - Shall be a minimum 40-gallon capacity.
    - Shall have a full baffle to prevent sloshing.
    - Reservoir and baffle shall be constructed of stainless steel.
    - Shall have a screened filler neck with a breather cap.
    - Shall include an easily visible all-aluminum housed sight and temperature gauge.
    - Bottom shall have a port for suction compatible with hydraulic pump requirements.
    - Suction strainer shall be of adequate size to supply full pump demand with a 3 to 5 psi built-in bypass, and have a full flow ball valve installed at the reservoir suction fitting. A heavy plastic wire tie shall be installed to insure the ball valve remains in the open position unless it is intentionally closed.
    - Shall have a ¾-inch port with a magnetic plug for draining the reservoir and a ¾-inch port for the pump case drain.
    - Back shall have a 3/8-inch port for the solenoid drain and ½-inch port for the low oil sensor.
    - Top shall come with provision for a tank-mounted filter.
  - b. Hydraulic Return Filter Assembly:
    - Shall be mounted on the top of the hydraulic reservoir.
    - Shall have a 10-micron replaceable cartridge element.
    - Assembly shall be capable of 80 gallons per minute (GPM) flow capacity. Shall have a 1-¼-inch NPT port, a built in by-pass and a bypass condition indicator.
  - c. Hydraulic Return Manifold:
    - Shall allow for easy installation of additional hydraulic hoses.
    - Shall be installed between the frame rails directly behind the hoist support.
    - Unit shall be an aluminum 5-port system. Four ports shall be a #16 O-Ring Boss (ORB) and one shall be a #8 ORB.
    - Return oil from the spreader return coupler and valve stack shall be routed to this manifold.
    - Return oil from the manifold shall be routed to the inlet of the hydraulic oil return filter.
    - Unit shall contain a minimum of two plugged ports for addition of future accessories.
  - d. Hydraulic Pump: Shall be a Rexroth A10V0100 or pre-approved equal.
    - Shall be axial piston, load-sensing type, and be driven off the engine crankshaft by means of a drive shaft.
    - Minimum 6.1-cubic inch (100 cubic centimeter) displacement, and capable of 66 GPM (theoretical) at 2,500 rotations per minute (RPM) and 4,000 psi.
    - The pump case drain must be positioned as high as possible and directed back to the reservoir without passing through the return line filter.
    - Should have an internal bleed down compensator.
    - Must have a keyed shaft with an SAE mounting flange.
    - Must have side ports. Rear ports are unacceptable.
    - Ports must be of the split flange design, sized accordingly for the displacement of the pump.
    - Suction fitting shall be a flanged, formed elbow hose barb. Fitting shall be of adequate size for the displacement of the pump.
    - Discharge fitting shall be an O-ring thread flange block. Fitting shall be of adequate size for the displacement of the pump.
    - A manual, high-pressure ball valve shall be mounted to pressure port of pump.
    - System shall be performance checked. System standby pressure shall be set. System maximum pressure shall be set at 2,300 psi.
    - A pressure test port shall be provided at the pump by installing a 3/8-inch male Aeroquip FD45-1002-6-6.
  - e. Hydraulic Pump Drive:

- Driveline must be 1280 and/or 1310 series solid shaft style and must be installed according to manufacturer's instructions to assure proper alignment.
  - Pump shall be driven off the engine crankshaft with a flange yoke.
  - Pump shaft shall have a flange yoke installed to allow shaft to be un-bolted from pump.
  - Universal joints used in the shaft must have grease zerks in the center of the bearing caps.
  - Hardware used for installation of the pump driveshaft shall be to driveline manufacturer's specification. All drive shaft installation hardware shall be torqued to specifications.
- f. Hydraulic Function Control Valves: Shall be bulkhead fitting mounted in a weather-tight enclosure with the fittings on the bottom of the enclosure. Valves shall be mobile hydraulic, cast iron, stackable, load sensing type. All valves shall be operated with proportional electric coils. Proportional coils shall be compatible with the control system valve driver module pulse width modulation (PWM) outputs. All valves within the valve assembly shall have parallel inlets. Valve assembly inlet and outlet ports shall be 1-inch O-ring. Work ports shall be ¾-inch O-ring. A and B ports shall be individually flow adjustable.
- Standard Hydraulic Function Control Valve Arrangement:
    - 1) Dump Body Hoist: Double acting cylinder valve, with a work port relief valve for down pressure protection on port "A". Pressure setting shall be such that the relief valve will protect the dump body components if the hoist is powered down with the dump body props in place. Valve shall be spring return to neutral. Valve shall be pressure and flow-compensated, and have an adjustable flow range of 0 to 30 GPM. Valve shall prevent any up or down movement of a raised dump body when valve is in the neutral position. Valve shall have a manual override for both raise and lower functions.
    - 2) Front Plow Lift: Single acting cylinder valve with counter-balance capability. Valve shall be spring return to neutral, with float capability in the lower position. Valve shall be pressure and flow-compensated, and have an adjustable flow range of 0 to 15 GPM. Valve shall have a manual override for both raise and lower functions.
    - 3) Front Plow Angle: Double acting cylinder valve. Valve shall be spring return to neutral. Valve shall be pressure and flow-compensated, and have an adjustable flow range of 0 to 15 GPM. Valve shall have a manual override for both left and right functions.
    - 4) Spreader: Shall be a 4-circuit motor manifold. The manifold shall be an integral part of the valve assembly. Manifold to contain three solenoid operated, electrically variable, two-port, pressure compensated, direct acting, normally closed when de-energized, proportional flow control cartridges. Each cartridge shall operate by a 12-Volt direct current (DC) coil. Each cartridge shall have a manual override. The flow requirements for each circuit are as follows:
      - Spreader Auger 15 GPM
      - Spreader Spinner 8 GPM
      - Prewet Pump 7 GPM
      - Anti-Ice Pump 15 GPM (cavity plugged if not used for accessory circuit)
    - 5) Hydraulic Accessory: A hydraulic accessory circuit shall be provided. This circuit shall be pressure and flow compensated. Accessory circuit shall have an adjustable flow of 0 to 22-25 GPM. Accessory circuit shall be capable of full pump output at engine idle and regulated to a maximum flow of 22-25 GPM. Accessory circuit shall use the same hose and coupler as the spreader auger circuit. It is permissible to install a proportional flow-control cartridge in the un-used fourth circuit of the spreader manifold and 'tee' this circuit into the auger circuit to accomplish this, provided it does not affect the circuit when used as the spreader auger supply. Accessory circuit shall have a manual override.
- g. Hydraulic Function Control Valve Enclosure:
- a. Must be mounted between the cab and dump body outside of the left hand frame rail.
  - b. Must be mounted in a manner to not conflict with potential attachments.
  - c. Shall allow easy access to hose connections.
  - d. Shall be three pieces: the enclosure body, valve mounting plate, and the lid.
  - e. The valve plate shall be constructed of ¼-inch stainless steel. The sides of the body shall have integral, formed mounting angles.
  - f. The outside lip of the enclosure shall have a gasket all the way around to seal from weather when lid is installed.
  - g. The enclosure body and lid shall be made of 10-gauge stainless steel with a minimum 1-inch lip on all sides. The lid shall be held on with rubber latches on each side. Unit shall have two lifting handles.

- h. The top and front of the enclosure shall be open with the lid off.
  - i. Valve plate shall bolt to the inside of the enclosure for ease of mounting.
  - j. Must include a formed gasket to seal the valve plate to the enclosure.
  - k. Enclosure shall be large enough to accommodate a valve assembly capable of at least 10 functions.
- h. Snow Plow Cushion Valve:
- A double-relief cushion valve must be installed for front snow plow angle.
  - The valve shall be set at 2,000 psi.
  - The valve shall be constructed of a high-tensile cast iron body with ball and spring style relief that has hardened seats.
  - The valve shall be installed at the front bumper and snow plow hitch.
  - Valve shall have O-ring thread ports.
- i. Hydraulic Hoses:
- Suction hose from the reservoir to the pump shall be SAE 100R4 style of adequate size for the displacement of the pump. Shall be connected to the pump barbed fitting, and double clamped with T-bolt style stainless steel super clamps. Shall be connected to the reservoir ball valve with a king nipple, double clamped with T-bolt style stainless steel super clamps.
  - All hoses, with the exception of the suction hose, shall be rated for a working pressure of 3,000 psi.
  - All hose ends, with the exception of the suction hose, shall be swivel or swivel adapters.
  - Ends connecting to valve assembly shall be 90-degree female JIC swivel.
  - Pressure hose shall be of adequate size for the displacement of the pump, with female JIC swivels at both ends.
  - Return hose shall be of adequate size with female JIC swivels at both ends.
  - Hoist hoses shall be ¾-inch inside diameter (ID) with female JIC swivels at both ends.
  - Snow plow hoses shall be 3/8-inch ID with female JIC swivels at both ends.
  - Auxiliary hoses to the right rear corner of the dump body shall be 3/8-inch ID with female JIC swivels at each end. The auxiliary hoses shall be “teed” at the control valve enclosure with the front snow plow lift, and left and/or right circuits.
  - Auger hose to the left rear corner of the dump body shall be 3/4-inch ID with female JIC swivels at both ends. The auger circuit shall have a capped “tee” installed at the valve enclosure, enabling later installation of another hose routed to the front of the truck.
  - Spinner hose to the left rear corner of the dump body shall be 1/2-inch ID with female JIC swivels at both ends.
  - Spreader return hose to the left rear corner of the dump body shall be 1-inch ID with female JIC swivels at both ends. The spreader return circuit shall have a capped “tee” installed at the return filter assembly, enabling later installation of another hose routed to the front of the truck.
  - Pump case drain shall be a minimum 3/4-inch ID with female JIC swivels at both ends, and also have a 3/4-inch NPT ball valve installed at the reservoir.
  - Load sense line shall be 3/8-inch ID with female JIC swivels at both ends.
- j. Hydraulic Quick-Disconnect Couplings: All shall be full flow Aeroquip FD45 or Parker 60 series. A dust cap or plug shall be furnished with every male and female coupler. See Dump Body Section 2.3.3q and 2.3.4q for detailed layout and mounting of couplers.
- Front snow plow lift circuit shall be equipped with a male 3/8-inch FD45-1002-6-6 coupler installed in the front bumper. A 34-inch by 3/8-inch ID hose with a female 3/8-inch FD45-1003-6-6 coupler shall be installed on the hydraulic lift cylinder.
  - Snow plow cushion valve shall be equipped with a male 3/8-inch FD45-1002-6-6 coupler, and a 34-inch by 3/8 inch ID hose with a female 3/8-inch FD45-1003-6-6 coupler.
  - Auxiliary hydraulics at the right rear corner of the dump body shall be equipped with three male 3/8-inch FD45-1002-6-6 couplers.
  - Spinner circuit shall have a ½-inch male FD45-1002-8-10 coupler at the left rear corner of the dump body.
  - Auger circuit shall have a 3/4-inch male FD45-1002-12-12 coupler at the left rear corner of the dump body.

- Spreader return circuit shall have a 1-inch male FD45-1002-16-16 coupler at the left rear corner of the dump body.

2.3.6 Spreader Control System: System shall be a Certified Power ACS system meeting the following requirements or a pre-approved equal.

a. Control System:

- Shall be a complete control system that operates on a Controller Area Network (CAN)-Bus, using CANopen protocol, J1939.
- Shall consist of modules that reside on the BUS, and allow flexibility in mounting configurations.
- Shall be completely expandable and allow for additional modules to be added to the BUS, such as a joy stick control for an optional underbody scraper.
- System controller, or valve driver module, shall control all standard hydraulic functions; dump body hoist, snow plow lift, snow plow left and/or right, auger, spinner, hydraulic driven pre-wet, and optional hydraulic functions.
- Shall be capable of providing ground speed sensing, closed loop spreader and granular pre-wet system operation.
- Shall be capable of applying 200 to 400 lbs. of granular material per lane mile at speeds up to 45 mph. Actual application rate shall be +/- 5% of the selected application rate.
- Shall work equally well whether the truck is driven forward or in reverse.
- All modules shall be software upgradeable using a laptop and interface cable. Shall have an Ethernet port for accessing a built in Web server. The Web server may be used to configure or troubleshoot a system by connecting to a PC. Interface shall utilize Internet Explorer and not require any proprietary software to connect to the system. No external components shall be required to calibrate the system.
- Shall incorporate three levels of security and access that are password protected and defined by the user. The three levels of access shall provide access to the system setup, data, configuration fields, and parameters based upon access given.
- Shall have a built in diagnostic feature allowing technicians to view all input signals in real time. System shall also provide error logging and system status change logging for reviewing operator inputs.
- Shall be capable of both automatic and manual modes, and provide a lock out of manual mode.
- Shall provide 'blast' and 'pause' functions, and be capable of calibration at multiple gate settings.
- Shall be capable of operating at least four different programmed materials.
- System software shall incorporate a "test speed" mode for use in testing the system safely without requiring the truck to be moving or the drive axles engaged.
- Shall provide monitoring, and audible and visual operator warning, for low hydraulic oil level and hydraulic oil overheat conditions.
- Shall suspend operation of the spreader and all hydraulic accessory functions in the event of low hydraulic oil level and/or hydraulic oil overheat condition.
- Shall have an override feature to allow function use in an emergency situation.
- Auger feedback sensor shall be mounted to a hydraulic flow meter. Flow meter shall be mounted inside the hydraulic control valve enclosure. Feedback sensor shall be hard wired to the valve driver module. Feedback sensor shall be replaceable independent of the flow meter.
- Shall provide open loop operation in the event of a feedback sensor failure.
- Shall use input from a float-level in the pre-wet enclosure to prevent pre-wet pump run-dry. This shutdown feature shall incorporate a buffer to prevent liquid pump shutdown due to an intermittent signal caused by sloshing material in the supply tanks.
- Shall provide stand-alone operation of the feeder circuit, and spinner circuit, for powering hydraulic accessories other than a slip-in spreader.
- Shall provide stand-alone operation of the pre-wet system, allowing it to be used for other operations.

b. Valve Driver Module:

- Shall be mounted inside the hydraulic control valve enclosure. No portion of the valve driver module may be outside of the hydraulic valve enclosure.
- Shall accept closed loop feedback signals, and digital inputs.
- Shall have a maximum of 6 pulse width modulation (PWM) output channels.

- All PWM outputs shall be software configurable, and controlled by closed loop operation, proportional input devices, or digital input devices.
  - Shall have internal over temperature shutdown, over current shutdown, and low voltage shutdown.
  - All electrical connections shall be IP68 sealed when mated utilizing threaded connections for positive retention.
  - Shall reside on the BUS as the “master”, and all truck values and configurations shall be saved in this module.
- c. Operator Controls and Display Modules:
- Shall be resistant to salt and other chemicals used during the snow removal process.
  - Controls shall utilize detented rotary encoders for setting material application rates.
  - Controls shall utilize snap action push buttons for navigation through the system program and function selection.
  - Controls shall be backlit for nighttime operation.
  - Display screen shall be a minimum of 20-square inches.
  - Controls and display shall be mounted in a factory made, painted or powder coated bracket. Display shall be operator adjustable for proper viewing angle.
  - Display shall automatically adjust brightness level for nighttime operation.
  - Display shall show; auto and manual mode, current material, granular rate, pre-wet rate, lane width, system status, error messages, plow float activated, system hydraulic pressure, and pavement temperature sensor information if optioned.
- d. Hydraulic Function Control Lever Modules:
- Shall be proportional CAN BUS controls and shall be mounted to the right of the driver and be within easy reach.
  - Shall be labeled with decals for operation.
  - Shall be equipped with a single axis control lever with center position dead man lock for the dump body up and/or down.
  - Shall be spring returned to neutral.
  - Shall be equipped with a single axis control lever with center position dead man.
  - Shall be equipped with a dual axis control lever for the snow plow lift, and snow plow left and/or right and shall be spring returned to neutral from all directions.
  - Shall be capable of placing the snow plow lift valve in float when moved to the extreme forward position.
  - Handle shall be equipped with a maintained pass and/or pause switch and a momentary blast switch.
  - Shall be mounted in a factory style stand, spaced for full axis control.
  - Configuration of the center position lock must be pre-approved by the MoDOT Representative.
- e. Control System Cable: Specifications for all cables associated with the hydraulic and spreader control system.
- Shall meet International Organization for Standardization (ISO) rating Ingress Protection (IP) 68 and National Electrical Manufacturers Association (NEMA) 6.
  - Connectors shall be O-ring sealed.
  - Cable jacket should be Thermoplastic Elastomer (TPE), and molded to the connectors.
  - Connectors and harness shall be rated and tested for a temperature range from minus 30-degrees Celsius to 70-degrees Celsius.
  - Connectors shall be tested to be water tight when submerged in 6-feet of water for 24-hours, in 275-feet of water for 1-hour, and when subjected to a 1,000 psi pressure wash.
  - Connectors shall be designed to have no corrosion after 5,000 hours in 35-degrees Celsius salt spray.
  - Cabling shall be rated excellent in low temperature flexibility and in its resistance to oxidation, heat, oil, sunlight, ozone, abrasion, electrical priorities, flame, gasoline, degreaser solvents, alcohol, and weld slag.

### 2.3.7 Granular Pre-Wet System:

- a. Shall be mounted outboard of the truck frame ahead of the rear axle in a location approved by the MoDOT Representative.
- b. The suction and discharge hoses shall be routed to the rear of the truck frame and secured with bulkhead mounted cam-lock couplers in a location approved by the MoDOT Representative.

- c. Shall come complete with mounting hardware. Pump and hydraulic motor shall be mounted in a weather tight enclosure.
- d. Shall be hard-wired to, and completely controlled, by the spreader control system.
- e. Shall be hard-plumbed to, and supplied by the hydraulic valve assembly.
- f. Liquid pump shall be corrosive and abrasive resistant. No plastic pump components acceptable
- g. Pump shall be self-priming, positive displacement design.
- h. A manual bleed valve shall be installed in the suction hose at the enclosure to facilitate easier pump priming.
- i. Shall have a relief valve to protect against over-pressurization.
- j. Pump shall have a maximum pressure rating of 100 psi.
- k. Pump shall be plumbed through a 0 to 15 GPM flow meter, made of a non-corrosive material.
- l. Pump shall be capable of producing 9 GPM at 40 psi, with 4.5 GPM maximum oil flow to the motor. Coupler between the hydraulic motor and pre-wet pump shall be visible and accessible to break loose when stuck.
- m. Hydraulic connections shall be bulkhead mounted in the enclosure.
- n. All hydraulics inside enclosure shall be hard plumbed.
- o. Shall have a float switch in the pump inlet circuit. The spreader control system shall use this switch to shut off the liquid pump to prevent damage to the pump from running dry.
- p. Flow meter sensor wiring and float switch wiring shall utilize a bulkhead mounted connector in the pre-wet enclosure.
- q. Shall include a ¼ turn valve and strainer-filter. MoDOT Representative shall approve location.
- r. Shall include spray nozzles and plumbing for installation on the material spreader. Nozzles shall be of sufficient size and type for the capacity of the pre-wet system. If a material spreader is optioned, components must be installed on the spreader and tested.
- s. If a material spreader is not optioned, nozzles shall be shipped loose, and placed in the frame-mounted tool box.
- t. A nurse tank with a 2.5-gallon minimum capacity shall be mounted with the pre-wet enclosure to facilitate installation of the pre-wet float, priming, and flushing of the pre-wet system.

2.3.8 LED Warning Light System: Each unit shall be equipped with an SAE Class 1 LED warning light system in accordance with the following specifications. System shall be evaluated and approved by the MoDOT Representative.

- a. Centralized Controller:
  - Shall operate on 12-Volt DC and operate through the range of approximately 10 to 16-Volts DC with nominal degradation of performance in either intensity or flash rate.
  - Shall be mounted with the power distribution box between the seats. All standard mounting hardware shall be included.
  - Shall have radio frequency interference (RFI) suppression circuit(s) to prevent radiated, as well as conducted, interference problems.
  - Shall be powered by a factory work light circuit, or the chassis electric accessory power supply. This circuit shall provide key-on and key-off operation of the LED light system. Circuit shall have its own factory-installed circuit protection and switch. A dash mounted indicator light shall indicate when the warning lights are operating.
  - Shall have four outputs, one for each of the four individual light heads to be installed on the truck. Outputs shall power each light head by means of a two-wire circuit. Controller connections for the individual light heads shall be made using male and female spade terminals. Controller housing shall also provide strain relief for the individual light head harnesses.
  - Shall produce a burst of four impulses per burst to each light head, at a minimum flash rate of 70, maximum flash rate of 110 bursts per minute. MoDOT Representative must pre-approve flash pattern.
  - Shall be reversed input polarity protected. Shall also provide full output short-to-ground protection to prevent damage to the controller and light heads.
- b. LED Modules: System shall use individual LED modules, approximately 3-inches by 5-inches in size. This module must be used in all installed light heads. Modules shall be easily replaced.
- c. Cab Shield (Top) Light Assemblies: Must be Whelan Micro Freedom 400 or pre-approved equivalent. Two light heads shall be mounted to the cab shield, one on each side of the body. Light heads are to be permanently mounted to a fixed mount, and elevated to provide ample cross-visibility of the light head from

the front and rear of the truck. For each light head, one module shall face to the front, one shall face to the rear, and one shall face to the side of the truck. The combination of the two light heads shall provide 360-degrees of visibility in a horizontal plane. The lights shall be amber and white in color. The amber and white LED shall flash in an alternating pattern in sequence with other alternating lighting patterns and in sequence with other alternating truck lighting. Each light head shall have a 12-inch maximum cable with a single weatherpak connector for connecting to the extension harness from the central controller. Each light head shall have protective guards sufficient enough to protect the light head assembly from low hanging tree branches. Protective guards shall not compromise the intensity or visibility of the light head.

- d. **Rear and Corner Post Light Assemblies:** Must be Whelan 400 Series Square, Super 3, amber, red white triple lights including the Whelan model TIR3 amber side light or pre-approved equivalent. Light heads shall be vertically mounted on each rear corner of the dump body using a stainless steel housing and bracket. Each light head shall have a weatherpak connector for connecting to the extension harness from the central controller.
- e. **Cable Harnesses:**
  - The cable shall be expected to maintain its electrical, mechanical, and environmental integrity for the life of the vehicle on which it is originally installed on, without the need for re-wiring at any future time.
  - The cable shall be flexible in cold weather, and tolerant of hot temperatures.
  - Each power conductor shall meet the circuit requirements for the specified lighting system. Cable shall have an outer insulation jacket enclosing both conductors.
  - Insulation jacket shall be highly resistant to abrasion, corrosion, oil, grease, and normal highway chemicals or environmental abuse for the normal life expectancy of the vehicle.
  - The cable will be available in bulk from the manufacturer.
  - Splices are not acceptable.

**2.4 Single Axle Dump Truck Technical Specifications:** The unit offered must meet the technical requirements in section 2.3 above as well as the following requirements in this section. The combined specifications are for the manufacture of a 35,000 pound (lb.) Gross Vehicle Weight Rating (GVWR) Set Forward Single Axle Dump Truck with a bed to accommodate a 10 foot spreader.

- a. Change 2.3.1.e – Minimum gross torque to 660 pound-feet, and a minimum SAE gross horsepower of 270 when operated within a governed speed as recommended by the engine manufacturer.
- b. Change 2.3.1.h – Axle shall be standard manufacture 14,000 lb. rated capacity.
- c. Change 2.3.1.i – Axle shall be standard manufacture 21,000 lb. rated capacity.
- d. Change 2.3.4.a – Dump body shall be a 10-foot cross-memberless Western style body.
- e. Change 2.3.4.b – Capacity shall be a maximum of 5-cubic yards water level.
  - Shall have a 10-foot maximum inside length.
  - Shall have a 100-inch minimum outside width.
  - Shall have an 86-inch minimum inside width.
  - Shall have a 28-inch minimum side height with level ends.

**2.5 Tow Plow Dump Truck Technical Specifications:** The unit offered must meet the technical requirements in section 2.3 above as well as the following requirements in this section. The combined specifications are for the manufacture of a 58,000 pound (lb.) Gross Vehicle Weight Rating (GVWR) Set Forward Tow Plow Dump Truck with a bed to accommodate a 16 foot spreader.

- a. Change 2.3.1e – Minimum gross torque to 1,500 pound-feet, and a minimum SAE gross horsepower of 425 when operated within a governed speed as recommended by the engine manufacturer.
- b. Change 2.3.1j – Fuel tank capacity shall be a 100-gallon minimum.
- c. Addition 2.3.2p – Three 1/2-inch male hydraulic couplers for the independent control of tow plow shall be placed on the passenger side of vehicle at the rear of the dump body in the lower rub rail.
- d. Addition 2.3.6d – One additional dual axis tow plow control lever for the tow plow moldboard lift, and tow plow steer left and right and shall be spring returned to neutral from all directions.
- e. Addition 2.3.5f6 -
  - **Tow Moldboard Lift:** Single acting cylinder valve with counter-balance capability. Valve shall be spring return to neutral, with float capability in the lower position. Valve shall be pressure and flow-

compensated, and have an adjustable flow range of 0 to 15 GPM. Valve shall have a manual override for both raise and lower functions.

- Tow Plow Steering: Double acting cylinder valve. Valve shall be spring return to neutral. Valve shall be pressure and flow-compensated, and have an adjustable flow range of 0 to 15 GPM. Valve shall have a manual override for both left and right functions.
- f. Addition 2.3.5i – Tow plow lift and steer hoses shall be ½-inch ID with female JIC swivels at both ends.
- g. Addition 2.3.8a – The factory work light circuit shall run to the rear of the truck with a 6 pin trailer-style connector to supply power and ground to the tow plow strobe lights.

## 2.6 Optional Equipment:

### 2.6.1 Right hand and/or left hand mid-mount wing plow:

- a. Right hand wing plow shall be a Henke Model MDPW or Monroe MJW-8 or pre-approved equal.
- b. Left hand wing plow shall be a Henke Model MDPW or Monroe MJW-8L or pre-approved equal.
- c. Shall be built and tested to the latest OSHA requirements and SAE standards.
- d. Shall be designed to plow at a desired height, and be able to float.
- e. The moldboard must fold close to the truck for clearing bridges, transporting, or storing.
- f. Shall have an adjustable plowing angle.
- g. The height of either end shall be hydraulically controlled from the cab.
- h. Wing and assemblies must be easily and quickly attached and removed.
- i. All welds and mounting brackets shall be of high quality construction.
- j. All major assemblies such as moldboard, push tubes, mounting plates etc. shall be designed for rugged use.
- k. Moldboard:
  - Moldboard shall be formed from 10-gauge steel, inboard height shall be minimum of 24-inches, outboard height not to exceed 28-inches. Cutting edge shall be a minimum of 1/2-inch by 8-inch and a minimum length of 8-feet. Moldboard top angle shall be a minimum of 2-inch by 2-inch by 5/16-inch and bottom angle minimum of 4-inch by 4-inch by 3/8-inch.
  - There shall be a minimum of five ribs per moldboard to be continuously welded from top moldboard to bottom of moldboard for structural strength.
  - A full moldboard trip shall be provided. Trip mechanism shall perform at plowing speeds up to 45 MPH.
- l. Cutting edge shall have a 45-degree angle mitered leading edge.
- m. Hydraulics:
  - A dual axis control lever shall be installed to operate the wing plow. Control lever shall be CAN BUS proportional electric, and communicate with the valve driver module utilizing the hydraulic/spreader control system cables. Control shall be mounted in the same mounting stand as the standard hydraulic control levers.
  - Hydraulic function control valves shall be bulkhead fitting mounted in a weather tight enclosure, with the fittings on the bottom of the enclosure. Valves shall be mobile hydraulic, stackable, load sensing type. All valves shall be operated with proportional electric coils. Proportional coils shall be compatible with the control system valve driver module PWM outputs. All valves within the valve assembly shall have parallel inlets. Valve assembly inlet and outlet ports shall be 1-inch O-ring. Working ports shall be ¾-inch O-ring. A and B ports shall be individually flow adjustable.
    - 1) Toe Raise and Lower: Double acting cylinder valve, with a work port relief valve for down pressure protection on port “A”. Work port relief valve shall be set at 500 psi. Valve shall be spring return to neutral. Valve shall be pressure and flow-compensated, and have an adjustable flow range of 0 to 15 GPM. Valve shall have a manual override for both raise and lower functions.
    - 2) Heel Raise and Lower: Double acting cylinder valve. Valve shall be spring return to neutral. Valve shall be pressure and flow-compensated, and have an adjustable flow range of 0 to 15 GPM. Valve shall have a manual override for both raise and lower functions.
  - Hydraulic Cylinders: A minimum of two double acting cylinders with chrome-plated or black nitrided piston rods shall be included for angling moldboard and applying down pressure to moldboard with integral counter balanced valves. The hydraulic cylinders shall be industrial quality. Bidder shall provide removable cylinder stops of sufficient size to prevent blade from gouging pavement.
  - Hydraulic Hoses and Couplers: All hoses shall be rated for a working pressure of 3,000 psi.
    - 1) Wing plow hoses shall be 3/8-inch ID with female JIC swivels at both ends.

- 2) Hydraulic quick couplers shall be provided, and securely mounted in the wing area to provide easy removal and remounting of the wing.
- 3) All hydraulic couplers shall be full-flow Aeroquip FD45 or equivalent Parker 60 series. Couplers used shall be: male 3/8-inch FD45-1002-6-6 female 3/8-inch FD45-1003-6-6.
- 4) A dust cap or plug shall be furnished with every male and female quick coupler
- n. All grease points shall provide adequate lubrication for the greased joint.
- o. Color shall be DuPont N2065-Yellow.

#### 2.6.2. Heavy Duty Right Hand 3 Function Front Mount Wing Plow:

- a. Truck chassis must come equipped with integral frame extensions allowing adequate clearance to ensure the post will not interfere with hood or plow lights with hood in any position
- b. Front wing plow and mounting shall be removable without the need to remove any front plow mounting components or hitch.
- c. Wing plow assembly shall be mounted in a way as to not interfere with front plowing operations whether the wing is in the deployed or transport position.
- d. Attached transport locks shall be provided to secure the wing toe and heel in the transport position.
- e. Moldboard shall be of ribbed design, open backed, constructed of a one piece, continuous welded, minimum 10 gauge, grade 50 high tensile steel.
- f. Moldboard shall feature a punched bolt-on one piece cutting edge with radius cut at the toe to prevent gouging.
- g. The rear of the moldboard must have provisions to allow bolting of a single extendable wing arm. Attaching area must have adjustment forward and back to allow the wing arm to be as close to 90 degrees with cutting edge of the moldboard.
- h. Single front post design with slide to allow benching of at least 24-inches high.
- i. Slide plate must incorporate a float action to accommodate for different cutting edge heights
- j. Must incorporate a float system independent of the post hydraulic cylinder providing a minimum of 3-inches of toe float
- k. Slide plate will attach to the hinge by means of a 2-inch pin minimum.
- l. Hinge shall be tripping style by way of spring or rubber timbren
- m. Hinge shall be attached to the moldboard by way of 1¼- inch minimum, UNC grade eight bolt, slotted nut and cotter key.
- n. Wing arm brace shall be constructed of an inner and outer tube to allow extension.
- o. Arm will attach to the moldboard using a swivel style connection.
- p. Wing heel lift cylinder shall incorporate mounting to allow floating of the moldboard during plowing operation.
- q. Wing shall be operated using a joystick meeting specifications of section 2.3.5.d.
- r. All functions hydraulic, cables are not allowed.
- s. All hydraulic cylinder ports shall be ORB.
- t. All hydraulic cylinders and circuits shall be double acting, with adjustable down pressure relief capability on the toe and heel hydraulic sections. Work port section relief or load sense limiting relief is acceptable. Remote mounted or in-line relief valves are not acceptable.
- u. Hydraulic hoses shall meet specification requirements of 2.3.5.i, and in addition shall incorporate quick disconnect couplings to allow removal of the wing plow. Couplings shall meet specification requirements of 2.3.5.j.
- v. Wing “out” function shall utilize a counterbalance valve incorporated on the hydraulic cylinder to prevent plow from drifting away from truck when transport lock mechanism is not being used.
- w. Wing shall operate as a moldboard extension to the front plow when used simultaneously to prevent leaving a berm strip on the road surface.
- x. Selection of this option shall require an additional booster type air spring installed on the wing mounted side of the front axle. This air spring shall be controlled by rocker –style switch in the operator console

#### 2.6.3 Underbody Scraper:

- a. Unit shall be a 10-foot underbody scraper designed for plowing and cutting snow and ice. Acceptable model shall be a Henke Model UBS10-XH or pre-approved equal. The underbody scraper shall be built and tested to

the latest OSHA requirements and SAE standards. All welds and mounting brackets shall be high quality construction. The underbody scraper must be easily detachable from the truck.

- Hanger brackets shall be attached to the frame by four heavy-duty mounting legs, minimum of 4-inch ship and car (S&C) 13.8-pound structural channel or better. Bidder shall provide and include detailed installation drawings.
- Hanger board shall be a minimum of 14-inch top plate width, 10-inch 30-pound S&C channel and 4-inch 13.8-pound S&C channel welded to form a single unit or equivalent.
- Moldboard shall be a minimum length of 10 feet, maximum height of 21-inches, 1-inch thick, high-carbon steel, punched with standard blade holes. Moldboard must be hydraulically angled left and right to achieve the maximum possible angle. The moldboard shall be capable of rising to a horizontal position with a minimum ground clearance of 8-inches when not in use. Moldboard shall be drilled for right-hand and left-hand extensions.
- Hinge shall be a minimum 2-1/2-inch diameter, 96-inch length cold-rolled steel. The hinge shall have multiple grease points to provide full-width lubrication of the hinge. The pin shall be spiral grooved to facilitate greasing.
- The circle shall be minimum 1-inch heavy-duty steel, notch-less. The center pin shall be a minimum of 5-inches and a remote mounted grease fitting tube approximately 36-inches long shall be provided. Nylon wear pad required between hold down block and top of circle. Stops shall be welded on after installation of the moldboard to maximize turning radius of the underbody scraper and provide adequate clearance to all truck components.
- Hydraulics:
  - 1) A dual axis control lever shall be installed to operate the underbody scraper. Control lever shall be CAN BUS proportional electric, and communicate with the valve driver module utilizing the hydraulic/spreader control system cables. Control shall be mounted in the same mounting stand as the standard hydraulic control levers.
  - 2) Hydraulic function control valves shall be bulkhead fitting mounted in a weather tight enclosure, with the fittings on the bottom of the enclosure. Valves shall be mobile hydraulic, stackable, load sensing type. All valves shall be operated with proportional electric coils. Proportional coils shall be compatible with the control system valve driver module PWM outputs. All valves within the valve assembly shall have parallel inlets. Valve assembly inlet and outlet ports shall be 1-inch O-ring. Working ports shall be 3/4-inch O-ring. A and B ports shall be individually flow adjustable.
    - Raise and Lower: Double-acting cylinder valve with a work port relief valve for down pressure protection on port A. Work port relief valve shall be set at 500 psi. Valve shall be spring return to neutral. Valve shall be pressure and flow- compensated, with an adjustable flow range of 0 to 15 GPM. Valve shall have a manual override for both raise and lower functions.
    - Left and Right: Double-acting cylinder valve. Valve shall be spring return to neutral. Valve shall be pressure and flow-compensated, and have an adjustable flow range of 0 to 15 GPM. Valve shall have a manual override for both raise and lower functions.
    - Cushion Valve: Shall include a double relief cushion valve, mounted on a cross member behind the cab. The valve shall be constructed of a high-tensile cast iron body with ball and spring style relief that has hardened seats. The relief valves shall be set at 750 psi. The valve shall have O-ring thread ports.
  - 3) Cylinders:
    - Raise and Lower: A minimum of two 3-inch diameter double-acting cylinders with chrome-plated or black nitrided piston rods. Shall have integral counter balance valve.
    - Left and Right: A minimum of two 4-inch double-acting cylinders with 2-inch chrome-plated or black anodized rods for the reversing of the moldboard.
  - 4) Hydraulic Hoses and Couplers: All hoses shall be rated for a working pressure of 3,000 psi.
    - Underbody scraper hoses shall be 3/8-inch ID with female JIC swivels at both ends.
    - Hydraulic quick couplers shall be provided, and securely mounted in the underbody scraper area to provide easy removal and remounting of the scraper.
    - All hydraulic couplers shall be full flow Aeroquip FD45 or equivalent Parker 60 series. Couplers used shall be: male 3/8-inch FD45-1002-6-6, female 3/8-inch FD45-1003-6-6.
    - A dust cap or plug shall be furnished with every male and female quick coupler.

5) Trip Springs: A minimum of two heavy-duty compression springs mounted in 6-inch diameter canisters.

- All grease points shall provide adequate lubrication for the greased joint.
- Color shall be DuPont N2065-Yellow.

- 2.6.4 Skid Mounted Material Spreaders and Auger: Unit shall be a hydraulic driven, materials spreader body. The unit shall be a self-contained, stainless steel, V hopper type. It shall be compatible with the Western style dump body specified in sections two of this request. The spreader shall be capable of spreading uniformly all types of granular materials: salt, cinders, chemicals, abrasives, and mixtures of these up to a width of 40-feet.
- a. The body and conveyor box shall be manufactured into a common unit in accordance with good commercial practices.
  - b. All stainless steel shall be welded using stainless welding wire and shall be left unpainted.
  - c. Any carbon steel components shall be chemically cleaned and coated with a lead-free primer and painted with lead-free gray enamel.
  - d. The manufacturer's standard warranty against defective parts, material, and workmanship shall be furnished. A copy of the warranty is to be attached to the bid
  - e. The body is to be 100% welded on the inside. Cross-member and side-support spacing deviations may be allowed if necessary for component installation.
    - Overall height shall not to exceed 56-inches to the top of the center screen support beam.
    - Top inside width shall not be less than 78-inches.
    - Sidewalls must be sloped at approximately a 45-degree angle.
    - Shall be constructed of a minimum 12-gauge stainless steel.
    - Long sill, cross-members and full-length steel channel skids shall be a minimum of 7-gauge stainless steel.
    - Side supports shall be a minimum of 12-gauge stainless.
  - f. Top Grate Screens:
    - Screens shall be hinged at the center support beam of the spreader body for easy handling.
    - Screens shall be made of either 3/8-inch diameter rods centered on crossbars or 3/8-inch diameter woven wire on heavy-duty frames. Screen openings to be approximately 2-1/2-inches by 2-1/2-inches.
    - The center support beam must be a minimum 2-inch by 6-inch steel tube with a minimum 3/16-inch thickness.
    - The center support beam shall be raised above the top of the body to prevent material build-up on top of the screens.
  - g. Tie Down and Lifting Brackets:
    - A minimum of four, at least 10-gauge stainless steel hold down brackets designed for 4-inch nylon straps with flat hooks, two on each side. The Bidder must coordinate placement of hold down brackets with dump body manufacturer.
    - A 10-gauge minimum stainless steel lift hook and bracket shall be installed on the front and rear face of the body at each upper corner to allow for easy handling when loading or unloading.
  - h. Conveyor:
    - Conveyor box and floor shall be 7-gauge stainless steel.
    - The conveyor chain shall be a heavy-duty pintle chain, Drives D667X or equal.
    - Crossbars shall be 1-1/2-inch by 1/4-inch by 18-inch minimum welded to the chain links on 4-1/2-inch centers.
    - Chain tensioner shall be screw type, spring loaded, on the front idler shaft.
    - A rear belt type bar wiper shall be provided.
    - Front idler shaft bearings shall have grease zerk lines plumbed to the rear of the body.
    - Front idler shaft shall have 8-tooth sprockets.
  - i. Conveyor Gearbox:
    - Ratio shall be 50:1. Gearbox shall have hardened input and output shafts and a bronze bull gear.
    - Output shaft shall have 8-tooth sprockets.
    - Shall have a high torque, low speed, gerotor type hydraulic motor installed. Motor shall be designed to operate effectively at a maximum system pressure of 2,300 psi. Hydraulic motors designed to operate at a pressure above 2,350 psi are unacceptable.

- Hydraulic motor shall have O-ring thread ports.
- j. Discharge gate shall be located at the rear of the body to properly adjust the flow of material to the spinner.
- Maximum feed gate opening shall be 11-inches high by 20-inches wide.
  - The discharge gate and track shall be 7-gauge stainless steel.
  - The screw jack adjusting the discharge gate height shall have nylon U-joints and bushings with grease fittings on jack head.
  - The grease zerk on the jack shall be relocated and plumbed to accommodate greasing from ground level.
- k. Drop Chute and Spinner:
- Drop chute shall be made of a minimum of 12-gauge stainless steel.
  - Drop chute shall bolt to the long sills.
  - The chute shall be fully enclosed and include an operator-adjustable deflector at the bottom to change the flow of material from the middle of the chute to one side or the other.
  - The bottom of the chute shall have a hood with operator-adjustable material deflectors installed on each side and rear of the drop chute.
  - The spinner shall be securely mounted at the bottom of the chute. Spinner motor mounting brackets shall be a minimum of 7-gauge stainless steel.
  - The spinner shall be operated by a high torque, low speed gerotor type hydraulic motor with O-ring thread ports.
  - The height of the spinner disk shall be adjustable with an ideal height of 18-inches above the ground.
  - A 20-inch spinner disk shall be 7-gauge stainless steel or pre-approved equivalent. Spinners made of ferrous metals will not be accepted.
- l. Hydraulic Hoses and Couplers
- All hydraulic hoses shall be rated for 3,000 psi working pressure.
  - Hydraulic hoses shall be long enough to be routed from their respective connection point on the spreader to the male hydraulic couplers mounted in the left rear corner of the dump body.
  - Hoses shall be routed up to the upper left rear corner of the spreader body and secured at a point to allow the hoses to go over the side of the dump body and down to the male couplers at the left rear corner of the dump body.
  - The return circuit for the conveyor and spinner motor shall be “teed” together on the spreader and run together in a common return hose to the truck coupler.
  - Hydraulic hoses shall be sized as follows:
    - 1) Auger hose shall be 3/4-inch ID with female JIC swivels at both ends. Hose shall have a 3/4-inch female FD45-1003-12-12 coupler attached.
    - 2) Spinner hose shall be 1/2-inch ID with female JIC swivels at both ends. Hose shall have a 1/2-inch female FD45-1003-8-10 coupler attached.
  - Spreader return hose shall be 1-inch ID with female JIC swivels at both ends. Hose shall have a 1-inch female FD45-1003-16-16 coupler attached.
- m. Liquid Chemical Storage:
- Two side-mounted, minimum of 100-gallon polyethylene reservoir tanks, one per side, shall be provided.
  - A minimum of a 3-inch top fill port with splash-proof vent and a 3/4-inch suction port shall be molded into each tank.
  - Both tanks shall be plumbed together with a minimum 1-1/2” ID hose and a tee located at the left rear corner of the spreader.
- n. Conspicuity: Spreader shall be outfitted with DOT-C2 11 inch red by 7 inch white prismatic retroreflective conspicuity tape meeting or exceeding FMVSS 108, DOT-C2 standards. The conspicuity tape shall be applied continuously along the top and vertical sides of the rear of the spreader being inset two inches from the edge. It shall be terminated 1/2 inch from any object and resume 1/2 inch from the far side of the object.
- o. 10-Foot Skid-Mounted Materials Spreader – Unit shall meet all minimum requirements of section 2.6.4 a. through n. and in addition offer the following:
- The spreader body shall have a minimum of five cubic yards struck capacity.
  - The spreader shall have an inside body length of 10-feet at the top.
  - The body shall have a minimum of five cross-members and side supports spaced 12-inches from body ends on 24-inch centers.

- The body is to have a top-grate screen grid, having at least four sections, two on each side.
- p. 13-Foot Skid-Mounted Materials Spreader – Unit shall meet all minimum requirements of sections 2.6.4 a. through n. and in addition offer the following:
- The spreader body shall have a minimum of nine cubic yards struck capacity.
  - The spreader shall have an inside body length of 13-feet at the top.
  - The body shall have a minimum of six cross-members and side supports spaced 12-inches from body ends on 24-inch centers.
  - The body is to have a top-grate screen grid, having at least six sections, three on each side.
- q. 16-Foot Skid-Mounted Materials Spreader – Unit shall meet all minimum requirements of sections 2.6.4 a. through n. and in addition offer the following:
- The spreader body shall have a minimum of eleven cubic yards struck capacity.
  - The spreader shall have an inside body length of 16-feet at the top.
  - The body shall have a minimum of eight cross-members and side supports spaced 12-inches from body ends on 24-inch centers.
  - The body is to have a top-grate screen grid, having at least eight sections, four on each side.
- r. Skid Mounted Single Auger – Unit shall meet all minimum requirements of sections 2.6.4. a. through g., k. through n. and in addition offer the following:
- Auger Tube:
    - 1) Shall be 4-inch OD pipe, with a minimum wall thickness of 1/4-inches.
    - 2) The front of the auger tube shall have a 2-inch cold roll end shaft welded to a 3/8-inch minimum thickness end plate. Both shall be continuous welded.
    - 3) The front end shaft of the auger shall be supported by a 4-bolt flange, heavy duty, sealed, self-aligning bearing. Bearing must be greasable from the rear of the spreader body.
    - 4) The rear of the auger tube shall be supported entirely by the hydraulic drive motor by means of a splined, greasable coupler continuous welded to the rear of the auger tube. Grease fitting must grease motor splines and coupler splines.
    - 5) No center support bearings will be allowed.
  - Auger Flighting:
    - 1) Shall have a minimum thickness of 1/2-inch, and an outside diameter of 7-inches.
    - 2) Shall be continuous welded to the tube.
    - 3) Shall have the outer edge hard-surfaced by an electric arc welding process to a minimum #55 Rockwell hardness.
    - 4) Shall have three different pitches in order for the hopper to unload evenly from the front, middle, and rear.
  - Auger Drive Motor:
    - 1) Shall be a heavy duty roller stator type, have a splined output shaft, 4-bolt mounting, with O-ring ports.
    - 2) Shall be rated for a maximum system pressure of at least 2,350 psi, have a displacement of 64-cubic inches, and be rated for a maximum of 25 GPM oil flow.
    - 3) Shall be mounted using a floating mount to prevent minimal differences in spline alignment between the auger and motor from damaging either component.
  - Auger Feed Rate:
    - 1) The rear wall of the spreader shall have a feed opening size of approximately 63-square inches.
    - 2) The auger assembly shall have a minimum theoretical output of .135-cubic feet of material per revolution.
    - 3) The auger and motor assembly shall produce a minimum theoretical output of 7.29-cubic feet per minute of material at 15 GPM oil flow.

2.6.5 Other Options: Bidder shall provide the price for the following change options. Some options may be a change to the base vehicle specified or the request for additional items. Bid price shall include all associated parts and labor for installation and operation of the optional item. All units shall be delivered with all ordered options fully installed, mounted and operational.

a. Manual Transmission:

- Ten speed manual transmission, with “double low” low gear.

- Transmission shall be rated to meet or exceed horsepower and torque of engine.
  - Starter system shall include a neutral start switch.
- b. Manual Transmission:
- Six speed manual transmission.
  - Transmission shall be rated to meet or exceed horsepower and torque of engine.
  - Starter system shall include a neutral start switch.
- c. Eaton Ultra Shift Transmission or equivalent.
- d. Quixote Pavement Temperature Sensor: Shall have the ability to calibrate. Sensor information shall be displayed on the spreader control display. Shall be mounted in a location to provide accurate operation.
- e. Exhaust Brake Engine Retarder: Shall be OEM factory installed.
- f. Automatic Tire Chains: INSTA-CHAIN or ONSPOT brand chain systems complete with universal mounting brackets and to include an inline safety valve from air tank to the automatic tire chains. Automatic tire chains shall be air operated, and shall be controlled by a rocker-style rocker switch inside the operator's console. These shall be installed on the rear drive axle.
- g. Dual Steering: Provide dual steering and controls to allow the vehicle to be steered and driven from either side in the cab. Option shall also include right-hand instrument panel.
- h. Dump Body Vibrator:
- Shall be a Cougar model DC3200, #160181 or pre-approved equal.
  - Bearings used to support the vibrator shaft must be fitted with grease zerks, easily lubricated without removing the protective cover.
  - Shall be controlled by a switch located in the dash panel.
  - Shall not operate unless the raised body indicator is activated.
  - Shall be operated by a two-position, momentary-on switch.
- i. Left-hand and right-hand Truck Mounted Attenuator Pockets (TMA) pockets to be incorporated with the rear hitch plate and welded to the rear of the truck frame per Attachment 3.
- j. Replace base engine with a Cummins ISL9 engine.
- k. Bluetooth Handsfree Technology with interior speakers, microphone and voice activated calling.
- l. A fixed peep window to be installed on the lower portion of the passenger door to allow for extra visibility.
- m. Tank Heater – In tank fuel heater, engine coolant type. Must have a factory installed manual shut-off valve for summer operation. A body builder installed shut-off valve may be substituted upon approval of the chassis manufacturer and MoDOT Representative.
- n. Remove Base Pre-Wet system included in Section 2.3.7 above.
- o. Upgrade Granular Pre-Wet system from a 9 GPM Flow Meter and Pump to a 25 GPM Flow Meter and Pump. All other performance requirements identified in Section 2.3.7 above must be altered to accommodate this change.
- p. Receiver style pintle Hitch compatible with the Saf-Tite 100 rigid pintle hitch and associated installation requirements.
- q. Heavy Duty Seat with five point harness system offering safety from a rear end collision.
- r. Walk Rail for Stainless Steel Beds: The optional bed side walk platform is intended to provide a working platform along the entire length of the dump body from front to back on the outside of the bed. It shall be within the maximum width requirements for the dump body. This platform shall function with the bed side ladders to allow easy access from the ground, up the ladder and onto the platform and shall not interfere with the tarp system. The platform shall support 400 lbs., with a minimum tread width of 2 ½” and be a minimum of 2 ½” from the bed side. The surface of the platform shall be constructed of McNichols Quality GRIP STRUT or equivalent material. Adhesive or painted slip resistant materials are not acceptable. On trucks equipped with the optional bed side walk platform, a hand rail system shall also be added to the top of the bed rail. The hand rails shall be round in shape, approximately 1 1/2” outside dimension (OD) x ¼ wall thickness and supported sufficiently along its length to the top bed rail to support the weight of the operator using the hand hold. The hand rail shall be mounted to provide a 4” gap between the top of the bed rail and the bottom of the hand rail. The ends of the hand rail shall terminate to eliminate catch points on the front or rear of the dump body. The platform and hand rail shall be constructed of material matching that of the dump body.
- s. Walk Rail for Corten Steel Beds: To be constructed in the same manner as the Walk Rail for Stainless Steel Beds option and shall be constructed of material matching that of the dump body and coated appropriately for corrosion resistance.

- t. Back up camera with a cab mounted video display.
- u. Installation of MoDOT owned 50 Watt 2-way radio. Radio shall be wired to an electrical power source. To be mounted in the overhead console. The radio antenna shall be mounted to the center of the cab roof.
- v. Installation of MoDOT owned 100 Watt 2-way radio. Radio shall be wired to an electrical power source. Remote head shall be wired to the ignition. Terminal connections shall be heatshrunk and sealed. The radio antenna shall be mounted to the center of the cab roof.
- y. Heated Windshield.
- z. Vibrating Wiper Blades.
- aa. Lug Nut Torque Indicator.
- bb. Tire Pressure Monitoring System.
- cc. Air Powered Accessories: Air powered accessories shall be supplied from the trucks air supply, originating at a “dry tank.” Air supply shall originate at a protection valve which will close at approximately 70 psi to protect the truck air system in the event of a leak in a body builder installed accessory. All body builder air lines going to the operator’s console shall be routed through bulk head unions located at the rear wall of the cab near the strain reliefs for electrical wiring. Bulk head mounting shall be facilitated by matching backup plates located on the inside and outside of the cab wall. All bulk head locations shall have the function of that bulk head stamped or etched into the plate for identification of each air line installed. Air supply shall be routed to the operator console and routed through an oil injector installed inside the cab.
  - Air Control Operated Tarp with rocker-style air valve located in the operator console shall meet the same specifications as in section 2.3.3.t and 2.3.4.t with the exception it shall be air operated type, not electric.
  - Air Operated Hydraulic Joy Stick Control Lever The valve controls shall be a feathering remote air control with air shift actuators for valve. The hoist control shall be a single axis control with lock in the center position to prevent accidental actuation. There shall be a Pressure Protection Valve to protect against loss of pressure in the primary system caused by a broken line or an air leak somewhere in the auxiliary system. There shall also be a FLR (filter, lubricator, and regulator) plumbed into the auxiliary air system to protect the air controls from contamination and being over pressurized. All the air tubing will be color coded to identify each individual hydraulic function.
  - Air control operated tail gate latch shall meet the same specifications as in section 2.3.3.j and 2.3.4j in addition, shall be controlled by a rocker-style air valve located in the operator’s console, not electric over air.
  - Air control operated tire chains shall meet the same specifications as in section 2.6.5.f with the exception it shall be air operated rocker-style valve located in the operator’s console, not electric over air.
- dd. Additional Training Modules: Training must be classroom and/or hands on. Training session shall take place at a location within each district and/or central office. Use of MoDOT owned space may be permitted based upon availability. Modules shall be related to various components and operations of the delivered units. A module is defined as a one day training course and may include subjects such as emissions, electrical, hydraulic, engines, etcetera. Cost shall be per module, per employee.
- ee. Installation of MoDOT Provided Decals. Decals include two MoDOT logo decals and two locations for vehicle four digit vehicle number.
- ff. Shovel tool box to be installed on underside of bed and above standard tool box. Shall be constructed of the same materials as the standard tool box including door and latch. Size shall be consistent with the necessary requirements related to clearance and location when combined with standard tool box.
- gg. Stainless steel spring loaded shovel bracket equivalent to Buyers product #SH675SS.
- hh. Crew Cab on the Single Axle Dump Truck Option.
- ii. Rexroth CS 550/150 Spreader /Joy Stick Controller
- jj. Steel Material Spreader Stand for the 10-foot, 13-foot and 16-foot spreaders. Units shall be constructed to handle the proposed spreaders in accordance with the following requirements.
  - Steel must be hot rolled, mild steel, new with no rust.
  - Stand must have ladder with proper hand holds off the back and out of the way of the operation for workers access to top of spreader.
  - Guide caster rollers on stand for ease of stand/spreader to slip in and out of dump bed.
  - Folding front legs (lockable while used for storage) to aide in the loading of the stand/spreader into dump bed.

- Rotational, folding, pivoting or telescoping rear legs to keep out of the way of operation (lockable while used for storage).
  - Stands must be painted black over one coat of primer.
  - Spreader stand shall be manufactured in a way to center itself inside the dump body, preventing damage to the liquid saddle tanks during spreader installation.
- kk. Force America SSC6100 CAN Bus Spreader Control System.
- ll. Single Axle Truck Options:
- Air Ride Suspension:
  - Contractor bed with drop down sides:

## **2.7 Delivery Requirements:**

### 2.7.1 The following delivery requirements shall apply:

- a. Unless otherwise specified on the solicitation documents or purchase order, suppliers shall give at least 24 hours advance notice of each delivery. Delivery will only be received between the hours of 8:00 a.m. to 3:00 p.m., Monday through Friday. Deliveries shall not be made on observed holidays as identified in the attached terms and conditions.
- b. Each unit shall be fully operational, with all mechanical adjustments made prior to delivery. The hydraulic and/or spreader control system shall have all hydraulic function controls calibrated for proper operation before inspection and delivery of the completed unit. Calibration of the granular material application and the granular pre-wet system shall be the responsibility of MoDOT.
- c. All chassis, body, component, and snow equipment grease fittings shall be lubricated per manufacturer's specifications prior to delivery.
- d. Chassis driveline universal joints shall be lubricated until fresh grease appears at all four bearing caps prior to delivery.
- e. Each unit shall be pressure washed with hot water and detergent prior to delivery. Units with residual hydraulic oil from assembly on any component will not be accepted.
- f. The bidder shall understand and agree that MoDOT will inspect each unit after delivery to determine if the unit meets specifications, quality and to verify no damage incurred during shipment of the unit. MoDOT shall have five (5) business days after receipt of order to notify the bidder of any visible damage or specification compliance issues. After the five (5) business days, the bidder is still responsible for correction any issues related to specifications or quality.
- g. MoDOT Representative shall have the ability to negotiate the MoDOT requested schedule of work.

### 2.7.2 The Bidder shall deliver the products specified herein to the following MoDOT locations:

- a. St. Joseph, Missouri 64502
- b. Macon, Missouri 63552
- c. Hannibal, Missouri 63401
- d. Lee's Summit, Missouri 64064-8002
- e. Jefferson City, Missouri 65102
- f. Chesterfield, Missouri 63017-5712
- g. Joplin, Missouri 64802
- h. Springfield, Missouri 65801
- i. Willow Springs, Missouri 65793
- j. Sikeston, Missouri 63801

## **2.8 Liquidated Damage Requirements:**

- 2.8.1 The bidder is directed to the "*Standard Bid Provisions, General Terms and Conditions and Special Terms and Conditions*" attached to the bid documents, regarding the amount and enforcement of liquidated damages.

## **2.9 Contract/Purchase Order:**

2.9.1 The contract expresses the complete agreement of the parties and performance shall be governed solely by the specifications and requirements contained therein. Any change, whether by modification and/or supplementation, must be accomplished by a formal contract amendment signed and approved by and between the duly authorized representative of the Bidder and the duly authorized representative of the MHTC, by a modified purchase order prior to the effective date of such modification. The Bidder expressly and explicitly understands and agrees that no other method and/or no other document, including correspondence, acts, and oral communications by or from any person, shall be used or construed as an amendment or modification

## **2.10 Invoicing and Payment Requirements:**

- 2.10.1 The Bidder shall submit an itemized invoice to the applicable requesting address for the completion of deliverables, as specified herein. MoDOT will make a progress payment of the cab and chassis at the time of confirmed delivery to the body builder. Bidder shall maintain full ownership of the unit until it is complete and delivered to the MoDOT location regardless of progress payments.
- 2.10.2 Each invoice shall be itemized in accordance with items listed on the purchase order and/or contract. The statewide financial management system has been designed to capture certain receipt and payment information. Therefore, each invoice submitted must reference the purchase order number and must be itemized in accordance with items listed on the purchase order. Failure to comply with this requirement may delay processing of invoices for payment.
- 2.10.3 The Bidder shall understand and agree MoDOT reserves the right to make contract payments to the Bidder through electronic funds transfer (EFT). Therefore, prior to any payments becoming due under the contract, the Bidder must return a completed state Vendor Input ACH/EFT Application, which is downloadable from the Vendor Services Portal at: <https://www.vendorservices.mo.gov/vendorservices/Portal/Default.aspx>. Each Bidder invoice must be on the Bidder's original descriptive business invoice form and must contain a unique invoice number. The invoice number will be listed on the state's [Vendor Payment Website](#) to enable the Bidder to properly apply state payments to invoices. The Bidder must comply with all other invoicing requirements stated in the RFB.
- 2.10.4 The Bidder shall be paid in accordance with the firm, fixed prices stated on the pricing page of this document after completion of deliverables specified herein and acceptance by MoDOT.
- 2.10.5 Other than the payment specified above, no other payments or reimbursements shall be made to the Bidder for any reason whatsoever.
- 2.10.6 Unless otherwise provided for in the solicitation documents, payment for all equipment, supplies, and/or services required herein shall be made in arrears. The MHTC shall not make any advance deposits.
- 2.10.7 The MHTC assumes no obligation for equipment, supplies, and/or services shipped or provided in excess of the quantity ordered. Any authorized quantity is subject to the MHTC's rejection and shall be returned at the Bidder's expense.
- 2.10.8 The MHTC reserves the right to purchase goods and services using the state-purchasing card.

## **2.11 Other Contractual Requirements:**

2.11.1 Contract Period - The contract shall commence from the date of Notice to Proceed until for one year with up to five (5) one-year renewal option periods, or any portion therein. If the option for renewal is exercised by MoDOT, the Bidder shall agree to all terms and conditions of the RFB and all subsequent amendments. Renewal options are at the sole discretion of MoDOT.

- 2.11.2 Renewal Periods - If the option for renewal is exercised by MoDOT, the Bidder shall agree that the percentages for the renewal period shall not exceed the maximum percentage for the applicable renewal period stated herein.
- a. If renewal percentages are not provided, the prices during renewal periods shall be the same as during the original contract period.
  - b. MoDOT does not automatically exercise its option for renewal based upon the maximum percentage of increase without documented justification supporting an increase, and reserves the right to offer or to request renewal of the contract at a percentage less than the maximum percentage stated.
  - c. In the event MoDOT exercises its option(s) to renew the contract, the requirements for future years shall be basically similar.
- 2.11.3 Escalation Clause - In the event the Bidder requests a price increase during the contract period, either the original contract period or any contract renewal period, the Bidder must provide a written request and documentation justifying the need for a price increase, and the amount of such price increase. MoDOT will review the Bidder's written request and documentation, and decide if a price increase is to be granted at that particular time. The Bidder shall understand and agree that MoDOT's decision shall be final and without recourse.
- a. No price increase shall be granted during the first 3 months of the original contract period, or if applicable, first 3 months of a contract renewal period.
  - b. In the event a price increase is granted due to an approved escalation, the renewal percentage shall be based upon the original contract value and any approved escalation in costs.
- 2.11.4 Inspection and Acceptance: MoDOT reserves the right to inspect the material at the point of manufacture, intermediate storage point, or at a destination which shall be at the discretion of MoDOT.
- a. No equipment, supplies, and/or services received by MoDOT pursuant to a contract shall be deemed accepted until MoDOT has had reasonable opportunity to inspect said equipment, supplies, and/or services.
  - b. All equipment, supplies, and/or services which do not comply with the specifications and/or requirements or which are otherwise unacceptable or defective may be rejected. In addition, all equipment, supplies, and/or services which are discovered to be defective or which do not conform to any warranty of the Bidder upon inspection (or at any later time if the defects contained were not reasonably ascertainable upon the initial inspection) may be rejected.
  - c. The MHTC reserves the right to return any such rejected shipment at the Bidder's expense for full credit or replacement and to specify a reasonable date by which replacements must be received.
  - d. The MHTC's right to reject any unacceptable equipment, supplies, and/or services shall not exclude any other legal, equitable or contractual remedies the MHTC may have.

### **3. BID SUBMISSION**

#### **3.1 Bid Submission Information:**

- 3.1.1 All bids must be received in a sealed envelope/packaging clearly marked **“Dump Truck”**.
- 3.1.2 All bids must be received at the office of the RFB Coordinator as outlined in Section 1. **“INTRODUCTION AND GENERAL INFORMATION”**.
- 3.1.3 The bidder may withdraw, modify or correct his/her bid after it has been deposited with MoDOT provided such request is submitted in writing and received at the location designated for the bid opening prior to the date and time specified for opening bids. Such a request received as specified will be attached to the bid and the bid will be considered to have been modified accordingly. No bid may be modified after the date and time specified for the opening of bids.
- 3.1.4 Open Competition / Request For Bid Document:
- a. It shall be the bidder's responsibility to ask questions, request changes or clarification, or otherwise advise MoDOT if any language, specifications or requirements of an RFB appear to be ambiguous, contradictory, and/or arbitrary, or appear to inadvertently restrict or limit the requirements stated in the RFB to a single source. Any and all communication from bidders regarding specifications, requirements, competitive bid process, etc., must be directed to the buyer from MoDOT, unless the RFB specifically refers the bidder to

another contact. Such communication should be received at least three (3) working days prior to the official bid opening date.

- b. Every attempt shall be made to ensure that the bidder receives an adequate and prompt response. However, in order to maintain a fair and equitable bid process, all bidders will be advised, via the issuance of an amendment to the RFB, of any relevant or pertinent information related to the procurement. Therefore, bidders are advised that unless specified elsewhere in the RFB, any questions received less than three (3) working days prior to the RFB opening date may not be answered.
- c. Bidders are cautioned that the only official position of the MoDOT is that which is issued by MoDOT in the RFB or an amendment thereto. No other means of communication, whether oral or written, shall be construed as a formal or official response or statement.
- d. MoDOT monitors all procurement activities to detect any possibility of deliberate restraint of competition, collusion among bidders, price-fixing by bidders, or any other anticompetitive conduct by bidders which appears to violate state and federal antitrust laws. Any suspected violation shall be referred to the Missouri Attorney General's Office for appropriate action.

3.1.5 Bid Review: Bids will be reviewed to determine if the bid complies with the mandatory requirements.

3.1.6 Contract Award: This is a Multiple Award bid. All responsive responses will result in a contract award.

- a. Notification of award shall be at the time the tabulation is posted to the Internet. It is the sole responsibility for all bidders to check the website for bid results.

3.1.7 Purchase Determination: After determination of award, evaluator(s) shall use both objective and subjective judgment in conducting a comparative assessment of the bid responses in accordance with the evaluation criteria stated below:

- a. Base and Option Costs 50 Points
- b. Location of Parts and Servicing Dealers 20 Points
- c. Warranty Coverage 15 Points
- d. Delivery Timeline 5 Points
- e. Other response information 10 Points

3.1.7.1 The evaluation of cost will be conducted using a scale of fifty (50) possible points based upon a total amount for the base unit and unit options in the original contract period. Cost points shall be calculated based on the sum from the below calculation using the following formula:

$$\frac{\text{Lowest Responsive Price}}{\text{Compared Price}} \times 50 = \begin{matrix} \text{Cost score points extended to} \\ \text{2 decimal places - 50.00} \\ \text{possible} \end{matrix}$$

3.1.7.2 Performance and reliability of any unit and/or contractor can be a part of the subjective evaluation in the determination of lowest and best bid award. Final determination of the evaluation shall be at the discretion of the General Services Director.

#### 4. PRICING PAGE

**4.1** The bidder shall provide a firm, fixed price in the table below for the original contract period for providing the deliverables/services in accordance with the provisions and requirements of this RFB. All costs associated with providing the required deliverables/services shall be included in the prices stated below. Prices must be the lowest offered to any governmental or commercial consumer, under the same terms and conditions. Sign where indicated below and return with all required solicitation documents.

Item #	Description	Original Contract Period <i>Firm, Fixed Price</i>
001	Tandem Axle Cab and Chassis	\$
002	Tandem Axle Corten V-Style Long Sill Dump Body – Configuration #1	\$
003	Tandem Axle Stainless Steel I-Beam Long Sill Dump Body – Configuration #2	\$
	Total Cost	\$
004	Single Axle Cab and Chassis	\$
005	Single Axle Corten V-Style Long Sill Dump Body – Configuration #1	\$
006	Single Axle Stainless Steel I-Beam Long Sill Dump Body – Configuration #2	\$
	Total Cost	\$
007	Tow Plow Cab and Chassis	\$
008	Tow Plow Corten V-Style Long Sill Dump Body – Configuration #1	\$
009	Tow Plow Stainless Steel I-Beam Long Sill Dump Body – Configuration #2	\$
	Total Cost	\$
010	Fair Market In-House Labor Rate per Section 2.2.6.d	\$ Per Hour
011	List the Districts Bidding on (NW, NE, KC, CD, SW, SE)	
012	Tandem Axle Extended Warranty Option #1	\$
013	Single Axle Extended Warranty Option #1	\$
014	Tow Plow Extended Warranty Option #1	\$
015	Tandem Axle Extended Warranty Option #2	\$
016	Single Axle Extended Warranty Option #2	\$
017	Tow Plow Extended Warranty Option #2	\$



**4.5.1 Warranty Dealer and Service Locations:** All bidders must attach a list of all warranty and service providers and location information. This shall include but not be limited to the company name, address, standard and emergency contact telephone numbers.

**4.6 Optional Equipment:** The bidder shall provide pricing for the increased or decreased cost associated with the following optional equipment meeting the minimum specifications identified in Section 2.6.

<i>Optional Equipment Continued</i>		<b>Additional Increase/Decrease to Total Unit Price</b>		
	<b>Option Description</b>	<b>Tandem Axle</b>	<b>Single Axle</b>	<b>Tow Plow</b>
a.	Right and/or Left Hand Wing Plow	\$	\$	\$
b.	Heavy Duty Right Hand 3 Function Front Mount Wing Plow	\$	\$	\$
c.	Underbody Scraper	\$	\$	\$
d.	10' Skid Mounted Material Spreader	\$	\$	\$
e.	10' Skid Mounted Material Spreader with Auger	\$	\$	\$
f.	13' Skid Mounted Material Spreader	\$	\$	\$
g.	13' Skid Mounted Material Spreader with Auger	\$	\$	\$
h.	16' Skid Mounted Material Spreader	\$	\$	\$
i.	16' Skid Mounted Material Spreader with Auger	\$	\$	\$
j.	10 Speed Manual Transmission	\$	\$	\$
k.	6 Speed Manual Transmission	\$	\$	\$
l.	Eaton Ultra Shift Transmission	\$	\$	\$
m.	Pavement Temperature Sensor	\$	\$	\$
n.	Exhaust Brake Engine Retarder	\$	\$	\$
o.	Automatic Tire Chains	\$	\$	\$
p.	Dual Steering	\$	\$	\$
q.	Dump Body Vibrator	\$	\$	\$
r.	Left-/Right-hand Truck Mounted Attenuator Pockets	\$	\$	\$
s.	Cummins ISL9 Engine	\$	\$	\$
t.	Bluetooth Hands-free Technology	\$	\$	\$
u.	Passenger Door Peep Window	\$	\$	\$
v.	Tank Heater	\$	\$	\$
w.	Removal of Base Granular Pre-Wet System	\$	\$	\$
x.	Replace Pre-West System w/a 25 GPM Pre-Wet System	\$	\$	\$
y.	Receive Pintle Hitch	\$	\$	\$
z.	Walk Rail for Stainless Steel Bed	\$	\$	\$
aa.	Walk Rail for Corten Steel Bed	\$	\$	\$
bb.	Back Up Camera and Display	\$	\$	\$
cc.	Installation of MoDOT owned 50 Watt radio	\$	\$	\$
dd.	Installation of MoDOT owned 100 Watt radio	\$	\$	\$
ee.	Heated Windshield	\$	\$	\$
ff.	Vibrating Wiper Blades	\$	\$	\$
gg.	Lug Nut Torque Indicator	\$	\$	\$
hh.	Tire Pressure Monitoring System	\$	\$	\$
ii.	Air Control Operated Tarp	\$	\$	\$
jj.	Air Operated Hydraulic Joy Stick Control Lever	\$	\$	\$

*Optional Equipment Continued*

**Additional Increase/Decrease to Total Unit Price**

	<b>Option Description</b>	<b>Tandem Axle</b>	<b>Single Axle</b>	<b>Tow Plow</b>
kk.	Air Control Operated Tail Gate Latch	\$	\$	\$
ll.	Air Control Operated Tire Chains	\$	\$	\$
mm.	Additional Training Modules	\$	\$	\$
nn.	Installation of MoDOT Provided Decals	\$	\$	\$
oo.	Shovel Tool Box	\$	\$	\$
pp.	Stainless Steel Spring Loaded Shovel Bracket	\$	\$	\$
qq.	Crew Cab Option		\$	
rr.	Rexroth CS 550/150 Spreader /Joy Stick Controller	\$	\$	\$
ss.	10-foot Spreader Stand	\$	\$	\$
tt.	13-foot Spreader Stand	\$	\$	\$
uu.	16-foot Spreader Stand	\$	\$	\$
vv.	Force America CAN Bus Spreader Control System	\$	\$	\$
ww.	Single Axle Air Ride Suspension	\$	\$	\$
xx.	Single Axle Contractor Bed with Drop Down Sides	\$	\$	\$

**4.7 Additional Bid Response Information:**

- a. Does the unit offered feature cowl pedals? \_\_\_\_\_
- b. Does the unit offered feature side window defrosters? \_\_\_\_\_
- c. Does the air conditioning unit include self-diagnostic capabilities? \_\_\_\_\_ If yes, briefly describe:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- d. Does the unit offered feature flush mounted cab marker lights? \_\_\_\_\_
- e. Does the driveshaft pass through the radiator charge air cooler or air conditioning condenser? \_\_\_\_\_
- f. Does the unit offered feature a single rail frame system? \_\_\_\_\_
- g. Does the unit offered feature Truck-Lite model 645 headlights? \_\_\_\_\_
- h. Does the unit offered feature a ADIP air dryer.
- i. Provide a detailed description of the rear axle suspension offered.

**4.8 Innovative Solutions:** All bidders must provide unit pricing in section 4.1 above in accordance with the bid specifications, however, MoDOT is interested in innovative solutions as well. Bidders are encouraged to provide various innovative solutions to the specifications provided and any associated cost adjustments to the unit price should MoDOT chose to purchase the solution on any units ordered for the purposes of testing the performance and reliability of the proposed solution. Each submission should reference the technical section of the original bid to be impacted by the innovative change, the proposed innovative change solution and its' impact to MoDOT and all associated costs or savings. MoDOT is most interested in innovative solutions that will reduce purchase and/or maintenance costs while preserving or increasing unit efficiencies and effectiveness. Bidders may use the space below or provide additional attachments clearly marked "Innovative Solutions"

**4.9 Other Submission Information:** All bidders must provide additional information related to all aspects of the units offered for the purposes of review and evaluation. This shall include but not be limited to a complete build sheet per unit requested and all options as well as detailed drawings for each unit offered. This shall include but not be limited to the make and model for each component offered. This information shall be organized in the most efficient, clear and concise manner possible for review by the evaluators.

# VENDOR INFORMATION & PREFERENCE CERTIFICATION FORM

## Vendor Information

**All bidders must furnish ALL applicable information requested below**

<b>Vendor Name/Mailing Address:</b>  Email Address:	<b>Vendor Contact Information (including area codes):</b> Phone #: Cellular #: Fax #:									
<b>Printed Name of Responsible Officer or Employee:</b>	<b>Signature:</b>									
<b>For Corporations</b> - State in which incorporated:	<b>For Others</b> - State of domicile:									
If the address listed in the Vendor Name/Mailing Address block above is not located in the State of Missouri, list the address of Missouri offices or places of business:  If additional space is required, please attach an additional sheet and identify it as <b><u>Addresses of Missouri Offices or Places of Business.</u></b>										
<b>M/WBE INFORMATION:</b> List all certified Minority or Women Business Enterprises ( <b><u>M/WBE</u></b> ) utilized in the fulfillment of this bid. Include <u>percentages</u> for subBidders and identify the M/WBE certifying agency:  <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; width: 33%;"><u>M/WBE Name</u></td> <td style="text-align: center; width: 33%;"><u>Percentage of Contract</u></td> <td style="text-align: center; width: 33%;"><u>M/WBE Certifying Agency</u></td> </tr> <tr> <td style="border-top: 1px solid black; height: 20px;"></td> <td style="border-top: 1px solid black; height: 20px;"></td> <td style="border-top: 1px solid black; height: 20px;"></td> </tr> <tr> <td style="border-top: 1px solid black; height: 20px;"></td> <td style="border-top: 1px solid black; height: 20px;"></td> <td style="border-top: 1px solid black; height: 20px;"></td> </tr> </table> If additional space is required, please attach an additional sheet and identify it as <b><u>M/WBE Information</u></b>		<u>M/WBE Name</u>	<u>Percentage of Contract</u>	<u>M/WBE Certifying Agency</u>						
<u>M/WBE Name</u>	<u>Percentage of Contract</u>	<u>M/WBE Certifying Agency</u>								

## Preference Certification

**All bidders must furnish ALL applicable information requested below**

<b><u>GOODS/PRODUCTS MANUFACTURED OR PRODUCED IN USA:</u></b> If any or all of the goods or products offered in the attached bid which the bidder proposes to supply to the MHTC are <b><u>not</u></b> manufactured or produced in the "United States", or imported in accordance with a qualifying treaty, law, agreement, or regulation, list below, by item or item number, the country other than the United States where each good or product is manufactured or produced.	
Item (or item number)	Location Where Item is Manufactured or Produced
If additional space is required, please attach an additional sheet and identify it as <b><u>Location Products are Manufactured or Produced.</u></b>	
<b><u>MISSOURI SERVICE-DISABLED VETERAN BUSINESS:</u></b> Please complete the following if applicable. Additional information may be requested if preference is applicable. See below definitions for qualification criteria: <b>Service-Disabled Veteran</b> is defined as any individual who is disabled as certified by the appropriate federal agency responsible for the administration of veterans' affairs. <b>Service-Disabled Veteran Business</b> is defined as a business concern: <ol style="list-style-type: none"> <li>a. Not less than fifty-one (51) percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than fifty-one (51) percent of the stock of which is owned by one or more service-disabled veterans; and</li> <li>b. The management and daily business operations of which are controlled by one or more service-disabled veterans.</li> </ol>	
<u>Veteran Information</u>	<u>Business Information</u>
Service-Disabled Veteran's Name (Please Print)	Service-Disabled Veteran Business Name
Service-Disabled Veteran's Signature	Missouri Address of Service Disabled Veteran Business

**NOTICE OF COOPERATIVE PURCHASING**

**MODOT IS INTERESTED IN ASSISTING MISSOURI GOVERNMENTAL ENTITIES, ETC. IN PURCHASING EQUIPMENT, VARIOUS MATERIALS, AND SUPPLIES THAT MEET THE MISSOURI DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.**

Each bidder is asked to indicate below whether they would be willing to offer **Dump Truck(s)** listed in the attached "Request for Bid" for sale to these local political entities at the same bid price offered to MoDOT.

It is understood MoDOT will not issue purchase orders, accept delivery nor make payment for these items ordered by any of these agencies. It is further understood the price is based on the **Dump Truck(s)** meeting MoDOT specifications. Any added options, deletions, or extra freight costs would be negotiated between the local agency and the successful vendor.

Indicate below whether your company is willing to offer such cooperative purchasing for Missouri counties, cities or other political entities.

YES \_\_\_\_\_ NO \_\_\_\_\_

If the price varies throughout the state on MoDOT bids because of different delivery destinations, please indicate the price F.O.B. your location that would be offered as described.

F.O.B. Location \_\_\_\_\_

Indicate the deadline date that orders will be accepted. \_\_\_\_\_

COMPANY NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

E-MAIL \_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

SIGNATURE \_\_\_\_\_

TITLE \_\_\_\_\_

DATE \_\_\_\_\_

**ANTI-COLLUSION STATEMENT**

STATE OF \_\_\_\_\_ )

\_\_\_\_\_ )

COUNTY OF \_\_\_\_\_ )

**SS.**

\_\_\_\_\_  
\_\_\_\_\_ being first

duly sworn, deposes and says that he is \_\_\_\_\_  
Title of Person Signing

of \_\_\_\_\_  
\_\_\_\_\_  
Name of Bidder

that all statements made and facts set out in the bid for the above project are true and correct; and that the bidder (The person, firm, association, or corporation making said bid) has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such bid or any contract which may result from its acceptance.

Affiant further certifies that bidder is not financially interested in, or financially affiliated with, any other bidder for the above project.

By \_\_\_\_\_

By \_\_\_\_\_

By \_\_\_\_\_

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
Notary Public

My Commission Expires \_\_\_\_\_

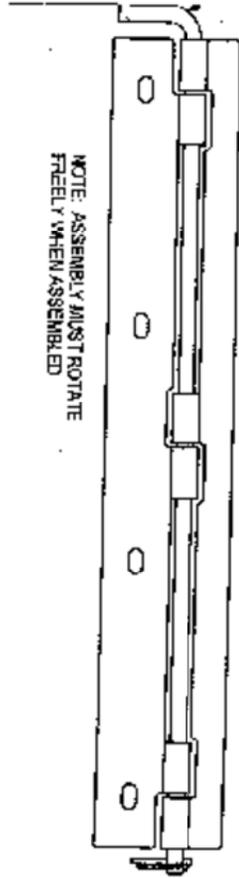
<b>FACILITY NAME</b>	<b>DISTRICT</b>	<b>ADDRESS</b>	<b>CITY</b>	<b>ZIP</b>
Boonville	CD	16803 Hwy 5	Boonville	65233
California	CD	801 West Buchanan	California	65018
Camdenton	CD	586 Pier Thirty One Rd	Camdenton	65020
Columbia	CD	4201 Paris Rd	Columbia	65202
Cuba	CD	7149 Old Hwy 66	Cuba	65453
Drake	CD	1972 Hwy 50	Owensville	65066
Edgar Springs	CD	27800 CR 9150	Edgar Springs	65462
Eldon	CD	30 Hwy Y	Eldon	65026
Fayette	CD	871 State Hwy 240	Fayette	65248
Fulton	CD	4975 CR 304	Fulton	65251
Hallsville	CD	870 E Hwy 124	Hallsville	65255
Iberia	CD	790 E Hwy 42	Iberia	65486
Jefferson City	CD	5607 Red Eagle Dr	Jefferson City	65109
Jefferson City Bridge	CD	744 MoDOT Drive	Jefferson City	65109
Jefferson City Facilities	CD	5606 Raptor Drive	Jefferson City	65109
Jefferson City Striping	CD	740 MoDOT Drive	Jefferson City	65109
Lebanon	CD	1120 Ivey Lane	Lebanon	65536
Linn	CD	1201 E Main	Linn	65051
Mokane	CD	10165 State Rd C	Mokane	65059
Nebo	CD	37998 Hwy 32	Falcon	65470
Osage Beach	CD	749 Hwy 42	Lake Ozark	65049
Potosi	CD	10681 E Hwy E	Potosi	63630
Rolla	CD	351 Salley Rd	Rolla	65401
Salem	CD	Rt 1 Box 2785	Salem	65560
ST. James Project Office	CD	17855 South HWY 8	St. James	65559
St. Robert	CD	375 Old Route 66	St Roberts	65583
Steelville	CD	69 East Highway 8	Steelville	65565
Versailles	CD	501 Jefferson Rd	Versailles	65084
Vienna	CD	702 Hwy 63 N	Vienna	65582
Williamsburg	CD	3949 County Road 1005	Williamsburg	63388
Belton	KC	324 Peculiar Dr.	Belton	64012
Concordia	KC	601 N. Main	Concordia	64020
Harrisonville	KC	27821 S. St. Hwy. 7	Harrisonville	64701
Independence	KC	910 N. 291 Hwy.	Indepdence	64051
Kansas City - District Garage	KC	2050 NE Independence Ave	Lees Summit	64086
Kansas City - Truman Road Constr	KC	908 East Truman Rd	Kansas City	64106
Kearney	KC	301 W. Hwy. 92	Kearney	64060
Knob Noster	KC	143 NE 23 Hwy.	Knob Noster	65336
Lee's Summit	KC	3050 NE Independence Ave	Lees Summit	64064
Lee's Summit -Construction	KC	521 NE Town Centre Dr	Lees Summit	64086
Marshall	KC	1595 West Arrow St.	Marshall	65340
Motorist Assist Main Office	KC	3503 East 18 Street	Kansas City	64127
Mulberry	KC	650 Mulberry St.	Kansas City	
Nashua	KC	1910 NW Cookingham	Kansas City	64155

<b>FACILITY NAME</b>	<b>DISTRICT</b>	<b>ADDRESS</b>	<b>CITY</b>	<b>ZIP</b>
Northmoor	KC	5248 Waukomis Dr.	Kansas City	64151
Odessa	KC	7353 Outer Road	Odessa	64076
Platte City	KC	16105 Elm Grove Rd.	Platte City	64079
Richmond	KC	42896 Old Hwy. 10	Richmond	64085
Sedalia	KC	2200 S Limit	Sedalia	65301
Skiles	KC	3800 Skiles	Kansas City	64161
Stadium	KC	9101 E 40th Terrace	Kansas City	64133
Warrensburg - Striping	KC	660 NE 375	Warrensburg	64093
Bowling Green	NE	1416 Bus. Hwy. 54	Bowling Green	63334
Canton	NE	17365 Hwy. 81	Canton	63435
Center	NE	22447 Hwy. 19, 63436	Center	63436
Edina	NE	St. Rte. 3, Box 180	Edina	63537
Elsberry	NE	3329 N. HWY 79	Elsberry	63343
Hannibal	NE	1711 E. Hwy 61 South	Hannibal	63401
Kirksville	NE	22777 Potter Trail	Kirksville	63501
Lancaster	NE	Hwy. 63 N.	Lancaster	63548
Macon	NE	26988 US Hwy. 63	Macon	63552
Macon-Bridge	NE	26826 US Hwy. 63	Macon	63552
Macon-Co	NE	26824 US Hwy. 63	Macon	63552
Memphis	NE	Rt. 1, Box 139A	Memphis	63555
Mexico	NE	1600 Christopher Dr.	Mexico	65265
Moberly	NE	1501 East Hwy. 24	Moberly	65270
New Cambria	NE	29992 State Hwy. P	New Cambria	63558
New Florence	NE	540 Tree Farm Rd.	New Florence	63363
Palmyra	NE	4945 County Road 288	Hannibal	63401
Paris	NE	25191 Bus. Hwy. 24	Paris	65275
Shelbina	NE	213 N. Douglas	Shelbina	63468
Troy	NE	121 Francis Drive	Troy	63379
Troy - AE/RE Offices	NE	111 Francis Drive	Troy	63379
Warrenton	NE	800 W. Boonslick	Warrenton	63383
Wayland	NE	Rt. 3, Box 45A	Kohoka	63445
Albany	NW	5753 E. US Hwy. 136	Albany	64402
Bethany	NW	3101 Miller St.	Bethany	64424
Brookfield	NW	28877 Hwy. 11	Brookfield	64628
Cameron	NW	513 E. Grand	Cameron	64429
Carrollton	NW	215 S. Mason	Carrollton	64633
Chillicothe	NW	1301 Mitchell Ave.	Chillicothe	64601
Clearmont	NW	18826 State Hwy. C	Clearmont	64431
Gallatin	NW	19335 Pepper Ave.	Gallatin	64640
Grant City	NW	Rte. 3, Box 15A	Grant City	64456
Hamilton	NW	1001 S. Hughes	Hamilton	64644
Keytesville	NW	220 E. Jackson	Keytesville	65261
King City	NW	9990 NW Hwy169	King City	64463
Lathrop	NW	100 North St.	Lathrop	64465

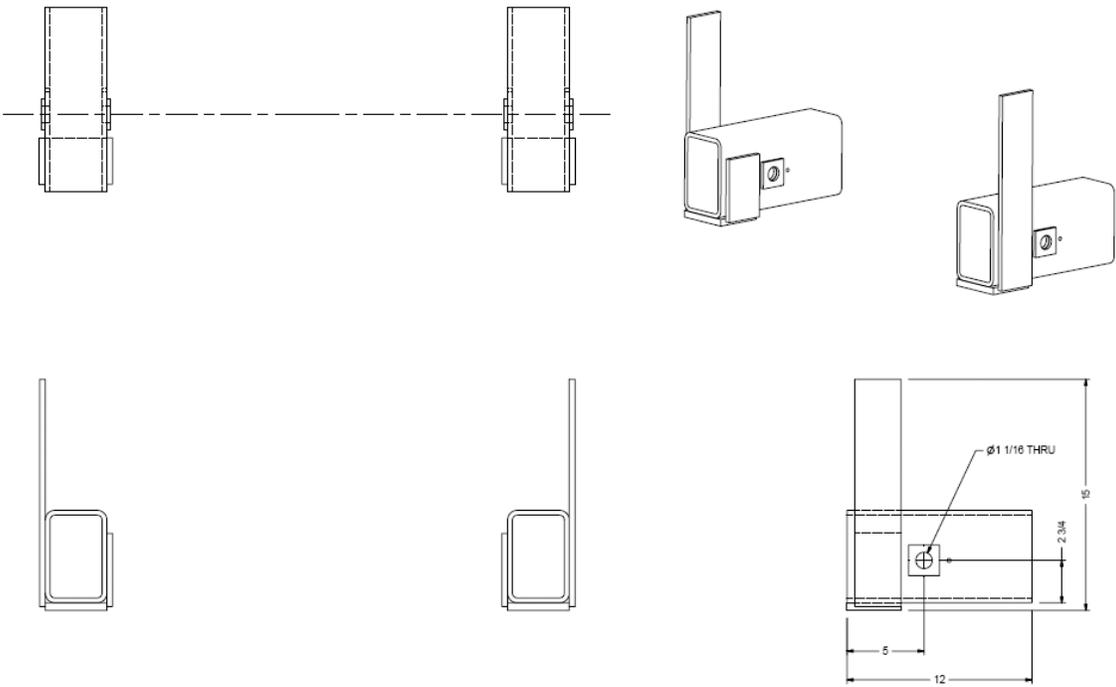
<b>FACILITY NAME</b>	<b>DISTRICT</b>	<b>ADDRESS</b>	<b>CITY</b>	<b>ZIP</b>
Maryville	NW	28320 250th St.	Maryville	64468
Milan	NW	1800 North Pearl	Milan	63556
Mound City	NW	24876 Hwy. 118	Mound City	64470
Princeton	NW	RR 2, Box 316B	Princeton	64673
Rushville	NW	Rte. 116	Rushville	64484
Savannah	NW	11791 Bus. 71 Highway	Savannah	64485
St. Joseph	NW	4718 S. Hwy 169	St. Joseph	64507
Tarkio	NW	US 136, Box 26874	Tarkio	64491
Trenton	NW	230 East Hwy. 6	Trenton	64683
Unionville	NW	2653 Main St.	Unionville	63565
Advance	SE	28275 St. Hwy. 25	Advance	63730
Alton	SE	Rt. 1, Box 1822	Alton	65606
Bellview	SE	2633 Highway 21	Bellevue	63623
Bunker	SE	Rte. 2, Box 124C	Bunker	63629
Cape Girardeau	SE	3359 East Outer Rd. North	Scott City	63780
Centerville	SE	Route 1, Box 99	Lesterville	63654
Charleston	SE	6712 N. Outer Rd.	Charleston	63834
Dexter	SE	1111 Hickory Log Dr.	Dexter	63841
Doniphan	SE	Rt. 3, Box 2277	Doniphan	63935
Dora	SE	Box 3830	Dora	65637
Ellington	SE	Route 4, Box 800	Ellington	63638
Ellsinore	SE	Rt. 2, Box 2198	Elsinore	63937
Fredricktown	SE	1001 Madison 200	Fredericktown	63645
Gainesville	SE	Rt. 1, Box 1C	Gainesville	65655
Hartville	SE	5804 Hwy. 5	Hartville	65667
Hayti	SE	301 W High, (RR1, Box 41A	Hayti	63851
Houston	SE	1540 N. Hwy 63	Houston	65783
Jackson	SE	200 State Hwy. Y	Jackson	63755
Kennett	SE	1600 Southwest Dr.	Kennett	63857
Kewanee	SE	Rte. W	New Madrid	63869
Malden	SE	4005 North Douglas St.	Malden	63863
Marble Hill	SE	Rte. 2, Box 1655	Marble Hill	63764
Mountain Grove	SE	8675 Old Hwy. 60	Mountain	65711
Park Hills	SE	2240 Conway Rd	Park Hills	63601
Park Hills	SE	105 Industrial Drive	Park Hills	63601
Patton	SE	Rte. 1, Box 2490	Patton	63662
Peidmont	SE	Rt. 2 box 2636A	Piedmont	63957
Perryville	SE	754 Lake Dr.	Perryville	63775
Poplar Bluff	SE	2568 Hwy. 67 North	Poplar Bluff	63901
Poplar Bluff	SE	3568 Hwy 67 N	Poplar Bluff	63901
Puxico	SE	240 Hwy. 51 South	Puxico	63960
Quilin	SE	13148 HWY 53	Quilin	63961
Sikeston	SE	111 Edwards Street	Sikeston	63801
Sikeston	SE	2675 North Main Street	Sikeston	63801

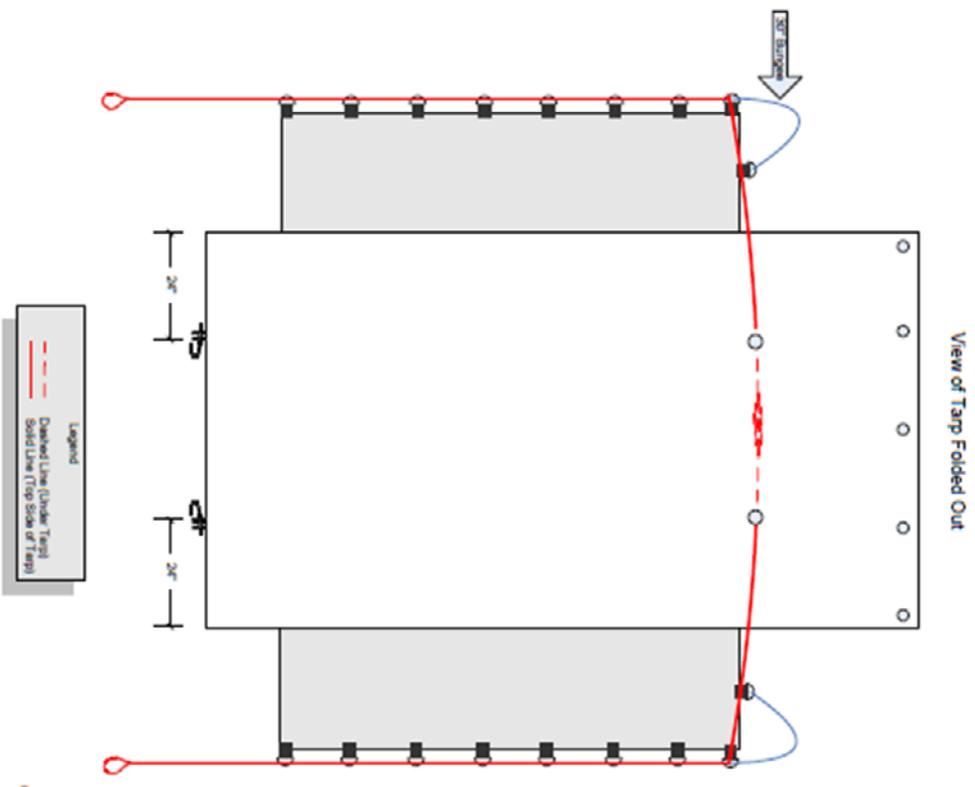
<b>FACILITY NAME</b>	<b>DISTRICT</b>	<b>ADDRESS</b>	<b>CITY</b>	<b>ZIP</b>
Silva	SE	301 Main St.	Silva	63964
Saint Genevieve	SE	17651 Hwy 32	Ste. Genevieve	63670
Summersville	SE	235 S. Hwy. 17	Summersville	65571
Van Buren	SE	HCR 1, Box 99	Van Buren	63965
West Plains	SE	1287 County Road 8690	West Plains	65775
Willow Springs	SE	3952 East Main	Willow Springs	65793
Willow Springs Bridge	SE	3954 East Main Street	Willow Springs	65793
Willow Springs Garage -	SE	3956 East Main Street	Willow Springs	65793
Winona	SE	106 Industrial Drive	Winona	65588
Ava	SE	Rt. 3, Box 23B	Ava	65608
Ballas Complex	SL	12001 N Forty Dr	Town &	63131
Barrett Station Complex	SL	2309 Barrett Station Rd Bldg	St. Louis	63021
Beaufort	SL	6697 Hwy 185 South	Beaufort	63013
Bellefontaine Complex	SL	10601 Lewis & Clark Blvd	St. Louis	63136
Broadway Complex	SL	1200 S. Broadway	St. Louis	63104
Cedar Hill	SL	8400 Local Hillsboro Road	Cedar Hill	63016
Chesterfield Project Office	SL	601 Salt Mill Rd	Chesterfield	63017
Desoto	SL	4400 Highway 110	Desoto	63020
Eureka	SL	615 Viola Lane	Eureka	63025
Festus	SL	1000 Airport Road	Festus	63028
Festus Project Office	SL	3595 Plass Rd	Festus	63028
Hampton Complex	SL	6138 Wilson Ave Bldg A	St. Louis	63139
Lemay	SL	4185 Hoffmeister Ave	St Louis	63125
Maryland Height PO	SL	2620 Adie Rd	Maryland	63043
Normandy Complex	SL	1005 Bermuda Ave	St. Louis	63121
O'Fallon Project Office	SL	6780 Old Hwy N	St. Charles	63304
St. Charles	SL	2360 Old Hwy. 94 S	St Charles	63303
St. Clair Complex	SL	2273 N Service Road	St. Clair	
Sunset Hills	SL	10220 Rahning Road	Sunset Hills	63127
Wentzville Complex	SL	1211 Granville Dr	Wentzville	63385
Anderson	SW	5511 Hwy 59 North	Goodman	64843
Bolivar	SW	2816 W. Broadway	Bolivar	65613
Bradleyville	SW	20907 E. Hwy. 76	Taneyville	65759
Branson	SW	275 S.W. Outer Rd.	Branson	65616
Branson RE	SW	251 SW Outer Rd	Branson	65616
Buffalo	SW	215 N. Ash St.	Buffalo	65622
Building Crew - Springfield	SW	3025 E Kearney	Springfield	65803
Butler	SW	RR4, Box 623	Butler	64730
Carthage	SW	16623 Inca Road	Carthage	64836
Carthage - Construction	SW	16619 Inca Rd	Carthage	64836
Cassville	SW	20622 State Hwy. 37	Cassville	65625
Eldorado Springs	SW	3865 E. Hwy. 54	El Dorado	64744
Galena	SW	Rt. 4, Box 555, (1889 St Hwy	Galena	65656
Greenfield	SW	70 N. State Hwy. 39	Springfield	65661

<b>FACILITY NAME</b>	<b>DISTRICT</b>	<b>ADDRESS</b>	<b>CITY</b>	<b>ZIP</b>
Joplin - GENERAL SERVICES	SW	2915 Doughboy Dr	Joplin	64804
Joplin - MAINT.	SW	2800 Stevens Blvd	Joplin	64804
Lamar	SW	67 SE 1st Lane	Lamar	64759
Lampe	SW	HCR1, Box 352, (1063 West	Lampe	65681
Marshfield	SW	331 Pin Oak Loop	Marshfield	65706
Monett	SW	4478 W. Hwy. 60	Monett	65708
Mount Vernon	SW	1001 Spring Park Blvd	Mt Vernon	65712
Neosho	SW	1300 S. Neosho Blvd.	Neosho	64850
Nevada	SW	Rte. 71 WOR, 0.3 Mi. N of	Nevada	64772
Nevada - Construction	SW	601 W Outer Rd North	Nevada	64772
Osceola	SW	5371 NE Bus. Hwy. 82	Osceola	64776
Ozark	SW	Farm Rd. 14-101, 0.2 Mi. S of	Ozark	65721
Preston	SW	Rt. 1, Box 124	Preston	65732
Seymour	SW	Rt. 1, Box 1056 (500 St Hwy	Seymour	65746
Stockton	SW	509 W. Hwy. 32	Stockton	65785
Warsaw	SW	1551 East Main St.	Warsaw	65355
Republic	SW	1925 S. St. Hwy. N	Springfield	65802

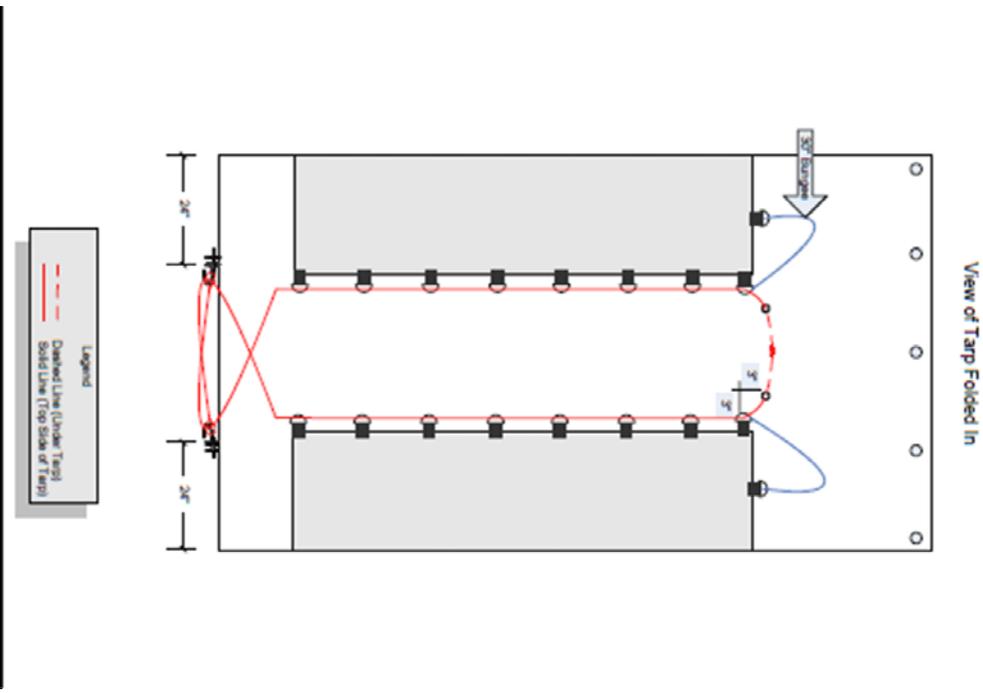


# TMA Pockets





2



Missouri Highways and Transportation Commission  
Standard Bid/Proposal Provisions, General Terms and Conditions and Special Terms and Conditions

**STANDARD SOLICITATION PROVISIONS**

- a. The solicitation for the procurement of the supplies referenced therein, to which these "Standard Bid Provisions, General Terms and Conditions and Special Terms and Conditions" are attached, is being issued under, and governed by, the provisions of Title 7 – Missouri Department of Transportation, Division 10 – Missouri Highways and Transportation Commission, Chapter 11 – Procurement of Supplies, of the Code of State Regulations. The Missouri Highways and Transportation Commission (**MHTC**), acting by and through its operating arm, the Missouri Department of Transportation (**MoDOT**), draws the Bidder's attention to said 7 CSR 10-11 for all the provisions governing solicitation and receipt of bids/quotes and the award of the contract pursuant to this solicitation.
- b. All bids/quotes must be signed with the firm name and by a responsible officer or employee. Obligations assumed by such signature must be fulfilled.

**GENERAL TERMS AND CONDITIONS**

**Definitions**

Capitalized terms as well as other terms used but not defined herein shall have the meaning assigned to them in section 7 CSR 10-11.010 Definition of Terms.

**Nondiscrimination**

- a. The Contractor shall comply with all state and federal statutes applicable to the Contractor relating to nondiscrimination, including, but not limited to, Chapter 213, RSMo; Title VI and Title VII of Civil Rights Act of 1964 as amended (42 U.S.C. Sections 2000d and 2000e, *et seq.*); and with any provision of the "Americans with Disabilities Act" (42 U.S.C. Section 12101, *et seq.*)
- b. **Sanctions for Noncompliance:** In the event of the Contractor's noncompliance with the nondiscrimination provisions of this contract, MHTC shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
  - i. withholding of payments to the Contractor under the contract until the Contractor complies, and/or,
  - ii. cancellation, termination or suspension of the contract, in whole or in part.

**Contract/Purchase Order**

- a. By submitting a bid/quote, the Bidder agrees to furnish any and all equipment, supplies and/or services specified in the solicitation documents, at the prices quoted, pursuant to all requirements and specifications contained therein.
- b. A binding contract shall consist of: (1) the solicitation documents, amendments thereto, and/or Best and Final Offer (BAFO) request(s) with any changes/additions, (2) the Contractor's bid response, and (3) the MHTC's acceptance of the bid by post-award contract or purchase order.
- c. A notice of award does not constitute an authorization for shipment of equipment or supplies or a directive to proceed with services. Before providing equipment, supplies and/or services, the Contractor must receive a properly authorized notice to proceed and/or purchase order.

**Applicable Laws and Regulations**

- a. The contract shall be construed according to the laws of the State of Missouri. The Contractor shall comply with all local, state, and federal laws and regulations related to the performance of the contract. The exclusive venue for any legal proceeding relating to or arising, out of the contract shall be in the Circuit Court of Cole County, Missouri.
- b. The Contractor must be registered and maintain good standing with the Secretary of State of the State of Missouri, Missouri Department of Revenue, and other regulatory agencies, as may be required by law or regulations. Prior to the issuance of a purchase order and/or notice to proceed, the Contractor may be required to submit to MHTC a copy of their current Authority Certificate from the Secretary of State of the State of Missouri and/or a copy of their Certificate of No Tax Due from the Missouri Department of Revenue.
- c. Prior to the issuance of a purchase order and/or notice to proceed, all **out-of-state** Contractors **providing services** within the state of Missouri must submit to MHTC a copy of their current Transient Employer Certificate from the Missouri Department of Revenue, in addition to a copy of their current Authority Certificate from the Secretary of State of the State of Missouri.

**Executive Order:**

The Contractor shall comply with all the provisions of Executive Order 07-13, issued by the Honorable Matt Blunt, Governor of Missouri, on the sixth (6<sup>th</sup>) day of March, 2007. This Executive Order, which promulgates the State of Missouri's position to not tolerate persons who contract with the state engaging in or supporting illegal activities of employing individuals who are not eligible to work in the United States, is incorporated herein by reference and made a part of this Agreement.

- 1) "By signing this Agreement, the Contractor hereby certifies that any employee of the Contractor assigned to perform services under the contract is eligible and authorized to work in the United States in compliance with federal law."
- 2) In the event the Contractor fails to comply with the provisions of the Executive Order 07-13, or in the event the Commission has reasonable cause to believe that the contractor has knowingly employed individuals who are not eligible to work in the United States in violation of federal law, the Commission reserves the right to impose such contract sanctions as it may determine to be appropriate, including but not limited to contract cancellation, termination or suspension in whole or in part or both.
- 3) The Contractor shall include the provisions of this paragraph in every subcontract. The Contractor shall take such action with respect to any subcontract as the Commission may direct as a means of enforcing such provisions, including sanctions for noncompliance.

**Preferences**

- a. In the evaluation of bids/quotes, preferences shall be applied in accordance with 7 CSR 10-11.020(7). Contractors should apply the same preferences in selecting subcontractors. The attached document entitled "**VENDOR INFORMATION AND PREFERENCE CERTIFICATION FORM**" must be completed and returned with the solicitation documents.
- b. Bidders are encouraged to obtain minority business enterprise (MBE) and women business enterprise (WBE) participation in this work through the use of subcontractors, suppliers, joint ventures, or other arrangements that afford meaningful participation for M/WBES. Bidders are encouraged to obtain 10% MBE and 5% WBE participation.

Missouri Highways and Transportation Commission  
Standard Bid/Proposal Provisions, General Terms and Conditions and Special Terms and Conditions

**Cancellation of Contract**

The MHTC may cancel the Contract at any time for a material breach of contractual obligations or for convenience by providing Contractor with written notice of cancellation. Should the MHTC exercise its right to cancel the contract for such reasons, cancellation will become effective upon the date specified in the notice of cancellation sent to the Contractor.

**Bankruptcy or Insolvency**

Upon filing for any bankruptcy or insolvency proceeding by or against the Contractor, whether voluntarily, or upon the appointment of a receiver, trustee, or assignee, for the benefit of creditors, the Commission reserves the right and sole discretion to either cancel the Agreement or affirm the Agreement and hold the Contractor responsible for damages.

**Warranty**

The Contractor expressly warrants that all equipment, supplies, and/or services provided shall: (1) conform to each and every specification, drawing, sample or other description which was furnished to or adopted by the MHTC, (2) be fit and sufficient for the purpose expressed in the solicitation documents, (3) be merchantable, (4) be of good materials and workmanship, and (5) be free from defect.

**Status of Independent Contractor**

The Contractor represents itself to be an independent Contractor offering such services to the general public and shall not represent itself or its employees to be an employee of the MHTC. Therefore, the Contractor shall assume all legal and financial responsibility for taxes, FICA, employee fringe benefits, workers' compensation, employee insurance, minimum wage requirements, overtime, etc., and agrees to indemnify, save and hold the MHTC, its officers, agents and employees harmless from and against any and all losses (including attorney fees) and damage of any kind related to such matters.

**Non-Waiver**

If one of the parties agrees to waive its right to enforce any term of this Contract, that party does not waive its right to enforce such term at any other time or to enforce any or all other terms of this Contract.

**Indemnification**

The Contractor shall defend, indemnify and hold harmless MHTC, including its members and department employees, from any claim or liability whether based on a claim for damages to real or personal property or to a person for any matter relating to or arising out of the Contractor's performance of its obligations under the contract awarded pursuant to this solicitation.

**SPECIAL TERMS AND CONDITIONS**

**Tax Exempt Status:**

MHTC is exempt from paying Missouri Sales Tax, Missouri Use Tax and Federal Excise Tax. However, the Contractor may themselves be responsible for the payment of taxes on materials they purchase to fulfill the contract. A Project Tax Exemption Certificate will be furnished to the successful Bidder upon request if applicable.

**Delivery – Additional Requirements**

- a. The Contractor shall furnish the Missouri Department of Transportation with a planned delivery schedule at least 24 hours before starting delivery.
  - 1) Notification should be during the normal workday preceding the day on which the Contractor desires to initiate delivery.
  - 2) It will be necessary for a representative of the Missouri Department of Transportation to be present when the unit(s) is delivered.
  
- b. The following days shall be construed as **official holidays** under the terms of the contract:

January 1	New Year's Day
Third Monday in January	Martin Luther King, Jr.'s Birthday
February 12	Lincoln's Birthday
Third Monday in February	Washington's Birthday
May 8	Truman's Birthday
Last Monday in May	Memorial Day
July 4	Independence Day
First Monday in September	Labor Day
Second Monday in October	Columbus Day
November 11	Veteran's Day
Fourth Thursday in November	Thanksgiving Day
December 25	Christmas Day
  
- c. When any of the above **holidays falls** on a **Sunday**, the holiday will be observed on the following **Monday**; when any of the above **holidays falls** on a **Saturday**, the **holiday** will be observed on the immediately preceding **Friday**.

**Liquidated Damages**

- a. In the event the successful Contractor fails to deliver **a fully functioning unit(s) in accordance with the specifications and purchase order**, the Department and the public will sustain damages because of such delay in delivery, the exact extent of which would be difficult to ascertain, and in order to liquidate such damage in advance it is agreed that the **sum of \$300.00 per day, per unit**, for each assessable calendar day on which the delivery has not been completed, is reasonable and the best estimate which the parties can arrive at as liquidated damages, and it is therefore agreed that said amount will be withheld from payments due the Contractor or otherwise collected from the Contractor as liquidated damages.
- b. **Saturdays, Sundays, holidays and days whereas the Department has suspended work** shall not be assessable days.