4 x 4 PLOW TRUCK/SPREADER

The Reno-Tahoe Airport Authority Purchasing and Materials Management Division is currently accepting sealed bids for one (1) new, all wheel drive, all wheel steer truck equipped with a sander, underbody grader, and two snow plows, Invitation to Bid Number 11/12-02, on behalf the Airfield Maintenance Division. The successful bidder shall be responsible to provide all material, labor, tools, expendable equipment, transportation services, warranty, and all incidental items necessary for the equipment.

1. **SCOPE AND INTENT**
   It is the intent of this bid to select a single qualified prime contractor to provide all material, labor, tools, expendable equipment, transportation services, warranty, and all incidental items necessary to provide the scope of work entitled 4 x 4 Plow Truck/Spreader per the specifications provided herein as Attachment C, subject to the terms and conditions contained in this Invitation to Bid.

2. **BID RECEIPT AND OPENING TIME**
   It is mandatory that bids be signed by a duly authorized representative of the firm, and be received and time recorded in the Airport Authority Purchasing and Materials Management Division on or before 2:00 p.m., PDT October 12, 2011. Per the official bid time clock located in the Purchasing and Materials Management Division, bids will be accepted if date and time stamped on or before 2:00; date and time stamps of 2:01 or later will be rejected.

   2.1 Late bids shall be disqualified from consideration.

   2.2 Sealed bids shall be opened in the Airport Authority Purchasing and Materials Management Division at 2:00 p.m., PDT October 12, 2011.

3. **PREPARATION OF THE BID**
   Bidder shall examine all specifications, attachments, special instructions, and terms and conditions of the Invitation to Bid. Failure to do so will be at the bidder’s risk.

   3.1 Any irregularities or lack of clarity in the Invitation to Bid should be brought to the attention of the Airport Authority Purchasing and Materials Management Division for correction or clarification.

   3.2 Any addenda issued shall forthwith become an integral part of the bid. Bidder shall be required to acknowledge receipt of it by signing and returning the addenda with the original bid document.

   3.3 Bids shall be made only upon the forms provided, included with this Invitation to Bid document, with all items filled out, amounts bid stated both in words and figures, the original signatures of all persons required to
sign, and shall be typed or written in blue or black ink. The completed form should be without interlineations, alterations, or erasures unless the signatory initials such.

3.4 In the space provided, a duly authorized representative of the bidding firm shall sign the bid document and any addenda issued in blue or black ink. An unsigned bid does not constitute an offer and shall be rejected.

3.5 Bidder shall proofread his bid carefully for errors.

3.6 Prices quoted shall be F.O.B. destination and exclusive of federal and state taxes, except those relating to taxable materials provided as part of the work.

3.7 In the event of a difference between written words and figures, the amount stated in written words shall govern. In the event of a difference between a unit price and the extended price, the unit price shall govern.

3.8 Bidder shall state a realistic delivery date including Saturdays, Sundays and holidays. Delivery time shall be a consideration in award of bid.

3.9 Equipment offered shall be new, currently in production, and of the manufacturer’s latest design, unless otherwise stated (see Paragraph 34 below).

3.10 Technical specifications contained herein shall be considered “optimum”, and are in no way intended to limit the equipment or commodity to a specific manufacturer or place of origin. Any such implied reference shall be deemed inadvertent and shall be interpreted as though the specification shall contain the phrase “or a Reno-Tahoe Airport Authority approved equal”. However, a bidder deviating from the specifications must state any and all exceptions. Failure to note exceptions shall be interpreted to convey that the bidder shall propose to perform in the manner described and/or specified in this bid solicitation.

3.11 Alternate bids shall be considered provided said alternative(s) are fully described and accompanied by brochures, literature, specifications, or a combination thereof. The Airport Authority’s decision with respect to equality shall be final.

4. **SUBMISSION OF BID**

Bidder shall sign and return the **ENTIRE BID DOCUMENT**.

4.1 **Three (3) copies** (one original and two photocopies) of the complete bid and addenda thereto shall be enclosed in a sealed envelope addressed to the Reno-Tahoe Airport Authority Purchasing and Materials Management.
Division, 2770 Vassar Street, Reno, Nevada 89502 or delivered to the office in person. **The outside bid envelope must indicate the name and address of the bidder, the bid number, and the opening date.** Should the bidder elect to utilize a courier agent to deliver his bid (e.g. UPS, Federal Express, etc.), and the outer bid envelope is enclosed in the courier agent’s delivery envelope, then the courier’s delivery envelope and/or address label must clearly indicate the Invitation to Bid number.

4.2 In order for a bid to be considered, it is mandatory that the bid document be received and time recorded in the Airport Authority Purchasing and Materials Management Division prior to the receiving time specified in the bid document.

4.3 The Airport Authority assumes no responsibility for errant delivery of bids, including those relegated to a courier agent who fails to deliver in accordance with the time and receiving point specified.

4.4 The Airport Authority shall not be responsible for the premature or post opening of a bid that is not properly addressed or identified.

4.5 A bid submitted by telephone, telegraphic notice, or facsimile will not be accepted.

4.6 Prices offered shall **only** be considered if they are provided in the appropriate space(s) on the bid schedule. For consideration, any additions or deductions to the bid prices offered must be shown under the exceptions section of the bid. Extraneous numbers, prices, comments etc. appearing elsewhere on the bid shall be deemed to have no effect on the prices offered in the designated locations.

4.7 Bids must be provided on the bid forms that are a part of this Invitation to Bid document. Bid forms **may not be** altered in any manner—this includes the scanning of forms for purposes of reproducing or recreating them. Any alteration of bid forms may be cause for rejection of the bid.

4.8 When a bid surety is required, such surety shall be acceptable only in the form of a bid bond, cashier’s check or certified check in the amount stated. The surety must accompany the bid. After award of the bid by the Board of Trustees, the bid surety of the unsuccessful bidder(s) shall be returned. The surety of the successful bidder shall be retained until the agreement form has been executed and the Airport Authority receives all insurance certificates.

5. **LATE BID**
A bid received after the receiving time specified shall be rejected.
6. **WITHDRAWAL OF BID**
   A bid may be withdrawn by written or telegraphic notice provided such notice is received prior to the date and time set for the bid opening.

   6.1 A request for withdrawal of a bid received after award shall not be considered.

7. **NO BID**
   In the event the bidder chooses not to bid on the Invitation but wishes to remain on the bid list, indicate “NO BID” on the face of the return envelope or Bid Schedule page of the bid document, affix firm name and address and return it according to the instructions in Section 4, “Submission of Bid” above.

8. **BID SURETY**
   Response to this Invitation to Bid shall include a bid surety in the amount of ten percent (10%) of the total bid amount.

   8.1 Surety shall consist of a bond, cashier’s check, or certified check, drawn in favor of the Reno-Tahoe Airport Authority, a quasi-municipal corporation of the State of Nevada.

   8.2 The Airport Authority shall retain the successful bidder’s surety until successful bidder furnishes any required performance bond and labor and materials payment bond and executes and delivers the resulting agreement. If successful bidder refuses or fails to perform any of the above, he shall forfeit the bid surety. The Airport Authority intends the forfeiture of the bid surety as a penalty. Should this occur, in addition to forfeiting the bid surety, the Airport Authority reserves the right to seek any damages resulting from successful bidder’s refusal or failure to perform.

   8.3 Surety of the unsuccessful bidders shall be returned within thirty (30) days of award by the Board of Trustees.

9. **CONDITIONAL, QUALIFIED, OR NON-RESPONSIVE BIDS**
   All bids shall be submitted in a form and manner as indicated in this Invitation to Bid document and by the bid forms. Any bid which is not submitted in a form and manner indicated by the Invitation to Bid document and bid forms or that contains information, statements, conditions, or qualifications that place conditions or qualifications on the bid submittal for purposes of making an award, or that alter any bid terms, conditions, specifications, or forms that had not previously been approved by written addendum issued by the Purchasing Manager, or that does not meet legal requirements, shall be declared as a qualified, conditional, or non-responsive bid and shall be rejected without further consideration. Any bid response that does not fully respond to and comply with all of the detailed specifications or other requests for information including the execution of the bid forms may be declared
non-responsive by the Airport Authority and rejected without further consideration. The Airport Authority shall not be responsible for errors or omissions of the bidder.

10. **DELIVERY**

Prices quoted shall include transportation costs F.O.B. Destination to the following location:

Reno-Tahoe Airport Authority  
Purchasing and Materials Management Division  
2770 Vassar Street  
Reno, NV  89502

10.1 Delivery time shall be deemed an important segment of each bidder’s response and the delivery time quoted by the successful bidder shall be that time to which the successful bidder shall be expected to adhere.

10.2 Delivery of the equipment to the Airport Authority shall be made by flatbed truck.

10.3 At the time of delivery, successful bidder shall supply the Manufacturer’s Certification of Origin and Report of Sale to:

Reno-Tahoe Airport Authority  
Purchasing and Materials Management Division  
2770 Vassar Street  
Reno, Nevada   89502

11. **CONTRACT PERIOD AND LIQUIDATED DAMAGES**

The bidder shall state a realistic delivery date on the Bid Schedule form.

11.1 Delivery time indicated on the Bid Schedule shall be a consideration in the bid evaluation process.

11.2 The number of days for delivery proposed and agreed upon shall be included in the contract. Bidder must agree to fully complete the contract within the number of calendar days noted in the agreement form and agrees to pay as liquidated damages an amount of five hundred dollars ($500.00) for each calendar day thereafter the contract is not complete.

12. **PLANS AND SPECIFICATIONS**

Copies of the bid, specifications, and bid forms may be obtained from the Reno-Tahoe Airport Authority, Purchasing and Materials Management Division, 2770 Vassar Street, Reno, Nevada 89502 or downloaded directly from the Reno-Tahoe International Airport’s website at [www.renoairport.com](http://www.renoairport.com) under The Airport Authority – Competitive Solicitations.
13. **AWARD OF BID**
This Invitation to Bid solicitation is in accordance with the requirements contained in N.R.S. §§ 332. Award of bid shall be made to the lowest, responsive, and responsible bidder. In all instances, the decision rendered by the Board of Trustees shall be final.

13.1 The Airport Authority reserves the right to reject any or all bids, or parts thereof, at any time during the bid process and to waive any informalities or irregularities.

13.2 The Airport Authority reserves the right to hold bids for a period of ninety (90) days from the date of opening before awarding or rejecting said bids.

13.3 Severability exists with regard to acceptance or rejection of any item, group of items, or section unless bidder has stipulated specific limitations.

13.4 A purchase order and/or contract issued to the successful bidder shall be considered sufficient notification of award of the bid.

13.5 A contract shall not be assigned to any other person or entity without the consent of the Reno-Tahoe Airport Authority. Requests for assignment shall be submitted, in writing, to the Manager of Purchasing and Materials Management.

14. **DISCOUNTS**
Prompt payment discounts shall be included in the bid evaluation ONLY if discount period offered is ten (10) or more days.

14.1 Discount period will be computed from the date of completed delivery/acceptance of the equipment or from the date the correct invoice is received by Accounts Payable, if later than the delivery date. For the purpose of earning discounts, payment is deemed to be made on the date appearing on the Airport Authority warrant.

15. **APPEAL BY UNSUCCESSFUL BIDDER**
A person who bids on a contract may file a notice of protest regarding the awarding of the contract with the authorized representative designated by the public body. The person must:

15.1 Submit a written appeal to the Manager of Purchasing and Materials Management within five (5) business days after the date the bids were opened.

15.2 The notice of protest must include a written statement setting forth with specificity the reasons the person filing the notice believes the applicable provisions of law were violated.
15.3 Post, at the time that the notice of protest is filed, a bond with good and solvent surety authorized to do business in this state or submit other security in a form approved by the Reno-Tahoe Airport Authority, to the Reno-Tahoe Airport Authority who will hold the bond or other security until a determination is made on the protest.

15.4 A bond posted or other security submitted with a notice of protest must be in an amount equal to the lesser of twenty-five percent (25%) of the total value of the bid submitted by the person filing the notice of appeal or two hundred fifty thousand dollars ($250,000).

15.5 A notice of protest filed in accordance with the provisions herein operates as a stay of action in relation to the awarding of any contract until a determination is made by the Reno-Tahoe Airport Authority on the protest.

15.6 A person who makes an unsuccessful bid may not seek any type of judicial intervention until the Reno-Tahoe Airport Authority has made a determination on the protest and awarded the contract.

15.7 Neither the Reno-Tahoe Airport Authority nor any authorized representative is liable for any costs, expenses, attorney’s fees, loss of income or other damages sustained by a person who makes a bid, whether or not the person files a notice of protest pursuant to this section.

15.8 If the protest is upheld, the bond posted or other security submitted with the notice of protest will be returned to the person who posted the bond or submitted the security. If the protest is rejected, a claim may be made against the bond or other security by the Reno-Tahoe Airport Authority in an amount equal to the expenses incurred by the Reno-Tahoe Airport Authority because of the unsuccessful protest. Any money remaining after the claim has been satisfied must be returned to the person who posted the bond or submitted the security.

16. **QUESTIONS/CLARIFICATIONS**
Questions regarding the Invitation to Bid shall be directed to Joyce A. Humphrey, Manager of Purchasing and Materials Management, at (775) 328-6676 or faxed to (775) 328-6646 and must be submitted no less than fourteen (14) calendar days prior to bid opening.

16.1 Communications from prospective bidders, such as by telephone, voice-mail, electronic mail, facsimile or other similar means, to any Trustee, officer, agent or employee of the Airport Authority, other than the Manager of Purchasing and Materials Management, are prohibited. Except for inquiries directed through the Manager of Purchasing and Materials Management, the Airport Authority, through its employees, will not meet nor otherwise communicate individually with prospective bidders. The Airport Authority
may, at its sole discretion, disqualify any bidder who fails to observe this requirement.

16.2 If any questions or responses require revision to this solicitation as originally published, such revisions will be by formal addendum only.

17. **ADDENDA**
The Authority Purchasing and Materials Management Division shall issue all addenda to this Invitation to Bid in writing. Additionally, all bidders should continually monitor the Authority’s web site (www.renoairport.com under The Airport Authority – Competitive Solicitations) to ensure receipt of any addenda associated with this bid. Material changes affecting the work or the bidder’s cost estimate shall have no standing with the Airport Authority if not sanctioned by written addenda. Bidders are solely responsible for checking the Airport Authority’s website for any addenda issued for this solicitation.

18. **INSURANCE AND IMDEMNIFICATION REQUIREMENTS**
Attachment A to this Invitation to Bid specifies the insurance and indemnification requirements established by the Airport Authority for solicitations as described herein and shall be incorporated and made a part of any agreement resultant from award of this bid. The cost of any required insurance coverages shall be borne by the bidder.

19. **WARRANTY AND ACCEPTANCE**
Warranty shall become effective upon delivery and written acceptance by the Airport Authority of the truck and all rights, title, and interest shall pass to the Airport Authority who will become liable for payment in accordance with the provisions of this bid.

19.1 Bidder shall state his normal warranty and extended warranty where available on the Bid Schedule. The following minimum warranty is required: factory must provide a written fifteen (15) year parts availability guarantee for all components of the truck, plow, spreader, and underbody scraper. The entire unit shall be covered under a three (3) year parts and materials warranty.

19.2 The successful bidder shall be required to perform recommended manufacturer’s inspections (by a qualified service engineer of the manufacturer) on the equipment at the owner’s site.

19.3. In the space provided on the Bid Schedule, each bid response shall state the nature and duration of the manufacturer’s warranty on the equipment offered. The warranty statement provided is required to include as a minimum:
19.3.1 Manufacturer’s obligations.
19.3.2 Duration of the warranty period (if different for separate components, please state).
19.3.3 Warranty procedure
19.3.4 Disclaimers.

19.4 A copy of the manufacturer’s warranty is required to be included with the bid submission.

19.5 Acceptance of the equipment shall be made by means of written notice to the successful bidder after:

19.5.1 The equipment is inspected for damage and conformity to the bid submitted.
19.5.2 All criteria listed in Attachment C, Technical Specifications have been met.
19.5.3 The equipment is successfully demonstrated to the satisfaction of the Airport Authority’s Facilities and Maintenance Department.
19.5.4 The equipment is operating properly in all operational modes.
19.5.5 The following have been received by the Airport Authority: all service and warranty information; parts, operation, and maintenance/service manuals as required; and manufacturer’s certification of origin and report of sale.
19.5.6 Training of Owner personnel and mechanics as outlined in Paragraph 20 below has been accomplished.

20. **TRAINING**
The successful bidder shall provide the following.

20.1 The services of a factory technician shall be supplied to the Airport Authority for a period of not less than three (3) days.

20.2 It shall be the responsibility of the successful bidder to provide training of the Airport Authority staff in the complete operation of the equipment on site at the Reno-Tahoe International Airport.

20.3 It shall be the responsibility of the bidder to provide a complete factory training maintenance session for Airport Authority mechanics on site at the Reno-Tahoe International Airport during the training period.

21. **MAINTENANCE**
Successful bidder shall make all necessary adjustments to this equipment, not required by reason of accident, misuse, or any casualty, at the bidder’s expense during the warranty period.
Recommended preventive maintenance schedules shall be provided to the Authority’s Fleet Manager.

Certified service technicians (i.e. those trained on the manufacturer's equipment) must be available to respond within one (1) working day in the event service is required. Repair parts are required to be available for delivery within twenty-four (24) hours.

22. PARTS/SERVICE MANUALS AND DRAWINGS
The successful bidder shall supply the following.

22.1 The successful bidder shall supply two (2) CDs as well as two (2) paper copies of a comprehensive repair/service manual, illustrated parts manual, and operations manual concurrent with delivery of the equipment. One (1) CD and paper set will accompany the equipment and one CD and paper set will be sent to the Materials Management Supervisor, 2770 Vassar Street, Reno, Nevada 89502.

22.2 The manufacturer shall maintain a complete inventory of all replacement parts.

23. TAX EXEMPTION
The Reno-Tahoe Airport Authority is not tax exempt from materials provided by the successful bidder in the performance of the contract. The Airport Authority is tax exempt in all other respects from Nevada State Sales Tax by act of the Nevada State Legislature, N.R.S. §§ 372.325, which exempts all local governments within the State of Nevada. The Airport Authority is also exempt from Federal Excise Tax.

24. CHANGE ORDERS
No change orders shall be authorized without the express written permission of the Airport Authority Purchasing and Materials Management Division.

25. CUSTOMER REFERENCES
Bidders shall provide three (3) verifiable references for which the bidder has satisfactorily provided the same or similar equipment in the space provided on the Bid Schedule. References shall include the name of the firm, person to contact, telephone and facsimile number with area code, and brief description of the equipment provided. The Reno-Tahoe Airport Authority may not be used as a reference.

26. STATUS OF SUCCESSFUL BIDDER
Successful bidder shall have the status of an “Independent Contractor” as defined by N.R.S. §§ 284.173 and shall not be entitled to any of the rights, privileges, benefits, and emoluments of either an officer or employee of the Reno-Tahoe Airport Authority.
27. **DISCLOSURE OF PRINCIPALS**
Bidders shall complete and return with their bid response the single copy of the form entitled “Disclosure of Principals” included with this Invitation to Bid.

28. **OPEN MEETING LAW**
N.R.S. §§ 241 provides that public business shall be conducted in open meeting.

29. **ASSIGNMENT**
No assignment of any agreement resulting from award of this bid shall be allowed including the right to receive payment without the express written permission of the Manager of Purchasing and Materials Management or her designee.

30. **EXCEPTIONS TO SPECIFICATIONS**
In the space provided on the Bid Schedule, bidders shall note any and all exceptions to the terms and conditions contained herein. In the spaces provided under each section in Attachment A, Technical Specifications, bidders shall note any and all exceptions to the technical specifications contained therein. Submittal of a specification sheet alone shall not be considered sufficient notification of exceptions.

30.1 For consideration, substitutions and/or equal offerings must be disclosed under the exceptions section of this Invitation to Bid in order that the Airport Authority may determine their acceptability prior to award of the bid.

30.2 Failure to note exceptions on the Bid Schedule shall be interpreted to convey that the bidder agrees to perform in the manner described and/or specified in this Invitation to Bid.

30.3 The Airport Authority shall reserve the right to accept or reject any or all alternatives or exceptions offered based solely on the value of said alternatives or exceptions to the Airport Authority.

31. **SUBCONTRACTORS**
Prospective bidders shall supply, in the space provided on the Bid Schedule, a list of subcontractors, if any, that the bidder intends to utilize in performance of the contract. Failure to submit this information may be cause for rejection of bid.

32. **FUNDING RESTRICTIONS**
The Airport Authority reserves the right to cancel the award in whole or in part or reduce the scope necessary without prejudice or liability to the Airport Authority if funding is not available or if legal restrictions are placed upon the expenditure of monies for this category of services. Should this occur, the Airport Authority will advise the successful bidder in writing.
33. **AWARD CRITERIA**

Award shall be made to the lowest, responsive, and responsible bidder and shall be judged on the basis of:

33.1 Price;
33.2 Conformance to specifications;
33.3 Bidder’s qualifications, including the bidder’s past performance;
33.4 Quality and utility of equipment offered and its adaptability to the required purpose and in the best interest of the public.
33.5 Delivery time proposed

The Airport Authority shall evaluate one bid at a time beginning with the apparent low bidder. If that bid is fully acceptable, it shall be deemed the lowest, responsive, and responsible. If not, the Airport Authority shall proceed up the bid ladder, one bid at a time, until a fully acceptable low, responsive, and responsible bidder is determined.

34. **EQUIPMENT TO BE SUBMITTED**

All components shall be new, current model year products. All equipment furnished under this contract shall be new, unused, and the same as the manufacturer’s current production model specifically designed as an all wheel drive, all wheel steer snow removal vehicle. No aftermarket conversions of two wheel drive or two wheel steer trucks shall be accepted. While it is understood that this is a custom built piece of equipment, no prototypes shall be allowed. All components shall be tested and proven. All components must be assembled, installed, connected, mounted, and unit shall be complete and work-ready upon acceptance.

Accessories not specifically mentioned herein, but necessary to furnish complete unit ready for use, shall also be included. Unit shall conform to the best practice known to the body trade in design, quality of material and workmanship. Assemblies, sub-assemblies and component parts shall be standard and interchangeable throughout the entire quantity of units as specified in this Invitation to Bid. This equipment and all attachments must comply with all applicable FMCSR and FMVSS quality/safety standards and requirements of FAA Advisory Circular 150/5220-20. Documentation from the vehicle manufacturer certifying the suitability of the vehicle for the rigors of the intended use, with the specified attachments, is required to be submitted with the bid response. All equipment submitted under this specification shall comply with the most current NFPA standards, OSHA standards, applicable federal, state, and local fire and safety regulations, DOT requirements, and any other standard or specification as may be noted in this Invitation to Bid.

35. **FAILURE TO PERFORM PROPERLY**

Should the successful bidder be unable to provide the equipment or is unable to do so at the price(s) bid, for any reason save and except the fault of the Authority, the
Authority may, at its option, declare the successful bidder in default of contract and recover any actual damages or losses, or if a part of the contract, liquidated damages from the bidder in default. Such remedies may include, but are not limited to, the Airport Authority’s refusal to deal with the defaulting bidder for a period of time not less than one year or more than three years, reduction in the bid price by an amount equal to the equipment authorized for substitution, and/or holding the defaulting bidder liable for any increased amount which results from the Airport Authority’s procuring the equipment from an alternate source.

36. **SAMPLE AGREEMENT**
Attachment B hereto shall form the basis for the resulting agreement for this work.

37. **OWNERSHIP OF BIDS**
All responses to this Invitation to Bid become the property of the Authority.

38. **BIDDER EXPENSES**
Prospective bidders are solely responsible for their own expenses in preparing any bid.

39. **NON-COLLUSION**
Bidders, by submitting a signed bid, certify that the accompanying bid is not the result of, or affected by, any act of collusion with any other person or company engaged in the same line of business or commerce or any other fraudulent act.

40. **NONDISCRIMINATION**
In connection with the performance of work under any resulting agreement, the bidder agrees not to discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, sexual orientation, or age. Such agreements shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship. Any violation of such provision by the successful proposer shall constitute a material breach of contract.
## BID SCHEDULE

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TOTAL BID: $ \text{__________} \quad \text{words}

DELIVERY:

Delivery of the equipment herein shall be accomplished \___________ calendar days after receipt of notice to proceed (purchase order number or agreement date).
EQUIPMENT:

Make and Model of 4 x 4 Plow Truck/Spreader Offered:

Specify Road Speed _________ mph @ ____________ rpm

WARRANTY:

Nature and Duration of manufacturer’s warranty on equipment offered. Bidder is required to fill in the blanks below. Additionally, bidder shall attach warranty data.

1. Manufacturer’s Obligations: ____________________________________________

2. Duration of the warranty period (if different for separate components, please state): ______

3. Warranty Procedure: ____________________________________________

4. Disclaimers: ____________________________________________

EXTENDED WARRANTY AVAILABLE: (List component, duration of available extended warranty, and cost:

Payment Terms: ____________________________________________

REFERENCES:

Name of Owner  Contact Person  Telephone #  Fax #

Equipment Provided ____________________________________________
MINORITY STATUS: Has this firm been certified as a minority, woman, or disadvantaged business enterprise by any governmental agency? Yes ☐ No ☐. If yes, please specify government agency: ______________________________________________________________________

Date of certification: ______________________________________________________________________

The above is for information only. The Airport Authority encourages minority business participation, however, no preferences shall be given.

EXCEPTIONS: Does the bidder take exception to any of the terms and conditions of this Invitation to Bid and attachments hereto or the plans, drawings, or specifications? Yes ☐ No ☐. If yes, please indicate the specific nature of the exception or clarification in the space provided below. Attach additional sheet(s) if necessary.
EXCEPTIONS (continued):

Firm Name________________________
Address__________________________
City______________________________
State________________Zip Code_____
Telephone________________________
Fax Number________________________
Project shall be completed in ________
calendar days A.R.O.
Terms ______% ___________ days.
Bidder’s Federal Tax I.D. #__________

In compliance with this “Invitation to Bid” and subject to all
the terms and conditions thereof, the undersigned offers and
agrees if this bid is accepted to furnish any and all goods and
services described herein at the prices, term, and delivery
stated.

Signed___________________________
Print Name________________________
Print Title_________________________
# DISCLOSURE OF PRINCIPALS

*(Please print or type)*

---

**Company Name**

---

**Street Address**

---

**City, State, and Zip Code**

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## NAMES OF OFFICERS, MEMBERS, OR OWNERS, PARTNERSHIP, ETC.

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If further space is required please attach additional pages.
LIST OF SUBCONTRACTORS

(Please print or type)

1. **Name of Business:** __________________________
   **Address:** __________________________
   **Type of Work:** __________________________

2. **Name of Business:** __________________________
   **Address:** __________________________
   **Type of Work:** __________________________

3. **Name of Business:** __________________________
   **Address:** __________________________
   **Type of Work:** __________________________

4. **Name of Business:** __________________________
   **Address:** __________________________
   **Type of Work:** __________________________

5. **Name of Business:** __________________________
   **Address:** __________________________
   **Type of Work:** __________________________
BID BOND

KNOW ALL MEN BY THESE PRESENCE, that we, the undersigned ________, as Principal, and __________________________________________, as Surety, are hereby held and firmly bound unto the Reno-Tahoe Airport Authority, Reno, Nevada, as an Owner, in the sum of ____________________________ DOLLARS ($______________________) for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed this _______ day of ___________________, 2011.

The condition of the above obligation is such that whereas the Principal has submitted to the Reno-Tahoe Airport Authority, Reno, Nevada, a certain bid, attached hereto and hereby made a part hereof, to enter into a Contract in writing for ____________________________ (ITB No. 11/12-02)

NOW, THEREFORE: If said bid shall be rejected, or in the alternative, if said bid shall be accepted and the Principal shall execute and deliver a contract in accordance with the provisions of this Bid Document ITB No. 11/12-02 and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void.

Otherwise, the same shall remain in force and effect, and the sum herein specified paid over to the Owner; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the amount of the obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of time within which the Owner may accept such bid; and said surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have here unto set their hands and seals and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their proper officers, the day and year set forth above.

Principal
(SEAL)
By: ____________________________

Surety
(SEAL)
By: ____________________________

NOTE: The person executing this bond on behalf of the Surety must attach power of attorney or other appropriate proof of authority to do so.
ATTACHMENT A
INSURANCE/INDEMNIFICATION SPECIFICATIONS

INTRODUCTION
The Reno-Tahoe Airport Authority (Owner) has established specific indemnification, insurance, and safety requirement for contracts to help assure that reasonable insurance coverage is purchased and safe working conditions are maintained. Indemnification and hold harmless clauses are intended to assure that a Contractor accepts and is able to pay for the loss or liability related to its activities.

The Contractor’s attention is directed to the insurance requirements below. It is highly recommended that the Contractor confer with its respective insurance carriers or brokers to determine in advance of bid/proposal submission the availability of insurance certificates and endorsements as prescribed and provided herein. If there are any questions regarding these insurance requirements, it is recommended that the agent/broker contact the Authority Manager of Finance directly at (775) 328-6830. If the successful Contractor fails to comply strictly with the insurance requirements, that Contractor may be disqualified from award of the contract.

INDEMNIFICATION AGREEMENT
The Contractor shall keep and hold the Owner, its Board of Trustees and its officers, directors, agents, servants, and employees harmless from any and all liabilities, losses, suits, claims, judgments, fines, penalties, demands or expenses, including all reasonable costs for investigation and defense thereof (including, but not limited to, attorneys' fees, court costs, and expert fees), claimed by anyone by reason of injury or damage to persons or property sustained in or about the Airport, as a proximate result of the acts or omissions of the Contractor, its agents, servants, or employees, or arising out of the operations of the Contractor upon and about the Airport, excepting such liability as may result from the sole negligence of the Owner, its officers, directors, servants, agents and employees. Contractor shall further use legal counsel reasonably acceptable to the Owner in carrying out Contractor's obligations hereunder. Any final judgment rendered against the Owner for any cause for which Contractor is liable hereunder shall be conclusive against Contractor as to liability and amount, where the time for appeal therefrom has expired. The Indemnity provisions set forth herein shall survive the expiration or early termination of any Agreement.

CONTRACTOR PROVIDED INSURANCE
The Contractor shall provide the following insurance coverage for itself, all subcontractors, suppliers, material men, and all others accessing the project on the Contractor's behalf.

CONTRACTOR'S LIABILITY
Airport Construction Liability Insurance shall be provided with an occurrence limit of at least $5,000,000 each occurrence with a per location general aggregate of $5,000,000 for the following coverages:
1. Bodily injury liability including death at any time resulting therefrom
2. Property damage liability including loss of use thereof
3. Premises and operations
4. Products and completed operations
5. Contractual (excluding professional liability)
6. Independent contractors
7. Broad form property damage (including completed operations)
8. Explosion, collapses, and underground hazards
9. Cross liability or severability of interests clause
10. Advertising injury
11. Personal injury liability that means injury, other than bodily injury, arising out of one or more of, but not limited to the following offenses:
   11.1 False arrest, detention or imprisonment;
   11.2 Malicious prosecution;
   11.3 Wrongful entry into, or eviction of a person from, a room, a dwelling, or premises that the person occupies;
   11.4 Oral or written publication of material that slanders or libels a person's or organization's goods, products, or services; or
   11.5 Oral or written publication of materials that violates a person's right of privacy.

Completed operations and Contractual Liability coverage under this policy shall be maintained in force until three years following completion or termination of the contract with a limit of not less than $1,000,000 per occurrence.

**BUILDER’S RISK**
Builder’s Risk or Course of Construction Insurance insuring on a "risks of direct physical loss" basis, with a limit equal to the full insurable value or the maximum probable loss and covering the project and all materials and equipment to be incorporated therein, including property in transit or elsewhere and insuring the interests of the Owner, Contractor and its subcontractors of any tier providing equipment, materials, or services for the project.

**INDUSTRIAL INSURANCE**
The Contractor and its subcontractor shall procure Nevada Worker’s Compensation Insurance as evidenced by a Certificate of Insurance from an acceptable insurance company covering contractor’s employees for at least the statutorily required limits.

Employer’s Liability Insurance with a minimum limit of $1,000,000 per occurrence, including stop gap insurance.

**COMPREHENSIVE AUTOMOBILE LIABILITY COVERAGE**
The Contractor or subcontractor shall be responsible for maintaining Automobile Coverage for a total of $1,000,000 single limit for bodily injury and property damage. Full policy limits shall apply to the contract limit in respect to operations under the contract. Coverage shall also include owned, non-owned and hired automobiles while on Airport premises.
CONTRACTOR’S TOOLS AND EQUIPMENT
The Contractor is responsible for its own construction tools and equipment whether owned, leased, rented, or borrowed for use at the Airport worksite.

DEDUCTIBLES AND SELF-INSURED RETENTIONS
Contractor's Liability: $25,000 per claim
Builder's Risk: $10,000 per claim

Any changes to the deductibles or self-insured retentions made during the term of the Agreement or during the term of any policy must be approved by the Owner prior to the change taking effect.

IMPLEMENTATION AND ADMINISTRATION
Contractor shall furnish the Owner with insurance certificates as evidence that the foregoing insurance is in force prior to commencement of work on the contract, including complete copies of the policies if requested.

Said policies shall be with insurance companies authorized to do business in the State of Nevada with an A. M. Best rating of A- VII or better.

Such policies shall provide that written notice shall be given to Owner thirty (30) days prior to cancellation or material change of any protection which said policies provide.

Said policies, except Worker’s Compensation, shall name Owner, its Board, officers, employees, related entities, and representatives, Contractor and subcontractors and their officers, directors and employees, related entities and representatives; Engineer and Construction Manager as additional insureds. The policies will be primary and any other insurance carried by Contractor and/or Owner shall be excess and not contributing therewith.

In the event Contractor fails to provide Owner with the insurance described, no work shall commence on the contract site. If the coverage required by the Contractor is terminated or reduced for any reason, all work on the contract site shall immediately stop until all the required coverages are in place.

The extent of coverage or the limits of liability provided under the policies procured by the Contractor and/or subcontractors shall not be construed to be a limitation on the nature or extent of the Contractors’ obligations or to relieve the Contractor of any such obligations or representation by the Owner as to the adequacy of the insurance to protect the Contractor against the obligations imposed on it by this or any other contract.

The Contractor covenants and agrees to exonerate and hold the Owner harmless of and from all liability, claims, demands, and causes of action whatsoever for injury or property damage arising out of acts of commission or omission by the Contractor, its agents,
employees, subcontractors, or subordinate subcontractors or arising out of any other operation or transaction no matter by whom performed for, or on behalf of the Contractor. The Owner reserves the right to have the Contractor furnish the Contractor’s actual insurance policies for examination by the Owner.

It is the Contractor’s responsibility to familiarize itself with the coverages described herein.

Immediate notification must be given to the Owner and/or its agent upon receiving any knowledge or notification of claim or litigation on which the Owner may be named.

**COSTS**
Costs for providing such insurance as described above shall be incidental to the work.
ATTACHMENT B
AGREEMENT FORM

THIS AGREEMENT, made and entered into this ________ day of _________, 2011 by and between the RENO-TAHOE AIRPORT AUTHORITY a quasi-municipal corporation of the State of Nevada, acting through its Board of Trustees, hereinafter called the "Owner" and ________________________________, hereinafter called the "Contractor".

WITNESSETH:

That the Owner and the Contractor, for the consideration hereinafter named, agree as follows:

Article 1. Scope of Work. The Contractor shall furnish all of the materials and perform all of the work described in Invitation to Bid 11/12-02 entitled “4 x 4 Plow Truck/Spreader” in accordance with the plans and specifications and shall agree to do everything required by the Invitation to Bid and this Agreement. The scope of work includes the fabrication, delivery, and warranty of the truck with all components and accessories to comprise a complete unit.

Article 2. Time of Completion. The equipment to be delivered under this Agreement shall be delivered no later than ____________________.

Should the Contractor fail or refuse to deliver the equipment within the stipulated time, including any authorized extensions of time, the Contractor agrees to pay as liquidated damages an amount of five hundred dollars ($500.00) for each calendar day thereafter that delivery is not complete.

Article 3. The Contract Sum. The Owner shall pay the Contractor, as full compensation for furnishing the dump/plow truck in strict accordance with the Invitation to Bid and to the full satisfaction of the Owner, the amount of _________________. This sum is to be paid in the manner and under the conditions hereinbefore specified.

Article 4. Warranty and Acceptance. Contractor shall guarantee the workmanship and materials provided by the bidder in accordance with Paragraph 19 of the Invitation to Bid and Attachment C – Technical Specifications from the date of written acceptance of the truck by the Owner not upon the date of delivery. During that period, the Contractor shall perform call back service to repair all work that is the result of improper installation and/or faulty material. Any and all manufacturers’ warranties will be passed on to the Owner.

Acceptance of the equipment shall be made by means of written notice to the Contractor after:
4.1 The equipment is inspected for damage and conformity to the bid submitted.
4.2 All criteria listed in Attachment C to the Invitation to Bid, Technical Specifications have been met.
4.3 The equipment is successfully demonstrated to the satisfaction of the Owner’s Facilities and Maintenance Department.
4.4 The equipment is operating properly in all operational modes.
4.5 The following have been received by the Owner: all service and warranty information; parts, operation, and maintenance/service manuals as required; and manufacturer’s certification of origin and report of sale.
4.6 Training of Owner personnel and mechanics as outlined in Paragraph 20 of the Invitation to Bid has been accomplished.

**Article 5. Insurance and Indemnification.** Owner has contracted with Contractor for the scope of work and Owner has relied upon Contractor’s knowledge and skills in completing the scope of work. Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all work performed under the Agreement. Without limiting Contractor's liability, Contractor shall, without additional compensation, correct or revise any errors or omissions in his work.

Contractor shall, in each and every instance, obtain written approval from the Owner prior to the use of any subcontractor for any phase of work on the equipment. The Owner shall not unreasonably withhold such approval. Contractor shall be liable for all damage caused by subcontractors as if they were the Contractor's own employees.

Neither the Owner's review, approval, or acceptance of, or payment for any of the services required under this Agreement shall be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement, and Contractor shall be and remain liable to the Owner in accordance with applicable law for all damages to Owner caused by Contractor's performance of any services furnished under this Agreement. The rights and remedies of Owner provided for under this Agreement are in addition to any other rights and remedies provided by law.

The insurance and indemnification requirements applicable to this agreement are contained in Attachment A to the Invitation to Bid.

**Article 6. Termination.** In addition to the other provisions of this Agreement, Owner has the right to terminate the agreement with or without cause at any time upon giving the Contractor seven (7) days notice in writing. In the event Owner terminates the Agreement in accordance with this provision, Owner agrees to pay Contractor for all work satisfactorily completed and for materials installed prior to the date of termination.

**Article 7. Governing Law.** It is understood and agreed by and between the parties hereto that this Agreement shall be deemed and construed to be entered into and to be performed in the County of Washoe, State of Nevada, and it is further understood and agreed by and between the parties hereto that the laws of the State of Nevada shall govern the rights, obligations, duties, and liabilities of the parties to this Agreement and also
govern the interpretation of the Agreement. It is further understood and agreed by and between the parties hereto that any and all actions between the parties brought as a result of this agreement will be brought in the Second Judicial District Court in and for the County of Washoe, State of Nevada of the parties to this Agreement and also govern the interpretation of the Agreement.

**Article 8. Attorney's Fees and Expenses.** In the event suit or action is instituted to enforce any of the terms or conditions of this Agreement, or litigation concerning the rights and duties of the parties to this Agreement, the losing party shall pay to the prevailing party, in addition to the costs and disbursements allowed by statutes, such sum as the court may adjudge reasonable after taking into account the extent to which the prevailing party prevailed as attorney's fees in such suit or action, in both trial and appellate court.

**Article 9. Default and Termination Of Contract.** If the Contractor:

9.1 Fails to begin the work under the resulting agreement within the time specified in the Notice to Proceed, or

9.2 Becomes insolvent or is declared bankrupt or commits any act of bankruptcy or insolvency, or

9.3 Allows any final judgment to stand against him unsatisfied for a period of five (5) days, or

9.4 Makes an assignment for the benefit of creditors, or

9.5 For any other cause whatsoever, fails to carry on the work in an acceptable manner, the Owner will give notice in writing to the Contractor and his surety of such delay, neglect, or default.

If the Contractor, within a period of five (5) working days after such notice, does not proceed in accordance therewith, the Owner shall have full power and authority without violating the agreement to take the prosecution of the work out of the hands of the Contractor. The Owner may, at its option, call upon the surety to complete the work in accordance with the terms of the agreement, or may take over the work, including any or all materials and equipment on the project as may be suitable and acceptable, and may complete the work by force account, or may enter into a new agreement for the completion of said agreement according to the terms and provisions thereof, or use such other methods as, in the Owner’s opinion, will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner together with the cost of completing the work under the agreement shall be deducted from the money due to which may become due the Contractor. In case the expense so incurred by the Owner shall be less than the sum which would have been payable under the agreement if it had been completed by the Contractor, then the Contractor shall be entitled to receive the difference. In case such
expense shall exceed the sum which would have been payable under the agreement, then the Contractor and his surety shall be liable and shall pay the Owner the amount of said excess.

**Article 10. Training.** The Contractor shall provide the following:

10.1 The services of a factory technician shall be supplied to the Owner for a period of not less than three (3) days.

10.2 It shall be the responsibility of the Contractor to provide training of Owner's personnel in the complete operation of the equipment on site at the Reno-Tahoe International Airport.

10.3 It shall be the responsibility of the Contractor to provide a complete factory training maintenance session for Owner's mechanics on site at the Reno-Tahoe International Airport during the training period.

**Article 11. Maintenance.** Contractor shall make all necessary adjustments to this equipment, not required by reason of accident, misuse, or any casualty, at the Contractor's expense during the warranty period.

Recommended preventive maintenance schedules shall be provided to the Owner's Airfield Maintenance Division.

Certified service technicians (i.e. those trained on the manufacturer's equipment) must be available to respond within one (1) working day in the event service is required. Repair parts are required to be available for delivery within twenty-four (24) hours.

**Article 12. Waiver.** No waiver of a breach of any covenant, term, or condition of this Agreement shall be deemed to be a waiver of any other or subsequent breach of the same or any other covenant, term, or condition, or waiver of the covenant, term, or condition itself.

**Article 13. Assignment.** This Agreement is deemed to be personal to Contractor and Contractor shall not assign the Agreement. Contractor may, however, with Owner's approval, employ any other party or entity it deems necessary or proper for any part of the work required to be performed under the terms of the Agreement.

**Article 14. Compliance with Laws, Rules, and Regulations.** Contractor agrees to be bound by the provisions of Owner's rules and regulations, all applicable laws, rules, and regulations adopted or made applicable to Contractor by any local, state, or federal authority having jurisdiction over the project or the Owner. Owner agrees to provide Contractor with all of Owner's rules and regulations and any subsequent amendments thereto.

**Article 15. Entire Agreement.** This Agreement and all attachments incorporated herein constitute the entire agreement between the parties with respect to the subject matter.
hereof and shall supersede all other previous proposals, both oral and written, negotiations, representations, commitments, writings, agreements and all other communications between the parties. In the event that any dispute arises or discrepancy exists between this Agreement and any of the attachments incorporated herein, the terms and conditions contained in the body of this Agreement supersede those contained in the attachments.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

RENO-TAHOE AIRPORT AUTHORITY

By: ________________________________
   Krys T. Bart A.A.E.
   President/CEO

CONTRACTOR

By: ________________________________

STATE OF ________________________

COUNTY OF ________________________

On this ___________ day of ____________, 2011, personally appeared before me, a notary public, ________________, known to me to be the ________________ of Contractor named herein, and acknowledged that he executed the within Agreement on behalf of said Contractor.

(SEAL) ____________________________

Notary Public
The Reno-Tahoe Airport Authority Purchasing and Materials Management Division is currently accepting sealed bids for one (1) new, all wheel drive, all wheel steer truck equipped with a sander, underbody grader, and two snow plows, Invitation to Bid Number 11/12-02, on behalf the Airfield Maintenance Division.

The specifications below are for a vehicle specifically designed for airport snow removal. The truck chassis is required to be manufactured in the United States of America. Vehicle shall be configured with a twenty-two (22) foot snow plow that can be quickly attached to the front of the truck with a quick couple type hitch. An additional fourteen (14) foot snow plow shall also be provided.

A combination sand spreader body with pre-wetting capabilities and a twelve (12) foot underbody scraper shall be permanently mounted to the truck. Truck shall be of a conventional cab, two passenger set back front axle design. The chassis shall have a minimum GVW rating of 51,000 pounds with an approximate wheel base of no more than 170 inches. Cab to front axle dimension shall be 91 inches. This snow removal vehicle shall be designed to operate at speeds up to 40 mph during snow removal operations on ramps, taxiways, and runways. The vehicle must be capable of maintaining a minimum of 65 mph on level ground when not engaged in snow removal activities.

All parts and components of this unit shall be engineered and classified as heavy duty and shall be of the size, material, and strength to sustain the maximum load limits and severe operating conditions encountered in airport snow removal operations.

Successful bidder is required to maintain a parts inventory and be able to provide prompt 24/7 services during the winter operating season.

Prior to the award of this contract, the Reno/Tahoe Airport Authority reserves the right to visit potential vendor's facilities. The specified piece of equipment shall not be accepted until a pre-delivery inspection has been performed by an authorized Reno/Tahoe Airport Authority representative. Inspection and acceptance of the vehicle shall not waive the responsibility of the vendor to provide a unit that is in compliance with the specifications as bid.

Yes ☐ No ☐

Exceptions:________________________________________________________
________________________________________________________
________________________________________________________
GENERAL TERMS:
All components shall be new, current model year products. All equipment furnished under this contract shall be new, unused, and the same as the manufacturer’s current production model specifically designed as an all wheel drive, all wheel steer snow removal vehicle. No aftermarket conversions of two wheel drive or two wheel steer trucks shall be accepted. While it is understood that this is a custom built piece of equipment, no prototypes shall be allowed. All components shall be tested and proven. All components must be assembled, installed, connected, mounted, and unit shall be complete and work-ready upon acceptance.

Accessories not specifically mentioned herein, but necessary to furnish complete unit ready for use, shall also be included. Unit shall conform to the best practice known to the body trade in design, quality of material and workmanship. Assemblies, sub-assemblies and component parts shall be standard and interchangeable throughout the entire quantity of units as specified in this Invitation to Bid. This equipment and all attachments must comply with all applicable FMCSR and FMVSS quality/safety standards and requirements of FAA Advisory Circular 150/5220-20. Documentation from the vehicle manufacturer certifying the suitability of the vehicle for the rigors of the intended use, with the specified attachments, is required to be submitted with the bid response. All equipment submitted under this specification shall comply with the most current NFPA standards, OSHA standards, applicable federal, state, and local fire and safety regulations, DOT requirements, and any other standard or specification as may be noted in this Invitation to Bid.

WARRANTY:
Bidder shall state his normal warranty and extended warranty where available on the Bid Schedule. The following minimum warranty is required: factory must provide a written fifteen (15) year parts availability guarantee for all components of the truck, plow, spreader, and underbody scraper. The entire unit shall be covered under a three (3) year parts and materials warranty.

MANUALS:
The successful bidder shall supply two (2) CDs as well as two (2) paper copies of a comprehensive repair/service manual, illustrated parts manual, and operations manual concurrent with delivery of the equipment. One (1) CD and paper set will accompany the equipment and one CD and paper set will be sent to the Materials Management Supervisor, 2770 Vassar Street, Reno, Nevada 89502.

REFERENCES
Location and contact lists are required to be submitted with the bid response to enable Reno/Tahoe Airport Authority (RTAA) to contact at least five airports that have taken delivery of similar airport snow removal equipment from the bidder and/or manufacturer within the last two years. Bids received without including such location and contact list shall be considered non-responsive and shall not be considered.
Bidder shall indicate in the spaces provided by each specification any requirement of these Technical Specifications that is not met in his response package. Bidder shall complete every space in the specification bidder's proposal column with a check mark to indicate if the item being bid is exactly as specified. If not, the "NO" column must be checked and a detailed description of the deviation from the specification to be supplied.

**PURPOSE**
The Reno-Tahoe Airport Authority shall issue a contract for the purchase of one (1) new, all wheel drive, all wheel steer truck equipped with a sander, underbody grader, and two snow plows.

**TRUCK SPECIFICATIONS**

1. **FRAME**
The frame shall be of Grade 8 bolted construction with heat treated, 120,000 psi yield strength, single channel carbon manganese steel rails connected by an adequate number of cross members to resist frame distortion from the lateral stress expected in this application. Minimum bar size shall be 12.375" x 3.875" x .375 with minimum 2,818,000 inch pound RBM per rail. The frame shall be the industry standard 34 inch width.

   Two (2) heavy-duty tow hooks shall be provided on both the front and the rear of the truck. All fasteners shall be Grade 8. Frame Liners, Wrappers, Fishplating, and Bolt-on Extensions are not acceptable.

   A PH 200 pintle hitch shall be mounted to the rearmost cross member.

   The area outside the frame rails above the front axle and below the fenders shall be clear of any mounted equipment that could be damaged by snow, ice, sand, or material build up.

   Chassis shall be equipped with air and electrical connections to enable trailer towing.

   Yes ☐ No ☐

   Exceptions:

   __________________________________________________________

   __________________________________________________________

2. **TRUCK ENGINE**
The engine shall be a Cummins or approved equal four stroke diesel engine consisting of six inline cylinders developing a minimum of 450 horsepower at 2100 revolutions per minute and 1,550 foot pounds of torque @ 1200 revolutions per minute. Governed speed must be no higher than 2100 rpm.
Exceptions: 

3. TRUCK ENGINE EQUIPMENT

Engine shall be equipped with Bendix 15.8 cfm BA921 air compressor or approved equal with a Teflon discharge line.

The engine shall be provided with full flow replaceable oil filters, heated fuel water separator, high idle and emergency (power derate) system with light and buzzer, in the event of high water temperature and/or low oil pressure.

Truck engine shall be equipped with a fuel filtration system that meets or exceeds the engine manufacturer's requirements.

Engine shall have an automatic measured shot ether starting aid with thermostatic control.

Air compressor must be capable of providing no less than 15.7 cfm to an air tank with a capacity of no less than 6,530 in\(^3\).

Engine shall have PTO flange on front of crankshaft for mounting a hydraulic pump.

A coolant heater shall be a 120V/1500-watt block type with weather-resistant receptacle. The electrical connection for the block heater shall be permanently mounted to a panel under the driver's door.

A Donaldson (or approved equal) dry type two-stage air cleaner is required with provisions for modification of air intake, offering both outside of hood and under hood air intake. All air induction system hoses to be equipped with stainless steel, constant torque clamps.

Chassis engine air intake filter canister shall be located under the chassis engine hood on stand away brackets.

An exhaust guard shall cover the muffler. The exhaust guard, bottom muffler elbow and exhaust stack shall be constructed of stainless steel.

If equipped with a Diesel Exhaust Fluid tank, the tank shall be easily accessible and clearly marked as a Diesel Exhaust Fluid tank.

Yes ☐ No ☐
Exceptions:________________________________________

________________________________________________________________________

4. **COOLING SYSTEM**
The cooling system shall consist of a heavy-duty radiator. The top and bottom tanks and side members shall be bolted together. The core shall be constructed of copper and brass. Rubber vibration isolating pucks at radiator mounts are required. Aluminum radiators are not acceptable. A transmission cooler shall be located integral to the radiator.

A thermostatically controlled, air operated disconnect-type suction fan shall be provided.

Air flow shall be parallel type with charge air cooling system mounted above liquid coolant system.

Radiator shroud is required.

A bug screen will to be mounted in front of the radiator.

Cooling system must be equipped with a flexible fan ring.

The engine cooling system shall be filled with permanent type antifreeze protecting the system to -40°F. Coolant shall be have a warranty of a minimum of 5 (five) years.

Fan belt shall be serpentine type. Engine shall be equipped with an automatic belt tensioning device. All coolant hoses shall be silicone.

Yes ☐  No ☐

Exceptions:________________________________________

________________________________________________________________________

5. **FUEL SYSTEM**
Vehicle shall have a fuel capacity of no less than 100 U.S. gallons. No more than one tank may be used to meet this requirement. Fuel tank will be firmly attached to the frame. Tank shall be equipped with a four inch diameter filler neck with chain connected cap and a brass tank drain plug shall be provided. A valve to isolate fuel tank is required.

A Racor or approved equal heated fuel/water separator shall be installed in the supply line to the engine fuel injectors. Fuel filter shall be a Spin On FS-1000 or approved equal.
6. **ELECTRICAL SYSTEM**

   Engine shall be equipped with DELCO 160 AMP alternator or approved equal and a DELCO 12V 42 MT Starter or approved equal.

   Unit shall have three each (3) 950 CCA batteries mounted in an easy accessible battery box.

   Master electrical shut off switch shall be mounted on battery box.

   All major circuits shall be protected by automatic reset circuit breakers accessible through a hinged panel on front of dashboard.

   Engine compartment lights are required.

   Split loom will not be accepted on any exterior electrical component.

7. **TRANSMISSION**

   The transmission shall be Allison RDS Gen IV 4500 series ILO 4000 four-speed automatic or approved equal with a low gear ratio of 4.70:1 and shall be supplied with the appropriate torque converter for this application.

   Synthetic transmission fluid shall be used.

   The shifting touch pad controls shall be located to allow operator to easily shift transmission with right hand.

   A dedicated back up connection shall be provided between touch pad shifter and vehicle electronic system external to the data bus connection to allow operator to shift into gear during fault mode or if main data bus fails.

   A low transmission oil level sensor system shall be included.
Exceptions:  


8. TRANSFER CASE  
The transfer case shall be a two-speed type with automatic locking/unlocking differential to control the torque between the front and rear axles.

The hi/low range selection shall be operated from an easily accessible point in the cab. Hi/low system shall be equipped with a device to eliminate range shifting at excessive speeds.

Switch shall be stage bump type, moving the shift from low to high or high to low. If the shift is not completed by the electric/air system within one minute, the system shall cease attempts at range shift and notify the operator of the failure by flashing light at the control switch.

Operating range of the transfer case shall be displayed on the dashboard. The transfer case shall have a torque transmission capacity exceeding the maximum torque developed by the engine and transmission and shall be approved for the application by the manufacturer.

Yes ☐ No ☐

Exceptions:  


9. AXLES  
The rear axle shall be of the drive/steer type full floating, torsion flow type with a single reduction spiral bevel gear design, minimum 26,000 pound GVW hub and brake rating capable of withstanding the loads of the unit being bid.

There must be a minimum 10" ground clearance under the differentials.

The front axle shall be of the drive/steer type, and of the full floating, torsion flow type with a single reduction spiral bevel gear design, minimum 25,000 pound GVW hub and brake rating, capable of withstanding the loads of the unit being bid.

Both axles shall be equipped with fully sealed ball and socket type steering knuckles.
The steering-drive wheel ends shall be bolted to and removable from the center section of the axle housing. The cardan drive type joints shall be totally enclosed within a sealed ball and socket. The trunnion pins shall be supported by pre-loaded tapered roller bearings. A driver controlled traction differential unit is required in both front and rear axles. Double reduction hubs and axles shall not be accepted.
10. **FOUR WHEEL STEERING SYSTEM**

Front axle steering shall be Sheppard integral hydraulic power assist gear type or approved equal. The steering gear shall be rated for heavy-duty service. Four wheel steering shall be electronically coordinated through the standard steering wheel. A selector switch within easy reach of the operator shall provide the option of front steer only, crab steer, or coordinated front/rear steer. Additionally, a single axis joystick, or thumb switch, shall be provided for controlling rear steer only.

The vehicle with the twenty-two foot plow attached shall be able to accomplish a complete wall to wall turning circle of 72 feet or less.

The system shall include safety provisions for dampening of all wheel steer effects at higher speeds but it shall also allow full operation while the vehicle is moving at lower speeds.

An indicator shall be provided in the cab to display mode selected and rear wheel position.

There shall be a mechanical linkage maintained at all times between the steering wheel in the cab and the front axle to assure the ability to control the vehicle in the event of hydraulic or electrical system failure.

Safety dampening of all wheel steer effects shall be related to vehicle speed and all wheel steer shall be available in both transfer case speed ranges.

The operator shall have the ability to select the desired mode of operation “on the go” with provisions made for safe transition from one mode to the other.

The electronic over hydraulically controlled rear axle steering system shall operate in conjunction with the mechanically controlled front wheel steering system.

This system must consist of the following components and operating features:

- The vehicle’s standard front steering system
- A driving, steerable rear axle
- Various hydraulic control valves, wheel position sensors, speed sensor and a steering cylinder located on the rear axle
- ECU (electronic control unit) and control panel (located in the cab)
- All of the all wheel steering system controls are to be located in the cab easily accessible to the operator.
• The all wheel steering system must be preprogrammed with multiple steering modes for improved maneuverability.
• The driver must have the option to select one of the following modes of operation "on the go"

10.1 **Front Steer:** When in the front mode, the vehicle will behave like a conventionally steered vehicle. In this mode, the axle lock remains in the locked position and the rear axle does not steer. This mode shall be employed at all speeds above 25 miles per hour.

10.2 **Coordinated Steer:** When in coordinated steer, the front axle is steered, the rear axle turns in the opposite direction of the front which reduces the turning radius and enhances maneuverability. This mode will have a deadband feature. Deadband is required to allow the vehicle front axle to be turned a predetermined number of degrees in either direction before the rear axle steers. The deadband shall vary according to the speed of the vehicle. The rear axle lock must remain engaged (locked) when the front axle is within the deadband range.

10.3 **Crab Steer:** In this mode, when the front axle is steered, the rear axle steers in the same direction as the front axle. This makes the vehicle travel in a diagonal motion, ("crab walking" or "crabbing"). This mode must also have a speed controlled variable deadband.

10.4 **Operator Controlled Rear Steer:** In this mode, the rear axle shall be controlled only by a dedicated control in the cab, independent of the front wheel position. The hydraulic locks shall remain operational; however, the mechanical lock is disengaged (unlocked) at all times when in this mode.

10.5 **Switching Between Modes:** The mode switch shall be active at all times. However, the ECU shall not switch modes unless the front axle crosses center for operator safety. If the front axle does not cross center, the system shall remain in the previous mode until the front axle crosses center. The rear wheels must also be in the straight-ahead position before the mode change occurs.

10.6 **Rear Wheel Position Gauge:** The system must include a rear wheel position gauge which shall perform the following three functions:

- **Calibration Indicator:** The LED (light emitting diode) arc graph on the display gauge shall be used for calibrating the wheel position sensors. The LED arc graph display shows the position of the angle sensors for adjustment purposes.
- **Rear Wheel Position Indicator:** The LED arc graph display shall show the operator the position of the rear wheels. When the rear wheels are in the straight-ahead position, the center green LED shall be on. When the
rear wheels are turning left, the LED arc graph sweeps from center to the left in proportion to the rear wheel angle indicating the directional position of the rear wheels. When the rear wheels are turning to the right, the LED bar graph sweeps from center to the right in proportion to the rear wheel angle, again indicating the directional position of the rear wheels.

- **Error Code Display:** An error code display is required for troubleshooting. If an error is detected by the ECU (electronic control unit) it shall signal the operator. This display shall also be used during system start–up to display the current CPU (central processing unit) software revision level.

### 10.7 Mode Lights:

The mode light feature shall consists of four lights:

- The **FRONT** mode light is lit when the all wheel steering ECU is operating in the front steer mode and the three-position mode switch is in the front steer (center) position.
- The **AXLE LOCKED** mode light is lit when the rear axle is mechanically locked in the straight–ahead position. This light will also come on when the all wheel steering ECU detects a system problem and an error code is displayed on the rear wheel position gauge.
- The **COORD** mode light must be lit when the all wheel steering mode switch is in the coordinated steer mode position and the ECU is operating in coordinated steer mode.
- The **CRAB/JOYSTICK** mode light must be lit when the three position mode switch is in the rear steer position and the ECU is operating in the rear steer mode. This shall indicate that the "crab/joystick" switch is enabled and the system shall function as indicated by the position of the crab/joystick switch.

An auto-center feature is required to assist in relocating the rear axle to the straight ahead position after use of the independent rear steer mode.

**Yes** ☐  **No** ☐

**Exceptions:**

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### 11. SPRINGS

The unit shall have alloy steel springs of the semi-elliptical type with minimum 25,000 lb. front and minimum 26,000 lb. rear ratings. The front springs pack must consist of a seven leaf main spring pack and a five leaf auxiliary spring pack. Rear springs shall be constructed with a fifteen leaf main spring pack and a six leaf auxiliary pack. The spring hangers, pins and supports shall be heavy duty. The pins shall be of the grease type with substantial, heavy duty bronze bushings.
12. **RIMS AND TIRES**
Rims shall be white powder coated 20.0 x 10.0 steel wheels with five access holes. Tires shall be Michelin XZL 16.00 R20 or approved equal. One mounted spare tire and rim shall be provided for each axle.

Yes ☐ No ☐

Exceptions: ____________________________________________________________
______________________________________________________________

13. **BRAKES**
The service brakes shall be fully air actuated S-cam type spring brake with a minimum 15.7 CFM air compressor. Brake system must be documented to conform to FMVSS 121.

The parking brakes shall be spring actuated air released at the rear service brake air chambers with the air switch mounted within the cab and in easy reach of the operator.

An electronic anti-lock brake system is required.

The air system for this unit shall be equipped with frame mounted, heated Bendix AD-9 or approved equal, air dryer system.

A quick disconnect coupler on the right side of the vehicle shall allow introduction of shop air into air system upstream of the air dryer for filling on board truck system with air.

Heated Expello or approved equal valves shall be installed on air system.

Remote cable drains shall be provided for each air tank.

Yes ☐ No ☐

Exceptions: ____________________________________________________________
______________________________________________________________
______________________________________________________________
14. **CAB**
Cab must be manufactured of galvanized steel that has been treated with rust proofing. Engine compartment must not intrude into cab compartment. Cab width shall be no less than 72 inches. Door hinges shall be full length, piano type. The truck shall be designed to permit easy and safe mounting and dismounting of the unit for operators and service personnel. Grab bars shall be installed as required for safe mounting and dismounting by personnel following OSHA standards of 3-point contact during all mount and dismount activities. This shall include a minimum 1-inch diameter vertical grab bar behind each door to include round tactile material for improved grip. The inside of each door shall include a minimum 1-foot grab handle positioned under the window. It shall be made of minimum 1-inch diameter material, round only (no sharp edges or corners).

Cab must be sufficiently insulated to enable quiet operation under extremely cold conditions.

All sheet metal, cowling, steps and fenders shall be free of sharp edges and protrusions and include ample supports and bracing to prevent distortion and cracking.

All steps or walkways shall be raised lug or expanded metal type construction.

Hood shall be a weather proof, butterfly type. Access cover to enable operator to check engine oil without opening hood must be installed on hood side.

Mud flaps shall be provided behind both axles and in front of rear axle.

Fiberglass fenders are required on the front wheels. Titanium finish, Minimizer 2480 fenders or approved equal shall be required over the rear wheels.

Grill shall be stainless steel

Both doors on unit shall be equipped with power windows, remote controlled, heated mirrors and heated convex spot mirrors. Right side door shall be equipped with a curb visibility window.

Cab shall be equipped with a reverse slope, heated windshield. One spare heated windshield shall be supplied with vehicle.

Intermittent electric windshield wipers shall be installed above the windshield. Windshield washer reservoir shall have a capacity of no less than six (6) U.S. quarts.

Cab must be isolated from chassis with rubber mounts.
Unit must be equipped with two premium black, Air Talladega or approved equal, high back seats with folding armrests. Driver’s seat shall be heated with adjustable lumbar support.

Dashboard shall have the following gauges and accessories:

- One 12V DC power tap
- Transmission temperature gauge
- Coolant temperature gauge
- Oil Pressure gauge
- Dual Air Pressure gauge
- Tachometer
- Speedometer with odometer and trip meter
- Hobbs hour meter
- Clock
- Voltmeter
- Fuel gauge
- Warning lights for low coolant, high temperature, low oil pressure, low fuel level and high transmission temperature.
- All switches to be heavy duty rocker type.

Cab shall be equipped with two dash mounted, two speed, electric defroster fans.

Unit shall be equipped with a tilt/telescoping steering column.

Vendor shall install Owner-supplied 800MZ and Aviation band radios. Any additional components necessary for the radio installations shall be provided by vendor.

Cab heater shall have no less than 50,000 BTU of heating capacity. Heater must have side window defrosters.

Dual sun visors and dual cup holders required.

Dual polished air horns with snow guards and two electric horns will be required.

Lubrication data plate will be prominently displayed on the driver’s door.

Truck shall be equipped with adjustable, OSHA compliant Back Up alarm. The Cab, hood, front fenders and spreader to be painted FAA approved yellow with a clear coat. Paint color on all components to match exactly.

Yes ☐  No ☐
15. **LIGHTING**
Lighting on the equipment shall be provided as follows:

- Cab-mounted lighted light bar equipped with four (4) HID lights plow lights and a Federal 14 or approved equal rotating amber beacon
- Two fender-mounted and two roof-mounted headlights
- Cab-mounted LED marker lights
- Side-mounted LED clearance lights
- LED combination stop, turn, taillights
- Rear facing Halogen work lights mounted on rear of spreader unit
- LED back up lights
- Two roof-mounted spot lights.
- Two driving lights mounted on plow frame.

Yes ☐ No ☐

Exceptions: ____________________________________________________________

16. **HYDRAULIC SYSTEM**

16.1 **Pump**
The pump shall be directly drive driven by the chassis engine crankshaft.

The hydraulic pump shall be of the load sensing design in order to ensure peak hydraulic function regardless of engine rpm

The pump shall be approximately 6.0 in$^3$ displacement and able to product a minimum of 35 gpm @ 1500 engine rpm

Bidder shall submit documentation verifying that the hydraulic system has the capability and capacity to operate the plow, sander and under body grader simultaneously with the bid submission.

Yes ☐ No ☐

Exceptions: ____________________________________________________________

__________________________________________________________

__________________________________________________________
16.2 Reservoir
The hydraulic reservoir shall have a minimum of 40 gallon capacity and be internally baffled to prevent oil recirculation and accumulation of latent heat.

A sight gauge with a thermometer shall be provided to ensure proper oil level and operating temperature at a glance.

The reservoir must be equipped with a magnetic drain plug to collect metal in suspension and a 100 mesh screen with a 3 psi by-bass must located at the reservoir outlet.
The reservoir shall be clearly marked on the outside as to the type of oil to be used.

Valving must be in place to ensure the reservoir can isolated from the system for maintenance and filter servicing.

Yes ☐ No ☐

Exceptions: ________________________________

16.3 Hydraulic Valve
The main hydraulic control valve for the grader and plow shall be of the manifold type. Each valve section shall be electrically actuated and be of the non-proportioning type.

All connections and materials used shall be water tight and resistant to hazardous fluids.

Yes ☐ No ☐

Exceptions: ________________________________

16.4 Filtration
Return hydraulic flow shall pass through a 10 micron return filter located in-line or inside the hydraulic reservoir.

Yes ☐ No ☐

Exceptions: ________________________________
16.5 **Hydraulic Functions**

Hydraulic functions shall be as follows:

- Plow Lift, Up & Down w/ Float (double acting)
- Plow Angle, Left & Right (double acting)
- Scraper, Up and Down, (Independent Left and Right)
- Scraper, Left and Right
- Scraper, Moldboard, Raise and Lower
- Scraper, Moldboard Lock
- Plow Hitch Lock/Unlock
- Spreading width
- Spreading symmetry
- Spreading quantity
- Spreader Maximum (‘blast’)

All functions necessary for routine operation of the unit shall be placed in such a manner that the plow operator can easily access the controls with their right hand while seated in operator’s seat.

Yes ☐ No ☐

Exceptions:________________________________________________________

______________________________________________________________

**PLOWS AND HITCH**

1. **PLOW HITCH**

The front attachment plow hitch to the chassis shall be a “hands-free” type. It shall allow hands-free interchange of the plow and other attachments. It shall be hydraulically operated (plow lift, swing, and lock) and specifically designed for power reversible runway plows.

The plow moldboard and push frame must be capable of being completely removed or attached from the vehicle’s cab without leaving the operator’s seat and without the need to disconnect or reconnect hydraulic lines and/or electrical connections. It shall be automated and fully repeatable.

The entire process of hitching or unhitching shall be possible by one person in not more than two minutes.

Plow shall be positive connected to the hitch with hydraulically operated lock pins. All hydraulics and structure for plow lift, swing, oscillation, and lock shall be on the chassis side of the J-hook style moldboard coupling and shall be modular design. It
also must be quickly and easily removable from the chassis. Thus there shall be three sections of the hitch: 1) chassis side, 2) module, and 3) moldboard side.

Yes ☐  No ☐

Exceptions:

2. **MOLDBOARD HITCH MODULE**
   The plow push frame shall have two (2) J-hooks each with a minimum thickness of 1.50 inches. The J-Hooks shall allow the operator to lower the plow hitch, drive forward into the hooks, and then pick up the moldboard.

   At the bottom of the push frame shall be the mating holes for the lock pins to secure the moldboard to the plow hitch.

   The moldboard and push frame, once detached, will rest on the ground on the cutting edge and the caster tires only. No blocking shall be needed.

   Lead in on the J-hooks shall be great enough to compensate for forward moldboard roll.

   Yes ☐  No ☐

   Exceptions:

3. **HYDRAULICS MODULE**
   This module shall provide the means to “hands free” attach or detach the moldboard module along with attaching and detaching both the moldboard and hydraulics modules from the chassis as needed.

   The plow lift system of the module shall be a parallel lifting type consisting of two (2) parallel tubular lift arms.

   The design shall incorporate a dual acting plow lift cylinder. This lift cylinder shall also provide the “hands-free” removal and attachment the plow moldboard module.

   Plow hitch shall have two (2) number 5 series cast steel claws at the top and two (2) one inch diameter swing bolts and nuts at the bottom.

   The design shall incorporate the telescoping reversing cylinders, dual action lift cylinder, and lift cylinder lifting arrangement to be part of the plow assembly so
that when the complete plow is removed from the truck, only the mounting plate remains on the truck.

The hydraulic double-acting-lifting cylinder shall have a minimum of a four (4) inch bore no less than sixteen (16) inches of stroke with a rod no smaller than two (2) inches in diameter. The double acting lift cylinder will lift the plow off the truck mounting plate.

The plow lift hydraulic system shall be furnished with a relief valve to prevent more than 200 psi down pressure.

The lifting cylinder arrangement shall incorporate a mechanical transport lock that shall take the weight of the plow off the hydraulic cylinder during transport and shall act as a safety in the event of a hose failure during transport. The hitch shall be a parallel lifting type consisting of two (2) parallel tubular push arms of 3" x 3" x 5/16" wall steel tubing.

The hitch shall be designed to ensure that when the plow is carried in the raised position and angled right or left the plow remains level to the pavement.

The hitch shall incorporate a drive frame/turntable that allows oscillation of the plow with respect to the truck in order to follow the pavement contour. This oscillator shall consist of two formed plates with a minimum thickness of 1/2" and a length of no less than 37 inches with reinforced slots in top and bottom and a bushing with a wall thickness of no less than 1/2" welded in the center to accommodate a four (4) inch diameter rotating pin that will be furnished with a grease fitting.

The two halves of the oscillator shall be held together with no less than four (4) Grade 8 bolts, 1" in diameter and four (4) nylon inserted lock nuts.

One half of the oscillator shall be welded to the drive frame/turntable that consists of a weldment of three horizontal steel tubes which shall be constructed of 5" x 3" x ½" wall tubing.

The drive frame/turntable is connected to the plow moldboard assembly by means of the following:

A. Four (4) heavy-duty braces on top of the frame that can adjust the cutting edge angle to positions of 65° - 75° - 85°.

B. Six (6) "Aeon"-type isomer rubber cushions on the bottom of the plow frame compressed to a length of four (4) inches by means of six (6) bolts - 1-3/8" in diameter and six (6) nylon inserted lock nuts. The second half of the oscillator is attached to the two (2) parallel tubular push arms with a
size 1-15/16" diameter by 32" in length center pin with top and bottom universal joints.

Mounting plates for the hydraulic reversing cylinders shall be 3/4" in thickness. Bolted to this frame are two (2) "Aeon"-type isomer rubber cushions. System must be constructed in a manner that keeps the runway plow level in the raised position.

This level lift arrangement must be pre-loaded before it can be bolted to the plow frame.

Exceptions:

4. CHASSIS MODULE
On the front chassis frame rails shall be a DIN plate style coupler for connection of the module.

The quick hitch is to be designed so that the lift cylinder can be used to detach the snowplow from the truck mounting plate.

The truck portion of the hitch shall consist of a 5/8" thick push plate furnished with two (2) top mounting pockets to accept the two (2) cast steel claws and lower slots to accept the swing bolts that are part of the snowplow attachment.

The push plate shall be furnished with a top horizontal stiffener (22-7/8" long x 1-1/2" wide x 5/8" thick) and a bottom horizontal stiffener (26-3/4" long x 4" wide x 5/8" thick). The plate shall be attached to the truck chassis with ½" side plates utilizing a series of grade 8 bolts. In addition, two (2) bottom push arms extending from the lower section of the push frame to the truck frame, attaching with a series of mounting angles and bolts shall be furnished.

Exceptions:
SNOW PLOWS

TWENTY-TWO FOOT RUNWAY PLOW

1. **MOLDBOARD ASSEMBLY**
   Plow shall be no less than less than 50" high. Height will be constant, with no flare on either end of the plow. Plow shall be no less than twenty two (22) foot wide.

   The moldboard sheet shall be formed from 3/8" thick ultra high molecular weight polyethylene sheet with an abrasion resistance of 15 Ultra High Molecular Weight (UHMW) as rated by ASTM G75-01 sand slurry testing.

   The polyethylene sheet shall be 60" high in their flat form. The moldboards shall overhang the cutting edges by not less than twelve (12) inches.

   The sheet shall evidence no break following IZOD impact test conducted in accordance with ASTM D256A.

   The sheets shall be formed from a polyethylene material that is made from new resin (recycled material is not acceptable) and shall be color impregnated and have ultra violet stabilized pigmentation.

   Moldboard reinforcement shall include a full length angle at the top (3" x 2-1/2" x 3/8") and a combination of full length 3/4" flat bar and angle at the bottom.

   Not less than twelve (12) steel vertical ribs at least 3/8" thick x 4-1/2" wide with a 3/16" thick steel front supporting sheet 72" wide with window openings to tie top reinforcement to the bottom reinforcement to so provide a shell to which the polymer moldboard sheet shall bolt.

   Moldboard attack angle adjustment shall be incorporated so to provide 65 degree 75 degree and 85 degree settings (from ground plane to back of cutting edge). Moldboard shall have the capability to use steel, carbide, rubber or urethane cutting edges.

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Y es    ☐      No    ☐
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**Exceptions:**

2. **SPRAY GUARD**
   Shall bolt to the top moldboard flange or reinforcement. It shall consist of a 12" wide x 3/8" thick rubber belt, metal retaining strap and necessary mounting hardware.
Yes  ☐  No  ☐

Exceptions: _____________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

3. **CUTTING EDGE**

   Shall be of polyurethane – elastomer two (2) inch thick by eight (8) inch wide with mounting holes to the A.A.S.H.O. “Highway Punch” standard and shall be supplied with a steel retaining strap.

   The polyurethane shall have a minimum Brinell hardness of “Shore A-83 Durometer” and a minimum tensile strength of 6,000 psi.

Yes  ☐  No  ☐

Exceptions: _____________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

4. **CUTTING EDGE REINFORCEMENT**

   Shall consist of a 6" x 4" x 1/2" structural steel angle with equally spaced 1/2" thick reinforcement gussets with a 3-1/2" x 3/4" steel flatbar reinforcement welded to the top of the angle for added strength.

Yes  ☐  No  ☐

Exceptions: _____________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

5. **DRIVE FRAME**

   Shall consist of an "A" frame and Circular Sector.

   The "A" frame shall be a weldment constructed of four (4) inch square steel tubing.

   The Circular Sector shall be a weldment having a four (4) inch square steel tubing main drive member, a three (3) inch square steel tubing circle member and gusseting at the greatest stress areas.

   The Drive Frame shall connect to the moldboard at four (4) attachment points via six (6) DeAeon-type isomer rubber cushions located at a drive spread of 120" and 46-1/2" centers.

   The bushing for the hinge pin shall be three (3) inch OD tubing with a 1/2" wall. The bushing shall be welded behind the four (4) inch square tubing and shall be reinforced by two (2) each 3/8" thick steel plates.
The main pivot pin shall be of two (2) inch diameter cold rolled steel.

Yes ☐ No ☐

Exceptions: ____________________________________________________________

6. OSCILLATING BAR
The drive frame shall connect to the truck by means of an oscillating bar. The bar shall be a weldment of a 6" x 3/4" back plate supplied with one (1) inch thick drive ears on 31" centers. The rotating pin shall be of 2-1/2" diameter cold rolled steel supplied with a grade 8 safety bolt and lock washer.

Yes ☐ No ☐

Exceptions: ____________________________________________________________

7. REVERSING MECHANISM
Reversing shall be achieved by two (2) each 4-1/2" O.D. x 31" stroke hydraulic telescoping cylinders operating in series through a safety cushion valve. The plowing angles shall be infinitely variable up to a maximum of 32 degrees to each side of centerline.
The cushion valve shall be set to relieve the cylinders should any surface obstructions be encountered.

Yes ☐ No ☐

Exceptions: ____________________________________________________________

8. DUAL CASTER WHEEL ASSEMBLY
Bolted to left and right sides of the drive frame shall be two (2) 360° swivel adjustable pneumatic dual castered wheel assemblies. Tires shall be four (4) in number, two (2) each side riding in tandem.

Casters hall be 360 degree swivel type.

Wheels shall be eight (8) inch diameter x 3-3/4" wide from not less than 7 gauge steel and of a five (5) bolt mount design. They shall ride on hubs fitted with Timken or approved equal tapered roller bearings. Each bearing shall include seal, dust-cap, lubrication fitting and pressure relief plug.
Axles shall be a minimum of one (1) inch in diameter at the ends and no less than 1-1/16” diameter at outer bearings, 1-3/8” diameter at the inner bearings, and two (2) inch diameter at the center and from not less than A.I.S.I. 4340 steel, heat treated to 48 Rockwell "C" and ground.

The four (4) caster wheels shall be eight (8) inch rims equipped with 18.7 X 8. 16 ply, highway ribbed radial tires rated for no less than 30 mph.

Two (2) spare caster tire/wheel assemblies shall be included.

Vertical adjustment shall be accomplished through two (2) caster barrel arrangements. The outer barrels of which shall be from not less than 4-1/4” O.D. x 3-3/4” I.D. honed tubing. The inner tubes shall be from not less than 3-1/4” O.D. x 2-1/4” I.D. ground and hard chrome plated tubing.

The screw adjustment rod shall be from not less than 1-3/8” diameter stainless steel threaded rod. Each caster shall be equipped with a spring loaded adjustable brake dampener so to minimize wheel wobble.

All metal components shall be covered in a corrosion resistant, black coating.

Yes ☐ No ☐

Exceptions: _____________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

FOURTEEN FOOT RUNWAY PLOW

1. **MOLDBOARD ASSEMBLY**

   The plow moldboard shall be not less than forty two (42) inches high and shall not be less than fourteen (14) feet long.

   The moldboard sheet shall be formed from not less than 3/8” thick high molecular weight polyethylene sheet. The polyethylene sheet will not be used as an overlay on a steel moldboard.

   The polyethylene sheet shall have a minimum tensile strength of 7000 psi and when tested in accordance with ASTM D638, it shall evidence a minimum of 800% (2”) elongation at break. In addition, the sheet shall evidence no break following IZOD impact test conducted in accordance with ASTM D256A. The sheet shall be formed from a polyethylene material that is made from new resin, (recycled material is not acceptable), and shall be color impregnated and be ultra violet stabilized.
It shall attach to a framework which includes not less than ten (10) steel reinforcing ribs at least 1/2" thick x 3-1/2" wide and a lower moldboard reinforcement from not less than 4" x 3" x 1/2" steel angle so as to form a rigid structure.

The upper portion of the moldboard shall project over the cutting edge so as to form a continuous, solid, integral snow shield and shall include an upper reinforcement from not less than 3" x 2-1/2" x 3/8" steel angle.

In addition to the upper and lower reinforcements, a 3" x 3" x 3/8" steel angle running across the width of the plow frame, shall be welded to the vertical ribs.

Exceptions:

2. **CUTTING EDGE**
   Shall be of polyurethane – elastomer two (2) inch thick by eight (8) inch wide with mounting holes to the A.A.S.H.O. “Highway Punch” standard and shall be supplied with a steel retaining strap.

   The polyurethane shall have a minimum Brinell hardness of “Shore A-83 Durometer” and a minimum tensile strength of 6,000 psi.

Exceptions:

3. **TRIPPING EDGE MECHANISM**
   Shall be of the single edge design that shall activate whenever the cutting edge comes into contact with an obstruction on the pavement.

   Trip activation shall be achieved through six (6) torsion springs from not less than 3/4" square wire, having a 3-3/4" O.D., with fifteen (15) active coils each.

   Each spring shall be pinned in place in a horizontal position and shall butt to the lower moldboard reinforcement and to the cutting edge reinforcement.

   Spring adjustment shall be provided so as to alter the pre-charge of springs.
Yes ☐  No ☐

Exceptions: ____________________________________________________________

________________________________________________________

4. **MOLDBOARD HITCH MODULE**
The plow push frame will have two (2) J-hooks each, 1.50 inches thick that will allow the operator to lower the plow hitch, drive forward into the hooks, and then pick up the moldboard. At the bottom of the push frame shall be the mating holes for the lock pins to secure the moldboard to the plow hitch.

The moldboard and push frame, once detached, will rest on the ground on the cutting edge only and casters only. No blocking shall be needed.

Lead in on the J-hooks shall be great enough to compensate for forward moldboard roll.

Yes ☐  No ☐

Exceptions: ____________________________________________________________

________________________________________________________

5. **HYDRAULICS MODULE**
This module shall provide the means to “hands free” attach or detach the moldboard module along with attaching and detaching both the moldboard and hydraulics modules from the chassis as needed.

The plow lift system of the module shall be a parallel lifting type consisting of two (2) parallel tubular lift arms. The design shall incorporate a dual acting plow lift cylinder. This lift cylinder shall also provide the “hands-free” removal and attachment the plow moldboard module.

The design shall incorporate the telescoping reversing cylinders, dual action lift cylinder, and lift cylinder lifting arrangement to be part of the plow assembly so that when the complete plow is removed from the truck, only the mounting plate remains on the truck.

The hydraulic double-acting-lifting cylinder shall be four (4) inch bore 16-3/8”stroke with a two (2) inch diameter rod.

The double acting lift cylinder will lift the plow off the truck mounting plate. The plow lift hydraulic system shall be furnished with a relief valve to prevent more than 200 psi down pressure.
The lifting cylinder arrangement shall incorporate a mechanical transport lock that shall take the weight of the plow off the hydraulic cylinder during transport, and shall act as a safety in the event of a hose failure during transport.

The hitch shall be a parallel lifting type consisting of two (2) parallel tubular push arms of 3" x 3" x 5/16" wall steel tubing and when the plow is carried in the raised position and angled right or left the plow remains level to the pavement.

The hitch shall incorporate a drive frame/turntable that allows oscillation of the plow with respect to the truck in order to follow the pavement contour. This oscillator shall consist of two (2) formed plates with a thickness of 1/2" and a length of 37" with reinforced slots in top and bottom and a bushing with a wall thickness of 1/2" welded in the center to accommodate a four (4) inch diameter rotating pin that will be furnished with a grease fitting. The two halves of the oscillator shall be held together with four (4) Grade 8 bolts, one (1) inch in diameter and four (4) nylon inserted lock nuts.

One half of the oscillator is welded to the drive frame/turntable that consists of a weldment of three horizontal steel tubes, size 5" x 3" x ½" wall. Bolted to left and right sides of the drive frame will be 360° swivel adjustable pneumatic castered wheel assemblies.

Wheels shall be 8" diameter x 3-3/4" wide from not less than 7 gauge steel and of a five (5) bolt mount design. They shall ride on hubs fitted with Timken tapered roller bearings. Each bearing shall include seal, dust-cap, lubrication fitting, and pressure relief plug. Axles shall be a minimum of one (1) inch in diameter at the ends and no less than 1-1/16" diameter at outer bearings, 1-3/8" diameter at the inner bearings and two (2) inch diameter at the center and from not less than A.I.S.I. 4340 steel, heat treated to 48 Rockwell "C" and ground.

The two caster wheels shall be eight (8) inch rims equipped with 18.7 X 8. 16 ply, highway ribbed radial tires rated for no less than 30 mph.

Two (2) spare caster wheels shall be supplied.

The drive frame/turntable is connected to the plow moldboard assembly by means of the following:

- Four (4) heavy-duty braces on top of the frame that can adjust the cutting edge angle to positions of 65° - 75° - 85°.
- Six (6) "Aeon"-type isomer rubber cushions on the bottom of the plow frame compressed to a length of four (4) inches by means of six (6) bolts - 1-3/8" in diameter and six (6) nylon inserted lock nuts.
The second half of the oscillator is attached to the two (2) parallel tubular push arms with a size 1-15/16" diameter by 32" in length center pin with top and bottom universal joints.

Mounting plates for the hydraulic reversing cylinders shall be 3/4" in thickness. Bolted to this frame are two (2) "Aeon"-type isomer rubber cushion level lift arrangement to keep the runway plow level in the raised position. This level lift arrangement must be pre-loaded before it can be bolted to the plow frame.

All metal components shall be covered in a corrosion resistant, black coating.

Yes ☐ No ☐

Exceptions:__________________________________________________________

__________________________________________________________

UNDERBODY GRADER

1. GENERAL
Underbody grader shall be an extra heavy-duty, variable pitch, 5-way control, mid ship mounted, underbody truck grader designed for ice and snow removal and roadway maintenance.

All metal components shall be constructed of high tensile strength steel.

Yes ☐ No ☐

Exceptions:__________________________________________________________

__________________________________________________________

2. MOLDBOARD
Grader moldboard of 5/8" steel with 1/2" x 6" curved cutting edge. Moldboard height will be fifteen (15) inches and the length shall be twelve (12) feet.

Yes ☐ No ☐

Exceptions:__________________________________________________________

__________________________________________________________
3. **TRUCK GRADER MOUNTING**

Moldboard shall be supported and mounted to truck by side frames that reinforce truck frame. Side frames to be a minimum of 55-1/2" long with formed end channels to contain the parallel lift linkage.

Grader mounts shall bolt to truck frame without interference to truck, sander, or plow components.

Ground clearance, as measured from the lowest chassis component, shall be no less than twenty-five (25) inches.

Ground clearance to bottom of frame shall be no less than twenty-eight (28) inches.

Yes ☐ No ☐

Exceptions:________________________________________________________________________
________________________________________________________________________________

4. **CONTROLS**

Two pitch control cylinders shall be required to vary the angle of attack of the cutting edge to the ground to obtain high pitch angle for ice removal and material grading, or low pitch angle for snow and slush removal.

Pitch control cylinders shall roll moldboard back to when grader is not in use to increase travel clearance. Independently controlled lift cylinders shall raise, lower, or tilt moldboard right or left.

A single reversing cylinder shall be used to position the moldboard at 0 degrees, 15 degrees, 20 degrees, 25 degrees, 30 degrees, or 35 degrees. All operations shall be operating equally to the right or the left.

Cab to rear tire clearance on truck must be sufficient to obtain maximum operating angles.

Two (2) locking cylinders, one on each side of reversing frame, drop pins into one of 5 sets of slots to prevent any pressure on reversing hydraulic cylinder during operation.

Yes ☐ No ☐

Exceptions:________________________________________________________________________
________________________________________________________________________________
5. HYDRAULIC ACCUMULATOR
Cutting edge protection shall be provided by a hydraulic accumulator connected to the base ends of the pitch control cylinders to permit the moldboard to roll back or ride over obstructions. The hydraulic accumulator must be capable of returning moldboard to operating position after obstruction is cleared.

Yes ☐ No ☐

Exceptions: ______________________________________________________

6. TRUCK CLEARANCE REQUIREMENTS
Minimum truck clearance requirements shall be compliant with the manufacturer's specifications.

Yes ☐ No ☐

Exceptions: ______________________________________________________

SAND SPREADER

1. GENERAL
Spreader shall be equipped to apply deicing/anti icing chemicals, sand, and a combination of both friction enhancing products. Spreader shall be permanently fastened to truck frame. All components of the chemical application system shall be constructed using components designed for operation with potassium acetate and other potentially corrosive deicing / anti icing products.

This spreader must apply:

- Dry material to a minimum of forty (40) feet spread width
- Straight Liquid to twenty-five (25) feet spray width
- Variably pre wet dry material from 5% to 30% to forty (40) foot spread width

Yes ☐ No ☐

Exceptions: ______________________________________________________
2. **CONTROL SYSTEM**

Spreader control system and liquid system to be supplied from a single ISO certified manufacturer. All functions to be run test before leaving the factory and a copy of the run test to be provided.

All controller functions for dry and liquid materials to be road speed related from 0-40 mph.

All hydraulic controls, including drive motors, valving, and electronic controls are to be housed in a sealed, metal compartment at rear of the spreader. Plastic enclosures are not acceptable.

Controller screen to display application rates, settings, spread width, and material selected. Control system to have self diagnostic capabilities and the controller screen to display errors in graphical symbology.

Controller to be programmable and incorporate password protection to four (4) levels of allowed programmability.

Liquid and dry material empty sensors to be provided and the controller screen to indicate when dry material hopper or liquid tanks are empty.

Controller shall include PCMCIA slot to allow for uploading of any future software enhancements to the control system.

All electrical functions shall be through a single, six (6) conductor, multiplex wiring harness. Control system must be capable of full manual override to allow spreading in the event of an electrical failure.

Data production system- data output shall be supplied to an RS232 port with up to 35 data streams for collection by others.

A new event shall occur each the time each of the following is performed.

- Start/stop- dry material
- Start/ stop- liquid
- Prewetting on/off
- Width setting is changed
- Symmetry setting is changed
- Quantity setting is changed
- Function buttons
- Alarms & status
- Distance traveled
- Time logging
3. **MATERIAL HOPPER**

Hopper to be all steel construction. All fasteners shall be stainless steel. All material surfaces to be shot blasted and shall have primer coats and yellow top coats.

Dry material hopper capacity to be a minimum of 6.5 cubic yards.

Liquid capacity shall be a minimum of 1,175 gallons.

Rear mounted access ladders with hand holds and safety grip steps to provide access to rear compartment are required.

Hopper grates shall be installed on top of unit. Grates will be sloped with four (4) inch square openings and shall have a built in, man door to allow easy access to the interior of the hopper.

Spinner and drop chute shall be stainless steel.

Chute and spinner assembly shall be capable of spring assisted swinging to an upright position for storage and/or calibration.

Safety device to prevent the spinner from being activated when in the upright position are required.

Spinner height must be vertically adjustable from 12" to 20" above the road surface.

Rapid hydraulic off loading of the spreader shall be accomplished with the spinner and drop chute in the upright position.

Material metering achieved by a stainless steel feed delivery roller with various sized replaceable cams along the full inside length of the hopper.

A conveyor/gate system for material metering is not acceptable.

Stainless steel agitator shaft mounted above the delivery roller to have replaceable spring fingers and shall rotate in synchronized speed with delivery roller to ensure equalization and homogenization of material to the roller. A 'lump crusher' is not an acceptable alternative to this process.
Material delivery to spinner drop chute shall be via an unloaded rubber belt conveyor that is demountable with a full hopper of material. Hopper must empty equally and fully from front to rear.

An adjustable spring tensioned rubber base is required for calibration adjustment.

One cab controlled rear facing work light shall be mounted on the sander/spreader.

Yes ☐ No ☐

Exceptions:

4. **LIQUID PUMP**
   Liquid pump must be multi-chamber diaphragm design with a minimum of 34 gallons/minute @ 300 psi.

   Prewetting shall be programmable and variable from 5% to 30% of the dry rate.

   An in-line (1 1/4” inlet/outlet) 40 mesh filter shall be provided to supply filtered liquid to the prewetting pump. Filter shall be self cleaning and have a built in check valve.

   Filter must be easily accessible and serviceable.

   Tank must be capable of being isolated from pumping system to allow for maintaining pump, filter and other components without loss of fluid.

   Tanks shall be sumped and baffled.

   Tanks shall be secured to body by means of recessed steel brackets and bolts. Attachment straps are not acceptable.

   A sight gauge for liquid level that is clearly visible from the filling position is required.

   Tanks to be filled from a single two (2) inch hydrant type cam lock male port nipple with shutoff valve.

   Tank fill valve must be located near spinner chute frame.

   Single bottom ported and vented tank lines shall fill and drain all tanks equally. Filling and draining of tanks must not affect the center of gravity of the vehicle.

   A single liquid delivery nozzle shall be mounted at the spinner.
Yes ☐ No ☐

Exceptions: ________________________________________
____________________________________________________
____________________________________________________