

KRAUS-ANDERSON® CONSTRUCTION COMPANY

ADDENDUM NO. 3

June 23, 2011

Duluth International Airport
New Passenger Terminal
Voluntary Air Low Emissions (VALE)
Duluth, MN 55811

TO ALL CONTRACTORS:

The following are clarifications and/or changes to the Plans and Specifications, dated June 9, 2011, to be Bid on June 28, 2011, for the above named Project. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

1. **Section 01014 Work Scope Index**

- A. Under Work Scope 1.0V Geothermal System Spec #, delete 15748 Geothermal Performance Monitoring in its entirety from this Work Scope.
- B. Under Work Scope 3.0V Mechanical Spec #, add 15748 Geothermal Performance Monitoring in its entirety to this Work Scope.

5. **Section 01014 Work Scope Descriptions**

A. **Work Scope 1.0V – Geothermal System**

- 1. Under 1.01 A. 1. Specific Specification Sections, delete 15748 Geothermal Performance Monitoring in its entirety from this Work Scope.

B. **Work Scope 3.0V – Mechanical**

- 1. Under 1.01 A. 1. Specific Specification Sections, add 15748 Geothermal Performance Monitoring in its entirety to this Work Scope.

END OF KACC ADDENDUM NO. 3

DULUTH INTERNATIONAL AIRPORT
NEW PASSENGER TERMINAL
VOLUNTARY AIR LOW EMISSIONS (VALE)
ADDENDUM NO. 3

Page 1 of 1

Date: June 23, 2011

RE: City of Duluth Bid #11-4402
(VALE Program Bid Package)

Addendum No. 3

TO: Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated June 9, 2011. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

Bid Form:

See Kraus-Anderson Addendum No. 3 attached.

Technical Specifications:

Volume No. 3 Specification: Modify Division 15 – Mechanical Section 15748 – GEOTHERMAL PERFORMANCE MONITORING – Modify Paragraph E of Article 1.1 – DESCRIPTION to read:

- E. Approved Providers for the Geothermal M&V system:
1. Indie Energy Systems Company.
 2. Honeywell (Excel 5000),
 3. Johnson Controls (Metasys),
 4. Siemens (System 600 Apogee),
 5. Schneider Electric.

Other:

Refer to the attached Appendix A – Responses to bidder questions.

END OF ADDENDUM NO. 3

**DULUTH INTERNATIONAL AIRPORT
NEW PASSENGER TERMINAL
VALE PROGRAM BID PACKAGE – ADDENDUM 2**

APPENDIX A

Item	Drwg. or Spec. Sect. No.	Bidder Questions	Responses
Amerect, Inc. – June 20, 2011			
1.		We have assumed that the roof will be fully installed prior to starting any work on the installation of the (3) solar panel arrays. Will the New Terminal Building be occupied prior to the start of the installation of the (3) solar arrays? If yes, will any of the work need to be performed at night, for instance drilling of the anchor bolt holes in the roof for the stub columns?	Roof will be installed. The Building will NOT be occupied until after the solar arrays are installed.
2.		Once the stub columns have been installed, ensuring the water-tight integrity of the roof will be by others, correct?	Work Scope 2.0V is required to address all roof penetrations for this stub column/structure work.
4.		There appears to be some field welding required meaning that the roof membrane will need to be protected from welding sparks, correct?	Correct.
5.		There are (2) types of solar panels....solar thermal and solar photovoltaic.....how many of each type will need to be installed? Also, what are the approximate dimensions and weights of the (2) types of the panels?	Please refer to Drwgs. M116 & M117 for solar thermal and E102V for solar photovoltaic. Consult manufacturers of products indicated for dimensions and weights.
6.		How will the panels be delivered to the staging area at the site, will they be in sea containers? How will the individual panels be packaged?	This is Contractor Means & Methods issue.
7.		If the panels are delivered in sea containers, who is responsible for unloading the panels from the sea containers and transporting them from the staging area to the hoisting location?	Work Scope 3.0V will be required to install the Solar Thermal panels onto the WS 2.0V GC steel structure work. Work Scope 4.0V will be required to install the Solar PV panels onto the WS 2.0V GC steel structure work.

**BID PACKAGE 1
DOA PROJ. NO. H1097-08**

Major Drilling – June 20, 2011																		
1.		<p>Duluth International Airport VHE Design Questions: Load Information needed – Heating and cooling peak loads btu/hr (Block Load) Heating peak _____ btu/hr Cooling peak _____ btu/hr Heating total btu absorbed back into ground per year _____ Cooling total btu rejected back into ground per year _____ Peak flow rate _____ Minimum fluid temp entering building from field _____ Maximum fluid temp entering building from field _____ Lowest temperature entering the building that can be handled _____ 30 F_ Highest temperature entering the building that can be handled _____ 90 F_ Nominal (average) efficiency in winter _____ Nominal (average) efficiency in summer _____ Btu's from electricity _____ Btu's from ground _____</p>	See attached Geothermal Bore-field Performance Criteria Information.															
2.		<p>One additional question relates to the performance monitoring in section 15748. This seems to be equipment that monitors HVAC equipment. This equipment seems better suited to be included in bid 3.0v instead of 1.0v?</p>	This work will be deleted from Work Scopw 1.0v and included in Work Scope 3.0v by this Addendum.															
ReCarlson, Inc. – June 21, 2011																		
1.	15500	<p>We would like permission to quote the following equipment as an equal to the specified for the above mentioned project.</p> <table border="0"> <thead> <tr> <th>Section</th> <th>Paragraph</th> <th>Product</th> </tr> </thead> <tbody> <tr> <td>15500-32</td> <td>2.14</td> <td>Rittling Propeller Unit Heaters</td> </tr> <tr> <td>15500-34</td> <td>2.16</td> <td>Rittling Convectors</td> </tr> <tr> <td>15500-34</td> <td>2.17</td> <td>Rittling Cabinet Unit Heaters</td> </tr> <tr> <td>15500-35</td> <td>2.18</td> <td>Rittling Finned Tube Radiation</td> </tr> </tbody> </table>	Section	Paragraph	Product	15500-32	2.14	Rittling Propeller Unit Heaters	15500-34	2.16	Rittling Convectors	15500-34	2.17	Rittling Cabinet Unit Heaters	15500-35	2.18	Rittling Finned Tube Radiation	Subject to project requirements the Rittling equipment is acceptable.
Section	Paragraph	Product																
15500-32	2.14	Rittling Propeller Unit Heaters																
15500-34	2.16	Rittling Convectors																
15500-34	2.17	Rittling Cabinet Unit Heaters																
15500-35	2.18	Rittling Finned Tube Radiation																
Mckeever Well Drilling, Inc. – June 23, 2011																		
1.		<p>Does the field access road have to be repair because plans don't show replacing the gate?</p>	It does not have to be repaired – but the asphalt must be neatly removed to a saw cut joint, with all removed asphalt disposed off properly offsite. The grades must be re-established including the turf.															
2.		<p>Is there heat loss / building loads etc done so there is chance to get alternate bids other than Indie Energy for the geothermal performance M&V?</p>	See response to Major Drilling Item 1.															
3.		<p>Is there going to be access for equipment (excavator</p>	If absolutely required. However															

**BID PACKAGE 1
DOA PROJ. NO. H1097-08**

		/ boring machine) between the tunnel and the building for the 8" GWS/R piping?	the East pedestrian access route cannot be shut down other than from midnight to 4am with Airport prior notice and approval.
4.		Clarify (M-101) underground 8"GWS/R though tug tunnel then vertical to 3rd floor mechanical room? Under our responsibility are we stopping the 8" pipe on the east side of the blue building and some one else is installing the 8' pipe from that point or are we horizontally drilling under the tunnel and leaving the 8" GWS/R pipe 5' from the building for the mechanical contractor to splice to?	Please refer to Addendum 2 for clarification of GWS/R through building. The Work scopes clearly break the scope at 5 feet outside the North East corner of the new terminal. From that point outward toward the bore field and all encompassing is the WS 1.0V Geothermal scope. From that 5ft point in to the building and all work inside the building is that of WS 3.0V.
5.		Can you clarify what the maximum height (in feet) for the well rigs in the drill field work area pertaining to the FAA 7 to 1 slope?	The worst case is a maximum height of 41 feet at the north-west corner.
MacArthur Company – June 23, 2011			
1.		What is the existing insulation thickness on the structural roof for the Polyisocyanurate Flat?	Typically the insulation is 4" thick
2.		Is the new roof structural? It looks like in the plans there are matching but what to make sure.	Intent of question unclear. There is new roof structure.
3.		In the roofing specs you call out 5/8" dens deck substrate and on the plans your call out 1/2" protection, which one do you what?	1/2".

Duluth International Airport VHE Design Questions:

Geothermal Borefield Performance Criteria Information

Heating Peak Block Load (kBtu/Hr)*	6,000
Cooling Peak Block Load (kBtu/Hr)	4,025
Heating Total Absorbed from Ground Per Year (kBtu)*	510,000
Cooling Total Rejected into Ground Per Year (kBtu)	2,500,000
Peak Flow Rate	1170 gpm per plan equipment sizing in cooling mode.
Minimum Fluid Temp Entering Building From Field:	40°F
Maximum Fluid Temp Entering Building From Field:	85°F
Lowest Temperature Entering The Building That Can Be Handled:	32°F (This is generally accepted maximum. Contractor must verify with chiller-heater manufacturer)
Highest Temperature Entering The Building That Can Be Handled:	90°F (This is generally accepted maximum. Contractor must verify with chiller-heater manufacturer)
Nominal (Average) Efficiency In Winter	2.77 COP calculated to ARI Standard 550/590 for plan equipment per schedule
Nominal (Average) Efficiency In Summer	0.634 NPLV calculated to ARI Standard 550/590 for plan equipment per schedule
Btu's From Electricity	Not applicable
Btu's From Ground	Not applicable

* The geothermal design must take into account contribution from the boiler plant in field sizing analysis. Boilers are staged to maintain supply water setpoint of 180°F and reset based on outdoor air temperature by the Building Automation System.