



# City of Westbrook

## DEPARTMENT OF PUBLIC SERVICES

Eric Dudley  
Director

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Deputy Director

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**CITY OF WESTBROOK, MAINE**

**PUBLIC SERVICES DEPARTMENT**

Sealed bids will be received in the Office of the City Clerk, 2 York Street, Westbrook, Maine 04092 until **June 6th, 2019, 9 AM ATTN: Ashley Rand**, when they will be publicly opened and read for one:

**2019 TANDEM AXLE DUMP/SANDER & PLOW TRUCK**

Additional copies of the bid package may be obtained at the City Clerk's office, (207) 854-9105.

Jerre Bryant  
City Administrator

**BID FORM**

**TANDEM AXLE DUMP/SANDER & PLOW TRUCK**

We the undersign agree to furnish **The City of Westbrook** with the equipment described in the preceding specifications, which are incorporated as part of this proposal at the following price and delivery date. This form maybe copied to allow for multiple vehicle proposals.

**If possible** the City of Westbrook would like three options for the body, snow and ice control portion of this bid spec package with the vendors named below. The complete package to be billed as

one and delivered by the bidding dealer.

**MANUFACTURER:** \_\_\_\_\_ **MODEL:** \_\_\_\_\_ **YEAR:** \_\_\_\_\_

**ENGINE SIZE:** \_\_\_\_\_ **COLOR:** \_\_\_\_\_

**DELIVERY DATE:** \_\_\_\_\_

Bid price will be with **TRADE IN** ( ). Contact Mark Poitras for details

Option 1 SS Body Vendor \_\_\_\_\_ **PRICE:** \_\_\_\_\_

Option 2 SS Body Vendor \_\_\_\_\_ **PRICE:** \_\_\_\_\_

Option 3 SS Body Vendor \_\_\_\_\_ **PRICE:** \_\_\_\_\_

**WARRANTY:** \_\_\_\_\_

**DEALERSHIP:** \_\_\_\_\_

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

**CITY / TOWN:** \_\_\_\_\_ **STATE:** \_\_\_\_\_

**TELEPHONE:** \_\_\_\_\_ **FAX:** \_\_\_\_\_

**AUTHORIZED SIGNATURE:** \_\_\_\_\_

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

**CITY OF WESTBROOK, MAINE  
INSTRUCTIONS AND GENERAL CONDITIONS TO BIDDERS**

**1. SUBMISSIONS OF BIDS:**

**Bids shall be submitted on the BID FORM provided in this package and must be marked clearly on the outside:**

**TANDEM AXLE DUMP/SANDER & PLOW TRUCK**

**The envelope shall be addressed to: City of Westbrook,                      ATTN: Ashley Rand , 2  
York Street, Westbrook, Maine 04092.**

Any questions concerning the bid should be addressed to **Mark Poitras @ (207) 591-8136** during the hours of 7:00 A.M. - 3:00 P.M.

The City of Westbrook reserves the right to reject any and all bids in whole or in part when deemed to be in the best interest of the City. The City may waive any minor discrepancy in the bid specification and will inspect the vehicle at the bidder's establishment prior to purchase.

**2. WARRANTIES, BROCHURE, MANUALS:**

All warranties and a descriptive brochure describing the equipment shall be enclosed in the bid. The bidder shall state the warranty period on the bid form. All appropriate parts and service manuals shall be delivered with the selected equipment.

**3. DISCOUNTS:**

The City of Westbrook, pays its accounts in full within a thirty (30) day period following satisfactory completion of the contract and receipt of bills for all items covered by the City's purchase order. In submitting bids under these specifications, bidders should take into account all discounts allowed in accordance with the above payment policy.

**4. EXEMPTION FROM TAXES:**

The City is exempt from payment of federal excise taxes on articles not for resale, federal transportation tax on all shipments, and Maine State sales tax and use tax.

**5. TRANSPORTATION CHARGES:**

All transportation and delivery charges including expenses for freight, transfer, mail, etc, shall be prepaid and be at the expense of the BIDDER unless otherwise specified in the bid. The bid price shall include all installation charges.

**6. EXCEPTIONS or ADDITIONAL FEATURES:**

Any exceptions to these bid requirements and specifications shall be clearly indicated by the bidder on a separate sheet of paper. In the absence of clearly noted exceptions, bidders will be obligated to comply with all the provisions contained herein. Any equivalent features and any additional features to those described in the specifications shall be so noted in the bid.

**7. DAMAGE REPAIR:**

The BIDDER shall be held responsible for repairing, at their sole cost and expense, any and all damages to City or private property resulting from the work to be performed.

**8. SAFETY REGULATIONS:**

The BIDDER will at times, comply with the safety regulations set forth by the Occupational Safety and Health Administration.

**9. DEFAULT:**

In case of default by the bidder, the City of Westbrook reserves the right to procure the contract services from other sources and charge any excess cost occasioned by thereby to the BIDDER.

**10. ADDENDUM:**

Should a **BIDDER** find discrepancies in or omissions from the specifications or other contract documents, or should a BIDDER be in doubt as to their meaning, the BIDDER shall at once contact or notify Mark Poitras at (207) 591-8136.

**11. BID OPENING:**

All bids will be opened publicly and BIDDERS or their representatives may be present at the bid opening. The bids will be available for public inspection after opening but the City will not prepare abstracts for distribution.

**12. TERM OF BID:**

The bid shall meet all the listed specifications. No BIDDER may withdraw a bid for a period of sixty (60) days after the actual date of opening.

**13. AWARD OF CONTRACT:**

**Award will be made to the lowest responsible BIDDER, taking into consideration the quality of the product or services; conformance with the specifications and intended purpose; delivery time; ultimate cost to the City and with the overall recommendation from the Director of Public Services. Sale is subject to City Council authorization by two affirmative votes or readings at two meetings of the council.**

**TANDEM AXLE DUMP/SANDER & PLOW TRUCK**

All items appearing in the bidder's regular published specifications are assumed to be included in the bidder's proposal. The following specifications shall be the minimum requirements and the

equipment proposed shall comply with Maine and Federal laws. All specifications, dimensions and ratings must conform to or exceed S.A.E. specifications where applicable.

**INTENT:**

The intent of the City of Westbrook is to purchase a single axle dump/sander with plow and wing. The City of Westbrook will entertain all bids submitted by Vendors that would include a vehicle in current inventory that meet the specifications requested upon final review by the Director of Public Services.

**INSTRUCTION TO BIDDERS:**

The truck to be furnished under this bid shall be a tandem axle dump/plow truck that meets the following specifications. It shall be the manufacturer's latest model and design. These specifications shall be regarded as MINIMUM. Bidders must furnish all descriptive literature, manufacturer's compliance certificates and all other necessary data on the equipment proposed as required in the specification. Bidders with exceptions to the specifications shall explain in detail on the "Exceptions to Bid Specification" page provided at the end of this document.

**A TANDEM AXLE DUMP TRUCK  
WITH ICE AND SNOW CONTROL CAPACITY INSTALLED**

**GROSS VEHICLE WEIGHT:**

66,000 GVWR

**DIMENSION:**

Wheelbase: (222 inch wheel base) This dimension should be discussed with body builder to prevent a larger than normal space between cab and body. Back of cab to rear suspension C/L (CA) 135.94 inches

**FRAME:**

Frame rails heat-treated alloy steel (120,000 KSI Yield); 1/2" X 3.64" X 11 7/8".

3204,000lb RBM

Frame reinforcement cross sections

Front frame extension integral; 24" in front of grill, with "C" channel reinforcement.

**ENGINE:**

Federal emissions GHG to meet all current emission standards ( DEF style preferred) Detroit Diesel - 410 HP, 1550 ft. lbs. Torque at 1300 RPM Minimum.

Engine block heater {Phillips} 120V/1250 Watt; with "Y" cord from socket in standard location, provision in oil pan for a dealer installed 120 volt/150 watt oil pan heater, and extended life coated oil pan. Chrome block heater socket receptacle type; mounted below drivers door with power and heater led indicators.

Engine to include the following items:

Air cleaner restriction gauge, air cleaner mounted/ inside cab also ok.

Air cleaner, single element, with integral snow separation module.

Electronic cruise control, controls integral to steering wheel, to include engine speed control for PTO; electronic, stationary pre-set with two speed settings.

Engine controls remote mounted provision for; Includes wiring for the body builder installation of PTO controls

PTO effect, engine front less PTO unit, includes adapter on engine for front mounted PTO.

Wet type cylinder sleeves.

Engine shutdown, electric key operated.

Engine oil drain plug, magnetic.

Spin on type oil filter.

Fan drive {Horton Drivemaster} Direct drive type, two speed with residual torque device for disengaged fan speed. Fan to be nylon.  
Radiator aluminum cross flow, series system; 1228 sq. in. area and 648 sq. in. charge air cooler and 342 sq. in. low temperature radiator  
Anti-freeze; extended life coolant – 40 degrees F.  
Deaeration system with surge tank.  
Radiator hoses premium rubber with conventional hose clamps if applicable  
Fuel / water separator with thermostatic temperature controlled electric heater, and filter restriction/charge indicator, includes standard equipment water-in-fuel sensor; engine mounted.  
Cold starting equipment; Intake manifold electric grid heater with engine ECM control. Engine block heater Phillips-Temro 115v/1000 watt/ 115v/ 115watt oil pan heater with a “Y” cord to receptacle. Chrome with currant sensor lights mounted below drivers door.

**TRANSMISSION:**

Automatic – {Allison 4500 RDS} Primary Performance shift schedule close ratio, 6-speed; with double overdrive; on/off highway; includes oil level sensor, with PTO provision less retarder.  
Transmission shift control {Allison} push button type; for Allison 4000 series transmission.  
3<sup>rd</sup> gear hold.  
Transmission oil synthetic; TES-295 compliant  
Allison spare input/output for rugged duty series (RDS); general purpose trucks, construction.  
Shift control parameters Allison S-1 performance programming in primary and Allison fixed programming in secondary.  
Transmission ECM shall be located in the cab.  
Oil cooler, auto transmission {Modine} water to oil, for Allison Transmissions.  
Oil filter mounted on transmission.  
\*Remote speed sensor located at rear of transmission or fire wall wire provided for ground speed to accommodate body builder with sander dispensing unit (THIS WILL BE LOCATED BY DEALER AND SHOWN TO BODY BUILDER)  
Transmission oil pan with magnet in oil pan.

**AXLE – FRONT: ( AXLE FORWARD STYLE))**

I-Beam **Type {DETROIT DA-F-20.0-5}** Wide track, I-beam type, 20,000-lb capacity;  
Suspension, front spring multileaf, shackle type; 20,000-lb capacity with shock absorbers or equivalent., mixmatched rating :9500LB left side and 10500 right side  
Spring pins rubber bushings, maintenance-free.  
Front auxiliary rubber helper spring (right side)  
Wheel seals, oil lubricated {Emgard 50W} synthetic, includes wheel bearings

**AXLE – REAR:**

**{(2)RT46-160}R series tandem axles** single reduction, standard track, 46,000-lb capacity, Includes( driver-controlled main locking differential) and “R” wheel ends.

Gear ratio to be 4.56 vehicle speed to be 65 mph or near in high.

Magnetic drain plug.

Rear spring suspension, Hendrickson HN-462 or equal

Rear axle lube {Emgard 75W-90} synthetic oil

Wheel seals, oil lubricated including wheel bearings.

**TIRES:**

Fronts - 315/80R22.5 Unisteel G287 MSA (Goodyear), load range L, 20 ply.

Rears - 11RX22.5 Unisteel G182 RSD (Goodyear), load range G, 14 ply. Or an updated traction model equivalent

**WHEELS:**

Wheels; front disc, 22.5” **aluminum**, 10-stud (285.75MM BC) hub piloted, flanged nut, metric mount, 9.00 DC rim with steel hubs. All wheels are to be **aluminum**

Wheels; rear disc, 22.5”, 10-stud (285.75MM BC) hub piloted, flanged nut, metric mount, 8.25 DC rim with steel hubs. All wheels are to be aluminum.

All wheels to be of heavy duty strength type.

**BRAKES:**

Dual air brake system for straight trucks.

Air pressure gauge located in instrument cluster, Air 1 and Air 2.

Trailer connections four-wheel, with hand control valve and tractor protection valve, for straight truck.

Air brake ABS {Bendix antilock brake system} full vehicle wheel control system (4-channel).

Drain valve {Berg} manual; with pull chain for air tanks.

Air dryer {Bendix AD-9} with heater; located inside left rail, back of cab.

Front brakes, S-cam; 16.5” x 6.0”; includes Haldex 24 sq. in. long stroke brake chambers.

Dust shields; front and rear.

Automatic slack adjusters {Haldex} front and rear.

Rear brakes, S-cam; 16.5” x 7.0”; includes {Haldex GC3030LHDHO} 30/30 long stroke brake chambers and heavy-duty spring actuated parking brake.

Air compressor {Bendix Tu-Flo 550} 13.2 CFM.

**STEERING:**

Full power with integral hydraulic, this shall be strong enough of a system to handle winter operations, full dump body and plow gear (probably 2 boxes)

Tilt steering column.

Steering wheel 2-spoke, 18” diam. Black.

## **EXHAUST:**

Exhaust system single, horizontal, after treatment device frame mounted outside right rail under cab; includes vertical tailpipe and guard.

Exhaust height, 10' based on empty chassis with standard components.

Muffler/Tailpipe guard non-bright for single exhaust.

Tailpipe (1) turn back type.( possible modification for strobe light alignment)

## **ELECTRICAL:**

Electrical system 12-volt, standard equipment.

Circuit breakers manual-reset (main panel) SAE type III with trip indicators, replaces all fuses except for 5-amp fuses

Turn signal switch self-canceling, headlight dimmer.

Alternator {Leece-Neville BLP2361H} Brushless type, 12 volt, 185-amp. Capacity, pad mounted with remote voltage sensor.

Battery system maintenance-free min (2)12-volt 2000 CCA Minimum .

Battery box steel with aluminum lid; 3 battery capacity, mounted left side, under cab , provides clean CA.

Jump start studs to be located on the positive and negative terminals of the outermost battery., run to a remote easy access location. Power dead throw switch with low power indicator lights mounted in drivers side interior .

Electric horn, (2).

Air horn, black, single trumpet, air solenoid operated, mounted behind bumper on right rail.

Daytime running lights.

Power source, cigar type receptacle without plug and cord.

Data link connector in cab for vehicle programming and diagnostics.

Windshield wipers, single motor, electric, cowl mounted and to include a cowl tray cover.

Windshield wiper switch 2-speed integral with turn signal switch with wash and intermittent feature.

Windshield wiper SPD control, force wipers to the slowest intermittent speed when park brake is set and wipers are left on for a predetermined time.

Wiring, chassis color-coded and continuously numbered.

Auxiliary harness, 3.0' for auxiliary front headlights and turn signals for front plow applications.

Body builder wiring, back of cab at frame, includes sealed connectors for tail/amber, turn/marker, backup/accessory, power/ground and sealed connector for stop/turn.

Trailer connection socket 7-way; mounted at rear of frame, wired for turn signals combined with stop, compatible with trailers that use combined stop, tail, turn lamps. We need to have 2 plugs,(1) for air brake trailer configuration and (2) a second for electric brake trailers configuration.

**Auxiliary switch accessory control for wiring in roof, with maximum of 20 amp load with 6 switches in drivers overhead panel for auxiliary lighting**

Switch body circuits, MID for bodybuilder, with 6 switches in instrument panel, one power module with 6 channels, 20 amp. max. per channel and 80-amp max output, switches control the power through multiplex wiring, mounted battery box back of cab.

Starting motor {Delco Remy 39MT} 12-volt, gear reduction with thermal over-crank protection.

Starter switch, electric key operated.

Test exterior lights, pre-trip inspection will cycle all exterior lamps except back up lights.

Headlights on with wipers; headlights will automatically turn on if windshield wipers are turned on.

**(CAB) / (HOOD)**

Hood – fiberglass construction with three piece construction and tilt forward capacity with full width access to accomplish routine service with plow hardware in place.

Hood hatch (1) for servicing.

Under hood insulation for sound abatement.

Chrome grille - stationary

Bug screen, front end mounted behind grille.

Radio AM/FM stereo with CD player, weatherband, clock, includes multiple coaxial speakers (4).

2-Way radio wiring effects; wiring with 20amp fuse protection, includes ignition wire with 5 amp fuse, wire ends heat shrink and 10' coil located in center overhead console.( also see additional item section)

Power windows (2) with express down feature and power door locks.

Gauge cluster to include the following: speedometer with odometer display, miles, trip miles, engine hours, trip hours, fault code read out

Adjustable tilt and telescoping steering column.

Warning system: low fuel, low oil pressure, high engine coolant temp and low battery voltage, (visual and audible).

Gauge cluster gauges: (6) engine oil pressure (electronic), water temperature (electronic), fuel (electronic), tachometer (electronic), voltmeter, washer fluid level.

Oil temperature gauge for Allison transmission.

Air cleaner restriction gauge {filter minder} with black bezel mounted in instrument panel.

Instrument Panel cluster display for on board diagnostics display of fault codes in gauge cluster.

Steps; two (2) per door.

Glass; all windows tinted.

Sunshade exterior, aerodynamic, painted roof color; includes integral clearance/marker lights.

Seat, premium high back air suspension drivers seat with 3 chamber air lumbar , integrated cushion extension ,forward and rear cushion tilt, adjustable shock absorber ,and dual arm rests, Black Cordura plus cloth seat coverings.

Passenger seat will be non-suspension, high back with integral headrest, cloth, with fixed back and under seat storage.

Seat belt 3-point, lap and shoulder belt type.

Mirrors (2) {west coast} styled; rectangular, 7.09" x 15.75", brackets breakaway type, with 102" wide spacing, with integral convex both sides, with **all heated heads** (including convex mirrors),

thermostatically controlled, with clearance lights LED, powered both sides, flat glass only, bright heads and brackets

Convex mirrors{Lang Mekra}style hood mounted, heated, one on each side, rectangular, bright finish.

Air condition with integral heater and defroster, system shall include fresh air filter.

Cab interior trim - premium level, includes:

Cab sound insulation, dash and engine cover insulators, overhead console; molded plastic with dual storage pockets, retainer nets, CB radio pocket with hold-down, compass/temp display, auxiliary visor, **reading lights**; smoke gray with black in color; headliner to be soft padded cloth; dome light, cab, rectangular, door activated, timed theater dimming, center mounted, integral to console; courtesy lights (2) mounted under instrument panel; sunvisors, (3) padded vinyl, auxiliary visors, driver and passenger

sides' (2) moveable (front-to- side), primary visors, driver's side with mirror, toll ticket strap, plus (1) auxiliary visor (front only) drivers side; storage pockets (2) door mounted, molded plastic (carpet texture), drawbridge gray, full-length, driver and passenger doors; cab interior trim panels, molded plastic, full-height; all interior sheet metal is covered; door trim panels (2), with cloth insert on bolster; driver and passenger doors; "A" pillars to be covered

Armrests (2) molded plastic, smoke gray; one each door.+

Coat hook to be located on the rear wall of the cab above the rear window .two cup holders located in the lower center instrument panel.

Floor covering, insulated black rubber.

Additional heavy floor mats with edges to capture snow and mud melt on each side

Coat hook, located on rear wall, centered above rear window.

Grab handle, cab interior (1) "A" pillar mounted passenger side

Grab handle, cab interior (2) "B" pillar mounted, one each side.

Grab handle, cab exterior (1) Chrome towel bar type anti-slip rubber inserts; for cab entry mounted left side only.

Cab rear suspension; air bag type.

## **HEADED FRONT WINDSHIELD**

Fuel tank to be **aluminum** 70 minimum US gallons mount left side under cab with quick connect outlet. Stainless steel straps with rubber protection

Front bumper, steel, swept back.

## **PAINT:CAB, CAB VISOR,FENDERS,HOOD**

Omaha Orange, base coat/clear coat.

A complete set of manuals, for both operators and Technicians, shall be provided both for all equipment and vehicle. Service, electrical and parts manuals to be on CD. Engine and chassis software for technician use to diagnoses engine and chassis codes and reprogramming shall be included.

**Chassis will include a 5lb. fire extinguisher and safety flares (triangles).wheel chock**

**DUMP BODY:**

14'+/- 3/16 stainless steel side dump body using #304 stainless steel, tailgate and chain cover, open side on passenger side, 1/4" HARDOX floor with no horizontal edges to accumulate salt and sand, a cut out in the rear apron for access to chain and sprockets, a central lube system with remote grease fittings for easy and safe maintenance, a cutout and split flange at gearbox for ease of maintenance, an air tailgate , grease cylinders to adjust and maintain chain tension, steel plate to cover the auger for summer to reduce chain wear.

Body to include the following options: Truck shall have a hinge mounted body prop safety system

Fold down ladder on drivers side(If Possible) shovel holder, 1/2 cab shield, and 6" steel sideboards with inverted "V" on top of sideboard bolted to body flange to prevent rattling.

Long beams and cross beams or (entire bottom if easier) to be Rhino lined to prevent premature rusting (If partial Steel Construction) Or equivalent brand coating

**PAINT:**

No paint (stainless)

See above about Rhino Lining or equivalent brand

**HOIST:**

Double acting front telescopic hoist.

**"WESTBROOK CONTROL BOX" DEFINITION**

This is a standard PTO floor box tower 6" x 6" x 12-14" high (black) used for overflow switches if needed.to be mounted between seats, a discussion for clarity if needed

**TARP/LOAD COVER:**

Donovan bullet electric load cover with aluminum arms and mesh cover.

**PLOW EQUIPMENT:**

Front hitch {model H345-FW} or equivalent shall be tilt able and fully detachable , This also will include two remote handle controls for wing fore and aft mounted on to or around rear wing tower area.

Cheek plates to be 5/8" thick and attached on the outside of the frame rails for greater support.

**Front plow** (steel) power-reversing style plow with standard highway punched holes to be 11'.

Plow to include the following:

Longer pin arms so as plow doesn't hit pin eyelets when pushing up into a pile.

Front of plow to have a 16" rubber flap hanging with a metal backer strip for support.

NORDEX carbide edges. A Napa agricultural crank jack #821-5245 to be welded to the back of plow pivot frame and a Napa mating stub # 745-1116 to be welded to left plow hitch side to mount jack while using plow. cut factory bumper and weld to left plow hitch. Auxiliary plow light angle risers mounted inside of plow lights.

Curb shoes, a self-leveling system connected to the plow on points wide enough to maintain a level position when lifted into the air. The front trip on the plow shall use individual compression springs that can be adjusted for resistance to accommodate usage and conditions. The trip springs shall be able to be changed independently.

Front post to include 26" double acting cylinder with a minimum 4" float in the front slide

Wing( steel) {standard highway punched holes}, to be an 11' with a 10'6" carbide edge with a 6" steel face cover edge with a 32" nose height and a 40" discharge height, the wing moldboard shall be 3/16" steel. The front trip shall be of a design that the wing

shall be able to come back and directly up to a minimum of 4" upon sufficient contact. The trip shall be 30 degree standard with a pin for non-trip position .

**FRONT WING TOWER MOUNT FACE PLATES SHALL BE ½" WITH 6 MOUNTING HOLES on bottom and ½ inch with 4 holes on top arm.**

Rear post shall be angled upon installation so that the push arms are perpendicular to both the wing and rear post to maximize pushing strength and minimize bending and twisting of knuckles on attachment points at the rear post. Rear post shall include a high lift patrol wing with an enclosed valve area .

Air operated controls (tower control system)(in lieu of cables) to dictate operations as follow...

**"PUSH"** - plow units go down... **"PULL"** - plow units come up...

#### **POWER DRIVE:**

The conveyor chain shall be driven through the worm drive gearbox by a low speed, high torque orbital type hydraulic motor. **The Gear box shall be rated so as to have the dispensing system work more in tune with dial, 1 is slowest 10 is fastest or as close as possible.**

#### **SPINNER ASSEMBLY:**

The material shall be guided from the conveyor to the distribution disc by means of an adjustable material deflector.

The spinner disc shall be driven by an independent low speed, high torque orbital type hydraulic motor

#### **SNOW & ICE CONTROL:**

Computerized sander controls Cirrus easy spread 3. The spreader control system shall be ground speed oriented to maintain a predetermined application rate regardless of vehicle speed. The sander control system shall regulate liquid as well as granular substances with equally flexible programming options for dispersion of materials including a blast feature .the knobs shall work so as the full scale of numbers are utilized. This bid will include regularly scheduled training for operators and programmers.

**PUMP:**

Rexroth A10/Metaris/casappa brand load sensing hydraulic piston pump. It shall be constant running with 200 psi of pressure until usage. The pump shall be capable of

pumping 36 gallons of hydraulic fluid to enable continuous operation of sanding and liquid functions while operating plow, wing and body. There shall be a low oil sensor in the hydraulic tank with an automatic shutdown valve in case of hose failure. There shall be a switch in the cab to activate the pump for a few seconds to enable the plow and wing to be lifted for travel a maximum of fifteen miles for hose replacement.

**HYDRAULICS:**

Hydraulic flow control assembly will divert between 10% to 60% of hydraulic oil to motor allowing for pinpoint ratio adjustment. System output will give a liquid to granular ratio

from 3% to 20% by weight. In this flow control shall also be incorporated a solenoid bypass valve. The hydraulic tank may be frame mounted or pedestal behind the cab depending on the configuration of the plow truck. It will be a minimum of 40-gallon capacity and have a sight gauge and a filter. All underbody lines to the rear of vehicle and forward to the headgear shall be stainless steel piping. Auger and spinner valve shall be a manual indexing valve.

**SPRAY BAR:**

The nozzles used to apply liquid directly on granular shall incorporate a primary and secondary arrangement. The primary nozzle works once product starts to pump out the material. The secondary nozzles will not put the material out until system exceeds 10 PSI. Spray bar is designed to withstand corrosive materials and harsh environment.

**CALCIUM TANK:**

A 150 gallon minimum calcium tank with flowmeter. It shall be mounted to the cab protector. This shall be a poly tank, electrically controlled and plumbed with a valve for filling at ground level. Calcium pump to be mounted in a plastic chest with stainless latches and hinges between body and cab "ish

**CABLE ASSEMBLIES:**

All electrical cables supplied must come complete with attached watertight "quick" disconnect, heavy-duty industrial and anti-scurf sheathing.

**LIGHTING:** DOT Flash pattern-LED style self-contained lights will be installed on the truck. The rear lighting package will include the following: Oval rubber grommet mounted Super-LED warning, LED Brake/Tail/Turn and LED back-up lights. These lights are to be mounted in the rear posts of the dump body with a side mount matching marker light as well. The front of the truck will have (2) Head board mounted Rubber grommet face oval amber led flash mount type with 2 light heads facing forwards and 2 light heads

facing side wards. Switching for the warning lights will be done via the factory switches, dash mounted and programmed in the following manner:

Switch 1 - Front and side head board strobes; Switch 2 – Rear of body mounted strobe light heads. Switch 3- Sander, Switch 4- wing, Switch 5- front auxiliary plow lights and 2 rear b/u lights mounted on pintle hitch plate all consist of LED 4” round(truck light #8150-3) or equivalent type. Wired to the reverse switch.( On Spots and Tarp controller switch mounting locations to be discussed.

**MISCELLANEOUS:**

Pintle hitch plate to be installed on vehicle and is to include a 25 -Ton pintle hitch and 2 “D” rings for safety chains. The plate shall include (air brake) trailer plug and be wired in accordance with SAE standards. Truck cab will have an electric trailer brake controller supplied , installed and wired to a second trailer plug on pintle hitch plate also to meet SAE standards. The plate shall also include trailer air plumbed to the rear with gland hand mounts installed higher up on plate side so as to protect from dumping load with 2 rubber air lines to glad hands for flexibility. This shall also include a set of tail/turn and back up light fixtures. These will be cut into the hitch plate. Discussed before installation. Also license plate holes and a hard shell plate light mounted above plate on hinge bracket.

Exact specifications to be provided during pre build conference with successful bidder.

**BACK UP CAMERA: Buyers part # 8881200** LED night vision camera system. Monitor will be a 5” LCD, 3 channel color system. The camera shall have a protective guard installed over the camera to help prevent it from being damaged. Camera will activate anytime the truck is in reverse or manually. There shall also be a right side wing camera mounted to view wing while plowing , this will be mounted in the right hand inner windshield pillar. There will also be a backup alarm installed at the rear of the vehicle.

**ADDITIONAL ITEMS:**

Onspot automatic tire chains shall be installed on vehicle mounted rearward of differential. A protected, lighted switch is to be installed with a pre mounting discussion

Two way radio; Motorola CM 300d or newer model equivalent, 45 watt, VHF with mounting bracket, input power harness, and heavy-duty microphone; antenna cable and unity gain antenna shall supplied .Purchase, Installation and programming shall be done by Hartford Communications LLc 1- 207 -615-0468 of Cornish Maine If possible. Mounting location to be discussed.

**EXCEPTIONS TO BID SPECIFICATIONS**

**Feature**

**Explanation**

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