COUNTY OF ROCKLAND
Department of General Services
Purchasing Division

Contract Award Notification

Title: **Truck, Heavy Duty Plow Truck**

Contract Period: **12/18/17 through 12/17/22**

Original Date of Issue: **12/18/17**

Date of Revision:

BID No: **RFB-RC-2017-125**

Ordering Method: **Order by special request**

Address Inquires To:

Name: Richard Ryan
Title: Purchaser I
Phone: (845) 364-3817
Fax: (845) 364-3809
E-mail: ryanri@co.rockland.ny.us

Description
This contract is to provide heavy duty snow plow trucks.

Contract #	Vendor Number	Contractor & Address	Telephone No.
Bid 17-125	0000007467	Beyer Brothers 109 Broad Avenue Fairview, NJ 07022 Contact: Michael T. Beyer m.beyer@beyerbros.com	(201) 943-3100 **FAX:** (201) 943-4721

COUNTY OF ROCKLAND
DGS – PURCHASING DEPARTMENT
BLDG. A, 2ND FLOOR, 50 SANATORIUM ROAD
POMONA, NY 10970
TELEPHONE NO.: 845-364-3820
FAX NO.: 845-364-3809

VENDOR: BEYER BROTHERE CORP.

LINE NO.	DESCRIPTION	ITEM NUMBER	EST. QTY.	UNIT	UNIT PRICE	BRAND NAME & PRODUCT CODE
1	**OSHKOSH Truck with Hi-Way Model E3020 10' Stainless Steel Spreader, Stainless Steel Hiway SA-9 Spreader and Bosch Hydraulic, Warsau Plow and Custom Hitch Mounted on Oshkosh P-Series Cab/Chassis to be priced complete chassis and body, Brand Name or Approved Equal**	**07003000001**	**1**	**EACH**	**$366,065.00**	**OSHKOSH P-Series Highway Spreader Warsau Plow**
2	**Item 1 Priced Out**		**1**	**EACH**	**$366,065.00**	
3	**Item 1 Price Written Out**	**Three Hundred Sixty Six Thousand Sixty Five Dollars and Zero Cents**				
4	**OSHKOSH Truck with Air Flow/Flo-N-Dump Body with Bosch Hydraulics and Warsau plow with custom hitch mounted Warsau Wing Plow and wing tower mounted to be priced complete with chassis and body, Brand Name or Approved Equal**	**07003000002**	**1**	**EACH**	**$408,964.40**	
5	**Item 4 Priced Out**		**1**	**EACH**	**$408,964.40**	**$408,964.40**
6	**Item 4 Price Written Out**	**Four Hundred Eight Thousand Nine Hundred and Sixty Four Dollars and Fourty Cents**				

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LINE NO.	DESCRIPTION	ITEM NUMBER	EST. QTY.	UNIT	UNIT PRICE	BRAND NAME & PRODUCT CODE
	OPTIONS					
7	**Reduction of price from either truck items 1 & 4 to eliminate SA-9 cross conveyor and installing a standard E3020 center mounted spinner assembly.**	**07003000003**	**1**	**EACH**	**<$1,966.00>**	
8	**Percent Discount offered from Manufacturer's list on Oshkosh options**	**07003000004**	**1**	**EACH**	**0 Percent Off**	
9	**Percent Discount offered from Manufacturer's list on Body options**	**07003000005**	**1**	**EACH**	**0 Percent Off**	
10	**Allison Transmission , Five (5) Year Extended Warranty**	**07003000006**	**1**	**EACH**	**$1,175.00**	
11	**Cummings Engine Five (5) Year Warranty**	**07003000007**	**1**	**EACH**	**$2,638.00**	
12	**INDICATE STANDARD DELIVERY AFTER RECEIPT OF PURCHASE ORDER**				**430 # OF DAYS ARO**	
13	**STANDARD MANUFACTURER EQUIPMENT WARRANTY, INDICATE NUMBER OF YEARS FOR PARTS AND LABOR**				**100% PARTS AND LABOR**	**Chasis 12- Months, Body 12- Months**

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TITLE:	**BID NUMBER**:
TRUCK, HEAVY DUTY SNOW PLOW	**RFB-RC-2017-125**

GENERAL SPECIFICATIONS

1. **SCOPE**

1.1. It is the intent of the following specification to describe a new, latest model in production Hi-Way Model E3020 10' Stainless Steel Spreader, Stainless Steel Hi-Way SA-9 Spreader, Bosch Central Hydraulics, Wausau Plow, and Custom Hitch Mounted on An Oshkosh P-Series Cab/Chassis. In recognition of the specialized nature of the chassis components and in the interest of insuring the safety of the operators, affixing responsibilities, minimizing downtime, maximizing productivity, and insuring proper service, warranty, and factory support beyond the point of sale, bids will be accepted only from truck chassis dealers who are factory authorized to sell, service and provide warranty support in this geographic area.

1.2. As the Rockland County Highway Department may wish to avail itself of the option to exercise long-term, factory sanctioned preventive maintenance service agreements/extended warranty programs, chassis dealers shall, at the time of the bid, provide a written statement identifying all major subcontractor mounted components (i.e. Body, hydraulic system and snow plow and coatings) and confirmation that component supplier is factory authorized to sell, service and provide warranty support in the geographic area defined as the County of Rockland.

1.3. The following specification is based upon various spreader bodies. Rockland County Highway Department has evaluated different types of bodies and has determined that this product is best suited for the county's needs in safety, quality, performance, and long term operating costs. This specification is not to be interpreted as restrictive, but rather as a measure of the safety, quality, and performance against which all equipment will be compared to. **In addition, the items listed below shall be considered as part and parcel to the bid**.

1.3.1. **Specifications** – In the event alternate chassis or equipment brands are bid, each vendor shall at the time of the bid submit two (2) copies of a technical description of the unit and components he/she proposes to furnish for the purpose of evaluation. Said representations should be sufficiently detailed so as to address this bid on an item-by- item basis. Specifications submitted by vendors shall be instrumental in substantiating compliance with this bid.

See Detailed Specifications Attachment B

1.3.2. **Brochures** – In the event alternate chassis or equipment brands are bid, each vendor shall at the time of the bid, submit two (2) copies of each manufacturer's color brochures depicting current production model, by means of photograph of the unit he/she proposes to furnish for the purpose of evaluation. (Xerox, Fax copy or Artist sketch not acceptable.) Brochure should be sufficiently detailed so as to clearly illustrate general arrangement and fabrication of the Dump Body, Plow, etc. and chassis model.

1.3.3. **Coating Specifications, Samples and MSDS Sheets** – In the event an alternate is bid, the vendor shall supply (2) wet and (2) dry samples at the time of the bid. Wet samples shall be in steel containers and be clearly labeled to match the stated offering. Dry samples shall be provided on 3" x 6" tin placards. MSDS sheets shall be provided and will be instrumental in verifying compliance.

1.3.4. **Piggybacking** -As per the New York State General Municipal law, all political subdivisions are allowed to make purchases through the resulting contract(s) for up to one year. Any other political subdivision will issue purchase orders directly to vendors within the specified contract period referencing the Rockland County contract and shall be liable for any payments due on such purchase orders; and shall accept sole responsibility for any payment due.

1.3.5. Bidders may not bid multiple products for one bid item. If a bidder offers more than one, only the lowest prices offering will be considered. In the event price offerings are identical, only the first item listed will be considered.

2. INSTRUCTIONS TO BIDDERS

2.1. In the event an alternate is bid, complete product specifications and brochures as described previously in the intent section shall be considered mandatory. The information submitted by vendors shall be instrumental in substantiating compliance with the requirements of this bid. Failure to submit these technical support documents at the time of the bid shall render the bid non-responsive.

2.2. In the event exceptions are taken, the vendor is hereby instructed to annotate and number the exceptions taken and provide all detail relevant to those exceptions listed by corresponding number on a separate sheet of paper.

2.3. Vendors are cautioned that unsubstantiated claims of compliance to the technical specification and/or any written representations that the product offered is of commensurate capability or an “or equal” nature will not constitute compliance with this requirement.

2.4. No individual claim(s) of compliance, equality or superiority shall receive any consideration in the absence of specific technical information to support such claims. The issuance of unsupported claims shall render the bid non- responsive.

2.5. In the event an alternate is bid; the Rockland County Highway Department reserves the right to request a demonstration within ten (10) working days of notification. Demonstration will be conducted at a designated location within the County of Rockland free of charge. Failure to comply with a request for demonstration may result in disqualification of bid.

3. GENERAL REQUIREMENTS

3.1. Bidders shall provide the names and addresses of five municipalities or companies nearest the County of Rockland owning and operating the proposed truck and equipment.

3.2. Bids containing restrictions will not be acceptable unless the Rockland County purchasing department deems that the restrictions conform to the Rockland County requirements.

3.3. The truck and equipment shall conform to all applicable Federal, State, and Local regulations.

3.4. All equipment and accessories shall be factory installed before delivery.

3.5. Pricing shall include all product and service warrantees within their bid.

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TITLE:	**BID NUMBER**:
TRUCK, HEAVY DUTY SNOW PLOW	**RFB-RC-2017-125**

3.6. The equipment shall be manufacturer's standard. It shall be equipped with the manufacturer's equipment and accessories which are included as standard in the advertised and published literature for the truck chassis, body, plow, spreader, and hydraulics.

3.7. Body supplier shall be nationally recognized and listed with the NTEA (National truck equipment Association).

3.8. All design, operational and material features shall fully comply with State and Federal Motor Vehicle Safety Standards.

3.9. The front and rear weight distribution of a fully loaded vehicle shall be within the limits set by the cassis manufacturer. The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer, under full load and all other loading conditions.

3.10. **Body/Accessory installer assumes responsibility for not voiding chassis manufacturer's warranty if award is issued separate of chassis manufacturer.**

3.11. **ALL PRICES MUST INCLUDE FREIGHT on chassis to body and accessory installers and include freight delivered to the Rockland County Highway Department.**

4. **APPROVED EQUALS**

4.1. 1 If the bidder is bidding approved equal, they shall first provide references showing locations the County of Rockland can visit of the exact make and model intended to be supplied. If bidding an alternate or approved equal, <u>two copies</u> of brochures, specifications, and any other pertinent information shall be sent with bid.

4.2. In the event an alternate is bid; the County of Rockland reserves the right to request a demonstration of the specific model bid. Failure to furnish the demonstration may render the bid for that item, non-responsive.

4.3 All specifications contained herein are considered minimum requirements for the manufacture and delivery of the "new" Heavy duty truck chassis and body. The terms "minimum" and "maximum" shall define the respective constraints that apply to the overall design, dimensions or quality level established by the Rockland County Highway Department, hereafter called purchaser. The term or equal shall define the degree of determined quality level and shall be the sole responsibility of the purchaser to judge whether the proposed equal submitted by the bidder meets the minimum established quality level. Where brand names are referenced, it shall be understood by the bidder that the specified brand and part number are open market commodities and, thus, must be furnished as specified herein. Where none of the aforementioned terms are referenced herein, the purchaser has established that no exceptions are permitted by the bidder.

4.4 **CLARIFICATIONS AND REQUESTS FOR APPROVED EQUALS**

Key Events and Dates:

At any time during this procurement up to the time specified in "Key Events/Dates" (Section 4.4), Bidders may request, in writing, a clarification or interpretation of any aspect, or a change to any requirement of the solicitation or any addenda to the solicitation. Requests may include suggested substitutes for specified items and for any brand names which whenever used in this solicitation shall mean the brand name or approved equal. Requested clarifications, changes, substitutes, or approval of items equal to

items specified with a brand name, must be submitted by **November 17, 2017** as specified in **Attachment A - Request for Change or Approved Equal.** An "Electronic Copy" in Microsoft "WORD" format on CD/DVD, must be included along with the hard copy Request for Change or Approved Equal. Any oral response which is not confirmed by an addendum shall not be official or binding on the County. Any request for a change to any requirement of the Contract documents must be fully supported with technical data, test results, or other pertinent information evidencing that the exception will result in a condition equal to or better than that required by the bid, without substantial increase in cost or time requirements. Any responses to such written requests shall be provided by the **County** in the form of addenda only. Only written responses provided as addenda shall be official and all other forms of communication with any officer, employee or agent of the County shall not be binding on the County.

If it should appear to a prospective Bidder that the performance of the Work under the Contract, or any of the matters relating thereto, is not sufficiently described or explained in the solicitation or Contract documents, or that any conflict or discrepancy exists between different parts thereof or with any federal, state, local or County of Rockland, ordinance, rule, regulation, or other standard or requirement, then the Bidder shall submit a written request for clarification to the County within the time period specified above.

The Bidder shall be responsible for clearly identifying all exceptions taken to the Contract Documents and all exceptions and requests for approved equals must be approved prior to submission of the Bidder's bid.

5. **BRAND NAME**

5.1. The use of brand name is for the purpose of describing the standards of quality, performance, and characteristics desired and is not intended to limit or restrict competition.

6. **MANUALS AND PUBLICATIONS**

6.1. The successful bidder shall supply <u>two copies</u> of all service and operation manuals for the truck chassis, body, spreader, plow, drive train, electrical, fuel, emissions, and any supplemental system manuals.

7. **DELIVERY**

7.1. All manufacturer's pre-delivery service shall be performed prior to delivery to the County of Rockland. All fluids shall be at their recommended "full" capacity levels.

7.2. A delivery inspection will be conducted with in (14) fourteen working days of receipt to confirm that the truck and equipment meet the required specifications. A list of discrepancies will be provided to the vendor. All discrepancies shall be corrected prior to the County of Rockland accepting and providing payment for vehicle.

7.3. Vendor who provides a vehicle that <u>intentionally</u> does not meet the specifications or they have not taken exceptions to the specifications may be in reason for non-acceptance and/or cancellation.

8. **AWARD**

8.1. The County of Rockland reserves the right to award this bid for either of the trucks specified on line item #1 and item #4 of the proposal pages of this bid. Award will be made to the lowest responsible bidder providing all the required specifications of the truck desired by the County of Rockland on either line item# 1 or line item #4 of the proposal pages.

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TITLE:	**BID NUMBER**:
TRUCK, HEAVY DUTY SNOW PLOW	**RFB-RC-2017-125**

9. PRICE CHANGE FOR OPTION YEAR BUS ORDERS AND SPARE PARTS

The County reserves the right to order trucks, equipment, order options and spare parts over a five (5) year period beginning upon the date of contract award. The prices shall remain firm/fixed for any orders issued by the County within a period of twelve months of initial contract initial base purchase price period.

The price(s) of any option buses and spare parts ordered by the County, including any negotiated change orders, after the initial twelve (12) month firm/fixed price period shall be that quoted (Base Order Price) plus any change that will be calculated based on the following formula.

$$\frac{\text{PPI Future Award Month}}{\text{PPI Base Award Month}} \times \text{Base Truck Price} = \text{New Truck Price}$$

The formula utilizes the latest published U.S. Department of Labor/Bureau of Labor Statistics Preliminary Producer Price Index ("PPI.") category U.S. Bureau of Labor Statistics, Producer Price Index by Industry: Heavy Duty Truck Manufacturing: Trucks, Truck Tractors, and Bus Chassis (Chassis of Own Manufacture) 33,001 Pounds or More [PCU3361203361202], prior to date of the option award. The change in this index shall be used to adjust the Base Order Prices.

However, in no event will the price(s) for any purchase order released exceed, by more than 5 percent, the price(s) that would have been in effect twelve (12) months prior to the date of the release of a preliminary PPI utilized for the award.

Within thirty (30) days after delivery of the Notice of Exercise of Option to the Contractor, the Contractor shall submit a proposed delivery schedule. Along with the proposed delivery schedule, the Contractor will provide the Agency with access to its production schedule for the purpose of the parties verifying available production capacity. The production schedule shall include a reasonable time for mobilization and for coordinating with other vehicle orders, and it shall be based upon a production rate at least equal to the production rate actually realized with respect to the base order vehicles. If the parties are unable to agree on a production schedule, the maximum term for the production of the Option Vehicles shall not exceed a total of twelve (12) months after the date of Notice to Proceed with Option Vehicle production.

The Agency or any permissible assignee may issue a Notice to Proceed at any time after the Contractor submits its proposed delivery schedule. The Contractor shall not commence production of the Option Vehicles prior to issuance of the Notice to Proceed by the Agency or any permissible assignee of the Agency for the Option Vehicles incorporating the agreed production delivery schedule or the twelve (12) month maximum term.

Except as otherwise specifically provided in this Contract, all other terms of the Contract shall apply to the Option Vehicles.

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TRUCK, HEAVY DUTY SNOW PLOW	**RFB-RC-2017-125**

ATTACHMENT A

REQUEST FOR CHANGE OR APPROVED EQUAL: This form must be used for requested clarifications, changes, substitutes, or approval of items equal to items specified with a brand name, and must be submitted as specified in "Offeror Communications and Requests" (Section 4.4). An "Electronic Copy", in Microsoft WORD format, on **CD, DVD, or Memory Stick, (10 copies)**, must be included along with the hard copy Request

Request #: _____		Offeror:	
Solicitation Ref:	Page:	Section:	
Questions/ Clarification or Approved Equal:			
Lead Agency: County of Rockland	Approved: _____	Denied: _____	
Comments:			
Signed: _____	Date: _____		

Any alterations to this document made by the Offeror may be grounds for rejection of the proposal, cancellation of any subsequent award, or any legal remedies available to the County of Rockland.

ATTACHMENT B SPECIFICATIONS DETAIL

COMPLIANCE TO SPECIFICATIONS

The bidder shall indicate 100% compliance by checking "YES" or non-compliance by checking "NO" for each line item of specification. Any space left blank shall be considered non-compliant. Any deviation from the specification, or where submitted literature does not fully support the meeting of specifications, must be clearly cited in detail, in writing, by the bidder and submitted with the bid. NO verbal interpretations will be accepted! In addition, NO deviations below "minimum" specifications as written will be accepted.

"TECHNICAL PRODUCT SPECIFICATIONS"

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
SECTION 1.	**CAB/CHASSIS DETAILS**		
GENERAL:	These specifications contemplate the furnishing and delivery a NEW ALL-WHEEL DRIVE, SNOW PLOW VEHICLE, and indicate in general the type, size, and quality desired. Make- OSHKOSH Model P-Series		
	This Vehicle shall be all wheel drive and must be designed and manufactured in the United States, for the specific purpose of snow removal, with a minimum 50,000 GVW and approximate wheelbase of 158", with AE of 40 inches.		
	It shall be designed and line built by the original manufacturer as a 4 X 4.		
	Aftermarket conversions of 4 X 2's are not desired and are not acceptable.		
	This vehicle shall comply with all applicable FMCSR and FMVSS quality/safety standards.		
	All parts and components of this unit shall be engineered and classified as HEAVY DUTY, and shall be of the size, material, and strength to sustain the maximum load limits and severe operating conditions encountered in snow removal, while resulting in minimum wear and failure.		
	These specifications require the doing of all things necessary or proper for, or incidental to the furnishing of said unit.		
	All items of design and equipment not listed in these specifications, but involved in carrying out their intent, are required to be furnished by the bidder, the same as if these items were specifically mentioned and described in these specifications.		
PROTOTYPES AND EXPERIENCE:	The sponsor requires this specified piece of equipment in order to maintain the roadways during large and small snow events.		
	It will be a central and critical element in the fleet and in the effort to accomplish the highway department's published snow plan.		
	Experience building machines of this nature is mandatory as is a track record of recent manufacture and in-service record for machines comparable and similar to that specified.		
	Therefore, location and contact lists are required in the bid package to enable the sponsor to contact at least 10 companies that have taken delivery of similar equipment from the bidder within the last two years.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
PROTOTYPES AND EXPERIENCE:	Bids received without including such location and contact list will be considered non-responsive and will not be considered.		
CHASSIS:	The chassis shall be designed to permit easy and safe mounting and dismounting of the unit for the operators and service personnel.		
	All sheet metal, cowling, steps and fenders shall be free of sharp edges and protrusions.		
	All steps or walkways shall be raised lug or expanded metal type construction. Grab bars shall be installed as required for safe mounting and dismounting by personnel.		
	All sheet metal for cowling, shrouds and fenders shall include ample supports and bracing to prevent distortion and cracking.		
	The engine shall be enclosed in a housing of weatherproof design, full butterfly or full side opening for access to each side of engine, stationary grill design.		
	Front tires shall be equipped with fenders.		
	Rear tires shall have mud flaps.		
FRAME:	The frame shall be of Grade 8 bolted construction, with heat treated, 120,000 psi yield, straight single channel carbon manganese steel rails, connected by an adequate number of cross members to resist frame distortion from the lateral stress expected in this application.		
	Minimum bar size shall be 12.375" X 3.875" X .375", with minimum 2,818,000-inch pound RBM per rail.		
	The frame shall be the industry standard 34" width.		
	There shall be two (2) tow hooks mounted on both the front and rear of the vehicle.		
	A minimum 24" integral front extension is required.		
	FRAME LINERS, WRAPPERS, FISHPLATING, AND BOLT-ON EXTENSIONS ARE NOT ACCEPTABLE.		
	Outside of frame rails above the front driving axle shall be free of equipment that might be damaged by snow, ice, sand, or snow build up.		
	This includes, but is not limited to fuel filters, fuel water separators, oil coolers, coolant filters, coolant hoses.		
ENGINE:	The engine shall be of the 2013 EPA compliant, four stroke diesel type, six (6) cylinder, minimum 11.9-liter nominal displacement, developing a minimum of 385 horsepower at 1800 RPM, with engine governed RPM of 2100, Cummins preferred.		
	Engine shall be equipped with an engine brake and the latest diesel electronic control and engine management system.		
	The engine shall be provided with full flow, replaceable oil filters, dry type two stage air cleaner, engine manufacturer's standard fuel filtration system, and automatic power de-rate system with light and buzzer in event of high water temperature and/or low oil pressure.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
ENGINE:	Two switches conveniently located for the operator shall be provided, one to manually activate the emissions regeneration system and one to inhibit the regeneration process.		
	An automatic measured shot ether starting aid with thermostatic control and engine coolant block heater shall be provided.		
	Starter shall be Delco.		
	Engine shall have a front engine PTO flange for mounting a front mounted hydraulic pump to be driven directly off the crankshaft.		
COOLING SYSTEM:	The cooling system shall consist of a HEAVY DUTY vertical or horizontal flow radiator, with the top & bottom tanks and side members bolted together to form a rigid frame.		
	The tanks and core shall be fabricated from aluminum material and shall be treated with a protective E-coat anti-corrosive process, no exceptions.		
	A transmission cooler shall be located in the bottom tank.		
	A thermostatically controlled, air operated disconnect type suction fan shall be provided.		
	The engine cooling system shall be filled with permanent type antifreeze protecting the system to -40 degrees F.		
	The system shall be sized to allow full operation of the vehicle without overheating at an ambient temperature of 105 degrees Fahrenheit.		
	The chassis manufacturer must have conducted testing on a chassis prototype to ensure the 2010 EPA emission compliant on-road engine is cooled properly to the satisfaction of the engine manufacturer.		
	The bidder must supply a signed and dated certification from the chassis manufacturer confirming the test results.		
	Actual test results must be provided upon request.		
	Lack of prototype test certification will be cause for rejection of a bid.		
	Cooling test certifications from third-party engine re-sellers or distributors are not acceptable.		
FUEL SYSTEM:	Fuel tank(s) shall have a minimum capacity of 75 gallons.		
	The tank shall be properly fastened to the frame.		
	A four-inch diameter filler neck with chain connected cap shall be provided.		
	A Racer 3150R heated fuel/water separator shall be installed in the supply line to the engine fuel injectors.		
TRANSMISSION:	The transmission shall be an Allison 4000 RDS, five-speed electronic control automatic, with a low gear ratio of 3.51 :1, and shall be supplied with the appropriate torque converter for this application.		
	Shifting shall be accomplished via a shift control within easy reach of the operator.		
	LIGHT OR MEDIUM DUTY TRANSMISSIONS ARE NOT ACCEPTABLE.		
TRANSFER CASE:	Transfer case shall be a two-speed type with an air operated driver controlled front axle disconnect lock system.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
TRANSFER CASE:	The Hi-Lo range selection shall be accomplished through an air shift linkage with operational protection speed protection lock out (smart shift) to assure positive engagement.		
	Shafts shall be supported by tapered roller bearings. Upper shaft and bearings shall be pressure lubricated by means of a lubrication pump driven off the top shaft.		
	Pump shall be external to the case to facilitate maintenance throughout the vehicle's life.		
	The transfer case shall have a torque transmission capacity exceeding the maximum torque developed by the engine and transmission, and shall be approved for the application and be manufactured by the chassis builder.		
AXLES:	The rear driving axle shall be of the full floating, torsion flow type with a single reduction spiral bevel gear design, minimum 30,000 pound GVW hub and brake rating, minimum 10" ground clearance, capable of withstanding the loads of the unit being bid.		
	The front axle shall be drive/steer type, and of the full floating, torsion flow type with a single reduction spiral bevel gear design, minimum 23,000 pound GVW hub and brake rating, minimum 1 0" ground clearance, and shall be capable of withstanding the loads of the unit being bid.		
	For ease of service, the front axle steering-drive wheel ends shall be bolted to and removable from the center section of the axle housing.		
	For extended life, the steering drive wheel ends shall be totally enclosed within a sealed ball and socket to protect the moving parts of the axle and steering joints from dirt and slush.		
	The trunnion pins shall be supported by pre-loaded tapered roller bearings to insure long life and smooth steering at all cramp angles.		
	DOUBLE REDUCTION TYPE AXLES AND HUBS WILL NOT BE ACCEPTABLE.		
STEERING SYSTEM:	Front axle steering shall be Sheppard integral hydraulic assist gear type.		
	The steering gear shall be rated for heavy duty service, and a separate hydraulic steering pump shall be provided, with a reservoir independent of the auxiliary hydraulic system.		
	For safety, a mechanical linkage shall be maintained between the operator's steering wheel and front axle, allowing manual steering in the event of a hydraulic or electrical system failure.		
	Systems that require a hydraulic cylinder boost to the front axle are not acceptable for this application.		
SPRINGS	Suspension shall include alloy steel springs of the semi-elliptical type, 23,000-pound minimum rating on the front axle, and 30,000-pound minimum rating on the rear axle.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
SPRINGS	The spring hangers, pins, and supports shall be heavy duty to insure long life.		
	The front axle will include load dampen shocks.		
	The pins shall be of the grease type with substantial bronze bushings.		
BRAKES:	The service brakes shall be fully air actuated, drum and shoe type with a minimum 18.7 CFM air compressor and documented to conform to FMVSS 121 including a 4-sensor, 4-modulator ABS system.		
	The parking brakes shall be spring actuated, air released at the rear service brake chambers, with the air switch mounted in easy reach of the operator.		
	Both front and rear brakes shall be S-cam type.		
	A trailer air brake system shall be included.		
	The air system shall be equipped with a heated Bendix AD-IS or approved equal air drier system.		
	DISC BRAKES WILL NOT BE ACCEPTABLE.		
WHEELS AND TIRES:	This unit shall be equipped with proper sized wheels and tires for the GVWR rating of the unit being bid, in compliance with National Wheel and Rim Association standards.		
	A single 425/65R22.5, 20 ply Goodyear 278 or approved equal tires for front axle and dual 12R22.5, 16 ply Goodyear 287 or approved equal tires for the rear axle are required.		
	The wheels shall be of the steel disc type with an 11.25" bolt circle. Front: Three (3) 22.5 x12.25 10-hole hub, Piloted steel Rear: Five (5) 22.5 x 8.25 10-hole hub, Piloted steel Spares: Tire and Wheel quantities reflect one (1) front and one (1) rear spare tire.		
CAB:	The cab shall be a HEAVY DUTY two-man type, all steel, galvannealed exterior, air suspension mounted, 72" wide minimum, fully insulated, one-piece reverse slope windshield, curb visibility window in right hand door, full width rear windows, tinted safety glass throughout.		
	Piano type door hinges with stainless steel hinge pins the full height of the door are required to provide solid door mounts for the life of the vehicle.		
	Complete rust proofing on all inside metal surfaces less than 3/16" thick.		
	Floor mat, rubber or vinyl covering complete cab floor, fastened for easy removal, but securely held to floor.		
	Tilt/Telescoping steering wheel, Bostrom Sierra Air 400RX driver and passenger seats with retractable seat belts, Heated West Coast type mirrors with 8" heated spot mirrors, Dual sun visors, Fresh air with and heater/defroster (50,000 BTU minimum), Side window defrosters, Dual electric windshield wipers installed above windshield with intermittent swipe feature, AM/FM radio with Weather band and CD player, five (5) pound fire extinguisher, Left and right outside grab handles, Cab mounted electric horn.		
	For operator comfort, the engine shall not intrude into the cab envelope (no doghouse).		
ELECTRICAL SYSTEM:	System shall be 12-volt, and include a minimum 170-amp alternator, three batteries, with minimum 2100 cold cranking amps at 0 degrees F (- 18 degrees C).		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
ELECTRICAL SYSTEM:	Automatic reset circuit breakers on all major circuits are required (fuses are not acceptable).		
	Integral wiring for all cab-mounted and other lighting equipment, heavy duty rocker type light switches, positioned, labeled, and illuminated for easy driver identification and use.		
	Self-canceling turn signals and emergency flasher control to be mounted on steering column.		
	Standard lighting to meet FMVSS requirements.		
	Two auxiliary headlights and two fenders mounted headlights with three-way switch to select upper or lower headlights shall be provided.		
	An electrical trailer connection plug shall be mounted at the rear of the chassis.		
	A 250-amp master disconnect switch shall be installed on or near the battery box.		
	Switch shall have provisions for sponsor to install a lock for security purposes.		
PAINT:	The complete vehicle shall be painted with one (1) coat of metal primer and two (2) coats of acrylic urethane.		
	The paint colors shall be Rockland County Highway Department paint scheme with the chassis, wheels and cab painted black and the doors painted orange.		
	Top of engine hood shall be flat black to minimize glare.		
RUSTPROOFING AND CORROSION PROTECTION:	The complete vehicle (fenders, doors, panel wells, underside of cab, fuel tanks, battery box, etc.) shall be treated with Class 1 rust proofing protection.		
MANUALS:	The successful bidder shall provide the following product documentation and support information: One complete sets of manuals, operators, parts, and service plus internet access to parts books.		
TRAINING:	Successful bidder shall provide eight (8) hours of operators and general maintenance training.		
WARRANTY:	The bidder shall guarantee his equipment as to the specified capacities and performance, and to be free from all defects in design, material, and workmanship.		
	All labor, transportation cost and defective parts shall be replaced free of cost.		
	THIS GUARANTEE SHALL CONTINUE FOR A PERIOD OF ONE (1) YEAR AFTER COMMENCEMENT OF ACTUAL OPERATION OF THE EQUIPMENT.		
	No exceptions to the guarantee requirement will be accepted.		
	Additionally, the engines shall be warranted for a minimum of two (2) years and the automatic transmission shall be covered for a minimum period of three (3) years after commencement of actual operation of the equipment.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
QUALITY/ SAFETY STANDARDS:	Each bid must include the vehicle (chassis) manufacturer's certification that the vehicle (chassis) meets or exceeds the following requirements based on documented test results.		
	Documented test results shall be provided upon request.		
	FMVSS 571-103: Windshield defrosting and defogging systems, in accordance with JI944, J198		
	FMVSS 571-121: Air Brake Systems.		
	FMVSS 571-207: Seating Systems.		
	FMVSS 571-210: Seat Belt Assembly.		
	40 CFR CH.1: Pass by noise levels (in accordance with SAE J366).		
	FMCSR 393.94: Vehicle interior noise levels.		
	FMVSS 571-101: Controls and displays.		
	FMVSS 571-108: Lamps, reflective devices, and associated equipment.		
	FMVSS 571-120: Tire selection and rims for motor vehicles other than passenger cars.		
	FMVSS 571-206: Door locks and door retention components.		
	FMVSS 271-209: Seat belt assemblies.		
	FMCSR 393-65: Fuel systems and fuel tanks.		
	FMCSR 205: Glazing for windows.		
	FMCSR 302: Flammability of interior materials.		
MANUFACTURER / SUPPLIER STABILITY:	In the interest of continued and reliable service, parts, and technical support, equipment suppliers shall have exhibited a consecutive history of financial stability and manufacture of similar equipment over a minimum of the past ten years.		
	Documentation shall be provided in the bid package to verify such continuous business activity, such as location and contact lists, financial statements, and annual reports.		
	In the interest of process and quality control, the chassis manufacturer shall be ISO9001 certified.		
	Because of the critical nature of the product and its application, the burden of proof for this requirement lays with the bidder and/or suppliers.		
COMPONENT SOURCING:	Because of the critical nature of this machinery, it is essential that the complete unit and all components be new and unused.		
	Any component found to be used will be rejected.		
	The contractor (bidder) will replace the component in question with an appropriate and acceptable new replacement component at his own expense.		
INSURANCE:	To protect the purchaser from potential involvement in litigation, the chassis manufacturer for this contract shall be adequately covered with liability insurance.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
INSURANCE:	The manufacturer shall carry commercial general liability insurance including coverage for the products-completed operations exposure, with limits of not less than $1,000,000 Each occurrence (Bodily Injury and Property Damage), $1,000,000 Products/Completed Operations Aggregate, $5,000,000 General Aggregate, and $1,000,000 Personal and Advertising Injury.		
	The insurance shall be issued by an insurance company with a current A.M. Best rating of A- or higher.		
	A Certificate of Insurance showing that this minimum amount of coverage is currently in force shall be included in the bid package for the bid to be considered.		
SECTION 2.	**CHASSIS MOUNTED SPREADER AND EQUIPMENT SPECIFICATION**		
GENERAL:	The spreader required under these specifications shall be of the heavy duty, self-contained, hopper-type construction.		
	The unit shall consist of a steel body, feed conveyor, spinner disc, power drive, and all components necessary to make a complete operating unit.		
	It shall be capable of uniformly spreading sand, cinders, salt, calcium chloride, or mixtures up to a width of forty feet.		
	Bidders must submit with their bid complete specifications on the unit they propose to furnish.		
	Bids with exceptions to these specifications shall be considered informal.		
	All sheet steel gauges and bar stock sizes listed throughout this specification will conform to ASTM standards.		
	The use of any other standards will not be considered.		
BODY:	Body shall be of all-welded 304 stainless steel construction and not less than 7.0 cubic yard struck capacity.		
	Inside length to be not less than 10 feet.		
	Overall height of unit to be not greater than 55-1/4".		
	Inside width to be not less than 88".		
	Body sides shall have not less than forty-five-degree pitch to ensure free flow of materials to the conveyor.		
	Sides and end gates are to be minimum of 10-gauge 304 stainless steel.		
	Body shall be rigidly constructed and the entire top of the body is to be 2-1/4" x 1-1/8" channel-formed for additional support.		
	Body sills shall be of at least 7-gauge 304 stainless steel with longitudinal flanges supported on 4" x 2" x 7-gauge rectangular tubing cross sills.		
	These cross sills shall be extended to allow proper fender mounting.		
	There shall be an adequate number of 10-gauge 304 stainless steel full slope body side supports, which will be boxed for additional support rigidly tying the tubular cross sills to the body sides to give the highest degree of resistance to warping or twisting under heavy loads.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
BODY:	There shall be provided at the top of each side a stainless-steel skirt bar, full length of spreader which will have 6” wide 10ga stainless panels to act as material deflectors over liquid tanks.		
	The body shall be provided with four lifting hooks with one to be positioned at each corner of body.		
	Body side sheets shall extend rearward from tail sheet to end of long sills so as to provide reinforcement and maximum support to the long sills. **NO EXCEPTION to this critical support requirement shall be acceptable.**		
	Body side sheet will possess a formed reinforcement rib running the length of the side sheet from body to conveyor long sill to maximize resistance to bending.		
	All necessary hardware shall be stainless.		
CONVEYOR:	The conveyor system shall be of the chain bar flight type running longitudinally with the body, feeding materials to the distributor disc.		
	The overall width of the conveyor shall be approximately 30".		
	The conveyor chain shall be all-steel, 2-1/4" pitch, and of the pintle variety.		
	Chain bar flights shall have a cross section of 3/8" x 1-1/2" and be welded on both the top and bottom of the chain bar to the conveyor link.		
	These bars will be positioned on approximately 2-1/4" centers and welded to every chain link.		
	The conveyor gearbox shall have a 6:1 reduction and be of the spur gear type having aluminum alloy housing with a removable “bolt-on” torque arm mount.		
	The conveyor drive sprockets shall be 8-tooth, drop-forged steel, keyed to a 2” diameter (minimum) C1045 shaft and mounted in sealed anti-friction bearings.		
	The idler sprockets shall be 8-tooth, drop-forged steel, keyed, and mounted on not less than a 1-1/2” diameter C1045 shaft.		
	Two heavy spring-loaded, stainless adjustment screws with at least 4” of full travel shall be provided to maintain proper conveyor tension.		
	10-gauge “bolt in” replaceable conveyor chain shields properly formed and of sufficient strength to resist binding, shall be provided.		
	The conveyor bottom shall be a minimum of 7-gauge stainless steel, flange type construction, and adequately braced, with 3/8” x 1-1/2” bars on 24” centers, to provide rigidity to the conveyor chain floor.		
	An adjustable discharge gate of the heavy-duty screw jack type shall be located at the body rear to properly adjust the flow of material to the spinner.		
	Maximum feed gate opening shall be 11" high x 24" wide.		
DISTRIBUTOR CROSS AUGER ASSEMBLY:	The under-tailgate spreader required in these specifications shall be hydraulically operated and shall consist of a steel trough, 9” diameter auger conveyor, spinner disc, and power drive.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
DISTRIBUTOR CROSS AUGER ASSEMBLY:	The spreader shall be capable of evenly spreading or centerline windrowing various types of granular material and/or chemicals for ice control such as sand, salt, calcium chloride, or mixtures up to a width of forty feet.		
	The unit shall have the capability of discharging from either the right or the left side.		
	The overall trough width shall not exceed 96.5".		
HOPPER:	One-piece ¼" 304 stainless steel endplates shall be fully welded to 7-gauge stainless steel formed front and rear trough panels.		
	The unit will have a 7-gauge stainless steel, 5 point hinged bottom panel that will expose the entire length of the auger for ease in clean out and service when open.		
	The hinged bottom will be held closed by two heavy-duty over center locks with a lift handle for one-person operation.		
	The unit shall have a discharge opening at each end of the trough.		
	The anti-flow plate over each point of discharge will be 10-gauge stainless steel and will be removable without the use of tools.		
	The 7-gauge stainless steel combination cover and back plate will be a one piece hinged integral part of the unit.		
	This cover will be capable of being locked in either the raised or the lowered position by a single latch on each side of the cover.		
	There shall be an opening provided in the center of the cover to allow material to enter trough from spreader conveyor.		
	To reduce the potential for material bridging, the inside width of the trough will be a minimum of 12 inches.		
MOUNTING:	The chassis mount assembly shall be designed and constructed to provide easy removal from the chassis for maintenance.		
	The mounting kit supplied shall provide for solid mounting points, at the rear, between the body and chassis frame.		
	It shall also include two spring loaded mounting flanges for the front section of the body.		
	These spring-loaded assemblies shall be designed as to allow flexing of the chassis frame without placing undo stress to the spreader body.		
	There shall be provided a 304-stainless steel panel of 10ga material to act as underbody pan for added protection of chassis electrical and brake components.		
	The body is to be mounted on a set of 2" hardwood spacers running full length of truck frame with required brackets to hold in place.		
	All hardware is to be provided.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
AUGER MECHANISM:	The nine-inch diameter auger shall consist of 5/8" helicoid flighting (minimum thickness at outer edge to be not less than ½") welded to a 2-1/2" schedule 80 pipe.		
	This auger will be supported by a 1-1/4" C-1045 steel shaft.		
	The auger shall feed material to the extreme left side for spreading, and the rotation of the auger shall be reversed to feed material to the extreme right side for berm operations.		
	On the side opposite the drive mechanism the auger shaft will be supported in a 4-bolt flange, sealed, self-aligning bearing with a grease fitting for lubrication.		
	The drive end of the auger will couple directly to an independent, end plate mounted, hydraulic motor capable of delivering high torque at low speeds.		
	Shear bolts are not acceptable.		
	Dual, 10-gauge carbon steel, anti-flow plates shall prevent movement of the material when the auger is stopped.		
SPINNER:	The spinner will consist of a single 18" polyurethane disc with six formed radial thrust vanes molded into a single unit.		
	This disc shall be capable of producing a uniform spread pattern from four to forty feet in width.		
	An orbital type hydraulic motor capable of delivering high torque at low speed will be directly coupled to this disc through a cast iron hub.		
	The spinner assembly will be adjustable, allowing for variable spread patterns of left, center, or right by sliding the spreader frame on the support shaft so that the point at which the material is deposited to the spinner disc is varied.		
	The spinner assembly will be easily removed by pulling two pins and uncoupling two hydraulic hoses.		
	The spinner speed and the auger feed rate will be both independently variable through the optional dual flow control valve.		
	An integral spinner shield will be provided to prevent material from striking the back of the truck.		
	An adjustable baffle to control spread direction will be included with the spinner assembly.		
MATERIAL CHUTE:	This chute shall also be constructed for left hand mounting to provide for centerline windrowing of deicing materials.		
	The chute shall be designed for quick removal without the use of tools.		
MOUNTING:	The spreader described in these specifications will fasten to the sides of the main truck frame using a heavy-duty tubular frame design.		
	There shall be a rear discharge chute provided which will allow material to enter the trough while the conveyor cover is in the down position.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
BUMPER:	There shall be a 4" channel bumper (carbon steel) fabricated to protect the rear of the spreader and cross conveyor. Customer to provide drawings of existing fleet bumpers.		
POWER DRIVE AND CONTROLS:	To be hydraulic having four hydraulic motors, one powering the cross-auger assembly, one powering the spinner motor and two powering the conveyor.		
	The spinner hydraulic motor shall be mounted above the spinner hopper assembly and shall drive the spinner through a 1" diameter shaft with U-joints at each end.		
	The two conveyor hydraulic motors shall be of the orbital low-speed/high torque type integrally mounted to the conveyor gearbox.		
	A dual pressure compensated variable speed control valve for truck cab installation shall provide independent speed control for both conveyor/auger and spinner and incorporate a pressure relief valve set at 2000 psi.		
	Unit shall include a selector valve to operate conveyor motors in either a series or parallel circuit.		
SWINGING REAR END GATE:	A heavy ribbed reinforced offset hinged rear end gate with double latch and front drivers side operating lever shall be provided.		
OILER:	For lubricating each side of conveyor chain.		
	2-quart capacity oil tank.		
	Petcock turns oil on and off.		
FENDERS:	Shall be provided for right and left side of spreader mounted on truck chassis.		
	They shall be 304 stainless steel with skid resistant surface, channel-formed on outer edge, supported by, and mounted to extended cross sills each body side support.		
	Fender enclosures between body side supports shall prevent unwanted material on body sides and fenders.		
	There shall be a rubber skirt between the left and right fender to prevent material from entering rear brake drums.		
	There is to be one set of 304 stainless steel stone shields mounted in front of rear wheels.		
	The brackets to mount the stone shields and the rear rubber mud flaps shall be constructed of all 304-stainless steel.		
CONVEYOR CONTROL VALVE:	To permit starting and stopping of the conveyor from in-cab or from the rear of the truck.		
	This kit shall contain two switches, electric valve, and wiring necessary to install control.		
SCREENS OVER HOPPER:	Sectional screens with a maximum length per section of six feet shall be hinged to a 6” x 9.0LB I-beam running longitudinally the full length of the spreader hopper.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
SCREENS OVER HOPPER:	The screen sections are to have 3/8" diameter rod welded to a ¼" x 2" angle frame forming 2-3/8" x 2-1/2" openings.		
	At the outer most edge of the screens, along the side sheets of the body, the screens shall nest into the body.		
SCREENS OVER HOPPER:	This nesting will lock the screens from movement.		
LADDER:	A stainless-steel folding type access ladder shall be provided to mount on the rear of the spreader.		
	The steps shall be constructed from "grip strut" material.		
	The upper side rails are to be from a minimum of 1-1/2" flat stock.		
TARPING SYSTEM:	There is to be one Pioneer EDD-1500DA electric / semi-automatic tarping system.		
	Arm mounts are to be mounted on the top of the body fenders and to be protected from possible damage.		
	Arms are to be of aluminum construction and tarp is to be waterproof type.		
INVERTED "V":	An adjustable 304 SS inverted "V" shield supported from cross tubes shall be provided to reduce load pressure on conveyor.		
CAB SHIELD:	Cab Shield shall be constructed from 304 SS and of heavy-duty design to protect the cab from falling material.		
	It shall be of a slope down design so that material landing on it will fall into the hopper as the spreader unloads.		
LIQUID TANK SYSTEM:	There shall be provisions for mounting to top of fender assemblies (2) two High Density U.V. Stabilized Polyethylene Plastic 100 gallon liquid tanks.		
	These tanks shall be secured using stainless steel straps and mounting brackets.		
	These tanks shall be plumbed to facilitate equalization of material and provide continuous supply of material to pumping system regardless of pitch of chassis due to road grade.		
	The pump system shall be hydraulic driven variable rate motor driving gear pump with the application rates controlled by cab mounted driver operated controller.		
	The liquid shall be applied to the dry material through nozzles mounted in the discharge chute area before entering the cross-auger assembly.		
LIGHTS:	One Whelen LED DOT-3 safety lighting system is to be furnished.		
	The LED strobe lights and LED stop/tail/directional lights and reverse lights are to be mounted in 304 stainless steel enclosures.		
	These enclosures are to be mounted on the rear of the spreader body, one on each side, in clear view from behind the vehicle.		
	Roof mounted LED strobe light with branch guard.		
	There is to be on 4" LED spot light mounted to a 304-stainless steel bracket on the left rear corner of the dump body and one mounted to the top of the wing tower, if required.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
LIGHTS:	Five (5) amber strobes, three (3) forward, and one (1) on each side shall be mounted on the cab shield		
	Mounting locations shall be approved by end user prior to installation.		
	Snowplow lights are to be Truck-lite series 80800.		
LIGHTS:	They are to be mounted to the snowplow hitch or to a custom truck hood bracket made of stainless steel.		
	All body lights and clearance lights are to be LED type, no exception.		
	If during the installation of the dump body, hoist, hydraulic system, snowplow hitch or any other material specified herein, and cab and chassis lighting must be relocated for visibility of due to other conflict; the contractor shall do so at no additional cost.		
	Black 270 Degree "Go Light" shall be remote controlled and cab mounted. Exact location to be determined by customer.		
	There shall also be a LH side mounted LED spinner light.		
BACK UP ALARM	The back-up alarm is to be a Preco 390 adjustable decibel variable voltage unit.		
FLUSHING SYSTEM	A conveyor flushing system shall be provided for cleaning of conveyor chain and conveyor housing.		
	A hose and nozzle system consisting of 25’ of 2-1/2” hose and spray bar.		
	System to be located at forward end of conveyor housing		
	Unit shall rinse sand, salt and debris from conveyor housing left over from spreading operation nozzle to be of non-clogging and maintenance free design		
	Hose to have swivel coupling on hydrant end quick release on flusher end NO HOSE BASKET		
ADDITIONAL ITEMS	There is to be one set of 304 stainless steel stone shields mounted in the front of the rear wheels.		
	Four (4) customer supplied Rockland County embossed mud flaps shall be mounted on the rear of the truck to act as a protective drape between the material spinner and chassis rear.		
	The brackets to hold the Rockland County Highway embossed rubber mud flaps shall be constructed of all 304-stainless steel.		
	In between the stainless-steel plate and the sander there shall be oak boards that run underneath the entire sander.		
	There shall be a custom rear bumper that protects the cross conveyor. Photos of previous bumper will be supplied by customer for details.		
PAINT:	Prior to the assembly of the unit, all non-stainless components are to be individually cleaned with an iron phosphate treatment.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
PAINT:	Upon completion of the cleaning process, exposed hopper seams not welded are to be sealed.		
	All components are then prime painted.		
	Next, the plural-component urethane finish coat is to be applied in Hi-Way Black on bolt-on components.		
	Finally, all components are to be oven cured and then completely assembled.		
OPERATION AND MAINTENANCE MANUAL:	Manual is to be furnished with each unit covering operation, maintenance, and parts listing for the unit.		
OPERATING AND MAINTENANCE SAFETY MANUAL:	Manual is to be furnished with each unit to promote safe operation and maintenance procedures.		
	CENTRAL HYDRAULIC SECTION:		
VALVES:	The central hydraulic system valve shall be a high-pressure load-sensing valve of sandwich plate design and constructed of cast iron.		
	Aluminum manifold designs shall be unacceptable.		
	The valve shall be horizontally stackable and serviceable without disassembly.		
	This is to include removal of the pressure compensator assembly, load holding check and load sense shuttle valve without having to remove the valve section from the main assembly or removing any of the tie bolts that hold the main valve assembly together.		
	The valve inlet shall have a safety relief valve that is capable of relieving full pump flow to tank in case of a failure in the pump pressure compensator.		
	It shall be rated for a maximum pressure of 5000 psi on the pump side and 6000 psi at the work ports.		
	The valve shall be rated for 40 GPM at the inlet and 35 GPM at the work ports.		
	The valve shall have one individual section for each function. Hybrid manifold designs shall be unacceptable.		
	Each valve section shall have a spool that is flow matched for the function it is controlling.		
	It shall have the ability, when required, to vary the working pressure for each individual work port by using built-in load sense reliefs.		
	These reliefs shall have an adjustment range of 500 psi to 5000 psi.		
	It shall have built-in load-pressure compensation to allow simultaneous activation of functions.		
	The load-pressure compensation shall be adjustable by adding or removing shims.		
	This adjustment will allow any one spool to have three distinct flows.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
VALVES:	All electrically actuated valve sections shall have two separate methods to override the section for troubleshooting and fault finding.		
	All electrical sections shall have a stroke limiter for adjusting the maximum travel of the valve spool in both directions.		
	The pressure, tank and work ports shall be top ported.		
	For ease of service, all electrical solenoids shall be on the same side of the valve.		
	All valving shall be mounted as one main valve assembly.		
	Multiple valve assemblies are unacceptable.		
	All work port pressure limiting shall be by the use of load sense relief valves that are integral to the valve section that is being limited.		
	The use of work port relief valves that divert excess flow to tank shall be unacceptable.		
	To ensure complete system compatibility, spreader controller, pre-wet unit, and hydraulic valve and hydraulic pump shall be from a single manufacturer.		
	Items that are manufactured by one entity and "branded" with another manufacturer's name shall not be accepted as being from a single manufacturer.		
	Manufacturer shall be ISO 9001 and ISO 14001 certified.		
	Sander Actuation Function – Shall be double acting mechanically actuated with "A" port limited to 500psi.		
	Plow Raise – Shall be double acting mechanically actuated with "A" port limited to 500 psi.		
	Plow Angle – Shall be double acting mechanically actuated.		
	Calcium- Dedicated hydraulic valve		
	Conveyor – Single acting electrically actuated with "B" port limited to 1500 psi.		
	Section shall have stroke limiters for both work ports and a valve override pin.		
	Spinner – Single acting electrically actuated with "B" port limited to 1500 psi. Section shall have stroke limiters for both work ports and a valve override pin.		
	Plow and Sander Functions shall be controlled from inside cab by remote cable control Quadco Brand C85 Single Action Lever Type		
	Cable shall be of stainless steel core with no less than 100 lbs. rating for pushing and pulling.		
	Cable connection to valve spool must be enclosed and sealed with protective bonnet.		
	The cab control levers must be capable of being stacked and tied together in desired order.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
COMBINATION TANK/VALVE ENCLOSURE	The hydraulic reservoir shall have a minimum 40-gallon capacity.		
	The reservoir shall be constructed of 11-gauge stainless steel.		
	Reservoir shall be internally baffled.		
	Reservoir and enclosure shall be made as one unit.		
	The valve/tank combination unit shall be mounted the side frame rail of the vehicle and shall be mounted in such a manner as not to transmit any torsional loads.		
	The design of the enclosure shall allow for easy access to the control valve without the use of tools.		
	All hydraulic connections shall be made directly to the control valve without the use of bulkhead connections.		
	The fill port of the reservoir shall be accessible without first having to remove any covers.		
	On the outboard side of the reservoir there shall be a combination level/temperature gauge.		
	All hydraulic hoses must exit the bottom of the enclosure to allow for the mounting of other components adjacent to the enclosure.		
	Reservoir shall have a dedicated clean-out opening of not less than 7 1/2" with a cast aluminum cover.		
	The cover shall be sealed with an O-ring seal.		
	There shall be a 2" brass shut off valve plumbed to the suction port of the tank.		
	Reservoir shall have a 10 micron in-tank return filter.		
	There shall be a low oil sensor mounted in the tank for use with the low oil shut down system.		
	Any unit submitted for bid shall have undergone Finite Element Analysis (FEA) testing to ensure the structural integrity of the unit.		
FILTER	An in-line Tank Return Line Filter shall be installed in the return line, in a position that facilitates ease of maintenance.		
	The filter shall be of minimum 50 GPM flow rating and 10-micron filtration.		
	Element replaceable through filter cover.		
HYDRAULIC PUMP	The front mounted flow and pressure compensated pump shall be driven direct and in-line with the crankshaft through a double universal joint driveline.		
	The hydraulic pump must be of piston type and capable of 35 GPM at 2000 engine RPM.		
	Pressure sense line must be internally bled at the pump.		
	Pump case drain must be plumbed directly to reservoir-not through return line filter.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
LOW OIL SHUTDOWN	A single normally open, two position, two way, poppet type solenoid valve must be mounted directly to the hydraulic pump discharge port in such a way as to stop all oil flow to the hydraulic system when energized.		
	The solenoid valve must be wired directly to an in-tank mounted level indicator.		
	The level indicator shall be of the float type and mounted from the top of the reservoir.		
	When the float switch contacts close, the shut-down valve blocks pump flow and an annunciator on the main control will be activated.		
	The momentary switch shall be mounted in a pump control panel with annunciator for low hydraulic oil shut-down override.		
LOW OIL SHUTDOWN	This switch shall be wired in such a way as to de-energize the system shut-down to facilitate fault finding and equipment stowing.		
	In the pump control panel, there shall be diode suppression wired to the momentary pump override switch.		
	A single normally closed solenoid is **not acceptable** due to the fact that the solenoid must be energized at all times to obtain proper hydraulic output.		
DRIVELINE	The hydraulic pump is to be driven by a 1310 series driveline off the engine harmonic balancer which must accept a 1310 series flange yoke.		
	The driveline can have no more than a 4-degree operating angle and must be assembled with proper slip movement.		
	BOSCH-REXROTH CS550 SPREADER CONTROLER:		
CONTROLLER:	The CAN Bus spreader control system shall be ground speed orientated to maintain a pre-determined application rate regardless of vehicle speed.		
	Control shall be by microprocessor for high control accuracy with the outputs being current compensated.		
	In order to ensure there will be no electrical interference either to or from the controller, any controller bid shall comply with the following standards:		
	ISO 11452-2(2004-10) for RF Immunity		
	ISO 11452-4(1996) for RF Immunity		
	ISO 7637-2(2004) for Conducted Immunity		
	ISO 7637-2(2004-06) for Transient Emissions		
	Controller shall comply with ISO 16750-5 for Resistance to Media. (resistance to spills of coffee, soda etc.)		
	The controller shall be capable of operating in Manual, Automatic (Closed Loop), Open Loop, Ground Speed Triggered Manual and 12V triggered modes.		
	Controller shall have a 7” wide VGA touch screen display with 262144 colors.		
	The display shall be a glass/film/glass design with a hardness of 7H.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
CONTROLLER:	The display shall have adjustable brightness with the maximum brightness being no less than 400 cd/m2.		
	The display shall include a 1.5-watt speaker.		
	The controller shall use a voice feedback system that announces, in a human voice, rate changes, pause on, pause off, blast on and blast off.		
	The controller shall be capable of having 4 different solid material calibrations, 4 different pre-wet liquid calibrations and 4 different anti-ice material calibrations for a total of 12 different materials.		
	Each material shall have 9 programmable application rates.		
	Controller shall have 3 detented rotary knobs for application rate selection.		
	Each knob shall have stainless steel shafts and have a rotational torque of at least 8 oz.-in.		
	For operator safety, all application rate changes shall be made with the rotary knobs and not by using the touch screen.		
	The controller shall be capable of operating Auger/Conveyor, Spinner, Pre-Wet, Cross Conveyor speed, Cross Conveyor Direction, Air Gate, Closed Loop Gate, and Spinner Chute control.		
	It must be capable of operating the Spinner, Auger/Conveyor, Pre-Wet, and Anti-Ice all at the same time.		
	The Controller shall have the following features:		
POWER FLOAT	The Central Hydraulic System must come complete with a “Power Float” function.		
	The Power Float system is designed to transfer a certain amount of the weight of the plow off the cutting edge and onto the truck to reduce the wear rate of the replaceable cutting edge, and to reduce the amount of damage caused by the plow to the road surface.		
	The system must be designed to provide a controlled flow of oil at a regulated pressure to the lift end of the plow lift cylinder.		
	This will in turn tighten the plow lift cables/chains to take some of the weight of the plow off the road surface.		
	The pressure regulator setting must be field adjustable to allow for different weight settings at the cutting edge.		
	With the Power Float engaged, oil must be allowed to flow both in and out of both ends of the lift cylinder at a sufficient rate to allow the plow to quickly follow the contours of the road.		
	The Power Float System must use the load sensing capabilities of the hydraulic system.		
	System will automatically override once normal plow functions as required.		
	This automatic override will be installed in such a manner as to not let the Power Float engage when the plow is being lifted into the air, preventing the plow from dropping, uncontrolled, to the ground.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
POWER FLOAT	A lighted on/off control for the above will be enclosed in the auxiliary control panel with a light which indicates when the power float is activated.		
	The Power Float block valve must be a manifold design that utilizes cartridges.		
	All ports must be of 0-ring design.		
	The block must be manufactured from steel and anodized to eliminate corrosion.		
MATERIAL CALIBRATION VERIFICATION:	The controller shall have a catch test feature that will allow the user to specify an application rate, speed driven and time to run in order to simulate spreading for performing calibration verifications.		
	The controller will use the resulting information to automatically make adjustments to the material calibration values to ensure the most accurate material setup.		

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
AUTO NULLING:	The controller shall be capable of auto nulling spinner, conveyor/auger and liquid channels when feedback sensors are used.		
	Manual nulling must be available for all circuits including cross conveyor left and right.		
SYSTEM PROGRAMMING:	Programming shall only be accessed by use of an encrypted USB key.		
	All programming shall be done by using the touch screen display.		
	The touch screen display shall have an onscreen pop-up keyboard for ease of entering information.		
	The use of external programming devices, such as a laptop computer, shall not be acceptable.		
MATERIAL SET BACK:	When using liquid to pre-wet granular material the controller must be capable of cutting back the granular material by a predetermined percentage when the liquid is being applied.		
	The percentage shall be programmable.		
TRIP SUMMARY INFORMATION:	The controller shall display a real time trip summary log on screen.		
	The trip summary shall include miles traveled, solid material spread amount and liquid material applied amount.		
	If operating in tow plow mode, the controller shall display a real-time trip summary for both the truck spreader and tow plow spreader.		
ON SCREEN ERROR LOG:	For ease of troubleshooting, the controller shall have an on-screen error log that is capable of displaying the last 20 error codes that have been generated.		
	The log shall be viewable without the use of a program key.		
	The error log shall not clear itself when the controller is powered off.		
	The error log can only be cleared when the proper USB key is inserted into the USB port.		
DATA LOGGING:	The controller, as supplied, shall be capable of event based data logging. The controller shall log the following information:		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
DATA LOGGING:	Date and time of event, event type, truck ID, driver ID, region name, solid material usage, pre-wet usage, anti-ice usage, pause distance, blast distance, distance spread, total distance, blast amount, number of times blast was used, gate position (if a gate position sensor is used), temperature (if external temperature sensor is used), set point of spinner, set point of conveyor/auger, set point of pre-wet and set point of anti-ice.		
	All the information will be transferred from the spreader control to a desktop/laptop computer via an encrypted USB drive.		
	All data logging information must be capable of being customized and exported.		
	Summation reports are not acceptable.		
SOFTWARE UPDATES:	The spreader control software must be capable of being upgraded via encrypted USB key.		
	All software updates shall be provided free of charge from the manufacturer.		
INTERFACE CONNECTIONS:	The controller, as supplied, shall have the following interface connections built-in for use with GPS, Wi-Fi, Temperature sensors, third party GPS providers, data logging and software updates:		
	Two CAN 2.0B ports		
	Two USB ports		
	Two Serial RS232 ports		
	One Wi-Fi antenna connection		
	To ensure complete system compatibility, the joystick controller, spreader controller, pre-wet unit, hydraulic valve, and hydraulic pump shall be from a single manufacturer.		
	Items that are manufactured by one entity and "branded" with another manufacturer's name shall not be accepted as being from a single manufacturer.		
	Manufacturer shall be both ISO 9001 and 14001 certified.		
	HYDRAULIC PRE-WETTING SYSTEM		
ON BOARD VARIABLE RATE PRE-WETTING SYSTEM	The following specification will describe a liquid pre-wetting system.		
	This system shall be mounted on the snow and ice control vehicle to allow operators to apply liquids directly on to granular material without over spray on the truck and equipment.		
	The pre-wetting system shall be variable rate and controlled from the in-cab spreader control system.		
	System output will give a liquid to granular rate depending on application and vehicle speed.		
	The in-cab controller shall have nine programmable settings for at least four different pre-wetting liquids.		
	Liquid output shall be between 0.5 gpm and 8.0 gpm at 100psi.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
ON BOARD VARIABLE RATE PRE-WETTING SYSTEM	The pre-wetting system shall consist of a bronze gear pump that is driven by a gerotor style hydraulic motor.		
	The hydraulic motor will be fed from a dedicated valve section that is part of the main system hydraulic valve assembly.		
	The pre-wetting system will have a self-contained power unit assembled with weather resistant components and anti-seize applied to all fasteners.		
	The weather proof enclosure shall be constructed with stainless steel and heavy duty mounting brackets.		
	Low material output will be monitored via the controller which will give an audible and visual warning to the driver.		
	The rates and material are monitored by either a speed sensor mounted to the hydraulic motor or by a flow meter mounted into the liquid output line.		
	The system will have a relief valve installed into the output line of the pump in order to protect the lines and pump against clogging of nozzles and system failures.		
	The relief valve shall be plumbed in such a way that allows excessive pressure build up to be diverted back to the liquid pump inlet.		
	Externally drained relief valves are **unacceptable.**		
	The material will be delivered through a spray bar.		
	The nozzles used to apply the liquid directly onto the granular material can be mounted in any direction or orientation that is possible with the truck style.		
	The spray bar shall be designed to withstand corrosive materials and harsh environments.		
	The pre-wetting system, hydraulic valves, hydraulic pump and in cab controller shall be from the same manufacturer to ensure complete system compatibility.		
PLUMBING	The system includes a 1-½ inch polypropylene quick fill port with shut-off ball valve and integral cam locks.		
	The pump inlet plumbing features a ball valve and a Y-strainer with serviceable screen filter cartridge.		
	The bypass plumbing features a ¾ inch polypropylene bypass valve with adjustable pressure relief valve with pressure gauge.		
	All hose, which is supplied, is nylon reinforced PVC hose with a working pressure of not less than 200 psi with max temperature rating of 100°F.		
	All fasteners will be 316 - stainless steel.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
PLUMBING	Discharge Nozzles		
	The system uses two spray nozzles to apply solution on material being discharged above conveyor chain/cross conveyor auger.		
	The brass spray nozzles bodies offer a reliable and rugged mounting for the brass spray tips.		
	The brass spray tips offer a fan pattern that gives an even disbursement of the chemical to the granular surface.		
	The nozzle plumbing comes with an in-line check valve to prevent the siphoning.		
	CUSTOM LOW MOUNT HITCH:		
GENERAL:	These specifications are intended to describe a low mount custom designed snow plow hitch designed to keep the hitch and plow as close to the truck grille and/or bumper as possible and allow the hood of the intended chassis to tilt forward for engine service without necessitating movement of the main vertical members.		
	It shall consist of push frame and the plow lifting device.		
	The hitch shall be designed so that the lift arm and hydraulic ram is capable of collapsing and pinning to a stowage position when the plow is not in use.		
	This design requirement is to shorten the protrusion capability of the lift arm arrangement.		
	The main frame shall consist of two (2) formed channels of 3/8” plate for the vertical members.		
	The two horizontal members shall be 4” x 3” x 5/16” wall tubing and incorporate mounting brackets for working and storage positions of the lift arm and hydraulic cylinder.		
	The attachment of the truck hitch to the truck chassis shall be designed to evenly transmit the snow plow load to the truck frame under continuous severe service.		
	Grade 8 cap screws shall be used throughout.		
	The attachment to the truck frame shall be a custom side plate design of ½” material extending back as far as practical from the front of the truck.		
	In addition, two (2) braces of 3” x 2” x ½” angle and mounting brackets shall be incorporated so as to transmit thrust from the lower push frame to the underside of the chassis frame rails at a point forward of the front axle.		
	Attached to the push frame shall be a locking device for the coupling of the plow to the truck.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
GENERAL	The locking device shall have an opening 3-1/2" x 11-1/2" at the front and 2-1/2" x 10-1/2" at the rear.		
	The opening shall be beveled to allow easy entrance of the arrowhead.		
	Two (2) steel spring loaded locking blocks, installed directly behind the beveled opening, shall automatically clamp about the arrowhead, whenever the arrowhead enters the opening during coupling operations.		
	The locking device shall be so designed as to permit oscillation of the snow plow whenever uneven road contours are encountered.		
	A handle shall be supplied to unclamp the locking blocks from the arrowhead whenever uncoupling of the plow from the truck.		
GENERAL	There shall be a secondary Tor Lok to help prevent the accidental disconnection from the truck.		
GENERAL	**POWER REVERSIBLE TRIP EDGE SNOW PLOW WITH HOT WING**		
GENERAL	These specifications describe a Power Reversible Trip Edge snow plow which shall be built from new material and suited for continuous work under difficult conditions of snow removal.		
MOLDBOARD ASSEMBLY	The moldboard shall be a right hand flared discharge style and shall not be less than 42" high in the center and 57" high at the right-hand discharge end nor less than 144" long (54.5" height at right hand end @ 132" length).		
	The moldboard sheet shall be formed from not less than 3/8" thick high molecular weight polyethylene sheet Orange Color		
	The polyethylene sheet shall have a minimum tensile strength of 4000 P.S.I., and when tested in accordance with ASTM D638, it shall evidence a minimum of 600T (2") elongation at break.		
	In addition, the sheet shall evidence no break following Izod impact test conducted in accordance with ASTM D256A.		
	The sheet shall be formed from a polyethylene material, which is made from new resin, (recycled material is **not acceptable**), and shall be color impregnated and ultra violet stabilized to a "Orange" pigmentation,		
	It shall attach to a frame work which includes not less than ten (10) steel reinforcing ribs at least ½" thick x 3-1/2" wide and a lower moldboard reinforcement from not less than 4" x 3" x ½" steel angle so as to form a rigid structure.		
	The upper portion of the moldboard shall project over the cutting edge so as to form a continuous, solid, integral snow shield and shall include an upper reinforcement from not less than 3" x 2-1/2" x 3/8" steel angle.		
	Plow shall have chain lifting device		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
INNOVATIVE	Shall be one (1) in number and shall be from ½" x 8" C1065 steel, punched to AASHO standards on 12" centers and supported by a reinforcement from not less than 4" x 4" x ¾" steel angle.		
	The cutting edge shall be reversible for double wear.		
	Shall have one carbide cutting edge sandwiched between the steel cutting edge and moldboard.		
TRIPPING EDGE MECHANISM	Shall be of the single edge design, which shall activate whenever the cutting edge comes into contact with an obstruction on the pavement.		
TRIPPING EDGE MECHANISM	Trip activation shall be achieved through five (5) torsion springs from not less than ¾" square wire, having a 3-3/4" O.D., with fifteen (15) active coils each.		
	Each spring shall be pinned in place in a horizontal position and shall butt to the lower moldboard reinforcement and to the cutting-edge reinforcement.		
	Spring adjustment shall be provided so as to alter the pre-charge of springs for varying plowing conditions.		
DRIVE FRAME AND REVERSING MECHANISM	The drive frame and reversing mechanism shall consist of an "A" frame, a truss frame and two (2) single acting hydraulic cylinders with 3-1/2" diameter x 16" stroke.		
	The "A" frame shall be a triangular weldment with 3/8" thick steel plates (top and bottom), a rear member from not less than 1" thick steel plate and two (2) center reinforcements from not less than 3/8" thick steel plate, so to form a boxed center section.		
	The height of the boxed center section shall be 5-3/4".		
	The truss frame shall include a main drive member from 4" square tubing with 3/8" wall.		
	The truss frame shall pin to the moldboard at not less than 4 points over a span of not less than 82" and shall include two (2) moldboard braces which allow for alternate moldboard positioning.		
	Moldboard and truss frame shall pivot about the "A" frame on a lubricated pin, not less than 2-1/2" in diameter, up to 37 degrees either side of the chassis center line.		
	The pin shall be designed in such a way that it will be easily removed for maintenance.		
	Each cylinder shall have 3-1/2" diameter pistons, which terminate with 2-1/2" diameter connecting lugs.		
	Both the rods and lugs shall be from case hardened, chrome plated steel and shall be protected by a hydraulic cushion valve.		
	The "A" frame shall be fitted with a three (3) point lift arrangement, which shall accommodate plow reversing operations with the plow either on the ground or at the carry position.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
	This arrangement shall be of a design which prohibits plow list, when the moldboard is angled in the carry position.		
PLOW COUPLING BAR	Shall be of a design, which can be accommodated by a truck mounted "Frink Tor-Lok" quick coupler locking device.		
	It shall consist of an angle weldment, which includes an angle drive bar, fitted with attachment ears and male arrowhead shaped coupler.		
	This weldment shall pin directly to the rear of the drive frame.		
PLOW COUPLING BAR	The arrowhead shall be from 1" thick plate, 4-3/4" wide at its neck, 10" wide at its extremity and 12-1/4" in overall length with hole to accommodate Secondary Tor-Lok		
SPRAY GUARD	Shall bolt on the top moldboard flange or reinforcement.		
	It shall consist of a 12" wide x 3/8" thick rubber belt, metal retaining strap and necessary mounting hardware.		
ADJUSTABLE MUSHROOM SHOES	Two (2) screw adjustable, mushroom steel wear shoes shall be supplied.		
	They shall connect at each side of the plow.		
	Moldboard Shoes		
	The forefront shall be fitted with two (2) fabricated steel moldboard shoes.		
	Each moldboard shoe shall offer a minimum of 40 sq. in. of bearing surface and shall attach to the underside of the cutting-edge reinforcement.		
	An additional bumper shall be supplied at each end of the moldboard (qty. 2).		
CURB SHOE	They shall be from a minimum of ¾" x 6" steel, shall bolt at the innovative face and shall project 1" outside each end of the cutting		
PLOW MARKERS	There shall be 36" long, fluorescent orange markers mounted to each end of the moldboard.		
VENDOR QUALIFCATIONS	Vendor must be a factory-authorized representative for chassis being offered. Supporting documents required with bid.		
VENDOR QUALIFCATIONS	Vendor must state best delivery available, delivery may be a prime factor in the award of this bid.		
VENDOR QUALIFCATIONS	In order to qualify for warranty, coating must be applied by a certified applicator.		
VENDOR QUALIFCATIONS	Vendor must be available at time of delivery and placement to provide technical expertise.		
VENDOR QUALIFCATIONS	less than twenty (20) references, using current production models of the		
VENDOR QUALIFCATIONS	List should include agency, contact named and phone numbers.		
M ANUFACTURER'S REQUIREMENTS:	The manufacturer shall provide standardized factory operator, maintenance and repair manuals for the unit supplied.		
REQUIREMENTS:	The manufacturer's Statement of Warranty shall be supplied.		

ATTACHMENT B SPECIFICATIONS DETAIL

	SPECIFICATION DETAIL	COMPLY	
		YES	NO
SECTION 3.	**Options**		
OPTION A	**Wing/Multi-Purpose Body Option**		
GENERAL	Chassis Options GVW 55,000 Lbs. Front Axle 25,000 Lb. Capacity Front Springs 25,000 Lb. Capacity Rear Tires (5) 315/80R22.5 20 Ply Tires Rear Wheels 22.5 x 9.0 Steel Hub Piloted CAB - HVAC to include Air Conditioning Engine - Cummins 11.9 Liter 450 Horsepower Trailer Package Includes: Trailer Valve, Trolley Valve and Electrical Cord w/Plug		

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
OPTION A	**DUMP BODY AND EQUIPMENT SPECIFICATION**		
INTENT:	It is the intent of these specifications to describe a multi-use heavy-duty Stainless Steel dump body.		
	This dump body shall have a telescopic hoist and an integral conveyor built into the floor for conveying and/or spreading ice control materials, chips for seal coating, asphalt, or shoulder material.		
	Since the body will be working in very demanding and adverse conditions, and to thus prevent obtaining an unproven proto type body of a similar design, the manufacturer shall have been in continual production of this specific type of body for a minimum of 5 years.		
	The manufacturer shall also have built a minimum of 500 such units; and shall provide to the bidder a list of customers that includes names and phone numbers of a list of 50 different customers.		
	These customers shall have working experience with the proposed model being bid, with a minimum operation time of at least 3 years.		
	Product must be from original design manufacturer.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
INTENT:	The overall length of the dump body shall be 10’ ft. It shall have a struck capacity of 8 cubic yards without sideboards.		
	Side boards – Oak		
	The straight vertical sides of the body shall be made of 10 Ga. 304 stainless steel.		
	The top of the sides shall be boxed with a "C" section closure and full welded.		
	The boxed top rail shall be dirt shedding with a 45-degree slope at the top and shall be 5” deep and 6” high.		
	The corner post shall be made from 10 Ga. 304 stainless steel and be 5 1/2" deep and 16" wide.		
	It will run full depth from the top of the gate to the bottom of the longitudinal and be full welded.		
	The sides are supported by vertical gussets that are 4-1/2" deep, 7 1/4" wide and full welded.		
	The bottom of the sides will have a 45-degree sloped rub rail that is 5" wide.		
	The tailgate shall be constructed of 10 Ga. 304 stainless steel.		
	The Tailgate shall have secondary locks.		
	Rear Body hinge pins must be of harden material with remote grease hoses to outside chassis rails for ease of greasing while cross conveyor is installed.		

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
BODY:	There shall be two vertical interior gussets 5 1/2" wide, 3 1/2" deep and full welded and two vertical outside gussets 5 3/4” wide, 3 1/2” deep and full welded.		
	There will be a dirt shedding boxed horizontal top rail running full width that is 6 1/2" x 4" and full welded.		
	The upper tailgate hinge bracket shall be incorporated into the rear corner post to give the appearance of the tailgate and hinge assembly being the same height as the rear corner post.		
	The bottom horizontal rail shall be full width and sloped 45 degrees.		
	The flat horizontal floor shall be made from 1/4" steel.		
	The center of the floor shall have a bar flight chain conveyor running the entire length of the body.		
	The conveyor shall be flush with the floor of the dump body.		
	The flat horizontal floor of the body and the bedplate of the conveyor, shall be supported every 12" by Hot Extruded, American Standard 4" Structural Steel I-Beam which is 7.7 lbs. per foot.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
CONVEYOR HOOD:	The conveyor hood is mounted in the rear opening of the tailgate of the dump body.		
	It shall be capable of being shifted to a forward-extended position covering the rear end of the conveyor and to a rearward retracted position where a flat straight front face of the conveyor hood is flush with an inner face of the tailgate.		
	A horizontally revolving feed gate is **not acceptable.**		
	The gate latch shall be made of 1/2" steel and have 1-1/4" pin.		
	There will be threaded rod adjustments and have two yokes with 5/8" pins.		
	The gate handle shall be supported by two angle irons 1/4" x 2" x 3" with a 1-1/4" rod.		
	This handle will have a safety chain with a ring that will slide over the handle.		
	All moving joints shall be equipped with accessible grease fittings.		
DOGHOUSE:	To position more of the load toward the front of the truck and leave less open space between the cab and the body, the body shall have a 10" deep by 13 1/4" wide lift cylinder doghouse for single axle units and a 10” deep by 14 1/4” wide lift cylinder doghouse for tandem axle units.		
	The body must be able to be mounted with no more than 5" between the cab and the front body panel.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
CONVEYOR:	For ease of dumping operations, even tailgate spreading of aggregates, (i.e. spreader apron, side discharge, or stone spreader) - the conveyor shall end flush with the rear of the body and shall not extend past the tailgate of the unit.		
	When the conveyor chain is moving material toward the rear of the body, the material shall be fed through the doghouse opening in the tailgate.		
	This movement of material through the tailgate shall be used for conveniently charging attachments such as paving hoppers and cross conveying shoulder machines.		
	The rear of the floor and rear conveyor shall have no openings by which material shall pass through before it moves rearward through the doghouse in the tailgate.		
	The rear of the floor and rear conveyor shall seal tight against the tailgate and doghouse in the tailgate when the coal door is closed.		
	This tight seal shall eliminate any material leaking out of body.		
	The conveyor shall feed material rearward through the coal door of the tailgate.		
	The conveyor shall be 34" minimum width.		
	The sides of the conveyor which are also the longitudinal members of the body, shall be constructed of Hot Extruded American Standard 12" Structural Steel channel which is 20.7 lbs. per foot.		
	There shall be an adequate number of 3" channel bracing welded to the bottom of the channel iron longitudinals.		
	This 3" channel bracing shall form the base of the unit that will rest on the truck chassis.		
	The dump body floor shall be so formed that it fully covers the pintle chain links, #D667XH.		
	The bar flight shall be 1/2" x 1-1/2" and welded to every link.		
	The bedplate of the conveyor shall be made of 1/4" abrasion resistant steel.		
	The conveyor shall be powered by one 6:1 ratio spur gearboxes mounted to sides of the 2" drive shaft.		
	The gearbox shall be powered by a hydraulic motor.		
DRIVE ASSEMBLY COVER:	Shall be bolted in position easily detached to allow for ease of maintenance of rear drive assembly.		
1/2 CAB SHIELD:	There shall be a 1/2 cab shield supplied made of 10 Ga. 304 stainless steel.		
	The 1/2 cab shield shall extend 22-1/2" from the front of the body.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
TELESCOPIC HOIST	The hoist shall be of telescopic design, double acting and have a trunnion mounting.		
	The trunnion mount shall have a 1-7/8" pin.		
	Capacity shall be 38 tons.		
	It shall be designed to operate up to 2500 PSI and shall be self-bleeding.		
	It shall have 1/4" wall construction with bronze glands and pistons to assure a smooth and durable bearing surface.		
	Each cylinder shall be internally sealed.		
	The inside seals shall have a U-cup design made of nitral packing.		
	The piston rod shall be machined from ASI 4140 and nitrated using the QPQ method to establish the following mechanical properties:		
	Surface Hardness: Rockwell C60-C65		
	Surface Finish: RMS 20 (using ASTM B117 salt spray) approximately 7% surface area corrosion in 88 hours (or 10 times better than hard chrome plating)		
	Fatigue Strength: Approximately 80% to 100% increase using QPQ as compared untreated sample.		
COVER PLATE	There shall be a cover plate over the conveyor made of 7GA. steel.		
	This plate will slide into position over the conveyor and then be bolted in place at the rear of the body.		
BELLY PAN	A belly pan shall be included to prevent material from accumulating between the body and frame rails.		
SCREENS	Top screens will be provided that are one piece removable with a center lift point and made of 3/8" interwoven high tensile steel rod with 2 1/2" openings.		
	There shall be at least 4 sections and be supported by at least (3) 4" I-Beam structural channel.		
	Screen frames are constructed of ¼” 2” X 2” angle. The top rail will be made of 4" I-Beam.		
FLUSHING SYSTEM	A conveyor flushing system shall be provided for cleaning of conveyor chain and conveyor housing.		
	System to be located at forward end of conveyor housing		
	Unit shall rinse sand, salt and debris from conveyor housing left over from spreading operation nozzle to be of non-clogging and maintenance free design		
	Install quick release swivel coupling on flush bar end. NO FILL HOSE OR HOSE BASKET.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
LADDER AND GRAB HANDLES	Access to the body shall be by way of a tuck-a-way stainless steel ladder mounted on the driver's side of the body.		
	The ladder shall be below body rail.		
	Two (2) grab handles shall be mounted mid body parallel to ladder.		
	One (1) grab handle to be mounted near top of body near ladder.		
	Full length Stainless Steel CAT WALK on ladder side		
	Two Stainless steel steps inside body on ladder side		
PINTLE PLATE/ TOWING	5/8" thick pintle plate shall be installed.		
	Heavy Duty BP200A pintle hook installed rear on 5/8" full width pintle plate with 2" return bend at bottom of pintle plate.		
	Two (2) ¾ inch "D" rings shall be installed.		
	One (1) seven prong round truck side trailer plug shall be installed on the pintle plate.		
	A 7-pin round trailer plug shall be mounted to the pintle plate.		
	An additional spare 6 pin round trailer plug shall be included.		
	Glad hands shall be mounted to pintle plate.		
	Trailer brake is to be mounted in-cab within easy reach of the driver. Trolley Brake to be included.		
	Custom tow bar shall be fabricated beneath the pintle plate as per customer requirements.		
LIGHTING	One Whelen LED DOT-3 safety lighting system is to be furnished.		
	The LED strobe lights and LED stop/tail/directional lights and reverse lights are to be mounted in 304 stainless steel enclosures.		
	These enclosures are to be mounted on the rear of the spreader body, one on each side, in clear view from behind the vehicle.		
	Roof mounted LED strobe light with branch guard.		
	There is to be one 4" LED spot light mounted to a 304-stainless steel bracket on the left rear corner of the dump body.		
	Five (5) amber strobes, three (3) forward, and one (1) on each side shall be mounted on the cab shield		
	Mounting locations shall be approved by end user prior to installation.		
	Snowplow lights are to be Truck-lite series 80800.		
	They are to be mounted to snowplow hitch or to a custom truck hood bracket made of stainless steel. 304 stainless steel.		
	All body lights and clearance lights are to be LED type, no exception.		
	If during the installation of the dump body, hoist, hydraulic system, snowplow hitch or any other material specified herein, and cab and chassis lighting must be relocated for visibility of due to other conflict; the contractor shall do so at no additional cost.		
	Spot light shall be included to illuminate the spinner area.		
	There will be an LED spot light mounted on the wing cabinet and directed at the wing if required.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
LIGHTING	Black 270 Degree "Go Light" shall be remote controlled and cab mounted. Exact location to be determined by customer.		
BACK UP ALARM	The back-up alarm is to be a Preco 390 adjustable decibel variable voltage unit.		
ADDITIONAL REQUIRED BODY COMPONENTS	There is to be one set of 304 stainless steel stone shields mounted in the front of the rear wheels.		
	Four (4) customer supplied "Rockland County" embossed mud flaps shall be mounted on the rear of the truck to act as a protective drape between the material spinner and chassis rear.		
	The brackets to hold the Rockland County Highway embossed rubber mud flaps shall be constructed of all 304-stainless steel.		
	There is to be one Pioneer model EDD1500DA, electric /semi-automatic tarping system.		
	Arm mounts are to be mounted on top of the body fenders and be protected from possible damage.		
	The arms need to be aluminum construction and tarp is to be asphalt rated, 14’ long x 9’ wide and expandable with wind deflector.		
	The tailgate shall have two additional coal door chutes making a total of three chutes in the tailgate.		
	A stainless-steel bolt on asphalt spill apron shall be included separately.		
TAILGATE CROSS CONVEYOR	The under-tailgate spreader required in these specifications shall be hydraulically operated and shall consist of a steel trough, 9” diameter auger conveyor, spinner disc, and power drive.		
	The spreader shall be capable of evenly spreading or centerline windrowing various types of granular material and/or chemicals for ice control such as sand, salt, calcium chloride, or mixtures up to a width of forty feet.		
	The overall trough width shall not exceed 96.5”.		
	All sheet steel gauges and bar stock sizes listed throughout this specification will conform to ASTM standards.		
	Bidders must submit their bid with complete specifications on the unit they propose to furnish.		
	Bids with exceptions to these specifications will be considered informal.		
	The use of any other standards will not be considered		
	Body conveyor shall have a rubber wiper fabricated in an effort to prevent material from accumulating underneath the belt.		
	Spinner assembly shall have a maximum height of 27 inches from the ground		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
GENERAL	A custom fabricated, fully enclosed stainless steel housing shall transfer material from the body conveyor to the tailgate mounted cross conveyor.		
FLOOR, SPREADER, TROUGH, AND HOPPER	One-piece ¼" 304 stainless steel endplates shall be fully welded to 7-gauge 304 stainless steel formed front and rear trough panels.		
	The unit will have a 7-gauge 304 stainless steel, 5 point hinged bottom panel that will expose the entire length of the auger for ease in clean out and service when open.		
	The hinged bottom will be held closed by two heavy-duty over center locks with a lift handle for one-person operation.		
	The unit shall have a discharge opening at each end of the trough.		
	The anti-flow plate over each point of discharge will be 10-gauge 304 stainless steel and will be removable without the use of tools.		
	The 7-gauge 304 stainless steel combination cover and back plate will be a one piece hinged integral part of the unit.		
	This cover will be capable of being locked in either the raised or the lowered position by a single latch on each side of the cover.		
	To reduce the potential for material bridging, the inside width of the trough will be a minimum of 12 inches.		
AUGER MECHANISM	The nine-inch diameter auger shall consist of 5/8" helicoids flighting (minimum thickness at outer edge to be not less than ½") welded to a 2-1/2" schedule 80 pipe.		
	This auger will be supported by a 1-1/4" C-1045 steel shaft.		
	The auger shall feed material to the extreme left side for spreading, and the rotation of the auger shall be reversed to feed material to the extreme right side for berm operations.		
	On the side opposite the drive mechanism the auger shaft will be supported in a 4-bolt flange, sealed, self-aligning bearing with a grease fitting for lubrication.		
	The drive end of the auger will couple directly to an independent, end plate mounted, hydraulic motor capable of delivering high torque at low speeds.		
	Shear bolts are **not acceptable.**		
	Dual, 10-gauge carbon steel, anti-flow plates shall prevent movement of the material when the auger is stopped.		
GENERAL	The spinner will consist of a single 18" polyurethane disc with six formed radial thrust vanes molded into a single unit.		
	This disc shall be capable of producing a uniform spread pattern from four to forty feet in width.		
	An orbital type hydraulic motor capable of delivering high torque at low speed will be directly coupled to this disc through a cast iron hub.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
SPINNER	The spinner assembly will be adjustable, allowing for variable spread patterns of left, center, or right by sliding the spreader frame on the support shaft so that the point at which the material is deposited to the spinner disc is varied.		
	The spinner assembly will be easily removed by pulling two pins and uncoupling two hydraulic hoses.		
	The spinner speed and the auger feed rate will be both independently variable through the optional dual flow control valve.		
	The spinner assembly will be linked to the truck frame with a universally mounted parallel arm to keep the spinner horizontal to the road surface at a dump box angle of up to 55 degrees from horizontal.		
	An integral spinner shield will be provided to prevent material from striking the back of the truck.		
	An adjustable baffle to control spread direction will be included with the spinner assembly.		
MATERIAL CHUTE	This chute shall also be constructed for left hand mounting to provide for centerline windrowing of deicing materials.		
	The chute shall be designed for quick removal without the use of tools.		
PAINT	Prior to the assembly of the unit, all non-stainless steel components are to be individually cleaned with an iron phosphate treatment.		
	All non-stainless components are then prime painted.		
	Next, the plural-component urethane finish coat is to be applied Hi-Way Black on all bolt-on components.		
	Finally, all components and hopper are to be oven cured and then completely assembled to the stainless hopper.		
OPERATING AND MAINTENANCE MANUAL	Manual is to be furnished with each unit covering the operation, maintenance, and parts listing for the unit.		
OPERATION AND MAINTENANCE SAFETY MANUAL	Each unit furnished shall be accompanied with a manual that promotes safe operation and maintenance procedures.		
CENTRAL HYDRAULIC SYSTEM:			
HYDRAULIC RESERVOIR/VALVE ENCLOSURE	Hydraulic reservoir to be a minimum of 40-gallon capacity and be constructed of Stainless Steel.		
	Hydraulic reservoir must incorporate an integral valve enclosure that is part of the hydraulic tank.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
HYDRAULIC RESERVOIR/VALVE ENCLOSURE	The reservoir must be baffled, have a magnetic drain plug, lockable Protecto-Seal cap – NO EXCEPTION, and a suction strainer with a minimum 2" NPTF outlet.		
	A minimum 5" diameter clean-out port.		
	Reservoir shall also have an electrical low-level indicator.		
	Reservoir shall have a built-in sight gauge, hot oil sensor, filter pressure gauge and low oil sensor.		
FILTER	An in-line Tank Return Line Filter shall be installed in the return line, in a position that facilitates ease of maintenance.		
	The filter shall be of minimum 50 GPM flow rating and 10-micron filtration.		
	Element replaceable through filter cover.		
HYDRAULIC PUMP	The front mounted flow and pressure compensated pump shall be driven direct and in-line with the crankshaft through a double universal joint driveline.		
	The hydraulic pump must be of piston type and capable of 35 GPM at 2000 engine RPM.		
	Pressure sense line must be internally bled at the pump.		
	Pump case drain must be plumbed directly to reservoir-not through return line filter.		
LOW OIL SHUTDOWN	A single normally open, two position, two way, poppet type solenoid valve must be mounted directly to the hydraulic pump discharge port in such a way as to stop all oil flow to the hydraulic system when energized.		
	The solenoid valve must be wired directly to an in-tank mounted level indicator.		
	The level indicator shall be of the float type and mounted from the top of the reservoir.		
	When the float switch contacts close, the shut-down valve blocks pump flow and an annunciator on the main control will be activated.		
	The momentary switch shall be mounted in a pump control panel with annunciator for low hydraulic oil shut-down override.		
	This switch shall be wired in such a way as to de-energize the system shut-down to facilitate fault finding and equipment stowing.		
	In the pump control panel, there shall be diode suppression wired to the momentary pump override switch.		
	A single normally closed solenoid is **not acceptable** due to the fact that the solenoid must be energized at all times to obtain proper hydraulic output.		
DRIVELINE	The hydraulic pump is to be driven by a 1310 series driveline off the engine harmonic balancer which must accept a 1310 series flange yoke.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
DRIVELINE	The driveline can have no more than a 4-degree operating angle and must be assembled with proper slip movement.		
CONTROL VALVE	The central hydraulic system valve shall be a high-pressure load-sensing valve of sandwich plate design and constructed of cast iron.		
	Aluminum manifold designs shall be **unacceptable**.		
	The valve shall be stackable and serviceable without disassembly.		
	It shall be rated for a maximum pressure of 5000 psi on the pump side and 6000 psi at the work ports.		
	The valve shall be rated for 40 GPM at the inlet and 35 GPM at the work ports.		
	The valve shall have one individual section for each function.		
	It shall have the ability, when required, to vary the working pressure for each individual work port by using built-in load sense reliefs.		
	These reliefs shall have an adjustment range of 500 psi to 5000 psi.		
	It shall have built-in load-pressure compensation to allow simultaneous activation of functions.		
	All electrically actuated valve sections shall have two separate methods to override the section for troubleshooting and fault finding.		
	All electric valve sections shall have mechanical stroke limiters.		
	The pressure, tank and work ports shall be top ported.		
	For ease of service, all electrical solenoids or pneumatic actuators shall be on the same side of the valve.		
	All valving shall be mounted as one main valve assembly.		
	Multiple valve assemblies are **unacceptable**.		
	The valve shall have the following sections:		
	Inlet – Shall be closed center and have built in relief, and anti-cavitation functions.		
	Relief shall be set to 2800 psi.		
VALVE CONTROLS, MECHANICAL	Plow and Dump Functions shall be controlled from inside cab by remote cable control Quadco Brand C85 Single Action Lever Type		
	Cable shall be of stainless steel core with no less than 100 lbs. rating for pushing and pulling.		
	Cable connection to valve spool must be enclosed and sealed with protective bonnet.		
	The cab control levers must be capable of being stacked and tied together in desired order.		
	Dump Body – Shall be double acting mechanically actuated with “A” port limited to 500psi.		
	Section shall have stroke limiters for both work ports.		
	Plow Raise – Shall be double acting mechanically actuated with “A” port limited to 500 psi.		
	Plow Angle – Shall be double acting mechanically actuated.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
VALVE CONTROLS, MECHANICAL	Wing Heel - Shall be double acting, cable actuated with "A" port limited to 1500 psi.		
	Wing Center- Shall be single acting, cable actuated		
	Wing Toe – Shall be single acting, cable actuated.		
	Calcium- Dedicated hydraulic valve		
VALVE CONTROLS, ELECTRICAL	Conveyor – Single acting electrically actuated with "B" port limited to 1500 psi.		
	Section shall have stroke limiters for both work ports and a valve override pin.		
	Spinner – Single acting electrically actuated with "B" port limited to 1500 psi. Section shall have stroke limiters for both work ports and a valve override pin.		
SYSTEM REQUIREMENTS	All work port pressure limiting shall be by the use of load sense relief valves that are integral to the valve section that is being limited.		
	The use of work port relief valves that divert excess flow to tank shall be **unacceptable.**		
	Valve manufacturer shall be ISO 9001 and ISO 14001 certified.		
	Valve, pump, and hydraulic controls shall be from the same manufacturer to ensure complete system compatibility.		
	All load sense relief valve adjustments shall be accessible and adjustable without removing fittings or hoses from the valve.		
	The inlet section of the main valve assembly shall have a cartridge style relief valve that is serviceable and removable without valve disassembly.		
	Each valve section shall have an adjustable flow/pressure compensator.		
	The flow/pressure compensator shall be adjustable by adding or removing shims to the compensator spool.		
	The flow/pressure compensator shall be adjustable between 6 bar and 12 bar.		
	The load sense signal coming from each work port shall be sensed through the main valve spool.		
	For each work port that requires pressure limiting, the load sense signal from that port shall be connected to an integral and adjustable pressure reducing valve located in the section that is being limited.		
BOSCH-REXROTH CS550 SPREADER CONTROLLER:			
GENERAL	The CAN Bus spreader control system shall be ground speed orientated to maintain a pre-determined application rate regardless of vehicle speed.		
	Control shall be by microprocessor for high control accuracy with the outputs being current compensated.		
	In order to ensure there will be no electrical interference either to or from the controller, any controller bid shall comply with the following standards:		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
GENERAL	ISO 11452-2(2004-10) for RF Immunity		
	ISO 11452-4(1996) for RF Immunity		
	ISO 7637-2(2004) for Conducted Immunity		
	ISO 7637-2(2004-06) for Transient Emissions		
	Controller shall comply with ISO 16750-5 for Resistance to Media. (resistance to spills of coffee, soda etc.).		
	The controller shall be capable of operating in Manual, Automatic (Closed Loop), Open Loop, Ground Speed Triggered Manual and 12V triggered modes.		
	Controller shall have a 7” wide VGA touch screen display with 262144 colors.		
	The display shall be a glass/film/glass design with a hardness of 7H.		
	The display shall have adjustable brightness with the maximum brightness being no less than 400 cd/m2.		
	The display shall include a 1.5-watt speaker.		
	The controller shall use a voice feedback system that announces rate changes, pause on, pause off, blast on and blast off.		
	The controller shall be capable of having four (4) different solid material calibrations, four (4) different pre-wet liquid calibrations and four (4) different anti-ice material calibrations for a total of twelve (1)2 different materials. Each material shall have nine (9) programmable application rates.		
	Controller shall have three (3) detented rotary knobs for application rate selection. Each knob shall have stainless steel shafts and have a rotational torque of at least 8 oz.-in.		
	The controller shall be capable of operating Auger/Conveyor, Spinner, Pre-Wet, Cross Conveyor speed, Cross Conveyor Direction, Closed Loop Gate, and Spinner Chute control.		
	It must be capable of operating the Spinner, Auger/Conveyor, Pre-Wet, all at the same time.		
	The controller shall have a sync mode that will allow for the synchronization of the truck spreader system and the tow plow spreader system.		
	In sync mode both conveyors will operate from a single knob, both spinners will operate from a single knob and both pre-wet units will operate from a single knob.		
	All nulling and calibration values and application rates for the tow plow spreader and truck spreader shall be independent of each other.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
GENERAL	Gate positioning range shall be from fully closed to fully open and any setting in between.		
	MATERIAL CALIBRATION VERIFICATION: The controller shall have a catch test feature that will allow the user to specify an application rate, speed driven and time to run in order to simulate spreading for performing calibration verifications.		
	The controller will use the resulting information to automatically make adjustments to the material calibration values to ensure the most accurate material setup.		
	The rate at which the controller increases the application shall be adjustable in the controllers programming.		
GENERAL	AUTO NULLING: The controller shall be capable of auto nulling spinner, conveyor/auger, and liquid channels when feedback sensors are used. Manual nulling must be available for all circuits including cross conveyor left and right.		
	SYSTEM PROGRAMMING: Programming shall only be accessed by use of an encrypted USB key.		
	All programming shall be done by using the touch screen display.		
	The touch screen display shall have an onscreen pop-up keyboard for ease of entering information.		
	The use of external programming devices, such as a laptop computer, shall **not be acceptable.**		
	MATERIAL SET BACK: When using liquid to pre-wet granular material the controller must be capable of cutting back the granular material by a predetermined percentage when the liquid is being applied. The percentage shall be programmable.		
	TRIP SUMMARY INFORMATION: The controller shall display a real time trip summary log on screen.		
	The trip summary shall include miles traveled, solid material spread amount and liquid material applied amount.		
	If operating in tow plow mode, the controller shall display a real-time trip summary for both the truck spreader and tow plow spreader.		
	ON SCREEN ERROR LOG: For ease of troubleshooting, the controller shall have an on-screen error log that is capable of displaying the last 20 error codes that have been generated.		
	The log shall be viewable without the use of a program key.		
	The error log shall not clear itself when the controller is powered off. The error log can only be cleared when the proper USB key is inserted into the USB port.		
	DATA LOGGING: The controller, as supplied, shall be capable of event based data logging.		
	The controller shall log the following information:		
	Date and time of event, event type, truck ID, driver ID, region name, solid material usage, pre-wet usage, anti-ice usage, pause distance, blast distance, distance spread, total distance, blast amount, number of times blast was used, gate position (if a gate position sensor is used), temperature (if external temperature sensor is used), setpoint of spinner, setpoint of conveyor/auger, setpoint of pre-wet and setpoint of anti-ice.		
	All the information will be transferred from the spreader control to a desktop/laptop computer via an encrypted USB drive.		
	All data logging information must be capable of being customized and exported. Summation reports are **not acceptable.**		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
GENERAL	SOFTWARE UPDATES: The spreader control software must be able to be upgraded via encrypted USB key. All software updates shall be provided free of charge from the manufacturer.		
	INTERFACE CONNECTIONS: The controller, as supplied, shall have the following interface connections built-in for use with GPS, Wi-Fi, Temperature sensors, third party GPS providers, data logging and software updates:		
	-Two CAN 2.0B ports		
	-Two USB ports		
	-Two Serial RS232 ports		
	-One Wi-Fi antenna connection		
GENERAL	The Central Hydraulic System must come complete with a "Power Float" function.		
	The Power Float system is designed to transfer a certain amount of the weight of the plow off the cutting edge and onto the truck to reduce the wear rate of the replaceable cutting edge, and to reduce the amount of damage caused by the plow to the road surface.		
	The system must be designed to provide a controlled flow of oil at a regulated pressure to the lift end of the plow lift cylinder.		
	This will in turn tighten the plow lift cables/chains to take some of the weight of the plow off the road surface.		
	The pressure regulator setting must be field adjustable to allow for different weight settings at the cutting edge.		
POWER FLOAT	With the Power Float engaged, oil must be allowed to flow both in and out of both ends of the lift cylinder at a sufficient rate to allow the plow to quickly follow the contours of the road.		
	The Power Float System must use the load sensing capabilities of the hydraulic system.		
	System will automatically override once normal plow functions as required.		
	This automatic override will be installed in such a manner as to not let the Power Float engage when the plow is being lifted into the air, preventing the plow from dropping, uncontrolled, to the ground.		
	A lighted on/off control for the above will be enclosed in the auxiliary control panel with a light which indicates when the power float is activated.		
	The Power Float block valve must be a manifold design that utilizes cartridges.		
	All ports must be of 0-ring design.		
	The block must be manufactured from steel and anodized to eliminate corrosion.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
ELECTRICAL CABLE REQUIREMENTS	All electrical cable supplied must come complete with attached watertight "quick disconnect" connectors.		
	Cables must be shielded and of heavy duty industrial and anti-scuff and sheathing.		
	Wire joints must be soldered and heat shrink tubing shall be installed at all appropriate locations.		
	The following lengths of cable shall be used:		
	From spreader control to main power, 18 Ga. approx. 10 ft.		
	From spreader control to speedometer, 18 Ga. approx. 10 ft.		
	From spreader control to valve assembly and feedback sensor, 18 Ga. approx. 25 ft.		
HYDRAULIC REQUIREMENTS	All steel hydraulic lines shall be of heavy wall construction with a minimum burst pressure of 8000 P.S.I.		
	All hose and fittings to be S.A.E.100R 1 Aeroquip with a minimum burst strength if 8000 P.S.I.		
	All flexible hydraulic hoses are to be made of synthetic rubber, interior tube to be seamless construction with two (2) reinforcements of high tensile steel braid and a cover of oil and weather resistant synthetic rubber.		
	In order to accommodate the volume of oil needed to operate the system and reduce heat buildup all hoses are to be of a minimum size.		
	Suction line from the tank to the pump to be minimum of 2".		
	High pressure line from the pump to the valve to be min. of ¾".		
	High pressure lines to cylinders up to 4" pressure lines to cylinders up to 4" in diameter shall have a minimum of ½" line and over 4" shall be ¾" line.		
	All lines, steel or rubber shall be supported and tied adequately to prevent vibration and chafing.		
	Hoses and or pipes are not to be installed near any source of heat such as manifolds or other parts of the exhaust system.		
	Hydraulic lines shall be routed to the back of the truck chassis to provide hydraulics for the spreader, the lines shall be equipped with Aeroquip quick disconnects Model 5600 ¾" for pressure and 1" for return.		
GENERAL	These specifications are intended to describe a custom designed snow plow hitch designed to keep the hitch and plow as close to the truck grille and/or bumper as possible and allow the hood of the intended chassis to tilt forward for engine service without necessitating movement of the main vertical members.		
	It shall consist of push frame and the plow lifting device.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
CUSTOM HITCH	The hitch shall be designed so that the lift arm and hydraulic ram is capable of collapsing and pinning to a stowage position when the plow is not in use.		
	This design requirement is to shorten the protrusion capability of the lift arm arrangement.		
	The main frame shall consist of two (2) formed channels of 3/8" plate for the vertical members.		
	The two horizontal members shall be 4" x 3" x 5/16" wall tubing and incorporate mounting brackets for working and storage positions of the lift arm and hydraulic cylinder.		
	The attachment of the truck hitch to the truck chassis shall be designed to evenly transmit the snow plow load to the truck frame under continuous severe service.		
	Grade 8 cap screws shall be used throughout.		
AND PLOW GENERAL	The attachment to the truck frame shall be a custom side plate design of ½" material extending back as far as practical from the front of the truck.		
	In addition, two (2) braces of 3" x 2" x ½" angle and mounting brackets shall be incorporated so as to transmit thrust from the lower push frame to the underside of the chassis frame rails at a point forward of the front axle.		
	Attached to the push frame shall be a locking device for the coupling of the plow to the truck.		
	The locking device shall have an opening 3-1/2" x 11-1/2" at the front and 2-1/2" x 10-1/2" at the rear.		
	The opening shall be beveled to allow easy entrance of the arrowhead.		
	Two (2) steel spring loaded locking blocks, installed directly behind the beveled opening, shall automatically clamp about the arrowhead, whenever the arrowhead enters the opening during coupling operations.		
	The locking device shall be so designed as to permit oscillation of the snow plow whenever uneven road contours are encountered.		
	A handle shall be supplied to unclamp the locking blocks from the arrowhead whenever uncoupling of the plow from the truck if desired.		
	The hydraulic lift ram shall have a 4" bore, single acting design with a hard chrome plated piston rod.		
GENERAL	These specifications describe a Power Reversible Trip Edge snow plow which shall be built from new material and definitely suited for continuous work under difficult conditions of snow removal.		
GENERAL	The moldboard shall be not less than 42" high nor less than 144" long.		
	The moldboard sheet shall be formed from not less than 3/8" thick high molecular weight polyethylene sheet Orange Color		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
MOLDBOARD ASSEMBLY	The polyethylene sheet shall have a minimum tensile strength of 4000 P.S.I., and when tested in accordance with ASTM D638, it shall evidence a minimum of 600T (2") elongation at break.		
	In addition, the sheet shall evidence no break following Izod impact test conducted in accordance with ASTM D256A.		
	The sheet shall be formed from a polyethylene material, which is made from new resin, (recycled material is **not acceptable**), and shall be color impregnated and ultra violet stabilized to a "Orange" pigmentation,		
	It shall attach to a frame work which includes not less than ten (10) steel reinforcing ribs at least ½" thick x 3-1/2" wide and a lower moldboard reinforcement from not less than 4" x 3" x ½" steel angle so as to form a rigid structure.		
	The upper portion of the moldboard shall project over the cutting edge so as to form a continuous, solid, integral snow shield and shall include an upper reinforcement from not less than 3" x 2-1/2" x 3/8" steel angle.		
	Plow shall have chain lifting device		
INNOVATIVE	Shall be one (1) in number and shall be from ½" x 8" C1065 steel, punched to AASHO standards on 12" centers and supported by a reinforcement from not less than 4" x 4" x ¾" steel angle.		
	The cutting edge shall be reversible for double wear.		
	Shall have one carbide cutting edge sandwiched between the steel cutting edge and moldboard.		
TRIPPING EDGE MECHANISM	Shall be of the single edge design, which shall activate whenever the cutting edge comes into contact with an obstruction on the pavement.		
	Trip activation shall be achieved through five (5) torsion springs from not less than ¾" square wire, having a 3-3/4" O.D., with fifteen (15) active coils each.		
	Each spring shall be pinned in place in a horizontal position and shall butt to the lower moldboard reinforcement and to the cutting-edge reinforcement.		
	Spring adjustment shall be provided so as to alter the pre-charge of springs for varying plowing conditions.		
GENERAL	The drive frame and reversing mechanism shall consist of an "A" frame, a truss frame and two (2) single acting hydraulic cylinders with 3-1/2" diameter x 16" stroke.		
	The "A" frame shall be a triangular weldment with 3/8" thick steel plates (top and bottom), a rear member from not less than 1" thick steel plate and two (2) center reinforcements from not less than 3/8" thick steel plate, so to form a boxed center section.		
	The height of the boxed center section shall be 5-3/4".		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
DRIVE FRAME AND REVERSING MECHANISM	The truss frame shall include a main drive member from 4" square tubing with 3/8" wall.		
	The truss frame shall pin to the moldboard at not less than 4 points over a span of not less than 82" and shall include two (2) moldboard braces which allow for alternate moldboard positioning.		
	Moldboard and truss frame shall pivot about the "A" frame on a lubricated pin, not less than 2-1/2" in diameter, up to 37 degrees either side of the chassis center line.		
	The pin shall be designed in such a way that it will be easily removed for maintenance.		
	Each cylinder shall have 3-1/2" diameter pistons, which terminate with 2-1/2" diameter connecting lugs.		
	Both the rods and lugs shall be from case hardened, chrome plated steel and shall be protected by a hydraulic cushion valve.		
	The "A" frame shall be fitted with a three (3) point lift arrangement, which shall accommodate plow reversing operations with the plow either on the ground or at the carry position.		
	This arrangement shall be of a design which prohibits plow list, when the moldboard is angled in the carry position.		
PLOW COUPLING BAR	Shall be of a design, which can be accommodated by a truck mounted "Frink Tor-Lok" quick coupler locking device.		
	It shall consist of an angle weldment, which includes an angle drive bar, fitted with attachment ears and male arrowhead shaped coupler.		
	This weldment shall pin directly to the rear of the drive frame.		
	The arrowhead shall be from 1" thick plate, 4-3/4" wide at its neck, 10" wide at its extremity and 12-1/4" in overall length with hole to accommodate Secondary Tor-Lok		
SPRAY GUARD	Shall bolt on the top moldboard flange or reinforcement.		
	It shall consist of a 12" wide x 3/8" thick rubber belt, metal retaining strap and necessary mounting hardware.		
ADJUSTABLE MUSHROOM SHOES	Two (2) screw adjustable, mushroom steel wear shoes shall be supplied.		
	They shall connect at each side of the plow.		
	Moldboard Shoes		
	The cutting edge shall be fitted with two (2) fabricated steel moldboard shoes.		
	Each moldboard shoe shall offer a minimum of 40 sq. in. of bearing surface and shall attach to the underside of the cutting-edge reinforcement.		
	An additional bumper shall be supplied at each end of moldboard (qty.2).		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
CURB SHOE	They shall be from a minimum of ¾" x 6" steel, shall bolt at the cutting-edge face and shall project 1" outside each end of the cutting edge.		
PLOW MARKERS	There shall be 36" long, fluorescent orange markers mounted to each end of the moldboard.		
WING GENERAL	The complete assembly shall consist of a front post, and a detachable rear beam with rear wing control cylinders.		
	This system shall provide for a benching height of 60 inches at the rear of the wing and 34" toward the front of the wing (ground to bottom of cutting edge).		
REMOVABLE REAR SUPPORT BEAM	Shall be a weldment constructed of 12" 25 lb./ft. channel and steel plate combined to form and integral unit which shall provide an R.B.M. of not less than 1,600,000 in./lbs.		
	The beam shall be adjustable in height and removable without interfering with or limiting the function of the hydraulic control unit.		
	The rear beam shall be capable of being attached to the control unit so that the wing brace slide weldment is positioned either parallel with the center line of the chassis or at a 25° angle to the center line of the chassis without the replacement of or modification to the rear support beam or hydraulic control unit.		
	The rear support beam shall include a 3½" x 34" double acting wing brace cylinder with a stationary piston rod affixed to the top of the post to reduce exposure to sandblasting during plowing operations and moveable barrel connected directly to the wing brace slide.		
	This design shall provide for fixed positioning of the hydraulic lines to the cylinder (designs which require hoses to travel are **not acceptable** and shall not be considered).		
	The rear support beam shall also include a 5" x 18" single acting cylinder with greaseable sheaves and 5/8" diameter wire rope for lifting and lower the rear (heel) of the wing.		
	This cylinder shall be located in a protective enclosure behind the slide beam with a removable inspection / service panel.		
	Two (2) heavy pipe braces with ball foot castings shall be provided to absorb the shock loads at the bottom of the rear post.		
	They shall connect to a bracket at the bottom of the post and to the chassis frame rail.		
GENERAL	The wing(s) shall be supported at the front of the truck by not less than an 8" 18.4 lb./ft. "I" beam which in turn shall attach to the front snow plow hitch with two (2) horizontal supports and extra heavy pipe bracing as necessary.		
	These supports shall be made of not less than 6" x 4" x 1/2" wall rectangular mechanical tubing.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
PATROL FRONT WING POST	The front post shall include a self-contained 2" bore x 19" stroke single acting hydraulic cylinder for raising and lowering the front of the wing.		
	The hydraulic cylinder shall have a 7" diameter sheave to provide a 34" vertical lift at the front of the wing. Steel cable shall be not less than 1/2" in diameter.		
	A dee block shall be furnished to attach moldboard to the front post slide.		
	The dee block assembly shall be mounted to the front post slide by means of a vertical mounted pin with a diameter of not less than 1-1/4".		
	A four-foot safety chain shall be provided to install on either the front post or the rear post to secure the wing while stored in the raised position.		
	When this option is taken, the valve will be installed in wing cabinet.		
WING BRACES	Two (2) heavy-duty parallel wing braces shall be furnished to support the rear of the wing.		
	They shall be telescopic and shall have solids of not less than 2½" diameter and mechanical tubing of not less than 3½" diameter with 7/16" thick walls.		
FULL TRIP MECHANISM	This shall consist of a special spring loaded front dee and braces.		
	The parallel wing braces, extension spring and front trip dee shall provide a safety trip actuation whenever the wing encounters an obstruction on the plowing surface.		
	The tripping actuation shall be accomplished on the front dee through a 7/8" wire diameter torsion spring with a hinge pin not less than 2 3/8" diameter and by a tension spring mounted on the top rear parallel brace.		
	The two (2) springs operating in tandem shall allow the wing moldboard to trip if necessary and return to its normal plowing position.		
	Both trip springs shall be adjustable for increased or decreased trip forces.		
	The trip dee assembly shall be mounted to the front post slide by means of a vertical mounting pin with a diameter of not less than 1¼" diameter.		
GENERAL	The wing shall be installed on right (curb) side of the truck and shall be not less than eleven feet long overall.		
	The moldboard shall be 27" high at the front (intake) end and 35" high at the rear (discharge) end and shall have a thickness of 8-gauge steel with a top reinforcement from not less than 3 x 2" x 3/8" angle.		
	The construction of the moldboard shall include 100% continuous welding.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
LEVELING WING MOLDBOARD	The moldboard shall be provided with a minimum of six (6), 3/8” thick steel-reinforcing vertical ribs at least two (2) drive ribs, 1/2" thick by 3-1/2" wide.		
	The wing moldboard is to be provided with two (2) mounting positions at the front to adjust the overlap of the wing and snow plow when in the plowing position.		
	The mounting face steel plate of the moldboard to the front post dee block shall be made from 1/2" thick formed plate and furnished with inter-reinforcement.		
	The center of the wing shall be reinforced with two horizontal angles of not less than a 3-1/2" x 3-1/2" x 3/8" angle over the full horizontal length of the patrol wing.		
CUTTING EDGE	The cutting edge shall be attached to a 5" x 3½” x 3/4" steel backing angle that is part of the trip edge design.		
	The cutting edges shall be of the carbide insert style with a 1/2" x 8" x 120”, C1065 cover blade, punched to AASHO standards on 12" centers.		
MOLDBOARD SHOES	The cutting edge shall be fitted with one or two (please specify) fabricated steel moldboard shoe(s).		
	Each moldboard shoe shall offer a minimum of 40 sq. in. of bearing surface and shall attach to the underside of the cutting-edge reinforcement.		
PAINT	Individual completed sections of the plow assembly should be shot blasted, cleaned, primed with "low VQC" (free of chromates and lead) Yellow oxide primer.		
WING LIGHTING	There will be an LED spot light mounted on the wing cabinet and directed at the wing		
GENERAL	The following specification will describe a liquid pre-wetting system.		
	This system shall be mounted on the snow and ice control vehicle to allow operators to apply liquids directly on to granular material without over spray on the truck and equipment.		
	The pre-wetting system shall be variable rate and controlled from the in-cab spreader control system.		
	System output will give a liquid to granular rate depending on application and vehicle speed.		
	The in-cab controller shall have nine programmable settings for at least four different pre-wetting liquids.		
	Liquid output shall be between 0.5 gpm and 8.0 gpm at 100psi.		
	The pre-wetting system shall consist of a bronze gear pump that is driven by a gerotor style hydraulic motor.		
	The hydraulic motor will be fed from a dedicated valve section that is part of the main system hydraulic valve assembly.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
ON BOARD VARIABLE RATE PRE-WETTING SYSTEM	The pre-wetting system will have a self-contained power unit assembled with weather resistant components and anti-seize applied to all fasteners.		
	The weather proof enclosure shall be constructed with stainless steel and heavy duty mounting brackets.		
	Low material output will be monitored via the controller which will give an audible and visual warning to the driver.		
	The rates and material are monitored by either a speed sensor mounted to the hydraulic motor or by a flow meter mounted into the liquid output line.		
	The system will have a relief valve installed into the output line of the pump in order to protect the lines and pump against clogging of nozzles and system failures.		
	The relief valve shall be plumbed in such a way that allows excessive pressure build up to be diverted back to the liquid pump inlet.		
	Externally drained relief valves are **unacceptable.**		
	The material will be delivered through a spray bar.		
	The nozzles used to apply the liquid directly onto the granular material can be mounted in any direction or orientation that is possible with the truck style.		
	The spray bar shall be designed to withstand corrosive materials and harsh environments.		
	The pre-wetting system, hydraulic valves, hydraulic pump and in cab controller shall be from the same manufacturer to ensure complete system compatibility.		
PLUMBING	The system includes a 1-½ inch polypropylene quick fill port with shut-off ball valve and integral cam locks.		
	The pump inlet plumbing features a ball valve and a Y-strainer with serviceable screen filter cartridge.		
	The bypass plumbing features a ¾ inch polypropylene bypass valve with adjustable pressure relief valve with pressure gauge.		
	All hose, which is supplied, is nylon reinforced PVC hose with a working pressure of not less than 200 psi with max temperature rating of 100°F.		
	All fasteners will be 316 - stainless steel.		
	Discharge Nozzles		
	The system uses two spray nozzles to apply solution on material being discharged to the conveyor chain/cross conveyor auger.		
	The brass spray nozzles bodies offer a reliable and rugged mounting for the brass spray tips.		
	The brass spray tips offer a fan pattern that gives an even disbursement of the chemical to the granular surface.		

ATTACHMENT B SPECIFICATIONS DETAIL

SECTION	SPECIFICATION DETAIL	COMPLY	
		YES	NO
PLUMBING	The nozzle plumbing comes with an in-line check valve to prevent the siphoning.		
LIQUID TANK	Behind the Cab tank shall mount between the cab and wing.		
	This offers a stable hauling surface near the center of the vehicle for better weight distribution to the vehicle's axles.		
	The tank shall hold 120 gallons.		
	Note: Going to weight distribution issues experienced in the past, saddle style tanks and tailgate style tanks are **not acceptable.**		
	Extra-Heavy Duty Tank Able to accurately apply high specific gravity liquids.		
	High Density Polyethylene U.V. Stabilized Polyethylene Plastic		
	Exceptional protection from sun deterioration for extended life.		
	Extra Large 5" Vented Fill Cap		
	Allows easy access to tank for maintenance, service, and filling.		
	1-1/2" Quick-Disconnect Fill Port		
	Ground accessible fill and drain port.		
	Slim Tank Design		
	Perfect for mounting in compact areas.		
	Splash Proof Vent		
	Prevents spilling associated with liquid sloshing.		
	Stainless Steel Carrier		
	Pre-engineered mounting system fits the most popular truck frames.		
	Bulkhead Tank Connections		
	Service connectors easily with replaceable parts.		
	Molded Gallon Markers		
	Easy to read tank levels without electronic measurement.		
	Suction Filter Cartridge Standard, Protects pump for added life		
MANUALS:	A complete set of repair manuals and parts books shall be included for the equipment and related components.		

SECTION 3.	Options		
	SPECIFICATION DETAIL		
OPTION B	Five (5) Year Cummins Engine Warranty		
OPTION C	Five (5) Year Allison Transmission Warranty		
OPTION D	All Hydraulic Fittings are to be stainless steel ILO standard		
OPTION E	**This option represents the amount to be deducted from Item 1 in the event that the customer does not require the SA-9 Tailgate Spreader**		
GENERAL	Hydraulics and components required to operate the tailgate spreader will not be included.		

ATTACHMENT B SPECIFICATIONS DETAIL

COMPLIANCE TO SPECIFICATIONS

The bidder shall indicate 100% compliance by checking "YES" or non-compliance by checking "NO" for each line item of specification. Any space left blank shall be considered non-compliant. Any deviation from the specification, or where submitted literature does not fully support the meeting of specifications, must be clearly cited in detail, in writing, by the bidder and submitted with the bid. NO verbal interpretations will be accepted! In addition, NO deviations below "minimum" specifications as written will be accepted.

"COATING SPECIFICATION"

	SPECIFICATION DETAIL	COMPLY	
		YES	NO
RUST PREVENTIVE ABRASION RESISTANT COATING	Plow hitch and pintle plate shall be coated in Megaflex Preventive Abrasion Resistant Coating.		
	Coating must be a one part acrylic base self-priming, thixotropic semi-paste coating that contains at least 36% highly elastic in water-dispersed polymers.		
	Coating must be fluid applied and cure to form a seamless rubber anti-rust and waterproof coating that can be applied over clean dry surfaces of other tight coatings.		
	V.O.C. (Volatile Organic Compound) shall be 0.01 or less.		
	Coating must be 100% waterproof.		
	Coating must be 100% ultra-violet resistant so as not to break down as a result of long-term exposure to sunlight.		
	Coating must be capable of 200% elongation so as to completely prevent cracking due to expansion and contraction as well as dimpling resulting from impacts.		
	Coating must afford excellent chemical resistance to acids alkalis, salts and fuels.		
	Coating must be self-extinguishing.		
	Coating must dry to a smooth texture.		
	Coating dry film thickness shall be 14 mil.		
	Coatings offered shall have been tested in the following areas.		
	Results shall be in the minimum acceptable to The Rockland County Highway Department.		
	Test documentation must be available to The Rockland County Highway Department upon request.		
	Specific Gravity		
	Not less than 1.28		
	Solids by Weight		
	Not less than 67%		
	Solids by Volume		
	Not less than 57%		
	Spread Rate		
	400 grams p/sq. meter, per coat at not less than 13 mils.		

ATTACHMENT B SPECIFICATIONS DETAIL

	SPECIFICATION DETAIL	COMPLY	
		YES	NO
	Dry Time		
RUST PREVENTIVE ABRASION RESISTANT COATING	30 minutes at 70 degrees F. and 50% relative humidity.		
	Cure Time		
	48-72 hours after final coat		
	Application Temperature		
	Not less than 45 degrees on substrate.		
	Primer		
	33% diluted Megaflex		
	Elasticity		
	200%		
	Water Tightness:		
	14 mils, waterproof		
	Hardness		
	Shore “A” hardness 70		
	Vapor Permeability		
	grams pq vapor p/1 sq. meter per 24 hours		
	Fire Resistance		
	Self-extinguishing		
	High Temperature Stability		
	Unaffected by temperatures of 250 degrees F.		
	Salt Spray Test		
	100% resistant		
	Aging and Adhesion		
	Unaffected after 800 hours of testing from 60 degrees C. to minus 20		
	Sulfur Dioxide Resistance		
	Resistant to hot, humid atmosphere of 7% concentration of sulfur dioxide		
	Ozone Resistance		
	Unaffected by an environment containing 1 ppm ozone for 30 days		
	Hot Water Immersion		
	Unaffected after 1,000 hours immersion in 100 degrees F. water		
	Impact Resistance		
	90 Newtons, no damage		
	Alkalis Resistance		
	Resists 100% against sodium hydroxide at ph. 14		
	Important Safety Note: In the interest of eliminating harmful fumes which can result from welding procedures, coating used on snow plow hitch and pintle plate must be free of lead, Volatile Organic Compounds or any other hazardous materials as evidenced by MSDS/OSHA. Form 174 to be submitted at the time of the bid.		

Vendor Requirements

The bidder shall be an authorized dealer for Oshkosh Truck and as primary contractor shall use an authorized body distributer for the dump body, material spreader, and snow plow.

Vendor shall possess a full-service facility within 75 miles of the Rockland County Highway Department as evidenced by “google Maps” and maintain a fleet of not less than (4) Road Service Vehicles.

In order to comply with coating manufacturer’s warranty requirements, the rust preventive/ abrasion resistant coating shall be applied by a certified applicator.

In the event an alternate is bid, vendor shall provide letter of authorization at the time of the bid.

BIDDERS EXCEPTION SHEET

Exceptions and Deviations (use additional pages if necessary)