

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-06 / 10' Stainless

**HEAVY DUTY SPREADER
HOPPER TYPE
FOR DUMP BED MOUNTING**

GENERAL: This spreader shall be capable of spreading a uniform pattern at all widths from four feet to forty feet wide, materials such as sand, salt, chips and other like materials. This spreader must be completely assembled, serviced and ready to operate when it is installed in a State owned dump truck. This spreader must be new and the manufacturer's latest current model complete with all standard accessories and warranty for the make and model indicated below.

For Comparison Only: Monroe Model MV-120-82-50, 201, 10/7

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

SUPPLIER'S PROPOSED SPREADER: MAKE: _____ MODEL: _____

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>HOPPER BODY:</u>	"V" Type Box, all Welded 201	
<u>DUMP BODY & MOUNTING:</u>		
	10 feet, approx. 5.2 cubic yards capacity	
	4 adjustable hold-down clamps or 2 – 3" x 12" HD ratchet straps	
<u>DISCHARGE CHUTE:</u>	201 stainless steel 10 gauge, rearward end mounts. Adjustable height extension with SS bolts NOTE: Chute to be equipped with diverter Flap to allow unloading material out Front or rear of chute.	
<u>COMPONENTS:</u>	Mounting brackets	

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	All necessary hardware to be stainless steel	_____
<u>OVER-ALL-HEIGHT:</u>	50 " above dump bed floor	_____
<u>OUTSIDE WIDTH:</u>	82" maximum	_____
<u>SILLS:</u>	201 stainless steel (7 gauge)	_____
<u>BOTTOM EDGE:</u>		
	Flanged 90°	_____
	Rest on cross sill supports	_____
<u>BOTTOM:</u>	201 stainless steel (10 gauge)	_____
<u>FRONT & REAR:</u>	Rollover lips	_____
<u>WIPERS:</u>	Front & rear required	_____
<u>CROSS SILLS:</u>	201 stainless steel welded to sills and side supports (10 gauge)	_____
<u>SIDE SUPPORTS:</u>	201 stainless steel welded to sides, sills and cross sills (10 gauge)	_____
<u>SIDES:</u>	201 stainless steel 45°, 2" double crimp top edge (10 gauge)	_____
<u>END GATES:</u>	201 stainless steel, 2" double crimp top edge (10 gauge)	_____

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL.</u>
<u>REAR END GATE:</u>	Welded into position	_____
<u>LIFTING LOOPS:</u>	4 each, 1 near each outside corner	_____
<u>FEED GATE ASSEMBLY:</u>	201 stainless steel opening 18"x12" (10 gauge)	_____
<u>TAILGATE LATCHING DEVICE:</u>	Cross channel with latch pins and mounting brackets.	_____
<u>CONTROL:</u>	Jack-type with handle on curb side	_____
<u>GATE OPENING:</u>	201 stainless steel sides (10 gauge)	_____
<u>CONVEYOR:</u>		
Drag Chain	10-12' conveyor x 24" width self cleaning drag chain.	_____
Conveyor Drive, Idler & Snubber	All must be self cleaning	_____
Idler Adjusting Pulleys	Sealed anti-friction bearings	_____
Gear Box	50:1 worm drive cast iron gearbox or 6:1 spur gear	_____
Edge Seals	Shall form a labyrinth seal with conveyor bottom edge	_____

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>NOTE:</u> Conveyor Bottom	201 stainless steel slatted type (10 gauge)	_____
Discharge Gate	Adjustable screw jack type	_____
Feed Gate Opening	Maximum 12" high by 18" wide	_____
<u>DISTRIBUTOR SPINNER ASSEMBLY:</u>		
Type	Tip-up Style without the use of special tools / with diverter chute	_____
Controlled Spread	From 4' to 40'	_____
Baffles	3 section, 201 stainless steel (10 gauge) adjustable	_____
Disc	201 stainless steel (10 gauge) 20", with 6 SS removable fins	_____
<u>Warranty:</u> Manufacturer's standard with coverage complete on all components.		
<u>OPTION 1:</u> Screens	Top mounted screens & I-beam	\$ _____
<u>OPTION 2:</u> Installation	In the state of <u>Oklahoma</u> by a <u>qualified up fitter</u> . To include hoses and quick couplers 1 each, 5602-12-12S, 5601-12- 12S, and 5602-16-16S	\$ _____

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>OPTION 3:</u> Lights	LED Stop, Tail & Turn Lights including any marker lights needed	\$_____
<u>OPTION 4:</u> Grease Fitting	Extended Grease fitting to front of Spreader to grease pillow block without removing spreader from dump body.	\$_____
<u>OPTION 5:</u> Inverted V	Shield to cover pintle chain	\$_____
<u>OPTION 6:</u> SINGLE AUGER CONVEYOR	Auger screw in lieu of pintle chain Note: Screens required	\$_____
<u>OPTION 7:</u> Larger Capacity	Increase side height to 62"	\$_____
<u>OPTION 8:</u> Lights 2	Two (2) Strobes Star model 240SFD Installed Upper rear one each side & Two (2) work lights installed one shining on pintle chain and one shining on spinner chute.	\$_____

Total weight of this complete unit: **2175 lbs (approximate)** _____

Supplier must furnish this unit complete with all components including necessary hardware, hose, couplers, lines, fittings, etc.

NOTE:

Inspection and/or correction of items listed on the inspection and pre-delivery form are considered a part of this specification; also considered part of selling dealer's new equipment preparation and handling cost, if he contracts the new equipment pre-delivery service inspection out to another authorized dealer, the selling dealer is still liable to all terms of the specification and purchase order except for those corrective operations previously

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established as eligible for warranty reimbursement according to the current warranty and policy procedure manual.

Special Requirements:

The supplier shall provide to the receiving division, factory spreader specifications and dimensions and request bed dimensions prior to ordering spreaders.

PAINT: (Non Stainless Components Only)

All exposed metal shall be Powder Coated.

Specify color used _____

WARRANTY: One Year / From date of delivery.

SERVICE AND PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

MANUALS AND PARTS BOOK:

Supplier shall furnish one (1) Operators Instruction Manual for each machine. In addition, one (1) Parts Book and one (1) Repair manual shall be furnished to each agency purchasing one or more machines.

SPECIFICATIONS:

Each supplier shall submit complete manufacturer's specification in duplicate and shall submit all other data to show that his proposal meets these specifications.

COMPLIANCE:

Supplier shall furnish a statement in writing on the bid or by attached letter, and in the Supplier's Statement below, if his equipment proposed strictly meets these specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

DEALER: _____ PHONE: _____

SIGNATURE: _____ DATE: _____

ADDRESS: _____

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**HEAVY DUTY SPREADER
HOPPER TYPE
FOR DUMP BED MOUNTING**

GENERAL: This spreader shall be capable of spreading a uniform pattern at all widths from four feet to forty feet wide, materials such as sand, salt, chips and other like materials. This spreader must be completely assembled, serviced and ready to operate when it is installed in a State owned dump truck. This spreader must be new and the manufacturer's latest current model complete with all standard accessories and warranty for the make and model indicated below.

For Comparison Only: Monroe Model MV-120-82-50, MS, 10/7

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

SUPPLIER'S PROPOSED SPREADER: MAKE: _____ MODEL: _____

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>HOPPER BODY:</u>	"V" type box, all welded A569 hi-grade steel	_____
<u>DUMP BODY & MOUNTING:</u>	10 foot, approx. 5.2 cubic yards capacity	_____
<u>COMPONENTS:</u>	Mounting brackets	_____
<u>OVER-ALL HEIGHT:</u>	50 inches above dump bed floor	_____
<u>OUTSIDE WIDTH:</u>	82 inches	_____
<u>SILLS:</u>	7 gauge steel	_____
<u>BOTTOM EDGE:</u>	Flanged 90° Rest on cross sill supports	_____
<u>BOTTOM:</u>	7 gauge steel	_____

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>FRONT & REAR:</u>	Rollover lips	_____
<u>WIPERS:</u>	Front & rear required	_____
<u>CROSS SILLS:</u>	HD steel welded to sills and side supports	_____
<u>SIDE SUPPORTS:</u>	10 gauge steel welded to sides, sills and cross sills	_____
<u>SIDES:</u>	10 gauge A569 hi-grade steel set 45°, 2" double crimped top edge	_____
<u>END GATES:</u>	10 gauge A569 hi-grade steel, 2" double crimped top edge	_____
<u>LIFTING LOOPS:</u>	4 each, 1 near each outside corner	_____
<u>REAR END GATE:</u>	Welded into position	_____
<u>FEEDGATE ASSEMBLY:</u>	10 gauge steel opening 18" x 12"	_____
<u>TAILGATE LATCHING DEVICE:</u>	Cross channel w/latch pins and mounting brackets	_____
<u>CONTROL:</u>	Jack type w/handle on curb side	_____
<u>GATE OPENING:</u>	Cast iron sides or 7 gauge formed steel sides	_____

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>CONVEYOR-DRAG CHAIN:</u>		
<u>Width:</u>	24" self-cleaning drag chain	
<u>Conveyor Drive, Idler & Snubber</u>	All must be self cleaning	
<u>Idler Adjusting Pulleys</u>	Sealed anti-friction bearings	
<u>Gear Box</u>	50:1 worm type cast iron gear box or 6:1 Spur gear	
<u>Edge Seals</u>	Shall form a labyrinth seal w/conveyor bottom edge	
<u>Note:</u> Conveyor Bottom	Must be replaceable flat 7 gauge floor.	
<u>Discharge Gate</u>	Adjustable screw jack type	
<u>Feed Gate Opening</u>	Maximum 12" high by 18" wide	
<u>DISTRIBUTOR SPINNER ASSEMBLY:</u>		
<u>Disc</u>	20", w/6 removable fins	
<u>Type</u>	Tip-up Style without the use of special tools / with diverter chute	

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>Controlled Spread</u>	From 4' to 40'	_____
<u>Baffles</u>	3 section	_____
<u>Hydraulic Power</u>	Complete w/2 motors Note: ½" NPT fittings or Must supply adapters	_____
<u>WARRANTY:</u>	Manufacturer's standard w/coverage complete on all components	_____
<u>OPTION 1:</u> Screens	Top mounted screens & beam	\$ _____
<u>OPTION 2:</u> Installation	In the state of <u>Oklahoma</u> by a <u>qualified up fitter</u> . To include hoses and quick couplers 1 each, 5602-12-12S, 5601-12-12S, and 5602-16-16S	\$ _____
<u>OPTION 3:</u> Lights	LED Stop, Tail & Turn Lights including any marker lights needed	\$ _____
<u>OPTION 4:</u> Grease Fitting	Extended Grease fitting to front of Spreader to grease pillow block without removing spreader from dump body.	\$ _____
<u>OPTION 5:</u> Inverted V	Shield to cover pintle chain to reduce download pressure	\$ _____
<u>OPTION 6:</u> Larger Capacity	Increase side height to 62"	\$ _____
<u>OPTION 7:</u>	Two (2) Strobes Star model	

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
Lights 2	240SFD Installed Upper rear one each side & Two (2) work lights installed one shining on pintle chain and one shining on spinner chute.	\$ _____
<u>OPTION 8:</u> Spray liner	Hopper, Top of Sills, Inside of Hopper Body, and Inverted V (if installed) to be Coated with spray on Bed Liner Example: Bullet Linings, Rhino Lining, or Equal	\$ _____

Total weight of this complete unit: 2175 lbs _____

Supplier must furnish this unit complete with all components including necessary hardware, hoses, couplers, lines, fittings, etc.

NOTE:

Inspection and/or correction of items listed on the inspection and pre-delivery form are considered a part of this specification; also considered part of selling dealers new equipment preparation and handling cost, if he contracts the new equipment pre-delivery service inspection out to another authorized dealer, the selling dealer is still liable to all terms of the specification and purchase order, except for those corrective operations previously established as eligible for warranty reimbursement according to the current warranty and policy procedure manual.

MANUALS AND PARTS BOOKS:

Service	One (1) per machine	_____
Operator's Manual	One (1) per machine	_____
Parts Book	One (1) per machine	_____

SPECIAL REQUIREMENTS:

The supplier shall provide at his own expense, a trained service representative to instruct the mechanic and operators in the care and operation of this unit. The State of Oklahoma will assign one mechanic and two operators to receive the training at the time the machine is put into actual operation.

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PAINT:

All exposed metal shall be Powder Coated.

Specify color used _____

SERVICE AND PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

INSPECTION AND DELIVERY OF EQUIPMENT MUST COMPLY WITH SUPPLIERS INSTRUCTION SHEET.

COMPLIANCE:

Supplier shall furnish a statement in writing on the bid or by attached letter and in the suppliers statement below if his equipment strictly meets these specifications. If not, he shall list each variation thereof.

SUPPLIERS STATEMENT: (EQUIPMENT PROPOSED COMPLIES) YES: __NO: __

DEALER: _____ **DATE:** _____

SIGNATURE: _____ **PHONE:** _____

ADDRESS: _____

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**HEAVY DUTY SPREADER
HOPPER TYPE
FOR DUMP BED MOUNTING**

GENERAL: This spreader shall be capable of spreading a uniform pattern at all widths from four feet to forty feet wide, materials such as sand, salt, chips and other like materials. This spreader must be completely assembled, serviced and ready to operate when it is installed in a State owned dump truck. This spreader must be new and the manufacturer's latest current model complete with all standard accessories and warranty for the make and model indicated below.

For Comparison Only: Monroe Model MV-168-82-56, MS, 10/7

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

SUPPLIER'S PROPOSED SPREADER: MAKE: _____ MODEL: _____

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>HOPPER BODY:</u>	"V" type box, all welded A569 hi-grade steel	_____
<u>DUMP BODY & MOUNTING:</u>	14 foot, approx. 9 cubic yards capacity with a 2 foot setback. Slope front as per doghouse requirements in reference to sloped front dimension sheet.	_____
<u>COMPONENTS:</u>	Mounting brackets	_____
<u>OVER-ALL HEIGHT:</u>	56 inches above dump bed floor	_____
<u>OUTSIDE WIDTH:</u>	82 inches	_____
<u>SILLS:</u>	7 gauge steel	_____
<u>BOTTOM EDGE:</u>	Flanged 90° Rest on cross sill supports	_____

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>BOTTOM:</u>	7 gauge steel	_____
<u>FRONT & REAR:</u>	Rollover lips	_____
<u>WIPERS:</u>	Front & rear required	_____
<u>CROSS SILLS:</u>	HD steel welded to sills and side supports	_____
<u>SIDE SUPPORTS:</u>	10 gauge steel welded to sides, sills and cross sills	_____
<u>SIDES:</u>	10 gauge A569 hi-grade steel set 45°, 2" double crimped top edge	_____
<u>END GATES:</u>	10 gauge A569 hi-grade steel, 2" double crimped top edge	_____
<u>LIFTING LOOPS:</u>	4 each, 1 near each outside corner	_____
<u>REAR END GATE:</u>	Welded into position	_____
<u>FEEDGATE ASSEMBLY:</u>	10 gauge steel opening 18" x 12"	_____
<u>TAILGATE LATCHING DEVICE:</u>	Cross channel w/latch pins and mounting brackets	_____
<u>CONTROL:</u>	Jack type w/handle on curb side	_____
<u>GATE OPENING:</u>	Cast iron sides or 7 gauge	_____

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	formed steel sides	_____
<u>CONVEYOR-DRAG CHAIN:</u>		
<u>Width:</u>	24" self-cleaning drag chain	_____
<u>Conveyor Drive, Idler & Snubber</u>	All must be self cleaning	_____
<u>Idler Adjusting Pulleys</u>	Sealed & greasable anti-friction bearings	_____
<u>Gear Box</u>	50.1 worm type cast iron gear box or 6:1 spur gear	_____
<u>Edge Seals</u>	Shall form a labyrinth seal w/conveyor bottom edge	_____
<u>Note:</u> Conveyor Bottom	Must be replaceable flat 7 gauge floor.	_____
<u>Discharge Gate</u>	Adjustable screw jack type	_____
<u>Feed Gate Opening</u>	Maximum 12" high by 18" wide	_____
<u>DISTRIBUTOR SPINNER ASSEMBLY:</u>		
<u>Disc</u>	20", w/6 removable fins	_____
<u>Type</u>	Tip-up Style without the use of special tools / with diverter	

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	chute	_____
<u>Controlled Spread</u>	From 4' to 40'	_____
<u>Baffles</u>	3 section	_____
<u>Hydraulic Power</u>	Complete w/2 motors Note: ½" NPT fittings or Must supply adapters	_____
<u>WARRANTY:</u>	Manufacturer's standard w/coverage complete on all components	_____
<u>OPTION 1:</u> Screens	Top mounted screens & beam	\$ _____
<u>OPTION 2:</u> Installation	In the state of <u>Oklahoma</u> by a <u>qualified up fitter</u> . To include hoses and quick couplers 1 each, 5602-12-12S, 5601-12- 12S, and 5602-16-16S	\$ _____
<u>OPTION 3:</u> Lights	LED Stop, Tail & Turn Lights including any marker lights needed	\$ _____
<u>OPTION 4:</u> Grease Fitting	Extended Grease fitting to front of Spreader to grease pillow block without removing spreader from dump body.	\$ _____
<u>OPTION 5:</u> Inverted V	Shield to cover pintle chain to reduce download pressure.	\$ _____
<u>OPTION 6:</u>		

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
Larger Capacity	Increase side height to 62"	\$
<u>OPTION 7:</u> Lights 2	Two (2) Strobes Star model 240SFD Installed Upper rear one each side & Two (2) work lights installed one shining on pintle chain and one shining on spinner chute.	\$
<u>OPTION 8:</u> Spray liner	Hopper, Top of Sills, Inside of Hopper Body, and Inverted V (if installed) to be Coated with spray on Bed Liner Example: Bullet Linings, Rhino Lining, or Equal	\$

Total weight of this complete unit: 2175 lbs (approximate) _____

Supplier must furnish this unit complete with all components including necessary hardware, hoses, couplers, lines, fittings, etc.

NOTE:

Inspection and/or correction of items listed on the inspection and pre-delivery form are considered a part of this specification; also considered part of selling dealers new equipment preparation and handling cost, if he contracts the new equipment pre-delivery service inspection out to another authorized dealer, the selling dealer is still liable to all terms of the specification and purchase order, except for those corrective operations previously established as eligible for warranty reimbursement according to the current warranty and policy procedure manual.

MANUALS AND PARTS BOOKS:

Service	One (1) per machine	_____
Operator's Manual	One (1) per machine	_____
Parts Book	One (1) per machine	_____

SPECIAL REQUIREMENTS:

The supplier shall provide at his own expense, a trained service representative to instruct the mechanic and operators in the care and operation of this unit. The State of Oklahoma will assign one mechanic and two operators to receive the training at the time the machine is put into actual operation.

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15-06

PAINT:

All exposed metal shall be Powder Coated.

Specify color used _____

SERVICE AND PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

INSPECTION AND DELIVERY OF EQUIPMENT MUST COMPLY WITH SUPPLIERS INSTRUCTION SHEET.

COMPLIANCE:

Supplier shall furnish a statement in writing on the bid or by attached letter and in the suppliers statement below if his equipment strictly meets these specifications. If not, he shall list each variation thereof.

SUPPLIERS STATEMENT: (EQUIPMENT PROPOSED COMPLIES) YES: __ NO: __

DEALER: _____ **DATE:** _____

SIGNATURE: _____ **PHONE:** _____

ADDRESS: _____

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EQUIPMENT SPECIFICATION

15-07 / 13' Stainless

**HEAVY DUTY SPREADER
HOPPER TYPE
FOR DUMP BED MOUNTING**

GENERAL: This spreader shall be capable of spreading a uniform pattern at all widths from four feet to forty feet wide, materials such as sand, salt, chips and other like materials. This spreader must be completely assembled, serviced and ready to operate when it is installed in a State owned dump truck. This spreader must be new and the manufacturer's latest current model complete with all standard accessories and warranty for the make and model indicated below.

For Comparison Only: Monroe Model MV-156-82-56, 201, 10/7

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

SUPPLIER'S PROPOSED SPREADER: MAKE: _____ MODEL: _____

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>HOPPER BODY:</u>	"V" Type Box, all Welded 201 stainless steel (10 gauge)	_____
<u>DUMP BODY & MOUNTING:</u>		
	13 feet, approx. 9 cubic yards capacity with a 2 foot setback. Slope front as per doghouse requirements in reference to sloped front dimension sheet.	_____
	4 adjustable hold-down clamps or 2 – 3" x 12' HD ratchet straps	_____
<u>DISCHARGE CHUTE:</u>	201 stainless steel 10 gauge, rearward end mounts. Adjustable height extension with SS bolts	_____
	NOTE: Chute to be equipped with diverter Flap to allow unloading material out Front or rear of chute.	

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>COMPONENTS:</u>	Mounting brackets	_____
	All necessary hardware to be stainless steel	_____
<u>OVER-ALL-HEIGHT:</u>	56 " above dump bed floor	_____
<u>OUTSIDE WIDTH:</u>	82" maximum	_____
<u>SILLS:</u>	201 stainless steel (7 gauge)	_____
<u>BOTTOM EDGE:</u>		
	Flanged 90°	_____
	Rest on cross sill supports	_____
<u>BOTTOM:</u>	201 stainless steel (10 gauge)	_____
<u>FRONT & REAR:</u>	Rollover lips	_____
<u>WIPERS:</u>	Front & rear required	_____
<u>CROSS SILLS:</u>	201 stainless steel welded to sills and side supports (10 gauge)	_____
<u>SIDE SUPPORTS:</u>	201 stainless steel welded to sides, sills and cross sills (10 gauge)	_____
<u>SIDES:</u>	201 10 gauge stainless steel 45°, 2" double crimped top edge	_____

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>END GATES:</u>	201 10 gauge stainless steel, 2" double crimped top edge	
<u>REAR END GATE:</u>	Welded into position	
<u>LIFTING LOOPS:</u>	4 each, 1 at or near each outside corner	
<u>FEED GATE ASSEMBLY:</u>	201 stainless steel opening 18"x12" (10 gauge)	
<u>TAILGATE LATCHING DEVICE:</u>	Cross channel with latch pins and mounting brackets.	
<u>CONTROL:</u>	Jack-type with handle on curb side	
<u>GATE OPENING:</u>	201 stainless steel sides (10 gauge)	
<u>CONVEYOR:</u>		
Drag Chain	Approximately 11' conveyor x 24" width self cleaning drag chain. Note: the chain length will be determined with the slope front dimension sheet	
Conveyor Drive, Idler & Snubber	All must be self cleaning	
Idler Adjusting Pulleys	Sealed anti-friction bearings	
Gear Box	50.1 worm drive cast iron	

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15-07 / 13' Stainless

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	gearbox or 6:1 spur gear	_____

Edge Seals	Shall form a labyrinth seal with conveyor bottom edge	_____

<u>NOTE:</u> Conveyor Bottom	201 stainless steel slatted type (10 gauge)	_____

Discharge Gate	Adjustable screw jack type	_____

Feed Gate Opening	Maximum 12" high by 18" wide	_____

**DISTRIBUTOR
SPINNER ASSEMBLY:**

Disc	201 stainless steel (10 gauge) 20", with 6 SS removable fins	_____

<u>Type</u>	Tip-up Style without the use of special tools / with diverter chute	_____

Controlled Spread	From 4' to 40'	_____

Baffles	3 section, 201 stainless steel (10 gauge) adjustable	_____

Hydraulic Power	Complete w/2 motors Note: ½" NPT fittings or Must supply adapters	_____

Warranty:

Manufacturer's standard with coverage complete on all components.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-07 / 13' Stainless

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>OPTION 1:</u> Screens	Top mounted screens & beam	\$ _____
<u>OPTION 2:</u> Installation	In the state of Oklahoma by a qualified up fitter. To include hoses and quick couplers 1 each, 5602-12-12S, 5601-12-12S, and 5602-16-16S	\$ _____
<u>OPTION 3:</u> Lights	LED Stop, Tail & Turn Lights including any marker lights needed	\$ _____
<u>OPTION 4:</u> Grease Fitting	Extended Grease fitting to front of Spreader to grease pillow block without removing spreader from dump body.	\$ _____
<u>OPTION 5:</u> Inverted V	Shield to cover pintle chain to reduce download pressure.	\$ _____
<u>OPTION 6:</u> SINGLE AUGER CONVEYOR	Auger screw in lieu of pintle chain Note: Screens required	\$ _____

Total weight of this complete unit: 2600 lbs (approximate) _____

Supplier must furnish this unit complete with all components including necessary hardware, hose, couplers, lines, fittings, etc.

NOTE:

Inspection and/or correction of items listed on the inspection and pre-delivery form are considered a part of this specification; also considered part of selling dealer's new equipment preparation and handling cost, if he contracts the new equipment pre-delivery service inspection out to another authorized dealer, the selling dealer is still liable to all terms of the specification and purchase order except for those corrective operations previously established as eligible for warranty reimbursement according to the current warranty and policy procedure manual.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-07 / 13' Stainless

Special Requirements:

The supplier shall provide to the receiving division, factory spreader specifications and dimensions and request bed dimensions prior to ordering spreaders.

PAINT: (Non Stainless Components Only)

All exposed metal shall be Powder Coated.

Specify color used _____

WARRANTY: One Year / From date of delivery.

SERVICE AND PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

MANUALS AND PARTS BOOK:

Supplier shall furnish one (1) Operators Instruction Manual for each machine. In addition, one (1) Parts Book and one (1) Repair manual shall be furnished to each Division purchasing one or more machines.

SPECIFICATIONS:

Each supplier shall submit complete manufacturer's specification in duplicate and shall submit all other data to show that his proposal meets these specifications.

COMPLIANCE:

Supplier shall furnish a statement in writing on the bid or by attached letter, and in the Supplier's Statement below, if his equipment proposed strictly meets these specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

DEALER: _____ PHONE: _____

SIGNATURE: _____ DATE: _____

ADDRESS: _____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-07 / 14' Stainless

**HEAVY DUTY SPREADER
HOPPER TYPE
FOR DUMP BED MOUNTING**

GENERAL: This spreader shall be capable of spreading a uniform pattern at all widths from four feet to forty feet wide, materials such as sand, salt, chips and other like materials. This spreader must be completely assembled, serviced and ready to operate when it is installed in a State owned dump truck. This spreader must be new and the manufacturer's latest current model complete with all standard accessories and warranty for the make and model indicated below.

For Comparison Only: Monroe Model MV-168-82-56, 201,10/7

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

SUPPLIER'S PROPOSED SPREADER: MAKE: _____ MODEL: _____

	MINIMUM REQUIREMENTS	SUPPLIER'S PROPOSAL
<u>HOPPER BODY:</u>	"V" Type Box, all Welded 201 stainless steel (10 gauge)	_____
<u>DUMP BODY & MOUNTING:</u>		
	14 feet, approx. 9 cubic yards capacity with a 2 foot setback. Slope front as per doghouse requirements in reference to sloped front dimension sheet.	_____
	4 adjustable hold-down clamps or 2 – 3" x 12' HD ratchet straps	_____
<u>DISCHARGE CHUTE:</u>	201 stainless steel 10 gauges, rearward end mounts. Adjustable height extension with SS bolts NOTE: Chute to be equipped with diverter Flap to allow unloading material out Front or rear of chute.	_____
<u>COMPONENTS:</u>	Mounting brackets	_____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-07 / 14' Stainless

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	All necessary hardware to be stainless steel	_____
<u>OVER-ALL-HEIGHT:</u>	56 " above dump bed floor	_____
<u>OUTSIDE WIDTH:</u>	82" maximum	_____
<u>SILLS:</u>	201 stainless steel (7 gauge)	_____
<u>BOTTOM EDGE:</u>		
	Flanged 90°	_____
	Rest on cross sill supports	_____
<u>BOTTOM:</u>	201 stainless steel (10 gauge)	_____
<u>FRONT & REAR:</u>	Rollover lips	_____
<u>WIPERS:</u>	Front & rear required	_____
<u>CROSS SILLS:</u>	201 stainless steel welded to sills and side supports (10 gauge)	_____
<u>SIDE SUPPORTS:</u>	201 stainless steel welded to sides, sills and cross sills (10 gauge)	_____
<u>SIDES:</u>	201 10 gauge stainless steel 45°, 2" double crimped top edge	_____
<u>END GATES:</u>	201 10 gauge stainless steel 2"	_____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-07 / 14' Stainless

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	double crimped top edge	_____

<u>REAR END GATE:</u>	Welded into position	_____

<u>LIFTING LOOPS:</u>	4 each, 1 at or near each outside corner	_____

<u>FEED GATE ASSEMBLY:</u>	201 stainless steel opening 18"x12" (10 gauge)	_____

<u>TAILGATE LATCHING DEVICE:</u>	Cross channel with latch pins and mounting brackets.	_____

<u>CONTROL:</u>	Jack-type with handle on curb side	_____

<u>GATE OPENING:</u>	201 stainless steel sides (10 gauge)	_____

<u>CONVEYOR:</u>		

Drag Chain	Approximately 12' conveyor x 24" width self cleaning drag chain. Note: the chain length will be determined with the slope front dimension sheet.	_____

Conveyor Drive, Idler & Snubber	All must be self cleaning	_____

Idler Adjusting Pulleys	Sealed anti-friction bearings	_____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-07 / 14' Stainless

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
Gear Box	50.1 worm drive cast iron gearbox or 6:1 spur gear	_____
Edge Seals	Shall form a labyrinth seal with conveyor bottom edge	_____
<u>NOTE:</u> Conveyor Bottom	201 stainless steel slatted type (10 gauge)	_____
Discharge Gate	Adjustable screw jack type	_____
Feed Gate Opening	Maximum 12" high by 18" wide	_____

DISTRIBUTOR SPINNER ASSEMBLY:

Disc	201 stainless steel (10 gauge) 20", with 6 SS removable fins	_____
<u>Type</u>	Tip-up Style without the use of special tools / with diverter chute	_____
Controlled Spread	From 4' to 40'	_____
Baffles	3 section, 201 stainless steel (10 gauge) adjustable	_____
Hydraulic Power	Complete w/2 motors Note: ½" NPT fittings or Must supply adapters	_____

NOTE:

90" long hydraulic hoses to have reusable hydraulic fittings. All stainless fittings to include hydraulic pipe bushings, 1 Tee and adapters to plumb all lines to truck and put two return hoses together.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-07 / 14' Stainless

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<p><u>Warranty:</u> Manufacturer's standard with coverage complete on all components.</p>		
<p><u>OPTION 1:</u> Screens</p>	<p>Top mounted screens & beam</p>	<p>\$ _____</p>
<p><u>OPTION 2:</u> Installation</p>	<p>In the state of <u>Oklahoma</u> by a <u>qualified up fitter</u>. To include hoses and quick couplers 1 each, 5602-12-12S, 5601-12-12S, and 5602-16-16S</p>	<p>\$ _____</p>
<p><u>OPTION 3:</u> Lights</p>	<p>LED Stop, Tail & Turn Lights including any marker lights needed</p>	<p>\$ _____</p>
<p><u>OPTION 4:</u> Grease Fitting</p>	<p>Extended Grease fitting to front of Spreader to grease pillow block without removing spreader from dump body.</p>	<p>\$ _____</p>
<p><u>OPTION 5:</u> Inverted V</p>	<p>Shield to cover pintle chain to reduce download pressure.</p>	<p>\$ _____</p>
<p><u>OPTION 6:</u> SINGLE AUGER CONVEYOR</p>	<p>Auger screw in lieu of pintle chain Note: Screens required</p>	<p>\$ _____</p>
<p><u>OPTION 7:</u> Larger Capacity</p>	<p>Increase side height to 62"</p>	<p>\$ _____</p>
<p><u>OPTION 8:</u> Lights 2</p>	<p>Two (2) Strobes Star model 240SFD Installed Upper rear one each side & Two (2) work lights</p>	<p></p>

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-07 / 14' Stainless

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	installed one shining on pintle chain and one shining on spinner chute.	\$ _____

Total weight of this complete unit: **2775 lbs (approximate)** _____

Supplier must furnish this unit complete with all components including necessary hardware, hose, couplers, lines, fittings, etc.

NOTE:

Inspection and/or correction of items listed on the inspection and pre-delivery form are considered a part of this specification; also considered part of selling dealer's new equipment preparation and handling cost, if he contracts the new equipment pre-delivery service inspection out to another authorized dealer, the selling dealer is still liable to all terms of the specification and purchase order except for those corrective operations previously established as eligible for warranty reimbursement according to the current warranty and policy procedure manual.

Special Requirements:

The supplier shall provide to the receiving division, factory spreader specifications and dimensions and request bed dimensions prior to ordering spreaders.

PAINT: (Non Stainless Components Only)

All exposed metal shall be Powder Coated.

Specify color used _____

WARRANTY: One Year / From date of delivery.

SERVICE AND PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

MANUALS AND PARTS BOOK:

Supplier shall furnish one (1) Operators Instruction Manual for each machine. In addition, one (1) Parts Book and one (1) Repair manual shall be furnished to each Division purchasing one or more machines.

SPECIFICATIONS:

Each supplier shall submit complete manufacturer's specification in duplicate and shall submit all other data to show that his proposal meets these specifications.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-07 / 14' Stainless

COMPLIANCE:

Supplier shall furnish a statement in writing on the bid or by attached letter, and in the Supplier's Statement below, if his equipment proposed strictly meets these specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

DEALER: _____ PHONE: _____

SIGNATURE: _____ DATE: _____

ADDRESS: _____

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES

EXHIBIT 1

EQUIPMENT SPECIFICATION

15-Prewet 200 gallons

V-box Prewet System w/Electric motor

GENERAL: This specification describes an On Board Pre-wetting system is to be used in the dispensing of measured amounts of Calcium Chloride and other chemicals used in snow and ice control operations.

For Comparison Only: Monroe Model LDS333 Dual 100 gallon poly tank

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>Prewet system</u>	<p>Material of construction: Materials and components used in the construction are to be non-ferrous and / or corrosion resistant. Indicate material used in unit bid. The system bid and supplied is to be complete with pump, pump control, nozzles, hoses, tank, fittings, wiring, and mounting hardware as required. The Pump/Motor combination is to be 12 Volts DC, with a rated capacity of 3GPM minimum, and have a positive displacement, three-chamber diaphragm design with integral 45 PSI shut off switch. Indicate GPM of pump bid. Motor is to be permanent magnet design, and Pump components shall be constructed of Polypropylene, Viton and Santoprene.</p> <p>The pump is to be mounted near the rear of the spreader in a NEMA fiberglass enclosure, Located so as not to hinder spreader maintenance or operation. The enclosure shall hold pump assembly and the 4PSI low-pressure sensor. Electrical connections and wiring shall be hard wired within the enclosure. HEAT SHRINK BUTT CONNECTORS (OR</p>	

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES

EXHIBIT 1

EQUIPMENT SPECIFICATION

15-Prewet 200 gallons

WEATHERPACK CONNECTORS) WILL BE USED WITH SILICONE TAPE. APPLIED OVER THE ENTIRE SPLICE/CONNECTION. Wire harnesses shall incorporate element resistant weather pack connectors with disconnects at rear end of truck and console. The two (2) reservoirs are to have a minimum capacity of 100 gallons each, (v-box mounting), have internal baffles, and have a minimum of two 3" fill caps, lanyard retained. Reservoirs shall be constructed of a rotationally molded and UV stabilized polypropylene. Material (natural color) and wall thickness shall be 3/8" thick minimum. The tank shall have two (2) 1-1/4" ports and a vent. The ports are to be located as close to the bottom as possible. The tank shall be constructed to fit up to and including 9" radius dump body sides. Tank shall be complete with necessary mounting brackets and hardware. The two (2) brass spray nozzles are to be located in the spinner chute assembly. Five (5)-PSI check valves shall be installed in the nozzles to prevent siphoning of the liquid chemical. Plumbing components are to be constructed of heavy-duty glass reinforced polypropylene or brass except checks valves. The hose for the pump suction line shall be 1/2" EPDM. All pressure hoses shall be 1/2"

	EPDM. One (1) 3/4" filter with 201 stainless steel reinforced screen and clean-out plug is to be installed in the suction line. A single control panel shall include: one (1) on/off switch with a system on indicator backlit variable output control knob and low-pressure indicator. The low-pressure indicator shall be a solid red light style with a audible alarm.	\$ _____
<u>OPTION 1:</u> Installation	In the state of Oklahoma by a qualified up fitter.	\$ _____

NOTE:

THIS UNIT WILL ONLY WORK WITH A 10' V-BOX SPREADER

INSPECTION AND DELIVERY OF EQUIPMENT MUST BE IN ACCORDANCE WITH SUPPLIER'S INSTRUCTION SHEET.

SPECIFICATIONS:

Each Supplier shall submit complete Manufacturer's Specifications in duplicate and shall submit all other Data to show that his proposal meets these Specifications.

PAINT:

All exposed metal shall be Powder Coated or Stainless steel.

Specify color used _____

PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES

EXHIBIT 1

15-Prewet 200 gallons

EQUIPMENT SPECIFICATION

SERVICE POLICY:

Manufacturer's Standard Service Policy shall be furnished, complete and unaltered, with each Unit delivered.

MANUALS AND PARTS BOOKS:

Supplier shall furnish one (1) Operator's Instruction Manual for each Spreader. In addition, one (1) Parts Book and one (1) Illustrated Repair Manual shall be furnished to each Division purchasing one or more spreaders.

SUPPLIER SHALL FILL IN ALL SPACES UNDER SUPPLIER'S PROPOSAL.

COMPLIANCE:

Supplier shall furnish a statement in writing on the Bid or by attached letter and in the Supplier's Statement below if his Equipment proposed strictly meets these Specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

DEALER: _____ PHONE: _____

SIGNATURE: _____ DATE: _____

ADDRESS: _____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-Prewet 250 gallons

V-box Prewet System w/Electric motor

GENERAL: This specification describes an On Board Pre-wetting system is to be used in the dispensing of measured amounts of Calcium Chloride and other chemicals used in snow and ice control operations.

For Comparison Only: Monroe Model LDS333 Dual 125 gallon poly tank

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>Prewet system</u>	<p>Material of construction: Materials and components used in the construction are to be non-ferrous and / or corrosion resistant. Indicate material used in unit bid. The system bid and supplied is to be complete with pump, pump control, nozzles, hoses, tank, fittings, wiring, and mounting hardware as required. The Pump/Motor combination is to be 12 Volts DC, with a rated capacity of 3GPM minimum, and have a positive displacement, three-chamber diaphragm design with integral 45 PSI shut off switch. Indicate GPM of pump bid. Motor is to be permanent magnet design, and Pump components shall be constructed of Polypropylene, Viton and Santoprene.</p> <p>The pump is to be mounted near the rear of the spreader in a NEMA fiberglass enclosure, Located so as not to hinder spreader maintenance or operation. The enclosure shall hold pump assembly and the 4PSI low-pressure sensor. Electrical connections and wiring shall be hard wired within the enclosure. HEAT SHRINK BUTT CONNECTORS (OR</p>	

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1

EQUIPMENT SPECIFICATION

15-Prewet 250 gallons

WEATHERPACK CONNECTORS) WILL BE USED WITH SILICONE TAPE. APPLIED OVER THE ENTIRE SPLICE/CONNECTION. Wire harnesses shall incorporate element resistant weather pack connectors with disconnects at rear end of truck and console. The two (2) reservoirs are to have a minimum capacity of 125 gallons each, (v-box mounting), have internal baffles, and have a minimum of two 3" fill caps, lanyard retained. Reservoirs shall be constructed of a rotationally molded and UV stabilized polypropylene. Material (natural color) and wall thickness shall be 3/8" thick minimum. The tank shall have two (2) 1-1/4" ports and a vent. The ports are to be located as close to the bottom as possible. The tank shall be constructed to fit up to and including 9" radius dump body sides. Tank shall be complete with necessary mounting brackets and hardware. The two (2) brass spray nozzles are to be located in the spinner chute assembly. Five (5)-PSI check valves shall be installed in the nozzles to prevent siphoning of the liquid chemical. Plumbing components are to be constructed of heavy-duty glass reinforced polypropylene or brass except checks valves. The hose for the pump suction line shall be 1/2" EPDM. All pressure hoses shall be 1/2"

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-Prewet 250 gallons

EPDM. One (1) 3/4" filter with 304 stainless steel reinforced screen and clean-out plug is to be installed in the suction line. A single control panel shall include: one (1) on/off switch with a system on indicator backlit variable output control knob and low-pressure indicator. The low-pressure indicator shall be a solid red light style with a audible alarm.

\$ _____

OPTION 1:
Installation

In the state of Oklahoma by a qualified up fitter.

\$ _____

NOTE:

THIS UNIT WILL ONLY WORK WITH A 14' V-BOX SPREADER

**INSPECTION AND DELIVERY OF EQUIPMENT MUST BE IN ACCORDANCE WITH
SUPPLIER'S INSTRUCTION SHEET.**

SPECIFICATIONS:

Each Supplier shall submit complete Manufacturer's Specifications in duplicate and shall submit all other Data to show that his proposal meets these Specifications.

PAINT:

All exposed metal shall be Powder Coated or Stainless steel.

Specify color used _____

PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-Prewet 250 gallons

SERVICE POLICY:

Manufacturer's Standard Service Policy shall be furnished, complete and unaltered, with each Unit delivered.

MANUALS AND PARTS BOOKS:

Supplier shall furnish one (1) Operator's Instruction Manual for each Spreader. In addition, one (1) Parts Book and one (1) Illustrated Repair Manual shall be furnished to each Division purchasing one or more spreaders.

SUPPLIER SHALL FILL IN ALL SPACES UNDER SUPPLIER'S PROPOSAL.

COMPLIANCE:

Supplier shall furnish a statement in writing on the Bid or by attached letter and in the Supplier's Statement below if his Equipment proposed strictly meets these Specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

DEALER: _____ PHONE: _____

SIGNATURE: _____ DATE: _____

ADDRESS: _____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-SP

HYDRAULIC TRUCK CROSS CONVEYOR

GENERAL: This specification describes an underbody tailgate material spreader designed to distribute material to the left or right edge of the roadway.

For Comparison Only: Monroe Model MS10318

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>WIDTH:</u>	103"	
<u>LENGTH:</u>	43"	
<u>HEIGHT:</u>	27"	
<u>WEIGHT:</u>	1100 lbs	
<u>CAPACITY:</u>	120 tons per hour	
<u>GATE OPENING:</u>	16" x 10" right or left	
<u>HYDRAULICS:</u>	15 GPM, 2000 PSI, high torque, low speed	

NOTES:

THE TRUCK THIS UNIT WILL BE INSTALLED ON HAS A CENTRAL HYDRAULIC SYSTEM.

INSPECTION AND DELIVERY OF EQUIPMENT MUST BE IN ACCORDANCE WITH SUPPLIER'S INSTRUCTION SHEET.

SPECIFICATIONS:

Each Supplier shall submit complete Manufacturer's Specifications in duplicate and shall submit all other Data to show that his proposal meets these Specifications.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-SP

PAINT:

All exposed metal shall be Powder Coated.

Specify color used _____

PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

SERVICE POLICY:

Manufacturer's Standard Service Policy shall be furnished, complete and unaltered, with each Unit delivered.

MANUALS AND PARTS BOOKS:

Supplier shall furnish one (1) Operator's Instruction Manual for each Spreader. In addition, one (1) Parts Book and one (1) Illustrated Repair Manual shall be furnished to each Division purchasing one or more spreaders.

SUPPLIER SHALL FILL IN ALL SPACES UNDER SUPPLIER'S PROPOSAL.

COMPLIANCE:

Supplier shall furnish a statement in writing on the Bid or by attached letter and in the Supplier's Statement below if his Equipment proposed strictly meets these Specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

DEALER: _____ PHONE: _____

SIGNATURE: _____ DATE: _____

ADDRESS: _____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Lt Duty

**SNOW PLOW
FRONT MOUNTED REVERSIBLE
WITH SAFETY TRIP
FOR TILT HOOD OR TILT CAB TRUCK**

GENERAL: This snow plow shall be adequate for a single or dual axle truck and must be new and the manufacturer's latest current model complete with all standard accessories and warranty for the make and model indicated below.

For Comparison Only: Valk Model RV111-116 Plow / MD-700T Hitch

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

SUPPLIER'S PROPOSED SNOW PLOW: MAKE: _____ MODEL: _____

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>MOLDBOARD:</u>	10 gauge steel 30" x 11'	_____
	8 each vertical ½" x 3" ribs with two ribs at each hinge point	_____
	2 rows of ¼" x 1 ½" x 11' horizontal ribs	_____
	Top reinforced with an integrally formed channel	_____
	Bottom reinforced with a back-up angle of 3 ½" x ½" angle gusseted	_____
	Integral Snow shield	_____
	Blade size ½" x 6" x 11'	_____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Lt Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>MOLDBOARD</u> , cont	Reversible cutting width 9' at 35°	_____
	8' at 42°	_____
	Flag mounting ability at each end	_____
<u>SEMI-CIRCLED:</u>	Angle rolled 3 1/2" x 3 1/2" x 1/2" with front angle of 4" x 3" x 1/2" running a length of 120" along rear of moldboard	_____
	Attached to moldboard at 5 points with outside hinge points 116" apart	_____
	Equipped with full swiveling and spring cushioned caster assemblies with 8" x 3" wheels with high speed bearings	_____
Tripping Mechanism	To be attached to trunnion on semi-circle fully enclosed	_____
	Enclosed dual spring I separate tubing	_____
	With external cushion spring	_____
	With automatic trip and return	_____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Lt Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
Weight of Moldboard Semi-circle & Tripping Assembly	1210 lbs	_____
Capacity:	Adequate for 25,000 – 52,000 lbs, GVWR truck	_____
Pushframe & Hitch	Show make	_____
	Show Model	_____
Total Weight	490 lbs	_____
<u>Pushframe</u>	Legs to be 4" x 3/8" x 72" channel steel with adjustable connector blocks attached on 21" centers with 4 each 1" x 3" mechanical bolts	_____
	2 each axle hooks	_____
<u>Hitch</u>	Heavy duty for tilt hood with front frame extension, bumper to axle type	_____
	The vertical portion must hinge forward to provide operating clearance for hood or cab	_____
	The lift arm shall accommodate a 4" x 10" hydraulic lift cylinder	_____
	To be equipped with connectors	_____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Lt Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
Hitch, cont	to accept the complete moldboard assembly	_____
	All push shall be through the bumper and truck frame. There shall be no push or strain on the front axle	_____
	Capacity sufficient to lift plow 12" above roadway	_____
Hydraulic Equipment	One (1) each 4" x 10" hydraulic lift cylinder double acting	_____
Misc Parts & Instructions for Assembly & Mounting	Each snow plow unit must be complete with all necessary hardware, fittings and instructions with drawings for proper assembly and truck installation	_____
<u>OPTION 1: HYDRAULIC REVERSE MECHANISM</u> If this option is specified it shall include two (2) 3" x 10" heavy duty double acting power reverse cylinders. These cylinders must be equipped with a cushion valve to protect the cylinders from damage. (Gresen DXV Double Relief Valve set at 1800 PSI). Include the cost of this option in your bid price.		
<u>OPTION 2:</u> Deflector	Rubber snow shield installed at factory	\$ _____
<u>OPTION 3:</u> Installation	In the state of Oklahoma by a qualified up fitter.	\$ _____
<u>OPTION 4:</u> Plow Lights	Installed	\$ _____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Lt Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>OPTION 5:</u>	10' Plow	\$ _____
<u>OPTION 6:</u>	12' Plow	\$ _____
<u>OPTION 7:</u>	36" Tall Plow	\$ _____

PAINT:

All exposed Metal shall be primed and painted with a protective Metal Primer; then painted Oklahoma Department of Transportation Yellow to comply with Federal Standard #595, Chrome Yellow Enamel #13432, DuPont #93-75306, School Bus Yellow or equal in color, shade and tone.

NOTE: Front surface of blade to be primed ONLY. Yellow paint MUST NOT be applied to this surface.

**INSPECTION AND DELIVERY OF EQUIPMENT TO COMPLY WITH
SUPPLIER'S INSTRUCTION SHEET.**

MANUALS & PARTS BOOKS:

Supplier shall furnish one (1) Operators Instruction Manual for each plow. In addition, one (1) Parts Book and one (1) Illustrated Repair Manual shall be furnished to each Division purchasing one or more plows.

SERVICE POLICY:

Manufacturer's Standard Service Policy shall be furnished, complete and unaltered with each unit delivered.

SPECIFICATIONS:

Each supplier shall submit complete manufacturer's specification in duplicate and shall submit all other data to show that his proposal meets these specifications.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Lt Duty

SERVICE AND PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available. Discount on Parts and Hourly Rate for Labor.

COMPLIANCE:

Supplier shall furnish a statement in writing on the Bid, in the Supplier's Statement below, or by an attached letter stating the Equipment proposed strictly meets these Specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

DEALER: _____ DATE: _____

SIGNATURE: _____ PHONE: _____

ADDRESS: _____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Md Duty

**SNOW PLOW
FRONT MOUNTED REVERSIBLE
WITH SAFETY TRIP MOLDBOARD
FOR TILT HOOD OR TILT CAB TRUCK**

GENERAL: This snow plow shall be adequate for a single or dual axle truck and must be new and the manufacturer's latest current model complete with all standard accessories and warranty for the make and model indicated below.

For Comparison Only: Monroe Model MP36R11-ISCT w/MC7082 Truck Hitch

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

SUPPLIER'S PROPOSED SNOW PLOW: MAKE: _____ MODEL: _____

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>MOLDBOARD:</u>	Roll formed 10 gauge steel 36" x 11' with 5/8" x 8" cutting edge strength of 55,000 lbs - 70,000 lbs	_____

	Integral shield style moldboard	_____

	6 each 1/2" x 4" vertical ribs, 1 pc flame cut	_____

	2 rows of 11' horizontal ribs, bottom angle 4" x 4" x 3/4", top angle 2" x 3" x 3/8"	_____

	3" x 3" x 1/4" non-spring horizontal angle bracing	_____

	3" x 3" x 1/2" horizontal spring support angle bracing	_____

	Moldboard and Pushframe 100% continuously welded	_____

	Stress proof machined pins	_____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
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EQUIPMENT SPECIFICATION

78-01 Md Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>VENDOR'S PROPOSAL</u>
<u>MOLDBOARD, cont.</u>	Blade size 5/8" x 8" x 11'	_____

	Reversible cutting width 9' x 35°	_____

	36" Markers Fluorescent orange	_____

<u>SEMI-CIRCLED:</u>	Angle rolled 3 1/2" x 3 1/2" x 1/2" A36 steel with front tube 3/8" wall of 4" x 4" running a length of 85" along rear of moldboard	_____

	3 position adjustment for plow cutting angle of attack 5, 10 and 20 degree	_____

	Two 4" x 10" power reversing cylinders w/cushion valve	_____

	Built in level lift assembly to allow plow to be parallel to the road surface at all times raised, lowered or angled.	_____

	Equipped with screw adjustable shoes	_____

Tripping Mechanism	Dual compression trip spring assemblies with automatic trip and return	_____

Weight of Moldboard Semi-circle & Tripping Assembly	1680 lbs.	_____

Capacity:	Adequate for 25,000 – 52,000 lbs, GVWR truck	_____

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78-01 Md Duty

	MINIMUM REQUIREMENTS	VENDOR'S PROPOSAL
Pushframe & Hitch	Show make	
	Show Model	
Total Weight	480 lbs	
<u>Pushframe</u>	Main push tub is 4" x 4" x 3/8" A36 steel seamless wall bracing	
<u>Hitch</u>	Quick hitch plow and high profile truck portion quick hitch design for tilt hood truck	
	Lock mechanisms must be 100% welded to the boxed channel and the latching mechanisms shall be automatic, spring loaded, adjustable and have a single lever to release. Two (2) 1 1/2 x 1045 steel latches that hold the plow portion of hitch to the truck portion. Note: The lever shall be retained in either lock or the released position and in the locked position, the truck must be able to be driven into the hitch and have it lock automatically.	
	A SINGLE LOCK HITCH IS UNACCEPTABLE	
	The plow shall be equipped with a leveling device to allow the plow to be raised by one, center- lifting lug. The plow shall allow plow angle full left and full right while the plow is raised, and shall not be required lowering of plow to level it after angling	
	The level lift frame shall be	

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78-01 Md Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>VENDOR'S PROPOSAL</u>
	factory standard appropriate to the model bid	_____
	½" side plate kit for extended frame trucks	_____
	The lift arm shall accommodate a 4" x 10" hydraulic lift cylinder double acting	_____
	To be equipped with connectors to accept the complete moldboard assembly	_____
	All push shall be through the bumper and truck frame. There shall be no push or strain on the front axle	_____
	Capacity sufficient to lift plow 12" above roadway	_____
Hydraulic Equipment	One (1) each 4" x 10" hydraulic lift cylinder double acting.	_____
Misc Parts & Instructions for Assembly & Mounting	Each snow plow unit must be complete with all necessary hardware, fittings and instructions with drawings for proper assembly and truck installation	_____

HYDRAULIC REVERSE MECHANISM

The hydraulic reverse mechanism shall function from the truck cab and be capable of holding the plow angle during snow and ice removal operations with requiring additional locks to prevent cylinder failures or hydraulic system damage.

The operator shall not be required to get out of the vehicle to unlock mechanism prior to changing plow angle.

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78-01 Md Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>VENDOR'S PROPOSAL</u>
<u>OPTION 1:</u> Deflector	Rubber snow shield installed at factory	\$ _____
<u>OPTION 2:</u> Installation	In the state of Oklahoma by a qualified Upfitter.	\$ _____
<u>OPTION 3:</u> Plow Lights	Installed	\$ _____
<u>OPTION 4:</u> Moldboard	3/16" thick in lieu of 10 gauge	\$ _____
<u>OPTION 5:</u>	10' Plow	\$ _____
<u>OPTION 6:</u>	12' Plow	\$ _____
<u>OPTION 7:</u>	42" Tall Plow	\$ _____

PAINT:

All exposed metal shall be Powder Coated.

Specify plow color used _____

Specify hitch color used _____

INSPECTION AND DELIVERY OF EQUIPMENT TO COMPLY WITH SUPPLIER'S INSTRUCTION SHEET.

SERVICE MANUALS & PARTS BOOKS:

Supplier shall furnish one (1) Operators Instruction Manual for each plow. In addition, one (1) Parts Book and one (1) Illustrated Repair Manual shall be furnished to each Division purchasing one or more plows.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
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EQUIPMENT SPECIFICATION

78-01 Md Duty

SERVICE POLICY:

Manufacturer's Standard Service Policy shall be furnished, complete and unaltered with each unit delivered.

SPECIFICATIONS:

Each supplier shall submit complete manufacturer's specification in duplicate and shall submit all other data to show that his proposal meets these specifications.

SERVICE AND PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

COMPLIANCE:

Supplier shall furnish a statement in writing on the Bid, in the Supplier's Statement below, or by an attached letter stating the Equipment proposed strictly meets these Specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

DEALER: _____ DATE: _____

SIGNATURE: _____ PHONE: _____

ADDRESS: _____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Hvy Duty

**SNOW PLOW
FRONT MOUNTED REVERSIBLE
WITH SAFETY TRIP
FOR TILT HOOD OR TILT CAB TRUCK**

GENERAL: This snow plow shall be adequate for a single or dual axle truck and must be new and the manufacturer's latest current model complete with all standard accessories and warranty for the make and model indicated below.

For Comparison Only: Gledhill Model 11HSJPR2 Front Plow

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

SUPPLIER'S PROPOSED SNOW PLOW: MAKE: _____ MODEL: _____

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>MOLDBOARD:</u>	Full roll 10 gauge steel 42" x 11' and an integral design	_____
	Power reversing with double acting reversing cylinders	_____
	Four (4) trip springs, open extension	_____
	Six (6) contentious ribs from top to bottom of moldboard	_____
	Cutting blades must be 6" with a 12" hole spacing	_____
Weight of Moldboard Semi-circle & Tripping Assembly	2050 lbs	_____

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>FRONT FRAME HITCH:</u>	To be engineered specific for year make and model of truck. Must mount to truck frame and provide support for front mounted PTO. Hitch must keep plow parallel to road surface in the raised, lowered and angled positions.	
<u>MISC PARTS AND INSTRUCTIONS FOR ASSEMBLY AND MOUNTING:</u>	Each snow plow unit must be complete with all necessary hardware, fittings and instructions with drawings for proper assembly and truck installation	
<u>OPTION 1:</u> Deflector	Rubber snow shield installed at factory	\$ _____
<u>OPTION 2:</u> Installation	In the state of Oklahoma by a qualified up fitter.	\$ _____
<u>OPTION 3:</u> Plow Lights	Installed	\$ _____

PAINT:

All exposed Metal shall be primed and painted with a protective Metal Primer; then painted Oklahoma Department of Transportation Yellow to comply with Federal Standard #595, Chrome Yellow Enamel #13432, DuPont #93-75306, School Bus Yellow or equal in color, shade and tone.

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EQUIPMENT SPECIFICATION

78-01 Hvy Duty

INSPECTION AND DELIVERY OF EQUIPMENT TO COMPLY WITH SUPPLIER'S INSTRUCTION SHEET.

MANUALS & PARTS BOOKS:

Supplier shall furnish one (1) Operators Instruction Manual for each plow. In addition, one (1) Parts Book and one (1) Illustrated Repair Manual shall be furnished to each Division purchasing one or more plows.

SERVICE POLICY:

Manufacturer's Standard Service Policy shall be furnished, complete and unaltered with each unit delivered.

SPECIFICATIONS:

Each supplier shall submit complete manufacturer's specification in duplicate and shall submit all other data to show that his proposal meets these specifications.

SERVICE AND PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

COMPLIANCE:

Supplier shall furnish a statement in writing on the Bid, in the Supplier's Statement below, or by an attached letter stating the Equipment proposed strictly meets these Specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

DEALER: _____ DATE: _____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Hvy Duty

SIGNATURE: _____ **PHONE:** _____

ADDRESS: _____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Hvy Duty

**SNOW PLOW
FRONT MOUNTED REVERSIBLE
WITH SAFETY TRIP
FOR TILT HOOD OR TILT CAB TRUCK**

GENERAL: This snow plow shall be adequate for a single or dual axle truck and must be new and the manufacturer's latest current model complete with all standard accessories and warranty for the make and model indicated below.

For Comparison Only: Gledhill Model 11HSJPR2 Front Plow

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

SUPPLIER'S PROPOSED SNOW PLOW: MAKE: _____ MODEL: _____

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>MOLDBOARD:</u>	THE MOLDBOARD SHALL BE A 'J' SHAPED BLADE WITH AT LEAST A 19" RADIUS AND THE LAST 12 INCHES A MINIMUM OF 6" RADIUS. THE MOLDBOARD SHALL BE A MINIMUM OF 42" UNIFORM HEIGHT AND 11' LONG AT THE CUTTING EDGE. THE MOLDBOARD SHALL BE MADE OF NOT LESS THAN *10 GAUGE STEEL PANELLED FOR ADDITIONAL STRENGTH. THE MOLDBOARD SHALL BE REINFORCED AT THE TOP BY A SELF-FORMED CHANNEL AND THE BOTTOM WITH A ONE PIECE STRUCTURAL ANGLE AT LEAST 4" X 4" X 3/8" TO THIS ANGLE, A CUTTING EDGE BACKING OF 5/8" X 3" SHALL BE WELDED AND FURTHER BRACED BY GUSSETS A MINIMUM OF 1/2"X2-1/2" WELDED BETWEEN EACH CUTTING EDGE BOLT POSITION. THIS STRUCTURAL TRIANGLE SHALL BE CONSTRUCTED SO THAT WHEN THE CUTTING EDGE IS BOLTED TO THE BACKING, THE FRONT FACE OF THE CUTTING EDGE WILL BE FLUSH WITH THE MOLDBOARD FACE TO PREVENT THE SNOW BUILD UP ON TOP OF THE BLADE. THE MOLDBOARD	

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78-01 Hvy Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	SHALL, BE REINFORCED WITH A MINIMUM OF SIX (6) FULL LENGTH VERTICAL RIBS. VERTICAL RIBS SHALL BE AT LEAST 1/2" X 3" FORMED STEEL CONTINUOUSLY WELDED ON BOTH SIDES OF EDGE TO THE MOLDBOARD SHEET AND SECURED AT THE TOP TO THE FORMED CHANNEL AND AT THE BOTTOM, TO THIS STRUCTURAL ANGLE. THE LOWER REAR CROSS ANGLE SHALL BE PROVIDED WITH AT LEAST TEN (10) EARS, 3/4" THICK ON 88" OUTSIDE HINGE POINT CENTERS FOR ATTACHMENT TO THE TABLE ASSEMBLY A FIVE (5) POINTS WITH 1-1/4" DIAMETER, 105,000 POUND TENSILE STRENGTH PINS.	
Weight of Moldboard Semi-circle & Tripping Assembly	2050 lbs	
<u>CUTTING EDGE:</u>	THE CUTTING EDGE SHALL BE OF ABRASION RESISTANT STEEL C1090 OR EQUAL WITH A BRINELL HARDNESS OF 250 MIN. AND 325 MAX. IT SHALL BE 1/2" THICK X 6" WIDE & FULL LENGTH OF MOLDBOARD, AASHO STANDARD PUNCHED, FLUSH WITH MOLDBOARD AND BE EASILY REPLACEABLE.	
<u>TRIPPING MECHANISM:</u>	SHALL BE ATTACHED TO THE TABLE AND TO THE MOLDBOARD AND CONSIST OF AT LEAST 4 EXTENSION SPRINGS. THE SPRING MATERIAL MUST BE ASTM-A229 OIL TEMPERED 112" WIRE, 4-1/2" O.D. X 24 ACTIVE COILS WITH THE END HOOKS COLD FORMED TO 90 DEGREE RIGHT ANGLES TO EACH OTHER THE SPRING PULL FORCE AT 30.5" SHALL BE A MINIMUM OF 1,050 POUNDS AND	

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78-01 Hvy Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	<p>ALLOW 14" OF STRETCH WITHOUT DEFORMATION. THESE SPRINGS SHALL CONTROL THE TRIP SO THAT THE PLOW WILL BE HELD RIGID FOR PLOWING AND WILL TRIP AUTOMATICALLY WHEN COMING IN CONTACT WITH ANY SOLID OBJECT AND RETURN AUTOMATICALLY TO THE ORIGINAL PLOWING POSITION WHEN RELEASED. THE EXTENT OF THE FORWARD MOTION OF THE MOLDBOARD SHALL BE CONTROLLED BY A MECHANICAL TELESCOPIC TRIPPING POST ASSEMBLY CONSTRUCTED OF AT LEAST A 1-1/4" X 2" INSIDE BAR, 3/4" X 2-1/4" OUTSIDE BARS AND FURTHER REINFORCED WITH 1/4" X 2" BARS. THE TRIPPING POST ASSEMBLY SHALL BE INDEPENDENT OF THE SPRINGS AND SHALL PREVENT THE TOP OF THE MOLDBOARD FROM CONTACTING THE ROAD SURFACE. CONNECTING THE TRIPPING POST TO THE MOLDBOARD AND TABLE WILL BE 1" DIAMETER PINS WITH 72,700 POUNDS OF TENSILE STRENGTH.</p>	
<u>PLOW MARKERS:</u>	<p>SNOW PLOW TO BE EQUIPPED WITH TWO (2) PLOW MARKERS. MARKERS TO BE CONSTRUCTED OF HIGH DENSITY POLYETHYLENE, 1-1/4" O. D. X 1" I.D. BY 24" LONG, SAFETY YELLOW WITH A FLEXIBLE JOINT AT THE BOTTOM AND ATTACHED TO THE PLOW BY MEANS OF COTTER PINS.</p>	
<u>TABLE:</u>	<p>THE CIRCULAR ARC SHALL BE CONSTRUCTED OF NOT LESS THAN A 4" X 4" X 1/2" ANGLE, COL FORMED, TO A 26" INSIDE RADIUS AND JOINED TO THE MAIN FRONT ANGLE, ADDITIONAL REINFORCEMENTS TO BE INCLUDED SHALL BE A 1/2" X 4-1/2" AND A 1" X 5" BAR. SUPPORTING</p>	

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	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	<p>AND REINFORCING THE CIRCULAR ARC SHALL BE TWO (2) 4" X 4" X 1/2" ANGLES, 1/2" X 3-1/2", BARS, 1/2" X 4" BARS AND 1/2" X 10" CAP PLATES. TWO (2) 3/4" ANGLES WILL BE SO LOCATED TO ACT AS STRUCTURAL STOPS TO THE CORRESPONDING RUBBER BUMPERS THAT ARE ATTACHED TO THE 'A' FRAME AND THE TWO MEMBERS COME INTO CONTACT AT THE 35 DEGREE PLOW ANGLE. ATTACHED TO EACH END WILL BE PLATES OF 1/2" X 7" MATERIAL TO WHICH CARRYING DEVICES SUCH AS CAST SHOES OR CASTER WHEELS CAN BE BOLTED. THE LIFT CHAIN ASSEMBLY SHALL INCLUDE A ZINC PLATED 7/16" PROOF COIL CHAIN ALONG WITH A CAST STEEL CHAIN BLOCK TO HELP FACILITATE REVERSING THE PLOW FROM RIGHT TO LEFT.</p>	<hr/>
<u>'A' FRAME:</u>	<p>SHALL CONSIST OF TWO (2) 4" 0a 13.8# CAR CHANNEL AND ONE (1) 1-1/2" X 5" BAR. ADDITIONAL BRACING SHALL INCLUDE CROSS. ANGLES OF AT LEAST 4" X 4" X 112" AND 4"X3"X1/2" WITH EXTRA STRENGTH PROVIDED BY ATLEAST FOUR (4) GUSSETS OF 1/2" X 5-1/2". THE TWO (2) REAR CHANNELS OF THE 'A' FRAME SHALL BE PROVIDED WITH HEAVY DUTY 1" THICK CAST STEEL ADJUSTABLE EARS FOR ATTACHMENT OF THE 'A' FRAME TO THE TRUCK HITCH BY MEANS OF 1-1/4" DIAMETER BOLTS. EAR SPACING SHALL BE 30 INCHES (OR AS SPECIFIED) TO CORRESPOND WITH THE EAR SPACING OF THE TRUCK HITCH.</p>	<hr/>
<u>HYDRAULIC REVERSING CYLINDERS:</u>	<p>SHALL CONSIST OF TWO (2) DOUBLE ACTING HYDRAULIC CYLINDERS OF AT LEAST 4" INSIDE DIAMETER WITH PISTON RODS OF AT LEAST 2" DIAMETER, AND A STROKE OF AT LEAST 20" CYLINDER</p>	

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78-01 Hvy Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	<p>PISTON RODS TO BE TREATED WITH NITRO STEEL PROCESS TO HELP PREVENT RUSTING. CHROME PISTON RODS NOT ACCEPTABLE. THESE CYLINDERS SHALL BE CAPABLE OF REVERSING THE PLOW FROM 35 DEGREES RIGHT TO 35 DEGREES LEFT OR HOLD THE PLOW AT ANY ANGLE WITHIN THIS ARC. THE CYLINDER GEOMETRY AND COMPONENTS OF THE HYDRAULIC SYSTEM SHALL BE DESIGNED TO HOLD THE PLOW AT ANY DESIRED PLOWING ANGLE WITHOUT RECOURSE TO A LOCKING DEVICE, UNDER MAXIMUM LOAD, WITHOUT OVERLOADING RATED CAPACITIES. THE HYDRAULIC POWER SHALL BE SUFFICIENT TO CHANGE THE PLOWING ANGLE BY ANY AMOUNT WITHIN THE PREVIOUSLY MENTIONED LIMITS WHILE THE TRUCK IS IN MOTION, THE PLOW DOWN, AND PLOWING SNOW AT FULL CAPACITY.</p>	<hr/>
<p><u>MUSHROOM SHOE ASSEMBLY. STANDARD ON RH. PCB. PR2. & PRT MODELS:</u></p>	<p>SKID SHOE ASSEMBLIES MUST BE OF THE HAND ADJUSTABLE TYPE, ENCLOSED AND FULLY LUBRICATED, WITH REPLACEABLE CHILLED CAST IRON SHOES, MUSHROOM SHAPED, AT LEAST 11" IN DIAMETER AND 2-1/2" THICK. THE ADJUSTMENT SHALL BE ACCOMPLISHED BY AN ACME THREADED SCREW, OPERATED BY A HAND CRANK WITH ROTATING KNOB WHICH SHALL BE SELFLOCKING AND SHALL OPERATE WITHOUT THE USE OF ANY TOOL.</p>	<hr/>
<p><u>LEVEL LIFT:</u></p>	<p>THE LEVEL-LIFT OPTION SHALL PROVIDE AN AUTOMATIC, MECHANICALLY ACTIVATED MECHANISM THAT WILL HOLD A RAISED PLOW MOLDBOARD EQUAL DISTANCE FROM THE 3ROUND TO THE BOTTOM OF THE CUTTING</p>	

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
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EQUIPMENT SPECIFICATION

78-01 Hvy Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	<p>EDGE. THE LEVEL-LIFT MECHANISM WILL HOLD AN EQUAL ELEVATION REGARDLESS OF HEIGHT RAISED ABOVE GROUND AND REGARDLESS OF MOLDBOARD PLOWING ANGLE, WHETHER FULL RIGHT, BULLDOZE, FULL LEFT, OR ANYWHERE IN BETWEEN. NOTE THAT MOLDBOARD PLOWING ANGLE CAN BE CHANGED TO ANY DESIRED POSITION MAINTAINING EQUAL ELEVATION WITHOUT FIRST LOWERING PLOW, CHANGING PLOWING ANGLE, AND THEN RE-LIFTING. SHALL BE PROVIDED WITH TWO (2) LIFTING CHAINS, 7/16" PROOF COIL CHAIN X 60" LONG.</p>	<hr/>
<u>HITCH:</u>	<p>TO BE ENGINEERED, DESIGNED AND BUILT BY A RECOGNIZED SNOW PLOW MANUFACTURER. THE SNOW PLOW HITCH PROVIDES SUPPORT FOR A VARIETY OF FRONT MOUNTED GEAR OR PISTON LOAD SENSING PUMPS. THE DESIGN WILL LIMIT THE AMOUNT OF FRONT OVERHANG TO A MINIMUM. A TRUCK FRAME EXTENSION IS NOT REQUIRED FOR THE MOUNTING OF THE HITCH. HEAVY FRONT FRAME HITCH OF MODULAR DESIGN SHALL ALLOW THE CAB HOOD TO TILT FORWARD A SUFFICIENT AMOUNT TO PROVIDE ENGINE ACCESS. SIDE PLATES WILL TRANSMIT PLOWING FORCES DIRECTLY TO THE TRUCK FRAME SIDE RAILS AND WILL CUSTOM FIT THE SPECIFIED YEAR, MAKE AND MODEL OF THE TRUCK. THE SIDE PLATES ARE CUSTOM FITTED 5/8" STEEL PLATE OF PROPER LENGTH AND CONSTRUCTION FOR HEAVY DUTY SERVICE AND SHALL PROVIDE ADEQUATE CLEARANCE FOR STEERING MECHANISMS AND SPRING SUSPENSIONS. SIDE PLATE MOUNTING ANGLES OR PLATES SHALL MOUNT FLUSH TO THE TRUCK FRAME FOR MAXIMUM</p>	

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Hvy Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
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	<p>STRENGTH. PIPE SPACERS ARE NOT ACCEPTABLE. THE FRONT SECTIONS OF THE HITCH ASSEMBLY: LIFT FRAME, CENTER SECTION AND THE LOWER PUSH PLATE SHALL ALL BE WELDED TO THE TWO VERTICAL TUBULAR SUPPORTS. THE TUBULAR SUPPORTS ARE TO BE CONSTRUCTED OF 4"X4" SQUARE TUBING X 1/2" THICK WALL. VERTICAL TUBULAR SUPPORTS TO BE A MINIMUM OF 45" TALL. THE CENTER PUSH SECTION TO BE BUILT OF 7" CHANNEL @ 19#/FT. WITH TWO 1/2"X2" FLAT BAR REINFORCEMENT BRACES. TWO 1/2"X3"X4" LIFT CYLINDER EARS TO BE WELDED TO THIS AND TO 1/2"X2-1/2" FLAT REINFORCEMENT BARS. BAR TO RUN FROM TUBE TO TUBE. THE HITCH LIFT BEAM SHALL CONSIST OF TWO 5/8" X 3" BARS, SECURED BY 10 GAUGE TOP CAP AND A MINIMUM OF THREE 1/2" X 3" SPACERS. THIS BEAM SHALL BE ASSEMBLED SO THE BEAM MAY DROP DOWN TO ALLOW FULL TILTING OF THE TRUCK HOOD WITHOUT ANY INTERFERENCE. PIVOT PINS SHALL BE 1" DIAMETER MINIMUM GRADE 5. IN THE DROP DOWN POSITION THE BEAM SHALL LAY IN A CUT OUT PORTION OF THE FRONT CHANNEL BUMPER. PROPER MOUNTING EARS SHALL BE PROVIDED TO ALLOW FOR A LOCK DOWN PIN TO LOCK THE BEAM TO THE FRONT CHANNEL BUMPER. IN THE DROP DOWN POSITION, THE LIFT CYLINDER SHALL BE SO POSITIONED THAT IF ACCIDENTALLY EXTENDED, WILL NOT CAUSE ANY DAMAGE TO THE HITCH OR TRUCK. THE LIFT RM SHALL ATTACH TO THE TOP ANGLE BY MEANS OF TWO 1" PINS HAVING AT LEAST 72,700 POUNDS OF TENSILE STRENGTH. THE MAIN CYLINDER AND PUMP STRUCTURAL SUPPORT SHALL BE AT LEAST A 6"X4"X3/8" ANGLE GUSSETED</p>	
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**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Hvy Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
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	<p>AND CONNECTED TO THE TWO VERTICAL TUBULAR SUPPORTS. THESE TUBULAR VERTICAL SUPPORTS WILL ATTACH TO THE CUSTOM SIDE PLATES. INCLUDED SHALL BE A MINIMUM OF A 4" DIAMETER HOLE TO ALLOW THE PUMP DRIVELINE TO PASS THROUGH TO CONNECT TO THE HYDRAULIC PUMP, EITHER GEAR TYPE OR PISTON LOAD SENSING. TWO BUMPER SUPPORT ANGLES SHALL BE WELDED TO THE MAIN ANGLE AND SHALL BE AT LEAST 6" X4"X3/8". A FRONT BUMPER SHALL BE INCLUDED AND MADE OF AT LEAST 8" @11.5# CHANNEL. THE LOWER PUSH PLATE MAIN MEMBER WILL BE A 10" @ 25# CAR CHANNEL REINFORCED WITH A 3" X 3" X 3/8" ANGLE AND WELDED TO THE VERTICAL TUBES. THE FOUR PLOW CONNECTING EARS SHALL HAVE THREE EQUALLY SPACED HEIGHT ATTACHING HOLES TO ACCEPT 1-1/4" DIAMETER HITCH PINS WITH HANDLES. THE EARS SHALL BE 1/2" X 3-1/2" AND SPACED ON 30" PUSH CENTERS. THE PLOW HOIST CYLINDER SHALL BE OF PREMIUM GRADE AND SHALL BE A DOUBLE ACTING 3" BOREX10" STROKE. THE PISTON ROD IS TO BE OF STEEL CONSTRUCTION TREATED WITH A NITRO STEEL PROCESS. THE RAM SLEEVE OR OUTER BARREL WILL BE SUCH THAT THE ROD PACKING MAY BE MAINTAINED OR REPLACED AS REQUIRED. A POSITIVE STOP MUST BE INCORPORATED THAT WILL HELP PREVENT MECHANICAL PRESSURE BEING APPLIED TO THE PACKING WHEN THE ROD IS FULLY EXTENDED. THE CYLINDER SHALL BE CAPABLE OF 14,137 POUNDS OF THRUST @ 2,000 PSI AND 16,000 POUNDS OF BURSTING PRESSURE @ 2,000 PSI. MINIMUM WEIGHT OF THE CYLINDER SHALL BE 28 POUNDS. PORTS TO BE 3/8". THE HITCH SHALL HAVE TWO 6"X4"X3/8"</p>	
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**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Hvy Duty

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	ANGLES TO BE WELDED TO THE VERTICAL TUBES AND PROJECT OUTWARD TO MOUNT AN 8" @ 11.5# CHANNEL BUMPER. BUMPER TO PROTECT FRONT MOUNTED PUMP. THERE SHALL BE TWO EACH 1/2"X5"X13" LONG GUSSETS WELDED TO VERTICAL TUBES AND BUMPER MOUNTING ANGLE. THERE SHALL BE TWO EACH 1/2" X 5" X 5" LONG GUSSETS WELDED TO BOTTOM SIDE OF BUMPER MOUNTING ANGLE & VERTICAL TUBES. TOP ANGLE TO BE 4"X3"X1/2"X33-3/4" LONG. TOP ANGLE WELDS TO BOTH VERTICAL TUBES. WELDED TO TOP ANGLE WILL BE FOUR EACH 1/2"X3"X6-1/4" EARS FOR LIFT ARM.	

PAINT:

All exposed Metal shall be primed and painted with a protective Metal Primer; then painted Oklahoma Department of Transportation Yellow to comply with Federal Standard #595, Chrome Yellow Enamel #13432, DuPont #93-75306, School Bus Yellow or equal in color, shade and tone.

**INSPECTION AND DELIVERY OF EQUIPMENT TO COMPLY WITH
SUPPLIER'S INSTRUCTION SHEET.**

MANUALS & PARTS BOOKS:

Supplier shall furnish one (1) Operators Instruction Manual for each plow. In addition, one (1) Parts Book and one (1) Illustrated Repair Manual shall be furnished to each Division purchasing one or more plows.

SERVICE POLICY:

Manufacturer's Standard Service Policy shall be furnished, complete and unaltered with each unit delivered.

SPECIFICATIONS:

Each supplier shall submit complete manufacturer's specification in duplicate and shall submit all other data to show that his proposal meets these specifications.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-01 Hvy Duty

SERVICE AND PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

COMPLIANCE:

Supplier shall furnish a statement in writing on the Bid, in the Supplier's Statement below, or by an attached letter stating the Equipment proposed strictly meets these Specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

DEALER: _____ **DATE:** _____

SIGNATURE: _____ **PHONE:** _____

ADDRESS: _____

KENNAMETAL CARBIDE TUNGSTEN INSERT SPECIFICATIONS 12010-20111

Specifications for Carbide Insert Snow Plow Blades:

A-Blade

1. Blade shall be (SAE 1020) flat steel (3/4" x 5"); (3/4" x 6"); (7/8" x 5") x (24"; 36"; 48"; 60"; 72") x (+0"4/16" length).
2. Punching shall be 11/16" round holes for (5/8") bolts; or 13/16" round holes for (3/4") bolts.
3. Location of holes shall be per customer's requirements.
4. Tolerance for hole spacings shall be (+/-) 1/16", non-accumulative, from center to center, across full length of blade.
5. The groove for the carbide inserts shall be milled in the center of blade edge.

B - Carbide Inserts

1. The tungsten carbide insert shall be of trapezoidal design, with the following dimensions :
Length: 1" nominal
Width: .365" (+/-) .005"
Height: .635" (+/-) .005"
Bottom Angle: 25 degrees(+/-) 1 degree with nose radius of 1-1/6" minimum.
Optional Insert Dimensions:
Length: 1" nominal
Width: .365" (+/-) .005"
*Height: .750" (+/-) .005"
Bottom Angle: 25 degrees (+/-) 1 degree with nose radius of 1-1/16" minimum.
2. The inserts shall be a high shock WC grade of tungsten carbide with (11 to 12-1/2) percent cobalt content.
Density: 14.1 Minimum to 14.6 Maximum
Hardness: 87.5 Minimum to 89.0 Maximum RC. "A" Scale
Transverse Rupture Strength (**P.S.I.**): 350,000 **Minimum**
Porosity: (Based on testing in accordance with ASTM designation B276-79)
(A06 - BOO - COO)
3. The carbide insert manufacturer to furnish certification to customer that the inserts meet the specifications as set forth in B-2.
4. A Metallurgical evaluation of the carbide insert shall show no evidence of cross grade contamination. Evaluation to be based on a photomicrograph of a polished and etched specimen at 500X magnification.

C - Braisin

1. The Carbide Inserts shall be brazed on all sides with sound brazing practice, having no evidence of voids, with minimum shear strength of 30,00 PSI. The filler material must not contain any cadmium.
2. The Carbide Inserts shall be placed in line within the milled groove. Spacing shall be no more than .010" between inserts the entire length of cutting edge.

D - Finished Product

1. Complete snow plow blade lengths (24", 36", 48", 60", 72") shall consist of 1" length inserts determined by blade length (See: D-2).
2. Carbide tip point shall not exceed 1" length of Carbide Insert for each 1" length of blade section.
3. Finished blade shall comply with standard blade manufacturing tolerances.
4. Finished blade will be given one coat of rust resistant paint and marked with manufacturer's identification and date of manufacture. Front edge of blade will be marked to avoid improper mounting.
5. Manufacturer's literature or certifications showing physical properties of grade carbide proposed shall be furnished as required.

E - Manufacturing In The USA

1. Product shall be manufactured entirely in the United States of America

MHL SYSTEMS INTERLOCKING SNOW PLOW BLADES INCLUDING KENNAMETAL INC CARBIDE TUNGSTEN INSERT BLADES & SPECIFICATIONS

WARRANTY & BREAKAGE GUARANTEE:

MHL Systems Warranty states that we guarantee all materials against breakage during the complete wear-life of the Snow Plow Blade. If any part of the (MAG/500) Interlocking material or any welded area breaks while there remains Carbide Tungsten Inserts to be worn, the blade will be replaced along with the adjacent blades which make up the entire length of the Snow Plow Blade. Example: Should one 4-ft MHL Interlocking Carbide Snow Plow Blade break which is a section of a 12-ft Snow Plow Blade consisting of three (3) pcs x 4-ft, MHL Systems will replace all three (3) Carbide Blades making up the 12-ft original Snow Plow Blade. This is an unconditional warranty which helps MHL Systems to stand alone as there are no other manufacturers using this Warranty policy.

1. All MHL Interlocking Snow Plow Blades must consist of Attached Kennametal Carbide Tungsten Insert Specifications. Length & Size to be Determined.
2. The Standard Interlocking Blades use an (MAG/500) Wear-Material that is (3/4") thick x 4" wide. It is positioned so that the abrasion-resistant Carbide Inserts receive maximum protection. The design prevents loss of the Carbide Inserts and Premature failure of the Carbide Blade.
3. A unique feature of our Interlocking Carbide Tungsten Insert Snow Plow Blades is the (MAG/500) can be produced with or without Embedded Carbide Casting. These are Casting segment's that are welded into areas of the (MAG/500) which provide additional Wear-life to the section where the blade with castings is installed.
4. The blades that use Embedded Carbide Castings can be positioned on the Snow Plow so that additional Wear-Life can be provided in any section of the Snow Plow. Therefore, a snow plow with a history of wearing more in a certain area can have the section with the Embedded Casting installed in that area to provide additional wear.
5. Because the top edge of the (MAG/500) Material is positioned above the top edge of the Carbide Inserts, all of the Carbide can be consumed in each blade throughout the entire length of the Snow Plow. There is less to throw away and waste is minimized when the blade is finally worn out.
6. Each 2-ft, 3-ft, 4-ft, 5-ft, & 6-ft blade section is fabricated with (authentic & verified) Interlocking Joints that provide greater strength at the locations where the blades are joined together. This ensures the blade is uniformly strong throughout the entire length.
7. The "V-Grooves" for welding are provided for each blade. These also serve as "Wear-Indicators" and enable the operator or maintenance crew to see at a glance how much Carbide is left in each blade.
8. The 3-ft, 4-ft, 5-ft, & 6-ft blades are either 5" or 6" wide and easy to handle when being installed or changed. The Plow Bolts used are also shorter than the Plow Bolts used in typical Carbide Blades with ordinary Impact Blades, requiring less labor and cost.

KENNAMETAL CARBIDE TUNGSTEN INSERT SPECIFICATIONS 12010-20111

Specifications for Carbide Insert Snow Plow Blades:

A-Blade

1. Blade shall be (SAE 1020) flat steel (3/4" x 5"); (3/4" x 6"); (7/8" x 5") x (24"; 36"; 48"; 60"; 72") x (+0"4/16" length).
2. Punching shall be 11/16" round holes for (5/8") bolts; or 13/16" round holes for (3/4") bolts.
3. Location of holes shall be per customer's requirements.
4. Tolerance for hole spacings shall be (+/-) 1/16", non-accumulative, from center to center, across full length of blade.
5. The groove for the carbide inserts shall be milled in the center of blade edge.

B - Carbide Inserts

1. The tungsten carbide insert shall be of trapezoidal design, with the following dimensions :
Length: 1" nominal
Width: .365" (+/-) .005"
Height: .635" (+/-) .005"
Bottom Angle: 25 degrees(+/-) 1 degree with nose radius of 1-1/6" minimum.
Optional Insert Dimensions:
Length: 1" nominal
Width: .365" (+/-) .005"
*Height: .750" (+/-) .005"
Bottom Angle: 25 degrees (+/-) 1 degree with nose radius of 1-1/16" minimum.
2. The inserts shall be a high shock WC grade of tungsten carbide with (11 to 12-1/2) percent cobalt content.
Density: 14.1 Minimum to 14.6 Maximum
Hardness: 87.5 Minimum to 89.0 Maximum RC. "A" Scale
Transverse Rupture Strength (**P.S.I.**): 350,000 **Minimum**
Porosity: (Based on testing in accordance with ASTM designation B276-79)
(A06 - BOO - COO)
3. The carbide insert manufacturer to furnish certification to customer that the inserts meet the specifications as set forth in B-2.
4. A Metallurgical evaluation of the carbide insert shall show no evidence of cross grade contamination. Evaluation to be based on a photomicrograph of a polished and etched specimen at 500X magnification.

C - Braisin

1. The Carbide Inserts shall be brazed on all sides with sound brazing practice, having no evidence of voids, with minimum shear strength of 30,00 PSI. The filler material must not contain any cadmium.
2. The Carbide Inserts shall be placed in line within the milled groove. Spacing shall be no more than .010" between inserts the entire length of cutting edge.

D - Finished Product

1. Complete snow plow blade lengths (24", 36", 48", 60", 72") shall consist of 1" length inserts determined by blade length (See: D-2).
2. Carbide tip point shall not exceed 1" length of Carbide Insert for each 1" length of blade section.
3. Finished blade shall comply with standard blade manufacturing tolerances.
4. Finished blade will be given one coat of rust resistant paint and marked with manufacturer's identification and date of manufacture. Front edge of blade will be marked to avoid improper mounting.
5. Manufacturer's literature or certifications showing physical properties of grade carbide proposed shall be furnished as required.

E - Manufacturing In The USA

1. Product shall be manufactured entirely in the United States of America

MHL Systems*P.O. Box 71112**
SLC, UT 84171-1112***Tele: 800-999-7517**



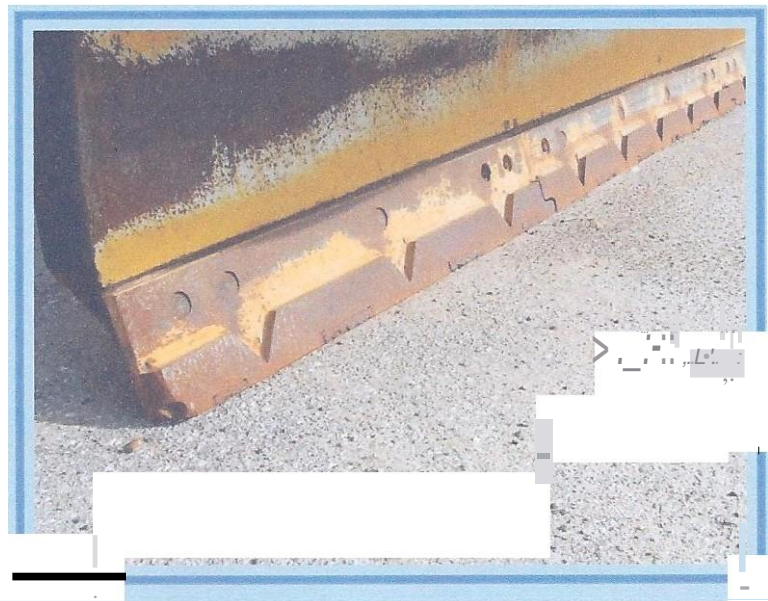
(Above): Left-Side (MAG-500) Carbide Casting End Guard with Maximum-Duty Attachment Bracket. End Guards are Manufactured with Various Degrees of Wear-Angle Depending on Customers Needs.

Above: Oklahoma Turnpike Authority (OTA) 12-ft MHL Interlocking (MAG/500) Snow Plow Blade with Right-End Guard

(Photo-Right):
(OTA) 11-ft Interlocking (MAG/500) Carbide Insert Snow Plow Blade Installed in (2003).
In Fall of (2006), this MHL Interlocking Carbide Insert Blade Still Had (25%) of the Total Wear-Life Left in the Blade System.

In January of (2007), (OTA) Determined that MEL Interlocking Carbide Tungsten Insert Blades Out-Lasted other Brands by [2:1] Margin.

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**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-3/4 ton

**HEAVY DUTY SPREADER
HOPPER TYPE
FOR DUMP BED MOUNTING**

GENERAL: Completely self-contained, ultra durable spreader unit designed for ice and snow control. The design allows for use with salt, sand and other materials. The complete assembly mounts easily on pickup, dump and platform trucks making it ideal for municipalities, shopping malls, industries, hospitals and private contractors. This spreader must be completely assembled, serviced and ready to operate when it is installed in a State owned dump truck. This spreader must be new and the manufacturer's latest current model complete with all standard accessories and warranty for the make and model indicated below.

For Comparison Only: Buyers 1400601SS Electric Powered Pintle chain & Spinner

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

SUPPLIER'S PROPOSED SPREADER: MAKE: _____ MODEL: _____ BASE PRICE: _____

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>HOPPER BODY:</u>	"V" Type Box, all Welded 304	_____
	113", approx. 1.8 cubic yards capacity	_____
<u>SECUREMENT:</u>	4 – 2" ratchet straps	_____
<u>DISCHARGE CHUTE:</u>	304 stainless steel, rearward end mounts. Adjustable height extension with SS bolts	_____
<u>COMPONENTS:</u>	All necessary hardware to be stainless steel	_____
<u>OVER-ALL-HEIGHT:</u>	33 " above truck bed floor	_____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-3/4 ton

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>OUTSIDE WIDTH:</u>	47" maximum	
<u>DRIVE MOTORS:</u>	Two ultra-quiet 12-volt DC direct-drive motors power the conveyor and spinner, and are encased in a heavy-duty housing. The wiring harness is constructed of 10-gauge automotive wire with non-combustible sheathing (-50°C to -105°C). An in-cab console features independent controls for the conveyor and spinner.	
<u>SILLS:</u>	304 stainless steel	
<u>FRONT & REAR:</u>	Rollover lips	
<u>WIPERS:</u>	Front & rear required	
<u>CROSS SILLS:</u>	304 stainless steel welded to sills and side supports	
<u>SIDE SUPPORTS:</u>	304 stainless steel welded to sides, sills and cross sills	
<u>SIDES:</u>	304 stainless steel 45°	
<u>LIFTING LOOPS:</u>	4 each, 1 near each outside corner	
<u>FEED GATE ASSEMBLY:</u>	304 stainless steel Lever operated with a friction lock for	

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-3/4 ton

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	accurate adjustment.	_____
Feed Gate Opening	Maximum 12" high by 18" wide	_____
Controlled Spread	From 2' to 30'	_____
Disc	An 11.5" polymer disc with four fins is connected to a 3/4" diameter shaft secured on the pillow block and motor bearing.	_____
Screens:	1/4" black powder coated steel top screen	_____
<u>Warranty:</u>	Manufacturer's standard with coverage complete on all components.	_____
<u>OPTION 1:</u> Installation	In the state of <u>Oklahoma</u> by a <u>qualified up fitter</u> .	\$_____
<u>OPTION 2:</u>	Variation to larger or smaller Spreader	%Off List_____
<u>OPTION 3:</u> _____	Different Hopper Material	%Off List
<u>OPTION 4:</u> _____	Gas Powered Units	%Off List

Total weight of this complete unit: **1000 lbs. (approximate)**

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-3/4 ton

Supplier must furnish this unit complete with all components including necessary hardware, etc.

NOTE:

Inspection and/or correction of items listed on the inspection and pre-delivery form are considered a part of this specification; also considered part of selling dealer's new equipment preparation and handling cost, if he contracts the new equipment pre-delivery service inspection out to another authorized dealer, the selling dealer is still liable to all terms of the specification and purchase order except for those corrective operations previously established as eligible for warranty reimbursement according to the current warranty and policy procedure manual.

Special Requirements:

The supplier shall provide to the receiving division, factory spreader specifications and dimensions and request bed dimensions prior to ordering spreaders.

PAINT: (Non Stainless Components Only)

All exposed metal shall be Powder Coated.

Specify color used _____

WARRANTY: One Year / from date of delivery.

SERVICE AND PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

MANUALS AND PARTS BOOK:

Supplier shall furnish one (1) Operators Instruction Manual for each machine. In addition, one (1) Parts Book and one (1) Repair manual shall be furnished to each Division purchasing one or more machines.

SPECIFICATIONS:

Each supplier shall submit complete manufacturer's specification in duplicate and shall submit all other data to show that his proposal meets these specifications.

COMPLIANCE:

Supplier shall furnish a statement in writing on the bid or by attached letter, and in the Supplier's Statement below, if his equipment proposed strictly meets these specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

15-3/4 ton

DEALER: _____ PHONE: _____

SIGNATURE: _____ DATE: _____

ADDRESS: _____

Please use a different sheet for each Brand and Model bid on.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-¾ Ton

**SNOW PLOW
FRONT MOUNTED REVERSIBLE
WITH SAFETY TRIP
¾ Ton & 1 Ton Trucks**

GENERAL: This snow plow shall be adequate for a single or dual axle truck and must be new and the manufacturer's latest current model complete with all standard accessories and warranty for the make and model indicated below.

For Comparison Only: Buyers EX75 w/Plow Hitch, Truck Portion Hitch & Light Adapter

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

SUPPLIER'S PROPOSED SNOW PLOW: MAKE: MODEL: Base Price: \$_____

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>Plow:</u>	.105 gauge Stainless Steel Moldboard 31" x 7'6"	_____

	9 each 1/4" Laser cut steel ribs	_____

	Integral Snow shield	_____

	Blade size ½" x 6" x 7'6"	_____

	70% Attack angle/cutting width 78"	_____

	4 Stress-optimized trip springs	_____

	Plow Markers at each end	_____

	Covered power unit and hydraulics	_____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-¾ Ton

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>LIFT FRAME:</u>		
	Lift Arm - 35 degree travel provides exceptional snow stacking	_____
	Quick attach/detach mounting	_____
	powerful, dual beam halogen plow lights with secure double post mounts	_____
	Adjustable/removable jack stand	_____
	Contoured lift frame	_____
<u>TRUCK PORTION HITCH:</u>	End user will provide Make & Model of Vehicle to be installed on	_____
	When Plow removed lights and lift frame are <u>NOT</u> on truck	_____
<u>LIGHT ADAPTERS:</u>	End user will provide Make & Model of Vehicle to be installed on	_____
<u>CONTROLLER:</u>	Hand Held Remote control	_____
Weight of Moldboard & Lift frame	745 lbs	_____
Capacity:	Adequate for 8500-10,000 lbs.,	

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-¾ Ton

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
	GVWR truck	_____
Pushframe & Hitch	Show make	_____
	Show Model	_____
Misc. Parts & Instructions for Assembly & Mounting	Each snow plow unit must be complete with all necessary hardware, fittings and instructions with drawings for proper assembly and truck installation	_____
<u>OPTION 1:</u> Installation	In the state of Oklahoma by a qualified up fitter.	\$ _____
<u>OPTION 2:</u> Accessories or	Variation to larger or smaller plows	\$ _____

PAINT:

All exposed Metal shall be black powder coat unless it is Stainless

INSPECTION AND DELIVERY OF EQUIPMENT TO COMPLY WITH SUPPLIER'S INSTRUCTION SHEET.

MANUALS & PARTS BOOKS:

Supplier shall furnish one (1) Operators Instruction Manual for each plow. In addition, one (1) Parts Book and one (1) Illustrated Repair Manual shall be furnished to each Division purchasing one or more plows.

SERVICE POLICY:

Manufacturer's Standard Service Policy shall be furnished, complete and unaltered with each unit delivered.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

78-¾ Ton

SPECIFICATIONS:

Each supplier shall submit complete manufacturer's specification in duplicate and shall submit all other data to show that his proposal meets these specifications.

SERVICE AND PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where an adequate stock of current parts and service are available.

COMPLIANCE:

Supplier shall furnish a statement in writing on the Bid, in the Supplier's Statement below, or by an attached letter stating the Equipment proposed strictly meets these Specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

DEALER: _____ DATE: _____

SIGNATURE: _____ PHONE: _____

ADDRESS: _____

Please use a separate sheet for each brand and model bid.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

Brine Maker

Brine Maker

GENERAL: This specification describes a Brine Making System is to be used in the making of Salt Brine used in snow and ice control operations.

For Comparison Only: Varitech Industries Model SB600

FILL IN ALL SPACES SHOWING SPECIFIC INFORMATION.

	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>Brine Maker</u>	<p>1.0 Scope: This specification covers requirements for Salt Brine Production Systems (SBPS) intended for use as a generator of quality salt brine that is used as a prewetting, anti-icing, and/or a de-icing agent on pavement or roadways.</p> <p>2.0 Dimensions: Model # SB600 - 62" W X 62" H X 119" Long</p> <p>3.0 Storage/Holding Capacity (U.S. Gallons): Main Tank Hopper Tank Total Model SB600 600 800 1400 Rock Salt Holding Capacity (Cubic Yards) Model SB600 3.68</p> <p>4.0 Production Rate: Model SB600... 3600 Gallons Per Hour (Based on Customers Water Supply)</p> <p>5.0 Materials: The salt brine production systems shall be comprised of rotationally molded, one-piece tanks. Rotationally molded polyethylene SBPS tanks shall be manufactured from a polyethylene compound that conforms to the following properties....Density- ASTM D-1505 .942 g/cm3</p>	<p>Comply_____</p> <p>Comply_____</p> <p>Comply_____</p> <p>Comply_____</p> <p>Comply_____</p> <p>Comply_____</p>

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1

EQUIPMENT SPECIFICATION

Brine Maker

Melt Index- ASTM D-1238 2.0 g/10min.
Tensile Strength- ASTM D-638 2,700 PSI
Flexural Modulus- ASTM D-790 103,000 PSI
Low Temp Impact- ARM-Low Impact (1/4") 175 ft. lbs.
Main Salt Brine Tank:
Rotationally molded one piece (no welds, joints, or seams) polyethylene plastic tank- UV stabilized to provide protection from sunlight- 5/8" nominal thickness- Open floor with interior rib to prevent any type of tank bulging - Pitched bottom to lower sump area provides total drainage- 3" schedule 80 PVC drain pipe with threaded plug end
Hopper/Rock Salt Tank:
Rotationally molded one - piece (no welds, joints, or seams) polyethylene plastic tank-UV stabilized to provide protection from sunlight- 5/8" nominal thickness-Open floor (No interior floor ribs to hinder cleaning)- Pitched bottom to lower sump area provides total drainage- 6" schedule 80 PVC drain pipe with threaded plug end- Full length 1 1/2" PVC water in-feed manifold provides even filling and salt saturation
Secondary Containment Tank:
Rotationally molded one piece (no welds, joints, or seams) polyethylene plastic tank- UV stabilized to provide protection from sunlight- 5/8" nominal thickness- Self supporting, molded in vertical support ribs

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1

EQUIPMENT SPECIFICATION

Brine Maker

and 3" high skid bottoms
provide easy forklift entry-
Requires no complex saddling
or support structures- 2-1" PVC
threaded plug drain fittings-
Minimum 110% containment
capacity

**6.0 Plumbing and Plumbing
Components:**

Epoxy coated cast iron effluent
ejector pump- UL Listed -
thermal overload protected, oil
filled motor- 1/2 HP- 110 GPM
at 0 head/ft. - 1 1/2" discharge -
manually controlled by a 25'
remote waterproof toggle
switch. Water service piping is
1 1/2" PVC throughout entire
system- Water service is
controlled by a 1 1/2" Glass
filled polypropylene, non-
electric hydraulic diaphragm
valve- automatically controls
the water infeed to the hopper
tank and maintains the level of
brine in the main tank.

- 1 1/2" PVC water infeed and
salinity dilution ball valves- One
piece sealed unit requires no
adjustments- EPDM O-ring
seals and Teflon seats.

- Plastic float valve controls
water to the diaphragm valve-
Non-hammering- Valve body is
celcon plastic with Buna-N
plunger.

- 2-3" Brine overflow pipes to fill
main brine tank- 1 1/2" PVC
salinity dilution piping
connected to the overflow pipes
provide fine-tuning of salinity
percentage adjustments.

2-6" Round stainless steel
overflow screens- #8 mesh

Comply_____

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1

EQUIPMENT SPECIFICATION

Brine Maker

1 1/2" glass filled polypropylene quick disconnect cam lock coupling from pump discharge.

7.0 Electrical Service:

Entire electrical service to SBPS is protected from hazardous shock through a 15 Amp, 110VAC Ground Fault Interrupter Circuit Receptacle with trip and reset- Enclosed in a waterproof outdoor service PVC plastic junction box and weatherproof plastic outlet cover. 25' 16/3 AWG outdoor, waterproof 15 Amp, 110VAC remote toggle switch to pump- Watertight plastic strain relief connectors on both ends of remote cable.

8.0 Installation:

Installation of SBPS is accomplished by connection to the 2" PVC threaded male end of the water infeed piping to customer supplied water service- Electrical connection is made by plugging in the power service cord equipped on the SBPS to the customer supplied, electrically adequate power supply- See instructions manual for detailed start-up, operational and maintenance information.

8.0 Warranty:

The unit shall be warranted for a period of 1 year from the date of purchase. The only exception to this would be the tank warranty, which would extend for a period of 2 years.

Comply_____

Comply_____

Comply_____

\$_____

OPTION 1:
Automation

Upgrade to an automated unit in lieu of manual.

\$_____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATION

Brine Maker

OPTION 2:

Accessories or

Variation to larger tank

List Price Less % Discount

\$_____

NOTE:

END USER WILL SUPPLY FOUNDATION, ELECTRICITY, AND WATER SUPPLY
TO BE USED WITH BRINE MAKER

**INSPECTION AND DELIVERY OF EQUIPMENT MUST BE IN ACCORDANCE WITH
SUPPLIER'S INSTRUCTION SHEET.**

SPECIFICATIONS:

Each Supplier shall submit complete Manufacturer's Specifications in duplicate and shall submit all other Data to show that his proposal meets these Specifications.

PAINT:

All exposed metal shall be Powder Coated or Stainless steel.

PARTS:

Supplier shall furnish upon request, a list of established manufacturer's authorized locations within the State Of Oklahoma where parts can be ordered.

SERVICE POLICY:

Manufacturer's Standard Service Policy shall be furnished, complete and unaltered, with each Unit delivered.

MANUALS AND PARTS BOOKS:

Supplier shall furnish one (1) Operator's Instruction Manual for each Spreader. In addition, one (1) Parts Book and one (1) Illustrated Repair Manual shall be furnished to each Division purchasing one or more spreaders.

SUPPLIER SHALL FILL IN ALL SPACES UNDER SUPPLIER'S PROPOSAL.

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1

EQUIPMENT SPECIFICATION

Brine Maker

COMPLIANCE:

Supplier shall furnish a statement in writing on the Bid or by attached letter and in the Supplier's Statement below if his Equipment proposed strictly meets these Specifications. If not, he shall list each variation thereof.

SUPPLIER'S STATEMENT (EQUIPMENT PROPOSED COMPLIES): YES: _____ NO: _____

DEALER: _____ PHONE: _____

SIGNATURE: _____ DATE: _____

ADDRESS: _____

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES**EXHIBIT 1****EQUIPMENT SPECIFICATION****HIGH CARBON GRADER BLADE**

High carbon blades steel producing the following analysis:

Carbon:	.80 - .93
Manganese	.60 - .90
Phosphorous:	.04 maximum
Sulfur:	.05 maximum
Silicon:	.35 maximum

<u>DESCRIPTION:</u>	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
<u>Grader Blade:</u>	Standard punching, 5/8" x 8" curved double bevel, weight per ft 15.6 lb. (Specify lengths 6', 7', 8', 9')	<hr/>
<u>Grader Blade:</u>	Standard punching, 5/8" x 6" curved double bevel, weight per ft 11.7 lb. (Specify lengths 6', 7', 8', 9')	<hr/>
<u>Grader Blade:</u>	Standard punching, 3/4" x 8" curved double bevel, weight per ft 18.4 lb. (Specify lengths 6', 7', 8', 9')	<hr/>
<u>Snow Plow Blade:</u>	Standard punching, snow plow blades, 1/2" x 6" flat, square edged, weight per ft 10.27 lb. (Specify lengths 10', 11', 12')	<hr/>

WARRANTY: One Year / From Date of Delivery

SPECIFICATIONS:

Each Supplier shall submit complete manufacturer's specification in duplicate and shall submit all other data to show that his proposal meets these specifications.

COMPLIANCE:

Supplier Shall furnish a statement in writing on the Bid or by attached letter, and in the Supplier's Statement below, if his equipment proposed strictly meets these Specifications. If not, he shall list each variation therefrom.

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATIONS

HIGH CARBON

**INSPECTION AND DELIVERY OF EQUIPMENT MUST COMPLY WITH
SUPPLIER'S INSTRUCTION SHEET.**

SPECIAL REQUIREMENTS:

Supplier will provide at no additional cost a technical representative to instruct the receiving divisions in the proper care, maintenance, and operation of the machine.

SUPPLIER'S STATEMENT: (Equipment Proposed Complies:) **YES:**_____ **NO:**_____

DEALER:_____ **DATE:**_____

SIGNATURE:_____ **PHONE:**_____

ADDRESS:_____

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1

EQUIPMENT SPECIFICATIONS

GRADER BLADES

KENCOAT GRADER BLADES OR EQUAL

<u>DESCRIPTION:</u>	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
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Blade:

Blade shall be 7/8" thick x 5" wide,
flat hot-rolled finished steel to meet

or exceed specifications for 1040 type
steels. The top edge of the blade to be
beveled as per the attached diagram.
The length of the blade will be either
36" or 48" long as specified by the user.
The tolerance on the length of the blade
will be +0", -1/16" to insure the blades
will fit on the grader moldboard when
used in sets in combination with other
blades

Punching shall be 11/16" square holes with
holes with countersink to receive 5/8"
diameter plow bolts. Hole punching
to be "standard highway punched: (end
2 holes on each end of blade on 3"
centers and remaining holes 12" spaced
center to center across the middle of the
blade) as per the attached diagram.
The groove for the carbide inserts
shall be milled in the center of the
blade edge

Center of holes shall be in line within
1/32" of established horizontal center-
line and 1/16" of established vertical
centerline

TUNGSTEN CARBIDE INSERTS:

The inserts shall be a high stock WC
grade of tungsten carbide with (11 to 12 ½)
percent cobalt content

Density: 14.1 Minimum to
14.6 Maximum

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES

EXHIBIT 1
GRADER BLADES

EQUIPMENT SPECIFICATIONS

<u>DESCRIPTION:</u>	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
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Hardness: 87.0 Minimum to 89.0 Maximum Rc. "A" Scale		_____
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Transverse Rupture Strength (p.s.i.): 350,000 Minimum		_____
--	--	-------

Porosity: (Based on testing in accordance with ASTM designation B276-79)		
---	--	--

A06		_____
-----	--	-------

B02		_____
-----	--	-------

C00		_____
-----	--	-------

The inserts shall be a trapezoid design of the following dimensions:		
---	--	--

Height: .635" +/- .005 (long side)		_____
------------------------------------	--	-------

Width: .365" +/- .010		_____
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Length: 1" nominal		_____
--------------------	--	-------

Bottom Angle: 25 degrees with a nose radius of 1/16" minimum		_____
---	--	-------

A metallurgical evaluation of the carbide insert shall show no evidence of cross grade contamination. Evaluation to be based on a photomicrograph of a polished and etched specimen at 500x magnification.

BRAZING:

The inserts shall be brazed securely in place along the entire length of the blade using an alloy type braze material and an induction brazing process_____

The tungsten carbide inserts shall be positioned in the milled groove at approximately .010 between the inserts the entire length of each cutting edge section_____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATIONS

GRADER BLADES

DESCRIPTION:

MINIMUM REQUIREMENTS

SUPPLIER'S PROPOSAL

The inserts shall be brazed on all sides consistent with sound brazing practice with no evidence of voids or use of shims

Each blade section to contain one insert one inch nominal length for each inch of blade section length. Due to the thickness of the braze joints between inserts it may be necessary for several inserts to be slightly shorter or longer than the nominal 1" length to insure the carbide insert runs the entire length of the blade without protruding from the end of the steel body

CARBIDE IMBEDDING:

A protective layer of -10, +20 (mesh size) crushed carbide granules imbedded in a weld deposit shall be applied to the lower portion of the blade in front of the carbide inserts. The protective layer shall be a minimum of 1" wide and .188" thick (+/- .060")

SPECIFIC REQUIREMENTS:

The finished blade section shall be free of warpage and longitudinal deviation not to exceed 1/8" in a four-foot blade section

Each blade section shall be identified with manufacturer's identification stamp in an area of the blade not subjected to wear so that it will not be destroyed during the use of the blade

The finished blade sections shall have marking showing the front edge of the blade to avoid improper mounting

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATIONS

GRADER BLADES

WARRANTY: One Year from Date of Delivery

SPECIFICATIONS:

Each Supplier shall submit complete manufacturer's specification in duplicate and shall submit all other data to show that his proposal meets these specifications.

COMPLIANCE:

Supplier Shall furnish a statement in writing on the Bid or by attached letter, and in the Supplier's Statement below, if his equipment proposed strictly meets these Specifications. If not, he shall list each variation therefrom.

**INSPECTION AND DELIVERY OF EQUIPMENT MUST COMPLY WITH
SUPPLIER'S INSTRUCTION SHEET.**

SPECIAL REQUIREMENTS:

Supplier will provide at no additional cost a technical representative to instruct the receiving divisions in the proper care, maintenance, and operation of the machine.

SUPPLIER'S STATEMENT: (Equipment Proposed Complies :) **YES:** _____ **NO:** _____

DEALER: _____ **DATE:** _____

SIGNATURE: _____ **PHONE:** _____

ADDRESS: _____

**OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1**

EQUIPMENT SPECIFICATIONS

GRADER CUTTING EDGES

KENNAMETAL GRADER CUTTING EDGES OR EQUAL

<u>DESCRIPTION:</u>	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
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Blade:

Blade shall be 7/8" thick x 5" wide, flat
hot-rolled finished
SAE 1040 steel or equal

Punching shall be 11/16" square holes
with countersink to receive either 5/8" or
3/4" diameter plow bolts as required.
Location of holes to be in accordance
with AASHTO standards for heavy duty
punching

The groove for the carbide inserts
shall be milled on the blade edge in
accordance with attached drawing

Center of holes shall be in line within
1/32" of established centerline

The tolerance on the length of the
steel portion of the blade to be
+0.0/-0.06"

**TUNGSTEN CARBIDE
INSERTS:**

Face inserts to be grade
SP341 formulated using
Macrocrystalline type WC
manufactured via the menstrum
process and yielding a stoichiometric
composition

Face Insert Characteristics:

Hardness of Face Inserts: 83.5 –
85.0 Rockwell A
Tranverse Rupture Strength:
330,000 psi min.
Density: 13.25 – 13.65 (grams/cm)

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1

EQUIPMENT SPECIFICATIONS

GRADER CUTTING EDGES

<u>DESCRIPTION:</u>	<u>MINIMUM REQUIREMENTS</u>	<u>SUPPLIER'S PROPOSAL</u>
----------------------------	------------------------------------	-----------------------------------

	Center Inserts to be a high shock WC grade of tungsten carbide with 11 to 12 ½ percent cobalt content	
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CENTER INSERT CHARACTERISTICS:

	Hardness: 87.5 – 89.0 Rockwell A Density: 14.1 – 14.6 (grams/cm) Transverse Rupture Strength: 350,000 psi min	
--	--	--

FACE INSERT DIMENSIONS:

	Height: .745" +/- .005 Width: .310" +/- .010 Length: 2.0" Nominal	
--	---	--

CENTER INSERT DIMENSIONS:

	Height: .635" +/- .005 (long side) Width: .365" +/- .010 Length: 1.0" Nominal Bottom Angle: 25 degrees with a nose radius of 1/16" min.	
--	--	--

The carbide insert manufacturer to furnish certification to the requisitioning agency that face and center inserts meet all specifications as set forth.

BRAZING:

	Braze material shall be a high strength alloy type	
--	--	--

	The inserts shall be brazed in place using induction brazing consistent with sound brazing practice with no evidence of voids in the braze joint	
--	--	--

WARRANTY: One Year / From Date of Delivery

OFFICE OF MANAGEMENT & ENTERPRISE SERVICES
EXHIBIT 1

EQUIPMENT SPECIFICATIONS

GRADER CUTTING EDGES

SPECIFICATIONS:

Each Supplier shall submit complete manufacturer's specification in duplicate and shall submit all other data to show that his proposal meets these specifications.

COMPLIANCE:

Supplier Shall furnish a statement in writing on the Bid or by attached letter, and in the Supplier's Statement below, if his equipment proposed strictly meets these Specifications. If not, he shall list each variation therefrom.

**INSPECTION AND DELIVERY OF EQUIPMENT MUST COMPLY WITH
SUPPLIER'S INSTRUCTION SHEET.**

SPECIAL REQUIREMENTS:

Supplier will provide at no additional cost a technical representative to instruct the receiving divisions in the proper care, maintenance, and operation of the machine.

SUPPLIER'S STATEMENT: (Equipment Proposed Complies:) **YES:**_____ **NO:**_____

DEALER:_____ **DATE:**_____

SIGNATURE:_____ **PHONE:**_____

ADDRESS:_____
