BID FORM

MISSOURI DEPARTMENT OF TRANSPORTATION
GENERAL SERVICES - PROCUREMENT
PO Box 270
Jefferson City, MO 65102

REQUEST NO.	3-160824RW
DATE	August 11, 2016

SEALED BIDS, SUBJECT TO THE ATTACHED CONDITIONS WILL BE RECEIVED AT THIS OFFICE UNTIL

2:00 pm., Central Time, August 24, 2016

AND THEN PUBLICLY OPENED AND READ FOR FURNISHING THE FOLLOWING SUPPLIES OR SERVICES.

BIDS TO BE BASED F.O.B. MISSOURI DEPARTMENT OF TRANSPORTATION
Submit net bid as cash discount stipulations will not be considered

STATEWIDE

THE BIDDER MUST SIGN AND RETURN BEFORE DATE AND TIME SET FOR OPENING.

BUYER: Robin Warren
BUYER EMAIL:
Robin.Warren@modot.mo.gov

BUYER TELEPHONE: 573-526-7929

EQUIPMENT

Material Spreader Equipment

To establish a contract to furnish "Material Spreader Equipment" in accordance with the following pages.

It is the responsibility of the Bidder to check the website for any and all addendums.

(SEE ATTACHED FOR TERMS, CONDITIONS, AND INSTRUCTIONS)

In compliance with the above Request For Bid, and subject to all conditions thereof, the undersigned bidder agrees to furnish and deliver any or all the items on which prices were bid within the timeframe specified herein, after receipt of formal purchase order.

Date: _____
Telephone No.: _____
Fax No.: _____
Email Address: _____

Firm Name: _____
Address: _____
_____
By (Signature): _____
Type/Print Name _____
Title: _____

Is your firm MBE certified? ☐ Yes ☐ No

Is your firm WBE certified? ☐ Yes ☐ No

1. INTRODUCTION AND GENERAL INFORMATION

1.1 Introduction:

This Request for Bid (RFB) seeks bids from qualified organizations to provide **Material Spreader Equipment** that comply with all the requirements identified in Section 2 SCOPE OF WORK of this RFB for the Missouri Department of Transportation (MoDOT). Each bid must be returned in a sealed envelope per Section 3 BID SUBMISSION. **Bids must be returned no later than 2:00 p.m., Central Time, August 24, 2016.**

RFB COORDINATOR:

Robin Warren
Sr. General Services Specialist

Phone: **573-526-7929**
E-mail: **Robin.Warren@modot.mo.gov**

2. SCOPE OF WORK

2.1 General Requirements:

2.1.1 The Bidder shall provide material spreader equipment (hereinafter referred to as equipment) in accordance with the provisions and requirements stated herein and at the sole satisfaction of MoDOT.

2.1.2 Unless otherwise specified herein, the Bidder shall furnish all material, labor, facilities, equipment, and supplies necessary to provide the equipment required herein.

2.1.3 No estimated quantities are given as part of this bid. MoDOT does not guarantee any specific quantities that may be required to be provided by the Bidder. Purchases will be made on an as needed basis.

2.2 Specification Requirements:

It shall be the Bidder's responsibility to meet all requirements as indicated in the attached specifications, along with any other provisions outlined in this solicitation document.

2.3 Delivery Requirements:

2.3.1 Unless otherwise specified on the purchase order, 24 hours advance notice of each delivery is required. Delivery will only be received between the hours of 8:00 a.m. to 3:00 p.m., Monday through Friday.

2.3.2 Delivery shall be made to the following MoDOT locations:

a. St. Joseph, Missouri 64502
b. Macon, Missouri 63552
c. Hannibal, Missouri 63401
d. Lee's Summit, Missouri 64064-8002
e. Jefferson City, Missouri 65102
f. Chesterfield, Missouri 63017-5712
g. Joplin, Missouri 64802
h. Springfield, Missouri 65801
i. Willow Springs, Missouri 65793
j. Sikeston, Missouri 63801
k. Other locations as may be required

2.4 Invoicing and Payment Requirements:

2.4.1 An itemized invoice shall be submitted to the applicable requesting address upon completion of delivery.

2.4.2 Each invoice should be itemized in accordance with items listed on the purchase order. The statewide financial management system has been designed to capture certain receipt and payment information. Therefore, each invoice submitted must reference the purchase order number and must be itemized in accordance with items listed on the purchase order. Failure to comply with this requirement may delay processing of invoices for payment.

2.4.3 The Bidder shall be paid in accordance with the firm, fixed prices stated on the pricing page of this document after completion of deliverables specified herein and acceptance by MoDOT.

2.4.4 Other than the payment specified above, no other payments or reimbursements shall be made to the vendor for any reason whatsoever.

2.4.5 MoDOT shall not make any advance deposits.

2.4.6 MoDOT assumes no obligation for equipment, supplies, and/or services shipped or provided in excess of the quantity ordered. Any unauthorized quantity is subject to MoDOT's rejection and shall be returned at the Bidder's expense.

2.4.7 MoDOT is exempt from paying Missouri Sales Tax, Missouri Use Tax and Federal Excise Tax.

2.5 Other Contractual Requirements:

2.5.1 Contract Period - The contract period shall commence from the date of award notification until August 31, 2017, with up to three (3) one-year renewal option periods, or any portion therein.

2.5.2 Renewal Periods - If the option for renewal is exercised by MoDOT, the Bidder shall agree to all terms and conditions of the RFB and all subsequent amendments. Renewal options are at the sole discretion of MoDOT.

2.5.3 Escalation Clause - In the event the Bidder requests a price increase during either the original award period or any renewal period, a written request and documentation justifying the need for a price increase, and the amount of such price increase must be provided. MoDOT will review the written request and documentation, and decide if a price increase is to be granted at that particular time. The vendor shall understand and agree that MoDOT's decision shall be final and without recourse.

a. No price increase shall be granted during the first three (3) months of the original award period, or if applicable, the first three (3) months of a renewal period.

2.5.4 Inspection and Acceptance - MoDOT reserves the right to inspect the equipment at the point of manufacture, intermediate storage point, or at a destination which shall be at the discretion of MoDOT.

a. No equipment received by MoDOT shall be deemed accepted until MoDOT has had reasonable opportunity to do an inspection.

b. Equipment which does not comply with the specifications and/or requirements or which are otherwise unacceptable or defective may be rejected. In addition, equipment which is discovered to be defective or which do not conform to any warranty of the vendor upon inspection (or at any later time if the defects contained were not reasonably ascertainable upon the initial inspection) may be rejected.

c. MoDOT reserves the right to return any such rejected equipment at the Bidder's expense for full credit or replacement and to specify a reasonable date by which replacements must be received.

d. MoDOT's right to reject any unacceptable equipment shall not exclude any other legal or equitable remedies MoDOT may have.

2.5.5 Warranty – Manufacturer's standard warranty against defective parts, material and workmanship shall be furnished. A copy of the warranty should be attached to the bid.

2.5.6 Service and Operator Manuals – A hard copy operator manual and one (1) set of service and parts manuals (CD or hard copy) shall be supplied at the time of delivery.

2.5.8 Technical Service – A number for technical assistance during normal working hours from 8:00 a.m. to 4:00 p.m. shall be provided at time of delivery.

2.6 Equipment Trade-In Allowance:

a. If equipment trade-ins are offered as an option, the trade-in(s) must be negotiated between the District, Division and vendor.

b. The vendor must be currently under contract with MoDOT.

c. It will be the responsibility of the vendor to examine the condition of the equipment offered for trade. The vendor must not impose any mandatory requirements or restrictions on equipment disposal.

d. If the value offered is less than the Division's pre-established minimum price, the Division and District must both approve the trade in value.

e. Allowance for trade-in(s) will be deducted from the full purchase price in computing the net purchase price. Trade-in(s) will not be available until the receipt and acceptance of the new equipment unless agreed upon by the District.

Trade-In Worksheet Example:

Make/Model of New Equipment:
Full Purchase Price: $
Make/Model of Trade-In:
Less Trade-In (Deduct): $
Net Purchase Price: $

2.7 Equipment Refurbishments: If equipment refurbishments are available, the refurbishment(s) must be negotiated between the district and vendor. The vendor must be currently under contract with MoDOT. It will be the responsibility of the vendor to examine the condition of the equipment offered for refurbishment. The districts must keep accurate records verifying the process.

3. BID SUBMISSION

3.1 Bid Submission Information:

3.1.1 All bids must be received in a sealed envelope/packaging clearly marked "**Material Spreaders**".

3.1.2 All bids must be received at the following address no later than 2:00 p.m., Central Time, August 24, 2016.

The Missouri Department of Transportation
General Services – Procurement Division
Attn: Robin Warren

830 MoDOT Drive
Jefferson City, MO 65109
Physical Address

PO Box 270
Jefferson City, MO 65102
Mailing Address

3.1.3 The Bidder may withdraw, modify or correct his/her bid after it has been deposited with MoDOT provided such request is submitted in writing and received at the location designated for the bid opening prior to the date and time specified for opening bids. Such a request received as specified will be attached to the bid and the bid will be considered to have been modified accordingly. No bid may be modified after the date and time specified for the opening of bids.

3.1.4 Open Competition / Request For Bid Document:

a. It shall be the Bidder's responsibility to ask questions, request changes or clarification, or otherwise advise MoDOT if any language, specifications or requirements of an RFB appear to be ambiguous, contradictory, and/or arbitrary, or appear to inadvertently restrict or limit the requirements stated in the RFB to a single source. Any and all communication from bidders regarding specifications, requirements, competitive bid process, etc., must be directed to the buyer from MoDOT, unless the RFB specifically refers the bidder to another contact. Such communication should be received at least five (5) working days prior to the official bid opening date.

b. Every attempt shall be made to ensure that the Bidder receives an adequate and prompt response. However, in order to maintain a fair and equitable bid process, all bidders will be advised, via the issuance of an amendment to the RFB, of any relevant or pertinent information related to the procurement. Therefore, bidders are advised that unless specified elsewhere in the RFB, any questions received less than five (5) working days prior to the RFB opening date may not be answered.

c. Bidders are cautioned that the only official position of the MoDOT is that which is issued by MoDOT in the RFB or an amendment thereto. No other means of communication, whether oral or written, shall be construed as a formal or official response or statement.

d. MoDOT monitors all procurement activities to detect any possibility of deliberate restraint of competition, collusion among bidders, price-fixing by bidders, or any other anticompetitive conduct by bidders which appears to violate state and federal antitrust laws. Any suspected violation shall be referred to the Missouri Attorney General's Office for appropriate action.

3.1.5 Award:

a. This is a Multiple Award bid and there will be no 'one' bidder awarded each item within this bid. Each individual delivery destination will have sole responsibility for the discretion of all purchasing decisions. Criteria used to determine the "lowest and best" bid will include but are not limited to price, delivery timeline, warranty, location of servicing dealers, past performance of servicing dealers, and past performance of different makes and models.

4. PRICING

4.1 Pricing and District Selection(s):

4.1.1 The Bidder shall provide firm, fixed pricing on the attached pricing pages for the original contract period for providing the equipment in accordance with the provisions and requirements of this RFB. ***All costs*** associated with providing the required equipment shall be included in the prices stated.

4.1.2 Please submit a complete parts and options list with detailed pricing information for each material spreader your company would be willing to provide. Indicate below the percent (%) discount off Manufacturers' Suggested Retail Prices (MSRP) for all small melter applicator options available in your data book or pricing guides.

% Discount off MSRP for all Data Book or Pricing Guide Options: - % Discount _____

4.1.3 Place a mark by those MoDOT Districts for which you are bidding. Bidders are responsible for servicing all counties within the district(s) selected. ***See attached District Map.***

_____ Northwest District

_____ Northeast District

_____ Kansas City District

_____ Central District

_____ St. Louis District

_____ Southwest District

_____ Southeast District

Company Name _____

Signature _____

Warranty Information

Standard Warranty: Provide a description below of the standard warranty for the unit. Indicate the coverage period and what is covered under the warranty. A copy of standard warranty coverage should be included with bid response.

_____

_____

_____

_____

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Extended Warranty: Provide a description below of the extended warranty offered for the unit. Indicate the coverage period and what is covered under the warranty.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Company Name _____

Signature _____

VENDOR INFORMATION & PREFERENCE CERTIFICATION FORM

All bidders must furnish ALL applicable information requested below

Vendor Name/Mailing Address: Email Address:	**Vendor Contact Information (including area codes):** Phone #: Cellular #: Fax #:
Printed Name of Responsible Officer or Employee:	**Signature:**
For Corporations - State in which incorporated:	**For Others -** State of domicile:

If the address listed in the Vendor Name/Mailing Address block above is not located in the State of Missouri, list the address of Missouri offices or places of business:

*If additional space is required, please attach an additional sheet and identify it as **Addresses of Missouri Offices or Places of Business.***

M/WBE INFORMATION: List all certified Minority or Women Business Enterprises (**M/WBE**) utilized in the fulfillment of this bid. Include percentages for subcontractors and identify the M/WBE certifying agency:

M/WBE Name	Percentage of Contract	M/WBE Certifying Agency

*If additional space is required, please attach an additional sheet and identify it as **M/WBE Information***

Preference Certification

All bidders must furnish ALL applicable information requested below

GOODS/PRODUCTS MANUFACTURED OR PRODUCED IN USA: If any or all of the goods or products offered in the attached bid which the bidder proposes to supply to the MHTC are **not** manufactured or produced in the "United States", or imported in accordance with a qualifying treaty, law, agreement, or regulation, list below, by item or item number, the country other than the United States where each good or product is manufactured or produced.

Item (or item number)	Location Where Item is Manufactured or Produced

*If additional space is required, please attach an additional sheet and identify it as **Location Products are Manufactured or Produced**.*

MISSOURI SERVICE-DISABLED VETERAN BUSINESS: Please complete the following if applicable. Additional information may be requested if preference is applicable. See below definitions for qualification criteria:

Service-Disabled Veteran is defined as any individual who is disabled as certified by the appropriate federal agency responsible for the administration of veterans' affairs.

Service-Disabled Veteran Business is defined as a business concern:

a. Not less than fifty-one (51) percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than fifty-one (51) percent of the stock of which is owned by one or more service-disabled veterans; and

b. The management and daily business operations of which are controlled by one or more service-disabled veterans.

Veteran Information	Business Information
Service-Disabled Veteran's Name (Please Print)	Service-Disabled Veteran Business Name
Service-Disabled Veteran's Signature	Missouri Address of Service Disabled Veteran Business

COOPERATIVE AGREEMENT NOTICE

The Department is interested in assisting Missouri governmental entities, etc. in purchasing equipment, various materials and supplies that meet the Highway and Transportation Department specifications.

Each bidder is asked to indicate below whether they would be willing to offer ***material spreaders*** listed in the attached "Request for Bid" for sale to these local political entities at the same bid price offered to this Department.

It is understood the Department will not issue purchase orders, accept delivery nor make payment for these items ordered by any of these agencies. It is further understood the price is based on the ***material spreaders*** meeting the Department specifications. Any added options, deletions, or extra freight costs would be negotiated between the local agency and the successful vendor.

Indicate below whether your company is willing to offer such cooperative purchasing for Missouri counties, cities or other political entities.

YES _____ NO _____

If the price varies throughout the state on Department bids because of different delivery destinations, please indicate the price f.o.b. your location that would be offered as described.

F.O.B. Location _____

Indicate the deadline date that orders will be accepted. _____

COMPANY NAME _____

ADDRESS _____

PHONE NUMBER _____

SIGNATURE _____

TITLE _____

DATE _____

(Each vendor should complete the appropriate sections of their form and submit with their bid.)

AUGER MATERIAL SPREADER

SPECIFICATIONS

10’

13’

16’

10-FOOT AUGER MATERIAL SPREADER

1. GENERAL

The following specifications shall apply to the 10-foot skid-mounted, hydraulic driven, auger material spreader body. The material spreader shall be a self-contained, stainless steel, V hopper type. The material spreader shall be compatible with the Western style dump body dimensions included with the bid documents. The spreader shall be capable of spreading uniformly all types of granular materials: salt, cinders, chemicals, abrasives, and mixtures of these up to a width of 40 feet.

A. The spreader shall be installed at the vendor's installation facility.
B. Transportation of the truck to/from the installation facility shall be the responsibility of MoDOT.
C. If the spreader is installed in a truck that is purchased through the truck contract, the pre-wet options selected for that truck shall apply to the installation of the spreader.
D. All stainless steel used for construction of the spreader body shall be a minimum of 201 stainless steel.
E. All stainless steel shall be welded using stainless welding wire.
F. All stainless steel shall be left unpainted.
G. All fasteners shall be stainless steel.
H. All hydraulic fittings shall be steel hydraulic grade fittings. Black iron or galvanized fittings in the hydraulic system are not acceptable.
I. All greasable components shall be greased by means of remote grease hoses routed to the rear of the spreader. Hoses shall terminate in a centralized location containing a grease zerk for each hose. Centralized location shall be accessible from the ground. All grease hoses shall be rated for a minimum of 3000 PSI working pressure. All fittings shall be steel hydraulic grade fittings. Black iron, galvanized, or brass fittings are not acceptable.
J. Any carbon steel components shall be chemically cleaned and coated with a lead-free primer and painted with lead-free gray or black enamel.
K. Unit shall be installed, complete-including pre-wet system components if equipped, assembled, and ready to operate.
L. The manufacturer's standard warranty against defective parts, material, and workmanship shall be furnished. A copy of the warranty shall be attached to the bid.

2. BODY

The body is to be 100% welded on the inside. Cross-member and side-support spacing deviations may be allowed if necessary for component installation. MoDOT must pre-approve any changes.

A. The spreader body shall have a minimum of five (5) cubic yards struck capacity.
B. The spreader shall have an inside body length of 10 feet at the top.
C. The overall height shall not to exceed 56 inches to the top of the center screen support beam.
D. The top inside width shall not be less than 78 inches.

E. The sidewalls must be sloped at approximately a 45-degree angle.
F. The rear wall may be sloped up to a maximum of 15 degrees.
G. The front wall may be sloped up to a maximum of 15 degrees. Front wall construction shall be such that there is no possible way for material to leak out of the front of the spreader body.
H. The body shall be constructed of a minimum 12-gauge stainless steel.
I. The body shall have a minimum of five (5) cross-members and side supports evenly spaced along the length of the spreader.
J. The body long sill, cross-members and full-length steel channel skids shall be a minimum of 7-gauge stainless steel.
K. The body side supports shall be a minimum of 12-gauge stainless steel.
L. An adjustable in height stainless steel inverted vee shall be provided to keep material load off the auger for easier auger start-up.
M. The body shall be equipped with a safety interlock system to prevent hydraulic power from reaching the auger drive motor when the auger cover and/or top screens are opened beyond the normal operating position.

3. TOP GRATE SCREENS

A. The body shall have a top-grate screen grid, having at least four (4) sections, two on each side.
B. Screens shall be hinged at the center support beam of the spreader body for easy handling.
C. Screens shall be made of either 3/8-inch diameter rods centered on crossbars or 3/8-inch diameter woven wire on heavy-duty frames. Screen openings to be approximately 2-1/2 inches x 2-1/2 inches.
D. The center support beam must be a minimum 2 inch x 6 inch stainless steel tube with a minimum 3/16-inch thickness. All attaching brackets and hardware shall be stainless steel.
E. The center support beam shall be raised above the top of the body to prevent material build-up on top of the screens.

4. TIE DOWN/LIFTING BRACKETS

A. The body shall have not less than four (4) 10-gauge minimum stainless steel hold down brackets designed for four-inch nylon straps with flat hooks, two on each side. The placement of the hold down brackets must comply with the Western style and multipurpose dump body currently in use by MoDOT.
B. A 10-gauge minimum stainless steel lift hook/bracket shall be installed on the front and rear face of the body at each upper corner to allow for easy handling when installing or removing spreader from the truck.

5. LIQUID CHEMICAL STORAGE

A. Two (2) side-mounted, minimum 100-gallon polyethylene reservoir tanks, one per side, shall be provided.
B. A minimum of a 3-inch top fill port with splash proof vent and a 3/4-inch suction port shall be molded into each tank.
C. Both tanks shall be plumbed together with a minimum 1-½" ID hose and a tee located at the left rear corner of the spreader.

6. CONSPICUITY

Spreader shall be outfitted with DOT-C2 11-inch red/7-inch white prismatic retro-reflective conspicuity tape meeting or exceeding FMVSS 108. Conspicuity tape shall be applied to the rear of the spreader body along the full width of the top edge, full length of the vertical edges, and full length of the sloped edges. Conspicuity tape shall be applied continuously, and inset two inches from the edge of the rear face of the spreader body. Conspicuity tape shall be applied to within ½-inch of any obstacle in its path.

7. AUGER TUBE

A. Auger tube shall be 4”OD pipe, with a minimum wall thickness of .25”.
B. The front of the auger tube shall have a 2” cold roll end shaft welded to a 3/8” minimum thickness end plate. Both shall be continuous welded.
C. The front end shaft of the auger shall be supported by a 4-bolt flange, heavy duty, sealed, self-aligning bearing. Bearing must be greasable from the rear of the spreader body.
D. The rear of the auger tube shall be supported entirely by the hydraulic drive motor by means of a splined, greasable coupler continuous welded to the rear of the auger tube. Grease fitting must grease motor splines and coupler splines.
E. No center support bearings will be allowed.

8. AUGER FLIGHTING

A. Auger flighting shall have a minimum thickness of ½”, and an outside diameter of 7”. Flighting shall be continuous welded to the tube.
B. Auger flighting shall have the outer edge hard-surfaced by an electric arc welding process to a minimum #55 Rockwell hardness, or be constructed entirely of AR400 steel.
C. Auger flighting shall have three different pitches in order for the hopper to unload evenly from the front, middle, and rear.

9. AUGER DRIVE MOTOR

A. Motor shall be a heavy duty roller stator type, have a splined output shaft, 4-bolt mounting, with O-ring ports.
B. Motor shall be rated for a maximum system pressure of at least 2350psi, have a displacement of 64 cubic inches, and be rated for a maximum of 25 gpm oil flow.
C. Motor shall be mounted using a floating mount to prevent minimal differences in spline alignment between the auger and motor from damaging either component.

10. AUGER FEED RATE

A. The rear wall of the spreader shall have a feed opening size of approximately 63 square inches.
B. The auger assembly shall have a minimum theoretical output of .135 cubic feet of material per revolution.

C. The auger and motor assembly shall produce a minimum theoretical output of 7.29 cubic feet per minute of material at 15 gpm oil flow.

11. DROP CHUTE AND SPINNER

A. The entire drop chute and spinner assembly shall be made of a minimum of 12-gauge stainless steel.
B. The drop chute shall bolt to the long sills.
C. The chute shall be fully enclosed and include an operator-adjustable deflector at the bottom to change the flow of material from the middle of the chute to one side or the other.
D. The bottom of the chute shall have a hood with operator-adjustable material deflectors installed on each side and rear of the drop chute.
E. The spinner shall be securely mounted at the bottom of the chute. Spinner motor mounting brackets shall be a minimum of 7-gauge stainless steel.
F. The spinner shall be operated by a high torque, low speed geroller type hydraulic motor with o-ring thread ports.
G. The height of the spinner disk shall be adjustable with an ideal height of 18 inches above the ground.
H. Poly spinner disk shall be approximately 20 inches in diameter.

12. HYDRAULIC HOSES AND COUPLERS

A. All hydraulic hoses shall be rated for 3000 psi working pressure.
B. Hydraulic hoses shall be long enough to be routed from their respective connection point on the spreader to the male hydraulic couplers mounted in the left rear corner of the dump body.
C. Hoses shall be routed up to the upper left rear corner of the spreader body and secured at a point to allow the hoses to go over the side of the dump body and down to the male couplers at the left rear corner of the dump body.
D. The return circuit for the conveyor and spinner motor shall be “teed” together on the spreader and run together in a common return hose to the truck coupler.
E. Hydraulic hoses shall be sized as follows:

1. Auger hose shall be 3/4-inch ID with a female JIC swivel on one end, and a 3/4-inch male pipe on the other end. Hose shall have a 3/4-inch female FD45-1003-12-12 coupler attached.
2. Spinner hose shall be ½-inch ID with a female JIC swivel on one end and a ½-inch male pipe on the other end. Hose shall have a ½-inch female FD45-1003-8-10 coupler attached.

F. Spreader return hose shall be 1-inch ID with a female JIC swivel on one end and a 1-inch male pipe on the other end. Hose shall have a 1-inch female FD45-1003-16-16 coupler attached.

OPTIONS

1. **Spreader less installation**
   Spreader shipped to MoDOT location in lieu of installing spreader in truck. Price shall include shipping costs.

2. **Option for fold-up spinner chute**
   Specifications for a fold-up spinner chute configuration and its individual components shall be the same as the regular spinner chute unless otherwise specified.
   a. Chute shall fold up and to the left from the bottom of the material conveyor box.
   b. Spinner hose configuration shall consist of quick couplers to facilitate folding operation.

3. **Option for spreader body mounted casters**
   Casters to assist in centering the spreader when installing and removing.

4. **Option for painted steel spreader stand**
   Stand shall be permanently mounted to the spreader, and allow for installation of spreader in the truck, removal of spreader from the truck, and storage of the spreader without the use of additional tools or components.

   a. Stand shall be full length of the spreader.
   b. Stand shall be between 72” – 76” wide.
   c. Stand configuration at the rear of the spreader shall protect the spinner chute from damage in the event of a rear-end collision.
   d. All pivot points of the stand shall be greasable.
   e. Guide caster rollers on stand for ease of stand/spreader to slip in and out of dump bed.
   f. Spreader stand shall be manufactured in a way to center itself inside the dump body, preventing damage to the liquid saddle tanks during spreader installation.
   g. Stand must be painted black over one coat of primer.

5. **Option for galvanized steel spreader stand**
   Specifications for a galvanized spreader stand shall meet the minimum requirements of sections A – F of the painted steel spreader stand Option 4.

6. **Option for adjustable tie-down brackets**
   Provide adjustable tie-down brackets, two on each side of the spreader body. Brackets shall be a minimum of 10-gauge stainless steel and designed for four-inch nylon straps with flat hooks. Placement of the adjustable tie-downs shall comply with the western style and multipurpose dump bodies currently in use by MoDOT.

7. **Option for an auger sensor**
   a. Sensor shall have sealed connections that meet ISO IP68 and NEMA 6 ratings
   b. Sensor shall be digital, and compatible with Certified Power GL400, ACS, and XDS systems; and Rexroth CS550 systems.

c. If sensor is mounted at the front of the spreader, spreader shall be delivered with the necessary cable/s to provide a connection point at the left rear corner of the dump body.

8. Option to remove liquid chemical storage tanks

Provide a spreader without the items listed in Section 5 Liquid Chemical Storage

9. Option for dual auger configuration

Specifications for a dual auger configuration spreader and its individual components shall be the same as the single auger base spreader unless otherwise specified.

1. Drive system shall consist of two hydraulic motors plumbed in series. Gearboxes will not be allowed.
2. Feed rate for dual auger configuration shall be at least double that listed for the single auger.
3. Inverts over the augers are not required.

13-FOOT AUGER MATERIAL SPREADER

1. GENERAL

The following specifications shall apply to the 13-foot skid-mounted, hydraulic driven, auger material spreader body. The material spreader shall be a self-contained, stainless steel, V hopper type. The material spreader shall be compatible with the Western style dump body dimensions included with the bid documents. The spreader shall be capable of spreading uniformly all types of granular materials: salt, cinders, chemicals, abrasives, and mixtures of these up to a width of 40 feet.

A. The spreader shall be installed at the vendor's installation facility.
B. Transportation of the truck to/from the installation facility shall be the responsibility of MoDOT.
C. If the spreader is installed in a truck that is purchased through the truck contract, the pre-wet options selected for that truck shall apply to the installation of the spreader.
D. All stainless steel used for construction of the spreader body shall be a minimum of 201 stainless steel.
E. All stainless steel shall be welded using stainless welding wire.
F. All stainless steel shall be left unpainted.
G. All fasteners shall be stainless steel.
H. All hydraulic fittings shall be steel hydraulic grade fittings. Black iron or galvanized fittings in the hydraulic system are not acceptable.
I. All greasable components shall be greased by means of remote grease hoses routed to the rear of the spreader. Hoses shall terminate in a centralized location containing a grease zerk for each hose. Centralized location shall be accessible from the ground. All grease hoses shall be rated for a minimum of 3000 PSI working pressure. All fittings shall be steel hydraulic grade fittings. Black iron, galvanized, or brass fittings are not acceptable.
J. Any carbon steel components shall be chemically cleaned and coated with a lead-free primer and painted with lead-free gray or black enamel.
K. Unit shall be installed, complete-including pre-wet system components if equipped, assembled, and ready to operate.
L. The manufacturer's standard warranty against defective parts, material, and workmanship shall be furnished. A copy of the warranty shall be attached to the bid.

2. BODY

The body is to be 100% welded on the inside. Cross-member and side-support spacing deviations may be allowed if necessary for component installation. MoDOT must pre-approve any changes.

A. The spreader body shall have a minimum of nine (9) cubic yards struck capacity.
B. The spreader shall have an inside body length of 13 feet at the top.
C. The overall height shall not to exceed 56 inches to the top of the center screen support beam.
D. The top inside width shall not be less than 78 inches.

E. The sidewalls must be sloped at approximately a 45-degree angle.
F. The rear wall may be sloped up to a maximum of 15 degrees.
G. The front wall may be sloped up to a maximum of 15 degrees. Front wall construction shall be such that there is no possible way for material to leak out of the front of the spreader body.
H. The body shall be constructed of a minimum 12-gauge stainless steel.
I. The body shall have a minimum of six (6) cross-members and side supports evenly spaced along the length of the spreader.
J. The body long sill, cross-members and full-length steel channel skids shall be a minimum of 7-gauge stainless steel.
K. The body side supports shall be a minimum of 12-gauge stainless steel.
L. An adjustable in height stainless steel inverted vee shall be provided to keep material load off the auger for easier auger start-up.
M. The body shall be equipped with a safety interlock system to prevent hydraulic power from reaching the auger drive motor when the auger cover and/or top screens are opened beyond the normal operating position.

3. TOP GRATE SCREENS

A. The body shall have a top-grate screen grid, having at least four (4) sections, two on each side.
B. Screens shall be hinged at the center support beam of the spreader body for easy handling.
C. Screens shall be made of either 3/8-inch diameter rods centered on crossbars or 3/8-inch diameter woven wire on heavy-duty frames. Screen openings to be approximately 2-1/2 inches x 2-1/2 inches.
D. The center support beam must be a minimum 2 inch x 6 inch stainless steel tube with a minimum 3/16-inch thickness. All attaching brackets and hardware shall be stainless steel.
E. The center support beam shall be raised above the top of the body to prevent material build-up on top of the screens.

4. TIE DOWN/LIFTING BRACKETS

A. The body shall have not less than four (4) 10-gauge minimum stainless steel hold down brackets designed for four-inch nylon straps with flat hooks, two on each side. The placement of the hold down brackets must comply with the Western style and multipurpose dump body currently in use by MoDOT.
B. A 10-gauge minimum stainless steel lift hook/bracket shall be installed on the front and rear face of the body at each upper corner to allow for easy handling when installing or removing spreader from the truck.

5. LIQUID CHEMICAL STORAGE

A. Two (2) side-mounted, minimum 100-gallon polyethylene reservoir tanks, one per side, shall be provided.
B. A minimum of a 3-inch top fill port with splash proof vent and a 3/4-inch suction port shall be molded into each tank.
C. Both tanks shall be plumbed together with a minimum 1-½" ID hose and a tee located at the left rear corner of the spreader.

6. CONSPICUITY

Spreader shall be outfitted with DOT-C2 11-inch red/7-inch white prismatic retro-reflective conspicuity tape meeting or exceeding FMVSS 108. Conspicuity tape shall be applied to the rear of the spreader body along the full width of the top edge, full length of the vertical edges, and full length of the sloped edges. Conspicuity tape shall be applied continuously, and inset two inches from the edge of the rear face of the spreader body. Conspicuity tape shall be applied to within ½-inch of any obstacle in its path.

7. AUGER TUBE

A. Auger tube shall be 4”OD pipe, with a minimum wall thickness of .25”.
B. The front of the auger tube shall have a 2” cold roll end shaft welded to a 3/8” minimum thickness end plate. Both shall be continuous welded.
C. The front end shaft of the auger shall be supported by a 4-bolt flange, heavy duty, sealed, self-aligning bearing. Bearing must be greasable from the rear of the spreader body.
D. The rear of the auger tube shall be supported entirely by the hydraulic drive motor by means of a splined, greasable coupler continuous welded to the rear of the auger tube. Grease fitting must grease motor splines and coupler splines.
E. No center support bearings will be allowed.

8. AUGER FLIGHTING

A. Auger flighting shall have a minimum thickness of ½”, and an outside diameter of 7”. Flighting shall be continuous welded to the tube.
B. Auger flighting shall have the outer edge hard-surfaced by an electric arc welding process to a minimum #55 Rockwell hardness, or be constructed entirely of AR400 steel.
C. Auger flighting shall have three different pitches in order for the hopper to unload evenly from the front, middle, and rear.

9. AUGER DRIVE MOTOR

A. Motor shall be a heavy duty roller stator type, have a splined output shaft, 4-bolt mounting, with O-ring ports.
B. Motor shall be rated for a maximum system pressure of at least 2350psi, have a displacement of 64 cubic inches, and be rated for a maximum of 25 gpm oil flow.
C. Motor shall be mounted using a floating mount to prevent minimal differences in spline alignment between the auger and motor from damaging either component.

10. AUGER FEED RATE

A. The rear wall of the spreader shall have a feed opening size of approximately 63 square inches.
B. The auger assembly shall have a minimum theoretical output of .135 cubic feet of material per revolution.

C. The auger and motor assembly shall produce a minimum theoretical output of 7.29 cubic feet per minute of material at 15 gpm oil flow.

11. DROP CHUTE AND SPINNER

A. The entire drop chute and spinner assembly shall be made of a minimum of 12-gauge stainless steel.
B. The drop chute shall bolt to the long sills.
C. The chute shall be fully enclosed and include an operator-adjustable deflector at the bottom to change the flow of material from the middle of the chute to one side or the other.
D. The bottom of the chute shall have a hood with operator-adjustable material deflectors installed on each side and rear of the drop chute.
E. The spinner shall be securely mounted at the bottom of the chute. Spinner motor mounting brackets shall be a minimum of 7-gauge stainless steel.
F. The spinner shall be operated by a high torque, low speed geroller type hydraulic motor with o-ring thread ports.
G. The height of the spinner disk shall be adjustable with an ideal height of 18 inches above the ground.
H. Poly spinner disk shall be approximately 20 inches in diameter.

12. HYDRAULIC HOSES AND COUPLERS

A. All hydraulic hoses shall be rated for 3000 psi working pressure.
B. Hydraulic hoses shall be long enough to be routed from their respective connection point on the spreader to the male hydraulic couplers mounted in the left rear corner of the dump body.
C. Hoses shall be routed up to the upper left rear corner of the spreader body and secured at a point to allow the hoses to go over the side of the dump body and down to the male couplers at the left rear corner of the dump body.
D. The return circuit for the conveyor and spinner motor shall be “teed” together on the spreader and run together in a common return hose to the truck coupler.
E. Hydraulic hoses shall be sized as follows:

1. Auger hose shall be 3/4-inch ID with a female JIC swivel on one end, and a 3/4-inch male pipe on the other end. Hose shall have a 3/4-inch female FD45-1003-12-12 coupler attached.
2. Spinner hose shall be ½-inch ID with a female JIC swivel on one end and a ½-inch male pipe on the other end. Hose shall have a ½-inch female FD45-1003-8-10 coupler attached.

F. Spreader return hose shall be 1-inch ID with a female JIC swivel on one end and a 1-inch male pipe on the other end. Hose shall have a 1-inch female FD45-1003-16-16 coupler attached.

OPTIONS

1. **Spreader less installation**
   Spreader shipped to MoDOT location in lieu of installing spreader in truck. Price shall include shipping costs.

2. **Option for fold-up spinner chute**
   Specifications for a fold-up spinner chute configuration and its individual components shall be the same as the regular spinner chute unless otherwise specified.
   a. Chute shall fold up and to the left from the bottom of the material conveyor box.
   b. Spinner hose configuration shall consist of quick couplers to facilitate folding operation.

3. **Option for spreader body mounted casters**
   Casters to assist in centering the spreader when installing and removing.

4. **Option for painted steel spreader stand**
   Stand shall be permanently mounted to the spreader, and allow for installation of spreader in the truck, removal of spreader from the truck, and storage of the spreader without the use of additional tools or components.

   a. Stand shall be full length of the spreader.
   b. Stand shall be between 72” – 76” wide.
   c. Stand configuration at the rear of the spreader shall protect the spinner chute from damage in the event of a rear-end collision.
   d. All pivot points of the stand shall be greasable.
   e. Guide caster rollers on stand for ease of stand/spreader to slip in and out of dump bed.
   f. Spreader stand shall be manufactured in a way to center itself inside the dump body, preventing damage to the liquid saddle tanks during spreader installation.
   g. Stand must be painted black over one coat of primer.

5. **Option for painted steel spreader stand for towplow truck**
   Stand shall be permanently mounted to the spreader, and allow for installation of spreader in the truck, removal of spreader from the truck, and storage of the spreader without the use of additional tools or components.

   a. Stand shall be full length of the spreader.
   b. Stand shall be between 72” – 76” wide.
   c. Stand configuration at the rear of the spreader shall not interfere with the operation of an attached towplow.
   d. All pivot points of the stand shall be greasable.
   e. Guide caster rollers on stand for ease of stand/spreader to slip in and out of dump bed.
   f. Spreader stand shall be manufactured in a way to center itself inside the dump body, preventing damage to the liquid saddle tanks during spreader installation.
   g. Stand must be painted black over one coat of primer.

6. **Option for galvanized steel spreader stand**
   Specifications for a galvanized spreader stand shall meet the minimum requirements of sections A - F of the painted steel spreader stand Option 4.

7. **Option for galvanized steel spreader stand for towplow truck**
   Specifications for a galvanized spreader stand shall meet the minimum requirements of sections A - F of the painted steel spreader stand for towplow truck Option 5.

8. **Option for adjustable tie-down brackets**
   Provide adjustable tie-down brackets, two on each side of the spreader body. Brackets shall be a minimum of 10-gauge stainless steel and designed for four-inch nylon straps with flat hooks. Placement of the adjustable tie-downs shall comply with the western style and multipurpose dump bodies currently in use by MoDOT.

9. **Option for an auger sensor**
   a. Sensor shall have sealed connections that meet ISO IP68 and NEMA 6 ratings
   b. Sensor shall be digital, and compatible with Certified Power GL400, ACS, and XDS systems; and Rexroth CS550 systems.
   c. If sensor is mounted at the front of the spreader, spreader shall be delivered with the necessary cable/s to provide a connection point at the left rear corner of the dump body.

10. **Option to remove liquid chemical storage tanks**
    Provide a spreader without the items listed in Section 5 Liquid Chemical Storage

11. **Option for a V-chute in lieu of drop chute and spinner**
    Provide a V-chute installed on spreader to divert the material around the tongue of an attached towplow in lieu of the specified items in Section 11 Drop Chute and Spinner, and section 12 Hydraulic Hoses and Couplers item E.2.

12. **Option for dual auger configuration**
    Specifications for a dual auger configuration spreader and its individual components shall be the same as the single auger base spreader unless otherwise specified.
    1. Drive system shall consist of two hydraulic motors plumbed in series. Gearboxes will not be allowed.
    2. Feed rate for dual auger configuration shall be at least double that listed for the single auger.
    3. Inverts over the augers are not required.

16-FOOT AUGER MATERIAL SPREADER

1. GENERAL

The following specifications shall apply to the 16-foot skid-mounted, hydraulic driven, auger material spreader body. The material spreader shall be a self-contained, stainless steel, V hopper type. The material spreader shall be compatible with the Western style dump body dimensions included with the bid documents. The spreader shall be capable of spreading uniformly all types of granular materials: salt, cinders, chemicals, abrasives, and mixtures of these up to a width of 40 feet.

A. The spreader shall be installed at the vendor's installation facility.
B. Transportation of the truck to/from the installation facility shall be the responsibility of MoDOT.
C. If the spreader is installed in a truck that is purchased through the truck contract, the pre-wet options selected for that truck shall apply to the installation of the spreader.
D. All stainless steel used for construction of the spreader body shall be a minimum of 201 stainless steel.
E. All stainless steel shall be welded using stainless welding wire.
F. All stainless steel shall be left unpainted.
G. All fasteners shall be stainless steel.
H. All hydraulic fittings shall be steel hydraulic grade fittings. Black iron or galvanized fittings in the hydraulic system are not acceptable.
I. All greasable components shall be greased by means of remote grease hoses routed to the rear of the spreader. Hoses shall terminate in a centralized location containing a grease zerk for each hose. Centralized location shall be accessible from the ground. All grease hoses shall be rated for a minimum of 3000 PSI working pressure. All fittings shall be steel hydraulic grade fittings. Black iron, galvanized, or brass fittings are not acceptable.
J. Any carbon steel components shall be chemically cleaned and coated with a lead-free primer and painted with lead-free gray or black enamel.
K. Unit shall be installed, complete-including pre-wet system components if equipped, assembled, and ready to operate.
L. The manufacturer's standard warranty against defective parts, material, and workmanship shall be furnished. A copy of the warranty shall be attached to the bid.

2. BODY

The body is to be 100% welded on the inside. Cross-member and side-support spacing deviations may be allowed if necessary for component installation. MoDOT must pre-approve any changes.

A. The spreader body shall have a minimum of eleven (11) cubic yards struck capacity.
B. The spreader shall have an inside body length of 16 feet at the top.
C. The overall height shall not to exceed 56 inches to the top of the center screen support beam.
D. The top inside width shall not be less than 78 inches.

E. The sidewalls must be sloped at approximately a 45-degree angle.
F. The rear wall may be sloped up to a maximum of 15 degrees.
G. The front wall may be sloped up to a maximum of 15 degrees. Front wall construction shall be such that there is no possible way for material to leak out of the front of the spreader body.
H. The body shall be constructed of a minimum 12-gauge stainless steel.
I. The body shall have a minimum of seven (7) cross-members and side supports evenly spaced along the length of the spreader.
J. The body long sill, cross-members and full-length steel channel skids shall be a minimum of 7-gauge stainless steel.
K. The body side supports shall be a minimum of 12-gauge stainless steel.
L. An adjustable in height stainless steel inverted vee shall be provided to keep material load off the auger for easier auger start-up.
M. The body shall be equipped with a safety interlock system to prevent hydraulic power from reaching the auger drive motor when the auger cover and/or top screens are opened beyond the normal operating position.

3. TOP GRATE SCREENS

A. The body shall have a top-grate screen grid, having at least four (4) sections, two on each side.
B. Screens shall be hinged at the center support beam of the spreader body for easy handling.
C. Screens shall be made of either 3/8-inch diameter rods centered on crossbars or 3/8-inch diameter woven wire on heavy-duty frames. Screen openings to be approximately 2-1/2 inches x 2-1/2 inches.
D. The center support beam must be a minimum 2 inch x 6 inch stainless steel tube with a minimum 3/16-inch thickness. All attaching brackets and hardware shall be stainless steel.
E. The center support beam shall be raised above the top of the body to prevent material build-up on top of the screens.

4. TIE DOWN/LIFTING BRACKETS

A. The body shall have not less than four (4) 10-gauge minimum stainless steel hold down brackets designed for four-inch nylon straps with flat hooks, two on each side. The placement of the hold down brackets must comply with the Western style and multipurpose dump body currently in use by MoDOT.
B. A 10-gauge minimum stainless steel lift hook/bracket shall be installed on the front and rear face of the body at each upper corner to allow for easy handling when installing or removing spreader from the truck.

5. LIQUID CHEMICAL STORAGE

A. Two (2) side-mounted, minimum 135-gallon polyethylene reservoir tanks, one per side, shall be provided.
B. A minimum of a 3-inch top fill port with splash proof vent and a 3/4-inch suction port shall be molded into each tank.
C. Both tanks shall be plumbed together with a minimum 1-½" ID hose and a tee located at the left rear corner of the spreader.

6. CONSPICUITY

Spreader shall be outfitted with DOT-C2 11-inch red/7-inch white prismatic retro-reflective conspicuity tape meeting or exceeding FMVSS 108. Conspicuity tape shall be applied to the rear of the spreader body along the full width of the top edge, full length of the vertical edges, and full length of the sloped edges. Conspicuity tape shall be applied continuously, and inset two inches from the edge of the rear face of the spreader body. Conspicuity tape shall be applied to within ½-inch of any obstacle in its path.

7. AUGER TUBE

A. Auger tube shall be 4”OD pipe, with a minimum wall thickness of .25”.
B. The front of the auger tube shall have a 2” cold roll end shaft welded to a 3/8” minimum thickness end plate. Both shall be continuous welded.
C. The front end shaft of the auger shall be supported by a 4-bolt flange, heavy duty, sealed, self-aligning bearing. Bearing must be greasable from the rear of the spreader body.
D. The rear of the auger tube shall be supported entirely by the hydraulic drive motor by means of a splined, greasable coupler continuous welded to the rear of the auger tube. Grease fitting must grease motor splines and coupler splines.
E. No center support bearings will be allowed.

8. AUGER FLIGHTING

A. Auger flighting shall have a minimum thickness of ½”, and an outside diameter of 7”. Flighting shall be continuous welded to the tube.
B. Auger flighting shall have the outer edge hard-surfaced by an electric arc welding process to a minimum #55 Rockwell hardness, or be constructed entirely of AR400 steel.
C. Auger flighting shall have three different pitches in order for the hopper to unload evenly from the front, middle, and rear.

9. AUGER DRIVE MOTOR

A. Motor shall be a heavy duty roller stator type, have a splined output shaft, 4-bolt mounting, with O-ring ports.
B. Motor shall be rated for a maximum system pressure of at least 2350psi, have a displacement of 64 cubic inches, and be rated for a maximum of 25 gpm oil flow.
C. Motor shall be mounted using a floating mount to prevent minimal differences in spline alignment between the auger and motor from damaging either component.

10. AUGER FEED RATE

A. The rear wall of the spreader shall have a feed opening size of approximately 63 square inches.
B. The auger assembly shall have a minimum theoretical output of .135 cubic feet of material per revolution.

C. The auger and motor assembly shall produce a minimum theoretical output of 7.29 cubic feet per minute of material at 15 gpm oil flow.

11. DROP CHUTE AND SPINNER

A. The entire drop chute and spinner assembly shall be made of a minimum of 12-gauge stainless steel.
B. The drop chute shall bolt to the long sills.
C. The chute shall be fully enclosed and include an operator-adjustable deflector at the bottom to change the flow of material from the middle of the chute to one side or the other.
D. The bottom of the chute shall have a hood with operator-adjustable material deflectors installed on each side and rear of the drop chute.
E. The spinner shall be securely mounted at the bottom of the chute. Spinner motor mounting brackets shall be a minimum of 7-gauge stainless steel.
F. The spinner shall be operated by a high torque, low speed geroller type hydraulic motor with o-ring thread ports.
G. The height of the spinner disk shall be adjustable with an ideal height of 18 inches above the ground.
H. Poly spinner disk shall be approximately 20 inches in diameter.

12. HYDRAULIC HOSES AND COUPLERS

A. All hydraulic hoses shall be rated for 3000 psi working pressure.
B. Hydraulic hoses shall be long enough to be routed from their respective connection point on the spreader to the male hydraulic couplers mounted in the left rear corner of the dump body.
C. Hoses shall be routed up to the upper left rear corner of the spreader body and secured at a point to allow the hoses to go over the side of the dump body and down to the male couplers at the left rear corner of the dump body.
D. The return circuit for the conveyor and spinner motor shall be “teed” together on the spreader and run together in a common return hose to the truck coupler.
E. Hydraulic hoses shall be sized as follows:

1. Auger hose shall be 3/4-inch ID with a female JIC swivel on one end, and a 3/4-inch male pipe on the other end. Hose shall have a 3/4-inch female FD45-1003-12-12 coupler attached.
2. Spinner hose shall be ½-inch ID with a female JIC swivel on one end and a ½-inch male pipe on the other end. Hose shall have a ½-inch female FD45-1003-8-10 coupler attached.

F. Spreader return hose shall be 1-inch ID with a female JIC swivel on one end and a 1-inch male pipe on the other end. Hose shall have a 1-inch female FD45-1003-16-16 coupler attached.

OPTIONS

1. **Spreader less installation**
   Spreader shipped to MoDOT location in lieu of installing spreader in truck. Price shall include shipping costs.

2. **Option for fold-up spinner chute**
   Specifications for a fold-up spinner chute configuration and its individual components shall be the same as the regular spinner chute unless otherwise specified.
   a. Chute shall fold up and to the left from the bottom of the material conveyor box.
   b. Spinner hose configuration shall consist of quick couplers to facilitate folding operation.

3. **Option for spreader body mounted casters**
   Casters to assist in centering the spreader when installing and removing.

4. **Option for painted steel spreader stand**
   Stand shall be permanently mounted to the spreader, and allow for installation of spreader in the truck, removal of spreader from the truck, and storage of the spreader without the use of additional tools or components.

   a. Stand shall be full length of the spreader.
   b. Stand shall be between 72” – 76” wide.
   c. Stand configuration at the rear of the spreader shall protect the spinner chute from damage in the event of a rear-end collision.
   d. All pivot points of the stand shall be greasable.
   e. Guide caster rollers on stand for ease of stand/spreader to slip in and out of dump bed.
   f. Spreader stand shall be manufactured in a way to center itself inside the dump body, preventing damage to the liquid saddle tanks during spreader installation.
   g. Stand must be painted black over one coat of primer.

5. **Option for painted steel spreader stand for towplow truck**
   Stand shall be permanently mounted to the spreader, and allow for installation of spreader in the truck, removal of spreader from the truck, and storage of the spreader without the use of additional tools or components.

   a. Stand shall be full length of the spreader.
   b. Stand shall be between 72” – 76” wide.
   c. Stand configuration at the rear of the spreader shall not interfere with the operation of an attached towplow.
   d. All pivot points of the stand shall be greasable.
   e. Guide caster rollers on stand for ease of stand/spreader to slip in and out of dump bed.
   f. Spreader stand shall be manufactured in a way to center itself inside the dump body, preventing damage to the liquid saddle tanks during spreader installation.
   g. Stand must be painted black over one coat of primer.

6. **Option for galvanized steel spreader stand**
   Specifications for a galvanized spreader stand shall meet the minimum requirements of sections A - F of the painted steel spreader stand Option 4.

7. **Option for galvanized steel spreader stand for towplow truck**
   Specifications for a galvanized spreader stand shall meet the minimum requirements of sections A - F of the painted steel spreader stand for towplow truck Option 5.

8. **Option for adjustable tie-down brackets**
   Provide adjustable tie-down brackets, two on each side of the spreader body. Brackets shall be a minimum of 10-gauge stainless steel and designed for four-inch nylon straps with flat hooks. Placement of the adjustable tie-downs shall comply with the western style and multipurpose dump bodies currently in use by MoDOT.

9. **Option for an auger sensor**
   a. Sensor shall have sealed connections that meet ISO IP68 and NEMA 6 ratings
   b. Sensor shall be digital, and compatible with Certified Power GL400, ACS, and XDS systems; and Rexroth CS550 systems.
   c. If sensor is mounted at the front of the spreader, spreader shall be delivered with the necessary cable/s to provide a connection point at the left rear corner of the dump body.

10. **Option to remove liquid chemical storage tanks**
    Provide a spreader without the items listed in Section 5 Liquid Chemical Storage

11. **Option for a V-chute in lieu of drop chute and spinner**
    Provide a V-chute installed on spreader to divert the material around the tongue of an attached towplow in lieu of the specified items in Section 11 Drop Chute and Spinner, and section 12 Hydraulic Hoses and Couplers item E.2.

12. **Option for dual auger configuration**
    Specifications for a dual auger configuration spreader and its individual components shall be the same as the single auger base spreader unless otherwise specified.
    1. Drive system shall consist of two hydraulic motors plumbed in series. Gearboxes will not be allowed.
    2. Feed rate for dual auger configuration shall be at least double that listed for the single auger.
    3. Inverts over the augers are not required.

13. **Option for 450 gallon minimum liquid chemical storage tanks**
    Provide two (2) or four (4) liquid chemical storage tanks that have a combined minimum capacity of 450 gallons. Tanks shall still meet the requirements of Section 5 Liquid Chemical Storage items B and C.

DRAG CHAIN MATERIAL SPREADER

SPECIFICATIONS

10’

13’

16’

10-FOOT DRAG-CHAIN MATERIAL SPREADER

1. GENERAL REQUIREMENTS

The following specifications shall apply to the 10-foot skid-mounted, hydraulic driven, drag chain material spreader body. The material spreader shall be a self-contained, stainless steel, V hopper type. The material spreader shall be compatible with the Western style dump body dimensions included with the bid documents. The spreader shall be capable of spreading uniformly all types of granular materials: salt, cinders, chemicals, abrasives, and mixtures of these up to a width of 40 feet.

A. The spreader shall be installed at the vendor's installation facility.
B. Transportation of the truck to/from the installation facility shall be the responsibility of MoDOT.
C. If the spreader is installed in a truck that is purchased through the truck contract, the pre-wet options selected for that truck shall apply to the installation of the spreader.
D. All stainless steel used for construction of the spreader body shall be a minimum of 201 stainless steel.
E. All stainless steel shall be welded using stainless welding wire.
F. All stainless steel shall be left unpainted.
G. All fasteners shall be stainless steel.
H. All hydraulic fittings shall be steel hydraulic grade fittings. Black iron or galvanized fittings in the hydraulic system are not acceptable.
I. All greasable components shall be greased by means of remote grease hoses routed to the rear of the spreader. Hoses shall terminate in a centralized location containing a grease zerk for each hose. Centralized location shall be accessible from the ground. All grease hoses shall be rated for a minimum of 3000 PSI working pressure. All fittings shall be steel hydraulic grade fittings. Black iron, galvanized, or brass fittings are not acceptable.
J. Any carbon steel components shall be chemically cleaned and coated with a lead-free primer and painted with lead-free gray or black enamel.
K. Unit shall be installed, complete-including pre-wet system components if equipped, assembled, and ready to operate.
L. The manufacturer's standard warranty against defective parts, material, and workmanship shall be furnished. A copy of the warranty shall be attached to the bid.

2. BODY

The body shall be 100% welded on the inside. Cross-member and side-support spacing deviations may be allowed if necessary for component installation. MoDOT must pre-approve any changes.

A. The spreader body shall have a minimum of 5 (5) cubic yards struck capacity.
B. The spreader shall have an inside body length of 10 feet at the top.
C. The overall height shall not to exceed 56 inches to the top of the center screen support beam.
D. The top inside width shall not be less than 78 inches.

E. The sidewalls must be sloped at approximately a 45-degree angle.
F. The rear wall may be sloped up to a maximum of 15 degrees.
G. The front wall may be sloped up to a maximum of 15 degrees. Construction of the front wall shall minimize material loss out of the front of the spreader body.
H. The body shall be constructed of a minimum 12-gauge stainless steel.
I. The body shall have a minimum of five (5) cross-members and side supports evenly spaced along the length of the spreader.
J. The body long sill, cross-members and full-length steel channel skids shall be a minimum of 7-gauge stainless steel.
K. The body side supports shall be a minimum of 12-gauge stainless steel.

3. TOP GRATE SCREENS

A. The body shall have a top-grate screen grid, having at least four (4) sections, two on each side.
B. Screens shall be hinged at the center support beam of the spreader body for easy handling.
C. Screens shall be made of either 3/8-inch diameter rods centered on crossbars or 3/8-inch diameter woven wire on heavy-duty frames. Screen openings to be approximately 2-1/2 inches x 2-1/2 inches.
D. The center support beam must be a minimum 2 inch x 6 inch stainless steel tube with a minimum 3/16-inch thickness. All attaching brackets and hardware shall be stainless steel.
E. The center support beam shall be raised above the top of the body to prevent material build-up on top of the screens.

4. TIE DOWN/LIFTING BRACKETS

A. The body shall have not less than four (4) 10-gauge minimum stainless steel hold down brackets designed for four-inch nylon straps with flat hooks, two on each side. The placement of the hold down brackets must comply with the Western style and multipurpose dump body currently in use by MoDOT.
B. A 10-gauge minimum stainless steel lift hook/bracket shall be installed on the front and rear face of the body at each upper corner to allow for easy handling when installing or removing spreader from the truck.

5. LIQUID CHEMICAL STORAGE

A. Two (2) side-mounted, minimum 100-gallon polyethylene reservoir tanks, one per side, shall be provided.
B. A minimum of a 3-inch top fill port with splash proof vent and a 3/4-inch suction port shall be molded into each tank.
C. Both tanks shall be plumbed together with a minimum 1-½" ID hose and a tee located at the left rear corner of the spreader.

6. CONSPICUITY

Spreader shall be outfitted with DOT-C2 11-inch red/7-inch white prismatic retro-reflective conspicuity tape meeting or exceeding FMVSS 108. Conspicuity tape shall be applied to the rear of the spreader body along the full width of the top edge, full length of the vertical edges, and full length of the sloped edges. Conspicuity

tape shall be applied continuously, and inset two inches from the edge of the rear face of the spreader body. Conspicuity tape shall be applied to within ½-inch of any obstacle in its path.

7. CONVEYOR

A. Conveyor box and floor shall be 7-gauge stainless steel.
B. The conveyor chain shall be a heavy-duty pintle chain, Drives D667X or equal. Crossbars shall be 1-1/2 inch x 1/4-inch x 18-inch minimum welded to the chain links on 4-1/2-inch centers.
C. Chain tensioner shall be screw type, spring loaded, on the front idler shaft.
D. A rear belt type bar wiper shall be provided.
E. Front idler shaft bearings shall have grease zerk lines plumbed to the rear of the body.
F. Front idler sprockets shall be 8-tooth.

8. CONVEYOR GEARBOX

A. The conveyor drive gearbox ratio shall be 50:1. Gearbox shall have hardened input and output shafts and a bronze bull gear.
B. The conveyor gearbox output shaft shall have 8-tooth sprockets.
C. The gearbox shall have a high torque, low speed, geroller type hydraulic motor installed. Motor shall be designed to operate effectively at a maximum system pressure of 2250 psi. Hydraulic motors designed to operate at a pressure above 2250 psi will not be acceptable.
D. Hydraulic motor shall have o-ring thread ports.

9. DISCHARGE GATE

An adjustable discharge gate shall be located at the rear of the body to properly adjust the flow of material to the spinner.

A. Maximum discharge gate opening shall be 11 inches high x 20 inches wide.
B. The discharge gate shall an adjustable stop to control the operating height of the gate. The stop shall allow the operator to replicate the correct operating height by lowering the gate with the screw jack until the discharge gate contacts the adjustable stop. Stop shall allow the operator to fully raise the gate to unload the spreader. Adjustable stops shall have an operating height minimum range of 2 inches through 6 inches. Adjustable stops shall require the use of hand tools to adjust.
C. The discharge gate and track shall be 7-gauge stainless steel.
D. The screw jack adjusting the discharge gate height shall have nylon U-joints and bushings with grease fittings on jack head.
E. The grease zerk on the jack shall be relocated to the centralized grease location as described in item F under the General Requirements section.

10. DROP CHUTE AND SPINNER

A. The entire drop chute and spinner assembly shall be made of a minimum of 12-gauge stainless steel.
B. The drop chute shall bolt to the long sills.

C. The chute shall be fully enclosed and include an operator-adjustable deflector at the bottom to change the flow of material from the middle of the chute to one side or the other.

D. The bottom of the chute shall have a hood with operator-adjustable material deflectors installed on each side and rear of the drop chute.

E. The spinner shall be securely mounted at the bottom of the chute. Spinner motor mounting brackets shall be a minimum of 7-gauge stainless steel.

F. The spinner shall be operated by a high torque, low speed geroller type hydraulic motor with o-ring thread ports.

G. The height of the spinner disk shall be adjustable with an ideal height of 18 inches above the ground.

H. Poly spinner disk shall be approximately 20 inches in diameter.

11. HYDRAULIC HOSES AND COUPLERS

A. All hydraulic hoses shall be rated for 3000 psi working pressure.

B. Hydraulic hoses shall be long enough to be routed from their respective connection point on the spreader to the male hydraulic couplers mounted in the left rear corner of the dump body.

C. Hoses shall be routed up to the upper left rear corner of the spreader body and secured at a point to allow the hoses to go over the side of the dump body and down to the male couplers at the left rear corner of the dump body.

D. The return circuit for the conveyor and spinner motor shall be “teed” together on the spreader and run together in a common return hose to the truck coupler.

E. Hydraulic hoses shall be sized as follows:

1. Conveyer hose shall be 3/4-inch ID with a female JIC swivel on one end, and a 3/4-inch male pipe on the other end. Hose shall have a 3/4-inch female FD45-1003-12-12 coupler attached.
2. Spinner hose shall be ½-inch ID with a female JIC swivel on one end and a ½-inch male pipe on the other end. Hose shall have a ½-inch female FD45-1003-8-10 coupler attached.

F. Spreader return hose shall be 1-inch ID with a female JIC swivel on one end and a 1-inch male pipe on the other end. Hose shall have a 1-inch female FD45-1003-16-16 coupler attached.

OPTIONS

1. **Spreader less installation**
   Spreader shipped to MoDOT location in lieu of installing spreader in truck. Price shall include shipping costs.

2. **Option for fold-up spinner chute**
   Specifications for a fold-up spinner chute configuration and its individual components shall be the same as the regular spinner chute unless otherwise specified.
   A. Chute shall fold up and to the left from the bottom of the material conveyor box.
   B. Spinner hose configuration shall consist of quick couplers to facilitate folding operation.

3. **Option for spreader body mounted casters**
   Casters to assist in centering the spreader when installing and removing.

4. **Option for painted steel spreader stand**
   Stand shall be permanently mounted to the spreader, and allow for installation of spreader in the truck, removal of spreader from the truck, and storage of the spreader without the use of additional tools or components.

   A. Stand shall be full length of the spreader.
   B. Stand shall be between 72” – 76” wide.
   C. Stand configuration at the rear of the spreader shall protect the spinner chute from damage in the event of a rear-end collision.
   D. All pivot points of the stand shall be greasable.
   E. Guide caster rollers on stand for ease of stand/spreader to slip in and out of dump bed.
   F. Spreader stand shall be manufactured in a way to center itself inside the dump body, preventing damage to the liquid saddle tanks during spreader installation.
   G. Stand must be painted black over one coat of primer.

5. **Option for galvanized steel spreader stand**
   Specifications for a galvanized spreader stand shall meet the minimum requirements of sections A - F of the painted steel spreader stand Option 4.

6. **Option for adjustable tie-down brackets**
   Provide adjustable tie-down brackets, two on each side of the spreader body. Brackets shall be a minimum of 10-gauge stainless steel and designed for four-inch nylon straps with flat hooks. Placement of the adjustable tie-downs shall comply with the western style and multipurpose dump bodies currently in use by MoDOT.

7. **Option for feeder sensor**
   Provide a feeder motor as described in Section 8 Conveyor Gear Box that also includes a feeder sensor.
   A. Sensor shall have sealed connections that meet ISO IP68 and NEMA 6 ratings

B. Sensor shall be digital, and compatible with Certified Power GL400, ACS, and XDS systems; and Rexroth CS550 systems.

8. Option to remove liquid chemical storage tanks

Provide a spreader without the items listed in Section 5 Liquid Chemical Storage

13-FOOT DRAG-CHAIN MATERIAL SPREADER

1. GENERAL REQUIREMENTS

The following specifications shall apply to the 13-foot skid-mounted, hydraulic driven, drag chain material spreader body. The material spreader shall be a self-contained, stainless steel, V hopper type. The material spreader shall be compatible with the Western style dump body dimensions included with the bid documents. The spreader shall be capable of spreading uniformly all types of granular materials: salt, cinders, chemicals, abrasives, and mixtures of these up to a width of 40 feet.

A. The spreader shall be installed at the vendor's installation facility.
B. Transportation of the truck to/from the installation facility shall be the responsibility of MoDOT.
C. If the spreader is installed in a truck that is purchased through the truck contract, the pre-wet options selected for that truck shall apply to the installation of the spreader.
D. All stainless steel used for construction of the spreader body shall be a minimum of 201 stainless steel.
E. All stainless steel shall be welded using stainless welding wire.
F. All stainless steel shall be left unpainted.
G. All fasteners shall be stainless steel.
H. All hydraulic fittings shall be steel hydraulic grade fittings. Black iron or galvanized fittings in the hydraulic system are not acceptable.
I. All greasable components shall be greased by means of remote grease hoses routed to the rear of the spreader. Hoses shall terminate in a centralized location containing a grease zerk for each hose. Centralized location shall be accessible from the ground. All grease hoses shall be rated for a minimum of 3000 PSI working pressure. All fittings shall be steel hydraulic grade fittings. Black iron, galvanized, or brass fittings are not acceptable.
J. Any carbon steel components shall be chemically cleaned and coated with a lead-free primer and painted with lead-free gray or black enamel.
K. Unit shall be installed, complete-including pre-wet system components if equipped, assembled, and ready to operate.
L. The manufacturer's standard warranty against defective parts, material, and workmanship shall be furnished. A copy of the warranty shall be attached to the bid.

2. BODY

The body shall be 100% welded on the inside. Cross-member and side-support spacing deviations may be allowed if necessary for component installation. MoDOT must pre-approve any changes.

A. The spreader body shall have a minimum of nine (9) cubic yards struck capacity.
B. The spreader shall have an inside body length of 13 feet at the top.
C. The overall height shall not to exceed 56 inches to the top of the center screen support beam.
D. The top inside width shall not be less than 78 inches.

E. The sidewalls must be sloped at approximately a 45-degree angle.
F. The rear wall may be sloped up to a maximum of 15 degrees.
G. The front wall may be sloped up to a maximum of 15 degrees. Construction of the front wall shall minimize material loss out of the front of the spreader body.
H. The body shall be constructed of a minimum 12-gauge stainless steel.
I. The body shall have a minimum of six (6) cross-members and side supports evenly spaced along the length of the spreader.
J. The body long sill, cross-members and full-length steel channel skids shall be a minimum of 7-gauge stainless steel.
K. The body side supports shall be a minimum of 12-gauge stainless steel.

3. TOP GRATE SCREENS

A. The body shall have a top-grate screen grid, having at least four (4) sections, two on each side.
B. Screens shall be hinged at the center support beam of the spreader body for easy handling.
C. Screens shall be made of either 3/8-inch diameter rods centered on crossbars or 3/8-inch diameter woven wire on heavy-duty frames. Screen openings to be approximately 2-1/2 inches x 2-1/2 inches.
D. The center support beam must be a minimum 2 inch x 6 inch stainless steel tube with a minimum 3/16-inch thickness. All attaching brackets and hardware shall be stainless steel.
E. The center support beam shall be raised above the top of the body to prevent material build-up on top of the screens.

4. TIE DOWN/LIFTING BRACKETS

A. The body shall have not less than four (4) 10-gauge minimum stainless steel hold down brackets designed for four-inch nylon straps with flat hooks, two on each side. The placement of the hold down brackets must comply with the Western style and multipurpose dump body currently in use by MoDOT.
B. A 10-gauge minimum stainless steel lift hook/bracket shall be installed on the front and rear face of the body at each upper corner to allow for easy handling when installing or removing spreader from the truck.

5. LIQUID CHEMICAL STORAGE

A. Two (2) side-mounted, minimum 100-gallon polyethylene reservoir tanks, one per side, shall be provided.
B. A minimum of a 3-inch top fill port with splash proof vent and a 3/4-inch suction port shall be molded into each tank.
C. Both tanks shall be plumbed together with a minimum 1-½" ID hose and a tee located at the left rear corner of the spreader.

6. CONSPICUITY

Spreader shall be outfitted with DOT-C2 11-inch red/7-inch white prismatic retro-reflective conspicuity tape meeting or exceeding FMVSS 108. Conspicuity tape shall be applied to the rear of the spreader body along the full width of the top edge,

full length of the vertical edges, and full length of the sloped edges. Conspicuity tape shall be applied continuously, and inset two inches from the edge of the rear face of the spreader body. Conspicuity tape shall be applied to within ½-inch of any obstacle in its path.

7. CONVEYOR

A. Conveyor box and floor shall be 7-gauge stainless steel.
B. The conveyor chain shall be a heavy-duty pintle chain, Drives D667X or equal. Crossbars shall be 1-1/2 inch x 1/4-inch x 18-inch minimum welded to the chain links on 4-1/2-inch centers.
C. Chain tensioner shall be screw type, spring loaded, on the front idler shaft.
D. A rear belt type bar wiper shall be provided.
E. Front idler shaft bearings shall have grease zerk lines plumbed to the rear of the body.
F. Front idler sprockets shall be 8-tooth.

8. CONVEYOR GEARBOX

A. The conveyor drive gearbox ratio shall be 50:1. Gearbox shall have hardened input and output shafts and a bronze bull gear.
B. The conveyor gearbox output shaft shall have 8-tooth sprockets.
C. The gearbox shall have a high torque, low speed, geroller type hydraulic motor installed. Motor shall be designed to operate effectively at a maximum system pressure of 2250 psi. Hydraulic motors designed to operate at a pressure above 2250 psi will not be acceptable.
D. Hydraulic motor shall have o-ring thread ports.

9. DISCHARGE GATE

An adjustable discharge gate shall be located at the rear of the body to properly adjust the flow of material to the spinner.

A. Maximum discharge gate opening shall be 11 inches high x 20 inches wide.
B. The discharge gate shall an adjustable stop to control the operating height of the gate. The stop shall allow the operator to replicate the correct operating height by lowering the gate with the screw jack until the discharge gate contacts the adjustable stop. Stop shall allow the operator to fully raise the gate to unload the spreader. Adjustable stops shall have an operating height minimum range of 2 inches through 6 inches. Adjustable stops shall require the use of hand tools to adjust.
C. The discharge gate and track shall be 7-gauge stainless steel.
D. The screw jack adjusting the discharge gate height shall have nylon U-joints and bushings with grease fittings on jack head.
E. The grease zerk on the jack shall be relocated to the centralized grease location as described in item F under the General Requirements section.

10. DROP CHUTE AND SPINNER

A. The entire drop chute and spinner assembly shall be made of a minimum of 12-gauge stainless steel.
B. The drop chute shall bolt to the long sills.

C. The chute shall be fully enclosed and include an operator-adjustable deflector at the bottom to change the flow of material from the middle of the chute to one side or the other.

D. The bottom of the chute shall have a hood with operator-adjustable material deflectors installed on each side and rear of the drop chute.

E. The spinner shall be securely mounted at the bottom of the chute. Spinner motor mounting brackets shall be a minimum of 7-gauge stainless steel.

F. The spinner shall be operated by a high torque, low speed geroller type hydraulic motor with o-ring thread ports.

G. The height of the spinner disk shall be adjustable with an ideal height of 18 inches above the ground.

H. Poly spinner disk shall be approximately 20 inches in diameter.

11. HYDRAULIC HOSES AND COUPLERS

A. All hydraulic hoses shall be rated for 3000 psi working pressure.

B. Hydraulic hoses shall be long enough to be routed from their respective connection point on the spreader to the male hydraulic couplers mounted in the left rear corner of the dump body.

C. Hoses shall be routed up to the upper left rear corner of the spreader body and secured at a point to allow the hoses to go over the side of the dump body and down to the male couplers at the left rear corner of the dump body.

D. The return circuit for the conveyor and spinner motor shall be “teed” together on the spreader and run together in a common return hose to the truck coupler.

E. Hydraulic hoses shall be sized as follows:

1. Conveyer hose shall be 3/4-inch ID with a female JIC swivel on one end, and a 3/4-inch male pipe on the other end. Hose shall have a 3/4-inch female FD45-1003-12-12 coupler attached.
2. Spinner hose shall be ½-inch ID with a female JIC swivel on one end and a ½-inch male pipe on the other end. Hose shall have a ½-inch female FD45-1003-8-10 coupler attached.

F. Spreader return hose shall be 1-inch ID with a female JIC swivel on one end and a 1-inch male pipe on the other end. Hose shall have a 1-inch female FD45-1003-16-16 coupler attached.

OPTIONS

1. **Spreader less installation**
   Spreader shipped to MoDOT location in lieu of installing spreader in truck. Price shall include shipping costs.

2. **Option for fold-up spinner chute**
   Specifications for a fold-up spinner chute configuration and its individual components shall be the same as the regular spinner chute unless otherwise specified.
   A. Chute shall fold up and to the left from the bottom of the material conveyor box.
   B. Spinner hose configuration shall consist of quick couplers to facilitate folding operation.

3. **Option for spreader body mounted casters**
   Casters to assist in centering the spreader when installing and removing.

4. **Option for painted steel spreader stand**
   Stand shall be permanently mounted to the spreader, and allow for installation of spreader in the truck, removal of spreader from the truck, and storage of the spreader without the use of additional tools or components.

   A. Stand shall be full length of the spreader.
   B. Stand shall be between 72” – 76” wide.
   C. Stand configuration at the rear of the spreader shall protect the spinner chute from damage in the event of a rear-end collision.
   D. All pivot points of the stand shall be greasable.
   E. Guide caster rollers on stand for ease of stand/spreader to slip in and out of dump bed.
   F. Spreader stand shall be manufactured in a way to center itself inside the dump body, preventing damage to the liquid saddle tanks during spreader installation.
   G. Stand must be painted black over one coat of primer.

5. **Option for painted steel spreader stand for towplow truck**
   Stand shall be permanently mounted to the spreader, and allow for installation of spreader in the truck, removal of spreader from the truck, and storage of the spreader without the use of additional tools or components.

   A. Stand shall be full length of the spreader.
   B. Stand shall be between 72” – 76” wide.
   C. Stand configuration at the rear of the spreader shall not interfere with the operation of an attached towplow.
   D. All pivot points of the stand shall be greasable.
   E. Guide caster rollers on stand for ease of stand/spreader to slip in and out of dump bed.
   F. Spreader stand shall be manufactured in a way to center itself inside the dump body, preventing damage to the liquid saddle tanks during spreader installation.
   G. Stand must be painted black over one coat of primer.

6. **Option for galvanized steel spreader stand**
   Specifications for a galvanized spreader stand shall meet the minimum requirements of sections A - F of the painted steel spreader stand Option 4.

7. **Option for galvanized steel spreader stand for towplow truck**
   Specifications for a galvanized spreader stand shall meet the minimum requirements of sections A - F of the painted steel spreader stand for towplow truck Option 5.

8. **Option for adjustable tie-down brackets**
   Provide adjustable tie-down brackets, two on each side of the spreader body. Brackets shall be a minimum of 10-gauge stainless steel and designed for four-inch nylon straps with flat hooks. Placement of the adjustable tie-downs shall comply with the western style and multipurpose dump bodies currently in use by MoDOT.

9. **Option for feeder sensor**
   Provide a feeder motor as described in Section 8 Conveyor Gearbox that also includes a feeder sensor.
   A. Sensor shall have sealed connections that meet ISO IP68 and NEMA 6 ratings
   B. Sensor shall be digital, and compatible with Certified Power GL400, ACS, and XDS systems; and Rexroth CS550 systems.

10. **Option to remove liquid chemical storage tanks**
    Provide a spreader without the items listed in Section 5 Liquid Chemical Storage

11. **Option for a V-chute in lieu of drop chute and spinner**
    Provide a V-chute installed on spreader to divert the material around the tongue of an attached towplow in lieu of the specified items in section 10 Drop Chute and Spinner, and section11 Hydraulic Hoses and Couplers item E.2.

16-FOOT DRAG-CHAIN MATERIAL SPREADER

1. GENERAL REQUIREMENTS

The following specifications shall apply to the 16-foot skid-mounted, hydraulic driven, drag chain material spreader body. The material spreader shall be a self-contained, stainless steel, V hopper type. The material spreader shall be compatible with the Western style dump body dimensions included with the bid documents. The spreader shall be capable of spreading uniformly all types of granular materials: salt, cinders, chemicals, abrasives, and mixtures of these up to a width of 40 feet.

A. The spreader shall be installed at the vendor's installation facility.
B. Transportation of the truck to/from the installation facility shall be the responsibility of MoDOT.
C. If the spreader is installed in a truck that is purchased through the truck contract, the pre-wet options selected for that truck shall apply to the installation of the spreader.
D. All stainless steel used for construction of the spreader body shall be a minimum of 201 stainless steel.
E. All stainless steel shall be welded using stainless welding wire.
F. All stainless steel shall be left unpainted.
G. All fasteners shall be stainless steel.
H. All hydraulic fittings shall be steel hydraulic grade fittings. Black iron or galvanized fittings in the hydraulic system are not acceptable.
I. All greasable components shall be greased by means of remote grease hoses routed to the rear of the spreader. Hoses shall terminate in a centralized location containing a grease zerk for each hose. Centralized location shall be accessible from the ground. All grease hoses shall be rated for a minimum of 3000 PSI working pressure. All fittings shall be steel hydraulic grade fittings. Black iron, galvanized, or brass fittings are not acceptable.
J. Any carbon steel components shall be chemically cleaned and coated with a lead-free primer and painted with lead-free gray or black enamel.
K. Unit shall be installed, complete-including pre-wet system components if equipped, assembled, and ready to operate.
L. The manufacturer's standard warranty against defective parts, material, and workmanship shall be furnished. A copy of the warranty shall be attached to the bid.

2. BODY

The body shall be 100% welded on the inside. Cross-member and side-support spacing deviations may be allowed if necessary for component installation. MoDOT must pre-approve any changes.

A. The spreader body shall have a minimum of eleven (11) cubic yards struck capacity.
B. The spreader shall have an inside body length of 16 feet at the top.
C. The overall height shall not to exceed 56 inches to the top of the center screen support beam.
D. The top inside width shall not be less than 78 inches.

E. The sidewalls must be sloped at approximately a 45-degree angle.
F. The rear wall may be sloped up to a maximum of 15 degrees.
G. The front wall may be sloped up to a maximum of 15 degrees. Construction of the front wall shall minimize material loss out of the front of the spreader body.
H. The body shall be constructed of a minimum 12-gauge stainless steel.
I. The body shall have a minimum of seven (7) cross-members and side supports evenly spaced along the length of the spreader.
J. The body long sill, cross-members and full-length steel channel skids shall be a minimum of 7-gauge stainless steel.
K. The body side supports shall be a minimum of 12-gauge stainless steel.

3. TOP GRATE SCREENS

A. The body shall have a top-grate screen grid, having at least four (4) sections, two on each side.
B. Screens shall be hinged at the center support beam of the spreader body for easy handling.
C. Screens shall be made of either 3/8-inch diameter rods centered on crossbars or 3/8-inch diameter woven wire on heavy-duty frames. Screen openings to be approximately 2-1/2 inches x 2-1/2 inches.
D. The center support beam must be a minimum 2 inch x 6 inch stainless steel tube with a minimum 3/16-inch thickness. All attaching brackets and hardware shall be stainless steel.
E. The center support beam shall be raised above the top of the body to prevent material build-up on top of the screens.

4. TIE DOWN/LIFTING BRACKETS

A. The body shall have not less than four (4) 10-gauge minimum stainless steel hold down brackets designed for four-inch nylon straps with flat hooks, two on each side. The placement of the hold down brackets must comply with the Western style and multipurpose dump body currently in use by MoDOT.
B. A 10-gauge minimum stainless steel lift hook/bracket shall be installed on the front and rear face of the body at each upper corner to allow for easy handling when installing or removing spreader from the truck.

5. LIQUID CHEMICAL STORAGE

A. Two (2) side-mounted, minimum 135-gallon polyethylene reservoir tanks, one per side, shall be provided.
B. A minimum of a 3-inch top fill port with splash proof vent and a 3/4-inch suction port shall be molded into each tank.
C. Both tanks shall be plumbed together with a minimum 1-½" ID hose and a tee located at the left rear corner of the spreader.

6. CONSPICUITY

Spreader shall be outfitted with DOT-C2 11-inch red/7-inch white prismatic retro-reflective conspicuity tape meeting or exceeding FMVSS 108. Conspicuity tape shall be applied to the rear of the spreader body along the full width of the top edge, full length of the vertical edges, and full length of the sloped edges. Conspicuity

tape shall be applied continuously, and inset two inches from the edge of the rear face of the spreader body. Conspicuity tape shall be applied to within ½-inch of any obstacle in its path.

7. CONVEYOR

A. Conveyor box and floor shall be 7-gauge stainless steel.
B. The conveyor chain shall be a heavy-duty pintle chain, Drives D667X or equal. Crossbars shall be 1-1/2 inch x 1/4-inch x 18-inch minimum welded to the chain links on 4-1/2-inch centers.
C. Chain tensioner shall be screw type, spring loaded, on the front idler shaft.
D. A rear belt type bar wiper shall be provided.
E. Front idler shaft bearings shall have grease zerk lines plumbed to the rear of the body.
F. Front idler sprockets shall be 8-tooth.

8. CONVEYOR GEARBOX

A. The conveyor drive gearbox ratio shall be 50:1. Gearbox shall have hardened input and output shafts and a bronze bull gear.
B. The conveyor gearbox output shaft shall have 8-tooth sprockets.
C. The gearbox shall have a high torque, low speed, geroller type hydraulic motor installed. Motor shall be designed to operate effectively at a maximum system pressure of 2250 psi. Hydraulic motors designed to operate at a pressure above 2250 psi will not be acceptable.
D. Hydraulic motor shall have o-ring thread ports.

9. DISCHARGE GATE

An adjustable discharge gate shall be located at the rear of the body to properly adjust the flow of material to the spinner.

A. Maximum discharge gate opening shall be 11 inches high x 20 inches wide.
B. The discharge gate shall an adjustable stop to control the operating height of the gate. The stop shall allow the operator to replicate the correct operating height by lowering the gate with the screw jack until the discharge gate contacts the adjustable stop. Stop shall allow the operator to fully raise the gate to unload the spreader. Adjustable stops shall have an operating height minimum range of 2 inches through 6 inches. Adjustable stops shall require the use of hand tools to adjust.
C. The discharge gate and track shall be 7-gauge stainless steel.
D. The screw jack adjusting the discharge gate height shall have nylon U-joints and bushings with grease fittings on jack head.
E. The grease zerk on the jack shall be relocated to the centralized grease location as described in item F under the General Requirements section.

10. DROP CHUTE AND SPINNER

A. The entire drop chute and spinner assembly shall be made of a minimum of 12-gauge stainless steel.
B. The drop chute shall bolt to the long sills.

C. The chute shall be fully enclosed and include an operator-adjustable deflector at the bottom to change the flow of material from the middle of the chute to one side or the other.

D. The bottom of the chute shall have a hood with operator-adjustable material deflectors installed on each side and rear of the drop chute.

E. The spinner shall be securely mounted at the bottom of the chute. Spinner motor mounting brackets shall be a minimum of 7-gauge stainless steel.

F. The spinner shall be operated by a high torque, low speed geroller type hydraulic motor with o-ring thread ports.

G. The height of the spinner disk shall be adjustable with an ideal height of 18 inches above the ground.

H. Poly spinner disk shall be approximately 20 inches in diameter.

11. HYDRAULIC HOSES AND COUPLERS

A. All hydraulic hoses shall be rated for 3000 psi working pressure.

B. Hydraulic hoses shall be long enough to be routed from their respective connection point on the spreader to the male hydraulic couplers mounted in the left rear corner of the dump body.

C. Hoses shall be routed up to the upper left rear corner of the spreader body and secured at a point to allow the hoses to go over the side of the dump body and down to the male couplers at the left rear corner of the dump body.

D. The return circuit for the conveyor and spinner motor shall be “teed” together on the spreader and run together in a common return hose to the truck coupler.

E. Hydraulic hoses shall be sized as follows:

1. Conveyer hose shall be 3/4-inch ID with a female JIC swivel on one end, and a 3/4-inch male pipe on the other end. Hose shall have a 3/4-inch female FD45-1003-12-12 coupler attached.
2. Spinner hose shall be ½-inch ID with a female JIC swivel on one end and a ½-inch male pipe on the other end. Hose shall have a ½-inch female FD45-1003-8-10 coupler attached.

F. Spreader return hose shall be 1-inch ID with a female JIC swivel on one end and a 1-inch male pipe on the other end. Hose shall have a 1-inch female FD45-1003-16-16 coupler attached.

OPTIONS

1. **Spreader less installation**
   Spreader shipped to MoDOT location in lieu of installing spreader in truck. Price shall include shipping costs.

2. **Option for fold-up spinner chute**
   Specifications for a fold-up spinner chute configuration and its individual components shall be the same as the regular spinner chute unless otherwise specified.
   A. Chute shall fold up and to the left from the bottom of the material conveyor box.
   B. Spinner hose configuration shall consist of quick couplers to facilitate folding operation.

3. **Option for spreader body mounted casters**
   Casters to assist in centering the spreader when installing and removing.

4. **Option for painted steel spreader stand**
   Stand shall be permanently mounted to the spreader, and allow for installation of spreader in the truck, removal of spreader from the truck, and storage of the spreader without the use of additional tools or components.

   A. Stand shall be full length of the spreader.
   B. Stand shall be between 72” – 76” wide.
   C. Stand configuration at the rear of the spreader shall protect the spinner chute from damage in the event of a rear-end collision.
   D. All pivot points of the stand shall be greasable.
   E. Guide caster rollers on stand for ease of stand/spreader to slip in and out of dump bed.
   F. Spreader stand shall be manufactured in a way to center itself inside the dump body, preventing damage to the liquid saddle tanks during spreader installation.
   G. Stand must be painted black over one coat of primer.

5. **Option for painted steel spreader stand for towplow truck**
   Stand shall be permanently mounted to the spreader, and allow for installation of spreader in the truck, removal of spreader from the truck, and storage of the spreader without the use of additional tools or components.

   A. Stand shall be full length of the spreader.
   B. Stand shall be between 72” – 76” wide.
   C. Stand configuration at the rear of the spreader shall not interfere with the operation of an attached towplow.
   D. All pivot points of the stand shall be greasable.
   E. Guide caster rollers on stand for ease of stand/spreader to slip in and out of dump bed.
   F. Spreader stand shall be manufactured in a way to center itself inside the dump body, preventing damage to the liquid saddle tanks during spreader installation.
   G. Stand must be painted black over one coat of primer.

6. **Option for galvanized steel spreader stand**
   Specifications for a galvanized spreader stand shall meet the minimum requirements of sections A - F of the painted steel spreader stand Option 4.

7. **Option for galvanized steel spreader stand for towplow truck**
   Specifications for a galvanized spreader stand shall meet the minimum requirements of sections A - F of the painted steel spreader stand for towplow truck Option 5.

8. **Option for adjustable tie-down brackets**
   Provide adjustable tie-down brackets, two on each side of the spreader body. Brackets shall be a minimum of 10-gauge stainless steel and designed for four-inch nylon straps with flat hooks. Placement of the adjustable tie-downs shall comply with the western style and multipurpose dump bodies currently in use by MoDOT.

9. **Option for feeder sensor**
   Provide a feeder motor as described in Section 8 that also includes a feeder sensor.
   A. Sensor shall have sealed connections that meet ISO IP68 and NEMA 6 ratings
   B. Sensor shall be digital, and compatible with Certified Power GL400, ACS, and XDS systems; and Rexroth CS550 systems.

10. **Option to remove liquid chemical storage tanks**
    Provide a spreader without the items listed in Section 5 Liquid Chemical Storage

11. **Option for a V-chute in lieu of drop chute and spinner**
    Provide a V-chute installed on spreader to divert the material around the tongue of an attached towplow in lieu of the specified items in Section 10 Drop Chute and Spinner, and Section 11 Hydraulic Hoses and Couplers item E.2.

12. **Option for 450 gallon minimum liquid chemical storage tanks**
    Provide two (2) or four (4) liquid chemical storage tanks that have a combined minimum capacity of 450 gallons. Tanks shall still meet the requirements of Section 5 Liquid Chemical Storage items B and C.

Missouri Highways and Transportation Commission
Standard Bid/Proposal Provisions, General Terms and Conditions and Special Terms and Conditions

STANDARD SOLICITATION PROVISIONS

a. The solicitation for the procurement of the supplies referenced therein, to which these "Standard Bid Provisions, General Terms and Conditions and Special Terms and Conditions" are attached, is being issued under, and governed by, the provisions of Title 7 – Missouri Department of Transportation, Division 10 – Missouri Highways and Transportation Commission, Chapter 11 – Procurement of Supplies, of the Code of State Regulations. The Missouri Highways and Transportation Commission (**MHTC**), acting by and through its operating arm, the Missouri Department of Transportation (**MoDOT**), draws the Bidder's attention to said 7 CSR 10-11 for all the provisions governing solicitation and receipt of bids/quotes and the award of the contract pursuant to this solicitation.

b. All bids/quotes must be signed with the firm name and by a responsible officer or employee. Obligations assumed by such signature must be fulfilled.

GENERAL TERMS AND CONDITIONS

Definitions

Capitalized terms as well as other terms used but not defined herein shall have the meaning assigned to them in section 7 CSR 10-11.010 Definition of Terms.

Nondiscrimination

a. The Contractor shall comply with all state and federal statutes applicable to the Contractor relating to nondiscrimination, including, but not limited to, Chapter 213, RSMo; Title VI and Title VII of Civil Rights Act of 1964 as amended (42 U.S.C. Sections 2000d and 2000e, *et seq.*); and with any provision of the "Americans with Disabilities Act" (42 U.S.C. Section 12101, *et seq*).
b. Sanctions for Noncompliance: In the event of the Contractor's noncompliance with the nondiscrimination provisions of this contract, MHTC shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
    i. withholding of payments to the Contractor under the contract until the Contractor complies, and/or,
    ii. cancellation, termination or suspension of the contract, in whole or in part.

Contract/Purchase Order

a. By submitting a bid/quote, the Bidder agrees to furnish any and all equipment, supplies and/or services specified in the solicitation documents, at the prices quoted, pursuant to all requirements and specifications contained therein.
b. A binding contract shall consist of: (1) the solicitation documents, amendments thereto, and/or Best and Final Offer (BAFO) request(s) with any changes/additions, (2) the Contractor's bid response, and (3) the MHTC's acceptance of the bid by post-award contract or purchase order.
c. A notice of award does not constitute an authorization for shipment of equipment or supplies or a directive to proceed with services. Before providing equipment, supplies and/or services, the Contractor must receive a properly authorized notice to proceed and/or purchase order.

Applicable Laws and Regulations

a. The contract shall be construed according to the laws of the State of Missouri. The Contractor shall comply with all local, state, and federal laws and regulations related to the performance of the contract. The exclusive venue for any legal proceeding relating to or arising, out of the contract shall be in the Circuit Court of Cole County, Missouri.
b. The Contractor must be registered and maintain good standing with the Secretary of State of the State of Missouri, Missouri Department of Revenue, and other regulatory agencies, as may be required by law or regulations. Prior to the issuance of a purchase order and/or notice to proceed, the Contractor may be required to submit to MHTC a copy of their current Authority Certificate from the Secretary of State of the State of Missouri and/or a copy of their Certificate of No Tax Due from the Missouri Department of Revenue.
c. Prior to the issuance of a purchase order and/or notice to proceed, all **out-of-state** Contractors **providing services** within the state of Missouri must submit to MHTC a copy of their current Transient Employer Certificate from the Missouri Department of Revenue, in addition to a copy of their current Authority Certificate from the Secretary of State of the State of Missouri.

Executive Order:

The Contractor shall comply with all the provisions of Executive Order 07-13, issued by the Honorable Matt Blunt, Governor of Missouri, on the sixth (6^{th}) day of March, 2007. This Executive Order, which promulgates the State of Missouri's position to not tolerate persons who contract with the state engaging in or supporting illegal activities of employing individuals who are not eligible to work in the United States, is incorporated herein by reference and made a part of this Agreement.

1) "By signing this Agreement, the Contractor hereby certifies that any employee of the Contractor assigned to perform services under the contract is eligible and authorized to work in the United States in compliance with federal law."
2) In the event the Contractor fails to comply with the provisions of the Executive Order 07-13, or in the event the Commission has reasonable cause to believe that the contractor has knowingly employed individuals who are not eligible to work in the United States in violation of federal law, the Commission reserves the right to impose such contract sanctions as it may determine to be appropriate, including but not limited to contract cancellation, termination or suspension in whole or in part or both.
3) The Contractor shall include the provisions of this paragraph in every subcontract. The Contractor shall take such action with respect to any subcontract as the Commission may direct as a means of enforcing such provisions, including sanctions for noncompliance.

Preferences

a. In the evaluation of bids/quotes, preferences shall be applied in accordance with 7 CSR 10-11.020(7). Contractors should apply the same preferences in selecting subcontractors. The attached document entitled **"VENDOR INFORMATION AND PREFERENCE CERTIFICATION FORM"** must be completed and returned with the solicitation documents.

b. Bidders are encouraged to obtain minority business enterprise (MBE) and women business enterprise (WBE) participation in this work through the use of subcontractors, suppliers, joint ventures, or other arrangements that afford meaningful participation for M/WBEs. Bidders are encouraged to obtain 10% MBE and 5% WBE participation.

Cancellation of Contract

The MHTC may cancel the Contract at any time for a material breach of contractual obligations or for convenience by providing Contractor with written notice of cancellation. Should the MHTC exercise its right to cancel the contract for such reasons, cancellation will become effective upon the date specified in the notice of cancellation sent to the Contractor.

Bankruptcy or Insolvency

Upon filing for any bankruptcy or insolvency proceeding by or against the Contractor, whether voluntarily, or upon the appointment of a receiver, trustee, or assignee, for the benefit of creditors, the Commission reserves the right and sole discretion to either cancel the Agreement or affirm the Agreement and hold the Contractor responsible for damages.

Warranty

The Contractor expressly warrants that all equipment, supplies, and/or services provided shall: (1) conform to each and every specification, drawing, sample or other description which was furnished to or adopted by the MHTC, (2) be fit and sufficient for the purpose expressed in the solicitation documents, (3) be merchantable, (4) be of good materials and workmanship, and (5) be free from defect.

Status of Independent Contractor

The Contractor represents itself to be an independent Contractor offering such services to the general public and shall not represent itself or its employees to be an employee of the MHTC. Therefore, the Contractor shall assume all legal and financial responsibility for taxes, FICA, employee fringe benefits, workers' compensation, employee insurance, minimum wage requirements, overtime, etc., and agrees to indemnify, save and hold the MHTC, its officers, agents and employees harmless from and against any and all losses (including attorney fees) and damage of any kind related to such matters.

Non-Waiver

If one of the parties agrees to waive its right to enforce any term of this Contract, that party does not waive its right to enforce such term at any other time or to enforce any or all other terms of this Contract.

Indemnification

The Contractor shall defend, indemnify and hold harmless MHTC, including its members and department employees, from any claim or liability whether based on a claim for damages to real or personal property or to a person for any matter relating to or arising out of the Contractor's performance of its obligations under the contract awarded pursuant to this solicitation.

PRICING PAGES
Material Spreader Equipment
RFB 3-160824RW

10' Auger Material Spreader

Make _____ *Model* _____ *Unit Cost* $ _____

		Unit Cost
Option 1	Less Installation	$ _____
Option 2	Fold-Up Spinner Chute	$ _____
Option 3	Spreader Body Mounted Casters	$ _____
Option 4	Painted Steel Spreader Stand	$ _____
Option 5	Galvanized Steel Spreader Stand	$ _____
Option 6	Adjustable Tie-Down Brackets	$ _____
Option 7	Auger Sensor	$ _____
Option 8	Less Liquid Chemical Storage Tanks	$ _____
Option 9	Dual Auger Configuration	$ _____

Delivery will be made approximately _____ days after receipt of order (ARO)

Company _____

Signature _____

PRICING PAGES
Material Spreader Equipment
RFB 3-160824RW

13' Auger Material Spreader

Make _____ *Model* _____ *Unit Cost* $ _____

		Unit Cost
Option 1	Less Installation	$ _____
Option 2	Fold-Up Spinner Chute	$ _____
Option 3	Spreader Body Mounted Casters	$ _____
Option 4	Painted Steel Spreader Stand	$ _____
Option 5	Panted Steel Spreader Stand for Towplow Truck	$ _____
Option 6	Galvanized Steel Spreader Stand	$ _____
Option 7	Galvanized Steel Spreader Stand for Towplow Truck	$ _____
Option 8	Adjustable Tie-Down Brackets	$ _____
Option 9	Auger Sensor	$ _____
Option 10	Less Chemical Storage Tanks	$ _____
Option 11	V-Chute in Lieu of Drop Chute and Spinner	$ _____
Option 12	Dual Auger Configuration	$ _____

Delivery will be made approximately _____ days after receipt of order (ARO)

Company _____

Signature _____

PRICING PAGES
Material Spreader Equipment
RFB 3-160824RW

16' Auger Material Spreader

Make _____ *Model* _____ *Unit Cost* $ _____

		Unit Cost
Option 1	Less Installation	$ _____
Option 2	Fold-Up Spinner Chute	$ _____
Option 3	Spreader Body Mounted Casters	$ _____
Option 4	Painted Steel Spreader Stand	$ _____
Option 5	Panted Steel Spreader Stand for Towplow Truck	$ _____
Option 6	Galvanized Steel Spreader Stand	$ _____
Option 7	Galvanized Steel Spreader Stand for Towplow Truck	$ _____
Option 8	Adjustable Tie-Down Brackets	$ _____
Option 9	Auger Sensor	$ _____
Option 10	Less Chemical Storage Tanks	$ _____
Option 11	V-Chute in Lieu of Drop Chute and Spinner	$ _____
Option 12	Dual Auger Configuration	$ _____
Option 13	450 Gallon Minimum Liquid Chemical Storage Tank	$ _____

Delivery will be made approximately _____ days after receipt of order (ARO)

Company _____

Signature _____

PRICING PAGES
Material Spreader Equipment
RFB 3-160824RW

10' Drag-Chain Material Spreader

Make _____ *Model* _____ *Unit Cost* $ _____

		Unit Cost
Option 1	Less Installation	$ _____
Option 2	Fold-Up Spinner Chute	$ _____
Option 3	Spreader Body Mounted Casters	$ _____
Option 4	Painted Steel Spreader Stand	$ _____
Option 5	Galvanized Steel Spreader Stand	$ _____
Option 6	Adjustable Tie-Down Brackets	$ _____
Option 7	Feed Sensor	$ _____
Option 8	Less Liquid Chemical Storage Tanks	$ _____

Company _____

Signature _____

PRICING PAGES
Material Spreader Equipment
RFB 3-160824RW

13' Drag-Chain Material Spreader

Make _____ *Model* _____ *Unit Cost* $ _____

		Unit Cost
Option 1	Less Installation	$ _____
Option 2	Fold-Up Spinner Chute	$ _____
Option 3	Spreader Body Mounted Casters	$ _____
Option 4	Painted Steel Spreader Stand	$ _____
Option 5	Panted Steel Spreader Stand for Towplow Truck	$ _____
Option 6	Galvanized Steel Spreader Stand	$ _____
Option 7	Galvanized Steel Spreader Stand for Towplow Truck	$ _____
Option 8	Adjustable Tie-Down Brackets	$ _____
Option 9	Feed Sensor	$ _____
Option 10	Less Chemical Storage Tanks	$ _____
Option 11	V-Chute in Lieu of Drop Chute and Spinner	$ _____

Delivery will be made approximately _____ days after receipt of order (ARO)

Company _____

Signature _____

PRICING PAGES
Material Spreader Equipment
RFB 3-160824RW

16' Drag-Chain Material Spreader

Make _____ *Model* _____ *Unit Cost* $ _____

		Unit Cost
Option 1	Less Installation	$ _____
Option 2	Fold-Up Spinner Chute	$ _____
Option 3	Spreader Body Mounted Casters	$ _____
Option 4	Painted Steel Spreader Stand	$ _____
Option 5	Panted Steel Spreader Stand for Towplow Truck	$ _____
Option 6	Galvanized Steel Spreader Stand	$ _____
Option 7	Galvanized Steel Spreader Stand for Towplow Truck	$ _____
Option 8	Adjustable Tie-Down Brackets	$ _____
Option 9	Feed Sensor	$ _____
Option 10	Less Chemical Storage Tanks	$ _____
Option 11	V-Chute in Lieu of Drop Chute and Spinner	$ _____
Option 12	450 Gallon Minimum Liquid Chemical Storage Tank	$ _____

Delivery will be made approximately _____ days after receipt of order (ARO)

Company _____

Signature _____