KRAUS-ANDERSON®
CONSTRUCTION COMPANY

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3716 Oneota Street
Duluth, MN 55807
O 218.722.3775
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www.krausanderson.com

KRAUS-ANDERSON® CONSTRUCTION COMPANY

ADDENDUM NO. 1
June 15, 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. A specific Bid Form Packet is required for the Prime Contractor's bid submission on this project. **Bidders must contact Chris Barta**, Kraus-Anderson® Construction Company, at 218-722-3775 or chris.barta@krausanderson.com **to obtain the required Bid Form Packet.**

   A. Bid Form Packet documents (for reference only) can be found in Volume 1 of the Project Manual, following is a list of those documents included in the Bid Form Packet: City of Duluth cover page; Bid Form; City of Duluth Purchasing Division General Specifications; AIA Document A310 Bid Bond; Affidavit of Non-Collusion; EEO Affirmative Action Policy Statement & Compliance Certificate; Forms 1 & 2 for Demonstration of Good Faith Efforts, Good Faith Efforts Affidavit and Certificate of Good Faith Efforts. A City of Duluth Sealed Bid sticker is also part of the Packet.

   B. Faxed bids will not be accepted.

2. **Section 00100 Instructions to Bidders**

   A. Item 6. INQUIRIES REGARDING PROJECT - DISCREPANCIES OR AMBIGUITIES: Change all references to RS&H with Kraus-Anderson Construction Company.

3. **Section 00305 Bid Form**

   A. Incorporate new Bid Form - For Reference Only.

4. **Section 01014 Work Scope Index**

A. Under Work Scope 1.0V Geothermal System Spec #, delete P-162 Fence Complete and add P-102 Safety and Security Complete.

B. Add D-751 Manholes, Catch Basins, Inlets and Inspection Holes.

5. **Section 01014 Work Scope Descriptions**

A. Work Scope 1.0V – Geothermal System

1. Under 1.01 A. 1. Specific Specification Sections, add P-102 Safety and Security.

2. Under 1.02 R. Add Two Test bores were completed at the project site. The drilling logs are included for your use in generating your bid. Also note test bore hole No. 2 has a steel casing remaining down to bedrock (approximately down to 40 feet). Addressing removal and final work associated with this is considered incidental to this work scope.

3. Add 1.02 AA. Directional drilling methods must be utilized for installations under existing Grinden drive (Access to the existing terminal) and under the East pedestrian enclosure (Blue enclosed walkway). At the Contractors option – open cut excavation OR directional drilling may be used across the disabled parking lot. If open cut is selected-continual access must be maintained to the East end of the existing terminal building. All restoration work including gravel, concrete and hot mix asphalt patching is incidental to this work.

4. Add 1.02 BB. Note Addendum No. 1 includes modifications to the geothermal routing between the field and building. The Civil & Architectural plan sheet layouts supercede the mechanical sheet layouts.

B. Work Scope 3.0V – Mechanical

1. Under 1.01 A. 1. Specific Specification Sections, add 15780 Hose Management System, only as applies to Alternates 1A, 1B, 1C, 1D, 2A, 2B, 2C and 2D.

2. Add 1.07 Alternates:

Note: Electrical connections are to be by WS 4.0V. The Hose management system will be provided and installed by WS 3.0V.

Alternate No. 1A: In lieu of Pre-Conditioned Air Hose Baskets and Hoses specified in Section 15780, Article 2.4, Paragraphs F & G, provide Hose Management System - Alternate No. 1 in accordance with the provisions of Section 15780, Article 2.9, at each of four (4) Passenger Boarding Bridge locations.

Alternate No. 1B: In lieu of Pre-Conditioned Air Hose Baskets and Hoses specified in Section 15780, Article 2.4, Paragraphs F & G, provide Hose Management System - Alternate No. 1 in accordance with the provisions of Section 15780, Article 2.9, at each of three (3) Passenger Boarding Bridge locations.

Alternate No. 1C: In lieu of Pre-Conditioned Air Hose Baskets and Hoses specified in Section 15780, Article 2.4, Paragraphs F & G, provide Hose Management System - Alternate No. 1 in accordance with the provisions of Section 15780, Article 2.9, at each of two (2) Passenger Boarding Bridge locations.

Alternate No. 1D: In lieu of Pre-Conditioned Air Hose Baskets and Hoses specified in Section 15780, Article 2.4, Paragraphs F & G, provide Hose Management System - Alternate No. 1 in accordance with the provisions of Section 15780, Article 2.9, at one (1) Passenger Boarding Bridge location.

Alternate No. 2A: In lieu of Pre-Conditioned Air Hose Baskets specified in Section 15780, Article 2.4, Paragraph F, provide Hose Management System - Alternate No. 2 in accordance with the provisions of Section 15780, Article 2.10, at each of four (4) Passenger Boarding Bridge locations.

Alternate No. 2B: In lieu of Pre-Conditioned Air Hose Baskets specified in Section 15780, Article 2.4, Paragraph F, provide Hose Management System - Alternate No. 2 in accordance with the provisions of Section 15780, Article 2.10, at each of three (3) Passenger Boarding Bridge locations.

Alternate No. 2C: In lieu of Pre-Conditioned Air Hose Baskets specified in Section 15780, Article 2.4, Paragraph F, provide Hose Management System - Alternate No. 2 in accordance with the provisions of Section 15780, Article 2.10, at each of two (2) Passenger Boarding Bridge locations.

Alternate No. 2D: In lieu of Pre-Conditioned Air Hose Baskets specified in Section 15780, Article 2.4, Paragraph F, provide Hose Management System - Alternate No. 2 in accordance with the provisions of Section 15780, Article 2.10, at one (1) Passenger Boarding Bridge location.

C. Work Scope 4.0V - Electrical

1. Under 1.01 A. 1. Specific Specification Sections, add 15780 Hose Management System, only as applies to Alternates 1A, 1B, 1C, 1D, 2A, 2B, 2C and 2D.

2. Add 1.07 Alternates:

Note: Electrical connections are to be by WS 4.0V. The Hose management system will be provided and installed by WS 3.0V.

Alternate No. 1A: In lieu of Pre-Conditioned Air Hose Baskets and Hoses specified in Section 15780, Article 2.4, Paragraphs F & G, provide Hose Management System - Alternate No. 1 in accordance with the provisions of Section 15780, Article 2.9, at each of four (4) Passenger Boarding Bridge locations.

Alternate No. 1B: In lieu of Pre-Conditioned Air Hose Baskets and Hoses specified in Section 15780, Article 2.4, Paragraphs F & G, provide Hose Management System - Alternate No. 1 in accordance with the provisions of Section 15780, Article 2.9, at each of three (3) Passenger Boarding Bridge locations.

Alternate No. 1C: In lieu of Pre-Conditioned Air Hose Baskets and Hoses specified in Section 15780, Article 2.4, Paragraphs F & G, provide Hose Management System - Alternate No. 1 in accordance with the provisions of Section 15780, Article 2.9, at each of two (2) Passenger Boarding Bridge locations.

Alternate No. 1D: In lieu of Pre-Conditioned Air Hose Baskets and Hoses specified in Section 15780, Article 2.4, Paragraphs F & G, provide Hose Management System - Alternate No. 1 in accordance with the provisions of Section 15780, Article 2.9, at one (1) Passenger Boarding Bridge location.

Alternate No. 2A: In lieu of Pre-Conditioned Air Hose Baskets specified in Section 15780, Article 2.4, Paragraph F, provide Hose Management System - Alternate No. 2 in accordance with the provisions of Section 15780, Article 2.10, at each of four (4) Passenger Boarding Bridge locations.

Alternate No. 2B: In lieu of Pre-Conditioned Air Hose Baskets specified in Section 15780, Article 2.4, Paragraph F, provide Hose Management System - Alternate No. 2 in accordance with the provisions of Section 15780, Article 2.10, at each of three (3) Passenger Boarding Bridge locations.

Alternate No. 2C: In lieu of Pre-Conditioned Air Hose Baskets specified in Section 15780, Article 2.4, Paragraph F, provide Hose Management System - Alternate No. 2 in accordance with the provisions of Section 15780, Article 2.10, at each of two (2) Passenger Boarding Bridge locations.

Alternate No. 2D: In lieu of Pre-Conditioned Air Hose Baskets specified in Section 15780, Article 2.4, Paragraph F, provide Hose Management System - Alternate No. 2 in accordance with the provisions of Section 15780, Article 2.10, at one (1) Passenger Boarding Bridge location.

6. Please incorporate Reynolds, Smith & Hills, Inc. Addendum No. 1 dated June 15, 2011, in its entirety.

END OF KACC ADDENDUM NO. 1

(Bidder may copy this form on his own letterhead)
SUBMIT IN DUPLICATE

BID FORM

BID TO: Duluth Airport Authority;
By the City Purchasing Agent
Room 100 City Hall
Duluth, MN 55802

BID FROM: _____
_____
_____
_____

In accordance with the Invitation to Bid and the proposed Contract Documents prepared by Reynolds, Smith and Hill, relating to the construction of:

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

the undersigned, having visited the site of proposed construction and having become thoroughly familiar with local conditions affecting the cost and performance of the Work and with all requirements of the Contract Documents and related Addenda, hereby proposes and agrees to provide all labor, materials, equipment, applicable permits and taxes required to construct and complete the Work in accordance with the Contract Documents and Addenda for the following amounts:

Base Bids:

Instructions for Submitting Base Bids:

- For bidders wishing to submit bids on more than one Work Scope, space has been provided to submit bids for Multiple Work Scopes on the same Bid Form.
- State Base Bid in both words and figures in spaces provided.
- Bidders submitting bids for more than one Work Scope are invited to submit a combined bid for work included under all Work Scopes for which Bidder is submitting a bid.
- All Work Scopes may have multiple Base Bids. Each bidder must bid on all Base Bids for the respective Work Scope to be considered a valid bid submission. Failure to do so may result in bid rejection.

1. Work Scope No. 1.0V - Geothermal System

   Base Bid 1A - Geothermal:_____ $_____

   Total Bid Amount for Work Scope No. 1.0V - Geothermal System $_____

2. Work Scope No. 2.0V - General Construction

   Base Bid 2A - Geothermal:_____ $_____
   Base Bid 2B – Solar Photovoltaic:_____ $_____
   Base Bid 2C – Solar Thermal:_____ $_____

   Total Bid Amount Work Scope No. 2.0V - General Construction $_____

3. Work Scope No. 3.0V - Mechanical

   Base Bid 3A - Geothermal:_____ $_____
   Base Bid 3C – Solar Thermal:_____ $_____
   Base Bid 3D – Gate Electrification:_____ $_____

   Total Bid Amount Work Scope No. 3.0V – Mechanical $_____ $_____

4. Work Scope No. 4.0V - Electrical

   Base Bid 4A - Geothermal:_____ $_____
   Base Bid 4B – Solar Photovoltaic:_____ $_____
   Base Bid 4C – Solar Thermal:_____ $_____
   Base Bid 4D – Gate Electrification:_____ $_____

   Total Bid Amount Work Scope No. 4.0V – Electrical $_____

Combined Base Bid:

Work Scope Numbers and Titles on which Combined Bid is based:

Work Scope No. ____ Title: _____
Work Scope No. ____ Title: _____
Work Scope No. ____ Title: _____
Work Scope No. ____ Title: _____
Work Scope No. ____ Title: _____

Combined Bid Amount: _____ $_____

Unit Prices and Cost Break Down:

Refer to Section 01014 individual Work Scopes for complete description of Unit Prices.

	QUANTITY	UNIT PRICE	TOTAL
Unit Price No. 1 to Work Scope 1.0V		$_____/FT	$ N/A
Unit Price No. 2 to Work Scope 1.0V		$_____/FT	$ N/A
Cost Break Down No. 1 to Work Scope 1.0V	500 LF	$_____/LF	$_____
Cost Break Down No. 2 to Work Scope 1.0V	400 LF	$_____/LF	$_____
Cost Break Down No. 3 to Work Scope 1.0V	175 SY	$_____/SY	$_____
Cost Break Down No. 4 to Work Scope 1.0V	1.6 Acres	$_____/Acre	$_____
Cost Break Down No. 5 to Work Scope 1.0V	200 LBS	$_____/LBS	$_____
Cost Break Down No. 6 to Work Scope 1.0V	500 LBS	$_____/LBS	$_____
Cost Break Down No. 7 to Work Scope 1.0V	3400 LBS	$_____/LBS	$_____
Cost Break Down No. 8 to Work Scope 1.0V	400 SY	$_____/SY	$_____

Alternates:

Refer to Section 01230 for complete description of Alternates.

	ADD	DEDUCT
Alternate No. 1A to Work Scope 3.0V	$_____	$_____
Alternate No. 1B to Work Scope 3.0V	$_____	$_____
Alternate No. 1C to Work Scope 3.0V	$_____	$_____
Alternate No. 1D to Work Scope 3.0V	$_____	$_____
Alternate No. 2A to Work Scope 3.0V	$_____	$_____
Alternate No. 2B to Work Scope 3.0V	$_____	$_____
Alternate No. 2C to Work Scope 3.0V	$_____	$_____
Alternate No. 2D to Work Scope 3.0V	$_____	$_____

Alternate No. 1A to Work Scope 4.0V $_____ $_____

Alternate No. 1B to Work Scope 4.0V $_____ $_____

Alternate No. 1C to Work Scope 4.0V $_____ $_____

Alternate No. 1D to Work Scope 4.0V $_____ $_____

Alternate No. 2A to Work Scope 4.0V $_____ $_____

Alternate No. 2B to Work Scope 4.0V $_____ $_____

Alternate No. 2C to Work Scope 4.0V $_____ $_____

Alternate No. 2D to Work Scope 4.0V $_____ $_____

Addenda: Receipt of the following Addenda to the Contract Documents and their costs being incorporated into the Bid is acknowledged (provide Addenda numbers below):

Addenda No.	Dated	Addenda No.	Dated
_____	_____	_____	_____
_____	_____	_____	_____

Bid Acceptance: If written notice of the acceptance of this Bid is received by the undersigned within 90 days after date set for opening of this Bid, or at any other time thereafter before Bid is withdrawn, the undersigned agrees to enter into and execute a Contract with the Owner in accordance with this Bid as accepted and in a form acceptable to Owner, and to furnish and deliver to the Construction Manager the Performance Bond, Payment Bond, and proof of insurance coverage, all within 10 days after notice of acceptance of this Bid.

Execution of Proposal: The entity(ies) signing this proposal is fully authorized to sign on behalf of the named firm and to fully bind the named firm to all of the conditions and provisions of the Contract. This proposal shall remain valid and not be withdrawn for 90 calendar days after bid due date.

Submitted this _____ day of _____, 20_____.

Name of Firm: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Phone Number: _____ Fax Number: _____

Bidder is: (check one)

☐ Individual ☐ Partnership ☐ Corporation

If Bidder is a corporation, give legal name of corporation, state where incorporated, and names of president and secretary. If a partnership, give names of all individual co-partners composing the firm. If an individual, give first and last name in full.

_____

_____

_____

_____

Name (typed or printed): _____

Signature: _____

Title: _____

END OF DOCUMENT

RS&H IMPROVING YOUR WORLD

Date: June 15, 2011

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

Addendum No. 1

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. 1 attached.

Technical Specifications:

Volume No. 2 Specification: Add Division 01 – General Requirements Section 01230 – ALTERNATES; attached to this addendum.

Volume No. 3 Specification: Modify Division 15 – Mechanical Section 15747 – GROUND HEAT EXCHANGER – Modify Sub-paragragh A.1 of Article 1.3 – SUBMITTAL to read:

1. Submittal shall utilize drilling logs and thermal conductivity test information provided from (2) on site test bores. Any other parameters that the contractor uses in determining the GHEX shall be noted.
   a. Refer to Appendix I – Boring Logs for Test VHE Installations 1 & 2.
   b. Results of thermal conductivity testing shall be made available in a forthcoming addendum.

Volume No. 3 Specification: Modify Division 15 – Mechanical Section 15747 – GROUND HEAT EXCHANGER – Add: Appendix I – Boring Logs for Test VHE Installations 1 & 2; attached to this addendum.

Volume No. 3 Specification: Modify Division 15 – Mechanical Section 15780 – PRE-CONDITIONED AIR SYSTEMS – Modify Article 2.2: MANUFACTURERS; Paragraph A to include:

6. Inet Airport Systems.

Volume No. 3 Specification: Modify Division 15 – Mechanical Section 15780 – PRE-CONDITIONED AIR SYSTEMS – Add Article 2.9: HOSE MANAGEMENT SYSTEM – ALTERNATE NO. 1, as follows:

2.9 HOSE MANAGEMENT SYSTEM – ALTERNATE NO. 1

A. Provide motorized, electrically powered hose management device equipped with internal mechanisms that provide for storage of a continuous 135-foot length of preconditioned air hose. Hose to be

mechanically released from the enclosure such that airport ground crews can deploy only the amount of hose necessary to reach applicable aircraft parked at the gate with the remaining hose safely contained within the unit in a compressed, yet open condition to allow airflow through the hose management system and in to the aircraft. After pre-conditioned air services are no longer needed, the hose shall automatically retract back within the enclosure.

1. Function: The assembly is to be provided such that operation of the unit may be done by use of a remote control, with buttons located on the main electrical panel, or a stationary box located on the bridge. The position of the stationary box and the remote storage box are to be coordinated with the Owner prior to installation. Deployment speed of the hose shall be approximately 1.4 feet per second, allowing full deployment of the hose is approximately one minute. Provide Hose Movement Sensor and a Torque Limiter to detect faults in operation and prevent damage to the unit and hose. The unit is to contain both visual and audible alarms to notify ramp personnel of a fault.
2. Housing: Provide single piece welded frame comprised of 304 stainless steel square tubing. Enclosure to be aluminum with powder-coat finish matching passenger boarding bridge. Units shall be insulated and contain a heater to facilitate cold weather retraction and deployment and snow and ice removal. Heater shall be controlled by 2 thermostats; an adjustable thermostat and a non-adjustable shutoff.
3. Hose: Fabricate from 6.5 oz. synthetic fiber suitable for high endurance in outdoor applications, light-weight fabric made with high UV stability along with water and mildew resistance. Outside material shall include high abrasion and wear resistant properties. Insulate with radiant heat barrier that is mold, fungi and bacteria resistant.
    a. Provide PVC scuff stripping.
    b. The exit end of the hose is to be furnished with all of the parts and accessories required for attachment to the aircraft. Exit end cuffs are to be made of a PVC laminate over polyester scrim. Provide a 14" diameter hook system with Velcro cover, followed by a section of reducer hose to change diameter from 14" to 8", followed by a loop system with Velcro, followed by a plain cuff. The connector to the plane shall also be provided. This connector shall be a swivel-type connector.
    c. Provide entrance cuff with hook and loop style with joining sections made with a split opening containing wings for ease of use and increased sealing connections. The Canvas hose is to be a continuous 135 feet long and 14 inches in diameter. It shall be spiral wound construction, double stitched for high strength. No seams are permitted

that would allow airflow to escape and loss of temperature to the aircraft.

d. Hose Color: Manufacturer's standard high-visibility color.

4. Electronics: The unit shall be equipped with 480 Volts and a 10 Amp Fuse. The unit shall draw 7 amps maximum with heater and 3 amps maximum when heater is off. The Unit shall be equipped with electrical capability to interact with PCA unit and shall be able to be programmed to prevent bridge movement when air is connected to the plane. The unit shall be manufactured with an integral electrical disconnect switch.
5. Connection to Pre-Conditioned Air Unit: Provide 14" diameter, rigid, insulated duct connecting the Pre Conditioned Air Unit to the rear of the Motorized Hose Management assembly. Route duct to contain a minimum amount of elbows. Anchor duct to the jet bridge as required. Provide tight connections to equipment to allow for efficient air movement. Connection duct to be wrapped with insulation.
6. Basis of Design Product: Boom Air by Twist, Inc.

Volume No. 3 Specification: Modify Division 15 – Mechanical Section 15780 – PRE-CONDITIONED AIR SYSTEMS – Add Article 2.9: HOSE MANAGEMENT SYSTEM – ALTERNATE NO. 2, as follows:

2.10 HOSE MANAGEMENT SYSTEM – ALTERNATE NO. 2

A. Provide motorized, electrically powered hose reels mounted to underside of passenger boarding bridges for storage and motorized retraction of continuous 75-foot lengths of preconditioned air hose.
   1. Function: Assembly is to be provided such that operation of the unit may be done by use of a remote control, with buttons located on the main electrical panel, or a stationary box located on the bridge. The position of the stationary box and the remote storage box are to be coordinated with the Owner prior to installation. The unit is to contain both visual and audible alarms to notify ramp personnel of a fault.
   2. Construction: Provide welded aluminum tubular frame.
   3. Provide swivel bases with pre-designated limit stops.
   4. Basis of Design Product: Pre-Conditioned Air Duct Reels, Nordic Series 6800, by Reelcraft Industries.

Drawings: *Replace drawings listed below with sheets included with this Addendum No. 1*

Civil Sheet C003 – Construction Safety Phasing Plan: Revised Pipe Routing.
Sheet AS102 - Overall Site Plan: Revised Pipe Routing
Sheet A104 – Overall Roof Plan: Added Roofing Protection Pads.
Sheet A114a – Enlarged Third Floor Plan Area A: Revised Targeting; Added Note and Details.

Sheet A214 – Enlarged Third Floor Reflected Ceiling Plan Area A: Revised Targeting; Added Note.
Sheet A524 – Roof Details: Added Note and Detail.
Sheet A715 – Exterior Systems Core Wall: Revised Targeting; Added Note and Details.
Sheet M-101 – Geothermal Site Mechanical Partial Plan: Revised GWS & GWR Piping Sizes and Routing.
Sheet M-101 – Geothermal Site Mechanical Partial Plan: Revised GWS & GWR Piping Sizes.
Sheet M-401 – Mechanical Equipment Schedules: Re-formatted; No change in content.

Other:

Incorporate Kraus-Anderson Construction Company's Addendum No. 1, dated June 15, 2011, in its entirety.

END OF ADDENDUM NO. 1

NEW PASSENGER TERMINAL
DULUTH INTERNATIONAL AIRPORT
DULUTH, MINNESOTA

SECTION 01230 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
   1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

ALTERNATES SHALL INCLUDE:

A. **Alternate No. 1A:** In lieu of Pre-Conditioned Air Hose Baskets and Hoses specified in Section 15780, Article 2.4, Paragraphs F & G, provide Hose Management System - Alternate No. 1 in accordance with the provisions of Section 15780, Article 2.9, at each of four (4) Passenger Boarding Bridge locations.

Add the sum of: _____Dollars ($_____).

B. **Alternate No. 1B:** In lieu of Pre-Conditioned Air Hose Baskets and Hoses specified in Section 15780, Article 2.4, Paragraphs F & G, provide Hose Management System - Alternate No. 1 in accordance with the provisions of Section 15780, Article 2.9, at each of three (3) Passenger Boarding Bridge locations.

Add the sum of: _____Dollars ($_____).

C. **Alternate No. 1C:** In lieu of Pre-Conditioned Air Hose Baskets and Hoses specified in Section 15780, Article 2.4, Paragraphs F & G, provide Hose Management System - Alternate No. 1 in accordance with the provisions of Section 15780, Article 2.9, at each of two (2) Passenger Boarding Bridge locations.

Add the sum of: _____Dollars ($_____).

D. **Alternate No. 1D:** In lieu of Pre-Conditioned Air Hose Baskets and Hoses specified in Section 15780, Article 2.4, Paragraphs F & G, provide Hose Management System - Alternate No. 1 in accordance with the provisions of Section 15780, Article 2.9, at one (1) Passenger Boarding Bridge location.

Add the sum of: _____Dollars ($_____).

E. **Alternate No. 2A:** In lieu of Pre-Conditioned Air Hose Baskets specified in Section 15780, Article 2.4, Paragraph F, provide Hose Management System - Alternate No. 2 in accordance with the provisions of Section 15780, Article 2.10, at each of four (4) Passenger Boarding Bridge locations.

Add the sum of: _____Dollars ($_____).

F. **Alternate No. 2B:** In lieu of Pre-Conditioned Air Hose Baskets specified in Section 15780, Article 2.4, Paragraph F, provide Hose Management System - Alternate No. 2 in accordance with the provisions of Section 15780, Article 2.10, at each of three (3) Passenger Boarding Bridge locations.

Add the sum of: _____Dollars ($_____).

G. **Alternate No. 2C:** In lieu of Pre-Conditioned Air Hose Baskets specified in Section 15780, Article 2.4, Paragraph F, provide Hose Management System - Alternate No. 2 in accordance with the provisions of Section 15780, Article 2.10, at each of two (2) Passenger Boarding Bridge locations.

Add the sum of: _____Dollars ($_____).

H. **Alternate No. 2D:** In lieu of Pre-Conditioned Air Hose Baskets specified in Section 15780, Article 2.4, Paragraph F, provide Hose Management System - Alternate No. 2 in accordance with the provisions of Section 15780, Article 2.10, at one (1) Passenger Boarding Bridge location.

Add the sum of: _____Dollars ($_____)

END OF SECTION 01230

APPENDIX I

Boring Logs

For

Test VHE Installations 1 & 2

PRELIMINARY

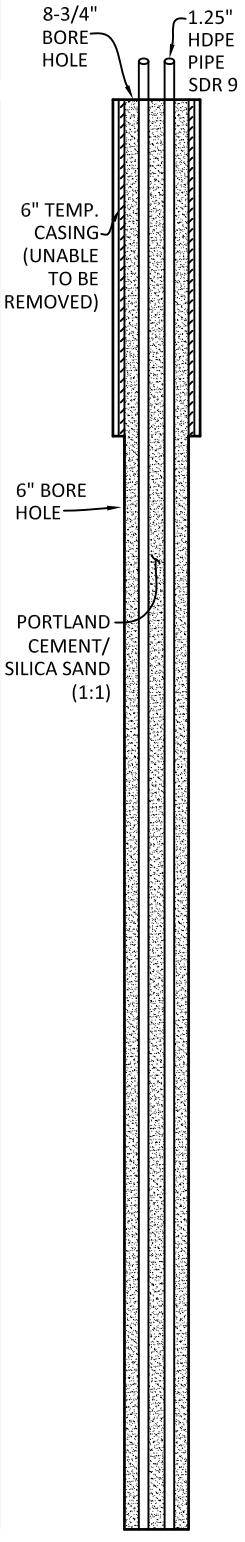
BRAUN INTERTEC GEOTHERMAL
16744 11th Street NE
Little Falls, MN 56345
Phone 320.632.1081
Fax 320.632.1673

PROJECT NAME: DULUTH INTERNATIONAL AIRPORT - NEW PASSENGER TERMINAL
PROJECT ADDRESS: 4701 Airport Road Duluth, MN 55811
COUNTY: ST. LOUIS
REPORT PREPARED BY: GSB
PROJECT No: GT-11-02378

LOG OF BORING: TEST VHE 1

DATE: 6/9/11 - 6/10/11
COMPANY/METHOD:
SAM'S WELL DRILLING / MUD ROTARY 0 - 40 FT
HALCO AIR PERCUSSION HAMMER 40 - 500 FT

DEPTH IN FEET	SURF. ELEV. 1410	USCS	GRAPHIC	TEMPERATURE (°F)	DESCRIPTION	WATER LEVELS	REMARKS
0	1410	TS-SM			SILTY SAND, very dark grayish brown 10YR 3/2, fine grained, moist		
		SM			SILTY SAND, strong brown 7.5YR 4/6, fine grained, with gravel		
20	1390	GP			GRAVEL, with silt, strong brown 7.5YR 4/6, fine grained - possible boulder at 18'		
40	1370	Mdl			GABBRO, grayish black N 2/0, hard		DULUTH COMPLEX (Mdl) DRILLING PRODUCTION RATE: 1.1 FT/MIN 40' - 80' NO WATER PRODUCTION
60	1350						DRILLING PRODUCTION RATE: 1.4 FT/MIN
		Mdl			GABBRO, medium dark gray N 4/0		
80	1330						DRILLING PRODUCTION RATE: 1.2 FT/MIN
100	1310						DRILLING PRODUCTION RATE: 1.25 FT/MIN
120	1290						DRILLING PRODUCTION RATE: 1.3 FT/MIN
140	1270						DRILLING PRODUCTION RATE: 1.1 FT/MIN
160	1250	Mdl			GABBRO, medium light gray N 6/0, to medium gray N 5/0		DRILLING PRODUCTION RATE: 1.1 FT/MIN



COORDINATES: LATITUDE: 46° 50.341'N; LONGITUDE: 92° 10.674'W
COORDINATE SYSTEM: NONE - ESTIMATED FROM GOOGLE EARTH
SURFACE ELEVATION: 1410 (FT-AMSL)
BENCHMARK: NONE
TOTAL HOLE DEPTH: 500 FT
ACTIVE VHE DEPTH:

BOREHOLE DIAMETER: 0' - 40': 8-3/4"
40' - 500': 6"

DRILLING TIME: 6/9 START 14:24 END 18:55 @ 200'
6/10 START 06:26 END 13:43 @ 500'

LOG DATE: 6/14/11

PRELIMINARY

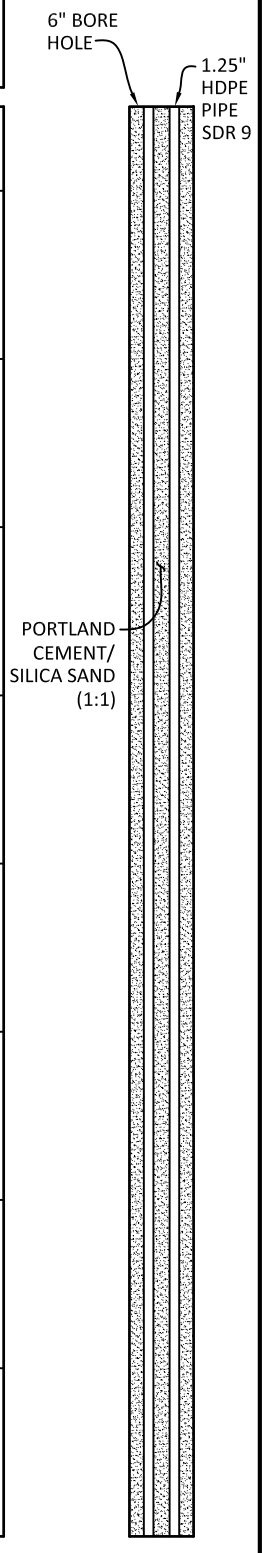
BRAUN INTERTEC GEOTHERMAL
16744 11th Street NE
Little Falls, MN 56345
Phone 320.632.1081
Fax 320.632.1673

PROJECT NAME: DULUTH INTERNATIONAL AIRPORT - NEW PASSENGER TERMINAL
PROJECT ADDRESS: 4701 Airport Road Duluth, MN 55811
COUNTY: ST. LOUIS
REPORT PREPARED BY: GSB
PROJECT No: GT-11-02378

LOG OF BORING: TEST VHE 1

DATE: 6/9/11 - 6/10/11
COMPANY/METHOD:
SAM'S WELL DRILLING / MUD ROTARY 0 - 40 FT
HALCO AIR PERCUSSION HAMMER 40 - 500 FT

DEPTH IN FEET	SURF. ELEV. 1410	USCS	GRAPHIC	TEMPERATURE (°F)	DESCRIPTION	WATER LEVELS	REMARKS
180	1230	Mdl			GABBRO, medium light gray N 6/0, to medium gray N 5/0		
		Mdl			GABBRO, dark grey N 3/0, to grayish black N 2/0		DRILLING PRODUCTION RATE: 0.95 FT/MIN
200	1210	Mdl			GABBRO, grayish black N 2/0, soft seam at 205 FT		DRILLING PRODUCTION RATE: 0.7 FT/MIN WATER: 1-2 GPM AT 205 FT
		Mdl			GABBRO, grayish black N 2/0, hard		
220	1190						DRILLING PRODUCTION RATE: 0.8 FT/MIN
240	1170						DRILLING PRODUCTION RATE: 0.8 FT/MIN
260	1150						DRILLING PRODUCTION RATE: 0.8 FT/MIN
280	1130						DRILLING PRODUCTION RATE: 0.74 FT/MIN
300	1110						DRILLING PRODUCTION RATE: 0.8 FT/MIN
320	1090						DRILLING PRODUCTION RATE: 0.77 FT/MIN
340	1070						



COORDINATES: LATITUDE: 46° 50.341'N; LONGITUDE: 92° 10.674'W
COORDINATE SYSTEM: NONE - ESTIMATED FROM GOOGLE EARTH
SURFACE ELEVATION: 1410 (FT-AMSL)
BENCHMARK: NONE
TOTAL HOLE DEPTH: 500 FT
ACTIVE VHE DEPTH:

BOREHOLE DIAMETER: 0' - 40': 8-3/4"
40' - 500': 6"

DRILLING TIME: 6/9 START 14:24 END 18:55 @ 200'
6/10 START 06:26 END 13:43 @ 500'

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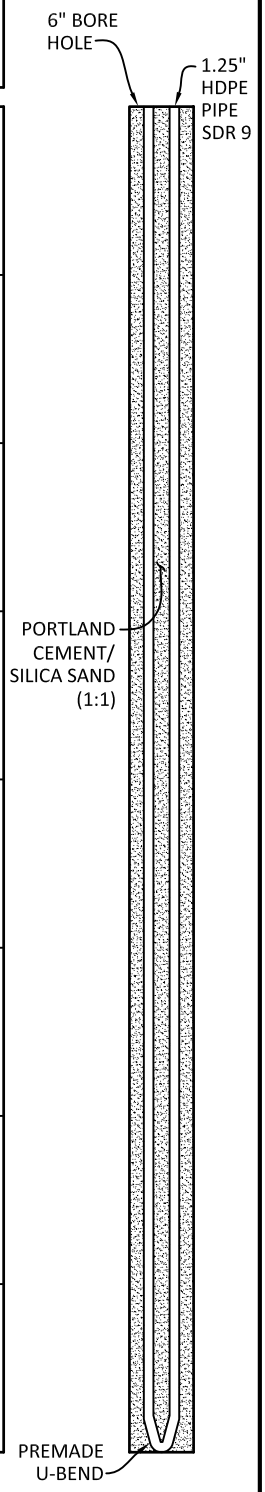
COUNTY: ST. LOUIS
REPORT PREPARED BY: GSB
PROJECT No: GT-11-02378

LOG OF BORING: TEST VHE 1

DATE: 6/9/11 - 6/10/11
COMPANY/METHOD:
SAM'S WELL DRILLING / MUD ROTARY 0 - 40 FT
HALCO AIR PERCUSSION HAMMER 40 - 500 FT

DEPTH IN FEET	SURF. ELEV. 1410	USCS	GRAPHIC	TEMPERATURE (°F)	DESCRIPTION	WATER LEVELS	REMARKS
340	1070	Mdl			GABBRO, grayish black N 2/0, hard		DRILLING PRODUCTION RATE: 0.8 FT/MIN WATER: 4 GPM, ASSUMED PRIMARILY FROM UPPER LAYER
360	1050	Mdl			GABBRO, medium dark gray N 4/0, to dark gray N 3/0		DRILLING PRODUCTION RATE: 0.8 FT/MIN
380	1030						DRILLING PRODUCTION RATE: 0.8 FT/MIN
400	1010						DRILLING PRODUCTION RATE: 0.8 FT/MIN
420	990						DRILLING PRODUCTION RATE: 0.77 FT/MIN
440	970						DRILLING PRODUCTION RATE: 0.77 FT/MIN
460	950						DRILLING PRODUCTION RATE: 0.8 FT/MIN
480	930						DRILLING PRODUCTION RATE: 1.0 FT/MIN
500	910				END OF BORING AT 500 FEET BELOW GRADE		



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COORDINATE SYSTEM: NONE - ESTIMATED FROM GOOGLE EARTH
SURFACE ELEVATION: 1410 (FT-AMSL)
BENCHMARK: NONE
TOTAL HOLE DEPTH: 500 FT
ACTIVE VHE DEPTH:

BOREHOLE DIAMETER: 0' - 40': 8-3/4"
40' - 500': 6"

DRILLING TIME: 6/9 START 14:24 END 18:55 @ 200'
6/10 START 06:26 END 13:43 @ 500'

LOG DATE: 6/14/11

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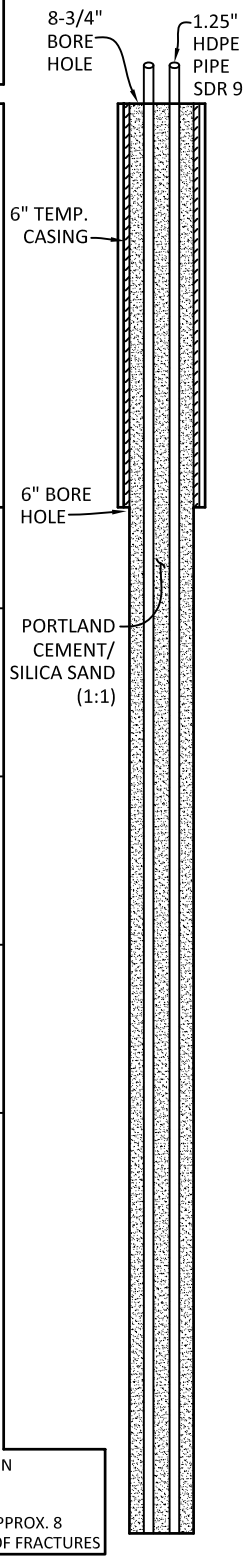
COUNTY: ST. LOUIS
REPORT PREPARED BY: GSB
PROJECT No: GT-11-02378

LOG OF BORING: TEST VHE 2

DATE: DRILL 6/7/11 - 6/8/11, GROUT 6/9/11
COMPANY/METHOD:
SAM'S WELL DRILLING / MUD ROTARY 0 - 48 FT,
MINCON MC61 AIR PERCUSSION HAMMER 48 - 500 FT

DEPTH IN FEET	SURF. ELEV. 1392	USCS	DESCRIPTION	WATER LEVELS	REMARKS
0	1392	SM	SILTY SAND, dark brown 10YR 3/3, fine grained, with medium gravel, angular to subrounded, dry		CAVE-IN AT 15' 6/8 START OF DAY: WATER LEVEL MEASURED AT 16FT BELOW GRADE
20	1372	SM	SILTY SAND, dark brown 10YR 3/3, very fine grained, with trace gravel, moist		
		SM	SILTY SAND, dark brown 10YR 3/4, very fine grained, with trace fine gravel, moist		
		GP	GRAVEL, red/gray, fine to medium grained, trace wood		
40	1352	GP	GRAVEL, gray, fine to medium grained, rocky		
		GP	GRAVEL, brown/gray 10YR 3/3, fine to medium grained, subrounded		
		Mdl	GABBRO, dark gray N 3/0, thin chips of granite, hard		DULUTH COMPLEX (Mdl) 48' - 100' NO WATER PRODUCTION
60	1332				DRILLING PRODUCTION RATE: 1.3 FT/MIN
80	1312				DRILLING PRODUCTION RATE: 1.25 FT/MIN
100	1292				DRILLING PRODUCTION RATE: 1.5 FT/MIN LITTLE WATER 100' - 120' = 1 GPM
120	1272				
140	1252				WATER: 1 GPM
160	1232				DRILLING PRODUCTION RATE: 2.0 FT/MIN WATER: 160' - 180' APPROX. 8 GPM, NO EVIDENCE OF FRACTURES



COORDINATES: LATITUDE: 46° 50.351'N; LONGITUDE: 92° 10.594'W
COORDINATE SYSTEM: NONE - ESTIMATED FROM GOOGLE EARTH
SURFACE ELEVATION: 1392 (FT-AMSL)
BENCHMARK: NONE
TOTAL HOLE DEPTH: 500 FT
ACTIVE VHE DEPTH: 498.5 FT

BOREHOLE DIAMETER: 0' - 48': 8-3/4"
48' - 500': 6"

DRILLING TIME: 6/7 START 09:52 END 18:17 @ 330'
6/8 START 07:57 END 11:38 @ 500'

LOG DATE: 6/14/11

PRELIMINARY

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Phone 320.632.1081
Fax 320.632.1673

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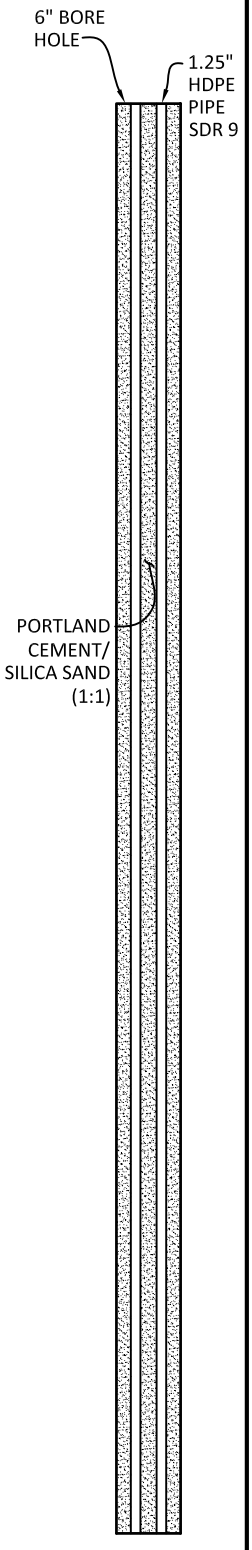
PROJECT ADDRESS: 4701 Airport Road, Duluth, MN 55811
COUNTY: ST. LOUIS
REPORT PREPARED BY: GSB
PROJECT No: GT-11-02378

LOG OF BORING: TEST VHE 2

DATE: DRILL 6/7/11 - 6/8/11, GROUT 6/9/11
COMPANY/METHOD:
SAM'S WELL DRILLING / MUD ROTARY 0 - 48 FT,
MINCON MC61 AIR PERCUSSION HAMMER 48 - 500 FT

DEPTH IN FEET	SURF. ELEV. 1392	USCS	DESCRIPTION	WATER LEVELS	REMARKS
180	1212	Mdl	GABBRO, dark gray N 3/0, thin chips of granite, hard		DRILLING PRODUCTION RATE: 2.0 FT/MIN
					DRILLING PRODUCTION RATE: 2.0 FT/MIN
200	1192	Mdl	GABBRO, dusky green 5G 3/2 pieces in primarily olive black 5Y 2/1 matrix, dusky green pieces 40%		DRILLING PRODUCTION RATE: 2.2 FT/MIN WATER: 10 GPM
220	1172	Mdl	GABBRO, light olive gray 5Y 6/1, moderate brown 5YR 4/4, medium dark gray N 4/0		DRILLING PRODUCTION RATE: 2.2 FT/MIN
240	1152	Mdl	GABBRO, medium dark gray N 4/0, hard		DRILLING PRODUCTION RATE: 1.3 FT/MIN
260	1132	Mdl	GABBRO, grayish black N 2/0, with minor inclusions of dark greenish gray, 5GY 4/1		DRILLING PRODUCTION RATE: 1.4 FT/MIN
280	1112	Mdl	GABBRO, medium light gray N 6/0		DRILLING PRODUCTION RATE: 1.8 FT/MIN
		Mdl	GABBRO, porphyritic (dark spots) with minor inclusions in light colored micaceous base, softer formation 295' - 300'		
300	1092	Mdl	GABBRO, grayish black N 2/0		DRILLING PRODUCTION RATE: 1.25 FT/MIN
320	1072				WATER: 8-10 GPM DRILLING PRODUCTION RATE: 1.0 FT/MIN
340	1052		6/7 END OF DAY: WATER LEVEL MEASURED AT 261 FT BELOW GRADE WITH 330' OPEN HOLE 6/8 START OF DAY: WATER LEVEL MEASURED AT 16 FT BELOW GRADE W/ 330' OPEN HOLE		



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SURFACE ELEVATION: 1392 (FT-AMSL)
BENCHMARK: NONE
TOTAL HOLE DEPTH: 500 FT
ACTIVE VHE DEPTH: 498.5 FT

BOREHOLE DIAMETER: 0' - 48': 8-3/4"
48' - 500': 6"

DRILLING TIME: 6/7 START 09:52 END 18:17 @ 330'
6/8 START 07:57 END 11:38 @ 500'

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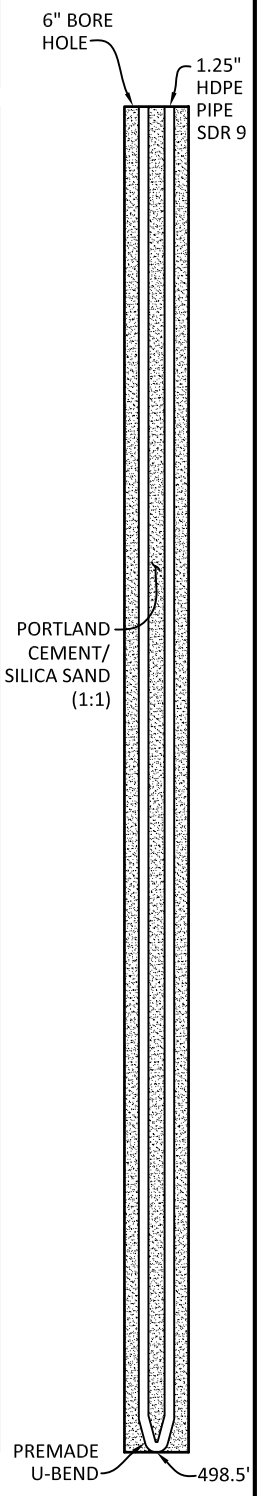
PROJECT ADDRESS: 4701 Airport Road, Duluth, MN 55811
COUNTY: ST. LOUIS
REPORT PREPARED BY: GSB
PROJECT No: GT-11-02378

LOG OF BORING: TEST VHE 2

DATE: DRILL 6/7/11 - 6/8/11, GROUT 6/9/11
COMPANY/METHOD:
SAM'S WELL DRILLING / MUD ROTARY 0 - 48 FT,
MINCON MC61 AIR PERCUSSION HAMMER 48 - 500 FT

DEPTH IN FEET	SURF. ELEV. 1392	USCS	GRAPHIC	TEMPERATURE (°F)	DESCRIPTION	WATER LEVELS	REMARKS
340	1052	Mdl			GABBRO, grayish black N 2/0		
360	1032						DRILLING PRODUCTION RATE: 1.3 FT/MIN WATER: 8-10 GPM, ASSUMED PRIMARILY FROM UPPER LAYER
380	1012						DRILLING PRODUCTION RATE: 1.3 FT/MIN
400	992						DRILLING PRODUCTION RATE: 1.2 FT/MIN WATER: 400' - 420' INCREASED BY 4 GPM, 12 GPM TOTAL FROM 200' - 420'
420	972	Mdl			GABBRO, medium dark gray N 4/0, to dark gray N 3/0		
440	952						
460	932						DRILLING PRODUCTION RATE: 1.0 FT/MIN
480	912	Mdl			GABBRO, medium dark gray N 4/0, to dark gray N 3/0, with pale reddish brown 10R 5/4 (40%)		DRILLING PRODUCTION RATE: 1.3 FT/MIN
		Mdl			GABBRO, grayish black N 2/0		
500	892				END OF BORING AT 500 FEET BELOW GRADE		



COORDINATES: LATITUDE: 46° 50.351'N; LONGITUDE: 92° 10.594'W
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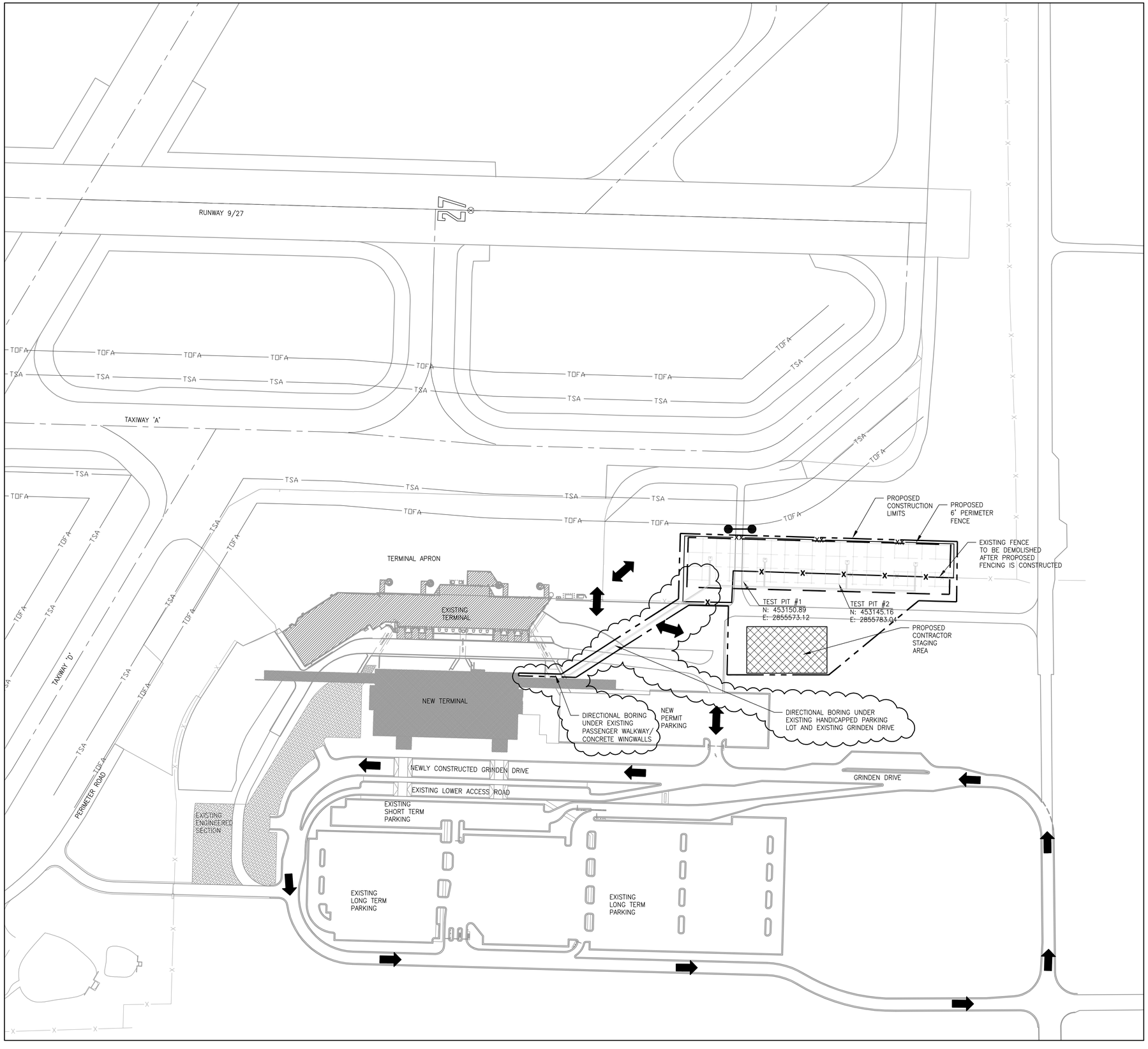


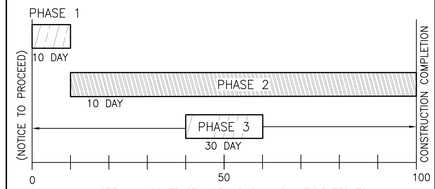
NORTH

0 100' 200'

LEGEND

- PROPOSED GRADING LIMITS
- PROPOSED CONTRACTOR STAGING AREA
- PROPOSED TERMINAL
- EXISTING TERMINAL & BUILDINGS
- PROPOSED LOW LEVEL BARRICADE
- PROPOSED PERIMETER FENCE
- EXISTING PERIMETER FENCE TO BE DEMOLISHED
- EXISTING PERIMETER FENCE TO REMAIN

SCHEMATIC CONSTRUCTION SEQUENCING



NOTE: ALL CONTRACT WORK SHOWN IS ANTICIPATED TO BE COMPLETED WITHIN THE 100 CALENDAR DAYS.

PHASING NOTES

PHASE 1 – FENCE RELOCATION

THE WORK PERFORMED IN THIS PHASE SHALL INCLUDE:

1. INSTALL NEW LINE AND CORNER POSTS
2. SALVAGE AND REINSTALL EXISTING CHAIN LINK FABRIC. INSTALL NEW FENCING FABRIC.
3. DEMOLISH EXISTING FENCE LINE POSTS, CORNER POSTS, AND GATE.

PHASE 2 SHALL NOT COMMENCE UNTIL THE FENCING IS RELOCATED.

PHASE 2 – WELL DRILLING

THE WORK PERFORMED IN THIS PHASE SHALL INCLUDE:
1. WELL DRILLING
2. INSTALLATION OF PIPING AND MANHOLES

PHASE 3 – BUILDING WORK

THE WORK PERFORMED IN THIS PHASE SHALL INCLUDE:
1. PIPING ADJACENT TO THE BUILDING
2. INSTALLATION OF PIPING AND SOLAR PANELS

NOTE:
ALL NORTHINGS, EASTINGS AND ELEVATIONS LABELED ON THESE PLANS ARE IN:
MINNESOTA STATE PLANE NORTH (1996)
VERTICAL DATUM IS NAVD 88
HORIZONTAL DATUM IS NAD83

NOTE:
1. CONTRACTOR IS RESPONSIBLE TO RETURN ALL DISTURBED AREAS TO ORIGINAL CONDITION. THIS INCLUDES TURF ESTABLISHMENT AS WELL AS PATCHING EXISTING BITUMINOUS.
2. THRUST BLOCKING SHALL BE INSTALLED PER THE CITY OF DULUTH STANDARD SPECIFICATIONS.

RS&H
IMPROVING YOUR WORLD
Reynolds, Smith and Hills, Inc.
4525 Airport Approach Rd, Ste A
Duluth, Minnesota 55811
218-722-1227 Fax: 218-722-1052
www.rsandh.com

DULUTH AIRPORT AUTHORITY

DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW PASSENGER TERMINAL VALE PROGRAM

CONSULTANTS

Structural Engineers:
MBJ CONSULTING ENG.
501 Lake Avenue South, Suite 300, Duluth MN 55802
TEL: (218) 722-1056 / FAX: (218) 722-9306

M/E/P/FP Engineers:
COSENTINI ASSOCIATES INC.
1 South Wacker Drive, 37th Floor, Chicago IL 60606
TEL: (312) 201-7408 / FAX: (312) 201-0031

REVISIONS

NO.	DESCRIPTION	DATE
ADD #1	ADDENDUM # 1 06/15/2011	

DATE ISSUED: 06-06-11
REVIEWED BY: JEH
DRAWN BY: RDRE
DESIGNED BY: JEH

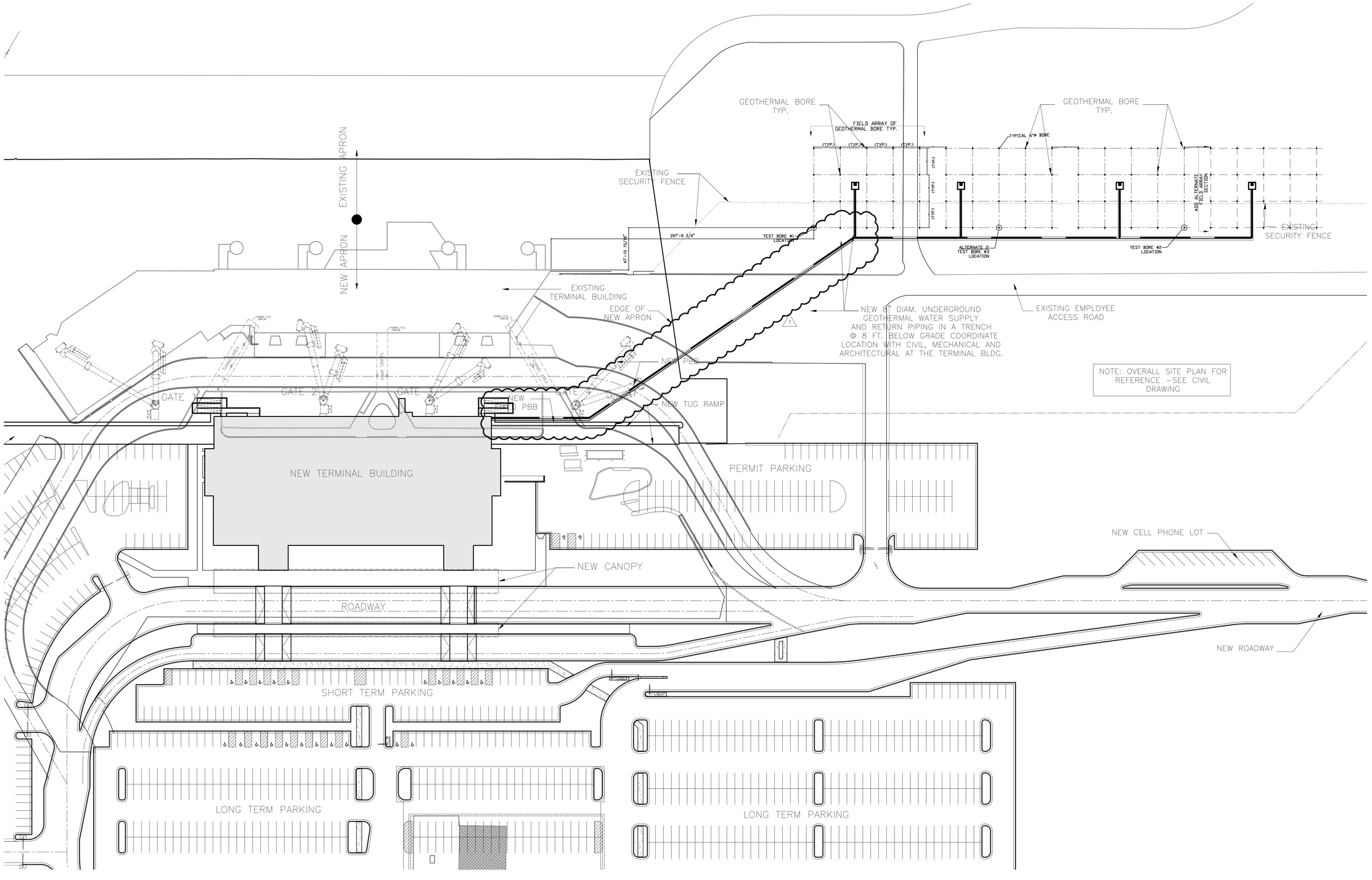
AEP PROJECT NUMBER
213-1882-110

SHEET TITLE
CONSTRUCTION SAFETY PHASING PLAN

SHEET NUMBER
C003

VALE PROGRAM BID PACKAGE

Drawing: T:\P\21318882.110 VALE for New Terminal\CAD\C\DLH-C003.dwg Plotted on: 6/15/2011 8:35 AM Plotted by: Erdmann, Ryan



N

1 SITE PLAN
1" = 50'-0"

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ARCHITECTURAL CERTIFICATION
I hereby certify that the architectural plans, specifications or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Architect under the laws of the State of Minnesota.

Print Name: Mark Ip

Signature:

Date: 06-03-10 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 1	6.15.11

DATE ISSUED: 06-06-11
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

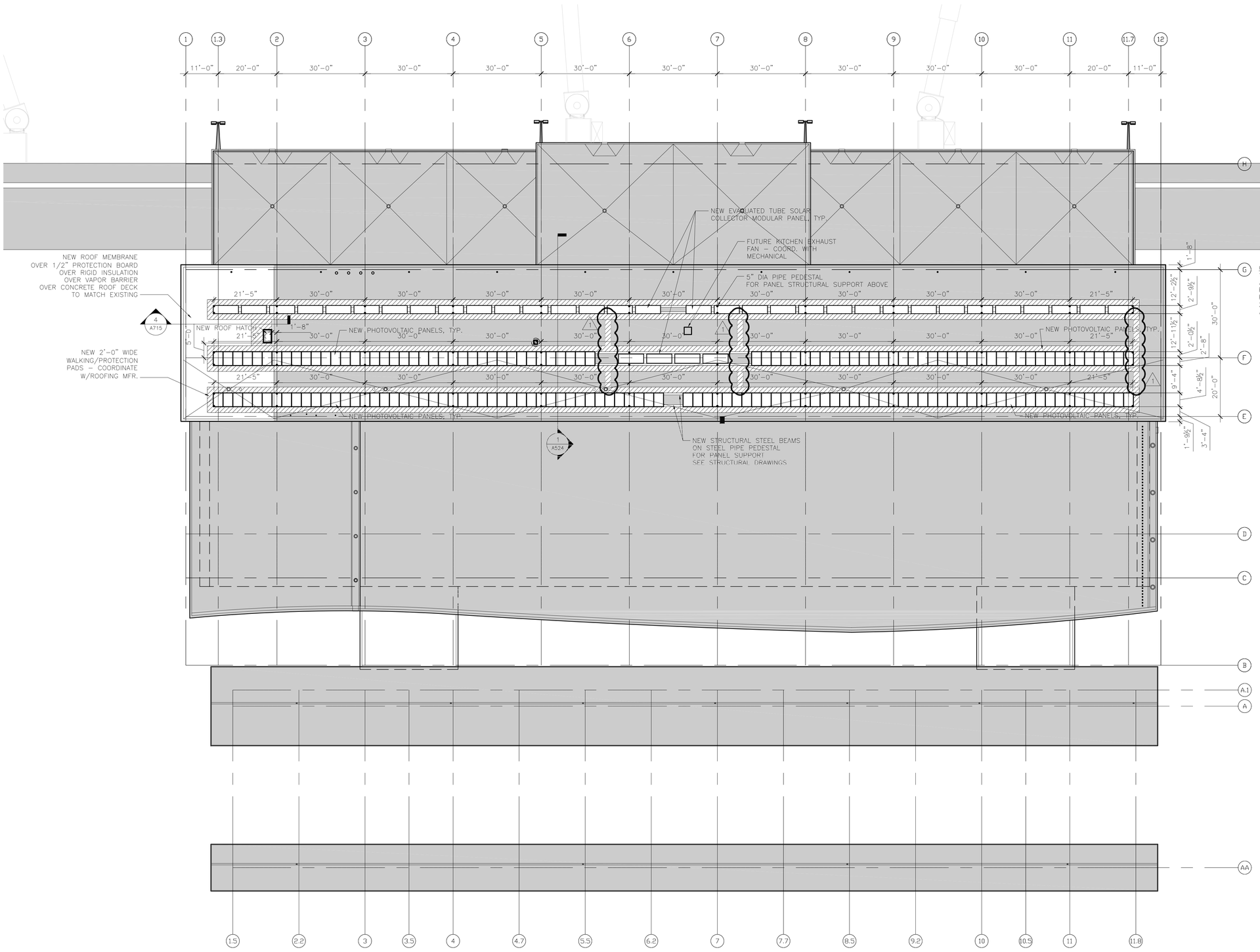
AEP PROJECT NUMBER
213-1882-110

SHEET TITLE
OVERALL SITE PLAN

SHEET NUMBER
AS102

VALE PROGRAM BID PACKAGE

Drawing: T:\P\2131882.110 Duluth New Terminal – VALE\Cad\A\Sheets\AS102 Overall Site Plan.dwg Plotted on: 6/15/2011 8:51 AM Plotted by: Godzina, Marc



GENERAL NOTES:
1. STRUCTURAL SUPPORT FOR PHOTOVOLTAIC PANELS AND EVACUATED TUBE SOLAR COLLECTOR MODULAR PANELS ABOVE STEEL BEAMS PER PANEL MANUFACTURER RECOMMENDATIONS
2. COORDINATE THE INSTALLATION OF THE PANELS AND THE PANEL SUPPORT WITH THE ROOFING CONTRACTOR

NOTE: SHADED EXISTING CONSTRUCTION N.I.C.

N

1 ROOF PLAN
1/16" = 1'-0"

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DULUTH AIRPORT AUTHORITY

DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW PASSENGER TERMINAL VALE PROGRAM

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TEL: (312) 201-7408 / FAX: (312) 201-0031

ARCHITECTURAL CERTIFICATION
I hereby certify that the architectural plans, specifications or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Architect under the laws of the State of Minnesota.

Print Name: Mark Ip

Signature:

Date: 06-03-10 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 1	6.15.11

DATE ISSUED: 06-06-11
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

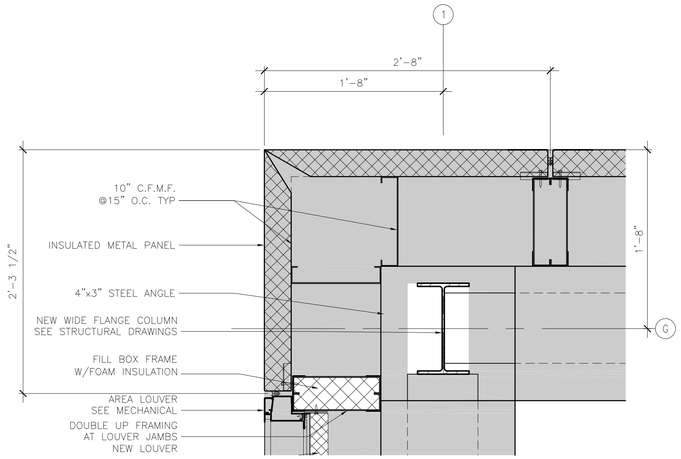
AEP PROJECT NUMBER
213-1882-110

SHEET TITLE
OVERALL ROOF PLAN

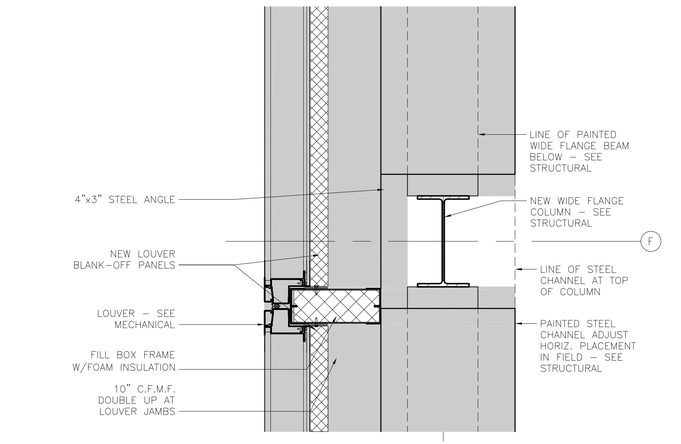
SHEET NUMBER
A104

VALE PROGRAM BID PACKAGE

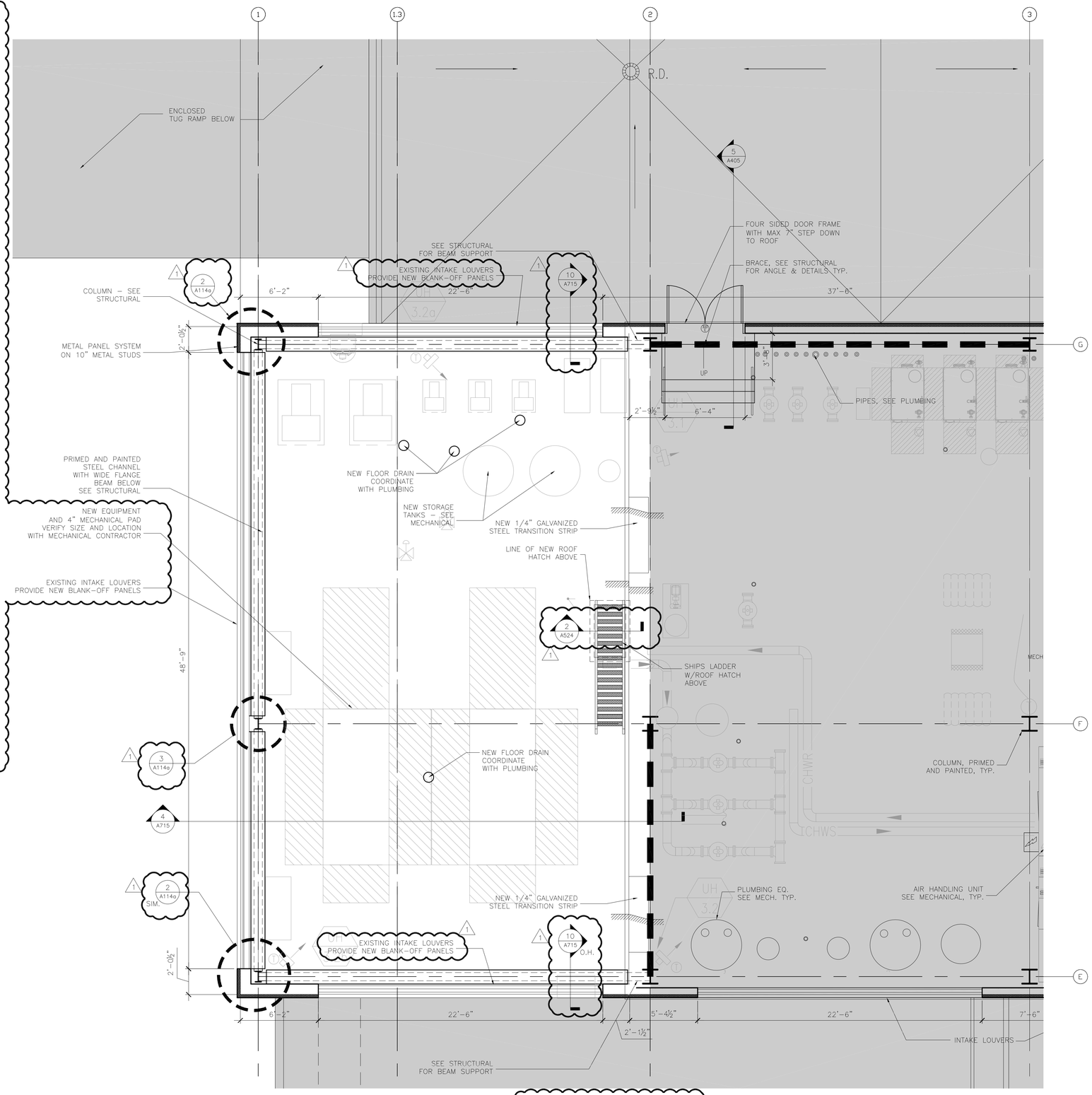
Drawing: I:\P\2131882.110 Duluth New Terminal - VALE\Cad\A\Sheets\A104 Overall Roof Plan.dwg Plotted on: 6/15/2011 8:51 AM Plotted by: Godzina, Marc



2 PLAN DETAIL
1 1/2" = 1'-0"



3 PLAN DETAIL
1 1/2" = 1'-0"



NOTE: SHADED EXISTING CONSTRUCTION N.I.C.

1 ENLARGED THIRD LEVEL FLOOR PLAN - AREA A
1/4" = 1'-0"

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NEW PASSENGER TERMINAL VALE PROGRAM

CONSULTANTS

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501 Lake Avenue South, Suite 300, Duluth MN 55802
TEL: (218) 722-1056 / FAX: (218) 722-9306

M/E/P/FP Engineers:
COSENTINI ASSOCIATES INC.
1 South Wacker Drive, 37th Floor, Chicago IL 60606
TEL: (312) 201-7408 / FAX: (312) 201-0031

ARCHITECTURAL CERTIFICATION
I hereby certify that the architectural plans, specifications or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Architect under the laws of the State of Minnesota.

Print Name: Mark Ip

Signature:

Date: 06-03-10 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 1	6.15.11

DATE ISSUED: 06-06-11
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

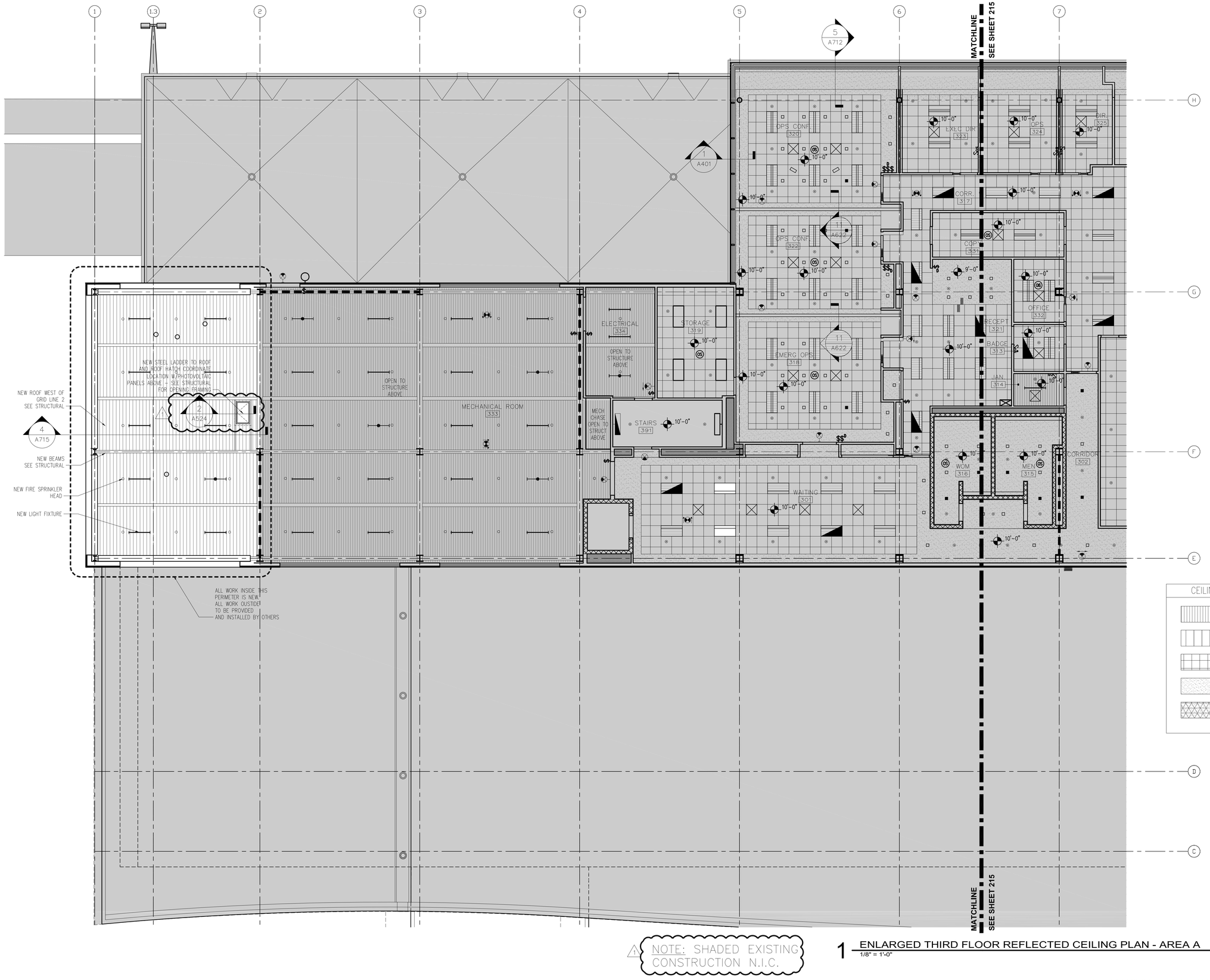
AEP PROJECT NUMBER
213-1882-110

SHEET TITLE
ENLARGED THIRD FLOOR PLAN AREA A

SHEET NUMBER
A114a

VALE PROGRAM BID PACKAGE

Drawing: T:\P\213188 2.110 Duluth New Terminal – VALE\Cad\A\Sheets\A114a Third Floor Area A.dwg Plotted on: 6/15/2011 8:52 AM Plotted by: Godzina, Marc



CEILING FINISH LEGEND

- OPEN TO STRUCTURE ABOVE
- SUSPENDED WOOD PANEL GRILLES
- 2'-0"x2'-0" LAY-IN CEILING
- GYP. BD. CEILING
- SECURED GYP. BD. CEILING W/EXPANDED METAL MESH

⚠1 NOTE: SHADED EXISTING CONSTRUCTION N.I.C.

1 ENLARGED THIRD FLOOR REFLECTED CEILING PLAN - AREA A
1/8" = 1'-0"

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DULUTH AIRPORT AUTHORITY

DULUTH INTERNATIONAL AIRPORT DULUTH, MN

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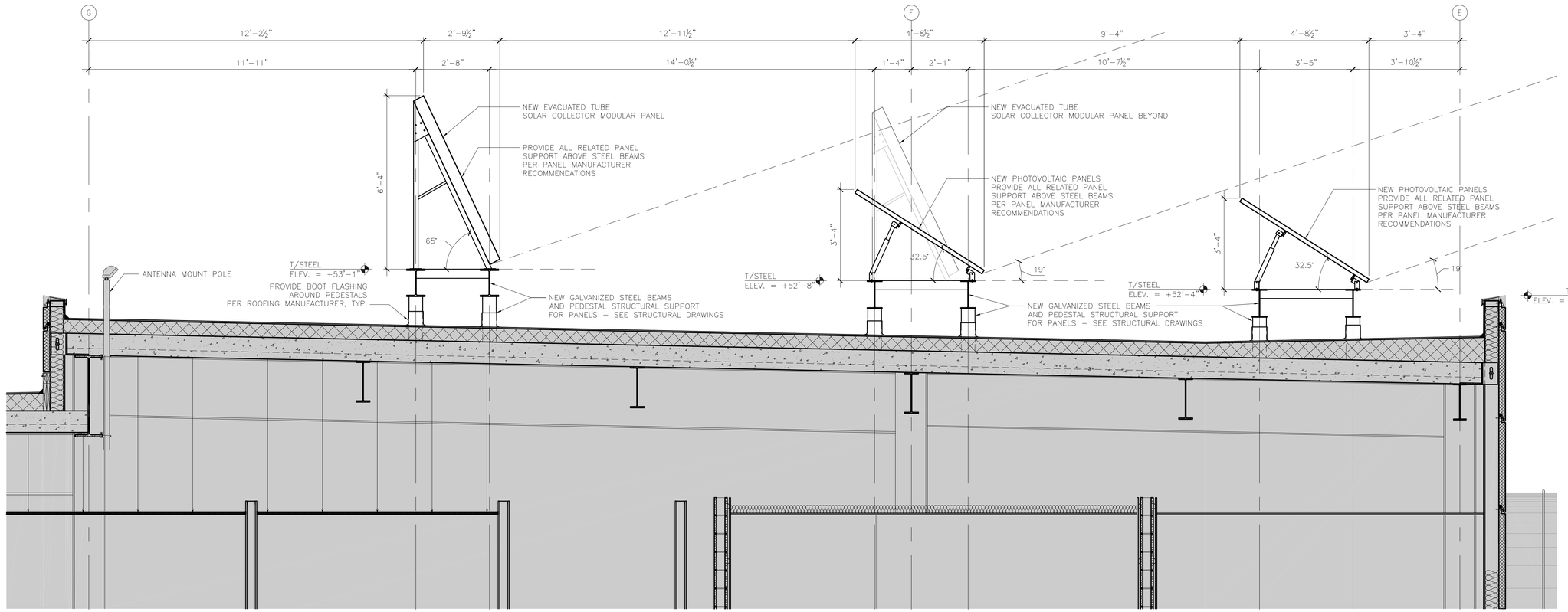
AEP PROJECT NUMBER
213-1882-110

SHEET TITLE
ENLARGED THIRD FLOOR REFLECTED CEILING PLAN AREA A

SHEET NUMBER
A214

VALE PROGRAM BID PACKAGE

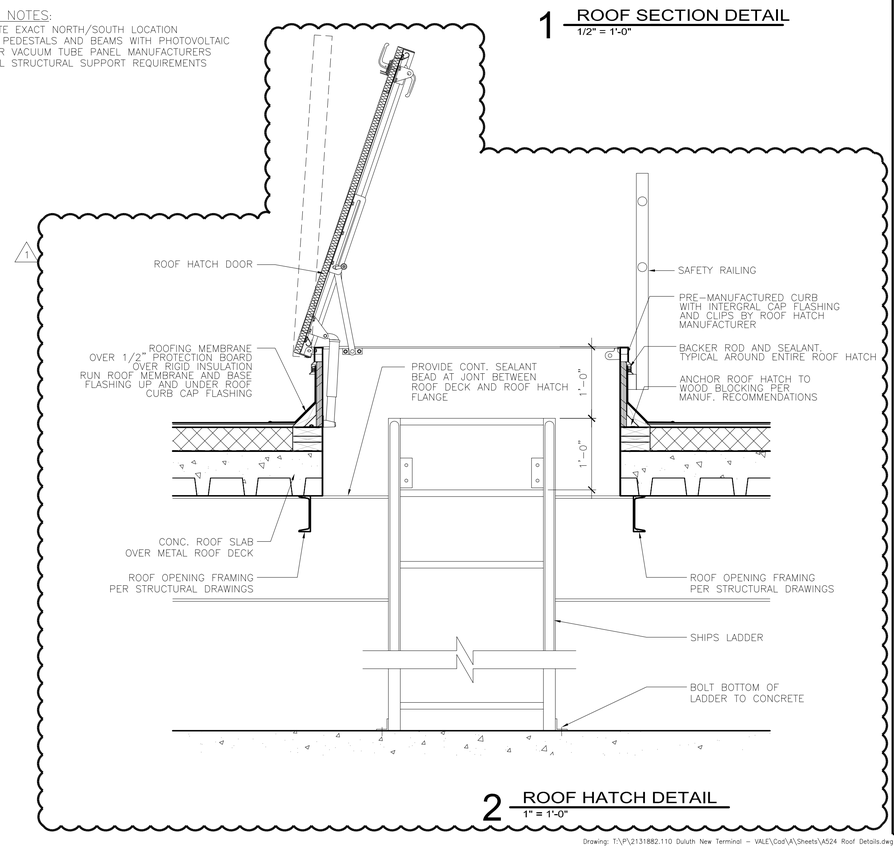
Drawing: T:\P\2131882.110 Duluth New Terminal – VALE\Cad\A\Sheets\A214 Enlarged Third Floor RCP Area A.dwg Plotted on: 6/15/2011 8:52 AM Plotted by: Godzina, Marc



1 NOTE: SHADED EXISTING CONSTRUCTION N.I.C.

GENERAL NOTES:
- COORDINATE EXACT NORTH/SOUTH LOCATION OF STEEL PEDESTALS AND BEAMS WITH PHOTOVOLTAIC AND WATER VACUUM TUBE PANEL MANUFACTURERS AND PANEL STRUCTURAL SUPPORT REQUIREMENTS

1 ROOF SECTION DETAIL
1/2" = 1'-0"



2 ROOF HATCH DETAIL
1" = 1'-0"

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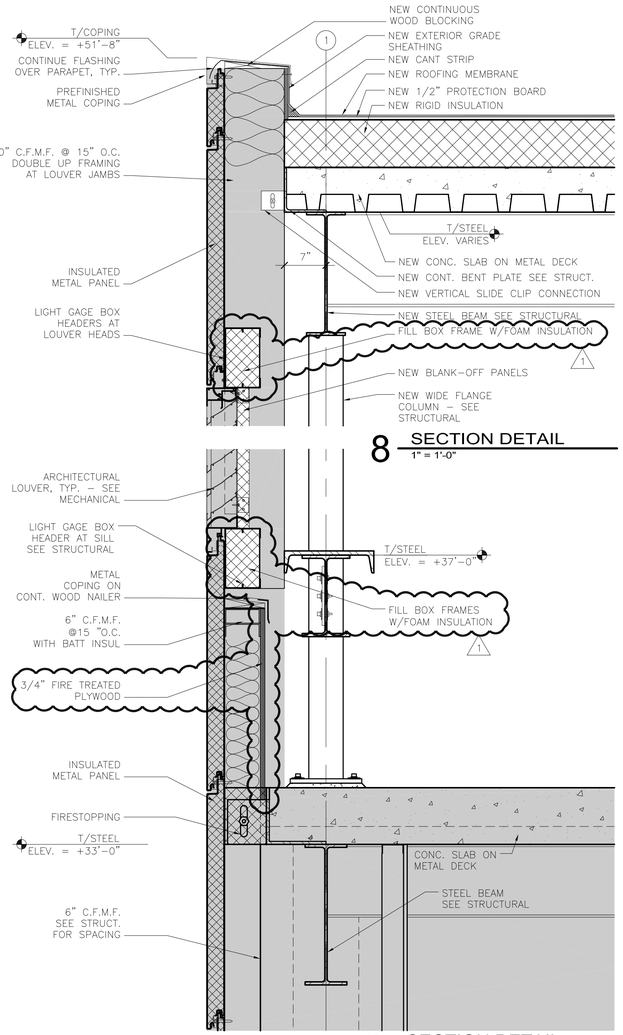
AEP PROJECT NUMBER
213-1882-110

SHEET TITLE
ROOF DETAILS

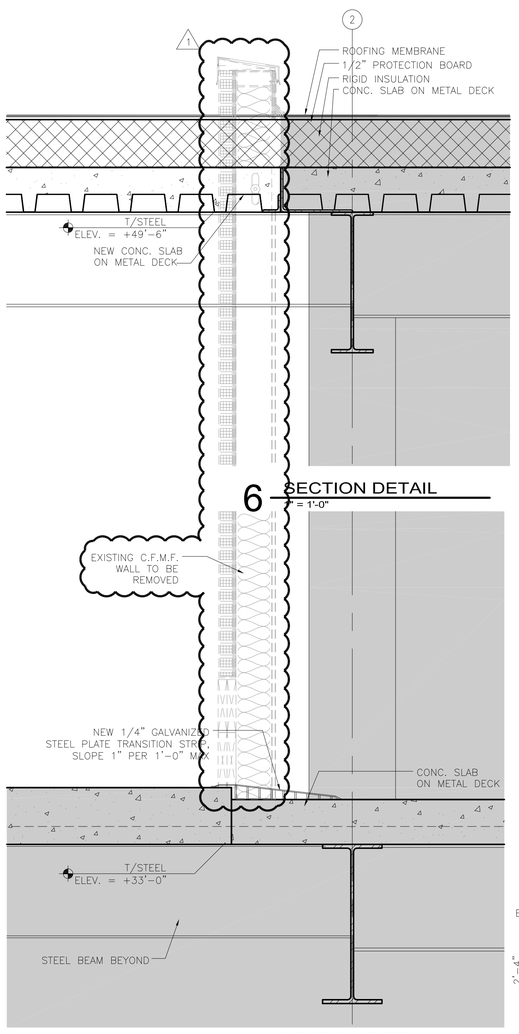
SHEET NUMBER
A524

VALE PROGRAM BID PACKAGE



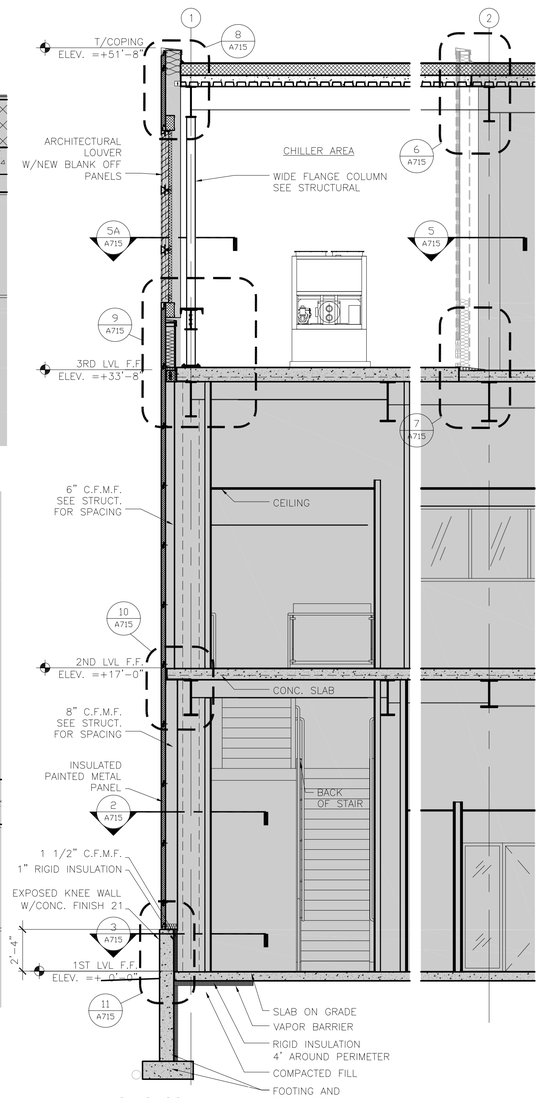
8 SECTION DETAIL
1" = 1'-0"

9 SECTION DETAIL
1" = 1'-0"

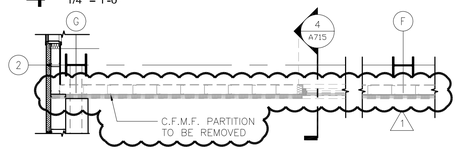


6 SECTION DETAIL
1" = 1'-0"

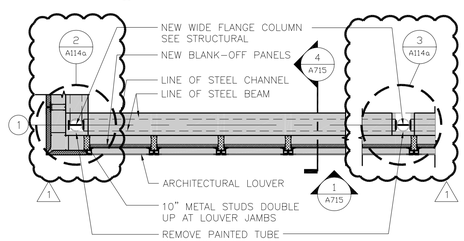
7 SECTION DETAIL
1" = 1'-0"



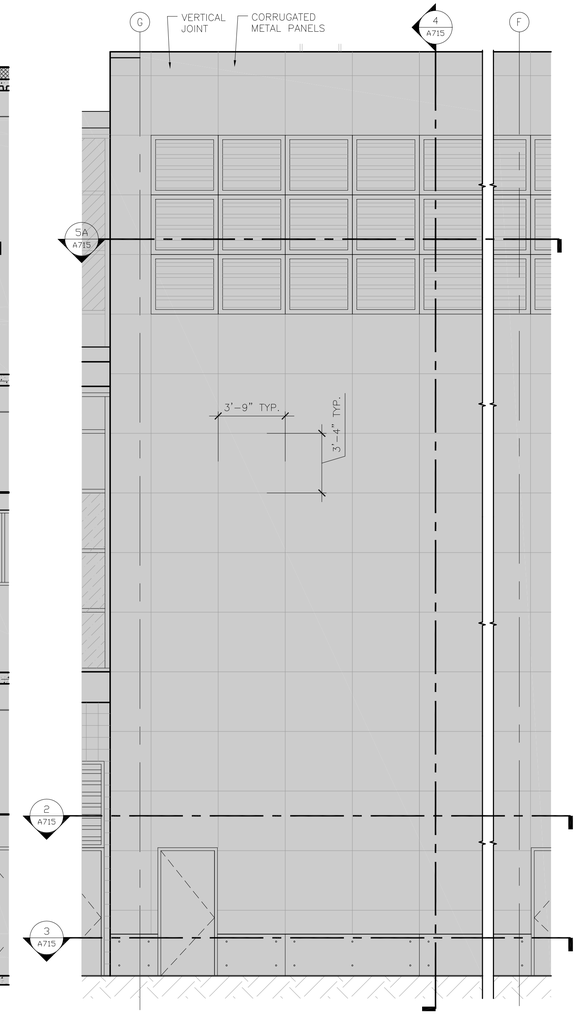
4 WALL SECTION
1/4" = 1'-0"



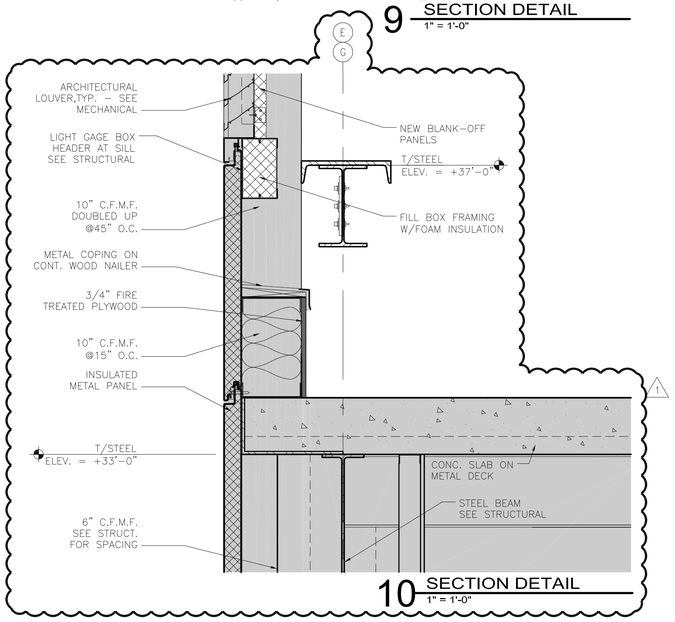
5 PARTIAL 3RD LEVEL FLOOR PLAN
1/4" = 1'-0"



5A PARTIAL 3RD LEVEL FLOOR PLAN
1/4" = 1'-0"



1 PARTIAL WEST ELEVATION
1/4" = 1'-0"



10 SECTION DETAIL
1" = 1'-0"

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1	ADDENDUM 1	6.15.11

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REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

AEP PROJECT NUMBER
213-1882-110

SHEET TITLE
EXTERIOR SYSTEMS CORE WALL

SHEET NUMBER
A715

VALE PROGRAM BID PACKAGE

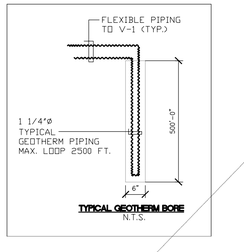
Drawing: T:\P\2131882.110 Duluth New Terminal - VALE\Cad\A\Sheets\A715 Exterior System Sheet - Core Wall.dwg Plotted on: 6/15/2011 9:00 AM Plotted by: Godzina, Marc

UNDERGROUND PIPING TYPICAL

8"ø XTRU-THERM GOLD PIPING, POLYETHYLENE JACKET

1" POLYURETHANE INSULATION ZINC COATED SERVICE PIPES.

FACTORY PIPING ASTM A53 SCHEDULE 40, ASME B31.1 AND BUTT WELDED JOINTS, 40 FEET LONG SUPPLIED.



TYPICAL GEOTHERM BORE
N.T.S.

NOTE:
TEST BORE LOCATIONS #1 & #2 ARE EXISTING 500' FT DEEP X 6" DIAMETER BORES USED FOR THERMAL CONDUCTIVITY TEST. BORE TO BE REUSED FOR GEOTHERMAL FIELD. THIS CONTRACTOR SHALL PIPE FROM BORE HEAD TO VAULT, RETEST FOR FLOW & PRESSURE, AND INTEGRATE INTO GEOTHERMAL SYSTEM.

MANHOLE MANIFOLD DETAIL
(TYP.)
N.T.S.

DIMENSION		
PIPE SIZE	X	Y
8" SAR	8'-10"	5'-0"

SECTION A-A

PLAN

NOTE:
INSTALL THRUST BLOCKS AT EVERY CHANGE IN DIRECTION AND AT EVERY "T" FOR CHILLED WATER SUPPLY AND RETURN PIPING.

TYPICAL THRUST BLOCK DETAILED FOR GWS/R WATER PIPING
NO SCALE

GEOTHERMAL SITE PLAN
SCALE: 1/16"=1'-0"

N

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REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM #1	06.16.11

DATE ISSUED: 06-06-11
REVIEWED BY: BR
DRAWN BY: GB
DESIGNED BY: BR

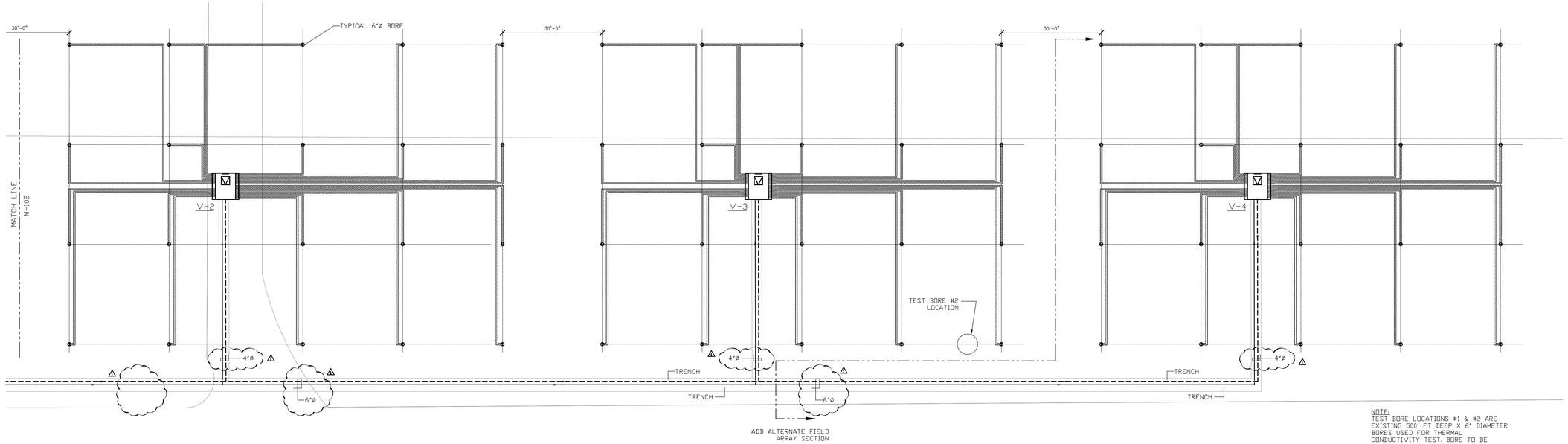
AEP PROJECT NUMBER
213-1882-110

SHEET TITLE
GEOTHERMAL SITE MECHANICAL PARTIAL PLAN

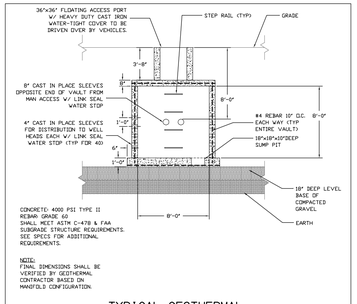
SHEET NUMBER
M-101

VALE PROGRAM BID PACKAGE

Drawing: I:\2010.00 Duluth Airport\5.0 CADD\(5.4) HVAC\VALE 2010\2010003_M101.dwg Plotted on: 6/15/2011 4:25 PM Plotted by: Brandt, Mark



NOTE:
TEST BORE LOCATIONS #1 & #2 ARE EXISTING 500' FT DEEP X 6" DIAMETER BORES USED FOR THERMAL CONDUCTIVITY TEST. BORE TO BE REUSED FOR GEOTHERMAL FIELD. THIS CONTRACTOR SHALL PIPE FROM BORE HEAD TO VAULT, RESTEST FOR FLOW & PRESSURE, AND INTEGRATE INTO GEOTHERMAL SYSTEM.



TYPICAL GEOTHERMAL
MANIFOLD VAULT DETAIL
NO SCALE

GEOTHERMAL SITE PLAN
SCALE: 1/16"=1'-0"

N

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NO.	DESCRIPTION	DATE
1	ADDENDUM #1	06.16.11

DATE ISSUED: 06-06-11
REVIEWED BY: BR
DRAWN BY: GB
DESIGNED BY: BR

AEP PROJECT NUMBER
213-1882-110

SHEET TITLE
GEOTHERMAL
SITE MECHANICAL
PARTIAL PLAN

SHEET NUMBER
M-102

VALE PROGRAM
BID PACKAGE

Drawing: I:\2038.00 Duluth Airport\5.0 CADD\(5.4) H&C\VALE ISSUE\202003_M102.dwg Plotted on: 6/15/2011 4:28 PM Plotted by: Brandi, Mark

PUMPS SCHEDULE

UNIT NO.	LOCATION	SERVICE	GPM	TOTAL HEAD FT.	MIN. EFF. %	RPM	DESIGN PRESS. PSIG	ELECTRICAL DATA			MOTOR			TYPE	DESIGN BASIS	VFD	PREMIUM EFF. MOTOR	REMARKS
								VOLTS	PH	HZ	BHP	HP	RPM					
P-1	LEVEL-3	CHW	300	90	75	1760	125	460	3	60	11	15	1750	END SUCTION	TACO FI2511	YES		PREMIUM EFF. MOTOR
P-2	LEVEL-3	CHW	300	90	75	1760	125	460	3	60	11	15	1750	END SUCTION	TACO FI2511	YES		PREMIUM EFF. MOTOR
P-3	LEVEL-3	CHW	300	90	75	1760	125	460	3	60	11	15	1750	END SUCTION	TACO FI2511	–		P-3 STAND BY PREMIUM EFF. MOTOR
P-4	LEVEL-3	HW	350	100	75	1760	125	460	3	60	15	20	1750	END SUCTION	TACO FI2511	YES		PREMIUM EFF. MOTOR
P-5	LEVEL-3	HW	350	100	75	1760	125	460	3	60	15	20	1750	END SUCTION	TACO FI2511	YES		PREMIUM EFF. MOTOR
P-6	LEVEL-3	HW	350	100	75	1760	125	460	3	60	15	20	1750	END SUCTION	TACO FI2511	–		P-6 STAND BY PREMIUM EFF. MOTOR
P-16	LEVEL-3	HEATING RECOVERY	34	60	40	1760	125	460	3	60	1.2	2	1750	IN-LINE SPLIT	TACO 2008	YES		PREMIUM EFF. MOTOR
P-17	LEVEL-3	DOMESTIC RECOVERY	34	60	40	1760	125	460	3	60	1.2	2	1750	IN-LINE SPLIT	TACO 2008	YES		PREMIUM EFF. MOTOR
P-18	LEVEL-3	E.T.S. COLLECTOR	34	80	40	1760	125	460	3	60	2	3	1750	IN-LINE SPLIT	TACO 2008	YES		20% P.G. PREMIUM EFF. MOTOR
P-19	LEVEL-3	E.T.S. COLLECTOR	34	80	40	1760	125	460	3	60	2	3	1750	IN-LINE SPLIT	TACO 2008	YES		25% P.G. P-10 STAND BY PREMIUM EFF. MOTOR
GWP-1	LEVEL-3	GEOTHERMAL	600	125	75	1760	125	460	3	60	25	30	1750	HORIZ SPLIT	TACO 1030	YES		20% P.G. PREMIUM EFF. MOTOR
GWP-2	LEVEL-3	GEOTHERMAL	600	125	75	1760	125	460	3	60	25	30	1750	HORIZ SPLIT	TACO 1030	YES		20% P.G. PREMIUM EFF. MOTOR

NOTE:
PROVIDE DISCONNECT SWITCH FOR EACH PUMP

WATER TO WATER NON REVERSABLE HEAT PUMP CHILLER SCHEDULE

UNIT NO	LOCATION	TONS	COOLING MODE SOURCE WATER					LOAD WATER						HEATING MODE SOURCE WATER				LOAD WATER				KW COOLING/HEAT	FLA	REFRIG. TYPE	ELECTRICAL			MANUFACTURER MODEL NO.
			GPM	EWT °F	LWT °F	W.P. PSI	P.D. FT	GPM	EWT °F	LWT °F	W.P. PRESSURE PSI	P.D. PSI	HEAT CAP. MBH	GPM	EWT °F	LWT °F	P.D. FT	GPM	EWT °F	LWT °F	P.D. PSI				VOLTS	PH	Cy	
CH-1	L-3	200	585	85	95	150	33	300	58	42	150	10.4	2570	350	40	30	13.4	257	110	130	6.2	141 / 272	373	134A	460	3	60	YORK # YSDACA53-CNES
CH-2	L-3	200	585	85	95	150	33	300	58	42	150	10.4	2570	350	40	30	13.4	257	110	130	6.2	141 / 272	373	134A	460	3	60	YORK # YSDACA53-CNES

NOTES:
20% P.G. @ EVAP, COND

- 3 PASSES @ EVAP., COND. & ENHANCED COPPER TUBES FF. 0.0001 EVAP. 0.00025 COND.
- SOLID STATE STARTER WITH DISCONNECT SWITCH FOR EACH CHILLER.

NOTE:

PROVIDE ALTERNATE TO USE CLIMA COOL MODULAR CHILLERS

FAN SCHEDULE

FAN NO.	LOCATION	SERVICE	CFM	STATIC PRESS. IN.W.G.	TYPE	DRIVE	RPM	BHP	MOTOR HP	VOLT/PH/HZ	MFR.	MODEL NO.	REMARKS
EF-3.5	MECH RM #333	MECH RM #333	2,000	0.25	PROP	DIRECT	1100	350 W	1/4	208/3/60	TWIN CITY	161A TCPE	1, 2, 6 W/ VFD

1. PROVIDE COMBINATION STARTER/DISCONNECT.
2. PROVIDE OSHA BELT & MOTOR GUARD.
5. PROVIDE EXPLOSION PROOF MOTOR.
6. PROVIDE WALL SLEEVE W/ MOTORIZED DAMPER ON DRAWINGS.

HORIZONTAL TYPE UNIT HEATERS SCHEDULE

TAG	AREA SERVED	LOCATION	OUTPUT MBH	EWT (F)	LWT (F)	RPM	CFM	HP	V/Ph/Hz	MANUF. & MODEL NUMBER	REMARKS
UH-3.8 & 3.9	MECH. ROOM #333	MECH. ROOM #333	34.8	180	160	1070	400	1/20	115/1/60	STERLING HS-48	1

1. PROVIDE LINE VOLTAGE THERMOSTAT AND NON-FUSED DISCONNECT.

EXPANSION TANK SCHEDULE

UNIT NO.	SERVICE	LOCATION	LENGTH (IN)	DIAM. (IN)	CAPAC. (GAL)	WORK. PRESS. (PSIG)	OPERATING WEIGHT (LBS.)	TYPE	MANUFACTURER & MODEL NO.	REMARKS
ET-1	CHILLED WATER	3RD. FLOOR	75	24	211	125	1020	DIAPHRAGM	TACO – CA-800	ASME CONSTRUCTION
ET-2	HOT WATER	3RD. FLOOR	75	24	370	125	1020	DIAPHRAGM	TACO – CA-1400	ASME CONSTRUCTION
FT-A	FILL MAKE UP WATER	3RD. FLOOR	–	–	50	–	–	–	TACO –	120V, 1 Ph, 60 Cy

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DRAWN BY: JEH
DESIGNED BY: MXB

AEP PROJECT NUMBER
213-1882-110

SHEET TITLE

MECHANICAL EQUIPMENT SCHEDULES

SHEET NUMBER

M401

VALE PROGRAM
BID PACKAGE

Drawing: I:\2558.00 Duluth Airport\8.0 CADD\(8.4) HVAC\VALE DWGS\2558XX_M401.dwg Plotted on: 6/13/2011 2:14 PM Plotted by: Brandt, Mark