

City of Westminster

Request for Pricing

November 9th, 2017

The City of Westminster is seeking bids from dealers for a grapple loader truck with the following specifications:

ITEM

- Provide a Knuckle-boom Loader that is purposely designed for the collection of brush, limbs, leaves, and white goods.
- Provide a Knuckle-boom Loader that is designed to be a one-person operation. The loader is mounted between the back of the chassis cab, and the front of the dump body. The loader utilizes a main boom, jib boom, extendable tip boom, and rotating trash bucket to lift and load material. The loader is stabilized through the use of a four-way adjustable stabilizer assembly. Material in the dump body is hydraulically unloaded via a single cylinder scissor hoist.

CHASSIS

- Minimum Cab/Chassis GVWR of 33,000 lbs. Preference will be given to a Peterbilt Model 348 chassis or equivalent for duty rating.
- Minimum Cab/Chassis CLEAR CA (Cab-to-Axle) of 186" (18' Dump Body: 24" Walk-Through)
- Minimum Cab/Chassis Frame Rail RBM of 1,800,000 inch-lbs per rail.
- Horizontal exhaust w/ tailpipe turned-out just ahead of the curbside rear tire.
- Exterior grab handles on both sides on the cab.

TURRET

- The turret base sides, front, and back are constructed of ¼" plate. The turret base is attached to the chassis rails with two ½" mounting plates. These plates are secured to the frame rails using 20mm dia. Huck fasteners. **Attachment of the turret base using U-bolts, or Grade 8 bolts is unacceptable.**
- The lower turret base plate is machined to a minimum 1-13/16" thickness.
- The turret rotates on a heavy duty 30" diameter slewing ring bearing with gear teeth cut on the internal bearing ring, thus protecting the drive mechanism from the elements.
- The slewing ring bearing is driven by a 2-stage planetary gearbox powered by a low speed, high torque, disc-valve motor, producing an available turret rotate torque of 150,000 in-lbs. The

hydraulic motor is equipped with integral, non-adjustable, cross port relief valves to protect the unit from shock loading while rotating the turret.

- Turret rotation is limited to 270° by means of positive mechanical stops to prevent loader operation over the truck cab.
- The upper turret base plate is 30" in diameter, and 1" thick after machining.
- The turret side plates are constructed of ½" plate, and the turret back is constructed of ½" plate.

BOOM

- The main boom and tip boom pivot pins are 2" dia. bolts with locknuts. A hex keeper prevents the bolt from rotating.
- The main boom cylinder pins and tip boom cylinder pins are 2" dia CRR. The pins are secured by ½" bolts through 3/8" thick keeper plates. Cylinder pin bosses are 3" OD x 2" ID.
- Booms are of the single boom design to prevent axial rotation and bushing damage associated with twin boom designs.
- The main boom is constructed using 10" x 10" x 5/16" wall square tubing with ½" side reinforcement plates. Designed to enhance below grade reach which is >9'6" (varies with chassis frame rail height)
- The main boom pivot utilizes 2" ID replaceable bronze bushings with a lubrication provision.
- The main boom cylinder pin-off plates are ½" plate weldments, welded to both sides of the boom with a 3/8" thick reinforcing stiffener.
- The main boom to tip boom pivot is 1" thick plate, machined to ¾" at the connection point, and welded to both sides of the boom tubing with 4" OD x 2" ID DOM tubing bosses. Includes boom stop.
- The tip boom is constructed of a single ¼" wall, 6" x 8" structural tube with 3/8" plate reinforcement wrappers. Hoses inside a Hose Retract Box.
- The tip boom side plates are ½" thick, welded to both sides of the boom with 3" OD x 2" ID DOM tubing pin bosses.
- The tip boom extension is a retractable/extendable telescoping section that is housed within the tip boom assembly.
- The tip boom extension boom is constructed of a single, ¼" wall, 5"x7" structural tube with ¾" plate welded to both sides of the boom for attachment of the bucket knuckle.

- The tip boom extension boom has a 4" x 6" aluminum bronze bearing plate attached to the top rear of the extension section. Two (2) 2" diameter aluminum bronze bearing pads protrude through holes in the bottom of the outer tube wrapper to provide a sliding surface for the end of the boom.
- All boom pivot points are equipped with replaceable 2" ID bronze bushings with grease provision.
- The below grade reach is approximately 9'-6", and depends upon the chassis frame height (bucket closed).

BUCKET

- The bucket is of the heavy duty construction, 48" long, measuring 60" from side to side when fully opened.
- Ground clearance at the center of the bucket is a minimum of 24" when it is fully opened, and resting on level ground.
- Rotation of the bucket is accomplished with a hydraulic rotator motor allowing 360° continuous rotation.
- The bucket is opened and closed via (2) hydraulic cylinders. The hydraulic oil lines to the cylinders are routed through an integral swivel joint in the bucket rotator motor, allowing continuous rotation without hose damage. Includes ¼" bolt-on bucket cylinder covers.
- The bucket top plate is constructed of ¾" plate. The bucket tongs are constructed of 3/8" plate HRS with a 3/8" x 3" BOLT-ON, REVERSABLE, REPLACEABLE edge strip.
- The bucket tongs form a reverse curve to help avoid scalping and digging on grass lawns.
- The bucket contains (8) tongs – 4 per side. The bucket sides are constructed of 7 gauge material.

STABILIZERS

- The loader is equipped with 4-way adjustable hydraulic stabilizers. Each side has independent controls for the in/out and up/down adjustment.
- The outer stabilizer cross tube and outer stabilizer vertical tubes are constructed of 8" x 6" x ¼" wall rectangular tubing.
- The inner stabilizer cross tubes and vertical tubes are constructed of 7" x 5" x ¼" wall rectangular tubing.
- The stabilizer footpads will be 3/4" thick, ((2) 3/8" plates) - overall dimension - 10" x 11", connected to the pad brackets by a single 1" Grade 8 bolt/lock nut.

- The stabilizer vertical tubes are equipped with a powder-coated housing containing six (6) clear strobing L.E.D. lights. Both sets of lights are wired to the same in-cab switch.

HYDRAULICS

- Clutch-shift PTO's (Hot Shift) will be used where the chassis has an automatic transmission.
- All Clutch-shift PTO's (Hot Shift) will be provided with over-speed protection.
- Air Shift PTO's will be used where the chassis has a manual transmission.
- Return filter is a top-of-the-tank mounted housing with a 5 Micron synthetic drop-in element. The filler cap is bayonet-style and is non-vented. The reservoir is vented through a replaceable screw-on breather which removes airborne particles 3 Microns and above. This breather will be installed in a 3/4" NPT port located on top of the reservoir.
- Main boom cylinder is 6" bore x 4" shaft x 34" stroke.
- Tip boom cylinder is 4 1/2" bore x 2 1/2" shaft x 32" stroke.
- Tip boom extension cylinder is 3" bore x 1 1/2" shaft x 48" stroke.
- Stabilizer in/out cylinders are (2) 3" bore x 1 1/2" shaft x 22" stroke.
- Stabilizer up/down cylinders are (2) 3" bore x 1 1/2" shaft x 22" stroke w/pressure holding valves.
- Trash bucket cylinders are (2) 3" bore x 1 1/2" shaft x 7" stroke.
- Control valve is open center Parker V20 with a main relief valve set at 2,150 psi.
- Counter balance valves are installed on the main boom and tip boom cylinders to prevent free fall in case of a hydraulic failure. Also on stabilizer up/down.
- The hydraulic pump is a cast iron, gear-type, direct mounted to the power take-off, and producing 18.5 gpm @ 1,200 rpm.
- All hydraulic hoses are 2-wire braided hoses, with an abrasion resistant jacket, that are rated at 3,000 psi working pressure (with the exception of the pump suction hose which is of SAE100R4 construction).

CONTROLS

- The loader is equipped with dual "stand-up" operator stations located between the back of the chassis cab, and the front of the dump body.
- The control knobs are located at both control stations, and they are connected to a single valve bank via the control rod linkages.

- The control knob locations are the same on both sides of the unit for operator convenience.
- The control knobs for the stabilizers and dump body are located between the control stations.
- The loader can be equipped with a 24" "walk-through" feature that allows the operator to pass between the two stations without having to step down off of the unit. The operator can access both stations from the chassis cab without having to ever touch the ground. The loader is also available in a non-walk-through arrangement.
- The control linkage assembly consists of 5/8" CRR control rods, 1/2" CRR handles with threaded control knobs, and MD Nylon control rod bearing blocks. The control rods are yellow zinc plated for corrosion resistance.
- The valve bank is centered on the rear side of the turret base assembly. It is attached to the control station "Z" frame which is top-hinged, allowing access to the valve for service. The control station "Z" frame is constructed of 1/4" formed plate.
- The following control functions are located at both operator's stations:
 - Throttle Advance: On / Off
 - Bucket: Open / Close
 - Bucket Rotation: CW / CCW
 - Tip Boom Extension: Out / In
 - Turret Swing: CW / CCW
 - Tip Boom: Retract / Extend
 - Main Boom: Lower / Raise

DUMP BODY

- The dump body long sills are 8" x 11.5 lb/ft. structural channel.
- The dump body cross-members are 4" x 5.4 lb/ft. channel.
- Cross-members are on 12" center spacing.
- The dump body floor is 1-Piece 1/4" plate steel, continuously welded to the headboard and sides.
- The dump body bottom side rails match the cross-members.
- The dump body top side rails are 3" x 4" x 1/4" structural tubing.
- The dump body sides are 1/4".

- The dump body side posts are 3" x 6 1/2" x 7 GA, formed channel, and are set on 24" centers. Each side post has a bottom/side weep hole for moisture control.
- The dump body rear corner posts are 3" x 6 3/4" x 1/4", 4-way bend, formed channel.
- The dump body headboard construction matches the dump body side construction. There are perforations at each control station for increased operator visibility into the dump body.
- The dump body rear tailgate has 3" x 4" x 1/8" tubular framing with a single horizontal brace. Rear door construction matches the dump body side construction.
- A single rear door with positive lock and safety chain shall be provided. Dual rear doors that open in the center will be unacceptable due to safety concerns.
- The dump body rear tailgate has three (3) 1-1/16" CRR hinge pins with grease zerks.
- The dump body must attain a height from the bed of 74" after the taper of the top rail.
- The dump body tarp rails are 1 1/4" x 3/16" flat bar welded down each side of the body.
- The dump body comes with a single safety prop.
- The dump body lights meet all federal highway standards, and are "pop-in" style for easy replacement. Lights are housed in a 12GA formed bumper, welded to the bottom of the dump body. Surface-mount lights are not acceptable.
- The dump body comes with a fixed ICC bumper for underride protection.
- The dump body comes with a set of rear mud flaps.
- The dump body hoist is a single cylinder, scissors-type, rated at 15 tons. It will achieve a minimum 45° dump angle without the rear of the dump body touching the ground.
- All L.E.D. body lights.
- L.E.D. reverse lights.

MOUNTING

- Mounting to be done at the factory by certified, body-mount specialists.
- Any chassis sent to the factory that does not meet the minimum chassis requirements will not be mounted.

PAINTING

- The loader and dump body will receive one coat of an automotive-grade, 2-part epoxy primer, followed by (2) coats of automotive-grade acrylic urethane finished paint. The underside of the dump body floor will be coated with a rubberized undercoating.

LOADER LIFTING CAPACITIES

The loader lifting capacities are:

- 9,785# @ 08 Feet
- 8,155# @ 10 Feet
- 6,355# @ 12 Feet
- 5,455# @ 14 Feet
- 4,555# @ 16 Feet
- 3,955# @ 18 Feet
- 3,535# @ 20 Feet
- 3,365# @ 20 Feet, 8 Inches

Note: All capacities are GROSS WEIGHTS, which include the weight of the bucket, and are based upon level, hard surfaces, with the stabilizers at their maximum extension.

WARNING: DO NOT EXCEED 85% OF VEHICLE TIPPING MOMENT!!!

REQUIRED **OPTIONS (MUST BE INCLUDED IN BID PRICE)**

- Integrated front of body tool box w/ dual side doors
- Rear vision camera system, color, LCD
- Dual boom & dual under body work lights
- Vertical stabilizer counter-balance valves to prevent a sudden leak down in the event of a hydraulic failure.
- Spring-loaded manual tarp system.

Bids can be submitted via email at aridley@Westminsternc.org or dropped off at Public Works at 100 East Windsor Street Westminster, SC 29693. The bid period will be closed at 4:00 p.m. on Friday December 8, , 2017.