

**PART A**

**BID SUBMISSION**

**FORM A: BID**  
(See B7)

1. Project Title SUPPLY & DELIVERY OF SINGLE AXLE SAND SPREADER VEHICLES

2. Bidder

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

\_\_\_\_\_  
Street

\_\_\_\_\_  
City

\_\_\_\_\_  
Province

\_\_\_\_\_  
Postal Code

(Mailing address if different)

\_\_\_\_\_  
Street or P.O. Box

\_\_\_\_\_  
City

\_\_\_\_\_  
Province

\_\_\_\_\_  
Postal Code

The Bidder is:

(Choose one)

a sole proprietor

a partnership

a corporation

carrying on business under the above name.

3. Contact Person

The Bidder hereby authorizes the following contact person to represent the Bidder for purposes of the Bid.

\_\_\_\_\_  
Contact Person

\_\_\_\_\_  
Title

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_  
Facsimile Number

4. Definitions

All capitalized terms used in the Contract shall have the meanings ascribed to them in the General Conditions and D3.1 unless the context otherwise requires.

5. Offer

The Bidder hereby offers to perform the Work in accordance with the Contract for the price(s), in Canadian funds, set out on Form B: Prices, appended hereto.

6. Commencement of the Work

The Bidder agrees that no Work shall commence until he is in receipt of a Purchase Order authorizing the commencement of the Work.

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7. Contract

The Bidder agrees that the Bid Opportunity in its entirety shall be deemed to be incorporated in and to form a part of this offer notwithstanding that not all parts thereof are necessarily attached to or accompany this Bid Submission.

8. Addenda

The Bidder certifies that the following addenda have been received and agrees that they shall be deemed to form a part of the Contract:

No.	_____	Dated	_____
	_____		_____
	_____		_____

9. Time

This offer shall be open for acceptance, binding and irrevocable for a period of sixty (60) Calendar Days following the Submission Deadline.

10. Signatures

In witness whereof the Bidder or the Bidder's authorized official or officials have signed this

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_ .

Signature of Bidder or  
Bidder's Authorized Official or Officials

\_\_\_\_\_

\_\_\_\_\_  
(Print here name and official capacity of individual whose signature appears above)

\_\_\_\_\_

\_\_\_\_\_  
(Print here name and official capacity of individual whose signature appears above)

**FORM B: PRICES**  
 (See B8)

**SUPPLY & DELIVERY OF SINGLE AXLE SAND SPREADER VEHICLES**

**UNIT PRICES – ALTERNATIVE 1**

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
1	39,000# GVWR Conv. Cab & Chassis	05012	Each	9	\$ _____	\$ _____
2	10' x 8' U-Body Combination Dump/Spreader Body – Stainless Steel	05013	Each	9	\$ _____	\$ _____
3	Nominal 12' Reversible Snow Plow	05013	Each	9	\$ _____	\$ _____
TOTAL BID PRICE (GST and PST extra) (in figures) \$ _____ (in words) _____ _____						

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

**FORM B: PRICES**  
 (See B8)

SUPPLY & DELIVERY OF SINGLE AXLE SAND SPREADER VEHICLES

**UNIT PRICES – ALTERNATIVE 2**

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
1	39,000# GVWR Conv. Cab & Chassis	05012	Each	9	\$ _____	\$ _____
2	10' x 8' U-Body Combination Dump/Spreader Body – Aluminium	05013	Each	9	\$ _____	\$ _____
3	Nominal 12' Reversible Snow Plow	05013	Each	9	\$ _____	\$ _____
TOTAL BID PRICE (GST and PST extra) (in figures) \$ _____ (in words) _____ _____						

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

**FORM N: DETAILED SPECIFICATIONS 05012**

**39,000 LBS. GVWR CONVENTIONAL CAB & CHASSIS**  
*(Dump Body, Sand Spreader and Snow Plow Chassis)*

**1.0 TYPE**

1.1 Shall be a minimum 39,000 lbs. GVWR Conventional Cab & Chassis suitable for use with a 10' x 8' Combination Dump/Spreader Body with a 12' front mounted, reversible snow plow. The vehicle shall be furnished complete and ready for use with all features and equipment as described herein.

1.2 **STATE MAKE AND MODEL BEING BID: 2005/06** \_\_\_\_\_

**2.0 OTHER SPECIFICATIONS AND STANDARDS**

2.1 All applicable SAE standards form an integral part of these specifications and shall have precedence in any conflict concerning minimum acceptable standards.

2.2 The completed unit and all its components shall comply with all C.M.V.S.S. and Manitoba Highway Traffic Act regulations and requirements including, but not limited to, a Manitoba Government Inspection with Safety Sticker on the driver's side window.

**3.0 SERVICE FACILITY**

3.1 For the purpose of warranty repairs, the cab & chassis supplier shall have an authorized service facility located within 10 km of the boundaries of the City of Winnipeg. The facility, or a portion thereof, shall be dedicated to the service and maintenance of the type equipment being offered. Further to B9.1, Bidders shall provide a description of the service facility including, but not limited to, number of qualified service staff, years of service experience, and general service capabilities within three (3) Business Days upon request of the Contract Administrator.

**4.0 INSTRUCTIONS FOR COMPLETION OF SPECIFICATIONS**

4.1 All items in these specifications must be answered indicating compliance or non-compliance. **Bidders shall state "yes" for compliance or state deviation**, or give reply where requested to do so. Deviations shall be clearly stated and fully detailed. Alternatives will be considered subject to evaluation.

4.2 Each bidder is required to fill in every blank. **Failure to do so may be used as a basis for rejection of bid.**

ITEM	SPECIFICATION	BIDDER TO STATE "YES" OR STATE DEVIATION
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**5.0 GVWR**

5.1 Total 39,000 lbs. \_\_\_\_\_

5.2 Front 16,000 lbs. minimum \_\_\_\_\_

5.3 Rear 23,000 lbs. minimum \_\_\_\_\_

**6.0 Dimensions**

6.1 Wheelbase As required for 10' x 8' sander/dump body, state \_\_\_\_\_

**DETAILED SPECIFICATIONS 05012 (continued)**

6.2	Cab to Axle	As required for 10' x 8' sander/dump body, 108 in. effective approx., state.	_____
6.3	Turning radius	State	_____
<b>7.0</b>	<b>Engine</b>		
7.1	Type	Diesel, inline 6-cylinder, Cat C7	_____
7.2	Horsepower	275 HP gross minimum	_____
7.3	Torque	800 lb-ft minimum	_____
7.4	Engine shut down	Low oil pressure / high water temperature	_____
7.5	Anti-idling programming	Required to shut engine off after 15-minutes	_____
7.6	Air intake warmer	Required	_____
7.7	Fuel Shut-off	Electric solenoid type	_____
7.8	Air intake	Dual underhood/outside air intake provision c/w underhood air valve, dash mtd. actuated, required for snow plow application. Underhood selector valve not required on vehicles equipped only with underhood air intake	_____
7.9	Air cleaner	Dry type, suitable for snow plow application	_____
7.10	Air intake restriction ind.	Dash mounted restriction indicator	_____
7.11	Oil drain plug	Magnetic type	_____
7.12	Oil filter	Full flow, spin-on type	_____
7.13	Fuel filter	Spin-on type	_____
7.14	Fuel/water separator	Heated, drainable, mounted under hood, located to be protected from road spray	_____
7.15	Fuel line primer pump	Required	_____
7.16	Block heater	Immersion type, 1000 Watt minimum with covered recessed male plug, located under driver's side door	_____
7.17	Coolant	CAT extended Life coolant, antifreeze to -35°F (-37°C)	_____
7.18	Coolant filter	Required	_____
7.19	Coolant hoses	Silicone type or Gates Blue Stripe	_____
7.20	Fan Drive	Thermostatically controlled, automatic type	_____
7.21	Air compressor	Water cooled, pressure lubricated, minimum 13 cfm	_____
7.22	PTO Provision	Front engine PTO with adapter plate	_____
<b>8.0</b>	<b>Electrical system</b>		
8.1	Electrical connectors	Plug-in, sealed type	_____
8.2	Alternator	Delco Remy 24-SI, 145 Amp	_____
8.3	Starter	Delco Remy 41-MT/OCP 450 Series with thermal protection	_____

**DETAILED SPECIFICATIONS 05012 (continued)**

8.4	Circuit breakers	Auto-reset, readily accessible	_____
8.5	Batteries	Three (3), 12-volt, group 31, 2250 CCA combined capacity minimum	_____
8.6	Battery Box	Under cab or frame mounted c/w enclosure	_____
8.7	Battery disconnect	In-cab mounted outboard of driver's seat	_____
8.8	Remote boost terminal	Remote battery boost terminal(s), protected from road spray, covered, state location	_____
8.9	Cab marker lights	LED	_____
8.10	Trailer plug wiring	Routed to end of frame plus 3 extra feet of wiring, c/w 6-pole plastic socket. Wiring shall be circuit breaker protected, wired separately from main truck lighting	_____
8.11	2-way radio circuit	Independent 20 Amp circuit, ignition powered, wired under dash loose, labelled	_____
8.12	Accessory switches	Three (3) required, dash mtd. for "Beacon", "Plow lights" and additional switch labelled "Aux". All switches complete and wired for body installation, labeled and backlit	_____
<b>9.0</b>	<b>Exhaust system</b>		
9.1	Configuration	Stationary extreme outboard single right hand, chrome vertical discharge on passenger side, underframe routing, vertical portion cab mounted. Discharge tip shall have a backslash type end	_____
9.2	Overall exhaust height	Approx. 12 in. higher than dump/spreader body	_____
9.3	Heat shield	Required over exhaust next to cab door	_____
<b>10.0</b>	<b>Transmission</b>		
10.1	Model	Allison 3500 RDS with 5-speed programming	_____
10.2	Shift selector	Digital push-button type, dash mounted	_____
10.3	Cooling capacity	Water to oil transmission cooler, as per manufacturer's recommendation for severe duty cycle	_____
10.4	Oil level dipstick	Bayonet type with high and low level markings	_____
10.5	Trans. drain plug	Magnetic type	_____
10.6	Ground speed signal	Ground speed signal provision required	_____
<b>11.0</b>	<b>Front axle</b>		
11.1	Type	Meritor, 16,000 lbs. capacity minimum	_____
<b>12.0</b>	<b>Rear axle</b>		
12.1	Ratio	For 110 km/hr top speed, state ratio	_____
12.2	Differential lock	Required for rear drive axle w/dash mtd. switch	_____

**DETAILED SPECIFICATIONS 05012 (continued)**

**13.0 Hub seals**

13.1 Type Oil lubricated front and rear \_\_\_\_\_

**14.0 Front suspension**

14.1 Type Multi-leaf spring suspension, 16,000 lbs. capacity minimum \_\_\_\_\_

**15.0 Rear suspension**

15.1 Type Air ride suspension, 23,000 lbs. capacity minimum with lateral air bag support beam, state make and model of suspension being bid \_\_\_\_\_

15.2 Susp. control valve Manual dump valve for air suspension c/w dash mtd. switch, indicator light, gauge and buzzer \_\_\_\_\_

**16.0 Rims, wheels**

16.1 Front 22.5 x 9.00 steel disk, hub piloted \_\_\_\_\_

16.2 Rear 22.5 x 8.25 steel disk, hub piloted \_\_\_\_\_

**17.0 Tires, front**

17.1 Make & Model Michelin XZY or Goodyear **G286A**, state tires \_\_\_\_\_

17.2 Size 315/80R 22.5, **18-ply** \_\_\_\_\_

**18.0 Tires, rear**

18.1 Make & Model Michelin XDE M/S or Goodyear 164 RTD, state \_\_\_\_\_

18.2 Size 11R 22.5, 14-ply minimum \_\_\_\_\_

**19.0 Frame**

19.1 Type Single rail, 1,800,000 in-lb RBM minimum, outside frame clear \_\_\_\_\_

19.2 Application Suitable for sand spreader, snow plow and dump body installation \_\_\_\_\_

19.3 Chassis fasteners Grade-8 threaded hex headed frame fasteners \_\_\_\_\_

19.4 Front frame extension Integral type, 18 in. minimum, state length \_\_\_\_\_

19.5 Afterframe As required for dump body and sander installation \_\_\_\_\_

**20.0 Steering**

20.1 Type Power \_\_\_\_\_

**21.0 Brakes**

21.1 Type Air, ABS, S-cam drum brakes, front & rear \_\_\_\_\_

21.2 Slack adjusters Meritor (clearance sensing), automatic type \_\_\_\_\_

21.3 Parking brake Spring set, four (4) chamber system \_\_\_\_\_

21.4 Brake pots Vented type \_\_\_\_\_

**DETAILED SPECIFICATIONS 05012 (continued)**

21.5	Dust shields	Required, front and rear	_____
21.6	Moisture ejector	Bendix DV-2, heated, required in all air tanks	_____
21.7	Drain valves	Manual, chain or cable operated, required on each air tank	_____
21.8	Air drier	Wabco System Saver 1200, heated	_____
<b>22.0</b>	<b>Fuel tank</b>		
22.1	Type	Aluminium, 225 L minimum capacity, fully fuelled upon delivery	_____
22.2	Tank straps	Steel straps with minimum 1/16 in. rubber or neoprene isolators to prevent galvanic corrosion	_____
22.3	Fuel separator	Heated, drainable	_____
<b>23.0</b>	<b>Cab</b>		
23.1	Type	Conventional w/corrosion inhibitor	_____
23.2	Construction	Aluminium construction	_____
23.3	Front axle to BOC	64-66 in. state	_____
23.4	Cab mounts	Air suspension	_____
23.5	Front grille	Stationary type	_____
23.6	Cab interior / trim	Extreme climate insulation including cloth or vinyl headliner on roof, door panels and rear interior of cab	_____
23.7	Cab silencer package	Required for minimal decibel level	_____
23.8	Hood/Firewall/Engine	Insulated hood liner, engine cover and firewall	_____
23.9	Floor covering	Rubber mat with under-padding	_____
23.10	Floor mats	Two (2), rubber	_____
23.11	Driver's seat	High back, air suspension w/foldable armrests, heavy-duty cloth upholstery, Cordura or equal, state material	_____
23.12	Passenger seat	High back, air suspension w/foldable armrests, heavy-duty cloth upholstery, Cordura or equal, state material	_____
23.13	Sun visors	Dual flip-up type	_____
23.14	Steering wheel	Tilt and telescopic type	_____
23.15	12-Volt power outlet	Required	_____
23.16	Radio	Factory installed AM/FM	_____
23.17	Starter switch	Key operated c/w three (3) sets of keys	_____
23.18	Interior light	Dome light with driver and passenger door switches	_____

**DETAILED SPECIFICATIONS 05012 (continued)**

23.19	Heater / Defroster	High output, capable of keeping all windows clear at an outside temperature of -35°F (-37°C)	_____
23.20	Air conditioning	Required	_____
23.21	Brake and accel. pedals	Hanging type brake and accelerator pedals	_____
23.22	Horn	Dual electric	_____
23.23	Exterior mirrors	Dual polycarbonate unpainted aerodynamic mirrors with integral convex mirrors, heated, 4-way motorized adjustment (including convex mirrors), suitable for 102 in. equipment width	_____
23.24	Downview mirror	Required over passenger door, 5" x 4" approx.	_____
23.25	Windows & windshield	Tinted	_____
23.26	Power window	Required on driver and passenger side. Controls for both windows required on driver side	_____
23.27	Windshield wipers	Electric, intermittent	_____
23.28	Wiper blades	Heated type	_____
23.29	Windshield washers	Electric, required with spray nozzles on wiper blades	_____
23.30	Grab handles	Dual exterior	_____
23.31	Entrance steps	Dual each side, open grate / grip type	_____
23.32	Winter front	Heavy-duty vinyl w/twist lock or snap type fasteners	_____
<b>24.0</b>	<b>Instrumentation</b>		
24.1	Oil pressure	Gauge	_____
24.2	Coolant temperature	Gauge	_____
24.3	Transmission oil temp.	Gauge	_____
24.4	LOP/HWT	Warning light and buzzer	_____
24.5	Voltmeter	Gauge	_____
24.6	Air reservoir pressure	Gauge with LAP warning light and buzzer	_____
24.7	Engine hourmeter	Required, non-resetable type	_____
<b>25.0</b>	<b>Tow hooks</b>		
25.1	Location	Front mounted	_____
<b>26.0</b>	<b>Front bumper</b>		
26.1	Type	Front bumper delete, see body spec. for configuration	_____
<b>27.0</b>	<b>Colour</b>		
27.1	Exterior	White	_____
27.2	Interior	Blue or grey	_____

**DETAILED SPECIFICATIONS 05012 (continued)**

27.3	Frame & suspension	Primed and finished with black Imron 5000 paint	_____
27.4	Wheels	Powder coated white	_____
<b>28.0</b>	<b>Accessories</b>		
28.1	Flare kit	Three (3) triangular reflectors, CVSA approved	_____
<b>29.0</b>	<b>Warranty</b>		
29.1	Basic Vehicle	Two (2) years, unlimited km	_____
29.2	Batteries	One (1) year, unlimited km	_____
29.3	Drivetrain	Two (2) years, unlimited km	_____
29.4	Cab structure/corrosion	Five (5) years, unlimited km	_____
29.5	Frame & crossmembers	Five (5) years, unlimited km	_____
29.6	Cab paint	One (1) year or 100 000 km	_____
29.7	Engine	Three (3) years or 240 000 km	_____
29.8	Transmission	Two (2) years, unlimited km	_____
29.9	Axles, front & rear	Three (3) years or 240 000 km	_____

## **DETAILED SPECIFICATIONS 05013**

### **10' X 8' COMBINATION DUMP/SPREADER BODY W/SNOW PLOW** *(Street Maintenance)*

#### **1.0 SCOPE**

- 1.1 These specifications describe the supply and installation of a nominal 10 ft. x 8 ft., dump/spreader body complete with a sand spreader control system, pre-wetting system and a front-mounted snow plow, to be installed by the successful bidder on a cab and chassis vehicle provided by the Contractor (see Detailed Specifications 05012 for chassis description). These specifications describe 2-alternatives, each specifying different body materials. (See B13. for Evaluation of Bids).

#### **2.0 STANDARDS**

- 2.1 All applicable SAE standards form an integral part of these specifications and shall have precedence in any conflict concerning minimum acceptable standards.
- 2.2 The completed unit and all its components shall comply with all C.M.V.S.S. and Manitoba Highway Traffic Act regulations and requirements including, but not limited to, a Manitoba Government Inspection with Safety Sticker on the driver's side window.

#### **3.0 QUALIFICATIONS OF MANUFACTURER / CONTRACTOR**

- 3.1 The Contractor shall be an authorized distributor/supplier of the snow removal and sand spreader control system equipment being bid.
- 3.2 The Contractor of the snow removal equipment shall have a minimum of three (3) continuous years of experience manufacturing or installing sand spreaders, pre-wetting systems, controls and snow plows of the type being offered.
- 3.3 The Contractor shall have an authorized service facility located within 10 km of the boundaries of the City of Winnipeg. The facility, or a portion thereof, shall be dedicated to the service and maintenance of the snow removal and sand spreader control system equipment being offered. Further to B9.1, Bidders shall provide a description of the service facility including, but not limited to, number of qualified service staff, years of service experience on snow removal equipment of the equipment being offered, and general service capabilities. A description of the service facility shall be provided within 3-calendar days upon request by the Contract Administrator.
- 3.4 If a suitable warranty facility is not available within 10 km of the boundaries of the City of Winnipeg, the Bidder may propose that warranty work be performed by the City of Winnipeg Repair Facility. Any Work performed by the City of Winnipeg Repair Facility shall be charged to the Contractor at the Facility's shop rate in effect at the time the work is performed (for example, shop rate for 2005: \$68.00/hour).
- 3.5 The Contractor shall be a certified vehicle completer and must affix their National Safety Mark (NSM) certification sticker on each unit.
- 3.5.1 State NSM number. \_\_\_\_\_

#### **4.0 INSTRUCTIONS FOR COMPLETION OF SPECIFICATIONS**

- 4.1 All items in these specifications must be answered indicating compliance or non-compliance. **Bidders shall state "yes" for compliance or state deviation, or give a reply where requested**

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**to do so.** Deviations shall be clearly stated and fully detailed. Alternatives will be considered subject to evaluation.

4.2 Each bidder is required to fill in every blank. **Failure to do so may be used as a basis for rejection of bid.**

**5.0 PERFORMANCE**

5.1 The dump-spreader w/snow plow shall be capable of consistent top performance for hauling, spreading and plowing at temperatures up to -40°C, i.e., during the winter environment which is normal to the City of Winnipeg. \_\_\_\_\_

**ALTERNATIVE 1 – U-BODY DUMP/SANDER, STAINLESS STEEL**

The following **Sections 6.0 – 10.0** include specifications for a stainless steel, U-body dump/sander. See Form B: Prices for stainless steel U-body pricing.

STATE MAKE AND MODEL OF BODY BEING BID: \_\_\_\_\_

**6.0 CONSTRUCTION MATERIAL (Alt. 1)**

6.1 Body sides, tailgate and front panel shall be fabricated of minimum 3/16 in. 304 Stainless Steel with minimum yield strength of 36,000 psi except where otherwise noted. \_\_\_\_\_

6.2 All fasteners, washers, hardware, brackets and accessories shall be 316 stainless steel. \_\_\_\_\_

**7.0 WEIGHT & DIMENSIONS (Alt. 1)**

7.1 Body weight – state weight. \_\_\_\_\_

7.2 Nominal length:  
\_\_\_\_\_, inside – 10 ft., state. \_\_\_\_\_

7.3 Nominal width:  
\_\_\_\_\_, inside – 7 ft. 4 in. approx., state. \_\_\_\_\_

\_\_\_\_\_, outside – 8 ft. max., state. \_\_\_\_\_

7.4 Height of sides – 32 in. approx. without plank gussets, state. \_\_\_\_\_

7.5 Height of tailgate – 38 in. approx., state. \_\_\_\_\_

7.6 Height of front – to match chassis cab height. \_\_\_\_\_

7.7 Capacity (water level) – 6.0 yd<sup>3</sup> approx., state. \_\_\_\_\_

**8.0 FRONT (Alt. 1)**

8.1 Construction – 3/16 in. stainless steel plate with provision for a front mounted hoist.

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8.2 Cab shield – approx. 24 in. deep with 20° slope, full width of dump body, c/w reinforced ends.

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**9.0 SIDES AND FLOOR (Alt. 1)**

9.1 Construction – 3/16 in. stainless steel construction with vertical reinforcement(s) on sides.

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9.2 Top side rail – heavy duty, reinforced, 4" x 3" x 3/16" rectangular tubing or equal, state material.

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9.3 Plank gussets – for 2 in. width planks, with ½ in. diameter boltholes.

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9.4 Sides to incorporate integral fenders, sloped away from body.

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9.5 Rear side post – formed, one per side, 10 ga. min..

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9.6 Lifting lugs – four (4) D-ring type, Buyers Products B-40 or equal, installed on inside of box, one per corner, 3 in. from front and rear, 1½ in. below planks.

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9.7 Access ladder – one (1) required, stainless steel, located at front passenger side corner of body, min. 3 in. from side of body, fold-up design.

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9.7.1 Ladder rungs – traction type rungs, 13-gauge approx., 2¼ in. width, 4-hole design or equal.

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9.7.2 First rung to be maximum 18 in. from ground level, 14 in. rung spacing to top of body.

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9.7.3 Grab handles – located for ergonomic access to top of box.

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**10.0 TAILGATE (Alt. 1)**

10.1 Construction – 3/16 in. stainless steel with vertical and horizontal reinforcement ribs.

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10.2 Type – shall be a two way tailgate able to open from the top and bottom.

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10.2.1 Tailgate shall not protrude above floor in horizontal or full down position.

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10.2.2 There shall be a minimal gap between tailgate and the floor and sides when tailgate is in closed position.

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10.3 Vertical and horizontal structural reinforcements c/w a self-cleaning bottom rail.

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, inside – 7 ft. 4 in. approx., state.

, outside – 8 ft. max., state.

12.4 Height of sides – 32 in. approx. without plank gussets, state.

12.5 Height of tailgate – 38 in. approx., state.

12.6 Height of front – to match chassis cab height.

12.7 Capacity (water level) – 6.0 yd<sup>3</sup> approx., state.

**13.0 FRONT (Alt. 2)**

13.1 Construction – ¼ in. aluminium plate with provision for a front mounted hoist.

13.2 Cab shield – approx. 24 in. deep with 20° slope, full width of dump body, c/w reinforced ends.

**14.0 SIDES AND FLOOR (Alt. 2)**

14.1 Construction – ¼ in. high tensile aluminium construction.

14.2 Top side rail – heavy duty, reinforced, 4" x 3" x ¼" rectangular tubing or equal, state material.

14.3 Plank gussets – for 2 in. width planks, with ½ in. diameter boltholes.

14.4 Sides to incorporate integral fenders, sloped away from body.

14.4.1 Rear side post – formed, one per side, 10 ga. min..

14.5 Lifting lugs – four (4) D-ring type, Buyers Products B-40 or equal, installed on inside of box, one per corner, 3 in. from front and rear, 1½ in. below planks.

14.6 Access ladder – one (1) required, aluminium, located at front passenger side corner of body, min. 3 in. from side of body, fold-up design.

14.6.1 Ladder rungs – traction type rungs, 11-gauge approx., 2¼ in. width, 4-hole design or equal.

14.6.2 First rung to be maximum 18 in. from ground level, 14 in. rung spacing to top of body.

14.6.3 Grab handles – located for ergonomic access to top of box.

**15.0 TAILGATE (Alt. 2)**

15.1 Construction – ¼ in. aluminium with vertical and horizontal reinforcement ribs.

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15.2 Type – shall be a two way tailgate able to open from the top and bottom. \_\_\_\_\_

15.2.1 Tailgate shall not protrude above floor in horizontal or full down position. \_\_\_\_\_

15.2.2 There shall be a minimal gap between tailgate and the floor and sides when tailgate is in closed position. \_\_\_\_\_

15.3 Vertical and horizontal structural reinforcements c/w a self-cleaning bottom rail. \_\_\_\_\_

15.3.1 Tailgate shall be structurally reinforced and shall have heavy duty (minimum ¼ in.) end plates. \_\_\_\_\_

15.4 Tailgate pins – 1¼ in. steel, top and bottom. \_\_\_\_\_

15.5 Support chains – 7/16 in. transport, grade 70, adequately fastened c/w chain storage. \_\_\_\_\_

15.5.1 Spreader chains – 7/16 in. transport, grade 70, adequately fastened c/w chain storage. \_\_\_\_\_

15.5.2 Support and spreader chains shall be equipped with a protective cover. \_\_\_\_\_

15.6 Tailgate locking mechanism – in-cab control, air operated with air brake pot operated trip. Shall have grease fittings at all bushings/ shaft supports. \_\_\_\_\_

15.6.1 The locking mechanism shall be adjustable to ensure adequate lock-up with tailgate closed. \_\_\_\_\_

**16.0 SCREENS**

Note: The remaining Sections 16.0 – 36.0 includes specifications for both body configurations/Alternatives.

16.1 Screen support – heavy-duty steel construction, I-beam preferred, state material and dimensions. \_\_\_\_\_

16.2 Screens – four (4) sections, easily removable, heavy duty steel construction. \_\_\_\_\_

16.3 Screen openings – 3" x 3" approx., state. \_\_\_\_\_

16.4 Wire size – ⅜ in. minimum, state. \_\_\_\_\_

**17.0 CONVEYOR ASSEMBLY**

17.1 Discharge – front centre discharge. \_\_\_\_\_

17.2 Rear access door – required for easy access to chain, sprockets and shaft. \_\_\_\_\_

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- 17.3 Conveyor shall be an integral part of the body floor. \_\_\_\_\_
- 17.4 Frame – 3/16 in. min., 160,000 psi steel. \_\_\_\_\_
- 17.5 Conveyor cover – hinged cover, 3/16 in. 160,000 psi steel or equivalent material, easily removable, reinforced as required. \_\_\_\_\_
- 17.6 Chain – 18 in. width minimum, pintle chain type, self-cleaning, 40,000 lbs. capacity minimum. State make and model. \_\_\_\_\_
- 17.7 Scraper bars – required, approx. 9 in. spacing. \_\_\_\_\_
- 17.8 Chain tension – shall provide appropriate chain tension for the main conveyor chain at all times under all normal operating conditions. \_\_\_\_\_
- 17.9 All grease fittings for entire conveyor assembly (including tensioner) shall be readily accessible or shall be equipped with remote grease zerks as required. \_\_\_\_\_
- 17.10 Gear box – mounted at discharge end, serviceable, bolt-on, c/w built-in feedback sensor. \_\_\_\_\_
- 17.10.1 The gear box mounting plate shall be adjustable to allow alignment of input and conveyor shafts. \_\_\_\_\_
- 17.11 A polyethylene sheet, min. ½ in. thick, shall be installed on frame rails under the main conveyor c/w clean-out provision to prevent spreader material from collecting on truck chassis frame. \_\_\_\_\_
- 17.12 Discharge gate shall be designed so that spillage does not occur with the conveyor stopped and gate is open. \_\_\_\_\_
- 17.12.1 Discharge gate opening scale – required with eleven (11) markings, evenly spaced and numbered from 0 (closed) to 10 (fully open). The scale and indicator shall be visible by the operator when looking out the rear window of the truck. \_\_\_\_\_
- 18.0 SPINNER ASSEMBLY**
- 18.1 Spinner shall be hydraulically operated, equipped with quick couplers. Couplers shall be installed in banks in convenient locations, equipped with colour coding, covers and plugs. \_\_\_\_\_
- 18.2 Chute and shroud – minimum 3/16 in. heavy duty steel plate construction. \_\_\_\_\_
- 18.3 Spinner motor – CHAR-LYNN or equal, state make, model and part number. \_\_\_\_\_
- 18.3.1 Rotation – dual rotation, actuated in cab. \_\_\_\_\_
- 18.4 Drive shaft – completely sealed. \_\_\_\_\_
- 18.5 Spinner assembly to be chassis mounted, adjustable. \_\_\_\_\_

18.6 Spinner disk – 20 in. diameter approx., height adjustable. \_\_\_\_\_

18.6.1 Spinner disk material – 10 ga. abrasion resistant stainless steel disk. \_\_\_\_\_

18.6.2 Fins – six (6) minimum, ¼ in. surface hardened mild steel. \_\_\_\_\_

18.7 Spinner disk, shaft and motor shall be capable of quick attachment without the use of tools. \_\_\_\_\_

18.8 Spread – shall be capable of spreading evenly up to 35 ft.. \_\_\_\_\_

**19.0 HEADLIFT HOIST**

19.1 Front hoist – multi-stage, front-mounted headlift hoist, nitrated, quenched and polished cylinder stages, protected against corrosion. State make and model being bid. \_\_\_\_\_

19.2 Capacity – minimum 20 tons @ 2,000 psi. \_\_\_\_\_

19.3 Dumping angle – 45° from horizontal, cylinder must lower under its own weight with empty load in low ambient temperatures. \_\_\_\_\_

19.4 Grease fittings – required at all pivot points. \_\_\_\_\_

**20.0 TARPAULIN**

20.1 Type – air or electric flip swing arm design, mesh tarp, mounted on cab shield. \_\_\_\_\_

20.2 Tarp assembly shall not interfere with rear warning light visibility, stowed or un-stowed. \_\_\_\_\_

**21.0 HYDRAULICS**

21.1 Hydraulic pump – front mounted, variable displacement, load sensing axial piston pump, Rexroth A10V071 Series c/w test port no substitute. \_\_\_\_\_

21.1.1 Hydraulic pump shall be crankshaft driven by splined tubular drive shaft (square style drive shafts are not acceptable) attached to pump with a taper lock collar. \_\_\_\_\_

21.1.2 Hydraulic pump drive shaft shall be equipped with accessible grease fittings on U-joint crosses. \_\_\_\_\_

21.2 Hydraulic valve bank – pressure compensated, stackable, proportionally controlled using electric solenoids with pulse width modulation, Rexroth MP-18 Series, no substitutes. \_\_\_\_\_

21.2.1 Each section to have a manual override on the valve in case of electric control failure. \_\_\_\_\_

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21.2.2 The valve bank shall be configured to operate the following functions:

- i) Main conveyor – shall operate in two (2) directions with proportional speed. \_\_\_\_\_
  - ii) Spinner – shall operate in two (2) directions with proportional speeds. \_\_\_\_\_
  - iii) Box hoist(s) – single acting lift cylinder for rear dump and two (2) double acting lift cylinders for Alternative 1 side tipper. \_\_\_\_\_
  - iv) Plow hydraulics – double acting cylinders providing raise/lower and angling left and right. \_\_\_\_\_
  - v) Gate – valve shall provide bi-directional control of gate. \_\_\_\_\_
- 21.3 Hydraulic connectors – colour coded quick disconnect for spinner and plow hydraulics. Couplers shall be installed in banks in convenient locations, equipped with covers and plugs. \_\_\_\_\_
- 21.4 Suction line and case drain ball valves – required, easily accessible, lockable with bolts. \_\_\_\_\_
- 21.5 Valve enclosure and hydraulic tank – 1-piece design, mounted behind the cab on top of the frame rails, approx. 35"H x 24"W x 12"D. Enclosure shall be spring mounted on one side to allow for truck frame flexing. \_\_\_\_\_
- 21.5.1 Outlet ports shall exit the enclosure facing the rear of the truck cab. \_\_\_\_\_
- 21.5.2 All fittings shall be ORB or JIC threads where possible. No NPT connections acceptable. \_\_\_\_\_
- 21.5.3 All external tubing to be stainless steel on valve enclosure. \_\_\_\_\_
- 21.5.4 Rear of valve enclosure shall open on side-mounted hinges. The opening shall swing sufficiently to access, adjust and completely remove internal components. The cover shall be completely water tight c/w heavy duty hood-type or battery box-type latches. \_\_\_\_\_
- 21.5.5 Drain hole – approx. ½ in. diameter. \_\_\_\_\_
- 21.5.6 The entire enclosure shall be completely weather proof with the exception of the drain hole. All covers, bulkheads, fitting openings etc. must be sealed. \_\_\_\_\_
- 21.6 Hydraulic tank section – mounted behind the cab on top of the frame rails, approx. 160 Litre capacity. \_\_\_\_\_
- 21.6.1 Dimensions – 35"H x 30"W x 12"D approx.. \_\_\_\_\_
- 21.6.2 Breather cap – 3 in. diameter, pressurized @ 5 psi, mounted on a 6 in. stand pipe. \_\_\_\_\_
- 21.6.3 The hydraulic tank shall have a 1½ in. diameter magnetic drain plug. \_\_\_\_\_

- Magnetic plug is not required if a magnetic element in the return filter is supplied. \_\_\_\_\_
- 21.6.4 The hydraulic tank shall be equipped with a 1 in. diameter case drain inlet. \_\_\_\_\_
- 21.6.5 The interior of the hydraulic tank shall be coated with Glyptol or equivalent to prevent the tank from corroding. \_\_\_\_\_
- 21.6.6 Electric low level sensor – mounted inside tank, activating a light and buzzer located inside the cab. The alarm shall be activated when oil level is approx. 13 in. from the bottom of the tank. The wiring must enter the side of the tank near the top of the tank. \_\_\_\_\_
- 21.6.7 Sight glass – two (2) level gauges required, one high mounted, one low mounted, each required in a protective metal case. \_\_\_\_\_
- 21.7 Hydraulic filters:
- 21.7.1 Return filter – serviceable without oil loss, tank mounted preferred, c/w clogging indicator. \_\_\_\_\_
- 21.7.2 Pressure side filter – non-bypass type, absolute rated filter element, located before oil reaches the valve bank, c/w clogging indicator. \_\_\_\_\_
- 21.7.3 Both filters shall contain a corrosion resistant coating, beta rating of 200, 10 micron particle size, and shall be ergonomically located for servicing. \_\_\_\_\_
- 21.8 Hydraulic hoses – wire braid reinforced, rated for system operating pressure with 4 to 1 safety factor for burst pressure. \_\_\_\_\_
- 21.8.1 Hydraulic hoses to be properly routed, fastened and protected at wear and scuff locations. \_\_\_\_\_
- 21.9 Hose fittings – hydraulic full flow, crimp-on (non-reusable) type. \_\_\_\_\_
- 21.9.1 Black iron fittings not acceptable on pressure lines or pump suction line. \_\_\_\_\_
- 21.10 Bulkhead fittings shall be installed on all quick couplers and all points where hydraulic lines flex such as dump box hinge. \_\_\_\_\_
- 21.11 Hydraulic oil – Petro Canada HVI-22. \_\_\_\_\_
- 22.0 SAND SPREADER CONTROL SYSTEM**
- 22.1 The control system shall be microprocessor based and must be a closed loop system, Compu-Spread CS440, no substitutes. \_\_\_\_\_
- 22.2 The successful bidder shall be responsible for ensuring the CS440 system is supplied with the manufacturer's latest software version. \_\_\_\_\_
- 22.3 Mounting location – CS440 Controller shall be ergonomically located

- for operator. Exact location to be determined at time of installation. \_\_\_\_\_
- 22.4 Remote pause required on top of joystick. \_\_\_\_\_
- 22.5 The CS440 Controller shall not be wired through the ignition, i.e., shall receive power when engine is shut-off. \_\_\_\_\_
- 22.6 Sand gate read back device – automatic feedback to controller. The read back device shall be an integral part of the cylinder, P/N 223254. \_\_\_\_\_
- 22.6.1 Sand gate opening – the operator shall be able to select a gate opening and the control system shall compensate conveyor speed accordingly without affecting the application rate. \_\_\_\_\_
- 22.6.2 Gate opening setting shall be clearly marked with a range from 1-10 and shall be visible to the operator while in the driver's seat. \_\_\_\_\_
- 22.7 Control system enclosure – all controls and switches must be clearly identified and back-lit. \_\_\_\_\_
- 22.8 Material sensor – infra red, located at the spinner. \_\_\_\_\_
- 23.0 PRE-WETTING SYSTEM**
- 23.1 Model – Compu-Spread variable ratio pre-wetting system, no substitutes, 0-10 gpm approx., plumbed through conveyor circuit return line oil. \_\_\_\_\_
- 23.2 An adjustment pressure relief valve shall be installed in the pre-wet pump /flowmeter enclosure. \_\_\_\_\_
- 23.3 A provision shall be provided to flush pre-wet pump and lines with clean water without draining pre-wet tank. \_\_\_\_\_
- 23.4 Reservoirs – polyethylene construction, 5/16 in. wall thickness min., frame mounted under body each side, 600 Litre combined capacity minimum, capable of filling from ground level when body is in the down position. \_\_\_\_\_
- 23.4.1 Drain hole – 2 in. diameter minimum, c/w shut-off valves. \_\_\_\_\_
- 23.5 The reservoir shall be equipped with a sight gauge c/w floating level indicator. \_\_\_\_\_
- 23.5.1 Reservoir shall contain permanent markings indicating amount of liquid in tank, 50 L graduation approx.. \_\_\_\_\_
- 24.0 IN-CAB SYSTEM CONTROLS**
- 24.1 Control enclosure – all auxiliary controls and warning lights shall be contained in an enclosure measuring 13"L x 7"W x 9"D approx.. Controls shall be mounted on the top face. \_\_\_\_\_
- 24.2 Mounting location – the control enclosure shall be mounted on a heavy duty bracket, ergonomically angled and positioned at the

- appropriate height to alleviate driver fatigue during prolonged use. \_\_\_\_\_
- 24.3 All controls and switches shall be clearly identified and back-lit for night time use. \_\_\_\_\_
- 24.4 Main power switch – required to supply power to all auxiliary panel functions, wired through ignition. \_\_\_\_\_
- 24.5 Plow control and dump box function – single quad joystick control, fully proportional in all directions, dual mode for dump box and plow. \_\_\_\_\_
- 24.5.1 Remote pause required on top of joystick. \_\_\_\_\_
- 24.5.2 A switch on the control panel shall actuate plow functions in one mode, dump function in the other mode. \_\_\_\_\_
- 24.5.3 The vertical axis (forward and backward) shall control the plow raise/lower and the dump raise/lower. Joystick forward plow and box lower, joystick rearward plow and box raise. \_\_\_\_\_
- 24.5.4 The horizontal axis (side to side) shall actuate plow angle left/right in "Plow" mode.** \_\_\_\_\_
- 24.6 Sander gate raise/lower switch – shall be actuated through the joystick, left/right function in "Dump" mode.** \_\_\_\_\_
- 24.7 Low hydraulic oil level light – complete with buzzer. \_\_\_\_\_
- 24.8 Plow power float function – required to limit amount of down force exerted by the plow on the road surface. Plow shall continue to follow the contours of the road surface while actuation. \_\_\_\_\_
- 24.8.1 Inductive plow float sensor – shall be supplied for fully auto power float operation. Pressure switch not acceptable. \_\_\_\_\_
- 24.8.2 Power float pilot light – Installed in control enclosure, activated when power float operation is "on". Pilot light required in addition to the back-lit switch. \_\_\_\_\_
- 24.8.3 Plow lower and lift controls must override the power float system. \_\_\_\_\_
- 24.9 Pre-wetting control – on/off switch combined with low material warning light. \_\_\_\_\_
- 25.0 SNOW PLOW**
- 25.1 Type – shall be a heavy duty, front-mounted, hydraulically reversible snow plow c/w quick connect plow hook-up system. State make and model being bid. \_\_\_\_\_
- 25.2 Dimensions – suitable for clearing a ten (10) ft. wide path when angled, 144"L x 42"H approx., state dimensions. \_\_\_\_\_

- 25.3 Moldboard – 1-piece reversible, approx. 0.300" thick with tubular steel frame. 

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- 25.3.1 Moldboard face shall be high density plastic material, capable of performing in -40° temperature without fracturing. 

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- 25.3.2 Vertical reinforcement ribs – minimum seven (7) heavy duty vertical ribs, 3/8 in. thick minimum. 

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- 25.3.3 Horizontal reinforcements – required top and bottom, heavy duty tubular steel construction. 

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- 25.4 Trip edge – minimum three (3) section trip blade capable of clearing manholes, catch basins and other obstructions without damaging the plow. Trip edge shall protrude minimum 4 in. above the pavement. 

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- 25.4.1 Trip edge springs – minimum six (6) heavy duty coil type springs, vertically mounted, compression type. 

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- 25.4.2 Blade shoes – two (2) heavy duty carbide swivel type shoes, screw adjustable for height, replaceable wear pads, approx. 5" x 11" each. 

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- 25.4.3 Shoes shall swivel no more than 45° either side of centre. 

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- 25.5 Cutting edge – each blade section shall be equipped with a bolt-on high carbon steel cutting edge. The cutting edge mount shall be spring loaded to allow deflection of the cutting edge when a obstacle is encountered. 

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- 25.6 Snow deflector – top mounted, steel construction, curved to follow contour of plow, designed to prevent snow from coming over top of snow plow, full width x 12 in. deep approx.. 

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- 25.7 Curb damage protectors – high carbon steel, located on each side of plow, bolted to the cutting edge. 

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- 25.8 Angling – 30° left and right, two (2) industrial type cylinders, with nitrated piston rods. 

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- 25.9 Plow lift mechanism – parallel lift design utilizing a heavy duty chain and plate assembly. State details of lift mechanism. 

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- 25.10 Mouldboard shall be equipped with a self-levelling device to keep cutting edge parallel to road surface while the plow is in the carry position regardless of the degree of angle. 

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- 25.11 Lift cylinder – double acting, nitrated quenched and polished, protected against corrosion, minimum 4 in. diameter barrel, 12 in. stroke approx.. State make and model being bid. \_\_\_\_\_
- 25.11.1 Lift cylinder and the lift cylinder mechanism shall be enclosed within the hitch when the plow is detached from the chassis to form a flat surface. \_\_\_\_\_
- 25.12 Reversing cylinders – minimum 3 in. barrel, 1½ in. shaft, 20 in. stroke approx., protected with an integral cushion valve. \_\_\_\_\_
- 25.13 Grease fittings – required on all pivot points. \_\_\_\_\_
- 25.14 Quick attach – shall be round bar attached to the end of the driveframe on the plow with the female section consisting of two (2) jaws welded to the front hitch plate. \_\_\_\_\_
- 25.15 Hydraulic connectors – quick disconnect, permanently colour coded. \_\_\_\_\_
- 25.16 Hitch – heavy duty, quick disconnect hitch capable of handling loads imposed by plowing. Hitch shall rest below the truck cab so hood can tilt forward at all times without having to remove or adjust any portion of the hitch. \_\_\_\_\_
- 25.16.1 Hitch plate – heavy duty hitch plate, 25"H x 45"W x ½"T approx. with vertical reinforcements as required. \_\_\_\_\_
- 25.16.2 Main plate shall be bolted to end of truck chassis frame rails and additional diagonal bracing from bottom of main plate to chassis frame shall be provided. \_\_\_\_\_
- 25.17 Clearance markers – flexible rod type, located at the outside edges of the plow to assist the operator in locating the plow edges while plowing. \_\_\_\_\_
- 25.18 Reflective markings – outside edges of plow shall be covered with reflective paint or Truck-Lite 98101 reflective marking tape. \_\_\_\_\_
- 26.0 ELECTRICAL & LIGHTING**
- 26.1 All lighting to conform to C.M.V.S.S. and Manitoba Highway Traffic Act. \_\_\_\_\_
- 26.2 Supplier installed lighting and lighting equipment shall be Truck-Lite (unless otherwise specified) and shall include the following components:
- 26.3 Combination turn/stop and taillights – P/N 44982R, one (1) per side. \_\_\_\_\_
- 26.3.1 High mounted combination turn/stop and taillights – P/N 44982R or 60250R oval shaped light w/60700 grommet, one (1) per side. \_\_\_\_\_
- 26.4 Back-up lights – P/N 44206C, one (1) per side. \_\_\_\_\_
- 26.5 Grommets – taillights and back-up lights to be mounted in P/N 40700

- grommets. 

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- 26.6 All rear lighting shall be fully visible when tailgate is lowered to horizontal position. 

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- 26.7 Enclosures – taillights and reverse lights shall be housed in stainless steel tubing enclosures. Diodes shall not be installed in the enclosures. 

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- 26.8 3-Light cluster – three (3) P/N 10250R lights with P/N 10700 mounting grommets, protected to avoid damage. 

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- 26.9 Clearance lamps – P/N 10250R and P/N 10250Y housed in P/N 10700 mounting grommets. 

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- 26.9.1 No clearance light shall protrude beyond the dump body. 

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- 26.10 Licence plate lamp – P/N 15040, complete with licence plate bracket. 

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- 26.11 Harnesses – Truck-Lite 50 Series Harness System, properly routed and secured. Splices not acceptable. 

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- 26.12 Junction boxes – P/N 50400, complete with necessary compression fittings, required for all vehicle lighting harness connections, located to be protected from damage. 

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- 26.13 All plug-in connectors and entire inside of junction boxes shall be coated with Truck-Lite NKY Compound prior to assembly. 

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- 26.14 Back-up alarm – STAR 62-097, 97 dB(A), installed at rear of dump body, located to be protected from damage. 

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- 26.15 Mini Light Bar – Grote 76813, 360° visibility, mounted to top of cab guard c/w stainless steel beacon guard. 

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- 26.16 Oval warning lights – two (2) required, Truck-Lite P/N 77363 mounted as high as possible in rear corner pillars of box, above high mounted taillights, one (1) per side. 

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- 26.16.1 Mini light bar and warning lights shall be actuated by separate switches located on the control panel. 

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- 26.17 Trailer plug – one (1) plastic 6-pole connector, installed near hitch, wired to code and separately protected through the chassis manufacturer’s factory auxiliary fuse panel/circuit breakers. 

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- 26.18 Snow plow light kit – daytime running light compatible snow plow light kit, Truck-Lite P/N 80900 w/appropriate adapter kit for truck headlights, rubber or shock mounted on hood of truck. 

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- 26.18.1 Plow lights shall be controlled by OEM chassis light switches and controls. 

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- 26.18.2 A clearly marked switch shall be installed on the instrument 

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- panel to allow the operator to switch between plow lights and truck lights. \_\_\_\_\_
- 26.19 All switches for plow lights, beacon lights, auxiliary lighting etc. shall be mounted on the chassis cab dash with rocker type switches, back-lit with permanent type labels. \_\_\_\_\_
- 26.20 All wiring for the back-up alarm, warning beacons/strobes and plow lights shall be colour coded, loomed and properly secured. \_\_\_\_\_
- 26.21 All electrical connectors shall be crimped and soldered, then sealed using heat shrink tubing. \_\_\_\_\_
- 26.21.1 All joining of wires shall be soldered and sealed using heat shrink tubing or approved OEM weathertight connections (crimp on electrical connectors for joining wires are not acceptable). \_\_\_\_\_
- 26.22 All electrical cable supplied shall be shielded, low temperature rated, anti-scuff, industrial type cables, Tectran 742A2 Articflex or equal. \_\_\_\_\_
- 26.23 Any holes required to run wires through shall be drilled (not punched), grommetted and sealed as required. \_\_\_\_\_
- 26.24 The vehicle shall be equipped with a Control Products Inc. model 999J infrared temperature sensor, no substitutes. The sensor shall read in degrees Celsius.** \_\_\_\_\_
- 26.24.1 The sensor shall be mounted on the front hitch plate, enclosed in a metal guard, protected from damage.** \_\_\_\_\_
- 26.24.2 Temperature readings (pavement and ambient) shall be Displayed on the CS440 Controller.** \_\_\_\_\_
- 27.0 MISCELLANEOUS**
- 27.1 Rear hitch plate – ½ in. thick solid steel, (laminated plates unacceptable) installed to chassis frame. \_\_\_\_\_
- 27.1.1 "A" frame hitch reinforcement – 3" x 3" x ¼" angle iron, welded to back of hitch plate and bolted to chassis frame web. \_\_\_\_\_
- 27.2 Pintle hitch – Premier 240 or approved equal, installed on hitch plate at a 24 in. height. \_\_\_\_\_
- 27.3 Lunette eyes for trailer safety chains – one (1) each side of hitch, Buyers Products B48 or equal. \_\_\_\_\_
- 27.4 Rear fenders – poly construction, frame mounted, 1-piece, Fenderco TRF-3 or equal, state make and model. \_\_\_\_\_
- 27.5 Mudflaps – black rubber, no-name, required front and rear of back tires c/w anti-sail brackets. Required rear of front tires. \_\_\_\_\_

- 27.5.1 Rear mudflaps shall not contact the ground when the sander-dump body is at maximum dump angle. 

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- 27.6 Dump body prop – single or double prop, steel tubing construction, to support dump body with a full load in raised position and permit servicing of hoist, operable by a single person, designed so as not to interfere with hoist cylinder or surroundings . 

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- 27.6.1 Dump body prop to be complete with receiving bracket. 

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- 27.7 All grease fittings for the entire spreader including conveyor assembly, spinner assembly, cylinder mounts, pivot points, dump body prop, plow, etc., shall be readily accessible or shall be equipped with remote grease zerks as required. 

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- 27.8 Front bumper extensions – full width heavy duty steel bumper extensions. 

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- 27.9 Side planks – 2" x 6", painted black on all sides, installed and bolted into gussets. 

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- 27.10 Body clearances shall be approx 0.0625 in. between bushings and shafts on any rotating parts for trip mechanism to prevent seizing. The rear tailgate must seal properly to hold salt without spilling through any spaces. 

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**28.0 WELDING**

- 28.1 The Contractor shall be CWB Certified, and/or ASME qualified or have Journeyman qualifications, specifically with respect to welding on stainless steel, side and rear hinge assemblies, and front snow plow hitch plate. All welding shall be of excellent workmanship and appearance, and shall conform to CSA Standard W59. 

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- 28.2 All welds shall be continuous welds where applicable. 

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- 28.3 The combo body manufacturer shall have a documented quality control program in effect including inspection of welds by a qualified inspector. 

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**29.0 INSTALLATION**

- 29.1 Any holes required in the chassis frame web must be drilled and reamed to fit bolts. 

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- 29.1.1 Drilling on chassis frame flanges is not permitted. 

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- 29.1.2 Welding on the chassis frame is not permitted with the exception of installation of dump body pivot support. 

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- 29.2 Tire clearance – min. 4 in. plus full suspension deflection. 

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**30.0 FINISH**

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30.1 All steel components shall be sandblasted, properly cleaned, primed and finished as follows: (Note: stainless steel and aluminium components shall remain unfinished).

30.1.1 Front and rear hitch plates with accessories, hydraulic oil reservoir and valve enclosure, and underside of floor (steel) shall be primed with Endura EP32 Intermix Epoxy Primer then finished with 3-5 mils black Endura EX-2C Topcoat. (Inside of steel floor excluded). \_\_\_\_\_

30.1.2 All unprotected components in the valve enclosure, including the interior of the enclosure shall be primed with a suitable primer. \_\_\_\_\_

**31.0 WEIGHT DISTRIBUTION**

31.1 The dump/sander vehicle shall not exceed the City of Winnipeg's limit for gross vehicle weight, axle and tire loads with the unit (including the chassis) fully fuelled and operational, full liquid tank, one (1) operator, and including a full payload (struck capacity) of dry sand.

Note: The City of Winnipeg and the Province of Manitoba limits the gross vehicle weight and axle and tire loads to:

- Front axle (steering axle) – 7300 kg (16,094 lbs.).
- Rear axle (single axle) – 9100 kg (20,062 lbs.).
- Tire load – 9 kilograms for each millimetre width of tire (approx. 500 lbs. per inch of tire width).

31.2 State weight distribution of the complete vehicle with the unit fully fuelled, with one (1) operator, full pre-wet tanks and full payload (struck capacity) of dry sand @ 2700 lbs/yd<sup>3</sup>:

31.2.1 Alternative 1 – U-body dump/sander body, stainless steel.

- i) Front axle weight – state weight (lbs.). \_\_\_\_\_
- ii) Rear axle weight – state weight (lbs.). \_\_\_\_\_

31.2.2 Alternative 2 – U-body dump/sander body, aluminium.

- i) Front axle weight – state weight (lbs.). \_\_\_\_\_
- ii) Rear axle weight – state weight (lbs.). \_\_\_\_\_

31.3 Weigh scale ticket – the Contractor shall provide a certified weigh scale ticket upon delivery of the completed unit. The scale ticket shall include front and rear axle weights including one (1) operator and a full tank of fuel. \_\_\_\_\_

**32.0 HYDRAULIC COMMISSIONING**

Note: A Hydraulic Commissioning or start-up procedure after the installation of the entire system is required as follows:

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32.1 Start-up pump at no load – hydraulic oil shall be pre-filtered through a 10 micron absolute, ensure all fittings are tightened and hose routing is proper.

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32.2 Flush system at high and low pressure – ensure all fittings are tight.

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32.3 Bleed air and fix leaks – ensure all functions are operating properly.

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32.4 Verify performance and pump adjustments – maximum and standby pressure adjustments.

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32.5 Program and set-up Sand Spreader Control System – solenoid nulling, ground speed signal, etc..

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32.6 Road test – verify operation of all functions to include hydraulic functions, controller functions, pre-wetting functions, electrical functions and lighting functions.

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### **33.0 MANUALS**

33.1 Manuals supplied under this contract shall be in English and shall be specifically for the cab & chassis, snow plow, sander/dump box, pre-wetting system and control system supplied. General purpose manuals are not acceptable. The manuals shall cover the complete equipment including all components thereof, CD is preferred where available.

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33.2 The following manuals shall be supplied with the units when delivered:

i) Operator's manual – one (1) per unit plus one (1) additional manual.

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ii) Parts, repair and service technical manuals – three (3) complete sets including preventative maintenance schedules. CDs are preferred.

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iii) Detailed wiring schematics – three (3) complete sets, including trouble shooting guide.

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### **34.0 TRAINING**

34.1 The Contractor shall provide operational and maintenance training by qualified staff for City of Winnipeg personnel. The training shall be conducted in separate sessions for each group of personnel. Each session shall be approximately ½ day in duration and shall provide adequate familiarization and orientation on the unit, to the satisfaction of the Contract Administrator. The training shall be conducted in Winnipeg at a location to be designated by the Contract Administrator.

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34.2 State if other training aids (videos, CDs) are available.

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### **35.0 PERFORMANCE RELIABILITY**

Template Version: G320040301

35.1 The responsibility for the design of the complete unit, its performance and reliability shall rest upon the Contractor.

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35.2 The term "*repeat failures*" as used herein is defined to mean that the same component, subassembly, or assembly develops repeated defects, breakdowns and/or malfunctions rendering the unit inoperative, or requiring repeated shop correction, service and/or replacement during the warranty period applicable for said component, sub-assembly, or assembly. Minor items or ordinary service adjustments are not included, or considered under the scope of "repeated failures", as well as other factors, such as operational damage due to accidents, misuse or lack of proper maintenance, service and lubrication attention by not following the manufacturer's preventative maintenance schedules.

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35.3 Where the unit develops "repeated failures" in service, the Contractor shall make any necessary engineering changes, repairs, alterations or modifications in order to guarantee reliability of performance.

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### 36.0 **WARRANTY**

36.1 The warranty for the **entire unit** including (but not limited to) dump body, plow, sand spreader control system, pre-wetting system, etc. shall cover the complete equipment, and all parts thereof against any defects of workmanship, construction and materials, for a period of not less than **two (2) years**. Any article that has become defective during said warranty period and has not proven to have been caused by negligence on the part of the user shall be repaired or replaced at no cost to the City. The warranty shall be effective from the date the equipment is put into service by the City of Winnipeg.

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36.1.1 A new two (2) year warranty period shall be provided for any article that is repaired or replaced under the terms of the "repeat failures" clause (Section 35.0 Performance Reliability). The new warranty period shall be effective from the date of acceptance of the repaired or replaced article.

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36.2 The warranty for all **hydraulic cylinders** shall cover the complete equipment, and all parts thereof against any defects of workmanship, construction and materials, for a period of not less than **two (2) years**. Any article that has become defective during said warranty period and has not proven to have been caused by negligence on the part of the user shall be repaired or replaced at no cost to the City. The warranty shall be effective from the date the equipment is put into service by the City of Winnipeg.

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**FORM O: QUESTIONNAIRE**

1.0 **STATE** the delivery time of the complete order from the date of official notification of award: (See D5.1)

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2.0 **LIST** any significant features that will be supplied standard on the unit being offered, but were not specifically mentioned in the Detailed Specifications:

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3.0 **LIST** three current users of the offered model:

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4.0 **STATE** the location of the service facility:

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5.0 Does the equipment being offered meet or exceed the minimum requirements of the Detailed Specifications?

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6.0 **LIST** any deviations that might be considered less than equal to the Detailed Specifications:

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