ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT EQUIPMENT AND PROCUREMENT DIVISION BID INVITATION

Number:	H-16-269P)	AHTD Equipment and	AHTD Equipment and	AHTD Equipment and
Bid Opening Date:	February 23, 2016	Гіте: 11:00 а.т.	Procurement Division 11302 West Baseline Road Little Rock, AR 72209	Procurement Division P.O. Box 2261 Little Rock, AR 72203	Procurement Division 11302 West Baseline Road Little Rock, AR 72209
delivery locations ur		te and time, and then publ	pject to the Conditions on page 2 of the icly opened at the above-noted bid opined bids will not be considered.		
In compliance with t set opposite each ite		the Conditions thereof, the	undersigned offers and agrees to furn	ish any and all items upon wh	nich prices are quoted, at the price
Company Name:			Name (Type or Print):_		
Address:			Title:		
			Phone:	Fax:	
City:	State:	Zip:	E-Mail:		
Federal Tax ID or	Social Security No.:			, original (not photocopied) ar	nd in ink.

Snow Plows

Bid prices shall include delivery of all Snow Plows to the Arkansas State Highway and Transportation Department at the F.O.B. location(s) shown on attached Bid Sheet.

Contract may be renewed or extended upon mutual agreement of the parties, but shall not exceed limitations allowed by Arkansas State Procurement Law.

Literature Submittals – Item #2 of Bid Specifications shall supersede Item #10 of Standard Bid Conditions.

Bid Bond in the amount of \$1,000 required of all bidders at time of bid opening or bid will be rejected. **Personal and company checks are not acceptable as Bid Bonds.** See Condition 3 on page 2 of bid invitation.

Performance Bond in the amount of 5% of the total awarded to the respective bidders must be furnished within 10 days after receipt of notice of intent to award as a guarantee of delivery in accordance with the specifications and within the time established in the bid. **Personal and company checks are not acceptable as Performance Bonds.** See Condition 3 on page 2 of bid invitation.

Additional Bonding Requirement: If additional units are purchased from this contract, a separate Performance Bond will be required under the same conditions as stated in this Bid Invitation.

Bidder shall specify guaranteed delivery date for all vehicles/equipment bid on in the space provided under each item number for which a price is being submitted. Successful bidder shall furnish Warranty Data for each vehicle/equipment delivered. The Warranty Data shall contain all necessary information such as motor and/or serial numbers and shall be signed by the selling dealer at the time vehicle/equipment is delivered to the Highway Department. Certificate of Origin, Federal Excise Tax Exemption Certificates, Odometer Disclosure Statement and five (5) copies of the Invoice for each vehicle/equipment to be furnished to Equipment & Procurement Division, P.O. Box 2261, Little Rock, AR 72203.

The successful bidder will be required to complete delivery within 120 days after award.

Bids and Specifications are available on-line by going to the AHTD Web Site – www.arkansashighways.com and clicking on "Commodities and Services Bids/Contracts Information". Tabulations will also be available at this site after award of bid/contract. If you have any questions, call this office at 501-569-2667.

STANDARD BID CONDITIONS

H-16-269P

- 1. **ACCEPTANCE AND REJECTION:** The Arkansas State Highway and Transportation Department (AHTD) reserves the right to reject any or all bids, to accept bids in whole or in part (unless otherwise indicated by bidder), to waive any informalities in bids received, to accept bids on materials or equipment with variations from specifications where efficiency of operation will not be impaired, and to award bids to best serve the interest of the State.
- 2. **PRICES:** Unless otherwise stated in the Bid Invitation, the following will apply: (1) unit prices shall be bid, (2) prices should be stated in units of quantity specified (feet, each, lbs., etc.), (3) prices must be F.O.B. destination specified in bid, (4) prices must be firm and not subject to escalation, (5) bid must be firm for acceptance for 30 days from bid opening date. In case of errors in extension, unit prices shall govern. Discounts from bid price will not be considered in making awards.
- BID BONDS AND PERFORMANCE BONDS: If required, a Bid Bond in the form of a cashier's check, certified check, or surety bond issued by a surety company, in an amount stated in the Bid Invitation, must accompany bid. Personal and company checks are not acceptable as Bid Bonds. Failure to submit a Bid Bond as required will cause a bid to be rejected. The Bid Bond will be forfeited as liquidated damages if the successful bidder fails to provide a required Performance Bond within the period stipulated by AHTD or fails to honor their bid. When a bidder claims and can show clear and convincing evidence that a material mistake was made in the bid and was not the bid intended, the bidder may be permitted to withdraw their bid prior to award without forfeiture of bid bond. Cashier's checks and certified checks submitted as Bid Bonds will be returned to unsuccessful bidders; surety bonds will be retained. The successful bidder will be required to furnish a Performance Bond in an amount stated in the Bid Invitation and in the form of a cashier's check, certified check, or surety bond issued by a surety company, unless otherwise stated in the Bid Invitation, as a guarantee of delivery of goods/services in accordance with the specifications and within the time established in the bid. Personal and company checks are not acceptable as Performance Bonds. In some cases, a cashier's check or certified check submitted as a Bid Bond will be held as the Performance Bond of the successful bidder. Cashier's checks or certified checks submitted as Performance Bonds will be refunded shortly after payment has been made to the successful bidder for completion of all terms of the bid; surety bonds will be retained. Surety bonds must be issued by a surety company authorized to do business in Arkansas, and must be signed by a Resident Local Agent licensed by the Arkansas State Insurance Commissioner to represent that surety company. Resident Agent's Power-of-Attorney must accompany the surety bond. Certain bids involving labor will require Performance Bonds in the form of surety bonds only (no checks of any kind allowed). These bonds shall not only serve to guarantee the completion of the work, but also to guarantee the excellence of both workmanship and material until the work is finally accepted and the provisions of the Plans, Specifications, and Special Provisions In such cases, the company issuing the surety bond must comply with all stipulations herein and must be named in the U. S. Treasury listing of companies holding Certificates of Authority as acceptable sureties on Federal Bonds and as acceptable reinsuring companies. Any excess between the face amount of the bond and the underwriting limitation of the bonding company shall be protected by reinsurance provided by an acceptable reinsuring company. Annual Bid and Performance Bonds on file with E & P Division must have sufficient unencumbered funds to meet current bonding requirements, or the bid will be rejected, unless the balance is submitted as set forth above, prior to bid opening.
- 4. **TAXES:** The AHTD is not exempt from Arkansas State Sales and Use Taxes, or local option city/county sales taxes, when applicable, and bidders are responsible to the State Revenue Department for such taxes. These taxes should not be included in bid prices, but where required by law, will be paid by the AHTD as an addition thereto, and should be added to the billing to the AHTD. The AHTD is exempt from Federal Excise Taxes on all commodities except motor fuels; and excise taxes should not be included in bid prices except for motor fuels. Where applicable, tax exemption certificates will be furnished by the AHTD.
- 5. "ALL OR NONE" BIDS: Bidders who wish to bid "All or None" on two or more items shall so stipulate on the face of bid sheet; otherwise, bid may be awarded on an individual item basis.
- 6. **SPECIFICATIONS:** Complete specifications should be attached for any substitution or alternate offered, or where amplification is necessary. Bidder's name must be placed on all attachments to the bid.
- 7. **EXCEPTIONS TO SPECIFICATIONS:** Any exceptions to the bid specifications must be stated in the bid. Any exceptions to manufacturer's published literature must be stated in the bid, or it will be assumed that bidder is bidding exactly as stated in the literature.
- 8. **BRAND NAME REFERENCES:** All brand name references in bid specifications refer to that commodity or its equivalent, unless otherwise stated in Bid Invitation. Bidder should state brand or trade name of item being bid, if such name exists.
- 9. **FREIGHT:** All freight charges should be included in bid price. Any change in common carrier rates authorized by the Interstate Commerce Commission will be adjusted if such change occurs after the bid opening date. Receipted common carrier bills that reflect ICC authorized rate changes must be furnished.
- 10. **SAMPLES, LITERATURE, DEMONSTRATIONS:** Samples and technical literature must be provided free of any charge within 14 days of AHTD request, and free demonstrations within 30 days, unless AHTD extends time. Failure to provide as requested within this period may cause bid to be rejected. Samples, literature and demonstrations must be substantially the same as the item(s) being bid, unless otherwise agreed to by AHTD. Samples that are not destroyed will be returned upon request at bidders expense. Samples from successful bidders may be retained for comparison with items actually furnished.
- 11. **GUARANTY:** Unless otherwise indicated in Bid Invitation, it is understood and agreed that any item offered or shipped on this bid shall be newly manufactured, latest model and design, and in first class condition; and that all containers shall be new, suitable for storage or shipment and in compliance with all applicable laws relating to construction, packaging, labeling and registration.
- 12. **BACKORDERS OR DELAY IN DELIVERY:** Backorders or failure to deliver within the time required may constitute default. Vendor must give written notice to the AHTD, as soon as possible, of the reason for any delay and the expected delivery date. The AHTD has the right to extend delivery if reasons appear valid. If reason or delivery date is not acceptable, vendor is in default.
- 13. **DEFAULT:** All commodities furnished will be subject to inspection and acceptance by AHTD after delivery. Default in promised delivery or failure to meet specifications authorizes the AHTD to cancel award or any portion of same, to reasonably purchase commodities or services elsewhere and to charge full increase, if any, in cost and handling to defaulting vendor. Applicable bonds may be forfeited.
- 14. **ETHICS:** "It shall be a breach of ethical standards for a person to be retained, or to retain a person, to solicit or secure a State contract upon an agreement of understanding for a commission, percentage, brokerage, or contingent fee, except for retention of bona fide employees or bona fide established commercial selling agencies maintained by the contractor for the purpose of securing business." (Arkansas Code, Annotated, Section 19-11-708).

NOTICE OF NONDISCRIMINATION

The Arkansas State Highway and Transportation (Department) complies with all civil rights provisions of federal statutes and related authorities that prohibit discrimination in programs and activities receiving federal financial assistance. Therefore the Department does not discriminate on the basis of race, sex, color, age, national origin, religion or disability, in the admission, access to and treatment in the Department's programs and activities, as well as the Department's hiring or employment practices. Complaints of alleged discrimination and inquiries regarding the Department's nondiscrimination policies may be directed to Joanna P. McFadden, Section Head - EEO/DBE (ADA/504/Title VI Coordinator), P. O. Box 2261, Little Rock, AR 72203, (501) 569-2298, (Voice/TTY 711), or the following email address: joanna.mcfadden@ahtd.ar.gov.

Free language is available for Limited English Proficient individuals is available upon request.

This notice is available from the ADA/504/Title VI Coordinator in large print, on audiotape and in Braille.

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT LITTLE ROCK, ARKANSAS EQUIPMENT AND PROCUREMENT DIVISION

BID SHEET

	tract No.: H-16-269P e 1 of 2	BIDDEI	K:	
1.		Reversible, Parallel Lift, Quick Hitch for sec. 16-435-mm009.	Central Hydraulics	
	FOB: 2 ea AHTD -	District 2 Headquarters, 4900 Highway	65 South, Pine Bluff, AR	R 71611
	Bid Price (Do not incl	ude any Local, State or Federal Taxes)	Eac	ch \$
	Total for 2 Snow Ploy	vs		\$
	Snow Plows proposed	to furnish:		
	Make:	_ Model	_ Warranty	-
	Guaranteed Delivery l	Date	_	
		be purchased at the same pricing and (Date)		
2.		Reversible for Truck Mounting with Elecuck Hitch), to meet AHTD Spec. 16-434	2	
	FOB: 7 ea AHTD -	District 4 Headquarters, 808 Frontier Ro	oad, Barling, AR 72923	
	Bid Price (Do not incl	ude any Local, State or Federal Taxes)	Eac	ch \$
	Total for 7 Snow Ploy	vs		\$
	Snow Plows proposed	to furnish:		
	Make:	Model	_ Warranty	_
	Guaranteed Delivery l	Date	_	
	•	be purchased at the same pricing and (Date)		

Contract No.: H-16-269P

Page 2 of 2

Bid Price (Do not	include any Local, State or Federal Taxes)	Each \$	
·	•		
Γotal for <mark>28</mark> Snov	Plows	\$	
Snow Plows prop	osed to furnish:		
Make:	Model	_ Warranty	
Guaranteed Deliv	ery Date	_	
Additional Units	may be purchased at the same pricing and		
	h		
2 – Snow Plow, (with Truck	(Date) (Date) (O' Reversible for Truck Mounting w/Central Hitch), to meet AHTD Spec. 16-432-mm009 TD - District 3 Headquarters, 2911 Hwy. 29 TD - District 5 Headquarters, 1673 Batesville	North, Hope, AR 71801	
2 – Snow Plow, (with Truck FOB: 1 ea AH 1 ea. – AH	10' Reversible for Truck Mounting w/Central Hitch), to meet AHTD Spec. 16-432-mm009 TD - District 3 Headquarters, 2911 Hwy. 29	North, Hope, AR 71801	
2 - Snow Plow, (with Truck FOB: 1 ea AH 1 ea AH	10' Reversible for Truck Mounting w/Central Hitch), to meet AHTD Spec. 16-432-mm009 TD - District 3 Headquarters, 2911 Hwy. 29 TD - District 5 Headquarters, 1673 Batesville include any Local, State or Federal Taxes)	North, Hope, AR 71801 e Blvd., Batesville, AR 73501	
2 – Snow Plow, (with Truck FOB: 1 ea AH 1 ea. – AH	10' Reversible for Truck Mounting w/Central Hitch), to meet AHTD Spec. 16-432-mm009 TD - District 3 Headquarters, 2911 Hwy. 29 TD - District 5 Headquarters, 1673 Batesville include any Local, State or Federal Taxes) Plows	North, Hope, AR 71801 e Blvd., Batesville, AR 73501 Each \$	
2 - Snow Plow, (with Truck FOB: 1 ea AH 1 ea AH Bid Price (Do not) Total for 2 Snow Snow Plows prop	10' Reversible for Truck Mounting w/Central Hitch), to meet AHTD Spec. 16-432-mm009 TD - District 3 Headquarters, 2911 Hwy. 29 TD - District 5 Headquarters, 1673 Batesville include any Local, State or Federal Taxes) Plows	North, Hope, AR 71801 e Blvd., Batesville, AR 73501 Each \$ \$	
2 - Snow Plow, (with Truck FOB: 1 ea AH 1 ea AH Bid Price (Do not Total for 2 Snow Snow Plows prop	10' Reversible for Truck Mounting w/Central Hitch), to meet AHTD Spec. 16-432-mm009 TD - District 3 Headquarters, 2911 Hwy. 29 TD - District 5 Headquarters, 1673 Batesville include any Local, State or Federal Taxes) Plows osed to furnish:	North, Hope, AR 71801 e Blvd., Batesville, AR 73501 Each \$ \$ Warranty	
2 - Snow Plow, (with Truck FOB: 1 ea AH 1 ea AH Bid Price (Do not Total for 2 Snow Snow Plows prop Make: Guaranteed Deliv	10' Reversible for Truck Mounting w/Central Hitch), to meet AHTD Spec. 16-432-mm009 TD - District 3 Headquarters, 2911 Hwy. 29 TD - District 5 Headquarters, 1673 Batesville include any Local, State or Federal Taxes) Plows osed to furnish: Model	North, Hope, AR 71801 e Blvd., Batesville, AR 73501 Each \$ \$ Warranty	

BID TOTAL \$ _____

SPECIFICATION 16-435-mm009

FOR

12' SNOWPLOW ATTACHMENT DOWN PRESSURE CAPABLE 36" MOLDBOARD HEIGHT (WITH TRUCK HITCH)

A. General Conditions:

- 1. <u>Current Model</u>: Units furnished under this specification shall be the latest improved model in current production, as offered to commercial trade, built for the U.S. market, and shall be of quality workmanship and material. Machines manufactured for foreign markets will not be accepted. All equipment offered under this specification shall be new. Used, reconditioned, shopworn, demonstrator, prototype or discontinued models are not acceptable. Manufacturers of the units supplied must have been in the business of producing operational units for at least two years and must have recently sold similar units to domestic governmental agencies. The model furnished must have been in production for a minimum of one year, or be the latest version of a previous model. Bidder/s may be required to submit documentation substantiating the aforementioned requirements. A list of user references may also be required.
- 2. <u>Literature</u>: Manufacturers literature, verifying adherence of proposed unit to each line item addressed in this specification, shall be submitted with the bid. If any literature and/or specifications of items conflict with AHTD specifications, the conflict(s) shall be specifically noted, corrected and submitted with the bid.
- 3. Any deviations from specifications and requirements herein must be clearly pointed out by bidder. Otherwise it will be considered that equipment offered is in strict compliance with these specifications and requirements, and successful bidder will be held responsible therefor. Deviations must be explained in detail on an attached sheet. However, no implication is made by the Arkansas State Highway and Transportation Department that deviations will be acceptable.
- 4. <u>Manuals</u>: The successful bidder shall furnish one (1) Operator's Instruction Manual with each unit delivered and one (1) copy each of Shop Repair Manual, Parts Book and Installation Guide to each FOB point.
 - The successful bidder may provide Shop Repair Manuals and Parts Manuals on computer media (CD, DVD, USB Drive, etc.) in lieu of printed manuals.
- 5. All parts, accessories and tools necessary for satisfactory operation of unit shall be furnished whether or not they are specifically mentioned in this specification (including standard equipment as regularly furnished by manufacturer as shown on printed literature and specifications unless specifically excluded by this specification).
- 6. <u>Parts Inventory & Service Facilities</u>: The successful bidder shall maintain a representative inventory of replacement parts and service facilities for servicing equipment bid on.
- 7. <u>Demonstration</u>: The Arkansas State Highway & Transportation Department reserves the right to require a demonstration, under actual working conditions, of equipment bid under this specification before award is made. The demonstration would be performed (free of any charge) by the bidder or an authorized representative at a mutually acceptable location. If requested, the bidder should be prepared to demonstrate the equipment within thirty (30) days after notification. Failure of the bidder to perform a satisfactory demonstration within the specified time may be grounds for rejection of the bid.
- 8. <u>Cooperative Purchasing</u>: Other tax-supported entities* in Arkansas (cities, counties, state agencies, school districts, etc.) may purchase from this Contract on an individual basis under the same specifications and conditions, and at the pricing set forth by each vendor, all at the discretion of each vendor in each case. Prices could be reduced by a vendor for minor alterations in conditions (changing order quantities, deleting options, etc.) as agreed by both parties, but could not be raised above the contract bid price except for any additional freight charges. Vendors would not be required to sell to any such entity under this contract, and those entities would not be obligated to purchase from the contract.

^{*} Tax-supported entities are defined as those receiving more than half of total funding from appropriated tax funds.

Spec. 16-435-mm009

B. <u>Unit Specifications</u>:

1. <u>General</u>: Snowplow with power reversing moldboard, for use on a truck equipped with central hydraulics. Plow shall be designed to withstand a maximum of 200 pounds of hydraulic down pressure. The snowplow provided shall be designed and approved by the manufacturer for installation on a truck which has a front gross axle weight rating of 18,000 pounds.

- 2. Reversing Frame: The upper and lower horizontal supports of the reversing frame shall be constructed of no less than 4" x 4" x 1/4" square tubing. The upper horizontal support shall be no less than 65" in length. The lower horizontal support, which will also be the push tube, shall be no less than 109" in length and have minimum of ten (10) fully welded 1/2" thick ears for mounting of the moldboard. Each ear shall have a fully welded gusset. The lower horizontal support shall attach to the moldboard with no less than five (5) pins a minimum of 1 1/4" diameter. The upper and lower horizontal support shall be connected by four (4) fully welded vertical supports. The reversing frame shall be equipped with two (2) greasable rollers no less than 3 inch diameter that act as reversing stops. The center of the reversing frame shall be equipped with a swivel mount designed to connect the reversing frame to the swivel assembly. The swivel mount shall be welded to the upper and lower horizontal supports. Hydraulic cylinder swivel attachment structures shall be welded between the upper and lower horizontal supports and be located between the swivel mount and inner vertical supports.
- 3. <u>Swivel Assembly</u>: Shall attach the reversing frame to the upper and lower a-frame arms. Shall be attached to the swivel mount of the reversing frame using a minimum of five grade 8 bolts with castle nuts. The assembly shall have a minimum of six degrees horizontal swivel to allow the plow to maintain contact with the road surface. Swivel assembly shall have a self-centering mechanism that holds the plow level when in the transport position. Swivel assembly shall attach to the a-frame arms with a minimum 3" diameter removable pivot pin mounted in greasable bushing. Swivel assembly shall allow a minimum of 35 degrees pivot in either direction from center.
- 4. <u>A-Frame Arms</u>: The upper and lower a-frame arms shall be constructed of a minimum of 3" x 3" x 3/8" square tubing with mounting ears produced of no less than 9/16" steel. A-Frame arms shall be reinforced with ½" plating fully welded to the square tubing. The lower a-frame arm shall be equipped with a hydraulic cylinder mount produced from ¾" thick steel.
- 5. <u>Hydraulic</u>: The plow shall be designed to attach and un-attach itself from the truck hitch using its hydraulic lift cylinder. Shall contain three (3) identical double acting, single stage, heavy duty hydraulic cylinders with a minimum 4" diameter bore. Cylinders shall be equipped with a minimum 2" diameter nitride coated rod. Two (2) of the hydraulic cylinders shall be used to control the power reversing function of the plow and the other to raise and lower the moldboard. The reversing cylinders shall maintain the angle of the moldboard once the desired plowing angle is reached. The unit shall be equipped with a hydraulic cushion valve to protect hydraulic cylinders in the event of an impact with a fixed object. Cylinders shall be equipped with hydraulic lines of sufficient length to connect to supply lines on the front bumper of the truck.
- 6. Moldboard: Extended curved moldboard no less than twelve (12) feet in length. Moldboard face shall be constructed of no less than 3/16" steel with a minimum of seven (7) vertical ribs fully welded to the reverse side. Moldboard shall be equipped with horizontal ribs according to manufacturer's standard for plow size and type. Moldboard height shall be no less than 36" but shall not exceed 42". Shall be extended curve design to prevent snow from coming over the top of moldboard at high speed. When set at twelve (12) degree attack angel the top of the moldboard curve shall extend forward of the cutting edge by no less than twenty (20) inches. Shall have mailbox ends equipped with sight markers at least 36" in height. Shall be equipped with two (2) compression type spring safety trips capable of at least three (3) attack angle settings ranging from 4 to 21 degrees from vertical. Shall include stops attached to the moldboard assembly which contact the reversing frame front push tube before the trip springs becomes fully compressed. The moldboard assembly shall be capable of tripping at least 15 degrees past vertical before contacting the stops, at any attack angle. Shall have a minimum of five (5) hinge points. There shall be a minimum of 109" between the outer most hinge points.
- 7. <u>Snow Shield</u>: The moldboard shall be equipped with a full length rubber snow shield mounted on the top forward edge. Shall be made of a minimum of two ply rubber matting no less than 1/4" thick. Snow shield shall be affixed to the moldboard using a minimum 0.25" x 2" metal strip and an adequate number of bolts to secure it in position.
- 8. Cutting Edge: The blades shall be fabricated from hot rolled carbon steel meeting the requirements of ASTM A-576-90b or ASTM A-575-96 within the range of Grades 1020 through 1044. Blades shall be three and/or four foot sectional lengths. Hole punching shall be 11/16 inch square holes with a 1 5/32 inch diameter countersink 1/8" to 3/16" inch deep to receive 5/8 inch diameter plow bolts. Hole punch arrangement shall be AASHTO spaced. A groove for carbide shall be milled in the center of the steel blade edge. This groove shall be filled with an insert of high shock WC Grade Virgin Tungsten Carbide. The tungsten carbide inserts shall be positioned in the milled groove with approximately 0.010 inch space between the inserts the entire length of each cutting edge section. The inserts shall be brazed on all sides consistent with sound brazing practice with no evidence of voids or use of shims. Brazing shall be of such strength and quality as required to prevent movement or loss of the inserts during use. A strip of high carbon hard

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surface weld shall be applied to the front, bottom edge of the blade and run the full length of the blade. This strip shall be a minimum of 7/8 inch high and a minimum of 3/16 inch thick.

- 9. <u>Hitch Plate</u>: Shall be capable of carrying plows from 10' to 14' in length. Shall be designed to be an integral, interlocking component, with one section affixed to the plow and the other section mounted on the truck. When combined the two (2) sections will create a positive lock plow hitch. Hitches using braces running from the lift frame to the front axle of the vehicle are not acceptable.
 - a. <u>Plow Section</u>: The front face shall contain the mountings for the upper and lower a-frame arms, reversing cylinder mounts and the lift cylinder mount. The primary hitch plate shall be manufactured of no less than 9/16" steel plating and shall include outer vertical supports with 1 ¼" holes for mounting of the a-frame arms. The hitch plate shall include two (2) welded inner vertical supports. The hitch plate shall include 3" x 3" square tubing welded to the inner and outer vertical supports for mounting of the lift cylinder. Cylinder mounting plate assemblies shall be manufactured using no less than ¾" steel. Reversing cylinder swivel mounts shall be installed on brackets welded between the inner vertical plates. These brackets shall be manufactured of no less than 1" steel. The outer edge of the outside vertical supports shall contain an arched reversing stop bar manufactured from 1" round bar. The back face of the assembly shall contain two (2) mounting hooks made no less than 1" thick steel for attaching the plow half of the hitch to the upper portion of the truck half of the hitch. The bottom of the hitch plate rear face shall have two (2) mounting ears manufactured of 1" thick steel for securing the plow half of the hitch to the lower portion of the truck half of the hitch. Securement shall accomplished by use of a lever activated spring loaded device which inserts two (2) 1 ½" pins through the mounting holes.
 - b. <u>Truck Section</u>: When installed the front face of the hitch plate shall provide a flat surface free from obstructions. Shall be designed to allow the plow section of the hitch plate to easily attach and lock into position without aid of a lifting device. Shall be equipped with a lever activated spring loaded device which inserts two (2) 1 ½" pins through the mounting holes of the plow half of the hitch. Cheek plates shall be a minimum of ½" metal plating with all necessary gussets, bracing and reinforcements necessary to complete instillation. Rocker angles and plates shall be utilized above and below the truck frame to keep the hitch from loosening and moving forward. The cheek plates and rocker plates will be welded to the truck hitch by the upfitter.
- 10. <u>Parking Stands</u>: The plow shall be equipped with two (2) stands designed to hold the unit in a staging position when not attached to the truck hitch.
- 11. Weight: Snowplow assembly shall weigh a minimum of 3,300 pounds.
- 12. Color: Manufacturer's standard color is acceptable.
- 13. <u>Warranty</u>: Units purchased under this specification shall be warranted against defects in material and workmanship for a minimum period of twelve (12) months (365 days) from date unit is placed in operation by AHTD.
 - A. Warranty shall include all parts, labor and transportation costs to the location of equipment.
 - B. If equipment cannot be repaired on location, warranty shall include cost of transport to the facility where the repair work will be done.
 - C. It will be the responsibility of the successful bidder to insure that repairs are completed in a timely manner.
 - D. If any warranty literature submitted with the bid conflicts with AHTD warranty requirements, the conflict(s) shall be specifically noted, corrected and included with the bid or the conflict(s) will be considered an exception to warranty specifications and the bid rejected.
 - E. Recent prior failure to provide warranty-work, parts, replacement parts or service, in a timely manner, for equipment from the same manufacturer or dealer shall be grounds for the rejection of any submitted bid, or for the denial of any otherwise qualified low bidder, whether such failure is attributable to the manufacturer or the dealer of the equipment. For the purposes of this paragraph "timely manner" means a period of time not exceeding thirty (30) calendar days to provide requested warranty-work, parts, replacement parts, or service. For the purposes of this paragraph "manufacturer" means the original manufacturer of the equipment and its successor or successors, regardless of number, and whether acquired by sale, merger, or otherwise. For the purposes of this paragraph "replacement part" means a part redesigned by a manufacturer to correct a design or engineering defect and which replacement part is capable of providing dependable performance in normal operation conditions for its normal service life without failure. Such bid or bids may be rejected by the Department until such failure or failures have been remedied to the satisfaction of the Department and until such manufacturer or dealer is providing such warranty-work, parts, replacement parts, and service in a timely manner.

SPECIFICATION 16-434A-mm009

FOR

12' SNOW PLOW ATTACHMENT WITH ELECTRIC HYDRAULIC PUMP 36" MOLDBOARD HEIGHT

General Conditions:

- 1. <u>Current Model</u>: Units furnished under this specification shall be the latest improved model in current production, as offered to commercial trade, built for the U.S. market, and shall be of quality workmanship and material. Machines manufactured for foreign markets will not be accepted. All equipment offered under this specification shall be new. Used, reconditioned, shopworn, demonstrator, prototype or discontinued models are not acceptable. Manufacturers of the units supplied must have been in the business of producing operational units for at least two years and must have recently sold similar units to domestic governmental agencies. The model furnished must have been in production for a minimum of one year, or be the latest version of a previous model. Bidder/s may be required to submit documentation substantiating the aforementioned requirements. A list of user references may also be required.
- 2. <u>Literature</u>: Manufacturers literature, verifying adherence of proposed unit to each line item addressed in this specification, shall be submitted with the bid. If any literature and/or specifications of items conflict with AHTD specifications, the conflict(s) shall be specifically noted, corrected and submitted with the bid.
- 3. Any deviations from specifications and requirements herein must be clearly pointed out by bidder. Otherwise it will be considered that equipment offered is in strict compliance with these specifications and requirements, and successful bidder will be held responsible therefor. Deviations must be explained in detail on an attached sheet. However, no implication is made by the Arkansas State Highway and Transportation Department that deviations will be acceptable.
- 4. <u>Manuals</u>: Successful bidder shall furnish one (1) copy of Operator's Manual and Parts Book with each unit delivered. The successful bidder may provide Parts Manuals on computer media in lieu of printed manuals.
- 5. Complete installation instructions shall be furnished with each unit.
- 6. All parts and equipment necessary for satisfactory operation of unit shall be furnished whether or not they are specifically mentioned in this specification (including standard equipment as regularly furnished by manufacturer as shown on printed literature and specifications unless specifically excluded by this specification).
- 7. <u>Parts Inventory & Service Facilities</u>: The successful bidder shall maintain a representative inventory of replacement parts and service facilities for servicing equipment bid on.
- 8. <u>Demonstration</u>: The Arkansas State Highway & Transportation Department reserves the right to require a demonstration, under actual working conditions, of equipment bid under this specification before award is made. The demonstration would be performed (free of any charge) by the bidder or an authorized representative at a mutually acceptable location. If requested, the bidder should be prepared to demonstrate the equipment within thirty (30) days after notification. Failure of the bidder to perform a satisfactory demonstration within the specified time may be grounds for rejection of the bid.
- 9. <u>Cooperative Purchasing</u>: Other tax-supported entities* in Arkansas (cities, counties, state agencies, school districts, etc.) may purchase from this Contract on an individual basis under the same specifications and conditions, and at the pricing set forth by each vendor, all at the discretion of each vendor in each case. Prices could be reduced by a vendor for minor alterations in conditions (changing order quantities, deleting options, etc.) as agreed by both parties, but could not be raised above the contract bid price except for any additional freight charges. Vendors would not be required to sell to any such entity under this contract, and those entities would not be obligated to purchase from the contract.

^{*} Tax-supported entities are defined as those receiving more than half of total funding from appropriated tax funds.

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Unit specifications:

- 10. <u>General</u>: Snow plow with power reversing moldboard, complete with 12 volt DC electric hydraulic pump assembly. The snow plow provided shall be designed and approved by the manufacturer for installation on a truck which has a front gross axle weight rating of 13,000 pounds.
- 11. <u>Power Reversing</u>: Snow plow assembly shall be hydraulic power reverse type with a mechanical lock which is automatically released by the reversing cylinders before angling. When the desired plowing angle is reached, the latch shall be moved back into position mechanically to hold the desired angle and take pressure off the hydraulic cylinders.
- 12. <u>Moldboard</u>: Curved moldboard no less than 12' in length. Shall be constructed of no less than 10 gauge high tensel, grade 50, steel with a minimum of ten (10) vertical ribs and with horizontal ribs according to manufacturer's standard for plow size and type. Moldboard height shall be no less than 36" but shall not exceed 42". Shall be of extended curve design to prevent snow from coming over the top of the moldboard at high speed. When set at the optimal plowing angle the top of the moldboard curve shall extend forward of the cutting edge by no less than twelve (12) inches. Shall have mailbox ends equipped with sight markers at least 36" in height. Shall have cutting angle adjustment to no less than 35° left and right of center. Shall be equipped with two (2) compression type spring safety trips capable of at least three (3) tension settings. Shall have a minimum of five (5) hinge points. There shall be a minimum of 116" between the outer most hinge points with a minimum of three more hinge points equally spaced between.
- 13. <u>Snow Shield</u>: The moldboard shall be equipped with a full length rubber snow shield mounted on the top forward edge. Shall be made of a minimum of two ply rubber matting no less than 1/4" thick. Snow shield shall be affixed to the moldboard using a minimum 0.25" x 2" metal strip and an adequate number of bolts to secure it in position.
- 14. <u>Cutting Edge</u>: Cutting edge shall be a minimum 7/8" x 6" <u>high carbon steel</u> with holes AASHTO spaced. Cutting edge shall be equipped with two wear shoes behind the cutting edge. Each wear shoe shall have a minimum of 26 square inches of wear surface. Wear blocks shall be made of a material with a minimum Brinell hardness of 181-240.
- 15. <u>Level Lifting Device</u>: Snowplow shall be equipped with a level lifting device that keeps the moldboard level when lifted or when being reversed. Device shall be complete with all chains, hooks, clevises and hardware necessary for proper operation.
- 16. Truck Hitch: Low profile, front frame mounted universal plow hitch with fold down and adjustable lift arm. Shall be capable of self storing lift cylinder. The lift cylinder shall be a minimum 4" diameter bore and of sufficient length to properly lift snowplow. Hitch shall be capable of carrying plows from 10' to 14' in length. The lift arm mounting frame shall be constructed using a minimum of ½" x 3" angle welded to a 10" structural channel which forms the lift frame. Cheek plates shall be ½" x 12" tapered. Rocker angles and plates shall be utilized above and below the truck frame to keep the hitch from loosening and moving forward. The cheek plates and rocker plates will be welded to the truck hitch by the upfitter. Lift arm bracket and lower drop bar retaining/connecting lugs shall be fabricated from ¾" thick plate. Mounting flanges shall be set on 30 ½" centers with pin holes sized for 1 ¼" pins. (Hitches using braces running from the lift frame to the front axle of the vehicle are not acceptable).
- 17. Hydraulic System: A 12 volt DC electric hydraulic pump for under truck mounting with a one (1) gallon minimum reservoir and controls for inside cab operation shall be provided. Electric hydraulic pump shall be designed for angle type blade operation and have electric solenoid control valves for operating blade angle and for raising and lowering plow. Shall operate two (2) one-way cylinders for blade angle with return to tank in neutral position for operation of spring loaded mechanical latch. Unit shall also provide for power up, hold in neutral and gravity down for raising and lowering plow. Control switches provided for installation inside cab shall have UP, DOWN, LEFT, RIGHT functions and be clearly labeled. A minimum of one (1) lift cylinder, two (2) angle cylinders and all necessary hoses and fittings for complete installation shall be furnished. Hoses furnished for the lift cylinder and angle cylinders shall each have a minimum length of 16'.
- 18. Weight: Snow plow assembly, without the truck hitch or electric hydraulic pump, shall have an approximate weight of 1,200 pounds.
- 19. Color: Manufacturer's standard color is acceptable.
- 20. <u>Warranty</u>: Units purchased under this specification shall be warranted against defects in material and workmanship for a minimum period of twelve (12) months (365 days) from date unit is placed in operation by AHTD.
 - A. Warranty shall include all parts, labor and transportation costs to the location of equipment.

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- B. If equipment cannot be repaired on location, warranty shall include cost of transport to the facility where the repair work will be done.
- C. It will be the responsibility of the successful bidder to insure that repairs are completed in a timely manner.
- D. If any warranty literature submitted with the bid conflicts with AHTD warranty requirements, the conflict(s) shall be specifically noted, corrected and included with the bid or the conflict(s) will be considered an exception to warranty specifications and the bid rejected.
- E. Recent prior failure to provide warranty-work, parts, replacement parts or service, in a timely manner, for equipment from the same manufacturer or dealer shall be grounds for the rejection of any submitted bid, or for the denial of any otherwise qualified low bidder, whether such failure is attributable to the manufacturer or the dealer of the equipment. For the purposes of this paragraph "timely manner" means a period of time not exceeding thirty (30) calendar days to provide requested warranty-work, parts, replacement parts, or service. For the purposes of this paragraph "manufacturer" means the original manufacturer of the equipment and its successor or successors, regardless of number, and whether acquired by sale, merger, or otherwise. For the purposes of this paragraph "replacement part" means a part redesigned by a manufacturer to correct a design or engineering defect and which replacement part is capable of providing dependable performance in normal operation conditions for its normal service life without failure. Such bid or bids may be rejected by the Department until such failure or failures have been remedied to the satisfaction of the Department and until such manufacturer or dealer is providing such warranty-work, parts, replacement parts, and service in a timely manner.

SPECIFICATION 16-431-mm009

FOR

10' SNOW PLOW ATTACHMENT WITHOUT TRUCK HITCH WITH ELECTRIC HYDRAULIC PUMP 36" MOLDBOARD HEIGHT

A. General Conditions:

- 1. <u>Current Model</u>: Units furnished under this specification shall be the latest improved model in current production, as offered to commercial trade, built for the U.S. market, and shall be of quality workmanship and material. Machines manufactured for foreign markets will not be accepted. All equipment offered under this specification shall be new. Used, reconditioned, shopworn, demonstrator, prototype or discontinued models are not acceptable. Manufacturers of the units supplied must have been in the business of producing operational units for at least two years and must have recently sold similar units to domestic governmental agencies. The model furnished must have been in production for a minimum of one year, or be the latest version of a previous model. Bidder/s may be required to submit documentation substantiating the aforementioned requirements. A list of user references may also be required.
- 2. <u>Literature</u>: Manufacturers literature, verifying adherence of proposed unit to each line item addressed in this specification, shall be submitted with the bid. If any literature and/or specifications of items conflict with AHTD specifications, the conflict(s) shall be specifically noted, corrected and submitted with the bid.
- 3. Any deviations from specifications and requirements herein must be clearly pointed out by bidder. Otherwise it will be considered that equipment offered is in strict compliance with these specifications and requirements, and successful bidder will be held responsible therefor. Deviations must be explained in detail on an attached sheet. However, no implication is made by the Arkansas State Highway and Transportation Department that deviations will be acceptable.
- 4. <u>Manuals</u>: Successful bidder shall furnish one (1) copy of Operator's Manual and Parts Book with each unit delivered. The successful bidder may provide Parts Manuals on computer media in lieu of printed manuals.
- 5. Complete installation instructions shall be furnished with each unit.
- 6. All parts and equipment necessary for satisfactory operation of unit shall be furnished whether or not they are specifically mentioned in this specification (including standard equipment as regularly furnished by manufacturer as shown on printed literature and specifications unless specifically excluded by this specification).
- 7. <u>Parts Inventory & Service Facilities</u>: The successful bidder shall maintain a representative inventory of replacement parts and service facilities for servicing equipment bid on.
- 8. <u>Demonstration</u>: The Arkansas State Highway & Transportation Department reserves the right to require a demonstration, under actual working conditions, of equipment bid under this specification before award is made. The demonstration would be performed (free of any charge) by the bidder or an authorized representative at a mutually acceptable location. If requested, the bidder should be prepared to demonstrate the equipment within thirty (30) days after notification. Failure of the bidder to perform a satisfactory demonstration within the specified time may be grounds for rejection of the bid.
- 9. Cooperative Purchasing: Other tax-supported entities* in Arkansas (cities, counties, state agencies, school districts, etc.) may purchase from this Contract on an individual basis under the same specifications and conditions, and at the pricing set forth by each vendor, all at the discretion of each vendor in each case. Prices could be reduced by a vendor for minor alterations in conditions (changing order quantities, deleting options, etc.) as agreed by both parties, but could not be raised above the contract bid price except for any additional freight charges. Vendors would not be required to sell to any such entity under this contract, and those entities would not be obligated to purchase from the contract.

^{*} Tax-supported entities are defined as those receiving more than half of total funding from appropriated tax funds.

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B. <u>Unit specifications</u>:

- 1. <u>General</u>: Snow plow with power reversing moldboard, complete with 12 volt DC electric hydraulic pump assembly. The snow plow provided shall be designed and approved by the manufacturer for installation on a truck which has a front gross axle weight rating of 12,000 pounds.
- Push Frame: Shall be formed of all structural steel members properly reinforced to withstand severe snow plowing conditions.
- 3. <u>Power Reversing</u>: Snow plow assembly shall be hydraulic power reverse type with a mechanical lock which is automatically released by the reversing cylinders before angling. When the desired plowing angle is reached, the latch shall be moved back into position mechanically to hold the desired angle and take pressure off the hydraulic cylinders.
- 4. Moldboard: Curved moldboard no less than 10' in length. Shall be constructed of no less than 10 gauge high tensel, grade 50, steel with a minimum of eight (8) vertical ribs and with horizontal ribs according to manufacturer's standard for plow size and type. Moldboard height shall be no less than 35" but shall not exceed 42". Shall be of extended curve design to prevent snow from coming over the top of the moldboard at high speed. When set at the optimal plowing angle the top of the moldboard curve shall extend forward of the cutting edge by no less than twelve (12) inches. Shall have mailbox ends equipped with sight markers at least 36" in height. Shall have cutting angle adjustment to no less than 35°. Shall be equipped with two (2) compression type spring safety trips capable of at least three (3) attack angle settings ranging from 10 to 30 degrees. Shall have a minimum of four (4) hinge points. Outside hinge point centers shall be no less than 116". Mounting flanges shall be set on 21" centers with pin holes sized for 1 ¼" pins.
- 5. <u>Cutting Edge</u>: Cutting edge shall be a minimum 7/8" x 6" <u>high carbon steel</u> with holes AASHTO spaced. Cutting edge shall be equipped with two replaceable wear shoes, one (1) mounted on either end of the moldboard. Each shoe shall have a minimum of 26 square inches of wear surface and be made of a material with a minimum Brinell hardness of 181-240.
- 6. <u>Snow Shield</u>: The moldboard shall be equipped with a full length rubber snow shield mounted on the top forward edge. Shall be made of a minimum of two ply rubber matting no less than 1/4" thick. Snow shield shall be affixed to the moldboard using a minimum 0.25" x 2" metal strip and an adequate number of bolts to secure it in position.
- 7. <u>Truck Hitch</u>: A truck hitch is not required (will be furnished by AHTD).
- 8. <u>Jack</u>: The snowplow shall be equipped with a screw type adjustable jack to assist in the instillation and removal of the unit from the truck hitch.
- 9. <u>Hydraulic System</u>: A 12 volt DC electric hydraulic pump for under truck mounting with a one (1) gallon minimum reservoir and controls for inside cab operation shall be provided. Electric hydraulic pump shall be designed for angle type blade operation and have electric solenoid control valves for operating blade angle and for raising and lowering plow. Shall operate two (2) one-way cylinders for blade angle with return to tank in neutral position for operation of spring loaded mechanical latch. Unit shall also provide for power up, hold in neutral and gravity down for raising and lowering plow. Control switches provided for installation inside cab shall have UP, DOWN, LEFT, RIGHT functions and be clearly labeled. A minimum of one (1) lift cylinder, two (2) angle cylinders and all necessary hoses and fittings for complete installation shall be furnished. Hoses furnished for the lift cylinder and angle cylinders shall each have a minimum length of 16'.
- 10. Weight: Snow plow assembly, without the truck hitch or electric hydraulic pump, shall have an approximate weight of 1,200 pounds.
- 11. <u>Color</u>: Manufacturer's standard color is acceptable.
- 12. <u>Warranty</u>: Units purchased under this specification shall be warranted against defects in material and workmanship for a minimum period of twelve (12) months (365 days) from date unit is placed in operation by AHTD.
 - A. Warranty shall include all parts, labor and transportation costs to the location of equipment.
 - B. If equipment cannot be repaired on location, warranty shall include cost of transport to the facility where the repair work will be done.
 - C. It will be the responsibility of the successful bidder to insure that repairs are completed in a timely manner.
 - D. If any warranty literature submitted with the bid conflicts with AHTD warranty requirements, the conflict(s) shall be specifically noted, corrected and included with the bid or the conflict(s) will be considered an exception to warranty specifications and the bid rejected.

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E. Recent prior failure to provide warranty-work, parts, replacement parts or service, in a timely manner, for equipment from the same manufacturer or dealer shall be grounds for the rejection of any submitted bid, or for the denial of any otherwise qualified low bidder, whether such failure is attributable to the manufacturer or the dealer of the equipment. For the purposes of this paragraph "timely manner" means a period of time not exceeding thirty (30) calendar days to provide requested warranty-work, parts, replacement parts, or service. For the purposes of this paragraph "manufacturer" means the original manufacturer of the equipment and its successor or successors, regardless of number, and whether acquired by sale, merger, or otherwise. For the purposes of this paragraph "replacement part" means a part redesigned by a manufacturer to correct a design or engineering defect and which replacement part is capable of providing dependable performance in normal operation conditions for its normal service life without failure. Such bid or bids may be rejected by the Department until such failure or failures have been remedied to the satisfaction of the Department and until such manufacturer or dealer is providing such warranty-work, parts, replacement parts, and service in a timely manner.

SPECIFICATION 16-432-mm009

FOR

10' SNOWPLOW ATTACHMENT 36" MOLDBOARD HEIGHT FOR TRUCK WITH CENTRAL HYDRAULIC SYSTEM

A. General Conditions:

- 1. <u>Current Model</u>: Units furnished under this specification shall be the latest improved model in current production, as offered to commercial trade, built for the U.S. market, and shall be of quality workmanship and material. Machines manufactured for foreign markets will not be accepted. All equipment offered under this specification shall be new. Used, reconditioned, shopworn, demonstrator, prototype or discontinued models are not acceptable. Manufacturers of the units supplied must have been in the business of producing operational units for at least two years and must have recently sold similar units to domestic governmental agencies. The model furnished must have been in production for a minimum of one year, or be the latest version of a previous model. Bidder/s may be required to submit documentation substantiating the aforementioned requirements. A list of user references may also be required.
- 2. <u>Literature</u>: Manufacturers literature, verifying adherence of proposed unit to each line item addressed in this specification, shall be submitted with the bid. If any literature and/or specifications of items conflict with AHTD specifications, the conflict(s) shall be specifically noted, corrected and submitted with the bid.
- 3. Any deviations from specifications and requirements herein must be clearly pointed out by bidder. Otherwise it will be considered that equipment offered is in strict compliance with these specifications and requirements, and successful bidder will be held responsible therefor. Deviations must be explained in detail on an attached sheet. However, no implication is made by the Arkansas State Highway and Transportation Department that deviations will be acceptable.
- 4. <u>Manuals</u>: Successful bidder shall furnish one (1) copy of Operator's Manual and Parts Book with each unit delivered. The successful bidder may provide Parts Manuals on computer media in lieu of printed manuals.
- 5. Complete installation instructions shall be furnished with each unit.
- 6. All parts and equipment necessary for satisfactory operation of unit shall be furnished whether or not they are specifically mentioned in this specification (including standard equipment as regularly furnished by manufacturer as shown on printed literature and specifications unless specifically excluded by this specification).
- 7. <u>Parts Inventory & Service Facilities</u>: The successful bidder shall maintain a representative inventory of replacement parts and service facilities for servicing equipment bid on.
- 8. <u>Demonstration</u>: The Arkansas State Highway & Transportation Department reserves the right to require a demonstration, under actual working conditions, of equipment bid under this specification before award is made. The demonstration would be performed (free of any charge) by the bidder or an authorized representative at a mutually acceptable location. If requested, the bidder should be prepared to demonstrate the equipment within thirty (30) days after notification. Failure of the bidder to perform a satisfactory demonstration within the specified time may be grounds for rejection of the bid.
- 9. Cooperative Purchasing: Other tax-supported entities* in Arkansas (cities, counties, state agencies, school districts, etc.) may purchase from this Contract on an individual basis under the same specifications and conditions, and at the pricing set forth by each vendor, all at the discretion of each vendor in each case. Prices could be reduced by a vendor for minor alterations in conditions (changing order quantities, deleting options, etc.) as agreed by both parties, but could not be raised above the contract bid price except for any additional freight charges. Vendors would not be required to sell to any such entity under this contract, and those entities would not be obligated to purchase from the contract.

^{*} Tax-supported entities are defined as those receiving more than half of total funding from appropriated tax funds.

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B. Unit Specifications:

- 1. <u>General</u>: Snowplow with power reversing moldboard, for use on a truck equipped with central hydraulics. The snowplow provided shall be designed and approved by the manufacturer for installation on a truck which has a front gross axle weight rating of 18,000 pounds.
- 2. Reversing Frame & Front Push Tube: Shall be constructed using a minimum 5" x 5" x 0.38" structural steel tubing properly reinforced to withstand severe snow plowing conditions. Front push tube shall be a minimum of 116" in length. Front push tube shall have a minimum of ten welded ears to attach the moldboard assembly. Ears shall be made of minimum 5/8" thick steel. All joints shall be continuously welded and reinforced.
- 3. A-Frame: Shall be engineered and constructed to be an integral component of the push frame. Shall contain two (2) double acting heavy duty power reversing hydraulic cylinders with a minimum 4" diameter bore. Cylinders shall be equipped with a minimum 2" diameter rod. Cylinder rod shall be nitride coated. The reversing cylinders shall maintain the angle of the moldboard once the desired plowing angle is reached. The unit shall be equipped with a hydraulic cushion valve to protect hydraulic cylinders in the event of an impact with a fixed object. Cylinders shall be equipped with hydraulic lines of sufficient length to connect to supply lines on the front bumper of the truck. The mounting plate that attaches the snowplow push frame to the truck hitch shall be equipped with mounting flanges made of 1" metal. Mounting flanges shall be set on 30 ½" centers with pin holes sized for 1 ¼" pins.
- 4. Moldboard: Curved moldboard no less than ten (10) feet in length. Shall be constructed of no less than 3/16" steel with a minimum of eight (8) vertical ribs. Moldboard shall be equipped with full length horizontal ribs according to manufacturer's standard for plow size and type. Moldboard height shall be no less than 36" but shall not exceed 42". Shall be extended curve design to prevent snow from coming over the top of moldboard at high speed. Shall have multiposition adjustment for lay-back to achieve optimal plowing angle. When set at the optimal plowing angel the top of the moldboard curve shall extend forward of the cutting edge by no less than twelve (12) inches. Shall have mailbox ends equipped with sight markers at least 36" in height. Shall have cutting angle adjustment of no less than 35° left and right of center. Shall be equipped with two (2) compression type spring safety trips capable of at least three (3) attack angle settings ranging from 10 to 30 degrees. Shall include stops attached to the moldboard assembly which contact the reversing frame front push tube before the trip springs becomes fully compressed. The moldboard assembly shall be capable of tripping at least 15 degrees past vertical before contacting the stops, at any attack angle. Shall have a minimum of five (5) hinge points. There shall be a minimum of 116" between the outer most hinge points with a minimum of three more hinge points spaced between.
- 5. <u>Snow Shield</u>: The moldboard shall be equipped with a full length rubber snow shield mounted on the top forward edge. Shall be made of a minimum of two ply rubber matting no less than 1/4" thick. Snow shield shall be affixed to the moldboard using a minimum 0.25" x 2" metal strip and an adequate number of bolts to secure it in position.
- 6. <u>Cutting Edge</u>: Cutting edge shall be a minimum 7/8" x 6" <u>high carbon steel</u> with holes AASHTO spaced. Cutting edge shall be equipped with two wear blocks behind the cutting edge. Each wear block shall have a minimum of 26 square inches of wear surface. Wear blocks shall be made of a material with a minimum Brinell hardness of 181-240.
- Level Lifting Device: Snowplow shall be equipped with a level lifting device that keeps the moldboard level when lifted
 or when being reversed. Device shall be complete with all chains, hooks, clevises and hardware necessary for proper
 operation.
- 8. <u>Truck Hitch</u>: Low profile, front frame mounted universal plow hitch with fold down and adjustable lift arm. Shall be capable of self storing lift cylinder. The lift cylinder shall be a minimum 4" diameter bore and of sufficient length to properly lift snowplow. Hitch shall be capable of carrying plows from 10' to 14' in length. The lift arm mounting frame shall be constructed using a minimum of ½" x 3" angle welded to a 10" structural channel which forms the lift frame. Cheek plates shall be ½" x 12" tapered. Rocker angles and plates shall be utilized above and below the truck frame to keep the hitch from loosening and moving forward. The cheek plates and rocker plates will be welded to the truck hitch by the upfitter. Lift arm bracket and lower drop bar retaining/connecting lugs shall be fabricated from ¾" thick plate. Mounting flanges shall be set on 30 ½" centers with pin holes sized for 1 ¼" pins. (Hitches using braces running from the lift frame to the front axle of the vehicle are not acceptable).
- 9. <u>Jack</u>: The snowplow shall be equipped with a screw type adjustable jack to assist in the instillation and removal of the unit from the truck hitch.
- 10. Weight: Snowplow assembly shall weigh a minimum of 2,000 pounds.

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- 11. Color: Manufacturer's standard color is acceptable.
- 12. <u>Warranty</u>: Units purchased under this specification shall be warranted against defects in material and workmanship for a minimum period of twelve (12) months (365 days) from date unit is placed in operation by AHTD.
 - A. Warranty shall include all parts, labor and transportation costs to the location of equipment.
 - B. If equipment cannot be repaired on location, warranty shall include cost of transport to the facility where the repair work will be done.
 - C. It will be the responsibility of the successful bidder to insure that repairs are completed in a timely manner.
 - D. If any warranty literature submitted with the bid conflicts with AHTD warranty requirements, the conflict(s) shall be specifically noted, corrected and included with the bid or the conflict(s) will be considered an exception to warranty specifications and the bid rejected.
 - E. Recent prior failure to provide warranty-work, parts, replacement parts or service, in a timely manner, for equipment from the same manufacturer or dealer shall be grounds for the rejection of any submitted bid, or for the denial of any otherwise qualified low bidder, whether such failure is attributable to the manufacturer or the dealer of the equipment. For the purposes of this paragraph "timely manner" means a period of time not exceeding thirty (30) calendar days to provide requested warranty-work, parts, replacement parts, or service. For the purposes of this paragraph "manufacturer" means the original manufacturer of the equipment and its successor or successors, regardless of number, and whether acquired by sale, merger, or otherwise. For the purposes of this paragraph "replacement part" means a part redesigned by a manufacturer to correct a design or engineering defect and which replacement part is capable of providing dependable performance in normal operation conditions for its normal service life without failure. Such bid or bids may be rejected by the Department until such failure or failures have been remedied to the satisfaction of the Department and until such manufacturer or dealer is providing such warranty-work, parts, replacement parts, and service in a timely manner.