



**THE CORPORATION OF THE CITY OF NIAGARA FALLS  
REQUEST FOR TENDER-SUPPLY  
RFT1-2022  
SUPPLY & DELIVERY OF FOUR (4) SNOW PLOW TRUCKS**

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**SPECIFICATIONS & CONFIRMATION - SNOW AND ICE CONTROL EQUIPMENT**

**GENERAL SPECIFICATIONS**

The snow and ice control equipment supplied under this specification shall be the manufacturer's latest model standard commercial product and shall have demonstrated industry acceptance by having been manufactured and sold in significant numbers to Ontario Municipalities, and shall have been proven in service for the application for at least one year prior to issuance of this tender document.

**DETAILED SPECIFICATIONS**

1.     **DEMONSTRATION** **SPECIFY**

A demonstration of equipment bid may be required, if requested it will be the responsibility of the bidder to arrange this demonstration at the municipality's location within 5 working days of written notification, all equipment demonstrated will be the models offered by the bidder on this tender document \_\_\_\_\_ YES/NO
  
2.     **REFERENCES** **SPECIFY**

Where references are requested in this tender document the information must be completed in full and all references supplied are to be for the models of equipment offered by the bidder in the answered specification \_\_\_\_\_ YES/NO
  
3.     **REQUIREMENTS** **SPECIFY**

Items noted in the specification as shall be, will be, to be, must be, maximum, minimum are mandatory requirements. No deviations will be accepted. \_\_\_\_\_ YES/NO
  
4.     **SAFETY** **SPECIFY**

The design and operation must incorporate safety devices and attachments necessary to ensure that the equipment provided is capable of being operated with maximum safety \_\_\_\_\_ YES/NO

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**5. INSPECTION**

**SPECIFY**

Pre-construction meeting prior to the build

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

The vendee reserves the right to inspect the equipment at any stage of manufacturing and/or installation of equipment on to the truck chassis and to have any deviations corrected upon request, a final inspection will be completed by the consignee at the time of delivery

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

Cab layout meeting when the installation is started, a cab layout meeting shall be arranged at the installers location determine layout of in cab controls and equipment

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

A pre-delivery inspection shall be arranged at the installers location and any deviations will be corrected at this time prior to final delivery

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

**6. ADDRESS**

**SPECIFY**

State address of facility where completed equipment shall be installed on to the truck chassis

Specify: \_\_\_\_\_

\_\_\_\_\_

**7. PARTS**

**SPECIFY**

O.E.M. spare replacement parts must be stocked in inventory by the successful bidder in sufficient quantity to provide adequate product support and to ensure timely delivery of spare parts orders

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

State Location of Parts Depot: \_\_\_\_\_

\_\_\_\_\_

COMPANY NAME: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

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8. **WARRANTY** **SPECIFY**
- Warranty coverage will be for a minimum of one year from the date of delivery, manufacturer's warranty statement will be included with the bid submission \_\_\_\_\_ YES/NO
9. **MANUALS** **SPECIFY**
- One copy of an operation, parts and service manual will be provided for each unit. Manuals shall be specific to the actual completed installation including all schematics for hydraulics and electrical systems \_\_\_\_\_ YES/NO
10. **AFTER SALES** **SPECIFY**
- It is a requirement of this tender that the bidder maintains an after sales service facility and employees staff qualified to perform after sales service work and that the bidder is also capable of providing in field mobile field service at our location, the bidder if requested must be prepared to provide a tour of this facility \_\_\_\_\_ YES/NO
11. **TRAINING** **SPECIFY**
- A factory representative shall provide training at the City's location after delivery of equipment. Training shall include spreader control system and hydraulics. \_\_\_\_\_ YES/NO
12. **NATIONAL SAFETY MARK** **SPECIFY**
- As required by law under the Motor Vehicle Safety Act the intermediate or final stage manufacturer(s) that shall install the combination spreader/dump body and snow plow equipment onto the incomplete truck chassis possess a valid National Safety Mark registered with Transport Canada and will affix their registered National Safety Mark sticker onto the chassis thus certifying the unit as complete. \_\_\_\_\_ YES/NO

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**12. NATIONAL SAFETY MARK (Cont'd)**

**SPECIFY**

Specify the name of the company that will affix the registered National Safety Mark number and install the equipment on to the truck chassis thus certifying the vehicle as complete and the company's registered number

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

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

\_\_\_\_\_

Registered National Safety Mark Number: \_\_\_\_\_

\_\_\_\_\_

Proof of registration with Transport Canada by the company affixing The National Safety Mark is to be supplied with the tender submission

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

**13. C.A. REQUIREMENTS**

Complete mounting installation layout drawings shall be provided to suit the chassis to be provided by the successful bidder prior to placement of the chassis order

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

**14. Body Construction**

**SPECIFY**

Viking Model PL1112LW-AL- Gen II or approved equivalent as per The City Staff

Make \_\_\_\_\_

Model \_\_\_\_\_

Spreader body and wing harness specified in this document to be installed on chassis with a C.A. of approximately 112"

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

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- | <b>14.</b> | <b><u>Body Construction (Cont'd)</u></b>  | <b><u>SPECIFY</u></b> |
|------------|---|-----------------------|
|            | Body to be constructed from 5083-H321 aluminium cleaned with pickling paste to remove carbon from welds and acid washed | _____ YES/NO          |
|            | Body shall be oval shaped, permitting materials to unload by gravity flow into spreading position                       | _____ YES/NO          |
|            | A ½ abrasive poly, high-temperature asphalt rated liner required to cover inside of dump body                           | _____ YES/NO          |
|            | All seams and joints to be sealed and prior to paint where required   | _____ YES/NO          |
|            | Water level capacity will be approximately 6.6 cu., yd.<br>State Capacity _____   |                       |
|            | Water level capacity with 10" sideboards will be approximately 9.0 cu., yd.<br>State Capacity _____                     |                       |
|            | Outside length approximately 12 ft.   | _____ ft.             |
|            | Inside length approximately 11 ft.  | _____ ft.             |
|            | Overall width approximately 8 ft.   | _____ ft.             |
|            | Height of sides approximately 38" from conveyor floor   | _____ in.             |
|            | Height of tailgate approximately 46" from conveyor floor  | _____ in.             |
|            | Height of front panel approximately 53"   | _____ in.             |
|            | Top horizontal rails shall be minimum 4" X 4" X 1/4" 6061-T6 aluminum extrusion   | _____ YES/NO          |
|            | Painted hardwood sideboard (2" x 10") to be installed on top of the body rail that properly fits in the holders         | _____ YES/NO          |

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14. **Body Construction (Cont'd)** **SPECIFY**
- Body shall be constructed from one-piece head-sheet and side panels fabricated from 1/4 " 5083-H321 aluminium \_\_\_\_\_ YES/NO
- Body front panel will be sloped design sloping from the top rearward to the bottom, with no hoist dog house protruding into the inside of the body \_\_\_\_\_ YES/NO
- Shovel holder located drivers' side on outside of body front head \_\_\_\_\_ YES/NO
- The front head of body will be completely clean and clear of any type of recesses or protrusions into the body including hoist dog houses, bulkheads, etc. \_\_\_\_\_ YES/NO
- Body construction shall include chassis mounted Poly fenders over rear wheels c/w quick release system \_\_\_\_\_ YES/NO
- Dump box access ladder shall be 15" wide, two-piece fold-up ladder located at the rear CURB side of dump box body \_\_\_\_\_ YES/NO
- The box will have MTO regulation reflective tape installed down each side and across the bottom of tailgate \_\_\_\_\_ YES/NO
15. **HYDRAULIC COUPLERS** **SPECIFY**
- Parker model 6100 (or equivalent) Threaded Wing type couplers to be used for hydraulic connections for the front plow harness and front plow \_\_\_\_\_ YES/NO
16. **HYDRAULIC CYLINDERS** **SPECIFY**
- All hydraulic cylinders with the exception of the body hoist cylinder shall be in compliance with the following specifications \_\_\_\_\_ YES/NO
- Rated at 3000 psi minimum working pressure \_\_\_\_\_ YES/NO
- Cylinder seals shall be Hallite \_\_\_\_\_ YES/NO

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16. **HYDRAULIC CYLINDERS (Cont'd)** **SPECIFY**
- Part number and date code to be stamped into the outside of the barrel \_\_\_\_\_ YES/NO
17. **HOIST** **SPECIFY**
- Mailhot Nitride 3 stage telescopic hoist, "C" series Model CS-130-5-3 \_\_\_\_\_ YES/NO
- MAKE:** \_\_\_\_\_
- MODEL:** \_\_\_\_\_
- Top lift design with no hoist doghouse protruding inside the spreader body \_\_\_\_\_ YES/NO
- Hoist capacity shall be 20 ton @ 2,000 P.S.I. \_\_\_\_\_ YES/NO
- Hoist cylinder shall be rod sealed \_\_\_\_\_ YES/NO
- Cylinder stroke shall be 94 inches \_\_\_\_\_ YES/NO
- Dump box dump angle shall be variable to 50 degrees from horizontal \_\_\_\_\_ YES/NO
- Rear dump hinge diameter shall be 2 ½" inches \_\_\_\_\_ YES/NO
- The body to be equipped with two twin positive locking support brace's, one right side and one left side incorporated into the rear body dump hinges \_\_\_\_\_ YES/NO
18. **TAILGATE** **SPECIFY**
- Tailgate shall be double acting and open to 90 degrees from hinge pins, and will lie down to provide longer floor area \_\_\_\_\_ YES/NO
- Tailgate sheet shall be 1/4" 5083-H321 aluminum \_\_\_\_\_ YES/NO
- Tailgate sheet to be reinforced with formed horizontal stiffeners fabricated from 1/4" 5083-H321 aluminum \_\_\_\_\_ YES/NO

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- |     |   | <b><u>SPECIFY</u></b> |
|-----|---|-----------------------|
| 18. | <b><u>TAILGATE (Cont'd)</u></b>   |                       |
|     | Brake chambers directly coupled to ½ inch thick flame cut latches   | _____ YES/NO          |
|     | Brake chambers one right side one left side enclosed and protected by integral body fenders   | _____ YES/NO          |
|     | Tailgate latches will be double acting with booth constant air pressure and spring pressure on the latches in the closed position   | _____ YES/NO          |
|     | The tailgate air trip pilot valve and air quick release valve will be enclosed in a weather tight protective enclosure with safety vent                                     | _____ YES/NO          |
|     | Asphalt gate located at the bottom center of tailgate, with lever type operating mechanism offset to the curb side of body  | _____ YES/NO          |
|     | Spreader chains and brackets shall be supplied on tailgate and rear apron. Chains shall be grade 70-coil proof 5/16" minimum chains shall be enclosed in protective sleeves | _____ YES/NO          |
|     | One right side and one left side air pot booster with direct connection to left and right side of tailgate linkage  | _____ YES/NO          |
|     | Latch mechanism for the tailgate shall be air trip using two air pot boosters from inside cab   | _____ YES/NO          |
|     | Air pot boosters shall be protected at the top and side by the integral body side fenders and a protective plate will provide protection on the bottom                      | _____ YES/NO          |
|     | Tailgate unlatched in cab warning indicator light   | _____ YES/NO          |
| 19. | <b><u>MAIN CONVEYOR SYSTEM</u></b>  |                       |
|     | The main conveyor shall be centered and recessed along the length of dump box floor   | _____ YES/NO          |
|     | Three-piece formed construction minimum 25 inches wide  | _____ YES/NO          |

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- |  | <b><u>MAIN CONVEYOR SYSTEM (Cont'd)</u></b>   | <b><u>SPECIFY</u></b> |
|--|---|-----------------------|
|  | Main conveyor construction shall be 1/4" 5083-H321 aluminum material for both main conveyor frame and body long sills   | _____ YES/NO          |
|  | Replaceable conveyor wear-plate fabricated from 1/2" UHMW polymer   | _____ YES/NO          |
|  | The protective covers will run from the front to the rear of the body right and left side of the main conveyor  | _____ YES/NO          |
|  | The removable main conveyor cover that runs the full length of the box will be made of 3/16" high tensile strength Hardox 450 steel plate with lift eye's and wood cushion  | _____ YES/NO          |
|  | Conveyor chain shall be a minimum of 30,000 lbs. tensile strength self-cleaning pintle chain  | _____ YES/NO          |
|  | Drive and idler shafts to be two (2) inch diameter  | _____ YES/NO          |
|  | Planetary drive for main conveyor   | _____ YES/NO          |
|  | Main conveyor drive shall be a single 25:1 high efficiency planetary drive with high torque low speed motor   | _____ YES/NO          |
|  | The main conveyor drive motor will utilize stainless steel hydraulic lines which run the full length of the chassis towards the U-body rear dump hinge point and back along the underside of the U-body. These lines will supply hydraulic oil to power the main conveyor drive motor | _____ YES/NO          |
|  | Connection of the planetary drive shaft to the main conveyor shaft shall be accomplished via a split two piece rectangular shaped coupler assembly  | _____ YES/NO          |
|  | The coupler will provide mechanical sheer point protection  | _____ YES/NO          |
|  | Idler end of main conveyor will also be vertical slotted drop out design as described above   | _____ YES/NO          |

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- | <b>19.</b> | <b><u>MAIN CONVEYOR SYSTEM (Cont'd)</u></b>  | <b><u>SPECIFY</u></b> |
|------------|--|-----------------------|
|            | Conveyor chain tension to be regulated via a fully automatic chain tensioning system. This tensioning system will provide appropriate chain tension for the main conveyor chain at all times and under all normal operating conditions   | _____ YES/NO          |
|            | The fully automated chain tensioner will eliminate the requirement for any manual chain tension adjusting mechanisms such as conventional threaded rod and nut tensioners or hydraulic grease ram tensioners.  | _____ YES/NO          |
|            | Automated chain tensioning system to be centrally located between main conveyor drive and idler shafts   | _____ YES/NO          |
|            | Four two bolt flange bearing with remote grease points mounted on outside front head of body   | _____ YES/NO          |
|            | Access to automated conveyor chain tensioning system shall be from the side(s) of the body   | _____ YES/NO          |
|            | The flow control gate between main and cross conveyor shall be screw adjustable by hand crank from driver's side of dump box   | _____ YES/NO          |
|            | A stainless steel cover shall be installed between the chassis and underside of the U-body in order to help eliminate material build-up on the chassis components. The cover will be brake formed for structural rigidity and sit between the U-body sub frame. It will be bolted to the U-body sub-frame and pivot up/down with the body in order to allow access to the chassis components as well as regular cleaning | _____ YES/NO          |
|            | The main conveyor flow control gate, will be flush and even with the front of the body, without any type of recess   | _____ YES/NO          |
|            | Underside of main conveyor to be complete with full length guard with wash out opening to prevent material spillage on to chassis components and frame rails   | _____ YES/NO          |

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19. **MAIN CONVEYOR SYSTEM (Cont'd)** **SPECIFY**
- A material scraper to clean chain flights prior to return on underside \_\_\_\_\_ YES/NO
20. **TWIN AUGER CROSS CONVEYOR** **SPECIFY**
- The cross conveyor assembly will draw material to the right side, left side or both sides simultaneously via twin augers \_\_\_\_\_ YES/NO
- Each of the two augers shall have a shaft diameter of 2 3/8" machined to 1 1/4" on each end, and equipped with flange bearings to suit \_\_\_\_\_ YES/NO
- Overall length of the augers shall be 58" with 3/8" thick auger flights \_\_\_\_\_ YES/NO
- Outside diameter of the augers shall be 6" with a 6" pitch \_\_\_\_\_ YES/NO
- The augers shall be directly driven by two hydraulic orbit motors with displacement of 11.9 cu.in. \_\_\_\_\_ YES/NO
- For ease of maintenance connection of the orbit motors to the auger shaft shall be via split couplers \_\_\_\_\_ YES/NO
- Conveyor trough fitted with 1/4" minimum U.H.M. polymer abrasion liner \_\_\_\_\_ YES/NO
- For protection during operation the front and top sides of the cross conveyor shall be fitted with safety guards. \_\_\_\_\_ YES/NO
- In the dual spinner operation mode both augers shall run in opposite directions carrying material to the right and left side spinner assemblies \_\_\_\_\_ YES/NO

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20. **TWIN AUGER CROSS CONVEYOR (Cont'd)** **SPECIFY**
- Division of material flow front the main conveyor will be a 50/50 split 50% carried to the right side spinner and 50% carried to the left side spinner \_\_\_\_\_ YES/NO
- In either the right or the left side only operation made both of the augers shall run in the same direction and carry 100% of the material from the main conveyor discharge to the selected right or left side spinner assembly \_\_\_\_\_ YES/NO
- Auger direction will be controlled via two, 4-way 2-position solenoid valves with in cab controls \_\_\_\_\_ YES/NO
- Flow division divider shields fitted to ensure precision split of material flow at low application rates \_\_\_\_\_ YES/NO
- Cross conveyor trough, frame assembly and spinner chutes constructed of 304 stainless steel \_\_\_\_\_ YES/NO
- Cross conveyor unit shall be removable design to reduce added weight in non-spreading applications \_\_\_\_\_ YES/NO
21. **TWIN SPINNER ASSEMBLIES** **SPECIFY**
- Polyurethane spinner's shall be installed on left front side and right front side to spread ahead of the rear wheels \_\_\_\_\_ YES/NO
- Spinner disc vanes shall be curved design \_\_\_\_\_ YES/NO
- Spinner discs will be hydraulic direct drive \_\_\_\_\_ YES/NO
- Spinner height shall be adjusted to accommodate various chassis heights and capable of discharge rate from 100 lbs./lane mile to 2500lbs./lane mile \_\_\_\_\_ YES/NO
- Spinner assembly will be flip up style allowing the spinner to be carried in an on board stored raised position \_\_\_\_\_ YES/NO

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21. **TWIN SPINNER ASSEMBLIES (Cont'd)** **SPECIFY**
- Spinner material chutes to be manufactured from 304 stainless steel and be adjustable for/aft c/w hinged salt chute extensions \_\_\_\_\_ YES/NO
- Spinner position's adjustable fore and aft horizontal along chassis frame rail \_\_\_\_\_ YES/NO
- Spinner discs shall be fitted with anti conning device \_\_\_\_\_ YES/NO
22. **LIGHTS AND WIRING** **SPECIFY**
- All lighting, wiring and mounting will be discussed at pre-build meeting prior to installation \_\_\_\_\_ YES/NO
- Lights and wiring shall be completely sealed Grote Ultra Blue Seal wiring system \_\_\_\_\_ YES/NO
- For improved rear visibility, rear lamps, stops, tails, directional and back up lights to be mounted in rear corner posts within 3" of the outside of the tailgate \_\_\_\_\_ YES/NO
- SWS model #16399 LED mini bar strobe light mounted on body cab shield required c/w separate in-cab switches for blue & amber \_\_\_\_\_ YES/NO
- Four Grote LED 6" oval red, combination stop, tail & turn rubber grommet flush mounted in rear lower body corner post \_\_\_\_\_ YES/NO
- Two Grote LED 6" back up lights in rear corner post \_\_\_\_\_ YES/NO
- One 6" oval amber strobe rubber grommet mounted in right upper rear body corner post, wired to one separate switch \_\_\_\_\_ YES/NO
- One 6" oval blue strobe rubber grommet mounted in left upper rear body corner post, wired to one separate switch \_\_\_\_\_ YES/NO
- Two 5" square, heated LED floodlights for each spinner assembly \_\_\_\_\_ YES/NO

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22. **LIGHTS AND WIRING (Cont'd)** **SPECIFY**
- Rear corner post light arranged from top to bottom, blue/amber strobes, back up lights, red, red \_\_\_\_\_ YES/NO
- LED yellow & amber clearance lights front & rear of body left & right side \_\_\_\_\_ YES/NO
- LED rear 3-in-a- row clearance lights \_\_\_\_\_ YES/NO
- One 5' square, heated LED work light installed back-of-cab, in a position to illuminate spreader cross conveyor with separate in cab mounted switch \_\_\_\_\_ YES/NO
- Rear OEM chassis tail lights to be reinstalled at back of unit with additional support to stop lights from deflecting when backing into material \_\_\_\_\_ YES/NO
- In-cab electrical switch bank c/w sixteen (16) switches, lighted and function labelled for body lighting functions. Switch bank to be installed in centre operator console and be easily accessible to the driver. \_\_\_\_\_ YES/NO
23. **TARPING SYSTEM** **SPECIFY**
- An air tarp shall be standard equipment with fabricated tarp arms dimensions of 1 ½" X 2 ½" aluminum tubing, 1/8" mesh tarp, powered by a marked switch operated from in cab \_\_\_\_\_ YES/NO
24. **MUD FLAPS** **SPECIFY**
- Body up-fitter to install City supplied mud-flaps \_\_\_\_\_ YES/NO
25. **PINTLE PLATE** **SPECIFY**
- Heavy duty pintle plate, fabricated from 44W steel plate \_\_\_\_\_ YES/NO

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26. **HYDRAULIC POWER TILT/POWER DETACH PLOW HARNESS** **SPECIFY**
- Viking model VCL 500HD or equivalent in compliance with the following specifications and approved by the City \_\_\_\_\_ YES/NO
- MAKE:** \_\_\_\_\_
- MODEL:** \_\_\_\_\_
- The plow the wing the wing front post shall all be detachable and attachable as one integral assembly with the hydraulic detach front harness \_\_\_\_\_ YES/NO
- The front plow harness shall tilt forward to allow the chassis hood to tilt forward over centre of its pivots and stay open without the need of any additional supports \_\_\_\_\_ YES/NO
- The harness tilt and return function shall be performed by the operator from inside the chassis cab via feather electric over hydraulic control \_\_\_\_\_ YES/NO
- The harness tilt operation shall be capable of being completed with the plow and wing remaining attached to the harness \_\_\_\_\_ YES/NO
- The plow and wing front harness to be easily and quickly attachable or detachable as one unit. The assembly remains permanently with the vehicle even after the female coupler has been detached \_\_\_\_\_ YES/NO
- Swing arm: The male swing arm to be rotated on the shaft, and the hub ends are to be guided by four anti-friction polymer discs in the mounting bracket \_\_\_\_\_ YES/NO
- The cylinder rods shall be hard chrome plated and buffed \_\_\_\_\_ YES/NO
- The swing arm (harness tilt cylinders) is to be operated by two double acting hydraulic cylinders with the following specifications \_\_\_\_\_ YES/NO

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**26. HYDRAULIC POWER TILT/POWER DETACH PLOW HARNESS (Cont'd) SPECIFY**

These cylinders shall permit the front harness to tilt forward by disengaging the top and engaging the bottom hydraulic operated lock pins \_\_\_\_\_ YES/NO

The truck hood (cab) can be tilted forward for easy access to the engine without detaching the front harness from the truck \_\_\_\_\_ YES/NO

Hydraulic locking shall be achieved by two double acting, hydraulic cylinders with chrome piston rods \_\_\_\_\_ YES/NO

One cylinder shall provide upper locking and the other cylinder shall perform the lower locking function \_\_\_\_\_ YES/NO

There shall be independent double acting valve sections for both the upper and lower lock cylinder control \_\_\_\_\_ YES/NO

For safety, the controls for the locking / unlocking of the cylinders shall be mounted in a position to allow the operator visibility of the hydraulic lock pins while performing the lock or unlock function \_\_\_\_\_ YES/NO

The controls for the locking / unlocking of the cylinders shall be in a weather tight Nema rated enclosure \_\_\_\_\_ YES/NO

In cab joystick control shall be pedestal mounted inside the chassis cab to operate the plow lift function and harness tilt function \_\_\_\_\_ YES/NO

The front plate will be one solid piece of 3/8 inch steel plate with cut out of sufficient size to allow cooling of the chassis radiator \_\_\_\_\_ YES/NO

Cheek plates will be specified to suite chassis frame rails, 1/2" steel plate and will extend back along the chassis frame rails as far as possible. \_\_\_\_\_ YES/NO

Fasteners attaching cheek plates to the chassis frame rails will be minimum grade 8 N.C. hex head bolts \_\_\_\_\_ YES/NO

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**26. HYDRAULIC POWER TILT/POWER DETACH PLOW HARNESS (Cont'd) SPECIFY**

Two pairs of drive ears 100% welded to the front plate spaced at standard 30 1/2" centers \_\_\_\_\_ YES/NO

Three sets of plow drive bar connection holes located in drive ears height to lower drive connection 19" mounted with truck empty \_\_\_\_\_ YES/NO

Quick-tack hitch pockets bolted to drive ears \_\_\_\_\_ YES/NO

Front drivers side foot step attached to tail plate \_\_\_\_\_ YES/NO

Lift or grab link for nose chain shall be 18" minimum \_\_\_\_\_ YES/NO

Hydraulic plow lift cylinder, double acting 4" diameter with 10" stroke, cylinder rod chrome plated \_\_\_\_\_ YES/NO

Plow lift yoke 3/4" steel plate, braced with two 1/4" x 2" flat bar diagonal braces. \_\_\_\_\_ YES/NO

Two (2) heated LED plow lights (high and low beam) with LED amber turn indicators and switch in cab \_\_\_\_\_ YES/NO

Plow light wiring will be vapour proof with a direct plug-in connection to the OEM chassis supplied lighting connection. If OEM plug is not supplied then the installer of the plow equipment shall install a relay and separate circuit for connection of the plow lights and there shall be no cutting or splicing of the OEM chassis wiring system in order to install the plow lights \_\_\_\_\_ YES/NO

**27. STEEL REVERSING SNOW PLOW SPECIFY**

Viking Model VCL 36-11-45C Steel Reversing Front Plow in compliance with the following specifications and approved by the City

MAKE: \_\_\_\_\_

MODEL: \_\_\_\_\_

**COMPANY NAME:** \_\_\_\_\_ **SIGNATURE:** \_\_\_\_\_

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<b>27. <u>STEEL REVERSING SNOW PLOW (Cont'd)</u></b>	<b><u>SPECIFY</u></b>
The weight of the plow shall not exceed 2,250 lbs.	_____ YES/NO
Overall width 11'	_____ YES/NO
Moldboard height 36"	_____ YES/NO
Path cleared –bulldozing 11'	_____ YES/NO
Path cleared at 35 degree angle 9'	_____ YES/NO
Set at 50 deg. attack angle, the height from the ground to the front of the moldboard shall be 20" minimum	_____ YES/NO
Set at 60 deg. attack angle, the overhang from the cutting edge to the front of the moldboard shall be 25" minimum	_____ YES/NO
Set at 50 deg. attack angle, the height from the ground to the front of the moldboard shall be 28" maximum.	_____ YES/NO
Set at 60 deg. attack angle, the height form the ground to the front of the moldboard shall be 24" maximum.	_____ YES/NO
The moldboard shall be fabricated from 10 gauge steel	_____ YES/NO
There shall be 8 3/8" thick reinforcing ribs 100% welded to the moldboard	_____ YES/NO
The safety trip shall consist of two compression coil springs incorporated in the drive frame, which will allow the moldboard, to float over obstructions	_____ YES/NO
The two compression trip springs will be 5/8" wire, 5 1/4" O.D., 14" free length with a total of 8 active coils	_____ YES/NO
Mushroom style skid shoes shall be fitted on the drive frame	_____ YES/NO

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27. **STEEL REVERSING SNOW PLOW (Cont'd)** **SPECIFY**
- These shoes shall carry the weight of the plow when the moldboard trips \_\_\_\_\_ YES/NO
- The bottom of the moldboard is to be reinforced with a 1/2"x 6" x 4" backer angle \_\_\_\_\_ YES/NO
- A second angle 3/8" x 3" x 2" shall be welded above for added strength and rigidity \_\_\_\_\_ YES/NO
- The drive frame shall be of A frame and sector design \_\_\_\_\_ YES/NO
- The A frame will be constructed of 3 1/2" x 3 1/2" x 1/4" square tubing with two 3/4" thick pivot plates. \_\_\_\_\_ YES/NO
- Sector frame constructed of 4"x4"x 3/8" square tube \_\_\_\_\_ YES/NO
- The sector angle shall provide a 30° radius and be constructed of 1/2" x 3 1/2" x 2 1/2" steel. \_\_\_\_\_ YES/NO
- To prevent wear, the sector will glide between two low friction replaceable polymer bearings bolted on the A frame. \_\_\_\_\_ YES/NO
- There shall be two 3" x 14" double acting hydraulic cylinders to reverse the plow to a maximum of 35 right or left \_\_\_\_\_ YES/NO
- Moldboard shall be fitted with shoes and scuff shoes shall be supplied on each end \_\_\_\_\_ YES/NO
- Cutting edges will be Polar Flex XWA-12-F Sectional Floating system c/w curb shoes installed on LHS & RHS of plow. \_\_\_\_\_ YES/NO
- Three 3/8" lift chains shall be provided to lift the plow to the carrying position \_\_\_\_\_ YES/NO
- These chains must be as wide spread as possible in order to make the plow stable, and the plow must remain level when carried. \_\_\_\_\_ YES/NO

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27. **STEEL REVERSING SNOW PLOW (Cont'd)** **SPECIFY**
- It will be possible to perform the power angle function with the plow in both the lowered working position and the raised carrying position \_\_\_\_\_ YES/NO
- Four hinge points are to be provided to connect the moldboard to the push frame, spanning a minimum distance of 80" \_\_\_\_\_ YES/NO
- To prevent damage to the reversing cylinders a cross-over relief valve shall be supplied \_\_\_\_\_ YES/NO
- A ½" x 12" rubber deflector to be installed the full length of the plow \_\_\_\_\_ YES/NO
- Two (2) 36" orange fluorescent marker rods (cable reinforced) to be installed, 1 at each of plow. \_\_\_\_\_ YES/NO
- Drive frame shall be complete with an adjustable parking stand \_\_\_\_\_ YES/NO
- All steel shall be painted Baril DCC181 monocoat black finish paint technology \_\_\_\_\_ YES/NO
- Quick tack oscillating beam shall be supplied \_\_\_\_\_ YES/NO
- Warranty one-year minimum parts and labour \_\_\_\_\_ YES/NO
28. **CABLE WING HARNESS** **SPECIFY**
- Viking Model VCL 350 SCL or equivalent in compliance with the following specifications and approved by the City
- MAKE:** \_\_\_\_\_
- MODEL:** \_\_\_\_\_
- The harness assembly shall be of heavy construction to sustain snow plowing operations under severe conditions \_\_\_\_\_ YES/NO

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<b>28. <u>CABLE WING HARNESS (Cont'd)</u></b>	<b><u>SPECIFY</u></b>
Approved size of ram controlling the rear end of wing shall be 3" dia. x 30" stroke approximately cylinder, with a cable and sheave assembly	_____ YES/NO
Bottom of wing tower shall have a ground clearance of 14" minimum, truck empty	_____ YES/NO
Approved size of ram controlling the rear end of wing shall be 3" dia. x 30" stroke approx. cylinder, with a cable and sheave assembly	_____ YES/NO
Approved size of ram controlling wing brace slide shall be 3" dia. x 36" stroke approx. and shall be double acting	_____ YES/NO
Wing tower shall be of 10" channel construction with a 25 degree offset and its mountings shall be sufficient to sustain snow plowing operations under severe conditions	_____ YES/NO
One pipe brace 2 3/4" diameter shall connect the bottom of the wing tower and the truck chassis near the forward mount of the right rear springs to reduce the shock of the truck frame	_____ YES/NO
All sheave pins shall be provided with oil impregnated bronze bearings and grease fitting	_____ YES/NO
A safety chain shall be provided for securing wing when not in use	_____ YES/NO
Guide bars to contain the rear wing slide shall be welded 100% from the bottom up 2 feet	_____ YES/NO
Double adjustable hydraulic throttle valves to allow adjustment of rear wing speed up/down	_____ YES/NO
Ten inch convex mirror on front post	_____ YES/NO
One 5" square heated LED spot light installed to illuminate the rear wing work area	_____ YES/NO

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28. **CABLE WING HARNESS (Cont'd)** **SPECIFY**
- One 5" square heated LED spot light installed to illuminate the front wing work area \_\_\_\_\_ YES/NO
- Removable Aeon rubber helper spring front right hand side to prevent chassis sag to right hand side and provide level wing operation \_\_\_\_\_ YES/NO
- Frame reinforcement located approximately 10" behind cab between chassis frame rails, designed to withstand forces exerting during a winging operation \_\_\_\_\_ YES/NO
- All fabricated from structural steel plate 44W 65-90 KSI tensile strength, 44 KSI minimum yield point \_\_\_\_\_ YES/NO
29. **WING PLOW** **SPECIFY**
- Viking model VCL144 WHD or equivalent in compliance with the following specification and approved by the City
- MAKE:** \_\_\_\_\_
- MODEL:** \_\_\_\_\_
- Overall length 12 feet \_\_\_\_\_ YES/NO
- Inside intake height 29" minimum \_\_\_\_\_ YES/NO
- Outside discharge height 39" minimum \_\_\_\_\_ YES/NO
- Moldboard thickness 10 U.S.S. gauge minimum \_\_\_\_\_ YES/NO
- Two drive ribs for connecting the wing brace shall be provided \_\_\_\_\_ YES/NO
- The drive ribs shall be located approximately 8"6" and 10'10" from the nose end of the wing \_\_\_\_\_ YES/NO

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<b>29. <u>WING PLOW</u> (Cont'd)</b>	<b><u>SPECIFY</u></b>
The plate for mounting the wing to the wing post shall be 1" thick. The mounting hole shall be far enough from the edge of the plate to avoid failure in this area	_____ YES/NO
The mounting of the nose end of the wing to the wing post shall be by means of a hinge and rectangle spring, to allow tipping over the wing	_____ YES/NO
Two adjustable wing braces shall be supplied	_____ YES/NO
The upper brace shall be of a stock release type. The spring shall provide adequate stability of the wing in normal operating conditions, and shall retract the wing from tip-over position	_____ YES/NO
One spare pin for adjusting the wing braces shall be supplied with each brace	_____ YES/NO
The top edge of the wing shall be boxed in and welded 100% to the ribs and the moldboards so as to avoid all pockets	_____ YES/NO
A 1-piece 1/2" x 8" x132" steel cutting edge, center punched	_____ YES/NO
One (1) steel curb shoe	_____ YES/NO
Three (3) steel moldboard shoes	_____ YES/NO
Install one 36" flexible cable reinforced orange marker rod on outside end of wing	_____ YES/NO
Wing to be painted medium gloss yellow (moldboard front) and medium gloss black (moldboard back and push arms)	_____ YES/NO

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<b>30.    <u>HYDRAULIC PUMP &amp; HOSING</u></b>	<b><u>SPECIFY</u></b>
The hydraulic pump supplied shall be a front mount load sense variable displacement pump Bosh Rexroth model A10V085, 85 cc minimum	_____ YES/NO
Low oil shutdown and momentary override with in-cab control	_____ YES/NO
Pressure and flow as required to operate all equipment specified to provide adequate volume	_____ YES/NO
Shall be suitable for operation as required by the specified electronic spreader controller	_____ YES/NO
Pump mounting plate and splined drive shaft shall be supplied	_____ YES/NO
The pump shall be driven from the crankshaft	_____ YES/NO
The drive shaft shall be supplied with spline long enough to allow telescopic retraction of the shaft in order to change fan belt without removing the pump	_____ YES/NO
Pressure side of the hydraulic system will be equipped with a high-pressure filter assembly with safety by-pass in cab condition indicator and 10-micron absolute element	_____ YES/NO
Return line filter element will be 10-micron absolute	_____ YES/NO

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**30. HYDRAULIC PUMP & HOSING (Cont'd)**

**SPECIFY**

Stainless steel tubing is to be utilized from the back-of-cab hydraulic valve bank to the front of engine mounted hydraulic pump for all plow/wing/harness hydraulic functions is to be used in lieu of hydraulic hose. All hydraulic hoses and stainless steel tubing will be properly routed and secured via vibration dampening clamps to eliminate abrasion; protective covering will be applied at all potential wear points. These stainless steel lines will not inhibit any service work on the chassis engine i.e., block oil filter. Hydraulic hoses are to be used where stainless steel tubing is prohibited. Their sizes shall be adequate for quick operation of all hydraulic systems and shall be 2 ply braided steel SAE 100 R16 with swivels on both ends. All hydraulic hoses shall be Eaton Aeroquip Bruiser FC735

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

When stainless steel hydraulic tubing is not permissible, hydraulic hosing will be utilized. Hose to be Aeroquip Bruiser FC735 with extra durable cover

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

Hose hanger tube shall be stainless steel

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

One spare low pressure and high-pressure hydraulic filter element to be supplies along with part numbers

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

Part Number: \_\_\_\_\_

Part Number: \_\_\_\_\_

**31. OIL RESERVOIR**

**SPECIFY**

The hydraulic reservoir shall be of sufficient capacity to supply necessary oil supply. Reservoir must not interfere with box installation

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

A sight gauge to allow easy checking of the hydraulic oil level in the reservoir

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

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31. **OIL RESERVOIR (Cont'd)** **SPECIFY**
- Oil reservoir of approximately 30 U.S. Gal. capacity, 10 U.S.S. gage pickled and oiled steel, welded oil tight \_\_\_\_\_ YES/NO
- Reservoir to have a weatherproof screw down filler/breather cap with fine mesh screen and provisions for clean out by hand \_\_\_\_\_ YES/NO
- A removable magnetic trap shall be supplied \_\_\_\_\_ YES/NO
- An oil filter with a spin-on element rated at 45 G.P.M. nominal capacity shall be installed in the return line ahead of the oil condition indicator gauge. The filter shall be protected from the top from damage \_\_\_\_\_ YES/NO
- The oil return port shall be fitted with a diffuser to prevent turbulence and foaming of oil on the inside of the reservoir \_\_\_\_\_ YES/NO
- Oil level and temperature gauge shall be supplied with this unit top mounted & visible \_\_\_\_\_ YES/NO
- Return line filter assembly will be complete with 10-micron element \_\_\_\_\_ YES/NO
- Interior baffle plate to prevent turbulence of hydraulic oil \_\_\_\_\_ YES/NO
- Oil shut off valve to be installed \_\_\_\_\_ YES/NO
- The oil reservoir will be mounted integral with the rear wing harness on the right side and will be accessible for filling and service \_\_\_\_\_ YES/NO
32. **IN-CAB CONTROLS** **SPECIFY**
- The in-cab spreader controller shall be a Bosch Rexroth CS660 system with the capabilities of controlling granular materials based on road speed \_\_\_\_\_ YES/NO

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32. **IN-CAB CONTROLS (Cont'd)** **SPECIFY**
- The Bosch Rexroth CS160 electronic joystick shall control the plow/wing and hoist functions \_\_\_\_\_ YES/NO
- The Bosch Rexroth CS660 and CS160 integrated with a Bosch Rexroth arm rest assembly, shall be fully adjustable and located between the driver and passenger seat within easy view and reach of either occupant \_\_\_\_\_ YES/NO
- A Roadwatch road temperature sensor interfaced with the CS660 \_\_\_\_\_ YES/NO
- Programming for the CS160 to be confirmed with the City prior to installation and set up \_\_\_\_\_ YES/NO
33. **HYDRAULIC VALVES** **SPECIFY**
- Hydraulic valves will be sectional stackable, load sense. Bosch Rexroth MP4 or later version valve with adjustment \_\_\_\_\_ YES/NO
- The M4 valve bank shall be installed inside a Bosch Rexroth stainless steel protective enclosure located on drivers side \_\_\_\_\_ YES/NO
- The M4 valve bank shall be easily accessible for cleaning and service and the \_\_\_\_\_ YES/NO
- The Bosch Rexroth valve shall include individual valve sections for spinner, conveyor, front plow blade saver, upper and lower detach harness lock pins, harness tilt, front of wing, rear wing, wing braces and body hoist \_\_\_\_\_ YES/NO
- Convey drive motors shall have replaceable built in speed sensors \_\_\_\_\_ YES/NO
34. **SCHEMATIC** **SPECIFY**
- Hydraulic schematic shall be provided specific to installation \_\_\_\_\_ YES/NO
- Wiring schematic shall be provided specific to installation \_\_\_\_\_ YES/NO

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**35. DICAN Ca SMARTWITNESS KP1S Dash CAMERA NO SUBSTITUTIONS**

**GENERAL SPECIFICATION:**

This unit will be equipped with a Smart Witness KP1S dash camera, part # Di-KP1S designed to provide evidence to protect a driver from many of the issues faced on the roads today; Insurance fraud, staged accidents, false/exaggerated whiplash claims, conflicting reports of actual events, driver offense allegations, (speeding, traffic signal violations, swerving, etc.)

Additionally recording the following information: Drivers view of the road, Vehicle location, Impact Force of Accident, Audio, & Driving Style (speed, acceleration, braking, & steering)

This system includes HD (720p) Intelligent Accident Camera 2 Ch. w/ GPS speed sensitive 3 axis G-Sensor, Mic, Dual SD card slots, tamper resistant locking enclosure, power harness & 2 x 64GB **Micro** SD card and reader.

**COMPANY NAME:** \_\_\_\_\_ **SIGNATURE:** \_\_\_\_\_

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**35. DICAN Ca SMARTWITNESS KP1S Dash CAMERA NO SUBSTITUTIONS (Cont'd)**

**THE FOLLOWING COLOUR CAMERA SYSTEM and FEATURES SHALL BE SUPPLIED:**

**KP1S (Di-KP1S) Dash Camera (Intelligent Accident Camera)**

- 720p HD video resolution capability
- Built-in GPS logging (Time/Date, Speed, Location)
- 170-degree wide angle lens
- Compact and rugged design, resistant to extreme heat and cold
- Mounted in an ergonomically appropriate area in the cab
- Integrated G-shock sensor
- Dual record mode (continuous + event)
- Adjustable resolution and frame rate
- PC analysis and configuration software
- Integrated panic button
- Tamper-resistant housing
- Locking SD card cover
- Alarm I/O triggers
- Delayed camera shutdown
- Compatible with Smart Witness Rest API 2.0
- Compatible with all 3G networks, worldwide
- mera System Optional 128GB storage capacity (2 x 64GB SD)
- Optional 64GB storage capacity (1 x 64GB SD)
- Optional 32GB storage capacity (1 x 32GB SD)
- Optional 2<sup>nd</sup> camera for side, rear, cargo or driver view
- Optional remote panic button
- Optional audio recording
- Optional cellular service for cloud connectivity

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**35. DICAN Ca SMARTWITNESS KP1S Dash CAMERA NO SUBSTITUTIONS (Cont'd)**

**INSTALLATION SPECIFICATIONS:**

The camera system will be installed to power up on ignition & fused with an inline fuse rated @ 3Amps.

For additional specific installation & compatibility requirements please consult the supplier / manufacturer.

Quotation Attached: (required only when not included in the main quote)

**ADDITIONAL INFORMATION – RECORDING**

- HD 170° Wide Angle Lens on primary Camera
- Optional 2<sup>nd</sup> Camera can be connected
- Several 2<sup>nd</sup> Camera options: weatherproof, infrared, dome, side view, etc.
- Dual record mode (continuous + event)
- Optional audio recording
- Connects directly to vehicle ignition power, automated operation
- Tamper-resistant design, key required to access SD card data
- GPS data records full time to provide location data, vehicle speed, and accurate time/date
- Adjustable resolution & frame rate
- Built in G-shock sensor (adjustable sensitivity)
- Junction box option for connecting vehicle inputs: left/right turn signals, brakes, reverse, car horn, door opening, taxi meter, emergency lights, etc.
- Optional 3G transmission when active SIM card is inserted into KP1S

**PLAYBACK & ANALYSIS**

- PC analysis software included
- Optional 3G: sends up to 20 second MP4 file immediately after incident
- Request HD video on demand from anywhere
- Filter data search by time/date, event, vehicle speed, G-Force level
- MP4 conversion tool. Data remains watermarked
- Privacy masking feature for blurring out faces or license plate numbers
- Google maps integration for route tracking
- Advanced driver behavior analysis & reporting software
- Save/print event reports

**COMPANY NAME:** \_\_\_\_\_ **SIGNATURE:** \_\_\_\_\_

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**35. DICAN Ca SMARTWITNESS KP1S Dash CAMERA NO SUBSTITUTIONS (Cont'd)**

**PLAYBACK & ANALYSIS**

- OTA software & firmware updates
- mAPI available for integration with Telematics/AVL software

For further information or questions, contact: Sales Office  
DiCAN Inc.  
1100 Burloak Drive, Suite 300  
Burlington, ON L7L-6B2  
Direct Line: 905-937-9652  
Phone: Toll Free: 866-884-7569  
Fax: 905-938-7406  
Web: www.dicaninc.com

**DICAN SINGLE CAMERA SYSTEM SPECIFICATION NO SUBSTITUTIONS**

**General Specification:** This unit will be equipped with a single reversing colour camera mounted in a secure, safe, functional area on the unit. The monitor will be mounted in an environmentally and ergonomic appropriate area in the cab for optimal viewing for the operator. Where available and necessary the equipment's reverse trigger circuit will activate the monitor's reverse signal. Where no reverse trigger is available, the camera system will be installed to power up on ignition.

**THE FOLLOWING COLOUR CAMERA SYSTEM and FEATURES SHALL BE SUPPLIED:**

Veilig Reversing Camera System, model number **RD1CV-007LCD**, 7"LCD colour monitor, high definition heated colour camera, 15m video power harness and Heavy Duty T Bolt Pedestal Monitor Mounts and to also include Heavy Duty (2) two Axis Swivel Camera Mounting Hardware.

**LCD MONITOR - RDM-LCDS**

CAMERA WASH SPECIFICATION w/ Manual Air Blow Off

\_\_\_\_\_ YES to ALL

**COMPANY NAME:** \_\_\_\_\_ **SIGNATURE:** \_\_\_\_\_